



VAUXHALL

VIVARO

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77 11 303 302

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*The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed.*

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COMPRESSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)).



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 62A, Air conditioning, Air conditioning: Precautions for the repair](#)).

Note:



Use blanking plugs for the fuel circuits with part numbers 77 01 208 229 or 77 01 476 857 to plug any openings exposed to the open air. They must be clean. Do not use any which have already been used to plug a fuel circuit.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#) (02A, Lifting equipment)).
- Disconnect the battery ([Battery: Removal - Refitting](#) (80A, Battery)).

Remove:



the engine undertray,



the front bumper [Front bumper assembly: Exploded view](#) (55A, Exterior protection).



Drain the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)).



Remove :



the accessories belt (see [Accessories belt: Removal - Refitting](#)),



the intercooler [Air inlet assembly: Exploded view](#),



the bolts from the connecting pipe brackets on the compressor ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)).



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.



Uncouple the connecting pipes from the compressor.



Move aside the compressor connecting pipes.



CAUTION

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.



Fit blanking plugs on the openings of the connecting pipes and the compressor.

2. REMOVAL OPERATION



Disconnect the compressor connector.



Remove the compressor([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.



CAUTION

To avoid any leaks, check that the seal and the pipe surface are in good condition. The seal and the surface must be clean and scratch free.



Clean the seals of the refrigerant circuit pipes([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Consult the refrigerant and oil quantity values before filling the circuit([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .



Perform the following operations:

■
fill the refrigerant circuit using the refrigerant charging station([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)),

■
check for leaks([see 62A, Air conditioning, Refrigerant circuit: Check](#)).



Check that the air conditioning system is operating correctly([see 62A, Air conditioning, Air conditioning: Check](#)).



Repair-30x02x02x14-01x37-1-71-1.xml



XSL version : 3.02 du 22/07/11

CONTROL PANEL: REMOVAL - REFITTING

Locations and specifications (tightening torques, parts to always be replaced, etc.).[\(see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Unclip the centre front panel trim(see **Dashboard assembly: Exploded view**) .

■ Place:

- the air mixing control to the hottest position,
- the air distribution control to the air vent position.

2. REMOVAL OPERATION

■ Remove the control panel bolts from the centre front panel support([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#))

■ Move the control panel([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

■ Disconnect the control panel connectors.

■ For the air distribution control cable, remove:

- the sheath stop clip,
- the sheath stop, by removing it from its housing,
- the control panel cable.

■ For the air mixing cable, remove:

- the sheath stop clip,
- the sheath stop, by removing it from its housing,
- the control panel cable.

■ Remove the control panel.

REFITTING

- ▣ Proceed in the reverse order to removal.
- ▣ Check that the controls can be moved to their fullest extent.



Repair-30x02x01x11-01x37-1-40-1.xml



XSL version : 3.02 du 22/07/11

ACCESSORIES BELT - CRANKSHAFT ACCESSORIES PULLEY : REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Crankshaft pulley locking tool.

Mot. 1770

Universal tool for locking pulley

Mot. 2100



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

Do not run the engine without the accessories belt to avoid damaging the crankshaft accessories pulley.

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) .

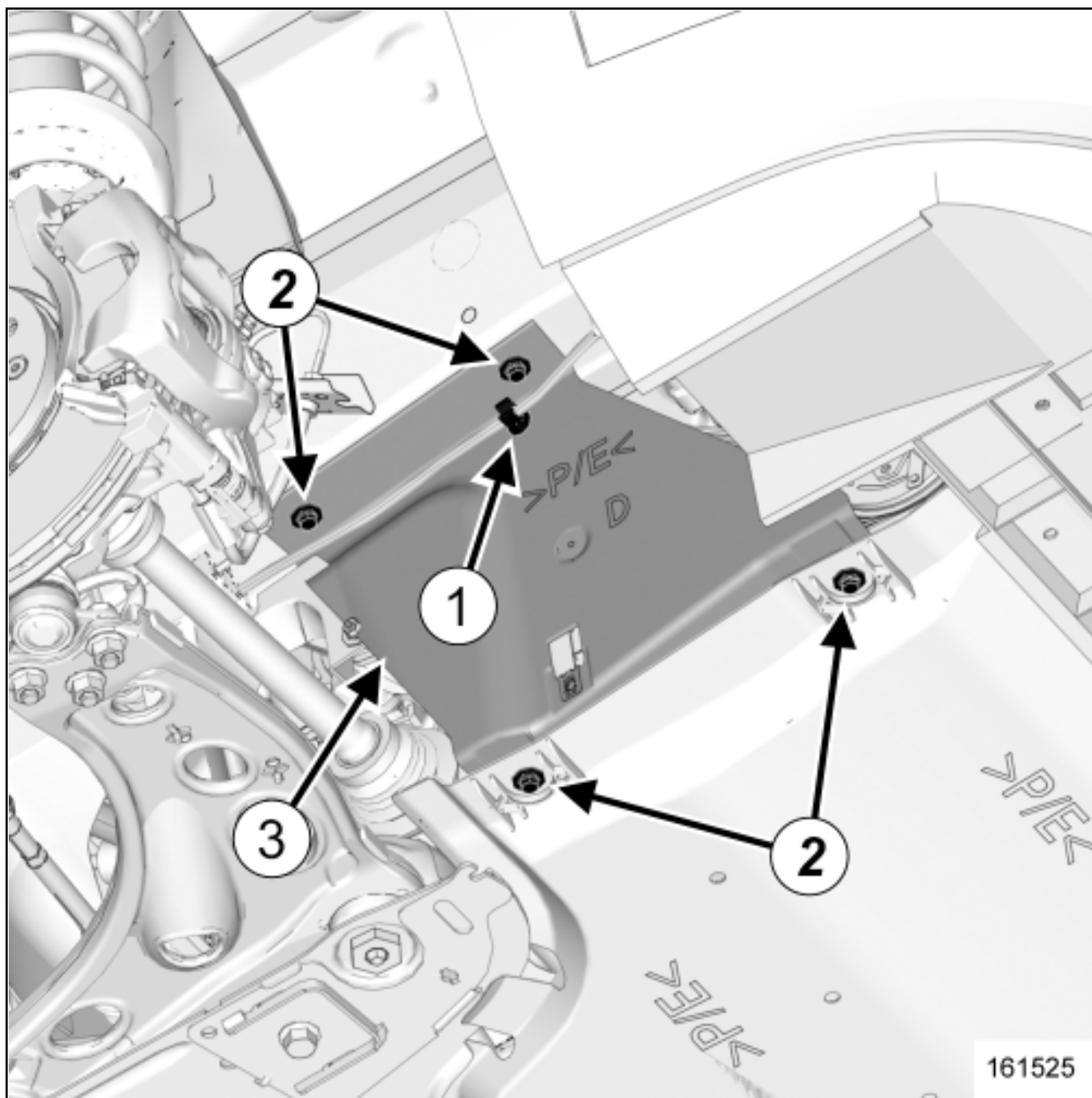
REMOVAL

1. REMOVING THE ACCESSORIES BELT

1- REMOVAL PREPARATION OPERATION

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

- Remove:
 - the front right-hand wheel [Front hub carrier assembly: Exploded view](#) ,
 - the front section of the front right-hand wheel arch liner [Exterior body front trim assembly: Exploded view](#) .



- Unclip the windscreen washer pipe(1) .

- Remove:
 - the protector bolts(2) ,
 - the protector(3) .

■ Position a 3 mm Allen key in the tensioning roller hole.

■ Turn the tensioning roller anticlockwise and push on the key at the same time until the tensioning roller locks.

■ Remove ([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)):

- the accessories belt,
- the accessories belt tensioning roller bolts.
- the accessories belt tensioning roller,
- the accessories belt fixed roller protector,
- the accessories belt fixed roller bolt,
- the accessories belt fixed roller.

2. REMOVING THE CRANKSHAFT ACCESSORIES PULLEY

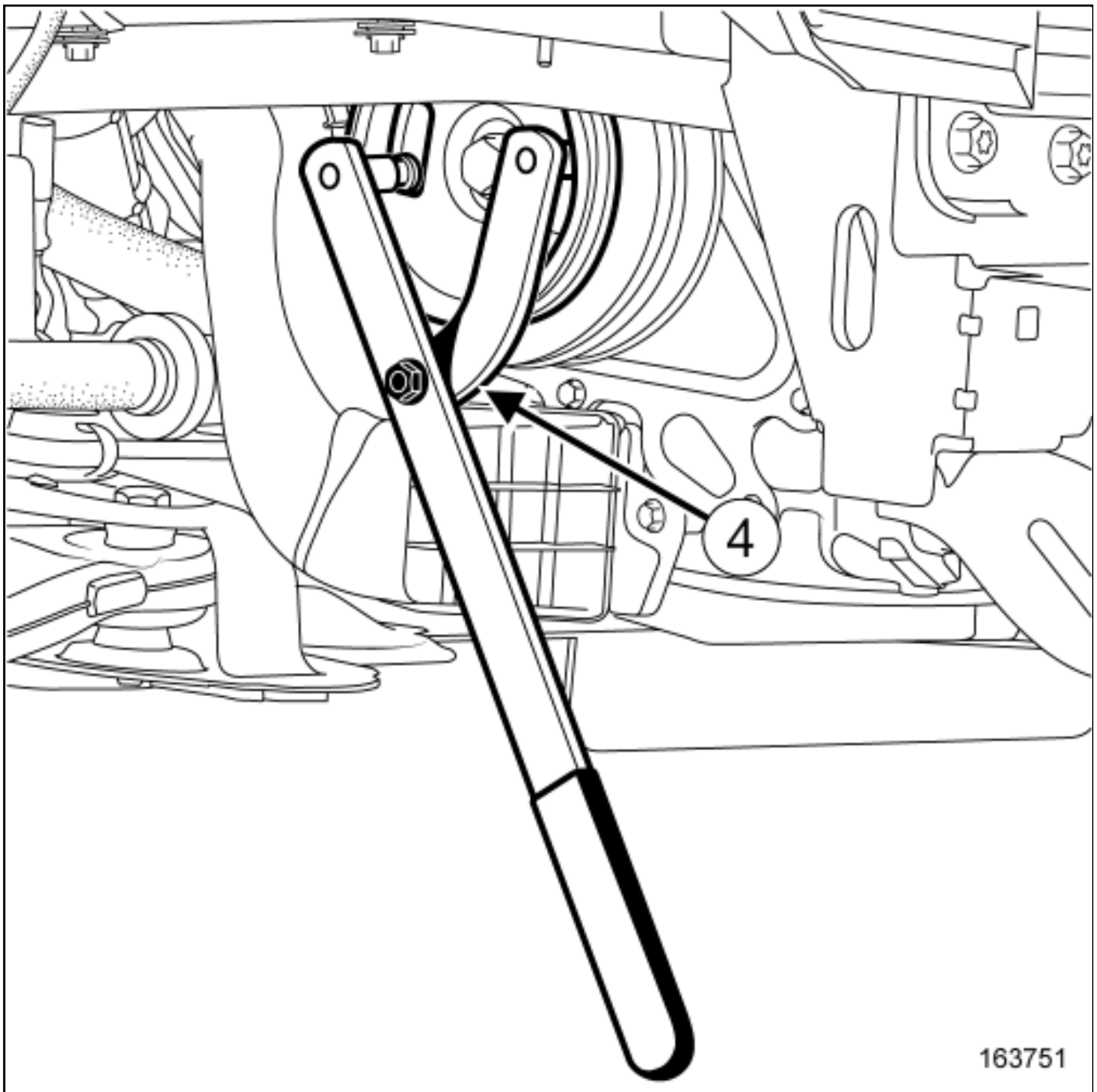
1- REMOVAL PREPARATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

■ Remove:

- the engine undertray bolts,
- the engine undertray,
- the front right-hand wheel [Front hub carrier assembly: Exploded view](#) ,
- the front section of the front right-hand wheel arch liner [Exterior body front trim assembly: Exploded view](#) ,
- the accessories belt ([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) .

2- REMOVAL OPERATION



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■ Immobilise the crankshaft additional accessories pulley using the tool Universal tool for locking pulley (Mot. 2100) (4) .

■ Remove [\(see 11A, Top and front of engine, Engine accessories assembly: Exploded view\)](#) :

- the crankshaft accessories pulley bolt,
- the crankshaft additional accessories pulley,
-

the crankshaft accessories pulley.

1. REFITTING THE CRANKSHAFT ACCESSORIES PULLEY

1- REFITTING PREPARATION OPERATION

**CAUTION**

Ensure that the seals between the cooler and its two supports are correctly positioned to avoid any coolant leaks.

If reusing the crankshaft accessories pulley, clean the pulley V-grooves with a brush to eliminate any deposits.

2- REFITTING OPERATION

 Refit ([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) :



the crankshaft accessories pulley by inserting it into the two crankshaft flat surfaces,



the crankshaft accessories pulley,



the crankshaft additional accessories pulley,



a new crankshaft accessories pulley bolt.



Position the tool Universal tool for locking pulley([Mot. 2100](#)) .



Torque tighten the crankshaft accessories pulley bolt([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) .



Proceed in the reverse order to removal.

2. REFITTING THE ACCESSORIES BELT

1- REFITTING PREPARATION OPERATION



Using a brush, clean the v-block of the crankshaft pulley in order to remove any swarf.

2- REFITTING OPERATION



Refit the new accessories belt fixed roller([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) .



Torque tighten the accessories belt fixed roller bolt([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) .



Refit ([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) :

-
- the accessories belt fixed roller protector,
- a new accessories belt tensioning roller.



Torque tighten the accessories belt tensioning roller bolts([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) .



Note:

The Parts Department can supplies the tensioning roller with a pin in the locked position.



Block the accessories belt tensioning roller if necessary.



Refit a new accessories belt([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) .



Recover the tensioning roller locking pin and gradually release the tensioning roller using a spanner.



Rotate the crankshaft clockwise twice to balance the accessories belt tension on all pulleys.



Proceed in the reverse order to removal.



Repair-10x10x01x12-01x37-1-9-1.xml



XSL version : 3.02 du 22/07/11

ADDITIONAL ADAPTATION UNIT: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION



Apply the before repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the Before repair procedure:



"Protection and Switching Unit" .



Disconnect the battery [Battery: Removal - Refitting](#) .



Remove [Dashboard assembly: Exploded view](#) :



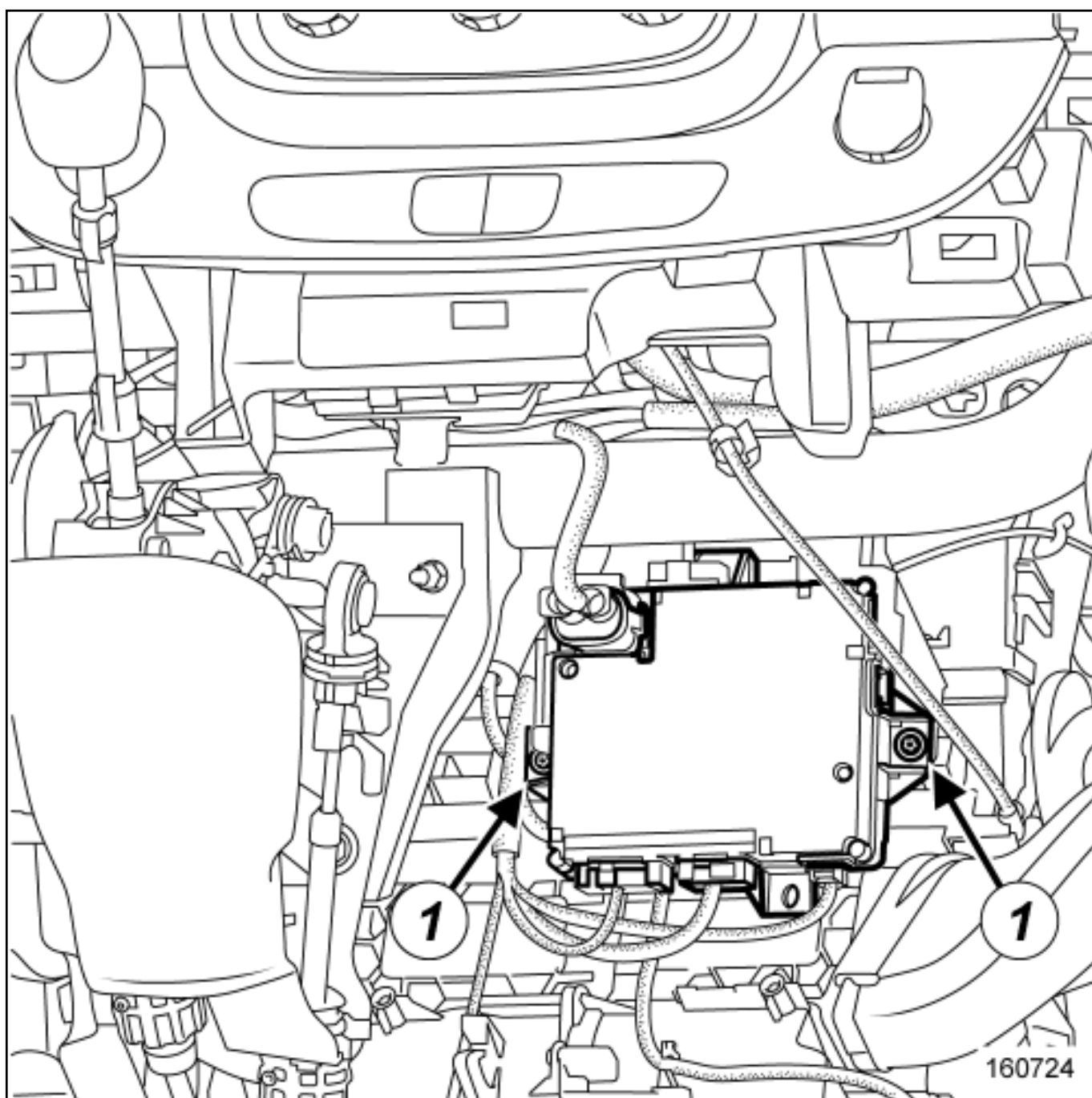
the centre console front sections,



the centre front panel,

the dashboard centre front panel trim.

2. REMOVAL OPERATION



Remove the protection and switching unit screws(1) .

Disconnect the protection and switching unit connectors.

Remove the protection and switching unit.

1. REFITTING OPERATION



Proceed in the reverse order to removal.

2. FINAL OPERATION



Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use :](#)

-Computer concerned by the After repair procedure:



"Protection and Switching Unit" .



Repair-30x04x14-01x37-1-1-1.xml



ADDITIONAL COOLANT PUMP : REMOVAL-REFITING



Note, one or more warnings are present in this procedure



Special tooling required

Remote operation pliers for hose clips.

Mot. 1448

Pipe clamps.

Ms. 583

Equipment required

coolant recovery tray

CAUTION

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.



■ The criteria to be met are:

- protection down to -25°C 2for cold and temperate countries,
- protection down to -40°C 2for very cold countries.

WARNING

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).



Do not remove the cap from the expansion bottle while the engine is hot.

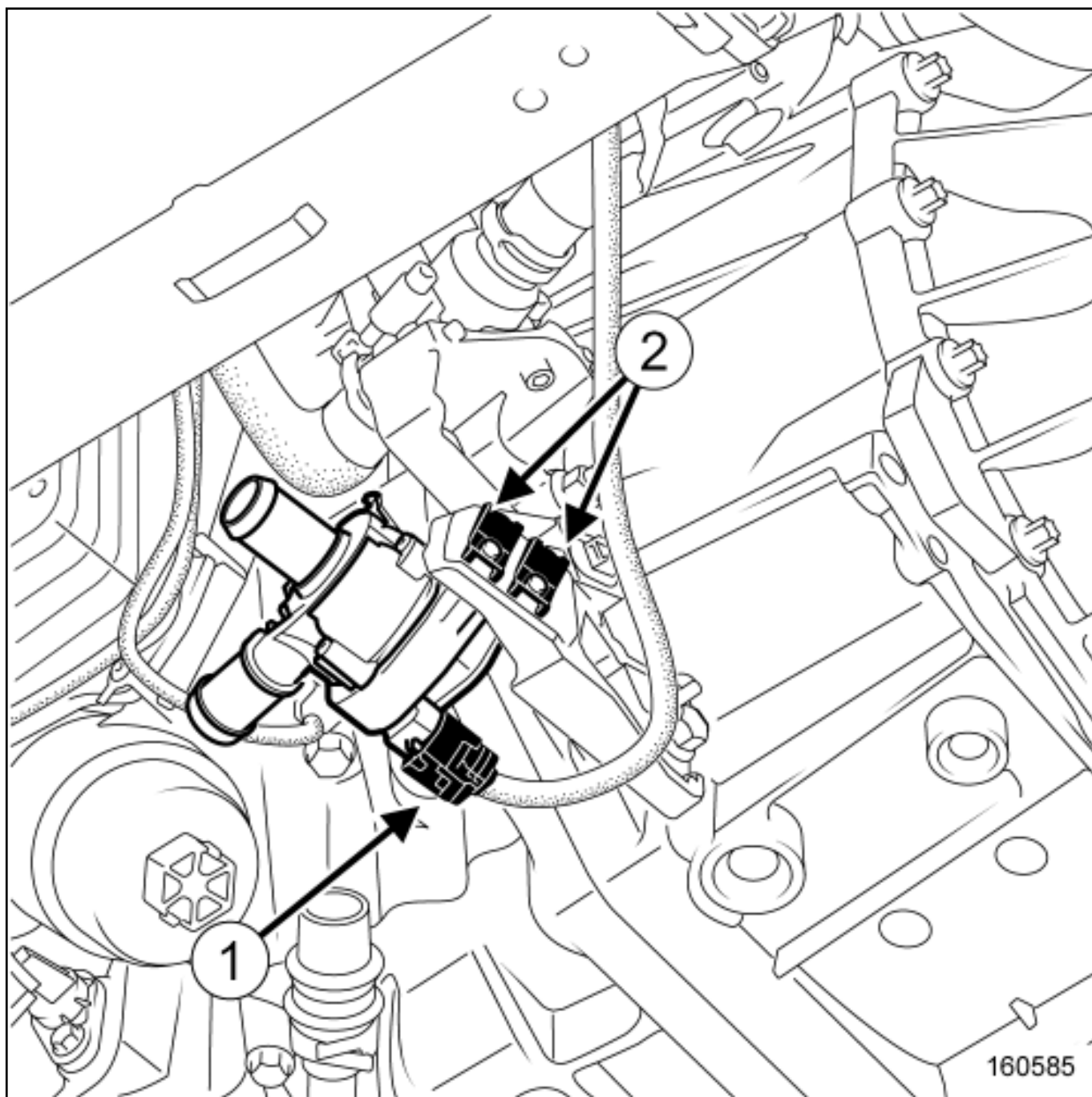
Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without warning.

Do not open the bleed screw(s) with the engine running.

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove the engine undertray.

2. REMOVAL OPERATION



- Position the coolant recovery tray under the additional coolant pump.



Note:

Prepare for the outflow of coolant.

- Fit toolsPipe clamps.(Ms. 583) on the additional coolant pump hoses.
- Move the hose clips(see 19A, Cooling, Coolant circuit assembly: Exploded view) using the toolRemote operation pliers for hose clips.(Mot. 1448) .
- Disconnect:
 - the additional coolant pump connector(1) ,
 - the additional coolant pump hoses.
- Remove:
 - the clipsfrom the additional coolant pump on its support(2) ,
 - the additional coolant pump.

REFITTING

- Proceed in the reverse order to removal.
- Top up and bleed the cooling system(see 19A, Cooling, Cooling system: Draining - Refilling)



Repair-10x06x01x30-01x37-1-2-1.xml



XSL version : 3.02 du 22/07/11

AIR DISTRIBUTION CABLE: REMOVAL - REFITTING

Locations and specifications (tightening torques, parts always to be replaced, etc.)([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

REMOVAL

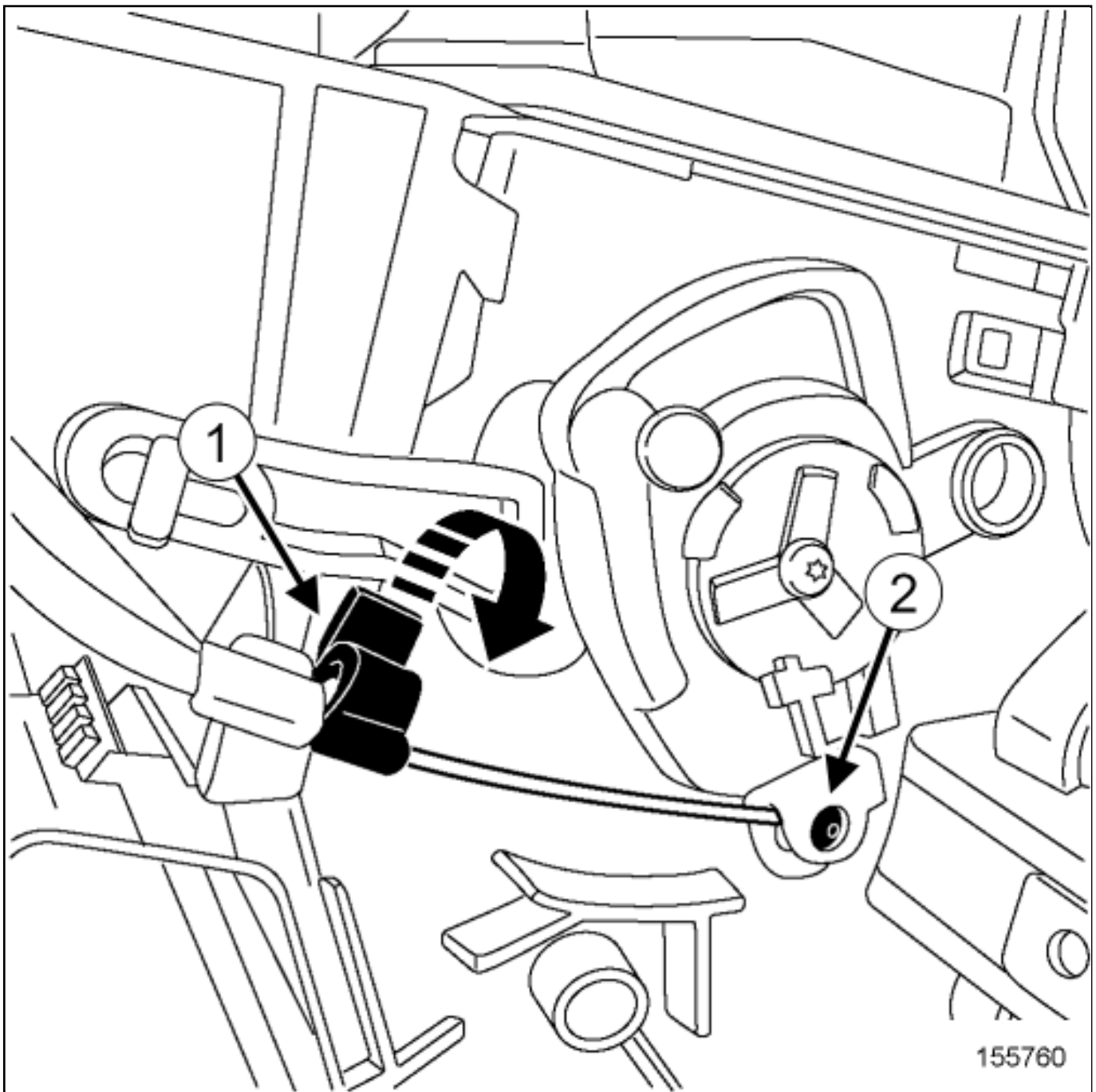
1. REMOVAL PREPARATION OPERATION

- Remove (see **Dashboard assembly: Exploded view**)
 - the dashboard centre upper trim
 - the centre front panel,
 - the dashboard centre front panel trim.


- Remove the front footwell air distribution duct([see 61A, Heating, Air distribution circuit assembly: Exploded view](#)) .

2. REMOVAL OPERATION

- Unclip the air distribution cable([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) from the control panel.



Unclip the air distribution cable(1) from the distribution unit in the correct order, as shown by the directional arrows.

 Unclip the air distribution cable from the distribution unit at(2) .

 Remove the air distribution cable([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

- ▣ Proceed in the reverse order to removal.
- ▣ Check that the air distribution control can move along its whole stroke.



Repair-30x02x01x12-01x37-1-32-1.xml



XSL version : 3.02 du 22/07/11

Marks	Designations	Informations
1	Dashboard	(see Dashboard: Removal - Refitting)
2	Front footwell air distribution duct	(see 61A, Heating, Front air distribution duct: Removal - Refitting)
3	Clip	
4	Clip	
5	Front footwell air distribution duct	(see 61A, Heating, Front air distribution duct: Removal - Refitting)
6	Bolt	
7	Clip	
8	Front side air distribution duct	(see 61A, Heating, Front air distribution duct: Removal - Refitting)
9	Distribution unit	(see 61A, Heating, Distribution unit: Removal - Refitting)
10	Front side air distribution duct	(see 61A, Heating, Front air distribution duct: Removal - Refitting)
11	Bolt	
12	Clip	
13	Cooling glove box duct	
14	Clip	
15	Front footwell air distribution duct	(see 61A, Heating, Front air distribution duct: Removal - Refitting)
16	Condensate drain pipe	
17	Bolt	



Repair-30x02x08-02x50-1-6-1.xml



XSL version : 3.02 du 22/07/11

AIR FILTER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)).

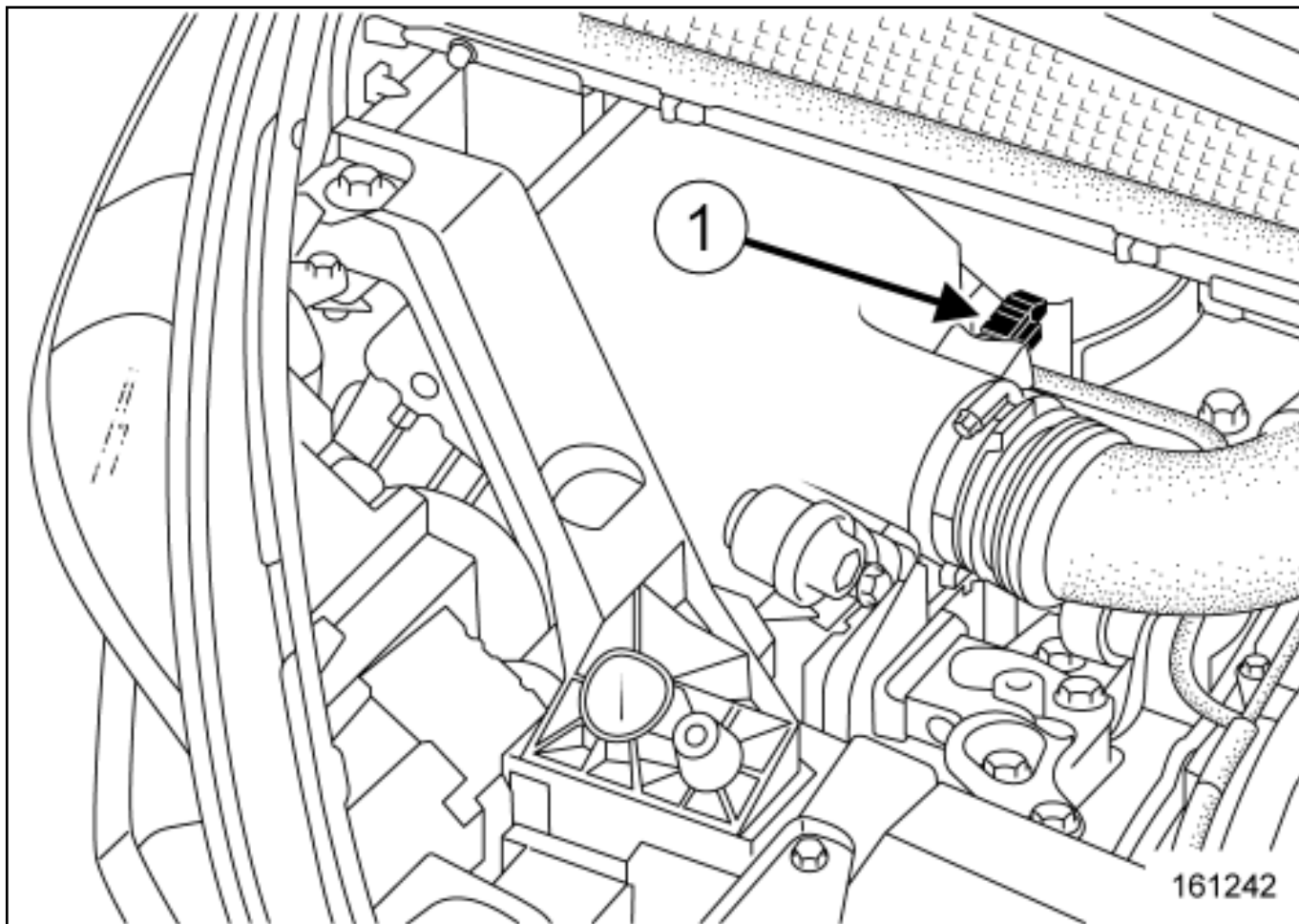
REMOVAL

1. REMOVAL PREPARATION OPERATION

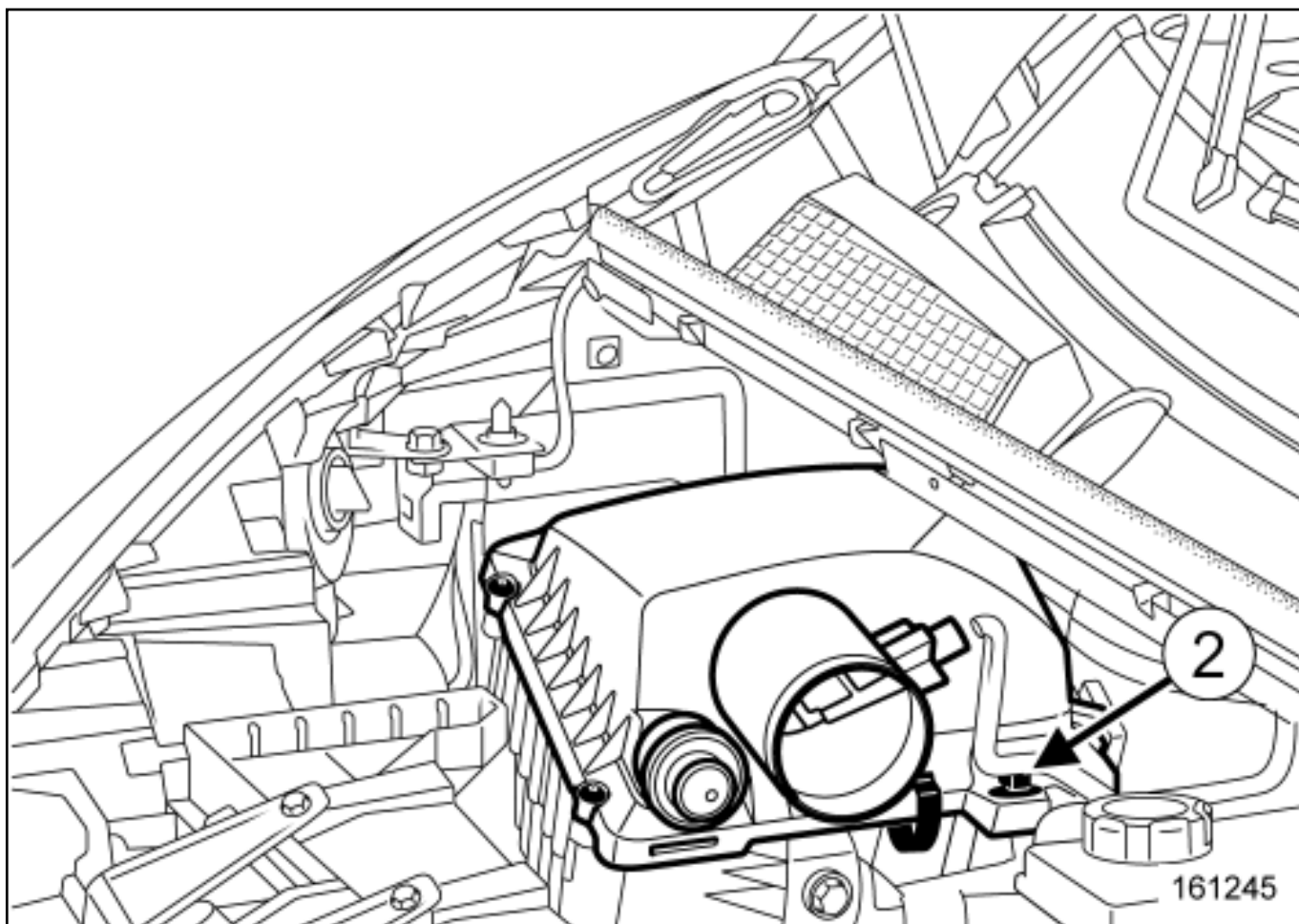
❑ Disconnect the air outlet pipe from the air filter unit ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)).



Move aside the air outlet pipe on the air filter unit.



■ Disconnect the air flowmeter connector(1) .



- Unclip the air flowmeter wiring at(2) .

2. REMOVAL OPERATION

- Remove the air filter support bolts and the clip on the air filter cover([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .
- Pull the air filter support upwards([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .
- Remove the air filter([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION

- Clean the air filter housing.



CAUTION

If the air filter is fitted incorrectly in the air filter unit, unfiltered air may enter the engine.



Proceed in the reverse order to removal.



Repair-11x01x01-01x37-1-90-1.xml



XSL version : 3.02 du 22/07/11

AIR FLOWMETER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



parts always to be replaced:



[Air flowmeter seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Disconnect the air flowmeter connector.

2. REMOVAL OPERATION

- Remove ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)):
 - the bolts from the air flowmeter,
 - the air flowmeter,
 - the air flowmeter seal.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:

[Air flowmeter seal](#) .

2. REFITTING OPERATION

Refit ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) :

-
- a new seal on the air flowmeter,
- the air flowmeter.

Torque tighten the air flowmeter([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .

When replacing, apply the after repair procedure using the Diagnostic tool:

-
- select the "injection computer",
- go to repair mode,
- display the "Before/After repair procedure" for the computer selected,
- select "Air flowmeter" in the "List of components controlled by this computer" section,
- carry out the operations described in the "After repair procedure" section.

Proceed in the reverse order to removal.



Repair-11x05x10x07-01x37-1-42-1.xml



AIR INLET ASSEMBLY: EXPLODED VIEW

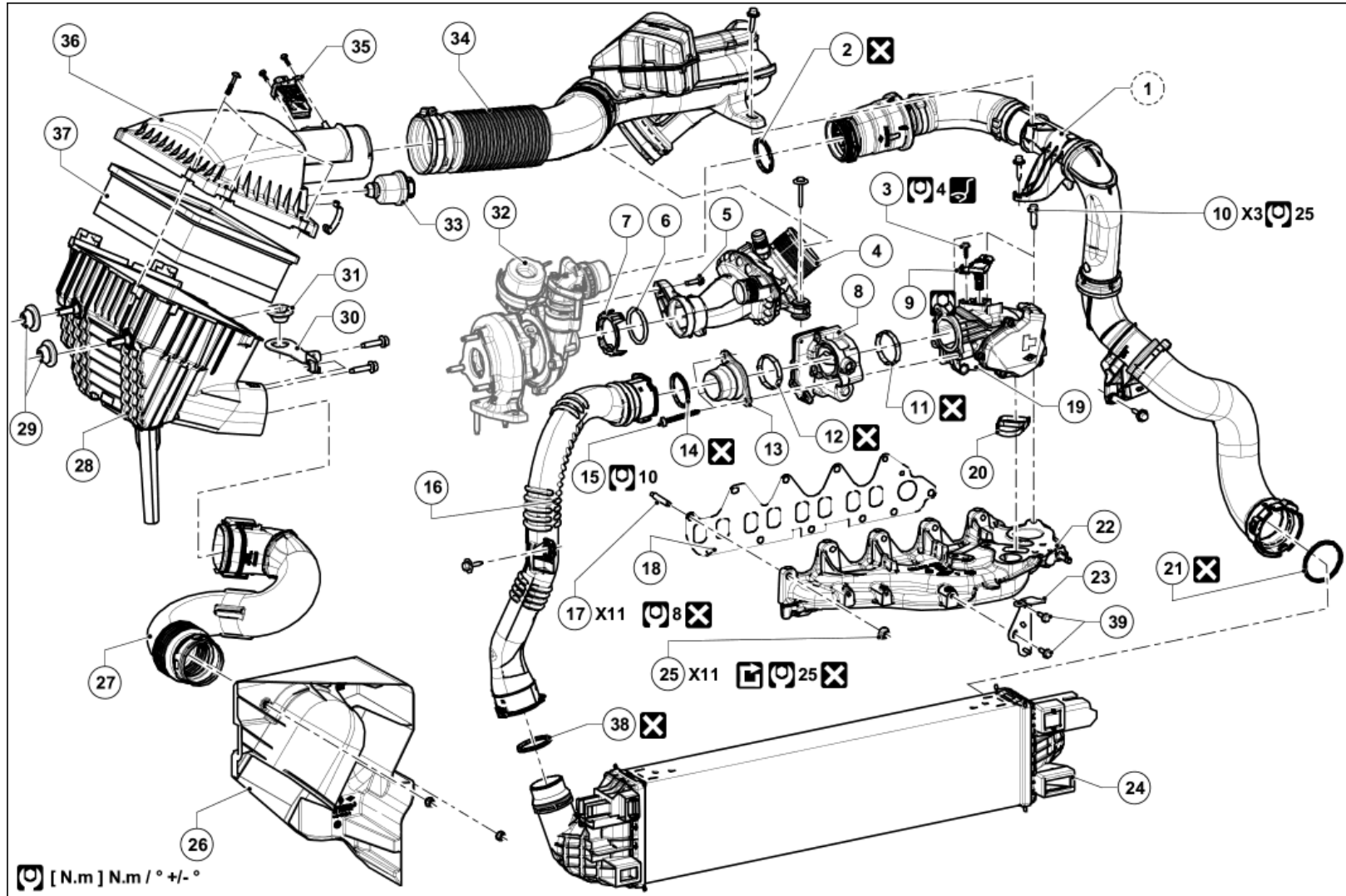


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[N.m] N.m / ° +/- °

[Illustration key: Description Legend](#) .

Reperes	Designations	Informations
1	Intercooler air inlet pipe	Intercooler air inlet pipe: Removal - Refitting
2	Intercooler air inlet pipe seal, turbocharger end	
3	Air inlet pressure and temperature sensor bolt	(MS.1973)
4	Turbocharger air inlet pipe	Turbocharger: Removal - Refitting
5	Turbocharger air inlet pipe bolt	
6	Turbocharger air inlet pipe seal	
7	Turbocharger air inlet pipe seal clip	
8	Damper valve	(see 12A, Fuel mixture, Damper valve: Removal - Refitting)
9	Air inlet pressure and temperature sensor	(see Engine and transmission assembly sensors)
10	Swirl valve bolts	
11	Dampervalseal	
12	Dampervalseal	
13	Damper valve	(see 12A, Fuel mixture, Damper valve: Removal - Refitting)
14	Intercooler air outlet pipe seal, damper valve end	
15	Dampervalue bolts	
16	Intercooler air outlet pipe	Intercooler air outlet pipe: Removal - Refitting
17	Stud of collector	
18	Gasket intake manifold	
19	Swirl valve	(see 12A, Fuel mixture, Swirl valve: Removal - Refitting)
20	Swirl valve seal	
21	Intercooler air inlet pipe seal, intercooler end	
22	Inlet distributor	(see 12A, Fuel mixture, Inlet distributor: Removal - Refitting)
23	Strut-intake distributor	
24	Intercooler	Intercooler : Removal - Refitting
25	Screw	
26	Air scoop protector	
27	Air filter unit air inlet pipe	

28	Air filter unit	(see 12A, Fuel mixture, Air filter unit: Removal - Refitting)
29	Air filter unit plastic stud	
30	Air filter unit mounting	
31	Air filter unit plastic stud	
32	Turbocharger	Turbocharger: Removal - Refitting
33	Clogging sensor	
34	Air filter unit air outlet pipe	
35	Air flowmeter	(see 12A, Fuel mixture, Air flowmeter: Removal - Refitting)
36	Air filter element drawer	
37	Air filter cover	(see 12A, Fuel mixture, Air filter: Removal - Refitting)
38	Intercooler air outlet pipe seal, intercooler end	
39	Screw of Strut-intake distributor	



AIR MIXING CABLE: REMOVAL - REFITTING

Locations and specifications (tightening torques, parts always to be replaced, etc.)([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

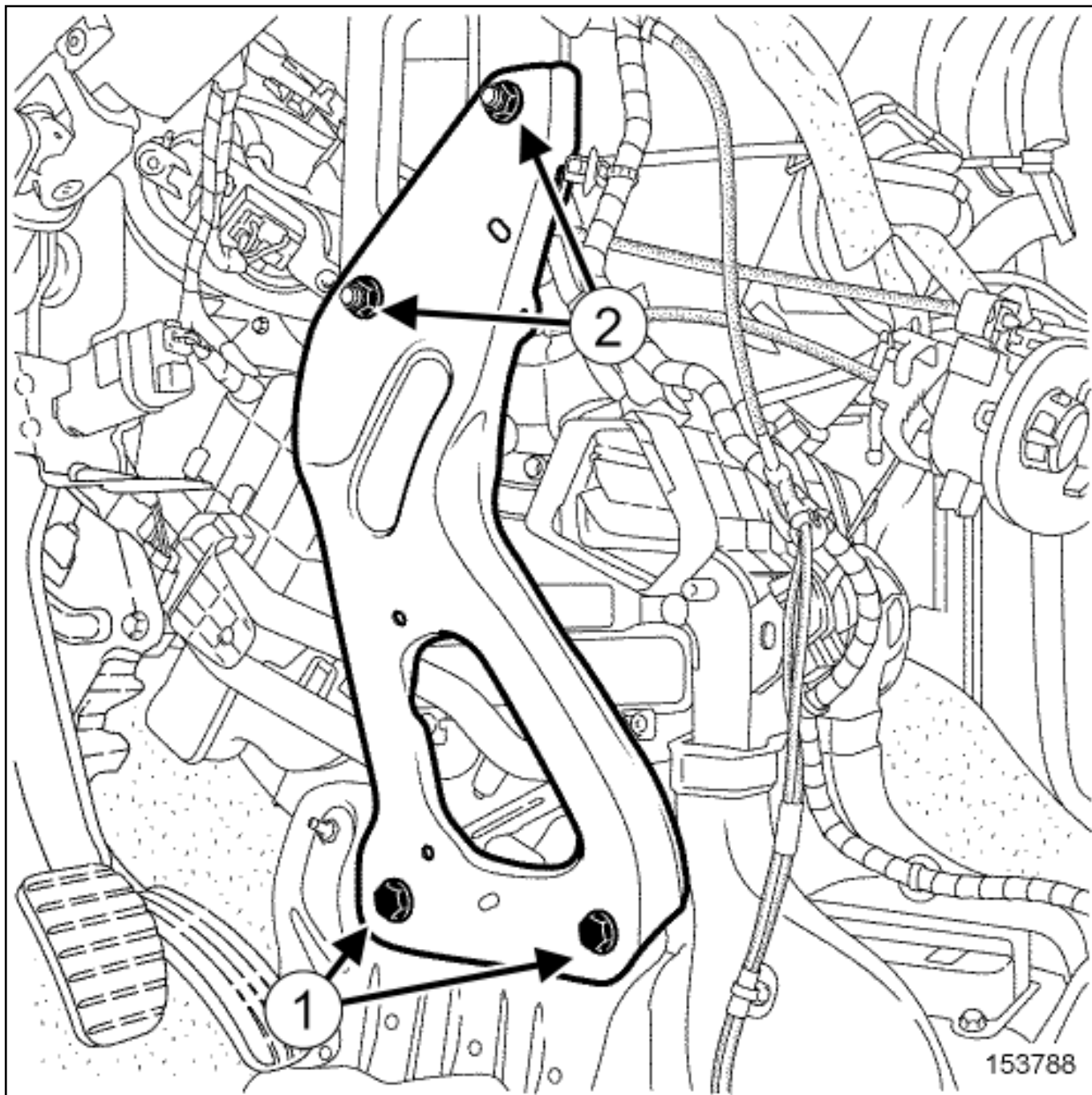
REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove (see **Dashboard assembly: Exploded view**)
 - the dashboard centre upper trim
 - the centre front panel,
 - the dashboard centre front panel trim.

- Remove the front footwell air distribution duct([see 61A, Heating, Air distribution circuit assembly: Exploded view](#)) .

- Move the floor carpet aside.

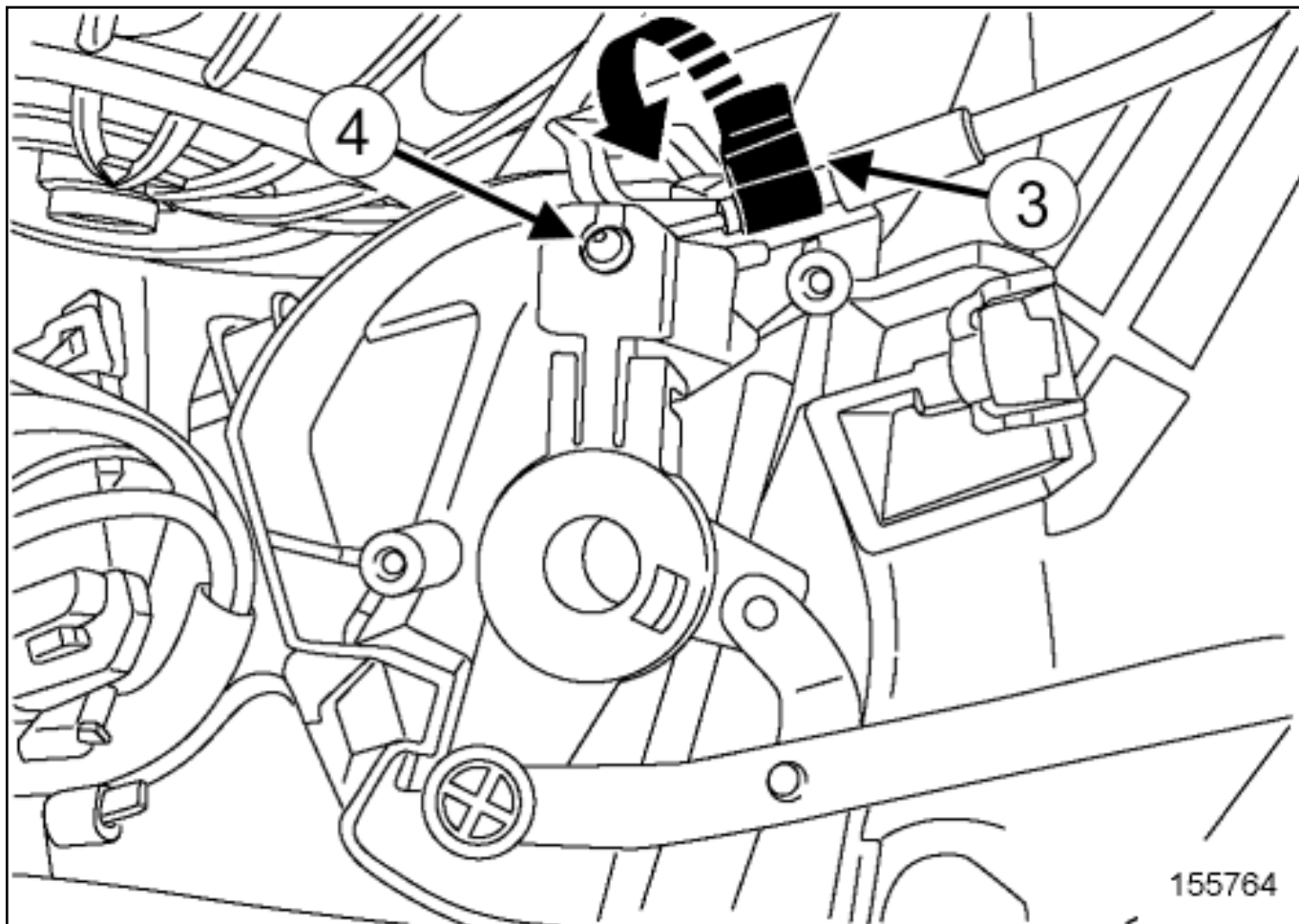


■ Remove:

- the lower bolts(1) from the dashboard cross member reinforcement,
- the dashboard cross member reinforcement upper nuts(2) ,
- the dashboard cross member reinforcement.

2. REMOVAL OPERATION

- Unclip the air mixing cable([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) from the control panel.



- Unclip the air mixing cable(3) from the distribution unit in the correct order, as shown by the directional arrows.
- Unclip the air mixing cable from the distribution unit at(4) .
- Remove the air mixing cable([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

REFITTING

- Proceed in the reverse order to removal.
- Torque tighten
 - the lower bolts on the dashboard cross member reinforcement 21 N.m,
 - the upper nuts on the dashboard cross member reinforcement 21 N.m.

Check that the air mixing control can move along its whole stroke.



Repair-30x02x01x13-01x37-1-34-1.xml



XSL version : 3.02 du 22/07/11

ALTERNATOR:REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973



WARNING

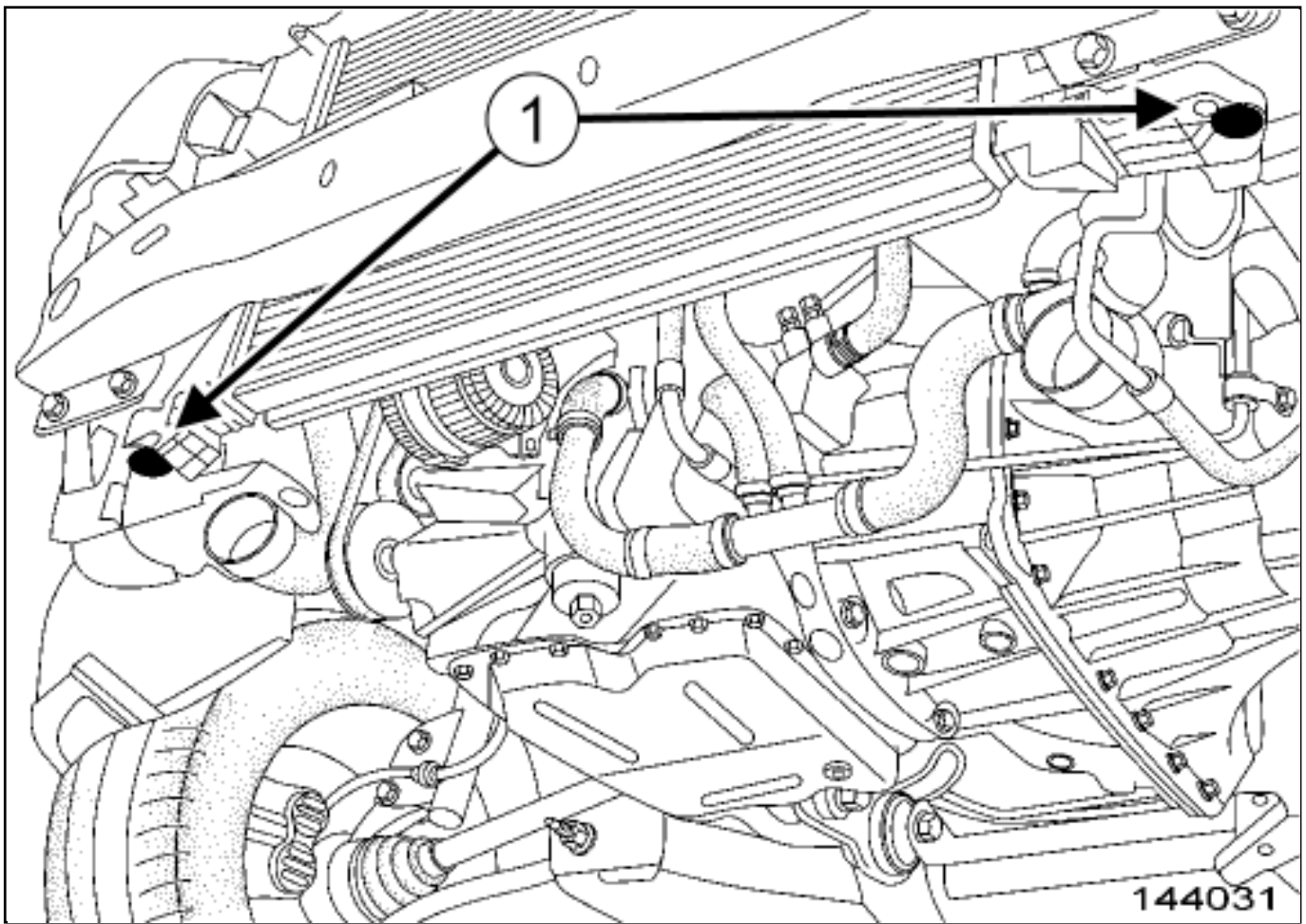
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [Engine accessories assembly: Exploded view](#) .

REMOVAL

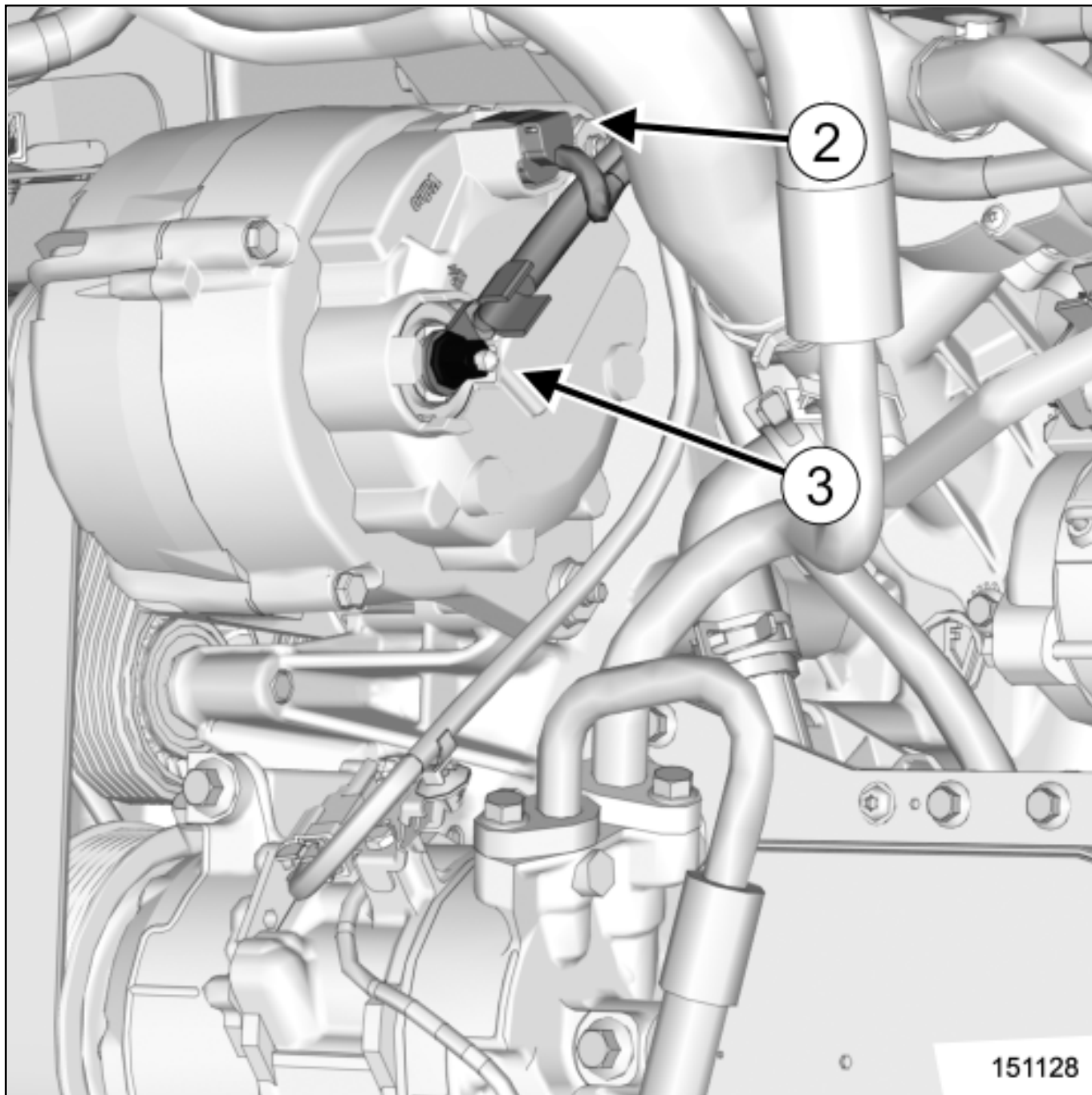
1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Remove:
 - the engine undertray bolts,
 - the engine undertray,
 - the front bumper(see **Front bumper assembly: Exploded view**) ,
 - the front end panel(see **Front end panel: Removal - Refitting**) ,
 - the air deflectors,
 - the intercooler air outlet pipe [Air inlet assembly: Exploded view](#) .
- Disconnect:
 - the engine cooling fan assembly connectors,
 - the engine cooling fan assembly resistor connector.
- Unclip the engine cooling fan assembly wiring.



- Loosen the bolts(1) .
- Move aside the cooling radiator assembly.
- Remove the accessories belt [Engine accessories assembly: Exploded view](#) .

2. REMOVAL OPERATION



- Disconnect the connector(2) from the alternator regulator.
- Remove the nut(3) from the alternator positive terminal.
- Move aside the alternator wiring.
- Remove the alternator bolt [Engine accessories assembly: Exploded view](#) .



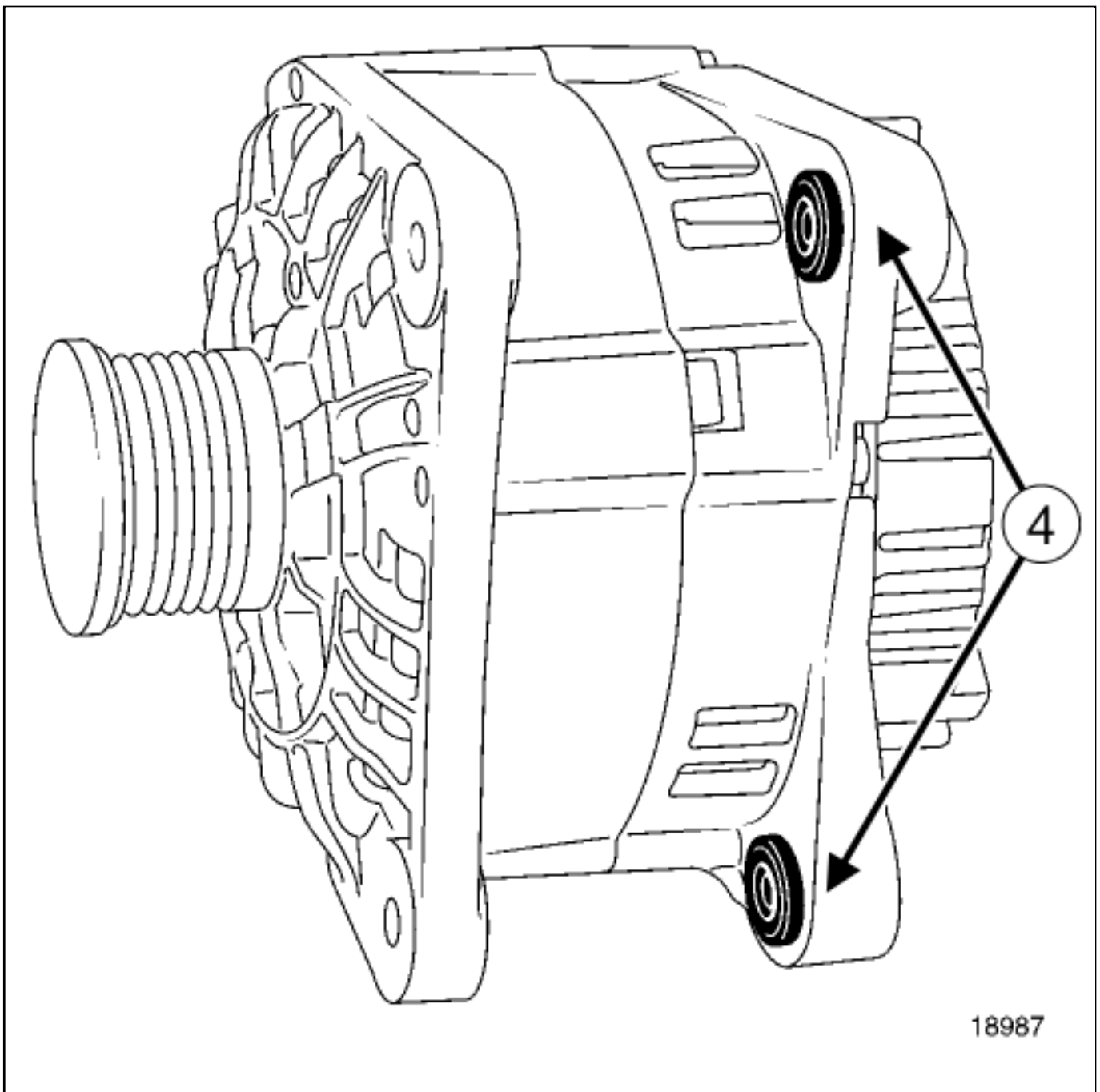
Note:

There is no need to remove completely the lower screw of the alternator to remove it.

Remove the alternator [Engine accessories assembly: Exploded view](#) .

REFITTING

1. REFITTING PREPARATION OPERATION



Push in the alternator ring(4) using a vice to facilitate fitting.

2. REFITTING OPERATION

Refit [Engine accessories assembly: Exploded view](#) :

-
- the alternator,
- the alternator bolts.

Torque tighten the alternator bolts using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece (Ms. 1973) [Engine accessories assembly: Exploded view](#) .

Position the alternator wiring.

Refit the positive terminal nut on the alternator.

Torque tighten the positive terminal nut on the alternator 21 N.m.

Proceed in the reverse order to removal.



Repair-32x02x01-01x37-1-193-1.xml



AUDIBLE WARNING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

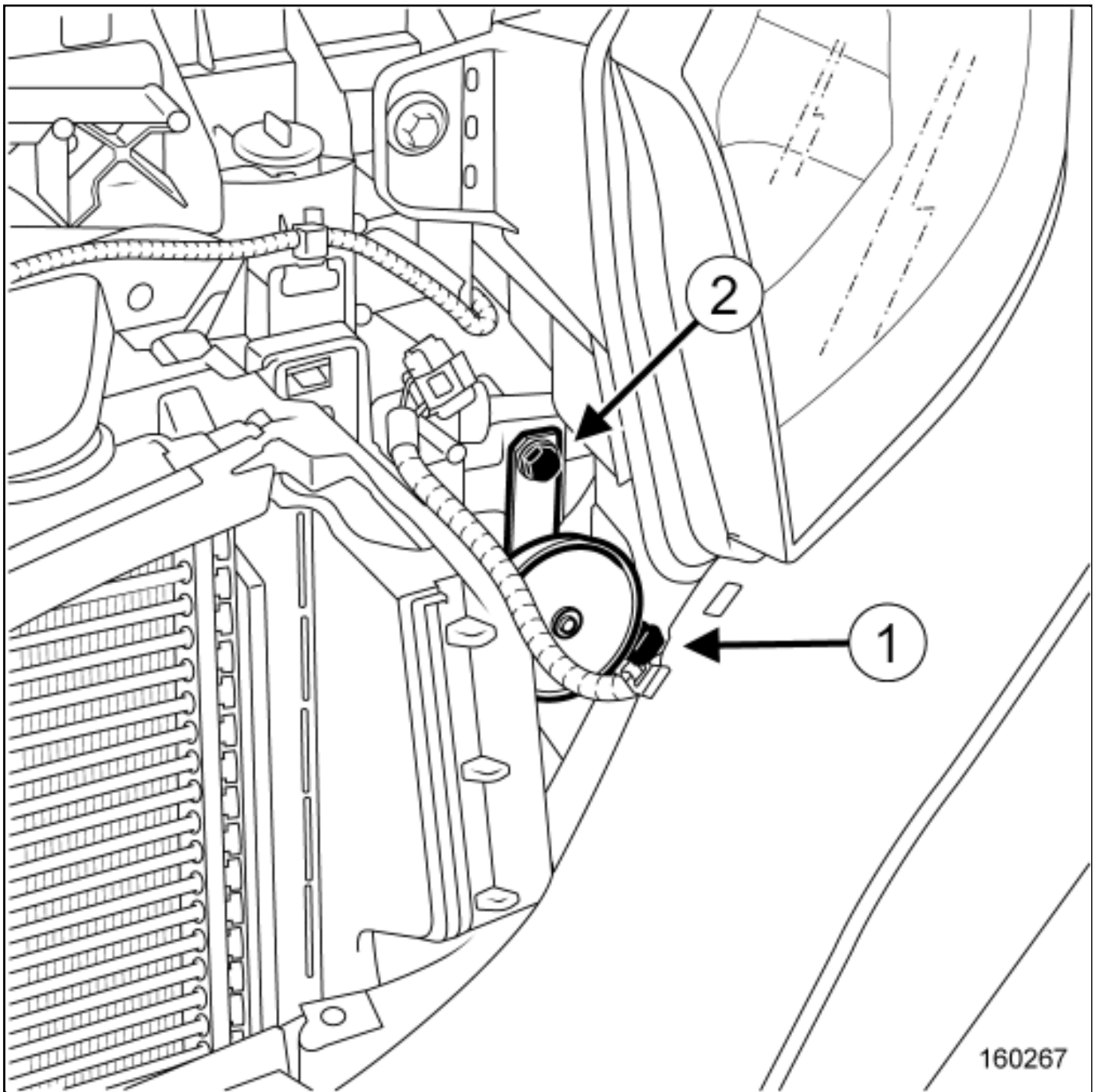
REMOVAL

1. REMOVAL PREPARATION OPERATION



Partially remove the radiator grille (see **Exterior body front trim assembly: Exploded view**) .

2. REMOVAL OPERATION



Disconnect the horn connector(1) .

Remove:

- the horn bolt(2) ,
- the horn.



Proceed in the reverse order to removal.



Torque tighten the horn bolt 21 N.m.



Repair-80x03x02-01x37-1-32-1.xml



AXIAL BALL JOINT LINKAGE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Steering rack locking tool (TRW).

Dir. 1306-01

Tool for removal - refitting of rack axial ball joint

Dir. 1923

Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

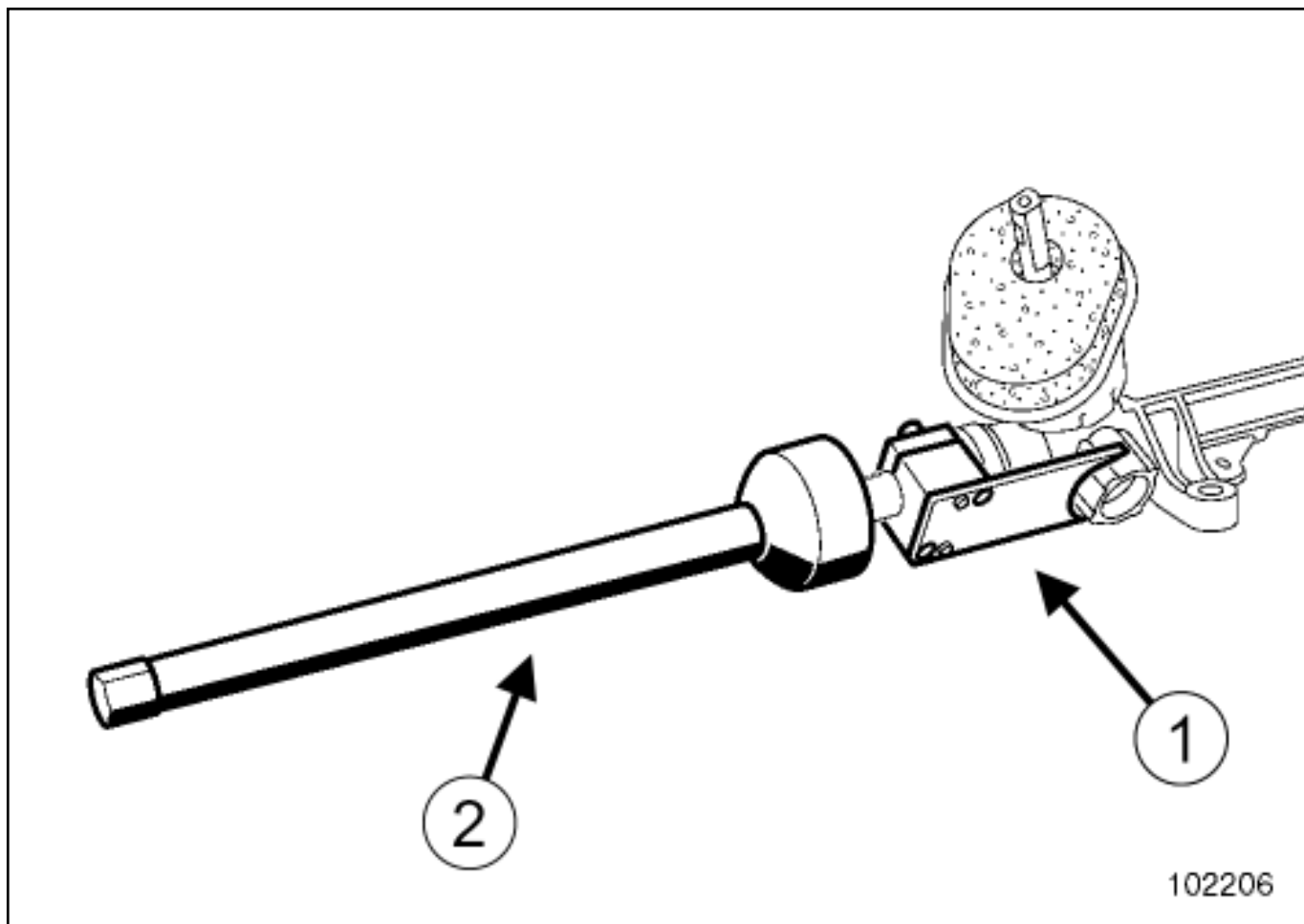
- [\(see 36A, Steering assembly, Steering: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

REMOVAL

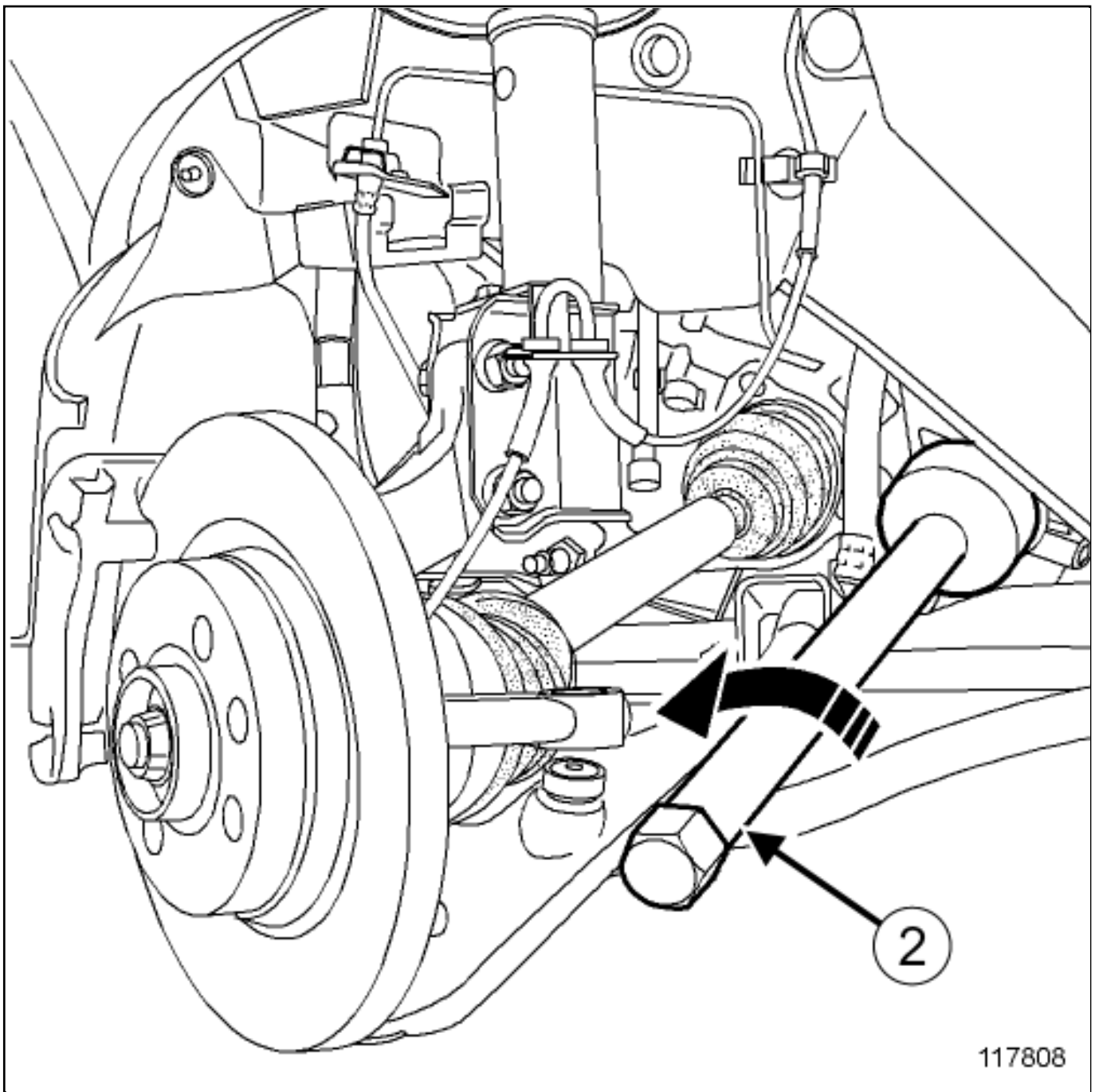
1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove:
 - the front wheel [Front hub carrier assembly: Exploded view](#) ,
 - the track rod [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) ,
 - the steering box gaiter [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) .
- Unlock the steering column.

2. REMOVAL OPERATION



- Set up the Steering rack locking tool (TRW). (Dir. 1306-01) (1) on the steering rack, at the pinion end.



- Unlock the axial ball joint using tool Tool for removal - refitting of rack axial ball joint(Dir. 1923) (2) .
- Remove the axial ball joint linkage(see 36A, Steering assembly , Steering assembly: Exploded view) .

REFITTING

- Proceed in the reverse order to removal.
- Coat the threading of the axial ball joint with HIGH STRENGTH THREAD LOCK Vehicle: Parts and

[consumables for the repair](#) .

■ Coat the following with SILICONE GREASE [Vehicle: Parts and consumables for the repair](#) ,

- the steering rack,
- the axial ball joint.



Check the values of the axle assemblies [Front axle assembly: Adjustment values](#) .



If necessary, adjust the geometry of the axle assemblies [Front axle system: Adjustment](#) .



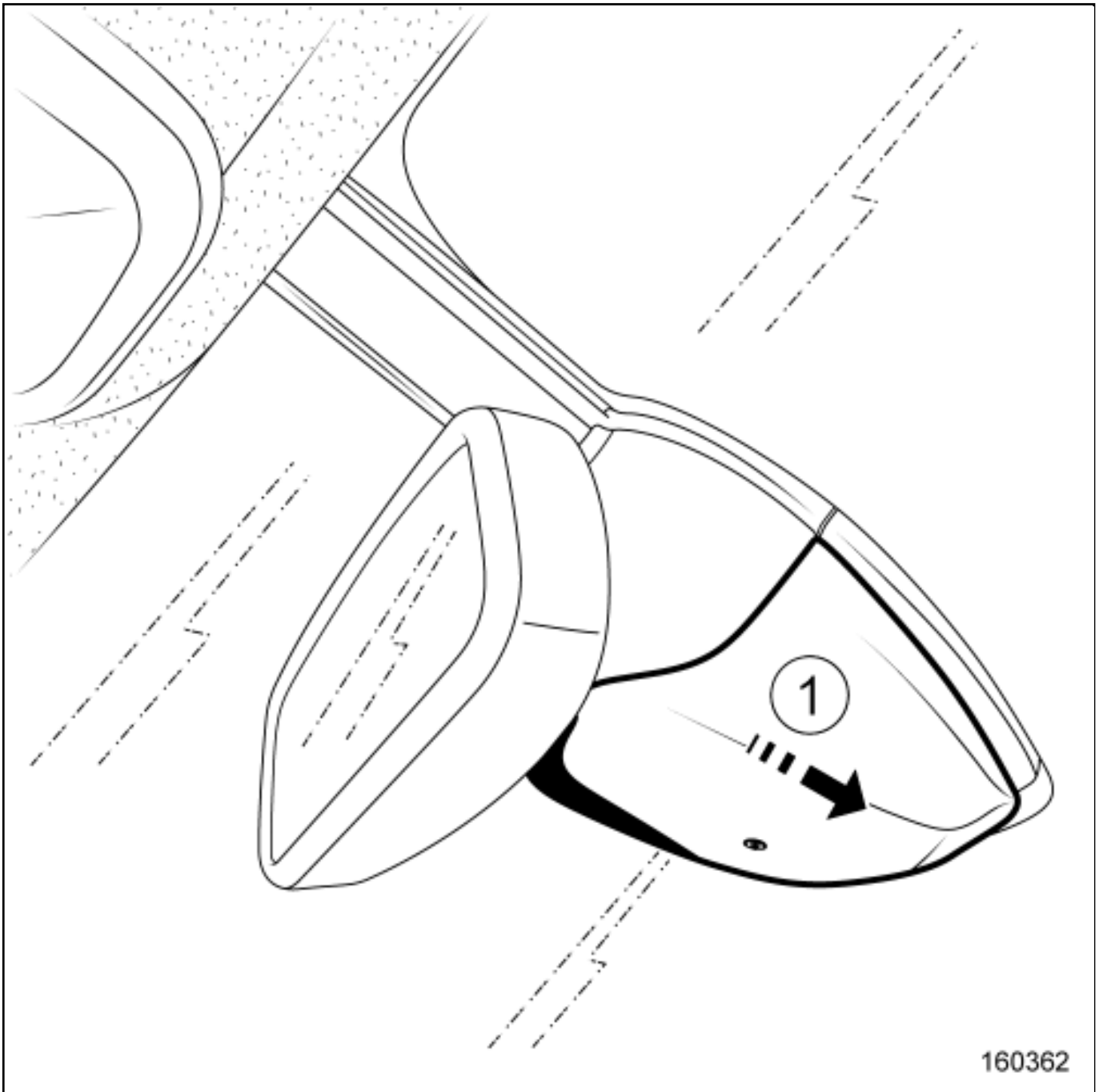
Repair-13x04x02x01-01x37-1-35-1.xml



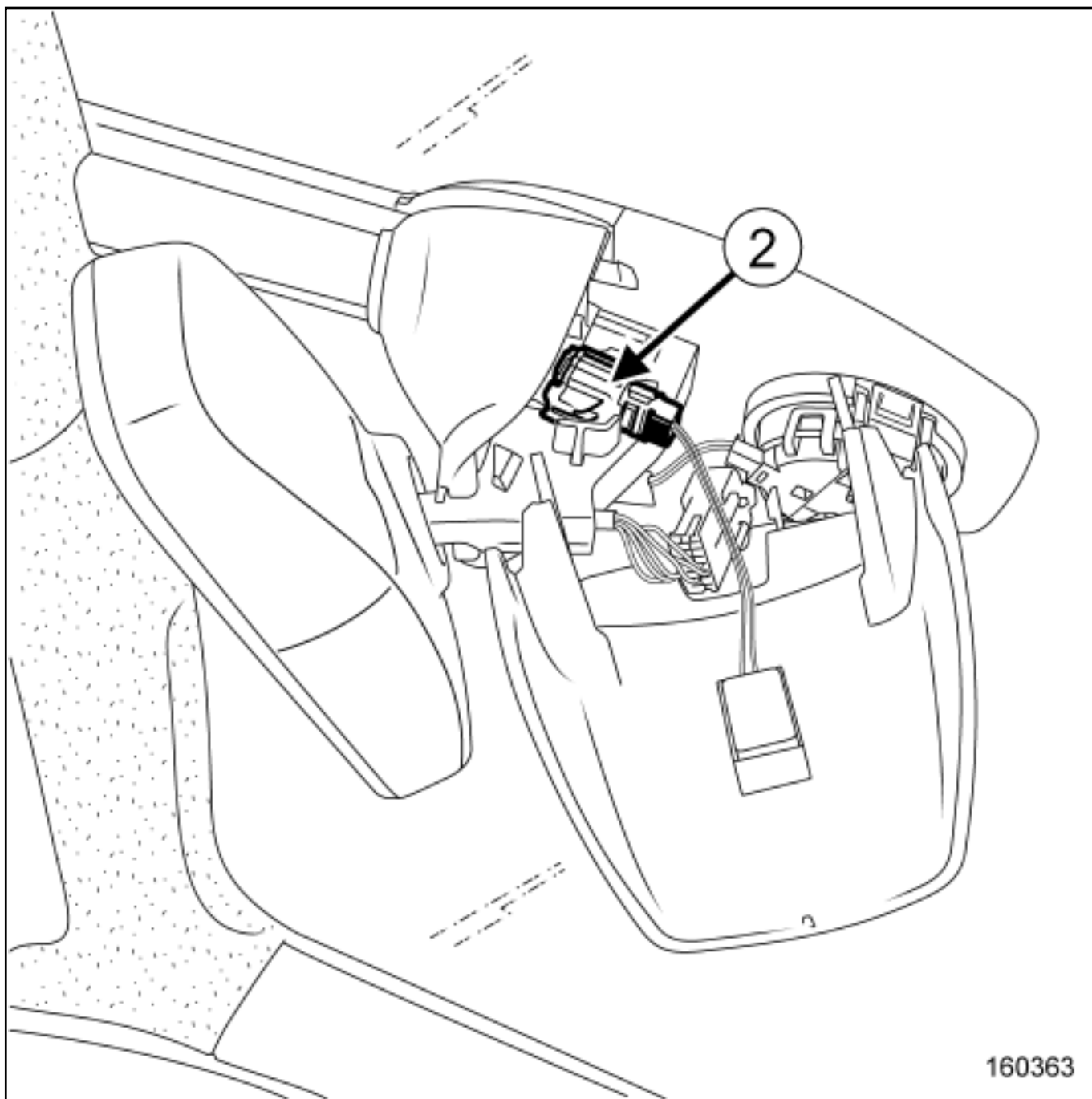
XSL version : 3.02 du 22/07/11

BASE OF INTERIOR REAR-VIEW MIRROR: REMOVAL - REFITTING

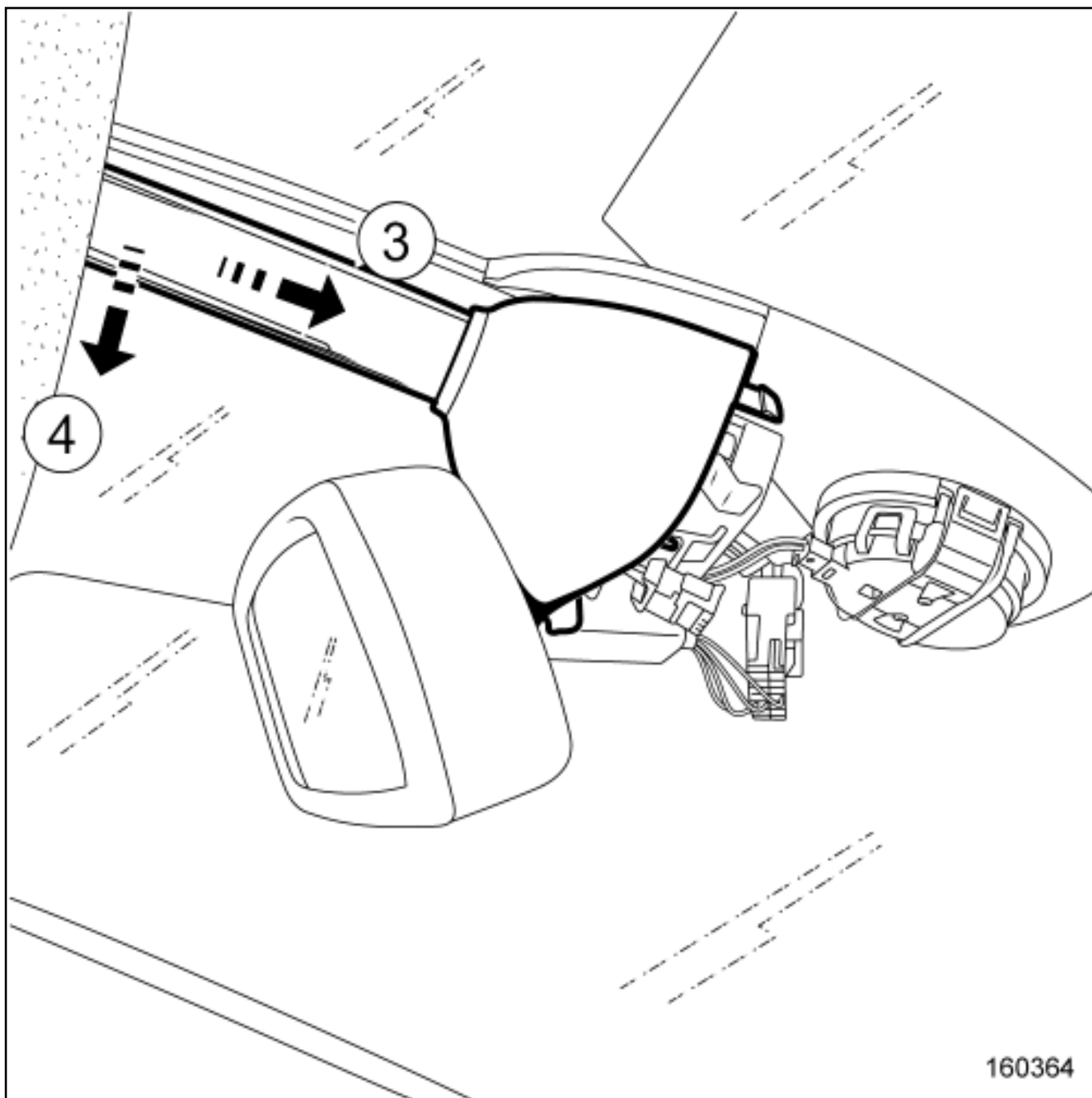
REMOVAL



- Unclip the base of the interior rear-view mirror at(1) .



- Disconnect the sensor connector(2) .
- Remove the base of the interior rear-view mirror.
- Mark the wiring routing.



Remove the upper section of the base of the interior rear-view mirror at (3) and (4) .

REFITTING

Proceed in the reverse order to removal.



BATTERY:REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 80A, Battery, Battery: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Switch off the ignition.



CAUTION

- Before disconnecting the 12V battery:
 - wait for the motor-driven fan assembly to stop,
 - wait for the computer to finish saving (5 min).



CAUTION

The visual indicator cannot be considered reliable in After-Sales; do not use it to determine the state of the battery.

- Unclip the battery cover.

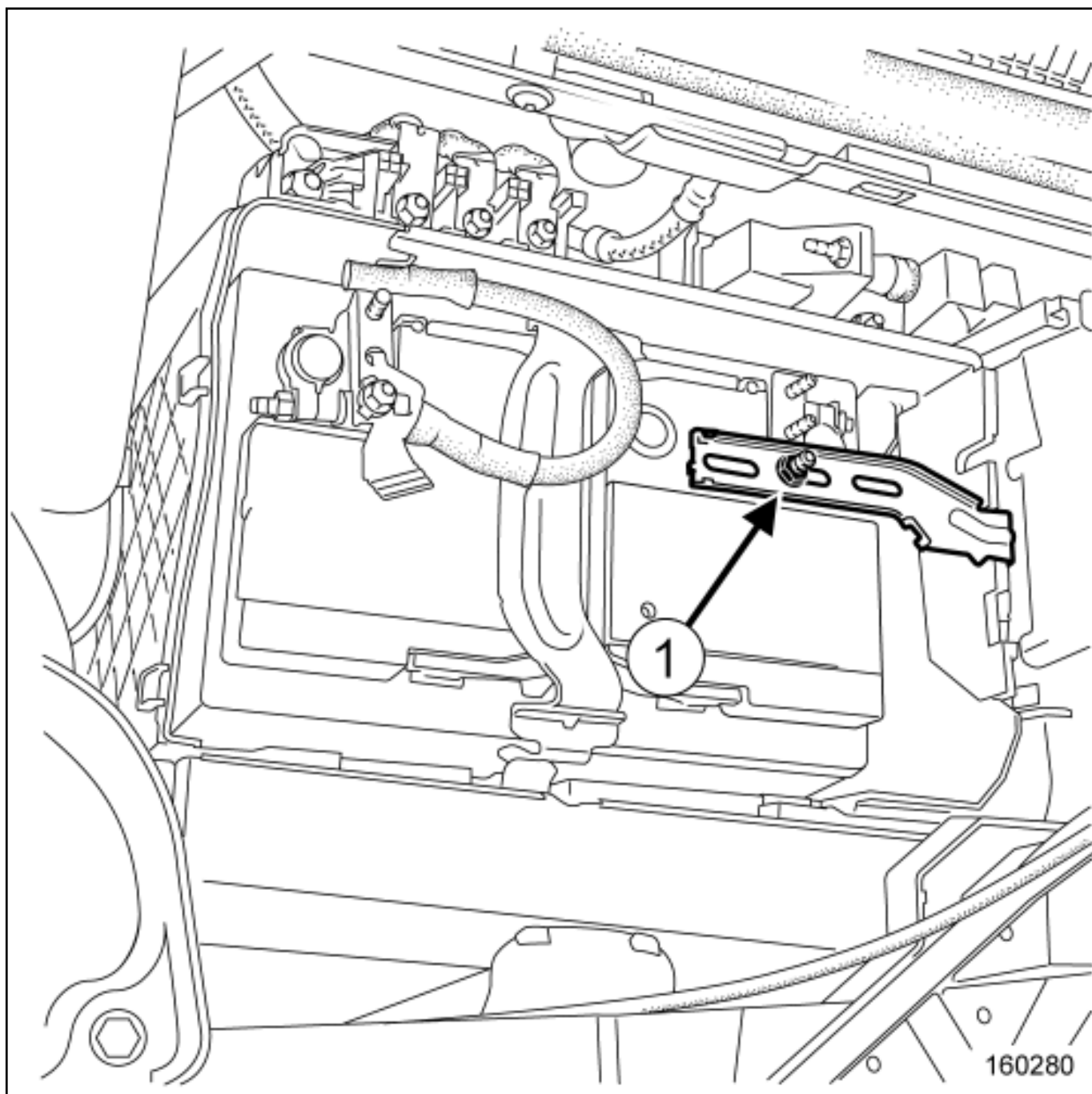
2. REMOVAL OPERATION

1- DISCONNECTION

Note:



Before disconnecting the wiring from the negative battery terminal, note the position of the wiring.

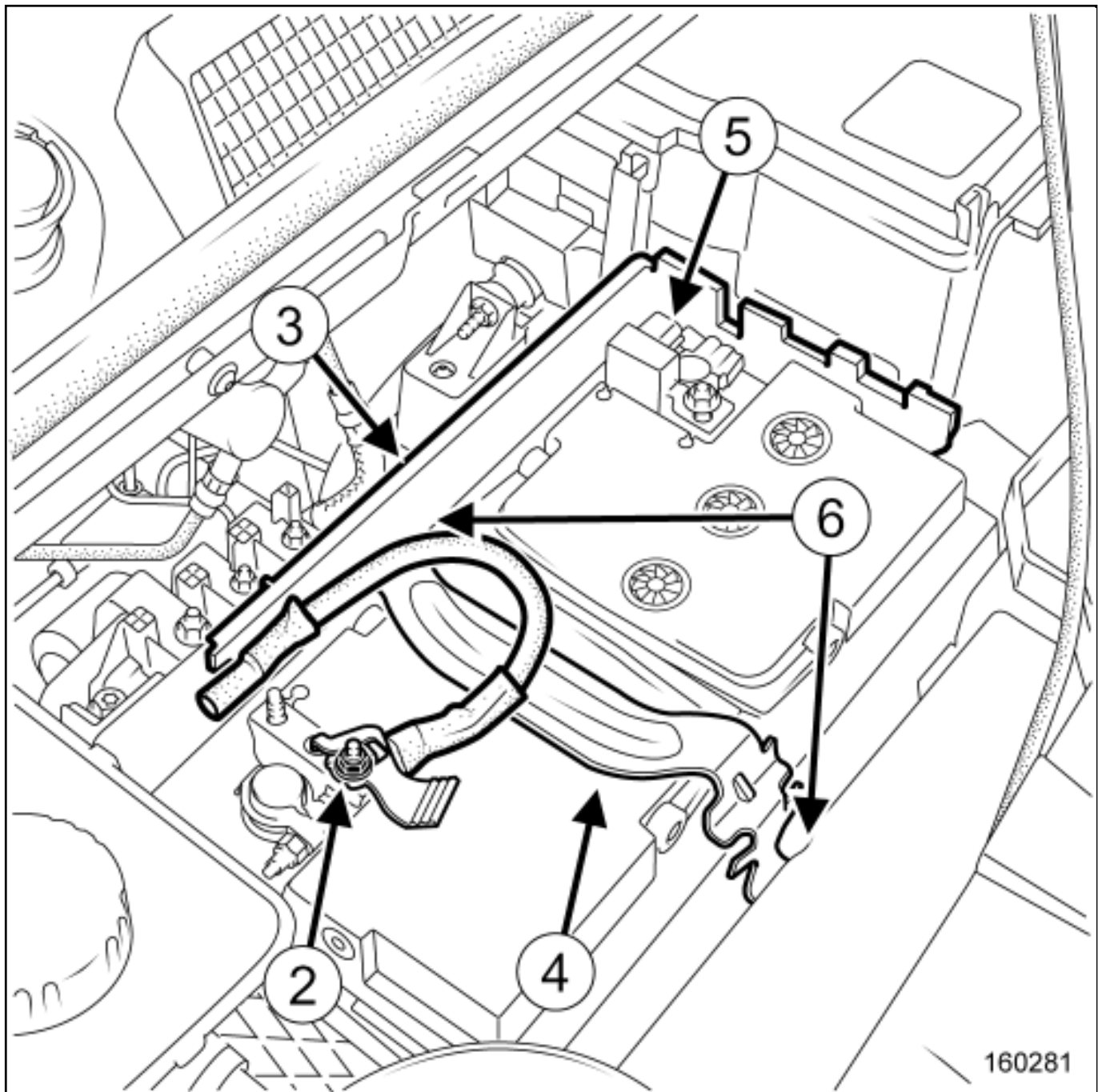


Remove:

- the nut(1) of the negative battery terminal wiring,
- the wiring of the negative battery terminal.

Move aside the negative battery terminal wiring.

2- REMOVAL



Remove:

Remove:

- the wiring nut(2) of the battery's positive terminal

- the wiring of the positive battery terminal,

- the detachable battery tray section(3) .

Move aside the positive battery terminal wiring.

Note:



Mark the position of the battery bracket(4) on the battery.

Do not remove the cover of the injection computer.

WITH ENERGY SMART MANAGEMENT(AVESM) AND (STOSTA)

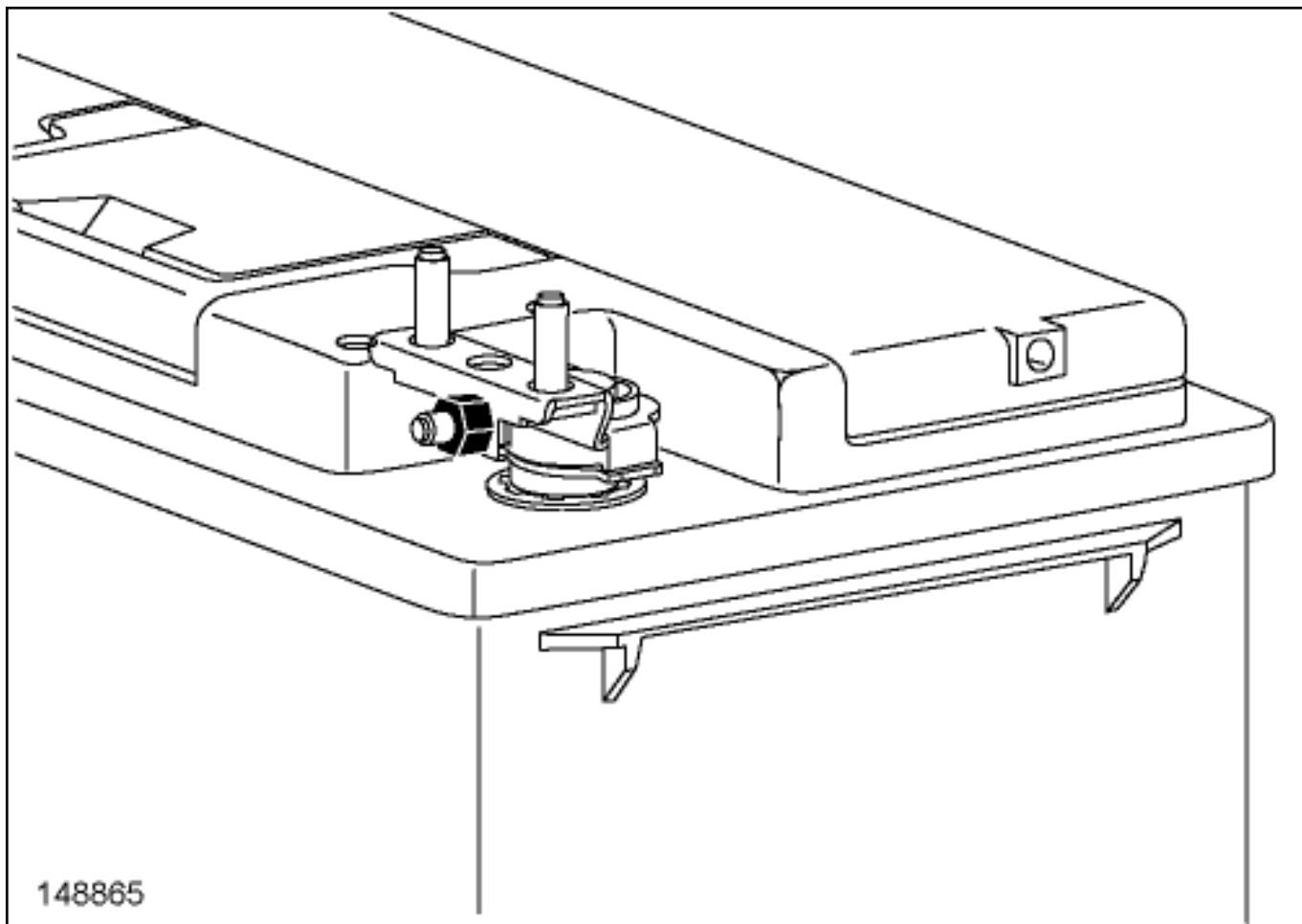
Disconnect the current sensor connector(5) .

Unscrew the battery bracket bolts(6) .

Remove:

- the battery bracket,

- the battery.



Loosen the battery terminals.



Note:

Mark the position of the battery terminals on the battery.

Remove the battery terminals.

REFITTING

1. REFITTING PREPARATION OPERATION

Check the battery (see Battery: Check) (Technical Note 6002A, 80A, Battery).

2. REFITTING OPERATION

1- REPLACEMENT



Refit the battery terminals.



CAUTION

To avoid any damage to the wiring, observe the correct orientation of the battery terminal.



Push the battery terminals fully onto the battery terminal posts.



Torque tighten the battery terminals 8 N.m.

2- REFITTING



Refit:



the battery,



the battery bracket.



Tighten the battery bracket bolts.



Refit:



the detachable battery tray section,



the positive terminal wiring on the positive battery terminal.



CAUTION

Incorrect tightening could cause heating of contacts, starting or charging faults, sparking, or could cause the battery to explode ([see 80A, Battery, Battery: Precautions for the repair](#)).

Torque tighten the wiring nut of the battery's positive terminal 8 N.m.

WITH ENERGY SMART MANAGEMENT (AVESM) AND (STOSTA)

Connect the current sensor connector.

3- CONNECTION

Refit:

-
- the negative terminal wiring on the negative battery terminal,
- the negative battery terminal wiring nut.



CAUTION

Incorrect tightening could cause heating of contacts, starting or charging faults, sparking, or could cause the battery to explode ([see 80A, Battery, Battery: Precautions for the repair](#)).

Torque tighten the wiring nut of the battery's negative terminal 8 N.m.

3. FINAL OPERATION

Clip on the battery cover.



When refitting the battery or each time it is disconnected, carry out a certain number of simple programming operations, without using the diagnostic tool, so that the vehicle can operate correctly (clock, radio, etc.).



Repair-32x01-01x37-1-57-1.xml



XSL version : 3.02 du 22/07/11

BATTERY TRAY: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

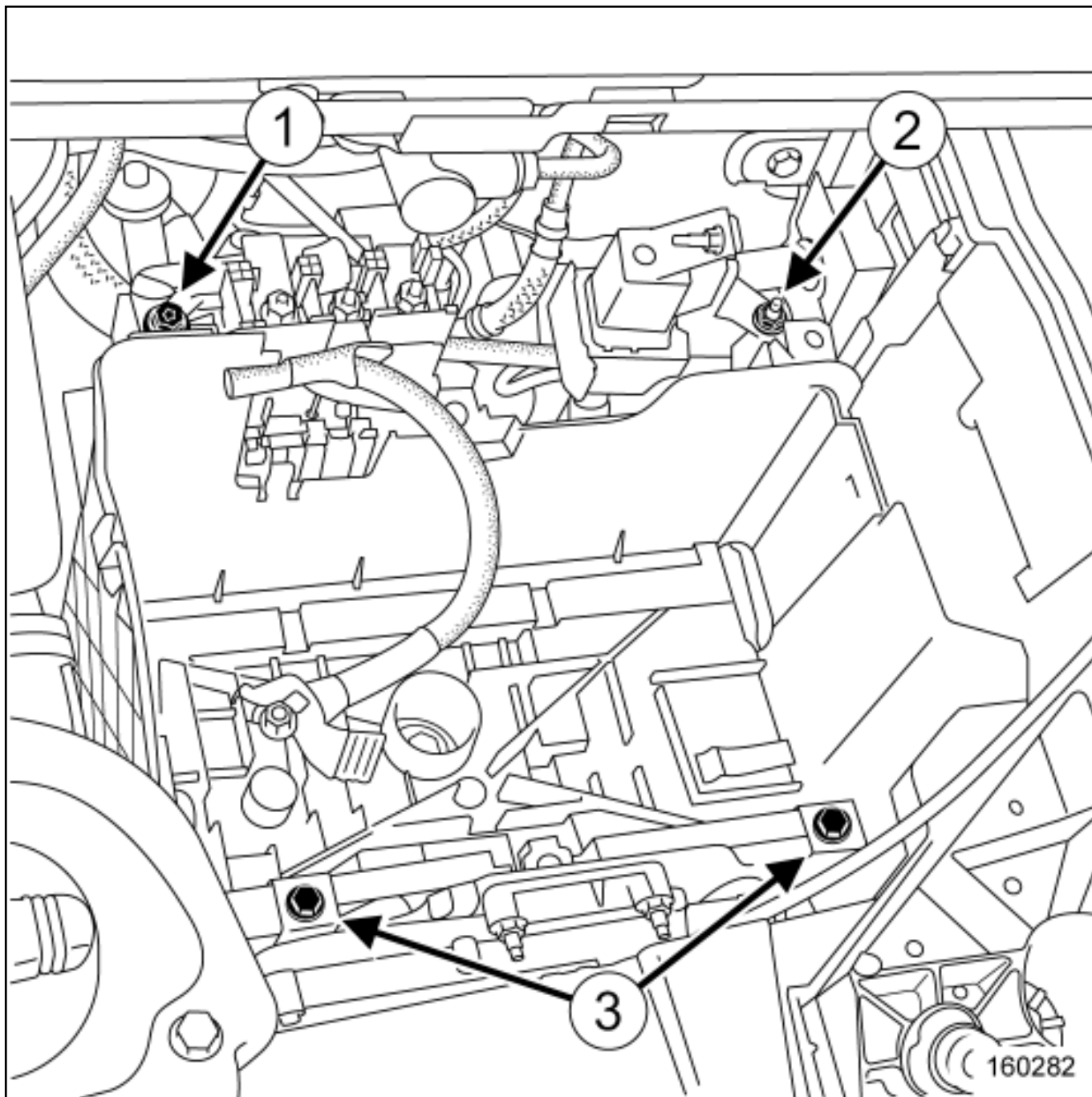
- [\(see 80A, Battery, Battery: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Remove:

- the battery [\(see 80A, Battery, Battery: Removal - Refitting\)](#) ,
- the petrol injection computer cover [Diesel injection computer: Removal - Refitting](#) .



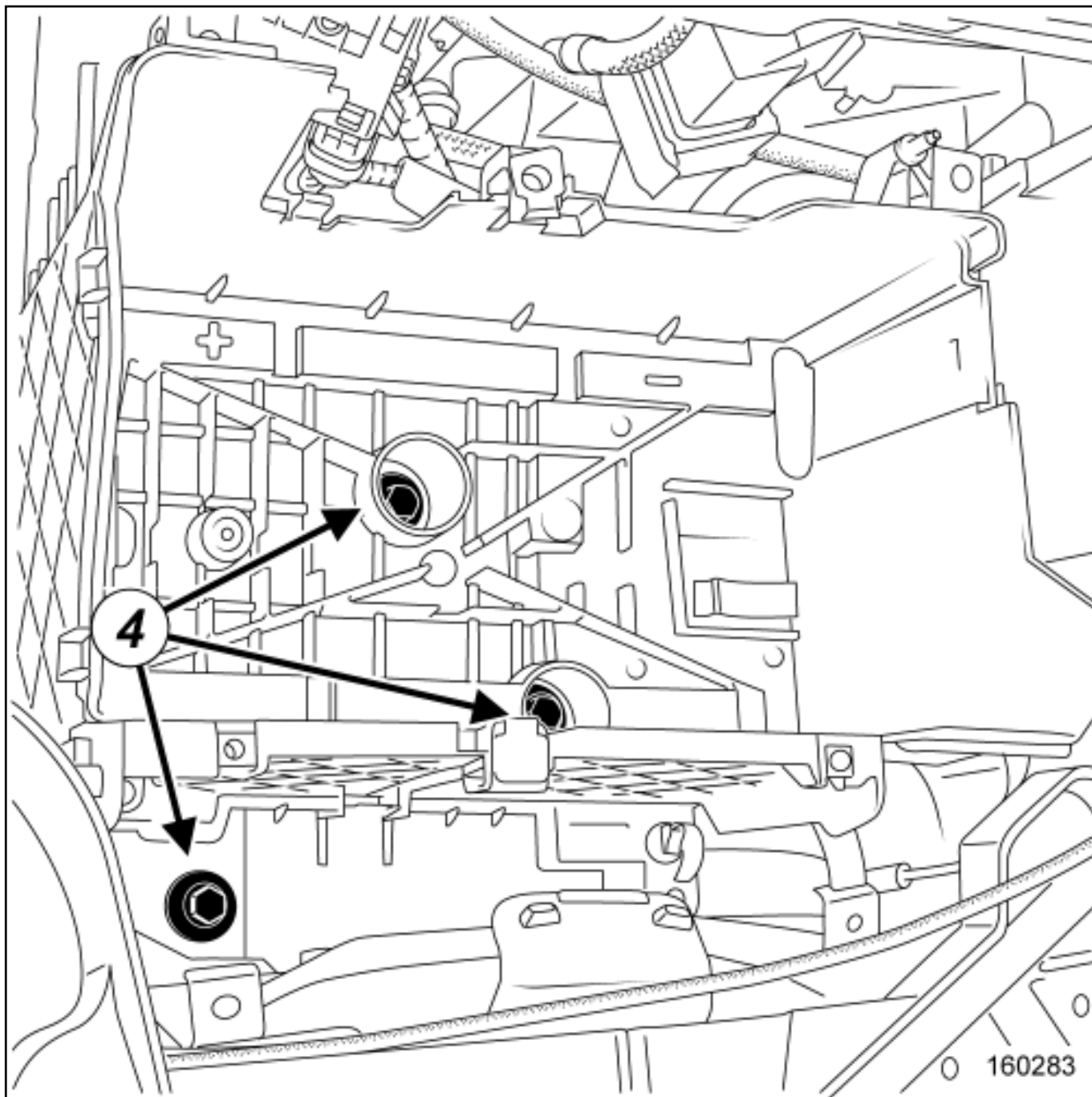
■ Remove:

- the battery disconnection unit bolt(1) ,
- the pre-postheating unit nut(2) ,
- the petrol injection computer support bolts(3) .

■ Move aside:

- the battery disconnection unit,
- the pre-postheating unit,
- the petrol injection computer support with the petrol injection computer.

2. REMOVAL OPERATION

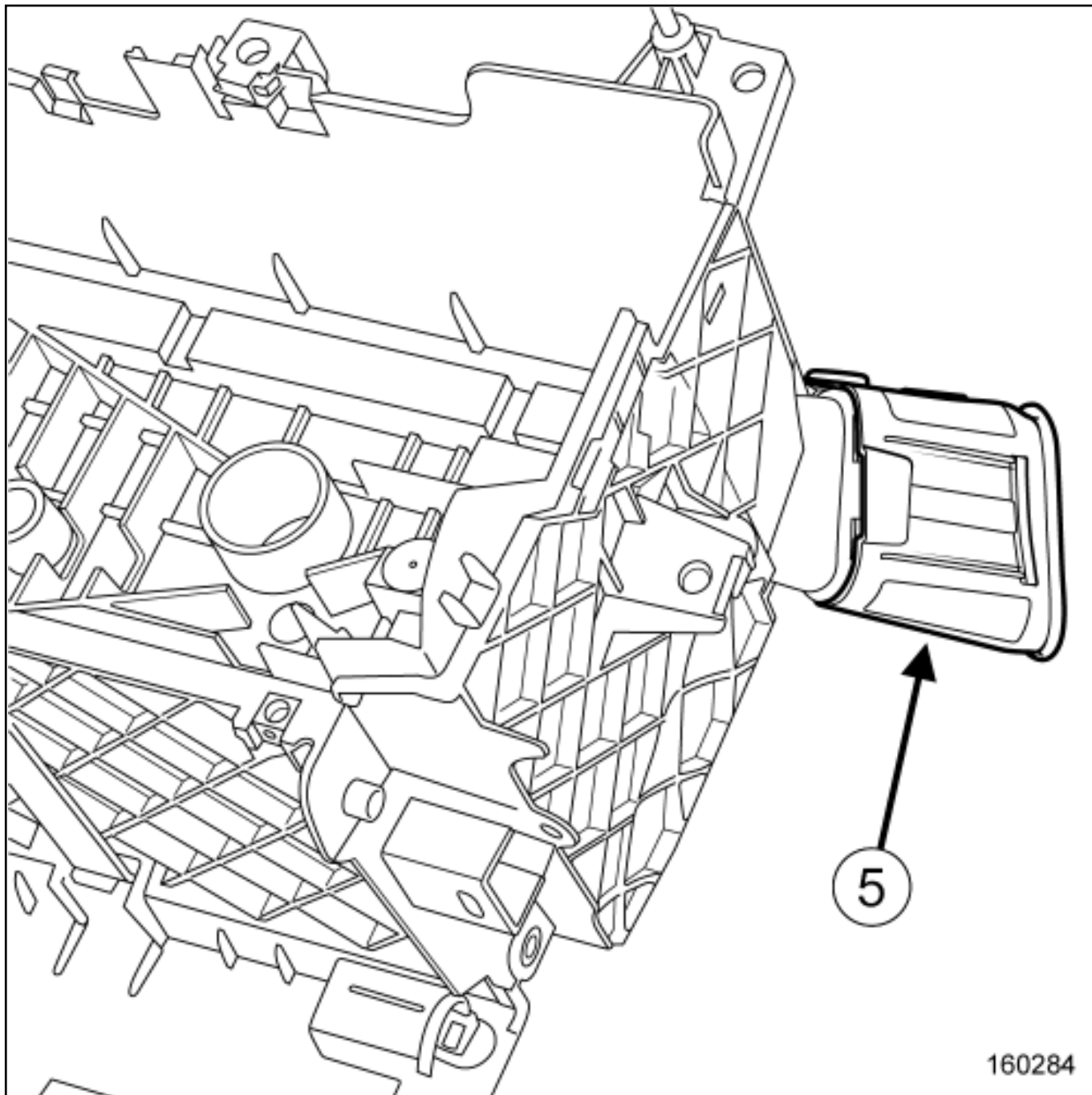


■ Remove:

- the battery tray bolts(4) ,
- the battery tray.

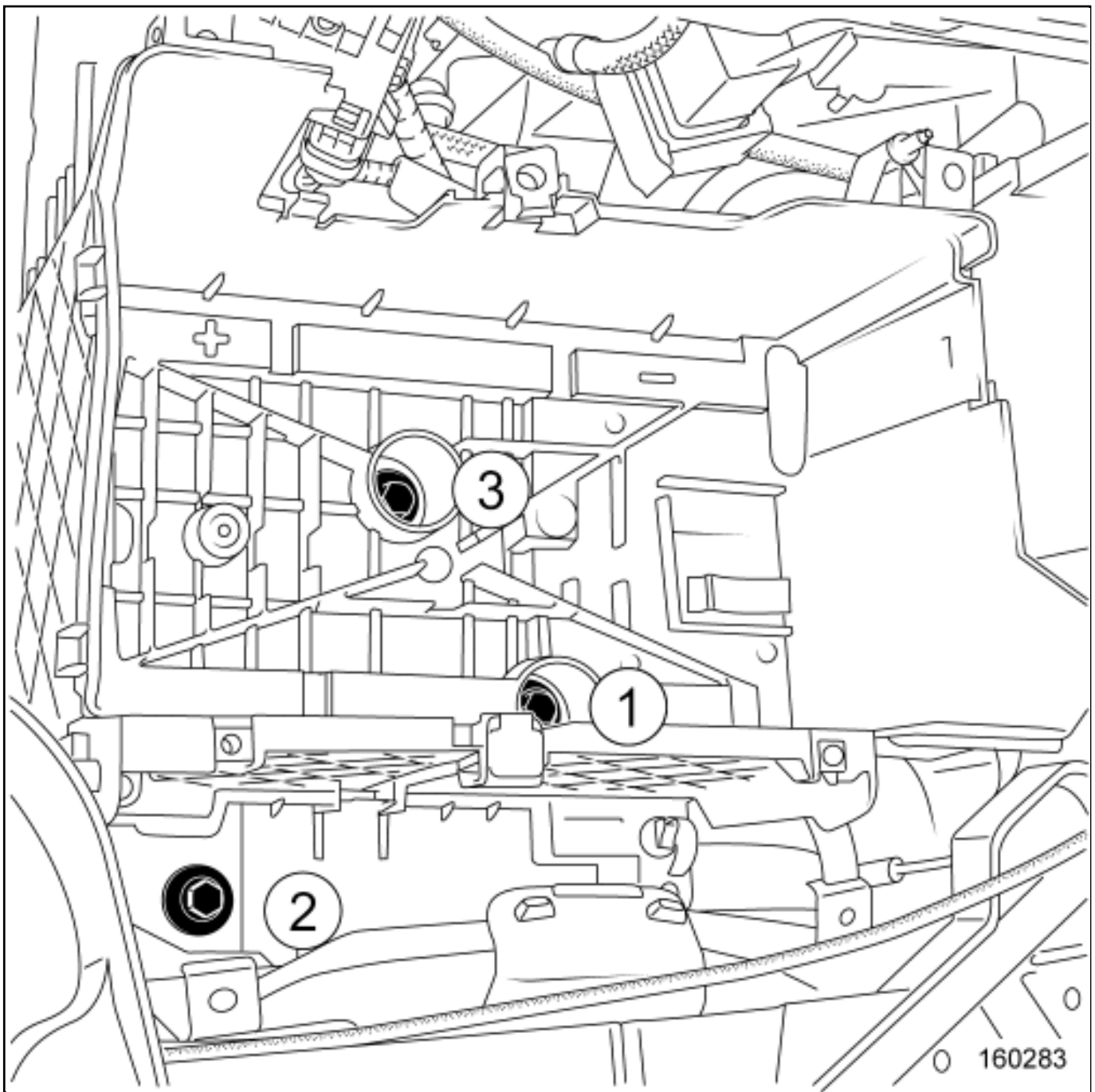
REFITTING

1. REFITTING OPERATION



Refit the battery tray.

Clip the drain duct(5) onto the battery tray.



- Refit the bolts.

- Torque tighten in order(1) , (2) , (3) the battery tray bolts 21 N.m.

2. FINAL OPERATION

Proceed in the reverse order to removal.



Repair-32x01x01x02-01x37-1-36-1.xml



XSL version : 3.02 du 22/07/11

BODY SIDE REAR LINING: REPLACEMENT



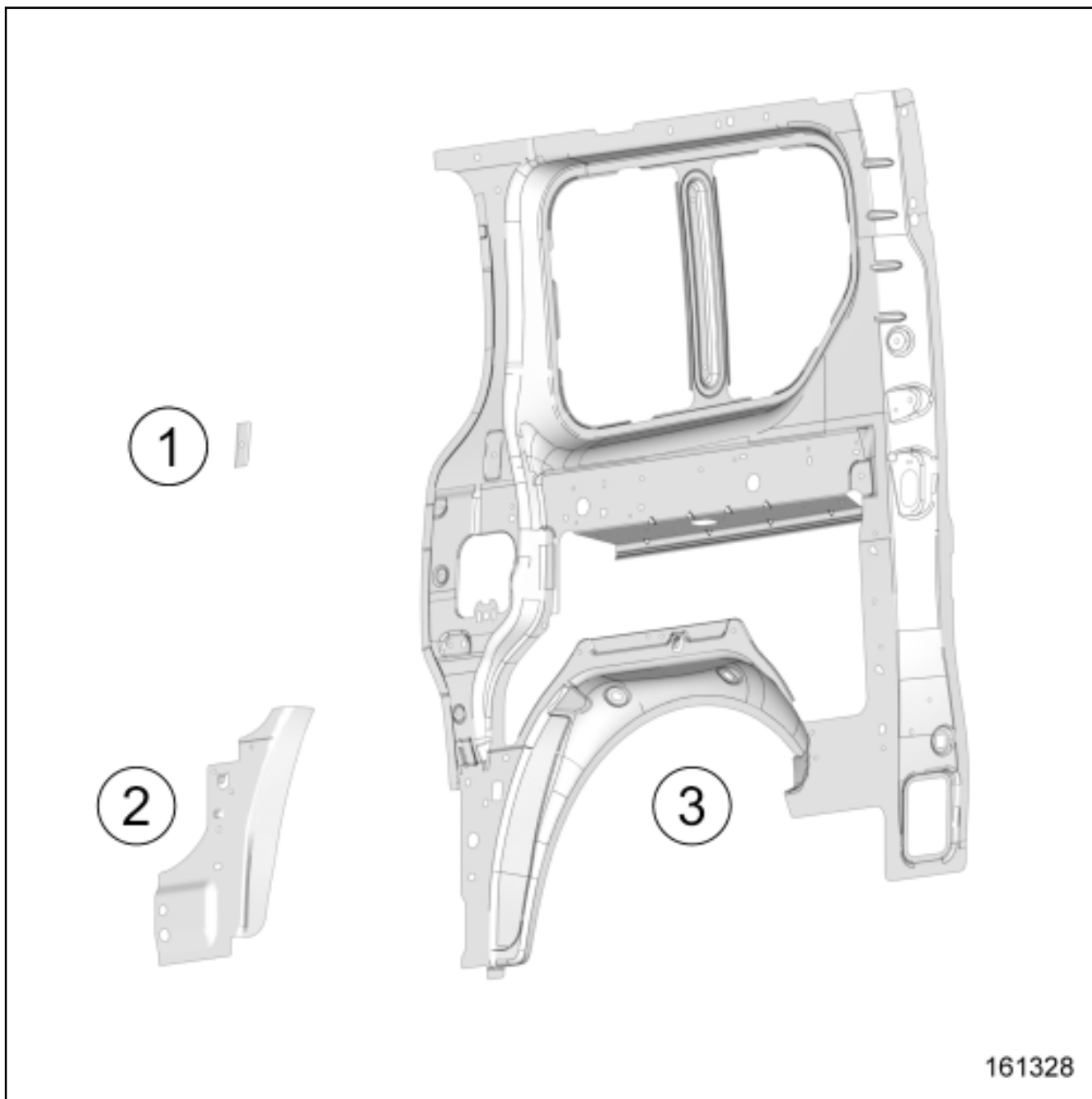
Note, one or more warnings are present in this procedure



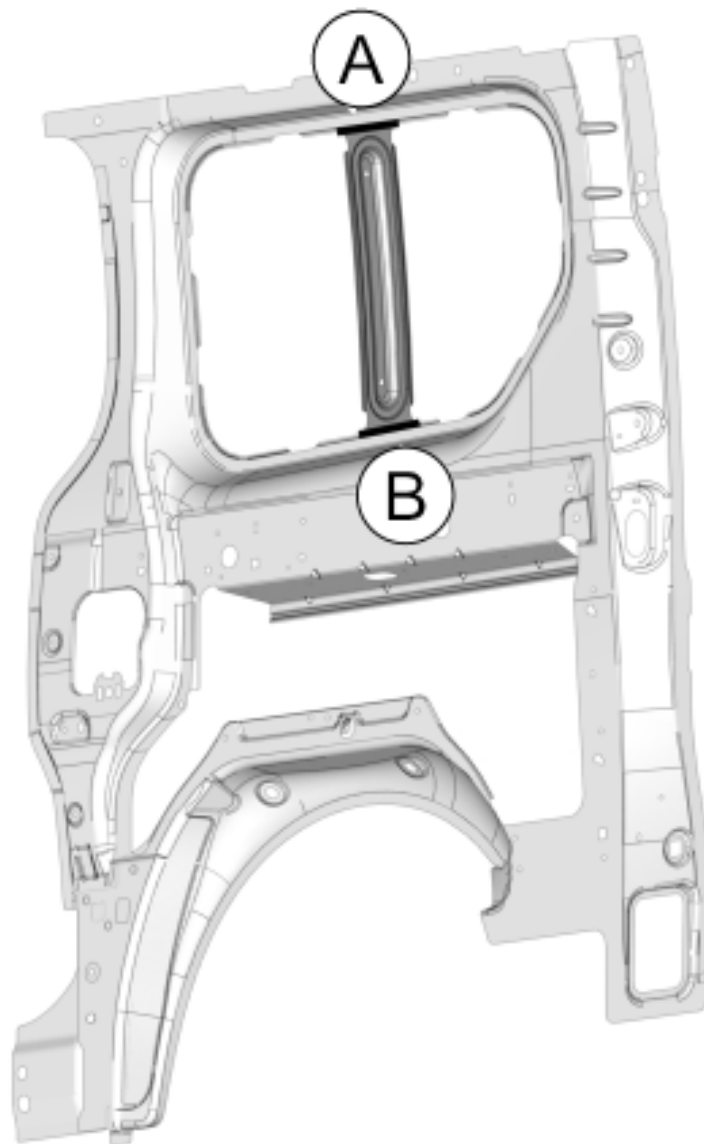
WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



No.	Description	Type	Thickness (mm)
(1)	Reinforcement plate	Mild steel	2
(2)	C-pillarreinforcement	HSS	1.5
(3)	Body side rear lining	Mild steel	0.7



161330

Note:



The Parts Department only supply the body side rear lining for the panel version; for the glazed version it is necessary to cut out the A-B section in concordance with the indication of the illustration above.

2. IN THE EVENT OF REPLACEMENT

■ There is only one way of replacing this part:

complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

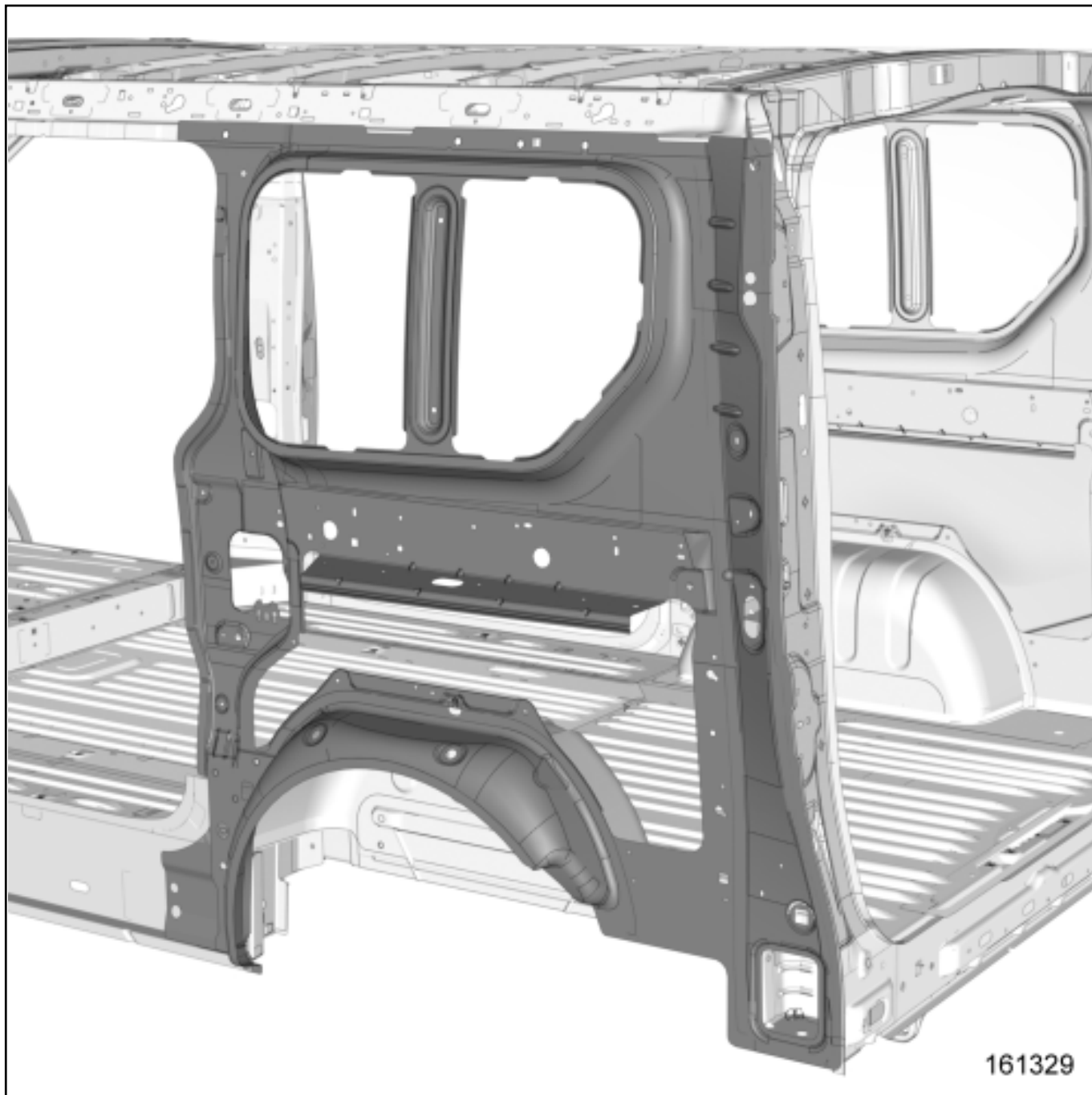
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



2) REMOVABLE BODYWORK COMPONENTS - STRUCTURES TO BE REMOVED IN ORDER TO CARRY OUT THE REPLACEMENT OPERATION

Remove the roof [Roof: Replacement](#) .



Repair-40x09x18-02x49-1-11-1.xml



BODY SIDE, FRONT SECTION: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

VERSION WITHOUT SLIDING SIDE DOOR



No.	Description	Type	Thickness (mm)
(1)	Body side, front section	Mild steel	0.9
(2)	Door striker panel reinforcement	HSS	1.5

SLIDING SIDE DOOR VERSION

4



5

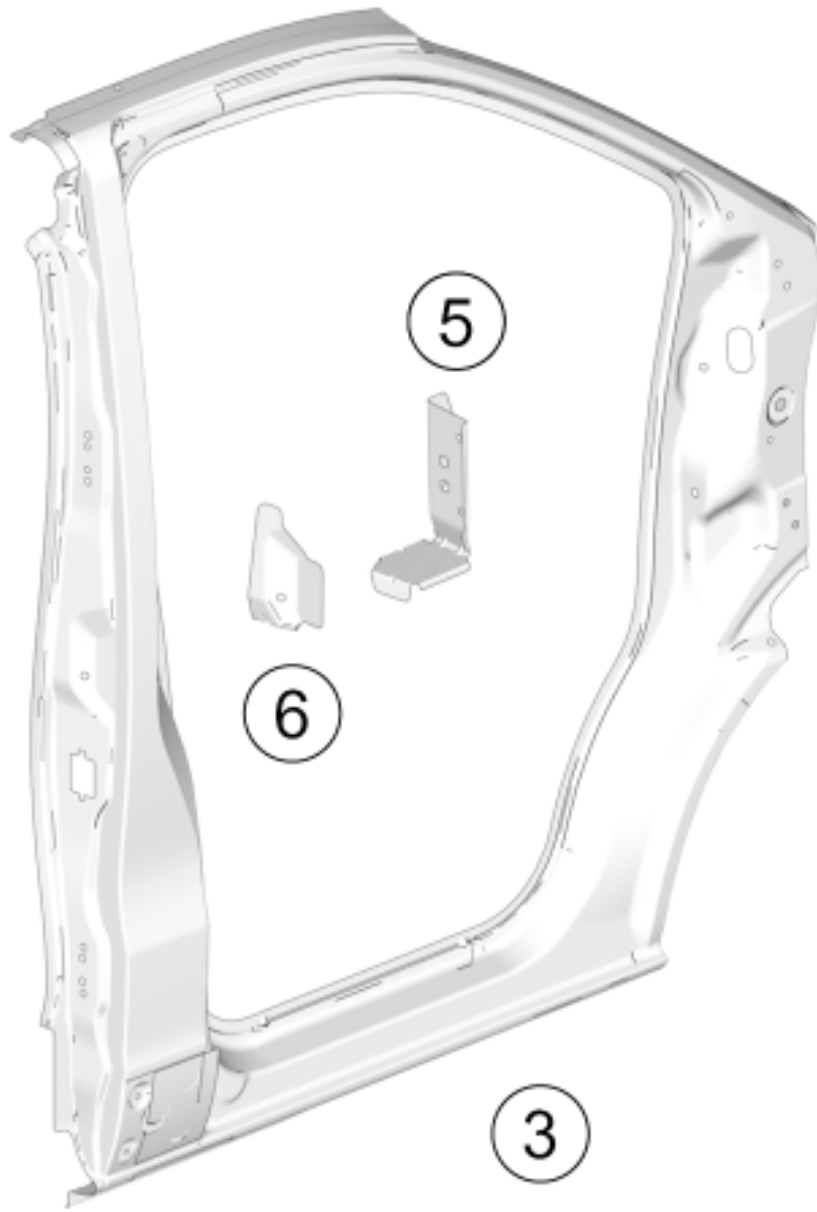


6

4



3



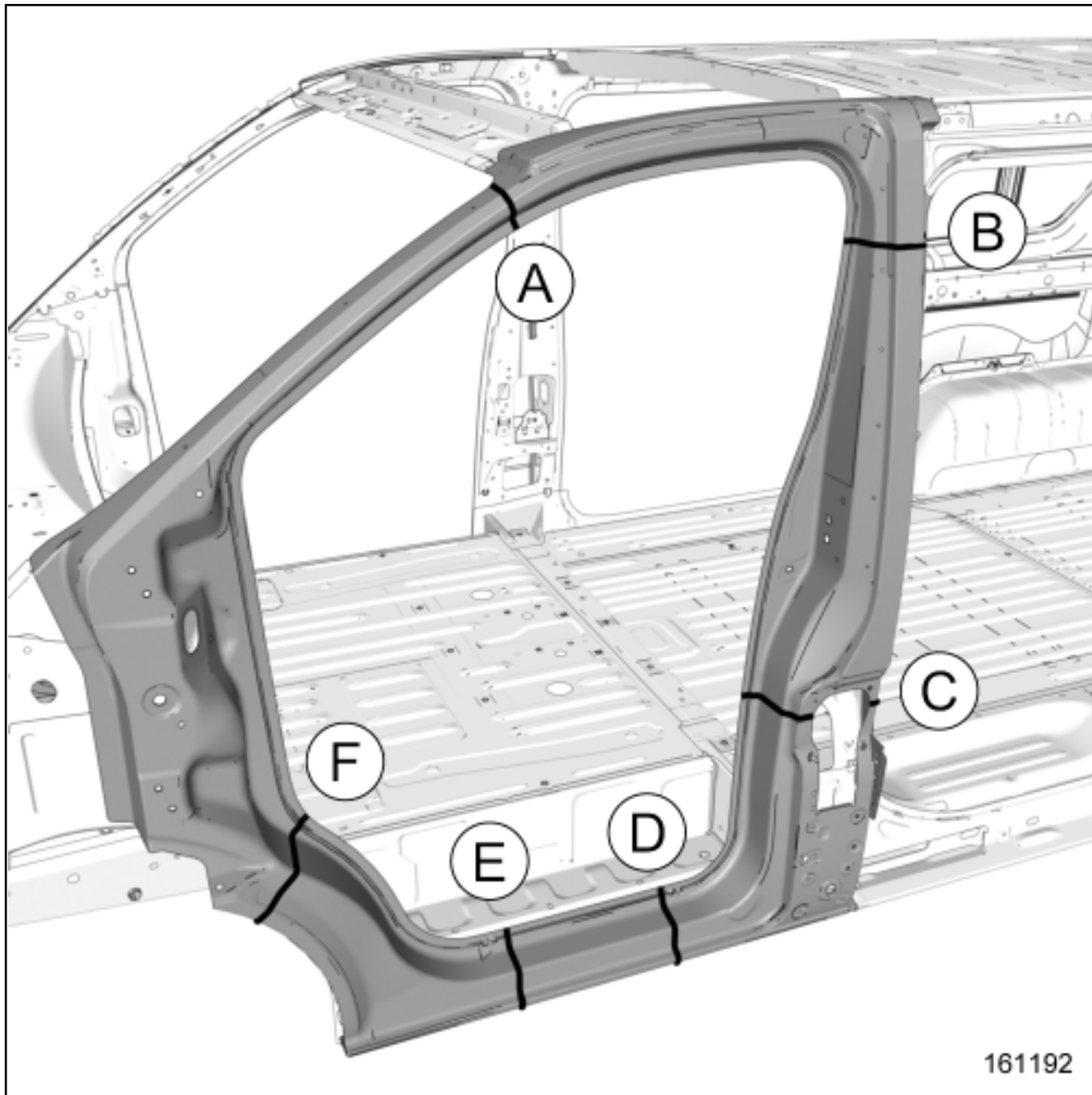
161164

No.	Description	Type	Thickness (mm)
(3)	Body side, front section	Mild steel	0.9
(4)	Door rear centring reinforcement	Mild steel	2.5
(5)	Door striker panel reinforcement	HSS	1.5
(6)	B-pillar impact reinforcement	HSS	2.0

2. IN THE EVENT OF REPLACEMENT

■ The options for replacing this part are as follows:

- complete replacement,
- partial replacement A-D,
- partial replacement B-D,
- partial replacement C-F,
- partial replacement D-F,
- partial replacement C-E.



161192



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



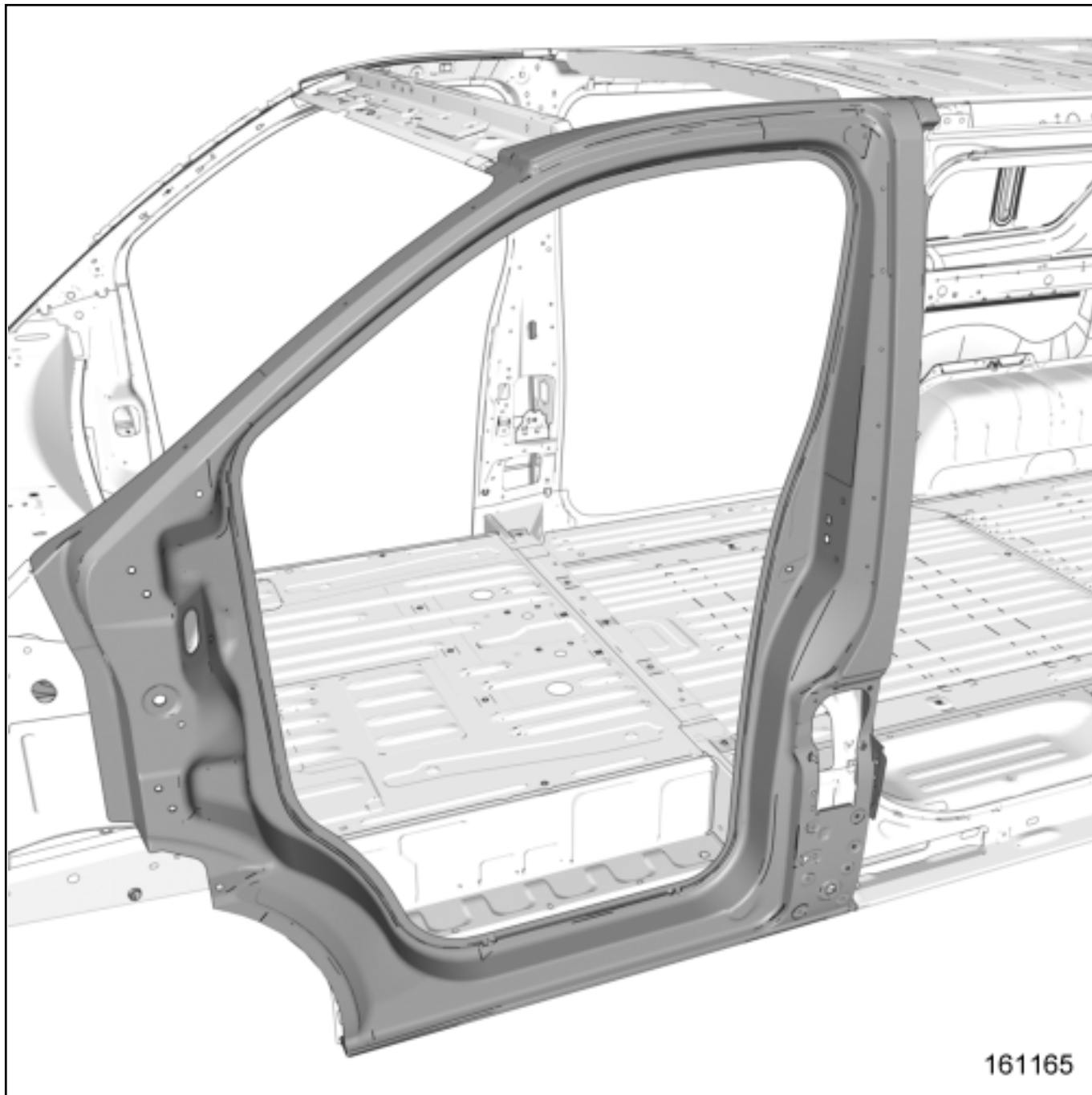
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



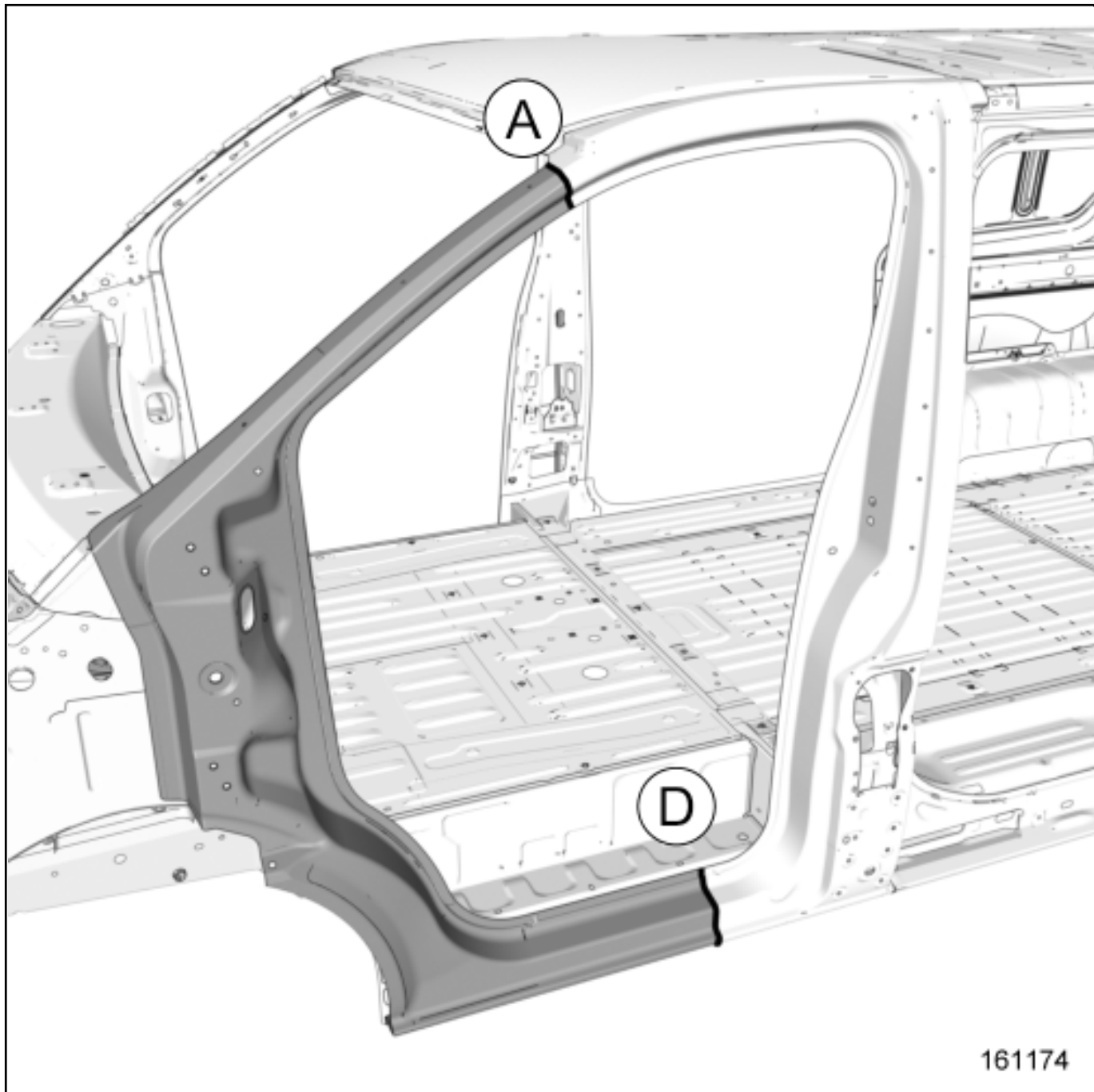
161165

2) REMOVABLE BODYWORK COMPONENTS - STRUCTURAL COMPONENTS TO BE REMOVED IN ORDER TO CARRY OUT THE REPLACEMENT OPERATION

Remove the roof [Roof: Replacement](#) .

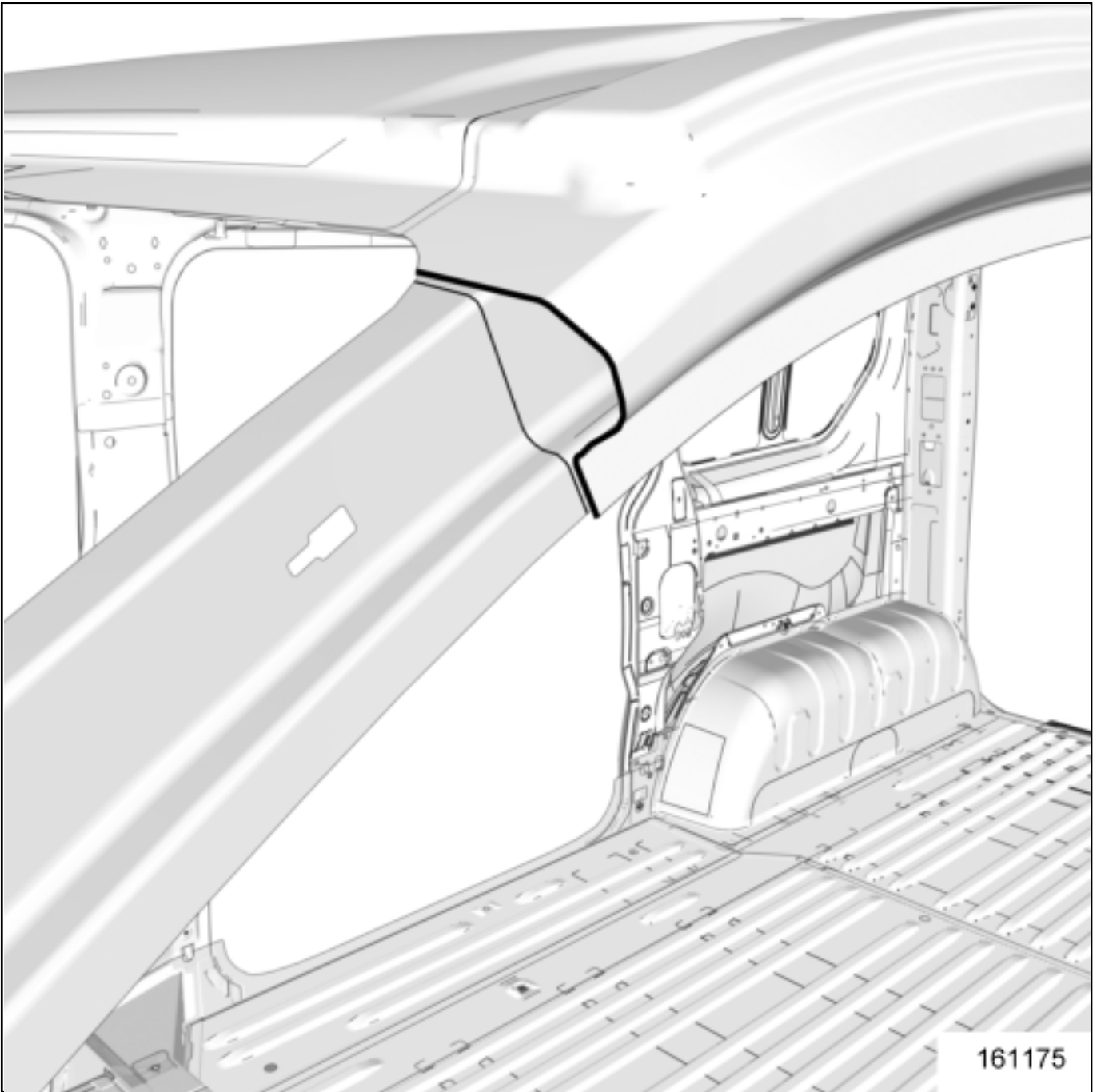
2- PARTIAL REPLACEMENT A-D

1) PART IN POSITION



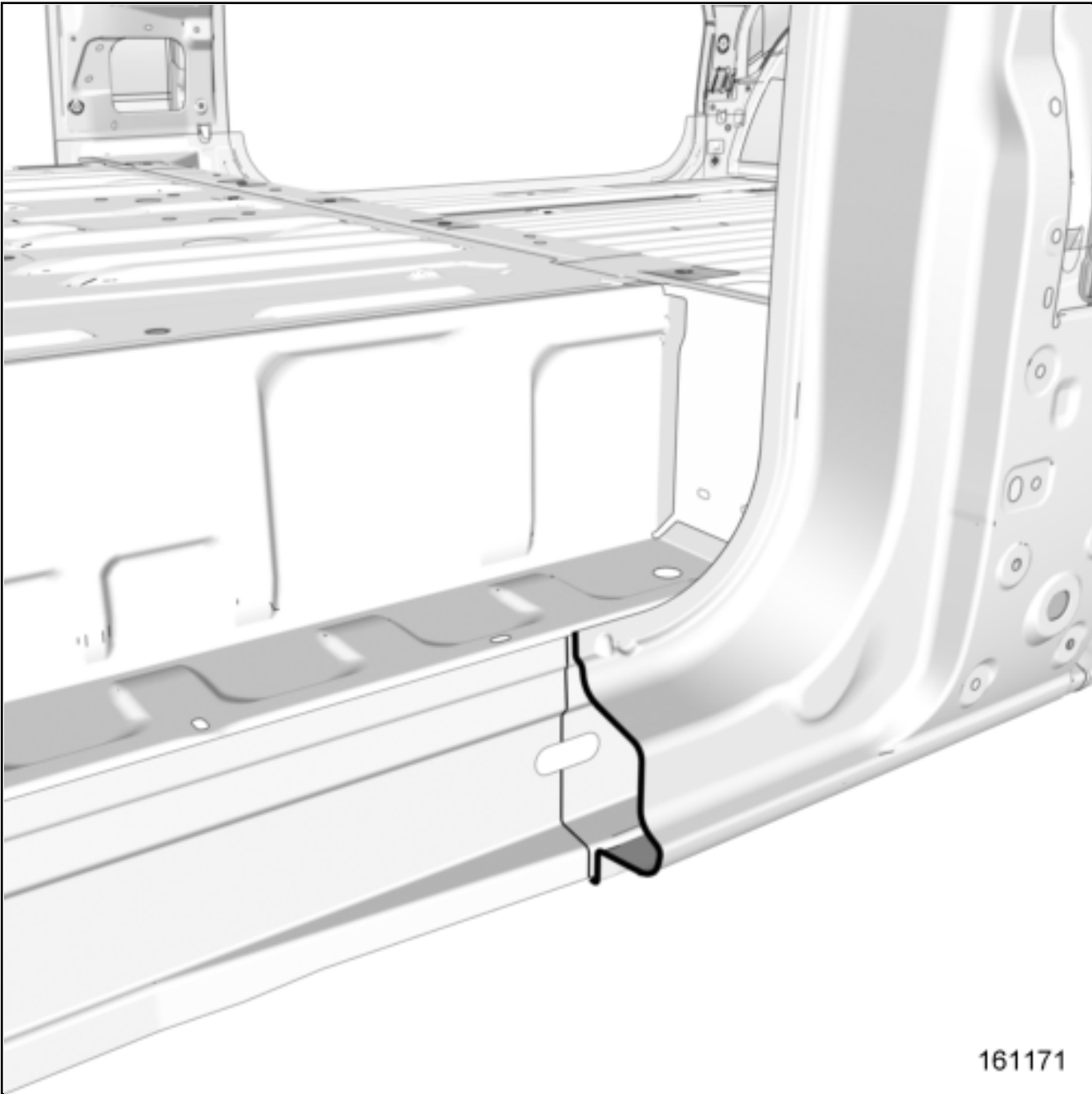
161174

DETAILED VIEW A



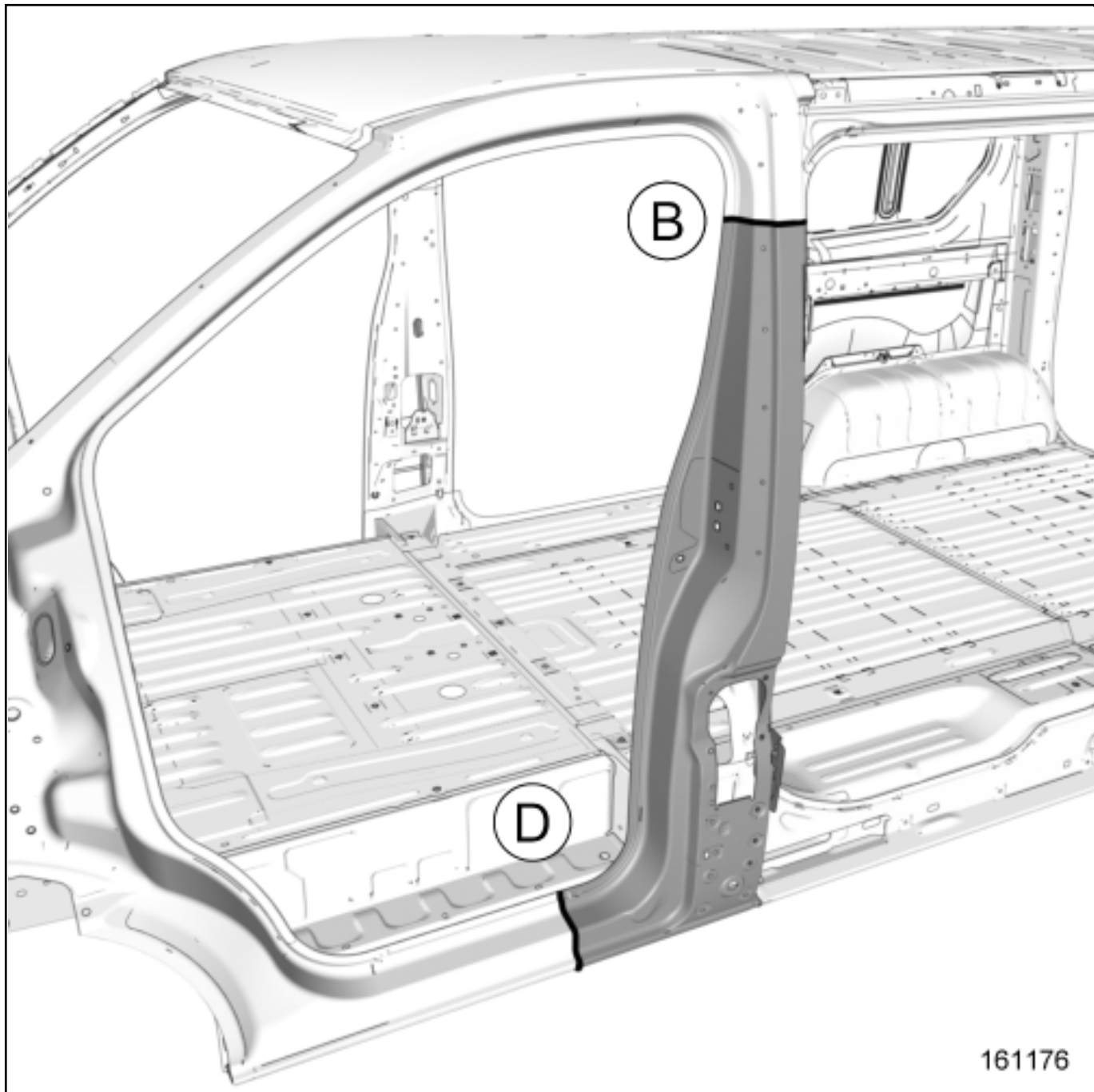
161175

DETAILED VIEW D



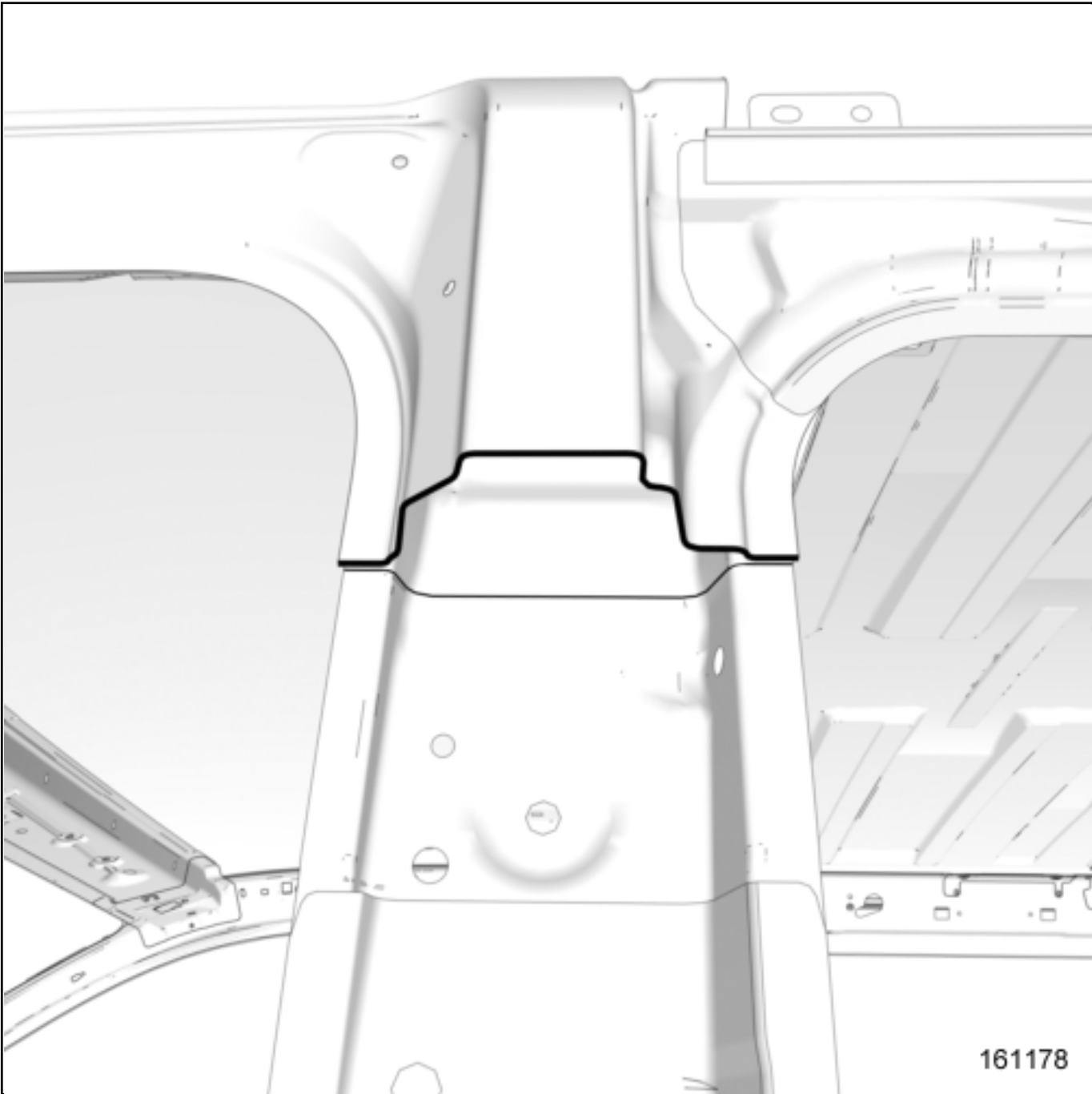
3- PARTIAL REPLACEMENT B-D

1)PART IN POSITION

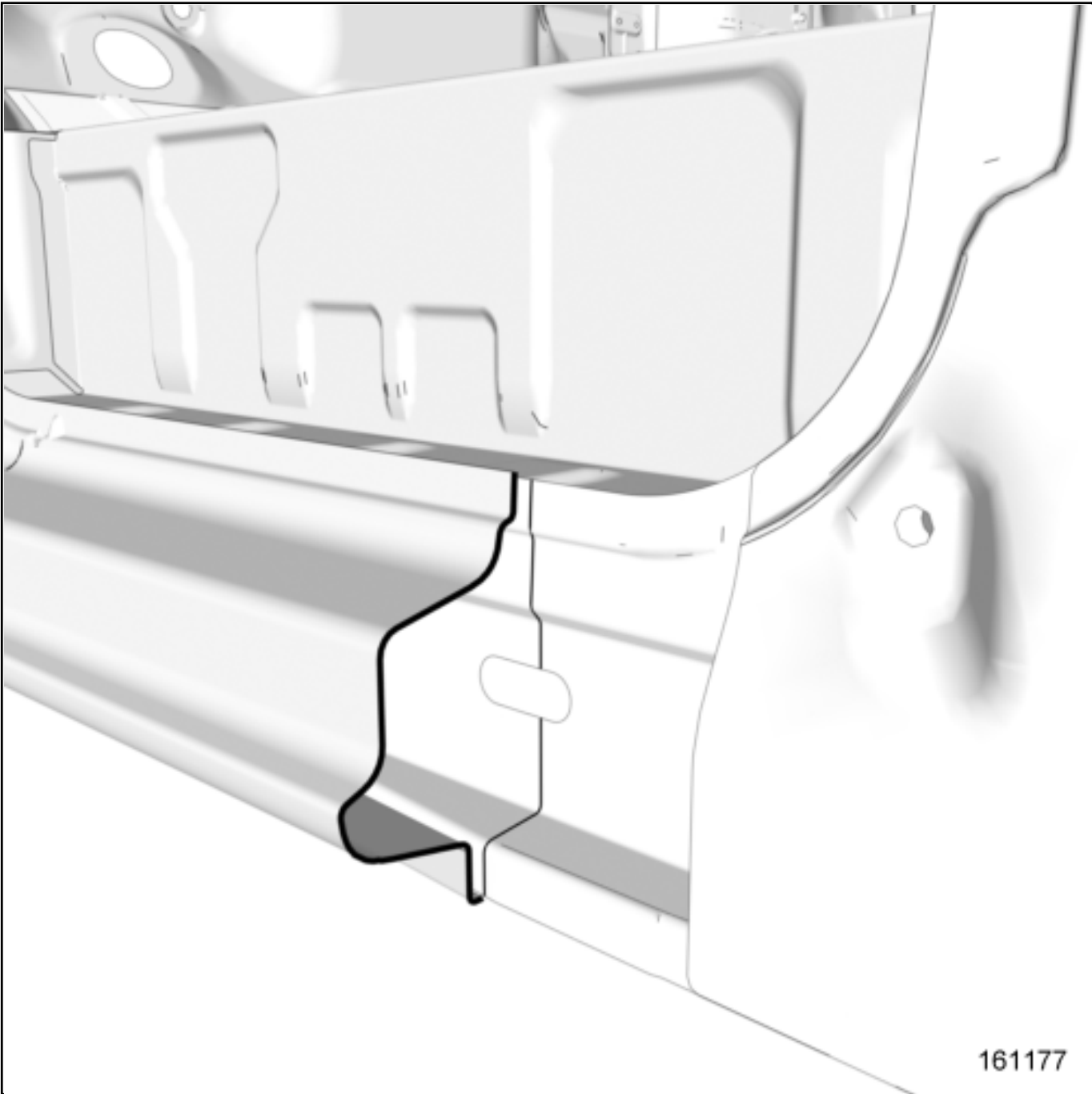


161176

DETAILED VIEW B

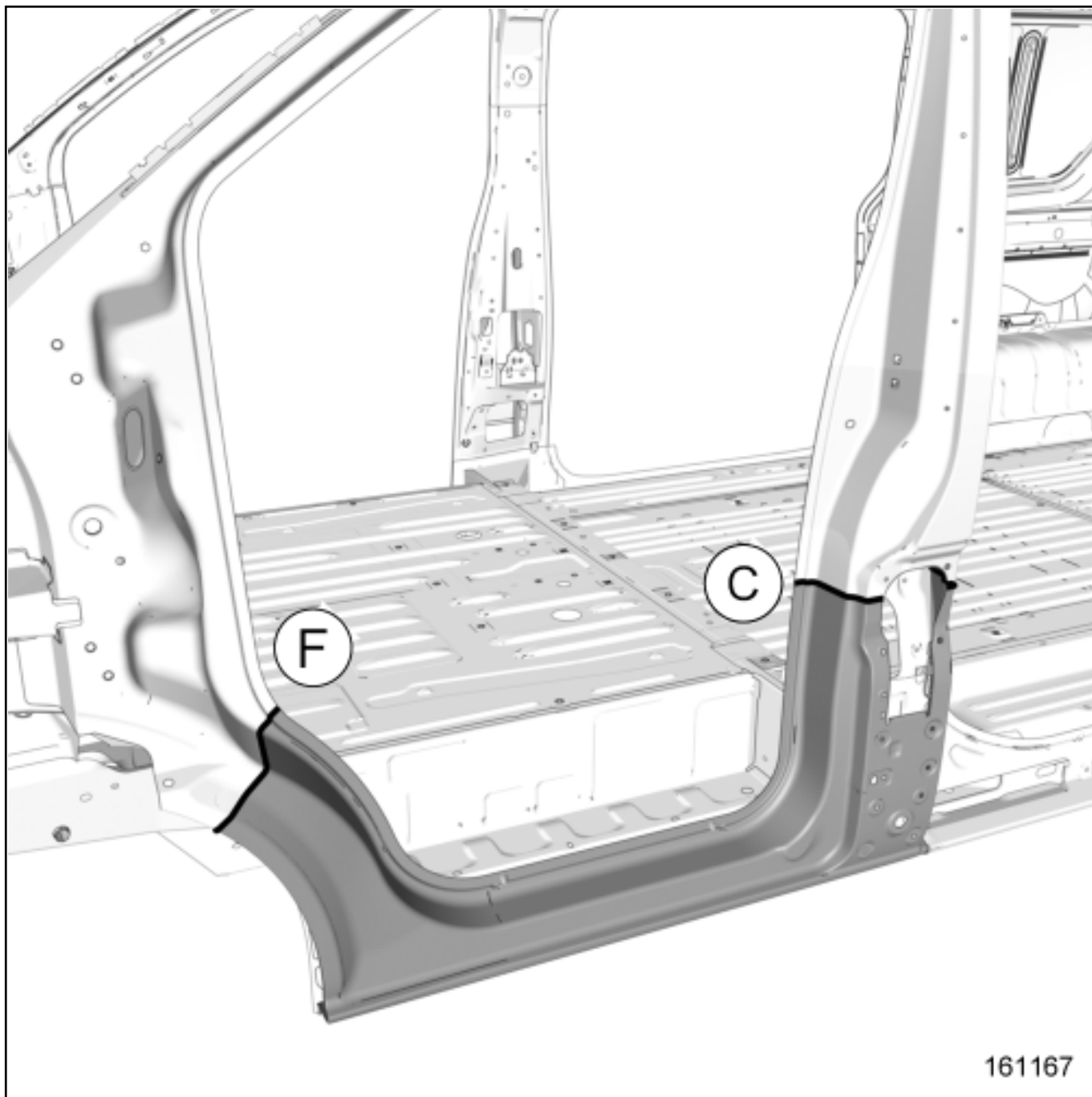


DETAILED VIEW D



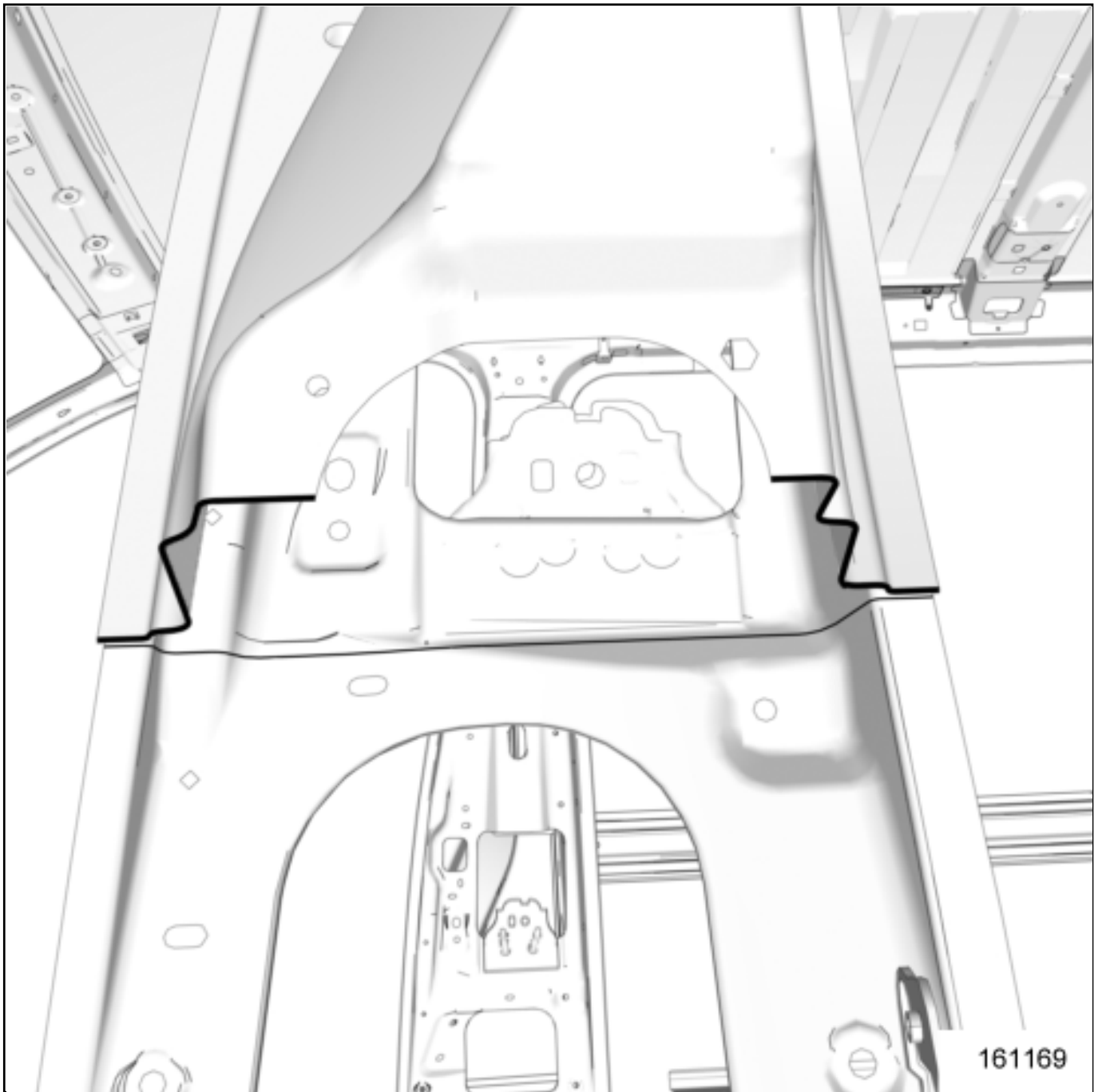
4- PARTIAL REPLACEMENT C-F

1)PART IN POSITION

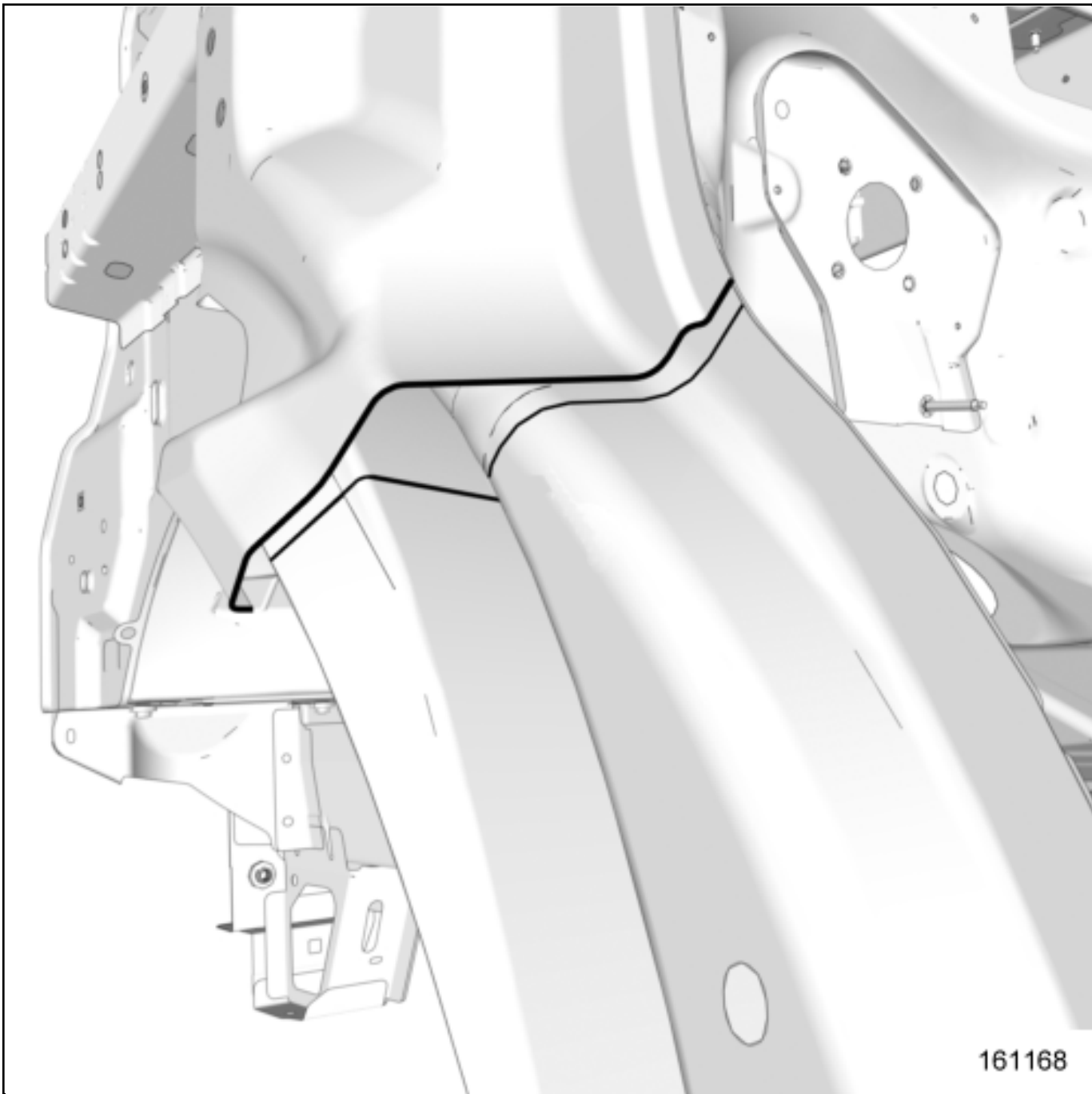


161167

DETAILED VIEW C



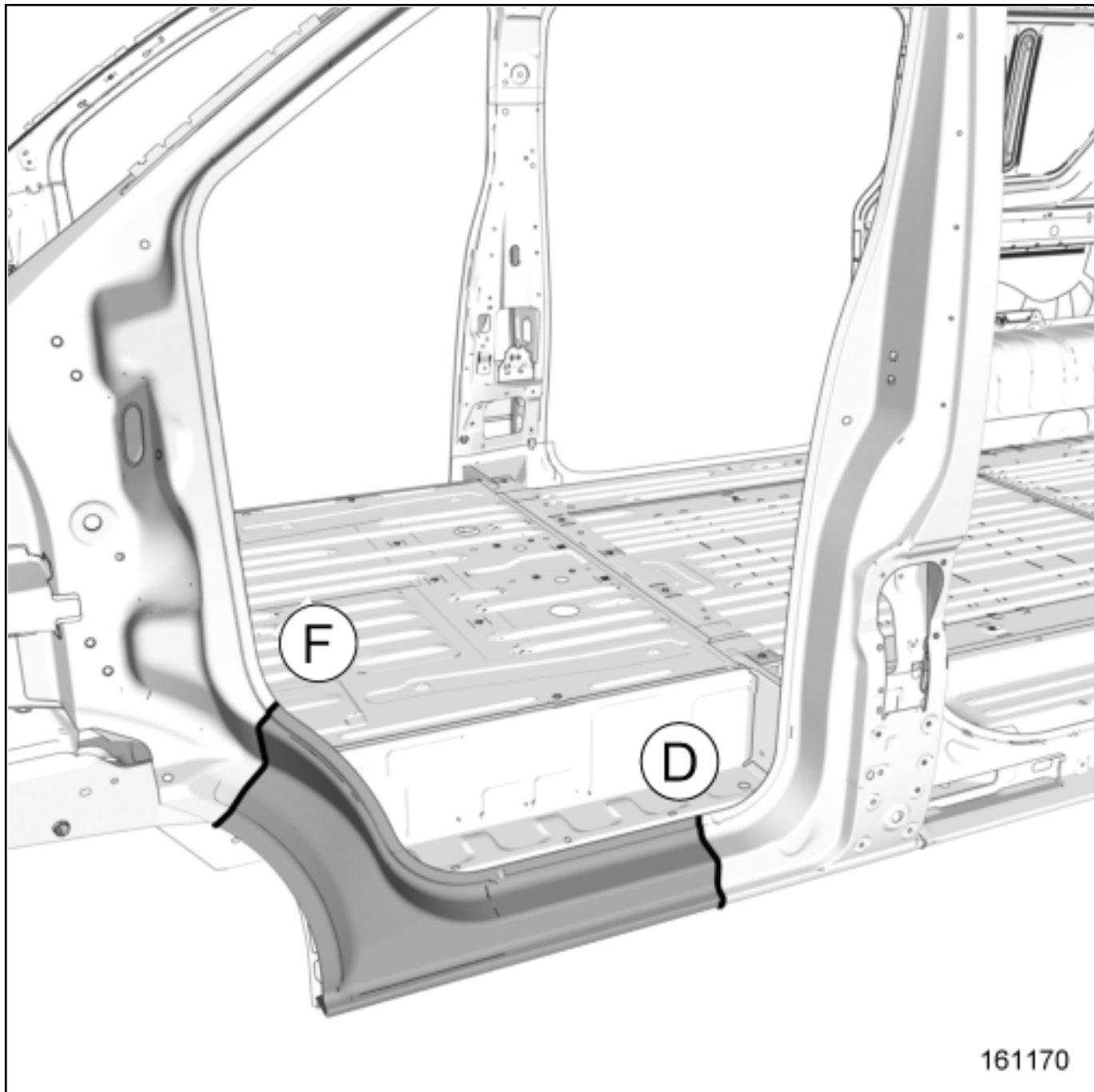
DETAILED VIEW F



161168

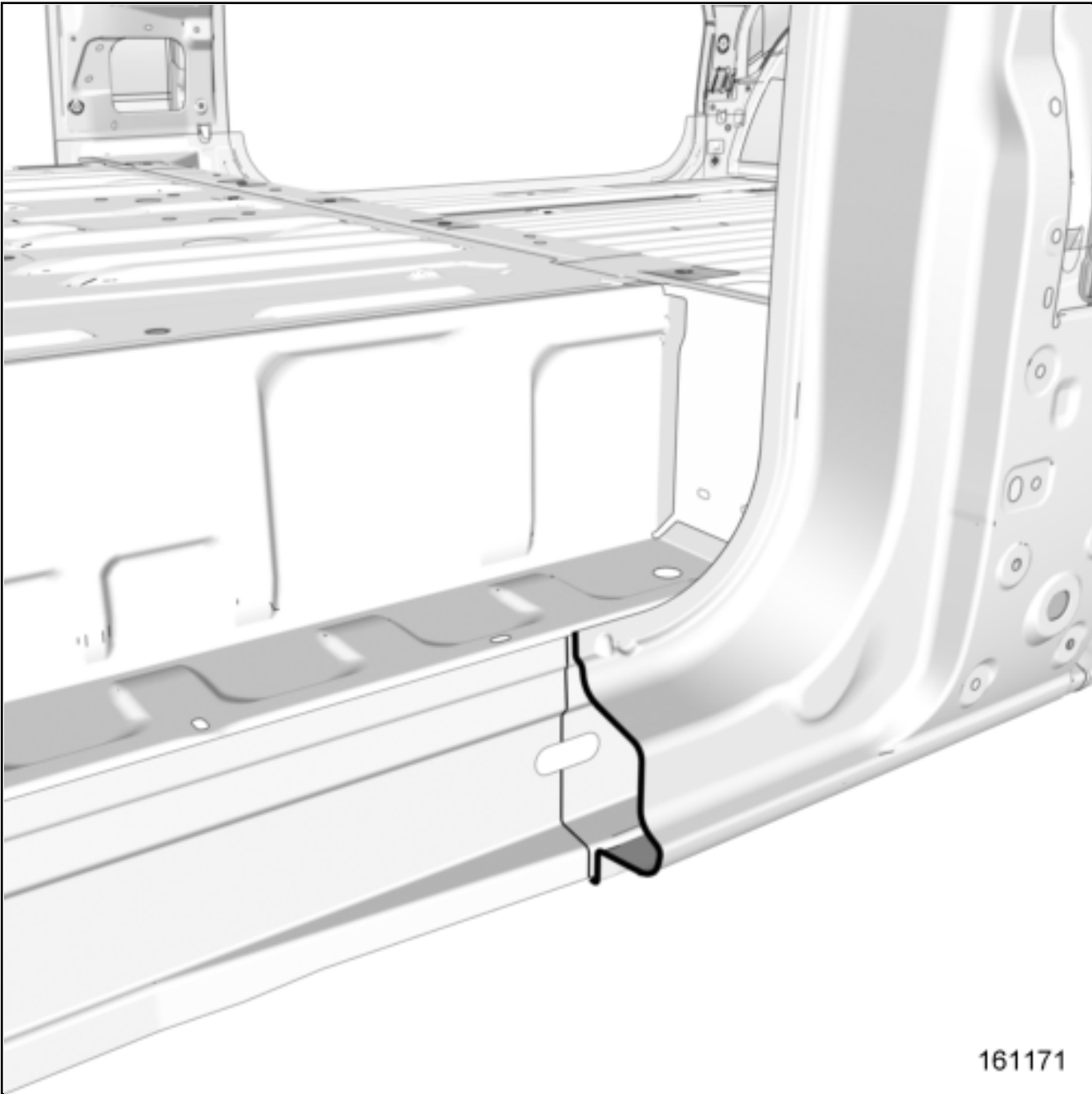
5- PARTIAL REPLACEMENT D-F

1)PART IN POSITION



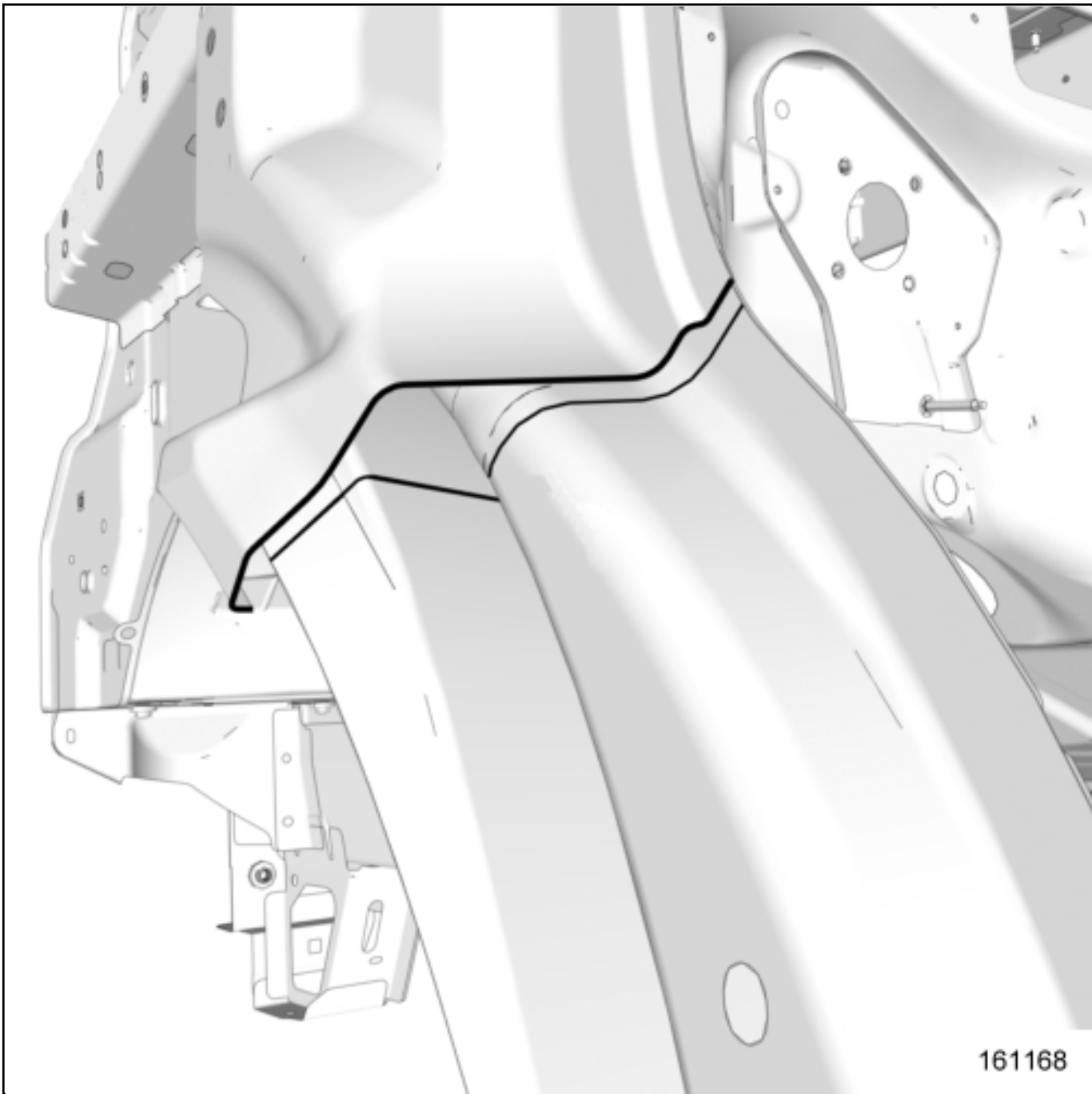
161170

DETAILED VIEW D



161171

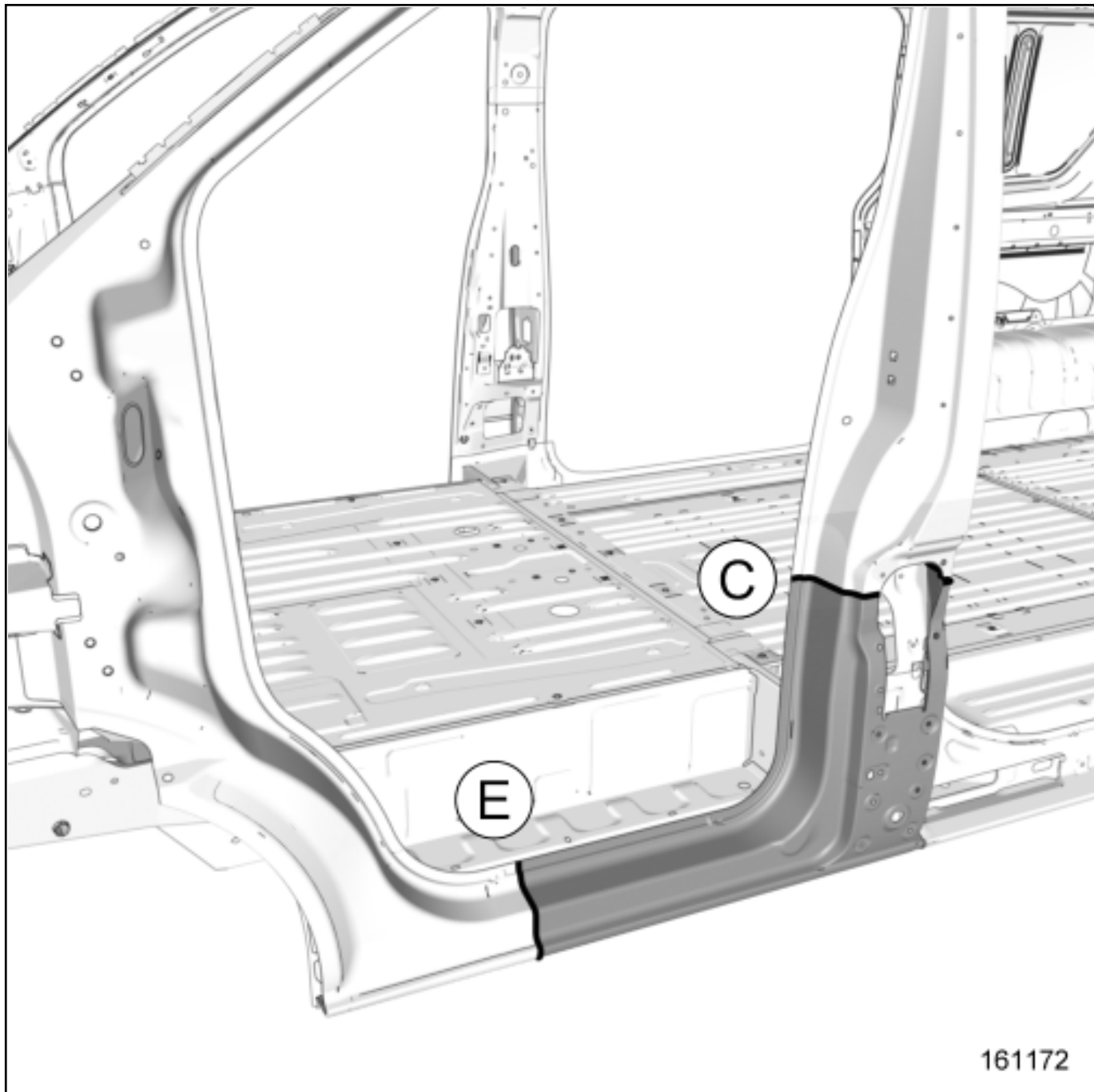
DETAILED VIEW F



161168

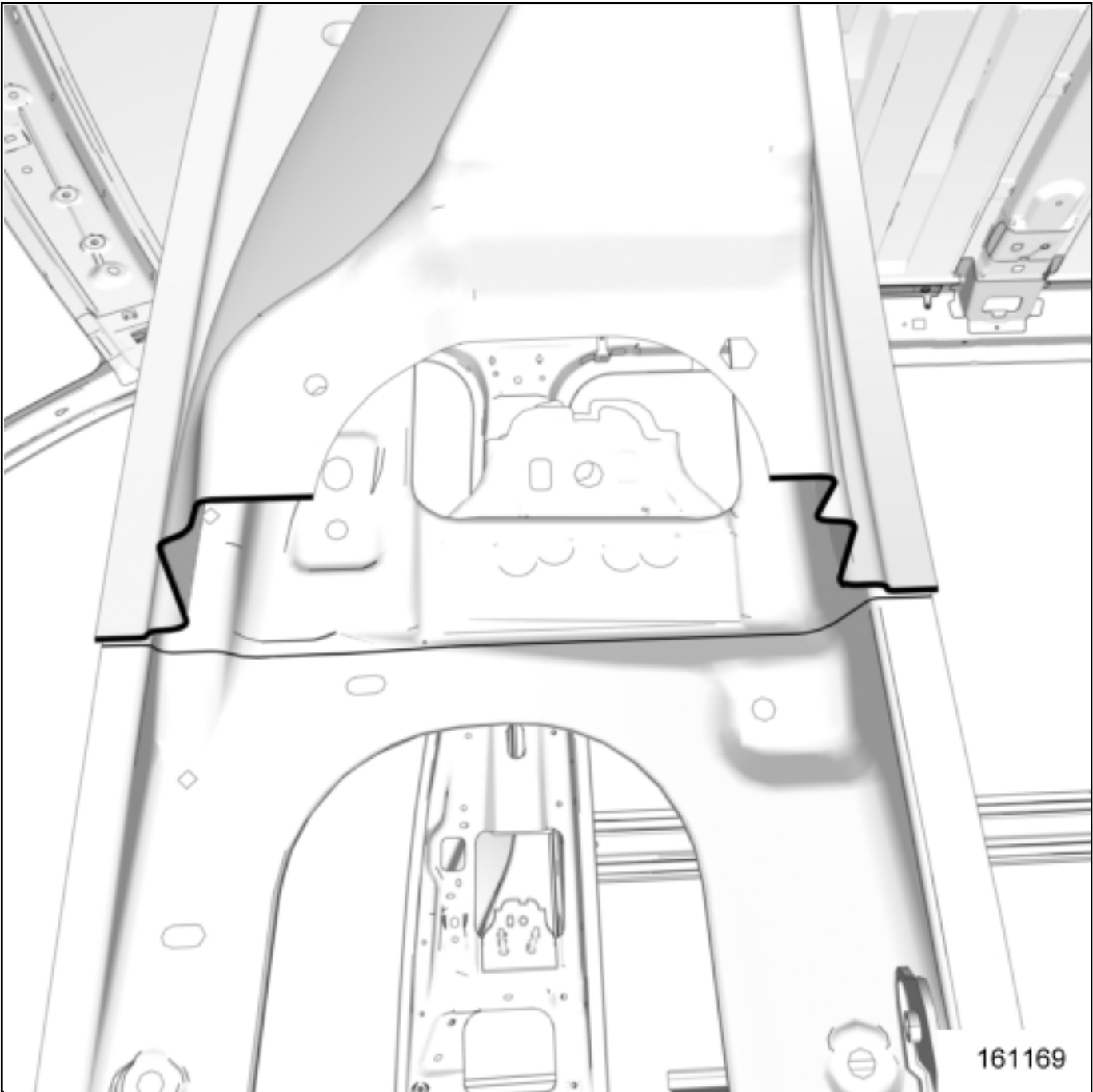
6- PARTIAL REPLACEMENT C-E

1)PART IN POSITION



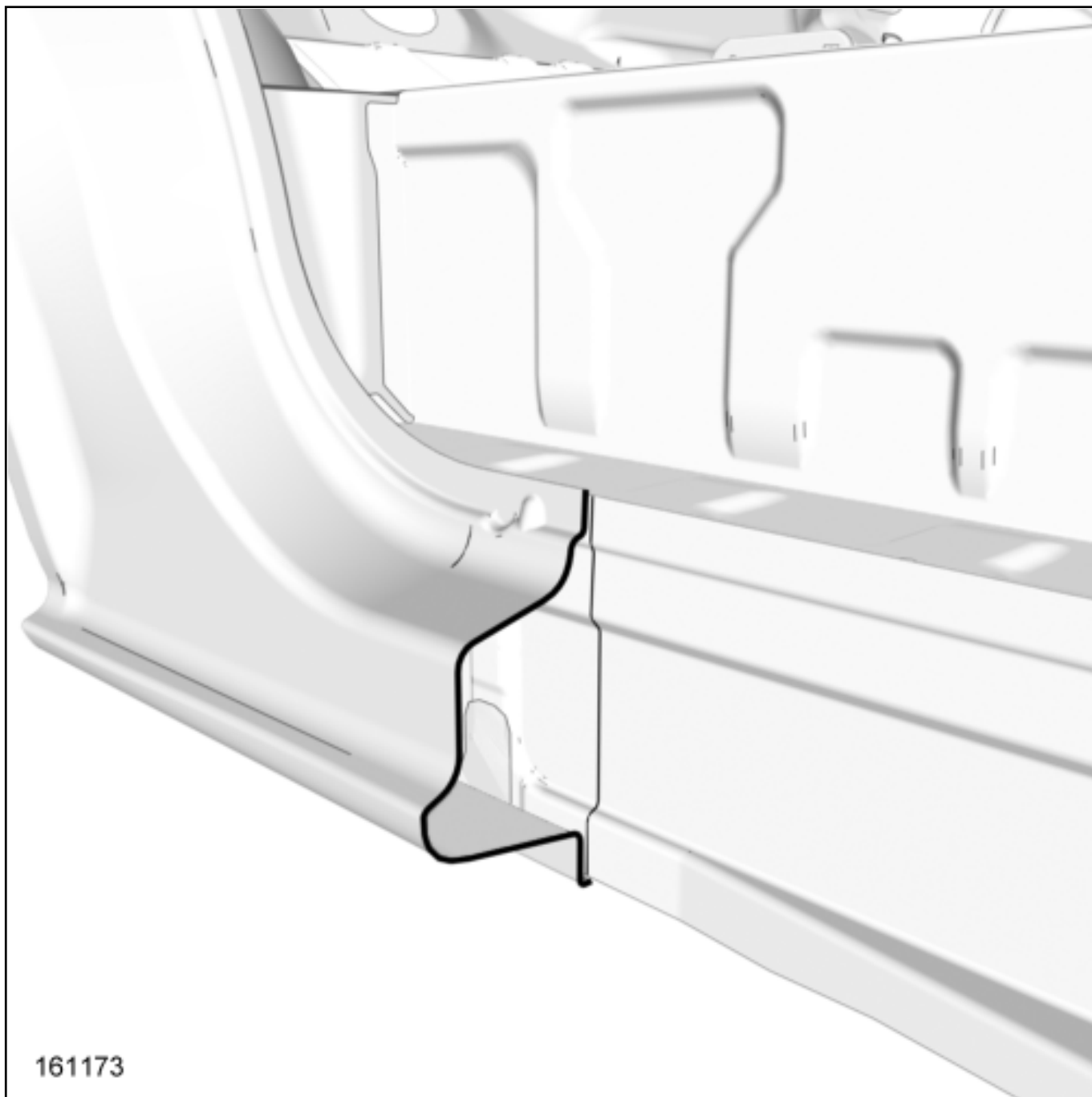
161172

DETAILED VIEW C



161169

DETAILED VIEW E



161173



Repair-40x08x08x02-02x49-1-10-1.xml



BONNETHING MOUNTING: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

Location and specifications (tightening torques, parts always to be replaced, etc.) [Front opening element mechanism assembly : Exploded view](#) .

1. REMOVAL PREPARATION OPERATION

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

Remove:

- the front wheel arch liner [Front wheel arch liner: Removal - Refitting](#) ,
- the front bumper [Front bumper assembly: Exploded view](#) ,

- the windscreen pillar trim [Windscreen pillar trim: Removal - Refitting](#) ,

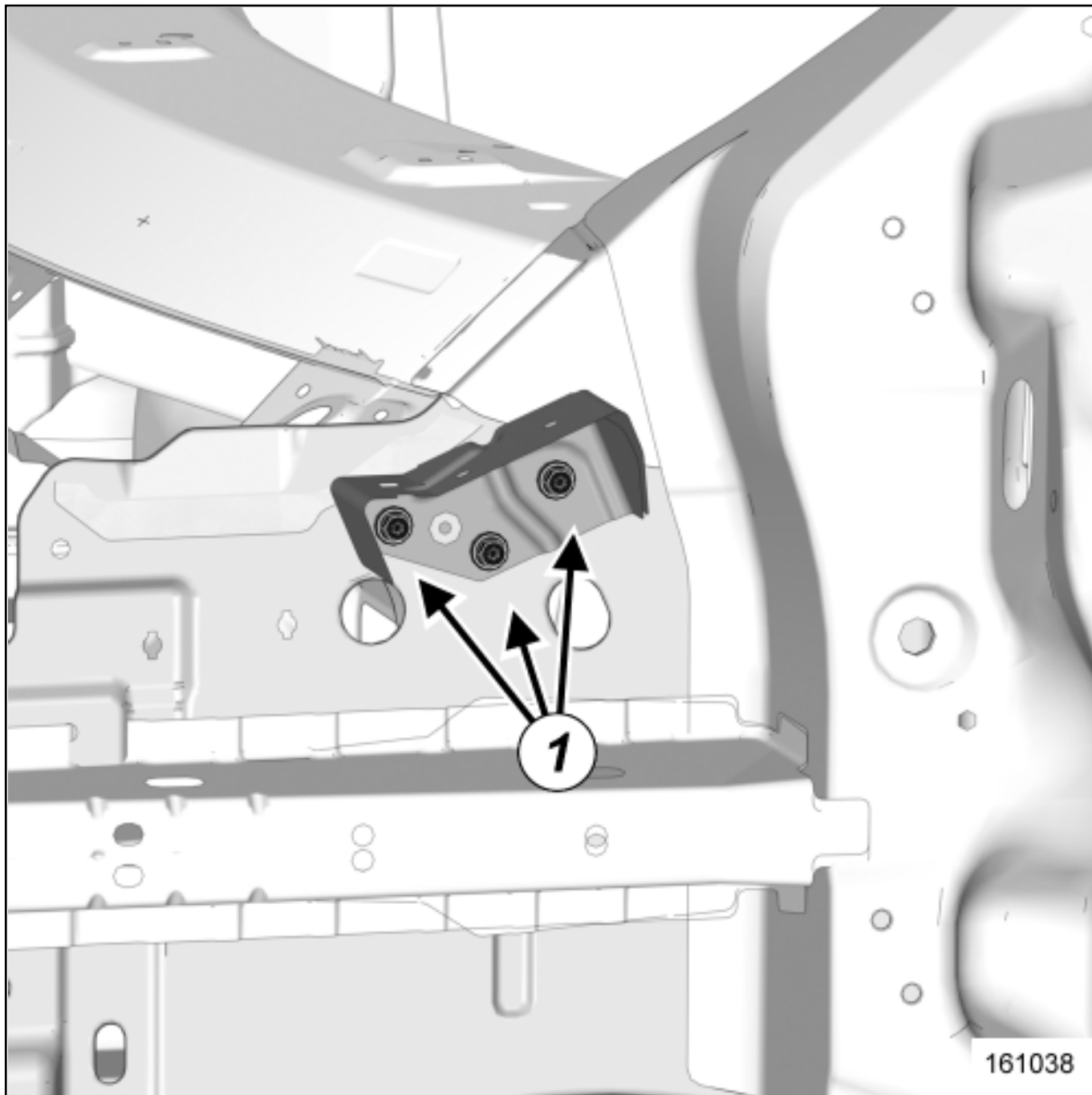
- the bonnet strut [Front opening element mechanism assembly : Exploded view](#) ,

- the headlights [Front signals - lighting assembly: Exploded view](#) ,

- the front wing [Exterior body front trim assembly: Exploded view](#) ,

- the front opening element [Front opening element: Removal - Refitting](#) .

2. REMOVAL OPERATION



Remove:

-
- the bolts(1) ,
- the bonnet hinge mounting.

3. REFITTING OPERATION

Proceed in the reverse order to removal.

Adjust the opening clearances and flush fitting Vehicle panel gaps: Adjustment value .



Repair-40x06x18-02x49-1-3-1.xml



XSL version : 3.02 du 22/07/11

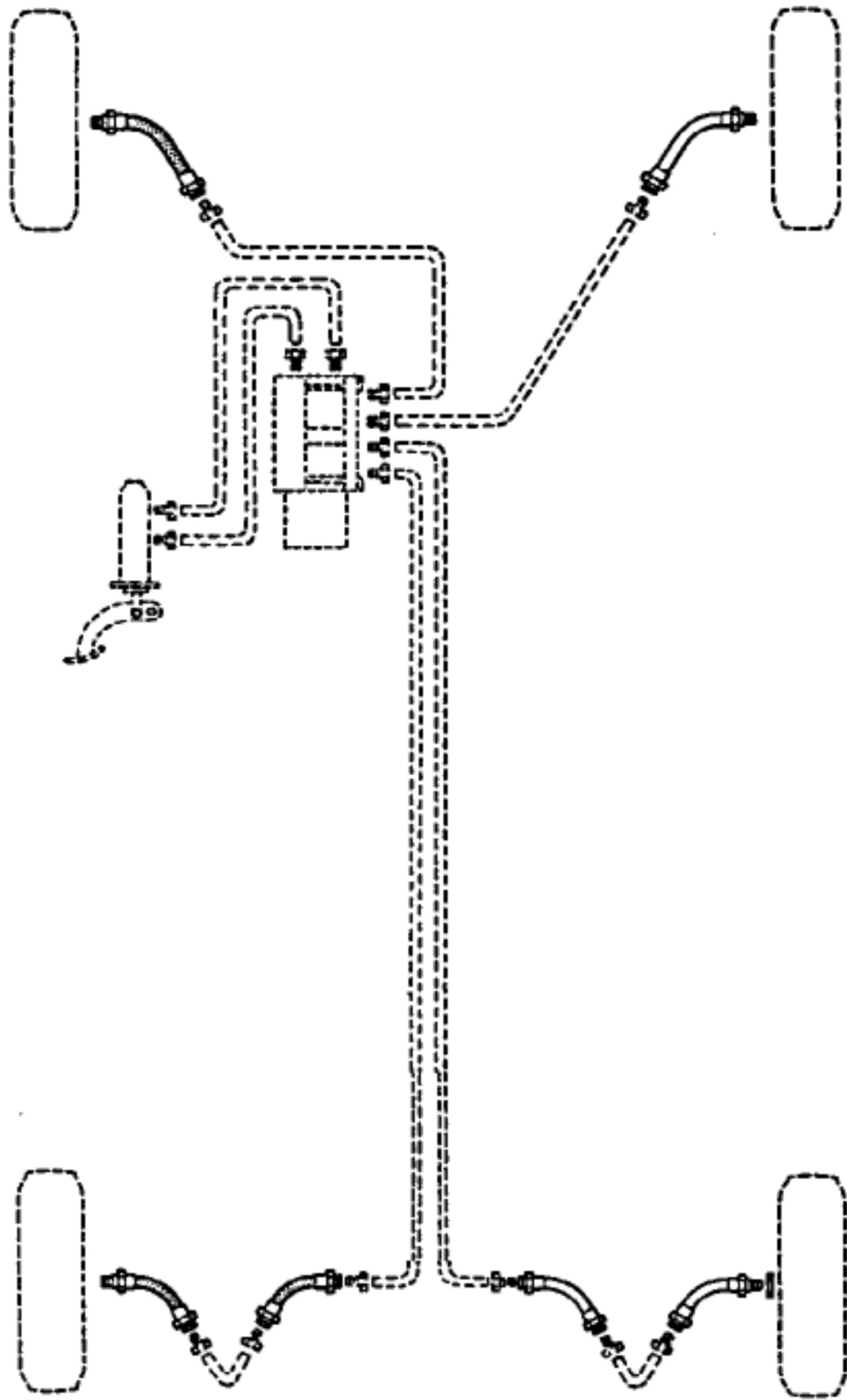
BRAKECIRCUIT:OPERATINGDIAGRAM



Note, one or more warnings are present in this procedure



"X" BRAKING SYSTEM WITH ABS



3877



WARNING

This is a diagram of the general principle, do not use it as a reference for take-off points or circuit allocation. When replacing components in a vehicle's braking circuit, always mark the pipes before removing them.



Repair-13x03x01-02x52-1-10-1.xml



XSL version : 3.02 du 22/07/11

BRAKE PEDAL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 37A, Mechanical component controls, Pedal assembly: Exploded view\)](#) and[\(see 37A, Mechanical component controls, Braking control assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions[Vehicle: Precautions for the repair](#)



WARNING

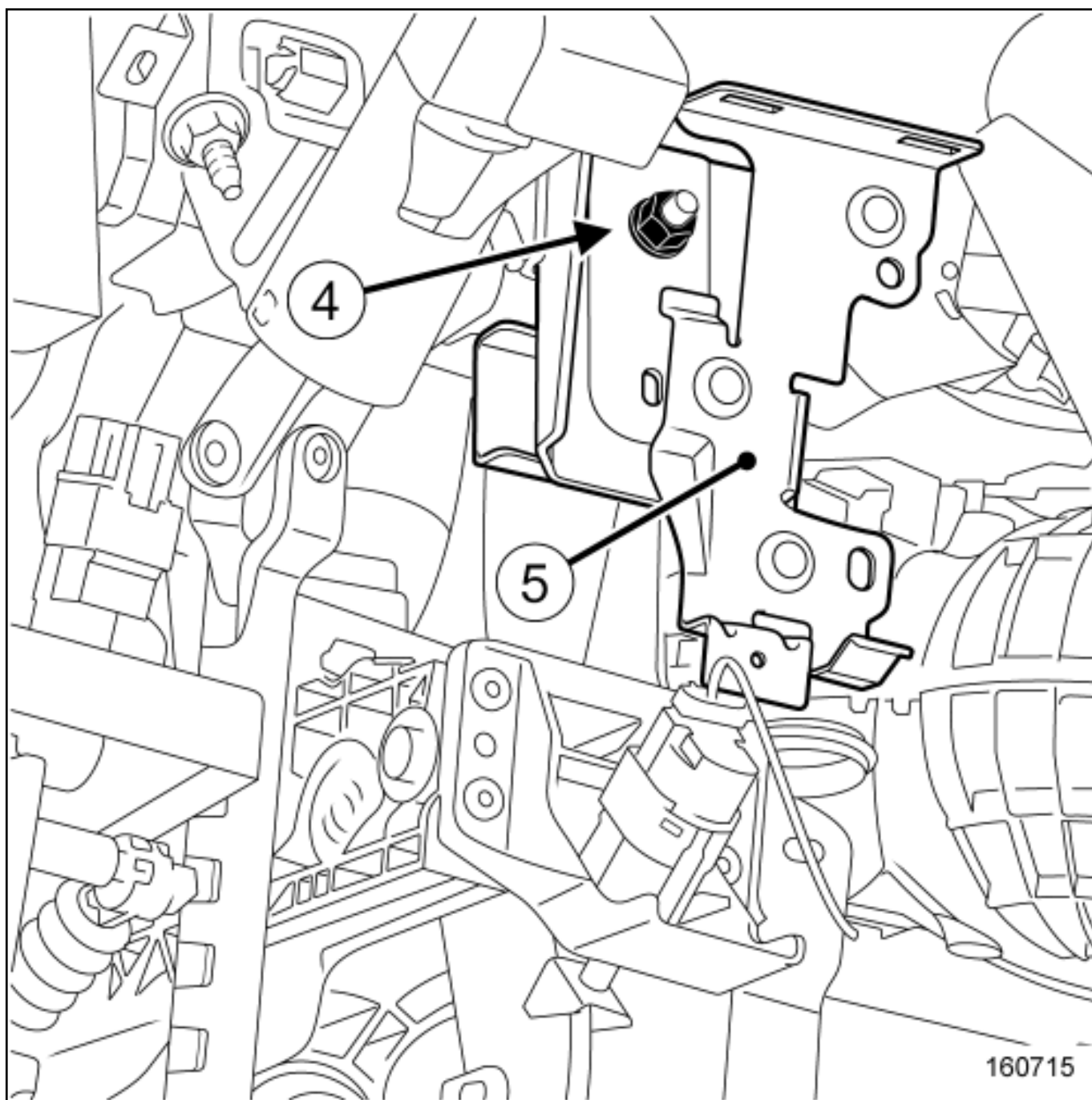
■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 37A, Mechanical component controls, Pedal assembly mechanism: Precautions for the repair\)](#)
- [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the passenger compartment fuse access cover[\(see Dashboard assembly: Exploded view\)](#) .
- Remove the centre console front section[\(see Dashboard assembly: Exploded view\)](#) .



■ Remove:

- the UCH [UCH: Removal - Refitting](#) ,
- the nut(4) of the UCH support,
- the UCH support(5) .

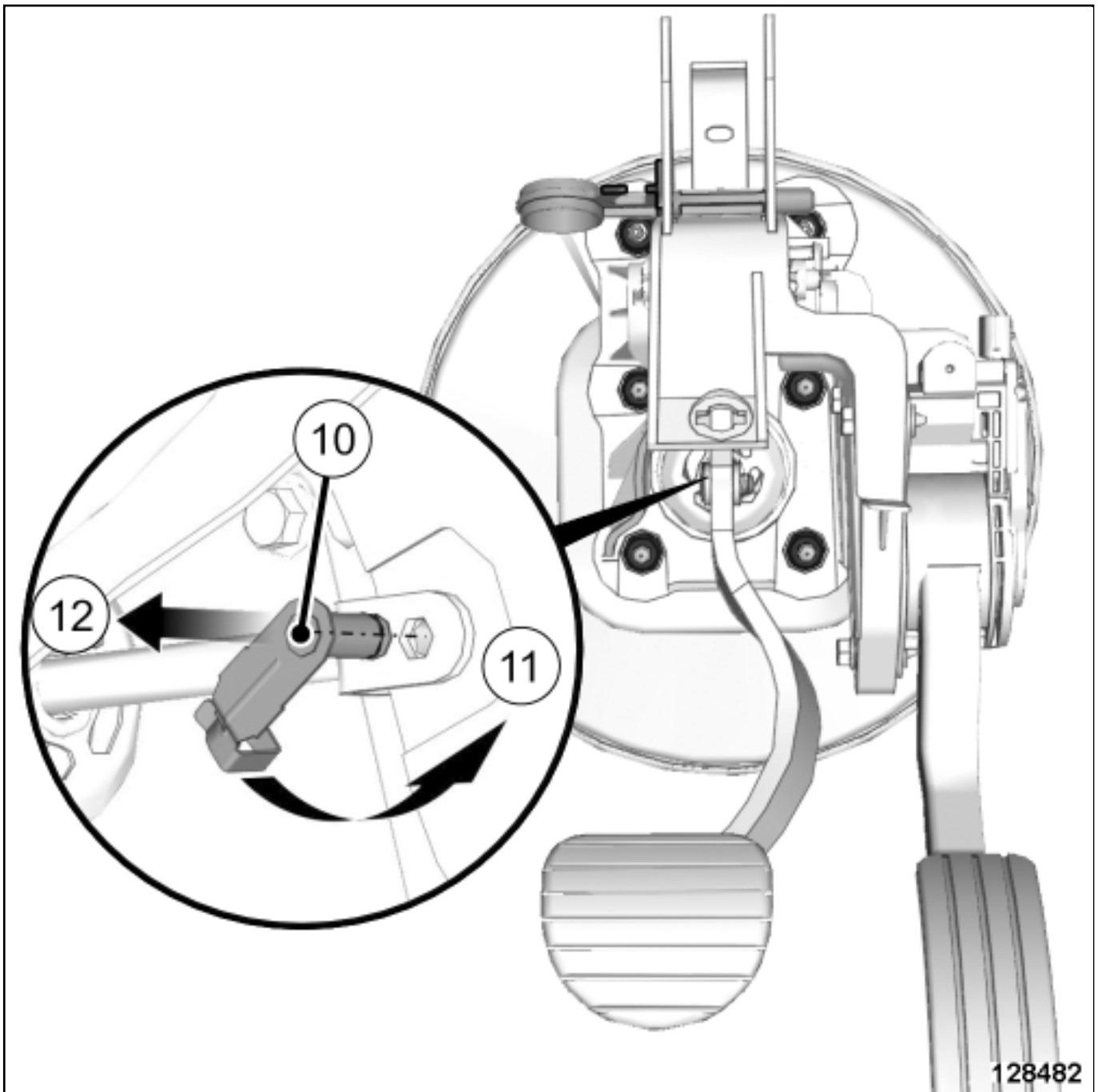
- ❑ Disconnect the connector from the brake pedal switch.
- ❑ Remove the brake pedal switch by turning it a quarter of a turn anti-clockwise.



Disconnect the accelerator pedal connector.

- ❑ Remove the accelerator pedal([see 37A, Mechanical component controls, Pedal assembly: Exploded view](#))

2. REMOVAL OPERATION



Remove the connecting shaft(10) between the brake pedal and the brake servo pushrod:

-
- unlock the shaft in accordance with(11) ,
- extract the shaft in accordance with(12) .

Remove [\(see 37A. Mechanical component controls, Pedal assembly: Exploded view\)](#) :

-

the brake pedal shaft,

the brake pedal.

REFITTING

1. REFITTING PREPARATION OPERATION



Check the condition of the parts.



Replace any faulty parts.



Coat the shaft with multipurpose grease [Vehicle: Parts and consumables for the repair](#) .

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Adjust the brake pedal switch ([see 37A, Mechanical component controls, Pedal switches: Adjustment](#)) .



Repair-30x03x02x01-01x37-1-49-1.xml



XSL version : 3.02 du 22/07/11

BRAKE SERVO NON-RETURN VALVE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



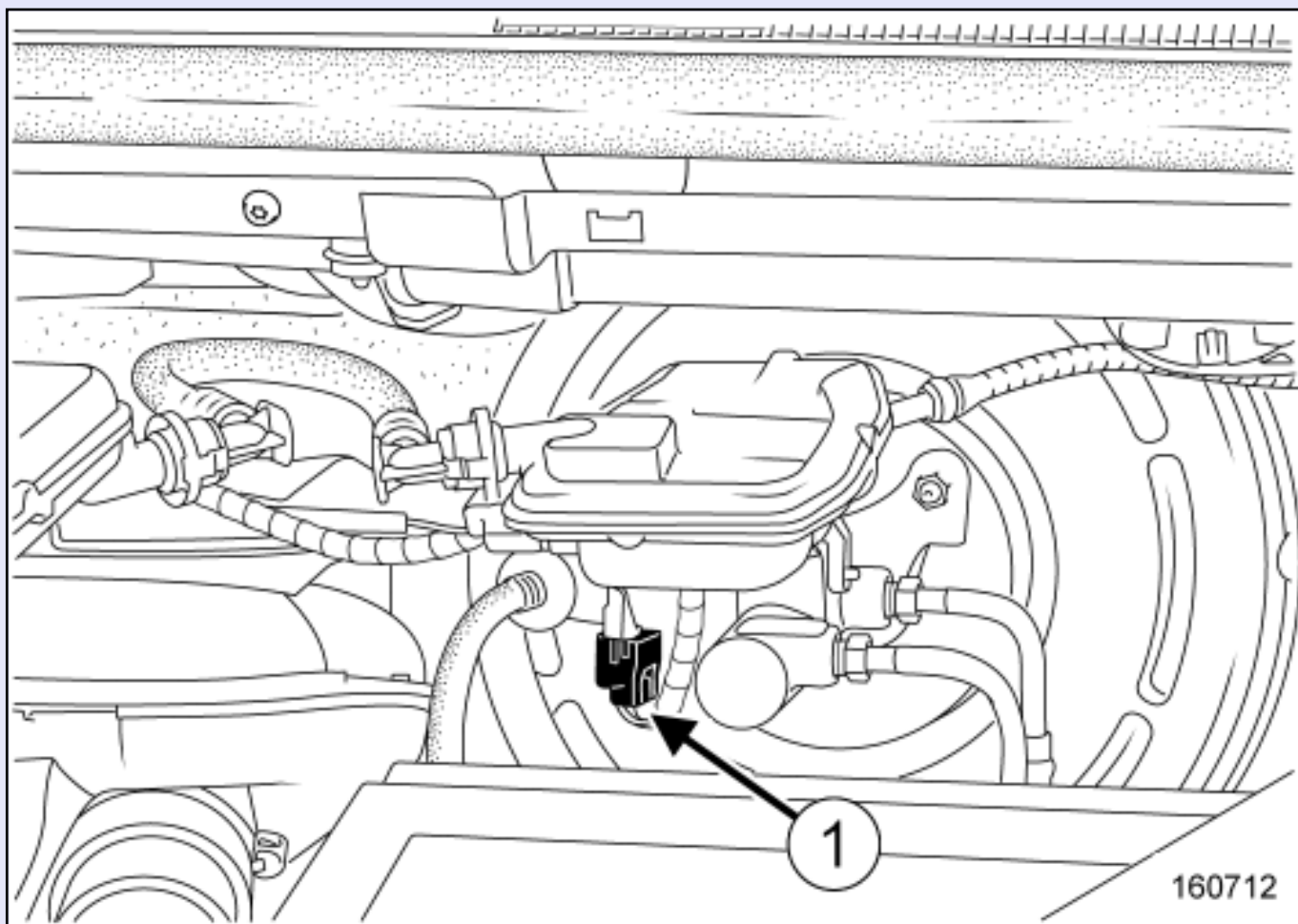
WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

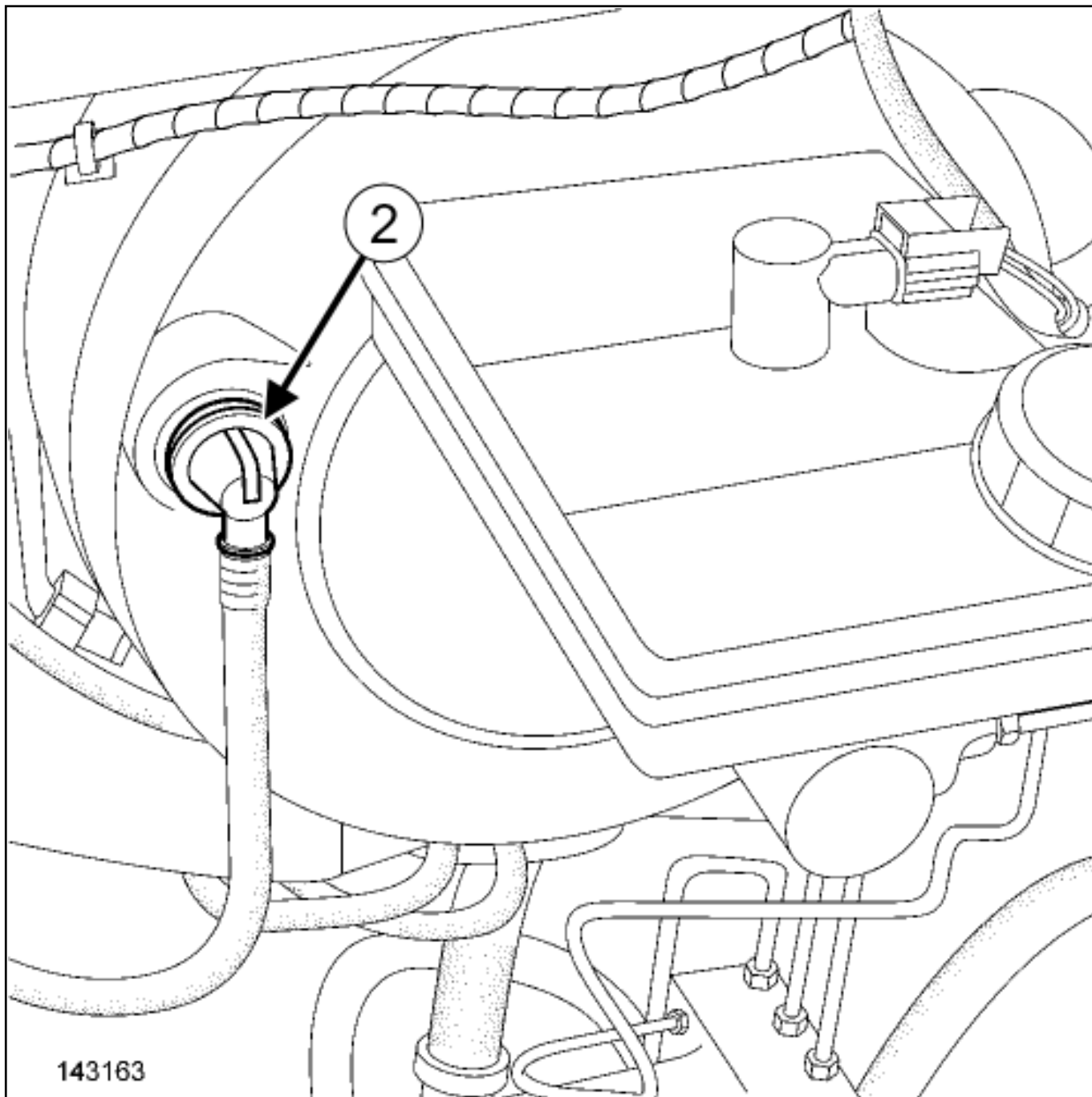
Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 37A, Mechanical component controls, Braking control assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL OPERATION

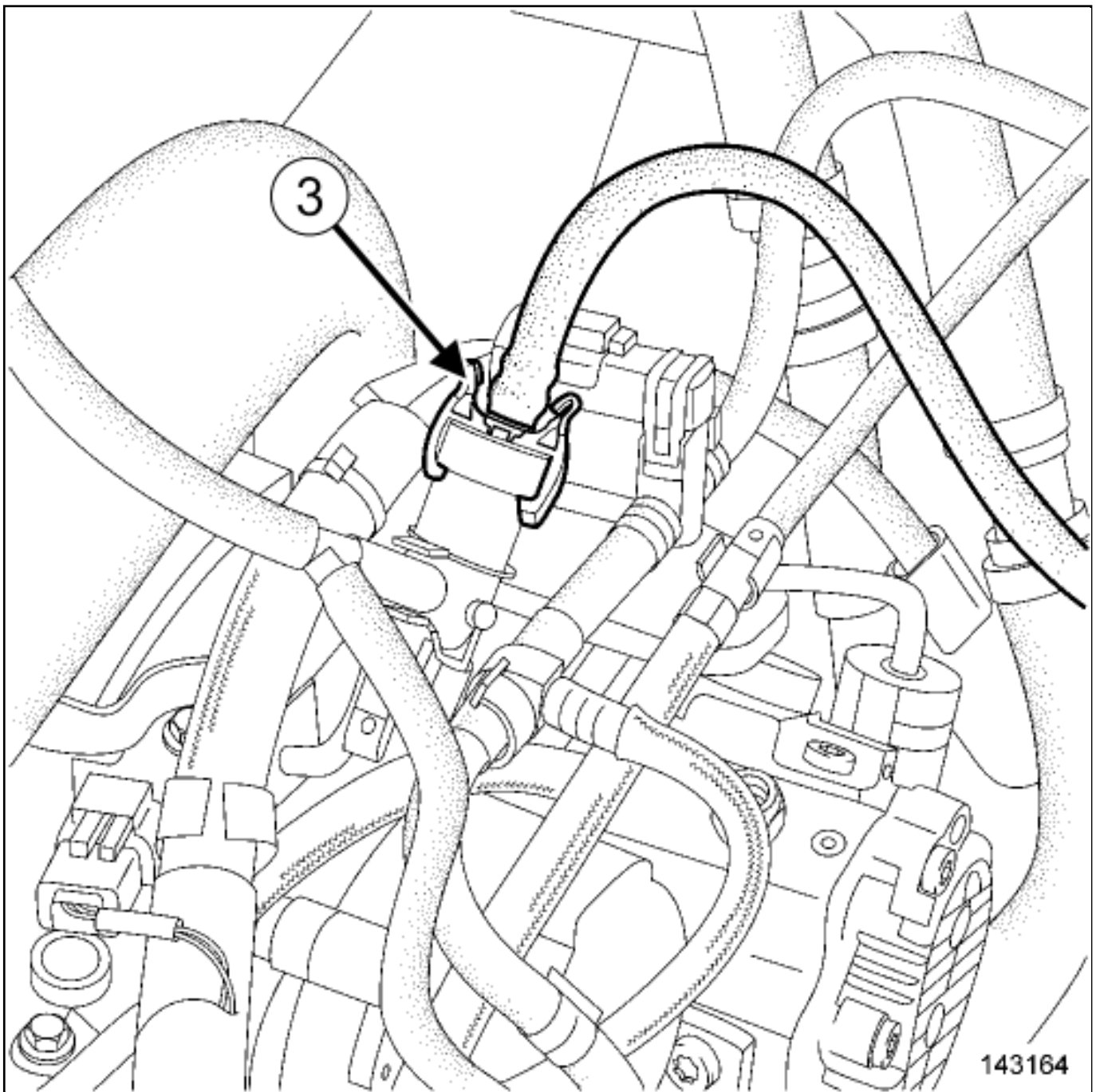


- Disconnect the brake servo non-return valve connector(1) .



Remove the brake servo non-return valve(2) .

Fit blanking plugs into openings.



- Unclip the non-return valve pipe(3) from the vacuum pump.

- Fit blanking plugs into openings.

- Remove the brake servo non-return valve.

1. REFITTING PREPARATION OPERATION



Check the condition of the brake servo non-return valve([see 37A, Mechanical component controls, Braking assistance circuit: Check](#)) .



Replace any faulty parts.

2. REFITTING OPERATION



Proceed in the reverse order to removal.

CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.



Lubricate the end piece of the non-return valve pipe.

Note:



Check that the non-return valve pipe is correctly clipped onto the vacuum pump and onto the brake servo.

Insert the connector until the locking click sound is heard (risk of poor connection).



BRAKE SERVO: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



parts always to be replaced:



[Connecting shaft between the brake pedal and the brake servo pushrod](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 37A, Mechanical component controls, Braking control assembly: Exploded view](#)) and ([see 37A, Mechanical component controls, Pedal assembly: Exploded view](#)).

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [Brake circuit: Precautions for the repair](#),
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

To avoid a loss of braking efficiency, do not bend the brake servo pipe.



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

1. REMOVAL PREPARATION OPERATION

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

Remove:

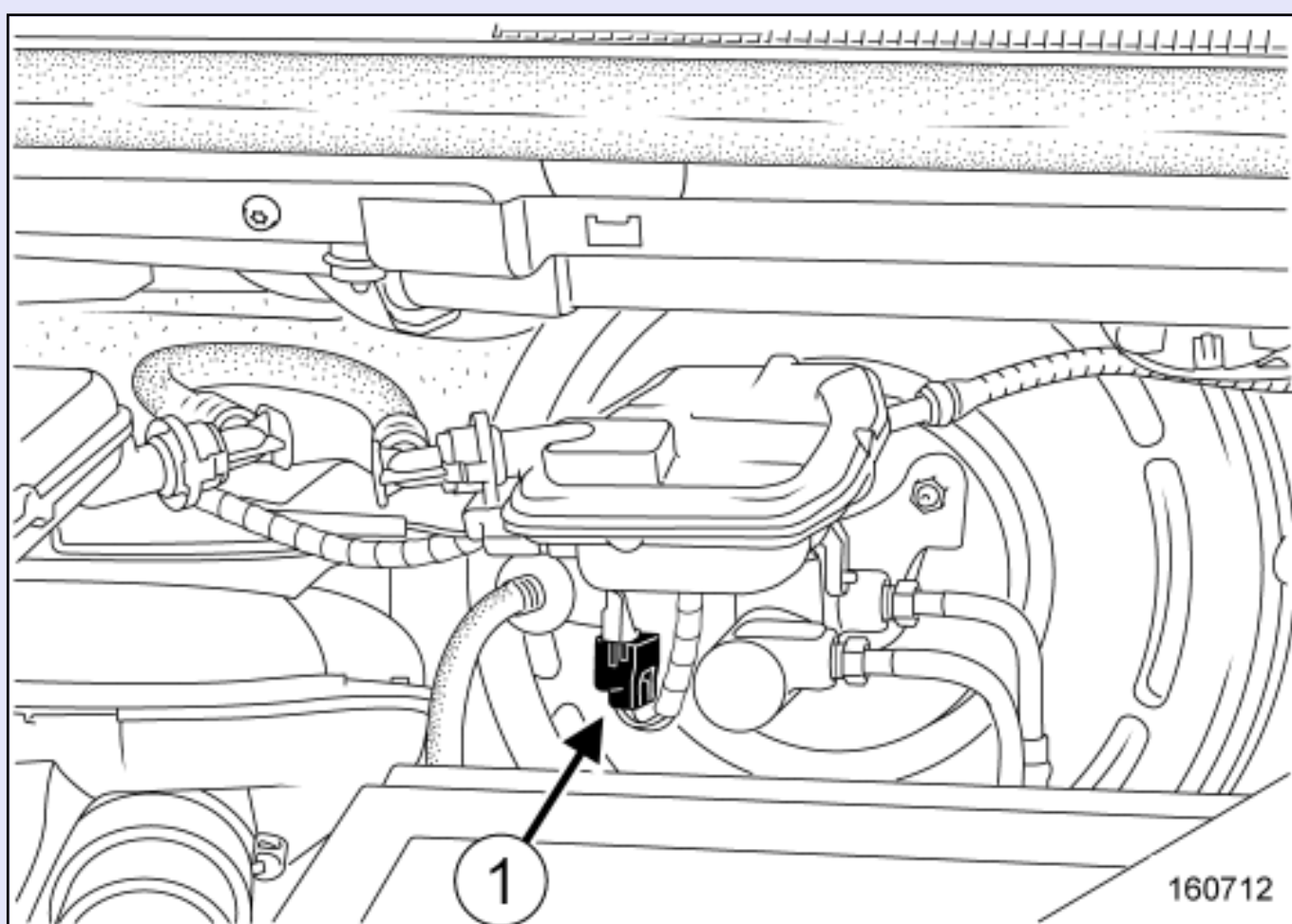


the battery [Battery: Removal - Refitting](#) ,



the battery tray [Battery tray: Removal - Refitting](#) .

WITH STOP AND START (STOSTA)



Disconnect the brake servo non-return valve connector(1) .

Remove the master cylinder [\(see 37A, Mechanical component controls, Braking control assembly:](#)

[Exploded view](#)) .

2. REMOVAL OPERATION



Remove the brake servo non-return valve from the brake servo ([see 37A, Mechanical component controls, Braking control assembly: Exploded view](#)) .



Remove the front footwell air distribution duct [Air distribution circuit assembly: Exploded view](#) .



Tilt the connecting part downwards and remove the safety clevis pin between the brake servo pushrod and the brake pedal on the passenger compartment side.



Remove ([see 37A, Mechanical component controls, Pedal assembly: Exploded view](#)) :

■
the brake servo nuts, on the passenger compartment side (the nuts mounting the pedal mounting to the servo),

■
the brake servo.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:



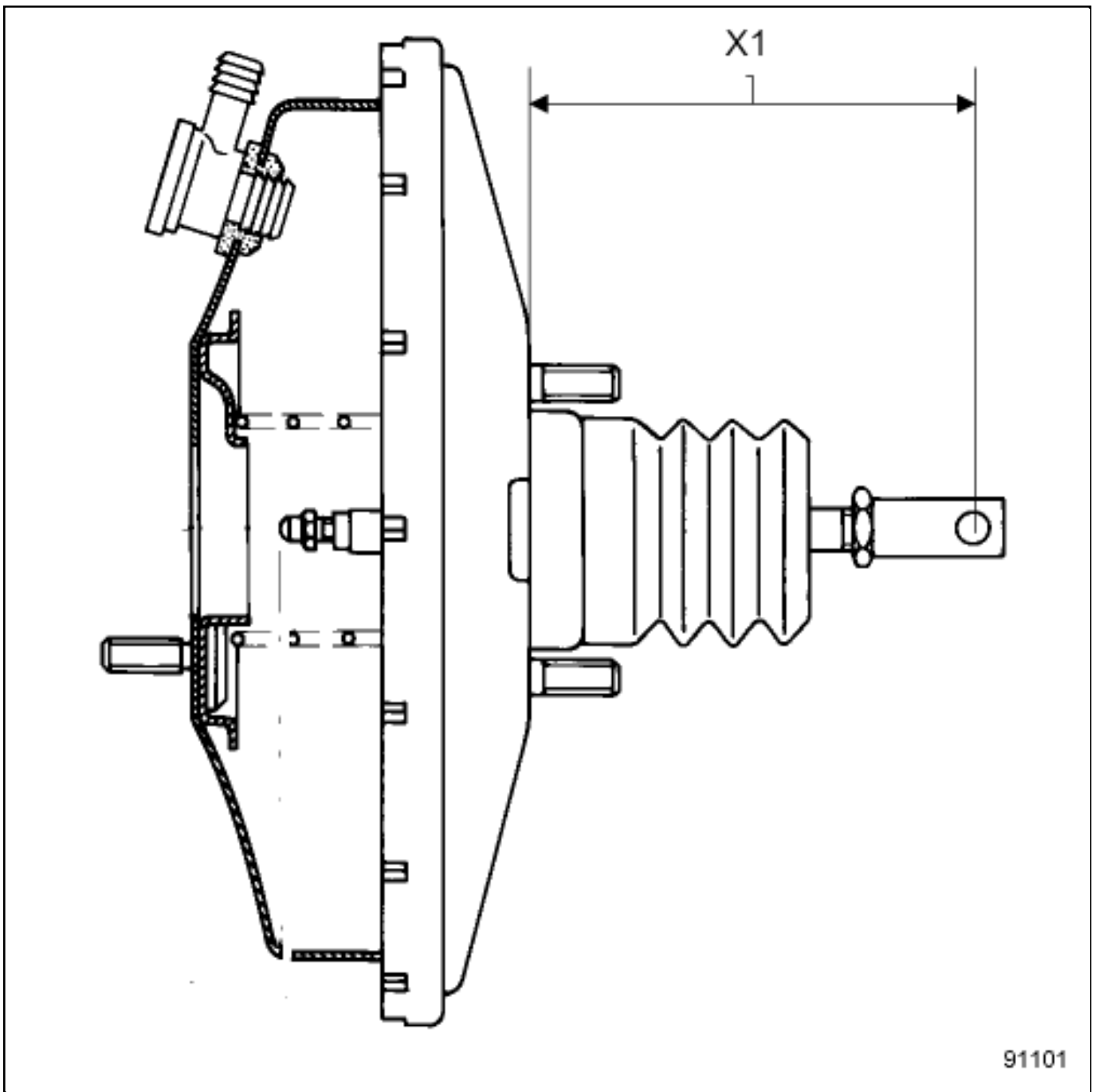
[Connecting shaft between the brake pedal and the brake](#)



[servo pushrod](#)



Check that the brake servo seal is present; replace the seal if it is faulty.



91101

Before refitting, check the following dimension(x_1) = 184.3 mm.

2. REFITTING OPERATION

Proceed in the reverse order to removal.



Torque tighten the brake servo nuts([see 37A, Mechanical component controls, Pedal assembly: Exploded view](#)) .



WARNING

To avoid breaking the connection between the brake servo pushrod and the brake pedal, check that the safety clevis pin is locked onto the brake servo pushrod by tilting it from the top downwards.



Bleed the braking circuit([Braking circuit: Bleed](#)) .



Bleed the clutch circuit([see 37A, Mechanical component controls, Clutch circuit: Bleed](#)) .



Repair-13x03x06-01x37-1-86-1.xml



XSL version : 3.02 du 22/07/11

BRAKING CIRCUIT: BLEED



Note, one or more warnings are present in this procedure



Equipment required

brake circuit bleeding device

pedal press



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 30A, General information, Brake circuit: Precautions for the repair](#)).



CAUTION

To avoid residual air being present in the brake circuit, the parking brake must be released before starting the bleeding process.

This procedure must be applied after one of the following components has been removed or replaced:

- the master cylinder,
- the brake fluid,
- the hydraulic unit,
- a rigid pipe,
- a hose,
- the reservoir,
- a calliper.



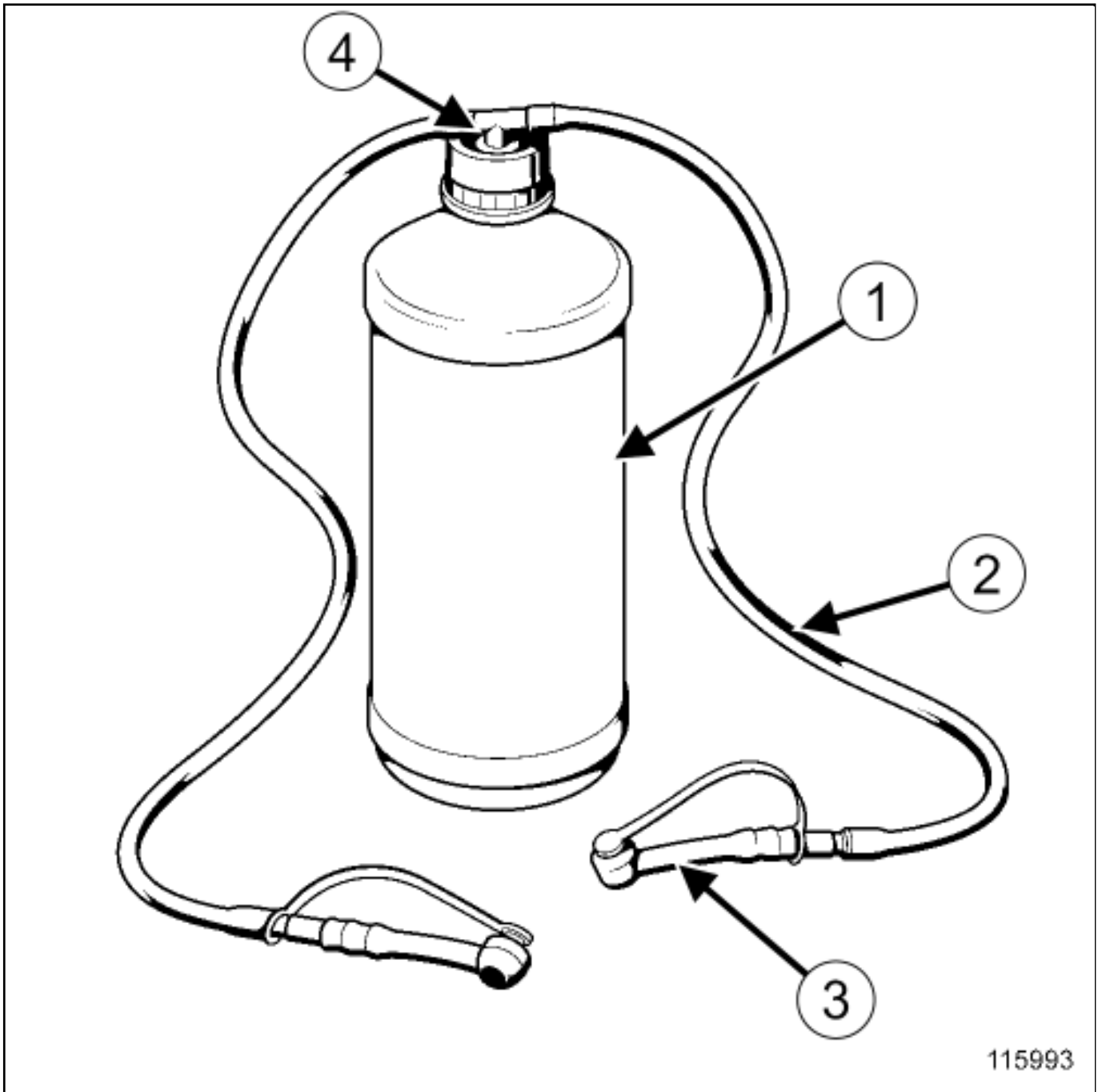
CAUTION

Switch off the vehicle ignition so as not to activate the hydraulic unit solenoid valves when bleeding the brake circuit.



CAUTION

The level must be between the "MIN" and "MAX" markings on the reservoir.



115993

■ Use locally produced containers to collect the used brake fluid.

■

Front and rear callipers:

■

- 2 washer fluid containers(1) (1 litre),
- 4 mm diameter transparent pipes(2) ,
- 4 pipettes(3) ,
- 2 T-unions(4) .

Note:

The new hydraulic unit is pre-filled.



When working on one of the following components, position a pedal pressto limit the outflow of brake fluid and prevent any air from entering the master cylinder and the circuits downstream of the master cylinder:



- hydraulic unit,
- pipes between the hydraulic unit and brake callipers,
- brake hoses,
- brake calliper.

Remove the pedal press before carrying out the braking system bleeding procedure.

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

Switch off the vehicle ignition.

Connect the brake circuit bleeding device (after having received Renault approval) to the master cylinder reservoir (see the instructions for the equipment).

Pressurise the brake circuit.



Adjust the pressure to between 1.5 bar <math>P < 2 \text{ bar}</math> for 3 minutes to stabilise it in the braking circuit.



Close the circuit between the bleed screw and brake fluid reservoir without dumping the pressure.

Note:



The circuit between the bleed screw and brake fluid reservoir is closed in different ways depending on the type of equipment used:



valve,



switch.



Fit the bleed containers to the six bleed screws of the callipers.

Note:



Some callipers are equipped with several bleed screws. In this case, turn the bolts one after another to perform the brake circuit bleed.



Undo the calliper bleed screws:



front left-hand,



front right-hand,



rear left-hand,



rear right-hand.

Open the circuit between the bleed screw and brake fluid reservoir and allow the liquid to run until all the air bubbles have been released.

Tighten the bleed screws in the following order:

-
- front left-hand,
- front right-hand,
- rear left-hand,
- rear right-hand.

Undo the calliper bleed screw:

-
- front left-hand,
- allow the fluid to run until all the air bubbles have been released,
- tighten the bleed screw on the calliper.

Carry out the previous operation on the callipers:

-
- front right-hand,
- rear left-hand,
- rear right-hand.

Close the bleed screw to dump the pressure in the brake circuit.

Remove the brake circuit bleeding device from the master cylinder reservoir.

Check pedal travel and resistance. If it is not correct, finish bleeding the brake circuit with the help of a second operator. Start the bleed operation by bleeding the calliper that is the furthest away from the master cylinder:

-
- hold down the brake pedal,
- open the circuit bleed screw to release the air from the brake circuit,
- close the circuit bleed screw,
- release the brake pedal.



Top up the brake fluid level in the reservoir, if necessary. Check the sealing of the front and rear bleed screws and ensure that the sealing covers are in place [Front brake calliper assembly: Exploded view](#) and (see **Rear drum brake assembly**) .



During a road test, trigger braking regulation to confirm that the brake pedal travel is correct.



Clean off any traces of brake fluid on the vehicle using brake cleaning product [Vehicle: Parts and consumables for the repair](#) .

1. BLEEDING THE BRAKING ASSISTANCE CIRCUIT



Repair-13x03x01-01x76-1-29-1.xml



XSL version : 3.02 du 22/07/11

CAB ROOF REAR CROSS MEMBER HEIGHT ADJUSTER: REPLACEMENT



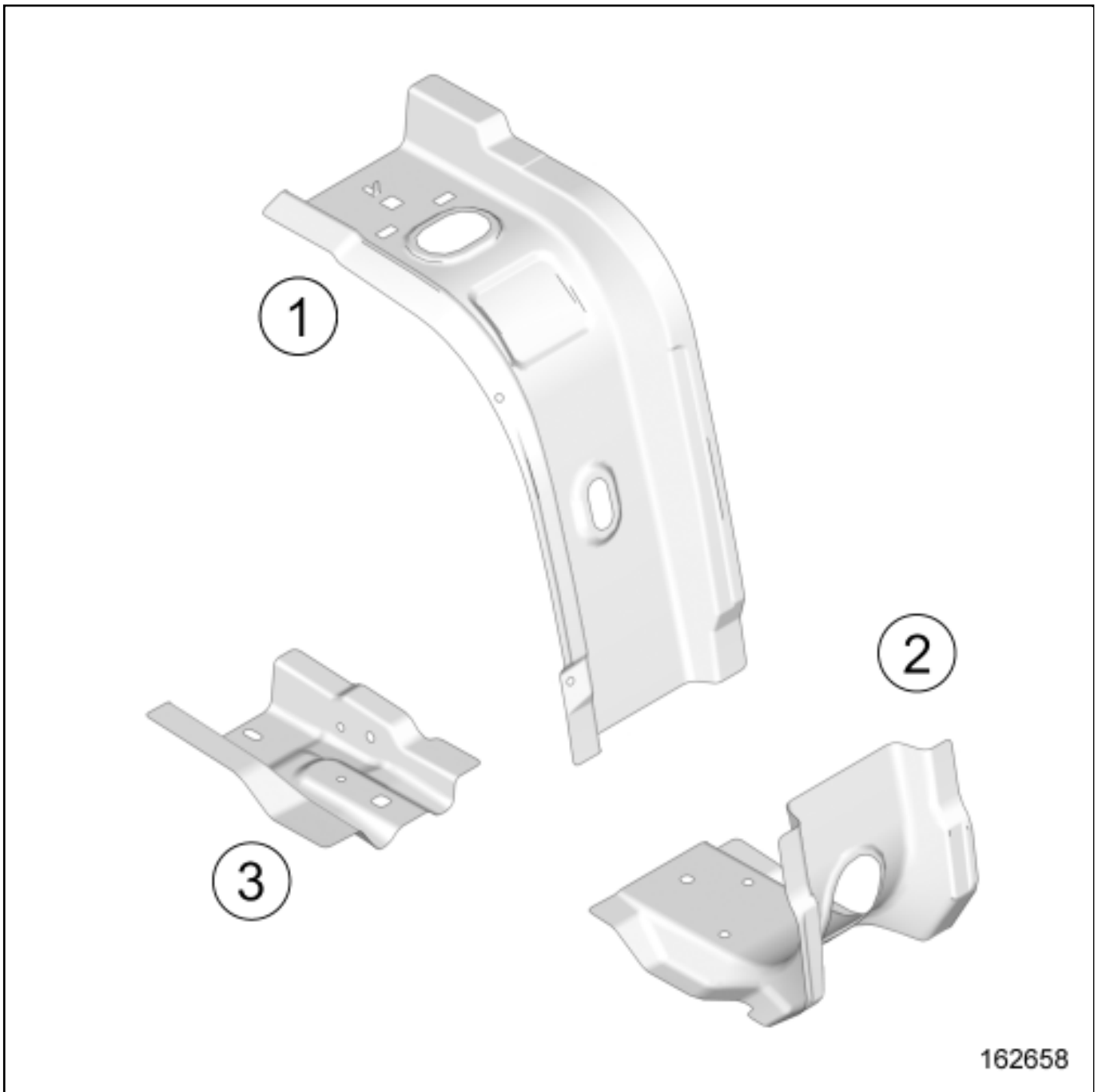
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



162658

No.	Description	Type	Thickness (mm)
(1)	Cab roof stiffener extension	Mild steel	1.2
(2)	Roof cross member support	Mild steel	1
(3)	Roof centre cross member closure panel	Mild steel	1

2. IN THE EVENT OF REPLACEMENT

- ▣ There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

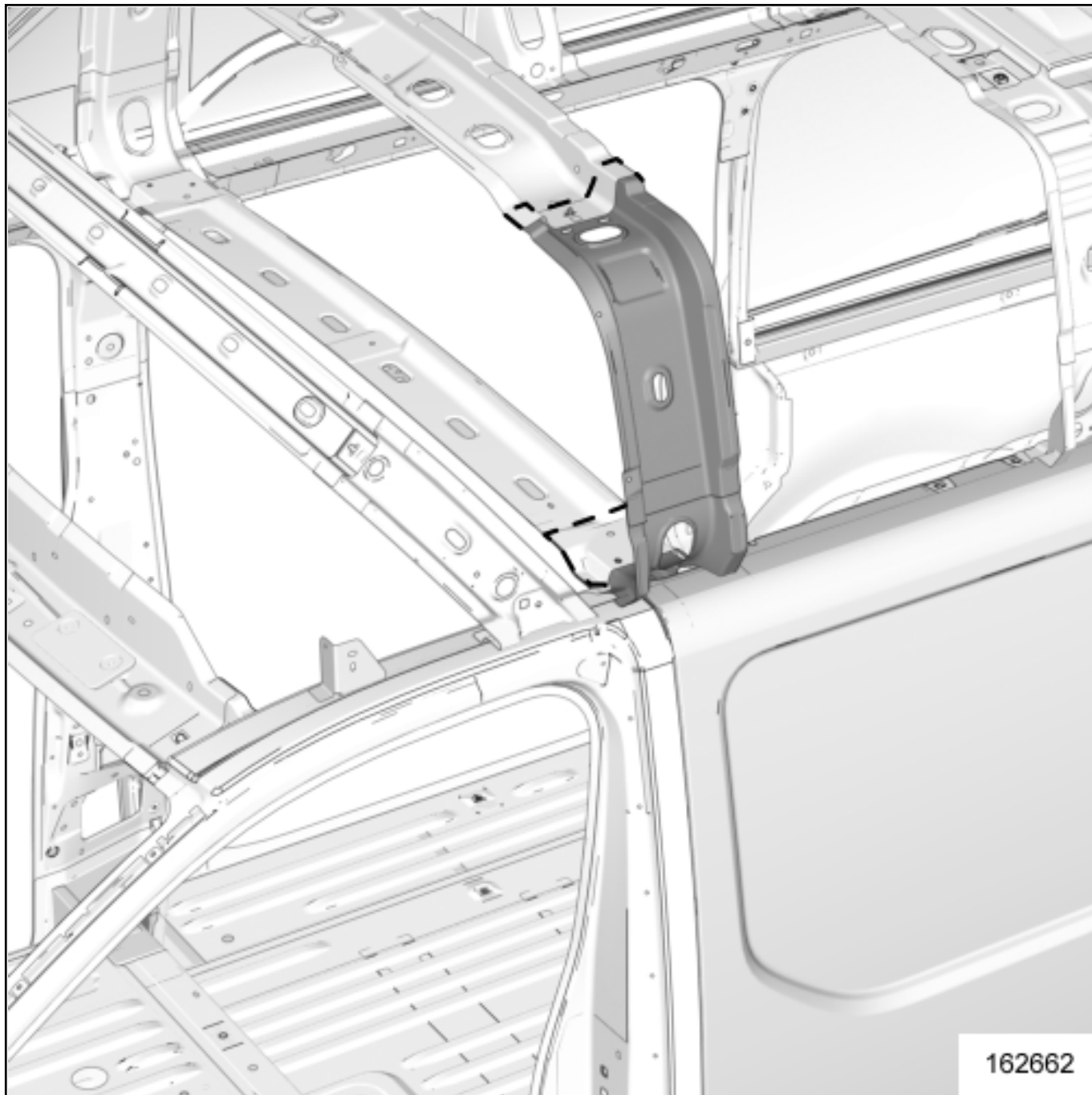
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x07x02x20-02x49-1-1-1.xml



CAB ROOF STIFFENER HEIGHT ADJUSTER: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Cab roof stiffener height adjuster	Mild steel	0.75

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



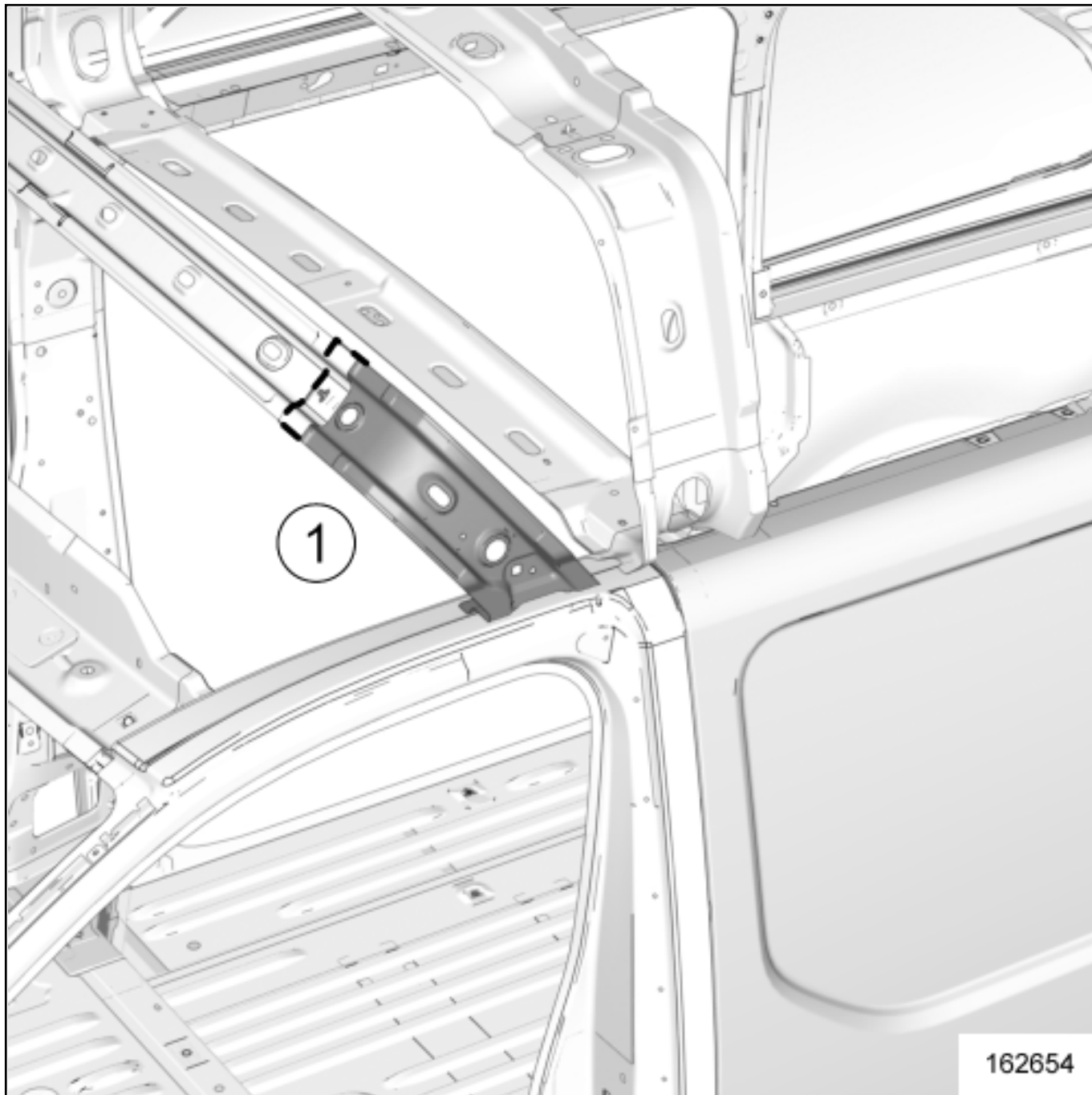
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x07x02x24-02x49-1-1-1.xml



CABIN FILTER: REMOVAL - REFITTING

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Unclip the centre console front section (see [Dashboard assembly: Exploded view](#)) .

2. REMOVAL OPERATION

Note:



Foreign bodies (leaves, insects etc.) are likely to accumulate in the passenger compartment filter.

Remove the cabin filter with care so as to prevent foreign bodies getting into the evaporator.

- Remove ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) :
 - the cabin filter access flap,
 - the cabin filter.

REFITTING

1. REFITTING PREPARATION OPERATION

- Check for foreign bodies in the passenger compartment filter housing, and clean thoroughly if necessary.

2. REFITTING OPERATION



Note:

The arrows, indicating the direction of the air flow, must be oriented towards the interior of the vehicle.

▣ Proceed in the reverse order to removal.



Repair-30x02x01x14-01x37-1-39-1.xml



XSL version : 3.02 du 22/07/11

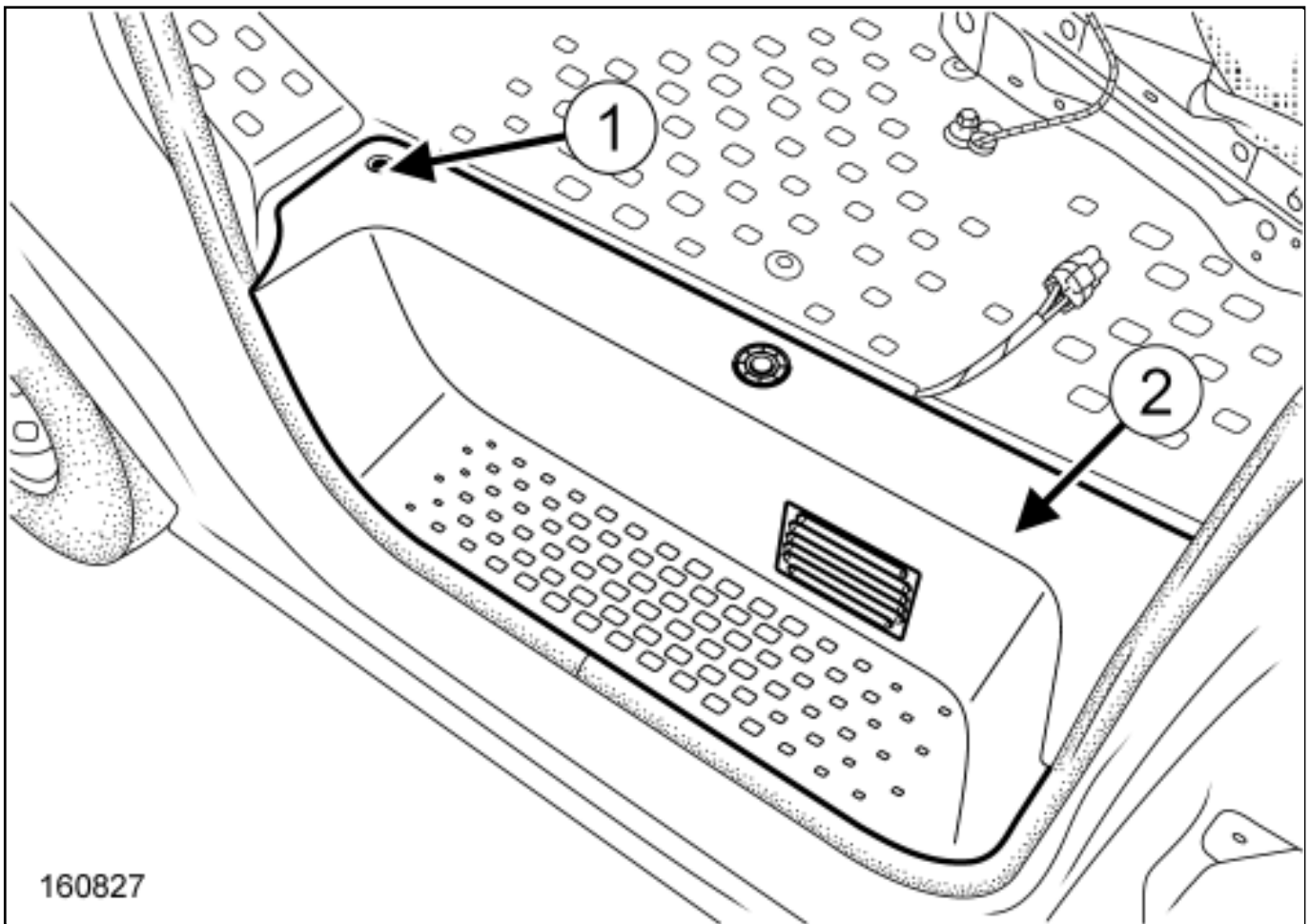
CENTRE FLOOR FRONT CARPET: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

Remove:

- the front seat [Complete front seat: Removal - Refitting](#) ,
- the front seat subframe [Front seat subframe: Removal - Refitting](#) ,
- the front bench seat [Front bench seat assembly: Exploded view](#) ,
- the parking brake lever cover [Parking brake lever: Removal - Refitting](#) ,
- the dashboard centre front panel trim [Dashboard assembly: Exploded view](#)

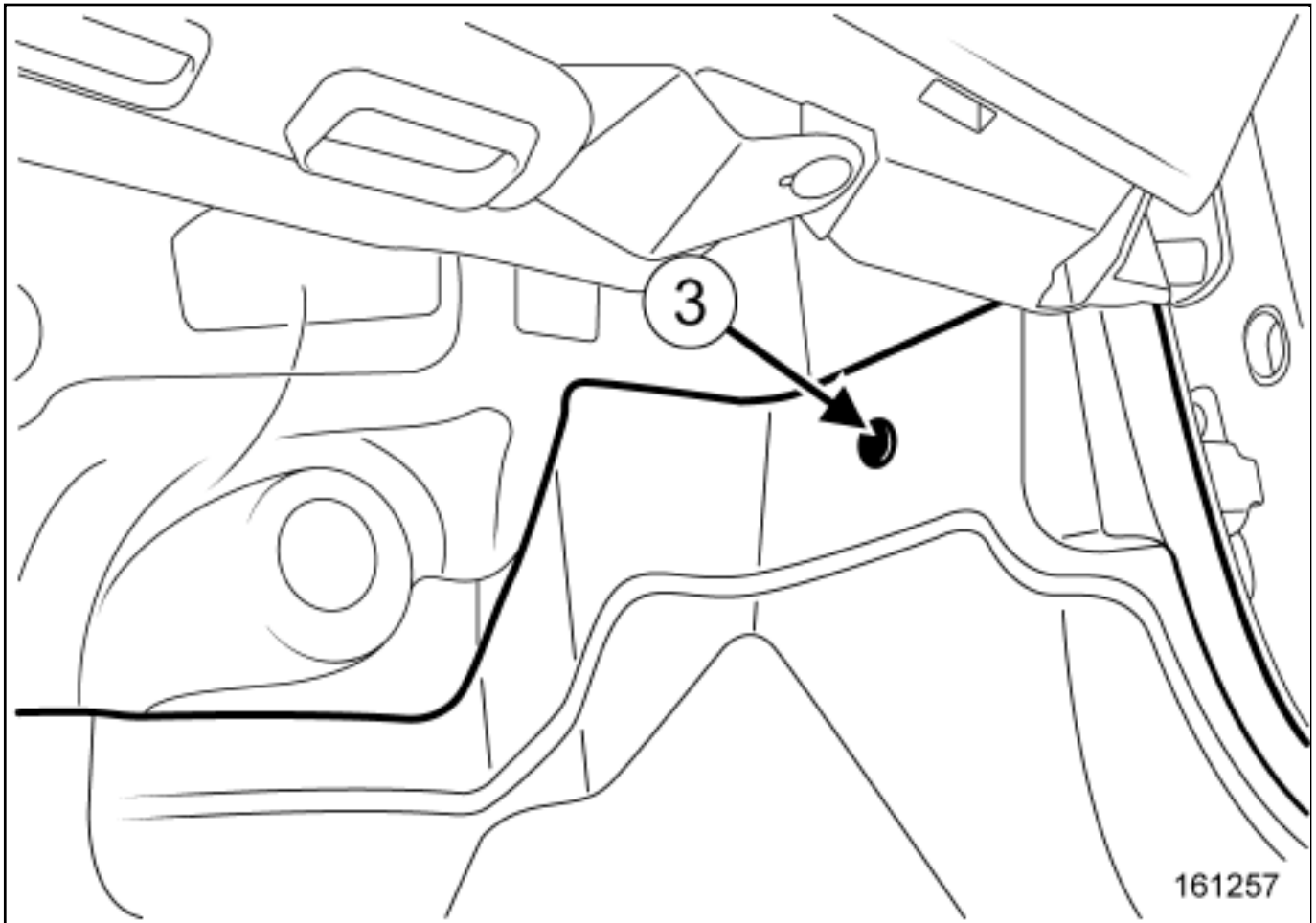


Remove:

- the bolt(1) ,
- the front door sill lining(2) .

Disconnect the steering column from the steering box [Steering column: Removal - Refitting](#) .

2. REMOVAL OPERATION



Remove:

-
- the clips(3) ,

the centre floor front carpet.

REFITTING

Proceed in the reverse order to removal.



Repair-70x02x02x02-01x37-1-10-1.xml



XSL version : 3.02 du 22/07/11

CENTRE FLOOR FRONT CROSS MEMBER: REPLACEMENT



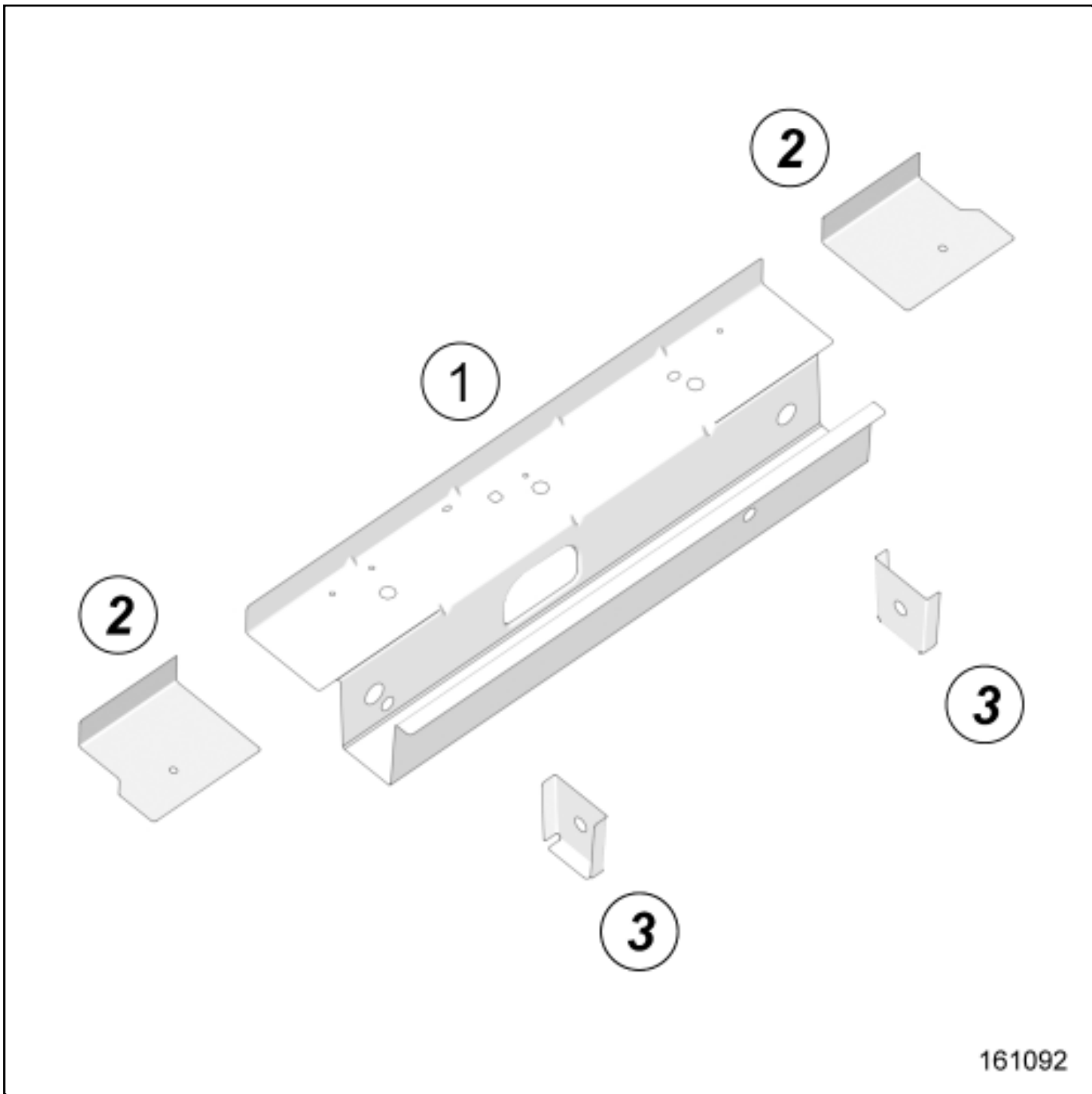
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



No.	Description	Type	Thickness (mm)
(1)	Centre floor front cross member	Mild steel	1.5
(2)	Centre floor front side cross member	HSS	2.0
(3)	Cross member reinforcement	Mild steel	1.5

2. IN THE EVENT OF REPLACEMENT

- ▣ There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

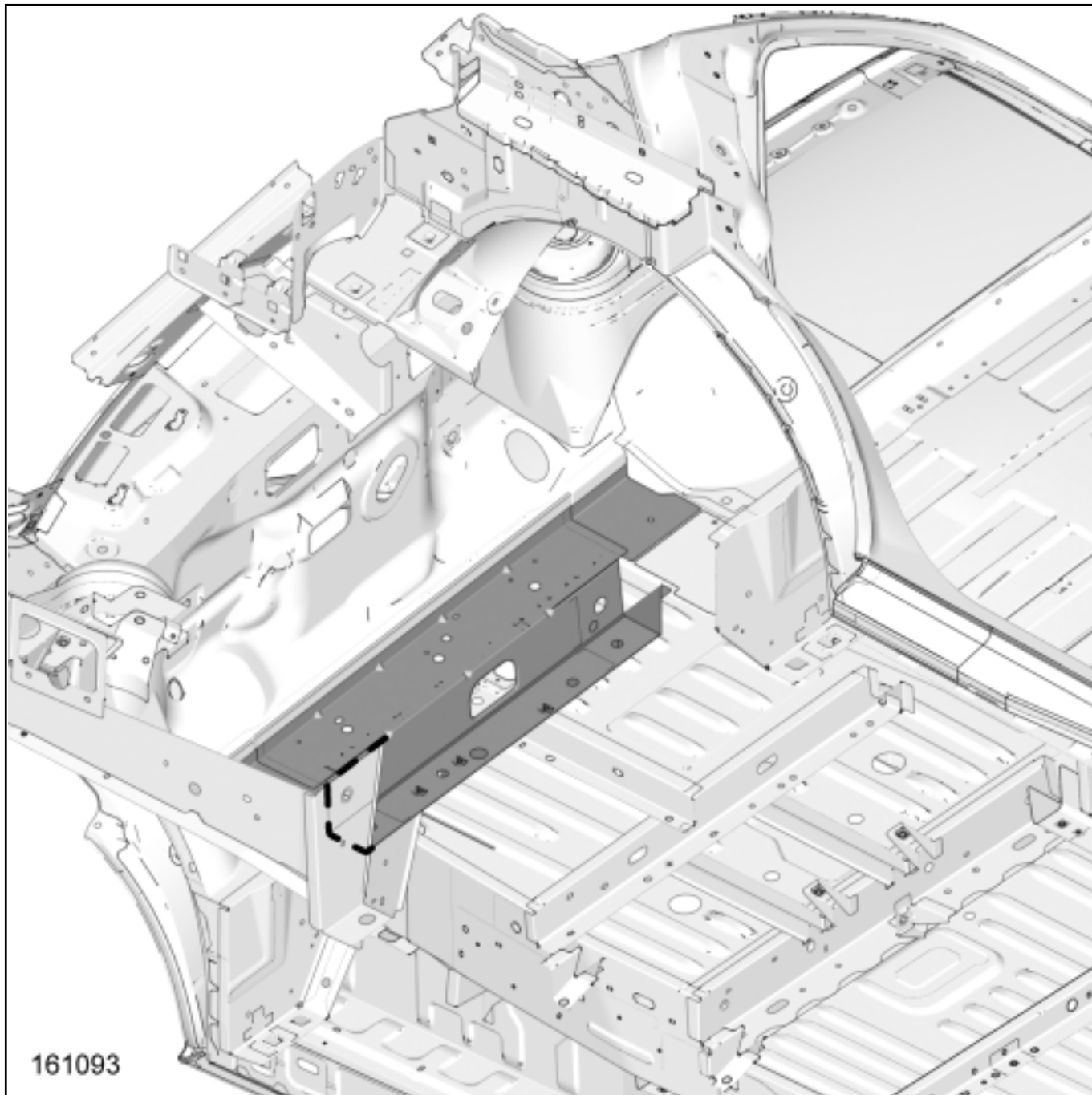
To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x03x08-02x49-1-6-1.xml



CENTREFLOOR:REPLACEMENT



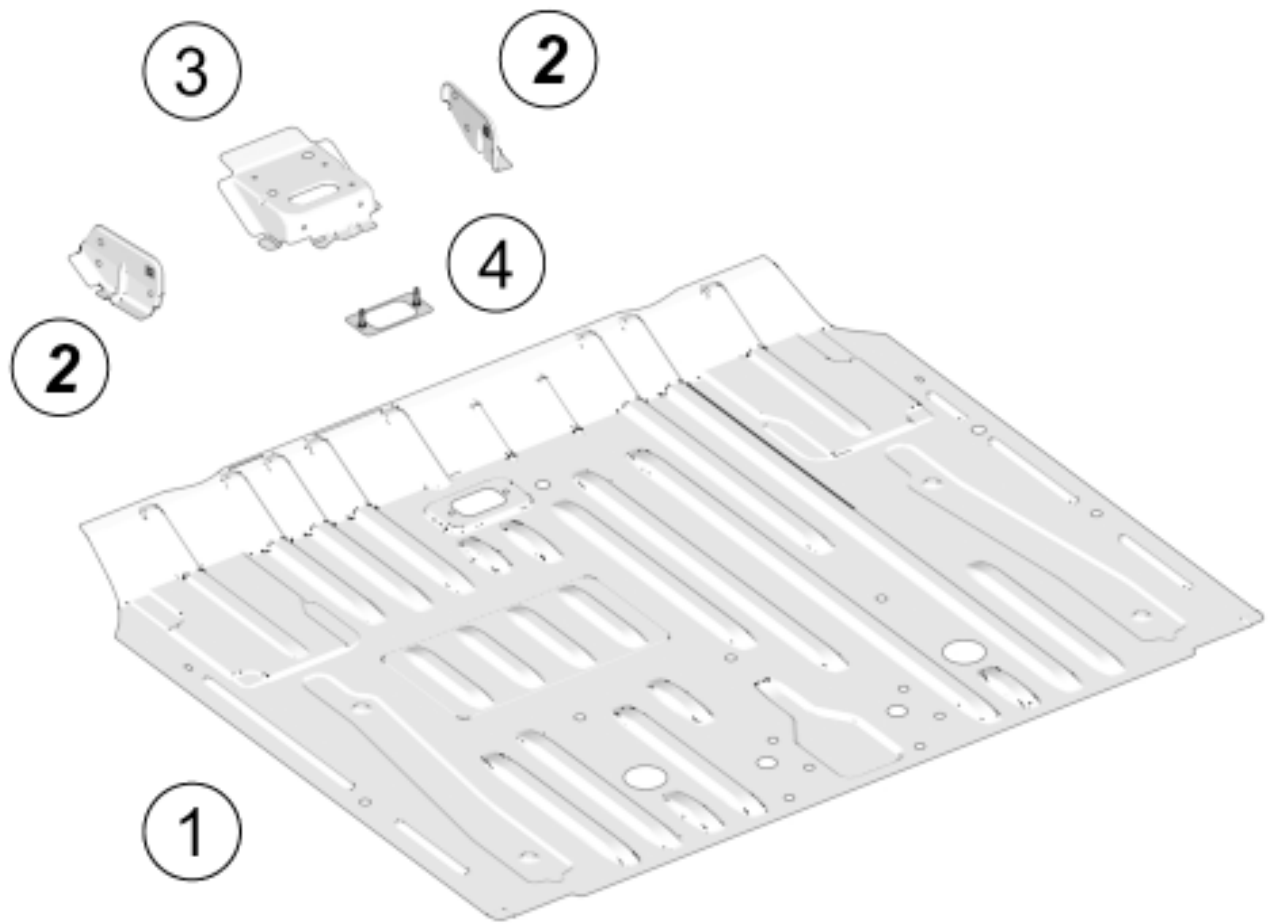
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



161081

No.	Description	Type	Thickness (mm)
(1)	Centre floor	HSS	0.75
(2)	Steering column mounting	Mild steel	1.5
(3)	Impact detection unit mounting component	Mild steel	1.5
(4)	Gearbox control mounting reinforcement	Mild steel	1.2

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

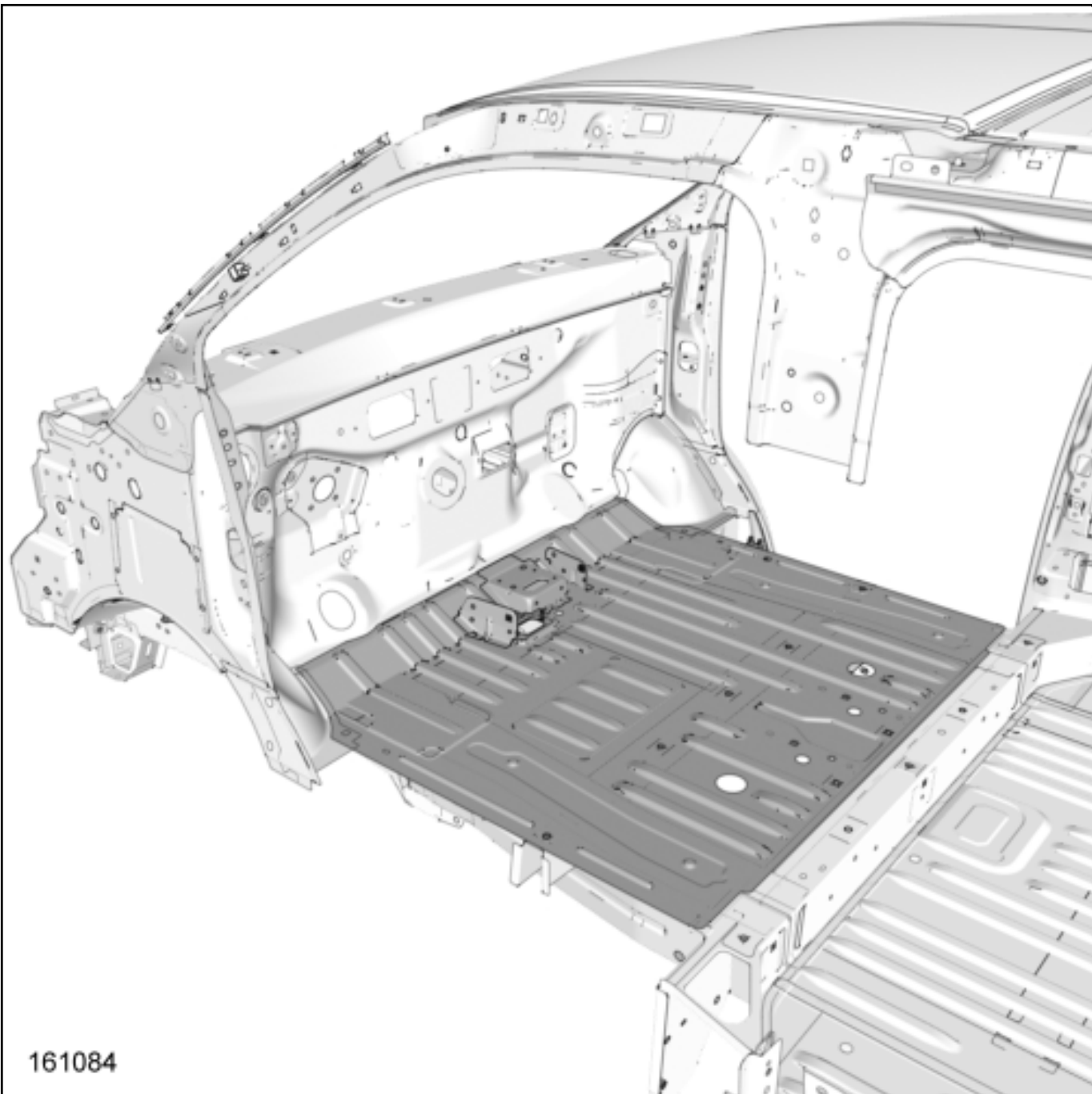
To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



161084



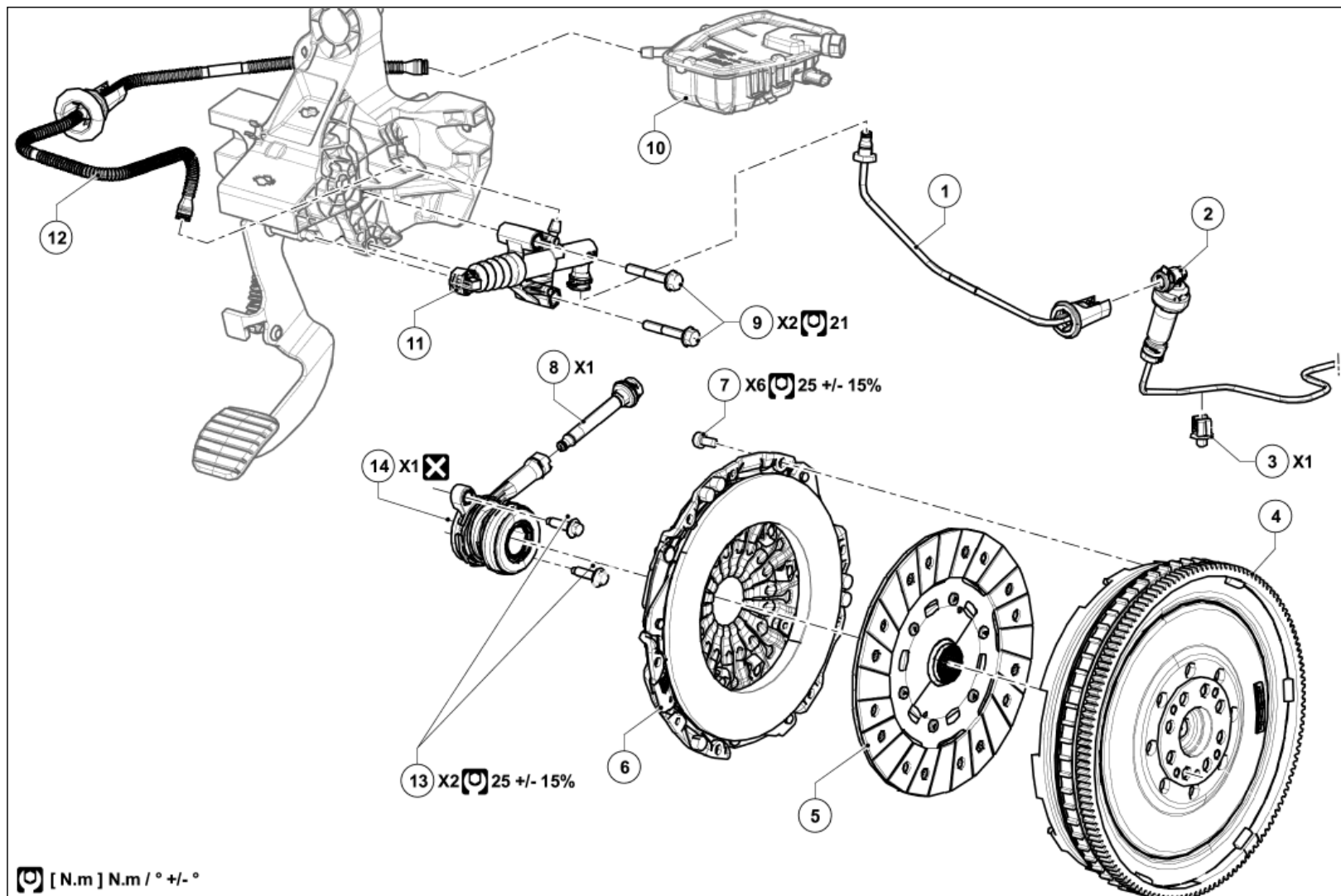
Repair-40x03x02-02x49-1-5-1.xml



CLUTCH ASSEMBLY: EXPLODED VIEW

Illustration key: Description Key.

For fastenings with no specified tightening torque, refer to the Table of Standard Torques [Tightening torques: General information](#).



Marks	Designations	Informations
1	Clutch control pipe between master cylinder and slave cylinder	Clutch circuit: Removal - Refitting
2	Clutch control pipe between intermediate union and slave cylinder	Clutch circuit: Removal - Refitting
3	Clip	
4	Engine flywheel	Flywheel: Removal - Refitting
5	Clutch plate	(see 20A, Clutch, Pressure plate - Disc: Removal - Refitting)
6	Clutch pressure plate	(see 20A, Clutch, Pressure plate - Disc: Removal - Refitting)
7	Clutch pressure plate bolt	(see 20A, Clutch, Pressure plate - Disc: Removal - Refitting)
8	Connect-hydraulic duct	
9	Clutch master cylinder Bolt	Clutch master cylinder: Removal - Refitting
10	Brake fluid reservoir	
11	Clutch master cylinder	Clutch master cylinder: Removal - Refitting
12	Clutch control pipe	Clutch circuit: Removal - Refitting
13		
14	Clutch slave cylinder	(see Clutch thrust bearing: Removal - Refitting)



Repair-12x03x01-02x50-1-1-1.xml



CLUTCH CIRCUIT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

Note:



Each time an operation is carried out on the hydraulic clutch system, bleed the circuit at the following locations:

- between the reservoir and the bleed hole,
- between the bleed hole and the clutch thrust bearing,
- for long pedal travel.

Location and specifications (tightening torques, parts always replaced, etc.) [Clutch assembly: Exploded view](#)

REMOVAL

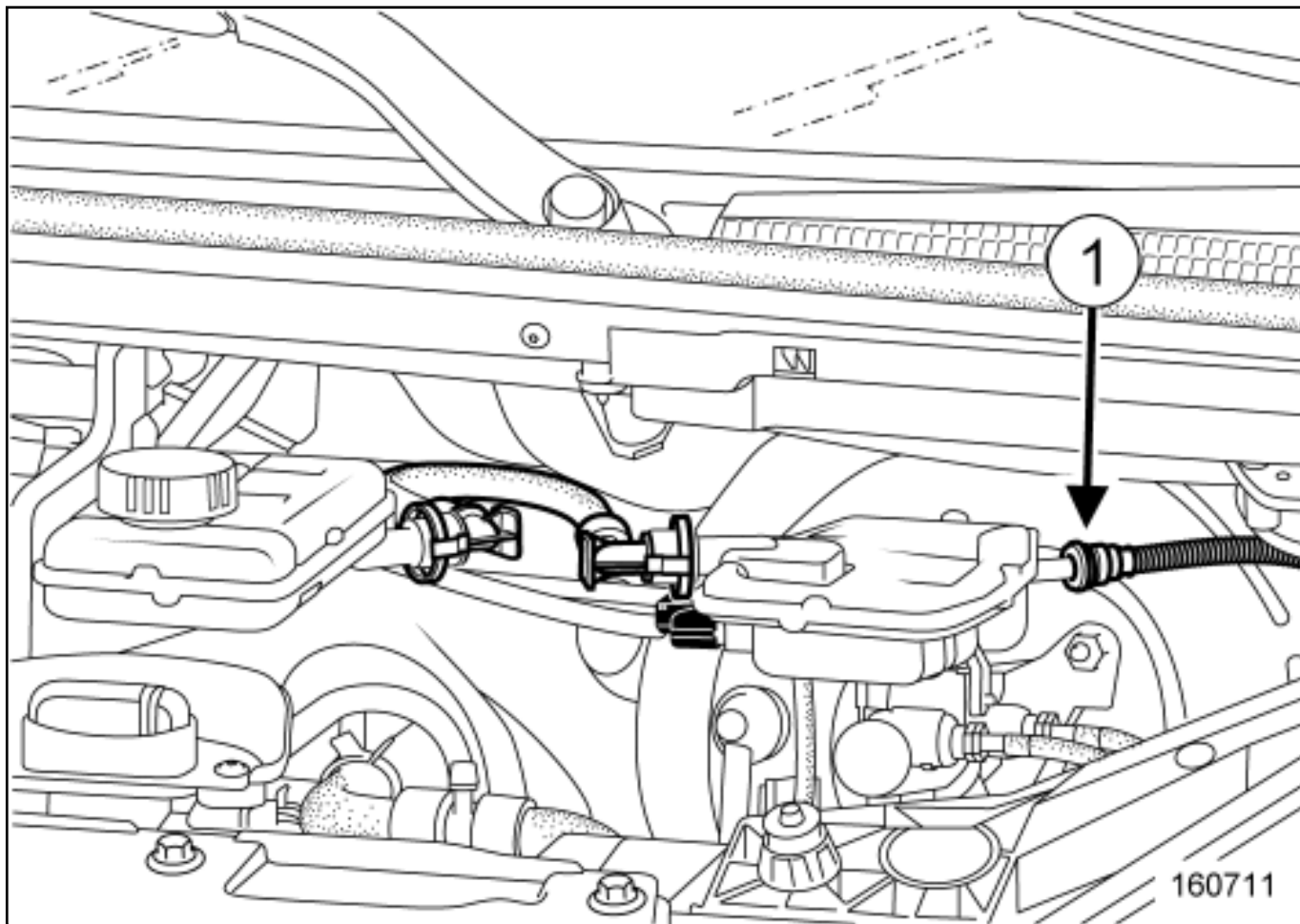
1. REMOVAL PREPARATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

■ Remove:

- the engine undertray bolts,
- the engine undertray,
- the battery [Battery: Removal - Refitting](#) ,
- the battery tray [Battery tray: Removal - Refitting](#) .

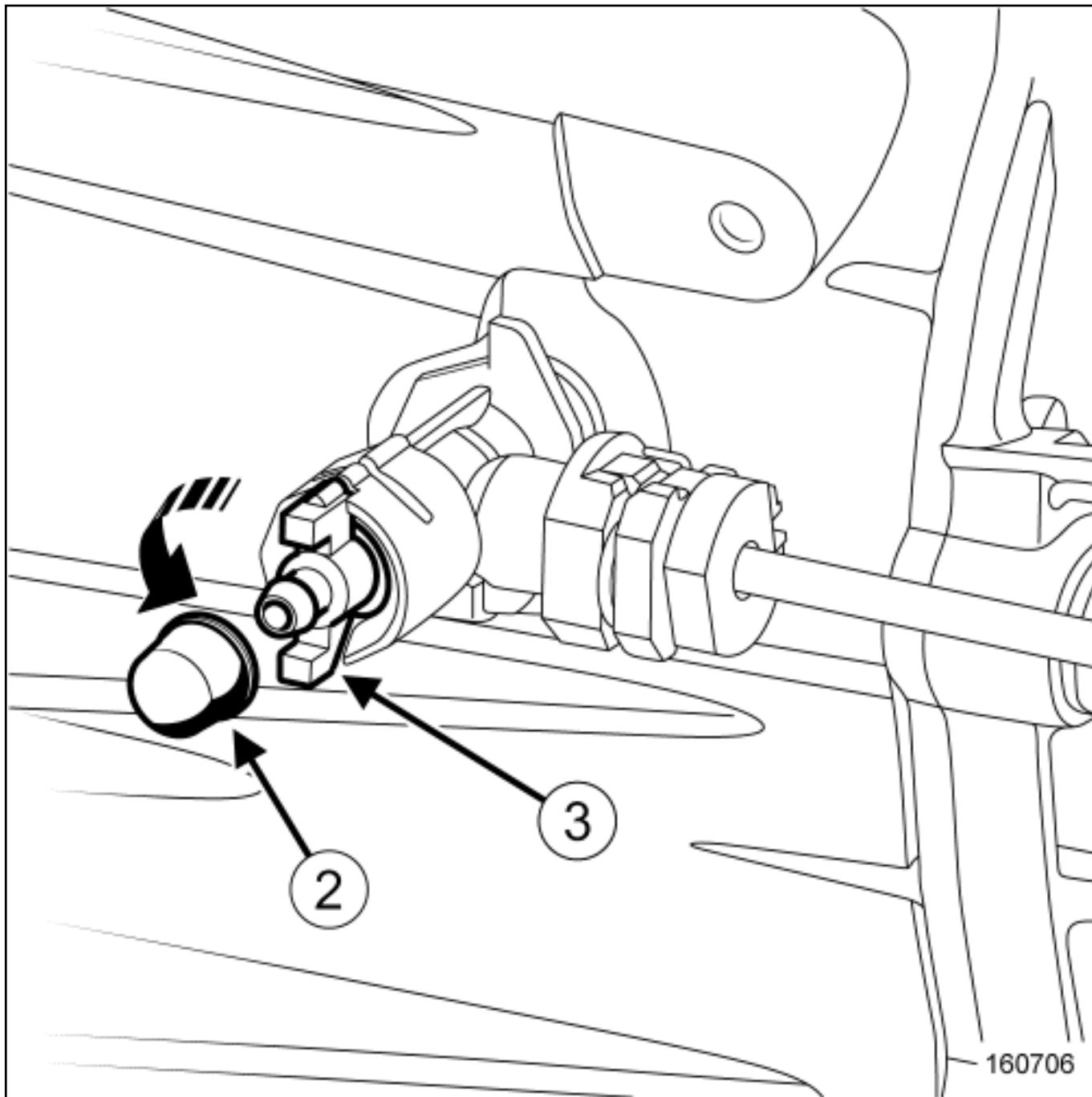
- Disconnect the brake fluid level sensor connector from the brake fluid reservoir.



- Disconnect the supply pipe(1) .

- Place plugs in each opening.

2. REMOVAL OPERATION



- Place a cloth under the clutch slave cylinder.
- Remove the plug from the bleed hole(2) .
- Connect a transparent pipe to the bleed hole running to an empty container placed under the bleed hole.
- To open the bleed screw, fully turn the bleed screw(3) by hand.



Note:

Expect some brake fluid to run out.

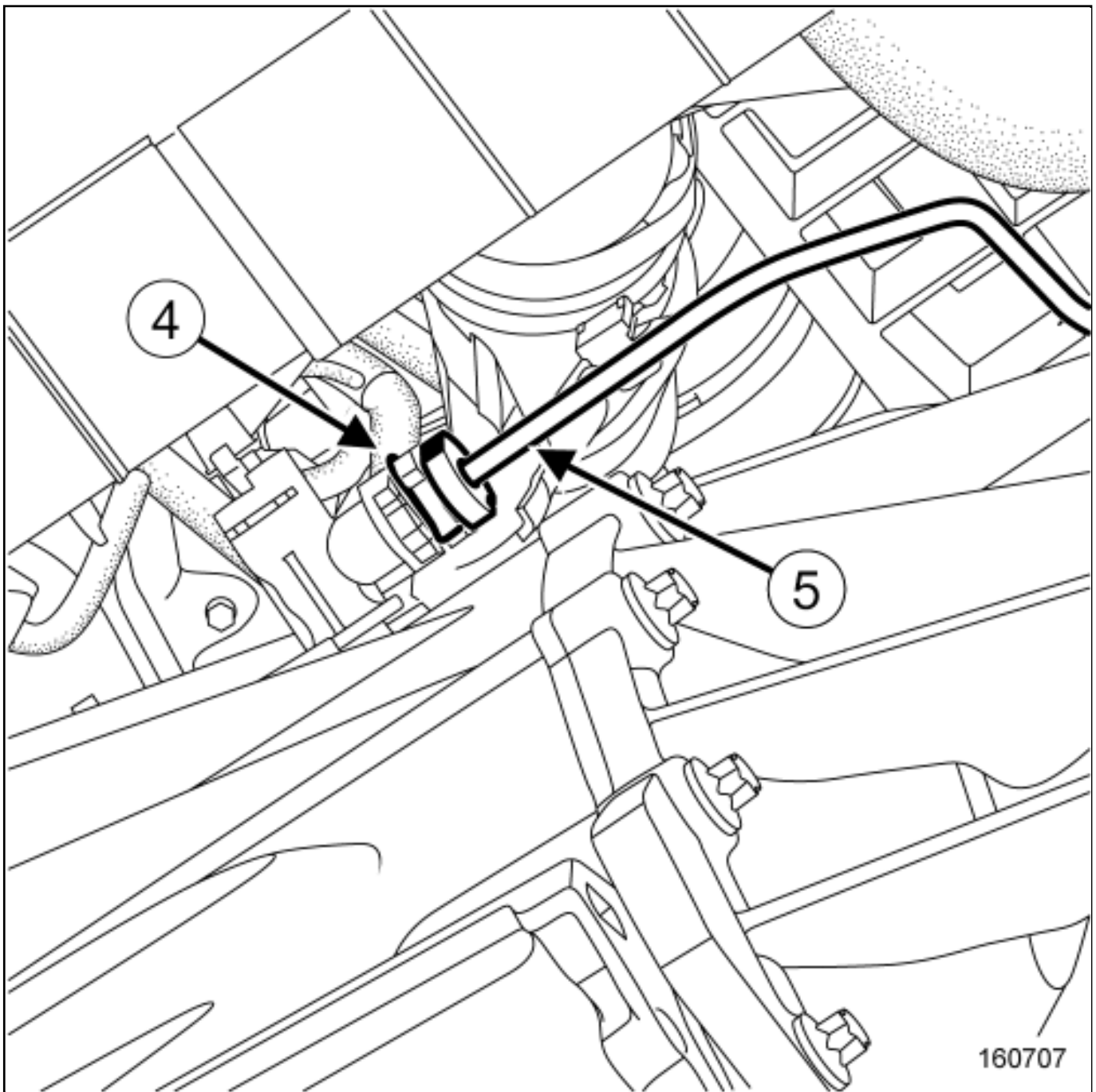
■ Depress the clutch pedal with your hand (to drain the master cylinder and the clutch pipe).



Close the bleed screw.



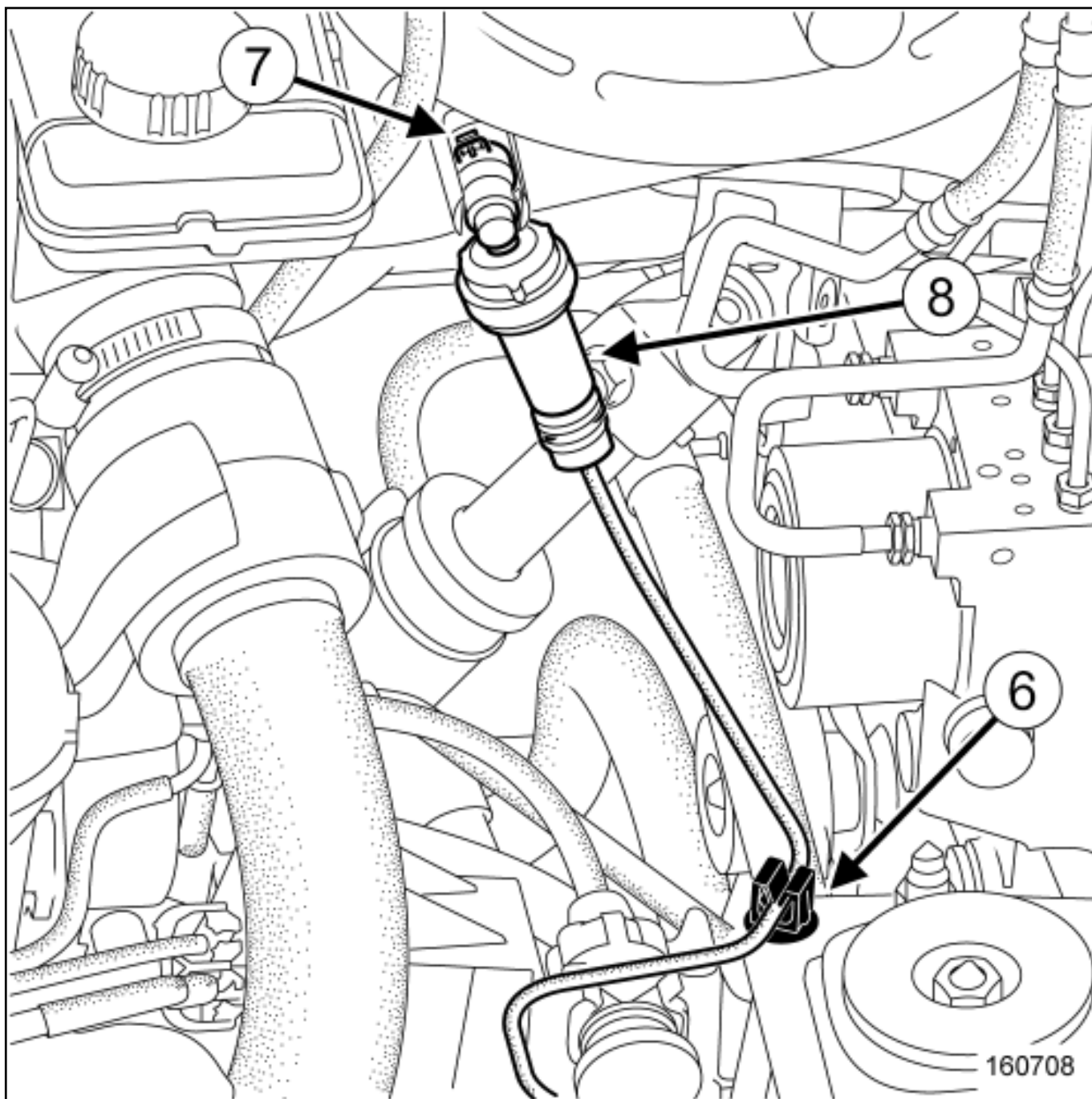
Refit the bleed plug.



■ Unclip the clip(4) .

■ Uncouple the pipe (5) from the slave cylinder and place plugs on each opening.

■ Clip on the retaining clip(4) .



Unclip the clutch control pipe at(6) .

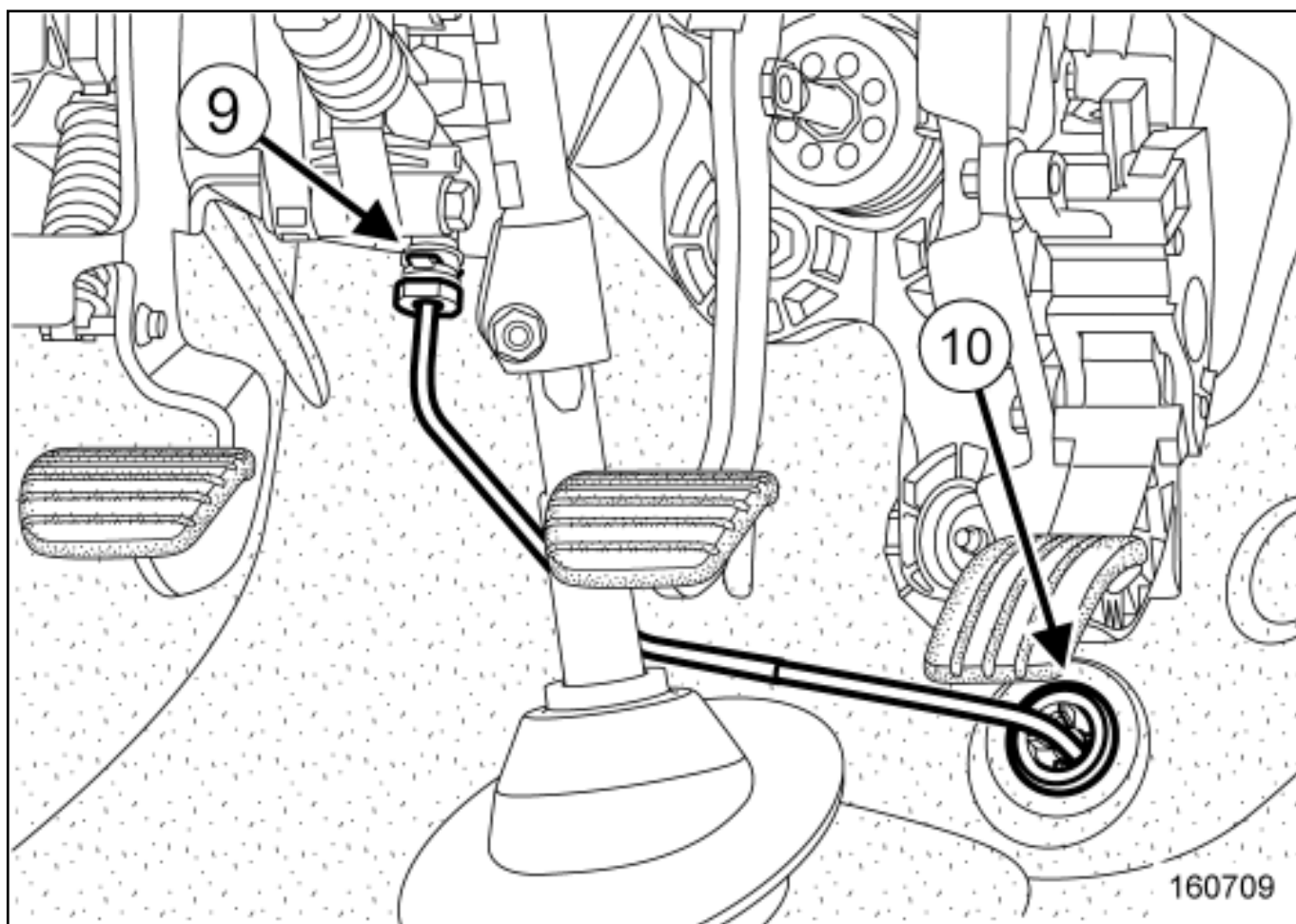
Unclip the clip(7) .

Place a cloth under the master cylinder.

Disconnect the pipe (8) between intermediate union and slave cylinder in the engine compartment.

Place plugs in each opening.

Clip on the retaining clip(7) .



Place a cloth under the master cylinder.

Unclip the clip(9) .

Disconnect the hydraulic clutch control pipe from the clutch master cylinder.

Fit blanking plugs into each opening.

Clip on the retaining clip(9) .

Move the floor carpet aside.

Unclip the clutch control pipe at(10) .

Remove the hydraulic clutch control pipe.

REFITTING

1. REFITTING PREPARATION OPERATION

Check the condition of the seals and replace them if necessary.

Remove plugs from the openings.

2. REFITTING OPERATION

Proceed in the reverse order of removal.



Note:

As you lock the clutch control pipe, you should hear a safety click.

Fill the brake fluid reservoir to the correct level.

Bleed the clutch circuit([see 37A, Mechanical component controls, Clutch circuit: Bleed](#)) .

Check that the clutch system is operation correctly.



Repair-12x04x02x04-01x37-1-45-1.xml



XSL version : 3.02 du 22/07/11

CLUTCH HOUSING BEARING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Adjustable support for fitting bearings.	Bvi. 1418
Tool kit for PF gearbox operations.	Bvi. 1510
Tool kit for repairing gearboxes.	Bvi. 1722
Tool kit for repairing gearboxes.	Bvi. 1743



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

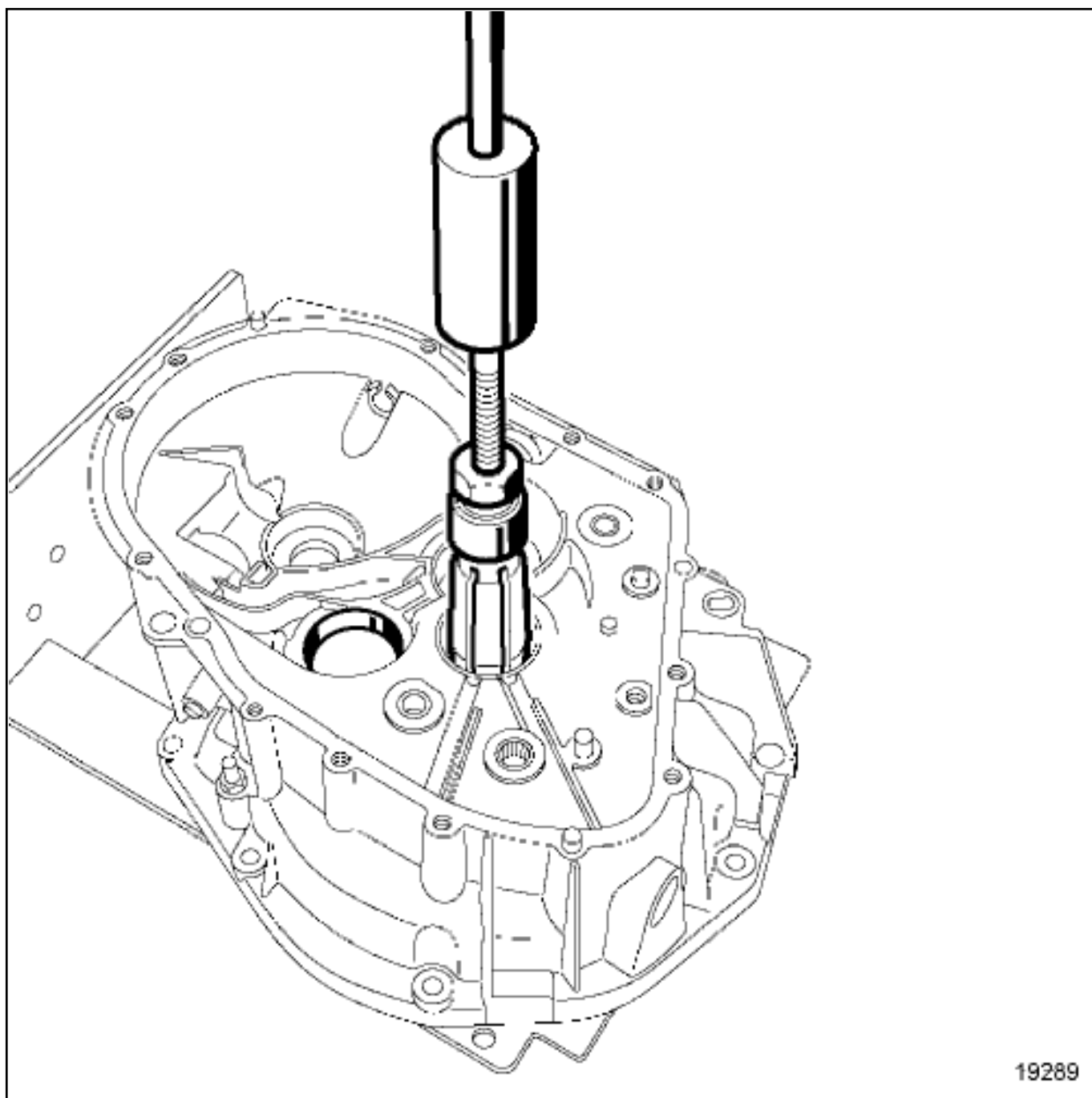
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 21A, Manual gearbox , Manual gearbox: Precautions for the repair](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the gearbox [Manual gearbox: Removal - Refitting](#) .
- Position the gearbox on the component support ([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .
- Remove:
 - the mechanism housing ([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) ,
 - the gearbox shafts ([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,
 - the differential ([see 21A, Manual gearbox , Manual gearbox differential: Removal - Refitting](#)) .

2. OPERATION FOR REMOVAL OF PART CONCERNED



19289

- Remove the bearing cups using a 42 mm diameter slide hammer.

REFITTING

1. REFITTING PREPARATION OPERATION

- Use **SURFACE CLEANER** [Vehicle: Parts and consumables for the repair](#) to clean:
 - the bearing mating faces in the clutch housing,

- the clutch housing,
- the mechanism housing,
- the shafts,
- the differential.

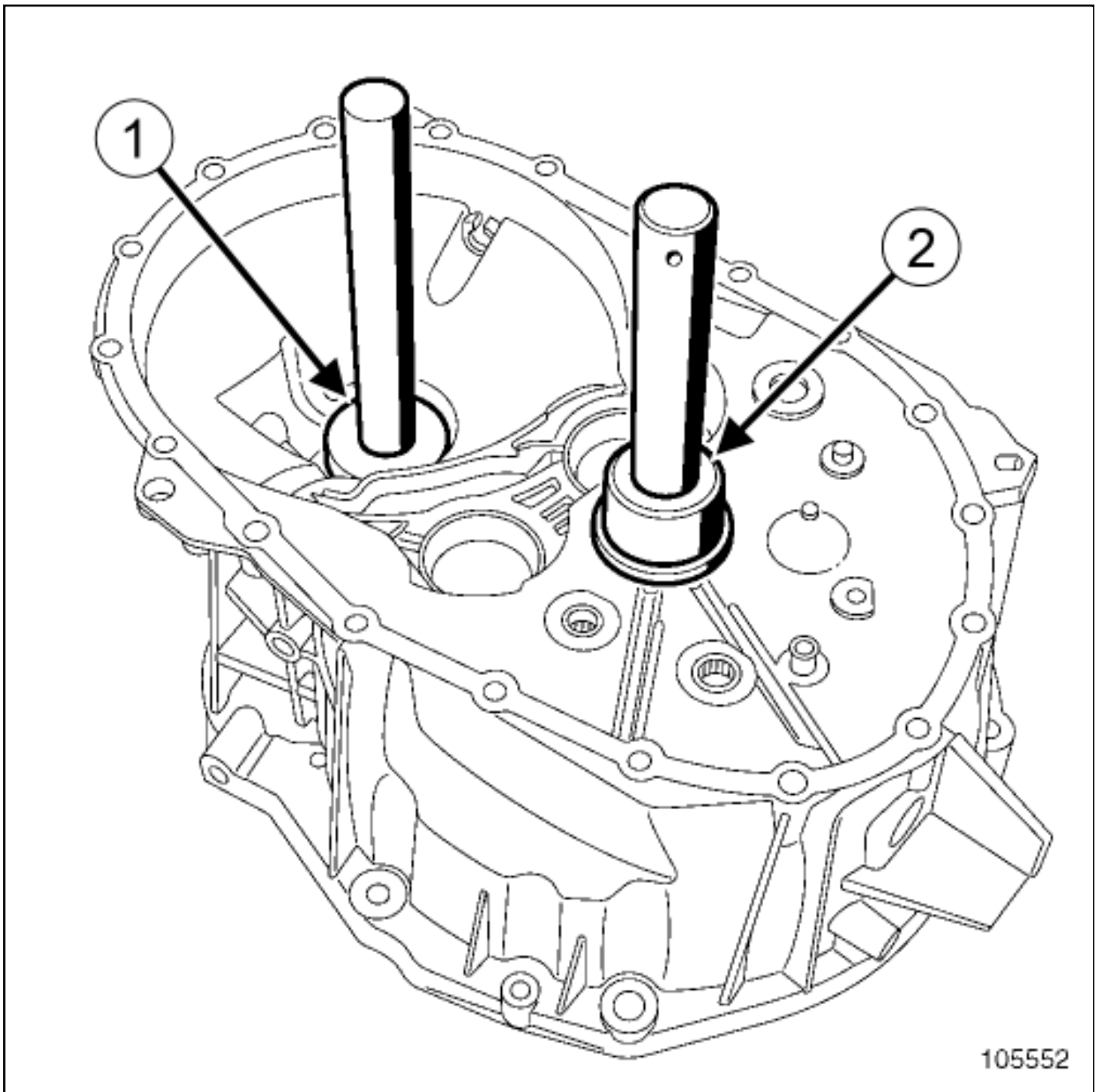
■ Parts always to be replaced:

- the circlips,
- the differential outlet seals,
- the input shaft output seal,

- the pins,
-

the hydraulic clutch slave cylinder.

2. REFITTING OPERATION FOR PART CONCERNED



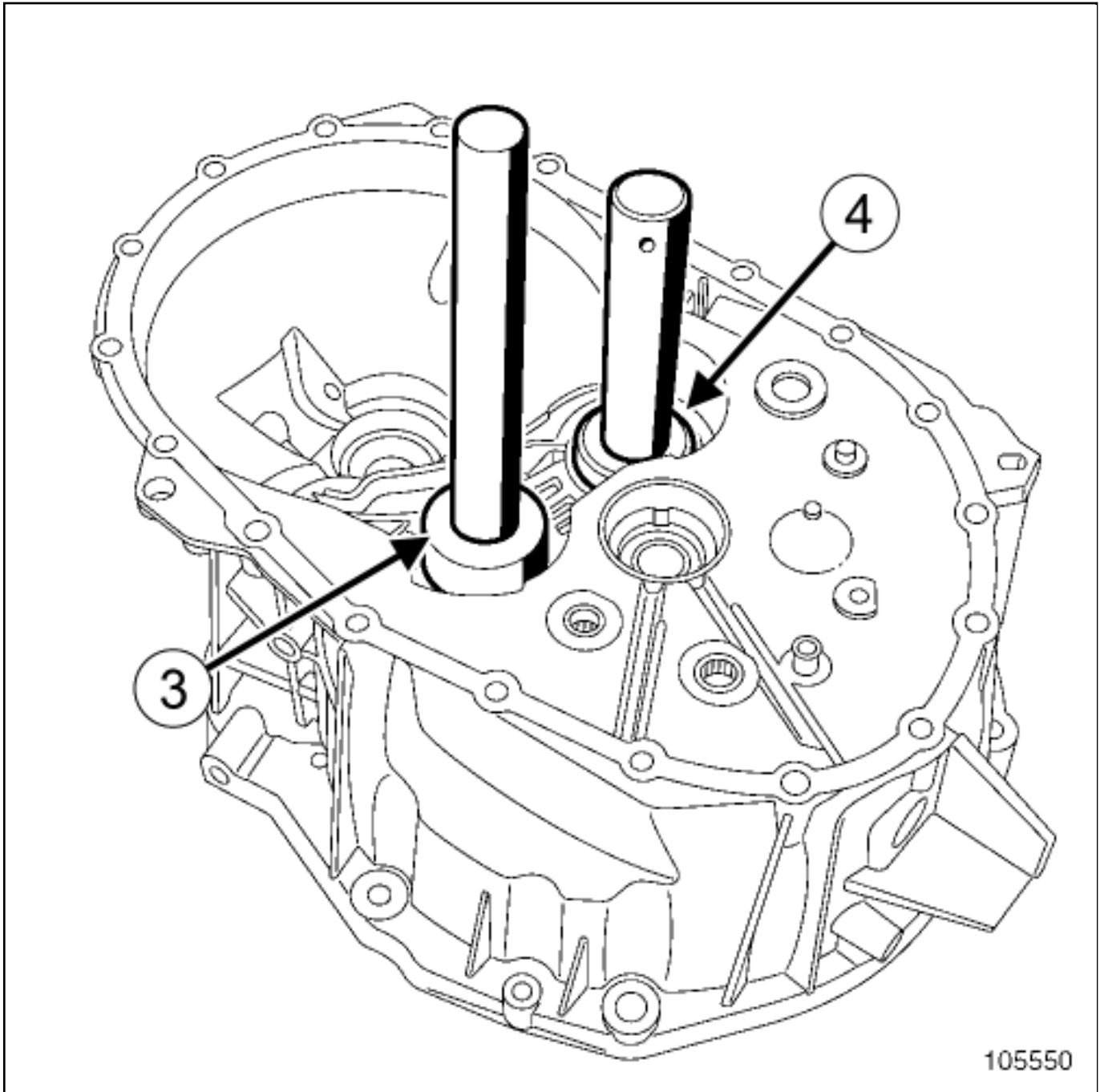
Position the clutch housing on the press plate.

Position the tool Adjustable support for fitting bearings.([Bvi. 1418](#)) under the housing for each shaft line.

Refit:

the differential bearing cup using the tool kit for PF gearbox operations. (Bvi. 1510) suffix B (1)

the input shaft bearing cup using the tool kit for repairing gearboxes. (Bvi. 1722) suffix S (2) .



Refit:

the short output shaft bearing cup using the tool kit for repairing gearboxes. (Bvi. 1722) suffix T (3) ,

the long output shaft bearing cup using the toolTool kit for repairing gearboxes.([Bvi. 1722](#)) suffix U (4) .

Refit:

-
- the differential([see 21A, Manual gearbox , Manual gearbox differential: Removal - Refitting](#)) ,
- the gearbox shafts([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,
- the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .

Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .

Refit the gearbox[Manual gearbox: Removal - Refitting](#) .



Repair-12x01x04x14-01x37-1-15-1.xml



XSL version : 3.02 du 22/07/11

CLUTCH MASTER CYLINDER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

Note:



Each time an operation is carried out on the hydraulic clutch system, bleed the circuit at the following locations:

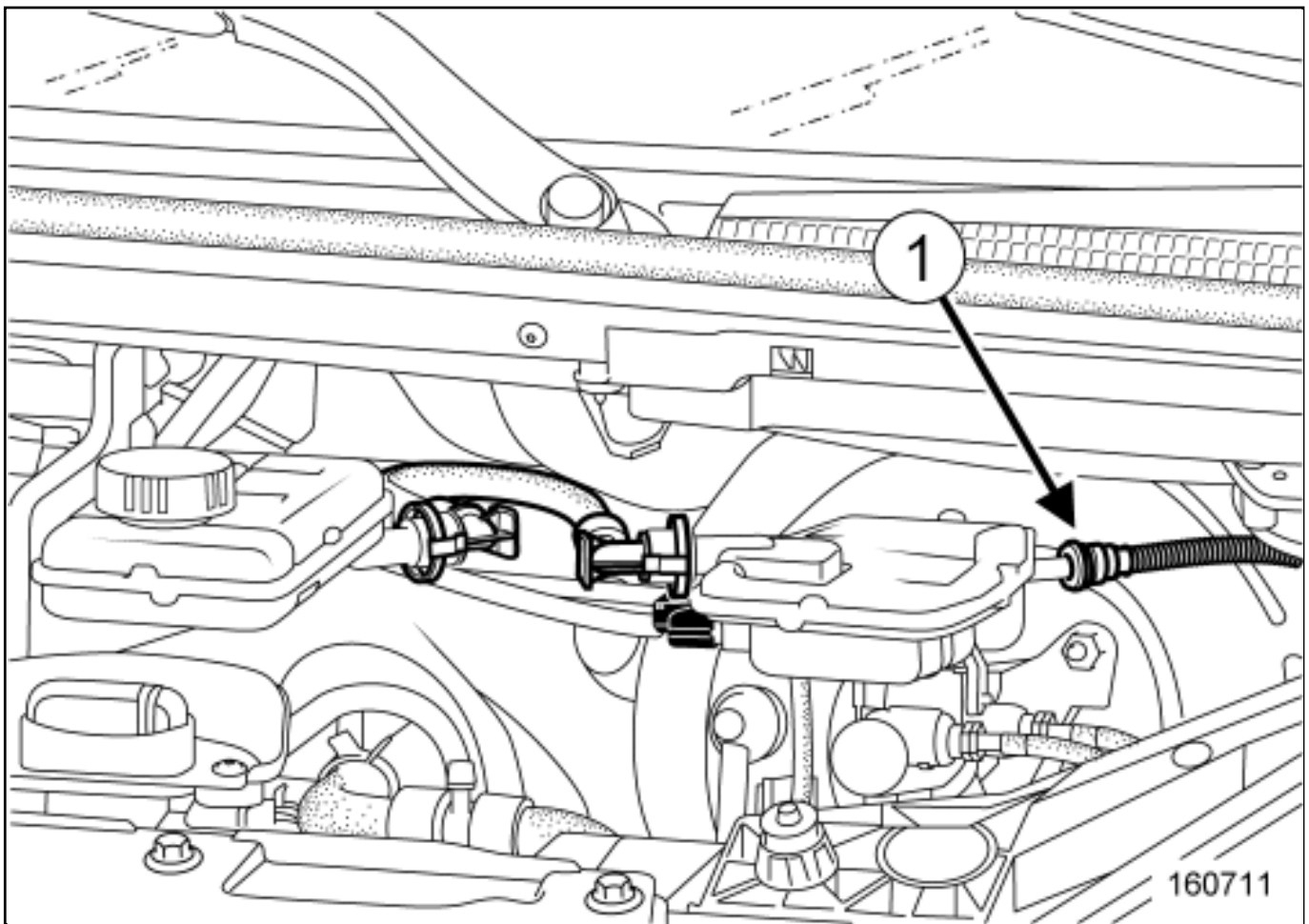
- between the reservoir and the bleed hole,
- between the bleed hole and the clutch thrust bearing,
- for long pedal travel.

Location and specifications (tightening torques, parts always replaced, etc.) [Clutch assembly: Exploded view](#)

REMOVAL

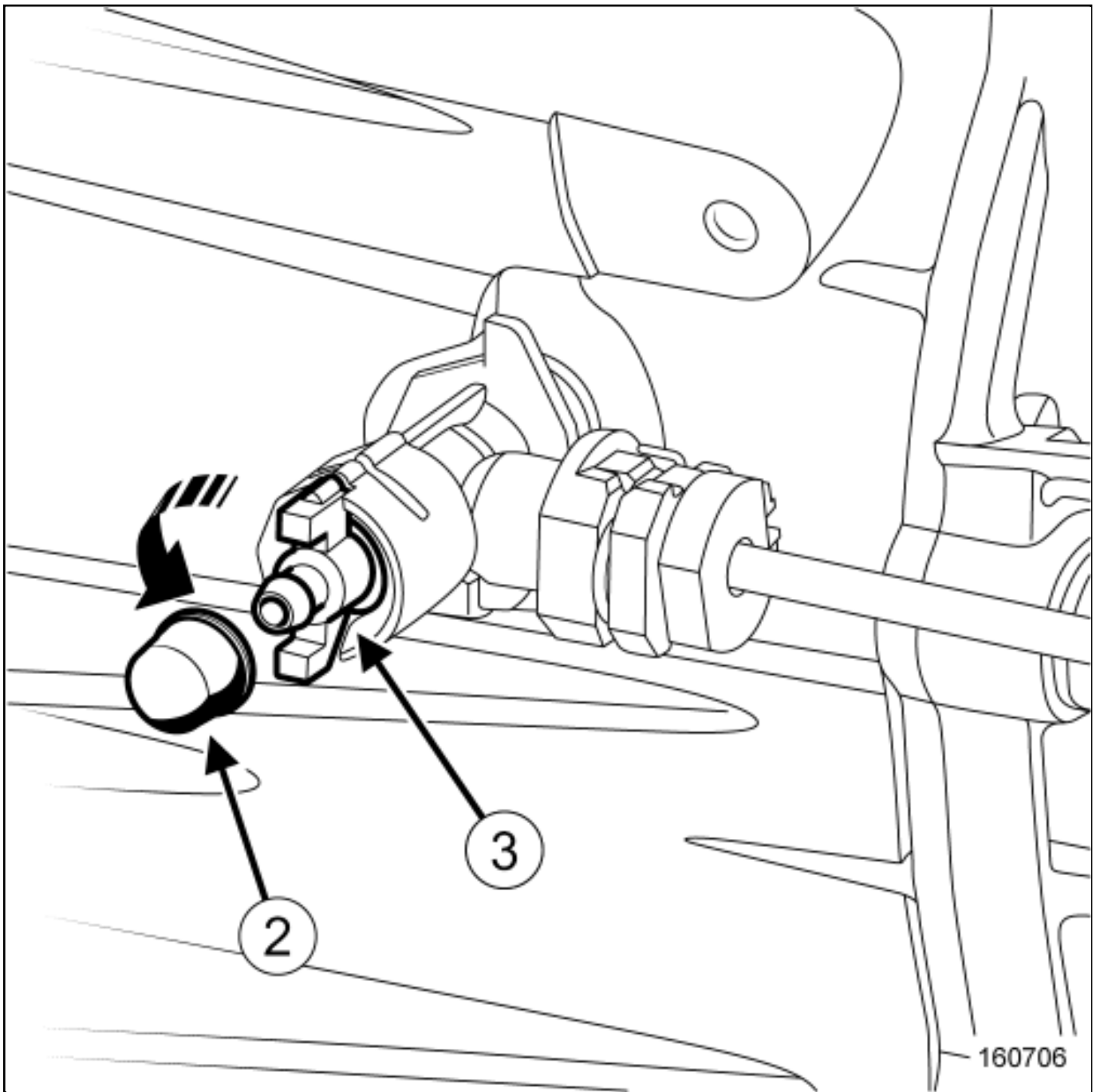
1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove:
 - the engine undertray bolts,
 - the engine undertray.
- Disconnect the brake fluid level sensor connector from the brake fluid reservoir.



- Disconnect the supply pipe(1) .
- Fit blanking plugs into each opening.

2. REMOVAL OPERATION



Place a cloth under the clutch slave cylinder.

Remove the plug from the bleed hole(2) .

Connect a transparent pipe to the bleed hole running to an empty container placed under the bleed hole.

To open the bleed screw, fully turn the bleed screw(3) by hand.



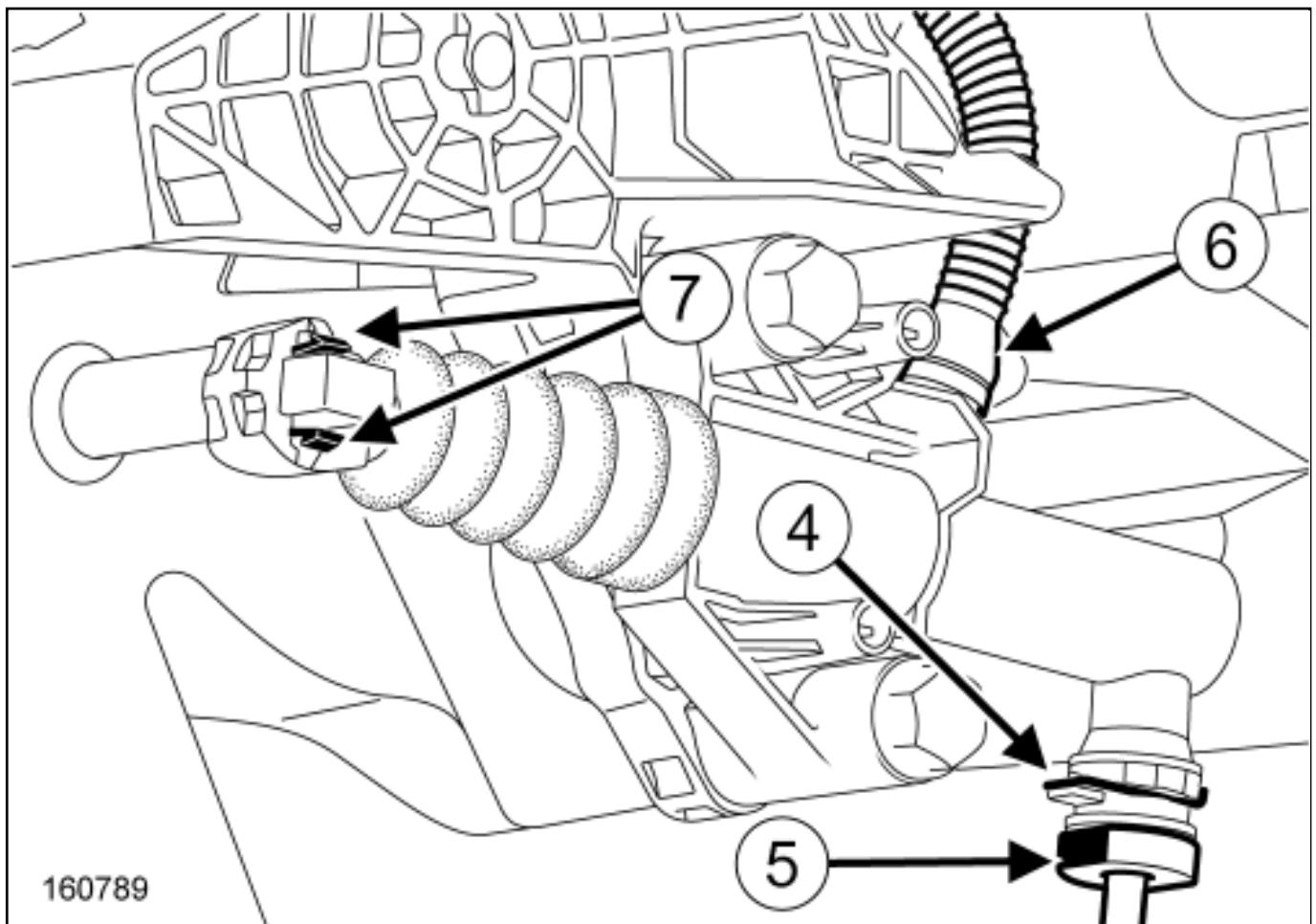
Note:

Expect some brake fluid to run out.

Depress the clutch pedal with your hand (to drain the master cylinder and the clutch pipe).

Close the bleed screw.

Refit the bleed plug.



Place a cloth under the master cylinder.

Unclip the clip(4) .

Disconnect the clutch control pipe(5) on the clutch master cylinder.

Fit blanking plugs into each opening.

Clip on the retaining clip(4) .

Unclip the clutch control pipe at(6) .

Fit blanking plugs into each opening.

Unclip the clutch master cylinder rod by pressing on the clips(7) .

Remove [Clutch assembly: Exploded view](#) :

-
- the master cylinder bolts,
- the master cylinder.

REFITTING

1. REFITTING PREPARATION OPERATION

Check the condition of the seals and replace them if necessary.

Remove plugs from the openings.

2. REFITTING OPERATION



Proceed in the reverse order of removal.



Note:

As you lock the clutch control pipe, you should hear a safety click.



Fill the brake fluid reservoir to the correct level.



Bleed the clutch circuit([see 37A, Mechanical component controls, Clutch circuit: Bleed](#)) .



Check that the clutch system is operation correctly.



Repair-12x04x02x02-01x37-1-39-1.xml



XSL version : 3.02 du 22/07/11

CLUTCH PEDAL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



- Location and specifications (tightening torques, parts always to be replaced, etc.):
 - [\(see 37A, Mechanical component controls, Pedal assembly: Exploded view\)](#) ,
 - [Steering assembly: Exploded view](#) ,
 - [\(see 37A, Mechanical component controls, Gear control assembly: Exploded view\)](#) ,
 - (see [Dashboard assembly: Exploded view](#)) ,
 - [Air distribution circuit assembly: Exploded view](#) ,
 - [Clutch assembly: Exploded view](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:



[\(see 37A, Mechanical component controls, Pedal assembly mechanism: Precautions for the repair\)](#)



[Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION



Disconnect the battery [Battery: Removal - Refitting](#) .



Remove:

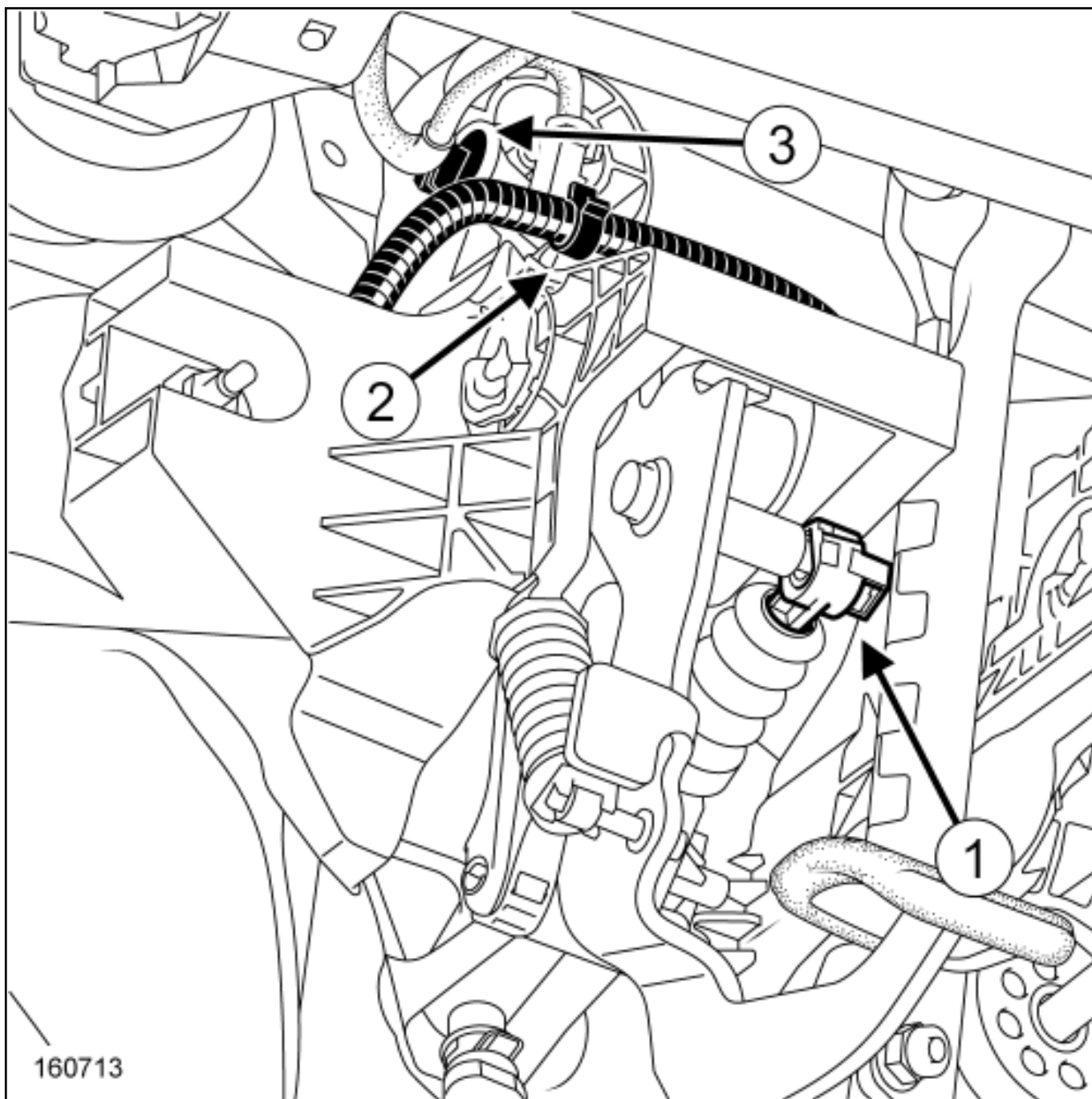
■
■ the passenger compartment fuse access cover(see **Dashboard assembly: Exploded view**) ,

the front footwell air distribution duct [Air distribution circuit assembly: Exploded view](#) .

2. REMOVAL OPERATION

■ Disconnect the connectors from the clutch pedal switches.

■ Remove the clutch pedal switches([see 37A, Mechanical component controls, Pedal assembly: Exploded view](#)) .



Unclip:

- the clutch master cylinder rod(1) from the clutch pedal,
- the clutch master cylinder supply pipe(2) from the clutch pedal body,
- the electrical wiring from the clutch pedal body(3).

Remove the clutch master cylinder bolts [Clutch assembly: Exploded view](#) .

Move aside the clutch master cylinder.

Remove the clutch pedal [\(see 37A, Mechanical component controls, Pedal assembly: Exploded view\)](#) .

REFITTING

Proceed in the reverse order to removal.

Adjust the pedal switches [\(see 37A, Mechanical component controls, Pedal switches: Adjustment\)](#) .



Repair-30x03x01x02-01x37-1-41-1.xml



COMPLETE FRONT SEAT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions (see Vehicle: Precautions for repair)

REMOVAL

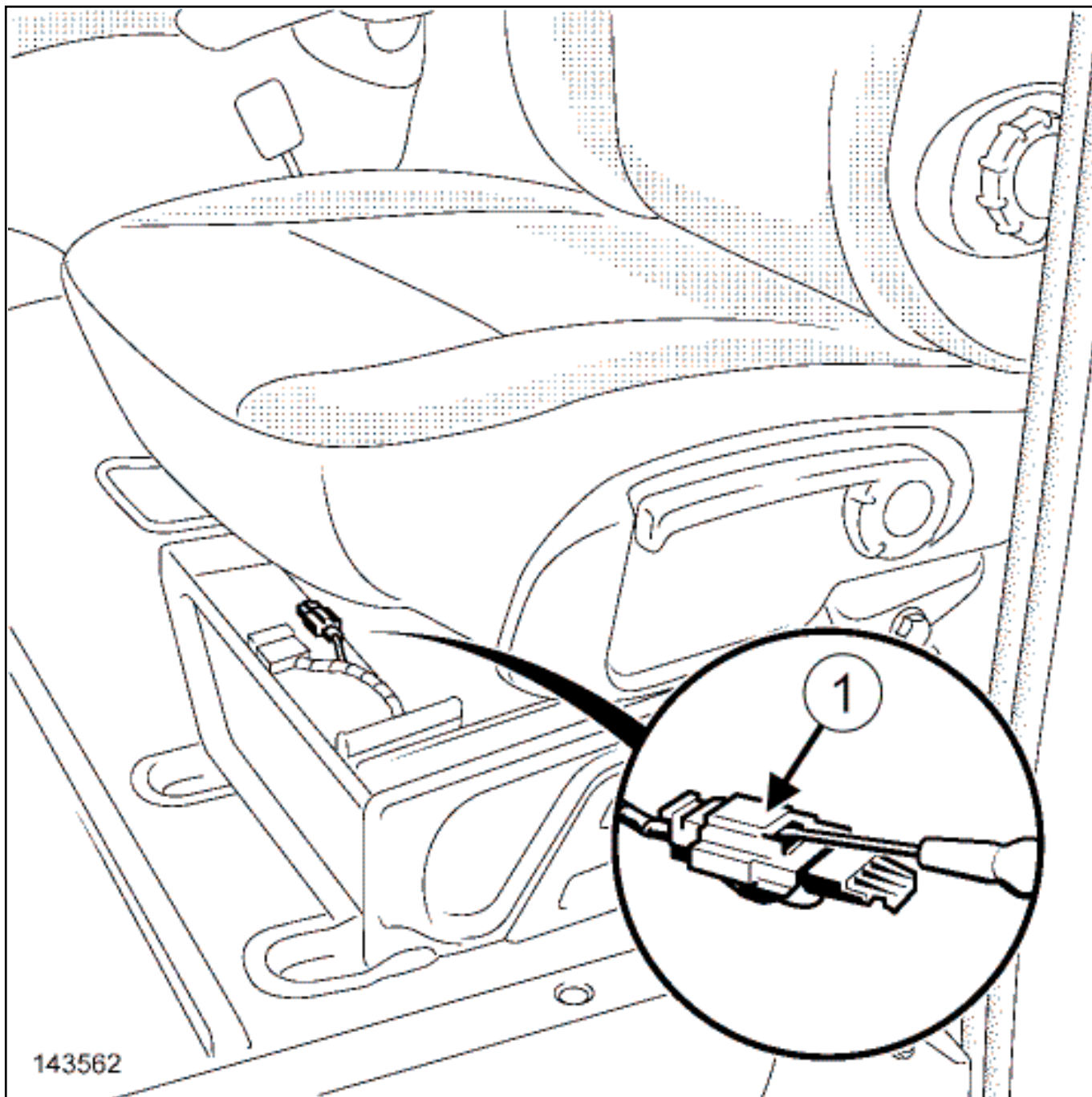
1. REMOVAL PREPARATION OPERATION



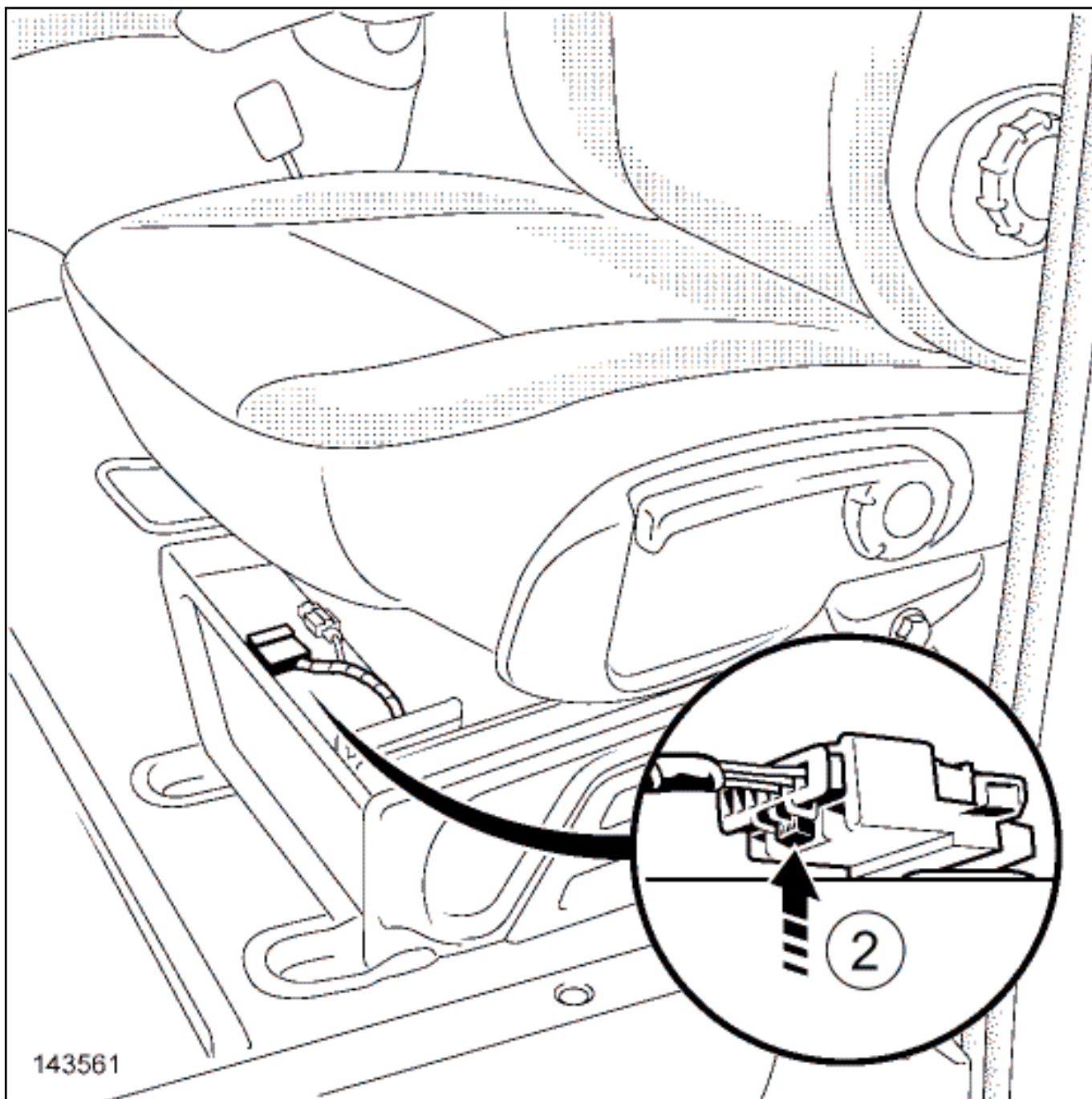
Disconnect the battery [Battery: Removal - Refitting](#) .



Remove the bolt from the front seat belt [Front side seat belt: Removal - Refitting](#) .



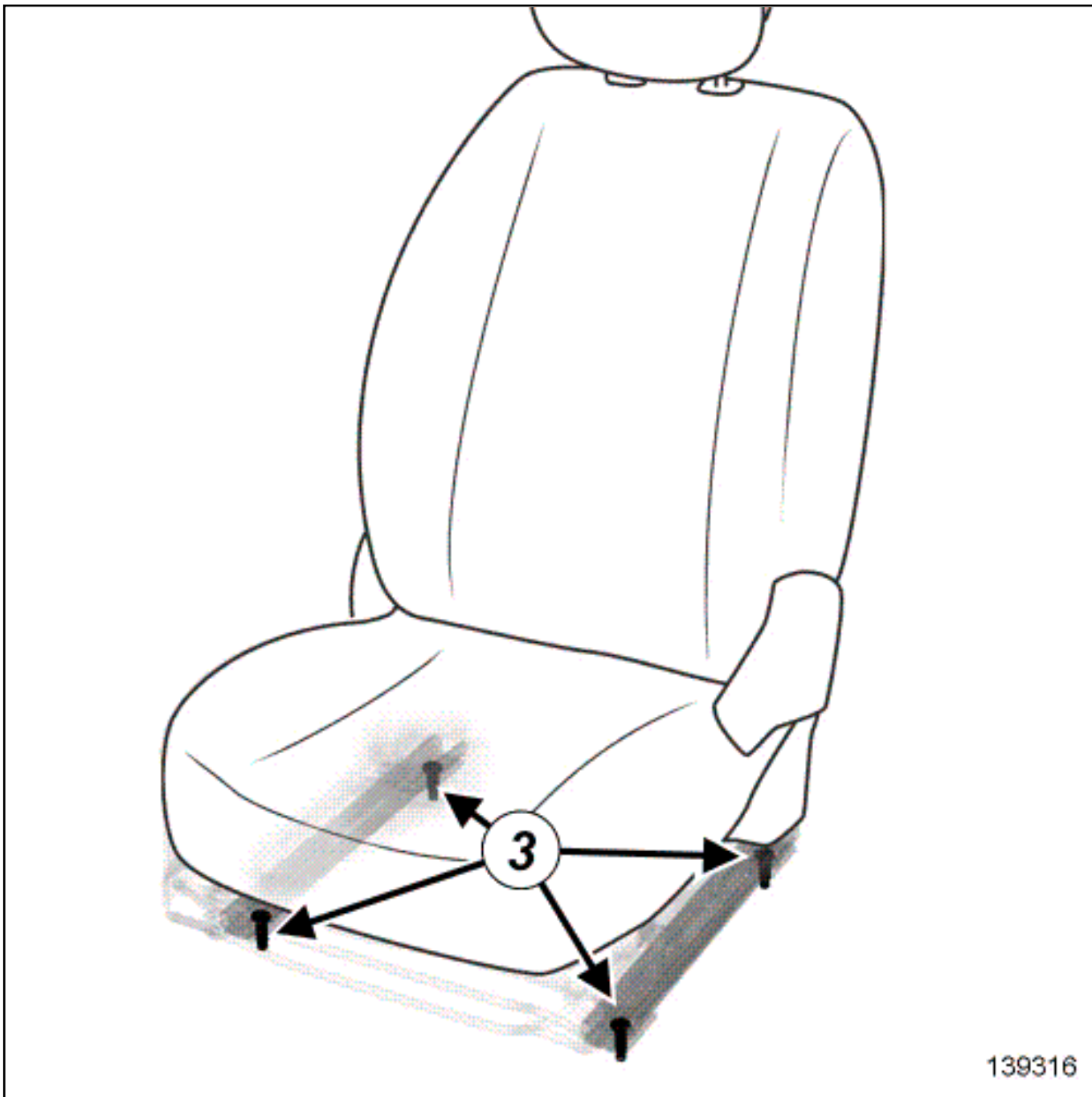
Disconnect the connector(1) using a flat-blade screwdriver.



- Disconnect the connector at(2) .

- Unclip the connector .

2. REMOVAL OPERATION



139316

Remove:

- - the bolts(3) ,
 -
- the front seat.

Proceed in the reverse order to removal.

Torque tighten the front seat bolts 35 N.m.



Repair-70x06x02-01x37-1-37-1.xml



XSL version : 3.02 du 22/07/11

COMPLETE REAR AXLE SYSTEM: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

component jack

pedal press

safety strap(s)

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 33A, Rear axle components, Rear axle components: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

■ Location and specifications (tightening torques, parts always to be replaced, etc.):

- [\(see 33A, Rear axle components, Rear axle assembly: Exploded view\)](#) ,
- [\(see 33A, Rear axle components, Rear brake calliper assembly: Exploded view\)](#) ,
- [\(see 33A, Rear axle components, Rear hub carrier assembly: Exploded view\)](#) .



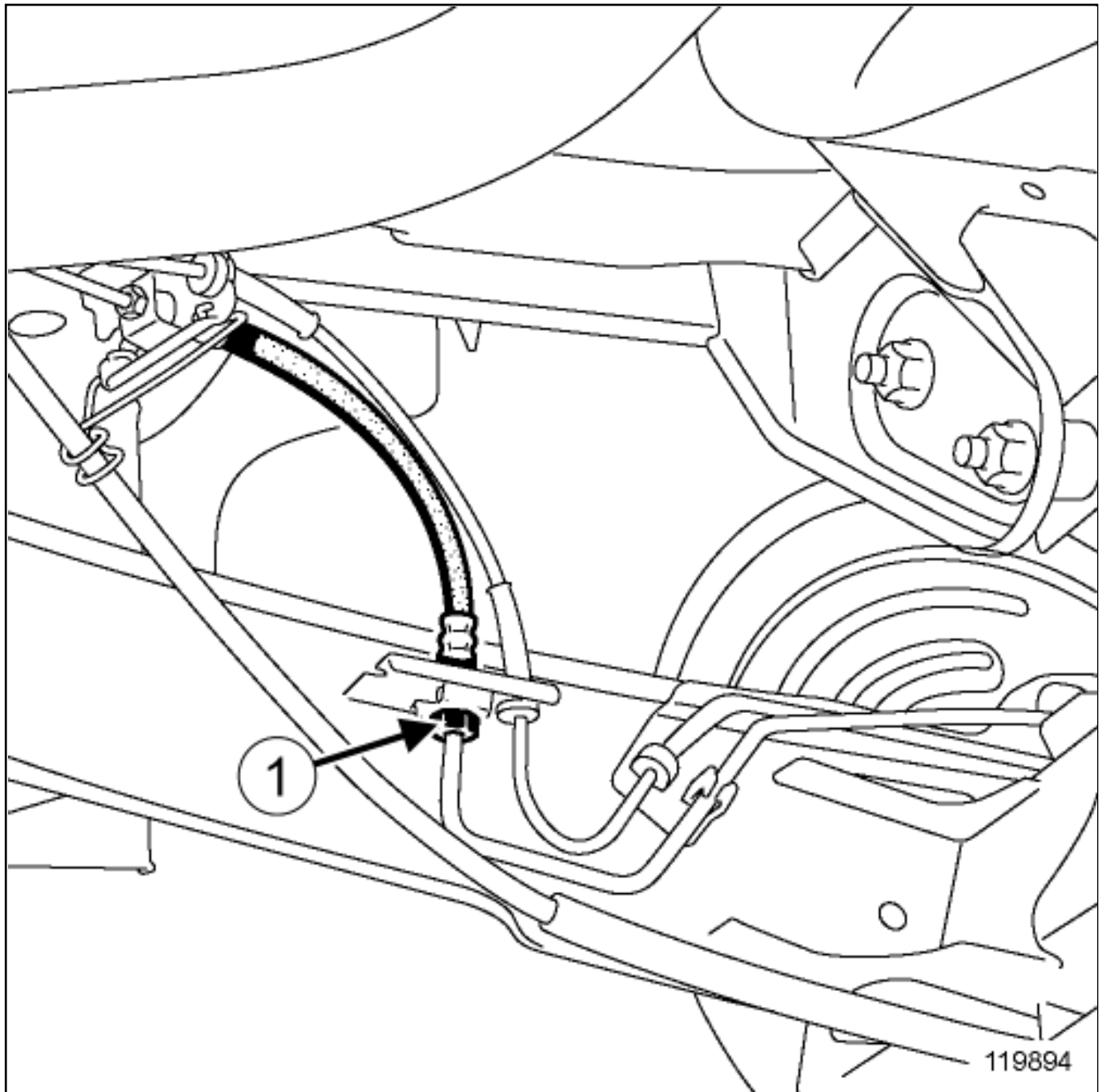
WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Release the parking brake.
- Fit the pedal pressto the brake pedal to limit the outflow of brake fluid.
- Remove [\(see 33A, Rear axle components, Rear hub carrier assembly: Exploded view\)](#) :
 - the rear wheels,
 - the rear wheel speed sensors.
- Unclip the parking brake cables [Parking brake assembly: Exploded view](#) .

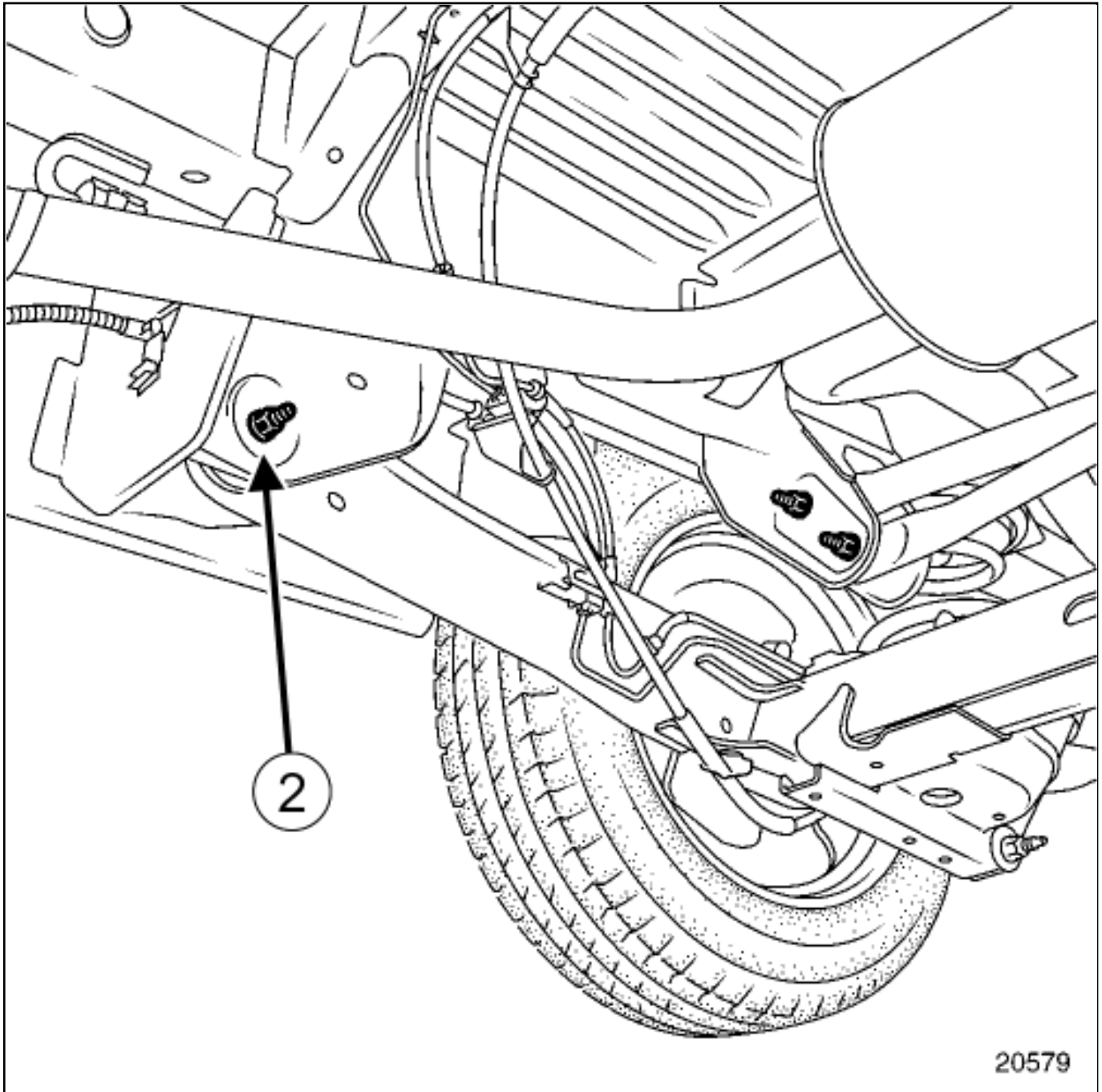


- Undo the brake pipe unions at(1) .



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.



Loosen the nut(2) of the rear axle rubber bearing on each side of the vehicle.

Remove [\(see 33A, Rear axle components, Rear axle assembly: Exploded view\)](#) :



the rear axle fairing,



the rear suspension springs.

2. REMOVAL OPERATION



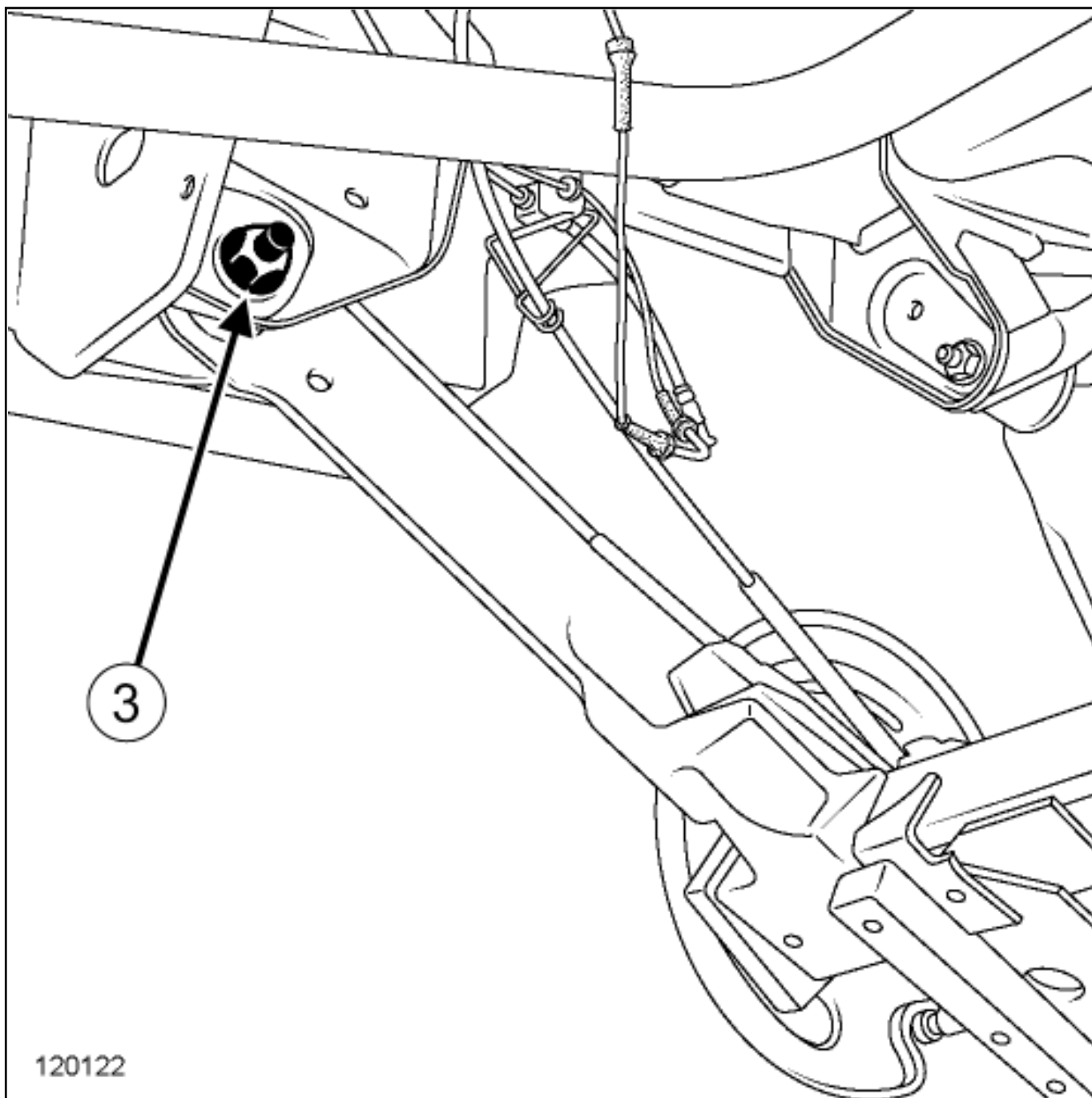
Fit a component jack under the rear axle to support it during the removal operation.



Attach the rear axle to the component jack using a safety strap(s).



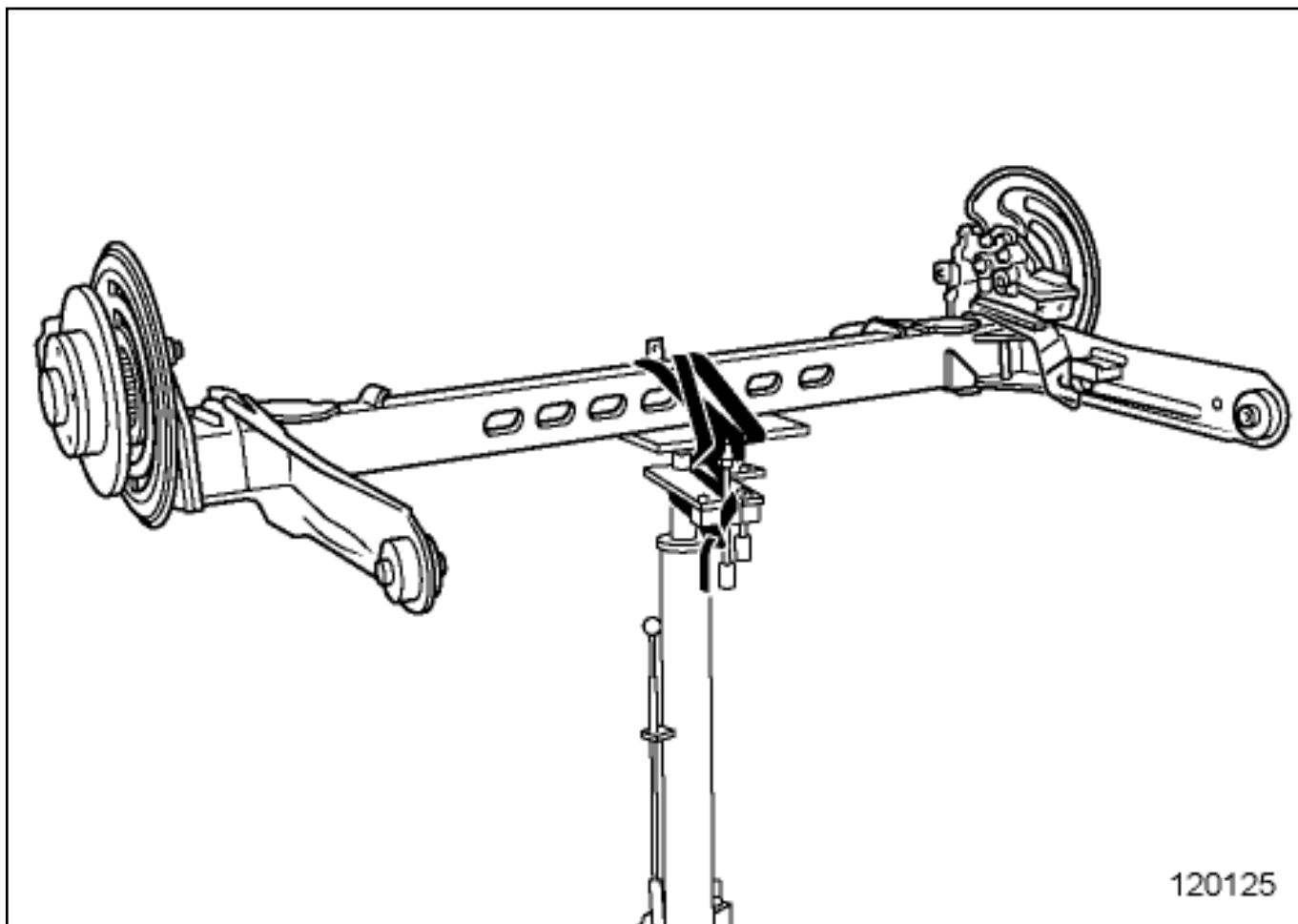
Remove the panhard bar [\(see 33A, Rear axle components, Rear axle assembly: Exploded view\)](#) .



Remove the rear axle bearing bolts(3) .

Lower the component jack in order to lower the rear axle.

1. REFITTING OPERATION



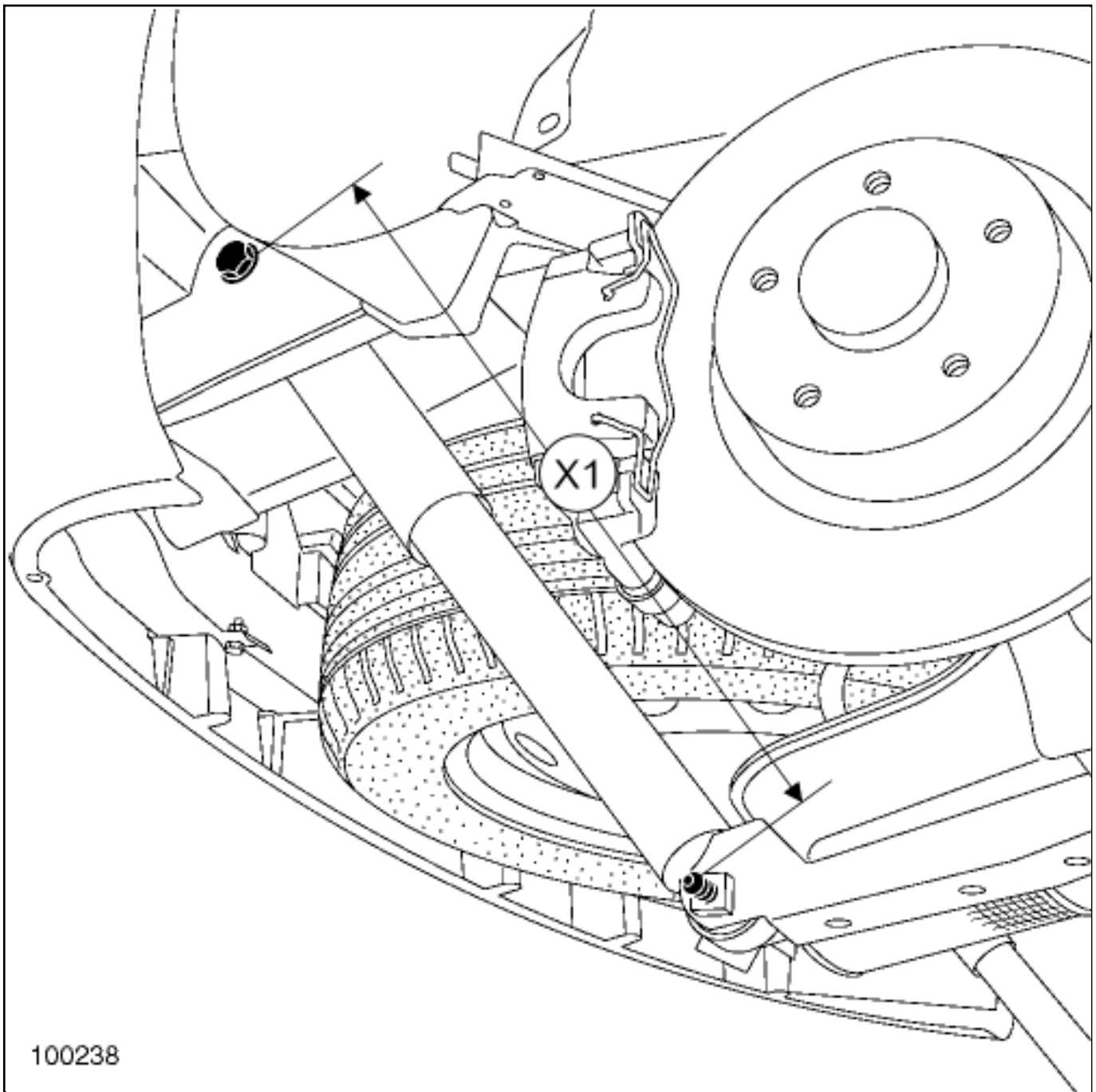
Position the rear axle on the component jack and strap it using a safety strap(s).

Position the rear axle.

Refit the bearing bolts.

Refit ([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)):

- the panhard bar,
- the rear suspension springs.



Fit a component jack under the shock absorber spring cup.

Refit the lower bolt of the shock absorber.

Adjust using the component jack the dimension (X1) = 380 mm.



Note:

The vehicle must be in "half-empty - load" position when tightening the shock absorber rubber bushes (shock absorber length of 380 mm.)

Torque tighten the shock absorber lower bolt([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)) .

Refit the rear axle fairing.

Torque tighten([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)) :

- the panhard bar bolts,

- the rear axle rubber bearing bolts.

2. FINAL OPERATION.

Fit the rear brake pipe unions(1) .

Torque tighten the rear brake pipe unions 17 N.m.

Refit the rear wheel speed sensors([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .

Clip the parking brake cables [Parking brake assembly: Exploded view](#) .

Adjust the parking brake cables [Parking brake lever: Adjustment](#) .

Bleed the brake circuit [Braking circuit: Bleed](#) .

Refit the rear wheels ([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .



Repair-13x02x05x06-01x37-1-37-1.xml



XSL version : 3.02 du 22/07/11

COMPLETE REAR SEAT: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

- Remove:
 - the crew cab partition [Crew cab partition: Removal - Refitting](#) ,
 - the rear seat base interior casing ([see 76A, Rear seat frames and mechanisms, Rear seat base interior casing: Removal - Refitting](#)) .

2. REMOVAL OPERATION

- Remove the complete rear seat.

REFITTING

1. REFITTING OPERATION

- Proceed in the reverse order to removal.

2. FINAL OPERATION

- Torque tighten the rear seat bolts 62 N.m.



Repair-70x12x02-01x37-1-12-1.xml



COMPRESSOR - CONDENSER CONNECTING PIPE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 62A, Air conditioning, Air conditioning: Precautions for the repair](#)) .



Note:

Use blanking plugs for the fuel circuits with part numbers 77 01 208 229 or 77 01 476 857 to plug any openings exposed to the open air. They must be clean. Do not use any which have already been used to plug a fuel circuit.

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#) (02A, Lifting equipment)).
- Drain the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) .
- Disconnect the battery ([Battery: Removal - Refitting](#)) .
- Remove:
 - the engine undertray bolts,
 - the engine undertray,

- the front bumper [Front bumper assembly: Exploded view](#) .
- the intercooler [Air inlet assembly: Exploded view](#) .

2. REMOVAL OPERATION

- Disconnect the refrigerant pressure sensor connector.
- Remove [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) :
 - the "compressor - condenser" connecting pipe mounting bolts,
 - the bolt from the retaining bracket of the "compressor - condenser" connecting pipe on the condenser,
 - the bolt from the retaining bracket of the "compressor - condenser" connecting pipe on the compressor.



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

- Disconnect [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) :
 - the "compressor - condenser" connecting pipe on the condenser,
 - the "compressor - condenser" connecting pipe from the compressor.



CAUTION

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

- Insert the blanking plugs.
- Remove the "compressor - condenser" connecting pipe [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) .

REFITTING

1. REFITTING PREPARATION OPERATION

CAUTION



Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

CAUTION



To avoid any leaks, check that the seal and the pipe surface are in good condition.

The seal and the surface must be clean and scratch free.

■ Clean the seals of the refrigerant circuit pipes([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

2. REFITTING OPERATION

■ Proceed in the reverse order to removal.

■ Consult the refrigerant and oil quantity values before filling the circuit([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .

■ Perform the following operations:

■ fill the refrigerant circuit using the refrigerant charging station([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) ,

■ check for leaks([see 62A, Air conditioning, Refrigerant circuit: Check](#)) .

■ Check that the air conditioning system is operating correctly([see 62A, Air conditioning, Air conditioning: Check](#)) .



Repair-30x02x02x17-01x37-1-48-1.xml



XSL version : 3.02 du 22/07/11

COMPRESSOR - INTERMEDIATE PIPE CONNECTING PIPE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station

WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 62A, Air conditioning, Air conditioning: Precautions for the repair](#)).

CAUTION



To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

Note:



Use blanking plugs for the fuel circuits with part numbers 77 01 208 229 or 77 01 476 857 to plug any openings exposed to the open air. They must be clean. Do not use any which have already been used to plug a fuel circuit.

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#) (02A, Lifting equipment)).

■ Drain the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) .

■ Disconnect the battery ([Battery: Removal - Refitting](#)) .

■ Remove:

- the engine undertray bolts,
- the engine undertray,
- the front bumper ([Front bumper assembly: Exploded view](#)) .
- the windscreen washer bottle ([Wipers/washing assembly : Exploded view](#)) ,
- the intercooler ([Air inlet assembly: Exploded view](#)) .

2. REMOVAL OPERATION

■ Remove ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) :

- the "compressor - intermediate pipe" connecting pipe mounting bolts,
- the bolt from the retaining bracket of the "compressor - intermediate pipe" connecting pipe on the compressor,
- the bolt from the retaining bracket of the "compressor - intermediate pipe" connecting pipe on the "expansion valve - intermediate pipe" connecting pipe at the expansion valve outlet.



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

■ Disconnect ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) :

- the "compressor - intermediate pipe" connecting pipe on the compressor,
- the "compressor - intermediate pipe" connecting pipe on the "expansion valve - intermediate pipe" connecting pipe at the expansion valve outlet.

■ Insert the blanking plugs.

■ Remove the "compressor - intermediate pipe" connecting pipe ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION

CAUTION



Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

CAUTION



To avoid any leaks, check that the seal and the pipe surface are in good condition.

The seal and the surface must be clean and scratch free.

- Clean the seals of the refrigerant circuit pipes ([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

2. REFITTING OPERATION



Proceed in the reverse order to removal.



- Consult the refrigerant and oil quantity values before filling the circuit ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .



Perform the following operations:

- fill the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) ,

check for leaks ([see 62A, Air conditioning, Refrigerant circuit: Check](#)) .



- Check that the air conditioning system is operating correctly ([see 62A, Air conditioning, Air conditioning: Check](#)) .



CONDENSER - EXPANSION VALVE CONNECTING PIPE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 62A, Air conditioning, Air conditioning: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .



CAUTION

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

Locations and specifications (tightening torques, parts to always be replaced, etc.)[\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



CAUTION

Consult the device's operating manual to avoid incorrect use.

■ Drain the refrigerant circuit using the refrigerant charging station [\(see 62A, Air conditioning, Refrigerant circuit:](#)

[Draining - Filling](#)) .

■ Disconnect the battery [Battery: Removal - Refitting](#) .

■ Remove:

- the engine undertray bolts,
- the engine undertray,
- the front bumper [Front bumper assembly: Exploded view](#) ,
- the right-hand headlight [Front signals - lighting assembly: Exploded view](#) ,
- the air scoop protector [Air inlet assembly: Exploded view](#) ,
- the windscreen washer bottle [Wipers/washing assembly : Exploded view](#) .

2. REMOVAL OPERATION

■ Remove the "condenser - expansion valve" connecting pipe mounting bolts ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .

■ Remove ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) :

- the bolt for the "condenser - expansion valve" connecting pipe bracket on the expansion valve,
- the bolt for the "condenser - expansion valve" connecting pipe bracket on the condenser.



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

■ Disconnect ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) :

- the "condenser - expansion valve" connecting pipe from the expansion valve,
- the "condenser - expansion valve" connecting pipe from the condenser.

■ Remove the "condenser - expansion valve" connecting pipe.

■ Fit blanking plugs on:

- the condenser,
-

the expansion valve,

■

the "condenser - expansion valve" connecting pipe.

REFITTING

1. REFITTING PREPARATION OPERATION

CAUTION



Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

CAUTION



To avoid any leaks, check that the seal and the pipe surface are in good condition. The seal and the surface must be clean and scratch free.

- ❑ Clean the seals of the refrigerant circuit pipes ([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

2. REFITTING OPERATION

- ❑ Refit the "condenser - expansion valve" connecting pipe ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .

3. FINAL OPERATION

- ❑ Proceed in the reverse order to removal.

Note:



A summary table gives the quantities of refrigerant in the system according to the engine types ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .

- ❑ Fill up the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) .

- ❑ Check:



for leaks ([see 62A, Air conditioning, Refrigerant circuit: Check](#)) ,



that the air conditioning system is operating correctly([see 62A, Air conditioning, Air conditioning: Check](#)).



Repair-30x02x02x37-01x37-1-23-1.xml



XSL version : 3.02 du 22/07/11

CONDENSER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station

WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 62A, Air conditioning, Air conditioning: Precautions for the repair](#)).

CAUTION



To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

Note:



Use blanking plugs for the fuel circuits with part numbers 77 01 208 229 or 77 01 476 857 to plug any openings exposed to the open air. They must be clean. Do not use any which have already been used to plug a fuel circuit.

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#)).
- Drain the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit:](#)

[Draining - Filling](#)) .

■ Disconnect the battery [Battery: Removal - Refitting](#) .

■ Remove:

- the engine undertray bolts,
- the engine undertray,
- the front bumper [Front bumper assembly: Exploded view](#) ,
- the front end panel [Front end panel: Removal - Refitting](#) ,
-

the air deflectors.

2. REMOVAL OPERATION

■

Remove [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) :

-
- the "compressor - condenser" connecting pipe mounting bolts,
- the bolt from the retaining bracket of the "compressor - condenser" connecting pipe on the condenser,
- the bolt from the retaining bracket of the "condenser - expansion valve" connecting pipe on the condenser.



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

■

Disconnect [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) :

-
- the "compressor - condenser" connecting pipe on the condenser,
- the "condenser - expansion valve" connecting pipe on the condenser.

■

Insert the blanking plugs.

■

Remove the condenser [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) .

1. REFITTING PREPARATION OPERATION



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.



CAUTION

To avoid any leaks, check that the seal and the pipe surface are in good condition. The seal and the surface must be clean and scratch free.



Clean the seals of the refrigerant circuit pipes([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Consult the refrigerant and oil quantity values before filling the circuit([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .



Perform the following operations:

- fill the refrigerant circuit using the refrigerant charging station([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) ,

check for leaks([see 62A, Air conditioning, Refrigerant circuit: Check](#)) .



Check that the air conditioning system is operating correctly([see 62A, Air conditioning, Air conditioning: Check](#)) .



Repair-30x02x02x03-01x37-1-59-1.xml



XSL version : 3.02 du 22/07/11

CONNECTING HOSE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

component jack



parts always to be replaced:



seal between catalytic converter and exhaust downpipe hose

WARNING



▣ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 19B, Exhaust, Exhaust: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .

CAUTION



To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

Any damaged heat shields must be replaced.

WARNING



Wear heat protective gloves during the operation.

▣ Locations and specifications (tightening torques, parts always to be replaced, etc.)[\(see 19B, Exhaust, Exhaust assembly under body: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove the engine undertray.

2. REMOVAL OPERATION

- Place a component jack under the exhaust pipe.
- Cut the exhaust pipe ([see 19B, Exhaust, Exhaust: Precautions for the repair](#)) between the exhaust gas regulator valve and connecting hose in the designated area to be cut ([see 19B, Exhaust, Exhaust assembly under body: Exploded view](#)) .
- Remove the bolt(1) of the rubber mounting bush of the exhaust connecting hose ([see 19B, Exhaust, Exhaust assembly under body: Exploded view](#)) .
- Remove ([see 19B, Exhaust, Exhaust assembly under body: Exploded view](#)) :
 - the exhaust connecting hose nuts,
 - the exhaust connecting hose,
 - the exhaust connecting hose seal.

REFITTING

1. REFITTING PREPARATION OPERATION

-



parts always to be replaced:

seal between catalytic converter and exhaust downpipe



hose



Use Surface cleaner [Vehicle: Parts and consumables for the repair](#) to clean the bearing faces of the catalytic converter and the exhaust connecting hose.

2. REFITTING OPERATION FOR PART CONCERNED



Refit:

-
- a new seal on the exhaust connecting hose,
- the exhaust connecting hose,
- the exhaust connecting hose nuts,
- the bolt of the rubber mounting bush of the exhaust connecting hose.



Refit [\(see 19B, Exhaust, Exhaust assembly under body: Exploded view\)](#) :

-
- a new seal on the exhaust connecting hose,
- the exhaust connecting hose,
- the exhaust connecting hose nuts,
- the bolt of the rubber mounting bush of the exhaust connecting hose.



Torque tighten the exhaust connecting hose nuts [\(see 19B, Exhaust, Exhaust assembly under body: Exploded view\)](#) .



Fit a new After-Sales sleeve between the exhaust gas regulator valve and the connecting hose
([see 19B, Exhaust, Exhaust: Precautions for the repair](#)) .



WARNING

Position the "nut and bolt securing the sleeve" assembly so that the assembly cannot come into contact with the underbody.



Tighten the sleeve while supporting the exhaust pipe to ensure they are aligned.

3. FINAL OPERATION



Check:

-
- that all the exhaust pipe heat shields are in place and properly attached,
- that there is no contact with the underbody,
- that there are no leaks.



Refit the engine undertray.



Repair-10x08x02x05-01x37-1-50-1.xml



XSL version : 3.02 du 22/07/11

CONTROL - SIGNALS: LIST AND LOCATION OF COMPONENTS



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

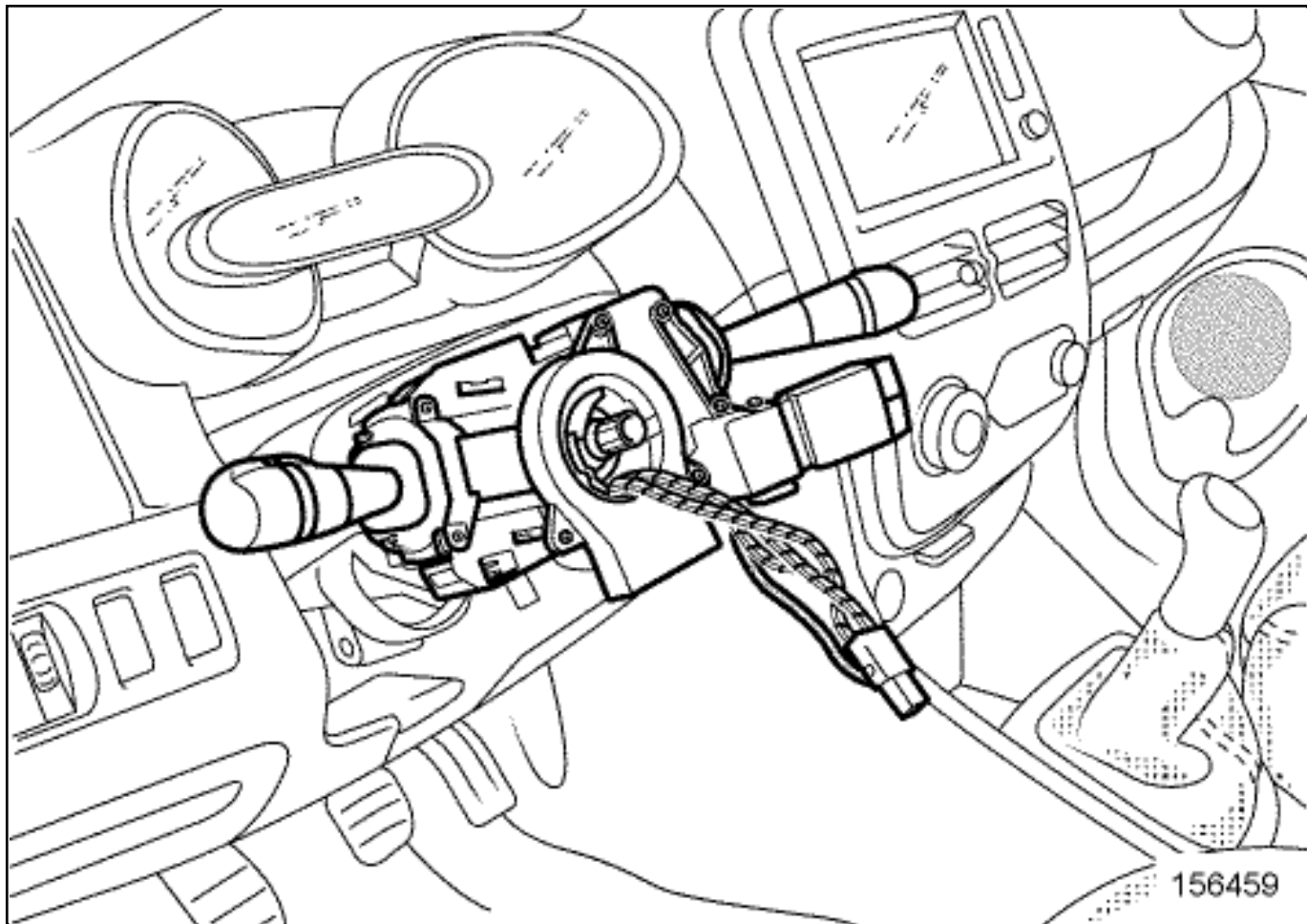
1. LIST OF COMPONENTS

1- THE CONTROL - SIGNALLING ASSEMBLY CONSISTS OF:

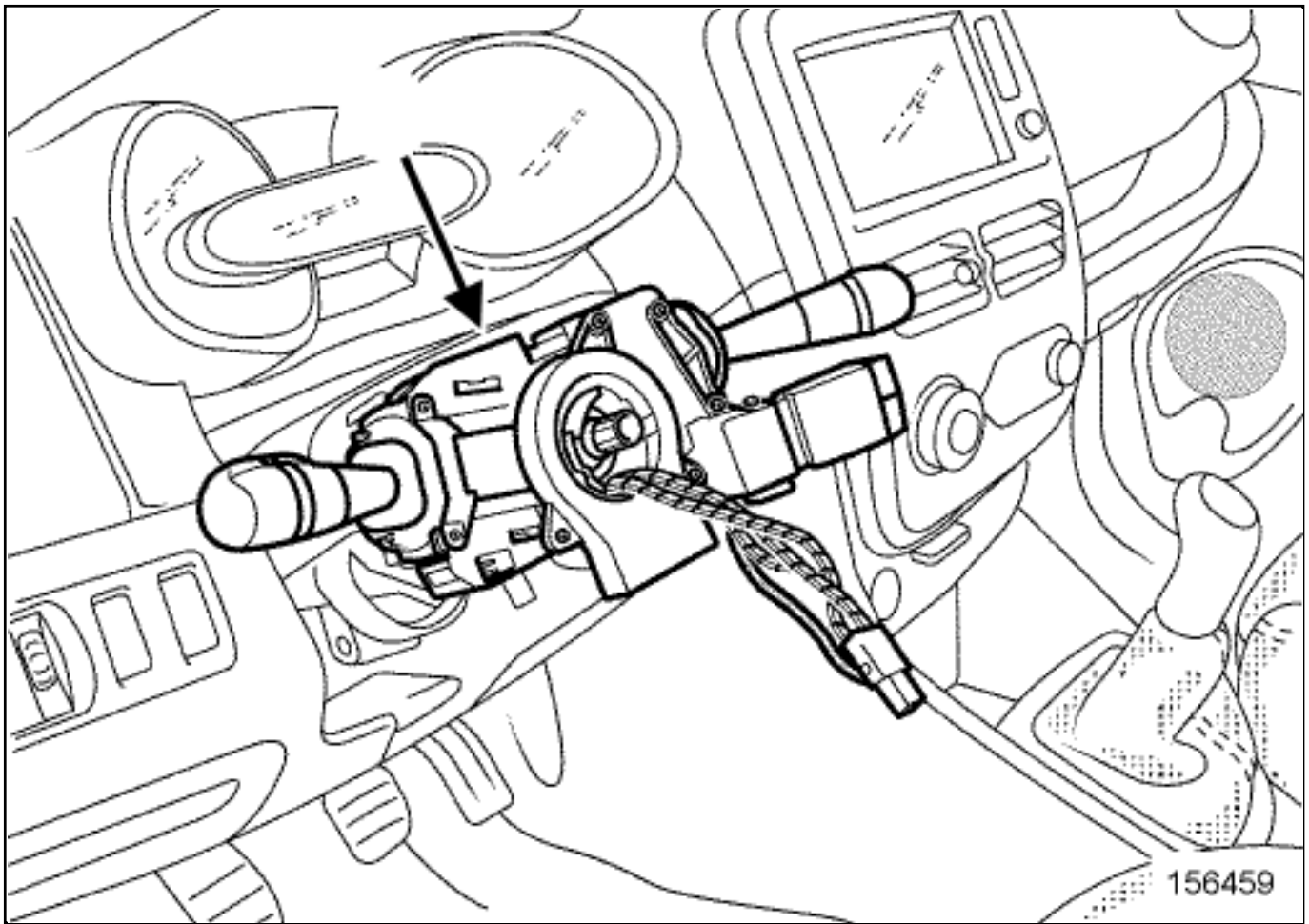
- a steering wheel control assembly
- a rotary switch
- a steering wheel angle sensor
- a windscreen wiper switch
- a signalling light switch
- a central door locking and hazard warning lights control

2. LOCATION OF COMPONENTS

1- STEERING WHEEL CONTROL ASSEMBLY



2- ROTARY SWITCH



CAUTION

Incorrect wheel alignment may damage the rotary switch.



CAUTION

To prevent damaging the rotary switch, do not turn the mobile section of the rotary switch.



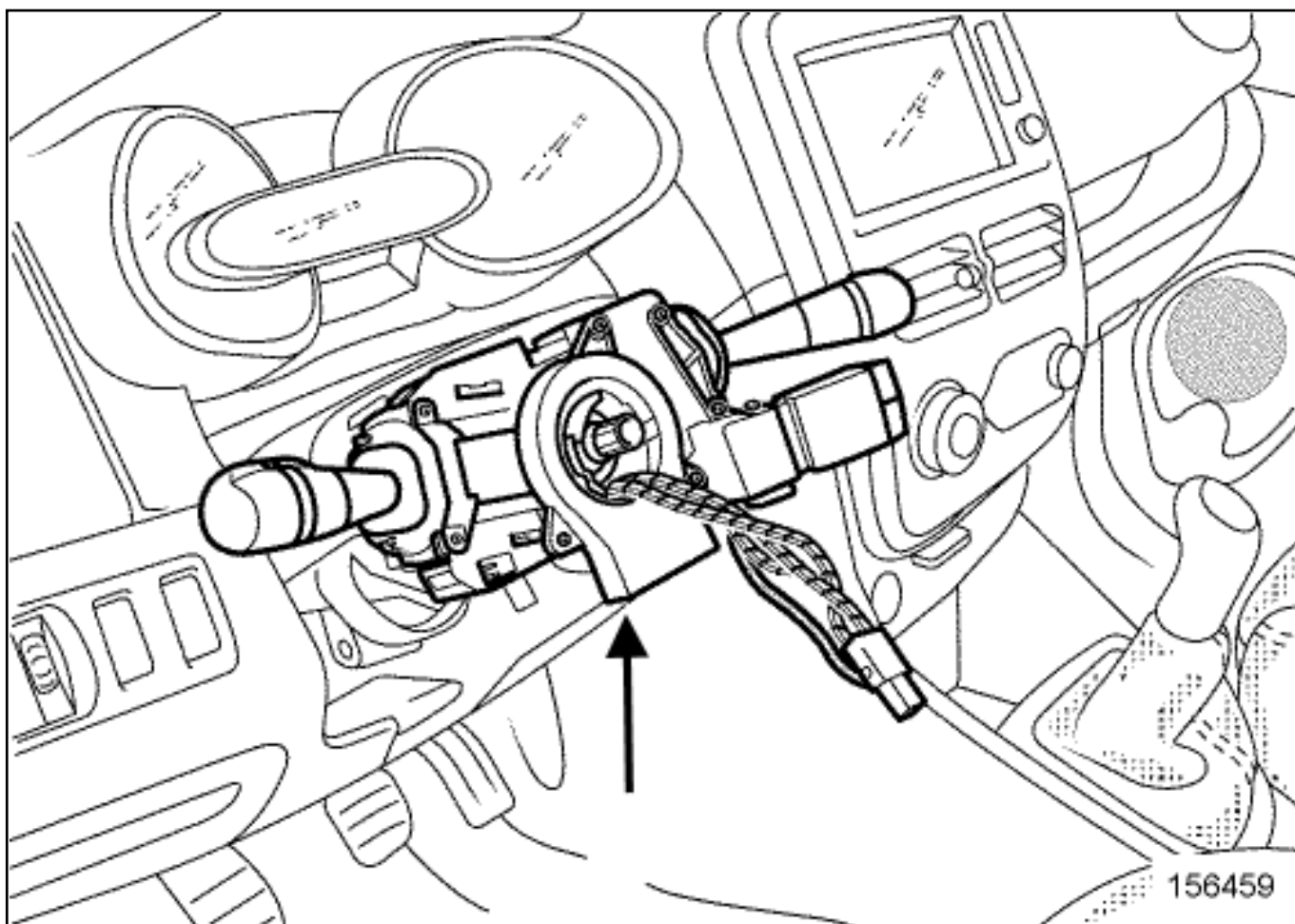
Note:

Always keep the rotary switch immobilised throughout the removal operation.

After refitting, check the operation of the rotary switch:

-
- turn the steering wheel to the left until it stops,
- turn the steering wheel to the right until it stops,
- bring the steering wheel back to the central position,
- check that there are no faults on the instrument panel.

3- STEERING WHEEL ANGLE SENSOR



Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use :](#)

-Computer concerned by the After repair procedure:

- "ABS-ESP computer" ,

-Component controlled by this computer concerned by the After repair procedure:



"Steering wheel sensor" .

1)IN THE EVENT OF REPLACEMENT

Check that the rotary switch is positioned correctly.

Do not turn the rotary switch before fitting the steering wheel angle sensor.

Do not remove the indexing pin of the steering wheel angle sensor while fitting it on the rotary switch.



Note:

In case of non presence of the indexing pin on the new sensor, do not fit it on the vehicle.

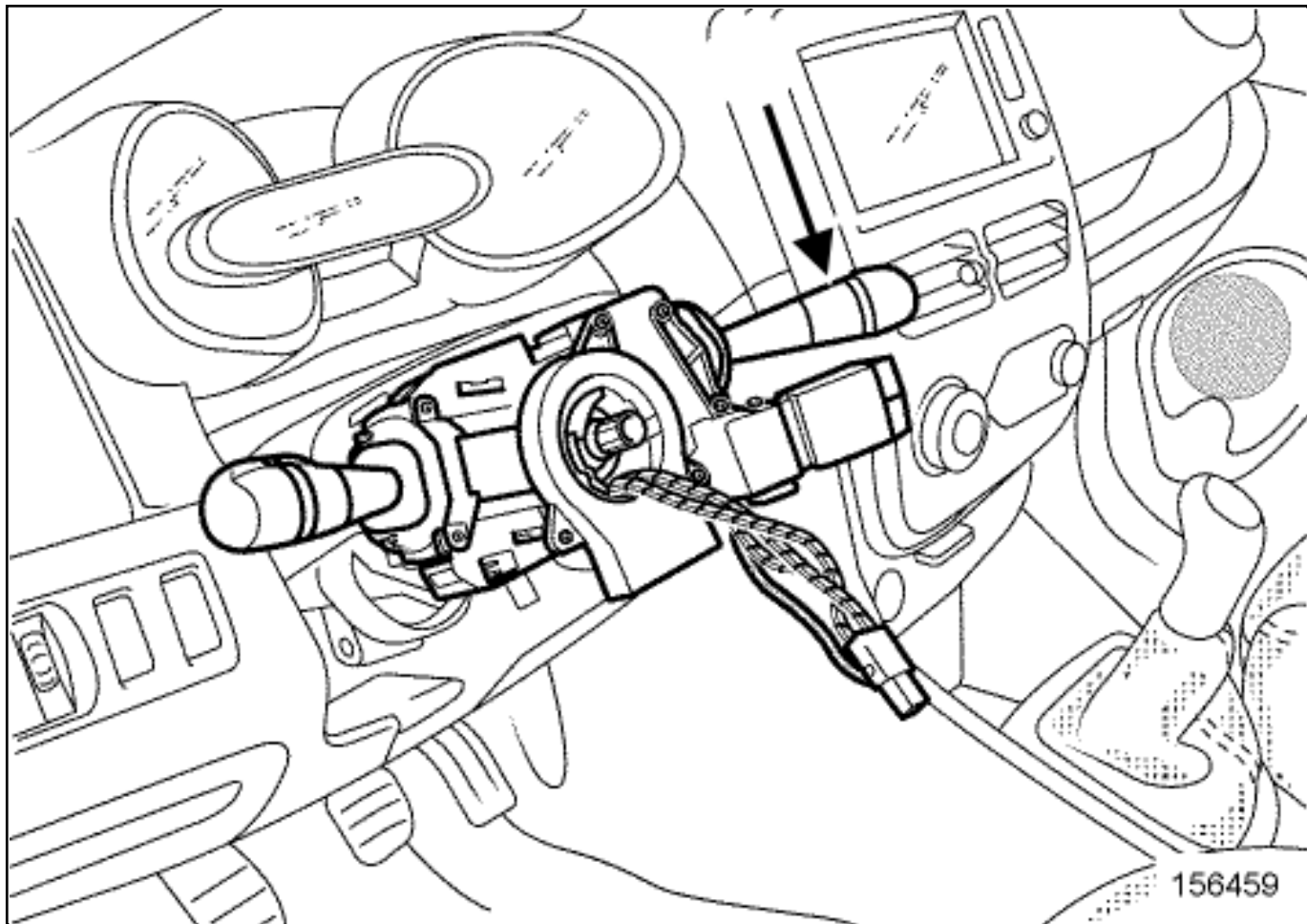
Ensure that the indexing pin is in place before fitting the steering wheel.

Carefully insert the wiring through the steering wheel aperture.

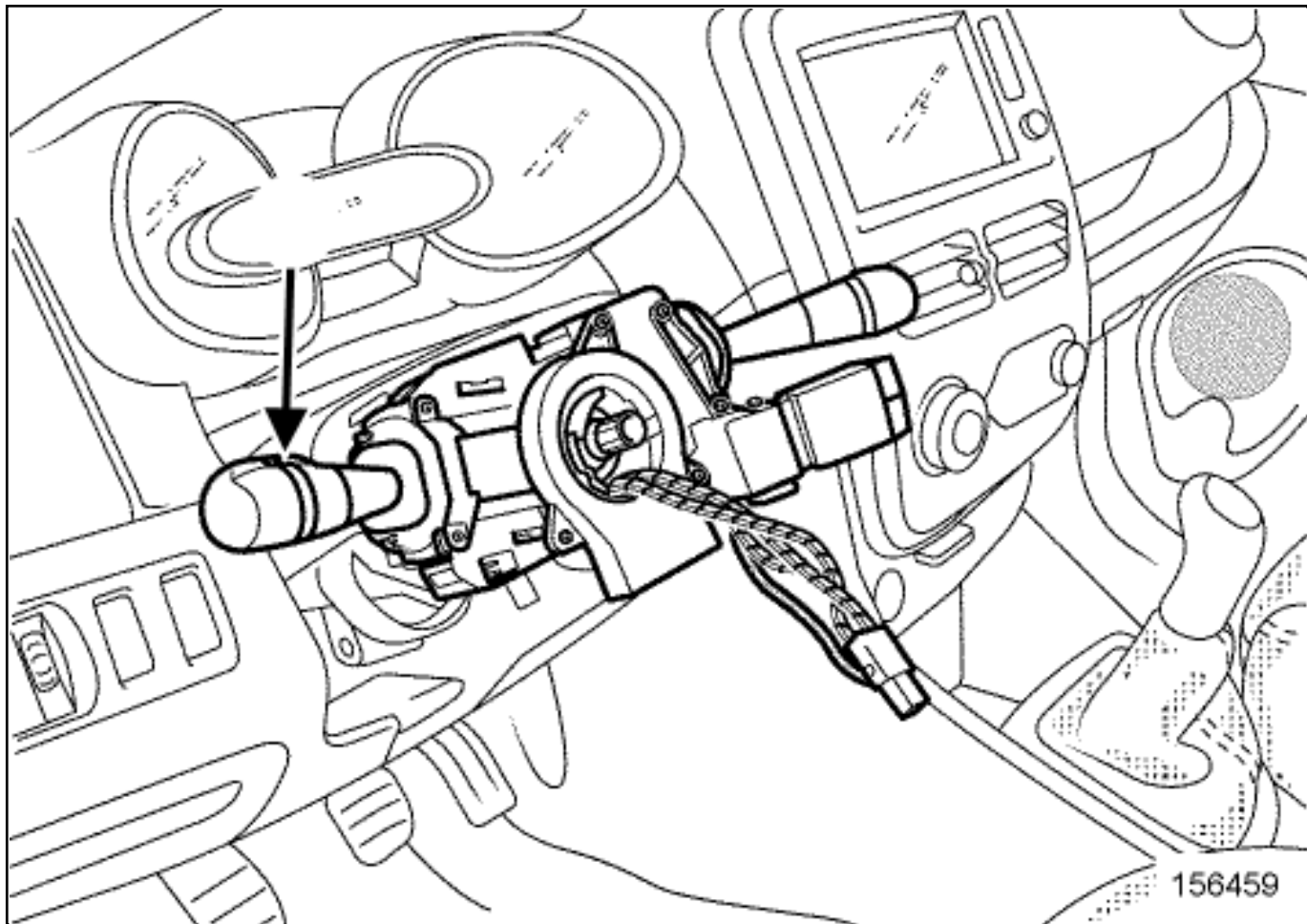
Remove the indexing pin from the steering wheel angle sensor.

Index the steering wheel.

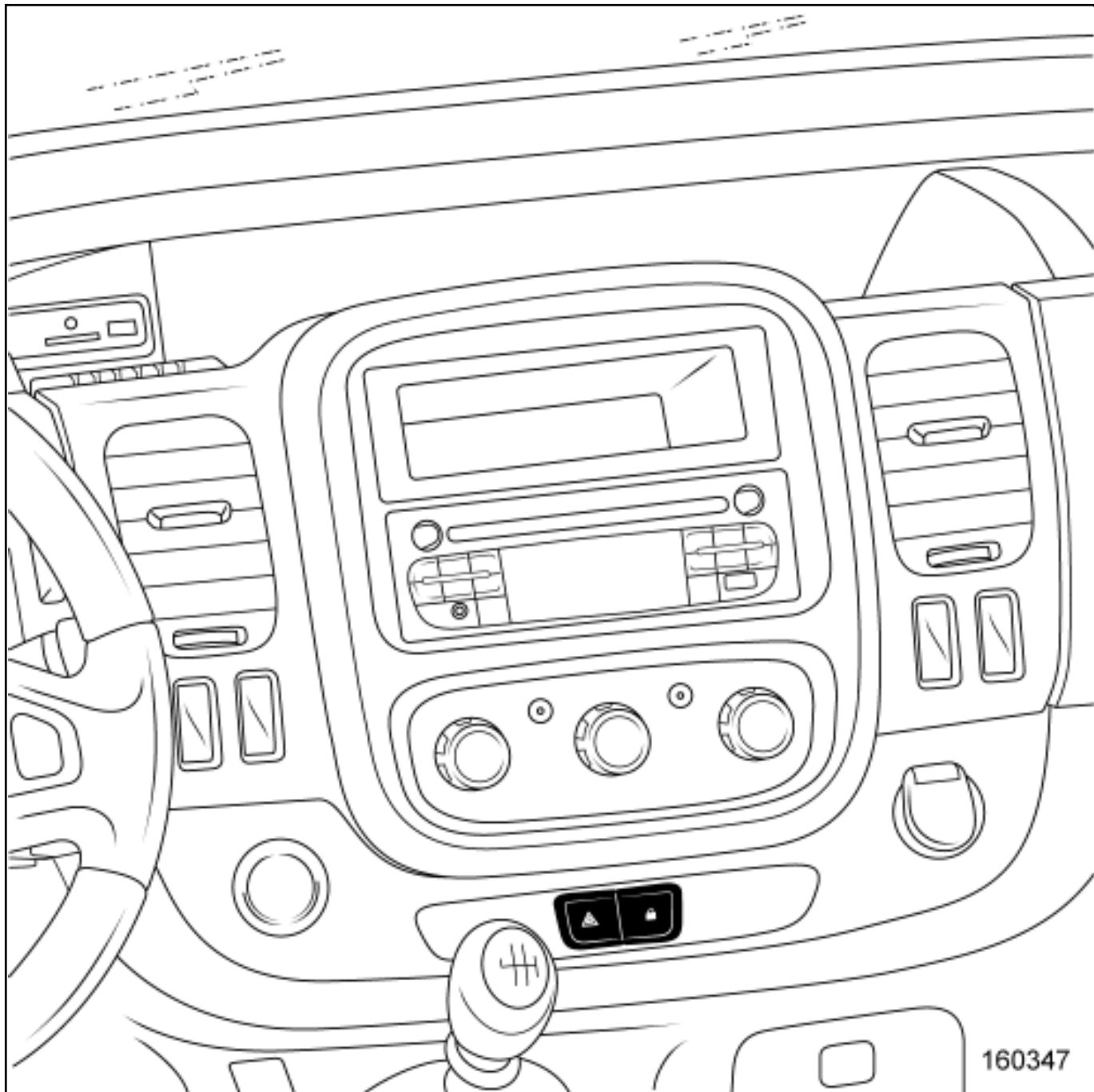
4- WINDSCREEN WIPER SWITCH



5- SIGNALLING LIGHT SWITCH



6- CENTRAL DOOR LOCKING AND HAZARD WARNING LIGHTS CONTROL



Repair-30x04x03x40-02x51-1-6-1.xml



COOLANT CIRCUIT ASSEMBLY: EXPLODED VIEW

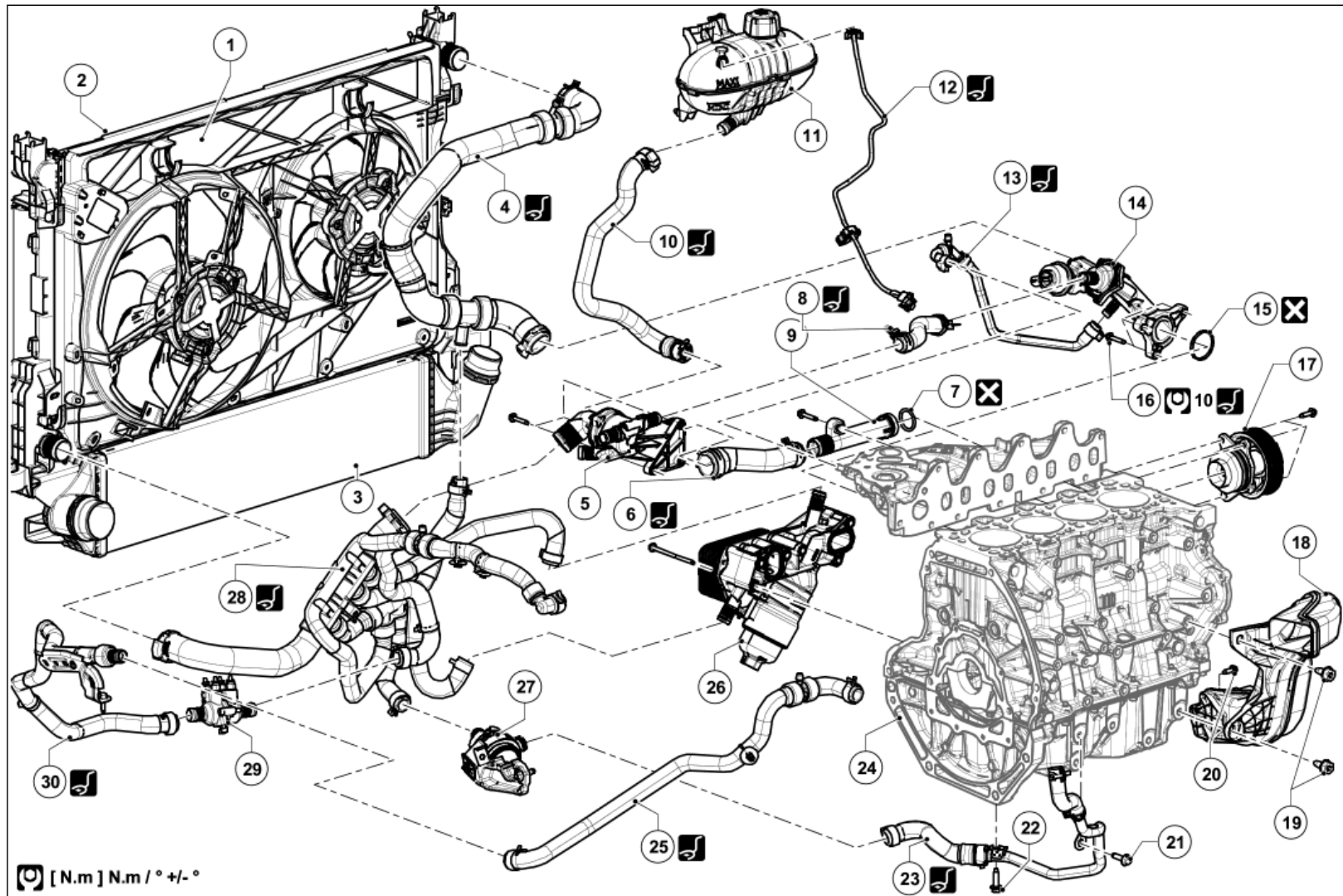


Illustration key: [Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques: [Tightening torques: General information](#).

Marks	Designations	Informations
1	Engine cooling fan assembly	Cylinder block assembly: Exploded view
2	Cooling radiator	(see 19A, Cooling, Cooling radiator: Removal - Refitting)
3	Air to air intercooler	Intercooler : Removal - Refitting
4	Cooling radiator inlet pipe	(Mot.1202, Mot.1448)
5	Water inlet housing	Water chamber(see 19A, Cooling, Water chamber: Removal - Refitting)
6	Coolant pump intermediate coolant inlet pipe	(see Coolant pump inlet pipe: Removal - Refitting) (Mot.1202, Mot.1448)
7	seal between coolant pump inlet union and coolant pump	
8	Coolant pipe between the water inlet housing and the water chamber	(Mot.1202, Mot.1448)
9	Coolant pump inlet pipe	(see Coolant pump inlet pipe: Removal - Refitting)
10	Expansion bottle lower pipe	(Mot.1202, Mot.1448)
11	Expansion bottle	(see 19A, Cooling, Expansion bottle: Removal - Refitting)
12	Expansion bottle degassing pipe	(Mot.1202, Mot.1448)
13	Coolant pipe between the inlet distributor and the water chamber	(Mot.1202, Mot.1448)
14	coolant outlet unit	
15	Water chamber seal	
16	Water chamber bolts	(Ms.1973)
17	Water pump	Cylinder block assembly: Exploded view
18	air nozzle	
19	Bolt	
20	Bolt	
21	Bolt	
22	Bolt	
23	Coolant hose on Exhaust gas cooler inlet	(Mot.1202, Mot.1448)
24	engine	
25	Heater matrix coolant outlet pipe	(Mot.1202, Mot.1448)
26	Oil filter unit	Engine oil circuit assembly: Exploded view
27	Electric coolant pump	(see Electric coolant pump: Removal - Refitting)
28	Cooling radiator outlet pipe	(Mot.1202, Mot.1448)
29	Thermoplunger unit	(see Thermoplunger unit: Removal - Refitting)
30	Heater matrix coolant outlet pipe	(Mot.1202, Mot.1448)



Repair-10x06x01-02x50-1-17-1.xml



COOLANT PUMP: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973

Equipment required

roll pin punch



parts always to be replaced:



coolant pump seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [Cylinder block assembly: Exploded view](#) .



WARNING

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

- To avoid any risk of serious burns when the engine is hot:
 - do not open the expansion bottle cap,
 - do not drain the cooling system,
 - do not open the bleed screw(s).



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.



CAUTION

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

■ The criteria to be met are:

- protection down to $-25^{\circ}\text{C} \pm 2$ for cold and temperate countries,
- protection down to $-40^{\circ}\text{C} \pm 2$ for "extreme cold" countries.



CAUTION

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.



WARNING

Wear leaktight gloves (Nitrile type) for this operation.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Remove:
 - the engine undertray,
 - the front right-hand wheel [Wheel: Removal - Refitting](#) (35A, Wheels and tyres),
 - the front section of the front right-hand wheel arch liner (see [Front wheel arch liner: Removal - Refitting](#)) (55A, Exterior protection).
- Drain the cooling system (see [19A, Cooling, Cooling system: Draining - Refilling](#)).

2. REMOVAL OPERATION

- Lock the coolant pump pulley using a roll pin punch between two bolts.
- Loosen bolts one by one from the coolant pump pulley [Cylinder block assembly: Exploded view](#) .
- Remove the accessories belt [Engine accessories assembly: Exploded view](#) .
- Remove [Cylinder block assembly: Exploded view](#) :
 - the coolant pump pulley bolts,
 - the coolant pump pulley,
 - the coolant pump bolts,
 - the coolant pump,
 - the coolant pump seal.

REFITTING

1. REFITTING PREPARATION OPERATION

- parts always to be replaced:  [coolant pump seal](#) .



CAUTION

Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.



CAUTION

To ensure proper sealing, the gasket surfaces must be clean, dry and not greasy (avoid any finger marks).



WARNING

Wear goggles with side protectors for this operation.

- Clean the joint faces using surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products):

- the coolant pump sealing face if it is to be reused,
- the cylinder block gasket face.

2. REFITTING OPERATION

■ Refit [Cylinder block assembly: Exploded view](#) :

- a new coolant pump seal,
- the coolant pump,
- the coolant pump bolts.

■ Torque tighten the coolant pump bolts using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece (Ms. 1973) [Cylinder block assembly: Exploded view](#) .

■ Refit [Cylinder block assembly: Exploded view](#) :

- the coolant pump pulley,
- the coolant pump pulley bolts.

■ Lock the coolant pump pulley using a roll pin punch between two bolts.

■ Torque tighten the coolant pump pulley bolts using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece (Ms. 1973) [Cylinder block assembly: Exploded view](#) .

■ Proceed in the reverse order to removal.

■ Fill and bleed the cooling system ([see 19A, Cooling, Cooling system: Draining - Refilling](#)) .



Repair-10x06x01x04-01x37-1-138-1.xml



XSL version : 3.02 du 22/07/11

COOLANT TEMPERATURE SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) (see **Engine and transmission assembly sensors**).



WARNING

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

- To avoid any risk of serious burns when the engine is hot:
 - do not open the expansion bottle cap,
 - do not drain the cooling system,
 - do not open the bleed screw(s).



CAUTION

When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

- The criteria to be met are:
 - protection down to $-25^{\circ}\text{C} \pm 2$ for cold and temperate countries,
 - protection down to $-40^{\circ}\text{C} \pm 2$ for very cold countries.



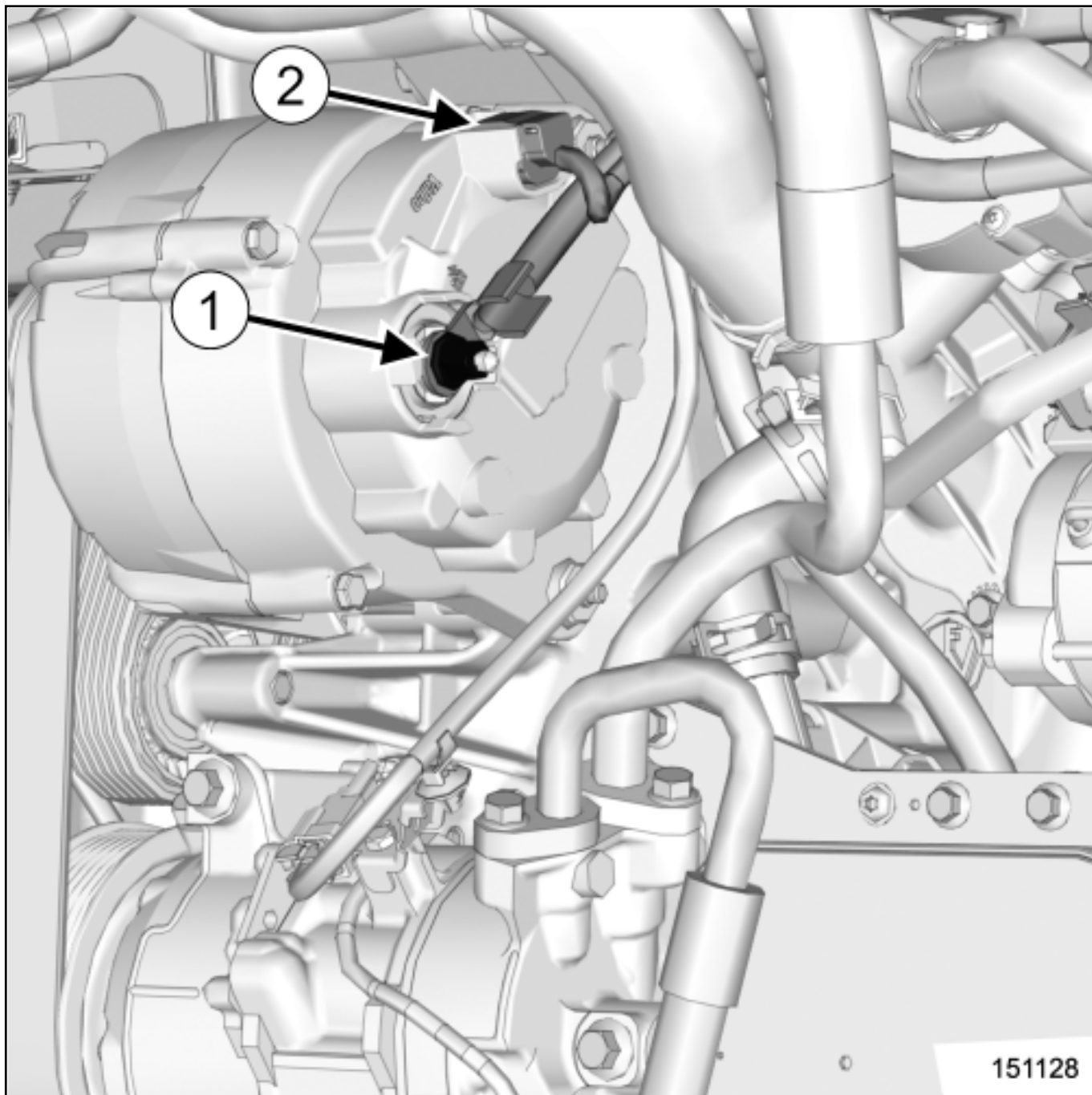
CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ▣ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- ▣ Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- ▣ Remove:
 - the engine undertray,
 - the front bumper (see [Front bumper: Removal - Refitting](#)) (55A, Exterior protection).
- ▣ Drain the cooling system ([see 19A, Cooling, Cooling system: Draining - Refilling](#)).
- ▣ Remove the headlights [Front signals - lighting assembly: Exploded view](#).
- ▣ Remove the front end panel (see [Front end panel: Removal - Refitting](#)).



- Remove the nut(1) from the alternator positive terminal.
- Disconnect the connector(2) from the alternator regulator.
- Move aside the wiring.

2. REMOVAL OPERATION

- Unclip the wiring of the coolant temperature sensor connector(see **Engine and transmission assembly sensors**) .

■ Disconnect the coolant temperature sensor connector using flat-nosed pliers.

■ Remove the coolant temperature sensor using an extension and a 21 mm long socket (see **Engine and transmission assembly sensors**).

REFITTING

1. REFITTING PREPARATION OPERATION

■ Use surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean and degrease:

- the cylinder block pressure face,
- the coolant temperature sensor bearing face if reused.

2. REFITTING OPERATION

■ Refit the coolant temperature sensor (see **Engine and transmission assembly sensors**).

■ Torque tighten the coolant temperature sensor 30 N.m using an extension and a 21 mm long socket.

■ Proceed in the reverse order to removal.

■ Torque tighten the positive terminal nut on the alternator 21 N.m.

■ Fill and bleed the cooling system ([see 19A, Cooling, Cooling system: Draining - Refilling](#)).



Repair-10x06x01x03-01x37-1-95-1.xml



XSL version : 3.02 du 22/07/11

COOLINGRADIATOR:REPAIR



Note, one or more warnings are present in this procedure



Equipment required

safetystrap(s)



WARNING

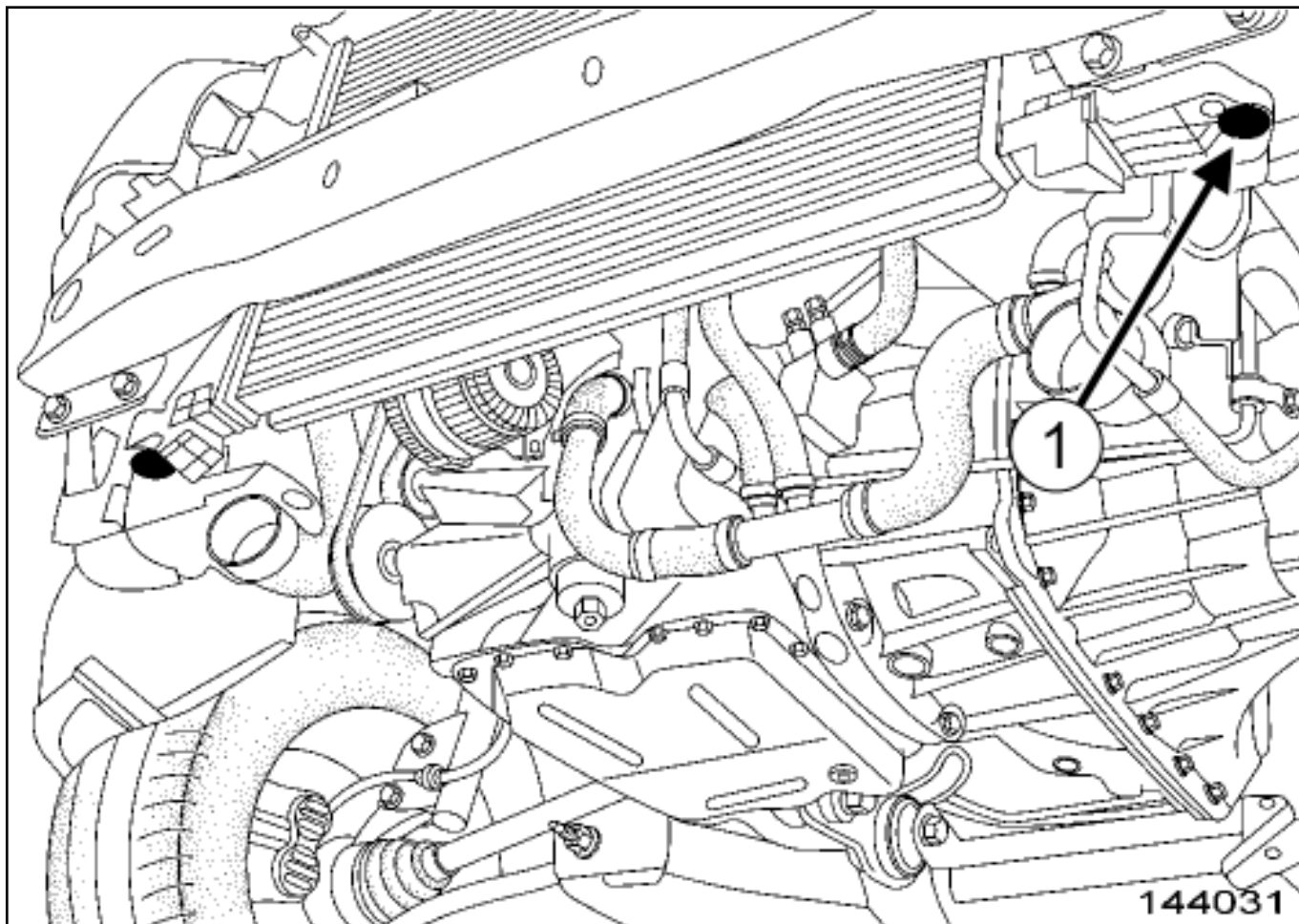
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

- ❑ Before starting any operation check that the radiator is undamaged (not drilled, distorted or shocked); there may be a risk of further leaking.
- ❑ Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 19A, Cooling, Coolant circuit assembly: Exploded view\)](#) .

REPAIR

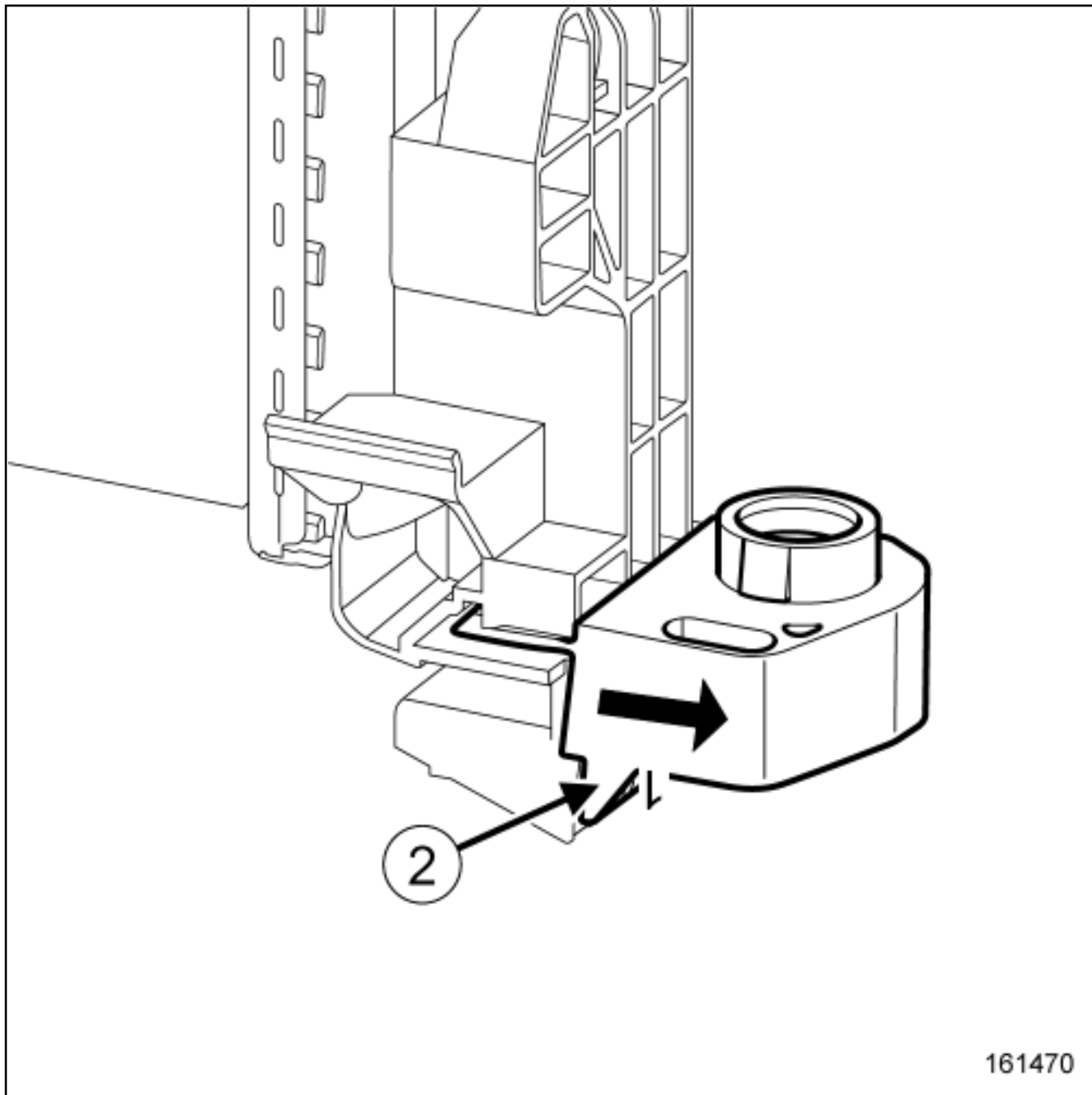
1. REPAIR PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- ❑ Remove:
 - the engine undertray bolts,
 - the engine undertray,
 - the front bumper(see **Front bumper assembly: Exploded view**) ,
 - the intercooler [Air inlet assembly: Exploded view](#) ,
- ❑ Strap the cooling radiator to the front end panel using the safety strap(s).



- Remove the cooling radiator bolt(1) .

2. REPAIR OPERATION



161470

Remove the damaged mounting bracket(2) from the cooling radiator.

3. FINAL OPERATION

Part always to be replaced: radiator mounting bracket.

Proceed in the reverse order to removal.



Repair-10x06x01x05-01x22-1-4-1.xml



XSL version : 3.02 du 22/07/11

COOLING RADIATOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Remote operation pliers for hose clips.

Mot. 1448

Equipment required

safety strap(s)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 19A, Cooling, Coolant circuit assembly: Exploded view](#)).



WARNING

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

- To avoid any risk of serious burns when the engine is hot:
 - do not open the expansion bottle cap,
 - do not drain the cooling system,
 - do not open the bleed screw(s).



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

CAUTION



When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

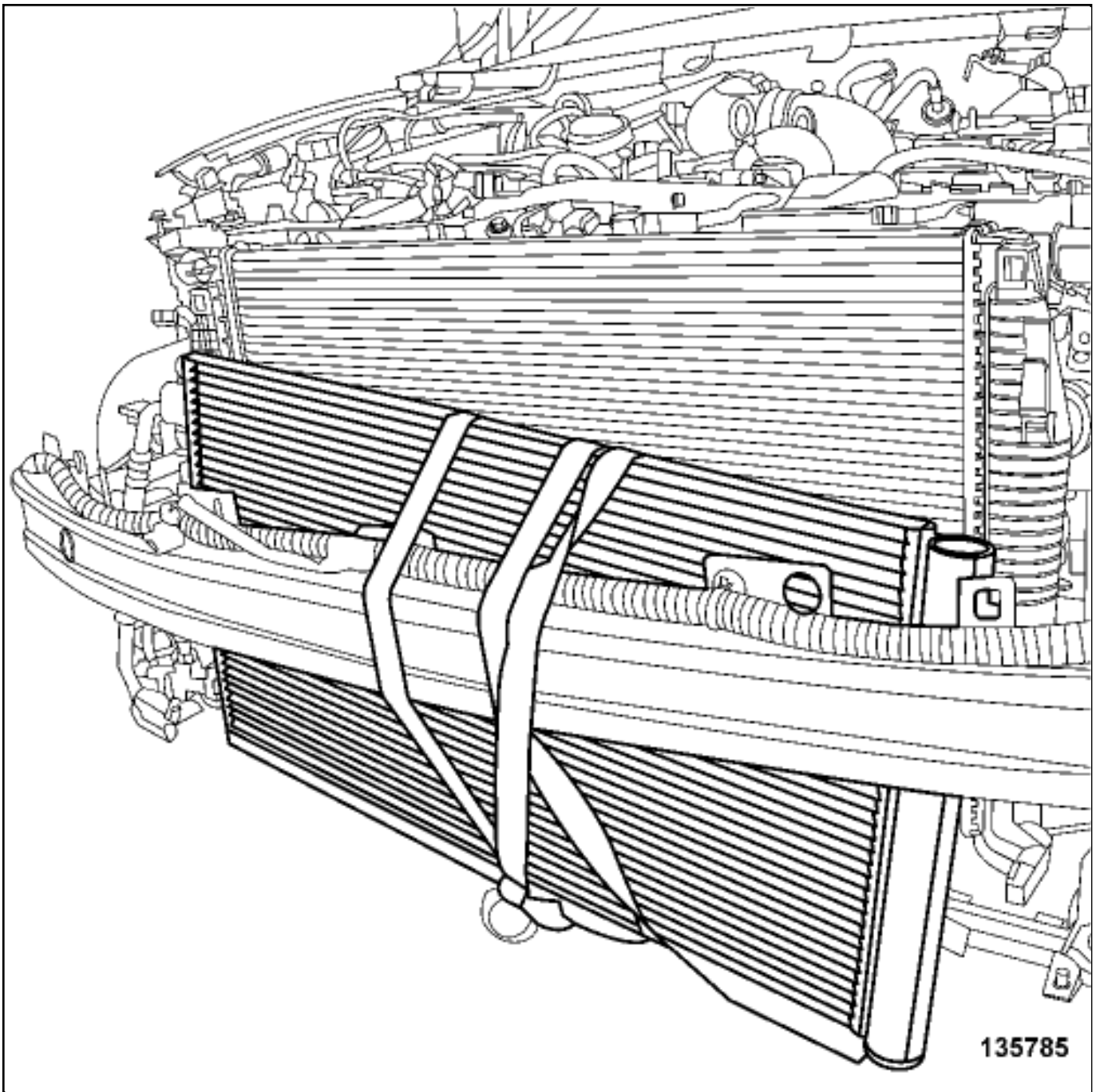
■ The criteria to be met are:

- protection down to $-25^{\circ}\text{C} \pm 2$ for cold and temperate countries,
- protection down to $-40^{\circ}\text{C} \pm 2$ for "extreme cold" countries.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Drain the cooling system ([see 19A, Cooling, Cooling system: Draining - Refilling](#)).
- Remove:
 - the engine undertray bolts,
 - the engine undertray,
 - the front bumper (see **Front bumper assembly: Exploded view**),
 - the front end panel (see **Front end panel: Removal - Refitting**),
 - the air deflectors,
 - the intercooler [Air inlet assembly: Exploded view](#),
 - the intercooler air outlet pipe [Air inlet assembly: Exploded view](#).
- Disconnect:
 - the engine cooling fan assembly connectors,
 - the engine cooling fan assembly resistor connector.
- Unclip the engine cooling fan assembly wiring.



135785

- Remove the "compressor - condenser" connecting pipe mounting bolts [Passenger compartment cooling assembly: Exploded view](#) .
- Unclip the condenser from the cooling radiator.
- Strap the condenser to the front impact cross member using a safety strap(s).
- Disconnect the refrigerant sensor pressure connector.

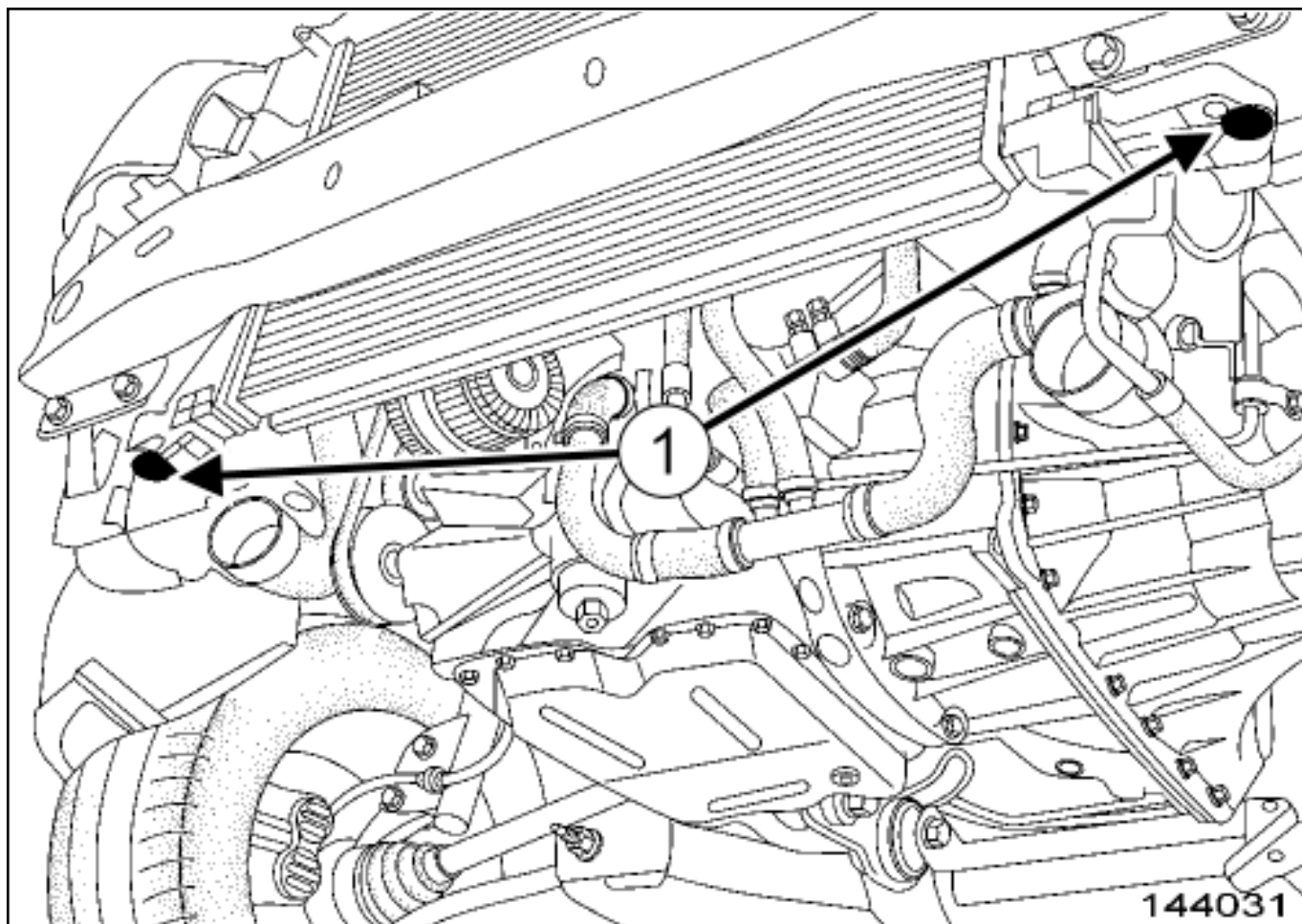
2. REMOVAL OPERATION

■ Using the tool Remote operation pliers for hose clips. (Mot. 1448), separate the clip (see 19A. Cooling. Coolant circuit assembly: Exploded view):

- from the cooling radiator outlet hose,
- from the cooling radiator inlet hose.

■ Disconnect (see 19A. Cooling. Coolant circuit assembly: Exploded view):

- the cooling radiator outlet hose,
- the cooling radiator inlet hose.



■ Remove:

- the cooling radiator bolts(1),
- the cooling radiator (see 19A. Cooling. Coolant circuit assembly: Exploded view).

1- IF REPLACING THE COOLING RADIATOR

■ Remove the engine cooling fan assembly from the cooling radiator (see 19A. Cooling. Engine cooling fan assembly: Removal - Refitting).

- ▣ Proceed in the reverse order to removal.
- ▣ Fill and bleed the cooling system([see 19A, Cooling, Cooling system: Draining - Refilling](#)) .



Repair-10x06x01x05-01x37-1-139-1.xml



XSL version : 3.02 du 22/07/11

COOLING SYSTEM: DRAINING - REFILLING



Note, one or more warnings are present in this procedure



Special tooling required

Instrument for testing the cooling circuit and the expansion bottle valve. Contains caps 554-01, 554-04, 554-06

Ms. 554-07

Fault finding and filling - bleeding the cooling circuit.

Mot. 1700

Equipment required

compressed air nozzle

coolant recovery tray



WARNING


Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 19A, Cooling, Coolant circuit assembly: Exploded view](#)).



WARNING

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

 To avoid any risk of serious burns when the engine is hot:

- do not open the expansion bottle cap,
- do not drain the cooling system,
- do not open the bleed screw(s).



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

CAUTION



When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

■ The criteria to be met are:

- protection down to $-25^{\circ}\text{C} \pm 2$ for cold and temperate countries,
- protection down to $-40^{\circ}\text{C} \pm 2$ for "extreme cold" countries.

DRAINING

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove:
 - the engine undertray,
 - the expansion bottle cap [\(see 19A, Cooling, Coolant circuit assembly: Exploded view\)](#) .
- Position the coolant recovery tray under the vehicle.
- Disconnect the cooling hose between oil filter unit and the coolant inlet unit [\(see 19A, Cooling, Coolant circuit assembly: Exploded view\)](#) .
- Use a compressed air nozzle to blow air into the system through the expansion bottle opening to remove as much coolant as possible.
- Connect the cooling hose between oil filter unit and the coolant inlet unit [\(see 19A, Cooling, Coolant circuit assembly: Exploded view\)](#) .

FILLING

Note:



- There are two procedures for filling the cooling system:
 - the procedure using the tool Fault finding and filling - bleeding the cooling circuit. (Mot. 1700) recommended by Renault. It saves a considerable amount of time because it does not require the cooling system bleed screws to be opened,
 - the procedure without a special tool.

1.

1- FILLING PROCEDURE WITH THE TOOL (MOT. 1700)

- Fill the cooling system with engine coolant recommended by the manufacturer [Vehicle: Parts and consumables for the repair](#) using the tool Fault finding and filling - bleeding the cooling circuit. (Mot. 1700) . Consult the user's manual for this tool ([see 19A, Cooling, Cooling system filling and diagnostic tool: Use](#)) .

2- FILLING PROCEDURE WITHOUT A SPECIAL TOOL



CAUTION

It is essential to open all of the bleed screws to remove as much as air as possible in the cooling system. Failure to perform this procedure may prevent the cooling system from filling properly and may damage the engine.

- Remove ([see 19A, Cooling, Coolant circuit assembly: Exploded view](#)) :
 - the upper bleed screw from the cooling radiator,
 - the bleed screw from the heater matrix hose,
 - the bleed screw from the cooling hose between the coolant outlet unit and the inlet distributor.
- Fill the cooling system with engine coolant recommended by the manufacturer ([see 19A, Cooling, Engine cooling system: Specifications](#)) and [Vehicle: Parts and consumables for the repair](#) via the expansion bottle until it overflows.
- Close all the bleed screws as soon as the coolant starts to flow in a continuous stream.
- Pressurise the system using the tool Instrument for testing the cooling circuit and the expansion bottle valve. Contains caps 554-01, 554-04, 554-06 (Ms. 554-07) to check that there are no leaks ([see 19A, Cooling, Engine cooling system: Check](#)) .
- Fill the expansion bottle until it overflows.

- ❑ Clean any surfaces soiled by the coolant.

BLEEDING



CAUTION

Before bleeding the cooling system, it is essential to deactivate the thermoplungers to avoid irreparably damaging them.

- ❑ Disconnect the connectors from the thermoplunger unit.



CAUTION

Do not open the bleed screw whilst the engine is running this would damage the engine.

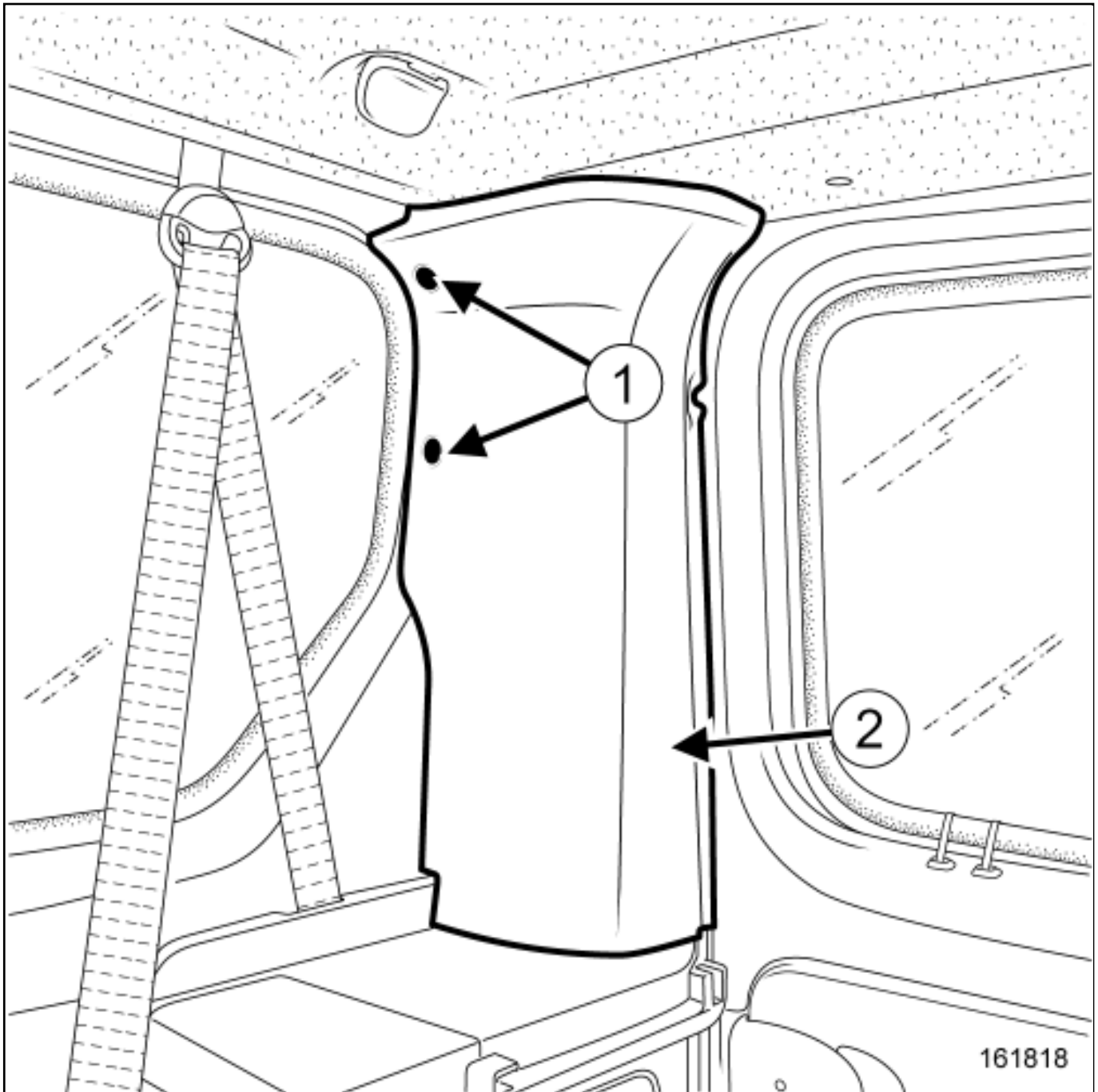
- ❑ Start the engine and check that the air conditioning system is off.
- ❑ With the air conditioning off, let the engine run at 2500 rpm until the engine cooling fan is triggered twice (time required for automatic degassing).
- ❑ Check that the heating is operating correctly.
- ❑ Allow the engine to cool until the coolant temperature is less than 50°C.
- ❑ Remove the expansion bottle cap.
- ❑ Make sure the coolant fluid level is at the "Maximum" mark.
- ❑ Proceed in the reverse order to removal.



C-PILLAR UPPER TRIM: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION



Remove:



the clips(1) ,



the c-pillar upper trim.

REFITTING

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-70x02x08x14-01x37-1-9-1.xml



XSL version : 3.02 du 22/07/11

CRANKSHAFT POSITION SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973

Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

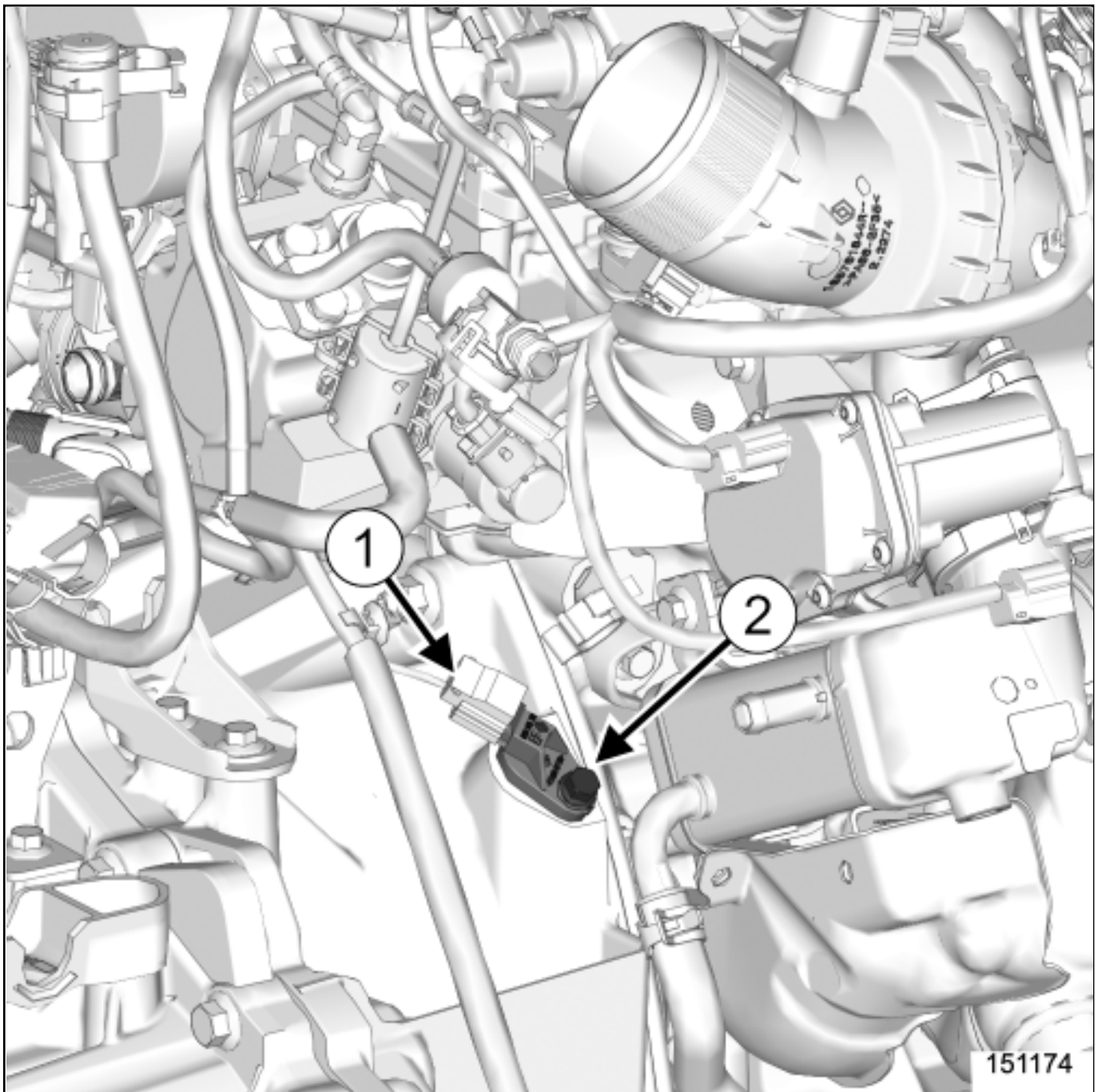
Location and specifications (tightening torques, parts always to be replaced, etc.) [Engine and transmission assembly sensors: List and location of components](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Remove the engine undertray.

2. REMOVAL OPERATION



Disconnect the connector(1) from the crankshaft position sensor.

Remove:

- the bolt(2) from the crankshaft position sensor,

the crankshaft position sensor [Engine and transmission assembly sensors: List and location of components](#) .

1. REFITTING OPERATION



Refit:

-
- the crankshaft position sensor,
- the crankshaft position sensor bolt.



Torque tighten the crankshaft position sensor bolt 10 N.m using a 4-40 N.m torque wrench with 1/4 drive ratchet end piece (Ms. 1973) .



When replacing, apply the after repair procedure using the Diagnostic tool:

- - select the "injection computer",
 - go to repair mode,
 - display the "Before/After repair procedure" for the computer selected,
 - select "TDC sensor" in the "List of components controlled by this computer" section,
 -
- carry out the operations described in the "After repair procedure" section.



Proceed in the reverse order to removal.



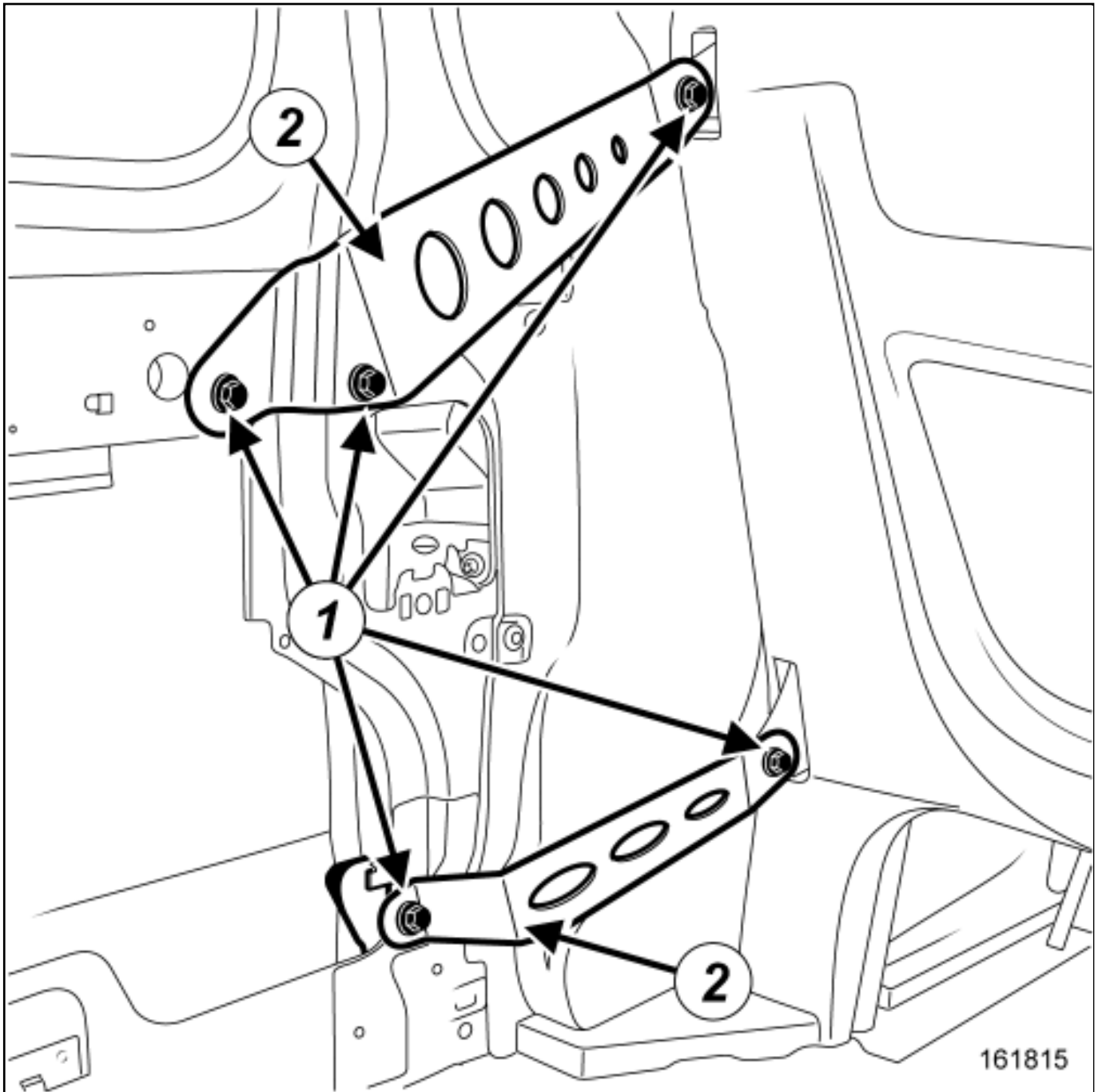
Repair-11x05x07x04-01x37-1-44-1.xml



CREW CAB PARTITION: REMOVAL - REFITTING

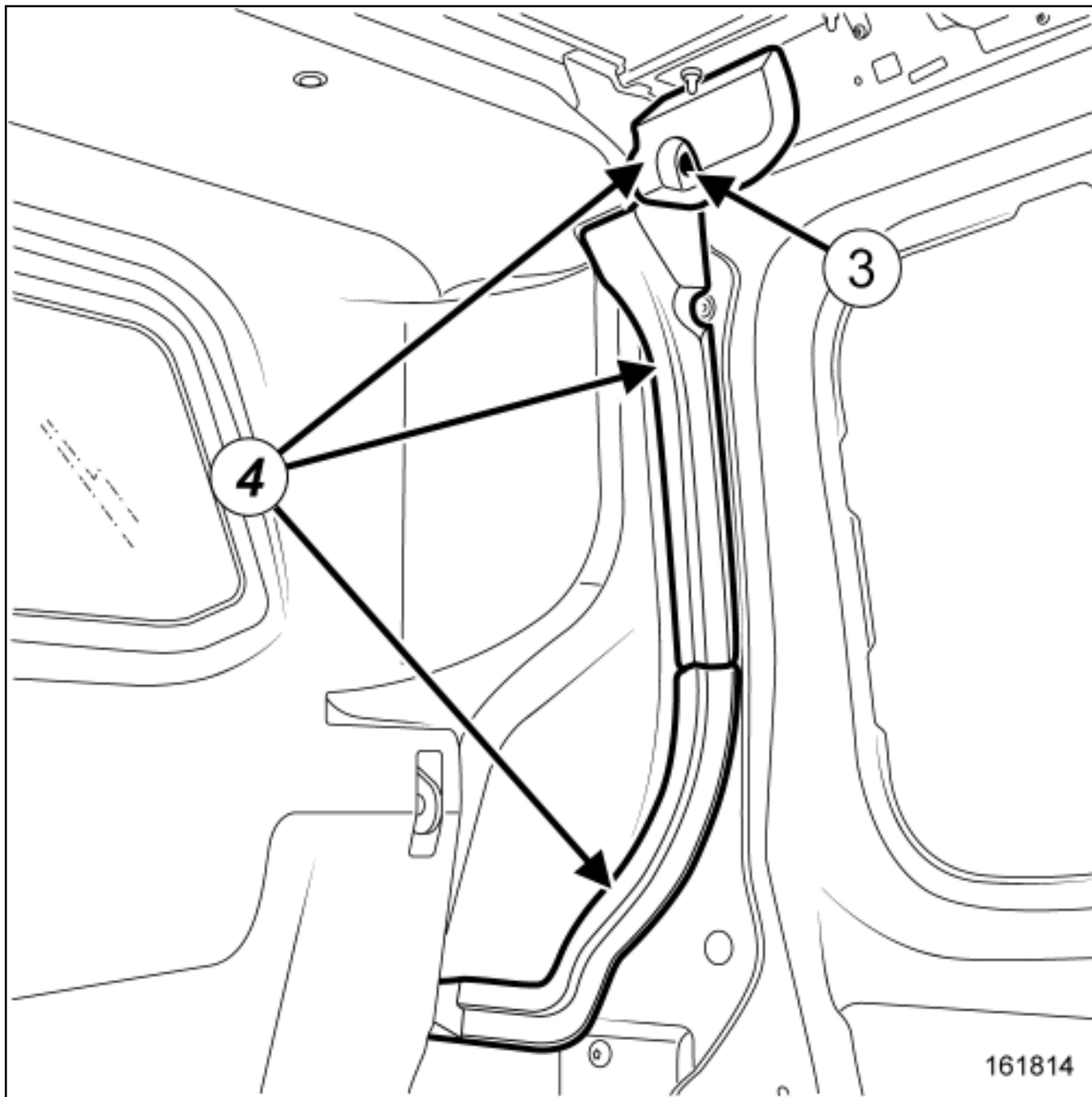
REMOVAL

1. REMOVAL OPERATION PREPARATION



Remove:

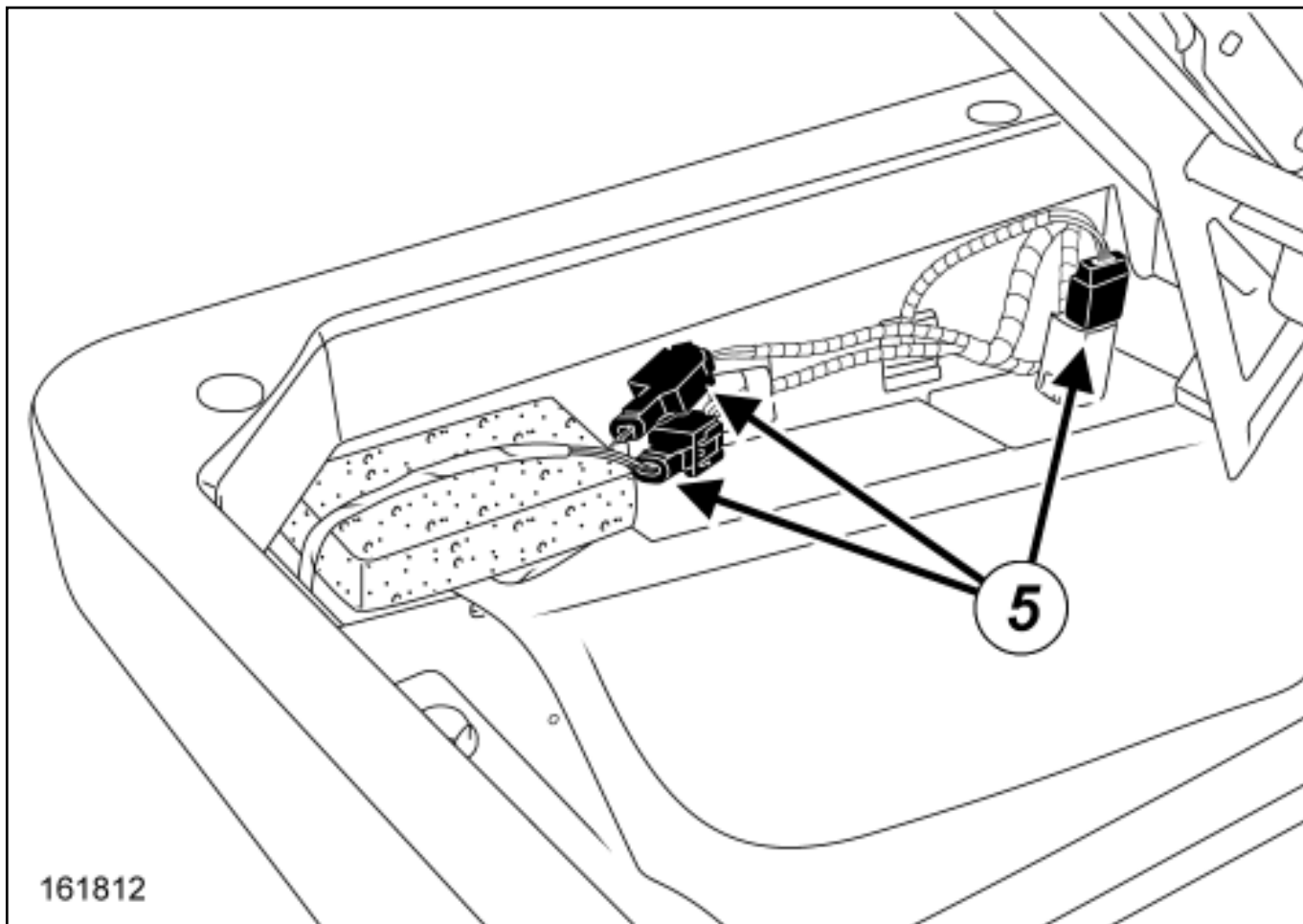
- the rear seat mounting bolts(1) ,
- the rear seat mounting brackets(2) .



Remove:

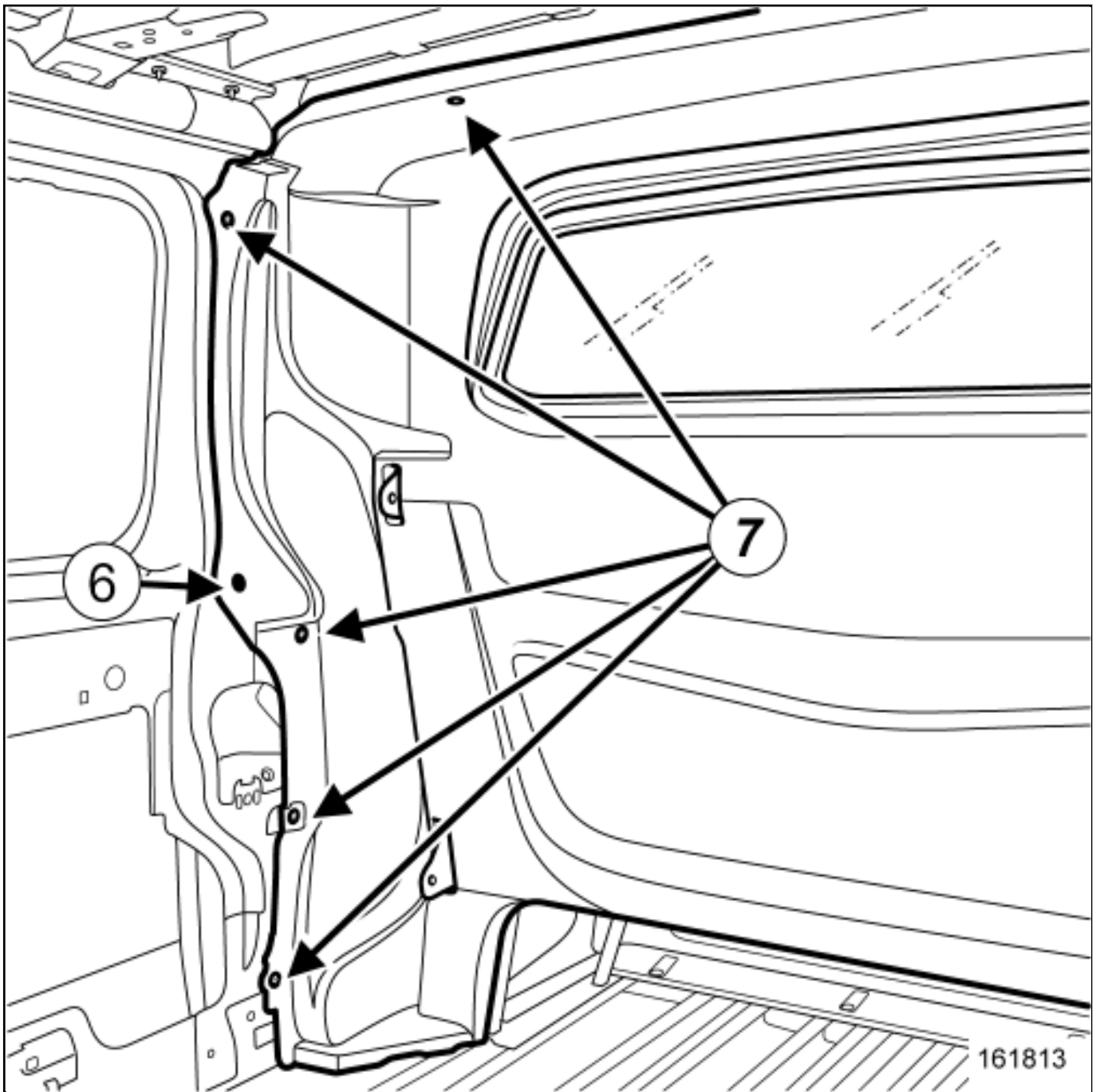
- the clip(3) ,
- the wiring protectors(4) .

Partially remove the right side rear seat base [Rear seat base trim: Removal - Refitting](#) .



Disconnect the wiring connectors(5) .

2. REMOVAL OPERATION



Remove the clip(6) .

Drill out the rivets(7) .

Carefully remove the crew cab partition.

1. REFITTING OPERATION PREPARATION



Systematic spare part : crew cab partition rivets.

2. REFITTING OPERATION



Proceed in the reverse order to removal.

3. FINAL OPERATION



Torque tighten the rear seat bolts 62 N.m.



Repair-50x08x08x18-01x37-1-6-1.xml



XSL version : 3.02 du 22/07/11

CRUISE CONTROL - SPEED LIMITER: LIST AND LOCATION OF COMPONENTS

Equipment required
Diagnostic tool

1. LIST OF COMPONENTS

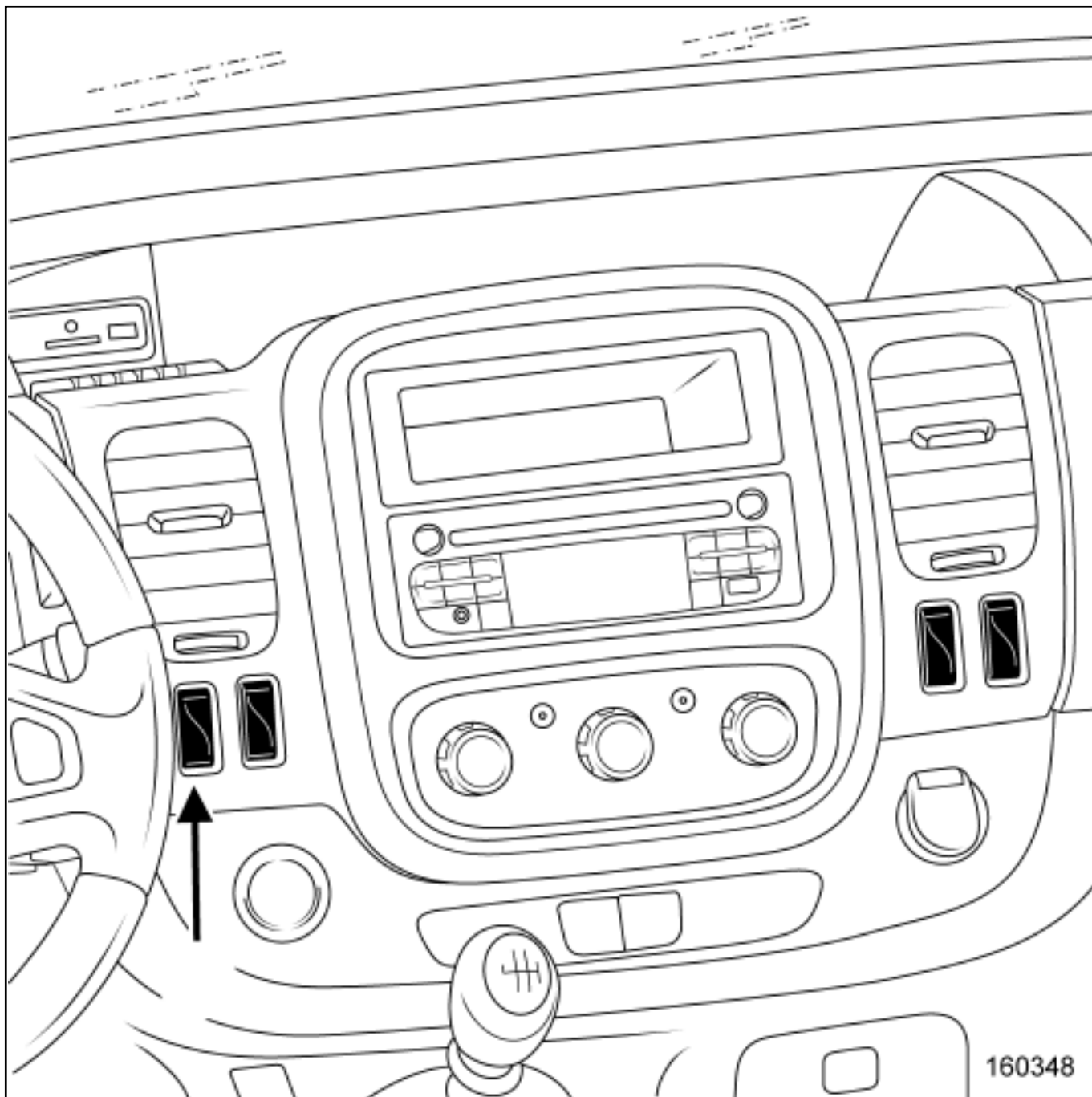
1- THE "CRUISE CONTROL" FUNCTION IS COMPOSED OF:

- a control switch
- steering column switches [Steering assembly: Exploded view](#)
- a brake pedal switch [Pedal assembly: Exploded view](#)

- a clutch pedal switch [Pedal assembly: Exploded view](#)

2. LOCATION OF COMPONENTS

1- CONTROL SWITCH



Remove the central trim(see **Dashboard assembly: Exploded view**) .

Apply the before / after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

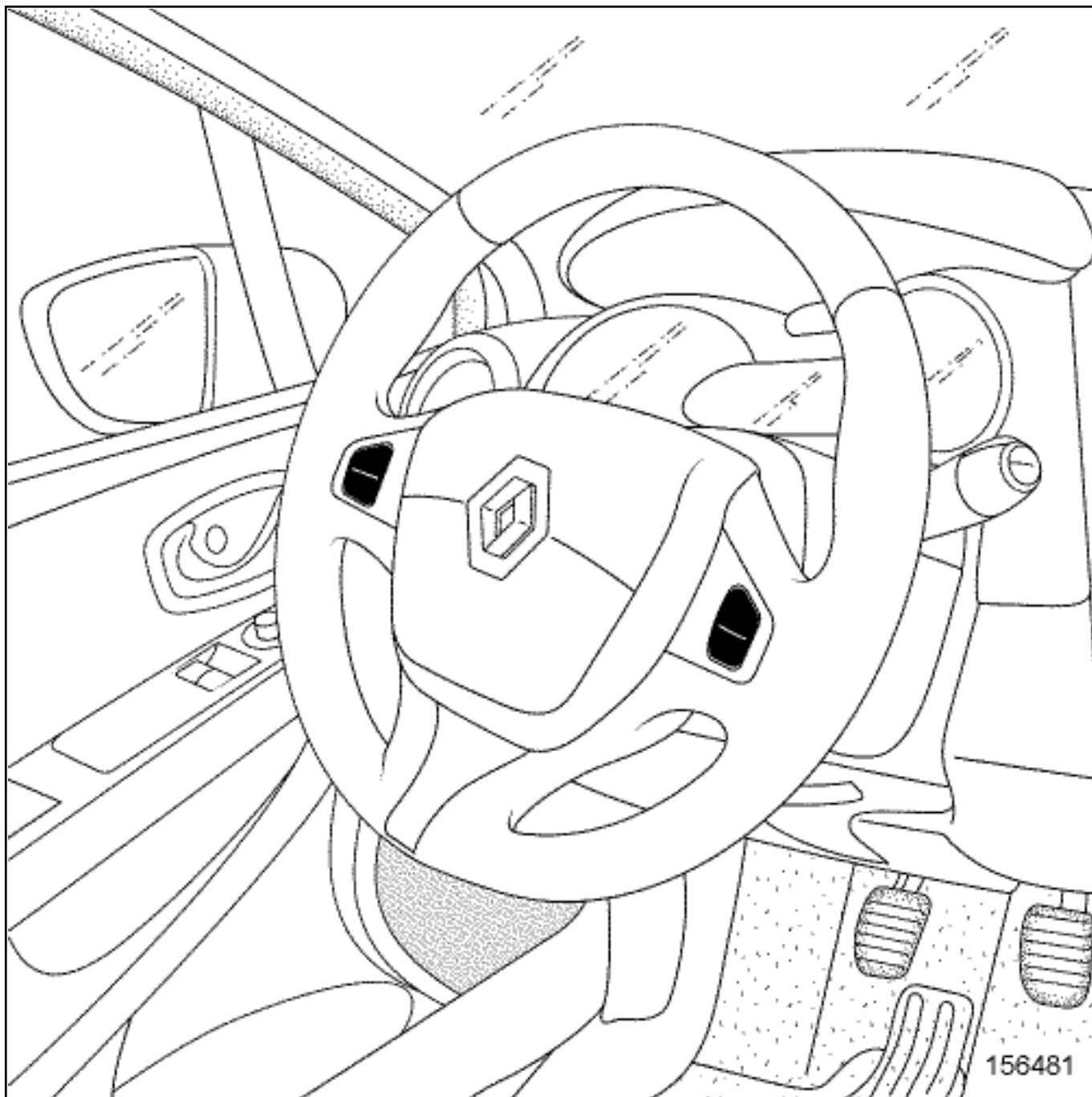
-Computer concerned by the Before / After repair procedure:

■"Injection computer" ,

-Component controlled by this computer concerned by the Before / After repair procedure:

■"Cruise control and speed limiter control" .

2- STEERING COLUMN SWITCHES



The steering column switches cannot be separated from the steering wheel.

In the event of any faults, replace the steering wheel [Steering assembly: Exploded view](#) .

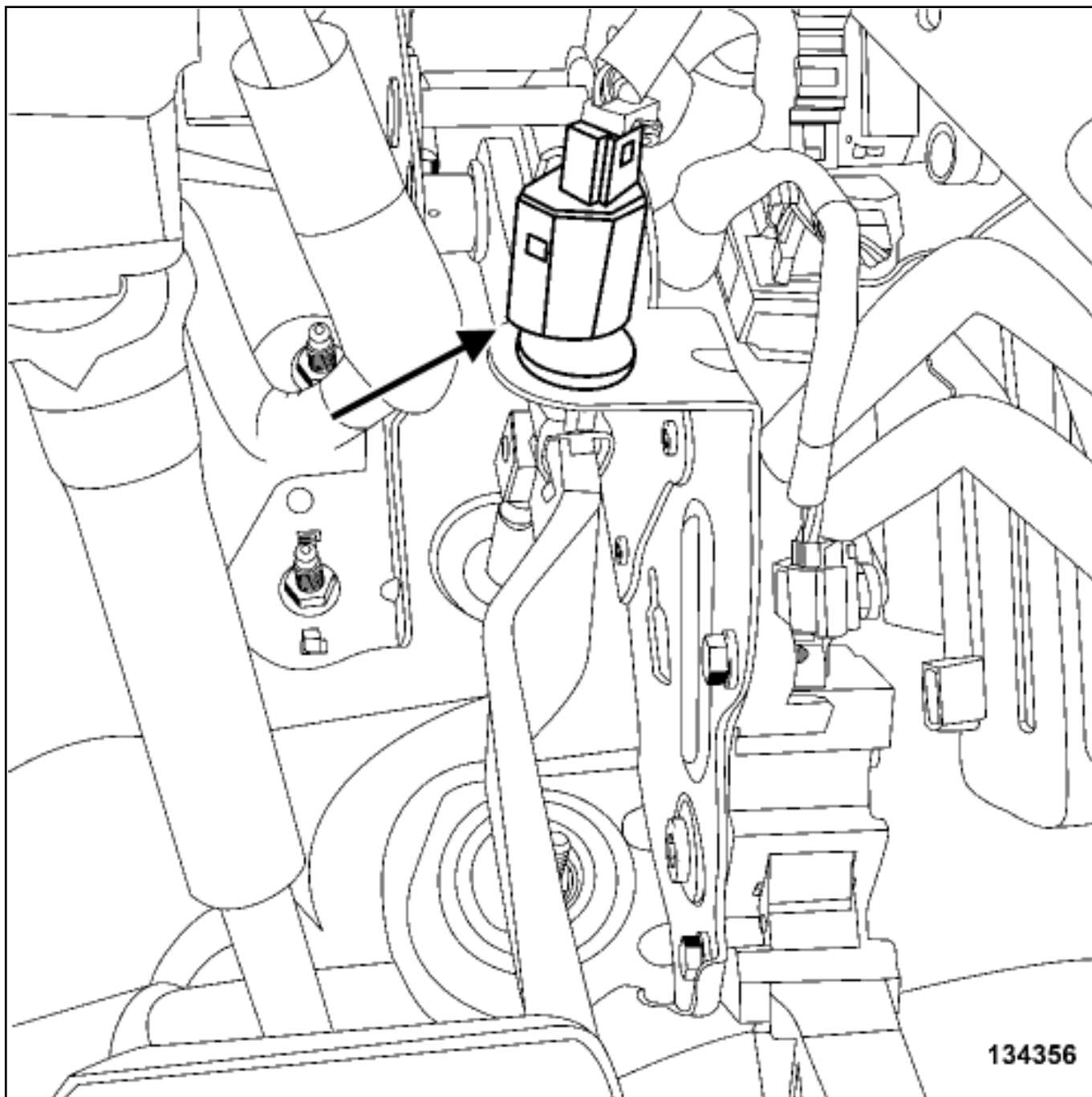
Apply the before / after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the Before / After repair procedure:

■ "Injection computer" ,

-Component controlled by this computer concerned by the Before / After repair procedure:

■ "Steering column switches" .



134356

Pedal assembly: Exploded view



Apply the before / after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the Before / After repair procedure:

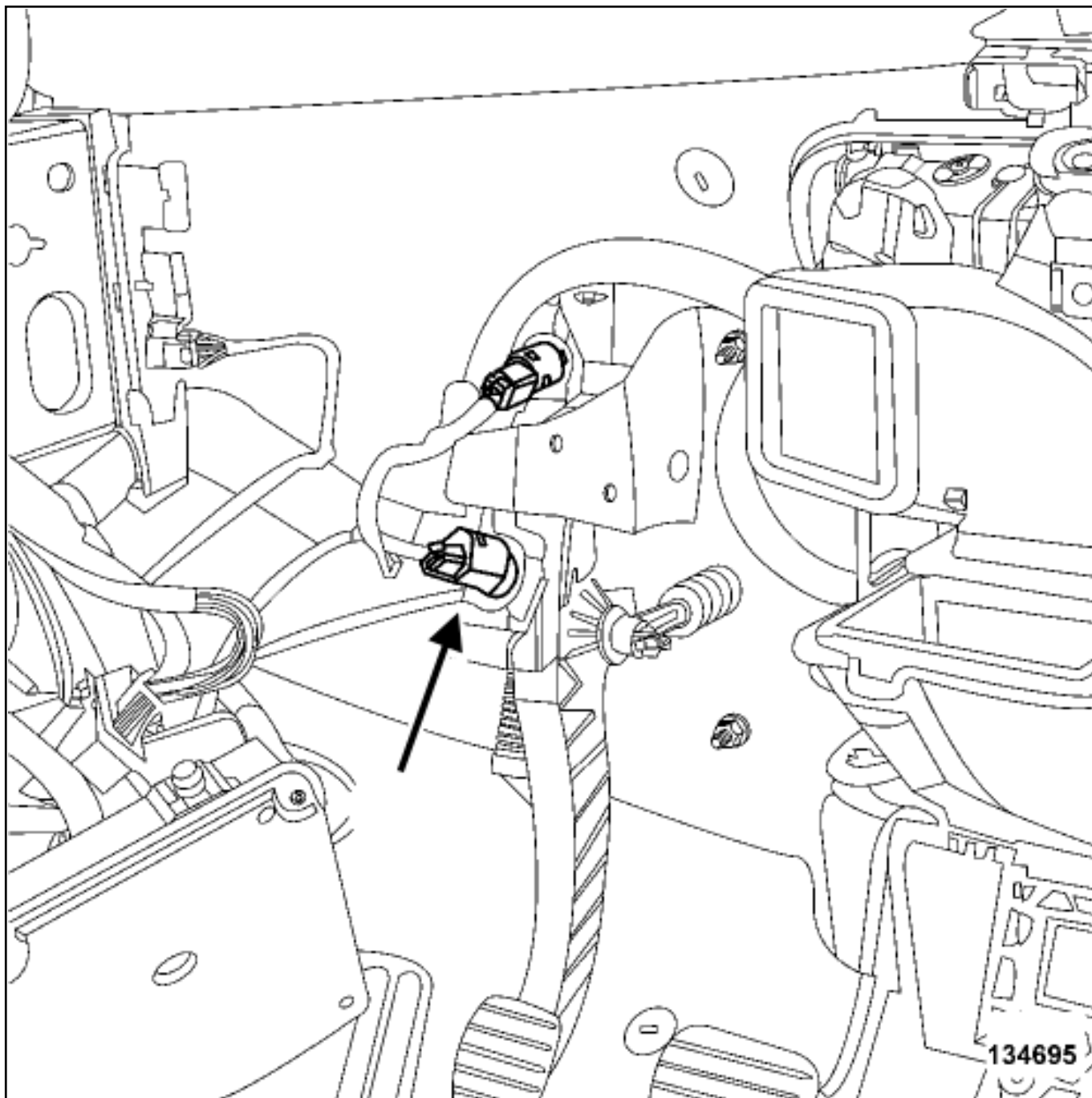


"Injection computer" ,

-Component controlled by this computer concerned by the Before / After repair procedure:



"Brake pedal switch" .



Pedal assembly: Exploded view



Apply the after repair procedure using the Diagnostic tool Diagnostic tool : Use :

-Computer concerned by the After repair procedure:

"Injection computer" ,

-Component controlled by this computer concerned by the After repair procedure:

"Clutch pedal start of travel switch" .



Repair-30x04x08-02x51-1-25-1.xml



XSL version : 3.02 du 22/07/11

CYLINDERBLOCKASSEMBLY: EXPLODED VIEW

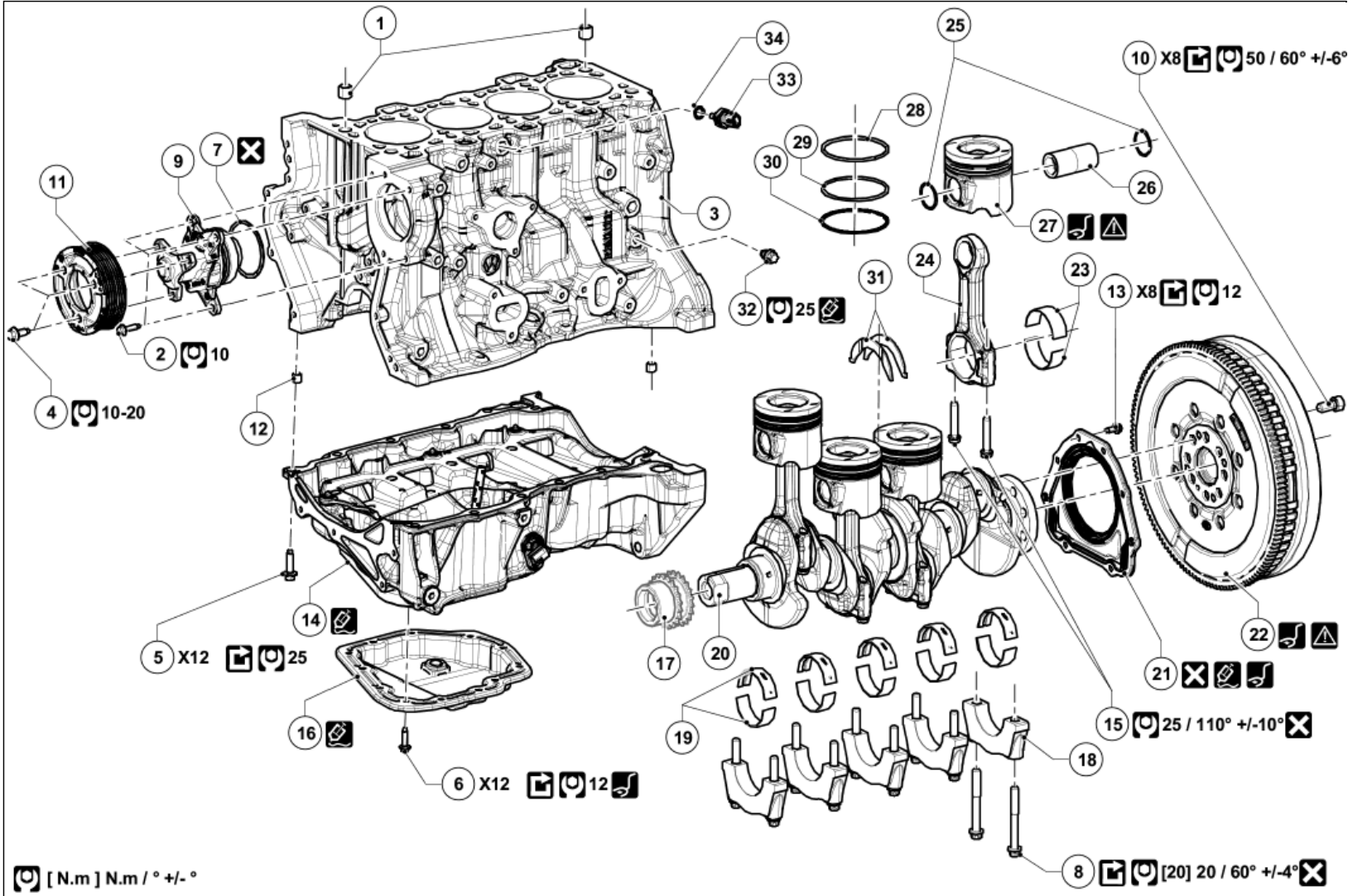


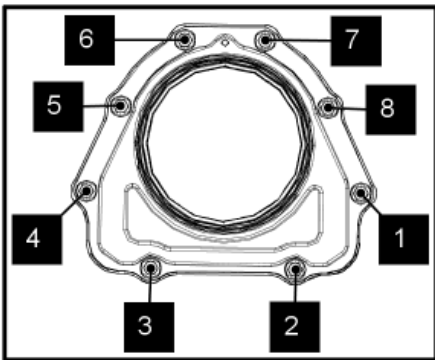
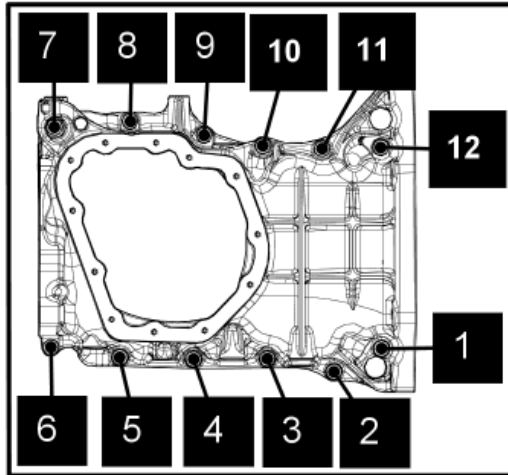
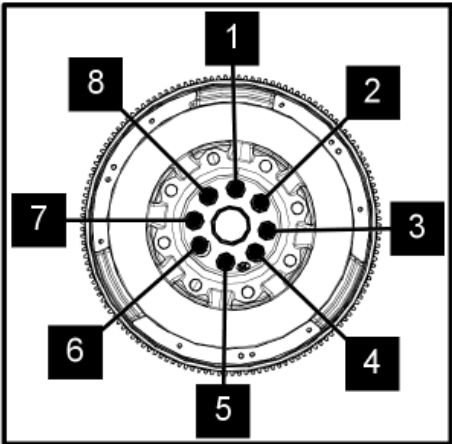
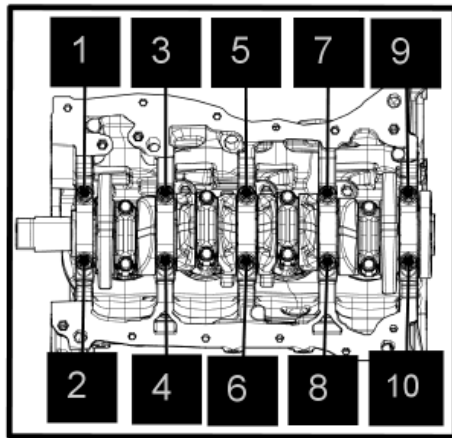
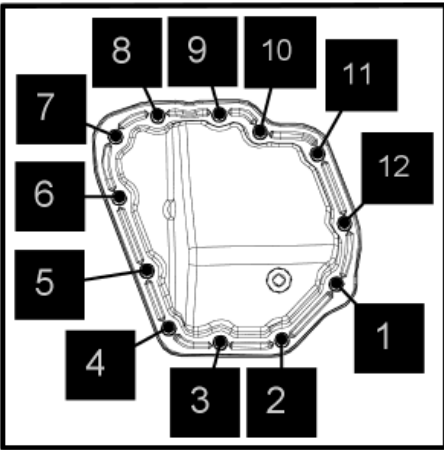
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)





[Illustration key: Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Centring dowel	
2	Bolt	
3	Cylinder block	(see 10A, Engine and cylinder block assembly, Cylinder block assembly: Exploded view)
4	Bolt	
5	Cylinder block base plate bolt	
6	Lower cover bolt	
7	Coolant pump O-ring	Coolant pump: Removal - Refitting
8	Crankshaft bearing cap bolt	(see Crankshaft: Removal - Refitting)
9	Water pump	(see 10A, Engine and cylinder block assembly, Cylinder block assembly: Exploded view)
10	Flywheel bolts	(Mot. 2013)
11	Water pump pulley	Coolant pump: Removal - Refitting
12	Centring dowels	
13	Crankshaft seal on gearbox end bolt	(see Cylinder block base plate: Removal - Refitting)
14	Cylinder block base plate	(see Cylinder block base plate: Removal - Refitting)
15	Con rod bolt	
16	Sump	(see 10A, Engine and cylinder block assembly, Cylinder block assembly: Exploded view)
17	Timing sprocket	Timing chain: Removal - Refitting
18	Crankshaft bearing cap	(see Crankshaft: Removal - Refitting)
19	Crankshaft bearing shell	(see Crankshaft: Removal - Refitting)
20	Crankshaft	(see Crankshaft: Removal - Refitting)
21	Crankshaft seal on gearbox end	(see 10A, Engine and cylinder block assembly, Crankshaft seal, gearbox end: Removal - Refitting) (Mot. 1716)
22	Engine flywheel	(see 10A, Engine and cylinder block assembly, Flywheel: Removal - Refitting) (Mot. 1431)
23	Con rod bearing shell	(see Piston - Con rod: Removal - Refitting)
24	Con rod	(see Piston - Con rod: Removal - Refitting)
25	Gudgeon pin locking spring ring	(see Piston - Con rod: Removal - Refitting)
26	Piston pin	(see Piston - Con rod: Removal - Refitting)
27	Piston	(see Piston - Con rod: Removal - Refitting) (Mot. 1979)
28	Compression ring	(see Piston - Con rod: Removal - Refitting)

29	Sealing ring	(see Piston - Con rod: Removal - Refitting)
30	Scraper ring	(see Piston - Con rod: Removal - Refitting)
31	Crankshaft thrust washer	(see Crankshaft: Removal - Refitting)
32	Top Dead centre setting hole plug	Timing chain: Removal - Refitting
33	Coolant temperature sensor	Coolant circuit assembly: Exploded view
34	Oring	



Repair-10x03-02x50-1-2-1.xml



KSL version : 3.02 du 22/07/11

CYLINDER HEAD ASSEMBLY: EXPLODED VIEW



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#).

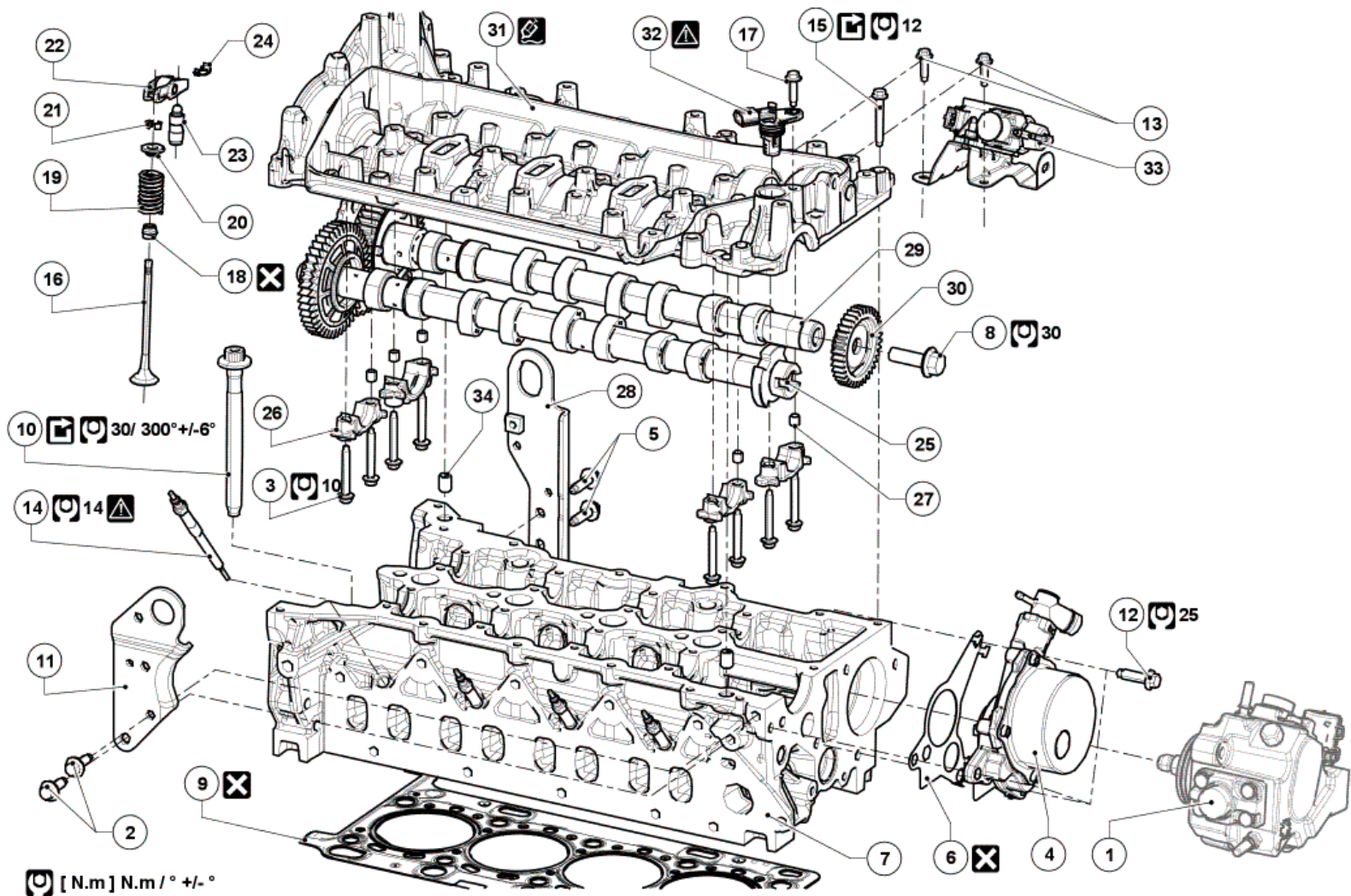


Illustration key: [Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#).

Marks	Designations	Informations
1	High pressure pump	Injection assembly: Exploded view
2	Gearbox side lifting eye bolt	
3	Camshaft bearing cap bolt	
4	Vacuum pump	(see Vacuum pump: Removal - Refitting)
5	Timing end lifting eye bolt	
6	Vacuum pump seal	(see Vacuum pump: Removal - Refitting)
7	Cylinder head	(see 11A, Top and front of engine, Cylinder head: Removal - Refitting)
8	High pressure pump drive camshaft pulley bolt	
9	Cylinder head gasket	(see 11A, Top and front of engine, Cylinder head: Removal - Refitting)
10	Cylinder head bolt	
11	Gearbox side lifting eye	Cylinder head: Stripping - Rebuilding
12	Vacuum pump bolt	(see Vacuum pump: Removal - Refitting)
13	Turbocharger control solenoid valve bolt	
14	Heater plug	<p> Warning :</p> <p>■ Be careful not to test the heater plug by connecting it to the battery. This test may destroy the heater plug.</p>
15	Cylinder head cover bolt	
16	Valve	
17	Camshaft position sensor bolt	
18	Valve stem seal	
19	Valve spring	
20	Valve spring cup	Valve: Removal - Refitting
21	Valve stem collet	Valve: Removal - Refitting
22	Valve rocker	(see 11A, Top and front of engine, Cylinder head: Removal - Refitting)
23	Valve rocker hydraulic tappet	(see 11A, Top and front of engine, Cylinder head: Removal - Refitting)
24	Valve rocker clips	
25	Inlet camshaft	
26	Camshaft bearing cap	(see 11A, Top and front of engine, Camshaft: Removal - Refitting)
27	Camshaft bearing cap centring dowel	
28	Timing end lifting eye	Cylinder head: Stripping - Rebuilding

29	Exhaust camshaft	(see 11A, Top and front of engine, Camshaft: Removal - Refitting)
30	High pressure pump drive camshaft pulley	
31	Cylinder head cover	(see 11A, Top and front of engine, Rocker cover: Removal - Refitting)
32	Camshaft position sensor	<p>Do not apply lubricant on the sensor (lubricant on the O-ring is allowed)</p> <ul style="list-style-type: none"> ■ When replacing, apply the after repair procedure using the Diagnostic tool: <ul style="list-style-type: none"> ■ select the "injection computer", <ul style="list-style-type: none"> ■ go to repair mode, ■ display the "Before/After repair procedure" for the computer selected, ■ select "injector" in the "List of components controlled by this computer" section, ■ carry out the operations described in the "After repair procedure" section.
33	Turbocharger control solenoid valve	
34	Cylinder head cover centring dowel	



Repair-10x02-02x50-1-2-1.xml



CYLINDER HEAD ASSEMBLY: EXPLODED VIEW



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#).

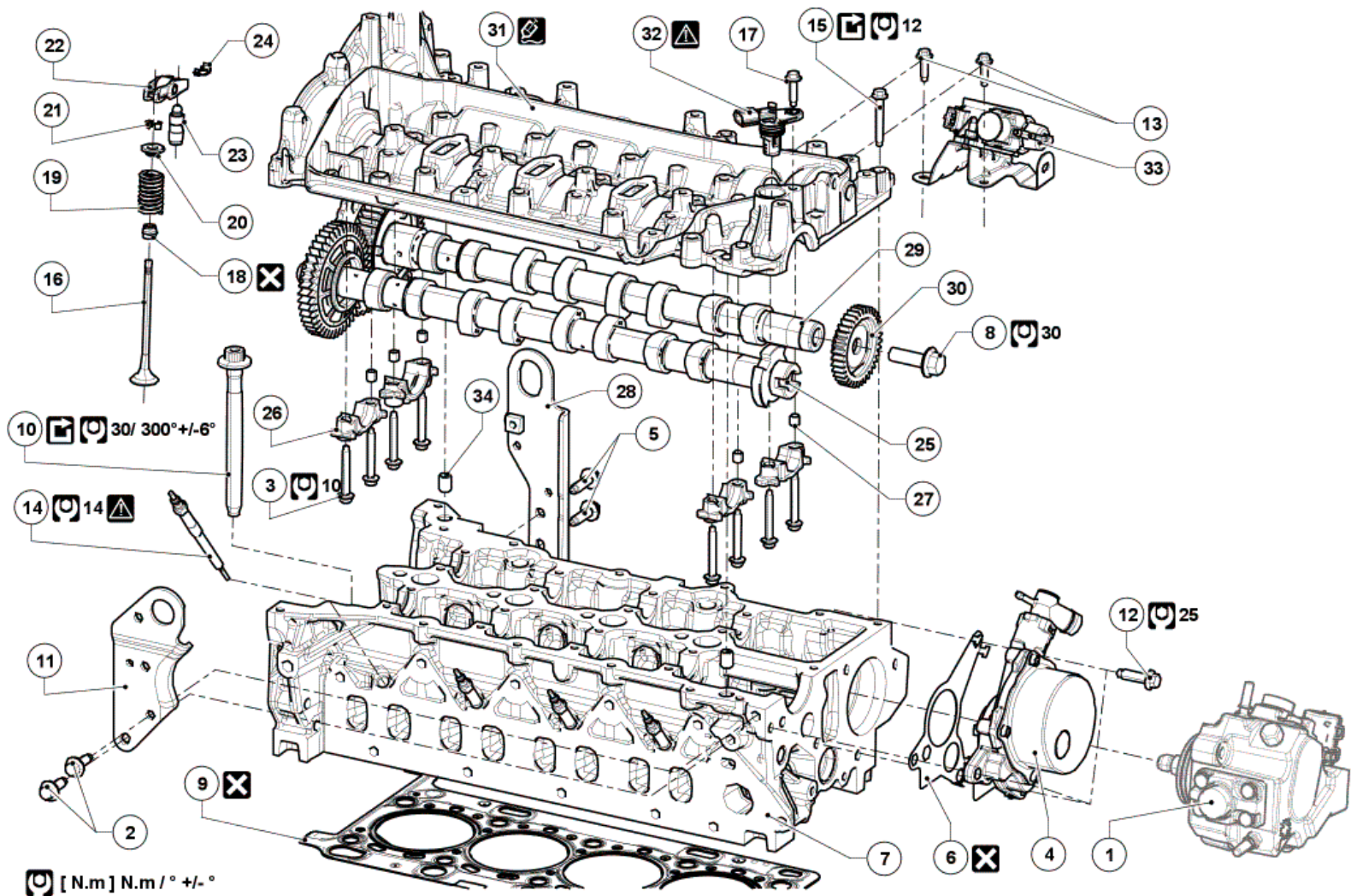


Illustration key: [Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#).

Marks	Designations	Informations
1	High pressure pump	Injection assembly: Exploded view
2	Gearbox side lifting eye bolt	
3	Camshaft bearing cap bolt	
4	Vacuum pump	(see Vacuum pump: Removal - Refitting)
5	Timing end lifting eye bolt	
6	Vacuum pump seal	(see Vacuum pump: Removal - Refitting)
7	Cylinder head	(see 11A, Top and front of engine, Cylinder head: Removal - Refitting)
8	High pressure pump drive camshaft pulley bolt	
9	Cylinder head gasket	(see 11A, Top and front of engine, Cylinder head: Removal - Refitting)
10	Cylinder head bolt	
11	Gearbox side lifting eye	Cylinder head: Stripping - Rebuilding
12	Vacuum pump bolt	(see Vacuum pump: Removal - Refitting)
13	Turbocharger control solenoid valve bolt	
14	Heater plug	<p> Warning :</p> <p>■ Be careful not to test the heater plug by connecting it to the battery. This test may destroy the heater plug.</p>
15	Cylinder head cover bolt	
16	Valve	
17	Camshaft position sensor bolt	
18	Valve stem seal	
19	Valve spring	
20	Valve spring cup	Valve: Removal - Refitting
21	Valve stem collet	Valve: Removal - Refitting
22	Valve rocker	(see 11A, Top and front of engine, Cylinder head: Removal - Refitting)
23	Valve rocker hydraulic tappet	(see 11A, Top and front of engine, Cylinder head: Removal - Refitting)
24	Valve rocker clips	
25	Inlet camshaft	
26	Camshaft bearing cap	(see 11A, Top and front of engine, Camshaft: Removal - Refitting)
27	Camshaft bearing cap centring dowel	
28	Timing end lifting eye	Cylinder head: Stripping - Rebuilding

29	Exhaust camshaft	(see 11A, Top and front of engine, Camshaft: Removal - Refitting)
30	High pressure pump drive camshaft pulley	
31	Cylinder head cover	(see 11A, Top and front of engine, Rocker cover: Removal - Refitting)
32	Camshaft position sensor	<p>Do not apply lubricant on the sensor (lubricant on the O-ring is allowed)</p> <ul style="list-style-type: none"> ■ When replacing, apply the after repair procedure using the Diagnostic tool: <ul style="list-style-type: none"> ■ select the "injection computer", <ul style="list-style-type: none"> ■ go to repair mode, ■ display the "Before/After repair procedure" for the computer selected, ■ select "injector" in the "List of components controlled by this computer" section, ■ carry out the operations described in the "After repair procedure" section.
33	Turbocharger control solenoid valve	
34	Cylinder head cover centring dowel	



Repair-10x02-02x50-1-2-1.xml



DAMPER VALVE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973

Equipment required

Diagnostic tool

tweezers



parts always to be replaced:



Damper valve seal

turbocharger air cooler air outlet pipe seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .

REMOVAL

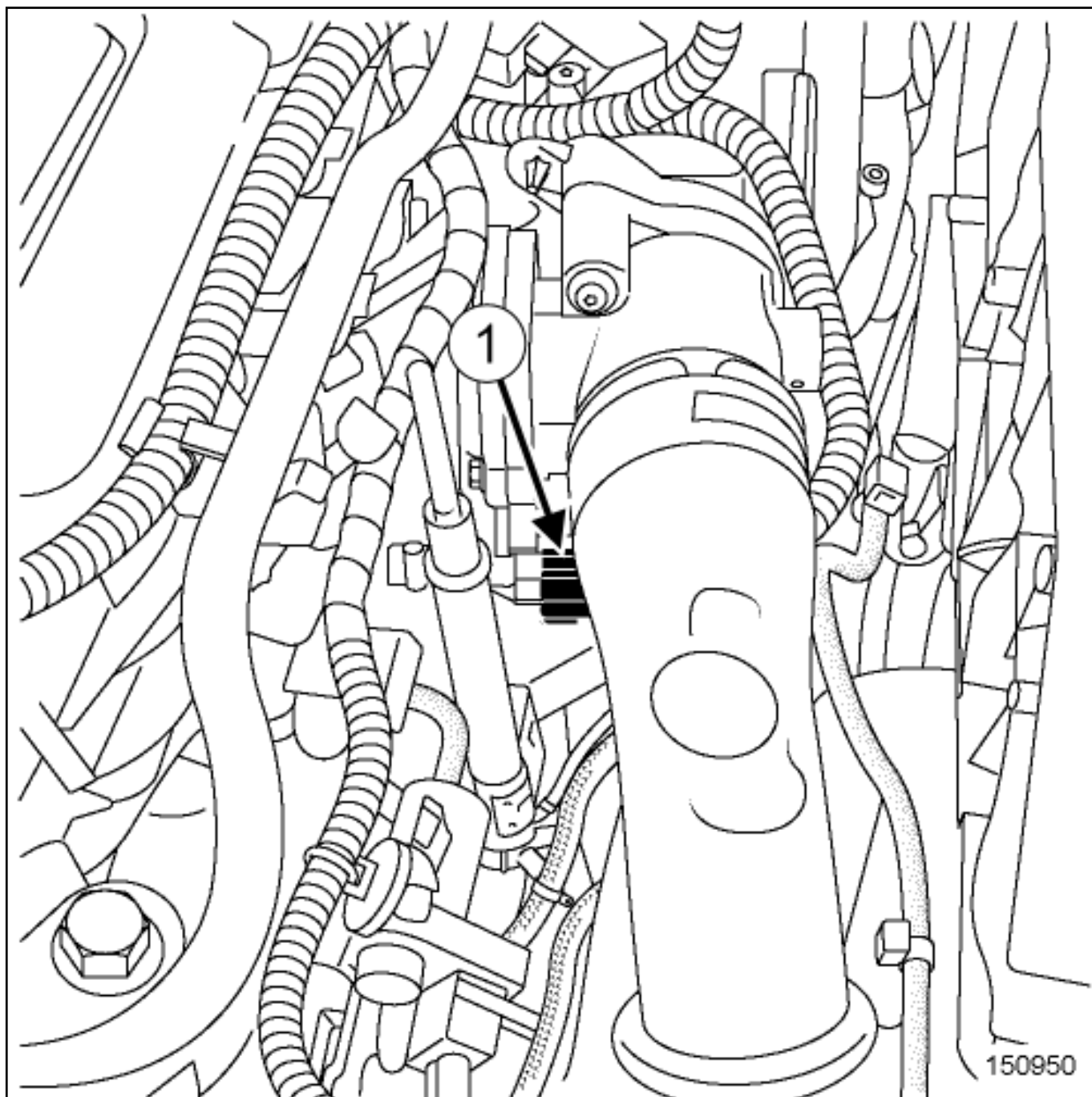
1. REMOVAL PREPARATION OPERATION

□ Release the clips from the intercooler air outlet pipe ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .

□ Disconnect the intercooler air outlet pipe ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .

- Move the intercooler air outlet pipe.

2. REMOVAL OPERATION




- Disconnect the connector(1) from the damper valve.

- Remove [\(see 12A, Fuel mixture, Air inlet assembly: Exploded view\)](#) :

- the damper valve bolt,
- the damper valve,
- the damper valve seal.

1. REFITTING PREPARATION OPERATION



parts always to be replaced:  Damper valve seal .



parts always to be replaced:  turbocharger air cooler air outlet pipe seal .



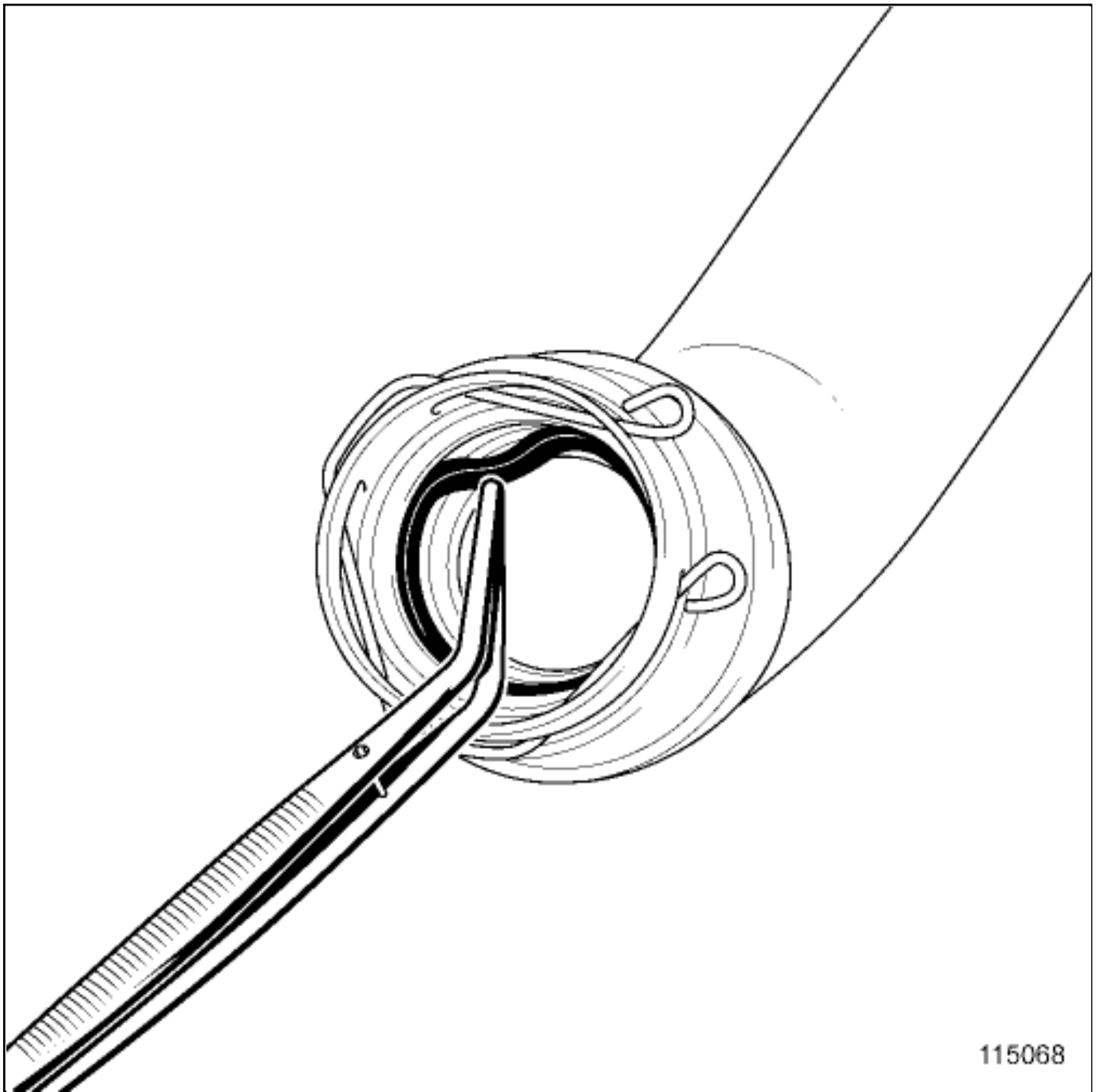
Using surface cleaner Vehicle: Parts and consumables for the repair, clean and degrease the bearing faces of:



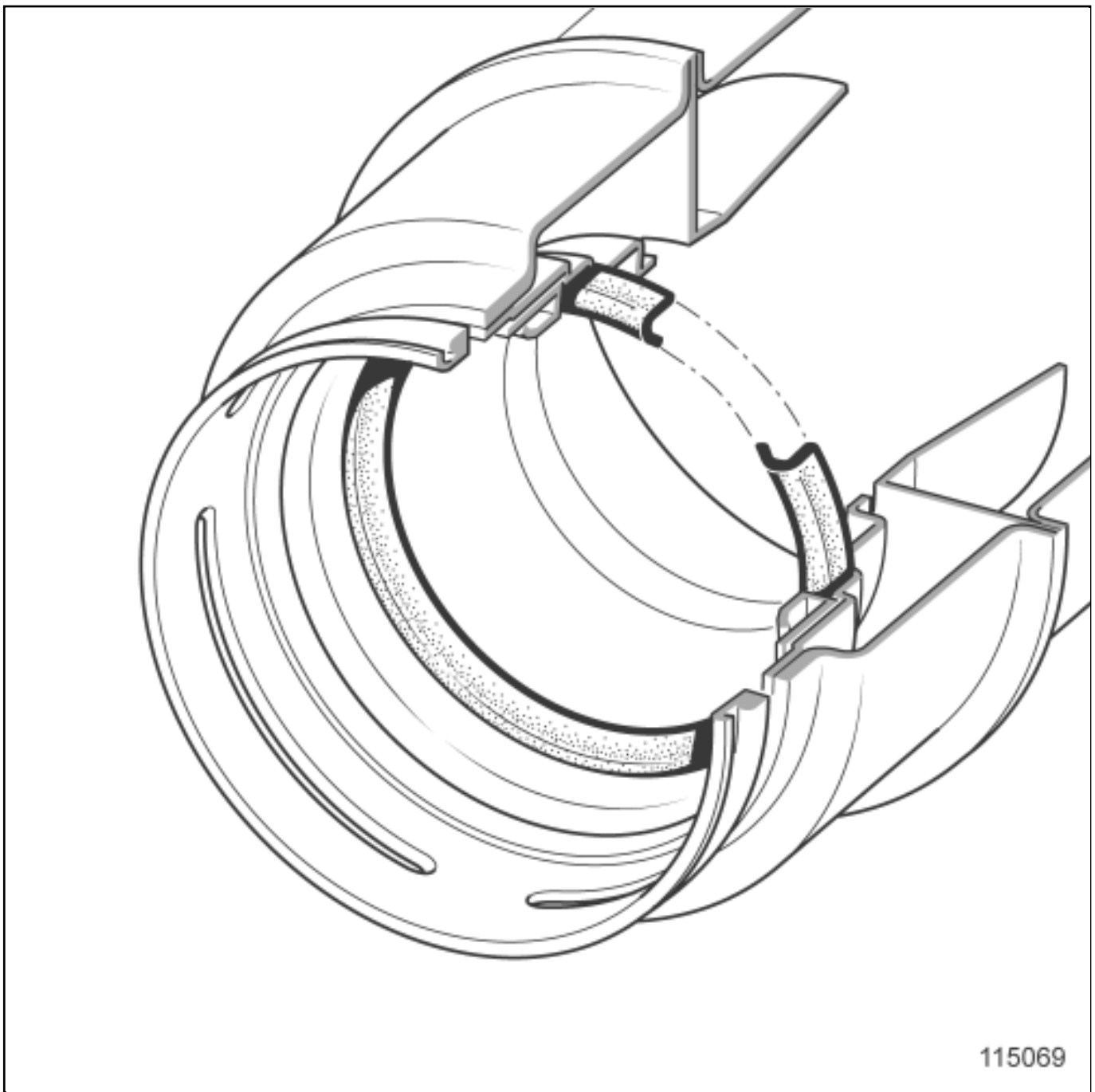
the damper valve,



the swirl valve.



Remove the intercooler air outlet pipe seal using a tweezers.



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Note:

Check that the intercooler air outlet pipe seal is fitted in the right direction.

Refit a new seal on the intercooler air outlet pipe.

Refit ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) :

-
- a new damper valve seal,
-
- the damper valve.



Using the 4-40 N.m torque wrench with 1/4 drive ratchet end piece ([Ms. 1973](#)) , tighten to torque the damper valve ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .



When replacing, apply the after repair procedure using the Diagnostic tool:

-
- select the "injection computer",
-
- go to repair mode,
-
- display the "Before/After repair procedure" for the computer selected,
-
- select "Damper valve" in the "List of components controlled by this computer" section,
-
- carry out the operations described in the "After repair procedure" section.



Proceed in the reverse order to removal.



Always carry out a "push-pull" test, to check that the intercooler air outlet pipe is correctly fitted.



Repair-11x01x10x02-01x37-1-42-1.xml



DASHBOARD ASSEMBLY: EXPLODED VIEW

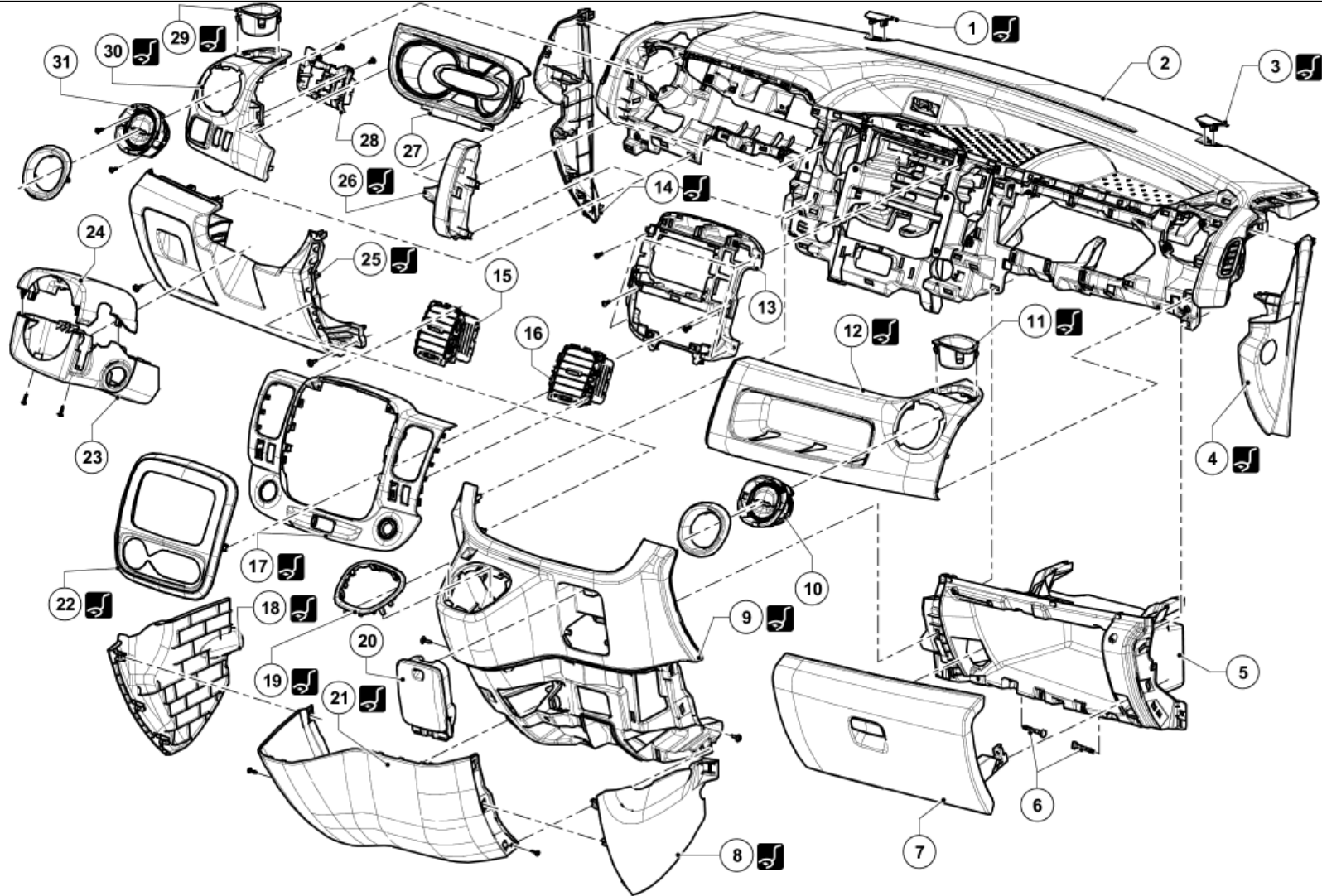


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Cover of the stay crossmember dashboard	(Car 1363)
2	Dashboard	
3	Cover of the stay crossmember dashboard	(Car 1363)
4	Blanking cover of dashboard side panel	(Car 1363)
5	Glovebox	
6	Glovebox hinges	
7	Glovebox cover	
8	Centre console front section	(Car 1363)
9	Dashboard centre front panel trim	(Car 1363)
10	Dashboard air vent	
11	Storage compartment-cup holder	(Car 1363)
12	Right-hand dashboard trim	(Car 1363)
13	Structure totem of dashboard	
14	Blanking cover of dashboard side panel	(Car 1363)
15	Dashbard centre air vent	
16	Dashbard centre air vent	
17	Dashboard central upper trim	(Car 1363)
18	Centre console front section	(Car 1363)
19	Centre console upper front panel	(Car 1363)
20	Storage compartment-cup holder	
21	Centre front panel	(Car 1363)
22	Dashboard central upper trim	(Car 1363)
23	Shell under the steering wheel	
24	Steering wheel cover	
25	Dashboard lower trim	(Car 1363)
26	Left-hand dashboard side panel	(Car 1363)
27	Instrument panel front visor	
28	Fascia support interruptor of dashboard	
29	Storage compartment-cup holder	(Car 1363)
30	Left-hand dashboard side panel	(Car 1363)



Repair-50x08x02x01-02x50-1-9-1.xml



XSL version : 3.02 du 22/07/11

DEHYDRATOR RESERVOIR FILTER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station

WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 62A, Air conditioning, Air conditioning: Precautions for the repair](#)).



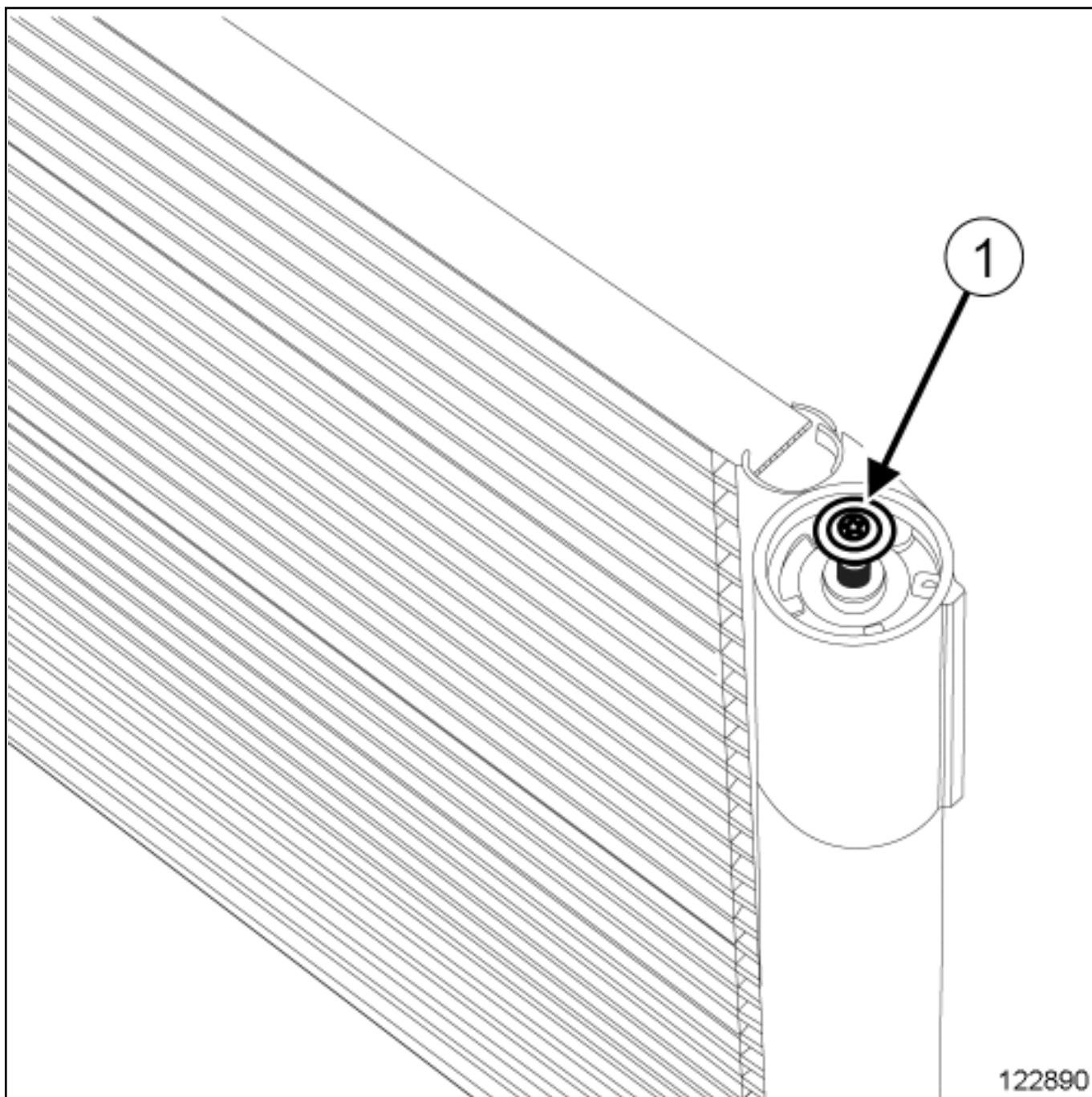
Note:

Always replace the dehydrator filter kit.

REMOVAL

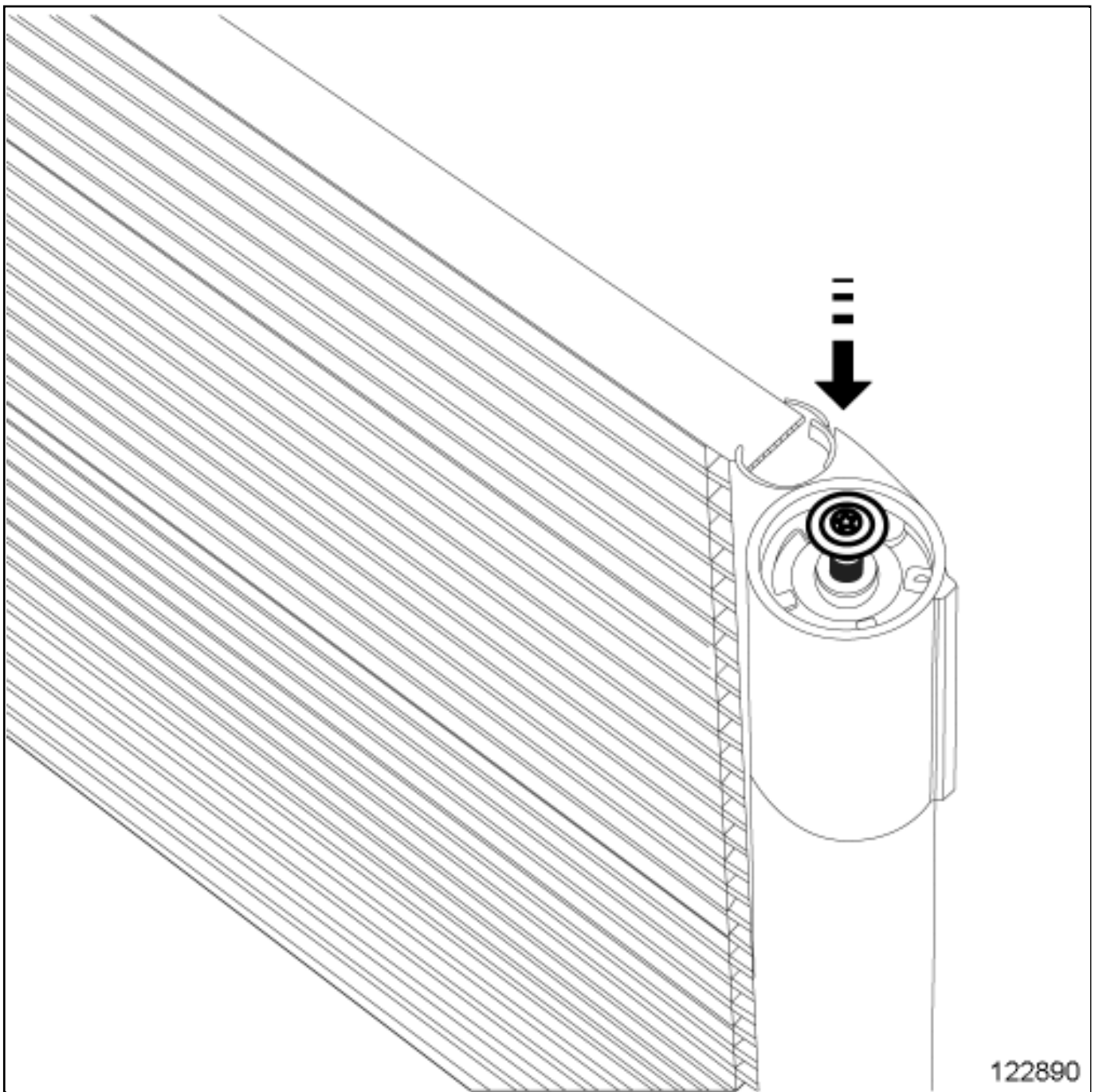
1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#)).
- ❑ Drain the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)).
- ❑ Disconnect the battery ([Battery: Removal - Refitting](#)).
- ❑ Remove:
 - the engine undertray bolts,
 - the engine undertray,
 - the front bumper ([Front bumper assembly: Exploded view](#)),
 - the front end panel ([Front end panel: Removal - Refitting](#)),
 - the air deflectors,
 - the condenser ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)).

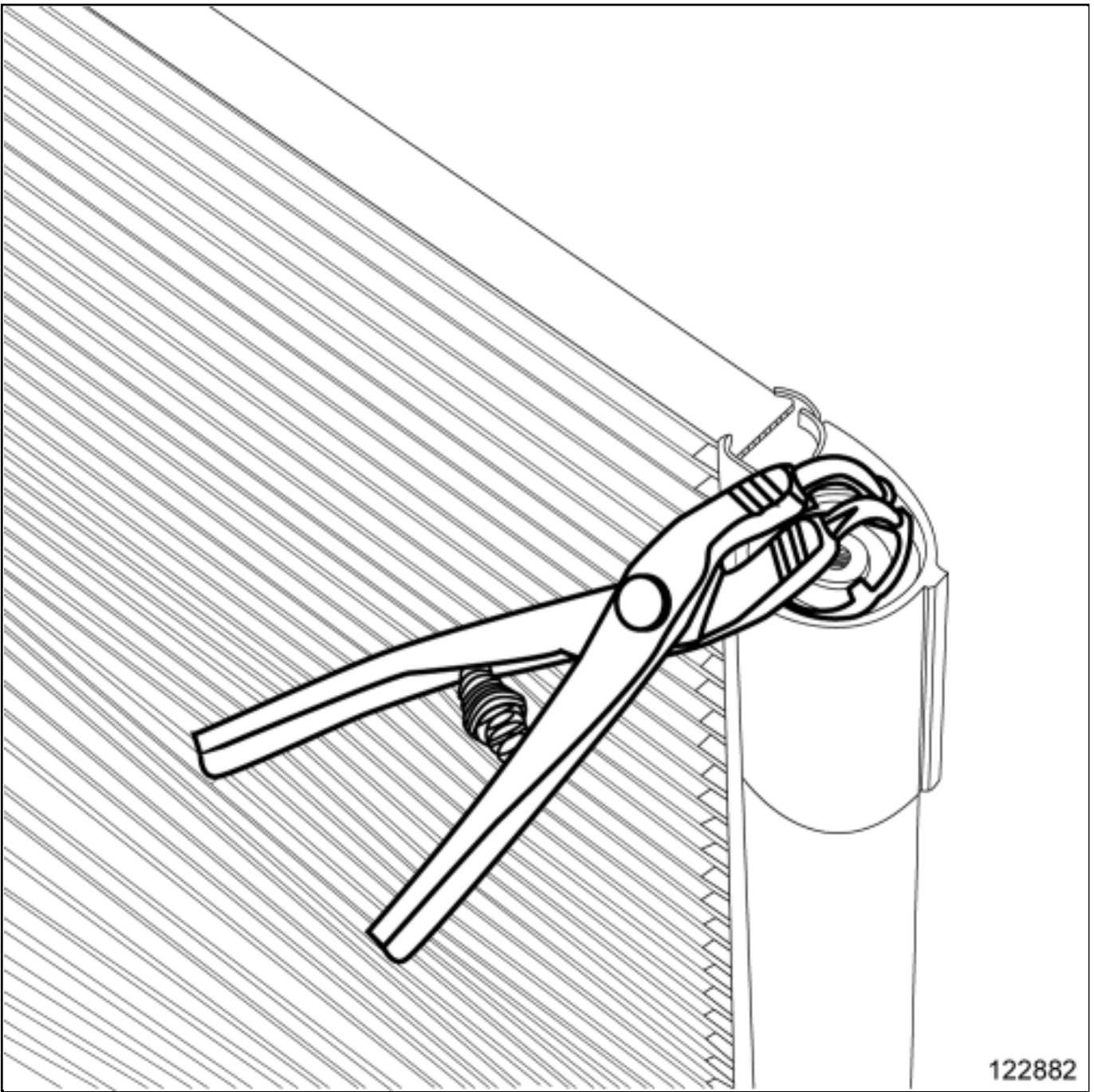


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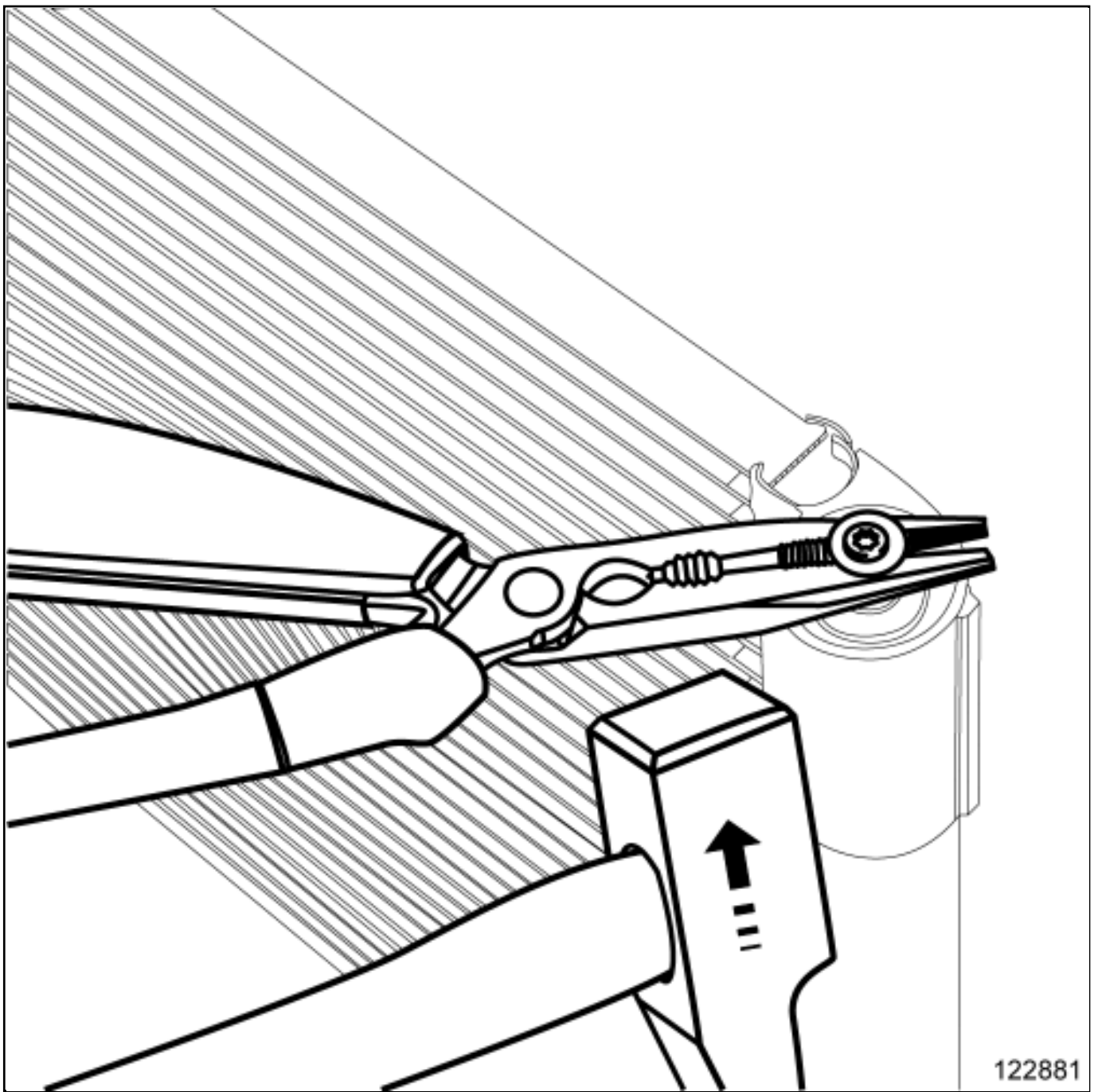
- Screw a type M8bolt a few turns on the dehydrator reservoir cap.



Push the bolt using a screwdriver to push the dehydrator reservoir cap downwards to detach the circlip.



Remove the circlip using circlip pliers.



- Clamp the M8bolt using long-nosed pliers.

- Strike the long-nosed pliers from underneath to remove the "cap - filter element" assembly from the dehydrator reservoir.

- Remove the "cap - filter element" assembly from the dehydrator reservoir.

1. REFITTING PREPARATION OPERATION



Fit new seals to the new "cap - filter element" assembly.

2. REFITTING OPERATION



Refit the new "cap - filter element" assembly in the opening of the dehydrator reservoir



Push the "cap - filter element" assembly in as far as possible.



Refit the circlip.



Note:

When pressurising the air conditioning circuit, the dehydrator reservoir filter and cap will automatically fit in place.

3. FINAL OPERATION



Proceed in the reverse order to removal.



Fill the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) .



Check:



there are no leaks using the electronic detector ([see 62A, Air conditioning, Refrigerant circuit: Check](#)) ,

that the air conditioning system is operating correctly([see 62A. Air conditioning. Air conditioning: Check](#)).



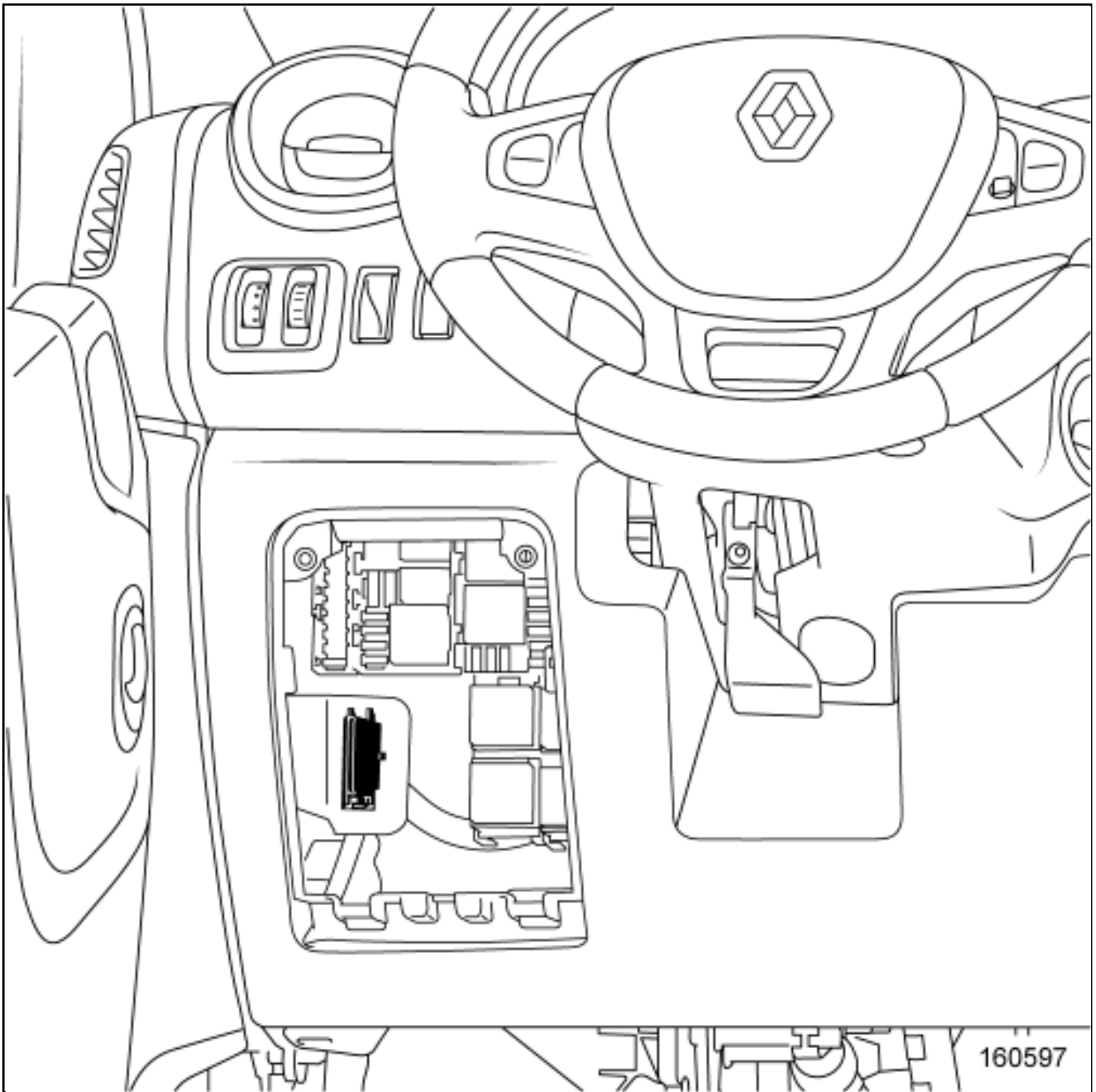
Repair-30x02x02x49-01x37-1-4-1.xml



XSL version : 3.02 du 22/07/11

DIAGNOSTIC SOCKET: LIST AND LOCATION OF COMPONENTS

1. LOCATION



To perform an operation with the Diagnostic tool by the diagnostic socket [Diagnostic tool : Use](#) .



DIESEL INJECTION COMPUTER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

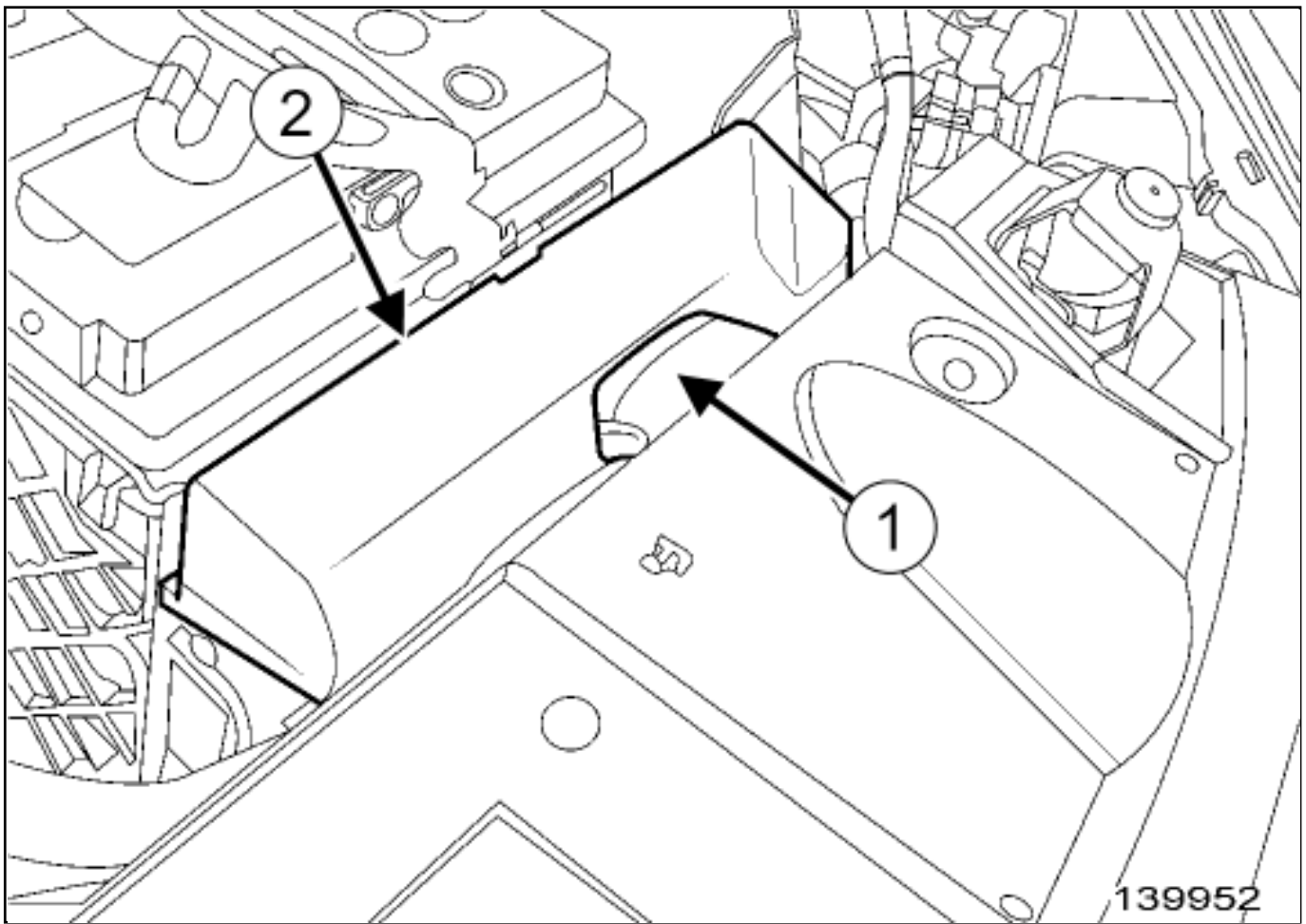
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- When replacing, apply the before repair procedure using the Diagnostic tool:
 - select the "injection computer",
 - go to repair mode,
 - display the "Before/After repair procedure" for the computer selected,
 - select "injection computer" in the "List of components controlled by this computer" section,
 - carry out the operations described in the "After repair procedure" section.

■ Disconnect the battery [Battery: Removal - Refitting](#) .

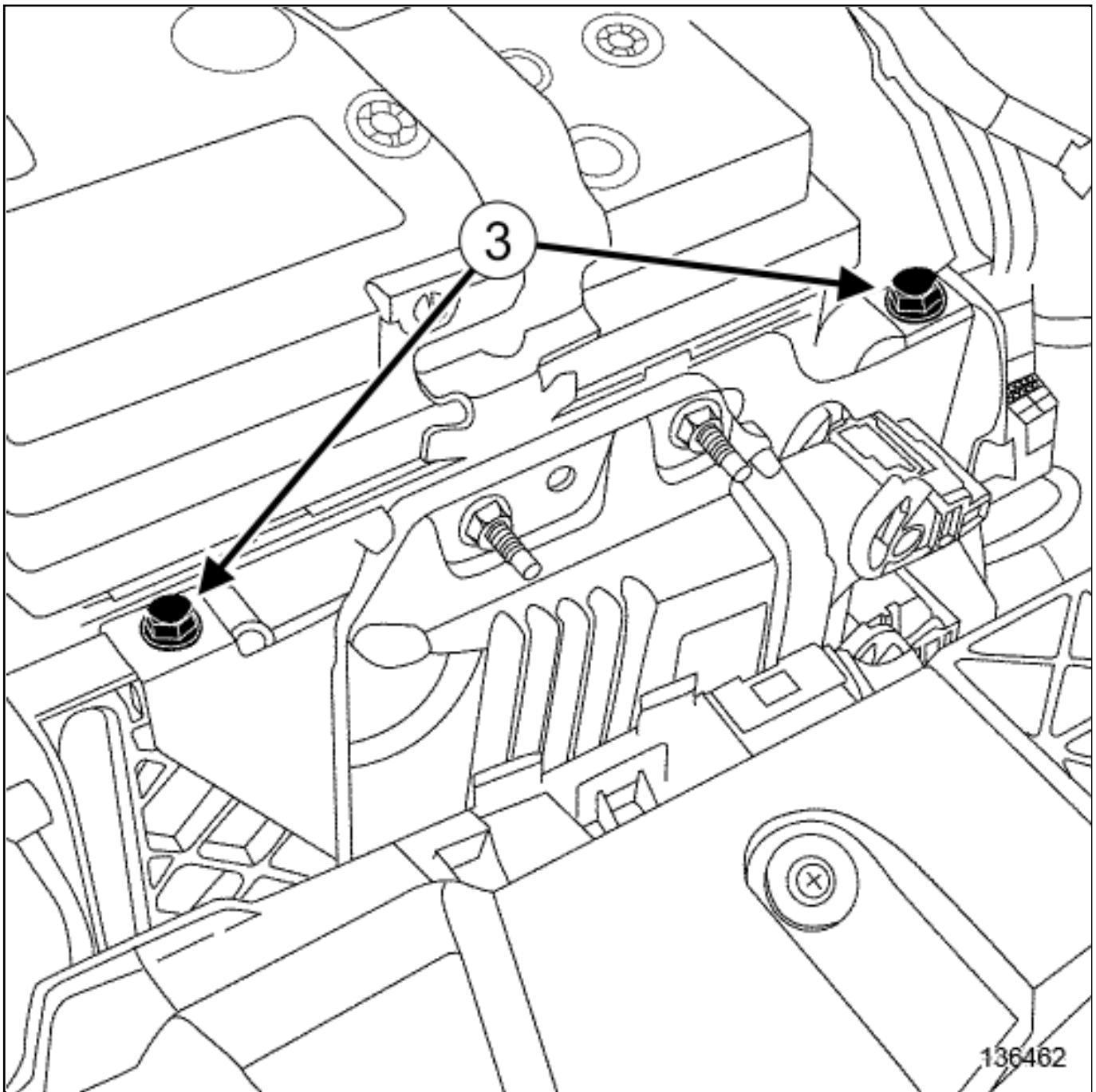


Disconnect the air duct(1) on the side of the diesel injection computer cover(2) .

Move aside the air duct to remove the cover of the diesel injection computer.

Remove the diesel injection computer cover(2) .

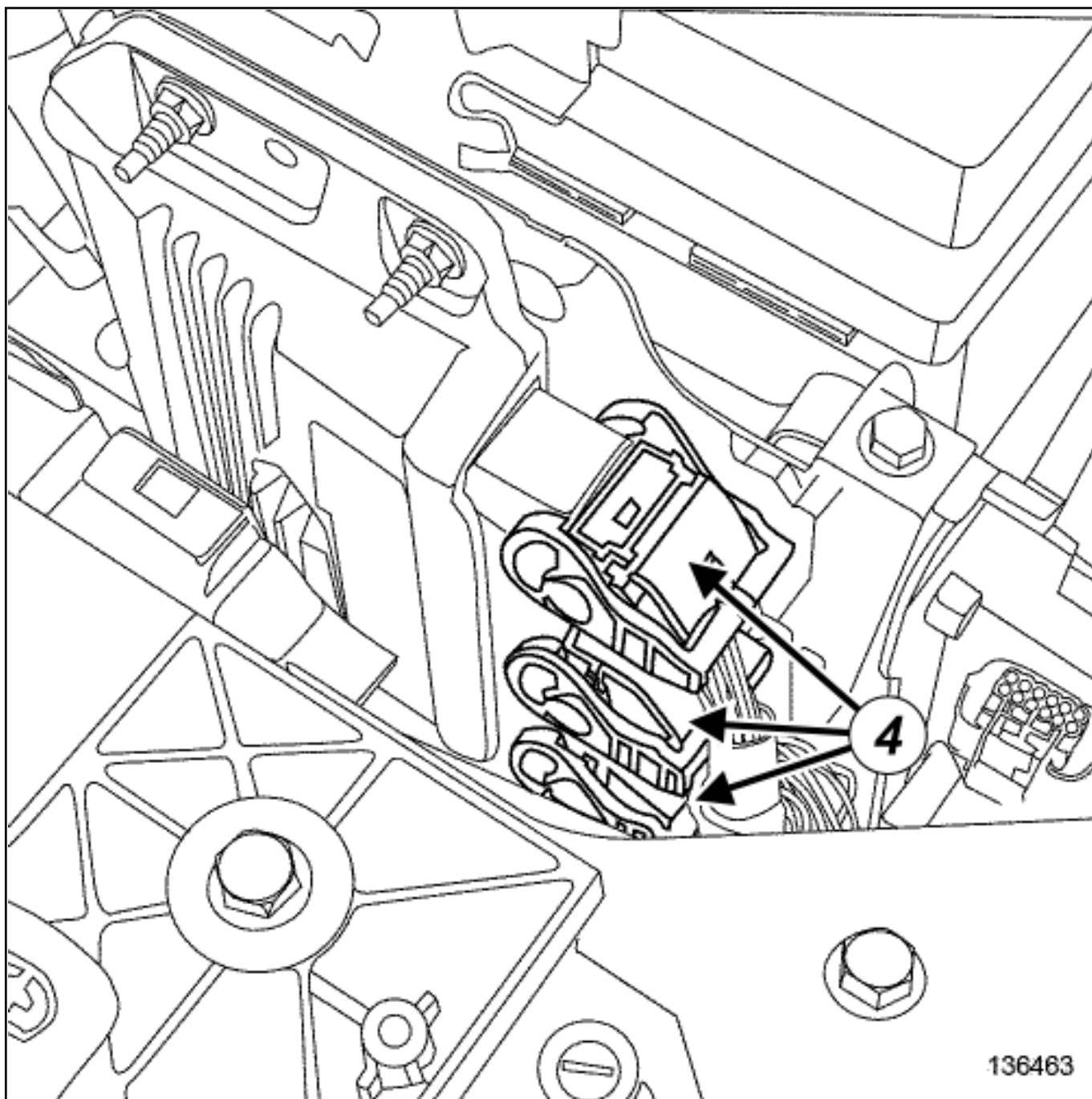
2. REMOVAL OPERATION



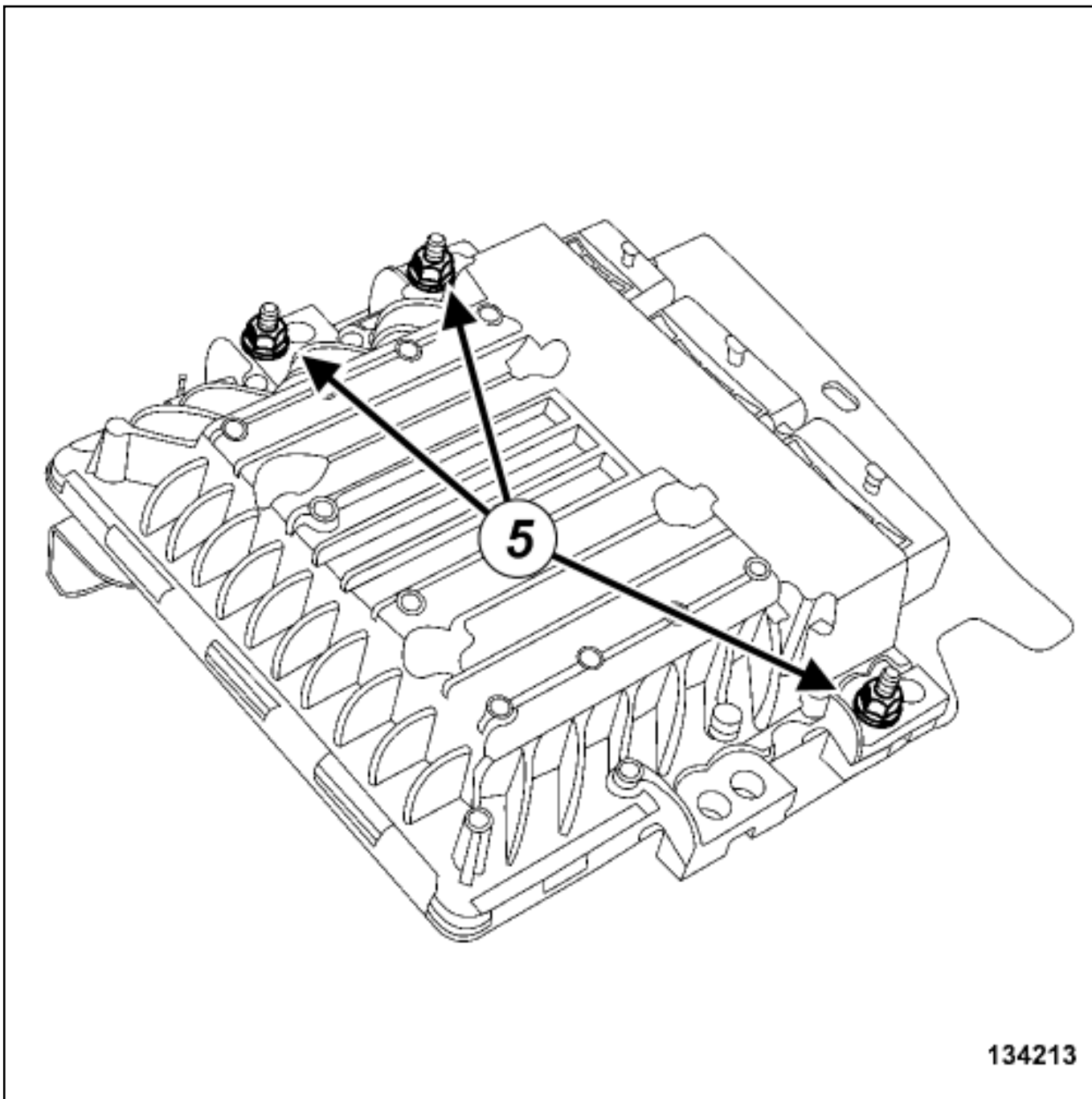
Remove:

- the diesel injection computer mounting bolts(3) ,

the diesel injection computer mounting with the diesel injection computer.



Disconnect the connectors(4) from the diesel injection computer.



134213

Remove:

- the diesel injection computer nuts(5) ,
- the diesel injection computer.

When replacing, apply the after repair procedure using the Diagnostic tool:

-
- select the "injection computer",
- go to repair mode,
- display the "Before/After repair procedure" for the computer selected,
- select "injection computer" in the "List of components controlled by this computer" section,
- carry out the operations described in the "After repair procedure" section.

Proceed in the reverse order to removal.



Repair-11x05x05-01x37-1-54-1.xml



DIESEL INJECTOR FUEL RETURN RAIL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 13B, Diesel injection, Injection assembly: Exploded view](#)).



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - (see [Diesel injection: Precautions for the repair](#)),
 - [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

- Use the diagnostic tool before any operation is carried out on the injection circuit to check:
 - that the rail is not under pressure,
 - that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).

■ Remove:

- the injector rail protector ([see 13B, Diesel injection, Injector rail protector: Removal - Refitting](#)),
- the oil decanter [Engine oil circuit assembly: Exploded view](#).

2. REMOVAL OPERATION

■ Move without removing the clip between the fuel return rail and the injectors using a flat screwdriver ([see 13B, Diesel injection, Injection assembly: Exploded view](#)).

■ Disconnect the diesel injector fuel return rail unions ([see 13B, Diesel injection, Injection assembly: Exploded view](#)).

■ Insert blanking plugs.

■ Disconnect the fuel return rail unions from ([see 13B, Diesel injection, Injection assembly: Exploded view](#)):

- the diesel return pipe,

■ the injector rail,

the high pressure pump.

■

Disconnect the fuel temperature sensor connector.

■

Insert blanking plugs.

■

Unclip the diesel injector fuel return rail.

■

Remove the diesel injector fuel return rail ([see 13B, Diesel injection, Injection assembly: Exploded view](#)).

REFITTING

1. REFITTING PREPARATION OPERATION



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

2. REFITTING OPERATION



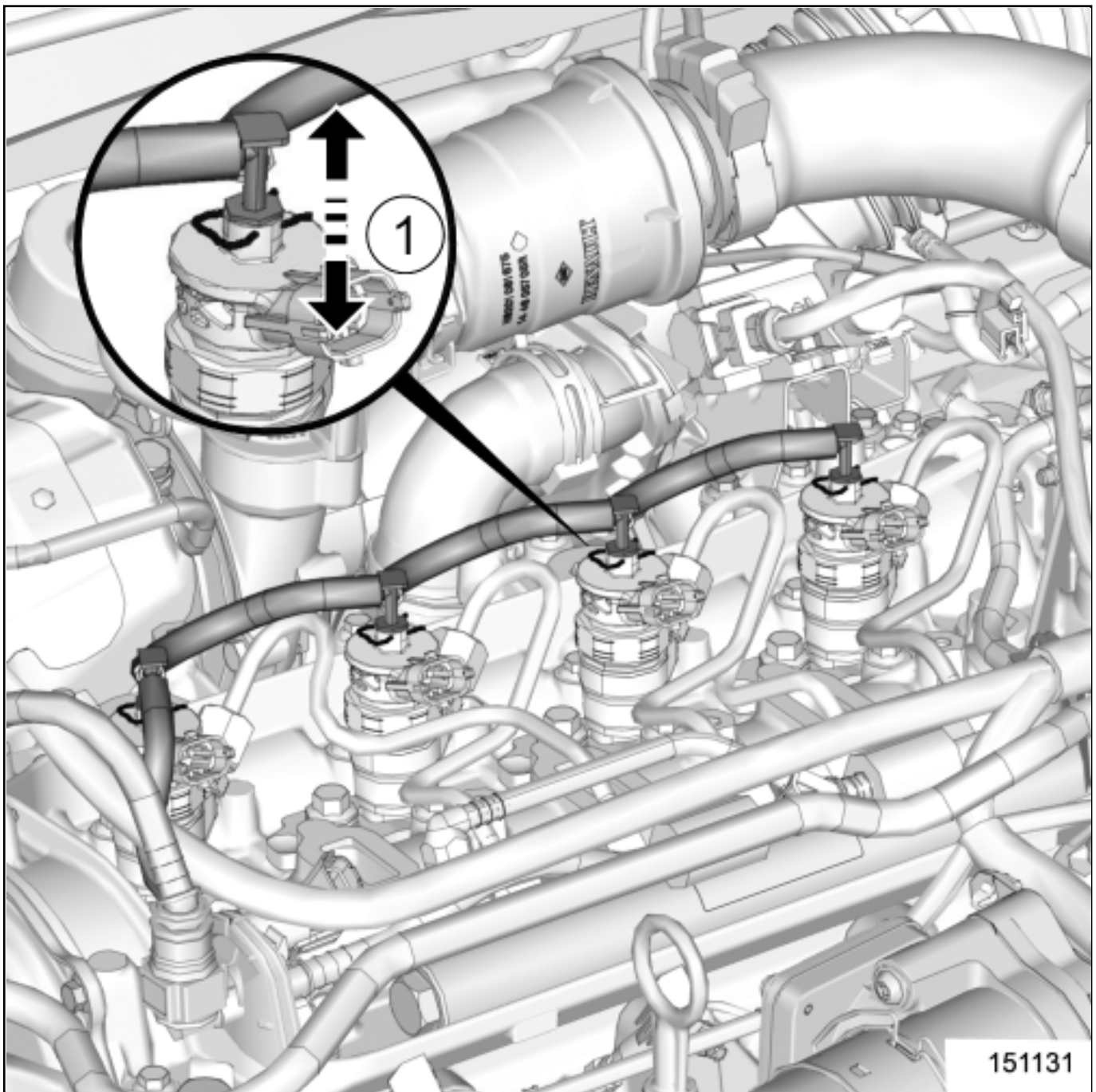
Remove the blanking plugs.



Fit the clip on the diesel injector fuel return rail.



Clip on the diesel injector fuel return rail on the injector rail([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .



Note:

Failure to observe the following procedure may lead to an immobilising fault.

■

Always carry out a "push-pull" test(1) , to check that the diesel injector fuel return rail is correctly fitted.

■

Clip on the diesel injector fuel return rail.

Connect the fuel return rail unions to [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) :

- - the diesel return pipe,
 - the injector rail,
 - the high pressure pump.

Check that the seals of the injector rail protector is in position.

Proceed in the reverse order to removal.



[Repair-11x05x02-01x37-1-50-1.xml](#)



DIESEL INJECTOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Injector well cleaning kit

Mot. 1817

Equipment required

Diagnostic tool

indelible pencil



parts always to be replaced:



injector seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) .



WARNING

▣ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see **Diesel injection: Precautions for the repair**) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

WARNING



- Use the diagnostic tool before any operation is carried out on the injection circuit to check:
 - that the rail is not under pressure,
 - that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.



Note:

The high pressure pipe of cylinder no. 2 must be removed in order to remove the high pressure pipe of cylinder no. 1.

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Disconnect the battery [Battery: Removal - Refitting](#) .

■ Remove:

- the injector rail protector ([see 13B, Diesel injection, Injector rail protector: Removal - Refitting](#)) ,
- the oil decanter [Engine oil circuit assembly: Exploded view](#) ,
- the diesel injector fuel return rail ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .

■ Remove the high pressure pipe between the rail and the injector ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) :

- no. 1 for the injector no. 1,
- no. 1 and no. 2 for the injector no. 2,
- no. 1 ,no. 2 and no. 3 for the injector no. 3,
- no. 3 and no. 4 for the injector no. 4.



CAUTION

Always hold the intermediate injector union in place with a wrench when loosening the high pressure pipes.

Do not damage the injector return nozzle.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.

- Fit blanking plugs.

2. REMOVAL OPERATION

- Mark the injectors in relation to the cylinders using an indelible pencil.



Note:

Cylinder number 1 is located on the timing end.

- Remove ([see 13B, Diesel injection, Injection assembly: Exploded view](#)):
 - the diesel injector clamp bolts,
 - the diesel injector clamp.



Note:

Mark the position of the diesel injector clamp for refitting.

- Remove ([see 13B, Diesel injection, Injection assembly: Exploded view](#)):
 - the diesel injector,
 - the heat protection washer.

Note:



If the compression washer is stuck at the bottom of the well, use the tool Injector well cleaning kit (Mot. 1817) ([see 13B, Diesel injection, Injector well cleaning tool: Use](#)) (Technical Note 6040A, 13B, Diesel injection).

REFITTING

1. REFITTING PREPARATION OPERATION


CAUTION



- It is strictly forbidden to clean the injectors with:
 - a wire brush,
 - an emery cloth,
 - an ultrasonic cleaner.

■ Always clean the well of the removed injector ([see 13B, Diesel injection, Injector well cleaning tool: Use](#)) (Technical Note 6040, 13B, Diesel injection).

- If reusing the removed injector:
 - clean the injector using a cloth soaked in injector cleaner or brake cleaner,
 - if necessary, leave the injector nozzle to soak in injector cleaner,
 - wipe the injector with a new wipe,
 - [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) and (see **Diesel injection: Precautions for the repair**).

■ parts always to be replaced:  [injector seal](#) .

2. REFITTING OPERATION

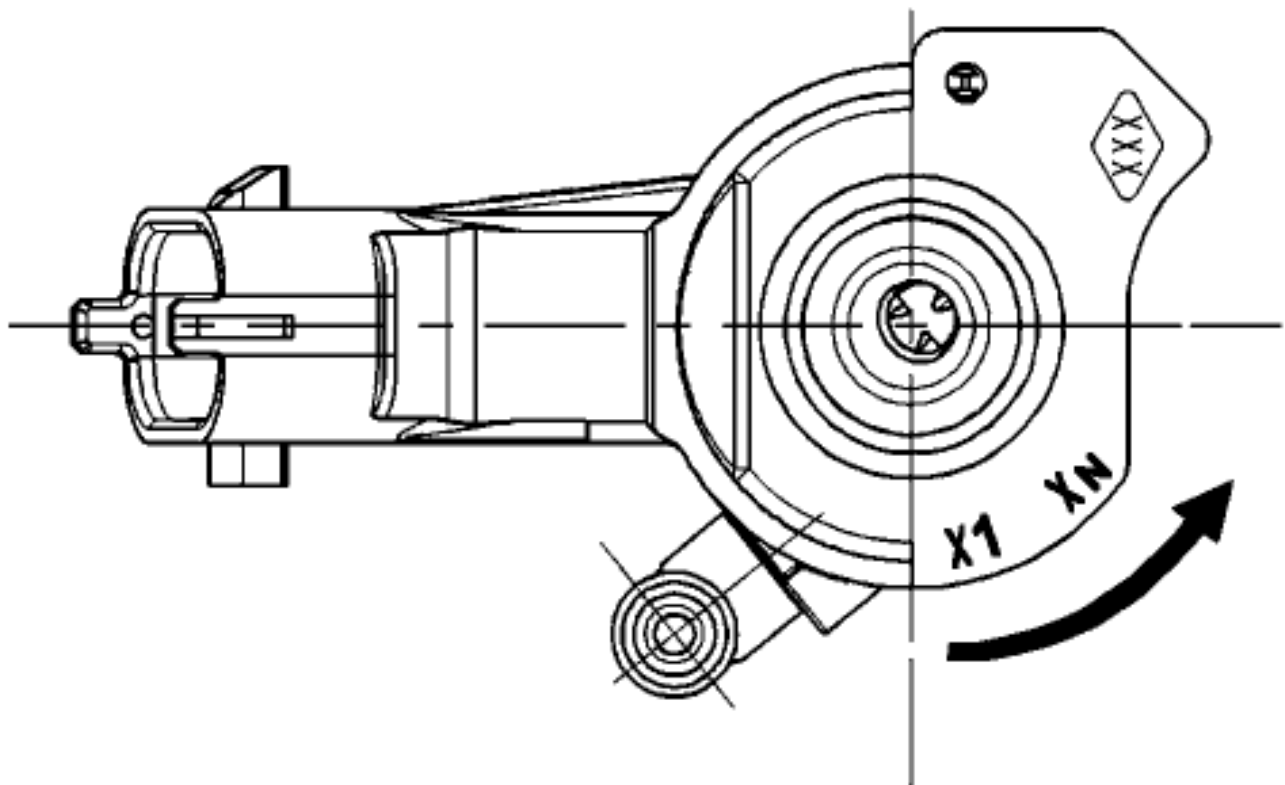
CAUTION



Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

- Fit a new compression washer on every diesel injector.
- Refit ([see 13B, Diesel injection, Injection assembly: Exploded view](#)):
 - the "injector - compression washer" assemblies according to the marks made during removal,
 - the diesel injector clamps,
 - the diesel injector clamp bolts.
- Torque tighten the diesel injector clamp bolts([see 13B, Diesel injection, Injection assembly: Exploded view](#)).



125085

- If an injector is replaced, note the injector IMA code and the corresponding cylinder number.

Note:



IMA codes are from X1 to XN.

After connecting the battery, program the injectors using the Diagnostic tool.

- Refit new high pressure pipes between the rail and the injector(see [13B, Diesel injection, Injection](#)

- When replacing, apply the after repair procedure using the Diagnostic tool:
 - select the "injection computer",
 - go to repair mode,
 - display the "Before/After repair procedure" for the computer selected,
 - select "injector" in the "List of components controlled by this computer" section,
 - carry out the operations described in the "After repair procedure" section.



Proceed in the reverse order to removal.



Using the Diagnostic tool, SIE



Repair-11x05x06-01x37-1-106-1.xml



DIFFERENTIAL OUTPUT SEAL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Tool for fitting the left-hand side differential outlet seal	Bvi. 1719
Tool for fitting the right-hand driveshaft seal.	Bvi. 1774



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [Driveshaft assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Remove the engine undertray.
- Drain the manual gearbox oil ([see 21A, Manual gearbox , Manual gearbox oils: Draining - Filling](#)) .

1- RIGHT-HAND DIFFERENTIAL OUTPUT SEAL

- Remove:
 - the front right-hand wheel [Wheel: Removal - Refitting](#) (35A, Wheels and tyres),
 - the front right-hand wheel driveshaft [Driveshaft assembly: Exploded view](#) .

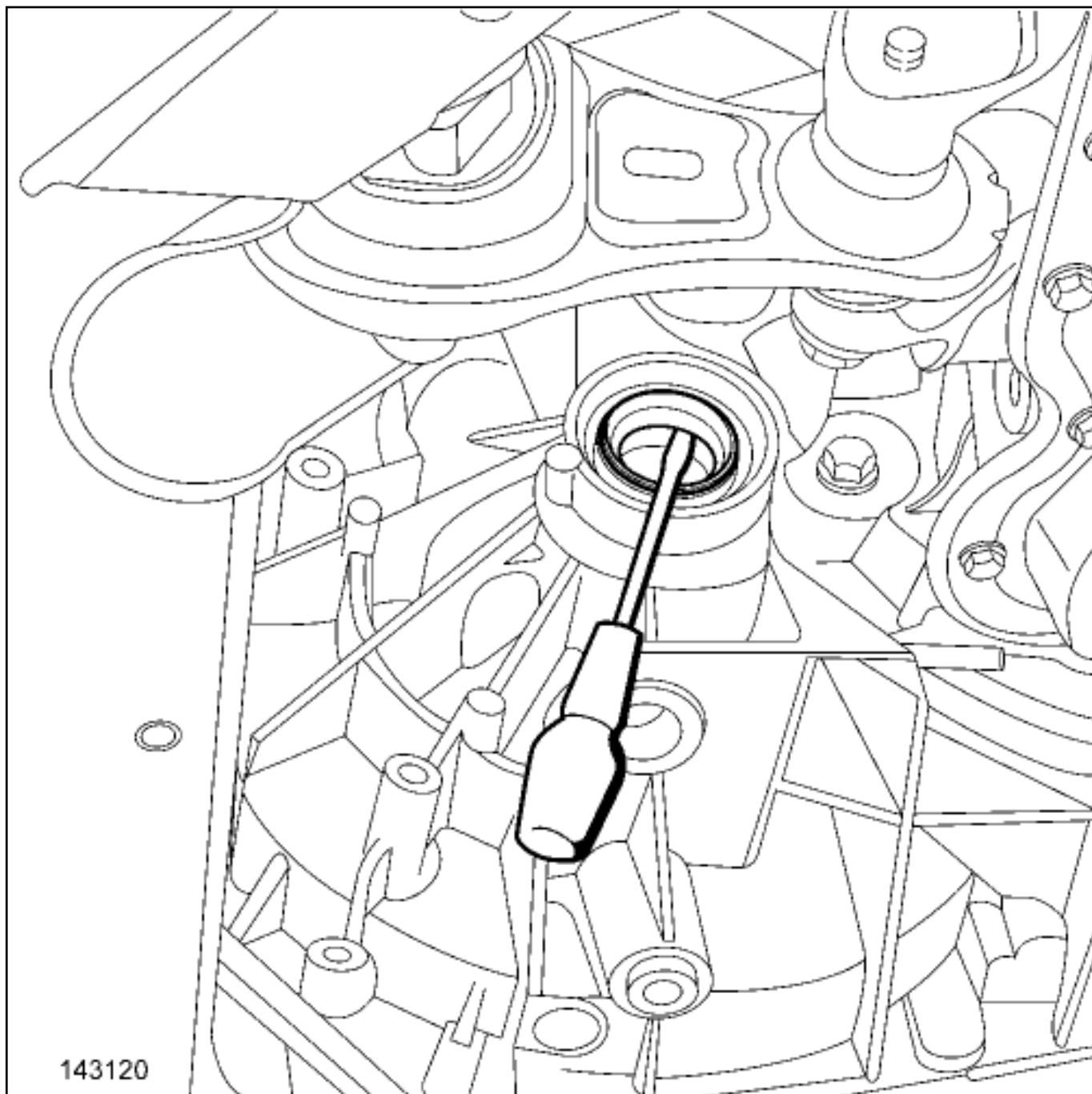
2- LEFT-HAND DIFFERENTIAL OUTPUT SEAL

- Remove:
 - the front left-hand wheel [Wheel: Removal - Refitting](#) (35A, Wheels and tyres),

- the front left-hand driveshaft [Driveshaft assembly: Exploded view](#) .

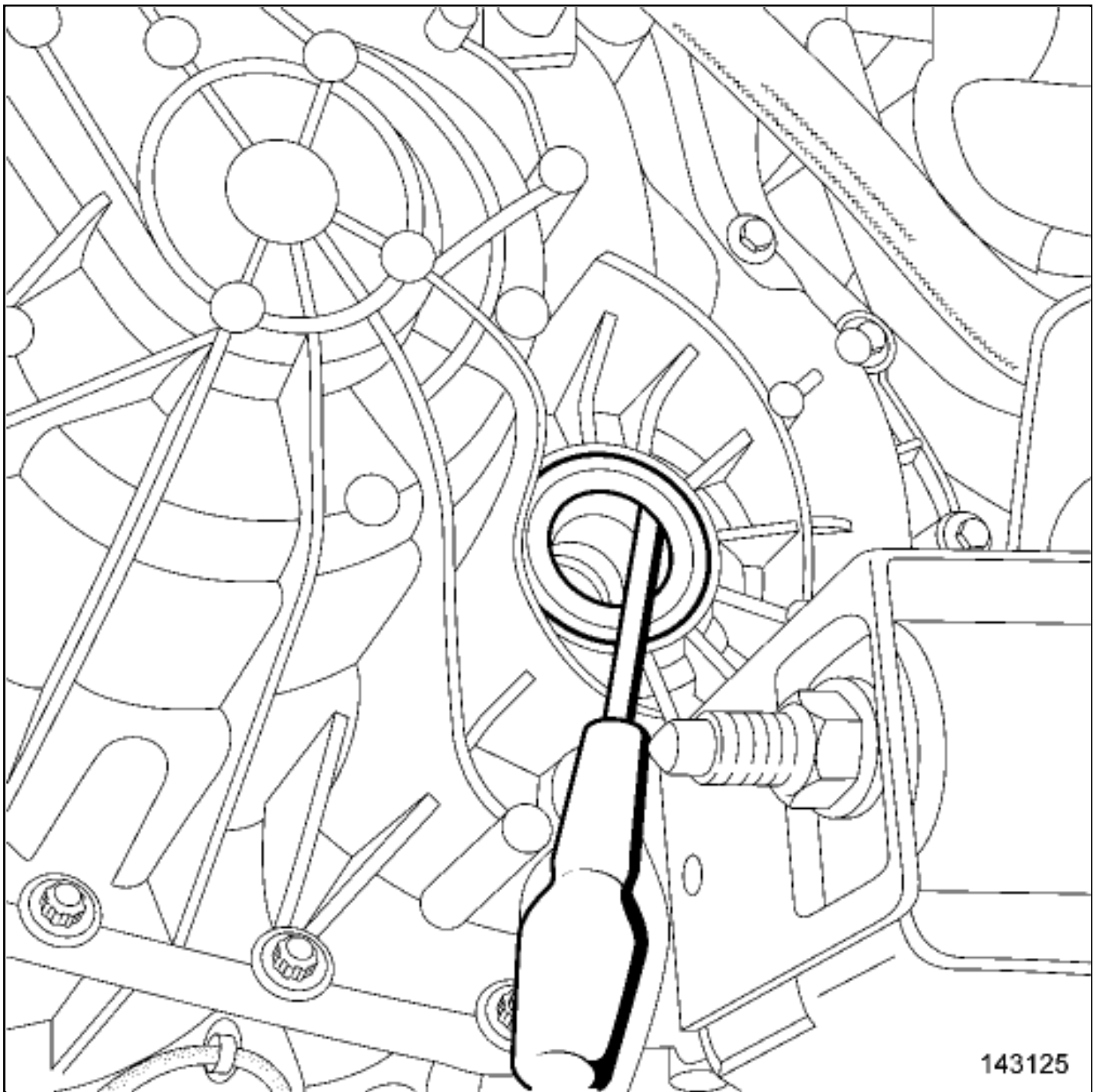
2. REMOVAL OPERATION

1- RIGHT-HAND DIFFERENTIAL OUTPUT SEAL



- Remove the right-hand differential output seal [Driveshaft assembly: Exploded view](#) using a screwdriver.

2- LEFT-HAND DIFFERENTIAL OUTPUT SEAL



143125

- Remove the left-hand differential output seal [Driveshaft assembly: Exploded view](#) using a screwdriver.

REFITTING

1. REFITTING PREPARATION OPERATION



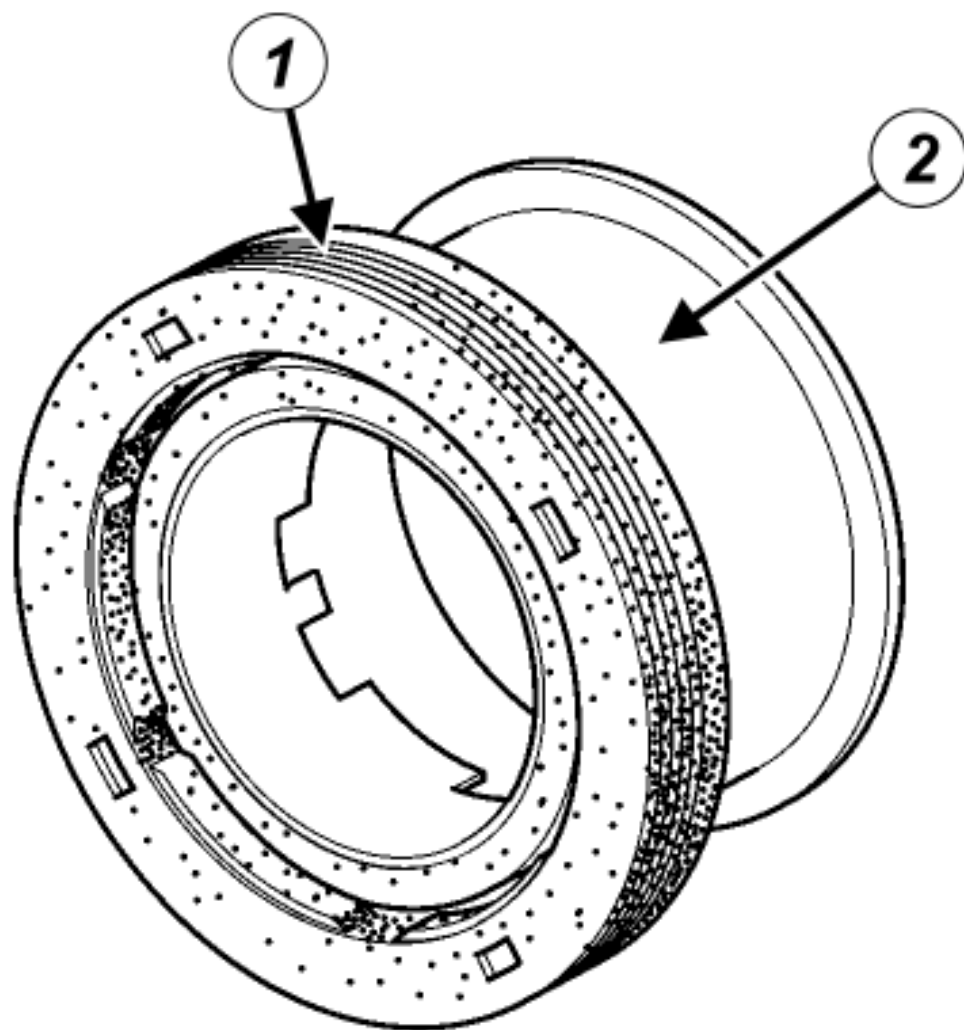
WARNING

Check the condition of the differential output seal mating face. Clean using surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) if impurities are found.

- ❑ Use surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean the driveshaft.

2. REFITTING OPERATION

1- RIGHT-HAND DIFFERENTIAL OUTPUT SEAL



21491

Note:

The right-hand side differential output seal is made up of:

- a seal(1) ,
- a protective deflector(2) .



The seal can be separated from the protective deflector.

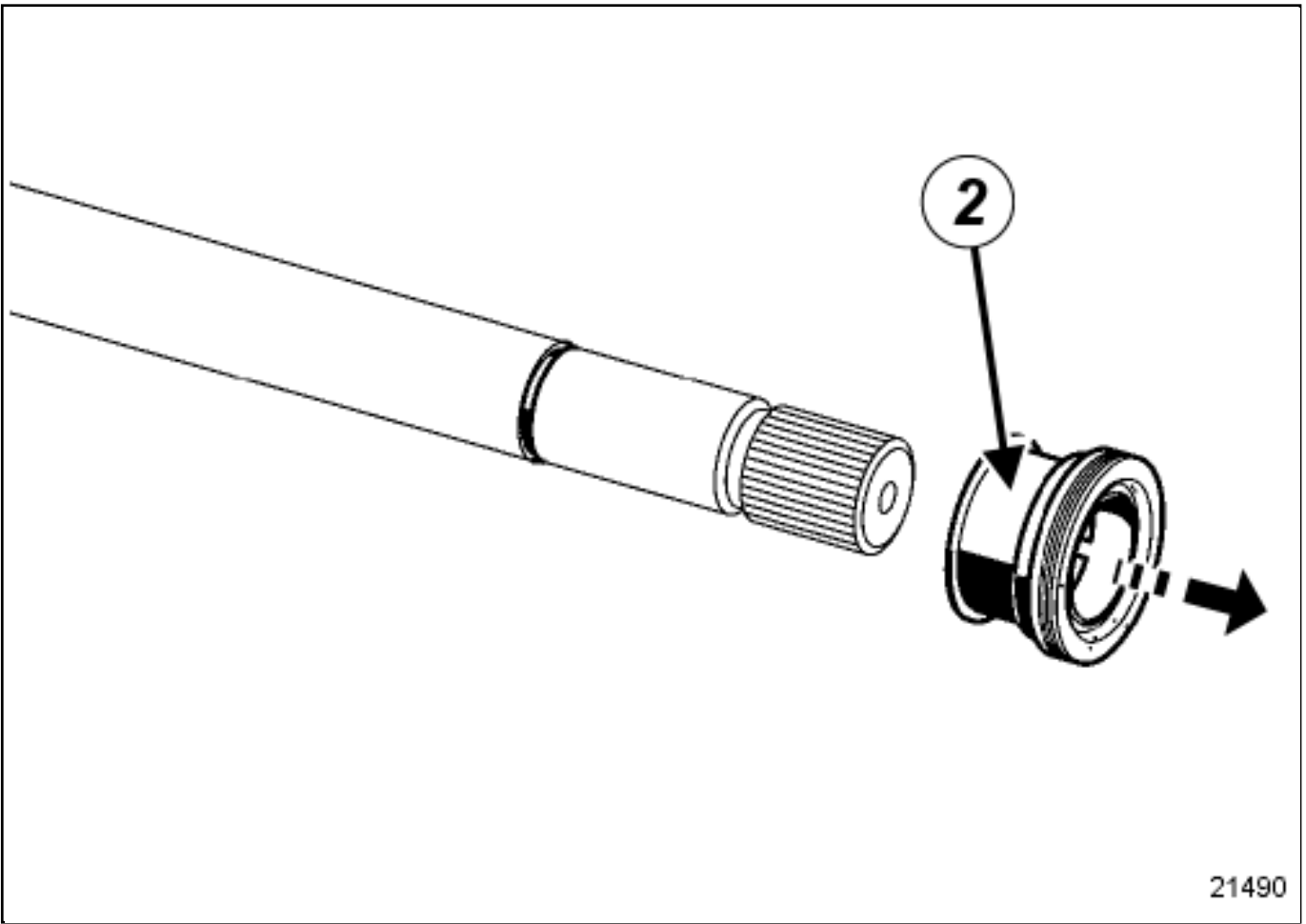
When the seal is pressed onto the protective deflector, the seal lips rest on the protective deflector.

In this position the seal lips do not touch the driveshaft and a correct seal cannot be guaranteed.

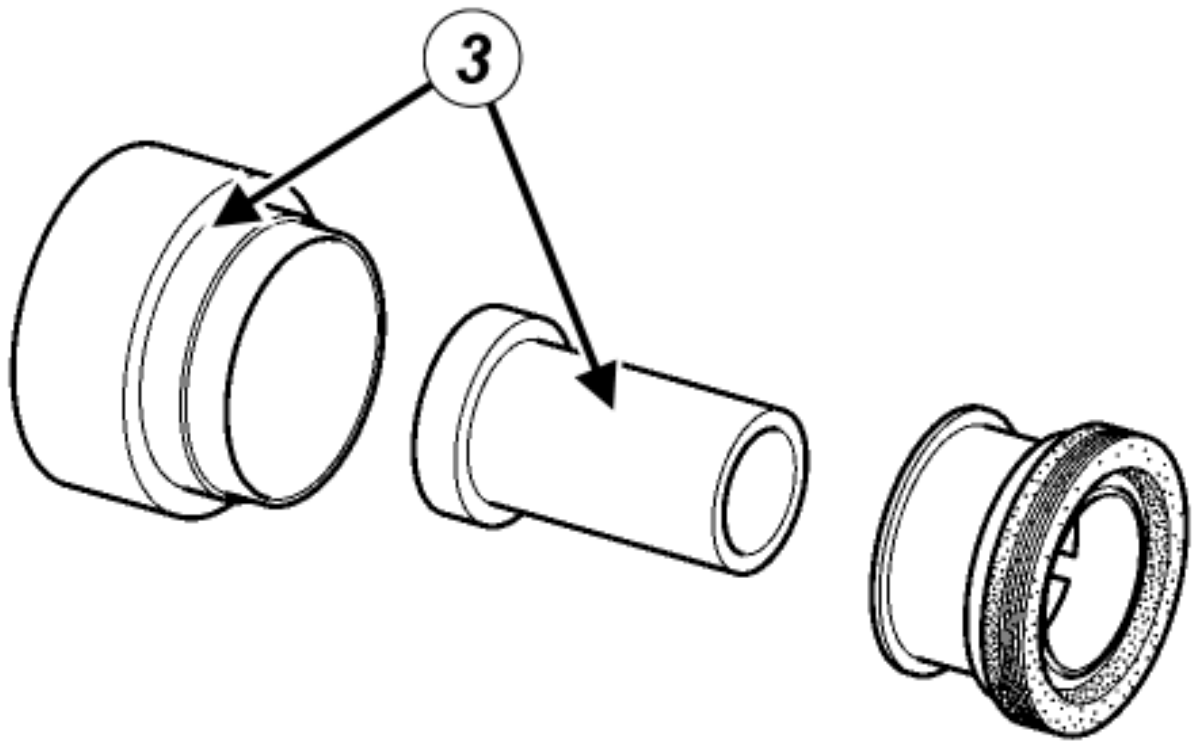


CAUTION

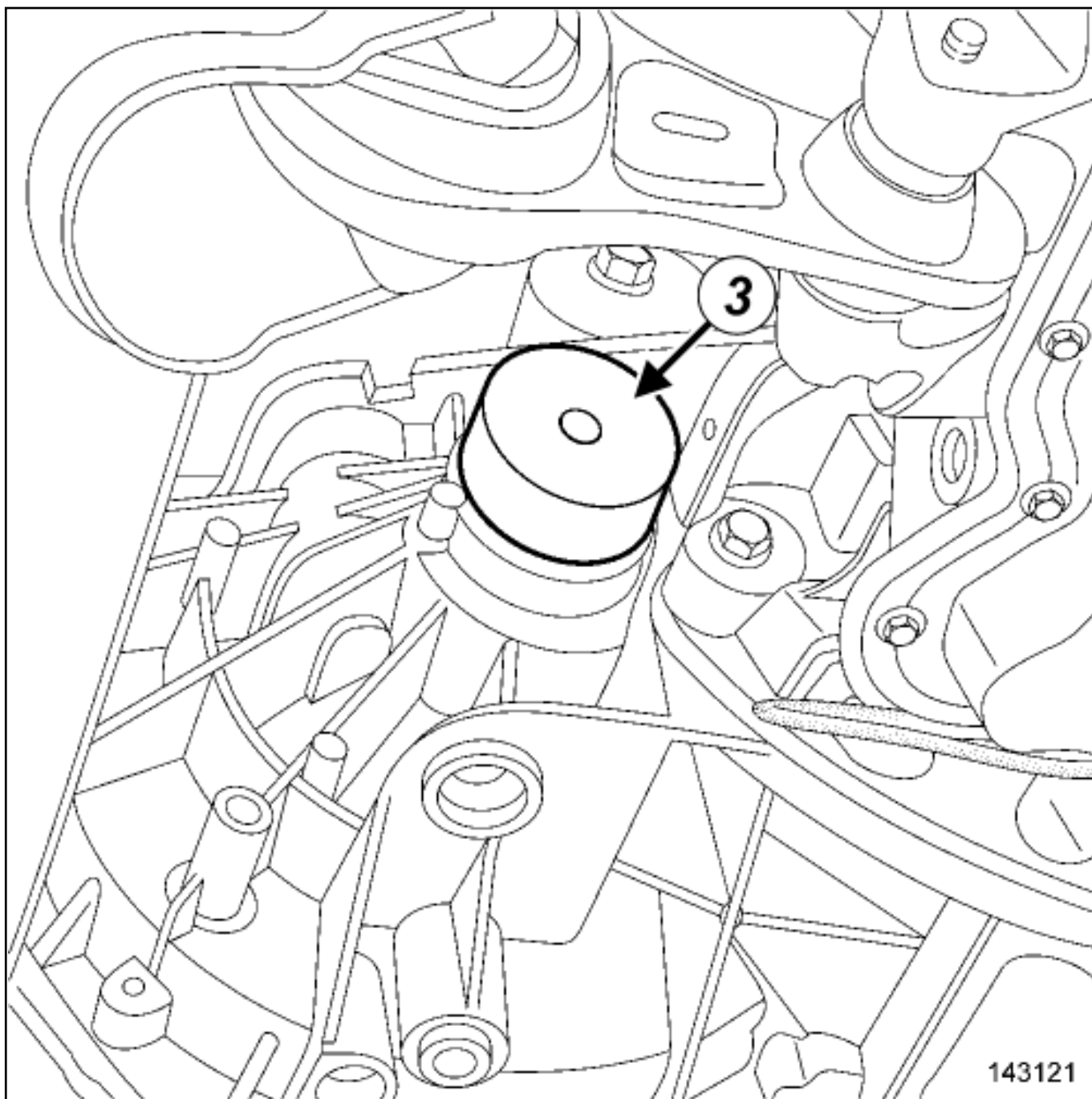
Always replace the differential output seal after removing the driveshaft.



Remove the protective ring(2) on the driveshaft.



21492



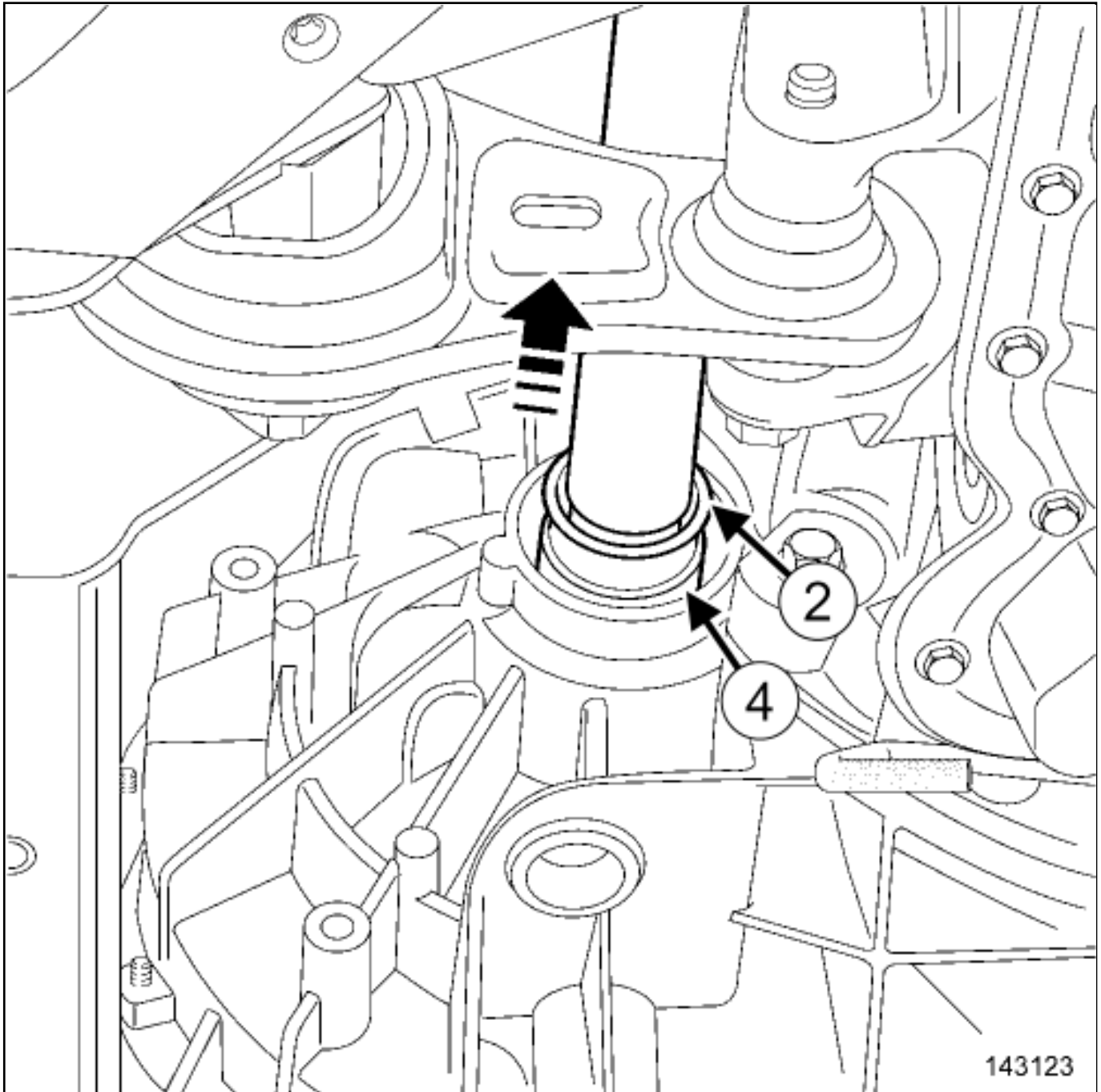
Fit the new seal (seal pressed onto the protective deflector) using the Tool for fitting the right-hand driveshaft seal. (Bvi. 1774) (3) .

CAUTION



Do not lubricate the seal when fitting it.

With the new seal fitted, leave the protective deflector pressed into the seal. The protective deflector protects the seal lips when the driveshaft is refitted.



Refit the front right-hand driveshaft [Driveshaft assembly: Exploded view](#) .

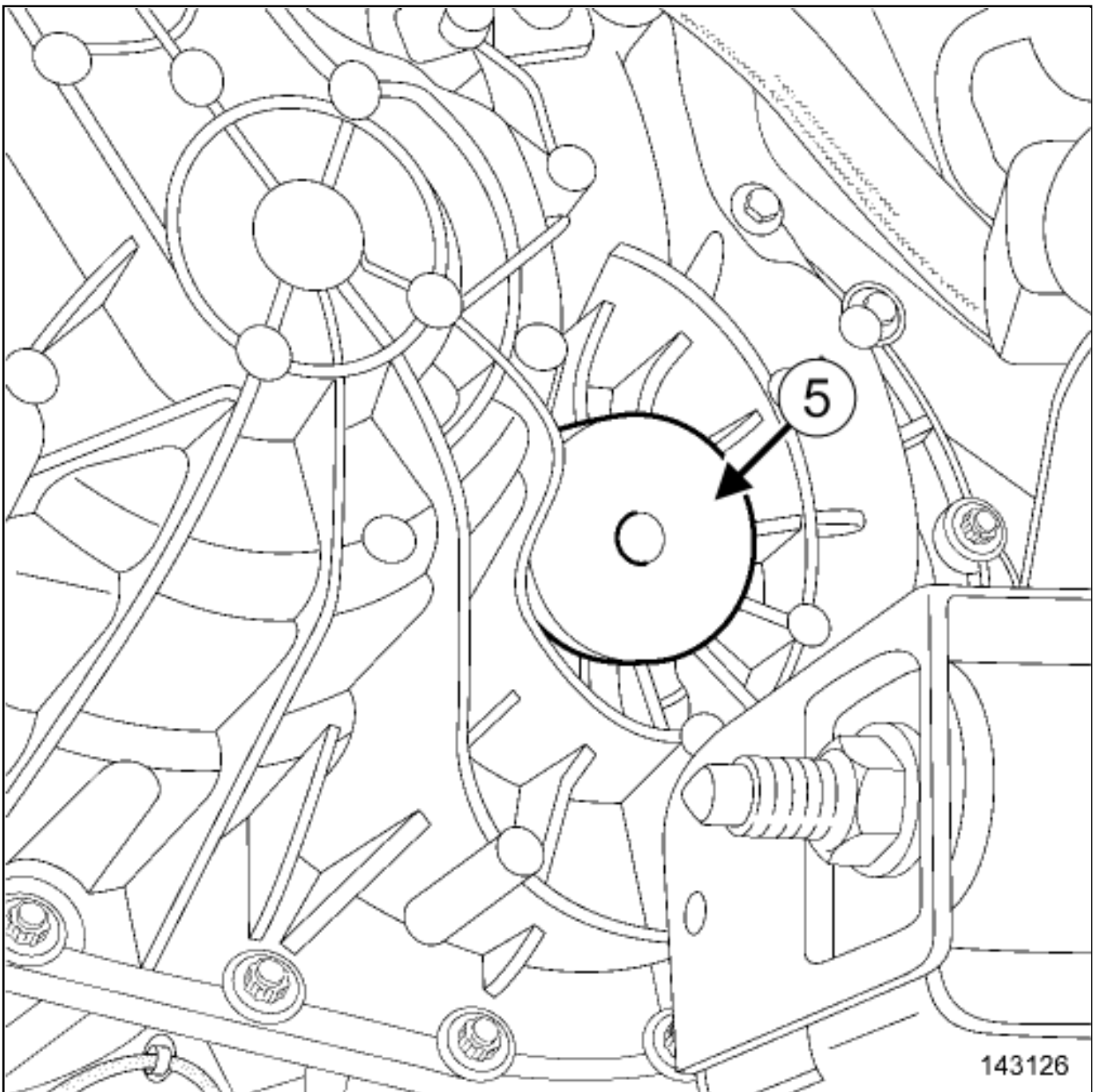
Refit the seal lips to the driveshaft(4) by pulling the protective deflector(2) .



CAUTION

If the protective deflector is not pulled, the seal lips do not make contact with the driveshaft and a correct seal cannot be guaranteed.

2- LEFT-HAND DIFFERENTIAL OUTPUT SEAL



143126



Refit the new left-hand side differential output seal using the tool Tool for fitting the left-hand side differential outlet seal ([Bvi. 1719](#)) (5) .

3. FINAL OPERATION



Proceed in the reverse order to removal.



Fill up the manual gearbox([see 21A, Manual gearbox , Manual gearbox oils: Draining - Filling](#)) .



Repair-12x01x05x10-01x37-1-49-1.xml



XSL version : 3.02 du 22/07/11

DISTRIBUTION UNIT: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Pipe clamps.

Ms. 583

Equipment required

refrigerant charging station



parts always to be replaced:



heater matrix coolant pipe seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [Air conditioning: Precautions for the repair](#) ,
- [Vehicle: Precautions for the repair](#) .

Locations and specifications (tightening torques, parts to always be replaced, etc.) [\(see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION



Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).

Drain the refrigerant circuit using the refrigerant charging station [Refrigerant circuit: Draining - Filling](#) .

Remove the bolts from the expansion valve connecting pipe bracket [Passenger compartment cooling assembly: Exploded view](#) .



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

Uncouple the connecting pipes from the expansion valve.

Move the connecting pipes away from the expansion valve.

Insert the blanking plugs.

Remove the air outlet pipe from the air filter unit [Air inlet assembly: Exploded view](#) .

Fit the Pipe clamps.([Ms. 583](#)) , in the engine compartment, on the heater matrix hoses.

Disconnect the heater matrix hoses [Coolant circuit assembly: Exploded view](#) .

Remove:



the dashboard(see [Dashboard assembly: Exploded view](#)) ,



- the gear control unit [Gear control unit: Removal - Refitting](#) ,
- the steering column [Steering column: Removal - Refitting](#) ,
- the dashboard wiring [Passenger compartment wiring: Removal - Refitting](#) ,
- the dashboard cross member bolts,
- the dashboard cross member,
- the front side air distribution ducts [\(see 61A. Heating. Air distribution circuit assembly: Exploded view\)](#) .

Put a protective cover on the floor carpet.

2. REMOVAL OPERATION

Disconnect the supply connector from the distribution unit.

Remove the distribution unit.

Remove the following components from the distribution unit:

-
- the air distribution cable,
- the air mixing cable,
- the cabin filter,
- the expansion valve,
- the recirculation motor,

- the air recirculation control cable,
- the fan assembly,
- the fan assembly control unit,
- the heater matrix,

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:  heater matrix coolant pipe seal .



CAUTION

To avoid any leaks, check that the pipe surface is sound before positioning the new seal. The surface must be clean and scratch free.



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.



CAUTION

To avoid any leaks, check that the seal and the pipe surface are in good condition. The seal and the surface must be clean and scratch free.

Clean the seals of the refrigerant circuit pipes [Refrigerant circuit pipe seal: Cleaning](#) .

2. REFITTING OPERATION

Proceed in the reverse order to removal.

Torque tighten the dashboard cross member bolts 21 N.m.

3. FINAL OPERATION

Fill up and bleed the cooling system [Cooling system: Draining - Refilling](#) .

Check the cooling circuit [Engine cooling system: Check](#) .

Consult the refrigerant and oil quantity values before filling the circuit [Air conditioning: Parts and consumables for the repair](#) .

Perform the following operations:

- fill the refrigerant circuit using the refrigerant charging station [Refrigerant circuit: Draining - Filling](#) ,

- check for leaks [Refrigerant circuit: Check](#) .

Check that the air conditioning system is operating correctly [Air conditioning: Check](#) .



Repair-30x02x01x02-01x37-1-51-1.xml



XSL version : 3.02 du 22/07/11

DOOR MIRROR CASING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior front side opening element assembly: Exploded view](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION



Remove the door mirror glass [Exterior front side opening element assembly: Exploded view](#) .

2. REMOVAL OPERATION



Unclip [Exterior front side opening element assembly: Exploded view](#) :

-
- the door mirror upper casing,
- the door mirror lower casing.

REFITTING



Proceed in the reverse order to removal.



DOOR MIRROR GLASS: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Set of trim removal levers.

Car. 1363

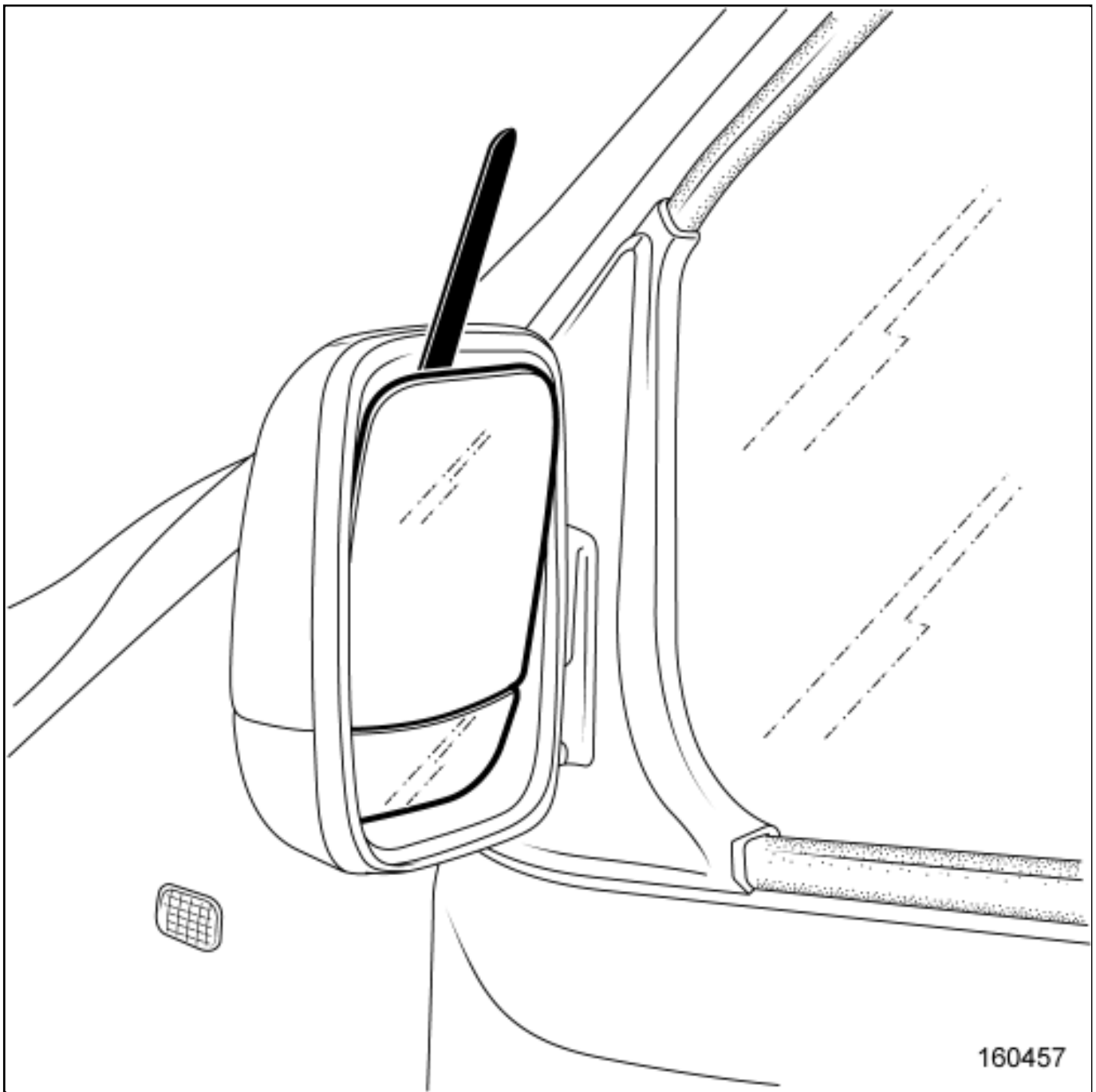


WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

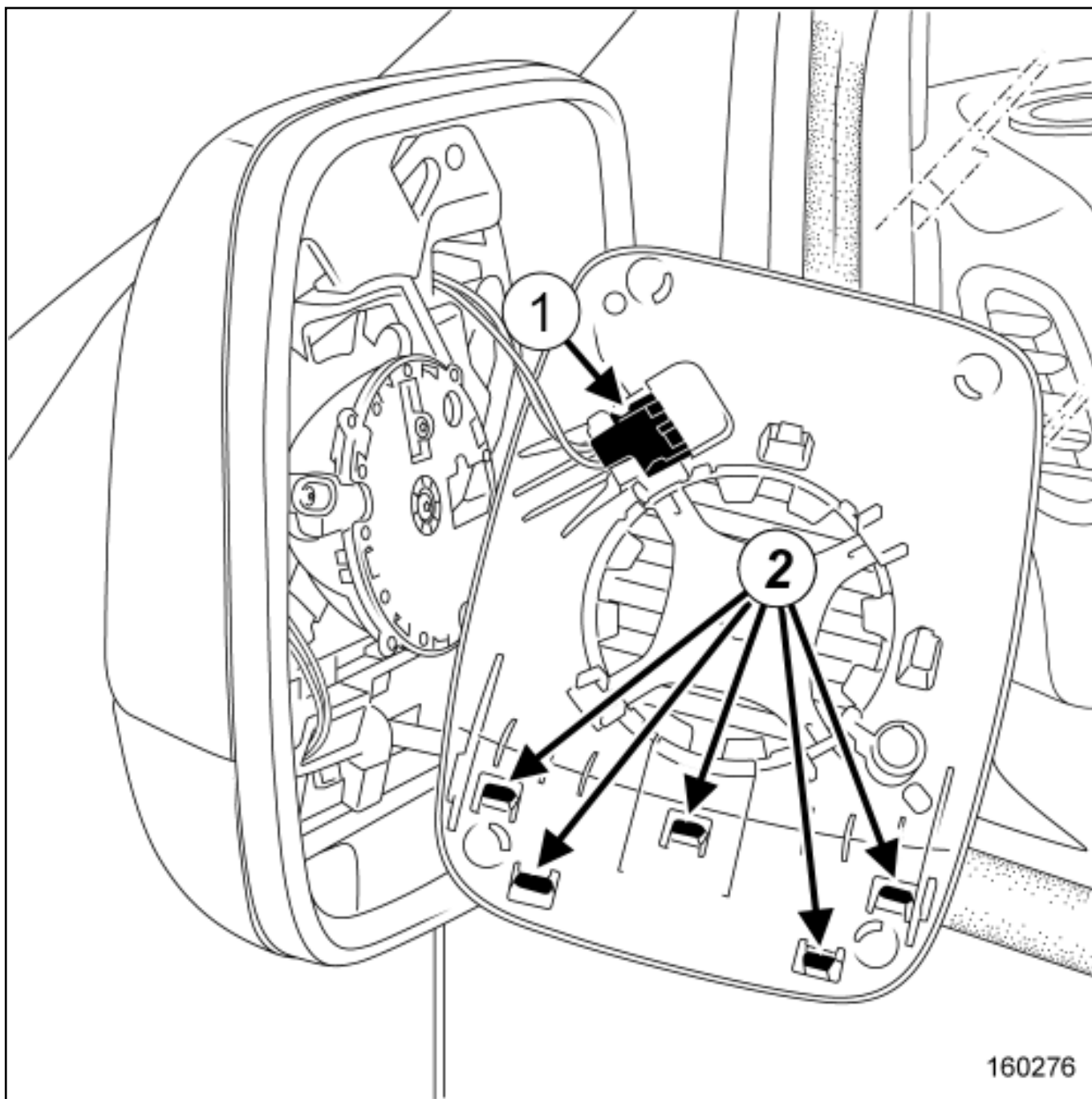
REMOVAL

1. REMOVAL OPERATION



■ Protect the edge of the rear-view mirror (masking tape).

■ Use the Set of trim removal levers.([Car. 1363](#)) as a lever to unclip the glass.



- Disconnect the connector(1) (depending on equipment level).

- Unclip the door mirror lower glass clips(2) .

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Carry out a function test.



Repair-50x07x08x08-01x37-1-25-1.xml



XSL version : 3.02 du 22/07/11

DOOR MIRROR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.)[Exterior front side opening element assembly: Exploded view](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

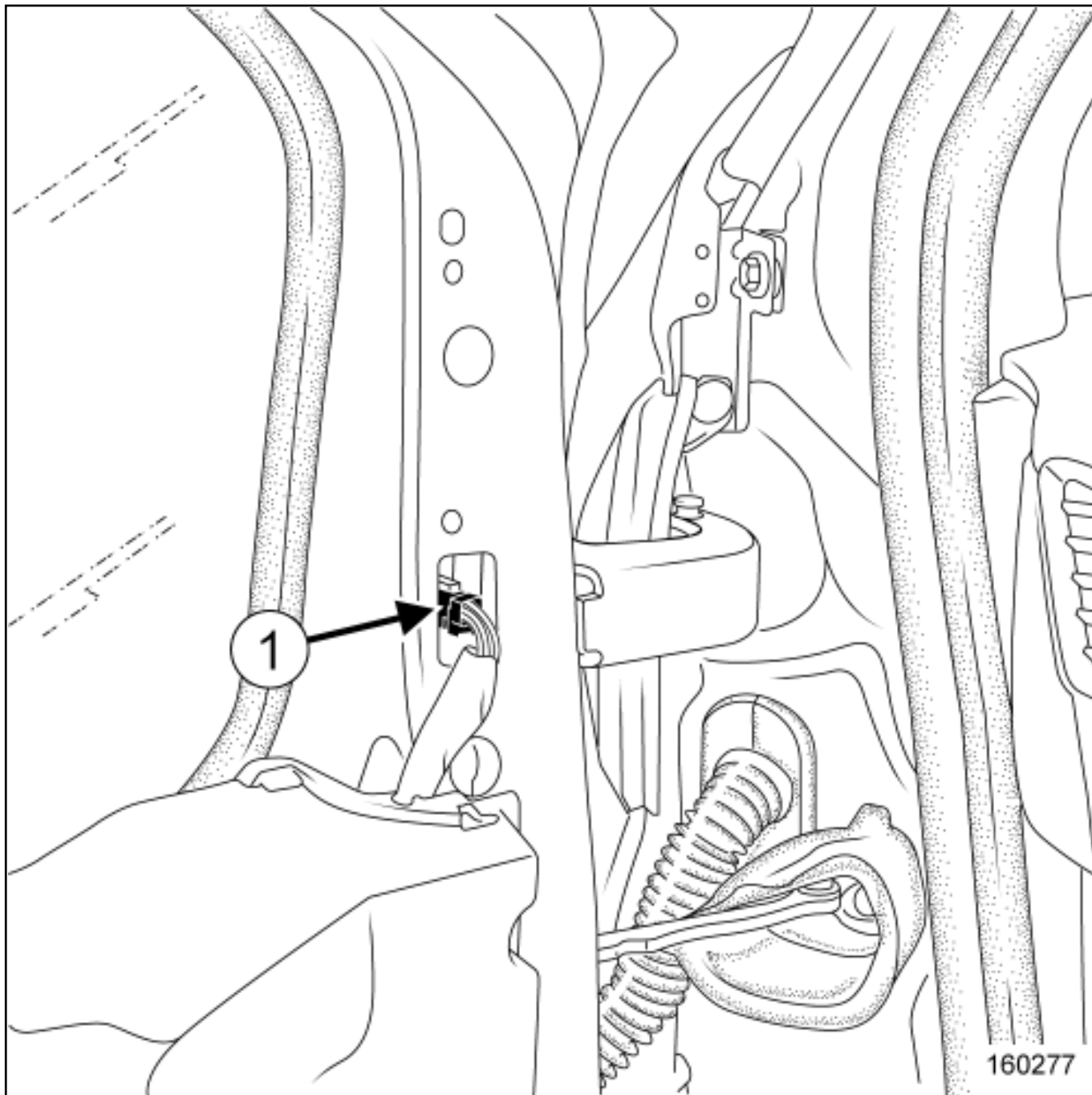
REMOVAL

1. REMOVAL PREPARATION OPERATION



Remove the door mirror interior trim [Front side opening element assembly on the passenger compartment side: Exploded view](#) .

2. REMOVAL OPERATION



Disconnect the connector(1) (depending on equipment level).

Remove [Exterior front side opening element assembly: Exploded view](#) :

-
- the door mirror nuts,
-
- the door mirror.



Proceed in the reverse order to removal.



Repair-50x07x08x02-01x37-1-33-1.xml



XSL version : 3.02 du 22/07/11

DRIVER'S FRONTAL AIRBAG: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

■ [\(see 88C, Airbags and pretensioners, Airbag and pretensioners: Precautions for the repair\)](#),

■ [Vehicle: Precautions for the repair](#) .

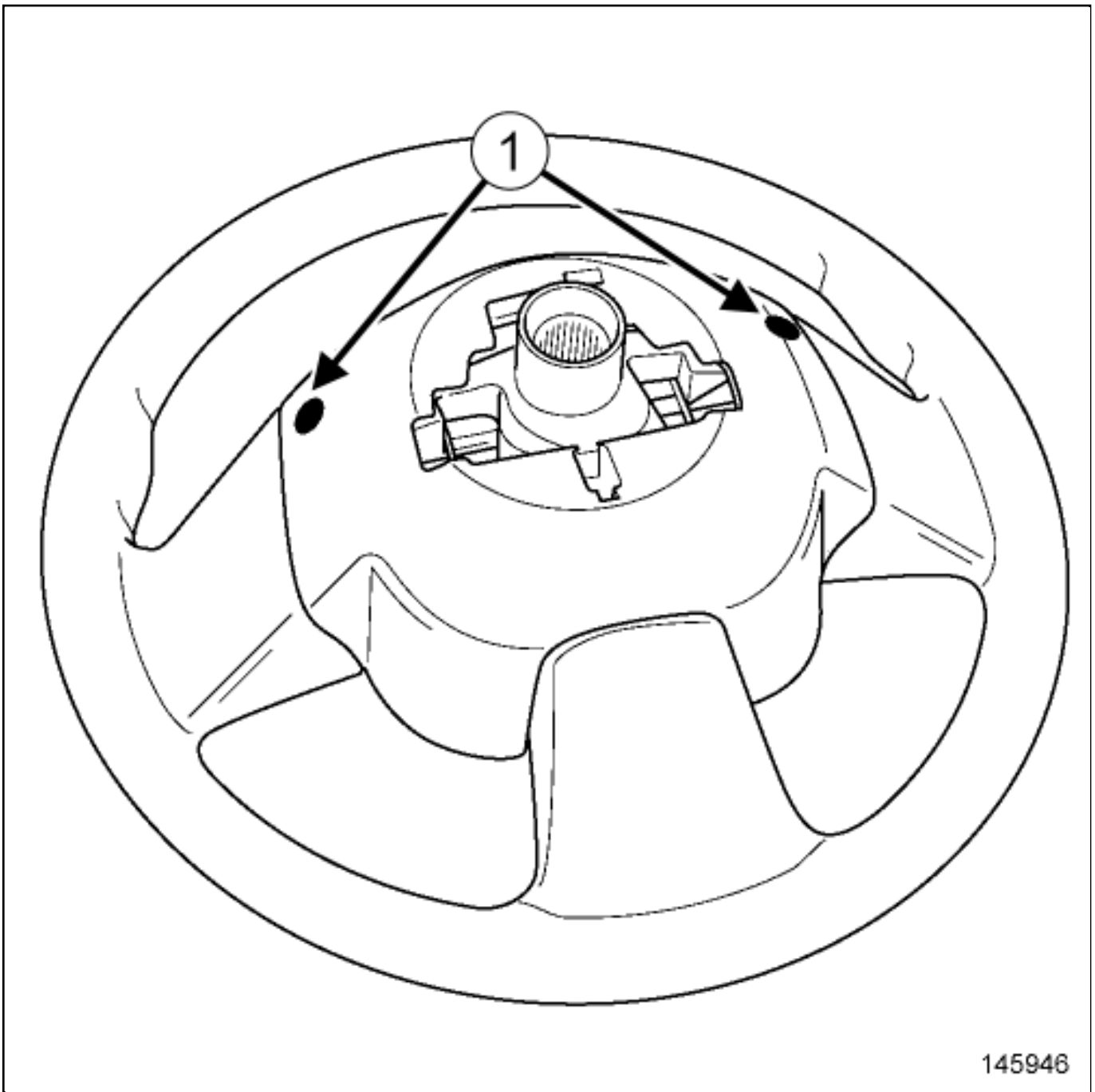
REMOVAL

1. REMOVAL PREPARATION OPERATION



Apply the procedure for deactivating the safety systems ([see 88C, Airbags and pretensioners, Airbag and pretensioners: Precautions for the repair](#)) .

2. REMOVAL OPERATION

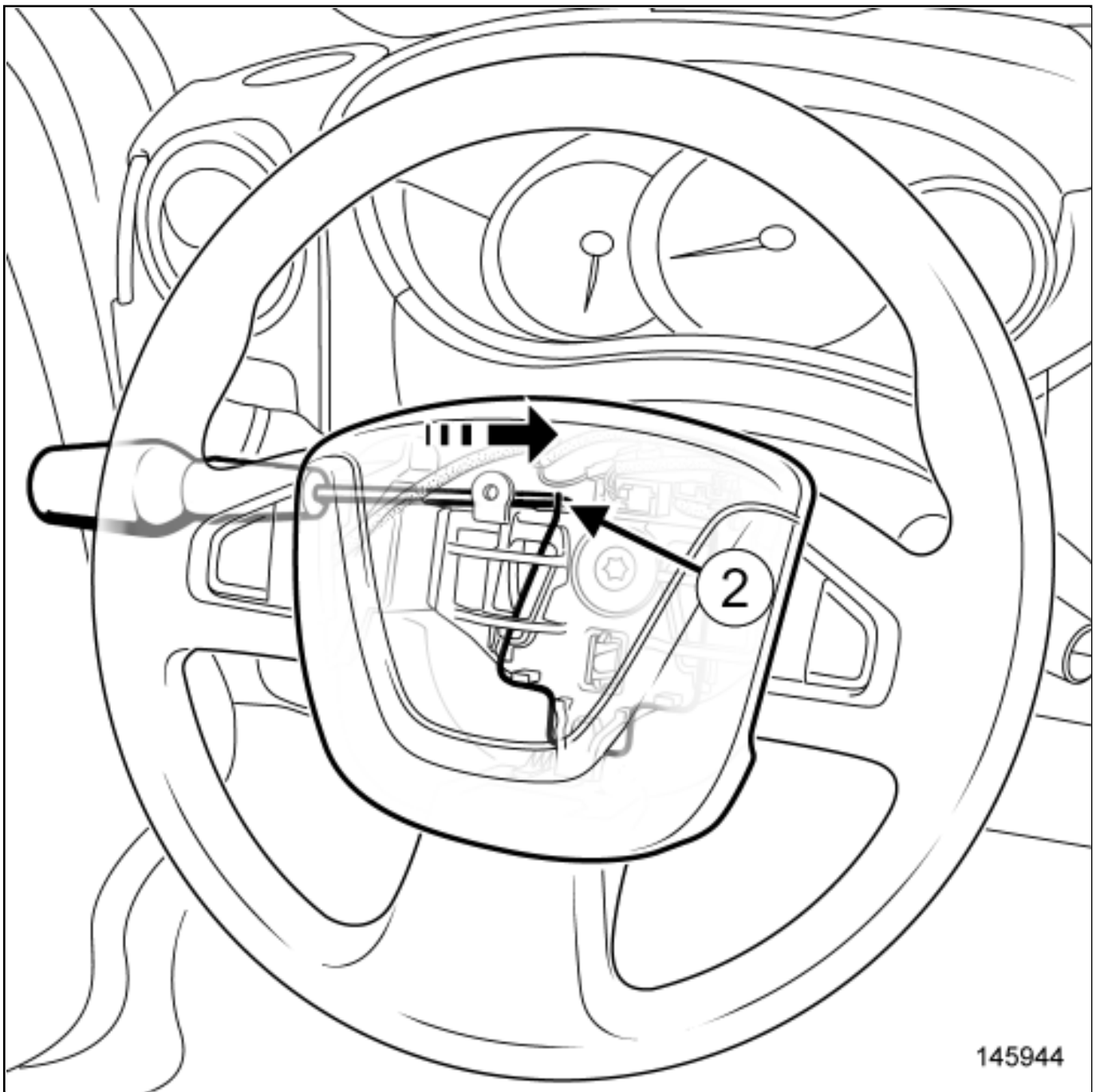


Insert a flat-blade screwdriver into one of the openings(1) .



Note:

Use a screwdriver with a diameter equal to that of the hole.



145944

Unclip the clip(2) by pushing the screwdriver, while pulling on the driver's frontal airbag.

Proceed in the same manner to unclip the other side of the airbag.

Unlock the connector(s) of the driver's frontal airbag.

Disconnect the connector(s).

REFITTING

1. REFITTING OPERATION



Proceed in the reverse order to removal.

2. FINAL OPERATION



Apply the procedure for activating the safety systems ([see 88C, Airbags and pretensioners, Airbag and pretensioners: Precautions for the repair](#)).

3. CHECKING AFTER REPAIR



Switch on the ignition.



Check that there are no faults on the instrument panel.



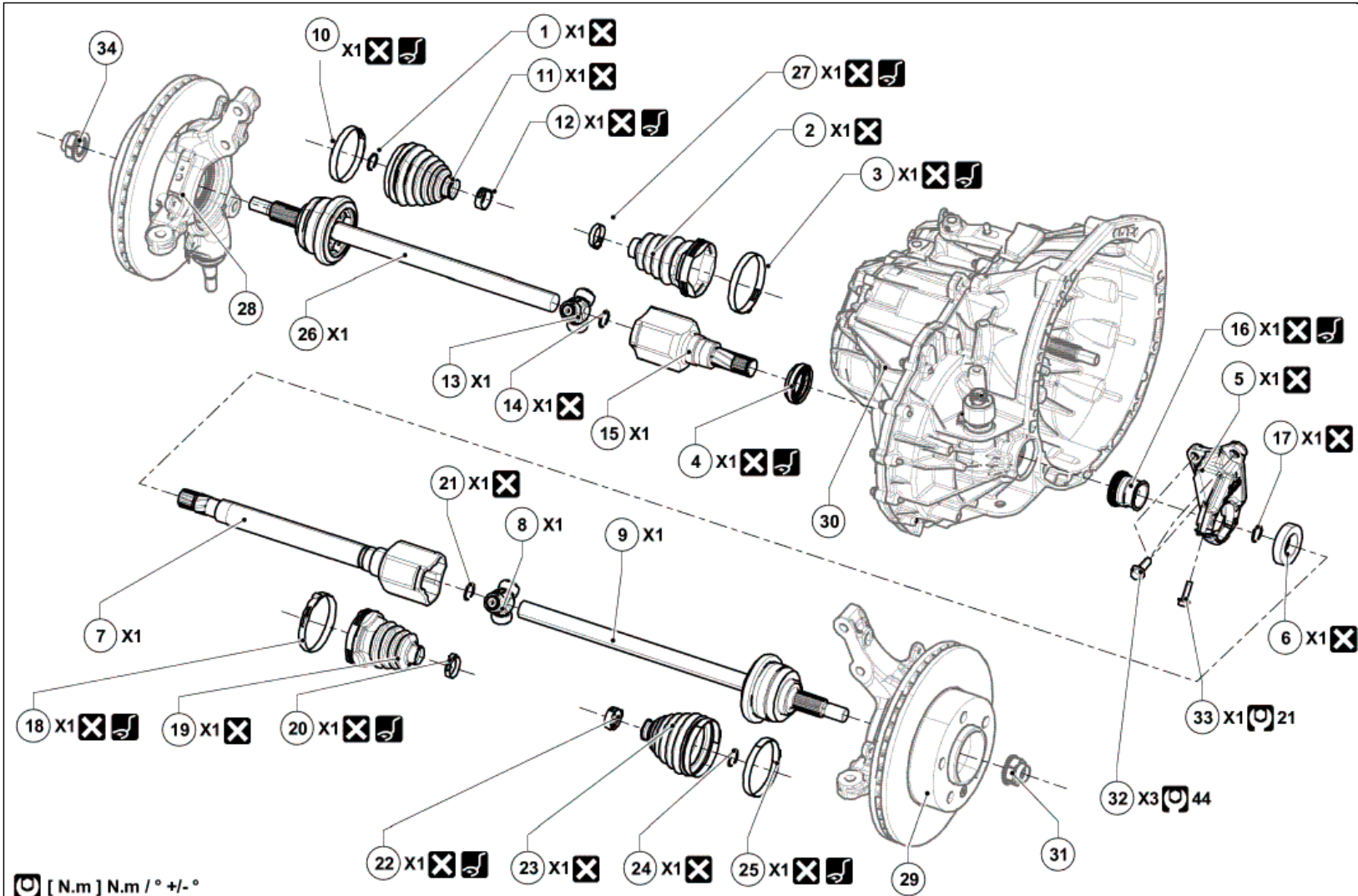
Repair-31x02x01x15-01x37-1-3-1.xml



DRIVESHAFT ASSEMBLY: EXPLODED VIEW

Illustration key: Description Key.

For fastenings with no specified tightening torque, refer to the Table of Standard Torques [Tightening torques: General information](#).



Marks	Designations	Informations
1	Driveshaft circlip	
2	Front left-hand driveshaft gaiter, gearbox side	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
3	Large clip of front left-hand driveshaft gaiter, gearbox side	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting) (Tav. 1168, Tav. 1784)
4	Left-hand differential seal	(Bvi. 1719)
5	Relay shaft bearing housing	
6	Relay shaft bearing	(see 29A, Driveshafts , Relay shaft bearing: Removal - Refitting)
7	Relay shaft	(see 29A, Driveshafts , Relay shaft bearing: Removal - Refitting)
8	Spider	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
9	Driveshaft	(see 29A, Driveshafts , Front right-hand driveshaft: Removal - Refitting)
10	Large clip of front driveshaft gaiter, wheel side	(Tav. 1168, Tav. 1784)
11	Front driveshaft gaiter, wheel side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting)
12	Small clip of front driveshaft gaiter, wheel side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting) (Tav. 1168, Tav. 1784)
13	Spider	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
14	Spider circlip	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
15	Spider bowl	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
16	Right-hand differential seal	(Bvi. 1774)
17	Relay shaft bearing circlip	(see 29A, Driveshafts , Relay shaft bearing: Removal - Refitting)
18	Large clip of front right-hand driveshaft gaiter, gearbox side	(Tav. 1168, Tav. 1784)
19	Front right-hand driveshaft gaiter, gearbox side	(see 29A, Driveshafts , Front right-hand driveshaft gaiter, gearbox side: Removal - Refitting)
20	Small clip of front right-hand driveshaft gaiter, gearbox side	(Tav. 1168, Tav. 1784)
21	Spider circlip	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
22	Small clip of front driveshaft gaiter, wheel side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting) (Tav. 1168, Tav. 1784)
23	Front driveshaft gaiter, wheel side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting)
24	Driveshaft circlip	
25	Large clip of front driveshaft gaiter, wheel side	(Tav. 1168, Tav. 1784)
26	Left-hand driveshaft	(see 29A, Driveshafts , Front left-hand driveshaft: Removal - Refitting)
27	Small clip of front left-hand driveshaft gaiter, gearbox side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting) (Tav. 1168, Tav. 1784)
28	Front hub carrier assembly	Front hub carrier assembly: Exploded view
29	Front hub carrier assembly	Front hub carrier assembly: Exploded view
30	Gearbox assembly	Gearbox assembly: Exploded view

31	Driveshaft nut	Front hub carrier assembly: Exploded view
32		
33		
34	Driveshaft nut	Front hub carrier assembly: Exploded view

XSL version: 3.02 du 22/07/11



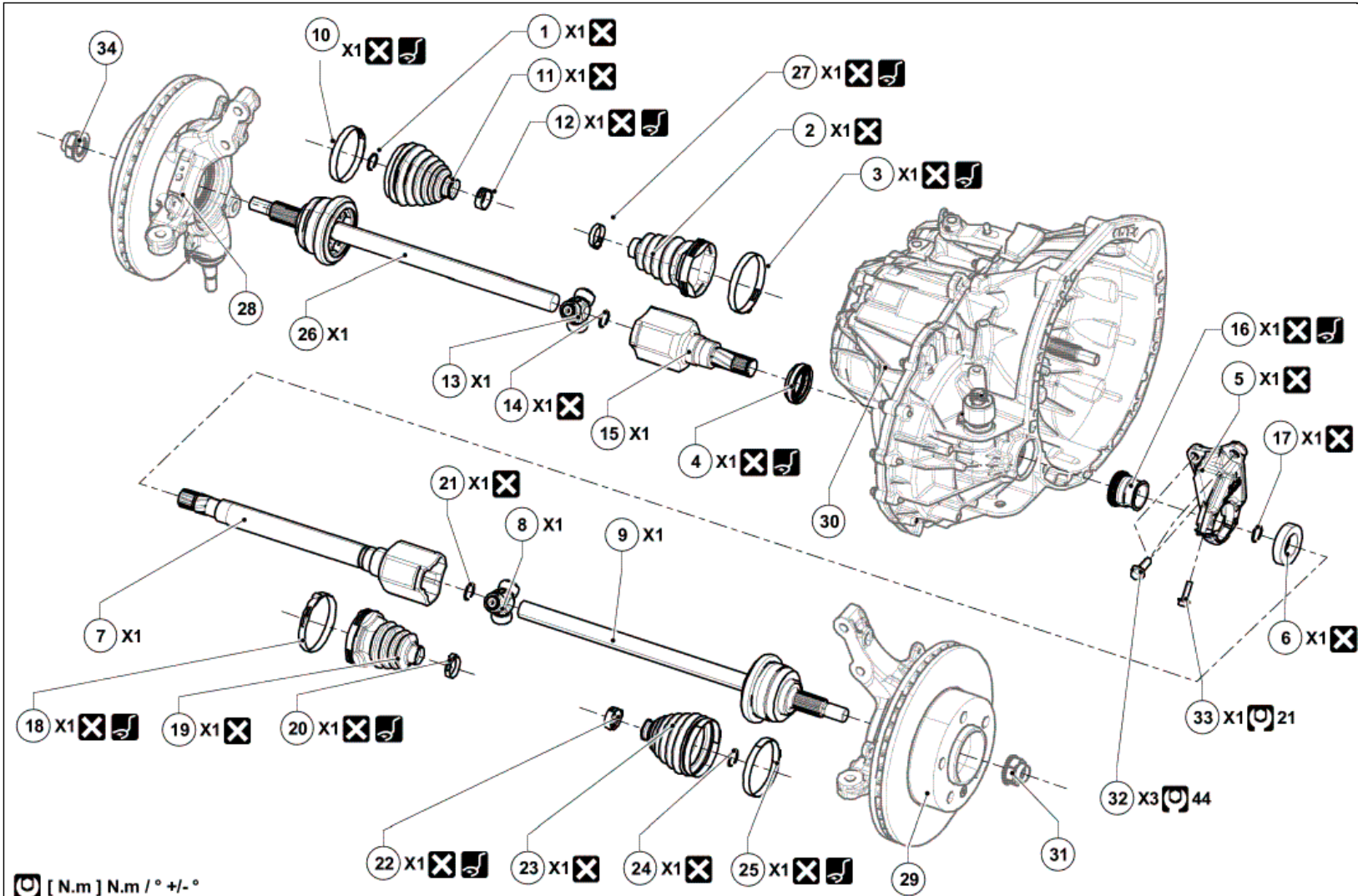
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DRIVESHAFT ASSEMBLY: EXPLODED VIEW

Illustration key: Description Key.

For fastenings with no specified tightening torque, refer to the Table of Standard Torques [Tightening torques: General information](#).



Marks	Designations	Informations
1	Driveshaft circlip	
2	Front left-hand driveshaft gaiter, gearbox side	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
3	Large clip of front left-hand driveshaft gaiter, gearbox side	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting) (Tav. 1168, Tav. 1784)
4	Left-hand differential seal	(Bvi. 1719)
5	Relay shaft bearing housing	
6	Relay shaft bearing	(see 29A, Driveshafts , Relay shaft bearing: Removal - Refitting)
7	Relay shaft	(see 29A, Driveshafts , Relay shaft bearing: Removal - Refitting)
8	Spider	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
9	Driveshaft	(see 29A, Driveshafts , Front right-hand driveshaft: Removal - Refitting)
10	Large clip of front driveshaft gaiter, wheel side	(Tav. 1168, Tav. 1784)
11	Front driveshaft gaiter, wheel side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting)
12	Small clip of front driveshaft gaiter, wheel side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting) (Tav. 1168, Tav. 1784)
13	Spider	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
14	Spider circlip	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
15	Spider bowl	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
16	Right-hand differential seal	(Bvi. 1774)
17	Relay shaft bearing circlip	(see 29A, Driveshafts , Relay shaft bearing: Removal - Refitting)
18	Large clip of front right-hand driveshaft gaiter, gearbox side	(Tav. 1168, Tav. 1784)
19	Front right-hand driveshaft gaiter, gearbox side	(see 29A, Driveshafts , Front right-hand driveshaft gaiter, gearbox side: Removal - Refitting)
20	Small clip of front right-hand driveshaft gaiter, gearbox side	(Tav. 1168, Tav. 1784)
21	Spider circlip	(see 29A, Driveshafts , Front left-hand driveshaft gaiter, gearbox side: Removal - Refitting)
22	Small clip of front driveshaft gaiter, wheel side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting) (Tav. 1168, Tav. 1784)
23	Front driveshaft gaiter, wheel side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting)
24	Driveshaft circlip	
25	Large clip of front driveshaft gaiter, wheel side	(Tav. 1168, Tav. 1784)
26	Left-hand driveshaft	(see 29A, Driveshafts , Front left-hand driveshaft: Removal - Refitting)
27	Small clip of front left-hand driveshaft gaiter, gearbox side	(see 29A, Driveshafts , Front driveshaft gaiter, wheel side: Removal - Refitting) (Tav. 1168, Tav. 1784)
28	Front hub carrier assembly	Front hub carrier assembly: Exploded view
29	Front hub carrier assembly	Front hub carrier assembly: Exploded view
30	Gearbox assembly	Gearbox assembly: Exploded view

31	Driveshaft nut	Front hub carrier assembly: Exploded view
32		
33		
34	Driveshaft nut	Front hub carrier assembly: Exploded view

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EARTHS ON BODY: LIST AND LOCATION OF COMPONENTS



Note, one or more warnings are present in this procedure

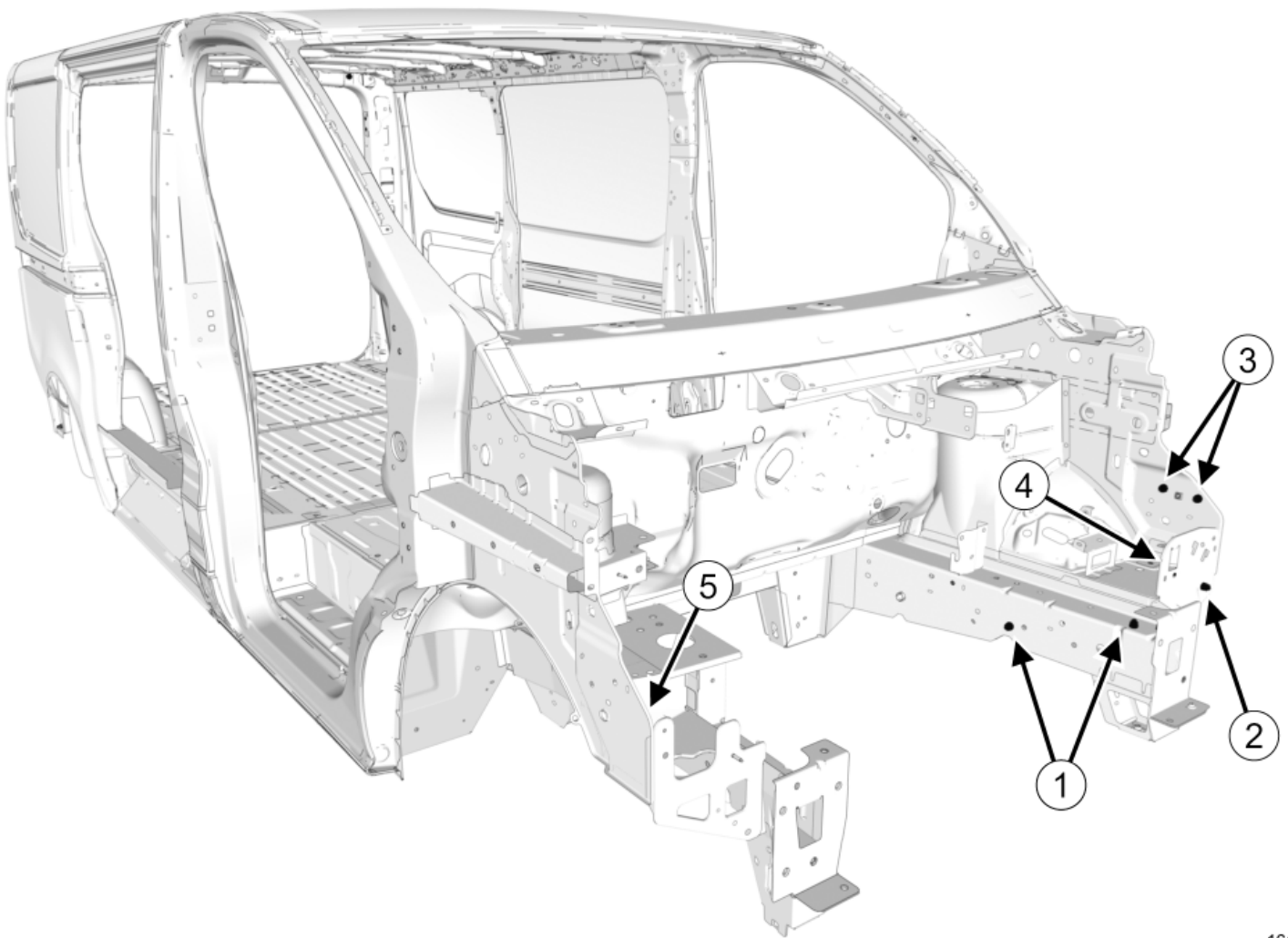


CAUTION

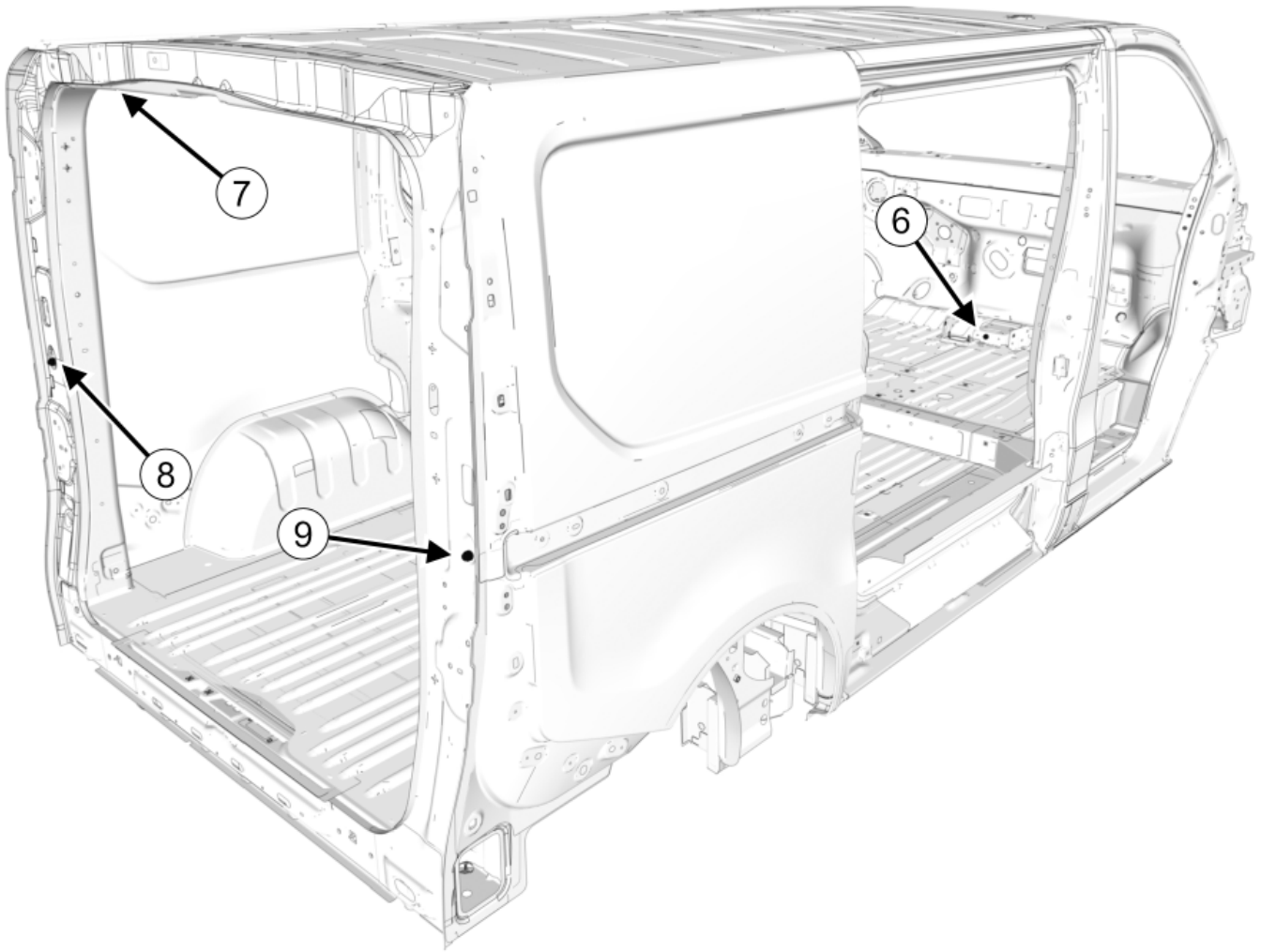
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

For the earth stud replacement procedure [Earth screw connection: Description](#) .

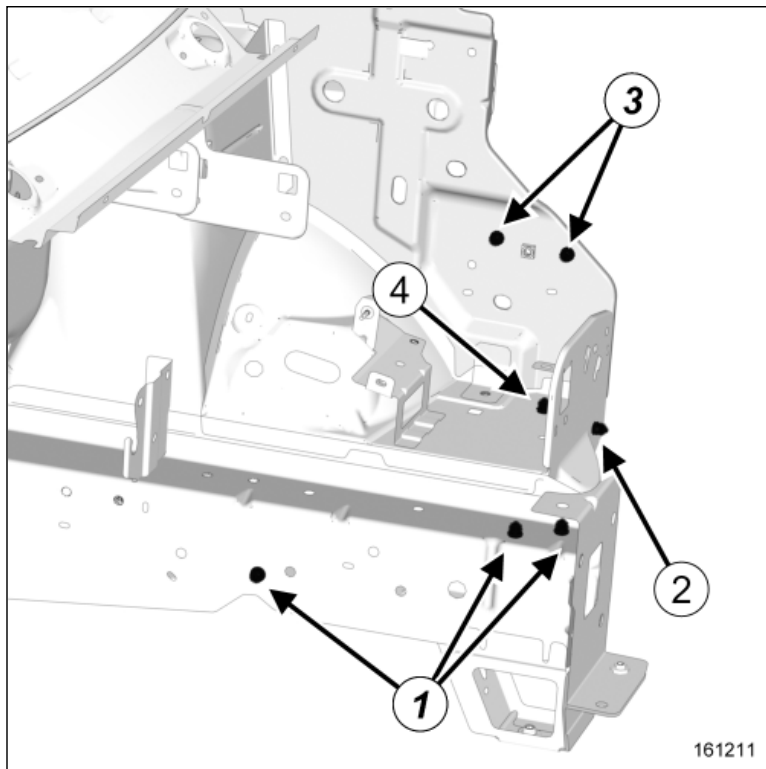


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161210

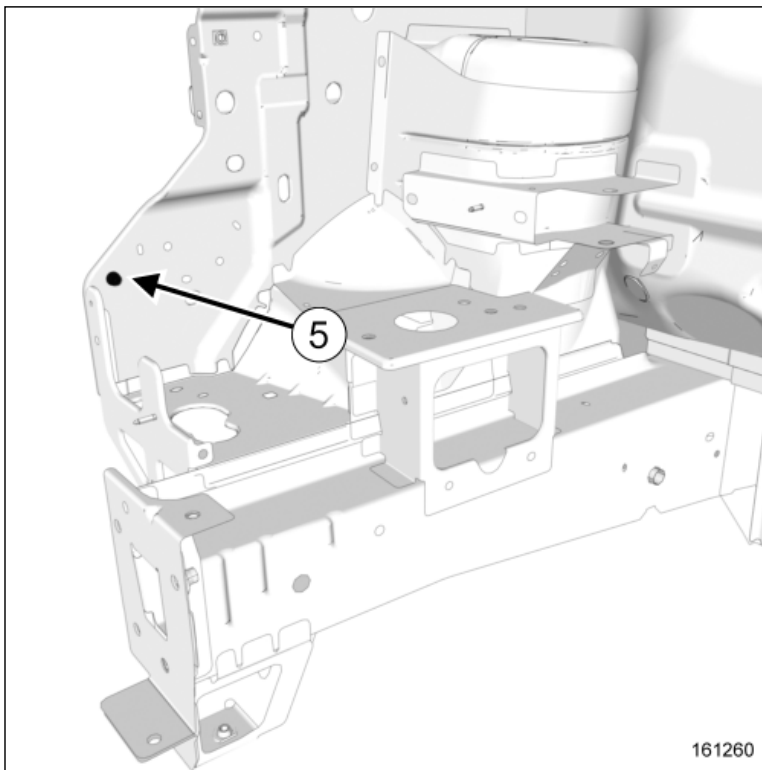
1. DETAILED VIEW OF THE POSITION OF ELECTRICAL EARTHS ON THE VEHICLE



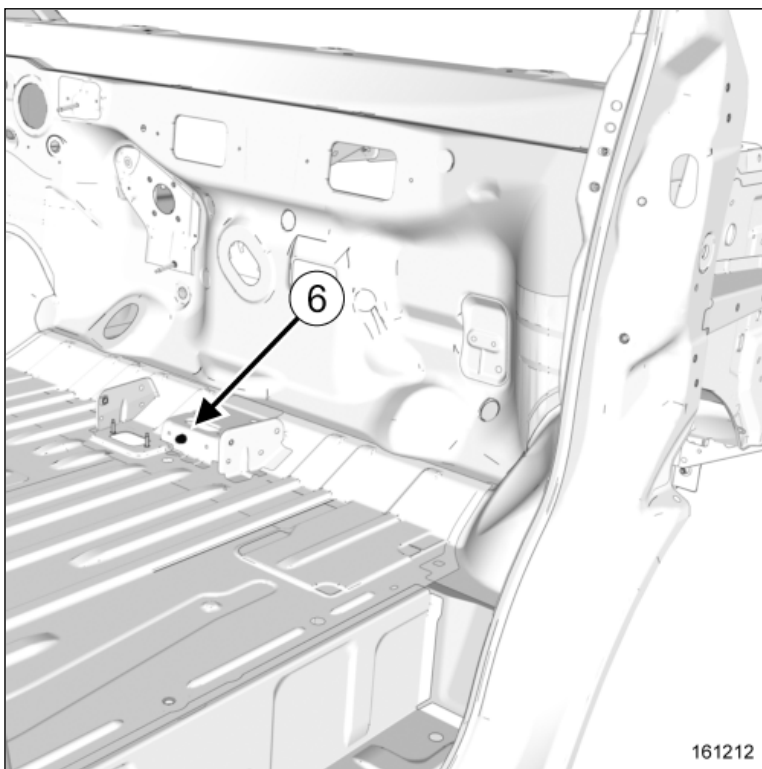
161211

Earth studs on:

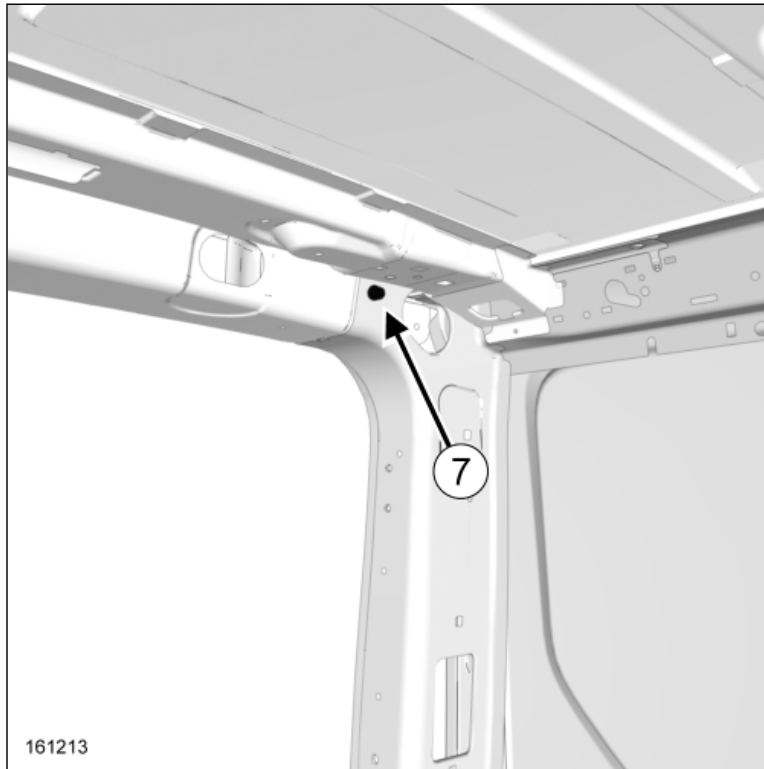
- the front left-hand side member(1) ,
- the front left-hand end side cross member(2) ,
- the scuttle side panel(3) ,
- the front wheel arch(4) .



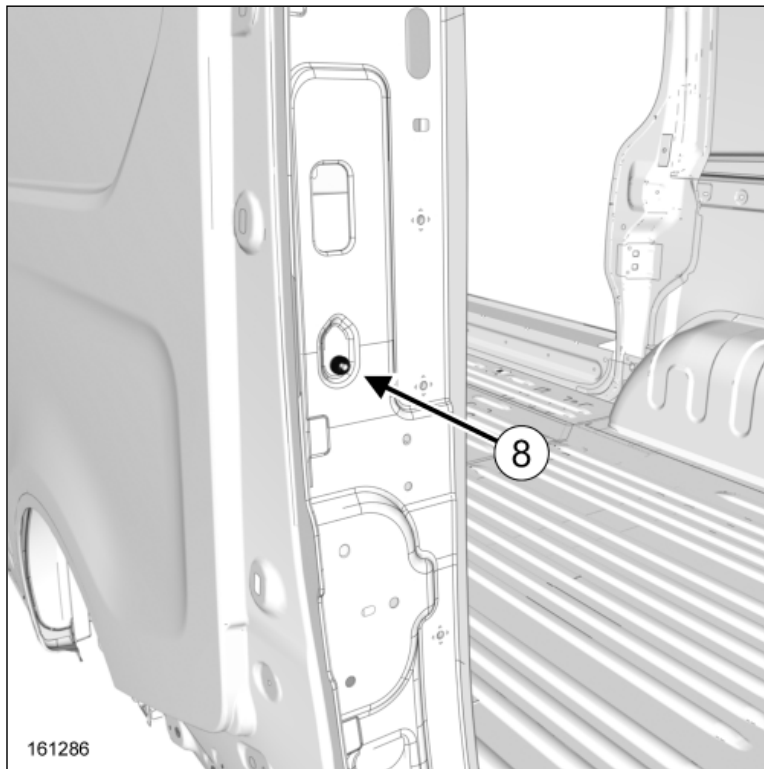
Earth stud on the scuttle side panel(5) .



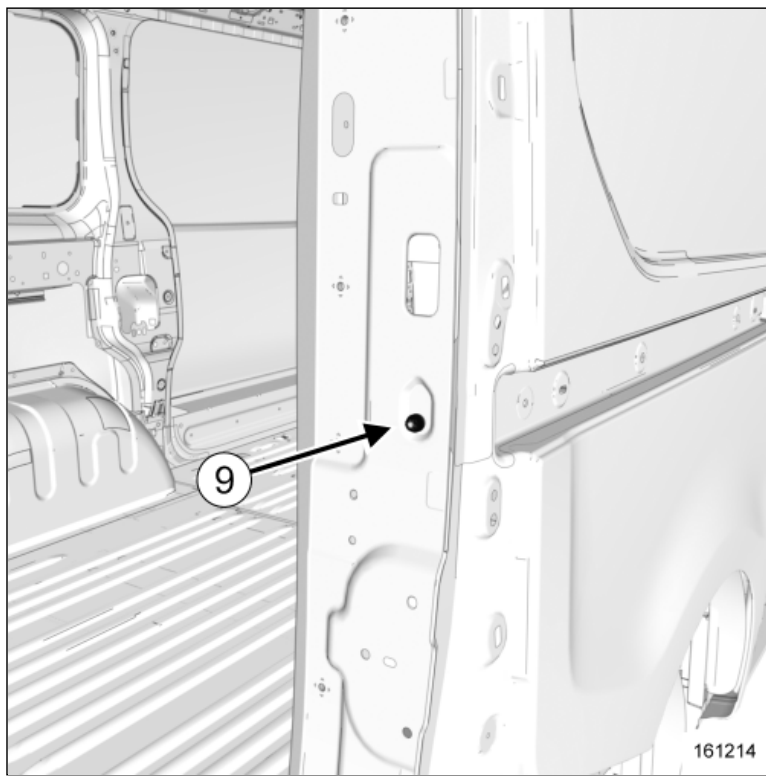
Earth stud on the centre floor(6) .



Earth stud on the left-hand rear end pillar(7) .



Earth stud on the left-hand rear end pillar lining(8) .



Earth stud on the right-hand rear end pillar lining(9) .



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KSL version : 3.02 du 22/07/11

RENAULT

Technical Note 6015A

All types

Sub-sections concerned: 88A - 88B - 88C

ELECTRICAL WIRING REPAIR

77 11 332 302

Edition 7 - AUGUST 2011

Edition Anglaise

"The repair procedures given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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ELECTRICAL WIRING REPAIR

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Wiring: Precautions for repair

WARNING

This note authorises the repair of electrical wiring in very specific cases only and under certain conditions.

Check that the repair in question is authorised and that the repair conditions are respected.

1 - Result of the fault finding procedure.**Note:**

During repair, check that you have the most recently updated version of the technical note.

A preliminary fault finding procedure has enabled a wiring fault to be identified. Follow the investigation procedure below.

Disconnect the battery (see the **MR corresponding to the vehicle, 80A, Battery, Battery: Removal - Refitting**).

Remove the components necessary to access the area to be worked on. The operation area must allow the pliers and the heat gun to be used, without blocking visibility.

WARNING

If the damaged section is not sufficiently accessible, remove the wiring concerned and repair on the bench.

When the damaged section is sufficiently accessible, detach the wires to be repaired from the main wiring.

WARNING

Check if there is a sensitive line. These cases are listed in the specific procedures reference table in this section.

If there is a sensitive line, replace the defective wiring or apply the specific procedure, if one exists. These procedures are indicated in the specific procedures reference table in this section.

Check that the fault is located more than 10 cm from the connector.

WARNING

If the damaged section is located less than 10 cm from the connector, replace the defective wiring, unless a wiring-connector kit (connector with wires) exists. In this case, use the kit to replace the damaged section and the connector.

This note does not authorise operations directly on the connectors and electrical contacts. Only wiring-connector kits allow the replacement of a connector. These kits can have associated procedures.

Note:

To check whether there is a wiring-connector kit, consult DIALOGYS. These kits are generally linked to specific wiring or function diagrams.

Note:

If the fault is located at the electrical contact (in the connector) and if it is linked to a corrosion or heating fault, replace the wiring or fit the wiring-connector kit. Also check the connector complement.

Note:

In all cases, pay particular attention to supply and earth lines and their tightening (refer to the tightening torques in the MRs concerned).

After having carried out these checks (outlined in the **Summary flowchart of the operating procedure**), if the repair is authorised, and it does not require a specific procedure, carry out the generic procedure (see **Wiring: Repair**).

Note:

If you have been referred to this note by a MR, NT or removal-refitting procedure, apply the repair procedure adapted to the case in question. Either the generic repair procedure (see **Wiring: Repair**), or a specific procedure listed in the specific procedures reference table in this section.

Wiring: Precautions for repair

2 - Specific procedures reference table.

● Guidelines for reading the tables below:

- If not otherwise stated, consider all components or electrical connections to have a link with the functions or equipment listed. For example: For the electric power assisted steering, the function is not specified. It is prohibited to carry out operations on any wire attached to the electric power assisted steering.
- If one case can be found in both tables, give priority to the **Changing the wiring**, recommendations, and then to those for the specific cases:
 - Example 1: For a 22-track airbag connector where more than 10 wires are damaged, the specific cases refer you back to the airbag and pretensioner repair procedure, and the general cases recommend that the wiring is replaced (as there are more than 10 wires involved). Priority is given to **Changing the wiring**.
 - Example 2: For an operation on a pair of twisted wires (general case) for the airbag function (specific case), the specific case refers back to the repair procedure for Airbags and pretensioners, and the general cases refer back to the repair procedure for multiplex lines. Priority is given to the airbag and pretensioner repair procedure. The recommendations for the specific cases take precedent over the general cases.

● **General cases:**

Functions or equipment	Precisions	Instructions
Wiring harness	Number of damaged wires 10 or fewer	(see Wiring: Repair)
	Number of damaged wires more than 10	Change the wiring
Equipment and predispositions specific to commercial vehicles and conversions	/	Change the wiring
Electric vehicles	Wiring and power connectors	Change the wiring
Connections or associated components	/	(see Connector: Repair)
Splices	Splice with more than 3 wires	Change the wiring
	3-wire splice which does not need sealing	(see Wiring: Repair)
	Splice with 3 wires or more, which needs sealing (engine and underbody areas and damp areas of the doors and boot)	Change the wiring
Wires outside the loom	Sheathed wires	Change the wiring
	Shielded wires	Change the wiring
	Twisted wires	If the wire cross-sections are 0.5 mm²: (see Multiplex network: Repair)
	Flat cable	Change the wiring
	Wires with specific thermal protection	Change the wiring
	Copper wires with cross-section less than 0.35 mm ²	Change the wiring
	Copper wires with cross-section greater than 6 mm ²	Change the wiring
	Damaged wires less than 10 cm from the connector	(see 88A, Wiring, Connector: Repair)

● **Specific cases:**

Lines	Device	Instructions
4-wheel steering	/	Change the wiring
ABS	Other ABS lines	Change the wiring
ABS	ABS sensor	Change the wiring
Airbag	Other airbag lines	(see Airbag and pretensioner wiring: Repair)
Airbag	Airbag sensor	(see Airbag and pretensioner wiring: Repair)
Airbag	Airbag computer connector	(see Airbag and pretensioner wiring: Repair)
Airbag	Pretensioner (squib) connector	(see Airbag and pretensioner wiring: Repair)
Airbag	Under seat connector	(see Airbag and pretensioner wiring: Repair)
Airbag	Airbag trigger connectors (pyrotechnic lines)	(see Airbag and pretensioner wiring: Repair)
Preheating unit (Diesel)	Heater plug	Change the wiring
Injection computer (Petrol)	Petrol vapour absorber	Change the wiring
Injection computer	Variable camshaft	Change the wiring
Injection computer	Variable inlet camshaft	Change the wiring
Injection computer	Variable exhaust camshaft	Change the wiring
Injection computer (Petrol)	Pencil coil	Change the wiring
Injection computer (Petrol and Diesel)	Motorised throttle body	Change the wiring
Injection computer	Camshaft sensor	Change the wiring
Injection computer (Petrol and Diesel)	Inlet camshaft sensor	Change the wiring
Injection computer (Petrol and Diesel)	Exhaust camshaft sensor	Change the wiring
Injection computer	Camshaft sensor, row A, B	Change the wiring
Injection computer	Variable exhaust camshaft sensor	Change the wiring
Injection computer (Petrol and Diesel)	Pinking sensor	Change the wiring
Injection computer (Diesel)	Turbine upstream pressure sensor	Change the wiring

● **Specific cases (cont. 1):**

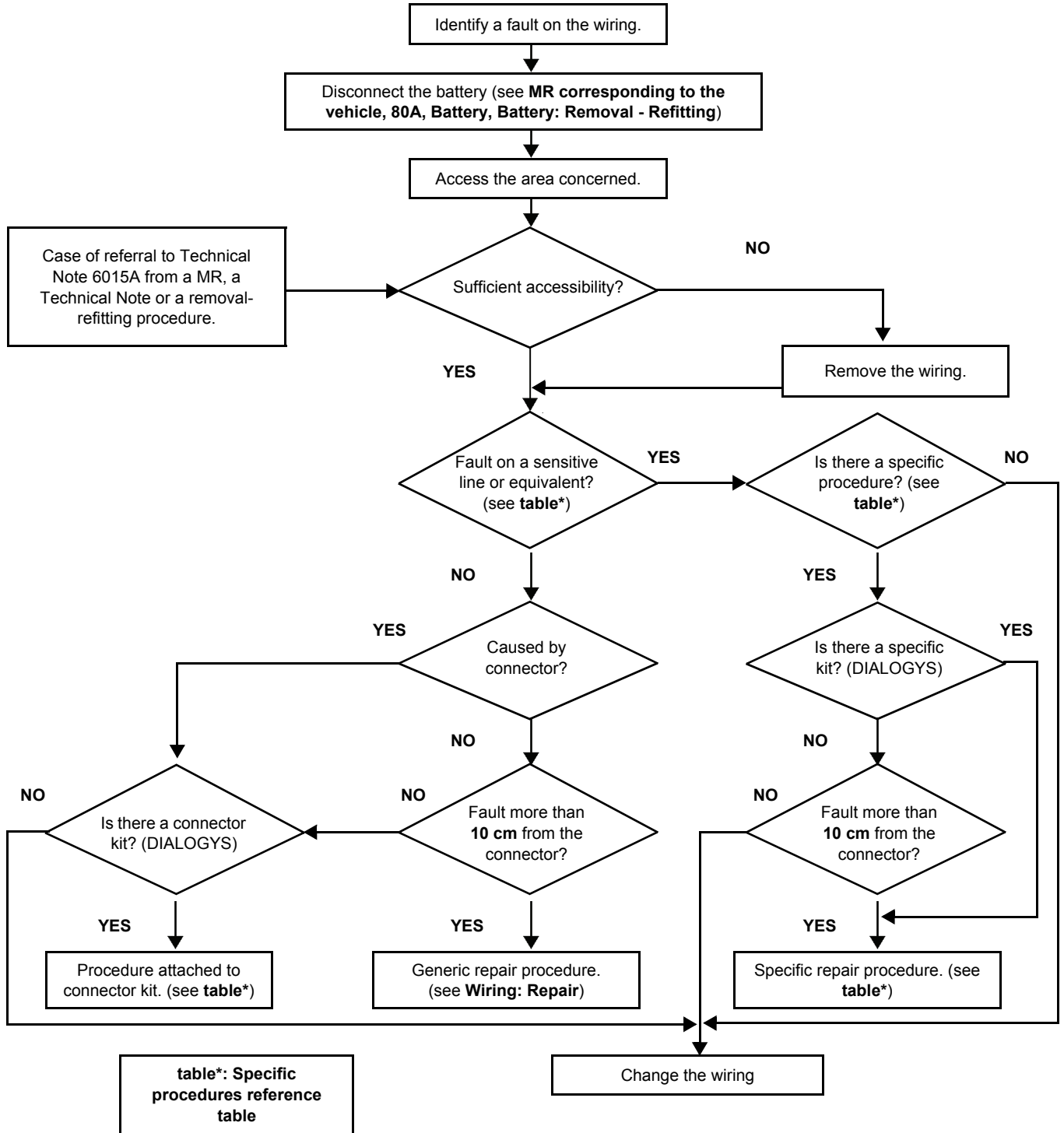
Lines	Device	Instructions
Injection computer (Petrol)	Manifold pressure sensor	Change the wiring
Injection computer (Diesel)	Particle filter differential pressure sensor	Change the wiring
Injection computer (Diesel)	Rail pressure sensor	Change the wiring
Injection computer (Petrol and Diesel)	Turbocharging pressure sensor	Change the wiring
Injection computer	Accelerator pedal sensor	Change the wiring, except for the connector on KANGOO (see Connector: Repair)
Injection computer (Petrol and Diesel)	TDC sensor	See OTS*
Injection computer (Diesel)	Particle filter (downstream) output sensor	Change the wiring
Injection computer (Petrol and Diesel)	Air temperature sensor	Change the wiring
Injection computer (Petrol)	Turbine upstream temperature sensor	Change the wiring
Injection computer (Diesel)	Fuel temperature sensor	Change the wiring
Injection computer (Petrol and Diesel)	Coolant temperature sensor	Change the wiring
Injection computer (Diesel)	Particle filter inlet temperature sensor (upstream)	Change the wiring
Injection computer (Diesel)	Injection air flowmeter	Change the wiring
Injection computer	Camshaft shift, row A, B	Change the wiring
Injection computer (Diesel)	Turbocharger control solenoid valve	Change the wiring
Injection computer (Diesel)	Damper solenoid valve	Change the wiring
Injection computer (Petrol and Diesel)	Injectors	Change the wiring
Injection computer (Diesel)	Diesel heater	Change the wiring
Injection computer (Diesel)	Water in diesel sensor	Change the wiring

*OTS: Special Technical Operation

● **Specific cases (cont. 2):**

Lines	Device	Instructions
Injection computer (Diesel/particle filter)	Oil level and temperature sensor	Change the wiring
Injection computer (Diesel)	Nitrogen oxide (Nox)	Change the wiring
Injection computer (Petrol and Diesel)	Upstream oxygen sensor	Change the wiring
Injection computer (Petrol and Diesel)	Downstream oxygen sensor	Change the wiring
Injection computer (Diesel)	Proportional oxygen sensor	Change the wiring
Injection computer (Diesel)	EGR valve	Change the wiring
Injection computer (Diesel)	Heater plug	Change the wiring
EPAS	/	Change the wiring
ETC (4x4 torque distributor)	/	Change the wiring
GMV	GMV	Change the wiring
Multiplex network	CAN	(See Multiplex network: Repair)
UPC (Petrol and diesel)	Air conditioning compressor	Change the wiring
UPC (Petrol)	Oil level sensor	Change the wiring

3 - Summary flowchart of the operating procedure defined in this section.



1 - Purpose and applications.

Description of the content of the Wiring repair kit case as well as the procedure and the field of application.

The kit enables wiring which is damaged or has cut electrical wires to be repaired whilst ensuring that it will be fully functional.

It also allows wiring-connector kits to be used.

All electrical cables and wires with cross-sections between 0.35 mm^2 and 6 mm^2 except "sensitive lines" (defined in this document), are affected.

WARNING

Repair of sensitive lines is prohibited using the generic procedure alone. It can be authorised provided that there is an additional appropriate procedure (see Wiring: Precautions for repair).

The technical nature and the sensitivity of this type of operation requires the adapted equipment contained and described in the Wiring repair kit case.

WARNING

Using tools or components which have not been recommended is strictly forbidden when repairing wiring.

WARNING

For sensitive lines, only automotive electricians, technician agents or cotechs (Level 2 Electricity as a minimum) can carry out the repair described in this note.

2 - Terminology.● **Wiring-connector kit.**

Kit usually made up of a connector the cells of which are populated with crimped wires along with sleeves for joining.

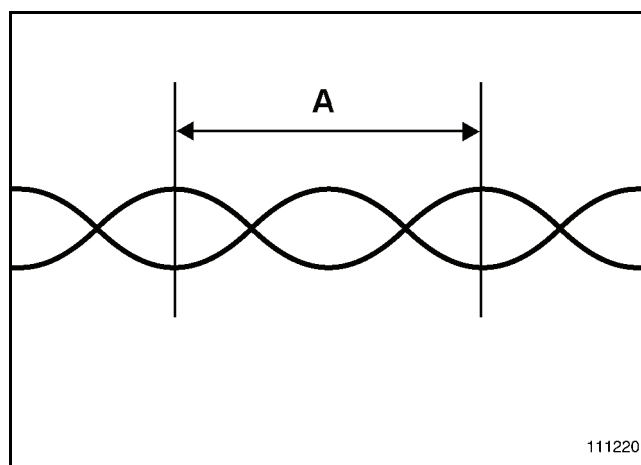
● **Multiplex lines or connections.**

Principal or secondary CAN network lines link the computers together and are made up of twisted pairs of stranded wires.

● **Turns or twists.**

For twisted pairs:

One turn (twist) = (A)

**3 - Operation time (TM).**

For each vehicle, an average repair time is given in the wiring section of the TM.

The corresponding codes are:

- **0500** for replacing a connector (using a connector kit).
- **0501** for repairing wiring.

This times do not include the time taken to access the area to be repaired. The time taken to remove and refit the wiring must be added.

1 - Case and label.

- Case (77 11 420 544).

Part no. 77 11 420 544 corresponds to the new electrical repair case. It replaces case part no. 77 11 229 893.

Both part numbers are authorised for electrical repair.

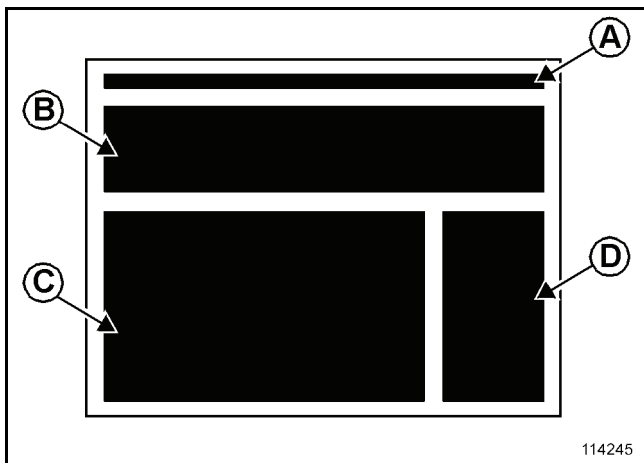
The case contains all the components described in this section. A label lists their part numbers.

- Label.

The label affixed inside the case is made up of 4 sections in English and French.

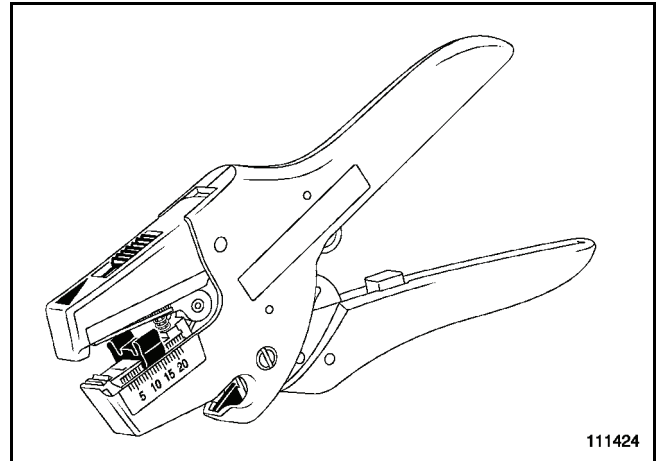
On the upper section, at (A) is the title and number of the note. At (B) are the After-Sales references (for the network) and MABEC code (for factories) which enables the kit to be restocked with consumables or new tools or a new kit to be ordered.

On the lower section, at (C) is a table (not exhaustive) which helps the right sleeve to be chosen, with a summary of the recommendations for each case. And at (D) are the recommendations for use.



2 - Tools.

- Stripping pliers (77 11 230 416).



These are automatic stripping pliers which enable an electrical conductor up to a maximum cross-section of **6 mm²** to be cut or stripped.

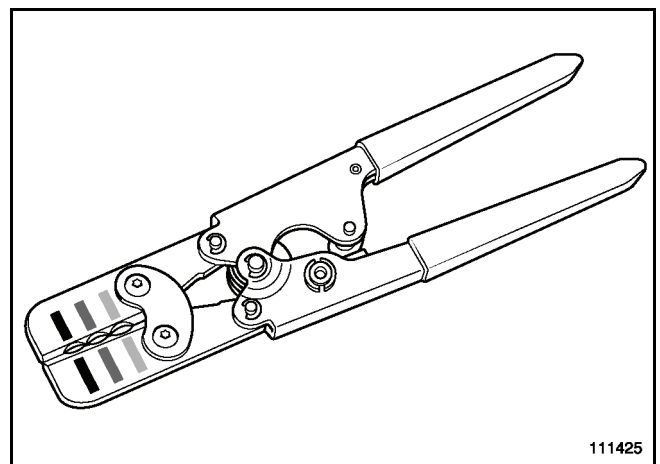
The length of the stripped section can be adjusted up to **20 mm**.

The operating instructions for this kit are described in this document (see **Wiring repair kit: Use**).

- Crimping pliers (77 11 421 296).

Part no. 77 11 421 296 corresponds to the new crimping pliers in the electrical repair kit. It replaces the crimping pliers with part no. 77 11 230 417.

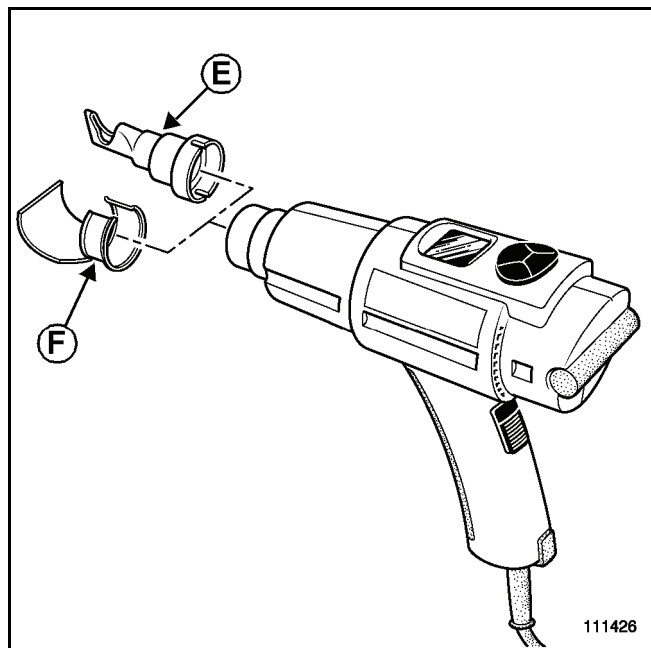
Both part numbers are authorised for electrical repair.



The crimping pliers have three sizes of jaw (red, blue and yellow) which correspond to the crimping sleeves. These pliers are recommended for the crimping the sleeves provided in the kit.

The operating instructions for this kit are described in this document (see **Wiring repair kit: Use**).

● **Heat gun (77 11 230 415).**



The heat gun is a hot air blower with 2 nozzles which enable it to be adapted for different needs:

- Concentrator nozzle (E), (77 11 237 778).
- Heat shield nozzle (F), (77 11 237 777).

It can be used to solder all self-solder sleeves and to contract the heat-shrinkable parts and sheaths on all sleeves

Its temperature and flow of air are adjustable and are indicated on the screen.

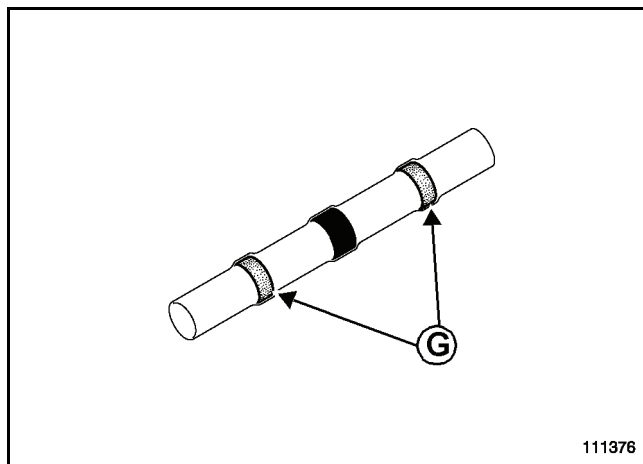
Temperature adjustment from **80°C** to **650°C** in increments of **5°C**.

Air flow adjustment from **200 l/min** to **550 l/min** at 5 levels displayed on the screen.

The operating instructions for this kit are described in this document (see **Wiring repair kit: Use**).

3 - Consumables.

● **Self-solder sleeves.**



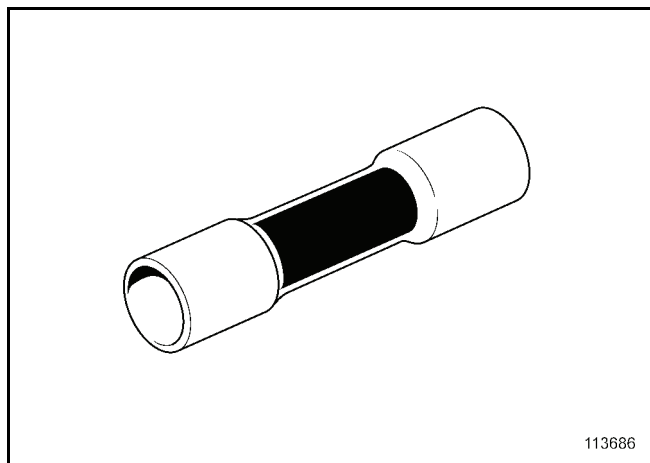
There are three sizes of heat shrinkable self-solder sleeve differentiated by the colour of their rings (G):

- **Clear**, for a total copper section (sum of the 2 wires) between **0.3** and **0.8 mm²** (packet of 20: **77 11 229 418**).
- **Red**, for a total copper section (sum of the 2 wires) between **0.8** and **2.0 mm²** (packet of 20: **77 11 229 419**).
- **Blue**, for a total copper section (sum of the 2 wires) between **2.0** and **4.0 mm²** (packet of 20: **77 11 229 420**).

These are sealing sleeves. The seal is formed when the rings are tightened around the wire when heated.

These sleeves are only to be used for connecting one wire with another wire (1-to-1).

● **Crimping sleeve.**



There are three sizes of heat shrinkable crimp sleeve differentiated by the colour of their rings:

- **Red**, for a copper section between **0.5** and **1.5 mm²** (Packet of 20: **77 11 229 410**).
- **Blue**, for a copper section between **1.5** and **2.5 mm²** (Packet of 20: **77 11 229 416**).
- **Yellow**, for a copper section between **3.0** and **6.0 mm²** (Packet of 20: **77 11 229 417**).

These are sealing sleeves. The seal is formed by the inner wall which becomes adhesive when heated.

These sleeves can be used to join one wire with another wire (1-to-1) or two wires with another wire (2-to-1).

In the case where two wires are joined to one wire (2-to-1), the seal is no longer guaranteed. Do not use when a seal is required.

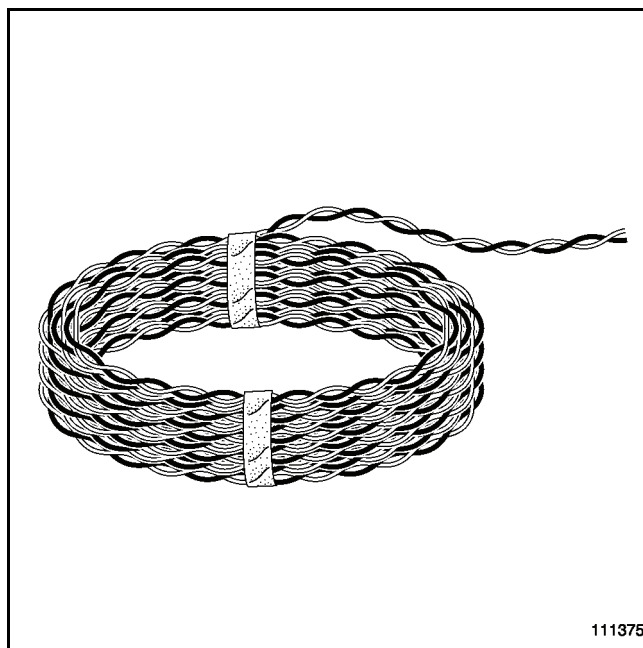
● **Thermal protection (77 11 229 424).**

The protective heat shield is a **250 mm** by **250 mm** square. It is intended to protect the surrounding area from the flow of hot air from the heat gun.

● **Adhesive PVC tape (77 11 170 331).**

Use the adhesive PVC tape for taping the wires. Do not use it to protect or insulate electrical parts. It is a contact-adhesive high temperature tape.

● **Coil of twisted wires (77 11 229 425).**

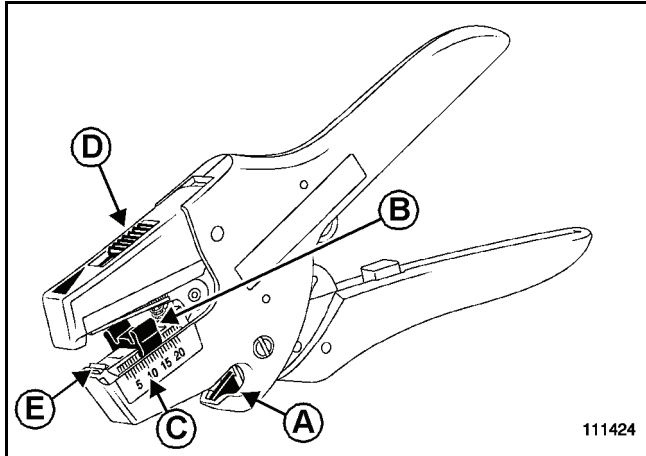


This is a coil of a pair of twisted wires (40 turns/linear m). Ensure these wires remain twisted. The 2 wires have a **0.5 mm²** cross-section and are of temperature class T3. It is possible to fit them in all areas of the vehicle during repairs to twisted wires of the same cross-section.

Note:

This section is an abridged version of the instructions for use of the tools in the kit.

1 - Stripping pliers.



● Description of the stripping pliers:

- (A) = Wire cutter.
- (B) = Stop for adjusting the length to be stripped.
- (C) = Scale (millimetre divisions).
- (D) = Pressure adjustment.
- (E) = Stripping jaws and cutting edges.

● Cutting a wire:

To cut electrical wires up to **6 mm²**, insert the wire into slot (A) and press the handle.

● Stripping a wire:

This pair of stripping pliers is automatic. It does not need adjusting to the cross-section of wire to be stripped (**6 mm²** maximum).

To strip a wire, adjust the length to be stripped by moving the stop (B). Press lightly on the ends to make it slide. The length to be stripped is read on the scale (C) in millimetres (mm).

Adjust the stripping pressure by moving the cursor (D). Press on the cursor to make it slide. The further forward the cursor is, the greater the force.

WARNING

If the pressure is too weak, the cutting edges will not grip the wire's insulation. If the pressure is too strong, the cutting edges can cut through the copper strands. Start with a medium setting and then adjust according to results.

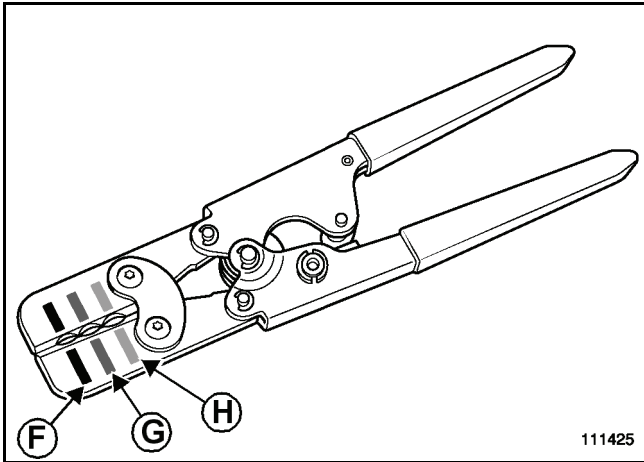
Place the end of the wire against the stop (B) and bring it out through the jaws (E).

Press the handle. The jaws will grip the wire. The cutting edges will automatically adjust their position in relation to the section of wire and strip it.

WARNING

Check the quality of the stripped wire (insulation cleanly removed and no cut copper strands). Start again if necessary.

2 - Crimping pliers.



The crimping pliers are the only pliers recommended for crimping the crimp sleeves in the kit.

They are used on the 3 sizes of crimp sleeve:

- At **(F)** for crimping the **red** crimp sleeve.
- At **(G)** for crimping the **blue** crimp sleeve.
- At **(H)** for crimping the **yellow** crimp sleeve.

Before crimping a sleeve:

- choose the sleeve suitable for the cross-section of the wire (see **Wiring: Repair**),
- strip the recommended length of wire.

● **Crimping operation:**

Squeeze the handles fully together to unlock the pliers and open the jaws.

On the pliers, find the crimping jaws which correspond to the sleeve being used.

Insert the wire(s) into one end of the sleeve.

Position the pliers' jaws in the middle of the half of the metal shaft where the wire(s) are.

Squeeze the handles fully together to crimp the sleeve onto the wire(s). Crimping is complete once the pliers are opened again.

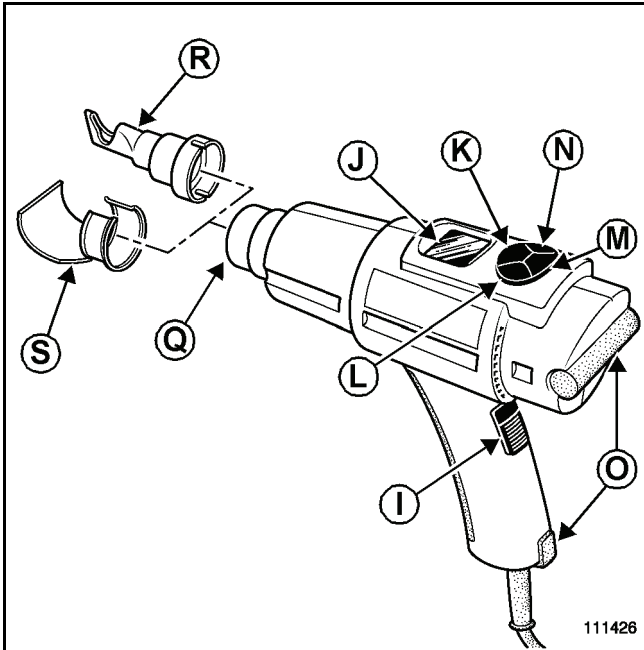
Check that the copper of the wire is correctly crimped and that the plastic part of the sleeve has not been cut.

Repeat the crimping operation on the other end of the sleeve.

Note:

If the wire is not correctly crimped, cut the wire at the sleeve and start the operation again with a new sleeve.

3 - Heat gun.



WARNING

Before using the gun, the user must familiarise themselves with the safety advice in the user's manual provided by the manufacturer.

● Introduction to the gun:

The heat gun is recommended for contracting heat shrinkable sleeves.

For other applications, the user must take the precautions and advice in the user's manual into account.

● Description of the heat gun:

- (I) = On (1)/off (0) switch.
- (J) = Display screen.
- (K) = SELECT MENU button.
- (L) = + button for setting parameters.
- (M) = STANDBY button (pause/cooling).
- (N) = - button for setting parameters.
- (O) = Supports for resting the tool on a bench.
- (P) = Tool air inlet.
- (Q) = Tool air outlet.

● Accessories:

- (R) = Concentrator nozzle.
- (S) = Deflector nozzle.

Note:

The concentrator nozzle (R) is recommended when using the heat gun on the crimp or self-solder sleeves in the kit.

WARNING

The heat shield nozzle (S) can be used for contracting single heat shrinkable sheaths. Do not use it for contracting the crimp or self-solder sleeves in the kit.

● General information on the setting parameters:

When contracting the sleeves in the kit, use the FREE program and change the settings as recommended. A memory function recalls the program and settings from the last time the gun was used.

● Switching on the gun:

Connect the appliance to the mains electricity supply (230 Vac - 50 Hz or 60 Hz), respecting all precautions. Push the switch (I) on (1). The appliance will come on using the programs and settings most recently used.

WARNING
The gun starts heating immediately.

WARNING
Before putting the gun away in its case or anywhere else, leave it to cool down to ambient temperature.

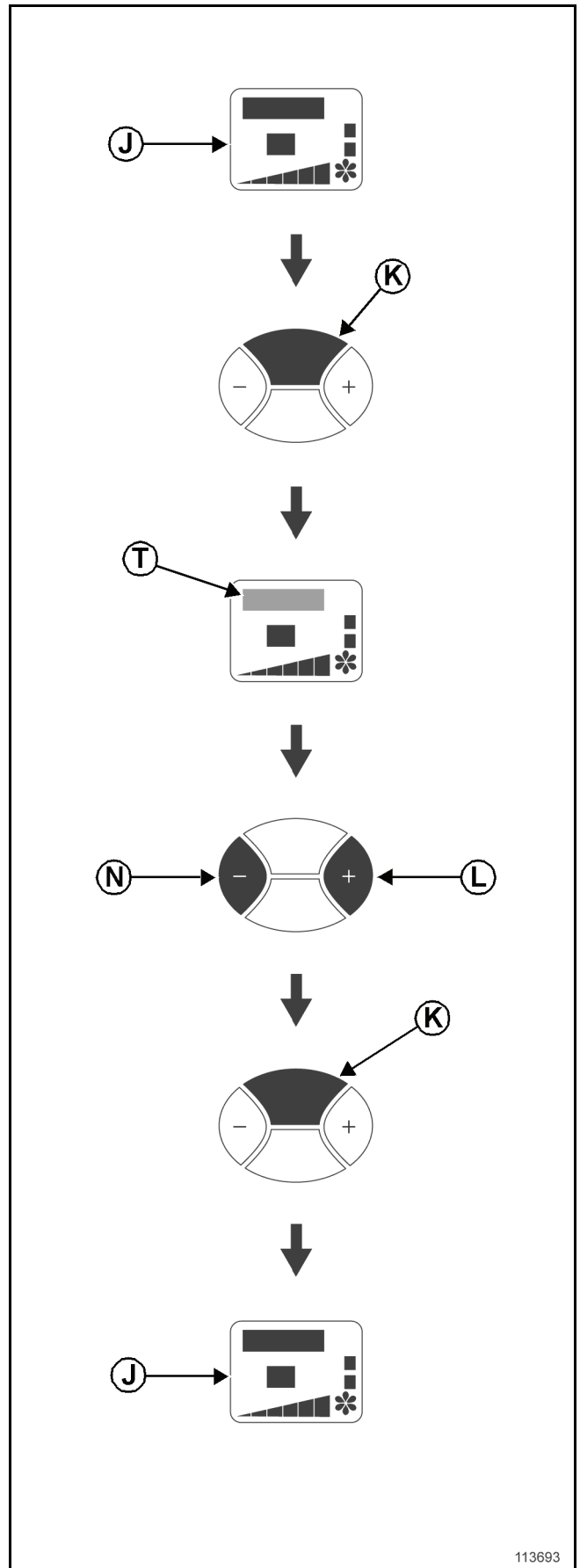
● Operating instructions:

The heat gun is used in two ways. It can either be held in the hand and used directly. Or it can be set down on its supports (O) on a clean and tidy bench. The latter has the advantage of leaving the user with both hands free.

● Programs:

Always work with the FREE program shown on the screen (J) at (T). If it is not shown, perform the following operation:

- press menu selection button (K) once,
- program field (T) on display field (J) flashes,
- select the free program using the + (L) or - (N) buttons,
- press the menu selection button (K) once, so that field (T) on display screen (J) stops flashing.



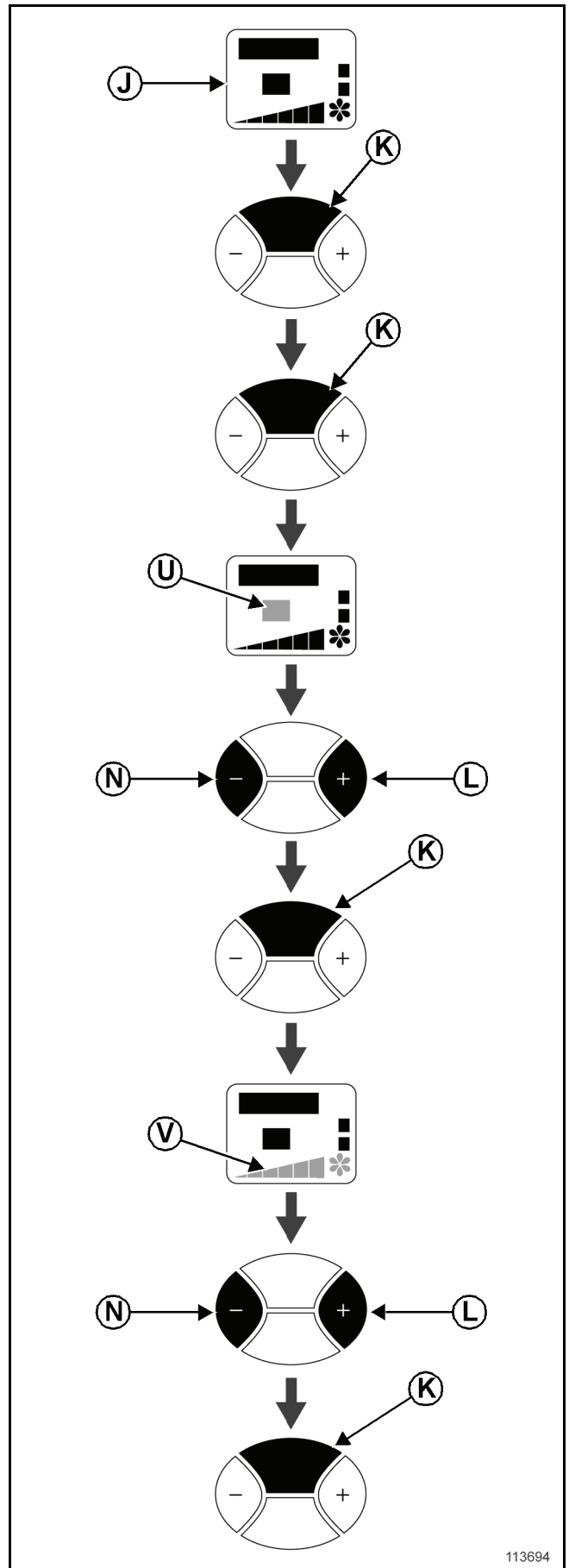
● Temperature and air flow settings:

To change the program settings (the FREE program is recommended), carry out the following operation:

- press menu selection button (K) twice,
- temperature field (U) on display field (J) flashes,
- adjust the temperature using the + (L) or - (N) buttons,
- press menu selection button (K) once,
- air flow field (V) on display field (J) flashes,
- adjust the air flow using the + (L) or - (N) buttons,
- press menu selection button (K) once, so that the fields on display screen (J) stop flashing.

Note:

When using the heat gun on crimp or self-solder sleeves, the air flow is always on the maximum setting, only the temperature varies.



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● Special modes (COOL/PAUSE):

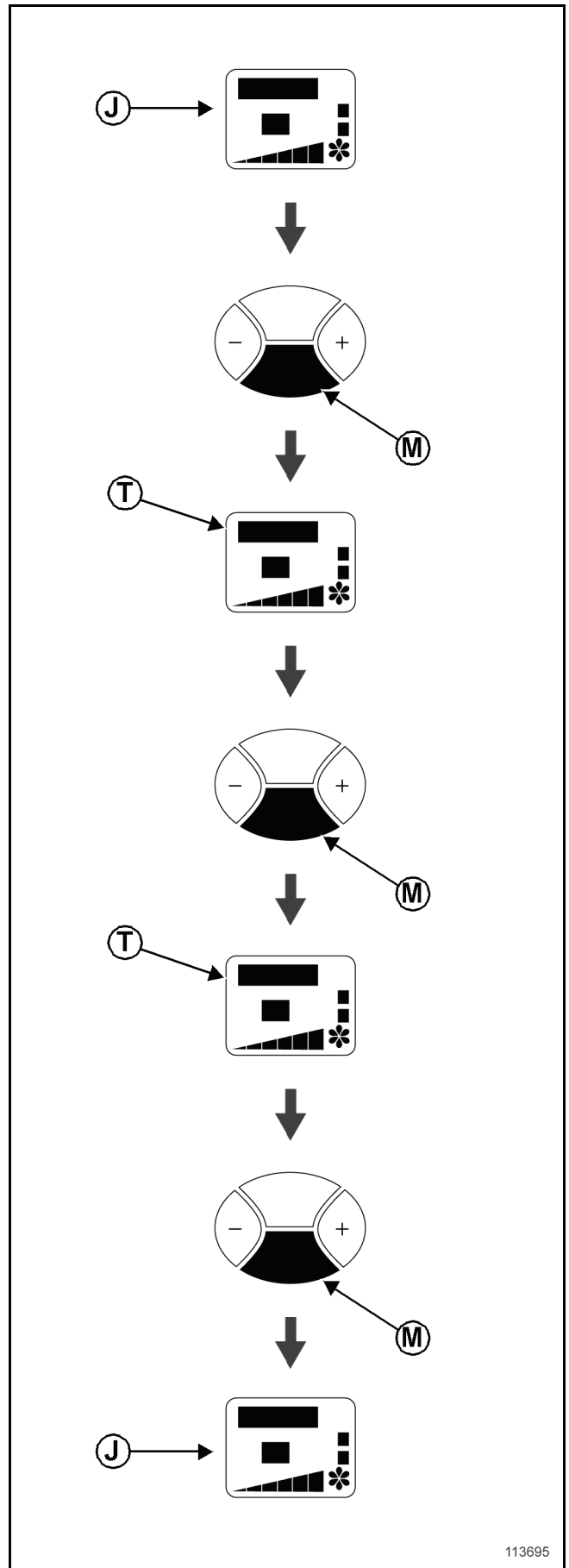
After use and before pushing switch (A) off (0), cool the gun. Similarly, during brief pauses or for lower power consumption, switch the gun to PAUSE mode by carrying out the following operation.

Before switching off the heat gun:

- press STANDBY button (M) once,
- program field (T) on display field (J) shows COOL,
- wait until the temperature goes down to **150°C** and push switch (A) off (0).

To switch to economy mode:

- press STANDBY button (M) once,
- program field (T) on display field (J) shows COOL,
- press STANDBY button (M) once,
- program field (T) on display field (J) shows WAIT,
- the gun is in economy mode,
- press STANDBY button (M) once to recover the previous settings and start heating again.



Note:
This relates to **the generic repair procedure**.

1 - Choosing the sleeve.

There are two possible techniques available:

- self-solder sleeves,
- crimp sleeves.

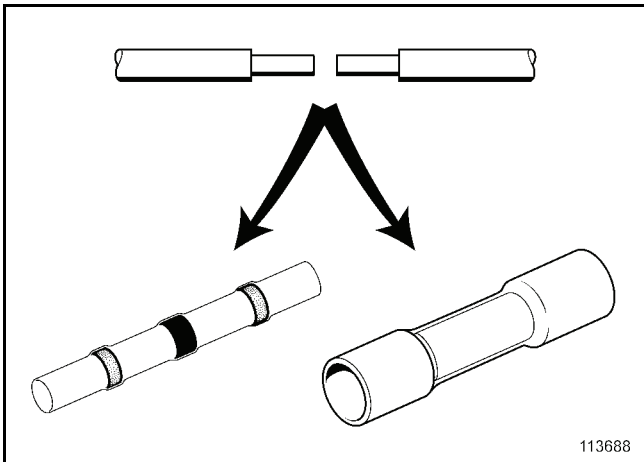
For each technique there are 3 sizes of sleeve.

The choice of sleeve depends on the following criteria:

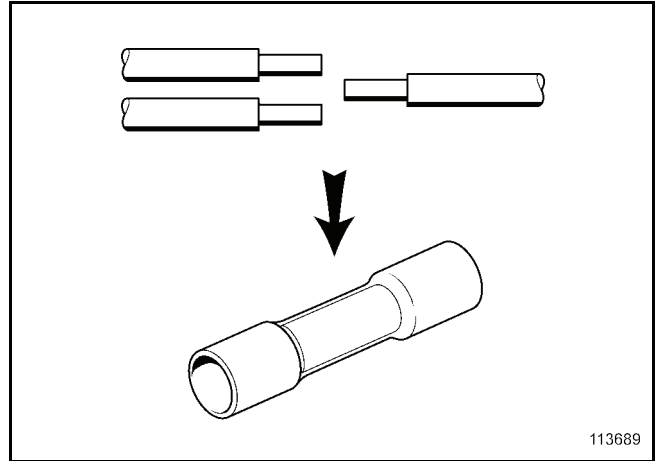
● Type of operation.

Note:
This is **stage 1** when using the label.

If wire to wire (1-to-1), use crimp sleeves or self-solder sleeves.



If 2 wires and 1 wire (2-to-1), **only** use crimp sleeves. In this case, the seal can no longer be guaranteed. Do not use this solution when a tight seal is needed (engine and underbody areas and damp areas of the doors and boot).



● Wire cross-sections.

Note:
This is **stage 2** when using the label.

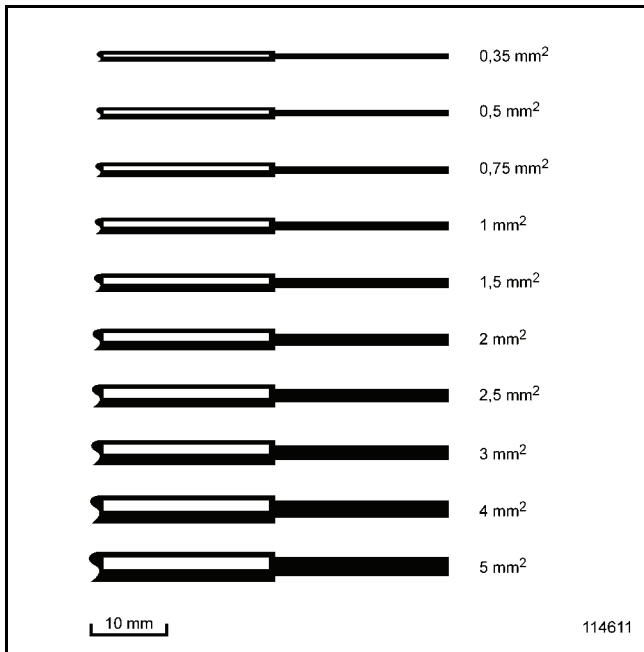
See the sleeve choice table taken from the label.

Note:
The columns corresponding to the wire cross-sections give a representative overview of the different cases.

Identify the cross-section of the wire which is the subject of the operation. Use the diagram which shows pictures of wires which correspond to the wire cross-sections.

Check that the diagram is at scale 1.

Find the stripped section of wire.



Refer to the columns of wire cross-sections to find your case.

Note:
If the case in question is not present, refer to the special cases.

Example 1.
Joining together 2 wires, each **0.5 mm²** (1-to-1 type operation). Look at the upper section of the columns (1-to-1).
Each wire (A and C) has a **0.5 mm²** cross-section.
Refer to the line where:

- column A shows **1 x 0.5 mm²**,
- and column C shows **1 x 0.5 mm²**.

Example 2.
Joining 3 wires together (2-to-1 type operation). Look at the lower section of the columns (2-to-1).
On one side, the 2 wires (A and B) both have a **1 mm²** cross-section. On the other side, wire C has a **2 mm²** cross-section. Refer to the line where:

- columns A & B show **2 x 1 mm²**,
- and column C shows **1 x 2 mm²**.

● Identifying the settings.

Note:
This is **stage 3** when using the label.

After having found your case in question, follow the corresponding line to find the setting parameters. The settings correspond to the lengths to be stripped and the temperature of the heat gun.

The column corresponding to these parameters gives the recommended sleeve.

Note:
If several sleeves are possible for the same operation, choose the one best adapted for the number of wires to be repaired, the wiring layout and the vehicle layout (thickness of the harness, available room etc.).

As relates to the previous examples.

Example 1.
2 possible sleeves:
– Either the red self-solder sleeve.
– Or the red crimp sleeve.

Example 2.
– Only the blue crimp sleeve is possible.

● Special cases.

If the case in question is not shown in the selection table, apply the following rules to select a sleeve.

In all cases, identify the cross-section of each wire (copper strands).

- **Case of a wire joint between 1 wire and 1 wire (most common situation).**

Conditions for self-solder sleeves:

Add together the 2 wire cross-sections (copper strands):

If $0.3 \text{ mm}^2 \leq (\text{section 1} + \text{section 2}) \leq 0.8 \text{ mm}^2$, use the self-solder sleeve with **clear rings**.

Strip **10 mm** from each wire.

The temperature setting is **300°C**.

If $0.8 \text{ mm}^2 \leq (\text{section 1} + \text{section 2}) \leq 2 \text{ mm}^2$, use the self-solder sleeve with **red rings**.

Strip **12 mm** from each wire.

The temperature setting is **340°C**.

If $2 \text{ mm}^2 \leq (\text{section 1} + \text{section 2}) \leq 3 \text{ mm}^2$, use the self-solder sleeve with **blue rings**.

Strip **15 mm** from each wire.

The temperature setting is **400°C**.

Conditions for crimp sleeves:

Consider the section of each wire separately.

If $0.5 \text{ mm}^2 \leq \text{each section} \leq 1.5 \text{ mm}^2$, use the **red** crimp sleeve.

Strip **7 mm** from each wire.

The temperature setting is **280°C**.

If $1.5 \text{ mm}^2 \leq \text{each section} \leq 2.5 \text{ mm}^2$, use the **blue** crimp sleeve.

Strip **7 mm** from each wire.

The temperature setting is **300°C**.

If $3 \text{ mm}^2 \leq \text{each section} \leq 6 \text{ mm}^2$, use the **yellow** crimp sleeve.

Strip **8 mm** from each wire.

The temperature setting is **320°C**.

- **Case of a wire joint between 2 wires and 1 wire (less common situation).**

Conditions for crimp sleeves:

Add together the 2 wire cross-sections (copper strands) found on one side of the sleeve to find **Sum side 1**.

If $0.5 \text{ mm}^2 \leq \text{Sum sections side 1} \leq 1.5 \text{ mm}^2$.

And if $0.5 \text{ mm}^2 \leq \text{wire cross-section side 2 only} \leq 1.5 \text{ mm}^2$, use the **red crimp sleeve**.

The temperature setting is **280°C**.

If $1.5 \text{ mm}^2 \leq \text{Sum sections side 1} \leq 2.5 \text{ mm}^2$.

And if $1.5 \text{ mm}^2 \leq \text{wire cross-section only side 2} \leq 2.5 \text{ mm}^2$, use the **blue crimp sleeve**.

The temperature setting is **300°C**.

If $3 \text{ mm}^2 \leq \text{Sum sections side 1} \leq 6 \text{ mm}^2$.

And if $3 \text{ mm}^2 \leq \text{wire cross-section only side 2} \leq 6 \text{ mm}^2$, use the **yellow crimp sleeve**.

The temperature setting is **320°C**.

For stripping the wires:

7 mm is stripped from the single wire (side 2) for red and blue crimp sleeves and **8 mm** for the yellow sleeve.

If the two wires (side 1) have the same cross-section, strip **10 mm** from them for red and blue crimp sleeves and **11 mm** for the yellow sleeve.

If the 2 wires (side 1) have different cross-sections, then:

For red and blue crimp sleeves, strip **10 mm** from the smaller cross-section and **7 mm** from the larger cross-section.

For the yellow sleeve, strip **11 mm** from the smaller cross-section and **8 mm** from the larger cross-section.

WARNING

If no sleeve corresponds to the case in question, the operator cannot repair the wiring. Replace the wiring harness.

WIRING

Wiring: Repair

88A

- Settings table (taken from the label).

Sleeves		Self-solder								Crimp										
		clear				red				blue				red		blue		yellow		
		$0.3^2 \leq A+C \leq 0.8^2$				$0.8^2 \leq A+C \leq 2^2$				$2^2 \leq A+C \leq 3^2$				$0.5^2 \leq A+B \leq 1.5^2$ & $0.5^2 \leq C \leq 1.5^2$		$1.5^2 \leq A+B \leq 2.5^2$ & $1.5^2 \leq C \leq 2.5^2$		$3^2 \leq A+B \leq 6^2$ & $3^2 \leq C \leq 6^2$		
Wire cross-sections		L (mm)		T (°C)	L (mm)		T (°C)	L (mm)		T (°C)	L (mm)		T (°C)	L (mm)		T (°C)	L (mm)		T (°C)	
A	C	A	C	(°C)	A	C	(°C)	A	C	(°C)	A	C	(°C)	A	C	(°C)	A	C	(°C)	
1→1	1x0.35 mm ²	1x0.35 mm ²	10	10	300															
	1x0.35 mm ²	1x0.5 mm ²	10	10	300	12	12	340												
	1x0.5 mm ²	1x0.5 mm ²				12	12	340			7	7	280							
	1x0.5 mm ²	1x1 mm ²				12	12	340			7	7	280							
	1x0.75 mm ²	1x0.75 mm ²				12	12	340			7	7	280							
	1x0.75 mm ²	1x1 mm ²				12	12	340			7	7	280							
	1x1 mm ²	1x1 mm ²				12	12	340	15	15	400	7	7	280						
	1x1 mm ²	1x1.5 mm ²							15	15	400	7	7	280						
	1x1.5 mm ²	1x1.5 mm ²							15	15	400	7	7	280	7	7	300			
	1x1.5 mm ²	1x2 mm ²												7	7	300				
	1x2 mm ²	1x2 mm ²												7	7	300				
	1x2 mm ²	1x2.5 mm ²												7	7	300				
	1x2.5 mm ²	1x2.5 mm ²												7	7	300				
	1x3 mm ²	1x3 mm ²															8	8	320	
	1x3 mm ²	1x4 mm ²															8	8	320	
	1x6 mm ²	1x6 mm ²															8	8	320	

	A & B	C	L (mm)			T (°C)	L (mm)			T (°C)	L (mm)			T (°C)	L (mm)			T (°C)	L (mm)			T (°C)		
			A	B	C	(°C)	A	B	C	(°C)	A	B	C	(°C)	A	B	C	(°C)	A	B	C	(°C)		
			2→1	2x0.5 mm ²	1x1 mm ²										10	10	7	280						
	1x0.5 mm ² + 1x1 mm ²	1x1.5 mm ²										10	7	7	280	10	7	7	300					
	2x1 mm ²	1x2 mm ²													10	10	7	300						
	1x0.5 mm ² + 1x 1.5 mm ²	1x2 mm ²													10	7	7	300						
	1x0.5 mm ² + 1x3 mm ²	1x3 mm ²																11	8	8	320			
	2x2 mm ²	1x6 mm ²																11	11	8	320			
Stripping/Temperature			mm			°C	mm			°C	mm			°C	mm			°C	mm			°C		

In the case of a 1-to-1 type operation, wires **A** and **C** denote the wires which are found at either side of the sleeve.

In the case of an operation where 2 wires are joined to 1 (2 to 1), wires **A** and **B** denote the 2 wires which are found at the same side of the sleeve (**A** is the smaller section). **C** denotes the single wire on the other side.

2 - Preparation.

To start the preparatory stage, check that the wiring is sufficiently accessible and that the sleeves have been chosen.

- Detach the wires from the wiring.
- Check that the operating area is sufficiently spacious and that the sleeves can be fitted staggered (if there is a number of wires).
- Mark the wires to be cut, particularly if there is a number of wires the same colour.
- Cut the damaged wire(s). Stagger the cuts if a lot of wires are marked so that the sleeves are not all on top of each other. The cut must be made at a distance of no less than **50 mm** from the damaged section and in an area where the sleeve will remain straight.
- Cut the replacement wire to length(s) identical to those removed from the harness. If the self-solder sleeves are being used, add **30 mm** for the wire joints.

WARNING

The cross-section of replacement wire must not be less than the original cross-section of wire.

WARNING

Use a **0.5 mm²** wire to repair a **0.35 mm²** wire.

WARNING

The temperature class of the replacement wire must be greater than or equal to class **T3**. For the repair, use the wires recommended by the parts department network, checking that they are suitable for your requirements.

- Strip the ends by the lengths indicated in relation to the sleeve chosen, using the stripping pliers (see **Wiring repair kit: Use**).
- Protect sensitive areas close to the wiring with the heat shield.

3 - Self-solder sleeves.

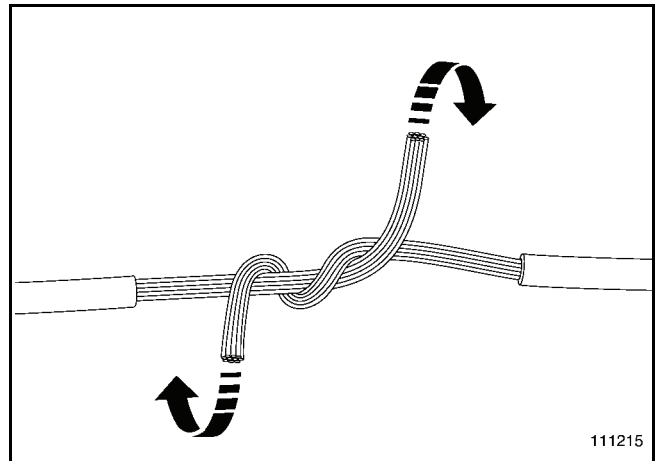
Note:

Fit the self-solder sleeves (connection and heating) line by line, sleeve by sleeve.

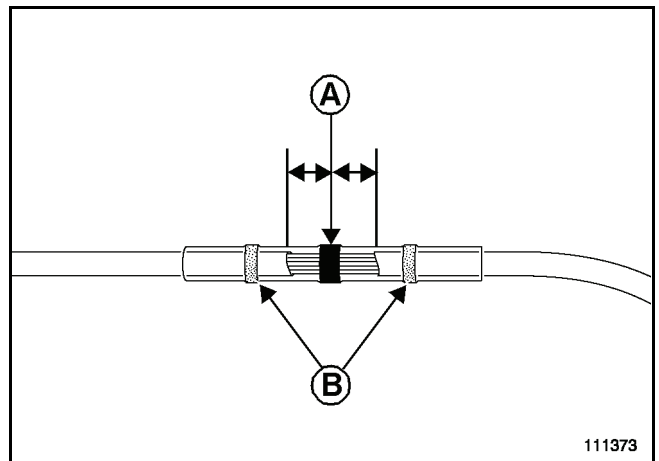
● Connection.

The equipment necessary and the wires are ready for the operation:

- Slip the self-solder sleeve onto one of the wires.
- Connect the wires by twisting the stripped sections around each other.



- Slide the sleeve over the stripped section. The ring of solder should end up in the centre of the stripped and twisted wires (**A**). The stripped and twisted section of the wires must be located between the 2 sealing rings (**B**).



WARNING

When twisting the wires, make sure that your hands are not greasy so that the solder adheres.

WARNING

When the sleeve is positioned, check that all the copper strands remain flat and subsequently are not at risk of perforating the sleeve. Start the operation to join the wires again if necessary.

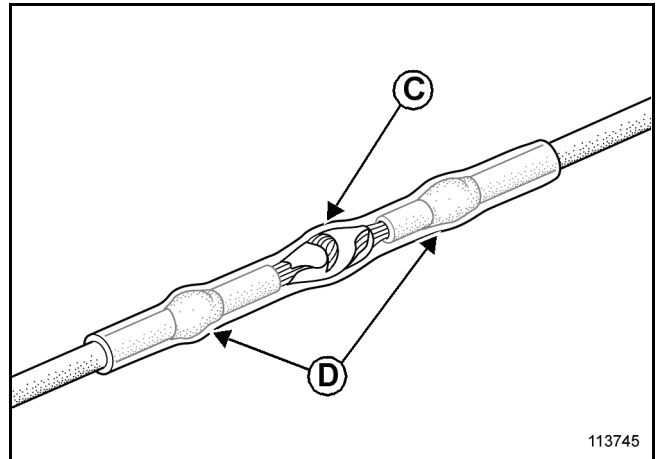
WARNING

The sealing rings must be clearly located on the insulated section of the wires (B) and not on the copper or where the copper and the insulated section meet. Start the operation to join the wires again if necessary.

Once the wires are joined, start the heating operation.

● Heating the self-solder sleeve.

- Switch on the heat gun fitted with the concentrator nozzle after familiarising yourself with the precautions for use (see **Wiring repair kit: Use**).
- Adjust the temperature and the air flow to the values indicated (see **Wiring repair kit: Use**).
- Check that the sensitive areas close to the sleeve and the other electrical wires are not at risk of damage.
- Heat the sleeve starting at the centre, concentrating the heat on the ring of solder and the stripped section of the wires.
- When the copper and the ring of solder become hot enough, the ring of solder melts and runs in between the copper strands (C).
- When the solder has completely melted, move the nozzle to the ends of the sleeve to finish shrinking the sheath.
- The sealing rings of the sleeve tighten around the insulation of the wires (D).

**Note:**

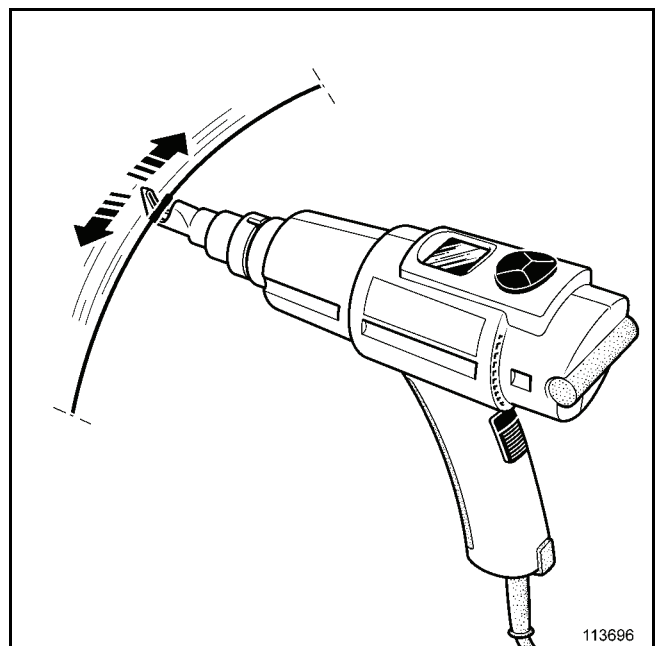
Spend the majority of the recommended time on the ring of solder and the rest of the time on the ends of the sleeve.

The heating operation takes **30 s ± 10**. This time is a guide only. It can be reduced or increased depending on how efficient the heating is.

WARNING

Do not try to heat the sheath too quickly, use a backwards and forwards motion to ensure it does not burn.

Do not direct the flow of hot air onto the insulation of the wires so as not to burn it.



WARNING

Wait for the sleeve to cool before manipulating it to maintain the quality of the solder (minimum waiting period: 1 minute).
Do not bend the sleeve (even when cool) so as to not damage the quality of the solder or the sealing properties of the sleeve.

Note:

- Do not move during installation.
- Do not overheat the sleeve.
- Do not move the sleeve or wires until they have cooled.

If several self-solder sleeves must be positioned, repeat the operation sleeve by sleeve.

When the heating operations have finished, move on to the checking operation (see **Wiring: Check**).

4 - Crimp sleeves.**Note:**

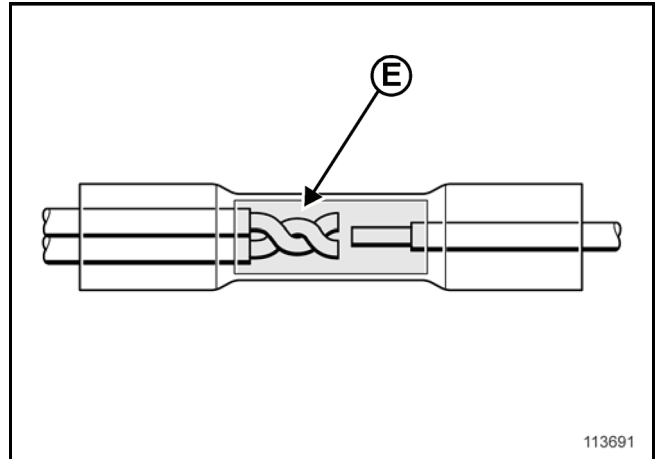
For a wire-to-wire join, go straight to the crimping operation.

● Special notes for joining 2 wires to 1 wire.**WARNING**

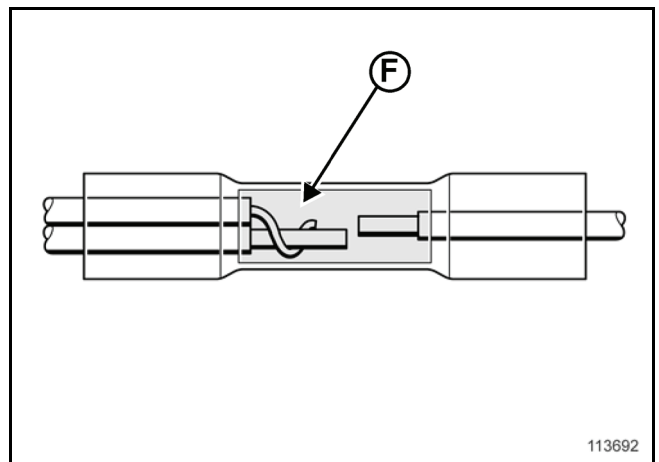
Do not use if a tight seal is needed (engine and underbody areas and damp areas of the doors and boot).

When joining 2 wires to 1 wire, first connect the 2 wires from the same end in the following way:

- If the 2 wires have identical diameters, twist together the stripped section of the 2 wires (**E**), before putting them into the sleeve.

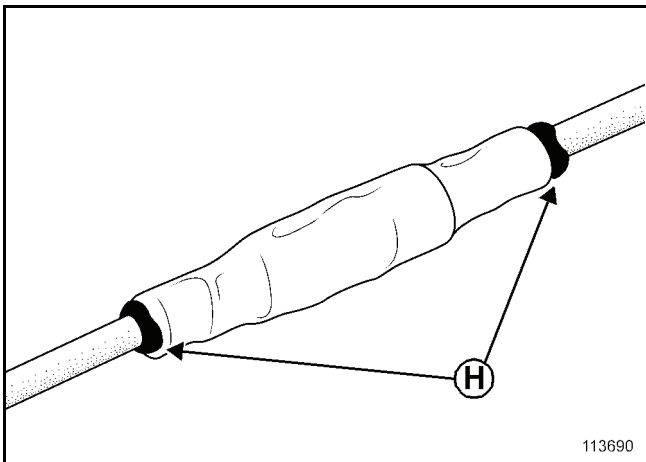


- If the 2 wires have different diameters, wind the stripped section of the smaller wire around that of the larger wire (**F**) before inserting them in the sleeve.



● Heating the crimping sleeve.

- Switch on the heat gun fitted with the concentrator nozzle after familiarising yourself with the precautions for use (see **Wiring repair kit: Use**).
- Set the temperature and the air flow to the values indicated, following the procedure in this note (see **Wiring repair kit: Use**).
- Check that the sensitive areas close to the sleeve and the other electrical wires are not at risk of damage.
- Heat the sleeve starting at the centre.
- When the sheath starts to contract, move the nozzle to one of the ends.
- The sheath continues to contract and produces a glue.
- When the end of the sleeve has completely contracted and the glue has correctly covered the opening of the sleeve, repeat the operation on the other end to obtain the result shown at (H).



Note:

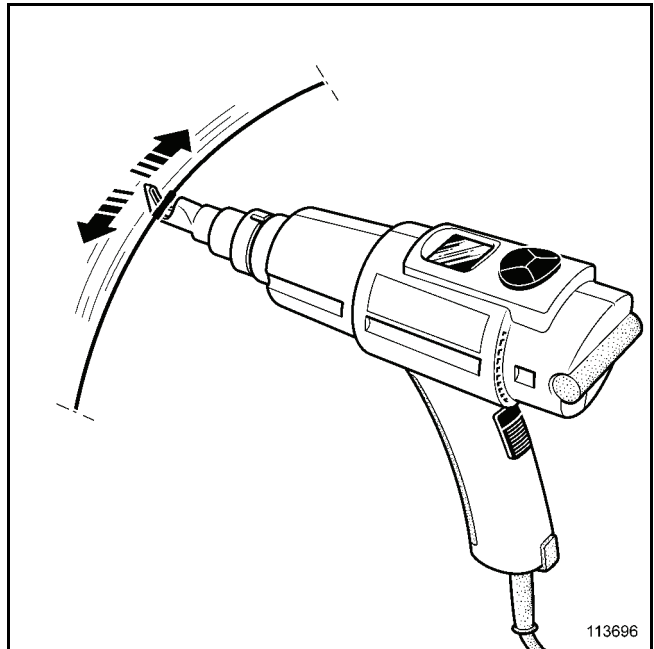
Spend the majority of the recommended time on the metal barrel and the rest of the time on the ends of the sleeve.

The heating operation takes **30 s ± 10**. This time is a guide only. It can be reduced or increased depending on how efficient the heating is.

WARNING

Do not try to heat the sheath too quickly, use a backwards and forwards motion to ensure it does not burn.

Do not direct the flow of hot air onto the insulation of the wires so as not to burn it.



WARNING

Wait for the sleeve to cool before manipulating it to ensure that the sealing properties of the sleeve are not affected (minimum waiting period: 1 minute).

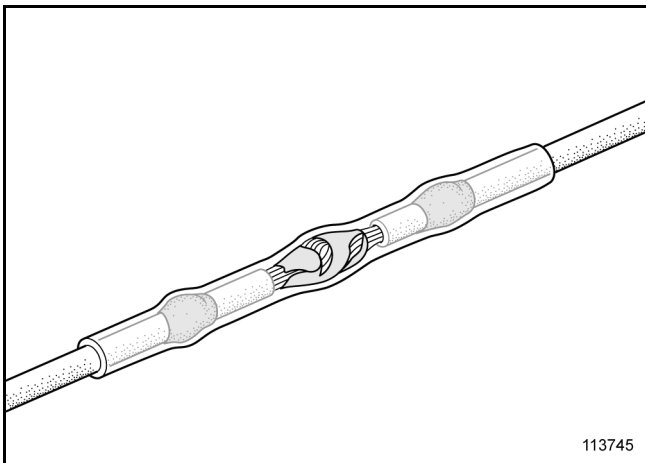
Do not bend the sleeve (even when cool) so as not to damage the sealing properties of the sleeve.

When the heating operations have finished, move on to the checking operation (see **Wiring: Check**).

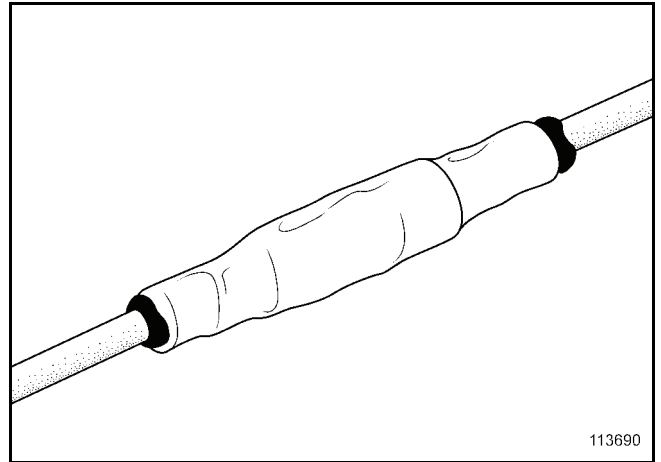
1 - Visual checks.

- The insulation of the wires is within the sleeve.
- (Self-solder sleeves) The sealing rings must be clearly located on the insulated section of the wires.
- (Self-solder sleeves) The solder has completely melted.
- (Crimp sleeves) The adhesive of the crimp sleeves forms a barrier at the ends of the sleeves.
- The sleeves has completely contracted around the insulation of the wires.
- The sleeve is not cut, slit, discoloured or pierced by a copper strand.
- The insulation of the wires does not show any sign of damage caused by overheating.
- The wiring and the area surrounding it have not been damaged by the heating operation.

Result of a correctly applied self-solder sleeve.



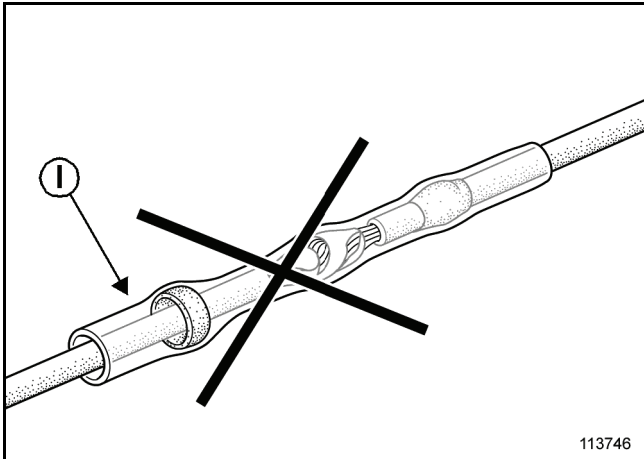
Result of a correctly applied crimp sleeve.



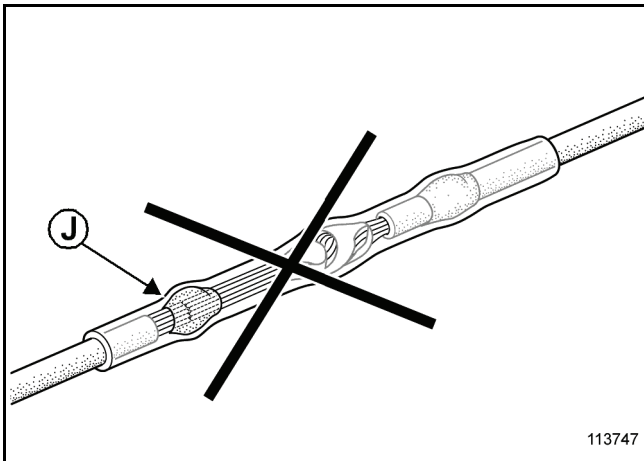
WARNING

The various struck-through cases are strictly forbidden.

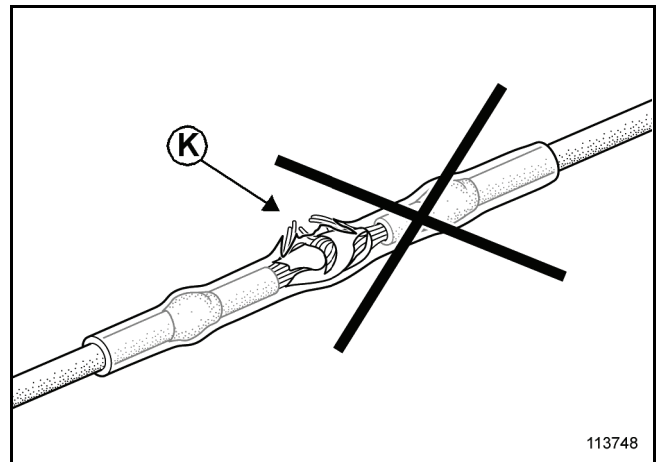
The self-solder sleeve has not been correctly shrunk. At (I), the sealing ring has not contracted around the insulation of the wire.



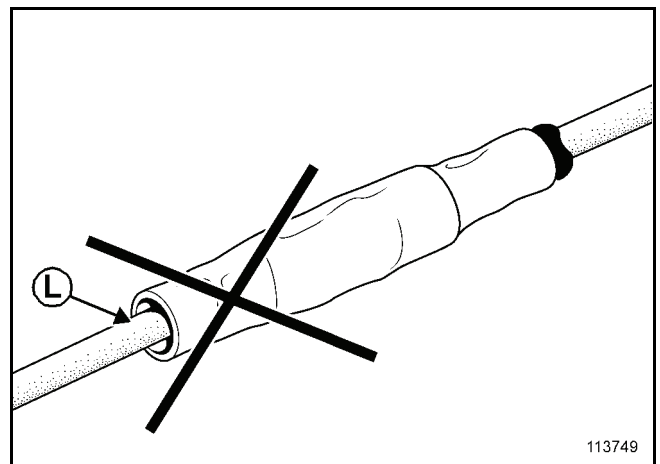
The sealing ring of the self-solder sleeve is directly on the copper of the wire at (J).



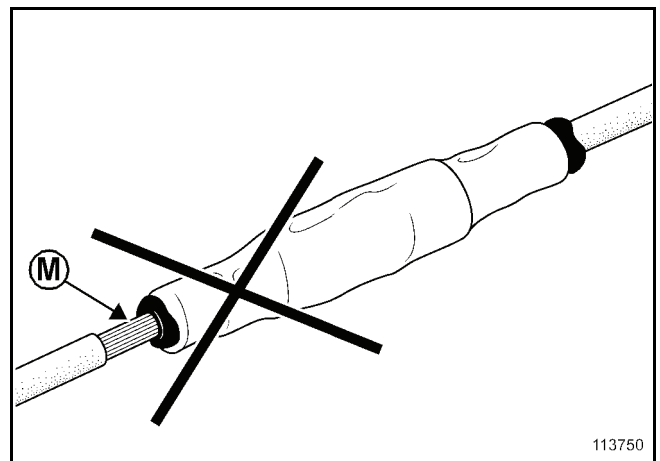
The protruding strands of the wire have pierced the self-solder sleeve at (K) during contraction.



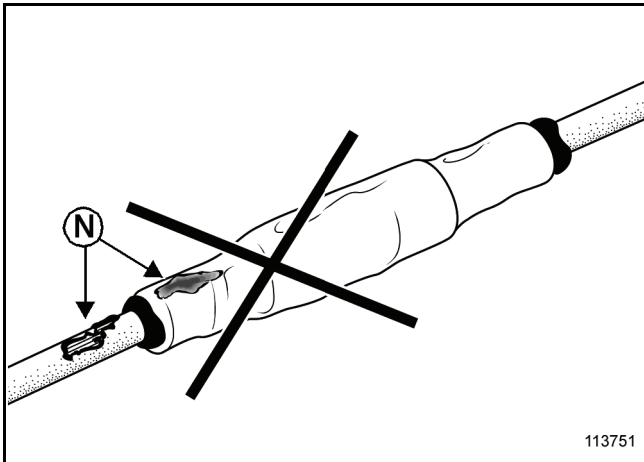
The crimp sleeve has not been correctly shrunk. At (L), the adhesive does not form a barrier at the end of the sleeve.



The adhesive of the crimp sleeve is directly on the copper of the wire at (M).



The sleeve and the insulation of the wire show signs of damage at (N) cause by overheating.



Note:

Reconnect the battery (see the **MR corresponding to the vehicle, 80A, Battery, Battery: Removal - Refitting**).

2 - Check with the diagnostic tool.

When a repaired line can be tested with the diagnostic tool, run this check.

3 - Function check.

Check that the component or the function of the repaired line is working correctly. If the case in question requires it, carry out a test drive.

Note:

Always check for faults after repair.

Refer to the fault finding procedure for the function concerned.

4 - Fitting and protections.

After the operation:

- reposition the wires concerned in the main harness,
- tape up the main harness using adhesive tape,
- protect the harness as it was originally using equivalent (noise or anti-damage) or superior protection with the protections recommended by the Parts Store network.

The part numbers for the protections are as follows:

- 77 11 237 838 - Protective sheath for wiring, diameter 7 mm (mechanical)
- 77 11 237 839 - Protective sheath for wiring, diameter 18 mm (mechanical)
- 77 11 237 840 - Protective sheath for wiring, diameter 31 mm (mechanical)
- 77 11 237 841 - Velour tape for wiring harness (sound insulation)

WARNING

Any repair which requires a specific heat shield for the wiring are forbidden. Replace the wiring harness.

WARNING

Check that the wiring is correctly maintained and protected to avoid any wear by rubbing and any noise disturbance.

5 - Final check.

After any operation on the wiring, check that there are no faults using the diagnostic tools (Clip).

Refer to the corresponding fault finding procedure.

If a fault is present, pass on the vehicle fault finding to a qualified operator: automotive electrician, technician agent or cotech (level 2 minimum).

WARNING

Apply this procedure when there is a connector - wiring kit or wire kit. Unless the kit is linked to one of the sensitive lines listed in the specific procedures reference table (see **Wiring: Precautions for repair**). In this case, apply the specific procedure for the sensitive line concerned.

1 - Wiring-Connector kit.

A wiring-connector kit enables repair to be carried out when the connector is faulty or when the fault is located less than **10 cm** from the connector.

A wiring-connector kit is generally made up of:

- at least 1 connector,
- crimped wires with corresponding contacts,
- sealing components if the connector is sealed,
- the self-solder or crimp sleeves necessary for the repair,
- other components specific to the function concerned (e.g. fuses).

Note:

if there is no kit, it is possible to create a wiring - connector kit if the following rules are respected:

- The connector affected by the repair must be taken from the **new wiring** provided as a spare part and intended for this repair.
- The function affected by the repair must not be covered by a special procedure.
- The connector should not be made up of more than **10 wires**.
- The wires are cut more than **10 cm** away from the connector.
- For each opening, the wires of the connector taken from the new wiring have a cross-section which is equal to or greater than that of the original connector.
- For each opening, the metal contacts of the connector taken from the new wiring are the same material (gilded or tinplated) as those of the original connector.
- The precautions set out in this note are respected (see **Wiring: Precautions for repair**).

2 - Using a wiring-connector kit.

Except in the specific outlined cases, use the wiring-connector kits as follows:

- check that the kit is complete,
- check that the conductor configuration (position of wires in the cells of the connector) corresponds to your needs,
- check that the wire cross-sections of the wiring-connector kit are equal to or larger than the cross-section of wires to be repaired,
- mark the wires to ensure that the tracks are not reversed,

WARNING

The colour of the wires cannot serve as a marker. In certain cases, wiring-connector kits can have different colours to those of the wiring to be repaired.

- Cut the connector wires to be replaced to a length greater than **100 mm** and stagger the cut wires,
- shorten the wiring-connector kit wires so as to provide wires the same lengths as those cut from the wiring to be repaired. For self-solder sleeves, add **30 mm** for the wire joints,
- apply the generic repair procedure for the joint (see **Wiring: Repair**).

3 - Wire kit.

A wire kit is used to perform a repair when the connector is not damaged.

A wire kit is generally comprised of:

- 3 crimp wires
- protection on the metal contacts.

4 - Applying a wire kit.

NOTE

Access the electric documentation for the vehicle on Infotech to obtain the part number of the wire kit required and the removal procedure for the connector.

Except in the specific outlined cases, use the wire kits as follows:

- check that the kit is complete,
- check for the presence of protection on the metal contacts,
- check that the wire cross-sections of the wire kit are equal to or larger than the cross-section of wires to be repaired,
- mark the wires to ensure that the tracks are not reversed,

WARNING

The colour of the wires cannot serve as a marker. Wiring-connector kits may be different colours to those of the wiring to be repaired.

- cut the connector wires to be replaced to a length greater than 100 mm and stagger the cut wires,
- shorten the kit wires so as to provide wires with the same lengths as those cut from the wiring to be repaired. For self-solder sleeves, add 30 mm for the splices,

Apply the generic repair procedure for the joint (see **Wiring: Repair**).

5 - Checking and fitting the repair with wiring-connector kits.

- Carry out the generic repair procedure check (see **Wiring: Check**) or that for the specific procedures if it is a specific case (see **Wiring: Precautions for repair**).
- Apply the recommendations from the generic repair procedure concerning the fitting and protection (see **Wiring: Check**).

6 - Final check.

After any operation on wiring, check for the absence of faults using the diagnostic tools (Clip, etc.).

Refer to the corresponding fault finding procedure.

If a fault is present, pass on the vehicle fault finding to a qualified operator: automotive electrician, technician agent or cotech (level 2 minimum).

This section deals with an electrical contact fault on the connector between the dashboard wiring and the pedal wiring on KANGOO.

1 - Context.

Customer complaint:

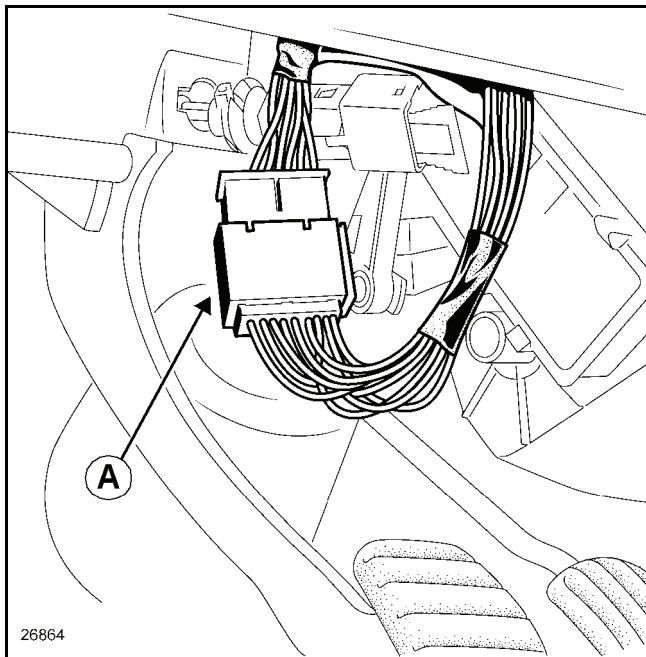
Loss of engine power when driving, with the injection warning light illuminated on Kangoo vehicles with K4M, F9Q, D4F, D7F and K9K engines.

Possible cause:

Loss of contact on the 16-track **R181** connector (dashboard wiring harness and pedal connection).

2 - Description of the repair procedure.

Make the **R181** connector accessible and unclip it from its mounting (**A**).



On the **R181** connector and using the Wiring Diagrams Technical Note corresponding to the vehicle, mark the gangs related to the accelerator potentiometer.

Note:

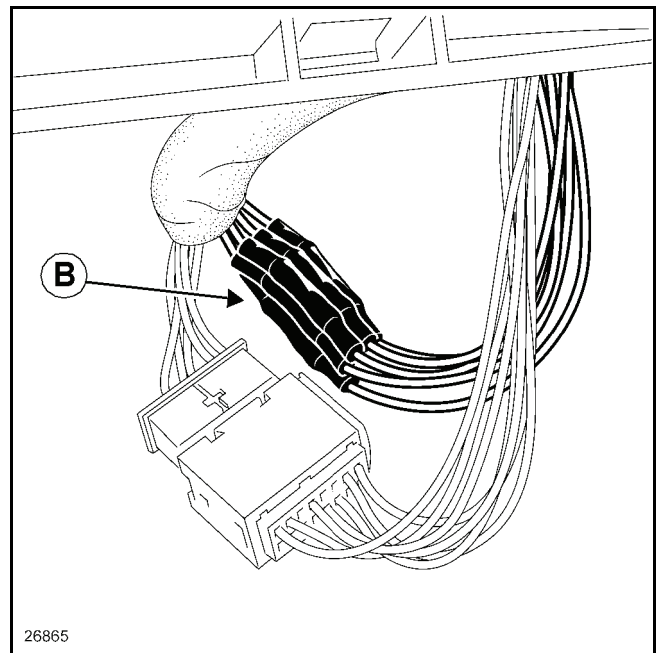
Using the Wiring Diagrams Technical Note or applying a continuity check, check that it concerns gangs B1, B2, B3, B4, B5 and B6.

WARNING

The colour of the wires is not same on either side of the R181 connector.

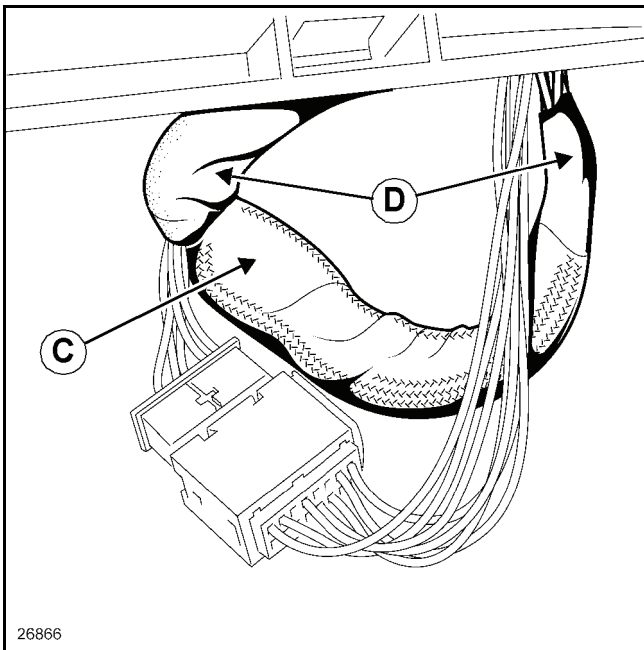
For each gang, proceed in the following manner:

- Cut the electrical wire either side of the connector.
- Make a wire joint with a **red self-solder sleeve** from the **wiring repair kit**, between the pedal electrical wire and the passenger compartment wiring electrical wire (**B**) (see **Wiring: Repair**).



After having shunted all of the wires concerned:

- Protect the shunted electrical wires (C) with wiring protective sheath with a diameter of **18 mm (77 11 237 839)**.
- Cover the ends of the protective sheath with **Adhesive PVC tape (D)**.
- Refit the **R181** connector on the mounting.
- Secure the shunted lines to the wiring using **Adhesive PVC Tape**.



3 - Repair check.

Continuity:

- Check the continuity of each of the shunted lines.

Function check:

- Clear the faults.
- Check the conformity of the pedal sensor parameters:
 - If it is a DDCR computer, see **Technical Note 3845A, Injection fault finding: DDCR VDIAG 04 - 08 - 10 - 0C - 14 - 18 - 20, Conformity check**.
 - If it is a DCM 1.2 computer, see **Technical Note 6500A, Fault finding - DCM 1.2 Injection Program 4C Vdiag 08, Conformity check**.
 - If it is a SIM 32 computer, see **Technical Note 3878A, Injection fault finding: SIM 32 SOFT D4 - Vdiag 04, Conformity check**.
 - If it is an EDC15 computer, see **Technical Note 3929A, Injection fault finding: DIESEL BOSCH EDC15C3 Vdiag 10 - 14 - 18, Conformity check** or **Technical Note 3930A, Injection fault finding: DIESEL BOSCH EDC15C3 Vdiag 0C, Conformity check** depending on the case.
 - If it is a SIRIUS 34 computer, see **Technical Note 3834A, Injection fault finding: SIRIUS 34-E932 - Vdiag 08, Conformity check**.
- Perform a road test.
- Check the status of the faults (present and stored).

Final check:

- Carry out a complete check with the **CLIP** tool and check that there are no faults.

Connector: Sealing and immobilisation

This section explains how to insulate and immobilise an unused connector when changing the wiring.

2 cases are dealt with:

- Waterproof wiring in damp areas
- Non-waterproof wiring

Refer to the relevant section.

1 - For waterproof wiring in damp areas.

WARNING

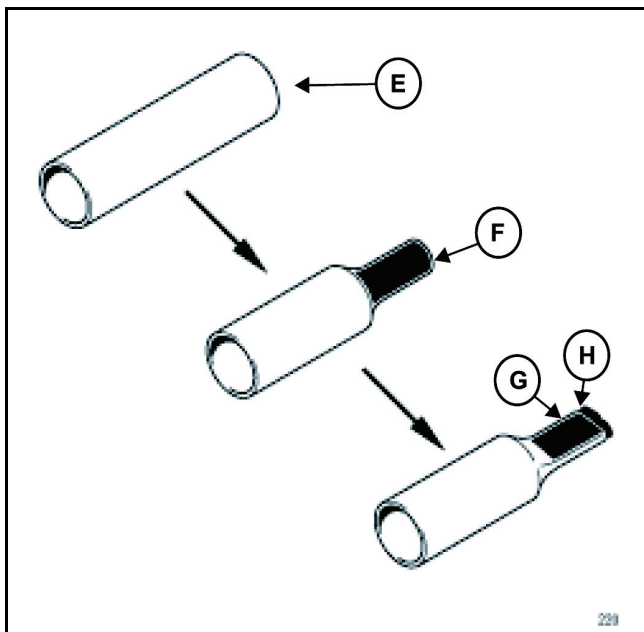
This operation is compulsory for any wiring which is located in damp areas which needs to be waterproof (engine and underbody areas, and damp areas of the opening elements). It applies to all of the unused connectors located on the wiring.

● **Equipment required.**

- Heat shrinkable waterproof sheath:

Part number of heat shrinkable waterproof sheath	Internal diameter (E) before contraction (mm)	Internal diameter (F) after contraction (mm)
7701 069 915	4 mm	1 mm
7701 033 055	8 mm	2 mm
7701 033 056	19 mm	4 mm

(E) < Diameter of electrical wire with insulation < (F)



- Adhesive **7703 397 035** (cracked cylinder of solid adhesive).

- Wiring repair kit (see **Wiring Repair Kit: Description**).

● **Description of the operation.**

Plug preparation:

- Mark the unused connector.
- Count the number of wires to be insulated and note their total diameter (copper and insulation).

Note:

The coupling of wires must be preserved. If several wires are connected together in a connector opening, always preserve this connection. The electric wires in the same opening will be connected together using self-solder sleeves or crimp sleeves from the wiring repair kit (See **Wiring repair kit: Description**).

- For every wire, remove **50 mm** of heat shrinkable sheath adapted to each wire diameter. The diameter of the wire must be less than the internal diameter of the sheath before contraction (E) and greater than the internal diameter of the sheath after contraction (F).

- Heat the end (G) of the pre-cut sheath using the heat gun included in the wiring repair kit (See **Wiring Repair Kit: Description**) and contract it approximately 15 mm (F).

The heat gun is equipped with the retraction nozzle and its temperature is adjusted to **120°C**, with maximum air flow (See **Wiring Repair Kit: Description**).

WARNING

To avoid burns, always wear gloves during the following operation .

- When the end has been contracted, flatten it in order to bond the surfaces using the internal adhesive of the sheath (G).
- Allow the sheath to cool for **1 min**.
- Check the prepared plug. The contracted length should not exceed **15 mm** and the adhesive should completely block the end at (H). Do not remove the surplus adhesive at (H).

Connector: Sealing and immobilisation

Fitting the plugs:

Note: When replacing the wiring, preferably carry out the operation before refitting the new wiring.

- Mark the unused connector.
- Mark the wire couplings on this connector (wires connected together in the same connector opening). Electric wires in the same opening will be connected together using the self-solder sleeves or crimp sleeves from the wiring repair kit (See **Wiring: Repair**).
- Cut the other wires of the connector equally.
- Fit a plug on each wire (**I**) and contract it using the heat gun included in the wiring repair kit (See **Wiring repair kit: Description**).
The heat gun is equipped with the deflector nozzle and its temperature is adjusted to **120°C**, with maximum air flow (See **Wiring repair kit: Use**).

WARNING

It is forbidden to place 2 wires of different connection codes in a single plug. There is a risk of a short circuit if the wires are live.

- Allow the assembly to cool down for **1 min**.
- Check that the sheath is sufficiently contracted on the wire (**J**). Repeat the operation with a heat shrinkable sheath with a smaller diameter if necessary.

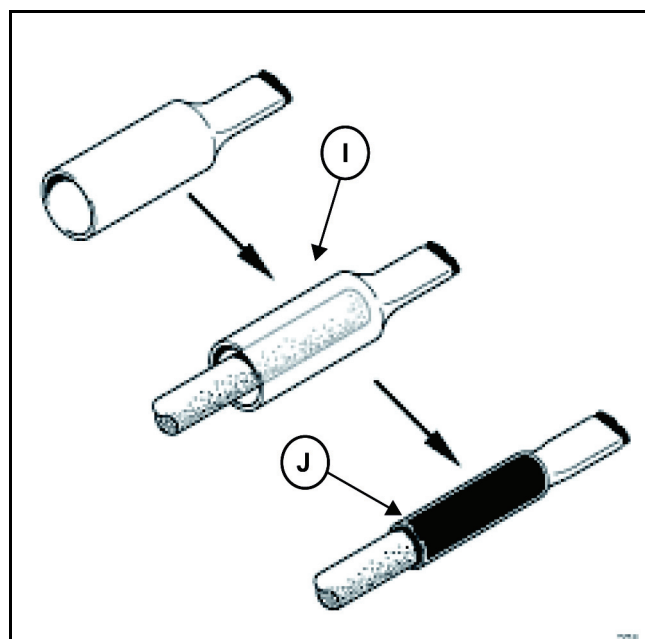
Note:

Do not remove the surplus adhesive.

WARNING

If there is not enough adhesive released by the heat shrinkable sheath, repeat the operation and add some adhesive (see Equipment required) inside the sheath.

- Tape all of the wires and sheaths using adhesive tape included in the wiring repair kit (See **Wiring repair kit: Description**).
- Fit a wiring protector which is equivalent or better than the original (See **Wiring: Check**).
- Secure the assembly to the main wiring using a Colson-type clip which will be fitted level with the sleeves. Use several clips if necessary.



2 - For non-waterproof wiring.

For non-waterproof wiring, only apply the immobilisation procedure.

- Mark the unused connector.
- Secure the connector on the main wiring using a Colson-type clip. Use several clips if necessary.
- Check that the assembly does not produce any interference noises, with the engine running and the vehicle moving. Fit an audible protector if necessary (See **Wiring: Check**).

This section describes how to visually inspect a connector.

Note:

Carry out each requested check visually. Do not remove a connector if it is not required.

Note:

Repeated connections and disconnections alter the functionality of the connectors and increase the risk of poor electrical contact. Limit the number of connections/disconnections as much as possible.

The check is carried out on the 2 parts of the connection. There may be two types of connections:

- Connector / Connector
- Connector / Device

1 - Visual inspection of the connection:

- Check that the connector is connected correctly and that the male and female parts of the connection are correctly coupled.

2 - Visual inspection of the area around the connection:

- Check the condition of the mounting (pin, strap, adhesive tape, etc.) if the connectors are attached to the vehicle.
- Check that there is no damage to the wiring trim (sheath, foam, adhesive tape, etc.) near the wiring.
- Check that there is no damage to the electrical wires at the connector outputs, in particular on the insulating material (wear, cuts, burns, etc.).

Disconnect the connector to continue the checks.

3 - Visual inspection of the plastic casing:

- Check that there is no mechanical damage (casing crushed, cracked, broken, etc.), in particular to the fragile components (lever, lock, openings, etc.).
- Check that there is no heat damage (casing melted, darker, deformed, etc.).
- Check that there are no stains (grease, mud, liquid, etc.).

4 - Visual inspection of the metal contacts:

- Check that there are no bent contacts (the contact is not inserted correctly and can come out of the back of the connector). If the wire is slightly stressed, the contact will come out.
- Check that there is no damage (folded tabs, clips open too wide, blackened or melted contact, etc.).
- Check that there is no oxidation on the metal contacts.

5 - Visual inspection of the sealing:

(Only for watertight connectors)

- Check for the seal on the connection (between the 2 parts of the connection).
- Check the seal at the back of the connectors:
 - For *unit* joints (1 for each wire), check that the unit joints are present on each electrical wire and that they are correctly positioned in the opening (level with the housing). Check that plugs are present on openings which are not used.
 - For a *grommet* seal (one seal which covers the entire internal surface of the connector), check that the seal is present.
 - For gel seals, check for gel in all of the openings without removing the excess or any protruding sections (it does not matter if there is gel on the contacts).
 - For *hotmelt* sealing (heat-shrink sheath with glue), check that the sheath has contracted correctly on the rear of the connectors and electrical wires, and that the hardened glue comes out of the side of the wire.
- Check that there is no damage to any of the seals (cuts, burns, significant deformation, etc.).

WARNING

This procedure is relates to the repair of the multiplex network alone (twisted wires).

1 - Locating the fault.

Use the diagnostic tool (clip) to test the multiplex network (see the fault finding procedure corresponding to the vehicle).

The diagnostic tool can detect the following short circuits on the multiplex network:

- short circuit between CAN L and + 12 V,
- short circuit between CAN H and + 12 V,
- short circuit between CAN H and earth,
- short circuit between CAN L and earth,
- short circuit between CAN L and CAN H,
- open circuits.

Note:

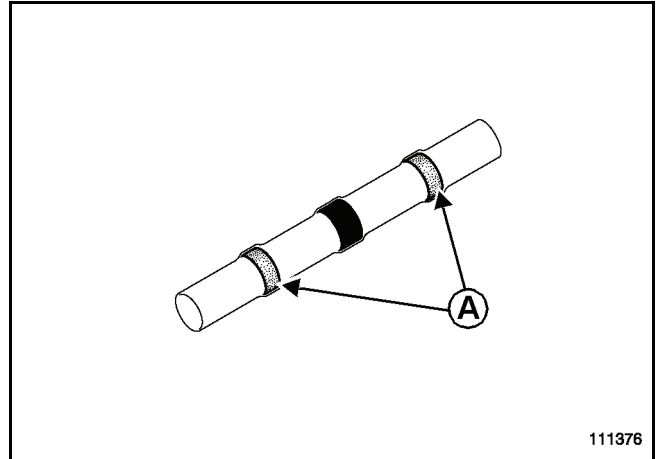
In the case of a short circuit between CAN-L and earth, communication between the different computers which make up the multiplex network is not interrupted. However, the multiplex network becomes sensitive to interference and can be the cause of an intermittent fault.

After having located the multiplex line fault, it is possible to repair it whilst applying all the necessary precautions outlined in this document.

2 - Necessary equipment.

For repairing the multiplex network, use the components of the wiring repair kit (see **Wiring repair kit: Description**).

Use the self-solder sleeves with red rings (A) for making the joints.



3 - Repairing the multiplex line.

WARNING

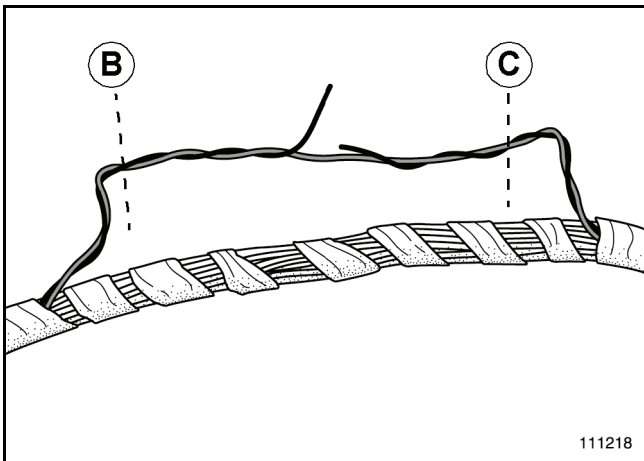
Before starting to repair a multiplex line, it is necessary that you familiarise yourself with the use of the tools relating to this repair (see **Wiring repair kit: Use**).

Disconnect the battery (see the **MR corresponding to the vehicle, 80A, Battery, Battery: Removal - Refitting**).

Remove the components necessary to enable access to the wiring.

Detach the section of wire to be repaired from the main wiring.

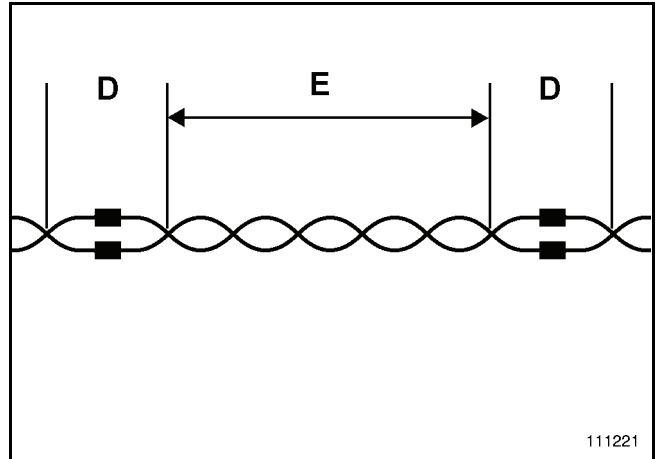
Cut the wires at (B) and (C), **50 mm** on each side of the damage.



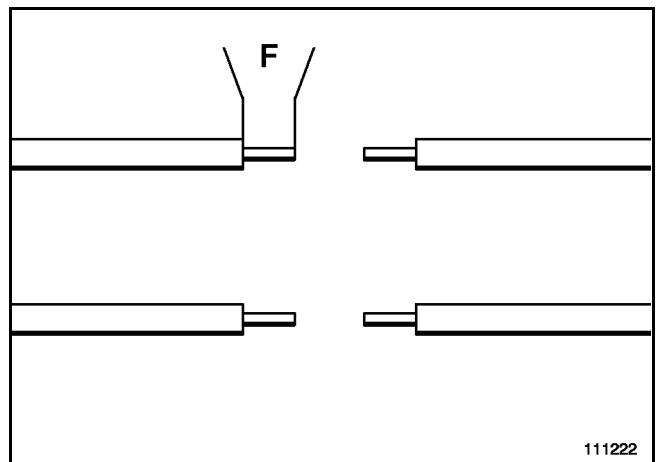
Take from the coil of twisted wires (**0.5 mm²**, specific number of turns) to be used to repair the multiplexing, a length of wire the same as that removed from the harness, **plus 30 mm** for the wire joints (See **Wiring repair kit: Description**).

WARNING

Do not untwist the harness to be repaired more than **100 mm (D)**. The wires at (E) must be twisted uniformly along the repaired length.

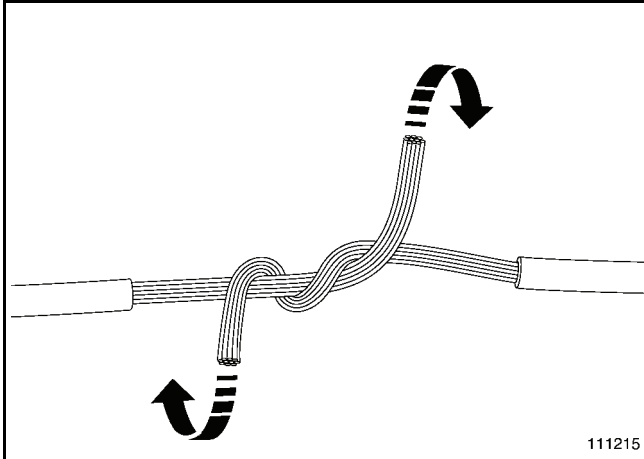


Strip each end of the wires by **10 mm (F)** at each side.



To join the wires, working wire by wire:

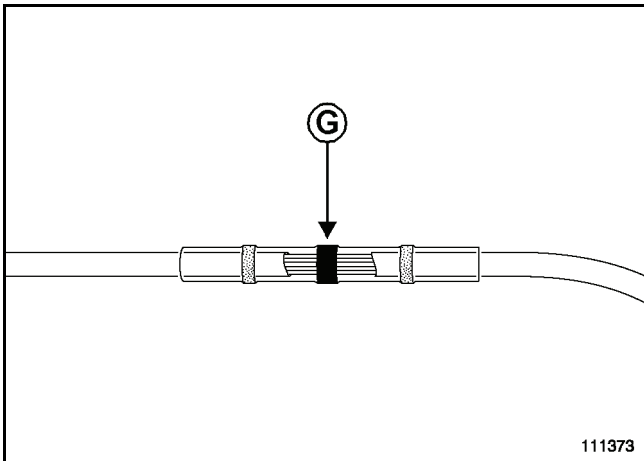
- slip the self-solder sleeve onto the wire,
- twist the end of the wires together.



WARNING

The colour of the wires (CAN H et CAN L) must be respected when they are being joined.

- Position the sleeve with its solder ring in the centre of the wire joint.



- Switch on the heat gun.
- Adjust the temperature of the tool to **340°C** with a ventilation speed set to maximum (See **Wiring repair kit: Use**).
- Heat the sleeve so that the solder ring melts (**G**) onto the wires until the heat shrinkable sheath contracts.

Refer to the precautions for use which relate to using self-solder sleeves (see **Wiring: Repair**).

WARNING

Do not try to heat the sheath too quickly, use a backwards and forwards motion to ensure that it does not burn.

Do not direct the flow of hot air onto the insulation of the wires so as not to burn it.

Note:

For the soldering to be complete and for the sheath to contract, the heating operation should last approximately **30 s ± 10**.

Spend the majority of the recommended time on the ring of solder and the rest of the time on the ends of the sleeve.

The recommended time is given as a guide. It can be reduced or increased depending on how efficient the heating is.

WARNING

Wait for the sleeve to cool before manipulating it to maintain the quality of the solder (minimum waiting period: 1 minute).

Do not bend the sleeve (even when cool) so as to not damage the quality of the solder or the sealing properties of the sleeve.

4 - Checking the multiplex line.

WARNING

After repairing the multiplex line, always check the multiplex network using the diagnostic tool.

Note:

During the check with the diagnostic tool, move the lines forwards and backwards slightly. If a fault is recorded, start the operation again for the faulty line.

Refer to the fault finding procedure for the function concerned.

WARNING

After having checked the multiplex line:

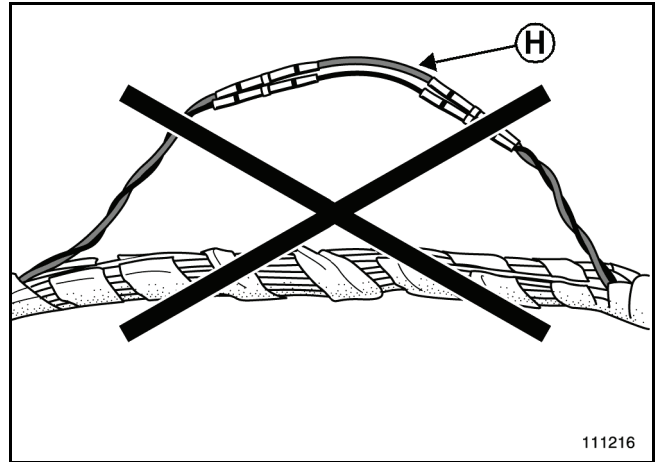
- refit it in the main harness,
- tape it up with adhesive tape.

Apply the recommendations from the generic repair procedure concerning the fitting and fuses (see **Wiring: Check**).

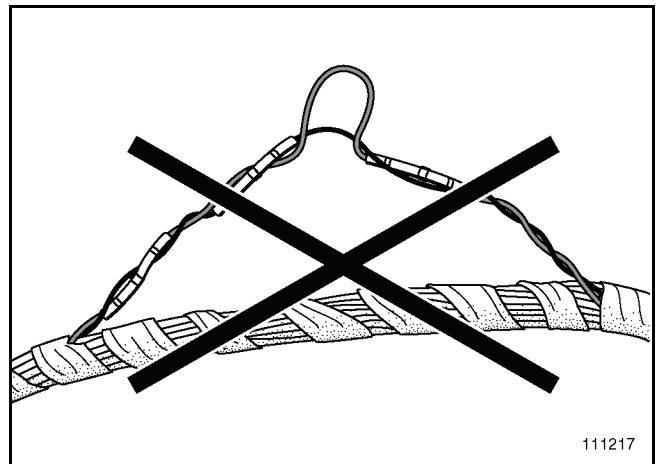
WARNING

The various struck-through cases are strictly forbidden.

No turns (twists) at (H).



The two wires added are of a different length.



5 - Final check.

After any operation on the wiring, check that there are no faults using the diagnostic tools (Clip).

Refer to the corresponding fault finding procedure.

If a fault is present, pass on the vehicle fault finding to a qualified operator: automotive electrician, technician agent or cotech (level 2 minimum).

WARNING

This procedure relates repairing airbag and pretensioner wiring only.

Note: Apply all the precautions and recommendations shown in the MR.

WARNING

All work on airbag and pretensioner systems must be carried out by qualified trained personnel.

WARNING

The pyrotechnic systems (pretensioners or airbags) must not be handled near to a heat source or flame; there is a risk that they may be triggered.

WARNING

Before removing an electronic control unit (ECU) or before any operation on the safety systems or around them, the airbag computer must be locked using the diagnostic tool. When this function is activated all the trigger lines are inhibited, and the airbag warning light on the instrument panel is lit continuously.

WARNING

Before any operation on a pyrotechnic component connection (connector or wiring) found faulty during fault finding, disconnect the pyrotechnic component.

1 - Identify the solution.

The case in question must figure in the table below. Otherwise, replace the wiring.

Airbag and pretensioner components	Solutions
Under seat connector (Airbag warning light on)	<ul style="list-style-type: none"> ● If the connector has more than 10 wires, no operation can be carried out. Replace the wiring unless there is a specific procedure (OTS*). ● If not, shunt the connector. See Under seat connector in this section.
Connector on seat runner	No operation. Replace the wiring unless there is a specific procedure (OTS*).
Pyrotechnic component connectors (squib) (airbag triggers, pretensioner, etc.)	Replace the connector using the airbag connectors kit. See Pyrotechnic component connectors in this section.
Airbag computer connector	No operation. Change the wiring harness except in the following cases: <ul style="list-style-type: none"> ● If there is a specific procedure (OTS*), its application is authorised. ● If the connector lock is broken, replacing the lock authorised.
Airbag and pretensioner harness damage	No operation except in specific conditions. See Airbag and Pretensioner harness damage in this section.

*OTS: Special Technical Operation

WARNING

Any repair linked to the airbag function necessitates a specific check using the network's diagnostic tools.

2 - Under seat connector.

Note:

For a connector on a seat runner, the wiring must be replaced.

When fault finding identifies a under seat connector fault, shunt the under seat connector following the procedure below:

Cut the electrical wires either side of the connector.

Apply the specific procedure for repairing multiplex lines (see **Multiplex network: Repair**), except the part on locating the fault, to shunt the connector.

Note:

Check that the length of replacement wire is the same as that removed from the harness, **plus 30 mm** for the wire joints.

After the operation, check that the wire is not too taut or too long when the seat is furthest forward or back.

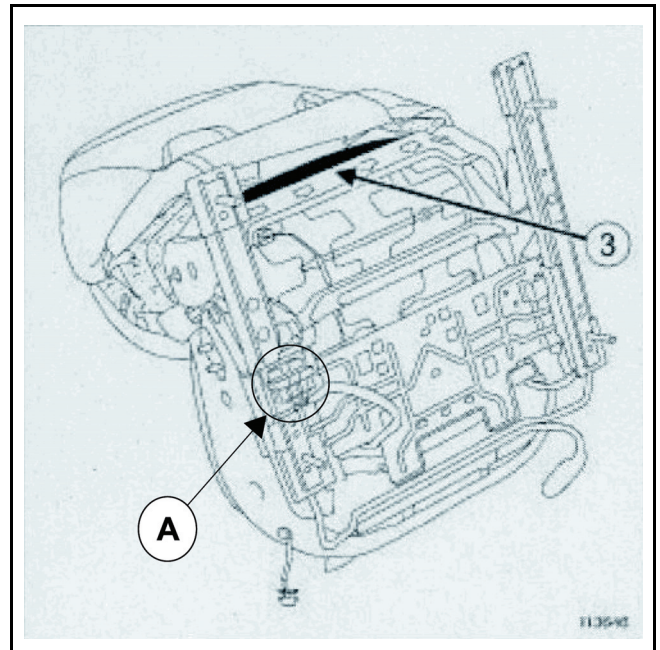
Protect the wires so that they are not damaged and this new branch is correctly maintained. Hanging loops are not allowed, regardless of the wires involved in the repair.

Carry out the specific airbag and pretensioner line repair checks. See **Airbag line repair check** and **Final check** in this section.

Note:

Check that the harness is correctly repositioned after the operation and that it does not obstruct the seat adjusting mechanisms.

Example of a connector on a seat runner (A):



113646

3 - Pyrotechnic component connectors.

These are airbag and pretensioner trigger connectors.

Identify the connector concerned on the vehicle.

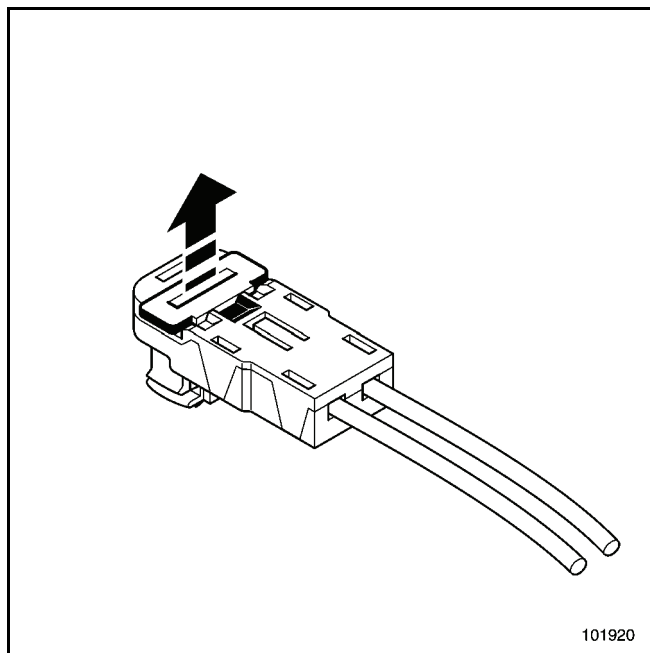
Repair is possible if it is a SQUIB connector.

Find the colour of the connector: Blue, green or orange.

Find the shape of the connector: Straight or angled.

Select the same connector (colour and shape) from the airbag connectors kit (see under DIALOGYS).

Example of an angled SQUIB connector.



Apply the specific procedure for repairing multiplex lines (see **Multiplex network: Repair**), except the section on locating the fault, to replace the connector.

Carry out the specific airbag and pretensioner line repair checks. See **Airbag line repair check** and **Final check** in this section.

4 - Airbag and Pretensioner harness damage.

WARNING

No operation is authorised unless it is possible to check the repair using the diagnostic tool.

Where the repair can be checked with the diagnostic tool:

- if it is a case of twisted wires with a cross-section less than or equal to 0.5 mm^2 , apply the specific procedure for repairing multiplex lines (see **Multiplex network: Repair**), except for the section on locating the fault, for the repair of the lines;
- if it does not concern twisted wires, apply the generic procedure for repairing the harness (see **Wiring: Check**).

Carry out the specific airbag and pretensioner line repair checks. See **Airbag line repair check** and **Final check** in this section.

5 - Airbag lines repair check.

Confirm the airbag line repair to ensure that the repair is correct:

- Check the quality of the operation by reading the impedance reading produced by the computer using the diagnostic tool.
- Unlock the airbag computer using the diagnostic tools.
- The warning light should no longer be on.

Note:

During the check with the diagnostic tool, move the lines forwards and backwards slightly. The resistance measure should remain stable, if variations in resistance are noticed, start the repair operation again for the defective line.

Refer to the airbag and pretensioner function fault finding procedure for the vehicle concerned.

Apply the recommendations from the generic repair procedure concerning the fitting and fuses (see **Wiring: Check**).

6 - Final check.

After any operation on the wiring, check that there are no faults using the diagnostic tools (Clip).

Refer to the fault finding procedure for the airbag and pretensioner function concerned.

If a fault is present, pass on the vehicle fault finding to a qualified operator: automotive electrician, technician agent or cotech (level 2 minimum).

ENERGY MANAGEMENT COMPUTER : REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Apply the before repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :
 - Computer concerned by the Before repair procedure:
 - "Energy management computer" .

- Disconnect the battery [Battery: Removal - Refitting](#) .



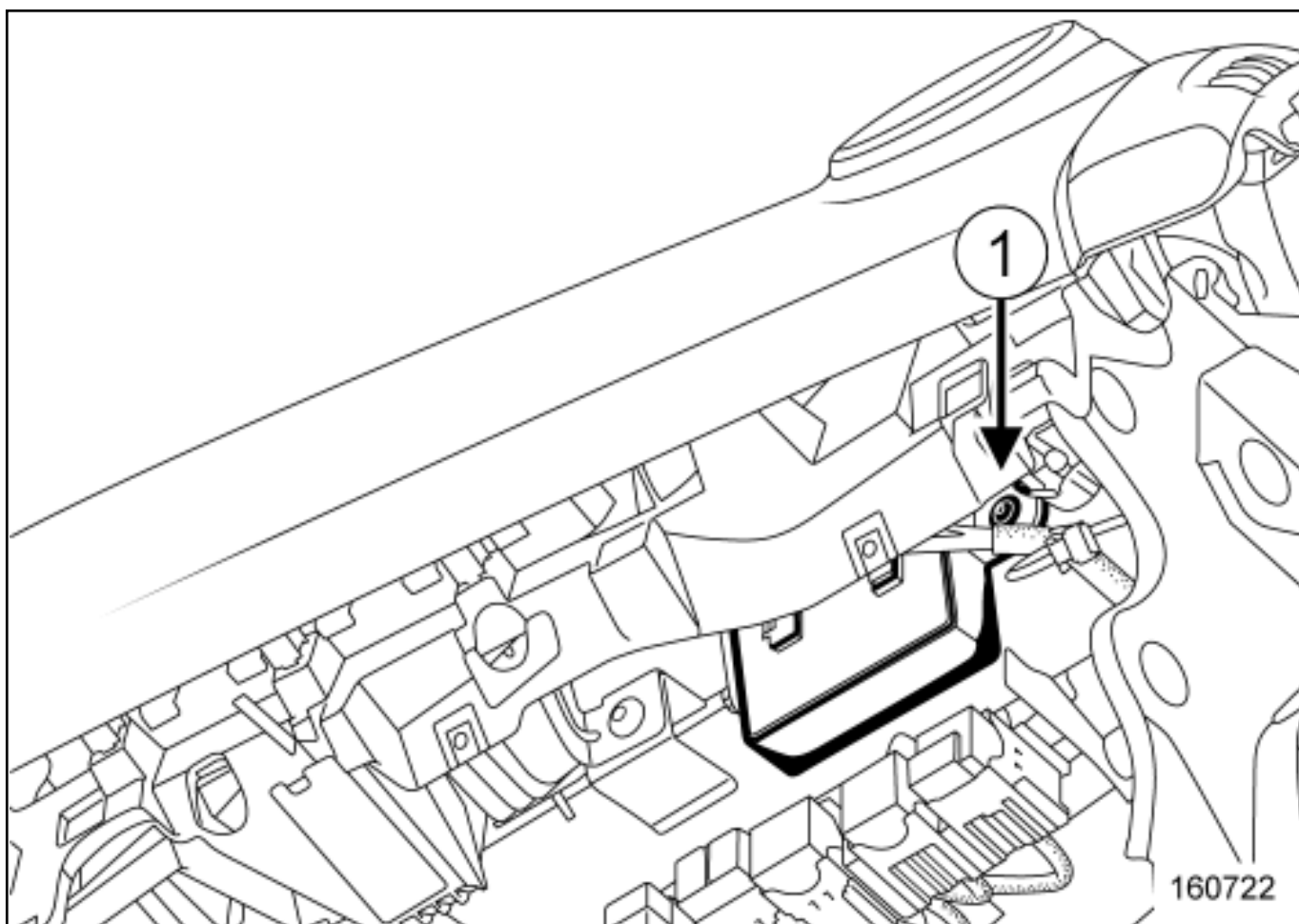
Remove [Dashboard assembly: Exploded view](#) :

- the centre console front sections,
 - the centre front panel,
 - the dashboard centre front panel trim.



Remove the glovebox [Dashboard assembly: Exploded view](#) .

2. REMOVAL OPERATION



- Remove the energy management computer screw(1) .

- Disconnect the energy management computer connectors.

- Remove the energy management computer.

REFITTING

1. REFITTING OPERATION

Proceed in the reverse order to removal.

2. FINAL OPERATION

Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the After repair procedure:

■ "Energy management computer" .



Repair-32x05x01x29-01x37-1-1-1.xml



XSL version : 3.02 du 22/07/11

ENGINE - GEARBOX ASSEMBLY: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Remote operation pliers for hose clips.

Mot. 1448

Support for removal - refitting of engine - gearbox assembly

Mot. 1390

Equipment required

refrigerant charging station

indelible pencil



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

Wear leaktight gloves (Nitrile type) for this operation.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.



CAUTION

Keep the pipe unions away from contaminated areas.



CAUTION

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.



CAUTION

To avoid any leaks, check that the seal and the pipe surface are in good condition. The seal and the surface must be clean and scratch free.



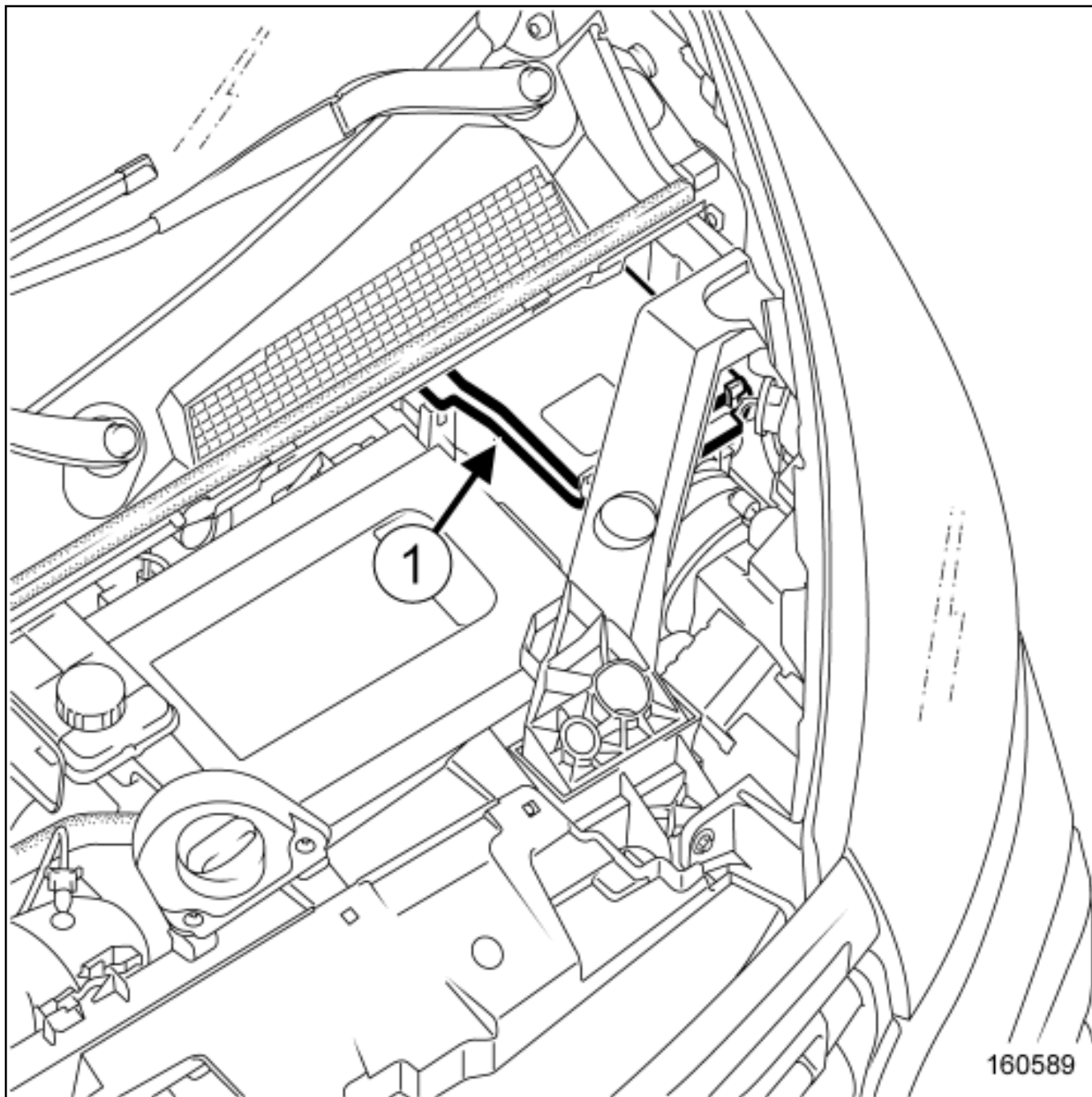
CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



- Remove the Protection and Switching Unit cover(1) .
- Disconnect the connectors from the Protection and Switching Unit(see **Engine wiring: Removal - Refitting**) .
- Remove:
 - the battery [Battery: Removal - Refitting](#) ,
 - the battery tray [Battery tray: Removal - Refitting](#) ,
 - the engine undertray bolts,
 - the engine undertray,
 - the front wheels [Front hub carrier assembly: Exploded view](#) ,
 - the front section of the front wheel arch liners(see **Front wheel arch liner: Removal - Refitting**) ,
 - the front bumper(see **Front bumper assembly: Exploded view**) ,
 - the radiator grille(see **Front bumper assembly: Exploded view**) ,

- the expansion bottle [Coolant circuit assembly: Exploded view](#) ,
- the filler neck pipe [\(see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view\)](#) ,
- the front end panel (see **Front end panel: Removal - Refitting**) ,
- the air deflectors,
- the intercooler [Air inlet assembly: Exploded view](#) ,
- the intercooler air outlet pipe [Air inlet assembly: Exploded view](#) ,
- the intercooler air inlet pipe [Air inlet assembly: Exploded view](#) .

□ Loosen the clip of the air outlet pipe on the air filter unit [Air inlet assembly: Exploded view](#) .

□ Disconnect the air outlet pipe from the air filter unit [Air inlet assembly: Exploded view](#) .

□ Remove the air filter unit [Air inlet assembly: Exploded view](#) .

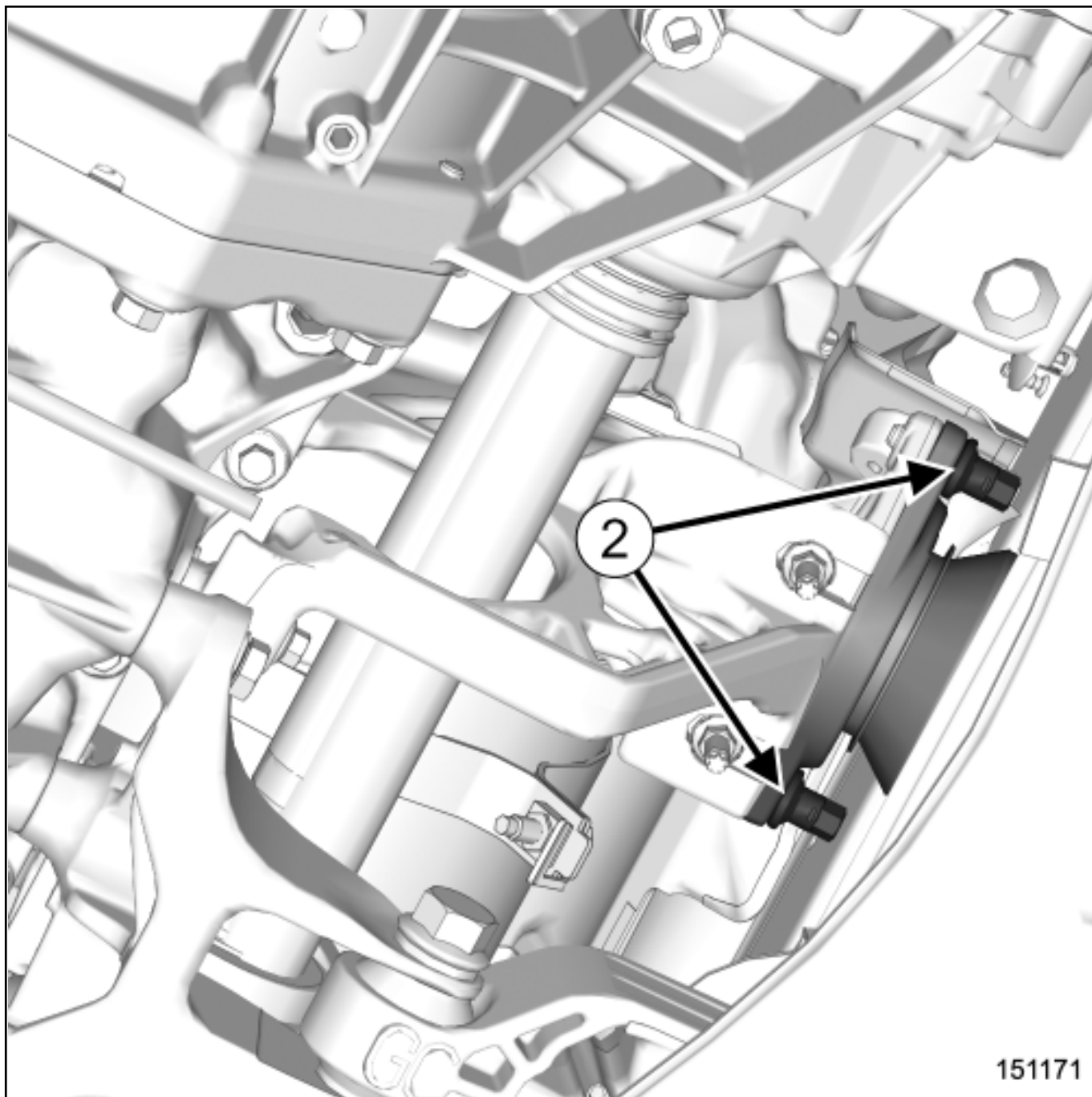
□ Drain the refrigerant circuit using a refrigerant charging station [Refrigerant circuit: Draining - Filling](#) .

□ Drain:

- the engine cooling system [Cooling system: Draining - Refilling](#) ,
- the engine oil (if necessary) [\(see 10A, Engine and cylinder block assembly, Engine oil - Oil filter : Draining - Filling\)](#) ,
- the manual gearbox [Manual gearbox oils: Draining - Filling](#) .

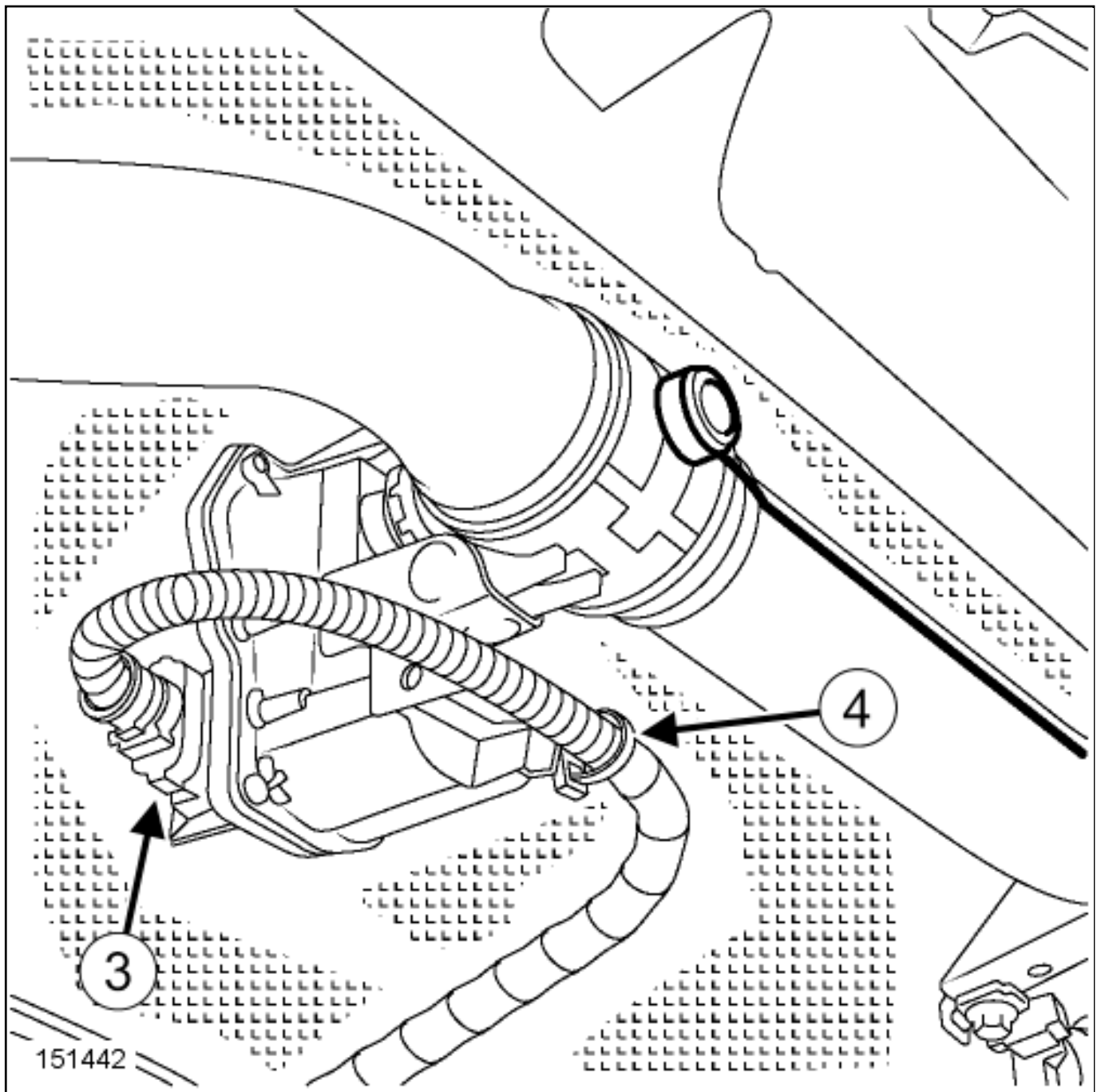
□ Remove:

- the front right-hand wheel driveshaft [Front right-hand driveshaft: Removal - Refitting](#) ,
- the front left-hand wheel driveshaft [Front left-hand driveshaft: Removal - Refitting](#) ,
- the differential output seals [Differential output seal: Removal - Refitting](#) ,
- the lower engine tie-bar [Engine-gearbox unit support assembly: Exploded view](#) ,
- the front axle subframe [Front axle assembly: Exploded view](#) .



151171

- Remove the nuts(2) from the exhaust flange.
- Move the exhaust pipe to one side.
- Remove the exhaust flange seal.



151442

- Disconnect the exhaust gas regulator valve connector(3) .
- Unclip the wiring from the exhaust gas regulator valve at(4) .
- Move aside the wiring.
- Remove [Passenger compartment cooling assembly: Exploded view](#) :
 - the "compressor - condenser" connecting pipe mounting bolts,
 - the bolt from the retaining bracket of the "compressor - condenser" connecting pipe on the condenser,

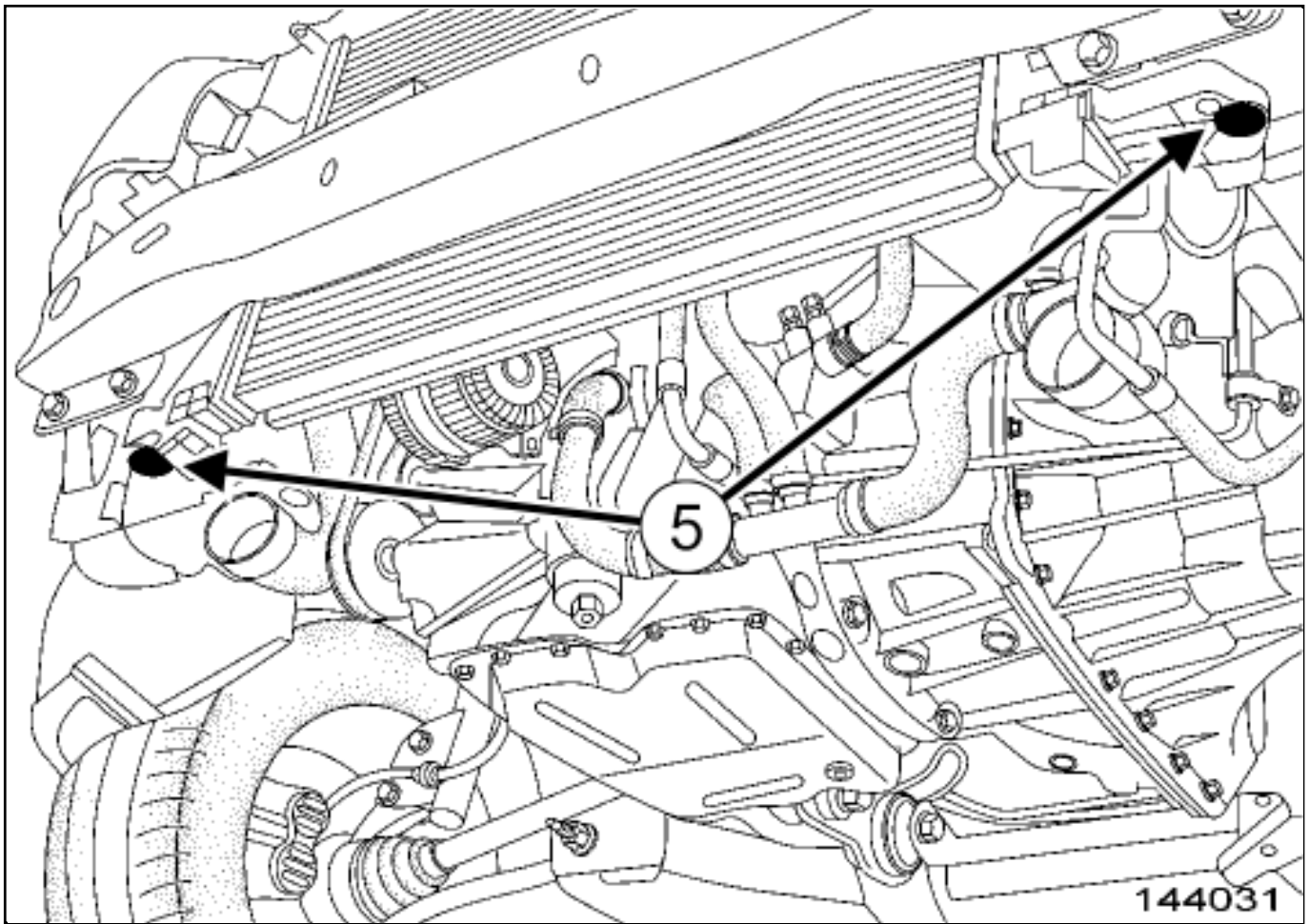
- the bolt from the retaining bracket of the "condenser - expansion valve" connecting pipe on the condenser.



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

- ❑ Disconnect [Passenger compartment cooling assembly: Exploded view](#) :
 - the "compressor - condenser" connecting pipe on the condenser,
 - the "condenser - expansion valve" connecting pipe on the condenser.
- ❑ Insert the blanking plugs.
- ❑ Remove the condenser [Passenger compartment cooling assembly: Exploded view](#) .
- ❑ Disconnect :
 - the engine cooling fan assembly connectors,
 - the engine cooling fan assembly resistor connector.
- ❑ Unclip the engine cooling fan assembly wiring.
- ❑ Remove the engine cooling fan assembly [Coolant circuit assembly: Exploded view](#) .
- ❑ Using the tool Remote operation pliers for hose clips. (Mot. 1448) , separate the clip [Coolant circuit assembly: Exploded view](#) :
 - from the cooling radiator outlet hose,
 - from the cooling radiator inlet hose.
- ❑ Disconnect [Coolant circuit assembly: Exploded view](#) :
 - the cooling radiator outlet hose,
 - the cooling radiator inlet hose.



- Remove:
 - the cooling radiator bolts(5) ,
 - the cooling radiator [Coolant circuit assembly: Exploded view](#) .

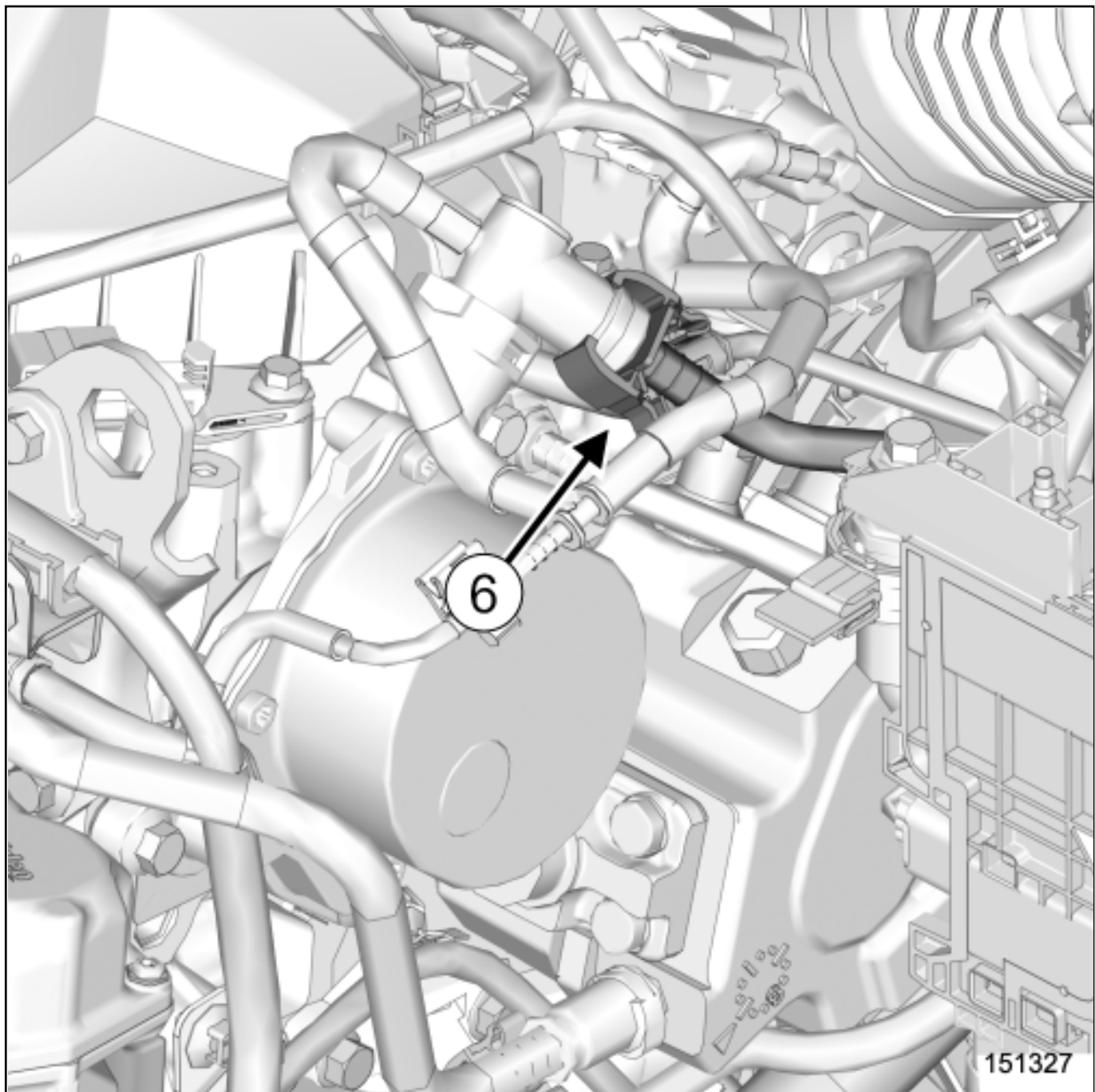
- Remove the bolts from the connecting pipe brackets on the compressor [Passenger compartment cooling assembly: Exploded view](#) .
- Uncouple the connecting pipes from the compressor.
- Insert the blanking plugs.

- Disconnect the connectors from the battery disconnection unit.
- Unclip the battery disconnection unit wiring from the battery disconnection unit.

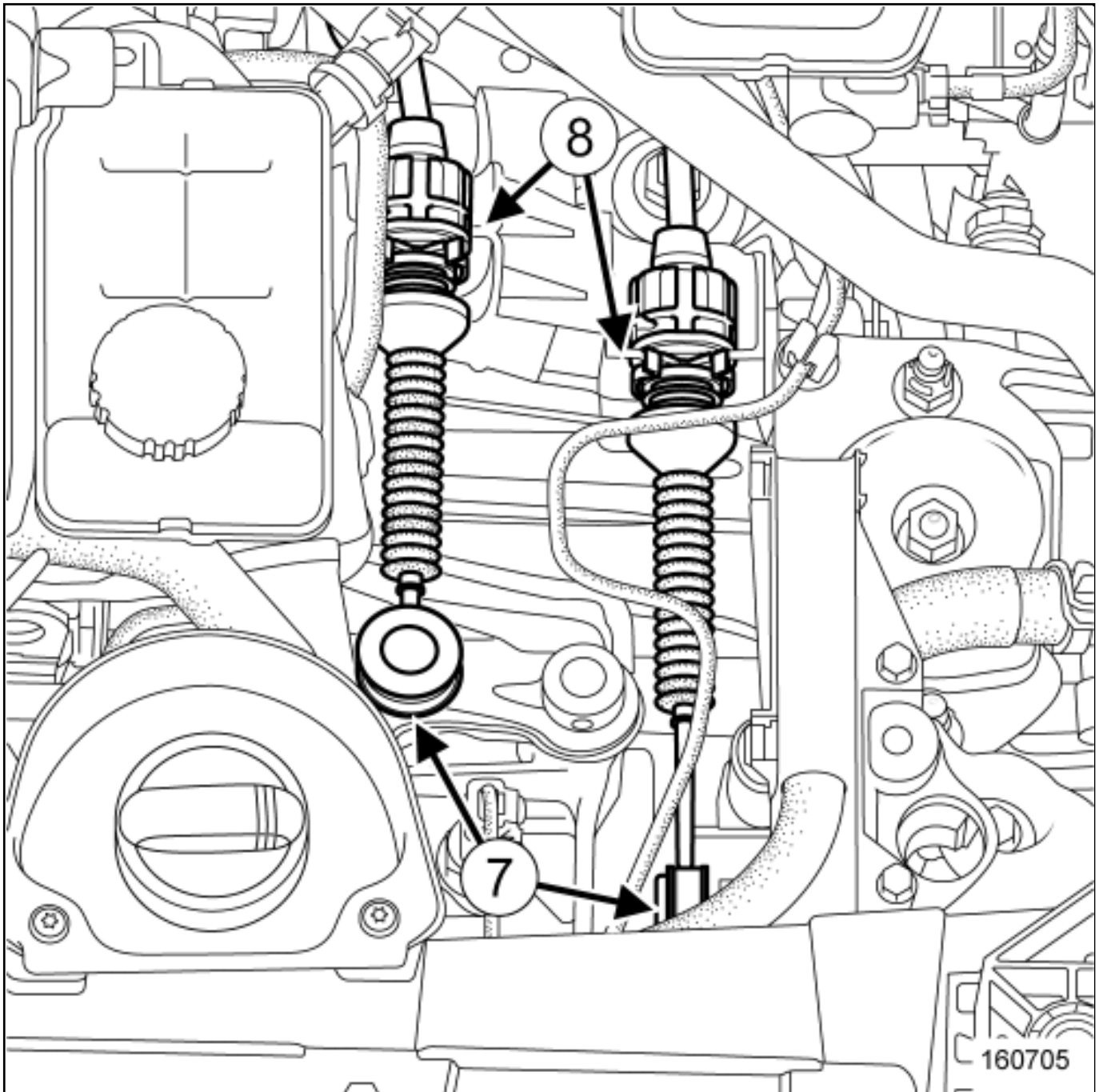
Disconnect the fan assembly control unit connector.

Disconnect the electric coolant pump connector.

Unclip the wiring.



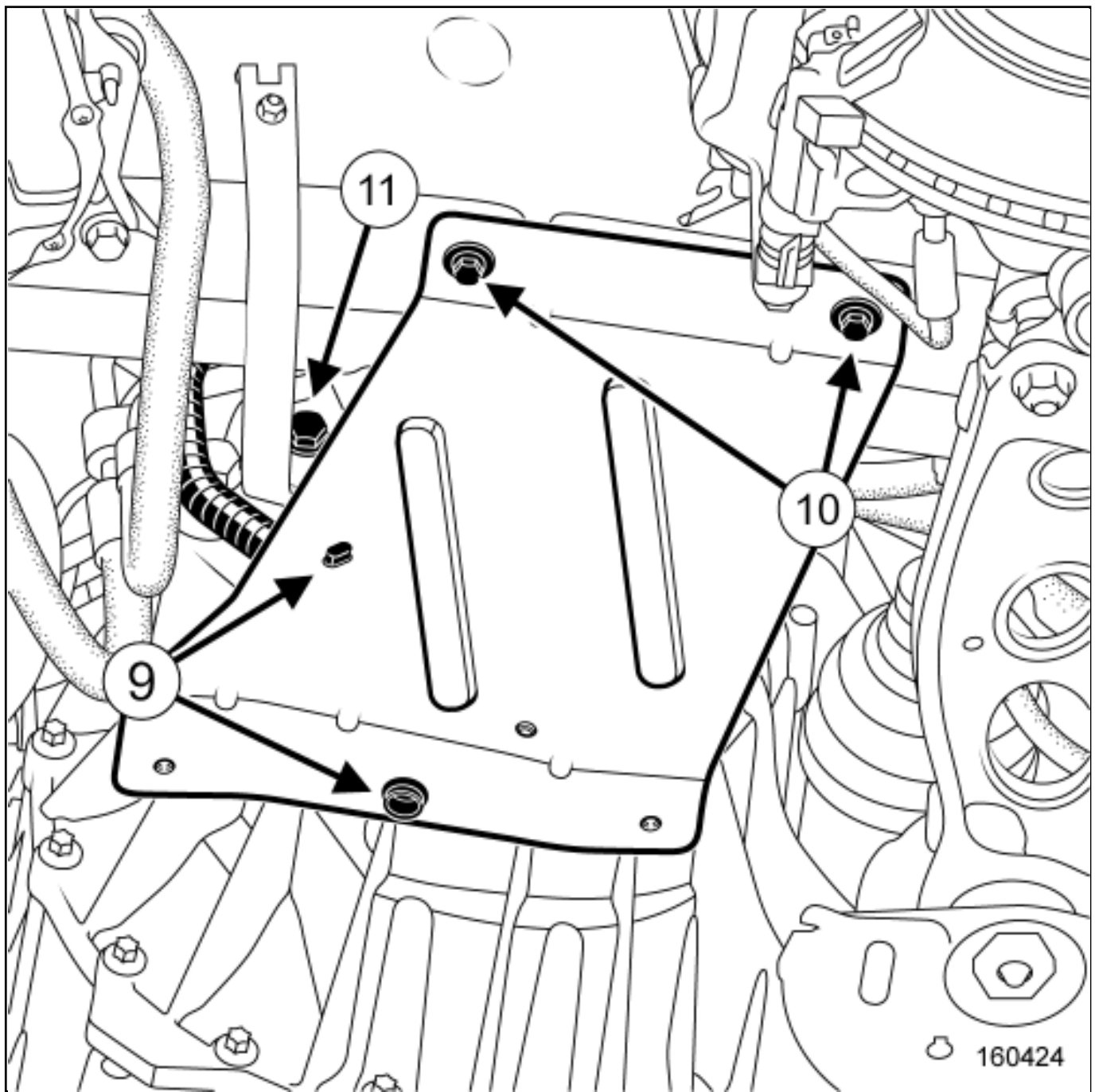
Disconnect the brake servo union from the vacuum pump(6) .



Unclip:

-
- the gear control cables(7) from the selector ball joints using an open-jawed spanner,
- the gear control cables(8) from their support.

Move aside the gear control cables.



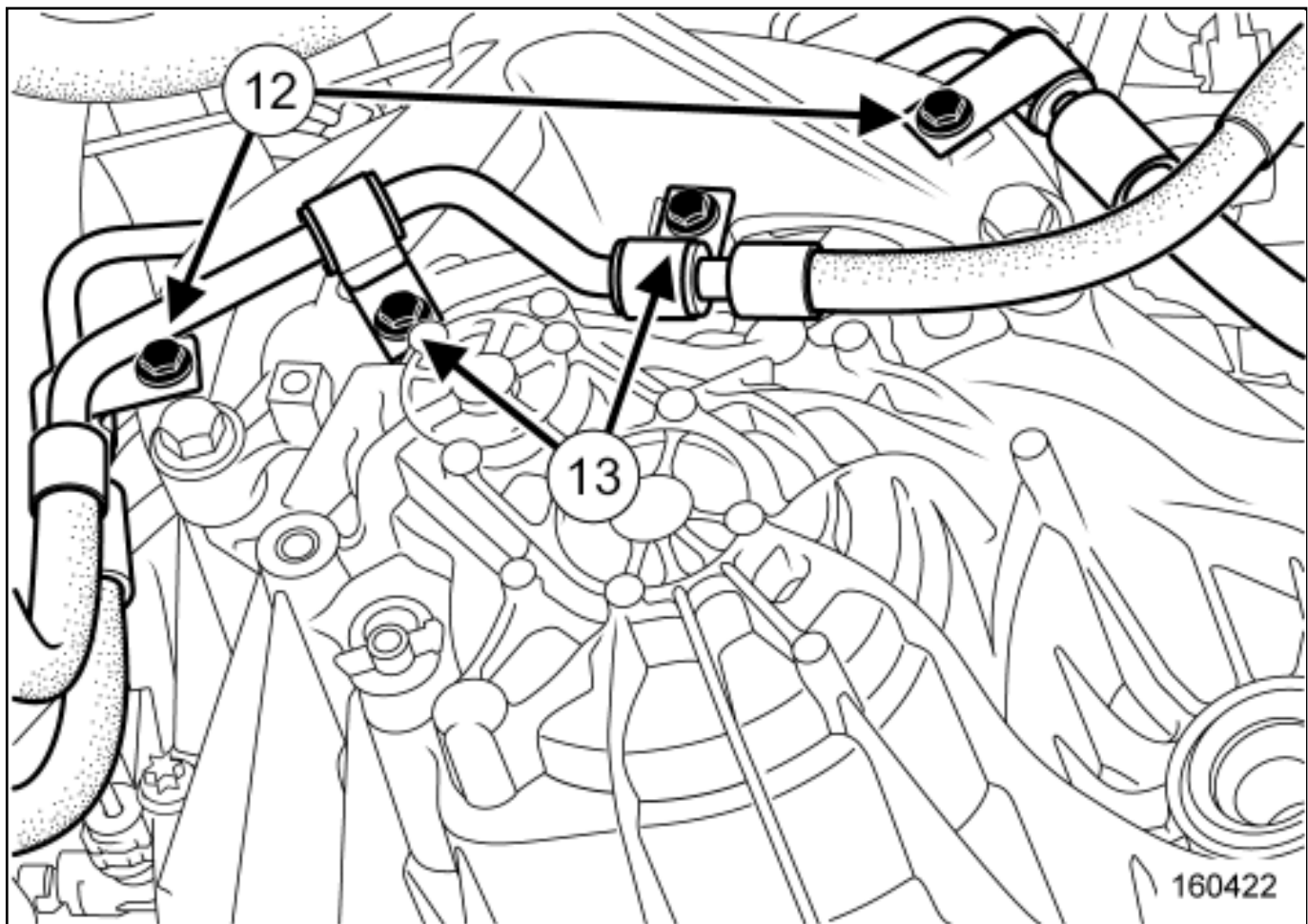
Unclip the battery acid drain pipe at(9) .

Remove:

- the side reinforcement bolts(10) ,
- the left-hand side reinforcement.

Mark the position of the earth cable on the gearbox using a indelible pencil.

Remove the gearbox earth cable bolt(11) .



Remove [Steering assembly: Exploded view](#) :

- the power-assisted steering low pressure pipe bolts(12) ,

- the power-assisted steering high pressure pipe bolts(13) on the gearbox.

Move aside the power-assisted steering pipes.

Remove the hydraulic clutch pipe [Clutch assembly: Exploded view](#) .

Loosen the clip of the air filter unit air outlet pipe [Air inlet assembly: Exploded view](#) .

Remove the air filter unit air outlet pipe [Air inlet assembly: Exploded view](#) .

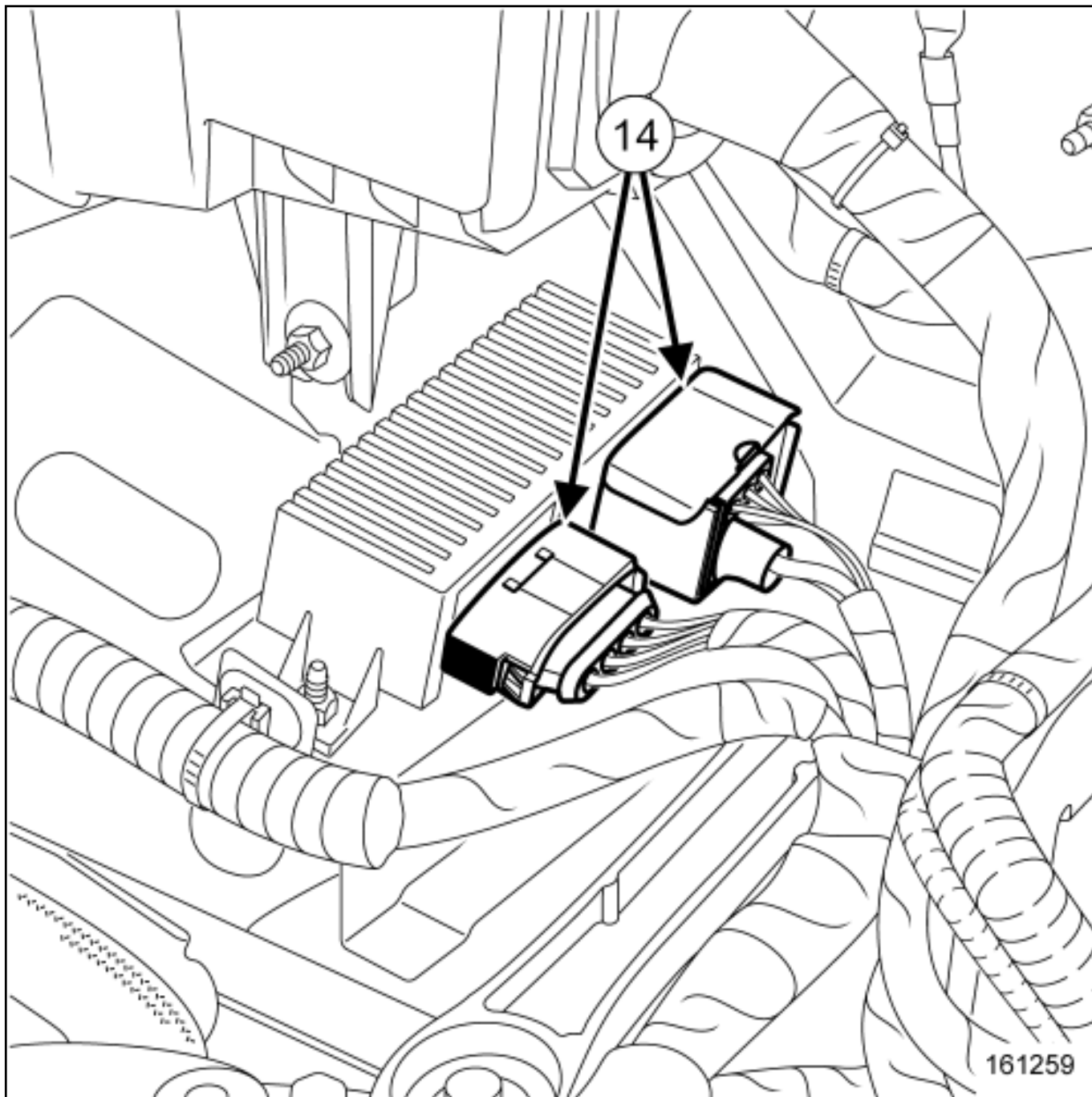
Using the tool Remote operation pliers for hose clips. (Mot. 1448) , separate the clip from the cooling hoses from the heater matrix [Coolant circuit assembly: Exploded view](#) .

Disconnect the cooling hoses from the heater matrix [Coolant circuit assembly: Exploded view](#) .

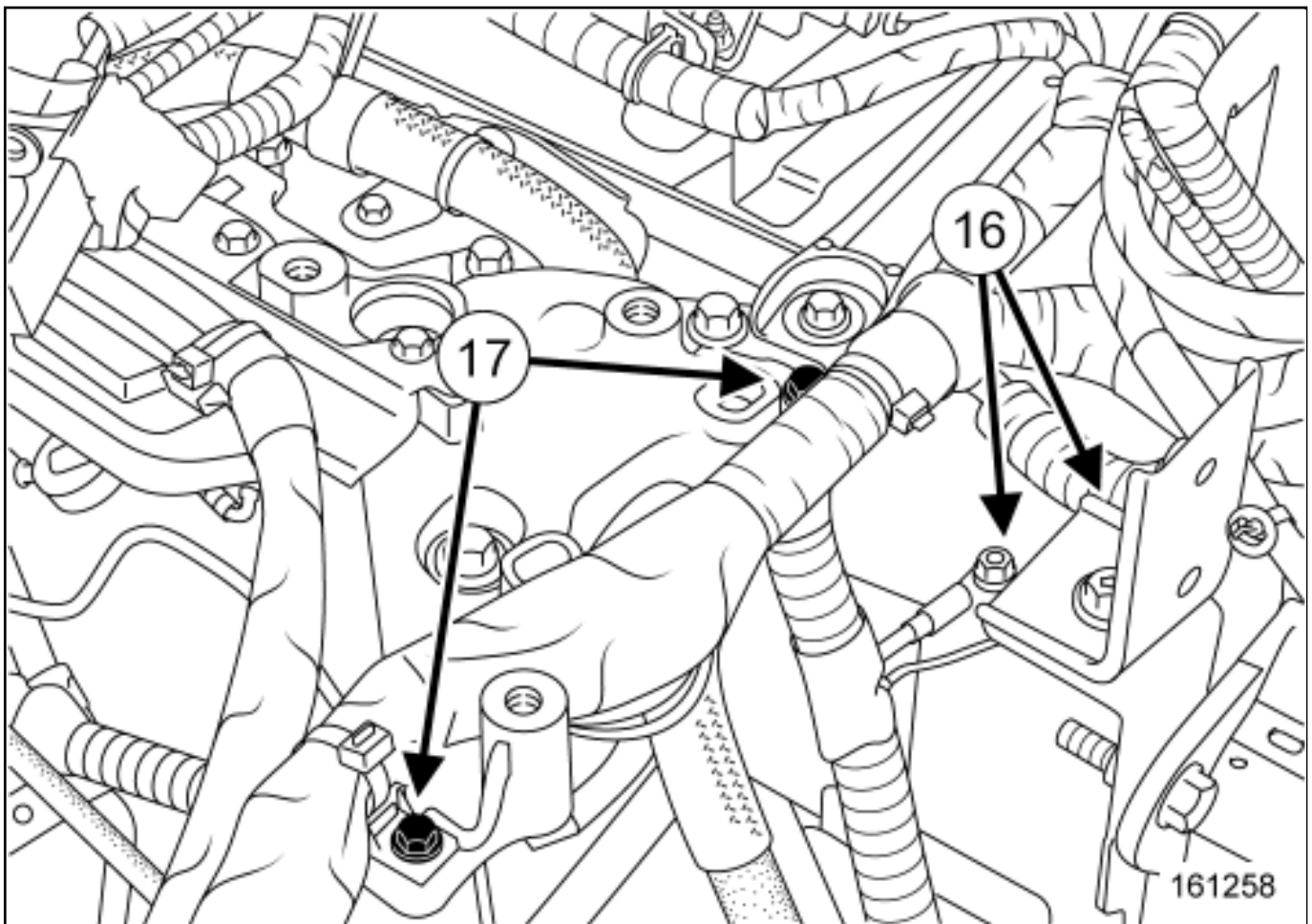
Disconnect the connectors from the battery disconnection unit (see **Engine wiring: Removal - Refitting**) .

Remove the power cable nut from the battery disconnection unit (see **Engine wiring: Removal - Refitting**) .

Disconnect the pre-postheating unit connector [Pre-postheating unit: Removal - Refitting](#) .



Disconnect the additional heater resistor unit connectors(14) .



Remove the earth cable nuts(16) .

Remove:

- the earth cable nuts(16) ,
- the bolts(17) .

Unclip the wiring from the body.

Move aside the engine wiring.

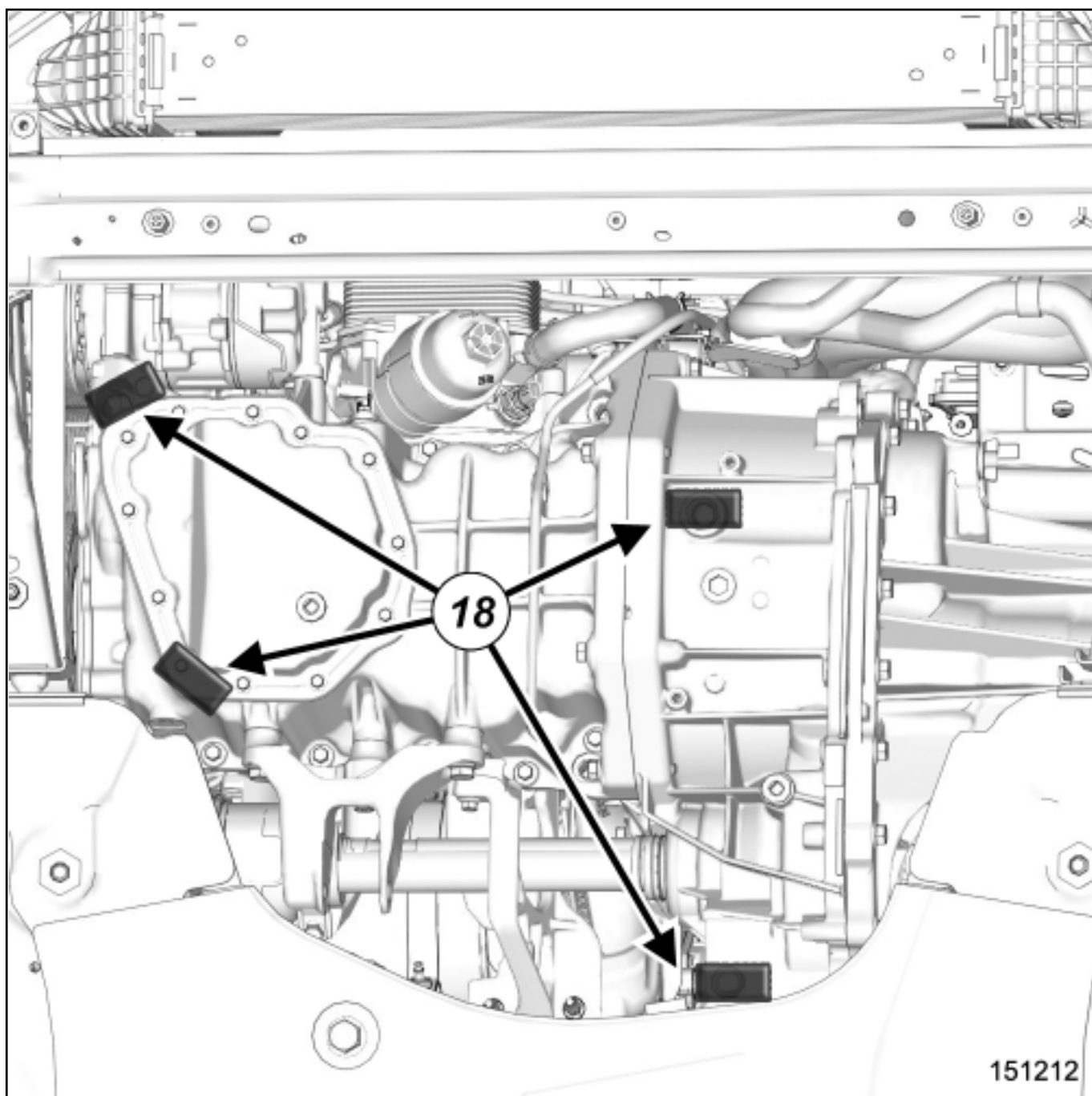
Disconnect :

- the fuel supply pipe between the diesel filter and the high pressure pump,

- the diesel fuel return pipe from the fuel return rail.

Insert the blanking plugs.

2. REMOVAL OPERATION



Support the "engine - gearbox" assembly on the marks(18) using the toolSupport for removal - refitting of engine - gearbox assembly(Mot. 1390) .

Remove [Engine-gearbox unit support assembly: Exploded view](#) :

-
- the upper engine tie-bar,
- the right-hand suspended engine mounting,
- the bolt from the left-hand suspended engine mounting rubber pad.

Raise the vehicle, moving the engine towards the front.

Remove the "engine and gearbox" assembly.

REFITTING

1. REFITTING PREPARATION OPERATION

For standard engine replacements(see **Engine: Standard replacement**) (Technical Note 6055A).

Always replace the exhaust flange seal.

2. REFITTING OPERATION

Proceed in the reverse order to removal.

Tighten to torque:

■

the earth cable nuts on the body **8 N.m**,

the gearbox earth cable bolt **44 N.m**,

the power cable nuts on the battery disconnection unit **8 N.m**.

Perform the following operations:

bleed the hydraulic clutch circuit [Clutch circuit: Bleed](#) ,

fill the manual gearbox [Manual gearbox oils: Draining - Filling](#) .

top up the engine oil (if necessary) [\(see 10A, Engine and cylinder block assembly, Engine oil - Oil filter : Draining - Filling\)](#) ,

fill and bleed the cooling circuit [Cooling system: Draining - Refilling](#) .

Fill up the refrigerant circuit using a refrigerant charging station [Refrigerant circuit: Draining - Filling](#) .



Repair-10x01x01-01x37-2-231-1.xml



XSL version : 3.02 du 22/07/11

ENGINEACCESSORIESASSEMBLY:EXPLODEDVIEW



Note, one or more warnings are present in this procedure



Special tooling required

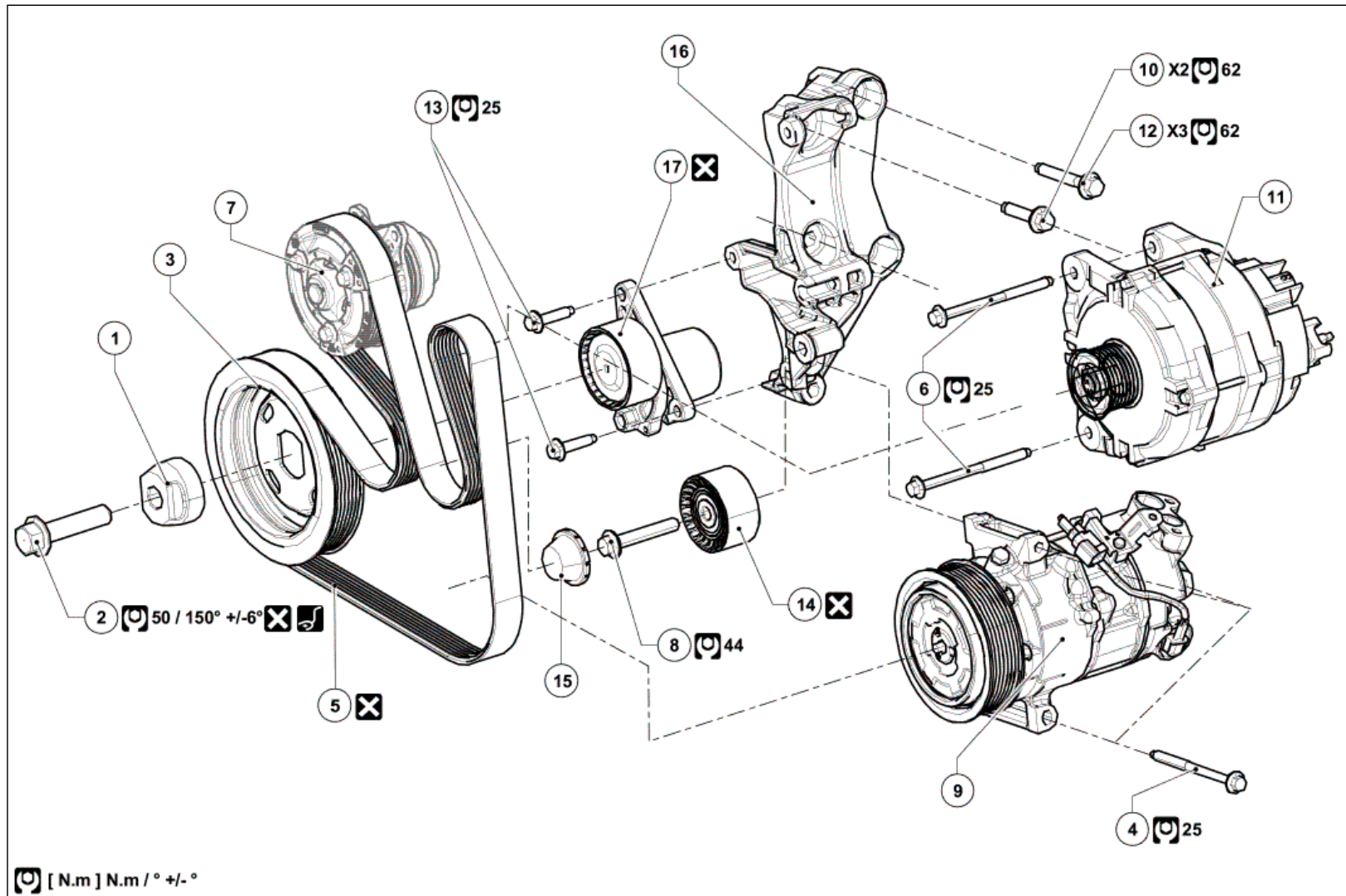
Crankshaft pulley locking tool.

Mot. 1770



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description Legend](#) .

Marks	Designations	Informations
1	Crankshaft accessories pulley spacer	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting) Crankshaft pulley locking tool.(Mot. 1770)
2	Crankshaft accessories pulley bolts	
3	Crankshaft accessories pulley	
4	Compressor bolt	
5	Accessories belt	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting)
6	Alternator bolt	
7	Water pump	Cylinder block assembly: Exploded view
8	Accessories fixed roller bolt	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting)
9	Compressor	Compressor: Removal - Refitting
10	Multifunction support bolt	
11	Alternator	Alternator: Removal - Refitting
12	Multifunction support bolt	
13	Accessories belt tensioning roller bolt	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting)
14	Accessories fixed roller	
15	Accessories belt fixed roller protector	
16	Multifunction support	Multifunction support: Removal - Refitting
17	Accessories belt tensioning roller	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting)



Repair-10x10x01x01-02x50-1-3-1.xml



ENGINEACCESSORIESASSEMBLY:EXPLODEDVIEW



Note, one or more warnings are present in this procedure



Special tooling required	
Crankshaft pulley locking tool.	Mot. 1770



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

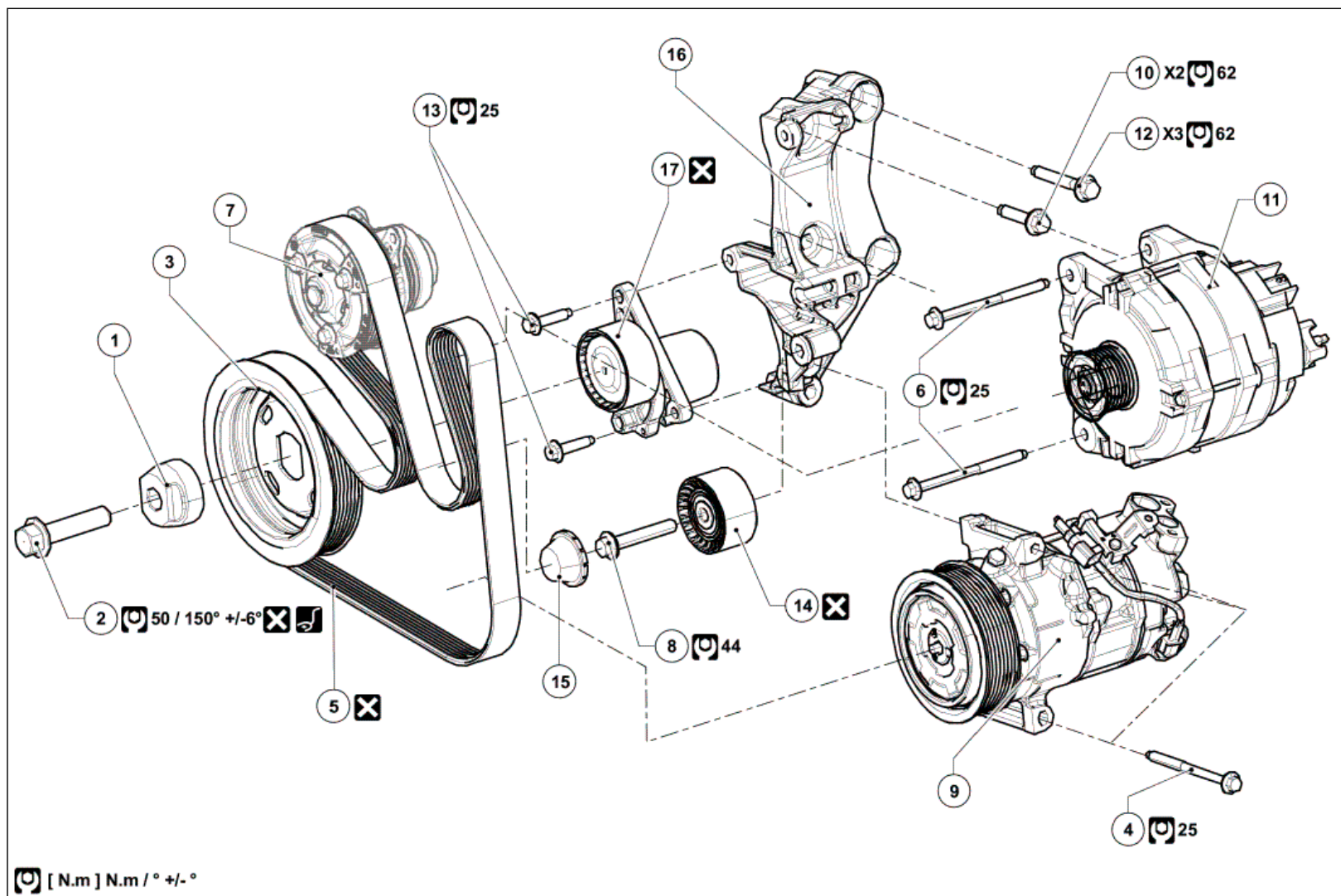


Illustration key: Description Legend .

Marks	Designations	Informations
1	Crankshaft accessories pulley spacer	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting) Crankshaft pulley locking tool.(Mot. 1770)
2	Crankshaft accessories pulley bolts	
3	Crankshaft accessories pulley	
4	Compressor bolt	
5	Accessories belt	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting)
6	Alternator bolt	
7	Water pump	Cylinder block assembly: Exploded view
8	Accessories fixed roller bolt	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting)
9	Compressor	Compressor: Removal - Refitting
10	Multifunction support bolt	
11	Alternator	Alternator: Removal - Refitting
12	Multifunction support bolt	
13	Accessories belt tensioning roller bolt	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting)
14	Accessories fixed roller	
15	Accessories belt fixed roller protector	
16	Multifunction support	Multifunction support: Removal - Refitting
17	Accessories belt tensioning roller	(see 11A, Top and front of engine, Accessories belt - Crankshaft accessories pulley : Removal - Refitting)





Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

1. SENSORS ON THE FRONT FACE OF THE ENGINE

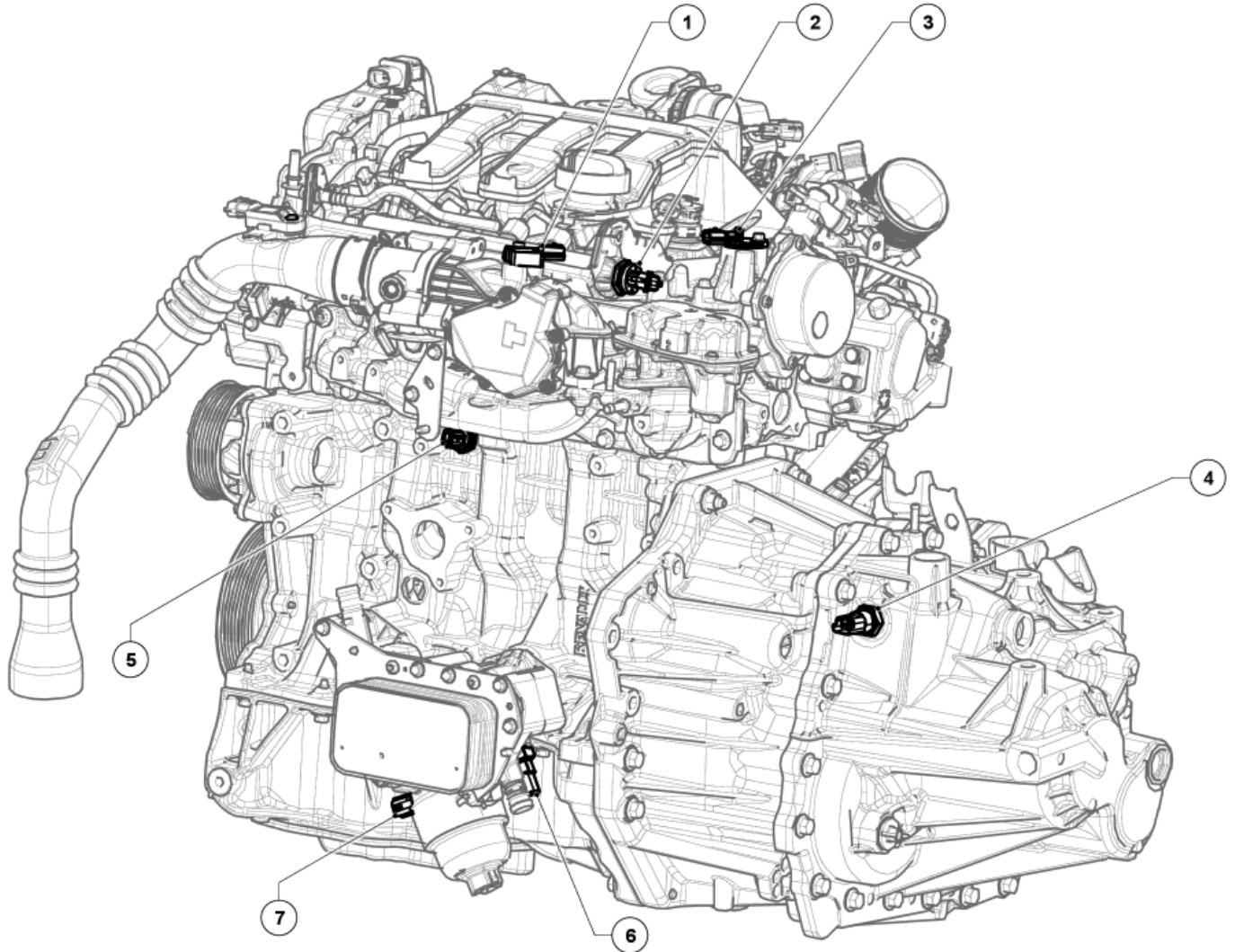


Illustration key: Description

Marks	Designations	Informations
1	Air inlet pressure and temperature sensor	Air inlet assembly: Exploded view
2	Rail pressure sensor	Injection assembly: Exploded view
3	Camshaft position sensor	Cylinder head assembly: Exploded view
4	Reverse gear switch	Reverse gear switch: Removal - Refitting
5	Coolant temperature sensor	Coolant temperature sensor: Removal - Refitting
6	Oil pressure sensor	(see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view)
7	Oil level sensor	

2. SENSORS ON THE REAR FACE OF THE ENGINE

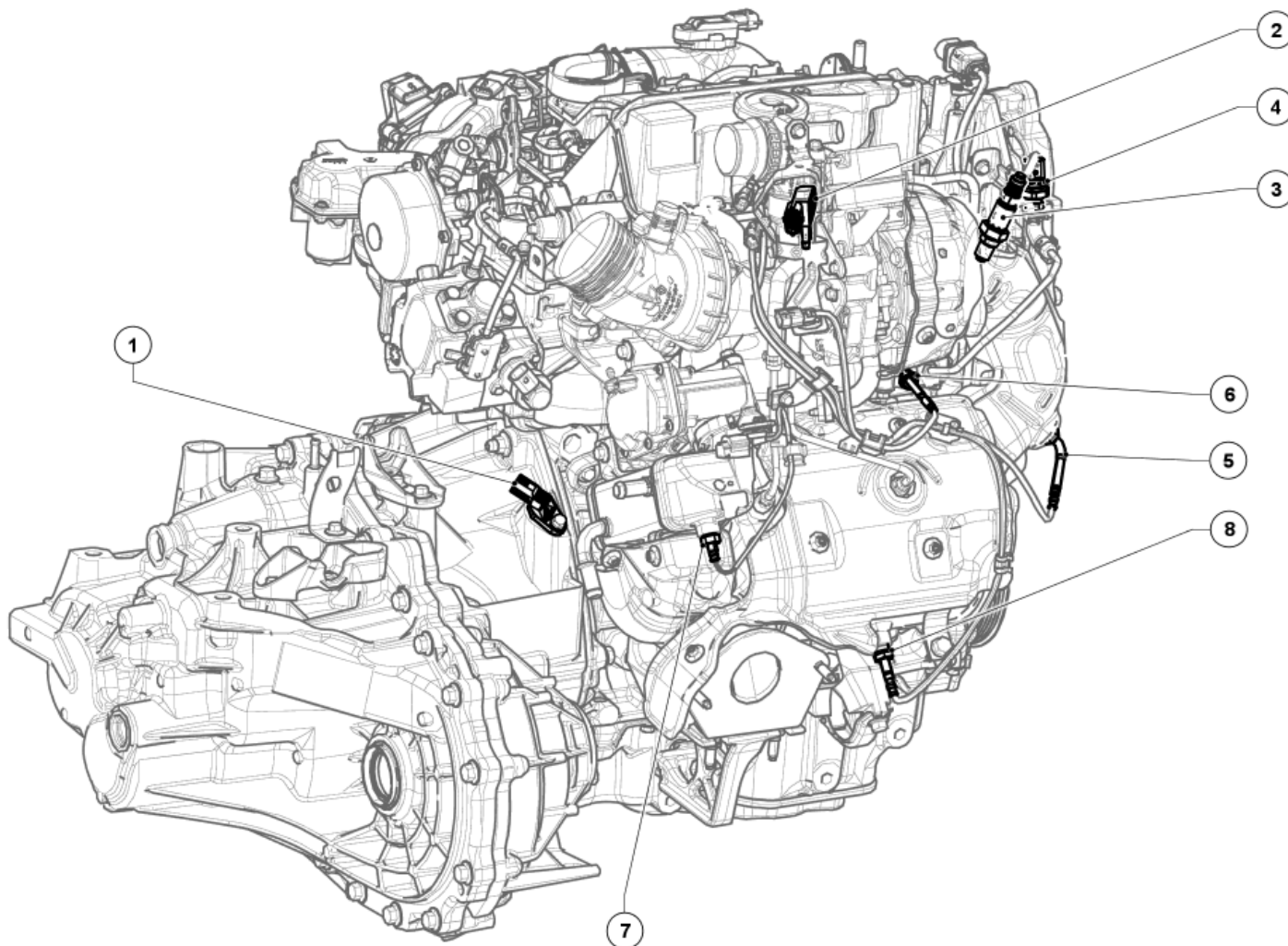


Illustration key: Description

Marks	Designations	Informations
1	Crankshaft position sensor	Crankshaft position sensor: Removal - Refitting
2	Particle filter pressure sensor	
3	Oxygen sensor	
4	Exhaust gas pressure sensor	
5	Catalytic converter inlet temperature sensor	
6	Exhaust gas temperature sensor	
7	Exhaust gas cooler outlet temperature sensor	Exhaust gas recirculation circuit assembly: Exploded view
8	Particle filter inlet temperature sensor	Exhaust assembly in engine compartment: Exploded view



Repair-10x11-02x51-1-3-1.xml



KSL version : 3.02 du 22/07/11

ENGINE COOLING FAN ASSEMBLY: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 19A, Cooling, Coolant circuit assembly: Exploded view\)](#) .



WARNING

When working in the engine compartment, take care as the radiator fan(s) may start up unexpectedly (risk of being cut).

- To avoid any risk of serious burns when the engine is hot:
 - do not open the expansion bottle cap,
 - do not drain the cooling system,
 - do not open the bleed screw(s).



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

CAUTION



When carrying out a repair that requires a complete change, it is essential to flush the circuit with clean water, blast compressed air through the circuit to drive out the water, fill and bleed the circuit and then measure the effective protection.

■ The criteria to be met are:

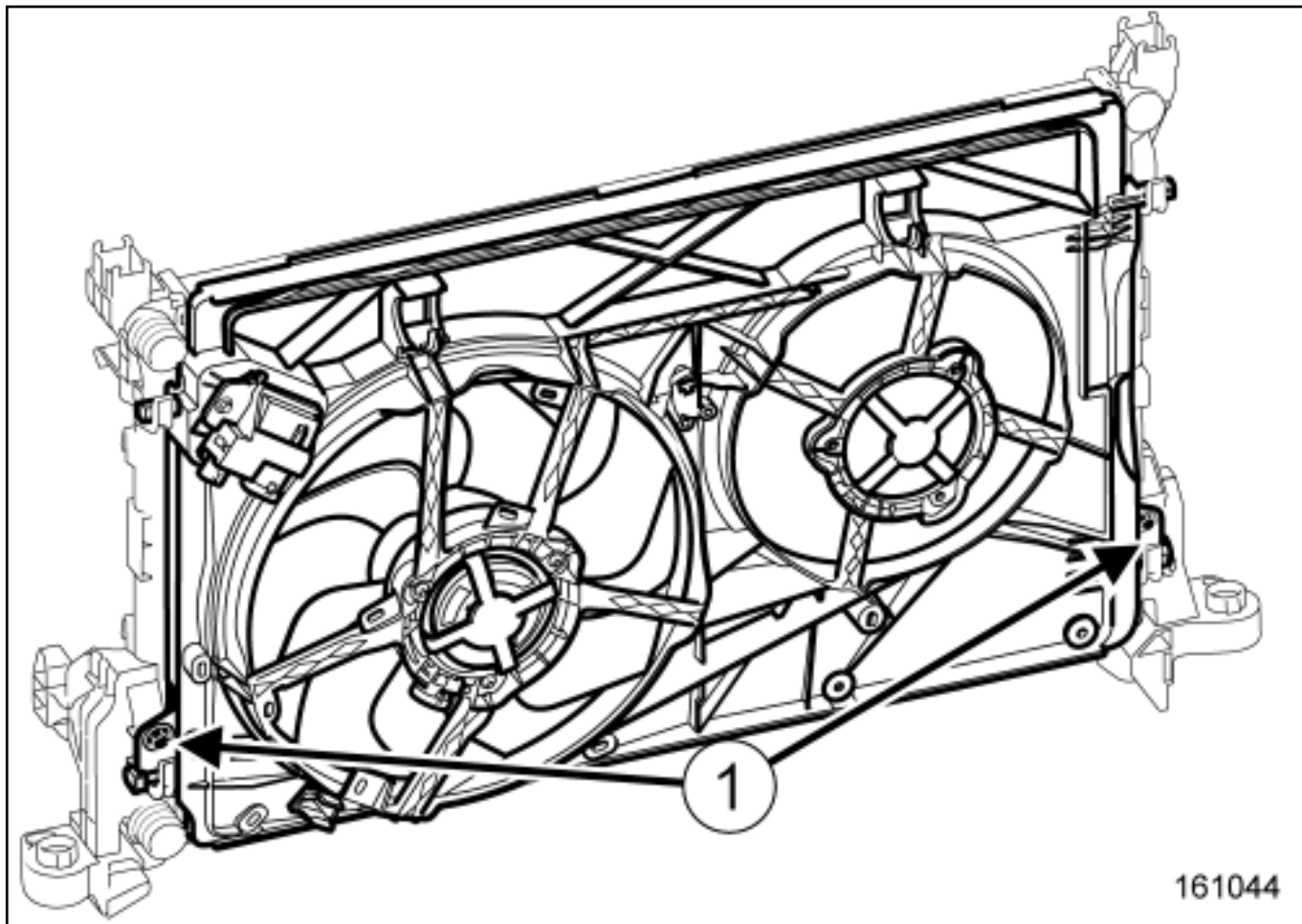
- protection down to $-25^{\circ}\text{C} \pm 2$ for cold and temperate countries,
- protection down to $-40^{\circ}\text{C} \pm 2$ for "extreme cold" countries.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Drain the cooling system ([see 19A, Cooling, Cooling system: Draining - Refilling](#)).
- Remove:
 - the engine undertray bolts,
 - the engine undertray,
 - the front bumper (see **Front bumper assembly: Exploded view**),
 - the headlights [Front signals - lighting assembly: Exploded view](#),
 - the front end panel (see **Front end panel: Removal - Refitting**),
 - the air deflectors,
 - the intercooler [Air inlet assembly: Exploded view](#),
 - the cooling radiator ([see 19A, Cooling, Coolant circuit assembly: Exploded view](#)).

2. REMOVAL OPERATION



- Remove:
- the bolts(1) from the engine cooling fan assembly,
 - the engine cooling fan assembly from the cooling radiator.
 - the engine cooling fan assembly resistor if equipped([see 19A, Cooling, Coolant circuit assembly: Exploded view](#)).

REFITTING

- Proceed in the reverse order to removal.
- Fill and bleed the cooling system([see 19A, Cooling, Cooling system: Draining - Refilling](#)).



Repair-10x06x05x05-01x37-1-113-1.xml



XSL version : 3.02 du 22/07/11



Type

S/Section

All types

XXX X

82A

This note cancels and replaces Technical Note 3315E, part no. 77 11 206 336 and previous versions of Technical Note 5037A

01B-82A-87B-86A-86C

CODE SUPPLY PROCEDURE

- Engine:
- Gearbox:

XXX
XXX

Basic manual:

"The repair procedures given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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0) Introduction

Since 1st June 2005 there has been a single service available for supplying the following codes:

- Engine immobiliser
- Radio
- Video network
- Reprogramming key (NRE)

This service is Code Management (GDC) on RENAULT NET or importers' RENAULT NET.

Information required for use:

Immobiliser code:

VIN (17 characters)

number marked on the key head (old vehicles, 8 characters maximum)

Programming key supplied by diagnostic tool (new vehicles, 24 characters)

Note:

The programming key is obligatory from CLIP CD65, i.e. from June 2006.

Radio code:

VIN (17 characters)

Pre-code or serial number of the radio

Radio pre-code if the first code obtained using the VIN is not correct

Pre-code = 1 letter + 3 digits

Refer to the detailed procedure §2.2.2 "Finding the radio pre-code"

Radio without pre-code:

Radio manufacturer: Philips/Blaupunkt/Pioneer/Alpine/Becker

Video control code specific to Vel Satis:

VIN of the vehicle (17 characters)

Four-digit code supplied by the video control

Refer to the corresponding repair manual.

ENGINE IMMOBILISER

Code delivery

82A

Reprogramming key (only in disconnected mode):

*Note: this key is an authorisation code provided by the diagnostic tool to the operator in order to obtain the reprogramming key from the code server.

VIN of the vehicle (17 characters)

Reprogramming key supplied by the diagnostic tool

WARNING

Access to the "code management" application is restricted to authorised personnel.

To use the code server, access rights are required.

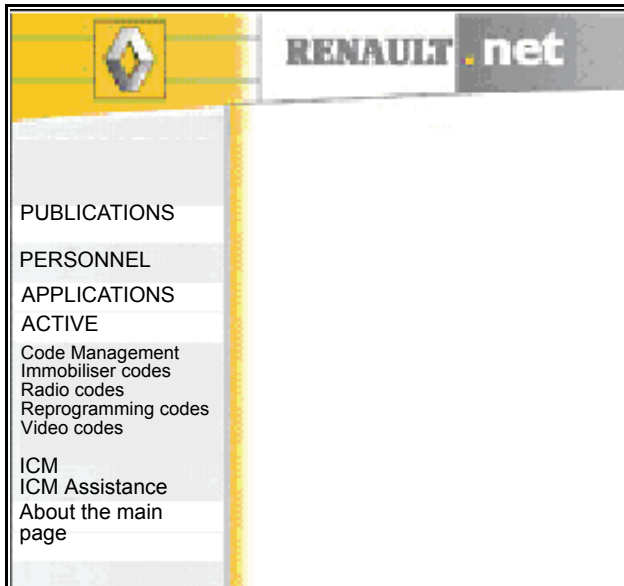
These access rights (certificate) are integrated into the Tokens.

All code requests are recorded in a database. This database can be accessed by the police authorities.

Any member of personnel found to be making fraudulent use of management codes will be subject to corporate and legal proceedings.

Using the Code Management server to find codes:

1) Main menu in Renault Net, under Applications you will find Code Management:



2) Finding a code in Code Management:

2.1 Immobiliser code:

Note:

To find out whether a vehicle is governed by the old or the new procedure, just start the programming procedure using your diagnostic tool. If the tool displays a **programming key**, this vehicle is governed by the new procedure.

The screenshot shows the Renault Code Management web interface. At the top, there is a Renault logo and the text 'RENAULT.net'. On the right side, there are links for 'Code Management' and 'Help'. The main content area is titled 'CODE MANAGEMENT' and 'IMMOBILISER CODE'. It contains a form with the following elements:

- A label: 'VIN (17 characters)'
- A text description: 'Number marked on key head or programming key provided by the diagnostic tool'
- A text input field for the VIN.
- A 'Search' button.
- A label: 'The immobiliser code for this vehicle is: _____' with a blank space for the code.

On the left side of the interface, there is a vertical navigation menu with the following items:

- Code Management
- Versions of Code Management

2.1.1 Old procedure

- Enter the VIN
- Confirm with the "Search" button
- Immobiliser code supplied in the following form:
 - 4 digits (old vehicles)
 - 8 digits (MEGANE 1 and AVANTIME only)
 - 12 characters (digits and letters for other vehicles)

If the immobiliser code supplied is not correct and you have the key head number, resubmit your request with the same VIN and **key head number**:

Note:

The key head number is required for old vehicles; if the four-digit code supplied by the code server does not correspond to the vehicle, the key head code is used to recalculate the new four-digit code.

- Re-enter the VIN of the vehicle
- Enter the key head number (marked on the key head) 8 characters maximum (5 figures or 7 alphanumeric characters, or even 8 alphanumeric characters)
- Confirm with the "Search" button
- The immobiliser code (4 figures) is supplied

ENGINE IMMOBILISER

Code delivery

82A

2.1.2 New procedure:

This new procedure affects vehicles from LAGUNA II, and new vehicles.
This has been compulsory since June 2006.

In disconnected mode:

- Enter the VIN + programming key supplied by the diagnostic tool.
- Confirm with the "Search" button
- The immobiliser code is supplied in the form of programming keys of 24, 40 or 28 characters, then supplied in the form of 13, 34 or 39 characters

In connected mode:

- The immobiliser code can be searched for and supplied automatically via the diagnostic tool.

2.1.3 Error messages and procedure to follow

MANAGEMENT CODE ERROR MESSAGE	PROCEDURE TO FOLLOW
All vehicles	
The VIN is not found on the World Vehicle Database	Re-enter the VIN. If the fault is still present, contact the Techline.
The diagnostic tool programming key is compulsory.	The vehicle corresponding to the VIN entered is subject to the new procedure described in paragraph 2.1.2. CLIP version 65 or a more recent version is required.
A new code cannot be supplied.	contact your technical assistance network
Old procedure	
The immobiliser code cannot be obtained by entering the VIN alone. For old vehicles with a four-digit security code, you must enter the code marked on the key head in addition to the VIN. If no number is marked on the key head, contact your technical assistance network	The immobiliser code cannot be obtained from the server; the key head code is required to calculate the immobiliser code. Open the key head to obtain the key head code. If the code does not appear on the key head, check the customer documents (e.g. invoice) to find the code. If this number cannot be found, contact your technical assistance network quoting the error message.
The immobiliser code cannot be obtained with values entered. Check that the values are correct. If they are correct, contact your technical assistance network	If the key head code is incorrect, the immobiliser code cannot be calculated by the server. Check the key head code.
New procedure	
<ol style="list-style-type: none"> 1. Check the programming key. 2. Check that the VIN from the CLIP main menu is correct. 	<p>The programming key does not correspond to the VIN entered.</p> <ol style="list-style-type: none"> 1. Check the programming key (6 x 4 characters); the programming key does not contain: <ul style="list-style-type: none"> the letters O and Q as these may be confused with the number 0 the letter I as it may be confused with the number 1. 2. In the CLIP main menu, enter the correct VIN of the vehicle (17 characters)

2.1.3 Error messages and procedure to follow (continued)

MANAGEMENT CODE ERROR MESSAGE	PROCEDURE TO FOLLOW
New procedure (continued)	
<p>The Renault card (or key) stored by CLIP in the "insertion" section of the programming scenario cannot be found on the server.</p> <ol style="list-style-type: none"> 1. Check the programming key. 2. Check that the Renault card (or key) was ordered directly by the production workshop in France with the VIN (new procedure). 3. Check that the Renault card (or key) corresponds to the vehicle (the VIN is included on the document supplied with the part). 	<ol style="list-style-type: none"> 1. Check the programming key. 2. Renault cards and keys must be ordered according to the new procedure: from June 2006, directly from the central manufacturing workshop (in France), with the vehicle's VIN. <p>The Renault cards and keys can only be used with the VIN for which they have been ordered. The VIN is written on the sheet attached to the packet containing the part.</p> <ol style="list-style-type: none"> 3. If the fault is still present, contact the Techline.
<p>The immobiliser code is not available on the database. follow the emergency procedure (see 2.1.4)</p>	<p>Check the VIN and the programming key. If the fault is still present, follow the emergency procedure (see 2.1.4).</p>
<p>Another immobiliser chain computer has recently been programmed on this vehicle. You are not authorised to perform this operation. Follow the emergency procedure (see 2.1.4).</p>	<ol style="list-style-type: none"> 1. Check the programming key. 2. Restart the procedure with CLIP. 3. If the fault is still present, follow the emergency procedure (see 2.1.4)

2.1.4 Emergency procedure

From 2007, the help mail will be replaced by a text file.

Once the code has been requested, a button will appear: "create a text file".

This creates a text file which can be saved to the hard drive or to a mobile device.

In the event of a fault, this text file contains all the information needed by the Techline :

- The VIN

- the key head code or programming key

- the message displayed

It is recommended that you use this text file to contact your technical assistance network.

2.2 Radio code:

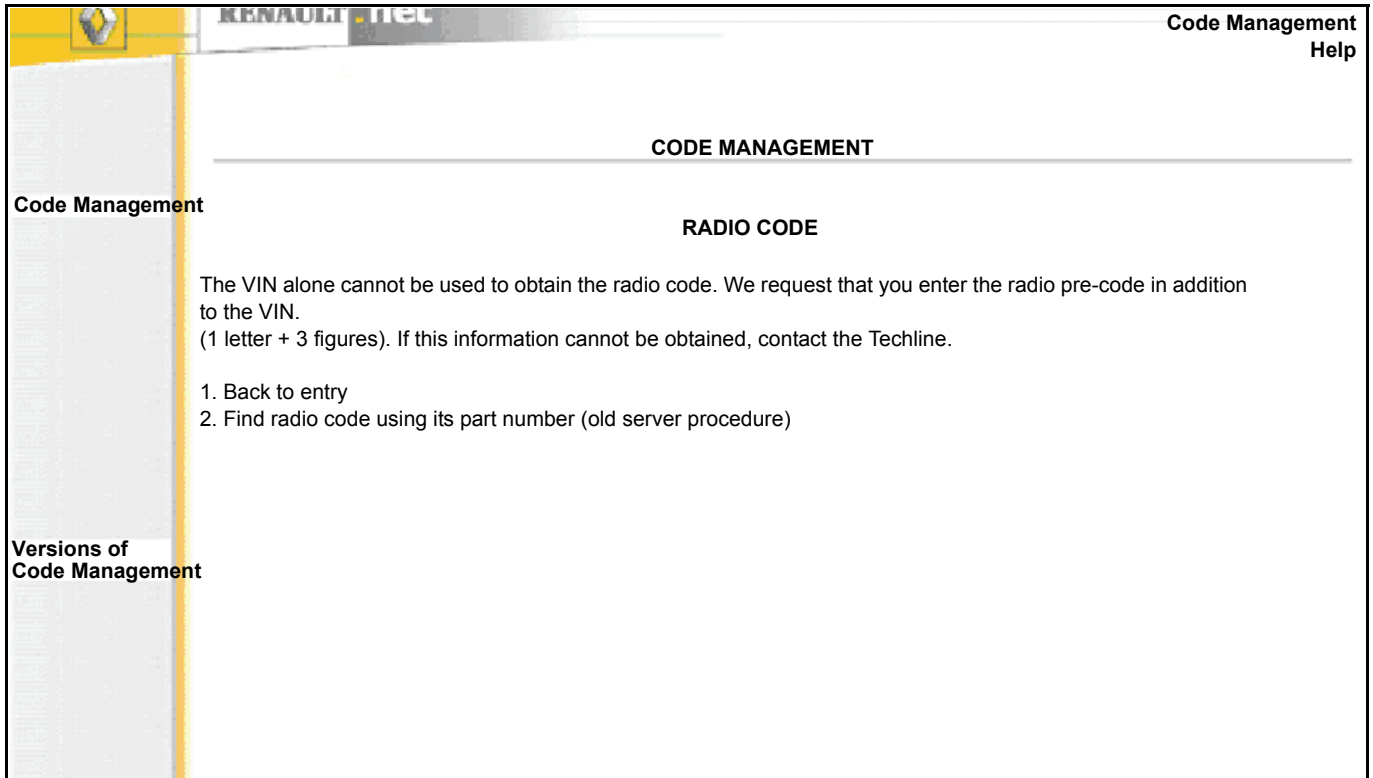
- Enter the VIN only
- Confirm with the "Search" button
- Radio code supplied

The screenshot shows a software interface for 'CODE MANAGEMENT'. At the top right, there are links for 'Code Management' and 'Help'. The main heading is 'CODE MANAGEMENT', followed by a sub-heading 'RADIO CODE'. Below this, a text prompt reads: 'Enter the VIN to obtain the radio code. Entry of the pre-code is optional.' There are two input fields: a larger one for 'VIN' and a smaller one for 'Radio pre-code'. A 'Search' button is positioned below the 'VIN' field. At the bottom of the interface, there is a label 'The radio code for this vehicle is: _____'. On the left side, there is a vertical navigation menu with 'Code Management' and 'Versions of Code Management' visible.

WARNING

It is not possible to obtain more than three radio codes for a single VIN.
The error message reads "A new code cannot be supplied".

2.2.1 "Enter pre-code" error screen



The radio code cannot be supplied by the server; the radio pre-code is required to calculate the radio code. To find the radio pre-code, see paragraph 2.2.2.

Once you have obtained the pre-code:

- Select option no. 1: "Return to entry"
- Enter the radio pre-code
- Confirm with the "Search" button
- Radio code supplied

Option no. 2, "Find radio code using its part number (old server procedure)" refers to old radios without a pre-code, see paragraph 2.2.4.

2.2.2 Finding the radio pre-code

Depending on the type of radio, recover the pre-code, either:

- from the radio display using the self-test procedure,
- by removing the radio; the pre-code is found on the label affixed to the radio.
- Vehicles with ITS Navigation: it is necessary to use the diagnostic tool obtain the pre-code

Note:

The pre-code consists of a letter and three digits (example below, N557).



The pre-code is found after the Renault part number (8200 XXX XXX or 7700 XXX XXX) and the letter T

Example above: 8200178157TN**557**

2.2.3 The code supplied is not correct

If the code supplied from the first request with the vehicle VIN alone is not accepted by the radio, resend your request with the radio pre-code (paragraph 2.2.2).

- Re-enter the VIN of the vehicle
- Enter the radio pre-code
- Confirm with the "Search" button
- New radio code supplied

2.2.4 Old radios without pre-code:

To find a radio code using the radio part number (old minitel and voice server procedures), select: "Find radio code using its part number (old server procedure)".

The screenshot displays the Renault Tel Code Management interface. At the top right, there are links for "Code Management" and "Help". The main heading is "CODE MANAGEMENT". Below this, the section is titled "RADIO CODE". A message states: "A similar search has already been performed for this vehicle in the last 12 hours". A list of three options is provided:

1. Display the radio code available in the database
2. Display the radio code obtained using the VIN and the radio pre-code
3. Find the radio code using its part number reference (old server procedure)

On the left side of the interface, there is a sidebar with the following menu items: "Code Management" and "Versions of Code Management".

The screenshot shows the Renault.net Code Management interface. At the top left is the Renault logo and 'RENAULT.net'. At the top right is 'Code Management Help'. The main heading is 'CODE MANAGEMENT'. Below it is 'RADIO CODE'. A text block reads: 'You must enter the radio part number. The part number is the string of characters (letters and digits) which appears on the radio unit. If you cannot obtain this information, please send the Help procedure message to the assistance unit.' There is a text input field containing 'VF1ABCD1234567890' with 'VIN' above it and 'Radio part no.' below it. A 'Search' button is positioned below the input field. At the bottom, it says 'The radio code for this vehicle is: _____'. On the left side, there are two vertical menu items: 'Code Management' and 'Versions of Code Management'.

– Enter the radio part number in the "Radio part number" field

Example:

Radio part no.:

Philips = RN + 3 digits + 2 letters + 7 digits

Blaupunkt = BP + 4 digits + 1 letter + 7 digits

Pioneer = RN2006 + 1 letter + 7 digits or 1 letter + 7 digits (old models)

Alpine = AL + 9 digits

Becker = B or E + 7 digits

– Confirm with the "Search" button

– Radio code supplied

2.3 Video network code

- Enter the VIN of the vehicle
- Enter the four-digit code generated by the vehicle's video control
- Confirm with the "Calculate" button
- Four-digit code supplied by the code server

The screenshot shows the Renault Code Management web interface. At the top, there is a Renault logo and the text "RENAULT.net". On the right side, there are links for "Code Management" and "Help". The main heading is "CODE MANAGEMENT". Below this, there is a section titled "Video network code supplied". This section contains two input fields: "VIN (17 characters)" and "Code supplied by the Network". A "Calculate" button is positioned below these fields. At the bottom of the page, there is a message: "The Video Network's unlocking code is: _____" followed by "Please protect the network by entering your anti-theft code in the video network." and a "Back_Contents" button. On the left side of the interface, there is a vertical menu with "Code Management" and "Versions of Code Management" options.

2.4 Tool reprogramming key:

- Enter the VIN of the vehicle
- Enter the six-digit code generated by the diagnostic tool
- Confirm with the "Calculate" button
- Six-character (letters and digits) reprogramming key supplied, to be entered in the diagnostic tool.

The screenshot shows the Renault Code Management web interface. At the top, there is a Renault logo and the text "RENAULT.net". On the right side, there are links for "Code Management" and "Help". The main heading is "CODE MANAGEMENT". Below this, there is a section titled "Tool reprogramming key supplied". This section contains two input fields: "VIN (17 characters)" and "Tool reprogramming key". A "Calculate" button is positioned below these fields. At the bottom of the section, there is a text field: "The diagnostic tool reprogramming key is: _____". A "Back_Contents" button is located at the bottom right of the interface. On the left side, there is a vertical navigation menu with "Code Management" and "Versions of Code Management" options.

ENGINE OIL - OIL FILTER : DRAINING - FILLING



Note, one or more warnings are present in this procedure



Equipment required

oil recovery tray



parts always to be replaced:



Oil filter cover seal

Oil filter



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view\)](#) .



WARNING

Wear leaktight gloves (Nitrile type) for this operation.



CAUTION

Always check the oil level using the dipstick.

Do not exceed the maximum level on the dipstick (could destroy the engine).

Correct the engine oil level if necessary before delivering the vehicle to the customer.

Note:



When filling up the engine oil, always leave at least 10 minutes for the oil to drain down before checking the level with a dipstick.

When removing the oil filter, check that the oil filter seal is not still stuck to the cylinder block or the oil filter support.

DRAINING

1. ENGINE OIL DRAINING PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove :
 - the engine undertray bolts,
 - the engine undertray.

2. ENGINE OIL DRAINING OPERATION

- Place a oil recovery tray under the engine.
- Remove [\(see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view\)](#) :
 - the engine oil filler cap,
 - the engine oil dipstick,
 - the drain plug,
 - the drain plug seal.
- Let the engine oil run into a oil recovery tray.

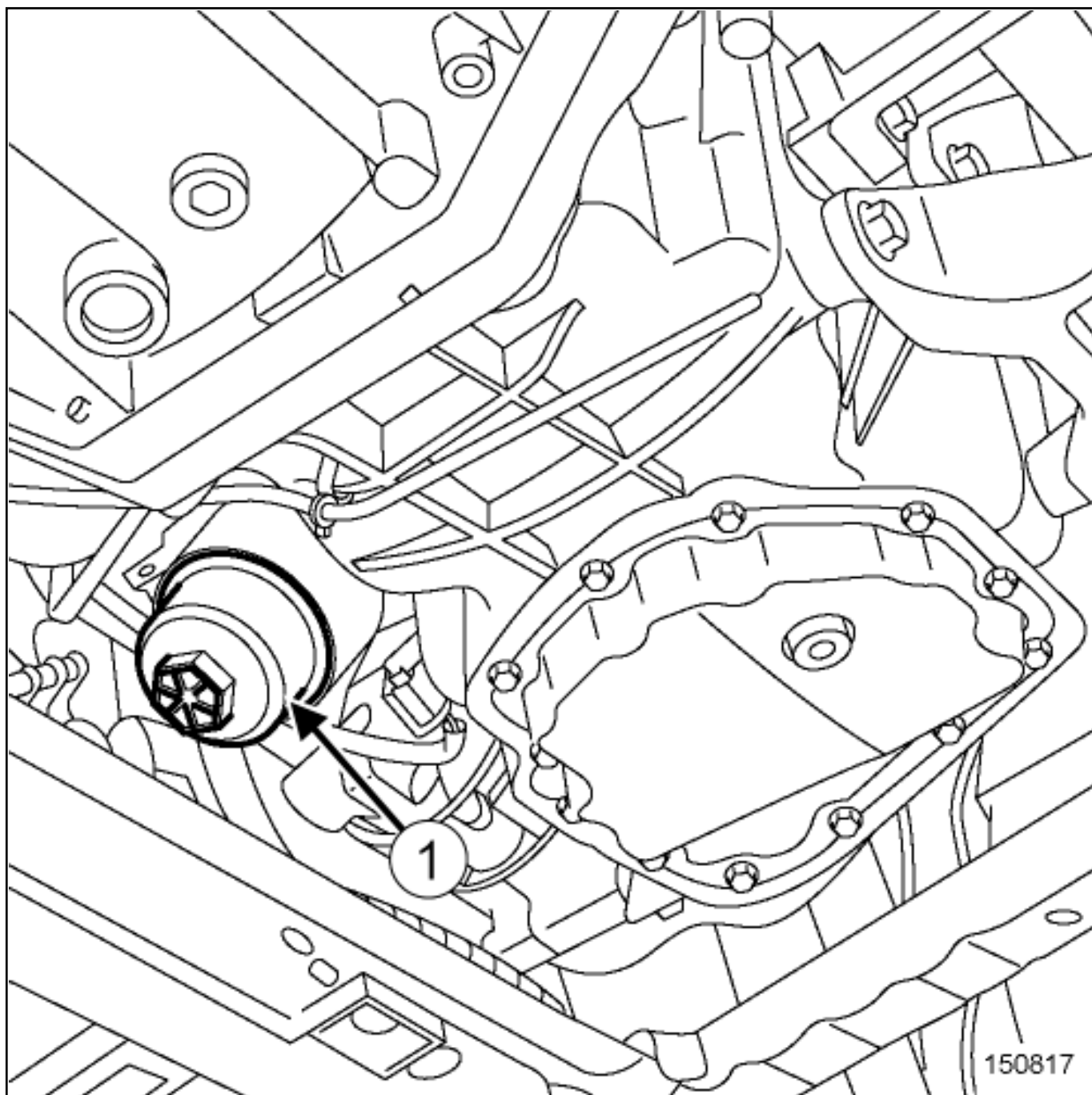
REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove :
 - the engine undertray bolts,
 - the engine undertray.

- Fit a oil recovery tray under the engine.

2. REMOVAL OPERATION



- Undo the oil filter unit cover(1) until oil flows through the opening.
- Allow the oil contained in the oil filter unit to flow.
- Remove the oil filter cover([see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view](#)).
- Unclip the oil filter of the oil filter cover.
-

Remove the oil filter seal([see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view](#)) .


REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:  [Oil filter cover seal](#)  .



parts always to be replaced:  [Oil filter](#)  .



Use surface cleaner [Vehicle: Parts and consumables for the repair](#) to clean and degrease the oil filter joint face.

2. REFITTING OPERATION



Refit a new seal([see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view](#)) to the oil filter cover.



Lubricate the seal with engine oil.



Note:

With about drops of oil only.



Clip the new oil filter on the oil filter cover.



Refit the oil filter cover([see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view](#)).

3. FINAL OPERATION



Remove the oil recovery tray.



Wipe any oil run-off with a cloth.



Top up with engine oil recommended by the manufacturer([see Engine oil: Specifications](#)) (Technical Note 6013A, 04A, Lubricants).



Start the engine and wait until the oil pressure warning light goes out on the instrument panel.



Check for leaks from the oil filter.



Wait for at least 10 minutes.



Check the oil level using the dipstick.



Adjust the engine oil level if necessary.



Proceed in the reverse order to removal.

FILLING

1. ENGINE OIL FILLING OPERATION



Refit ([see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view](#)):



- the new drain plug seal,

- the drain plug.

Position the vehicle back on the ground.

Fill with engine oil, observing the quantity and type of engine oil recommended by the manufacturer (see **Engine oil: Specifications**) (Technical Note 6013A, 04A, Lubricants).

Wait for at least 10 minutes.

Refit ([see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view](#)):

- the engine oil filler cap,

- the engine oil dipstick.

Check the oil level using the dipstick.

Adjust the engine oil level if necessary.

2. FINAL OPERATION

Proceed in the reverse order to removal.



ENGINE OIL CIRCUIT ASSEMBLY: EXPLODED VIEW



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

1.

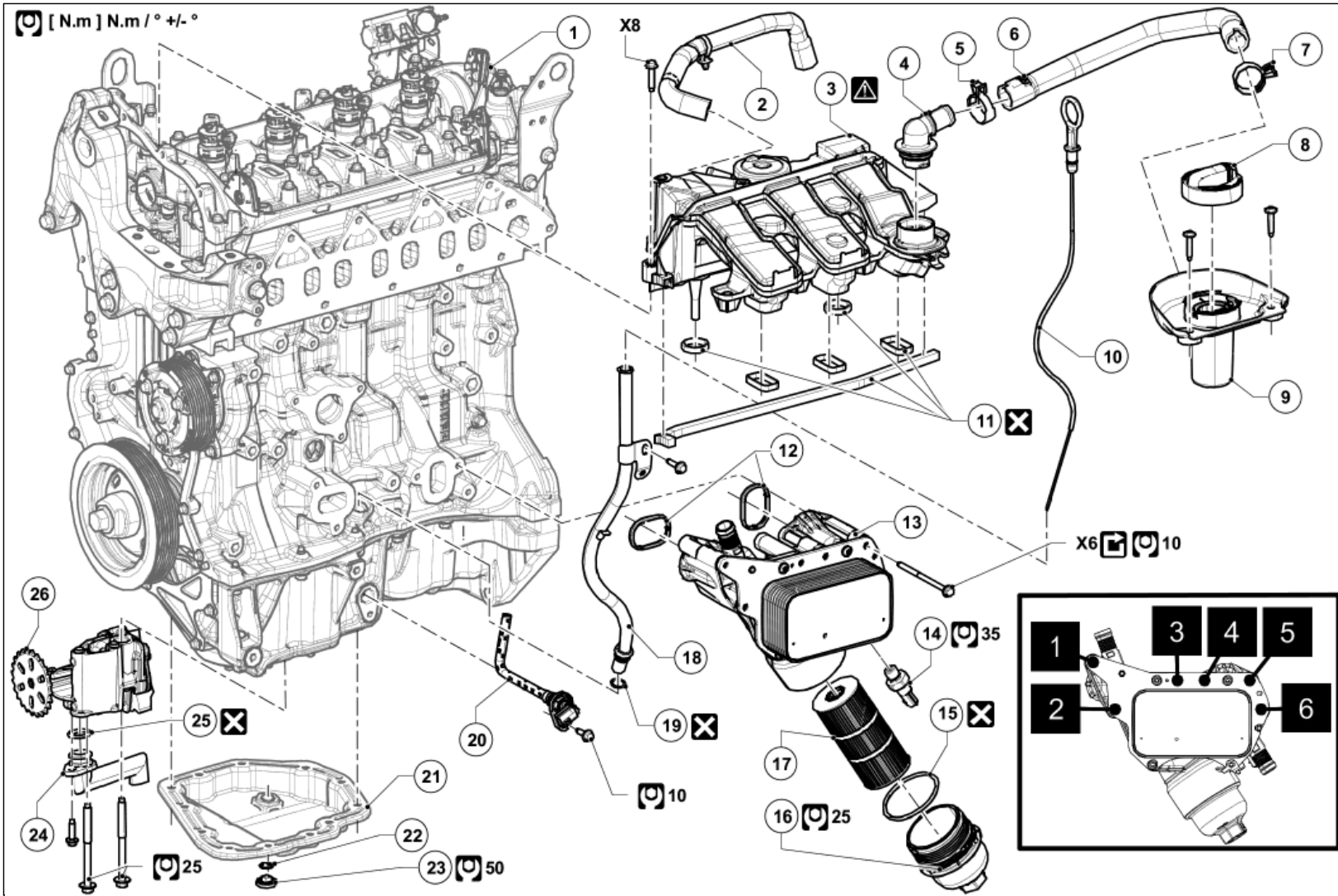


Illustration key: [Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#).

Marks	Designations	Informations
1	Cylinder block	(see 10A, Engine and cylinder block assembly, Cylinder block assembly: Exploded view)
2	Oil vapour rebreathing pipe	Do not handle the oil decanter by its heat shield. Oil decanter: Removal - Refitting
3	Oil decanter	
4	Filler neck pipe	
5	Oil filler neck pipe clip, dipstick guide end	
6	Oil filler neck pipe	
7	Oil filler neck pipe clip, neck end	
8	Engine oil filler cap	(see 10A, Engine and cylinder block assembly, Engine oil - Oil filter : Draining - Filling)
9	Oil filler neck	
10	Engine oil dipstick	(see 10A, Engine and cylinder block assembly, Engine oil - Oil filter : Draining - Filling)
11	Oil decanter seal	Oil decanter: Removal - Refitting
12	Oil filter unit seal	(see 10A, Engine and cylinder block assembly, Oil filter unit: Removal - Refitting)
13	Oil filter unit	
14	Oil pressure sensor	(see 10A, Engine and cylinder block assembly, Oil pressure sensor: Removal - Refitting)
15	Oil filter cover seal	(see 10A, Engine and cylinder block assembly, Engine oil - Oil filter : Draining - Filling)
16	Oil filter cover	
17	Oil filter	
18	Engine oil dipstick guide	
19	Engine oil dipstick guide seal	
20	Oil level sensor	Drain the engine oil before removing (see 10A, Engine and cylinder block assembly, Engine oil - Oil filter : Draining - Filling)
21	Lower cover	(see 10A, Engine and cylinder block assembly, Lower cover: Removal - Refitting)
22	Drain plug seal	(see 10A, Engine and cylinder block assembly, Engine oil - Oil filter : Draining - Filling)
23	Drain plug	
24	Oil pump strainer	Lower cover removal needed. (see 10A, Engine and cylinder block assembly, Lower cover: Removal - Refitting)
25	Oil pump strainer seal	
26	Oil pump	



ENGINE-GEARBOX UNIT SUPPORT ASSEMBLY: EXPLODED VIEW

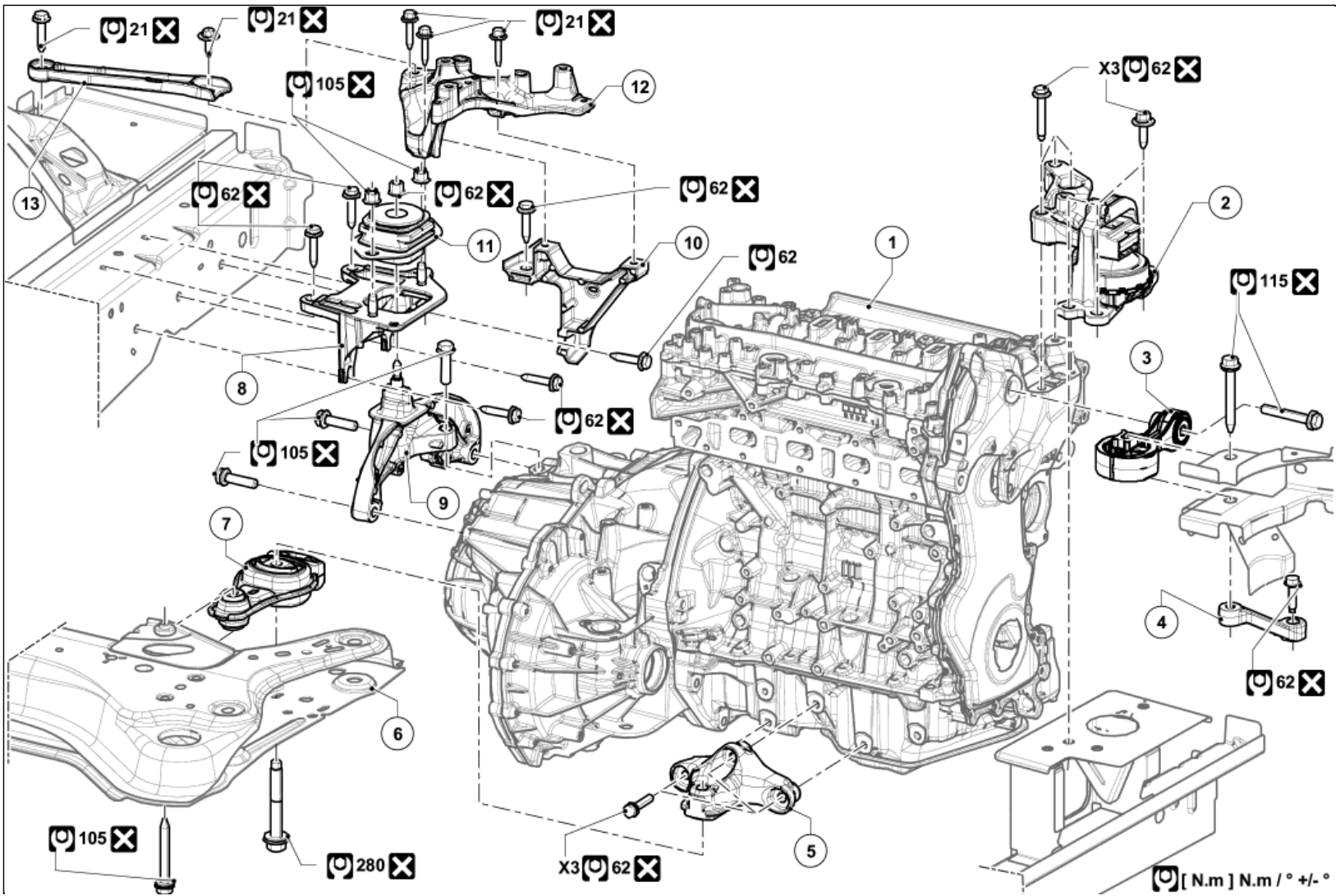


Illustration key: [Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Engine - gearbox assembly	(see Engine - gearbox assembly: Removal - Refitting)
2	Right-hand suspended engine mounting	
3	Upper Engine tie-bar mounting	
4	Acoustic tie-rod	
5	Lower Engine tie-bar mounting	
6	Front axle subframe	(see Front axle subframe: Removal - Refitting)
7	Lower engine tie-bar	
8	Gearbox rubber pad mounting on the body	
9	Gearbox support	(see 19D, Engine mounting, Left-hand suspended engine mounting: Removal - Refitting)
10	Reinforcer support battery	(see 19D, Engine mounting, Left-hand suspended engine mounting: Removal - Refitting)
11	Front left-hand rubber pad	(see 19D, Engine mounting, Left-hand suspended engine mounting: Removal - Refitting)
12	Reinforcer support battery on gear box	(see 19D, Engine mounting, Left-hand suspended engine mounting: Removal - Refitting)
13	Acoustic tie-rod on support battery	



Repair-10x04x01x04-02x50-1-17-1.xml



EXHAUSTASSEMBLYINENGINECOMPARTMENT:EXPLODEDVIEW



Note, one or more warnings are present in this procedure



Special tooling required	
Spanner for tightening the exhaust gas temperature sensor	Mot. 1807
4-40 N.m torque wrench with 1/4 drive ratchet end piece	Ms. 1973



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

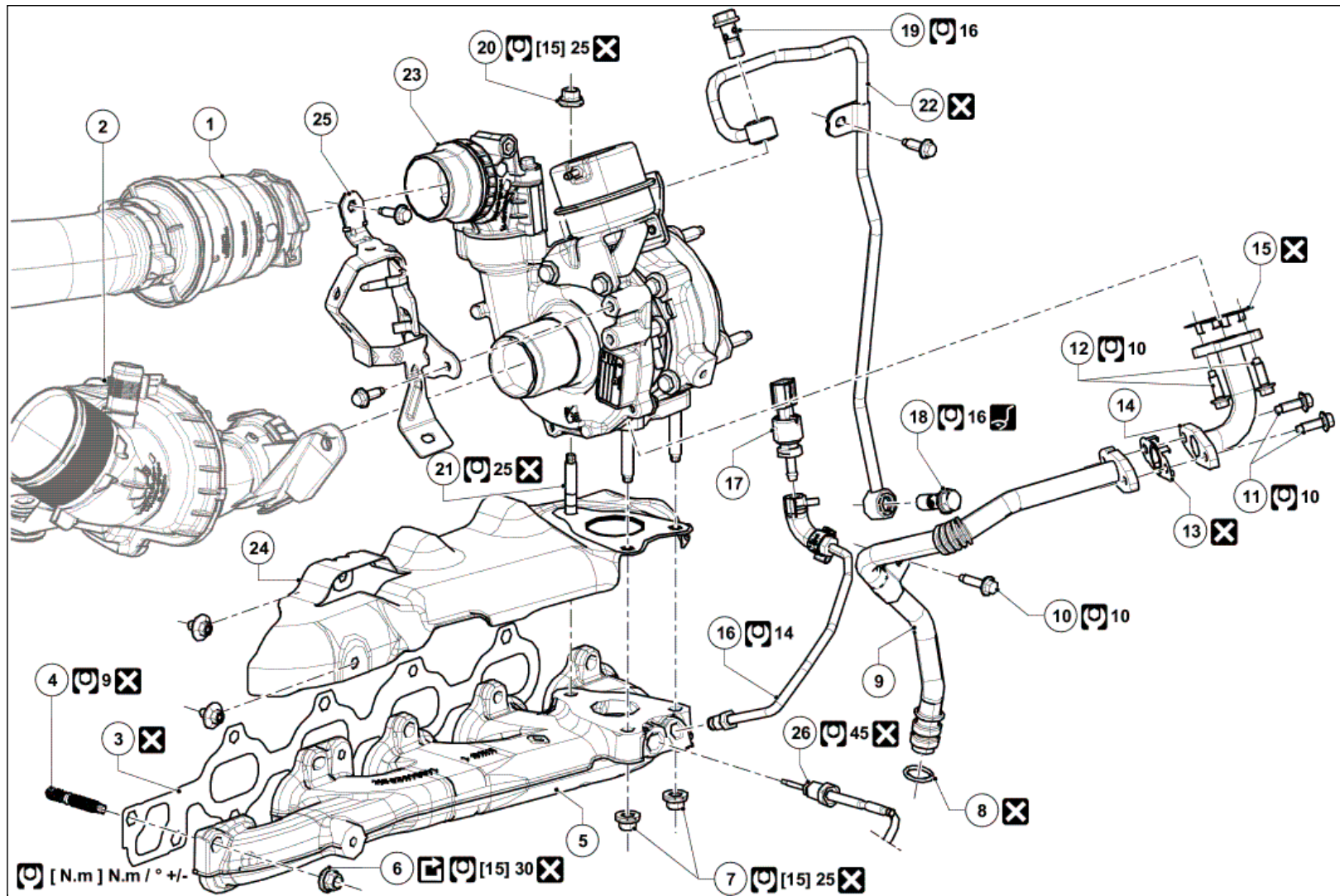


Illustration key: [Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Intercooler air inlet pipe	Intercooler air inlet pipe: Removal - Refitting
2	Turbocharger air inlet pipe	Turbocharger: Removal - Refitting
3	Exhaust manifold seal	Exhaust manifold: Removal - Refitting
4	Exhaust manifold studs	Exhaust manifold: Removal - Refitting
5	Exhaust manifold	Exhaust manifold: Removal - Refitting
6	Exhaust manifold nuts	Exhaust manifold: Removal - Refitting
7	Turbocharger nuts	Turbocharger: Removal - Refitting
8	Turbocharger oil return pipe seal	Turbocharger oil pipe: Removal - Refitting
9	Turbocharger oil return pipe	Turbocharger oil pipe: Removal - Refitting
10	Turbocharger oil return pipe bolt	Turbocharger oil pipe: Removal - Refitting
11	Turbocharger upper oil return pipe bolts	Turbocharger oil pipe: Removal - Refitting
12	Turbocharger upper oil return pipe bolts, turbocharger end	Turbocharger oil pipe: Removal - Refitting
13	Turbocharger oil return pipe intermediate seal	Turbocharger oil pipe: Removal - Refitting
14	Turbocharger oil pipe	Turbocharger oil pipe: Removal - Refitting
15	Turbocharger oil return pipe seal	Turbocharger oil pipe: Removal - Refitting
16	Exhaust gas pressure take-off pipe	
17	Exhaust gas pressure sensor	(see 19B, Exhaust, Exhaust gas pressure sensor: Removal - Refitting)
18	Turbocharger oil supply pipe bolt, cylinder block end	Turbocharger oil pipe: Removal - Refitting 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
19	Turbocharger oil supply pipe bolt, turbocharger end	Turbocharger oil pipe: Removal - Refitting
20	Turbocharger nuts	
21	Turbocharger studs	
22	Turbocharger oil pipe	Turbocharger oil pipe: Removal - Refitting
23	Turbocharger	Turbocharger: Removal - Refitting
24	Exhaust manifold heat shield	Exhaust manifold: Removal - Refitting
25	Particle filter pressure sensor support	
26	Exhaust gas temperature sensor	(see 19B, Exhaust, Exhaust gas temperature sensor: Removal - Refitting)

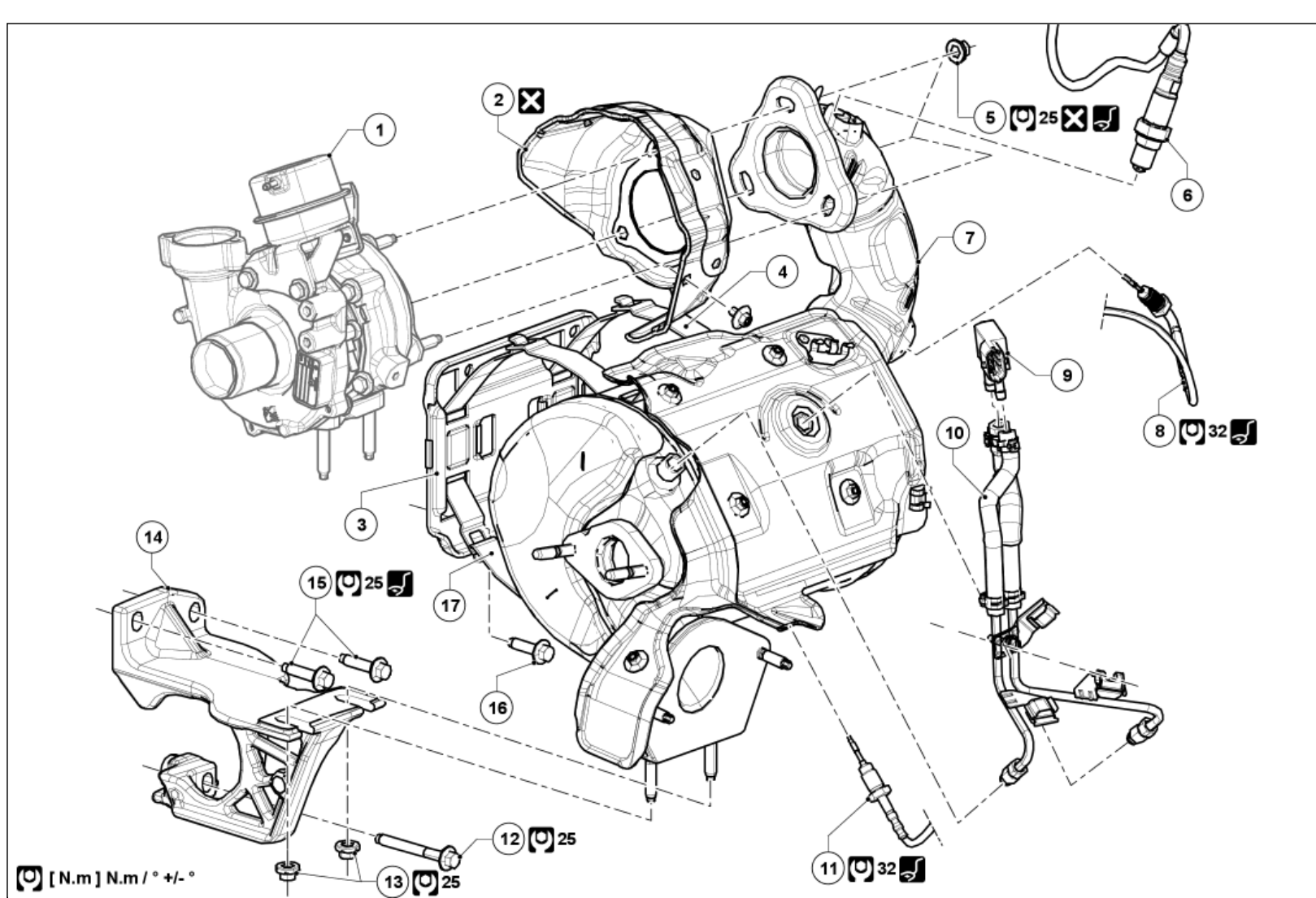


Illustration key: [Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Turbocharger	Turbocharger: Removal - Refitting
2	Turbocharger heat shield-seal	Turbocharger: Removal - Refitting
3	Partice filter mounting straps support	
4	Particle filter upper mounting straps	(see 19B, Exhaust, Particle filter: Removal - Refitting)
5	Particle filter nuts, turbocharger end	(see 19B, Exhaust, Particle filter: Removal - Refitting) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
6	Oxygen sensor	Oxygen sensor: Removal - Refitting
7	Particle filter	(see 19B, Exhaust, Particle filter: Removal - Refitting)
8	Temperature sensor particle filter	(see 19B, Exhaust, Particle filter temperature sensors: Removal - Refitting) Spanner for tightening the exhaust gas temperature sensor(Mot. 1807) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
9	Particle filter pressure sensor	(see 19B, Exhaust, Particle filter pressure sensor: Removal - Refitting) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973) Spanner for tightening the exhaust gas temperature sensor(Mot. 1807)
10	Particle filter pressure take-off pipe	(see 19B, Exhaust, Particle filter: Removal - Refitting)
11	Temperature sensor particle filter	(see 19B, Exhaust, Particle filter temperature sensors: Removal - Refitting) Spanner for tightening the exhaust gas temperature sensor(Mot. 1807) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
12	Particle filter bracket bolts	(see 19B, Exhaust, Particle filter: Removal - Refitting)
13	Particle filter bracket nuts	(see 19B, Exhaust, Particle filter: Removal - Refitting)
14	Particle filter bracket	(see 19B, Exhaust, Particle filter: Removal - Refitting)
15	Particle filter bracket bolts	(see 19B, Exhaust, Particle filter: Removal - Refitting) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
16	Particle filter support bolts	(see 19B, Exhaust, Particle filter: Removal - Refitting)
17	Particle filter lower mounting straps	(see 19B, Exhaust, Particle filter: Removal - Refitting)



EXHAUSTASSEMBLYINENGINECOMPARTMENT:EXPLODEDVIEW



Note, one or more warnings are present in this procedure



Special tooling required	
Spanner for tightening the exhaust gas temperature sensor	Mot. 1807
4-40 N.m torque wrench with 1/4 drive ratchet end piece	Ms. 1973



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#).

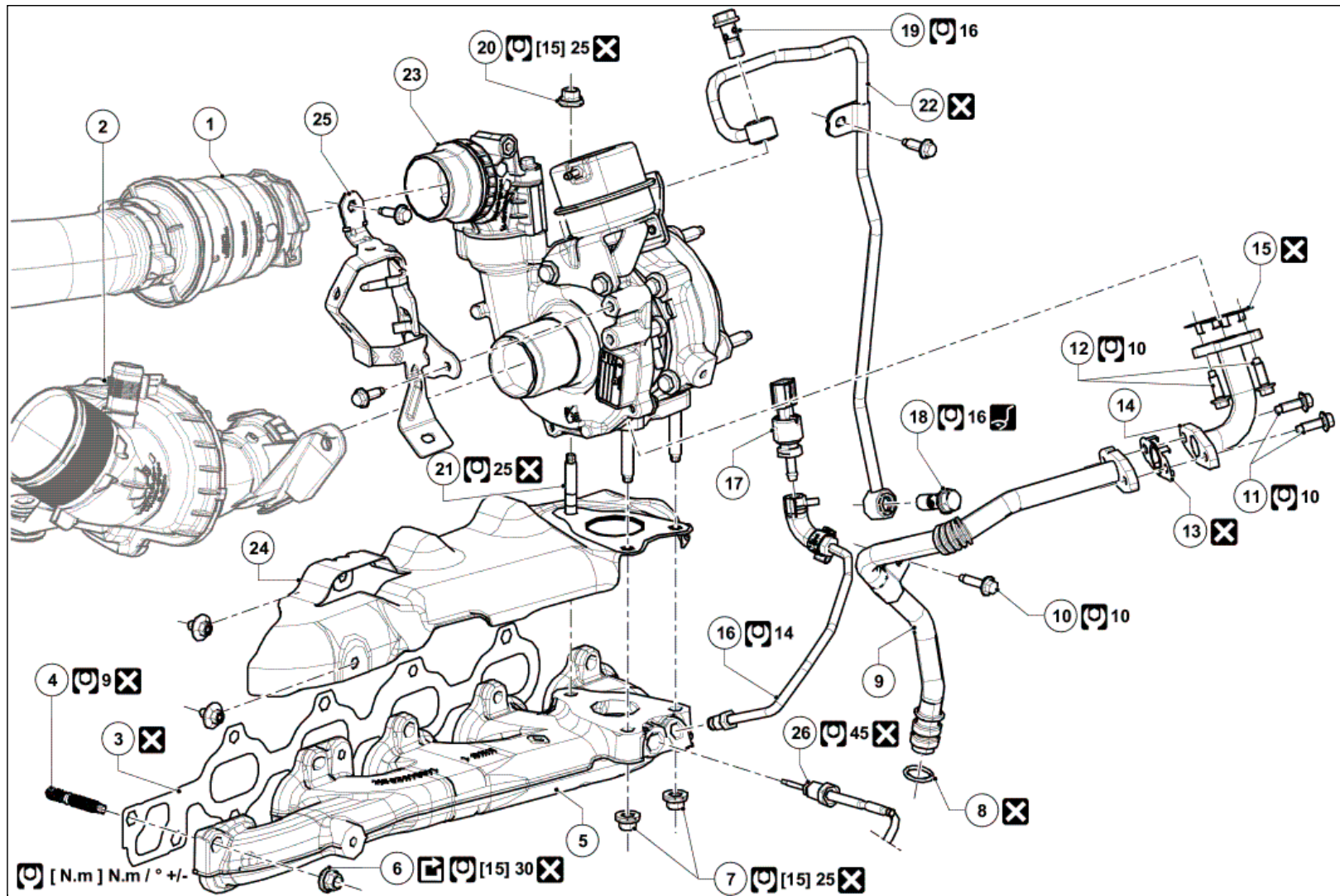


Illustration key: [Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Intercooler air inlet pipe	Intercooler air inlet pipe: Removal - Refitting
2	Turbocharger air inlet pipe	Turbocharger: Removal - Refitting
3	Exhaust manifold seal	Exhaust manifold: Removal - Refitting
4	Exhaust manifold studs	Exhaust manifold: Removal - Refitting
5	Exhaust manifold	Exhaust manifold: Removal - Refitting
6	Exhaust manifold nuts	Exhaust manifold: Removal - Refitting
7	Turbocharger nuts	Turbocharger: Removal - Refitting
8	Turbocharger oil return pipe seal	Turbocharger oil pipe: Removal - Refitting
9	Turbocharger oil return pipe	Turbocharger oil pipe: Removal - Refitting
10	Turbocharger oil return pipe bolt	Turbocharger oil pipe: Removal - Refitting
11	Turbocharger upper oil return pipe bolts	Turbocharger oil pipe: Removal - Refitting
12	Turbocharger upper oil return pipe bolts, turbocharger end	Turbocharger oil pipe: Removal - Refitting
13	Turbocharger oil return pipe intermediate seal	Turbocharger oil pipe: Removal - Refitting
14	Turbocharger oil pipe	Turbocharger oil pipe: Removal - Refitting
15	Turbocharger oil return pipe seal	Turbocharger oil pipe: Removal - Refitting
16	Exhaust gas pressure take-off pipe	
17	Exhaust gas pressure sensor	(see 19B, Exhaust, Exhaust gas pressure sensor: Removal - Refitting)
18	Turbocharger oil supply pipe bolt, cylinder block end	Turbocharger oil pipe: Removal - Refitting 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
19	Turbocharger oil supply pipe bolt, turbocharger end	Turbocharger oil pipe: Removal - Refitting
20	Turbocharger nuts	
21	Turbocharger studs	
22	Turbocharger oil pipe	Turbocharger oil pipe: Removal - Refitting
23	Turbocharger	Turbocharger: Removal - Refitting
24	Exhaust manifold heat shield	Exhaust manifold: Removal - Refitting
25	Particle filter pressure sensor support	
26	Exhaust gas temperature sensor	(see 19B, Exhaust, Exhaust gas temperature sensor: Removal - Refitting)

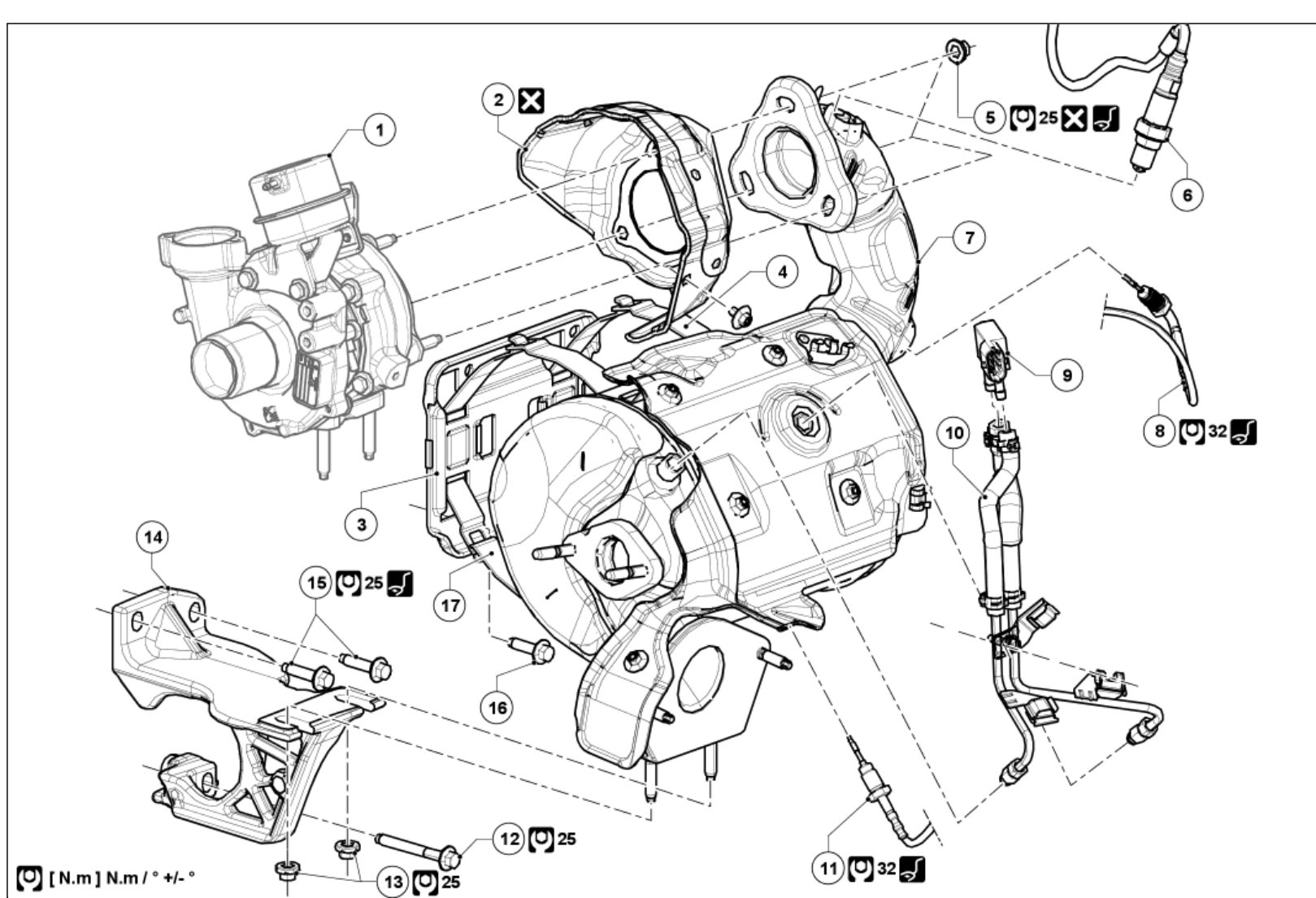


Illustration key: [Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Turbocharger	Turbocharger: Removal - Refitting
2	Turbocharger heat shield-seal	Turbocharger: Removal - Refitting
3	Partice filter mounting straps support	
4	Particle filter upper mounting straps	(see 19B, Exhaust, Particle filter: Removal - Refitting)
5	Particle filter nuts, turbocharger end	(see 19B, Exhaust, Particle filter: Removal - Refitting) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
6	Oxygen sensor	Oxygen sensor: Removal - Refitting
7	Particle filter	(see 19B, Exhaust, Particle filter: Removal - Refitting)
8	Temperature sensor particle filter	(see 19B, Exhaust, Particle filter temperature sensors: Removal - Refitting) Spanner for tightening the exhaust gas temperature sensor(Mot. 1807) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
9	Particle filter pressure sensor	(see 19B, Exhaust, Particle filter pressure sensor: Removal - Refitting) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973) Spanner for tightening the exhaust gas temperature sensor(Mot. 1807)
10	Particle filter pressure take-off pipe	(see 19B, Exhaust, Particle filter: Removal - Refitting)
11	Temperature sensor particle filter	(see 19B, Exhaust, Particle filter temperature sensors: Removal - Refitting) Spanner for tightening the exhaust gas temperature sensor(Mot. 1807) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
12	Particle filter bracket bolts	(see 19B, Exhaust, Particle filter: Removal - Refitting)
13	Particle filter bracket nuts	(see 19B, Exhaust, Particle filter: Removal - Refitting)
14	Particle filter bracket	(see 19B, Exhaust, Particle filter: Removal - Refitting)
15	Particle filter bracket bolts	(see 19B, Exhaust, Particle filter: Removal - Refitting) 4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
16	Particle filter support bolts	(see 19B, Exhaust, Particle filter: Removal - Refitting)
17	Particle filter lower mounting straps	(see 19B, Exhaust, Particle filter: Removal - Refitting)



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EXHAUST ASSEMBLY UNDER BODY: EXPLODED VIEW

Special tooling required	
Pliers for removing exhaust pipe rubber mounting bushes	Mot. 1857

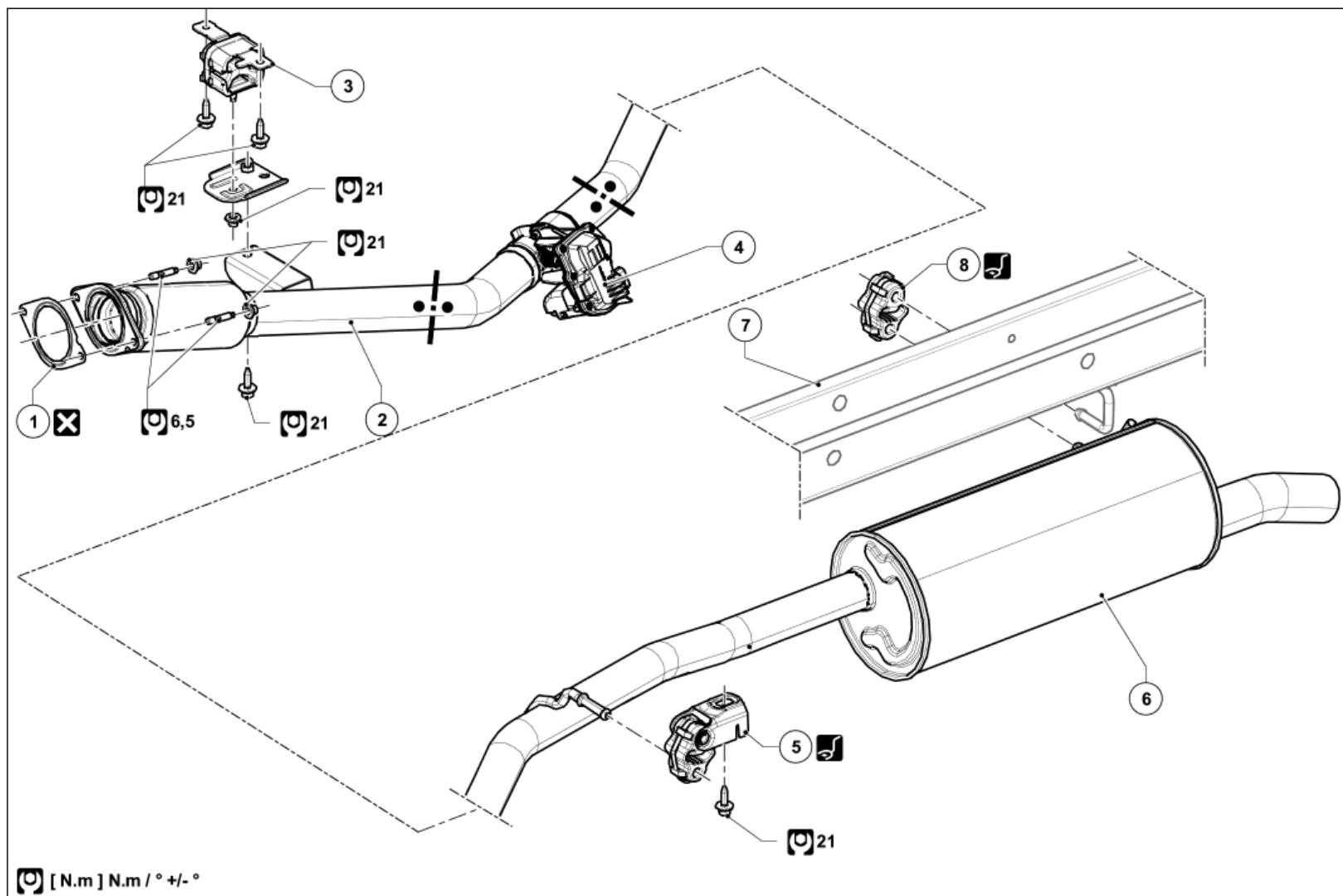


Illustration key: Description Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Outlet seal of turbocharger outlet exhaust gas duct	
2	Flexible linking pipe	(see 19B, Exhaust, Connecting hose: Removal - Refitting)
3	Rubber mounting bush	
4	Exhaust gas recirculation solenoid valve	Exhaust gas recirculation solenoid valve: Removal - Refitting
5	Rubber mounting bush	Pliers for removing exhaust pipe rubber mounting bushes(Mot. 1857)
6	Silencer	(see 19B, Exhaust, Silencer: Removal - Refitting)
7	Sidemember	
8	Rubber mounting bush of silencer	Pliers for removing exhaust pipe rubber mounting bushes(Mot. 1857)



EXHAUST GAS COOLER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Pipe clamps.

Ms. 583

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view\)](#) .



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

Any damaged heat shields must be replaced.

REMOVAL

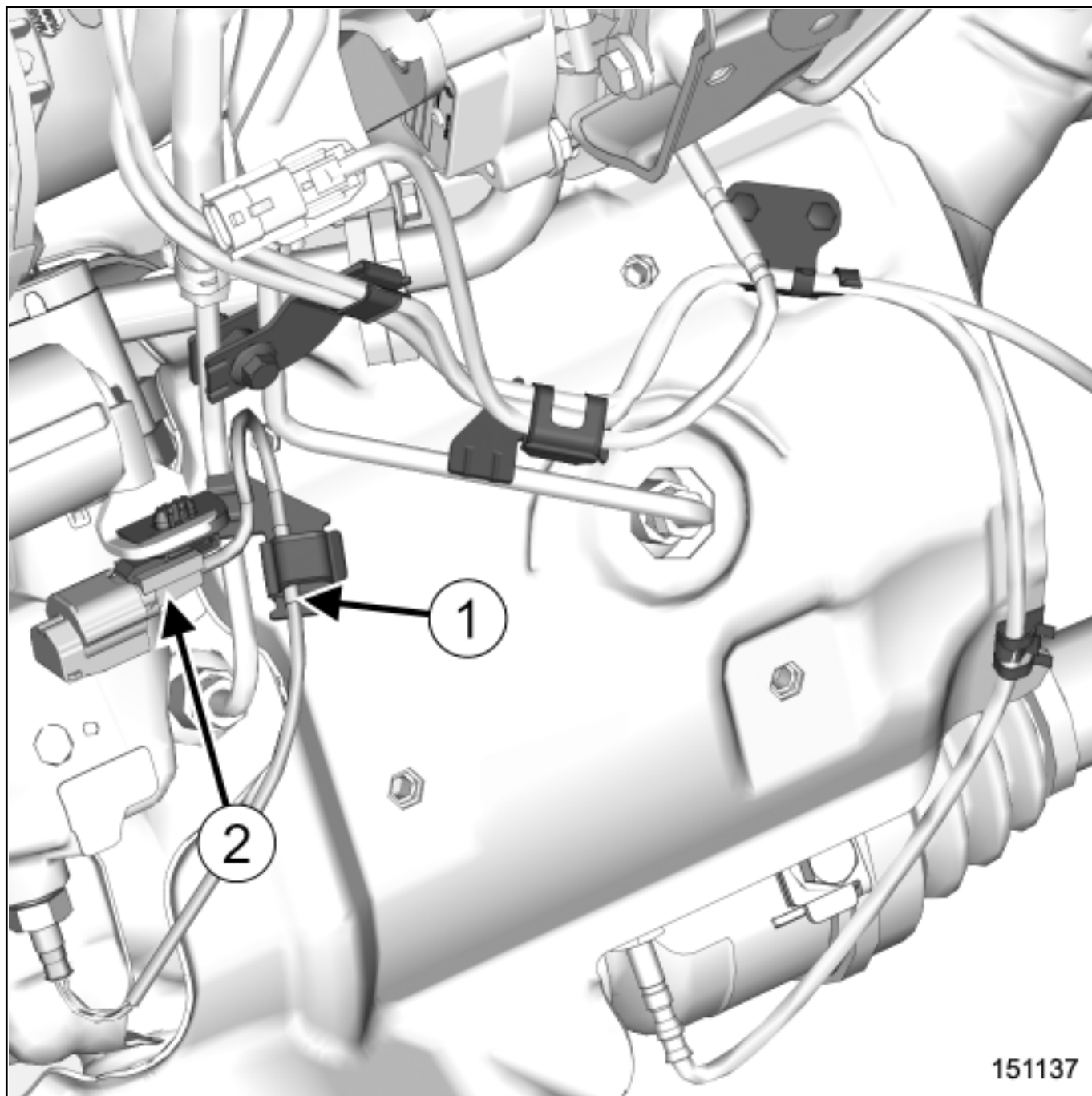
1. REMOVAL PREPARATION OPERATION

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).

■ Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).

- Remove:
- the engine undertray,
 - the injector rail protector [Injector rail protector: Removal - Refitting](#) ,
 - the oil decanter [Engine oil circuit assembly: Exploded view](#) ,
 - the exhaust gas recirculation low pressure solenoid valve ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) .

■ Remove the air outlet pipe [Air inlet assembly: Exploded view](#) .



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- Unclip the wiring from the exhaust gas temperature sensor on the exhaust gas cooler(1) .
- Disconnect the exhaust gas temperature sensor on the exhaust gas cooler connector(2) .

2. REMOVAL OPERATION

- Fit the toolsPipe clamps.(Ms. 583) onto the cooling hoses of the exhaust gas cooler.
- Pinch the clips from the cooling hoses of the exhaust gas cooler([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) .
- Disconnect the cooling hoses from the exhaust gas cooler([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) .
- Remove ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) :
 - the exhaust gas cooler bolts from the particle filter,
 - the exhaust gas cooler bolt from the support,
 - the exhaust gas cooler,
 - the exhaust gas cooler seal.

REFITTING

1. REFITTING PREPARATION OPERATION

- Always replace the seal between the exhaust gas cooler and the particle filter.



Use surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean and degrease the sealing surfaces:

-
- of the exhaust gas cooler if it is being reused,
- of the particle filter.

2. REFITTING OPERATION



Refit ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) :

-

- a new exhaust gas cooler seal,

- the exhaust gas cooler,

Fit without tightening([see 14A. Antipollution. Exhaust gas recirculation circuit assembly: Exploded view](#)) :

- the exhaust gas cooler bolts on the particle filter,

- the exhaust gas cooler bolt on the support.

Using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece([Ms. 1973](#)), tighten to torque([see 14A. Antipollution. Exhaust gas recirculation circuit assembly: Exploded view](#)) :

- the exhaust gas cooler bolts on the particle filter,

- the exhaust gas cooler bolt on the support.

Proceed in the reverse order to removal.

Perform the following operations:

- top up the cooling system,

- bleed the cooling system [Cooling system: Draining - Refilling](#) .



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EXHAUST GAS PRESSURE SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Remote operation pliers for hose clips.

Mot. 1448

Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)).



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 19B, Exhaust, Exhaust: Precautions for the repair\)](#),
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

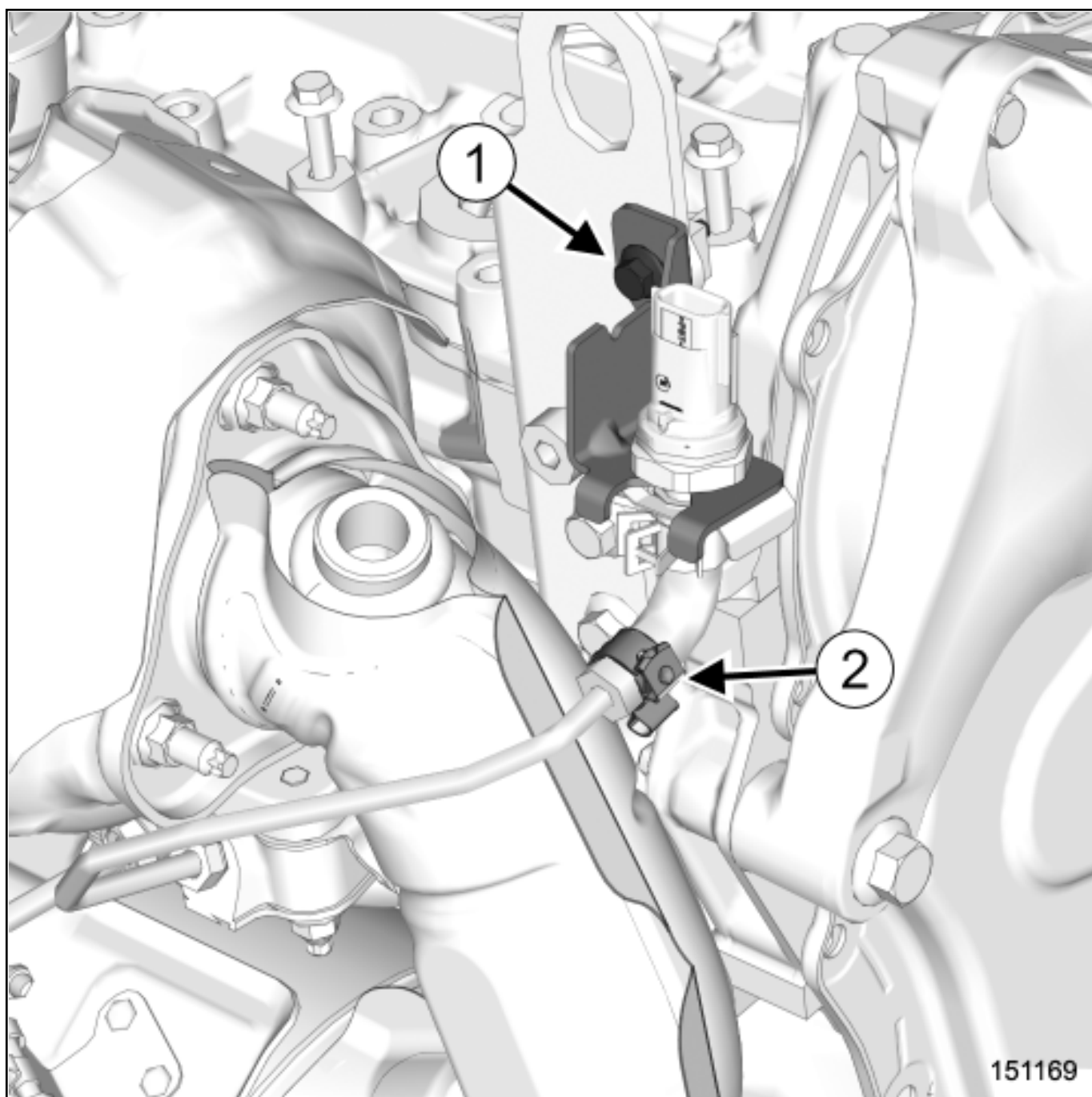
Any damaged heat shields must be replaced.

1. REMOVAL PREPARATION OPERATION

- Remove the oxygen sensor ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)).

2. REMOVAL OPERATION

- Disconnect the exhaust gas pressure sensor connector.



- Remove:
 - the bolt(1) from the exhaust gas pressure sensor support,
 - the clip(2) between the exhaust gas pressure sensor hose and the take-off pipe,
 - the "exhaust gas pressure sensor - hose" assembly.

1- REPLACING THE EXHAUST GAS PRESSURE SENSOR

- Remove the exhaust gas pressure sensor pipe clip using the tool Remote operation pliers for hose clips. (Mot. 1448) .
- Remove the exhaust gas pressure sensor clip.
- Disconnect the exhaust gas pressure sensor pipe.
- Remove the exhaust gas pressure sensor from its mounting.

REFITTING

1. REFITTING PREPARATION OPERATION

- Always replace the clip between the exhaust gas pressure sensor hose and the take-off pipe.

1- REPLACING THE EXHAUST GAS PRESSURE SENSOR

- Always replace the exhaust gas pressure sensor clip.
- Refit the exhaust gas pressure sensor on its mounting.
- Connect the exhaust gas pressure sensor pipe.
- Refit:
 - the exhaust gas pressure sensor clip,
 - the exhaust gas pressure sensor pipe clip using the tool Remote operation pliers for hose clips.(Mot. 1448) .

2. REFITTING OPERATION

- Proceed in the reverse order to removal.
- Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :
 - Computer concerned by the After repair procedure:
 - "Exhaust gas pressure sensor" .



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XSL version : 3.02 du 22/07/11

EXHAUST GAS RECIRCULATION CIRCUIT ASSEMBLY: EXPLODED VIEW

Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973

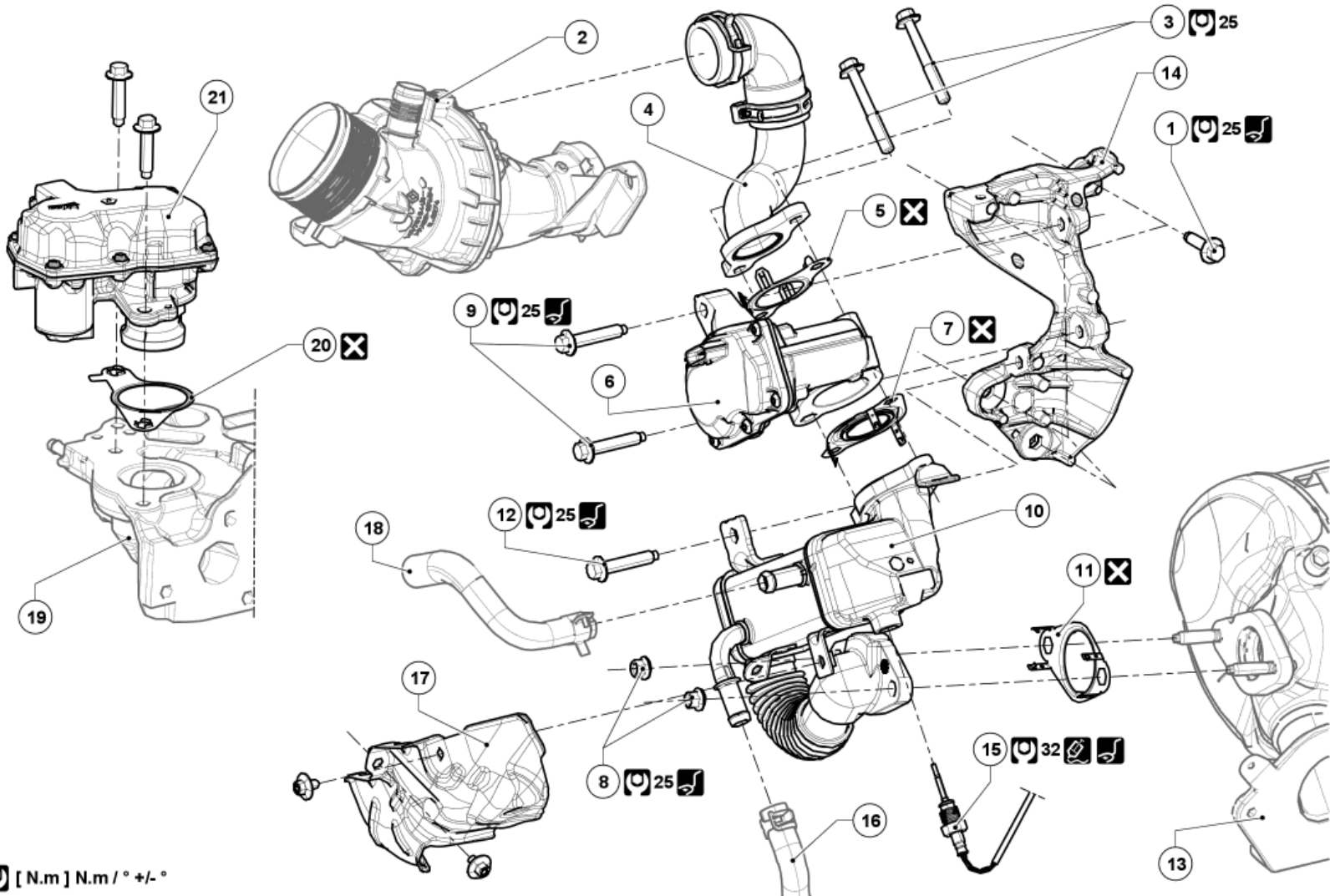


Illustration key: Description

Marks	Designations	Informations
1	Exhaust gas recirculation low pressure assembly bracket bolts	Special tooling required :4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
2	Turbocharger inlet air pipe	Turbocharger: Removal - Refitting
3	Exhaust gas recirculation low pressure solenoid valve bolts	(see 14A, Antipollution, Exhaust gas recirculation low pressure solenoid valve: Removal - Refitting)
4	Outlet exhaust gas recirculation pipe	
5	Exhaust gas recirculation low pressure solenoid valve seal	
6	Exhaust gas recirculation low pressure solenoid valve	
7	Exhaust gas cooler outlet seal	(see 14A, Antipollution, Exhaust gas cooler: Removal - Refitting)
8	Exhaust gas cooler nuts	
9	Exhaust gas recirculation low pressure solenoid valve mounting bolts on its bracket	(see 14A, Antipollution, Exhaust gas recirculation low pressure solenoid valve: Removal - Refitting) Special tooling required :4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
10	Exhaust gas cooler	(see 14A, Antipollution, Exhaust gas cooler: Removal - Refitting) Special tooling required :4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973)
11	Exhaust gas cooler inlet seal	
12	Exhaust gas cooler bolt	
13	Particle filter	Particle filter: Removal - Refitting
14	Exhaust gas recirculation low pressure assembly bracket	
15	Exhaust gas cooler outlet temperature sensor	Exhaust gas temperature sensor: Removal - Refitting Special tooling required :4-40 N.m torque wrench with 1/4 drive ratchet end piece(Ms. 1973) MOT 1807
16	Coolant pipe	
17	Exhaust gas cooler heat shield	(see 14A, Antipollution, Exhaust gas cooler: Removal - Refitting)
18	coolant pipe	
19	Inlet distributor	Inlet distributor: Removal - Refitting
20	Exhaust gas recirculation solenoid valve seal	(see 14A, Antipollution, Exhaust gas recirculation solenoid valve: Removal - Refitting)
21	Exhaust gas recirculation solenoid valve	



EXHAUST GAS RECIRCULATION LOW PRESSURE SOLENOID VALVE: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973

Equipment required

Diagnostic tool

tweezers

parts washer



parts always to be replaced:



[Exhaust gas recirculation pipe seal](#)

[exhaust gas recirculation solenoid valve seal](#)

[turbocharger air cooler air inlet pipe seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view\)](#) .



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

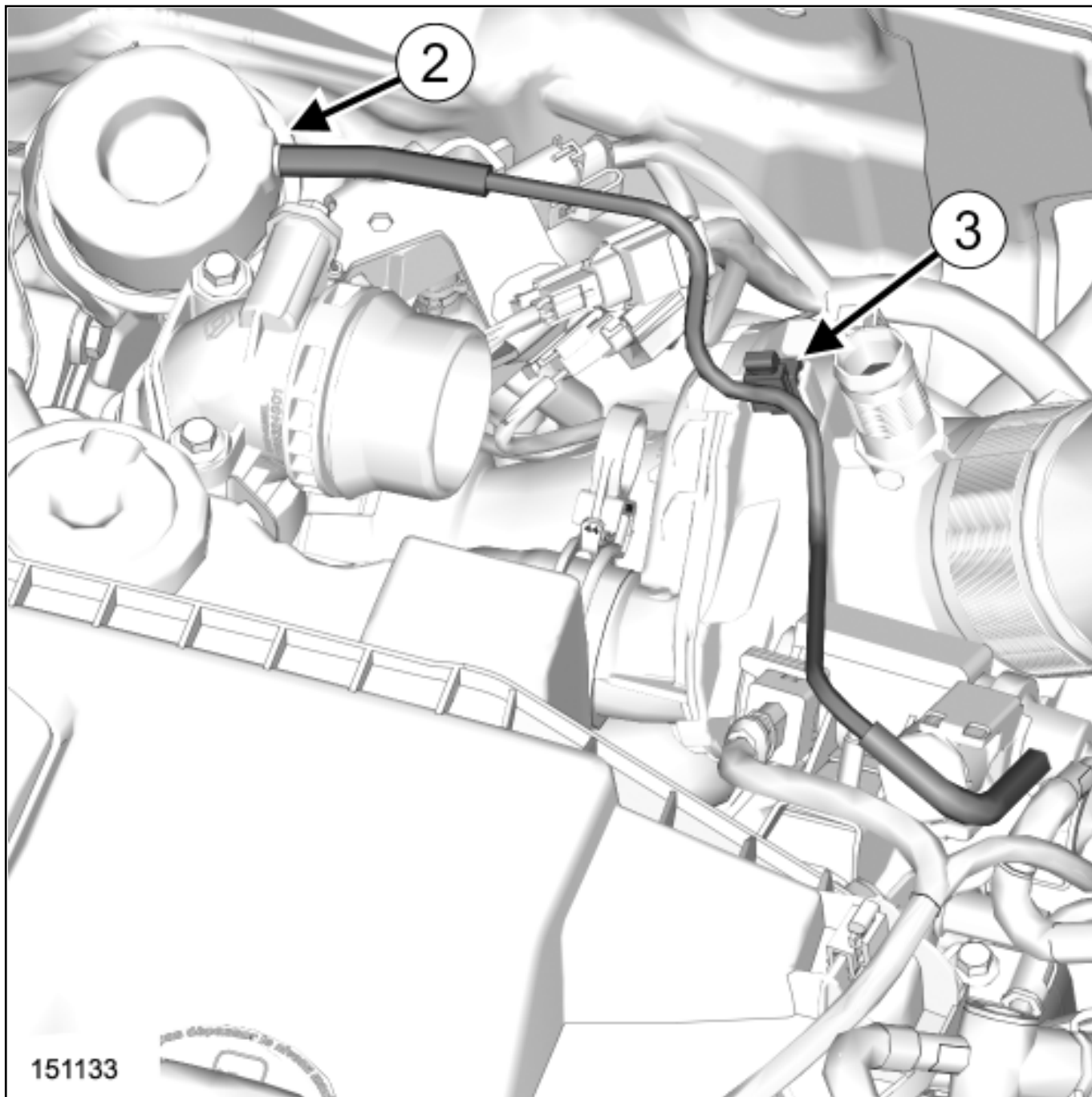
To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

Any damaged heat shields must be replaced.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Remove the air outlet pipe [Air inlet assembly: Exploded view](#) .
- Remove the engine undertray.
- Remove:
 - the injector rail protector [Injector rail protector: Removal - Refitting](#) ,
 - the oil decanter [Engine oil circuit assembly: Exploded view](#) .
- Remove the oil vapour rebreathing pipe from the oil separator [Engine oil circuit assembly: Exploded view](#) .
- Unclip the oil vapour rebreathing pipe.
- Remove the oil vapour rebreathing pipe from the turbocharger air inlet pipe.

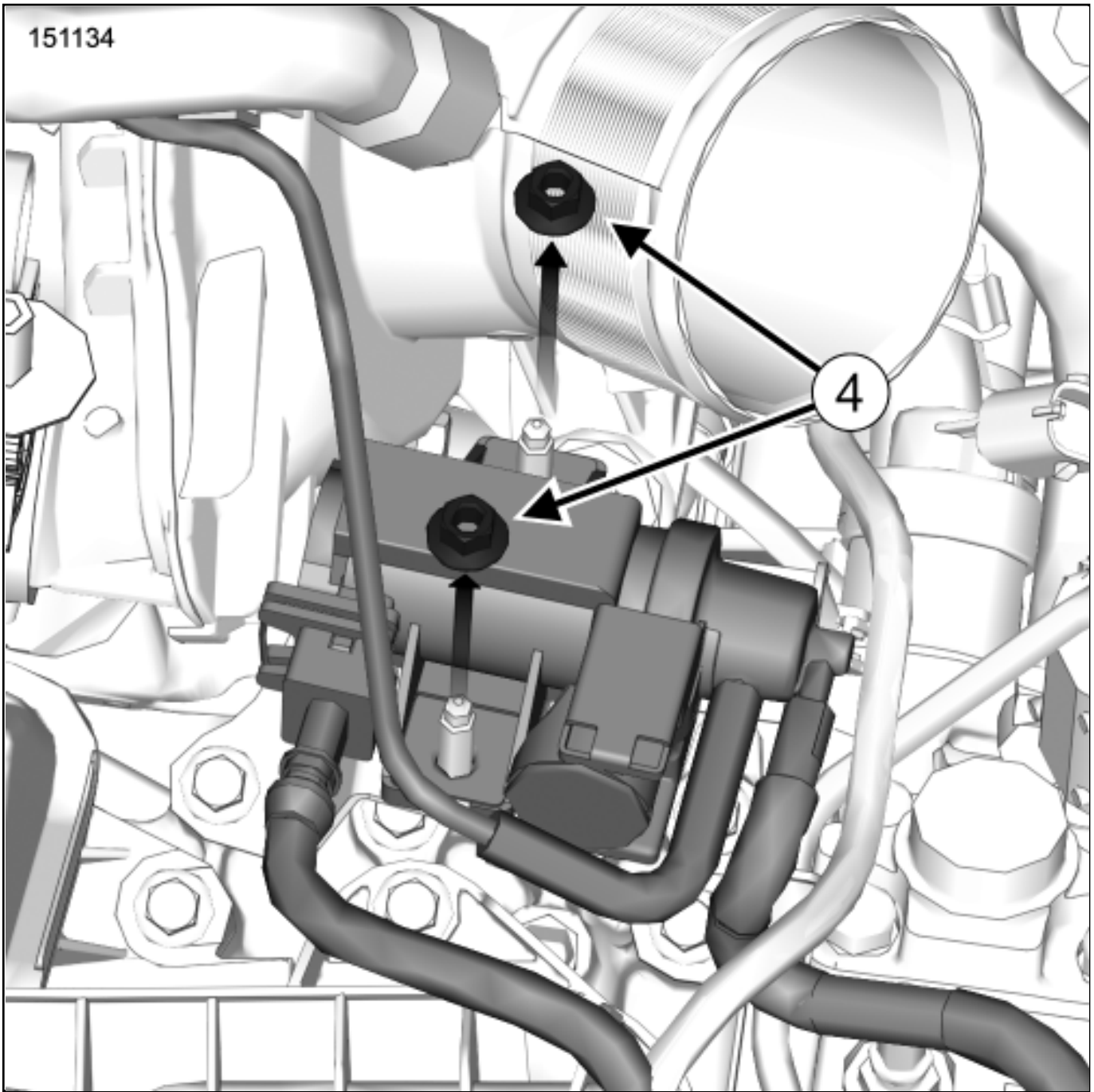


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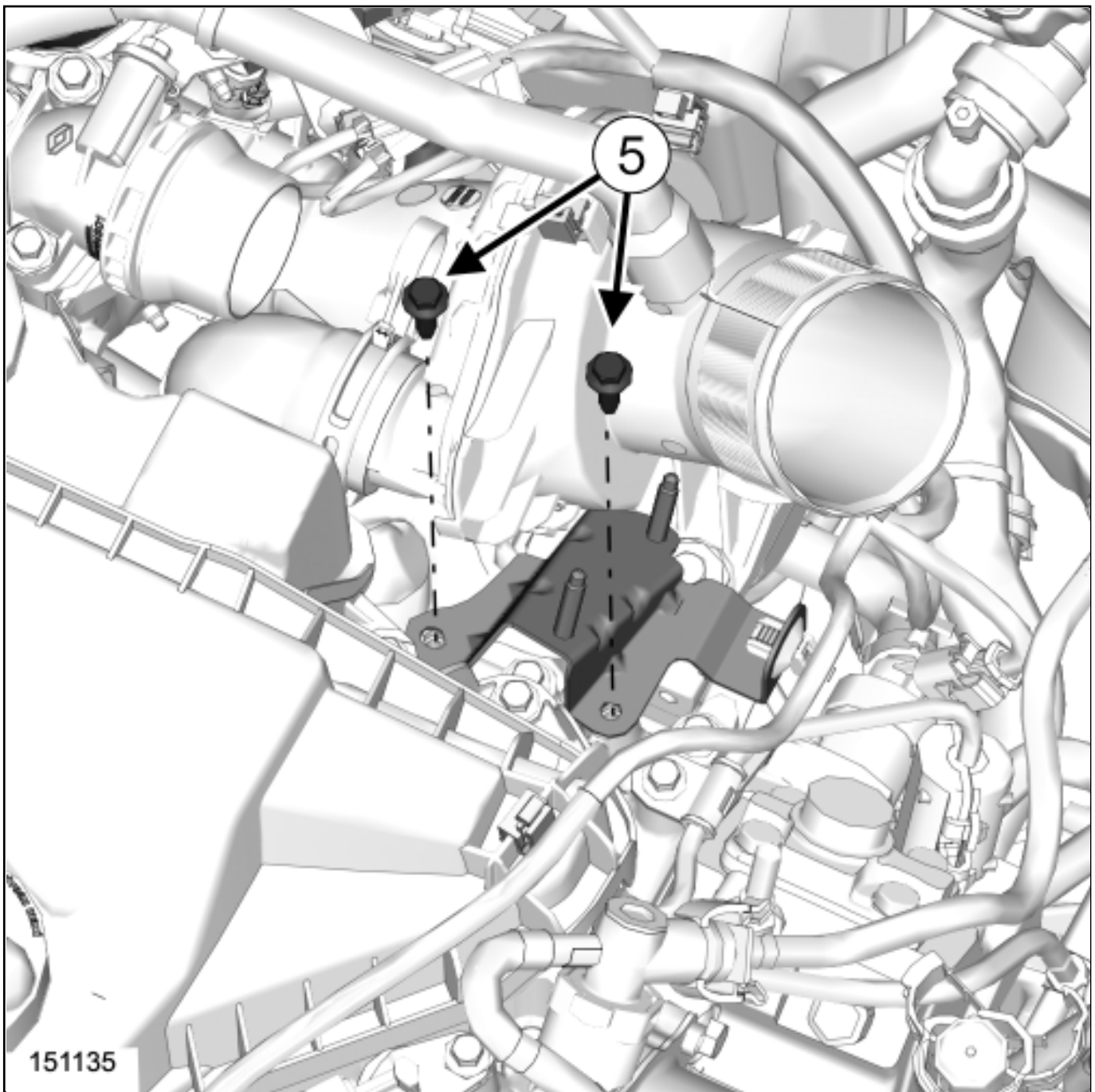
■ Disconnect the turbocharging pressure regulation vacuum pipe(2) .

■ Unclip the turbocharging pressure regulation vacuum pipe(3) .

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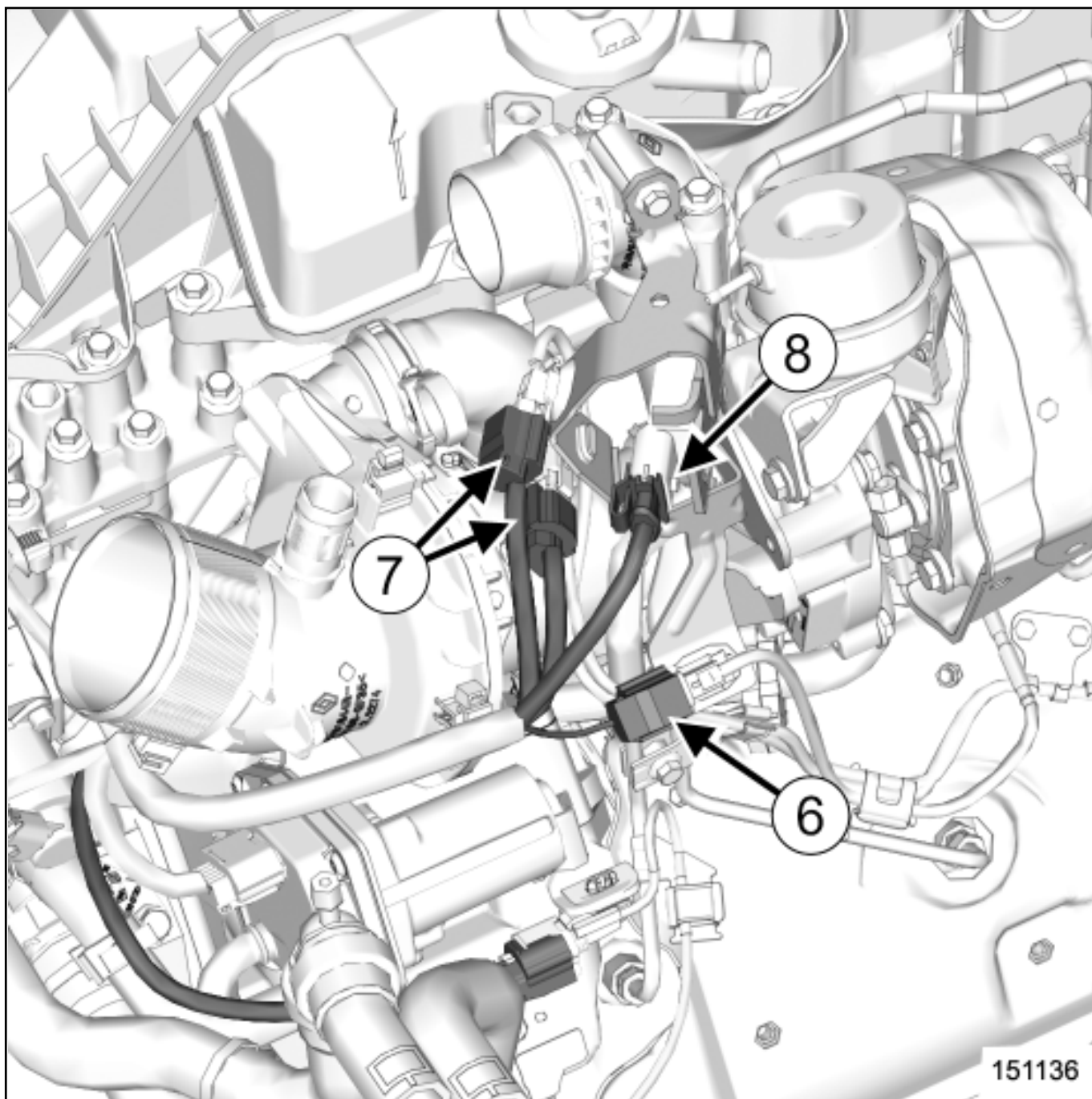
- Remove the nuts(4) from the turbocharging pressure regulation solenoid valve.
- Move the turbocharging pressure regulation solenoid valve.



Remove the bolts(5) from the turbocharging pressure regulation solenoid valve support.

Unclip the wiring of the turbocharging pressure regulation solenoid valve support.

Remove the turbocharging pressure regulation solenoid valve support.



Unclip:

-
- the connector of the exhaust gas temperature sensor(6) ,
- the particle filter temperature sensor connectors(7) .

Disconnect the connector of the particle filter pressure sensor(8) .

Unclip the wiring from the turbocharger air inlet pipe.



Remove the bolts of the particle filter pressure sensor support [Exhaust assembly in engine compartment: Exploded view](#) .



Move aside the particle filter pressure sensor support [Exhaust assembly in engine compartment: Exploded view](#) .



Remove the bolts of the turbocharger air inlet pipe [Air inlet assembly: Exploded view](#) .



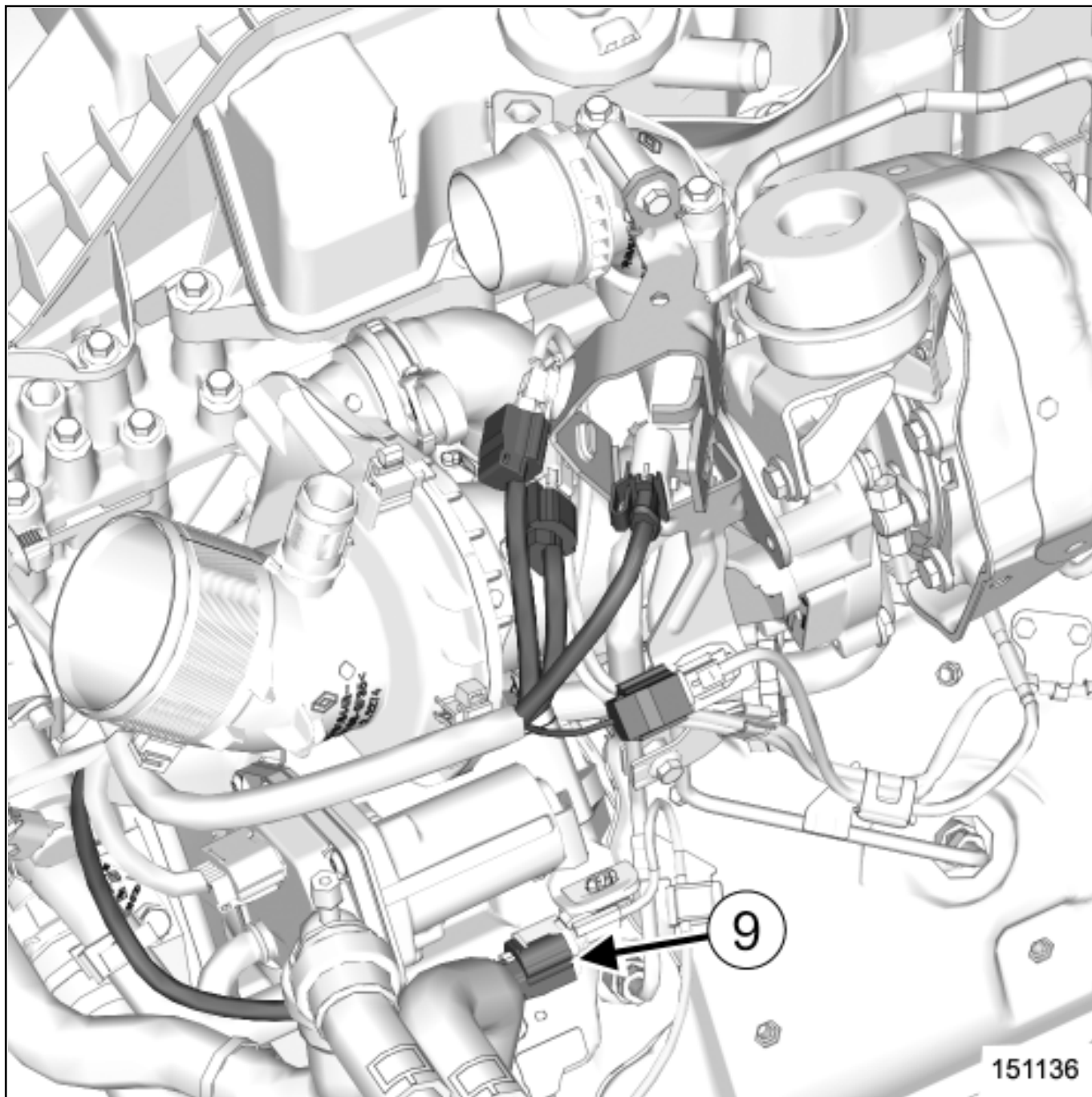
Pinch the clip from the exhaust gas recirculation pipe between the turbocharger air inlet pipe and the exhaust gas recirculation low pressure solenoid valve ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) .



Disconnect the exhaust gas recirculation pipe between the turbocharger air inlet pipe and the exhaust gas recirculation low pressure solenoid valve ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) .



Remove the turbocharger air inlet pipe [Air inlet assembly: Exploded view](#) .



Unclip the connector(9) of the exhaust gas temperature sensor on the exhaust gas cooler.

Remove [\(see 14A. Antipollution. Exhaust gas recirculation circuit assembly: Exploded view\)](#) :

- the exhaust gas cooler bolts,

- the exhaust gas cooler heat shield.

2. REMOVAL OPERATION



Disconnect the connector for exhaust gas recirculation low pressure solenoid valve.



Remove ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)):

- - the exhaust gas recirculation pipe bolts between the exhaust gas recirculation low pressure solenoid valve and the turbocharger air inlet pipe,
- - the exhaust gas recirculation pipe,
- - the exhaust gas recirculation pipe seal,
- - the exhaust gas recirculation low pressure solenoid valve bolts from the support,
- - the exhaust gas recirculation low pressure solenoid valve,
- - the exhaust gas recirculation low pressure solenoid valve seal.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:



[Exhaust gas recirculation pipe seal](#)



parts always to be replaced:



[exhaust gas recirculation solenoid valve seal](#)





parts always to be replaced:

turbocharger air cooler air inlet pipe seal .



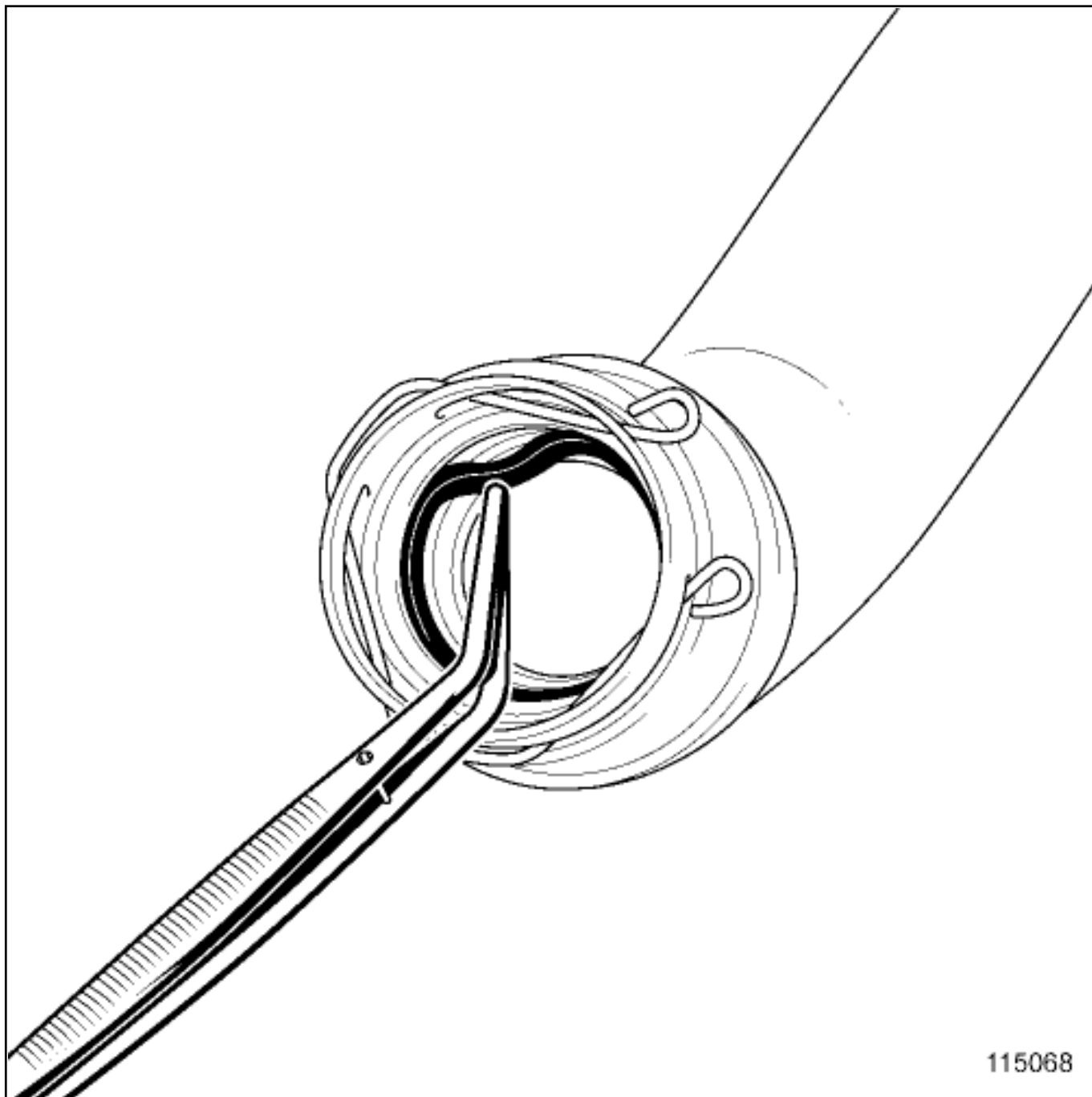
Clean the exhaust gas recirculation low pressure solenoid valve (only the mechanical part) using a parts washer(see **Exhaust gas recirculation solenoid valve: Cleaning**) .



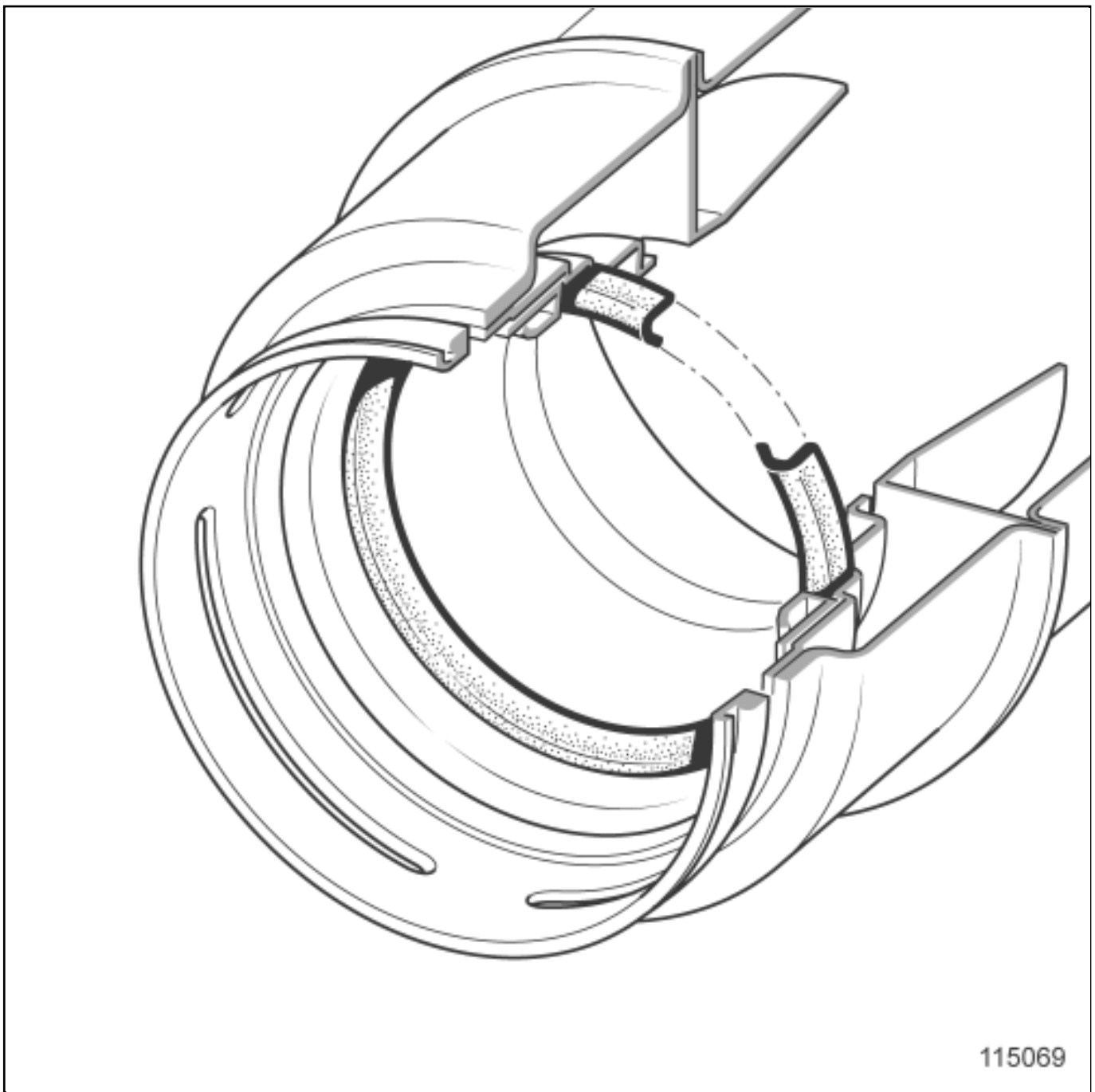
Clean and degrease the bearing faces of the exhaust gas recirculation low pressure solenoid valve using surface cleaner Vehicle: Parts and consumables for the repair (04B, Consumables - Products).



Coat the air inlet duct turbocharger with silicone grease Vehicle: Parts and consumables for the repair (04B, Consumables - Products).



Remove the intercooler air inlet pipe seals using a tweezers.



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Note:

Check that the intercooler air inlet pipe seal is fitted in the right direction.

Refit new seals on the intercooler air inlet pipe.

Refit ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) :

-
- a new exhaust gas recirculation low pressure solenoid valve seal,
- the exhaust gas recirculation low pressure solenoid valve.

Fit without tightening the exhaust gas recirculation low pressure solenoid valve bolts on the support ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) .

Refit ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) :

-
- a new exhaust gas recirculation pipe seal,
- the exhaust gas recirculation pipe.

Fit without tightening the exhaust gas recirculation pipe bolts between the exhaust gas recirculation low pressure solenoid valve and the the turbocharger air inlet pipe([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) .

Torque tighten using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece (Ms. 1973) ([see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view](#)) :

-
- the exhaust gas recirculation low pressure solenoid valve bolts on the support,
- the exhaust gas recirculation pipe bolts between the exhaust gas recirculation low pressure solenoid valve and the turbocharger air inlet pipe.

Proceed in the reverse order to removal.

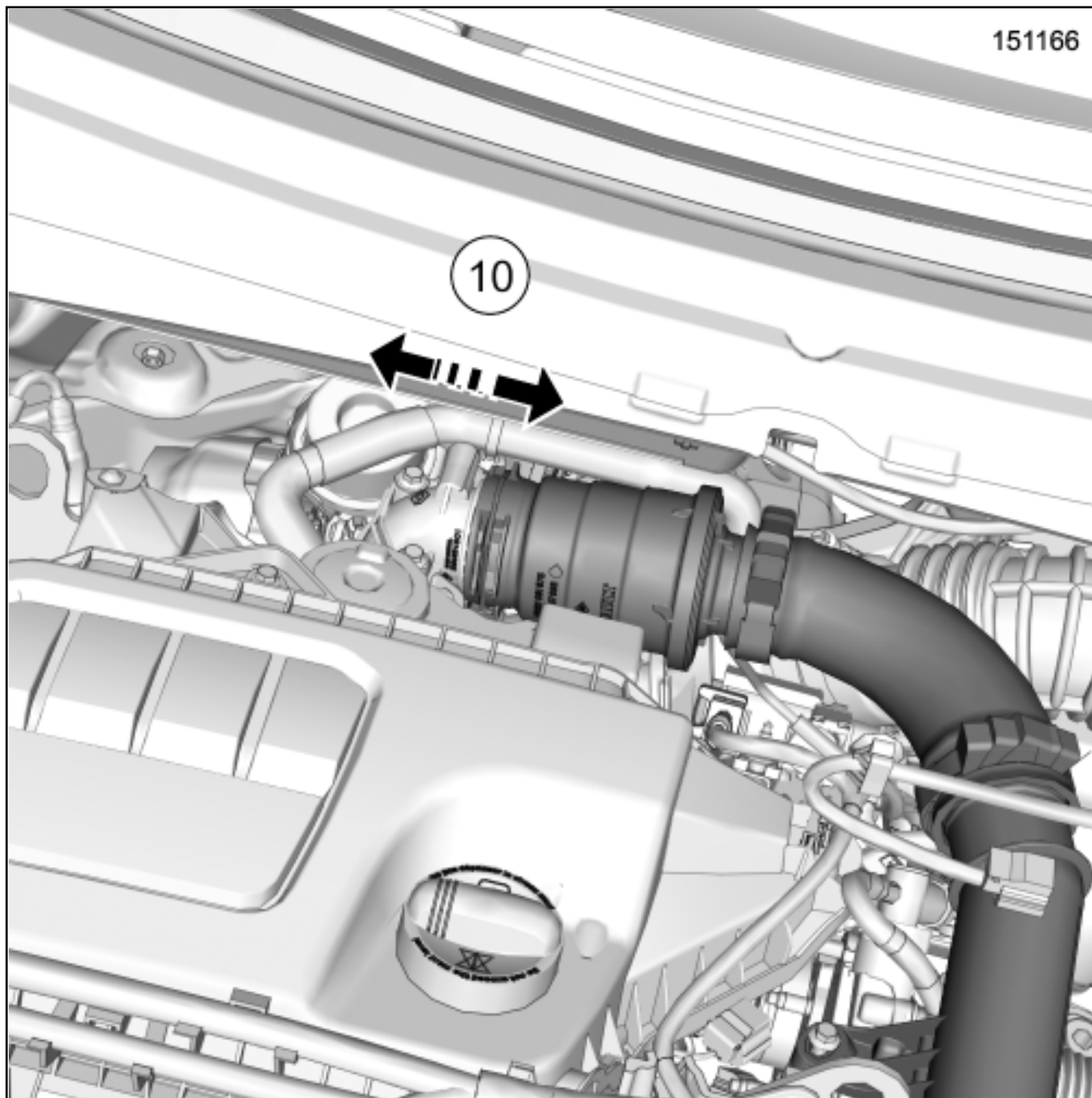
Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the After repair procedure:

■ "Injection computer" ,

"Oxygen sensor" .

Check that the plastic ring is positioned correctly on the turbocharger air inlet pipe.



Always carry out a "push - pull" test at(10) , to check that the intercooler air inlet pipe is correctly inserted.



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XSL version : 3.02 du 22/07/11

EXHAUST GAS RECIRCULATION SOLENOID VALVE: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



parts always to be replaced:



exhaust gas recirculation solenoid valve seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view\)](#) .



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

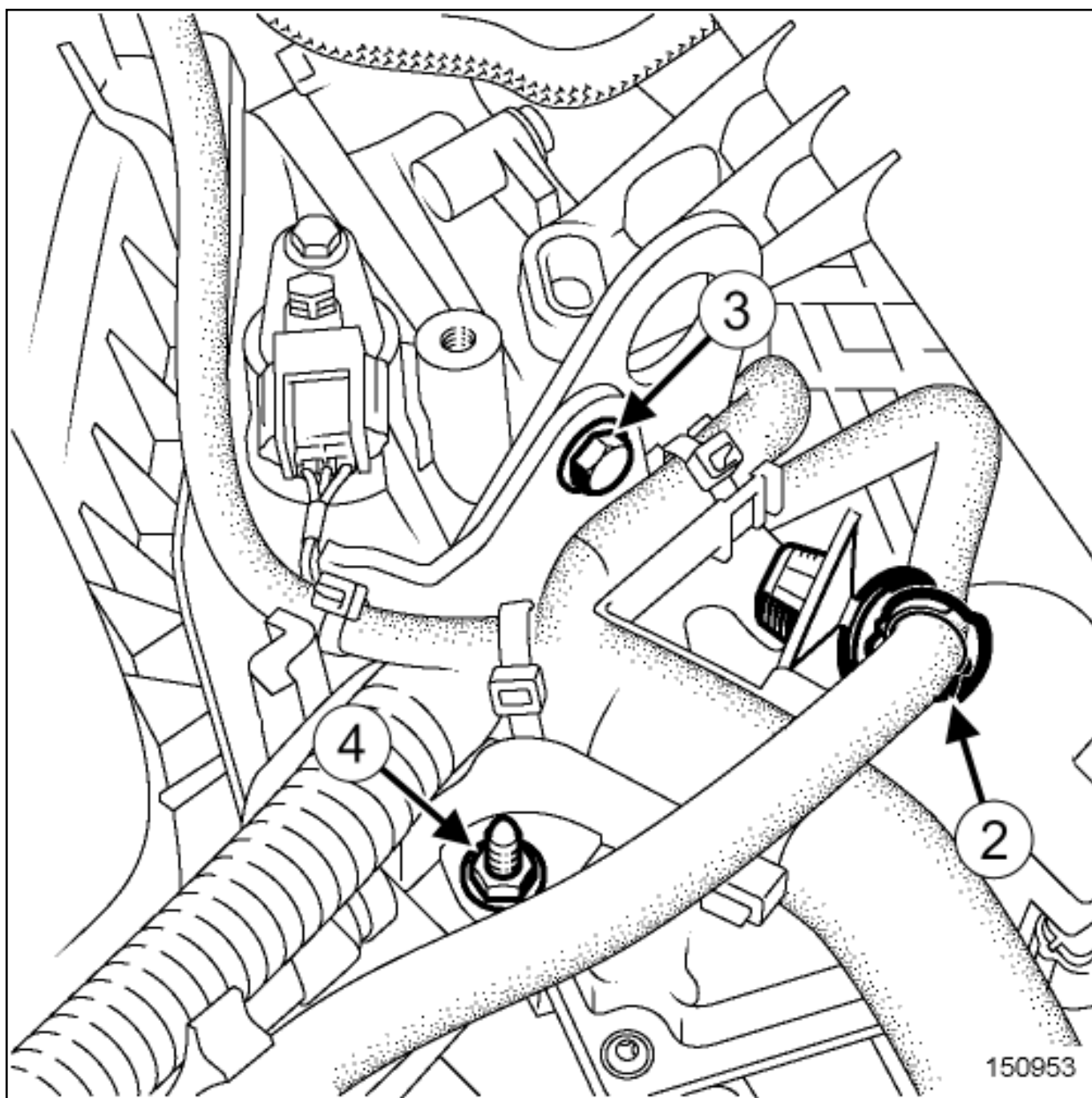
Any damaged heat shields must be replaced.

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).

■ Remove the air outlet pipe [Air inlet assembly: Exploded view](#) .



■ Unclip the fuel pipe at(2) .

■ Remove:

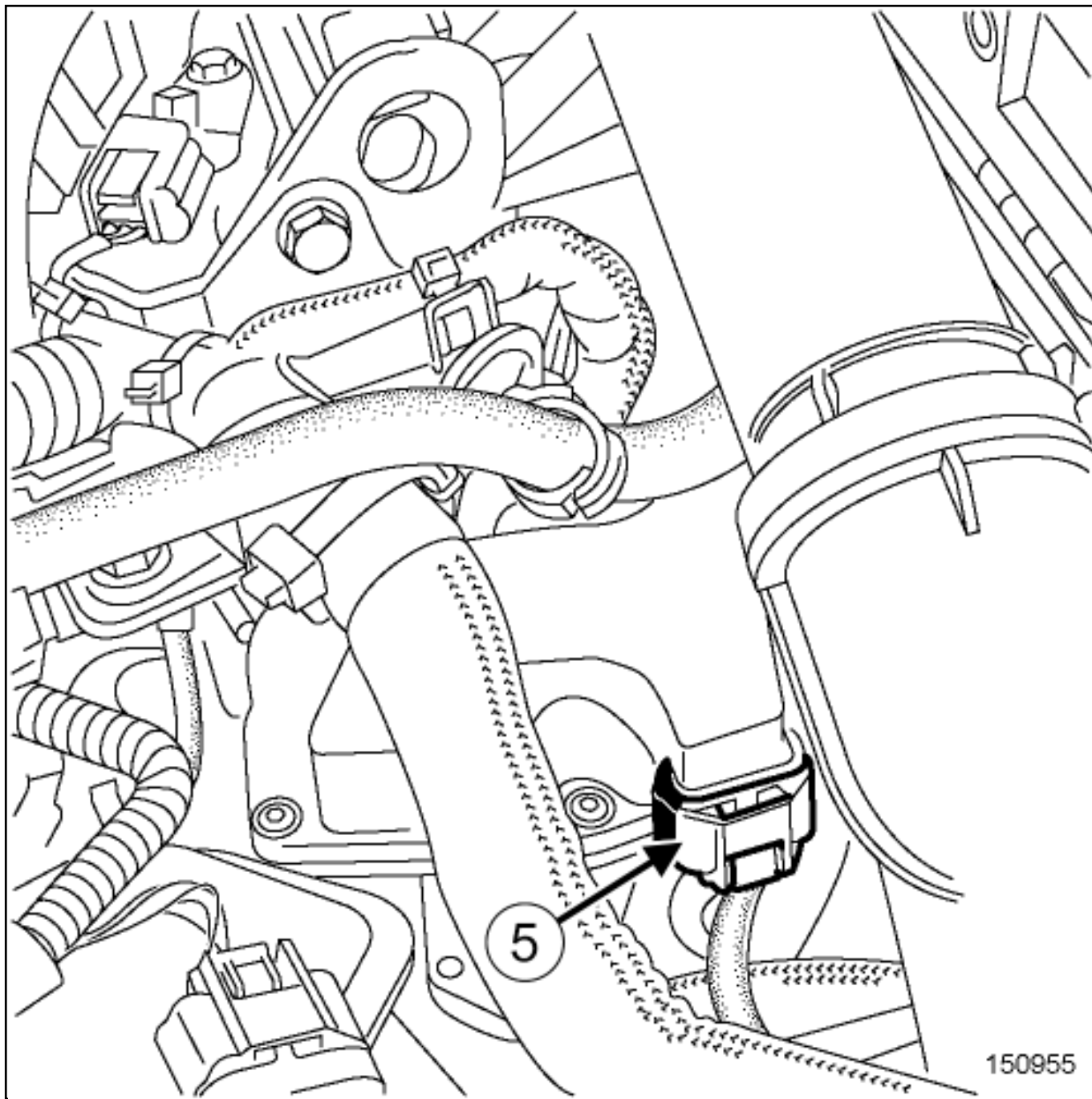
- the wiring channel bolt(3) ,
- the wiring channel nut(4) .

■ Move aside the wiring channel.

- Remove:
 - the wiring support bolt,
 - the wiring support.

- Disconnect the injector rail pressure sensor connector.

2. REMOVAL OPERATION

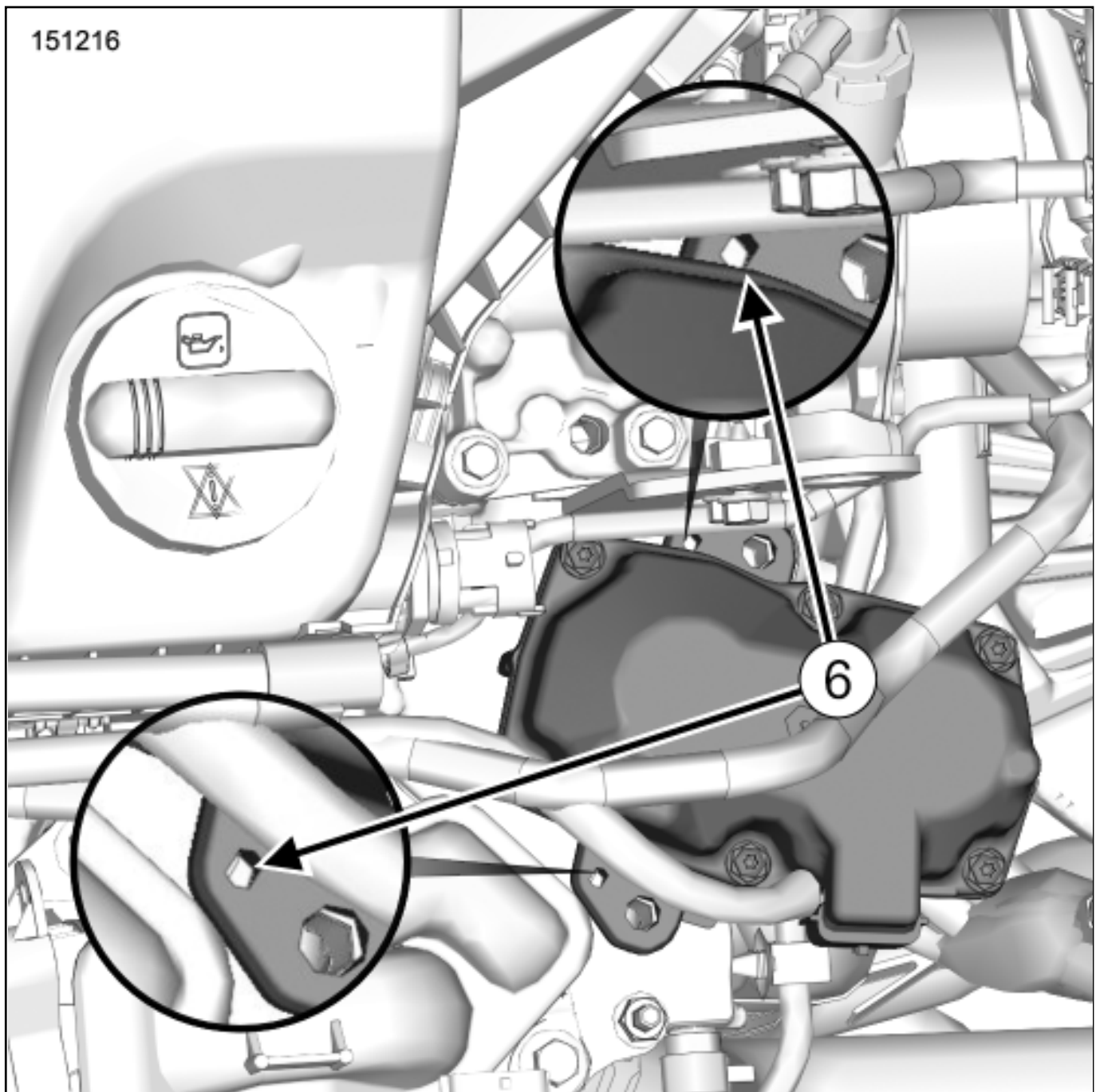


- Disconnect the exhaust gas recirculation solenoid valve connector(5) .

Remove (see 14A, Antipollution, Exhaust gas recirculation circuit assembly: Exploded view):

- the exhaust gas recirculation solenoid valve bolts,
-
- the exhaust gas recirculation solenoid valve,
-
- the exhaust gas recirculation solenoid valve seal.

1- IN THE EVENT OF THE EXHAUST GAS RECIRCULATION SOLENOID VALVE SEIZED IN THE INLET DISTRIBUTOR



Remove the exhaust gas recirculation solenoid valve bolts(see 14A, Antipollution, Exhaust gas



Note:

Check that the exhaust gas recirculation solenoid valve is in initial position.



Tighten two bolts in the openings tapped(6) .



Gradually tighten alternately the bolts to take off the exhaust gas recirculation solenoid valve.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:



exhaust gas recirculation solenoid valve seal



2. REFITTING OPERATION



Proceed in the reverse order to removal.



Apply the after repair procedure using the Diagnostic tool Diagnostic tool : Use :

-Computer concerned by the After repair procedure:

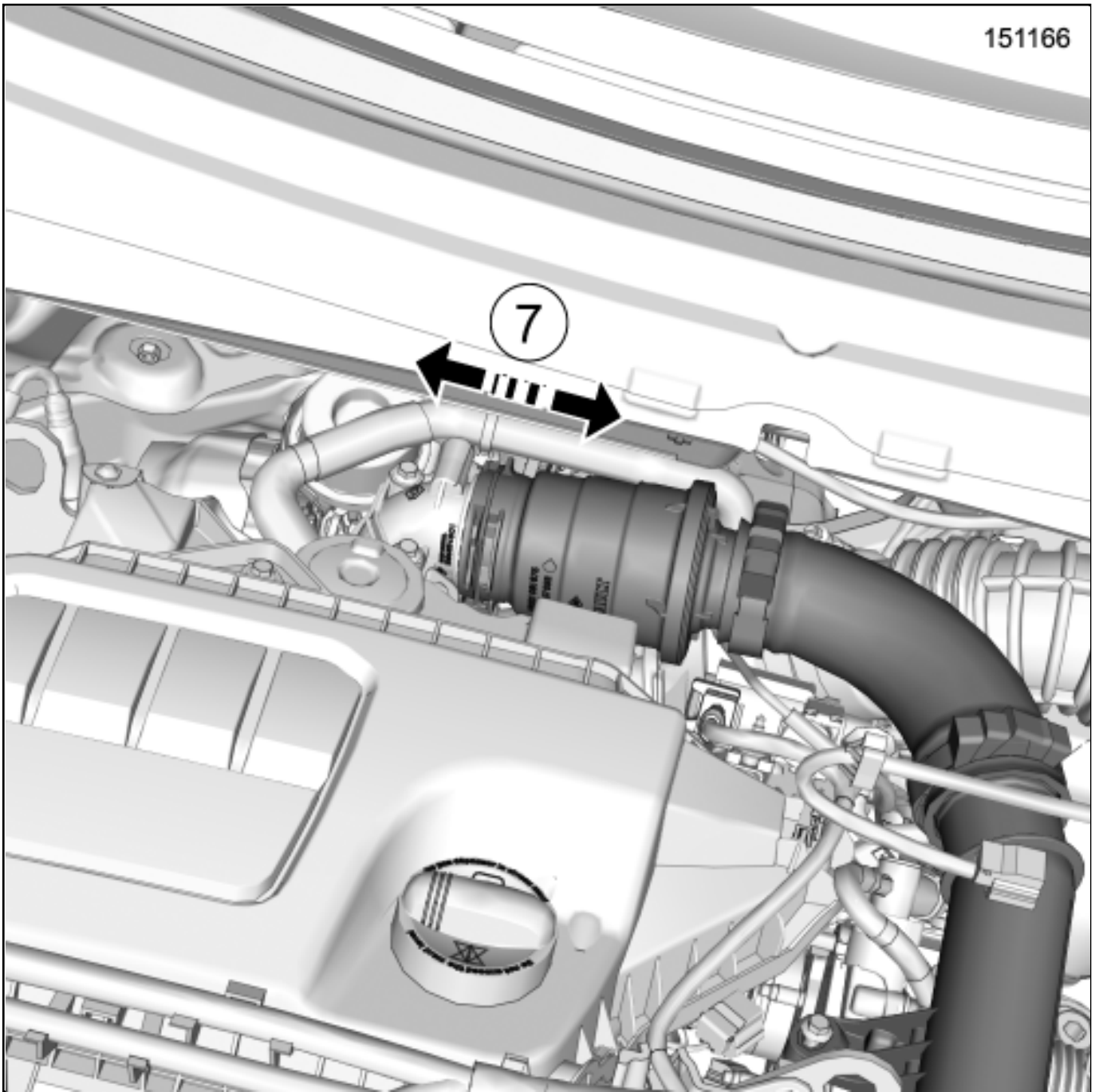


"Injection computer" ,

-Component controlled by this computer concerned by the After repair procedure:



"EGR valve" .



Always carry out a "push - pull" test at(7) , to check that the intercooler air inlet pipe is correctly inserted.



EXHAUST GAS REGULATOR VALVE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 19B. Exhaust, Exhaust: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

Any damaged heat shields must be replaced.



WARNING

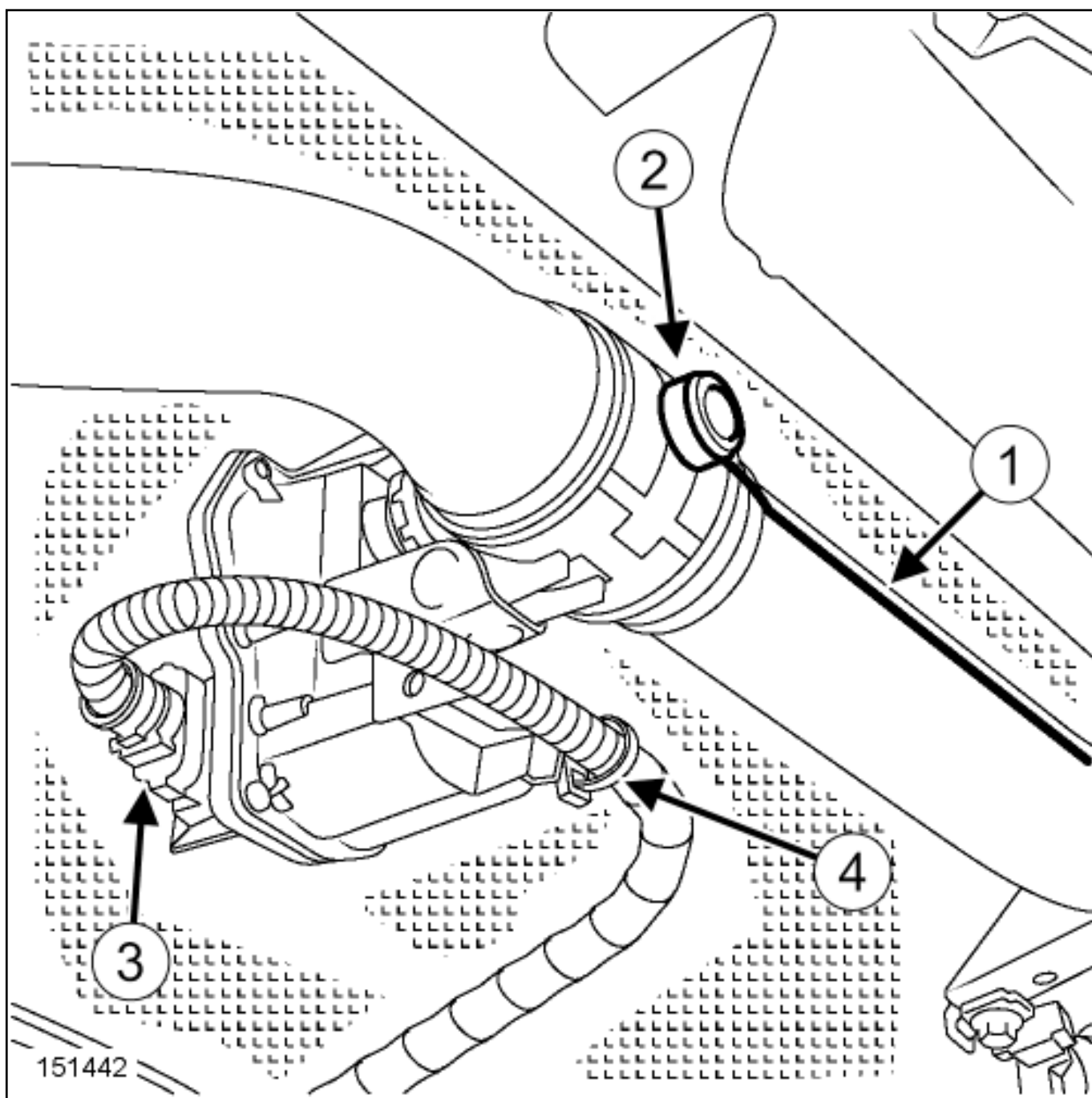
Wear heat protective gloves during the operation.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).

2. REMOVAL OPERATION



- Draw a right-hand side(1) with regard to the circle(2) of the exhaust gas regulator valve.
- Disconnect the exhaust gas regulator valve connector(3) .
- Unclip the wiring at(4) .

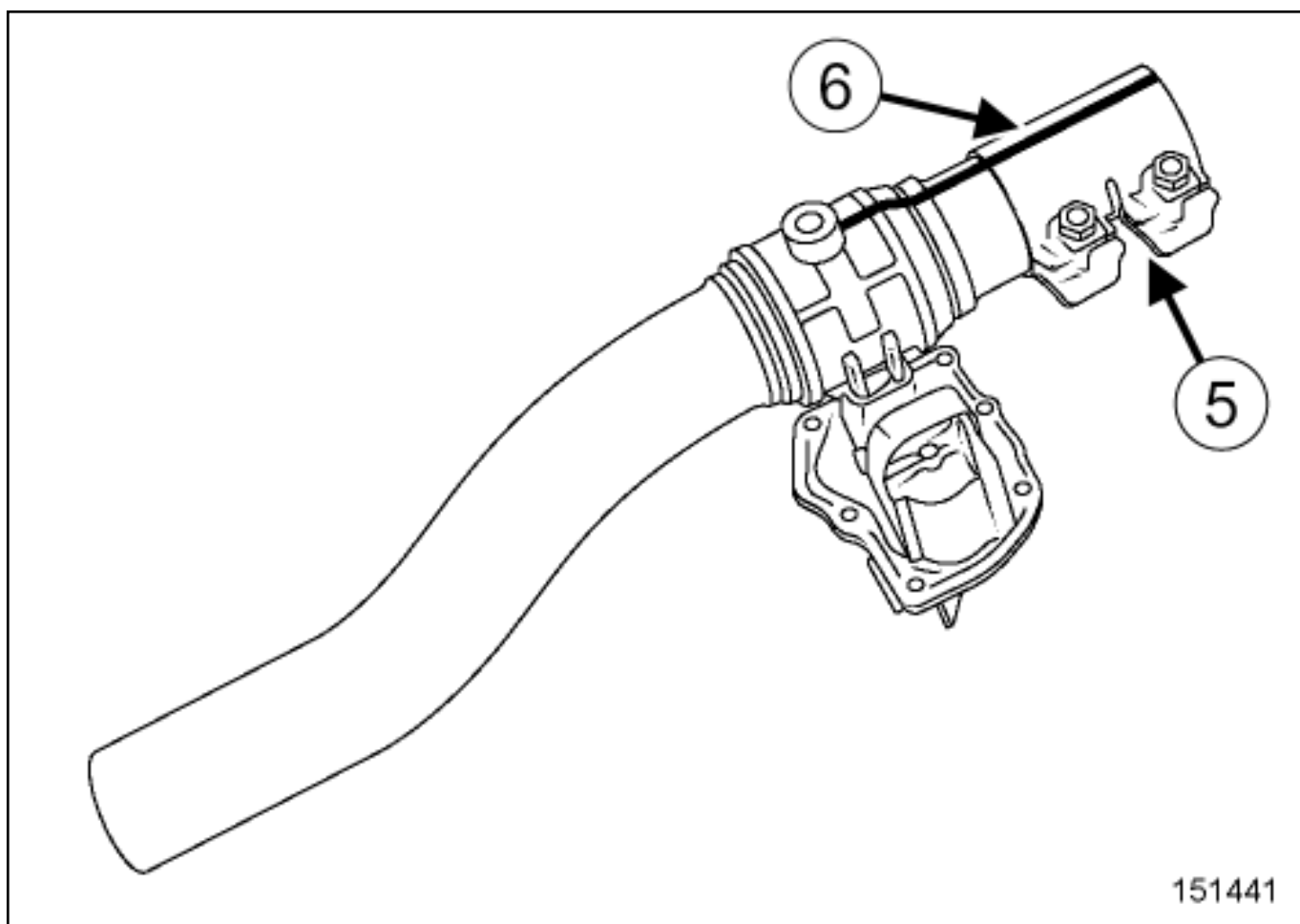
❑ Cut the exhaust system(see 19B, Exhaust, Exhaust: Precautions for the repair) in the cutting zone provided for this purpose on either side of the exhaust gas regulator valve(see 19B, Exhaust, Exhaust assembly under body: Exploded view) .

❑ Remove the exhaust gas regulator valve.

REFITTING

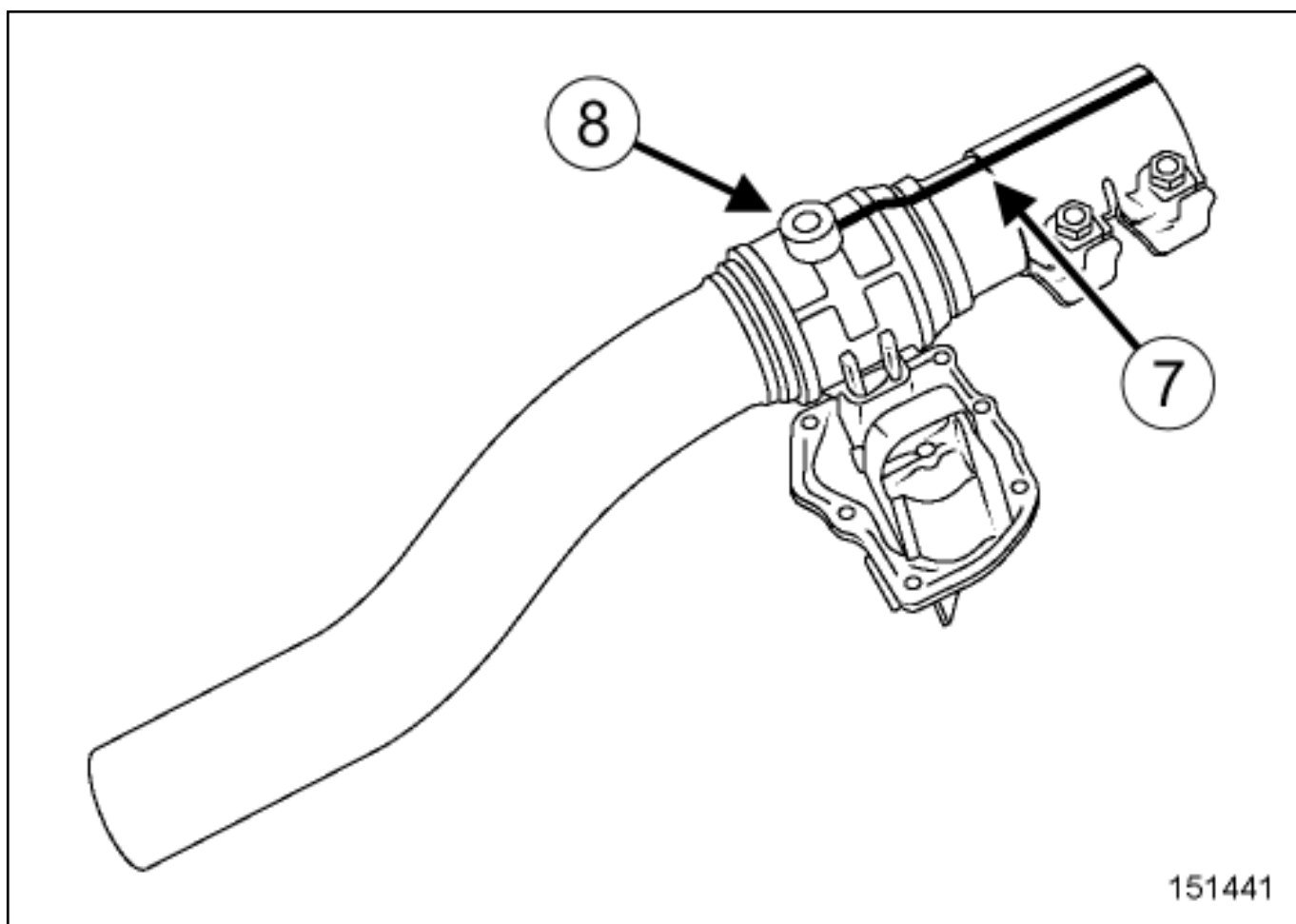
1. REFITTING OPERATION

1- REFITTING THE OLD EXHAUST GAS REGULATOR VALVE



❑ Fit new after-sales sleeves(5) on the exhaust gas regulator valve(see 19B, Exhaust, Exhaust: Precautions for the repair) .

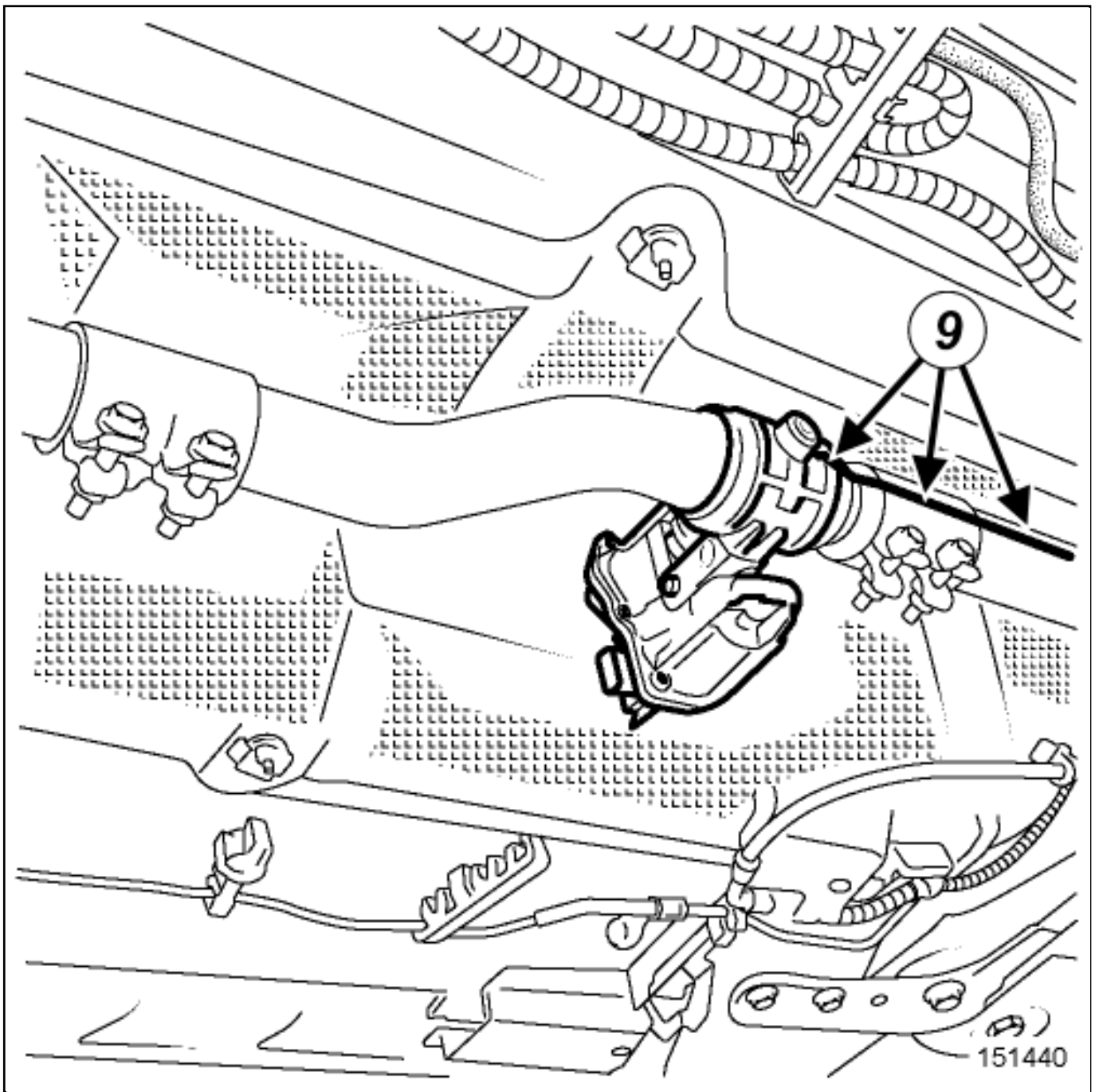
❑ Draw the mark of adaptation on the after-sales sleeves(6) .



Fit new after-sales sleeves on the exhaust gas regulator valve([see 19B, Exhaust, Exhaust: Precautions for the repair](#)) .



Draw a right-hand side(7) with regard to the circle(8) of the exhaust gas regulator valve.



Refit the exhaust gas regulator valve by aligning marks made before(9) .

Note:



Verify that the exhaust gas regulator valve does not touch heat shields and that it is positioned well.

Torque tighten the after-sales sleeves by positioning it nuts in vertical.



WARNING

Position the "nut and bolt securing the sleeve" assembly so that the assembly cannot come into contact with the underbody.

2. FINAL OPERATION



Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the After repair procedure:



"Injection computer" ,

-Component controlled by this computer concerned by the After repair procedure:



"Exhaust flap" .



Check:



that there is no contact with the underbody,



the presence and correct positioning of all the exhaust pipe heat shields.



Start the vehicle.



Check that there are no leaks and deal with them if necessary.



Repair-10x08x10-01x37-1-1-1.xml



EXHAUST GAS TEMPERATURE SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Spanner for tightening the exhaust gas temperature sensor	Mot. 1807
4-40 N.m torque wrench with 1/4 drive ratchet end piece	Ms. 1973



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) [Exhaust gas recirculation circuit assembly: Exploded view](#) .



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 19B, Exhaust, Exhaust: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

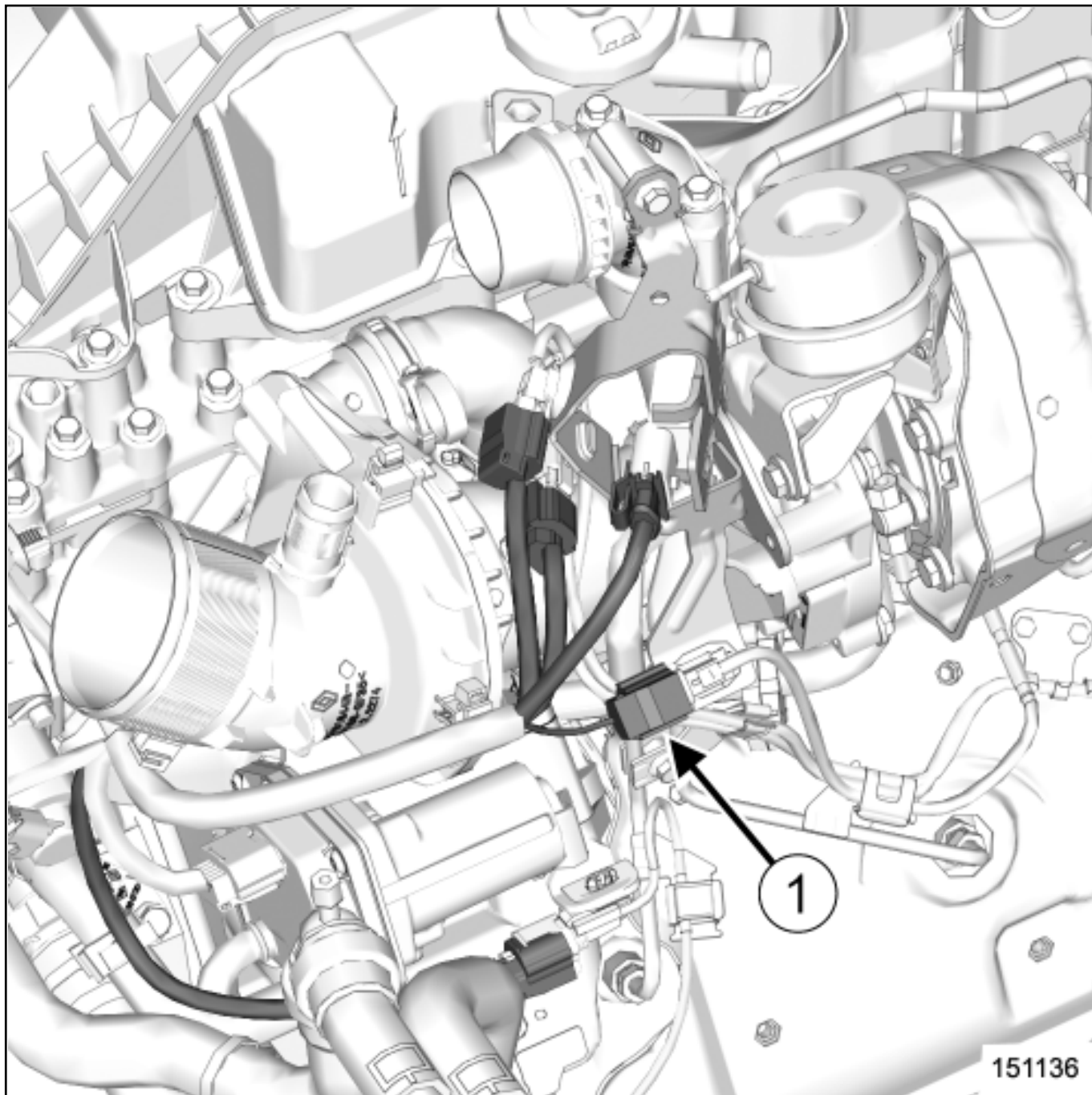
Any damaged heat shields must be replaced.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- ❑ Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- ❑ Remove the engine undertray.
- ❑ Remove the air outlet pipe [Air inlet assembly: Exploded view](#) .

2. REMOVAL OPERATION



■ Disconnect the exhaust gas temperature sensor upstream of the turbocharger(1) .

■ Remove the exhaust gas temperature sensor upstream of the turbocharger using the toolSpanner for tightening the exhaust gas temperature sensor(Mot. 1807) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .

1. REFITTING PREPARATION OPERATION



If reusing the exhaust gas temperature sensor, coat the exhaust gas temperature sensor threading with copper-anti seize grease [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

2. REFITTING OPERATION



Refit the exhaust gas temperature sensor using the tool [Spanner](#) for tightening the exhaust gas temperature sensor ([Mot. 1807](#)) and the tool [4-40 N.m torque wrench with 1/4 drive ratchet end piece](#) ([Ms. 1973](#)) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)).



Proceed in the reverse order to removal.

REMOVAL

REFITTING



Repair-10x08x05-01x37-1-34-1.xml



XSL version : 3.02 du 22/07/11

EXHAUST MANIFOLD: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



parts always to be replaced:



[exhaust manifold stud on cylinder head \(if loosened\)](#)

[exhaust manifold nut](#)

[exhaust manifold seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [Exhaust assembly in engine compartment: Exploded view](#) .



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

Any damaged heat shields must be replaced.

REMOVAL

1. REMOVAL PREPARATION OPERATION

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

Disconnect the battery [Battery: Removal - Refitting](#) .

Remove the engine undertray.



Remove:



the lower engine tie-bar [Engine-gearbox unit support assembly: Exploded view](#) ,



the front axle subframe [Front axle subframe: Removal - Refitting](#) .



Remove:



the particle filter temperature sensors [Exhaust assembly in engine compartment: Exploded view](#) ,



the exhaust gas pressure sensor upstream of the turbocharger [Exhaust assembly in engine compartment: Exploded view](#) ,



the oxygen sensor [Exhaust assembly in engine compartment: Exploded view](#) ,



the particle filter [Exhaust assembly in engine compartment: Exploded view](#) ,



the turbocharger oil pipes [Exhaust assembly in engine compartment: Exploded view](#) ,



the turbocharger [Exhaust assembly in engine compartment: Exploded view](#) ,



the exhaust gas temperature sensor upstream of the turbocharger [Exhaust assembly in engine compartment: Exploded view](#) ,



the take-off pipe from the exhaust gas pressure sensor upstream of the turbocharger [Exhaust assembly in engine compartment: Exploded view](#) .

2. REMOVAL OPERATION



Remove [Exhaust assembly in engine compartment: Exploded view](#) :

-
- the exhaust manifold nuts,
- the exhaust manifold,
- the exhaust manifold seal.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:  [exhaust manifold stud on cylinder head \(if loosened\)](#) 



parts always to be replaced:  [exhaust manifold nut](#) 



parts always to be replaced:  [exhaust manifold seal](#) 



Using surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products), clean and degrease the bearing faces of:

-
- the cylinder head,
- the exhaust manifold, if it is to be reused.



Refit new studs on the cylinder head if loosened.



Torque tighten the exhaust manifold studs 9 N.m.

2. REFITTING OPERATION



Refit [Exhaust assembly in engine compartment: Exploded view](#) :

-
- a new exhaust manifold seal,
- the exhaust manifold,
- the new exhaust manifold nuts.



Torque tighten the exhaust manifold nuts [Exhaust assembly in engine compartment: Exploded view](#) .



Proceed in the reverse order to removal.



Repair-10x07x02-01x37-1-133-1.xml



XSL version : 3.02 du 22/07/11

EXPANSION BOTTLE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Remote operation pliers for hose clips.	Mot. 1448
Pipe clamps.	Ms. 583



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 19A, Cooling, Coolant circuit assembly: Exploded view\)](#) .

WARNING

The circuits are designed to be pressurised, so be careful at high temperatures (risk of serious burns).



Do not remove the cap from the expansion bottle while the engine is hot.

Take care when carrying out a repair under the bonnet, as the radiator fan(s) may start to operate without warning.

Do not open the bleed screw(s) with the engine running.



CAUTION

The coolant helps to keep the engine running properly (heat exchange).

The system does not operate using pure water.



CAUTION

If the coolant is leaking from the expansion bottle cap, replace the valve.



CAUTION

Before the operation, protect the electrical accessories to prevent any risk of short circuiting and protect the belts to avoid damaging them.

REMOVAL

1. REMOVAL PREPARATION OPERATION



Remove the expansion bottle cap.



Disconnect the degassing hose([see 19A, Cooling, Coolant circuit assembly: Exploded view](#)) .

2. OPERATION FOR REMOVAL OF PART CONCERNED



Unclip the expansion bottle using a screwdriver.



Move aside the expansion bottle.



Fit the Pipe clamps.([Ms. 583](#)) tool on the lower hose of the expansion bottle([see 19A, Cooling, Coolant circuit assembly: Exploded view](#)) .



Remove the clip from the expansion bottle lower hose using the toolRemote operation pliers for hose clips.([Mot. 1448](#)) .



Disconnect the lower hose from the expansion bottle.

Remove the expansion bottle.

REFITTING

1. REFITTING OPERATION FOR PART CONCERNED

Proceed in the reverse order to removal.

2. FINAL OPERATION

Top-up the coolant level in the expansion bottle.

Refit the expansion bottle cap.



Repair-10x06x01x07-01x37-1-53-1.xml



XSL version : 3.02 du 22/07/11

EXPANSION VALVE - INTERMEDIATE PIPE CONNECTING PIPE AT THE EXPANSION VALVE OUTLET: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - [\(see 62A, Air conditioning, Air conditioning: Precautions for the repair\)](#) ,
 - [Vehicle: Precautions for the repair](#) .



CAUTION

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

Locations and specifications (tightening torques, parts to always be replaced, etc.).[\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Drain the refrigerant circuit using the refrigerant charging station [\(see 62A, Air conditioning, Refrigerant circuit: Draining - Filling\)](#) .
- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove:
 - the engine undertray bolts,
 - the engine undertray,

- the front bumper [Front bumper assembly: Exploded view](#) ,
- the right-hand headlight [Front signals - lighting assembly: Exploded view](#) ,
- the air scoop protector [Air inlet assembly: Exploded view](#) ,
- the windscreen washer bottle [Wipers/washing assembly : Exploded view](#) .

2. REMOVAL OPERATION

- Remove the "expansion valve - intermediate pipe" connecting pipe mounting bolts ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .
- Remove ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) :
 - the bolt from the "expansion valve - intermediate pipe" connecting pipe bracket on the expansion valve,
 - the bolt from the "expansion valve - intermediate pipe" connecting pipe bracket on the intermediate connecting pipe.



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

- Disconnect ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) :
 - the "expansion valve - intermediate pipe" connecting pipe from the expansion valve,
 - the "expansion valve - intermediate pipe" connecting pipe from the intermediate connecting pipe.

- Remove the "expansion valve - intermediate pipe" connecting pipe.



Fit the blanking plugs on the openings of the connecting pipes and on the expansion valve.

REFITTING

1. REFITTING PREPARATION OPERATION



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.



CAUTION

To avoid any leaks, check that the seal and the pipe surface are in good condition. The seal and the surface must be clean and scratch free.

- Clean the seals of the refrigerant circuit pipes ([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

2. REFITTING OPERATION



Refit the "expansion valve - intermediate pipe" connecting pipe on the expansion valve and on the intermediate connecting pipe ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .

3. FINAL OPERATION



Proceed in the reverse order to removal.

Note:



A summary table gives the quantities of refrigerant in the system according to the engine types ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .



Fill up the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) .



Check:



for leaks ([see 62A, Air conditioning, Refrigerant circuit: Check](#)) ,



that the air conditioning system is operating correctly ([see 62A, Air conditioning, Air conditioning: Check](#)) .



Repair-30x02x02x35-01x37-1-27-1.xml



XSL version : 3.02 du 22/07/11

EXPANSION VALVE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station

Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) .



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair[\(see 62A, Air conditioning, Air conditioning: Precautions for the repair\)](#) .



CAUTION

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

Note:



Use blanking plugs for the fuel circuits with part numbers 77 01 208 229 or 77 01 476 857 to plug any openings exposed to the open air. They must be clean. Do not use any which have already been used to plug a fuel circuit.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Disconnect the battery [Battery: Removal - Refitting](#) .
- ❑ Drain the refrigerant circuit using the refrigerant charging station [\(see 62A, Air conditioning, Refrigerant circuit:](#)

2. REMOVAL OPERATION

- Remove [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) :
 - the bolt from the retaining bracket of the "expansion valve - expansion valve inlet intermediate pipe" connecting pipe from the expansion valve,
 - the bolt from the retaining bracket of the "expansion valve - expansion valve outlet intermediate pipe" connecting pipe from the expansion valve.



CAUTION

In order to avoid any refrigerant leaks, do not damage (deform, twist, etc.) the pipe.

- Disconnect [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) :
 - the "expansion valve - expansion valve inlet intermediate pipe" connecting pipe from the expansion valve,
 - the "expansion valve - expansion valve outlet intermediate pipe" connecting pipe from the expansion valve.



Insert the blanking plugs.



- Remove the expansion valve [\(see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view\)](#) .

REFITTING

1. REFITTING PREPARATION OPERATION



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.



CAUTION

To avoid any leaks, check that the seal and the pipe surface are in good condition. The seal and the surface must be clean and scratch free.

- Clean the seals of the refrigerant circuit pipes([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

2. REFITTING OPERATION

- Proceed in the reverse order to removal.

- Consult the refrigerant and oil quantity values before filling the circuit([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .

- Perform the following operations:

- fill the refrigerant circuit using the refrigerant charging station([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) ,

check for leaks([see 62A, Air conditioning, Refrigerant circuit: Check](#)) .

- Check that the air conditioning system is operating correctly([see 62A, Air conditioning, Air conditioning: Check](#)) .



Repair-30x02x02x07-01x37-1-51-1.xml



EXTERIOR BODY FRONT TRIM ASSEMBLY: EXPLODED VIEW

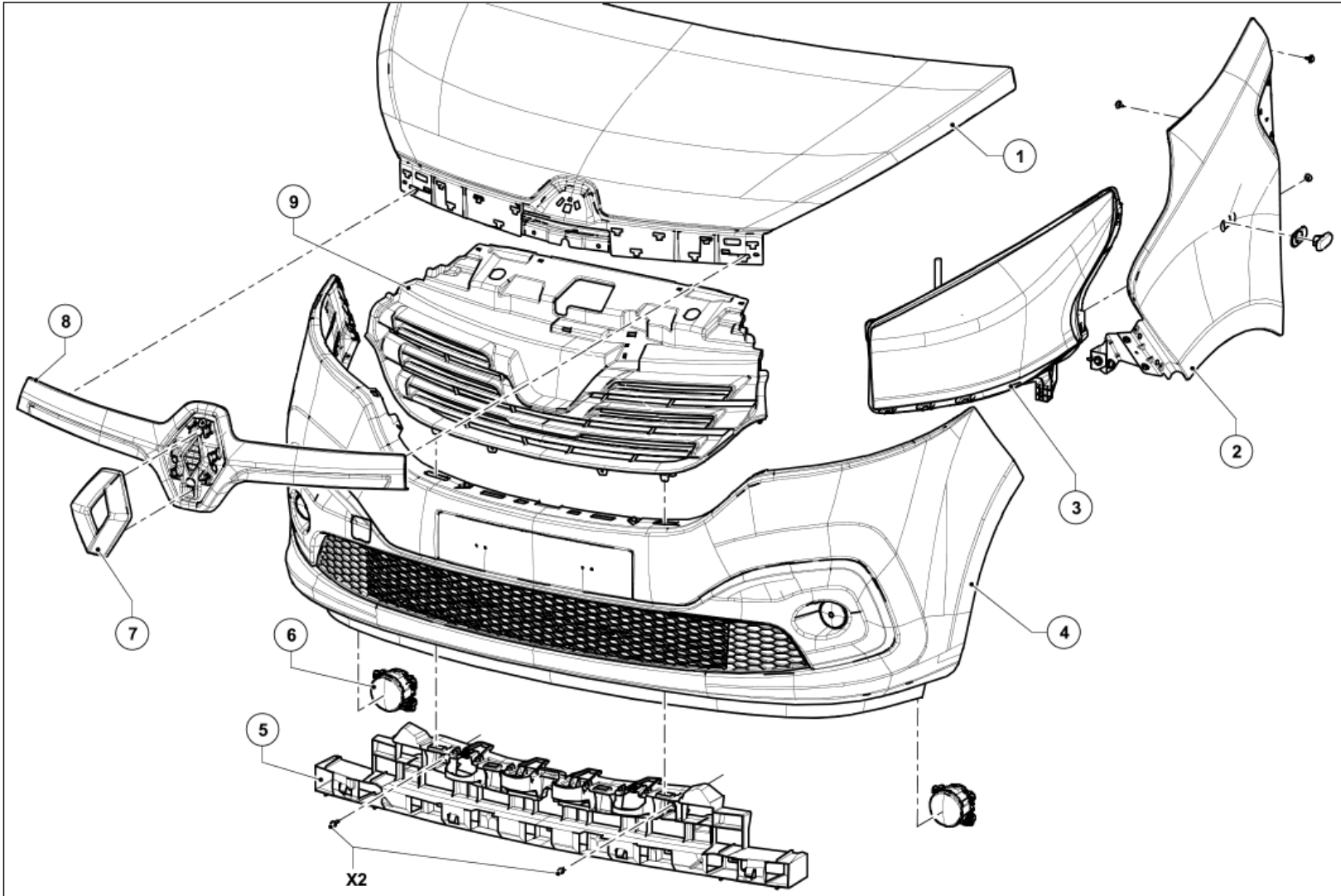


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Bonnet	Front opening element: Removal - Refitting Steel bodywork component: Preparation and paint range (Technical Note 0592A)
2	Front wing	Front wing: Removal - Refitting
3	Headlight	Front signals - lighting assembly: Exploded view
4	Front bumper	Polypropylene / polyethylene bodywork component: Preparation and paint range (Technical Note 0592A). (see 55A, Exterior protection, Front bumper assembly: Exploded view)
5	Front bumper impact absorber	
6	Fog light	
7	Front badge	
8	Front badge support	
9	Radiator grille	



Repair-50x05x05-02x50-1-7-2.xml



XSL Version : 3.02 du 22/07/11

EXTERIOR BODY FRONT TRIM ASSEMBLY: EXPLODED VIEW

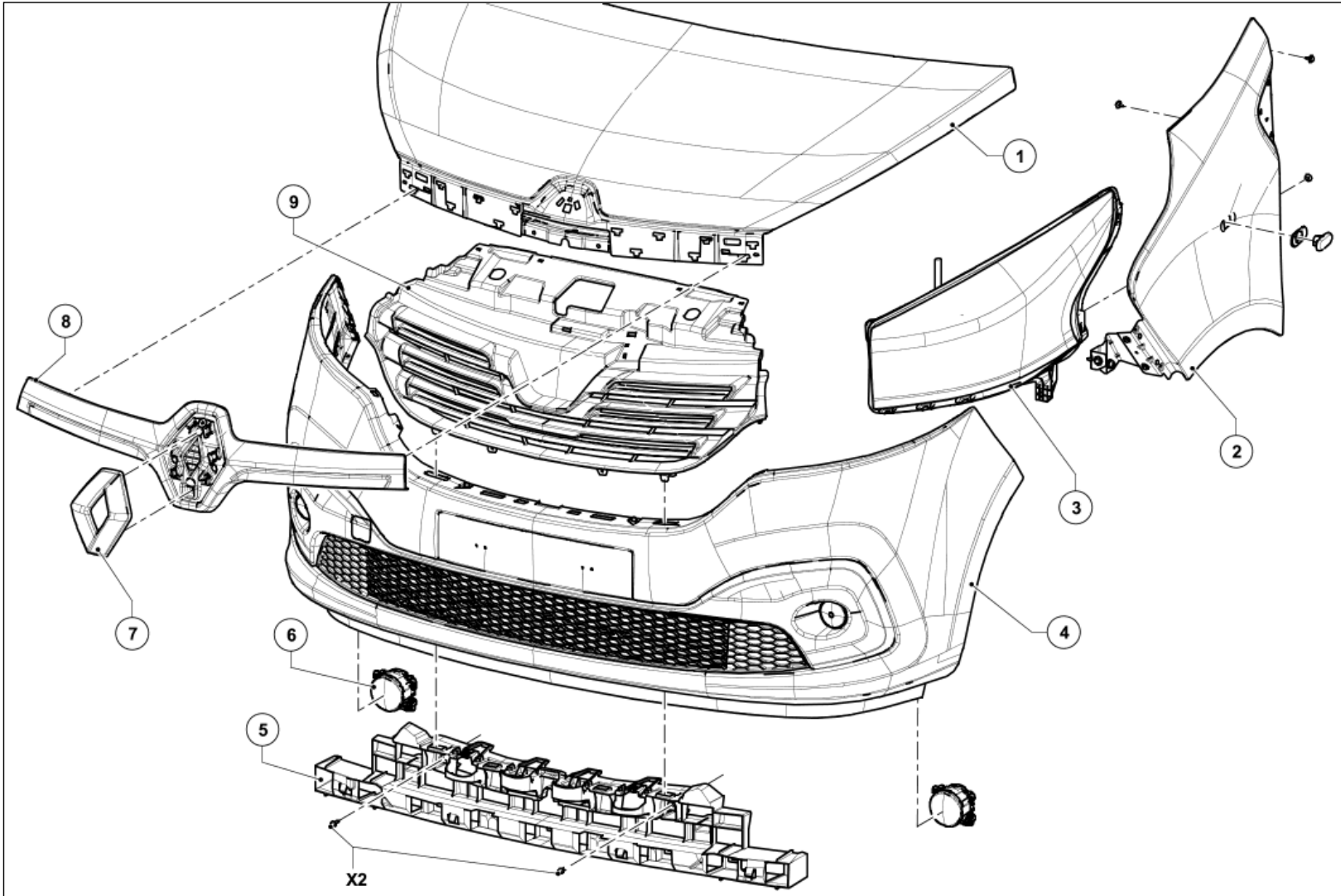


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Bonnet	Front opening element: Removal - Refitting Steel bodywork component: Preparation and paint range (Technical Note 0592A)
2	Front wing	Front wing: Removal - Refitting
3	Headlight	Front signals - lighting assembly: Exploded view
4	Front bumper	Polypropylene / polyethylene bodywork component: Preparation and paint range (Technical Note 0592A). (see 55A, Exterior protection, Front bumper assembly: Exploded view)
5	Front bumper impact absorber	
6	Fog light	
7	Front badge	
8	Front badge support	
9	Radiator grille	



Repair-50x05x05-02x50-1-7-2.xml



XSL version : 3.02 du 22/07/11

EXTERIOR FRONT SIDE OPENING ELEMENT ASSEMBLY: EXPLODED VIEW



Note, one or more warnings are present in this procedure

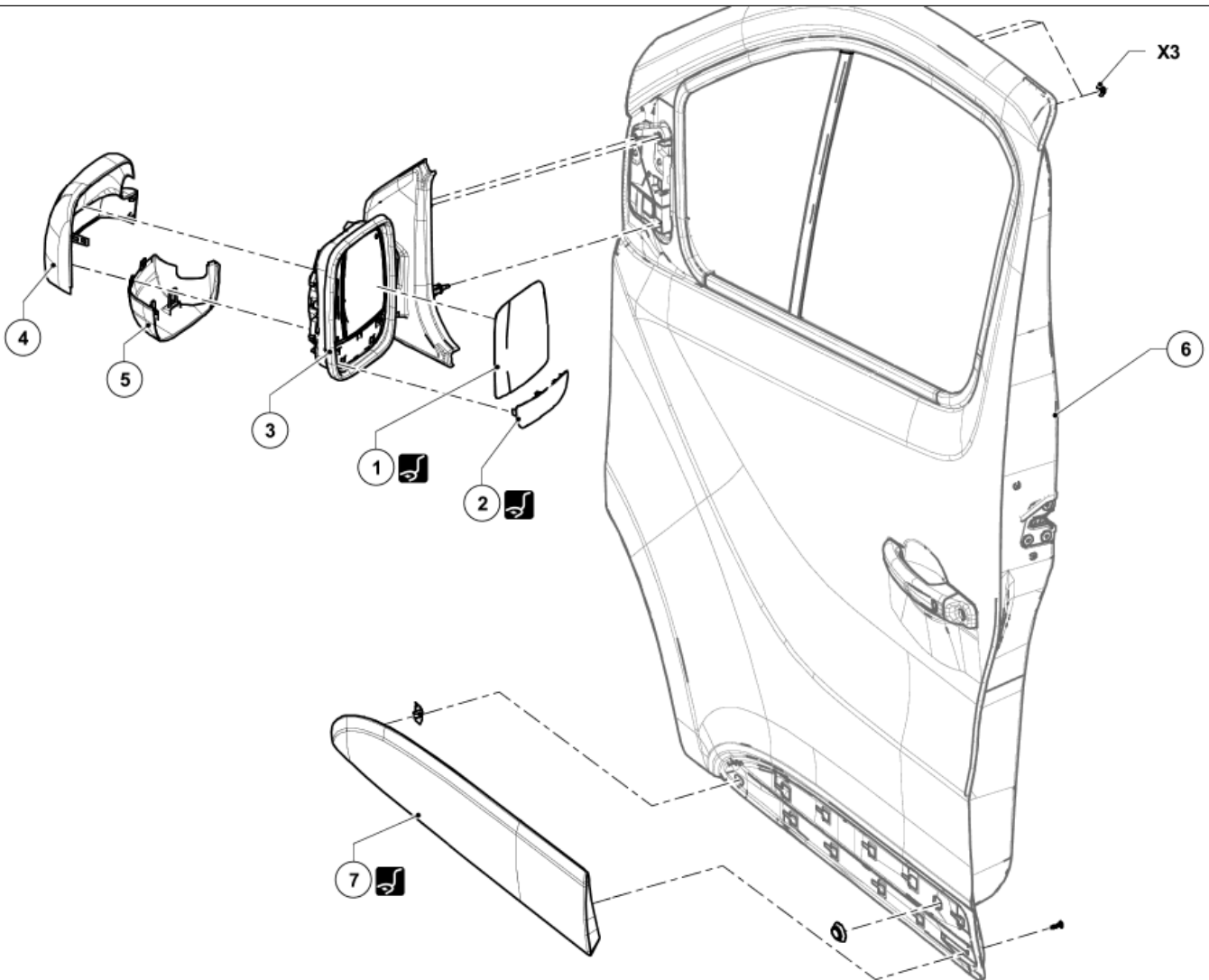


Special tooling required	
Set of trim removal levers.	Car. 1363



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Door mirror glass	Door mirror glass: Removal - Refitting Set of trim removal levers.(Car. 1363)
2	Door mirror lower glass	Door mirror glass: Removal - Refitting Set of trim removal levers.(Car. 1363)
3	Doormirror	Door mirror: Removal - Refitting
4	Door mirror upper casing	Door mirror casing: Removal - Refitting
5	Door mirror lower casing	Door mirror casing: Removal - Refitting
6	Front side opening element	Front side opening element: Removal - Refitting
7	Front side opening element strip	Front side opening element strip: Removal - Refitting Set of trim removal levers.(Car. 1363)



Repair-50x02x21-02x50-1-4-1.xml



XSL version : 3.02 du 22/07/11

EXTERIOR REAR OPENING ELEMENT ASSEMBLY: EXPLODED VIEW



Note, one or more warnings are present in this procedure

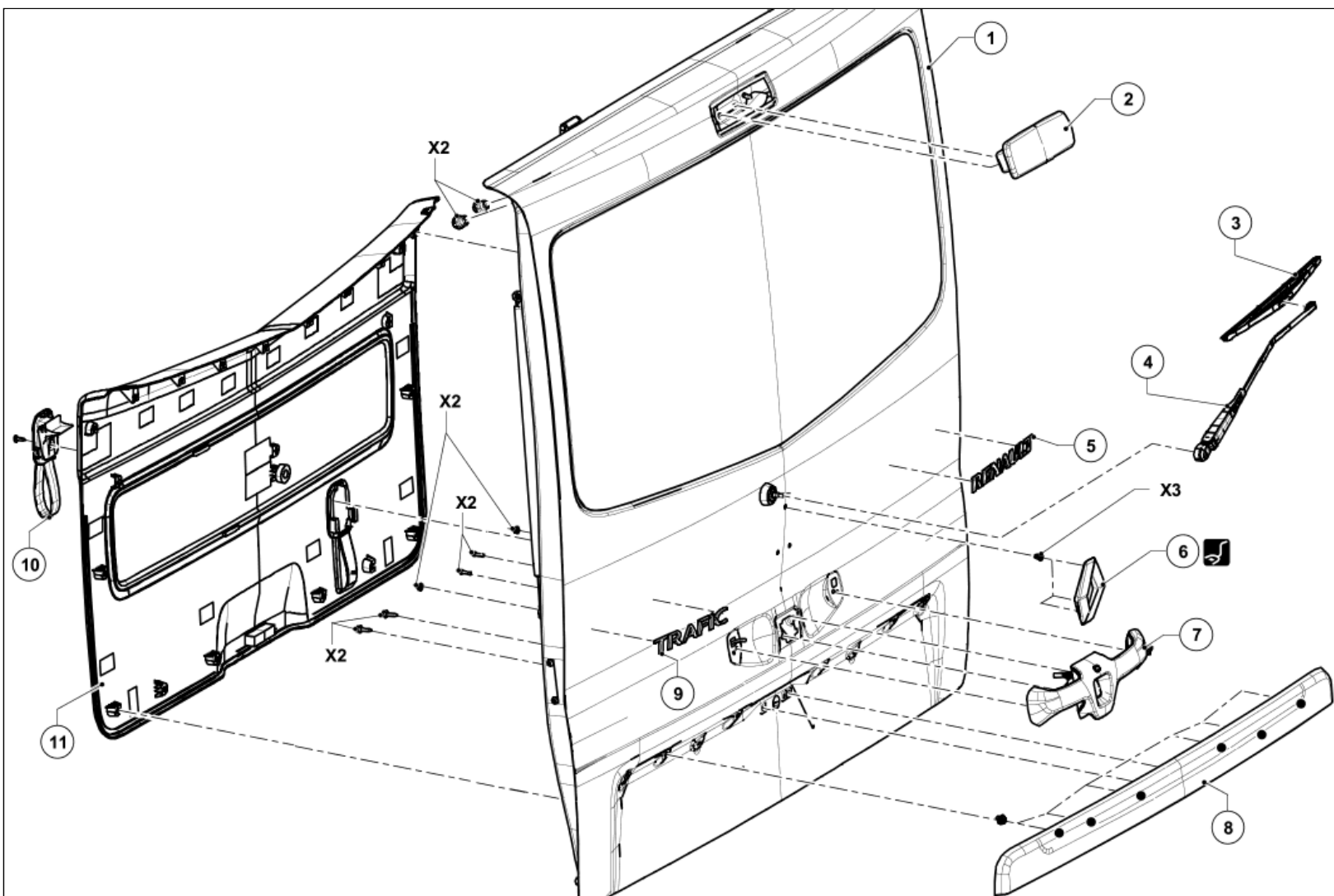


Special tooling required	
Set of trim removal levers.	Car. 1363



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Rear opening element	Rear opening element: Removal - Refitting
2	3rd brake light	Rear signals - lighting assembly: Exploded view
3	Rear screen wiper blade	
4	Rear screen wiper blade arm	
5	Rear badge	
6	Badge	Set of trim removal levers.(Car. 1363)
7	Rear opening element exterior opening control	
8	Rear opening element strip	Rear opening element strip: Removal - Refitting
9	Rear badge	
10	Grab handle	
11	Rear opening element trim	



Repair-50x03x26-02x50-1-9-1.xml



XSL version : 3.02 du 22/07/11

EXTERIOR REAR SIDE OPENING ELEMENT ASSEMBLY: EXPLODED VIEW



Note, one or more warnings are present in this procedure

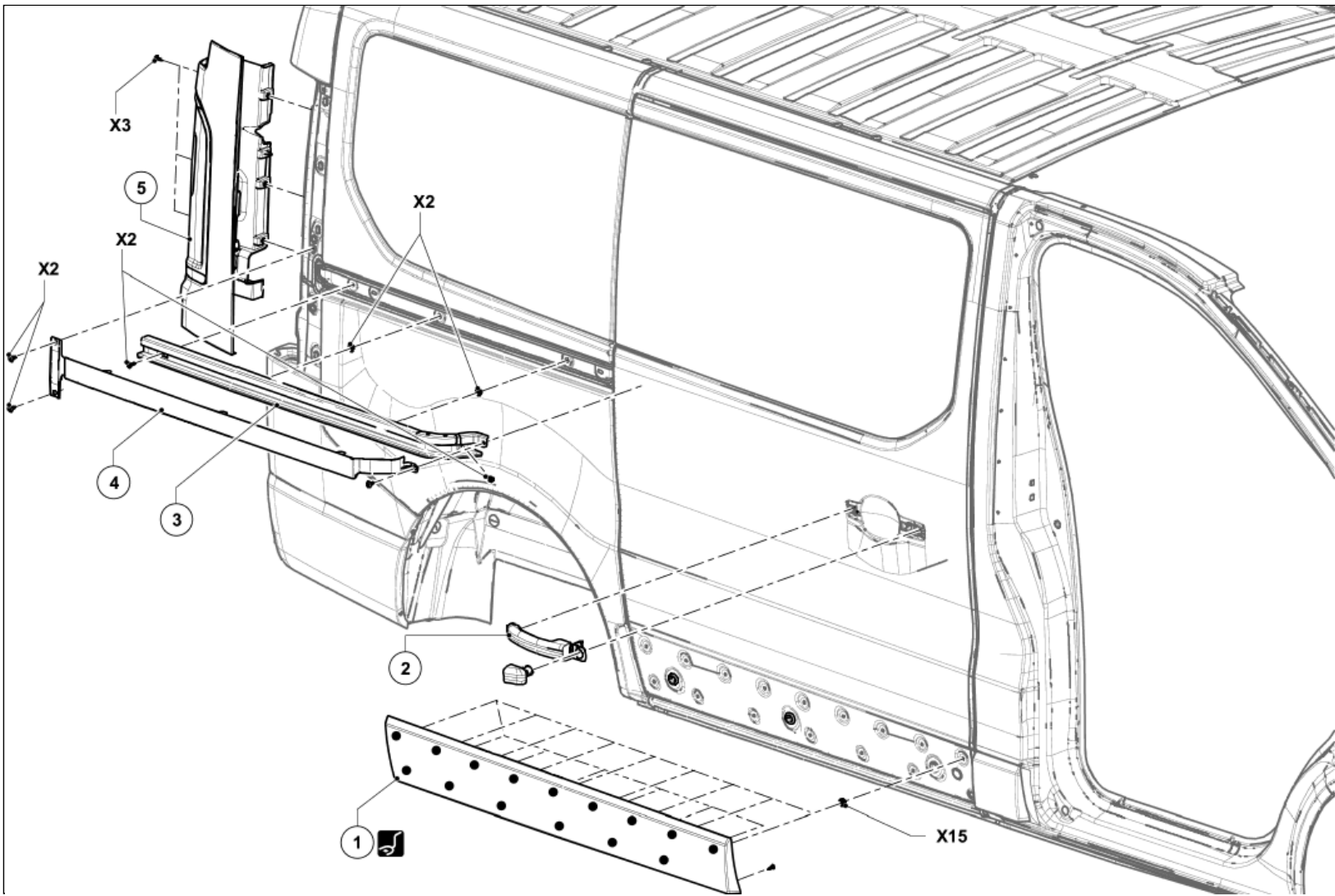


Special tooling required	
Set of trim removal levers.	Car. 1363



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Rear side opening element strip	Rear side opening element strip: Removal - Refitting Set of trim removal levers.(Car. 1363)
2	Rear side opening element exterior opening control	
3	Rear side opening element rail	
4	Rear side opening element rail trim	
5	Rear light	Rear signals - lighting assembly: Exploded view



Repair-50x02x23-02x50-1-2-1.xml



XSL version : 3.02 du 22/07/11

EXTERIOR TEMPERATURE SENSOR: REMOVAL-REFITTING



Note:

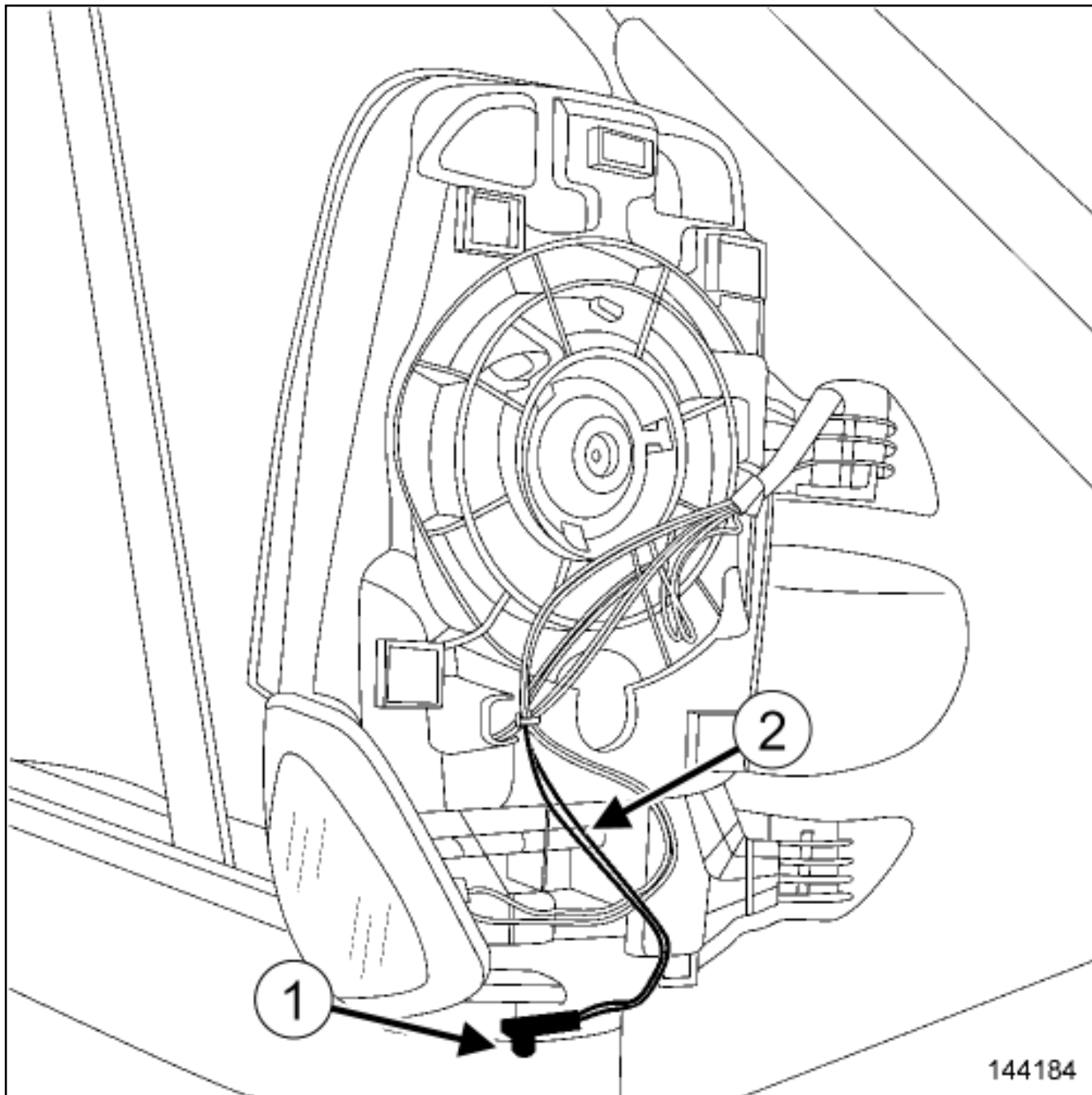
The exterior temperature sensor is located in the door mirror on the right-hand side.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the door mirror glass(see **Exterior front side opening element assembly: Exploded view**) .
- Unclip (see **Exterior front side opening element assembly: Exploded view**) :
 - the door mirror upper casing,
 - the door mirror lower casing.

2. REMOVAL OPERATION



144184

- Remove the exterior temperature sensor(1) from its mounting.
- Cut the wires(2) of the exterior temperature sensor (see *Wiring: Repair*) (Technical Note 6015A, 88A, *Wiring*).

REFITTING

1. REFITTING OPERATION



Solder the wires of the exterior temperature sensor (see Wiring: Repair) (Technical Note 6015, 88A, Wiring).



Refit the exterior temperature sensor onto its mounting.

2. FINAL OPERATION



Proceed in the reverse order to removal.



Repair-30x02x04x13-01x37-1-25-1.xml



XSL version : 3.02 du 22/07/11

FAN ASSEMBLY: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Tool for removal - refitting of Valéo fan assembly

Ms. 1909



WARNING

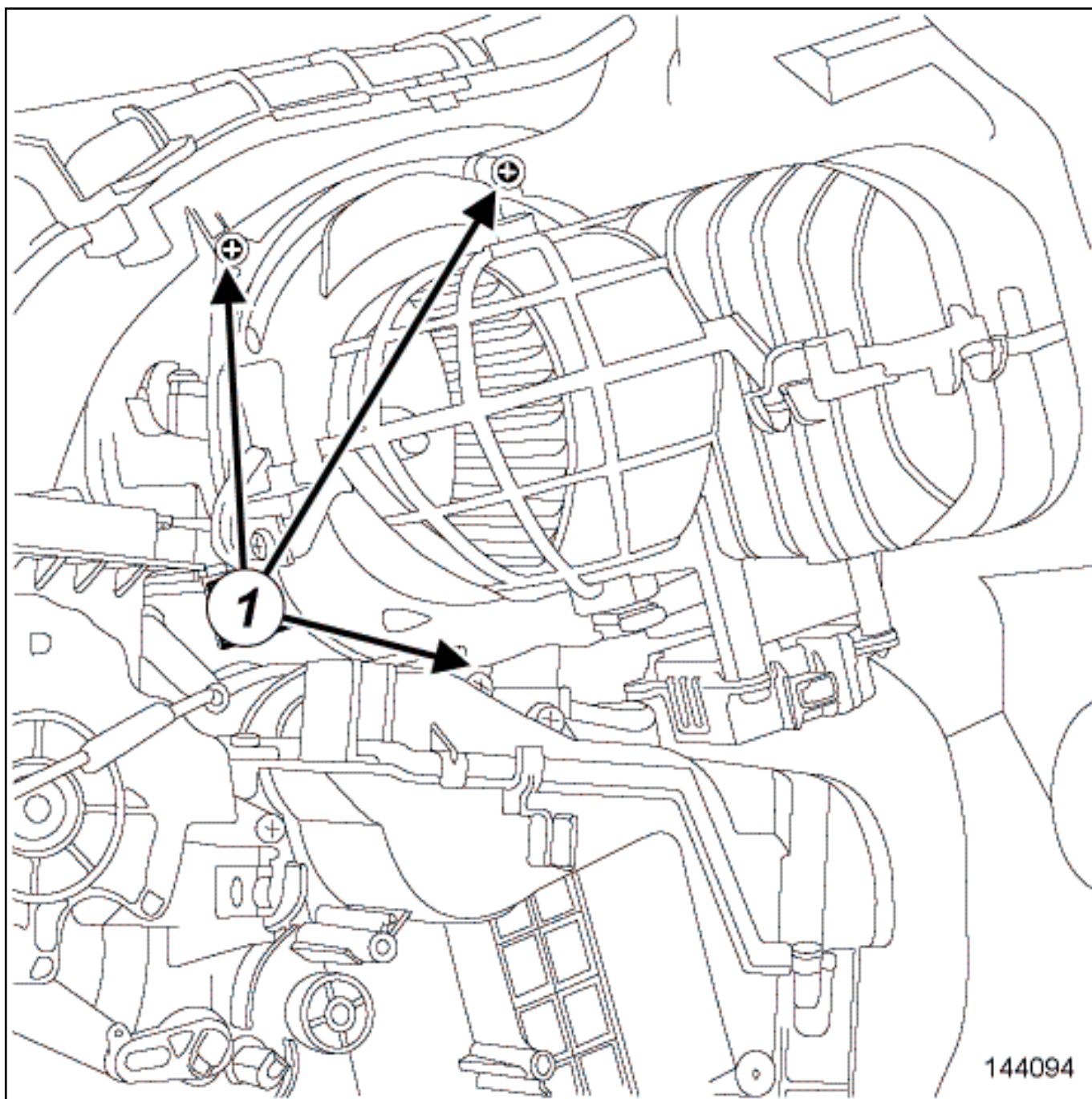
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts to always be replaced, etc.) ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Remove:
 - the dashboard ([see Dashboard assembly: Exploded view](#)),
 - the gear control unit [Gear control unit: Removal - Refitting](#),
 - the steering column [Steering column: Removal - Refitting](#),
 - the dashboard wiring [Passenger compartment wiring: Removal - Refitting](#),
 - the dashboard cross member bolts,
 - the dashboard cross member,
 - the front side air distribution ducts ([see 61A, Heating, Air distribution circuit assembly: Exploded view](#)).
 - the air recirculation control cable ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)).
- Disconnect the recirculation motor connector.



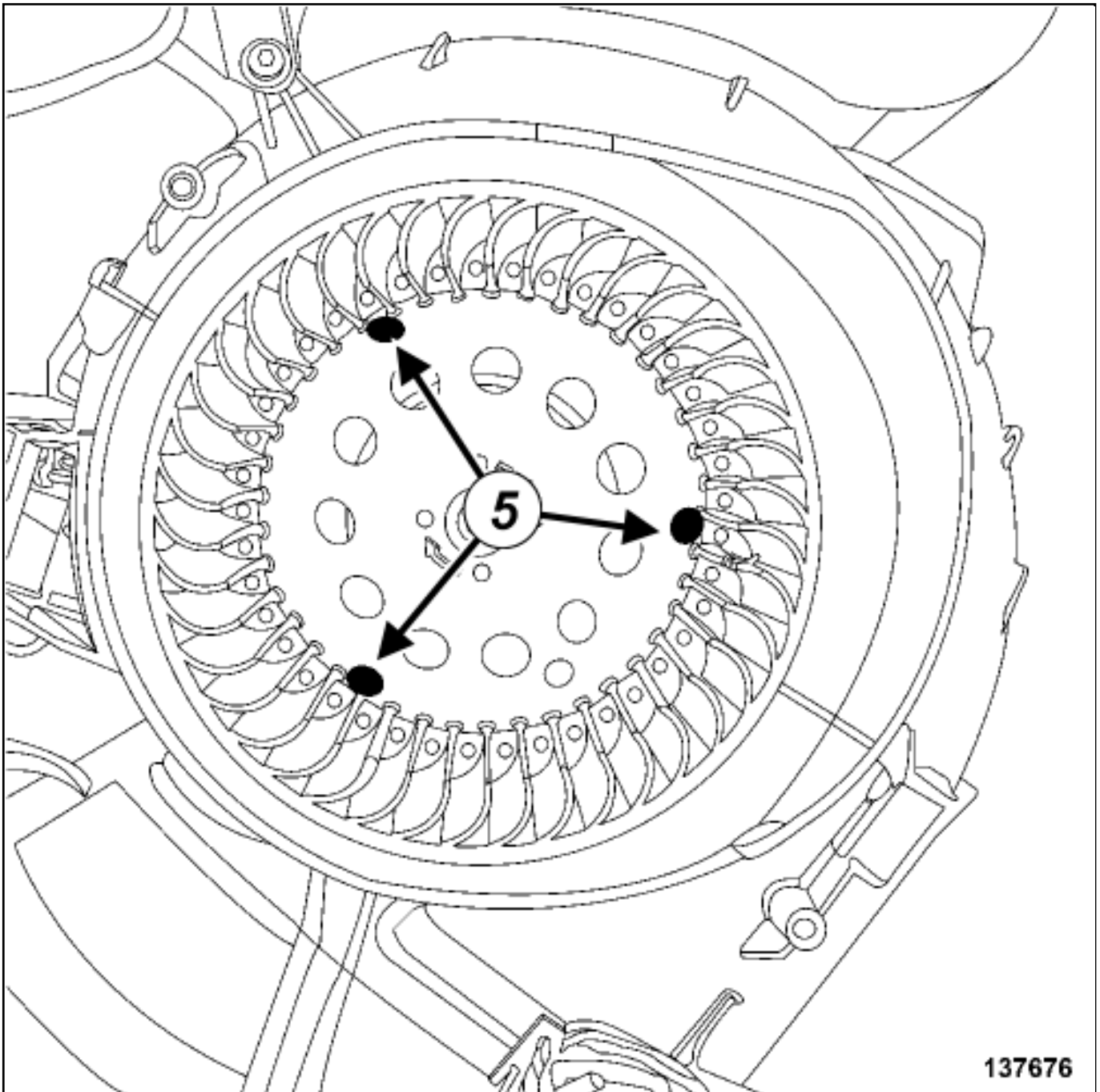
■ Remove:

- the bolts(1) from the air recirculation duct,
- the air recirculation duct.

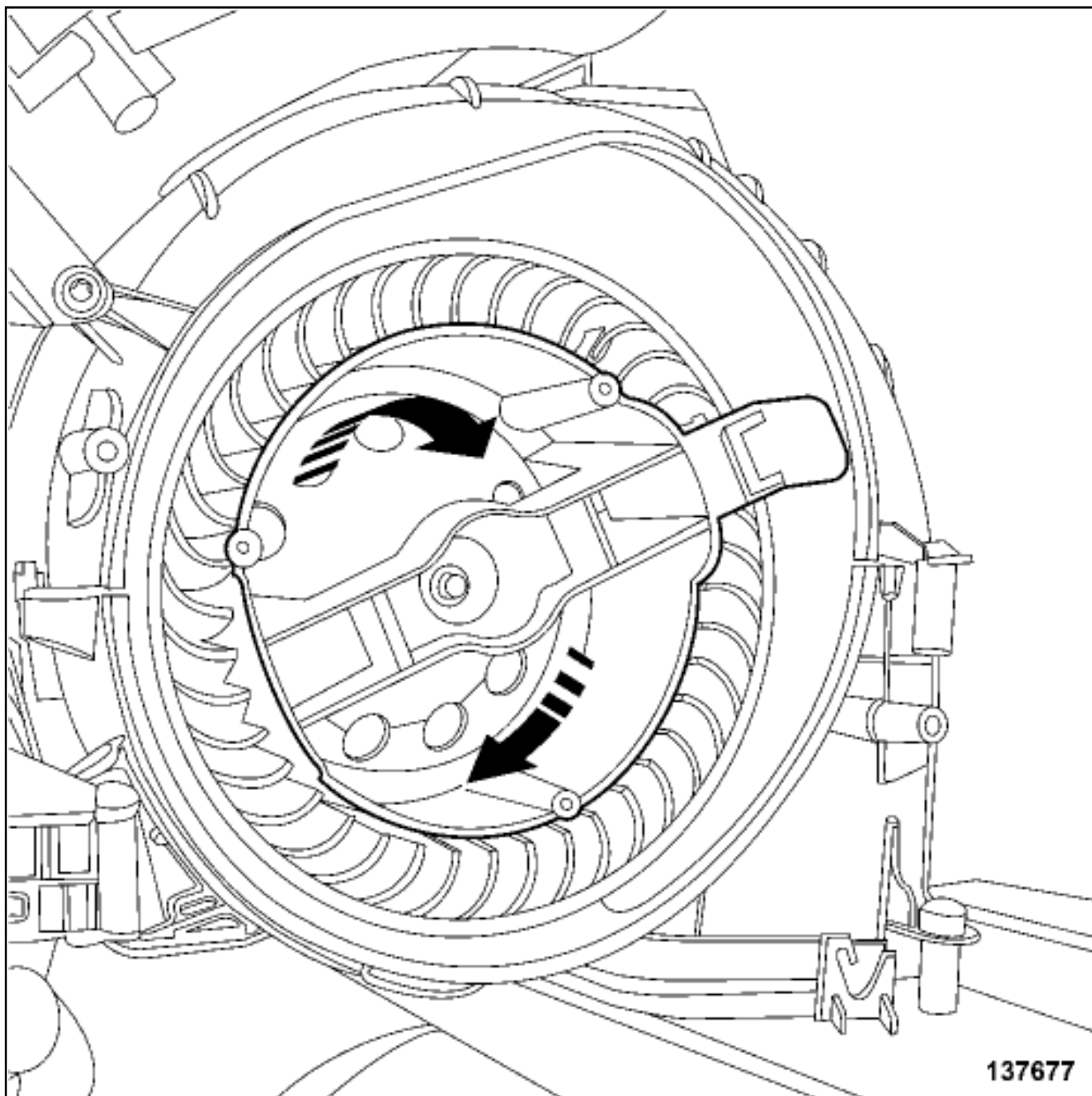
■ Remove the cabin filter([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)).

2. REMOVAL OPERATION

- Disconnect the connector from the passenger compartment fan assembly motor via the passenger compartment filter housing.

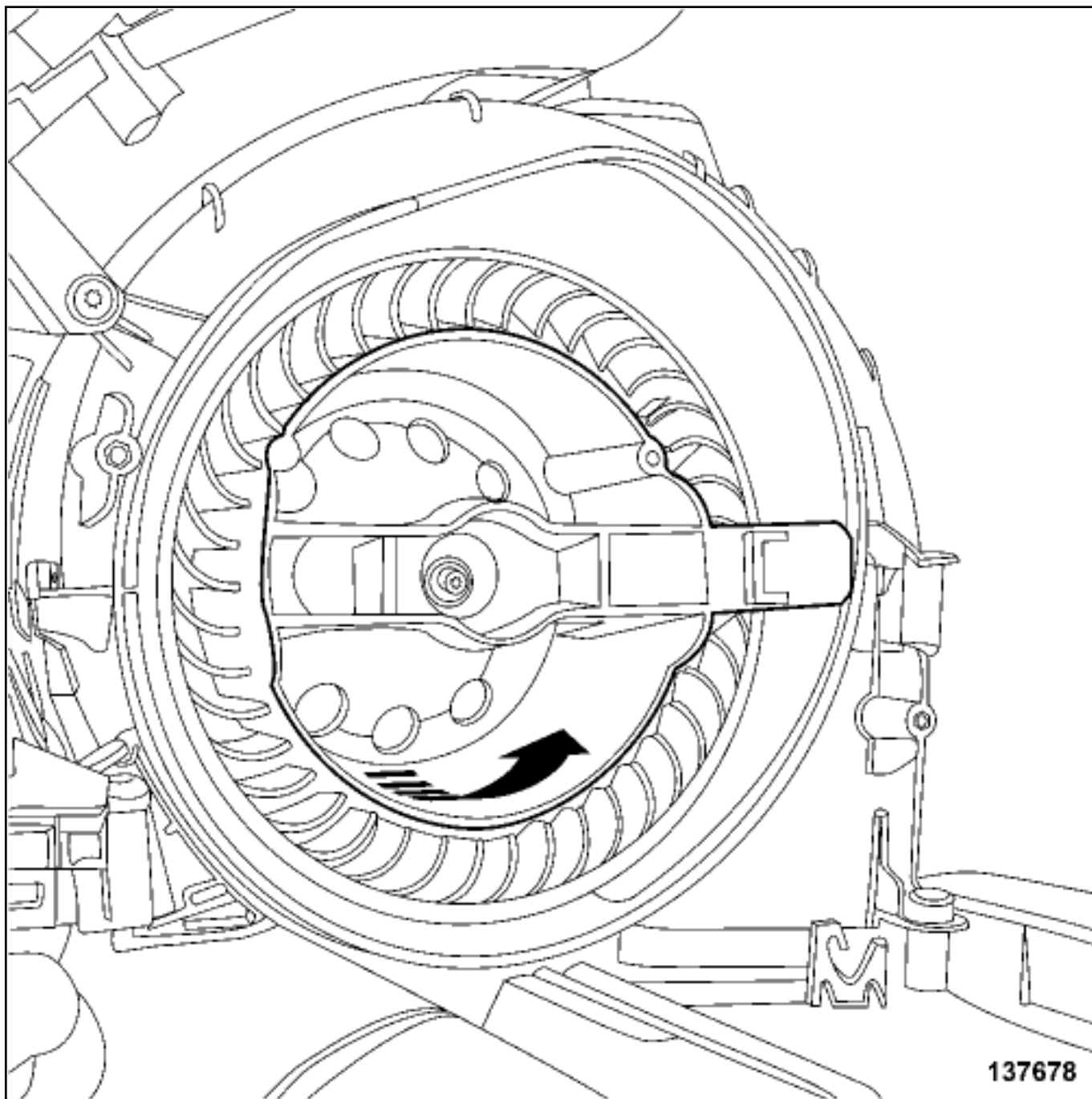


- Position the turbine of the passenger compartment fan assembly in such a way as to align the holes (5) required to fit the tool Tool for removal - refitting of Valéo fan assembly (Ms. 1909) .



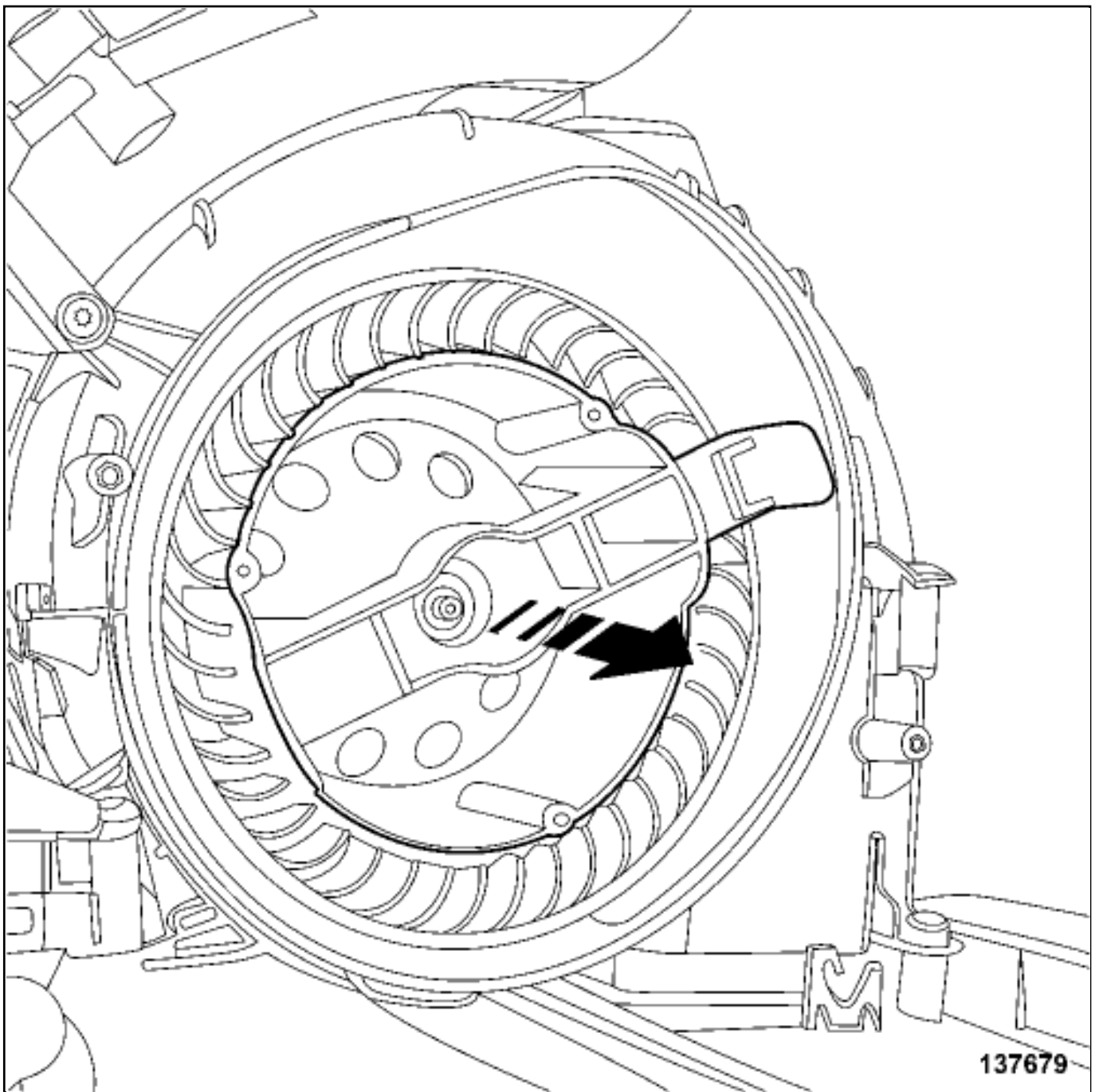
137677

■ Position the Tool for removal - refitting of Valéo fan assembly (Ms. 1909) and turn it slightly from left to right so that the three rods of the Tool for removal - refitting of Valéo fan assembly (Ms. 1909) coincide with the three holes of the turbine.



137678

■ Push and turn the tool Tool for removal - refitting of Valéo fan assembly (Ms. 1909) anticlockwise to unlock the passenger compartment fan assembly.



■ Remove the passenger compartment fan assembly from its housing while taking care not to damage the turbine.

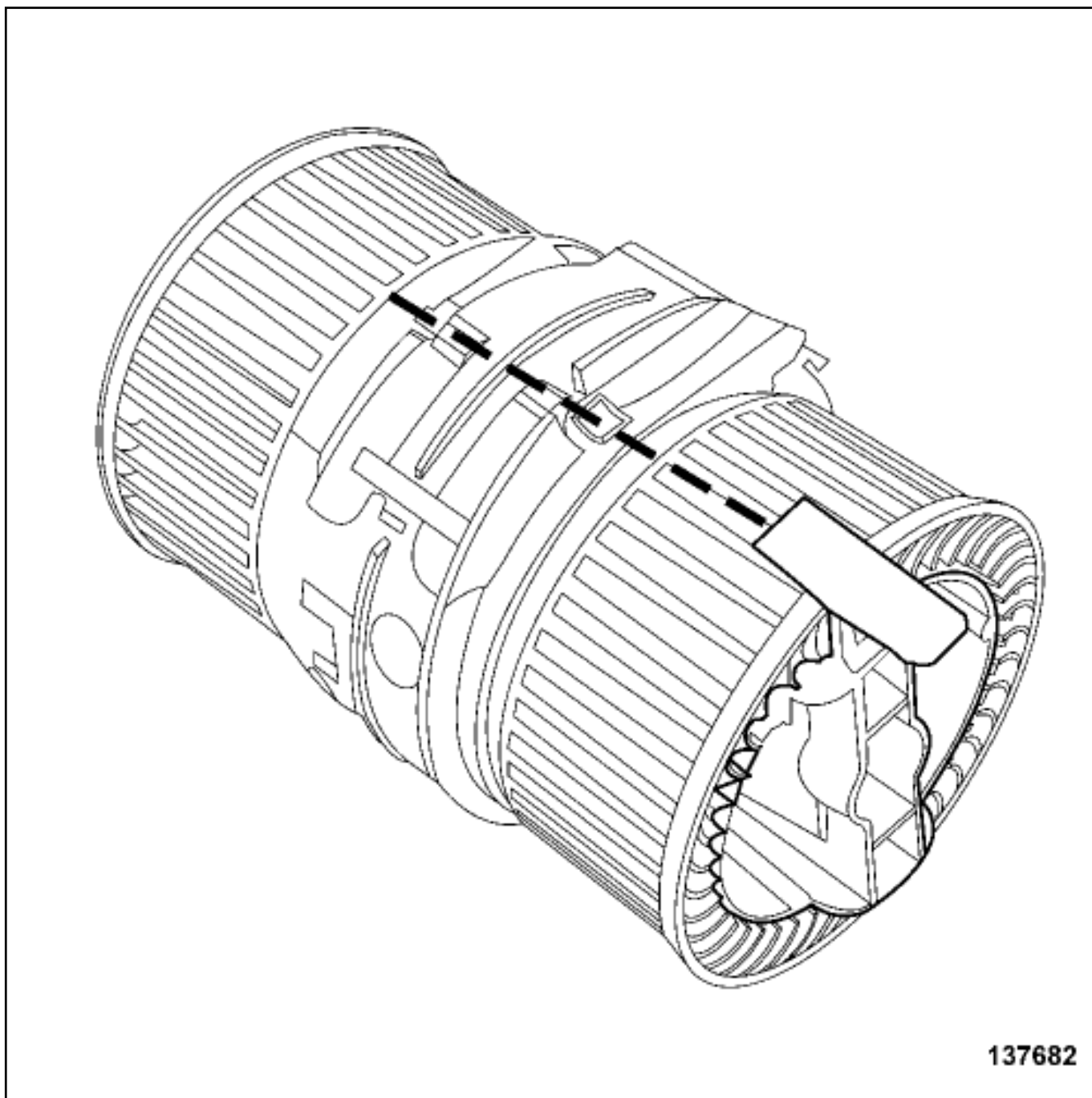
Note:



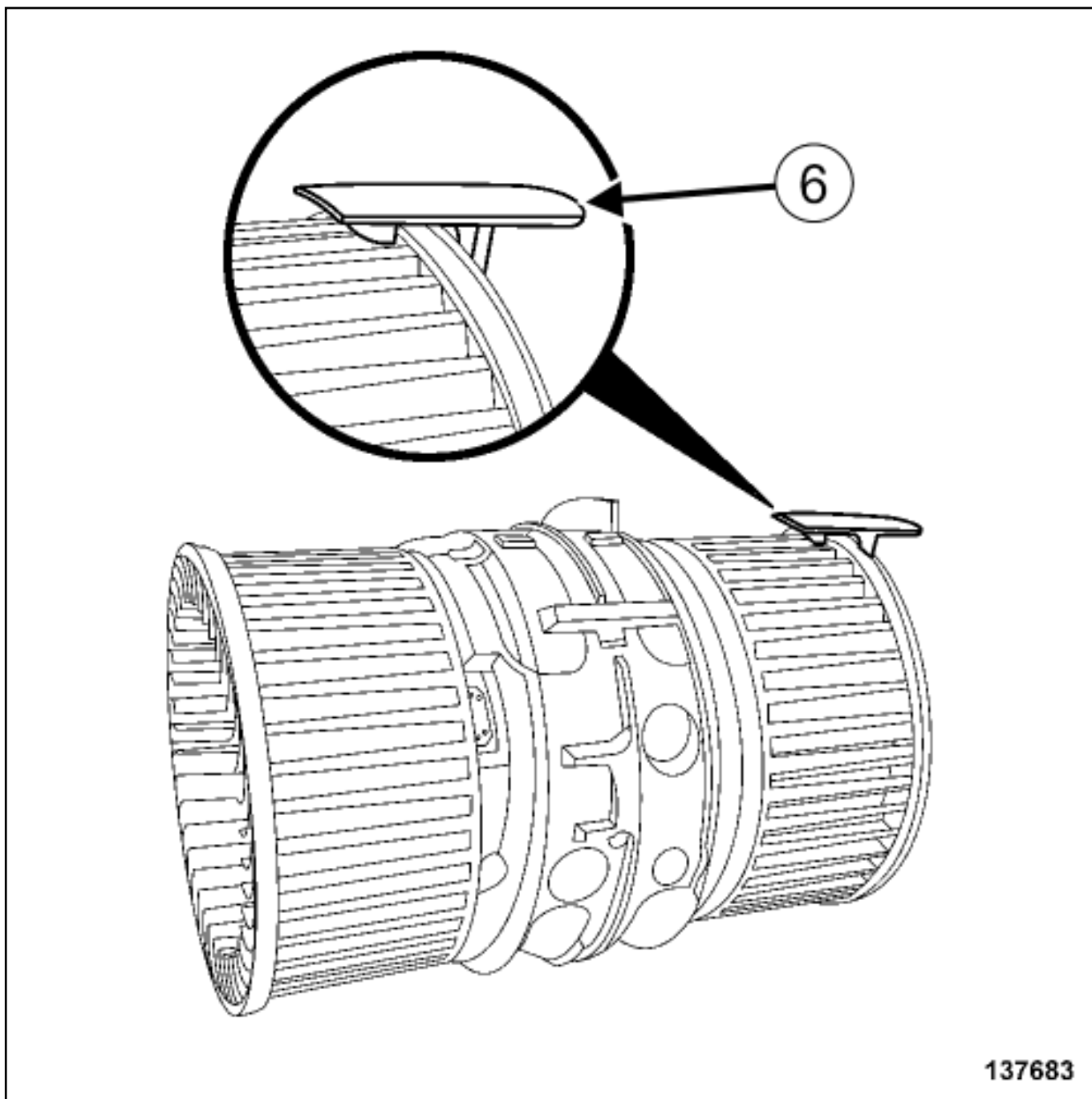
To avoid making the passenger compartment fan assembly motor unstable, position the assembly horizontally and protect it from impact.

1. REFITTING OPERATION

- Fit the tool for removal - refitting of Valéo fan assembly (Ms. 1909) on the passenger compartment fan assembly.

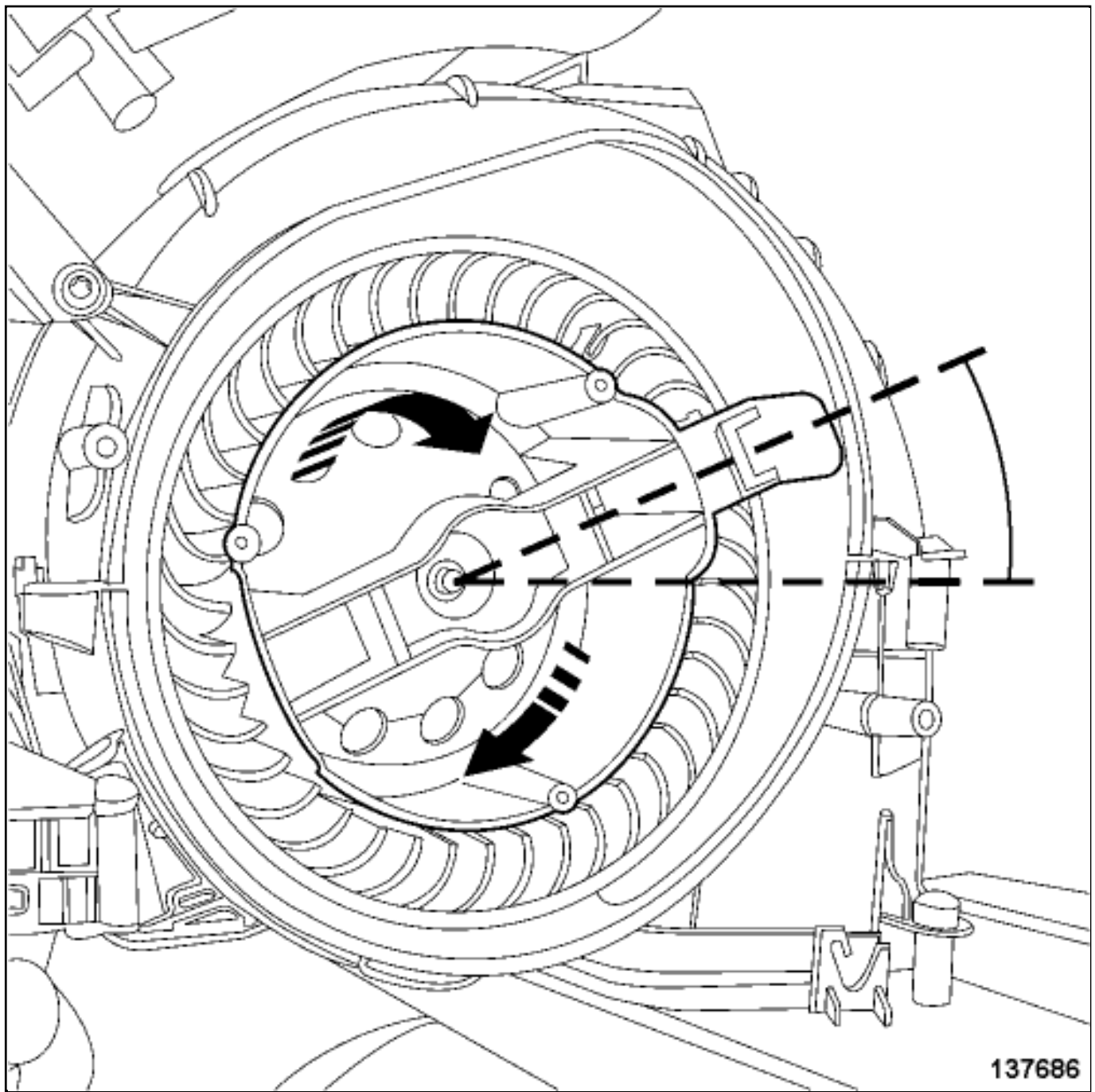


- Align the clip of the tool for removal - refitting of Valéo fan assembly (Ms. 1909) along the shaft.

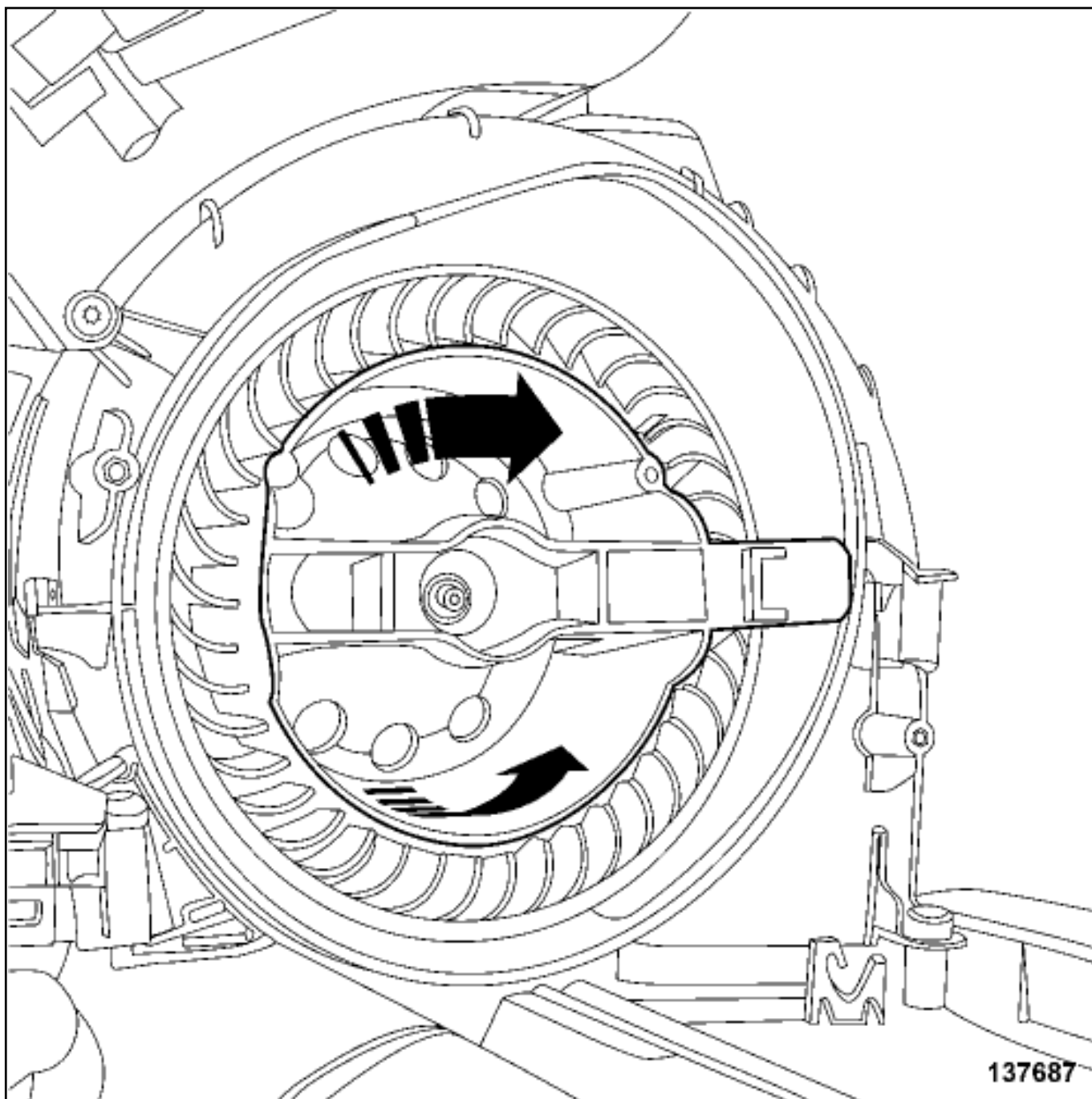


137683

■ Check that the clip(6) is correctly positioned in relation to the turbine of the passenger compartment fan assembly.



Refit the passenger compartment fan assembly in its housing by turning the tool 45°.



- Push the passenger compartment fan assembly until it is fully inserted in its housing.

- Turn the tool Tool for removal - refitting of Valéo fan assembly (Ms. 1909) clockwise to lock the passenger compartment fan assembly.

- Remove the Tool for removal - refitting of Valéo fan assembly (Ms. 1909).

Proceed in the reverse order to removal.

2. FINAL OPERATION

Torque tighten the dashboard cross member bolts 21 N.m.



Repair-30x02x01x03-01x37-1-50-1.xml



XSL version : 3.02 du 22/07/11

FLYWHEEL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Flywheel locking tool.

Mot. 1431

Torx male TP 55

Mot. 2013



parts always to be replaced:



[Flywheel bolts](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 10A, Engine and cylinder block assembly, Cylinder block assembly: Exploded view\)](#) .



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see **Clutch: Precautions for the repair**) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).

■ Disconnect the battery [Battery: Removal - Refitting](#) .



- Remove :
 - the manual gearbox [Manual gearbox: Removal - Refitting](#) (21A, Manual gearbox),
 - the clutch mechanism-plate [Clutch assembly: Exploded view](#) .

2. REMOVAL OPERATION

- Position the tool Flywheel locking tool. ([Mot. 1431](#)) .
- Remove ([see 10A. Engine and cylinder block assembly. Cylinder block assembly: Exploded view](#)) :
 - the flywheel bolts using the tool Torx male TP 55 ([Mot. 2013](#)) ,
 - the tool Flywheel locking tool. ([Mot. 1431](#)) ,
 - the flywheel.

REFITTING

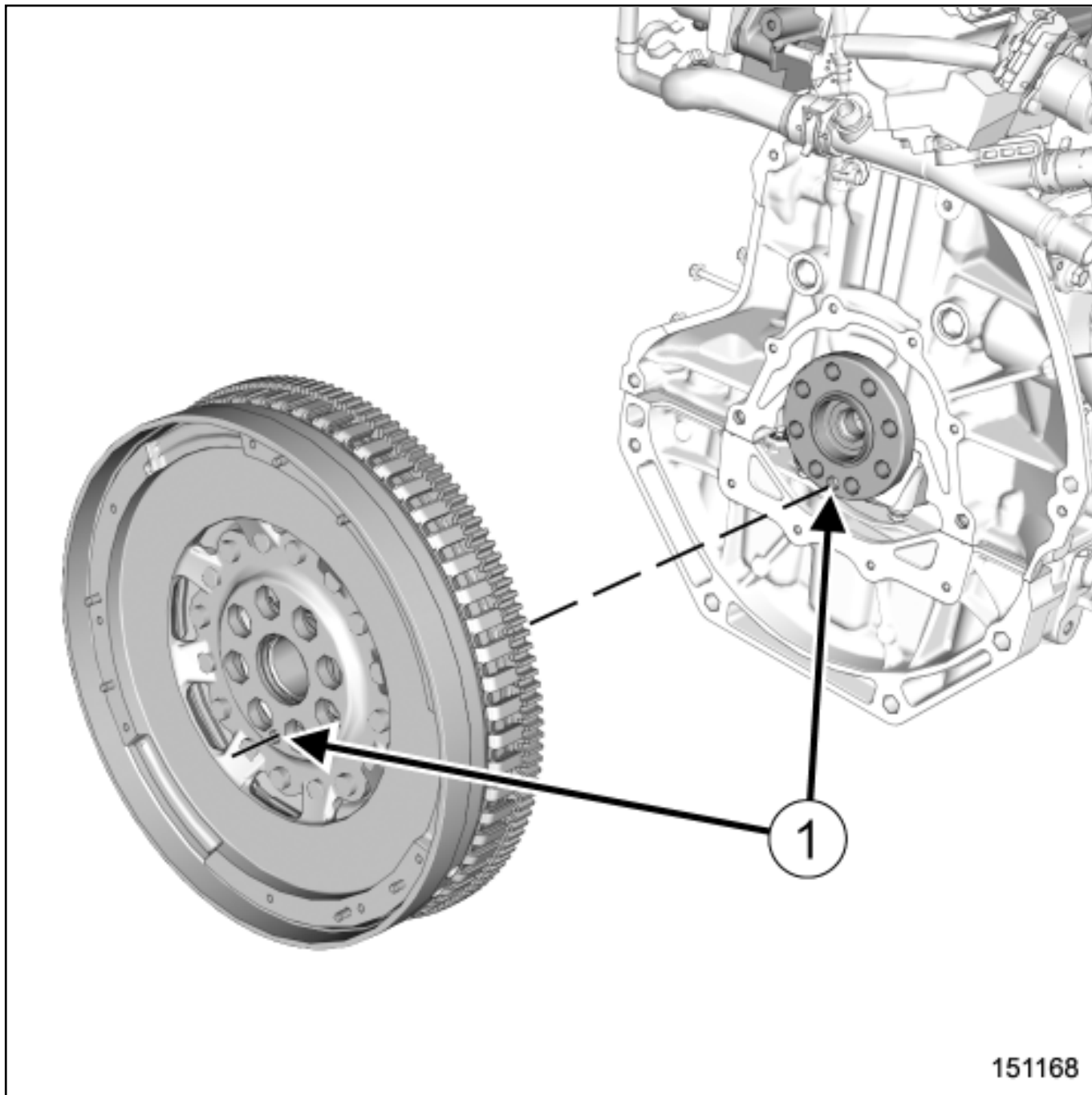
1. REFITTING PREPARATION OPERATION

- parts always to be replaced:  [Flywheel bolts](#)  .

- Use surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean and degrease:

- the flywheel,
- the flywheel pressure face on the crankshaft,
- the flywheel threading on the crankshaft.

2. REFITTING OPERATION



- Refit the flywheel by aligning the marks(1) .



Note:

The openings of the flywheel must be aligned.

- Fit the flywheel bolts using the toolTorx male TP 55(Mot. 2013) without tightening them(see 10A, Engine and cylinder block assembly, Cylinder block assembly: Exploded view) .



Position the Flywheel locking tool.([Mot. 1431](#)) .



Tighten to torque and in order the new flywheel bolts([see 10A, Engine and cylinder block assembly, Cylinder block assembly: Exploded view](#)) .



Proceed in the reverse order to removal.



Bleed the hydraulic clutch circuit[Clutch circuit: Bleed](#) (37A, Mechanical component controls).



Repair-10x03x03x06-01x37-1-75-1.xml



XSL version : 3.02 du 22/07/11

FORK SHAFT BEARING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Tool kit for PK6 gearbox operations.

Bvi. 1510-01

Tool kit for repairing gearboxes.

Bvi. 1743



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

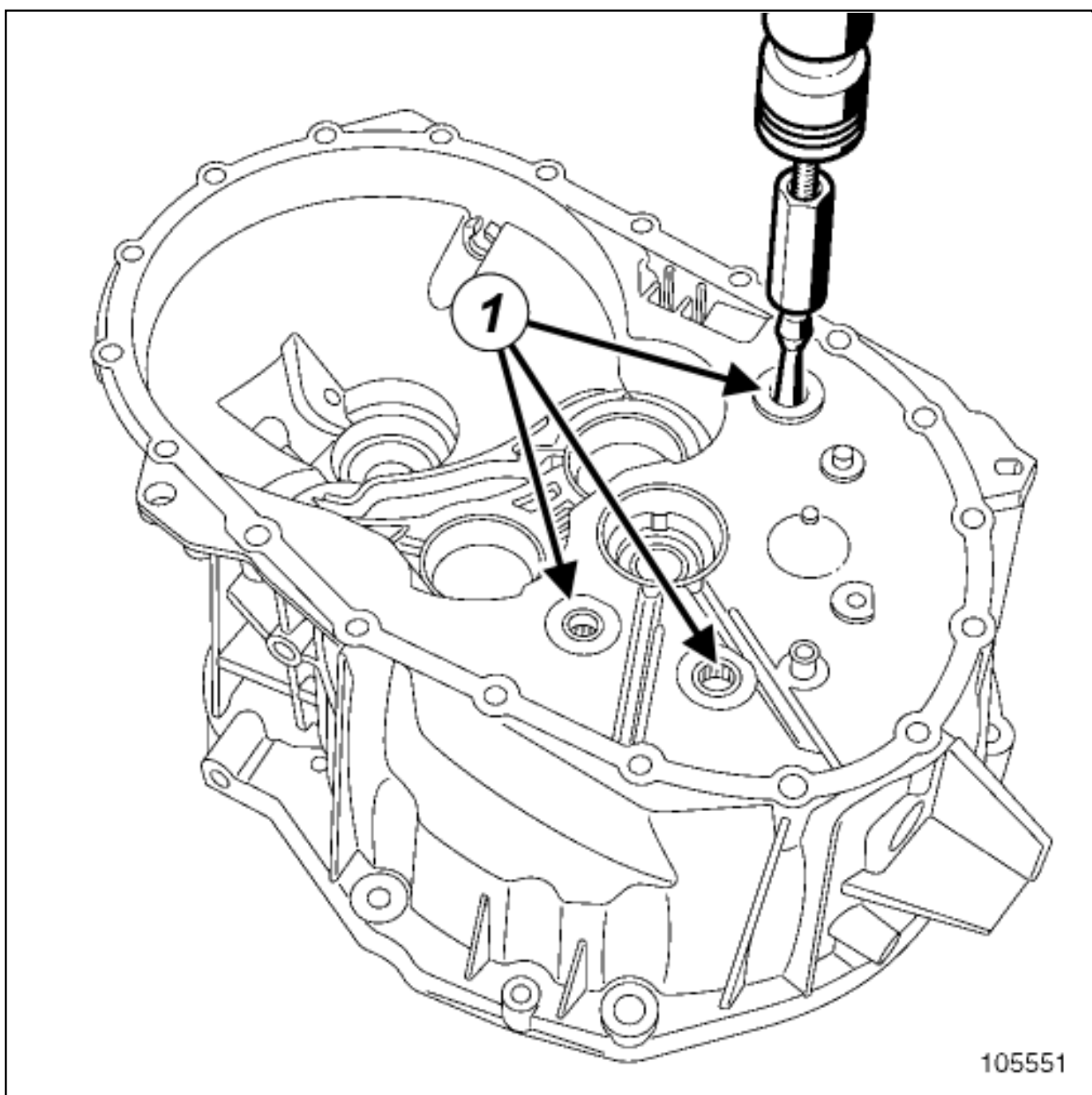
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 21A, Manual gearbox](#) , [Manual gearbox: Precautions for the repair](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

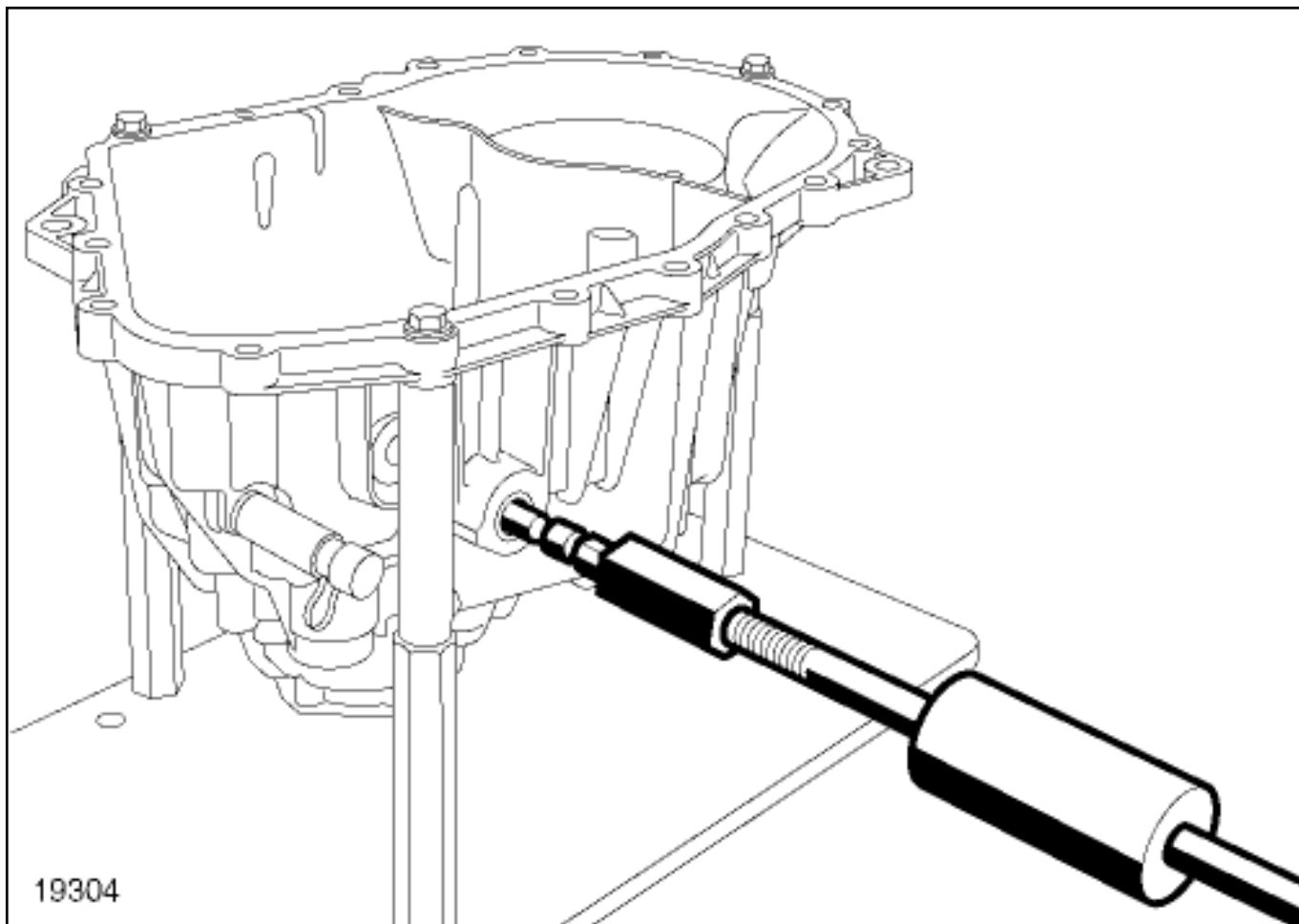
- Remove the gearbox [Manual gearbox: Removal - Refitting](#) .
- Position the gearbox on the component support ([see 21A, Manual gearbox](#) , [Gearbox support equipment: Use](#)) .
- Remove:
 - the mechanism housing ([see 21A, Manual gearbox](#) , [Mechanism housing: Removal - Refitting](#)) ,
 - the gearbox shafts ([see 21A, Manual gearbox](#) , [Gearbox shaft: Removal - Refitting](#)) ,
 - the differential ([see 21A, Manual gearbox](#) , [Manual gearbox differential: Removal - Refitting](#)) .

2. OPERATION FOR REMOVAL OF PART CONCERNED



105551

- Remove the bearings(1) using a slide hammer puller 14 mm in diameter.



- Remove the selector shaft and the two needle bearings using a slide hammer puller 14 mm in diameter.

REFITTING

1. REFITTING PREPARATION OPERATION

- Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) to clean:

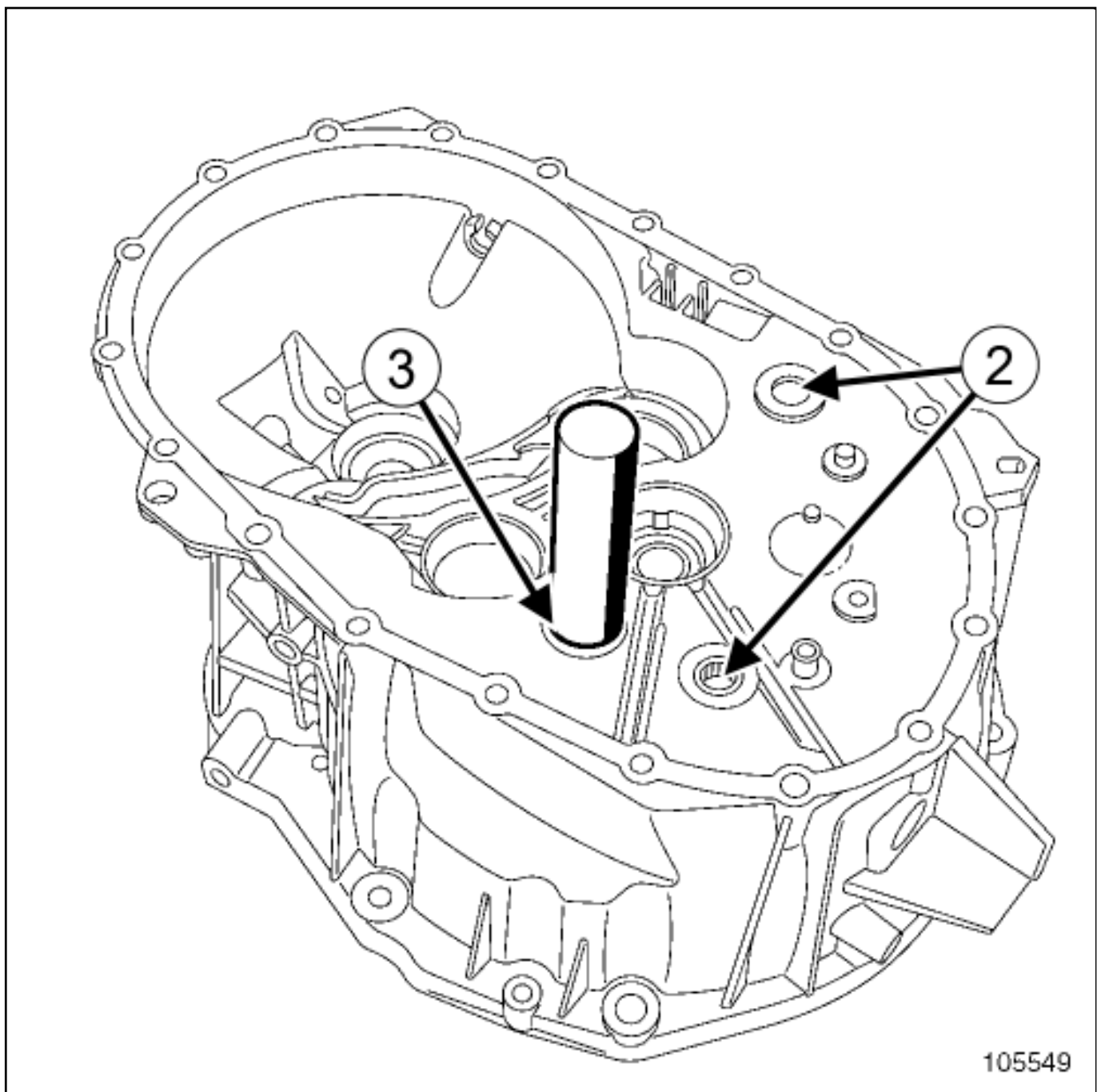
- the mating faces of the bearings,
- the shafts,
- the mating faces of the shafts,
- the differential,
- the mechanism housing,

- the clutch housing.

■ Parts always to be replaced:

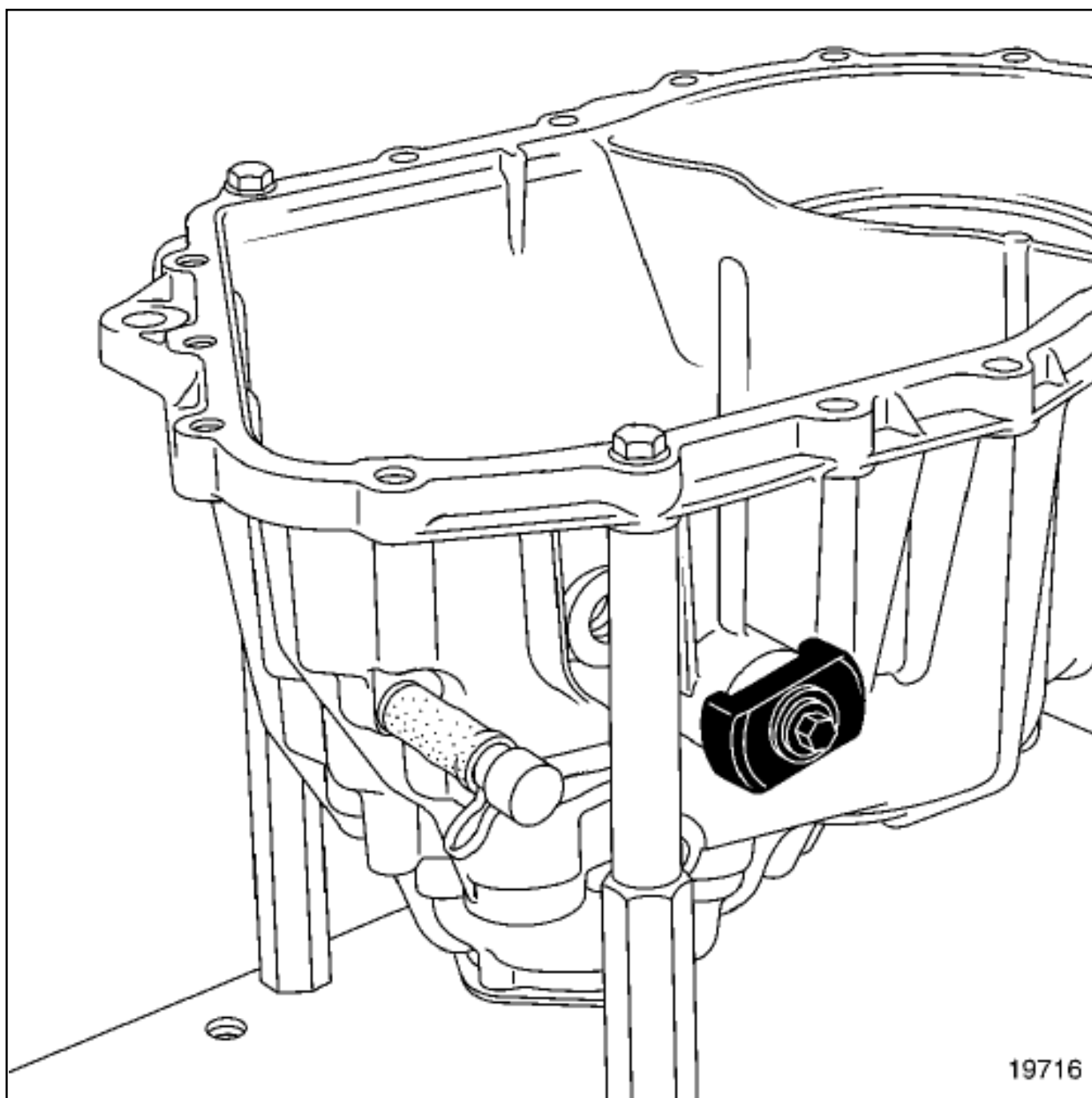
- the circlips,
- the differential outlet seals,
- the input shaft output seal,
- the pins,
- the hydraulic clutch release bearing.
- the selector shaft bearings,
- the fork shaft bearings.

2. REFITTING OPERATION FOR PART CONCERNED



105549

- Refit the bearings using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix P at (2) and suffix Q at (3) .



- Refit the two bearings of the selector shaft using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix R .

3. FINAL OPERATION

 Refit:

- the differential([see 21A, Manual gearbox , Manual gearbox differential: Removal - Refitting](#)) ,
- the gearbox shafts([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,
- the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .

 Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .

 Refit the gearbox[Manual gearbox: Removal - Refitting](#) .



Repair-12x01x11x01-01x37-1-9-1.xml



XSL version : 3.02 du 22/07/11

FRONT AIR DISTRIBUTION DUCT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

1- FRONT SIDE AIR DISTRIBUTION DUCTS

■ Disconnect the battery [Battery: Removal - Refitting](#).

■ Remove:

- the dashboard (see **Dashboard assembly: Exploded view**),
- the gear control unit [Gear control unit: Removal - Refitting](#),
- the steering column [Steering column: Removal - Refitting](#),
- the dashboard wiring [Passenger compartment wiring: Removal - Refitting](#),
- the dashboard cross member bolts,
- the dashboard cross member.

2- FRONT FOOTWELL AIR DISTRIBUTION DUCTS

■ Remove (see **Dashboard assembly: Exploded view**):

- the centre console front sections,
- the centre front panel,
- the dashboard centre front panel trim.

2. REMOVAL OPERATION

1- FRONT SIDE AIR DISTRIBUTION DUCTS

■ Remove [\(see 61A, Heating, Air distribution circuit assembly: Exploded view\)](#) :

- the bolts,
- the clips,
- the front side air distribution ducts.

2- FRONT FOOTWELL AIR DISTRIBUTION DUCTS

■ Remove [\(see 61A, Heating, Air distribution circuit assembly: Exploded view\)](#) :

- the clips,
- the front footwell air distribution ducts.

REFITTING

■ Proceed in the reverse order to removal.

■ Torque tighten the dashboard cross member bolts 21 N.m.



[Repair-30x02x01x19-01x37-1-23-1.xml](#)



XSL version : 3.02 du 22/07/11

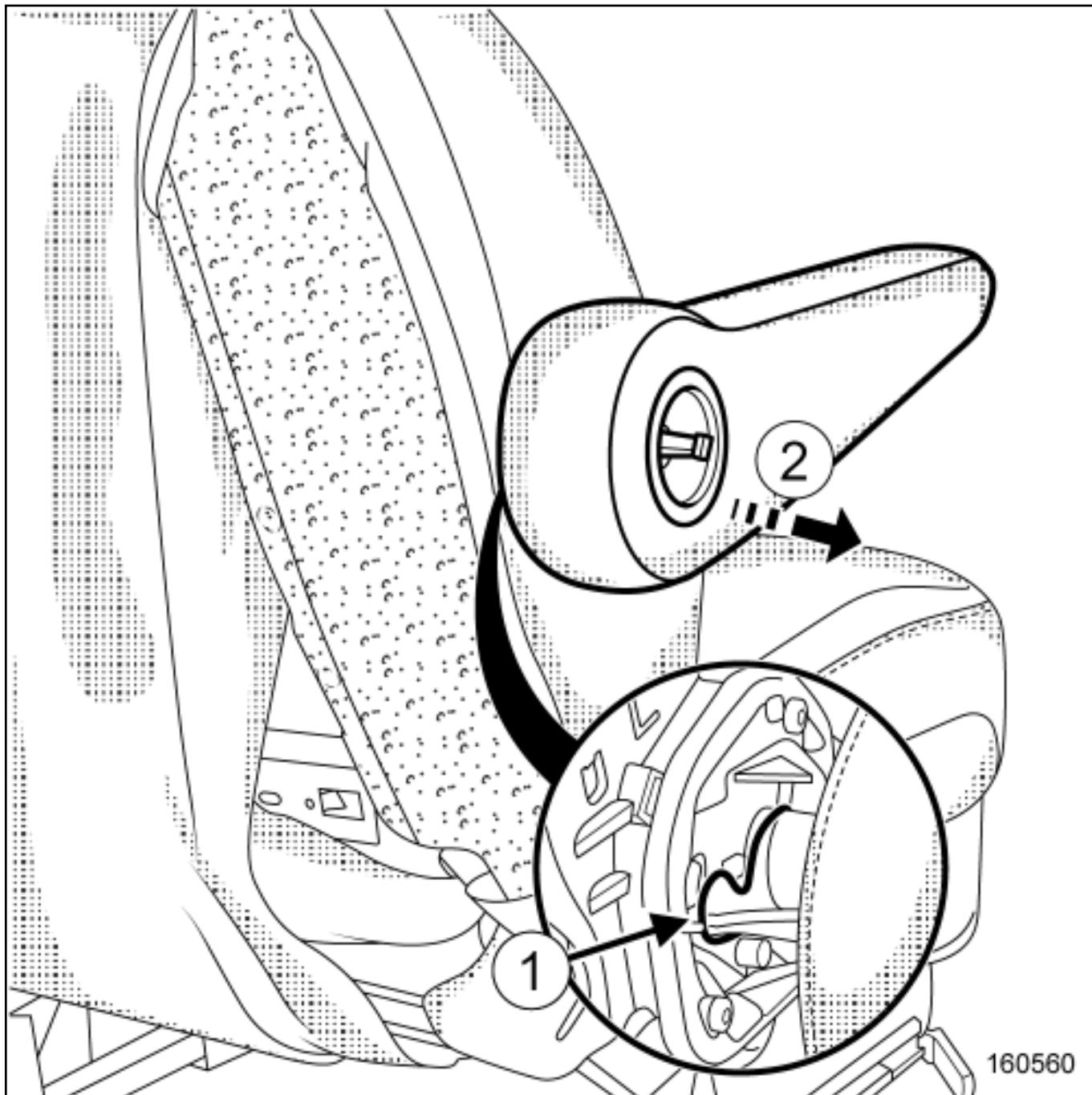
FRONT ARMREST: REMOVAL - REFITTING

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Remove the front seat lumbar adjustment control [Front seat lumbar adjustment control: Removal - Refitting](#) .
- ❑ Partially remove the front seatback trim [Front seatback trim: Removal - Refitting](#) .

2. REMOVAL OPERATION



■ Remove:

- the clip(1) ,
- the front seat armrest at(2) .

REFITTING

■ Proceed in the reverse order to removal.



Repair-70x18x02x12-01x37-1-8-1.xml



XSL version : 3.02 du 22/07/11

FRONT AXLE ASSEMBLY: EXPLODED VIEW

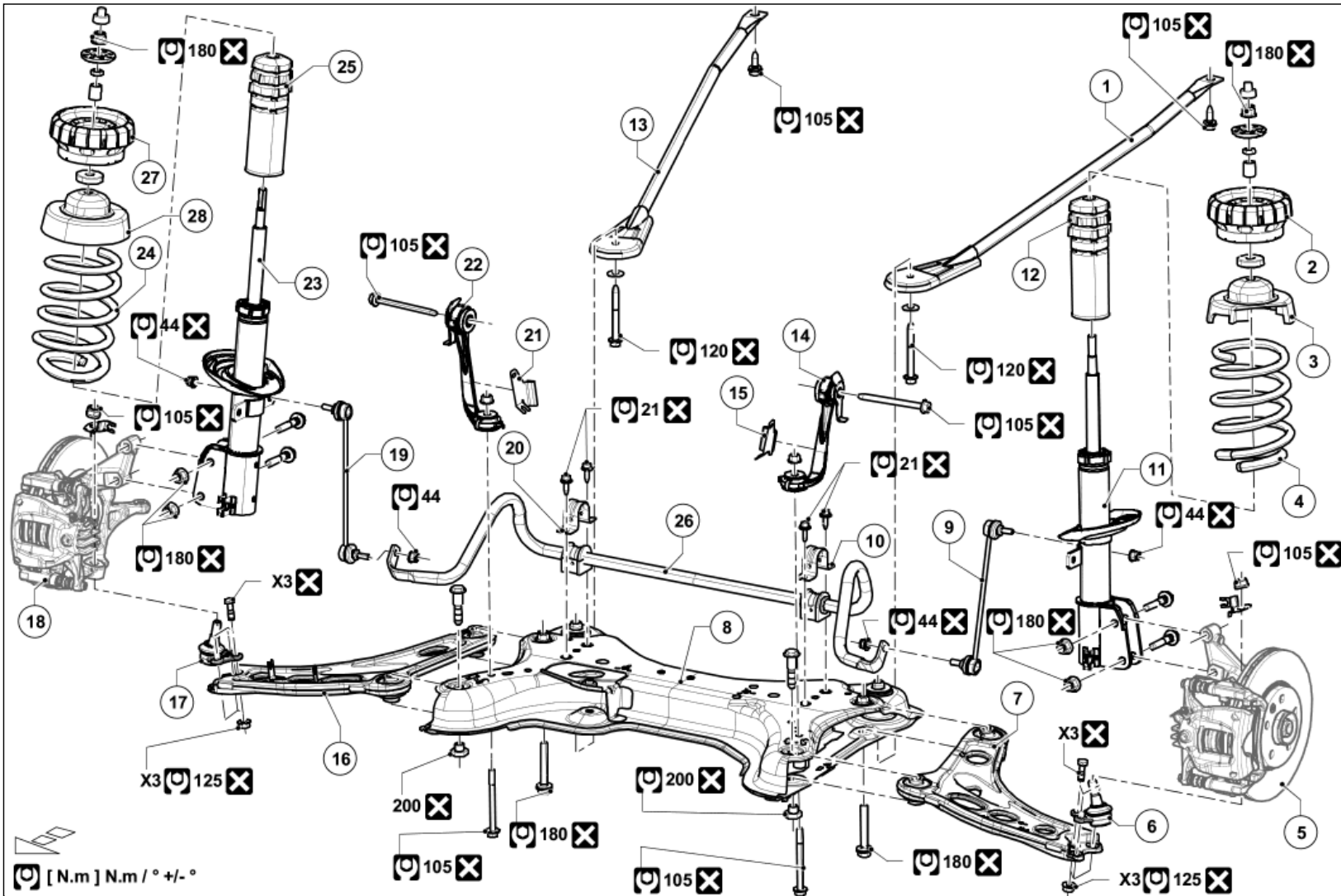


Note, one or more warnings are present in this procedure



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - (see 31A, [Front axle components, Front axle components: Precautions for the repair](#)).
 - [Vehicle: Precautions for the repair](#).



[Illustration key: Description Legend](#) .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Subframe tie-rod	Position the vehicle on a two-post lift Vehicle: Towing and lifting
2	Filter unit	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
3	Support cap	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
4	Spring	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
5	Front hub carrier assembly	(see 31A, Front axle components, Front hub carrier assembly: Exploded view)
6	Lower ball joint	Ball-joint uncoupling tool : Use
7	Front driveshaft lower arm	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
8	Front axle subframe	(see Front axle subframe: Removal - Refitting)
9	Front anti-roll bar tie rod	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
10	Anti-roll bar clamp	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
11	Shock absorber	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
12	Impact stop	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
13	Subframe tie-rod	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
14	Strut subframe mounting	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
15	Wheel speed sensor holder	
16	Front driveshaft lower arm	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
17	Lower ball joint	Ball-joint uncoupling tool : Use
18	Front hub carrier assembly	(see 31A, Front axle components, Front hub carrier assembly: Exploded view)
19	Front anti-roll bar tie rod	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
20	Anti-roll bar clamp	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
21	Wheel speed sensor holder	
22	Strut subframe mounting	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
23	Shock absorber	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
24	Spring	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
25	Impact stop	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
26	Front anti-roll bar	Position the vehicle on a two-post lift Vehicle: Towing and lifting .
27	Filter unit	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)
28	Support cap	(see 31A, Front axle components, Front shock absorber and spring: Removal - Refitting)



FRONT AXLE SUBFRAME: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

component jack

safety strap(s)

CAUTION



- In order to not damage the brake hose:
 - do not tension the hose,
 - do not twist the hose,
 - check that there is no contact with the surrounding components.

CAUTION



- In order to prevent irreversible damage to the front hub bearing:
 - Do not loosen or tighten the driveshaft nut when the wheels are on the ground.
 - Do not place the vehicle with its wheels on the ground when the driveshaft has been loosened or removed.

WARNING



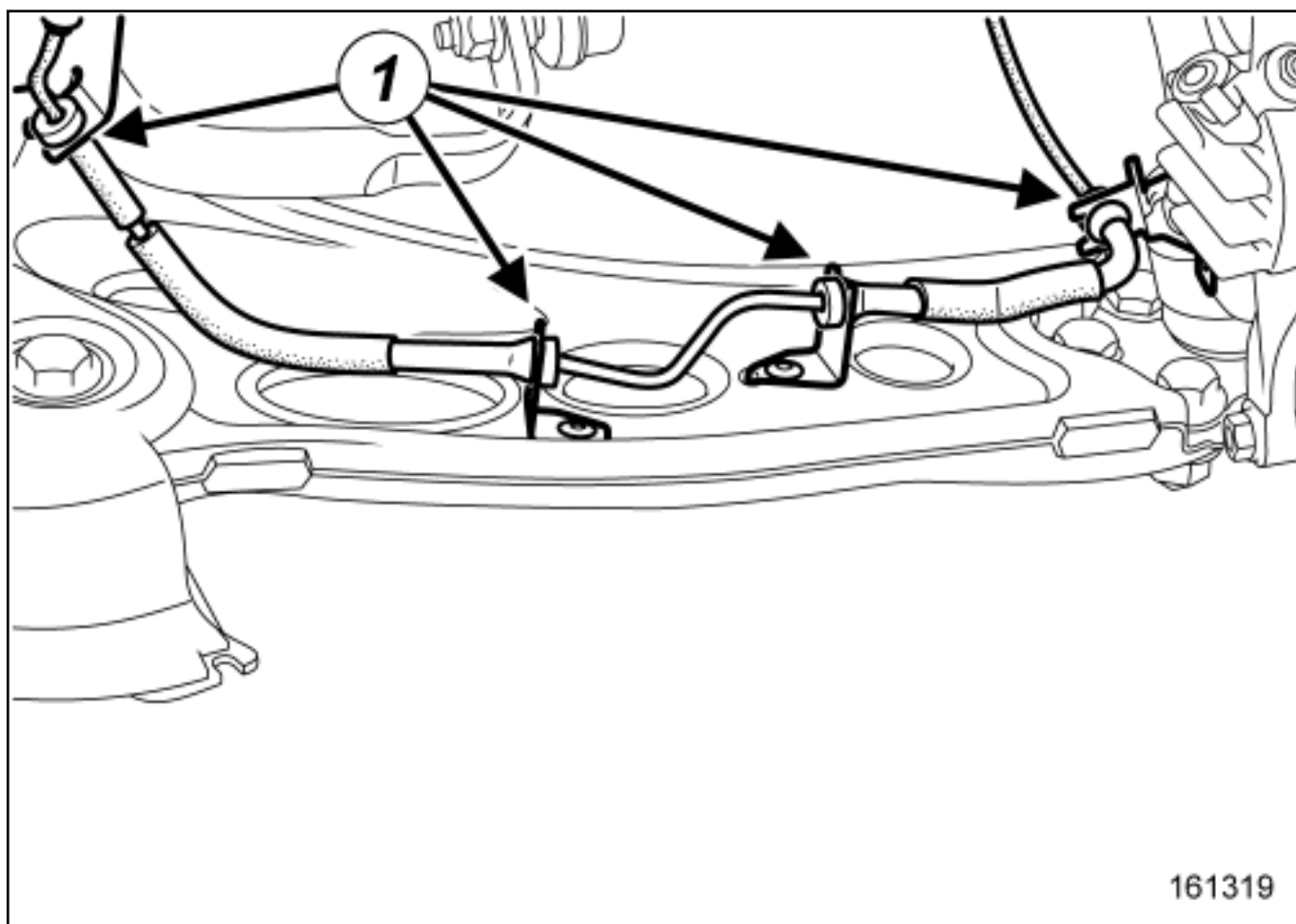
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

- Location and specifications (tightening torques, parts always to be replaced, etc.):
 - [\(see 31A, Front axle components, Front axle assembly: Exploded view\)](#) ,
 - [Steering assembly: Exploded view](#) ,
 - [\(see 31A, Front axle components, Front hub carrier assembly: Exploded view\)](#) ,
 - [Engine-gearbox unit support assembly: Exploded view](#) .

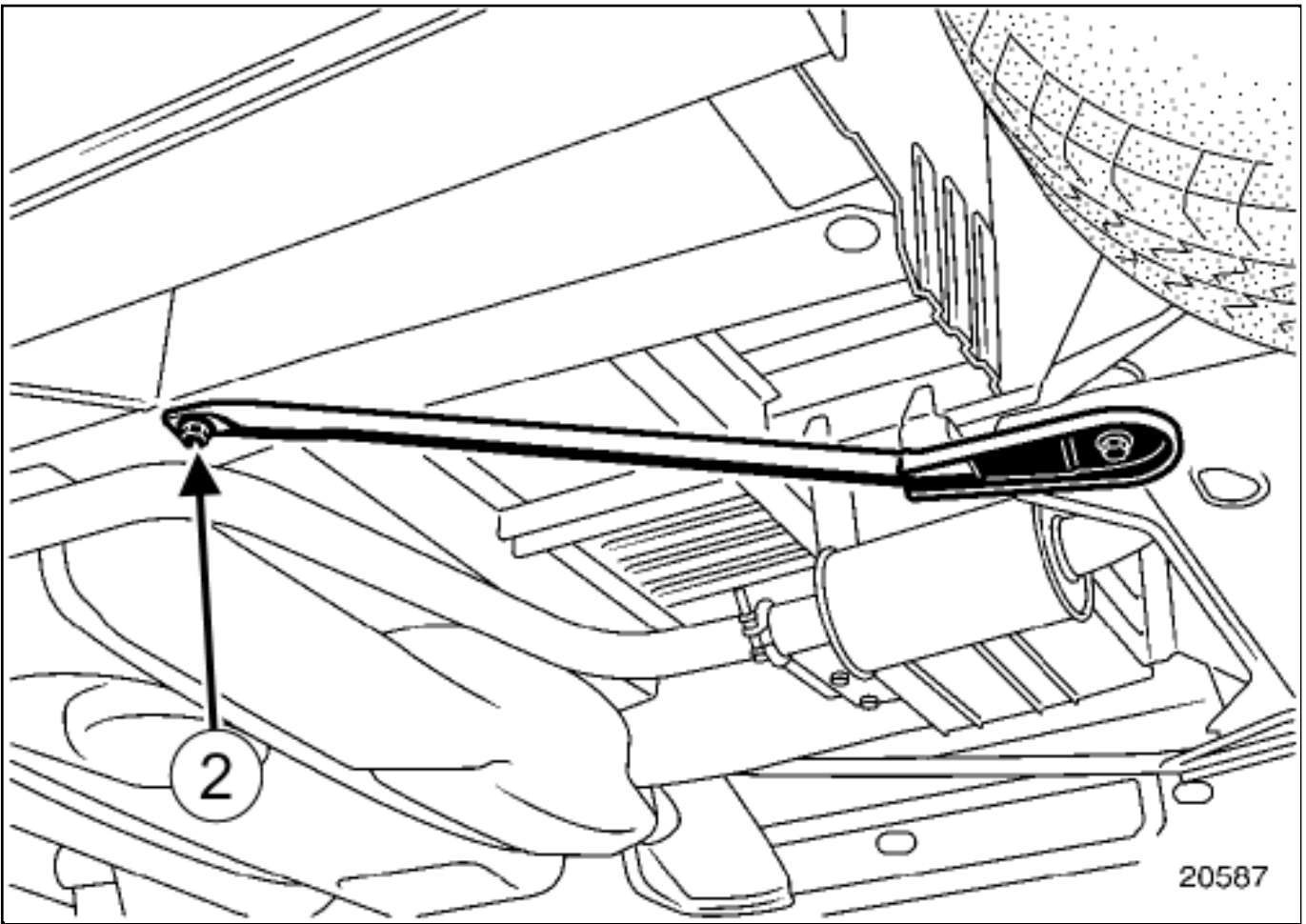
1. REFITTING PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove:
 - the front wheels ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) ,
 - the engine undertray bolts,
 - the engine undertray,
 - the lower nuts of the anti-roll bar tie-rods.

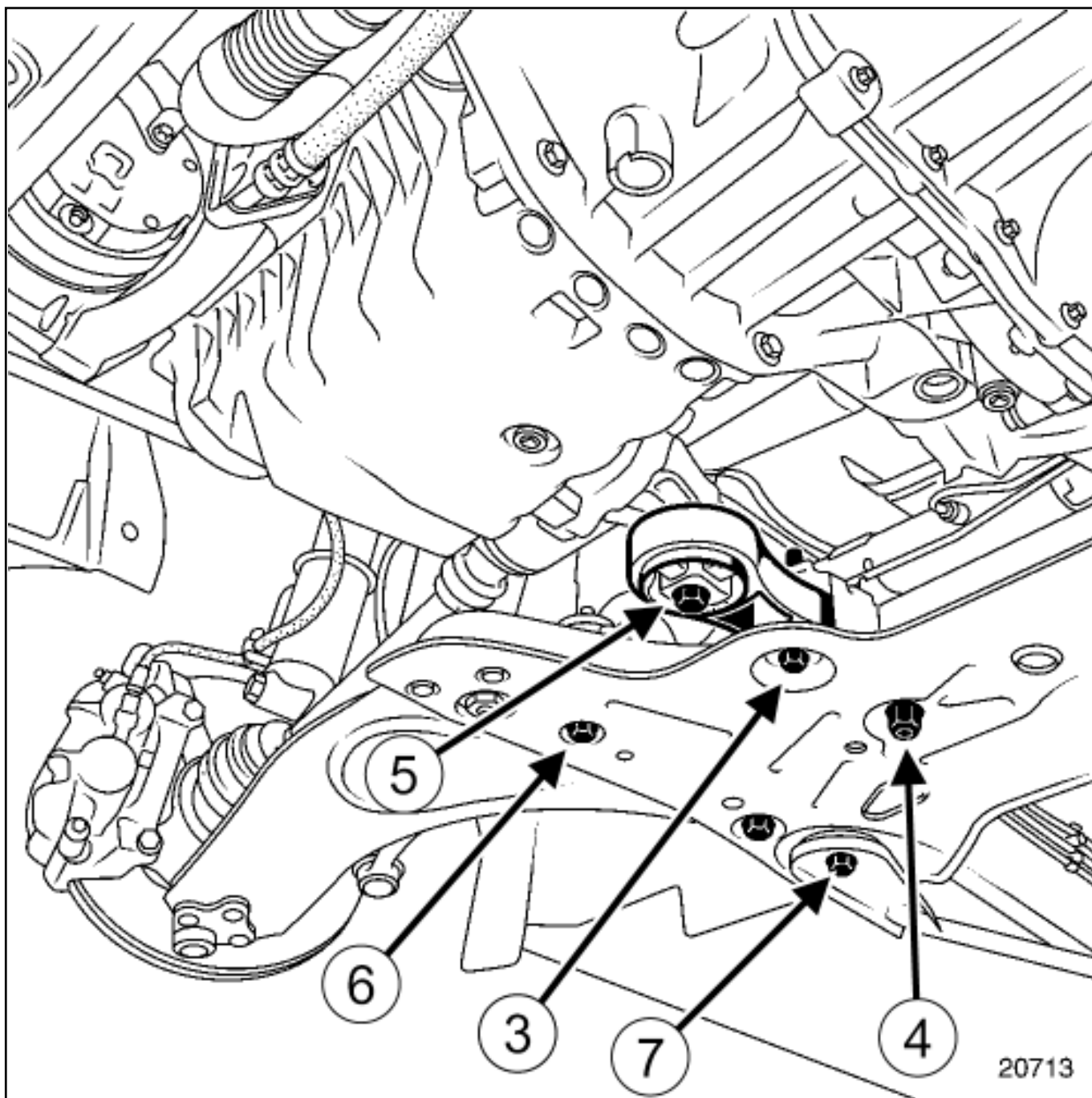
2. REMOVAL OPERATION



- Unclip the wiring from the front wheel speed sensor at (1) .



■ Unscrew the rear bolts(2) on the subframe reinforcement bars.



■ Remove:

- the engine tie-bar bolt(3) ,
- the steering box bolts(4) .

■ Loosen the engine tie-bar bolt(5) .

■ Rotate the engine tie-bar.

■ Attach the steering box to the body.

■ Position a component jack under the subframe.

■ Fit a safety strap(s).

Remove:



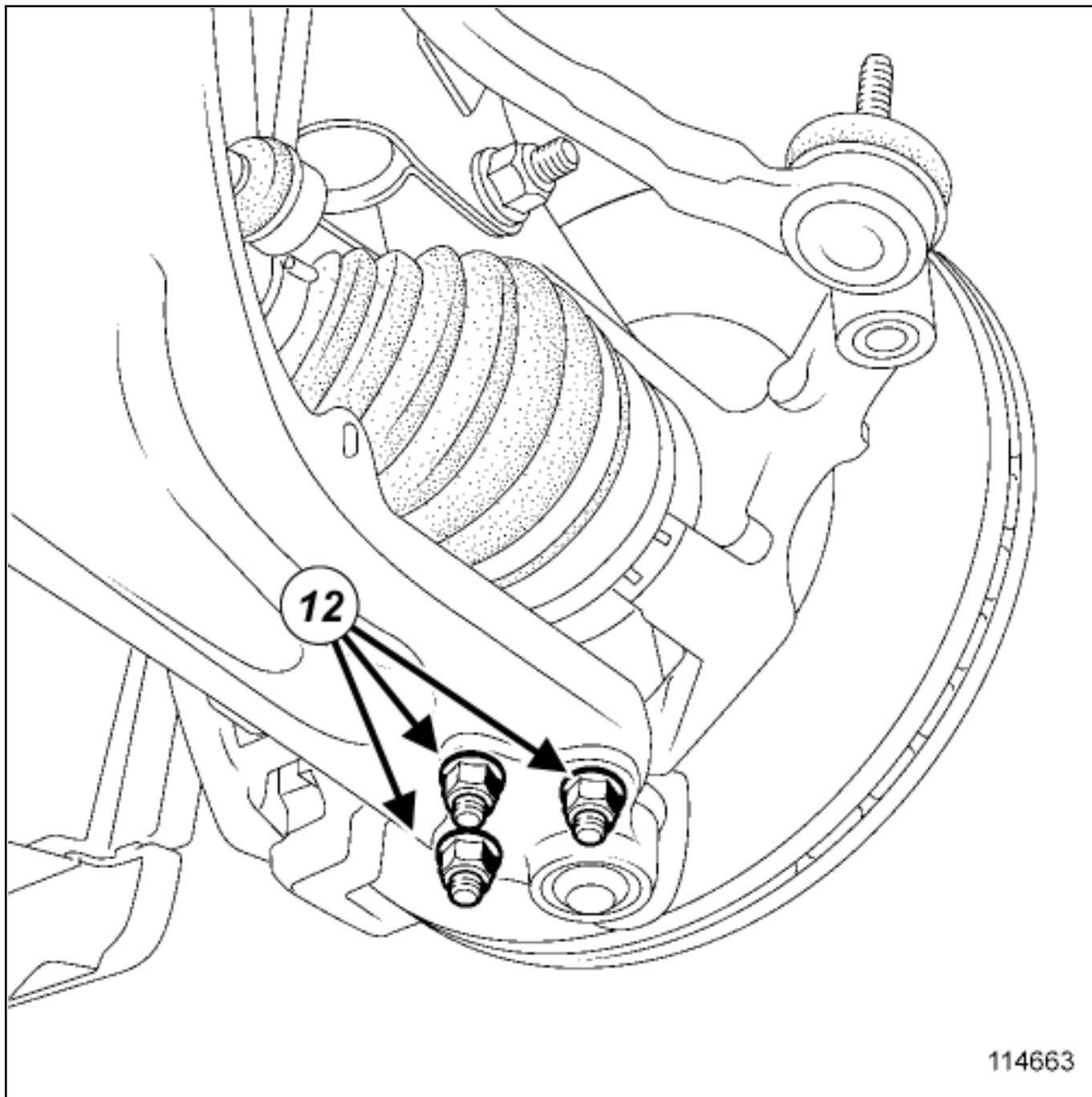
the subframe front bolts(6) ,



the subframe rear bolts(7) .

Pivot the reinforcement bars towards the outside.

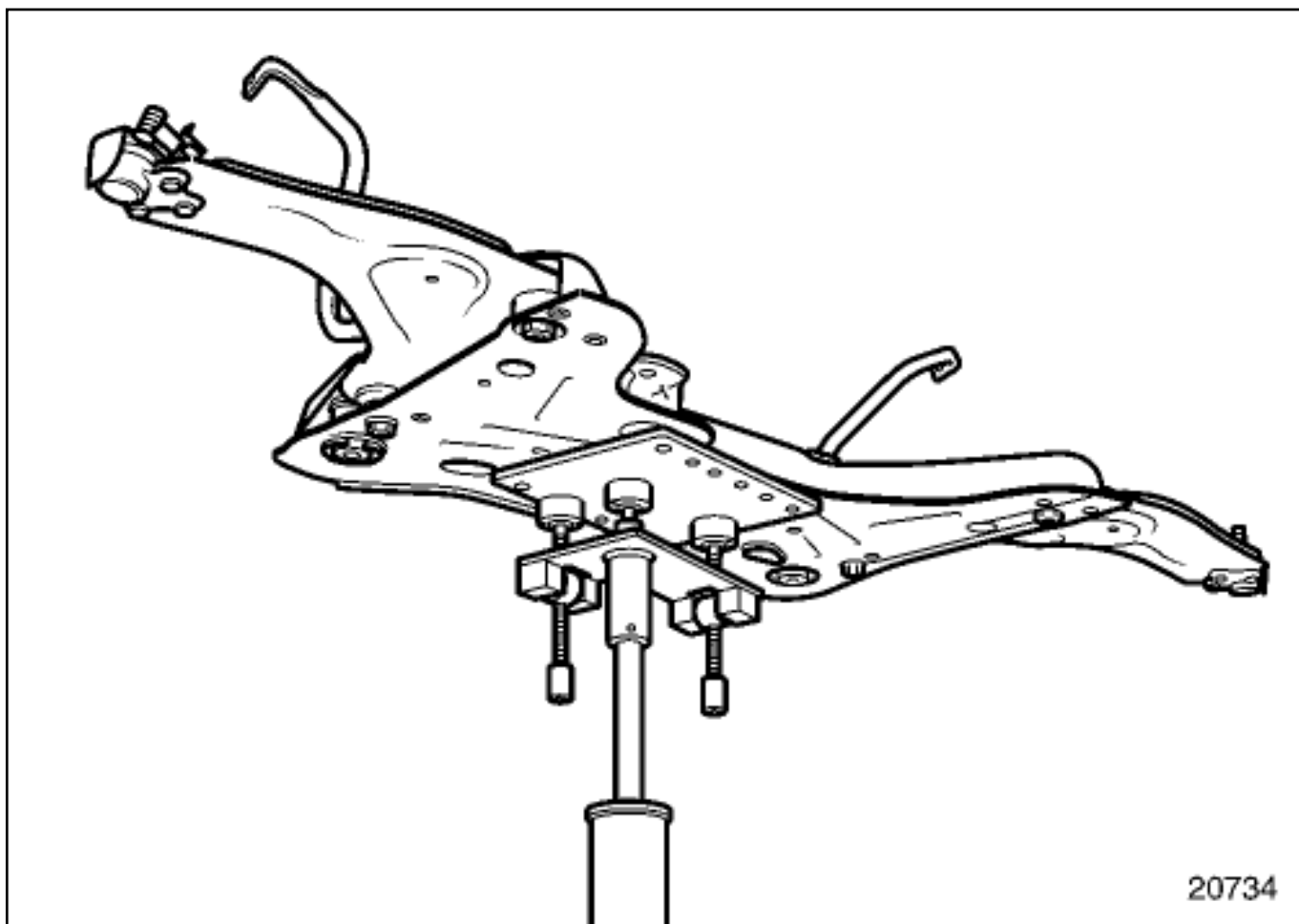
Remove the subframe by pivoting the anti-roll bar.



114663

Lower the front axle subframe with the component jack.

Remove the bolts(12) .



Remove:

-
- the sub-frame fittings,
- the anti-roll bar([see 31A, Front axle components, Front axle assembly: Exploded view](#)),
- the lower arms([see 31A, Front axle components, Front axle assembly: Exploded view](#)).

REFITTING

1. REFITTING OPERATION

Refit ([see 31A, Front axle components, Front axle assembly: Exploded view](#)):

■

the lower arms,

the anti-roll bar.

Fit the subframe on the component jack.

Refit the lower ball joints on the lower arms.

Torque tighten the lower ball joints bolts on the lower arms([see 31A, Front axle components, Front axle assembly: Exploded view](#)) .

Refit:

the subframe rear bolts,

the subframe front bolts.

Note:



Ensure that the subframe is correctly positioned with the body and the rubber mounting bushes.

Clip the wheel speed sensor wiring on the lower arm.

Remove the component jack and the safety strap(s).

Refit:

the steering box bolts,

the engine tie-bar.

Torque tighten:

-
- the steering box bolts [Steering assembly: Exploded view](#) ,
- the engine tie-bar bolts [Engine-gearbox unit support assembly: Exploded view](#) ,
- the subframe front bolts [\(see 31A, Front axle components, Front axle assembly: Exploded view\)](#) ,
- the subframe rear bolts [\(see 31A, Front axle components, Front axle assembly: Exploded view\)](#) .

Refit the anti-roll bar linkage lower nuts.

Torque tighten the anti-roll bar return linkage lower nuts [\(see 31A, Front axle components, Front axle assembly: Exploded view\)](#) .

2. FINAL OPERATION

Refit:

-
- the front wheels [\(see 31A, Front axle components, Front hub carrier assembly: Exploded view\)](#) ,
- the engine undertray.

Connect the battery [Battery: Removal - Refitting](#) .

Check the axle geometry [Axle assemblies: Check](#) .

Adjust the front axle, if necessary [Front axle system: Adjustment](#) .



Repair-13x02x02-01x37-2-39-1.xml



XSL version : 3.02 du 22/07/11

FRONT AXLE SYSTEM: ADJUSTMENT

Equipment required

Diagnostic tool

flywheel immobiliser

1. PREPARATION FOR ADJUSTMENT

Note:



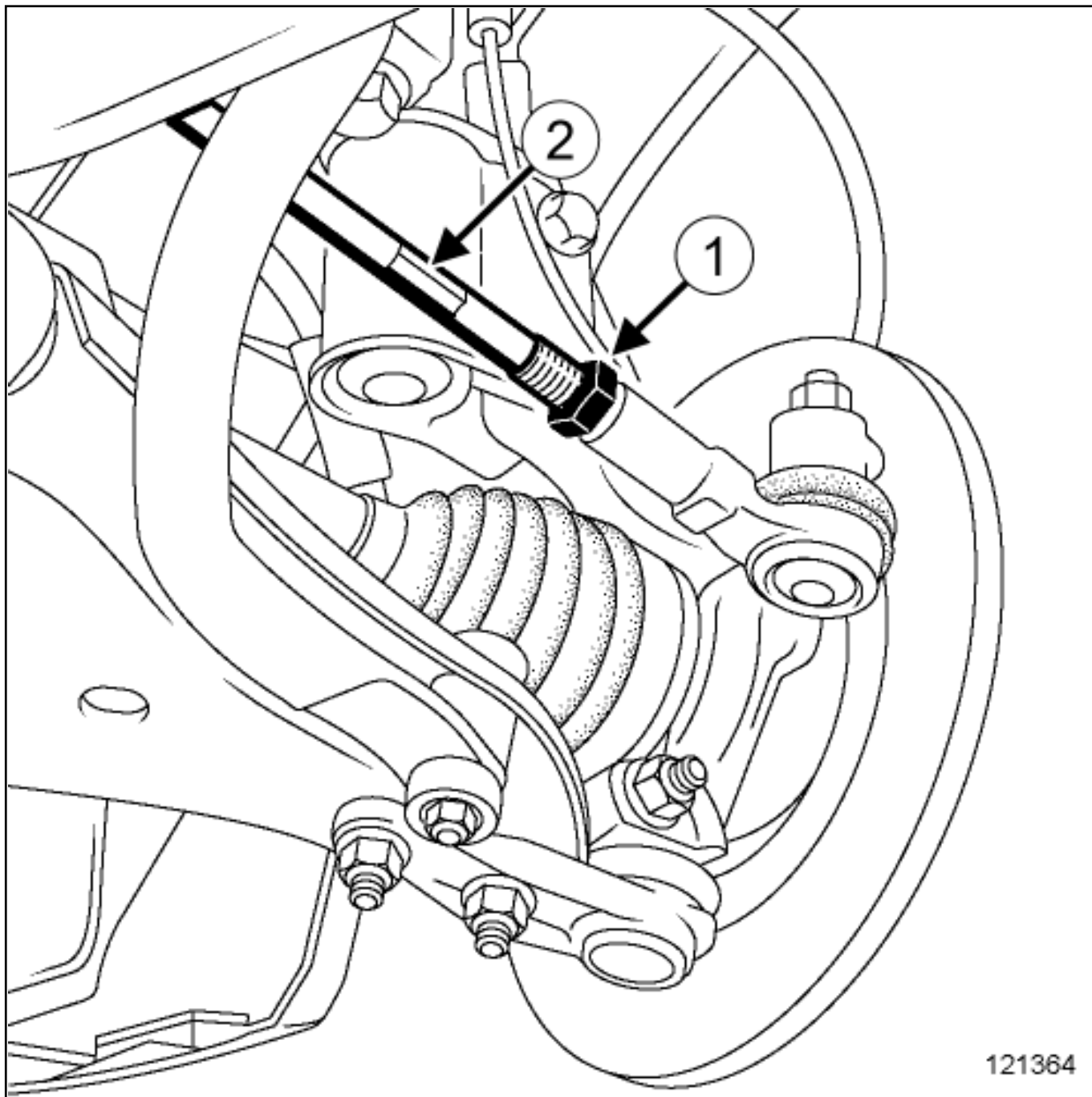
- Throughout the axle assembly checking and adjustment process:
 - the Renault card must remain in the reader,
 - do not press the "START" button.

- Check the geometry ([see 30A, General information, Axle assemblies: Check](#)).

2. ADJUSTMENT OPERATION

1- WHEEL ALIGNMENT

- Set the wheels straight ahead.
- Lock the steering wheel using a flywheel immobiliser.



121364

- Loosen the wheel alignment adjustment lock nut(1) .
- Turn the track rod sleeve(2) to the required value.
- After adjustment, torque tighten the wheel alignment adjustment lock nuts [Steering assembly: Exploded view](#) .

2- CASTOR ANGLE

- Not adjustable.

3- CAMBER

❑ Not adjustable.

4-PIVOT

❑ Not adjustable.

ELECTRONIC STABILITY PROGRAM(Yes)

❑ Calibrate the steering wheel angle sensor.

❑ Apply the after repair procedure:

- connect the Diagnostic tool,
- select "Braking computer",
- go to repair mode,
- display the "Before/after repair procedure" for the computer selected,
- select "Steering wheel angle sensor" in the "List of components controlled by this computer" section,
- carry out the operations described in the "After repair procedure" section.



Repair-13x02x01-01x67-2-13-1.xml



XSL version : 3.02 du 22/07/11

FRONT BENCH SEAT ASSEMBLY: EXPLODED VIEW

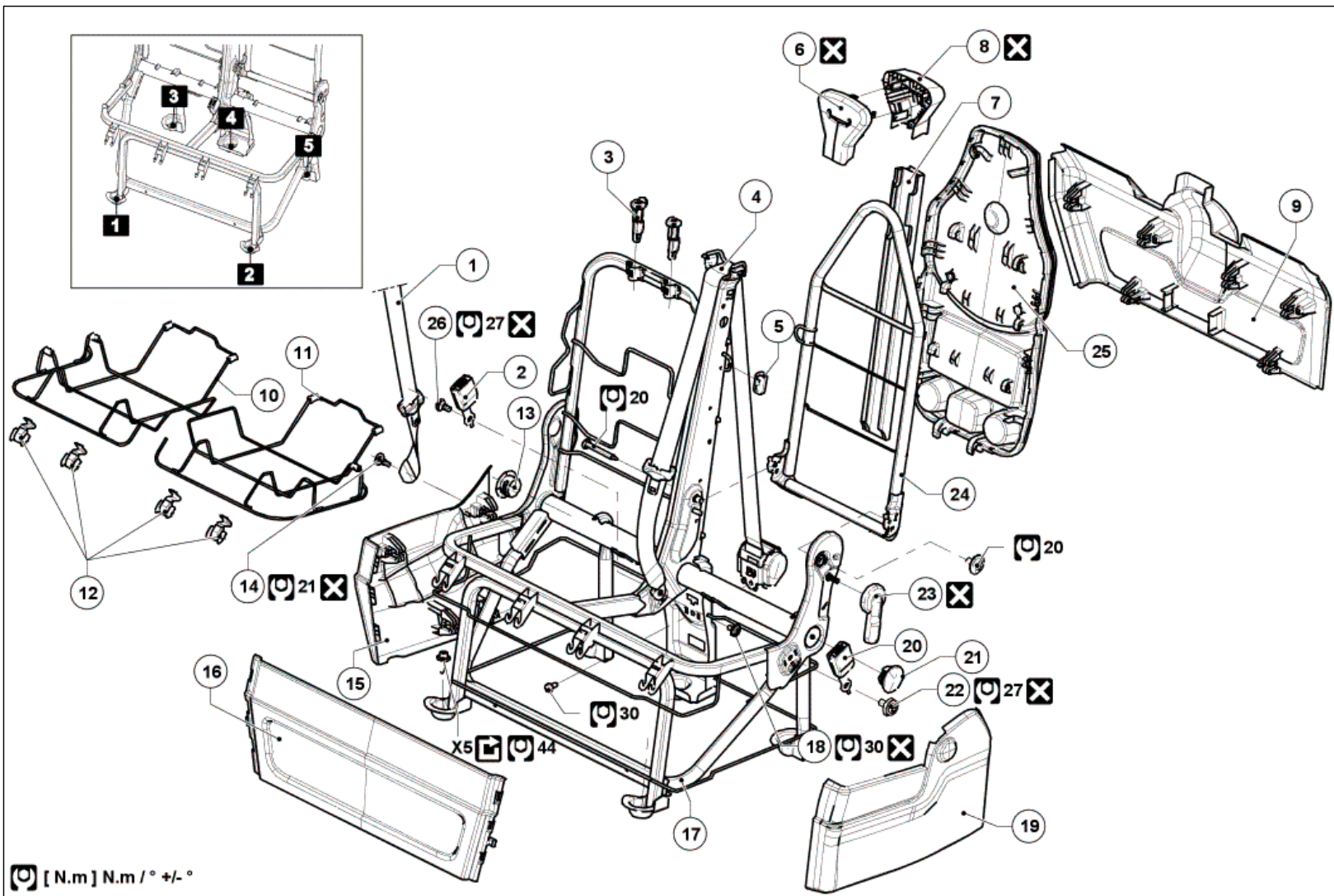


Note, one or more warnings are present in this procedure



WARNING

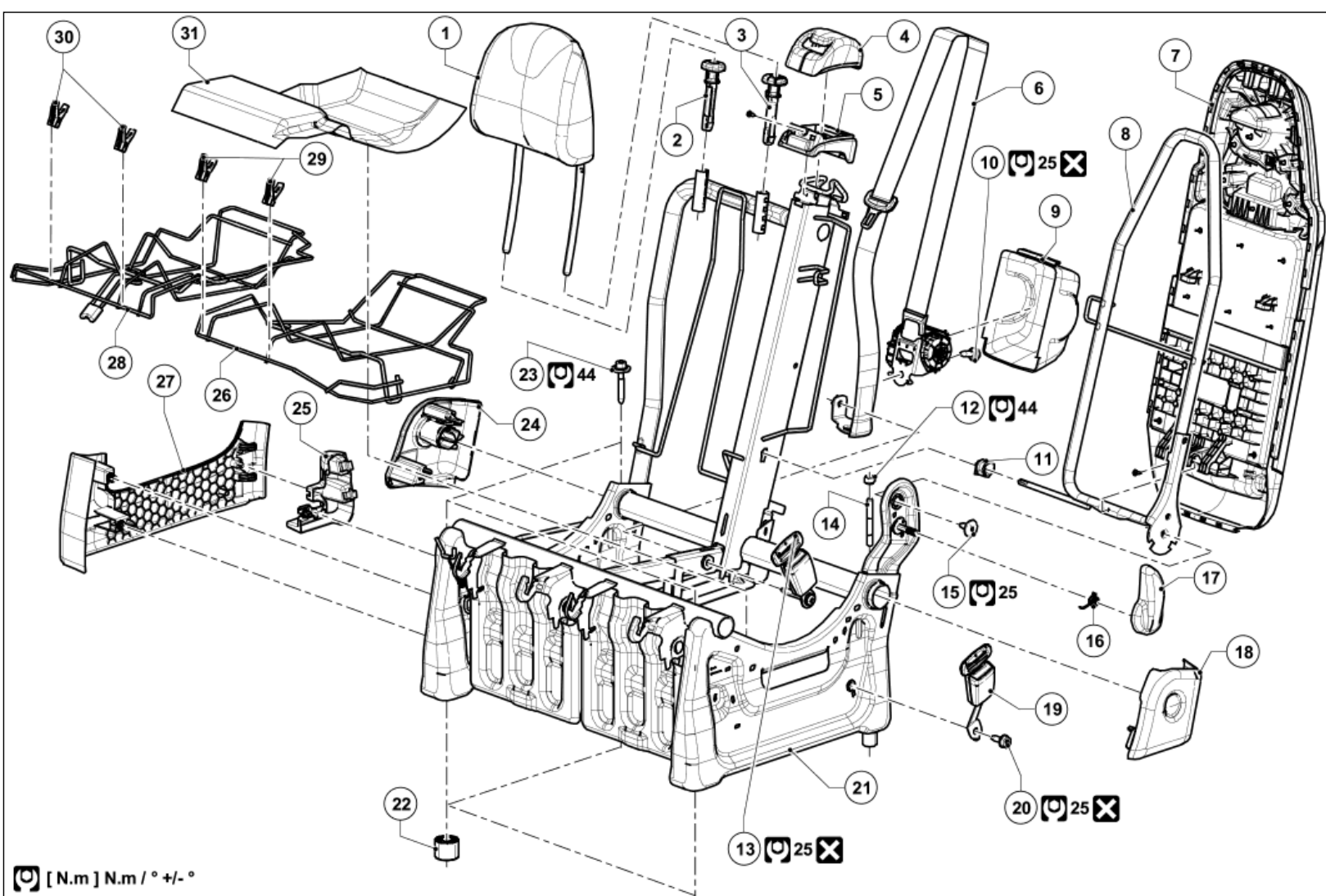
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Front bench seat base foam	
2	Front bench seat base cover	
3	Front bench seatback cover	
4	Front bench seatback foam	



[Illustration key: Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Front bench seat headrest	Front headrest: Removal - Refitting
2	Front bench seat headrest guide	Front seat headrest guide: Removal - Refitting
3	Front bench seat headrest guide	Front seat headrest guide: Removal - Refitting
4	Seat belt strap guide of the front bench seat	
5	Seat belt strap guide of the front bench seat support	
6	Seat belt of front bench seat	Front side seat belt: Removal - Refitting
7	Front bench seatback casing	
8	Front bench seatback frame	
9	Seat belt inertia reel housing of the front bench seat	
10	Front bench seat belt bolt	
11	Front bench seatback stop	
12	Nut	
13	Seat belt buckle of the front bench seat	Front seat belt buckle: Removal - Refitting
14	Clip pins	
15	Frame screw	
16	Resort recall	
17	Front bench seatback angle control	
18	Front bench seat base interior casing	
19	Seat belt buckle of the front bench seat	Front seat belt buckle: Removal - Refitting
20	Front bench seat belt stalk bolt	
21	Front bench seat frame	
22	Spacer seat	
23	Bolt of front bench seat on the body	
24	Front bench seat base exterior casing	
25	Housing bracket	
26	Front bench seat base frame	
27	Front bench seat base exterior casing	
28	Front bench seat base frame	
29	Front bench seat base clips	
30	Front bench seat base clips	



Repair-70x07x01-02x50-1-5-1.xml



XSL Version : 3.02 du 22/07/11

FRONT BRAKE CALLIPER ASSEMBLY: EXPLODED VIEW

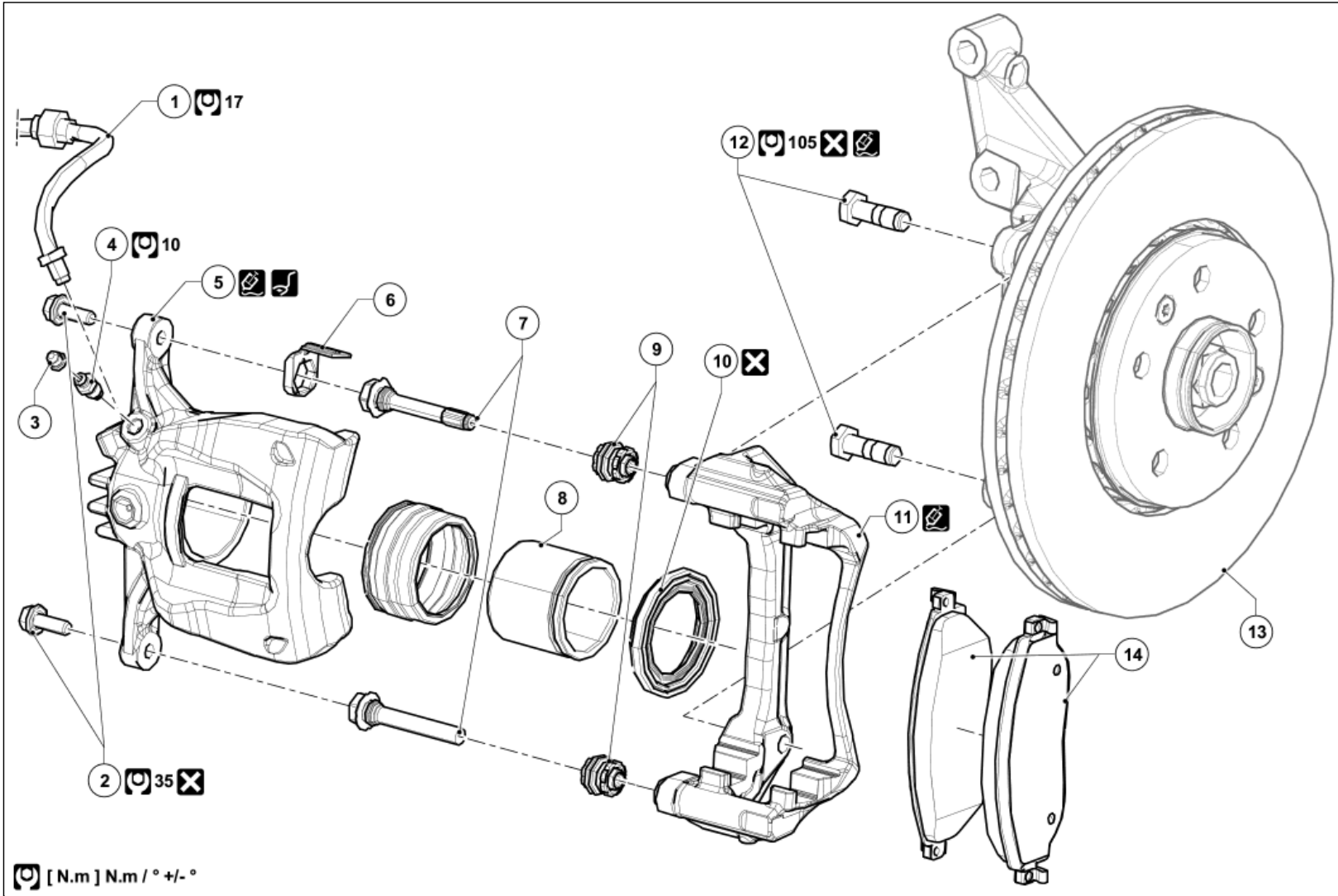


Note, one or more warnings are present in this procedure



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - [Brake circuit: Precautions for the repair](#) ,
 - [Vehicle: Precautions for the repair](#) .



[N.m] N.m / ° +/- °

Illustration key: [Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Front brake hose	Position the vehicle on a two-post lift Vehicle: Towing and lifting
2	Brake calliper bolts	(see 31A, Front axle components, Front brake calliper: Removal - Refitting)
3	Bleeder cap	
4	Brake calliper bleed screw	
5	Brake calliper	(see 31A, Front axle components, Front brake calliper: Removal - Refitting) BRAKE CLEANER Vehicle: Parts and consumables for the repair (Fre. 1190-01)
6	Brake pad wear warning tab	
7	Brake calliper guide pins	
8	Brake calliper piston	
9	Brake calliper guide pin gaiter	
10	Dust seal of brake calliper piston	
11	Brake calliper mounting	(see 31A, Front axle components, Front brake calliper mounting: Removal - Refitting) BRAKE CLEANER Vehicle: Parts and consumables for the repair
12	Brake calliper mounting bolts	HIGH STRENGTH THREAD LOCK Vehicle: Parts and consumables for the repair
13	Front brake disc	(see 31A, Front axle components, Front hub carrier assembly: Exploded view)
14	Brake pads	(see 31A, Front axle components, Front brake pads: Removal - Refitting)



Repair-13x03x03x09-02x50-1-9-1.xml



FRONT BRAKE CALLIPER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Brake calliper piston return tool.

Fre. 1190-01

Equipment required

pedal press

indelible pencil

Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 31A, Front axle components, Front brake calliper assembly: Exploded view\)](#) and[\(see 31A, Front axle components, Front hub carrier assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - [\(see 31A, Front axle components, Front axle components: Precautions for the repair\)](#) ,
 - [Vehicle: Precautions for the repair](#) .



CAUTION

- In order not to damage the brake hose:
 - do not tension the hose,
 - do not twist the hose,
 - check that there is no contact with the surrounding components.



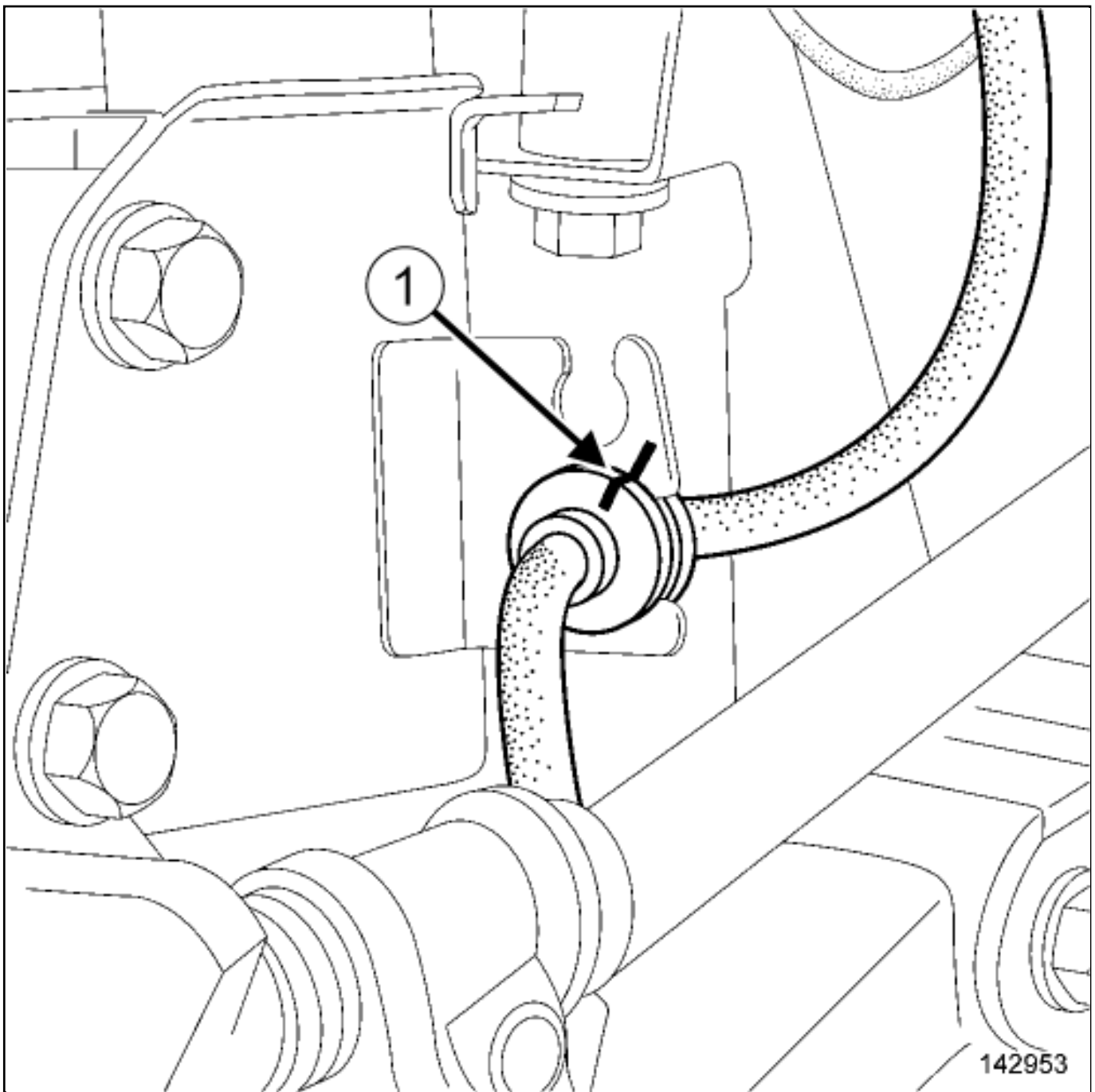
CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- ❑ Position a pedal press on the brake pedal to limit the outflow of brake fluid.
- ❑ Unlock the steering column.
- ❑ Remove the front wheels ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .



- ❑ Set the wheels straight ahead.
- ❑ Mark the position of the front brake hose cap(1) on the shock absorber base using an indelible pencil.
- ❑ Unclip the front brake hose cap(1) from the shock absorber base.

2. REMOVAL OPERATION

- ❑ Undo the front brake hose union on the front brake calliper([see 31A, Front axle components, Front brake calliper assembly: Exploded view](#)) .

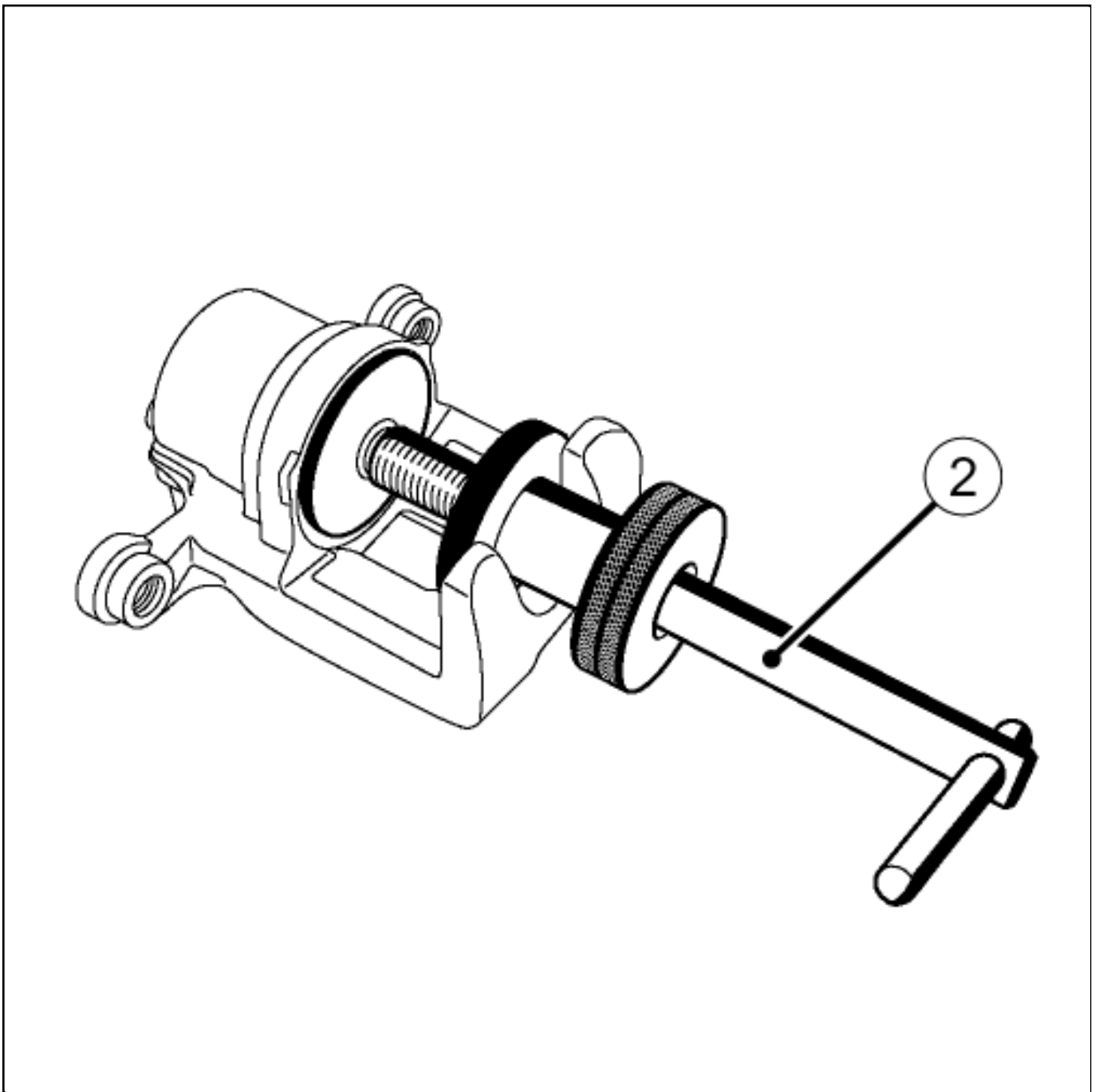
- Remove [\(see 31A, Front axle components, Front brake calliper assembly: Exploded view\)](#) :
 - the guide pin bolts,
 - the front brake calliper from the hose,
 - the front brake calliper.

REFITTING

1. REFITTING PREPARATION OPERATION

- Check:
 - the condition of the calliper gaiter,
 - the condition of the calliper if it has any deep scratches or cracks.
- Replace any faulty parts [\(see 31A, Front axle components, Front brake calliper: Repair\)](#) .
- Clean using a wire brush and brake cleaner [Vehicle: Parts and consumables for the repair](#) :
 - the front brake calliper,
 - the front brake calliper mounting.

2. REFITTING OPERATION



- Push back the front brake calliper pistons to the bottom of their housings using the tool Brake calliper piston return tool.(Fre. 1190-01) (2) .
- Proceed in the reverse order to removal.
- Refit the front hose union on the front brake calliper(see 31A, Front axle components, Front brake calliper assembly: Exploded view) .
- Set the wheels straight ahead.
- Clip the front brake hose cap onto the base of the shock absorber by aligning the marks made at(1) .



WARNING

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



Repair-13x03x03x05-01x37-1-33-1.xml



FRONT BRAKE CALLIPER: REPAIR



Note, one or more warnings are present in this procedure



Special tooling required

Brake calliper piston return tool.

Fre. 1190-01

Equipment required

pedal press

WARNING



Consult the safety and cleanliness advice and operation recommendations before carrying out any repair ([see 31A, Front axle components, Front axle components: Precautions for the repair](#)).

CAUTION



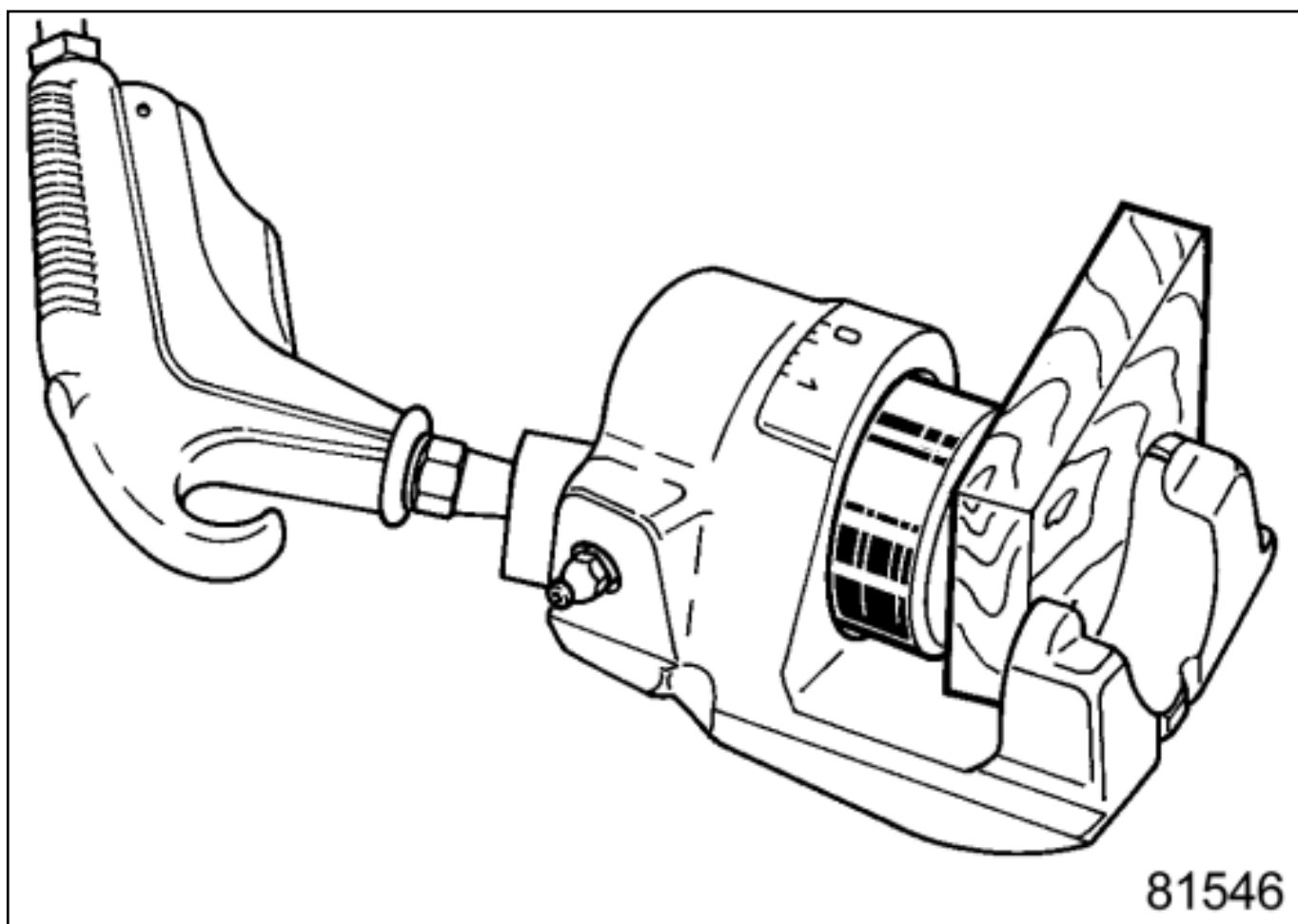
Prepare for the flow of fluid, and protect the surrounding components.

REPAIR

1. REPAIR PREPARATION OPERATION

- Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#) (02A, Lifting equipment)).
- Position the pedal press on the brake pedal to limit the outflow of brake fluid.
- Remove:
 - the front wheel ([Wheel: Removal - Refitting](#)),
 - the front brake calliper ([Front brake calliper: Removal - Refitting](#)).

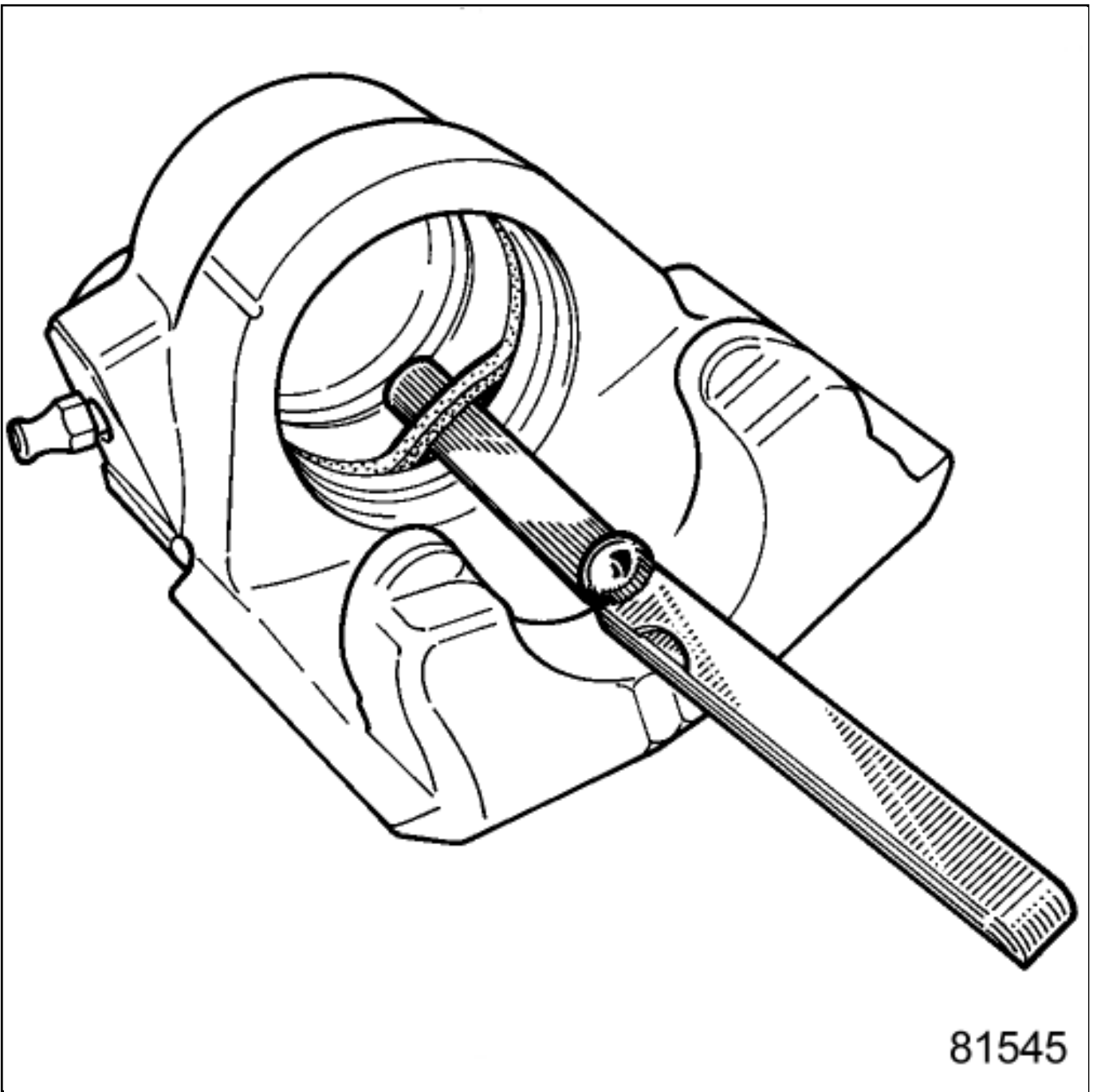
2. REPAIR OPERATION FOR PART CONCERNED



Remove the piston using compressed air, making sure to insert a wooden block between the calliper and the piston to avoid damaging it. Any trace of impact on the end panel will render the piston unfit for use.



Remove the dust seal.



Remove the rectangular section seal from the calliper groove with a round edged spring blade (feeler gauge).



CAUTION

The whole calliper must systematically be replaced if there are any scratches in the calliper bore.



Clean the parts using methylated spirit.

REFITTING

1. REFITTING OPERATION FOR PART CONCERNED



Refit:

-
- the new rectangular section seal in the calliper groove,
- the piston (after having smeared it with the grease supplied in the repair kit) using the Brake calliper piston return tool. ([Fre. 1190-01](#)),
- the dust seal.

2. FINAL OPERATION.



Refit:

-
- the brake calliper [Front brake calliper: Removal - Refitting](#),
- the front wheel [Wheel: Removal - Refitting](#).



Remove the pedal press.



WARNING

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



Bleed the brake circuit [Braking circuit: Bleed](#).



Repair-13x03x03x05-01x22-1-17-1.xml



XSL version : 3.02 du 22/07/11

FRONT BRAKE DISC: DESCRIPTION

1. PREPARATION OPERATION FOR CHECK

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

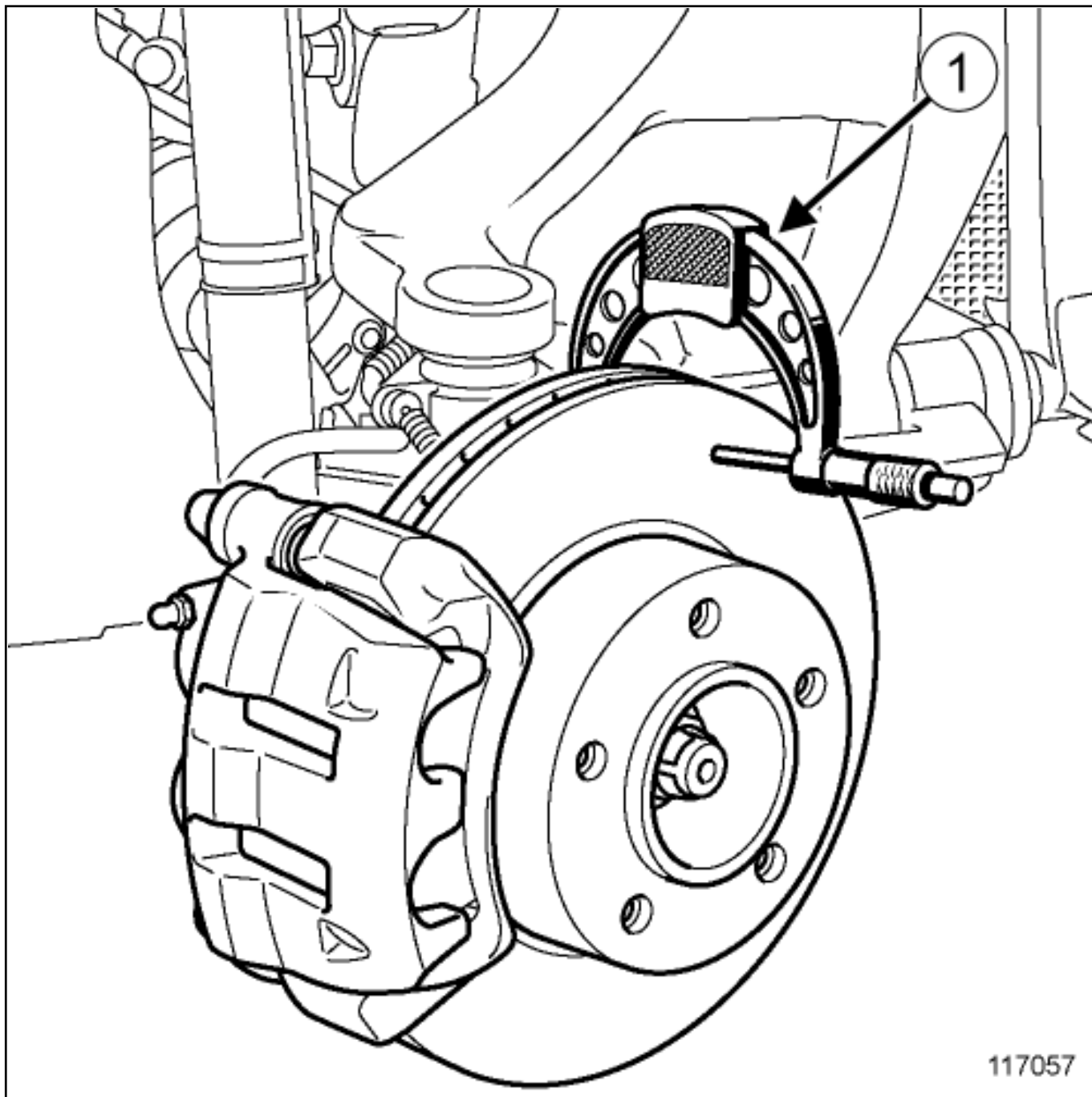
Remove the wheel in question [Wheel: Removal - Refitting](#) .

2. CHECKING OPERATION FOR PART CONCERNED



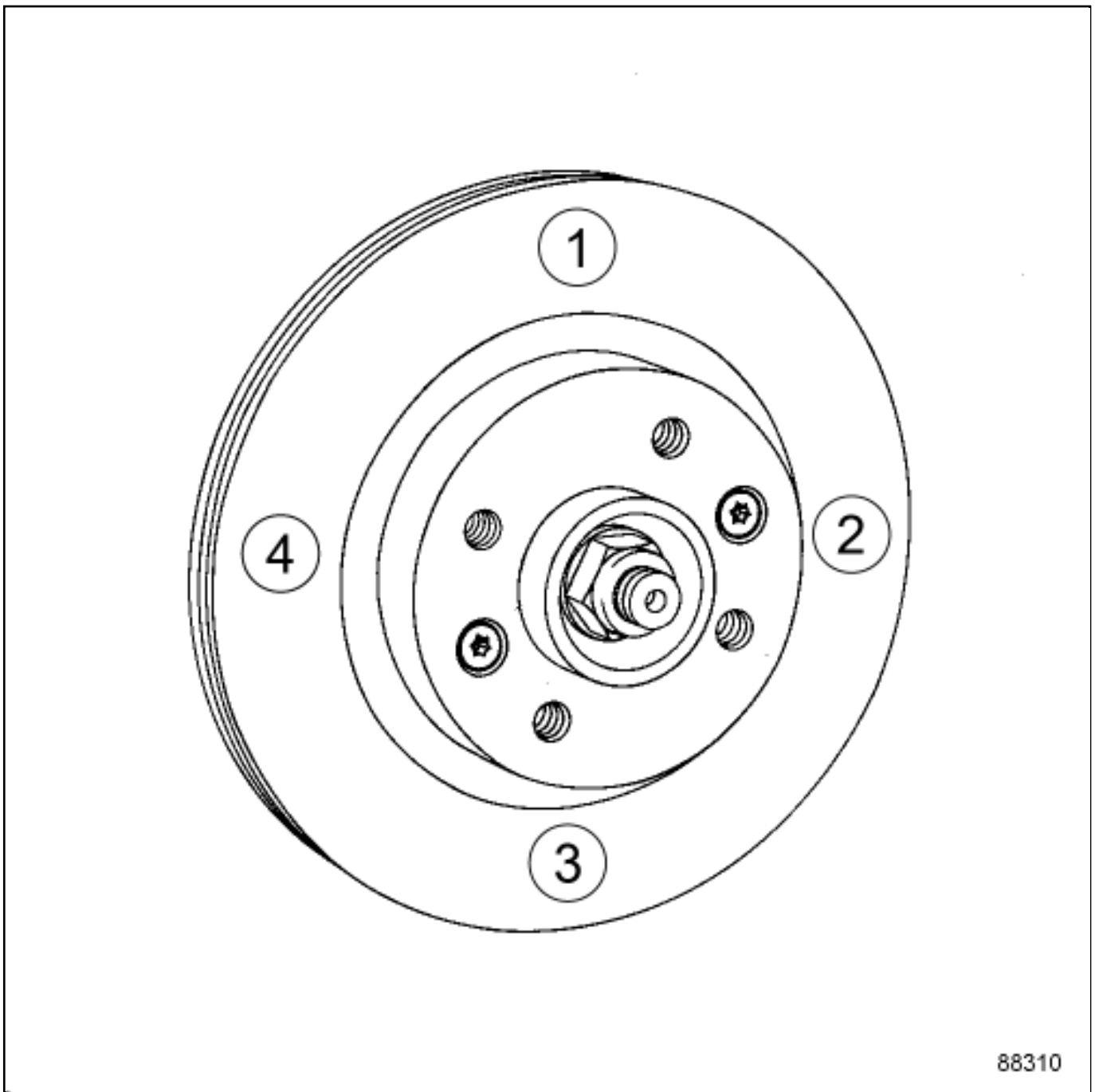
Note:

Use a Palmer type tool to check the thickness of the disc.



117057

Position the Palmer tool(1) to measure the disc thickness.



88310

Measure the thickness of the disc at 4 points in order (90° apart).

Compare the values with those recommended by the manufacturer(see **Brake: Specifications**) .

3. FINAL OPERATION

Replace the discs if necessary(see [31A, Front axle components, Front brake disc: Removal - Refitting](#)) .

Refit the wheel in question[Wheel: Removal - Refitting](#) .



Repair-13x03x03x03-02x21-1-25-1.xml



XSL version : 3.02 du 22/07/11

FRONT BRAKE DISC: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



The brake discs cannot be reground. If there is excessive wear or scratching, the brake discs must be replaced.

When replacing the pads or disc, the pads and disc on the opposite side must also be replaced.

Always replace the brake pads if the brake discs are being replaced [Front brake pads: Removal - Refitting](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

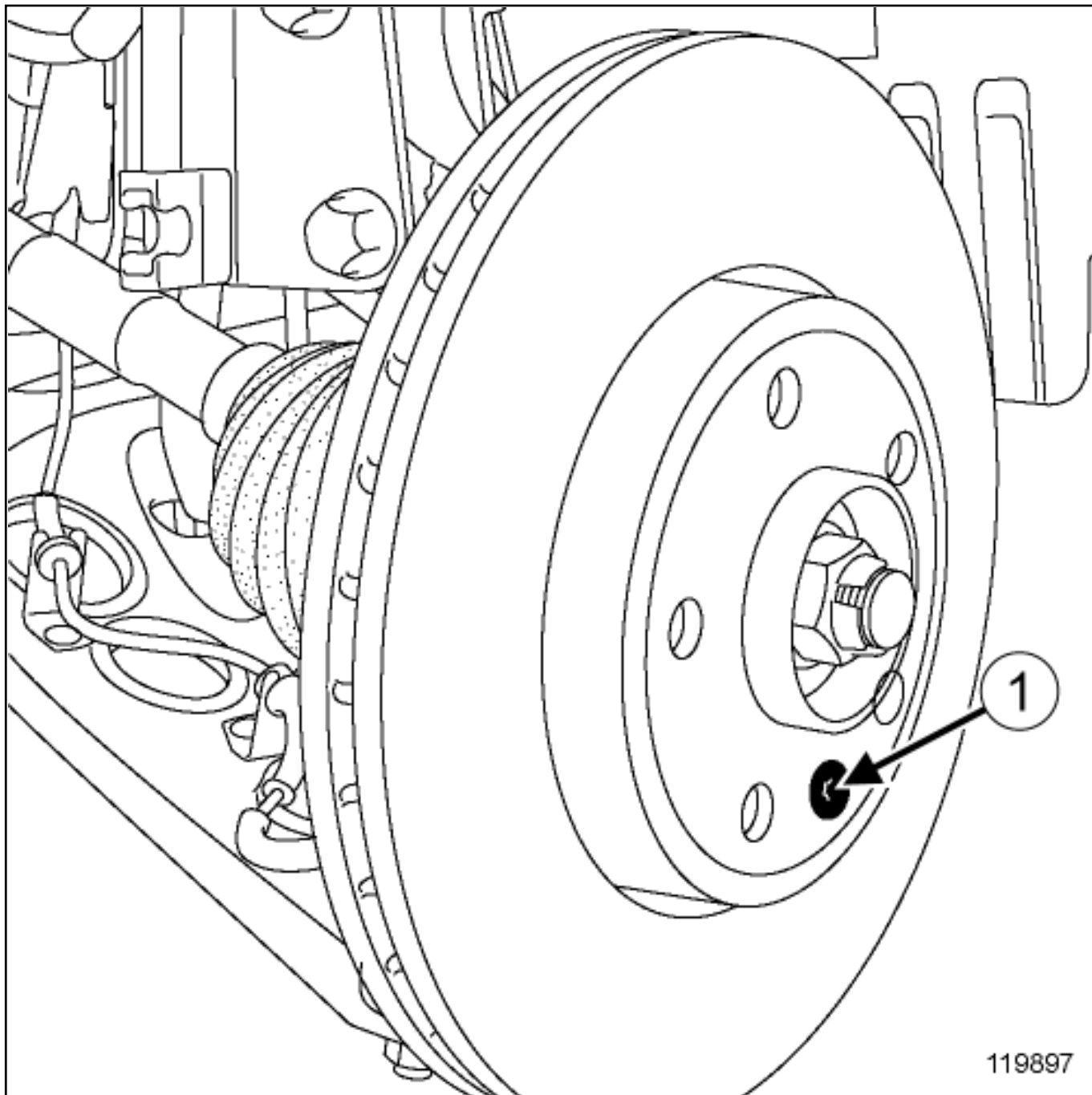
■ Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#)).

■ Remove:

- the front wheels [Wheel: Removal - Refitting](#) ,
- the front brake pads [Front brake pads: Removal - Refitting](#) ,
- the front brake calliper [Front brake calliper: Removal - Refitting](#) ,
-

the front calliper support [Front brake calliper mounting: Removal - Refitting](#) .

2. OPERATION FOR REMOVAL OF PART CONCERNED



Remove:

-
- the front brake disc bolt(1) ,
-
- the front brake disc.

Position the front brake disc on the hub.

Refit the front brake disc bolt.

Tighten the front brake disc bolt 21 Nm .

3. FINAL OPERATION.

Refit:

-
- the front brake calliper mounting [Front brake calliper mounting: Removal - Refitting](#) ,
- the front brake calliper [Front brake calliper: Removal - Refitting](#) ,
- the front brake pads [Front brake pads: Removal - Refitting](#) ,
- the front wheels [Wheel: Removal - Refitting](#) .



WARNING

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



Repair-13x03x03x03-01x37-1-20-1.xml



FRONT BRAKE HOSE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

pedal press



WARNING

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair ([see 31A, Front axle components, Front axle components: Precautions for the repair](#)).



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

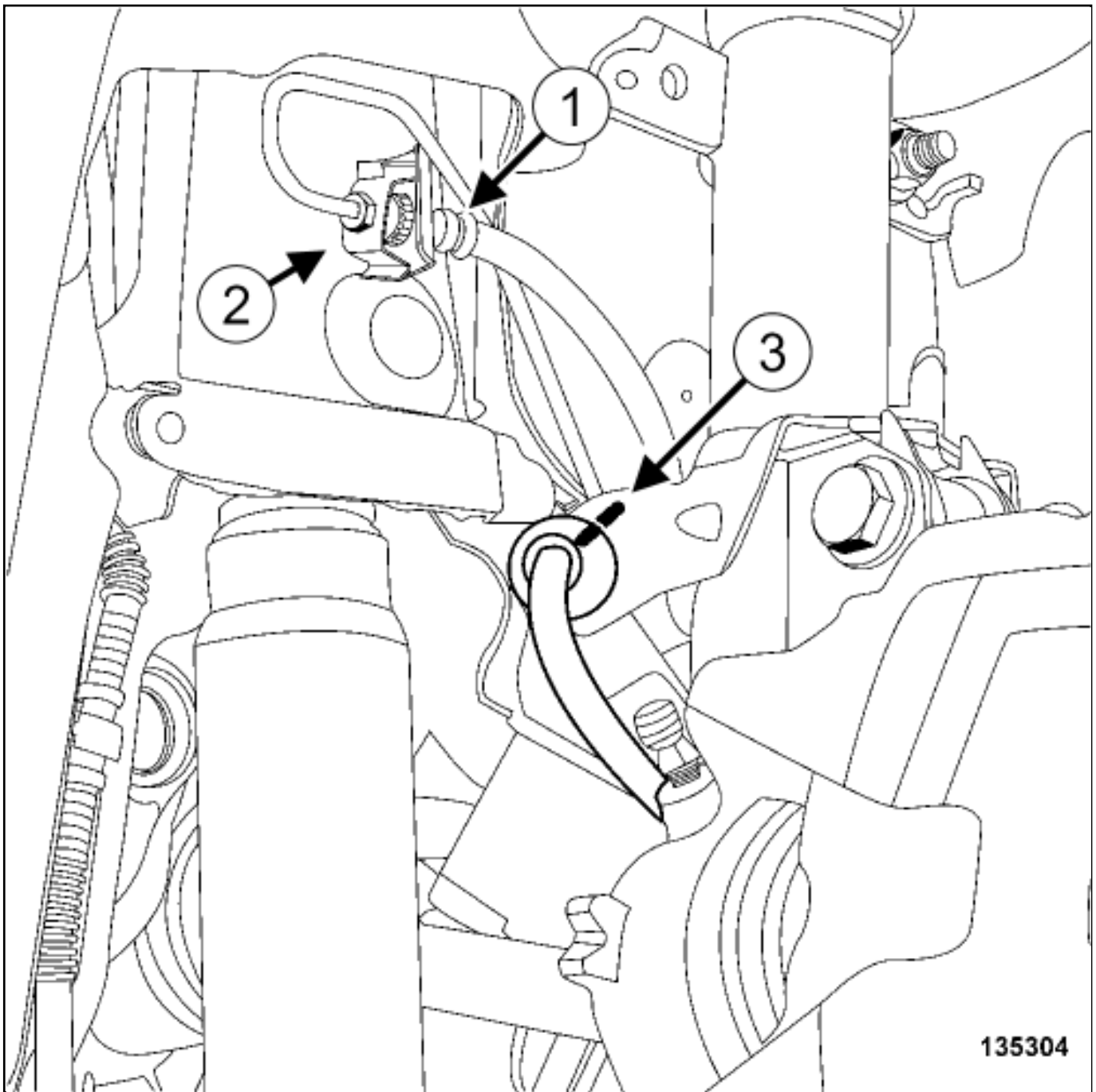
1. REMOVAL PREPARATION OPERATION

■ Place:

- the vehicle on a two-post lift [Vehicle: Towing and lifting](#),
- the wheels straight-ahead,
- a pedal press on the brake pedal to limit the outflow of brake fluid.

■ Remove the front wheel [Wheel: Removal - Refitting](#).

2. OPERATION FOR REMOVAL OF PART CONCERNED



135304

- Loosen the hose union(1) on the rigid pipe union.
- Remove the retaining(2) fork from the hose.
- To avoid the premature damage of the brake hose by friction, observe the following procedure before unclipping the hose:
 - Set the wheels straight ahead.
- If the vehicle is equipped:

- mark the position of the cap on the base of the shock absorber using a permanent marker,

- unclip the brake hose cap(3) from the shock absorber base.

- Loosen the hose union on the brake calliper.

- Remove the brake hose.

REFITTING

1. REFITTING OPERATION FOR PART CONCERNED

CAUTION



In order not to damage the brake hose:



- do not tension the hose,



- do not twist the hose,



- check that there is no contact with the surrounding components.

- Set the wheels straight ahead.

- Refit the brake hose at the calliper end.

- Clip the brake hose cap onto the base of the shock absorber by aligning the marks made with the

indelible marker pen (if the vehicle is equipped).



Refit:



the brake hose on the rigid pipe union,



the hose retaining fork.



Torque tighten the brake hose union on the rigid pipe union [Brake circuit: Tightening torque](#) .

2. FINAL OPERATION



Refit the front wheel [Wheel: Removal - Refitting](#) .



Remove the pedal press from the brake pedal.



Bleed the brake circuit [Braking circuit: Bleed](#) .



Repair-13x03x09x02-01x37-1-28-1.xml



XSL version : 3.02 du 22/07/11

FRONT BRAKE PADS: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Brake calliper piston return tool.

Fre. 1190-01

Equipment required

indelible pencil

Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 31A, Front axle components, Front brake calliper assembly: Exploded view\)](#) and[\(see 31A, Front axle components, Front hub carrier assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [Brake circuit: Precautions for the repair](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



CAUTION

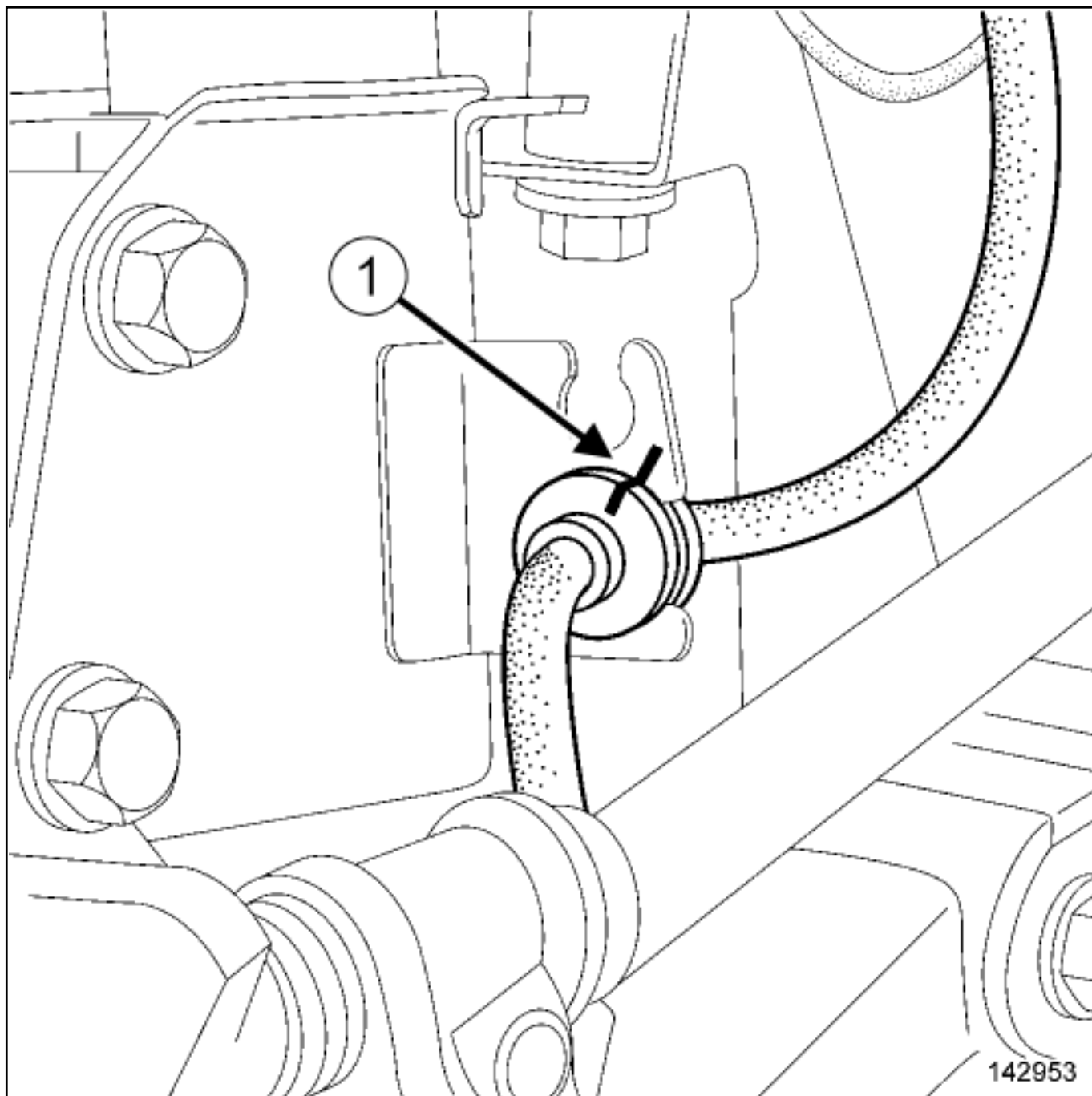
In order not to damage the brake hose:

- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.

1. REMOVAL PREPARATION OPERATION

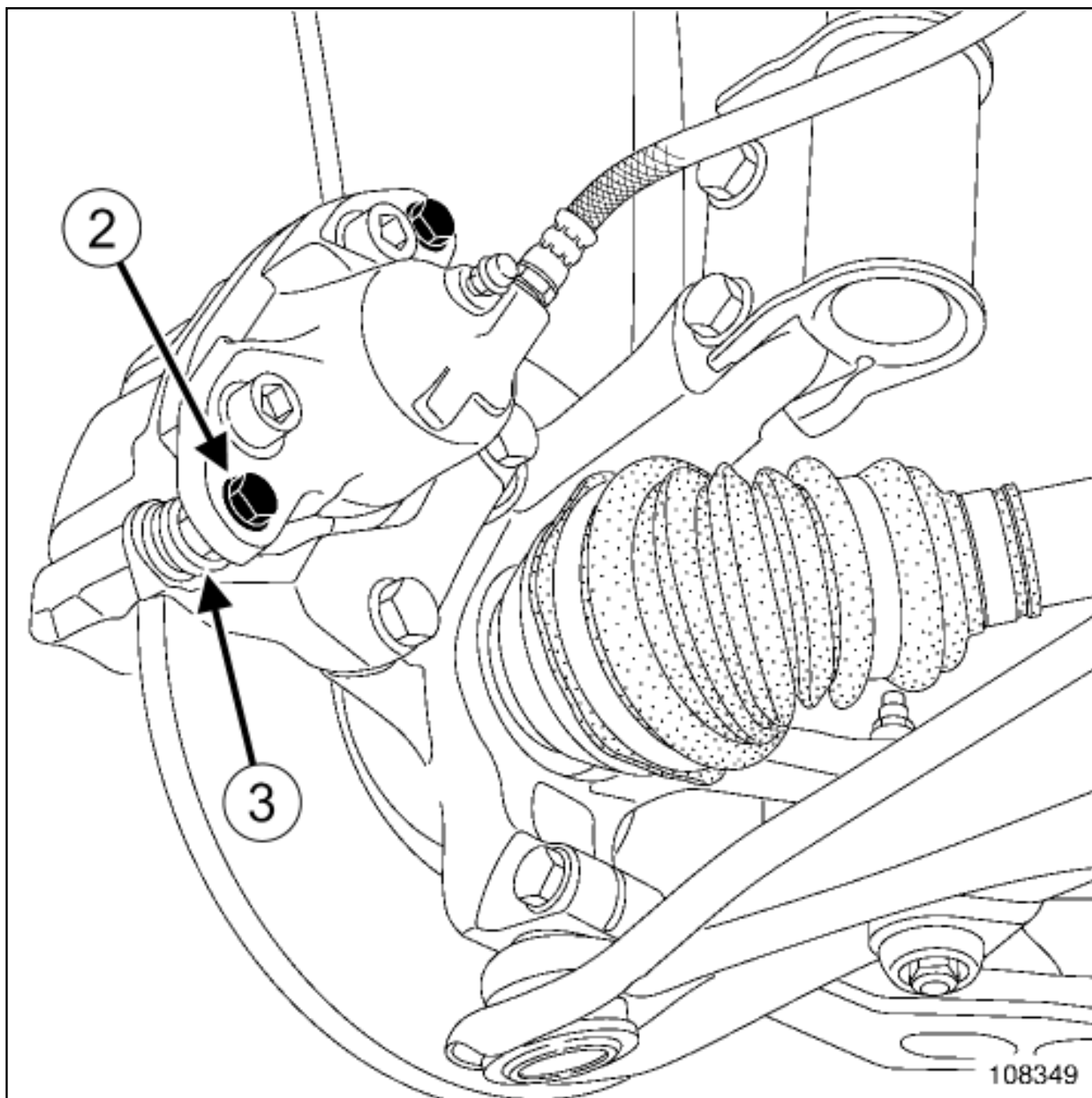
- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- ❑ Unlock the steering column.
- ❑ Remove the front wheels ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .

2. REMOVAL OPERATION



- ❑ Set the wheels straight ahead.

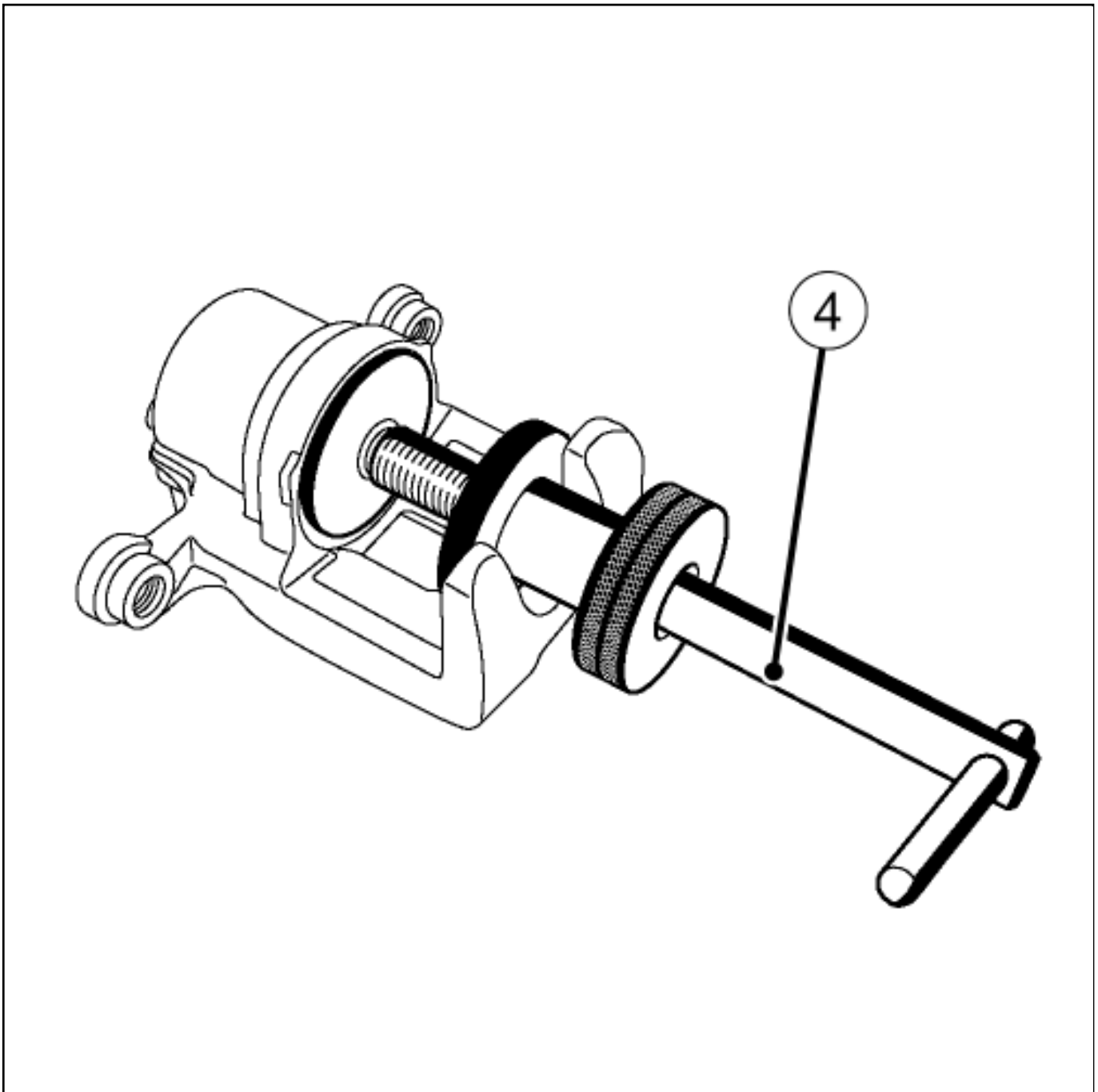
- Mark the position of the front brake hose cap(1) on the base of the shock absorber using a indelible pencil .
- Unclip the front brake hose cap(1) from the shock absorber base.



- Remove the guide pin lower bolt(2) while holding the nut(3) .
- Pivot the front brake calliper upwards.
- Remove the brake pads([see 31A, Front axle components, Front brake calliper assembly: Exploded view](#)) .

1. REFITTING PREPARATION OPERATION

- Check the thickness of the front brake pads(see **Brake: Specifications**) .
- Do not allow friction materials to come into contact with grease, oil or other lubricants and cleaning products which are mineral oil based.
- Clean using a wire brush and brake cleaner [Vehicle: Parts and consumables for the repair](#) :
 - the front brake calliper mountings,
 - the front brake callipers,
 - the brake discs.



■ Push the piston (after coating it with grease from the repair kit) using the Brake calliper piston return tool. (Fre. 1190-01) (4) until it is at the end of its bore.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



WARNING

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



[Repair-13x03x03x01-01x37-1-41-1.xml](#)



XSL version : 3.02 du 22/07/11

FRONT BUMPER ASSEMBLY: EXPLODED VIEW

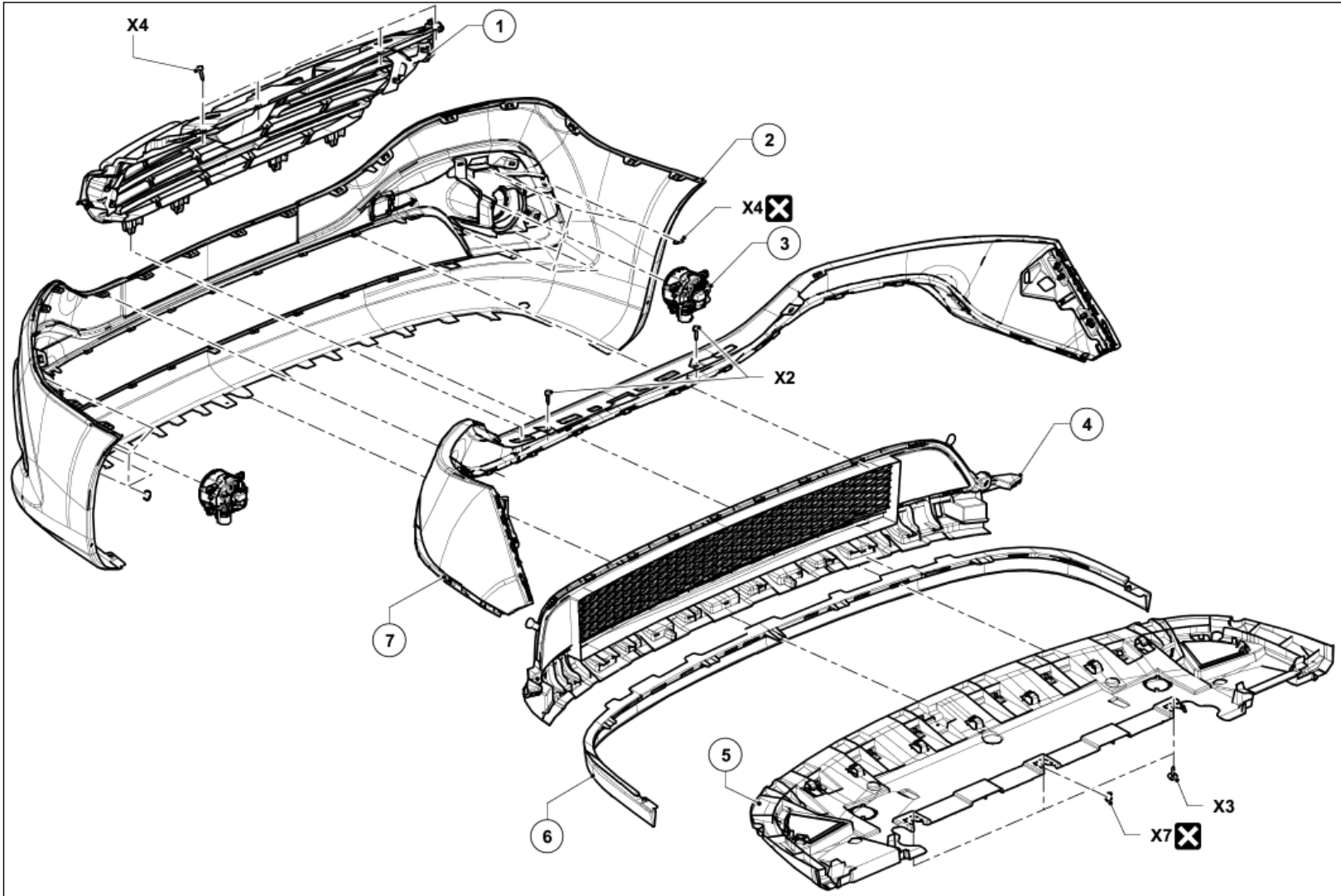


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Radiator grille	
2	Front bumper, lower section	
3	Fog light	
4	Front bumper lower grille	
5	Front bumper lower diffuser	
6	Element aerodynamics	
7	Front bumper, upper section	



Repair-50x05x01-02x50-1-7-1.xml



XSL version : 3.02 du 22/07/11

FRONT BUMPER: STRIPPING - REBUILDING



Note, one or more warnings are present in this procedure



parts always to be replaced:



[front bumper rivet](#)

Location and specification (tightening torques, parts always to be replaced, etc.)[\(see 55A, Exterior protection, Front bumper assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

STRIPPING

1. STRIPPING PREPARATION OPERATION



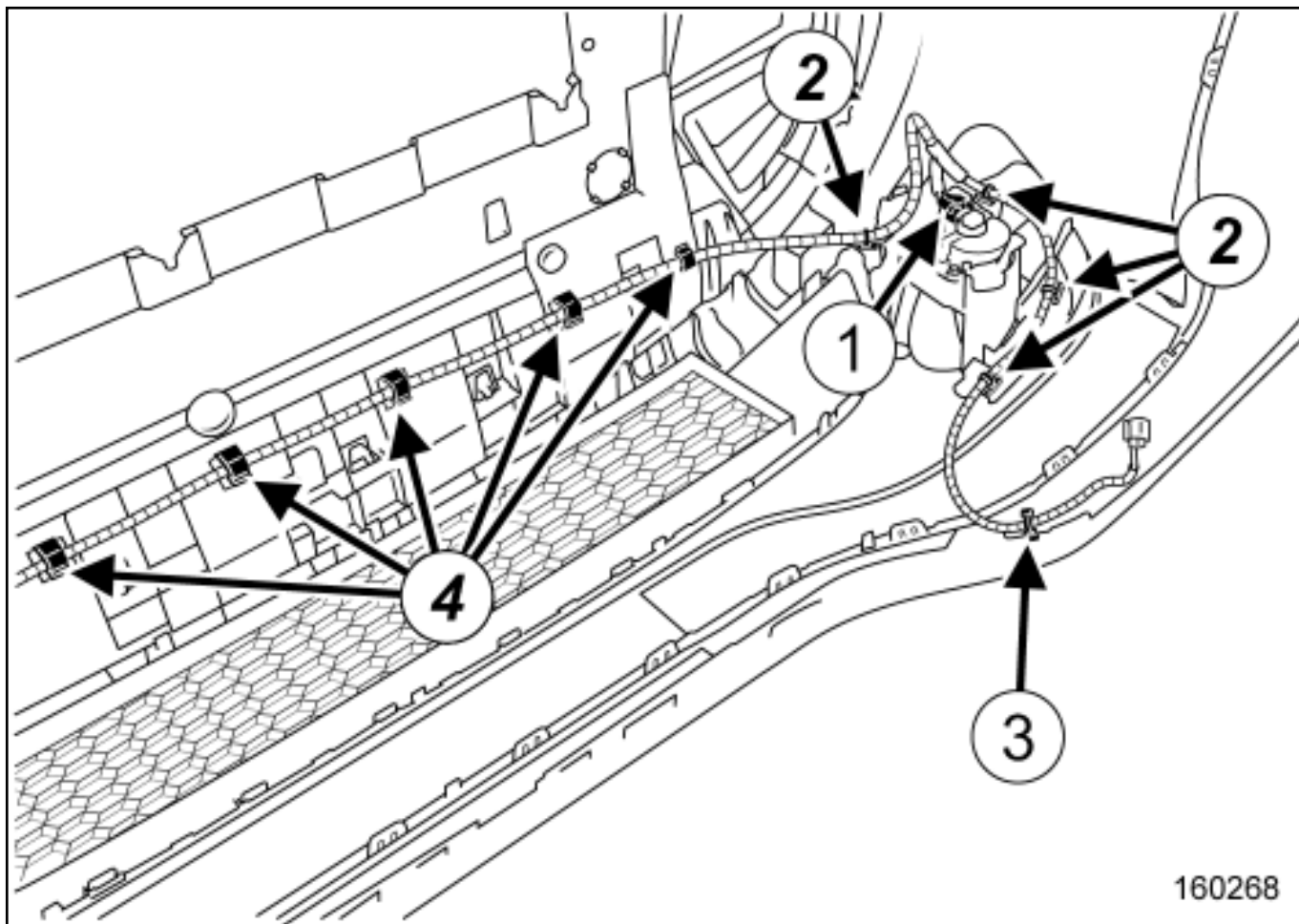
Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove:

-
- the front opening element opening control [Front opening element mechanism assembly : Exploded view](#) ,
- the radiator grille [\(see 55A, Exterior protection, Front bumper assembly: Exploded view\)](#) ,
- the front bumper [\(see 55A, Exterior protection, Front bumper assembly: Exploded view\)](#) .

2. STRIPPING OPERATION



160268

Disconnect the fog light connector(1) .

Unclip:

- the electric wiring clips of the fog lights at(2) ,
- the electric wiring clip of the fog lights at(3) ,
- the electric wiring of the fog lights at(4) .

Remove [\(see 55A. Exterior protection, Front bumper assembly: Exploded view\)](#) :

- the fog light bolts,

the fog light.



Cut the clips of the fog light mounting([see 55A, Exterior protection, Front bumper assembly: Exploded view](#)) .



Remove the fog light mounting([see 55A, Exterior protection, Front bumper assembly: Exploded view](#)) .



Cut the clips of the front bumper lower diffuser([see 55A, Exterior protection, Front bumper assembly: Exploded view](#)) .



Remove ([see 55A, Exterior protection, Front bumper assembly: Exploded view](#)) :



the front bumper lower diffuser,



the front bumper lower grille,



the front bumper lower section rivets,



the front bumper lower section,



the diffuser bolts,



the diffuser,



the towing ring flap.

REBUILDING

1. REBUILDING PREPARATION OPERATION





parts always to be replaced:

front bumper rivet



2. REBUILDING OPERATION



Proceed in the reverse order to stripping.



Repair-50x05x02-01x31-1-59-1.xml



XSL version : 3.02 du 22/07/11

FRONT BUMPER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 55A, Exterior protection, Front bumper assembly: Exploded view](#)) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

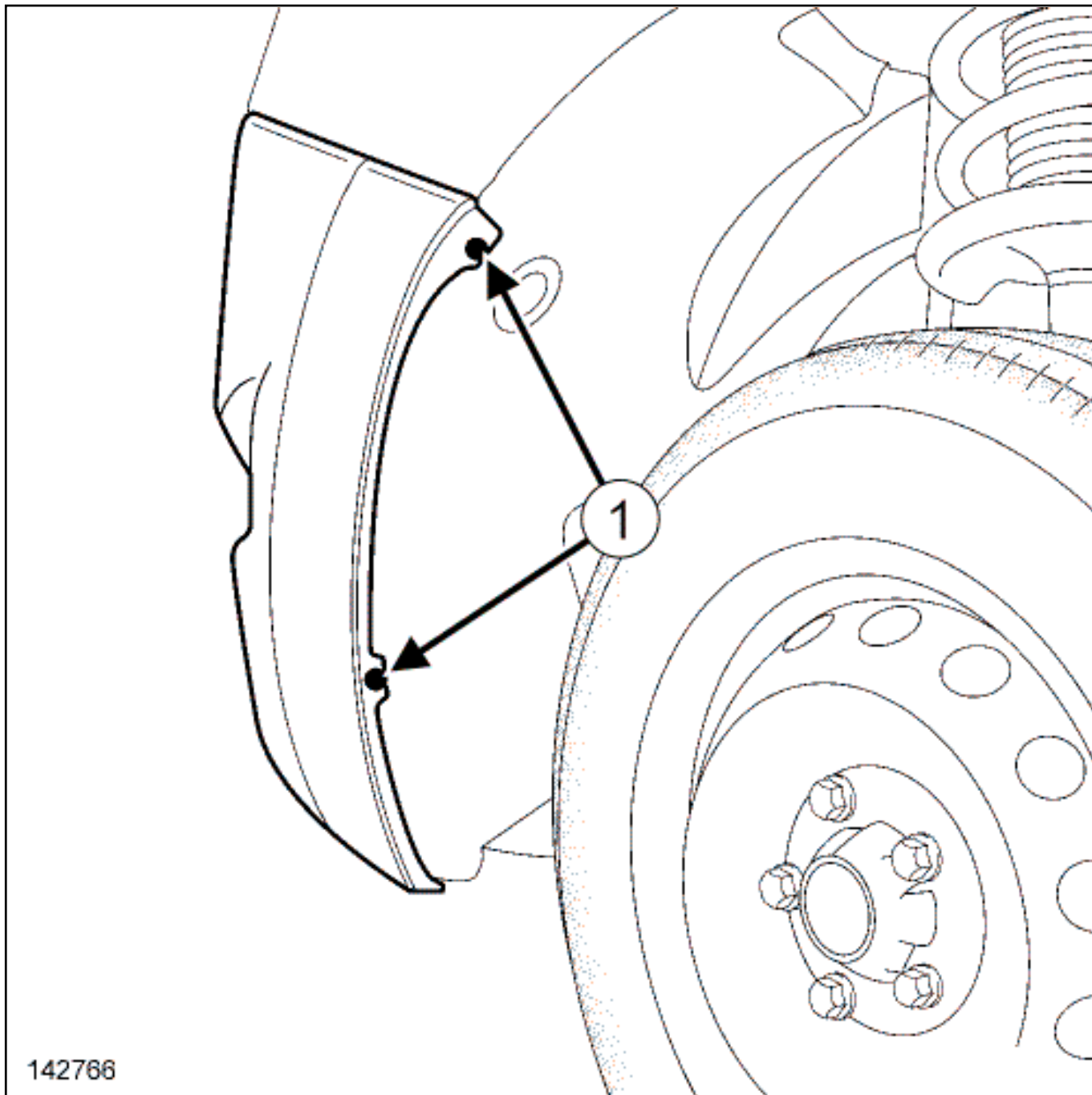
■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove:

-
- the front opening element opening control [Front opening element mechanism assembly : Exploded view](#) ,
- the radiator grille ([see 55A, Exterior protection, Front bumper assembly: Exploded view](#)) .

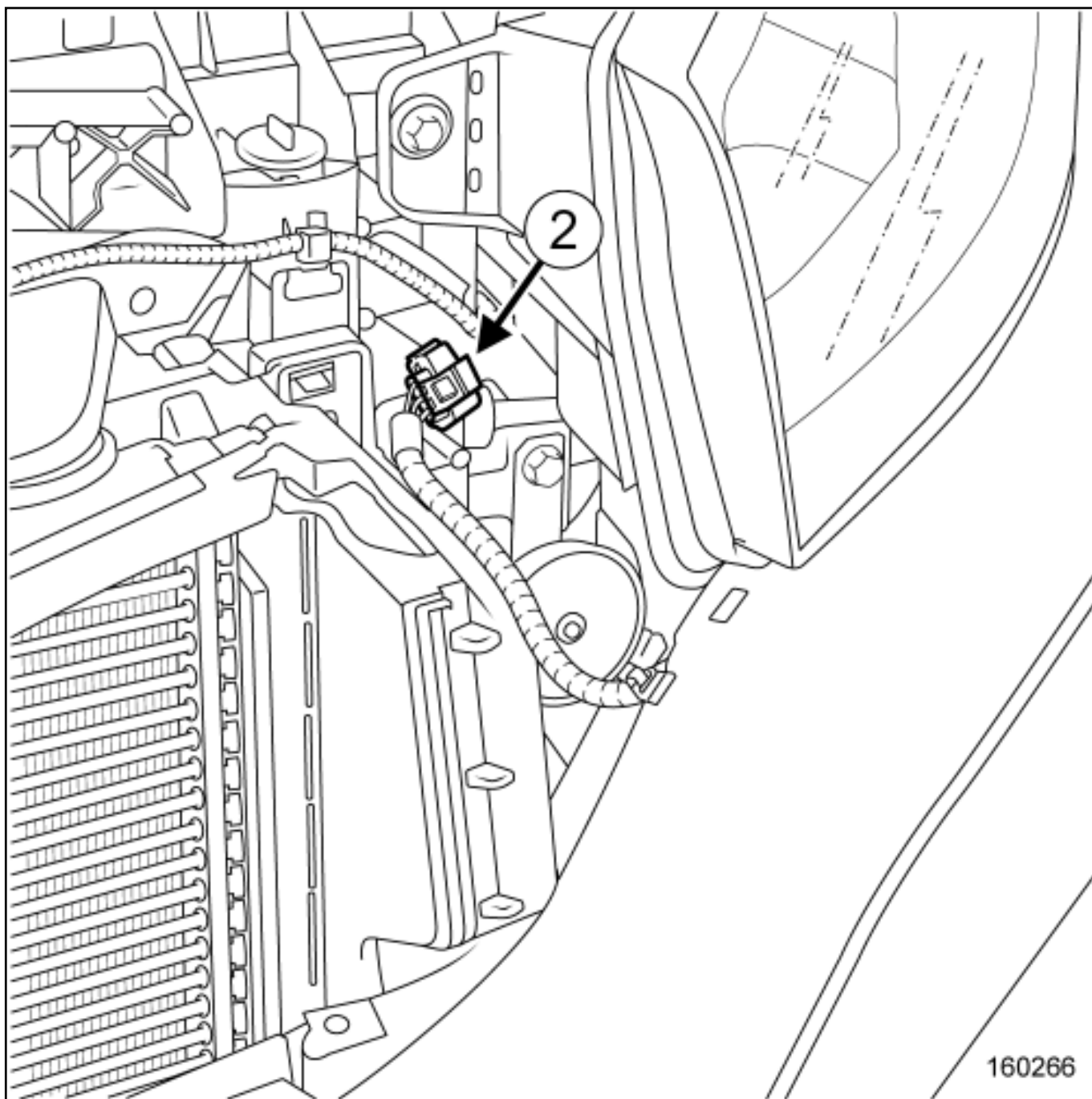
1. REMOVAL OPERATION



Remove the bolts(1) .

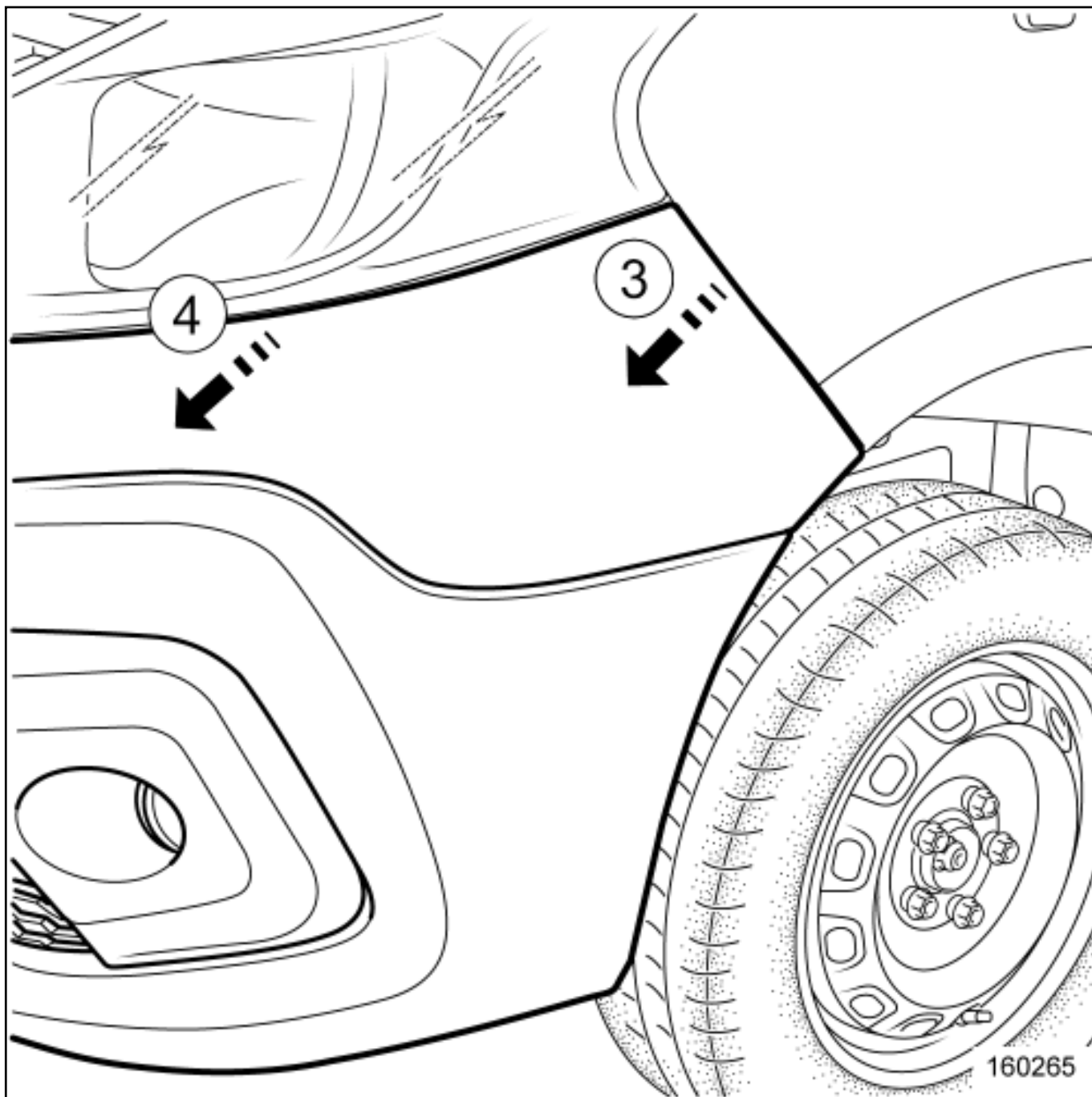
Remove [\(see 55A, Exterior protection, Front bumper assembly: Exploded view\)](#) :

- the lower bolts of the front bumper,
- the upper bolts of the front bumper.



160266

■ Disconnect the fog light connector(2) .



- Unclip the side sections of the front bumper at (3) and (4) .

- Remove the front bumper (this operation requires two people).

REFITTING

Proceed in the reverse order to removal.



Repair-50x05x02-01x37-1-40-1.xml



XSL version : 3.02 du 22/07/11

FRONT DRIVESHAFT GAITER, WHEEL SIDE: REMOVAL - REFITTING

Special tooling required

Pin extractor tool.	Emb. 880
Type clip pliers for driveshafts with a thermoplastic gaiter.	Tav. 1168
Driveshaft bowl-shaped spindle extractors	Tav. 1796
Pliers for the driveshaft gaiter collar.	Tav. 1784

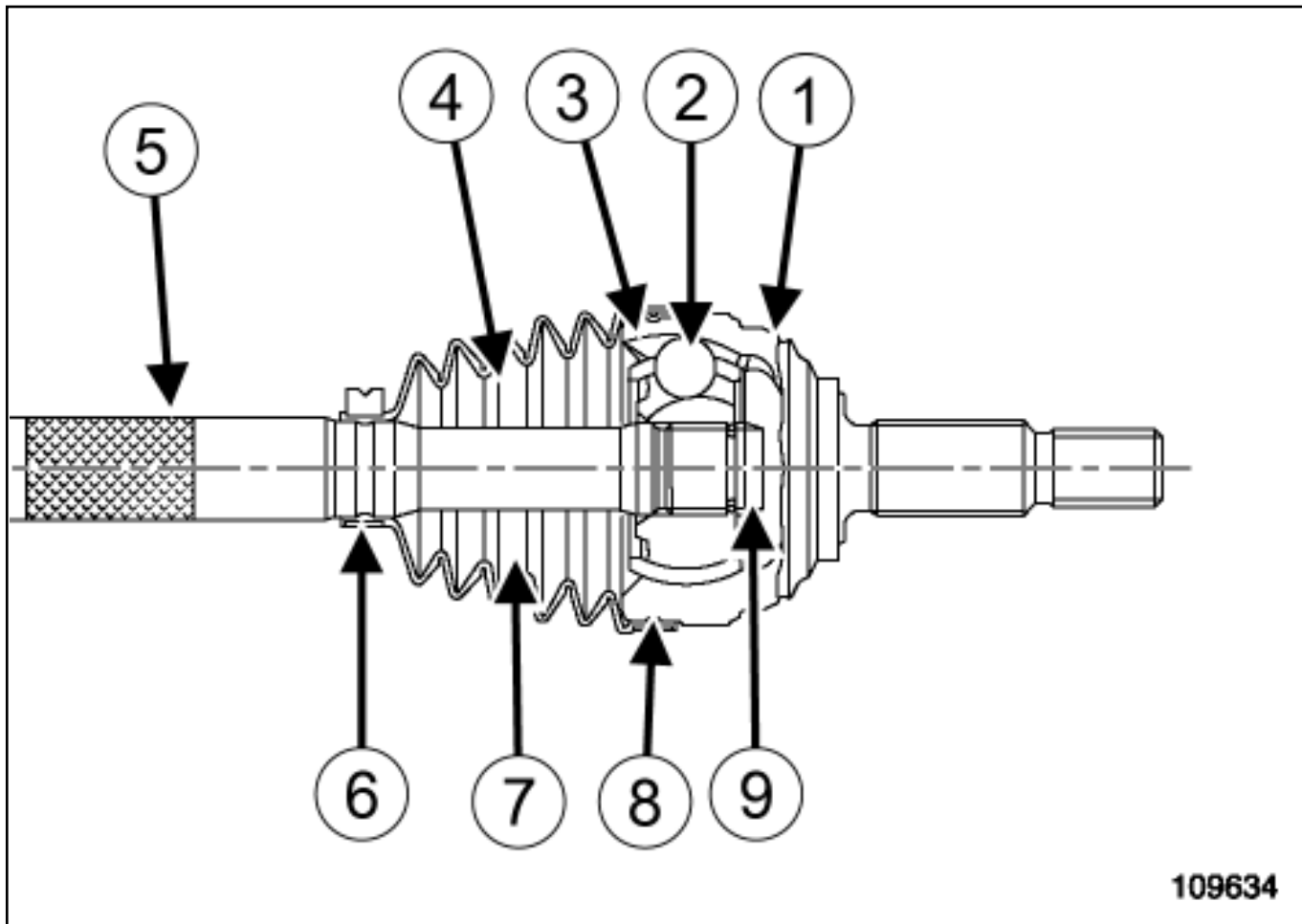
Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 29A, Driveshafts, Driveshaft assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

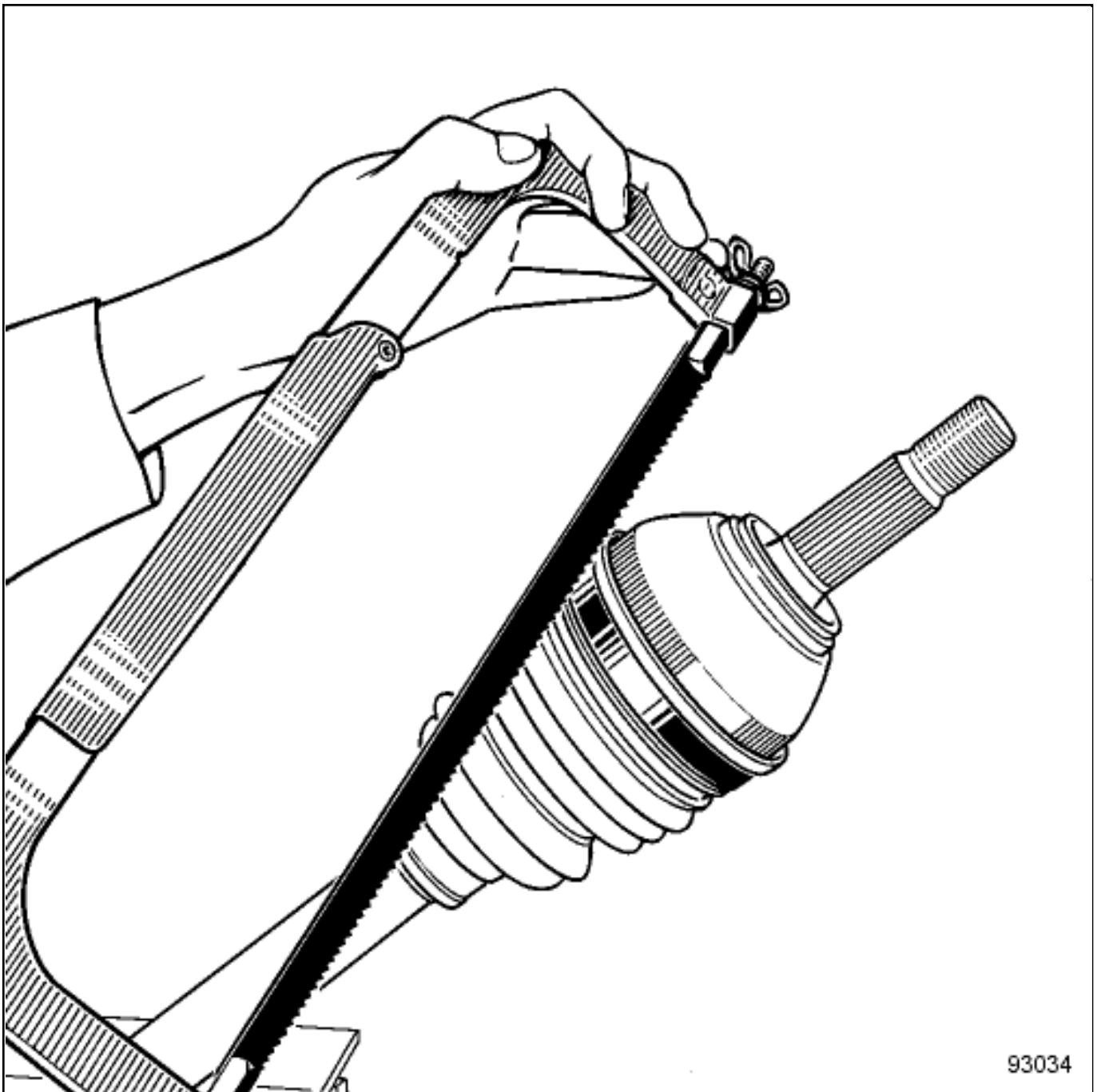
- ▣ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- ▣ Remove:
 - the engine undertray,
 - the front wheel on the side concerned [Wheel: Removal - Refitting](#) (35A, Wheels and tyres).
- ▣ Drain the manual gearbox oil [Manual gearbox oils: Draining - Filling](#).
- ▣ Remove ([see 29A, Driveshafts, Driveshaft assembly: Exploded view](#)):
 - the driveshaft on the side concerned,
 - the differential output seal on the side concerned.

2. REMOVAL OPERATION



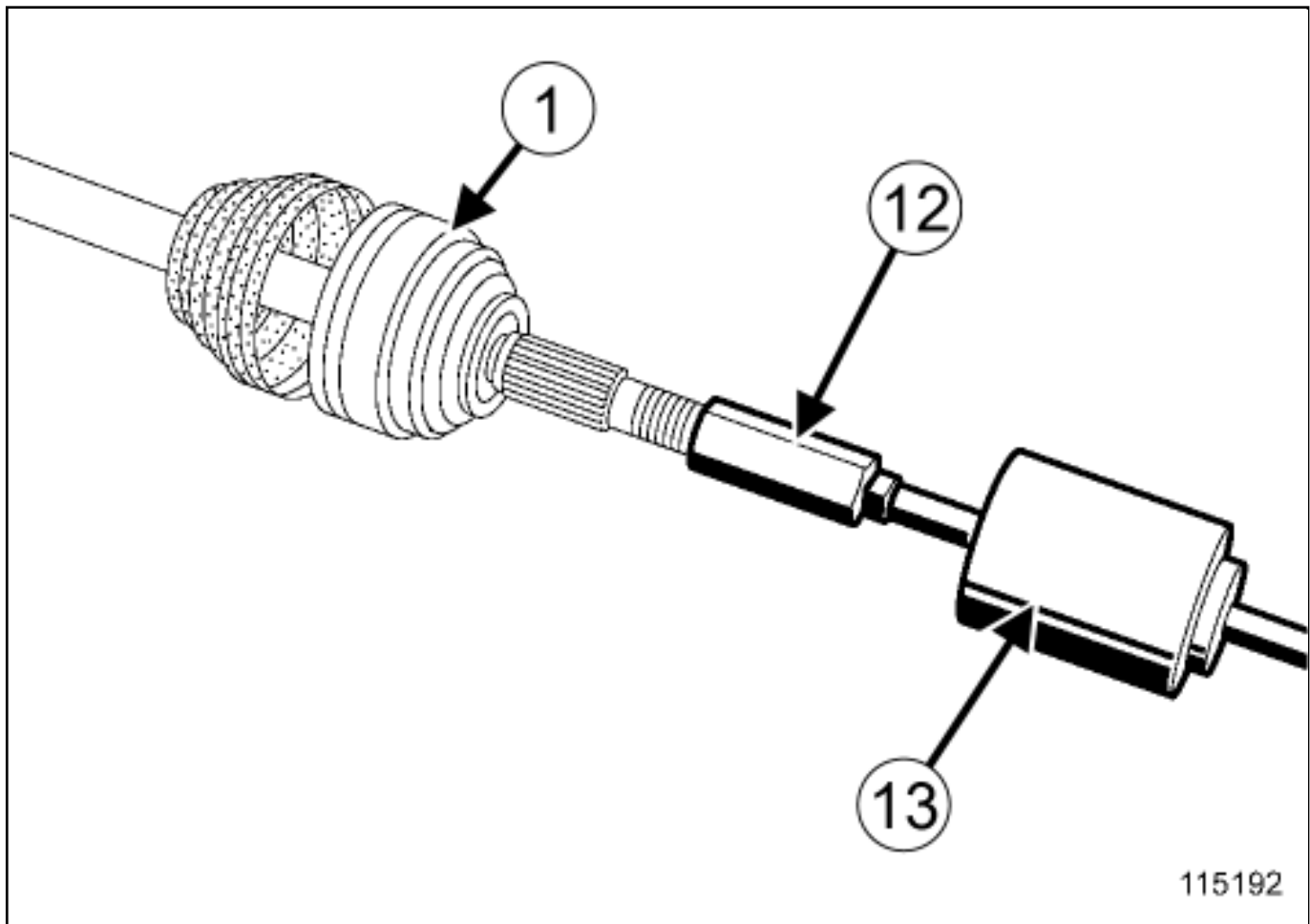
109634

- (1) stub-axle bowl
- (2) balls
- (3) ball race
- (4) front driveshaft gaiter, wheel side
- (5) driveshaft
- (6) small clip of front driveshaft gaiter, wheel side
- (7) Front driveshaft gaiter, wheel side
- (8) large clip of front driveshaft gaiter, wheel side
- (9) driveshaft gaiter circlip



93034

- ❑ Cut the large clip of the front driveshaft wheel-side gaiter([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) and the small clip of the front driveshaft wheel-side gaiter([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) using cutting pliers or a metal saw, taking care not to damage the stub-axle bowl.
- ❑ Push back the front driveshaft gaiter on the wheel side([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) to release the stub-axle bowl.



115192

- Remove:
 - the stub-axle bowl(1) using the tool Driveshaft bowl-shaped spindle extractors(Tav. 1796) (12) and the extractor Pin extractor tool.(Emb. 880) (13) ,
 - the front driveshaft gaiter on the wheel side(see 29A, Driveshafts , Driveshaft assembly: Exploded view) ,
 - the driveshaft gaiter circlip(see 29A, Driveshafts , Driveshaft assembly: Exploded view) .

- Remove as much grease as possible.

REFITTING

1. REFITTING OPERATION

- Fit the small clip of the front driveshaft gaiter (on the wheel side) on the driveshaft.
- Lightly lubricate the driveshaft to facilitate fitting the front driveshaft gaiter on the wheel side.
- Fit the front driveshaft gaiter on the wheel side.
- Refit the driveshaft gaiter circlip.

■ Fit the stub-axle bowl on the driveshaft.

■ Spread the quantity of grease around the front driveshaft gaiter on the wheel side and around the stub-axle bowl.



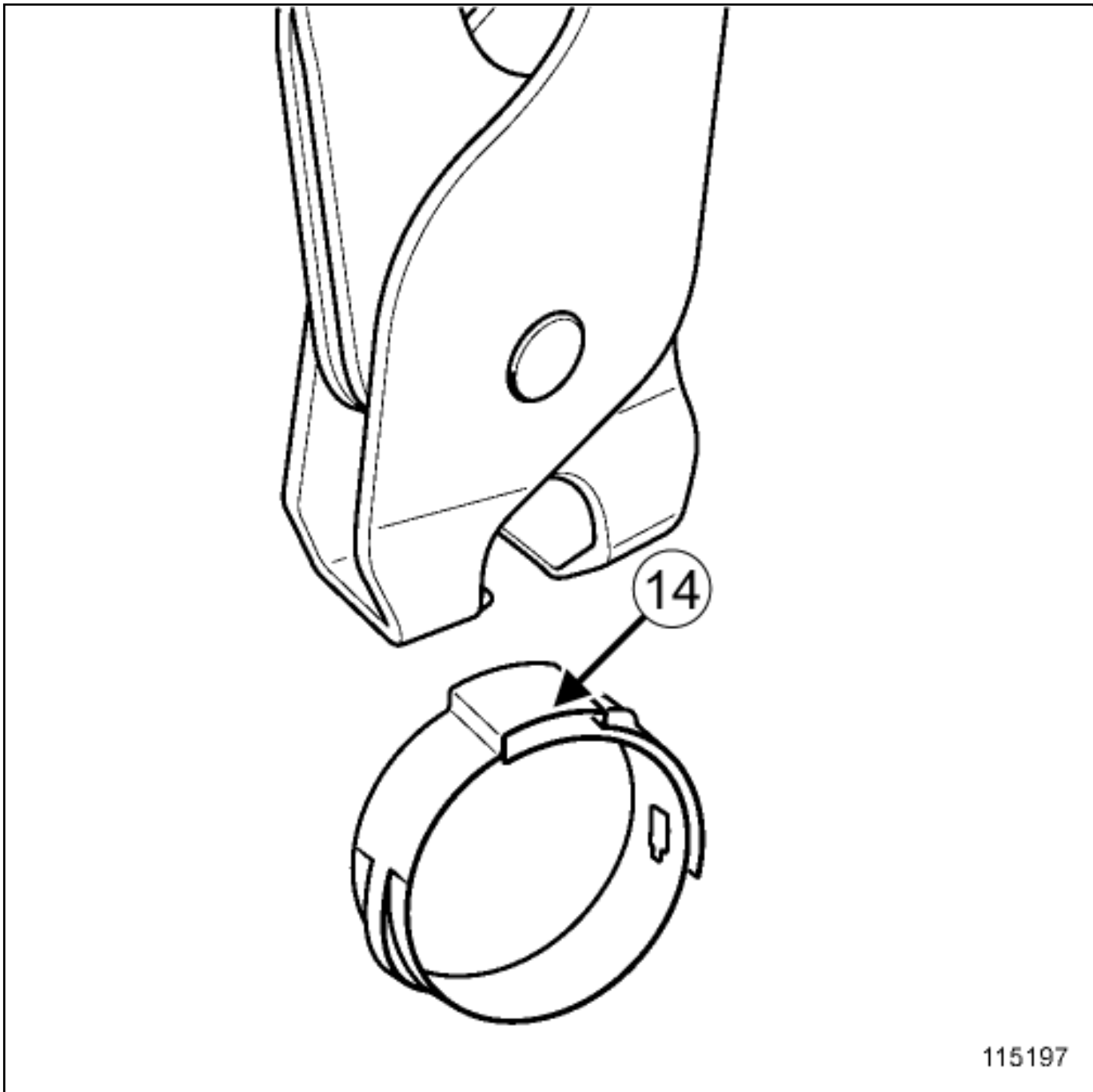
Note:

Be sure to observe the prescribed quantity of lubricant.

■ Position the lips of the front right-hand driveshaft gaiter on the wheel side in the neck of the stub-axle bowl and driveshaft.

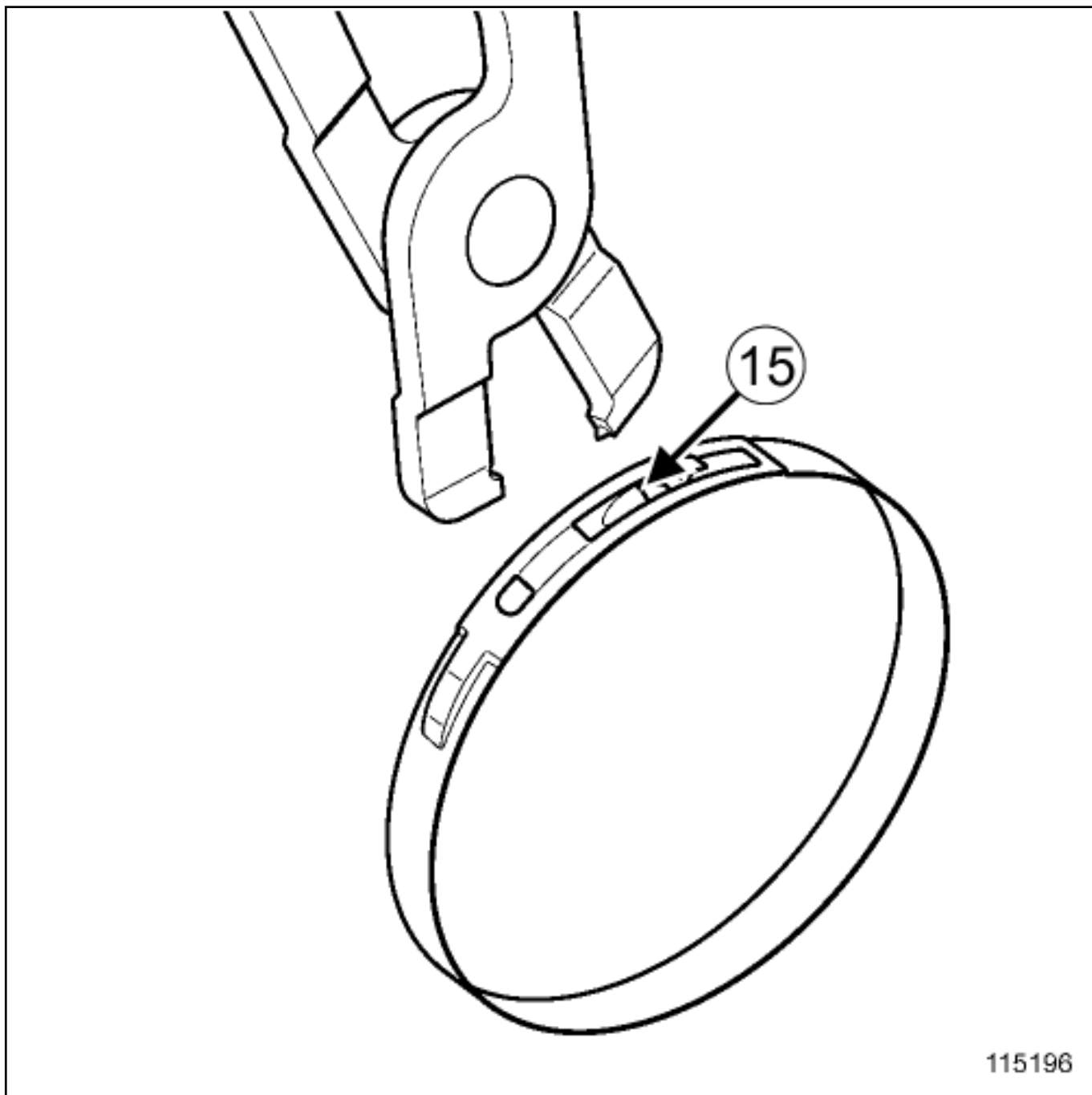
■ Refit the large clip of front driveshaft side gaiter on the wheel side.

CLIC CLIP



115197

CLIP WITH PROFILE END



115196



Tighten the clips using the toolType clip pliers for driveshafts with a thermoplastic gaiter.([Tav. 1168](#)) for clic clips(14) or the toolPliers for the driveshaft gaiter collar.([Tav. 1784](#)) for profile end clips(15) .



Proceed in the reverse order to removal.



Fill up the manual gearbox[Manual gearbox oils: Draining - Filling](#) .



Repair-13x01x03x05-01x37-1-19-1.xml



XSL version : 3.02 du 22/07/11

FRONT DRIVESHAFT HUB CARRIER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Hub locking tool.	Rou. 604-01
Universal driveshaft push back tool (plate and claws without ram).	Tav. 1050-04
Screw jack for tools Tav. 1420, Tav.1050-04 , Tar. 1454, Tar. 1850.	Tav. 1420-01
Driveshaft fitting tool.	Tav. 2048

CAUTION



- In order to not damage the brake hose:
 - do not tension the hose,
 - do not twist the hose,
 - check that there is no contact with the surrounding components.

CAUTION



- In order to prevent irreversible damage to the front hub bearing:
 - Do not loosen or tighten the driveshaft nut when the wheels are on the ground.
 - Do not place the vehicle with its wheels on the ground when the driveshaft has been loosened or removed.

WARNING



- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - [\(see 31A, Front axle components, Front axle components: Precautions for the repair\)](#) ,
 - [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

- Location and specifications (tightening torques, parts always to be replaced, etc.):
 - [\(see 31A, Front axle components, Front hub carrier assembly: Exploded view\)](#) ,
 - [\(see 31A, Front axle components, Front axle assembly: Exploded view\)](#) ,
 - [\(see 31A, Front axle components, Front brake calliper assembly: Exploded view\)](#) ,
 - [Steering assembly: Exploded view](#) .



WARNING

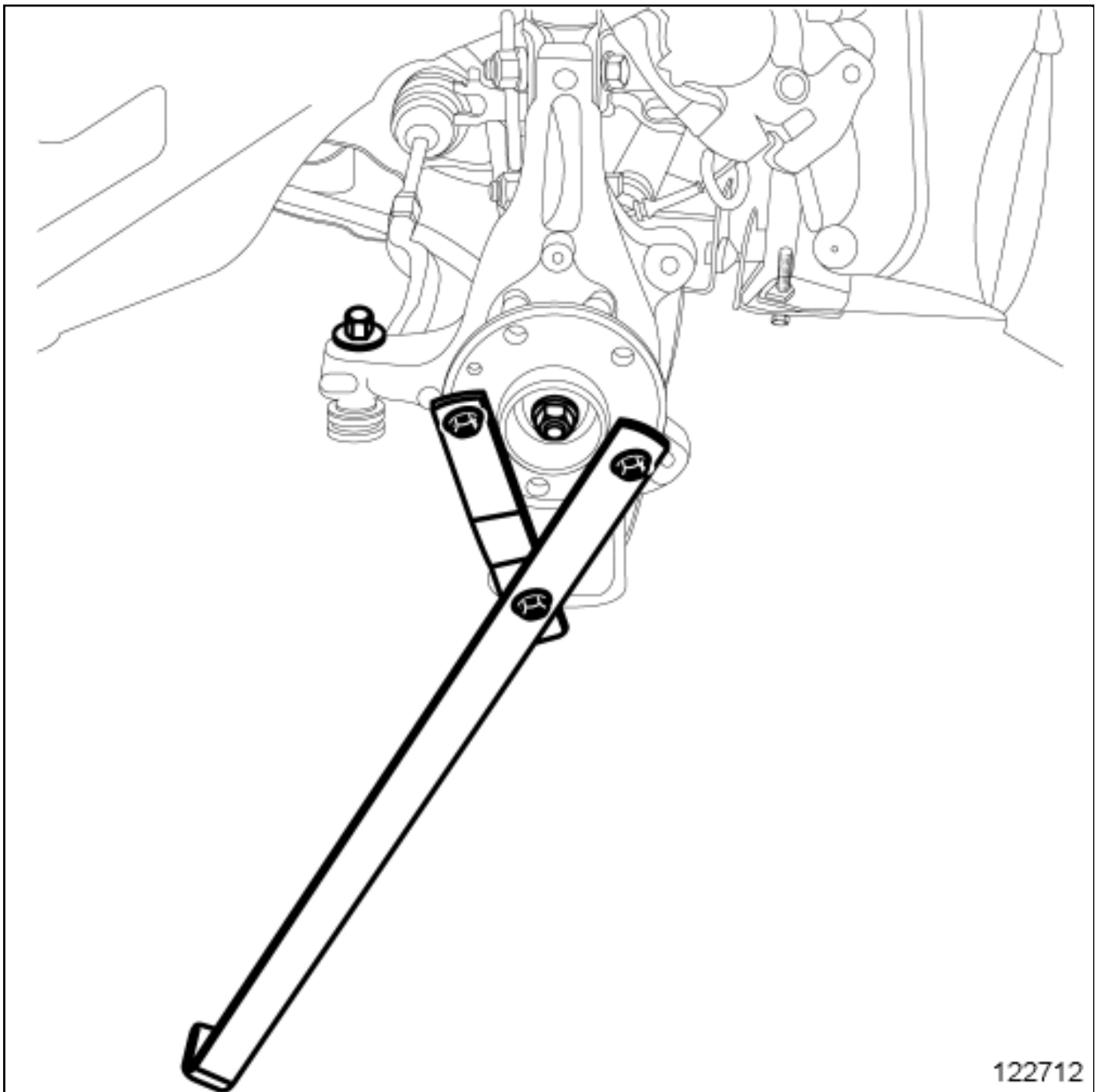
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Unlock the steering column.
- Remove the front wheel ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .
- Remove:
 - the front wheel speed sensor ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) ,
 - the front brake calliper mounting bolts ([see 31A, Front axle components, Front brake calliper assembly: Exploded view](#)) .
- Suspend the "calliper - front brake calliper mounting" assembly on the suspension spring.
- Remove the brake disc ([see 31A, Front axle components, Front brake disc: Removal - Refitting](#)) .

2. REMOVAL OPERATION



- Remove:
 - the hub nut, using the Hub locking tool. (Rou. 604-01) ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)),
 - the track rod end ([Steering assembly: Exploded view](#)),

the shock absorber base bolts ([see 31A, Front axle components, Front axle assembly: Exploded view](#)).

Push back the front driveshaft from the stub axle carrier using the tools Universal driveshaft push back tool (plate and claws without ram). (Tav. 1050-04) and Screw jack for tools Tav. 1420, Tav. 1050-04, Tar. 1454, Tar. 1850. (Tav. 1420-01).

Remove the lower ball joint nut([see 31A, Front axle components, Front axle assembly: Exploded view](#)) .



Extract the lower ball joint from the hub carrier using a ball joint extractor[Ball-joint uncoupling tool:](#)

[Use](#) .

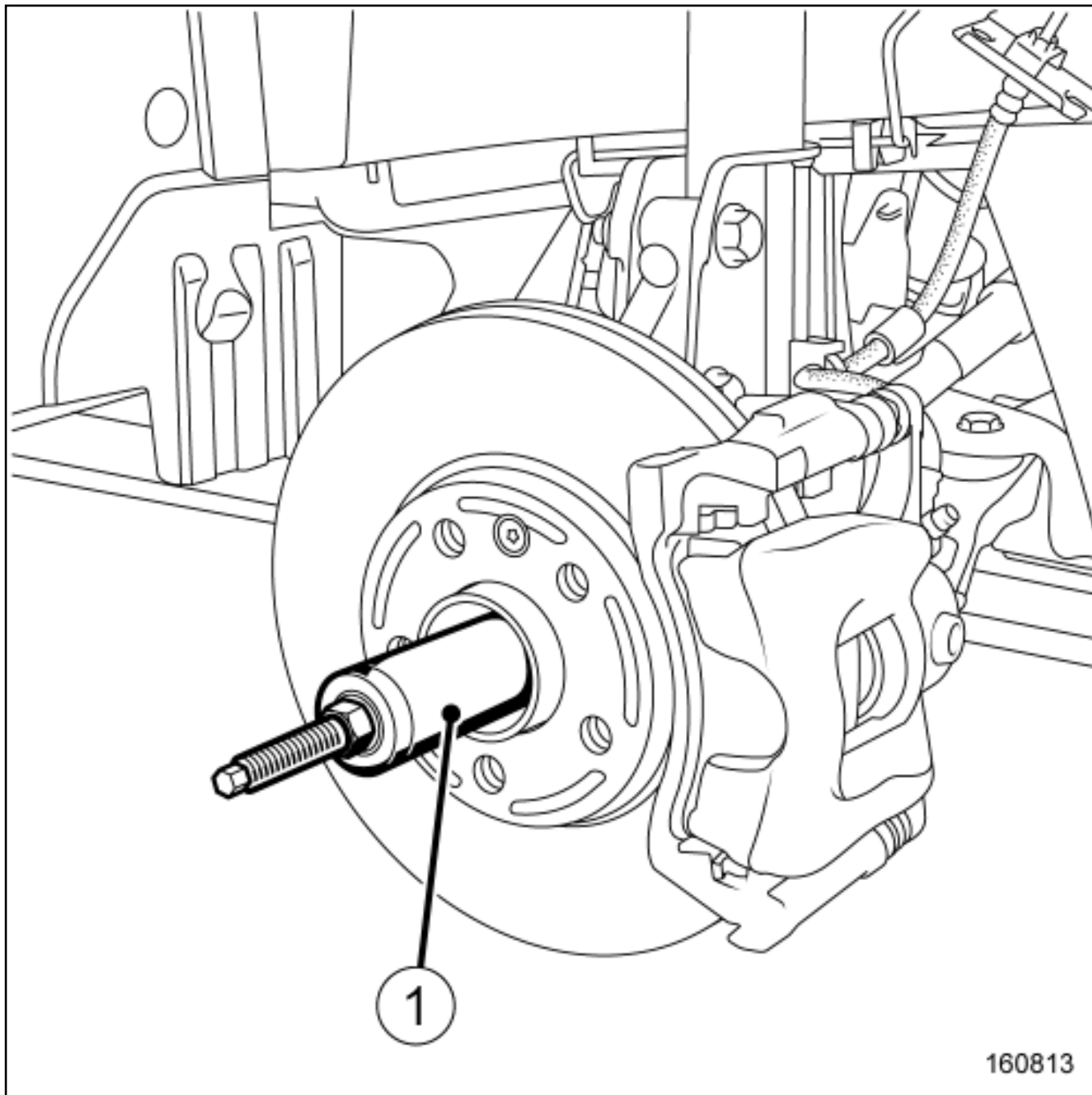


Remove the front driveshaft hub carrier([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION

2. REFITTING OPERATION



Insert the ball joint into the hub carrier.

Refit:

- the front wheel speed sensor support,
- the lower ball joint nut.

Torque tighten the lower ball joint nut([see 31A, Front axle components, Front axle assembly: Exploded view](#)) .

Insert the driveshaft into the hub carrier.

If necessary, engage the driveshaft splines with the hub splines using the tool(1) Driveshaft fitting tool. ([Tav. 2048](#)) .

Refit:

-
- the shock absorber lower studs,
- the track rod,
- the track rod end nut,
- the hub nut.

Torque tighten:

-
- the shock absorber lower studs([see 31A, Front axle components, Front axle assembly: Exploded view](#)) ,
- the track rod end nut([Steering assembly: Exploded view](#)) ,
- the hub nut([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .

3. FINAL OPERATION

Refit the brake disc([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .

Clean the calliper support bolts using a wire brush.



Coat the calliper support bolts using HIGH RESISTANCE THREAD LOCK [Vehicle: Parts and consumables for the repair](#) product before fitting them.



Refit the "calliper mounting - calliper" assembly ([see 31A, Front axle components, Front brake calliper assembly: Exploded view](#)) .



Refit the front wheel speed sensor ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .



Refit the front wheel ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .



WARNING

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



Check the settings of the axle assemblies [Front axle system: Adjustment](#) .



Repair-13x02x03x12-01x37-1-42-1.xml



FRONT END PANEL SIDE SUPPORT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

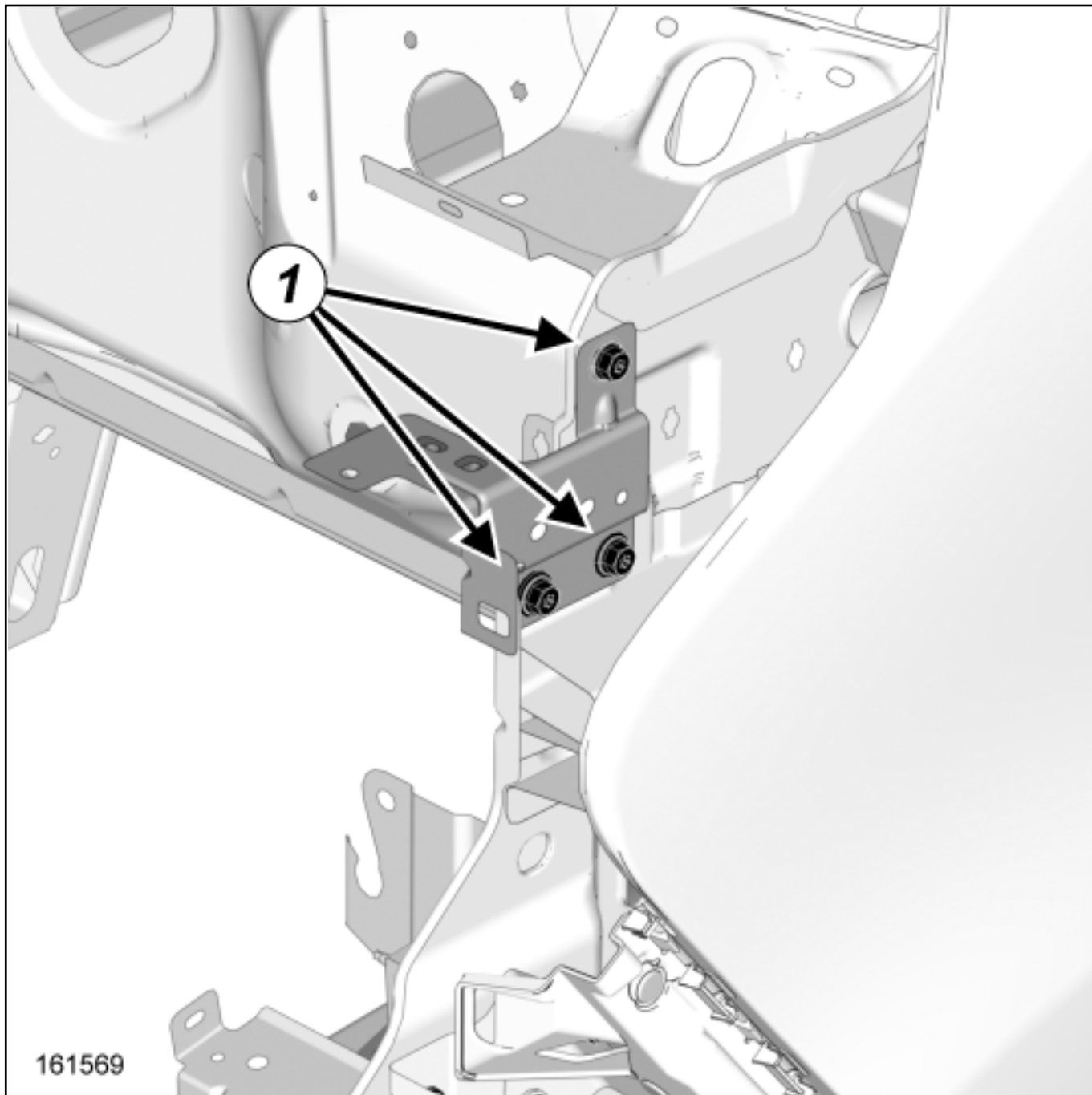
■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove:

-
- the radiator grille [Front bumper assembly: Exploded view](#) ,
- the front bumper [Front bumper assembly: Exploded view](#) ,
- the headlight [Front signals - lighting assembly: Exploded view](#) ,
- the front opening element strut [Front opening element mechanism assembly : Exploded view](#) ,
- front end panel upper bolt ([see 42A. Front upper structure. Front end panel: Removal - Refitting](#)) .

2. REMOVAL OPERATION



Remove:

-
- the bolts(1) ,
- the front end panel side support.

1.



Proceed in the reverse order to removal.



Repair-40x06x06x08-01x37-1-5-1.xml



XSL version : 3.02 du 22/07/11

FRONT END PANEL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



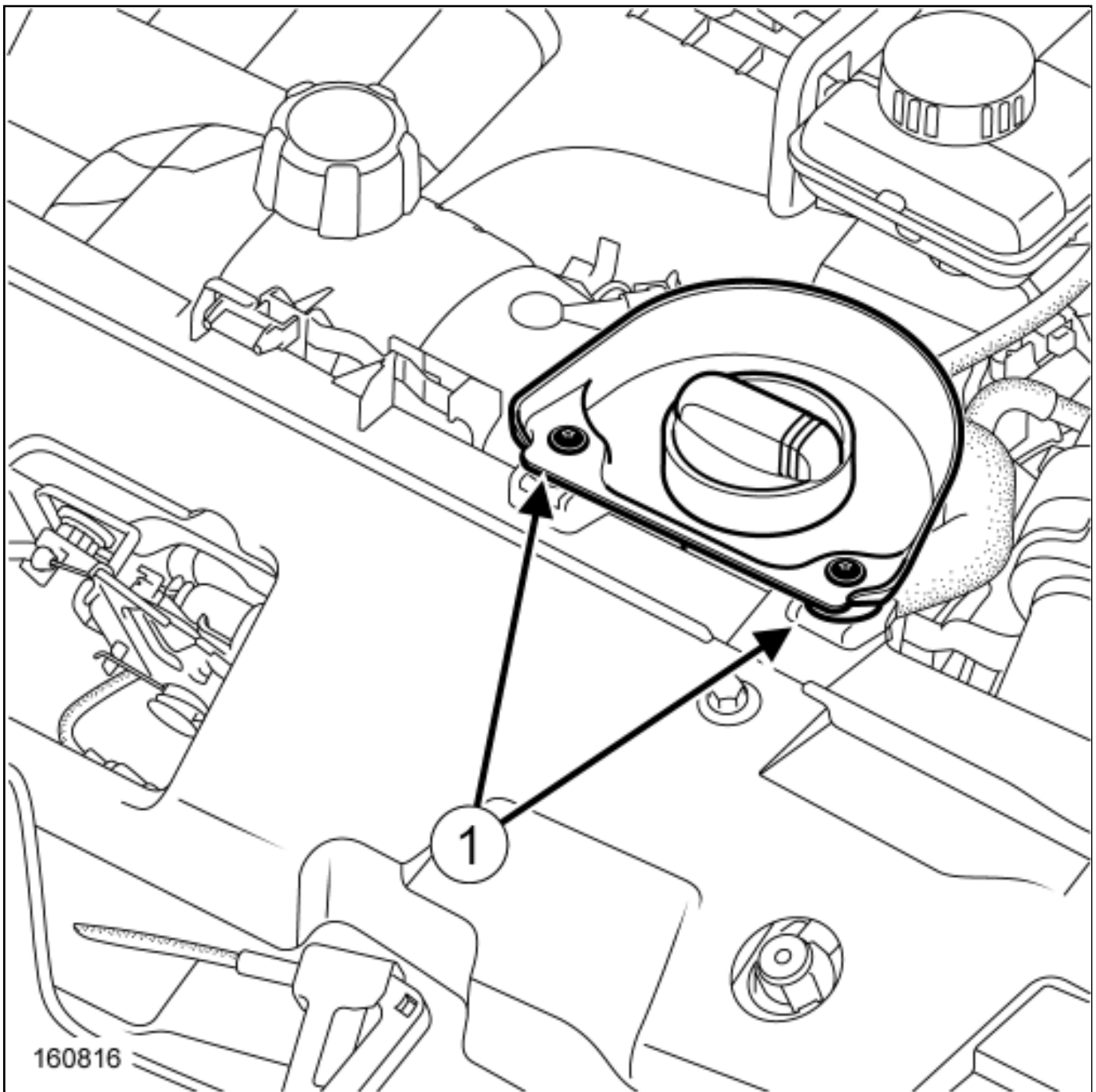
WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

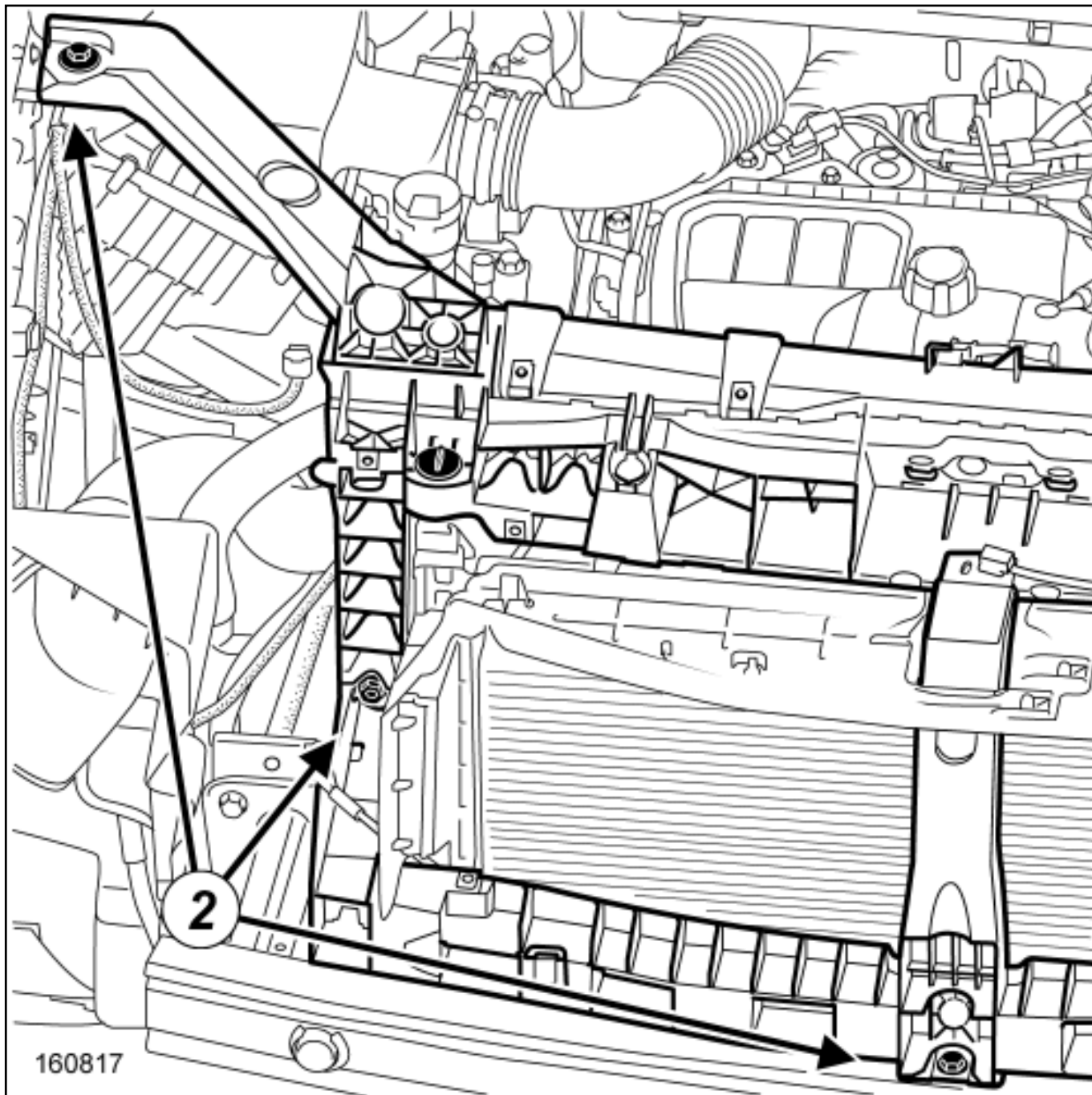
- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove:
 - the radiator grille [Front bumper assembly: Exploded view](#) ,
 - the front bumper [Front bumper assembly: Exploded view](#) ,
 - the headlights [Front signals - lighting assembly: Exploded view](#) ,
 - the front opening element lock [Front opening element mechanism assembly : Exploded view](#) ,
 - the front bumper impact absorber [Exterior body front trim assembly: Exploded view](#) ,
 - the bolts of the refrigerant pipe mounting clip [Passenger compartment cooling assembly: Exploded view](#) ,
 - the audible warning [Audible warning: Removal - Refitting](#) .
- Unclip the windscreen washer filler neck [Wipers/washing assembly : Exploded view](#) .
- Move the expansion bottle away [Coolant circuit assembly: Exploded view](#) .



Remove the bolts(1) .

Move aside the oil filler neck.

2. REMOVAL OPERATION



Remove:

- - the mounting bolts(2) on each side,
 -
- the front end panel.

1.



Proceed in the reverse order to removal.



Repair-40x06x04-01x37-1-18-1.xml



XSL version : 3.02 du 22/07/11

FRONT HEADREST: REMOVAL - REFITTING



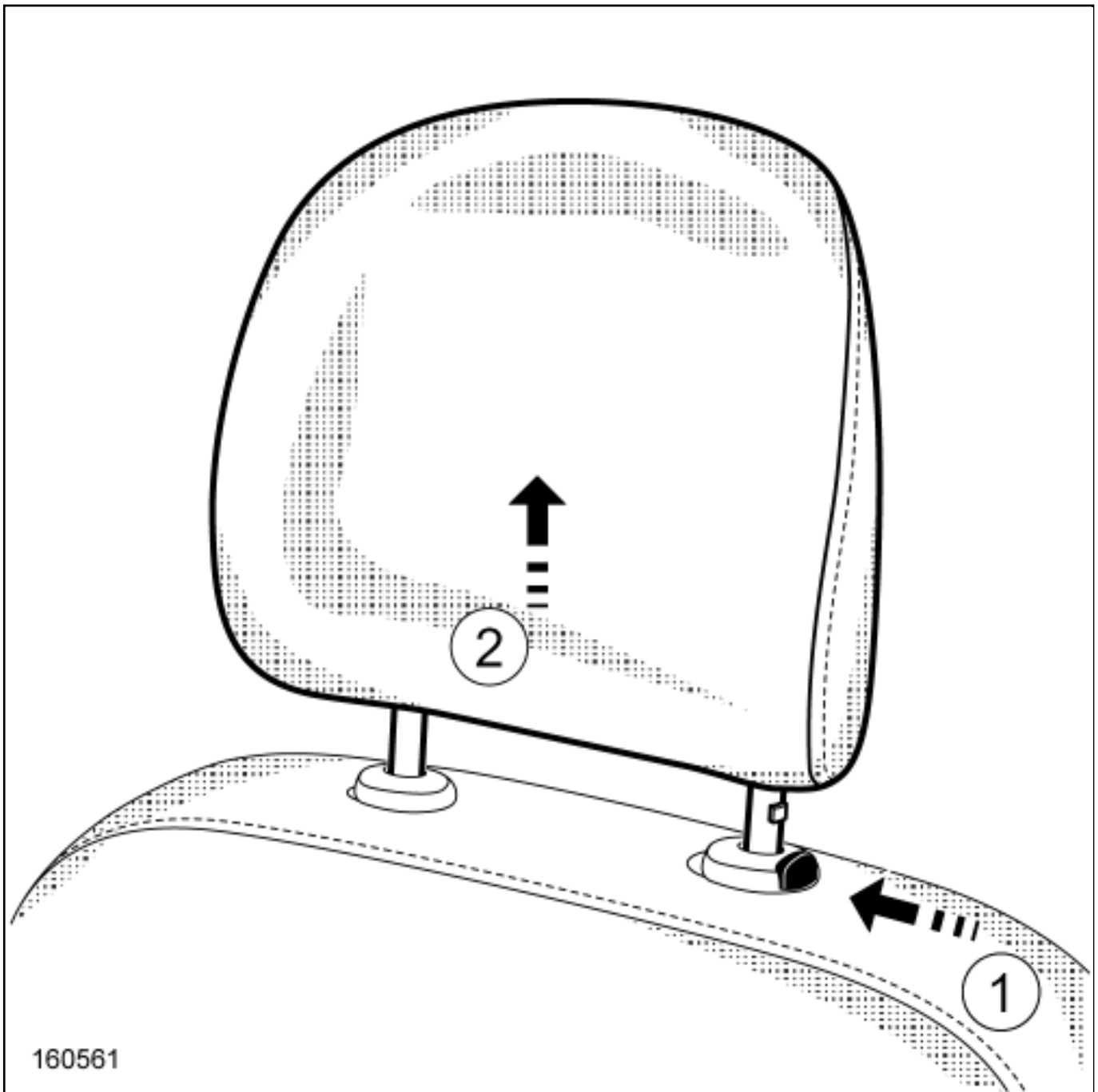
Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts to be always replaced, etc.) [Front seat: Stripping - Rebuilding](#) .

REMOVAL

1. REMOVAL OPERATION



■ Press the unlocking button on the front seat headrest guide at(1) .

■ Remove the front seat headrest at(2) .

REFITTING

1. REFITTING PREPARATION OPERATION

■ Check the each headrest guide is correctly positioned on the front seatback frame.

2. REFITTING OPERATION

- Proceed in the reverse order to removal.



WARNING

To prevent the headrest coming away from the guide during a collision, check that headrest guide locking system is functioning correctly.



Carry out a function test.



[Repair-70x18x02x06-01x37-1-11-1.xml](#)



XSL version : 3.02 du 22/07/11

FRONT HUB CARRIER ASSEMBLY: EXPLODED VIEW



Note, one or more warnings are present in this procedure



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - (see 31A, Front axle components, Front axle components: Precautions for the repair) .
 - Vehicle: Precautions for the repair .

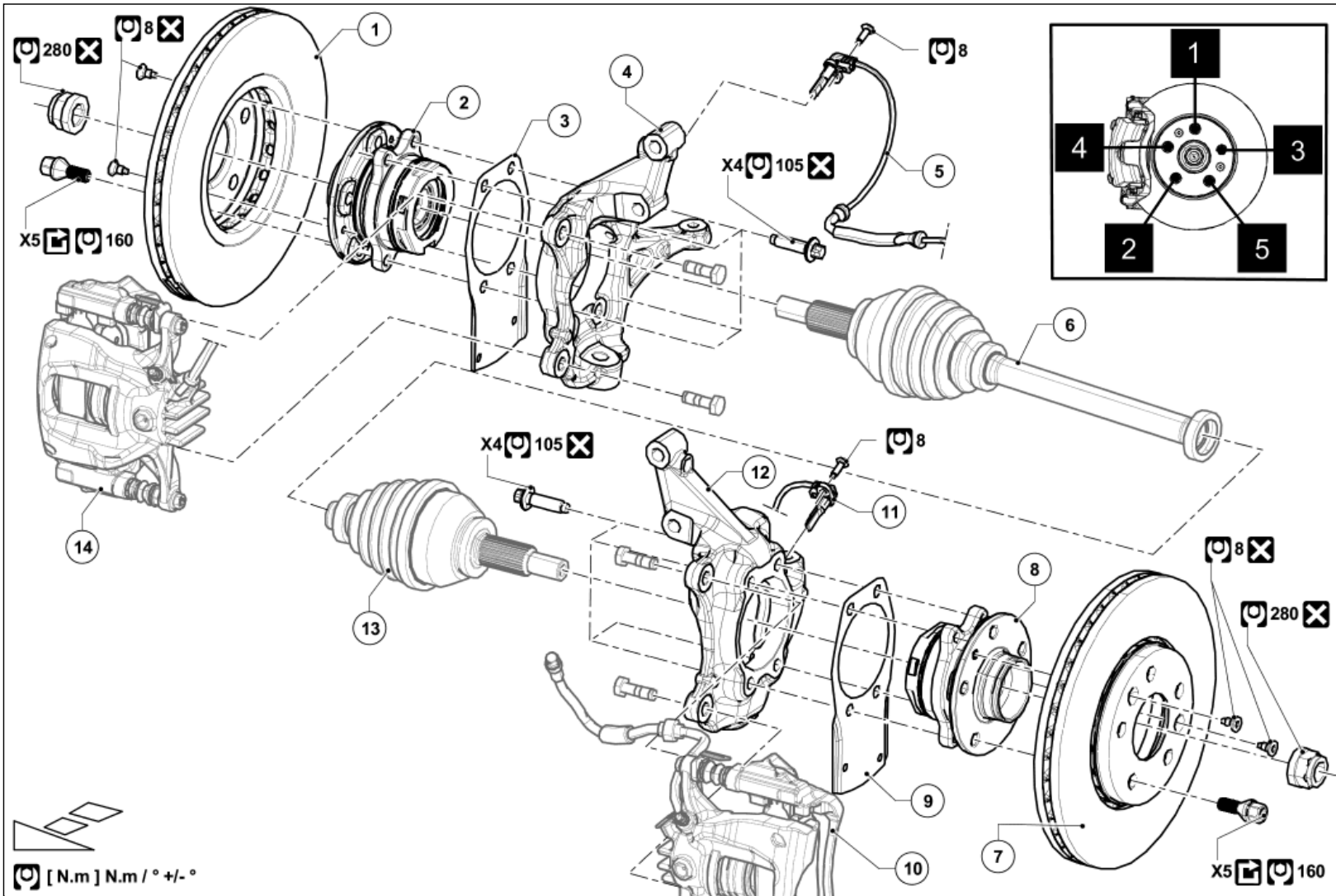


Illustration key: Description Legend .

Marks	Designations	Informations
1	Front brake disc	(see 31A, Front axle components, Front brake disc: Removal - Refitting)
2	Wheel hub	(see 31A, Front axle components, Front hub carrier bearing: Removal - Refitting)
3	Lower ball joint protector	
4	Driveshaft hub carrier	(see 31A, Front axle components, Front driveshaft hub carrier: Removal - Refitting)
5	Wheel speed sensor	Front wheel speed sensor: Removal - Refitting
6	Driveshaft	Driveshaft assembly: Exploded view
7	Front brake disc	(see 31A, Front axle components, Front brake disc: Removal - Refitting)
8	Wheel hub	(see 31A, Front axle components, Front hub carrier bearing: Removal - Refitting)
9	Lower ball joint protector	
10	Front brake calliper	(see 31A, Front axle components, Front brake calliper: Removal - Refitting)
11	Wheel speed sensor	Front wheel speed sensor: Removal - Refitting
12	Driveshaft hub carrier	(see 31A, Front axle components, Front driveshaft hub carrier: Removal - Refitting)
13	Driveshaft	Driveshaft assembly: Exploded view
14	Front brake calliper	(see 31A, Front axle components, Front brake calliper: Removal - Refitting)



Repair-13x02x03x21-02x50-1-7-1.xml



XSL version : 3.02 du 22/07/11

FRONT HUB CARRIER BEARING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Hub locking tool.	Rou. 604-01
Universal driveshaft push back tool (plate and claws without ram).	Tav. 1050-04
Screw jack for tools Tav. 1420, Tav.1050-04 , Tar. 1454, Tar. 1850.	Tav. 1420-01
Driveshaft fitting tool.	Tav. 2048

Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 31A, Front axle components, Front hub carrier assembly: Exploded view\)](#) and[\(see 31A, Front axle components, Front brake calliper assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 31A, Front axle components, Front axle components: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .



Note:

The front hub carrier bearing is sold with the front wheel hub assembly.

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

■ Remove:

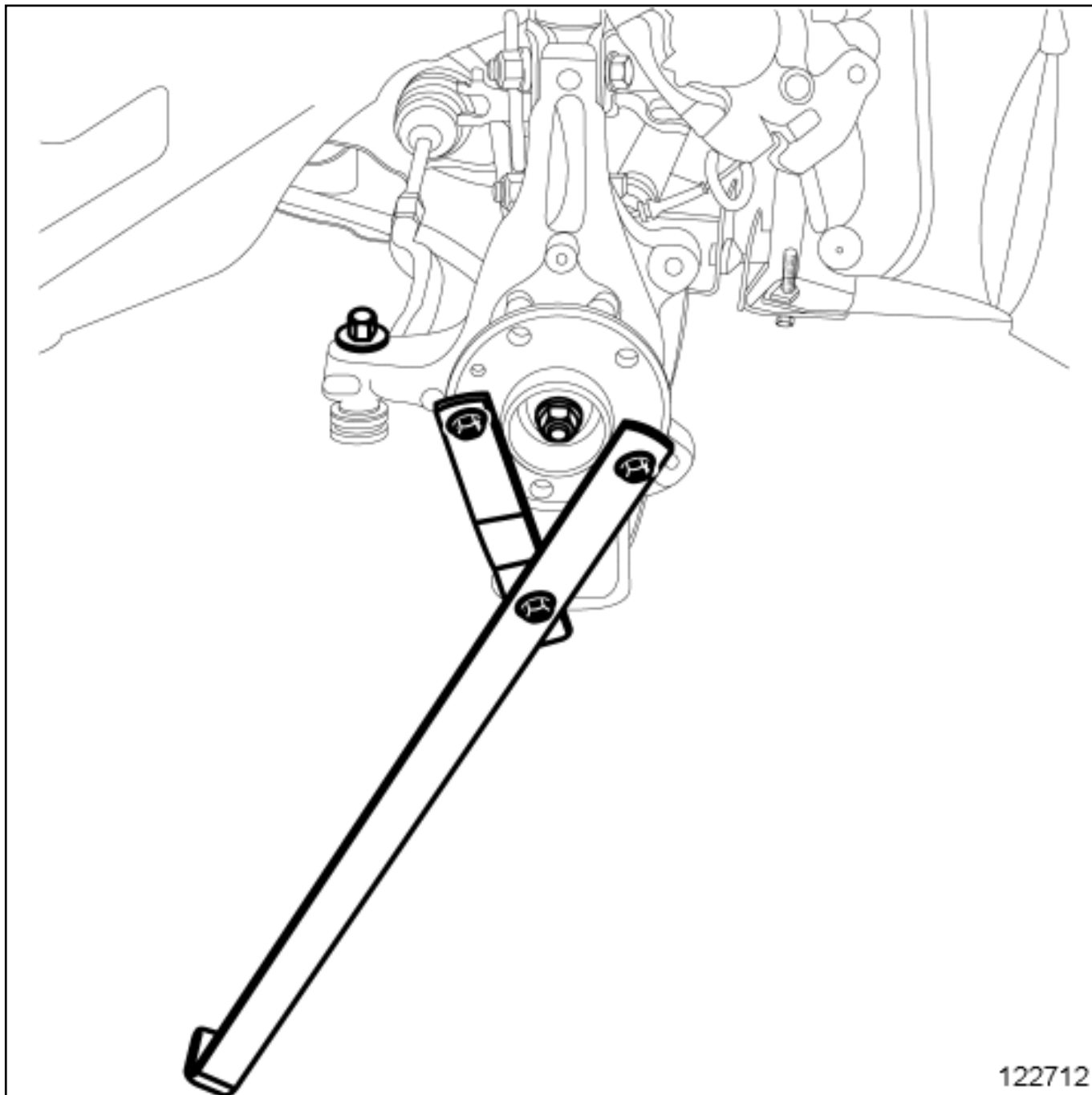
- the front wheel ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) ,
- the front wheel speed sensor ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) ,
-

the front brake calliper mounting bolts ([see 31A, Front axle components, Front brake calliper assembly: Exploded view](#)) ,

■
the calliper/mounting assembly ([see 31A, Front axle components, Front brake calliper assembly: Exploded view](#)) ,

■
the front brake disc ([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .

2. REMOVAL OPERATION



Remove [\(see 31A. Front axle components, Front hub carrier assembly: Exploded view\)](#) :

-
- the hub nut, using the Hub locking tool. [\(Rou. 604-01\)](#) ,
- the wheel hub bolts.

Push back the front driveshaft from the wheel hub using the tools Universal driveshaft push back tool (plate and claws without ram). [\(Tav. 1050-04\)](#) and Screw jack for tools [Tav. 1420](#), [Tav.1050-04](#) , [Tar.](#)



Remove the front wheel hub([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION



Use surface cleaner[Vehicle: Parts and consumables for the repair](#) to clean:



the wheel hub,



the front driveshaft hub carrier.

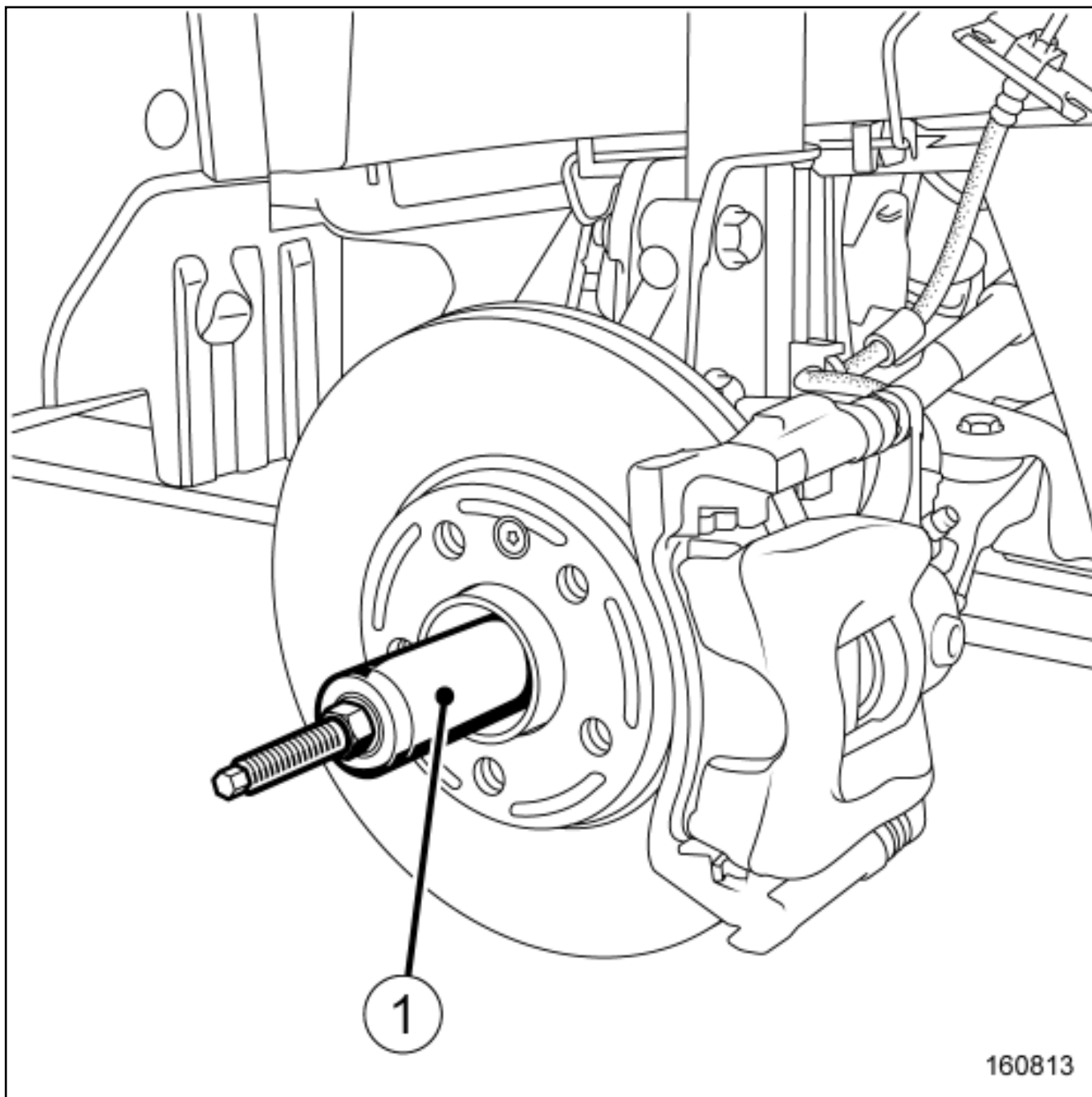


Coat the wheel hub bolts with High strength thread lock[Vehicle: Parts and consumables for the repair](#) before fitting them.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



160813



If necessary, engage the driveshaft splines with the hub splines using the tool(1) Driveshaft fitting tool. (Tav. 2048).



Repair-13x02x03x15-01x37-1-41-1.xml



FRONT IMPACT CROSS MEMBER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION



Remove:

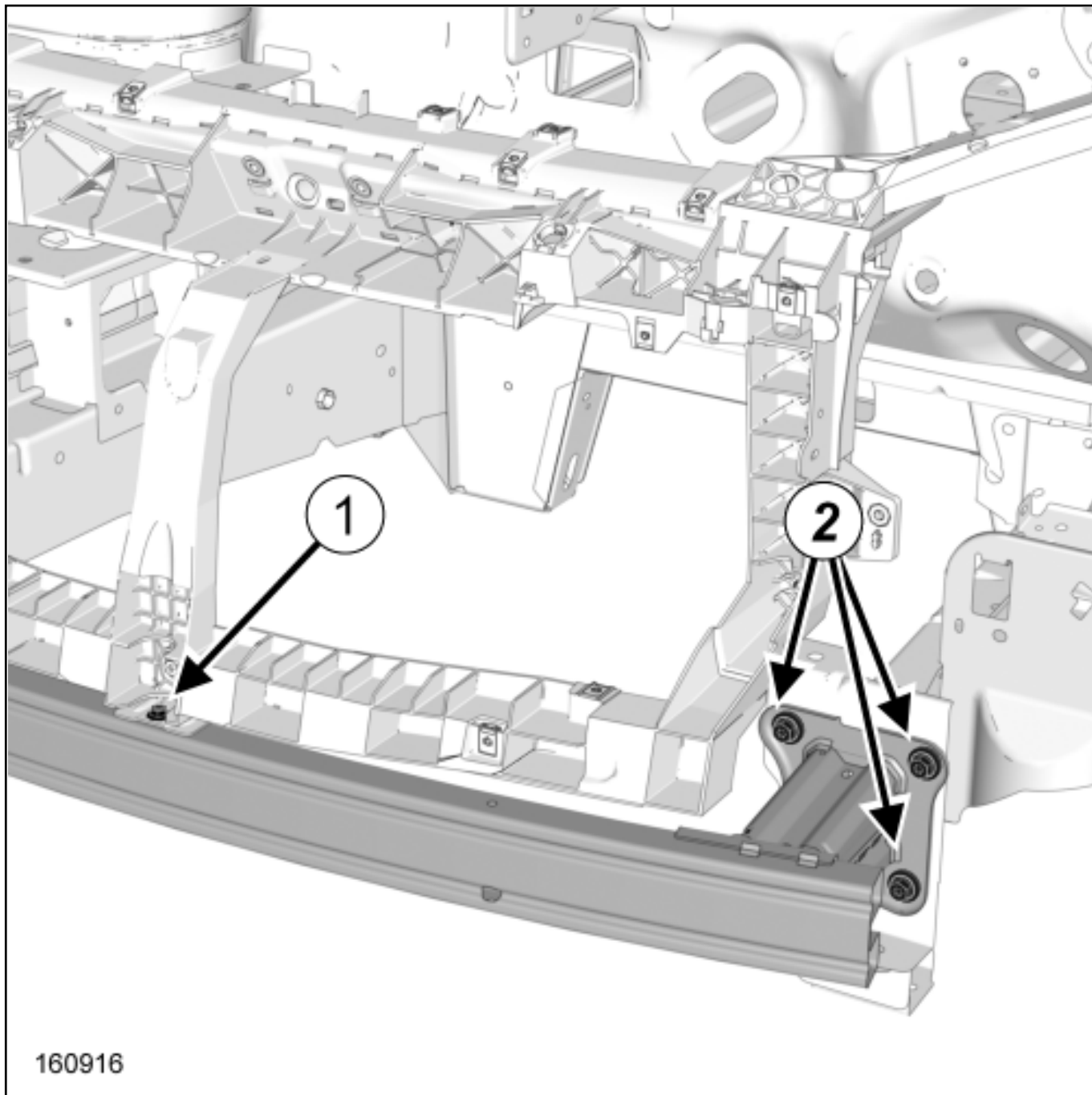


the front bumper [Front bumper assembly: Exploded view](#) ,

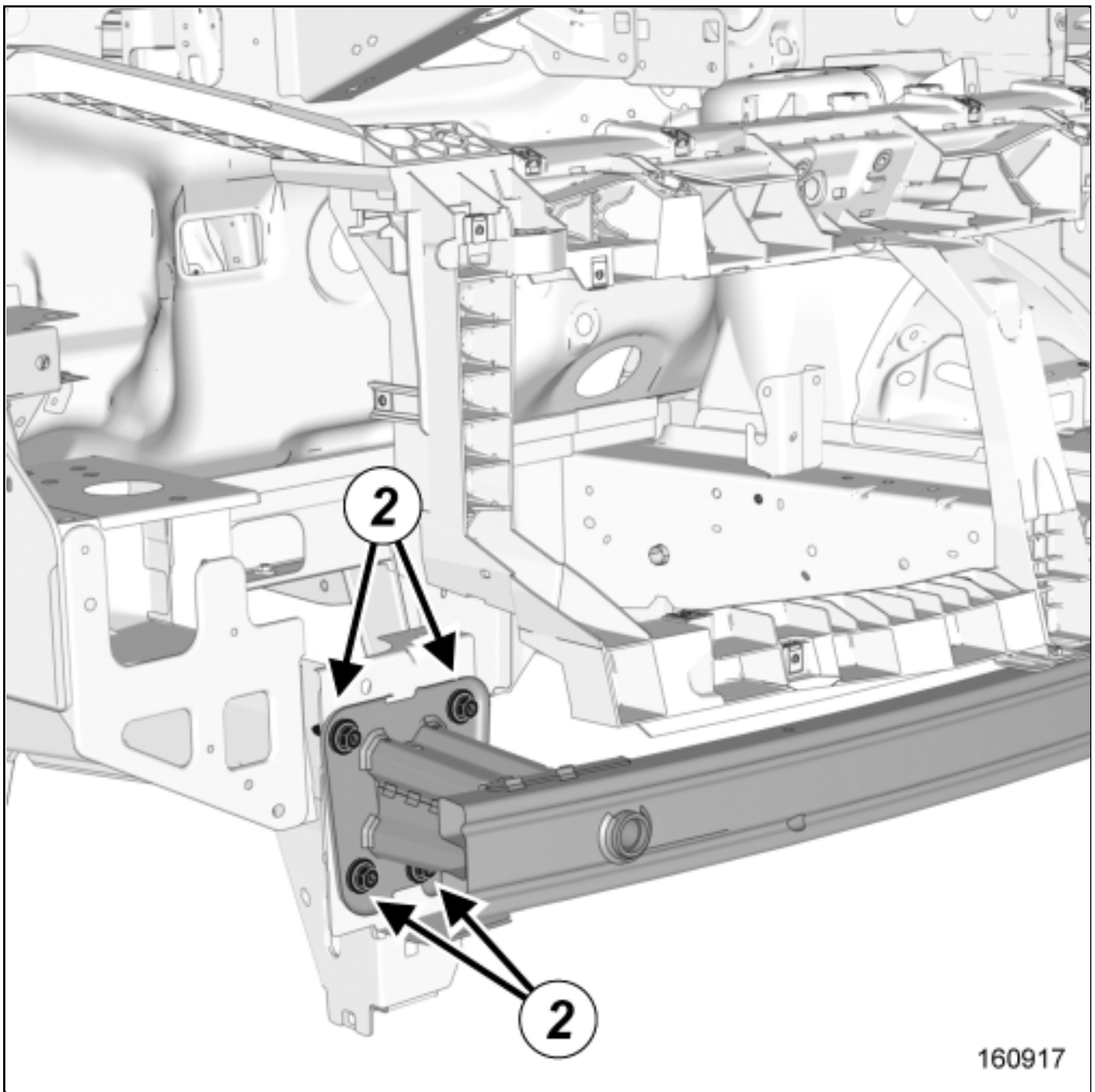


front bumper impact absorber [Exterior body front trim assembly: Exploded view](#) .

2. REMOVAL OPERATION



160916



160917

Remove:

-
- the bolt(1) from the front end panel,
-
- the front impact cross member bolts(2) ,
-
- the front impact cross member.

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Torque tighten the front impact cross member bolts 62 N.m.



Repair-40x02x02x01-01x37-1-14-1.xml



FRONT JACKING POINT: REPLACEMENT



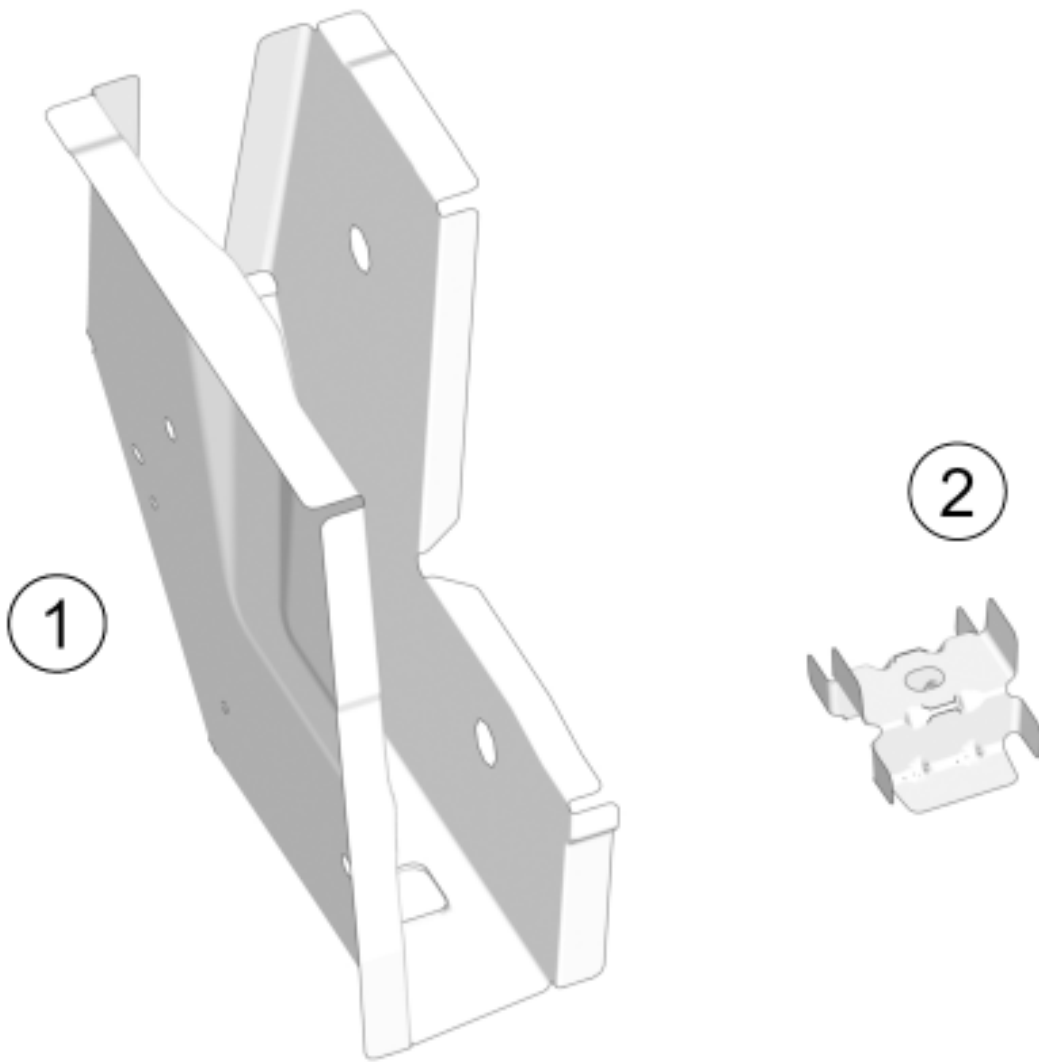
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



160931

No.	Description	Type	Thickness (mm)
(1)	Front jacking point	HSS	1.3
(2)	Front jacking point reinforcement	HSS	2.0

2. IN THE EVENT OF REPLACEMENT



There is only one way of replacing this part:



complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

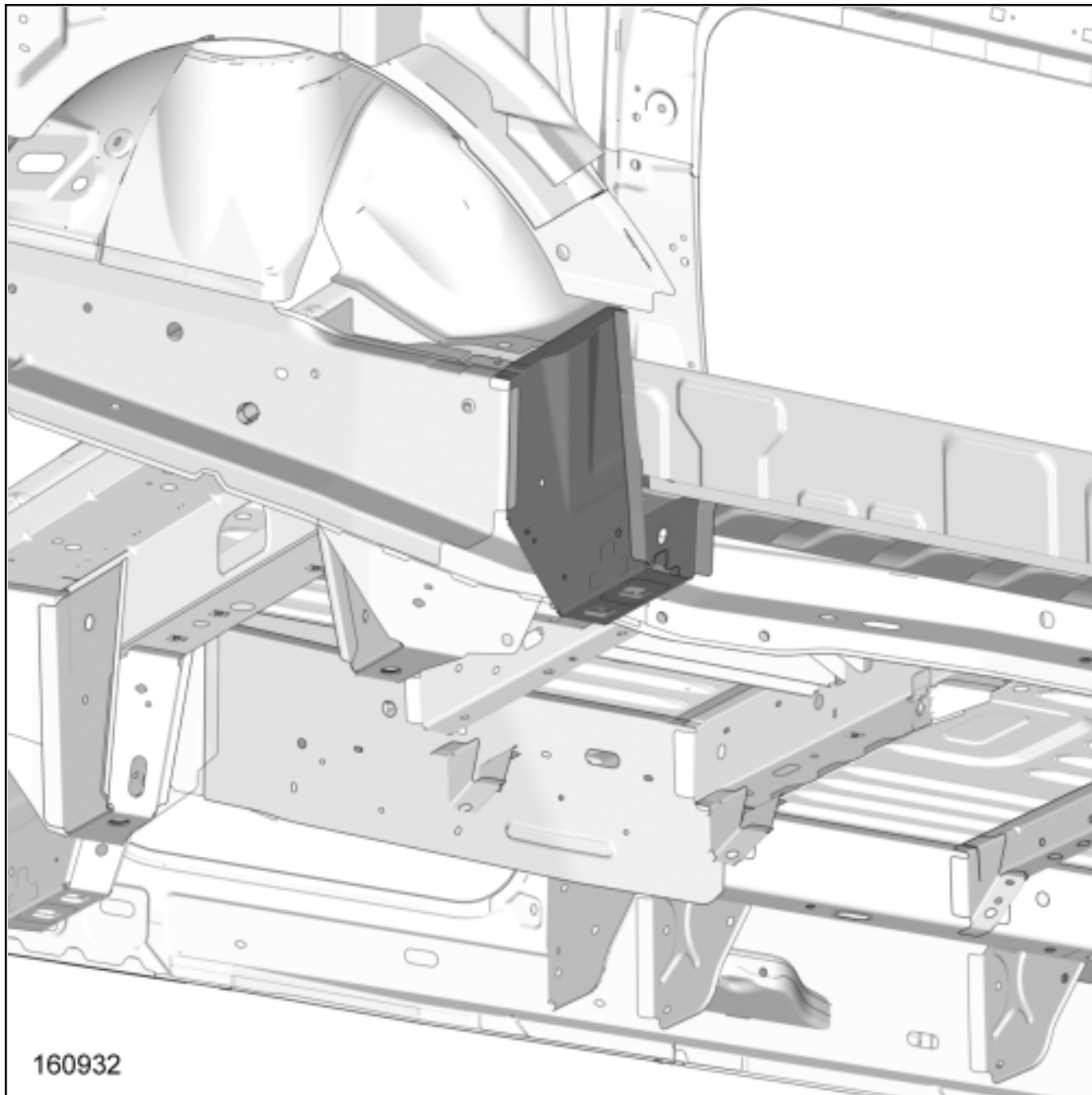
To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x04x08-02x49-1-2-1.xml



FRONT LEFT-HAND DRIVESHAFT GAITER, GEARBOX SIDE: REMOVAL - REFITTING

Special tooling required

Type clip pliers for driveshafts with a thermoplastic gaiter.

Tav. 1168

Pliers for the driveshaft gaiter collar.

Tav. 1784

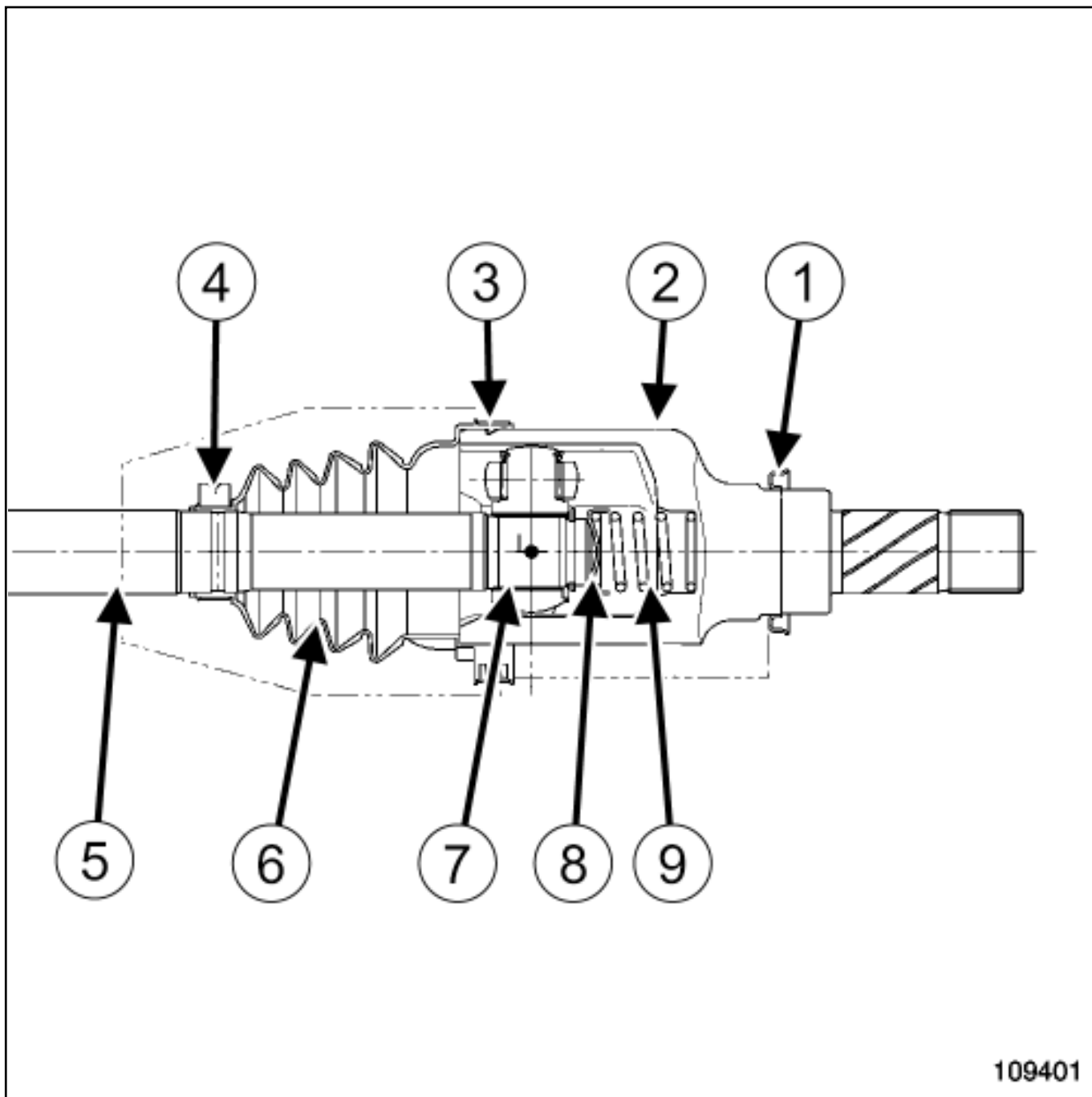
Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 29A, Driveshafts, Driveshaft assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#) (02A, Lifting equipment)).
- Remove:
 - the engine undertray,
 - the front left-hand wheel ([Wheel: Removal - Refitting](#) (35A, Wheels and tyres)).
- Drain the manual gearbox oil ([Manual gearbox oils: Draining - Filling](#)).
- Remove ([see 29A, Driveshafts, Driveshaft assembly: Exploded view](#)):
 - the front left-hand driveshaft.
 - the left-hand side differential output seal.

2. REMOVAL OPERATION



109401

- (1) deflector
- (2) spider bowl
- (3) large clip of front left-hand driveshaft gaiter
- (4) small clip of front left-hand driveshaft gaiter, gearbox side
- (5) left-hand driveshaft
- (6) front left-hand driveshaft gaiter, gearbox side
- (7) spider
- (8) spider circlip

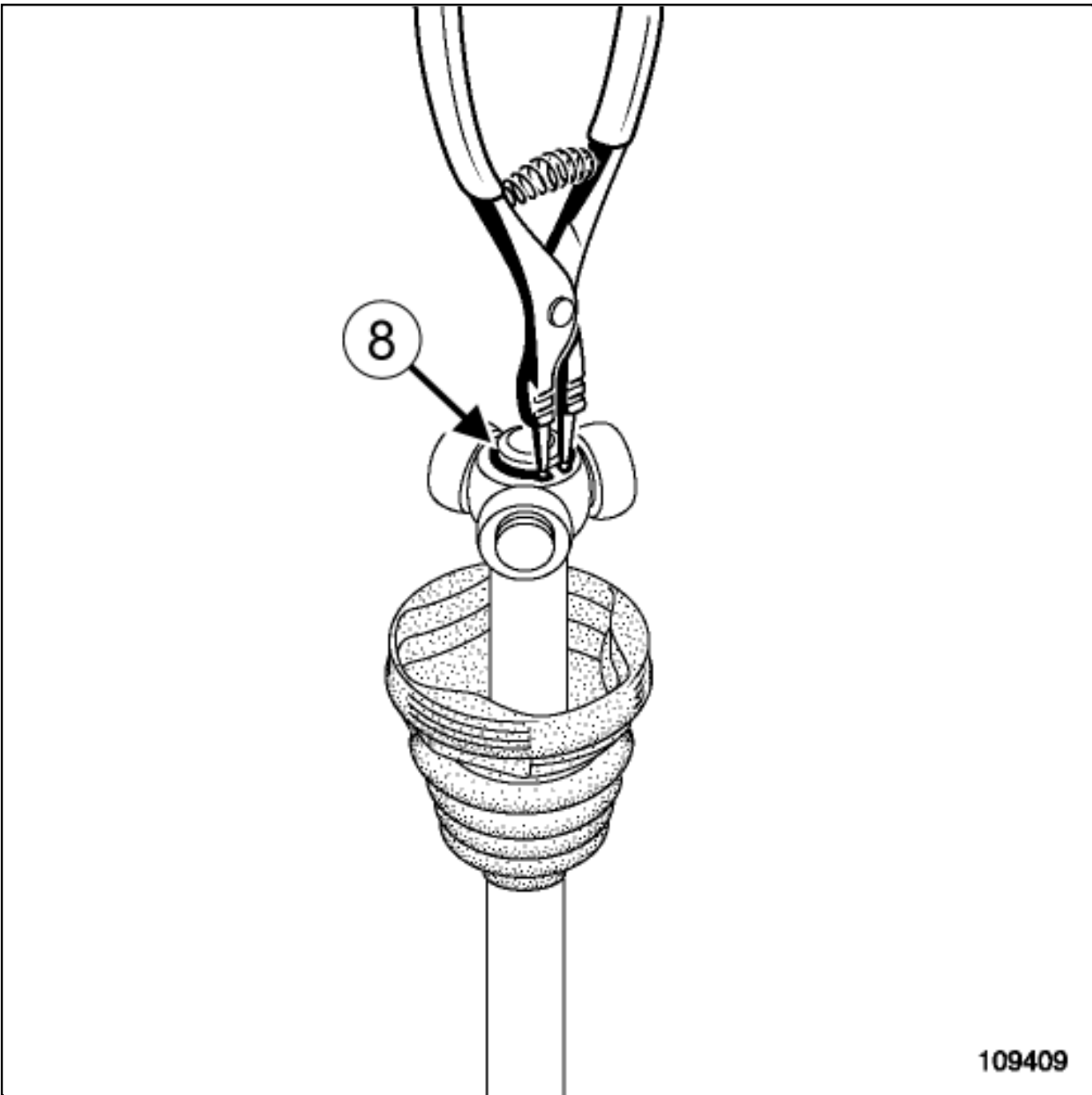
(9) spring

- ❑ Cut the large clip of the front left-hand driveshaft gaiter([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) and the small clip of the front left-hand driveshaft gaiter on the gearbox side([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) using cutting pliers or a metal saw, taking care not to damage the spider bowl.
- ❑ Push back the front left-hand driveshaft gaiter on the gearbox side([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) to release the spider bowl([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)).
- ❑ Remove as much grease as possible.
- ❑ Remove the spider bowl([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)).

Note:

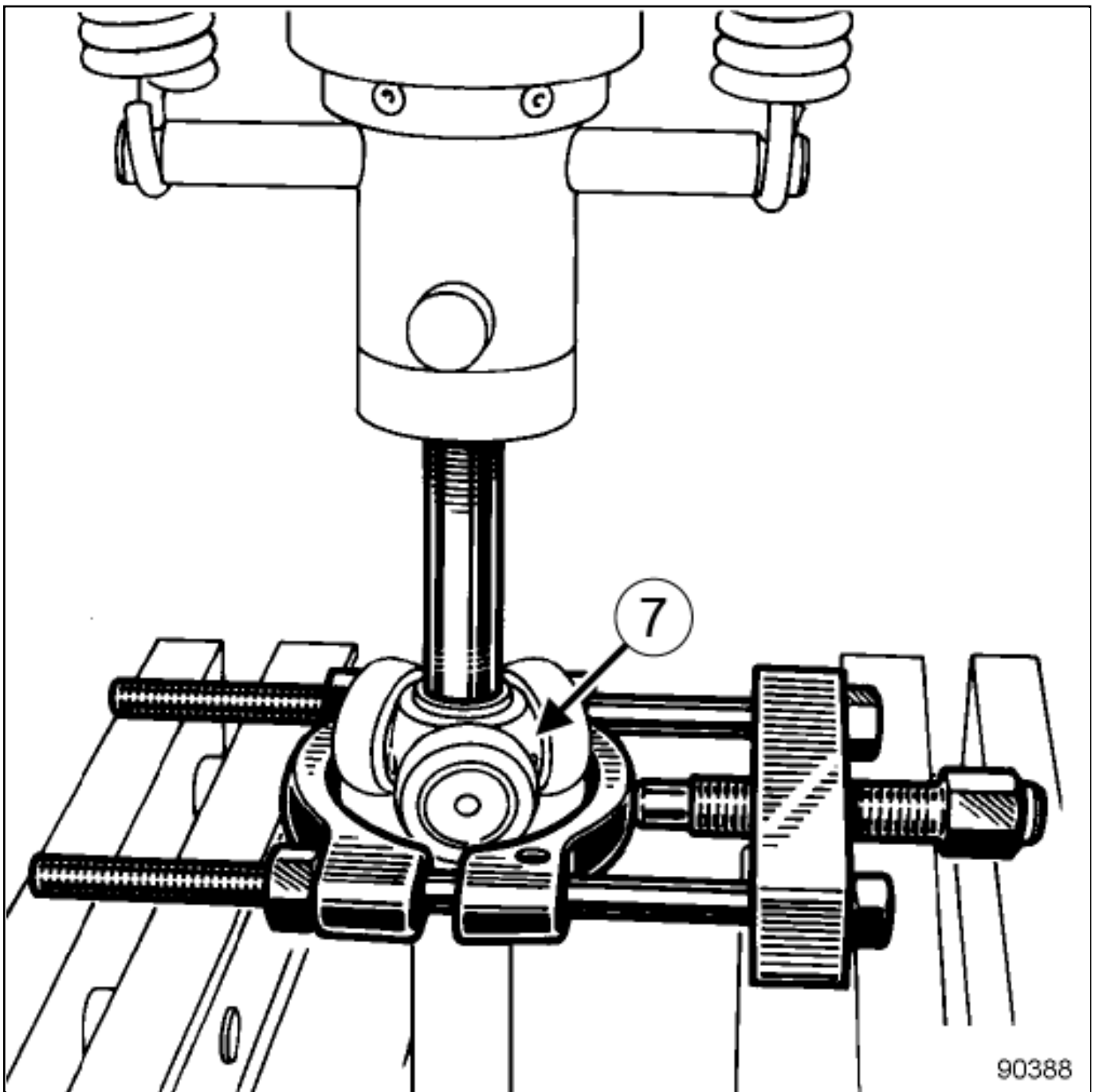


Because the spider bowl does not have a stop tab, the spider bowl can be removed without being forced.



109409

Remove the spider circlip(8) .



- Remove the spider(7) using a press and a releasing type extractor.



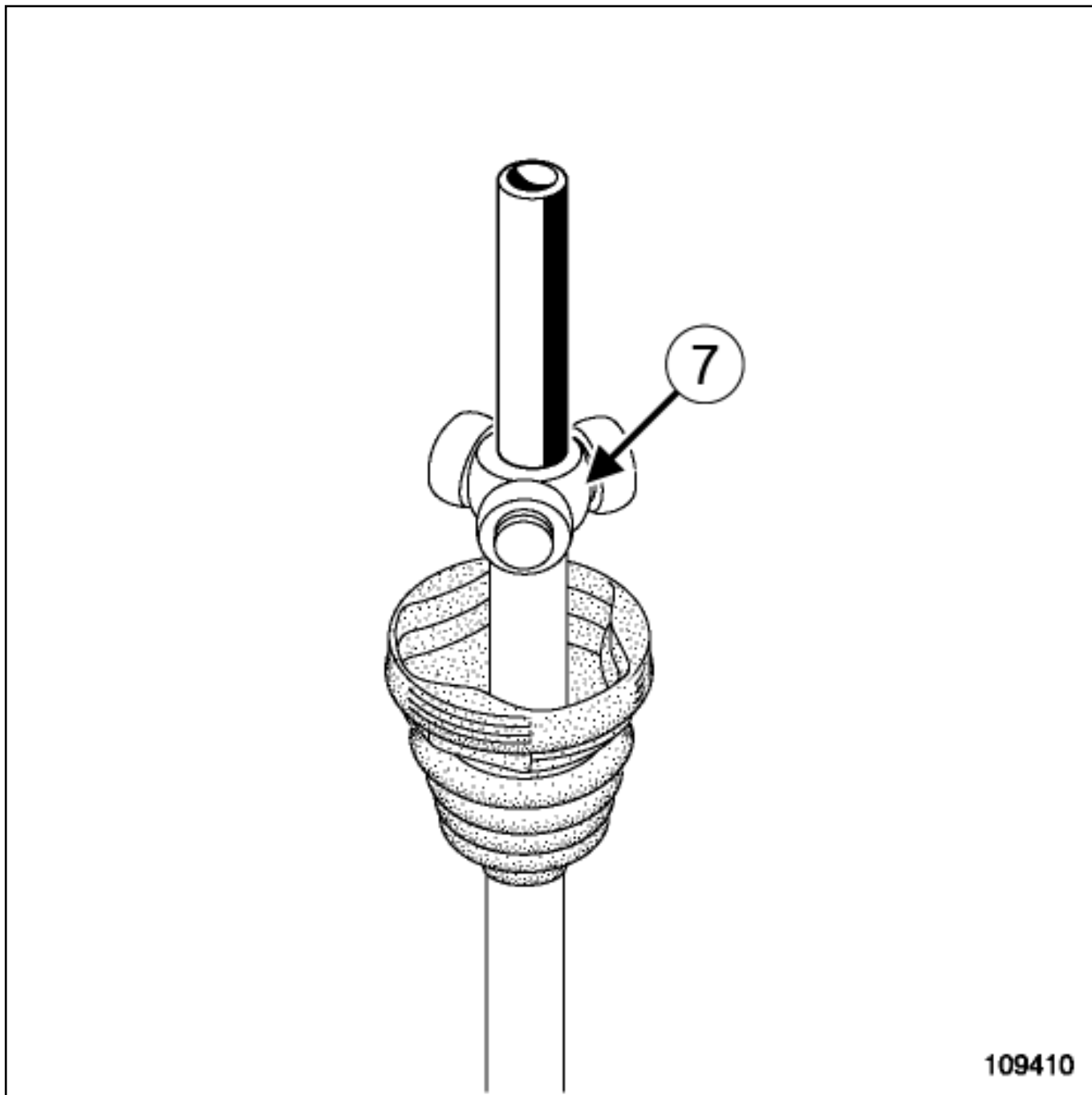
Note:

Mark the position of the spider before extracting it.

- Remove the front left-hand driveshaft gaiter on the gearbox side from the driveshaft.

1. REFITTING OPERATION

- Fit the small clip of the front left-hand driveshaft gaiter (on the gearbox side) on the driveshaft.
- Lightly lubricate the driveshaft to facilitate fitting the front left-hand driveshaft gaiter on the gearbox side.



- Fit the spider(7) in the position marked during removal.
- Refit the spider circlip.

- ▣ Grease the spider bowl.
- ▣ Fit the spider bowl on the spider.
- ▣ Spread the quantity of grease around the front left-hand driveshaft gaiter on the gearbox side and around the spider bowl.

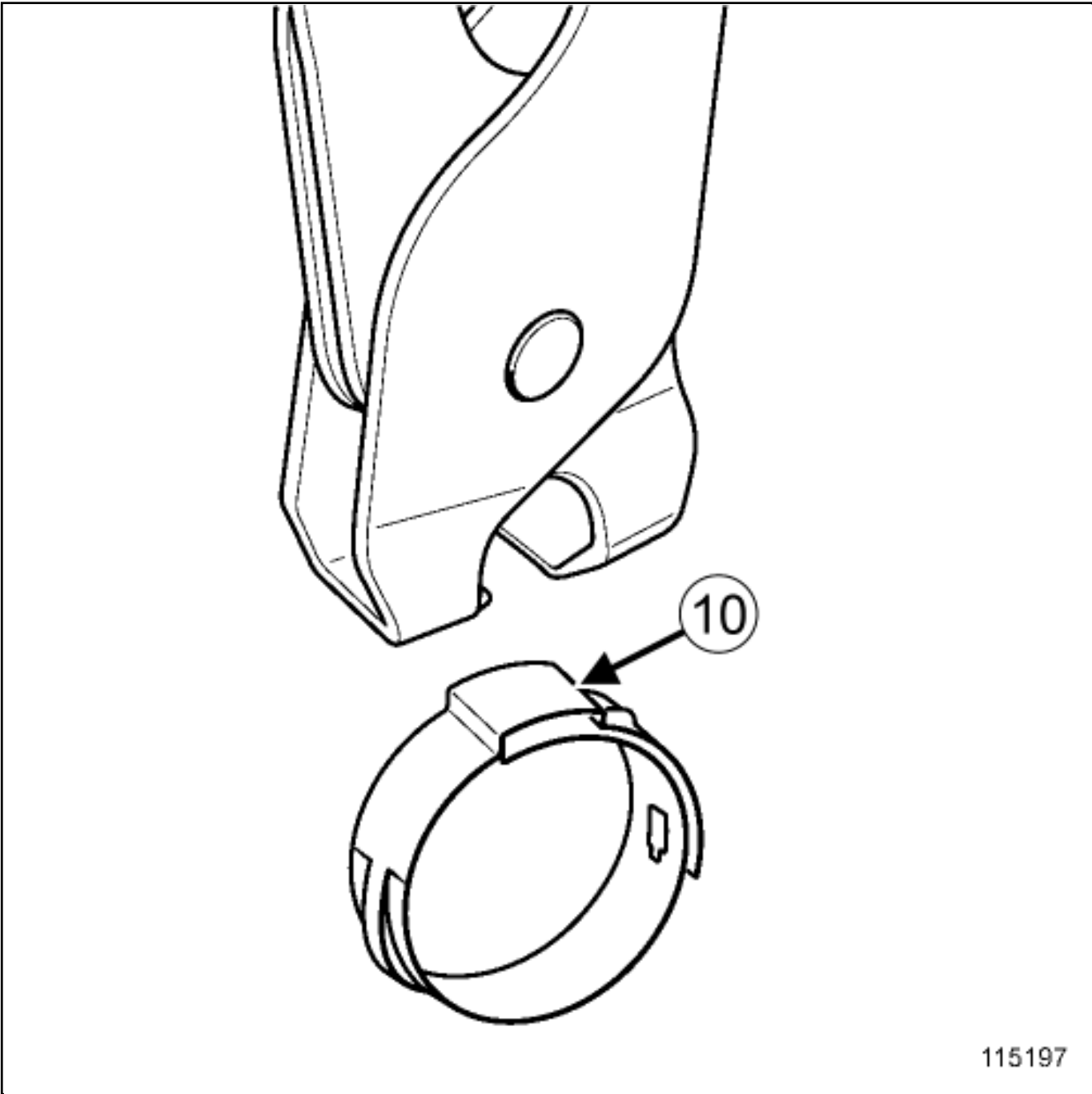


Note:

Be sure to observe the prescribed quantity of lubricant.

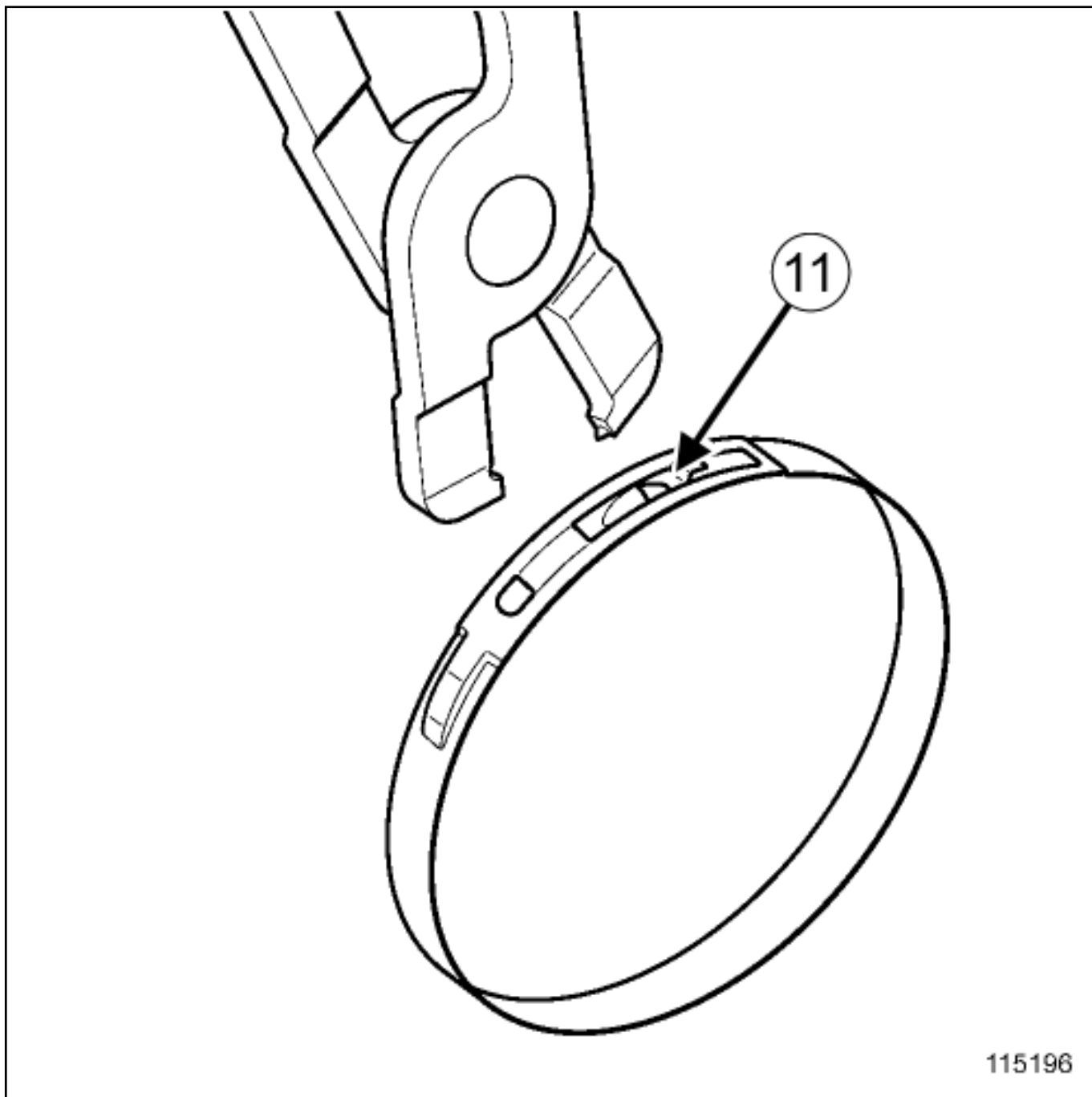
- ▣ Position the lips of the front left-hand driveshaft gaiter (on the gearbox side) in the neck of the spider bowl and driveshaft.
- ▣ Fit the small clip of the front left-hand driveshaft gaiter (on the gearbox side) on the driveshaft gaiter.
- ▣ Refit the large clip of the front left-hand driveshaft gaiter on the front left-hand driveshaft gaiter on the gearbox side.

CLIC CLIP



115197

CLIP WITH PROFILE END



Tighten the clips using the toolType clip pliers for driveshafts with a thermoplastic gaiter.([Tav. 1168](#)) for clic clips(10) or the toolPliers for the driveshaft gaiter collar.([Tav. 1784](#)) for profile end clips(11) .



Proceed in the reverse order to removal.



Fill up the manual gearbox[Manual gearbox oils: Draining - Filling](#) .



Repair-13x01x03x04-01x37-1-18-1.xml



XSL version : 3.02 du 22/07/11

FRONT LEFT-HAND DRIVESHAFT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Hub locking tool.	Rou. 604-01
Ball joint extractor.	Tav. 476
Driveshaft fitting tool.	Tav. 2048

Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 29A, Driveshafts , Driveshaft assembly: Exploded view\)](#) .



WARNING

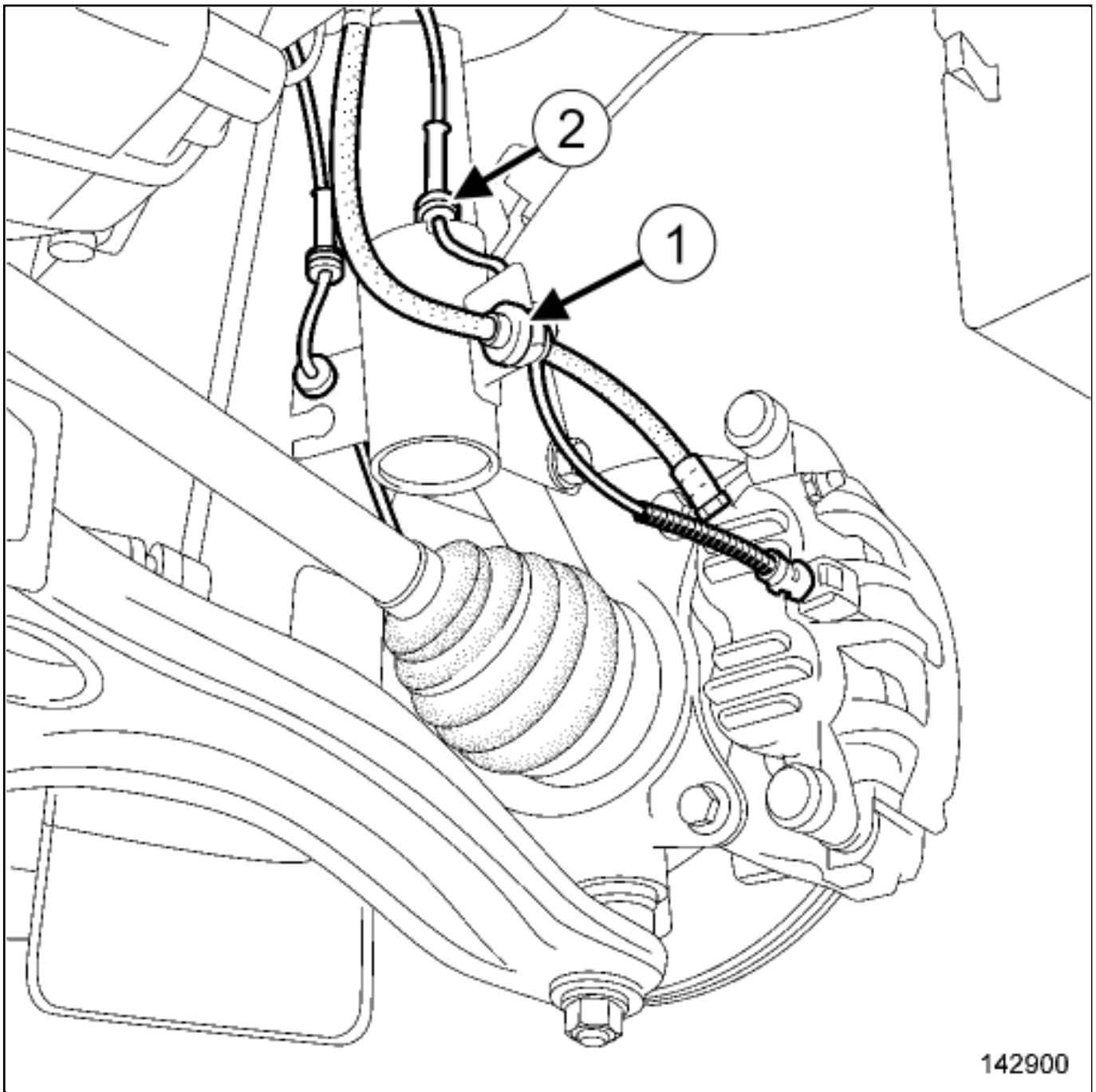
- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - [\(see 29A, Driveshafts , Driveshaft: Precautions for the repair\)](#) ,

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Remove:
 - the engine undertray,
 - the front left-hand wheel [Wheel: Removal - Refitting](#) (35A, Wheels and tyres).
- Drain the manual gearbox oil [Manual gearbox oils: Draining - Filling](#) .

2. REMOVAL OPERATION



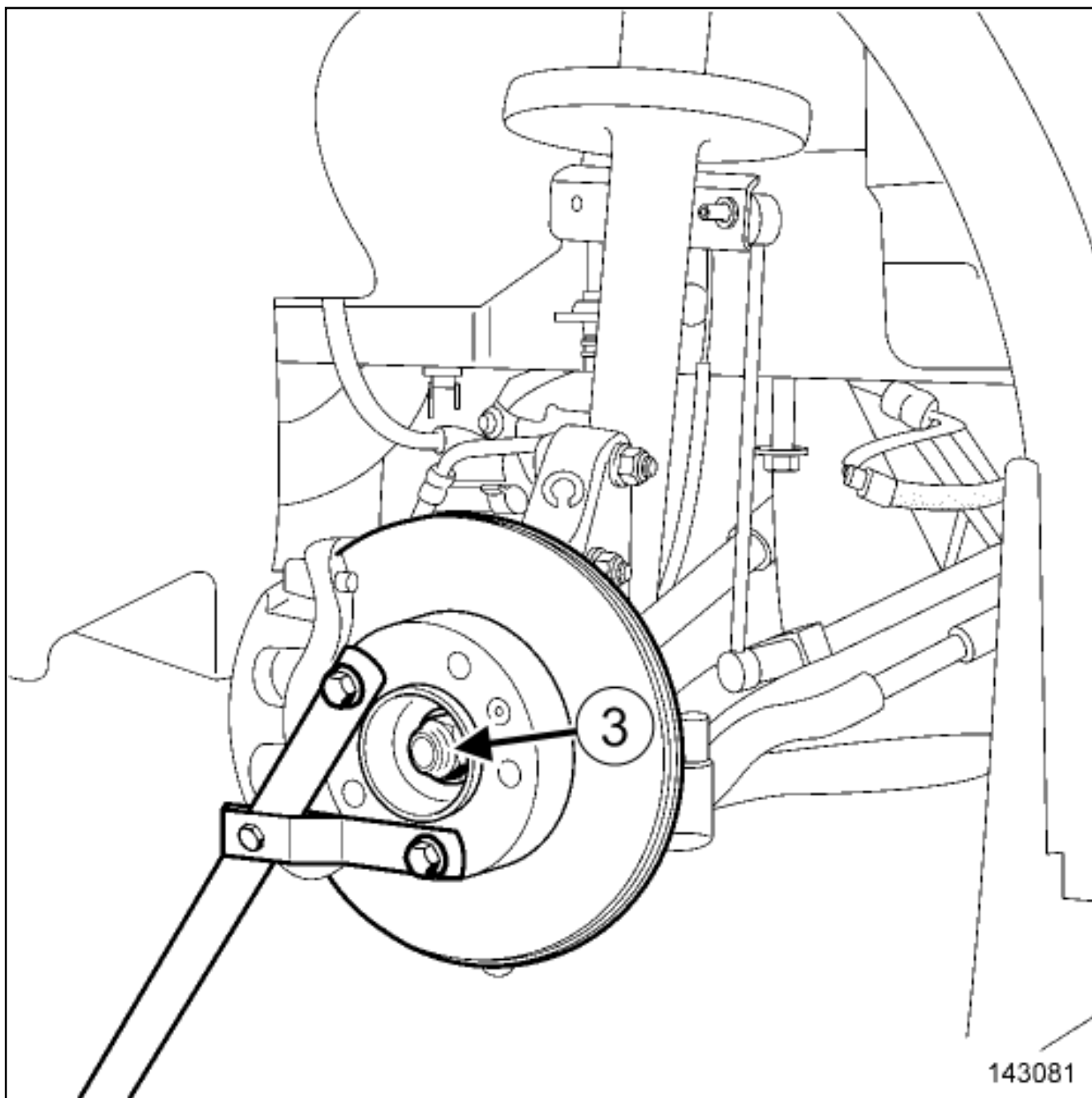
142900

■ Unclip:

- the brake hose(1) ,
- the wiring(2) of the brake pad wear warning light sensor.

Remove the wheel speed sensor bolt [Front hub carrier assembly: Exploded view](#) .

Move aside the wheel speed sensor [Front hub carrier assembly: Exploded view](#) .



Loosen the nut(3) of the front left-hand driveshaft by immobilising the hub using the toolHub locking tool. (Rou. 604-01).



Remove:



the nut of the front left-hand driveshaft([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)),

■ the nut of the left-hand track rod end [Steering assembly: Exploded view](#) ,

■ the protector of the left-hand track rod end [Steering assembly: Exploded view](#) ,

■ the left-hand track rod end from the stub axle carrier using the tool Ball joint extractor. (Tav. 476) [Steering assembly: Exploded view](#) ,

■ the bolts and the nuts [Front axle assembly: Exploded view](#) from the left-hand shock absorber base.

■ Push the front left-hand driveshaft back from the stub axle carrier.

■ Remove [\(see 29A, Driveshafts , Driveshaft assembly: Exploded view\)](#) :

■ the front left-hand driveshaft.

■ the left-hand side differential output seal.

REFITTING

1. REFITTING PREPARATION OPERATION

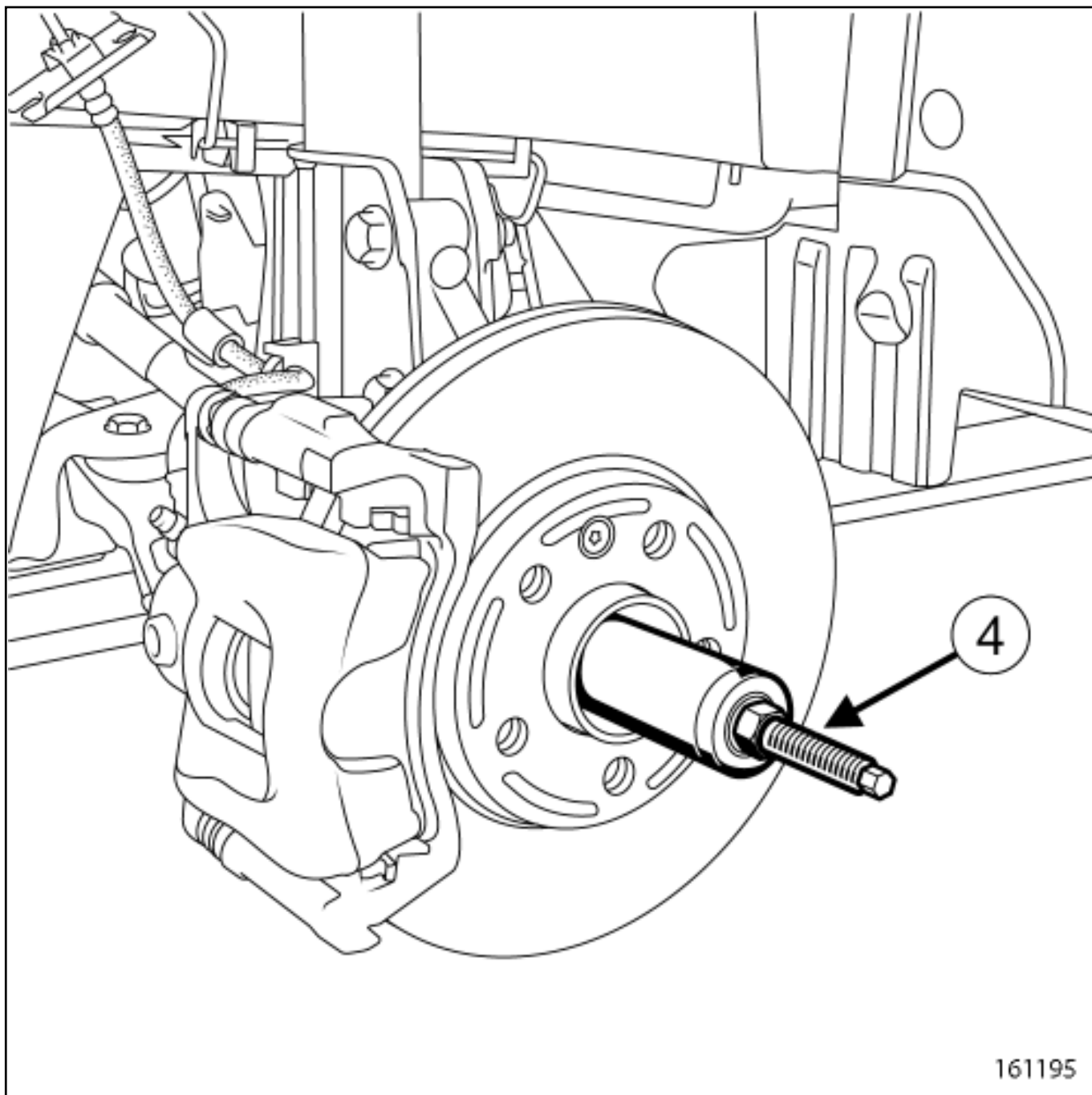
Note:



During removal, if there is Threadlock on the universal joint splines and the universal joint nut. When refitting, apply Threadlock to the universal joint splines and the universal joint nut [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

2. REFITTING OPERATION

■ Proceed in the reverse order to removal.



161195

Refit the driveshaft to the hub carrier using the Driveshaft fitting tool. (Tav. 2048) (4), if necessary.

Fill up the manual gearbox [Manual gearbox oils: Draining - Filling](#) .



FRONT OPENING ELEMENT: ADJUSTMENT



Note, one or more warnings are present in this procedure



WARNING

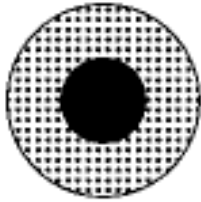
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

Location and specifications (tightening torques, parts always to be replaced, etc.) [Front opening element mechanism assembly : Exploded view](#) .

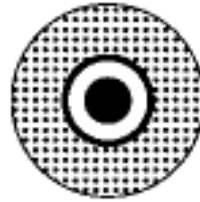
ADJUSTMENT

- For all information about bonnet adjustment values [Vehicle panel gaps: Adjustment value](#) .
- There are two options for adjusting the bonnet:
 - by means of the bonnet nuts,
 - by means of the bonnet hinge nuts.

A



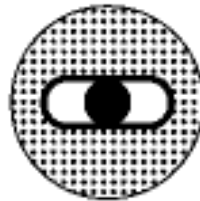
B



C



D



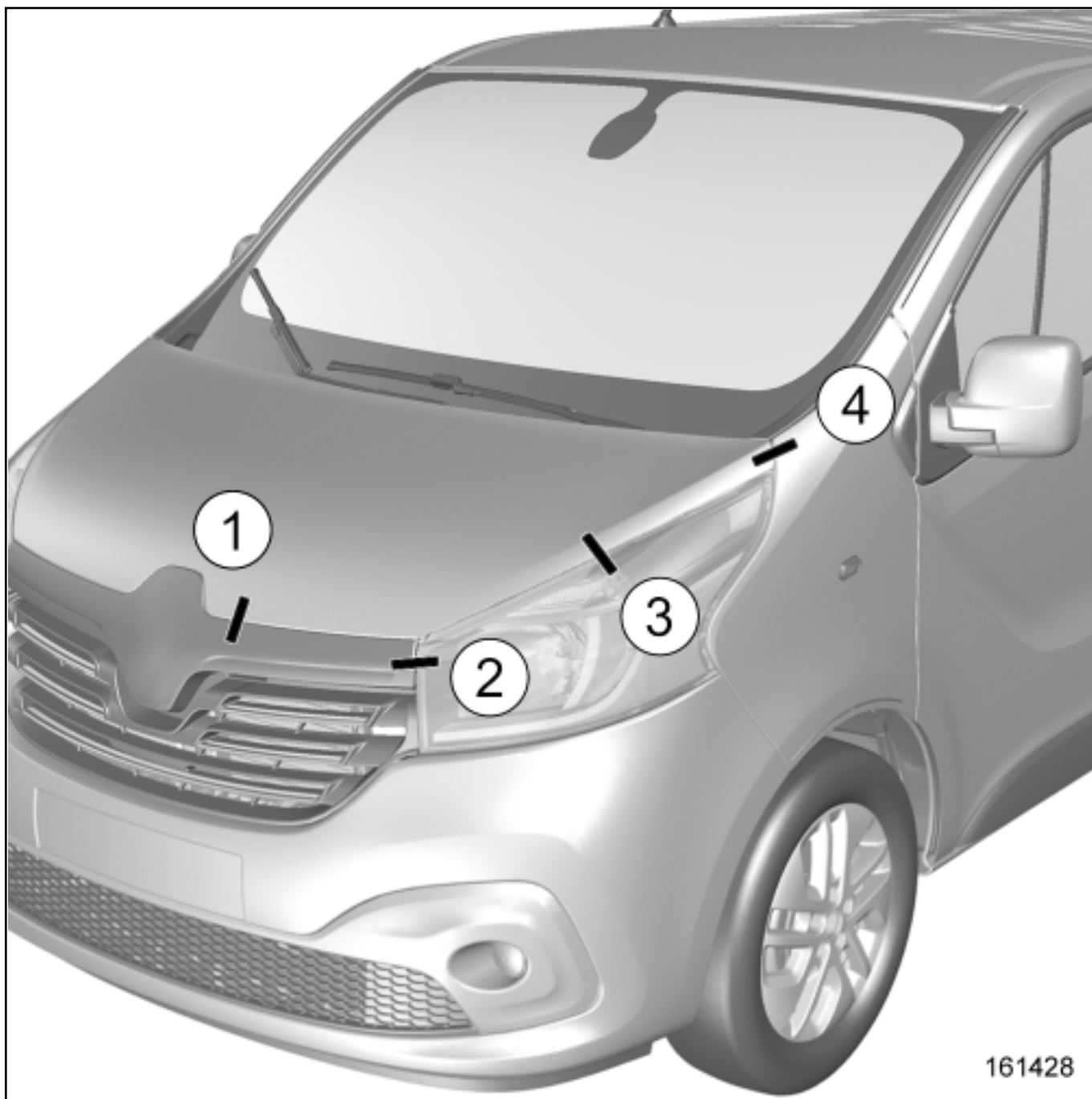
109496

▣ Symbols A, B, C and D show the adjustment options.

The black dot in the centre represents the body of the bolt.

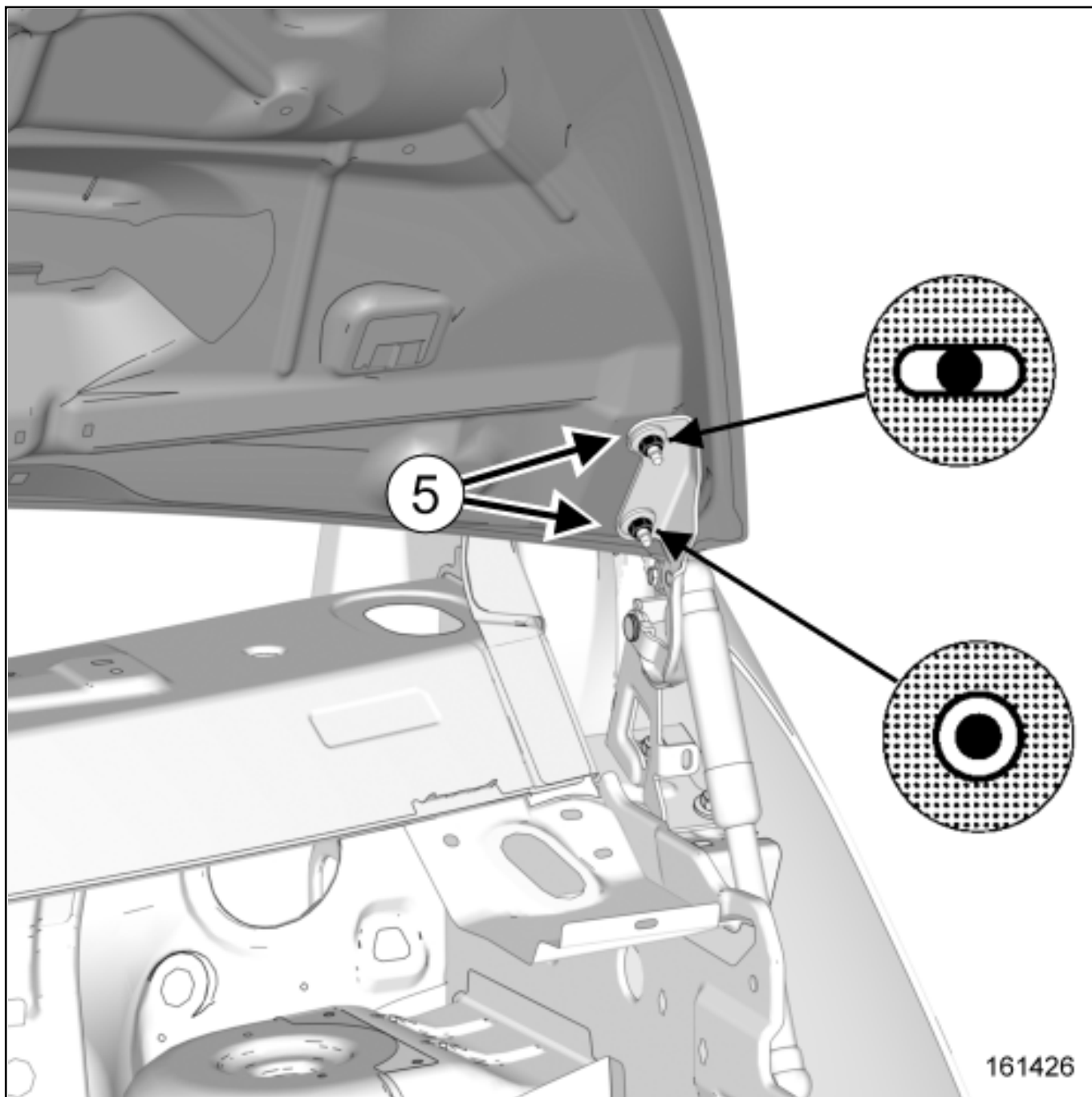
The grey section represents the component to be adjusted.

The white section represents the adjustment area.



Observe the adjustment sequence(1) , (2) , (3) and (4) .

1. ADJUSTMENT BY MEANS OF THE BONNET NUTS



- Loosen the bonnet nuts(5) .

- Adjust the gaps and flush fittings of the bonnet.

- Tighten the bonnet nuts.

1- PREPARATION FOR ADJUSTMENT



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove:



the front wheel arch liners [Front wheel arch liner: Removal - Refitting](#) ,



the radiator grille [Front bumper assembly: Exploded view](#) ,



the front bumper [Front bumper assembly: Exploded view](#) ,

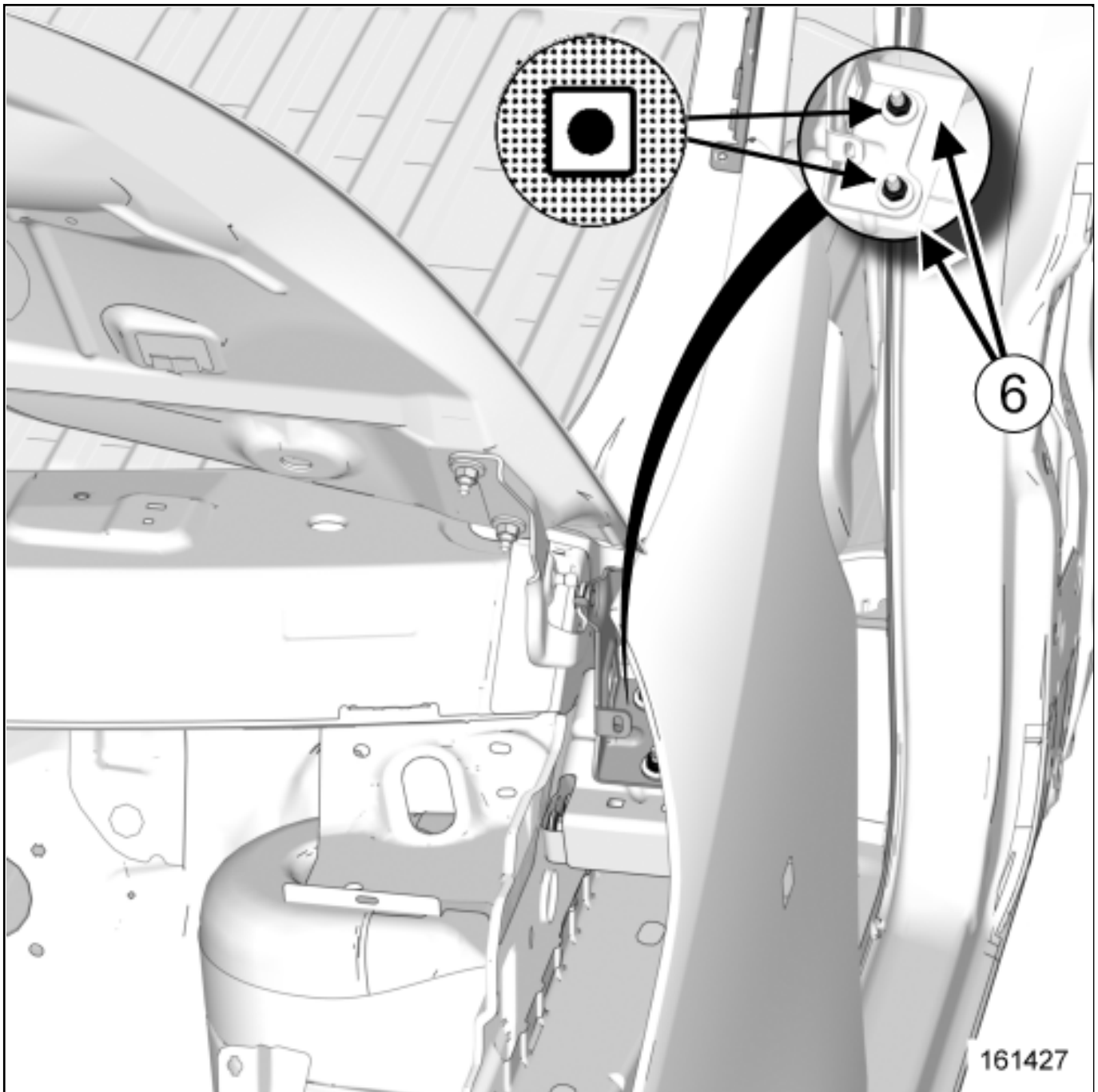


the windscreen pillar trims [Windscreen pillar trim: Removal - Refitting](#) ,



the headlights [Front signals - lighting assembly: Exploded view](#) .

2- BASIC ADJUSTEMENT



- Loosen the bonnet hinge nuts(6) .

- Adjust the bonnet panel gaps.

- Tighten the hinge nuts.

Proceed in the reverse order to the adjustment preparation operation.



Repair-40x10x09x01-01x67-1-6-1.xml



XSL version : 3.02 du 22/07/11

FRONT OPENING ELEMENT MECHANISM ASSEMBLY : EXPLODED VIEW

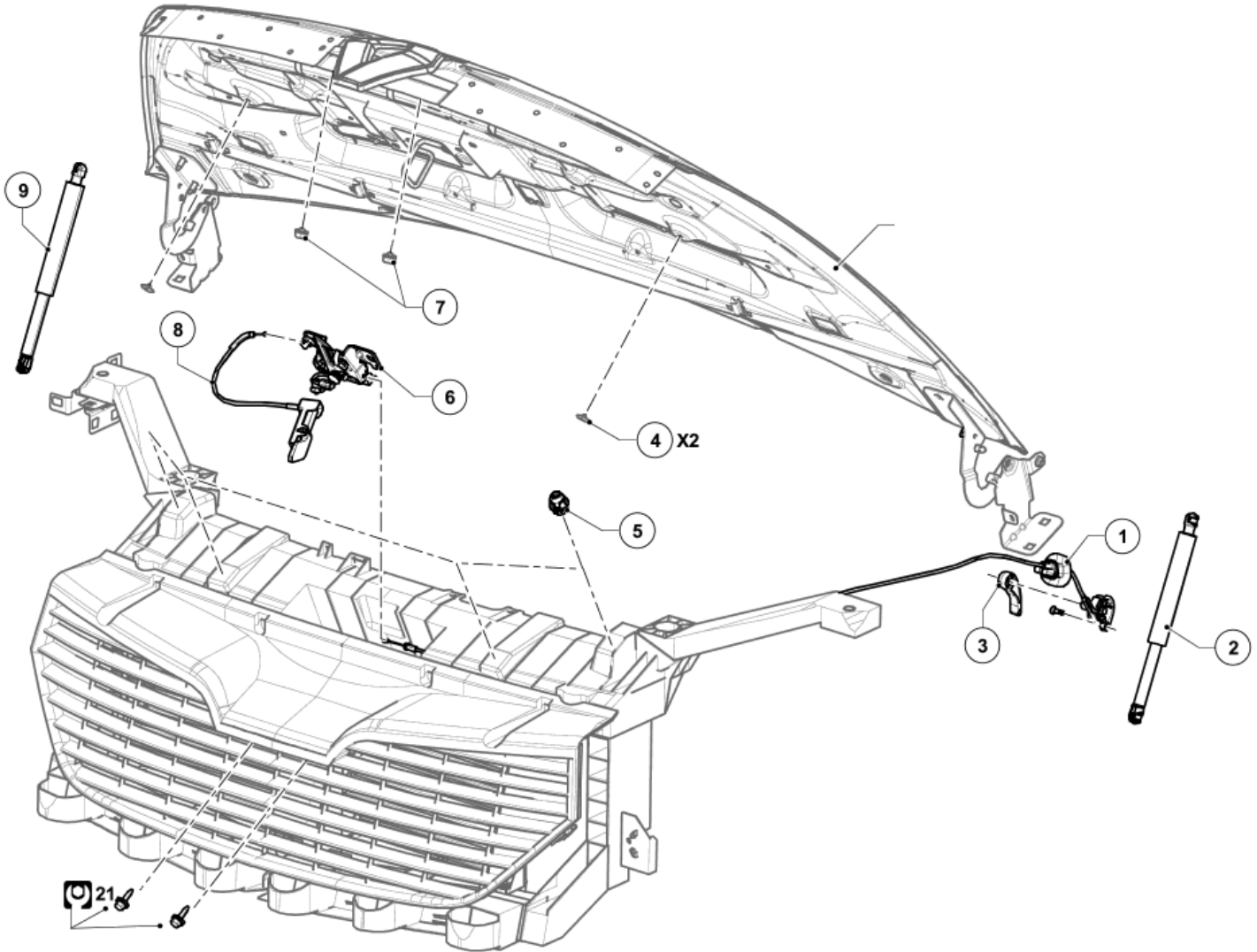


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Front opening element interior opening control cable	
2	Bonnet strut	
3	Bonnet release control	
4	Front opening element stop	
5	Front opening element stop	
6	Front opening element lock	
7	Front opening element stop	
8	Front opening element opening control	
9	Bonnet strut	



Repair-50x03x28-02x50-1-4-1.xml



XSL version : 3.02 du 22/07/11

FRONT OPENING ELEMENT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

Location and specifications (tightening torques, parts always to be replaced, etc.) [Front opening element mechanism assembly : Exploded view](#) .

This operation can be carried out in two ways:

- removal without the hinges: allows the initial adjustments to be kept.
- removal with the hinges: prevents the original paintwork from coming off between the hinges and the bonnet lining.

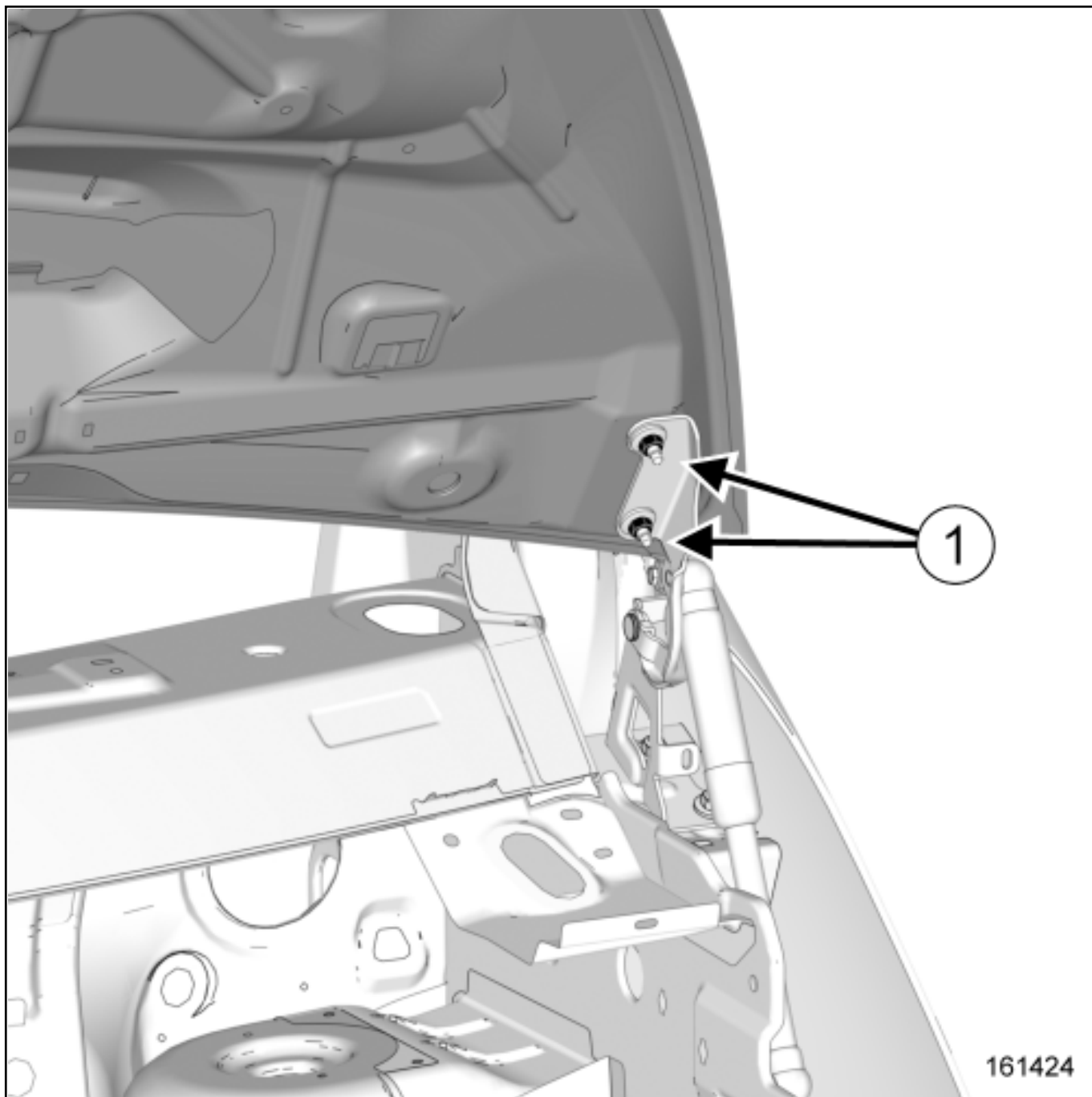
REMOVAL

1. REMOVAL WITHOUT THE BONNET HINGES

1- REMOVAL PREPARATION OPERATION

- Remove the bonnet soundproofing.
- Disconnect the screen washer pipes.
- Unclip the screen washer pipes.

2- REMOVAL OPERATION



- Remove:
 - the nuts(1) ,
 - the front opening element (this operation requires two people).

2. REFITTING WITHOUT THE BONNET HINGES

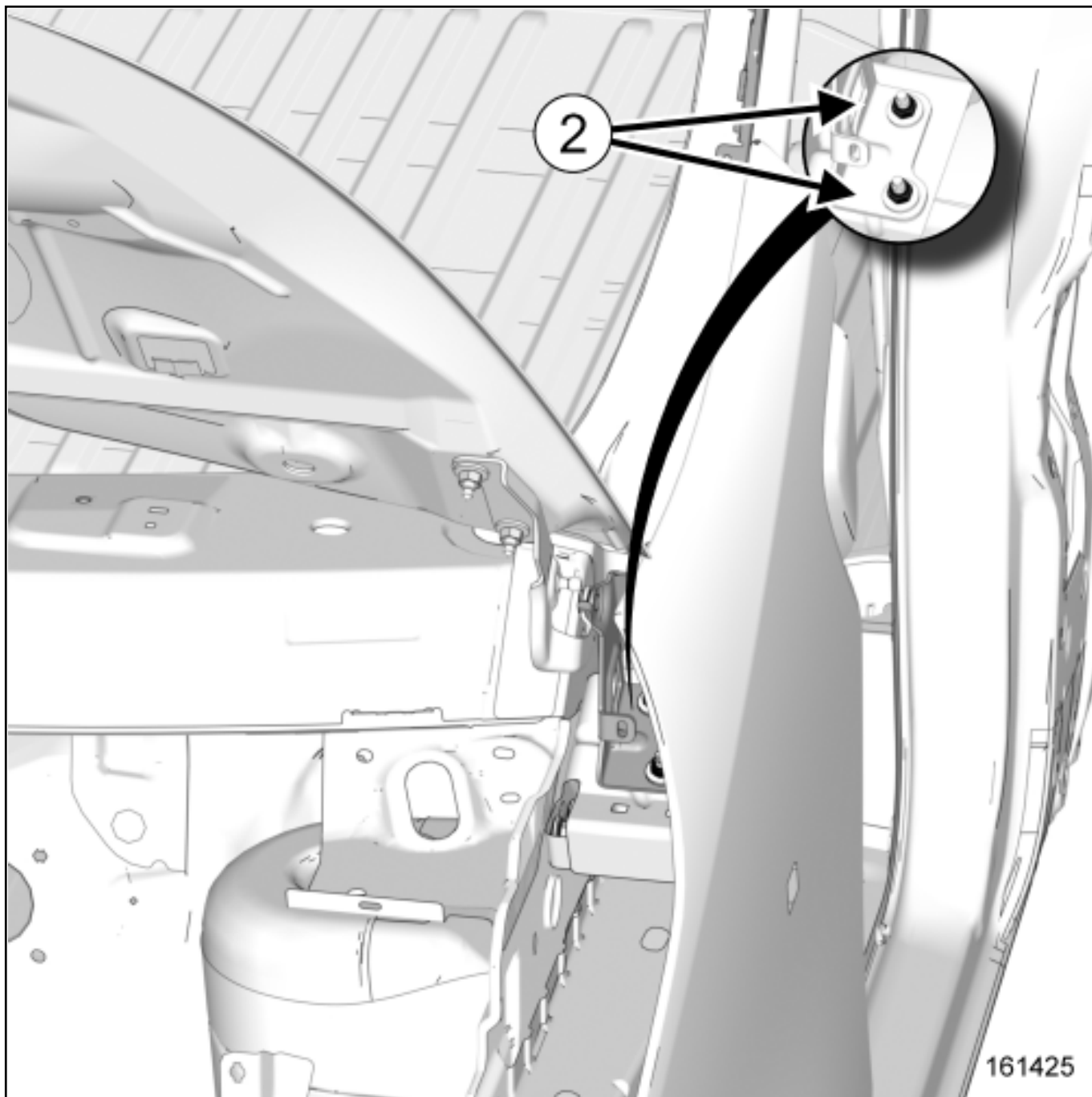
- Proceed in the reverse order to removal.
- Adjust the opening clearances and flush fitting([see 48A, Non-side opening elements, Front opening element: Adjustment](#)) .

3. REMOVAL WITH THE BONNET HINGES

1- REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove the bonnet soundproofing.
- Disconnect the screen washer pipes.
- Unclip the screen washer pipes.
- Remove:
 - the front wheel arch liners [Front wheel arch liner: Removal - Refitting](#) ,
 - the radiator grille [Front bumper assembly: Exploded view](#) ,
 - the front bumper [Front bumper assembly: Exploded view](#) ,
 - the windscreen pillar trims [Windscreen pillar trim: Removal - Refitting](#) ,
 -
 - the bonnet struts [Front opening element mechanism assembly : Exploded view](#) ,
 - the headlights [Front signals - lighting assembly: Exploded view](#) .

2- REMOVAL OPERATION



Remove:

-
- the nuts(2) ,
- the front opening element (this operation requires two people).

4. REFITTING WITH THE BONNET HINGES

Proceed in the reverse order to removal.



Adjust the opening clearances and flush fitting([see 48A, Non-side opening elements, Front opening element: Adjustment](#)) .



Repair-40x10x09x01-01x37-1-7-1.xml



XSL version : 3.02 du 22/07/11

FRONT RIGHT-HAND DRIVESHAFT GAITER, GEARBOX SIDE: REMOVAL - REFITTING

Special tooling required

Type clip pliers for driveshafts with a thermoplastic gaiter.

Tav. 1168

Pliers for the driveshaft gaiter collar.

Tav. 1784

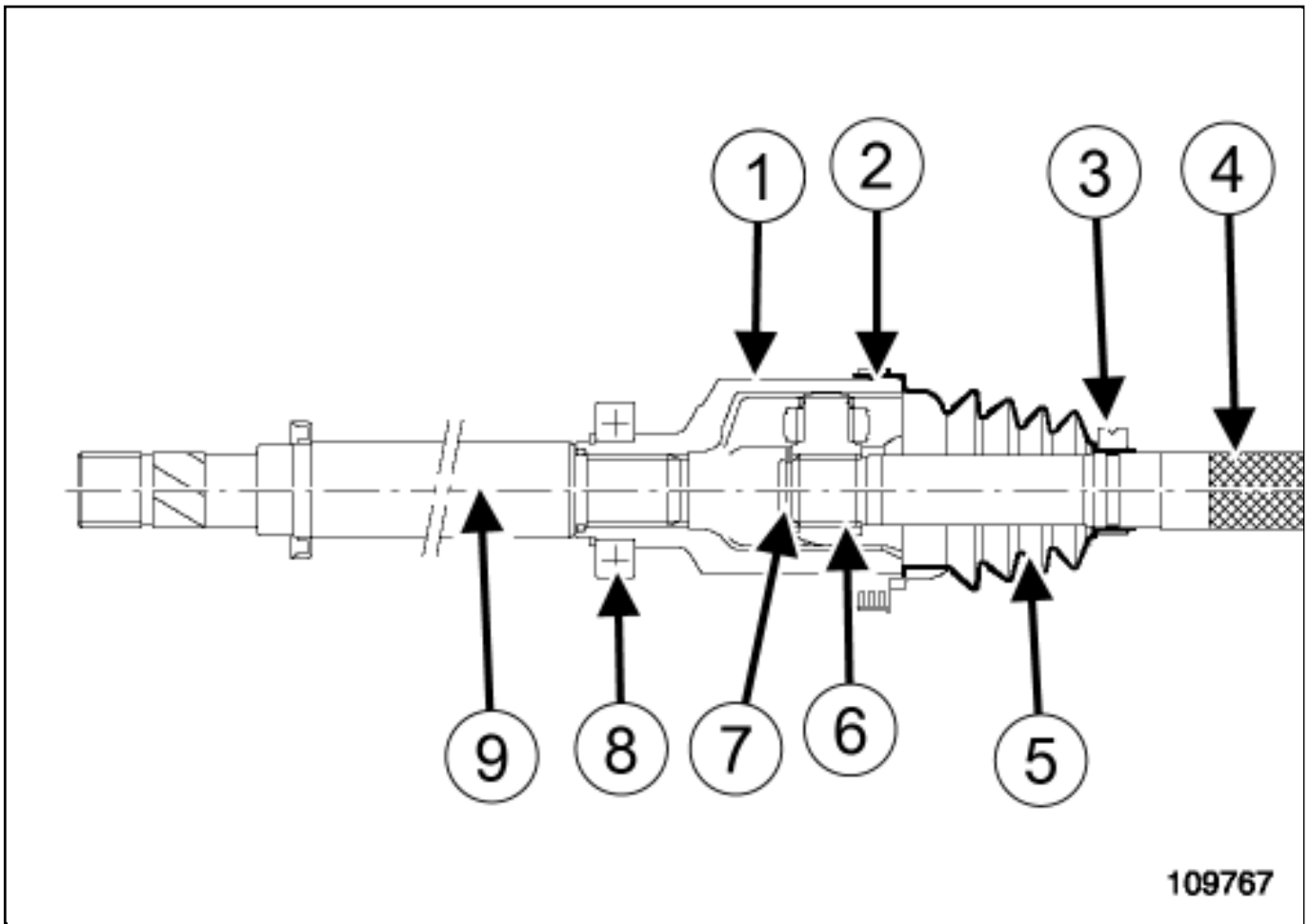
Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 29A, Driveshafts, Driveshaft assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#) (02A, Lifting equipment)).
- Remove:
 - the engine undertray,
 - the front right-hand wheel ([Wheel: Removal - Refitting](#) (35A, Wheels and tyres)).
- Drain the manual gearbox oil ([Manual gearbox oils: Draining - Filling](#)).
- Remove ([see 29A, Driveshafts, Driveshaft assembly: Exploded view](#)):
 - the front right-hand driveshaft.
 - the right-hand side differential output seal.

2. REMOVAL OPERATION



109767

- (1) spider bowl
- (2) large clip of front right-hand driveshaft gaiter, gearbox side
- (3) small clip of front right-hand driveshaft gaiter, gearbox side
- (4) driveshaft
- (5) front right-hand driveshaft gaiter, gearbox side
- (6) spider
- (7) spider circlip
- (8) relay shaft bearing
- (9) relay shaft

■ Cut the large clip of the front right-hand driveshaft gaiter on the gearbox side(see 29A, Driveshafts, Driveshaft assembly: Exploded view) and the small clip of the front right-hand driveshaft gaiter on the gearbox side (see 29A, Driveshafts, Driveshaft assembly: Exploded view) using cutting pliers or a metal saw, taking care not to damage the spider bowl.

■ Push back the front right-hand driveshaft gaiter on the gearbox side(see 29A, Driveshafts, Driveshaft

[assembly: Exploded view](#)) to release the spider bowl([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) .

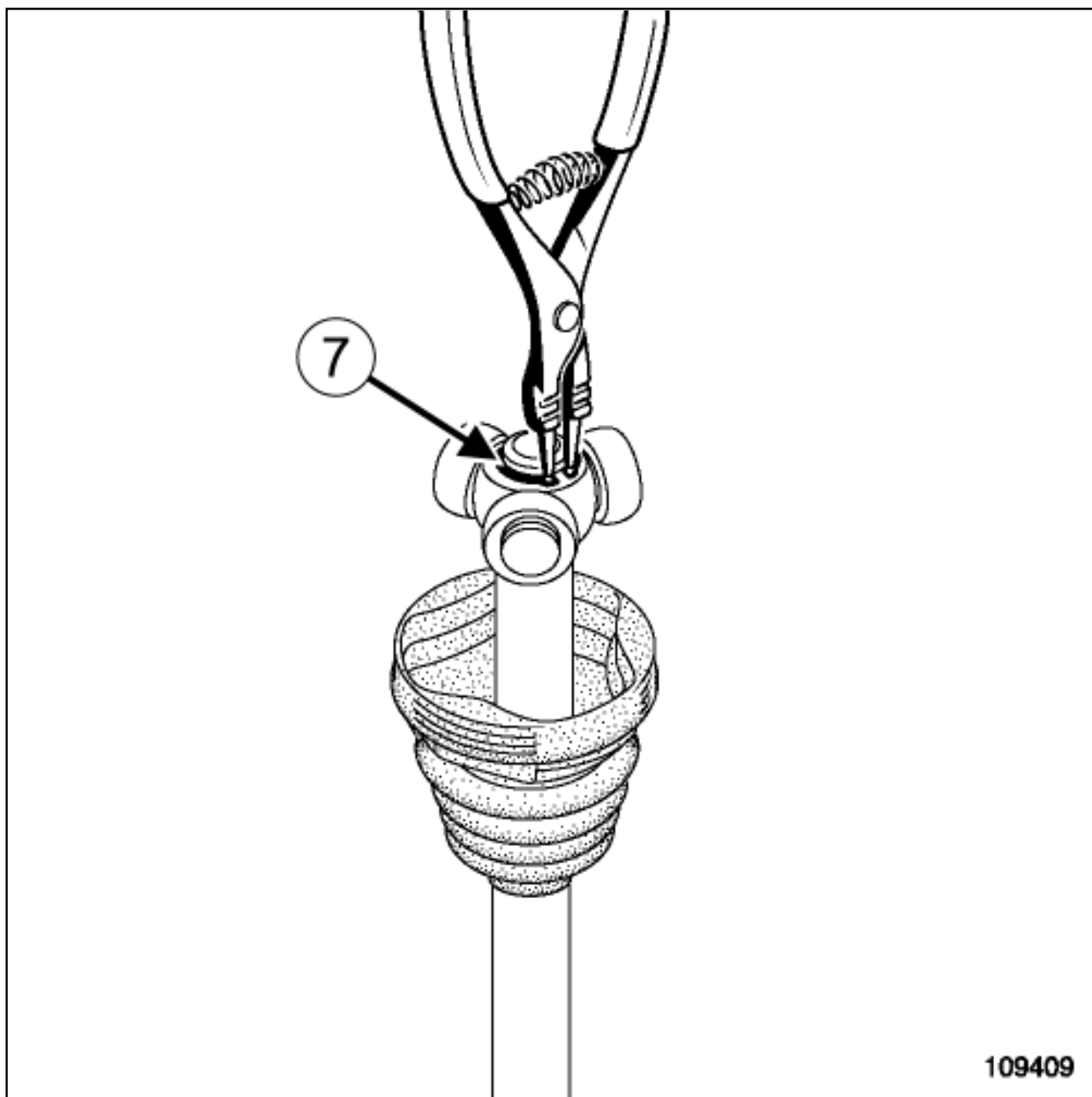
Remove as much grease as possible.

Remove the spider bowl([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) .

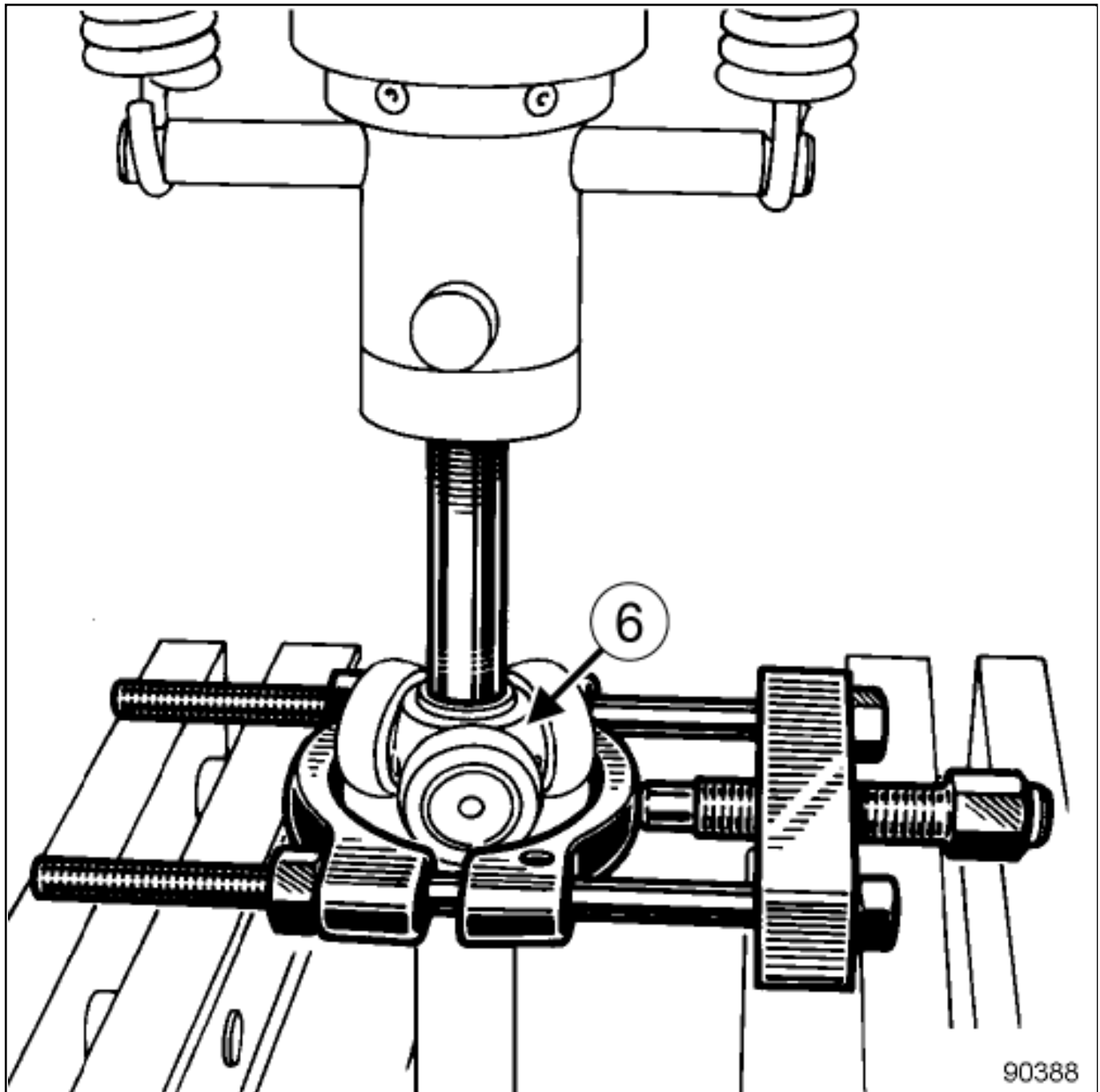
Note:



Because the spider bowl does not have a stop tab, the spider bowl can be removed without being forced.



- Remove the spider circlip(7) .



- Remove the spider(6) using a press and a releasing type extractor.

Note:



Mark the position of the spider before extracting it.

- Remove the front right-hand driveshaft gaiter on the gearbox side from the driveshaft.

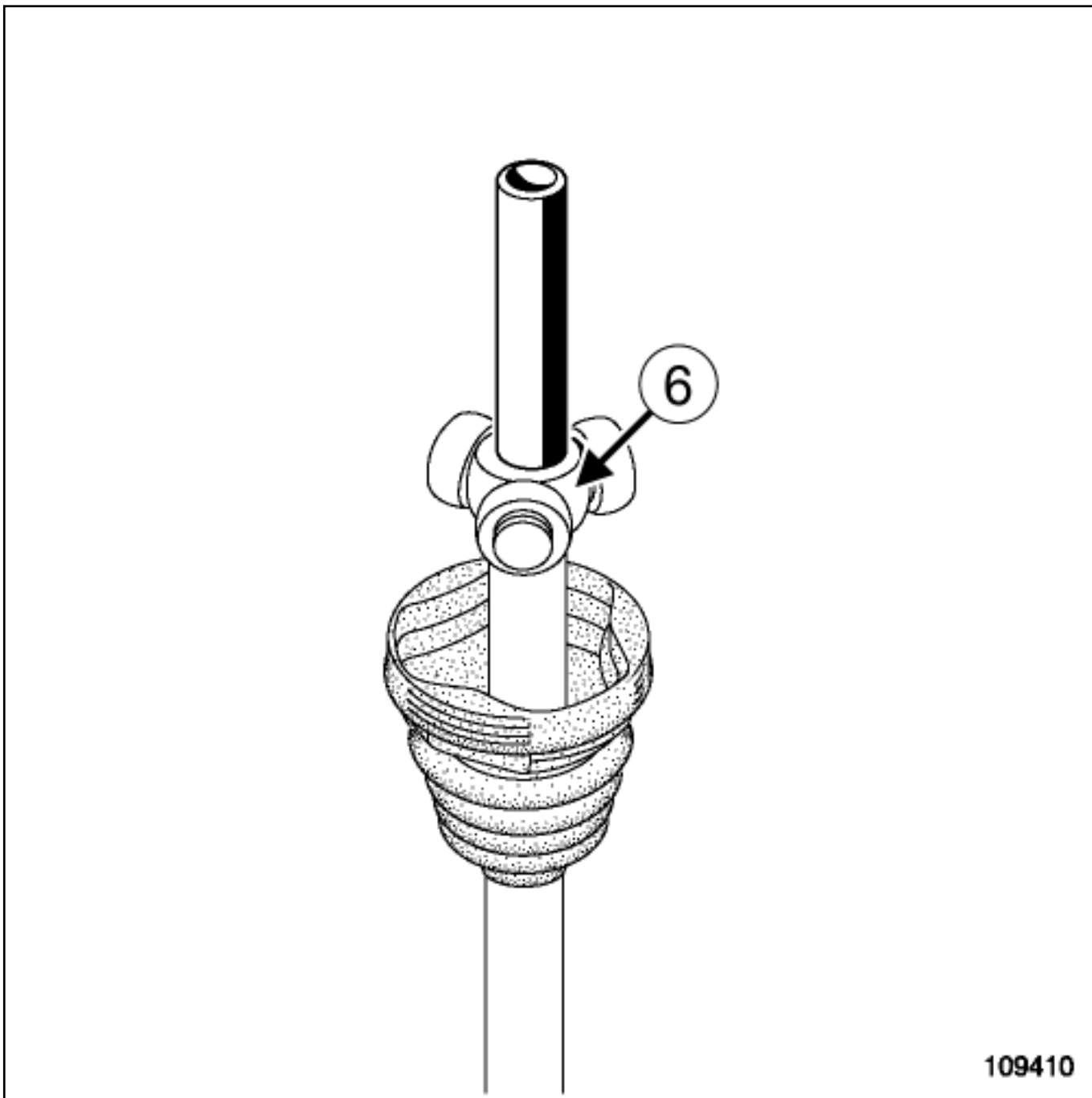
1. REFITTING OPERATION



Fit the small clip of the front right-hand driveshaft gaiter (on the gearbox side) on the driveshaft.



Lightly lubricate the driveshaft to facilitate fitting the front right-hand driveshaft gaiter on the gearbox side.



109410

Fit the spider(6) in the position marked during removal.

Refit the spider circlip.

Grease the spider bowl.

Fit the spider bowl on the spider.



Spread the quantity of grease around the front right-hand driveshaft gaiter on the gearbox side and around the spider bowl.



Note:

Be sure to observe the prescribed quantity of lubricant.



Position the lips of the front right-hand driveshaft gaiter on the gearbox side in the neck of the spider bowl and driveshaft.

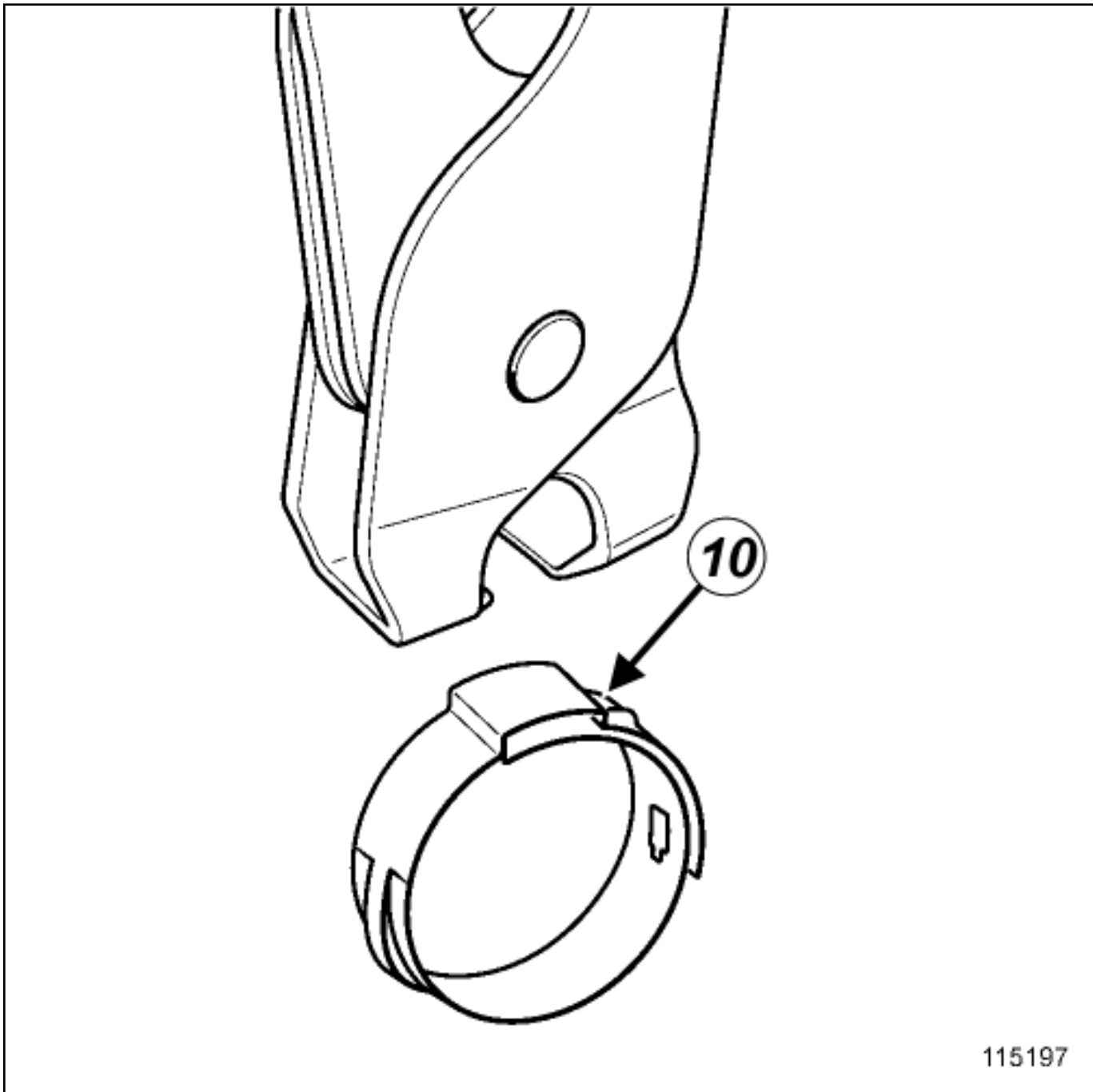


Fit the small clip of the front right-hand driveshaft gaiter (on the gearbox side) on the driveshaft gaiter.



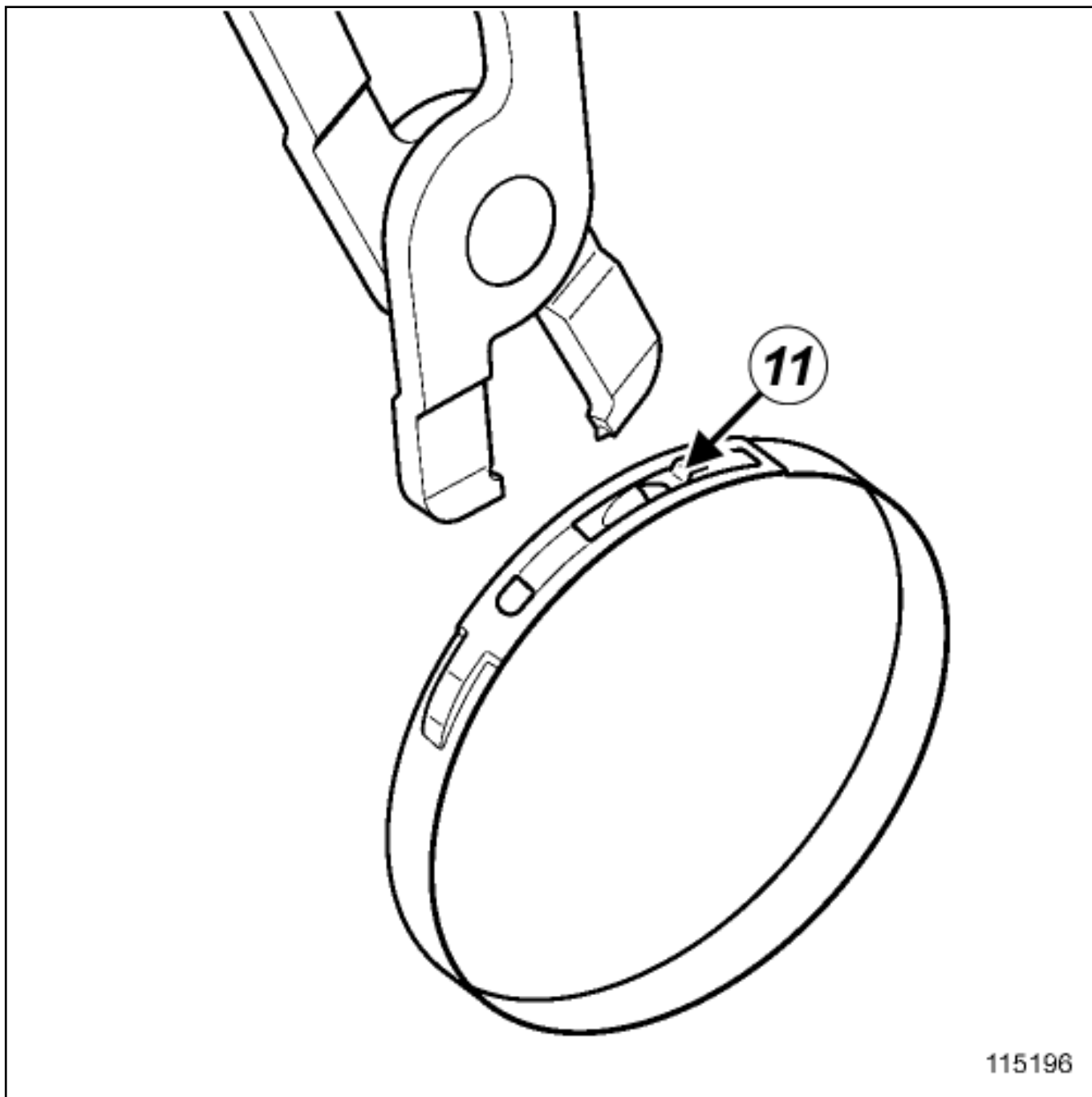
Refit the large clip of the front right-hand driveshaft gaiter on the front right-hand driveshaft gaiter on the gearbox side.

CLIC CLIP



115197

CLIP WITH PROFILE END



115196



Tighten the clips using the toolType clip pliers for driveshafts with a thermoplastic gaiter.([Tav. 1168](#)) for clic clips(10) or the toolPliers for the driveshaft gaiter collar.([Tav. 1784](#)) for profile end clips(11) .



Proceed in the reverse order to removal.



Fill up the manual gearbox[Manual gearbox oils: Draining - Filling](#) .



Repair-13x01x03x03-01x37-1-15-1.xml



XSL version : 3.02 du 22/07/11

FRONT RIGHT-HAND DRIVESHAFT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Hub locking tool.	Rou. 604-01
Ball joint extractor.	Tav. 476
Driveshaft fitting tool.	Tav. 2048

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) .



WARNING

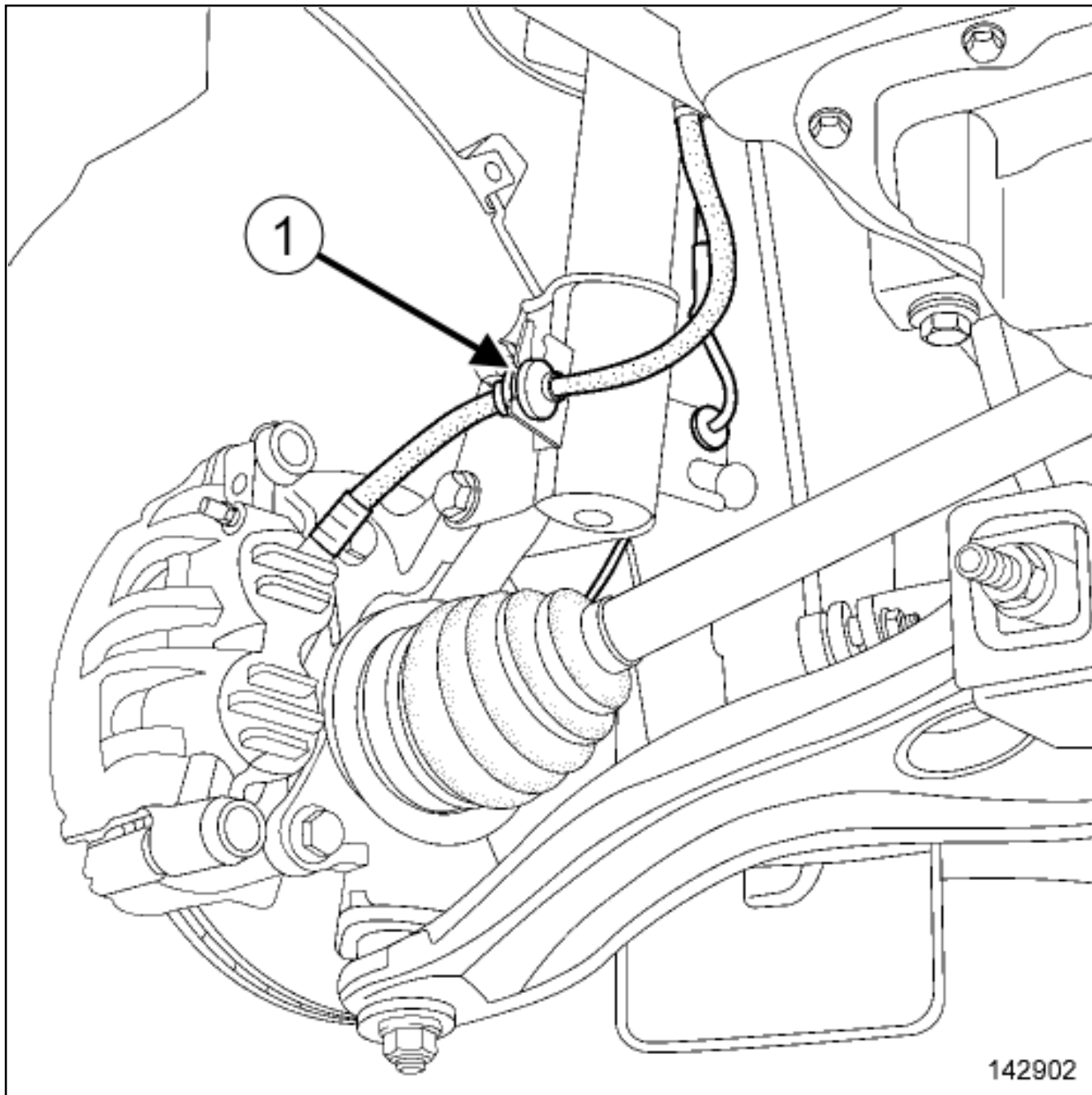
- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - ([see 29A, Driveshafts , Driveshaft: Precautions for the repair](#)) ,

REMOVAL

1. REMOVAL PREPARATION OPERATION

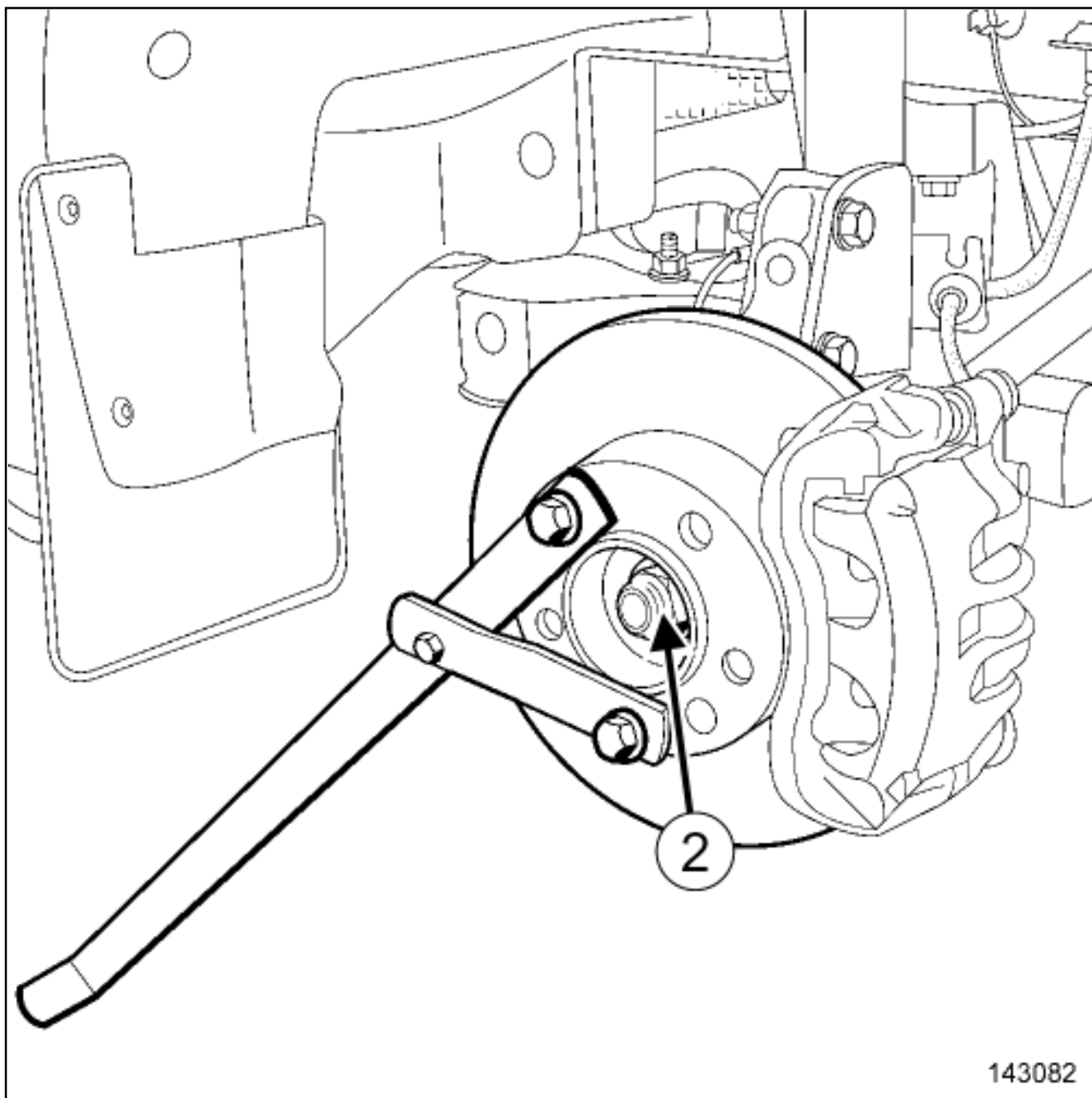
- Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#) (02A, Lifting equipment)).
- Remove:
 - the engine undertray,
 - the front right-hand wheel ([Wheel: Removal - Refitting](#) (35A, Wheels and tyres)).
- Drain the manual gearbox oil ([Manual gearbox oils: Draining - Filling](#) .

2. REMOVAL OPERATION



142902

- Unclip the brake hose(1) .
- Remove the wheel speed sensor bolt [Front hub carrier assembly: Exploded view](#) .
- Move aside the wheel speed sensor [Front hub carrier assembly: Exploded view](#) .



143082

Loosen the nut(2) of the front right-hand driveshaft by immobilising the hub using the tool Hub locking tool. (Rou. 604-01) .



Remove:

- the nut of the front right-hand driveshaft(see 29A, Driveshafts , Driveshaft assembly: Exploded view) ,
- the nut of the right-hand track rod end [Steering assembly: Exploded view](#) ,
-
- the protector of the right-hand track rod end [Steering assembly: Exploded view](#) ,

the right-hand track rod end from the stub axle carrier using the toolBall joint extractor.(Tav. 476) [Steering assembly: Exploded view](#) ,

the bolts and the nuts[Front axle assembly: Exploded view](#) from the right-hand shock absorber base.

Push the front right-hand driveshaft back from the stub axle carrier.

Remove ([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) :

the relay bearing bolt,

the front right-hand driveshaft.

the right-hand side differential output seal.

REFITTING

1. REFITTING PREPARATION OPERATION

Clean the bore of the driveshaft relay bearing into which the bearing will be fitted using SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

Lubricate the bore of the driveshaft relay bearing into which the bearing is fitted using BR2+ GREASE [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

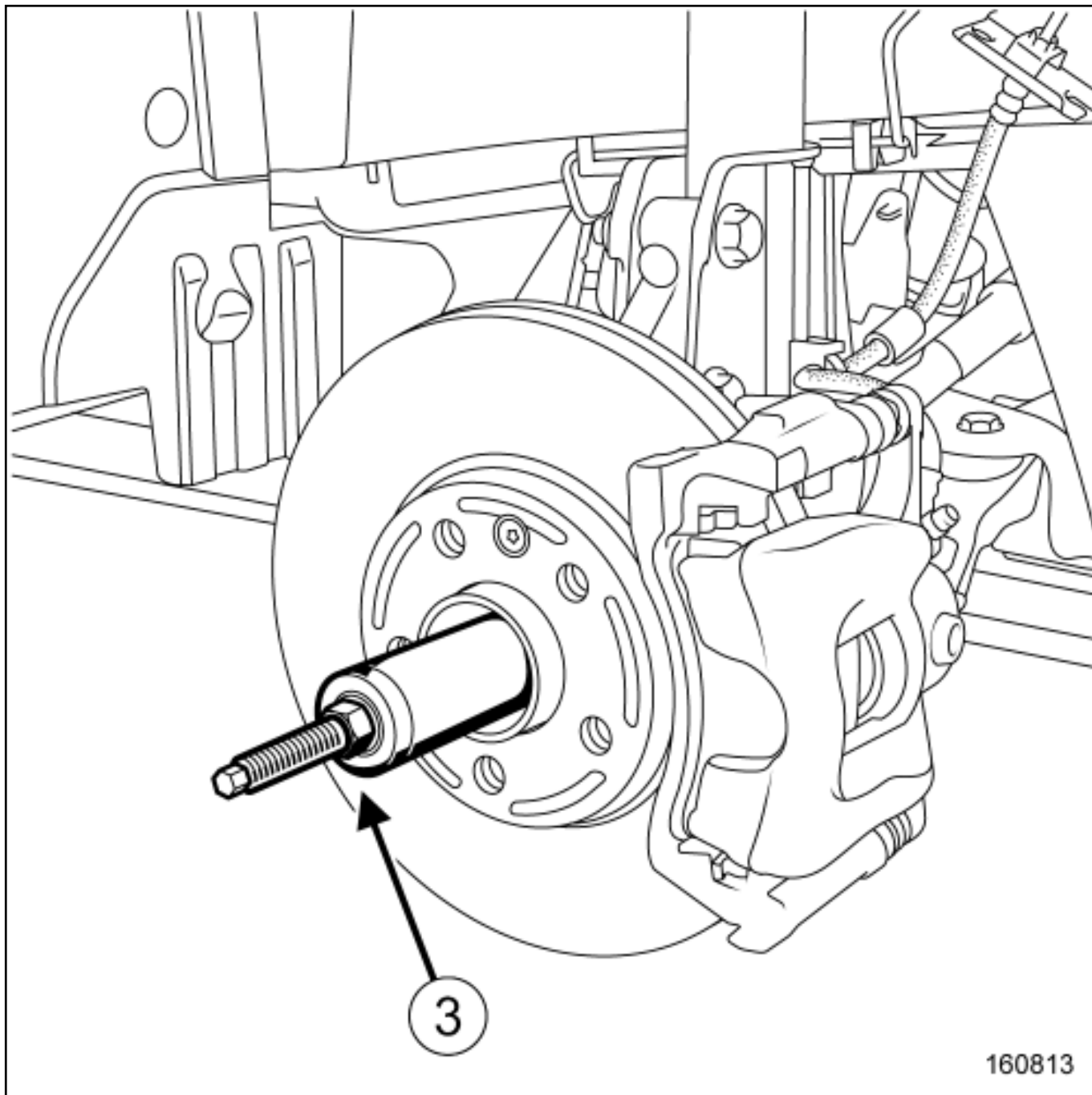
Note:



During removal, if there is Threadlock on the universal joint splines and the universal joint nut. When refitting, apply Threadlock to the universal joint splines and the universal joint nut [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

2. REFITTING OPERATION

Proceed in the reverse order to removal.



Refit the driveshaft to the hub carrier using the Driveshaft fitting tool. (Tav. 2048) (3), if necessary.

Fill up the manual gearbox [Manual gearbox oils: Draining - Filling](#).



FRONTROOF:REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Front roof	Mild steel	0.75

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



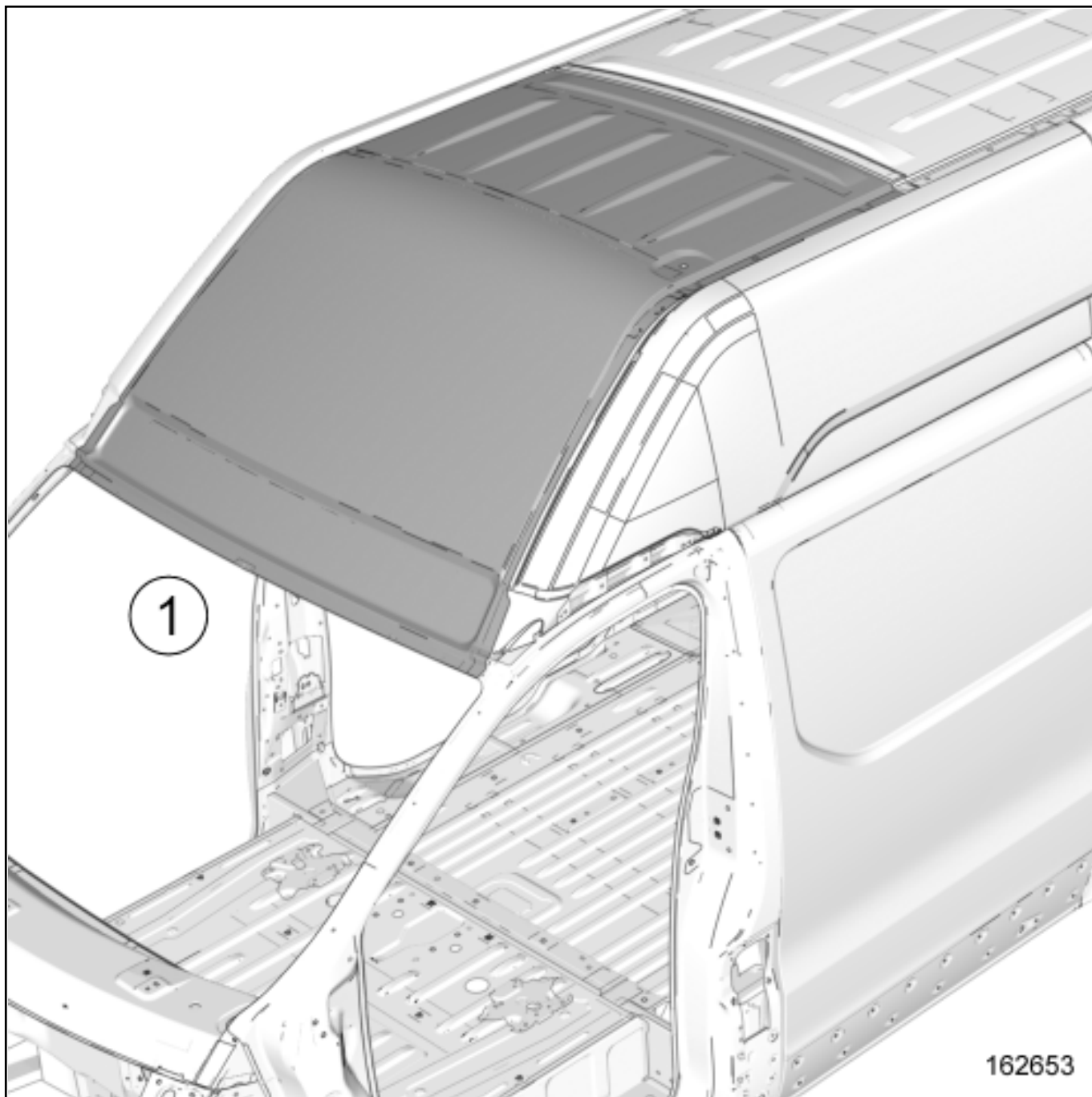
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

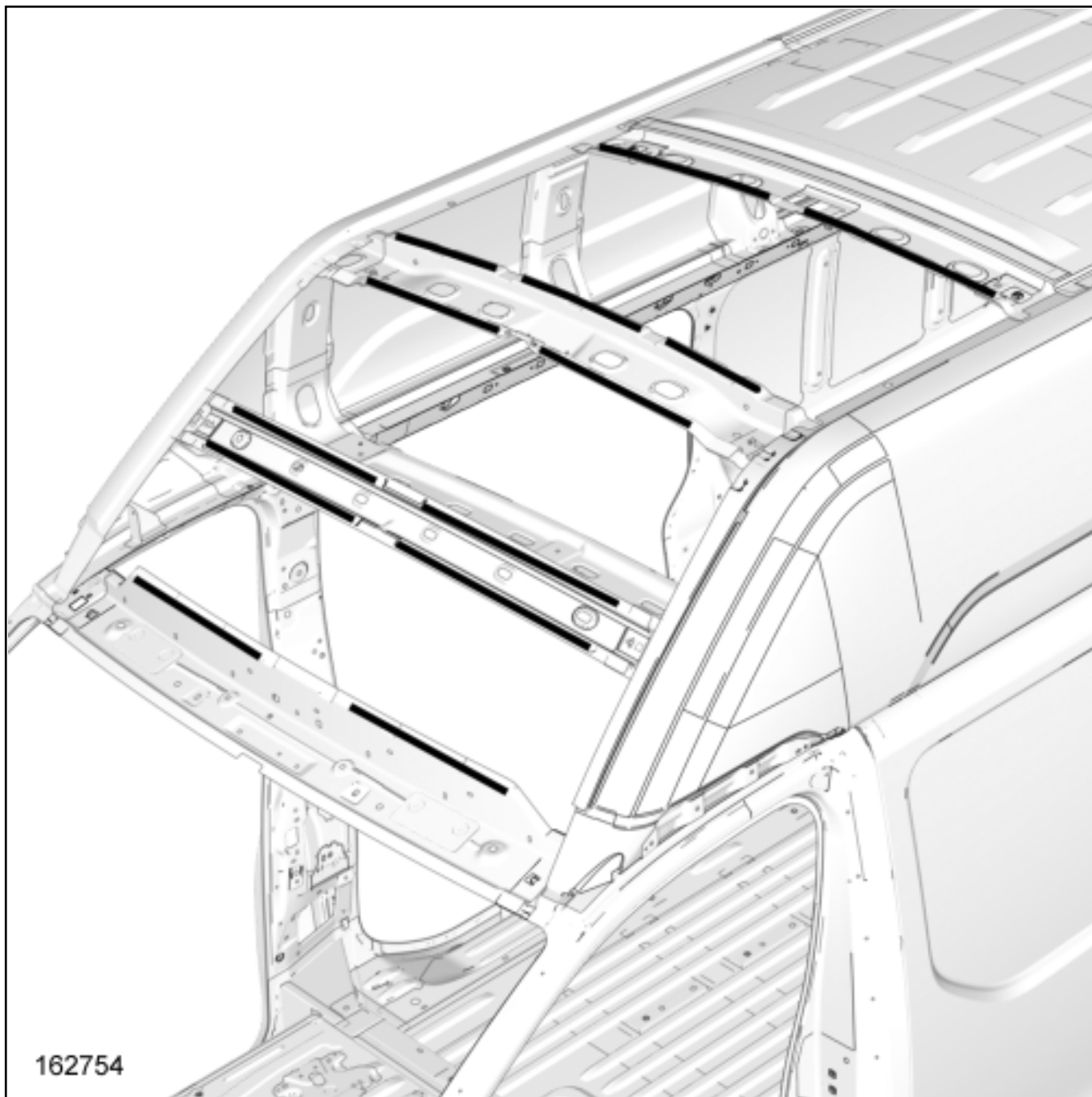
Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



2) BONDING AREA



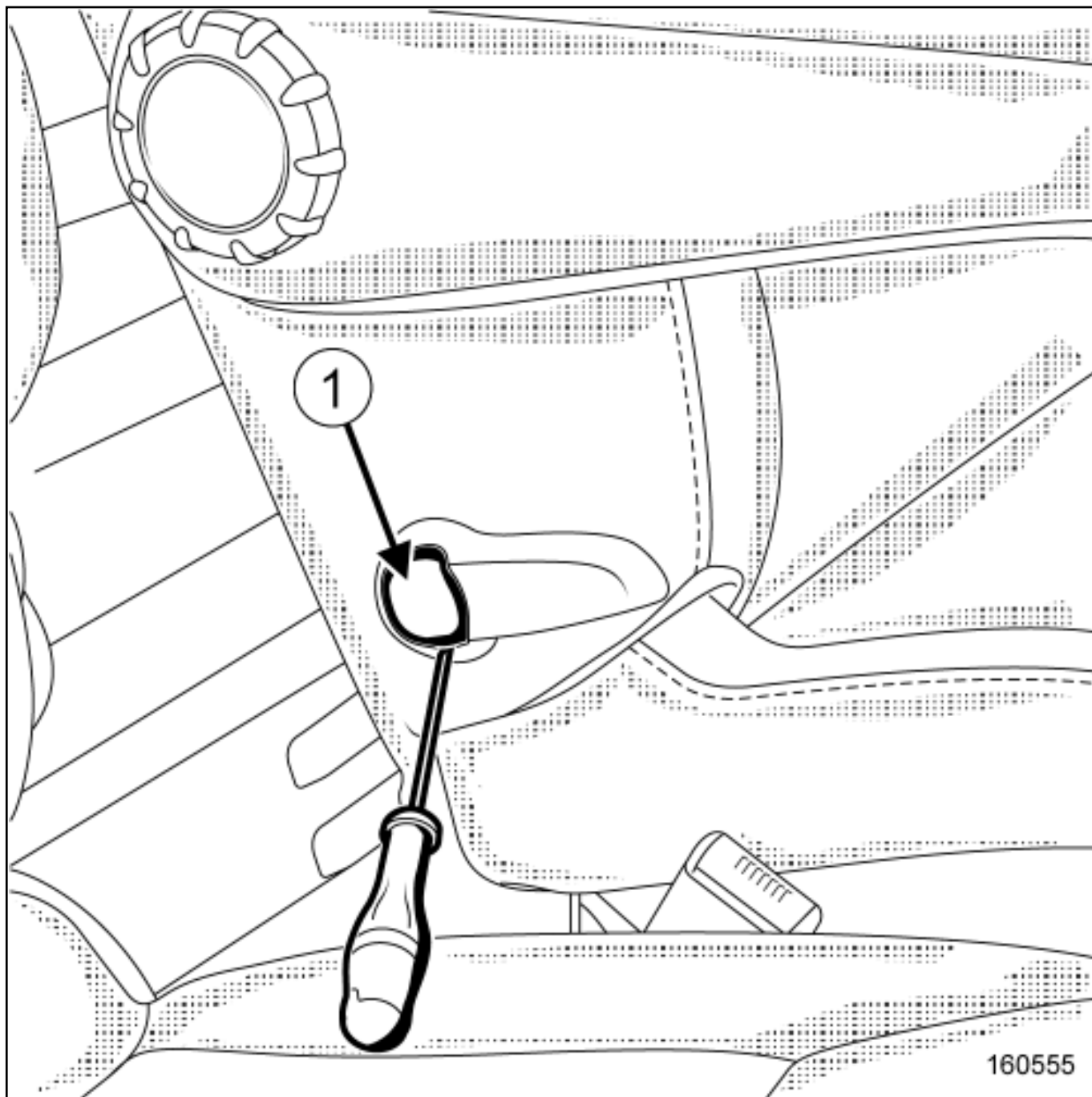
Repair-40x07x07-02x49-1-2-1.xml



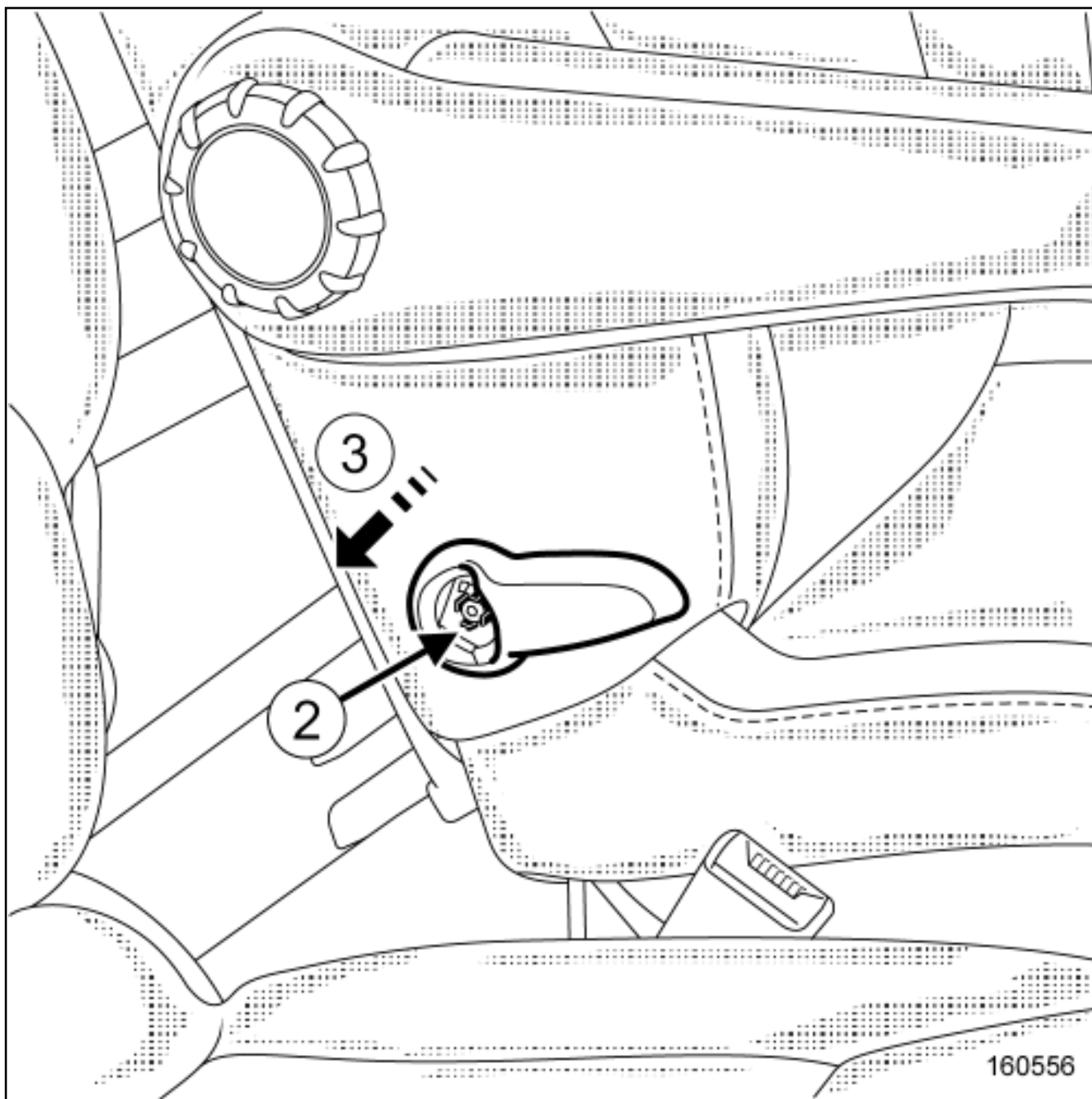
FRONT SEAT BACKREST TILT CONTROL: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION



- Remove the front seat backrest tilt control cap(1) using a flat-blade screwdriver.



160556

Unclip the front seat backrest tilt control at(2) .

Remove the front seat backrest tilt control at(3) .

REFITTING

Proceed in the reverse order to removal.



Repair-70x08x04x25-01x37-1-4-1.xml



XSL version : 3.02 du 22/07/11

FRONT SEAT BASE FRAME: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

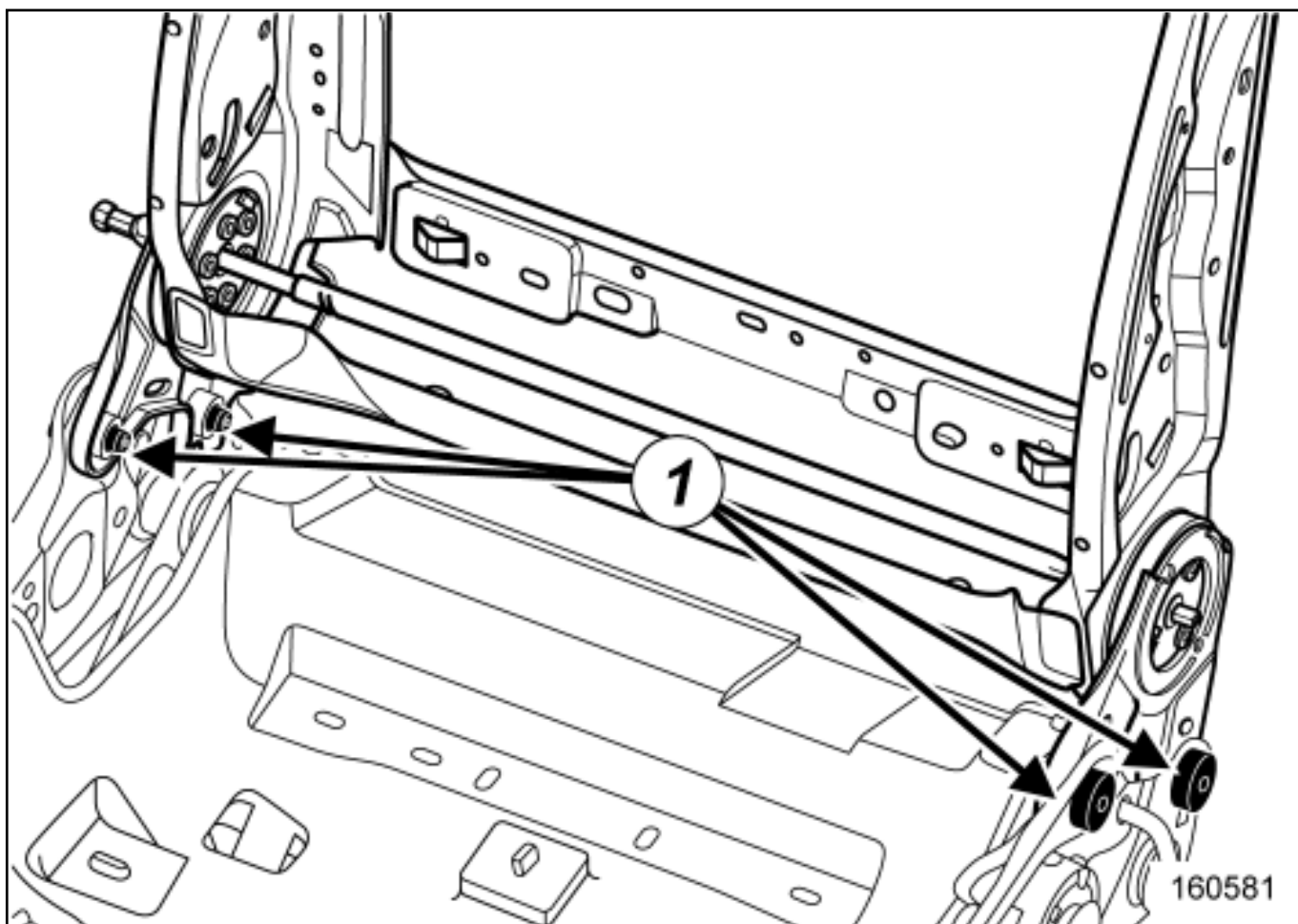
- Disconnect the battery [Battery: Removal - Refitting](#) .



Remove:

- the complete front seat ([see 75A, Front seat frames and mechanisms, Complete front seat: Removal - Refitting](#)) ,
- the front seat frame ([see 75A, Front seat frames and mechanisms, Front seat frame: Removal - Refitting](#)) .

2. REMOVAL OPERATION



Remove:



■ the bolts,

the front seat base frame.

REFITTING



Proceed in the reverse order to removal.



Torque tighten the front seat base bolts 35 N.m.



Repair-70x08x02x06-01x37-1-18-1.xml



XSL version : 3.02 du 22/07/11

FRONT SEAT BASE TRIM: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

■ Disconnect the battery [Battery: Removal - Refitting](#) .

■ Remove:

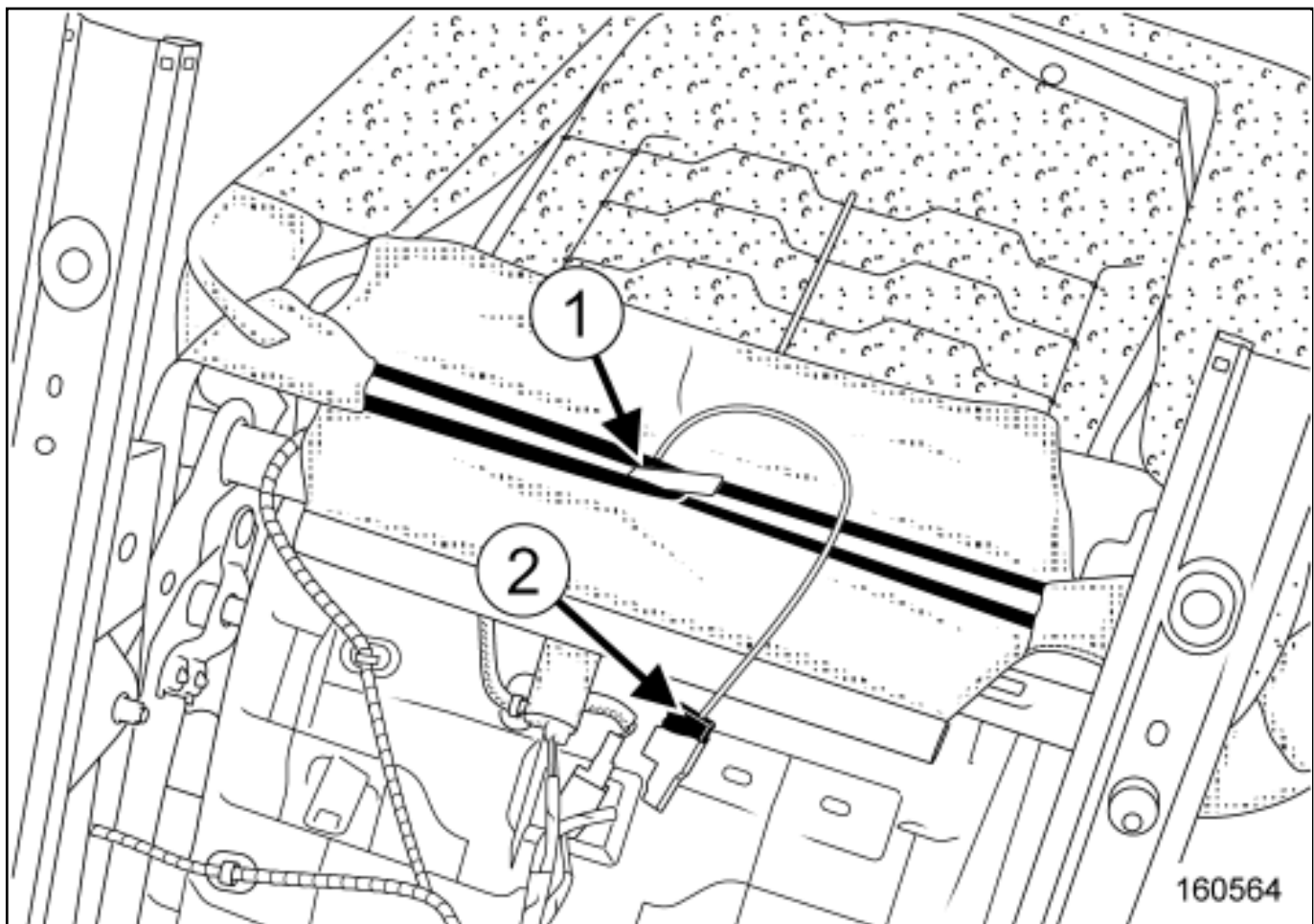
■ the complete front seat [Complete front seat: Removal - Refitting](#) ,

■ the front seat seatback trim partially ([see 77A, Front seat trim, Front seatback trim: Removal - Refitting](#)) ,

■ the front seat height adjuster control [Front seat height adjuster control: Removal - Refitting](#) ,

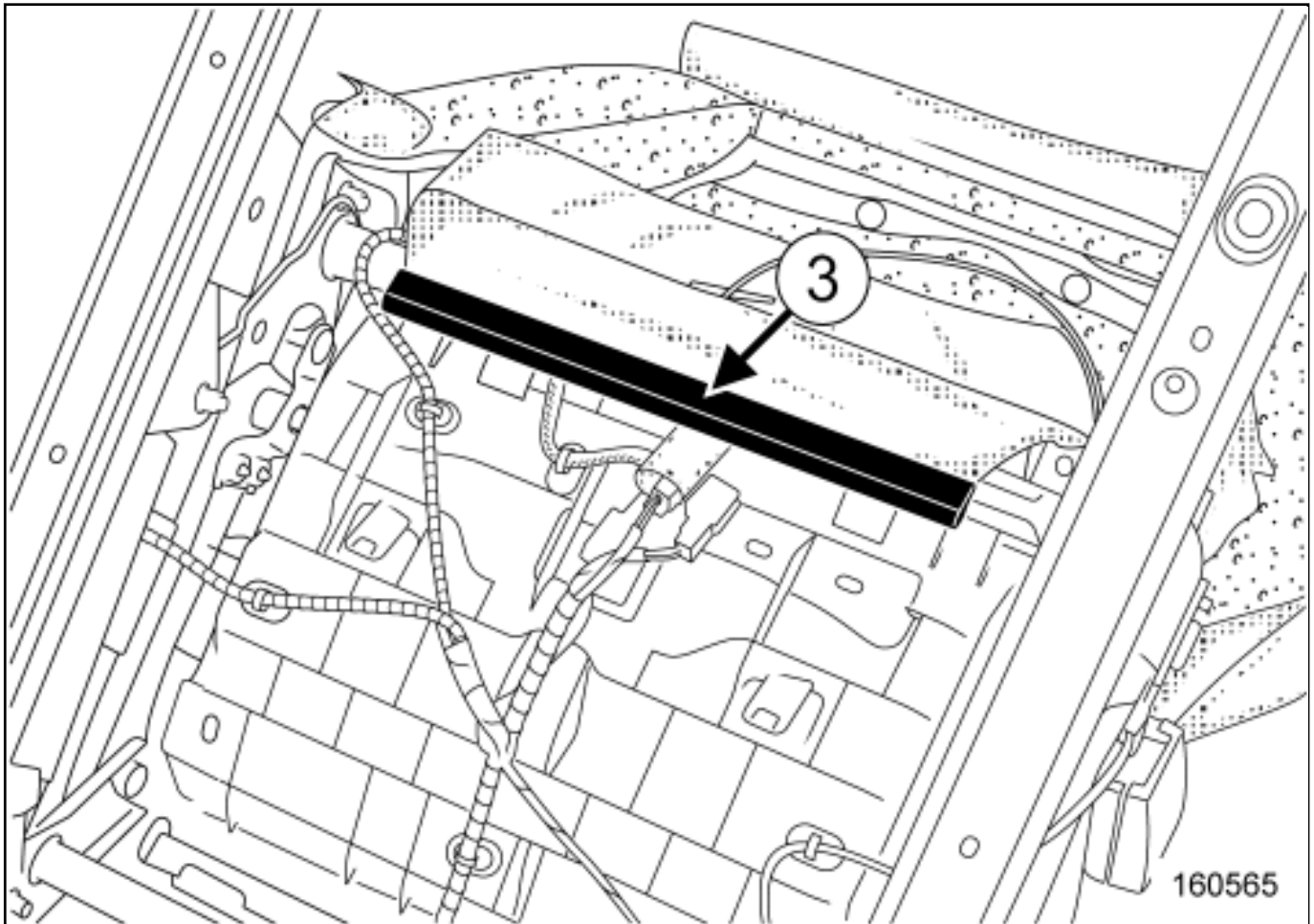
the front seat lower cover ([see 77A, Front seat trim, Front seat lower casing: Removal - Refitting](#)) .

2. REMOVAL OPERATION

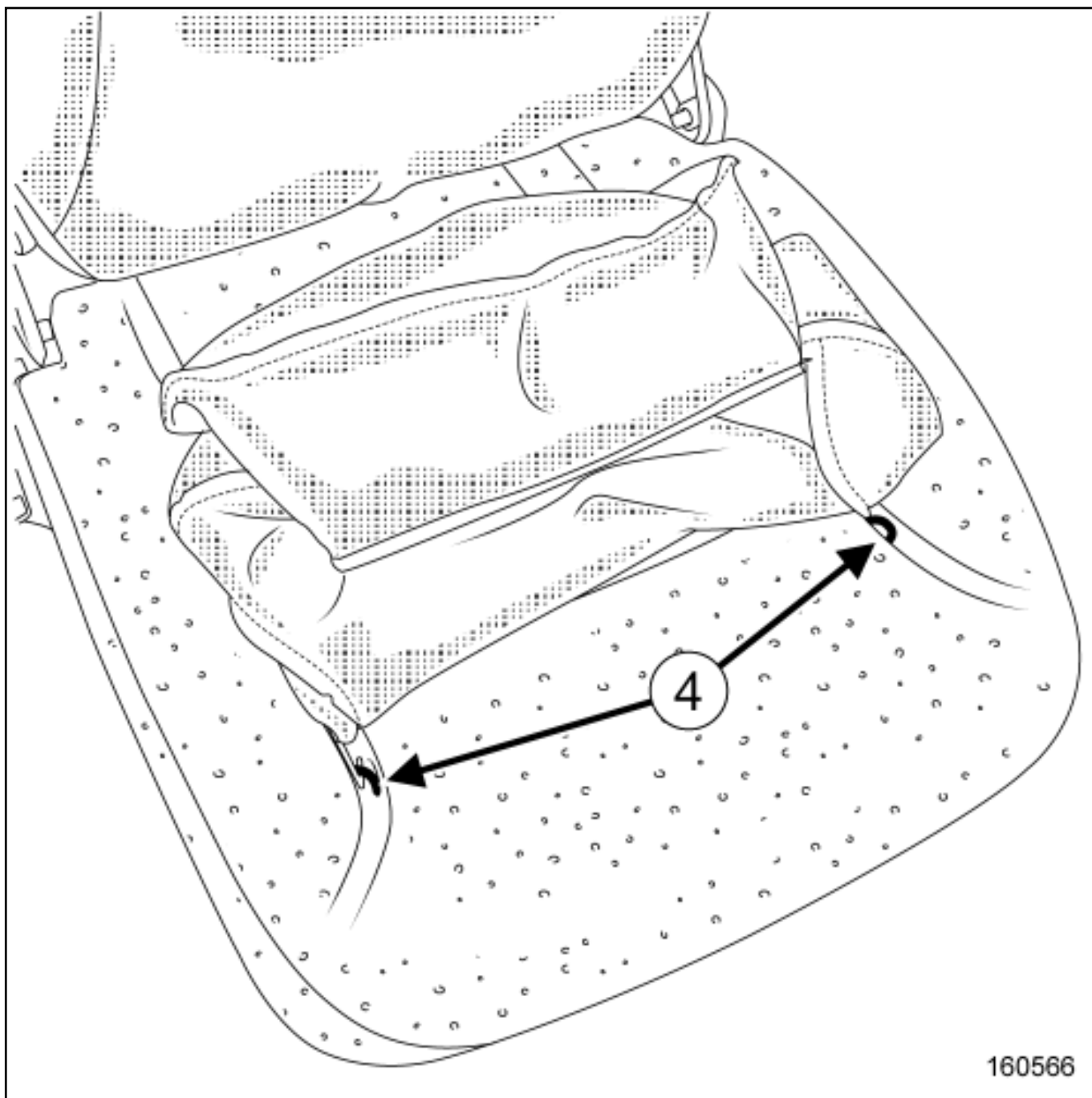


Remove the elastic straps(1) .

Disconnect the front seatback heated pad connector(2) .



Unclip the retaining section(3) .



160566

Unclip the front seat base trim at(4) .

Remove the front seat base trim.

REFITTING

Proceed in the reverse order to removal.



Note:

Refit the front seat base trim on the foam, observing the correct refitting order.



Repair-70x10x02x02-01x37-1-39-1.xml



XSL version : 3.02 du 22/07/11

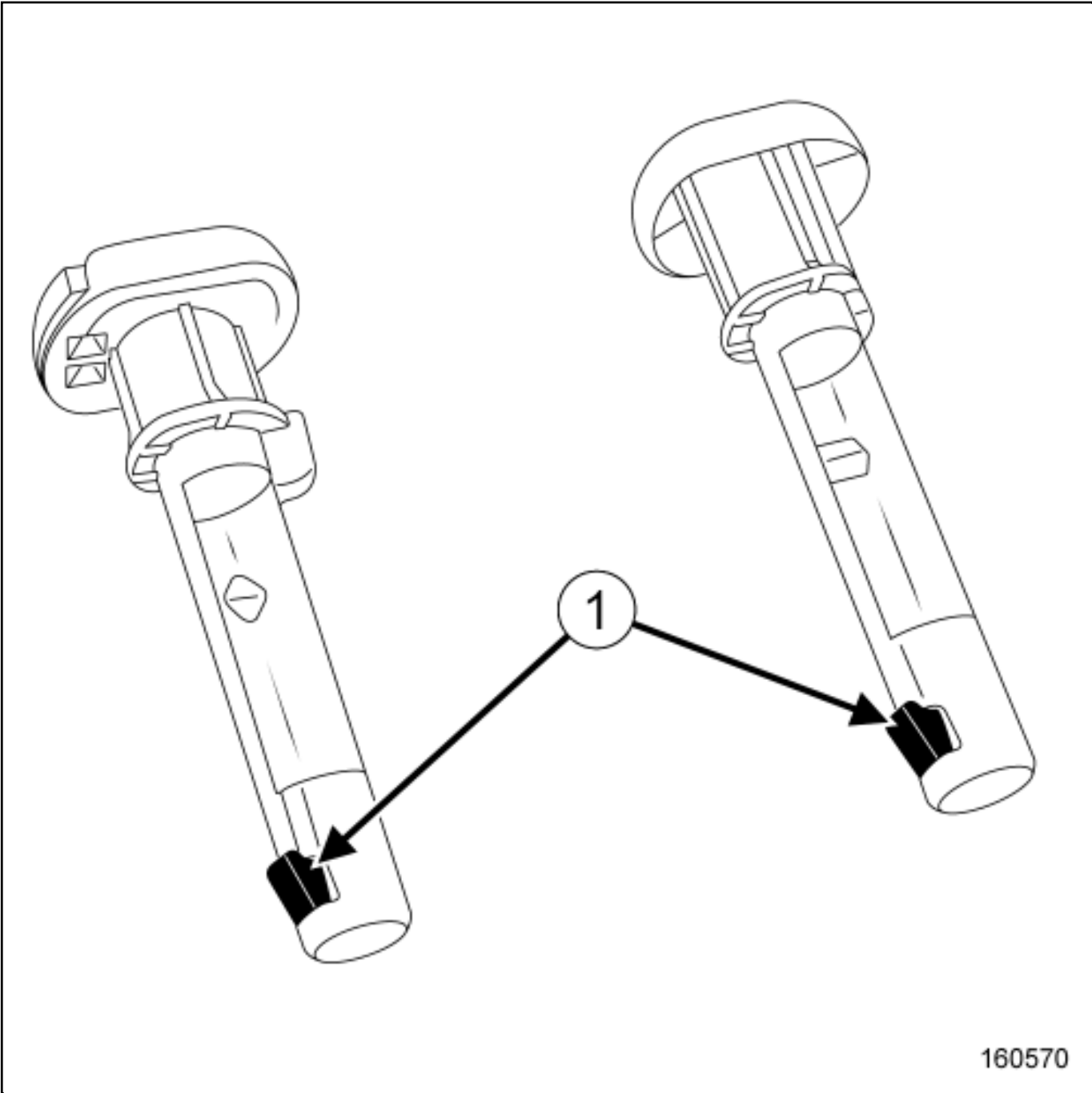
FRONT SEAT HEADREST GUIDE: REMOVAL - REFITTING

REMOVAL

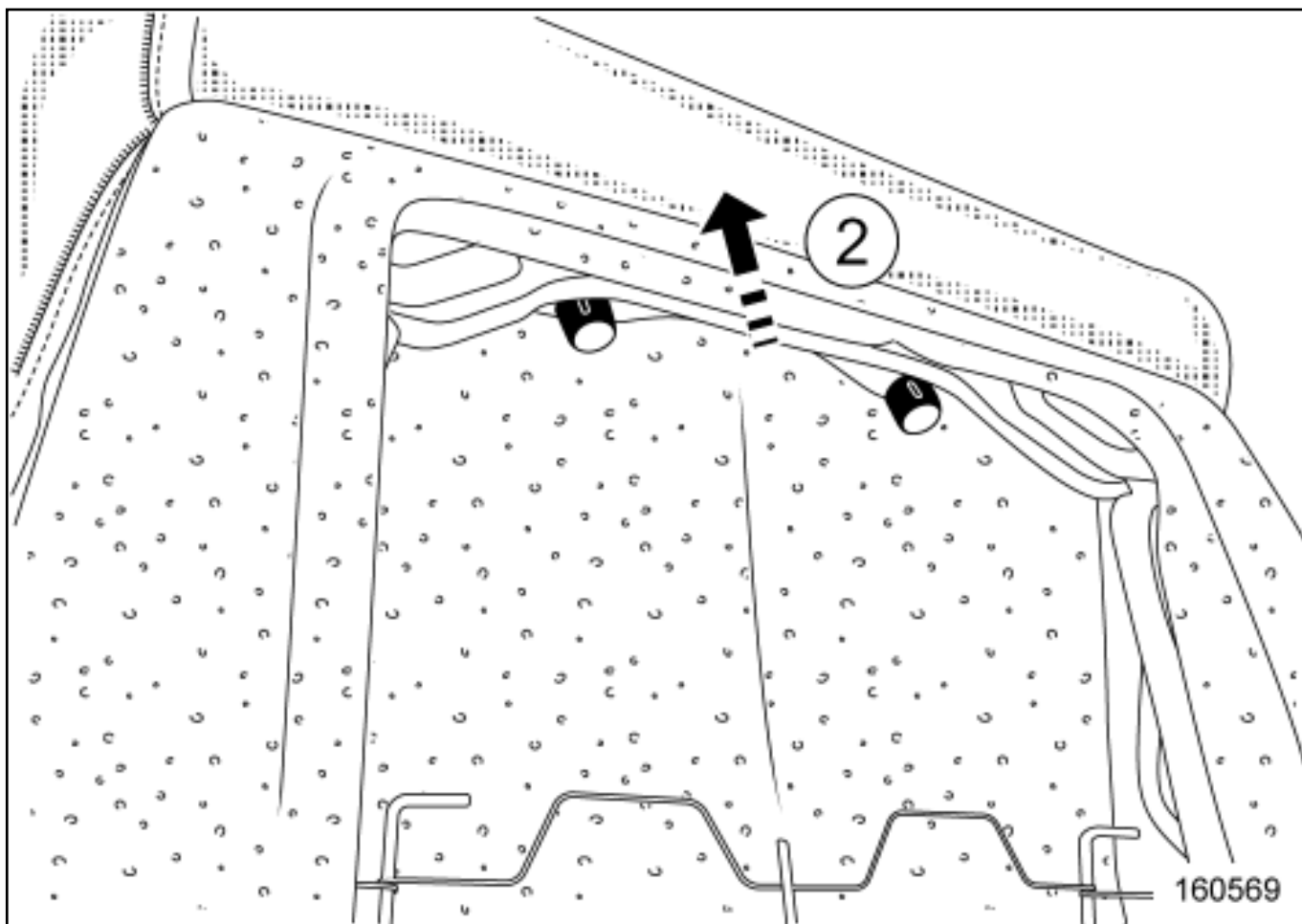
1. REMOVAL OPERATION PREPARATION

- ❑ Remove the front seat headrest([see 79A, Seat accessories, Front headrest: Removal - Refitting](#)) .
- ❑ Partially remove the front seatback trim[Front seatback trim: Removal - Refitting](#) .

2. REMOVAL OPERATION



160570



- Press the clip(1) and remove the front seat headrest guides at(2) .

REFITTING

- Proceed in the reverse order to removal.



Repair-70x18x02x08-01x37-1-19-1.xml

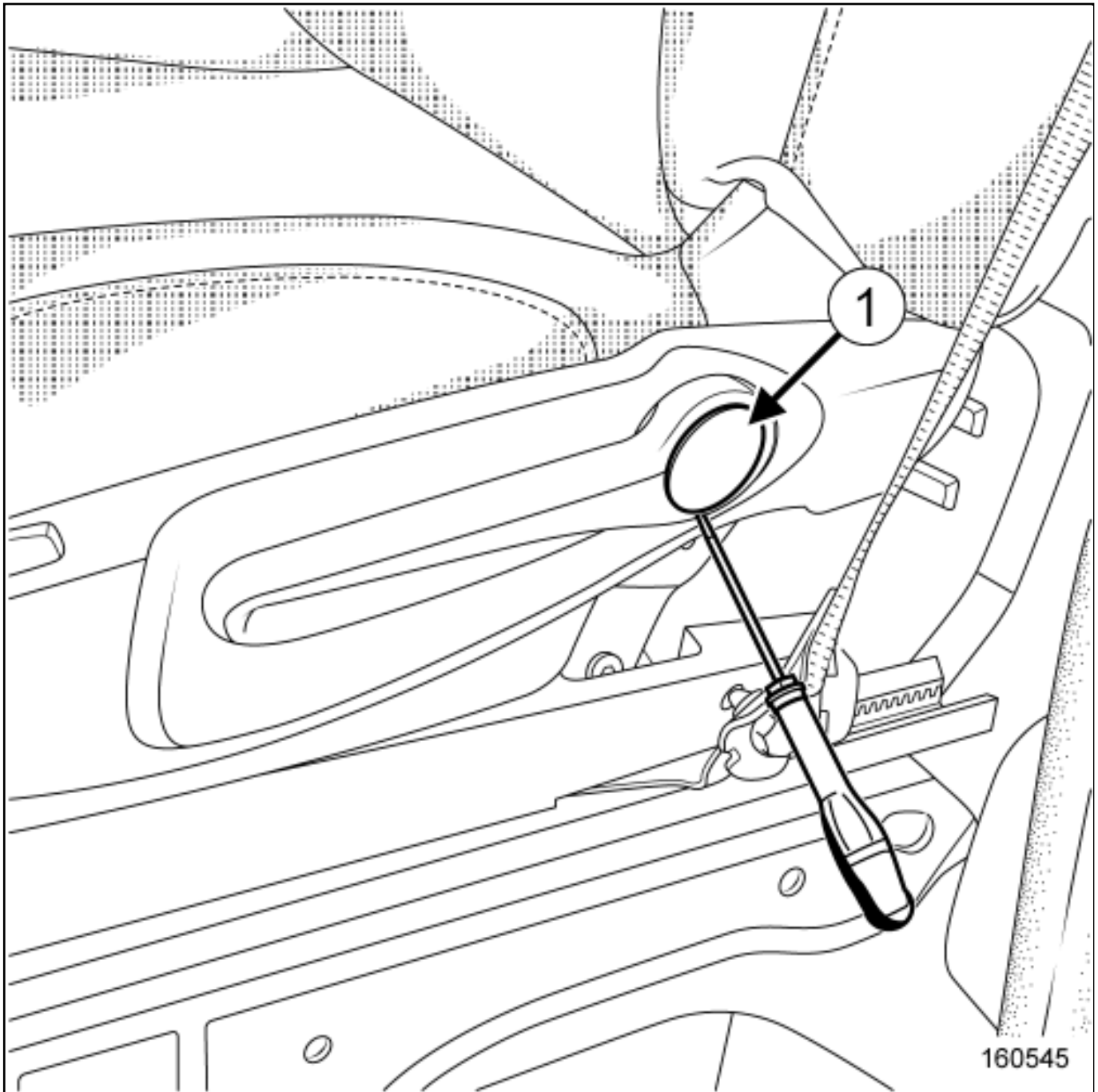


XSL version : 3.02 du 22/07/11

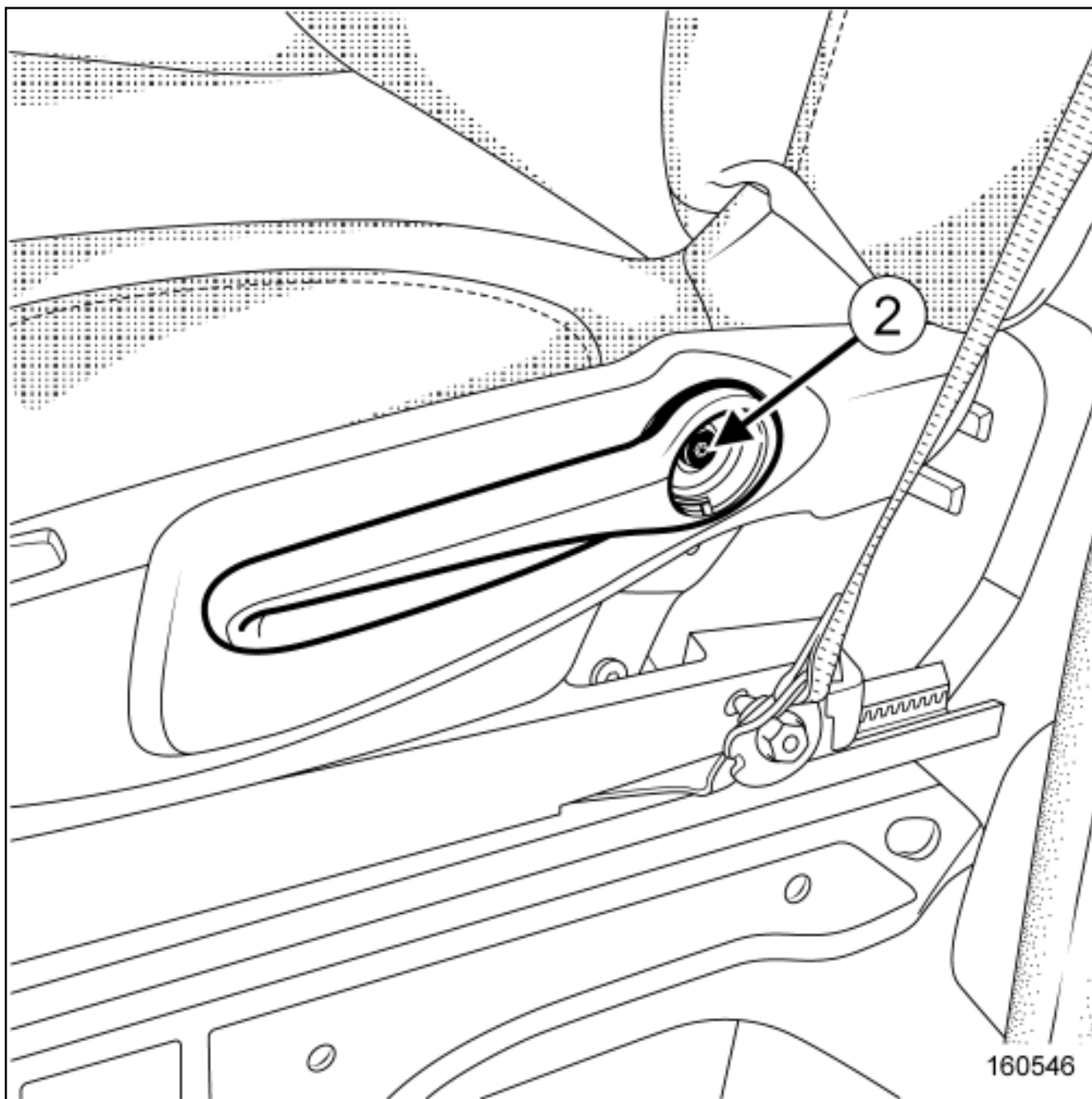
FRONT SEAT HEIGHT ADJUSTER CONTROL: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION



- Remove the front seat height adjustment control cover(1) using a flat-blade screwdriver.



Remove:

- - the bolt(2) ,
 -
- the front seat height adjustment control.

Proceed in the reverse order to removal.



Repair-70x08x04x05-01x37-1-5-1.xml



XSL version : 3.02 du 22/07/11

FRONT SEAT LOWER CASING: REMOVAL - REFITTING

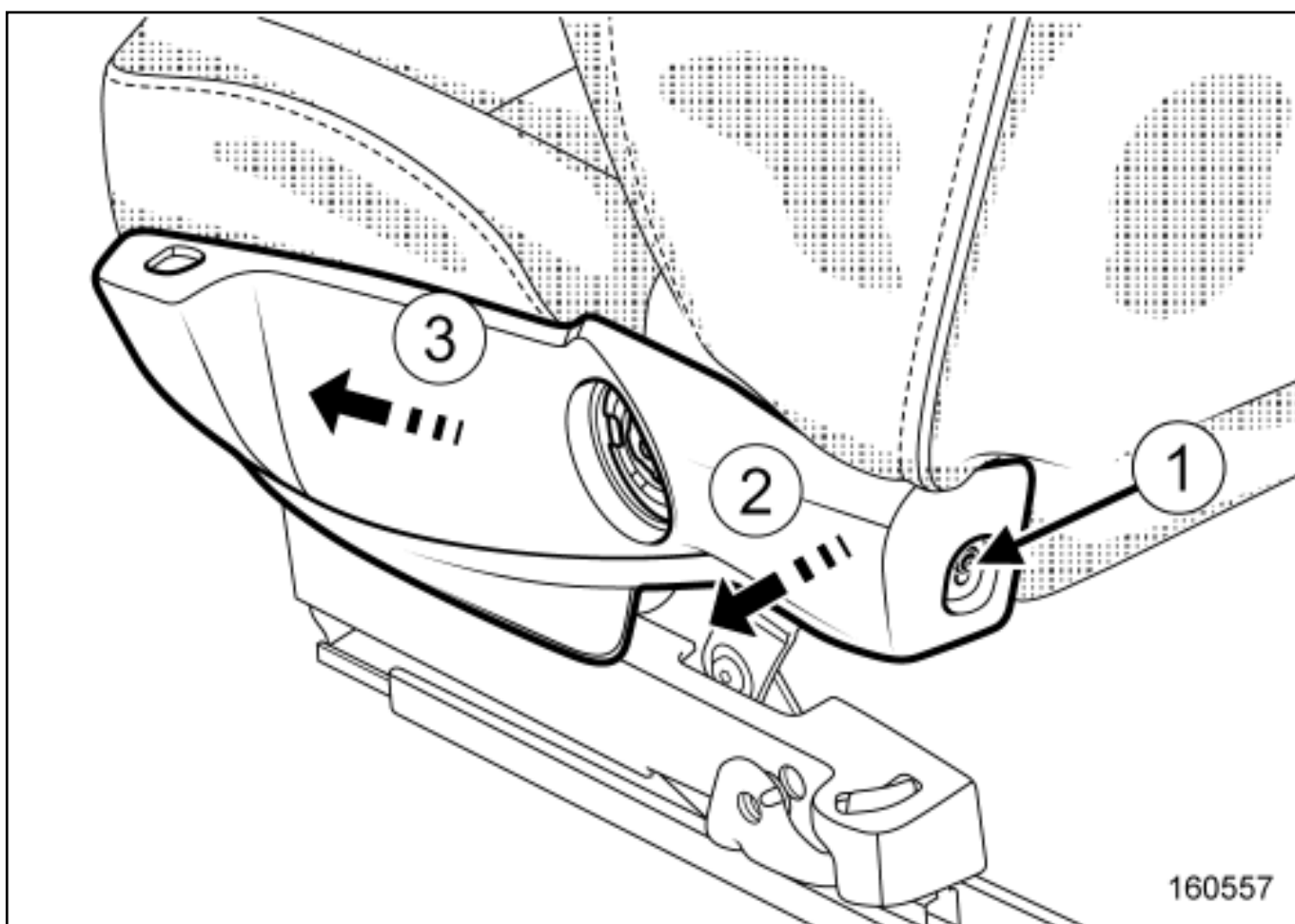
REMOVAL

1. REMOVAL OPERATION PREPARATION



Remove the front seat height adjustment control [Front seat height adjuster control: Removal - Refitting](#) .

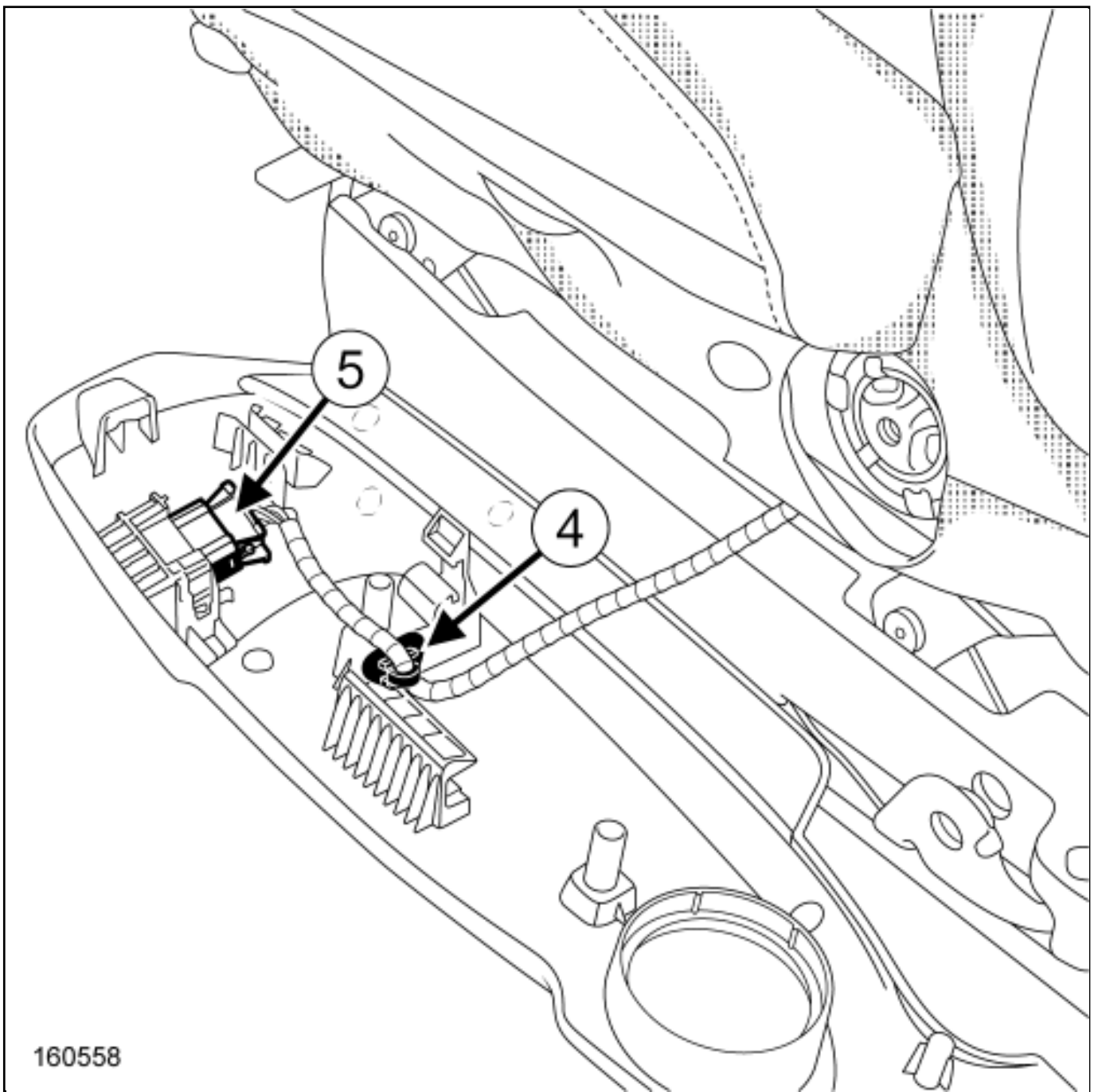
2. REMOVAL OPERATION



Remove the front seat lower casing bolt(1) .



Unclip the front seat lower casing at(2) and (3) .



Unclip the wiring harness at(4) .

Disconnect the connector at(5) .

Remove the front seat lower casing.



Proceed in the reverse order to removal.



Repair-70x10x02x18-01x37-1-17-1.xml

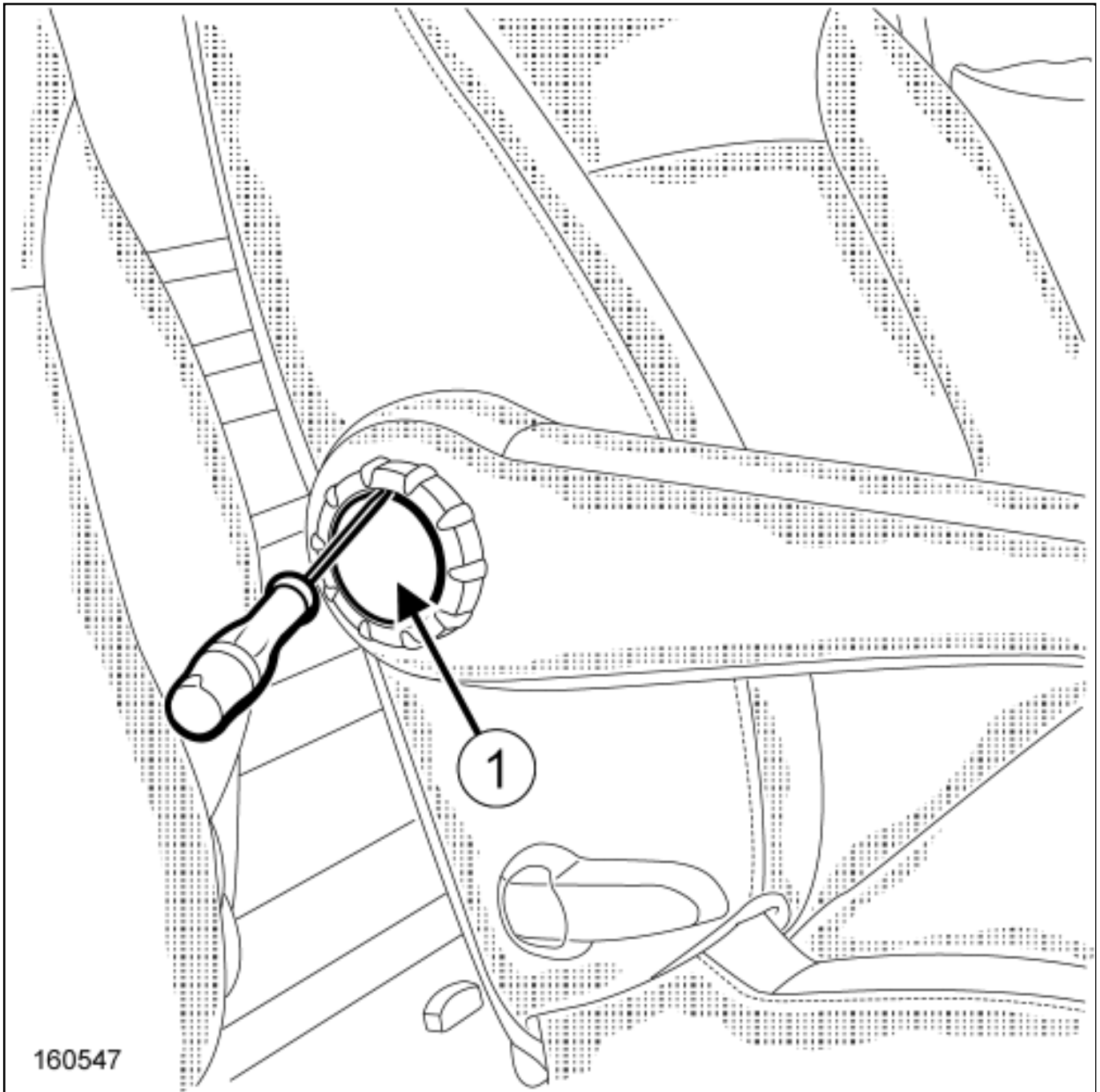


XSL version : 3.02 du 22/07/11

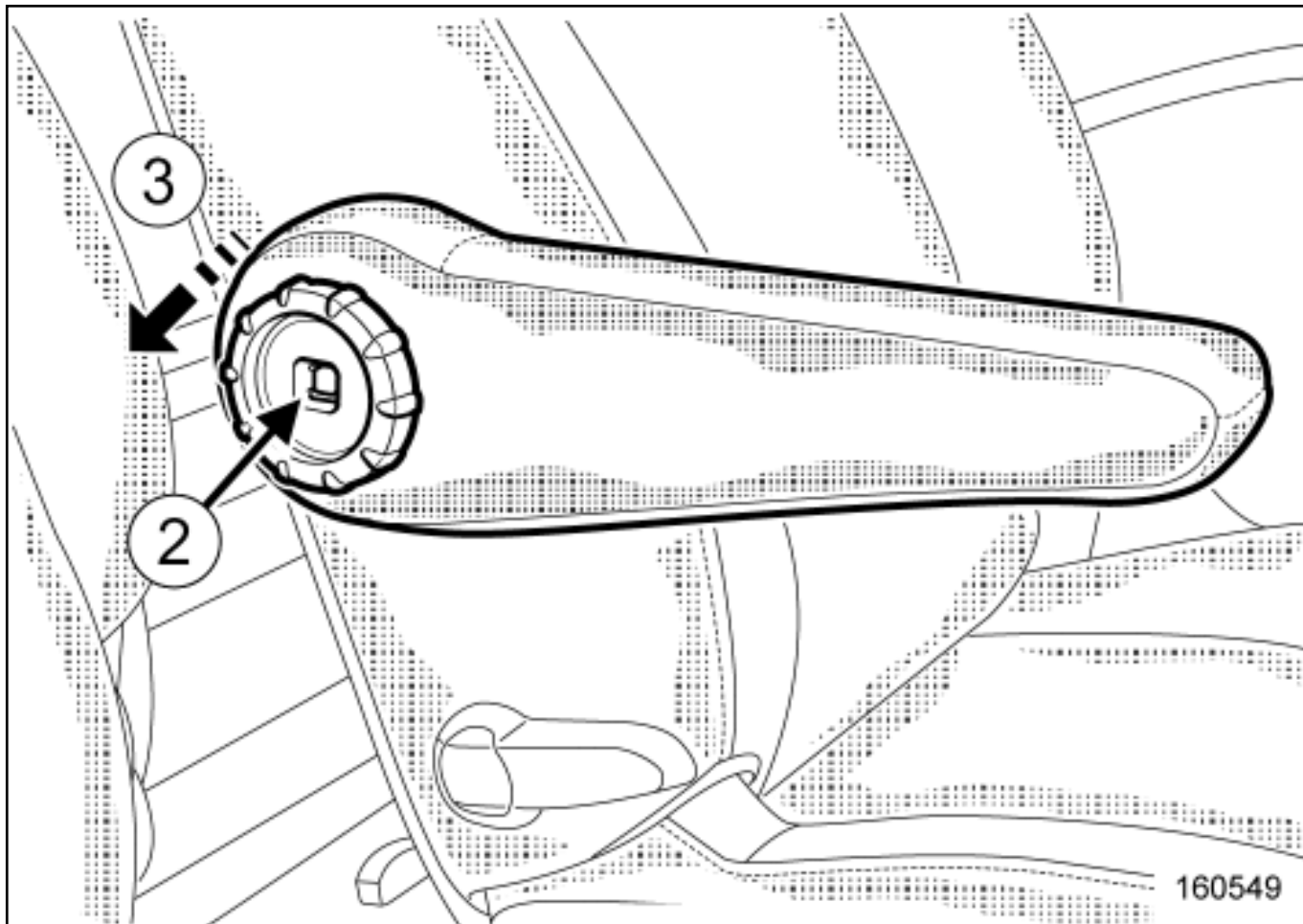
FRONT SEAT LUMBAR ADJUSTMENT CONTROL: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION



Remove the front seat lumbar adjustment control cover(1) using a flat-blade screwdriver.



Unclip front seat lumbar adjustment control at(2) .

Remove front seat lumbar adjustment control at(3) .

REFITTING

Proceed in the reverse order to removal.



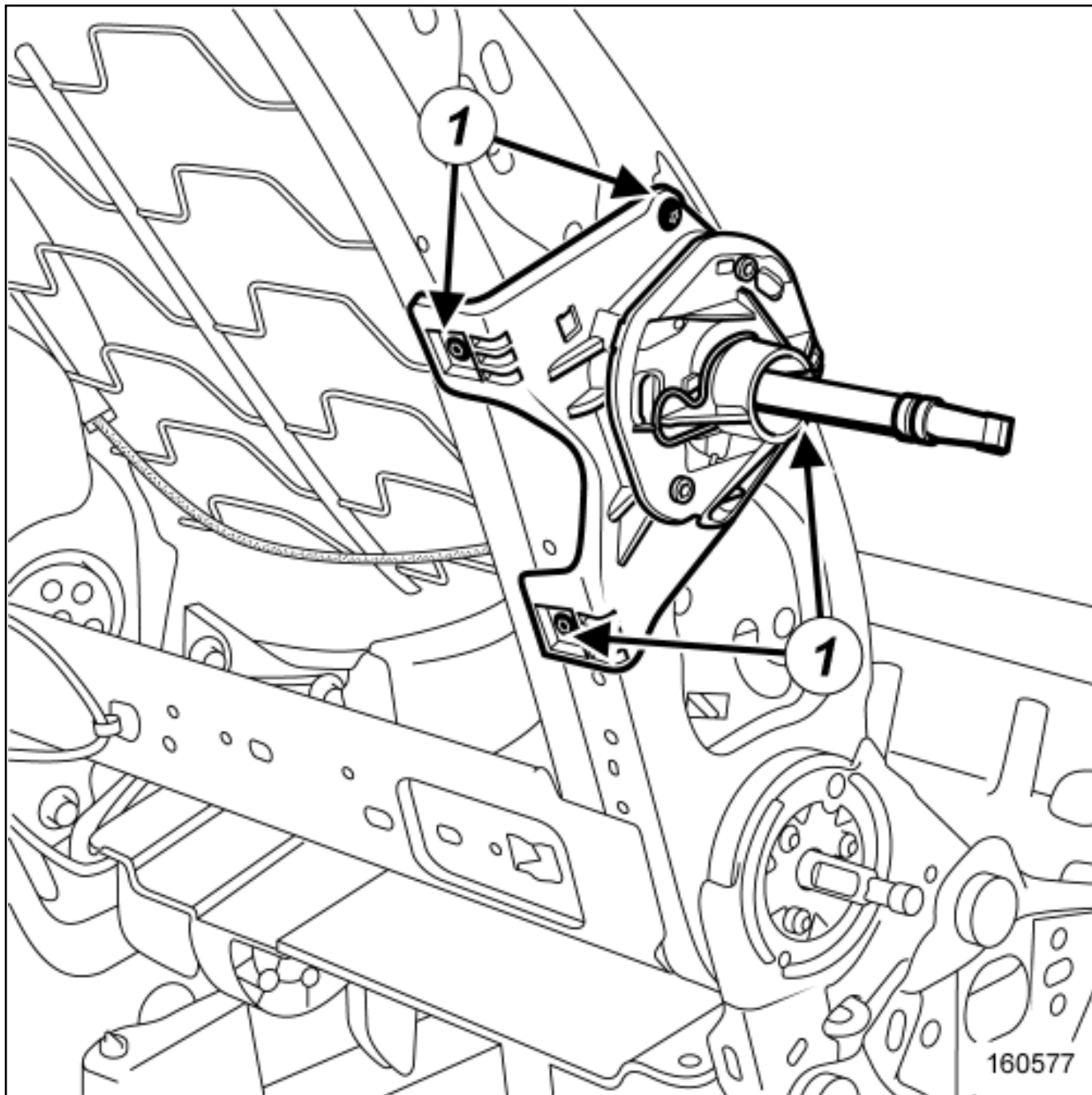
FRONT SEAT LUMBAR ADJUSTMENT: REMOVAL - REFITTING

REMOVAL

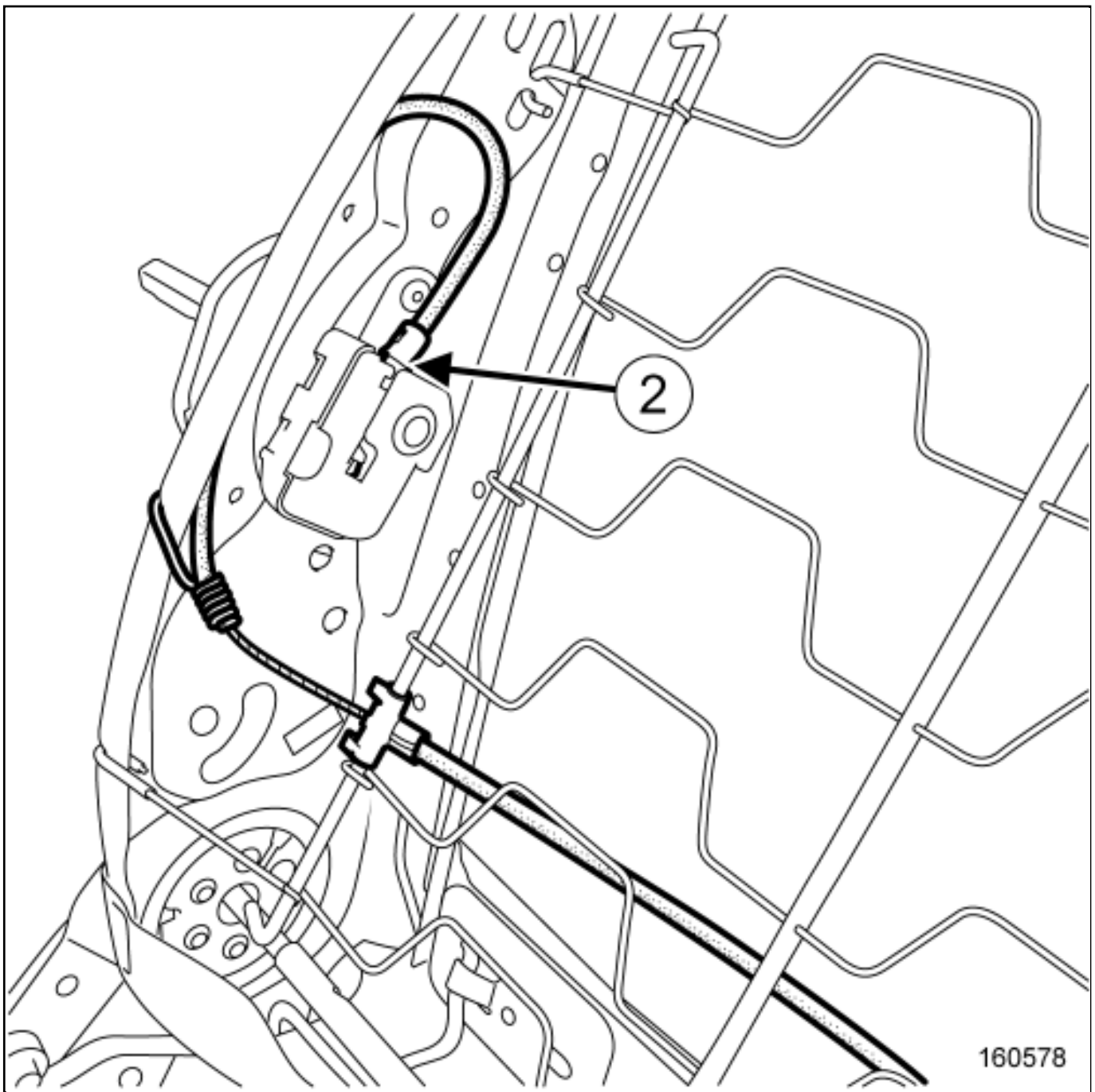
1. REMOVAL OPERATION PREPARATION

- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove:
 - the front seat headrest [Front headrest: Removal - Refitting](#) ,
 - the front seat headrest guides [Front seat headrest guide: Removal - Refitting](#) ,
 - the front seat lumbar adjustment control ([see 75A, Front seat frames and mechanisms, Front seat lumbar adjustment control: Removal - Refitting](#)) ,
 - the front seat armrest [Front armrest: Removal - Refitting](#) ,
 - the front seatback tilt control ([see 75A, Front seat frames and mechanisms, Front seat backrest tilt control: Removal - Refitting](#)) ,
 - the front seatback trim [Front seatback trim: Removal - Refitting](#) ,
 - the front seat side airbag [Front \(chest-level\) side airbag: Removal - Refitting](#) ,
 - the front seatback foam.

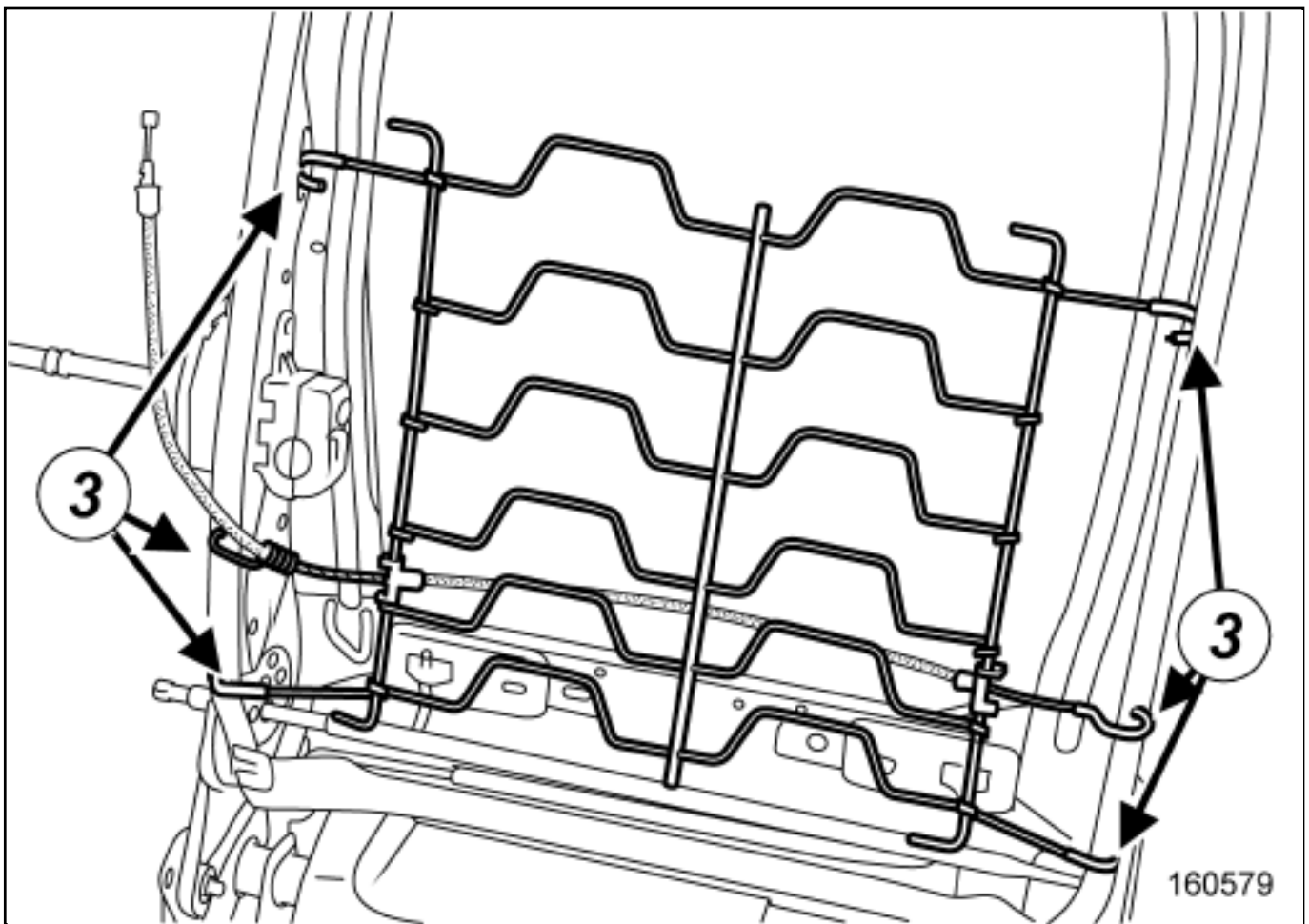
2. REMOVAL OPERATION



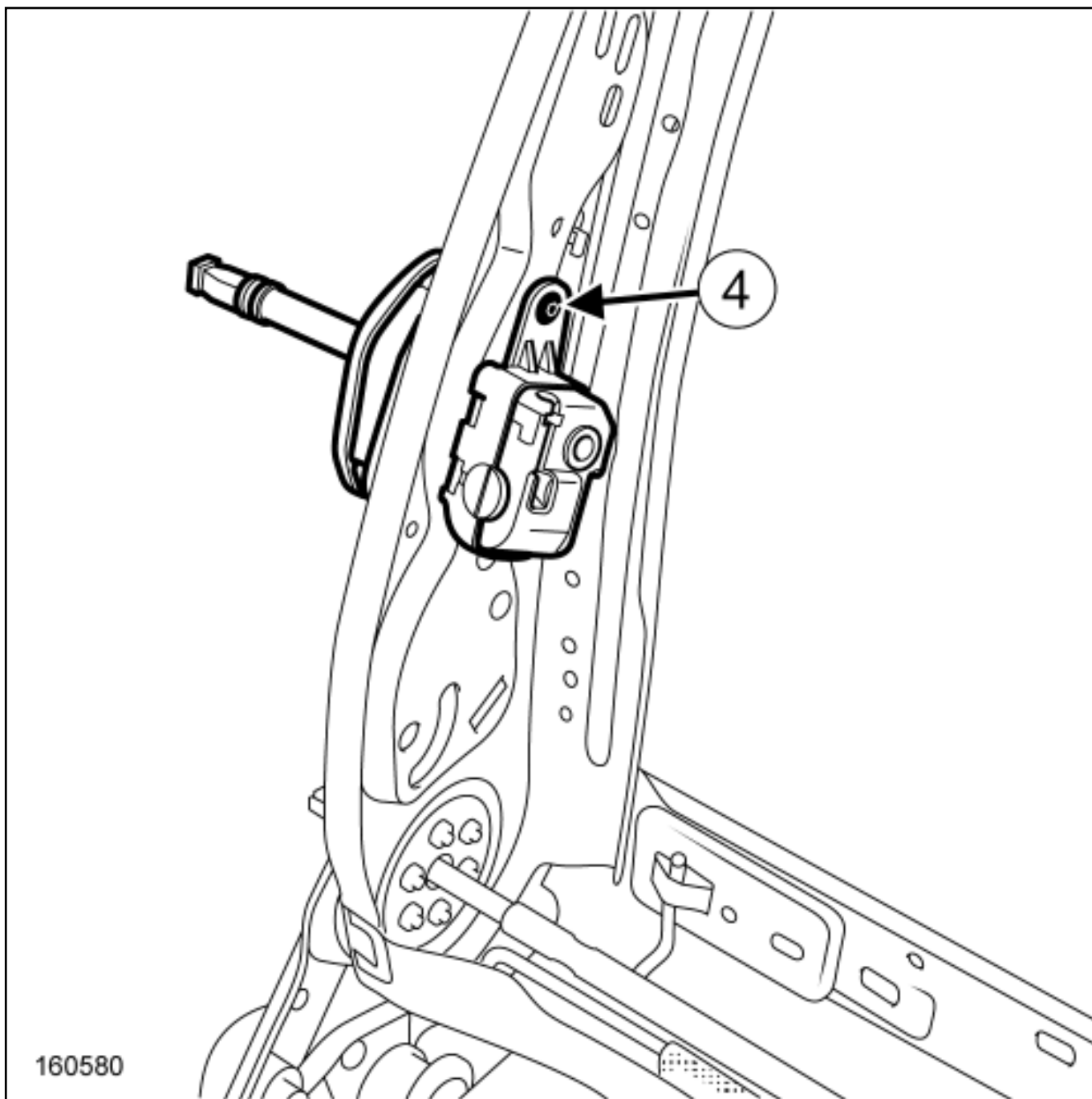
■ Remove the bolts(1).



■ Disconnect the lumbar adjustment cable control at(2) .



- Unclip the lumbar adjustment pad at(3) .
- Remove the lumbar adjustment pad.



- Drill the rivet(4) .

- Remove the lumbar adjustment cable control.

REFITTING

Parts always to be replaced: lumbar adjustment control rivet.

Proceed in the reverse order to removal.



Repair-70x08x04x10-01x37-1-9-1.xml



XSL version : 3.02 du 22/07/11

FRONT SEAT: STRIPPING - REBUILDING

STRIPPING

1. STRIPPING OPERATION PREPARATION

- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove the front seat ([see 75A, Front seat frames and mechanisms, Complete front seat: Removal - Refitting](#)) .

2. STRIPPING OPERATION

- Remove:
 - the front seat headrest [Front headrest: Removal - Refitting](#) ,
 - the front seatback tilt control ([see 75A, Front seat frames and mechanisms, Front seat backrest tilt control: Removal - Refitting](#)) ,
 - the front seat lumbar adjustment control ([see 75A, Front seat frames and mechanisms, Front seat lumbar adjustment control: Removal - Refitting](#)) ,
 - the front seat armrest [Front armrest: Removal - Refitting](#) ,
 - the front seat height adjustment control ([see 75A, Front seat frames and mechanisms, Front seat height adjuster control: Removal - Refitting](#)) ,
 - the front seat lower cover [Front seat lower casing: Removal - Refitting](#) ,
 - the front seat headrest guide [Front seat headrest guide: Removal - Refitting](#) ,
 - the front seatback trim [Front seatback trim: Removal - Refitting](#) ,
 - the front seatback foam,
 - the front seat base trim [Front seat base trim: Removal - Refitting](#) ,
 - the front seat base foam,
 - the front seat lumbar adjustment ([see 75A, Front seat frames and mechanisms, Front seat lumbar adjustment: Removal - Refitting](#)) .

REBUILDING

- Proceed in the reverse order to removal.



Repair-70x06x02-01x31-1-4-1.xml



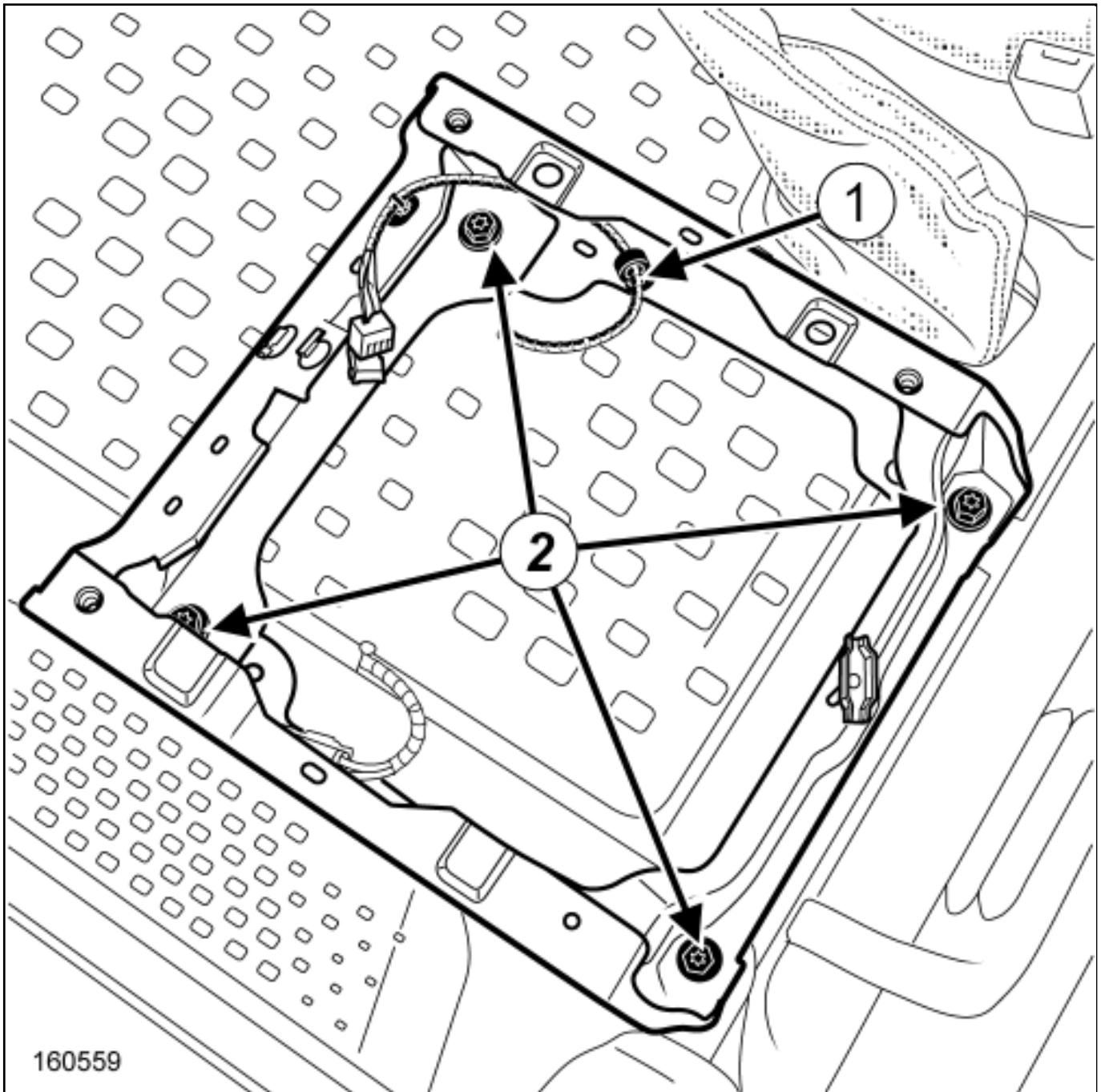
FRONT SEAT SUBFRAME: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

- Remove the front seat ([see 75A, Front seat frames and mechanisms, Complete front seat: Removal - Refitting](#)).

2. REMOVAL OPERATION



■ Unclip the wiring harness at(1) .

■ Remove:

- the bolts(2) ,
- the front seat subframe.

REFITTING

■ Proceed in the reverse order to removal.

■ Torque tighten the front seat subframe bolts44 N.m.



Repair-70x08x04x08-01x37-1-1-1.xml



XSL version : 3.02 du 22/07/11

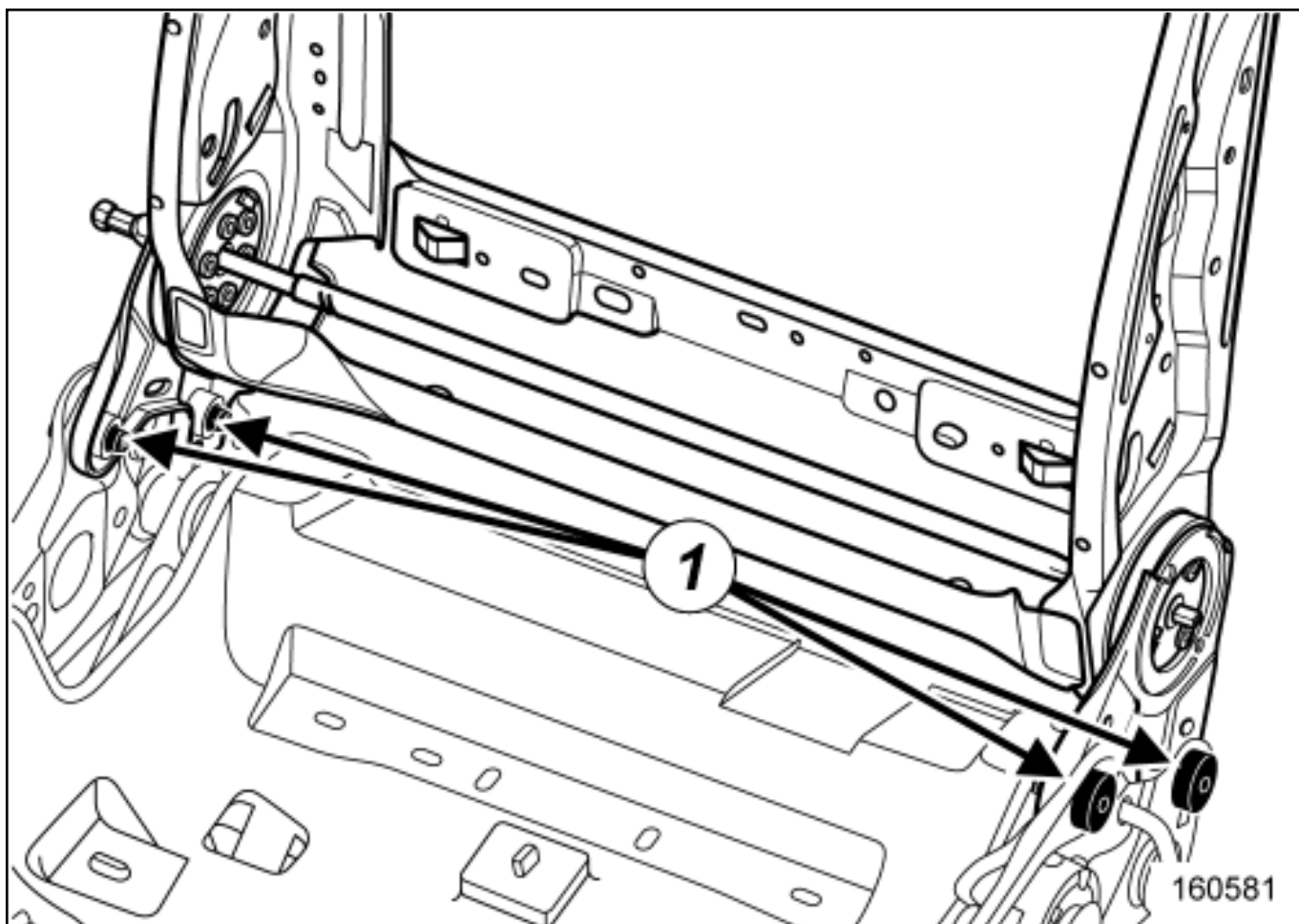
FRONT SEATBACK FRAME: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove:
 - the complete front seat ([see 75A, Front seat frames and mechanisms, Complete front seat: Removal - Refitting](#)) ,
 - the front seat frame ([see 75A, Front seat frames and mechanisms, Front seat frame: Removal - Refitting](#)) .

2. REMOVAL OPERATION



- Remove:
 - the bolts(1) ,
 - the front seatback frame.



Proceed in the reverse order to removal.



Torque tighten the front seatback bolts 35 N.m.



Repair-70x08x02x08-01x37-1-20-1.xml



XSL version : 3.02 du 22/07/11

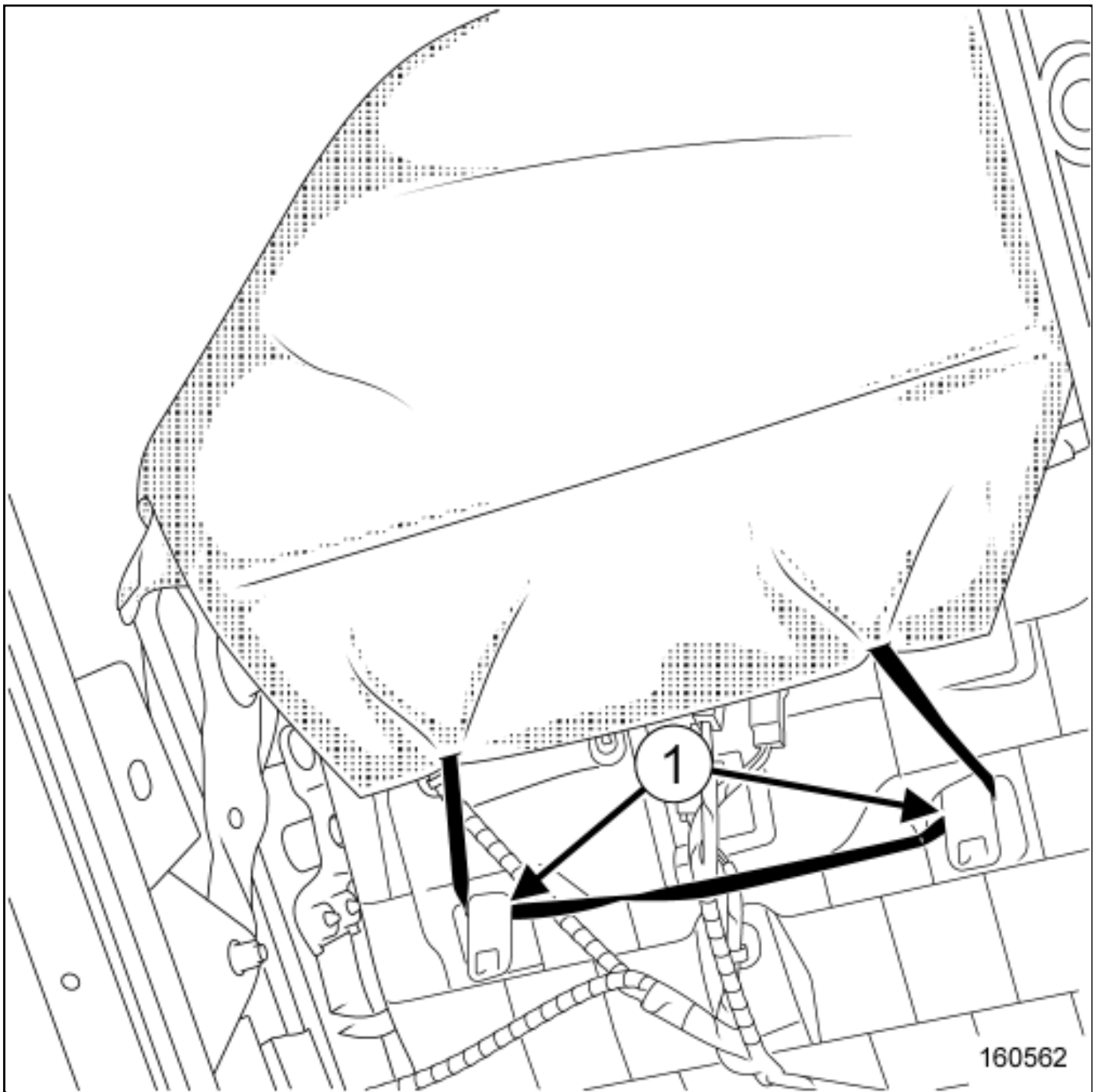
FRONT SEATBACK TRIM: REMOVAL - REFITTING

REMOVAL

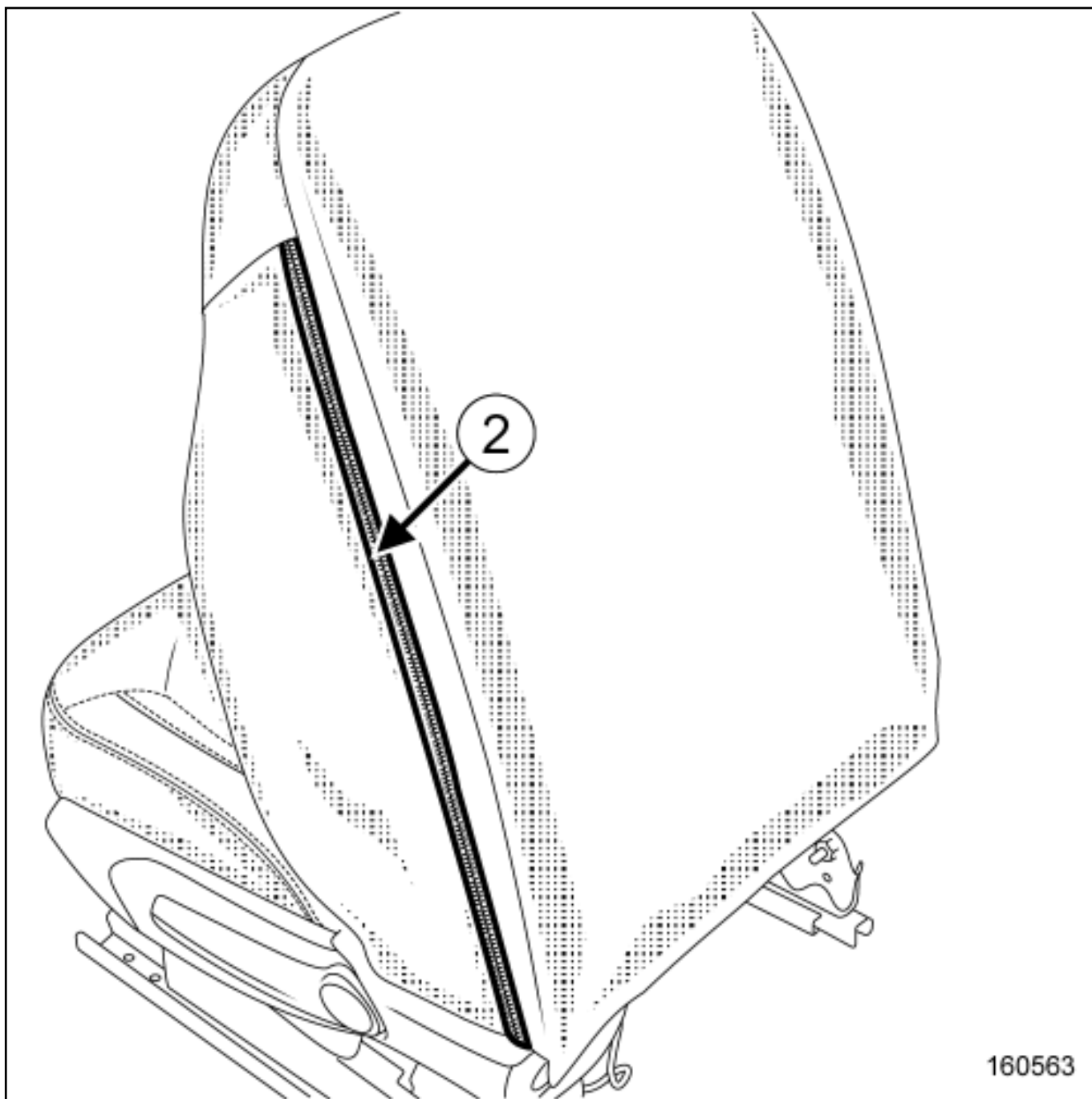
1. REMOVAL OPERATION PREPARATION

- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove:
 - the front seat headrest [Front headrest: Removal - Refitting](#) ,
 - the lumbar adjustment control [Front seat lumbar adjustment control: Removal - Refitting](#) ,
 - the front seat armrest [Front armrest: Removal - Refitting](#) ,
 - the front seat backrest tilt control [Front seat backrest tilt control: Removal - Refitting](#) ,
 - the front seat headrest guides [Front seat headrest guide: Removal - Refitting](#) ,
 - the front seat side airbag [Front \(chest-level\) side airbag: Removal - Refitting](#) .

2. REMOVAL OPERATION

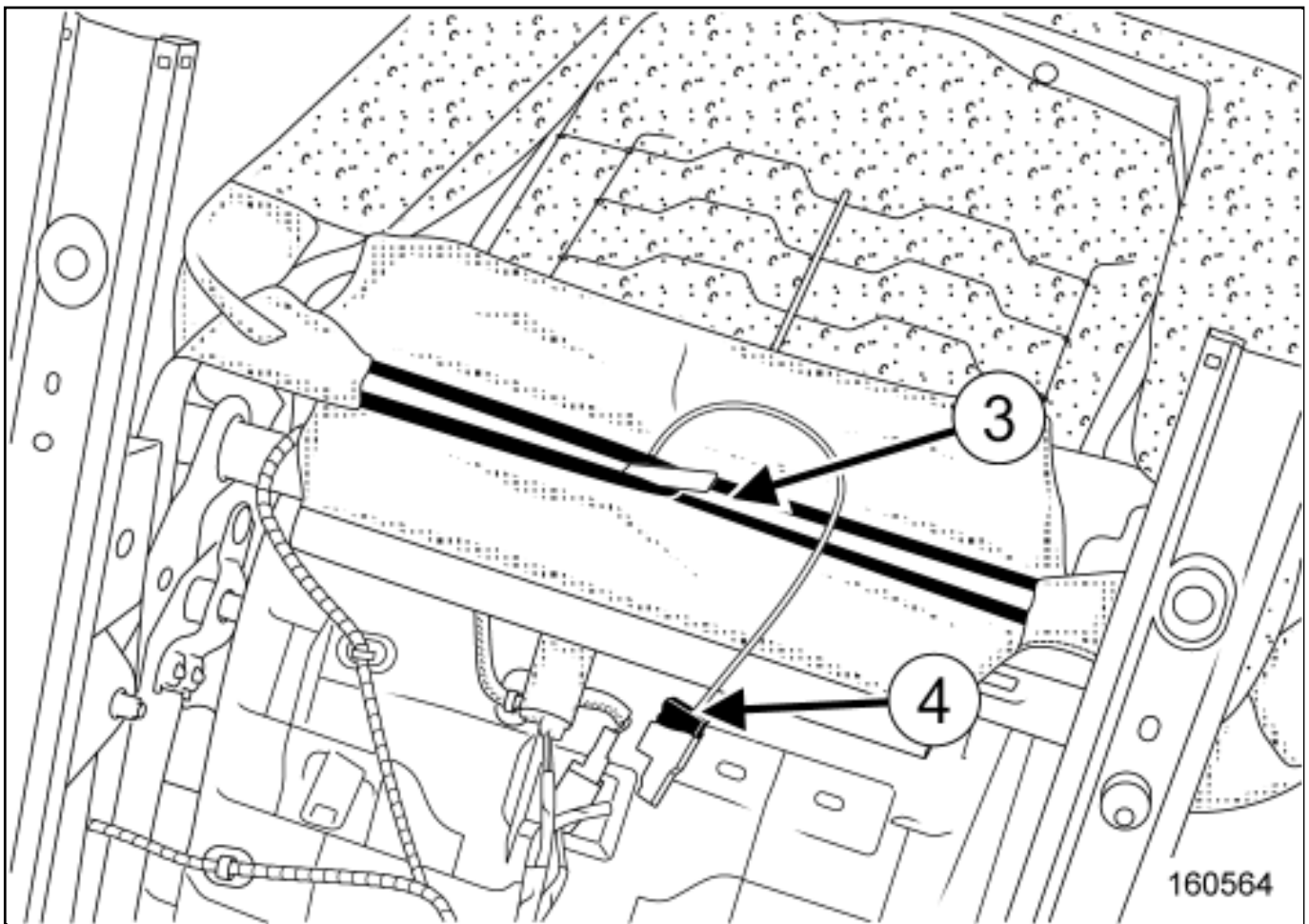


■ Remove the elastic strap(1) .



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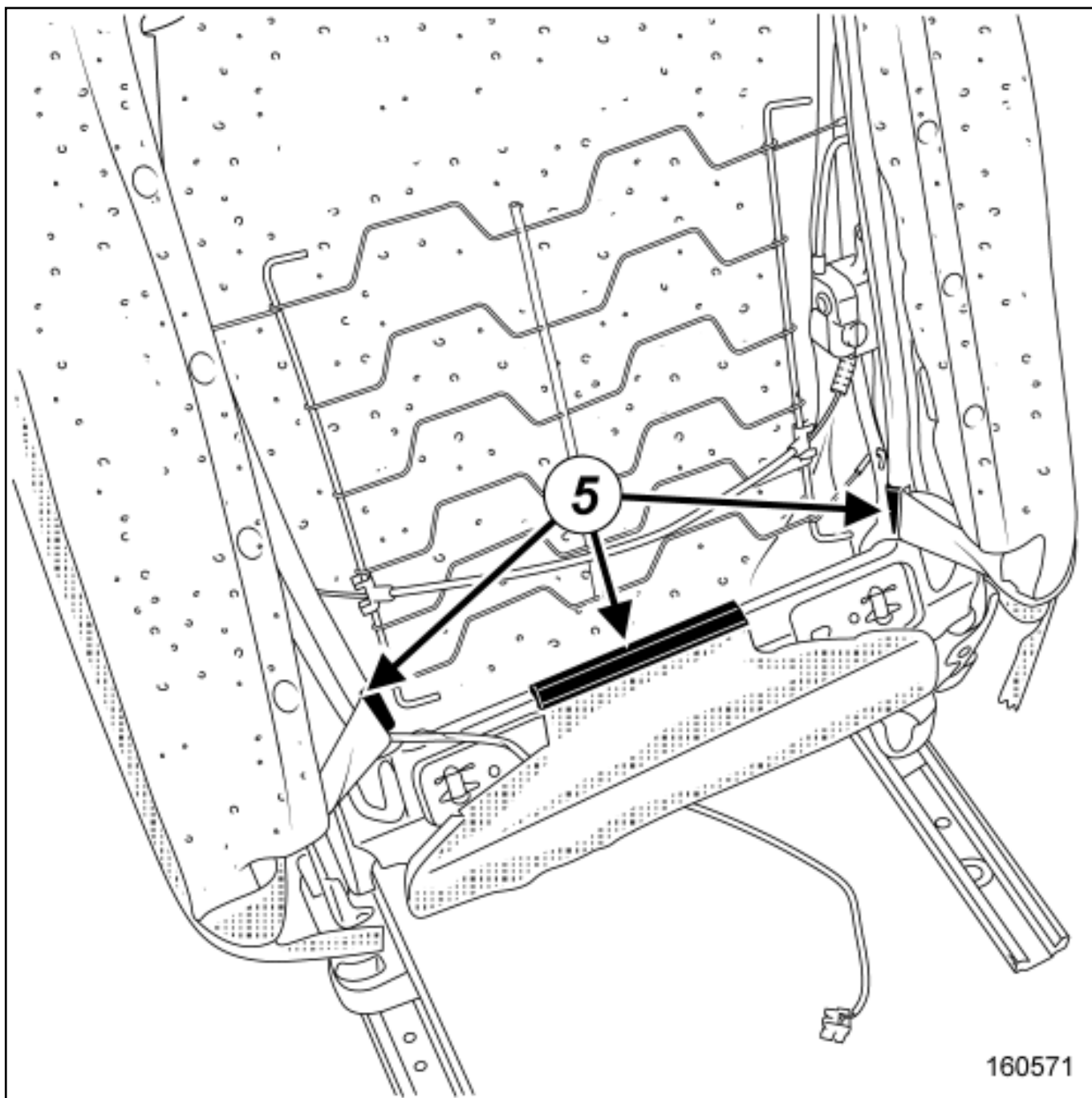
■ Open the zip fastener(2) .



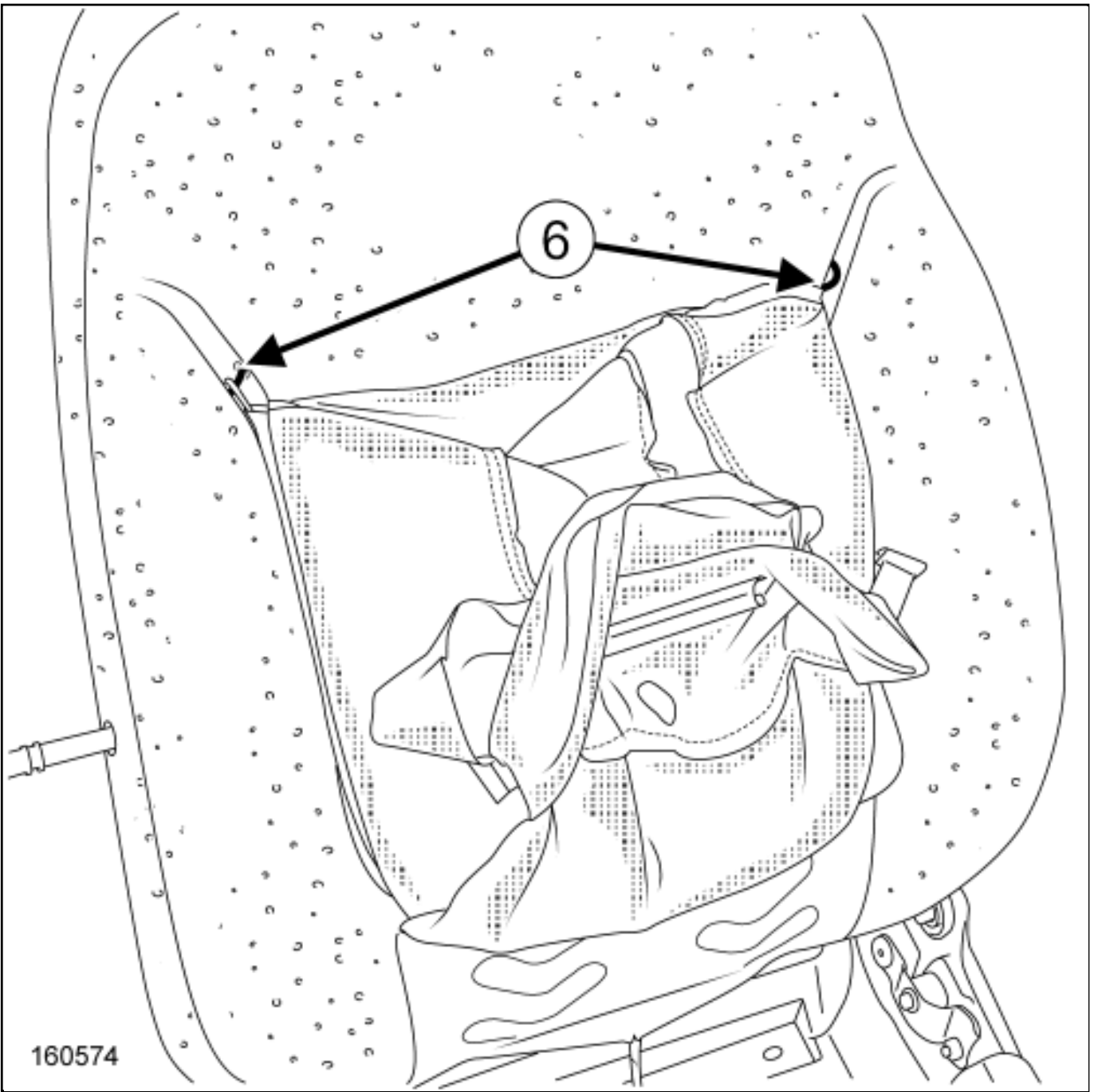
■ Remove the elastic strap(3) .

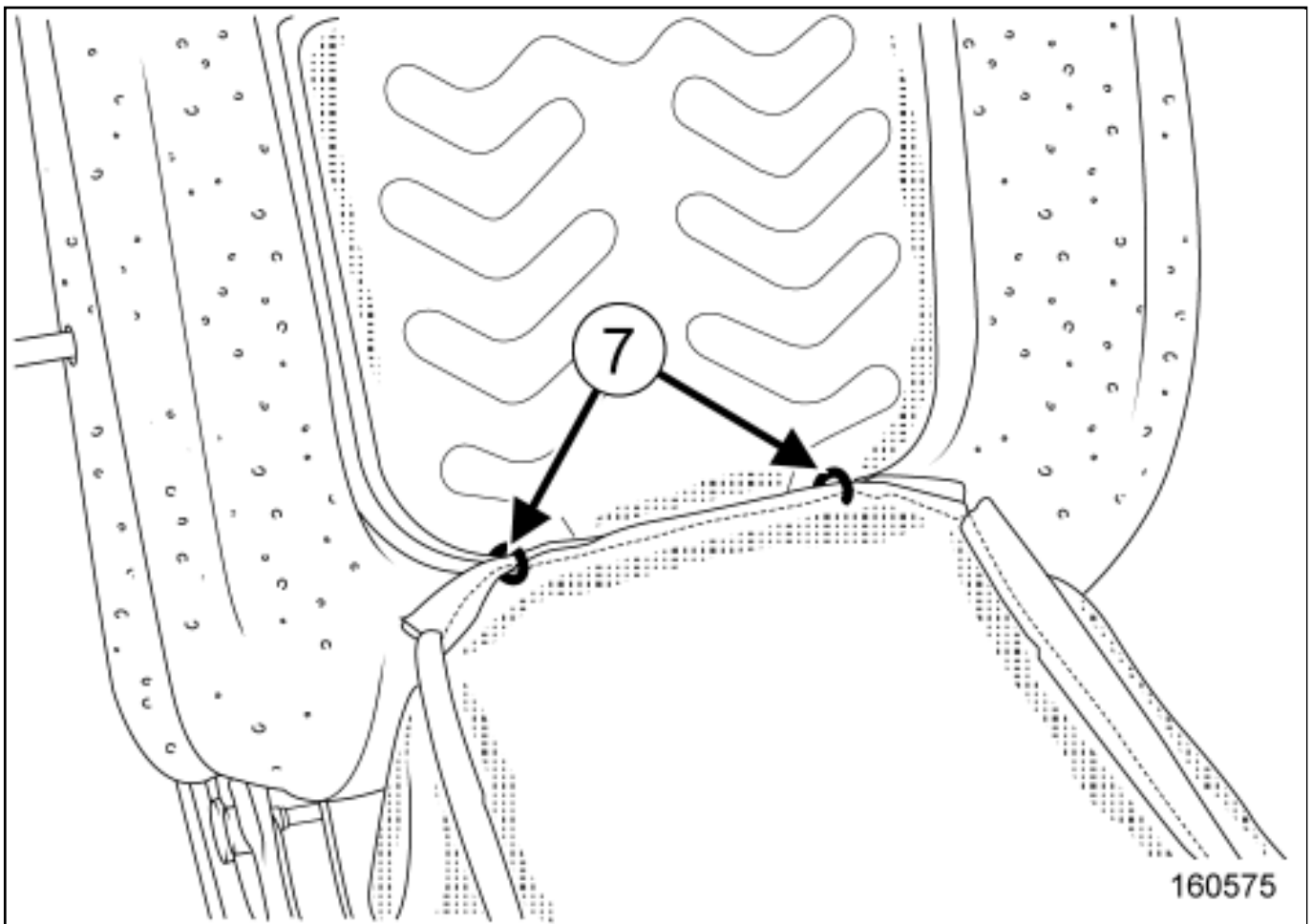
■

Disconnect the seatback heated pad connector(4) .



Unclip the retaining section(5) .





Cut the clips(7) and unclip at(6) .

Remove the front seatback trim.

REFITTING

Parts always to be replaced: front seatback trim clips.

Proceed in the reverse order to removal.



Note:

Refit the front seatback trim on the foam, observing the correct refitting order.



Repair-70x10x02x06-01x37-1-43-1.xml



XSL version : 3.02 du 22/07/11

FRONT SHOCK ABSORBER AND SPRING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

spring compressor



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 31A, Front axle components, Front axle components: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .

Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 31A, Front axle components, Front axle assembly: Exploded view\)](#) .



WARNING

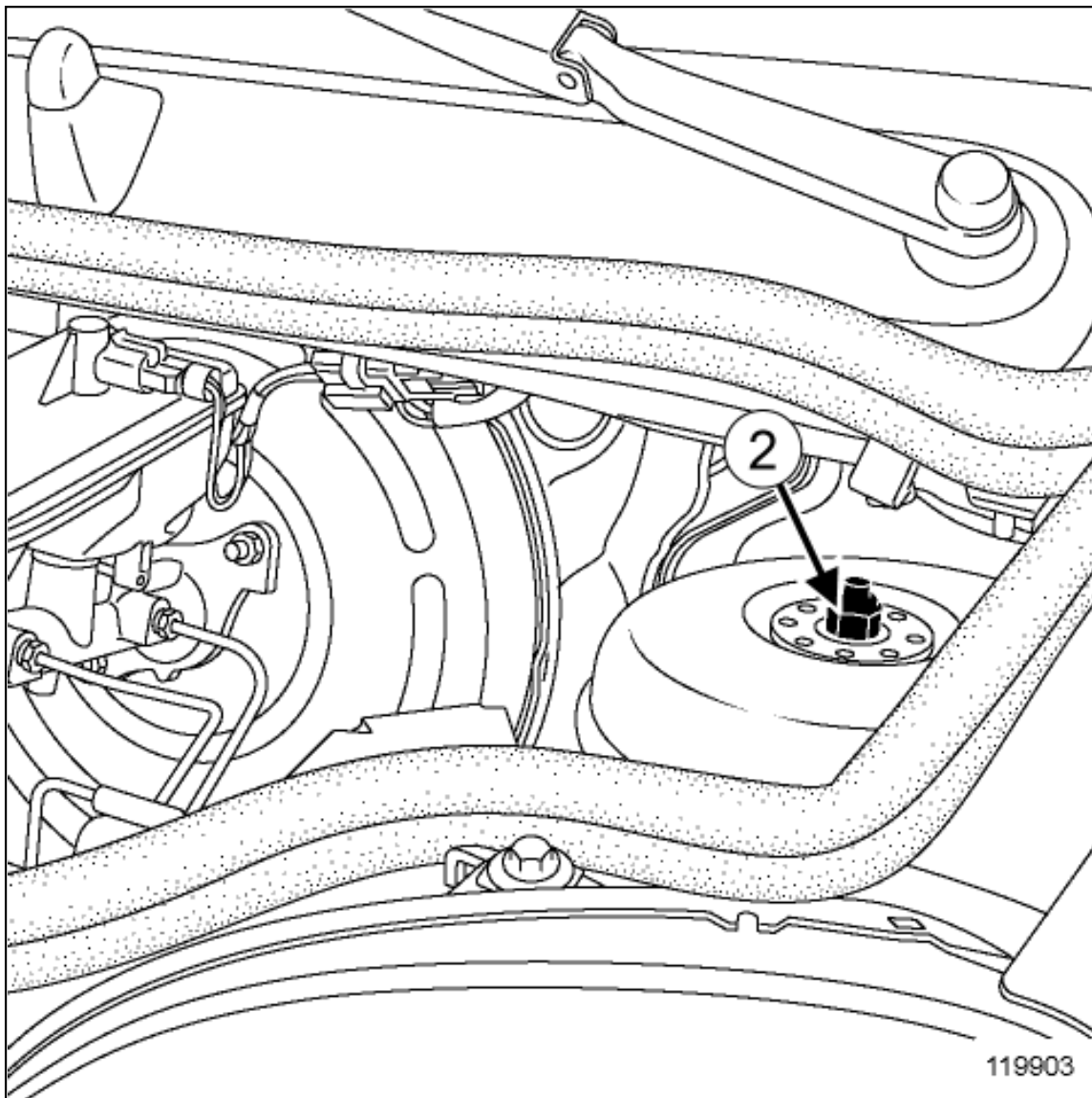
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove the front wheels [\(see 31A, Front axle components, Front hub carrier assembly: Exploded view\)](#) .

2. REMOVAL OPERATION

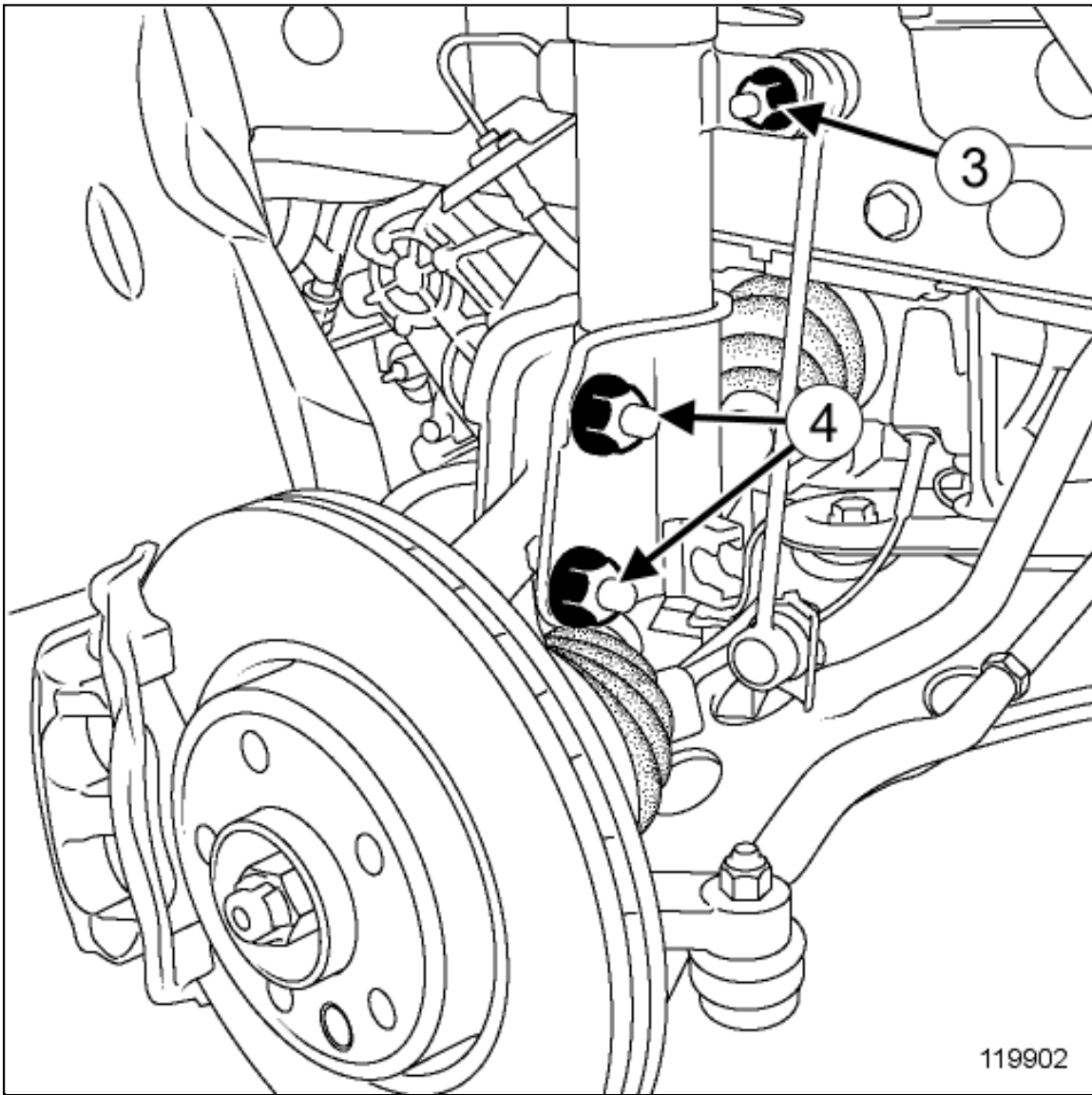


Remove:

- the protector of the shock absorber rod upper nut on the body,
- the shock absorber rod upper nut(2) on the body.

Unclip:

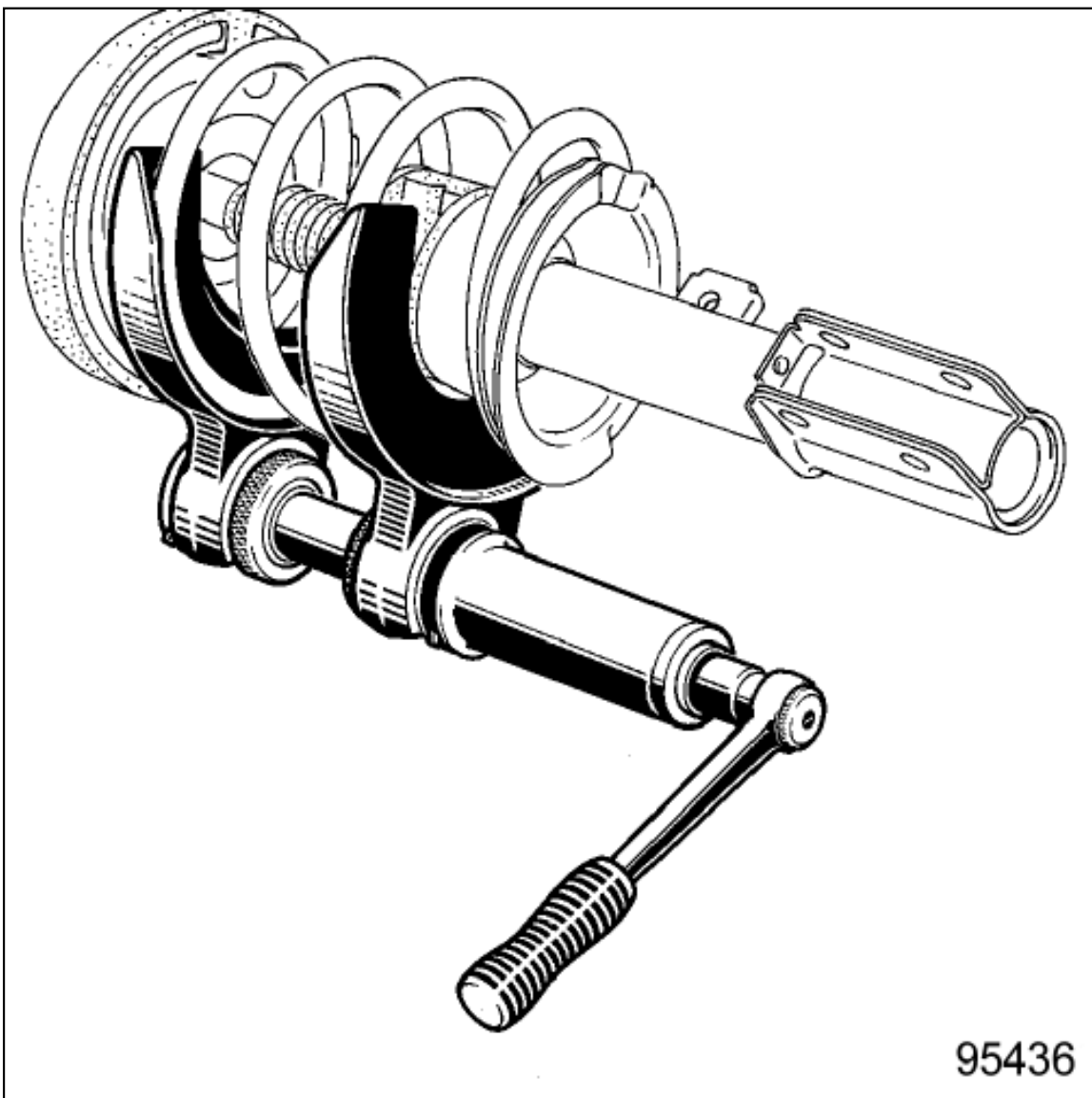
- the front brake hose,
- the ABS sensor wiring harness.



119902

Remove:

- the anti-roll bar tie-rod upper nut(3) .
- the lower studs(4) from the shock absorber,
- the spring - shock absorber assembly.



Fit the appropriate cups on the spring compressor and position the assembly on the spring.

Detach the spring from the cups by compressing the spring.

Remove the shock absorber rod nut.

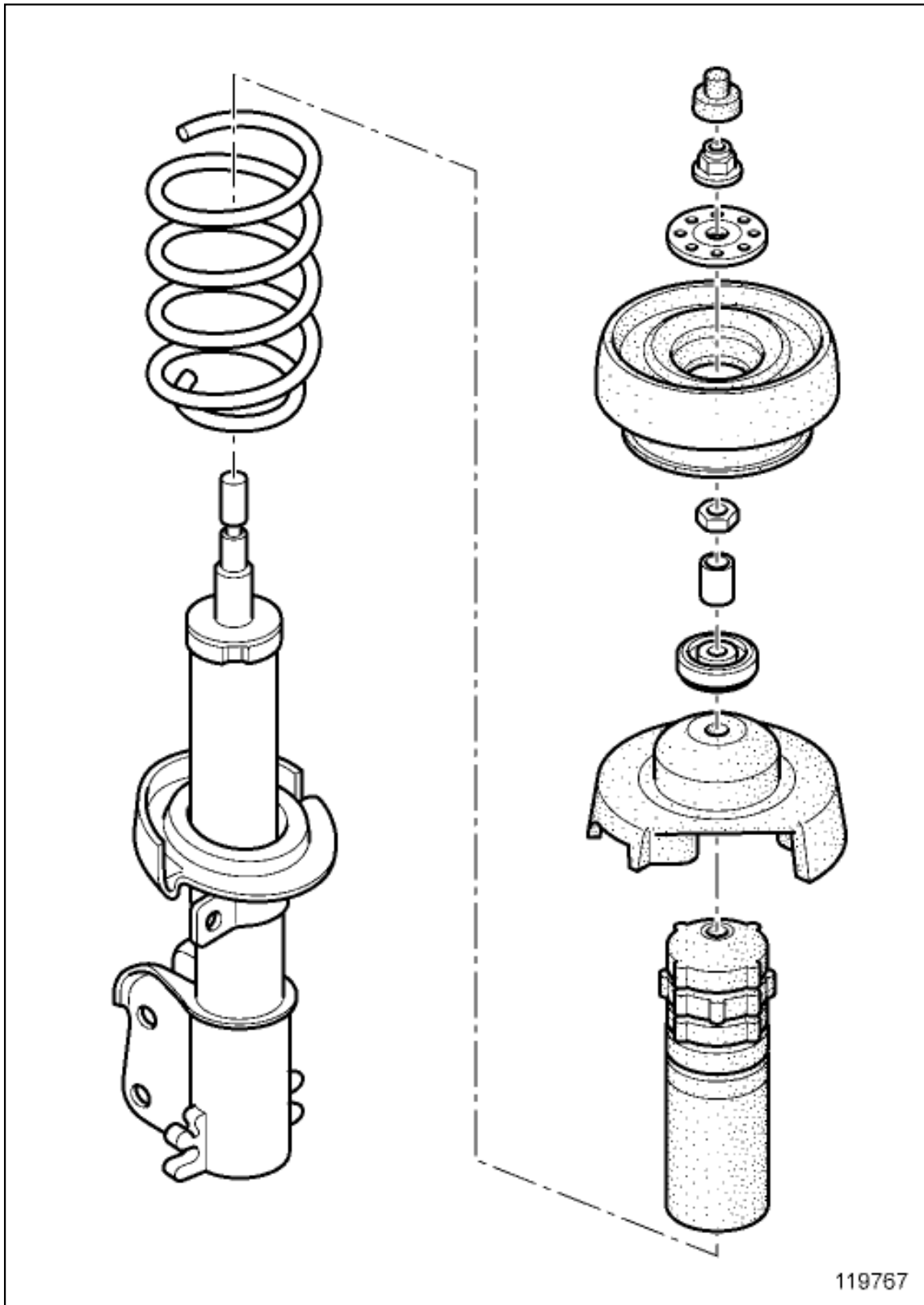
Separate the various components of the spring and shock absorber assembly.



Note:

Mark the order and direction of fitting of the assembly of constituent parts.

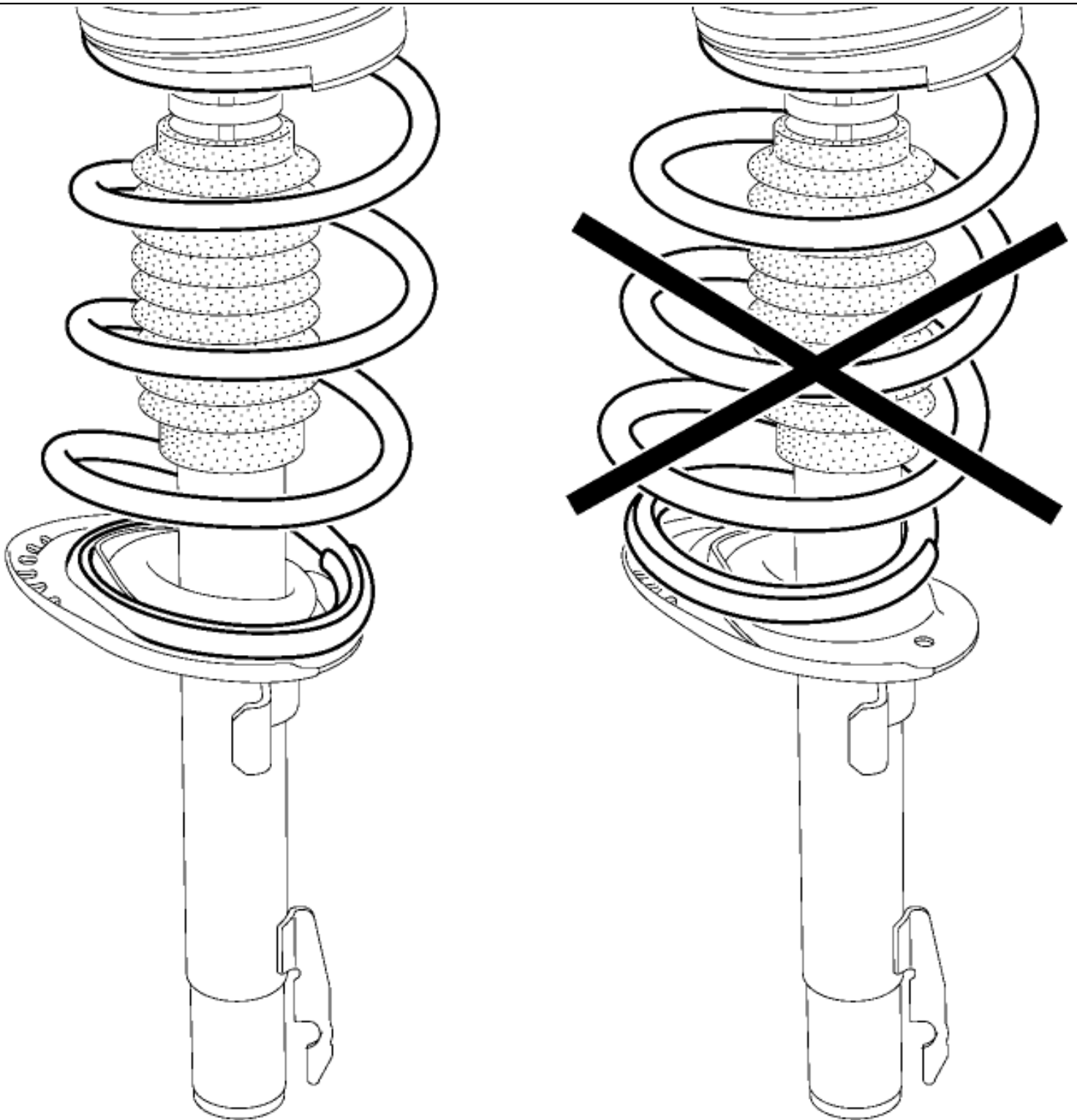
1. REFITTING OPERATION



Refit the components of the spring - shock absorber assembly.

Observe the order and direction of fitting of the assembly of constituent parts.

Place the tool spring compressor



102201

Insert the spring in the neck of the cup.

Check the spring is correctly positioned in the neck of the cup.

Torque tighten the shock absorber rod nut([see 31A, Front axle components, Front axle assembly: Exploded view](#)) .

Decompress the spring.

Remove the spring compressor.

Refit the spring/shock absorber assembly to the vehicle.

Fit without tightening the shock absorber rod upper nut on the body.

Refit the shock absorber lower bolts.

Torque tighten the shock absorber lower bolts([see 31A, Front axle components, Front axle assembly: Exploded view](#)) .

Refit the anti-roll bar tie-rod ball joint nut.

Torque tighten the anti-roll bar tie-rod ball joint nut([see 31A, Front axle components, Front axle assembly: Exploded view](#)) .

Clip:



the ABS sensor wiring harness,



the front brake hose.

Torque tighten the shock absorber rod upper nut on the body([see 31A, Front axle components, Front axle assembly: Exploded view](#)) .

Refit the protector of the shock absorber rod upper nut on the body.

2. FINAL OPERATION



Refit the front wheels([see 31A, Front axle components, Front hub carrier assembly: Exploded view](#)).



Repair-13x02x04x03-01x37-1-41-1.xml



XSL version : 3.02 du 22/07/11

FRONT SIDE FOOT PANEL: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Front side foot panel	HSS	0.75

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



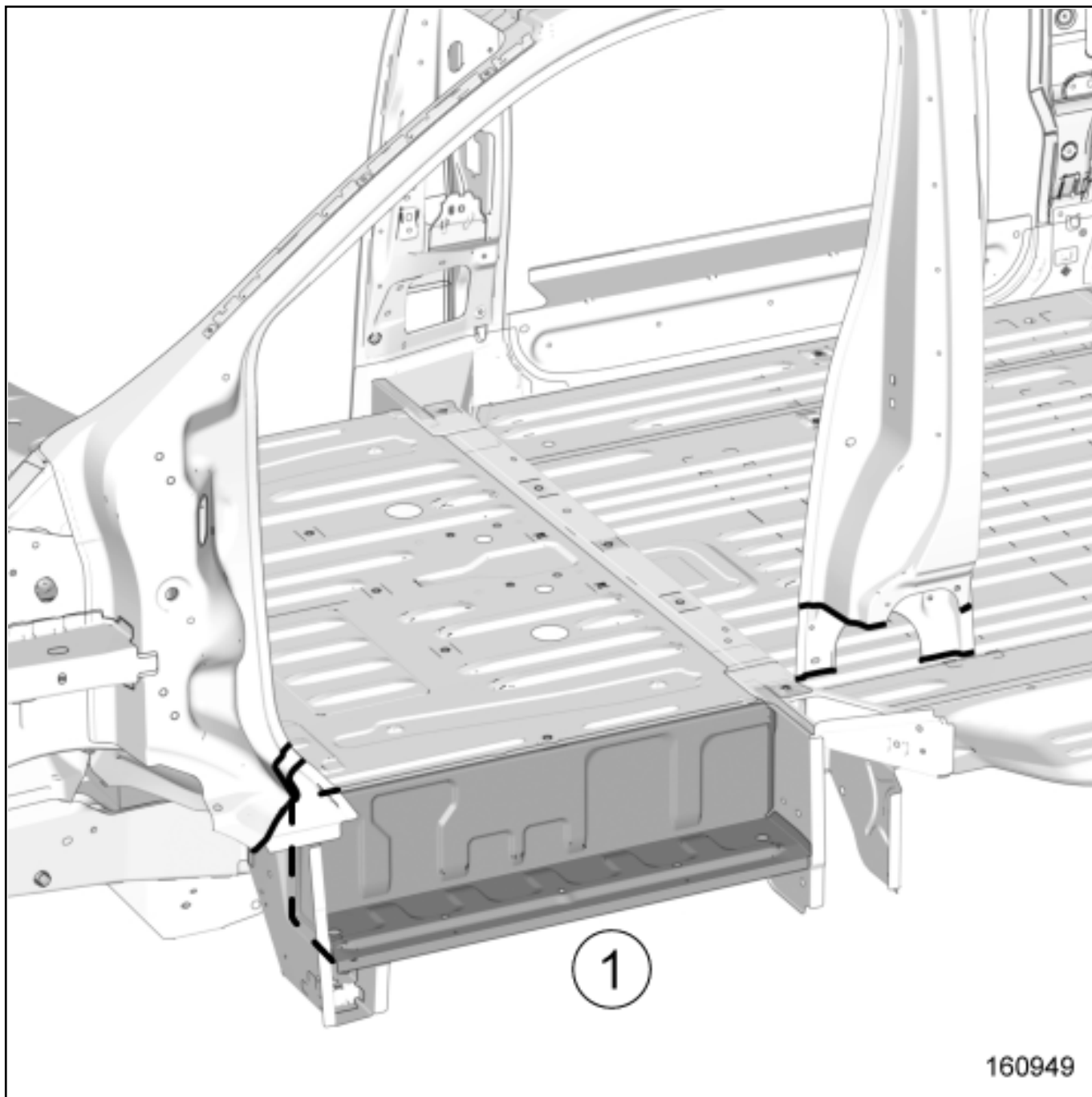
To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x04x04-02x49-1-2-1.xml



FRONT SIDE MEMBER CLOSURE PANEL: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Front side member closure panel	HSS	2

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



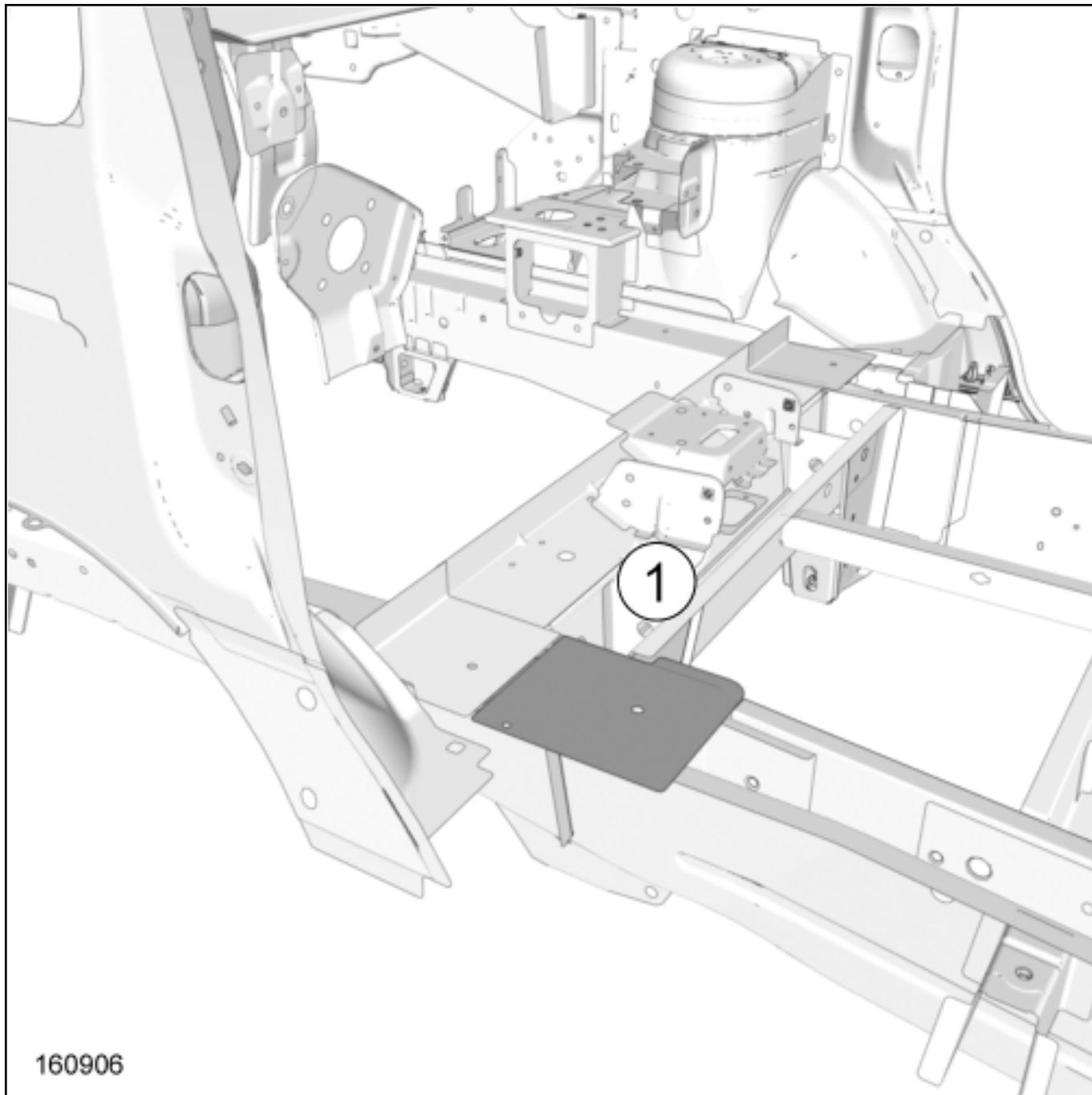
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x02x06x25-02x49-1-7-1.xml



FRONT SIDE MEMBER: REPLACEMENT



Note, one or more warnings are present in this procedure

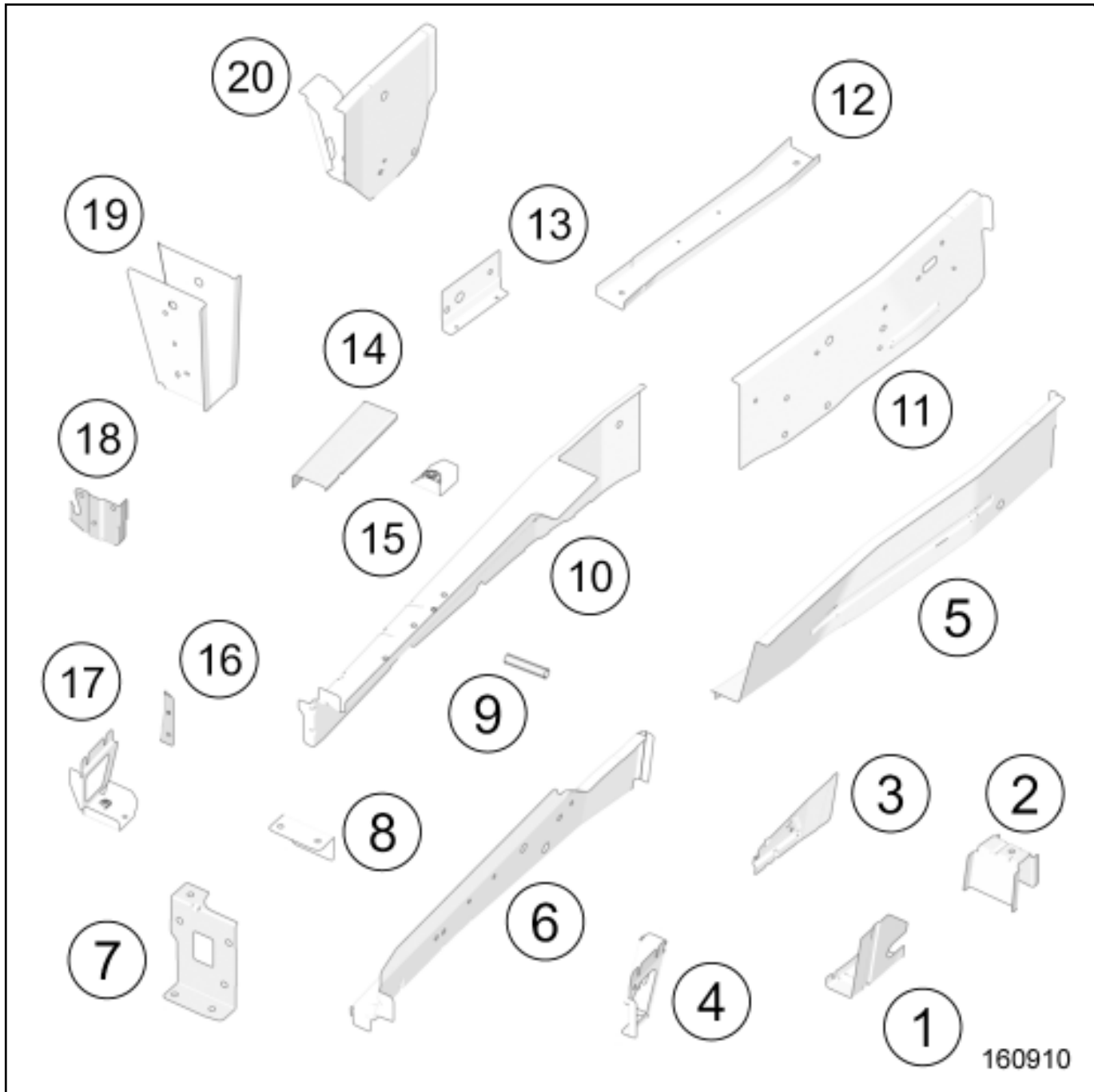


WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

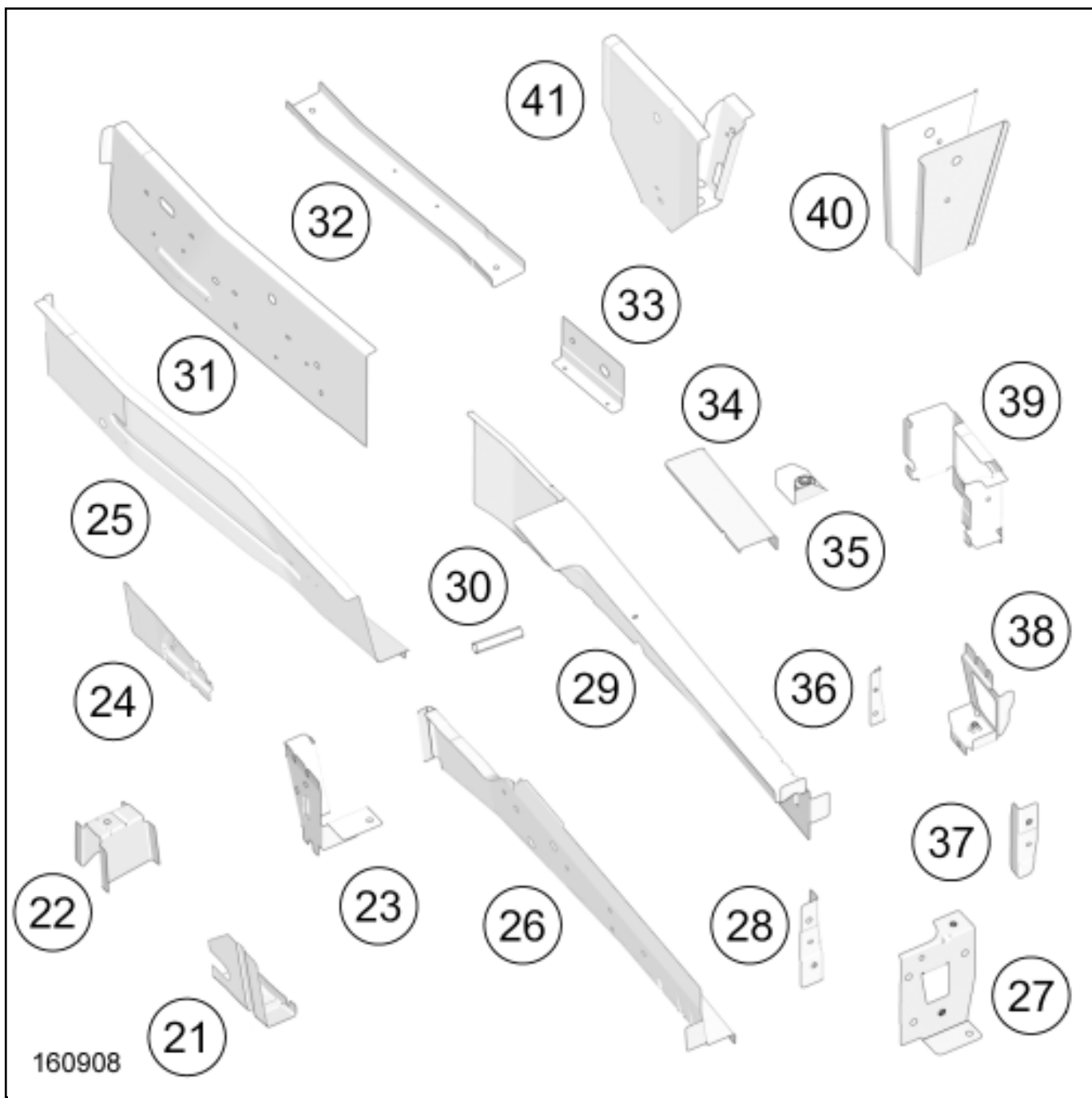
LEFT-HAND SIDE



No.	Description	Type	Thickness (mm)
(1)	Front side member rear closure panel reinforcement	HSS	1.9
(2)	Front seat mounting side reinforcement	Mild steel	2
(3)	Front side member side reinforcement	HSS	2
(4)	Closure panel of the radiator cross member mounting	HSS	1.5
(5)	Front side member rear closure panel	VHSS	2
(6)	Front side member front closure panel	HSS	2.5
(7)	Front left-hand side member impact reinforcement	VHSS	2.5
(8)	Radiator support reinforcement	HSS	1.5
(9)	Subframe mounting spacer	-	4.75
(10)	Front side member front section	HSS	2.5
(11)	Front side member rear section	VHSS	2
(12)	Upper reinforcement of front side member rear section	HSS	2
(13)	Centre floor front cross member reinforcement	HSS	1.8
(14)	Front side member reinforcement, front section	HSS	2
(15)	Front subframe mounting support plate	Mild Steel	1.97

(16)	Wheel arch bracket	Mild steel	1.77
(17)	Radiator cross member mounting	HSS	1.5
(18)	ABS support	HSS	2
(19)	Front subframe rear mounting	HSS	1.5
(20)	Front subframe rear mounting support	HSS	2

RIGHT-HAND SIDE



No.	Description	Type	Thickness (mm)
(21)	Front side member rear closure panel reinforcement	HSS	1.9
(22)	Front seat mounting side reinforcement	Mild steel	2
(23)	Closure panel of the radiator cross member mounting	HSS	1.5
(24)	Front side member side reinforcement	HSS	2
(25)	Front side member rear closure panel	VHSS	2
(26)	Front side member front closure panel	HSS	2.5
(27)	Front right-hand side member impact reinforcement	VHSS	2.5
(28)	Front side member outer reinforcement	HSS	2
(29)	Front side member front section	HSS	2.5
(30)	Subframe mounting spacer	-	4.75
(31)	Front side member rear section	VHSS	2
(32)	Upper reinforcement of front side member rear section	HSS	2
(33)	Centre floor front cross member reinforcement	HSS	1.8
(34)	Front side member reinforcement, front section	HSS	2
(35)	Front subframe mounting support plate	Mild Steel	1.97

(36)	Wheel arch bracket	Mild steel	1.77
(37)	Front side member inner reinforcement	HSS	2
(38)	Radiator cross member mounting	HSS	1.5
(39)	Engine support height adjuster	HSS	1.5
(40)	Front subframe rear mounting	HSS	1.5
(41)	Front subframe rear mounting support	HSS	2

2. IN THE EVENT OF REPLACEMENT

The options for replacing this part are as follows:

- complete replacement,
- partial replacement along cut A.

CAUTION



To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

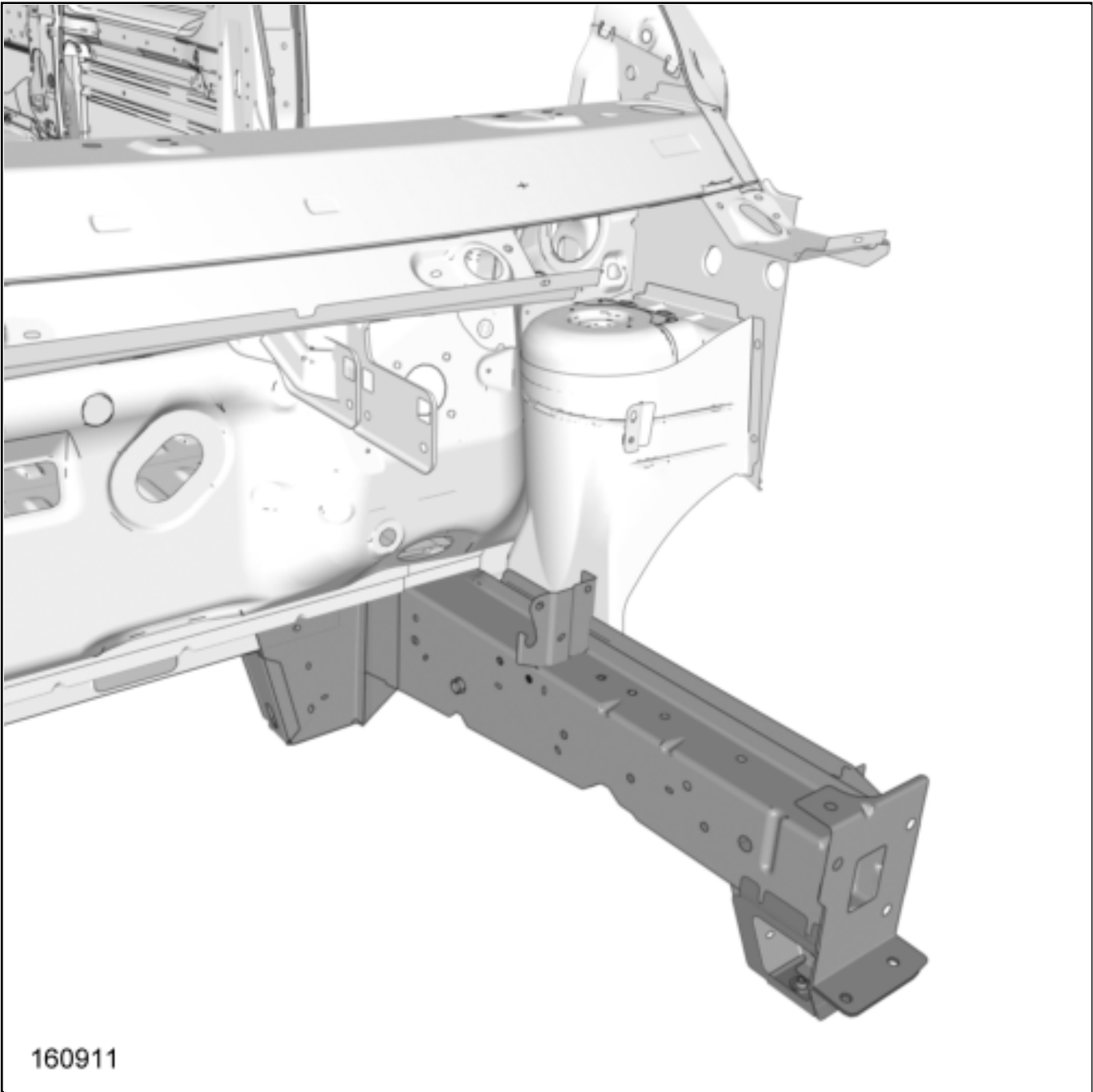


WARNING

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

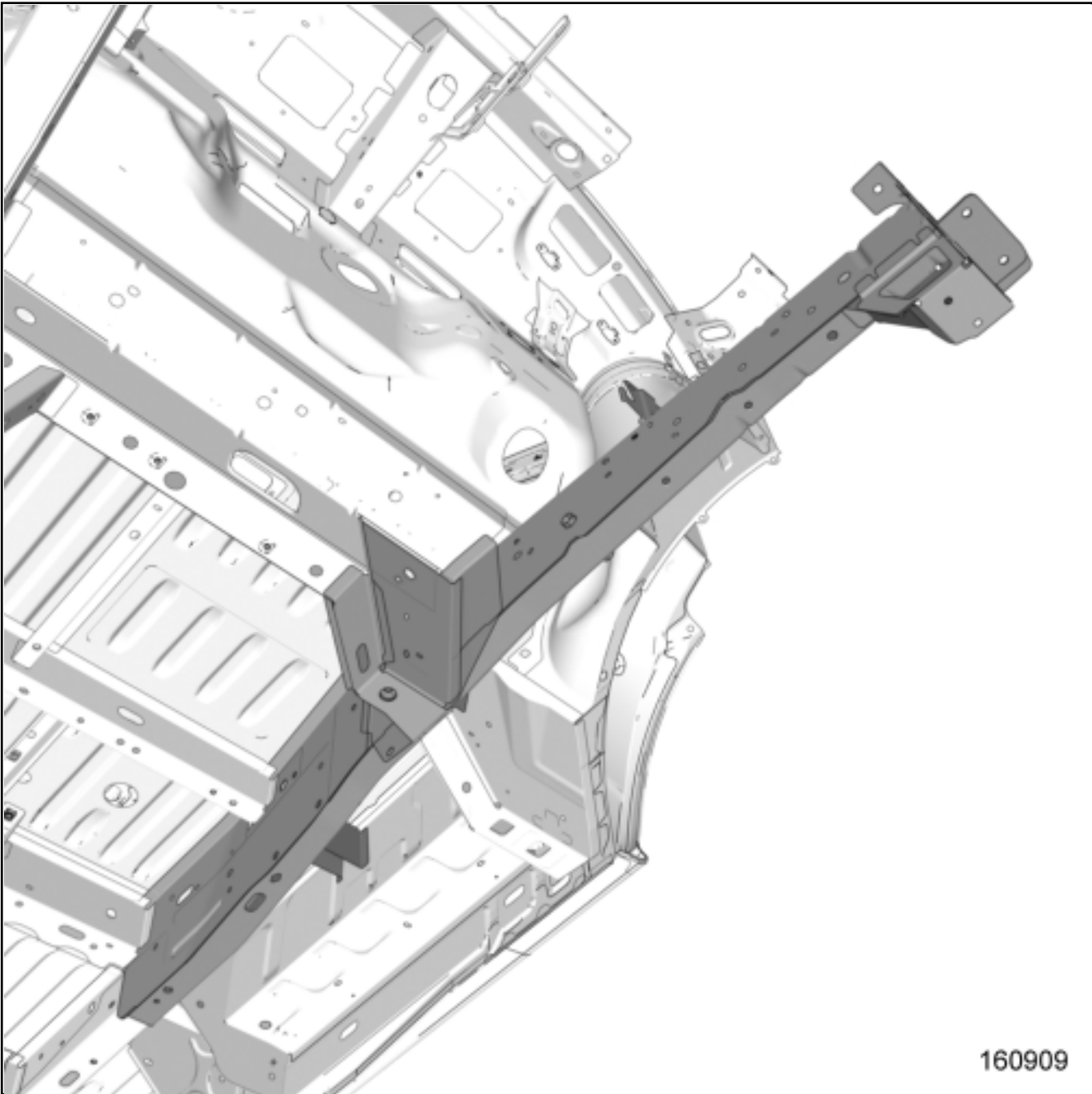
1)PART IN POSITION

LEFT-HAND SIDE VIEW FROM ABOVE



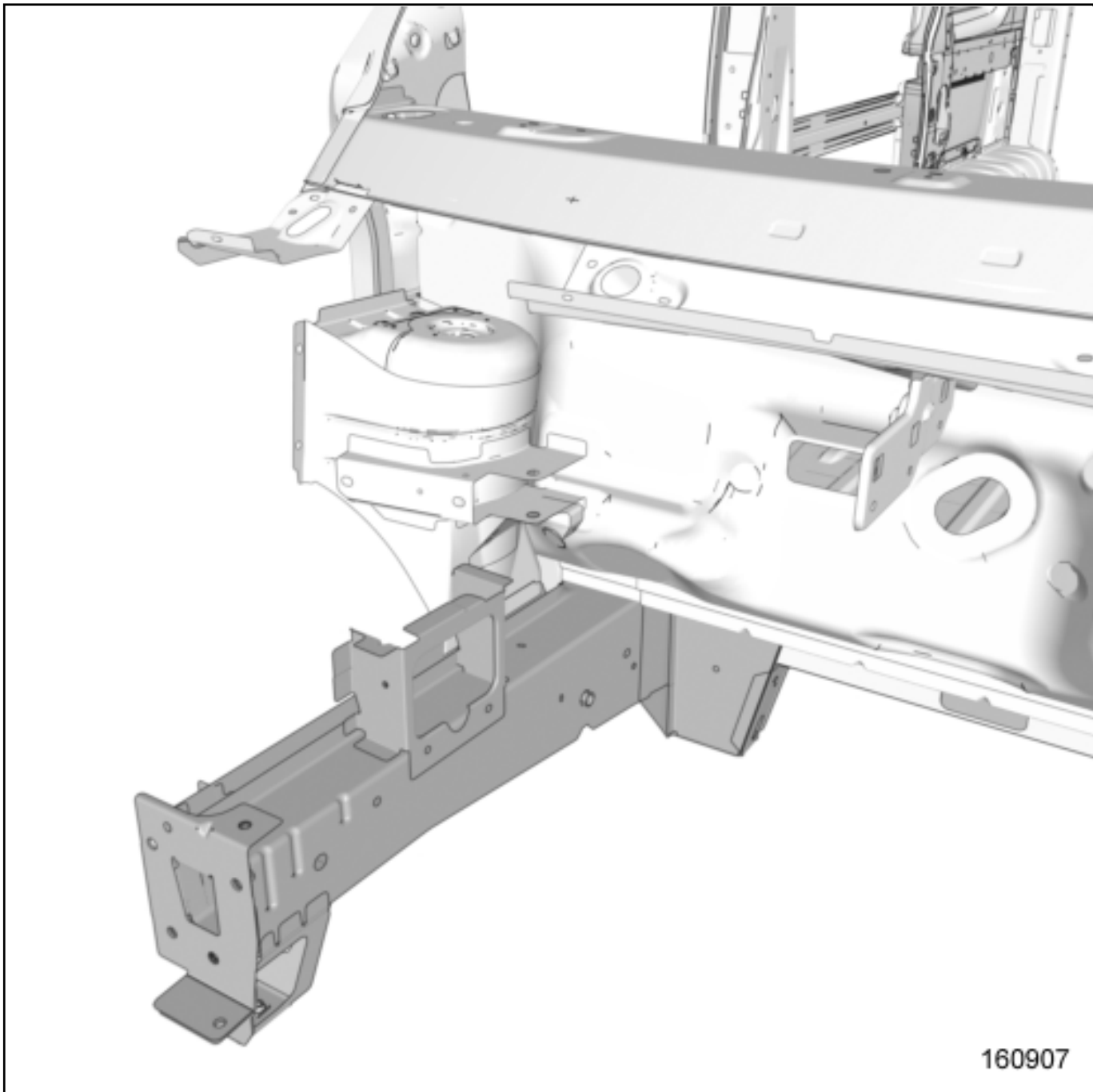
160911

LEFTT-HAND SIDE VIEW FROM BELOW



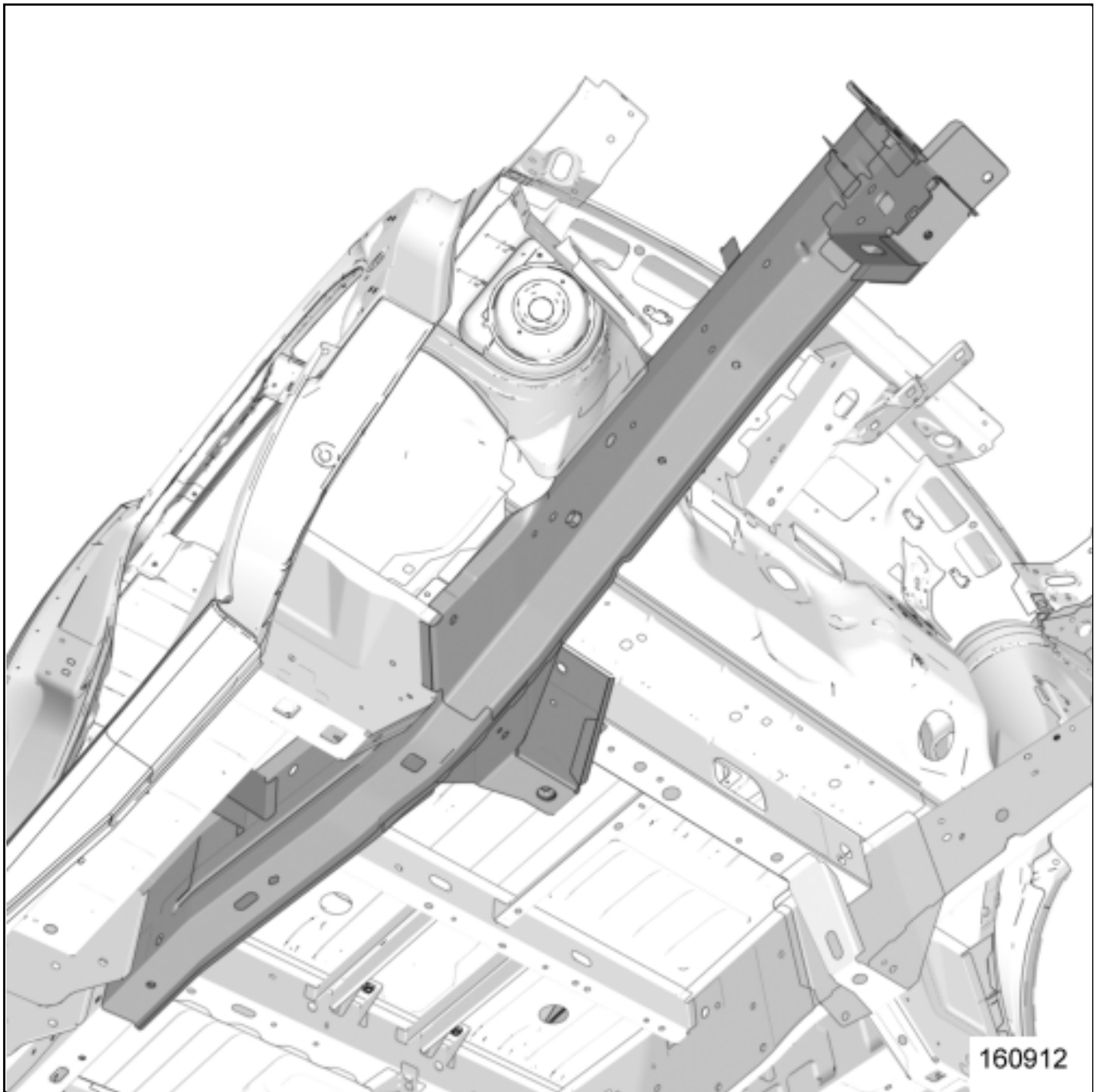
160909

RIGHT-HAND SIDE VIEW FROM ABOVE



160907

RIGHT-HAND SIDE VIEW FROM BELOW



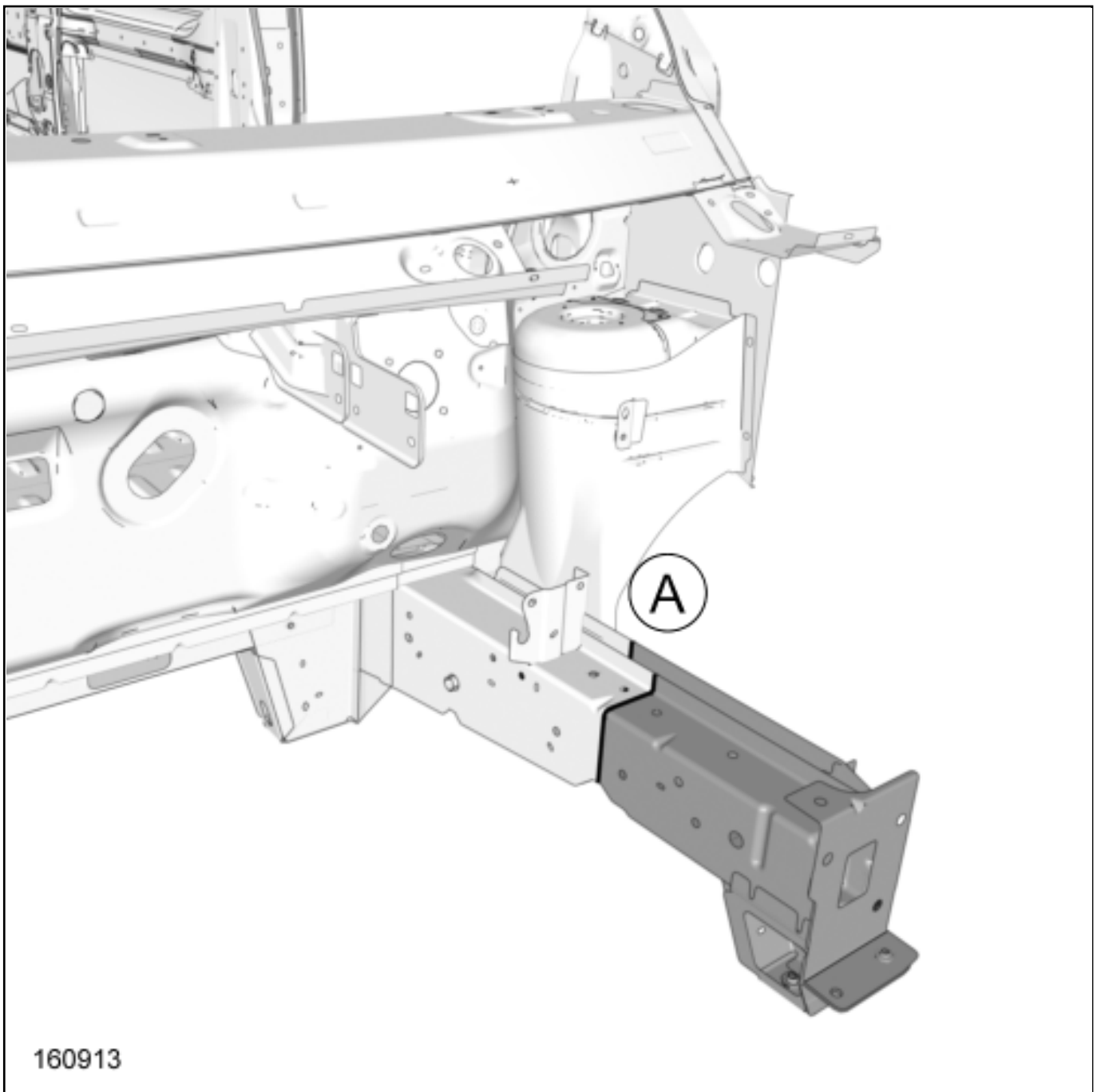
2- PARTIAL REPLACEMENT ALONG CUT A



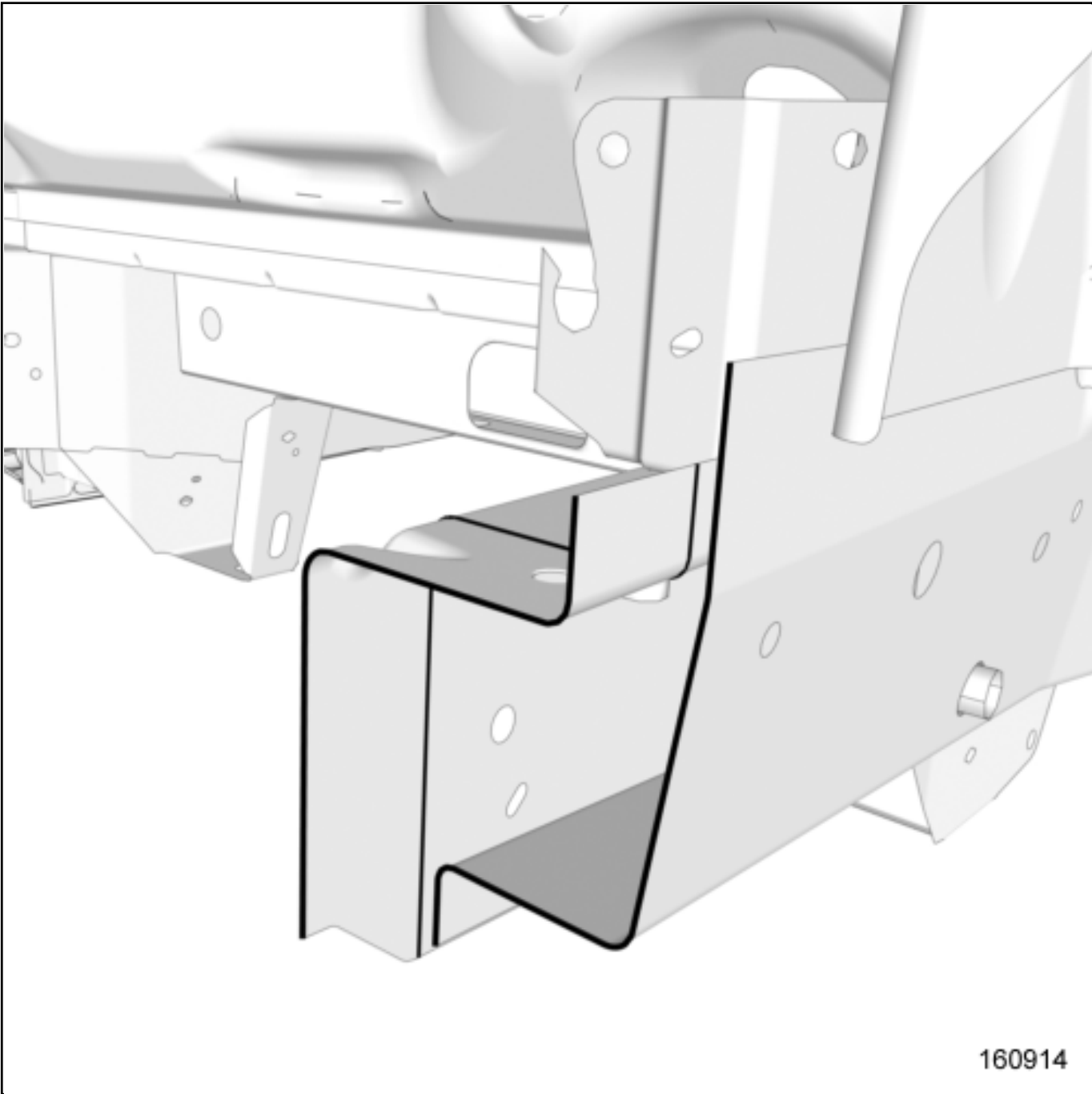
WARNING

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

1)PART IN POSITION



DETAILED VIEW A



160914



Repair-40x02x06-02x49-1-7-1.xml



FRONT SIDE OPENING ELEMENT: ADJUSTMENT

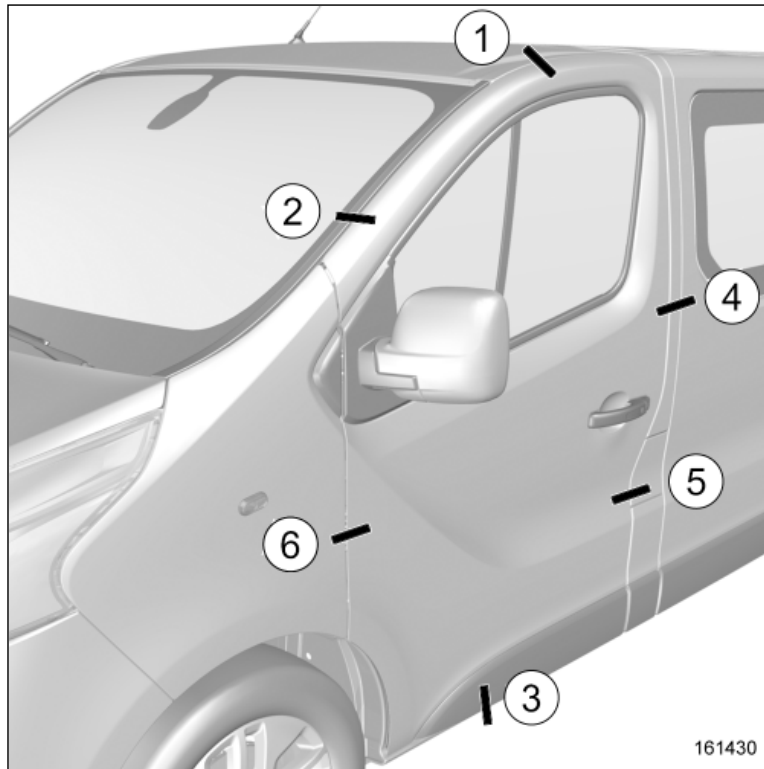
Location and specifications (tightening torques, parts always to be replaced, etc.) [Opening mechanism assembly of front side opening element: Exploded view](#) .

ADJUSTMENT VALUES

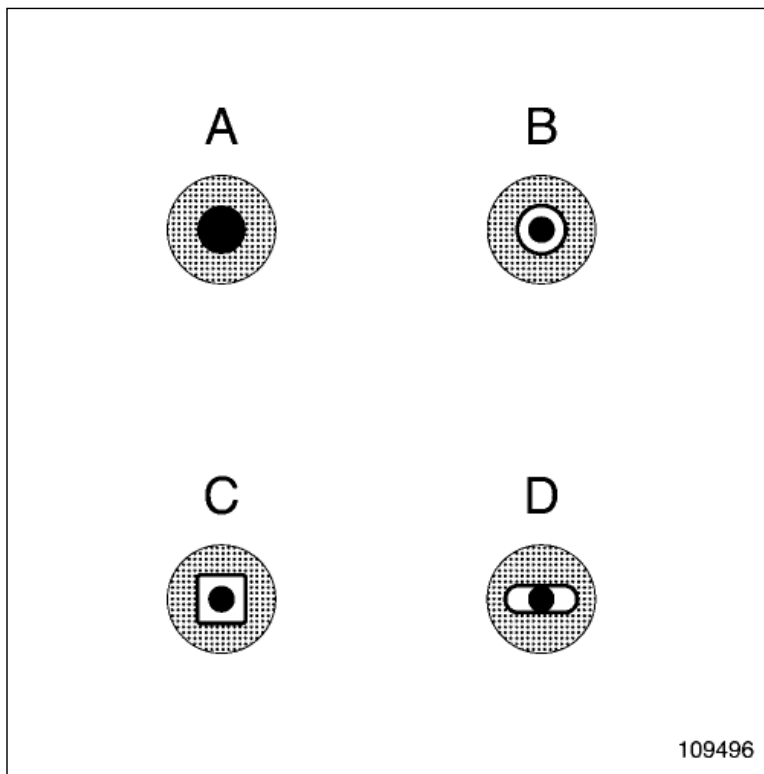
For all information on the front side opening element adjustment values [Vehicle panel gaps: Adjustment value](#) .

ADJUSTMENT

- There are two options for adjusting the front side door:
 - using the front side door mountings,
 - using the front side door striker panel.



- Respect the adjustment order of zones (1) , (2) , (3) , (4) , (5) and (6) .



▣ Symbols A, B, C and D show the adjustment options.

The black dot in the centre represents the body of the bolt.

The grey section represents the component to be adjusted.

The white section represents the adjustment area.

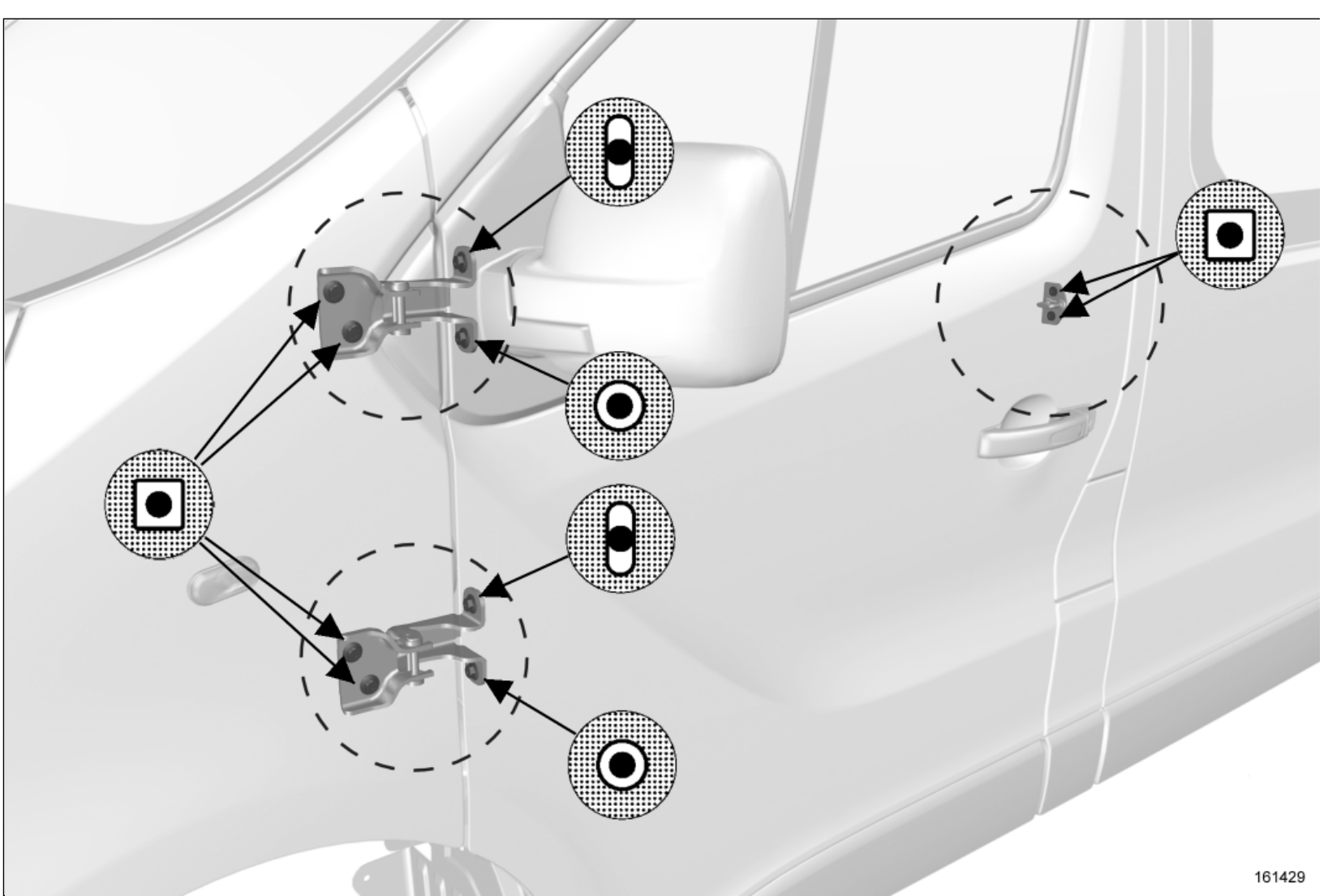
1. ADJUSTMENT PREPARATION OPERATION

▣ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

▣ Remove:

- the radiator grille [Front bumper assembly: Exploded view](#) .
- the front bumper [Front bumper assembly: Exploded view](#) .
- the headlight [Front signals - lighting assembly: Exploded view](#) .
- the front wing [Front wing: Removal - Refitting](#) .

2. HEIGHT AND LENGTH ADJUSTMENT



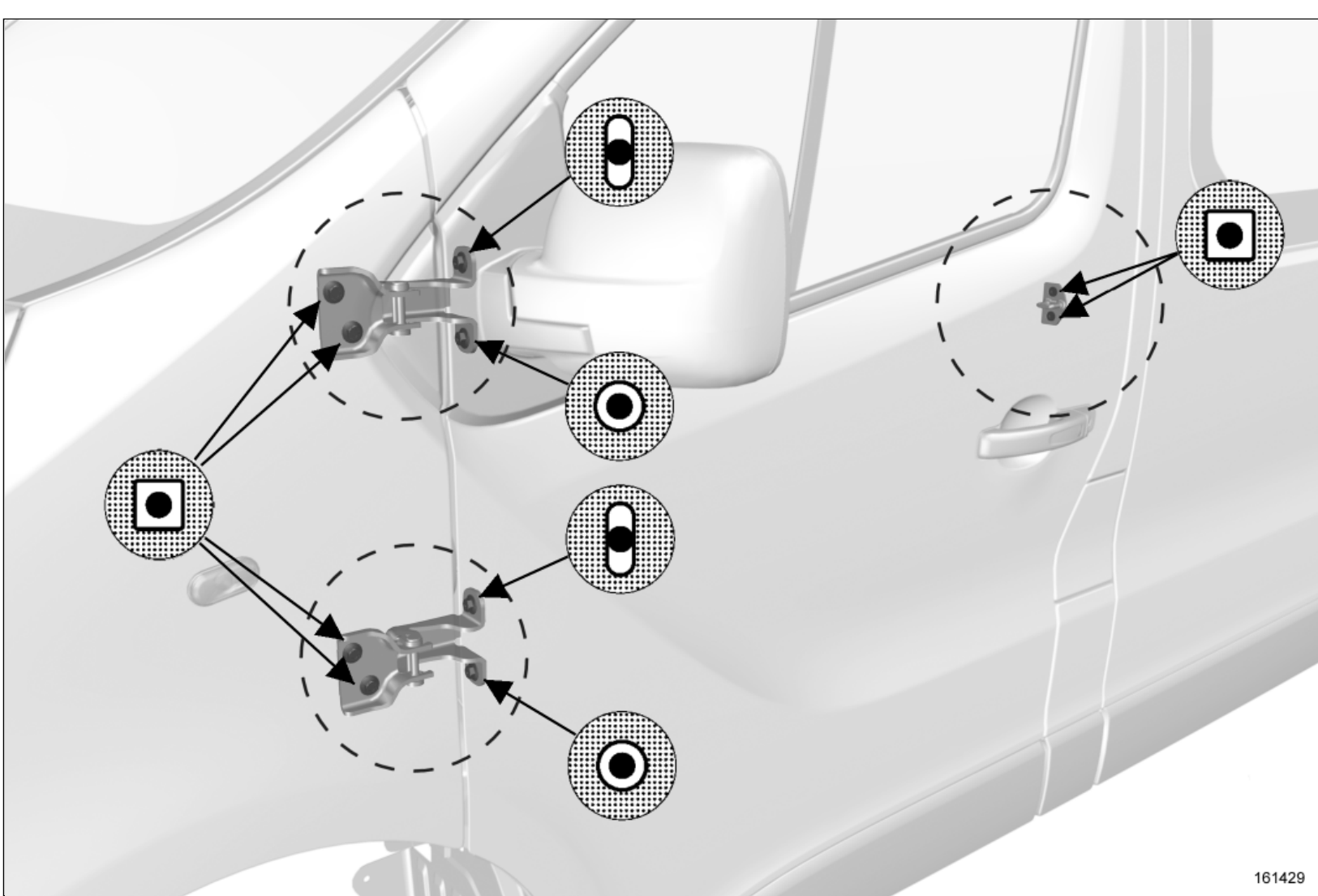
161429

Loosen the front side door hinge bolts.

- Adjust in the following order:
- the height of zones(1), (2) and (3),
 - the length of zones(4), (5) and (6).

Tighten the front side door hinge bolts.

3. DEPTH ADJUSTMENT



161429

Note:



The original hinge mounting plates are bonded to the door box section.

To carry out the adjustment, it is necessary to remove the plate using a wooden block and a hammer.

Note:



The striker plate is spot-welded on the reinforcement inside the B-pillar.

To carry out adjustments, deform the fuse brackets of the plate.

Loosen:

-
- the front side door bolts,
- the striker panel bolts.

Adhere to the following adjustment sequence:

-
- adjust the depth of zones(1), (2), (3) and (6),
- adjust the height of the striker panel in relation to the lock to prevent them touching,
- adjust the depth of zones(4) and (5).

Tighten:



the front side door bolts,



the striker panel bolts.



Repair-40x10x02x08-01x67-1-8-1.xml



XSL Version : 3.02 du 22/07/11

FRONT SIDE OPENING ELEMENT ASSEMBLY ON THE PASSENGER COMPARTMENT SIDE: EXPLODED VIEW

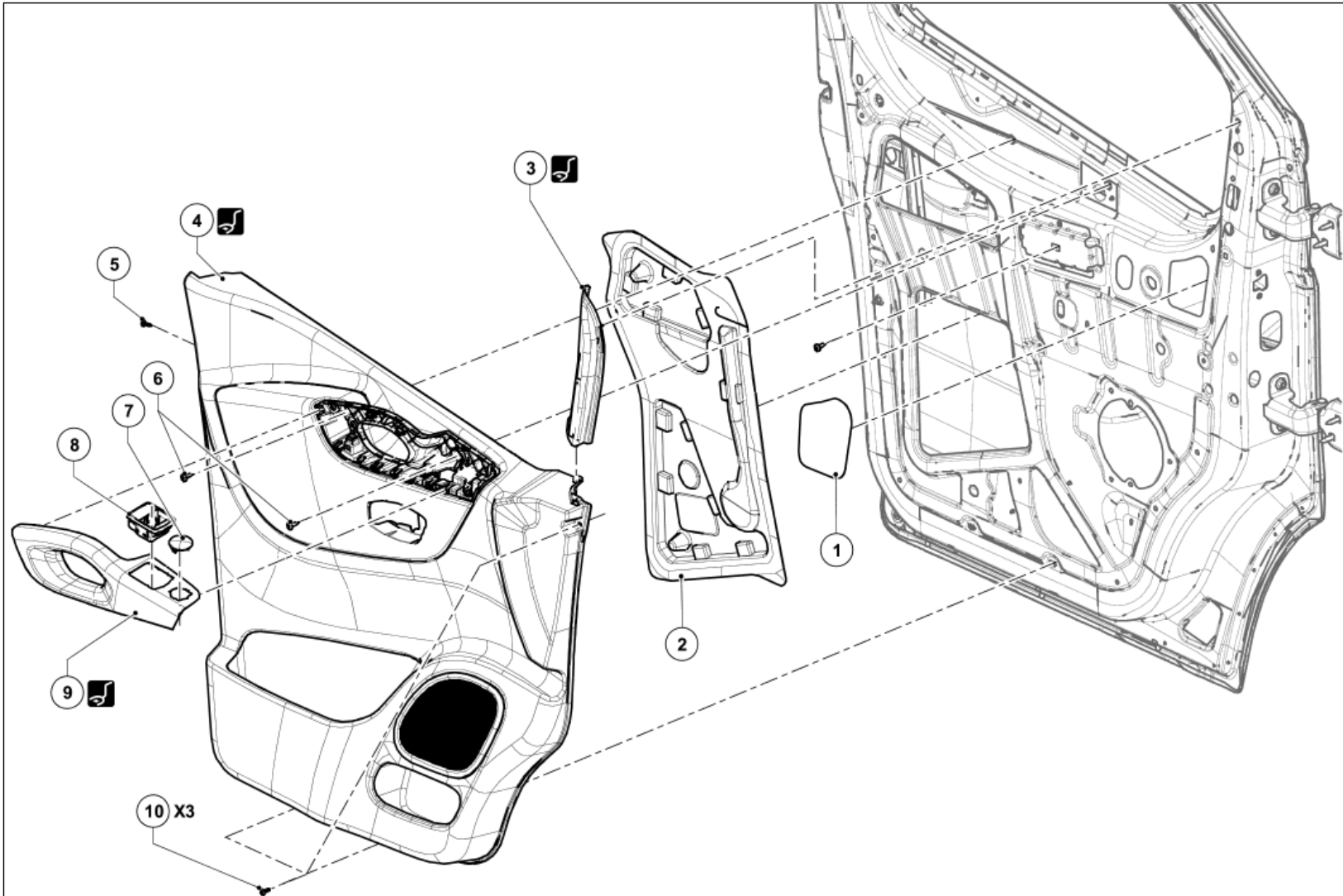


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Door sealing film	Side opening element sealing film: Removal - Refitting
2	Door sealing film	Side opening element sealing film: Removal - Refitting
3	Door mirror cover	Door mirror casing: Removal - Refitting (Car. 1363)
4	Front side opening element trim	(Car. 1363)
5	Front side opening element trim bolt	
6	Front side opening element trim bolt	
7	Rear view mirror control blanking cover	
8	Electric windows control plate	
9	Interior handle	(Car. 1363)
10	Front side opening element trim bolt	



Repair-70x03x02x25-02x50-1-5-1.xml



KSL version : 3.02 du 22/07/11

FRONT SIDE OPENING ELEMENT STRIP: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior front side opening element assembly: Exploded view](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION



Remove [Exterior front side opening element assembly: Exploded view](#) :

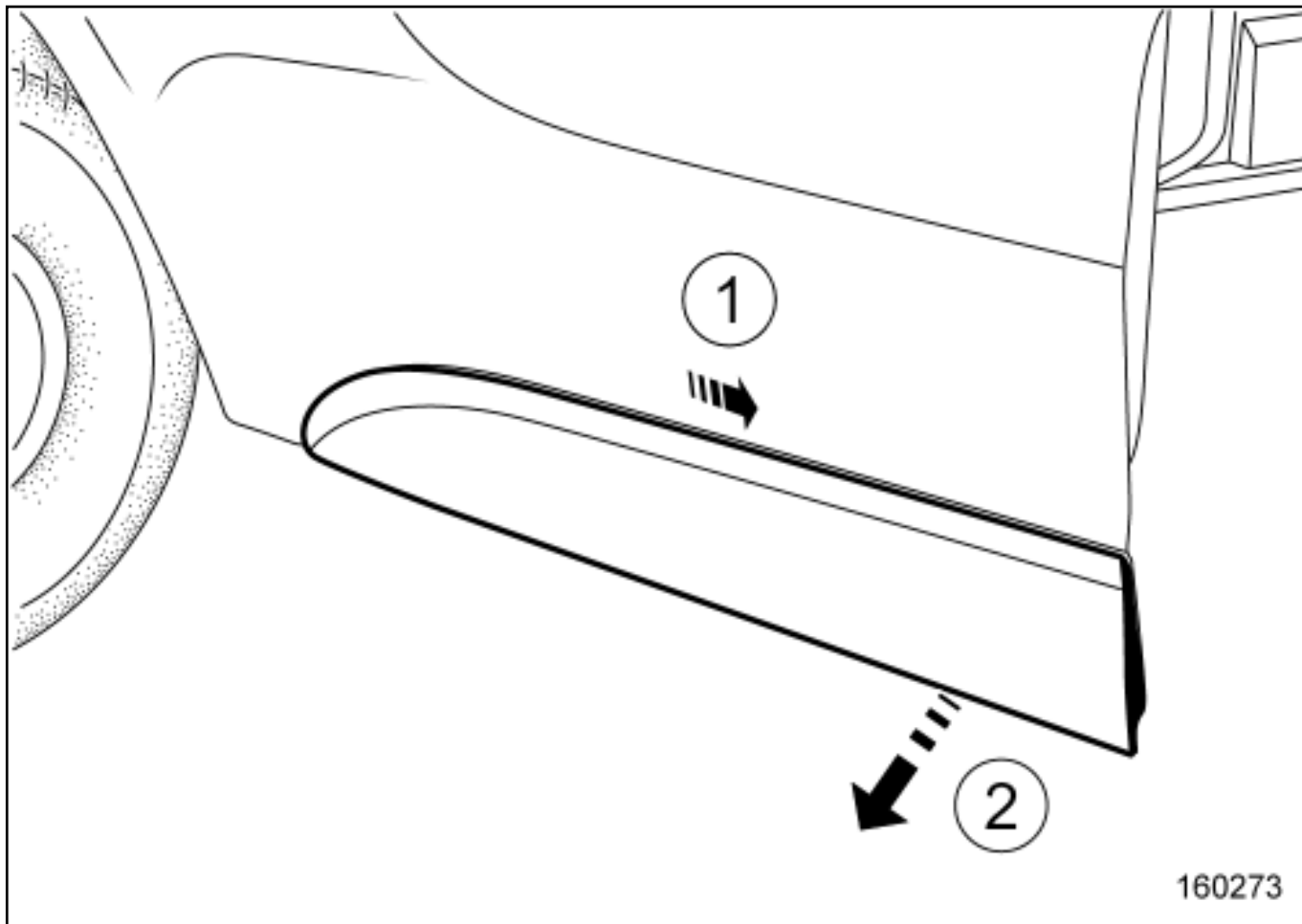


the blanking cover,



the front side opening element strip bolt.

2. REMOVAL OPERATION



Remove the front side opening element strip at(1) then at (2) .

REFITTING

Proceed in the reverse order to removal.



Repair-50x05x06x03-01x37-1-1-1.xml



FRONT SIDE OPENING ELEMENT: REMOVAL - REFITTING

Location and specifications (tightening torques, parts always to be replaced, etc.) [Opening mechanism assembly of front side opening element: Exploded view](#) .

- This operation can be carried out in two ways:
 - removal without hinges: used when replacing the door.
 - removal with hinges: allows the initial adjustments to be kept.

REMOVAL

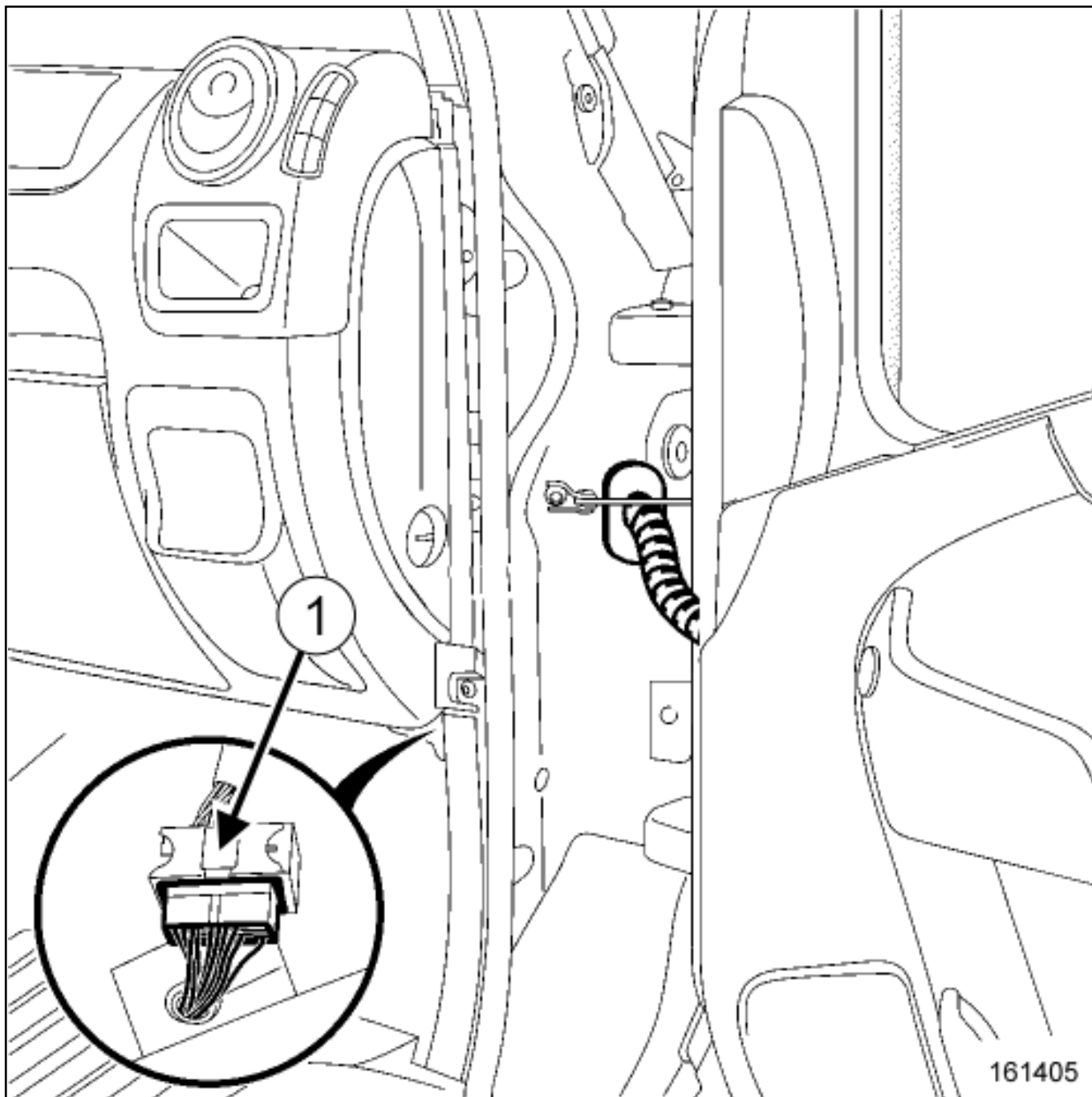
1. REMOVAL PREPARATION OPERATION

1- REMOVAL WITH HINGES

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

- Remove:
 - the radiator grille [Front bumper assembly: Exploded view](#) ,
 - the front bumper [Front bumper assembly: Exploded view](#) ,
 - the headlight [Front signals - lighting assembly: Exploded view](#) ,
 - the front wing [Front wing: Removal - Refitting](#) .

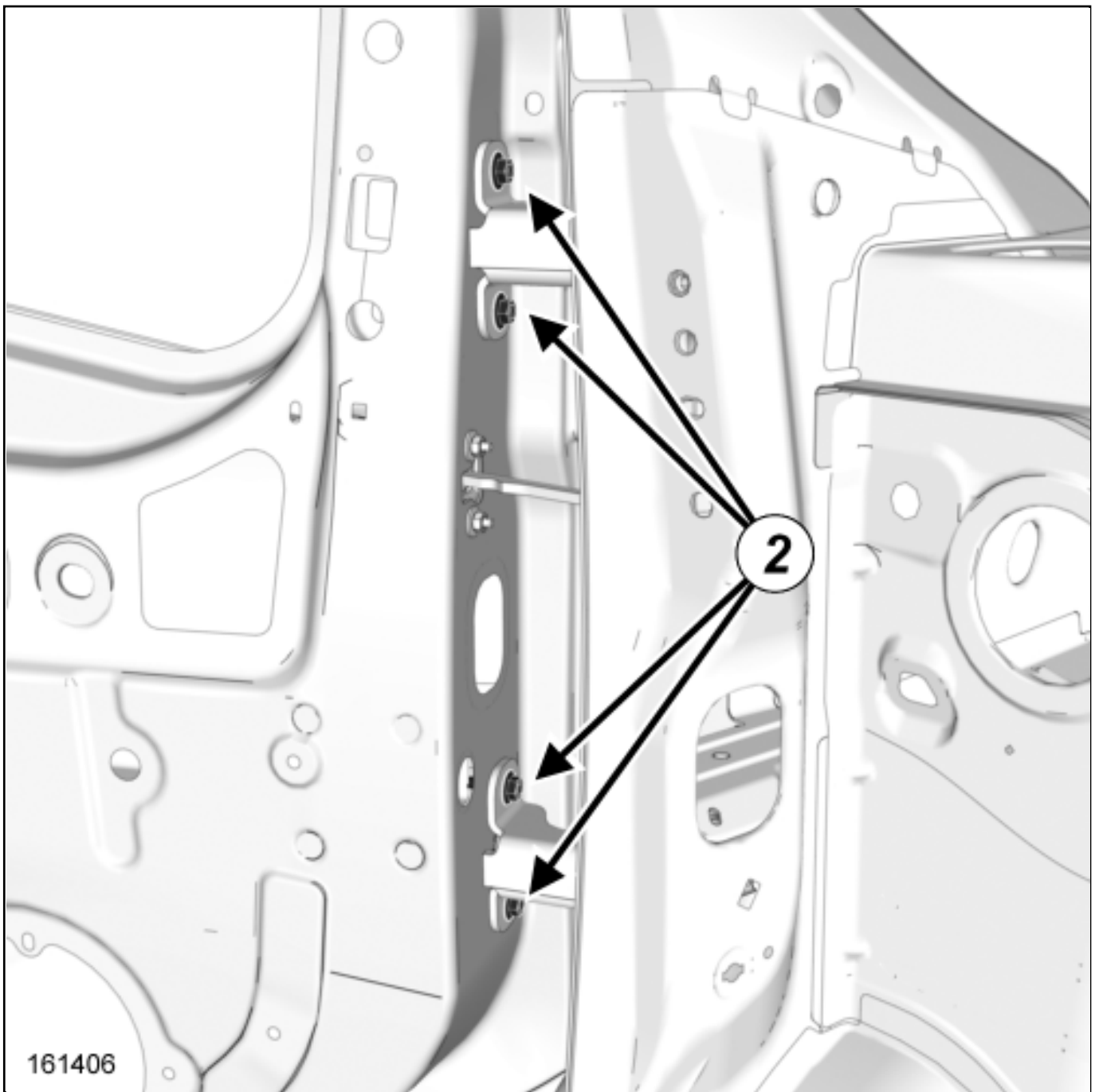
2- SAME PROCEDURE FOR BOTH TYPES



- Disconnect the connector(1) of the front side door wiring.
- Extract the electrical wiring from the A-pillar.
- Remove the bolt of the front side door check strap on the A-pillar [Opening mechanism assembly of front side opening element: Exploded view](#) .

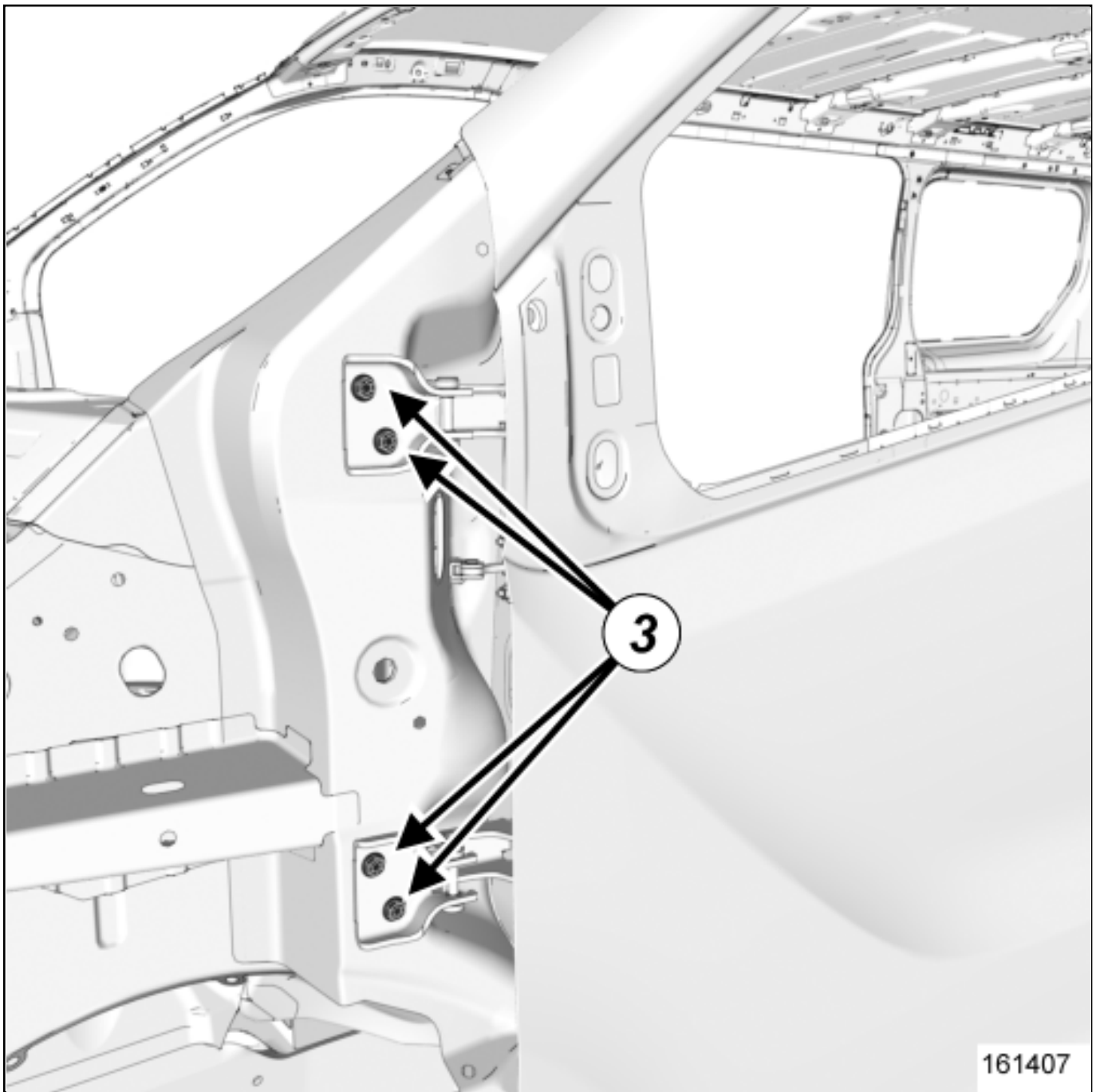
2. REMOVAL OPERATION

1- REMOVAL WITHOUT HINGES



Remove:

- - the front side door bolts(2) ,
 -
- the front side door (this operation requires two people).



161407

Remove:

-
- the front side door bolts(3) ,
- the front side door (this operation requires two people).

REFITTING

1. REFITTING OPERATION

1- REFITTING WITHOUT HINGES



Proceed in the reverse order to removal.



Adjust the front side door clearances and flush fittings([see 47A, Side opening elements, Front side opening element: Adjustment](#)) .



Carry out a function test on all functions.

2- REFITTING WITH HINGES



Note:

Apply a bead of sealing mastic [Vehicle: Parts and consumables for the repair](#) to the door hinges [Anti-corrosion protection product before assembly: Use](#) .



Proceed in the reverse order to removal.



Adjust the front side door clearances and flush fittings([see 47A, Side opening elements, Front side opening element: Adjustment](#)) .



Carry out a function test on all functions.



Repair-40x10x02x08-01x37-1-8-1.xml



XSL version : 3.02 du 22/07/11

FRONT SIDE WINDOW MECHANISM ASSEMBLY: EXPLODED VIEW

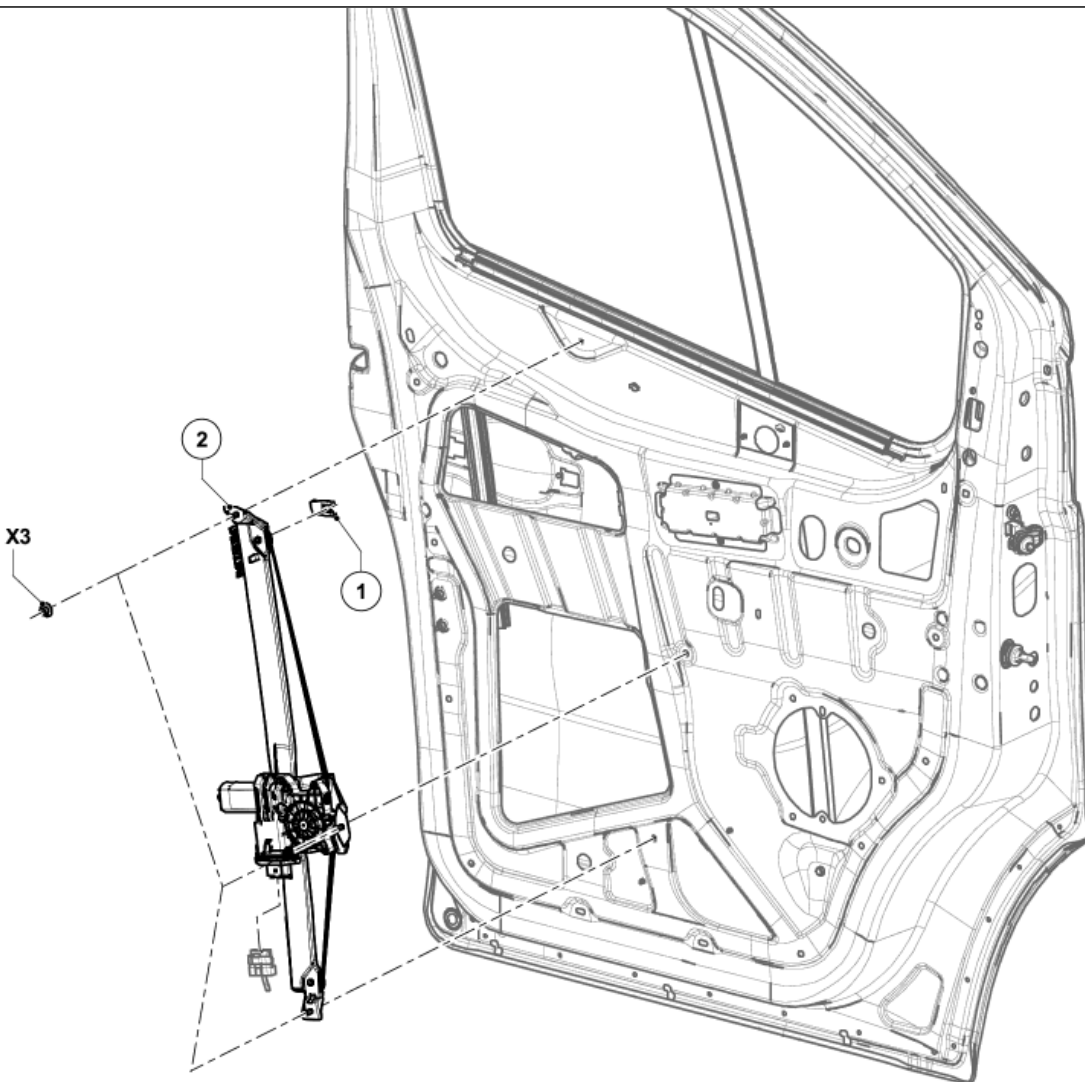


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Fork	
2	Front side door window winder mechanism	



Marks	Designations	Informations
1	Headlight	
2	Fog light	
3	Fog light bulb	
4	Bolt	
5	Headlight beam adjustment actuator	
6	Dipped beam and main beam headlight bulb	
7	Sealing cover	
8	Sealing cover	
9	Daytime running light bulb	
10	Direction indicator bulb holder	
11	Side indicator	
12	Direction indicator bulb	
13	Headlight screw	



Repair-80x02x02x26-02x50-1-7-1.xml



FRONT WHEEL ARCH LINER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



Note:

The front and rear sections of the front wheel arch liner can be removed independently.

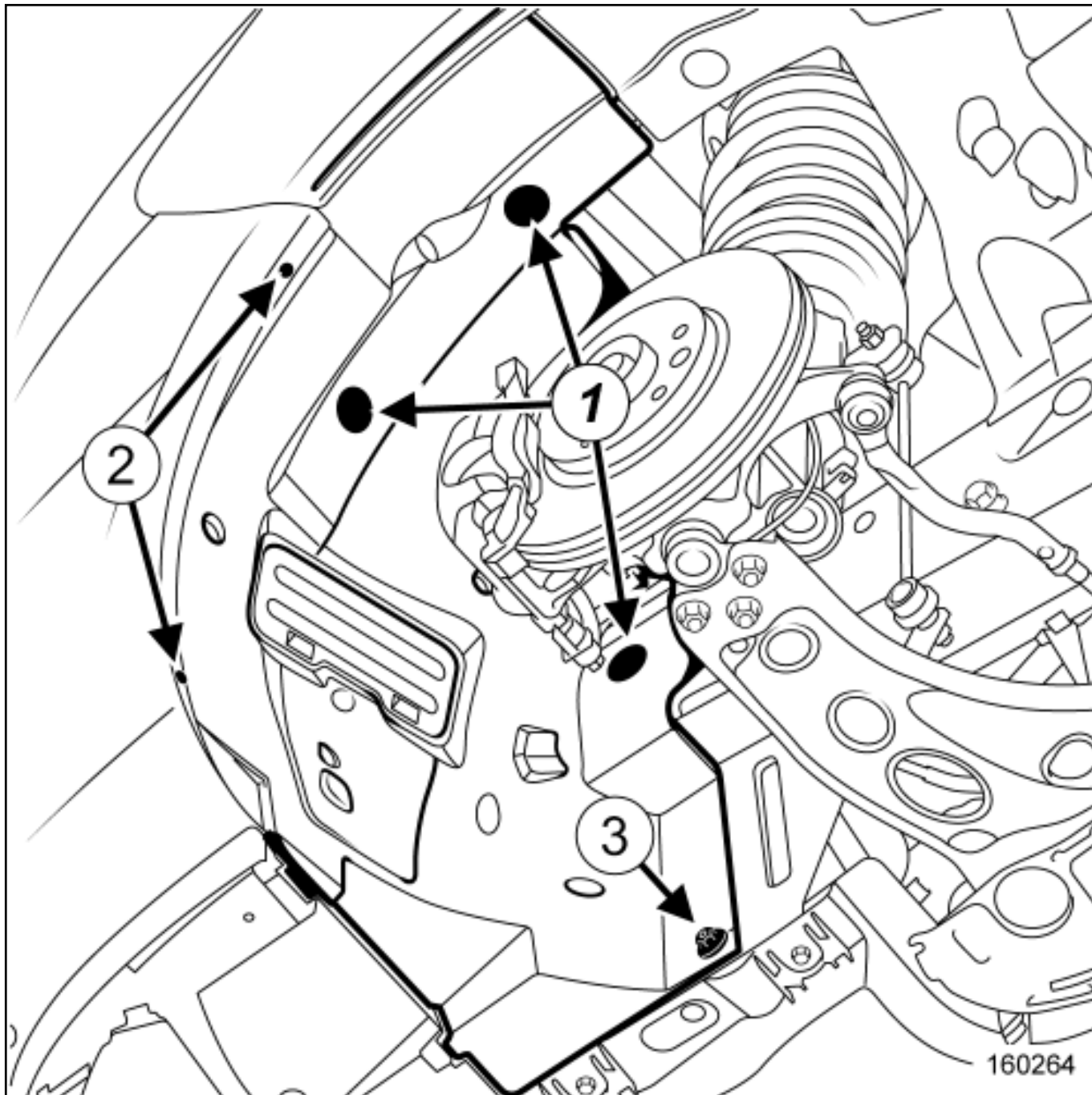
REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

2. REMOVAL OPERATION

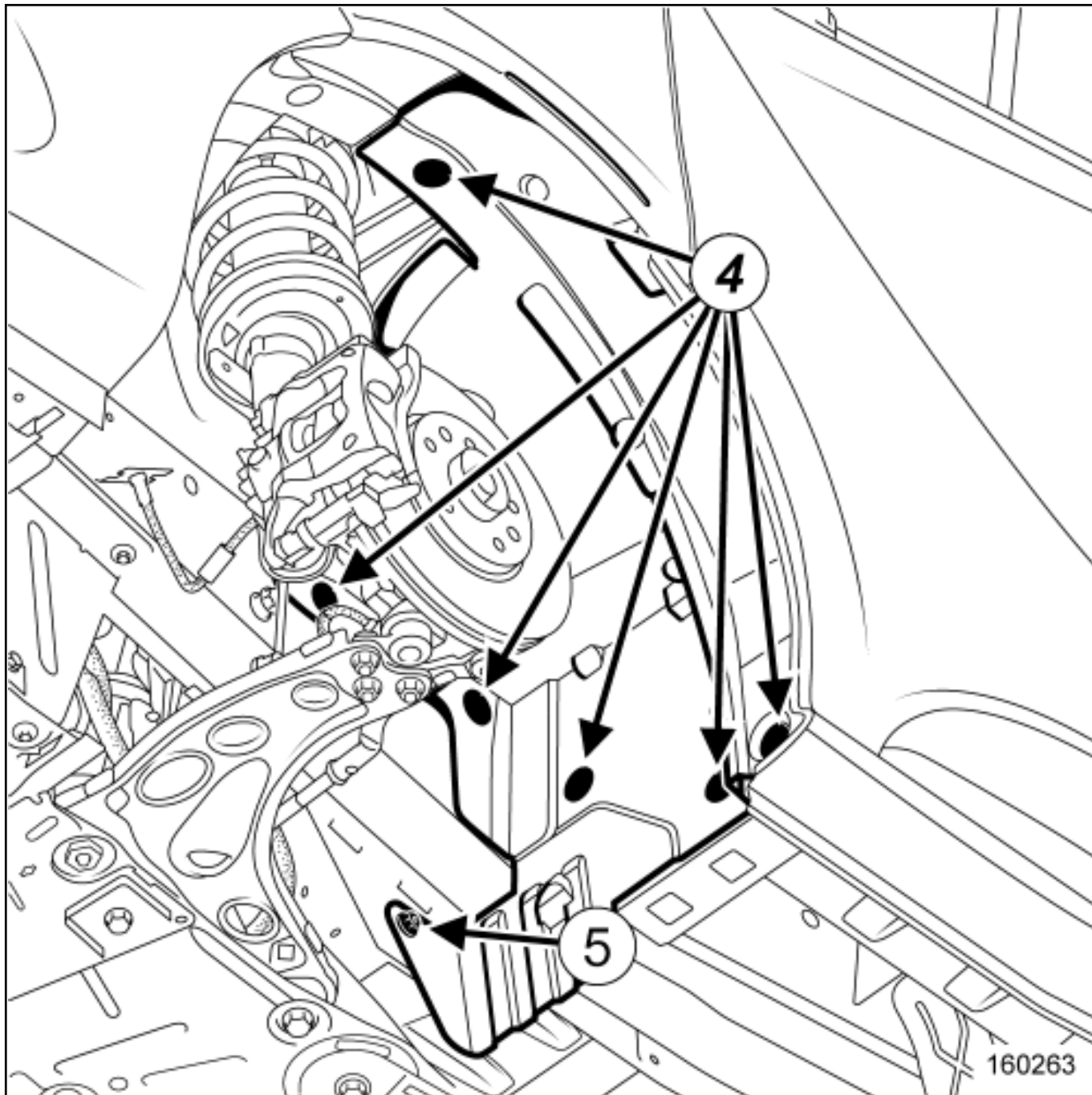
1- FRONT WHEEL ARCH LINER, FRONT SECTION



Remove:

- the clips(1) ,
- the bolts(2) ,
- the bolt(3) ,
- the front wheel arch liner, front section.

2- FRONT WHEEL ARCH LINER, REAR SECTION



Remove:

- the clips(4) ,

- the bolt(5) ,

the front wheel arch liner, rear section.

1. REFITTING PREPARATION OPERATION



Check the condition of the clips and replace them if necessary.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-50x06x02x06-01x37-1-25-1.xml



FRONT WHEEL ARCH, FRONT SECTION: REPLACEMENT



Note, one or more warnings are present in this procedure

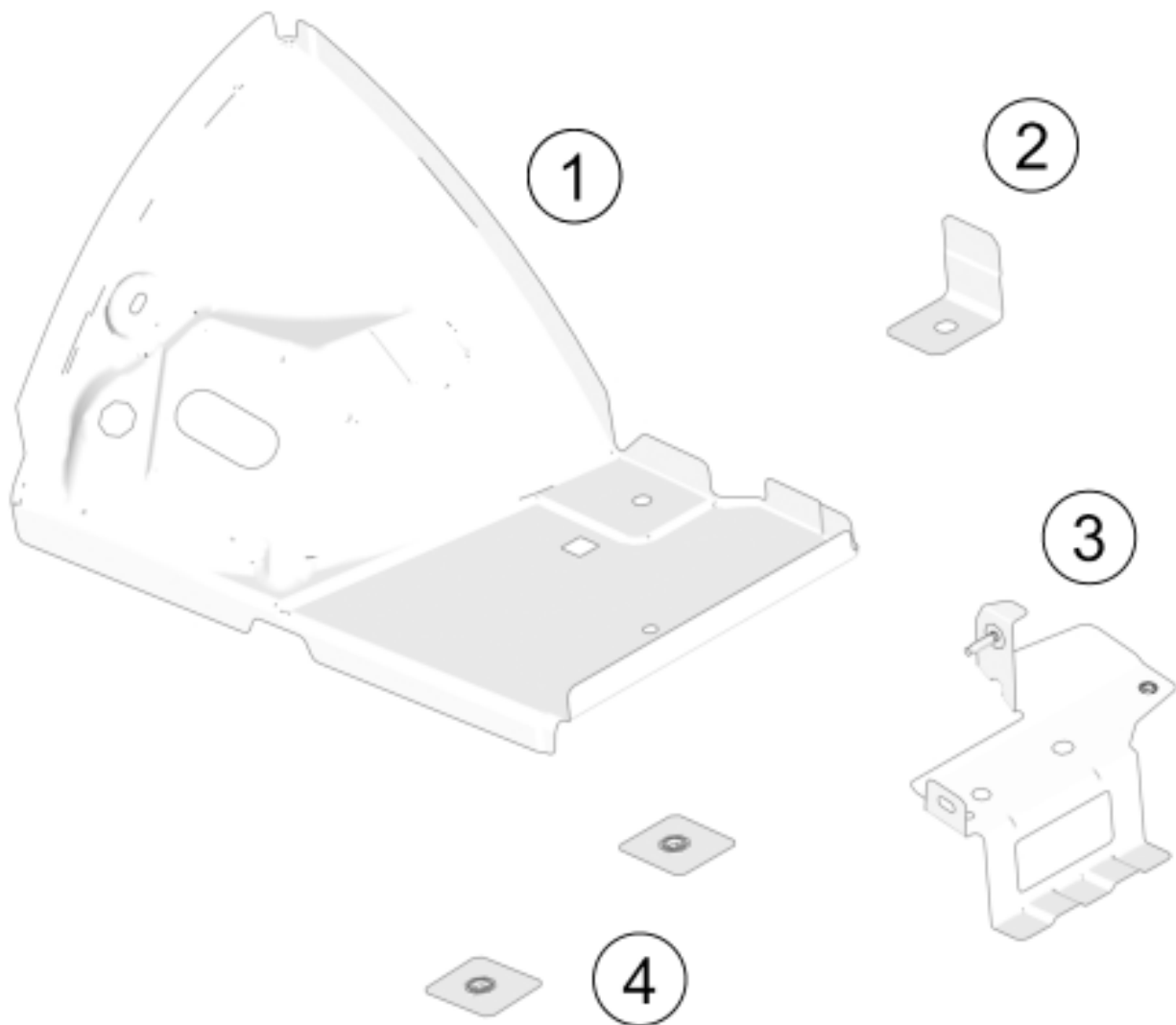


WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

1- LEFT-HAND SIDE



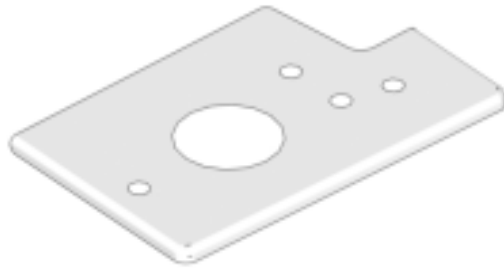
161034

No.	Description	Type	Thickness (mm)
(1)	Front wheel arch front section	Mild steel	1.1
(2)	A-pillar lining connection element	HSS	1.8
(3)	Heater control panel support	Mild steel	1.0
(4)	Battery tray bracket	Mild steel	1.5

2- RIGHT-HAND SIDE



5



6



7



9



8

161032

No.	Description	Type	Thickness (mm)
(5)	Engine support connection element	Mild steel	1.47
(6)	Engine mounting upper section	HSS	2.0
(7)	Engine mounting rear section	HSS	1.5
(8)	Lower connection element of engine suspension	Mild steel	1.47
(9)	Front section engine mounting	HSS	1.5

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

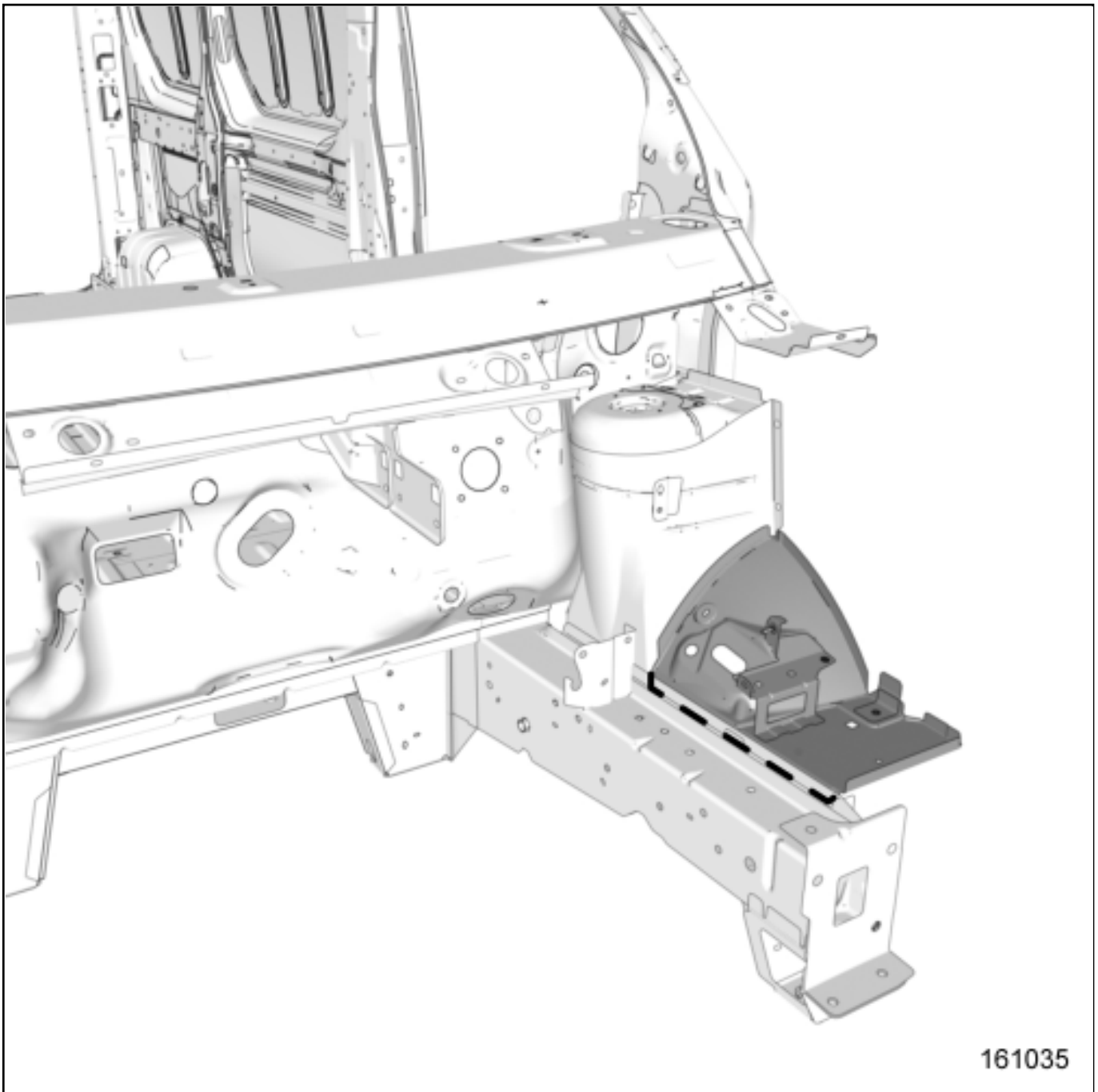


WARNING

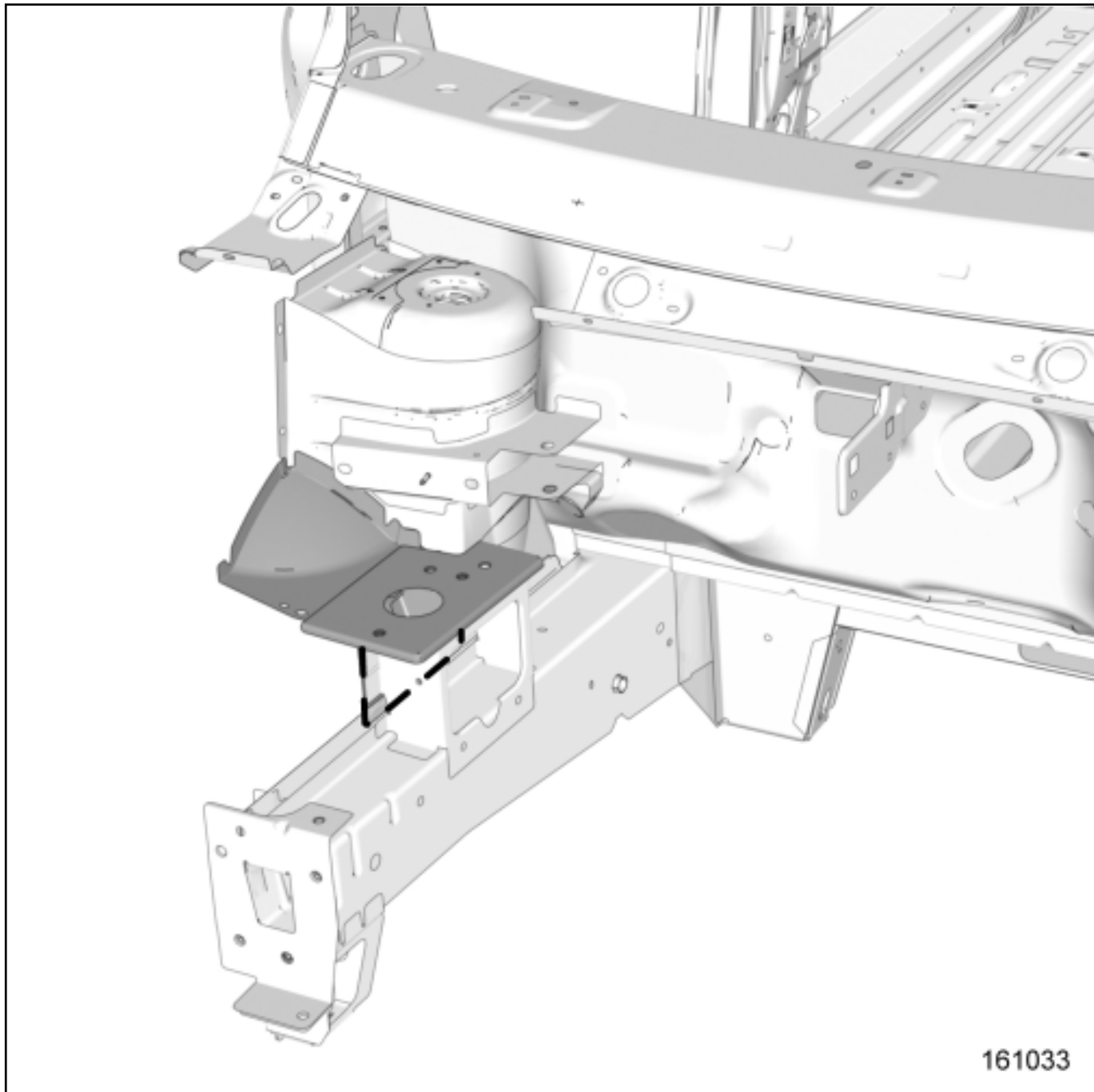
Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

1)PART IN POSITION

LEFT-HAND SIDE



RIGHT-HAND SIDE



161033



Repair-40x06x08x06-02x49-1-8-1.xml



FRONT WHEEL ARCH: REPLACEMENT



Note, one or more warnings are present in this procedure

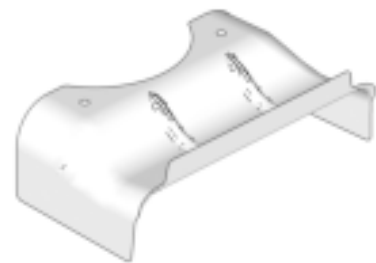
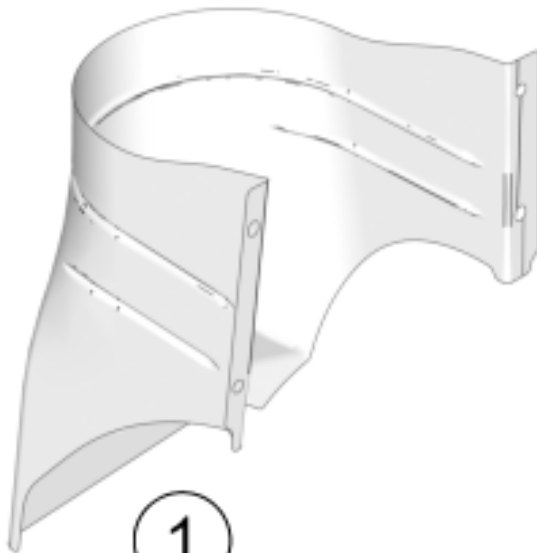
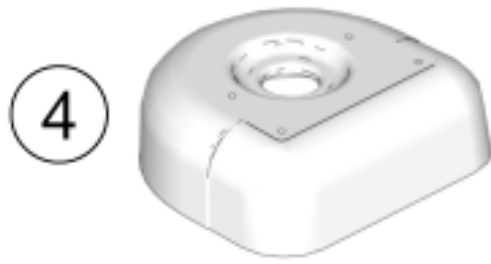


WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

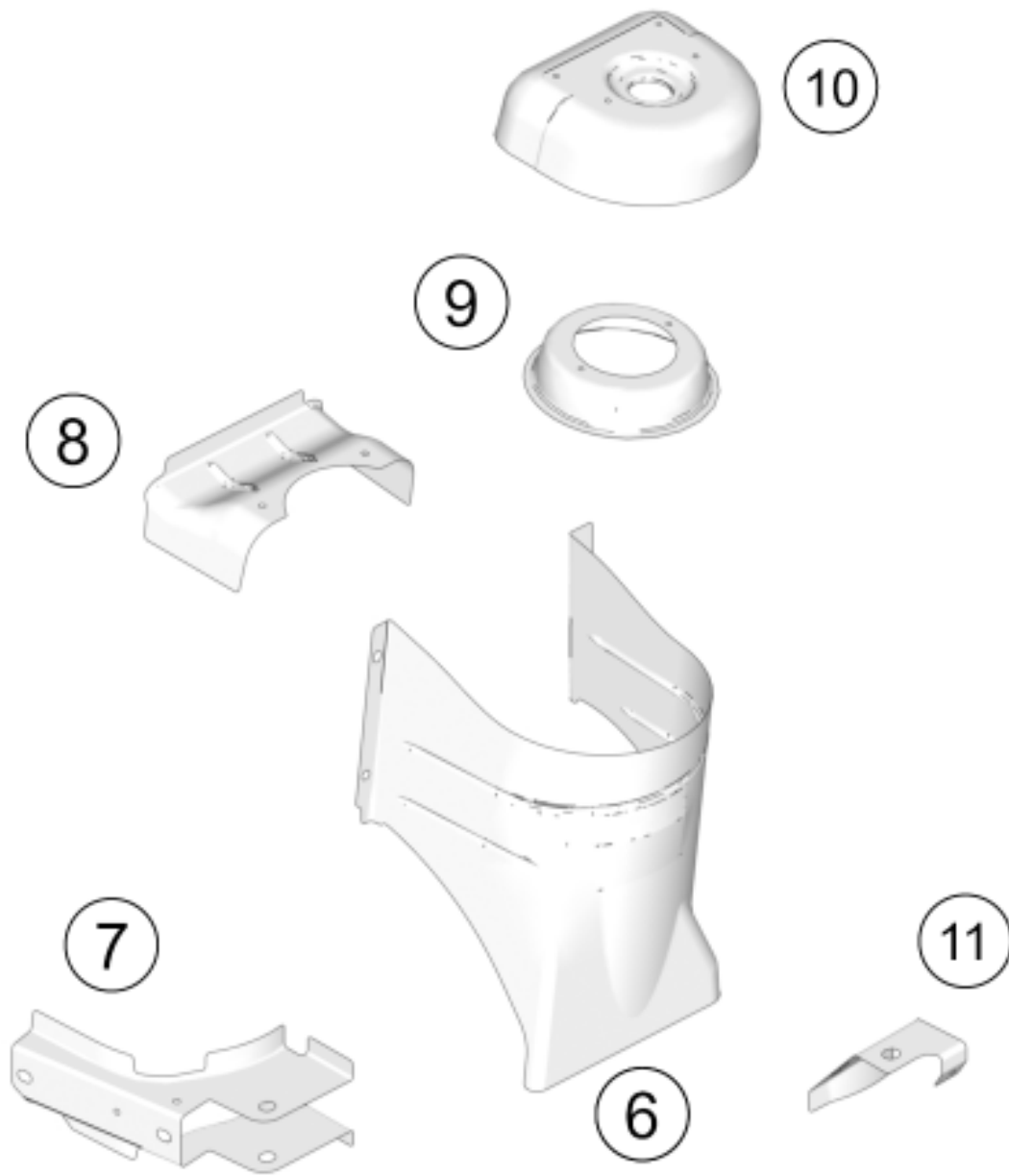
1- LEFT-HAND SIDE



161042

No.	Description	Type	Thickness (mm)
(1)	Front left-hand cup height adjuster	HSS	1.5
(2)	Computer support plate	Mild steel	1.5
(3)	Filtration component of shock absorber	HSS	2.0
(4)	Front left-hand shock absorber cup	HSS	2.5
(5)	Closure panel component	Mild steel	1.0

2- RIGHT-HAND SIDE



161040

No.	Description	Type	Thickness (mm)
(6)	Front right-hand cup height adjuster	HSS	1.5
(7)	Upper tie-rod mounting	HSS	2.0
(8)	Closure panel component	Mild steel	1.0
(9)	Filtration component of shock absorber	HSS	2.0
(10)	Front left-hand shock absorber cup	HSS	2.5
(11)	Upper tie-rod mounting reinforcement	HSS	2.0

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

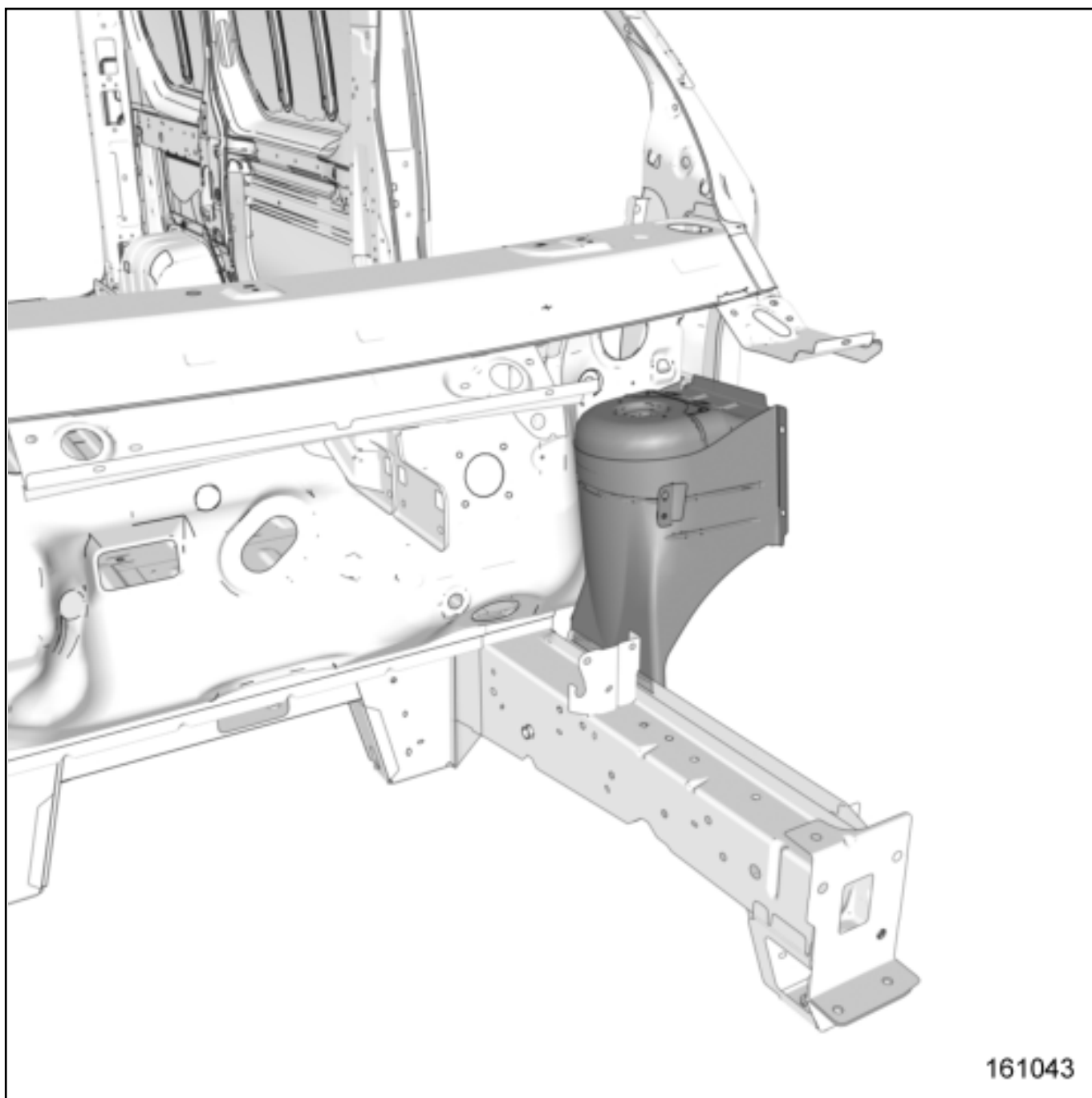


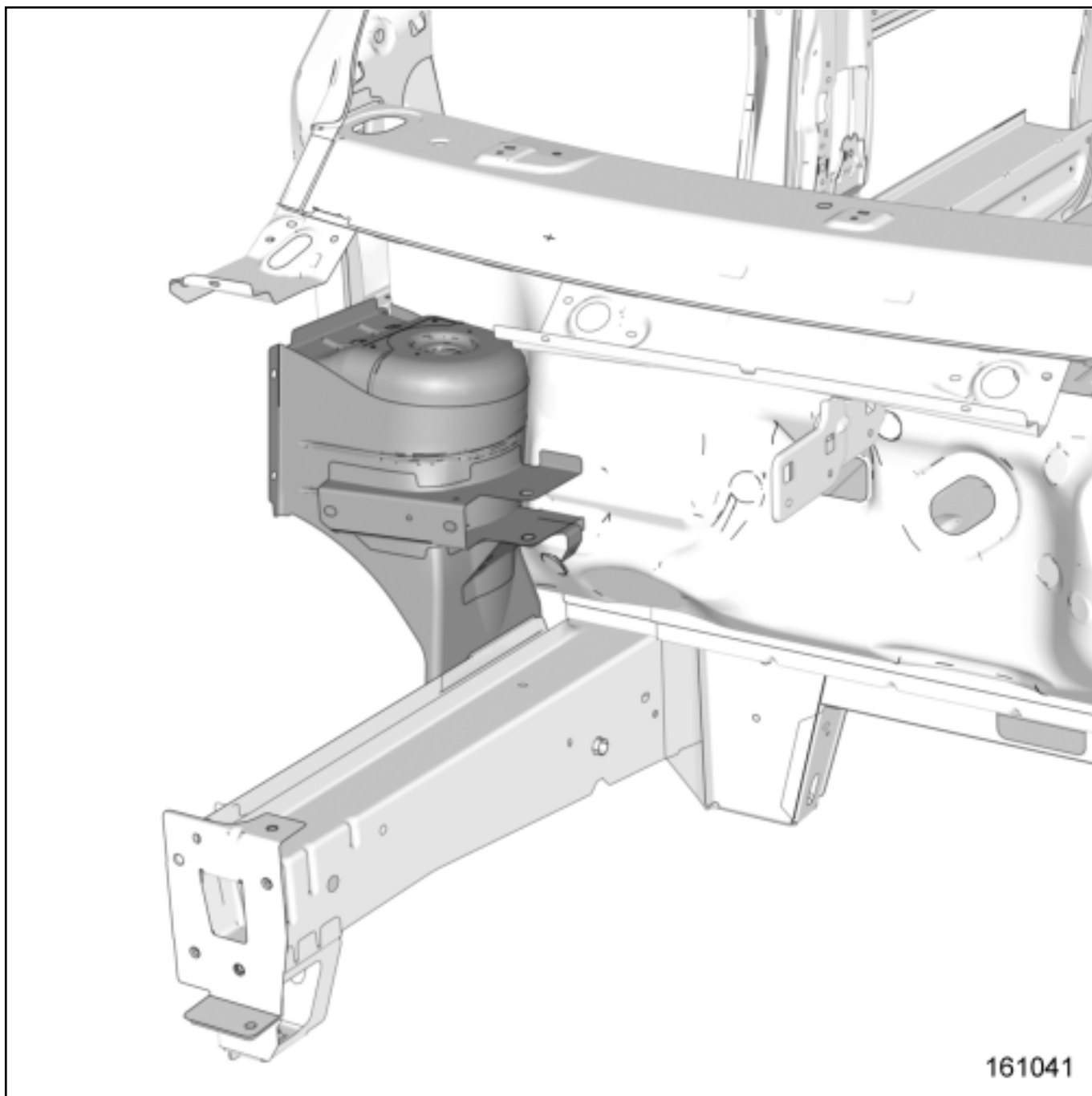
WARNING

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

1)PART IN POSITION

LEFT-HAND SIDE





Repair-40x06x08-02x49-1-8-1.xml



FRONT WHEEL SPEED SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) [Front hub carrier assembly: Exploded view](#) .



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **ABS: List and location of components**) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

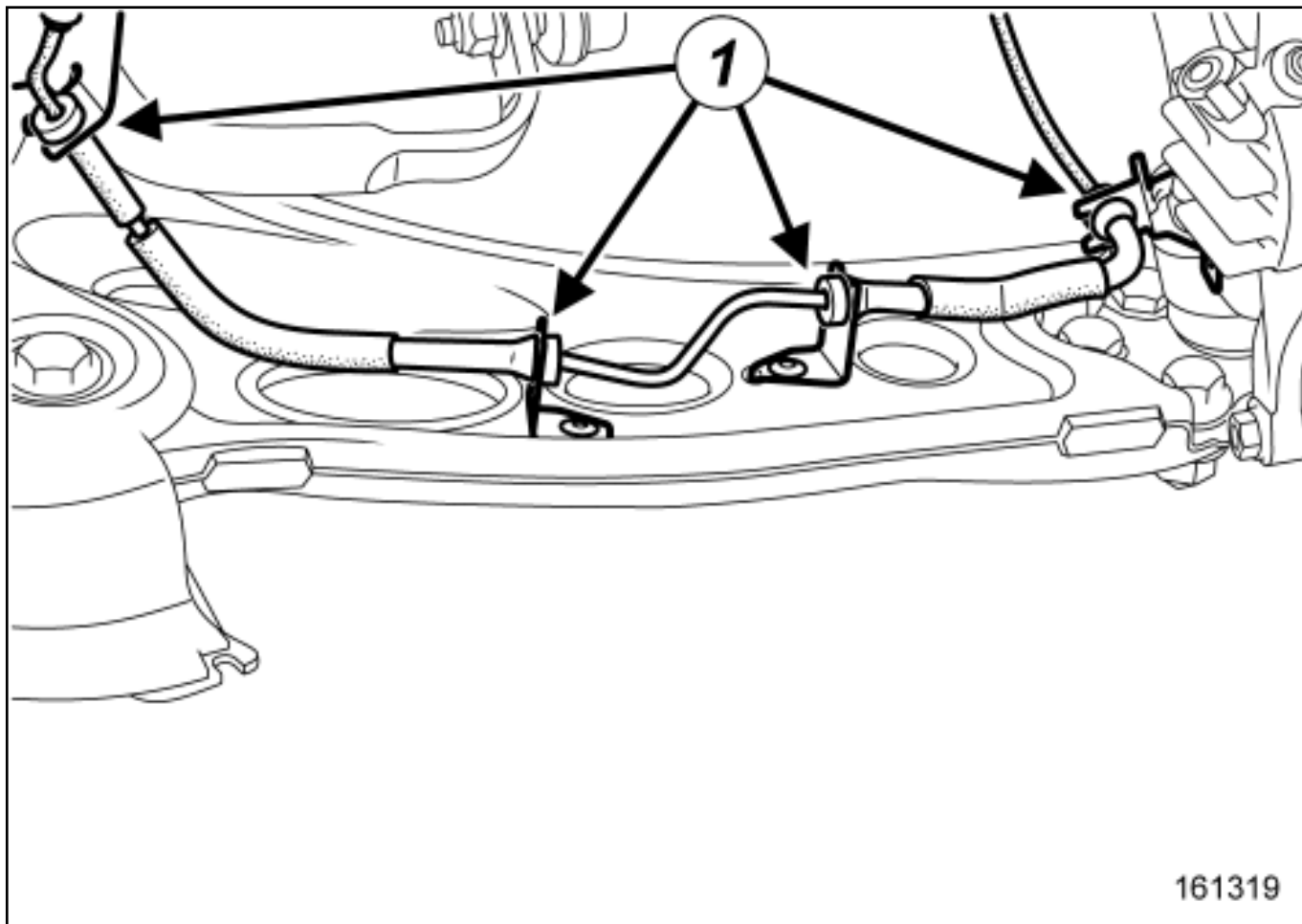
REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

2. REMOVAL OPERATION

- ❑ Disconnect the front wheel speed sensor connector.



161319

- Unclip the wiring from the front wheel speed sensor at(1) .
- Remove the wheel speed sensor [Front hub carrier assembly: Exploded view](#) .

REFITTING

- Proceed in the reverse order to removal.

CAUTION



- To avoid damaging the wheel speed sensor cable:
 - Do not tension the cable,
 - Do not twist the cable,
 - Check that there is no contact with the surrounding components,
 - Do not use tools that may damage the cable.



FRONT WING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior body front trim assembly: Exploded view](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove:



the front wheel arch liner [Front wheel arch liner: Removal - Refitting](#) ,



the radiator grille [Front bumper assembly: Exploded view](#) ,



the front bumper [Front bumper assembly: Exploded view](#) ,



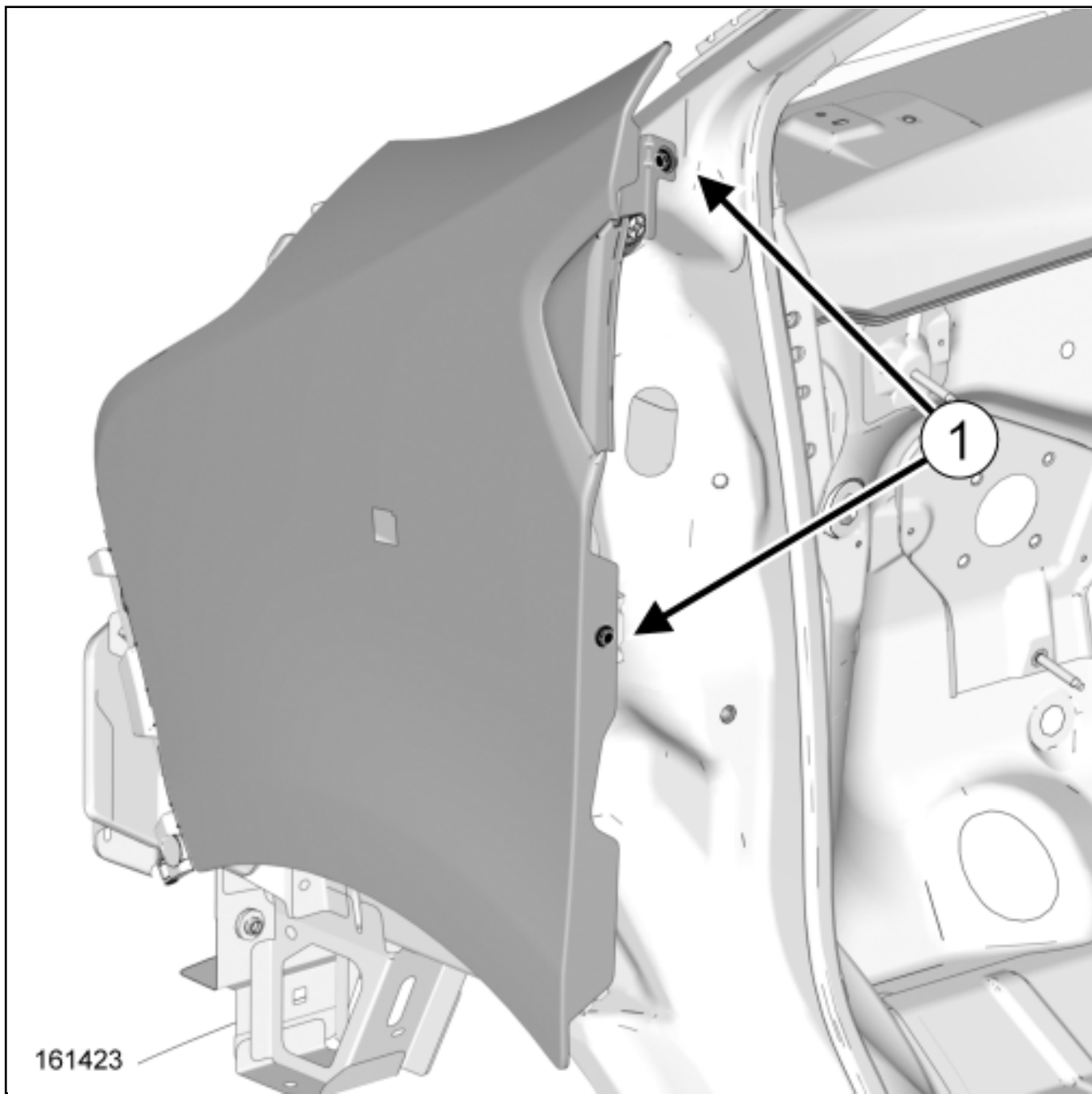
the windscreen pillar trim [Windscreen pillar trim: Removal - Refitting](#) ,

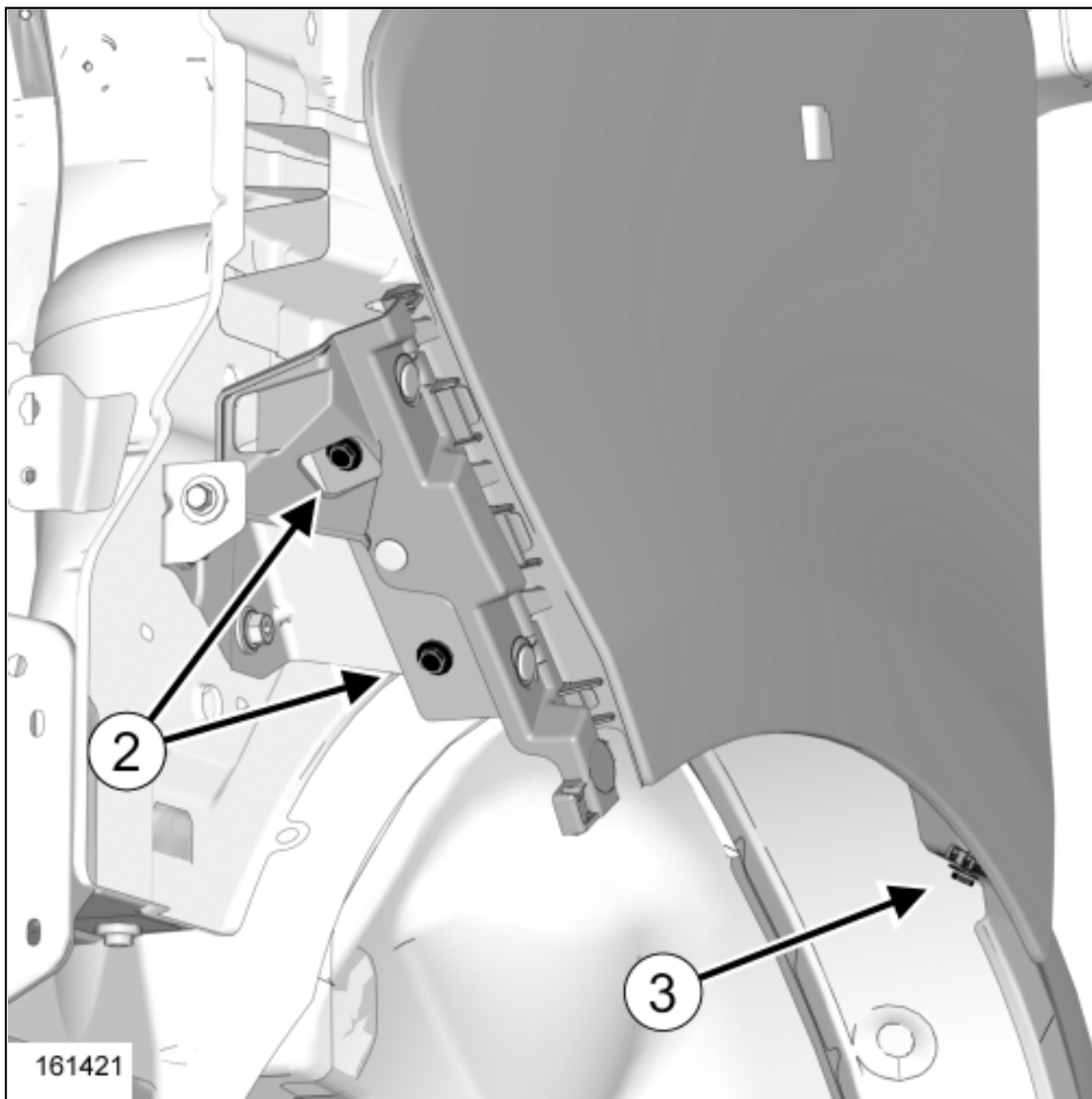


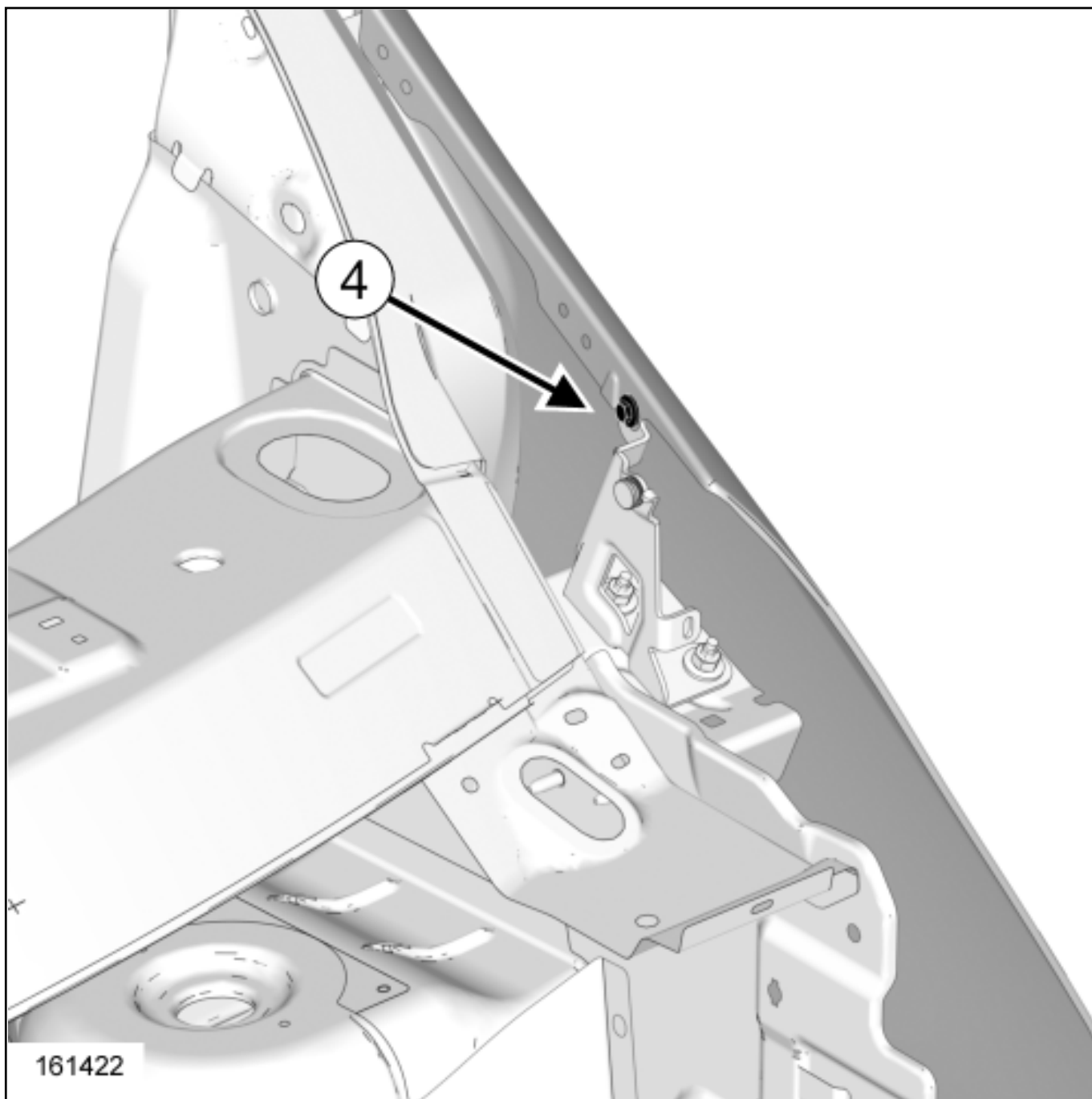
the headlight [Front signals - lighting assembly: Exploded view](#) ,

the side indicator [Exterior body front trim assembly: Exploded view](#) .

2. REMOVAL OPERATION







Remove:

-
- the bolts(1) , (2) , (3) and (4) ,

the front wing.

1. REFITTING PREPARATION OPERATION



In the event of replacement, replace the side pressure piece of the front bumper.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Adjust the clearances and flush fitting([see 42A, Front upper structure, Front wing: Adjustment](#)) .



Repair-40x06x02-01x37-1-30-1.xml



XSL version : 3.02 du 22/07/11

FRONT WING: ADJUSTMENT



Note, one or more warnings are present in this procedure



WARNING

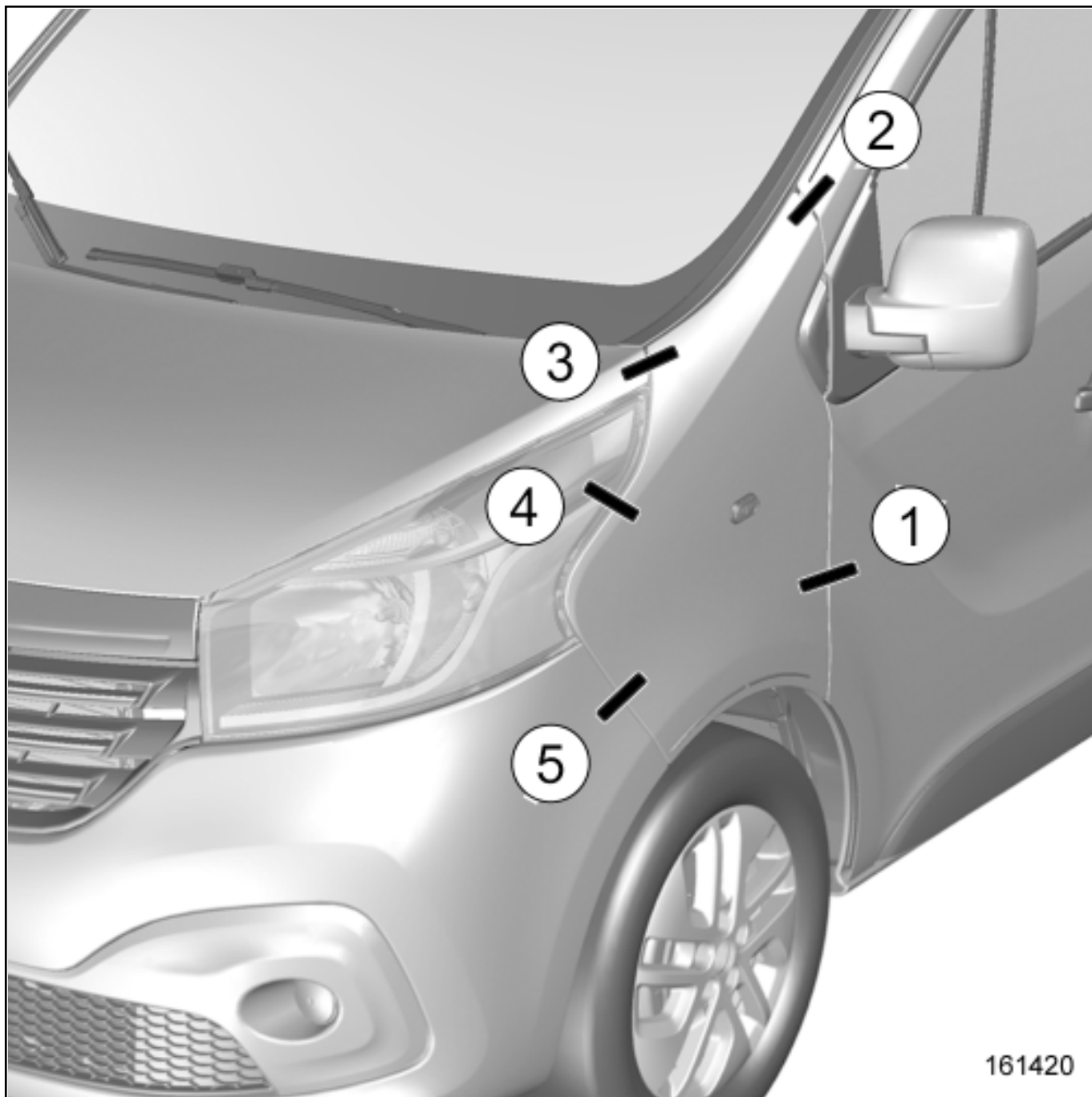
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

ADJUSTMENT VALUES

- For information on the front wing adjustment values [Vehicle panel gaps: Adjustment value](#) .

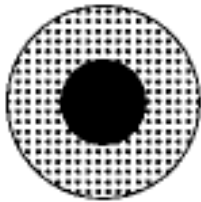
ADJUSTMENT

- There are three options for adjusting the front wing:
 - adjustment with the front door,
 - adjustment with the bonnet,
 - adjustment with the headlight and bumper.



Observe the adjustment sequence:(1) , (2) , (3) , (4) and (5) .

A



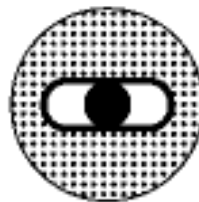
B



C



D



109496

Symbols A, B, C, and D show the adjustment options.

The black dot in the centre represents the body of the bolt.

The grey section represents the component to be adjusted.

The white section represents the adjustment area.

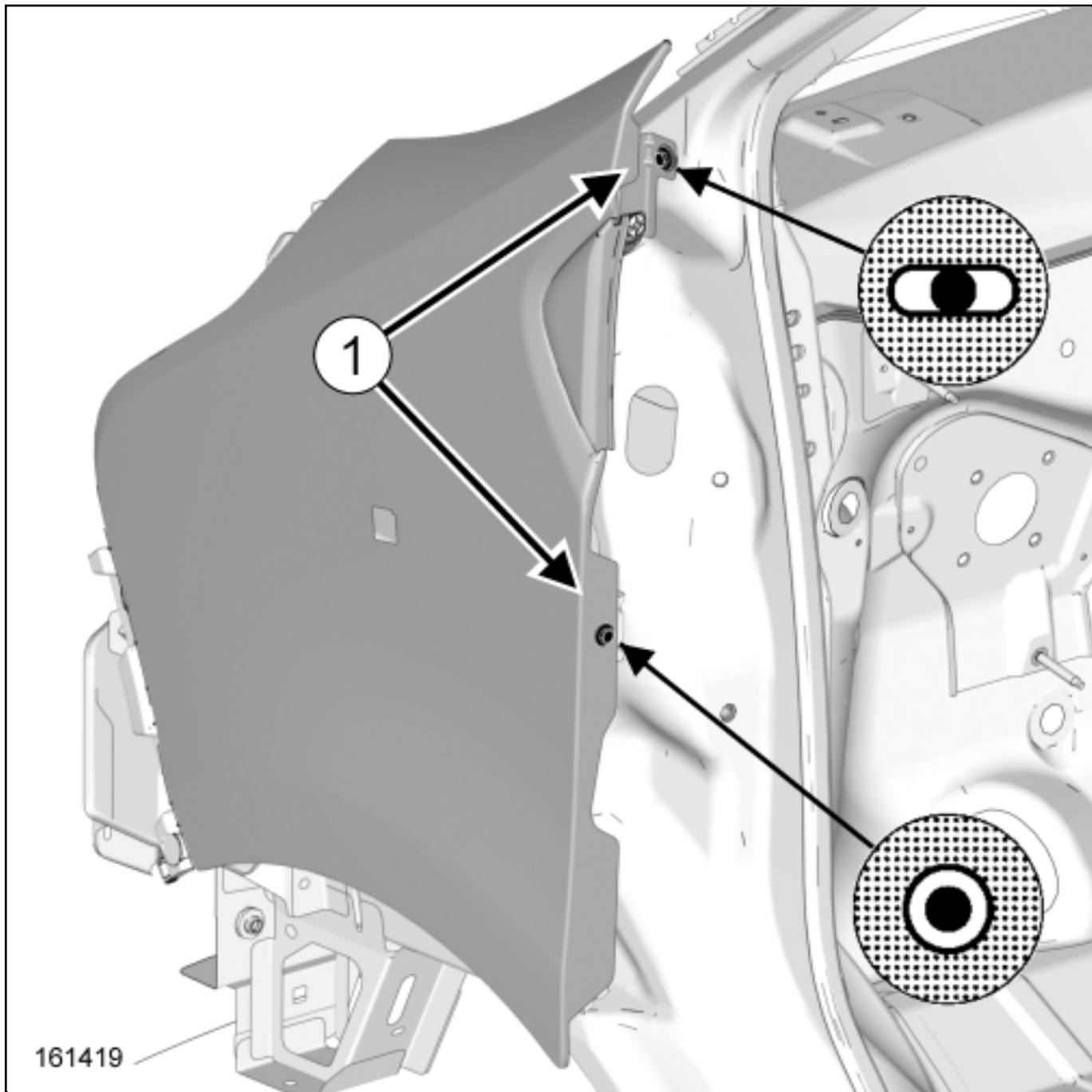
1. PREPARATION FOR ADJUSTMENT

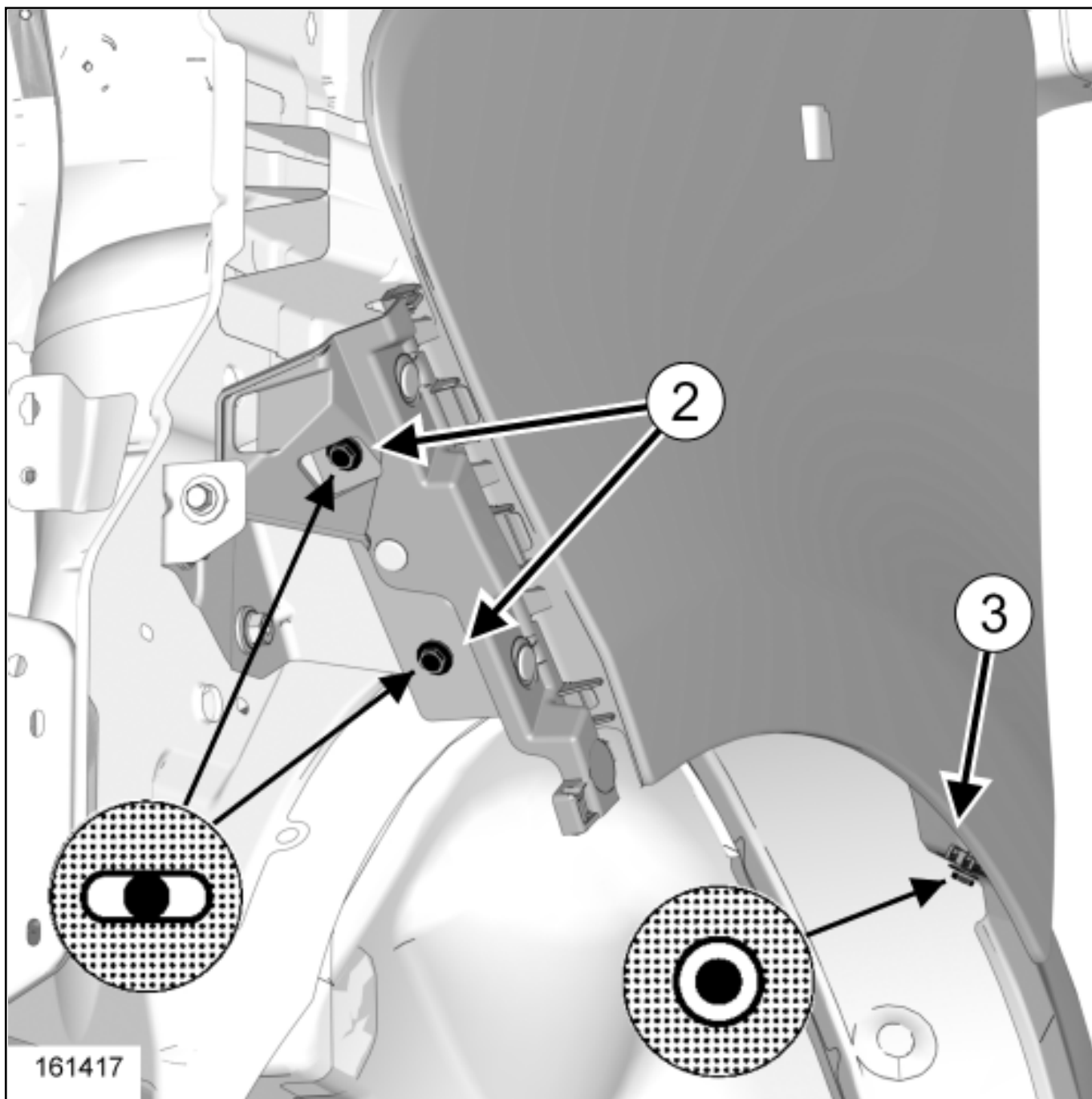
Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

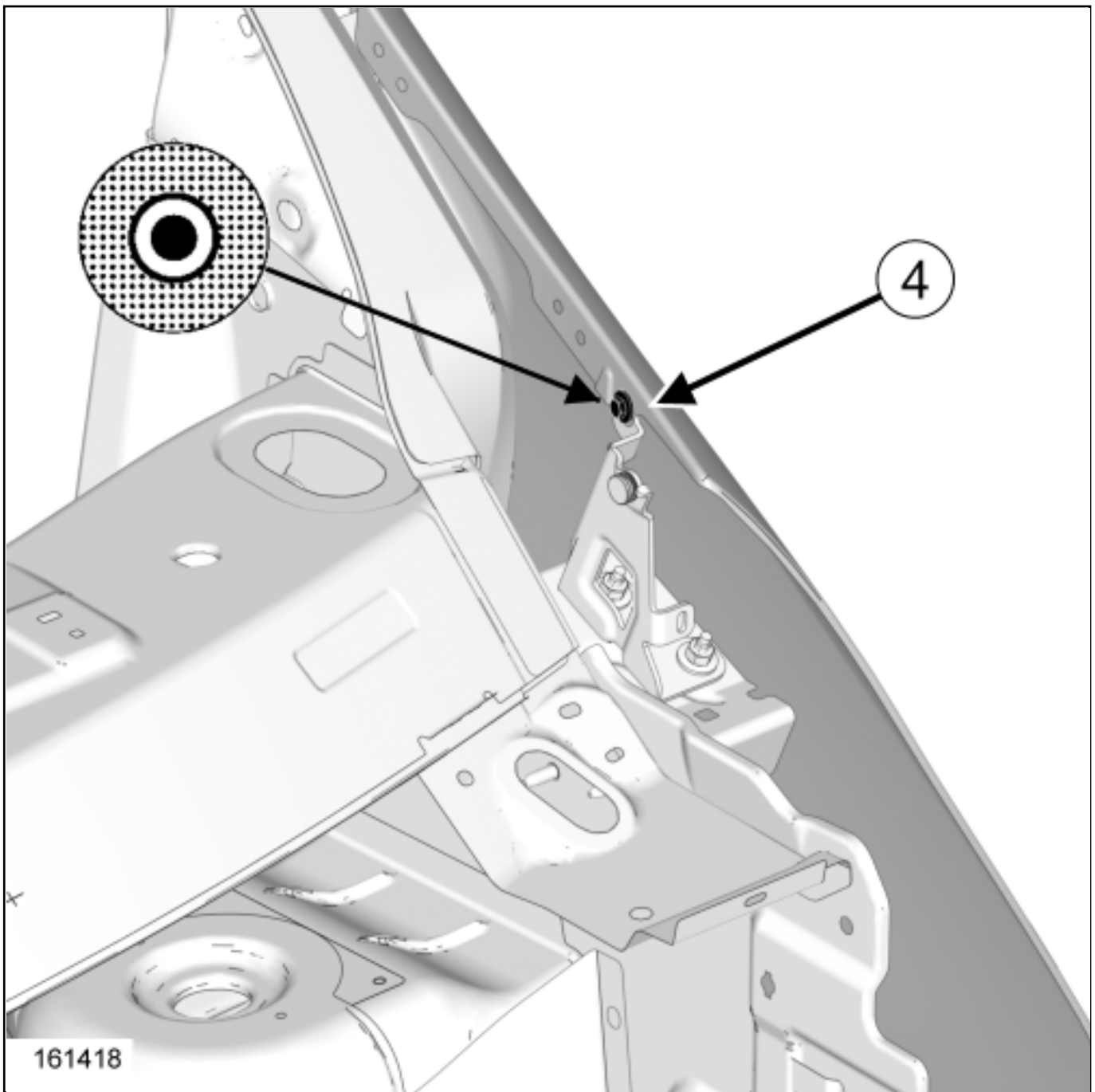
Remove:

-
- the front wheel arch liner [Front wheel arch liner: Removal - Refitting](#) ,
- the radiator grille [Front bumper assembly: Exploded view](#) ,
- the front bumper [Front bumper assembly: Exploded view](#) ,
- the windscreen pillar trim [Windscreen pillar trim: Removal - Refitting](#) ,
- the headlight [Front signals - lighting assembly: Exploded view](#) .

2. BASIC ADJUSTMENT







Loosen the front wing bolts.

Adjust the panel gaps with the front door and the windscreen trim.

Tighten the bolts(1).

Adjust the panel gaps with the front door, headlight and front bumper.



Tighten the bolts(2) , (3) and (4) .

3. FINAL OPERATION



Proceed in the reverse order to the ajustement preparation operation.



Repair-40x06x02-01x67-1-16-1.xml



XSL version : 3.02 du 22/07/11

FRONT WING LOWER MOUNTING SUPPORT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior body front trim assembly: Exploded view](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove:



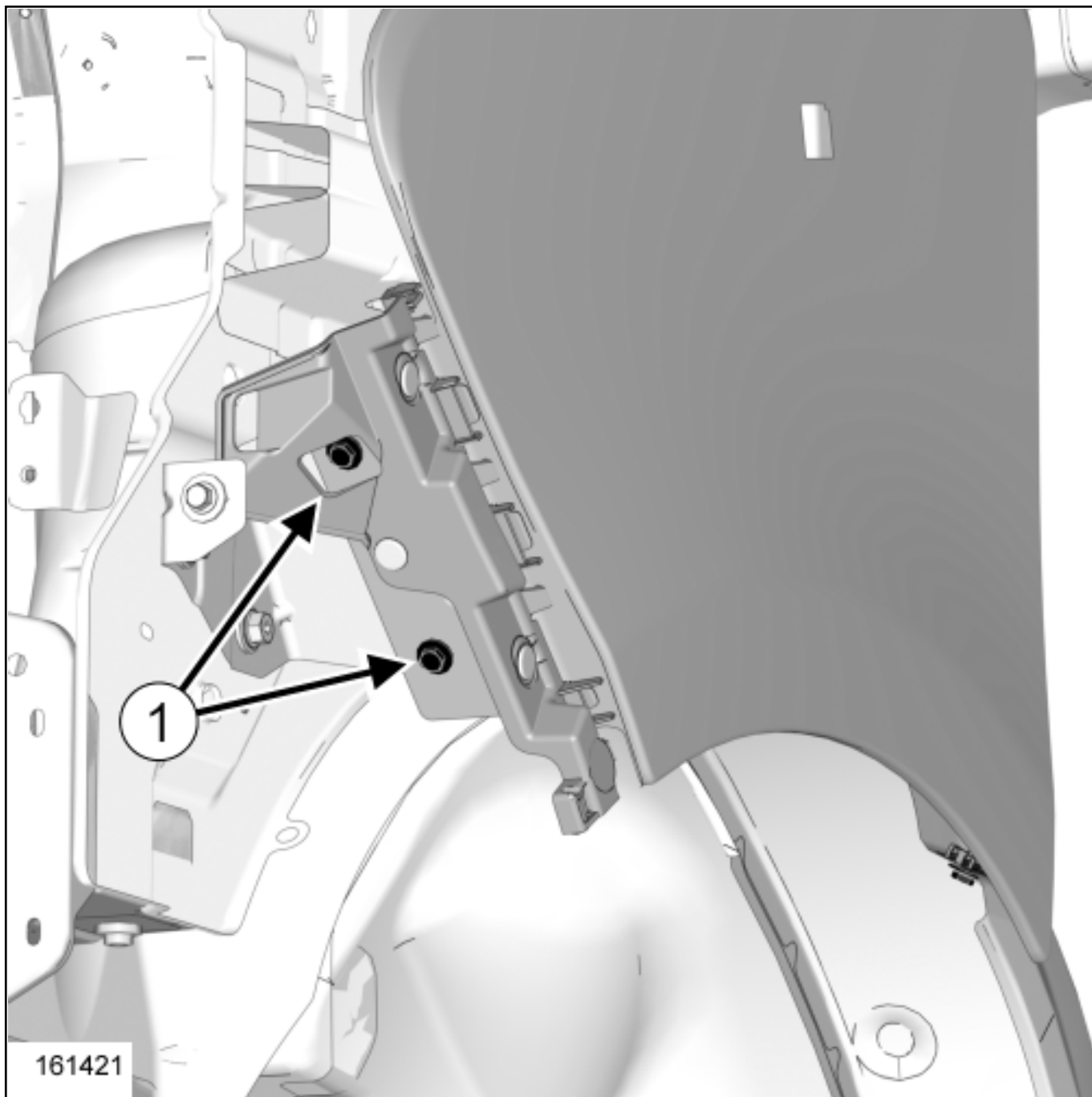
the radiator grille [Front bumper assembly: Exploded view](#) ,



the front bumper [Front bumper assembly: Exploded view](#) ,

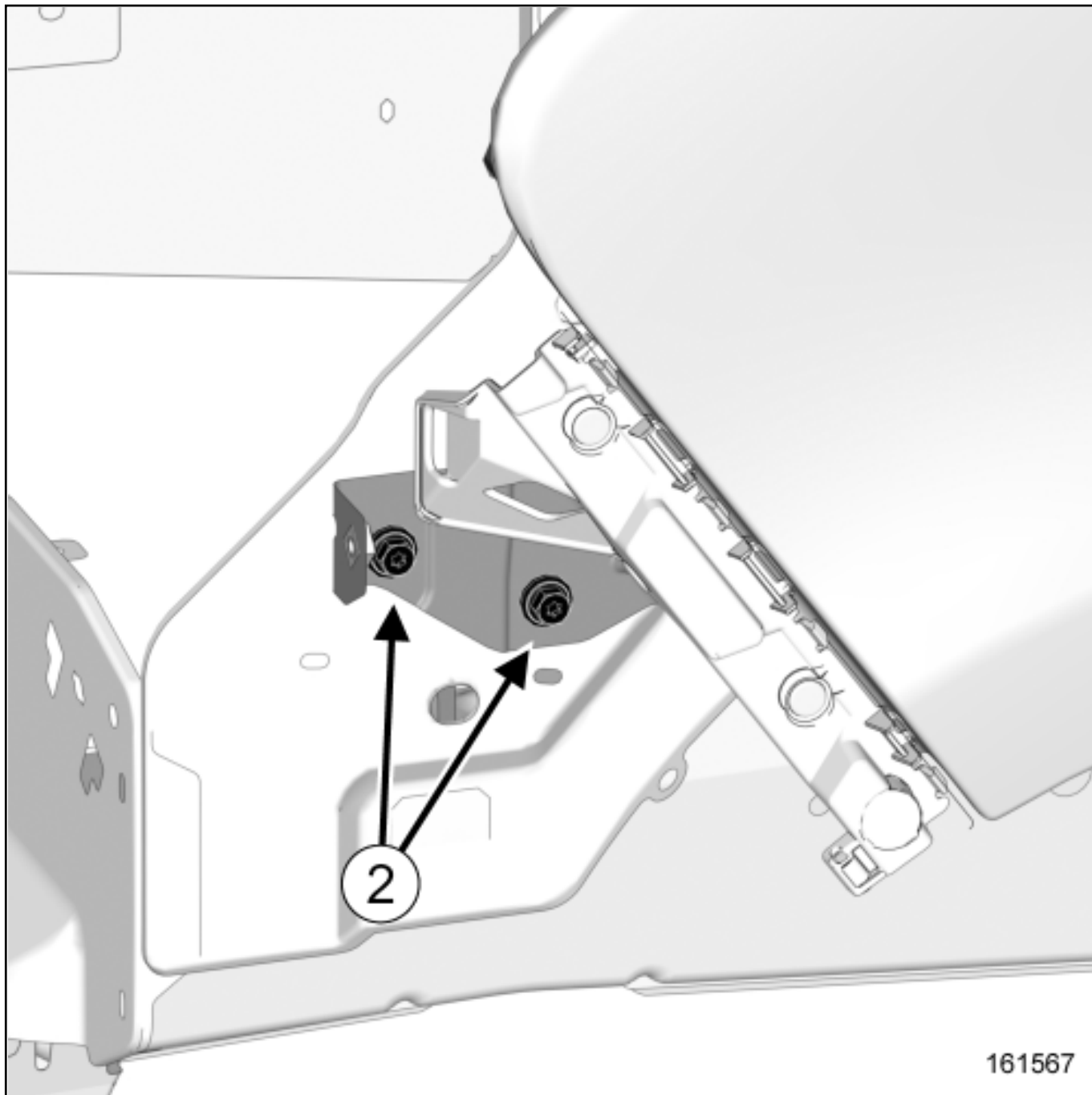


the headlight [Front signals - lighting assembly: Exploded view](#) .



Remove the front wing bolts(1) ,

2. REMOVAL OPERATION



Remove:

-
- the bolts(2) ,
- the front wing lower mounting support.

1.



Proceed in the reverse order to removal.



Repair-40x06x02x02-01x37-1-9-1.xml



XSL version : 3.02 du 22/07/11

FRONT WING TRIM: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

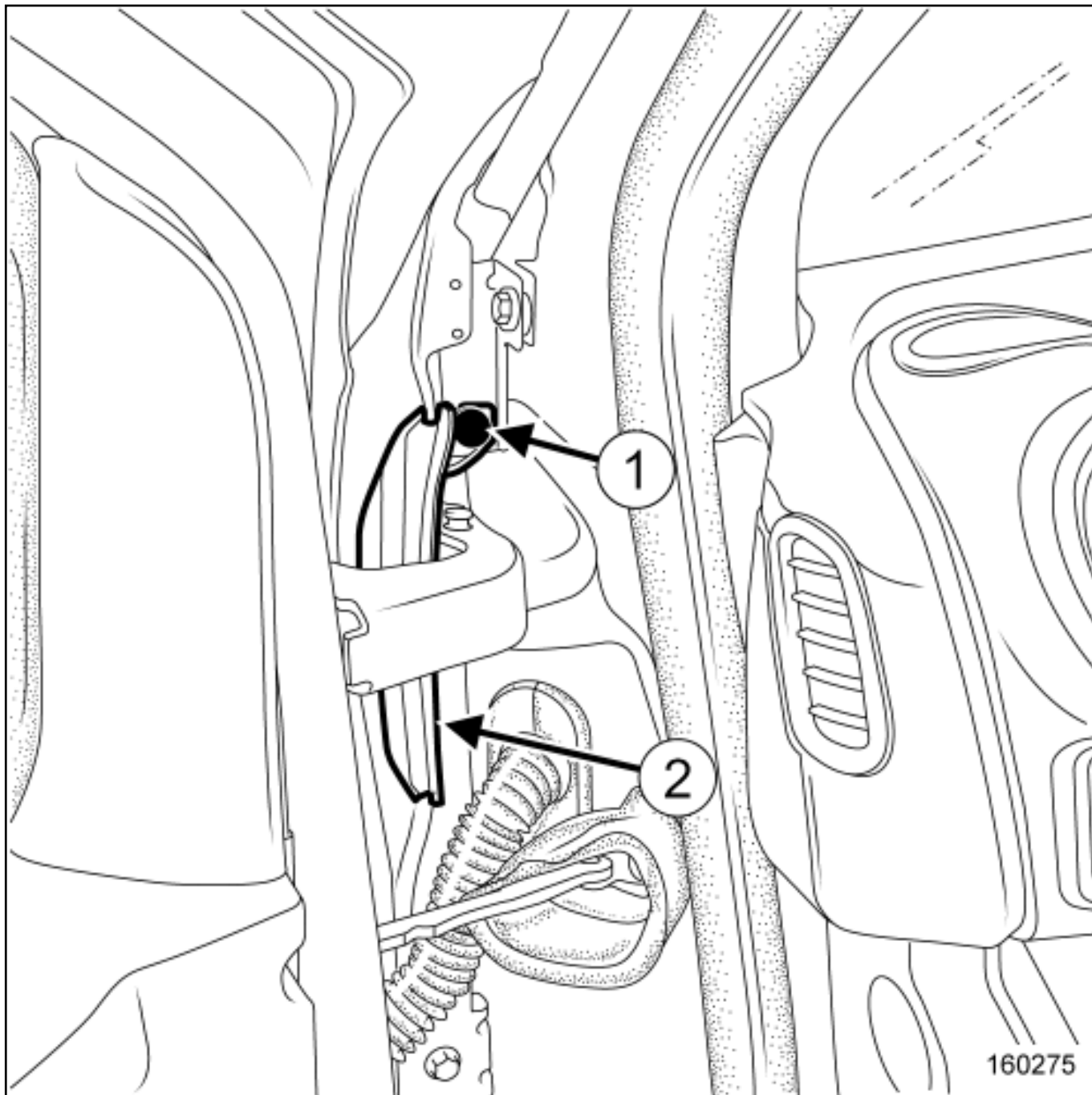
REMOVAL

1. REMOVAL PREPARATION OPERATION



Remove the door mirror [Door mirror: Removal - Refitting](#) .

2. REMOVAL OPERATION



■ Unclip the front wing trim clip(1) .

■ Remove the front wing trim(2) .

REFITTING

Proceed in the reverse order to removal.



Repair-50x07x04x10-01x37-1-2-1.xml



XSL version : 3.02 du 22/07/11

FRONT WING UPPER MOUNTING SUPPORT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior body front trim assembly: Exploded view](#) .



WARNING

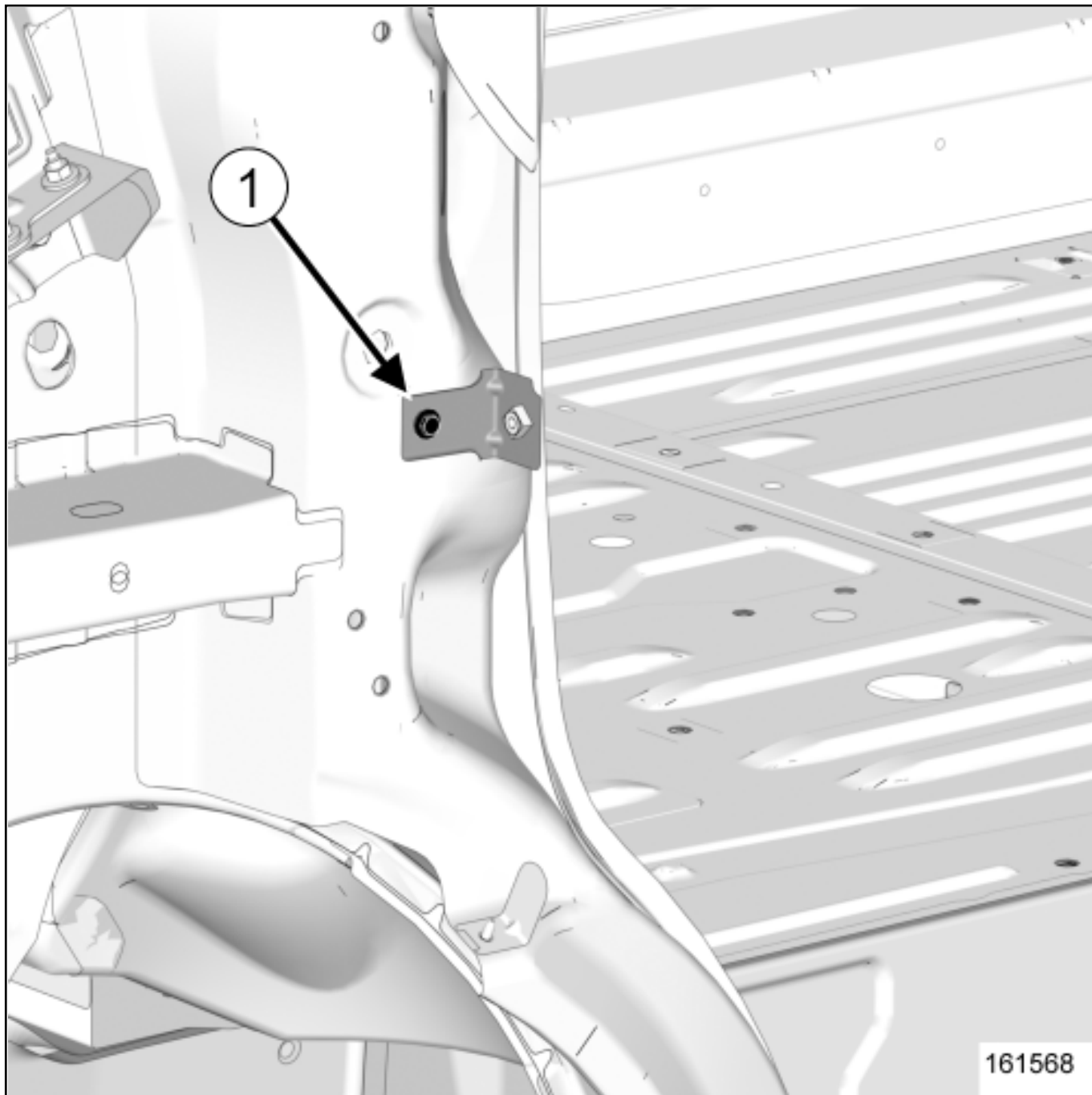
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove:
 - the front wheel arch liner [Front wheel arch liner: Removal - Refitting](#) ,
 - the radiator grille [Front bumper assembly: Exploded view](#) ,
 - the front bumper [Front bumper assembly: Exploded view](#) ,
 - the windscreen pillar trim [Windscreen pillar trim: Removal - Refitting](#) ,
 - the headlight [Front signals - lighting assembly: Exploded view](#) ,
 - the front wing ([see 42A, Front upper structure, Front wing: Removal - Refitting](#)) .

2. REMOVAL OPERATION



Remove:

-
- the bolt(1) ,
- the front wing upper mounting support.

1.



Proceed in the reverse order to removal.



Repair-40x06x02x03-01x37-1-10-1.xml



XSL version : 3.02 du 22/07/11

FRONT WING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior body front trim assembly: Exploded view](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove:



the front wheel arch liner [Front wheel arch liner: Removal - Refitting](#) ,



the radiator grille [Front bumper assembly: Exploded view](#) ,



the front bumper [Front bumper assembly: Exploded view](#) ,



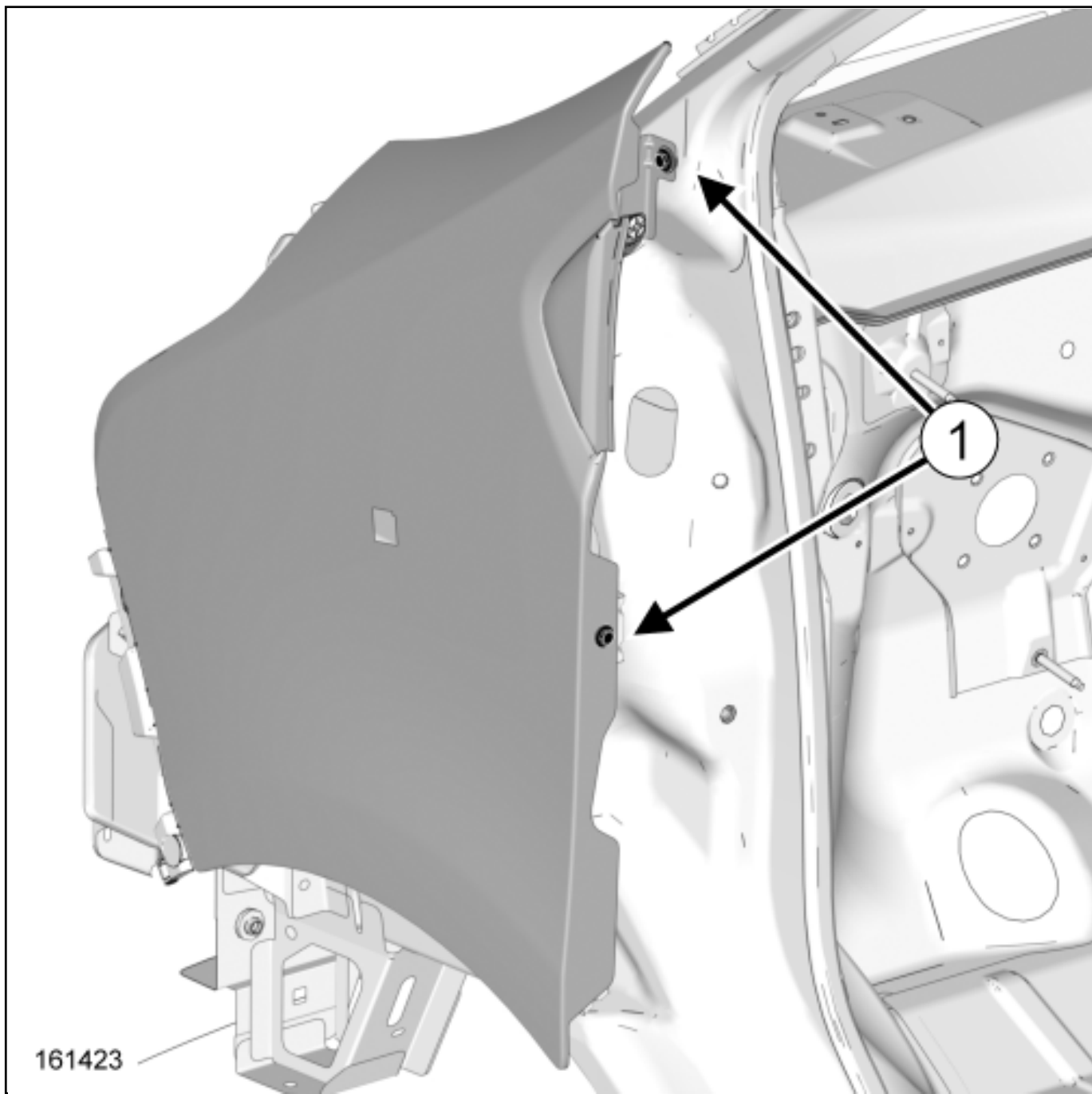
the windscreen pillar trim [Windscreen pillar trim: Removal - Refitting](#) ,

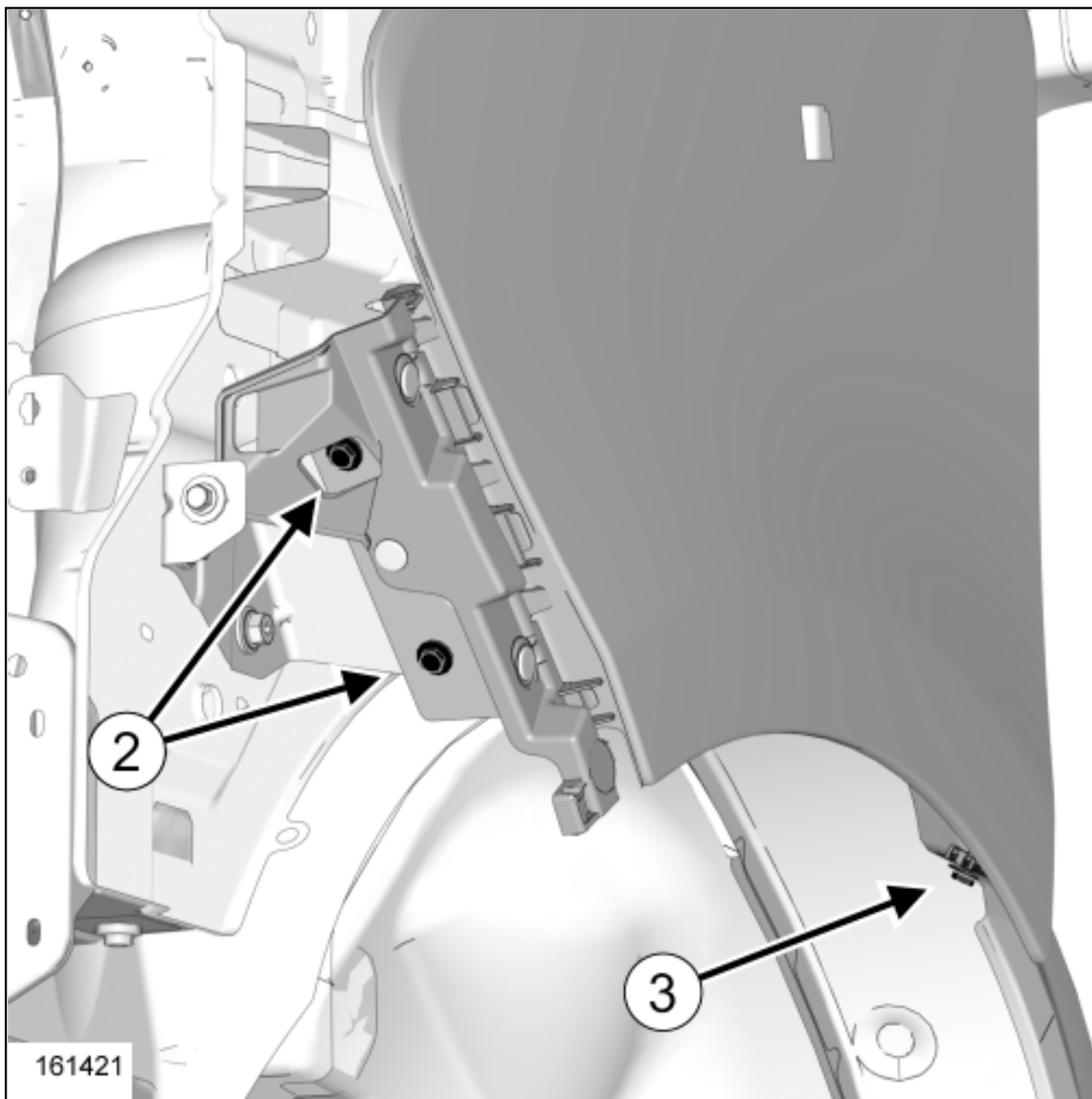


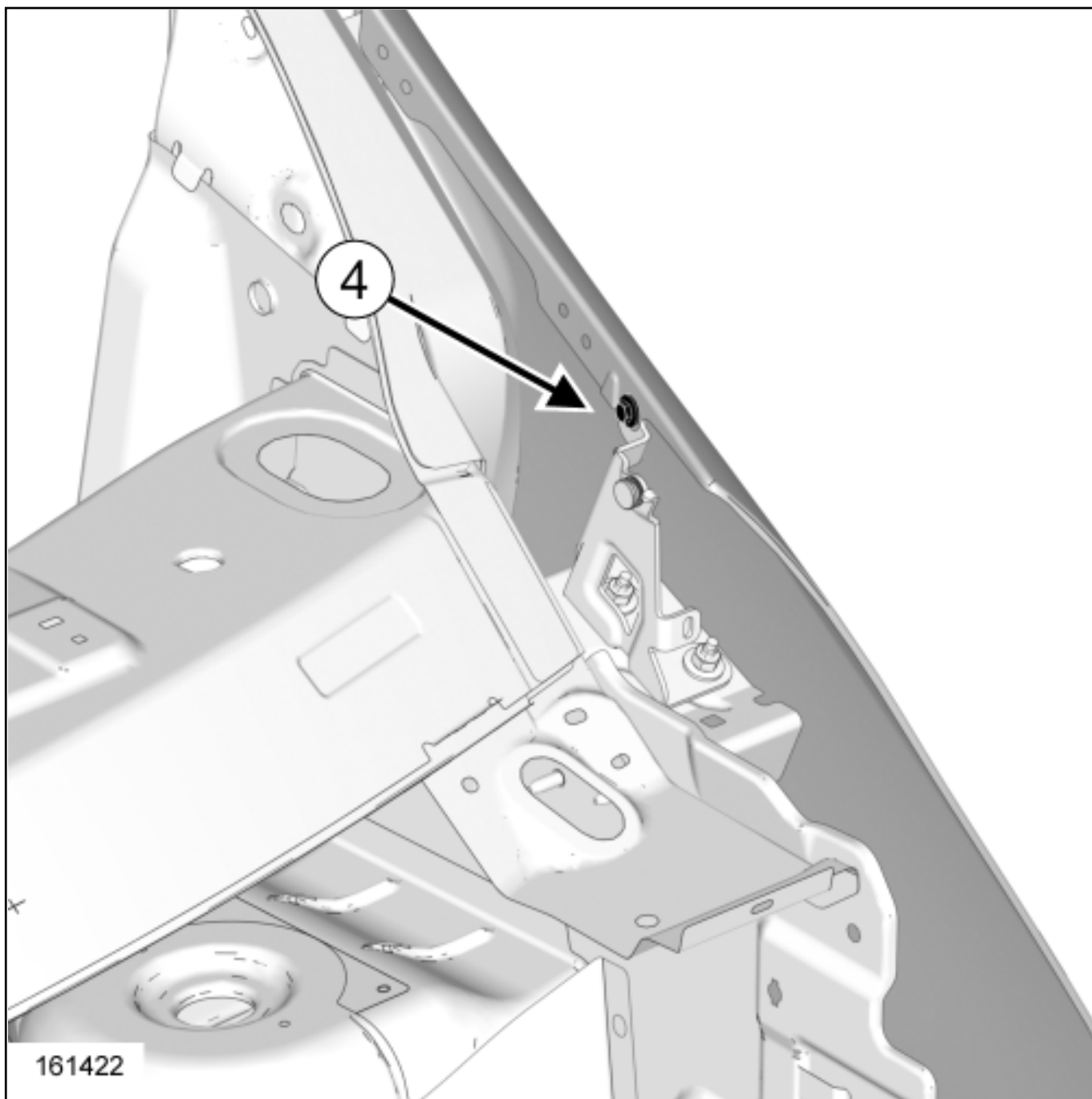
the headlight [Front signals - lighting assembly: Exploded view](#) ,

the side indicator [Exterior body front trim assembly: Exploded view](#) .

2. REMOVAL OPERATION







Remove:

-
- the bolts(1) , (2) , (3) and (4) ,

the front wing.

1. REFITTING PREPARATION OPERATION



In the event of replacement, replace the side pressure piece of the front bumper.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Adjust the clearances and flush fitting([see 42A, Front upper structure, Front wing: Adjustment](#)) .



Repair-40x06x02-01x37-1-30-1.xml



XSL version : 3.02 du 22/07/11

FUEL FILTER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.)(see **Fuel supply assembly in engine compartment: Exploded view**) .



WARNING

- During this operation, be sure to:
 - refrain from smoking or bringing red hot objects close to the working area,
 - be careful of fuel splashes when disconnecting the union.



WARNING

Wear goggles with side protectors for this operation.



WARNING

Wear leaktight gloves (Nitrile type) for this operation.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

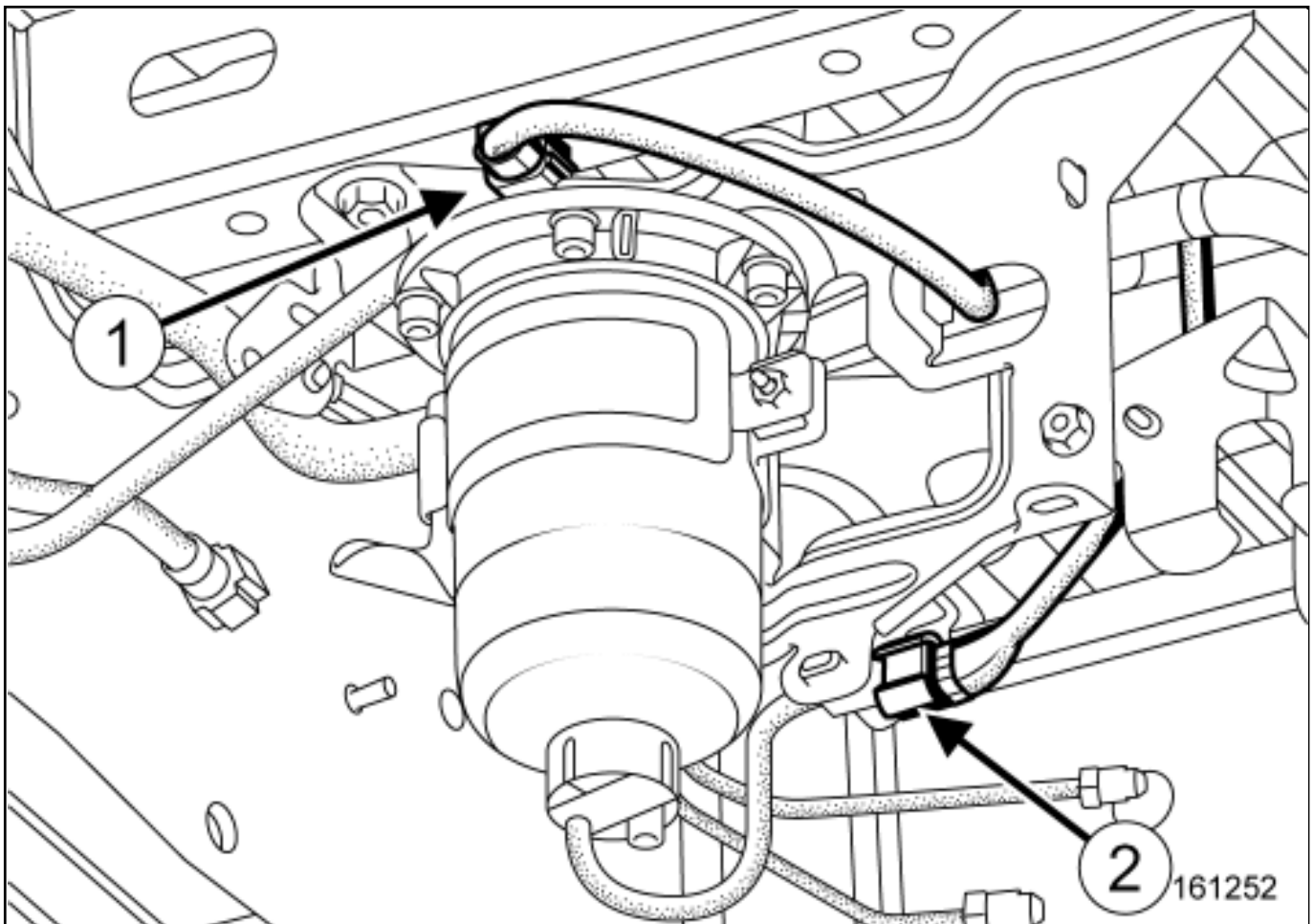
REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

2. REMOVAL OPERATION



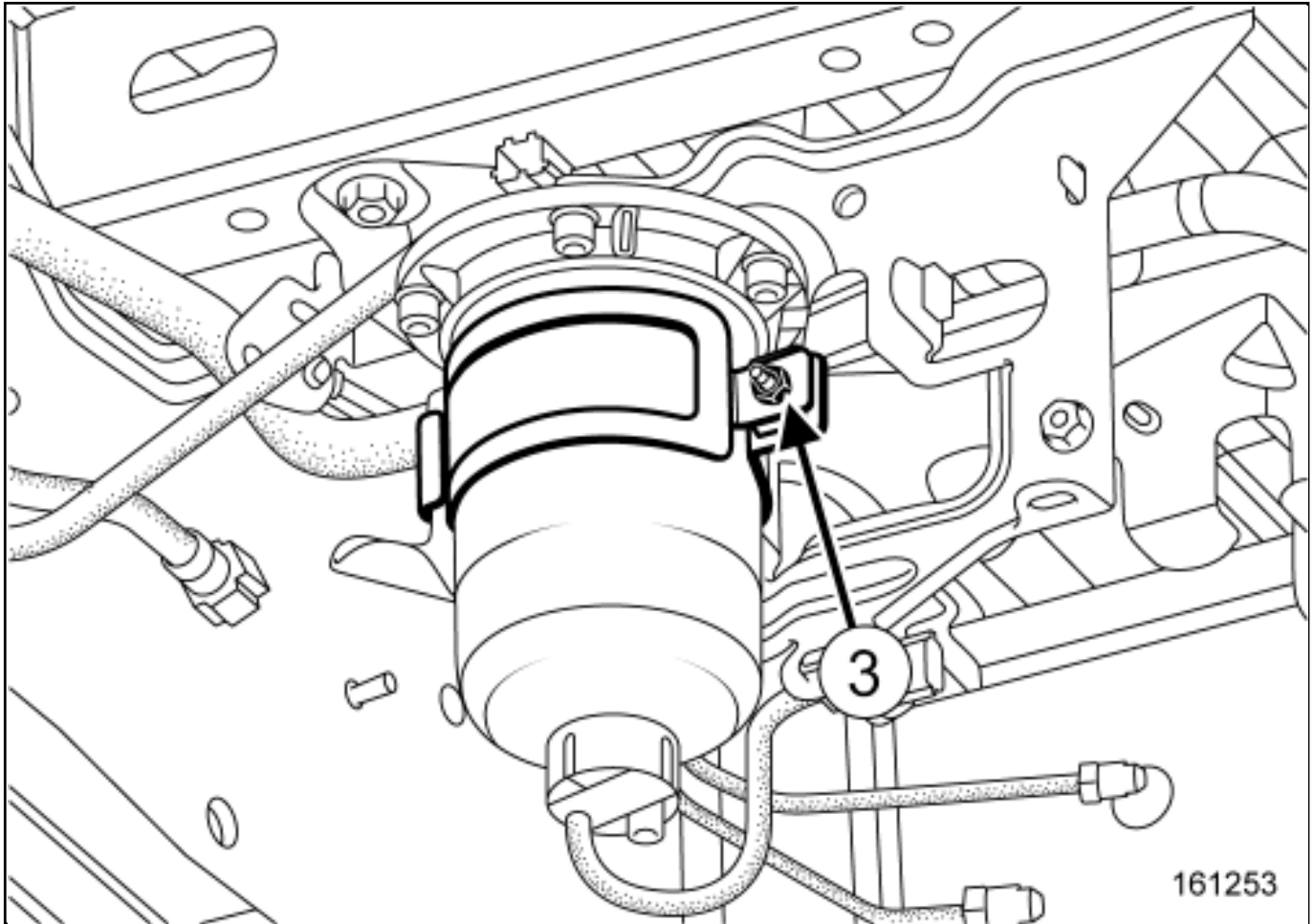
Disconnect:



the electric diesel fuel heater connector(1) ,



the water detection sensor connector(2) , if fitted.



Remove the fuel filter protector nut(3) .

Remove the diesel filter from its mounting, noting its original position.

Place a container under the diesel filter.



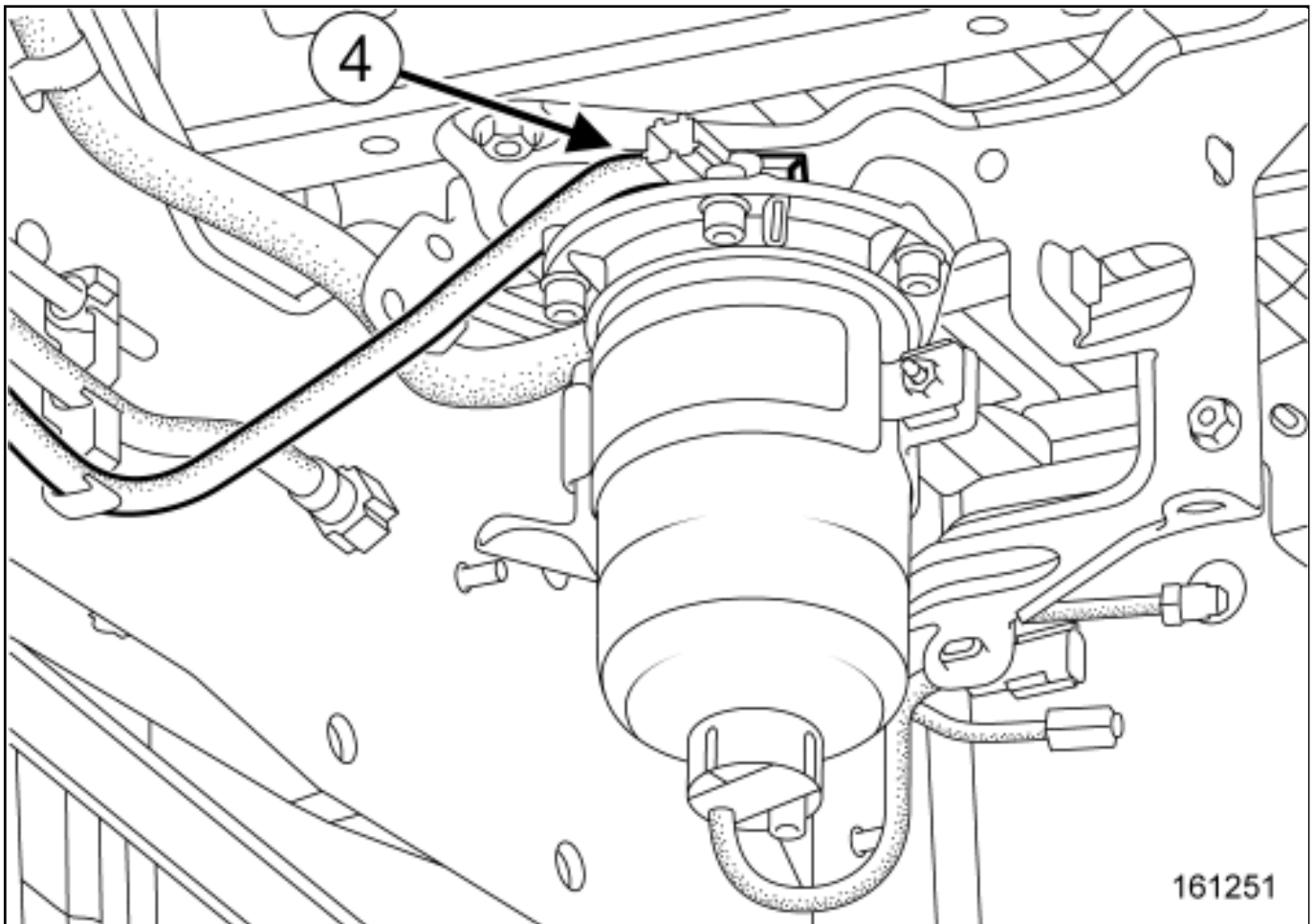
CAUTION

Keep the pipe unions away from contaminated areas.

Note:



Mark the position of the fuel pipe unions in relation to the diesel filter before removing the diesel filter.

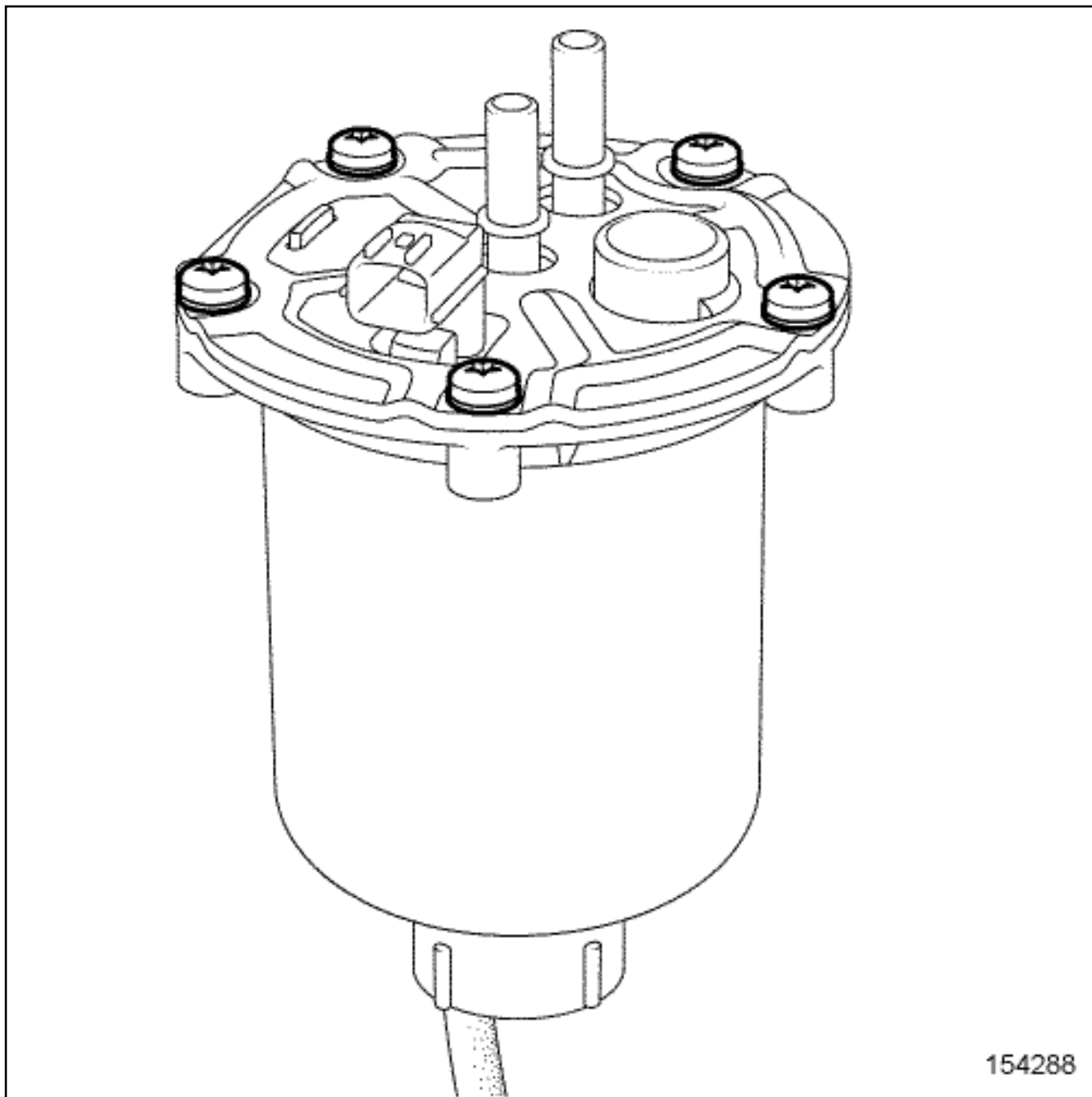


Disconnect the fuel pipes(4) from the fuel filter.

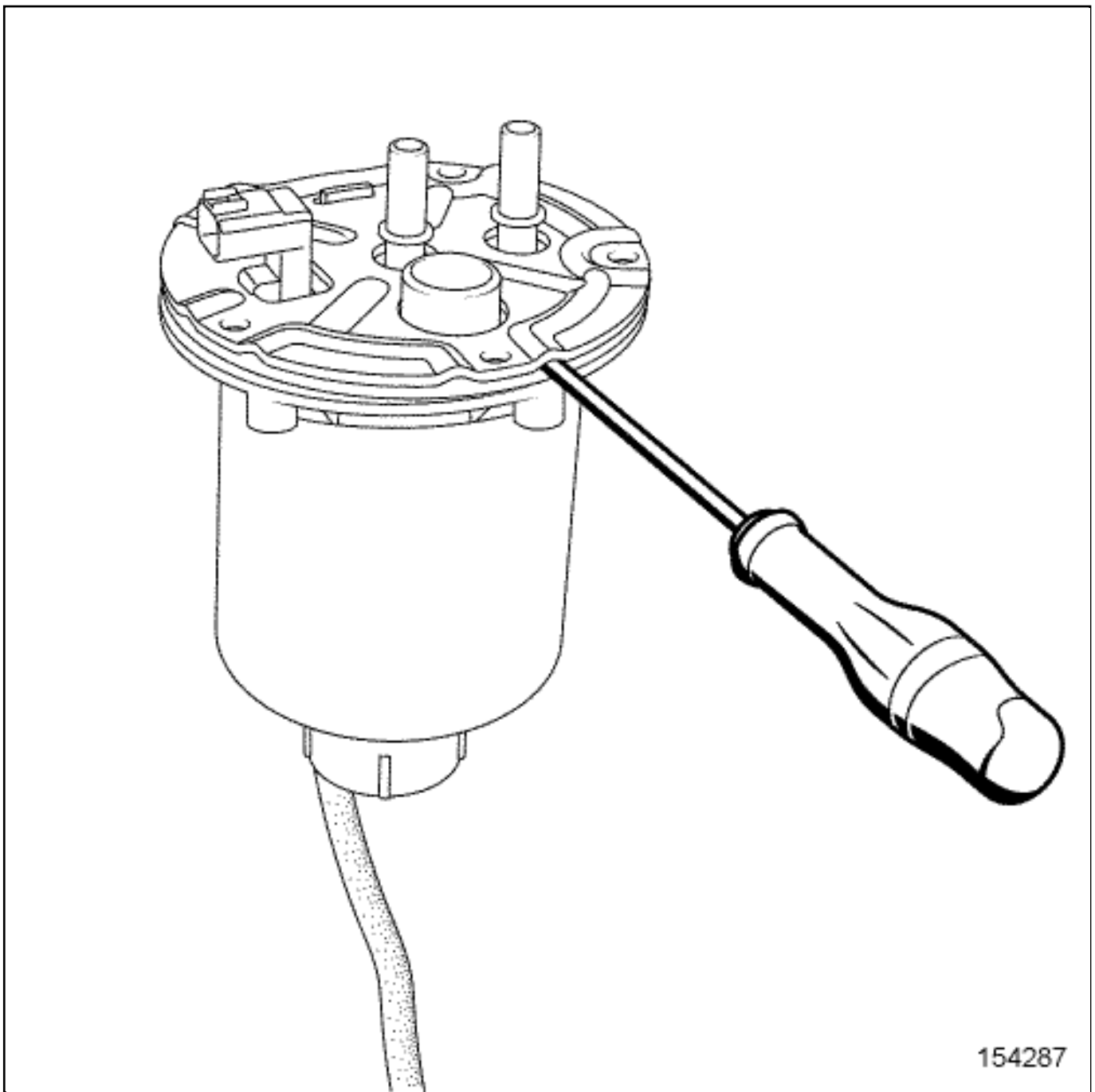
Let the diesel fuel flow out from the various pipes into the container.

Insert the blanking plugs.

Remove the water detection sensor, turning it anti-clockwise.



154288



Remove using the workbench:

- the diesel filter cover bolts,
- the diesel filter cover using a screwdriver at,
- the filter element.

1. REFITTING OPERATION



Refit using the workbench:

-
- the new filter element,
- the diesel filter cover,
- the diesel filter cover bolts,
- the water detection sensor, turning it clockwise.



Connect:

-
- the pipe unions on the diesel filter,
- the water detection sensor wiring (if fitted) from the protection plate,
- the water detection sensor connector (if fitted).



Refit:

-
- the diesel filter in its original position,
- the diesel filter protection plate,
- the diesel filter protection plate nut.

2. DRAINING THE WATER INSIDE THE DIESEL FILTER



Note:

Certain vehicles have a sensor for detecting water in the diesel fuel, located in the diesel filter. If water is detected, the injection fault warning light comes on.

Periodically drain any water contained in the diesel filter.

For filters without a water presence sensor:

-
- open the drain plug,
- let the water flow out,
- close the plug.

For filters with a water presence sensor:

-
- disconnect the water presence sensor connector,
- unclip the water presense sensor connector,
- loosen the water presence sensor by one turn,
- let the water flow out,
- tighten the water presence sensor,
- connect the water presence sensor connector.

3. FINAL OPERATION

Proceed in the reverse order to removal.

Check that there are no fuel leaks.



Repair-11x03x01x05-01x37-1-58-1.xml



XSL version : 3.02 du 22/07/11

FUEL FILTER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.)(see **Fuel supply assembly in engine compartment: Exploded view**) .



WARNING

- During this operation, be sure to:
 - refrain from smoking or bringing red hot objects close to the working area,
 - be careful of fuel splashes when disconnecting the union.



WARNING

Wear goggles with side protectors for this operation.



WARNING

Wear leaktight gloves (Nitrile type) for this operation.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

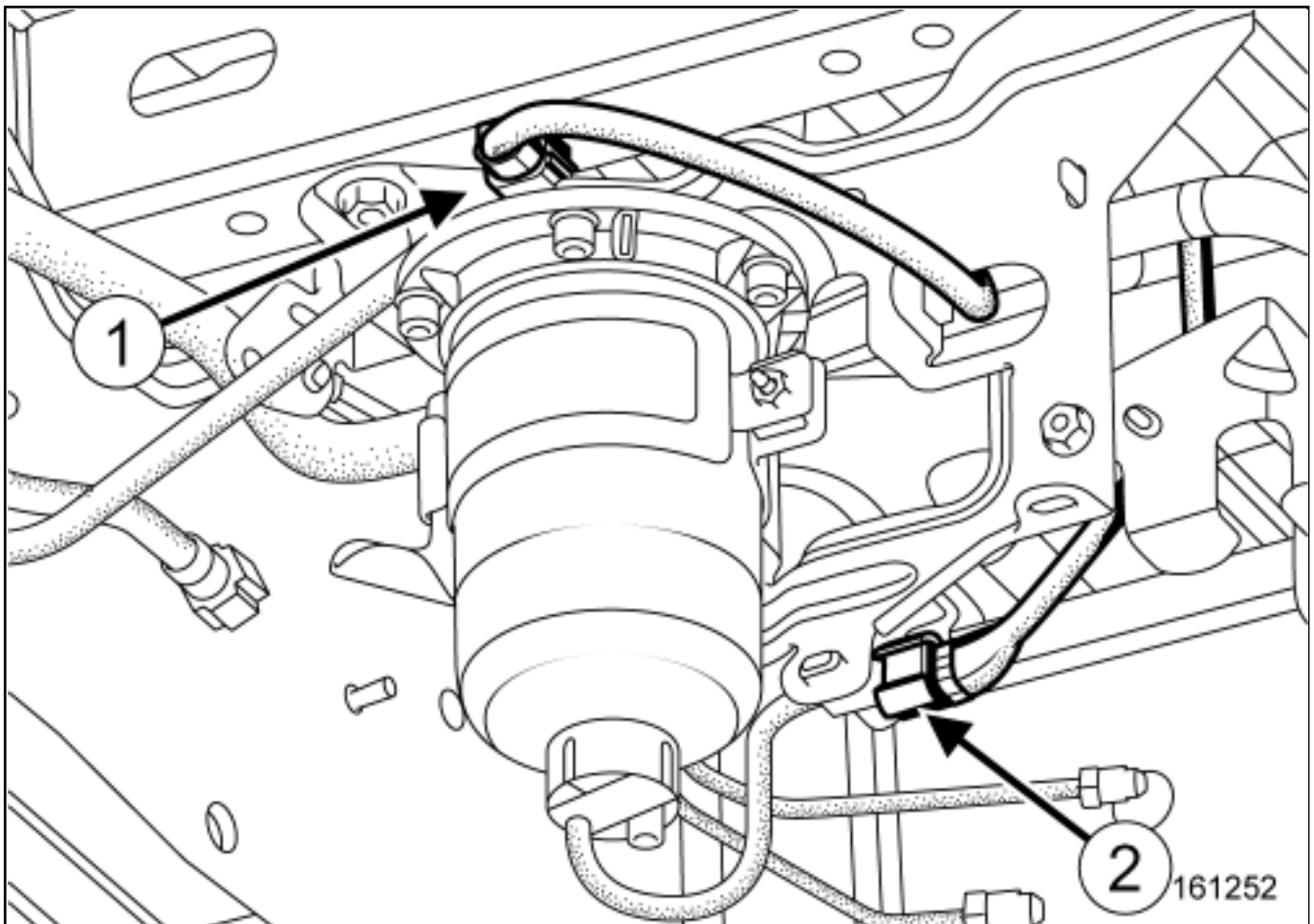
REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

2. REMOVAL OPERATION



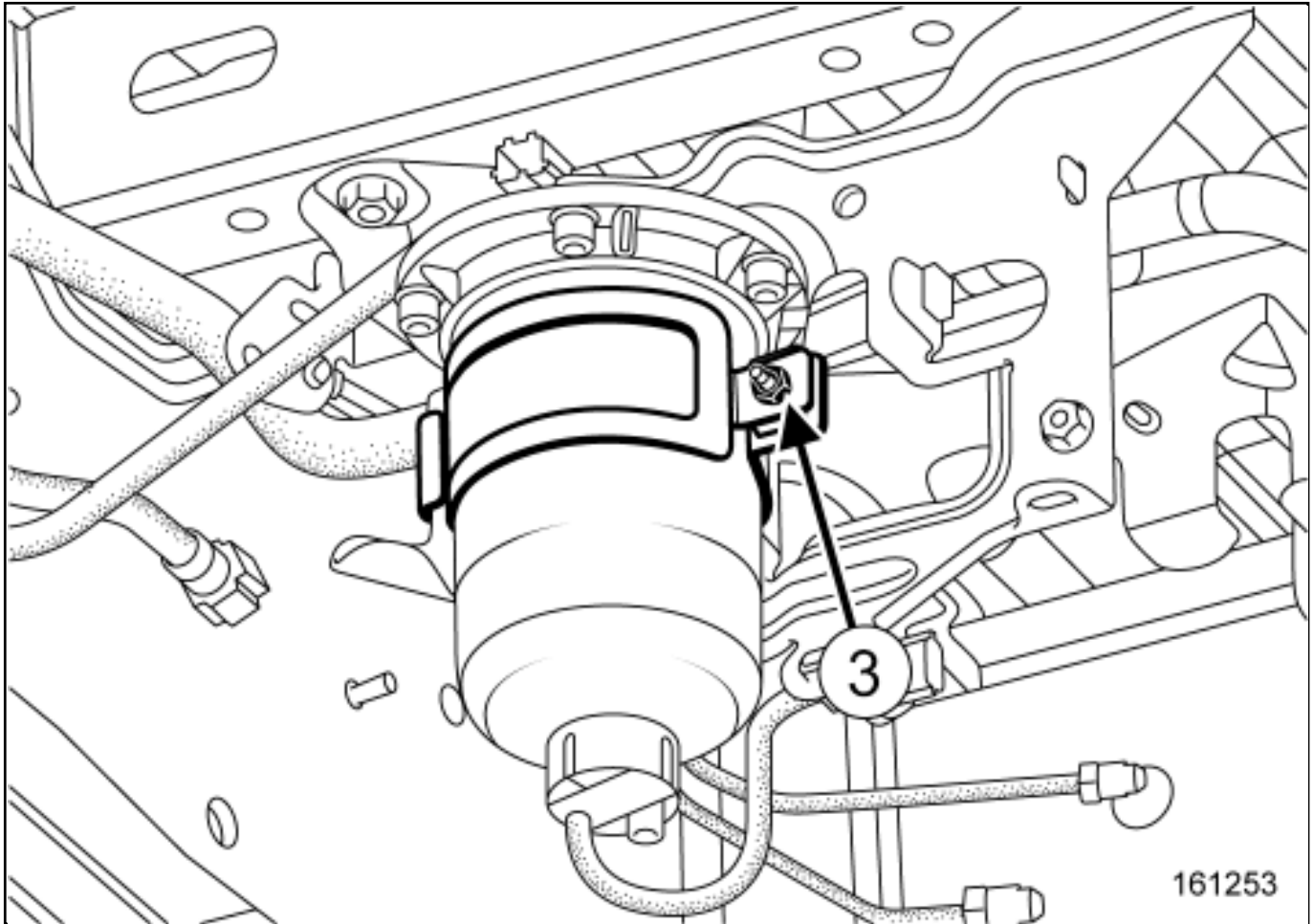
Disconnect:



the electric diesel fuel heater connector(1) ,



the water detection sensor connector(2) , if fitted.



Remove the fuel filter protector nut(3) .

Remove the diesel filter from its mounting, noting its original position.

Place a container under the diesel filter.



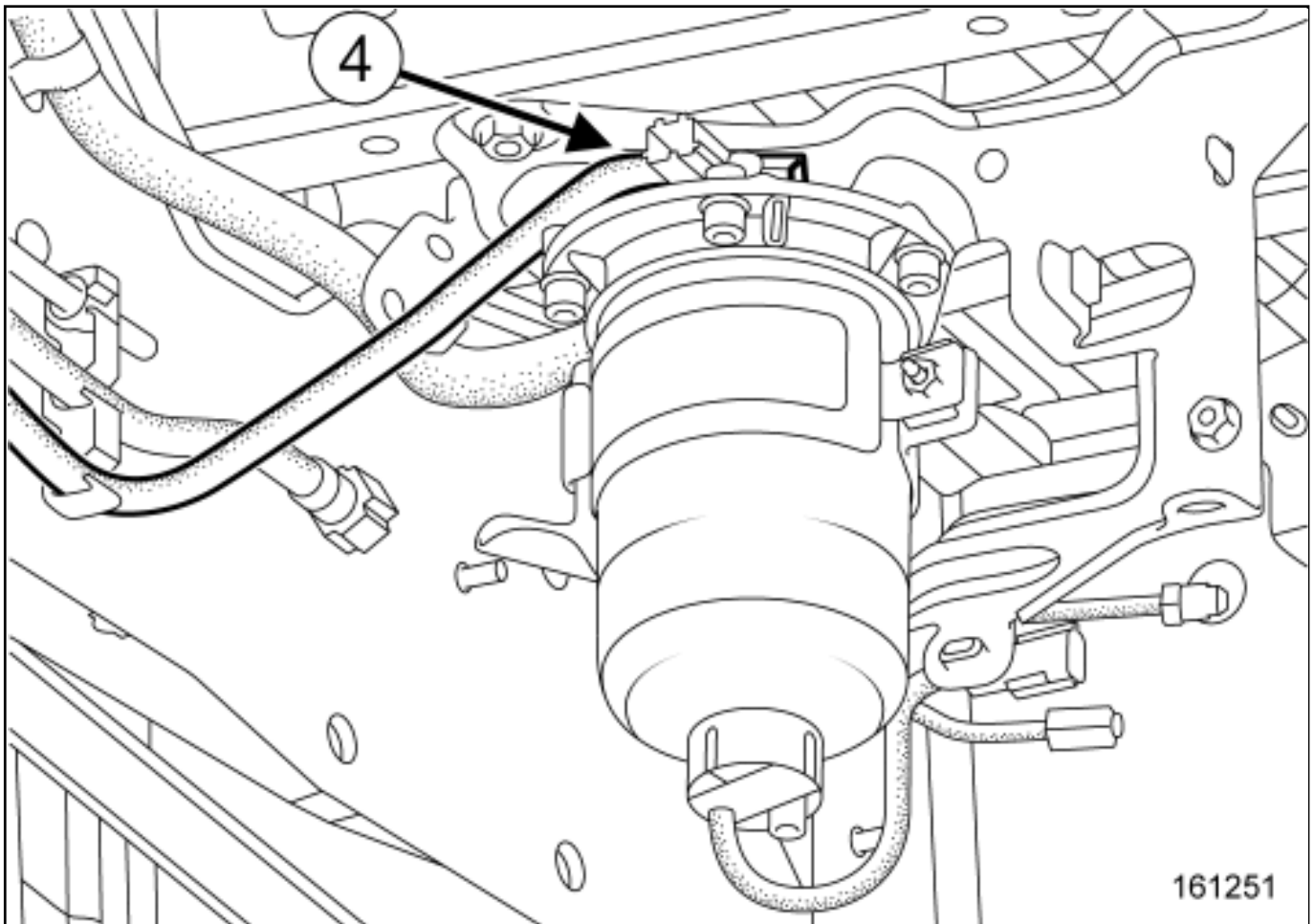
CAUTION

Keep the pipe unions away from contaminated areas.

Note:



Mark the position of the fuel pipe unions in relation to the diesel filter before removing the diesel filter.

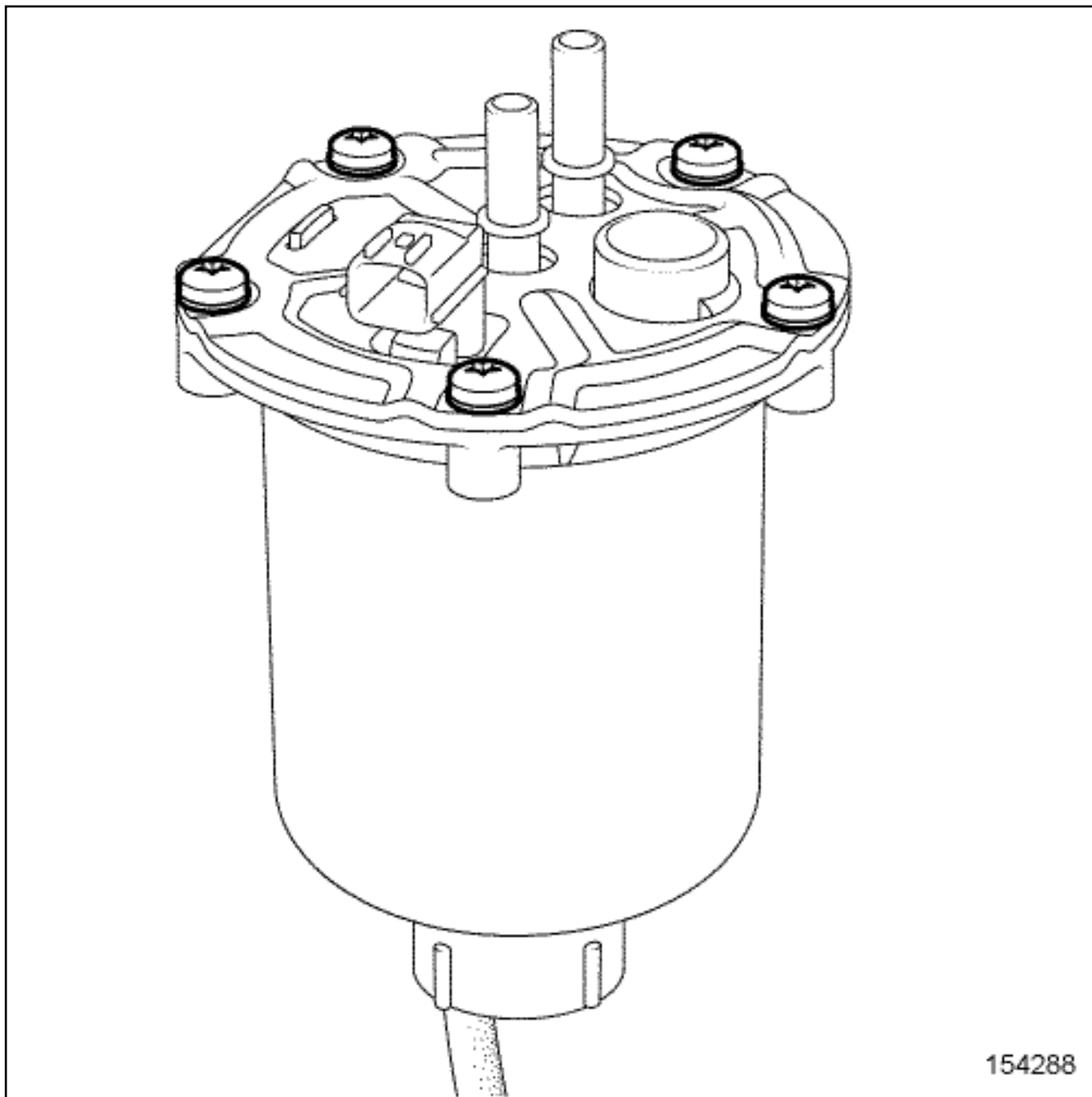


Disconnect the fuel pipes(4) from the fuel filter.

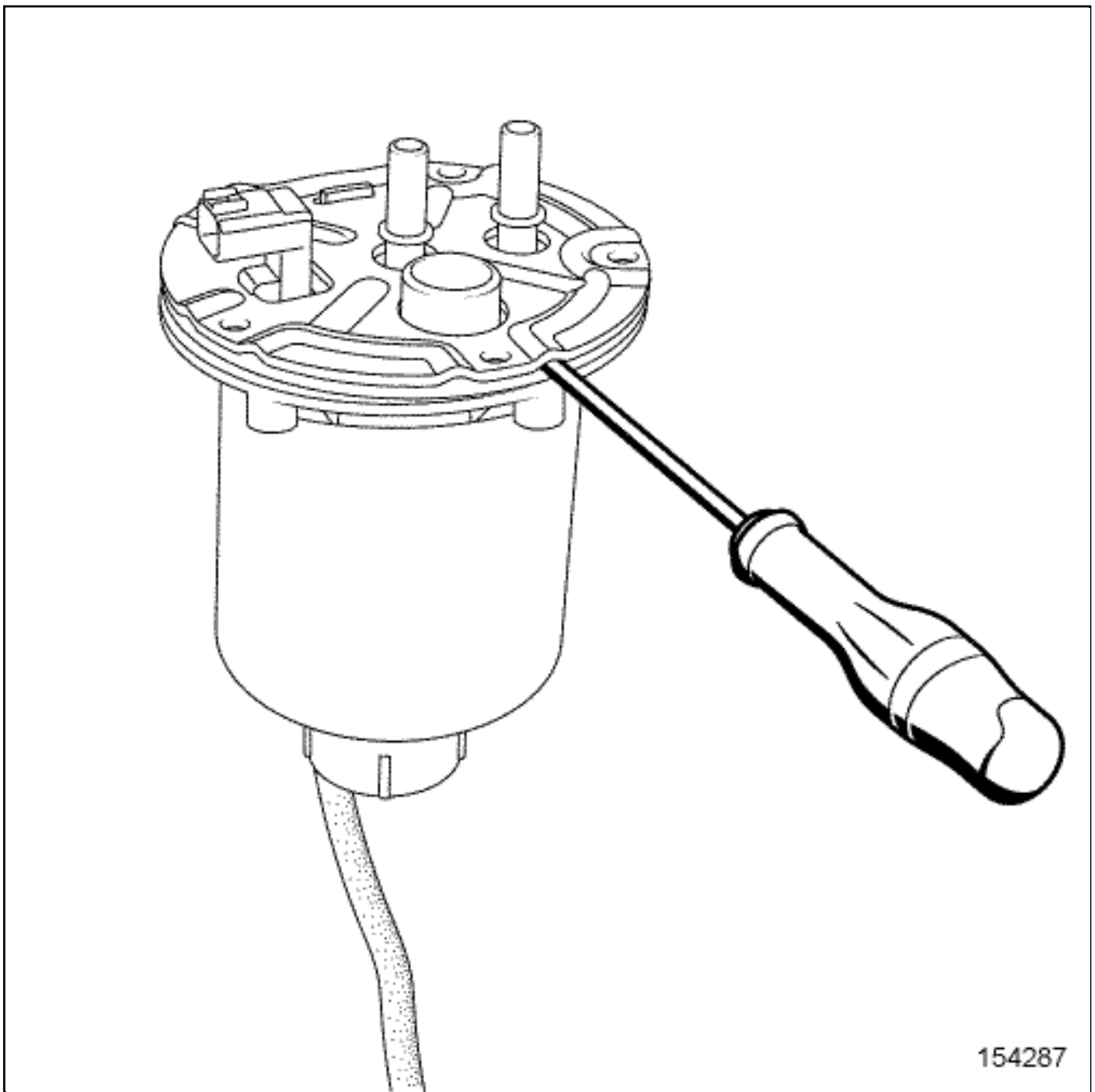
Let the diesel fuel flow out from the various pipes into the container.

Insert the blanking plugs.

Remove the water detection sensor, turning it anti-clockwise.



154288



Remove using the workbench:

-
- the diesel filter cover bolts,
- the diesel filter cover using a screwdriver at,
- the filter element.

1. REFITTING OPERATION



Refit using the workbench:

-
- the new filter element,
- the diesel filter cover,
- the diesel filter cover bolts,
- the water detection sensor, turning it clockwise.



Connect:

-
- the pipe unions on the diesel filter,
- the water detection sensor wiring (if fitted) from the protection plate,
- the water detection sensor connector (if fitted).



Refit:

-
- the diesel filter in its original position,
- the diesel filter protection plate,
- the diesel filter protection plate nut.

2. DRAINING THE WATER INSIDE THE DIESEL FILTER



Note:

Certain vehicles have a sensor for detecting water in the diesel fuel, located in the diesel filter. If water is detected, the injection fault warning light comes on.

Periodically drain any water contained in the diesel filter.

For filters without a water presence sensor:

-
- open the drain plug,
- let the water flow out,
- close the plug.

For filters with a water presence sensor:

-
- disconnect the water presence sensor connector,
- unclip the water presence sensor connector,
- loosen the water presence sensor by one turn,
- let the water flow out,
- tighten the water presence sensor,
- connect the water presence sensor connector.

3. FINAL OPERATION

Proceed in the reverse order to removal.

Check that there are no fuel leaks.



Repair-11x03x01x05-01x37-1-58-1.xml



XSL version : 3.02 du 22/07/11

FUEL LEVEL SENSOR MODULE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Universal spanner for removing fuel gauge nuts.

Mot. 1397

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 19C, Tank, Fuel tank assembly: Exploded view](#)).



WARNING

- During this operation, be sure to:
 - refrain from smoking or bringing red hot objects close to the working area,
 - be careful of fuel splashes when disconnecting the union.



WARNING

Wear leaktight gloves (Nitrile type) for this operation.



WARNING

Wear goggles with side protectors for this operation.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.

REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Disconnect the battery (see [Battery: Removal - Refitting](#)) .

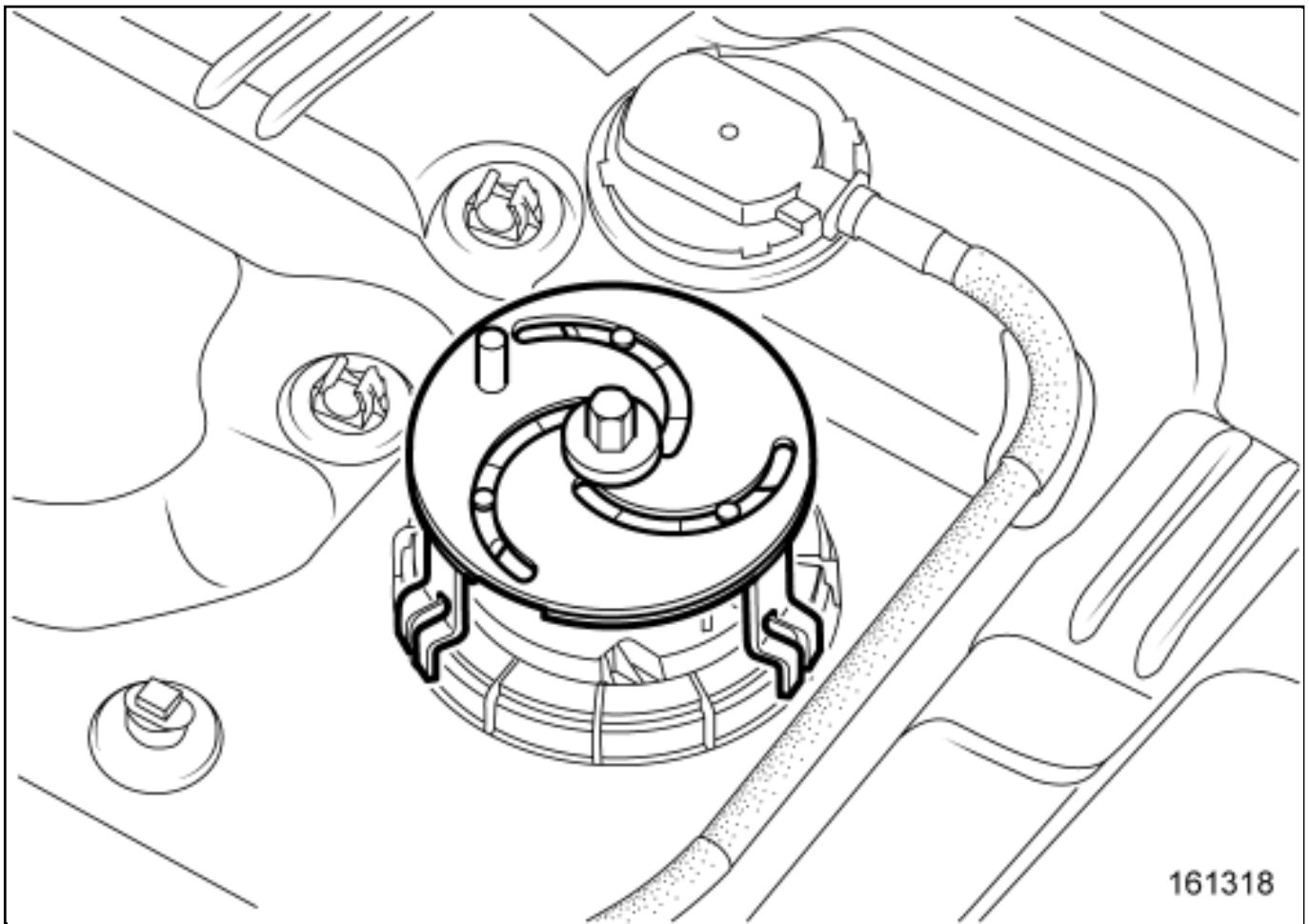


Drain the fuel tank (see [19C, Tank, Fuel tank: Draining](#)) .



Remove the fuel tank (see [19C, Tank, Fuel tank assembly: Exploded view](#)) .

2. REMOVAL OPERATION



161318

Remove the nut from the fuel sender using the Universal spanner for removing fuel gauge nuts.

(Mot. 1397) .

Let any fuel drain from the fuel sender.



CAUTION

To prevent the tank from deforming, refit the fuel sender unit nut to the tank well immediately.

Remove:

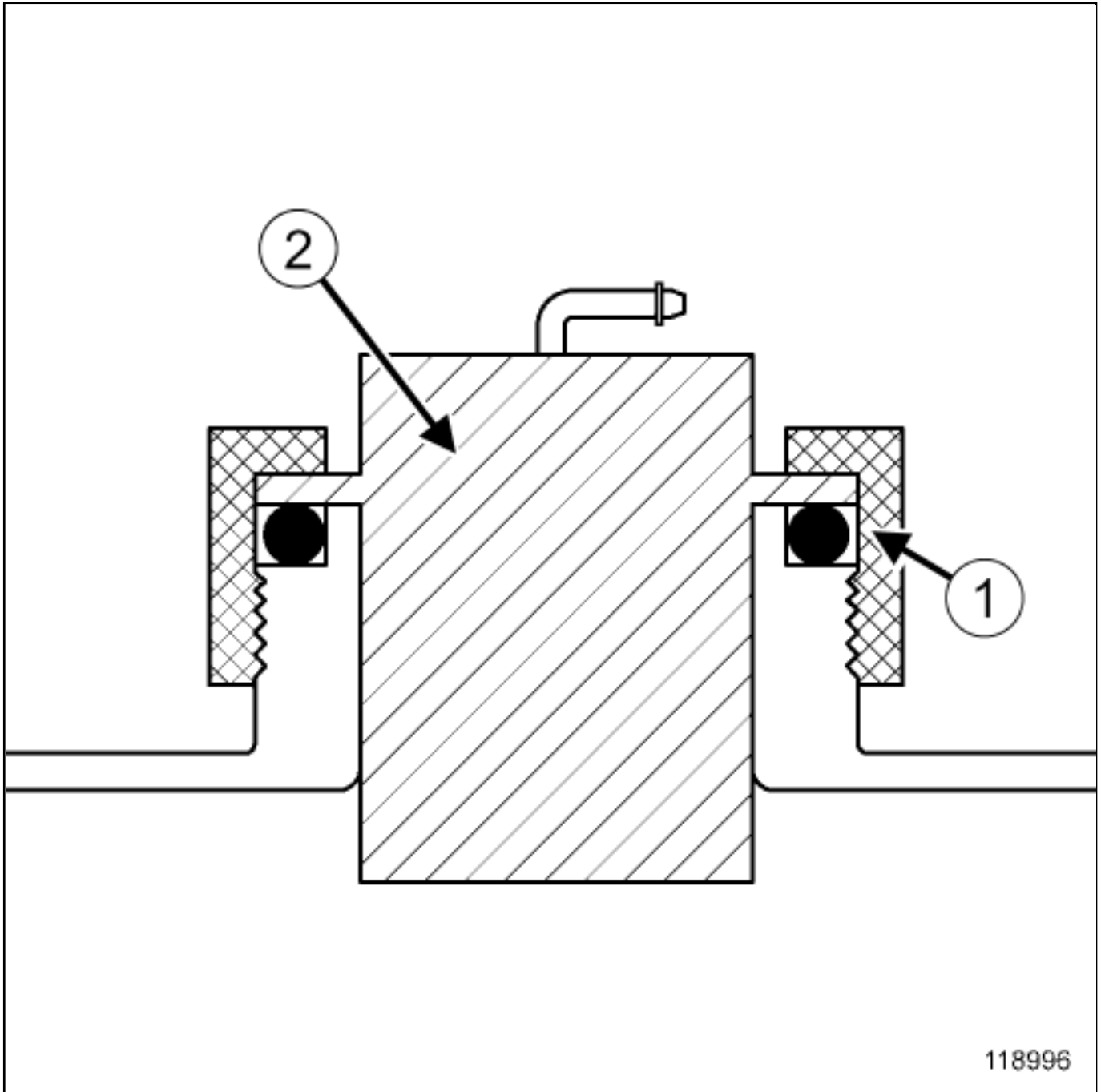


the fuel sender, taking care not to damage the float,

the O-ring.

REFITTING

1. REFITTING OPERATION



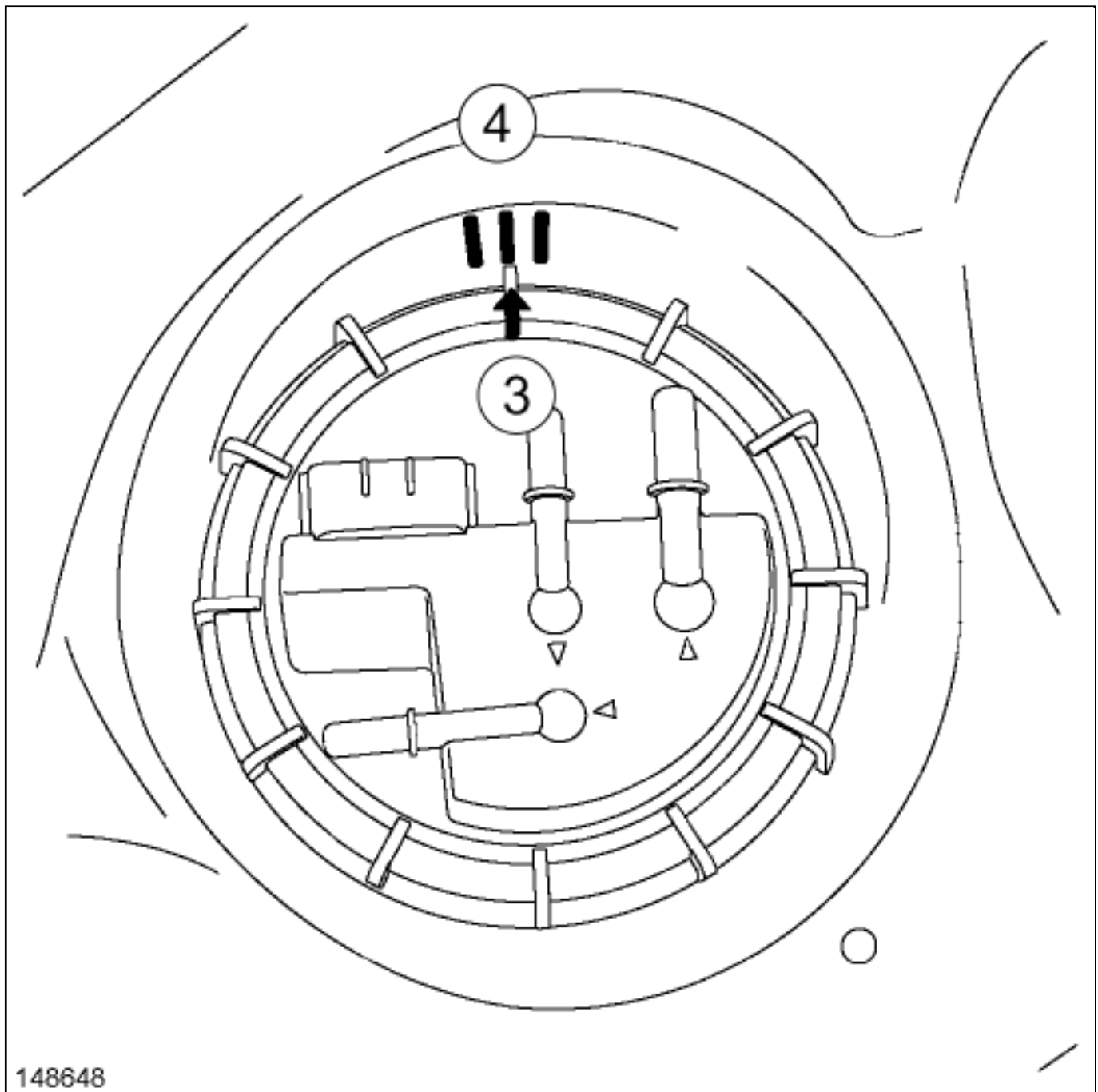
Position:
■

■ a new O-ring(1) on the fuel sender correctly,

the fuel sender(2) on the fuel tank; a lug on the fuel sender and a recess in the fuel tank ensure correct positioning in the fuel tank.

■ Use a hand to press the fuel sender to grip the O-ring.

■ Refit a new fuel sender nut.





Tighten the nut of the fuel sender using the tool [Universal spanner for removing fuel gauge nuts. \(Mot. 1397\)](#) until the mark(3) on the nut is aligned with the mark(4) on the fuel tank.



Refit the fuel tank([see 19C, Tank, Fuel tank assembly: Exploded view](#)) .



Connect the battery(see [Battery: Removal - Refitting](#)) .



Repair-11x08x02x04-01x37-1-37-1.xml



XSL version : 3.02 du 22/07/11

FUEL PIPES: REPAIR



Note, one or more warnings are present in this procedure



Special tooling required

Pliers for disconnecting fuel snap-fit connections, diameter 8 mm (Legris et Raymond).	Mot. 1265
Pipe-cutter, semi-rigid fuel pipes.	
Pliers for disconnecting fuel snap-fit connections, diameter 10 mm (Legris et Raymond).	Mot. 1265-01



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

- During this operation, be sure to:
 - refrain from smoking or bringing red hot objects close to the working area,
 - be careful of fuel splashes when disconnecting the union.



WARNING

Wear goggles with side protectors for this operation.



WARNING

Wear leaktight gloves (nitrile type) for this operation.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.



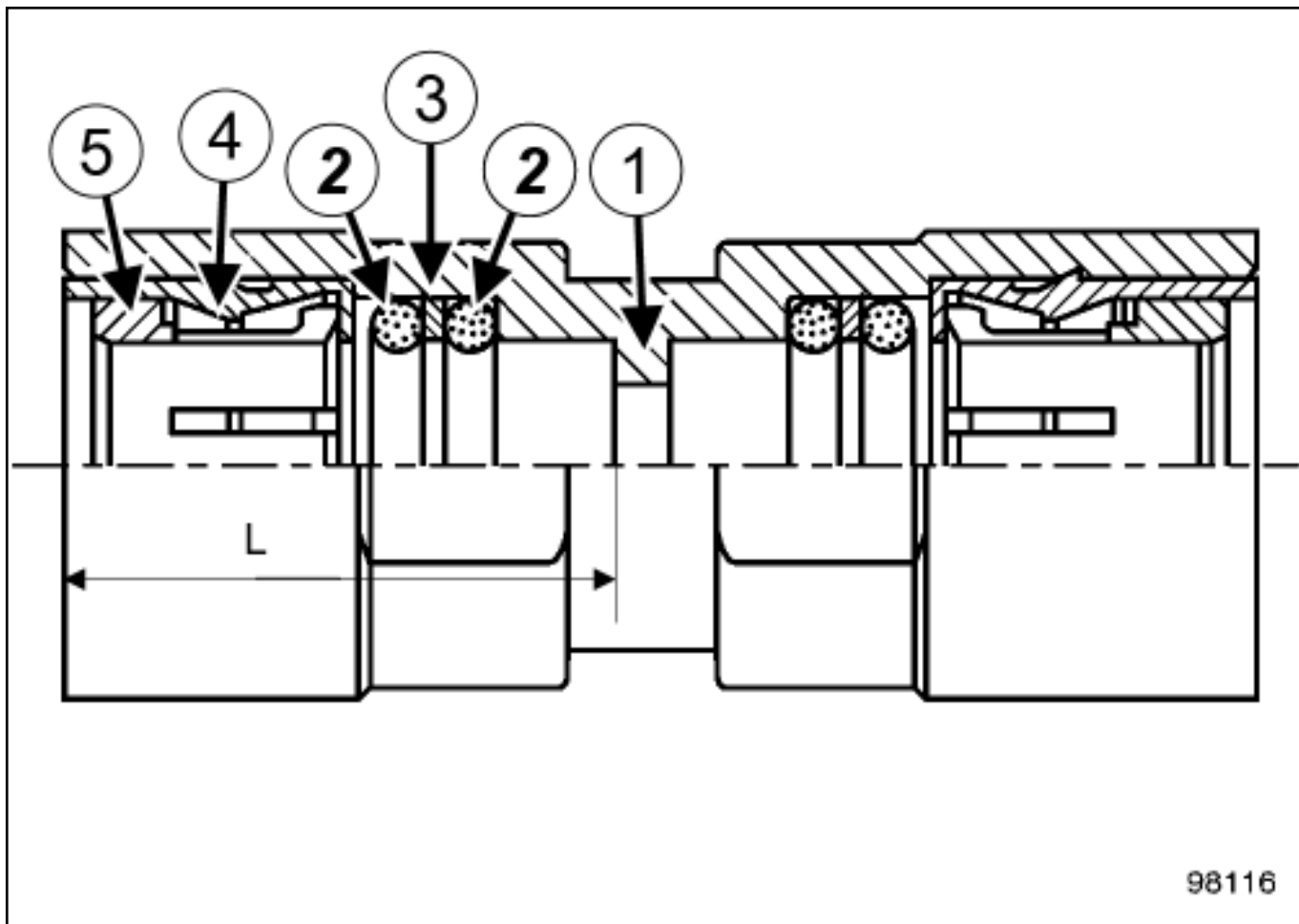
CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

1. PRESENTATION

It is possible to replace parts of the plastic pipes for petrol (fuel supply pipe going from the tank to the injection rail) and diesel fuel (supply pipe going from the tank to the fuel filter) without replacing them completely, the tools and parts required are:

- : Pliers for disconnecting fuel snap-fit connections, diameter 8 mm (Legris et Raymond). (**Mot. 1265**) pliers to disconnect the quick release unions of the fuel pipe diameter **8 mm** (Legris and Raymond),
- : Pliers for disconnecting fuel snap-fit connections, diameter 10 mm (Legris et Raymond). (**Mot. 1265-01**) pliers to disconnect the quick release unions of the fuel pipe diameter **10 mm** (Legris and Raymond),
- : Pipe-cutter, semi-rigid fuel pipes. tube cutter, semi-rigid fuel pipes,
- double union sold as a spare part diameter **8 mm** or **10 mm**,
- tube with length **1.5 m** and angled at **90°**, diameter **8 mm** or **10 mm**,
- the complete piping of the vehicle that will have to be cut according to requirements.



98116

■ (1) : Body

(2) : O-rings x2

(3) : Washer

(4) : Dowel

(5) : Clip

(L) : Length of insertion (L = 18.5 mm)

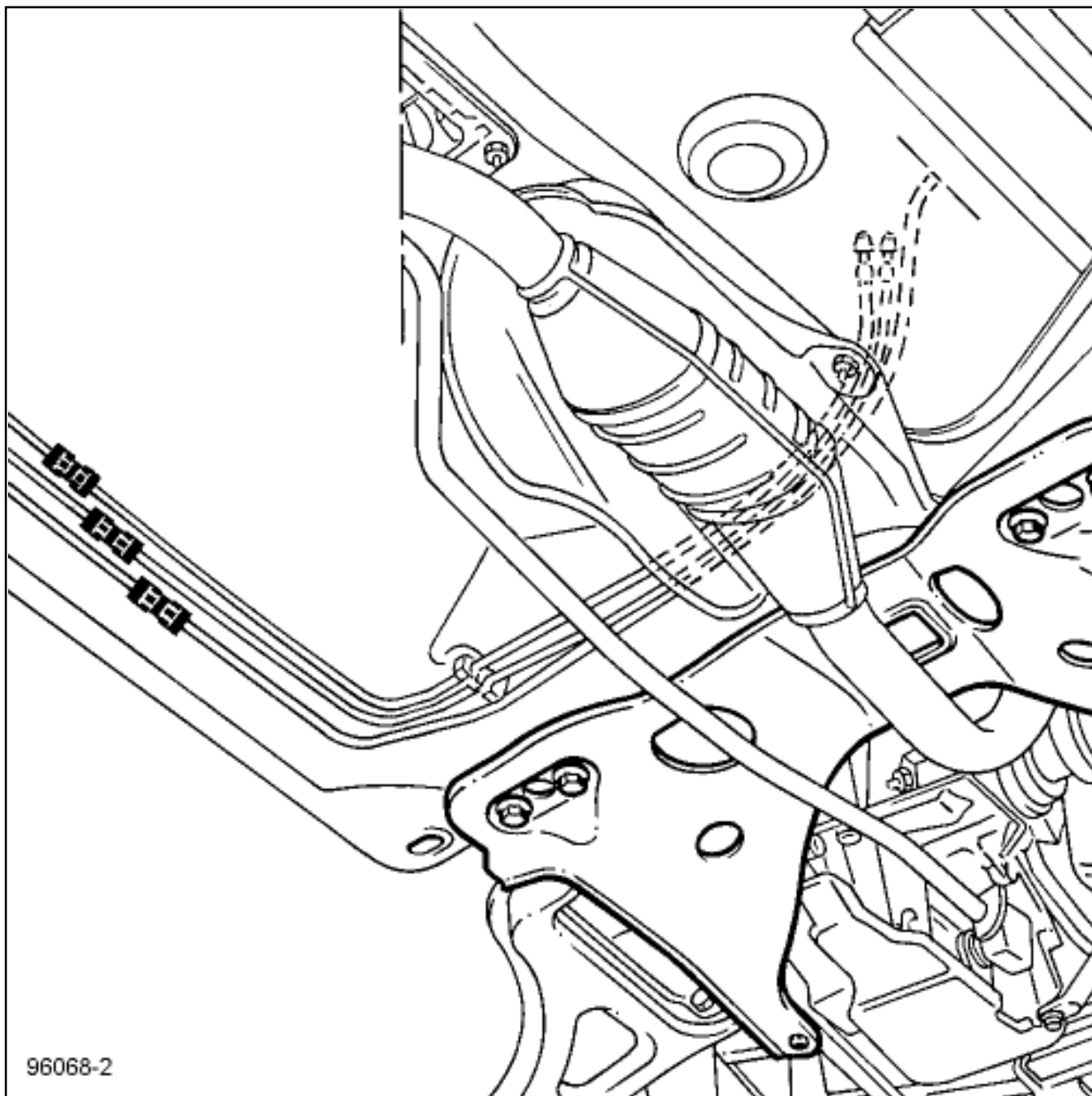
2. REPLACING PART OF THE PIPE

1- PIPE CUTTING

1) PREPARATION BEFORE CUTTING:

■ Carry out the repairs cold, after the engine has been stopped for an hour.

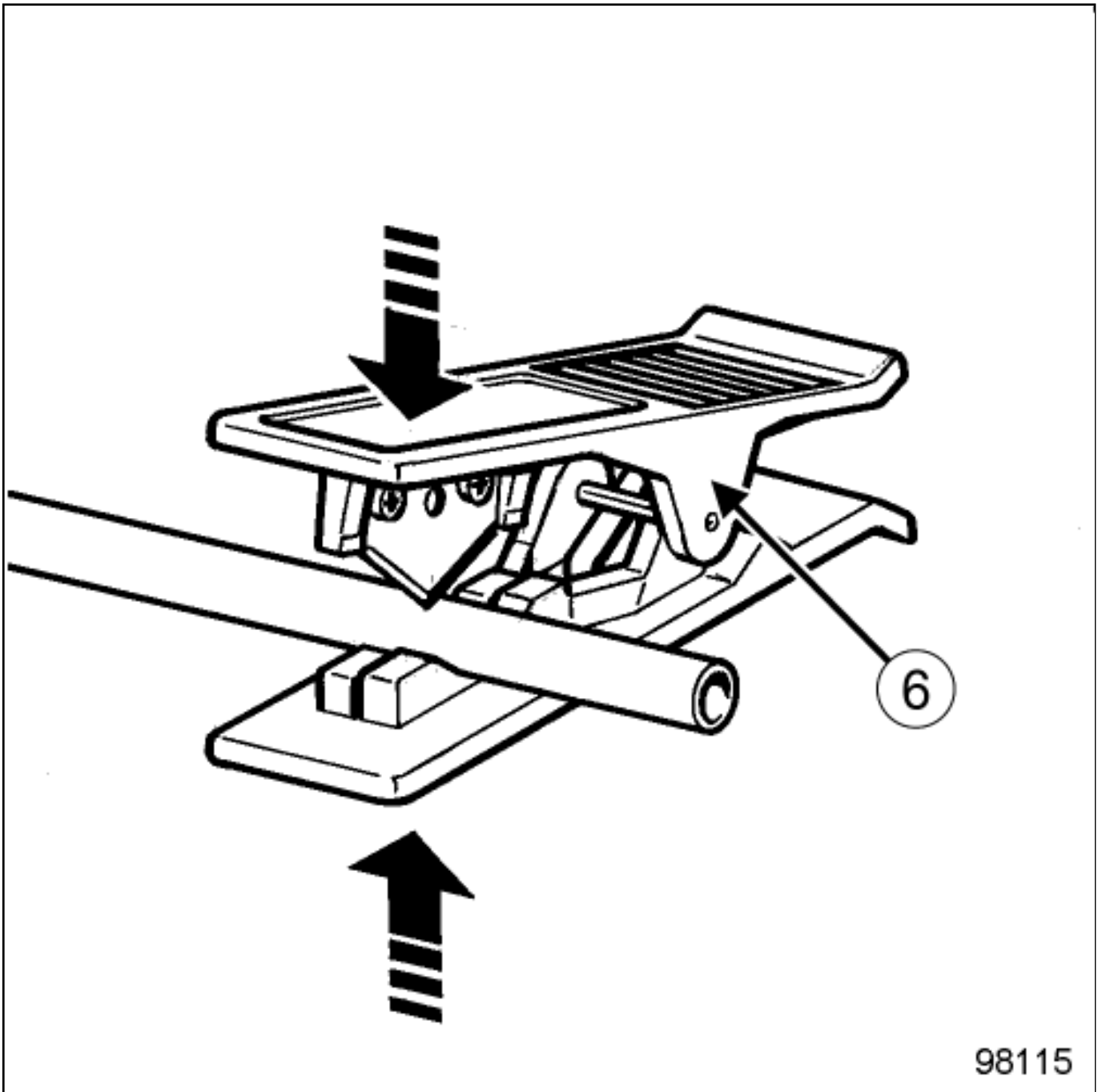
- Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- Measure the fuel pipe diameter for selecting the correct diameter for the parts and tools.
- If the cutting is done under body, to avoid siphoning the tank, for diesel pipes in particular, either they should be disconnected at the gauge module level or the oil in the tank should be emptied.
- The cut will determine the location of the union. The following rules should therefore be complied with in order to determine the location of the cut:
 - the unions must always be in a straight line,
 - only cut the pipes in straight lines,
 - do not install unions within **50 cm** of the catalytic converter, above very hot zones or electrical connections, on pipes in clearance between engine and body, in the zone between the engine and the catalytic converter.



96068-2

When installing the unions on parallel piping, make sure to cut off-set so that the unions are positioned off-set.

2) CUTTING OPERATION FOR THE PIPE TO BE REPLACED

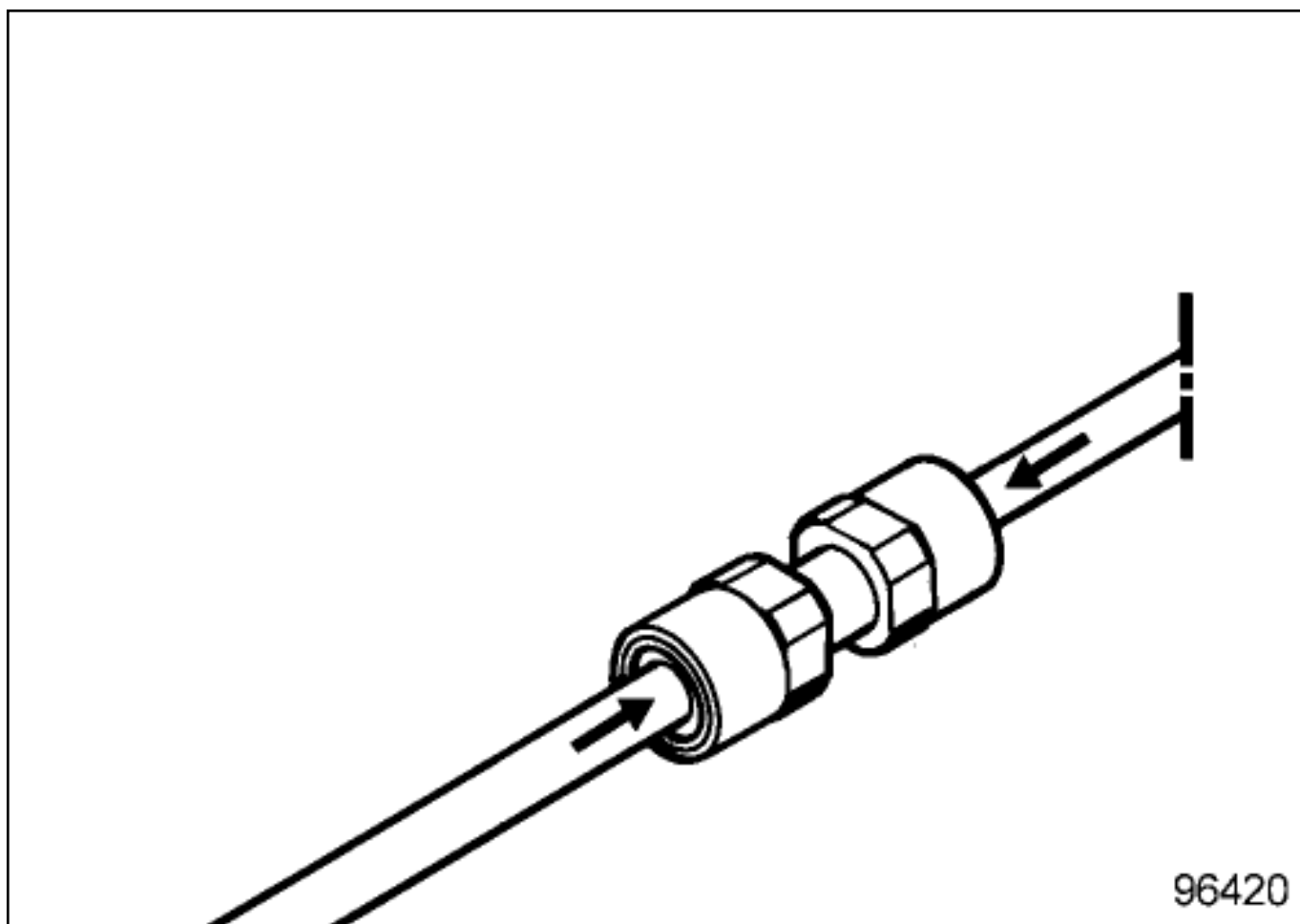


In order to avoid damaging the two union O-rings and to provide a perfect seal when fitting, perform the cutting operation using tool Pipe-cutter, semi-rigid fuel pipes.(6).

2- NEW PIPE CUTTING

- If the part to be replaced does not have any specific union and has a straight path, you can use the tube of length 1.5 m sold as a spare part. If the path is complex, use the standard pipe and cut it according to the part to be replaced.
- For a correct cut, place the pipe that you wish to replace onto the new pipe and mark the cut location.
- Cut the pipe using tool Pipe-cutter, semi-rigid fuel pipes. .

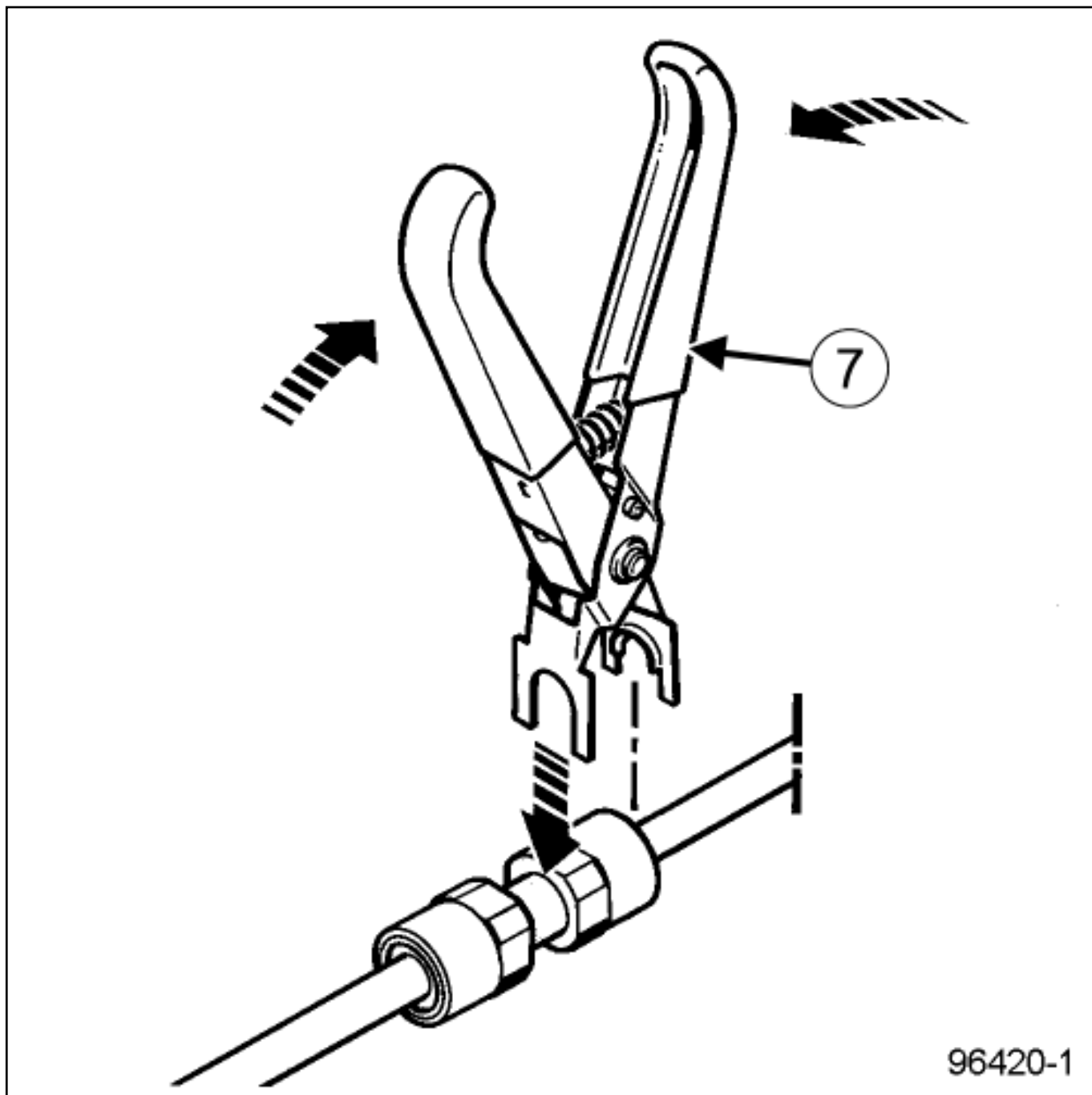
3- FITTING THE UNION



- Fit directly on the corresponding piping and press the piping down well.
- Connect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- After every union installation, check the seal:
 - for pressure pipes (petrol supply), run the engine and observe for **5 min.** to check that there are no drips around the repaired connections.
 - for vacuum pipes (Diesel supply), run the engine and observe for **5 min** to check that no air bubbles appear at the high pressure pump outlet, through the transparent pipes.

3. REMOVAL OF THE UNIONS

- ❑ Carry out the repairs cold, after the engine has been stopped for an hour.
- ❑ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ❑ If the cutting is done under body, to avoid siphoning the tank, for fuel pipes in particular, either they should be disconnected at the gauge module level or the oil in the tank should be emptied.



96420-1

- ❑ Remove the union using pliers Pliers for disconnecting fuel snap-fit connections, diameter 8 mm

(Legris et Raymond).(Mot. 1265) and Pliers for disconnecting fuel snap-fit connections, diameter 10 mm (Legris et Raymond).(Mot. 1265-01) (7) which fit the pipe diameters.



Repair-11x03x01x02-01x22-1-1-1.xml



XSL version : 3.02 du 22/07/11

FUEL TANK: DRAINING



Note, one or more warnings are present in this procedure



Equipment required

pneumatic transfer pump for fuels



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

- During this operation, be sure to:
 - refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.



WARNING

Wear leaktight gloves (Nitrile type) for this operation.



WARNING

Wear goggles with side protectors for this operation.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

DRAINING



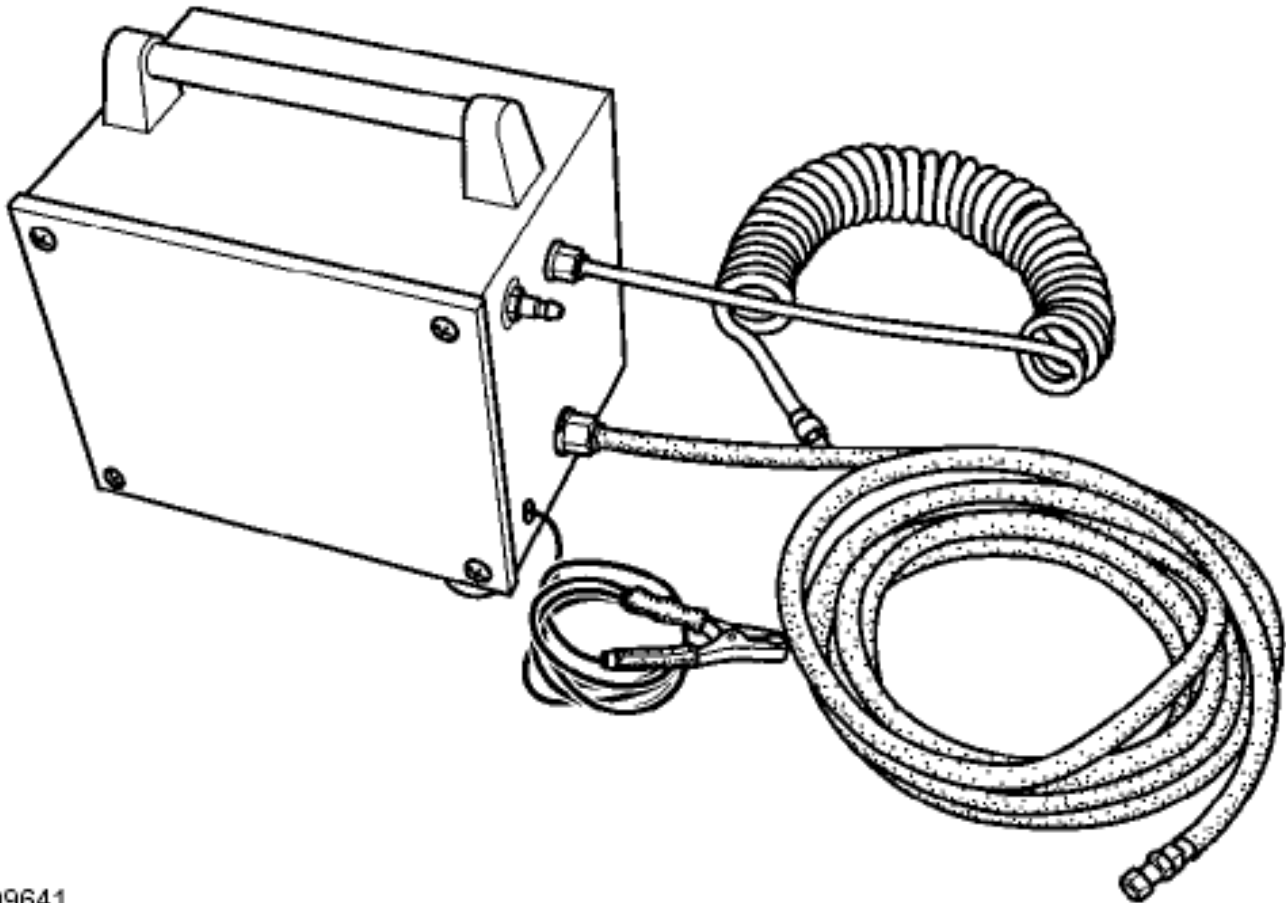
Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



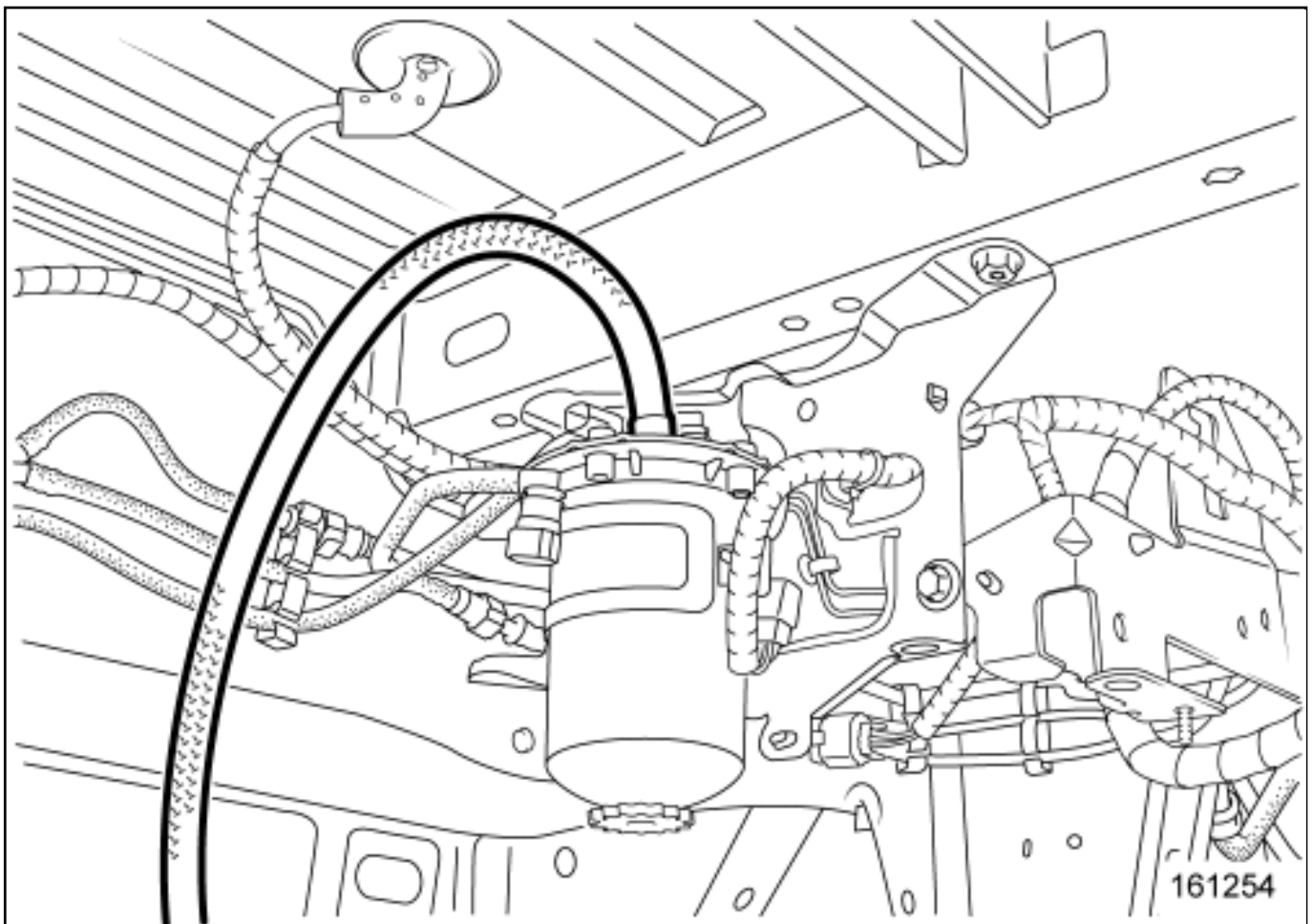
Disconnect the battery (see **Battery: Removal - Refitting**) .



Disconnect the fuel supply pipe from the fuel filter.



99641



- Connect a pneumatic transfer pump for fuel to the fuel filter.

- Drain the fuel tank.

REFITTING

- Disconnect the pneumatic transfer pump for fuel from the fuel filter.

- Connect the fuel supply pipe to the fuel filter.

- Connect the battery (see **Battery: Removal - Refitting**) .



Repair-11x08x01-01x74-1-19-1.xml



XSL version : 3.02 du 22/07/11

FUSES: LIST AND LOCATION OF COMPONENTS

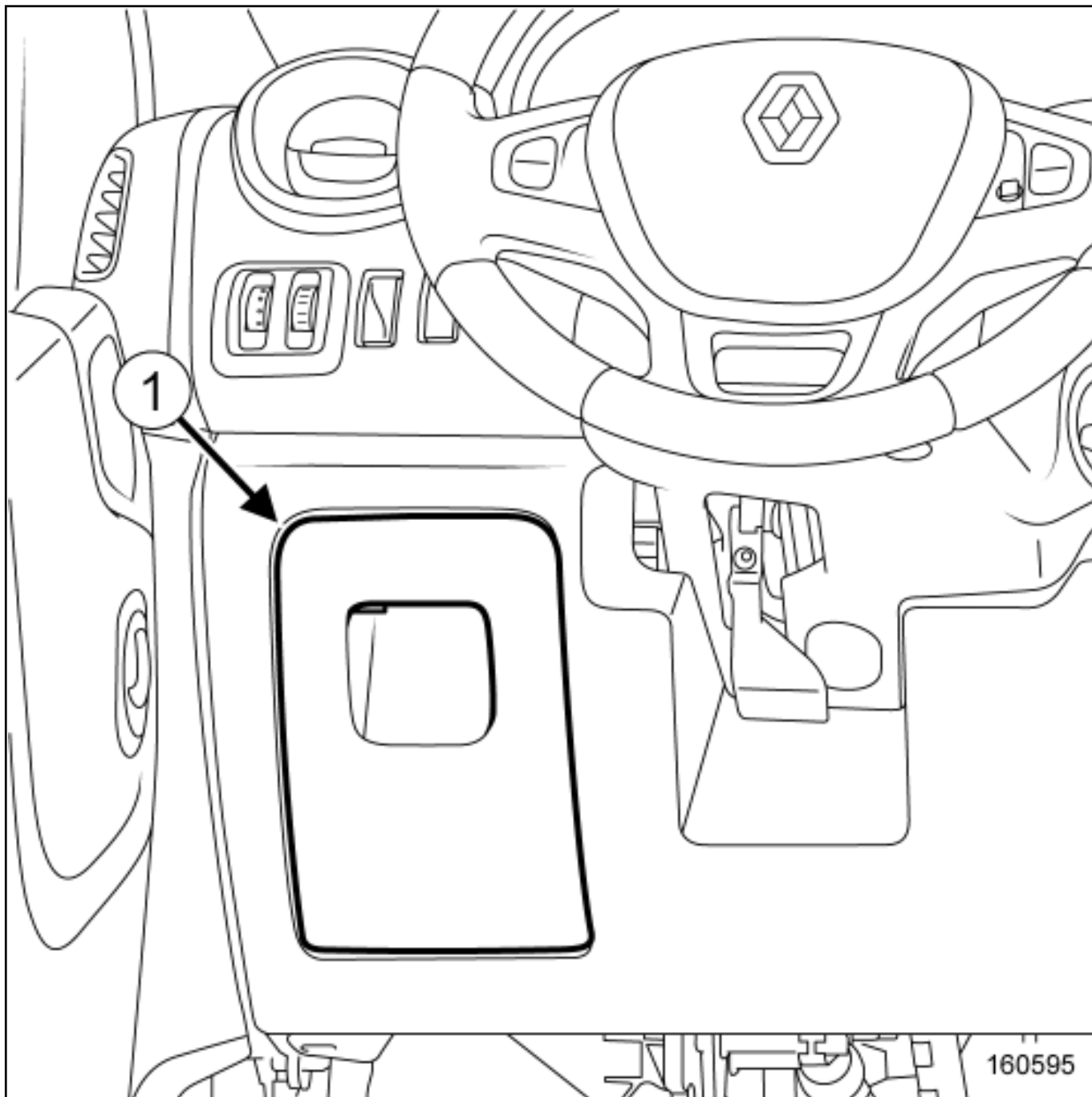
1. LIST OF COMPONENTS

1- THE VEHICLE HAS SEVERAL FUSE BOXES:

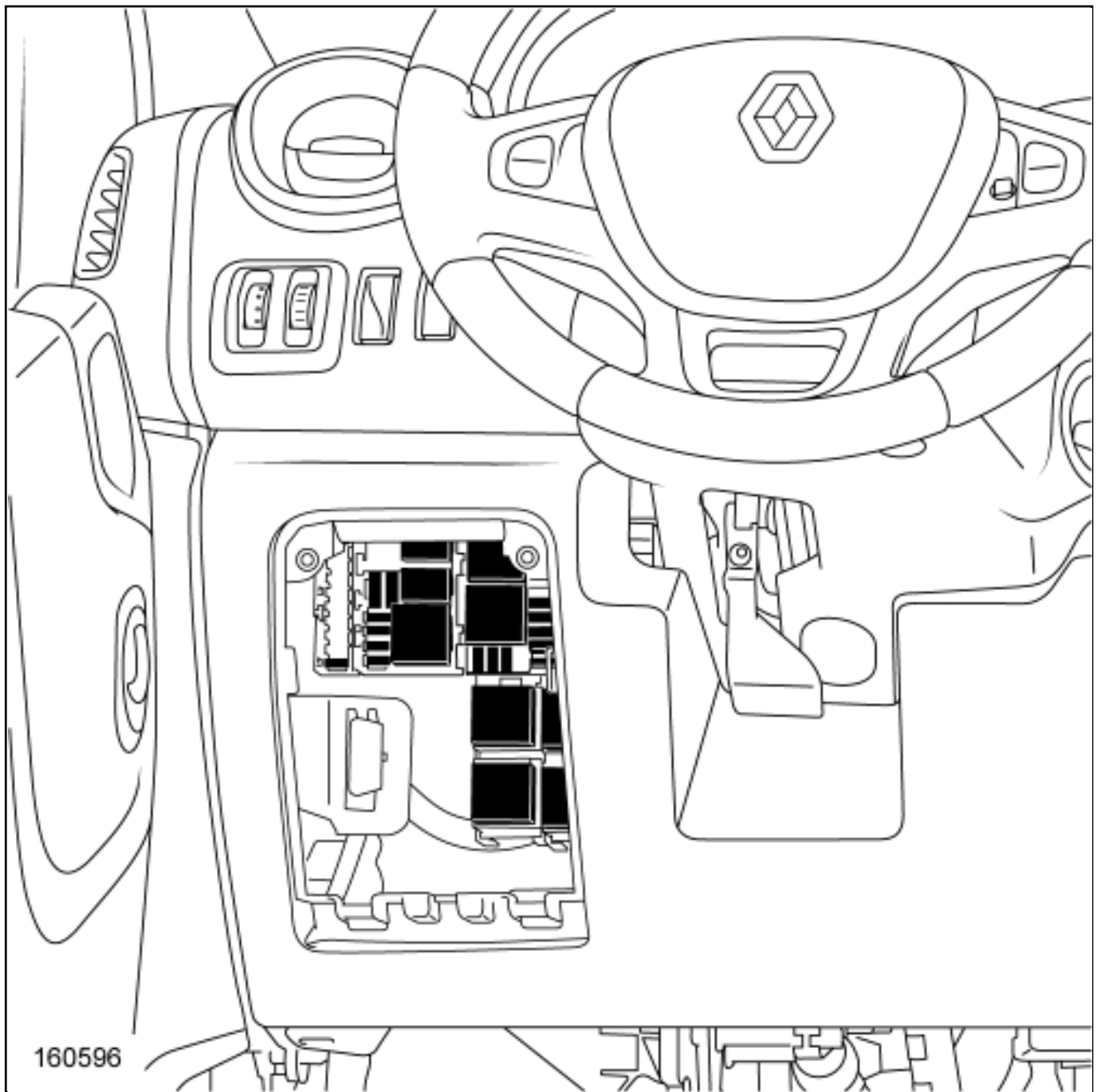
- passenger compartment fuse and relay box
- engine fuse and relay box
- additional relay unit

2. LOCATION OF COMPONENTS

1- PASSENGER COMPARTMENT FUSE AND RELAY BOX



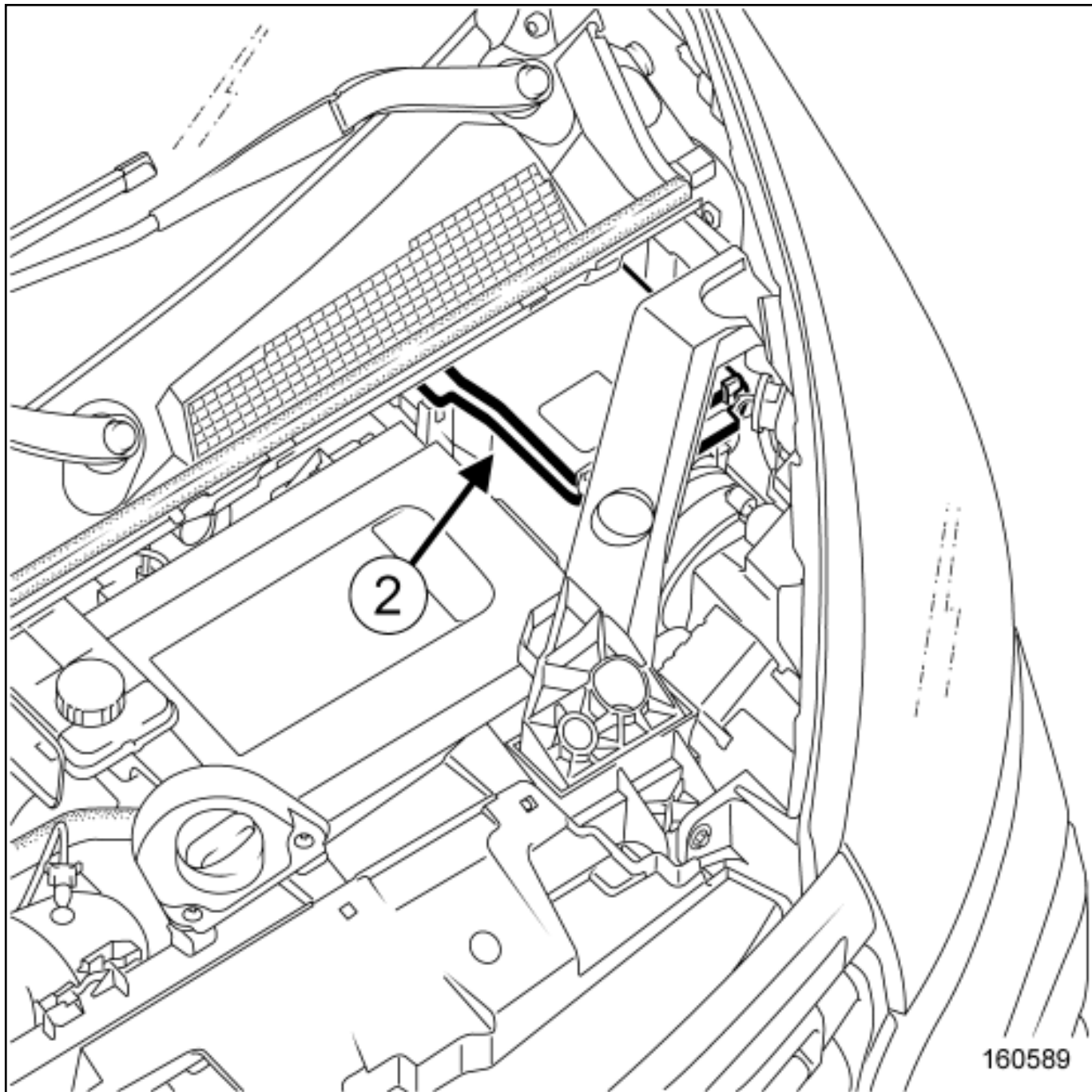
160595



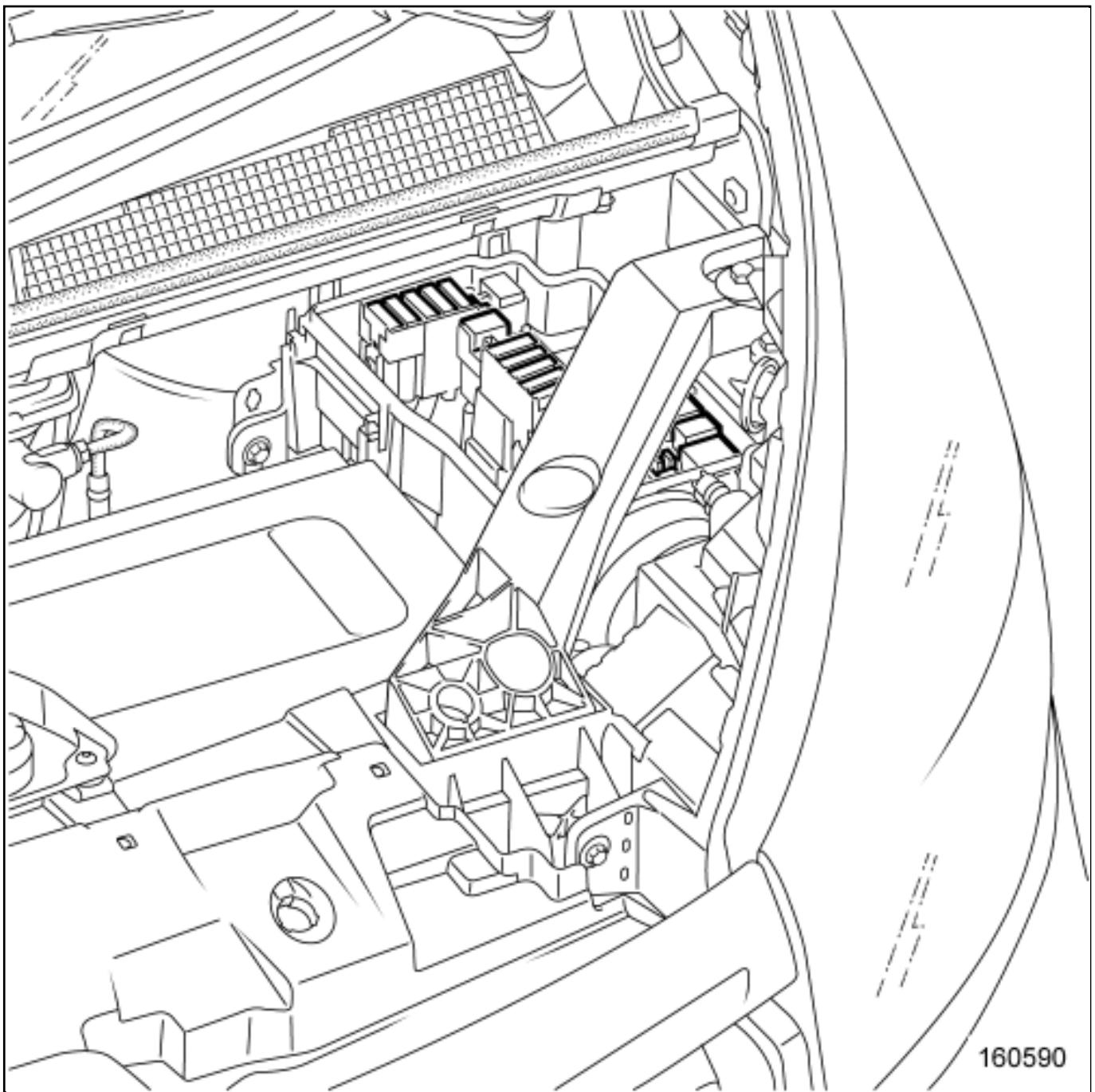
160596

Unclip the cover(1) to access the passenger compartment fuse and relay box.

2- ENGINE FUSE AND RELAY BOX

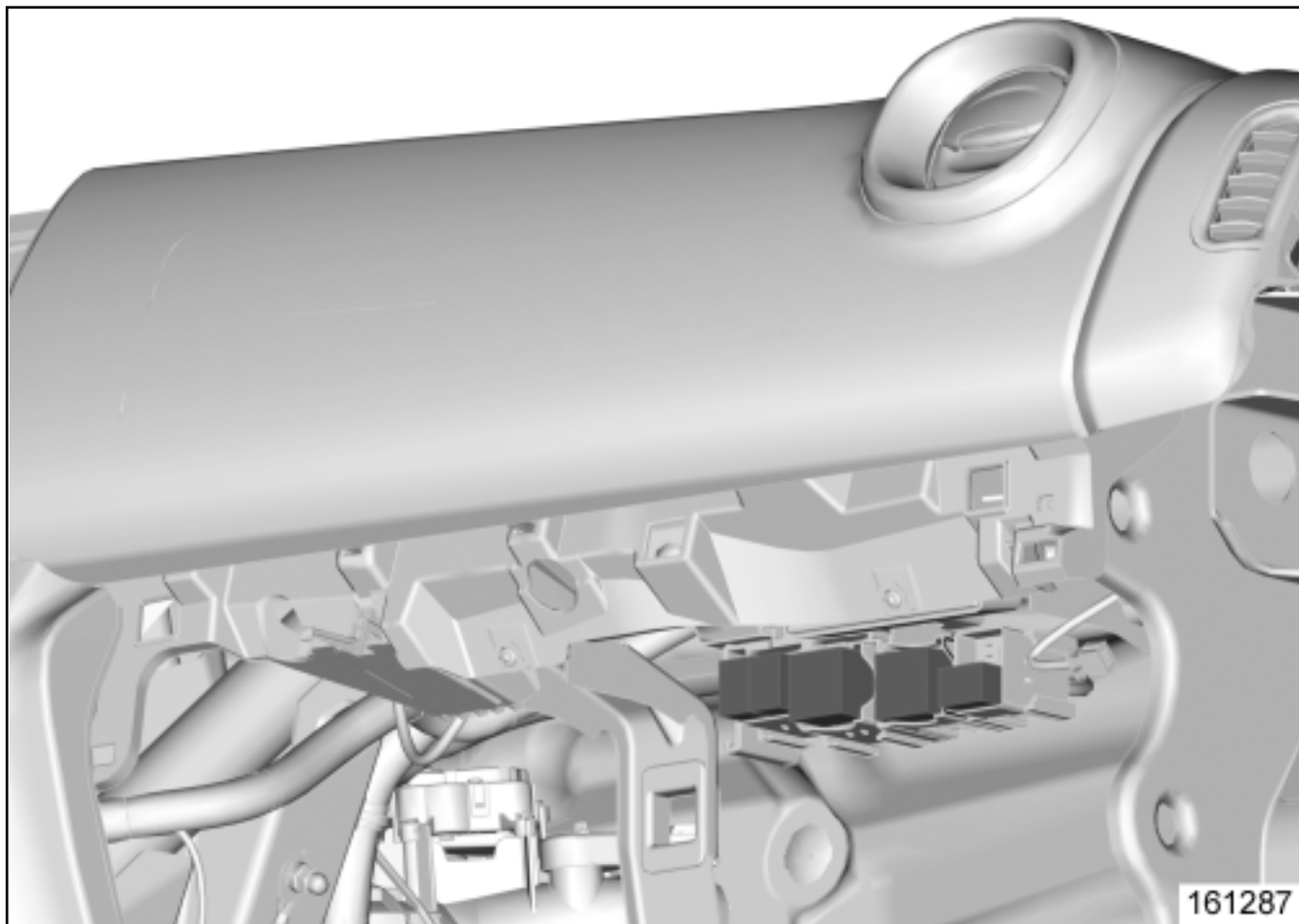


160589



Unclip the cover(2) to access the engine fuse and relay box.

3- ADDITIONAL RELAY UNIT



161287

Remove the glovebox(see **Dashboard assembly: Exploded view**) to access the additional relay unit.



Repair-32x05x01x26-02x51-1-26-1.xml



XSL version : 3.02 du 22/07/11

Marks	Designations	Informations
1	Nut	
2	Bolt	
3	Gearbox	Gearbox assembly: Exploded view
4	Gear lever	(see 37A, Mechanical component controls, Gear control unit: Removal - Refitting)
5	Nut	
6	Centre floor front extension	
7	Gear control cable	



GEAR CONTROL UNIT: REMOVAL - REFITTING

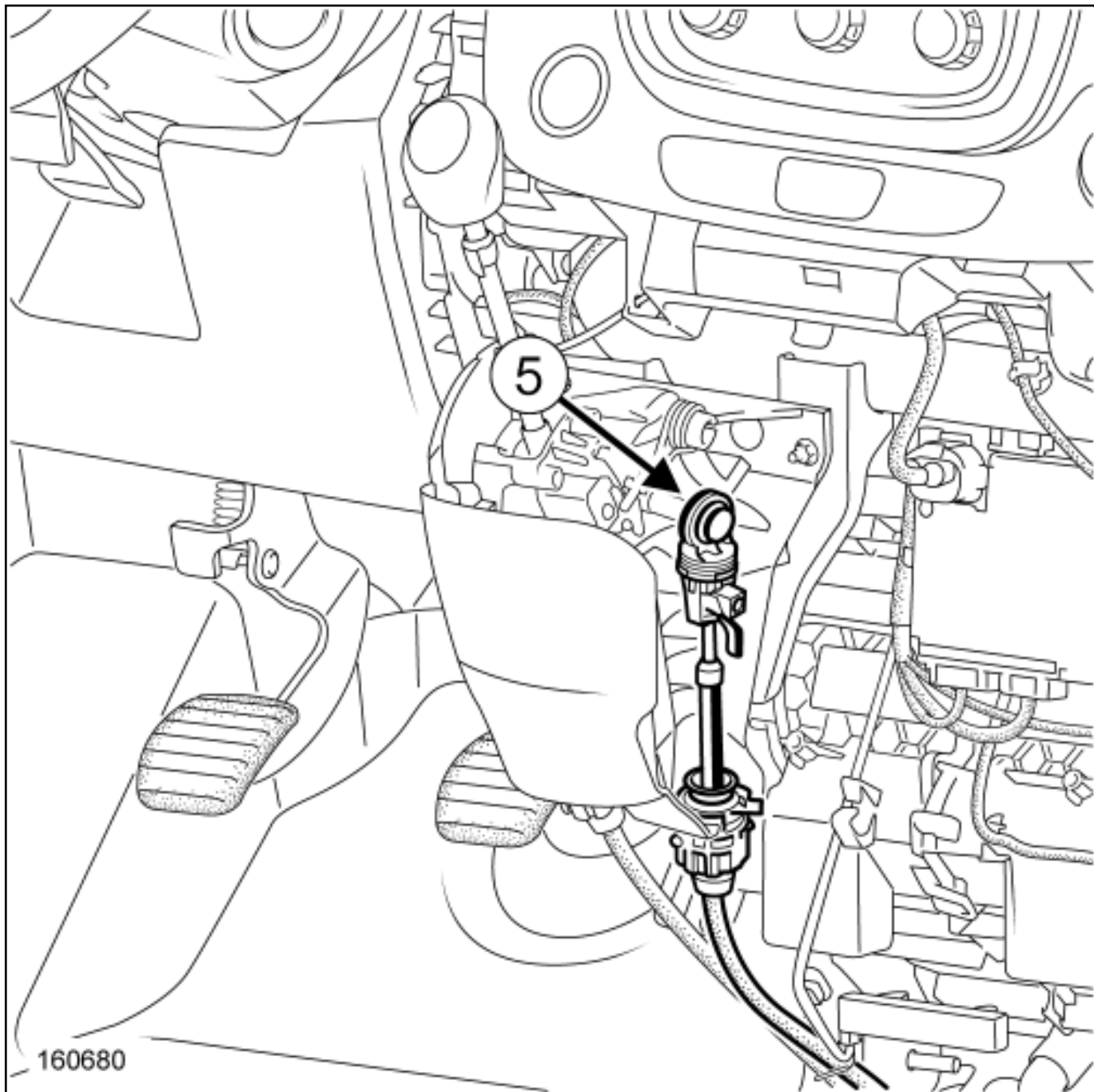
Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 37A, Mechanical component controls, Gear control assembly: Exploded view\)](#) .

REMOVAL

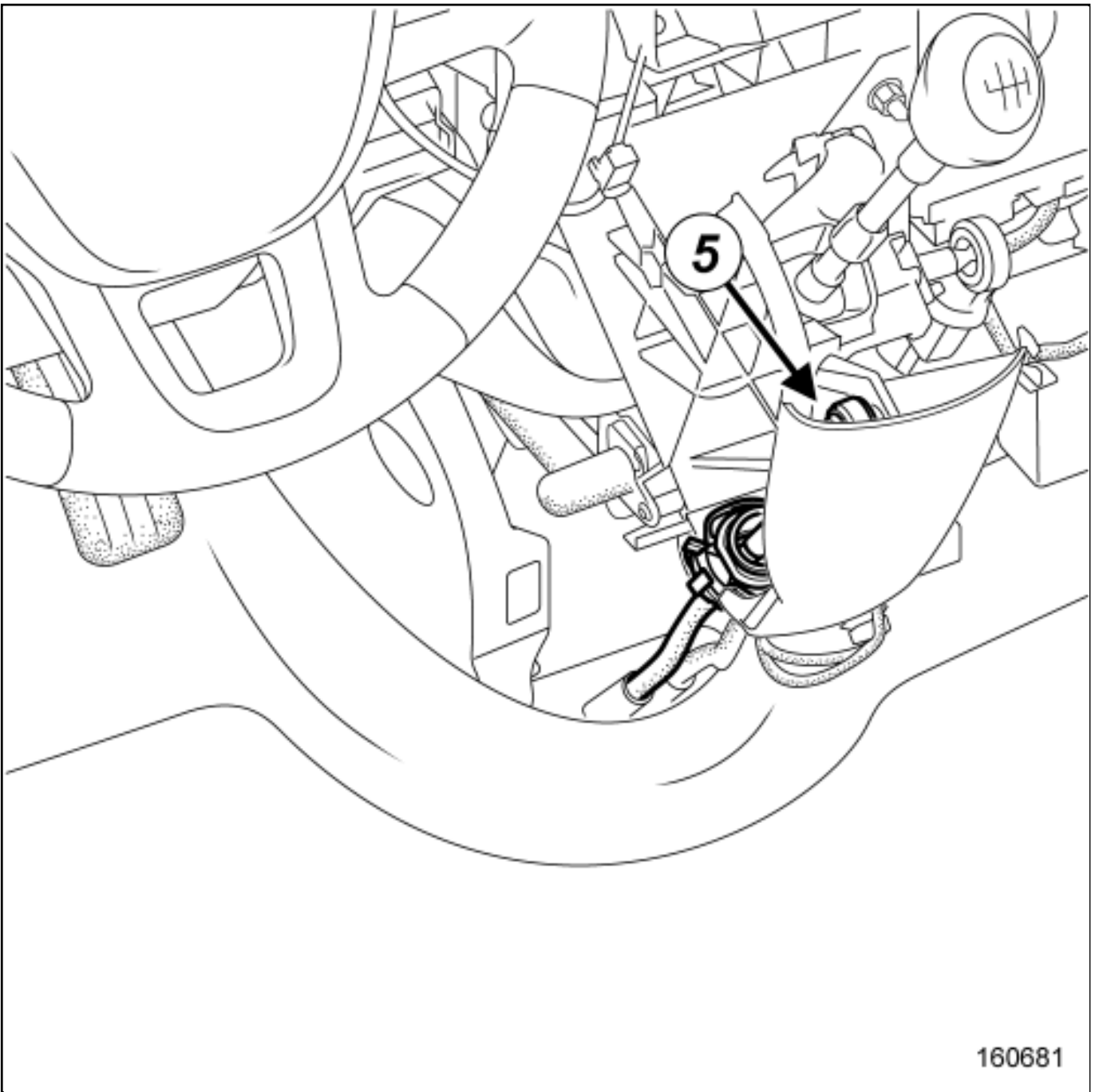
1. REMOVAL PREPARATION OPERATION

- ▣ Remove the centre console[\(see Centre console: Removal - Refitting\)](#) (57A, Interior equipment).

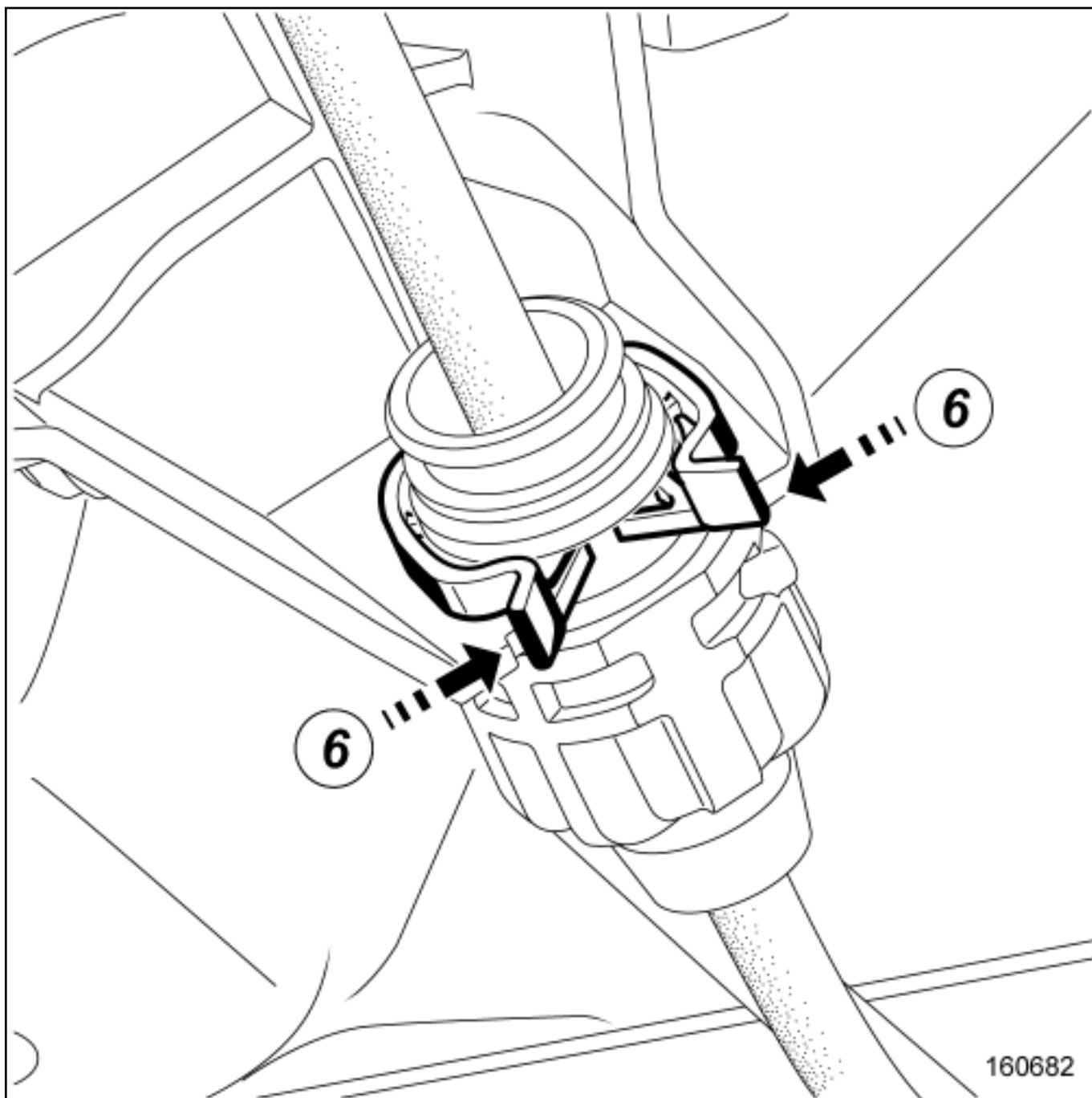
2. REMOVAL OPERATION



160680



160681



Unclip:

-
- the anchoring ball joints(5) using an open-jawed spanner,
- the gear control cables by pressing the tabs(6) .

Remove the gear control unit(see 37A, Mechanical component controls, Gear control assembly: Exploded

[view](#)).

REFITTING



Proceed in the reverse order to removal.



Adjust the gear control cables([see 37A, Mechanical component controls, Mechanical gear control cable: Adjustment](#)) .



Check that the system and gear selection are working correctly.



Repair-12x10-01x37-1-44-1.xml



XSL version : 3.02 du 22/07/11

GEARBOXSHAFT:ADJUSTMENT



Note, one or more warnings are present in this procedure



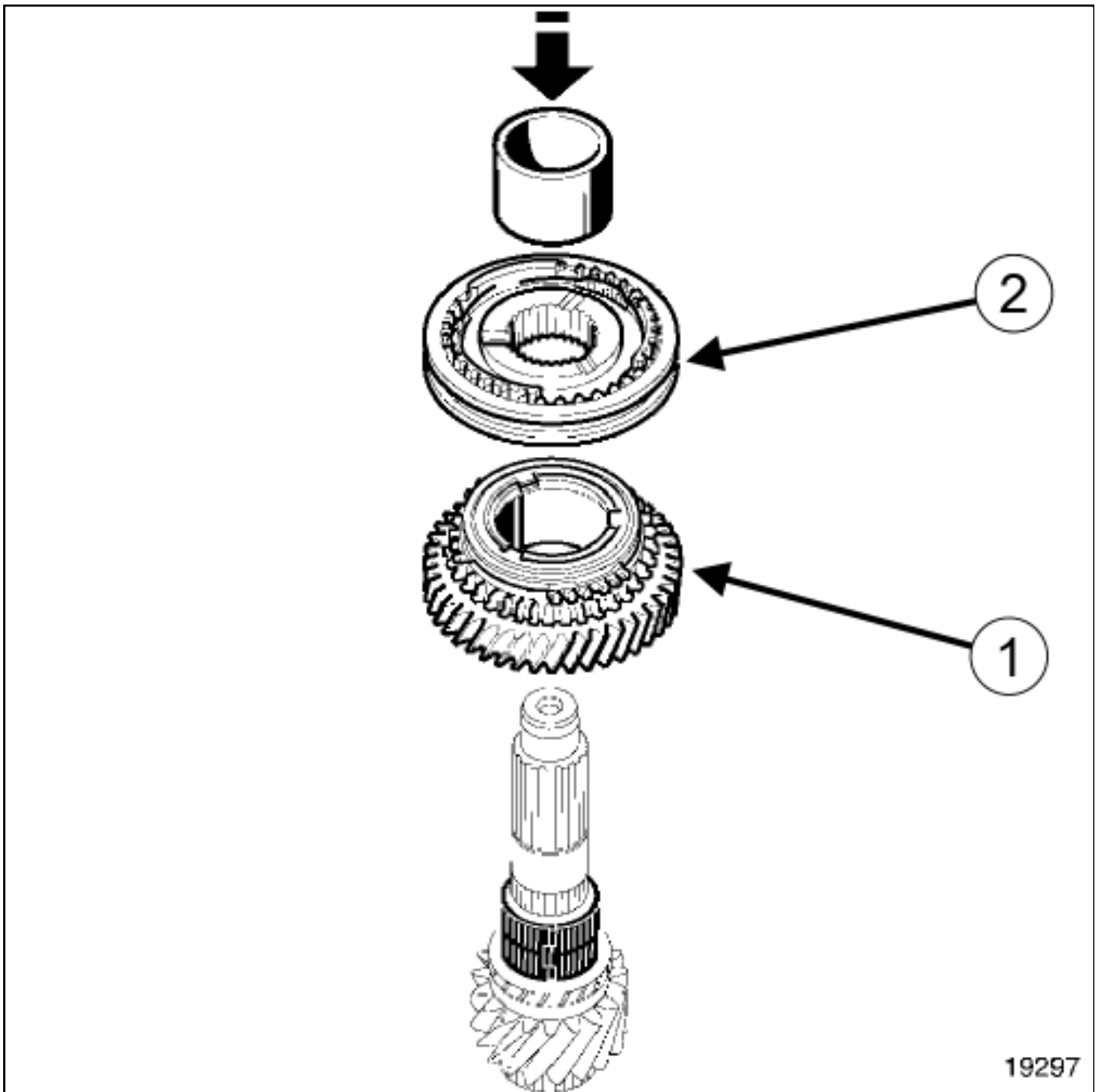
WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair([see 21A, Manual gearbox , Manual gearbox: Precautions for the repair](#)) .

1. ADJUSTMENT PREPARATION OPERATION

- Remove the gearbox([Manual gearbox: Removal - Refitting](#)) .
- Position the gearbox on the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .
- Remove:
 - the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) ,
 - the gearbox shafts([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) .
- Strip down the output shafts([see 21A, Manual gearbox , Output shaft: Stripping - Rebuilding](#)) .
- Use SURFACE CLEANER([Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean:
 - the shafts,
 - the shaft mating surfaces,
 - the mechanism housing.

2. ADJUSTMENT OPERATION



Note:



Replacing parts such as idle sprocket support rings(1) or sliding hubs(2) needs a so-called "comparative" setting change, described below.

- Measure the height dimension of the original part (to be replaced) and the new part.
- If the difference between the two parts is greater than **0.025 mm**, work on the adjusting shim:
 - increasing the thickness of the adjusting shim if the height of the new part is less than the old part,
 - decreasing the thickness of the adjusting shim if the height of the new part is greater than the old part.

1- EXAMPLE OF REPLACING SPROCKET SUPPORTING RINGS AND SLIDING HUBS ON THE SHORT SECONDARY SHAFT:



Fourth gear bearings:

- Original part: 30.610 mm,
- New part: 30.612 mm,
- Difference: +0.002 mm.



Reverse gear bearings:

- Original part: 30.610 mm,
- New part: 30.611 mm,
- Difference: +0.001 mm.



Third - fourth synchroniser hub:

-
- Original part: 17.285 mm,
-
- New part: 17.313 mm,
-
- Difference: +0.028 mm.



Reverse gear synchroniser hub:

-
- Original part: 12.242 mm,
-
- New part: 12.243 mm,
-
- Difference: +0.001 mm.



Adjusting shim:

-
- Original part: 2.10 mm,
-
- New part: $2.10 - 0.028 = 2.072$ mm,
-
- Difference: -0,028 mm.

Given that shims vary by 0.020mm, in this example the shim required is the 2.08mmshim.

3. FINAL OPERATION



Rebuild the output shafts([see 21A, Manual gearbox , Output shaft: Stripping - Rebuilding](#)) .



Refit:



the gearbox shafts([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,



the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .



Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .



Refit the gearbox([Manual gearbox: Removal - Refitting](#)) .



Repair-12x01x04x01-01x67-1-2-1.xml



GEARBOX SHAFT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

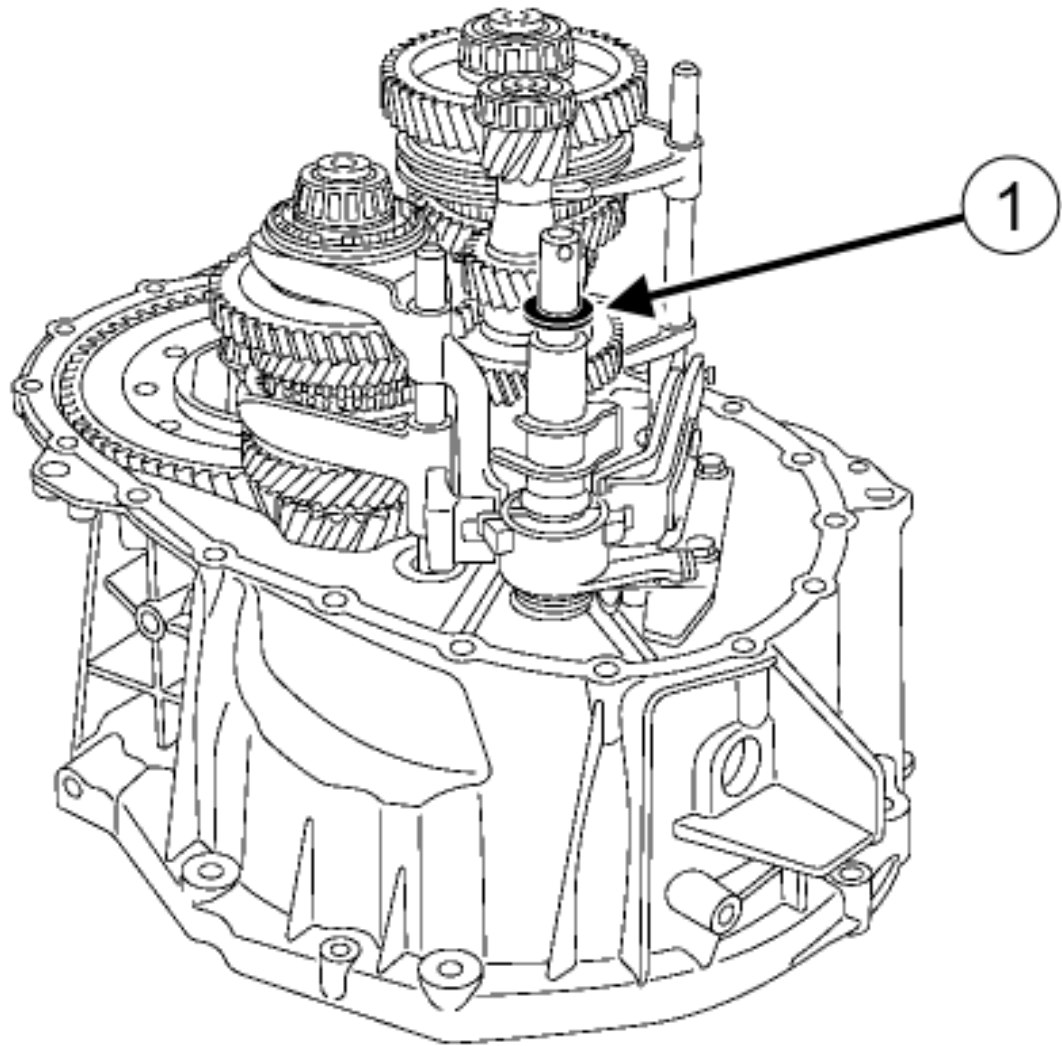
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair([see 21A, Manual gearbox , Manual gearbox: Precautions for the repair](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Remove the gearbox([Manual gearbox: Removal - Refitting](#)) .
- ❑ Position the gearbox on the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .
- ❑ Remove the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .

2. OPERATION FOR REMOVAL OF PART CONCERNED



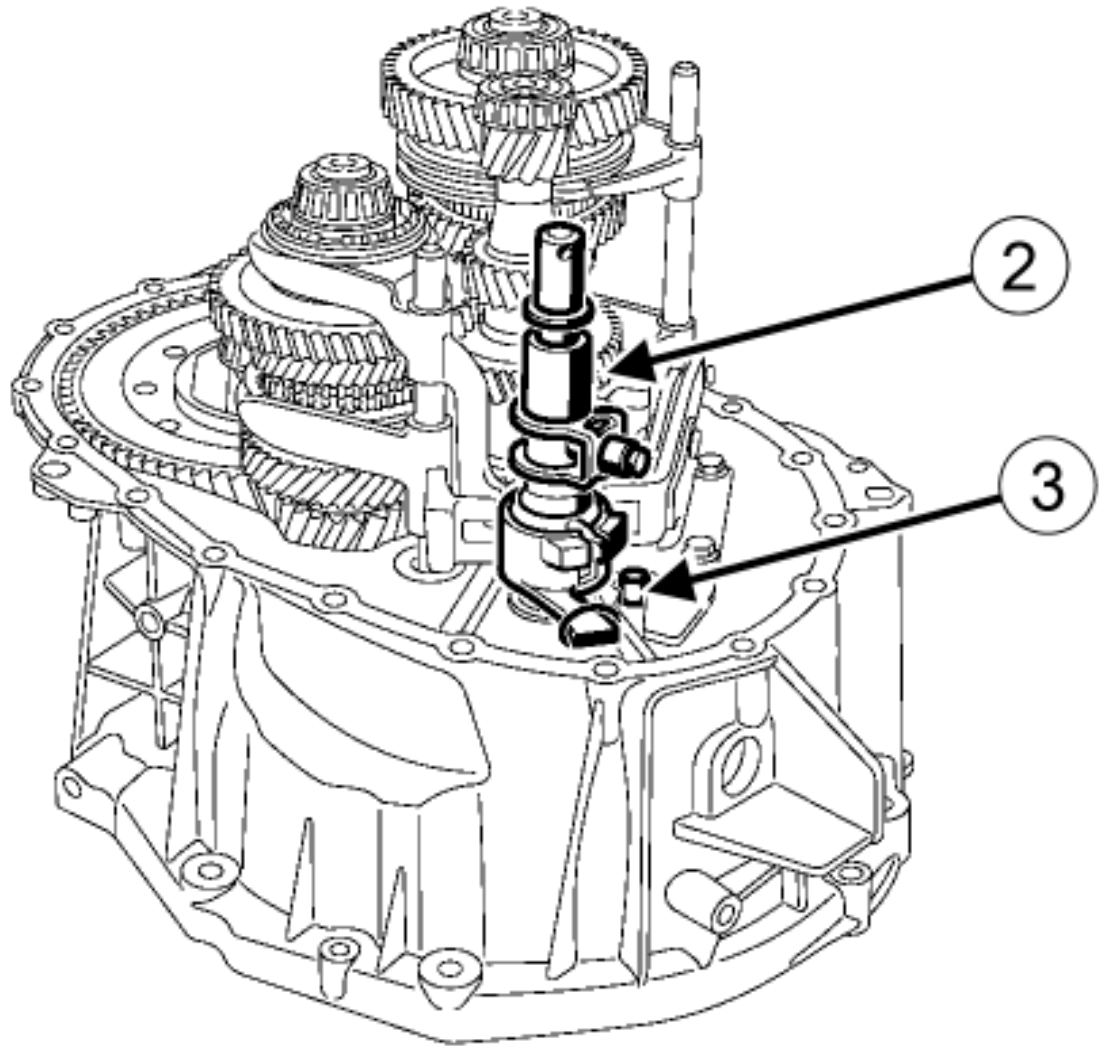
105539



Note:

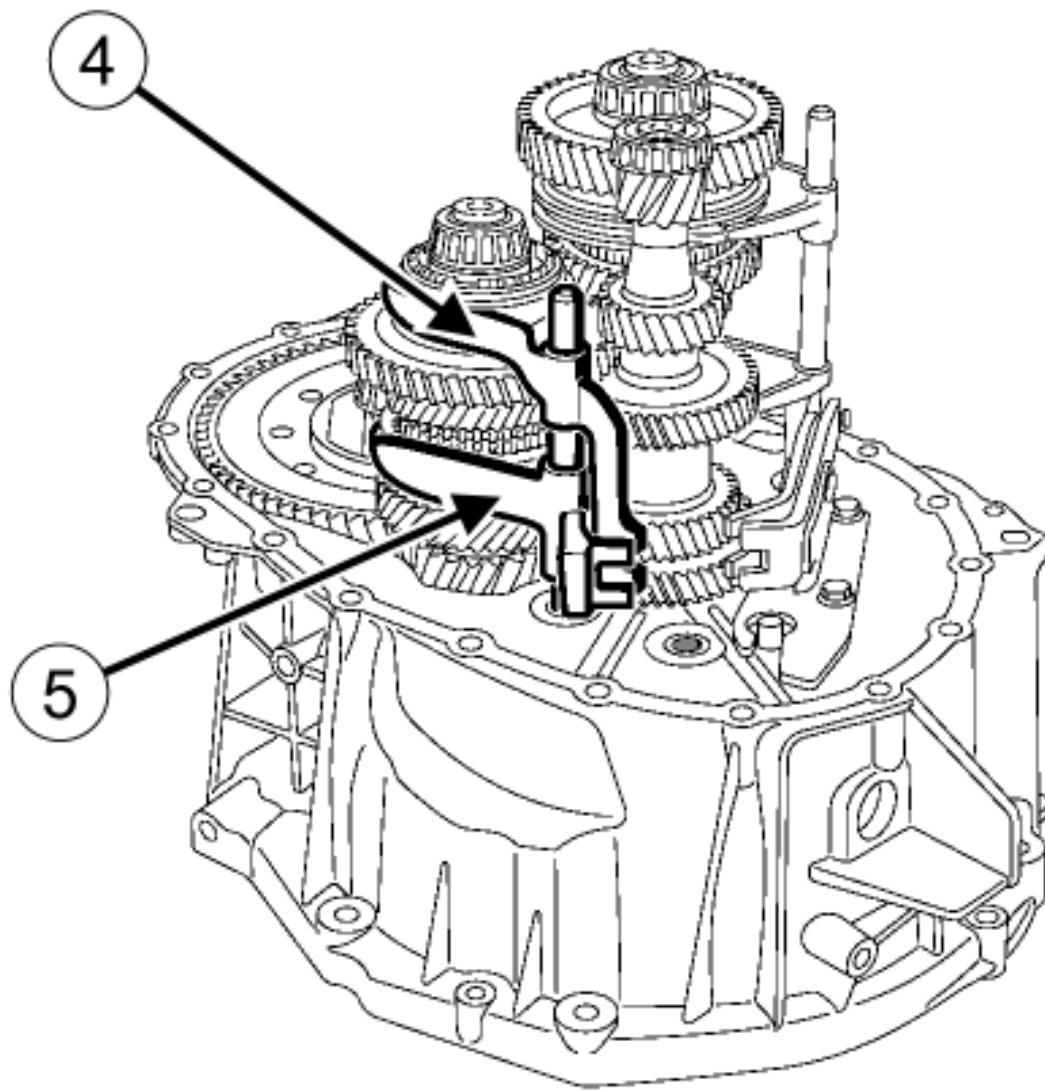
The washer is supplied with the selector module, it can stay attached to the housing.

- Recover the adjusting washer(1) of the selector module.



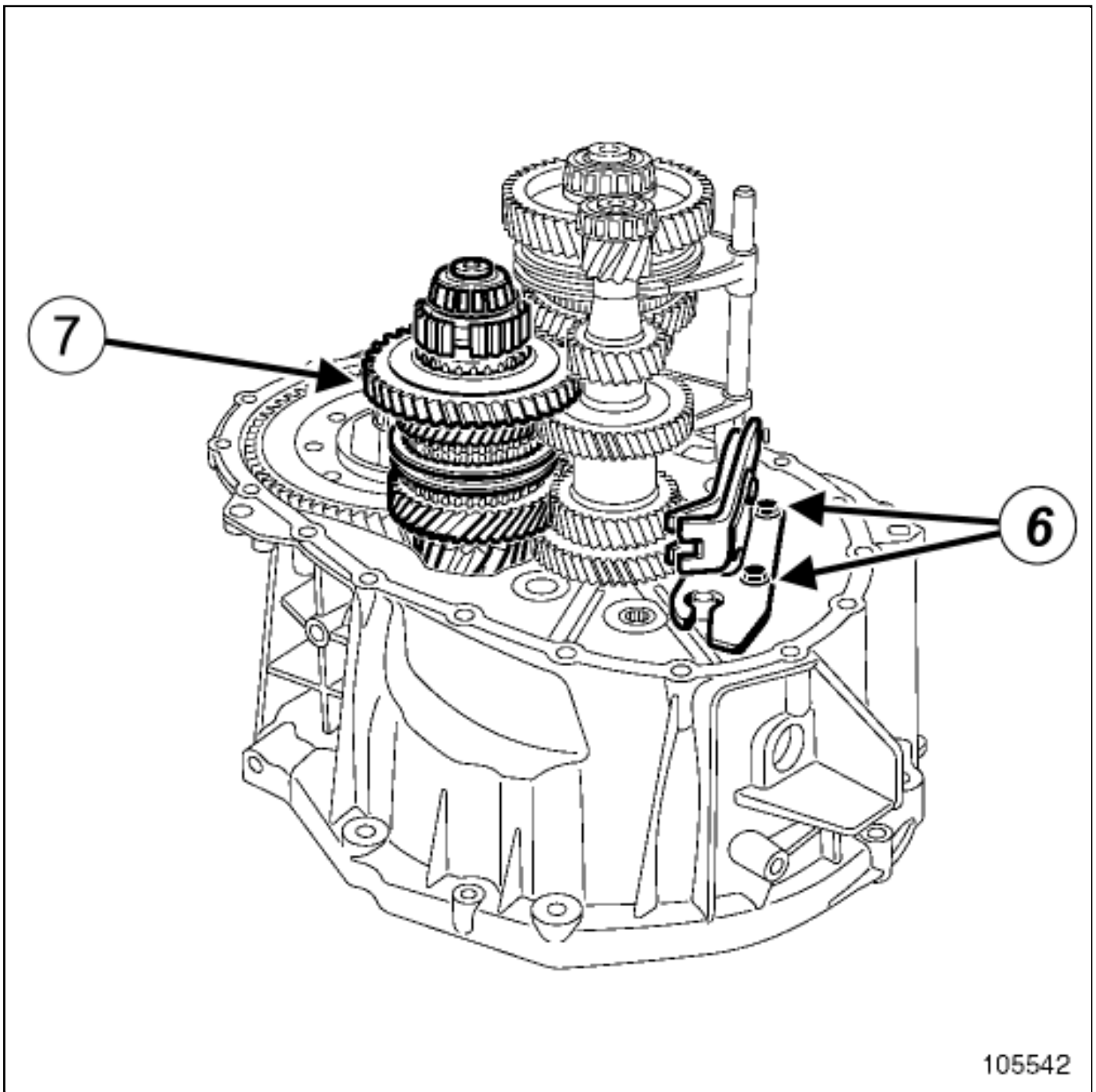
105540

▣ Pivot the control module(2) while disengaging the spring above the return bushing(3) and remove the module from the top.



105541

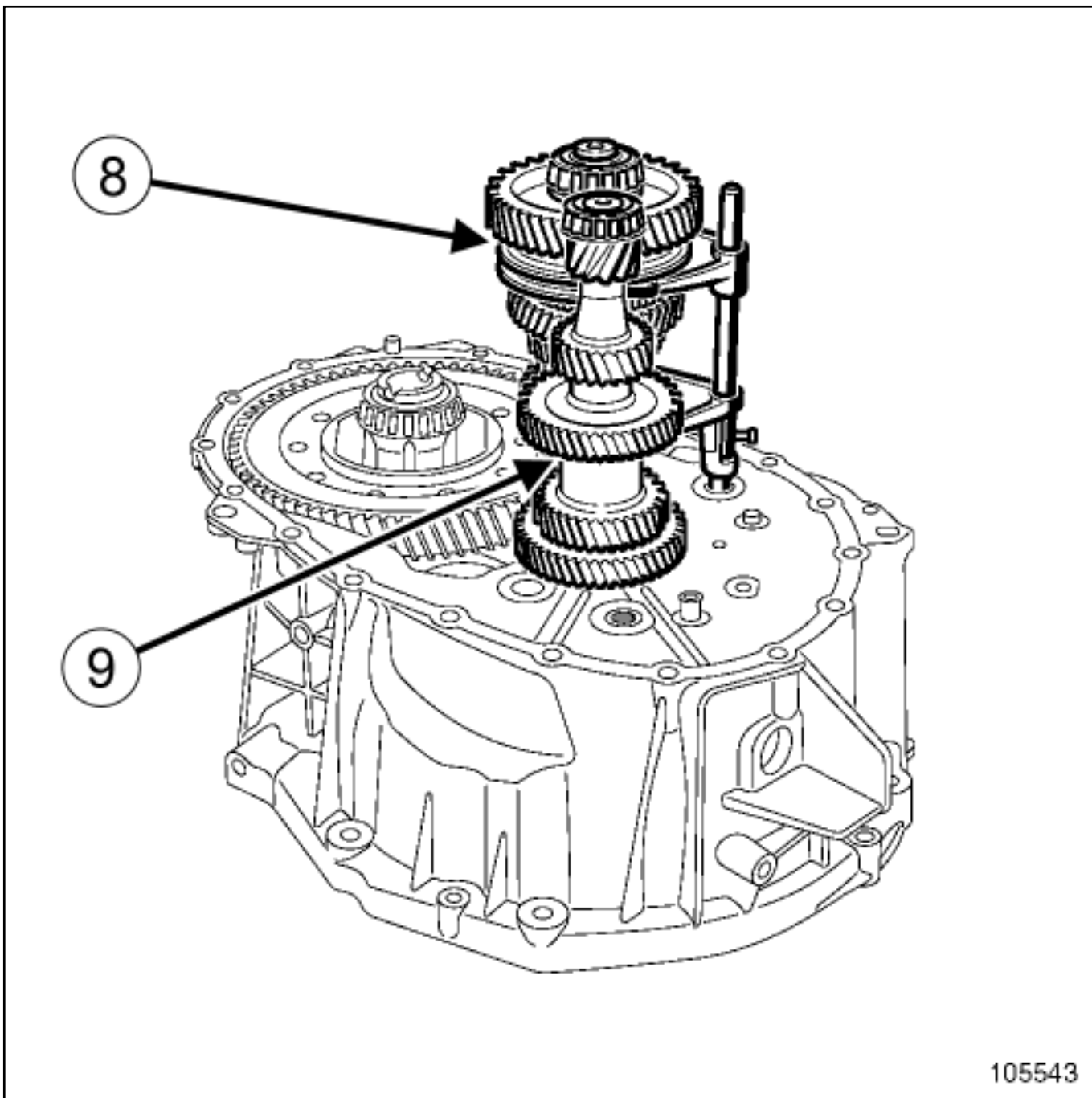
Remove the reverse gear shaft and selector assembly(4) and the third - fourth gear fork(5) .



105542

Remove:

-
- the bolts(6) from the control reverse switch,
- the control reverse switch,
- the short output shaft(7) .



Remove the long output shaft assembly(8) with the fork and the input shaft(9) .

REFITTING

1. REFITTING PREPARATION OPERATION

Parts always to be replaced if removed:

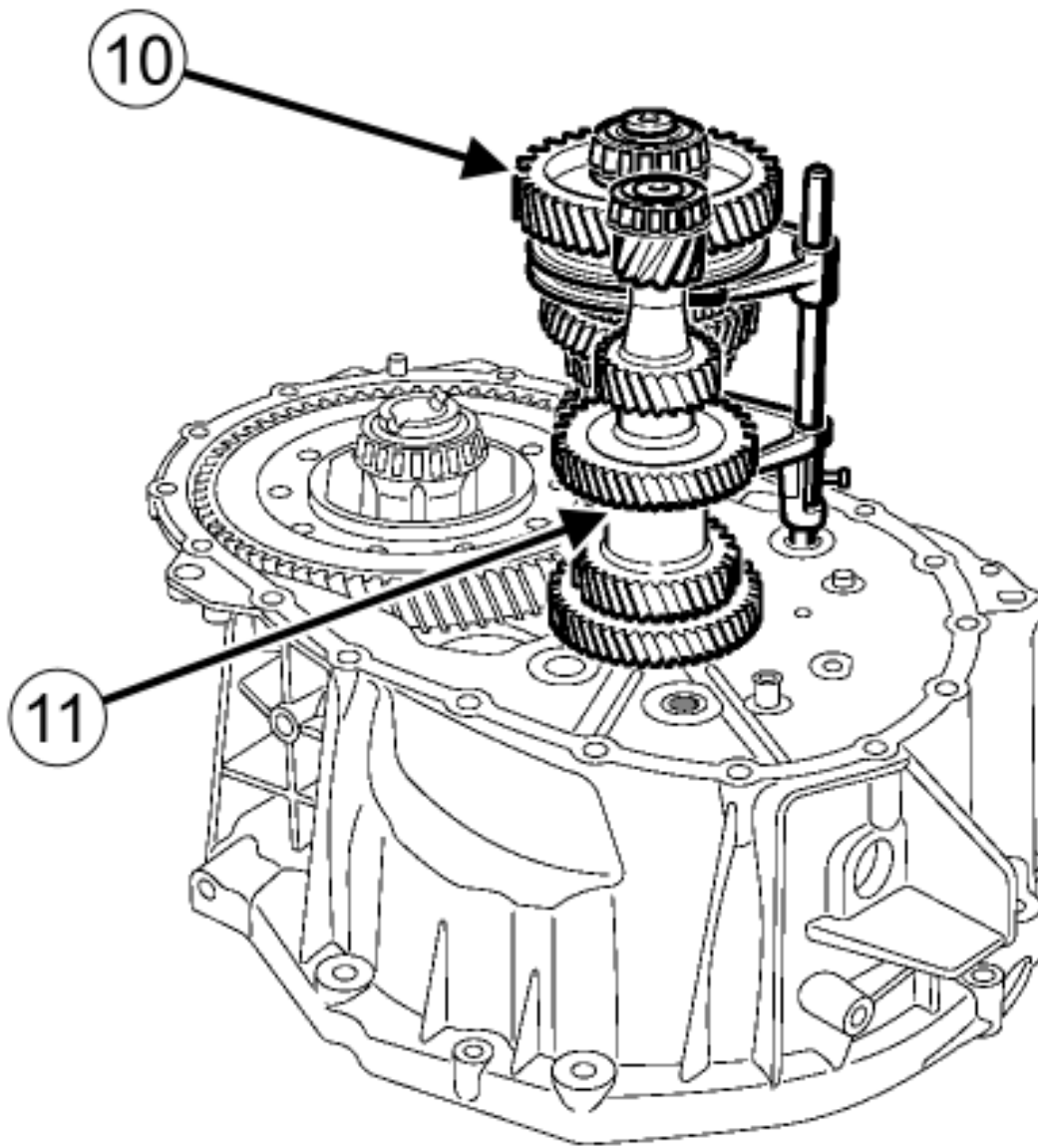
-
- lock rings,
-
- the differential outlet seals,
-
- the input shaft output seal,
-
- the pins,
-
- the hydraulic clutch release bearing.

Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean:

-
- the shafts,
-
- the shaft mating surfaces,
-
- the mechanism housing.

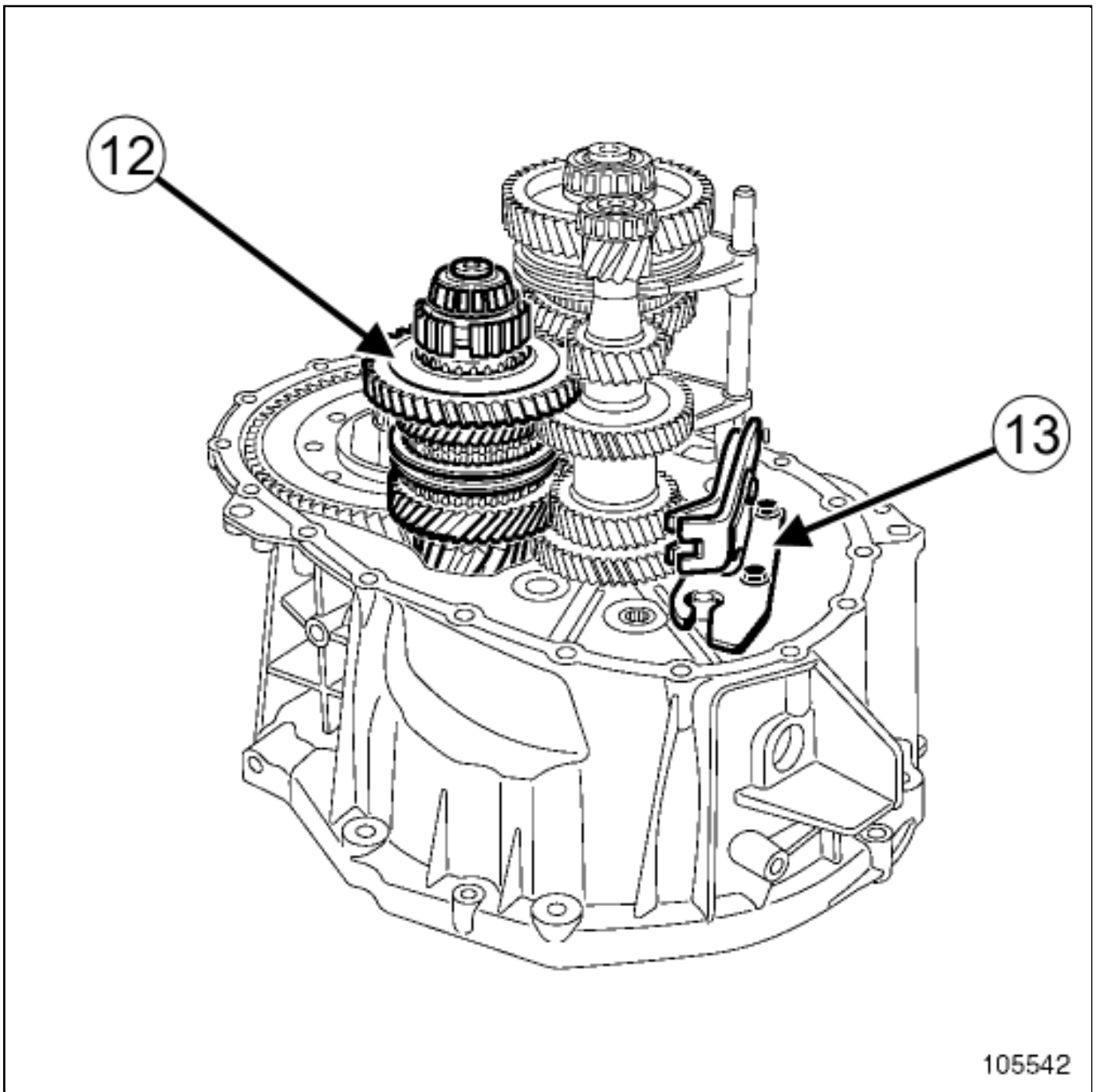
2. REFITTING OPERATION FOR PART CONCERNED

Adjust the shafts ([see 21A, Manual gearbox , Gearbox shaft: Adjustment](#)) if replacing a shaft or housing.



105543

Fit the long output shaft assembly(10) with the fork and input shaft(11) .

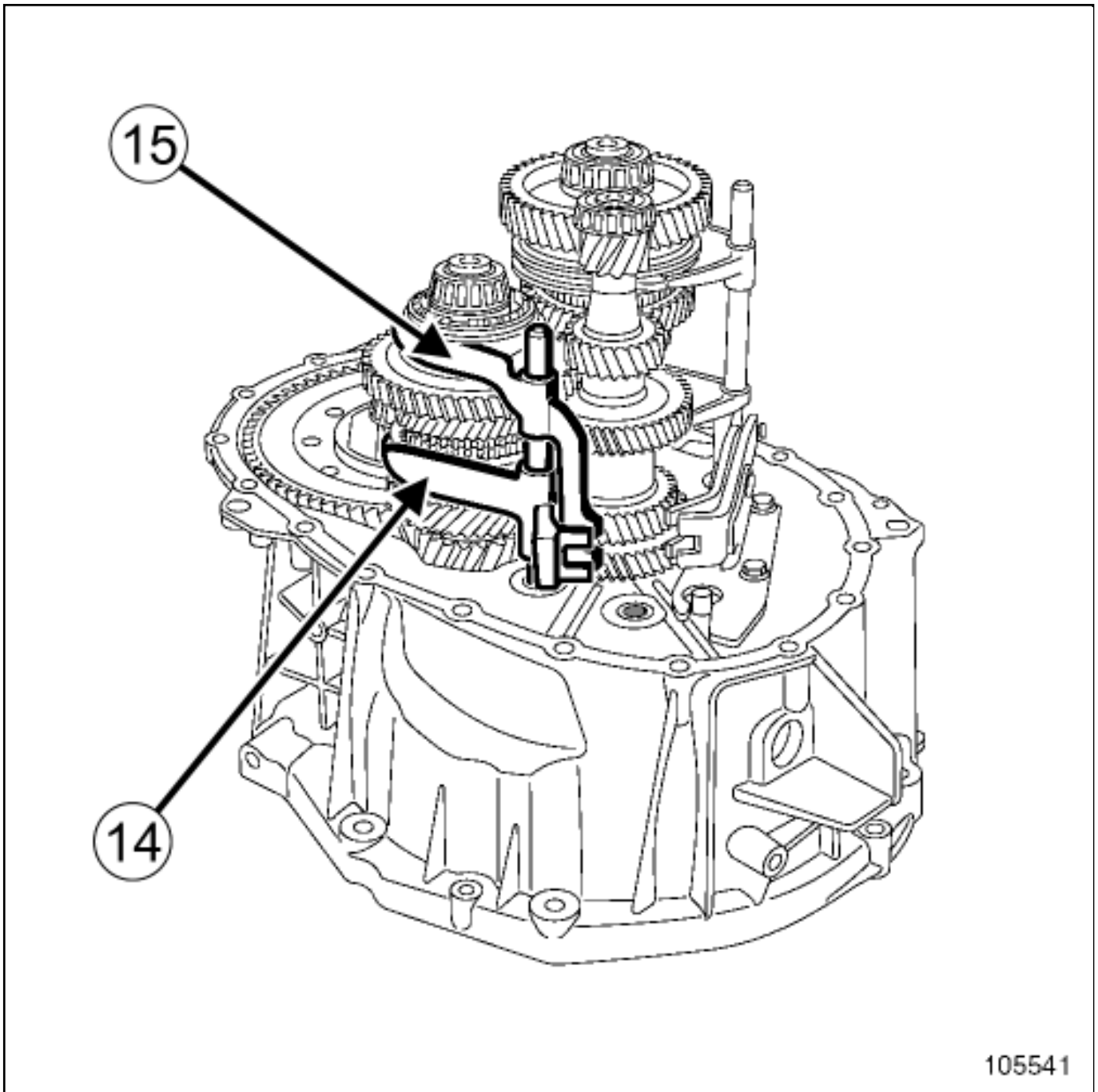


105542

Refit:

-
- the short output shaft(12) ,
- the control reverse switch(13) .

Torque tighten the reverse switch bolts 23 N.m.

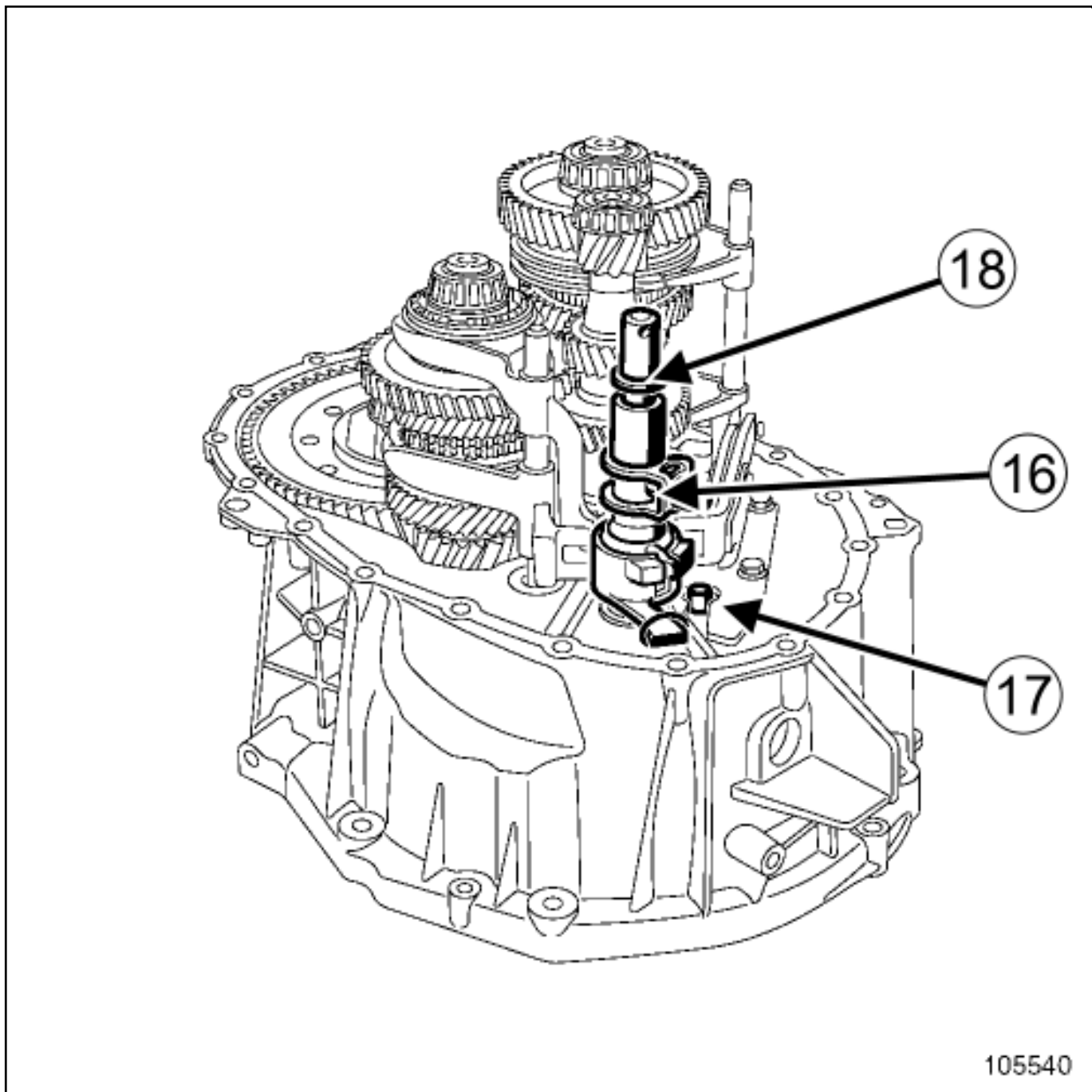


105541

Fit:

■ the third - fourth gear fork(14) ,

■ the "reverse gear synchroniser hub and fork assembly"(15) .



105540

Refit:

-
- the control module(16) and in the third-fourth gear position, fit the return spring over the bushing(17) ,
- the calibration washer(18) .

3. FINAL OPERATION

Refit the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .



Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .



Refit the gearbox[Manual gearbox: Removal - Refitting](#) .



Repair-12x01x04x01-01x37-1-4-1.xml



XSL version : 3.02 du 22/07/11

GRAB HANDLE: REMOVAL - REFITTING

Special tooling required

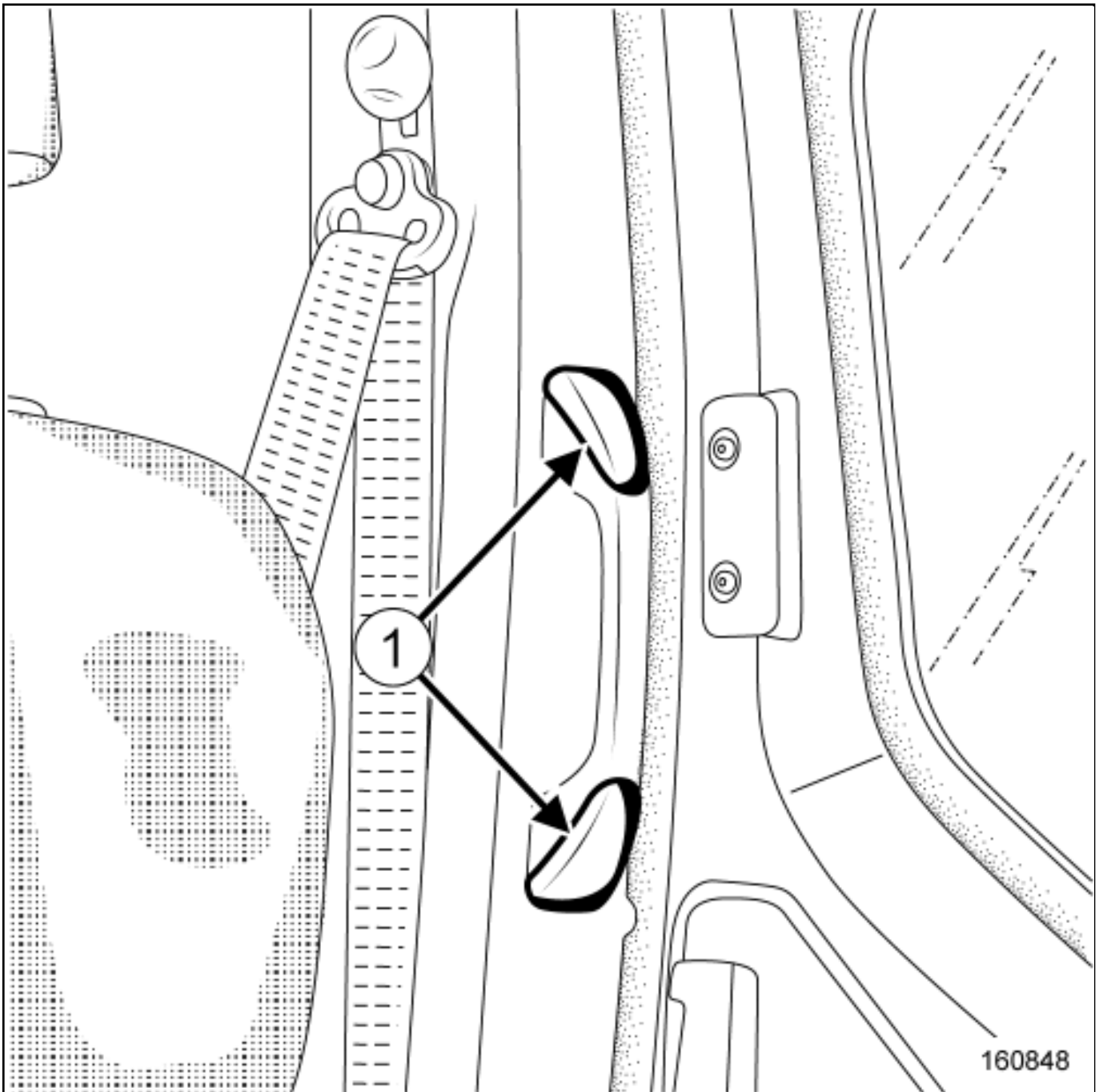
Set of trim removal levers.

Car. 1363

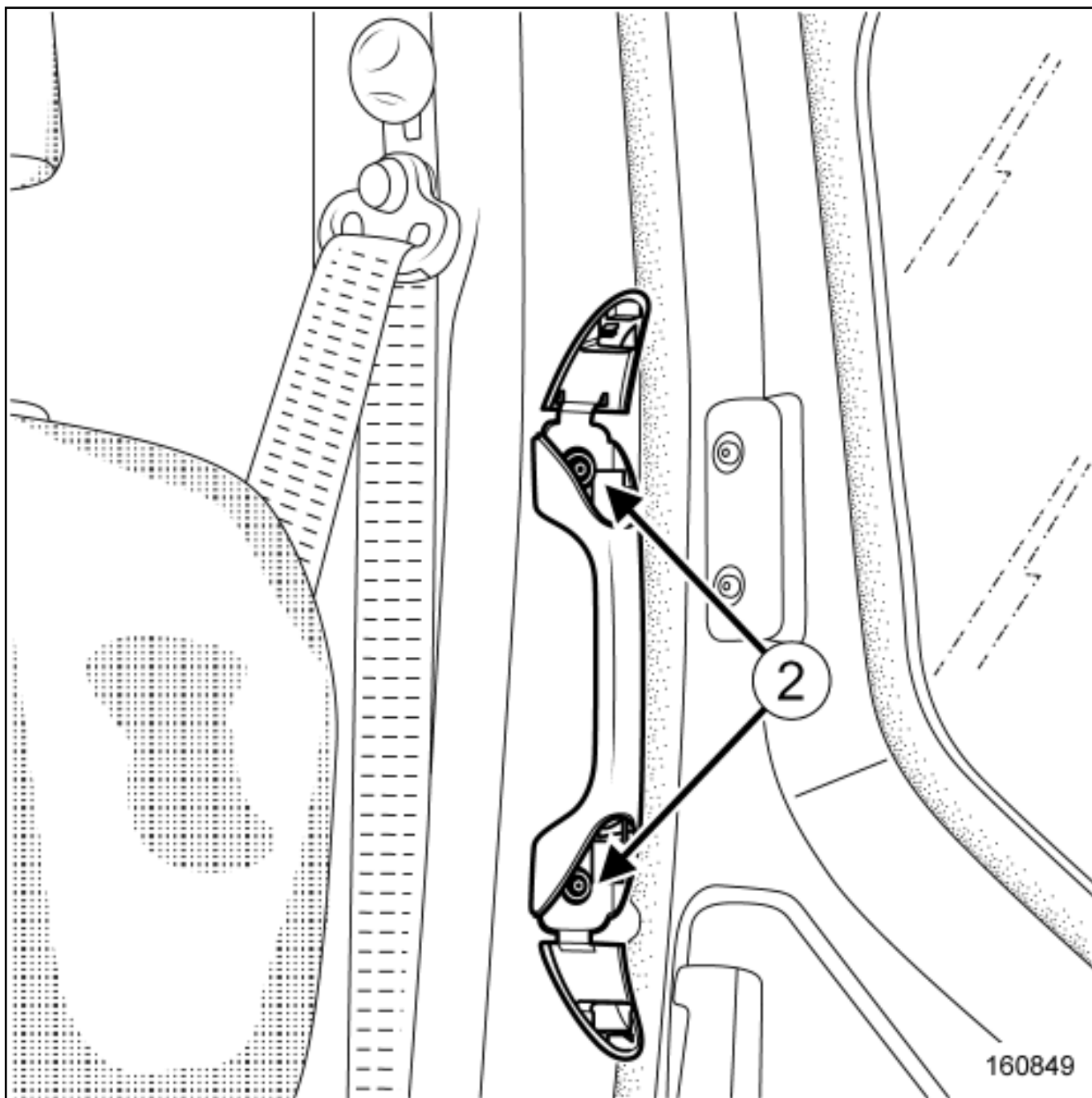
REMOVAL

1. REMOVAL OPERATION

FOR THE B-PILLAR GRAB HANDLE



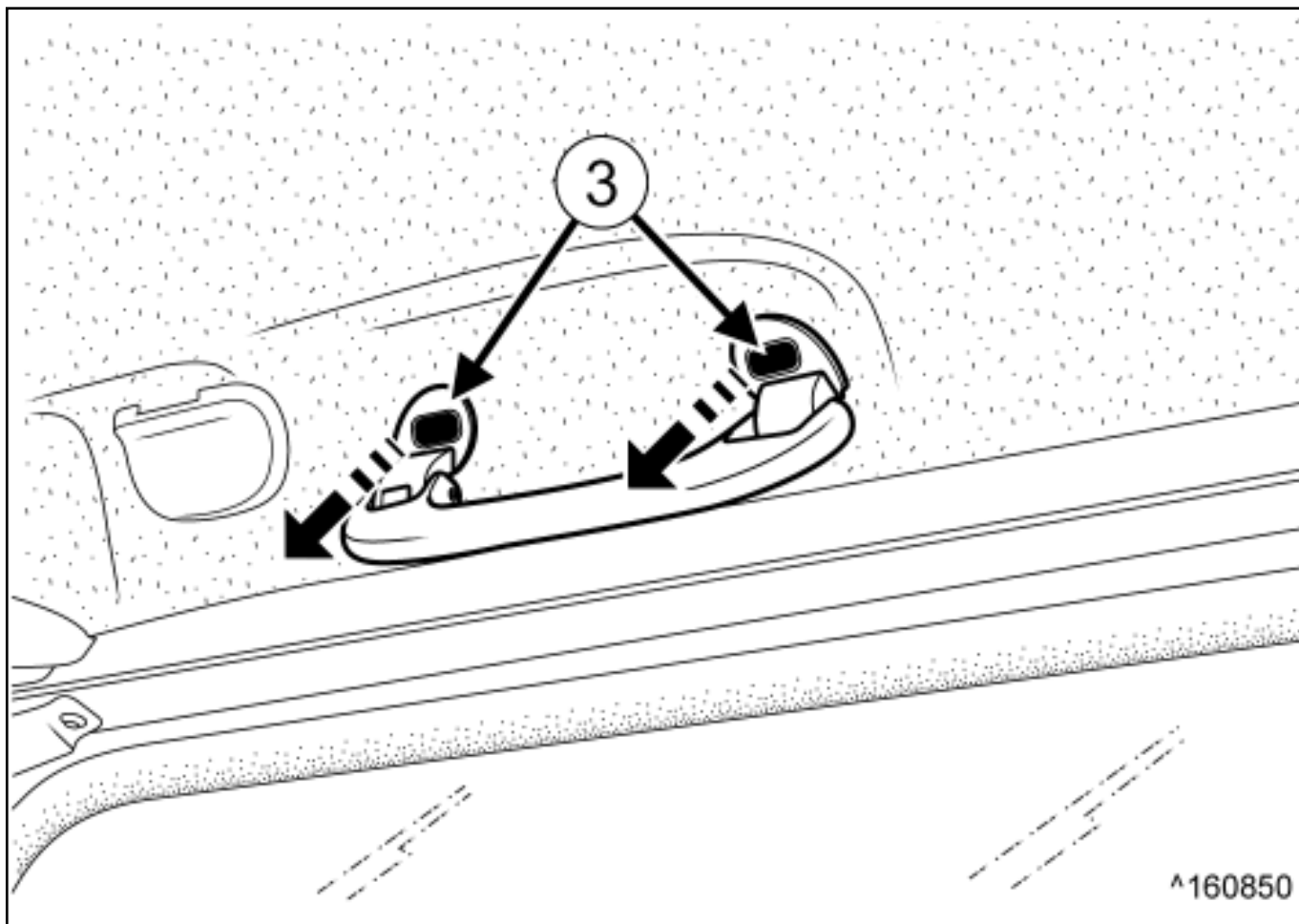
■ Unclip the grab handle bolts cover(1) using Set of trim removal levers.(Car. 1363) .



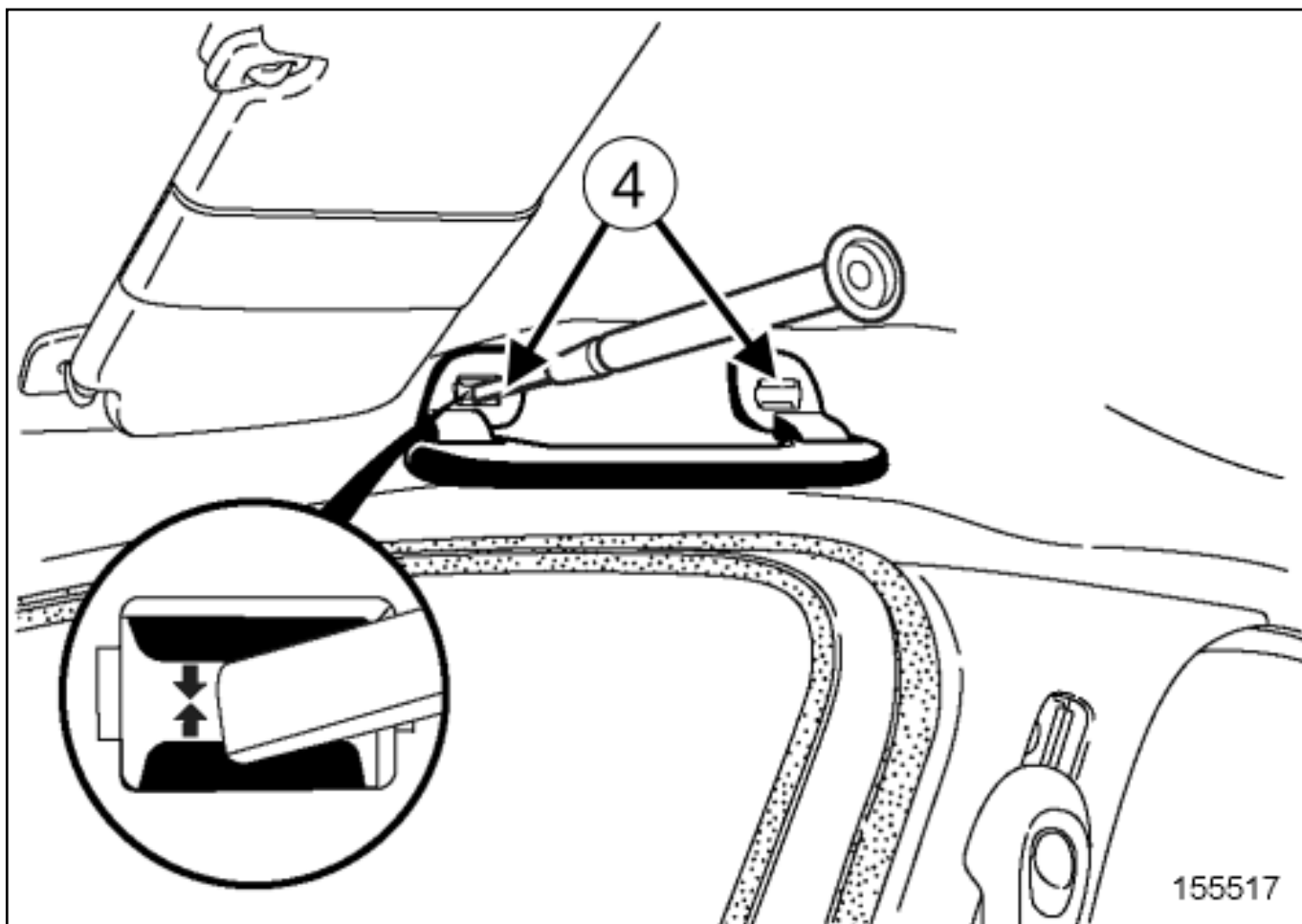
■ Remove:

- the bolts(2) ,
- the grab handle.

FOR THE REAR SEATS UPPER HANDLE



■ Remove the clips cover(3) .



Unclip the clips with the arrow direction at(4) .

Remove the grab handle.

REFITTING

Proceed in the reverse order to removal.



HEADLINING:REMOVAL-REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

- Remove:
 - the sun visor [Sun visor: Removal - Refitting](#) ,
 - the interior light [Interior lighting: List and location of components](#) ,
 - the front opening element joint partially,
 - the B-pillar upper trim ([see 71A, Body internal trim, Interior body side trim assembly: Exploded view](#))

J82(J82)

- Remove:
 - the rear seats grab handle [Grab handle: Removal - Refitting](#) ,
 - the headlining blanking cover ([see 71A, Body internal trim, Roof trim assembly: Exploded view](#)) ,
 - the rear control panel [Rear control panel: Removal - Refitting](#) ,
 - the interior light ([see Operation](#)) .

2. REMOVAL OPERATION

- Remove:
 - the roof trim clips ([see 71A, Body internal trim, Roof trim assembly: Exploded view](#)) ,
 - the roof trim.

REFITTING

- Proceed in the reverse order to removal.



Repair-70x02x04x02-01x37-1-37-1.xml



XSL version : 3.02 du 22/07/11

HEATED SEAT PAD: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



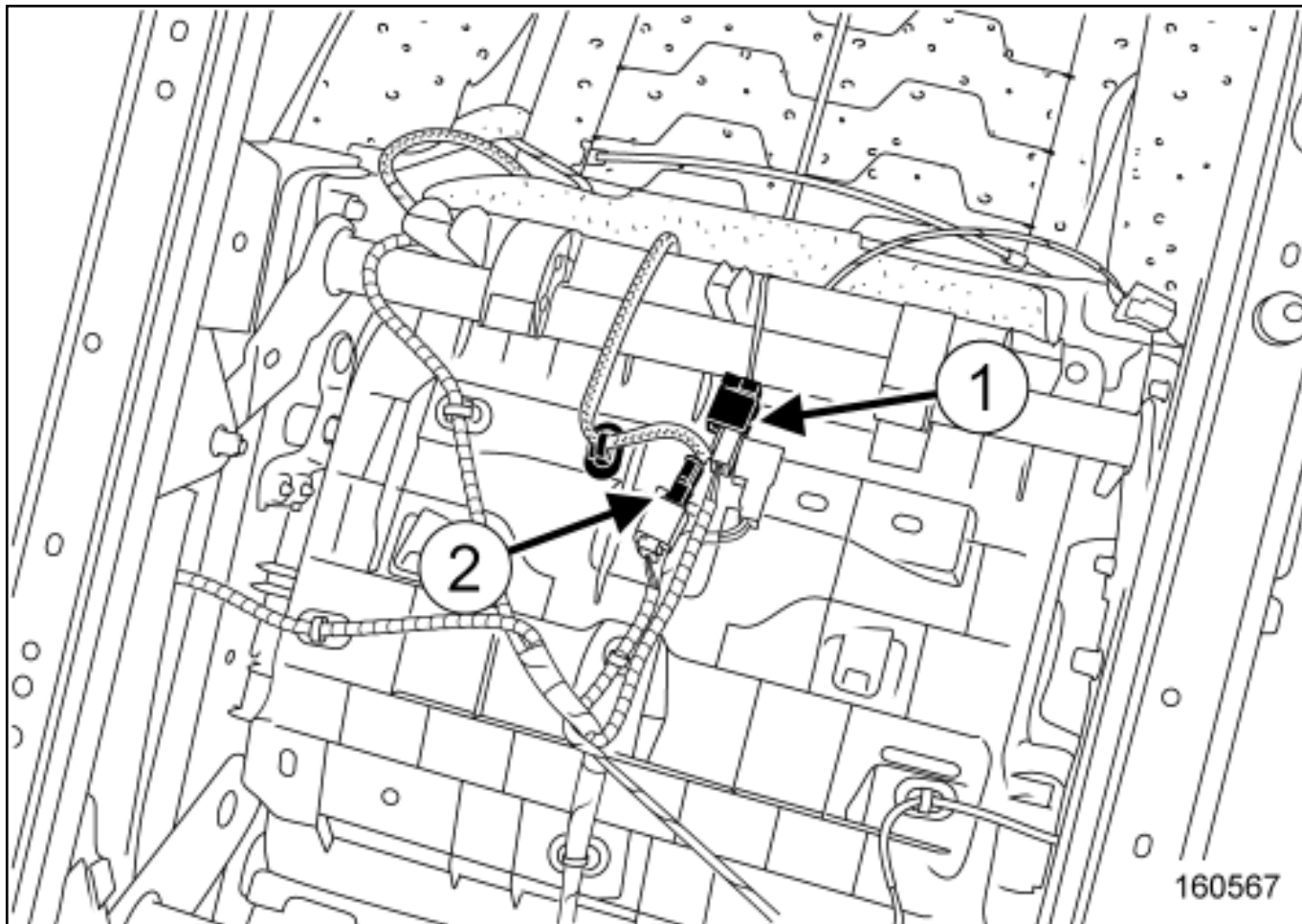
REMOVAL

1. REMOVAL OPERATION PREPARATION

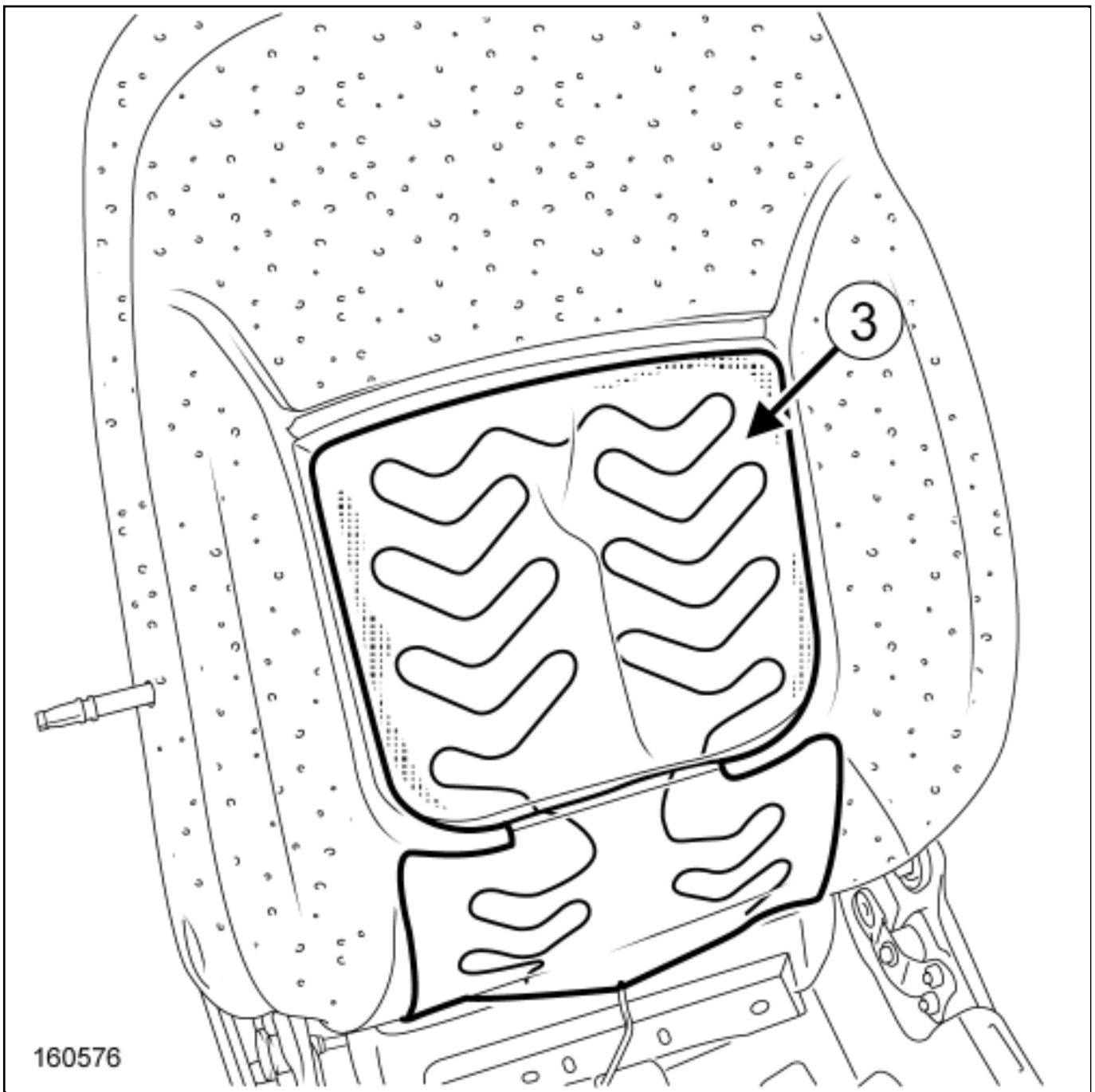
- Remove:
- the complete front seat [Complete front seat: Removal - Refitting](#) ,
 - the front seatback tilt control [Front seat backrest tilt control: Removal - Refitting](#) ,
 - the front seat height adjustment control [Front seat height adjuster control: Removal - Refitting](#) ,
 - the front seat lumbar adjustment control [Front seat lumbar adjustment control: Removal - Refitting](#) ,
 - the front seat armrest ([see 79A, Seat accessories, Front armrest: Removal - Refitting](#)) ,
 - the front seat headrest ([see 79A, Seat accessories, Front headrest: Removal - Refitting](#)) ,
 - the front seat headrest guides ([see 79A, Seat accessories, Front seat headrest guide: Removal - Refitting](#)) ,
 - the front seatback trim [Front seatback trim: Removal - Refitting](#) ,
 - the front seat lower cover [Front seat lower casing: Removal - Refitting](#) ,
 - the front seat base trim [Front seat base trim: Removal - Refitting](#) .

2. REMOVAL OPERATION

1- FRONT SEATBACK HEATED PAD



■ Disconnect the connector of the front seatback heated pad(1) .



Detach the front seatback heated pad(3) from the front seatback "foam - heated pad" assembly.



CAUTION

To avoid any damage to the foam, detach the heated pad carefully.

Disconnect the connector(2) of the front seat base heated pad.



Detach the front seat base heated pad(4) from the front seat base "foam - heated pad" assembly.



CAUTION

To avoid any damage to the foam, detach the heated pad carefully.

REFITTING

1. REFITTING OPERATION PREPARATION



Check the condition of the front seat base and seatback foam pads; replace them if necessary.

2. REFITTING OPERATION



Detach the protective backing from the heated pad adhesive of the front seat base or seatback.



Bond the heated pad of the front seatback or seat base in position.

3. FINAL OPERATION



Proceed in the reverse order to removal.



Repair-70x18x02x10-01x37-1-19-1.xml



XSL version : 3.02 du 22/07/11

HEATER MATRIX: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Pipe clamps.

Ms. 583



parts always to be replaced:



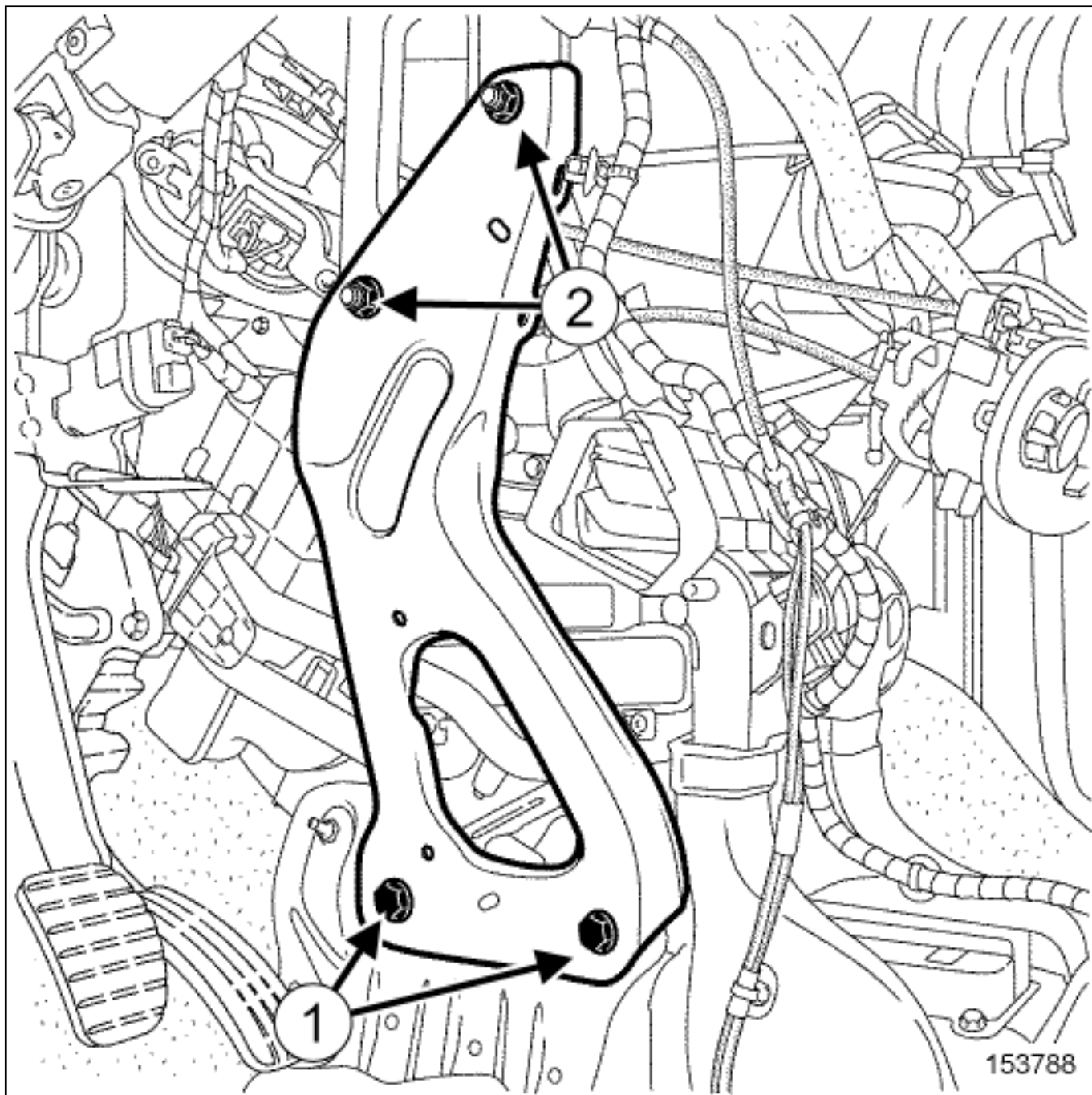
[heater matrix coolant pipe seal](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the air outlet pipe from the air filter unit [Air inlet assembly: Exploded view](#) .
- Fit the Pipe clamps. ([Ms. 583](#)) , in the engine compartment, on the heater matrix hoses.
- Remove (see [Dashboard assembly: Exploded view](#))
 - the centre front panel,
 - the dashboard centre front panel trim.
- Remove the front footwell air distribution duct [\(see 61A, Heating, Air distribution circuit assembly: Exploded view\)](#) .
- Move the floor carpet aside.



Remove:

- the lower bolts(1) from the dashboard cross member reinforcement,
- the dashboard cross member reinforcement upper nuts(2) ,
- the dashboard cross member reinforcement.

2. REMOVAL OPERATION

- Remove the heater matrix pipe clips([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

- Put a protective cover on the floor carpet.
- Position a container to collect the coolant under the heater matrix pipes.
- Move the heater matrix pipes aside ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)).
- Remove the seals from the heater matrix rigid pipes.



Remove ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)):

-
- the heater matrix bolts,
-
- the heater matrix.

REFITTING



CAUTION

To avoid any leaks, check that the seal and the pipe surface are in good condition. The seal and the surface must be clean and scratch free.



parts always to be replaced:



[heater matrix coolant pipe seal](#)



Proceed in the reverse order to removal.



Torque tighten



the lower bolts on the dashboard cross member reinforcement **21 N.m,**



the upper nuts on the dashboard cross member reinforcement **21 N.m.**



Fill up and bleed the cooling system [Cooling system: Draining - Refilling](#) .



Repair-30x02x01x01-01x37-1-58-1.xml



XSL version : 3.02 du 22/07/11

HEATING DUCT: REMOVAL - REFITTING

Locations and specifications (tightening torques, parts always to be replaced, etc.) [Passenger compartment heating and ventilation assembly: Exploded view](#) .

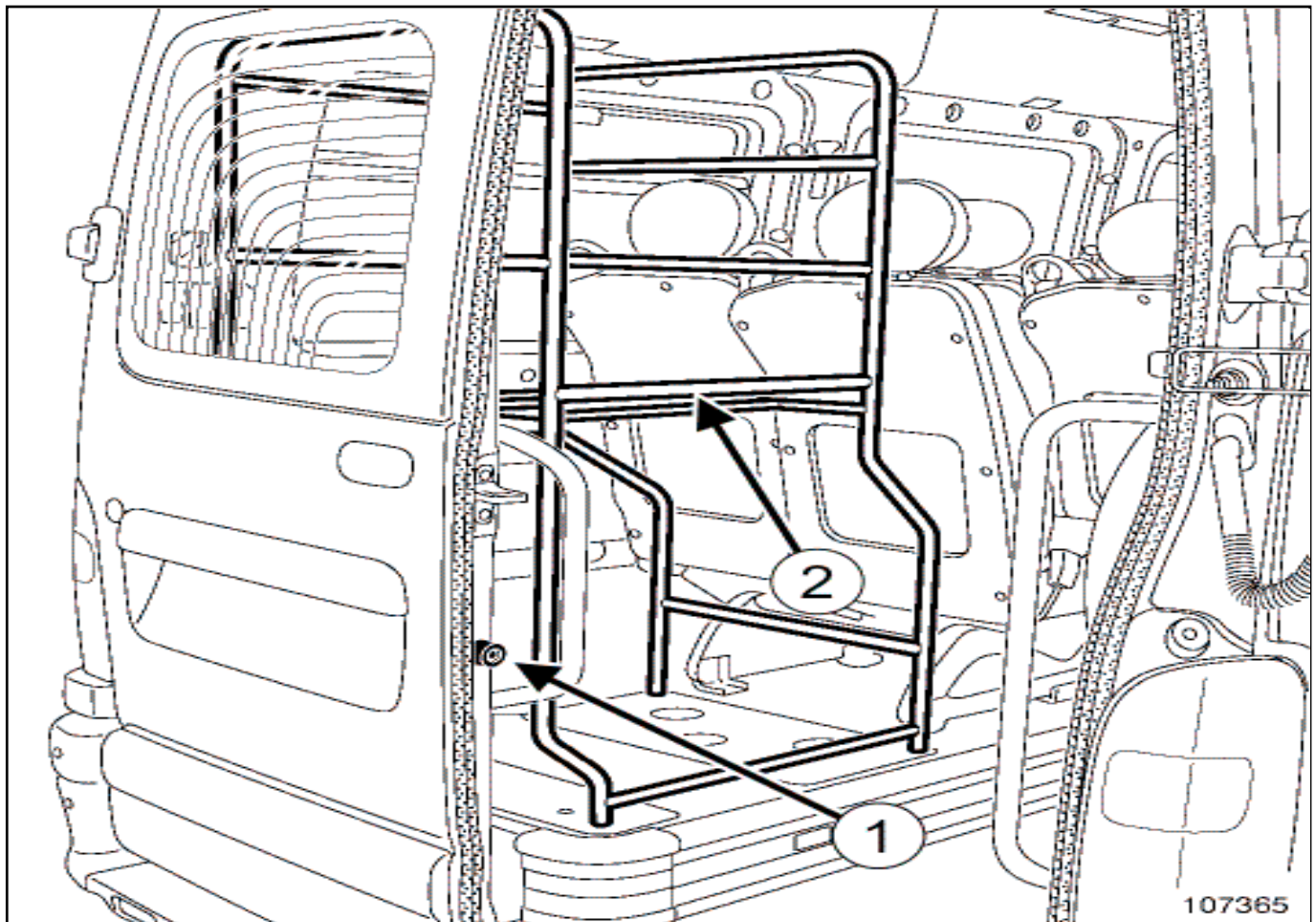
REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove [Passenger compartment heating and ventilation assembly: Exploded view](#) :
 - the rear distribution unit protective hood mountings,
 - the rear distribution unit protective hood.

1- UPPER AIR INLET DUCT

- Remove the front seat (see **Complete front seat: Removal - Refitting**) or the front bench seat AND (Fixed passenger bench seat OR Fixed passenger bench seat with storage) FIXED PASSENGER BENCH SEAT FIXED PASSENGER BENCH SEAT ROW .



■ Remove the bolt(1) .

■ Unclip the front door sill lining(2) .

2. REMOVAL OPERATION

1- LOWER AIR INLET DUCT

■ Passenger compartment heating and ventilation assembly: Exploded view :

- remove the bolts from the lower air inlet duct,
- unclip the lower air inlet duct from the upper air inlet duct.

2- UPPER AIR INLET DUCT

■ Passenger compartment heating and ventilation assembly: Exploded view :

- remove the bolts from the upper air inlet duct,
- unclip the upper air inlet duct from the lower air inlet duct,
- remove the upper air inlet duct.

3- AIR OUTLET DUCT

■ Passenger compartment heating and ventilation assembly: Exploded view :

- remove the lower air outlet duct bolts,
- unclip the lower air outlet duct from the rear distribution unit.

REFITTING

1. REFITTING OPERATION

■ Proceed in the reverse order to removal.



Repair-30x02x03x05-01x37-1-3-1.xml



HIGH PRESSURE PIPE BETWEEN PUMP AND RAIL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

tweezers



parts always to be replaced:



High pressure pipe between the pump and rail

turbocharger air cooler air inlet pipe seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) .



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see [Diesel injection: Precautions for the repair](#)) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

WARNING



- Use the diagnostic tool before any operation is carried out on the injection circuit to check:
 - that the rail is not under pressure,
 - that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove [Air inlet assembly: Exploded view](#) :
 - the bolt on the intercooler air inlet pipe,
 - the nut on the intercooler air inlet pipe.
- Pull the intercooler air inlet pipe clip on the turbocharger [Air inlet assembly: Exploded view](#) .
- Move aside the intercooler air inlet pipe.
- Remove:
 - the injector rail protector ([see 13B, Diesel injection, Injector rail protector: Removal - Refitting](#)) ,
 - the oil decanter [Engine oil circuit assembly: Exploded view](#) ,
 - the diesel injector fuel return rail ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .

2. REMOVAL OPERATION

- Disconnect the fuel collector pipe ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .



Remove the fuel collector ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .



Insert blanking plugs.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.

Move without removing the clip between the fuel return rail and the injectors using a flat screwdriver([see 13B, Diesel injection, Injection assembly: Exploded view](#)):

-
- the injecteur no. 3,
- the injecteur no. 4.

Disconnect the diesel injector fuel return rail unions([see 13B, Diesel injection, Injection assembly: Exploded view](#)):

-
- the injecteur no. 3,
- the injecteur no. 4.

Move aside the diesel injector fuel return rail.

Insert blanking plugs.

Undo ([see 13B, Diesel injection, Injection assembly: Exploded view](#)):

-
- the nuts for the high pressure pipe between the pump and the rail at the rail end using the PROSTEEL 77 11 223 720,

- the nuts for the high pressure pipe between the pump and the rail at the pump end using the PROSTEEL 77 11 223 720,



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.

Remove [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) :

-
- the high pressure pipe mounting bolt between the pump and the rail,
- the high pressure pipe between the pump and the rail.

Insert blanking plugs.

REFITTING

1. REFITTING PREPARATION OPERATION

parts always to be replaced:



[High pressure pipe between the pump and rail](#)



parts always to be replaced:



[turbocharger air cooler air inlet pipe seal](#)



CAUTION

Before fitting a new high pressure pipe, lightly lubricate the nut threads with the oil from the applicator provided in the new parts kit.



Be careful not to allow oil into the high pressure pipe.

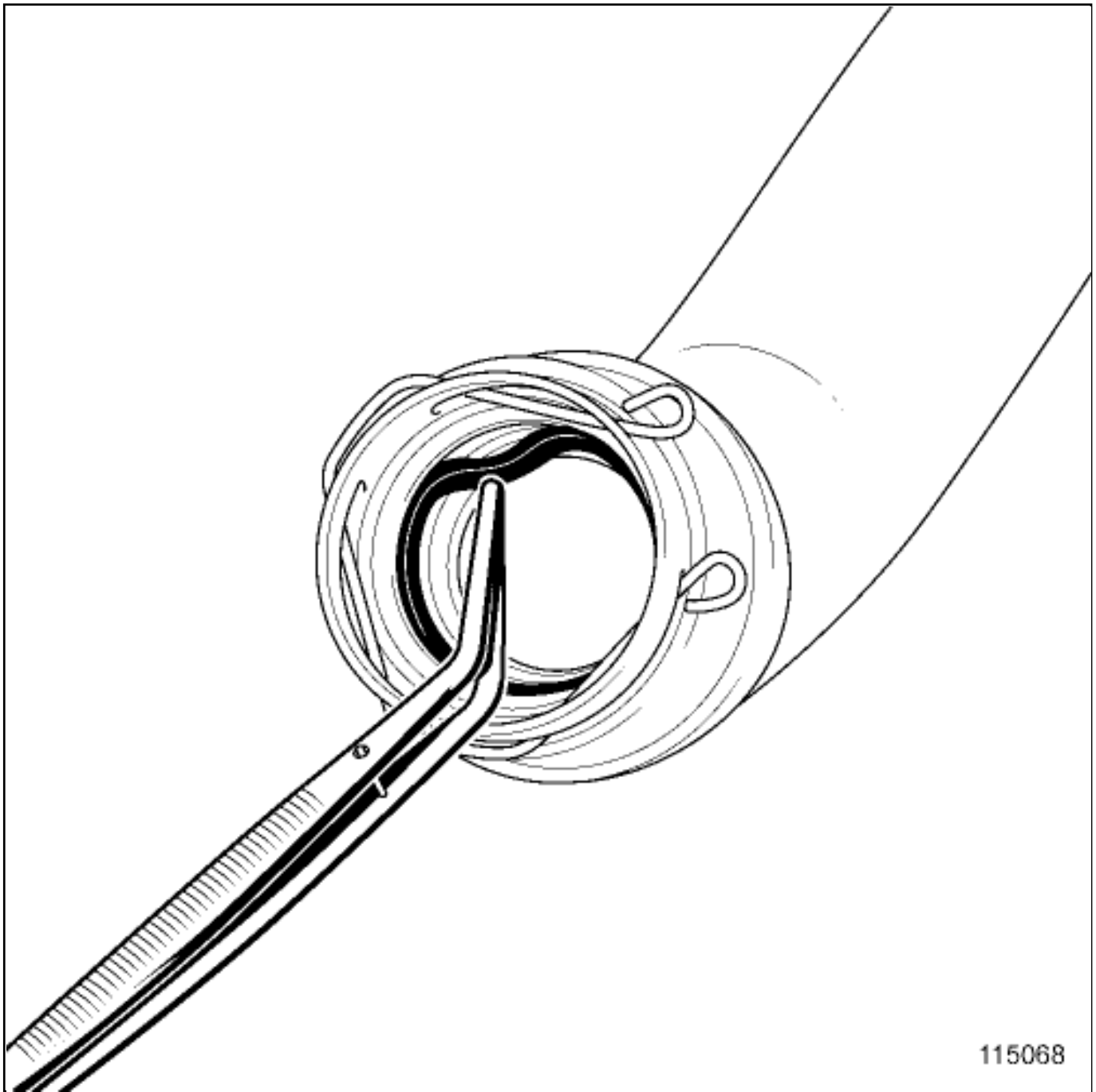
Do not lubricate high pressure pipes supplied without an applicator, as these high pressure pipes are self-lubricating.

CAUTION

Do not remove the blanking plugs from each component until the last moment.

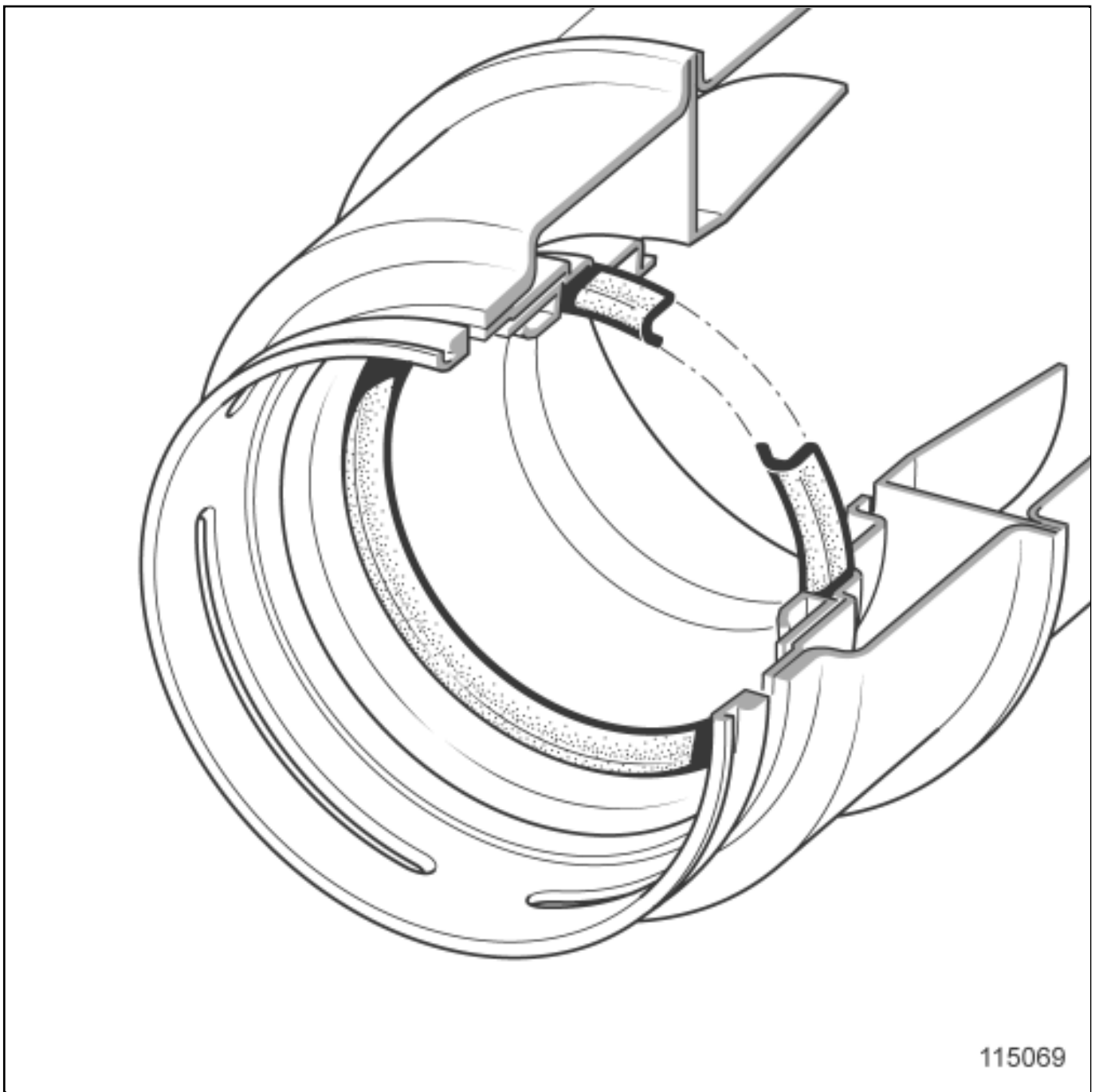


Also, do not remove the components from their packaging until they are to be fitted to the vehicle.



115068

Remove the air inlet pipe seal of the intercooler using a tweezers.



115069



Note:

Check that the intercooler air inlet pipe seal is fitted in the right direction.

Refit a new seal to the intercooler air inlet pipe.

Fit a new high pressure pipe between the pump and the rail.

Position [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) :

■
■ the olive of the high pressure pipe between the pump and the rail on the injector rail,

■ the olive of the high pressure pipe between the pump and the rail on the high pressure pump.

Fit, without tightening, the nuts on the high pressure pipe between the pump and the rail, starting with the nut at the injector rail end [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) .

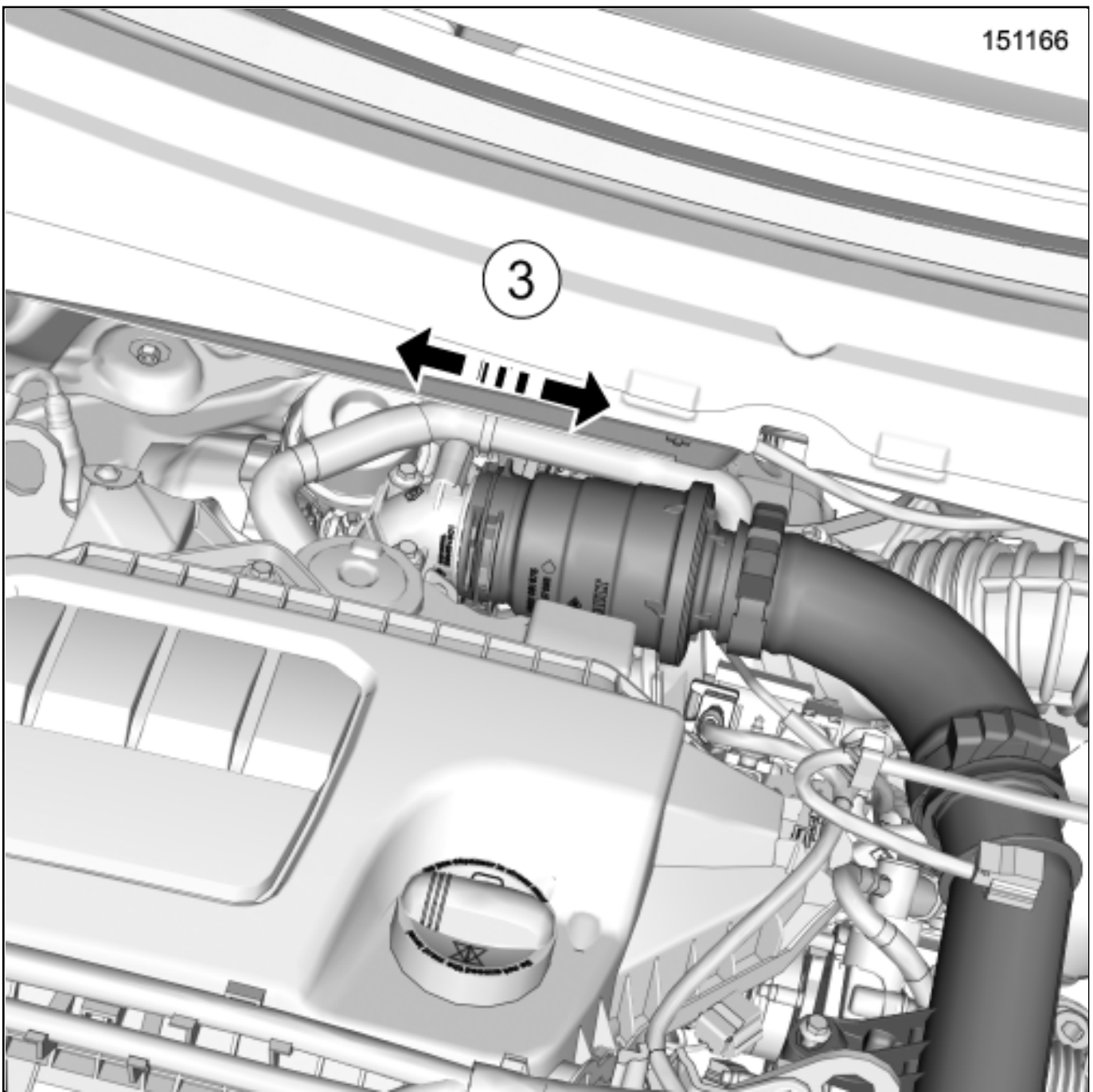
Torque tighten [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) :

■
■ the nut of the high pressure pipe between the pump and the rail on the high pressure pump using the PROSTEEL 77 11 223 720,

■ the nut of the high pressure pipe between the pump and the rail on the injector rail using the PROSTEEL 77 11 223 720.

Refit the diesel injector fuel return rail [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) .

Proceed in the reverse order to removal.



Always carry out a "push-pull" test at(2) , to check that the intercooler air inlet pipe is correctly inserted.



Using the Diagnostic tool, SIE



Repair-11x05x03x02-01x37-1-79-1.xml



XSL version : 3.02 du 22/07/11

HIGH PRESSURE PIPE BETWEEN RAIL AND INJECTOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



parts always to be replaced:



High pressure pipe between the rail and injector



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 13B, Diesel injection, Injection assembly: Exploded view](#)).



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see [Diesel injection: Precautions for the repair](#)),
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

- Use the diagnostic tool before any operation is carried out on the injection circuit to check:
- that the rail is not under pressure,
 - that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.



Note:

The high pressure pipe of cylinder no. 2 must be removed in order to remove the high pressure pipe of cylinder no. 1.

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Disconnect the battery [Battery: Removal - Refitting](#) .

■ Remove:

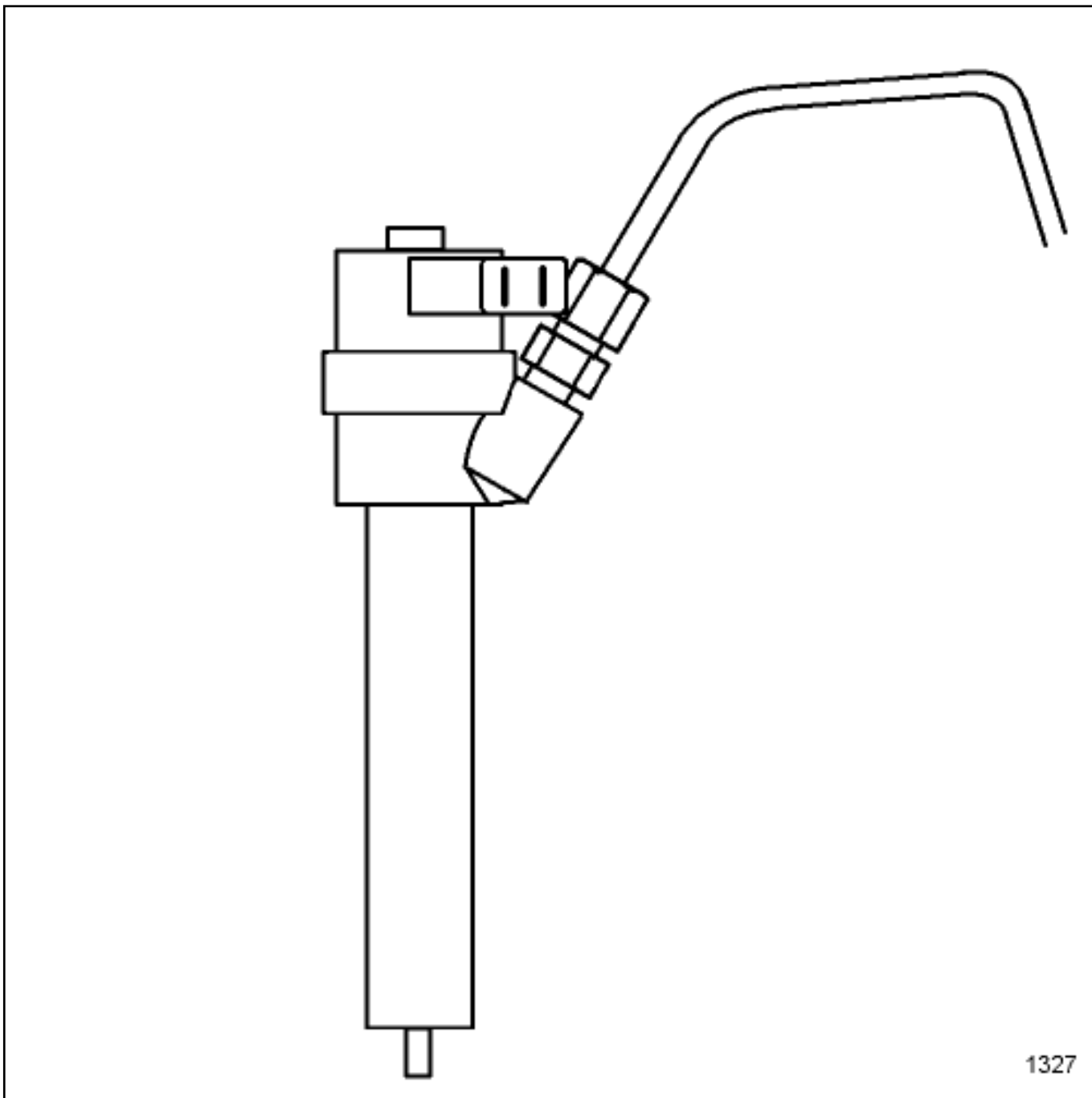
- the injector rail protector ([see 13B, Diesel injection, Injector rail protector: Removal - Refitting](#)) ,
- the oil decanter [Engine oil circuit assembly: Exploded view](#) ,
- the diesel injector fuel return rail ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .

2. REMOVAL OPERATION



Note:

Loosen the nuts pipe by pipe.



1327

CAUTION



Always hold the intermediate injector union in place with a wrench when loosening the high pressure pipes.

Do not damage the injector return nozzle.

Undo ([see 13B, Diesel injection, Injection assembly: Exploded view](#)):

the nuts of the high pressure pipes between the rail and the injectors at the injector end using the PROSTEEL 77 11 223 720,

the nuts of the high pressure pipes between the rail and the injectors at the injector rail end using the PROSTEEL 77 11 223 720.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.



Remove the high pressure pipes between the rail and the injectors one by one ([see 13B, Diesel injection, Injection assembly: Exploded view](#)).



Insert the blanking plugs.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:

[High pressure pipe between the rail and injector](#)



CAUTION

Before fitting a new high pressure pipe, lightly lubricate the nut threads with the oil from the applicator provided in the new parts kit.

Be careful not to allow oil into the high pressure pipe.

Do not lubricate high pressure pipes supplied without an applicator, as these high pressure pipes are self-lubricating.

CAUTION



Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

2. REFITTING OPERATION

Remove the blanking plugs.

Fit the high pressure pipes between the rail and the injectors.

Position [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) :

the high pressure pipe olives between the rail and the injectors in the injector rail tapers,

the high pressure pipe olives between the rail and the injectors in the injector tapers.

Fit the nuts of the high pressure pipes between the rail and the injectors without tightening, starting with the nuts at the injector rail end [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) .

Torque tighten [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) :

the nuts of the high pressure pipes between the rail and the injectors at the injector rail end using the PROSTEEL 77 11 223 720,

the nuts of the high pressure pipes between the rail and the injectors at the injector rail end using the PROSTEEL 77 11 223 720,

Proceed in the reverse order to removal.



Repair-11x05x03x01-01x37-1-72-1.xml



XSL version : 3.02 du 22/07/11

HIGH PRESSURE PUMP: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

High pressure pump pinion locking tool

Equipment required

Diagnostic tool



parts always to be replaced:



[Injection pump seal](#)

[injection pump opening bolt in the cylinder head](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 13B, Diesel injection, Injection assembly: Exploded view\)](#) .



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see **Diesel injection: Precautions for the repair**) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

WARNING



- Use the diagnostic tool before any operation is carried out on the injection circuit to check:
 - that the rail is not under pressure,
 - that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

CAUTION



To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

WARNING



Wear leaktight gloves (Nitrile type) for this operation.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove:
 - the battery [Battery: Removal - Refitting](#) ,
 - the battery tray [Battery tray: Removal - Refitting](#) ,

- Remove:
 - the injector rail protector ([see 13B, Diesel injection, Injector rail protector: Removal - Refitting](#)) ,
 - the oil decanter [Engine oil circuit assembly: Exploded view](#) ,
 - the high pressure pipe between the pump and the rail ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .

- Disconnect the connector from the regulator on the high pressure pump.

- Disconnect the high pressure pump from ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) :
 - the fuel supply pipe,
 - the fuel return pipe,
 - the fuel collector pipe from the rocker cover.

- Insert blanking plugs.



CAUTION

To prevent impurities from entering the circuit, place protective plugs on all fuel circuit components exposed to the open air.

- Move the fuel collector pipe aside.

2. REMOVAL OPERATION

- Remove ([see 13B, Diesel injection, Injection assembly: Exploded view](#)):
 - the high pressure pump bolts,
 - the high pressure pump,
 - the high pressure pump seal.

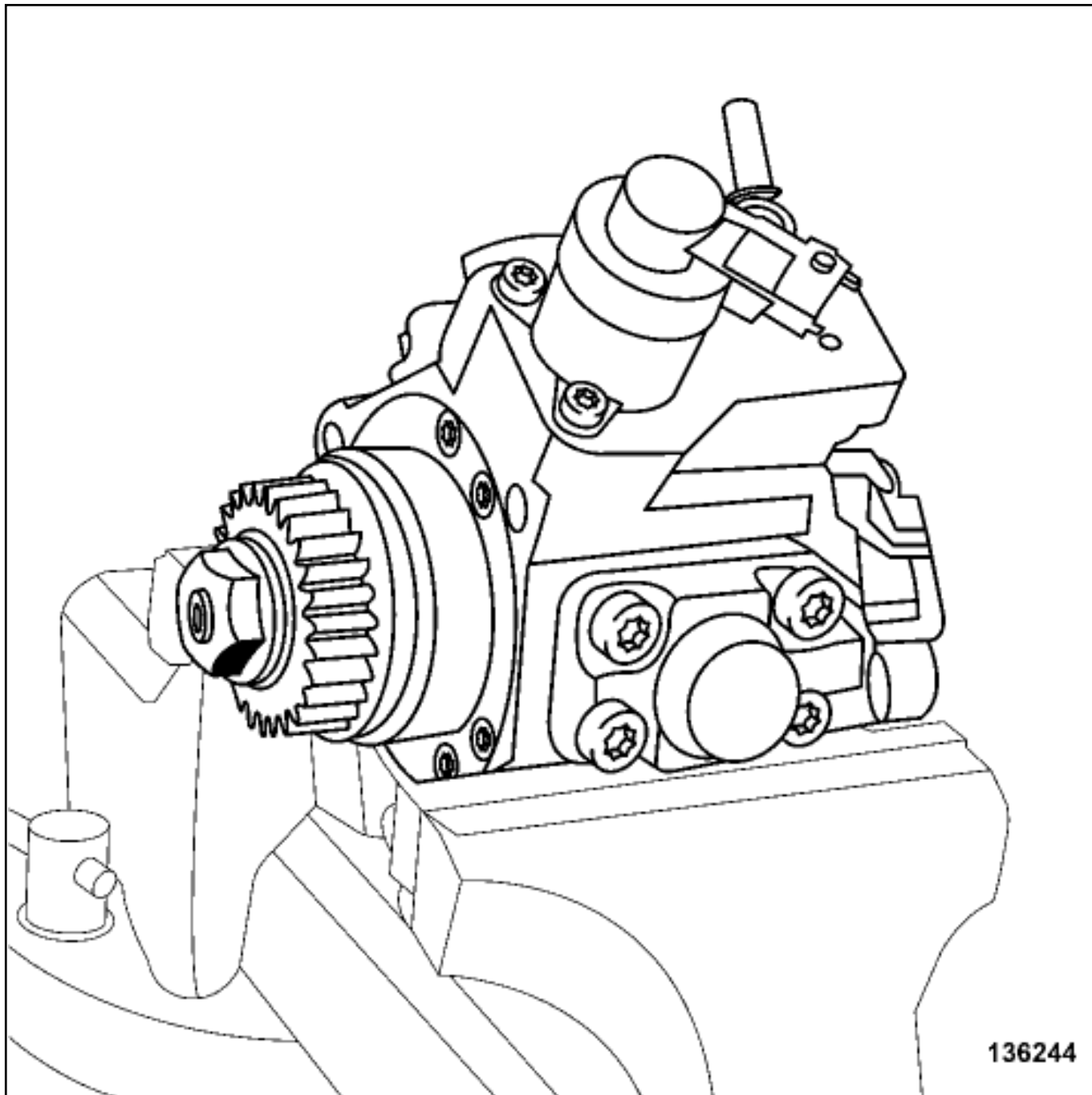
REFITTING

1. REFITTING PREPARATION OPERATION

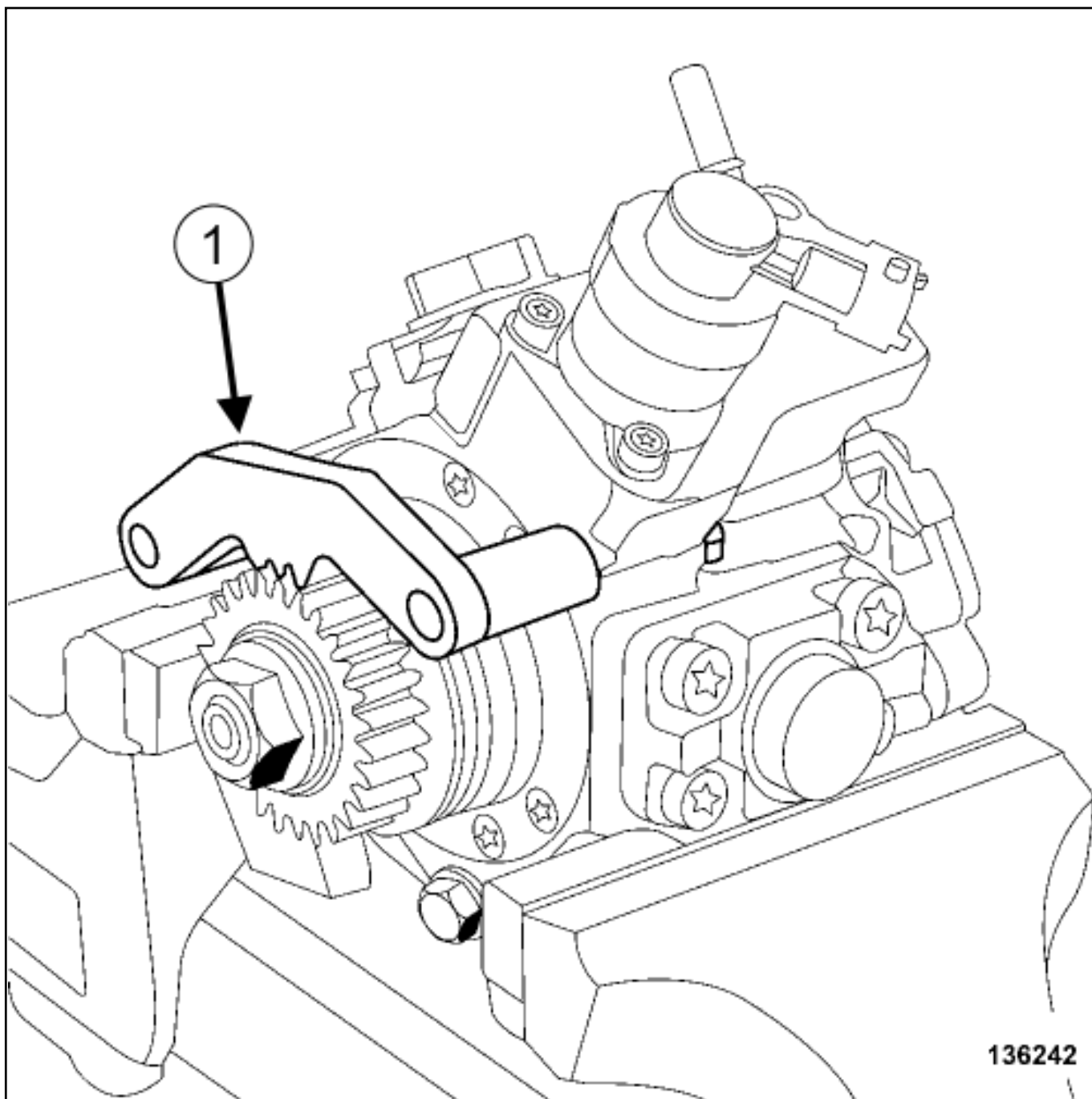
- parts always to be replaced:  [Injection pump seal](#) .

- parts always to be replaced:  [injection pump opening bolt in the cylinder head](#) .

1- IF REPLACING THE HIGH PRESSURE PUMP



- Put the high pressure pump in a vice with jaws.



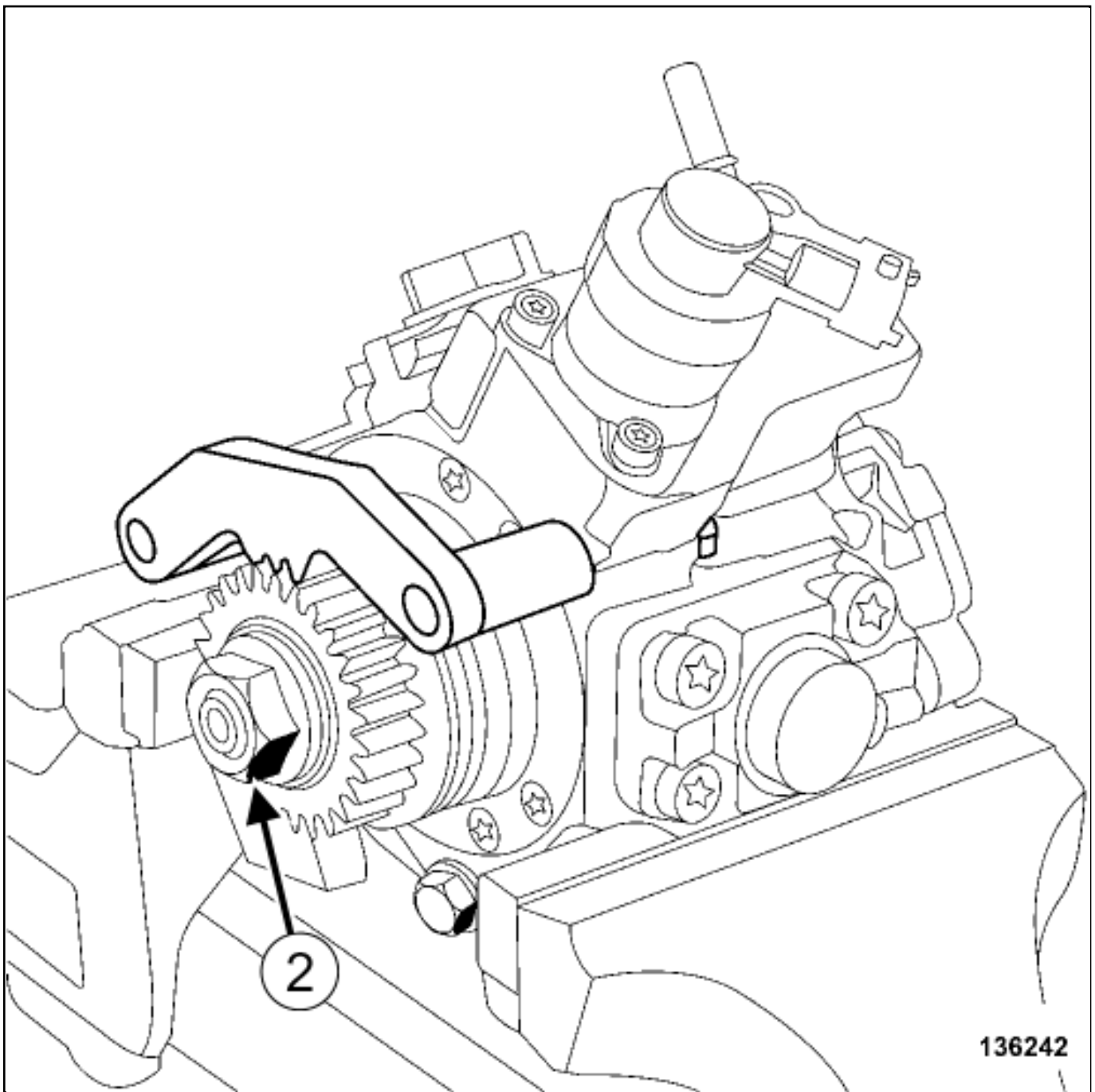
136242

■ Using the tool High pressure pump pinion locking tool(1) , lock the high pressure pump pinion.

■ Fit:

- the washers of the High pressure pump pinion locking tool on the high pressure pump,
- the nuts of the High pressure pump pinion locking tool on the high pressure pump.

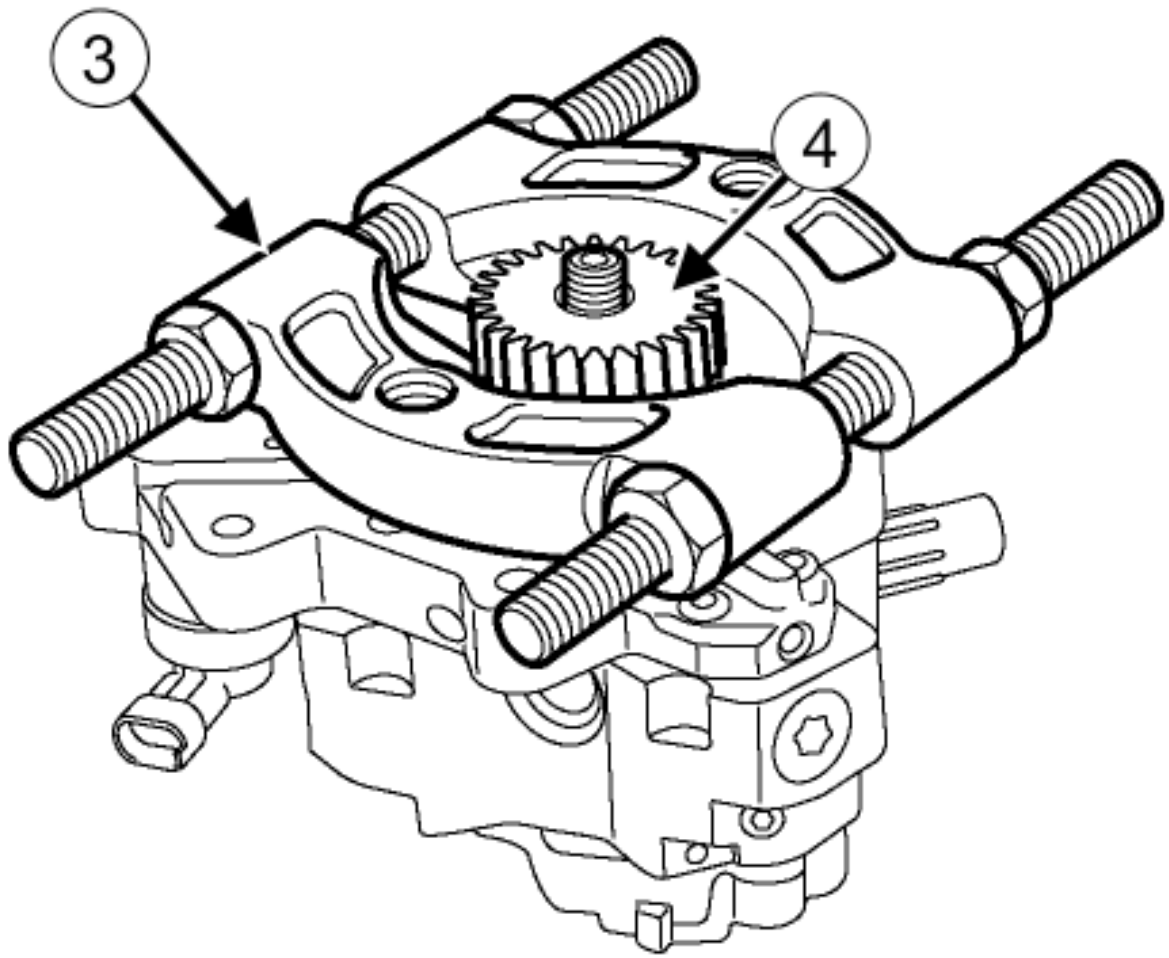
■ Tighten the nuts on the high pressure pump.



136242

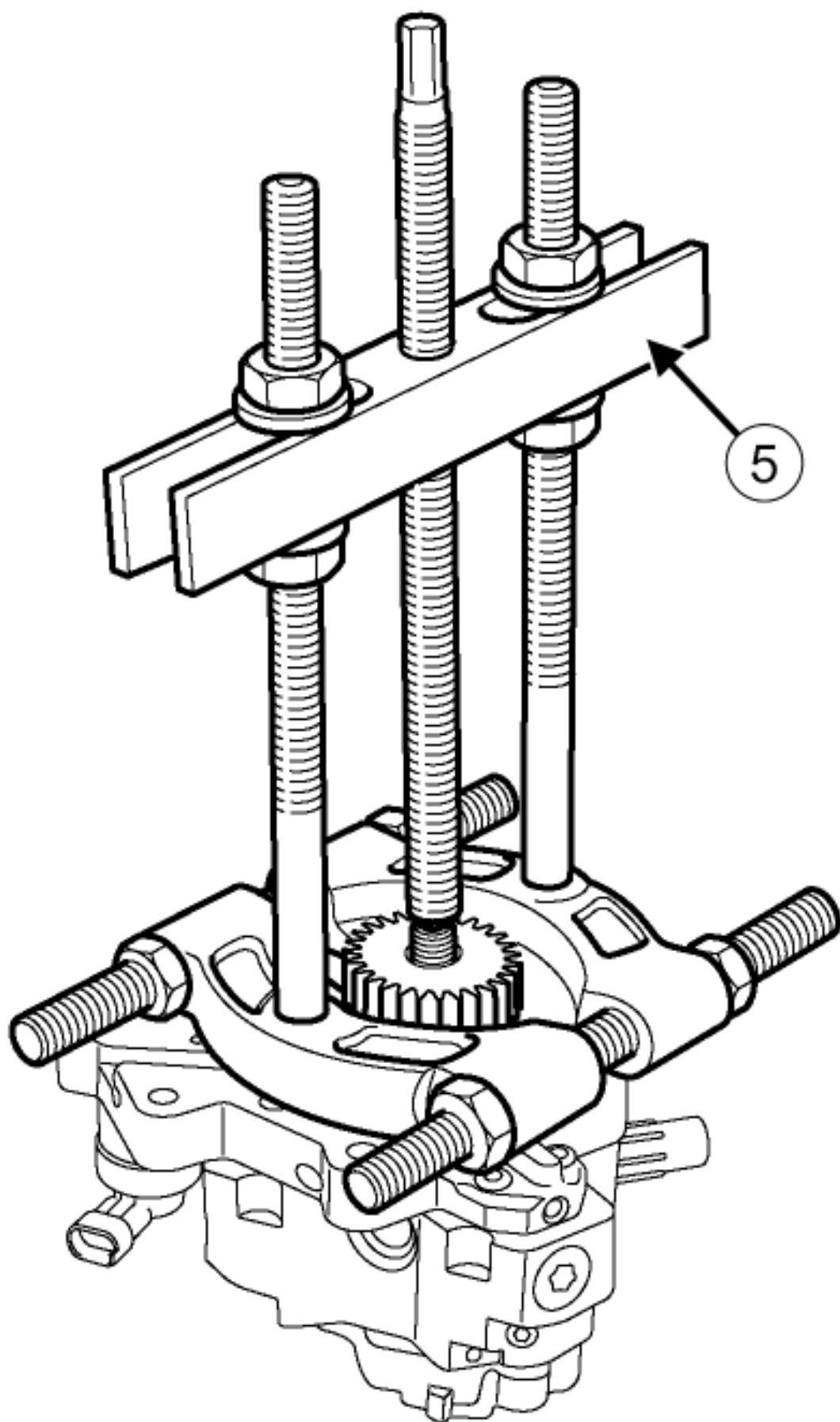
Remove:

- the high pressure pump pinion nut(2) ,
- the nuts of the toolHigh pressure pump pinion locking tool ,
- the washers of theHigh pressure pump pinion locking tool from the high pressure pump,
- the toolHigh pressure pump pinion locking tool .



115699

Fit a separator(3) under the high pressure pump pinion(4) .



115700

Fit an arm(5) on the separator.

Remove:

-
- the high pressure pump pinion,
- the separator and the arm.

Refit:

-
- the pinion to the new high pressure pump,
- the high pressure pump nut.

Put the high pressure pump in a vice with jaws.

Fit:

-
- the toolHigh pressure pump pinion locking tool ,
- the washers of theHigh pressure pump pinion locking tool on the high pressure pump,
- the nuts of theHigh pressure pump pinion locking tool on the high pressure pump.

Tighten the nuts on the high pressure pump.

Torque tighten the high pressure pump pinion nut90 N.m.

CAUTION



Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

Lubricate a new high pressure pump seal.

Refit the new seal to the high pressure pump.

Note:



Do not apply pressure to the high-pressure pump gear teeth.

Check that the high pressure pump is in contact with the cylinder head before positioning the high pressure pump bolts.

Refit the high pressure pump.

Torque tighten the high pressure pump bolts 25 N.m.

When replacing, apply the after repair procedure using the Diagnostic tool:

- - select the "injection computer",
 - go to repair mode,
 - display the "Before/After repair procedure" for the computer selected,
 - select "Injection pump" in the "List of components controlled by this computer" section,
 -
- carry out the operations described in the "After repair procedure" section.

Proceed in the reverse order to removal.

Using the Diagnostic tool, SIE



Repair-11x05x04-01x37-1-101-1.xml



XSL version : 3.02 du 22/07/11

HYDRAULIC BRAKE UNIT: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

pedal press

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 38C. Anti-lock braking system. ABS: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

WARNING



Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

CAUTION



Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

1. REMOVAL PREPARATION OPERATION

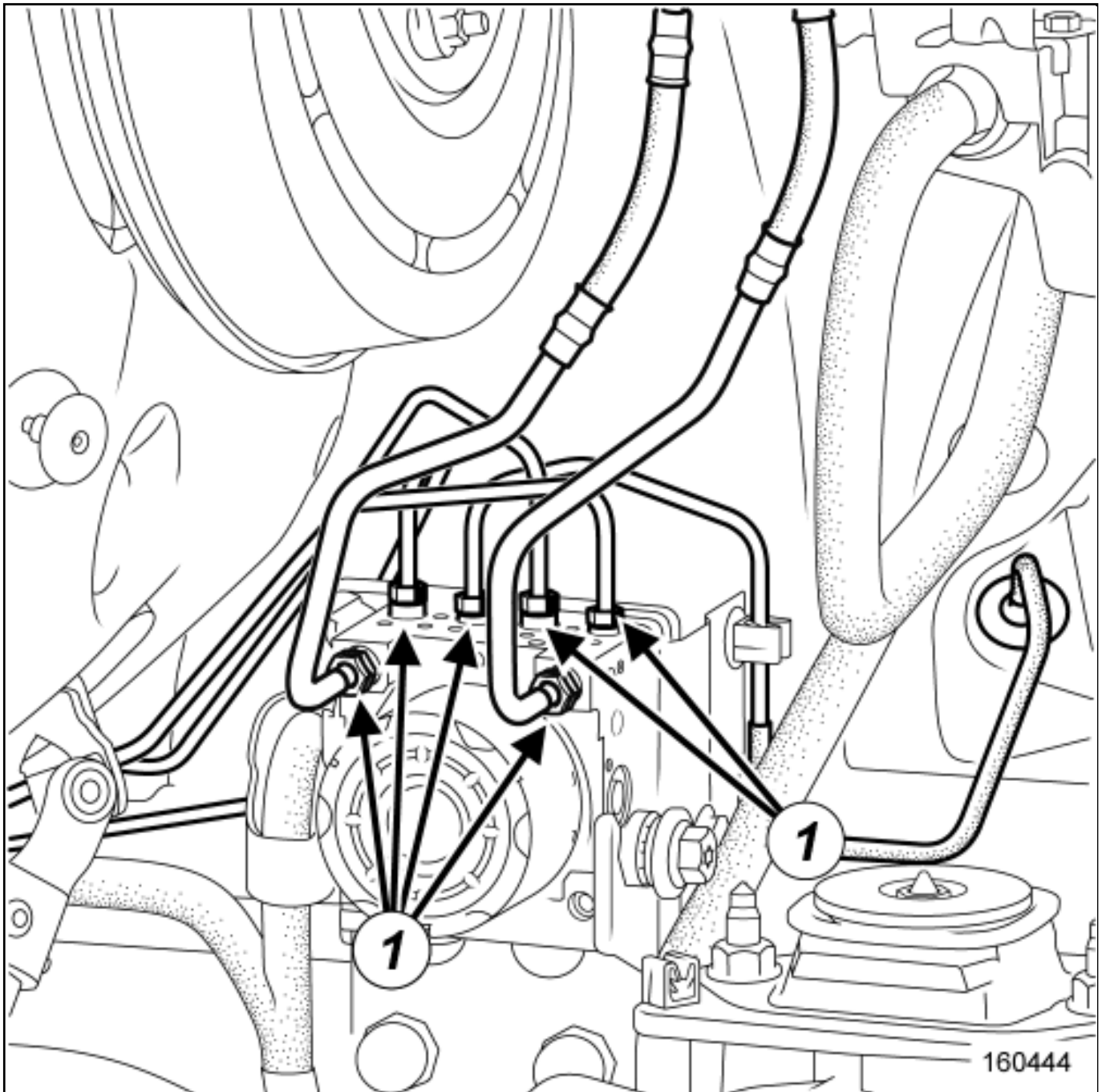
- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove:
 -

the battery [Battery: Removal - Refitting](#) ,

the battery tray [Battery tray: Removal - Refitting](#) .

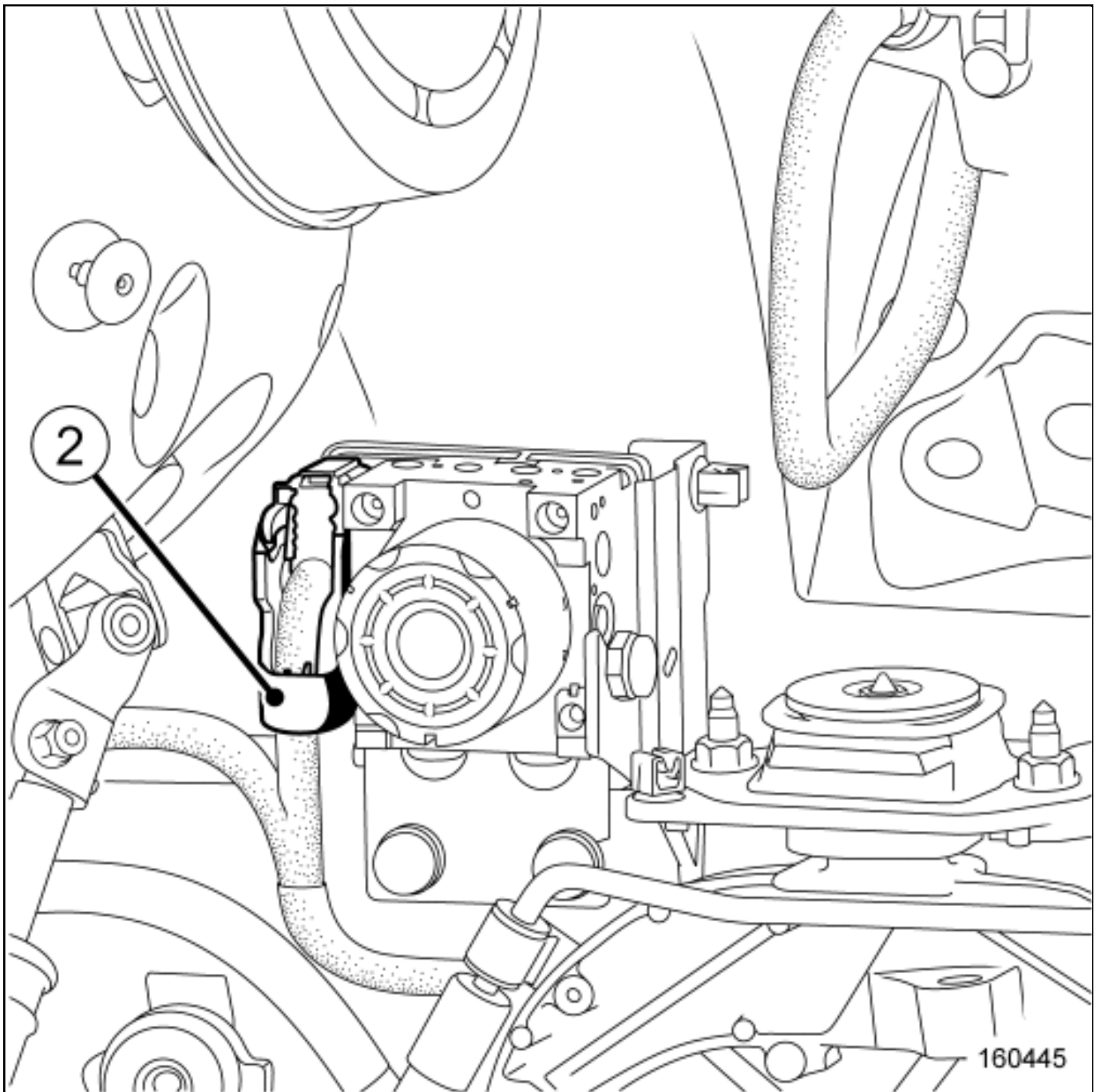
Fit a pedal presson the brake pedal to limit the outflow of brake fluid.

2. REMOVAL OPERATION

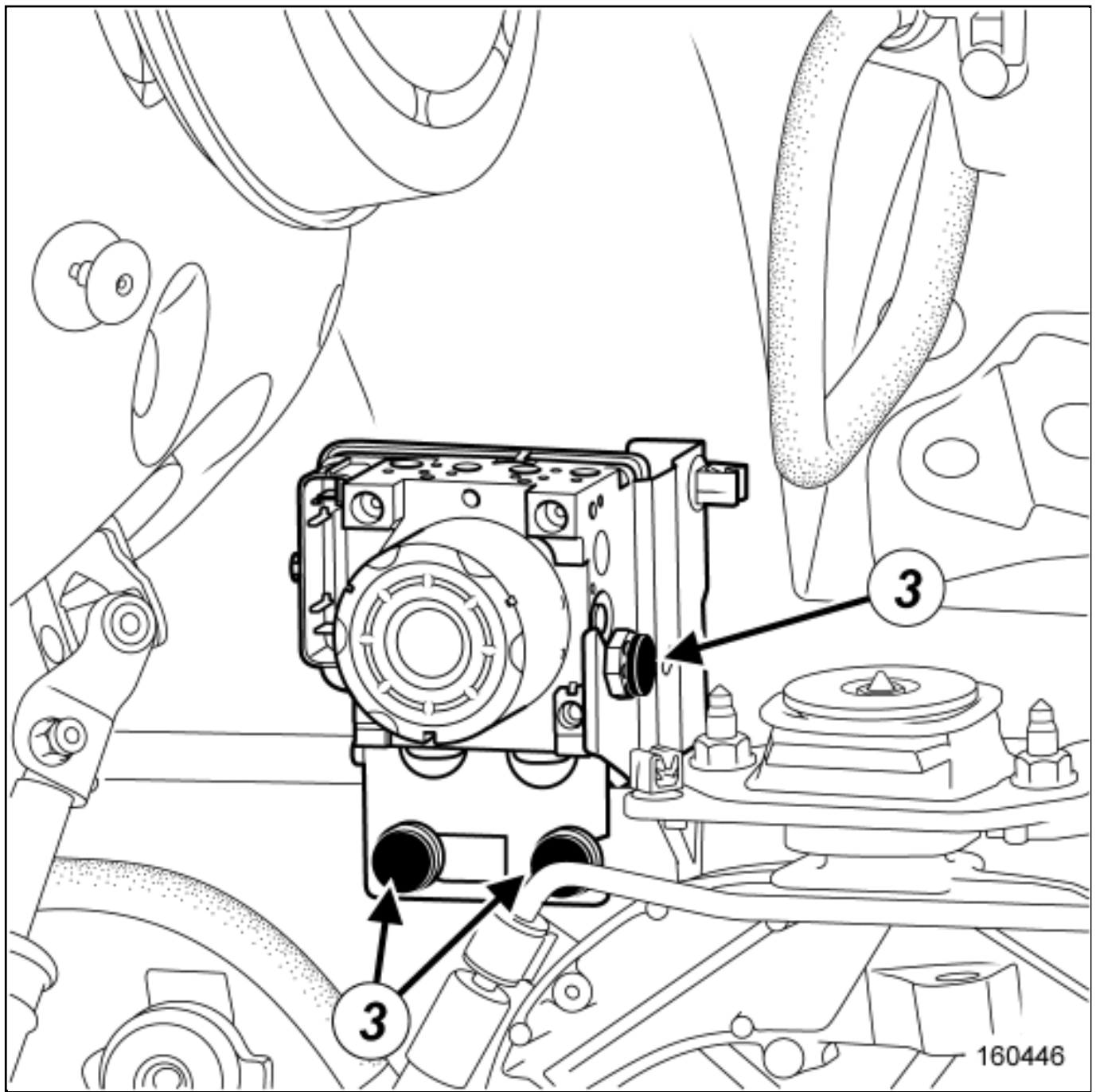


Unscrew the rigid pipe unions(1) from the hydraulic brake unit.

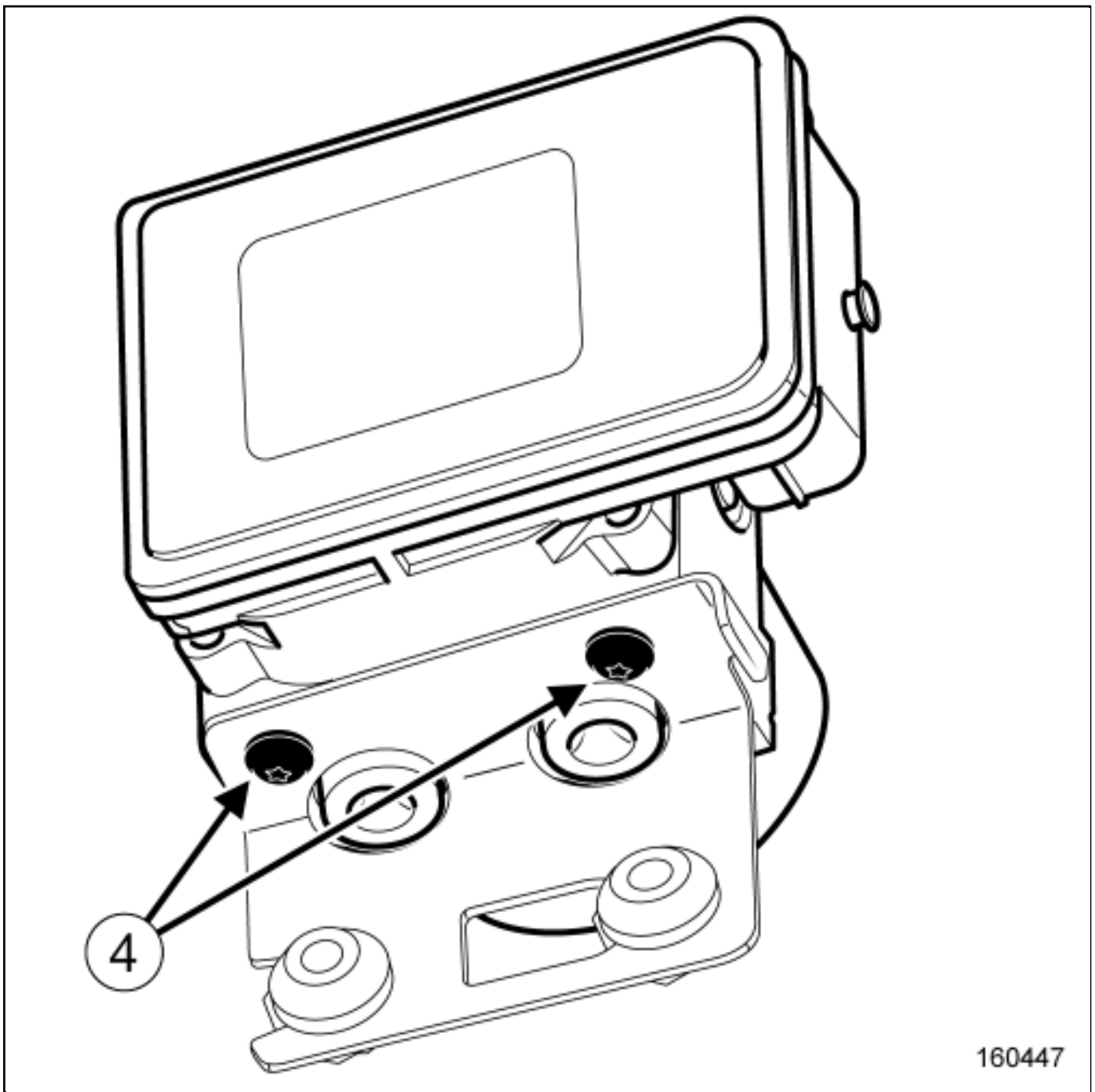
Fit blanking plugs on the openings of the hydraulic unit and brake pipes.



Disconnect the hydraulic brake unit connector(2) .



160446



160447

Remove:

-
- the mounting bolts of the hydraulic unit support(3) ,
-
- the hydraulic unit with its support,
-
- the hydraulic unit from its support(4) .

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Torque tightening:



the hydraulic unit bolts on its support **8 N.m**,



the mounting bolts of the hydraulic unit support **8 N.m**,



the hydraulic unit outlet pipes **14 N.m**,



the hydraulic unit inlet pipes **14 N.m**.

2. FINAL OPERATION



Bleed the brake circuit [Braking circuit: Bleed](#) .



Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the after repair procedure:



"ABS-ESP computer"

-Component affected by the after repair procedure:

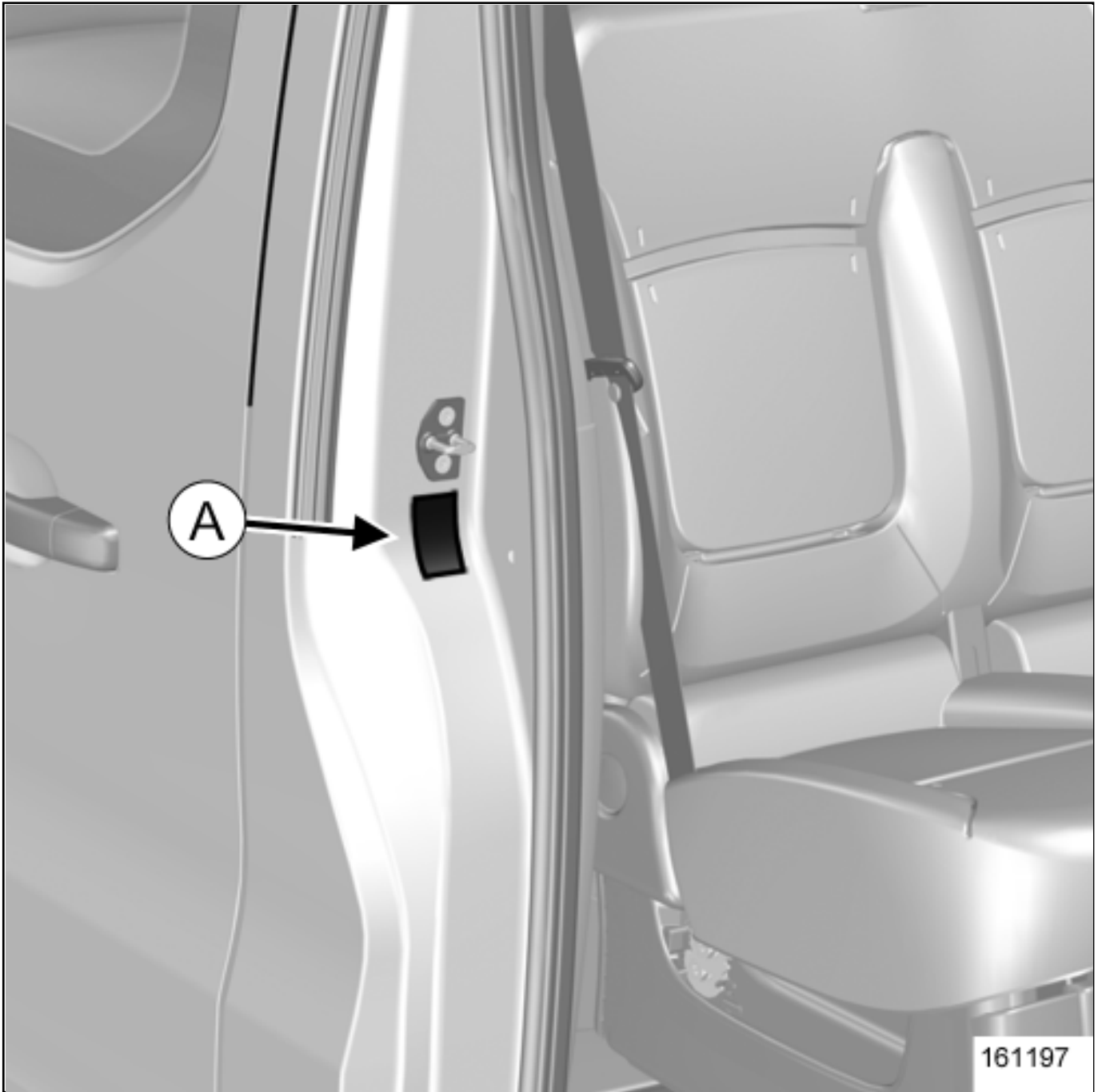


"Hydraulic unit"



IDENTIFICATION

1. LOCATION OF VEHICLE IDENTIFICATION PLATE



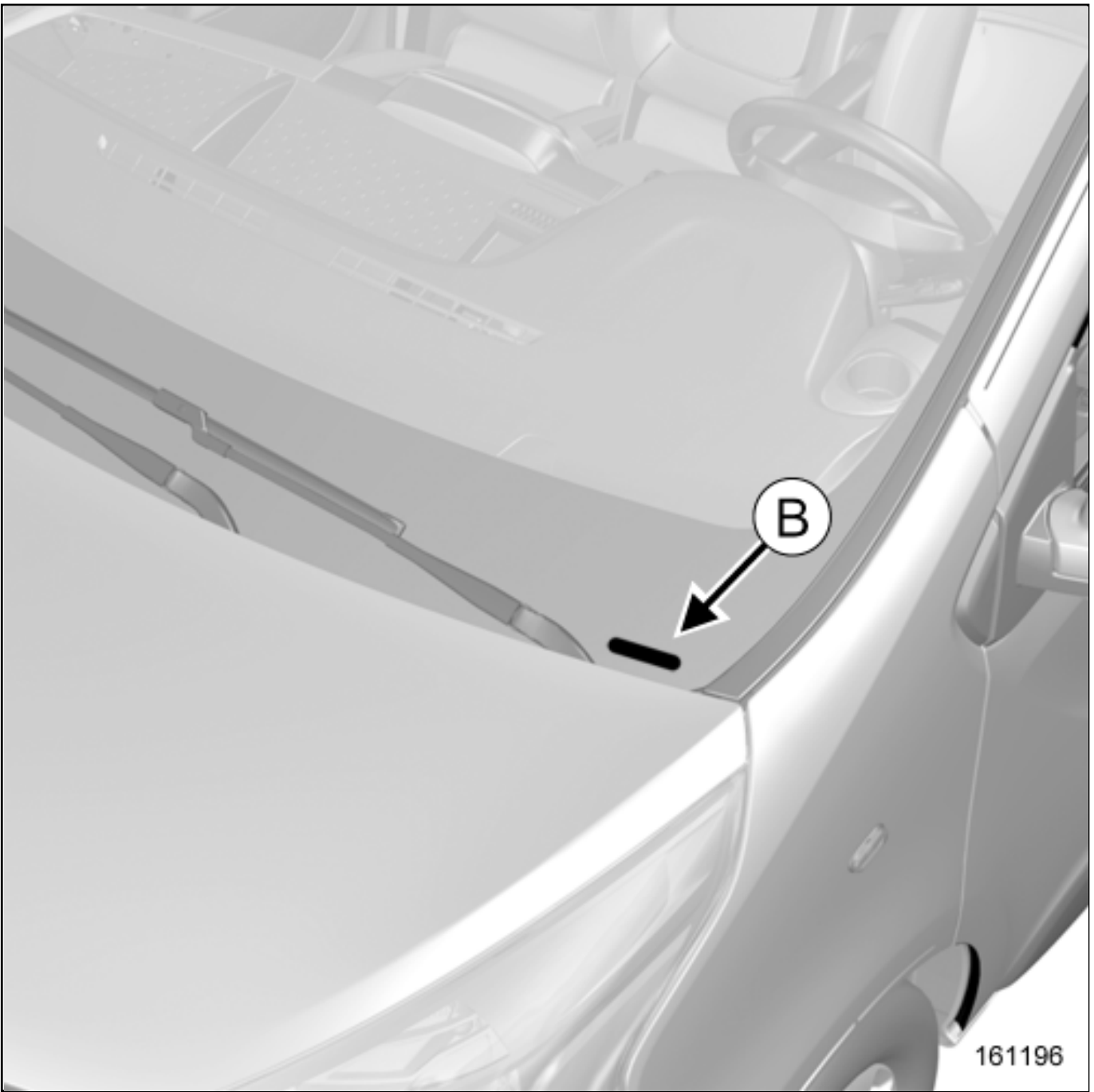
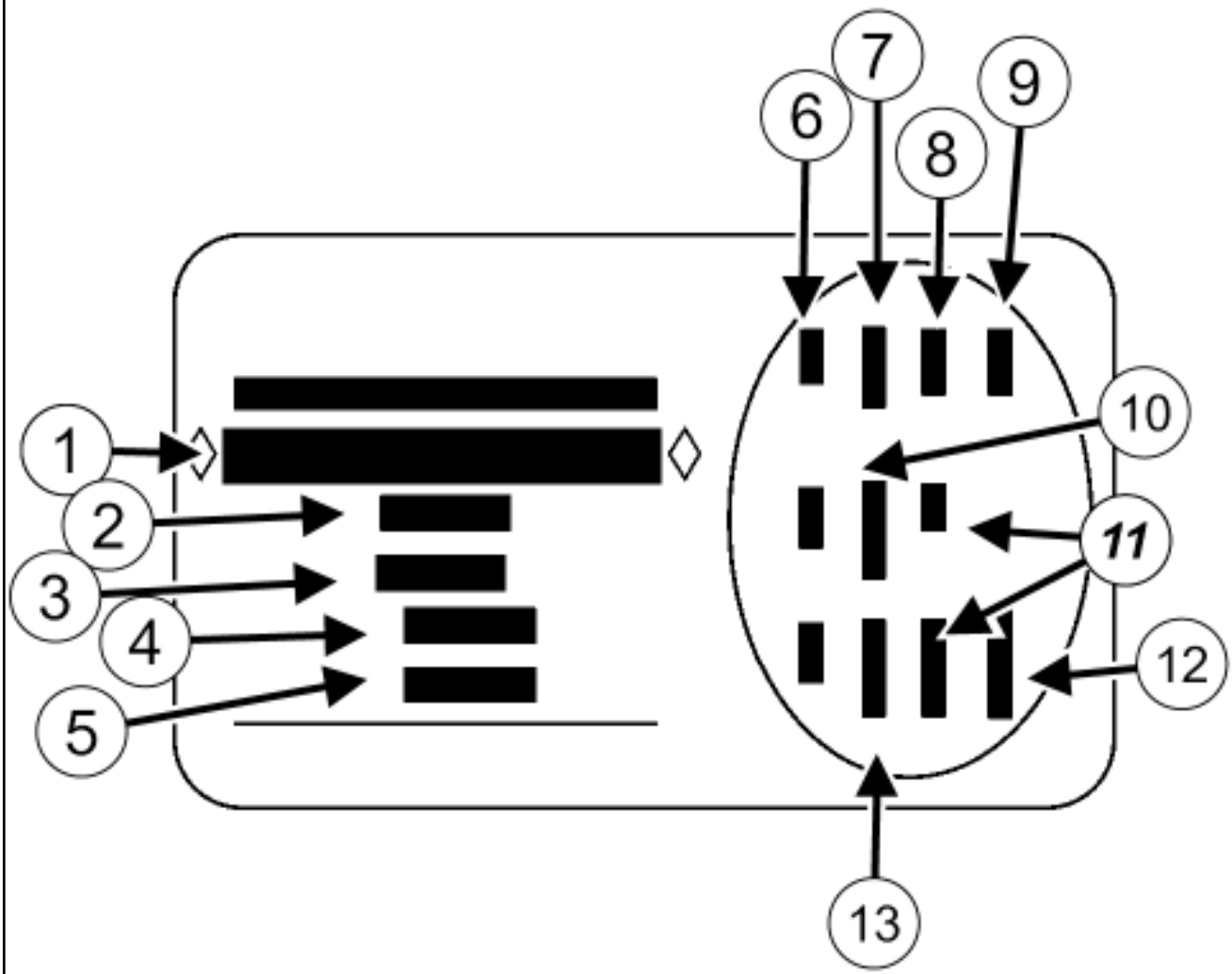


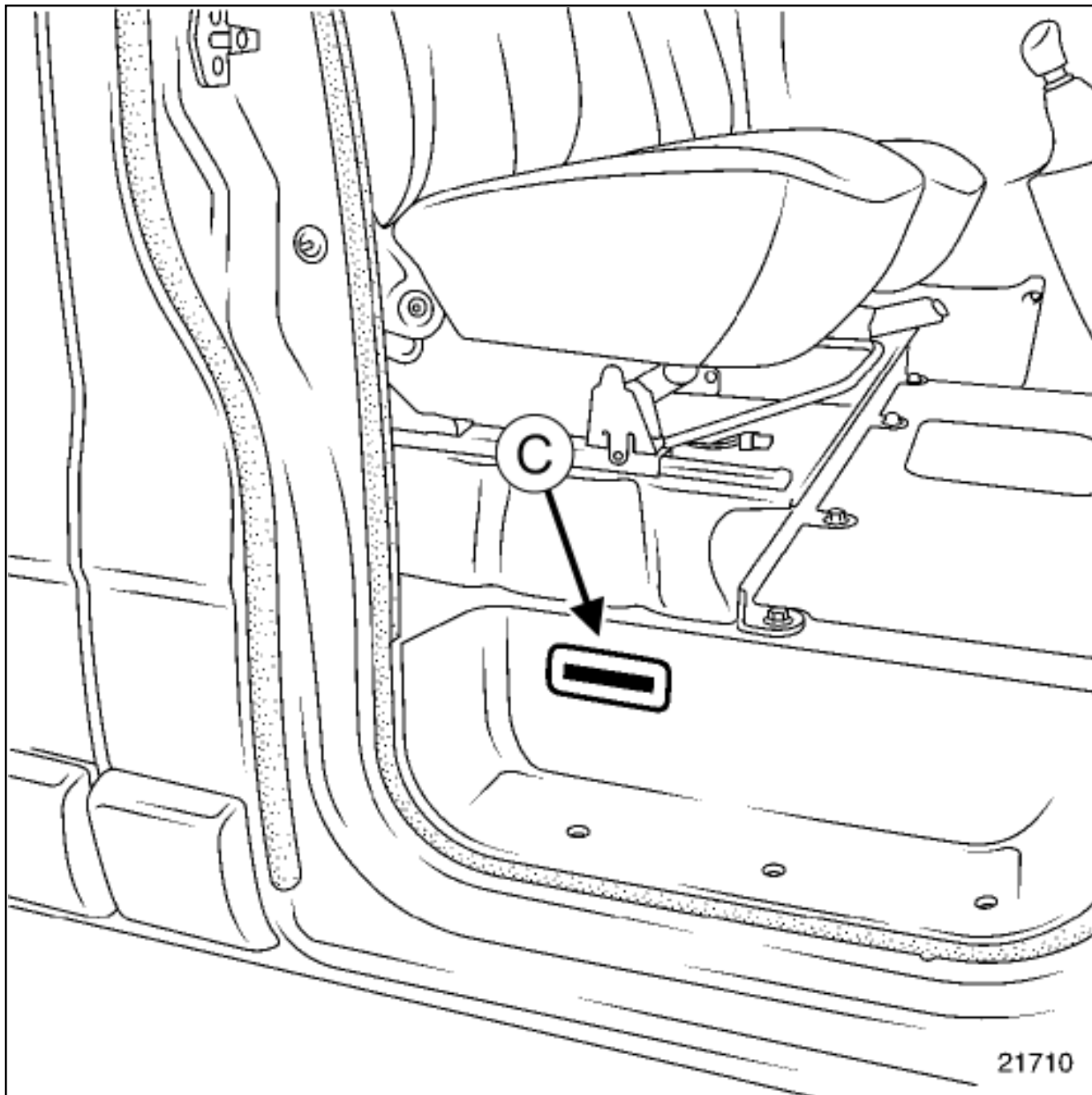
PLATE (A):



19031

(1)	Vehicle type mine and type number; this information also appears on marking (B)
(2)	MGVW (Maximum Gross Vehicle Weight)
(3)	GTW (Gross train weight, Vehicle under load with trailer)
(4)	Maximum permissible front axle load
(5)	Maximum permissible rear axle load
(6)	Vehicle technical specifications
(7)	Paintwork reference number
(8)	Equipment level
(9)	Vehicle type
(10)	Upholstery code
(11)	Additional equipment details
(12)	Fabrication number
(13)	Interior trim code

2. COLD-MARKING OF THE BODY

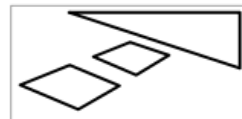


Note:



If the complete body is being replaced, it must be marked in compliance with the current regulations.



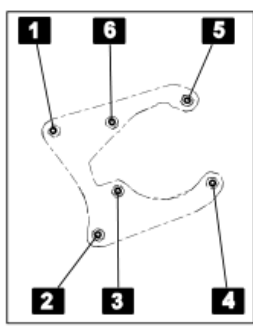


k

12
X6

[20]40/120°+/-10°

a
b
c
d
f
g
h
i
j



n

	o
	p
	q
	r
	s

l

[N.m] N.m / ° +/- °

m

1

LEGEND FOR ICONS

a	No.
b	Part number
c	A tightening order must be respected
D	Non-standard tightening torque / angle
f	[Initial torque] tightening torque / tightening angle +/- tightening angle tolerance
g	Part always to be replaced
h	Product / Consumable
i	Special tooling / Equipment required
j	Safety precaution
k	Front of the vehicle
l	Tightening units
m	Special tooling / Equipment required to use on all of the assembled parts
n	Tightening order to be respected

The following icons represent the adjustment possibilities for the bodywork components:

- the black dot in the centre represents the body of the bolt,
- the grey section represents the component to be adjusted,
- the white section represents the adjustment area.

o	No adjustment possible
p	Adjustment possible along all axis
q	Adjustment possibly only along vertical axis
r	Adjustment possibly only along horizontal axis
s	Adjustment possible along all axis



Repair-00x01x03-02x21-1-1-1.xml



KSL version : 3.02 du 22/07/11

INJECTION ASSEMBLY: EXPLODED VIEW

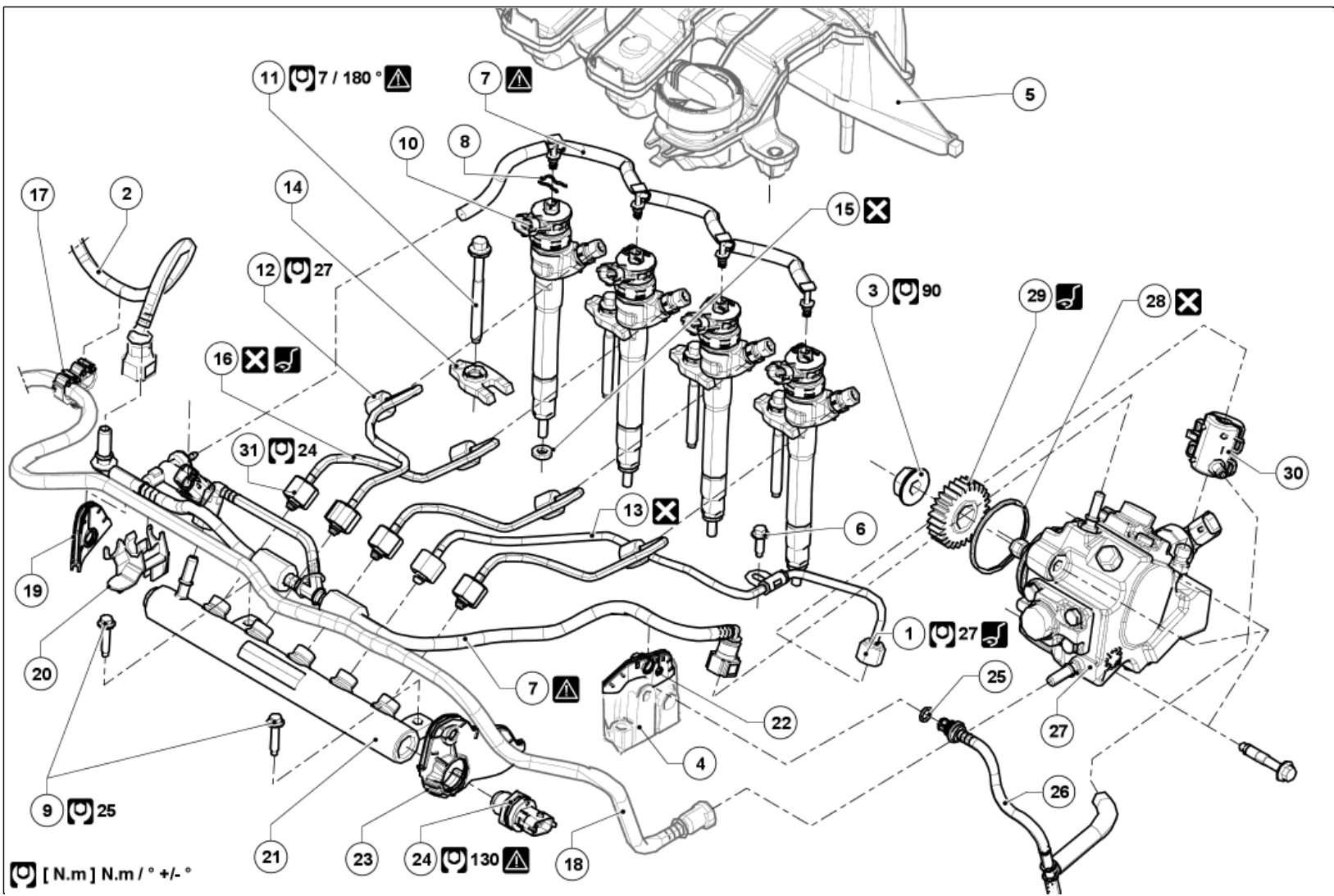


Illustration key: Description

(see Diesel injection: Precautions for the repair)

Marks	Designations	Informations
1	High pressure pipe nut, high pressure pump end	(see 13B, Diesel injection, High pressure pipe between pump and rail: Removal - Refitting)
2	Fuel pipe	
3	High pressure pump nut	(see 13B, Diesel injection, High pressure pump: Removal - Refitting)
4	Cylinder head	Cylinder head: Removal - Refitting
5	Oil decanter	Oil decanter: Removal - Refitting
6	High pressure pipe between pump and rail bolt	(see 13B, Diesel injection, High pressure pipe between pump and rail: Removal - Refitting)
7	Diesel injector fuel return rail	<p>WARNING :</p> <ul style="list-style-type: none"> ■ When removed, the injector fuel return rail must be stored in a clean, dry and free from grease area. ■ In case of a leakage of fuel within the injector rail protector compartment, always replace the diesel injector fuel return rail. <p>(see 13B, Diesel injection, Diesel injector fuel return rail: Removal - Refitting)</p>
8	Circlips	
9	Injector rail bolts	(see 13B, Diesel injection, Injector rail: Removal - Refitting)
10	Diesel injector	(see 13B, Diesel injection, Diesel injector: Removal - Refitting)
11	Injector clamp bolt	<p>(see 13B, Diesel injection, Diesel injector: Removal - Refitting)</p> <p>Becareful to the specific tightening when replacing a cylinder head.Cylinder head: Removal - Refitting</p>
12	High pressure pipe nut, injector end	(see 13B, Diesel injection, High pressure pipe between rail and injector: Removal - Refitting)
13	High pressure pipe between the pump and rail	(see 13B, Diesel injection, High pressure pipe between pump and rail: Removal - Refitting)
14	Injector clamp	(see 13B, Diesel injection, Diesel injector: Removal - Refitting)
15	Injector washer	(see 13B, Diesel injection, Diesel injector: Removal - Refitting)
16	High pressure pipe between the rail and injector	
17	Clip	
18	Fuel pipe	
19	Injector rail protector seal	(see 13B, Diesel injection, Injector rail protector: Removal - Refitting)
20	Support	
21	Injector rail	(see 13B, Diesel injection, Injector rail: Removal - Refitting)
22	Injector rail protector seal	(see 13B, Diesel injection, Injector rail protector: Removal - Refitting)
23	Injector rail protector seal	(see 13B, Diesel injection, Injector rail protector: Removal - Refitting)
24	Rail pressure sensor	<p>(see 13B, Diesel injection, Rail pressure sensor: Removal - Refitting)</p> <ul style="list-style-type: none"> ■ In case of a rail pressure sensor fitted with a color ring : <ul style="list-style-type: none"> ■ replacing the sensor is forbidden, ■ the injector rail must be completely replaced if the rail pressure sensor fails.
25	Fuel collector pipe seal	
26	Fuel collector pipe	

27	High pressure pump	(see 13B, Diesel injection, High pressure pump: Removal - Refitting)
28	High pressure pump seal	(see 13B, Diesel injection, High pressure pump: Removal - Refitting)
29	High pressure pump sprocket	(see 13B, Diesel injection, High pressure pump: Removal - Refitting) Mot. 1906
30	Fuel collector	(see 13B, Diesel injection, High pressure pump: Removal - Refitting)
31	High pressure pipe between rail and injector nut, rail end	(see 13B, Diesel injection, High pressure pipe between rail and injector: Removal - Refitting)



INJECTOR LEAK FLOW: CHECK



Note, one or more warnings are present in this procedure



Special tooling required

Kit for measuring the injector fuel flow rate.

Kit for measuring SIEMENS injector leakage flow rate.

Equipment required

Diagnostic tool

self-contained starter

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see **Diesel injection: Precautions for the repair**) ,
- [Vehicle: Precautions for the repair](#) .



WARNING

Wear leaktight gloves (Nitrile type) for this operation.

CHECK

1. PREPARATION OPERATION FOR CHECK

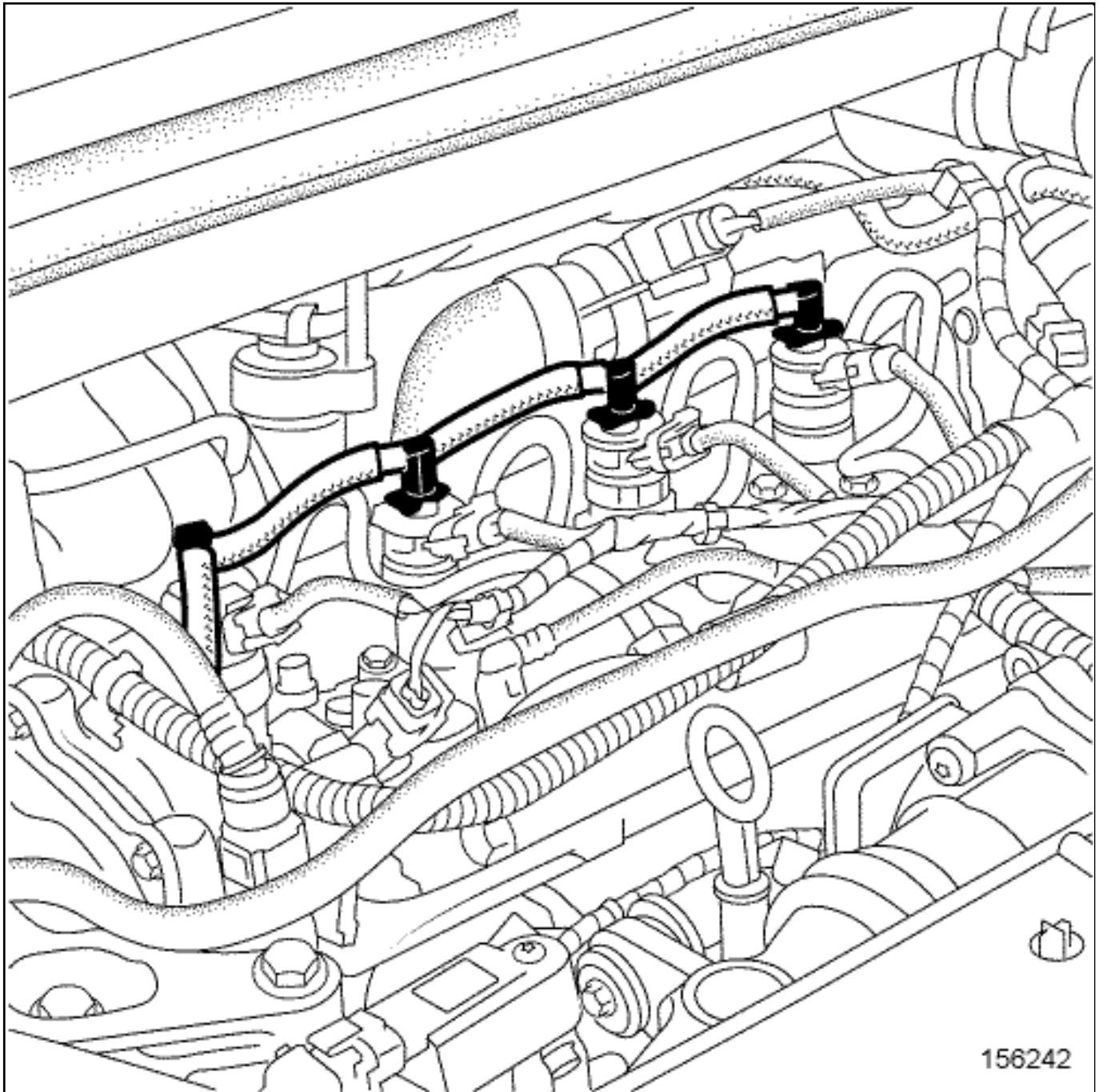
■ Disconnect the battery [Battery: Removal - Refitting](#) .

■ Disconnect the oil vapour rebreathing pipe from the oil decanter.

■

Remove the injector rail protector ([see 13B, Diesel injection, Injector rail protector: Removal - Refitting](#)) .

Remove the oil decanter [Oil decanter: Removal - Refitting](#) .

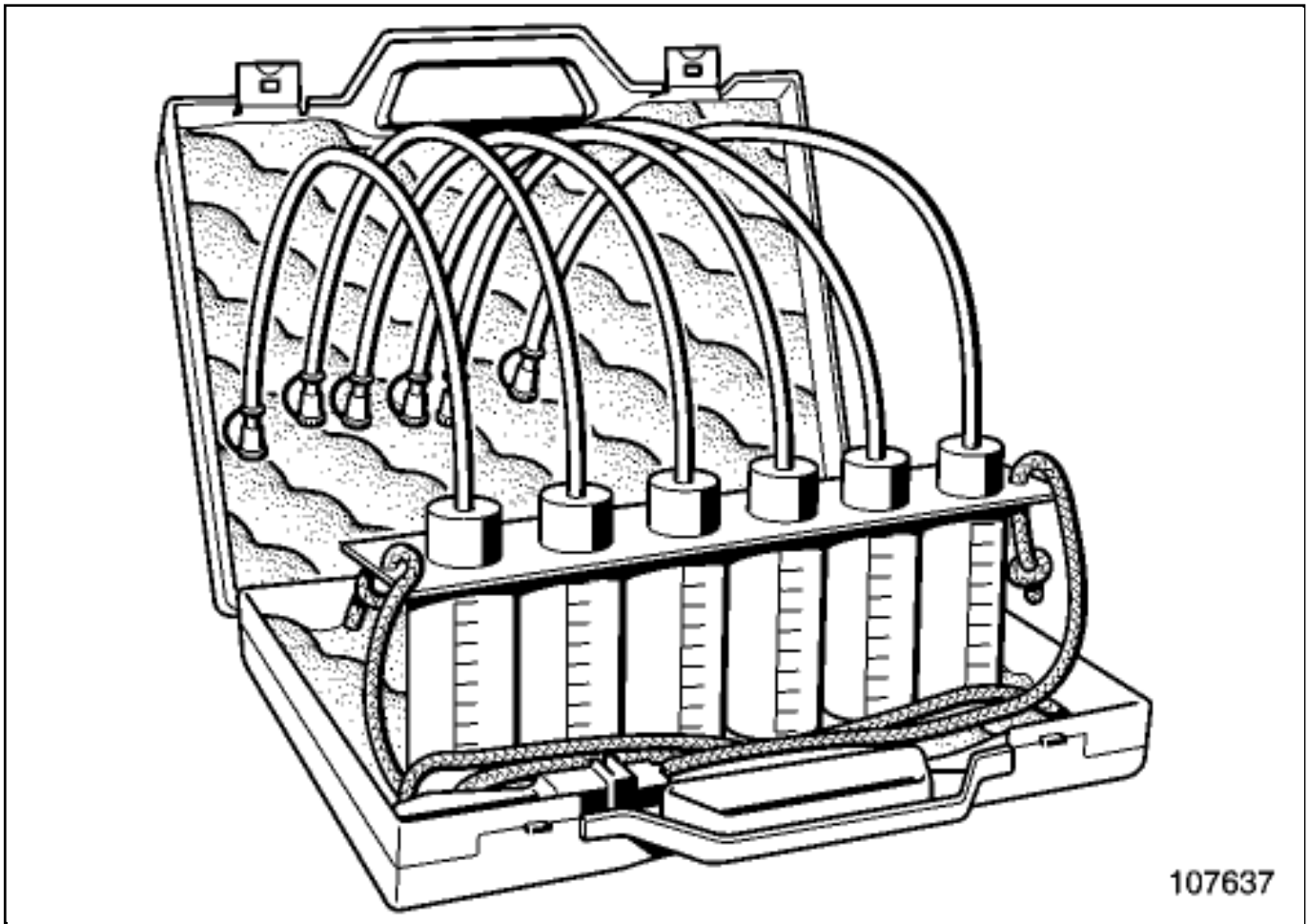


Disconnect the diesel injector fuel return rail from the diesel injectors starting with injector 1 (gearbox end).



CAUTION

Do not use the screwdriver as a lever on the injector fuel return unions.



107637



Connect the four transparent hoses of the toolKit for measuring SIEMENS injector leakage flow rate. on the diesel injectors in place of each union of the diesel injector fuel return rail.



Insert these hoses in the four graduated measuring cylinders of the toolKit for measuring the injector fuel flow rate. .



Refit the the oil vapour rebreathing pipe from the oil decanter.



Connect the battery [Battery: Removal - Refitting](#) .

2. CHECKING OPERATION



Connect a self-contained starter.

Force the vehicle's + after ignition feed.

Connect the Diagnostic tool.

Run command with the Diagnostic tool:

- RZ003 : "ENGINE ADAPTIVES",

- VP036 : "FUEL SUPPLY INHIBITION".

Run the starter for 15 seconds.

Check that the diesel injector return volume is less than or equal to 20 ml.

Repeat the starting phase twice, allowing an interval of 30 seconds between each starting phase.

Remove the card from the reader to interrupt the + after ignition feed and wait for the loss of communication message to appear on the Diagnostic tool.



Note:

If the message does not appear, wait 9 minutes.

When the loss of dialogue message appears or after waiting 9 minutes, force the vehicle's + after ignition feed.

Disconnect:

-

the Diagnostic tool,

the self-contained starter.

3. FINAL OPERATION

Proceed in the reverse order to removal.



Repair-11x05x01x02-01x58-1-32-1.xml



XSL version : 3.02 du 22/07/11

INJECTOR RAIL PROTECTOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

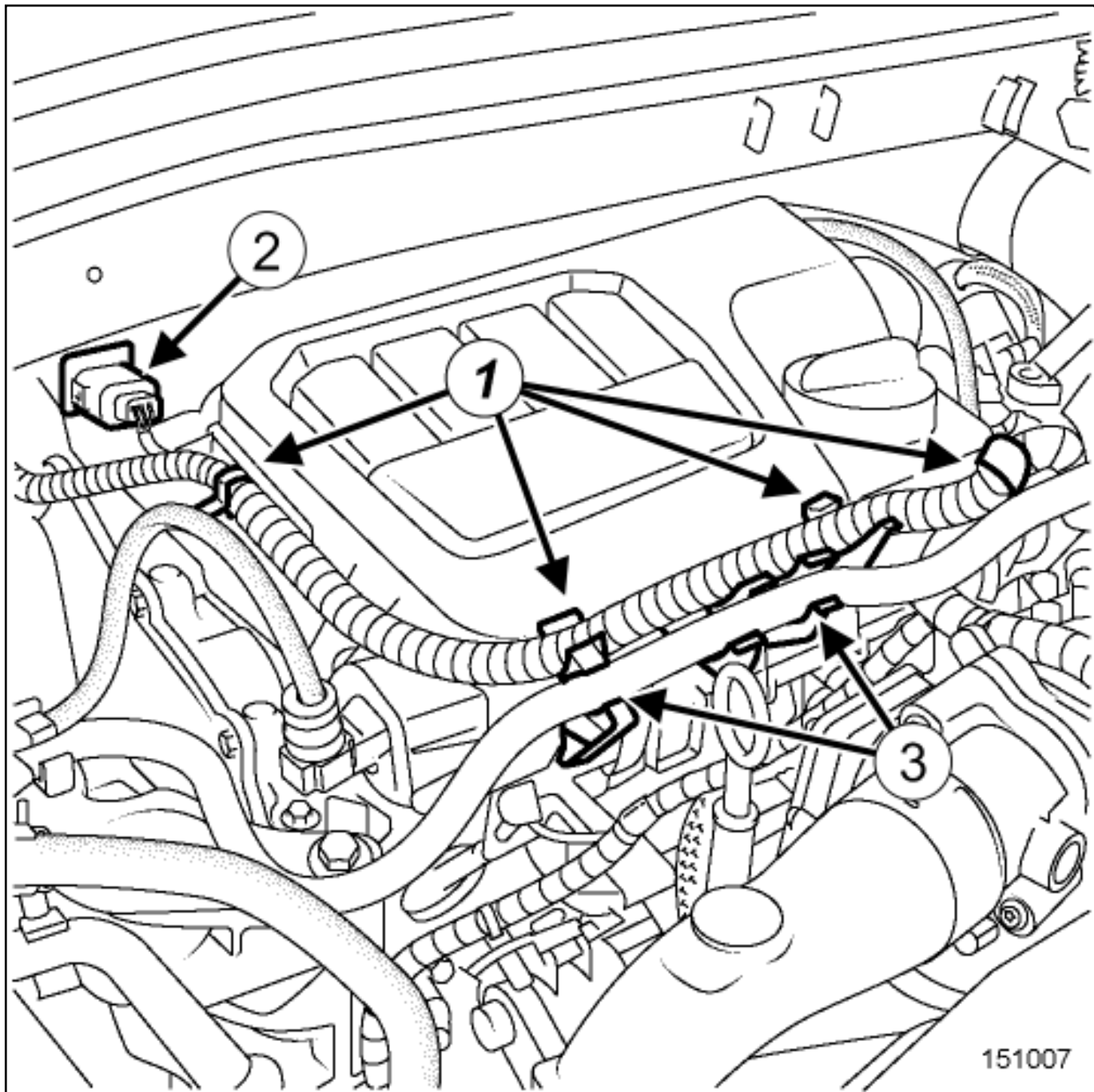
REMOVAL

1. REMOVAL PREPARATION OPERATION

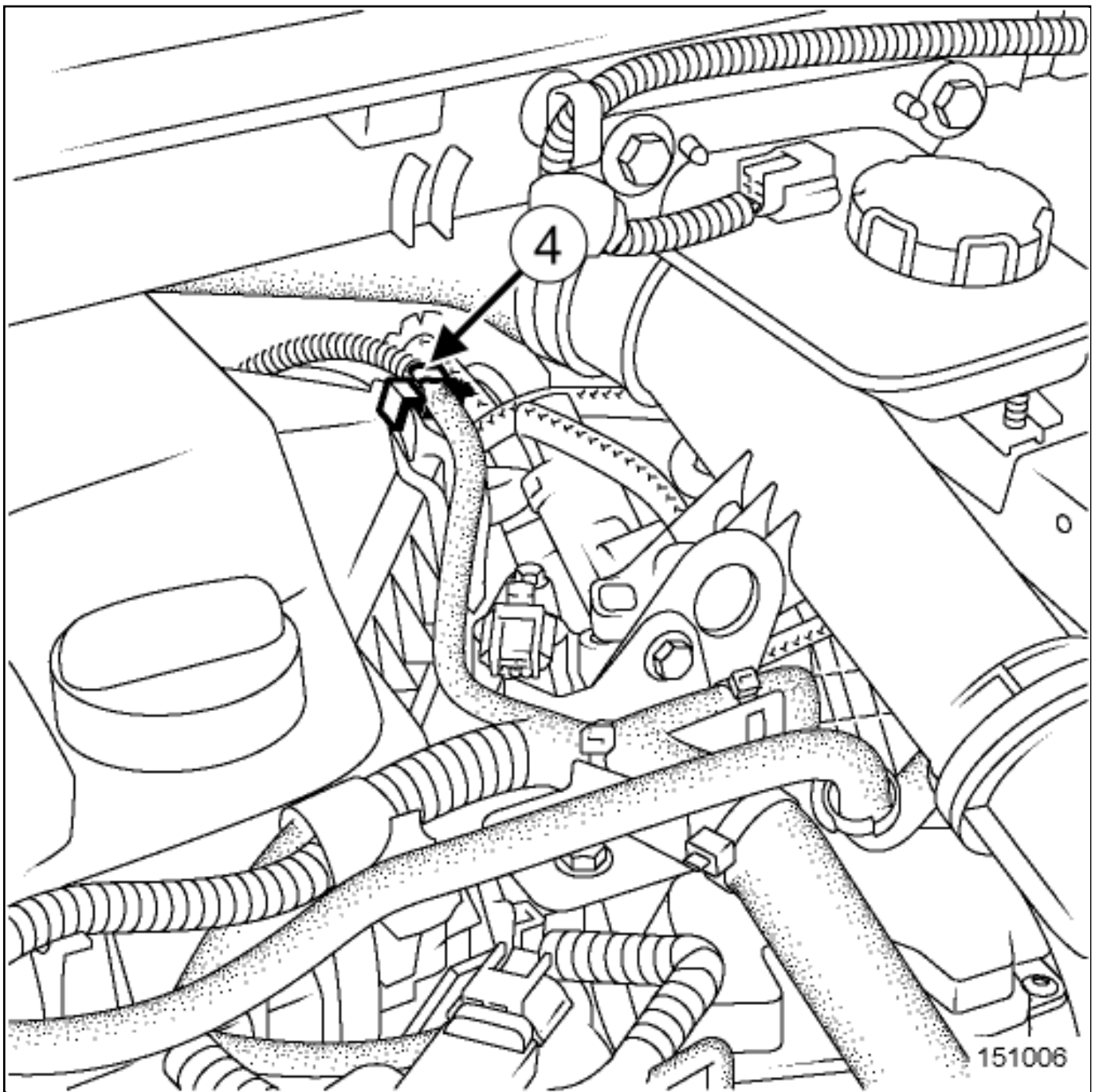


Remove the air filter unit air outlet pipe [Air inlet assembly: Exploded view](#) .

2. REMOVAL OPERATION



151007



Unclip:



the oxygen sensor wiring(1) ,



the oxygen sensor connector(2) ,

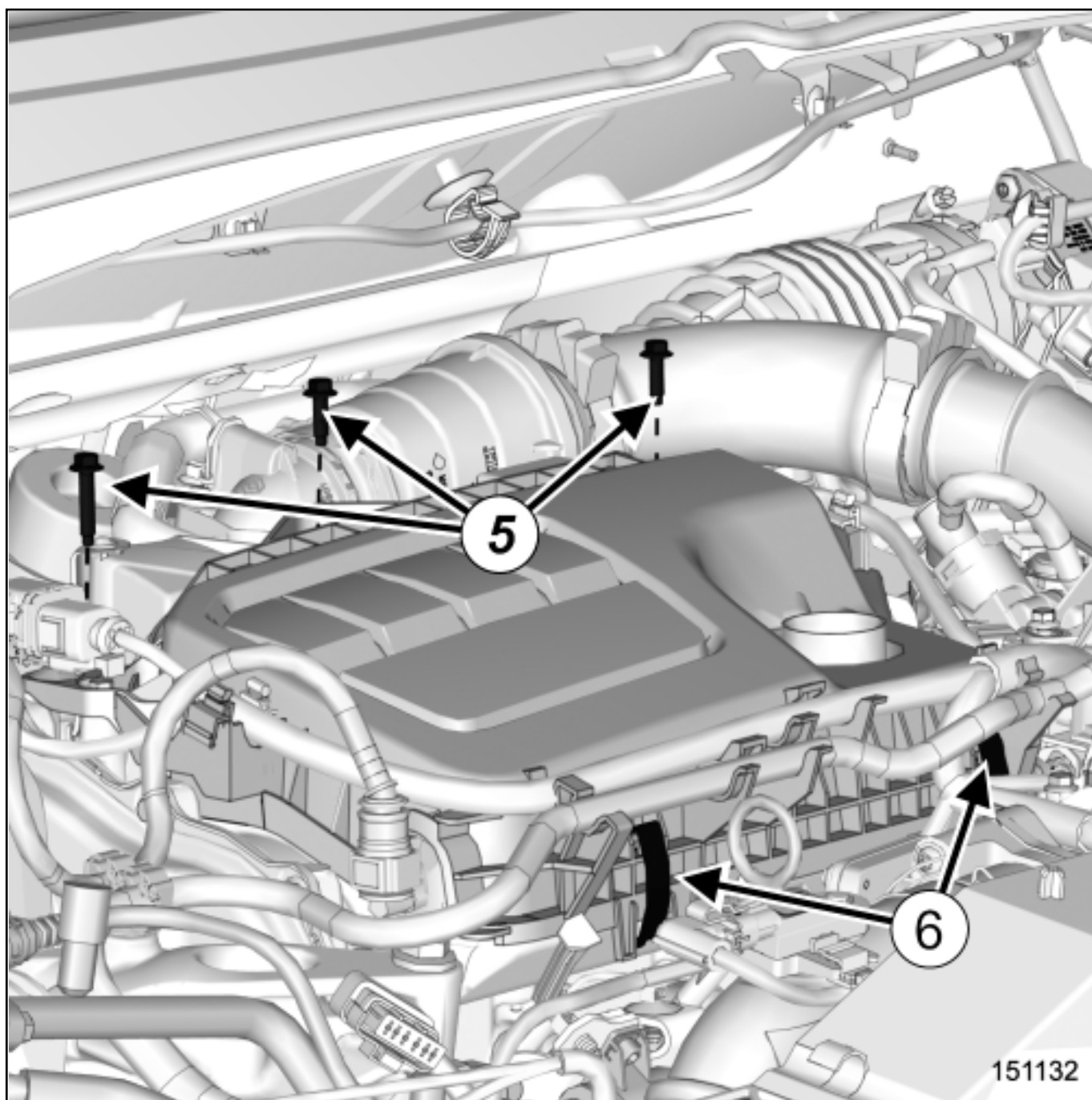


the fuel supply pipe(3) ,



the wiring of the turbocharging pressure regulator control solenoid valve(4) .

Remove the engine oil filler cap [Engine oil circuit assembly: Exploded view](#) .



Remove the injector rail protector bolts(5) .

Unclip the clips(6) from the injection rail protector.

Remove the injector rail protector.

REFITTING

1. REFITTING OPERATION



Check that the injector rail protector seals are in position.



Proceed in the reverse order to removal.



Repair-11x05x06x09-01x37-1-32-1.xml



XSL version : 3.02 du 22/07/11

INJECTOR RAIL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 13B, Diesel injection, Injection assembly: Exploded view](#)).



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see [Diesel injection: Precautions for the repair](#)),
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



CAUTION

Once the warranty period for the injector rail has expired, only the pressure sensor can be replaced.

During the injector rail warranty period, the injector rail should be completely replaced if the pressure sensor fails.

WARNING



- Use the diagnostic tool before any operation is carried out on the injection circuit to check:
 - that the rail is not under pressure,
 - that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.



CAUTION

To avoid any corrosion or damage, protect the areas on which fuel is likely to run.



WARNING

Wear leaktight gloves (Nitrile type) for this operation.

REMOVAL

1. REMOVAL PREPARATION OPERATION



Disconnect the battery [Battery: Removal - Refitting](#) .



Remove the air filter unit air outlet pipe [Air inlet assembly: Exploded view](#) .



Remove:

-
- the injector rail protector ([see 13B, Diesel injection, Injector rail protector: Removal - Refitting](#)) ,
- the oil decanter [Engine oil circuit assembly: Exploded view](#) ,
- the high pressure pipe between the rail and the injector ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) ,
-

the high pressure pipe between the pump and the rail([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .

Disconnect ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) :

-
- the injector rail pressure sensor connector,
- the fuel return pipe union from the injector rail,
- the fuel return pipe union,
- the fuel return pipe union of the high pressure pump.

Unclip the fuel return rail from the rocker cover.

Move aside the fuel return rail.

Insert blanking plugs.

Remove the injector rail protector seal from the injecteur rail([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .

2. REMOVAL OPERATION

Fit blanking plugs to the injector rail openings.

Remove ([see 13B, Diesel injection, Injection assembly: Exploded view](#)) :

-
- the injector rail bolts,
- the injector rail.

1. REFITTING PREPARATION OPERATION



CAUTION

Once the warranty period for the injector rail has expired, only the pressure sensor can be replaced.

During the injector rail warranty period, the injector rail should be completely replaced if the pressure sensor fails.



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Using the Diagnostic tool, SIE



[Repair-11x05x06x07-01x37-1-90-1.xml](#)



INLET DISTRIBUTOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Pipe clamps.

Ms. 583

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973



parts always to be replaced:



[inlet distributor stud on cylinder head \(if loosened\)](#)

[inlet distributor seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

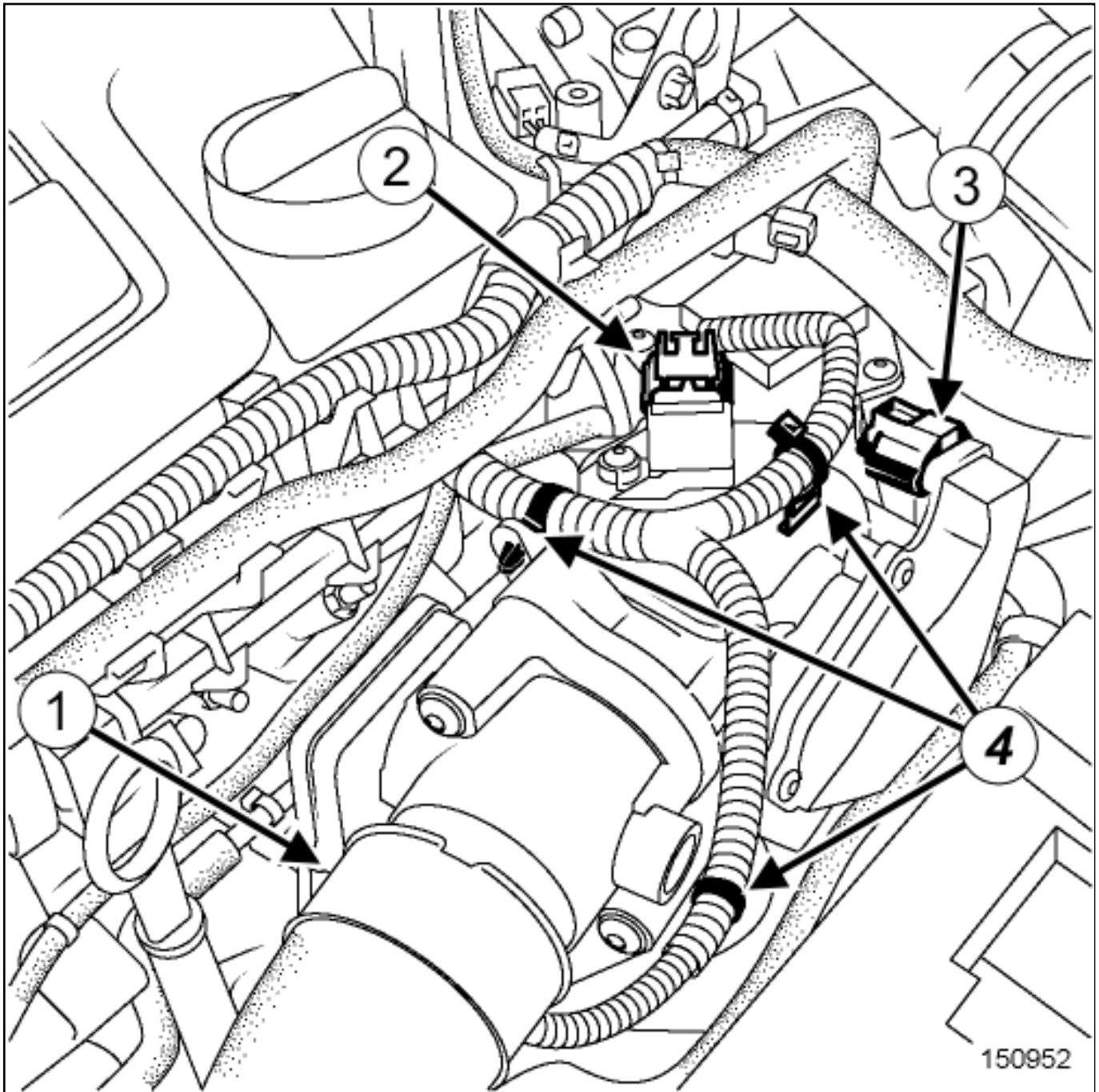
Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 12A, Fuel mixture, Air inlet assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Disconnect the battery [Battery: Removal - Refitting](#) .
- Drain the cooling system [Cooling system: Draining - Refilling](#) .
- Remove:
 - the engine undertray bolts,
 - the engine undertray,
 - the front bumper [Front bumper assembly: Exploded view](#) ,
 - the headlights [Front signals - lighting assembly: Exploded view](#) ,
 - the front end panel [Front end panel: Removal - Refitting](#) ,

- the air deflectors,
- the intercooler([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)),
- the cooling radiator([Coolant circuit assembly: Exploded view](#)).



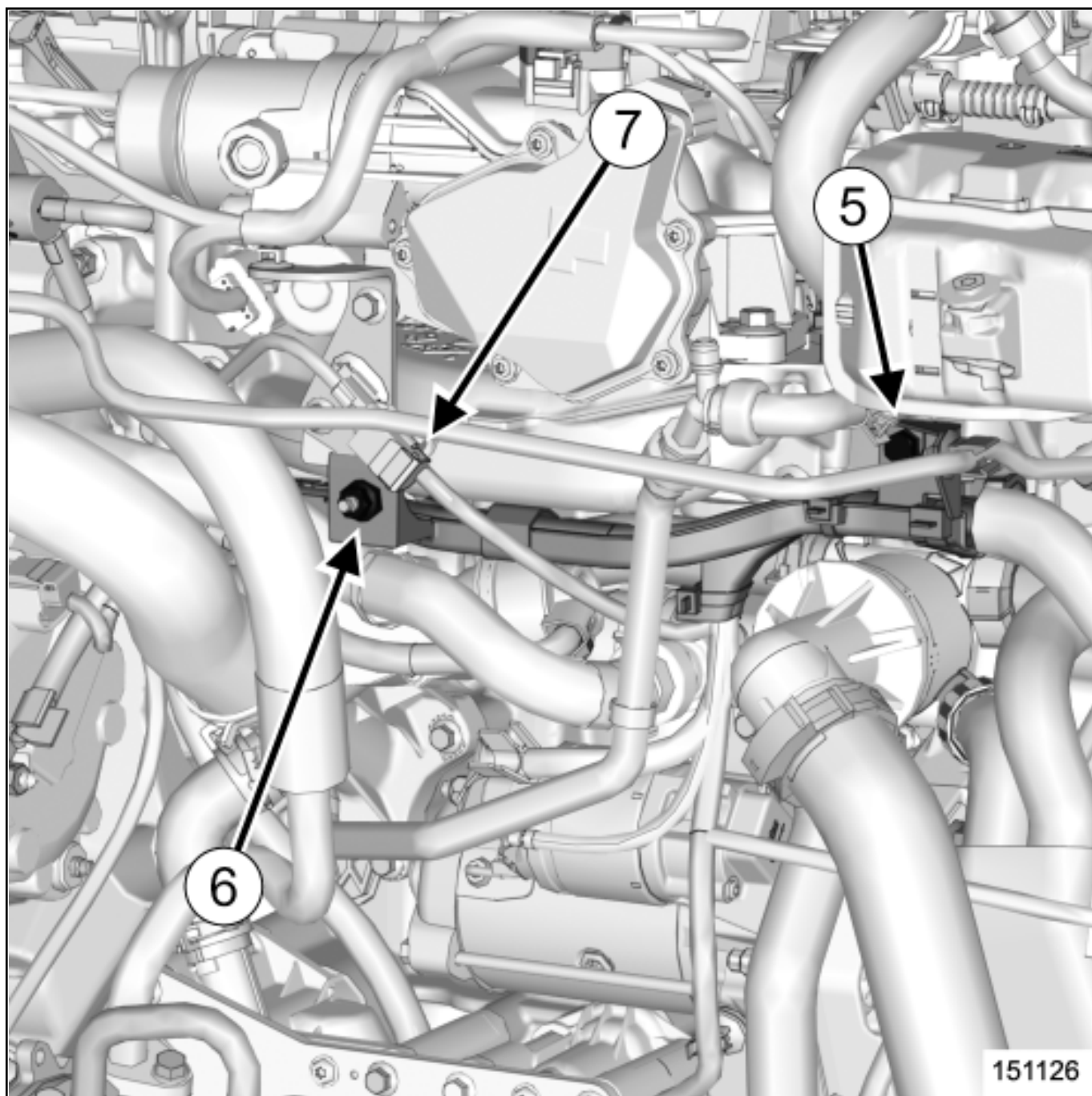
150952

- Disconnect the connectors:
 - from the damper valve(1),
 - from the air pressure sensor(2),
 - from the swirl valve(3).
- Unclip the wiring at(4).
- Remove ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)):
 - the swirl valve bolts,
 - the "swirl valve - damper valve" assembly,
 - the swirl valve seal.

Remove [Engine oil circuit assembly: Exploded view](#) :

- the dipstick,
- the dipstick guide tube bolt.

Move aside the dipstick guide.

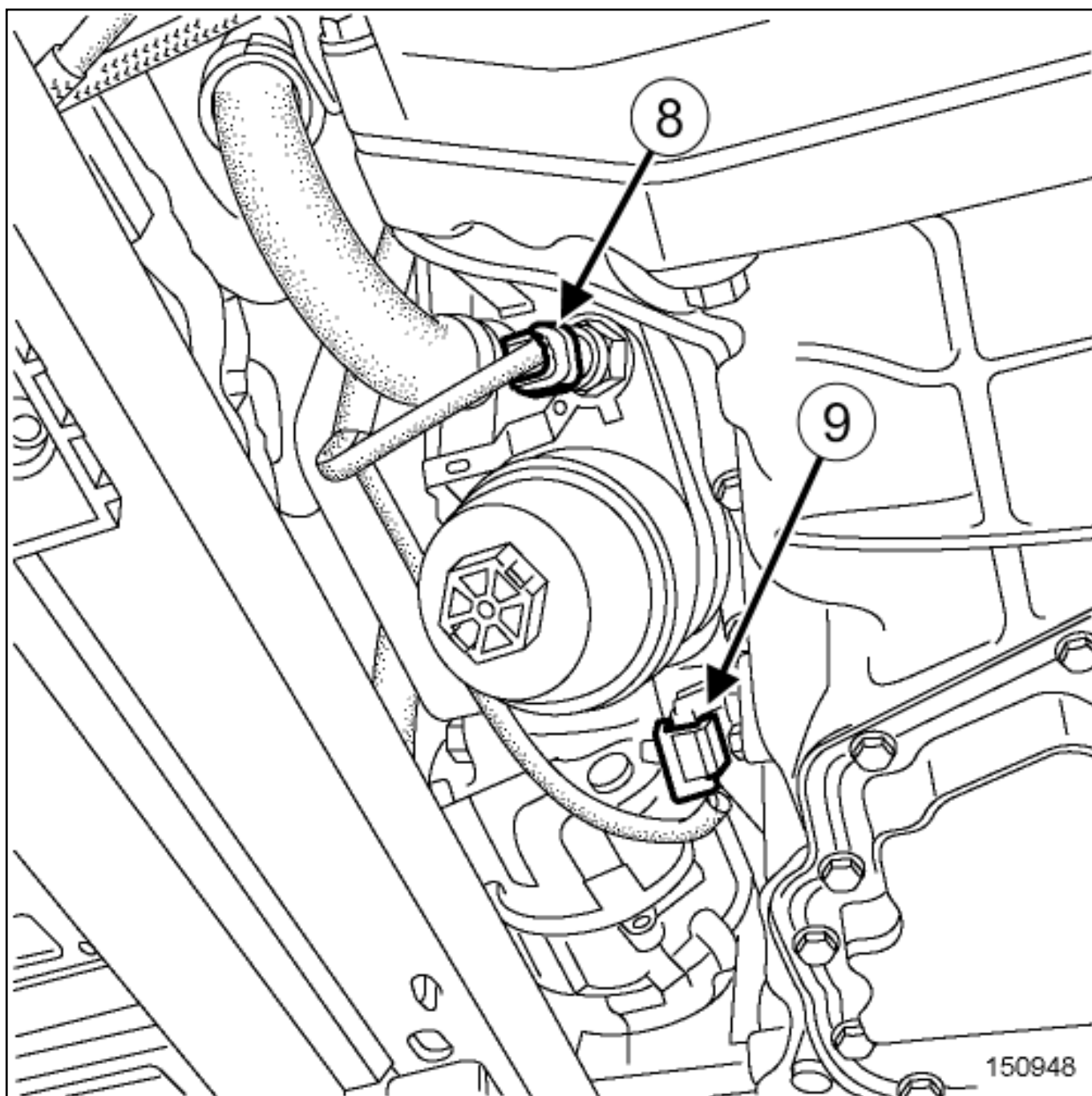


Remove:

- the wiring channel bolt(5) ,
- the wiring channel nut(6) .

Unclip the connector from the coolant temperature sensor(7) .

- Disconnect the connector from the coolant temperature sensor.

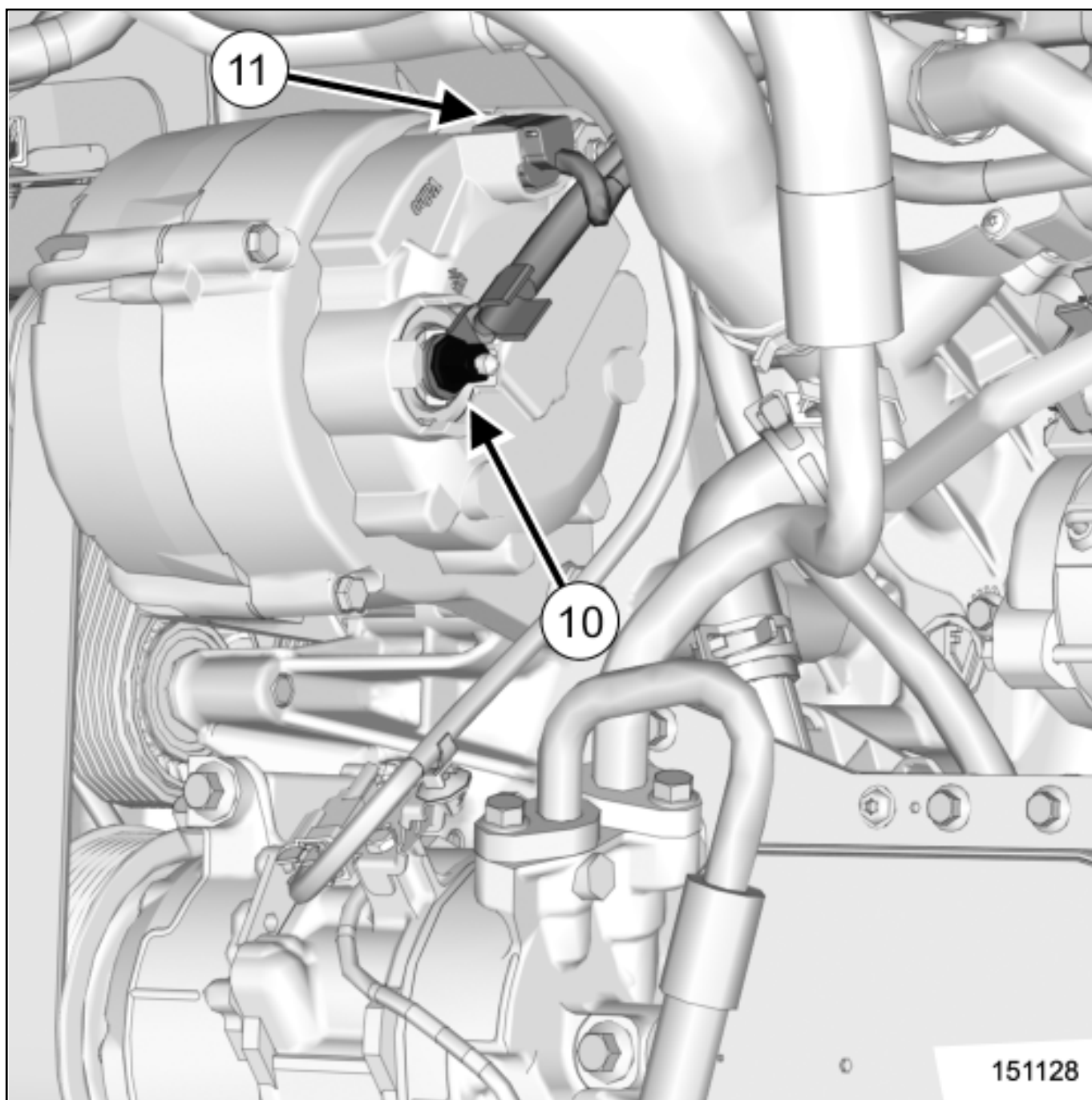


- Disconnect the connectors:
 - from the oil pressure sensor(8) ,
 - from the oil level sensor(9) ,
 - from the air conditioning compressor.

- Unclip the wiring.

- Disconnect the reverse gear switch connector.

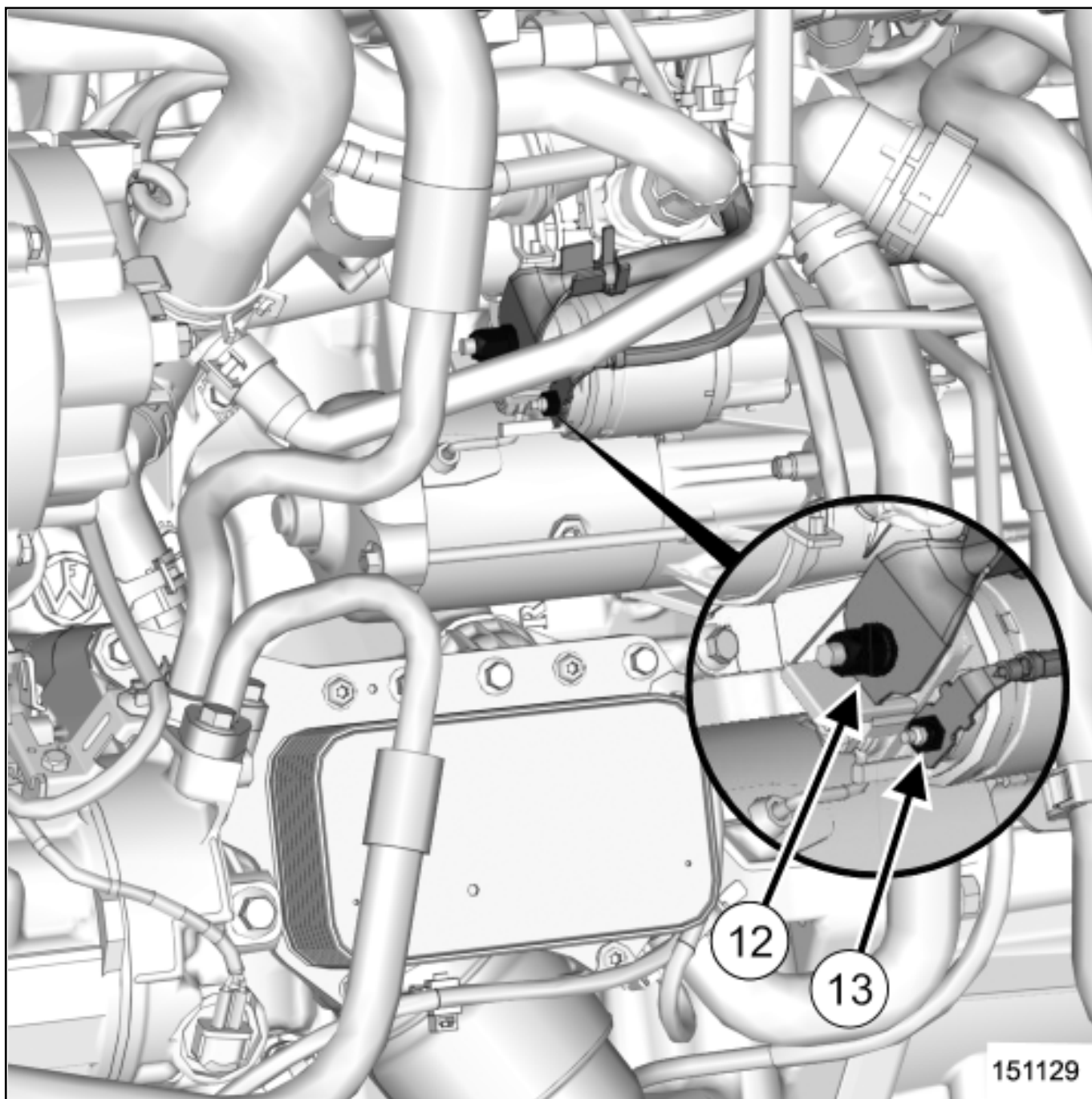
- Unclip the wiring from the reverse gear switch.



- Remove the nut(10) from the alternator positive terminal.
- Disconnect the connector(11) from the alternator regulator.

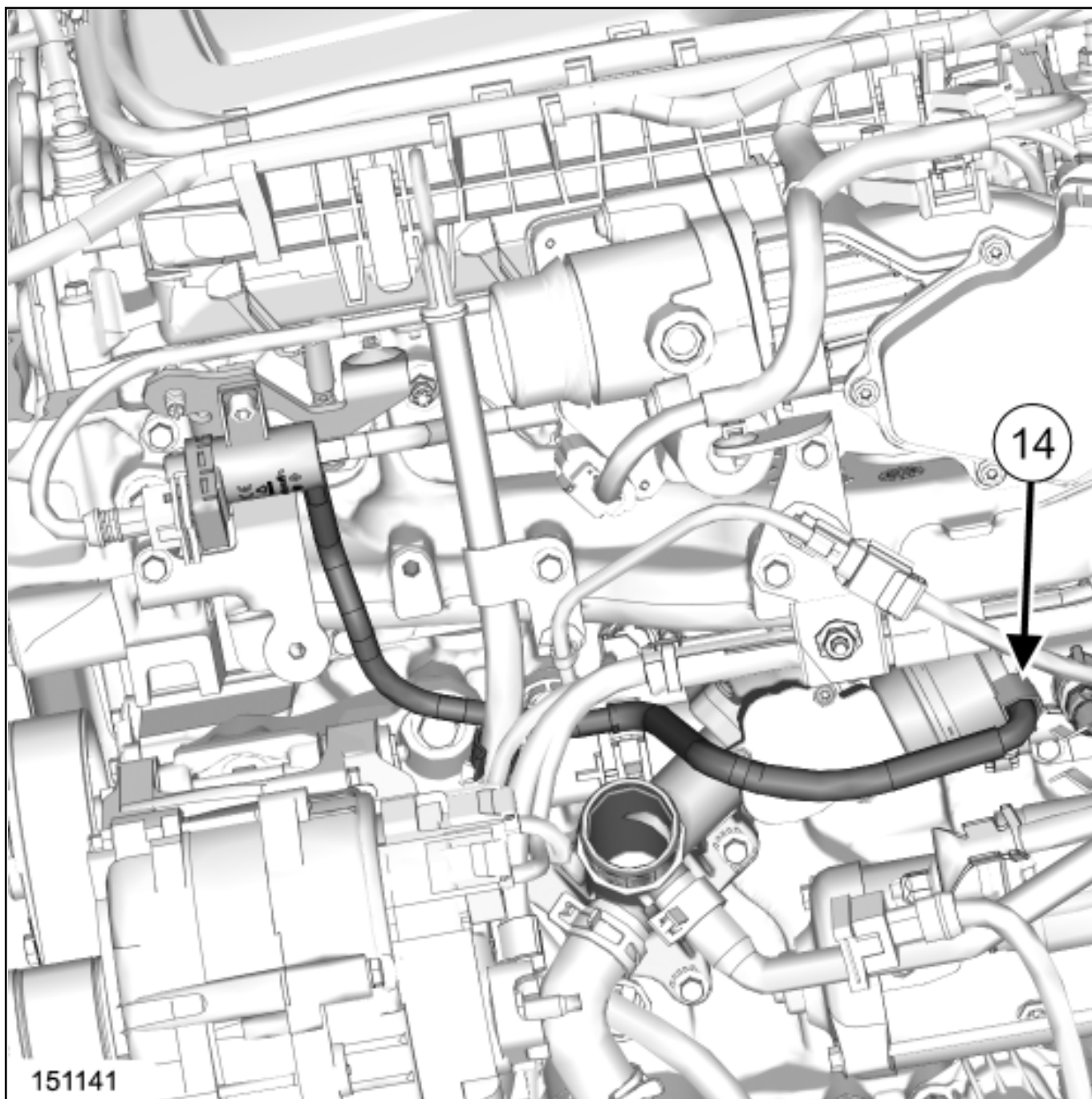
■

Move aside the wiring.



Remove:

-
- the nut(12) on the positive terminal of the starter,
-
- the nut(13) on the starter excitation terminal.



Disconnect the hose from the coolant outlet unit regulation solenoid valve(14) .

Unclip:

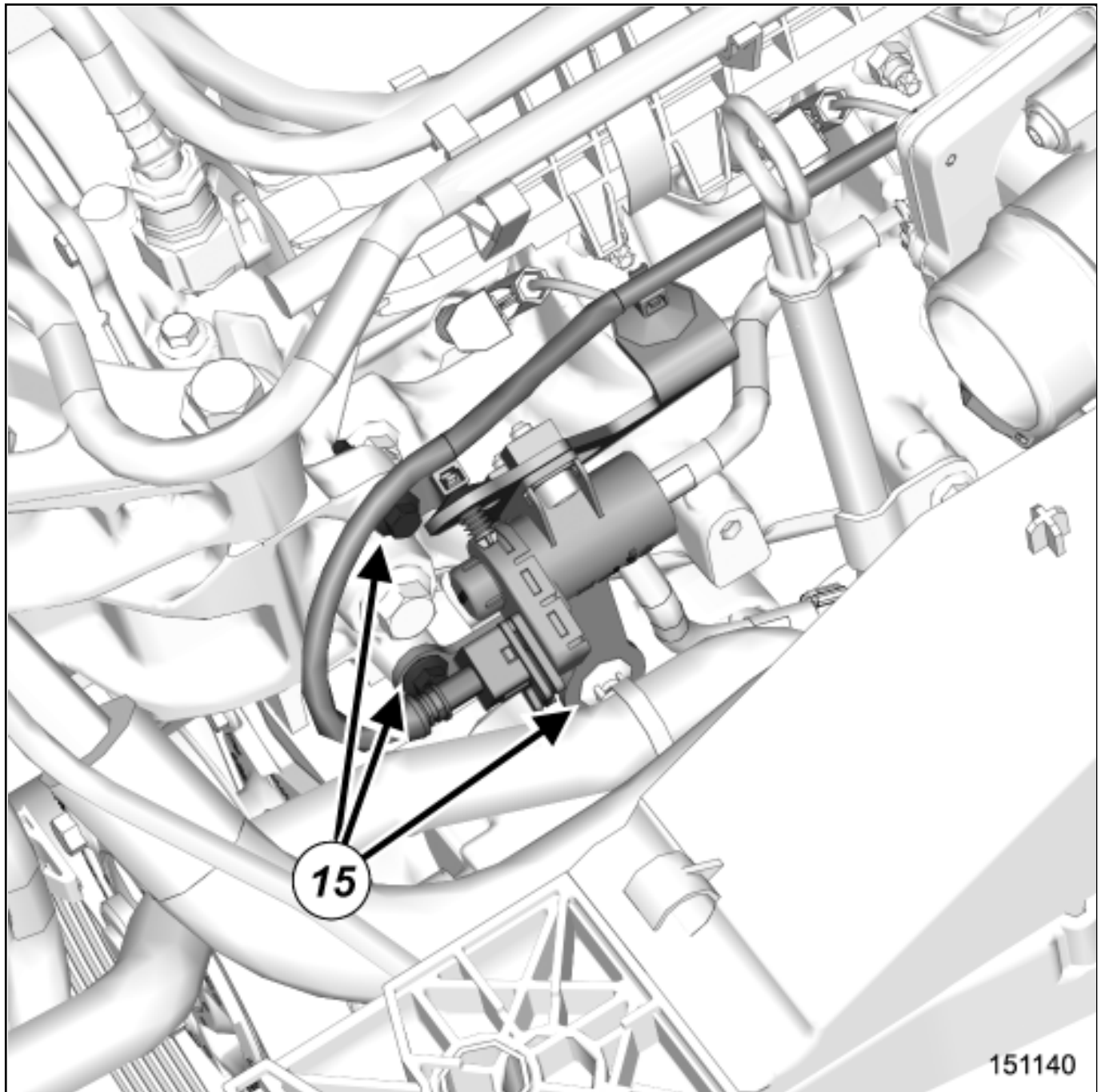


the wiring from the dipstick guide,

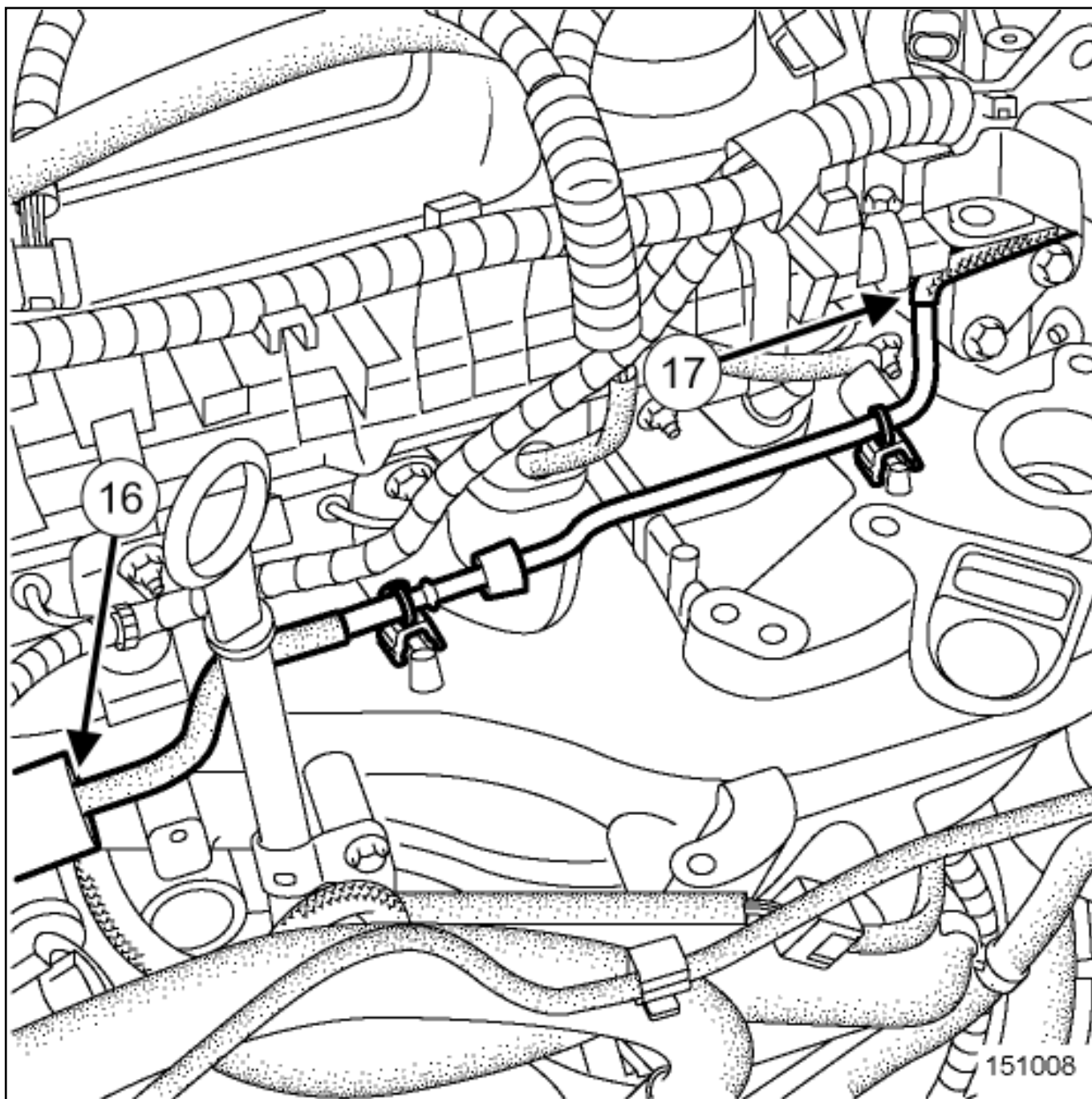


the degassing hose from the expansion bottle from the wiring channel.

Move aside the wiring channel.



Remove the bolts(15) of the coolant outlet unit regulation solenoid valve.



151008

Disconnect the vacuum hose :

- from the coolant outlet unit regulation solenoid valve(16) ,
- from the vacuum pump(17) .

Disconnect the heater plug connectors.

Fit a Pipe clamps.(Ms. 583) on the cooling hose between the coolant outlet unit and the intel distributor [Coolant circuit assembly: Exploded view](#) .

Pinch the clip from the cooling hose between the coolant outlet unit and the intel distributor [Coolant circuit assembly: Exploded view](#) .

Disconnect the cooling hose between the coolant outlet unit and the intel distributor [Coolant circuit assembly: Exploded view](#) .

2. REMOVAL OPERATION

Remove ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) :

-
- the inlet distributor nuts,
- the inlet distributor,
- the inlet distributor seal.

REFITTING

1. REFITTING PREPARATION OPERATION

parts always to be replaced:



[inlet distributor stud on cylinder head \(if loosened\)](#) .



parts always to be replaced:



[inlet distributor seal](#) .



Always replace the swirl valve seal.



Use surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean and degrease:

-
- the bearing face between the inlet distributor and the cylinder head,
- the bearing face between the inlet distributor and the exhaust gas recirculation solenoid valve,
- the bearing face between the inlet distributor and the swirl valve.



CAUTION

To ensure proper sealing, the gasket surfaces must be clean, dry and not greasy (avoid any finger marks).



If loosened, torque tighten the intake distributor studs 8 N.m.



When replacing the inlet distributor :

-
- remove the vacuum hose from the used inlet distributor by cutting the plastic rings,
- fit new clip on the new inlet distributor,
- refit the vacuum hose with new plastic rings.

2. REFITTING OPERATION



Refit [\(see 12A, Fuel mixture, Air inlet assembly: Exploded view\)](#) :

-
- the inlet distributor seal,
- the inlet distributor,

the inlet distributor nuts.



Pre-tighten to torque using the tool4-40 N.m torque wrench with 1/4 drive ratchet end piece(**Ms. 1973**) ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) the inlet distributor nuts.



Tighten to torque using the tool4-40 N.m torque wrench with 1/4 drive ratchet end piece(**Ms. 1973**) ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) the inlet distributor nuts.



Proceed in the reverse order to removal.



Tighten to torque using the tool4-40 N.m torque wrench with 1/4 drive ratchet end piece(**Ms. 1973**) :



the nut on the positive terminal of the starter **8 N.m**,



the nut on the starter excitation terminal **5 N.m**,



the nut from the alternator positive terminal **21 N.m**.



Proceed in the reverse order to removal.



Fill and bleed the cooling system [Cooling system: Draining - Refilling](#) .



Repair-10x07x01x06-01x37-1-118-1.xml



INPUT SHAFT LIP SEAL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Tool for fitting the primary shaft seal.

Bvi. 1236



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 21A, Manual gearbox, Gearbox assembly: Exploded view](#)).



WARNING

To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

REMOVAL

1. REMOVAL PREPARATION OPERATION

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).



Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).



Remove:



the front wheels [Wheel: Removal - Refitting](#) (35A, Wheels and tyres),

the engine undertray.

Drain the manual gearbox oil([see 21A, Manual gearbox , Manual gearbox oils: Draining - Filling](#)) .

Remove [Driveshaft assembly: Exploded view](#) :

-
- the front left-hand driveshaft.
- the front right-hand driveshaft.
- the differential outlet seals,
- the lower engine tie-bar[Engine-gearbox unit support assembly: Exploded view](#) ,
- the front axle sub-frame[Steering assembly: Exploded view](#) ,
- the starter[Starter: Removal - Refitting](#) (16A, Starting - Charging),
- the manual gearbox([see 21A, Manual gearbox , Gearbox assembly: Exploded view](#)) ,
- the clutch thrust bearing[Clutch assembly: Exploded view](#) .

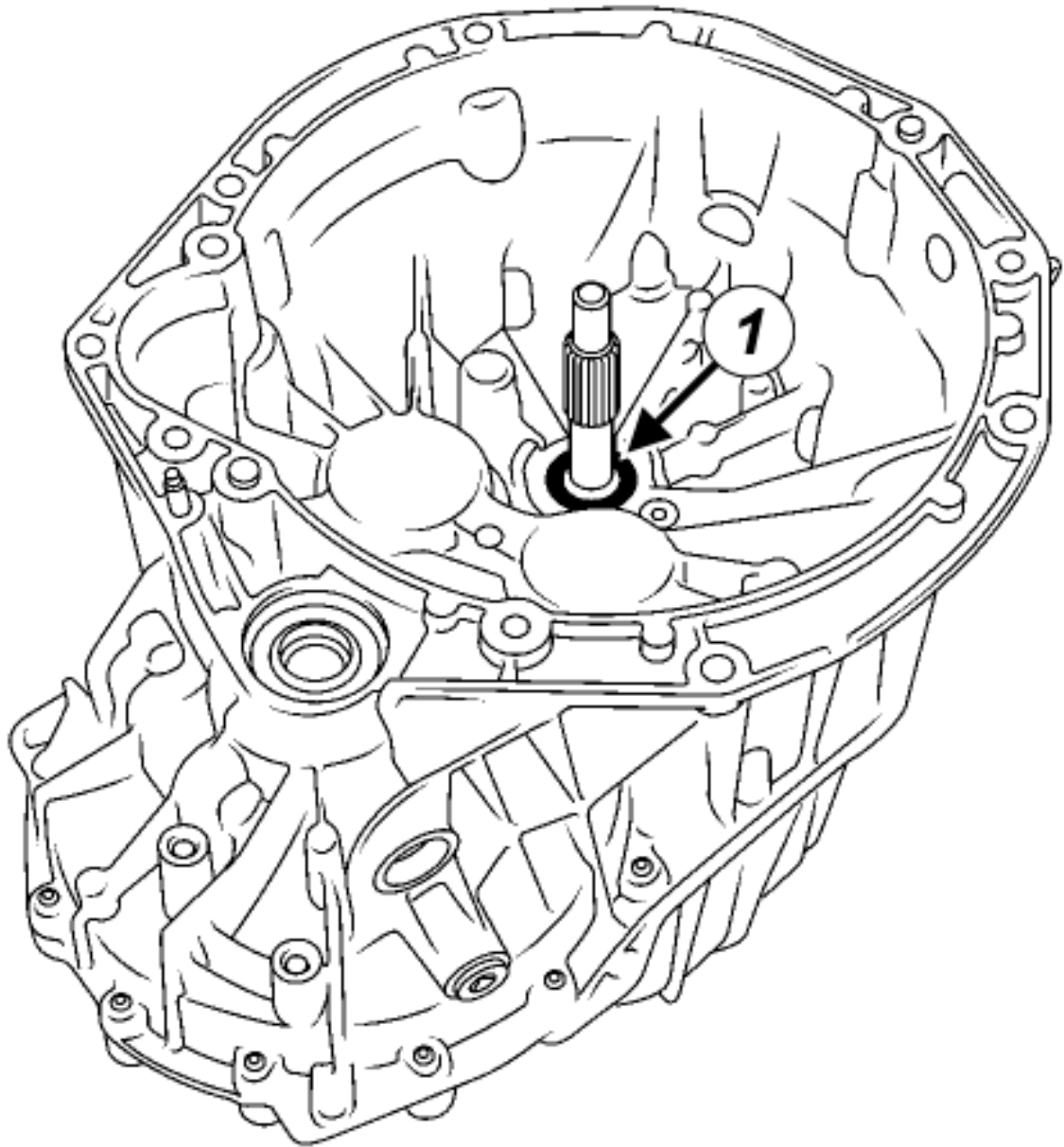
2. REMOVAL OPERATION

Use a drill bit with a diameter of 2.5 mm to drill a hole in the input shaft lip seal.



Note:

Do not drill too deeply as this risks damaging the deflector positioned behind the input shaft lip seal.



20714

- Fit a bolt in the input shaft lip seal(1) .

- Remove the input shaft lip seal([see 21A, Manual gearbox , Gearbox assembly: Exploded view](#)) with a pair of pliers.

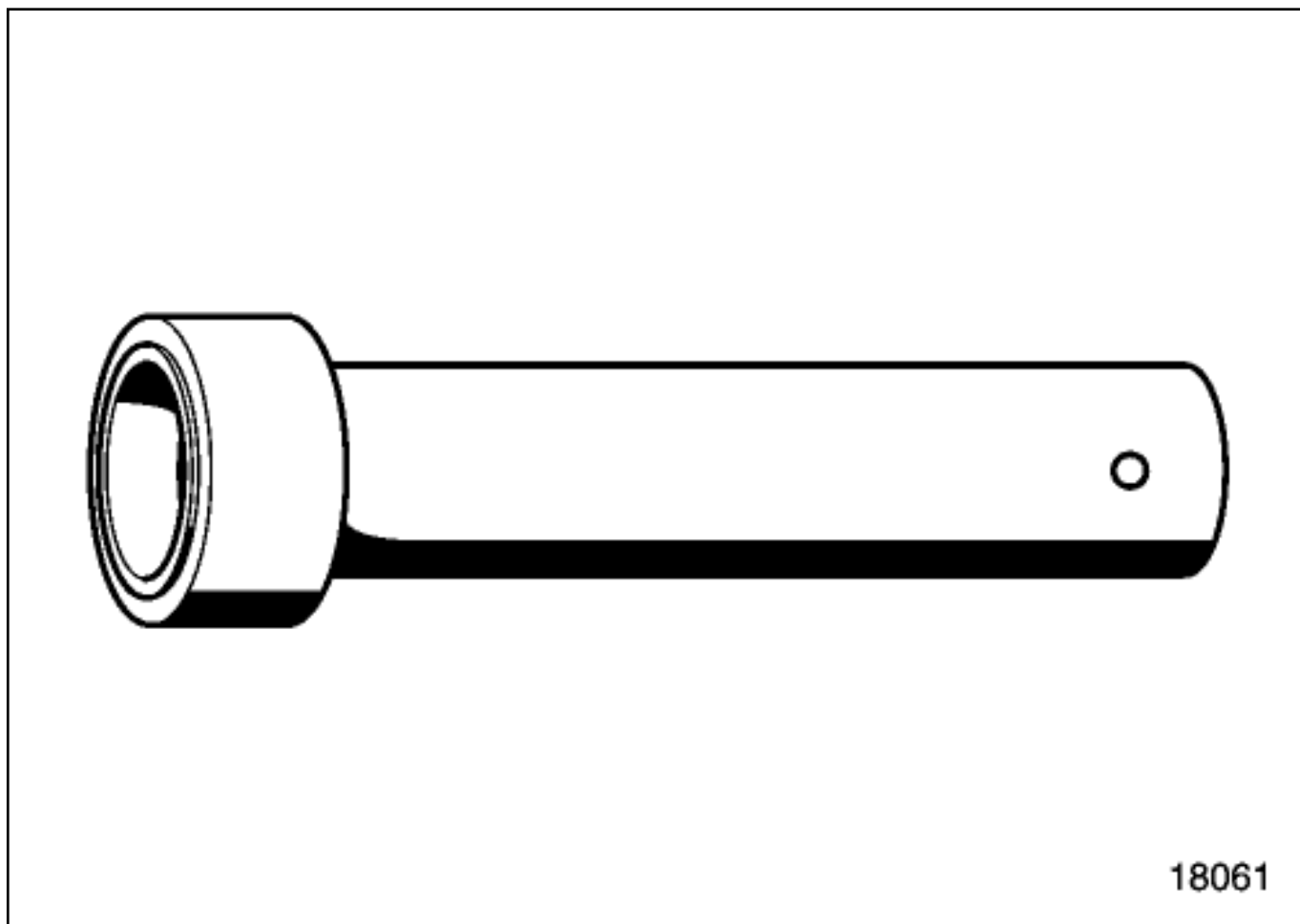
1. REFITTING PREPARATION OPERATION



Note:

When refitting the input shaft lip seal, take care not to damage either the shaft or the input shaft lip seal mating face.

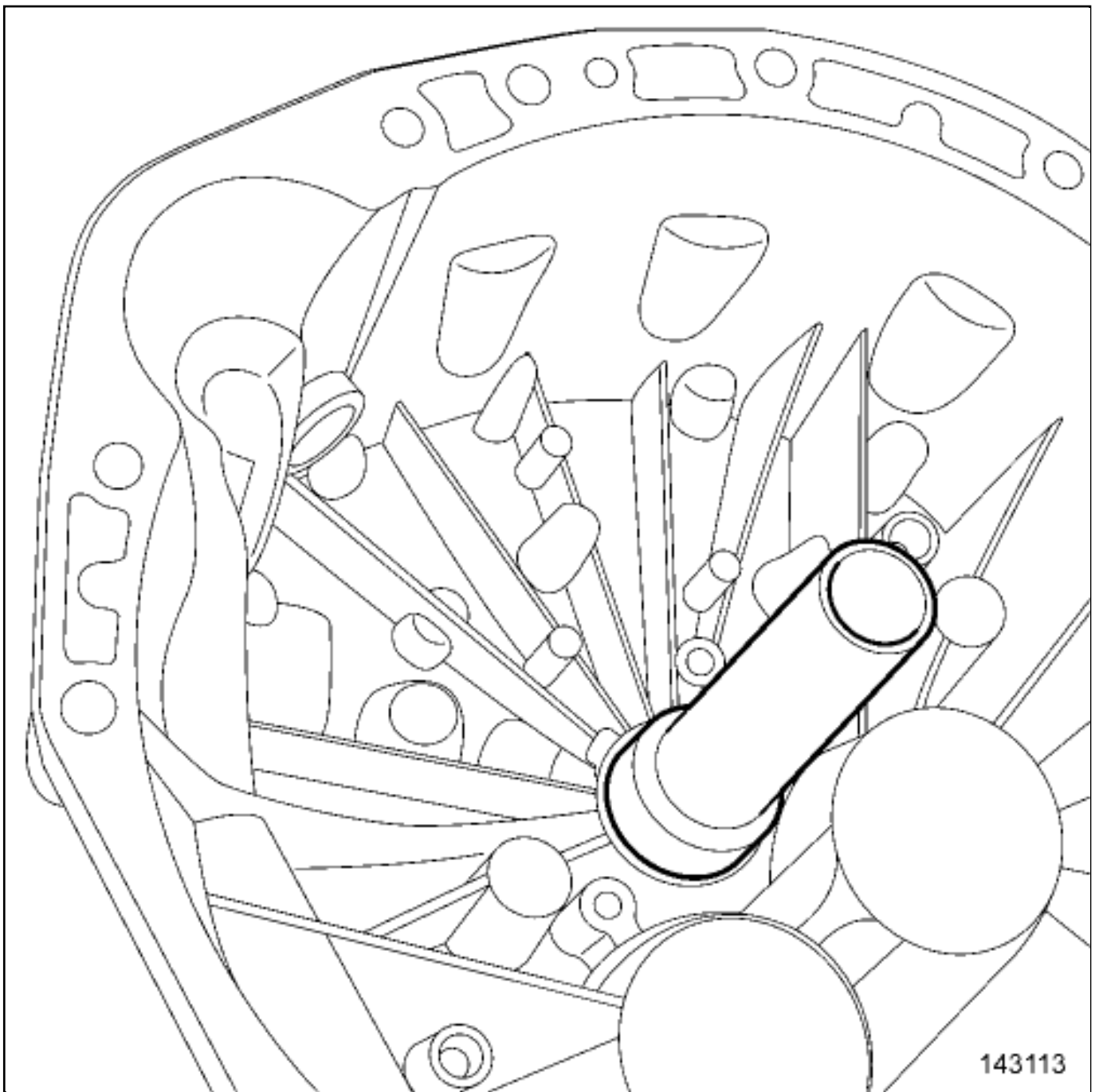
2. REFITTING OPERATION



Fit a new input shaft lip seal, fitted with its protector, using the Tool for fitting the primary shaft seal. (Bvi. 1236) .



Remove the protector.



143113



Insert the Tool for fitting the primary shaft seal.([Bvi. 1236](#)) and tap it gently with a rubber mallet to ensure it is inserted fully.

3. FINAL OPERATION



Proceed in the reverse order to removal.



Perform the following operations:



fill up the manual gearbox([see 21A, Manual gearbox , Manual gearbox oils: Draining - Filling](#)) ,



bleed the clutch control circuit[Clutch circuit: Bleed](#) (37A, Mechanical component controls).



Repair-12x01x04x17-01x37-1-26-1.xml



XSL version : 3.02 du 22/07/11

INPUT SHAFT: STRIPPING - REBUILDING



Note, one or more warnings are present in this procedure



Special tooling required

Tool kit for PK6 gearbox operations.

Bvi. 1510-01

WARNING



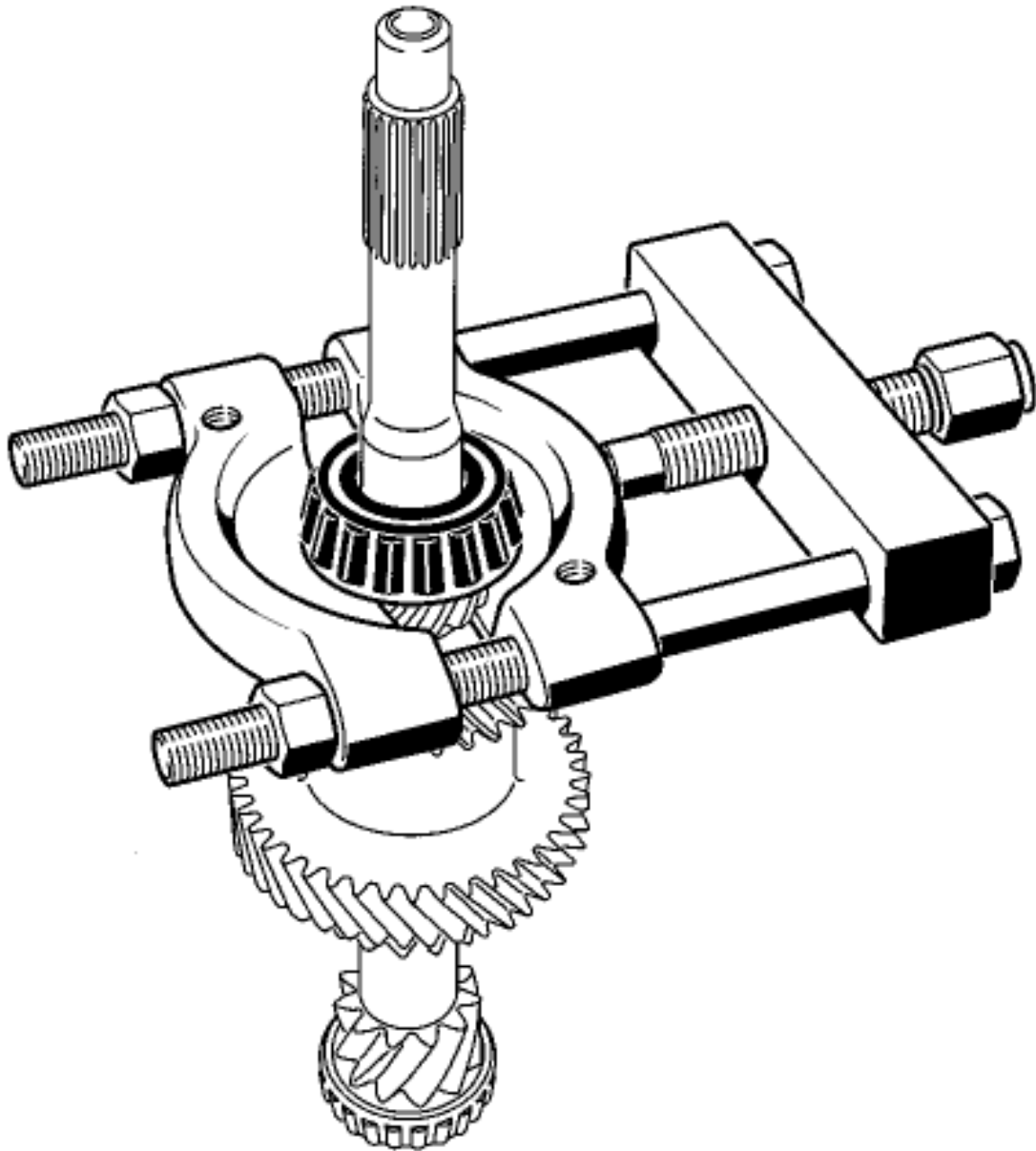
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 21A, Manual gearbox](#) , [Manual gearbox: Precautions for the repair](#)) .

STRIPPING

1. STRIPPING PREPARATION OPERATION

- Remove the gearbox ([Manual gearbox: Removal - Refitting](#)) .
- Position the gearbox on the component support ([see 21A, Manual gearbox](#) , [Gearbox support equipment: Use](#)) .
- Remove:
 - the mechanism housing ([see 21A, Manual gearbox](#) , [Mechanism housing: Removal - Refitting](#)) ,
 - the gearbox shafts ([see 21A, Manual gearbox](#) , [Gearbox shaft: Removal - Refitting](#)) .

2. STRIPPING OPERATION FOR PART CONCERNED



15279

- Remove the bearings using a press and separator.

REBUILDING

1. REBUILDING PREPARATION OPERATION

- Parts always to be replaced if removed:
 - the circlips,
 - the differential outlet seals,
 -

- the input shaft output seal,

- the pins,

- the hydraulic clutch slave cylinder.

Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean:

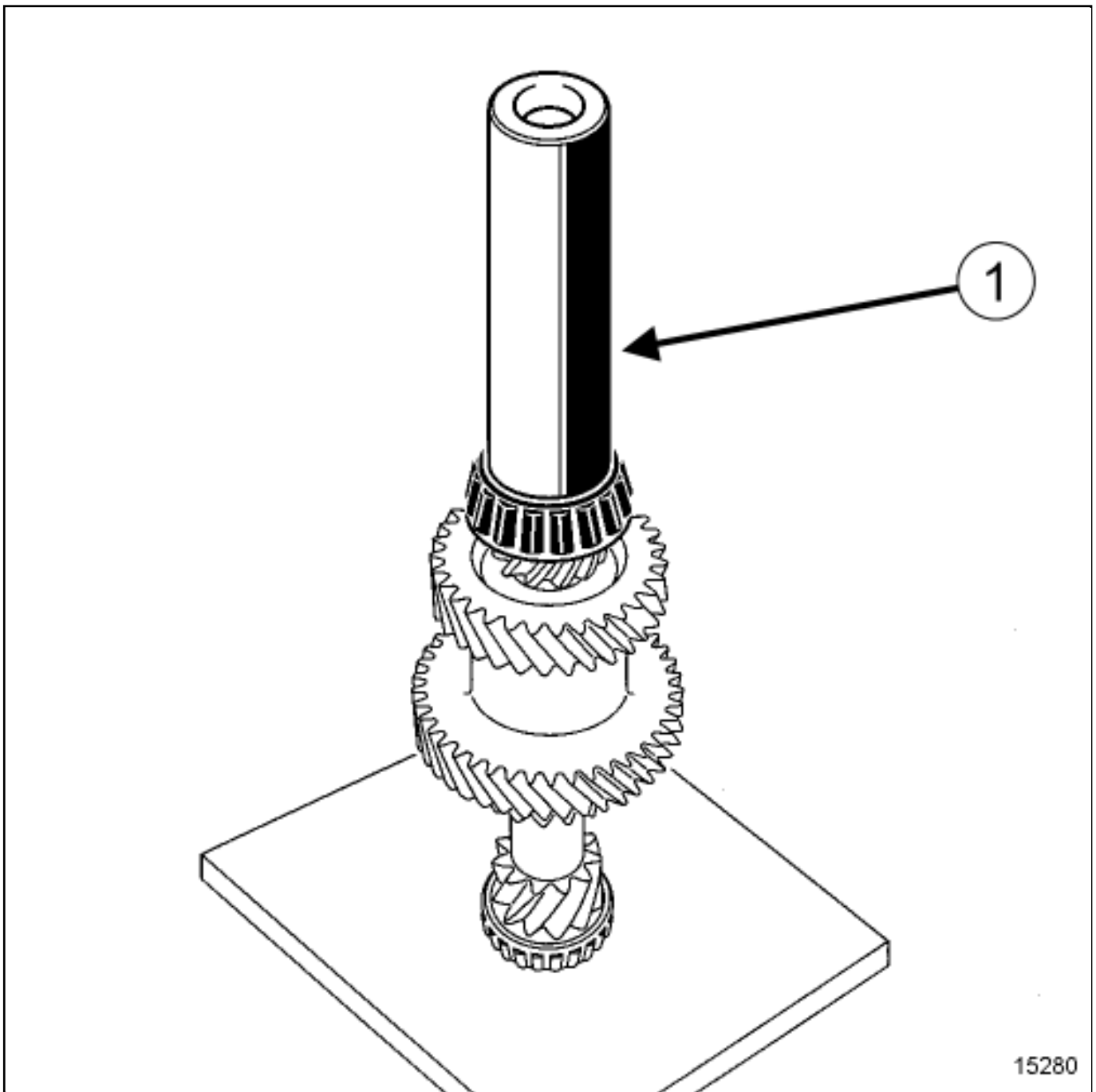
- the shafts,

- the shaft mating surfaces,

- the mechanism housing.

2. REBUILDING OPERATION FOR PART CONCERNED

Adjust the shafts ([see 21A, Manual gearbox , Gearbox shaft: Adjustment](#)) if replacing a shaft or housing.



Refit the bearings using the Tool kit for PK6 gearbox operations. (Bvi. 1510-01) suffix M (1).

3. FINAL OPERATION

Refit:

the gearbox shafts (see 21A, [Manual gearbox , Gearbox shaft: Removal - Refitting](#)),

the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .



Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .



Refit the gearbox[Manual gearbox: Removal - Refitting](#) .



Repair-12x01x04x11-01x31-1-1-1.xml



XSL version : 3.02 du 22/07/11

INTERCOOLER AIR INLET PIPE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

tweezers



parts always to be replaced:



[turbocharger air cooler air inlet pipe seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [Air inlet assembly: Exploded view](#) .

REMOVAL

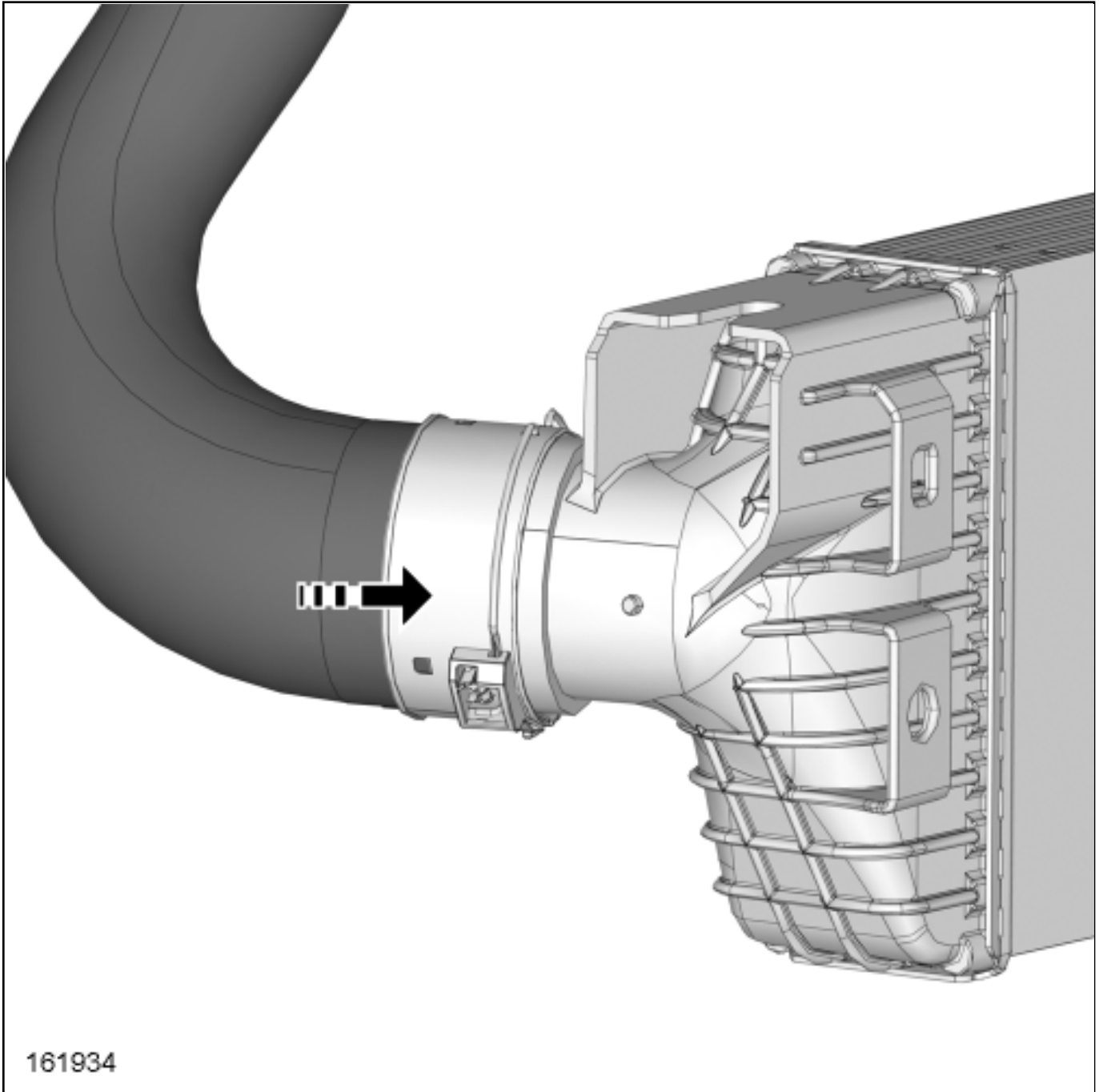
1. REMOVAL PREPARATION OPERATION

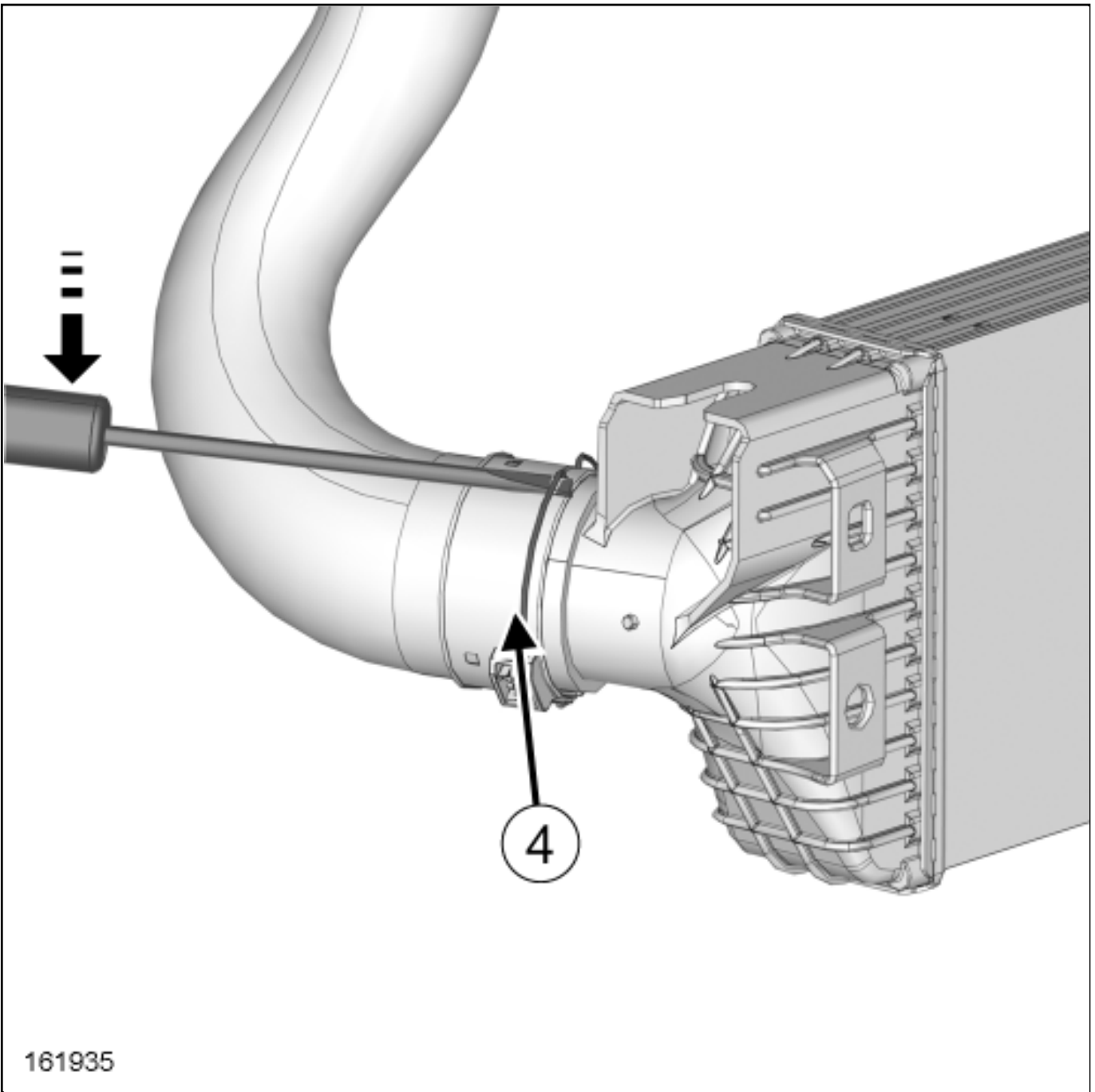
- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove the air filter unit air outlet pipe [Air inlet assembly: Exploded view](#) .
- Remove:
 - the battery [Battery: Removal - Refitting](#) ,
 - the battery tray [Battery tray: Removal - Refitting](#) ,
 - the engine undertray.

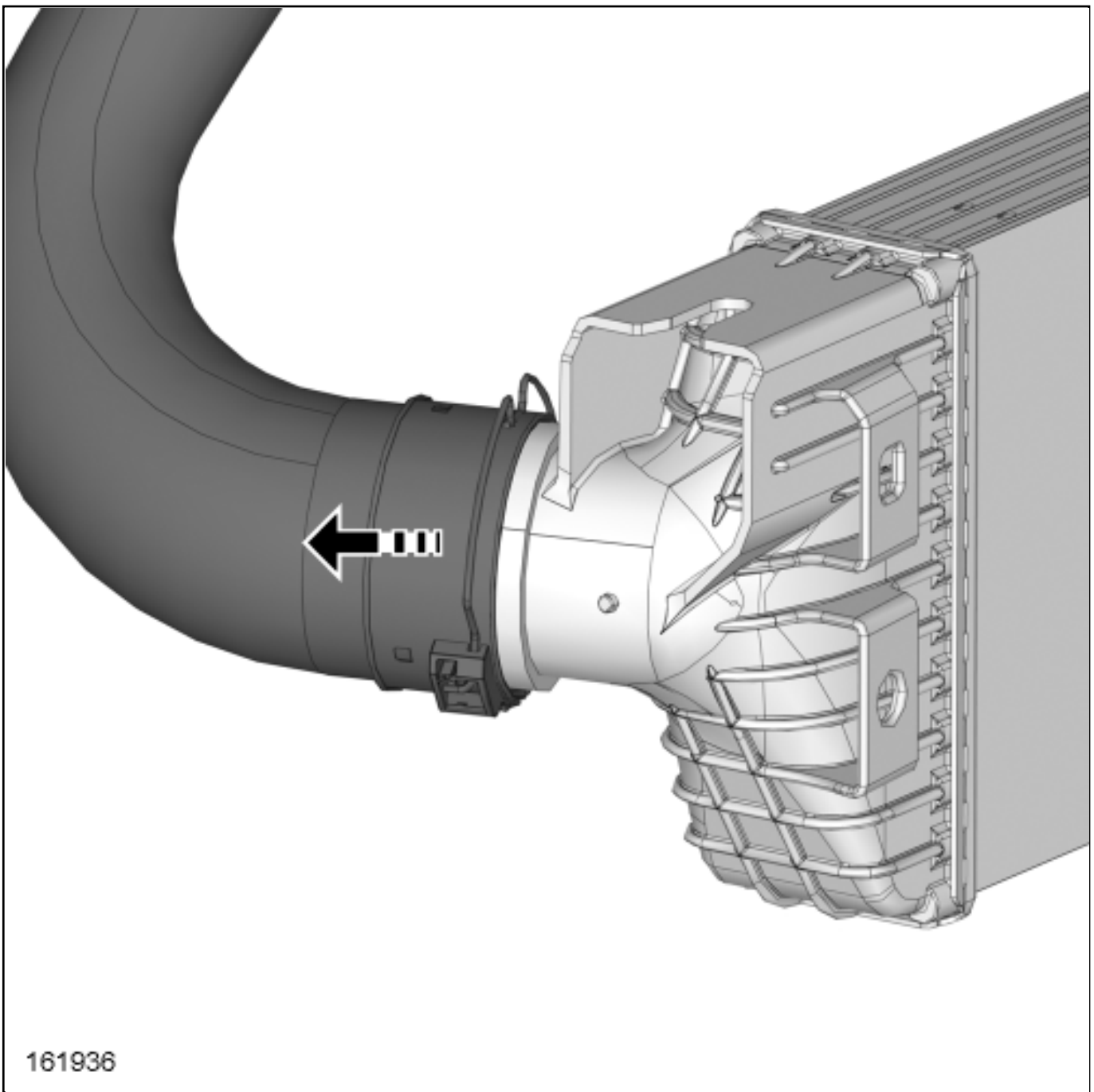
2. REMOVAL OPERATION

- Remove [Air inlet assembly: Exploded view](#) :

- the bolt on the intercooler air inlet pipe,
- the nut on the intercooler air inlet pipe.







161936



Move aside the clip(4) of the intercooler air inlet pipe on the intercooler side using a flat-blade screwdriver.



Disconnect the intercooler air inlet pipe [Air inlet assembly: Exploded view](#)



from the turbocharger,



from the intercooler.

Remove [Air inlet assembly: Exploded view](#) :

-
- the intercooler air inlet pipe,
- the intercooler air inlet pipe seals.

REFITTING

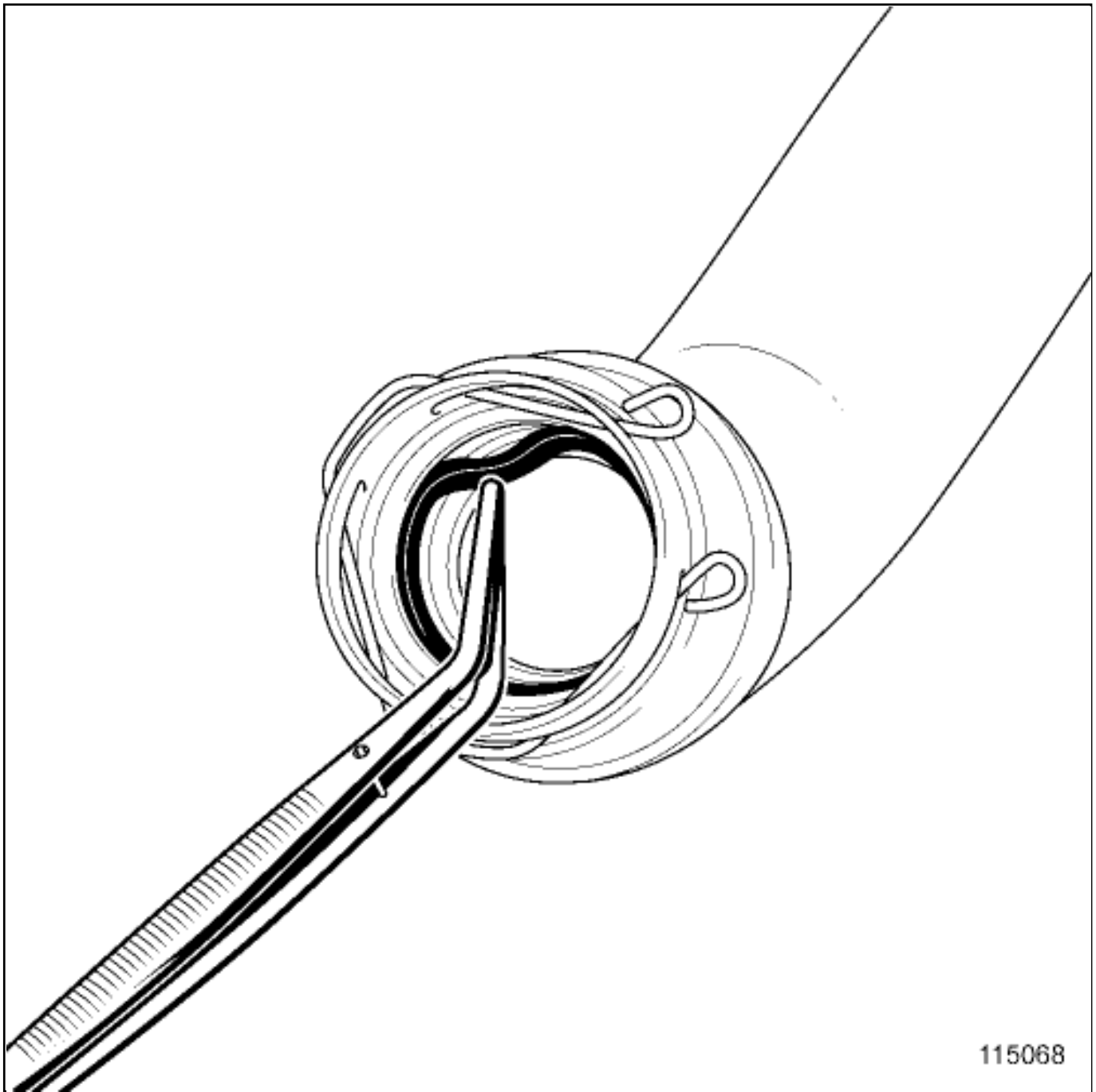
1. REFITTING PREPARATION OPERATION



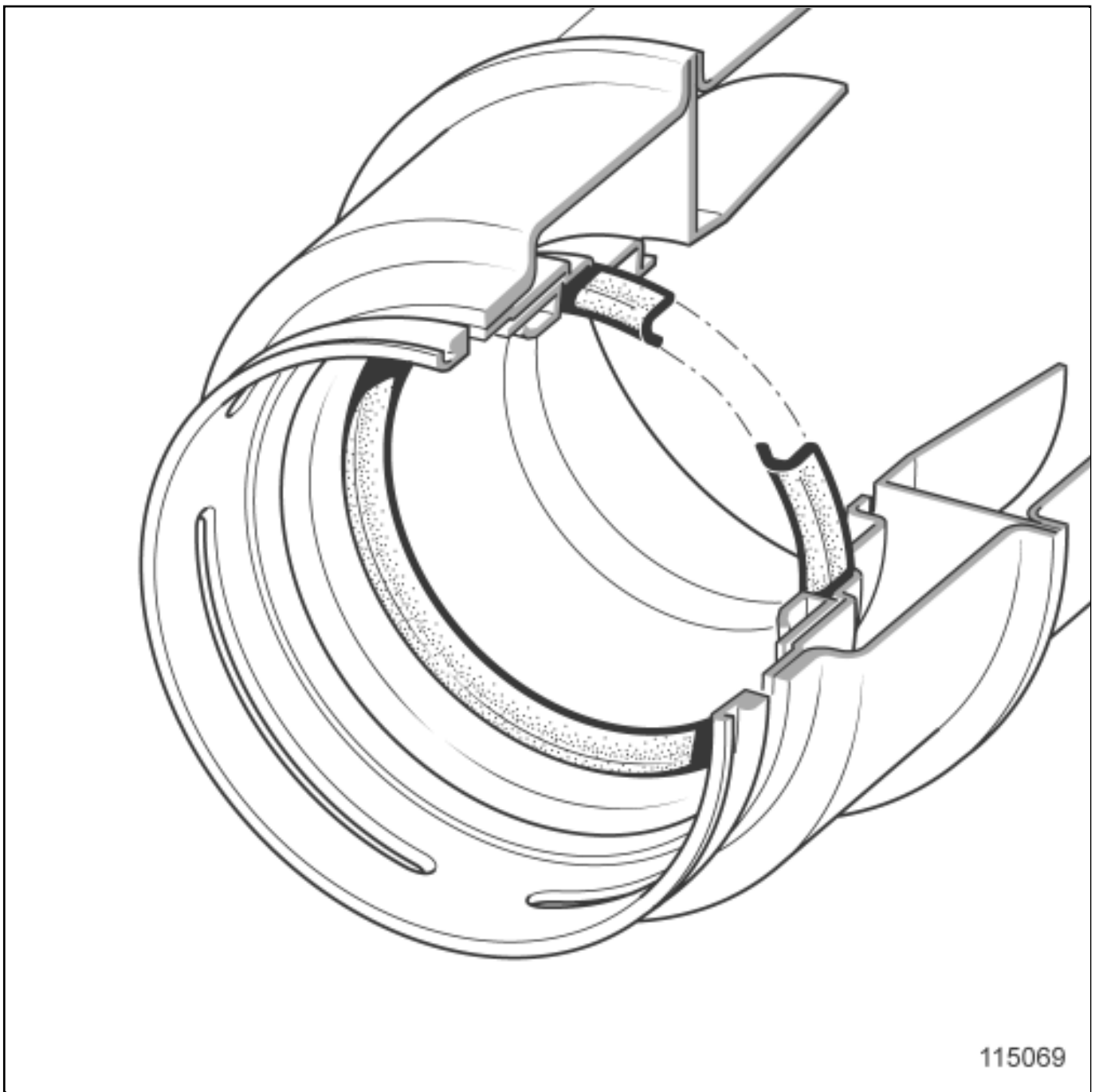
parts always to be replaced:

[turbocharger air cooler air inlet pipe seal](#)





Remove the intercooler air inlet pipe seals using a tweezers.



115069

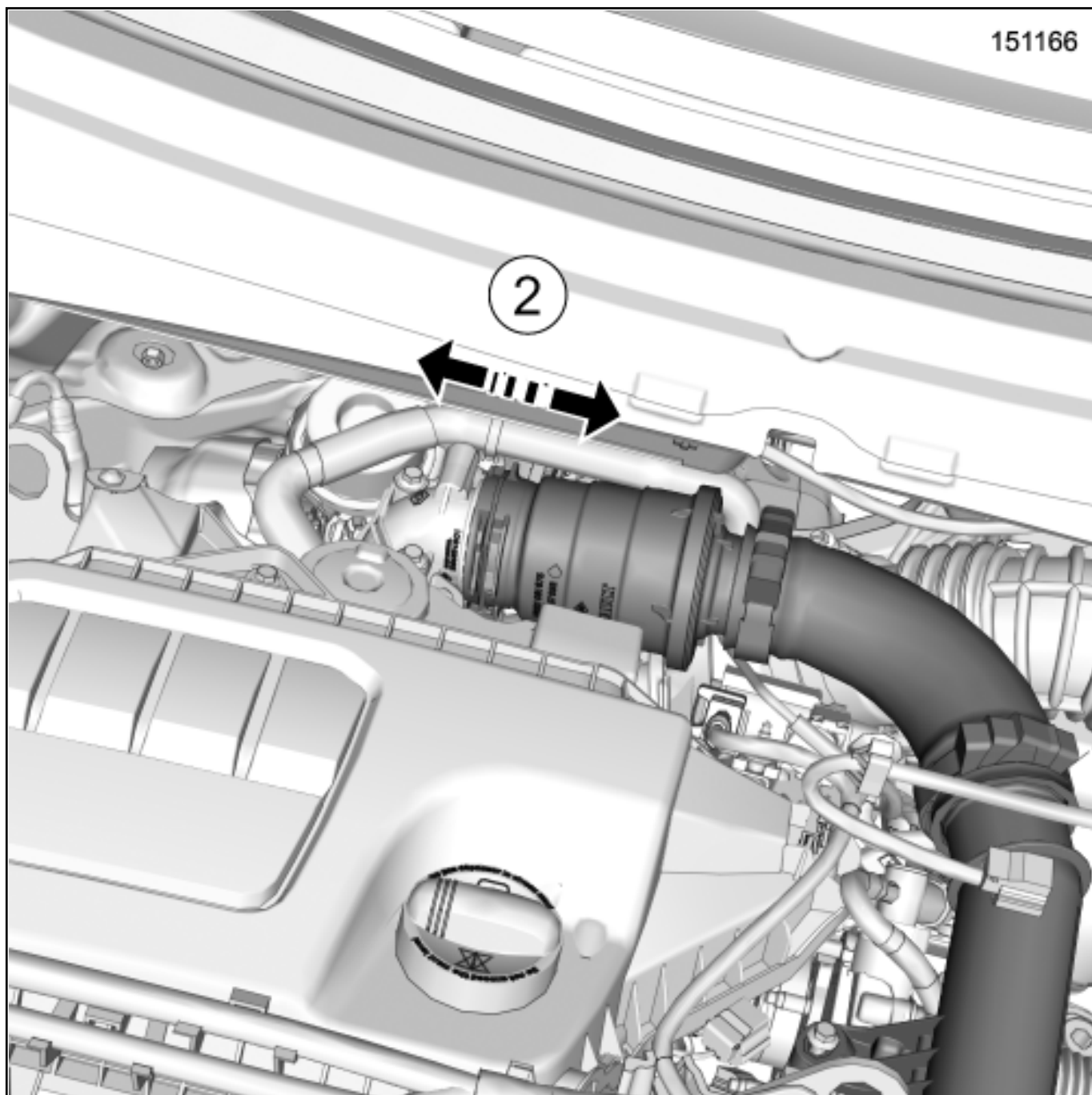


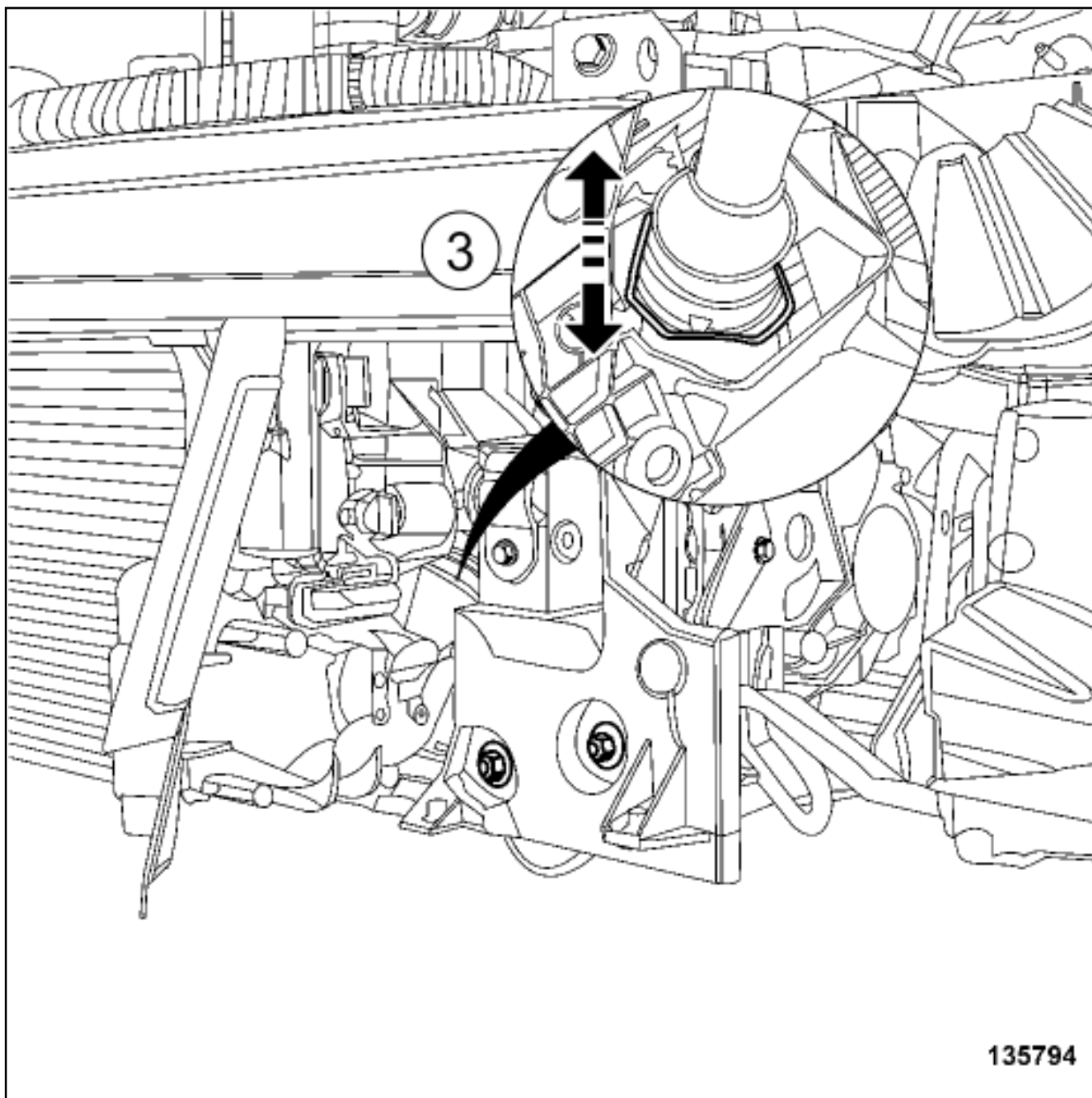
Note:

Check that the intercooler air inlet pipe seals are fitted the right way round.

Refit new seals to the intercooler air inlet pipe.

Proceed in the reverse order to removal.





Always carry out a "push-pull" test at (2) and (3), to check that the intercooler air inlet pipe is correctly fitted.



INTERCOOLER AIR OUTLET PIPE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

tweezers



parts always to be replaced:



[turbocharger air cooler air outlet pipe seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [Air inlet assembly: Exploded view](#) .

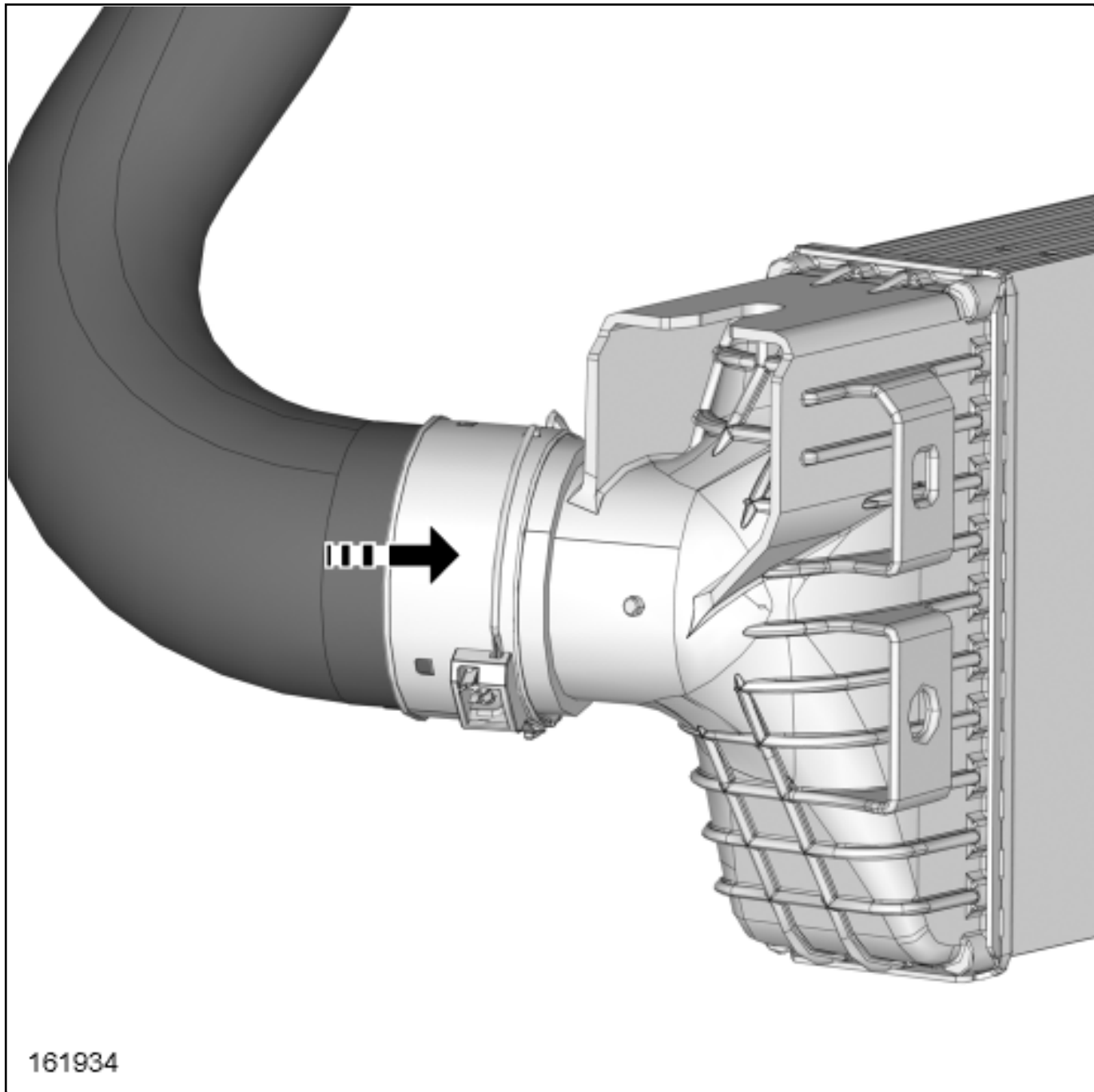
REMOVAL

1. REMOVAL PREPARATION OPERATION

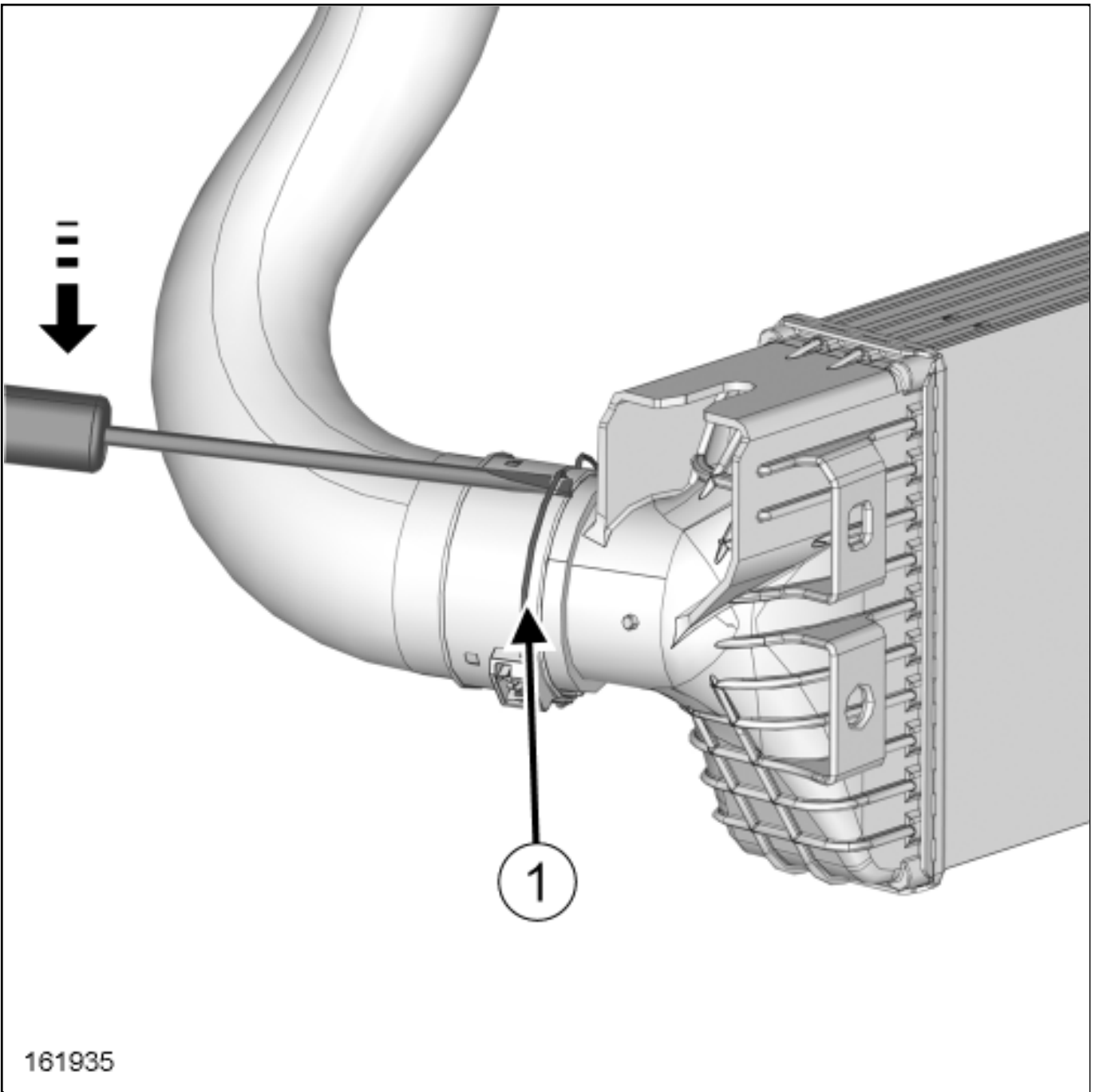
- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) ,
- ❑ Remove the engine undertray.
- ❑ Remove the front bumper [Front bumper: Removal - Refitting](#) .

2. REMOVAL OPERATION

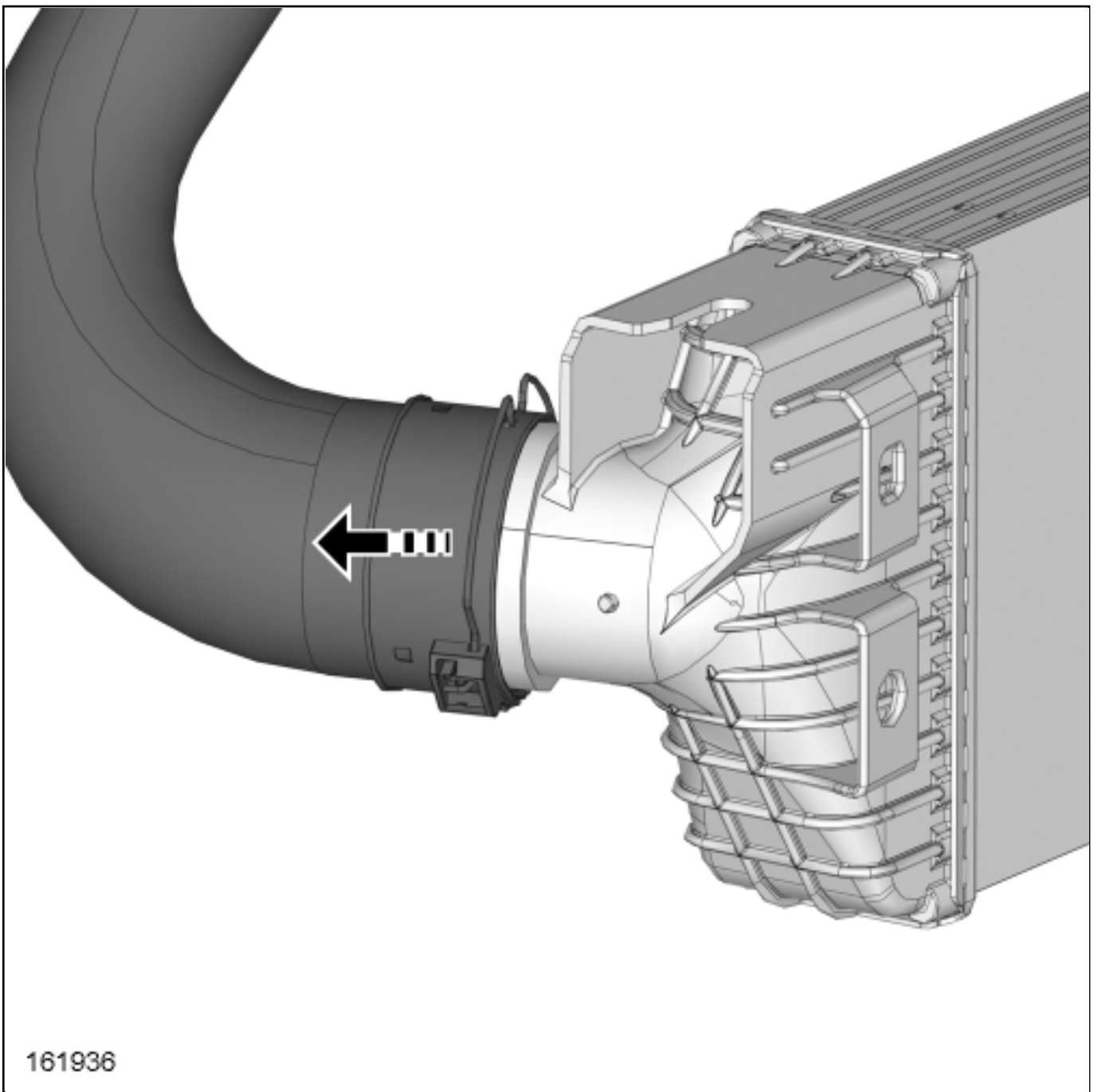
- ❑ Remove the intercooler air outlet pipe bolt [Air inlet assembly: Exploded view](#) .



161934



161935



Move aside the clip(1) of the intercooler air inlet pipe on the intercooler side using a flat-blade screwdriver.



Disconnect the intercooler air outlet pipe [Air inlet assembly: Exploded view](#) :



side intercooler,



side damper valve.

Remove [Air inlet assembly: Exploded view](#) :

-
- the intercooler air outlet pipe,
- the intercooler air outlet pipe seal.

REFITTING

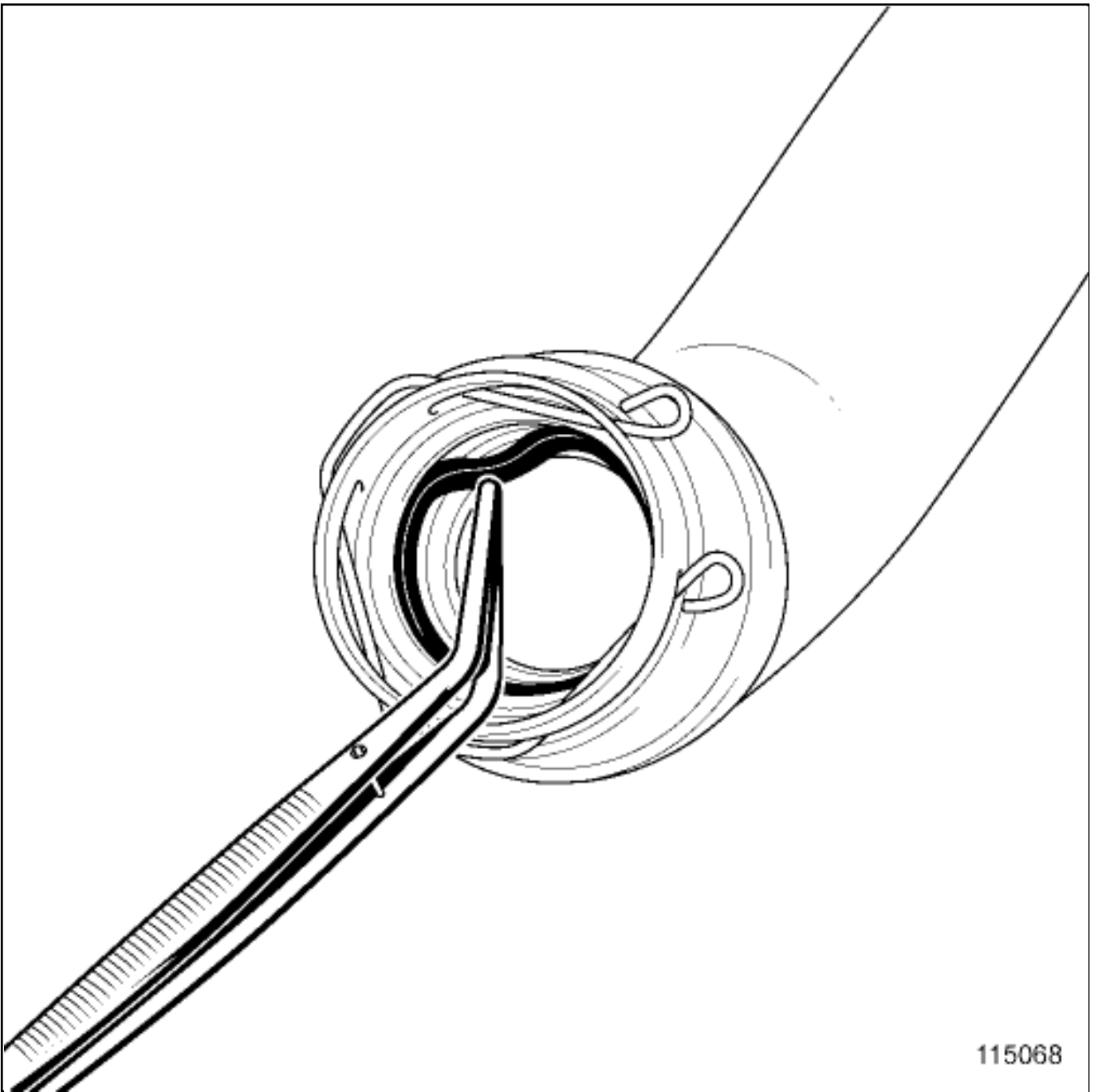
1. REFITTING PREPARATION OPERATION

parts always to be replaced:



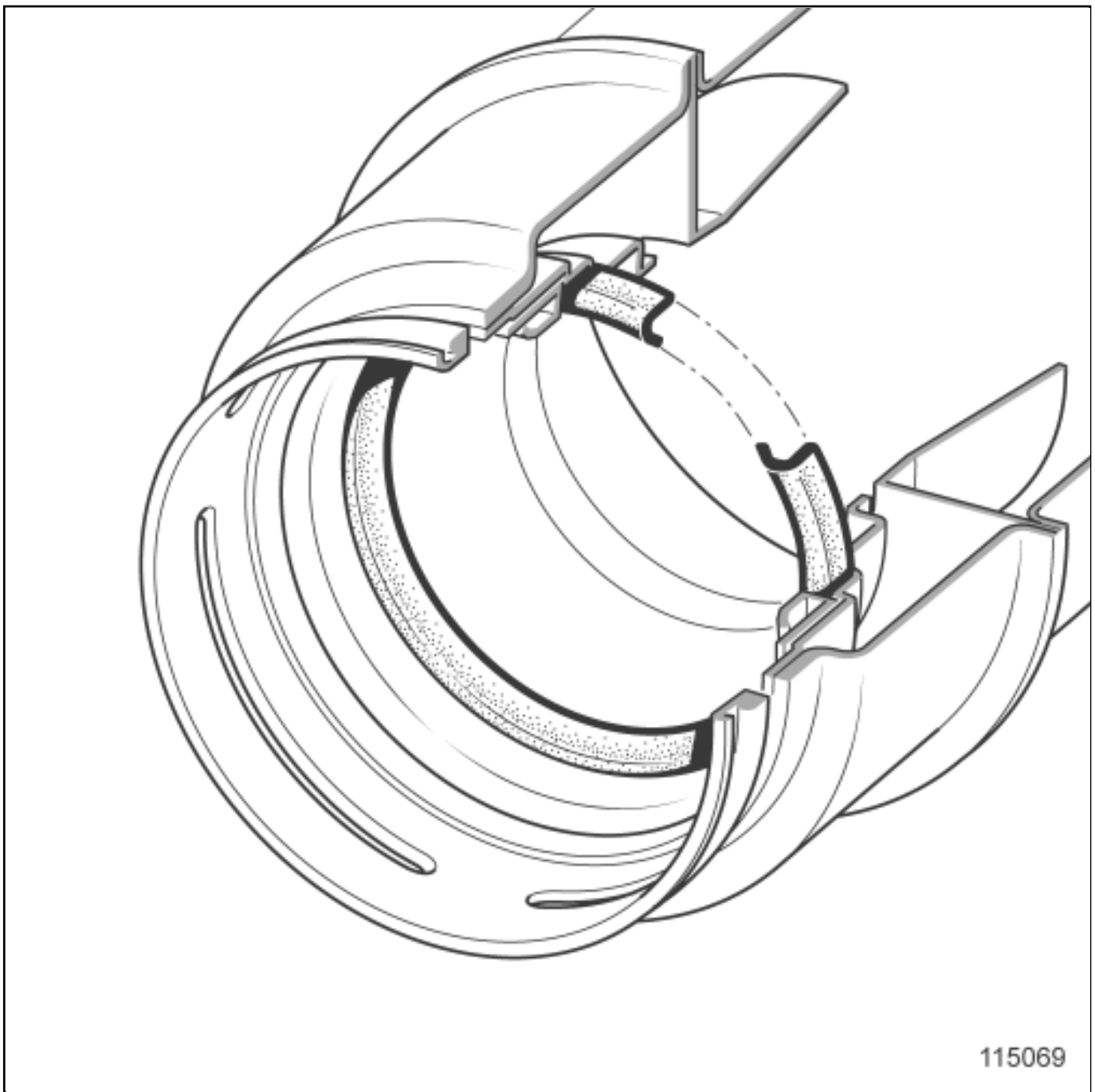
[turbocharger air cooler air outlet pipe seal](#)





115068

Remove the intercooler air outlet pipe seals using a tweezers.



115069



Note:

Check that the intercooler air outlet pipe seal is fitted in the right direction.


Refit new seals on the intercooler air outlet pipe.



Check that clips are fitted correctly on the intercooler air outlet pipe.




Fit the intercooler air outlet pipe equipped with new seals.



Clip the air pipe at the intercooler outlet.



Connect the intercooler air outlet pipe.



Always carry out a "push - pull" test, to check that the intercooler air outlet pipe is correctly inserted.



Proceed in the reverse order to removal.



Repair-10x09x04x03-01x37-1-14-1.xml



XSL version : 3.02 du 22/07/11

INTERCOOLER : REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Equipment required

tweezers



parts always to be replaced:



[turbocharger air cooler air inlet pipe seal](#)

[turbocharger air cooler air outlet pipe seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [Air inlet assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment),
- ❑ Remove the engine undertray.
- ❑ Remove the front bumper [Front bumper: Removal - Refitting](#) .

2. REMOVAL OPERATION

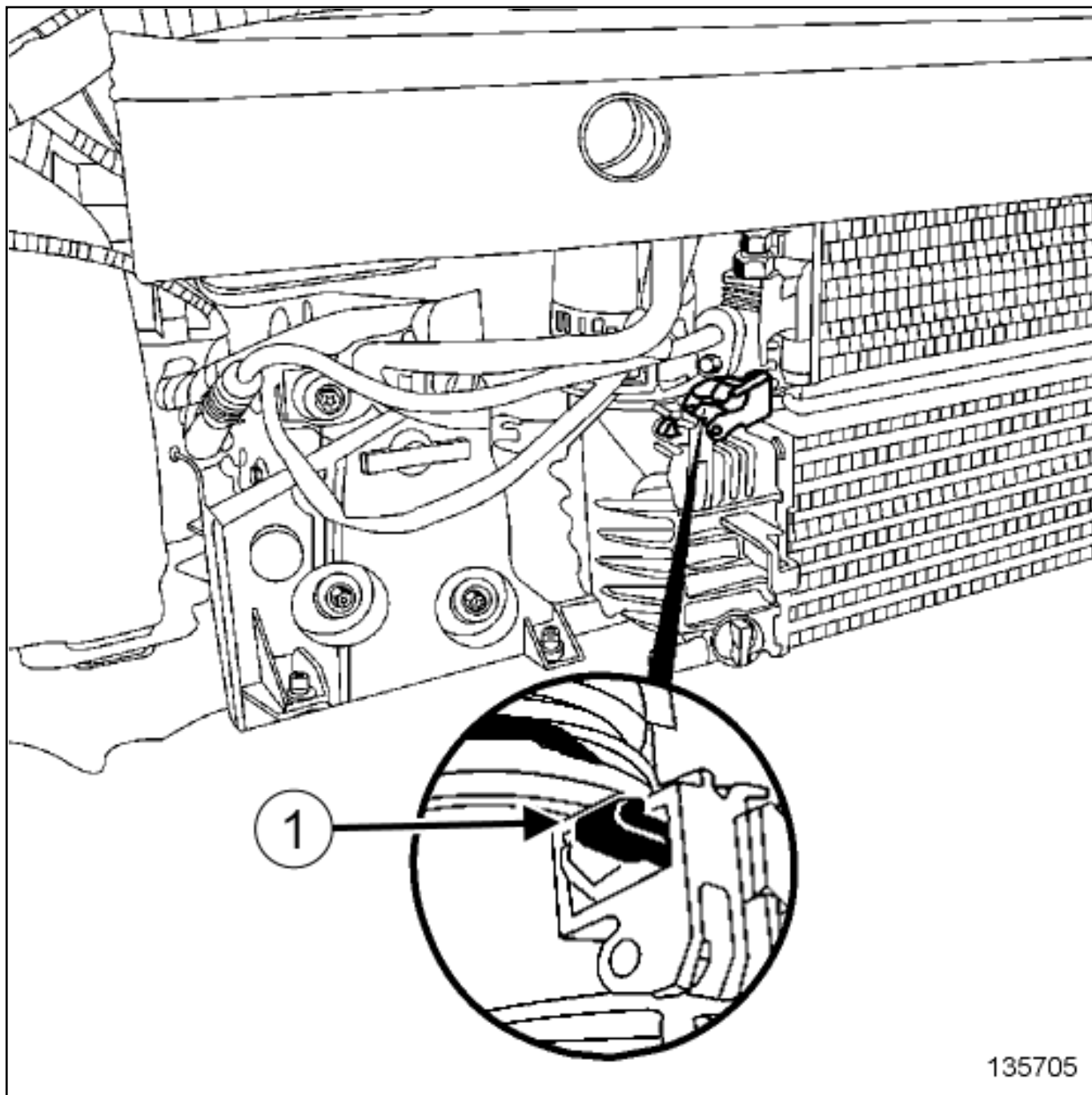
- ❑ Remove the intercooler air outlet pipe bolt [Air inlet assembly: Exploded view](#) .
- ❑ Release the clips from the intercooler air outlet pipe on the intercooler side [Air inlet assembly: Exploded](#)

[view](#) .

■ Disconnect the intercooler outlet air pipe on the intercooler side [Air inlet assembly: Exploded view](#) .

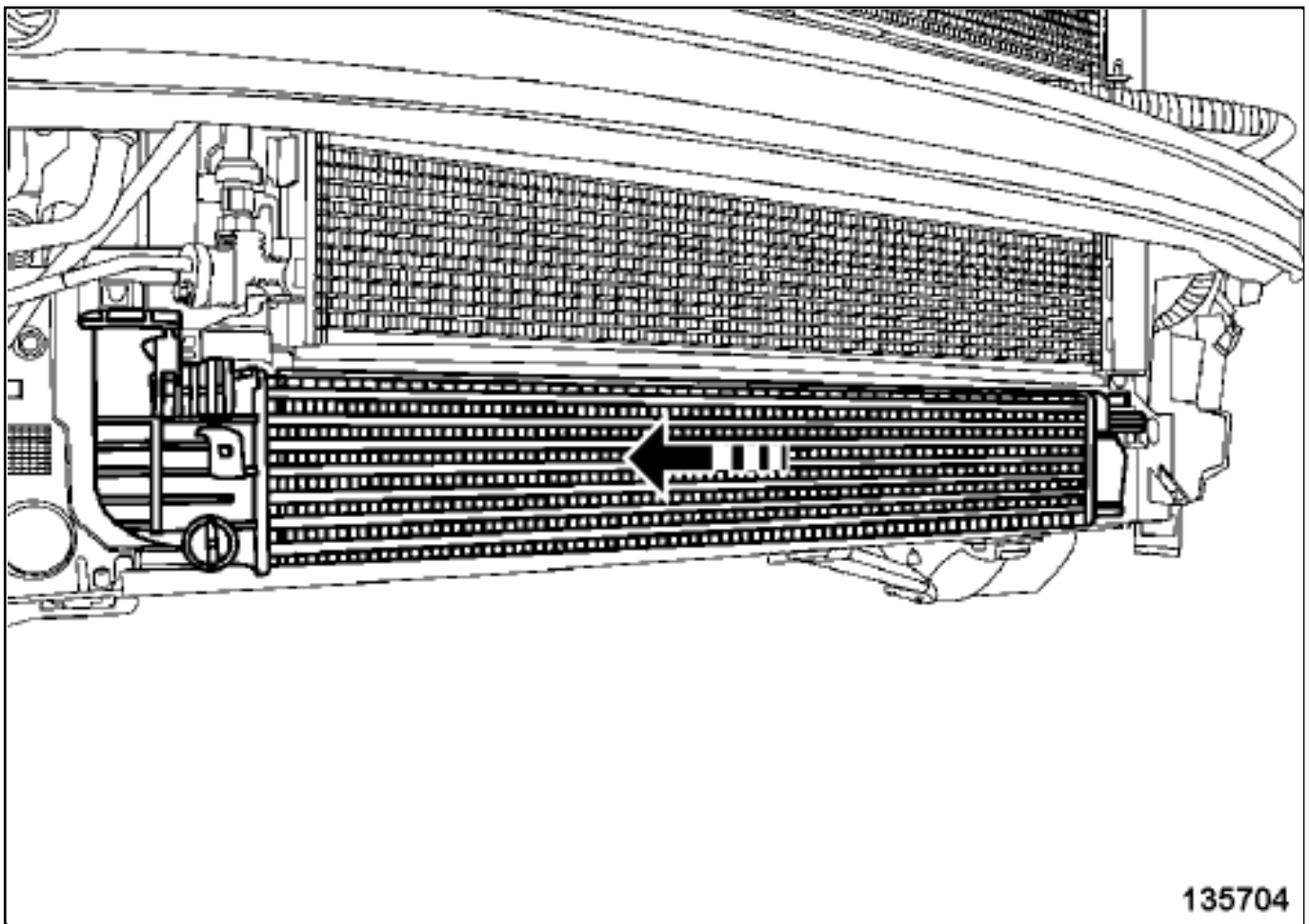
■ Release the clips from the intercooler air inlet pipe on the intercooler side [Air inlet assembly: Exploded view](#) .

■ Disconnect the intercooler air inlet pipe on the intercooler side [Air inlet assembly: Exploded view](#) .



135705

■ Press on the intercooler clip(1) .



135704

- Unclip the intercooler in the direction of the arrow.
- Remove the intercooler [Air inlet assembly: Exploded view](#) .

REFITTING

1. REFITTING PREPARATION OPERATION

■



parts always to be replaced:

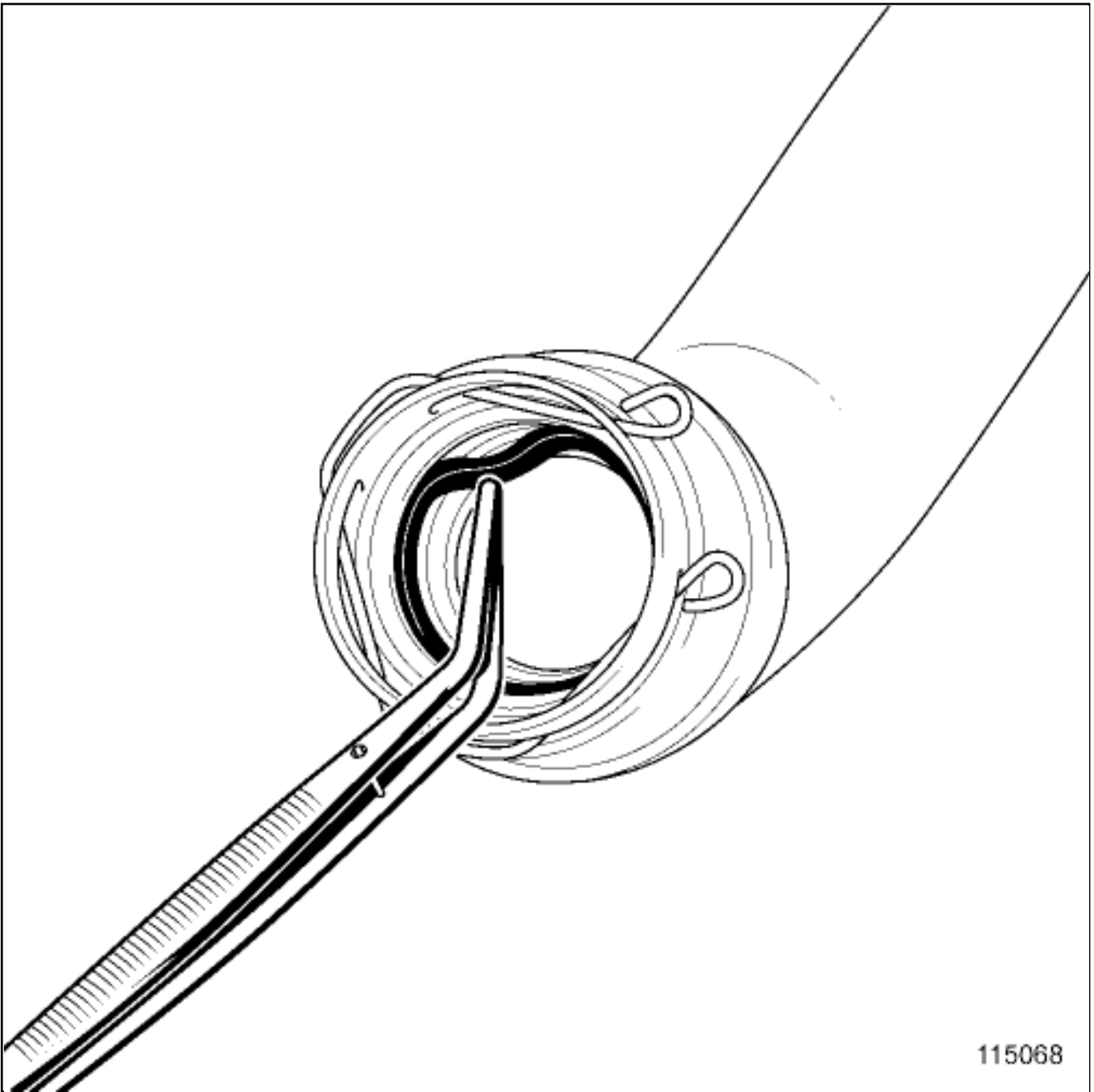
[turbocharger air cooler air inlet pipe seal](#)

■



parts always to be replaced:

[turbocharger air cooler air outlet pipe seal](#)



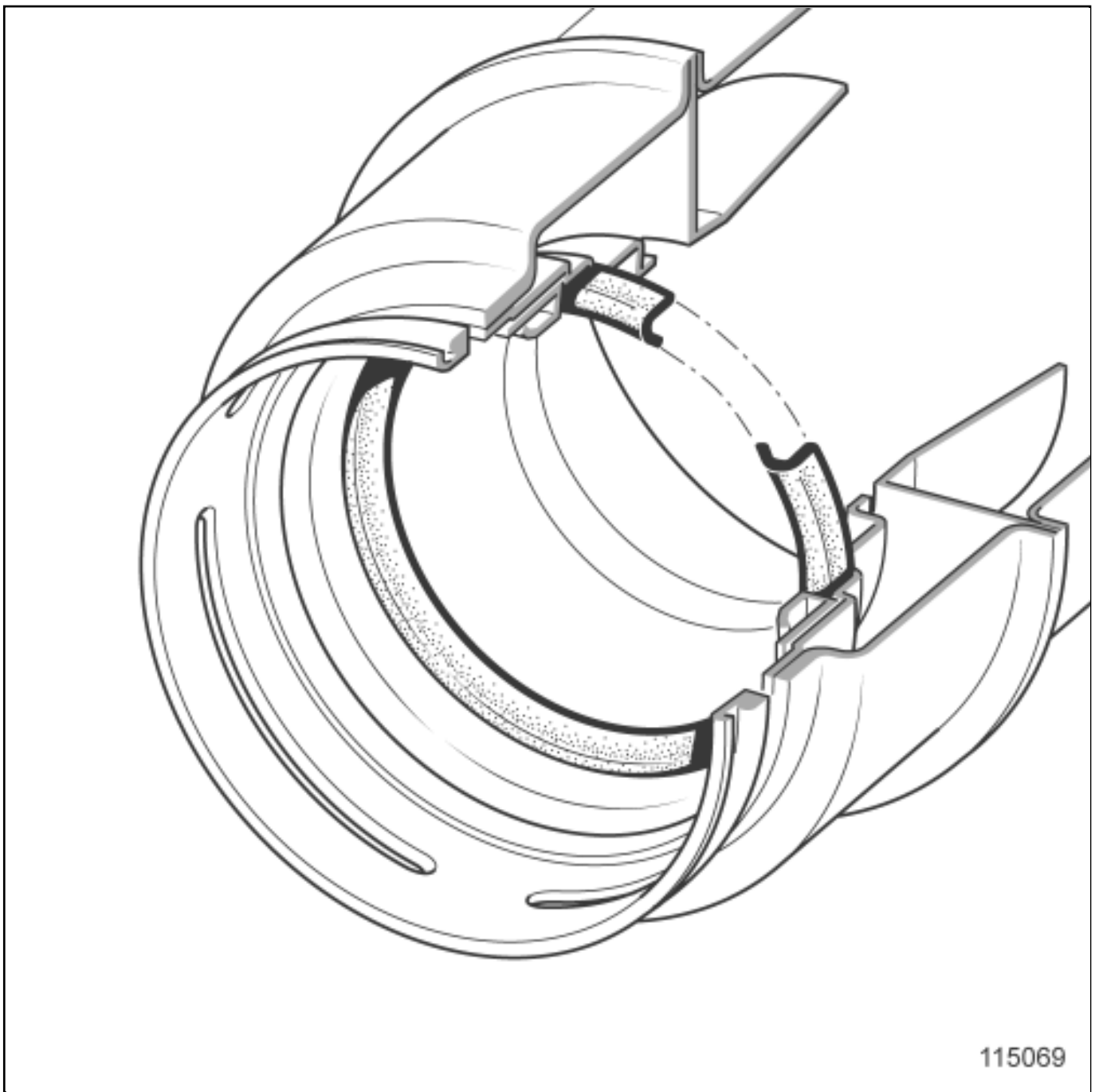
Remove:



the intercooler air outlet pipe seal using a tweezers,



the intercooler air inlet pipe seal using a tweezers.



115069



Note:

Check that the intercooler air outlet pipe seal and the intercooler air inlet pipe seal is fitted in the right direction.

Refit:



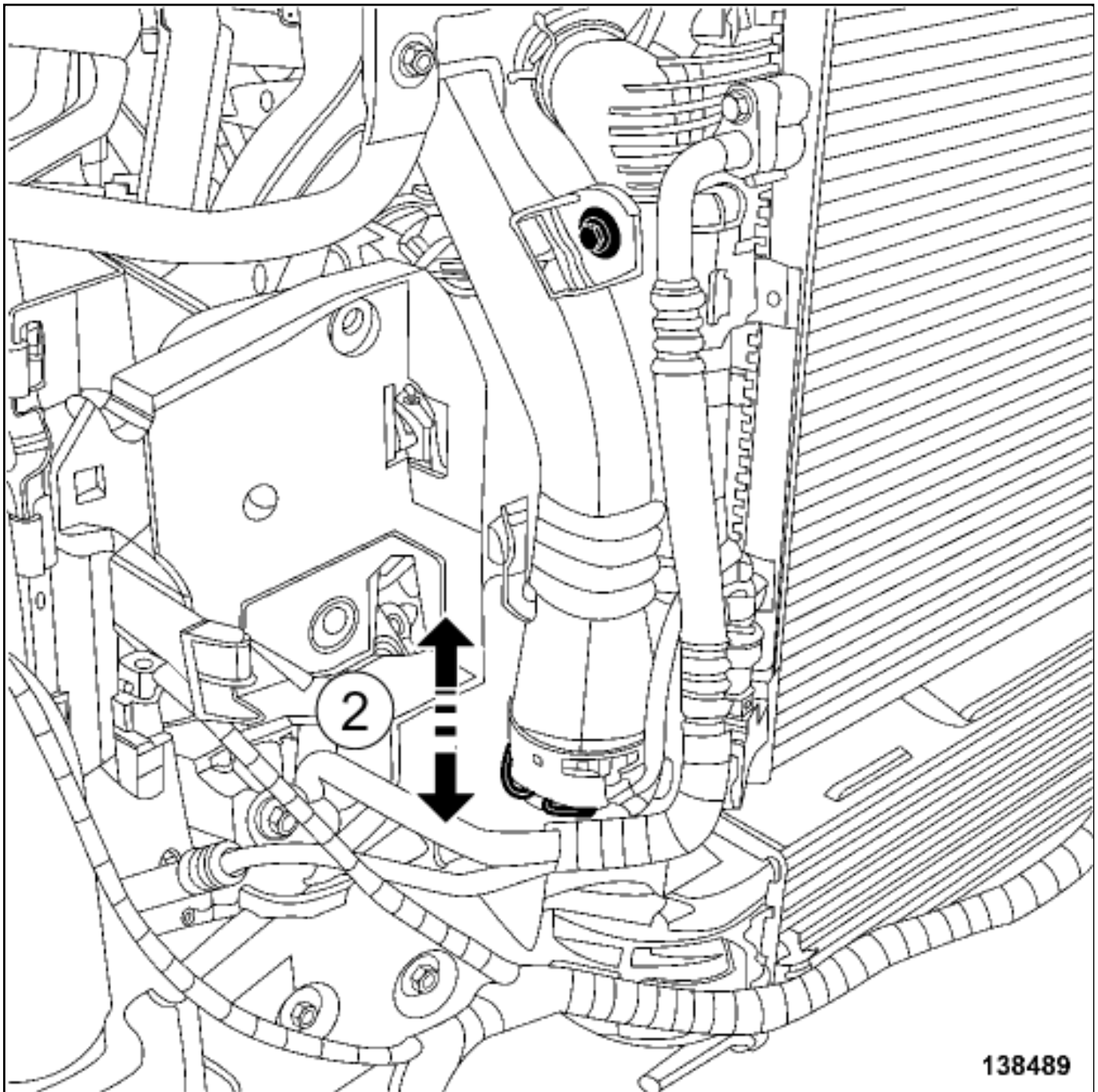
a new seal on the intercooler air outlet pipe,

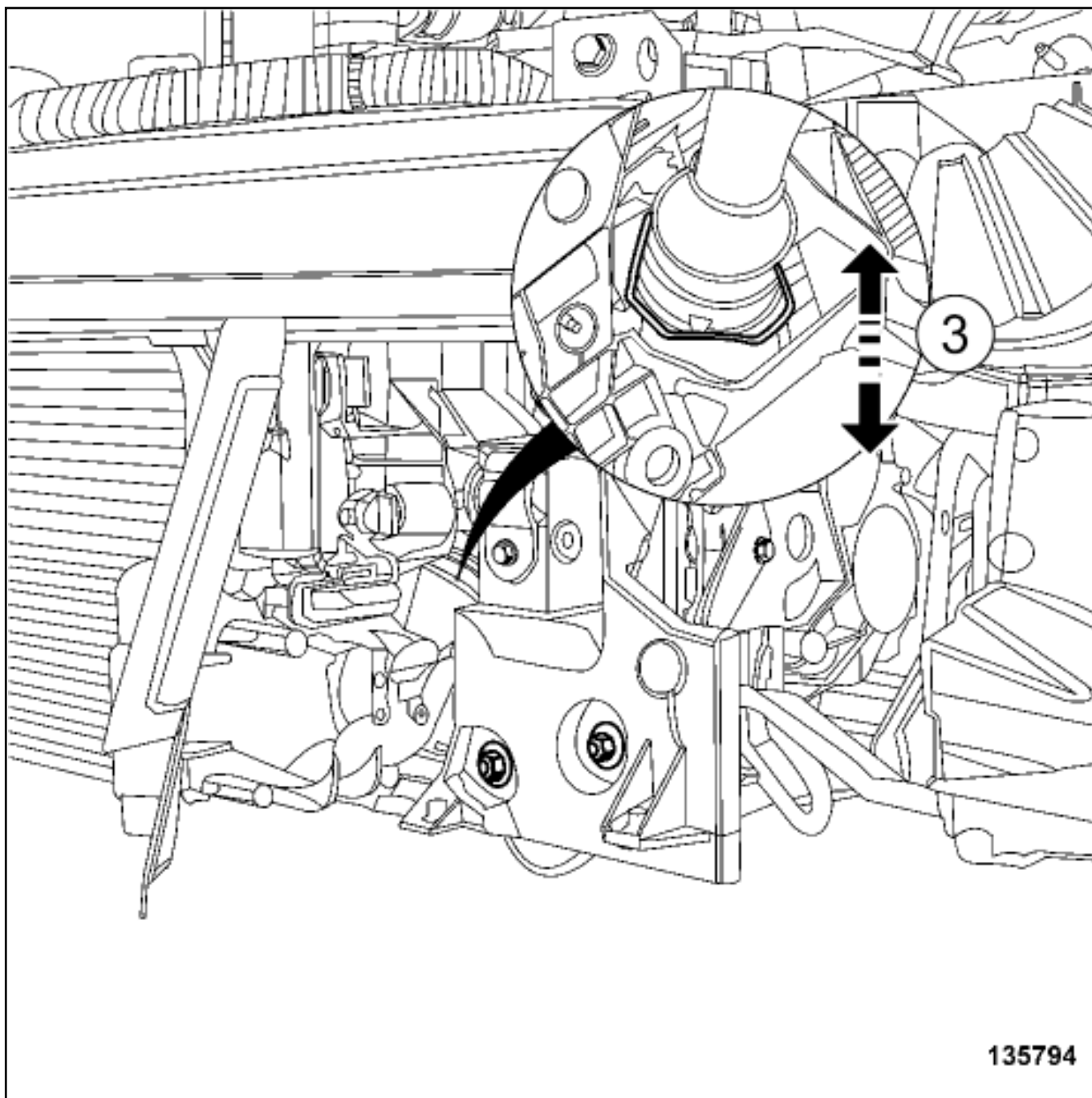


a new seal on the intercooler air inlet pipe.

2. REFITTING OPERATION

Proceed in the reverse order to removal.





135794



Always carry out a "push-pull" test at (2) and (3), to check that the intercooler air inlet pipe and the intercooler air outlet pipe is correctly fitted.



INTERIOR BODY SIDE TRIM ASSEMBLY: EXPLODED VIEW

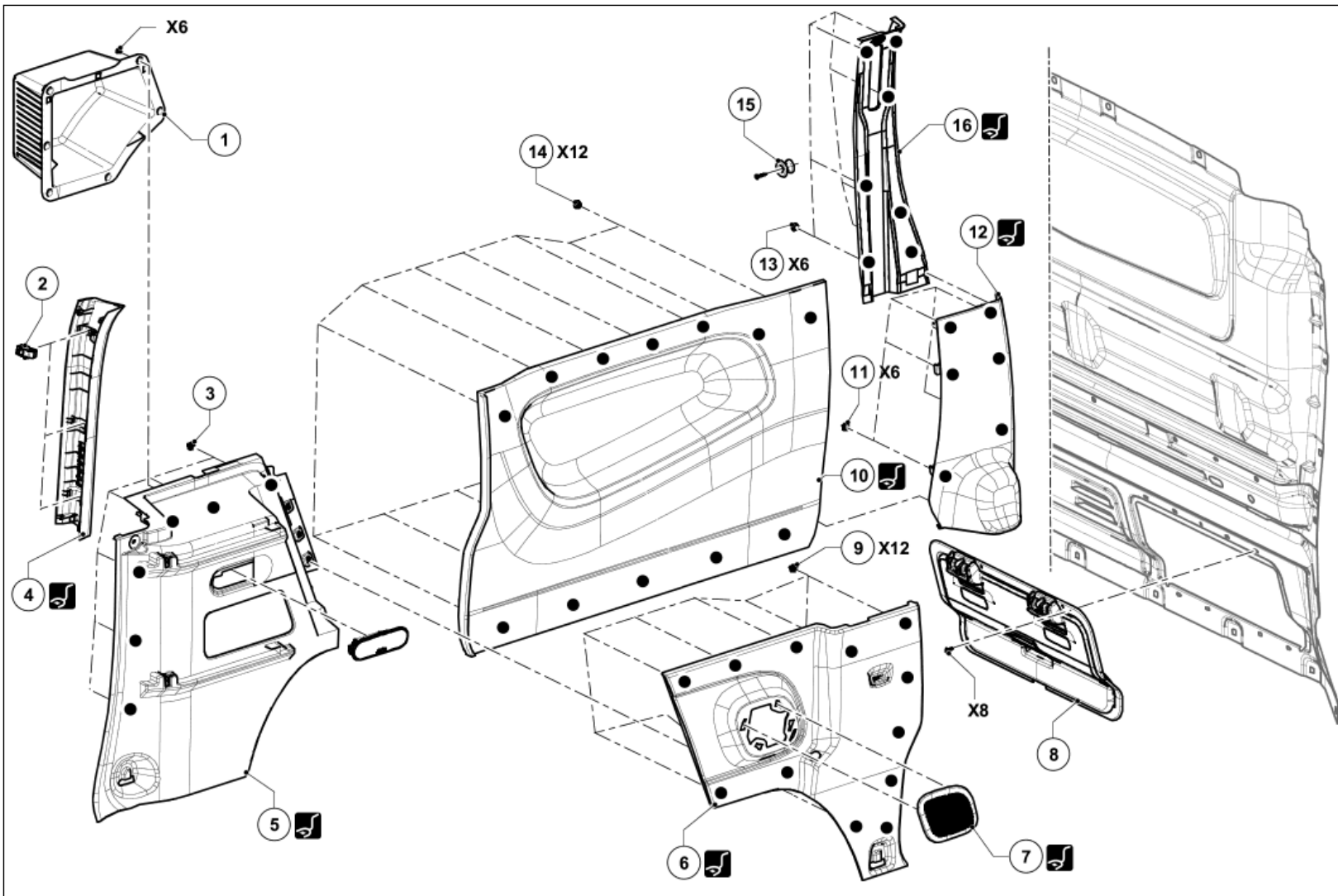


Illustration key: Description

Marks	Designations	Informations
1	Rear storage compartment	(Car.1363)
2	Trim clip	
3	Trim clip	
4	C-pillar upper trim	(Car.1363)
5	Rear parcel shelf side trim	(Car.1363)
6	Rear centre panel lining	(Car.1363)
7	Speaker grille	(Car.1363)
8	Passenger compartment bulkhead flap trim	
9	Trim clip	
10	Rear left-hand side panel trim	(Car.1363)
11	Trim clip	
12	B-pillar lower trim	(Car.1363)
13	Trim clip	
14	Trim clip	
15	Peg	
16	B-pillar upper trim	(Car.1363)



Repair-70x02x05-02x50-1-10-1.xml



INTERIOR LIGHTING: LIST AND LOCATION OF COMPONENTS

Special tooling required

Set of trim removal levers.

Car. 1363

1. LIST OF COMPONENTS

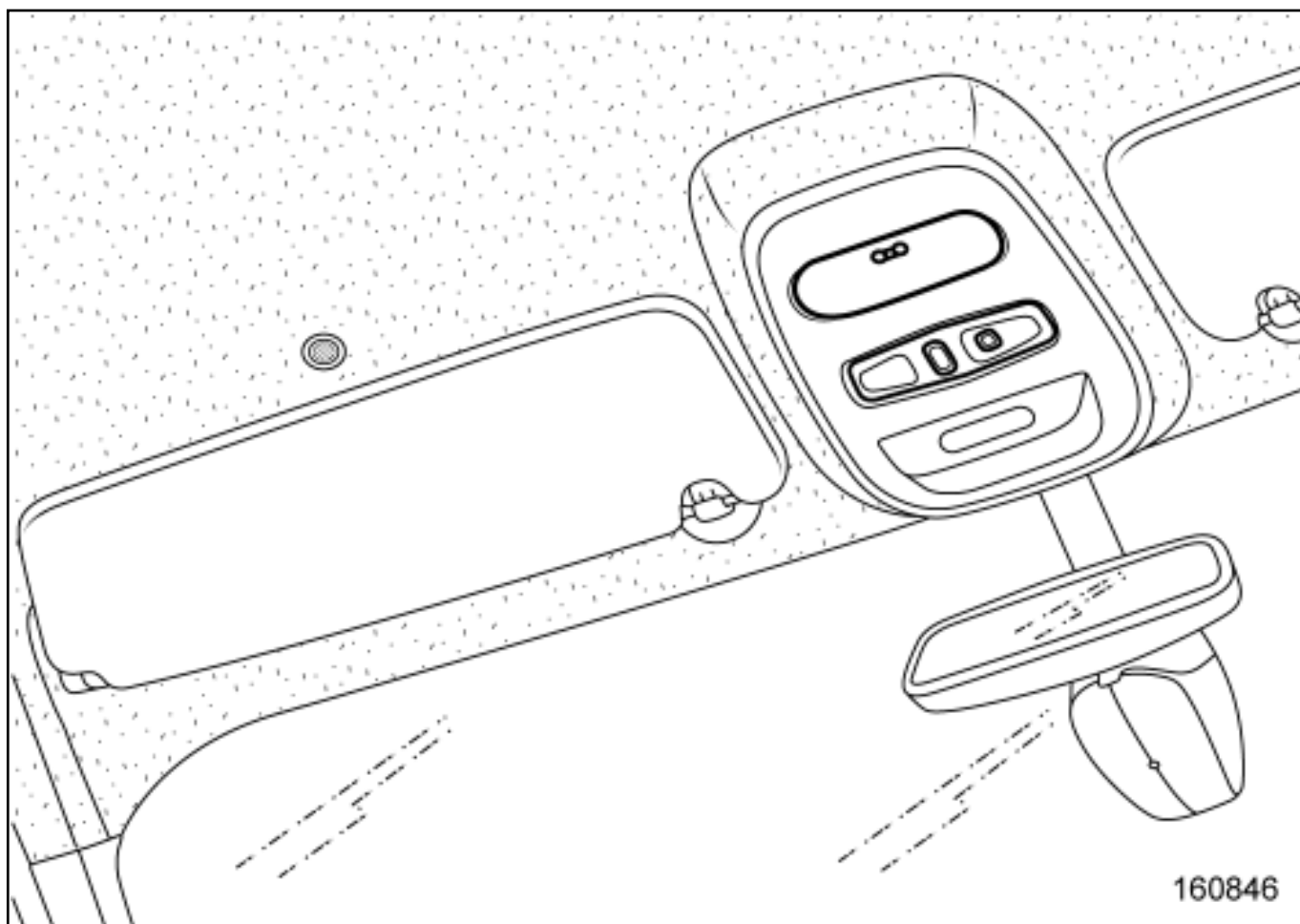
1- THE INTERIOR LIGHTING CONSISTS OF:

- a headlining light
- a glovebox light
- a luggage compartment light

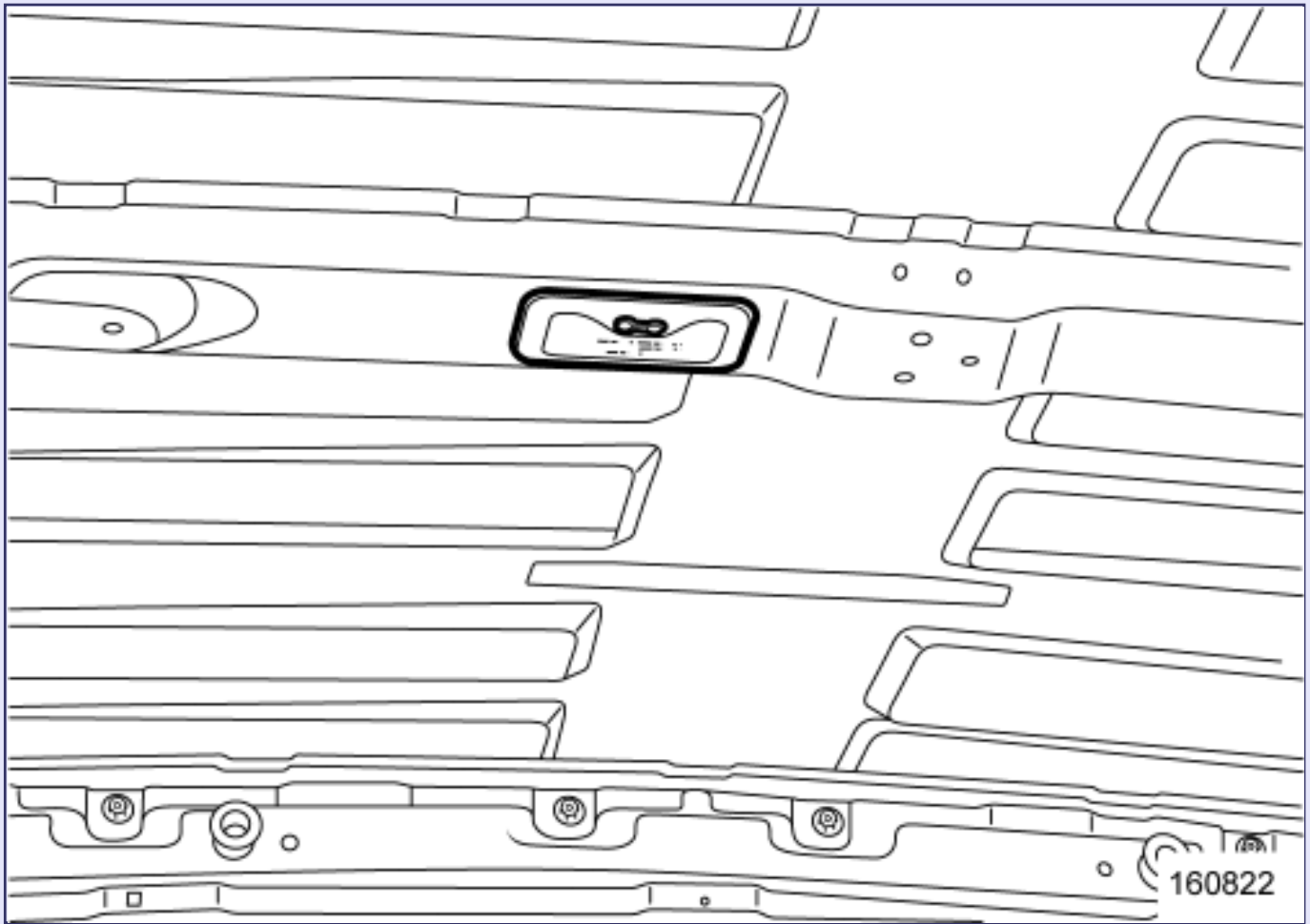
2. LOCATION OF COMPONENTS

Use the tool Set of trim removal levers. (Car. 1363) to remove-refit any interior lighting components.

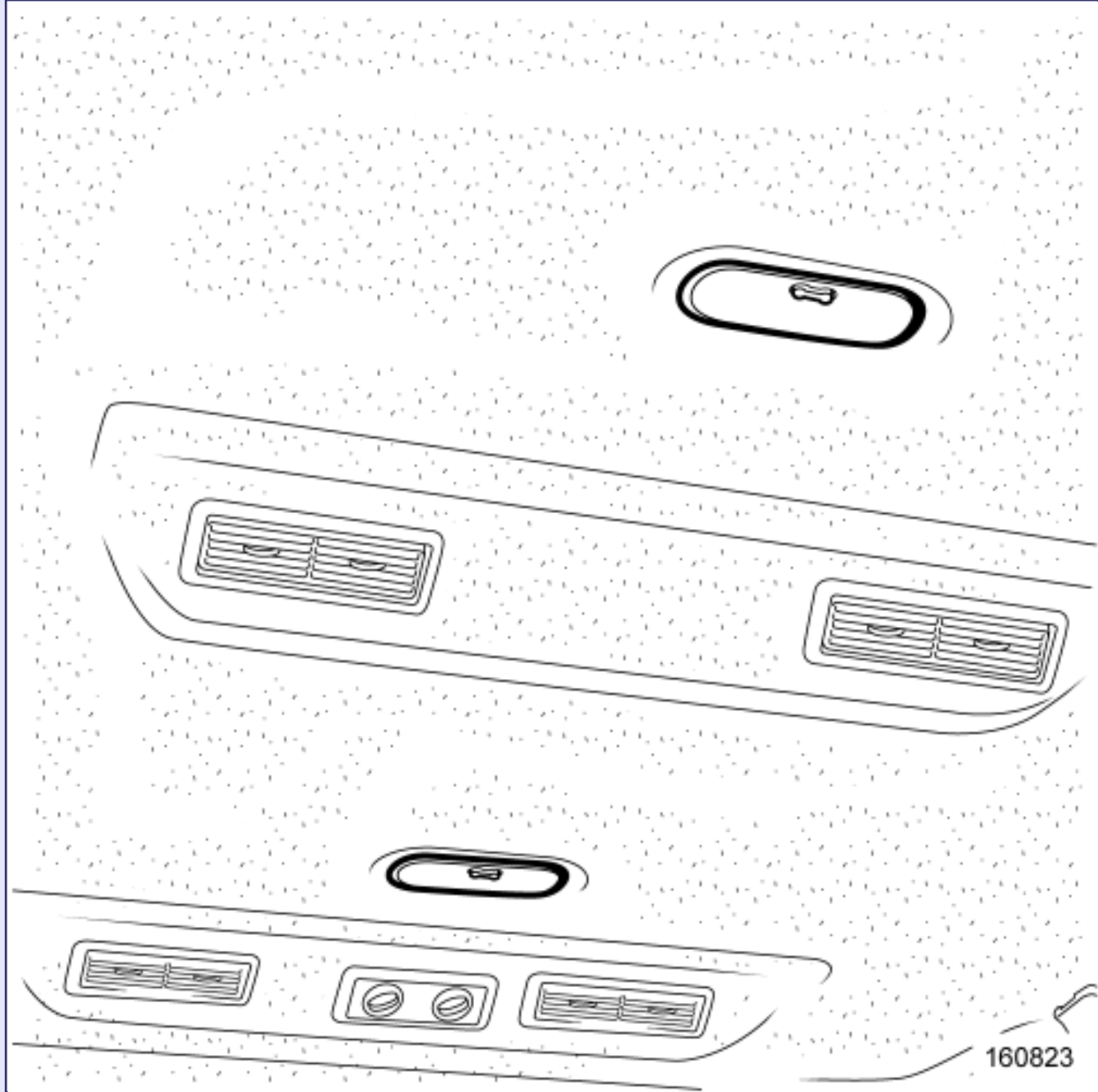
FRONT HEADLINING LIGHT



F82(F82) REAR HEADLINING LIGHT

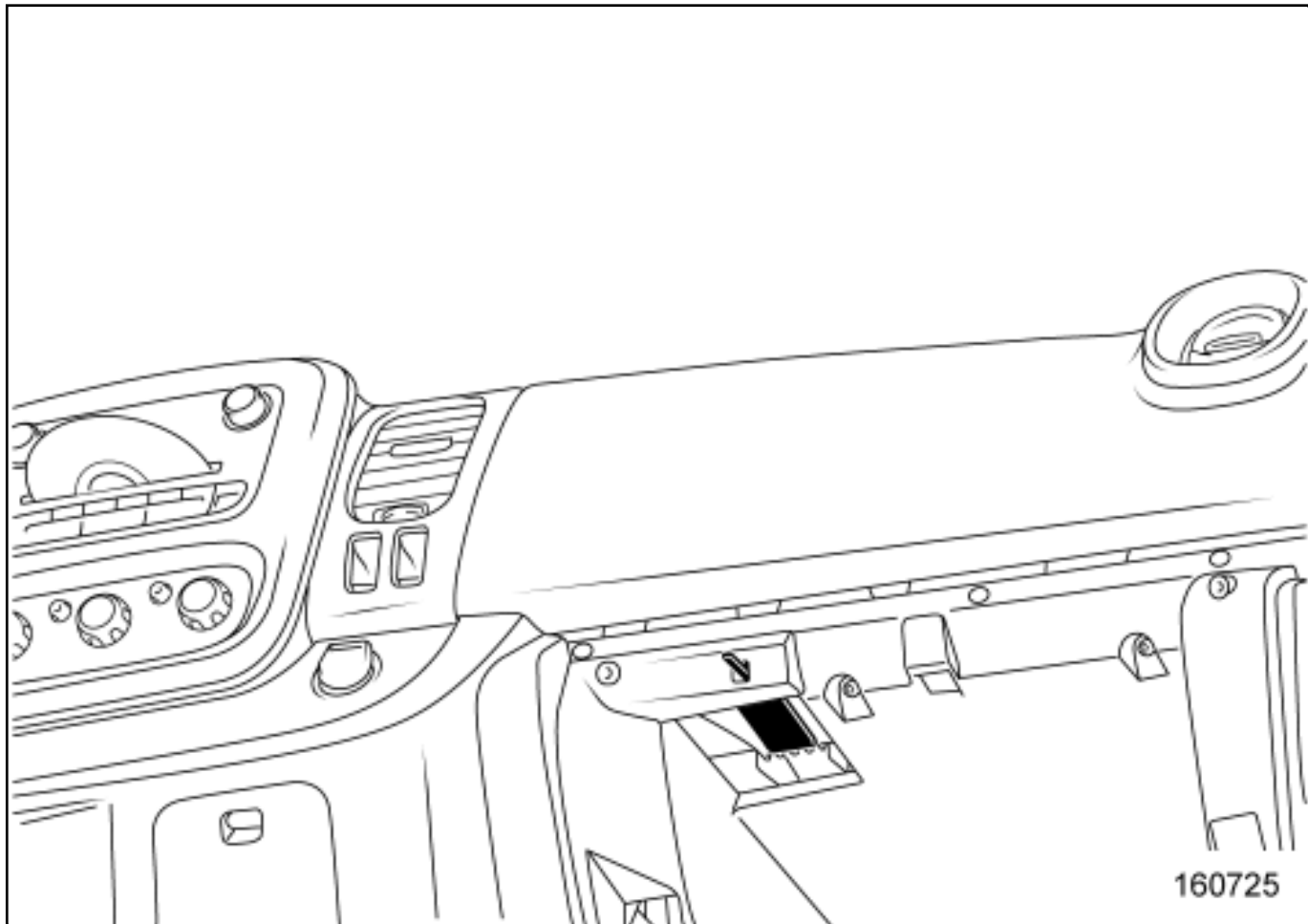


J82(J82) REAR HEADLINING LIGHT



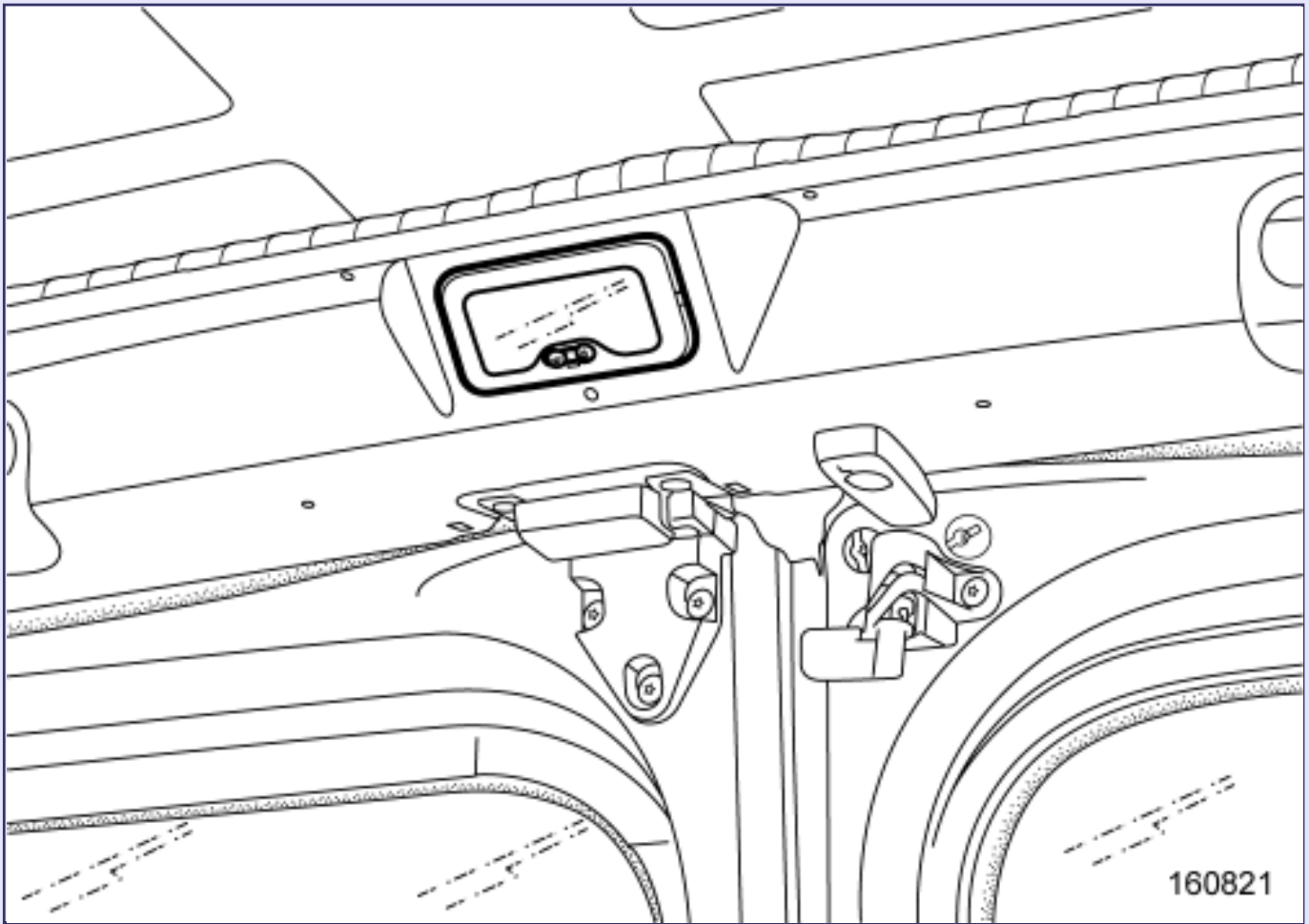
160823

GLOVEBOX LIGHT

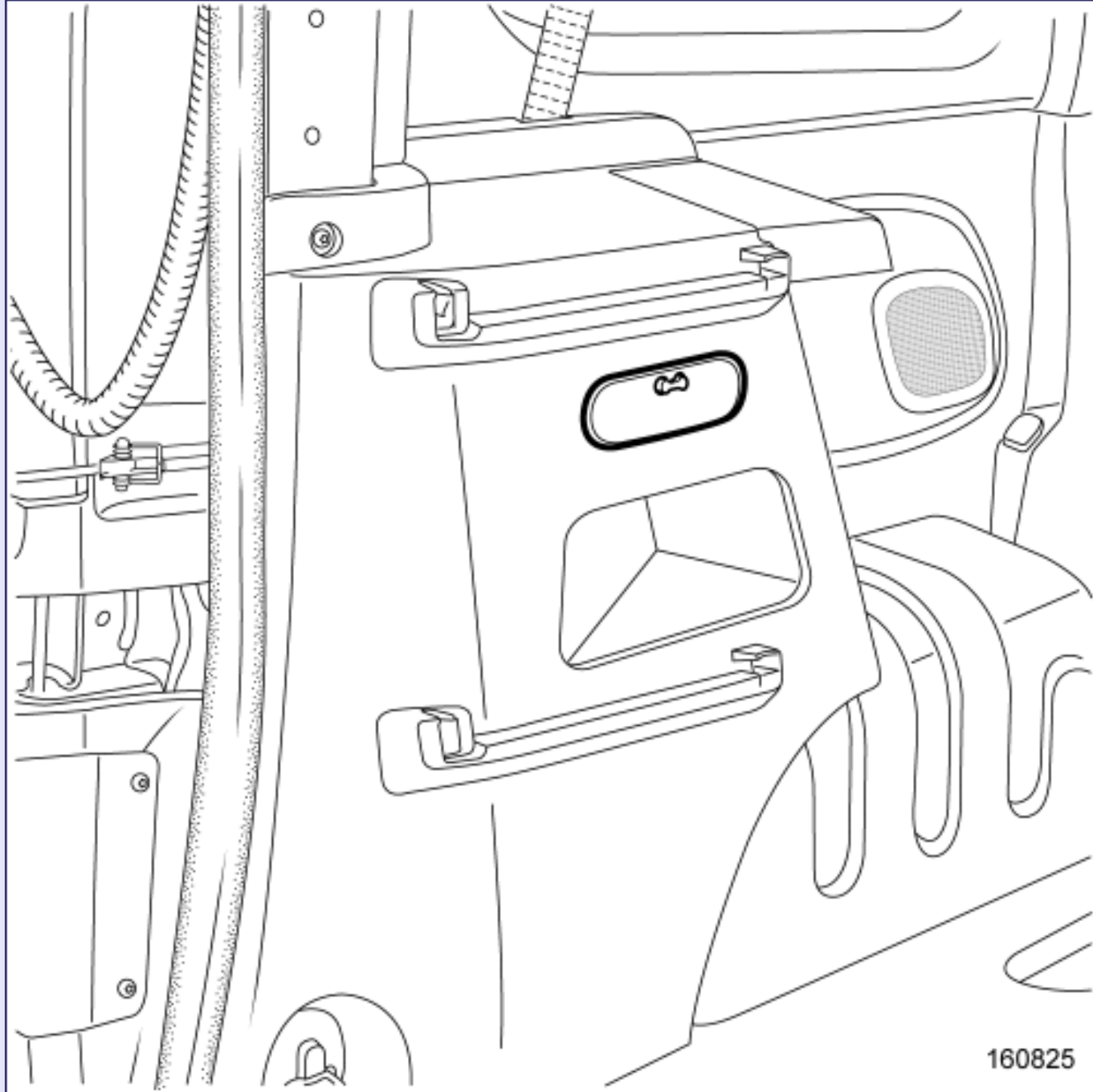


160725

F82(F82) LUGGAGE COMPARTMENT LIGHT



J82(J82) LUGGAGE COMPARTMENT LIGHT



160825



Repair-80x02x08-02x51-1-25-1.xml



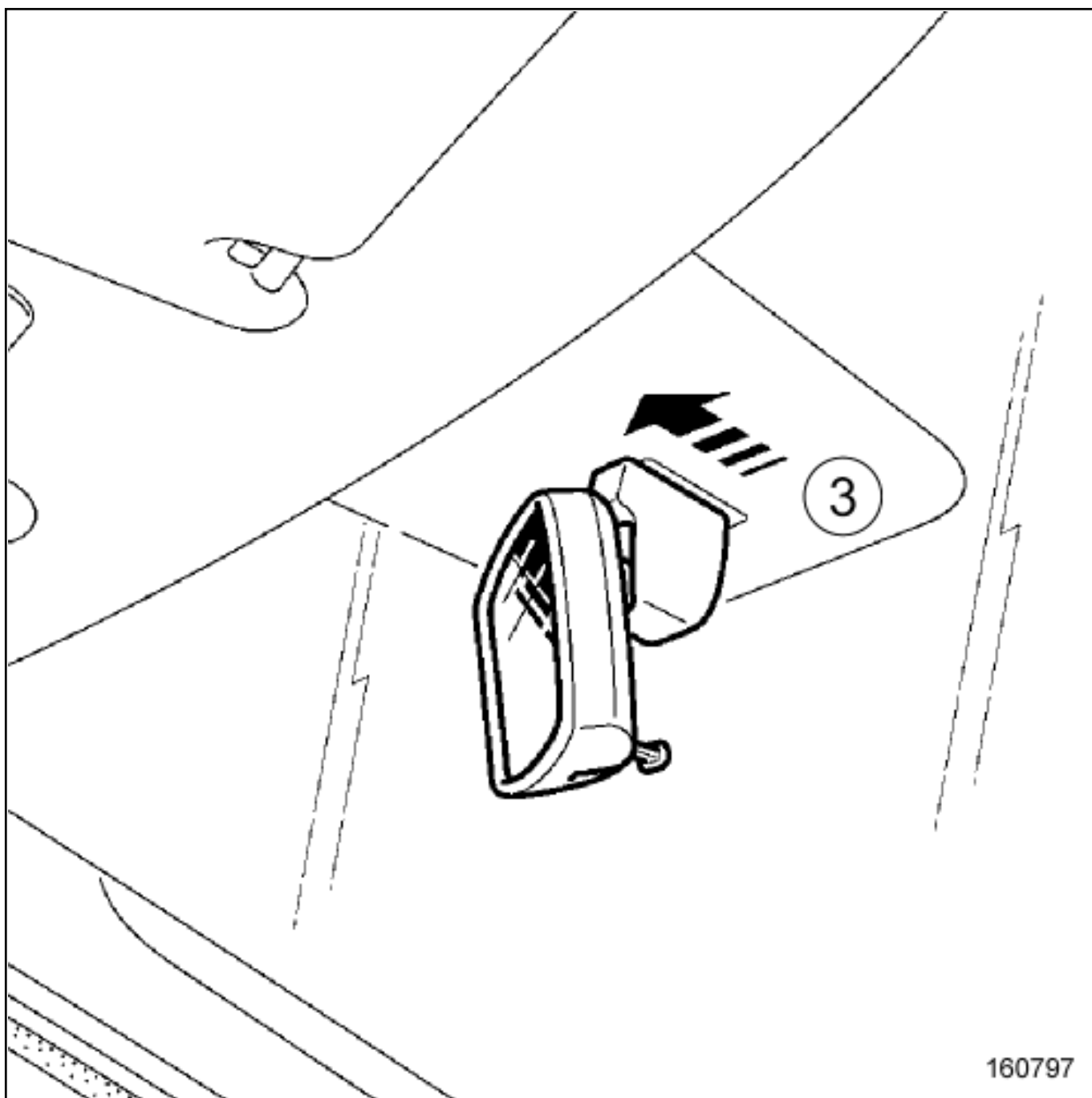
XSL version : 3.02 du 22/07/11

INTERIOR REAR-VIEW MIRROR: REMOVAL - REFITTING

REMOVAL

1. REMOVAL PREPARATION OPERATION

2. REMOVAL OPERATION



160797

- Remove the interior rear-view mirror at(3) .

REFITTING

- Proceed in the reverse order to removal.



Repair-50x08x06x02-01x37-1-28-1.xml



XSL version : 3.02 du 22/07/11

INTERMEDIATE SHAFT: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 36A, Steering assembly, Steering: Precautions for the repair\)](#),
■ [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

■ Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#).



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL OPERATION

■ Remove [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) :

-
- the steering box universal joint bolt,
-
- the steering column universal joint bolt,
-
- the intermediate shaft,
-

the intermediate shaft gasket.

REFITTING

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Torque tighten [\(see 36A, Steering assembly , Steering assembly: Exploded view\)](#) :



the steering box universal joint bolt,



the steering column universal joint bolt.



Repair-13x04x01x06-01x37-1-10-1.xml



XSL version : 3.02 du 22/07/11

MAINTENANCE OPERATIONAL INSTRUCTIONS :SERVICE



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

Electronic check tool



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair Vehicle:
Precautions for the repair

The Renault maintenance programme includes all checks, top-ups, adjustments, and part replacements necessary for vehicle maintenance. For information on the specific service intervals for the vehicle, refer to the maintenance booklet or to ICM.

1. CONTENT OF THE DIFFERENT TYPES OF SERVICES AND THE ANNUAL INTERMEDIATE VISIT:

1-SERVICES:

The types of service (Maintenance Service, General Service, Renault Service) and the operations to be performed may vary depending on the vehicle and the date of manufacture. To find out which specific checks and operations should be performed on the vehicle, refer to the vehicle maintenance booklet.

1- ANNUAL INTERMEDIATE VISIT:

For vehicles for which the oil change is to be performed no later than every 2 years, a non-obligatory visit including the following operations is advised:

- check the engine oil level,
- check the level, condition, and sealing of the brake fluid circuit,
- check the coolant level,
- check the level, condition, and sealing of the power-assisted steering circuit,
- check the washer fluid level,
- electronic fault finding of the battery with the test tool,
- electronic fault finding of the computers,
- condition of the windscreen and rear view mirrors,

- wear of the windscreen wiper and rear wiper blades,
- check the exterior lighting and signals,
- condition and pressure of the tyres (including emergency spare wheel or tyre repair aerosol),
- condition of gaiters, rubber mounting bushes, and ball joints,
- exhaust system check,
- sealing of the front and rear shock absorbers,
- wear of the front and rear brake pads and brake discs.

NOTE: the content of the intermediate visit, as well as its commercial name, may vary from one country to another. Thus additional checks and / or operations could be added to this list. For more information, please contact the manufacturer's technical teams in your country

2. SPECIAL CONDITIONS OF CUSTOMER USE AND MAINTENANCE MANAGEMENT FOR VEHICLES EQUIPPED WITH THE OCS (OIL CONTROL SYSTEM) FOR GERMANY, ANDORRA, AUSTRIA, BELGIUM, DENMARK, SPAIN, ESTONIA, FINLAND, FRANCE, GREAT BRITAIN, GREECE, HUNGARY, IRELAND, ICELAND, ITALY, LATVIA, LIECHTENSTEIN, LITHUANIA, LUXEMBOURG, NORWAY, NETHERLANDS, POLAND, PORTUGAL, CZECH REPUBLIC, SLOVAKIA, SLOVENIA, SWEDEN, SWITZERLAND, CROATIA, ISRAEL:

Definitions:

What does it mean that a vehicle is operated under normal conditions of customer use?

A vehicle is operated under normal conditions of customer use if it is not operated under the special conditions of customer use (see below). In this case, observe the standard maintenance programme provided in the maintenance booklet or ICM (Shared World Information).

What does it mean that a vehicle is operated under special conditions of customer use?

A special condition of customer use affects the replacement frequency of one or several parts of the maintenance programme (service, air filter replacement, fuel filter replacement, etc.). The vehicle is said to operate under special conditions of customer use if:

- The instrument panel displays that a service is required (change engine oil and oil filter), only for vehicles equipped with the OCS (Oil Control System) oil quality control device. See "List of vehicles equipped with OCS or information in ICM (Shared World Information)",
- At least 50% of the vehicle operating time is with the engine idling (example: constant door-to-door driving without stopping the engine),
- At least 50% of trips are at an average speed of less than 18 mph (30 km/h) (primarily urban use, taxi, etc.),
- At least 30% of the miles driven involve towing a trailer, caravan, etc. weighing more than 500 kg (condition only for passenger vehicles),

- Use in a dusty environment (work-site, + than 600 miles (1000 km)/year on unpaved roads, etc.),
- Extended use (+ than 3000 miles (5000 km)/year) at temperatures continuously below -15°C.

What is the OCS (Oil Control System) and what does it detect?

The OCS is a device that evaluates oil degradation by calculations, taking into account the severe engine operating conditions that affect the oil. Thus, under certain driving conditions, the instrument panel indicates to the customer that a service is required.

Which vehicles are equipped with the OCS device?

THE MODELS EQUIPPED WITH THE OCS ARE FOR THE COUNTRIES OF GERMANY, ANDORRA, AUSTRIA, BELGIUM, DENMARK, SPAIN, ESTONIA, FINLAND, FRANCE, GREAT BRITAIN, GREECE, HUNGARY, IRELAND, ICELAND, ITALY, LATVIA, LIECHTENSTEIN, LITHUANIA, LUXEMBOURG, NORWAY, NETHERLANDS, POLAND, PORTUGAL, CZECH REPUBLIC, SLOVAKIA, SLOVENIA, SWEDEN, SWITZERLAND, CROATIA, AND ISRAEL:

Note :

For the Dacia vehicles consult the ICM for the vehicles manufactured starting from 14/06/2011, before consulting the table.

For the Renault vehicles consult the ICM for the vehicles manufactured starting from 01/01/2010, before consulting the table.

Model	engine	Engine suffix	Vehicles affected:
Dacia	K9K emission control standard Euro 5	all	all
WIND	D4F, K4M	All	All
TWINGO II	D4F turbocharged	All	All
TWINGO II	K4M emission control standard Euro 5	All	All
TWINGO II	K9K	718	All
TWINGO II	K9K	740	Vehicles with oil service every 18 000 miles (30 000 Km) /2 years
TWINGO II	K9K emission control standard Euro 5	All	All
CLIO III phase 1	K9K	764	Vehicles with oil service every 18,000 miles (30,000 Km) / 1 year
CLIO III phase 2	K9K emission control standard Euro 5	All	All
CLIO III	D4F turbocharged	All	All

CLIO III	D4F	742	Vehicles with oil service every 18,000 miles (30,000 Km) / 1 year
CLIO III	K4M	862	All
MODUS	D4F turbocharged	All	All
MODUS	D4F	742	All
MODUS	K9K	764	Vehicles with oil service every 18,000 miles (30,000 Km) / 1 year
MODUS	K9K without particle filter	All	Vehicles with oil service every 18 000 miles (30 000 Km) /2 years
MODUS	K9K emission control standard Euro 5	All	All
KANGOO II	K4M emission control standard Euro 5	All	All
KANGOO II	K9K	All	All
MEGANE II and SCENIC II	K9K	732	Vehicles with oil service every 18,000 miles (30,000 Km) / 1 year
MEGANE II and SCENIC II	M9R	700,721,722	Vehicles with oil service every 18,000 miles (30,000 Km) / 1 year
MEGANE II	M9R	724	Vehicles with oil service every 12,000 miles (20,000 Km) / 1 year
MEGANE II and SCENIC II	F9Q	816,818	Vehicles with oil service every 18,000 miles (30,000 Km) / 1 year

FLUENCE and MEGANE III/SCENIC III	K9K	830	Vehicles with oil service interval every 2 years
FLUENCE and MEGANE III/SCENIC III	K9K	832, 834, 836, 837	All
FLUENCE and MEGANE III/SCENIC III	K9K emission control standard Euro 5	All	All
MEGANE III/SCENIC III	F9Q, M9R, H4J, F4R, R9M	All	All
Koleos	M9R emission control standard Euro 5	All	All
LAGUNA III	K9K,M9R,V9X	All	All
LAGUNA III	M4R	726	All
ESPACE IV	M9R	All	Vehicles with oil service every 18,000 miles (30,000 Km) / 1 year
LATITUDE	Diesel	All	All
MASTER II phase 3	G9U	All	All
TRAFIC phase 2 and 3	M9R	All	Vehicles manufactured from 01/12/06
TRAFIC phase 2 and 3	G9U	All	All
MASTER III	All	All	All

For the vehicles sold starting from 01/01/2011, consult the ICM.

1- MANAGEMENT OF VEHICLE MAINTENANCE IN CASE OF DRIVING UNDER SPECIAL CONDITIONS OF CUSTOMER USE:

It is ESSENTIAL to read the instructions:

Depending on whether the vehicle is fitted with OCS or not, refer to the corresponding table below.

The tables below contain X's or notes to specify the maintenance operations to be performed depending on the special conditions of customer use.

For the other maintenance programme parts that need not be replaced early, the maintenance interval is the same as recommended for normal conditions of customer use (see the maintenance booklet or ICM). If this interval will be reached before the next customer visit, replace this part ahead of schedule.

If the vehicle is operated under several of these special conditions of customer use, apply the most stringent recommendation for replacement specified for the special conditions of use concerned.

FOR MODELS WITHOUT OCS:

	Divide by 2 the engine oil and oil filter service interval for normal conditions of use		Divide by 2 the air filter replacement interval for normal conditions of use (1)		Divide by 2 the diesel filter replacement interval for normal conditions of use (1)		Replace the belts and rollers 18,000 miles (30,000 km) sooner than for normal use conditions (1)(2)	Replace the cabin filter during every service for normal conditions of use (1)
	Distance (kilometres or miles)	Time	Distance (kilometres or miles)	Time	Distance (kilometres or miles)	Time		
At least 50% of the vehicle operating time with the engine idling (e.g. constant door-to-door driving without stopping the engine)	X	X	X	X	X	X	X	
At least 50% of trips at an average speed of less than 18 mph (30 km/h) (primarily urban use, taxi, etc.),	X		X		X		X	X

At least 30% of the miles driven while towing a trailer, caravan, etc. weighing more than 500 kg (condition only for passenger vehicles),	X				X		X	
Use in a dusty environment (work-site, + than 600 miles (1000 km)/year on unpaved roads, etc.),	X		X		X		X	X
Extended use (+ than 3000 miles (5000 km) /year) at temperatures continuously below -15°C.	X							

(1) If the recommended interval will be reached before the next customer visit, replace the part concerned ahead of schedule.

(2) Certain pulleys of certain engines must be replaced when replacing the accessories belt. See the "Supplementary operations" section.

FOR MODELS WITH OCS (SEE THE TABLE OF MODELS EQUIPPED WITH THE

OCS AND THE COUNTRIES CONCERNED):

	Divide by 2 the engine oil and oil filter service interval for normal conditions of use (1)		Divide by 2 the air filter replacement interval for normal conditions of use (1)		Divide by 2 the diesel filter replacement interval for normal conditions of use (1)		Replace the belts and rollers 18,000 miles (30,000 km) sooner than for normal use conditions (1)(2)	Replace the cabin filter during every service for normal conditions of use (1)
	Distance (kilometres or miles)	Time	Distance (kilometres or miles)	Time	Distance (kilometres or miles)	Time		
Instrument panel display that a service is required (engine oil and oil filter service) due to the OCS (Oil Control System).	Observe the message on the vehicle instrument panel and perform the service (engine oil and oil filter service) when it is requested(1).							
At least 50% of the vehicle operating time with the engine idling (e.g. constant door-to-door driving without stopping the engine)			X	X	X	X	X	

<p>At least 50% of trips at an average speed of less than 18 mph (30 km/h) (primarily urban use, taxi, etc.),</p>			X		X		X	X
<p>At least 30% of the miles driven while towing a trailer, caravan, etc. weighing more than 500 kg (condition only for passenger vehicles),</p>					X		X	
<p>Use in a dusty environment (work-site, + than 600 miles (1000 km)/year on unpaved roads, etc.),</p>	X		X		X		X	X

Extended use (+ than 3000 miles (5000 km) /year) at temperatures continuously below -15°C.	X							
--	---	--	--	--	--	--	--	--

(1) If the recommended interval will be reached before the next customer visit, replace the part concerned ahead of schedule.

(2) Certain pulleys of certain engines must be replaced when replacing the accessories belt. See the "Supplementary operations" section.

3. SPECIAL CONDITIONS OF CUSTOMER USE (OIL CONTROL SYSTEM) FOR THE COUNTRIES NOT MENTIONED ABOVE:

See the vehicle's maintenance booklet.

4. PROCEDURES FOR PERFORMING OPERATIONS AND CHECKS DURING THE MAINTENANCE OR SERVICE:

The customer must be warned if a check reveals a fault.

Checks marked with an asterisk depend on the vehicle or the country.

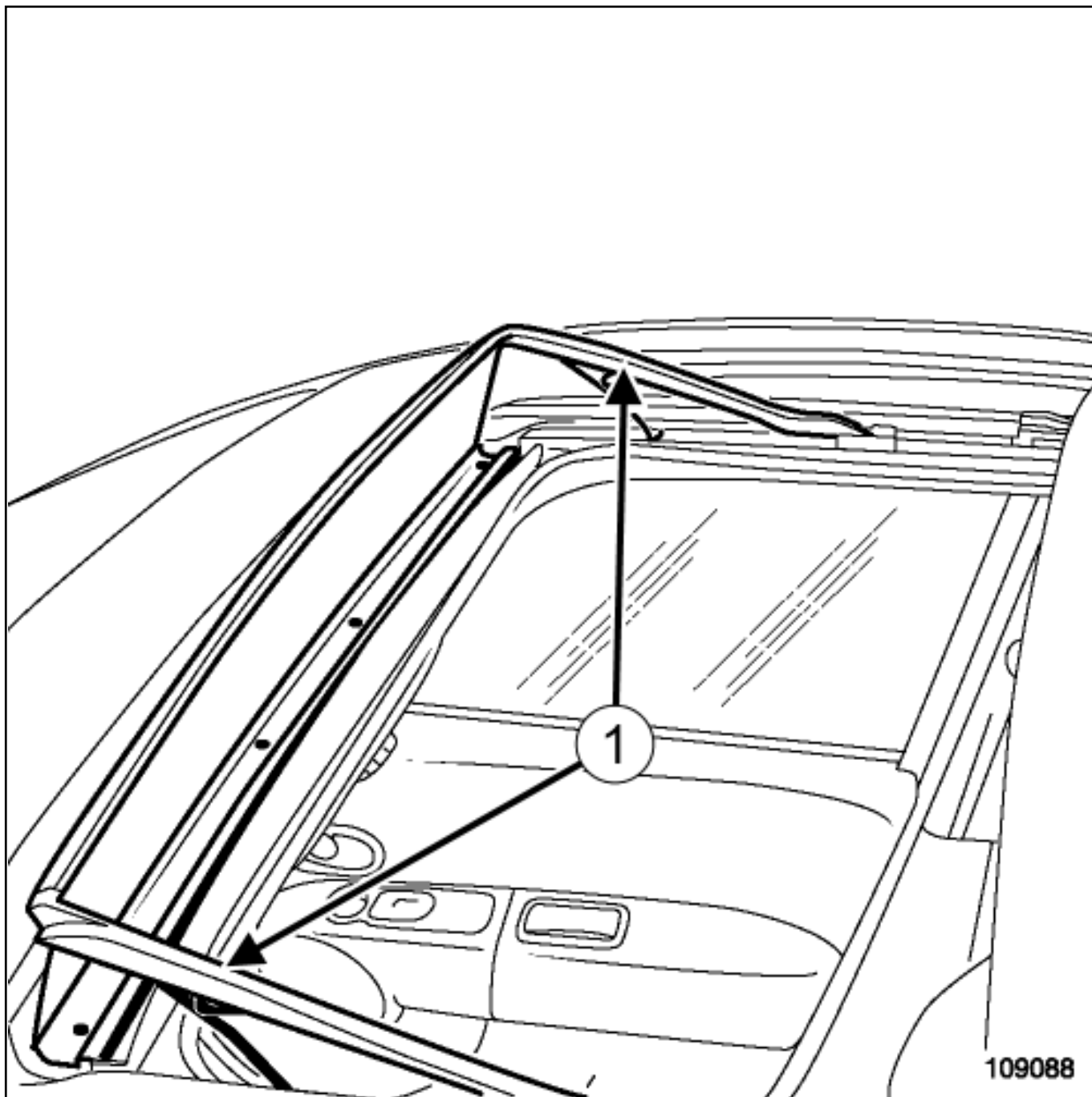
1- BODYWORK: ANTICORROSION CHECK

- Visually inspect the condition of the:
 - vehicle,
 - underside of the vehicle,
 - wheel arches.

Indicate any damage to the underbody protection, and all cuts, ruptures, scratches or corrosion anywhere on the vehicle.

This inspection contributes to the validity of the anticorrosion warranty. It is therefore necessary to complete the maintenance sheets in the maintenance booklet.

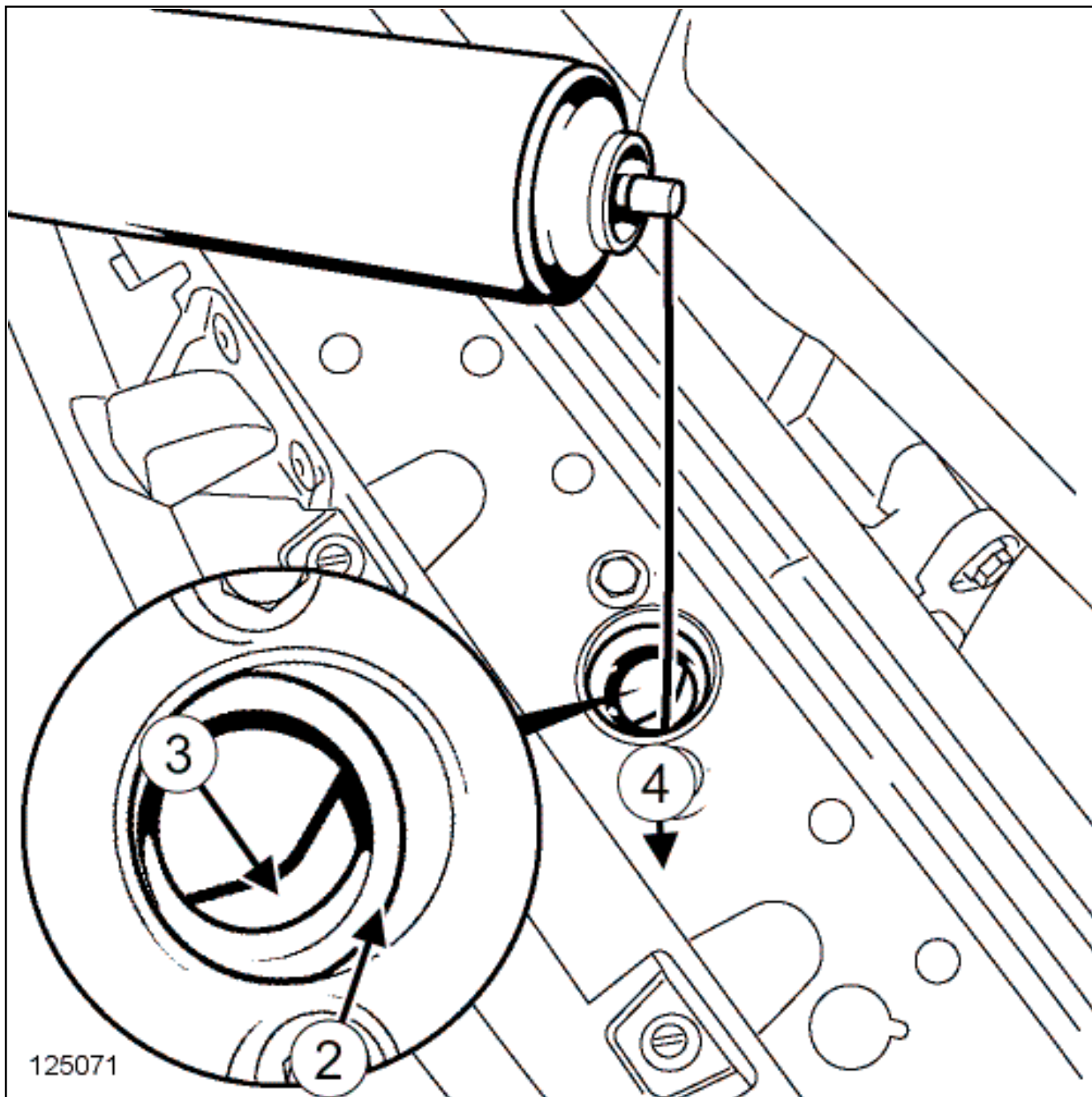
2- BODYWORK: CLEANING THE DEFLECTOR ARMS AND PANORAMIC SUNROOF MOBILE PANEL



Use a dry, lint-free cloth to clean the sunroof deflector arms (1) and the section of the mobile panel with which they come into contact.

3- BODYWORK: CHECKING THE BONNET LOCK LUBRICATION AND OPERATION

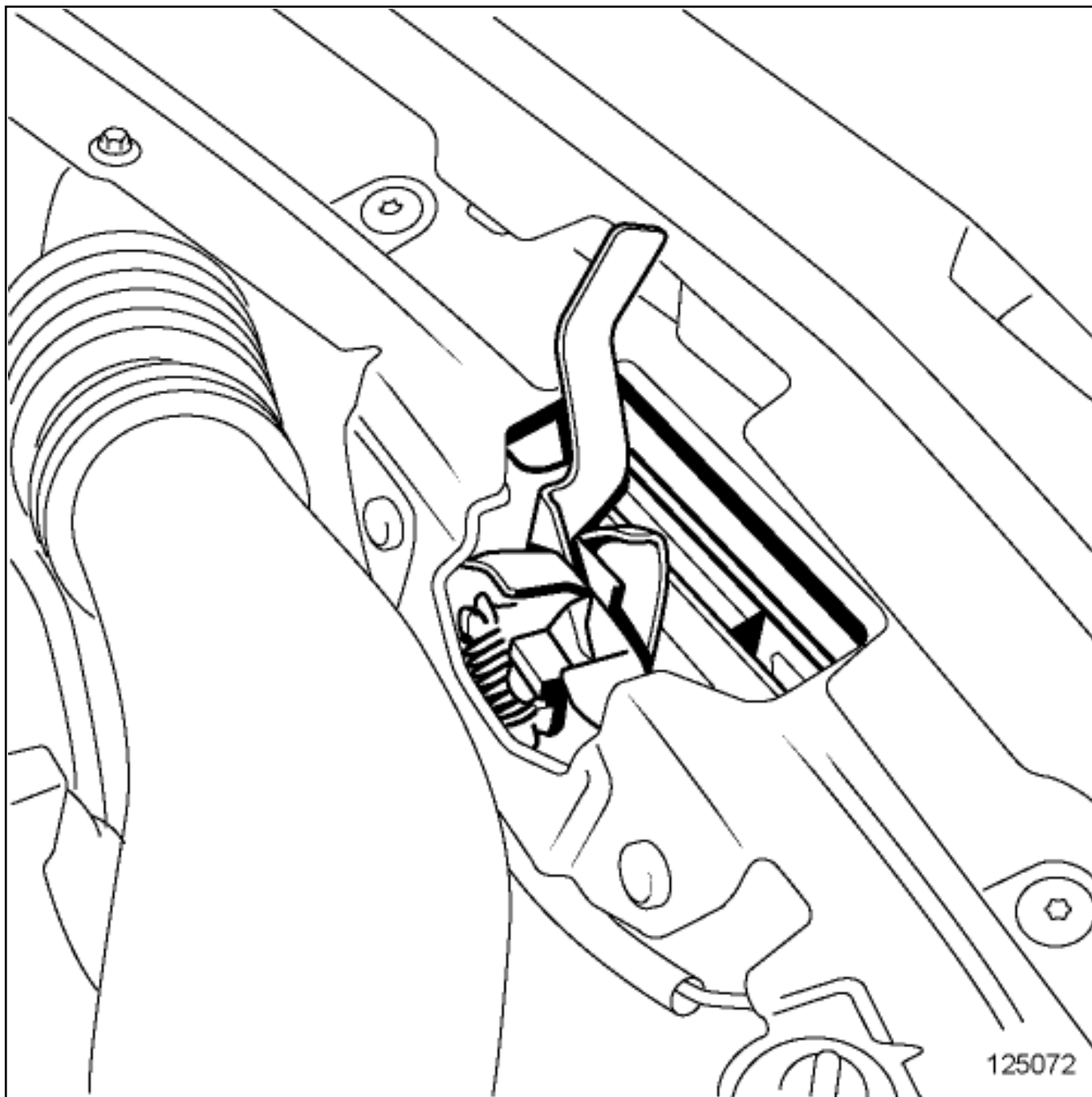
1) GUILLOTINE TYPE LOCK



As specified in the photo above, apply silicone-free lubricant [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products), placing it between the body of the lock (2) and the lock blade (3) in the direction of the lock blade hinge shaft (4).

Let it set for 1 minute, then manoeuvre 10 times from the bonnet release catch in the passenger compartment.

2) OTHER TYPES OF LOCK



Apply silicone-free lubricant [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to the catch assembly.

Let it set for 1 minute, then manoeuvre 10 times from the bonnet release catch in the passenger compartment.

4- GREASING OF THE REAR DOOR HINGES AND THE UPPER STRIKER PANEL HOOK OF THE SLIDING SIDE DOOR (MASTER II PHASE 3)

Apply opening element grease to the rear door hinges and the upper striker panel hook of the sliding side door (see [Vehicle: Parts and consumables for the repair](#))

5- ENGINE: DRAINING THE ENGINE OIL

The oil grade is essential for maintaining the service life of the engine. Carefully follow the manufacturer's recommendations specified in the Technical Note [Engine oil: Specifications](#) (Technical Note 6013A, 04A, Lubricants).

Use the correct quantity of oil and the correct sump plug sealing washer [Engine oil: Draining - Refilling](#) (10A, Engine and peripherals).

After topping up, let the oil run for approximately 10 minutes before checking the level. The oil level maximum mark on the dipstick must never be exceeded (risk of damage to the engine).

6- ENGINE: REPLACING THE OIL FILTER

Replace the engine oil filter after each oil service [Oil filter: Removal - Refitting](#) (10A, Engine and peripherals).

7- ENGINE: CHECKING THE EXHAUST SYSTEM

 Visually inspect:

- that there is no corrosion, piercing or impact to the silencer, expansion chamber, catalytic converter and particle filter*,
- that the rubber mounting bushes are not torn or cracked,
- that the exhaust pipe is not in contact with the underside of the vehicle.

8- ENGINE: BLEEDING WATER FROM THE FUEL FILTER* (IF THE PART HAS NOT REACHED ITS REPLACEMENT INTERVAL)

Bleed the water from the fuel filter by unscrewing the water bleed cap and letting the water run into a suitable container.

9- ENGINE: CHECKING THE CLUTCH PLAY* FOR LOGAN-SANDERO (EXCEPT FOR AUTOMATIC COMPENSATION)

(Logan and Sandero only) Use the recommended checking procedure [Clutch control: Adjustment](#) (37A, Mechanical component controls).

10- CHECKING THE LEVELS, CONDITION AND SEALING OF THE HYDRAULIC CIRCUITS: HYDRAULIC POWER-ASSISTED STEERING*

Check the hydraulic steering fluid level: it should be between the minimum and maximum level on the reservoir.

Visually check the sealing, ensuring that there are no leaks, or any abnormal loss of fluid.

Top up, if necessary.

11- CHECKING THE LEVEL, CONDITION AND SEALING OF THE HYDRAULIC CIRCUITS: COOLING

Check the coolant level: it should be between the minimum and maximum level on the reservoir.

Visually check the circuit sealing, ensuring that there are no leaks, or any abnormal loss of fluid.

Top up, if necessary.

12- CHECKING THE LEVEL, CONDITION AND SEALING OF THE HYDRAULIC CIRCUITS: HYDRAULIC BRAKE/CLUTCH*

Visually check the circuit sealing, checking the condition and that there are no leaks around the engine compartment, under the vehicle or at the unions.

■ Check the brake fluid level:

- If the level is between the minimum and maximum, do not add brake fluid as wear on the discs, pads, drums and linings leads to a progressive drop in the brake fluid level in the tank which will usually be rectified once these components are replaced. However, the brake fluid level should never drop below the minimum mark.
- If there is an abnormal loss of fluid, the cause of which cannot be found with this check, advise the customer.

13- CHECKING THE LEVEL, CONDITION AND SEALING OF THE HYDRAULIC CIRCUITS: SEQUENTIAL GEARBOX HYDRAULIC UNIT*

Check the hydraulic unit oil level: it should be between the minimum and maximum level on the reservoir.

Visually check the sealing, ensuring that there are no leaks, or any abnormal loss of fluid.

Top up, if necessary.

14- CHECKING THE LEVEL, CONDITION AND SEALING OF THE HYDRAULIC CIRCUITS: SEQUENTIAL GEARBOX HYDRAULIC CLUTCH*

Check the hydraulic clutch fluid level, it should be at the middle level of the reservoir.

Visually check the sealing, ensuring that there are no leaks, or any abnormal loss of fluid.

Top up, if necessary.

15- CHECKING THE CHASSIS: CONDITION OF THE GAITERS, RUBBER MOUNTING BUSHES AND BALL JOINTS

Check the condition of the driveshaft and steering rubber gaiters, all ball joints and the rubber mounting bushes. There must not be any signs of tearing or cracks.

16- CHECKING THE CHASSIS: TYRE CONDITION AND PRESSURE (INCLUDING EMERGENCY SPARE WHEEL OR PRESENCE OF TYRE-REPAIR AEROSOL)

Check that the tread depth of the tyres has not reached the wear warning strips, explain the degree of tyre wear to the customer.

Check that there is no abnormal tyre wear, and no bulges, blisters, tears or foreign objects (sharp object, screw, etc.).

Check and readjust the tyre inflation pressure when cold according to the type of driving.

Check the pressure and condition of the emergency spare wheel, or if not supplied with the vehicle, check that there is a tyre repair aerosol in the vehicle.

Respect the recommended pressure shown on the label on the door (if the vehicle does not have one, refer to the Driver's Handbook or.

17- CHECKING THE CHASSIS: PRESENCE OF THE WHEEL VALVE CAPS

Check that each valve cap is present.

18- CHECKING THE CHASSIS: SEALING OF THE FRONT AND REAR SHOCK ABSORBERS

Visually check that there is no oil leaking along the length of the shock absorbers.

19- CHECKING THE CHASSIS: WEAR OF THE FRONT AND REAR BRAKE PADS AND BRAKE DISCS*, AND SWAPPING THE FRONT AND REAR WHEELS

In order to perform a quality check, always remove the wheels (an electric impact wrench or a pneumatic wrench can be used to loosen the wheel bolts and nuts).

Check the thickness of the brake pads and compare to the minimum authorised value. In case of partial wear, advise the customer of the degree of wear to the brake pads.

Check the thickness of the front brake discs and the thickness of the rear brake discs and compare to the minimum authorised value. In case of partial wear, advise the customer of the degree of wear to the brake discs.

Refit the wheels. For Duster 4X4, swap the front and rear wheels.

When refitting the wheels, an electric impact wrench set at low speed can be used to fit the wheel bolts and nuts until contact, then torque tighten them.

20- CHECKING VISIBILITY: EXTERIOR LIGHTING AND SIGNALS

Check the side lights, dipped headlights, main beam headlights, front and rear fog lights, the direction

indicators and side mounted indicators, the reversing lights, the hazard warning lights, the brake lights, the registration plate lighting and the additional cornering lights*.

21- CHECKING VISIBILITY: INTERIOR LIGHTING

Checking door lighting, interior lights and sun visors, glovebox and luggage compartment lights.

22- CHECKING VISIBILITY: CONDITION OF THE WINDSCREEN AND DOOR MIRRORS

Check that there are no cracks or chips.

23- CHECKING VISIBILITY: WEAR ON THE FRONT AND REAR WINDSCREEN WIPER BLADES

Check the quality of the wiping function and check that the wiper blades are not torn or cracked.

24- CHECKING VISIBILITY: FRONT AND REAR WINDSCREEN WASHER FLUID LEVEL

Check that there is windscreen washer fluid present.

Top up, if necessary.

25- LABELS: CHECKING THE AIRBAG SAFETY AND ENGINE COMPARTMENT LABELS ARE PRESENT AND CORRECTLY POSITIONED

- Check that the vehicle has the following original safety labels:
 - airbag, located on the windscreen, sun visor and passenger side of the dashboard,
 - battery, oil, cooling system, heating and air conditioning system, engine cooling fan located in the engine compartment.

26- ELECTRONIC CHECK: BATTERY

Check the condition of the battery with the tool "Midtronics R330".

27- ELECTRONIC CHECK: COMPUTERS



Note:

Always check the condition of the battery before checking the computers as insufficient voltage can affect the computers.

The purpose of this procedure is to see if any of the computers are faulty.

- The following tools are essential for carrying out fault finding on these systems:
- an approved Renault Electronic check tool(QUEST) with the latest update,
 - an approved Renault Diagnostic tool(CLIP) with the latest update,
 - a CAN probe.

Running fault finding on the computers highlights possible faults not displayed by the system self-test procedure, and allows them to be analysed and deleted

28- CHECKING CHARGING CORD (ONLY TWIZY):

Visually check the charging cord without removing.

29- CHECKING ELECTRIC VEHICLE (ONLY KANGOO AND FLUENCE):

Electronic check :

Select the symptome in MCS (Modulate Targeting Symptome): R201, integrate it into the order of repair.

Make a electronic check of computers, see "Electronic check : computers".

Make the checks of symptome R201: "Maintenance Range".

NB :

Do not control the system Quick Dropbecause it is canceled.

30- ELECTRONIC FAULT FINDING: OPERATION OF THE INSTRUMENT PANEL WARNING LIGHTS

Check that the following warning lights come on when the ignition is switched on:

- STOP warning light,
- SERVICE warning light.

31- REINITIALISATION: MAINTENANCE/OIL SERVICE DISPLAY*

Reset the maintenance/oil service interval display (see Driver's Handbook).

32- SERVICE SHEETS: AFFIXING THE SERVICE LABEL IN THE ENGINE COMPARTMENT*

Fill in the maintenance label and affix it in the engine compartment.

5. SUPPLEMENTARY OPERATIONS:

The removal and refitting procedures and some of the checks to be carried out during maintenance are set out in the repair manuals or the technical notes. The information and repair methods given below are specific to the maintenance programme.

For an exhaustive description of the operations to be carried out during the maintenance operation, refer to the vehicle maintenance booklet.

1- REPLACEMENT OF THE ACCESSORIES BELT, ROLLERS, AND PULLEYS (PULLEY TO BE REPLACED DEPENDING ON THE VEHICLE)

When replacing the belt, it is essential to replace the tensioning rollers and fixed rollers across the whole range. It is also necessary to replace the damper pulley (also known as the crankshaft accessories pulley) or the alternator pulley on certain engines, see below.

Table of pulleys to be replaced during maintenance only according to the accessories belt replacement frequency. The vehicles concerned are those for which the maintenance booklets mention a replacement for certain engines. The detail of the vehicle variants concerned is given below (vehicles manufactured after June 2006):

1)FOR GERMANY, ANDORRA, AUSTRIA, BELGIUM, DENMARK, SPAIN, ESTONIA, FINLAND, FRANCE, GREAT BRITAIN, GREECE, HUNGARY, IRELAND, ICELAND, ITALY, LATVIA, LIECHTENSTEIN, LITHUANIA, LUXEMBOURG, NORWAY, NETHERLANDS, POLAND, PORTUGAL, CZECH REPUBLIC, SLOVAKIA, SLOVENIA, SWEDEN, SWITZERLAND, CROATIA, ISRAEL:

RECOMMENDATIONS FOR REPLACING THE DAMPER PULLEY (CRANKSHAFT ACCESSORIES PULLEY):

Engine type	Engine suffix	Recommendation for replacing the damper pulley during maintenance operations
F4R	714, 715, 720, 760, 761, 762, 763, 764, 765, 766, 767, 770, 771, 774, 776, 784, 786, 787, 792, 794, 795, 796, 797, 800, 811, 820, 830, 867, 870, 886, 887, 896, 897.	To be replaced each time the accessories belt and its rollers are scheduled for replacement
F9Q	260, 262, 264, 660, 664, 670, 674, 680, 755, 757, 758, 759, 800, 803, 804, 808, 812, 814, 816, 818, 820.	
M9R	610, 700, 720, 721, 722, 740, 760, 761, 780, 812.	
G9T equipped with air conditioning	600, 605, 606, 607, 642, 645, 702, 703, 706, 707, 710, 712, 720, 722, 742, 743, 750.	
G9U equipped with air conditioning	630, 632, 650, 720, 724, 730, 750, 754.	
V9X	All	

RECOMMENDATIONS FOR REPLACING THE ALTERNATOR PULLEY:

Engine type	Engine suffix	Recommendations for replacing the alternator pulley during maintenance
F4R	802, 813.	To be replaced each time the accessories belt and its rollers are scheduled for replacement

2)OTHER COUNTRIES:

RECOMMENDATIONS FOR REPLACING THE DAMPER PULLEY (CRANKSHAFT ACCESSORIES PULLEY):

Engine type	Engine suffix	Recommendation for replacing the damper pulley
K4J equipped with air conditioning	730, 732, 740, 770, 780.	To be replaced each time the accessories belt and its rollers are scheduled for replacement
K4M equipped with air conditioning	604, 606, 680, 690, 694, 696, 697, 698, 716, 744, 745, 760, 761, 762, 764, 766, 768, 770, 780, 782, 788, 790, 791, 794, 800, 801, 804, 812, 813, 814, 824, 830, 831, 834, 835, 844, 854, 856, 862, 866.	
K4M equipped with air conditioning	838, 839, 848, 858	To be replaced every other time the accessories belt and its rollers are scheduled for replacement
K9K	782	

F4R	714, 715, 720, 760, 761, 762, 763, 764, 765, 766, 767, 770, 771, 774, 776, 784, 786, 787, 792, 794, 795, 796, 797, 800, 811, 820, 830, 867, 870, 886, 887, 896, 897.	To be replaced each time the accessories belt and its rollers are scheduled for replacement
K9K	278, 282, 288, 292, 732, 734, 764, 772, 780, 804, 806, 832, 836.	
F9Q	260, 262, 264, 660, 664, 670, 674, 680, 755, 757, 758, 759, 794, 800, 803, 804, 808, 812, 814, 816, 818, 820.	
G9T equipped with air conditioning	600 ,605, 606, 607, 642, 645, 702, 703, 706, 707, 710, 712, 720, 722, 742, 743, 750.	
G9U equipped with air conditioning	630, 632, 650, 720, 724, 730, 750, 754.	
M9R	610, 700, 720, 721, 722, 740, 742, 760, 761, 780, 812.	
V9X	All	
M9R	802, 803, 805, 809, 816, 830, 832, 833.	To be replaced every other time the accessories belt and its rollers are scheduled for replacement
M9T	All	To be replaced every other time the accessories belt and its rollers are scheduled for replacement

RECOMMENDATIONS FOR REPLACING THE ALTERNATOR PULLEY:

Engine type	Engine suffix	Recommendations for replacing the alternator pulley during maintenance
F4R	802, 813	To be replaced each time the accessories belt and its rollers are scheduled for replacement

2- REPLACING THE TIMING BELT AND ROLLERS

When replacing the belt, it is essential to replace the tensioning and fixed rollers across the whole range. Certain vehicle/engine specifications require associated parts to be replaced, therefore it is necessary to consult the repair procedure for the vehicle and engine for further details.

3- CHECKING THE REAR BRAKE LININGS FOR VEHICLES FITTED WITH DRUMS

Check the wheel cylinders for any possible leaks.

Remove any dust from the brake linings using a brake cleaning product.

Check the thickness of the drum linings and compare it to the minimum authorised thickness..

4- CLEANING THE AIR CONDITIONING SYSTEM

The air conditioning system is cleaned by cleaning the evaporator.

6. STANDARD OF PROFESSIONAL ACTIVITY

The Standard of Professional Activity is a tool which describes the operation to perform in an optimised order favouring time and quality. This way of working allows for the elimination and reduction of unnecessary actions, the grouping together of operations by operation area and a reduction in down time.

Order of performance	Principal steps	Key points
Preparing the vehicle:		
1	Consult the repair order and ICM editions to find out:- The works to be performed and additional operations- The presence of OTS	
2	Check that the driver's protections are in place (front seat, steering wheel, floor carpet, gear lever)	
3	Check for the maintenance booklet and the wheel anti-theft key (if equipped) on the passenger seat	
4	Check the instrument panel warning lights with the ignition on	Warning light (STOP and SERVICE)
5	Start the vehicle and check that all the warning lights go out	No warning light lit
6	Move the vehicle to the workstation, leave the engine running	
Passenger compartment checks:		
7	Step out of the vehicle and connect the exhaust gas extraction system	

8	<ul style="list-style-type: none"> ☐ Check the exterior signals and lights: <ul style="list-style-type: none"> ■ Side lights, ■ Dipped headlights, ■ Main beam headlights, ■ Front and rear fog lights, ■ direction indicators and side mounted indicators, ■ Front and rear hazard warning lights, <ul style="list-style-type: none"> ■ Brake lights, ■ number plate lighting, ■ Reversing lights, ■ Additional cornering lights, 	<p style="text-align: center;">Use a mirror</p> <p style="text-align: center;">If not done whilst walking around the vehicle</p>
9	<ul style="list-style-type: none"> ☐ Check the interior lighting: <ul style="list-style-type: none"> ■ Courtesy lights, ■ Sun visors, ■ Glovebox. 	
10	Release the bonnet, and remove the diagnostic socket cover	
11	Reset the distance before oil change/maintenance display	
12	Switch off the engine and switch on the ignition again	
13	Step out of the vehicle, take the wheel anti-theft key	
Front visibility check:		
14	Check the condition of the windscreen wiper blades	
15	Check the condition of the windscreen	
Engine compartment checks:		
16	Open the bonnet	

17	Run fault finding on the battery with the "MIDTRONICS R330" tool.	
18	Grease the bonnet catch using silicone-free lubricant	
19	Go back into the passenger compartment, switch on the ignition and connect the Diagnostic tool "Clip" or Electronic check tool "Quest" and run the computer scan	
20	Release the bonnet 10 times using the control in the driver's position	
21	<p>Check the levels and sealing of the hydraulic circuits in the engine compartment:</p> <ul style="list-style-type: none"> ■ the coolant circuit, ■ of the hydraulic power-assisted steering circuit (depending on the version), ■ of the brake fluid and clutch circuit (depending on the version), ■ hydraulic unit of the sequential gearbox (depending on the version). 	Do not top up the brake fluid level
22	Check the washer fluid level.	
23	Remove the oil filler cap	
24	Loosen the oil filter if accessible from above.	
25	Check the clutch clearance (Logan version)	
26	Bleed the water from the fuel filter (if accessible)	Bleed the fuel filter if it has not reached its replacement interval

27	Check for the presence of the "Manufacturer's Recommendations" label located in the engine compartment	The "manufacturer's recommendations" labels include: oil, battery, cooling circuit, fan, air conditioning.
----	--	--

Check the condition of the bodywork on the driver's side:

28	Check the lighting of the front door sill	
----	---	--

29	Read and retain the tyre pressure	
----	-----------------------------------	--

30	Check the condition of the rear view mirror	
----	---	--

31	Visually inspect the condition of the bodywork	
----	--	--

32	Check the lighting of the rear door sill (if equipped)	
----	--	--

33	Position the arms or pads of the lift (depending on the type of lift)	
----	---	--

34	Take the pressure gauge (if it is not present in the kit)	
----	---	--

Rear vehicle checks:

35	Check the lighting of the luggage compartment	
----	---	--

36	Check the level of wear of the emergency spare wheel (if accessible through the luggage compartment)	
----	--	--

37	Check the pressure and the presence of the valve cap	
----	--	--

38	Check the condition of the rear screen wiper blade	
Check the condition of the bodywork on the passenger's side:		
39	Visually inspect the condition of the bodywork	
40	Check the lighting of the rear door sill	
41	Check the lighting of the front door sill	
42	Check the presence of the airbag label on the passenger's side	
43	Check the condition of the rear view mirror	
44	Position the arms or pads of the lift (depending on the type of lift)	
Computer checks		
45	Record the scan results of Diagnostic tool "Clip" or Electronic check tool "Quest"	
46	Disconnect the Diagnostic tool "Clip" or Electronic check tool "quest"	
Panoramic sunroof check		
47	Clean the arms of the sunroof deflector and the section of the mobile panel which comes into contact with them (if equipped)	
48	Raise the vehicle to chest height	

Check on driver's side front wheel

49	Check the level of wear of the tyre + presence of foreign bodies (blisters, tears, foreign objects)	
50	Remove the wheel	<u>Wheel: Removal - Refitting</u> (35A, Wheels and tyres)
51	Check the level of brake pad wear	Note the degree of wear on the test certificate
52	Check the brake disc wear	
53	Check the condition of the brake hose	
54	Check the condition of the rubber mounting bushes and suspension arm ball joint	
55	Check the sealing of the shock absorber	
56	Check for corrosion on wheel arch, the condition of the spring, shock absorber cups and shock absorber	
57	Check the condition of the driveshaft gaiters and steering gaiters	
58	Check the level of power-assisted steering fluid (Laguna 3)	

Check on driver's side rear wheel:

59	Check the level of wear of the tyre + presence of foreign bodies (blisters, tears, foreign objects)	
----	---	--

60	Remove the wheel	Wheel: Removal - Refitting (35A, Wheels and tyres)
61	Check the level of wear of the brake pads, depending on the version	Note the degree of wear on the test certificate
62	Check the brake disc wear (if equipped)	
63	Check the condition of the brake hose	
64	Check the sealing of the shock absorber.	
65	Check for corrosion on wheel arch, the condition of the spring, shock absorber cups and shock absorber	
Check on passenger's side rear wheel:		
66	Check the level of wear of the tyre + presence of foreign bodies (blisters, tears, foreign objects)	
67	Remove the wheel	Wheel: Removal - Refitting (35A, Wheels and tyres)
68	Check the level of wear of the brake pads, depending on the version	Note the degree of wear on the test certificate
69	Check the brake disc wear (if equipped)	
70	Check the condition of the brake hose	
71	Check the sealing of the shock absorber.	

72	Check for corrosion on wheel arch, the condition of the spring, shock absorber cups and shock absorber	
Check on passenger's side front wheel		
73	Check the level of wear of the tyre + presence of foreign bodies (blisters, tears, foreign objects)	
74	Remove the wheel	Wheel: Removal - Refitting (35A, Wheels and tyres)
75	Check the level of brake pad wear	Note the degree of wear on the test certificate
76	Check the brake disc wear	
77	Check the condition of the brake hose	
78	Check the condition of the rubber mounting bushes and suspension arm ball joint	
79	Check the sealing of the shock absorbers.	
80	Check for corrosion on wheel arch, the condition of the spring, shock absorber cups and shock absorber	
81	Check the condition of the driveshaft gaiters and steering gaiters	
82	Bleed the water in the fuel filter (if accessible through wheel arch) according to the maintenance programme)	

83	Raise the vehicle to the upper position	
Underbody operations		
84	Remove the protection plate underneath the engine and position the oil collector	
85	Remove the drain plug	Let the oil flow for 10 minutes
86	Remove the oil filter (version accessed from underneath)	
87	Check the exhaust system: Corrosion, contact with body and condition of the rubber mounting bushes	
88	Check the condition of the catalytic converter	
89	Check the condition of the spring, shock absorber cups and shock absorber on the right-hand and left-hand sides (if accessible from underneath)	
90	Check the condition of the underbody brake pipes	
91	Check the condition and pressure of the emergency spare wheel (if accessible from underneath)	
92	<ul style="list-style-type: none"> □ Check the engine components using a lamp: <ul style="list-style-type: none"> ■ Cooling system hoses, ■ Coolant pump, ■ Engine block, ■ Turbocharger 	

93	Parts are supplied using Dialogys and the physical values should be noted (tightening torque, oil grade and quantity)	
94	Refit the new oil filter (if accessible)	Lubricate the seal, tighten to torque depending on the model
95	Refit the drain plug	With new seal and according to recommended part number, for copper seals, the lips should be on the plug side (panel cover) Torque tighten depending on the model
96	Clean the oil residues	
97	Drain the oil collector.	
	Supplementary operation: replacement of fuel filter	See ICM/Maintenance booklet
98	Refit the protection plate underneath the engine	
99	Read the tyre pressure on the label on the driver's side door (if equipped)	Pressure to be applied depends on customer's driving type
100	Lower the vehicle to chest height	
Operations on driver's side front wheel		
101	Refit the wheel	Wheel: Removal - Refitting (35A, Wheels and tyres)

102	Check the tyre pressure and the presence of the valve cap	
Operations on driver's side rear wheel		
	Supplementary operation: remove dust and check the drum brake (if equipped)	See ICM/Maintenance booklet
103	Refit the wheel	Wheel: Removal - Refitting (35A, Wheels and tyres)
104	Check the tyre pressures and the presence of the valve cap	
Operations on passenger's side rear wheel		
	Supplementary operation: remove dust and check the drum brake (if equipped)	See ICM/Maintenance booklet
105	Refit the wheel	Wheel: Removal - Refitting (35A, Wheels and tyres)
106	Check the tyre pressures and the presence of the valve cap	
Operations on passenger's side front wheel		
	Remove - refit diesel filter (depending on the version)	See ICM/Maintenance booklet
107	Refit the wheel	Wheel: Removal - Refitting (35A, Wheels and tyres)

108	Check the tyre pressures and the presence of the valve cap	
109	Lower the vehicle to the low position	
Operations in the engine compartment		
110	Refit the new oil filter (if accessible)	Lubricate the seal, tighten by hand or to torque depending on the model
111	Fill the engine oil	Respect the grade and quantity of engine oil.
112	Replace the oil filler cap	
	Supplementary operation: replacement of diesel filter (depending on the version)	See ICM/Maintenance booklet
	Supplementary operation: replacement of fuel filter (depending on the version)	See ICM/Maintenance booklet
	Supplementary operation: replacement of air filter	See ICM/Maintenance booklet
	Supplementary operation: replacement of spark plugs	See ICM/Maintenance booklet
	Supplementary operation: replacement of brake fluid	See ICM/Maintenance booklet
	Supplementary operation: replacement of coolant	See ICM/Maintenance booklet
	Supplementary operation: replacement of accessories belt and rollers	See ICM/Maintenance booklet

	Supplementary operation: replacement of damper pulley/alternator pulley (depending on the version)	See Technical Note 6018/Maintenance booklet
	Supplementary operation: replacement of timing belt and rollers	See ICM/Maintenance booklet
	Supplementary operation: check and clean air conditioning system	See ICM/Maintenance booklet
	Supplementary operation: replacement of cabin filter (depending on the version)	See ICM/Maintenance booklet

Internal vehicle operation

113	Start the vehicle	
114	Switch off the ignition	
	Supplementary operation: replacement of cabin filter (depending on the version)	See ICM/Maintenance booklet

Wheel torque tightening

115	Consult the tightening torque in the technical documentation	
116	Torque tighten the front wheel on the driver's side and refit the trim (if equipped)	Refitting the trim confirms the tightening operation.
117	Torque tighten the rear wheel on the driver's side and refit the trim (if equipped)	Refitting the trim confirms the tightening operation.
118	Torque tighten the rear wheel on the passenger's side and refit the trim (if equipped)	Refitting the trim confirms the tightening operation.

119	Torque tighten the front wheel on the passenger's side and refit the trim (if equipped)	Refitting the trim confirms the tightening operation.
Administrative operations		
120	Fill in the test certificate	
121	Indicate, according to the degree of importance, the next works to be performed in order to ensure vehicle conformity.	
Final inspection in the engine compartment:		
122	Fill in and position the maintenance label	
123	After waiting at least 10 minutes after the last top-up or starting the engine, check the oil level using the dipstick	
124	Top up if necessary	
125	Clean the engine cover and the battery cover	



Repair-00x01x01x28-02x32-1-1-1.xml



MAINTENANCEVALUES:DESCRIPTION

Special tooling required

Brake calliper piston return tool.

Fre. 1190-01

8 mm square engine drain plug spanner.

Mot. 1018

1. ENGINE MAINTENANCE SUMMARY

Note:

(*) The engine oil grade and viscosity only applies to the following countries:



Germany, Andorra, Austria, Belgium, Denmark, Spain, Estonia, Finland, France, Great Britain, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Norway, Netherlands, Poland, Portugal, Czech Republic, Slovakia, Slovenia, Sweden, Switzerland, Croatia, Israel.

Important: for vehicles in countries which are not listed above, please refer to Technical Note 6013A(see **Engine oil: Specifications**) .

	Engine oil grade (*)	RN0720
OIL	Oil viscosity (*) depending on external temperature	t > -20°C 5W30 or 5W40 t > -25°C 5W30 or 5W40 t > -30°C 0W30 or 0W40

OIL	Engine oil capacity with oil filter replacement	6.0 litres
-----	---	------------

DRAIN PLUG	Tool	8 mm square engine drain plug spanner. (Mot. 1018)
	Tightening torque	50 N.m
OILFILTER	Tool	27 mm spanner
	Tightening torque	25 N.m

COOLANT	Coolant grade	GLACEOL RX type D
---------	---------------	-------------------

COOLANT	Cooling system capacity	9.9 litres
---------	-------------------------	------------

2. CHASSIS MAINTENANCE SUMMARY

WHEELS	Tightening torque	145 N.m
--------	-------------------	---------

FOR GERMANY, ANDORRA, AUSTRIA, BELGIUM, DENMARK, SPAIN, ESTONIA, FINLAND, FRANCE, GREAT BRITAIN, GREECE, HUNGARY, IRELAND, ICELAND, ITALY, LATVIA, LIECHTENSTEIN, LITHUANIA, LUXEMBOURG, NORWAY, NETHERLANDS, POLAND, PORTUGAL, CZECH REPUBLIC, SLOVAKIA, SLOVENIA, SWEDEN, SWITZERLAND, CROATIA, ISRAEL.

BRAKE FLUID	Brake fluid grade	DOT 4, ISO CLASS 6, RENAULT Standard: 03-50-006
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FOR OTHER COUNTRIES

BRAKE FLUID

Brake fluid grade

DOT 4, ISO CLASS 6, RENAULT Standard: 03-50-006

WITHOUT ESP(No)

FOR OTHER COUNTRIES

BRAKE FLUID

Brake fluid grade

DOT 4, ISO CLASS 6, RENAULT Standard: 03-50-006

DOT 4, ISO CLASS 4, RENAULT Standard: 03-50-005

FRONT BRAKES

Tools	Tool	Brake calliper piston return tool.(Fre. 1190-01)
Tightening torques	Front disc bolts	8 N.m
	Front guide pin bolts	35 N.m
	Front calliper support bolts	105 N.m

Measurement	Front disc diameter	296 mm
	Minimum front brake disc thickness	23.4 mm
	Minimum front brake pad thickness	10 mm

REAR BRAKES

Tools	Tool	Brake calliper piston return tool.(Fre. 1190-01)
Tightening torques	Rear disc nut	280 N.m
	Rear guide pin bolts	29 N.m
	Rear calliper support bolts	180 N.m

Measurement	Rear disc diameter	280 mm
	Minimum rear brake disc thickness	10 mm
	Minimum rear brake pad thickness	10 mm



MANUAL GEARBOX CONTROL CABLE: REMOVAL - REFITTING

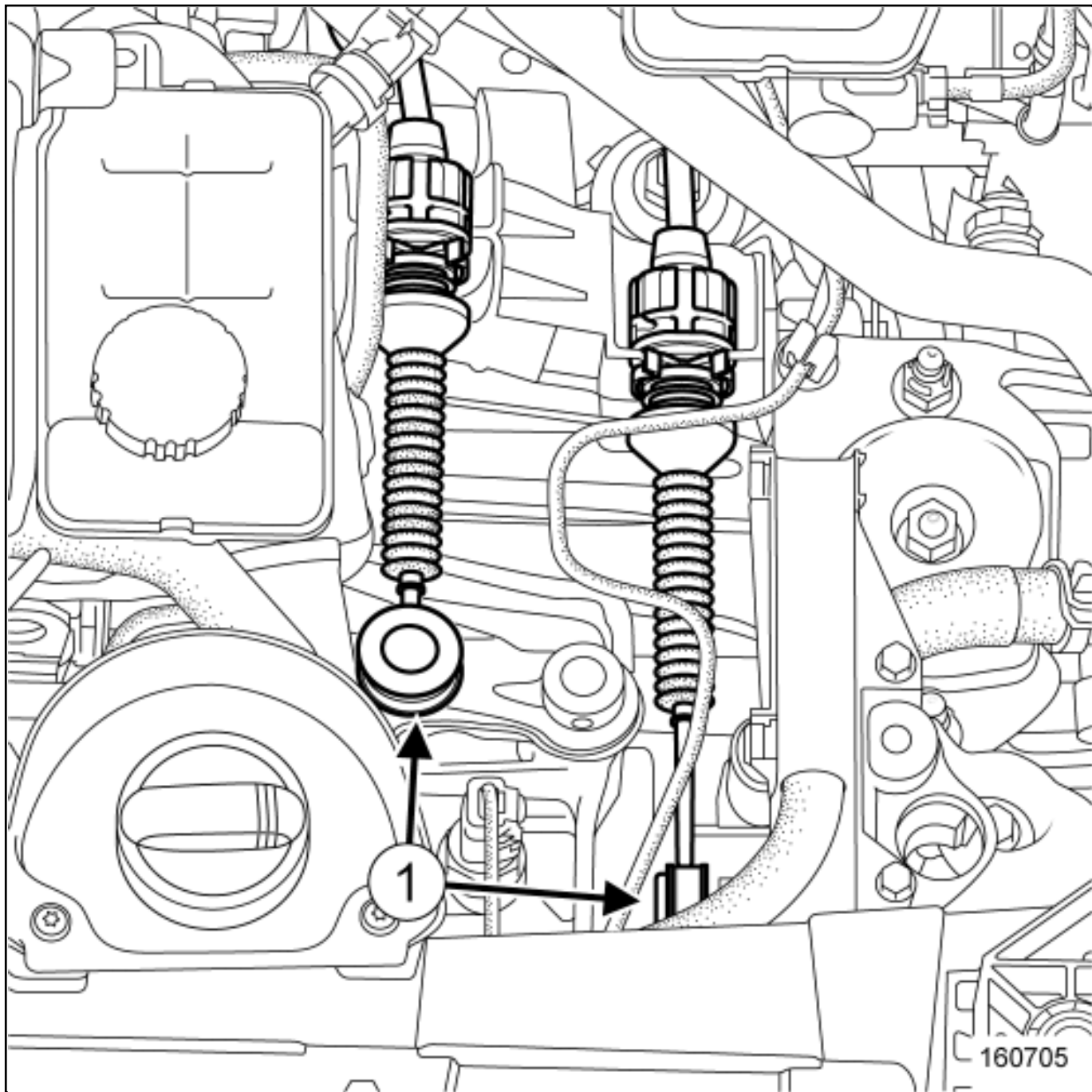
Location and specifications (tightening torques, parts always to be replaced, etc.)([see 37A, Mechanical component controls, Gear control assembly: Exploded view](#)) .

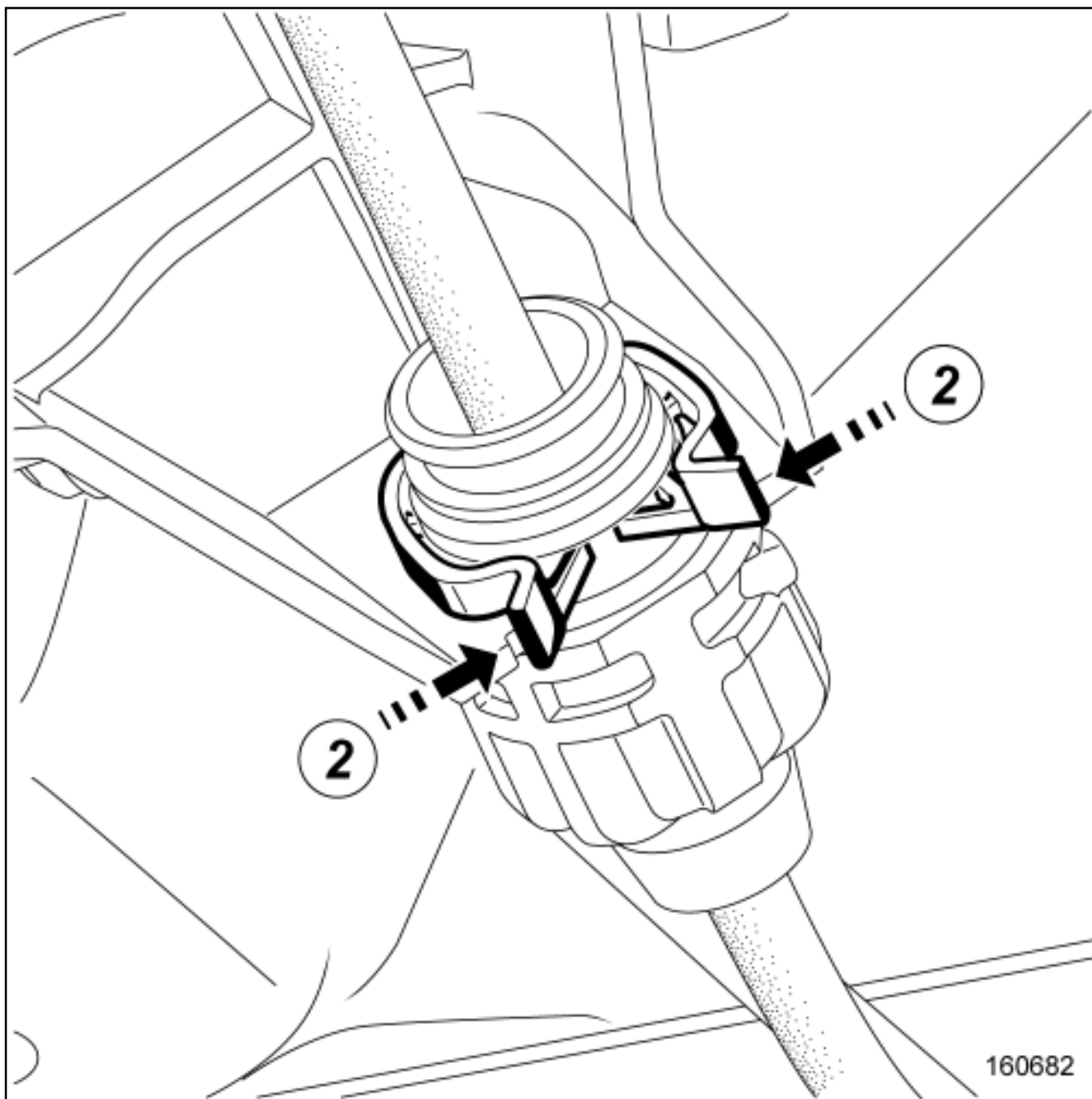
REMOVAL

1. REMOVAL PREPARATION OPERATION

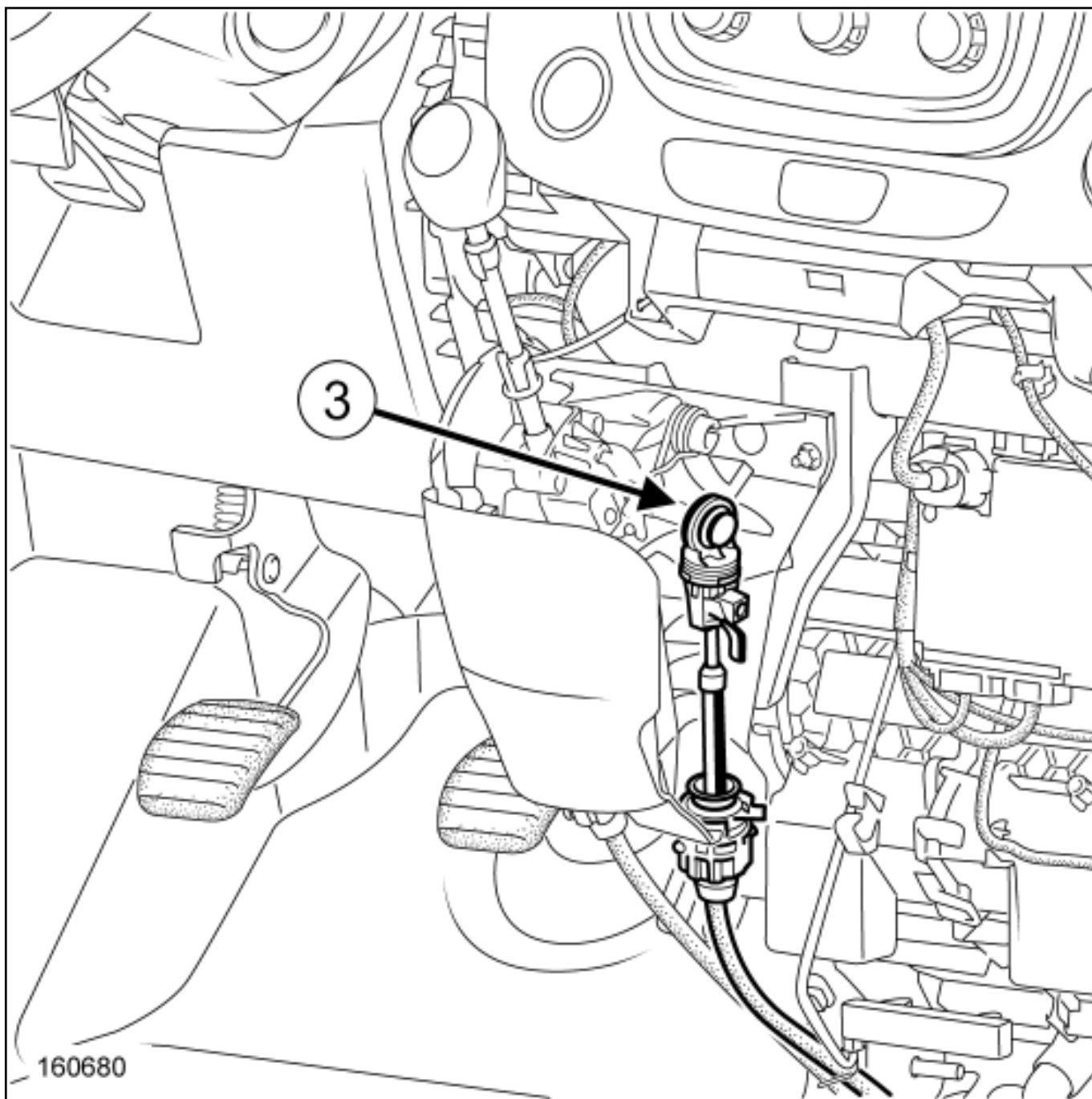
- Remove:
 - the centre console(see **Centre console: Removal - Refitting**) ,
 - the battery[Battery: Removal - Refitting](#) ,
 - the battery tray[Battery tray: Removal - Refitting](#) .

2. REMOVAL OPERATION

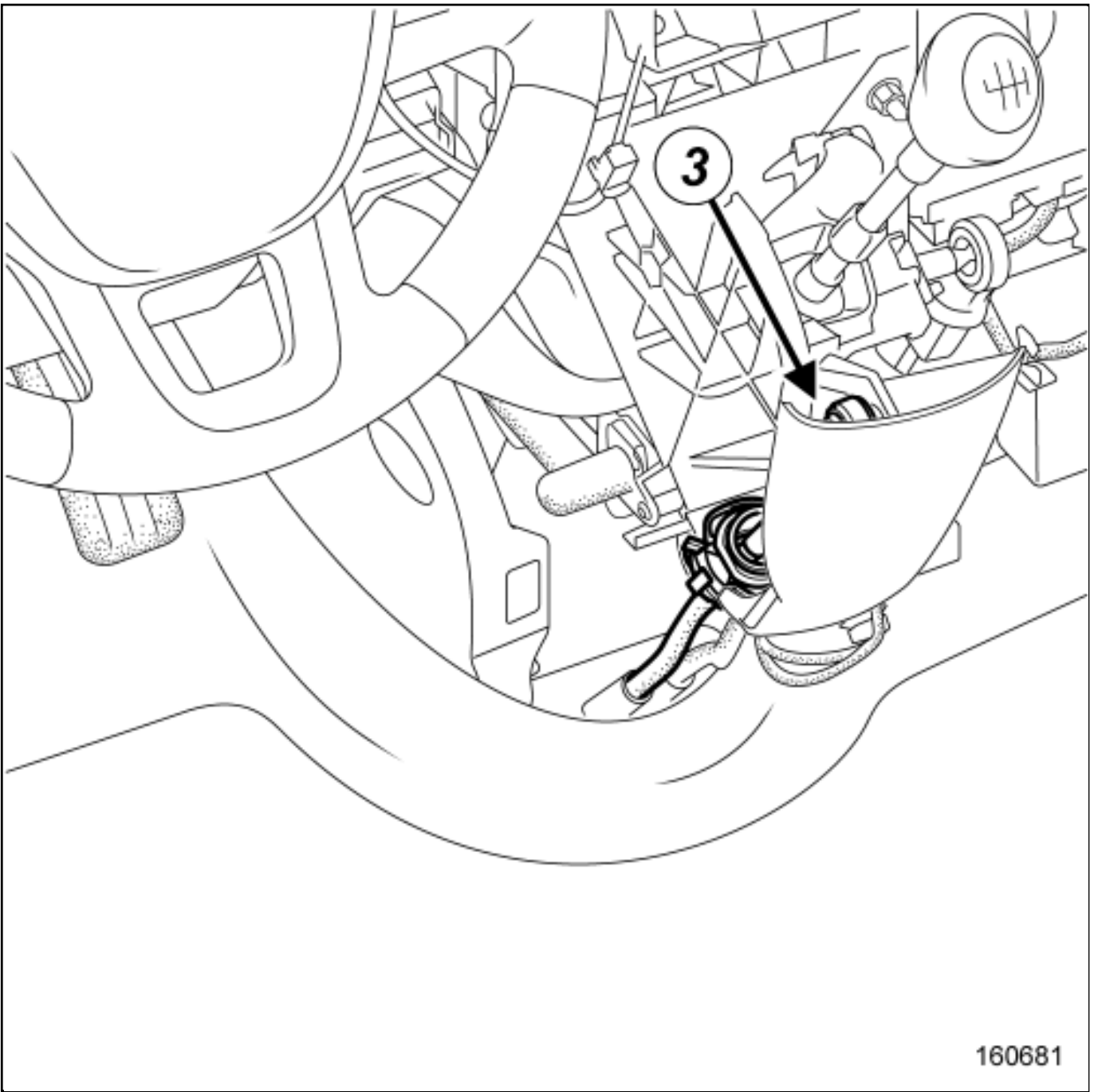




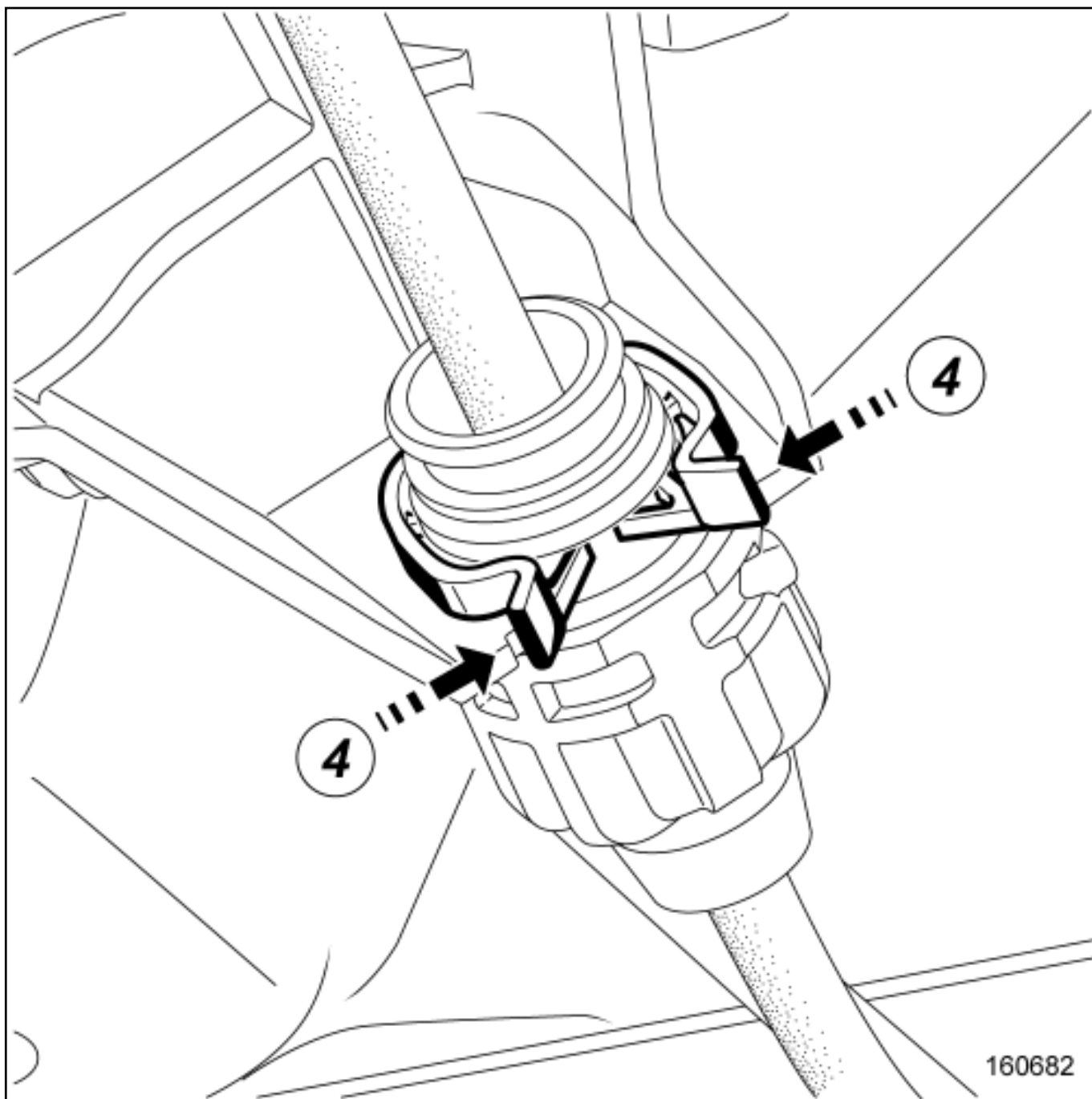
- Unclip the anchoring ball joints(1) using an open-jawed spanner.
- Unclip the gear control cables from the sleeve stops by pressing at(2) .



160680



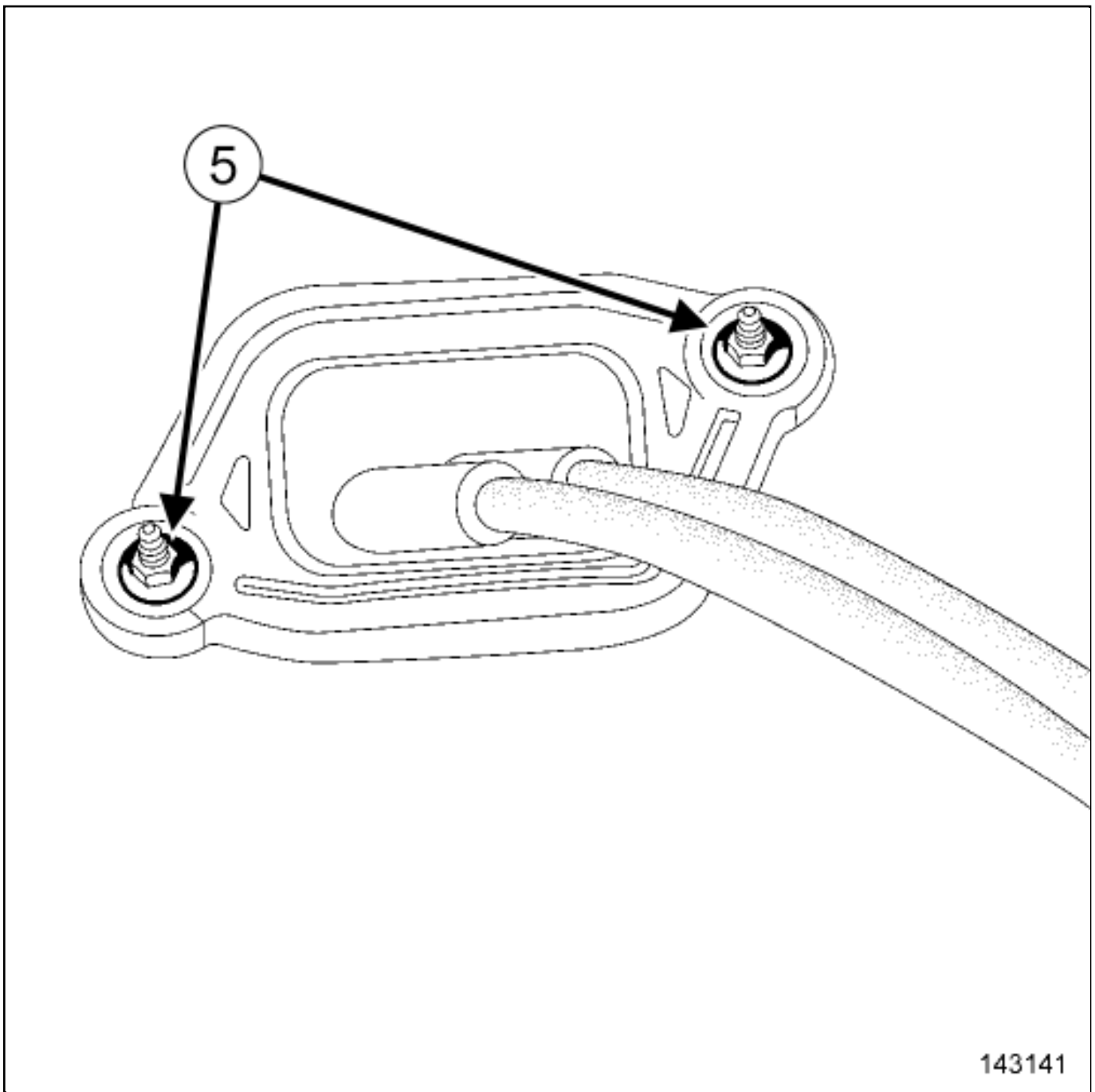
160681



160682

Unclip:

-
- the anchoring ball joints(3) using an open-jawed spanner,
- the gear control cables by pressing the tabs(4) .



143141

Remove:

-
- the nuts(5) of the bulkhead seal of the gear control cables,
-
- the gear control cables.

Clip the sheath stops of the gear control cables.

Check that the sheath stops on the gearbox are locked.

Proceed in the reverse order to removal.

Adjust the gear control cables([see 37A, Mechanical component controls, Mechanical gear control cable: Adjustment](#)) .



Repair-12x02x02x01-01x37-1-29-1.xml



XSL version : 3.02 du 22/07/11

MANUAL GEARBOX DIFFERENTIAL BEARING: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Tool kit for PF gearbox operations.

Bvi. 1510

Tool kit for repairing gearboxes.

Bvi. 1722



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 21A, Manual gearbox](#), [Manual gearbox: Precautions for the repair](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

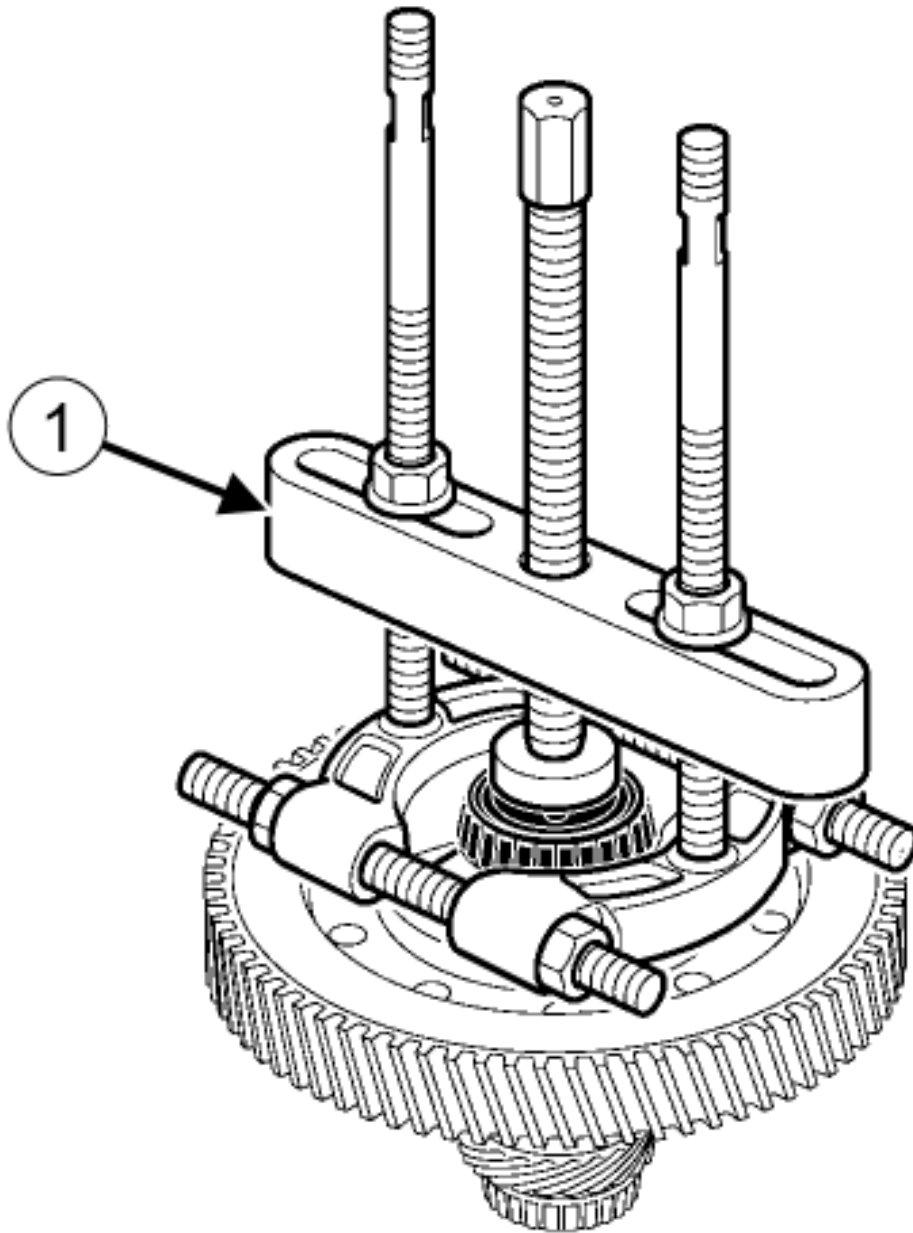
- Remove the gearbox [Manual gearbox: Removal - Refitting](#).
- Position the gearbox on the component support ([see 21A, Manual gearbox](#), [Gearbox support equipment: Use](#)).
- Remove:
 - the mechanism housing ([see 21A, Manual gearbox](#), [Mechanism housing: Removal - Refitting](#)),
 - the gearbox shafts ([see 21A, Manual gearbox](#), [Gearbox shaft: Removal - Refitting](#)),
 - the normal or limited slip differential ([see 21A, Manual gearbox](#), [Manual gearbox differential: Removal - Refitting](#)).

2. OPERATION FOR REMOVAL OF PART CONCERNED



Note:

The operation described is identical for both bearings.



105554

Remove the bearing of the normal or limited slip differential using a separator(1) .

1. REFITTING PREPARATION OPERATION



Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) to clean:

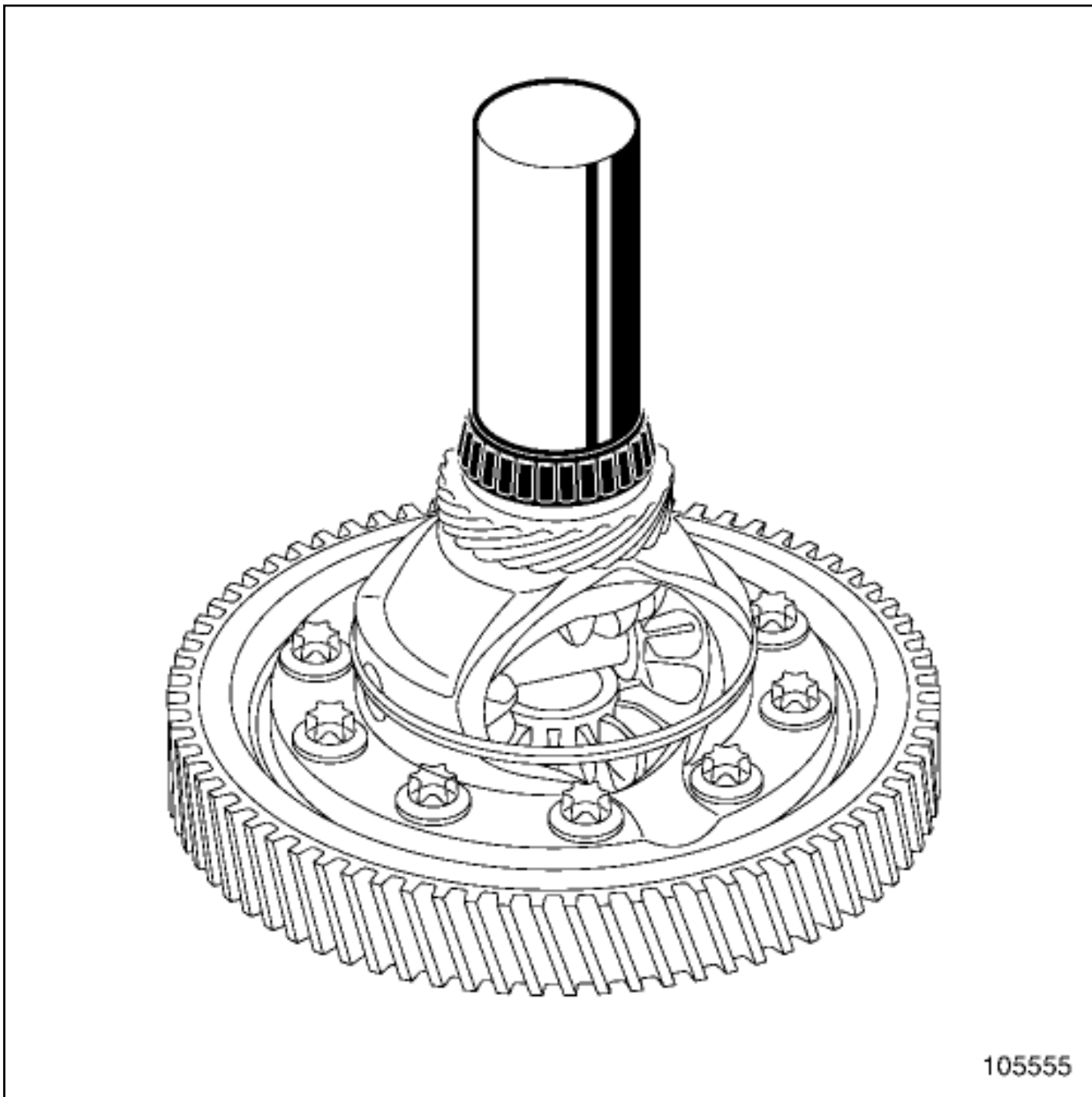
- the shafts,
- the mating faces of the shafts,
- the normal or limited slip differential,
- the mechanism housing,
- the clutch housing.



Parts always to be replaced:

- - the differential bearings
 - the circlips,
 - the output seals of the normal or limited slip differential,
 - the input shaft output seal,
 - the pins,
 - the hydraulic clutch release bearing.

2. REFITTING OPERATION FOR PART CONCERNED



105555



Refit the new bearings of the normal or limited slip differential using the tool kit for PF gearbox operations. (Bvi. 1510) suffix A and tool kit for repairing gearboxes. (Bvi. 1722) suffix W .

3. FINAL OPERATION



Refit:
■

the normal or limited slip differential([see 21A, Manual gearbox , Manual gearbox differential: Removal - Refitting](#)) ,



the gearbox shafts([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,



the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .



Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .



Refit the gearbox([Manual gearbox: Removal - Refitting](#)) .



Repair-12x01x05x01-01x37-1-10-1.xml



XSL version : 3.02 du 22/07/11

MANUAL GEARBOX DIFFERENTIAL: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 21A, Manual gearbox , Manual gearbox: Precautions for the repair](#)) .

REMOVAL



1. REMOVAL PREPARATION OPERATION



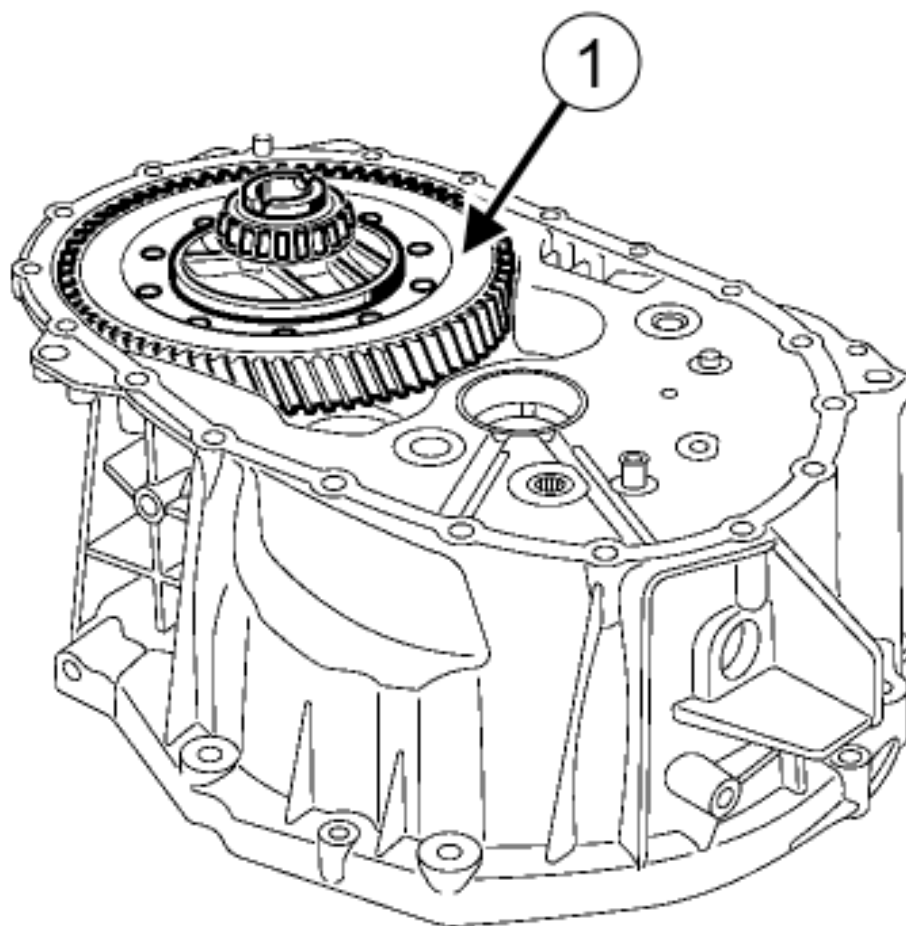
Remove the gearbox [Manual gearbox: Removal - Refitting](#) .

 Position the gearbox on the component support ([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .

 Remove:

-  the mechanism housing ([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) ,
-  the gearbox shafts ([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) .

2. OPERATION FOR REMOVAL OF PART CONCERNED



105544

Remove the normal or limited slip differential(1) .

REFITTING

1. REFITTING PREPARATION OPERATION

Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) to clean:

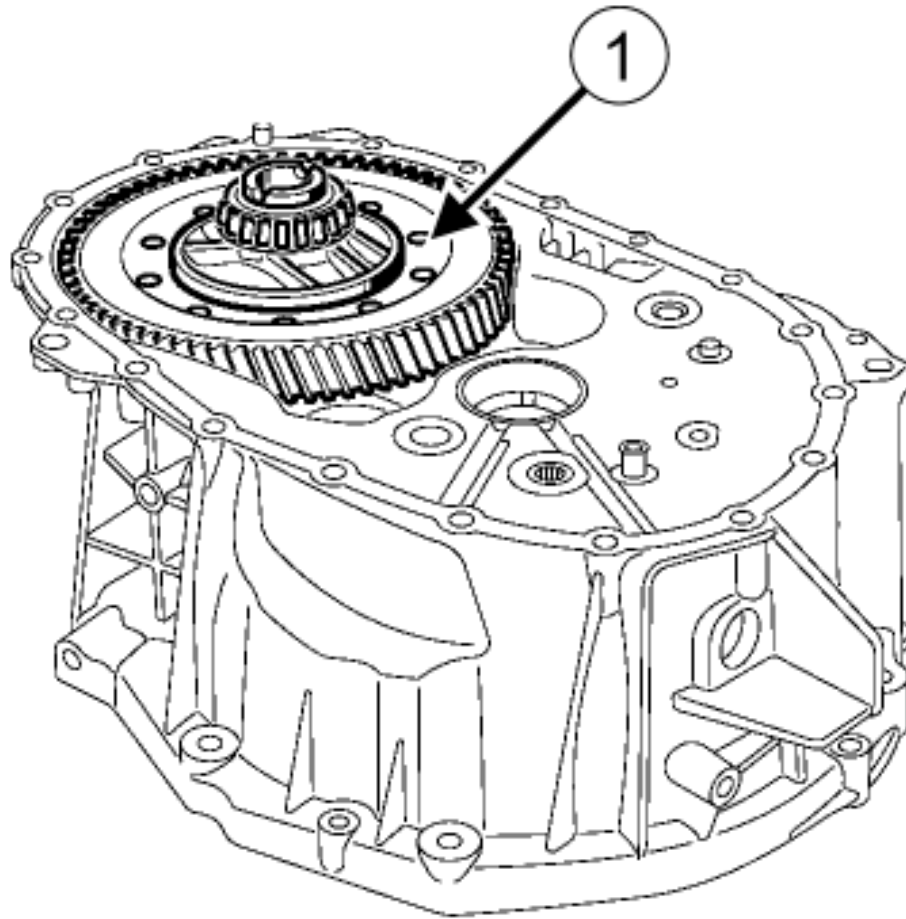
- the shafts,
- the mating faces of the shafts,
- the normal or limited slip differential,
- the mechanism housing,
- the clutch housing.



Parts always to be replaced:

- - the circlips,
 - the output seals of the normal or limited slip differential,
 - the input shaft output seal,
 - the pins,
 - the hydraulic clutch release bearing.

2. REFITTING OPERATION FOR PART CONCERNED



105544

Refit the normal or limited slip differential(1) .

3. FINAL OPERATION

Refit:

- the gearbox shafts([see 21A. Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,

the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .



Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .



Refit the gearbox([Manual gearbox: Removal - Refitting](#)) .



Repair-12x01x05-01x37-1-15-1.xml



XSL version : 3.02 du 22/07/11

RENAULT

Technical Note 6511A

PKX, PFX, TL4, NDX, JBX, JCX, JHX, JR5

Sub-section concerned: 01E

Manual gearbox fault finding

All vehicles with PK4, PK5, PK6, PK7, PK9, PF1, PF6, TL4, JB0, JB1, JB2, JB3, JB4, JB5, JB9, JC5, JC7, JH1, JH3, JR5, ND0 manual gearboxes

Fault finding procedures for incorrect gear changes

77 11 399 122

Edition 1 - APRIL 2007

Edition Anglaise

"The repair procedures given by the Manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which its vehicles are constructed."

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INTRODUCTION TO FAULT FINDING

Fault finding - Introduction

01E

1. SCOPE OF THIS DOCUMENT

This document presents the fault finding procedure applicable to all computers with the following specifications:

Vehicle(s): All 2 wheel drive vehicles
Function concerned: Manual gearboxes

2. PREREQUISITES FOR FAULT FINDING

Documentation type

Fault finding procedures (this manual):

- MR for the vehicle concerned.
- MR of the gearbox concerned:

Gearbox	Technical Note No.
PA6 - PK5 - PK6	Technical Note 6003A
TL4	Technical Note 6019A
JBX - JCX	MR-BV-JB-JC
PF6 - PK4	Technical Note 6021A
JA3, JH1, JH3, JR5	Technical Note 6029A
ND0	Technical Note 6034A

3. FAULT FINDING PROCEDURE

- Identify the type of gear change discrepancy using the definitions given (see definition of symptoms).
- Use the ALPs (fault finding charts) to identify the cause of the fault

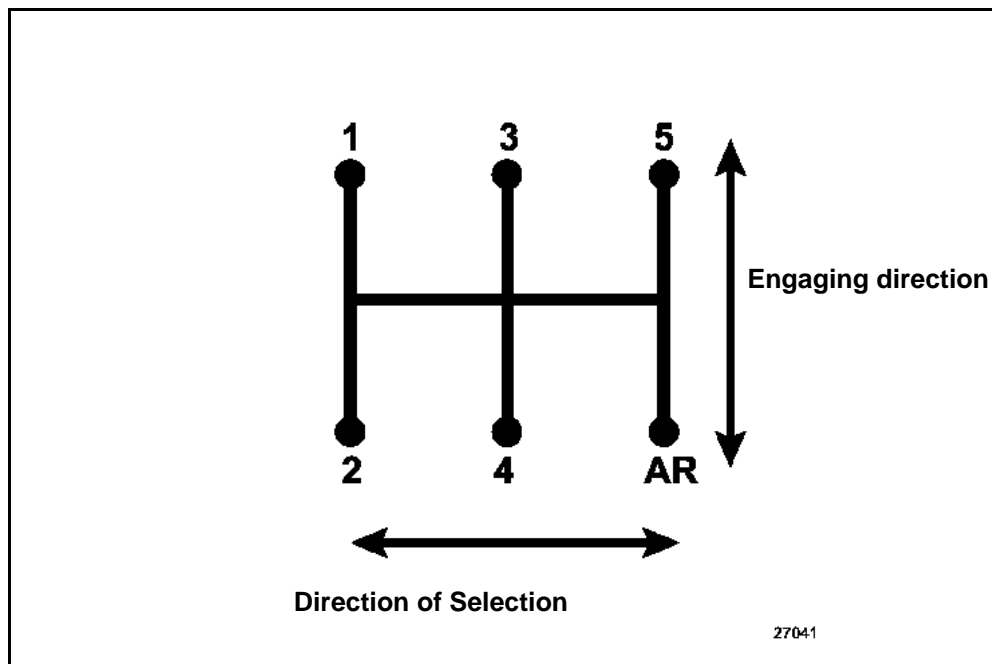
4. SAFETY INSTRUCTIONS

Safety rules must be observed during any work on a component to prevent any damage or injury:
The road tests referred to in this document should be carried out in accordance with Road Traffic Regulations (speed limits must be obeyed).

IMPORTANT
When carrying out road tests, obey Road Traffic Regulations, especially speed limits.

It may be necessary to carry out the road test with the customer to observe the driving habits of the customer (insufficient movement when changing gear, clutch not disengaged sufficiently etc.). The fault stated by the customer is due to ignorance or unfamiliarity with the normal operation of the gearbox.

5. DEFINITION OF SYMPTOMS



A. Gear change hitch:

Definition:

One or several points of resistance felt when moving the lever which stop or at least slow down movement. It appears randomly with regard to the gear being selected and how often it appears.

Appearance context:

- More likely to appear when the gearbox is cold (aggravating factor), for example in the first few miles of a journey (not on the motorway).
- Gear change sticks when changing up or down a gear.

B. Gear jumps:

Definition:

One or several of the gears selected jumps out of gear without touching the control lever.

Appearance context:

Generally occurs in only one of the following cases:

- at a stable engine speed,
- when accelerating
- when decelerating
- when lifting off the accelerator.

Note: the gear may jump in inverse proportion to torque or at a stable engine speed.

C. Hard or impossible to engage a gear (gear selected)

Definition:

Temporary difficulty in engaging a gear or impossible to do so.

Appearance context:

When engaging the gear, having already selected the gear (when all conditions making it possible for the gear to be engaged are present: clutch disengaged, gear selected, etc.).

D. Gear control blocked or inoperative:

Definition:

Impossible to engage or disengage a gear on one or several lines (as soon as the action begins and in the direction of selection) or with the gear engaged, the vehicle acts as though it is still in neutral.

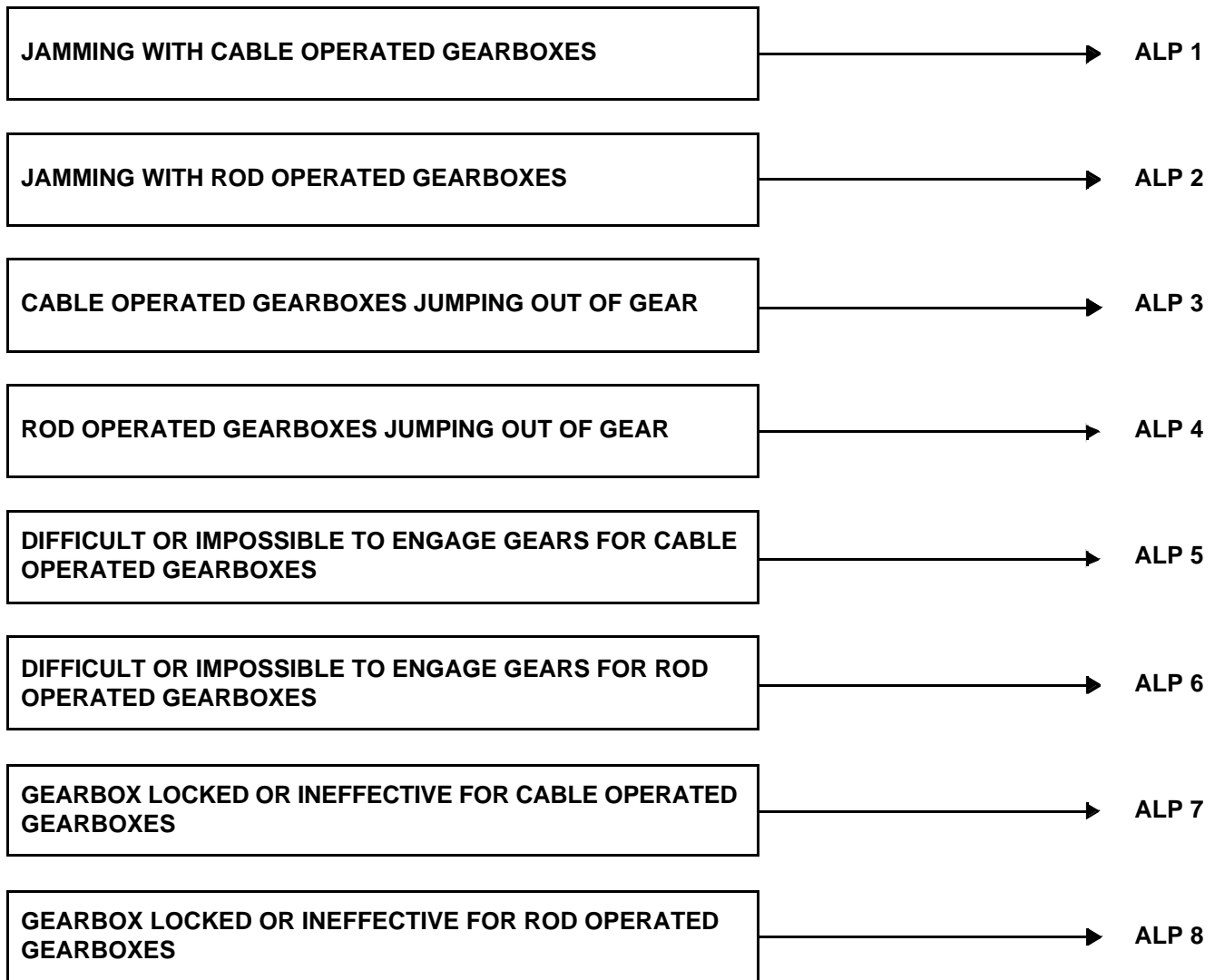
Appearance context:

All conditions making it possible for the gear to be engaged are present: clutch disengaged, gear selected, etc.

INTRODUCTION TO FAULT FINDING

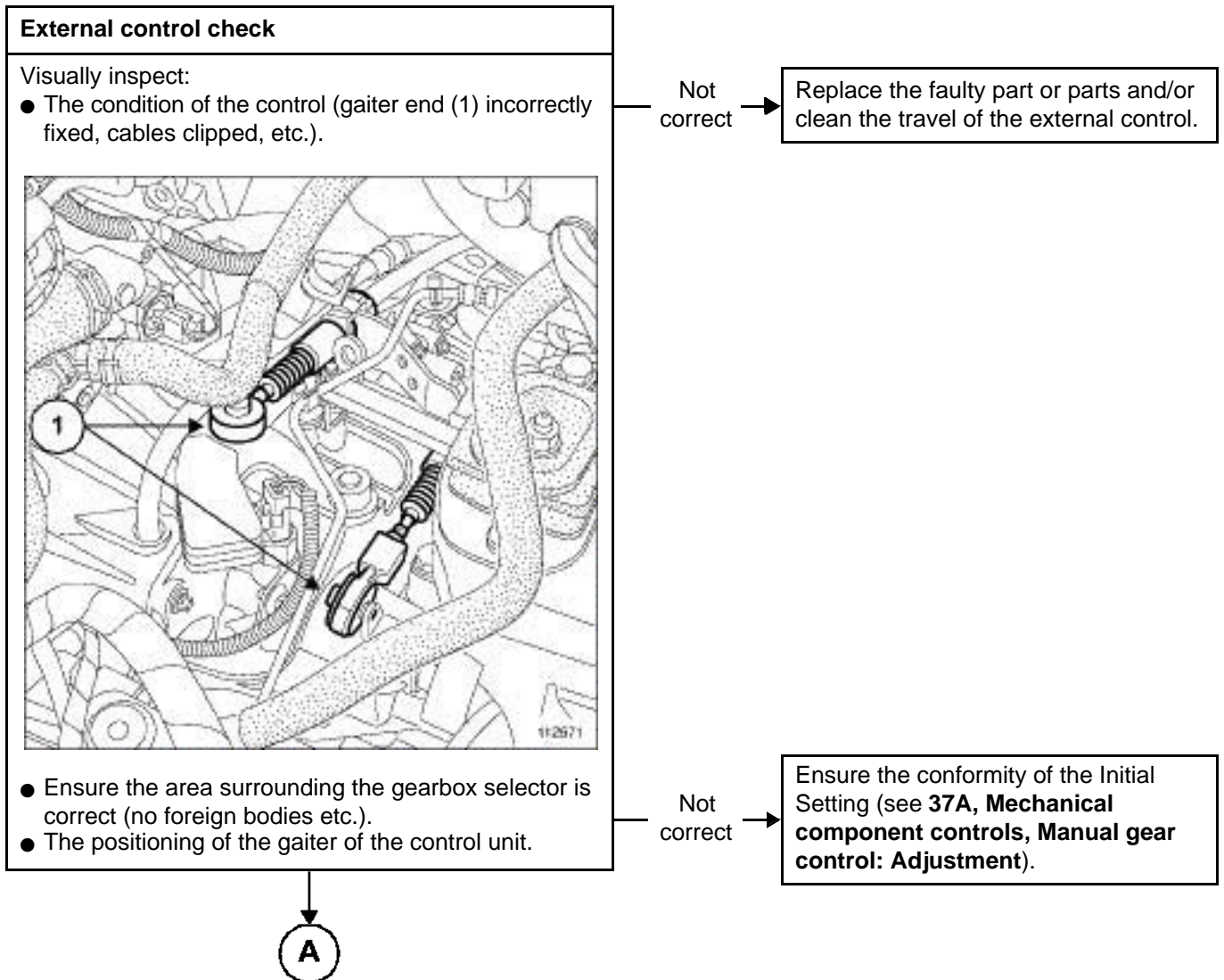
Fault finding - Customer complaints

01E

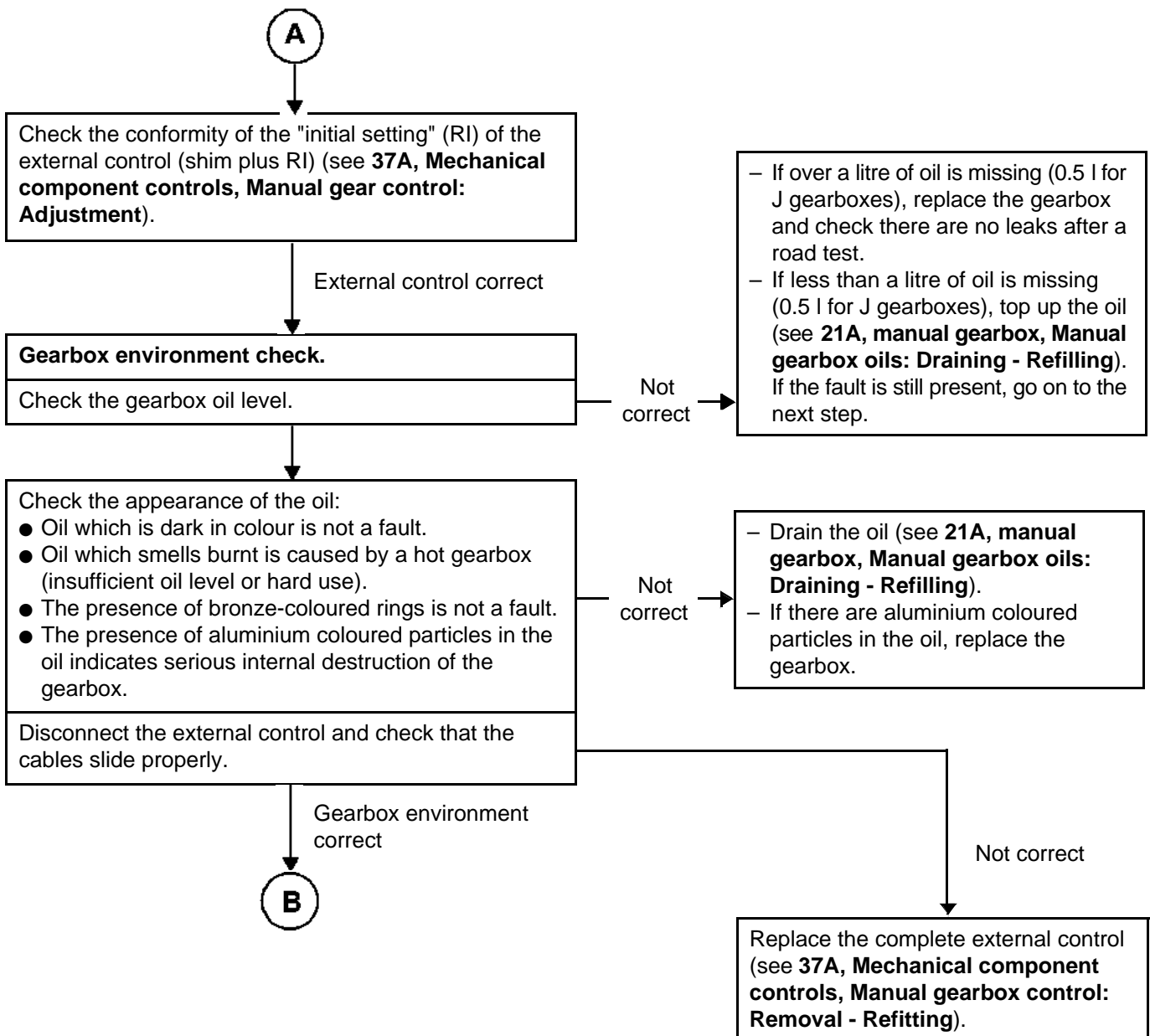


ALP 1	Jamming with cable operated gearboxes
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NOTES	<ul style="list-style-type: none"> - Before any operations, it is ESSENTIAL to read the entire ALP and the information library (ACTIS solution) relating to the customer complaints. - Check that the clutch pedal travel is not obstructed by the floor carpet. - If there is jamming in 2nd AND 3rd with the ND gearbox: see Technical Note 4559A, gears jamming when engaging 2nd or 3rd gear. - The customer notices a difference between the functions changed and those that were retained. Inform the customer of the importance of running in a gearbox.
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<p>ALP 1 CONTINUED 1</p>	
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ALP 1 CONTINUED 2	
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B

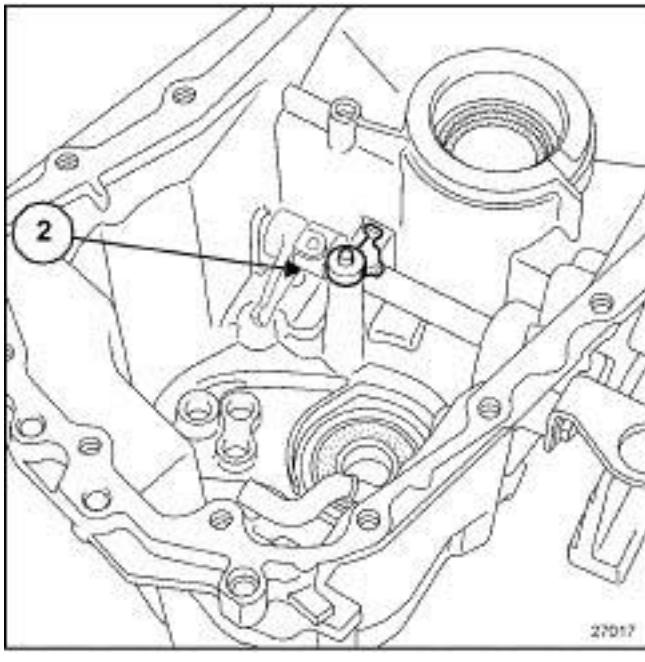
Clutch check	
Check that the clutch operates correctly (see MR-394, 20A, Clutch, Fault finding chart).	
Check there is no clutch drag by checking its disengagement point (see Technical Note 3451A, Clutch: Fault finding).	

Not correct → Carry out the corrective actions.

Gearbox environment correct

Remove and open the gearbox.	
In the case of a complaint about jamming when shifting from 5 th to 4 th on a cable operated J gearbox.	

Not correct → Replace the latch kit (2) for reverse gear (see **Technical Note 6029A, manual gearbox, manual gearbox control shaft: Removal - Refitting**).



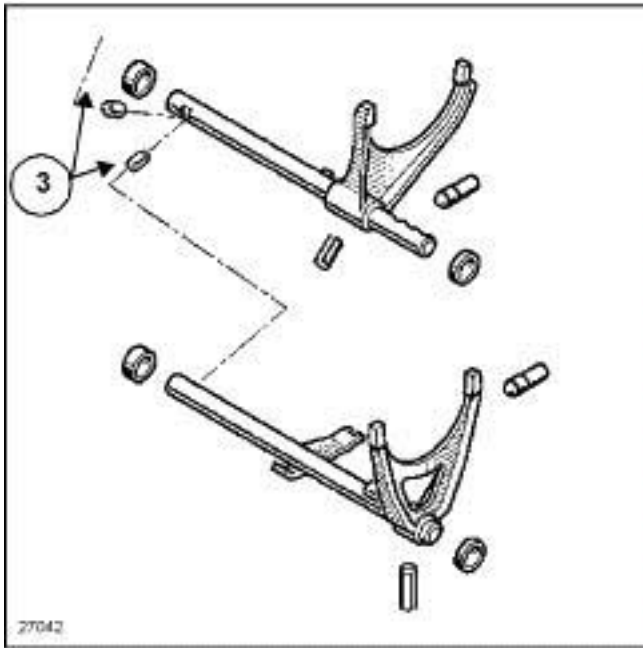
C

ALP 1 CONTINUED 3	
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C

Check:

- The locking shafts slide correctly (3)
- The locking shafts are correct (3)



Not correct →

- Replace the locking shafts (see **Technical Note Gearbox***, **manual gearbox, shafts and synchronisers: Refitting**).
- If the sliding fault is still present, contact Techline (clutch cover fault).

Locking shafts correct

In all other cases and for all other gearboxes

Replace the function of the gear or gears corresponding to the customer complaint (pinion, hub, selector rod, blocking ring and engaging ring).

* see introduction

INTRODUCTION TO FAULT FINDING

Fault finding - Fault Finding Chart

01E

<p>ALP 2</p>	<p>Jamming with rod operated gearboxes</p>
<p>NOTES</p>	<ul style="list-style-type: none">- Before any operations, it is ESSENTIAL to read the entire ALP and the information library (ACTIS solution) relating to the customer complaints.- Check that the clutch pedal travel is not obstructed by the floor carpet.- If there is jamming in 2nd AND 3rd with the ND gearbox: see Technical Note 4559A, gears jamming when engaging 2nd or 3rd gear. <p>The customer notices a difference between the functions changed and those that were retained. Inform the customer of the importance of running in a gearbox.</p>

ALP 2
CONTINUED 1

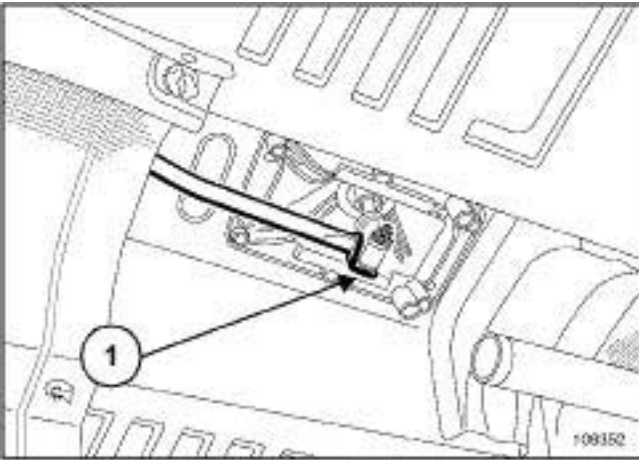
External control check

Visually inspect:

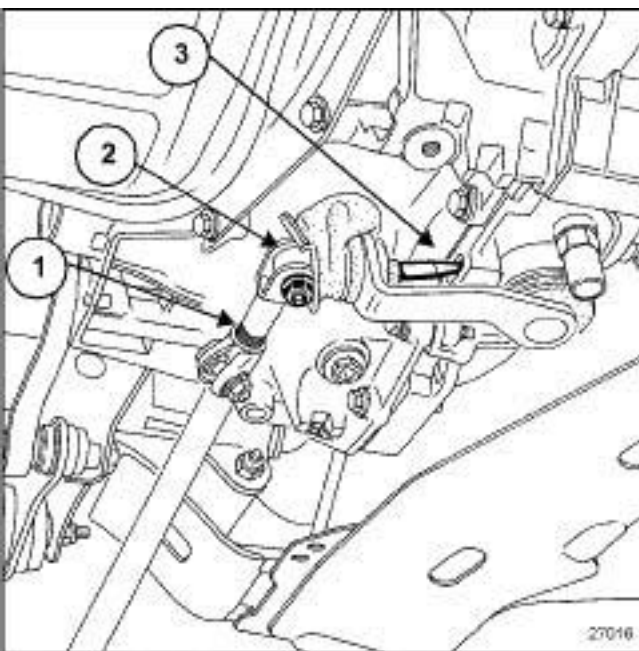
- The presence of grease (33 medium) on the control lever / selector linkage joint (1).

Not correct →

Grease the parts that have insufficient grease

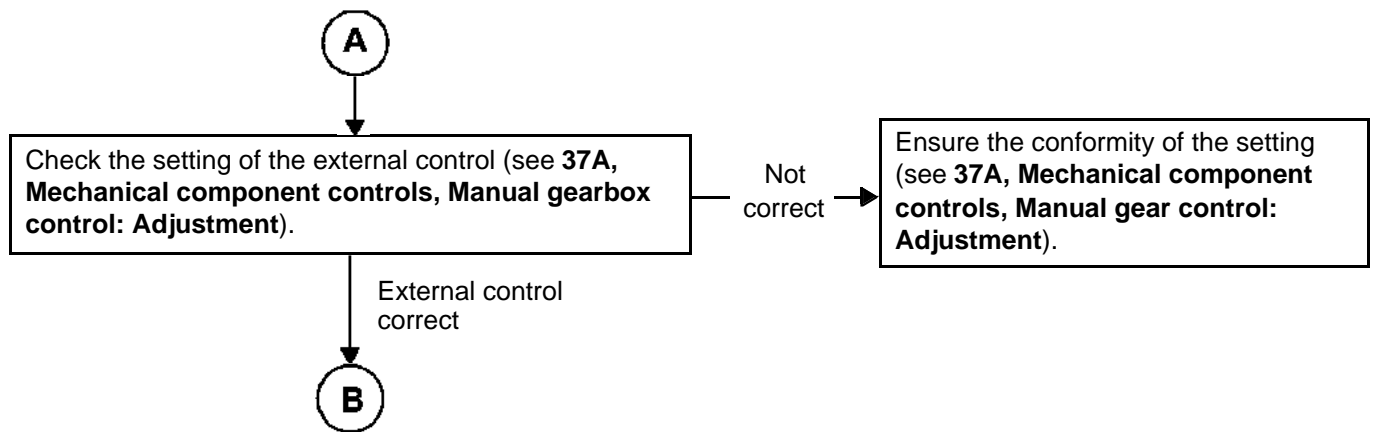


- The presence of grease (transmission grease) on the selector linkage / gearbox linkage joint (2) (detach the gaiter and remove the plastic clip if necessary).
- The presence of grease (33 medium) at the gearbox output lever / linkage joint (3).

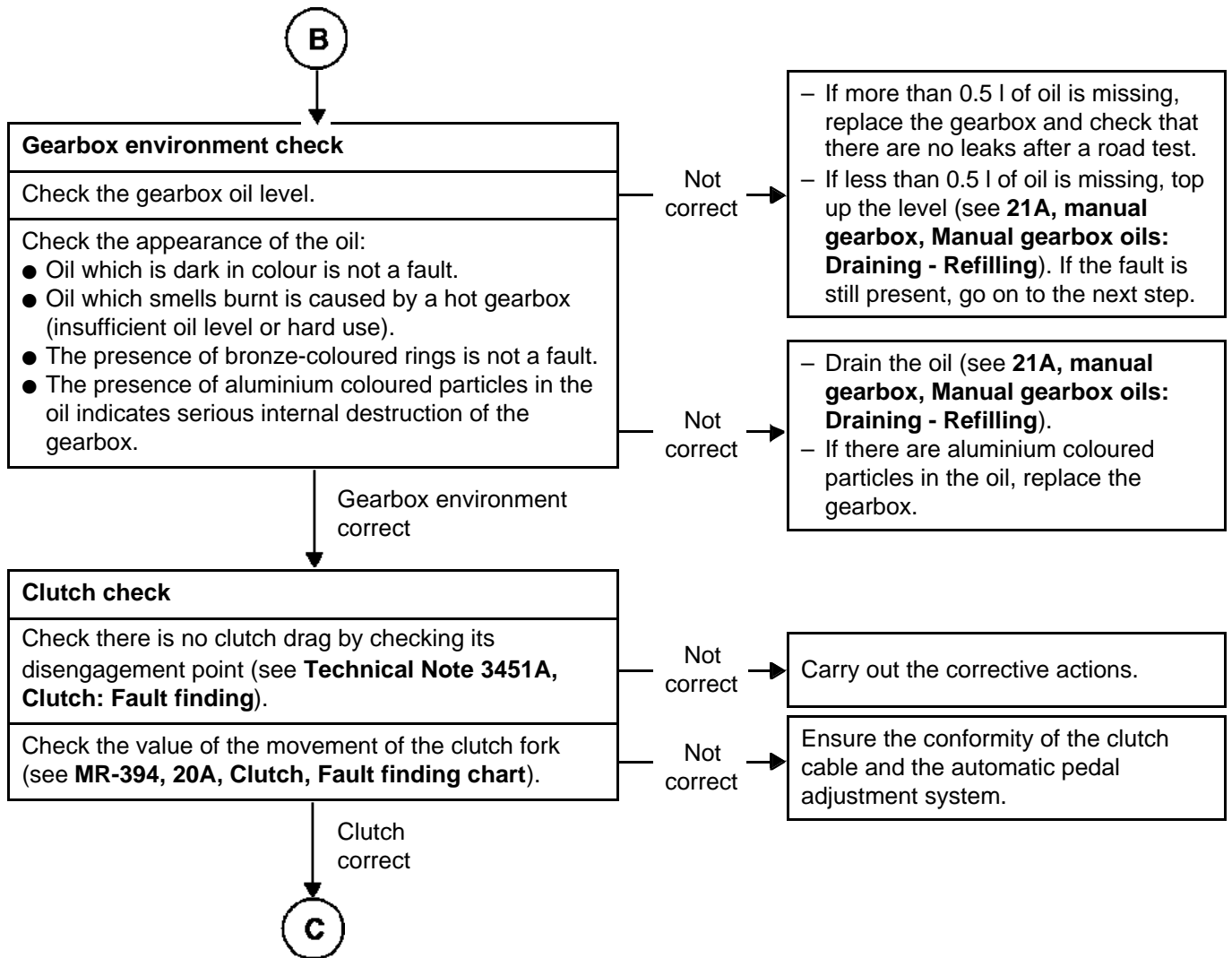


→ A

ALP 2 CONTINUED 2	
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<p>ALP 2 CONTINUED 3</p>	
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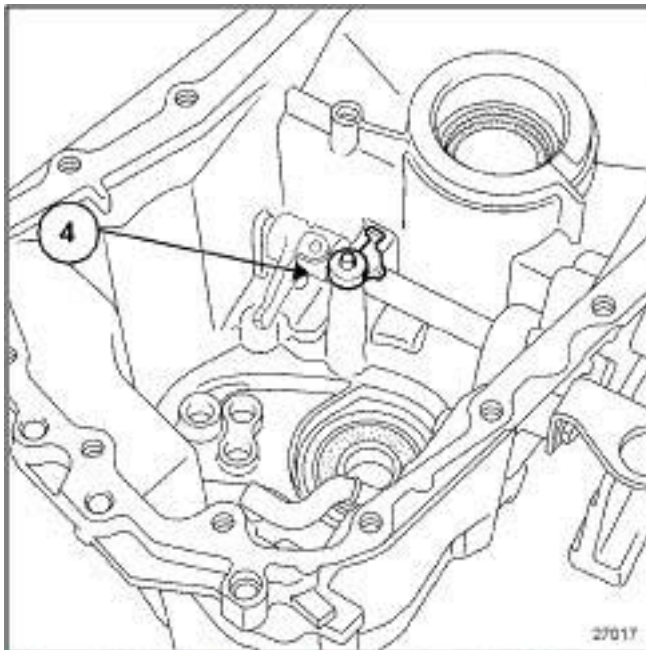
ALP 2 CONTINUED 4	
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C



Remove and open the gearbox.

In the case of a complaint about jamming when shifting from 5th to 4th on a JH gearbox.



Not correct →

Replace the latch kit for reverse gear (4) (see **Technical Note 6029A, manual gearbox, manual gearbox control shaft: Removal - Refitting**).

D

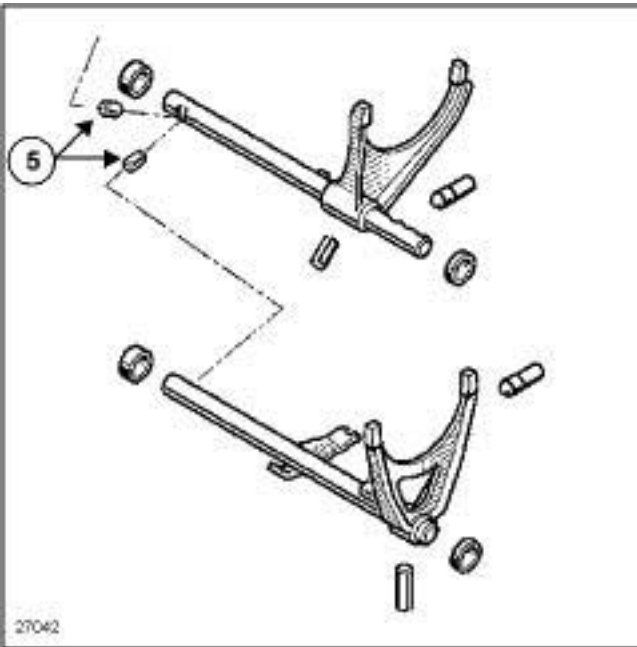


ALP 2 CONTINUED 5	
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D

Check:

- The locking shafts slide correctly (5)
- The locking shafts are correct (5)



Not correct →

- Replace the locking shafts (see **Technical Note Gearbox***, **manual gearbox, shafts and synchronisers: Refitting**).
- If the sliding fault is still present, contact the Techline for information on the clutch cover.

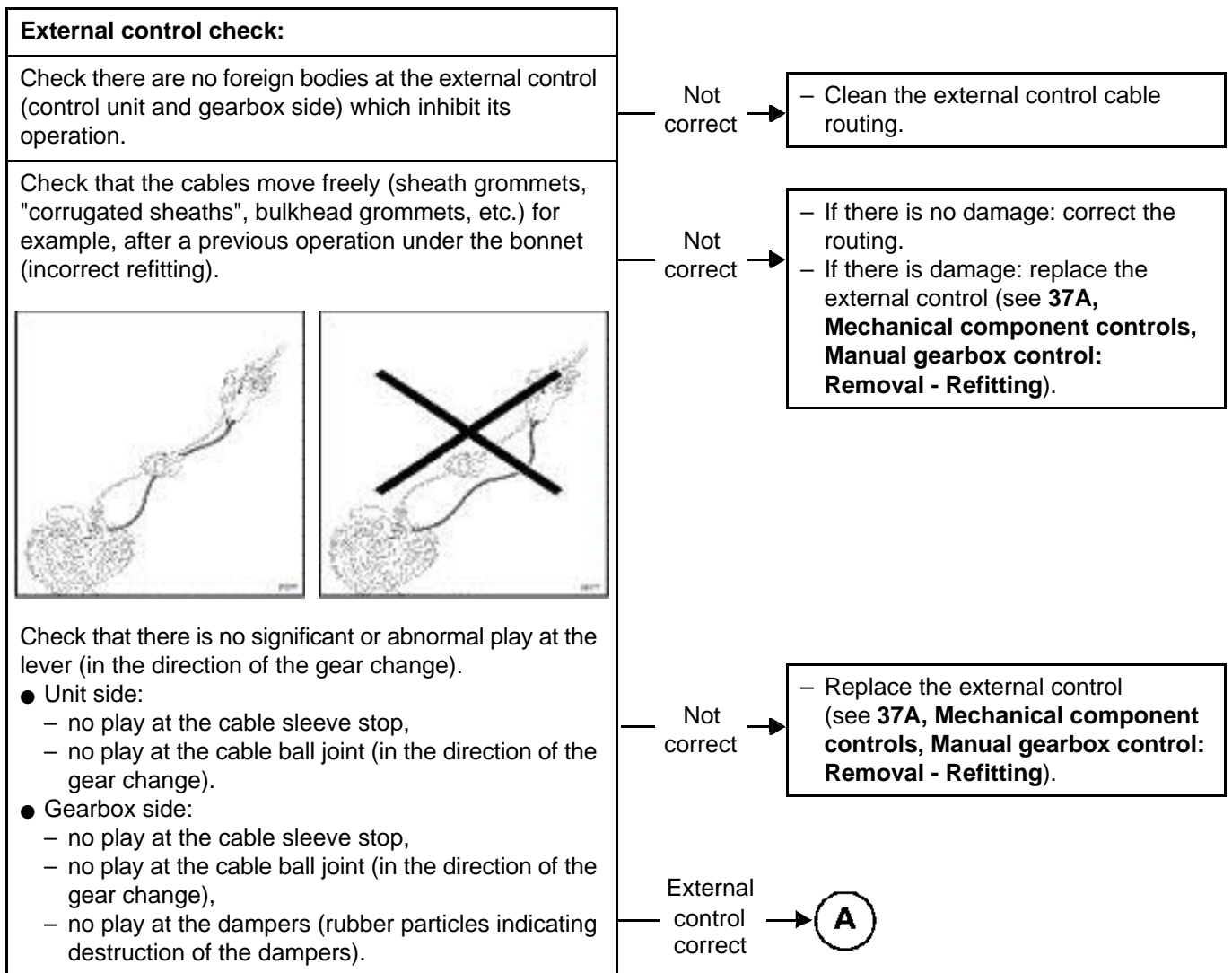
Locking shafts correct

Replace the function of the gear or gears corresponding to the customer complaint (pinion, hub, selector rod, blocking ring and engaging ring).

* see introduction

ALP 3	Cable operated gearboxes jumping out of gear
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NOTES	<ul style="list-style-type: none"> – Before any operations, it is ESSENTIAL to read the entire ALP and the information library (ACTIS solution) relating to the customer complaints. – Check that the clutch pedal travel is not obstructed by the floor carpet. – The customer notices a difference between the functions changed and those that were retained. Inform the customer of the importance of running in a gearbox.
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ALP 3 CONTINUED 1	
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A

Engine and transmission assembly suspended mountings check:

Check the suspended mountings on the engine and gearbox sides and the engine tie-bar (broken, damaged, incorrectly tightened, incorrectly positioned, etc.).

Not correct →

Replace the damaged suspended engine mounting or engine tie-bar (see **19D, Engine mounting**).

Check the suspended mounting rubber pads on the engine and gearbox sides and engine tie-bar (torn, damaged, incorrectly positioned, missing, etc.).

Not correct →

Replace the damaged rubber pad (see **19D, Engine mounting**).

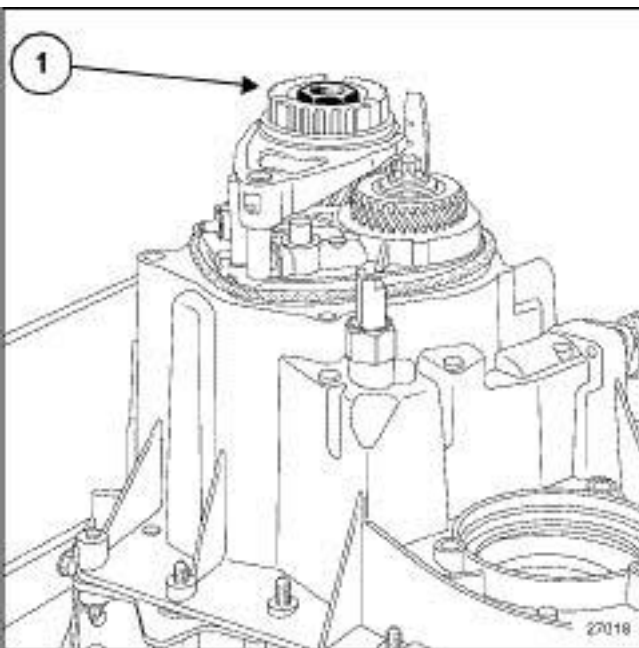
Engine and transmission assembly suspended mountings

Checking the 5th gear nut on the input shaft (1) (only on J gearbox)

If the vehicle is fitted with a J gearbox and is only jumping out of gear in 5th.

Not correct →

Replace the 5th gear, gear supporting rings and fork assembly.



5th gear nut correct →

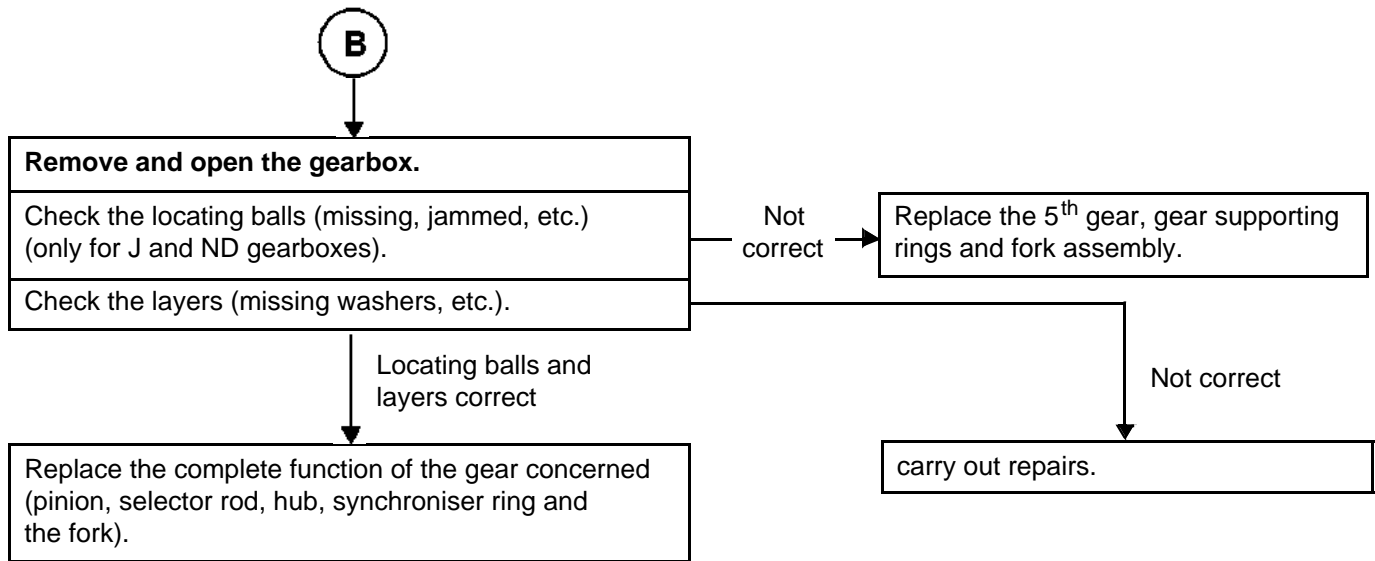
B

INTRODUCTION TO FAULT FINDING

Fault finding - Fault Finding Chart

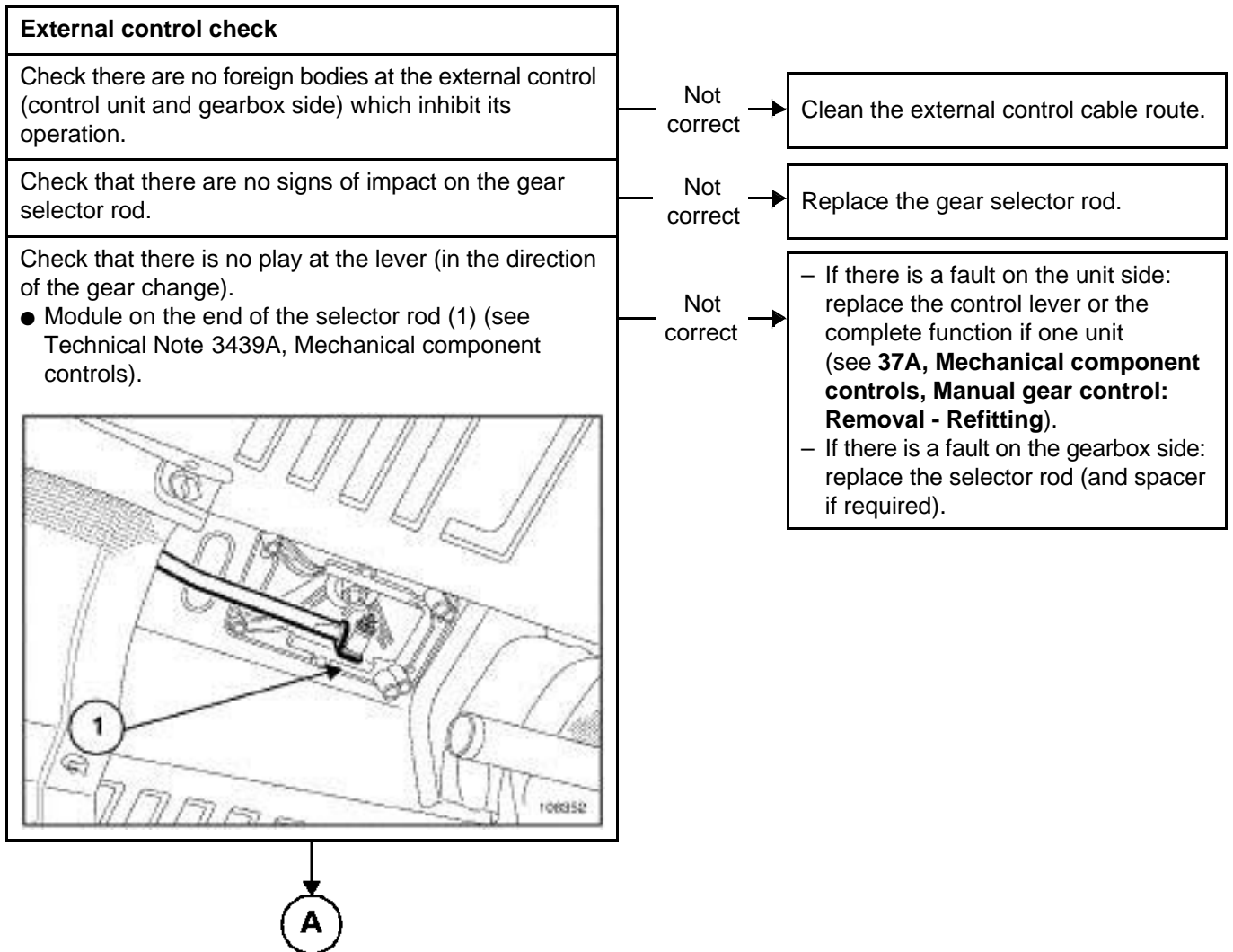
01E

<p>ALP 3 CONTINUED 2</p>	
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ALP 4	Rod operated gearboxes jumping out of gear
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NOTES	<ul style="list-style-type: none"> – Before any operations, it is ESSENTIAL to read the entire ALP and the information library (ACTIS solution) relating to the customer complaints. – Check that the clutch pedal travel is not obstructed by the floor carpet. – The customer notices a difference between the functions changed and those that were retained. Inform the customer of the importance of running in a gearbox.
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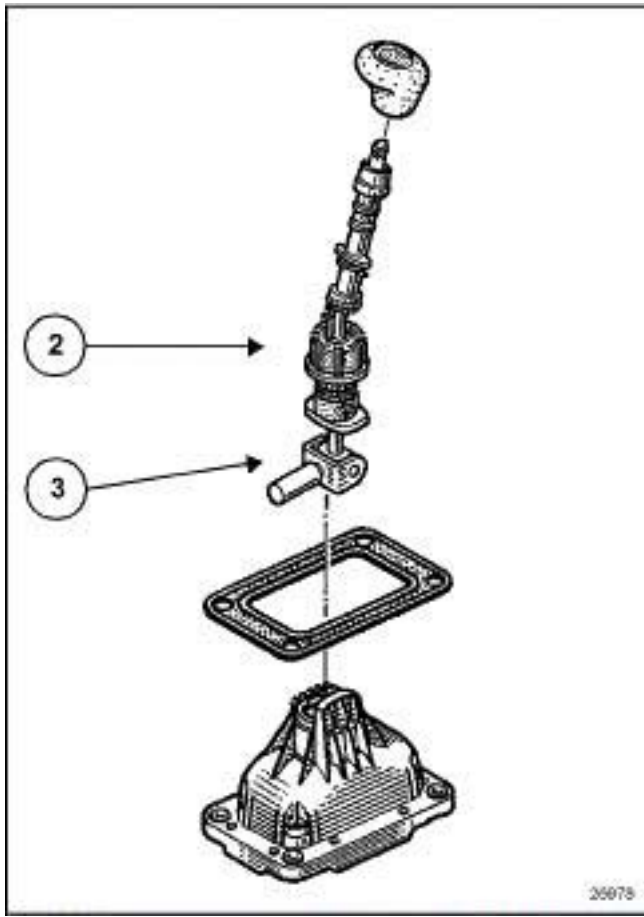
ALP 4
CONTINUED 1

A

- Control unit side:
 - no play at the lever ball joint (2),
 - no play at the joint at the foot of the lever or the selector rod mounting (3),
 - check that there is no tension at the gear lever gaiter (if necessary check without the gaiter).

Not
correct →

- If there is a fault on the unit side:
replace the control lever or the complete function if it is not sold separately (see **37A, Mechanical component controls, Manual gear control: Removal - Refitting**).
- If there is a fault on the gearbox side:
replace the selector rod (and spacer if required).

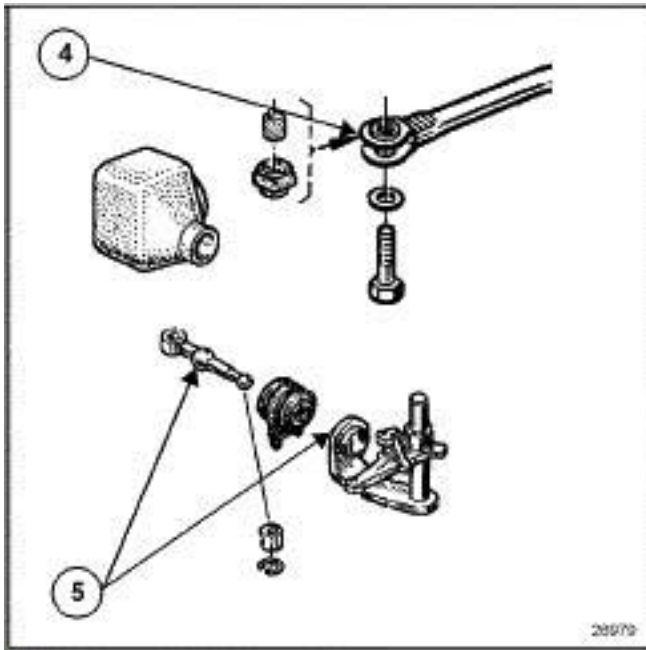


B

<p>ALP 4 CONTINUED 2</p>	
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B

- Gearbox side:
 - no play at the linkage - selector rod connection (4),
 - no play at the manual gearbox lever ball joints (5).



External control correct

Engine and transmission assembly suspended mountings check:

Check the suspended mountings on the engine and gearbox sides and the engine tie-bar (broken, damaged, incorrectly tightened, incorrectly positioned, etc.).

Not correct

Replace the damaged suspended engine mounting or engine tie-bar (see **19D, Engine mounting**).

C

<p>ALP 4 CONTINUED 3</p>	
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C

Check the suspended mounting rubber pads on the engine and gearbox sides and engine tie-bar (torn, damaged, incorrectly positioned, missing, etc.).

Not correct →

Replace the damaged rubber pad (see 19D, Engine mounting).

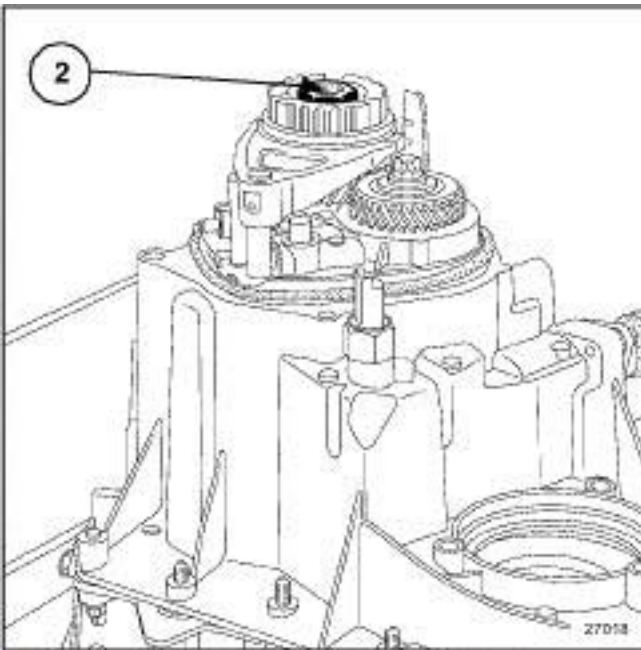
Engine and transmission assembly suspended mountings

Checking the 5th gear nut on the input shaft (only on J gearbox)

Not correct →

Replace the 5th gear, gear supporting rings and fork assembly.

If the vehicle is fitted with a J gearbox and is only jumping out of gear in 5th.



5th gear nut correct

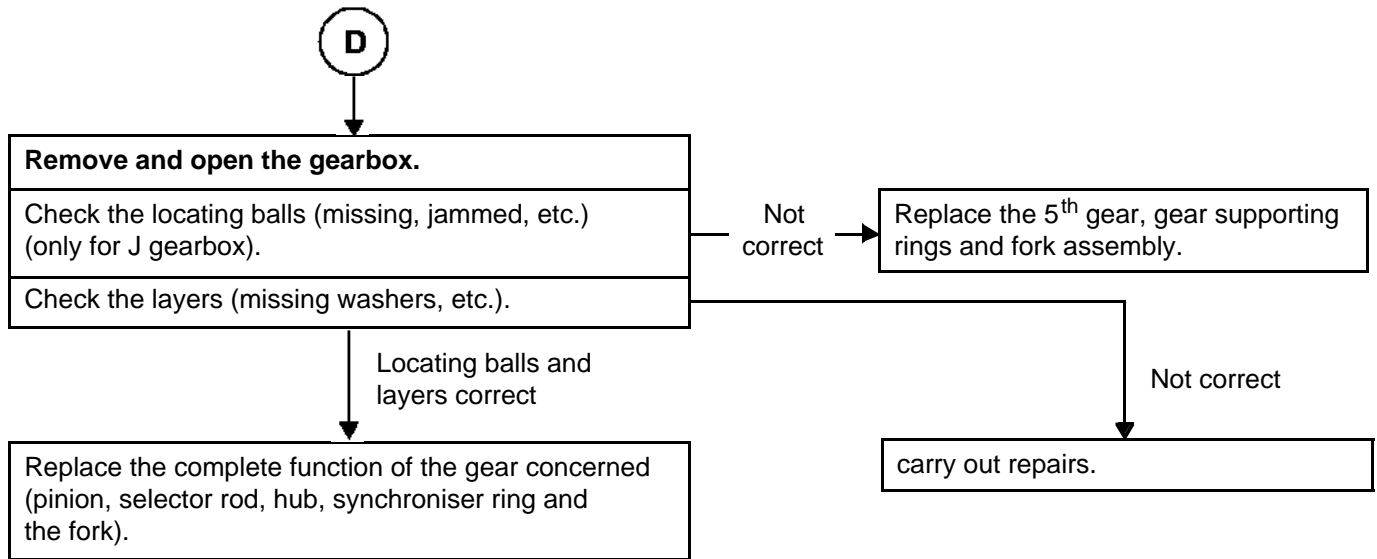
D

INTRODUCTION TO FAULT FINDING

Fault finding - Fault Finding Chart

01E

<p>ALP 4 CONTINUED 4</p>	
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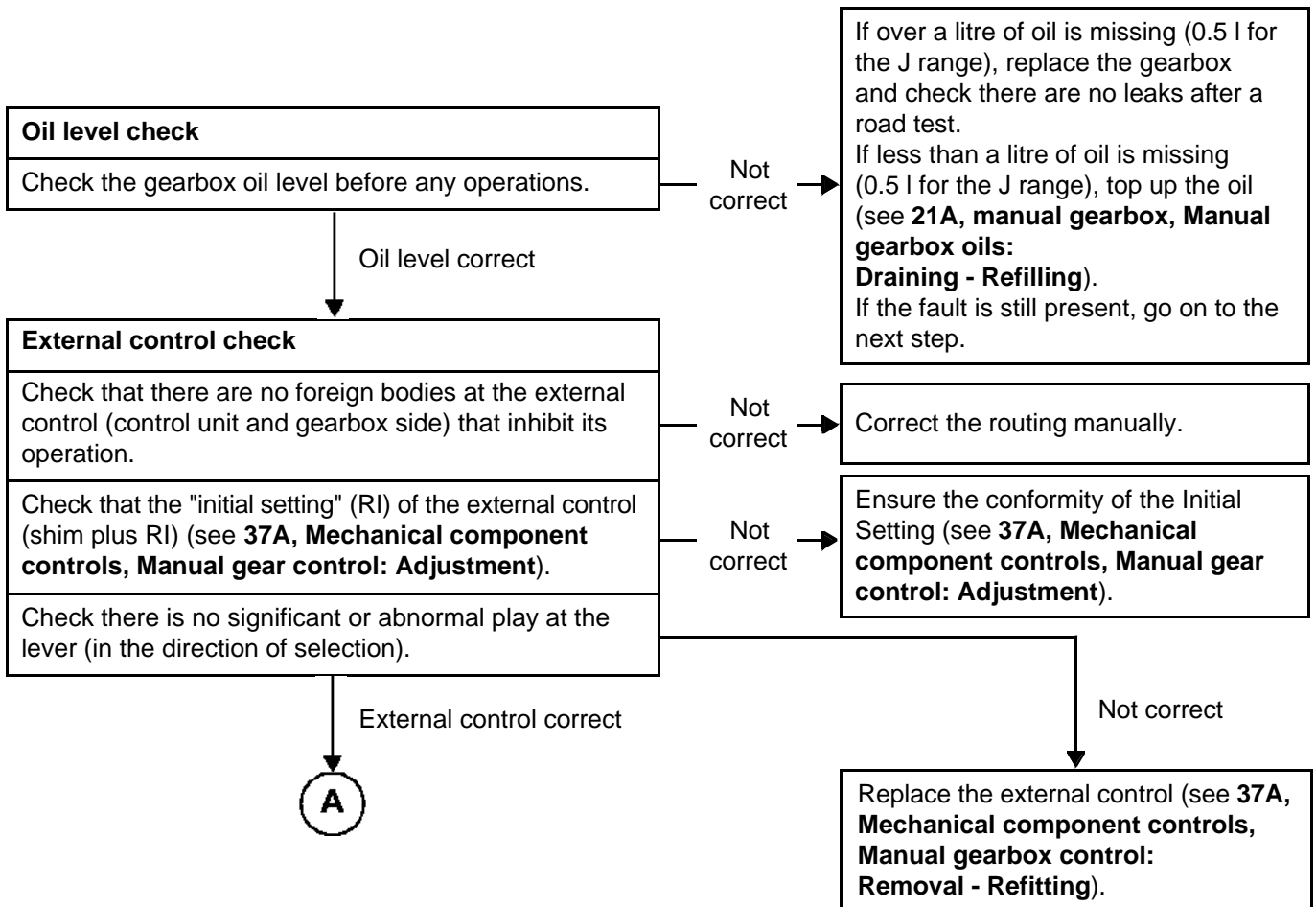
INTRODUCTION TO FAULT FINDING

Fault finding - Fault Finding Chart

01E

ALP 5	Difficult or impossible to engage gears for cable operated gearboxes
--------------	---

NOTES	<ul style="list-style-type: none"> - Before any operations, it is ESSENTIAL to read the entire ALP and the information library (ACTIS solution) relating to the customer complaints. - Check that the clutch pedal travel is not obstructed by the floor carpet. - The customer notices a difference between the functions changed and those that were retained. Inform the customer of the importance of running in a gearbox.
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<p>ALP 5 CONTINUED 1</p>	
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A

Gearbox oil check

Check the appearance of the oil:

- Oil which is dark in colour is not a fault.
- Oil which smells burnt is caused by a hot gearbox (insufficient oil level or hard use).
- The presence of bronze-coloured rings is not a fault.
- The presence of aluminium coloured particles in the oil indicates serious internal destruction of the gearbox.

Not correct

Drain the oil (see **21A, manual gearbox, manual gearbox oils: Draining - Refilling**).
 If there are aluminium coloured particles in the oil, replace the gearbox.

Gearbox oil correct

Clutch check

Check that there is no clutch drag by checking its disengagement point (see **Technical Note 3451A, Clutch: Fault finding**).

For hydraulic clutches, check that the clutch is operating correctly (see **MR-394, 20A, Clutch, Fault finding chart**).

For cable operated clutches, check:

- The movement value of the clutch fork (see **20A, Clutch**).
- For Logan: check the adjustment of the cable (see **20A, Clutch, Clutch thrust bearing: Removal - Refitting**).

Not correct

Carry out the necessary corrective action.

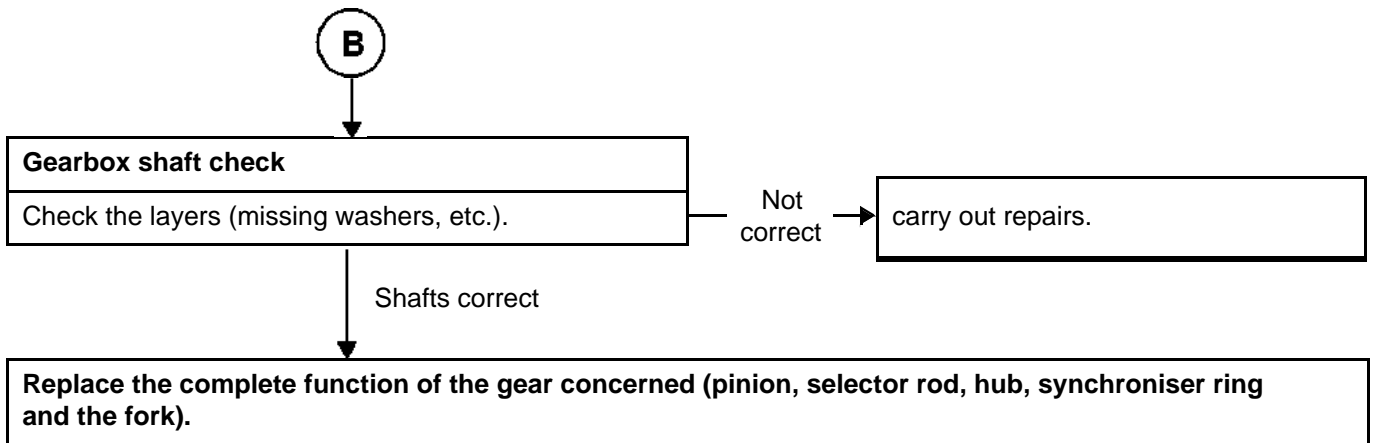
Not correct

- Check the condition of the clutch cable and the automatic pedal adjustment system.
- For Logan: ensure the conformity of the adjustment of the cable (see **20A, Clutch, Clutch thrust bearing: Removal - Refitting**).

Clutch correct

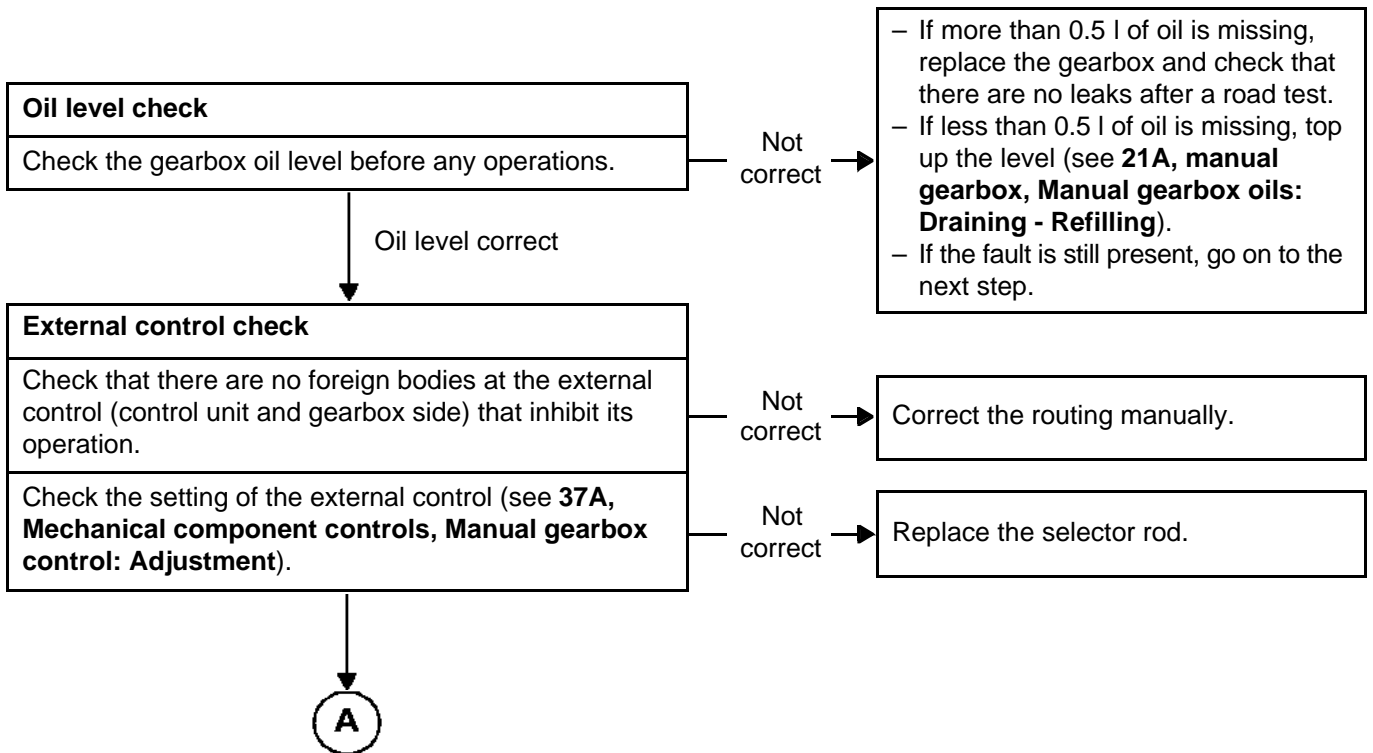
B

ALP 5 CONTINUED 2	
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ALP 6	Difficult or impossible to engage gears for rod operated gearboxes
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NOTES	<ul style="list-style-type: none"> - Before any operations, it is ESSENTIAL to read the entire ALP and the information library (ACTIS solution) relating to the customer complaints. - Check that the clutch pedal travel is not obstructed by the floor carpet. - The customer notices a difference between the functions changed and those that were retained. Inform the customer of the importance of running in a gearbox.
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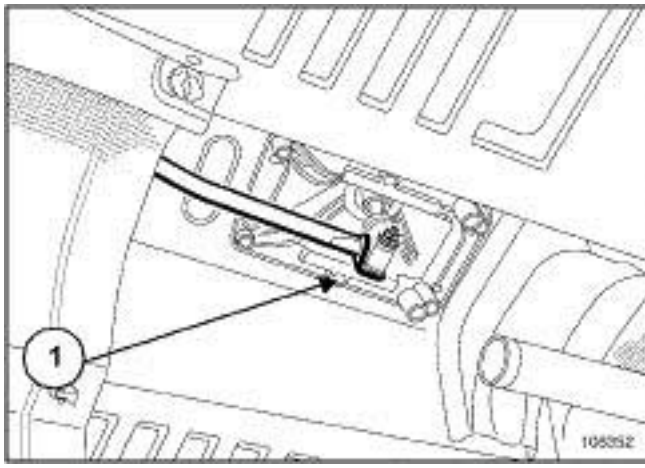


ALP 6 CONTINUED 1	
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A

Check that there is no play at the lever (in the direction of the gear change).

- Module on the end of the selector rod (1)
(See **Technical Note 3439A, Mechanical component controls**).



Not correct →

- If there is a fault on the unit side: replace the control lever or the complete function if it is not sold separately (see **37A, Mechanical component controls, Manual gear control: Removal - refitting**).
- If there is a fault on the gearbox side: replace the selector rod (and spacer if required).

B

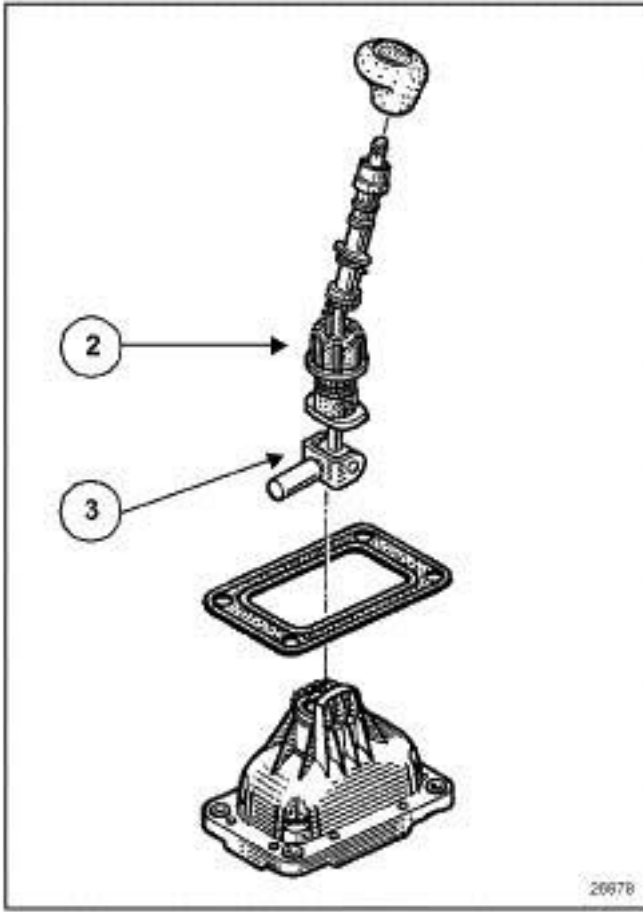
ALP 6
CONTINUED 2

B

- Control unit side:
 - no play at the lever ball joint (2),
 - no play at the joint at the foot of the lever or the selector rod mounting (3),
 - check that there is no tension at the gear lever gaiter (if necessary check without the gaiter).

Not correct →

- If there is a fault on the unit side:
replace the control lever or the complete function if it is not sold separately (see **37A, Mechanical component controls, Manual gear control: Removal - refitting**).
- If there is a fault on the gearbox side:
replace the selector rod (and spacer if required).

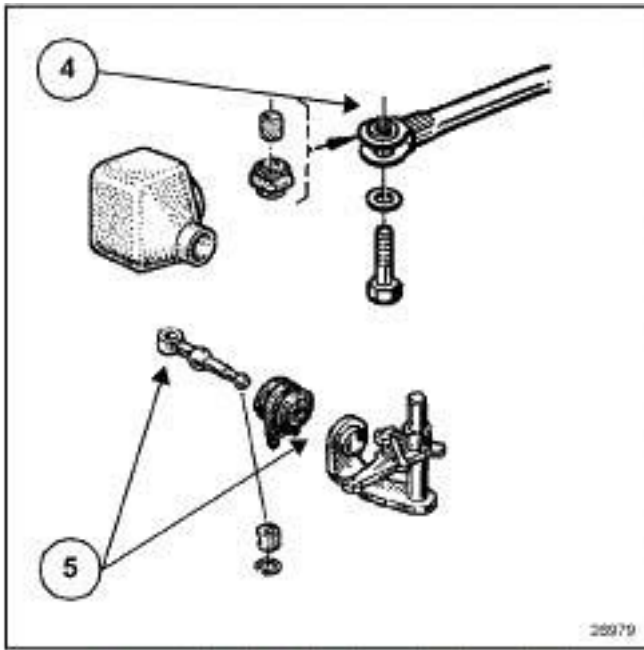


C

ALP 6
CONTINUED 3

C

- Gearbox side:
 - no play at the linkage - selector rod connection (4)
 - no play at the manual gearbox lever ball joints (5)



Gearbox oil check

Check the appearance of the oil:

- Oil which is dark in colour is not a fault.
- Oil which smells burnt is caused by a hot gearbox (insufficient oil level or hard use).
- The presence of bronze-coloured rings is not a fault.
- The presence of aluminium coloured particles in the oil indicates serious internal destruction of the gearbox.

Not correct

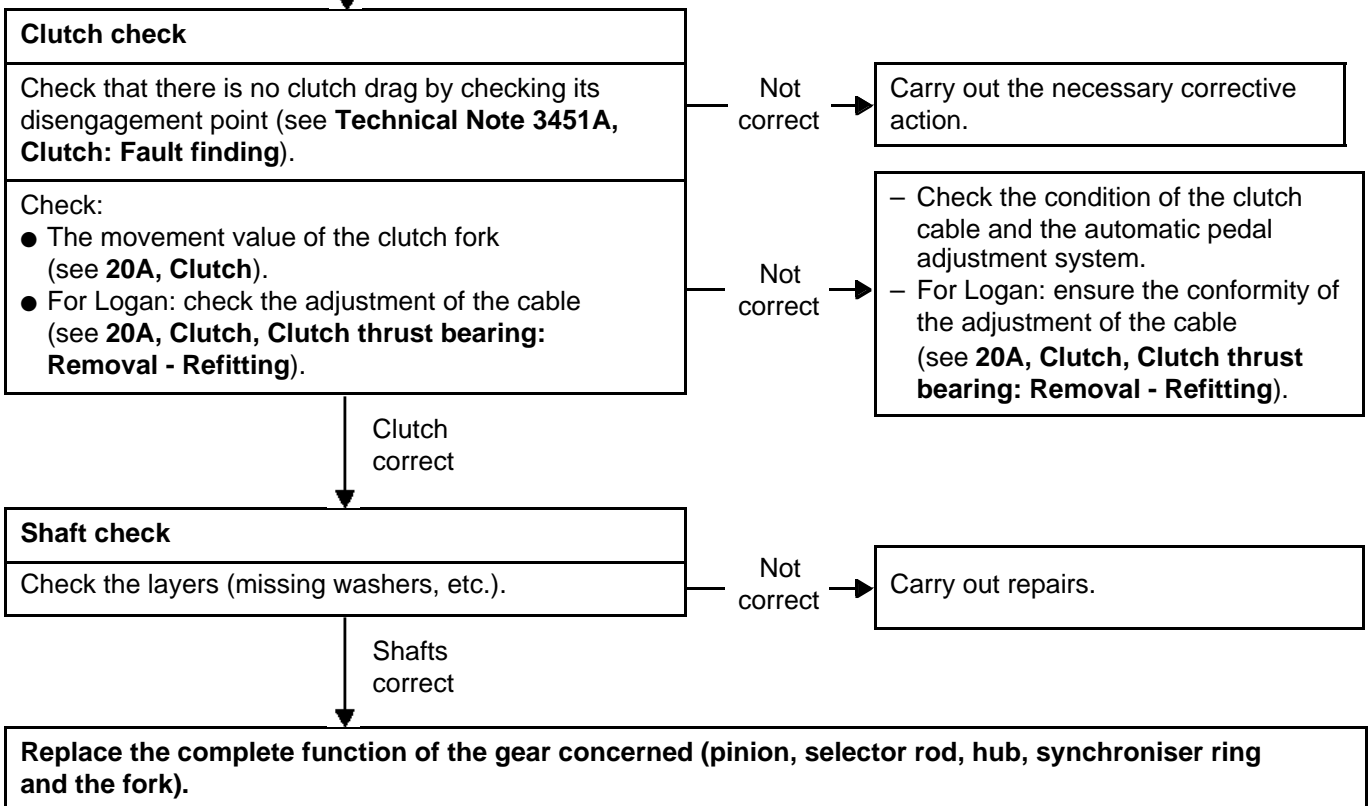
- Drain the oil (see 21A, manual gearbox, Manual gearbox oils: Draining - Refilling).
- If there are aluminium coloured particles in the oil, replace the gearbox.

Gearbox oil correct

D

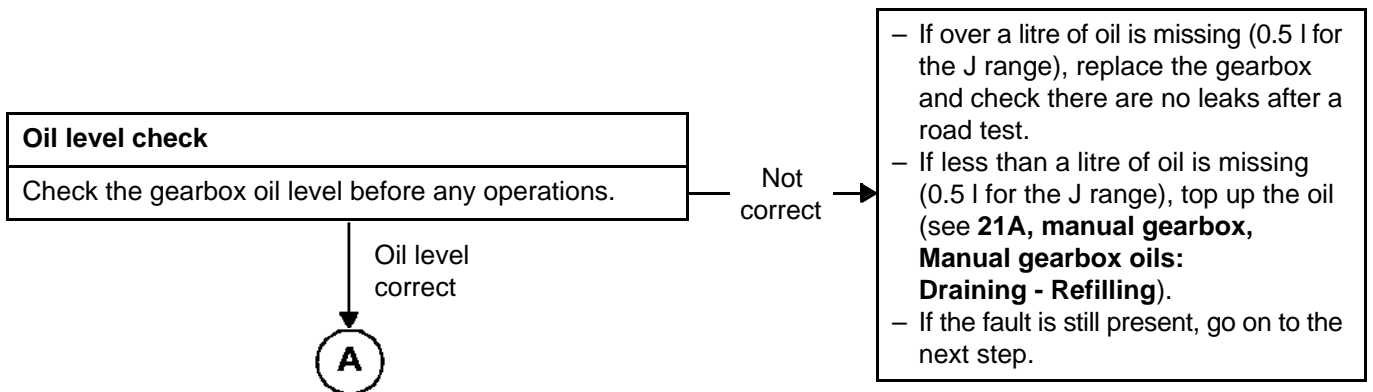
ALP 6 CONTINUED 4	
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D

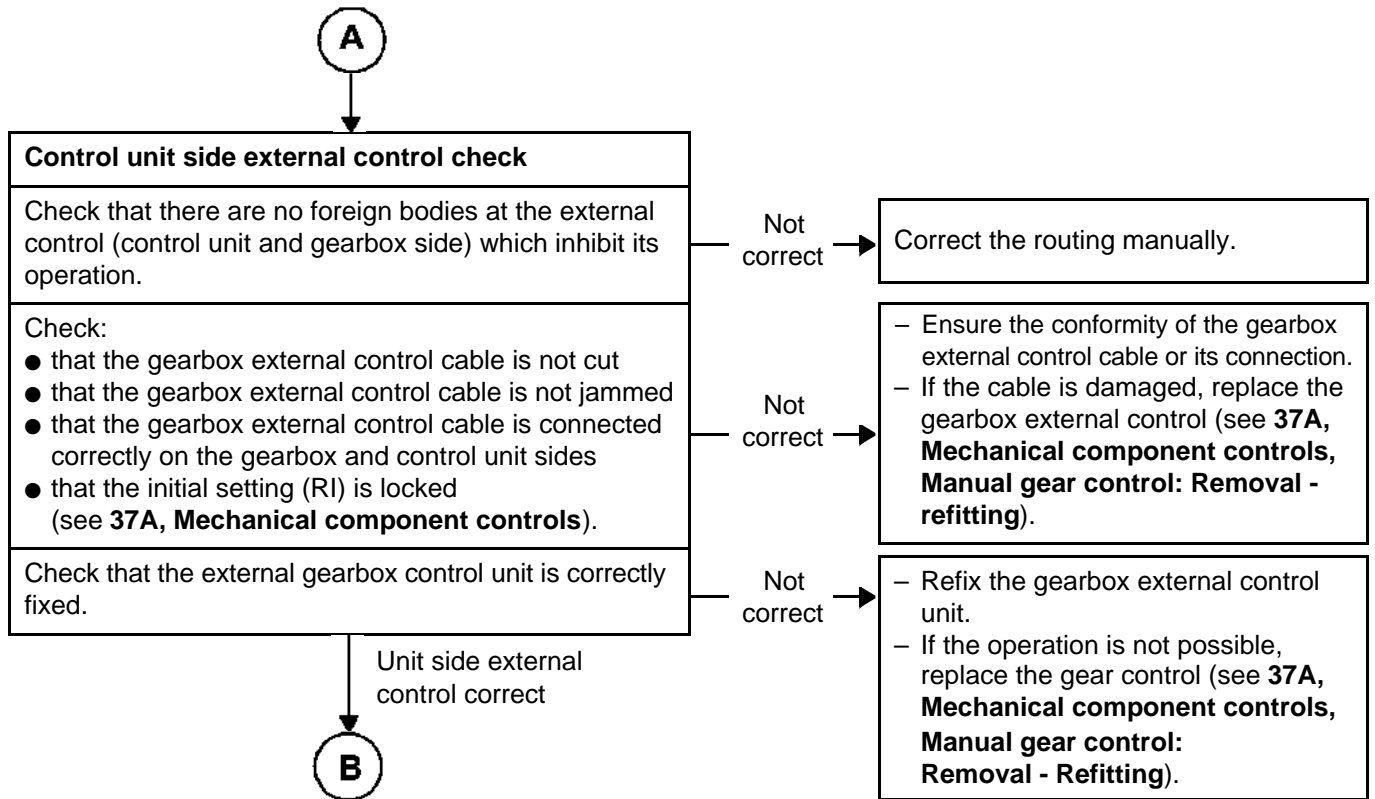


ALP 7	Gearbox locked or ineffective for cable operated gearboxes
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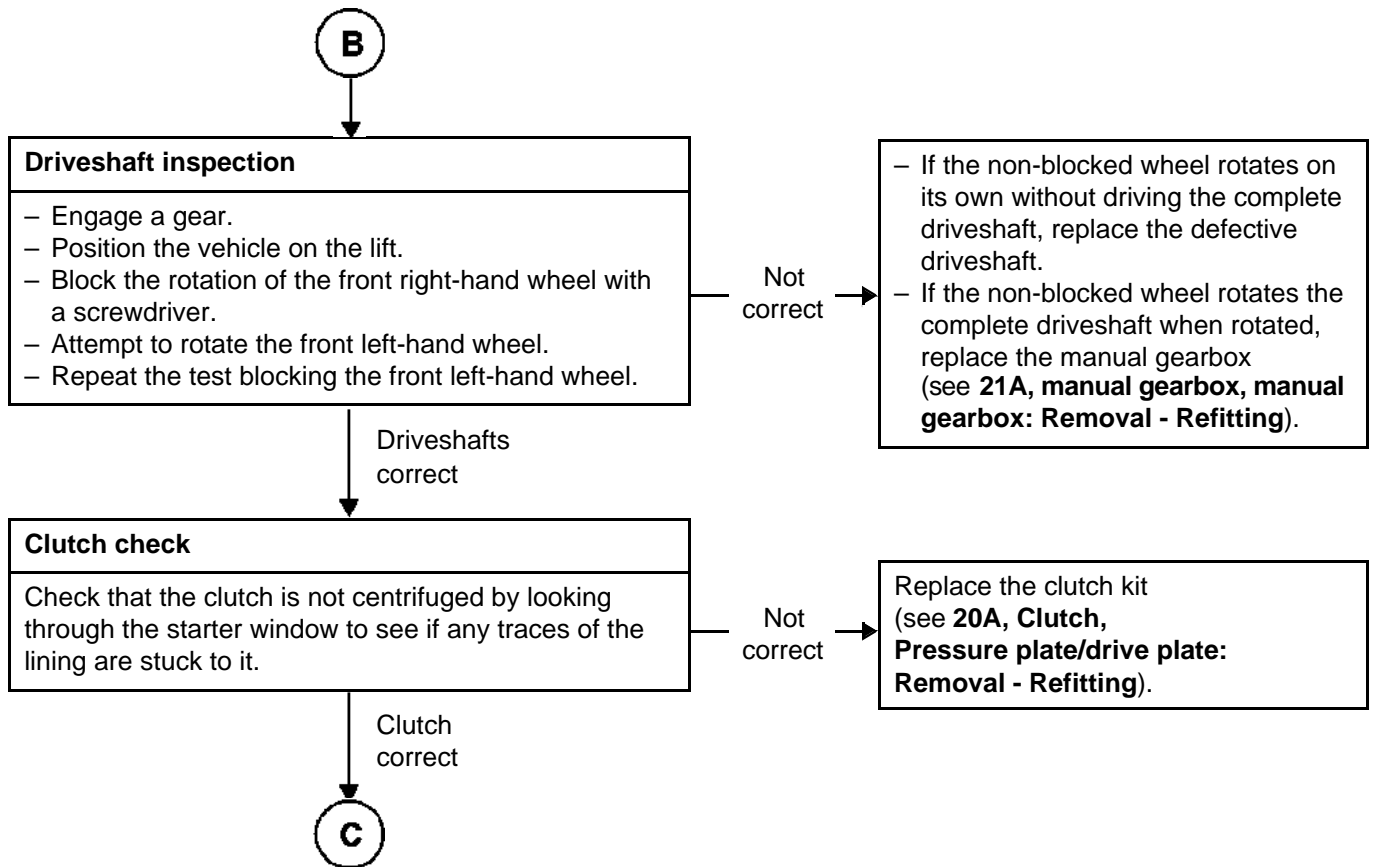
NOTES	<ul style="list-style-type: none">- Before any operations, it is ESSENTIAL to read the entire ALP and the information library (ACTIS solution) relating to the customer complaints.- Check that the clutch pedal travel is not obstructed by the floor carpet.- The customer notices a difference between the functions changed and those that were retained. Inform the customer of the importance of running in a gearbox.
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ALP 7 CONTINUED 1	
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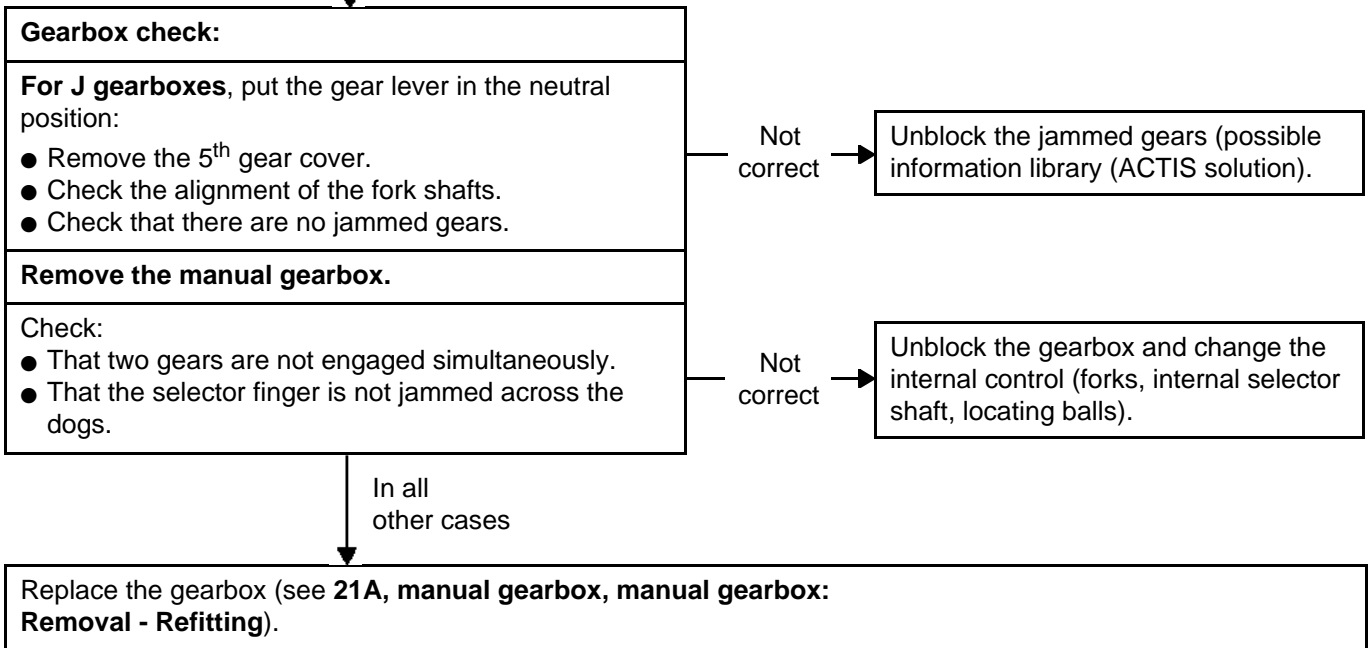


ALP 7 CONTINUED 2	
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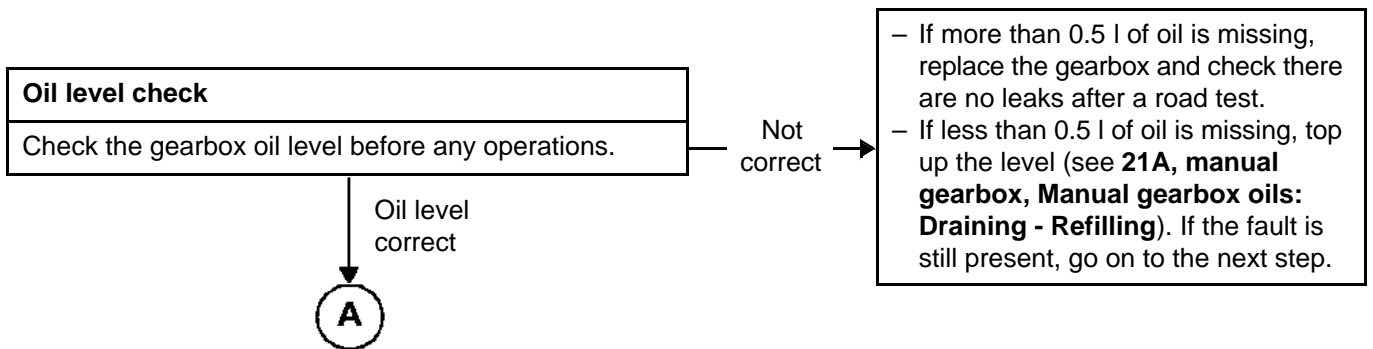
ALP 7 CONTINUED 3	
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C

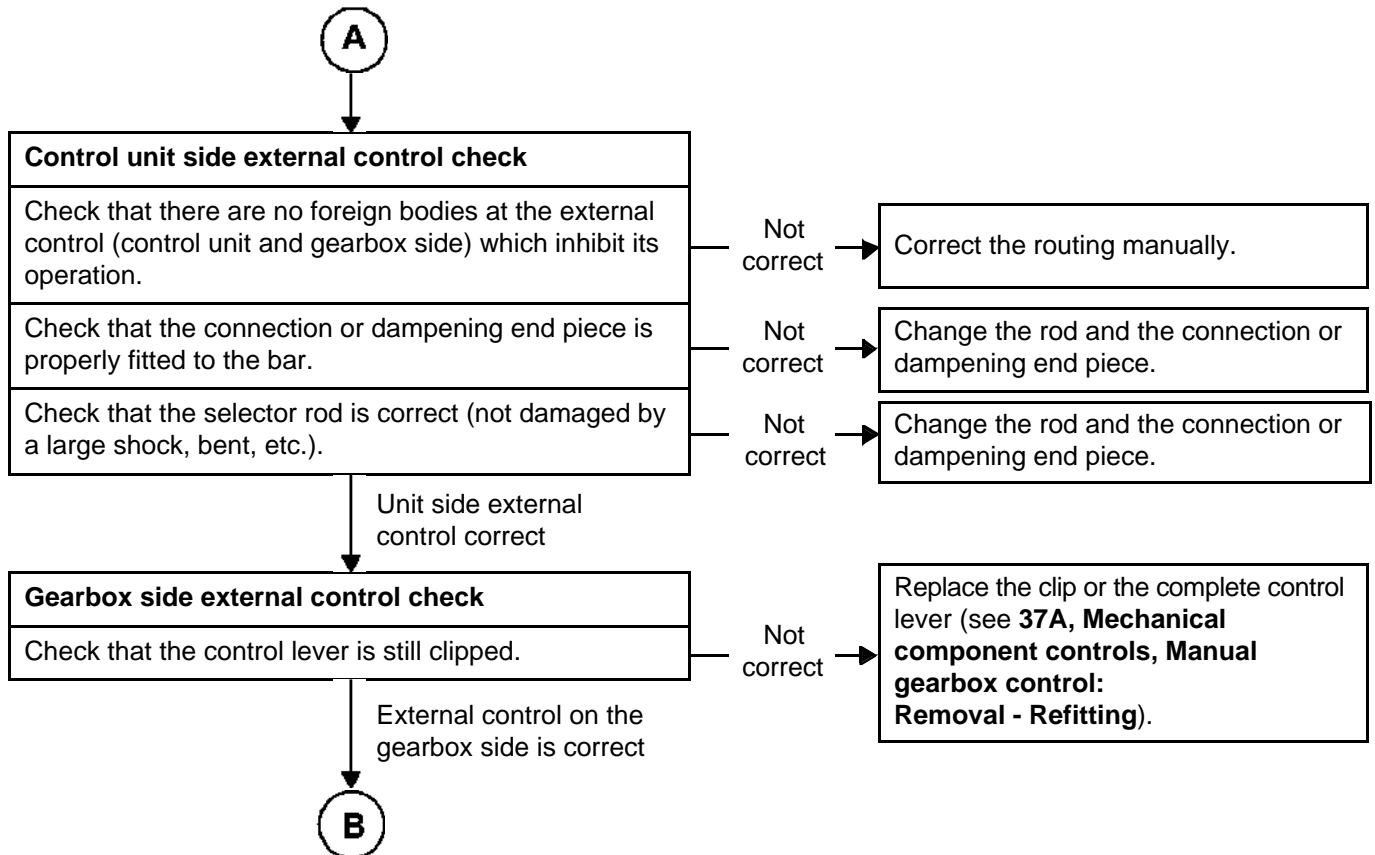


ALP 8	Gearbox locked or ineffective for rod operated gearboxes
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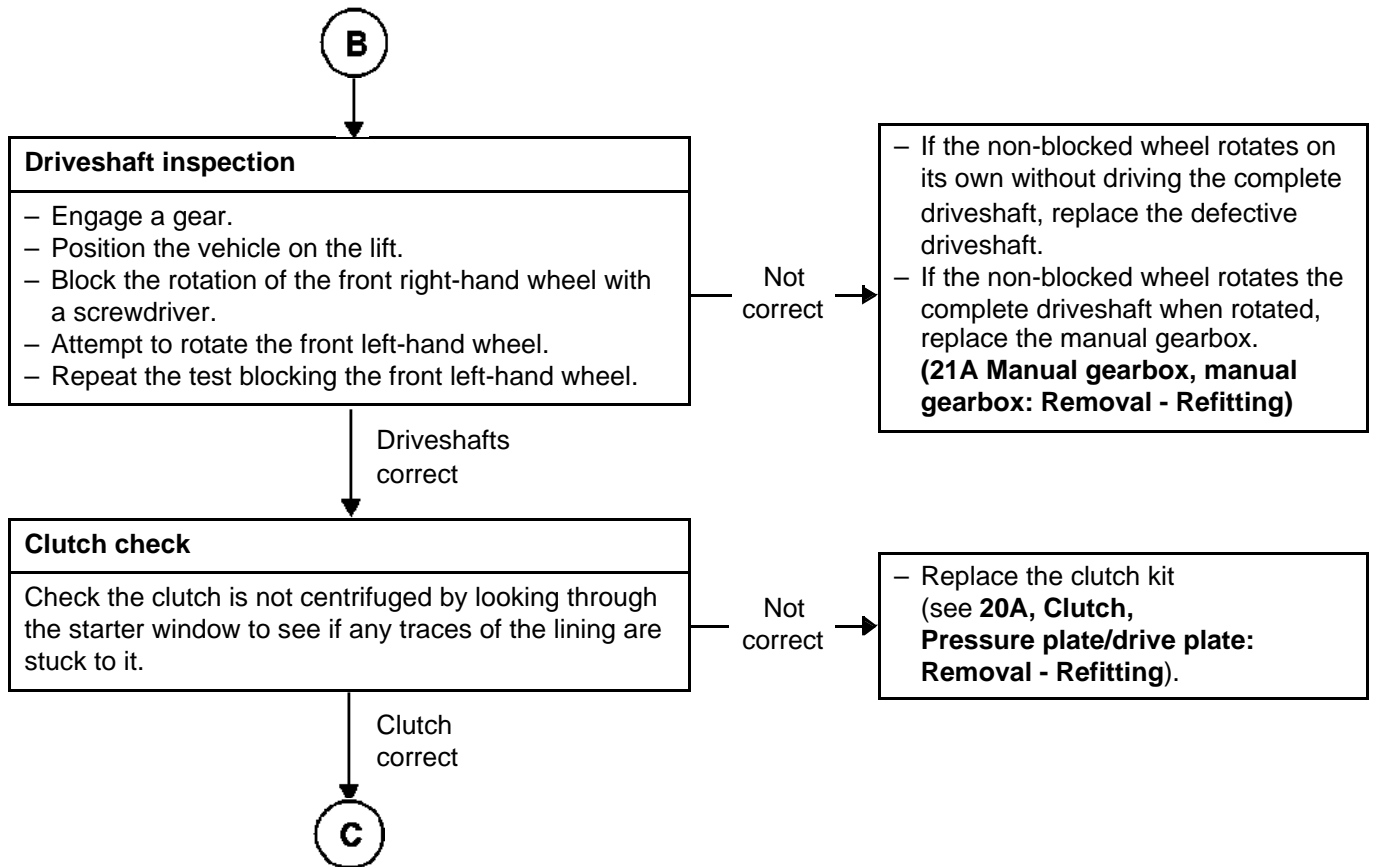
NOTES	<ul style="list-style-type: none">- Before any operations, it is ESSENTIAL to read the entire ALP and the information library (ACTIS solution) relating to the customer complaints.- Check that the clutch pedal travel is not obstructed by the floor carpet.- The customer notices a difference between the functions changed and those that were retained. Inform the customer of the importance of running in a gearbox.
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<p>ALP 8 CONTINUED 1</p>	
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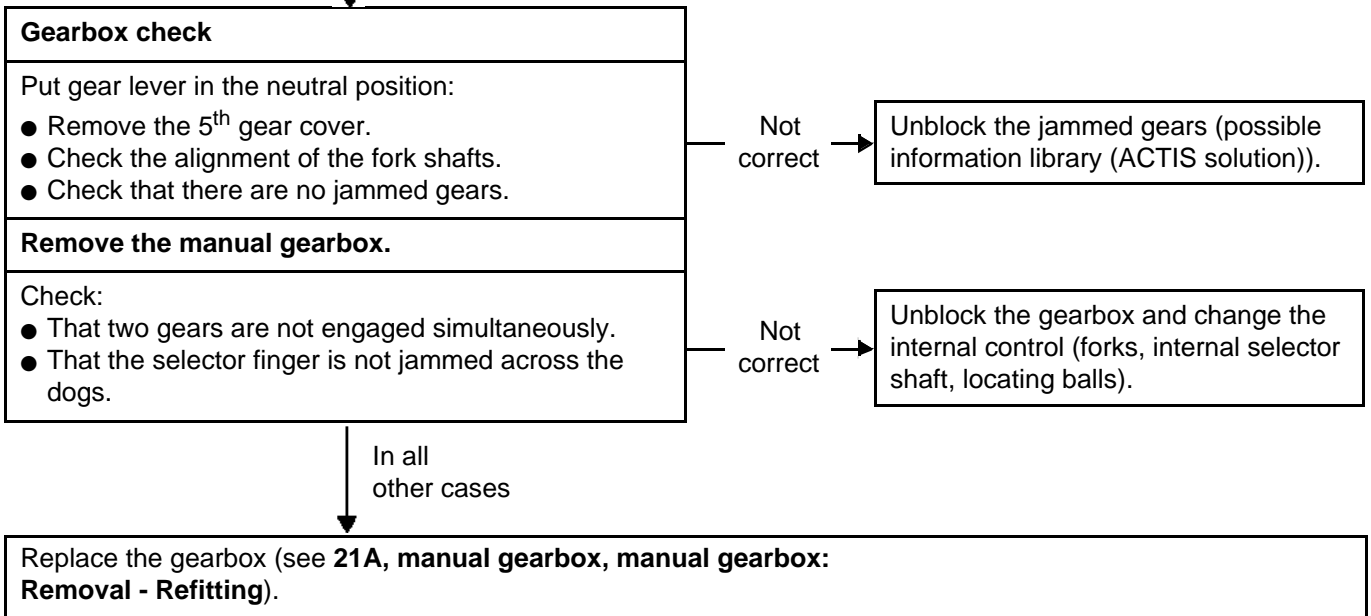


ALP 8 CONTINUED 2	
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ALP 8 CONTINUED 3	
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C



MANUAL GEARBOX OILS: DRAINING - FILLING



Note, one or more warnings are present in this procedure



Equipment required

torque wrench

oil change wrench

oil recovery tray

oil change end piece with an 8 mm square drive



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 21A, Manual gearbox, Gearbox assembly: Exploded view](#)).

Gearbox type	Capacity (litres)
PF6	2.7

1. PARTS AND CONSUMABLES FOR THE REPAIR

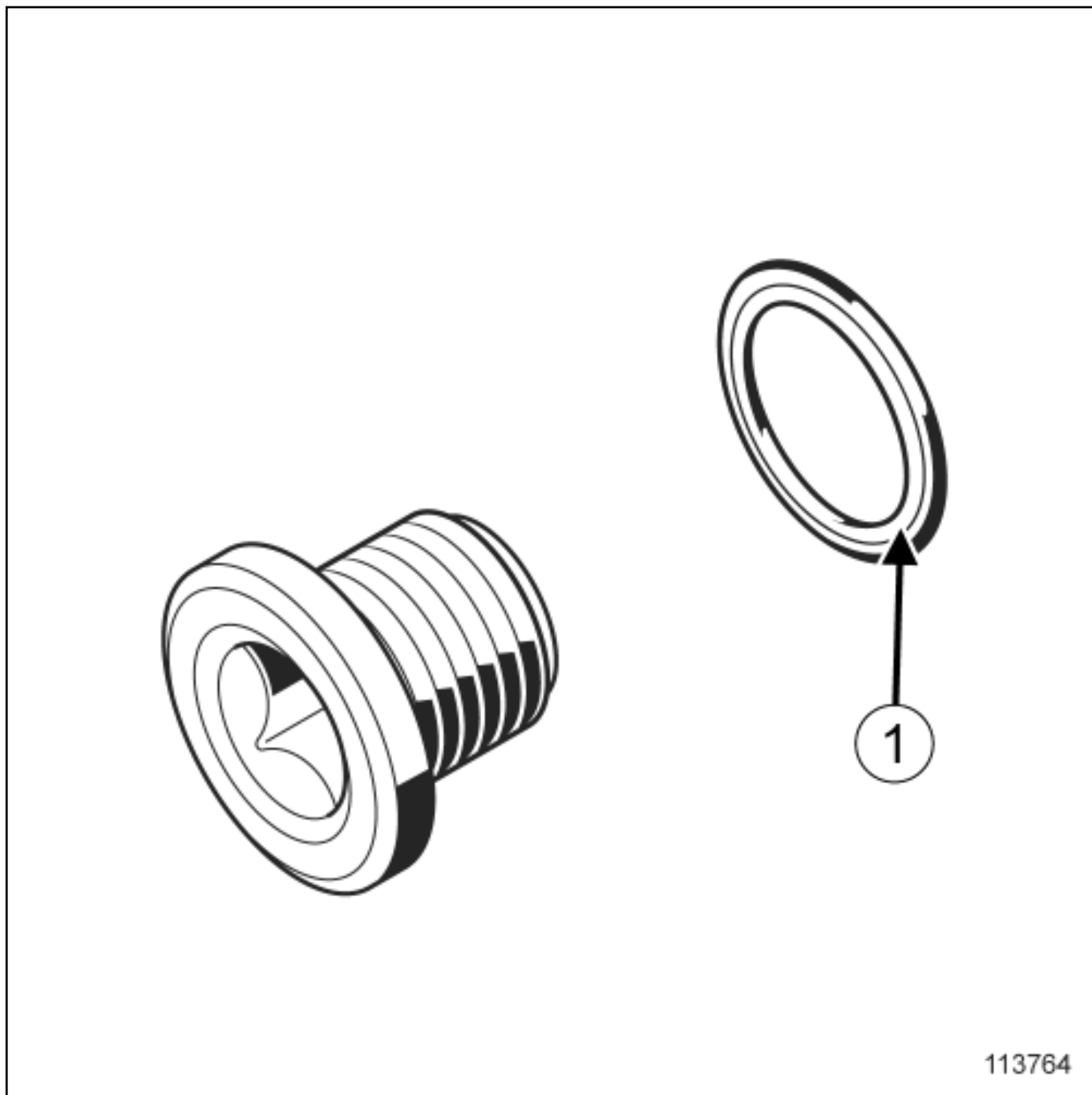
■ Consumables for repair:

- Manual gearbox oil AND (6-speed mechanical) 6-SPEED MANUAL GEARBOX (Technical Note 6012A, 04A, Lubricants).

2. DRAINING OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Remove the engine undertray.

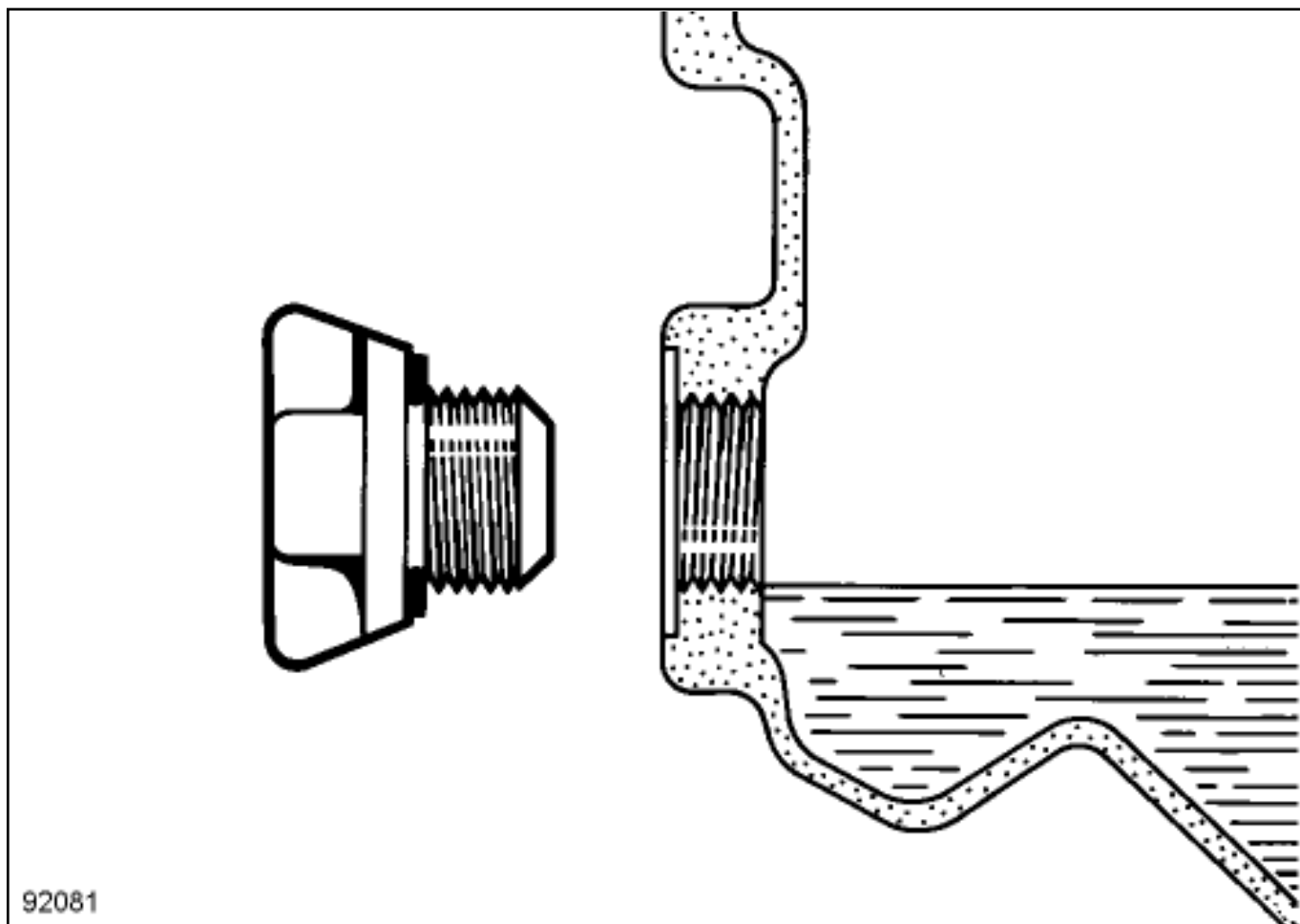
- ❑ Position the oil recovery tray under the gearbox.
- ❑ Remove the drain plug ([see 21A, Manual gearbox , Gearbox assembly: Exploded view](#)) using an oil change wrench .
- ❑ Let the oil run into the oil recovery tray.



- ❑ Refit a new seal on the drain plug with the groove(1) facing the plug.
- ❑ Refit the drain plug equipped with its new seal ([see 21A, Manual gearbox , Gearbox assembly: Exploded view](#)) using a torque wrench equipped with an oil change end piece with an 8 mm square drive.

3. FILLING

- Remove the filler cap([see 21A, Manual gearbox , Gearbox assembly: Exploded view](#)) .



- Fill the gearbox using a syringe containing recommended oil AND (6-speed mechanical) 6-SPEED MANUAL GEARBOX (Technical Note 6012A, 04A, Lubricants) until the oil overflows out of the filler cap hole.
- Refit the filler cap([see 21A, Manual gearbox , Gearbox assembly: Exploded view](#)) .
- Wipe any oil run-off with a cloth.
- Remove the oil recovery tray.
- Refit the engine undertray.



MANUAL GEARBOX: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Lower engine support.

Mot. 1672

Engine stand.

Mot. 1720

Conversion support studs for Mot.1720 tool

Mot. 2063

Equipment required

component jack

indelible pencil



parts always to be replaced:



Differential output seal

Clutch thrust bearing



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always replaced, etc.) [\(see 21A, Manual gearbox, Gearbox assembly: Exploded view\)](#) .



WARNING

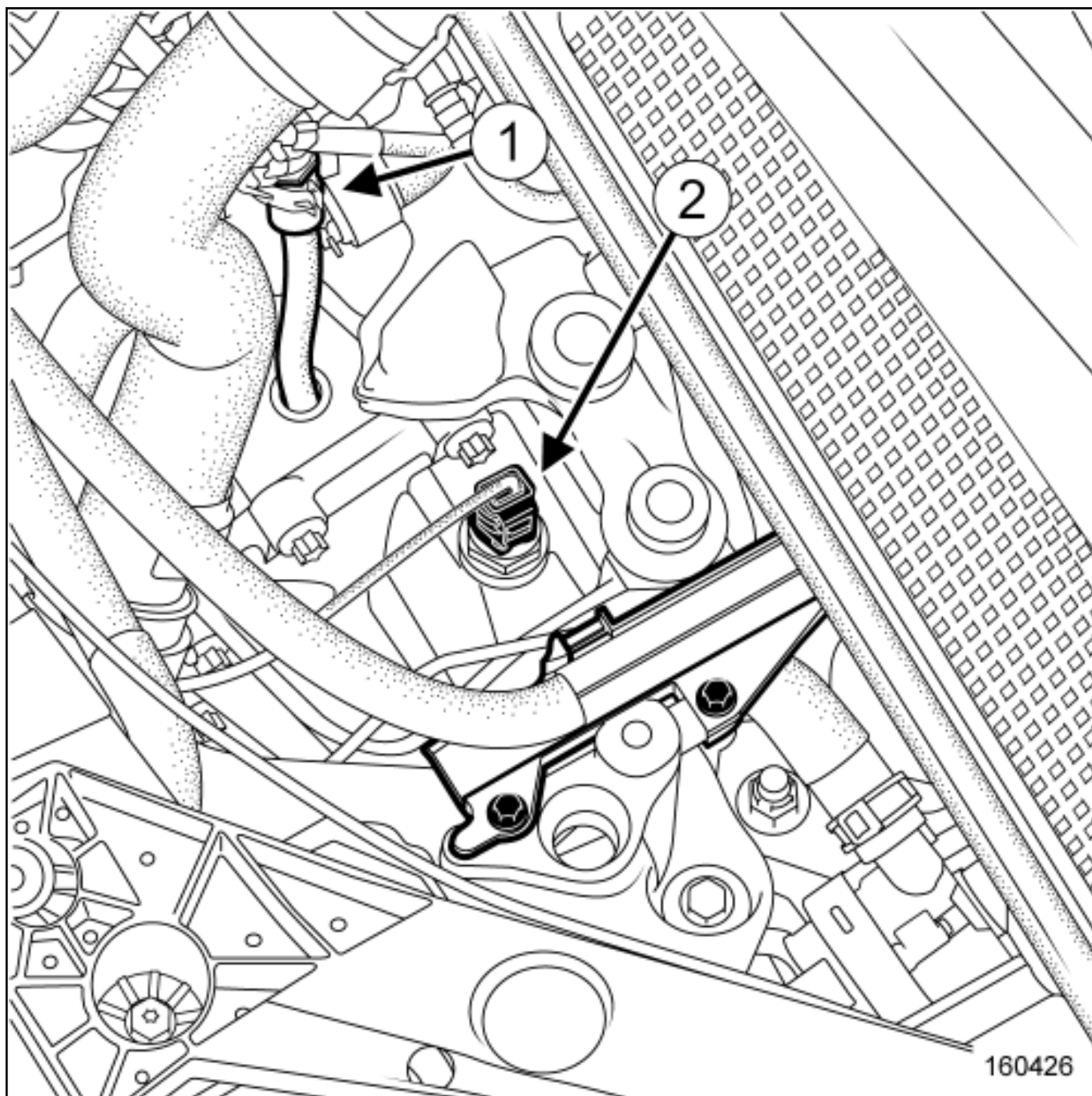
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

1. REMOVAL PREPARATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

■ Remove:

- the battery [Battery: Removal - Refitting](#) ,
- the battery tray [Battery tray: Removal - Refitting](#) .

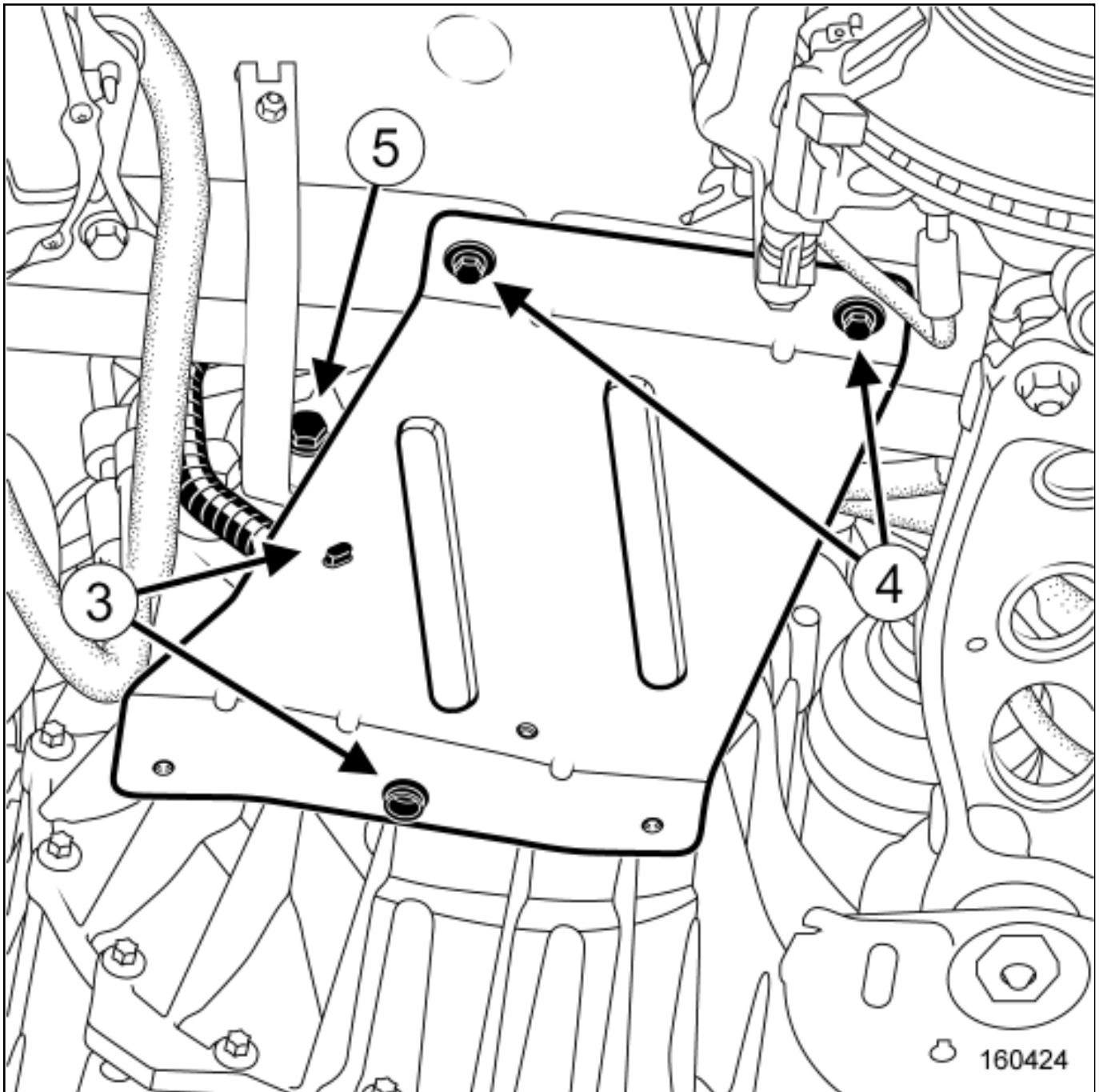


■ Unclip the gearbox breather pipe at(1) .

■ Disconnect the reverse gear switch connector(2) .

■ Remove:

- the engine undertray bolts,
- the engine undertray,
- the front wheels [Wheel: Removal - Refitting](#) ,
- the front section of the front left-hand wheel arch liner (see [Front wheel arch liner: Removal - Refitting](#)) ,
- the front bumper (see [Front bumper: Removal - Refitting](#)) ,
- the intercooler air inlet pipe [Air inlet assembly: Exploded view](#) .



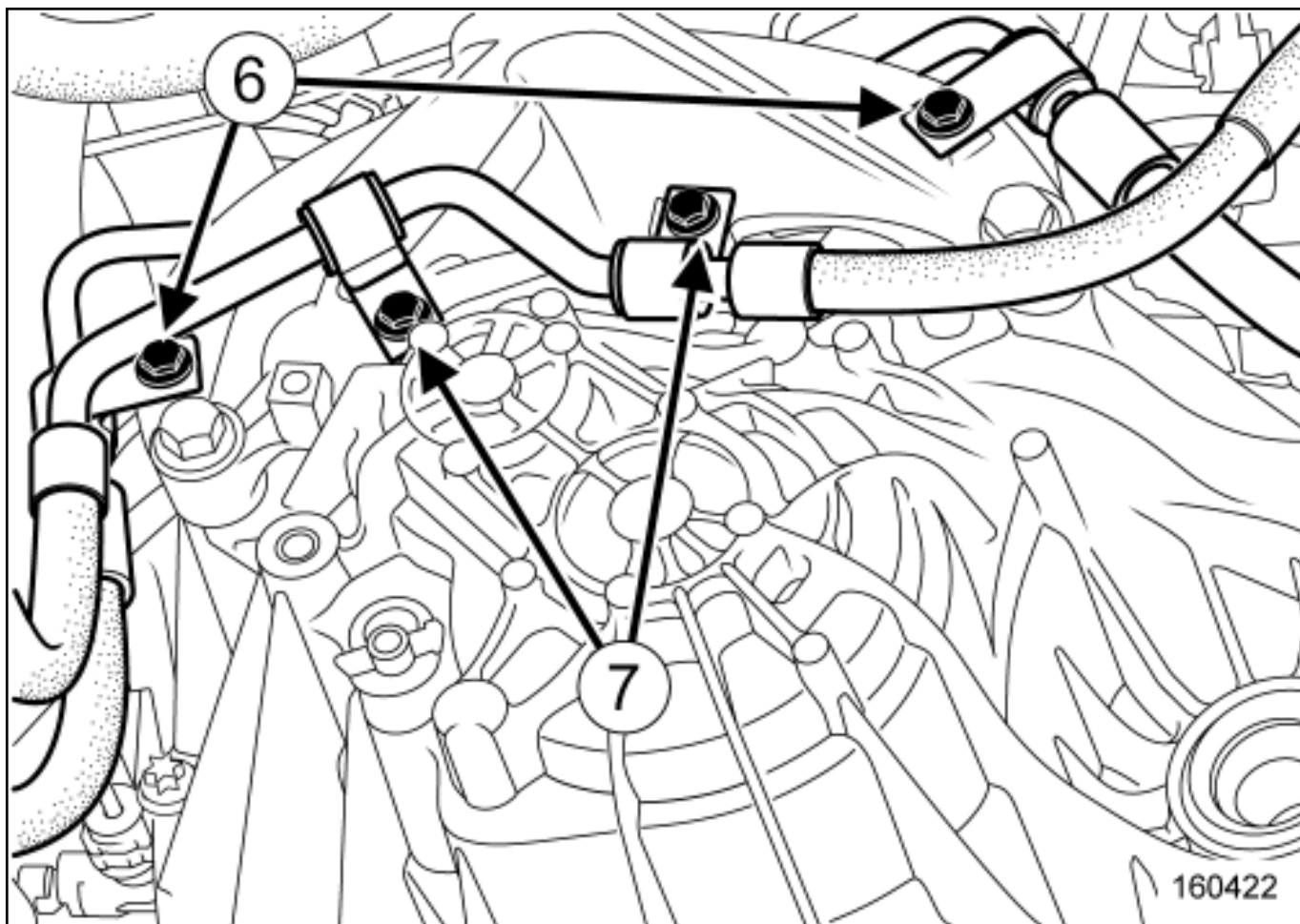
■ Unclip the battery acid drain pipe at(3) .

■ Remove:

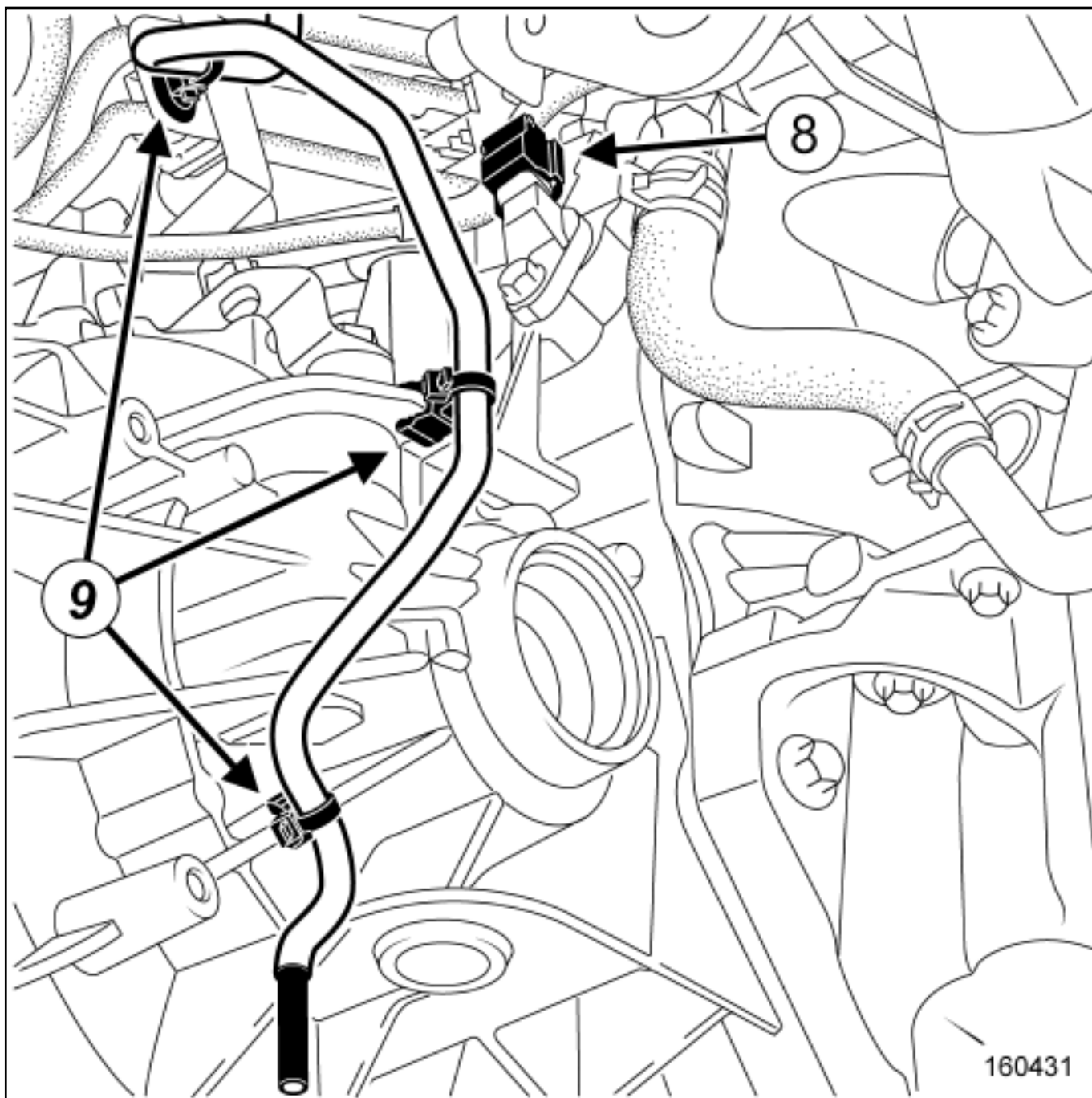
- the side reinforcement bolts(4) ,
- the left-hand side reinforcement.

■ Mark the position of the earth cable on the gearbox using a indelible pencil.

- Remove the gearbox earth cable bolt(5) .

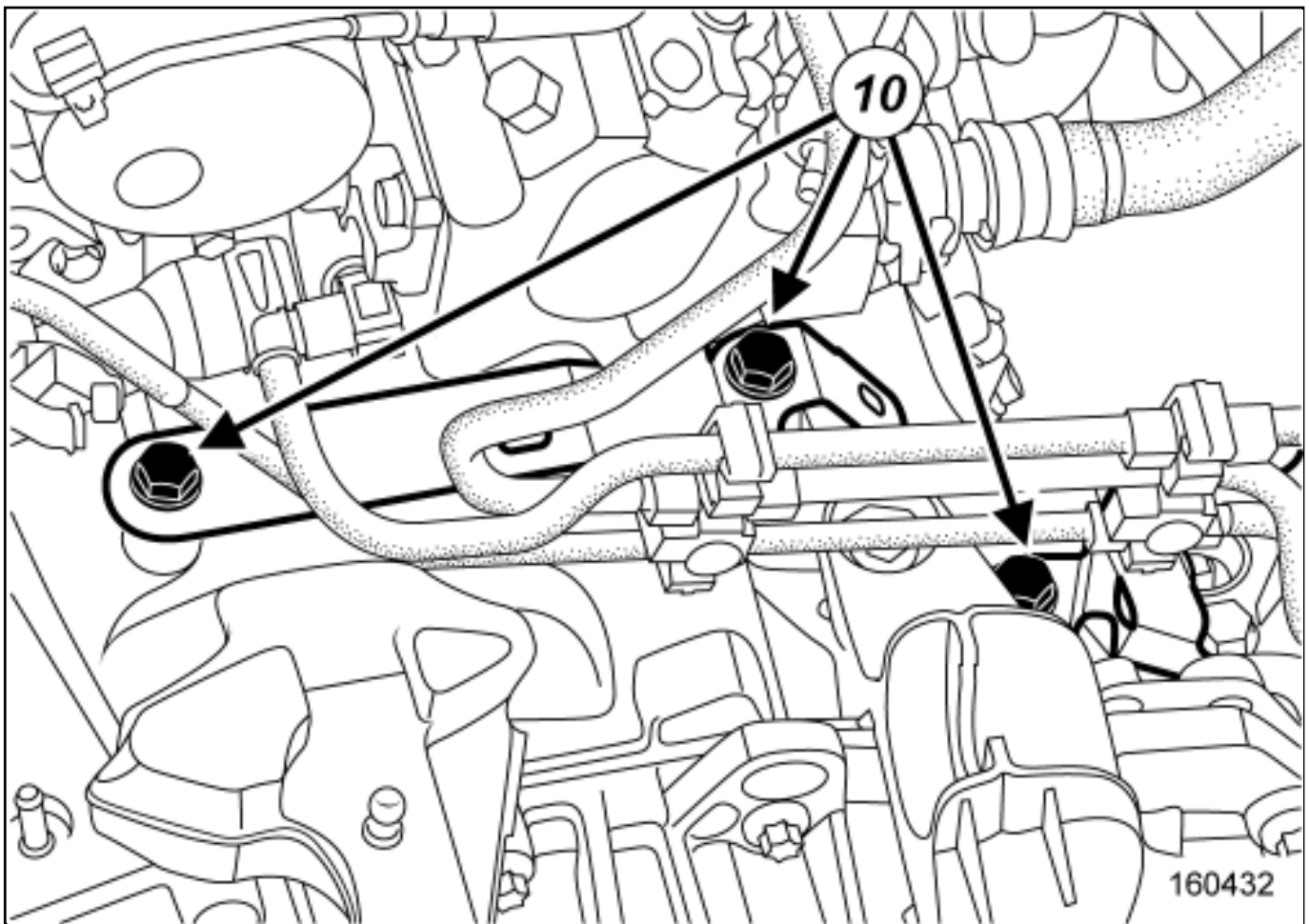


- Remove (see **Power-assisted steering assembly: Exploded view**) :
 - the power-assisted steering low pressure pipe bolts(6) ,
 - the power-assisted steering high pressure pipe bolts(7) on the gearbox.
- Move aside the power-assisted steering pipes.

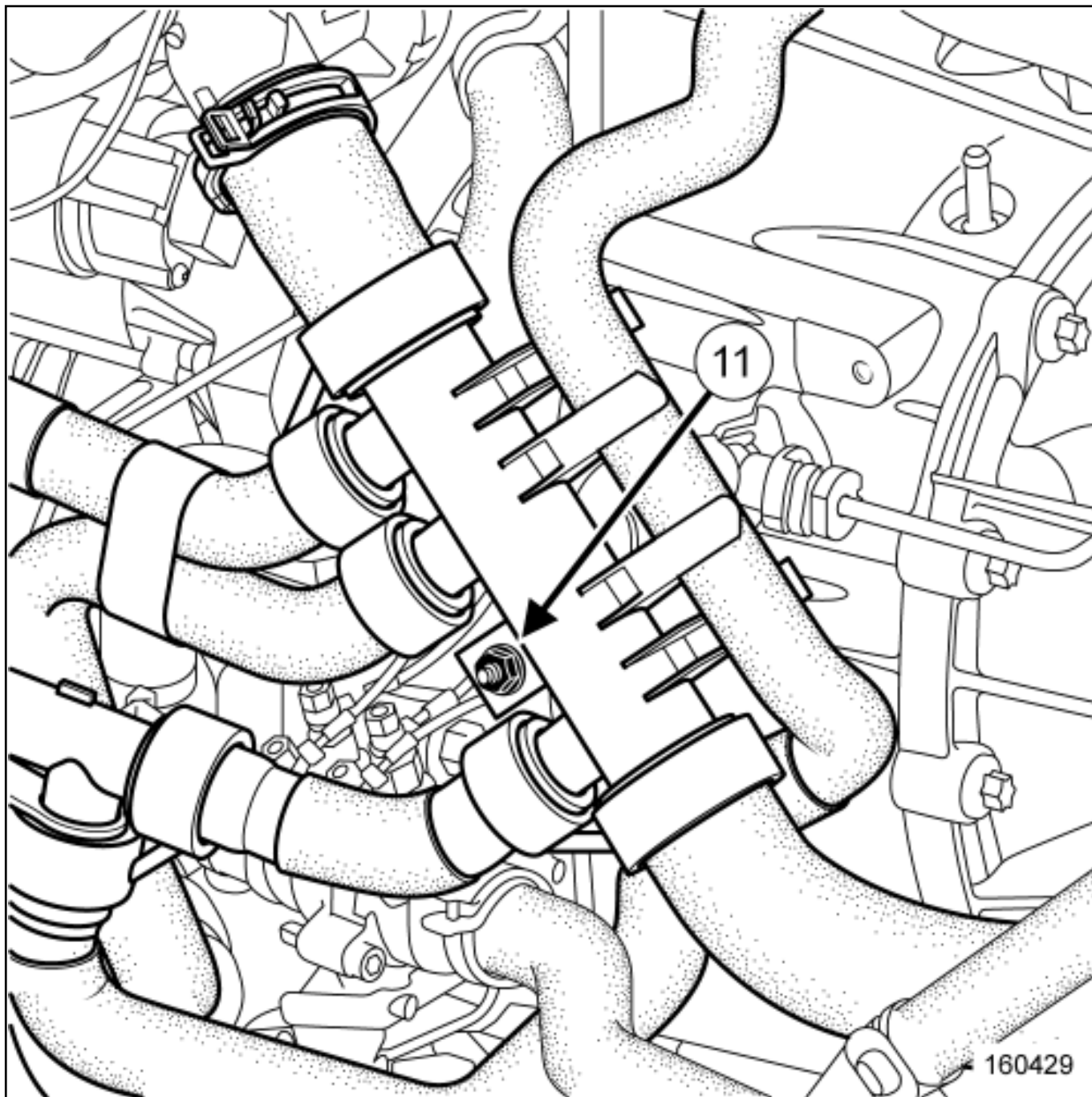


160431

- Disconnect the crankshaft position sensor connector(8) .
- Remove the crankshaft position sensor [Crankshaft position sensor: Removal - Refitting](#) .
- Unclip the pipe at(9) .

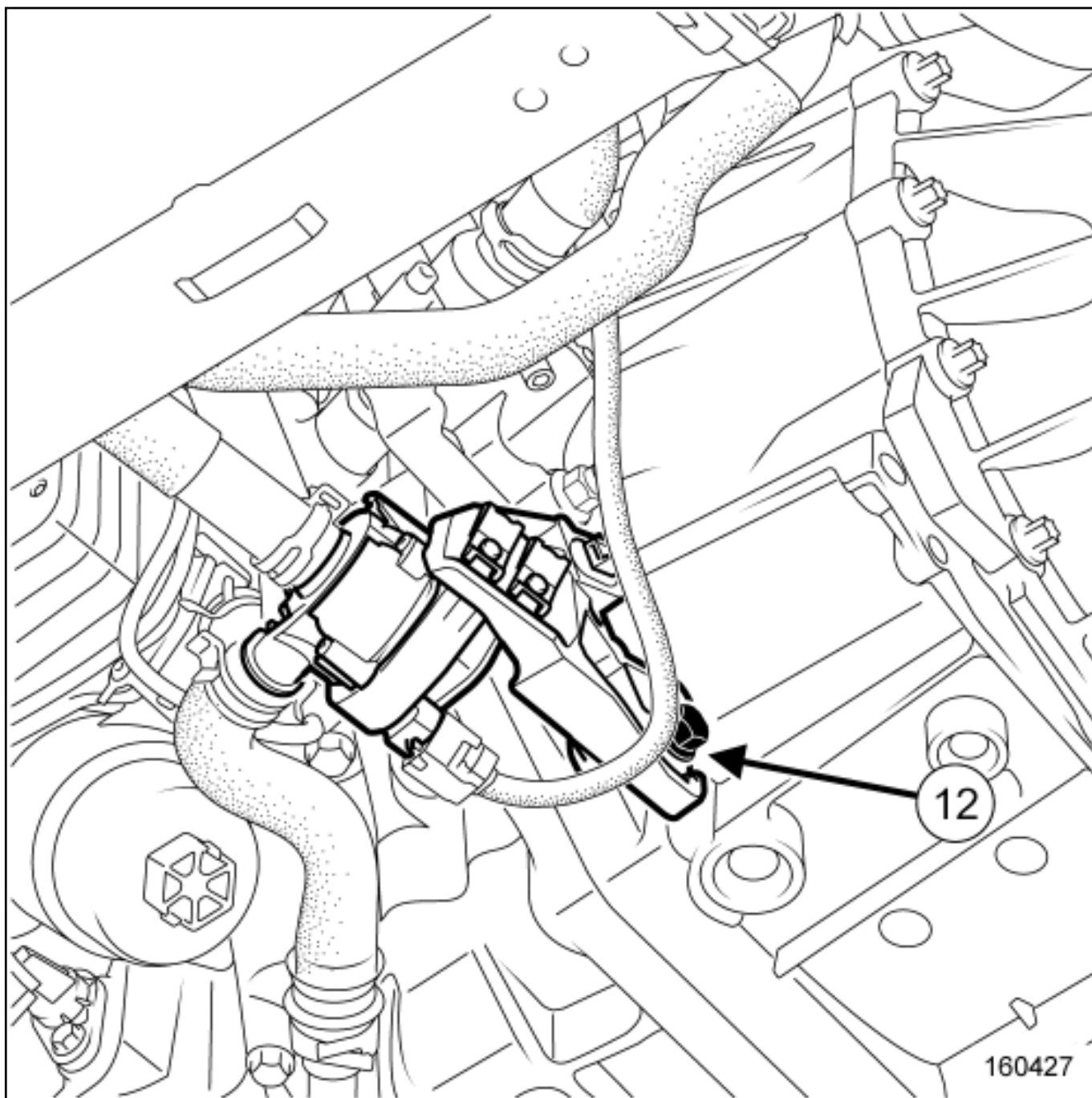


- Remove the bracket bolts of the hoses(10) .
- Move aside the bracket of the hoses.
- Remove the coolant rail on exhaust gas cooler outlet bolts [Coolant circuit assembly: Exploded view](#) .
- Move aside the coolant rail on exhaust gas cooler outlet.



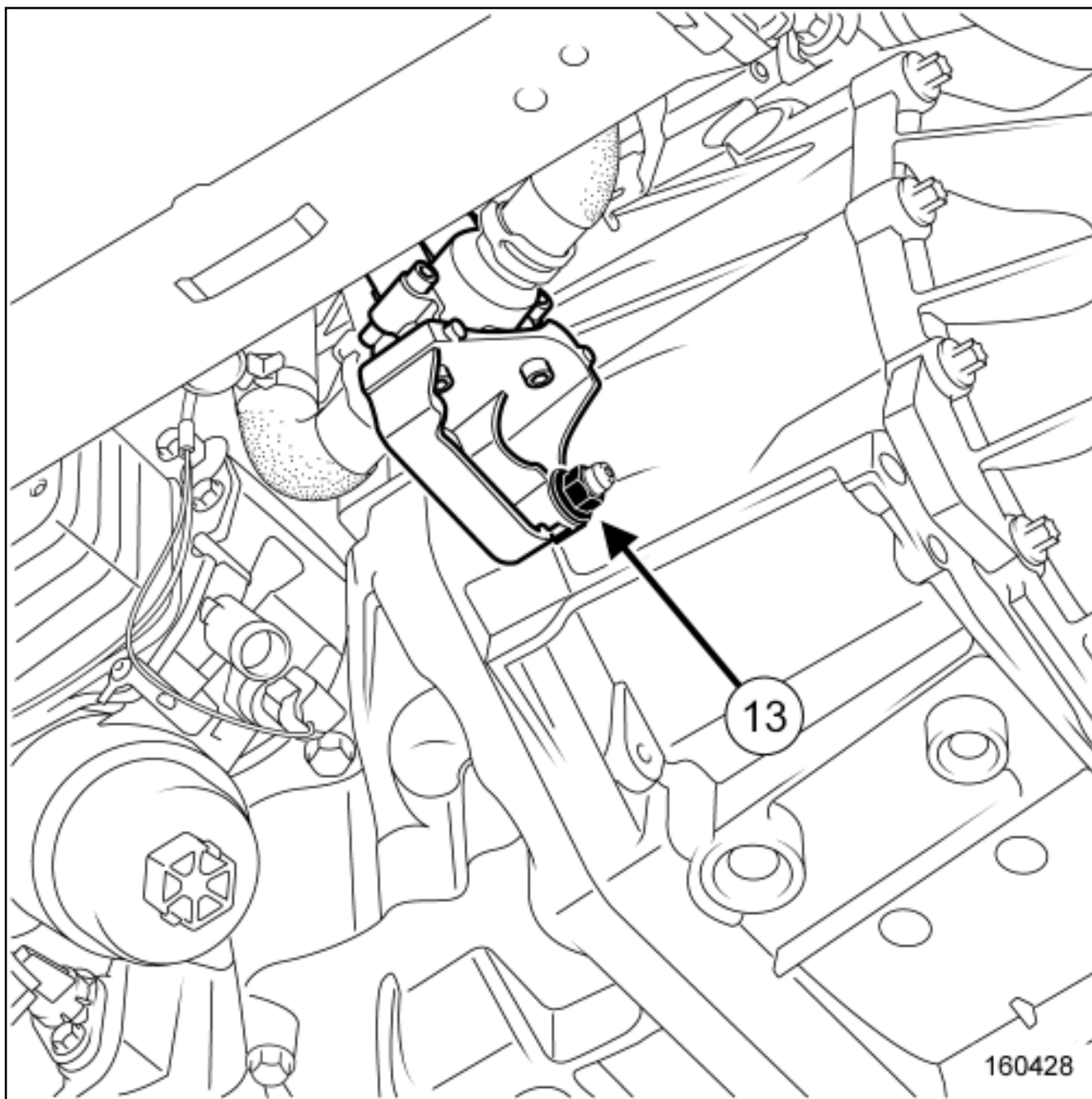
■ Remove the radiator outlet pipe nut(11) .

■ Move aside the radiator outlet pipe.



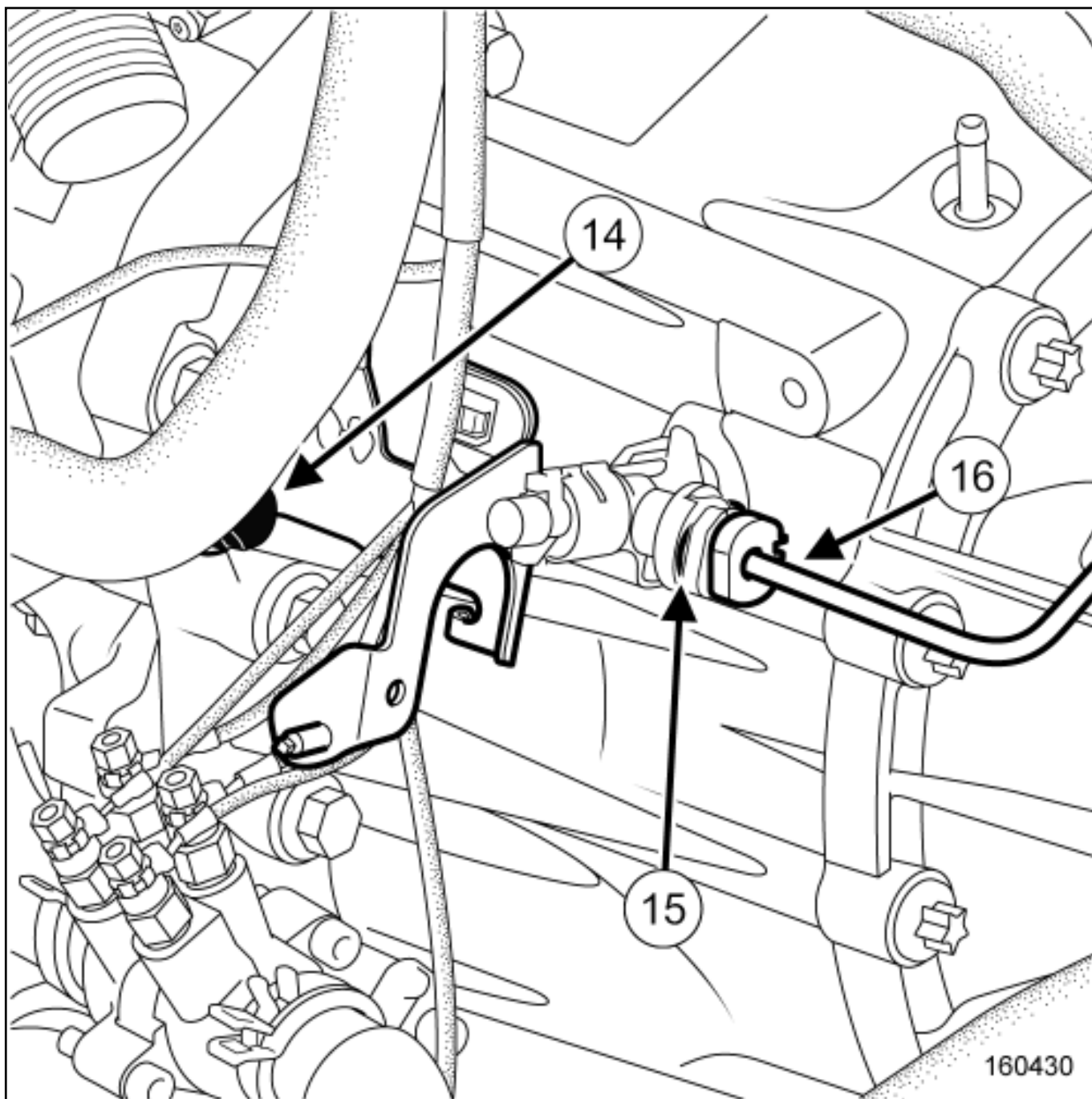
If the vehicle is equipped:

-
- remove the additional coolant pump unit support bolt(12) ,
- separate the additional coolant pump unit assembly from the gearbox.



Remove the nut(13) from the thermoplunger unit support.

Separate the thermoplunger unit support - thermoplunger unit assembly from gearbox.



Remove the wiring channel bolt(14) .

Move aside the wiring channel.

Unclip the clip(15) .

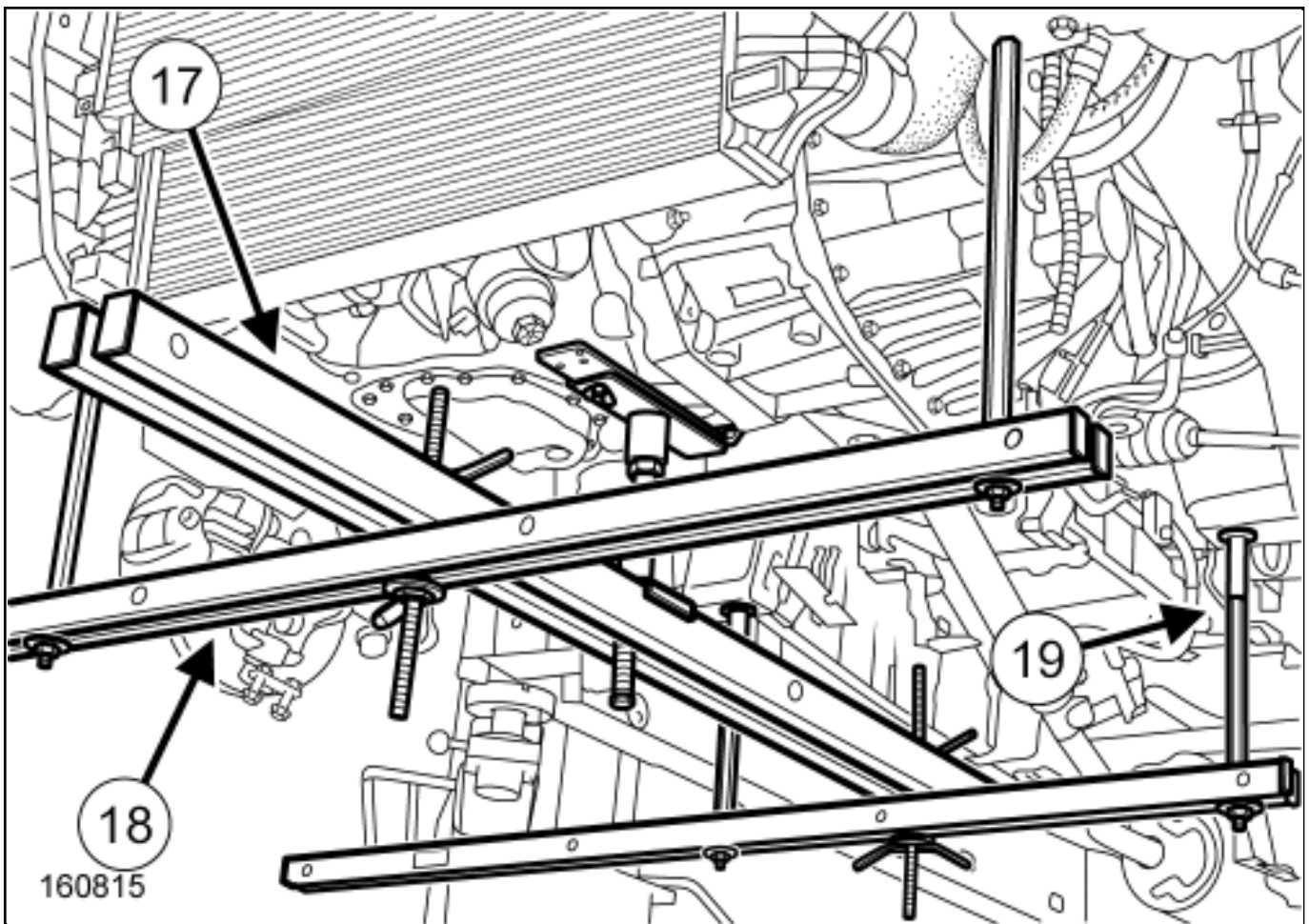
Disconnect the clutch pipe from the clutch slave cylinder(16) .

Fit blanking plugs into each opening.

Drain the manual gearbox([see 21A, Manual gearbox , Manual gearbox oils: Draining - Filling](#)) .

Remove:

-
- the front right-hand driveshaft[Front right-hand driveshaft: Removal - Refitting](#) ,
- the front left-hand driveshaft[Front left-hand driveshaft: Removal - Refitting](#) ,
- the lower engine tie-bar[Engine-gearbox unit support assembly: Exploded view](#) ,
- the front axle subframe[Front axle assembly: Exploded view](#) ,
- the starter bolts[Starter: Removal - Refitting](#) .



Fit the Lower engine support.(Mot. 1672) (17) fitted with Engine stand. (Mot. 1720) (18) and Conversion support studs for Mot.1720 tool(Mot. 2063) (19) .



Remove the left-hand suspended engine mounting [Engine-gearbox unit support assembly: Exploded view](#) .

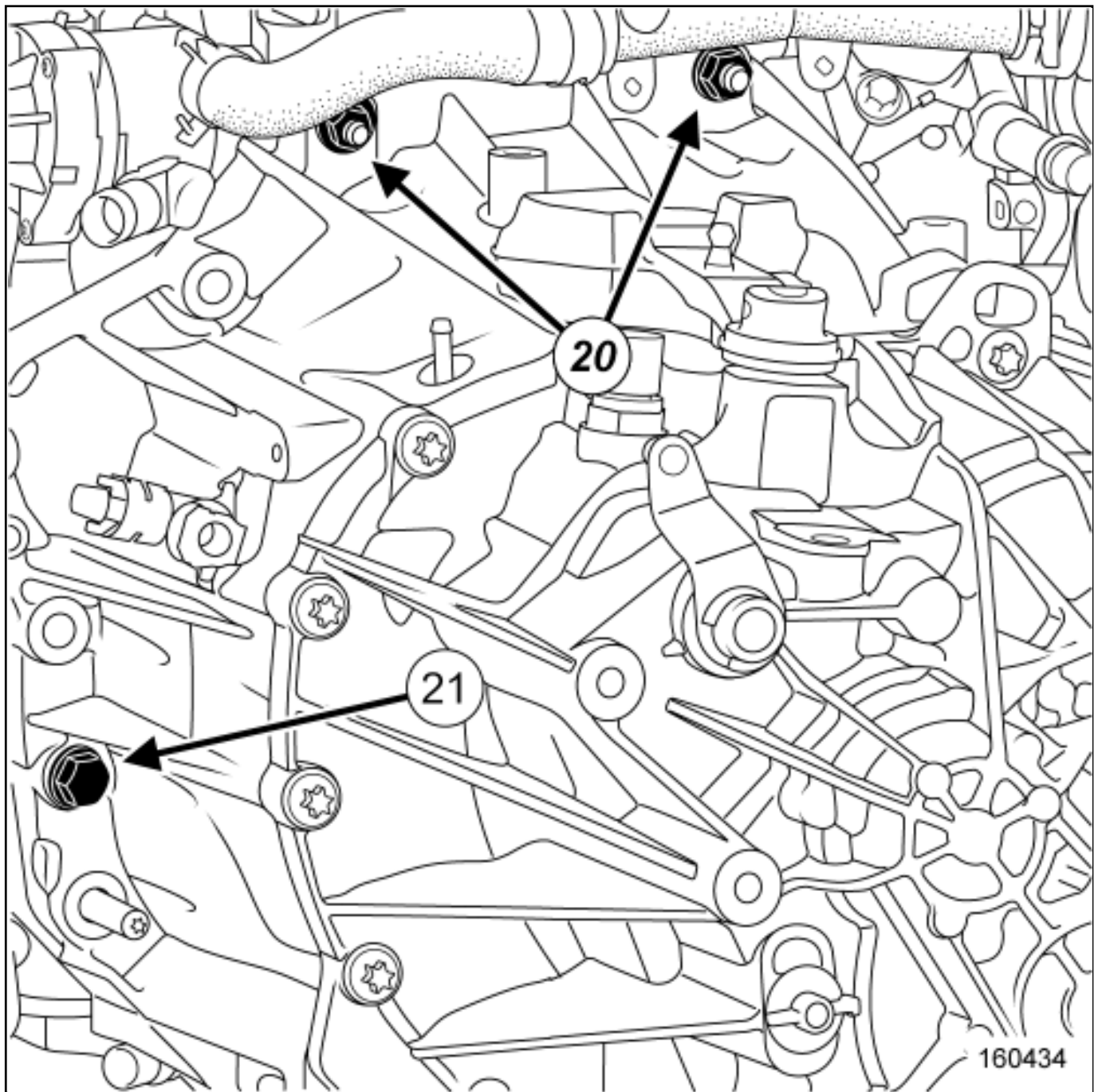
2. REMOVAL OPERATION



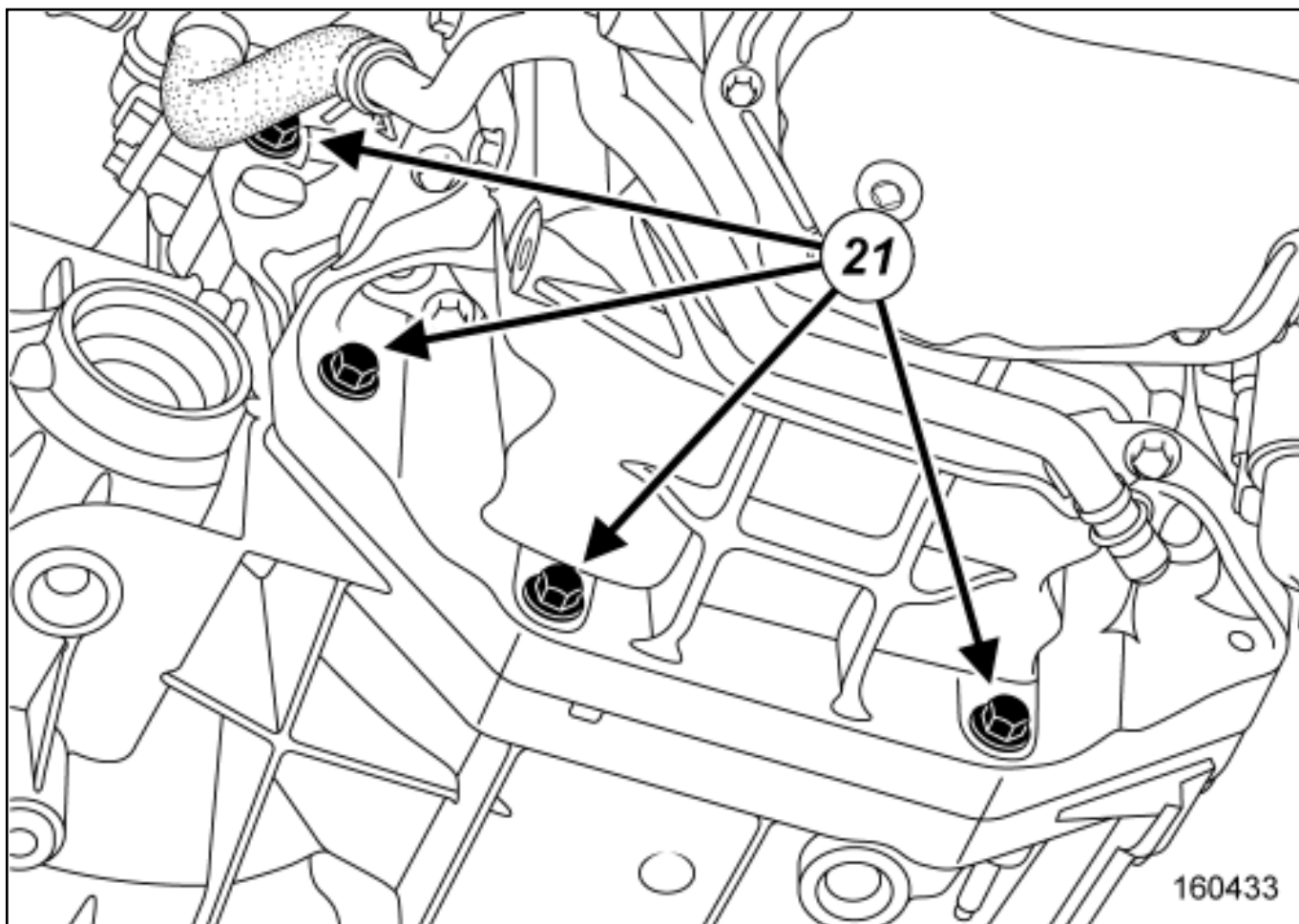
Lower the engine - gearbox assembly using the Engine stand. (Mot. 1720) .



Fit a component jack beneath the manual gearbox.



160434



Remove:

-
- the gearbox nuts(20) ,
- the gearbox bolts(21) ,
- the manual gearbox using the component jack.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:
[output seal: Removal - Refitting](#) .

[Differential output seal](#)

([see 21A, Manual gearbox , Differential](#)



parts always to be replaced:

[Clutch thrust bearing](#)

[Clutch assembly: Exploded view](#) .



CAUTION

To avoid damaging the slave cylinder, do not coat the gearbox output shaft with grease.



CAUTION

Do not grease the clutch shaft splines.



Check that there are centring rings in place on the manual gearbox.

1- IF REPLACING THE MANUAL GEARBOX



Refit:



the reverse gear switch([see 21A, Manual gearbox , Reverse gear switch: Removal - Refitting](#)) ,



the crankshaft position sensor[Engine and transmission assembly sensors: List and location of components](#) .

2. REFITTING OPERATION



Refit:



- a new clutch thrust bearing [Clutch assembly: Exploded view](#) ,

- the manual gearbox using the component jack,

- the gearbox nuts [\(see 21A, Manual gearbox , Gearbox assembly: Exploded view\)](#) ,

- the gearbox bolts [\(see 21A, Manual gearbox , Gearbox assembly: Exploded view\)](#) ,

- the starter bolts [Starter: Removal - Refitting](#) .

Remove the component jack from the manual gearbox.

Torque tighten:

- the thermoplunger unit support nut 44 N.m,

- the additional coolant pump unit support bolt 21 N.m, if the vehicle is equipped with it.

- the manual gearbox earth cable bolt 44 N.m.

3. FINAL OPERATION

Proceed in the reverse order to removal.

Perform the following operations:

- fill up the manual gearbox [\(see 21A, Manual gearbox , Manual gearbox oils: Draining - Filling\)](#) ,

- bleed the clutch circuit [Clutch circuit: Bleed](#) .



MANUAL GEARBOX: REPAIR



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 21A, Manual gearbox , Manual gearbox: Precautions for the repair](#)) .

REMOVAL

1. REPAIR PREPARATION OPERATION

- Remove the gearbox [Manual gearbox: Removal - Refitting](#) (See 21A, Manual gearbox: Removal - Refitting).
- Position the gearbox on the component support ([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .

2. REMOVAL OPERATION

- Remove:
 - the mechanism housing ([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) ,
 - the gearbox shafts ([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,
 - the differential ([see 21A, Manual gearbox , Manual gearbox differential: Removal - Refitting](#)) .

3. REPAIR OPERATION

- Strip:

- the input shaft([see 21A, Manual gearbox , Input shaft: Stripping - Rebuilding](#)) ,
- the output shafts([see 21A, Manual gearbox , Output shaft: Stripping - Rebuilding](#)) .

- Remove:
 - the differential bearings([see 21A, Manual gearbox , Manual gearbox differential bearing: Removal - Refitting](#)) ,
 - the bearings of the mechanism housing([see 21A, Manual gearbox , Mechanism housing bearing: Removal - Refitting](#)) ,
 - the bearings of the clutch housing([see 21A, Manual gearbox , Clutch housing bearing: Removal - Refitting](#)) ,
 - the fork shaft rings([see 21A, Manual gearbox , Fork shaft bearing: Removal - Refitting](#)) .
- Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) to clean all of the removed parts.
- Check ([see 21A, Manual gearbox , Manual gearbox: Check](#)) :
 - the pinions (teeth, claws, friction cone, inner wall),
 - the synchroniser hubs,
 - the synchroniser rings,
 - the bearings.
- Replace worn or damaged parts.

REFITTING

1. REFITTING PREPARATION OPERATION

- Parts always to be replaced:
 - the differential outlet seals,
 - the input shaft output seal,
 - the clutch hydraulic slave cylinder,
 - the pins,
 - the circlips,
 - the selector shaft rings,
 - the fork shaft rings,
 - the selector shaft rings.

2. REFITTING OPERATION



Refit:

-
- the fork shaft rings([see 21A, Manual gearbox , Fork shaft bearing: Removal - Refitting](#)) ,
- the bearings of the clutch housing([see 21A, Manual gearbox , Clutch housing bearing: Removal - Refitting](#)) ,
- the bearings of the mechanism housing([see 21A, Manual gearbox , Mechanism housing bearing: Removal - Refitting](#)) ,
- the differential bearings([see 21A, Manual gearbox , Manual gearbox differential bearing: Removal - Refitting](#)) .



Rebuild:

-
- the output shafts([see 21A, Manual gearbox , Output shaft: Stripping - Rebuilding](#)) ,
- the input shaft([see 21A, Manual gearbox , Input shaft: Stripping - Rebuilding](#)) .



Refit:

-
- the differential([see 21A, Manual gearbox , Manual gearbox differential: Removal - Refitting](#)) ,
- the gearbox shafts([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,
- the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .

3. FINAL OPERATION



Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .

Refit the gearbox [Manual gearbox: Removal - Refitting](#) .



Repair-12x01-01x22-1-4-1.xml



XSL version : 3.02 du 22/07/11

MASTER CYLINDER: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 37A, Mechanical component controls, Braking control assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

▣ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [Brake circuit: Precautions for the repair](#) ,
- [Vehicle: Precautions for the repair](#) .



CAUTION

Always replace the master cylinder if it is dropped or in the event of an impact (risk of malfunction).



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

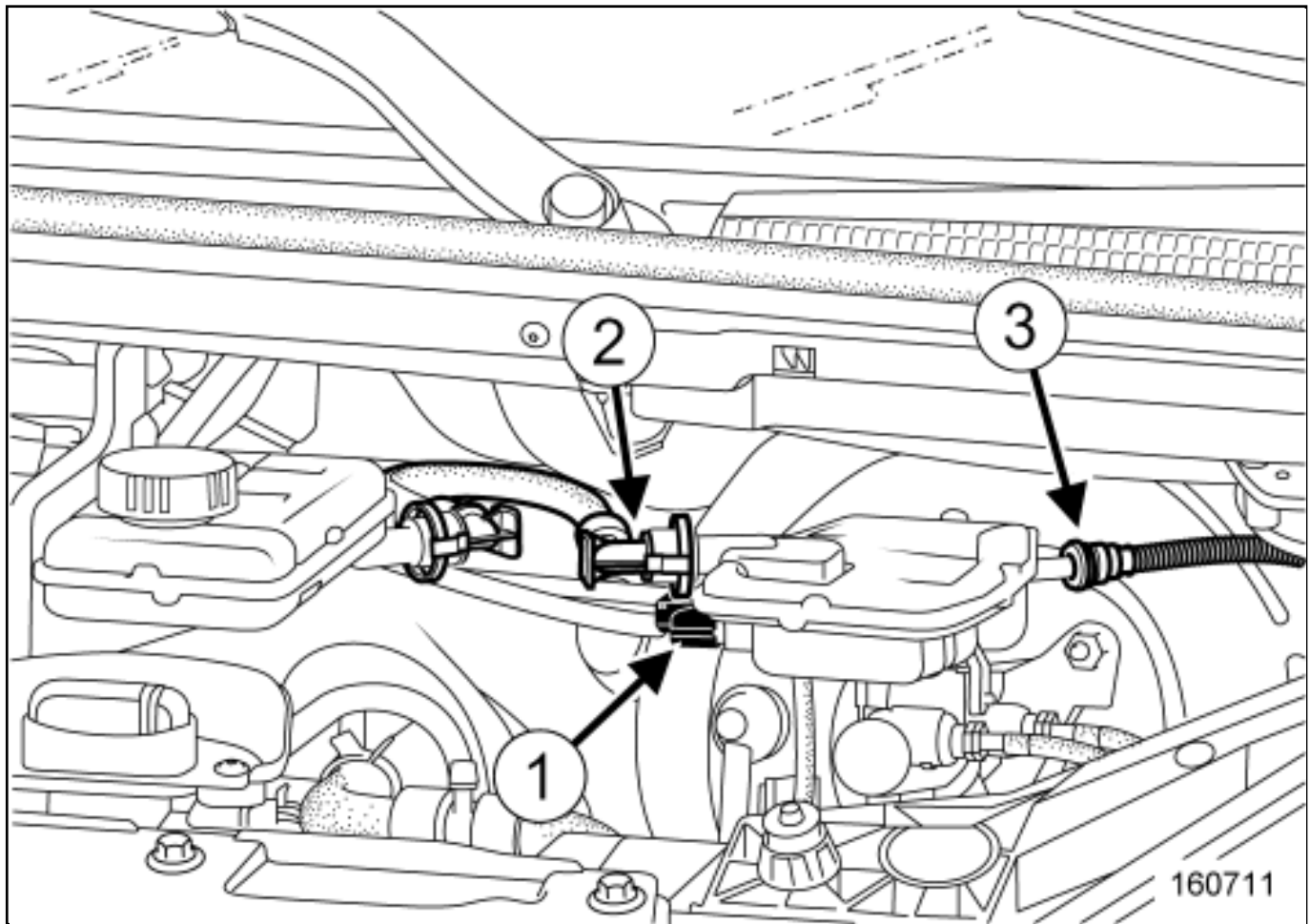
REMOVAL

1. REMOVAL PREPARATION OPERATION



Disconnect the battery [Battery: Removal - Refitting](#) .

Place a container under the master cylinder to collect the brake fluid.



Disconnect the brake fluid level sensor connector(1) .

Unclip the brake fluid pipe at(2)

Attach the brake fluid pipe to the body.

Fit blanking plugs in the openings.

Disconnect the supply pipe from the clutch master cylinder(3) ([see 37A, Mechanical component controls, Braking control assembly: Exploded view](#)) .



Fit blanking plugs in the openings.

2. REMOVAL OPERATION



Remove ([see 37A, Mechanical component controls, Braking control assembly: Exploded view](#)) :



the rigid pipe unions,



the master cylinder.



Drain the brake fluid reservoir.



Remove the brake fluid reservoir from the master cylinder([see 37A, Mechanical component controls, Braking control assembly: Exploded view](#)) .



Fit blanking plugs in the openings.

REFITTING



Proceed in the reverse order to removal.



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.



Torque tighten([see 37A. Mechanical component controls. Braking control assembly: Exploded view](#)):



the nuts on the brake servo,



the rigid brake pipe unions on the master cylinder.



Bleed the braking circuit [Braking circuit: Bleed](#) .



Repair-13x03x01x09-01x37-1-59-1.xml



XSL version : 3.02 du 22/07/11

MECHANISM HOUSING BEARING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Housing support.	Bvi. 1417
Adjustable support for fitting bearings.	Bvi. 1418
Tool for fitting the bearing cage into the housing.	Bvi. 1419
Tool kit for PF gearbox operations.	Bvi. 1510
Tool kit for repairing gearboxes.	Bvi. 1722
Bearing outer race fitting tool.	Bvi. 1762



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

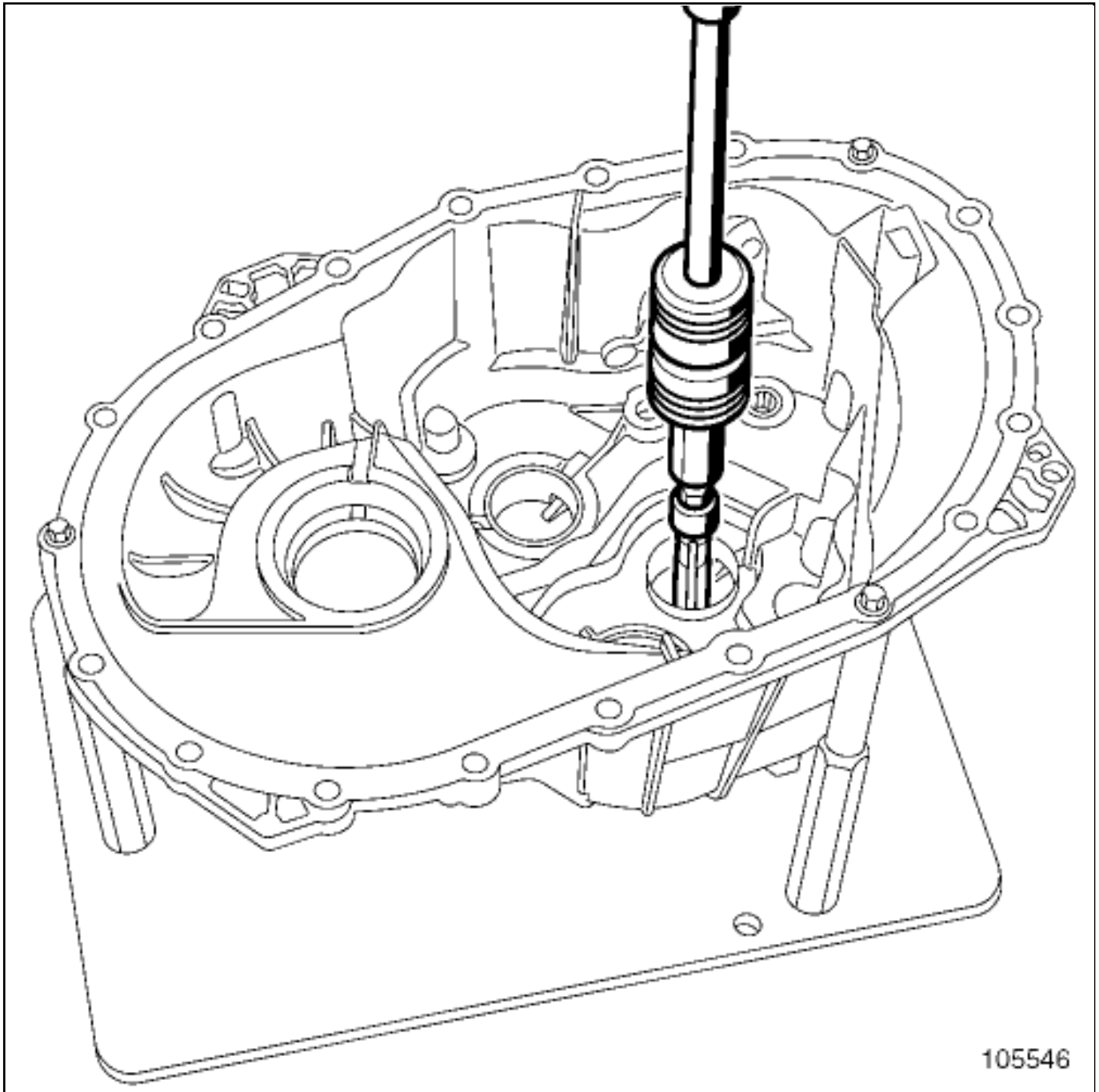
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 21A, Manual gearbox , Manual gearbox: Precautions for the repair](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

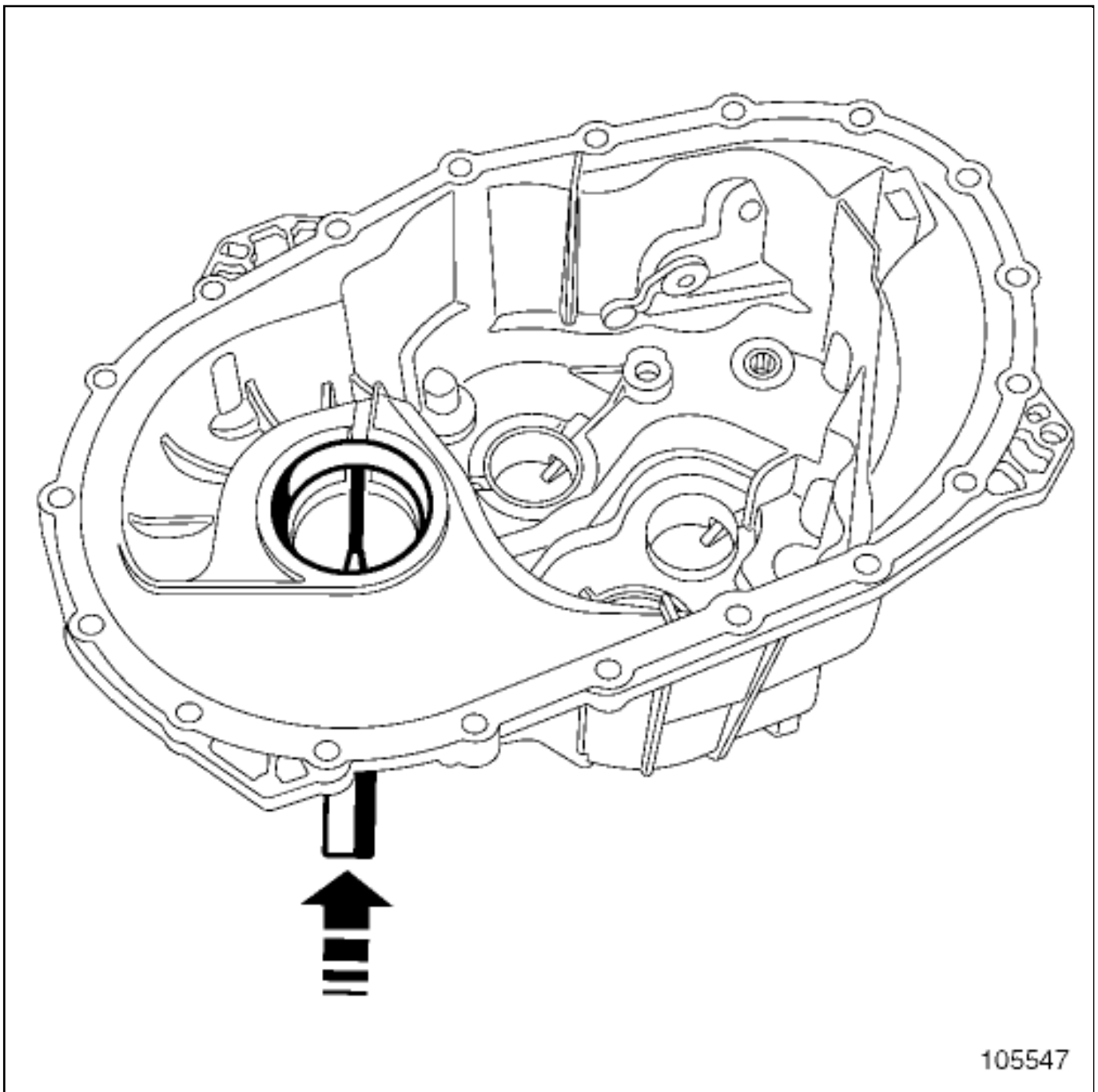
- Remove the gearbox [Manual gearbox: Removal - Refitting](#) .
- Remove the mechanism housing ([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .

2. OPERATION FOR REMOVAL OF PART CONCERNED



105546

- Remove the three bearing cups on the input and output shafts, using a 42 - 50 - 55 mm diameter slide hammer with mandrels.
- Mark, and be sure not to mix up the adjusting shims positioned under the cups.



Remove the differential bearing cups using a roll pin punch.

REFITTING

1. REFITTING PREPARATION OPERATION

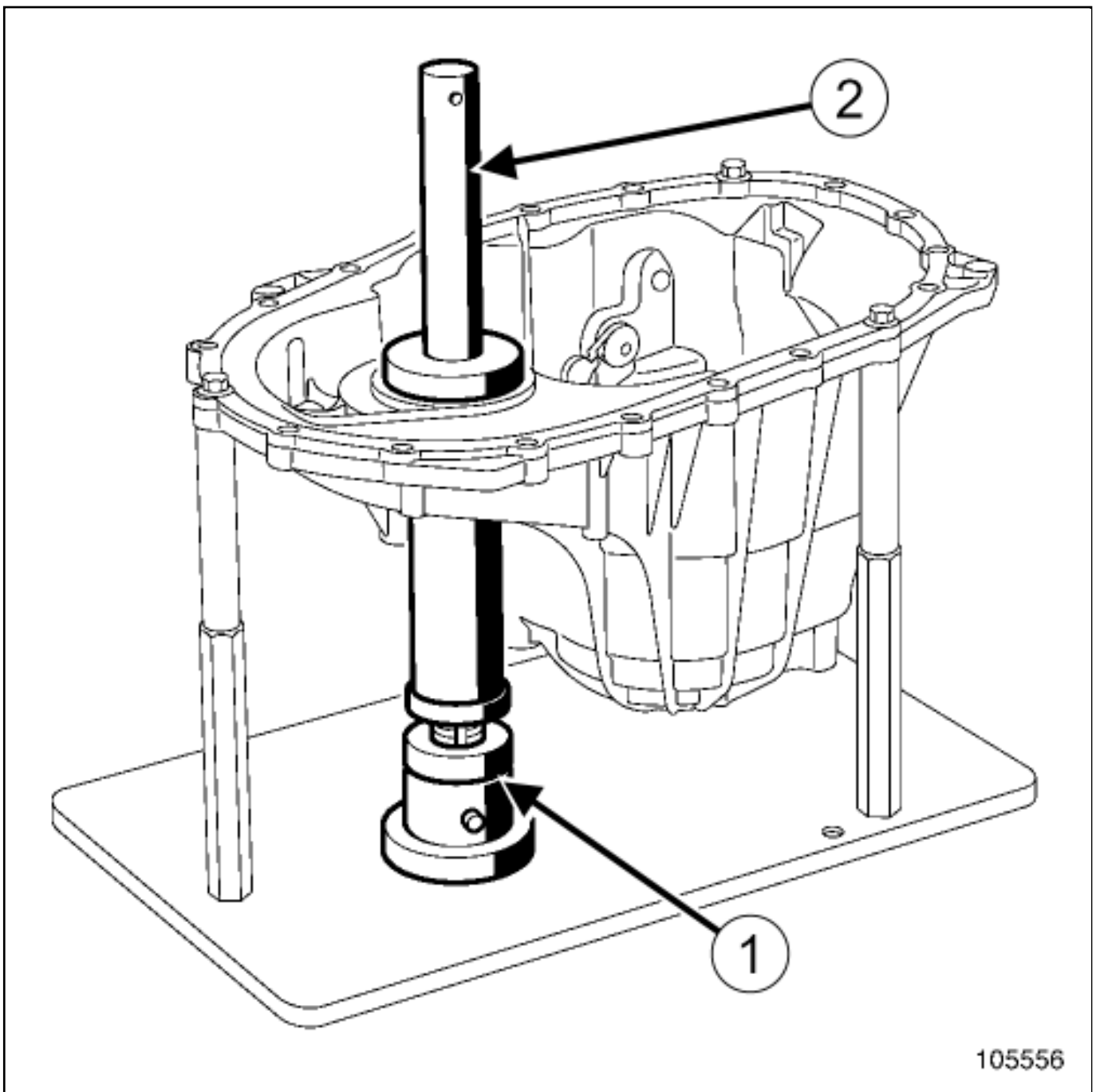
Use **SURFACE CLEANER** [Vehicle: Parts and consumables for the repair](#) to clean:

-
- the bearing mating faces in the mechanism housing,
- the mechanism housing,
- the shafts.

Parts always to be replaced:

-
- the removed bearings,
- the differential outlet seals,
- the input shaft output seal,
- the pins,
- the circlips,
- the hydraulic clutch slave cylinder.

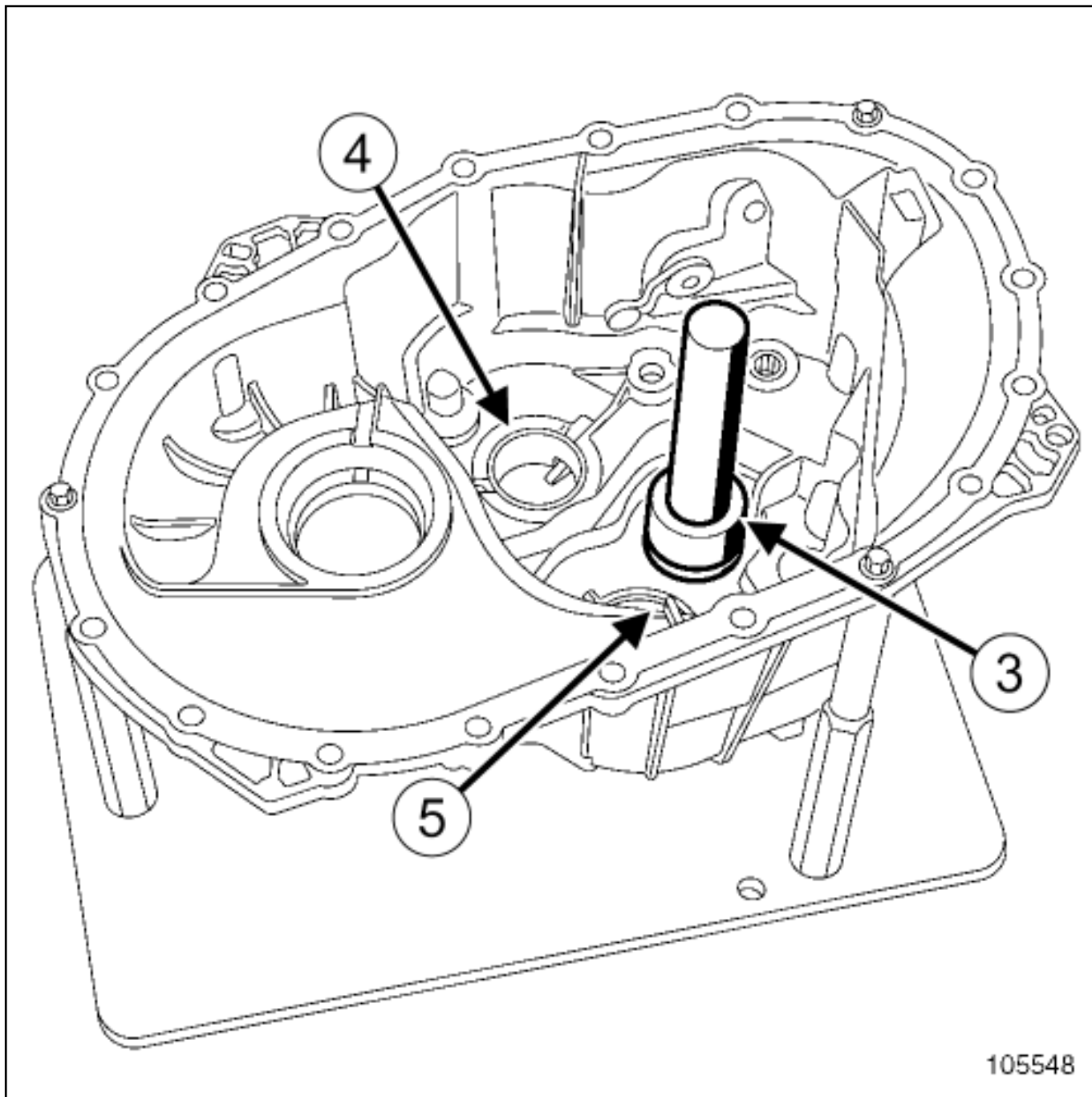
2. REFITTING OPERATION FOR PART CONCERNED



105556

Mount Adjustable support for fitting bearings.(Bvi. 1418) (1) under the mechanism housing.

Fit the differential bearing cup using the toolTool kit for repairing gearboxes.(Bvi. 1722) suffix T (2) .



105548



Position the tool Adjustable support for fitting bearings.(Bvi. 1418) under the corresponding mechanism housing for each shaft line.



Position the adjusting shims corresponding to each shaft line.



Refit:

■
the bearing cups for the input shaft and the short output shaft using the toolTool for fitting the bearing cage into the housing.([Bvi. 1419](#)) at (3) and (4) ,

■
the bearing cup for the long output shaft using the toolTool kit for repairing gearboxes.([Bvi. 1722](#)) suffix S (5) .

3. FINAL OPERATION

■
Refit the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .

■
Refit the gearbox[Manual gearbox: Removal - Refitting](#) .



Repair-12x01x04x13-01x37-1-11-1.xml



XSL version : 3.02 du 22/07/11

MECHANISM HOUSING: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Socket for removing/refitting reverse gear switch

Bvi. 1934



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions ([see 21A, Manual gearbox, Manual gearbox: Precautions for the repair](#))



Note:

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair ([see 21A, Manual gearbox, Manual gearbox: Precautions for the repair](#))

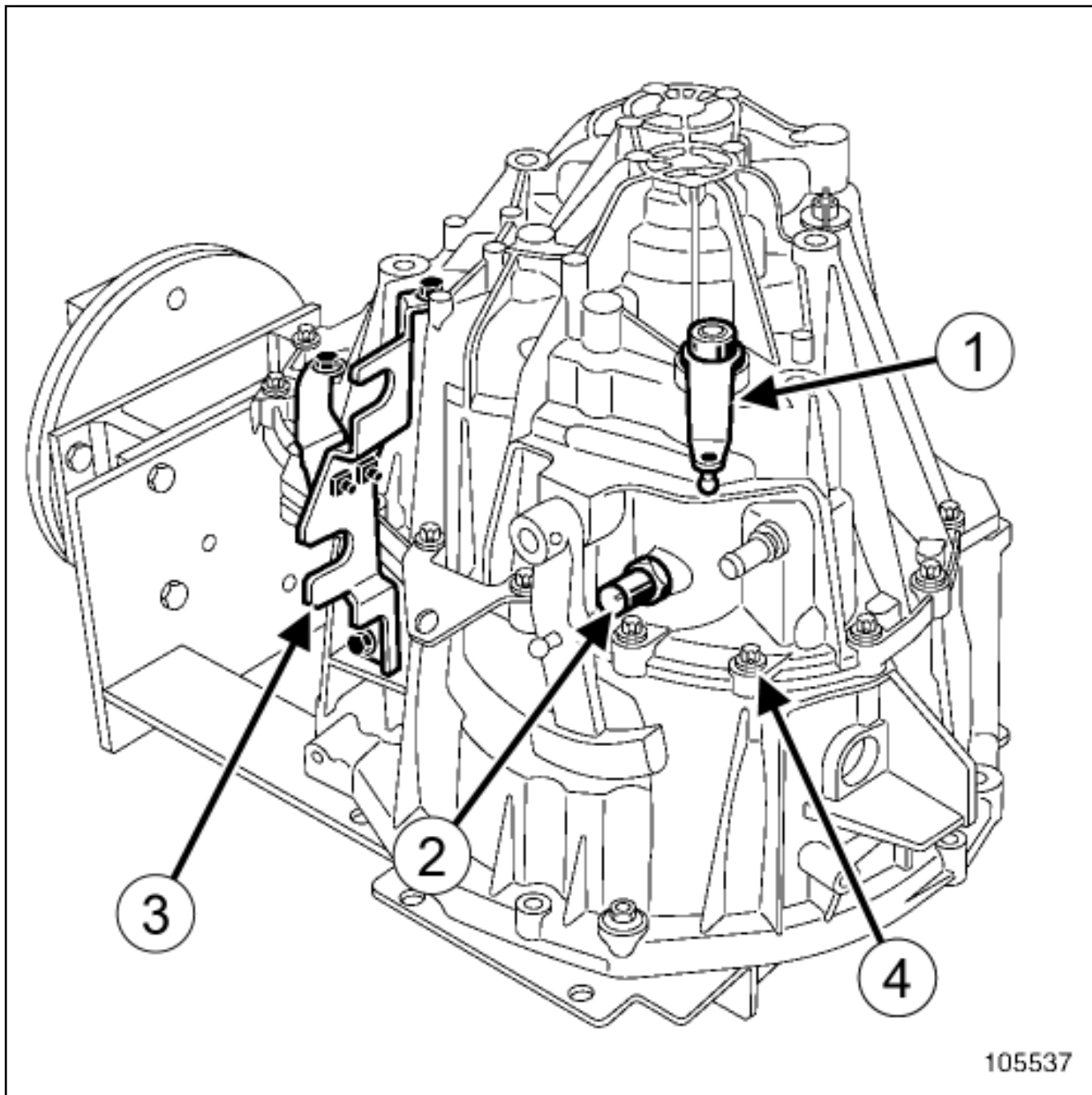
REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the manual gearbox ([Manual gearbox: Removal - Refitting](#)).
- Position the gearbox on the component support ([see 21A, Manual gearbox, Gearbox support equipment: Use](#)).

2. OPERATION FOR REMOVAL OF PART CONCERNED

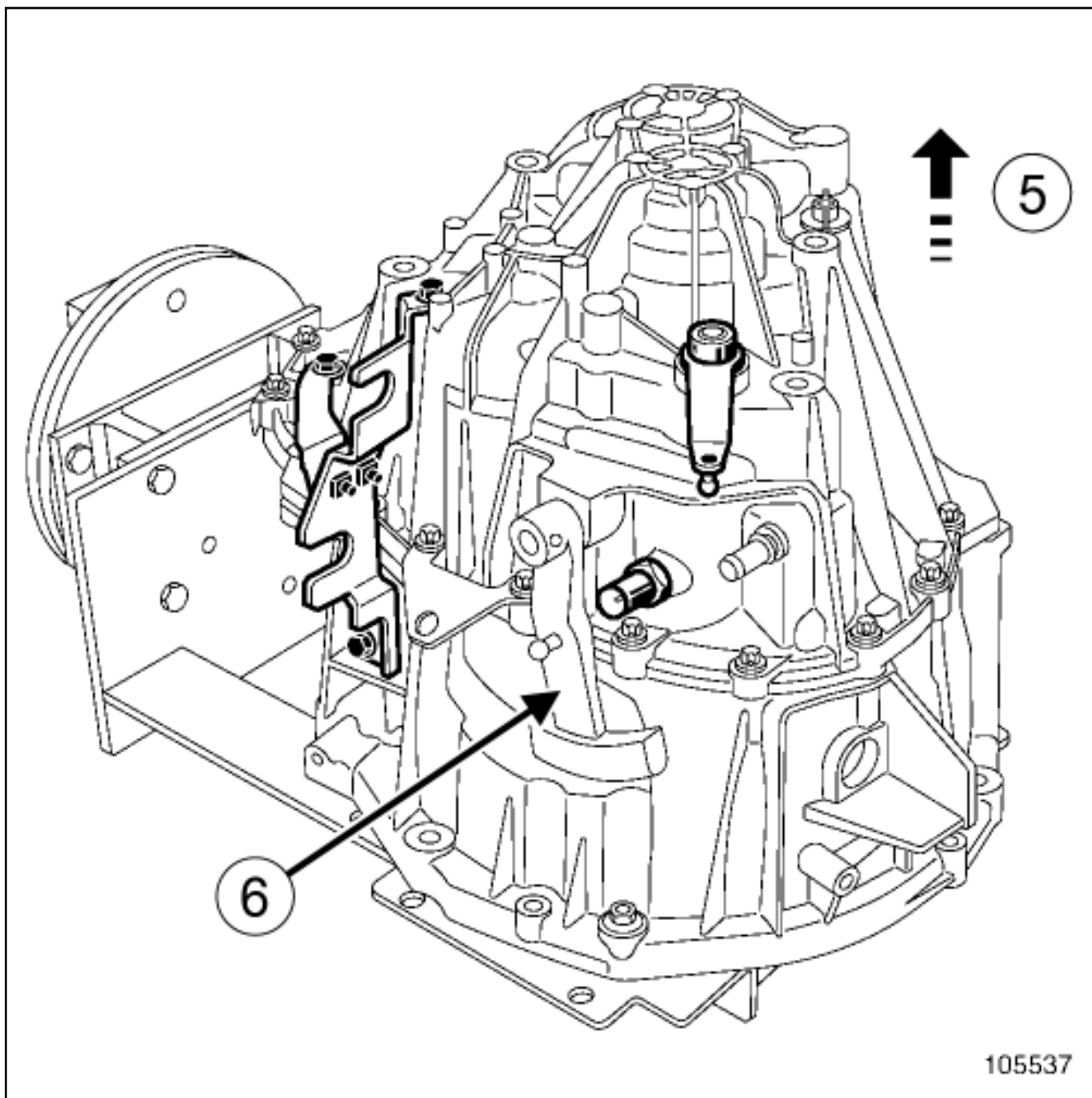
- Remove the clutch thrust bearing ([Clutch thrust bearing: Removal - Refitting](#)).



105537

■ Remove:

- the gear lever(1) ,
- the reversing lights switch(2) ,
- the control cable mounting(3) ,
- the gearbox bell housing bolts(4) .



105537

- Remove the housing upwards according to the arrow(5) while pivoting the shift lever(6) .

REFITTING

1. REFITTING PREPARATION OPERATION

- Clean the joint faces of the mechanism housing using SUPER CLEANING AGENT FOR JOINT FACES [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



CAUTION

Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

Remove the residue using a plastic spatula.

Finish cleaning the joint faces using a Grey abrasive pad part number 77 01 405 943 .

Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean:

- the joint face of the mechanism housing and the clutch housing,
- the mechanism housing.



CAUTION

To ensure proper sealing, the gasket surfaces must be clean, dry and not greasy (avoid any finger marks).



CAUTION

Applying excess sealant could cause it to be squeezed out when parts are tightened. A mixture of sealant and fluid may cause damage to some components.

Parts always to be replaced:

- the differential outlet seals,
- the input shaft output seal,

- the circlips,

- the pins,

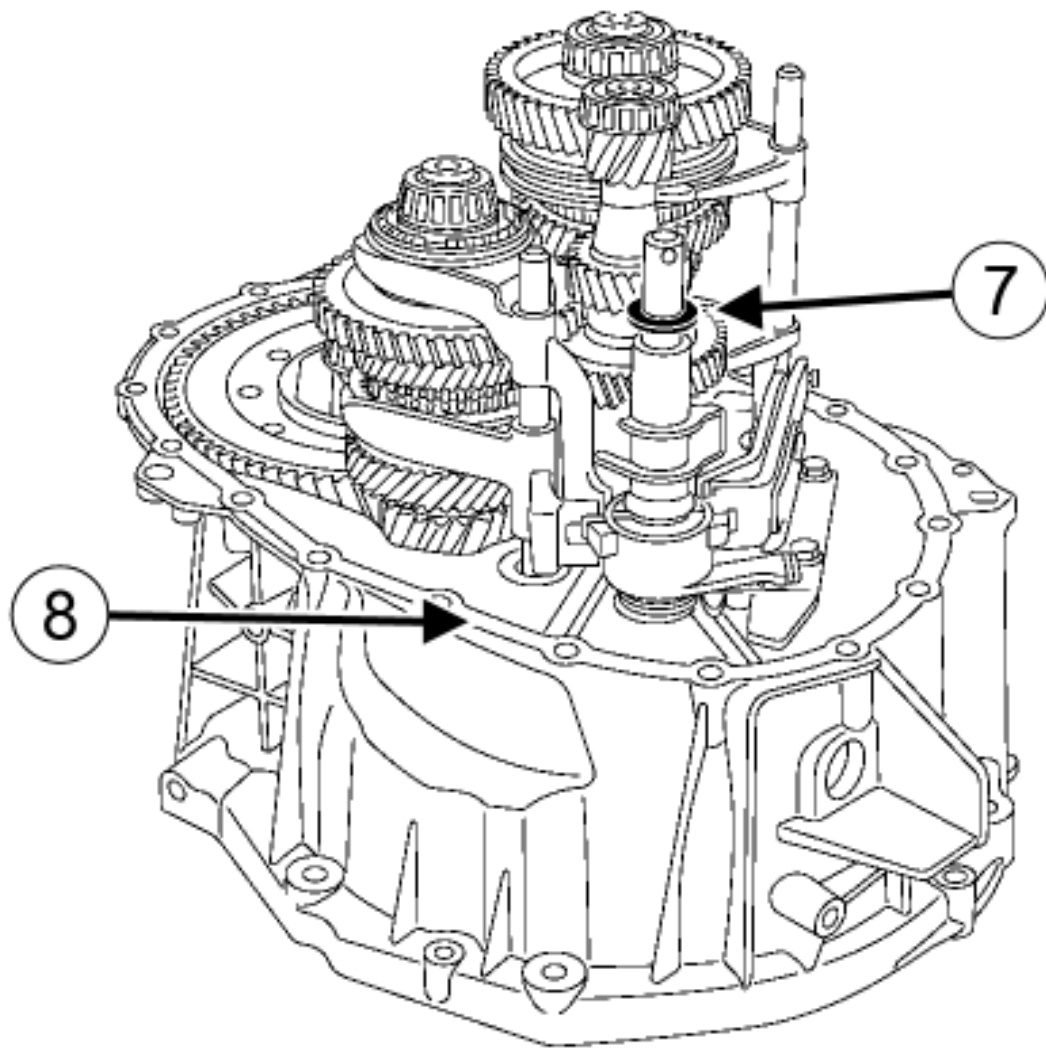
- the fork shaft rings,

- the hydraulic clutch slave cylinder.

2. REFITTING OPERATION FOR PART CONCERNED



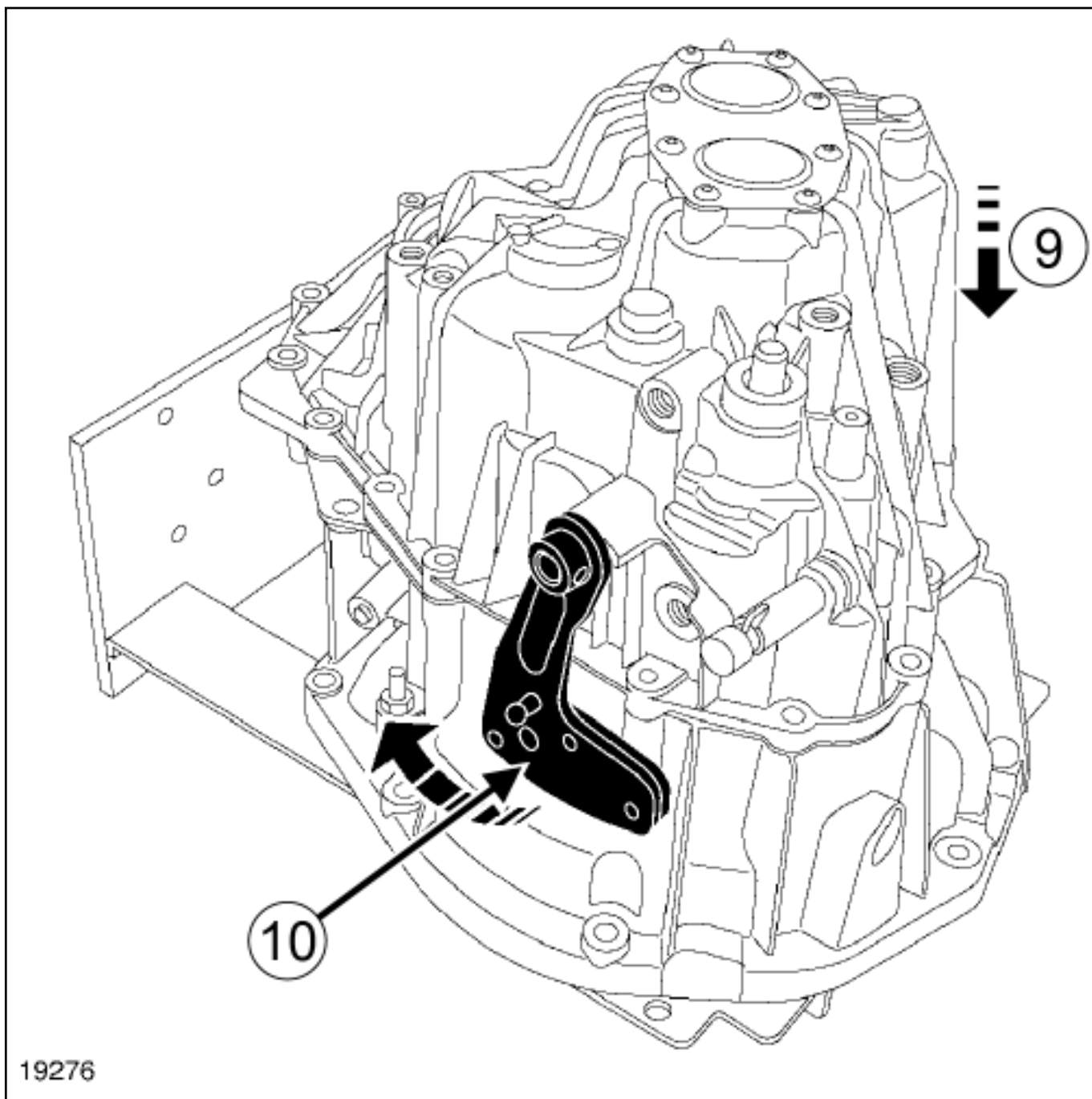
Adjust the shafts([see 21A, Manual gearbox , Gearbox shaft: Adjustment](#)) if replacing a shaft or housing.



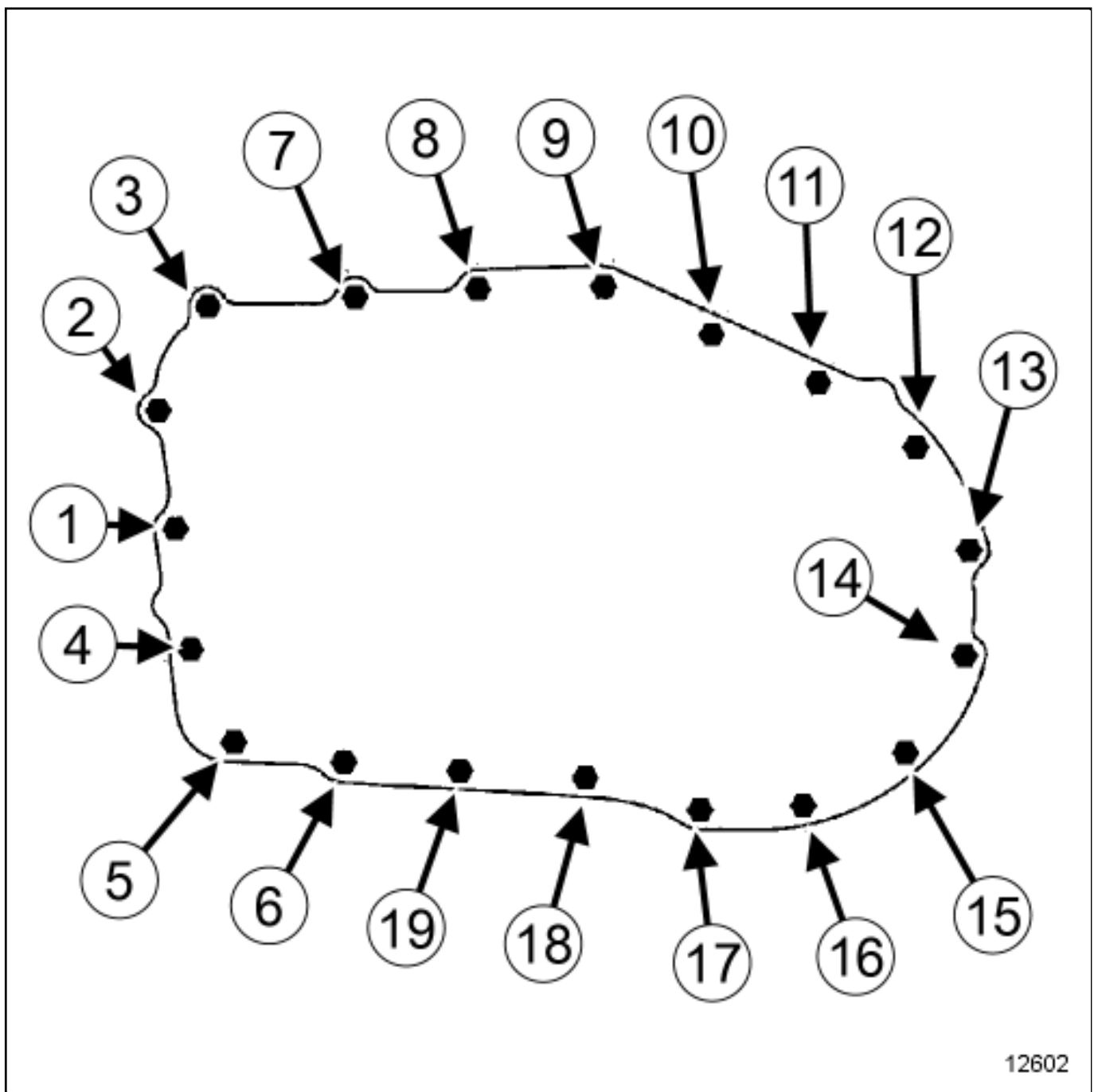
105539

■ Check that the calibration washer(7) is in place.

■ Apply a bead of SILICONE ADHESIVE [Vehicle: Parts and consumables for the repair](#) to the joint face of the mechanism housing(8) .



Refit the housing according to the arrow(9) by tilting the shift lever(10) to engage the lever finger in the control module.

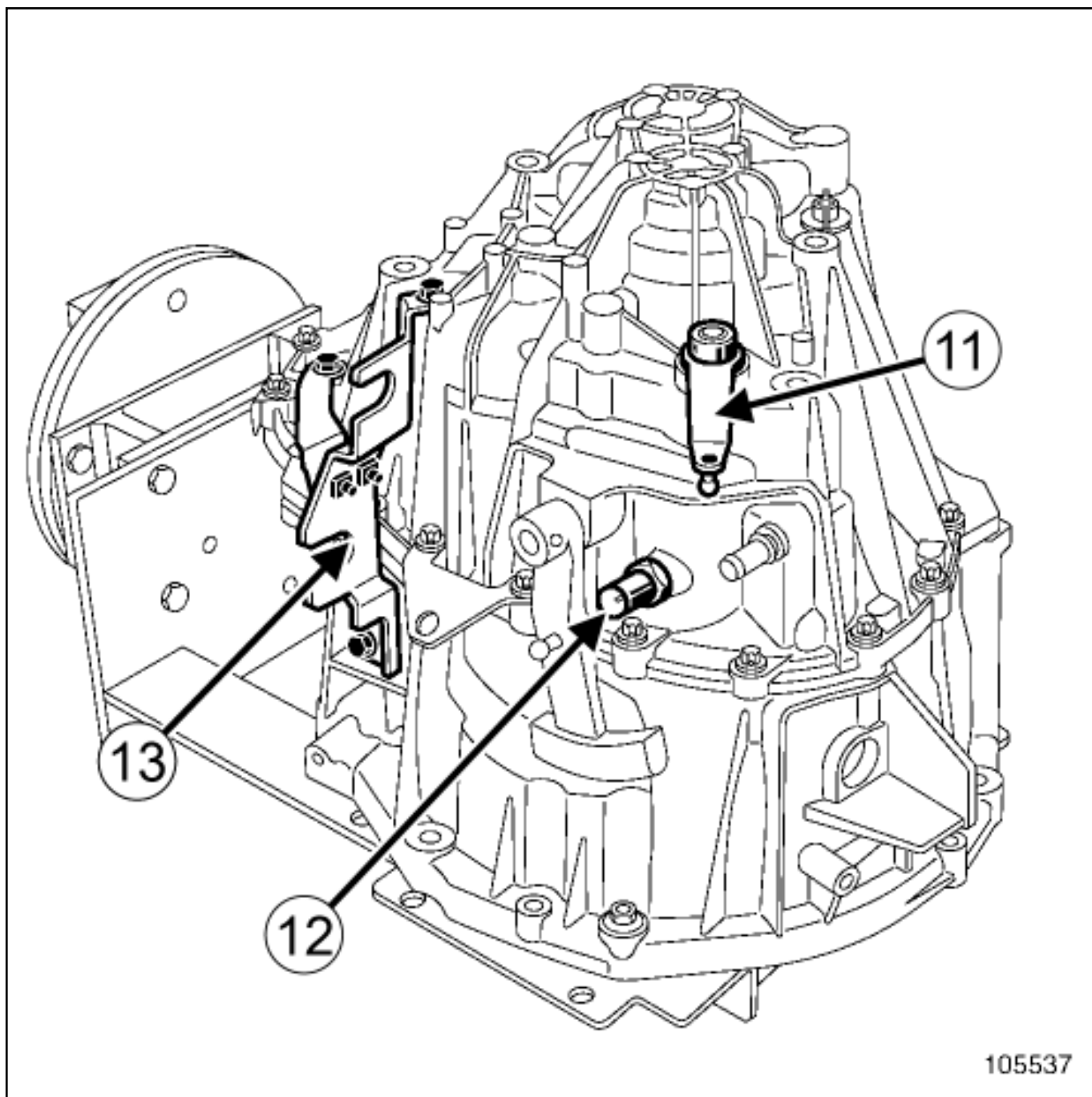


Refit the mechanism housing bolts and finger tighten them.

Pretighten the bolts (2) and (14) to 10 N.m.

Turn the input shaft while shifting through all the gears to ensure that the bearings are correctly fitted.

Torque tighten in order the mechanism housing bolts 28 N.m.



105537

Refit:

-
- the gear lever(11) ,
- the reverse gear switch(12) ,
- the control cable mounting(13) .



Note:

Failure to respect the tightening torque of the reverse gear switch could prevent the reverse gear from being engaged.

Torque tighten:

-
- the control mounting bolts **23 N.m.**
- the reverse gear switch **22 N.m** using the tool **Socket for removing/refitting reverse gear switch (Bvi. 1934)** .

Refit:

-
- the input shaft lip seal [Input shaft lip seal: Removal - Refitting](#) ,
- the differential output seals [Differential output seal: Removal - Refitting](#) ,
- the clutch thrust bearing [Clutch thrust bearing: Removal - Refitting](#) .

3. FINAL OPERATION

Remove the gearbox from the component support ([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .

Refit the gearbox [Manual gearbox: Removal - Refitting](#) .



IMMOBILISER SYSTEM: LIST AND LOCATION OF COMPONENTS



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

1. LIST OF COMPONENTS

1- THE IMMOBILISER SYSTEM CONSISTS OF:

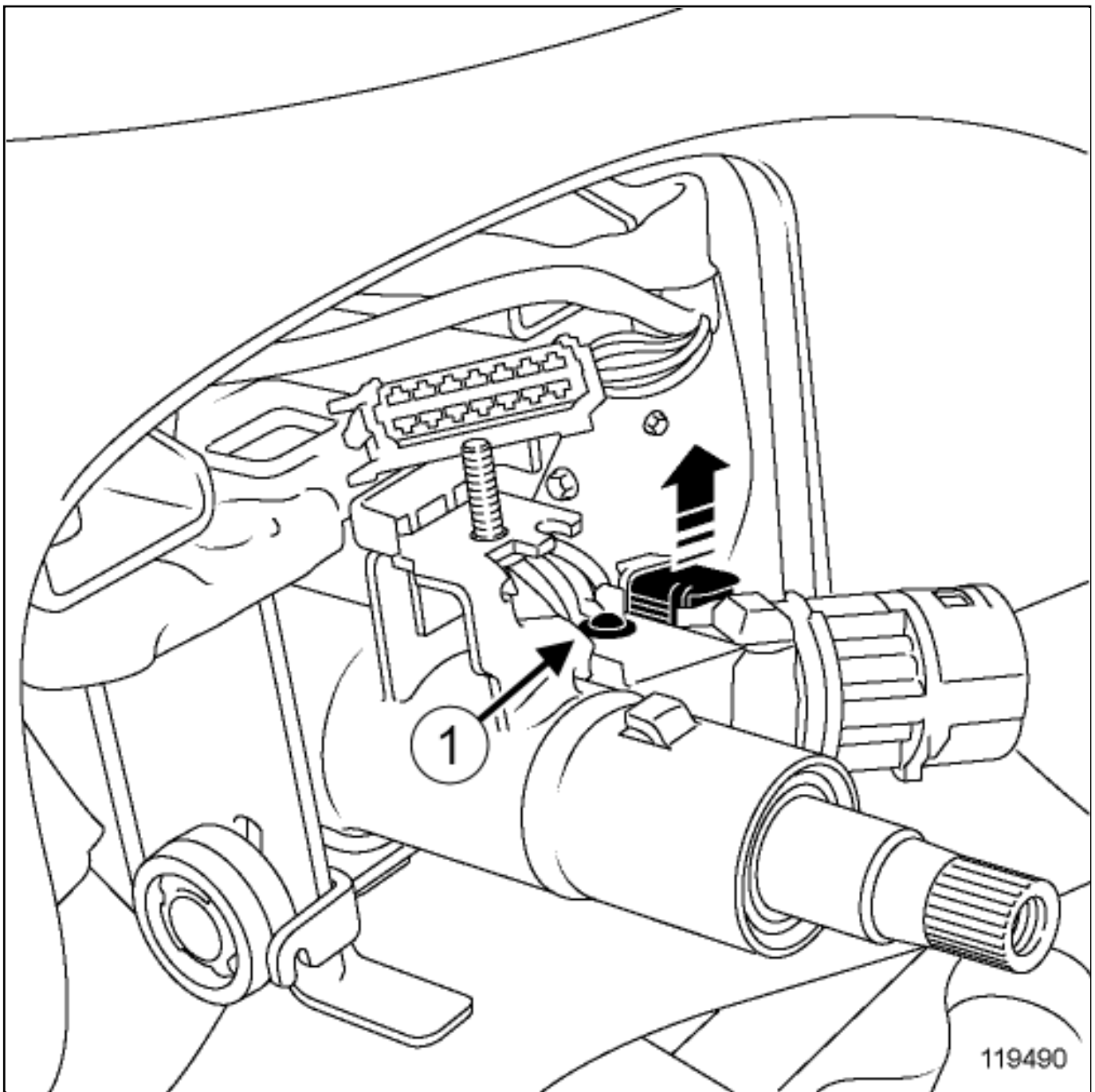
- an ignition switch
- a transponder ring
- an ignition key

2. LOCATION OF COMPONENTS

IGNITION SWITCH



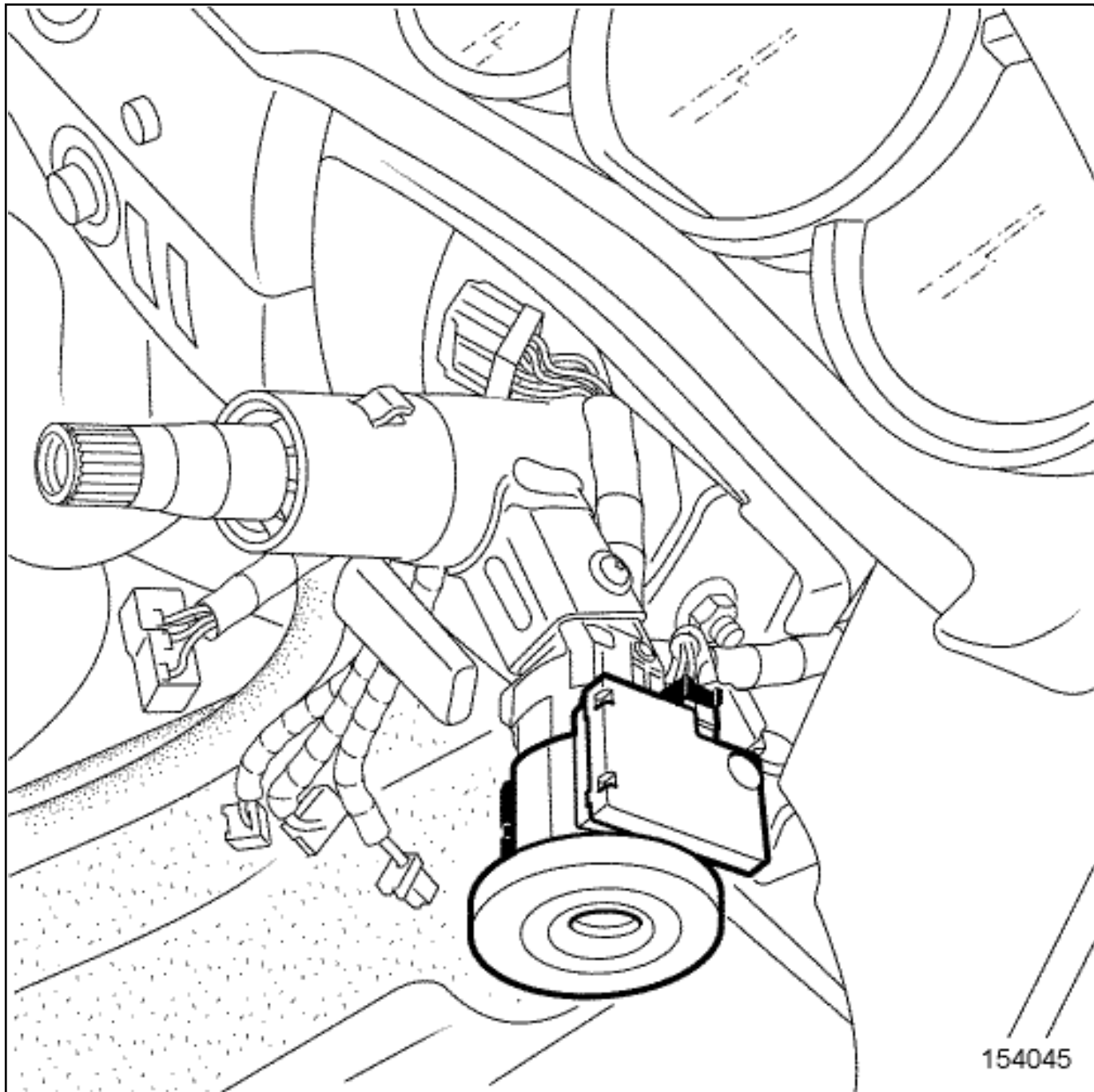
160351



119490

To remove the ignition switch, remove the shear bolt(1) using a punch.

TRANSPONDER RING



154045

IGNITION KEY



107869

Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the After repair procedure:

■
"UCH" ,

-Component controlled by this computer concerned by the After repair procedure:

■
"Ignition key" .



MODULATE VARIATION OF SPEED OF FAN ASSEMBLY FOR PASSENGER COMPARTMENT :REMOVAL-REFITTING

Locations and specifications (tightening torques, parts always to be replaced, etc.)([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

▣ Unclip the left-hand centre console front section(see **Dashboard assembly: Exploded view**) .

2. REMOVAL OPERATION

▣ Disconnect the modulate variation of speed of the fan assembly for the passenger compartment connector.

▣ Remove the modulate variation of speed of fan assembly for passenger compartment([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

REFITTING

▣ Proceed in the reverse order to removal.



Repair-30x02x01x52-01x37-1-5-1.xml



XSL version : 3.02 du 22/07/11

MULTIFUNCTION SUPPORT: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [Engine accessories assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Remove:
 - the engine undertray bolts,
 - the engine undertray,
 - the front right-hand wheel [Front hub carrier assembly: Exploded view](#) ,
 - the front bumper (see **Front bumper assembly: Exploded view**) ,
 - the front section of the front wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) ,
 - the front end panel (see **Front end panel: Removal - Refitting**) ,
 - the air deflectors,
 - the intercooler air outlet pipe [Air inlet assembly: Exploded view](#) ,
 - the accessories belt [Engine accessories assembly: Exploded view](#) ,
 - the alternator [Engine accessories assembly: Exploded view](#) .
- Remove the upper bolt from the air conditioning compressor [Engine accessories assembly: Exploded view](#)
- Loosen the lower bolt from the air conditioning compressor [Engine accessories assembly: Exploded view](#) .

Move aside the air conditioning compressor.

Remove [\(see 10A, Engine and cylinder block assembly, Engine oil circuit assembly: Exploded view\)](#) :

-
- the dipstick,
- the dipstick guide bolt.

Move aside the dipstick guide.

Unclip the hose from the coolant outlet unit regulation solenoid valve from the dipstick guide.



Note:

The multifunction support bolts are not the same length; mark their positions.

Remove [Engine accessories assembly: Exploded view](#) :

-
- the multifunction support bolts,
- the multifonction support.

REFITTING

1. REFITTING OPERATION

Refit [Engine accessories assembly: Exploded view](#) :

-
- the multifonction support,
- the multifunction support bolts.

Tighten to torque the multifunction support bolts [Engine accessories assembly: Exploded view](#) .

Proceed in the reverse order to removal.



Repair-10x04x02x01-01x37-1-120-1.xml



XSL version : 3.02 du 22/07/11

RENAULT

Technical Note 5164A

TTY

Noise fault finding

All types

General Methods

77 11 398 922

December 2006

EDITION ANGLAISE

"The repair procedures given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The procedures may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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General information

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Fault finding – Customer complaints	01E-20
Fault finding – Fault finding charts	01E-37
Noise diagnostic tool – Use	01E-101

1. SCOPE OF THIS DOCUMENT

This document covers the following topics:

- Noise from the drive train,
- Noise when changing gear,
- Air inlet noises,
- Noise from the turbocharger,
- Noise from the exhaust
- Interference noise (suspension, steering, etc.)
- Noise from the dashboard,
- Noise from the upholstery,
- Noise from the sunroof,
- Noise from the window winders,
- Noise from the speakers.

This document presents the fault finding procedure applicable to all vehicles with the following specifications:

- Vehicles with 2 drive wheels for the drive train,
- Manual gearboxes (for drive train noises)
- Original sliding/tilting sunroof.

2. PRE-REQUISITES FOR FAULT FINDING

Documentation type

- Fault finding procedure (this document):
- Repair Manual for the vehicle concerned

Type of diagnostic tools

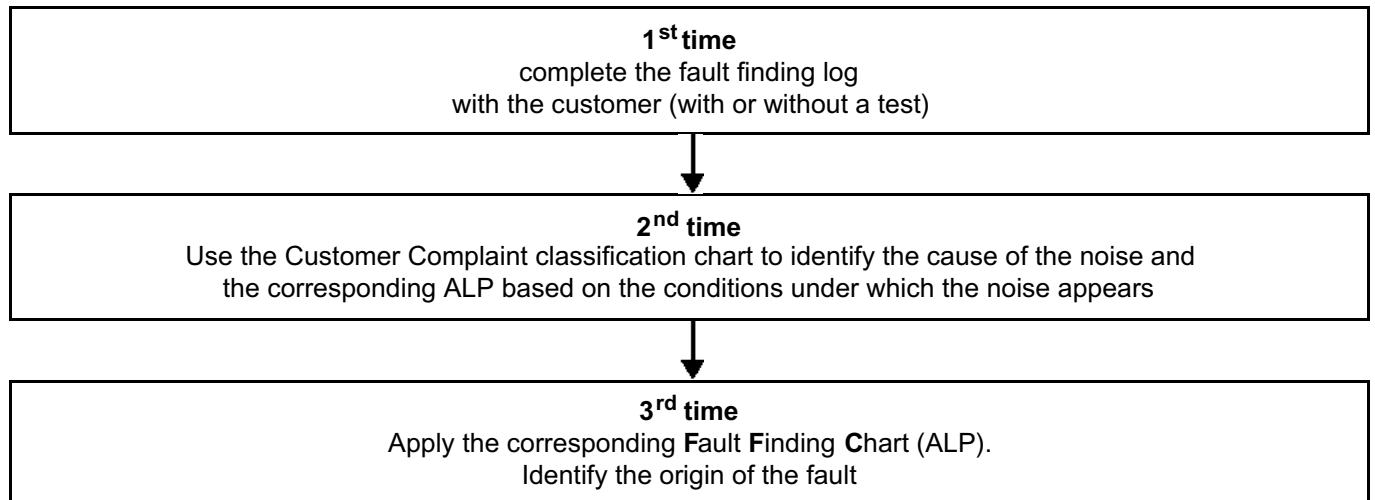
- CLIP to lock the airbags (if necessary)
- Noise diagnostic tool (see **01E GENERAL VEHICLE INFORMATION, Noise diagnostic tool - Use**)

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3. FAULT FINDING PROCEDURE



Rules for dealing with a noise-related customer complaint when the vehicle is received or in the workshop:

Rule no. 1: When the customer complaint is registered.

When the appointment is made by telephone, ask if the customer would be able to reproduce the noise in the workshop (enable the cotech to hear the noise with the customer present so that the fault finding procedure is more efficient).

If the customer cannot, preferably offer a date when they are not busy in order to deal with the noise.

Rule no. 2: Take information in a methodical manner.

The fault finding log must be completed to accurately describe the customer complaint in addition to the Order of repair.

4. FAULT FINDING LOG



IMPORTANT!

WARNING

All problems involving a complex system call for thorough diagnostics with the appropriate tools. The FAULT FINDING LOG, which should be completed during the fault finding procedure, ensures a record is kept of the procedure carried out. It is an essential item when discussing the fault with the manufacturer.

It is therefore mandatory to fill out a fault finding log for each fault finding procedure.

You will always be asked for this log:

- when requesting technical assistance from the Techline,
- for approval requests before replacing parts for which approval is compulsory
- which must be attached to monitored parts for which reimbursement is requested. It is therefore used to decide whether a reimbursement will be made under warranty and leads to improved analysis of the removed parts.

A blank log is available on the following pages

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FAULT FINDING LOG

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● **Administrative identification**

Date			2	0		
Log completed by						
VIN						
Engine						
Diagnostic tool		CLIP				
Update version						

● **Customer complaint**

520		Abnormal noise, vibrations
Other	Your comments:	

● **Conditions under which the customer complaint occurs**

In forwards gear (whilst driving)	Whilst reversing	When starting (increased engine speed in 1st)
Whilst parking	When stationary (engine running)	When stationary (engine not running)
Switching the engine on/off		
– Engine		
Engine fitted with a turbocharger	Petrol	Diesel
– Vehicle speed		
between 0 and 30 mph (0-50 km/h)	between 30 and 54 mph (50-90 km/h)	between 54 and 78 mph (90- 130 km/h)
constant	variable	

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FAULT FINDING LOG

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– Engine speed

at idle speed (neutral)	at low engine speed Diesel and Petrol < 1500 rpm	at medium engine speed 1500 < Diesel < 3000 rpm 1500 < Petrol < 4000 rpm
at high speed Diesel > 3000 rpm Petrol > 4000 rpm	stabilised	variable
under speed	over speed	increasing engine speed (no load)
lessens when engine speed increases		

– Engine temperature

When cold	When warm	Quieter when hot
Worse when hot		

– Driving conditions

In neutral	When decelerating	Heavy acceleration
On a hill	Pedal released suddenly after it is fully depressed	

– Vehicle speed

Stabilised: vehicle speed or engine speed constant.	Accelerating
---	--------------

– Driver's action on the accelerator (acceleration or deceleration)

no pressure	foot resting on or lightly depressing the accelerator pedal	Accelerator pedal moderately depressed and held (neither slightly nor fully depressed)
pedal held fully depressed	pedal fully depressed suddenly (on-off)	Accelerator pedal gradually released
Accelerator pedal suddenly released	disappears when pedal released without braking	

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FAULT FINDING LOG

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– Driver's action on the gear lever (gearbox)

when changing gear (one or more)	gets worse when changing gear quickly	only appears when engaging the gear.
Always appears when engaging AND disengaging gear.	worse when downshifting	

– Driver's action on the clutch

the customer complaint disappears when declutching and reappears when engaging the clutch	the customer complaint disappears when changing gear, disengaged.	the customer complaint lessens when changing gear, disengaged. (test type handling in a motor show)
---	---	---

– Driver's action on the steering wheel

Little movement (pressure change, cornering)	Significant movement (roundabout, manoeuvres)
--	---

– Driver's action on a vehicle fitting

Upholstery (adjustments)	Sunroof (opening/closing)	Sunblind (opening/closing the sunblind)
Dashboard (glovebox, air conditioning controls, etc.)	Speaker (switching on)	whilst opening/closing the window
whilst opening or closing the window fully	when closing the door (window half-open)	

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FAULT FINDING LOG

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– Weather conditions

	cold weather (frost)
--	----------------------

	hot weather (sun)
--	-------------------

	humid conditions
--	------------------

	dry conditions
--	----------------

– Main beam

	smooth
--	--------

	cobbled
--	---------

	grooved
--	---------

	in poor condition: unmade, road seams, drain cover, pot hole, etc.
--	--

	When driving over a speed bump
--	--------------------------------

	Mounting/dismounting the pavement
--	-----------------------------------

	Corner (to the left or right)
--	-------------------------------

	parallel parking
--	------------------

FAULT FINDING INTRODUCTION

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5. SAFETY INSTRUCTIONS

Safety rules must be observed during any work on a component to prevent any damage or injury:

The road tests referred to in this document should be carried out in accordance with Road Traffic Regulations (speed limits must be obeyed).

During the tests performed with the engine running, observe the safety advice. Pay particular attention to the accessories, moving parts or parts which heat up (fan assembly activation, increase in temperature of the air pipe at the turbocharger outlet, etc.)

WARNING

When carrying out road tests, obey Road Traffic Regulations, especially speed limits.

Within the framework of a fault finding test, two people are required to carry out the research and specific identification of the source of the noise.

FAULT FINDING INTRODUCTION

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6.1. DEFINITIONS OF CAUSES:

This document deals with the following causes of noise:

Drive train:

TEST PROTOCOL FOR CLASSIFICATION OF THE CUSTOMER COMPLAINT

A. If the customer complaint appears when driving

- Perform **gradual** accelerations and decelerations [1] [2] on each gear to determine which gear(s) display the customer complaint (on an even straight line with a good surface, warm engine and after having checked that the oil and coolant levels are correct). Note the vehicle speed, gear ratio and engine speed.
- **Disengage / re-engage**: if the customer complaint disappears when disengaging and reappears when re-engaging the gear and the engine speed is stabilised, there is a whining noise and/or growling.
- **Change pressure**: if the noise level is more pronounced or decreases when pressure is applied (when overtaking, cornering, on a roundabout, moving steering wheel to the left/right), this is not a drive train fault (check the wheel bearings).

B. If the customer complaint appears particularly during a parking manoeuvre (steering greater than one steering wheel revolution, in 1st or 2nd gear)

If a noise appears when accelerating and disappears when decelerating, there is a murmuring noise from the differential.

C. If the customer complaint appears when stationary

In neutral and disengaged, increase the engine speed **very** gradually [2].

If the noise identified when driving is still present at the same engine speed, it is not a drive chain fault.

[1]: The speed range under which the customer complaint appears may be restricted. It is necessary to slowly increase and decrease the engine speed for each gear.

[2]: Increased engine speed: as long as the noise can be heard.

- up to approximately 4500 rpm (petrol engine),
- up to approximately 3000 rpm (diesel engine).

Never go into the red zone.

FAULT FINDING INTRODUCTION

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Whining noise (drive train)

Definition: high-pitched noise caused by teeth engaging when driving.

Note: this customer complaint can be noticed from 0 miles. It is more noticeable on long journeys on a constant road type (motorway). Not to be confused with aerodynamic noise.

Test to identify the whining noise from the engaging teeth: during a road test, hold the gear lever to dampen the gearbox control driveshaft chain. If the noise is quieter or disappears, check the gear lever first and, if the gear lever is correct, consult ALP 13 - Whining noise from the drive train.

Murmuring (differential - relay bearings)

Definition: modulated noise which is similar to the cooing of a pigeon.

Note: this customer complaint can occur at any point in the vehicle's lifetime.

Test to identify the murmuring noise from a driveshaft: during a road test, if there is significant noise when driving in a straight line and when cornering, study the right-hand driveshaft relay bearing. If there is only significant noise when cornering, there is a fault in the gearbox, mainly with the differential.

Growling noise (drive train)

Definition: continuous noise which is similar to the noise when shaking a bag of nuts.

Note: appears particularly when hot and can be easily heard when the windows are open when passing alongside a wall. It is quite noticeable at low speed.

Test to identify the growling noise: during a road test, perform gentle accelerations in 1st and 2nd gear. If the noise dies down or disappears whilst holding the gear lever, study the control instead.

Noise from neutral (drive train)

Definition: sewing machine noise.

Note: disappears when accelerating and declutching.

Exhaust

Crackling from the pipe or ball joint.

Definition:

- For the pipe: noise like a bag of marbles shaken energetically. Very high frequency (very high-pitched).
- The ball joint may grate when fitted to the spring.

Note: can be heard easily from the outside or when the window is open (car park exit, when passing alongside a wall). The noise becomes more pronounced very quickly if no repair work is carried out on the vehicle. It can be reproduced when stationary by shaking the exhaust pipe.

Warning

The crackling may spread and get worse along the exhaust system, despite the cause being very localised at the beginning of the system (connecting hose or ball joint bracket). It may appear that the entire pipe is concerned but this is not the case.

Noise from underbody contact.

Definition: dull or bright metallic noise (fist banging on a table).

Note: it can be reproduced when stationary by shaking the exhaust pipe.

Exhaust leak noise.

Definition: none.

Note: it depends on the engine speed and can be heard according to the extent and location of the leak.

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Turbocharger

Meowing noise from the turbocharger.

Definition: single frequency continuous noise, **sub-synchronous to the speed of the turbocharger.**

Note: the meowing noise from the turbocharger is quieter when hot.

Whistling noise from the turbocharger.

Definition: high-pitched whistling which follows the turbocharger rotation speed, **either synchronous to the turbocharger speed, or super-synchronous to this speed (vane number x turbocharger speed).**

Notes:

- the whistling noise from the turbocharger is worse when hot.
- Any of the fittings installed, poor bonding of the windscreen or cable routing through the bulkhead may be the cause of the detected noise.

Blowing noise from the turbocharger.

Definition: noise similar to the noise made by a ventilation fan (passenger compartment ventilation, engine cooling system)

Note: the blowing noise from the turbocharger is even louder when the turbocharger air flow is higher.

Sighing noise from the turbocharger (Diesel terminology).

Definition: noise similar to a volume of pressurised air being released **suddenly.**

Note: the sighing noise from the turbocharger is even greater when the turbocharging pressure is greater as the pedal is released.

Releasing noise from the turbocharger: (petrol terminology).

Definition: noise similar to a volume of pressurised air being released **very suddenly** (activation of the turbocharger recirculation valve).

Note: the releasing noise from the turbocharger is even greater when the turbocharging pressure is greater as the pedal is released.

Air intake

Air inlet whistling.

Definition: high-pitched noise similar to whistling.

Test protocol.

Carry out at test in the workshop with the vehicle stationary and the bonnet open:

Warm engine: increased engine speed (neutral) to average speed (4000 rpm for a petrol engine; 3000 rpm for a diesel engine).

Warning.

The air inlet whistling noise must be distinguished from the turbocharger whistling noise. It is directly related to the engine speed and not to the speed of the turbocharger.

Air inlet humming.

Definition: dull noise which is similar to the noise of a bumblebee in flight.

Note: noise sensitive to engine load (petrol).

Noise not sensitive to engine load (diesel).

Noise when changing gear

Noise when engaging and disengaging gear.

Definition: more or less marked dull clicking (short thud).

Note:

- engine stopped, when static, if the same gears are engaged one after another (e.g. neutral- first), the first gear change is always the noisiest. On the other hand, if the gear is changed from neutral - 1st - 2nd then neutral - 1st, there will be as much noise during the first gear change in the first series as in the second.
- depending on the clutch "performance" (ability to separate the engine from the gearbox quickly) the noises when engaging/disengaging may be more pronounced.

Creaking:

Definition: onomatopoeia of a dry noise heard whilst engaging a gear (partially or completely). A malfunctioning gearbox can potentially be accompanied by successive shocks in the gear knob which may prevent gear engagement. Sporadic noise which is similar to a rattle.

Note: for basic range vehicles, it may be normal to notice creaking noises in reverse gear.

Banging during power take-up:

Definition: banging whilst changing gear or during torque inversion (successive acceleration or deceleration).

Note: mainly in the lower gears (1st, 2nd, 3rd).

Interference noise

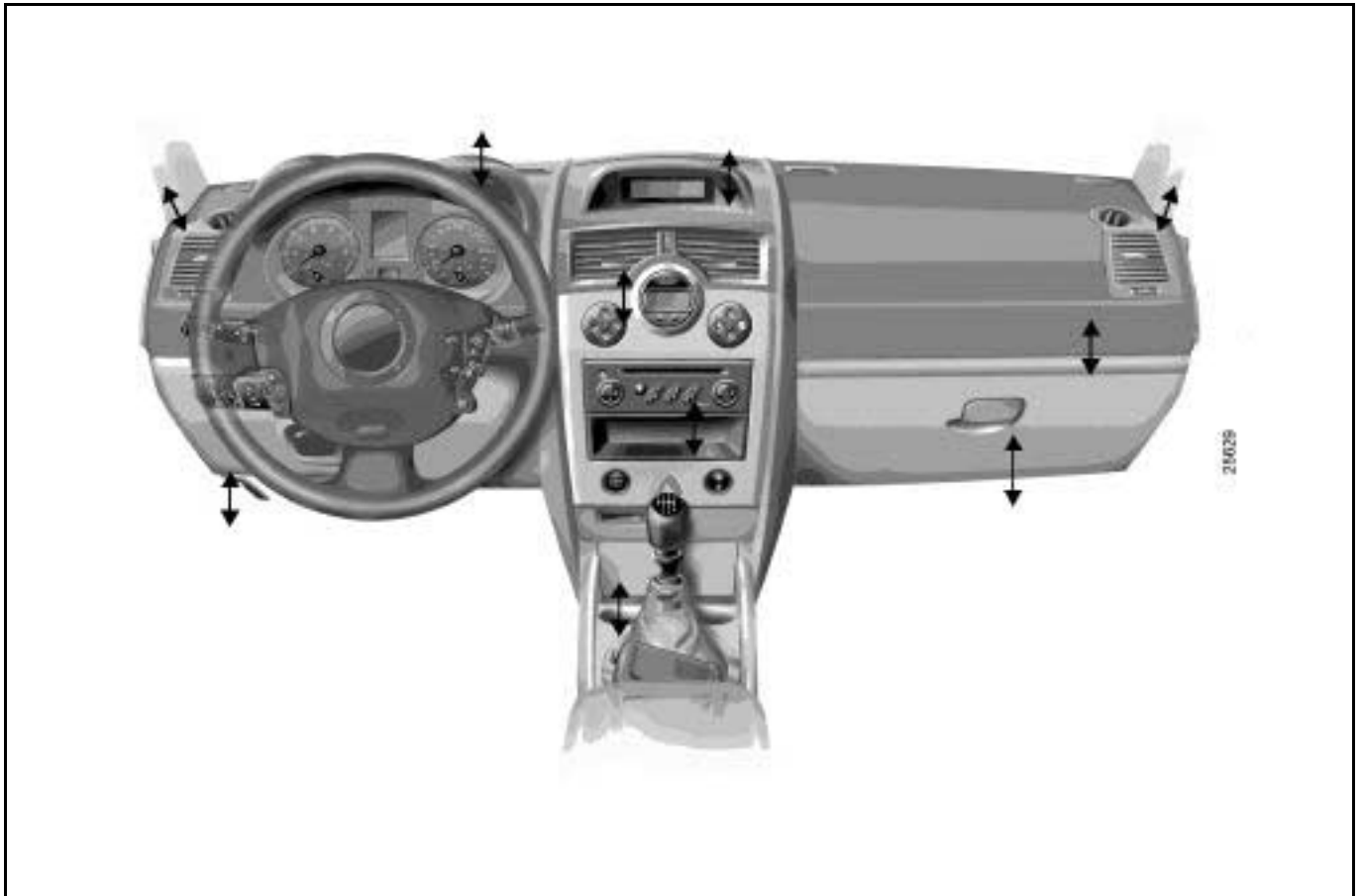
Definition: noise which is difficult to locate, due to a fault in the chassis, steering, engine and transmission assembly suspensions, underbody area, rotating components or front end panel.

Dashboard

There are three types of dashboard noise:

- **rubbing noises:** two components or sections rub against each other which produces a creaking or grating noise.
- **banging noises:** two components or sections knock together which produces a crackling or rattling noise.
- **vibration:** too much play between two components or sections

These noises are mainly related to contact between two components (cover or front panel and dashboard casing) or related to a component which moves with another component.



↔ : Area likely to produce a noise

Noise from the upholstery

There are three types of seat noise:

- **rubbing noises:** two components or sections rub against each other which produces a squeaking or grating noise (e.g. adjustment lever)
- **banging noises:** two components or sections knock together which produces a crackling noise (e.g. cover) or a rattling noise (e.g. wiring)
- **vibration:** too much play between two components or sections

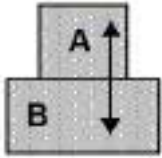
These noises are mainly related to contact between two components (e.g. cover and dashboard casing) or related to a component which moves against another component (e.g. runners)



↔ : Area likely to produce a noise

Crackling from the speaker

Definition:



Crackling: quick alternating impact between two components.

Sunroof:

Sunroof chattering: jerky movement of mobile panel when opening/closing (vertical movement of the panel while moving longitudinally)

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Fault finding – Customer complaints

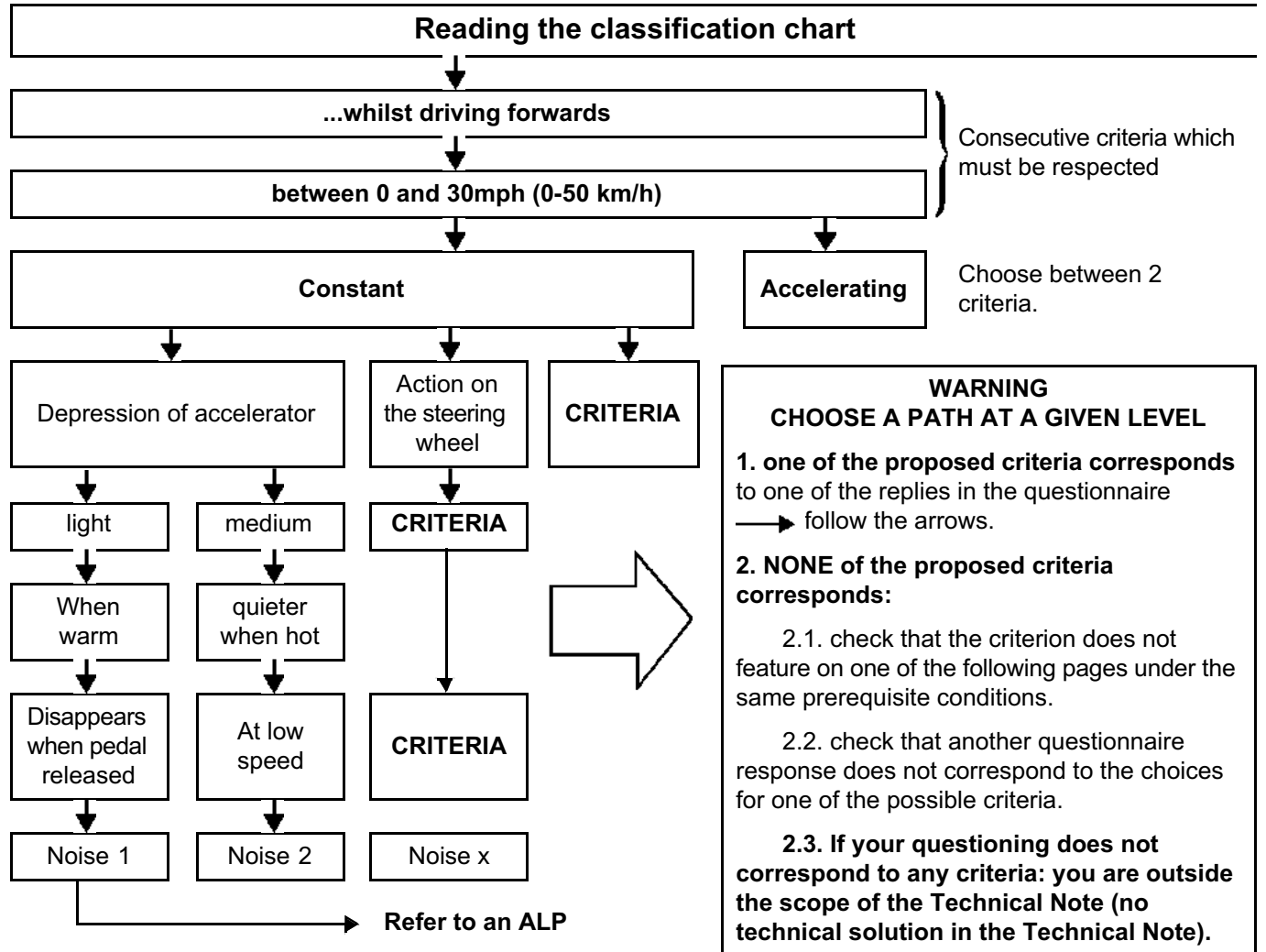
01E

6.2. CAUSE OF NOISE CLASSIFICATION CHART

WARNING

The Customer Complaint Classification Chart is used to identify the cause of a noise which has been detected by the customer. A Classification Chart is selected using a questionnaire which lists the different conditions under which the noise appears.

Only the **most common conditions** under which the noise occurs are listed in the classification chart. It is important to correctly identify with the customer **the main condition** under which the noise appears.



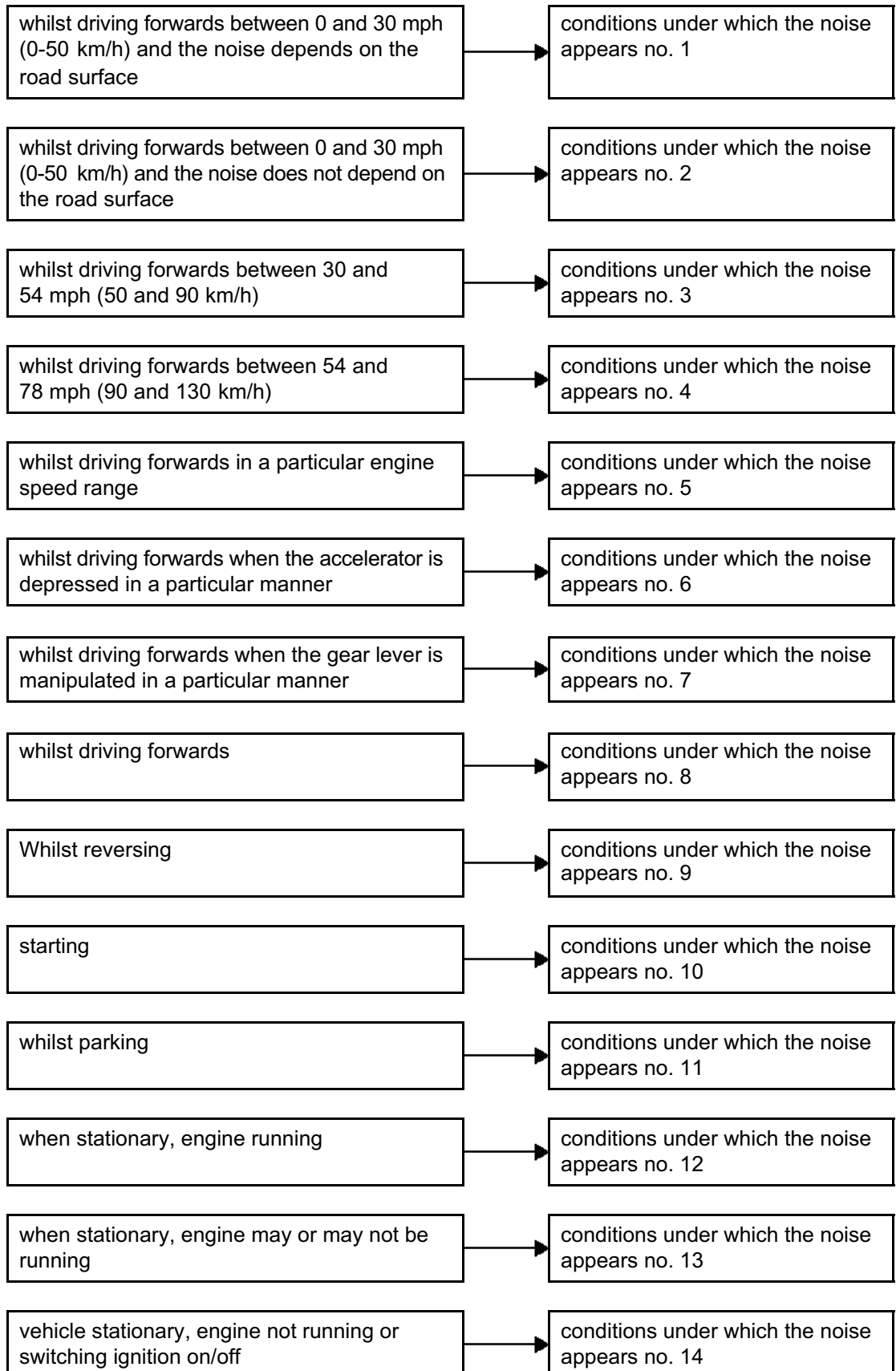
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CONDITIONS UNDER WHICH THE NOISE APPEARS

The noise is detected:



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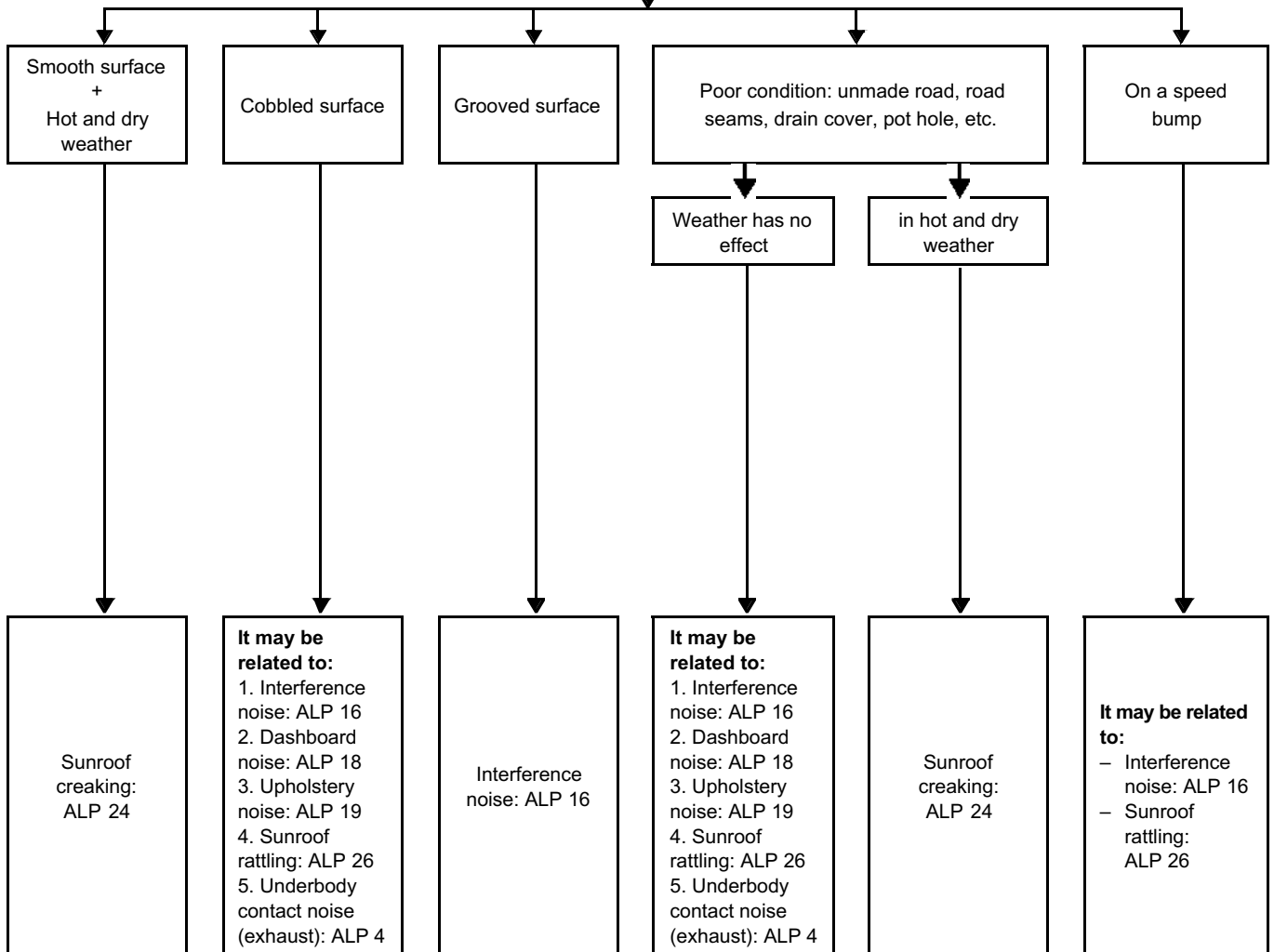
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Conditions under which the noise appears no. 1

The noise is detected...

... whilst driving forwards between 0 and 30 mph (0 and 50 km/h)

and the noise depends on the road surface



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Fault finding – Customer complaints

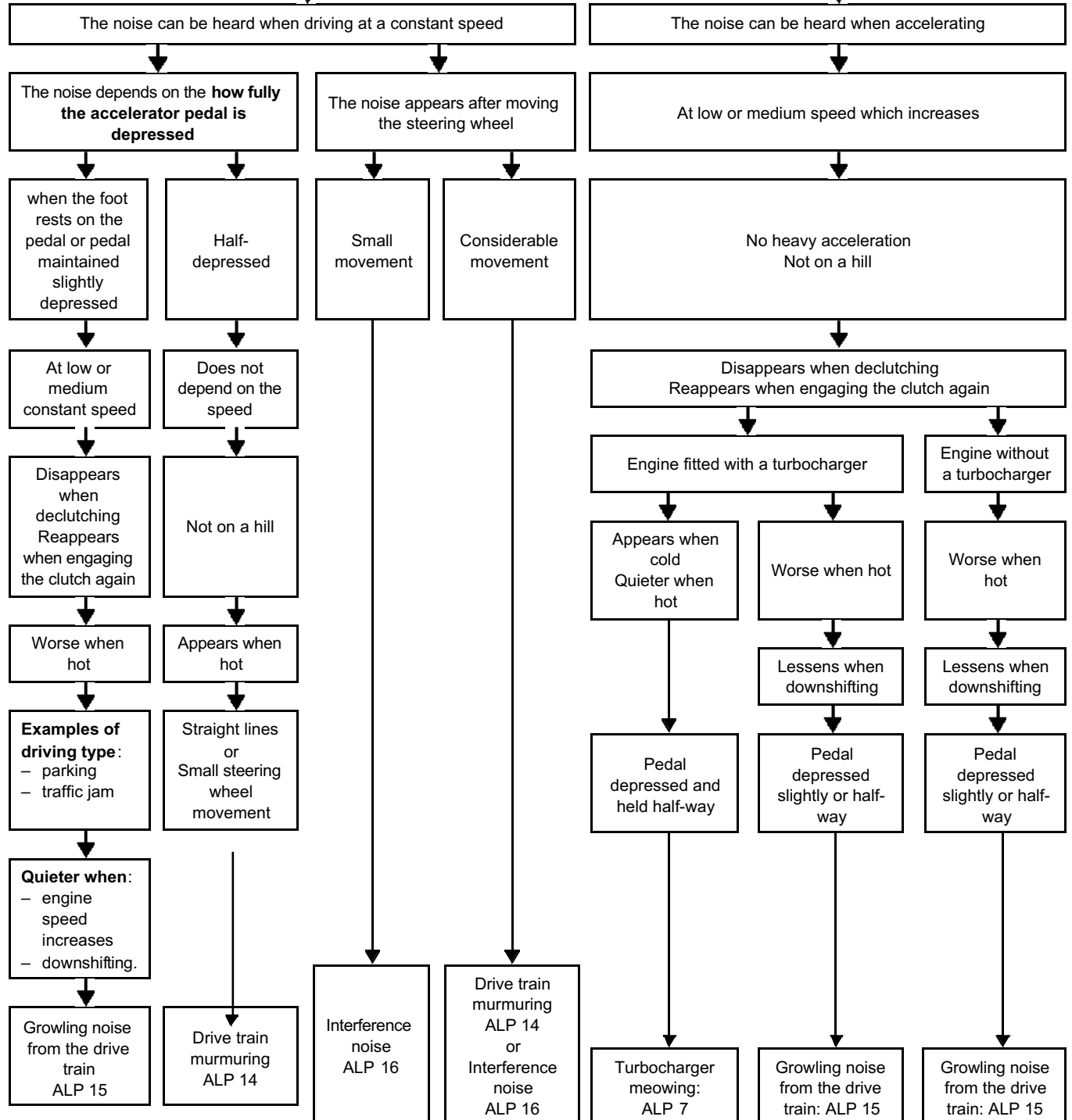
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Conditions under which the noise appears no. 2

The noise is detected...

... whilst driving forwards between 0 and 30 mph (0 and 50 km/h)

and the noise does not depend on the road surface



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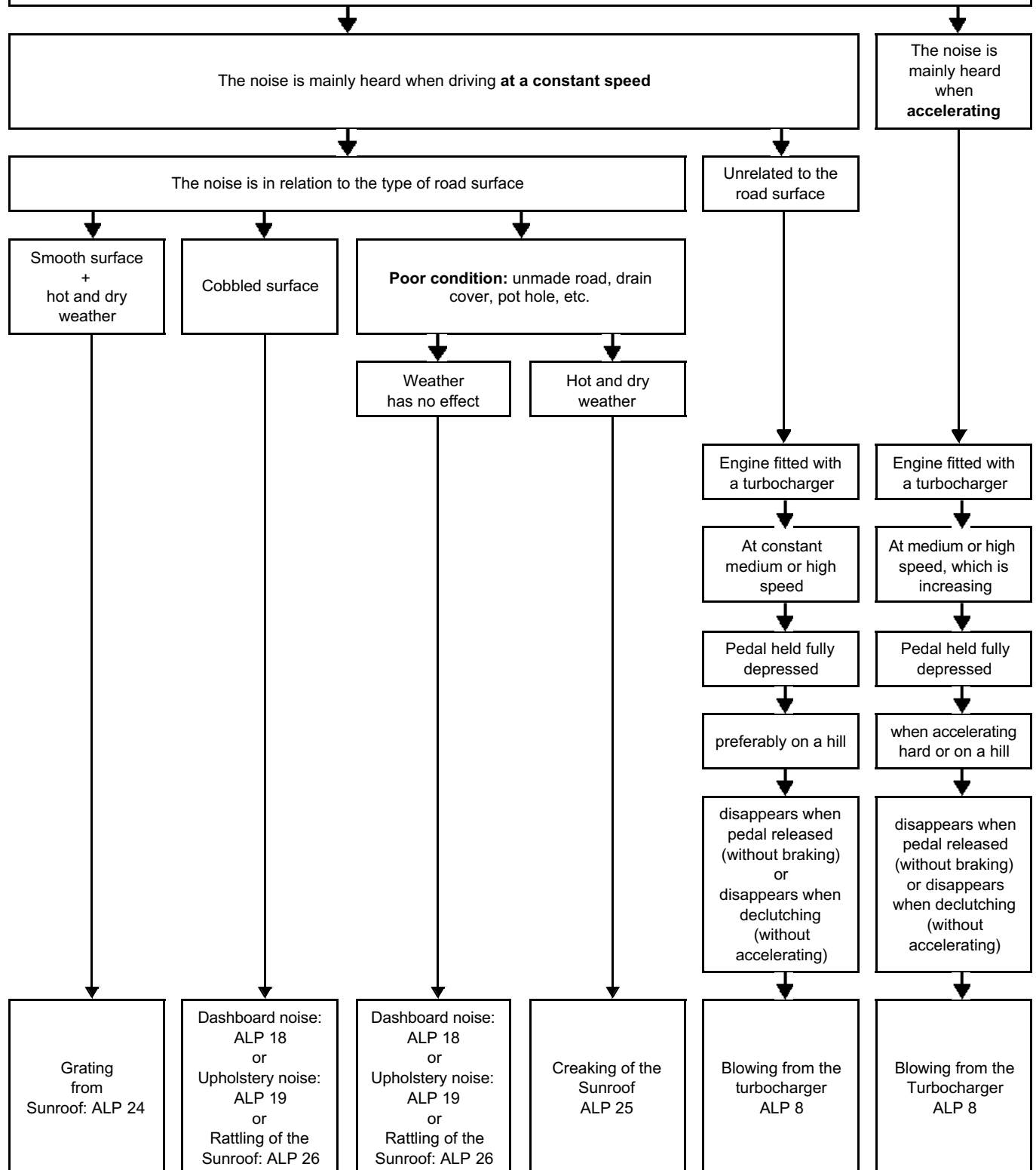
Fault finding – Customer complaints

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Conditions under which the noise appears no. 3

The noise is detected...

... whilst driving forwards between 30 and 54 mph (50 and 90 km/h)



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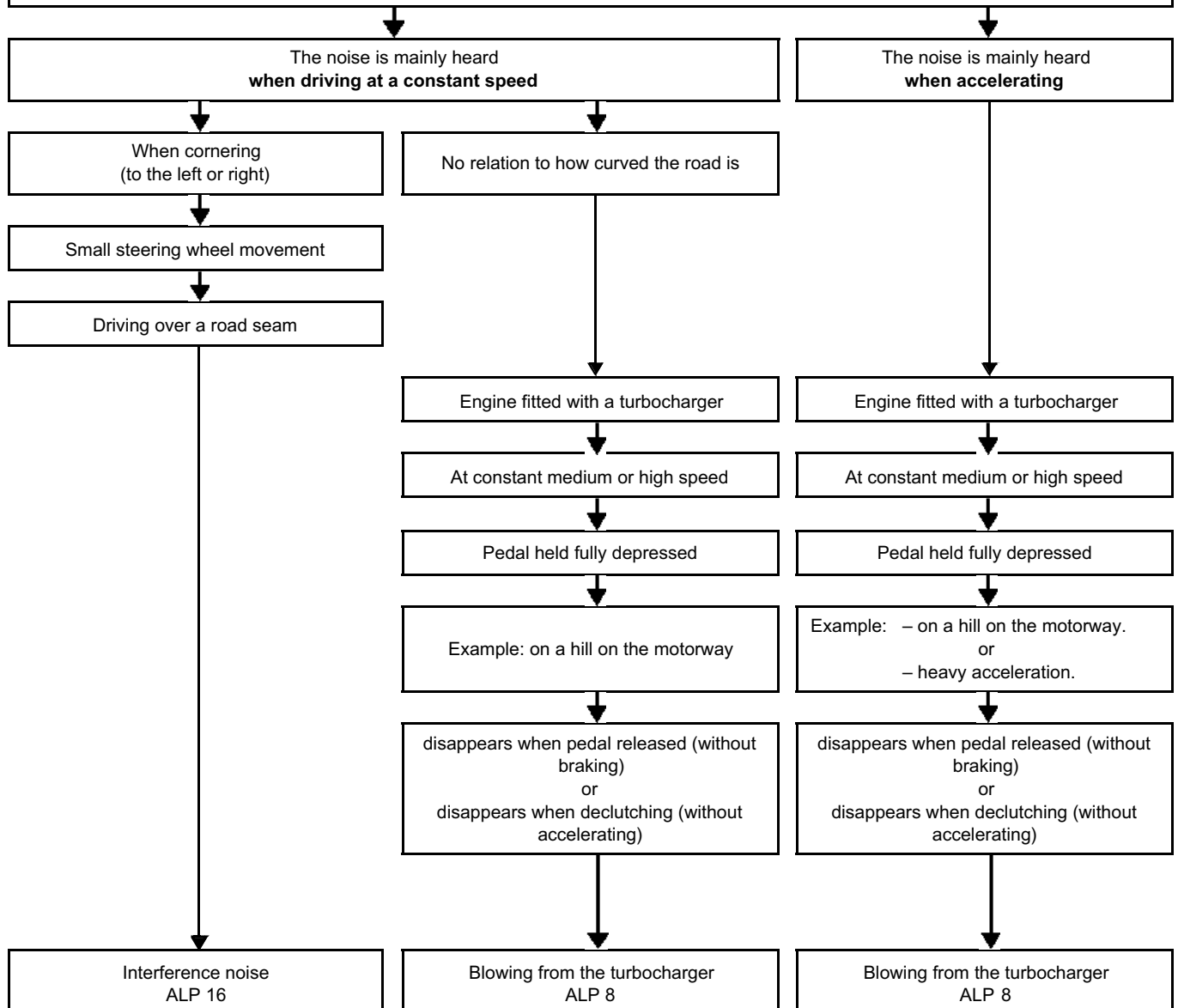
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Conditions under which the noise appears no. 4

The noise is detected...

... whilst driving forwards between 54 and 78 mph (90 and 130 km/h)



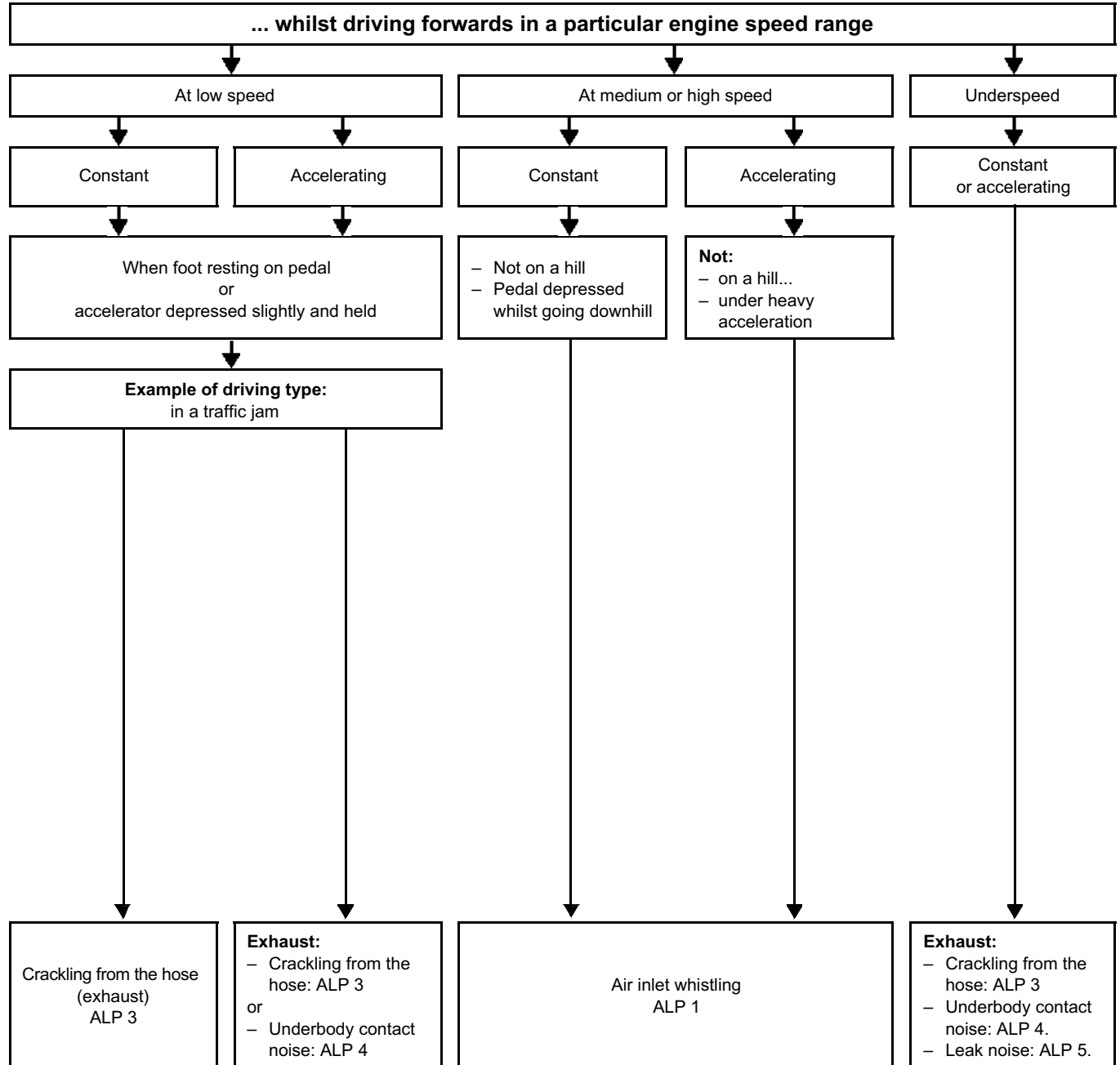
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Conditions under which the noise appears no. 5

The noise is detected...



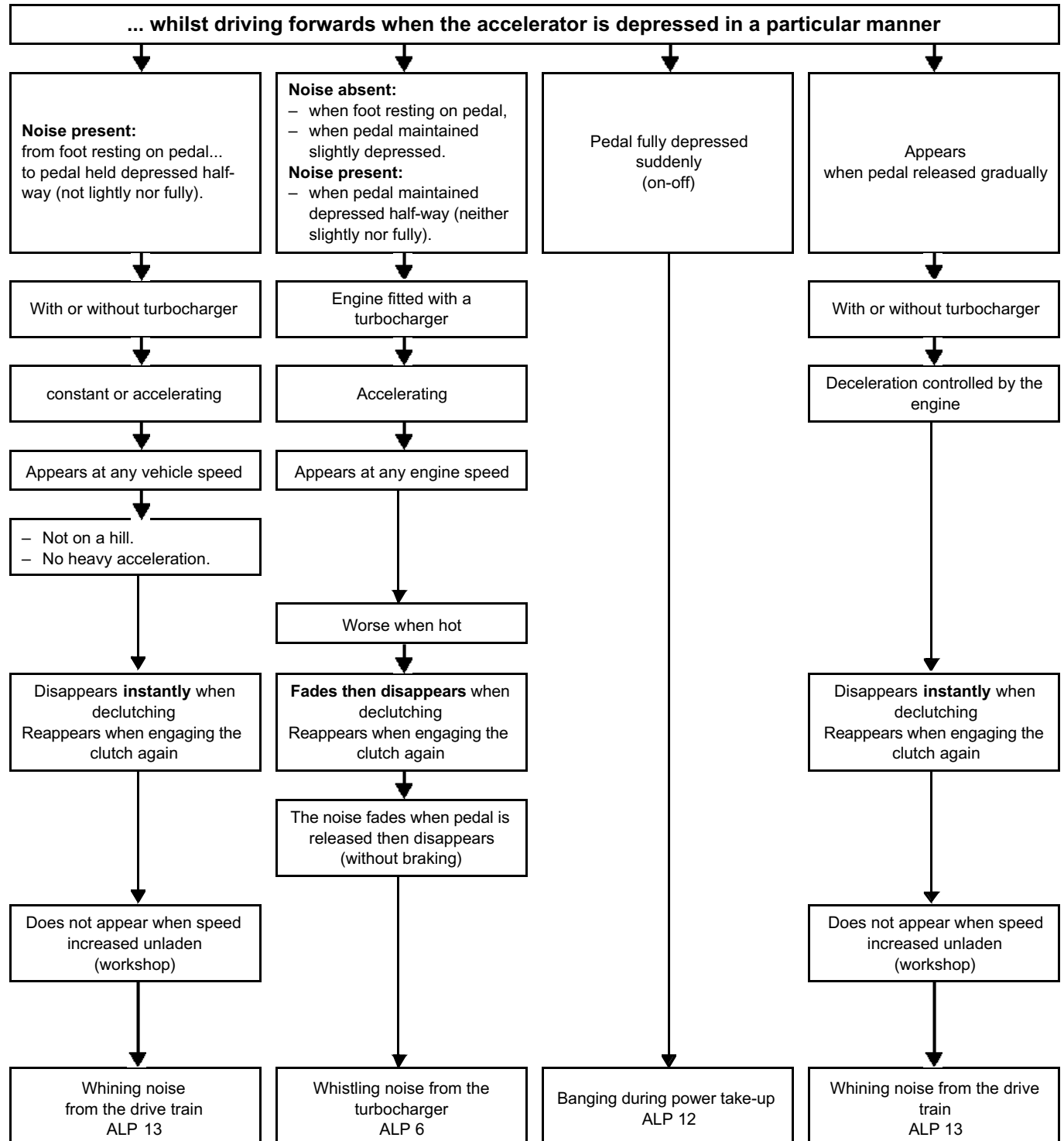
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Conditions under which the noise appears no. 6

The noise is detected...



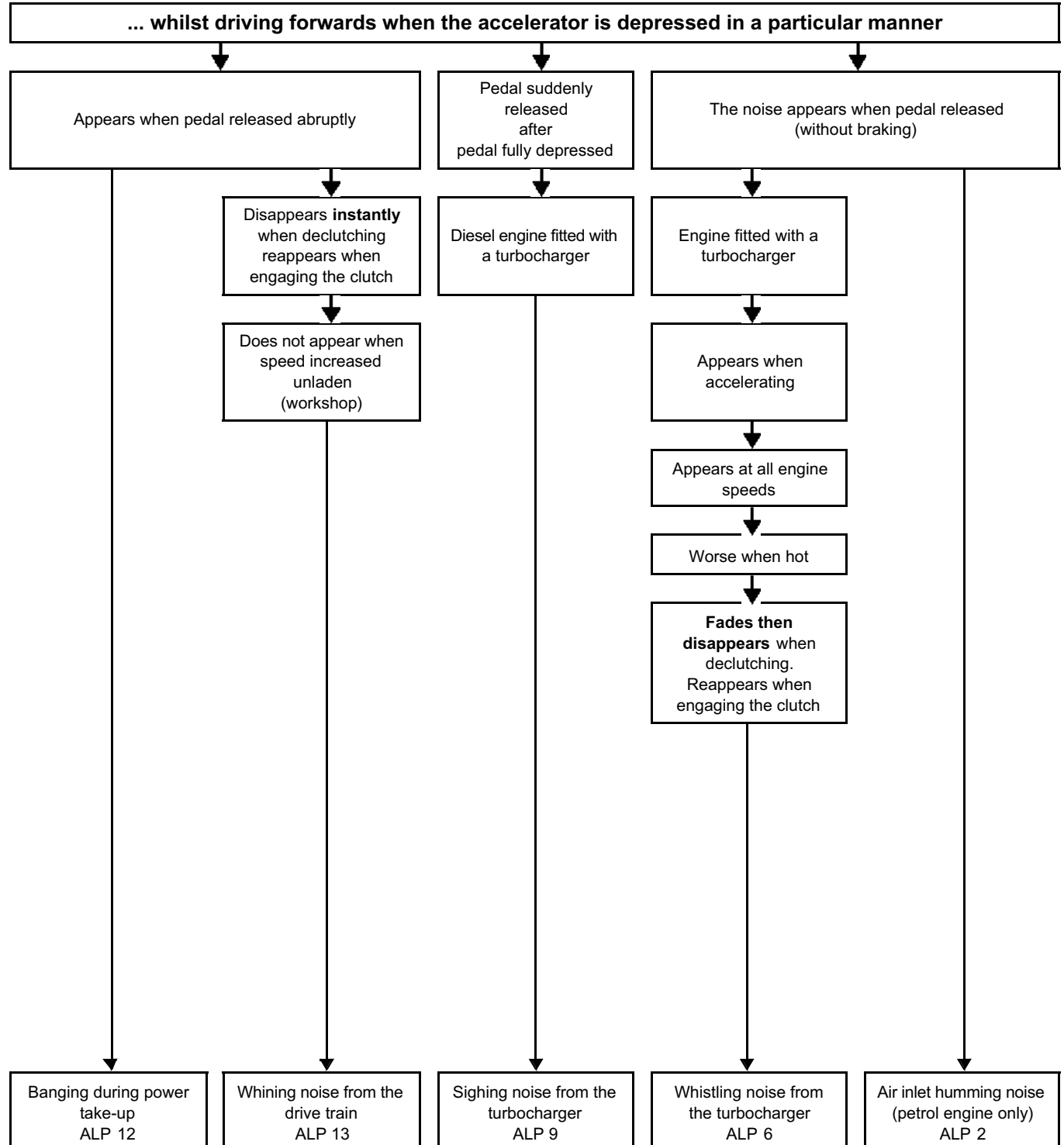
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Conditions under which the noise appears no. 6 (continued)

The noise is detected...



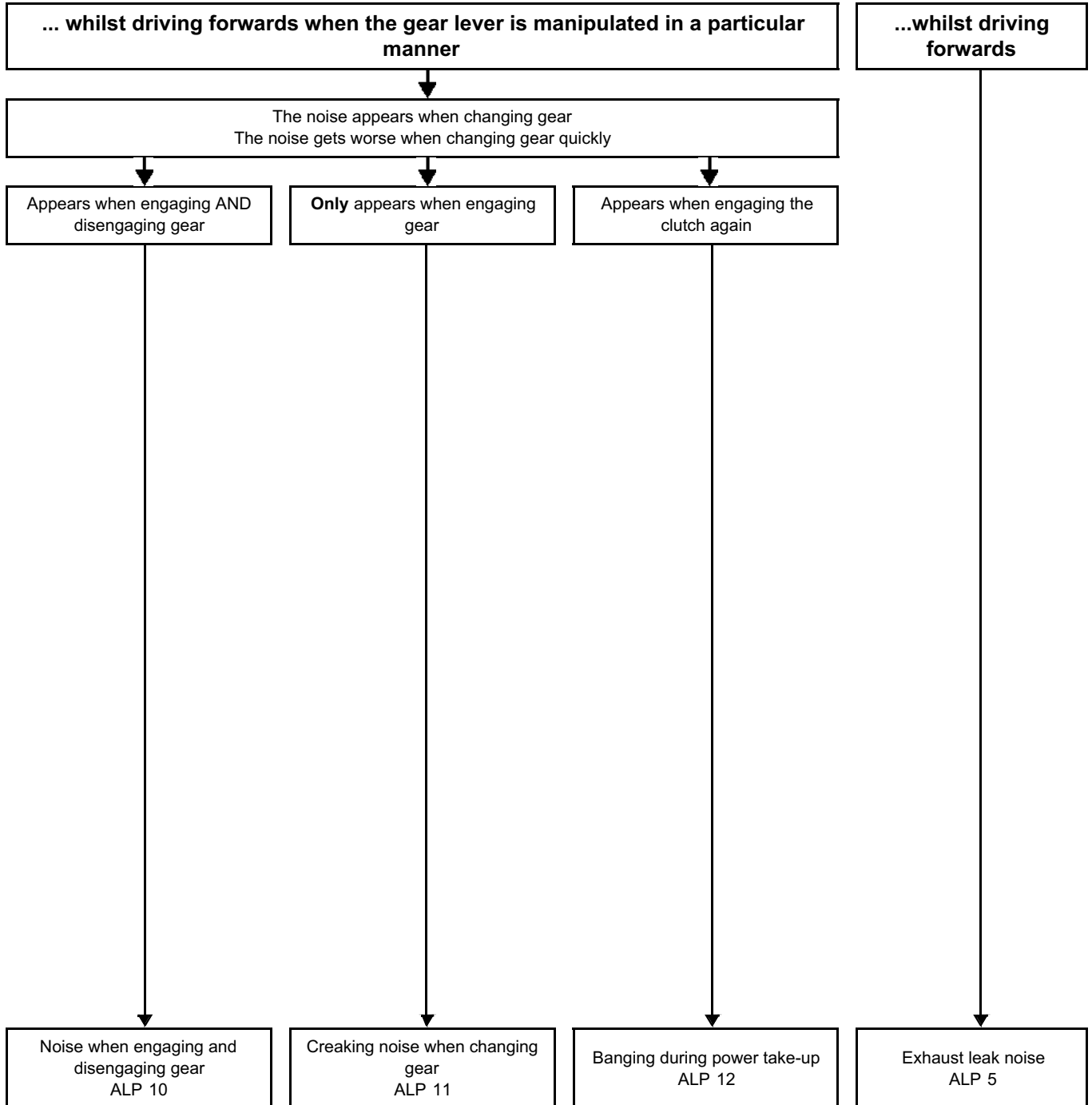
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Conditions under which the noise appears nos. 7 and 8

The noise is detected...



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Conditions under which the noise appears no. 9

The noise is detected...

... in reverse gear

The noise always appears when engaging and disengaging reverse gear.

The noise appears when the accelerator pedal is released suddenly.

The noise gets worse when changing gear quickly

Noise when engaging and disengaging gear
ALP 10

Banging during power take-up
ALP 12

Crackling from the hose (exhaust)
ALP 3

FAULT FINDING INTRODUCTION

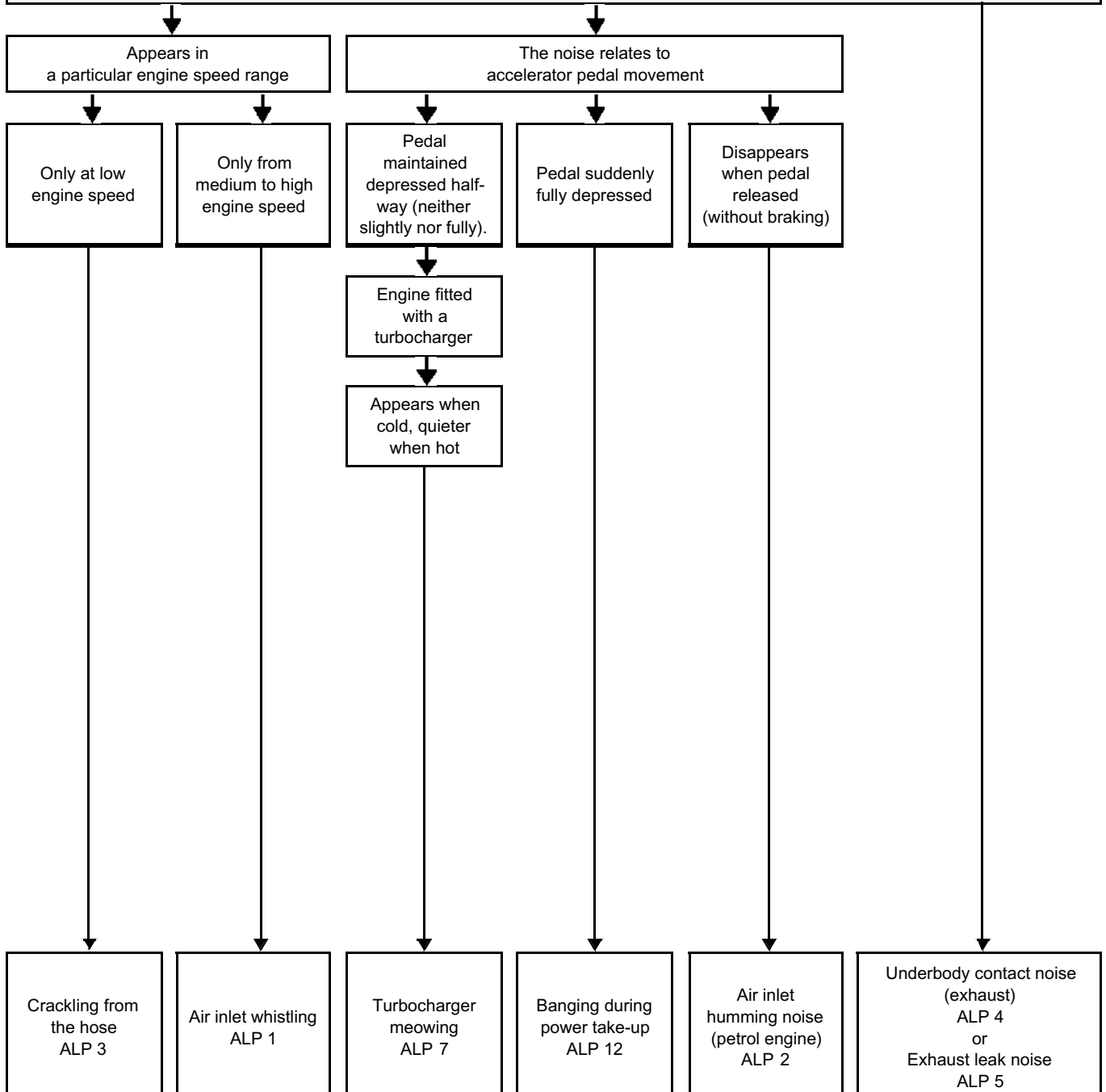
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Conditions under which the noise appears no. 10

The noise is detected...

... when starting (increased engine speed in 1st gear)



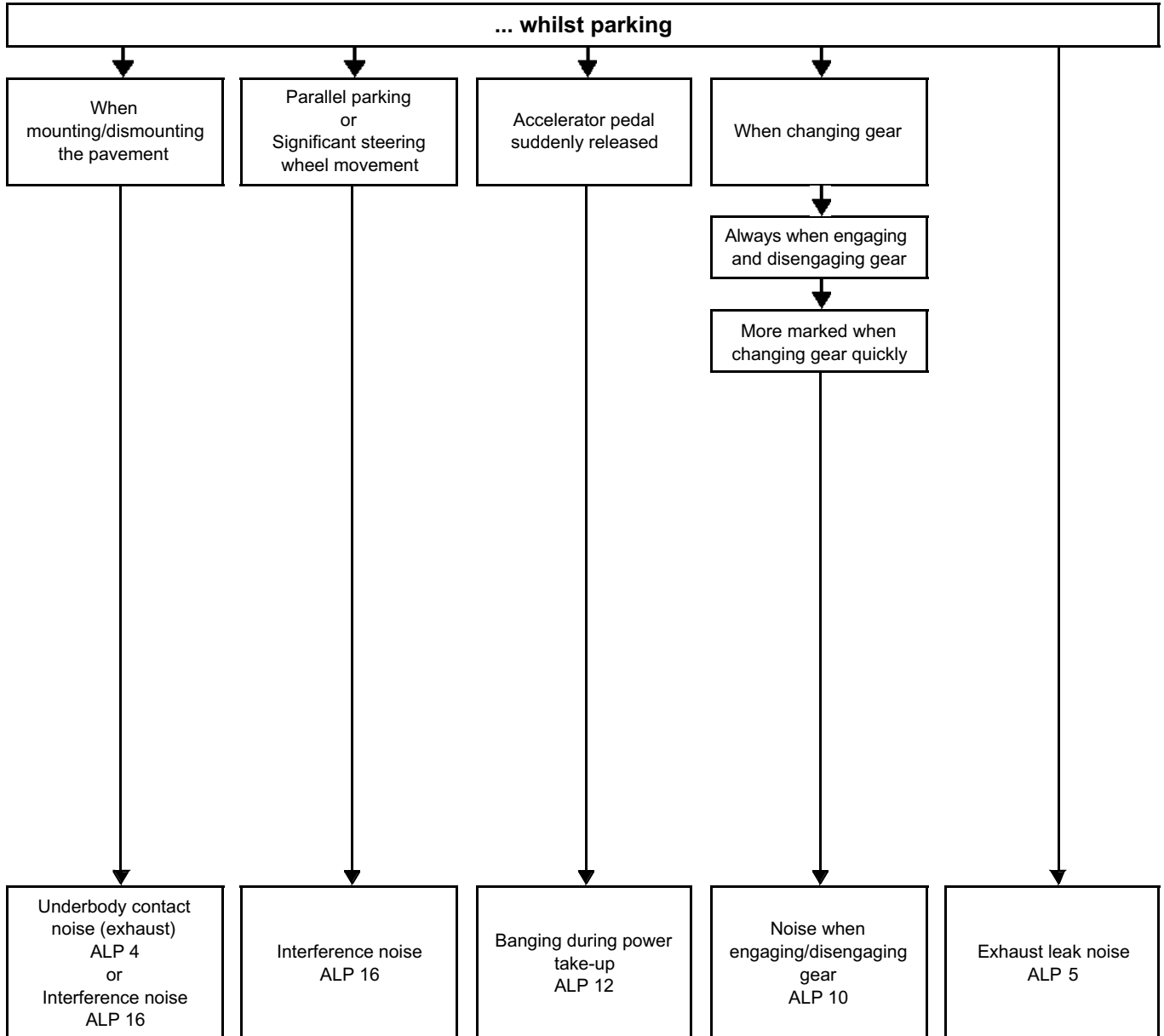
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Conditions under which the noise appears no. 11

The noise is detected...



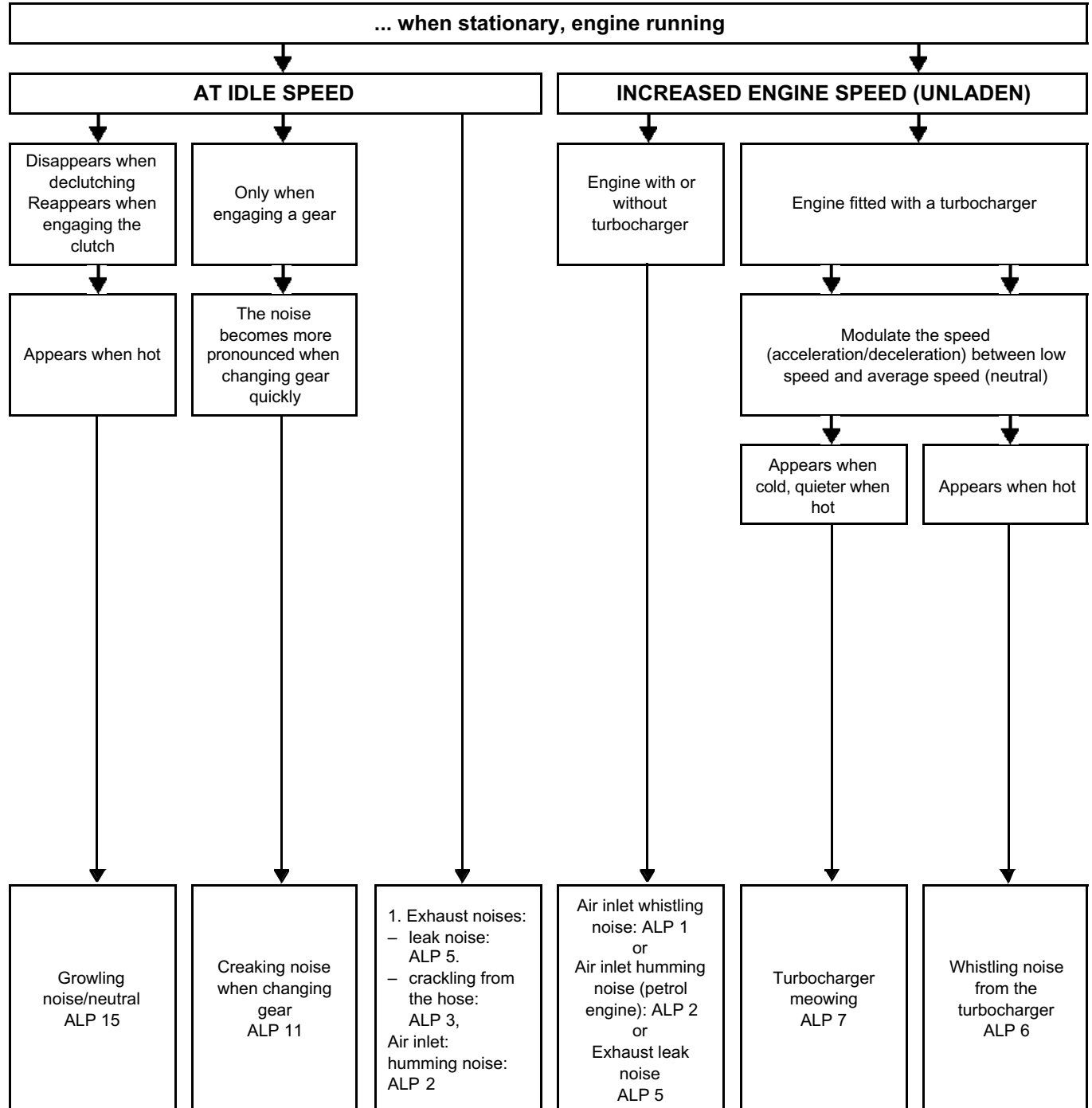
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Conditions under which the noise appears no. 12

The noise is detected...



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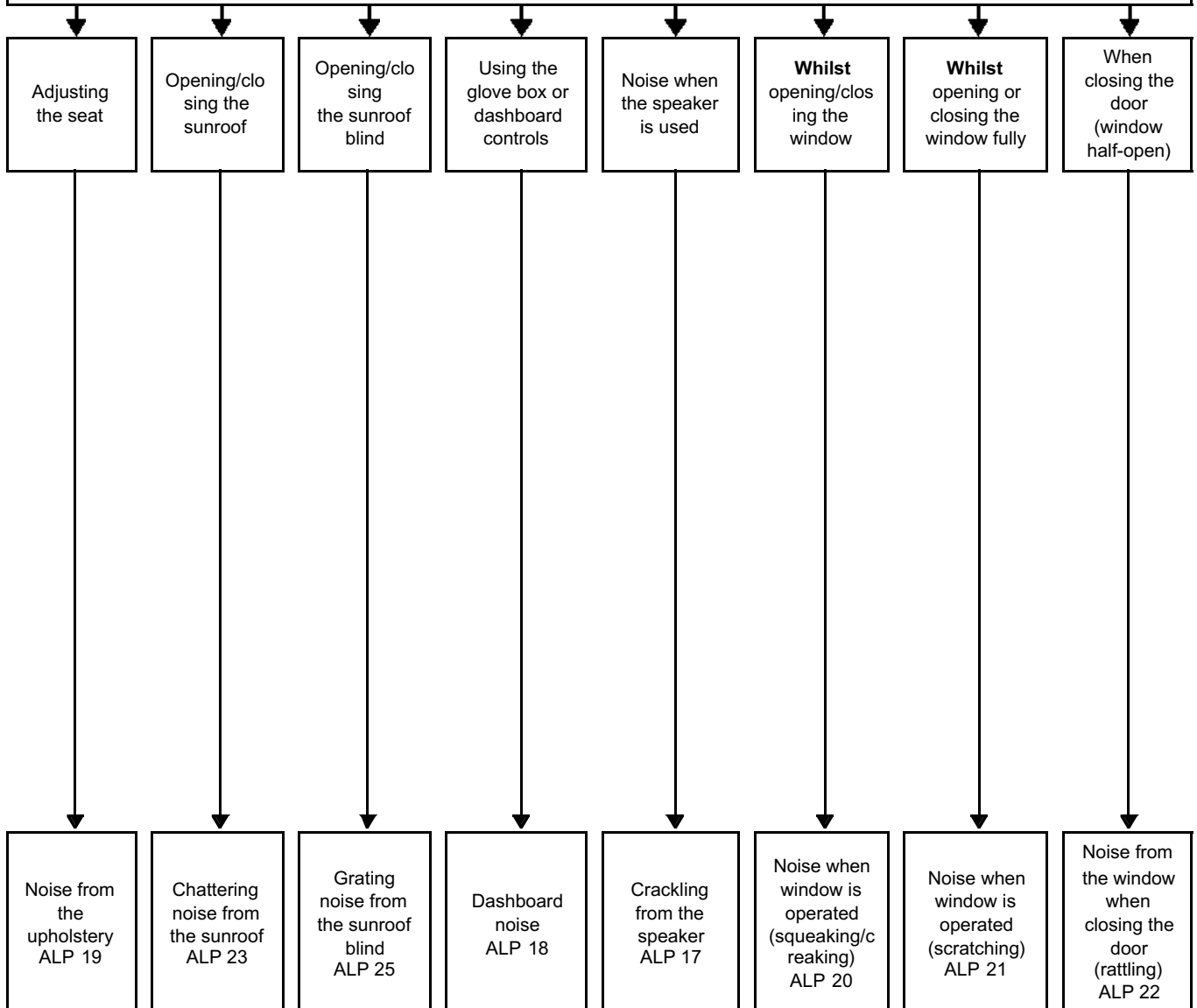
01E

Conditions under which the noise appears no. 13

The noise is detected...

... when stationary, engine running or not running

After driver's action on a vehicle fitting...



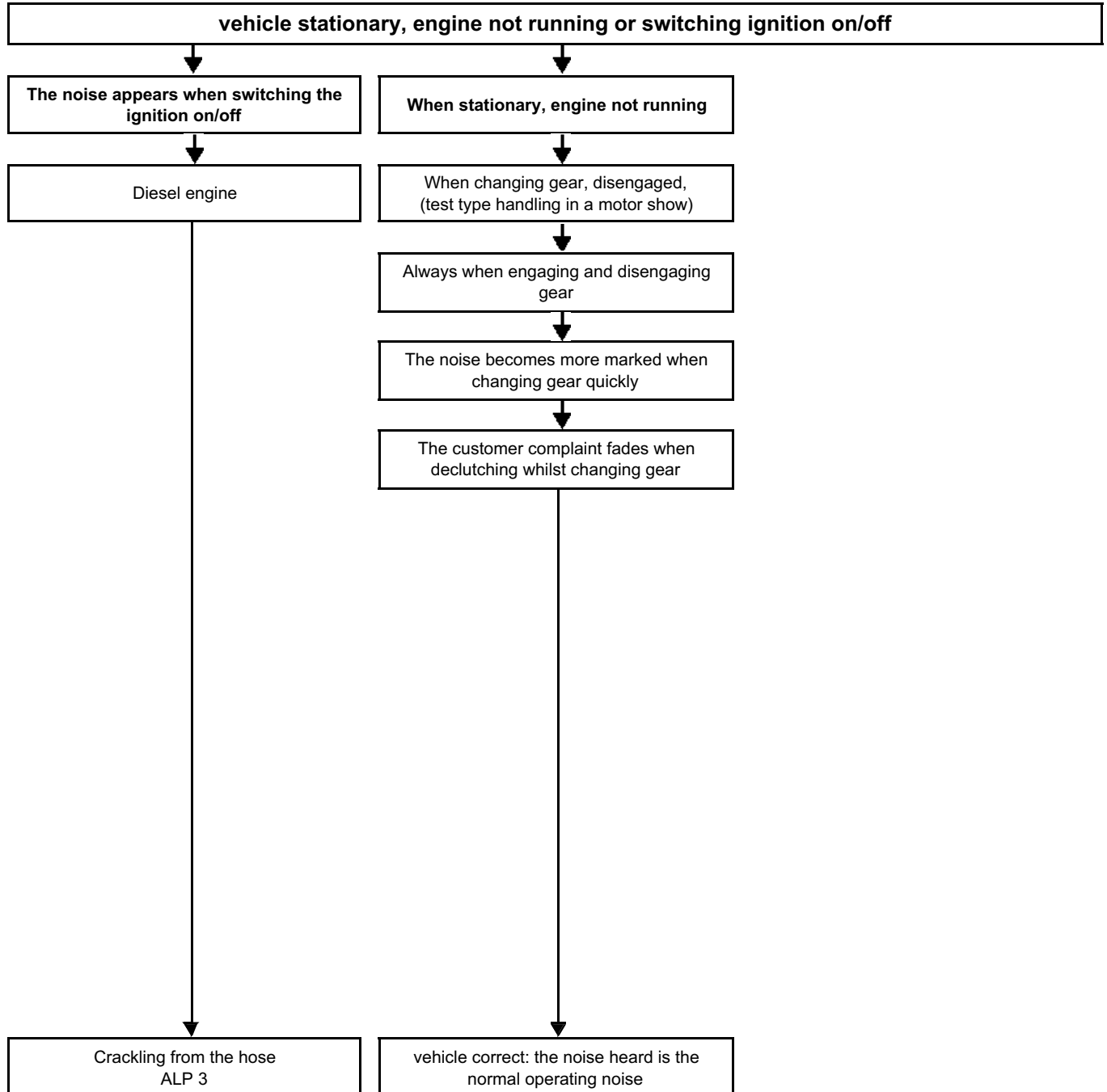
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Conditions under which the noise appears no. 14

The noise is detected...



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AIR INLET WHISTLING NOISES	ALP 1
AIR INLET HUMMING NOISES	ALP 2
CRACKLING NOISES FROM THE CONNECTING HOSE OR BALL JOINT BRACKET (DEPENDING ON VERSION) (EXHAUST)	ALP 3
UNDERBODY CONTACT NOISE (EXHAUST)	ALP 4
EXHAUST LEAK NOISE	ALP 5
WHISTLING NOISE FROM THE TURBOCHARGER	ALP 6
MEOWING NOISE FROM THE TURBOCHARGER	ALP 7
BLOWING NOISE FROM THE TURBOCHARGER	ALP 8
SIGHING NOISE FROM THE TURBOCHARGER (DIESEL ENGINE)	ALP 9
NOISE WHEN ENGAGING/DISENGAGING GEAR	ALP 10
CREAKING NOISE WHEN CHANGING GEAR	ALP 11
BANGING DURING POWER TAKE-UP OR TORQUE INVERSION	ALP 12
WHINING NOISE FROM THE DRIVE TRAIN	ALP 13

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DRIVE TRAIN MURMURING	ALP 14
GROWLING/NOISE FROM NEUTRAL (DRIVE TRAIN)	ALP 15
INTERFERENCE NOISES	ALP 16
CRACKLING FROM THE SPEAKERS	ALP 17
NOISE FROM THE DASHBOARD	ALP 18
NOISE FROM THE UPHOLSTERY	ALP 19
NOISE WHEN WINDOW IS OPERATED (SQUEAKING/CREAKING)	ALP 20
NOISE WHEN WINDOW IS OPERATED (SCRATCHING)	ALP 21
NOISE FROM THE WINDOW WHEN CLOSING THE DOOR (RATTLING)	ALP 22
SUNROOF CHATTERING: JERKY MOVEMENT WHEN OPENING/CLOSING SUNROOF MOBILE PANEL	ALP 23
SUNROOF CREAKING	ALP 24
GRATING NOISE FROM THE SUNBLIND	ALP 25
SUNROOF RATTLING	ALP 26

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 1	Air inlet whistling noises
--------------	-----------------------------------

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Preliminary step: determine the area concerned (if accessible).

With the engine running, reproduce the whistling noise and detect the cause by placing a hand (part by part) or using the noise diagnostic tool (see **Noise diagnostic tool - Use**) on components which may be causing the noise and examining the entire circuit.

Two possible scenarios can arise:

- scenario no. 1 - The area is identified: only apply the ALP to the suspect area.
- scenario no. 2 - The area is not identified: follow the ALP, applying it to the entire air circuit.

Check with the engine not running.

Condition of the air circuit assembly

The noise may be caused by:

- a damaged seal,
- a poorly fitted pipe,
- a damaged component.
- Check that all of the pipes are correctly clipped and/or fitted to each other, from one end of the circuit to the other.
- Check that the air filter unit, air resonators, air pipes and turbocharging air cooler are secured correctly.
- Check that the clips are tight enough.

not correct

Corrective action to be carried out:

In all cases, repair the air circuit, by fitting the pipes correctly and checking that the clips are correctly torque tightened using a release torque wrench preset to the recommended tightening torque.

correct



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

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ALP 1 CONTINUED 1	Air inlet whistling noises
------------------------------------	-----------------------------------



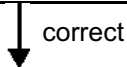
Air circuit component broken or aged.

- In the engine compartment, check that there is no damaged contact foam, brackets or mountings (damaged mountings and foam or broken pins or fingers).
- Check that there is no contact between the air pipes and other engine components (cylinder head,

↳ **Visual inspection:**

- check that there are no pierced or cracked pipes in the circuit, particularly in the areas of the gaiter and around the clips.
- Check that there are no solder faults.

not correct → Replace the part or parts concerned.



Check with the engine running.

↳ **Check using an "aerosol leak detector" type product, part No. 77 11 236 176:**

Carry out the previous check again whilst focussing the detector on the areas where the previous checks were difficult to carry out (e.g. gaiter, take-off point, temperature sensor access problems, etc.)

not correct →
Corrective action to be carried out:
 Carry out the corresponding corrective actions in accordance with the result of the search, as for example:
 – replace the seal and refit it **correctly**,
 – fit the pipe(s) correctly,
 – replace the damaged component.



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

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ALP 1 CONTINUED 2	Air inlet whistling noises
----------------------	----------------------------



Checking the internal air circuit passages, with the air pipes removed

Check the internal air circuit passages, and in particular:

↪ **Air filter:**

- air filter seal on the unit or its slide,
- air filter not damaged,
- air filter conformity (compare manufacturer's recommendations with the filter part number)

↪ **Other internal passage or part:**

- resonator not blocked,
- air pipe not blocked.

not correct → **Corrective action to be carried out:**

Replace the part or parts concerned.

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

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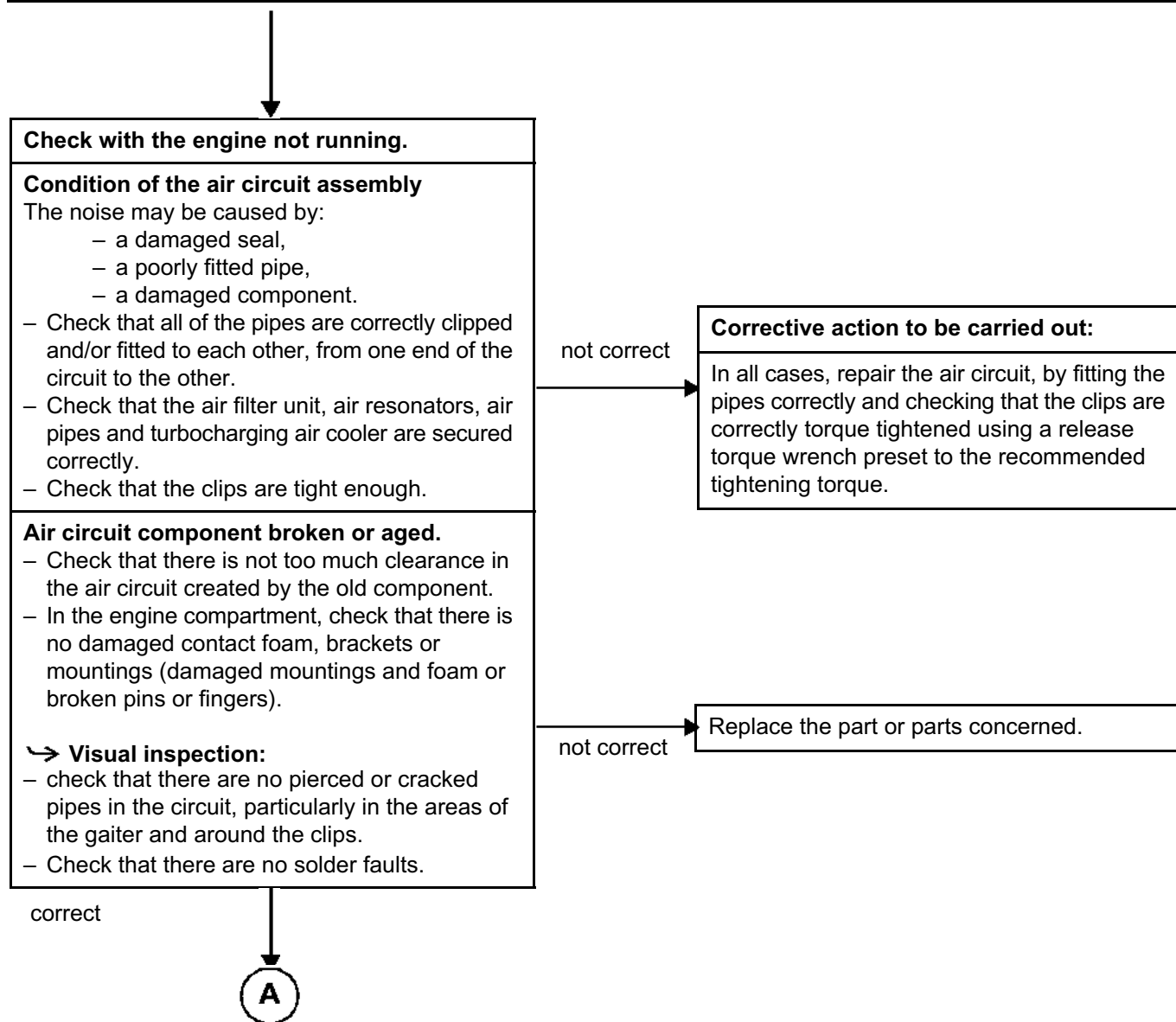
ALP 2	Air inlet humming noises
--------------	---------------------------------

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Preliminary step: determine the area concerned (if accessible).
 With the engine running, recreate the humming noise and locate the source by placing a hand (part by part) on the components which may be the cause and examining the entire circuit.

Two possible scenarios can arise:

- scenario no. 1 - The area is identified: only apply the ALP to the suspect area.
- scenario no. 2 - The area is not identified: follow the ALP, applying it to the entire air circuit.



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 2 CONTINUED	Air inlet humming noises
----------------------------	---------------------------------



**Checking the internal air circuit passages,
with the air pipes removed**

Check the internal air circuit passages, and in particular:

↪ **Air filter:**

- air filter seal on the unit or its slide,
- air filter not damaged,
- air filter conformity (compare manufacturer's recommendations with the filter part number)

↪ **Other internal passage or part:**

- resonator not blocked,
- air pipe not blocked.

not correct → **Corrective action to be carried out:**

Replace the part or parts concerned.

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 3	Crackling noises from the connecting hose or ball joint bracket (depending on version) (exhaust)
--------------	---

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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Preliminary step:
visually determine if the exhaust system has a ball joint bracket or a connecting hose (see vehicle MR, **19B EXHAUST**).

Check the tightening torques

With the vehicle raised on a lift, check that the torque wrench, which is preset to the recommended tightening torque, is released at the recommended tightening torque of the bracket (flat or ball joint) at the start of the exhaust system (see MR for vehicle, **19B EXHAUST, Catalytic converter: Removal - Refitting**).

Corrective action to be carried out:

Tighten to the recommended torque (see MR for vehicle, **19B EXHAUST, Catalytic converter: Removal - Refitting**).

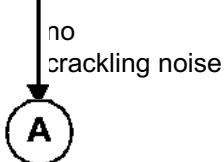
Check the exhaust system manually ON A VEHICLE LIFT (engine stopped)

With the exhaust system cold, lightly knock the exhaust system by hand in several places (especially on the front axle subframe), without reaching its stops.

Note:
If the exhaust system is suspended from the subframe, remove the suspension mounting(s) in order to knock the pipe.

Replace the part causing the noise:

- **connecting hose:** either replace the part only, when sold separately; or the connecting hose and the part to which it is welded (e.g. catalytic converter).
- **ball joint bracket:** replace the "sealing ring / mounting bolt / mounting nuts (if fitted) / springs" assembly

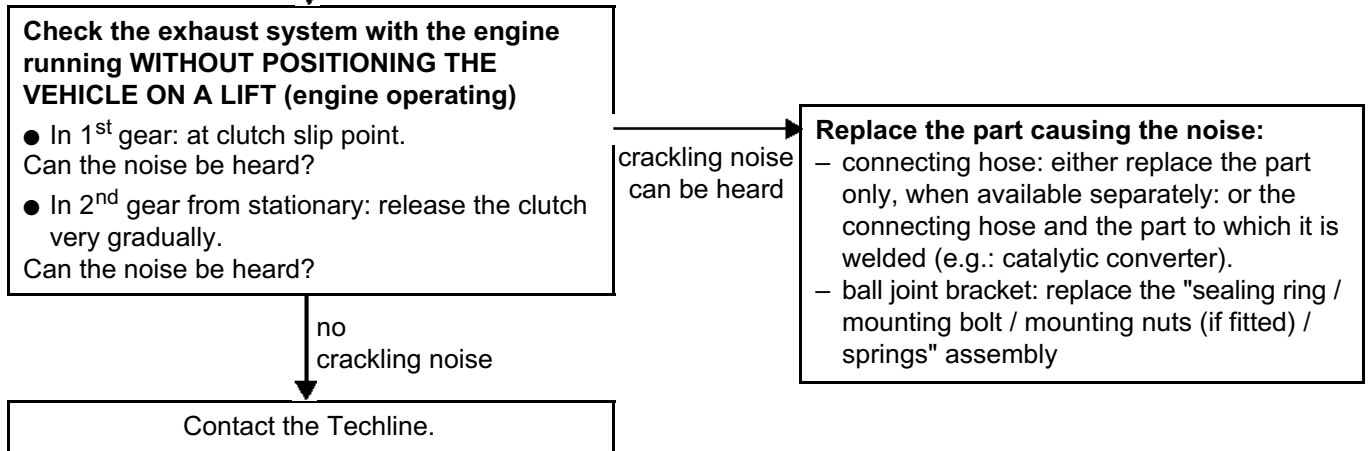


FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 3 CONTINUED	Crackling noises from the connecting hose or ball joint bracket (depending on version) (exhaust)
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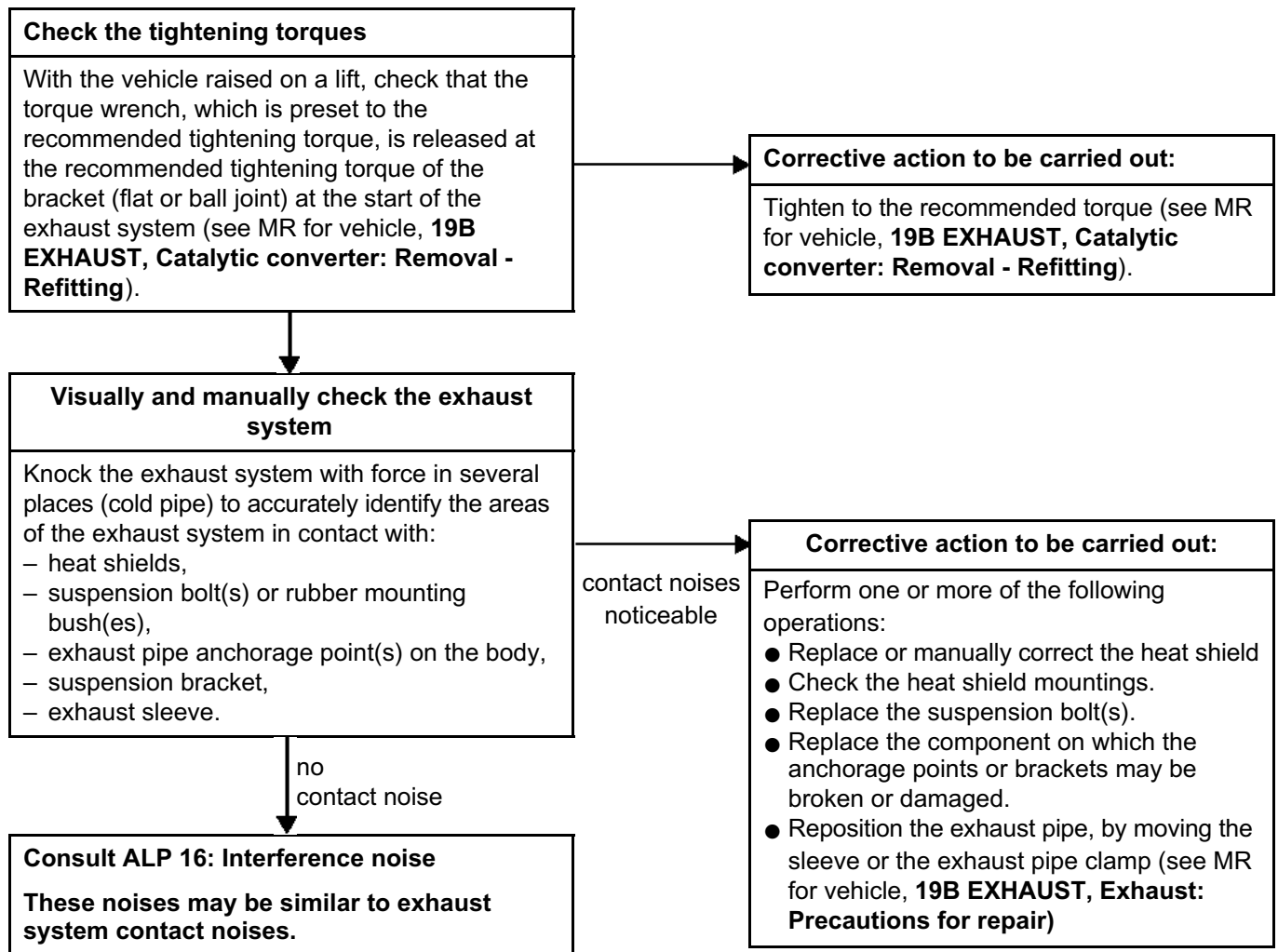
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 4	Underbody contact noise (exhaust)
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 5	Exhaust leak noise
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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DO NOT BLOCK the exhaust pipe output.
Remove the engine undertray.

Safety
Rules which MUST be respected when the engine is operating:

- heat-protective gloves must be worn when handling the hot exhaust
- connect an exhaust gas extractor



Check the exhaust system, which must only be carried out with the vehicle ON A LIFT, and the engine running

At idle speed (visual, aural and tactile inspection):
Wearing a heat-resistant glove, use one hand to lightly touch the exhaust system from the exhaust manifold to the exhaust tailpipe end.

More specifically, check:

- the seal on the exhaust manifold,
- the condition of the welds on the entire exhaust system,
- the exterior appearance of the exhaust system (impact, corrosion, cracks, welds, holes),
- the condition of the removable connections on the exhaust system (sleeves, clips and brackets)
- the presence of condensed water under the vehicle.

In certain cases and whenever possible in order to determine the leak, check the area in question using an "aerosol leak detector" type product, part no.77 11 236 176.

leak noises
noticeable

Corrective action to be carried out:

In all cases, only replace the suspect part (see MR for vehicle, **19B EXHAUST, Exhaust: Precautions for repair**)

no
leak noise



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 5 CONTINUED	Exhaust leak noise
--------------------	--------------------



Check the exhaust system
This must be carried out by two people, with the vehicle **LOW ON THE LIFT** (lift raised 50 centimetres), with the engine running

Accelerating slightly, in neutral (visual and aural inspection):
Carry out the previous checks again.

no
leak noise

Consult ALP 1: Air inlet whistling noise

leak noises
noticeable

Corrective action to be carried out:

In all cases, only replace the suspect part (see MR for vehicle, **19B EXHAUST, Exhaust: Precautions for repair**)

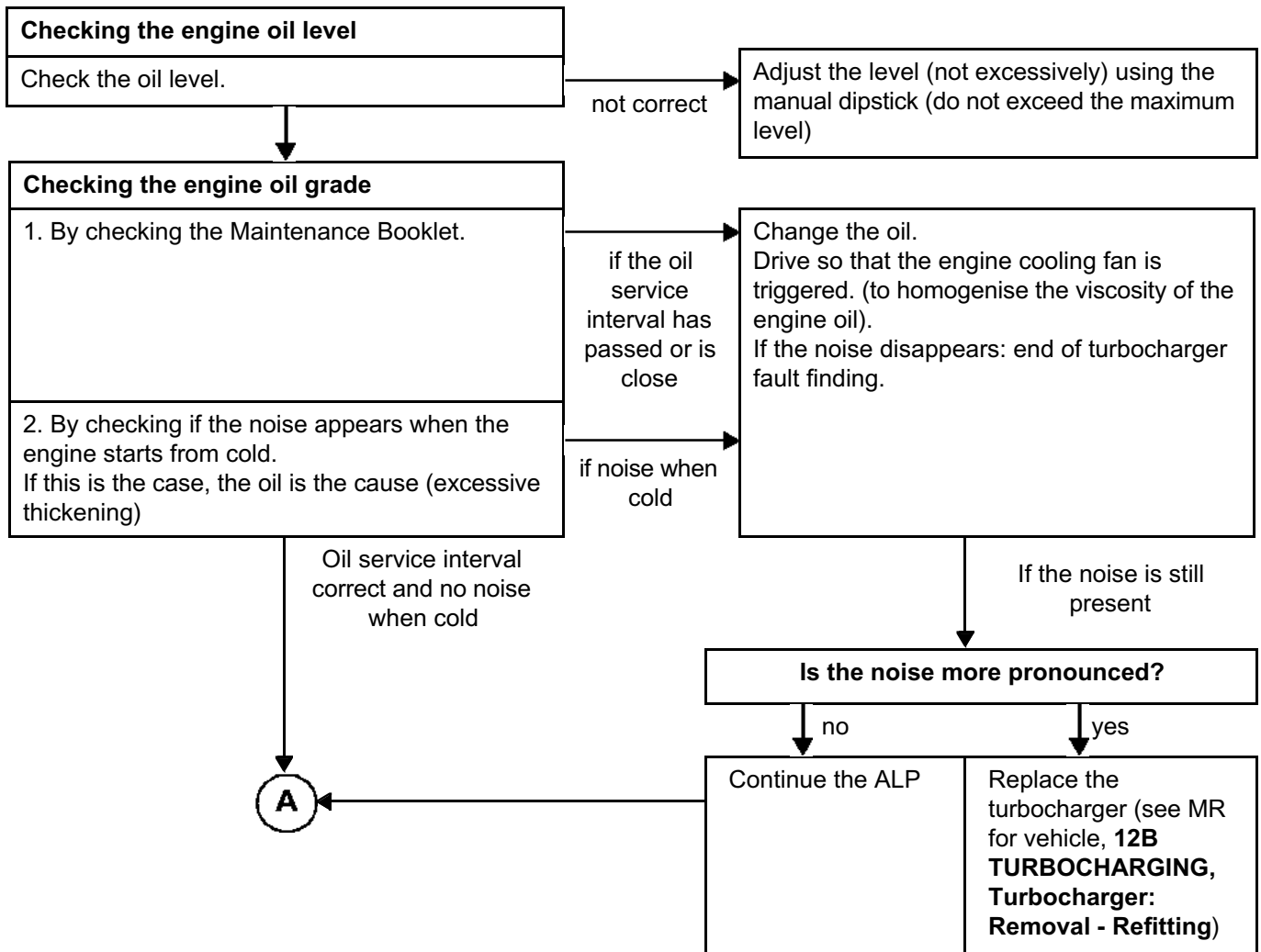
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 6	Whistling noise from the turbocharger
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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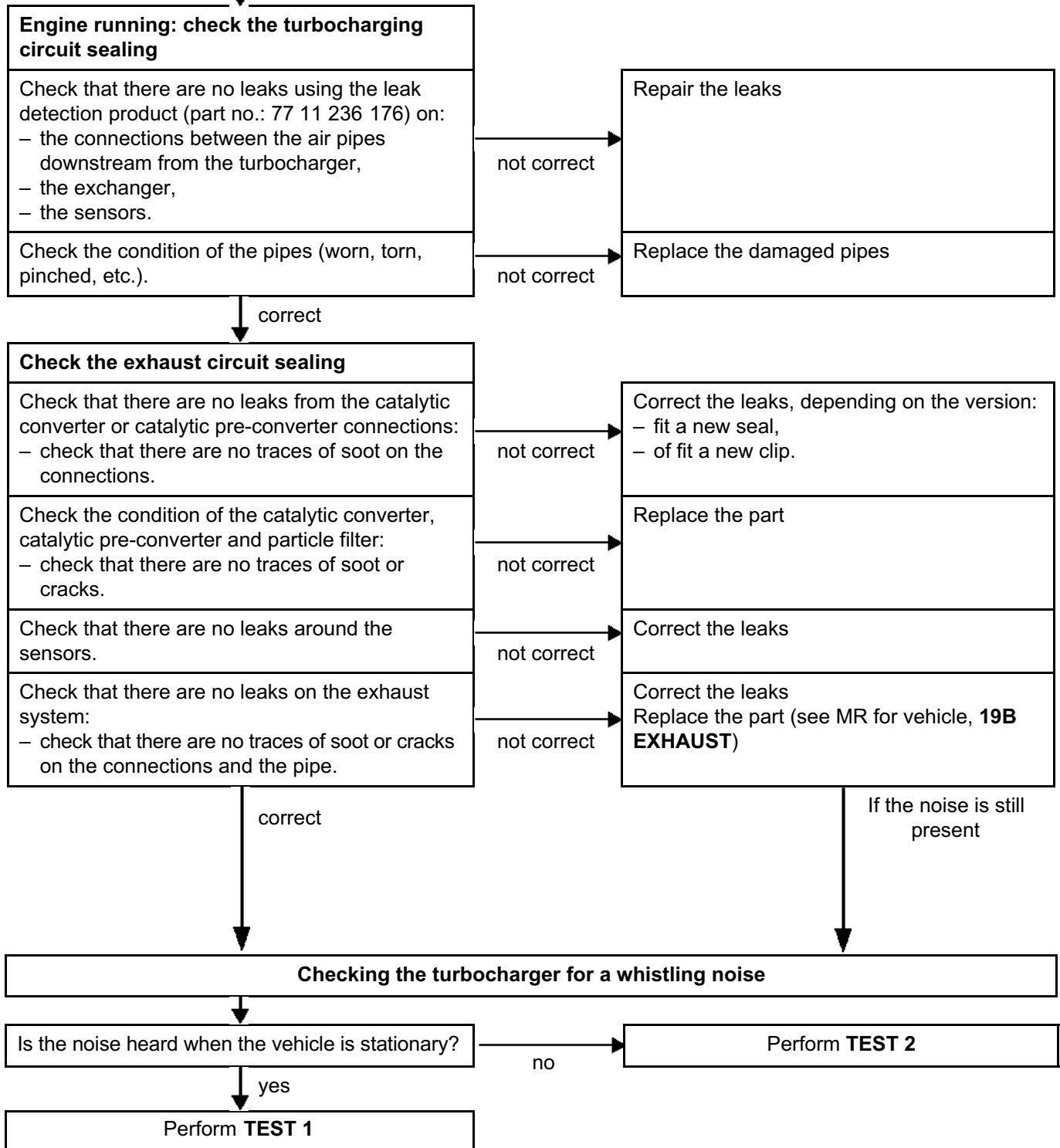
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 6 CONTINUED 1	Whistling noise from the turbocharger
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A



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 6 CONTINUED 2	Whistling noise from the turbocharger
------------------------------------	--

TEST 1

Configurations: vehicle stationary, **disengaged**, engine running and warm
 Before the test, clearly identify the speed conditions under which the noise appears

A) For a vacuum-controlled turbocharger:

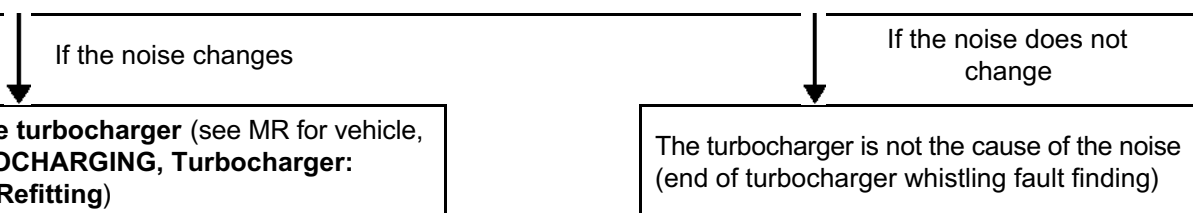
- Disconnect the pneumatic control on the turbocharger regulator.
- Clamp the pipe (e.g. using a set of hose clamps).
- Only for a turbocharger on G9T 710* engine: create a vacuum to control the regulator using a pressure-vacuum pump at a vacuum value of 0.6 bar (opening the pressure regulation valve).

B) For a pressure-controlled turbocharger:

- Disconnect the pneumatic control on the turbocharger regulator.
- Clamp the pipe (e.g. using a set of hose clamps).
- Create pressure to control the regulator using a pressure-vacuum pump at a maximum pressure value of 1.4 bar (opening the turbocharger by-pass valve).

These operations aim to lower the speed of the turbocharger which changes the conditions under which the noise appears.

** On the G9T 710 engine, the turbocharger controls are inverted.*



TEST 2

Configurations: vehicle driving when warm
 Before the test, clearly identify the speed conditions under which the noise appears

A) For a vacuum-controlled turbocharger:

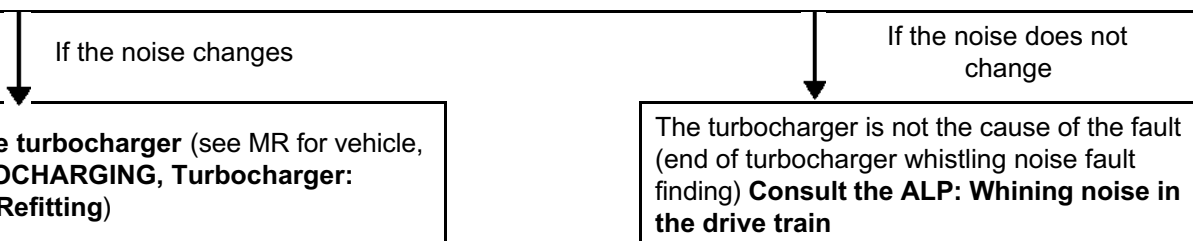
- Disconnect the pneumatic control on the turbocharger regulator.
- Clamp the pipe (e.g. using a set of hose clamps).
- Only for a turbocharger on G9T 710* engine: create a vacuum to control the regulator using a pressure-vacuum pump at a vacuum value of 0.6 bar (opening the pressure regulation valve).

B) For a pressure-controlled turbocharger:

- Disconnect the pneumatic control on the turbocharger regulator.
- Clamp the pipe (e.g. using a set of hose clamps).
- Create pressure to control the regulator using a pressure-vacuum pump at a maximum pressure value of 1.4 bar (opening the turbocharger by-pass valve).

These operations aim to lower the speed of the turbocharger which changes the conditions under which the noise appears.

** On the G9T 710 engine, the turbocharger controls are inverted.*



FAULT FINDING INTRODUCTION

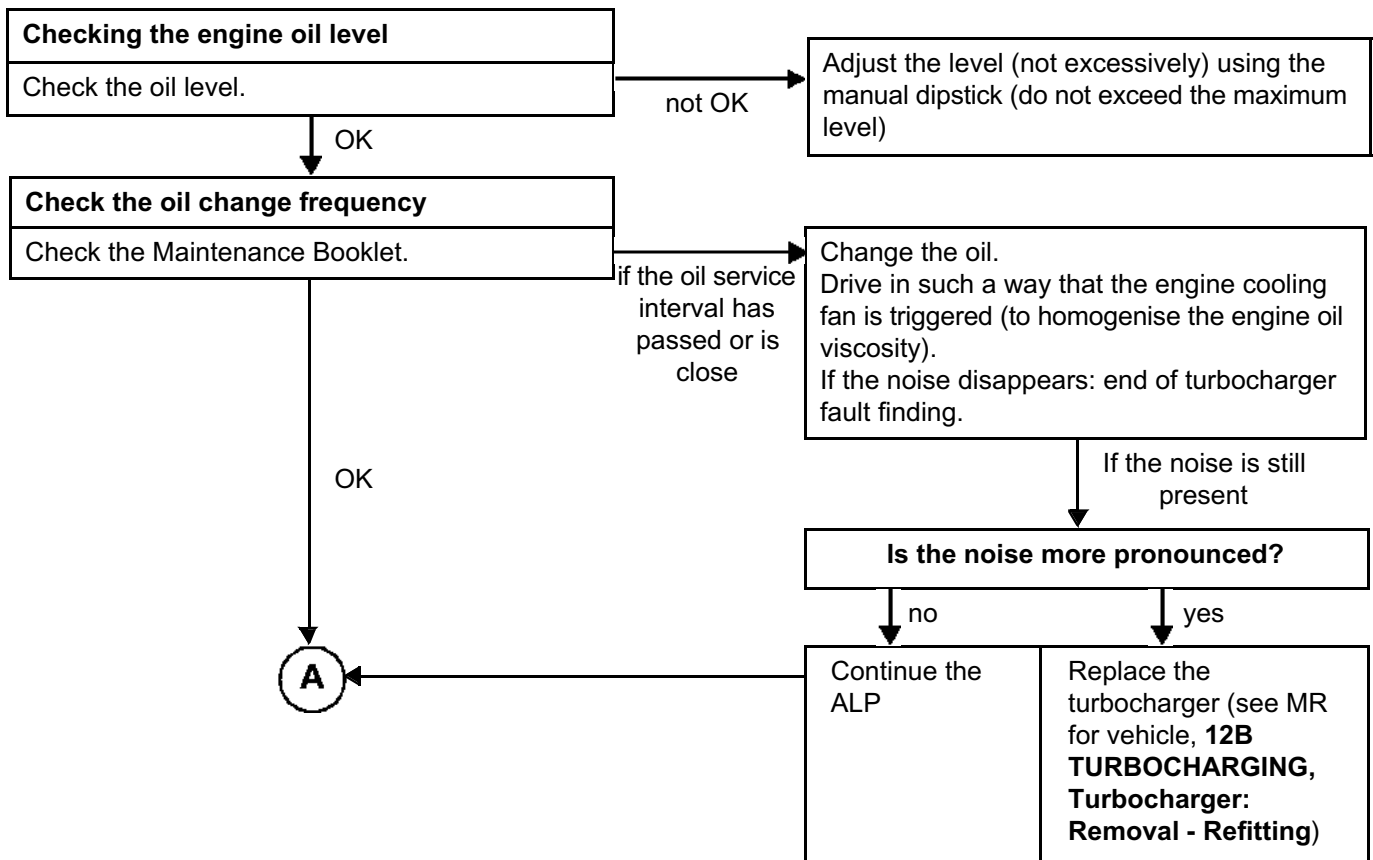
Fault finding – Fault Finding Chart

01E

ALP 7	Meowing noise from the turbocharger
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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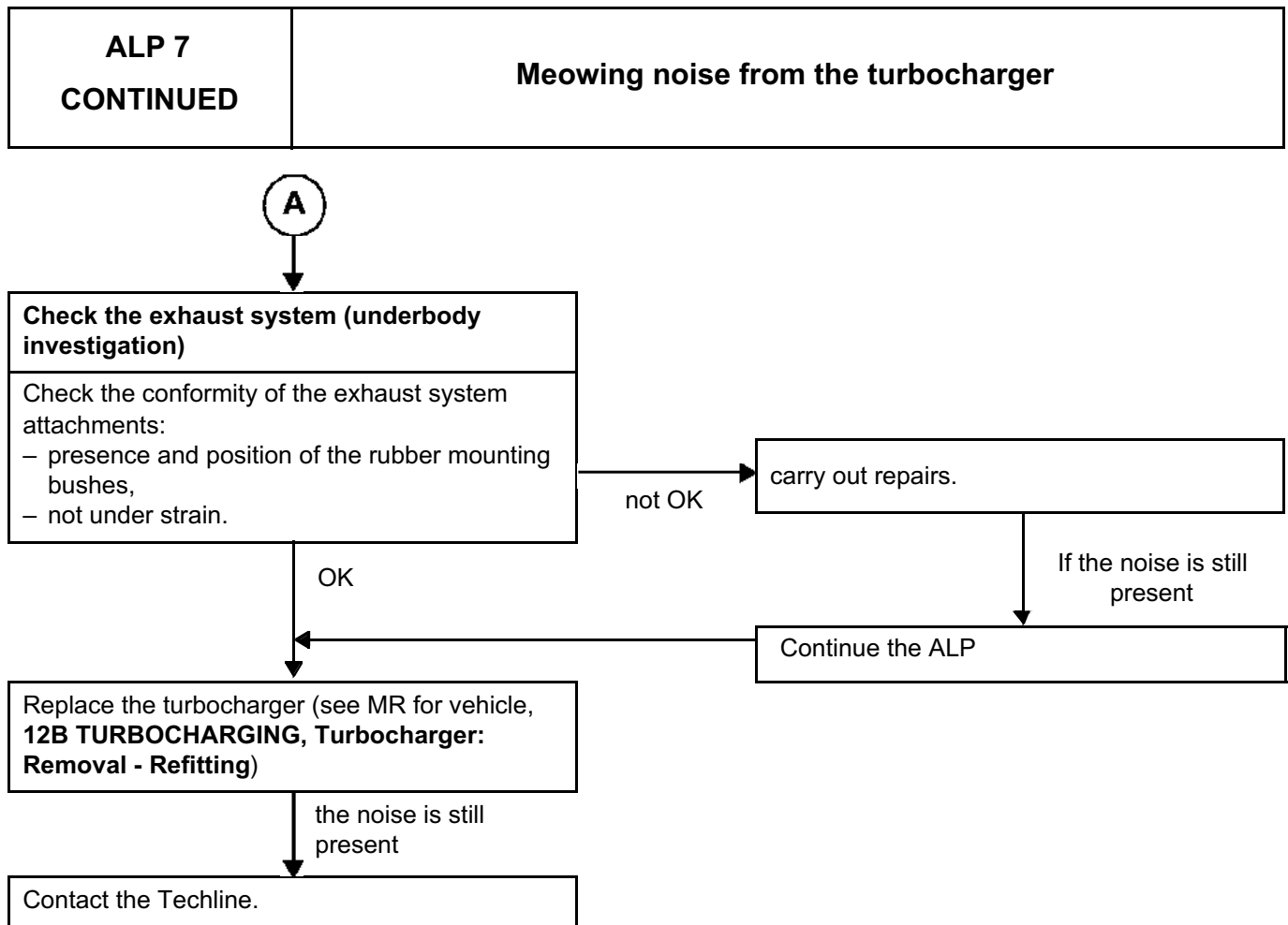
IMPORTANT:
Consult the vehicle's history in the ICM database and check that the exhaust system has not been replaced (even partially) and that no work has been undertaken on the high pressure air circuit.
If this is the case, check that the operation was carried out correctly.



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E



FAULT FINDING INTRODUCTION

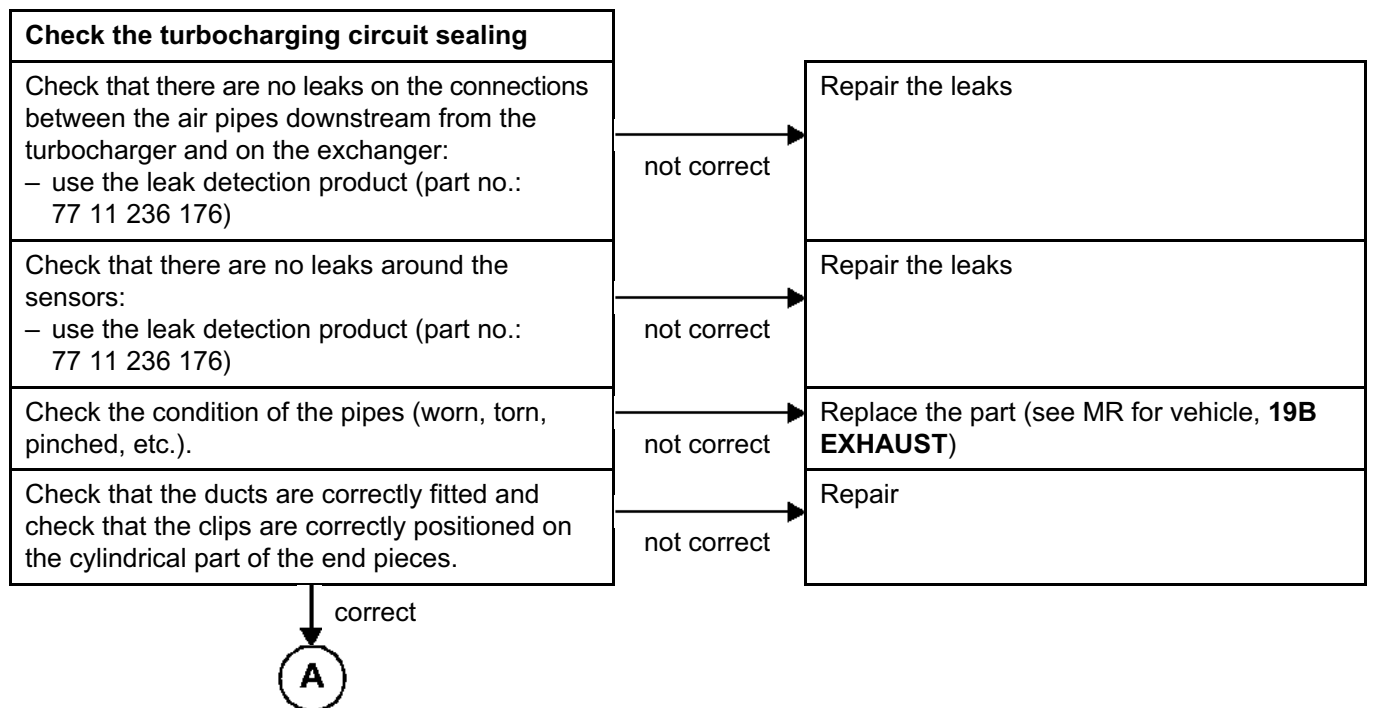
Fault finding – Fault Finding Chart

01E

ALP 8	Blowing noise from the turbocharger
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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IMPORTANT:
 Consult the vehicle's history in the ICM database and check that the exhaust system has not been replaced (even partially) and that no work has been undertaken on the high pressure air circuit.
 If this is the case, check that the operation was carried out correctly.



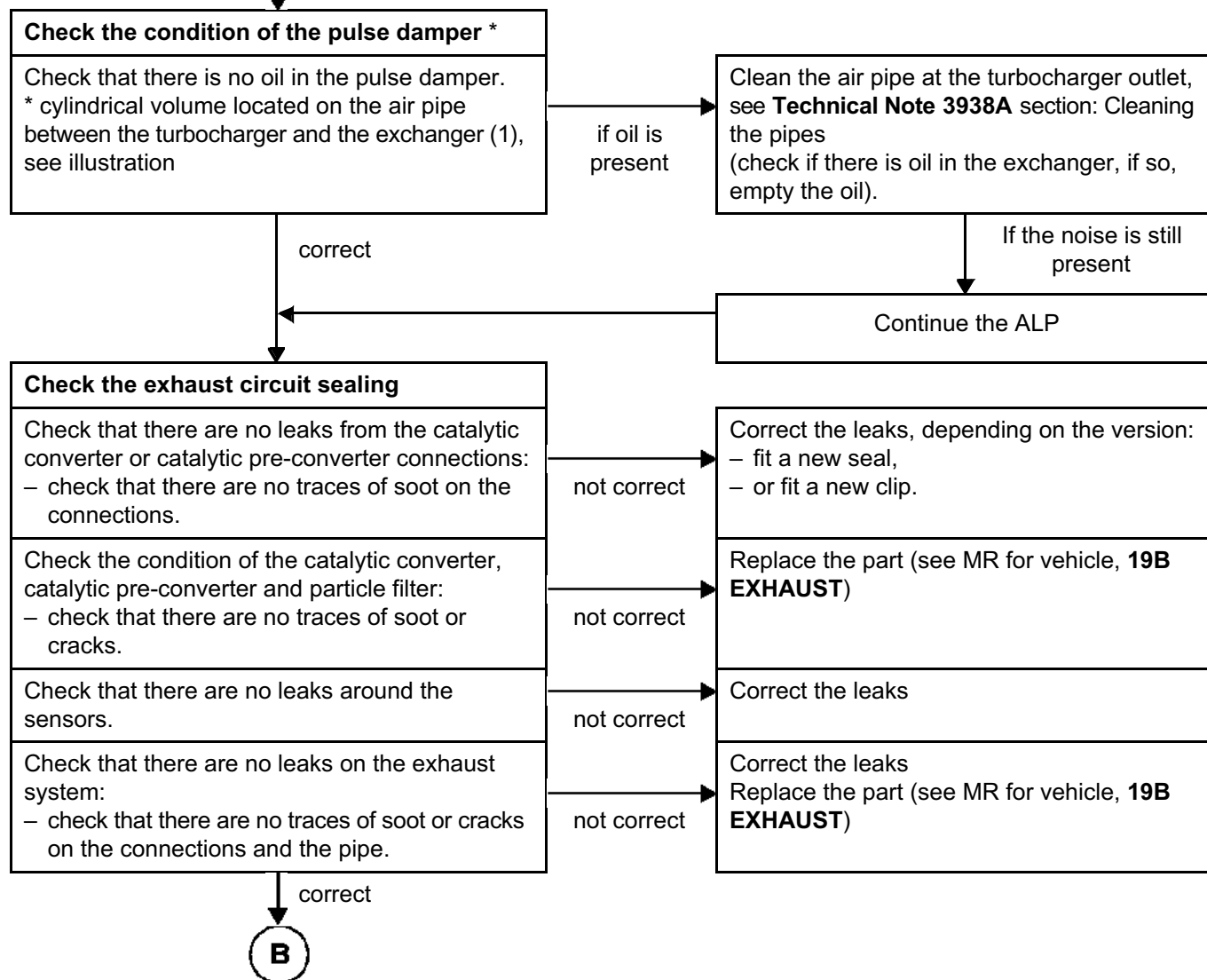
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

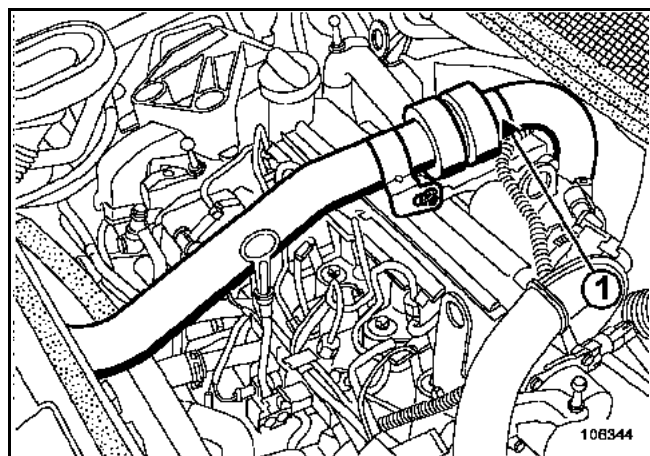
01E

ALP 8 CONTINUED 1	Blowing noise from the turbocharger
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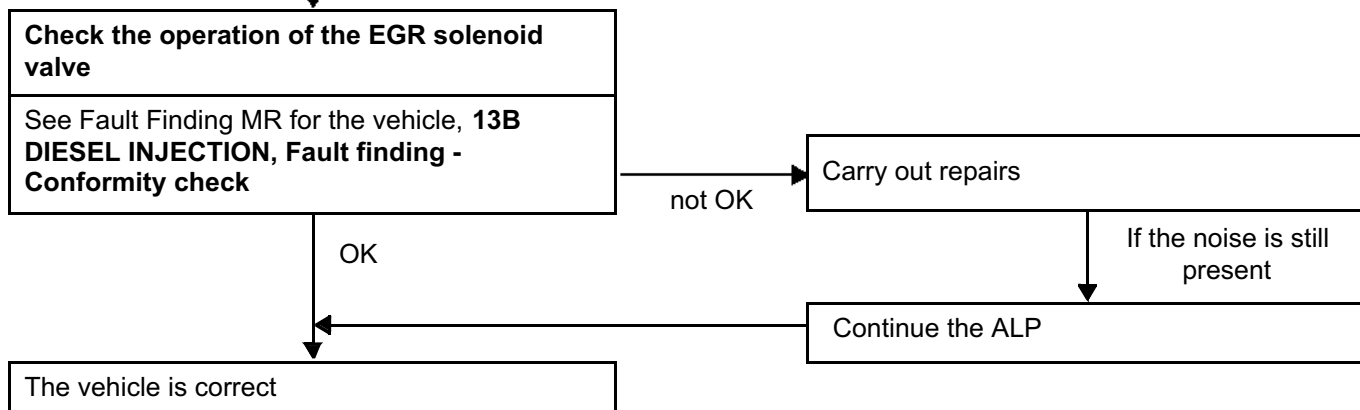
A



ALP 8 CONTINUED 2	Blowing noise from the turbocharger
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B



FAULT FINDING INTRODUCTION

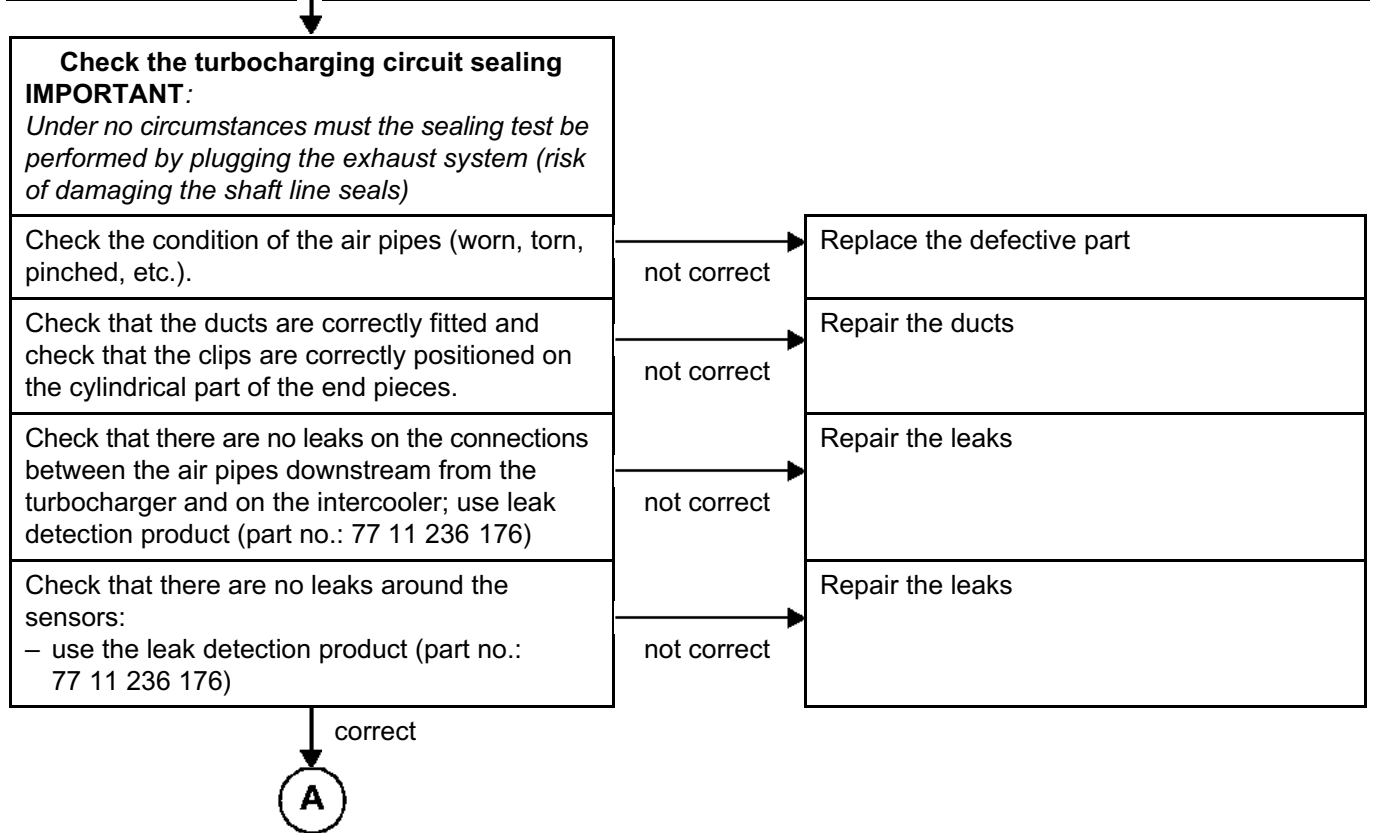
Fault finding – Fault Finding Chart

01E

ALP 9	Sighing noise from the turbocharger (diesel engine)
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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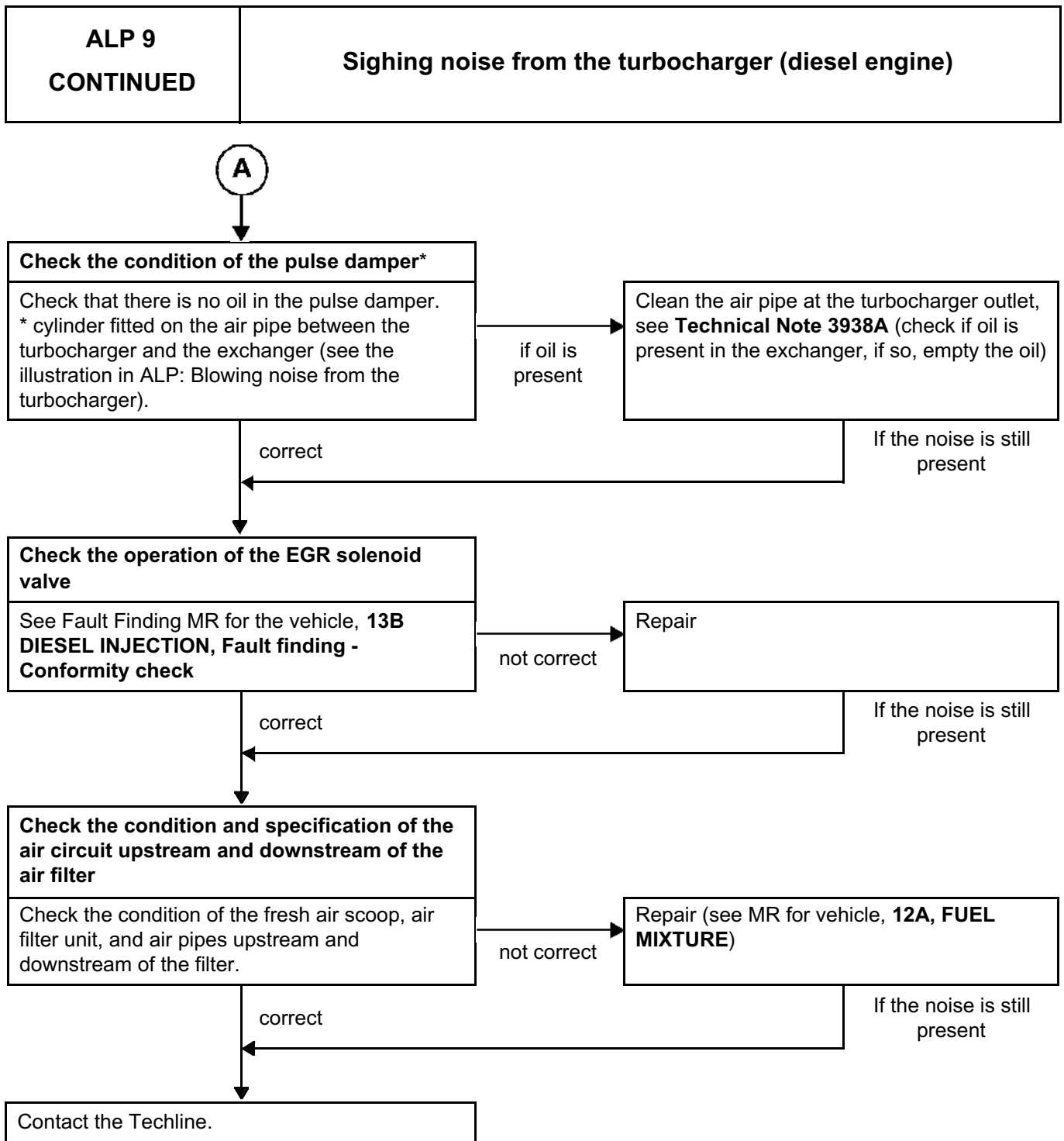
IMPORTANT: Consult the vehicle's history in the ICM database and check that the exhaust system has not been replaced (even partially) and that no work has been undertaken on the high pressure air circuit. If this is the case, check that the operation was carried out correctly.



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E



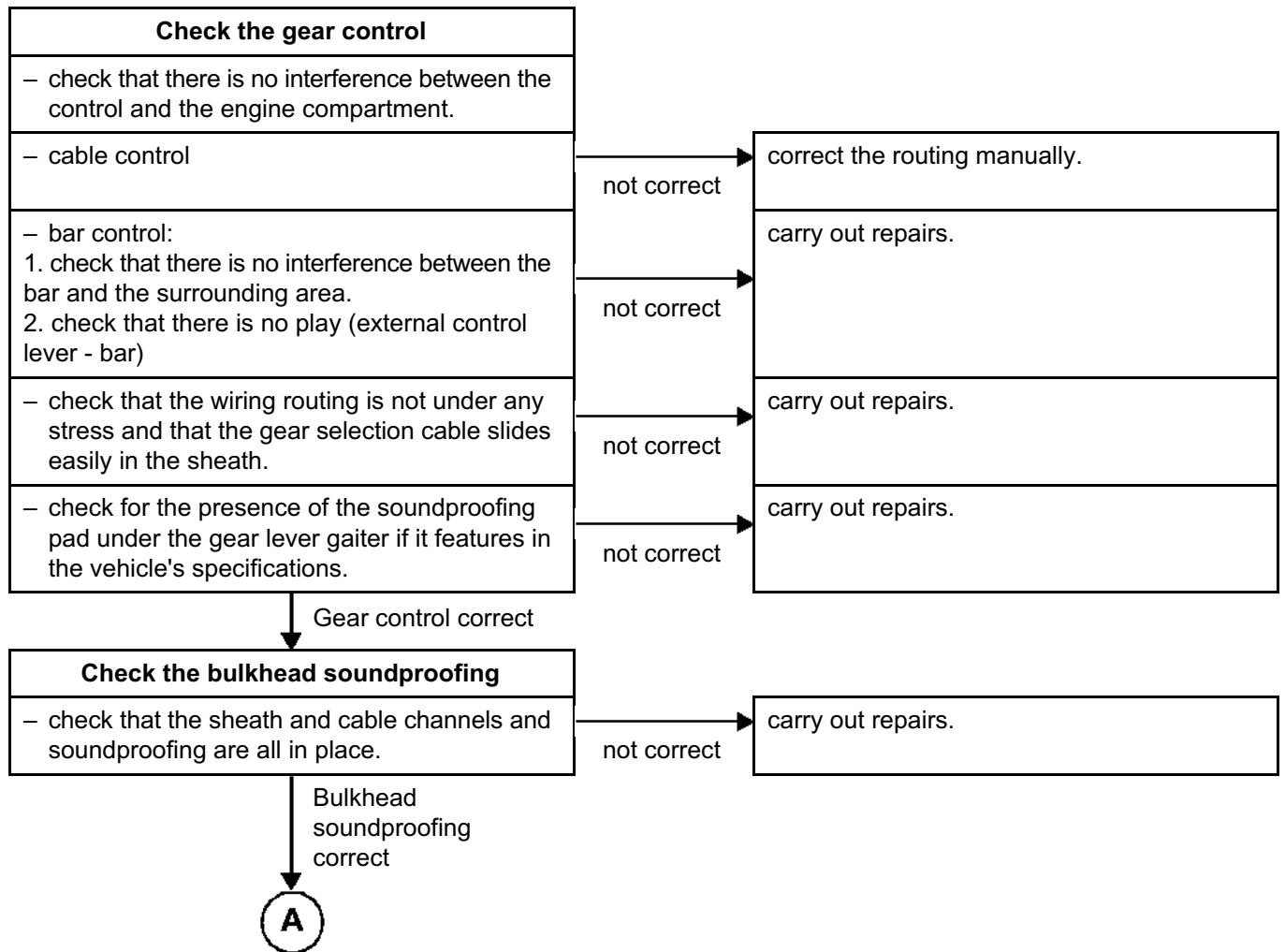
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 10	Noise when engaging/disengaging gear
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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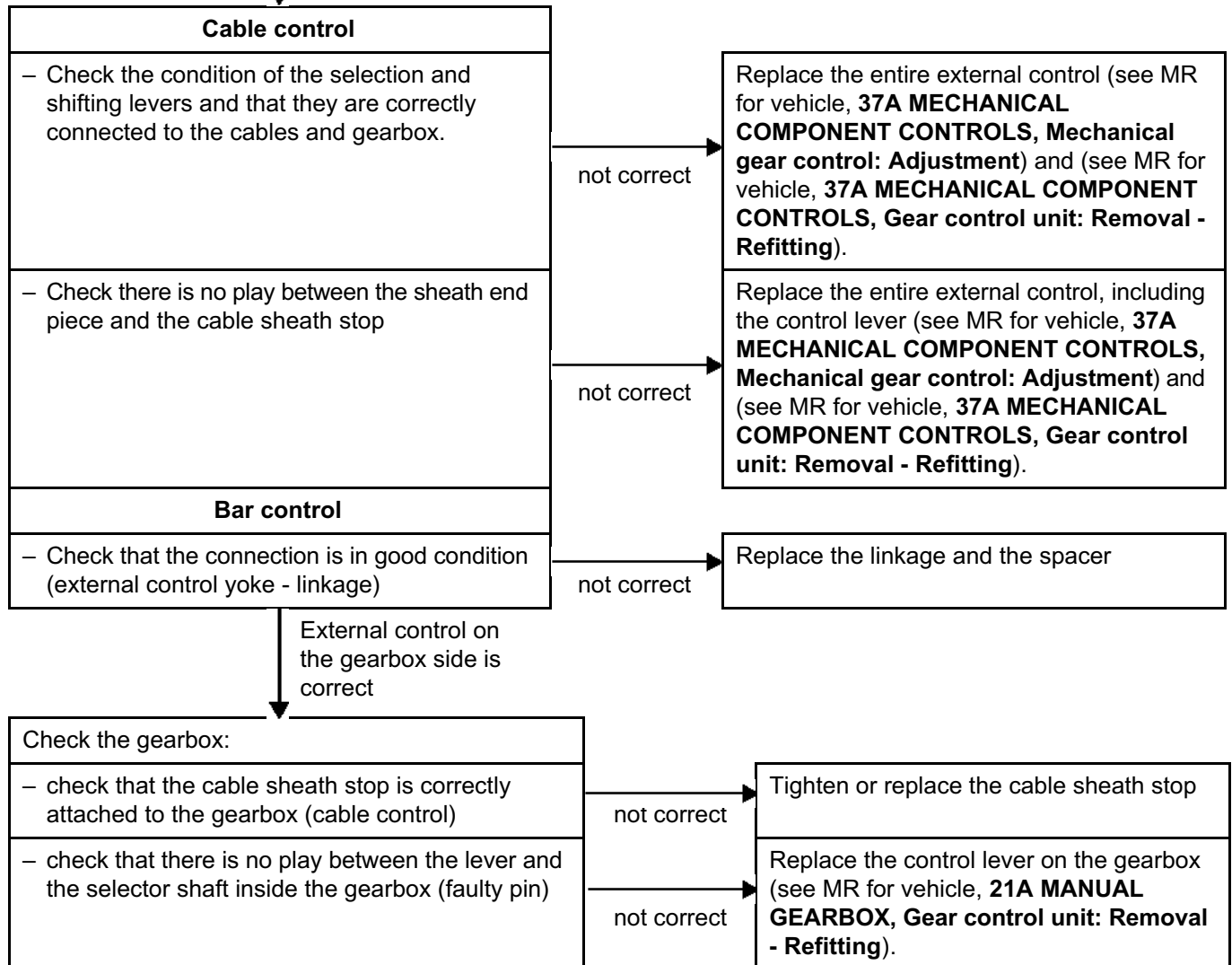


FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 10 CONTINUED 1	Noise when engaging/disengaging gear
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gearbox correct



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

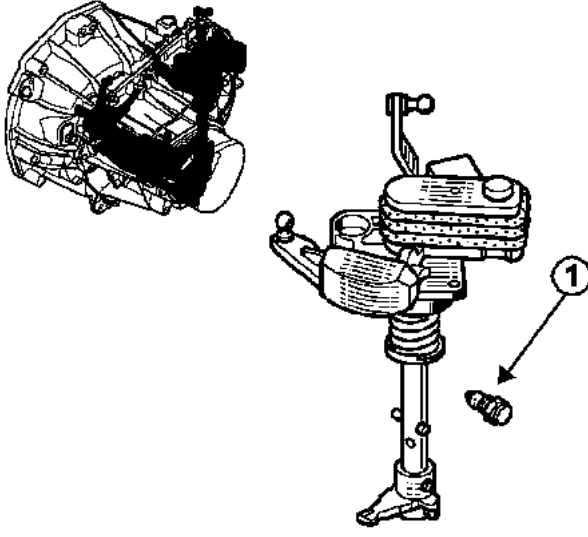
01E

ALP 10 CONTINUED 2	Noise when engaging/disengaging gear
-------------------------------------	---



Only for JH JR gearboxes

Replace the locating ball unit (1)



26573

↓ gearbox correct

If the noise is still present, contact the Techline

*	Gearbox	Technical Note No.
	PA6 - PK5 - PK6	Technical Note 6003A
	TL4	Technical Note 6019A
	ZF5 S 270 and ZF6 S 350	Technical Note 6016A
	PF6 - PK4	Technical Note 6021A
	JA3, JH1, JH3, JR5	Technical Note 6029A
	ND0	Technical Note 6034A

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

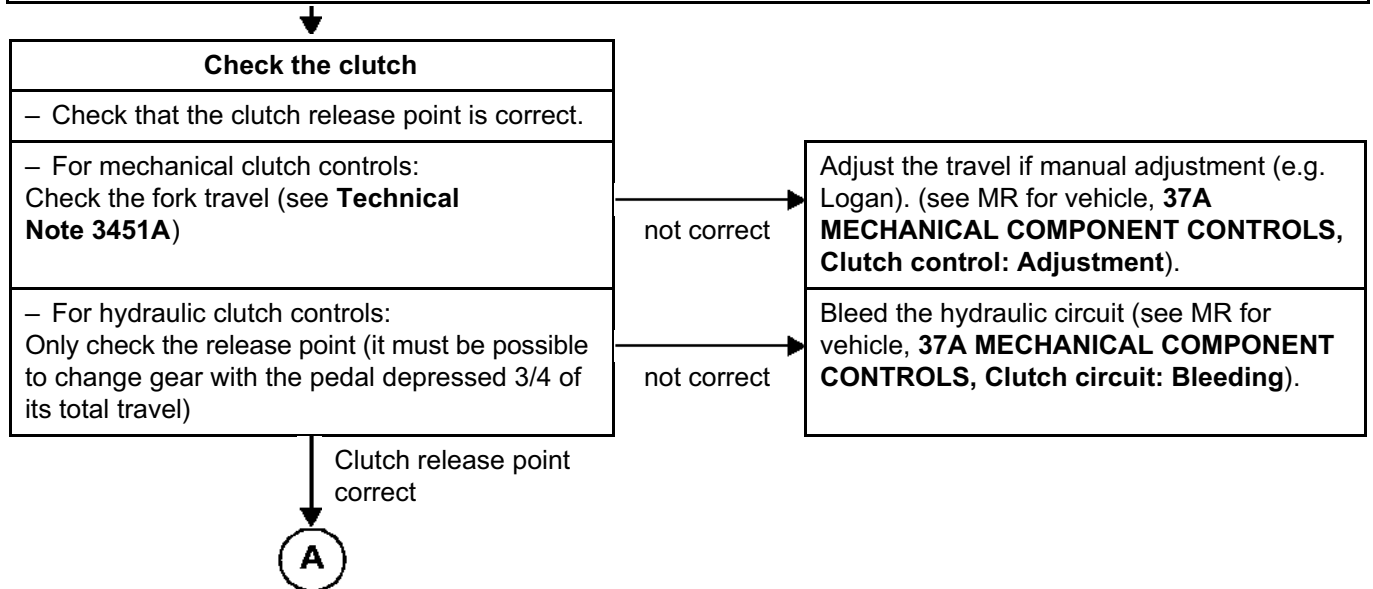
ALP 11	Creaking noise when changing gear
---------------	--

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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Check that no vehicle mat is preventing the clutch from operating when changing gear.
 Check that the gear control setting is correct (see MR for vehicle, **21A MANUAL GEARBOX, Manual gear control: Adjustment**).

WARNING
 If creaking can be heard:

- **On EVERY gear ratio:** the customer may have complained previously about hard spots when selecting gear (cable clutches). Therefore it is **ONLY** the clutch which is concerned (see Technical Note 3451A)
- **When changing from Neutral / 1st or Neutral / Reverse:** start by checking the clutch and follow the ALP if the clutch is correct.
- **Other gears:** start **DIRECTLY** by checking the gearbox **WITHOUT** checking the clutch



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 11 CONTINUED 1	Creaking noise when changing gear
-------------------------------------	--



Check the gearbox before removing it		Corrective action to be carried out:
<ul style="list-style-type: none"> – check that there are no leaks on the driveshaft side and/or joint face and/or gear control module (JB, JC gearbox). 	not correct →	Repair either: <ul style="list-style-type: none"> – By replacing the driveshaft seals if the leaks originate from the driveshafts (see MR for vehicle, 21A MANUAL GEARBOX, Differential output seal: Removal - Refitting) – By repairing the gearbox joint face sealing (see Technical Note for the gearbox*) – By replacing: the gearbox seal and selector shaft if the module is leaking (see Technical Note for JB-JC)
<ul style="list-style-type: none"> – check the gearbox oil level. 	not correct →	Adjust the oil level (using oil specified by the manufacturer).
<ul style="list-style-type: none"> – check the appearance of the oil Oil which is dark in colour is not a fault. Oil which smells burnt is caused by a hot gearbox (insufficient oil level or hard use). The presence of bronze-coloured rings is not a fault. The presence of particles of an aluminium colour is an indication that the gearbox is seriously damaged internally. 	not correct →	<ul style="list-style-type: none"> – Perform an oil change (using oil specified by the manufacturer). – If aluminium colour particles are present, replace the gearbox (see MR for vehicle, 21A MANUAL GEARBOX, Manual gearbox: Removal - Refitting)

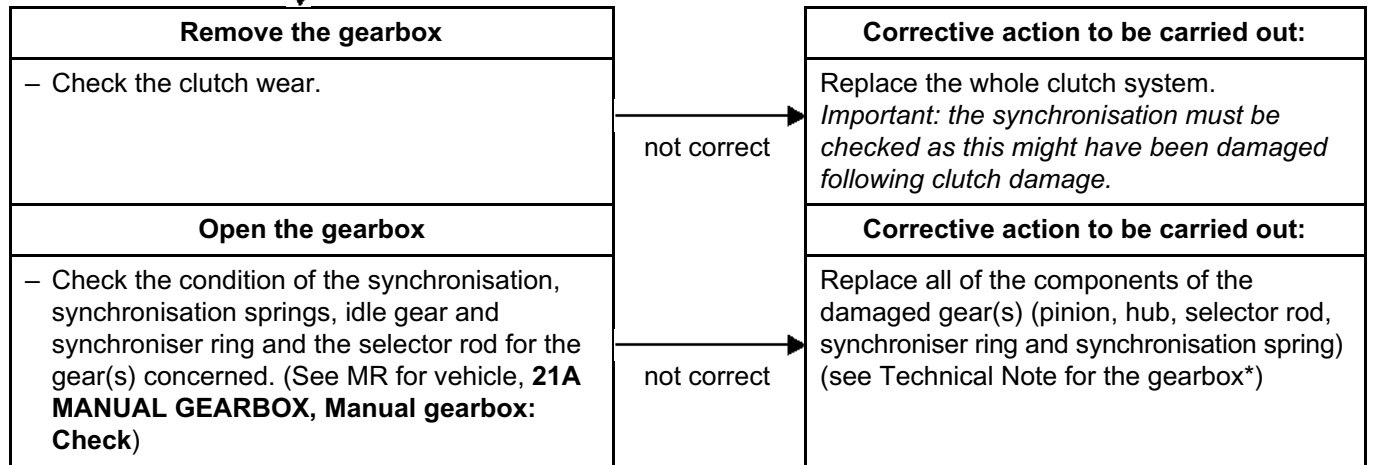


FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 11 CONTINUED 2	Creaking noise when changing gear
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	Gearbox	Technical Note No.
*	PA6 - PK5 - PK6	Technical Note 6003A
	TL4	Technical Note 6019A
	ZF5 S 270 and ZF6 S 350	Technical Note 6016A
	PF6 - PK4	Technical Note 6021A
	JA3, JH1, JH3, JR5	Technical Note 6029A
	ND0	Technical Note 6034A

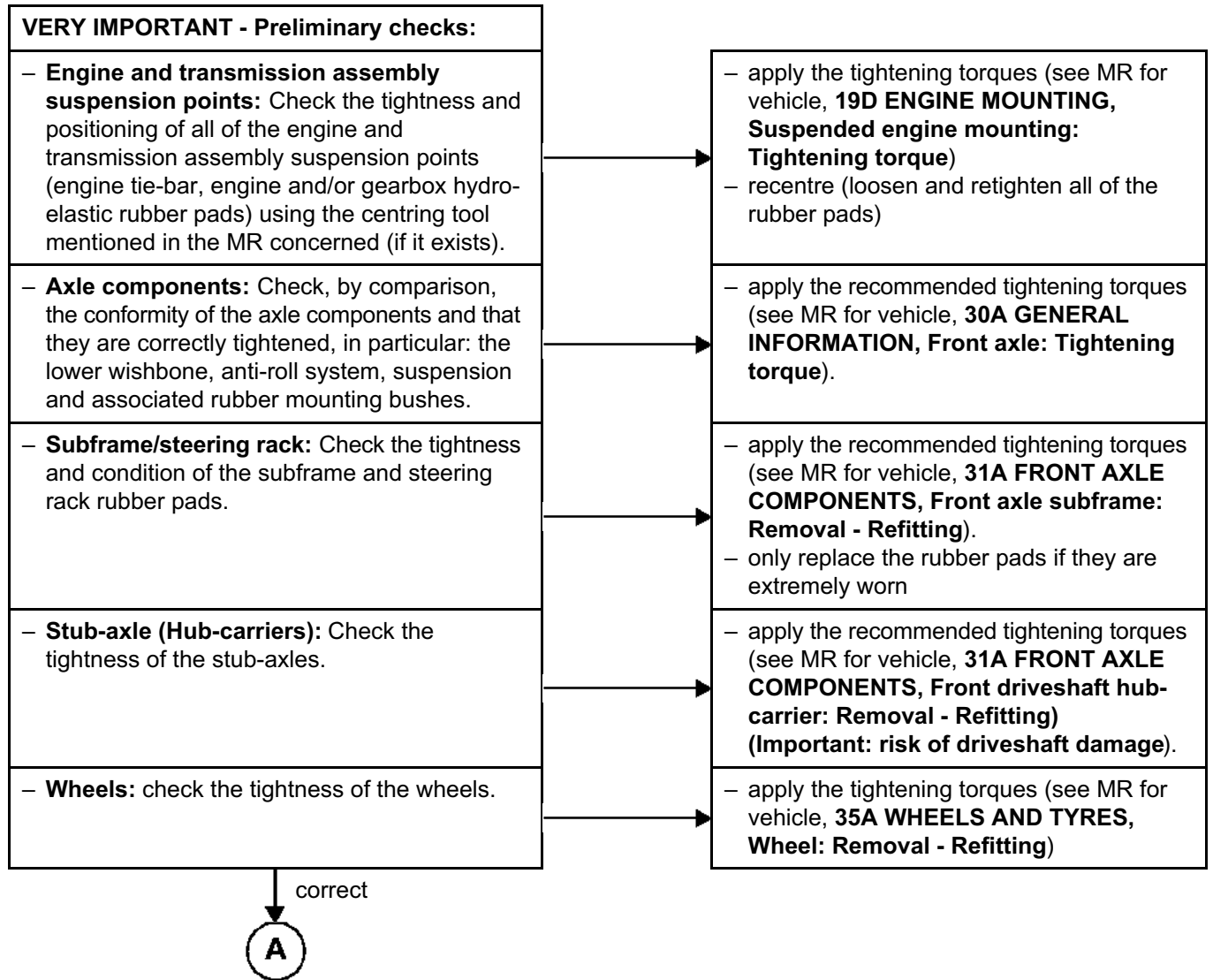
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 12	Banging during power take-up or torque inversion
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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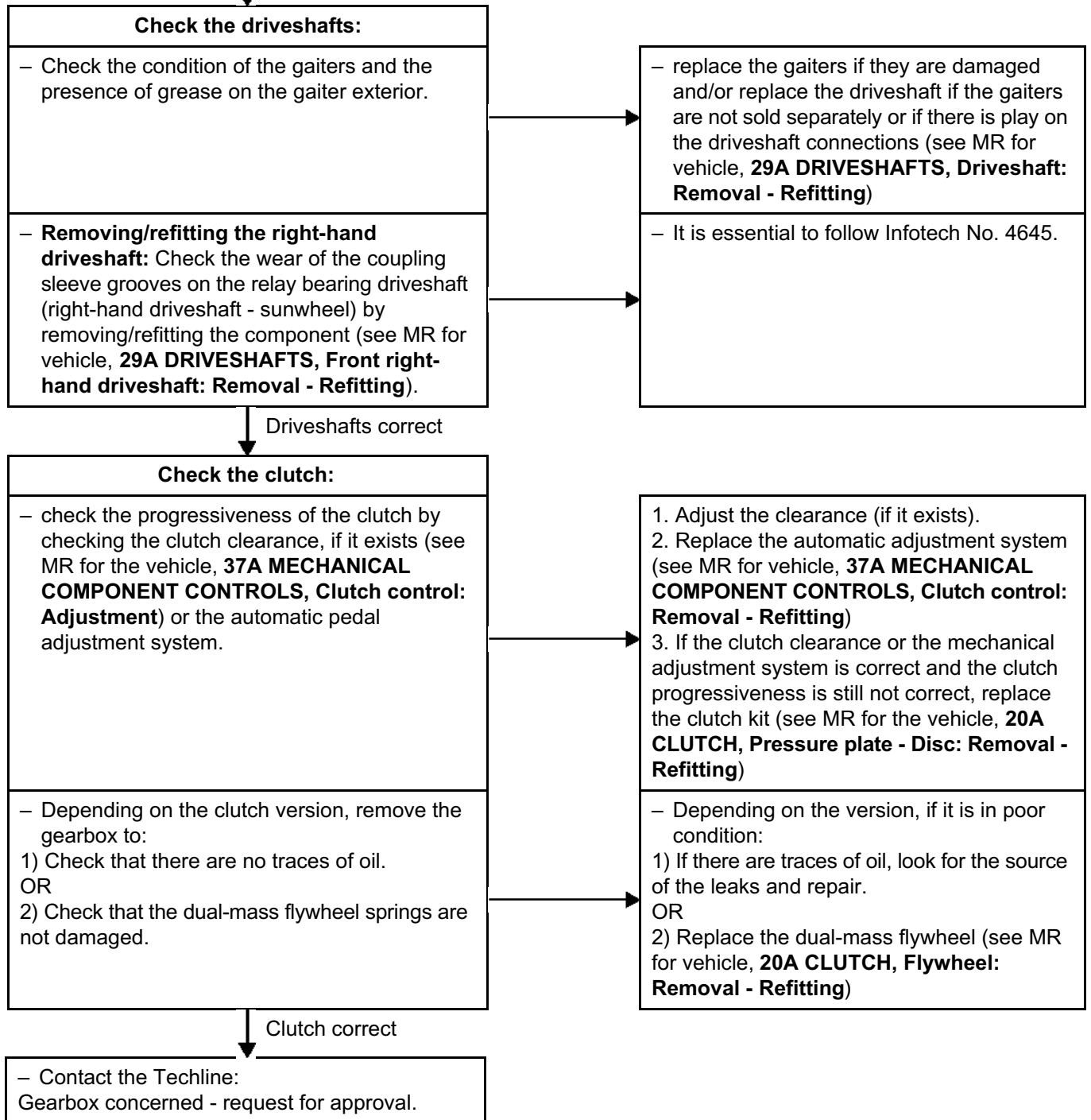
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 12 CONTINUED	Banging during power take-up or torque inversion
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A



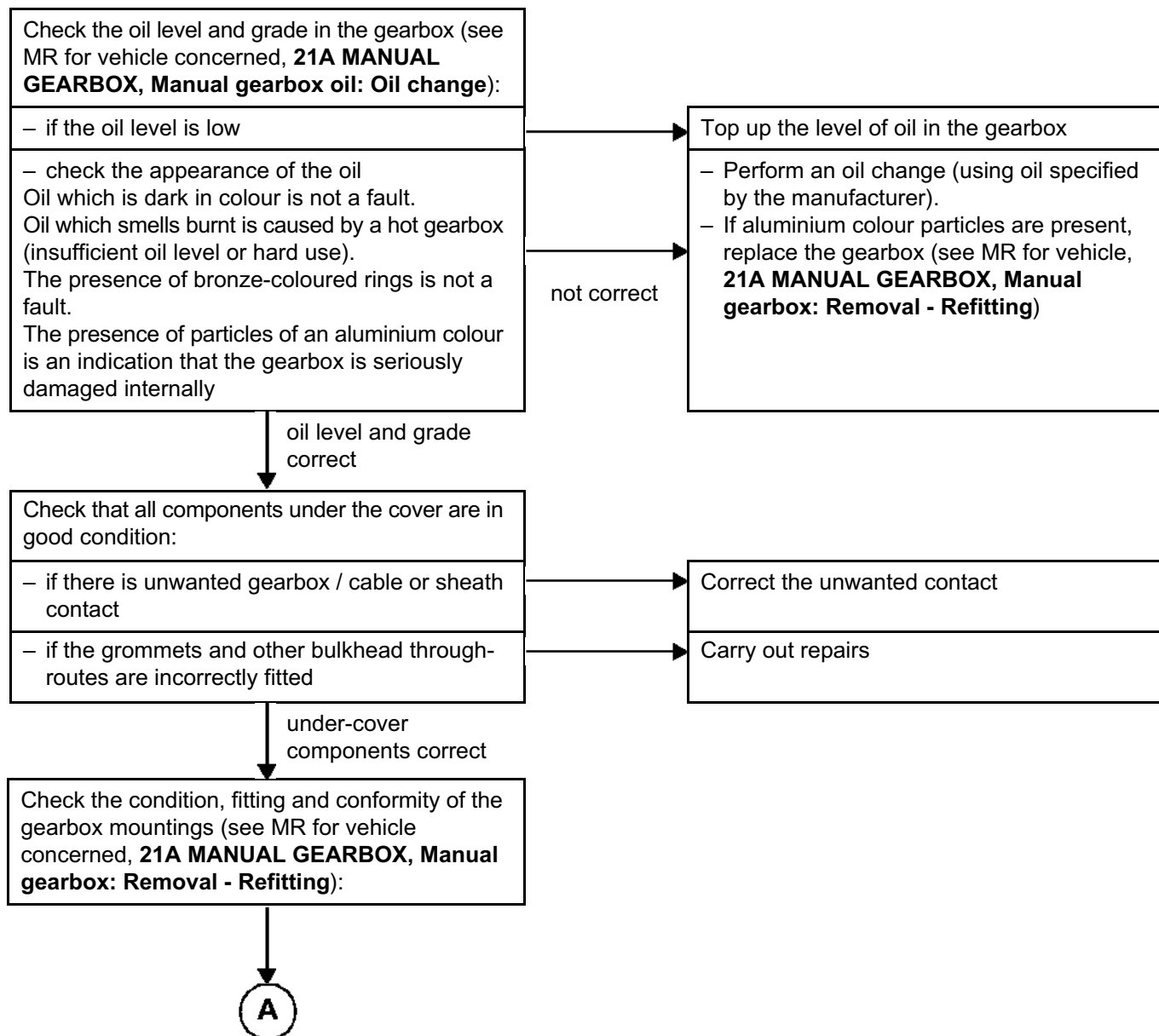
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 13	Siren (drive train)
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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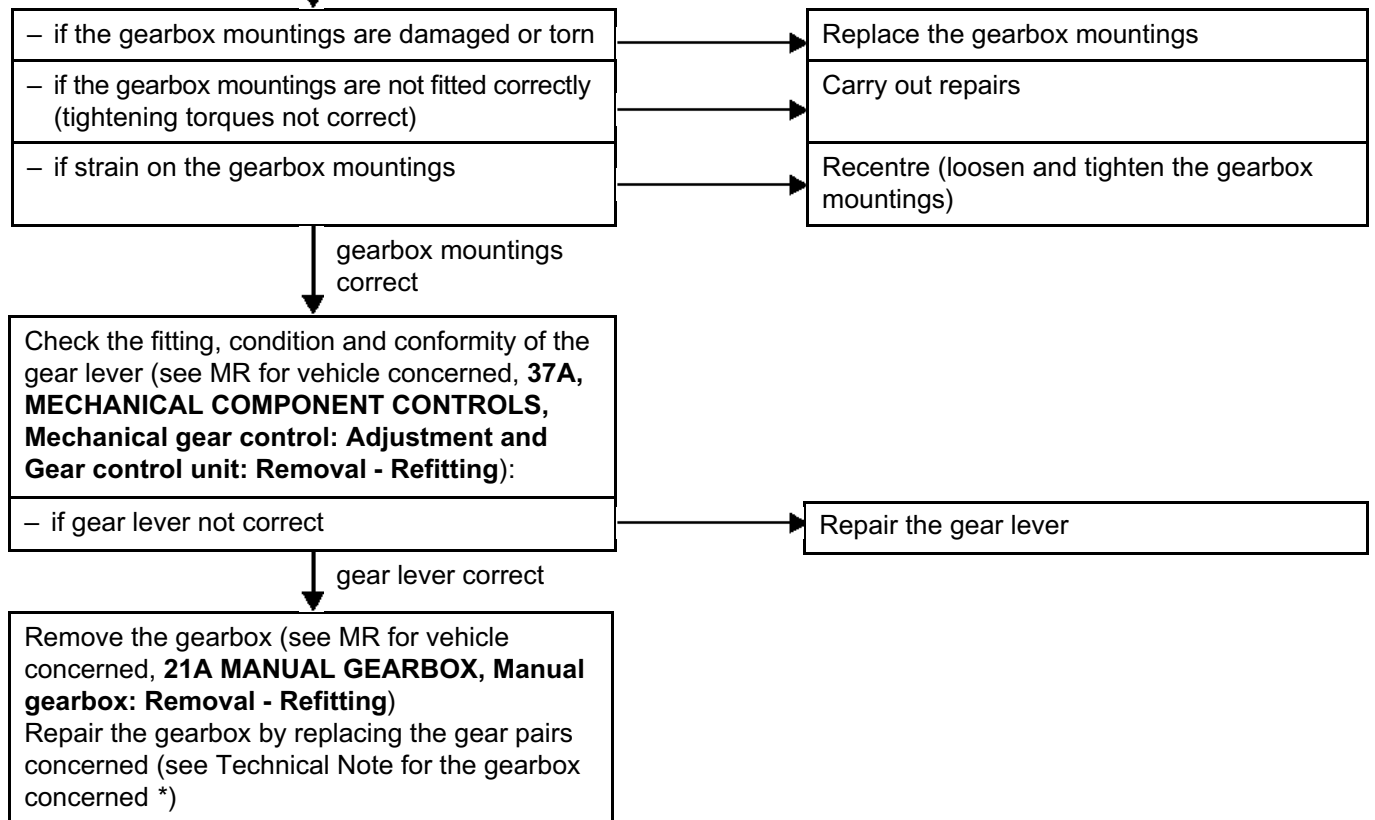


FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 13 CONTINUED	Siren (drive train)
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	Gearbox	Technical Note No.
*	PA6 - PK5 - PK6	Technical Note 6003A
	TL4	Technical Note 6019A
	ZF5 S 270 and ZF6 S 350	Technical Note 6016A
	PF6 - PK4	Technical Note 6021A
	JA3, JH1, JH3, JR5	Technical Note 6029A
	ND0	Technical Note 6034A

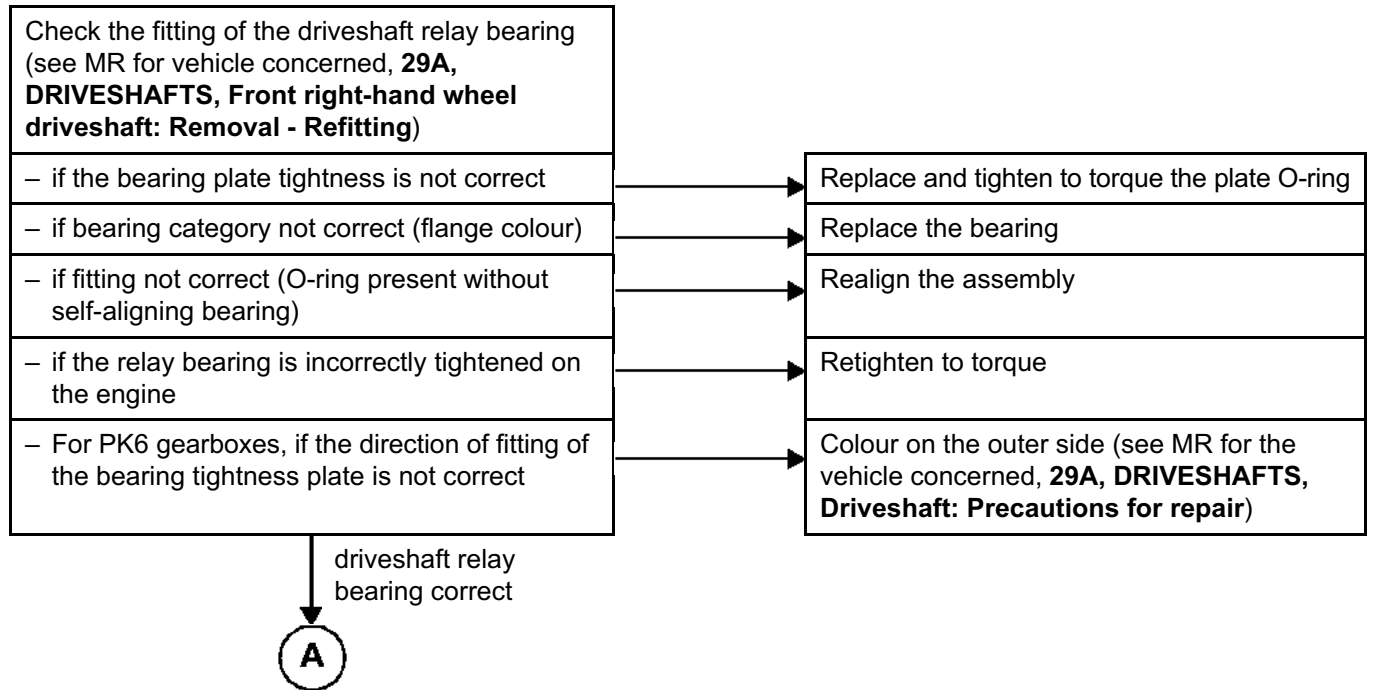
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 14	Drive train murmuring
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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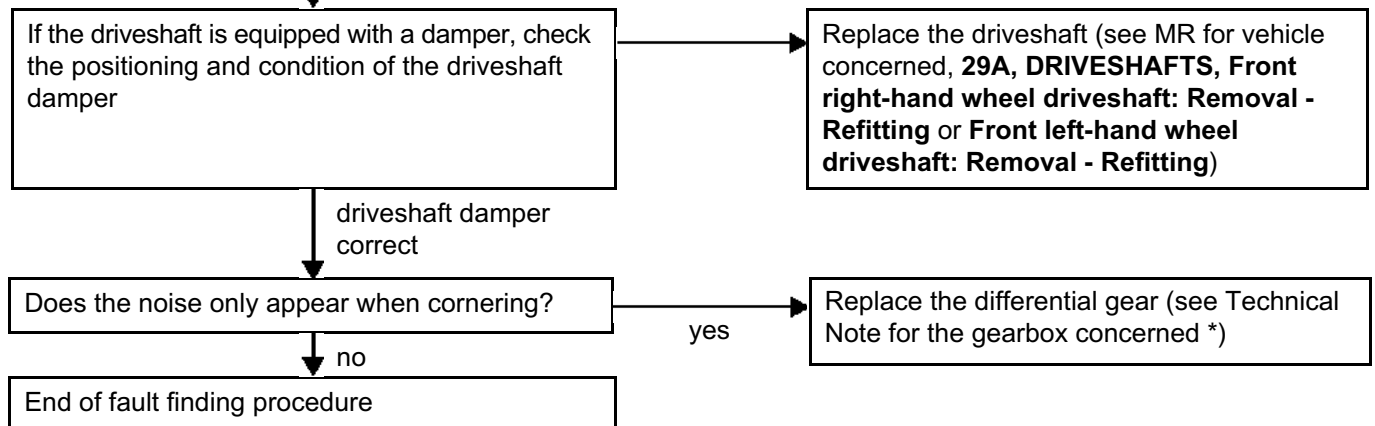
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 14 CONTINUED	Drive train murmuring
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A



*

Gearbox	Technical Note No.
PA6 - PK5 - PK6	Technical Note 6003A
TL4	Technical Note 6019A
ZF5 S 270 and ZF6 S 350	Technical Note 6016A
PF6 - PK4	Technical Note 6021A
JA3, JH1, JH3, JR5	Technical Note 6029A
ND0	Technical Note 6034A

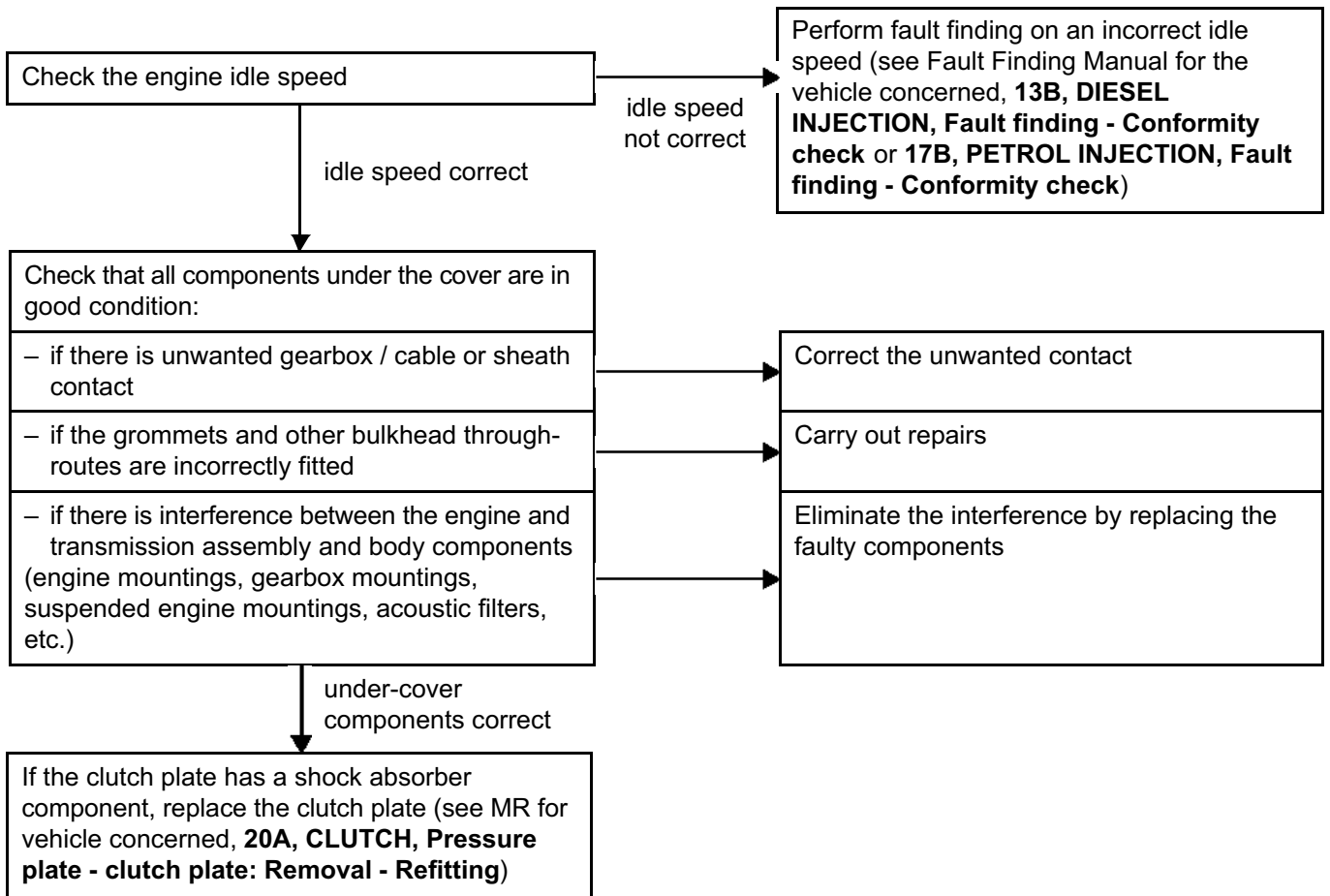
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 15	Growling / noise in neutral (drive train)
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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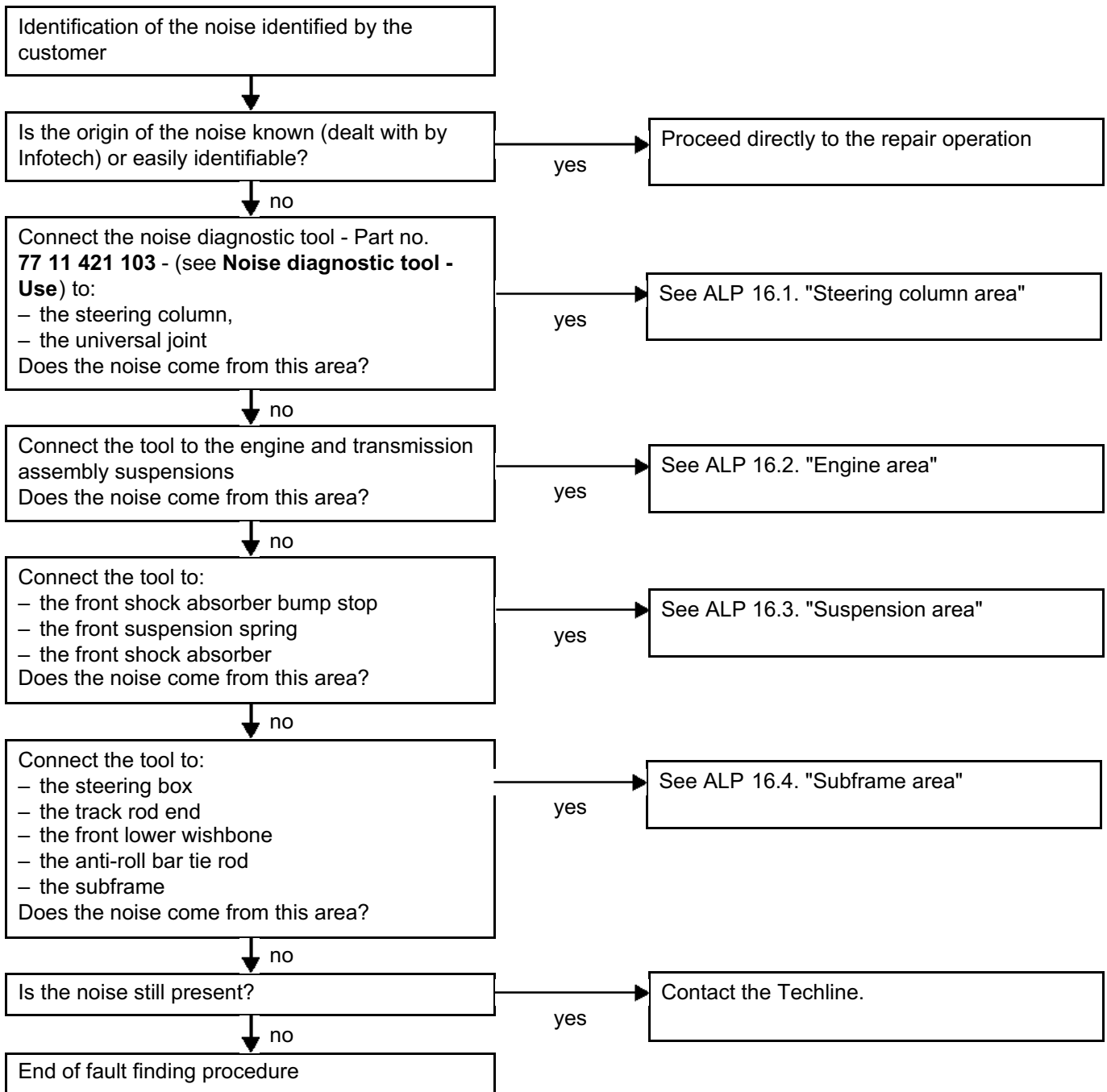
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 16	Interference noise
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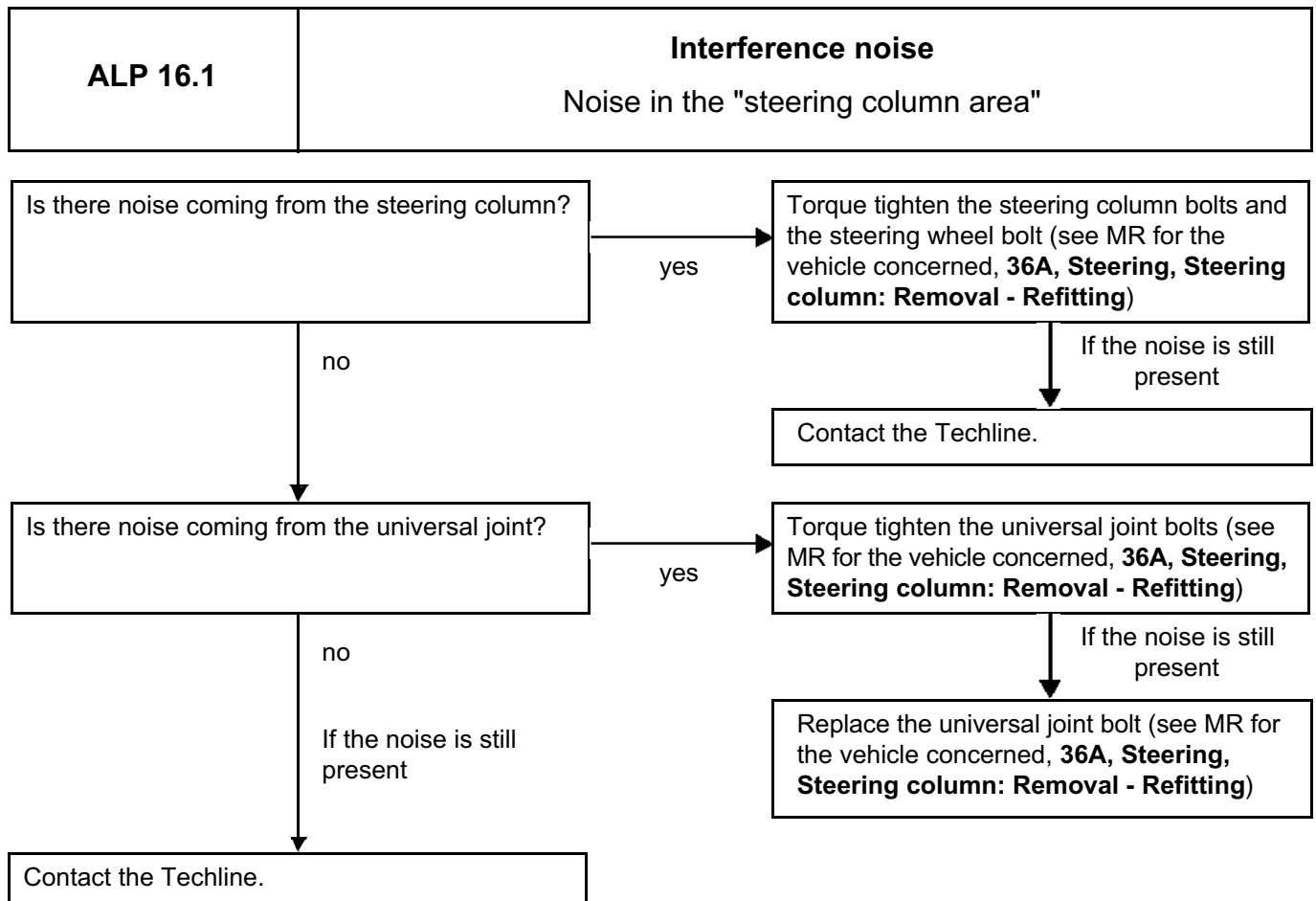
NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

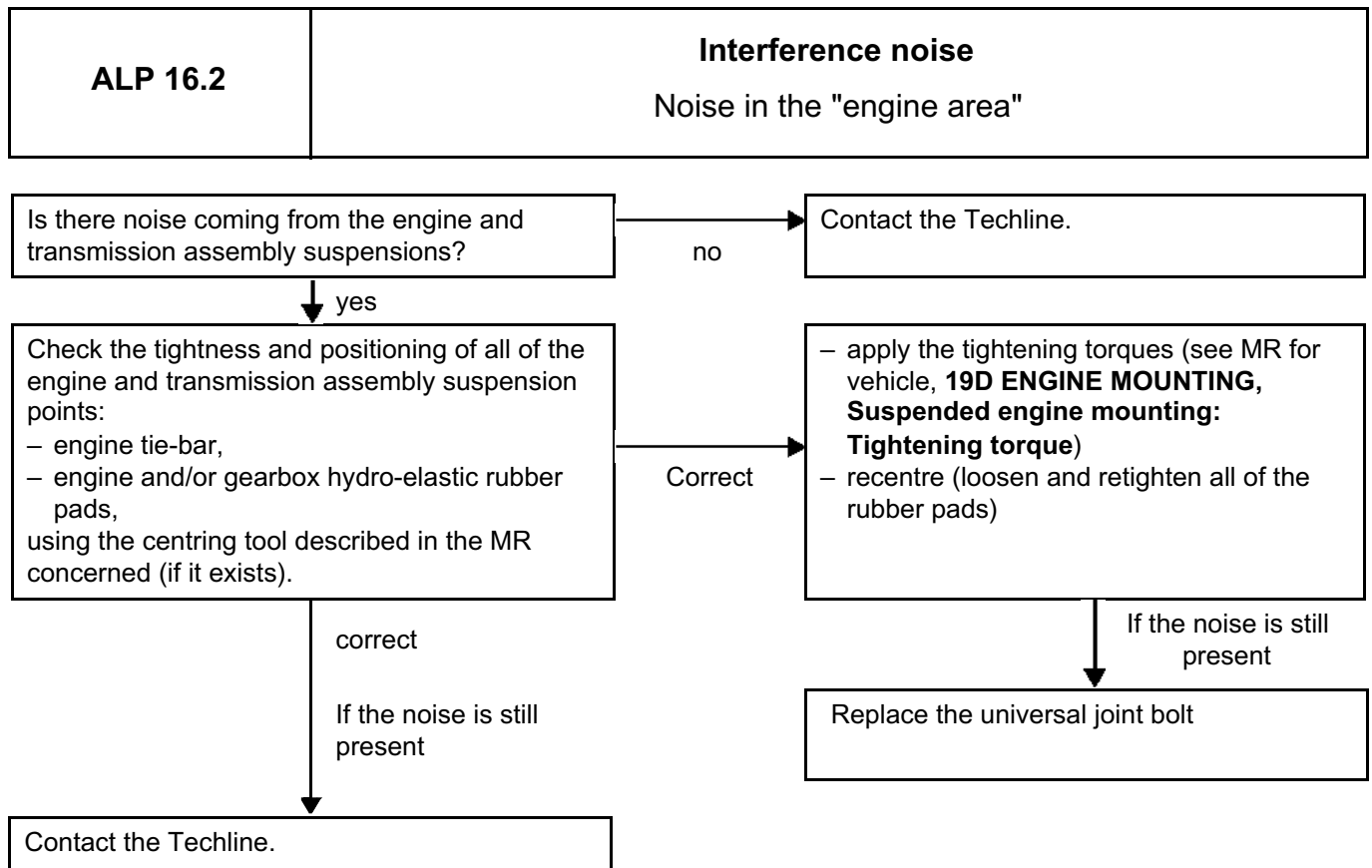
01E



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

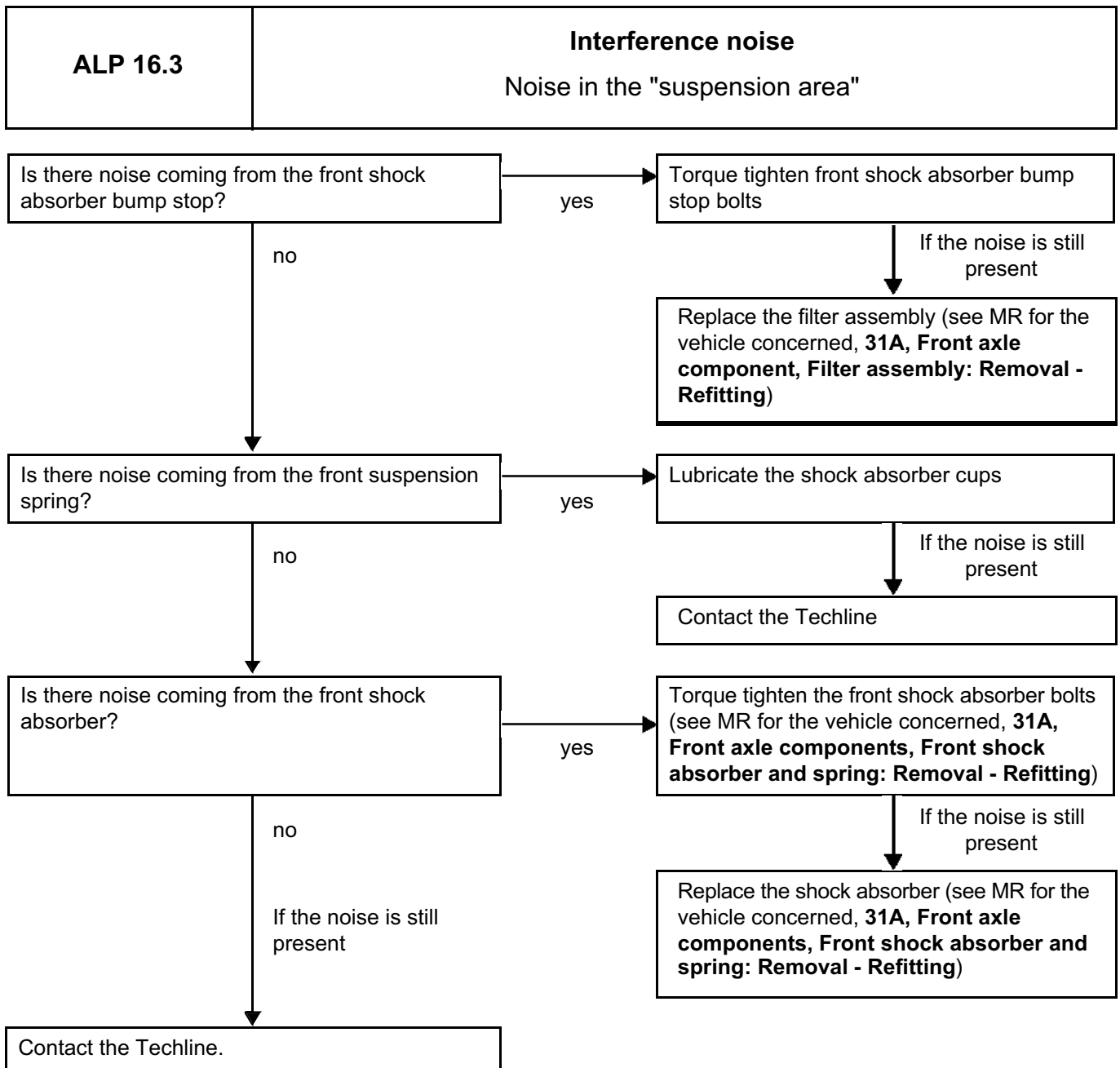
01E



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

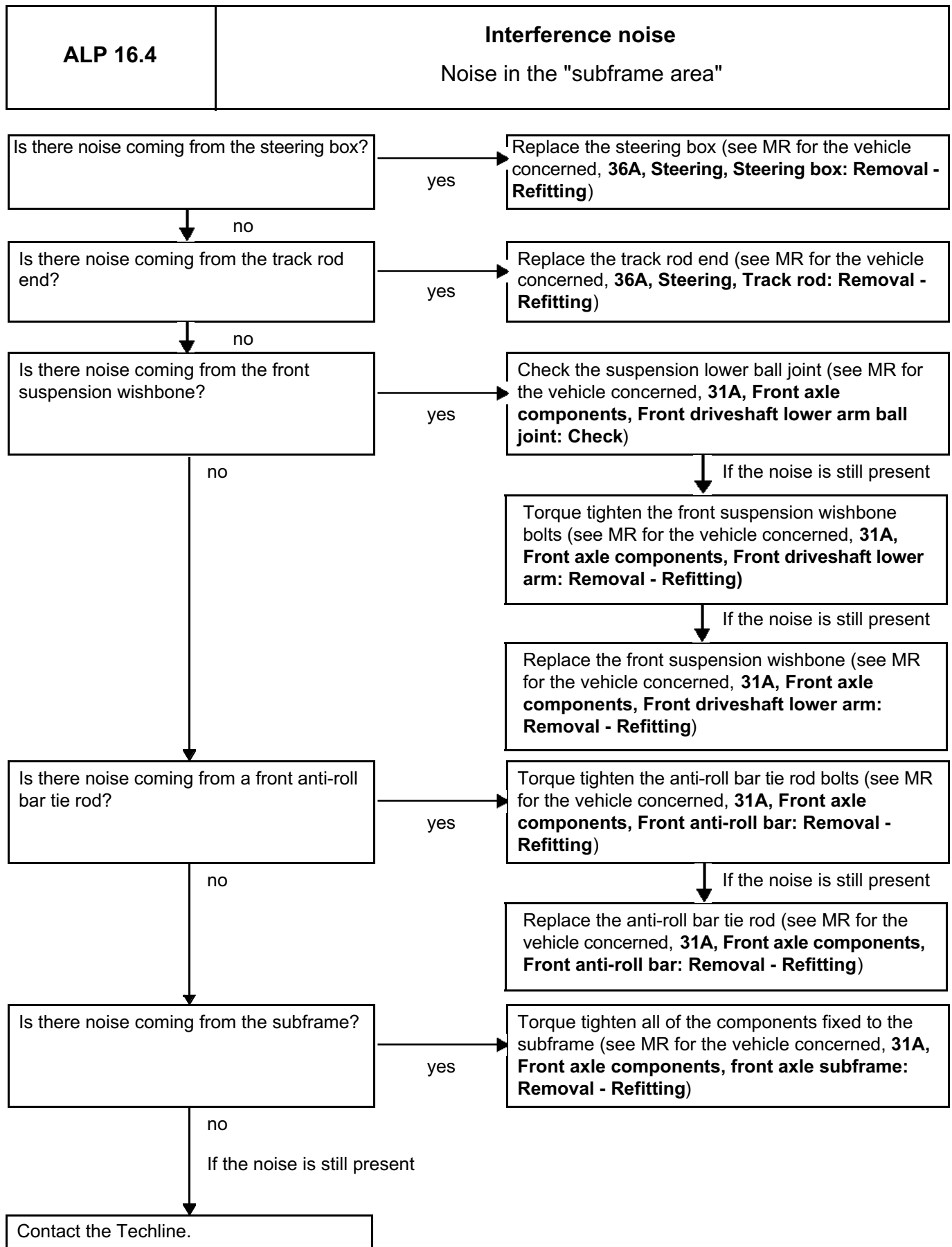
01E



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E



FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

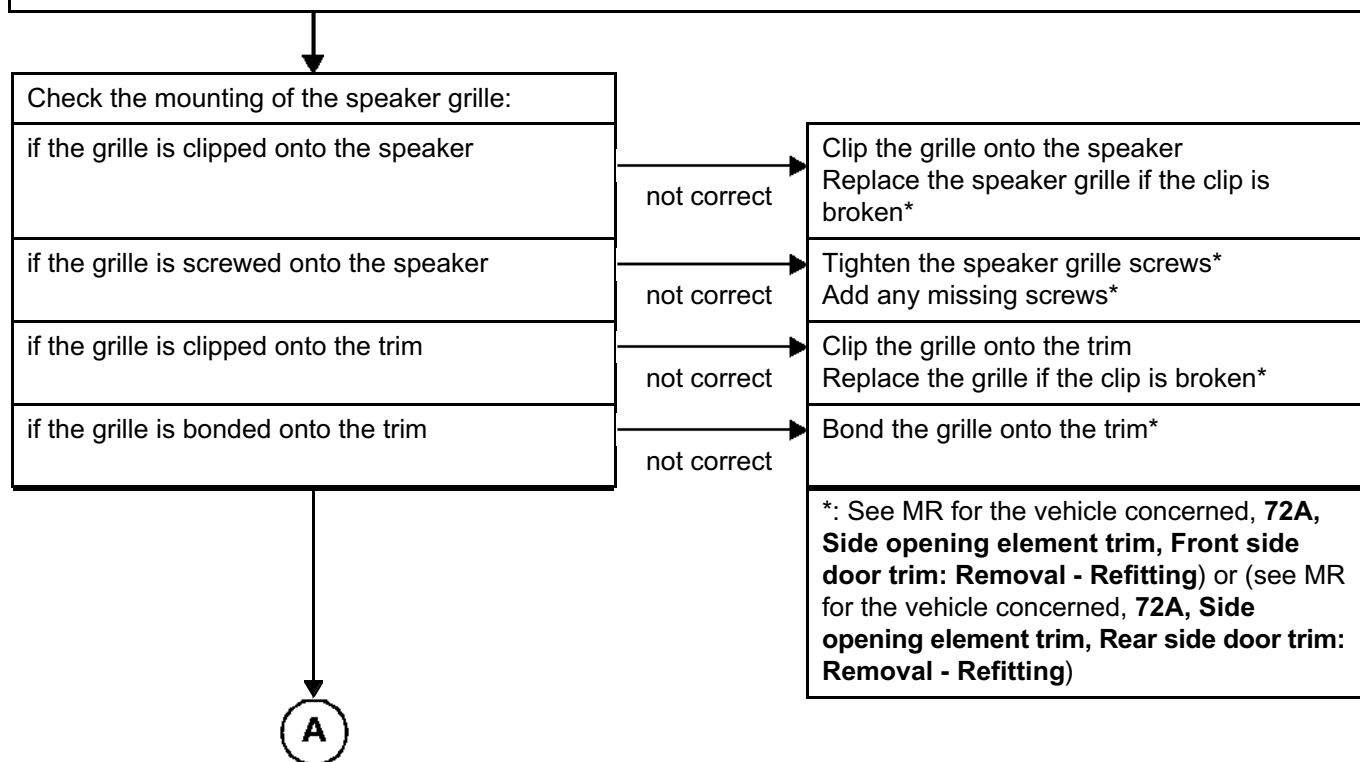
ALP 17	Crackling from the speakers
---------------	------------------------------------

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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Ensure that there are no foreign bodies present in the passenger compartment.
 Check that no parts are broken.
 Switch on the sound system and adjust it as follows:

- volume slightly raised
- bass level set at MEDIUM
- treble level set at MEDIUM

Insert a CD or audio cassette which has strong bass tones.

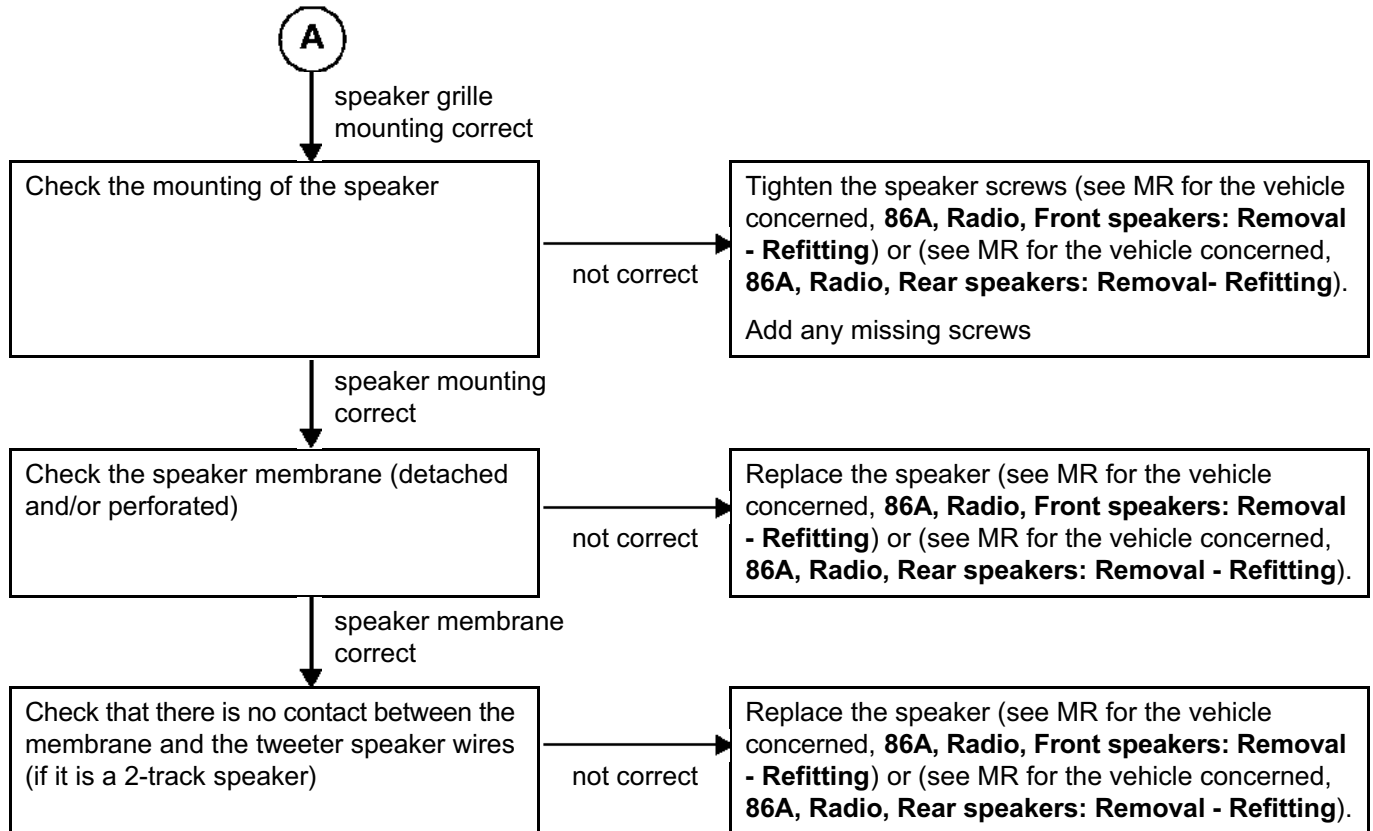


FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 17 CONTINUED	Crackling from the speakers
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FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 18	Noise from the dashboard
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NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
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Start by checking the following points:

● When stationary, engine not running.

- Empty all of the storage compartments in the dashboard and doors.
- Ensure that there are no foreign bodies present in the passenger compartment.
- Check that no parts are broken
- Test all of the storage compartment covers and flaps and air vent grilles (catches, hinges, play, etc.)
- Check all of the dashboard trims, visors and clipped front panels (tactile inspection that the parts are secure).
- Visually check for the presence of the bolts

? It is essential to replace all of the faulty components (fasteners, clips, air vent grilles).

● When stationary, engine running.

- Accelerate slightly to detect any vibration of the trims and front panels clipped onto the dashboard.
- Test the heating distribution at different speeds to detect any foreign bodies in the heating ducts (air vent vanes, dead leaves, etc.).

? It is essential to replace any faulty component (fasteners, clips, air vent grilles, etc.).

● Operational or road test in accordance with the customer complaint.

(Different speeds, cobbled surface, with or without ventilation or heating system, etc.).



When all of these checks have been carried out and the fault is still present, proceed to the following step

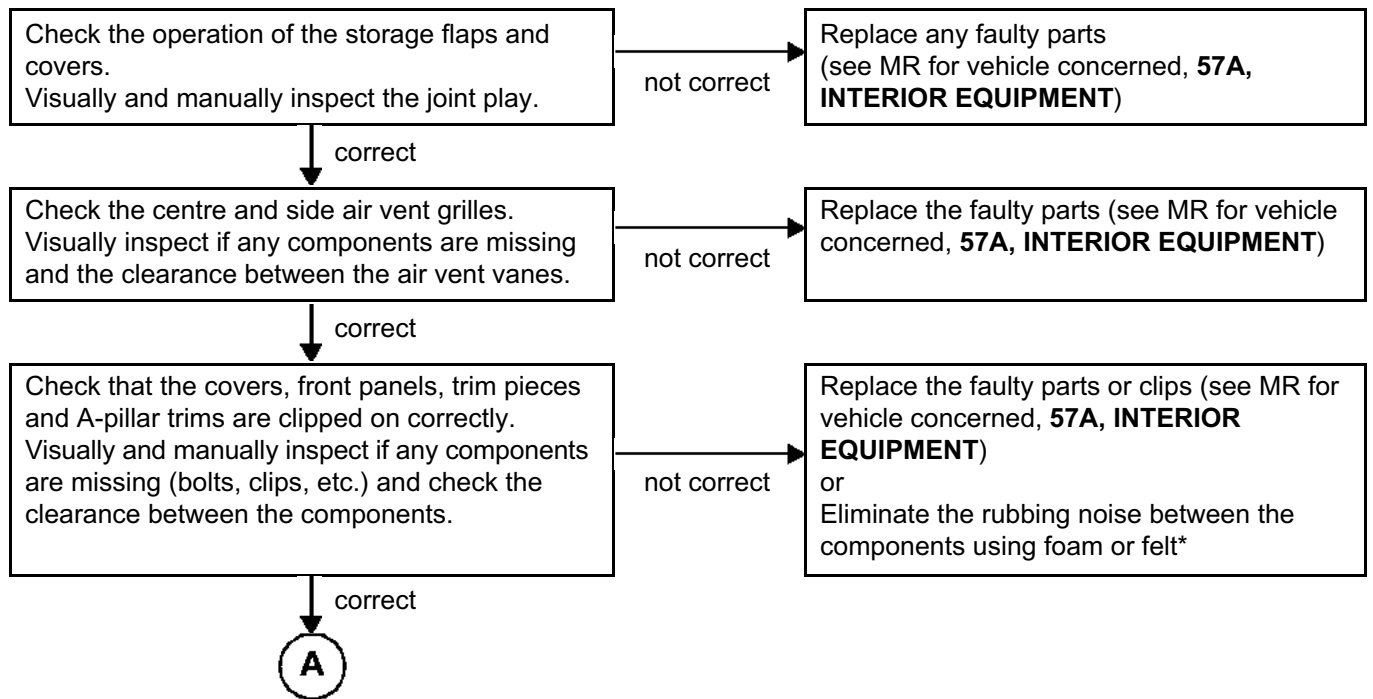
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

<p>ALP 18 CONTINUED 1</p>	<p>Noise from the dashboard</p>
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Check that no parts are broken.
It is essential to consult the Repair Manual for the vehicle concerned in order to observe the safety advice and recommended tightening torques.
After each operation, carry out a vehicle test to check that the vehicle has been repaired.



- *adhesive foam: **77 05 042 163**
- *adhesive foam: **77 05 042 122**
- *adhesive felt: **82 00 281 967**

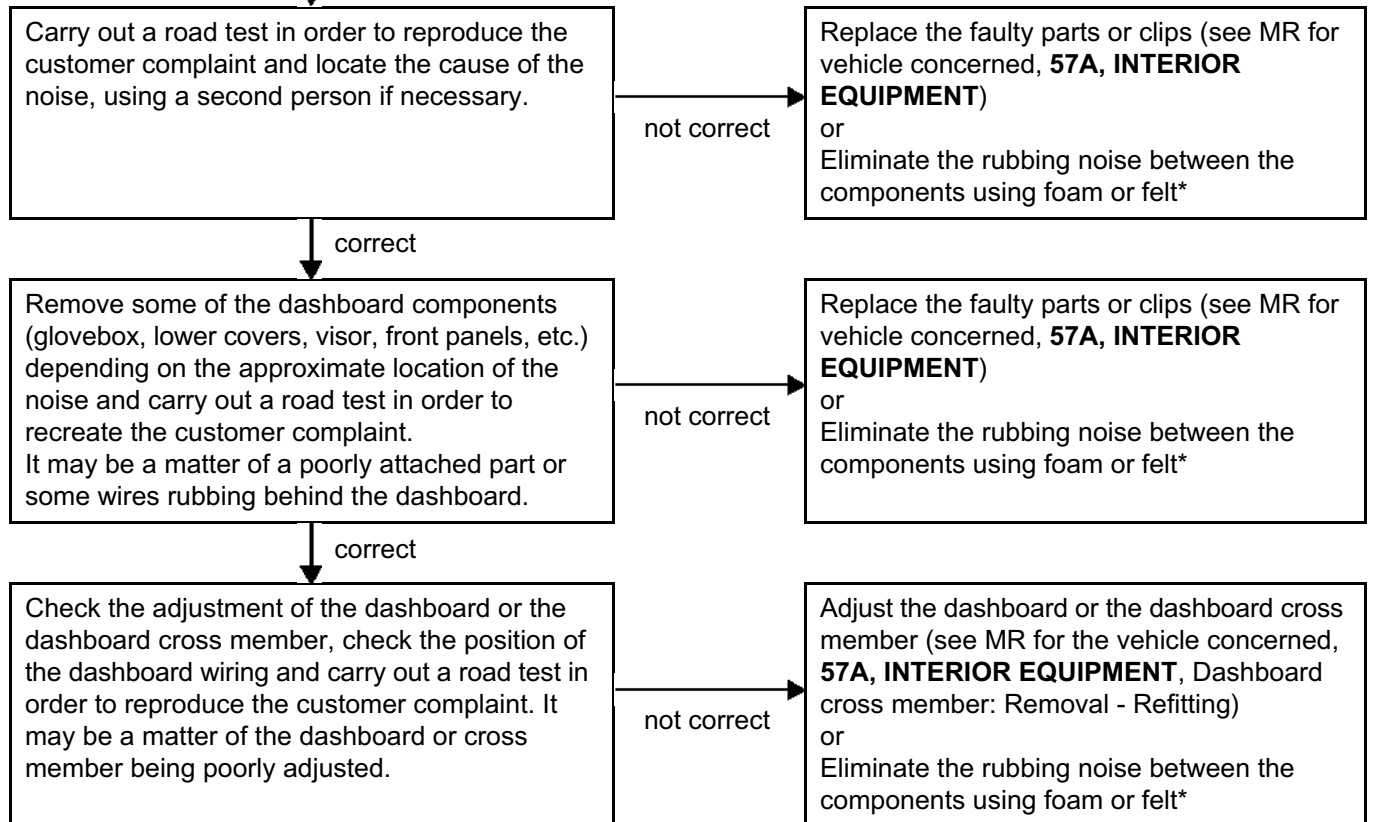
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 18 CONTINUED 2	Noise from the dashboard
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A



- *adhesive foam: **77 05 042 163**
- *adhesive foam: **77 05 042 122**
- *adhesive felt: **82 00 281 967**

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

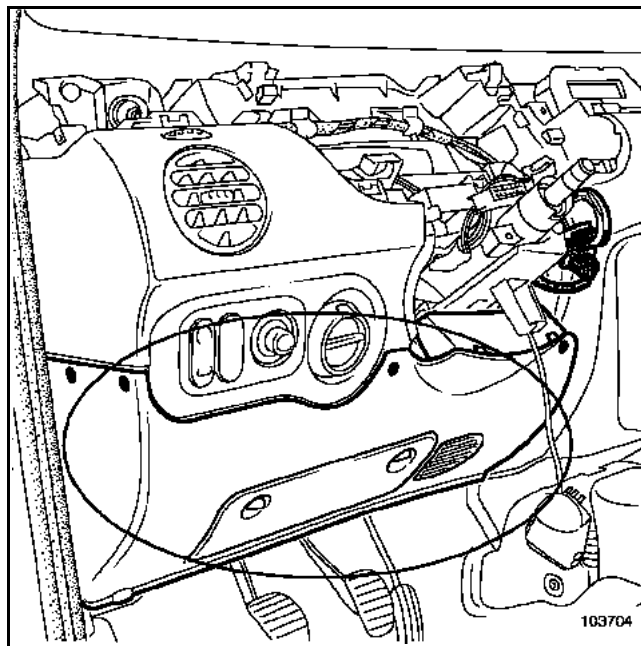
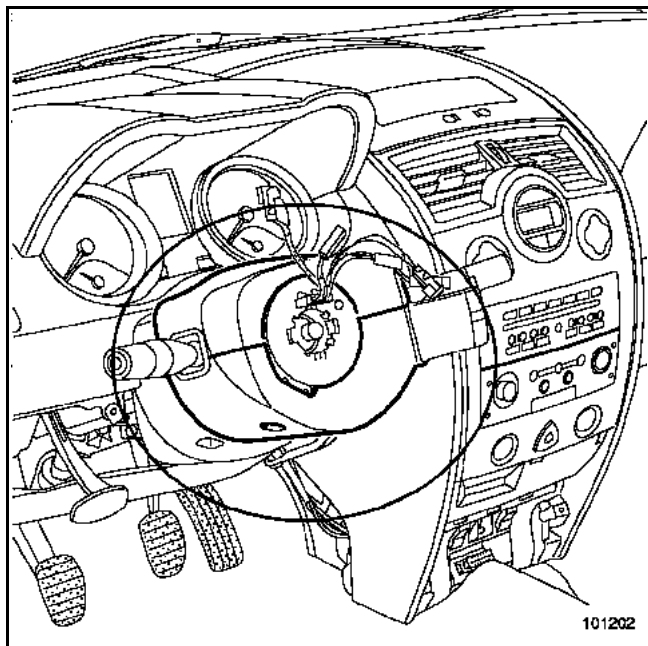
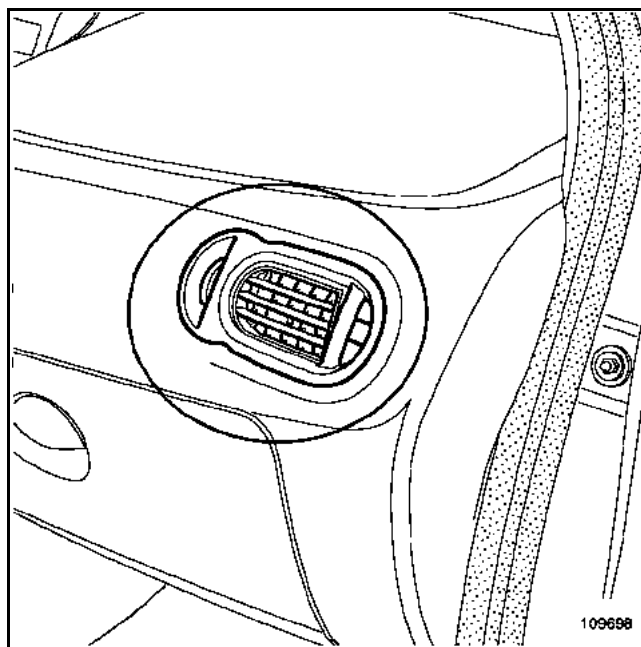
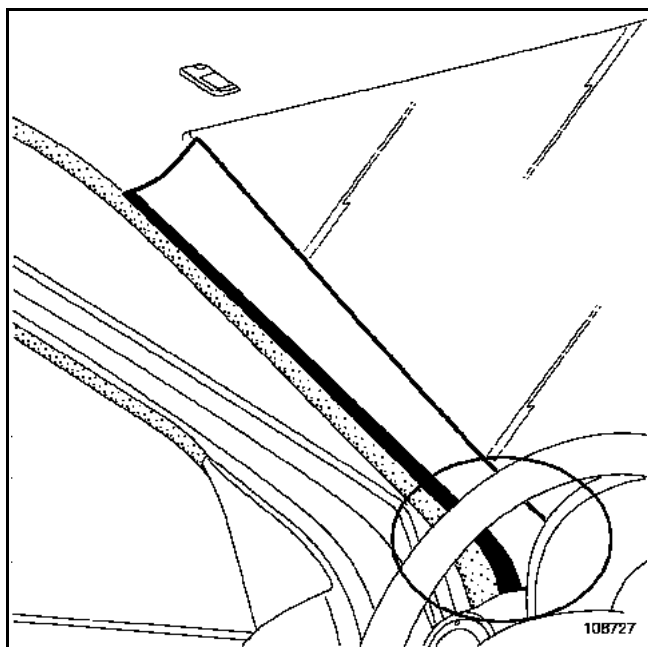
01E

<p>ALP 18 CONTINUED 3</p>	<p>Noise from the dashboard</p>
-------------------------------	---------------------------------

IMPORTANT:

It is essential to consult the MR for the vehicles concerned in order to observe the safety advice related to airbag locking.

Any parts connected to the dashboard body, (clipped, fitted and screwed parts) could potentially create noise (see parts below).



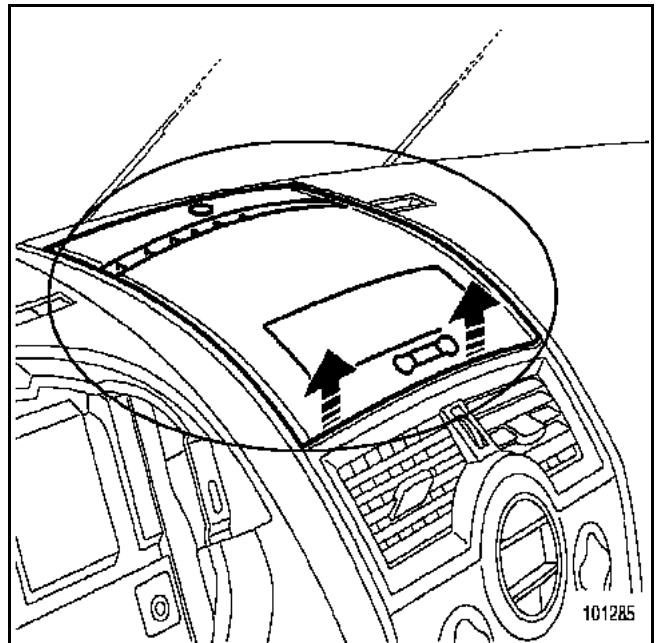
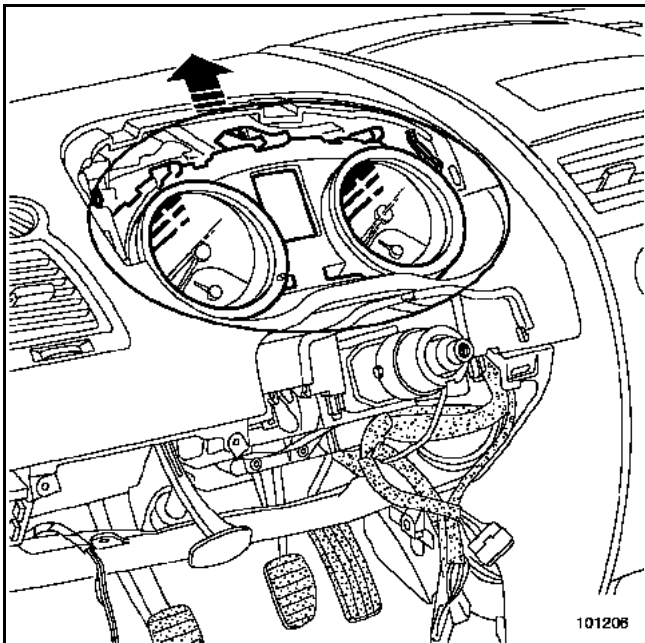
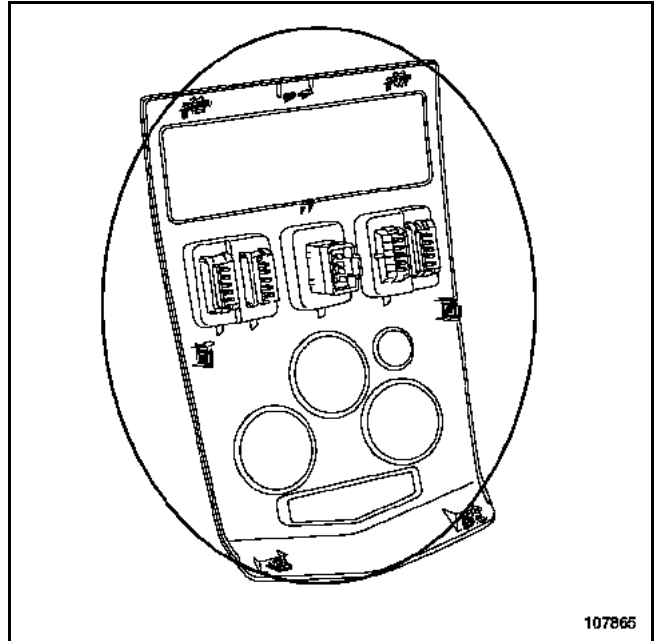
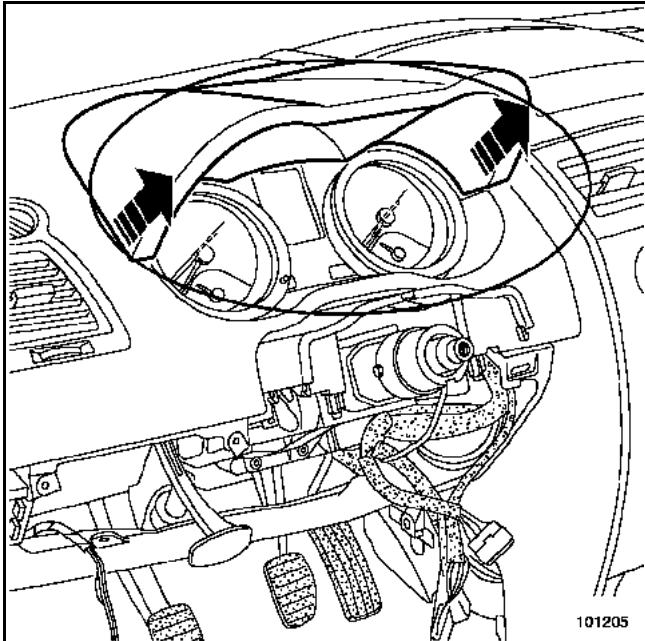
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 18
CONTINUED 4

Noise from the dashboard

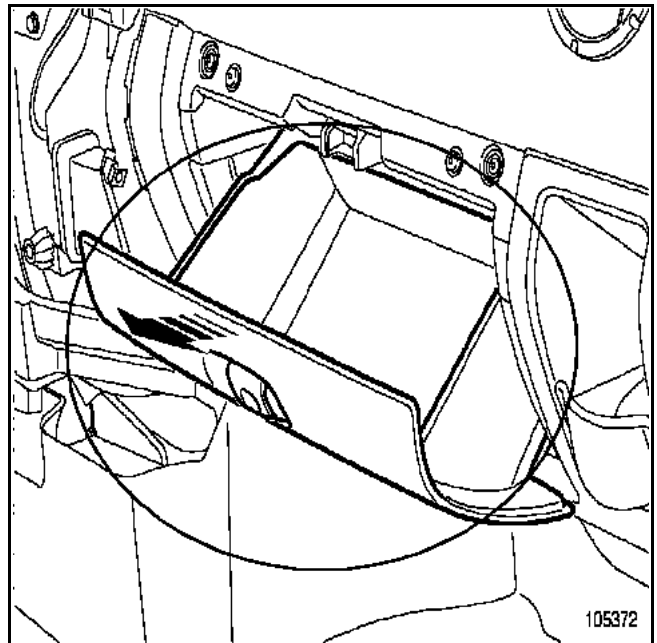
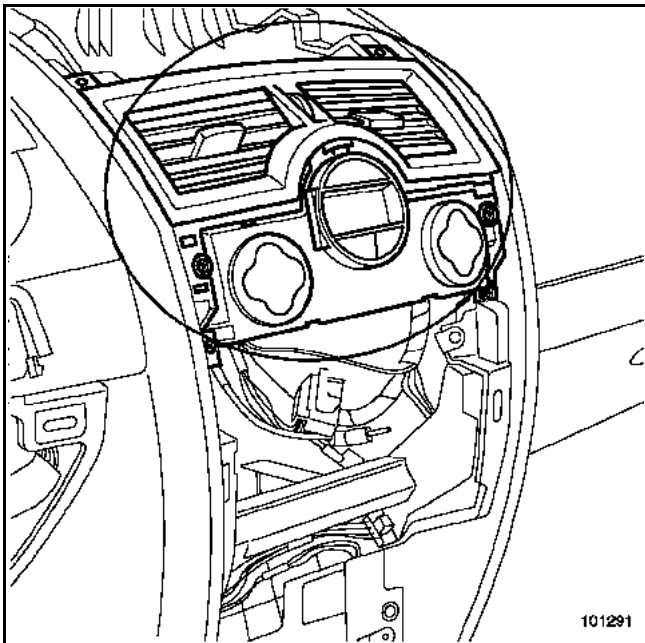
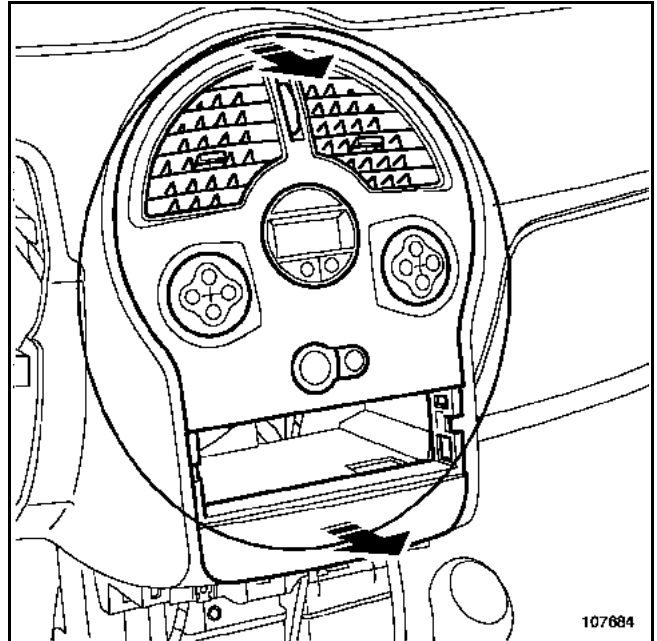
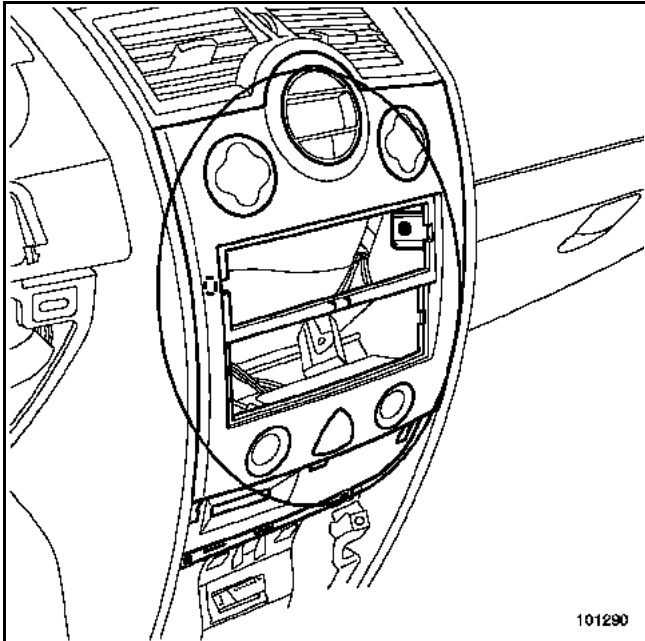


FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

<p>ALP 18 CONTINUED 5</p>	<p>Noise from the dashboard</p>
-------------------------------	---------------------------------



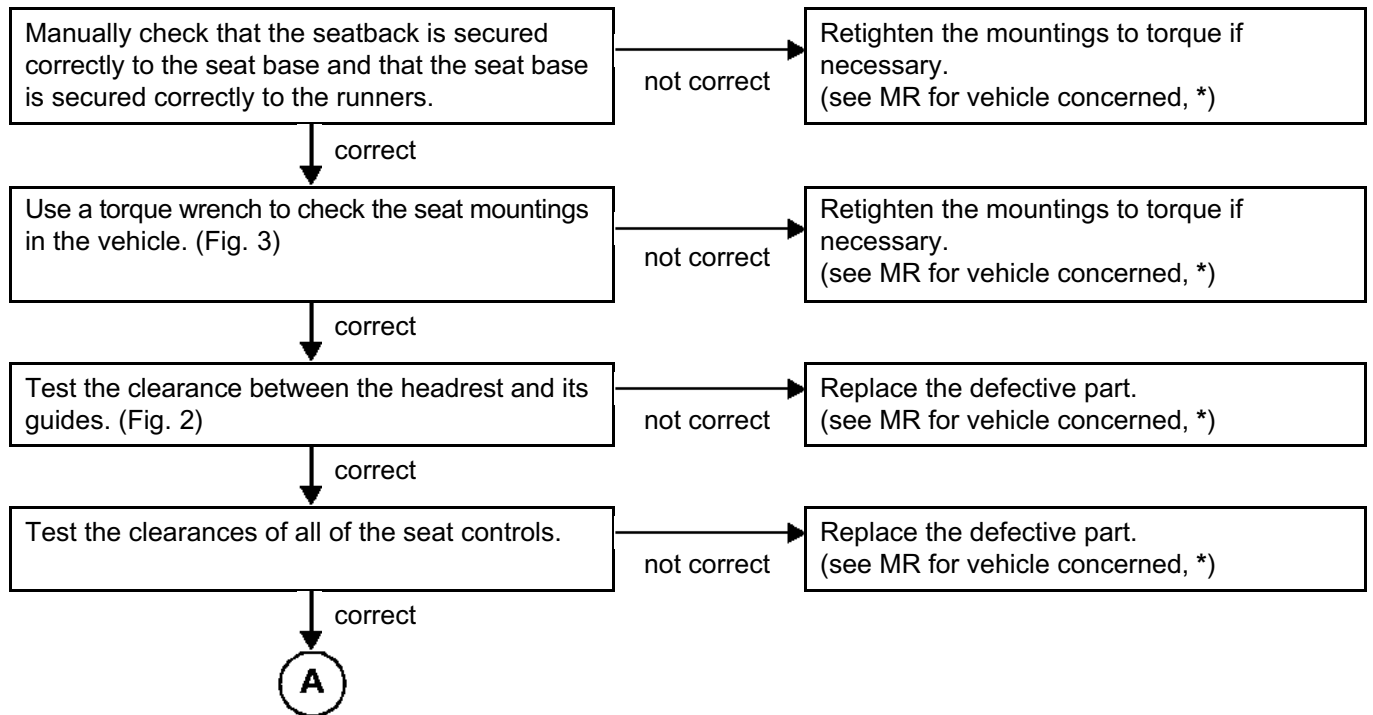
FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 19	Noise from the upholstery
---------------	----------------------------------

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---



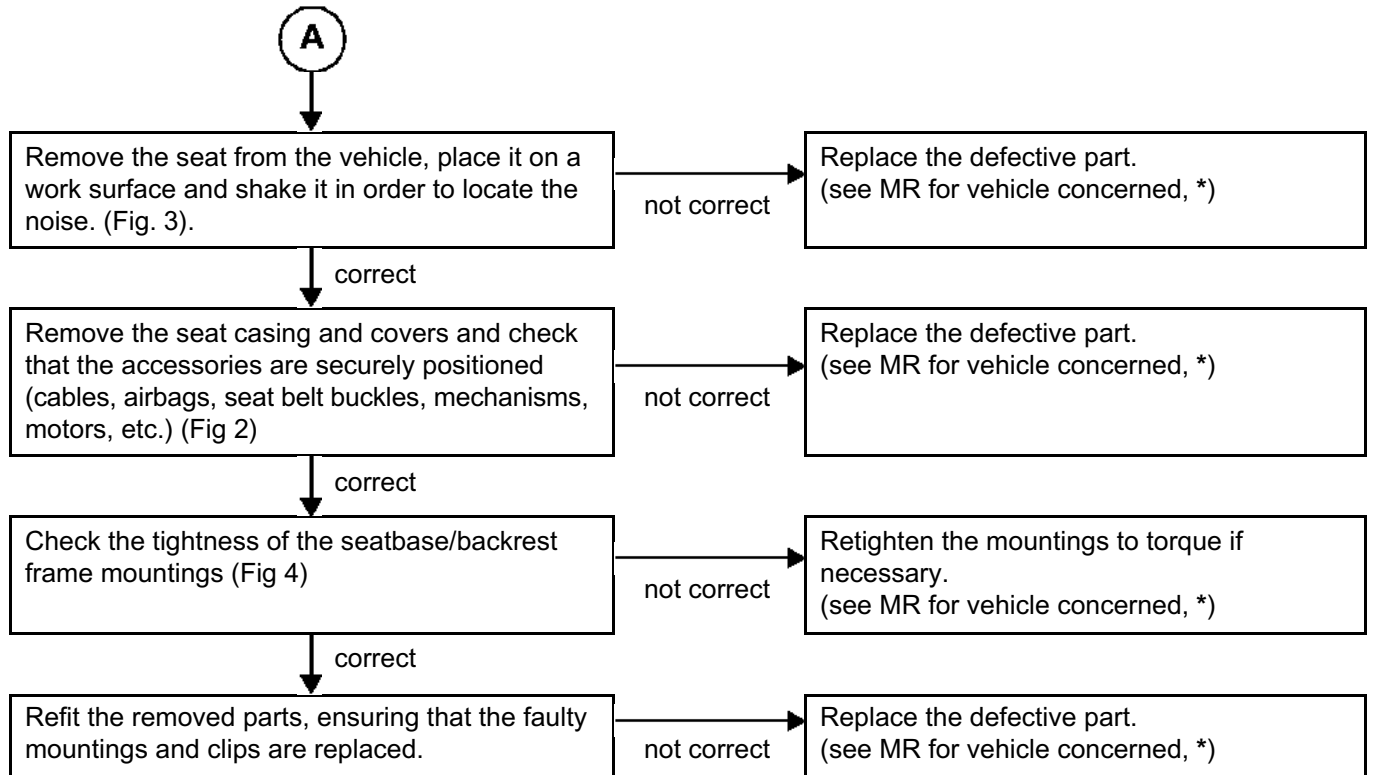
*
 75A, FRONT SEAT FRAMES AND RUNNERS
 76A, REAR SEAT FRAMES AND RUNNERS
 77A, FRONT SEAT TRIMS
 78A, REAR SEAT TRIMS

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 19 CONTINUED 1	Noise from the upholstery
-------------------------------------	----------------------------------



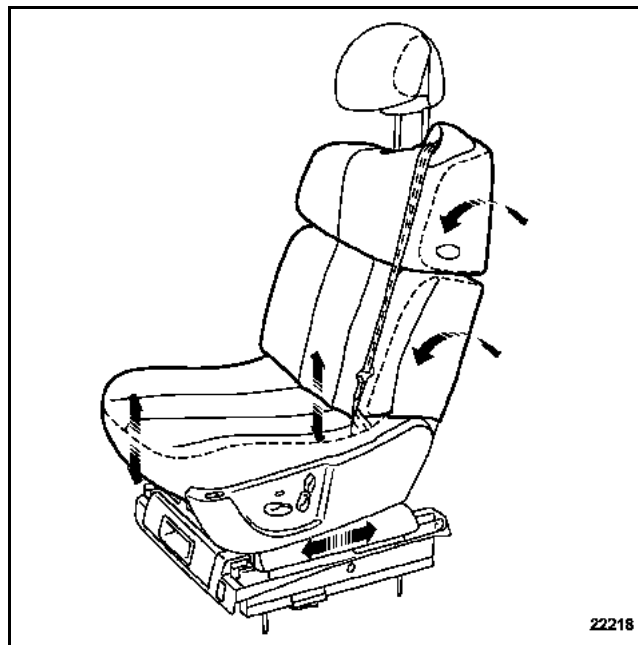
*
75A, FRONT SEAT FRAMES AND RUNNERS
76A, REAR SEAT FRAMES AND RUNNERS
77A, FRONT SEAT TRIMS
78A, REAR SEAT TRIMS

<p>ALP 19 CONTINUED 2</p>	<p>Noise from the upholstery</p>
---	---

Notes: before reading the ALP.

Fig. 1

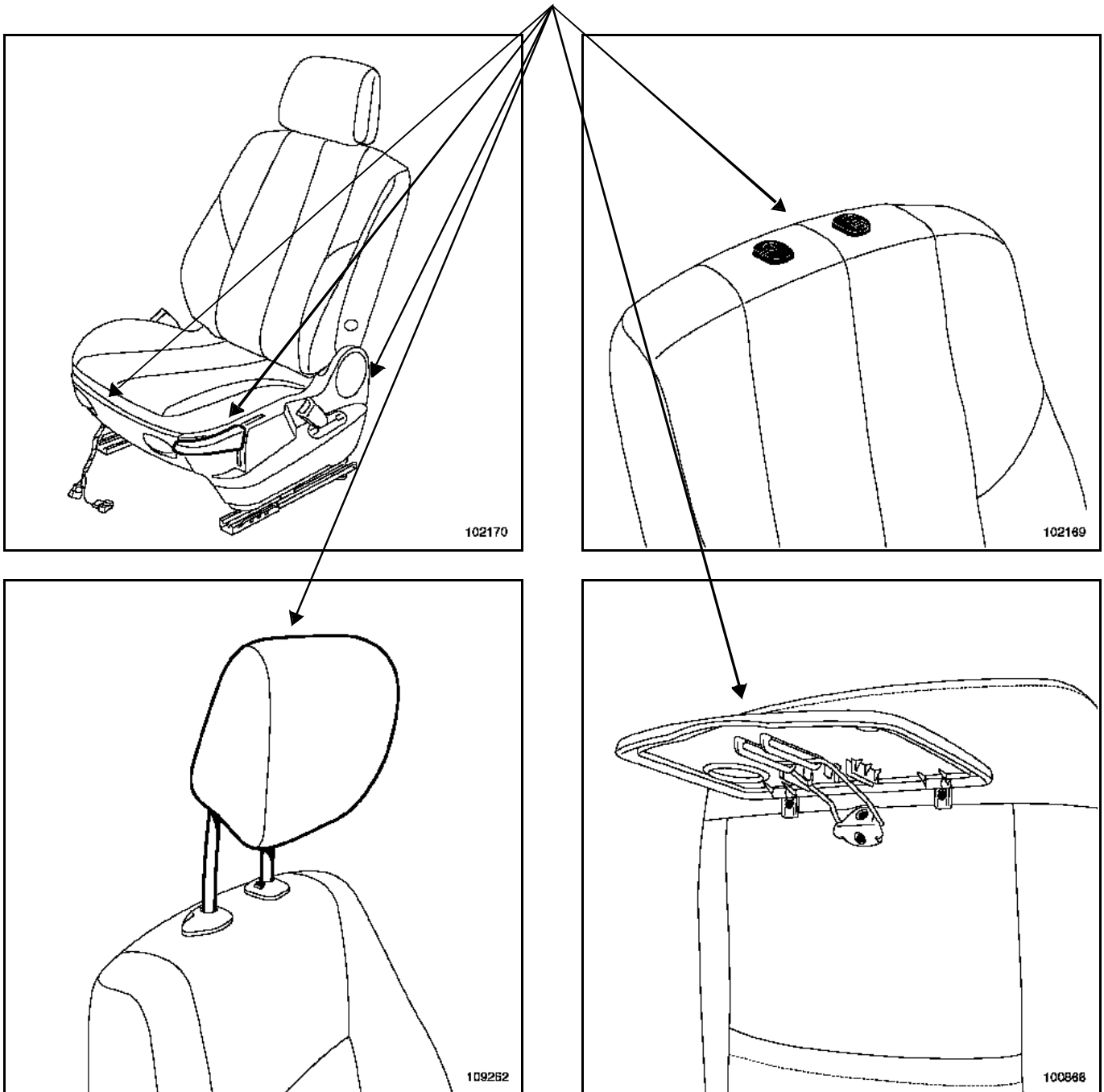
Carry out an operational test on the seat



<p>ALP 19 CONTINUED 3</p>	<p>Noise from the upholstery</p>
---	---

Fig. 2

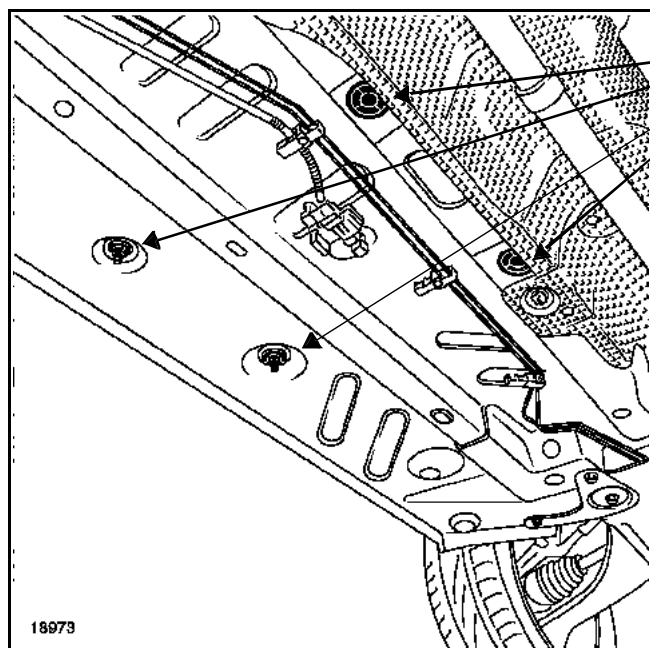
Check the resistance and mountings of the casings, control levers, headrest and guides, rear parcel shelf, etc.



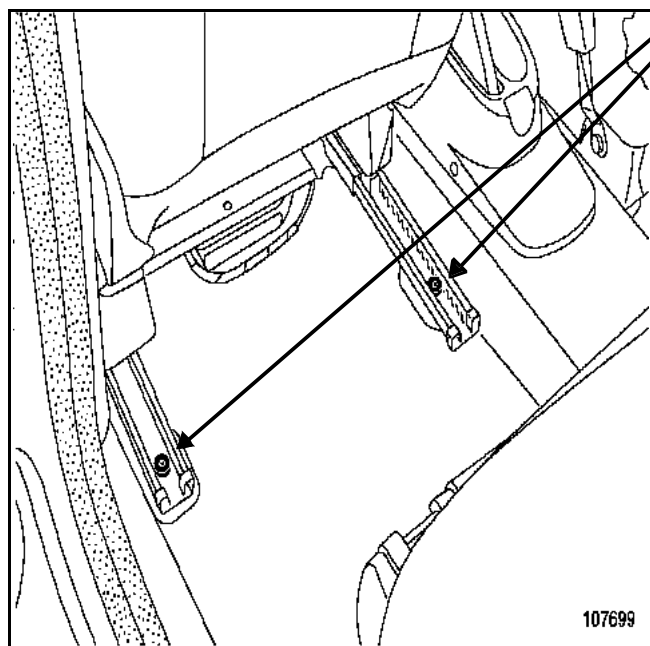
<p>ALP 19 CONTINUED 4</p>	<p>Noise from the upholstery</p>
-------------------------------	----------------------------------

Fig. 3

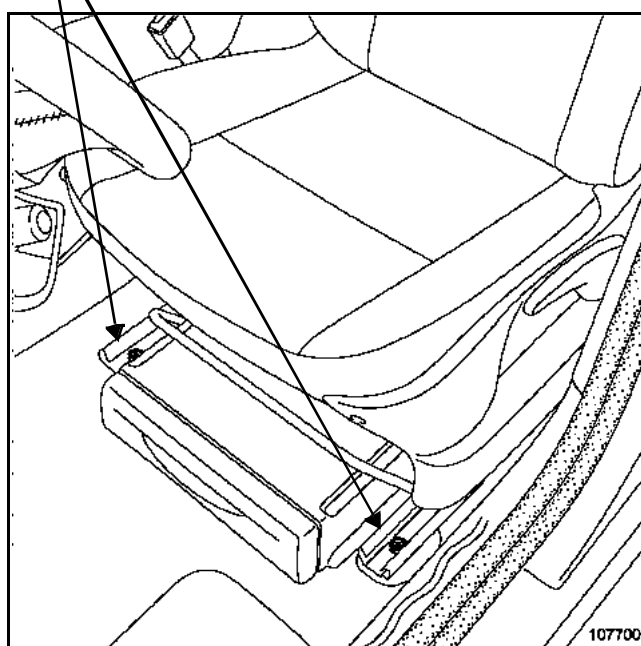
A seat can either be removed from underneath the vehicle or from the vehicle interior:



Mountings underneath the vehicle



Mountings inside the vehicle

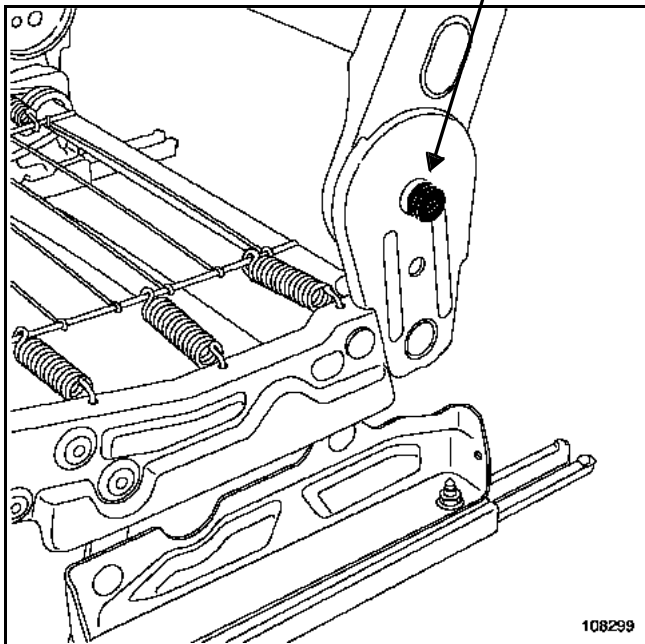
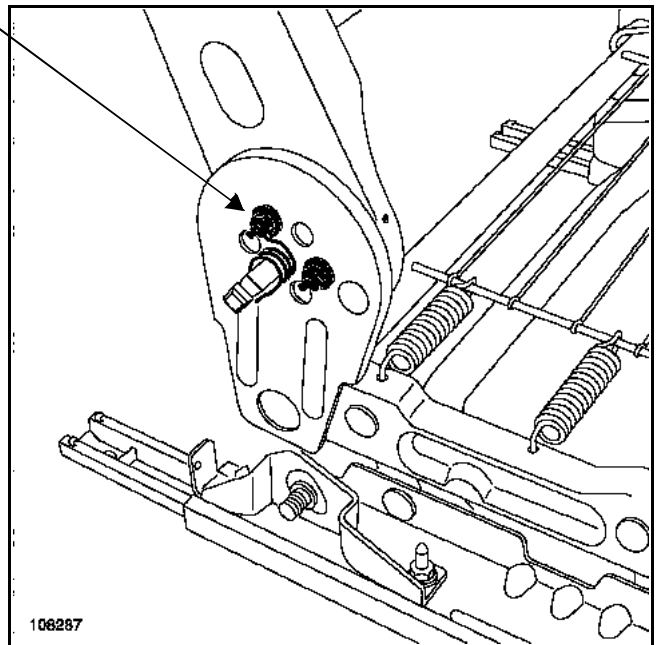
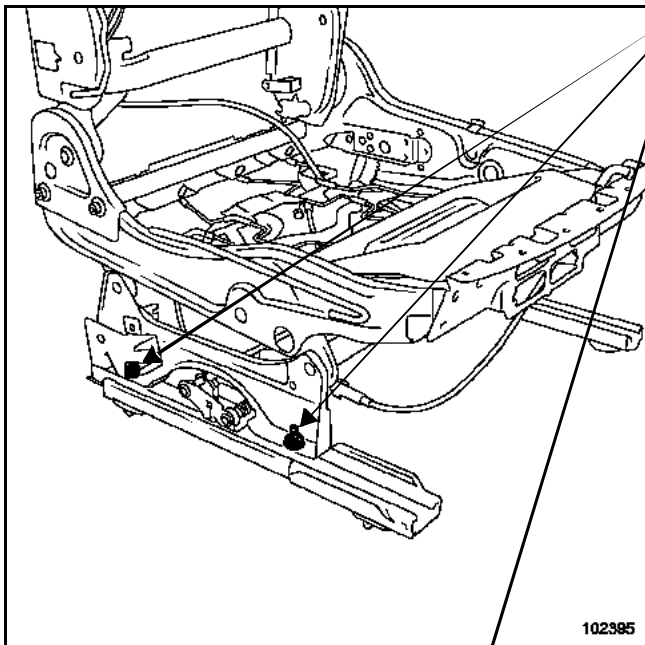


<p>ALP 19 CONTINUED 5</p>	<p>Noise from the upholstery</p>
---	---

Fig. 4

The frame mountings to be checked include:

Seat base/backrest frame mountings and runners/seat base mountings



Consult the MR in order to respect the recommended tightening torques.

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

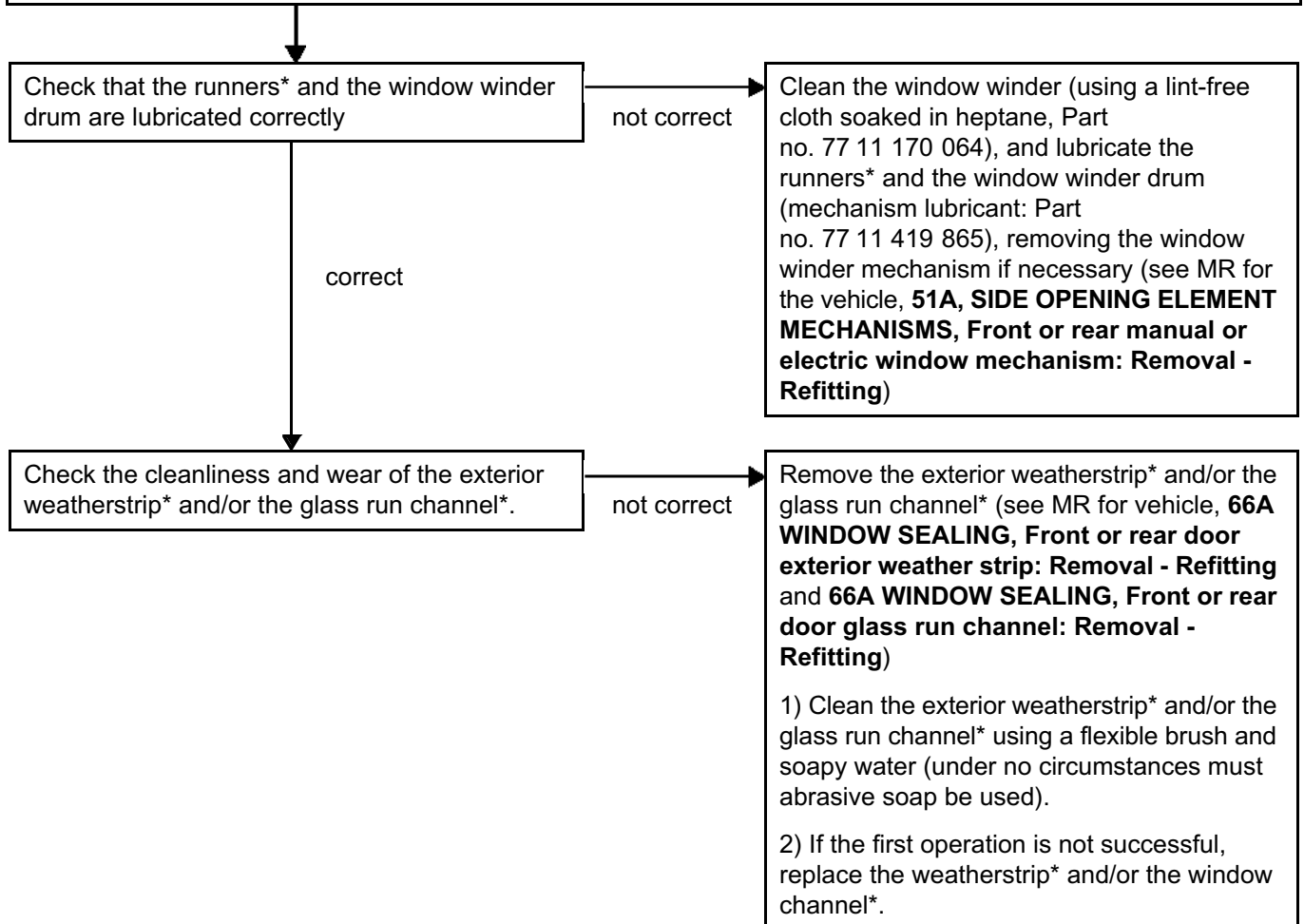
ALP 20	Noise when window is operated (squeaking/creaking)
---------------	---

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Consult the ICM database and check the conformity of the vehicle.
 Visually inspect the vehicle:

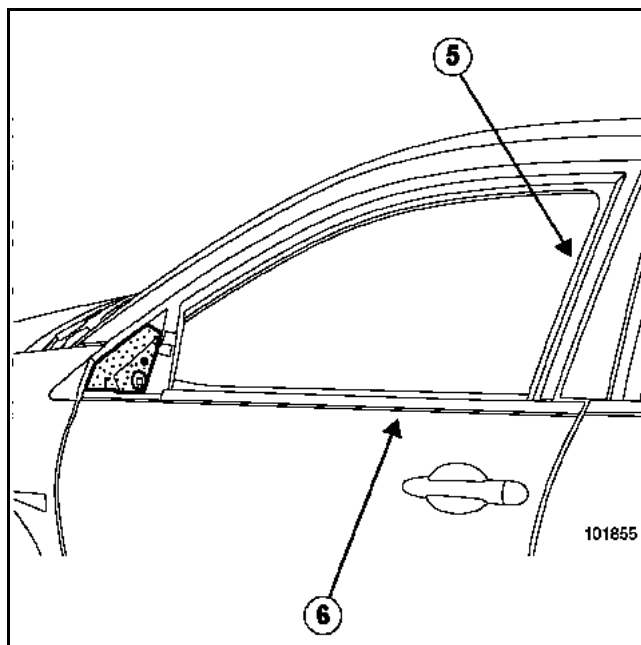
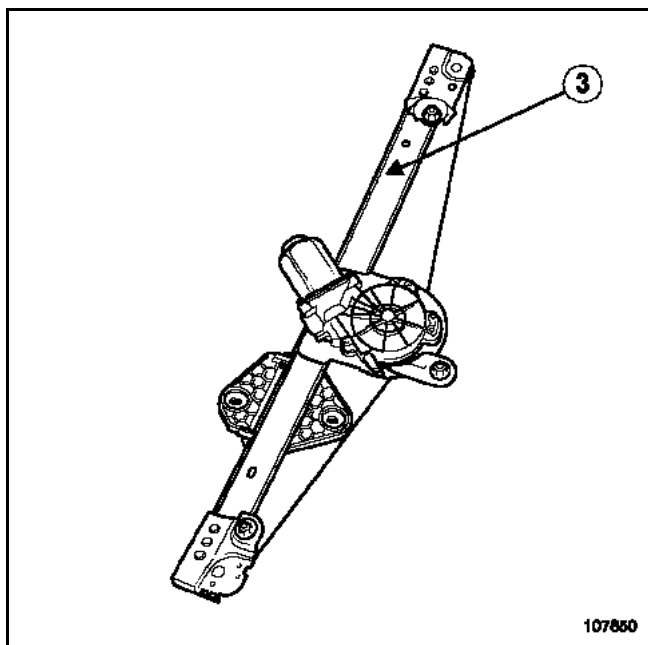
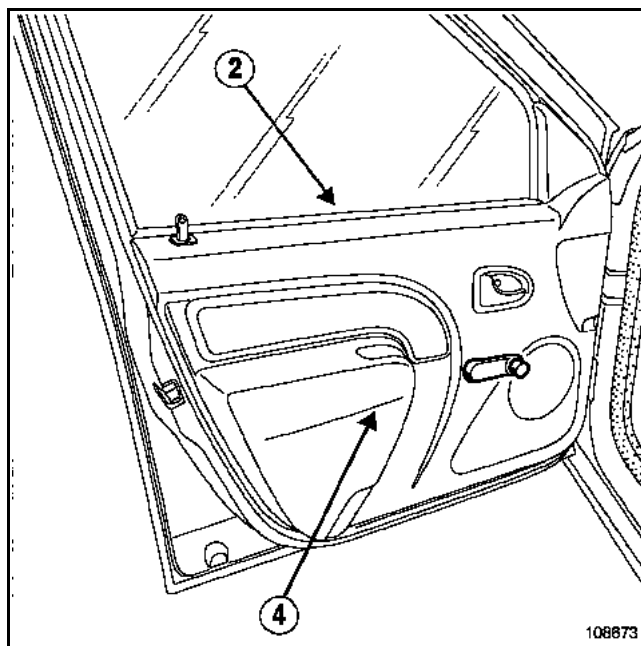
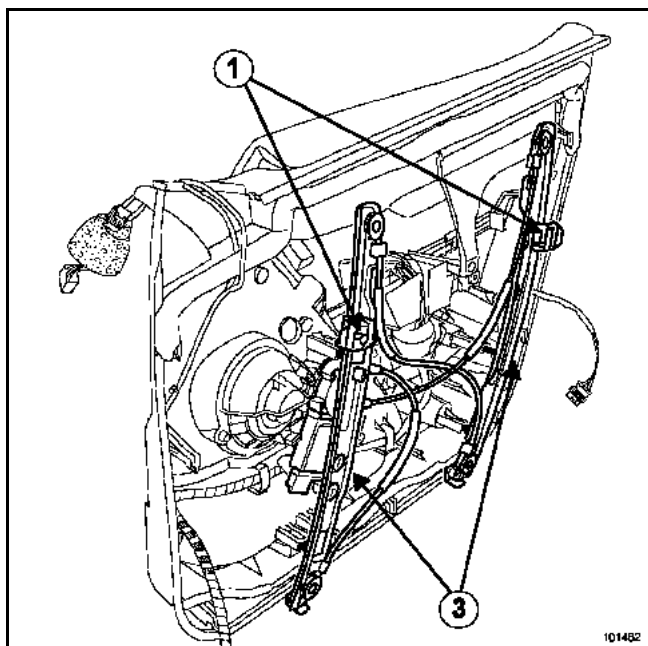
- exterior cleanliness,
- no foreign bodies present
- no parts are loose, damaged or broken.

After the operation, check that the operation was successful by performing an operational test or road test.



*: see the illustrations on the following page

<p>ALP 20 CONTINUED</p>	<p>Noise when window is operated (squeaking/creaking)</p>
-----------------------------	---



- 1 Window winder sliders
- 2 Interior weatherstrip
- 3 Window winder mechanism runners

- 4 Interior door trim
- 5 Glass run channel
- 6 Exterior weatherstrip

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

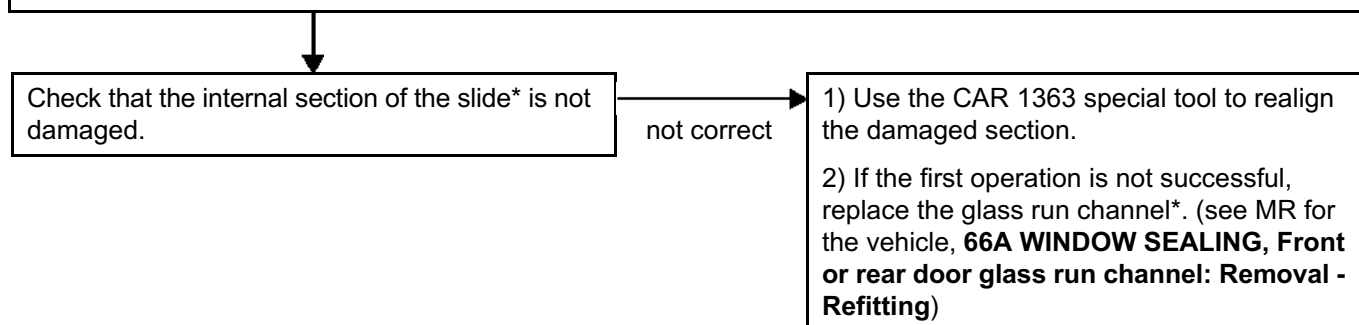
ALP 21	Noise when window is operated (scratching)
---------------	---

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Consult the ICM database and check the conformity of the vehicle.
Visually inspect the vehicle:

- exterior cleanliness,
- no foreign bodies present
- no parts are loose, damaged or broken.

After the operation, check that the operation was successful by performing an operational test or road test.



*: see illustrations in ALP: Noise when window is operated (squeaking / creaking)

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

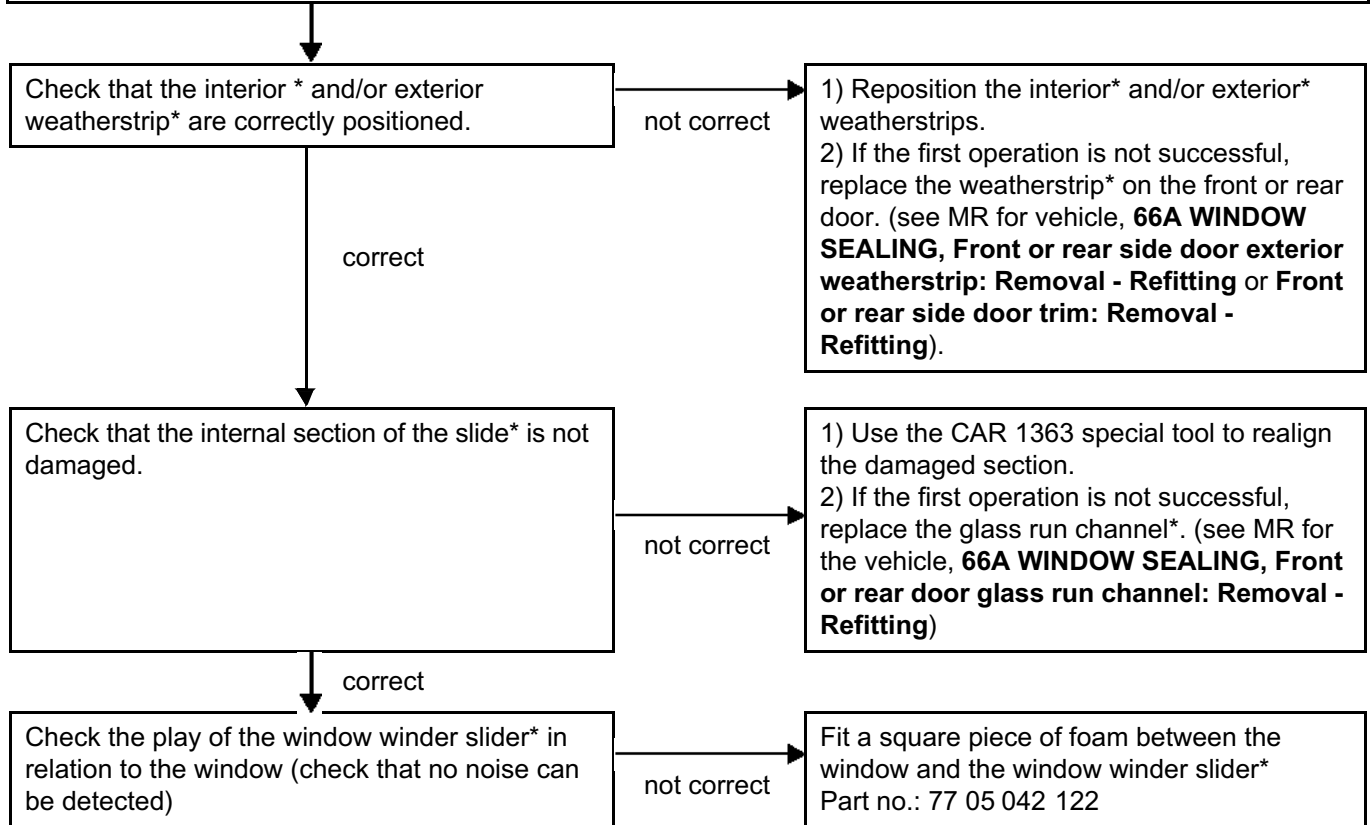
ALP 22	Noise from the window when closing the door (rattling)
---------------	---

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Consult the ICM database and check the conformity of the vehicle.
 Visually inspect the vehicle:

- exterior cleanliness,
- no foreign bodies present
- no parts are loose, damaged or broken.

After the operation, check that the operation was successful by performing an operational test or road test.



*: see illustrations in ALP: Noise when window is operated (squeaking / creaking)

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

ALP 23	Sunroof chattering: jerky movement when opening/closing sunroof mobile panel
---------------	---

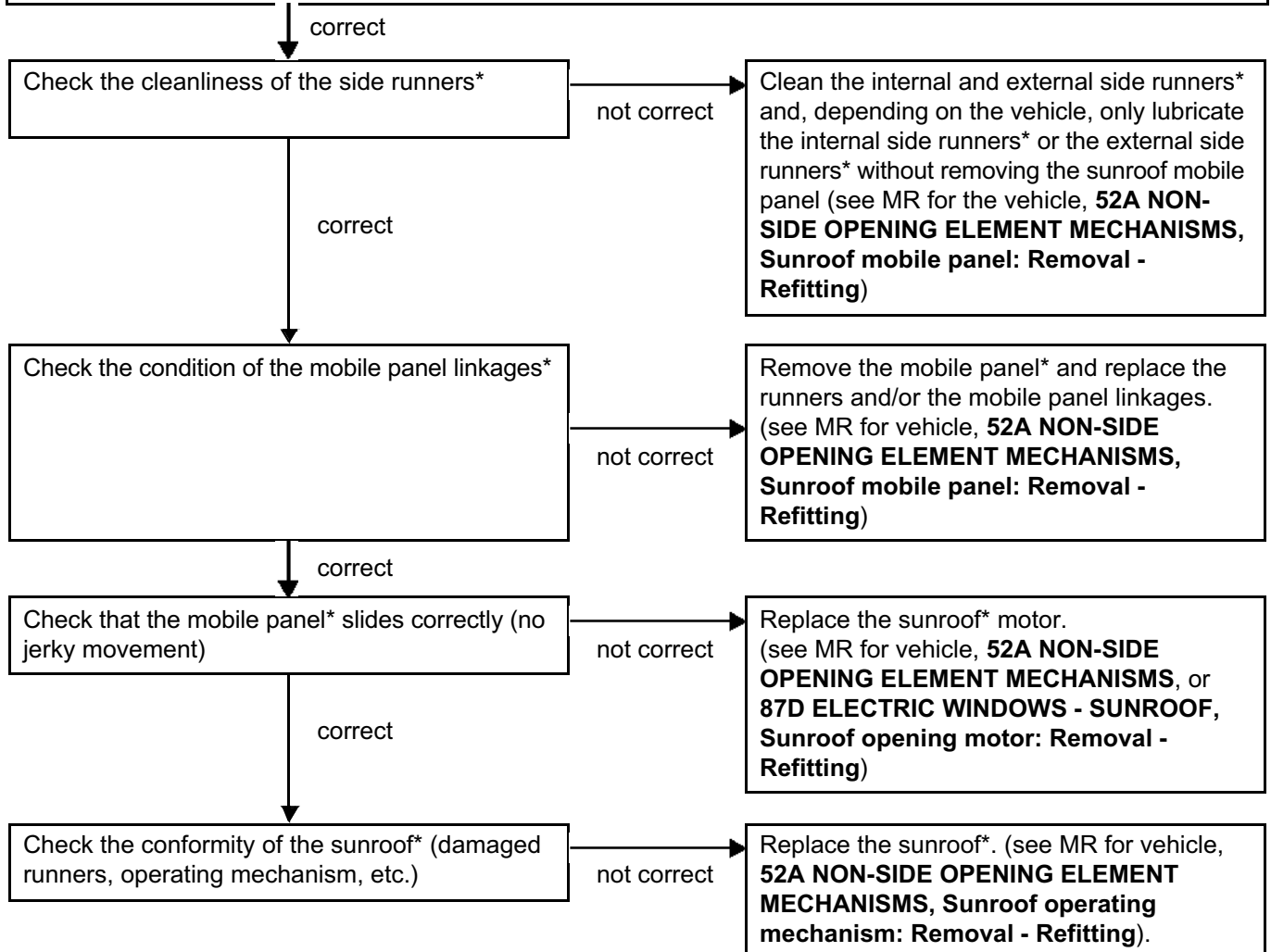
NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Consult the ICM database and check the conformity of the vehicle.
 Check the tyre pressures.
 Visually inspect the vehicle:

- exterior cleanliness,
- no foreign bodies in the sunroof side runners,
- no parts are broken.

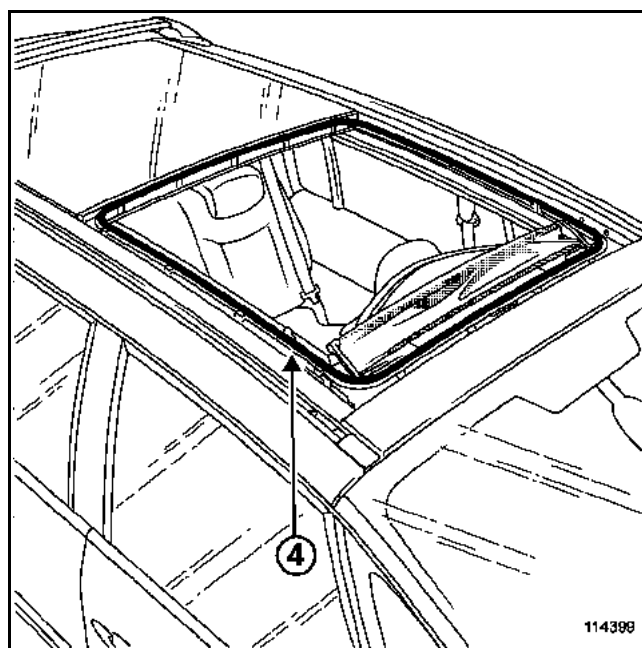
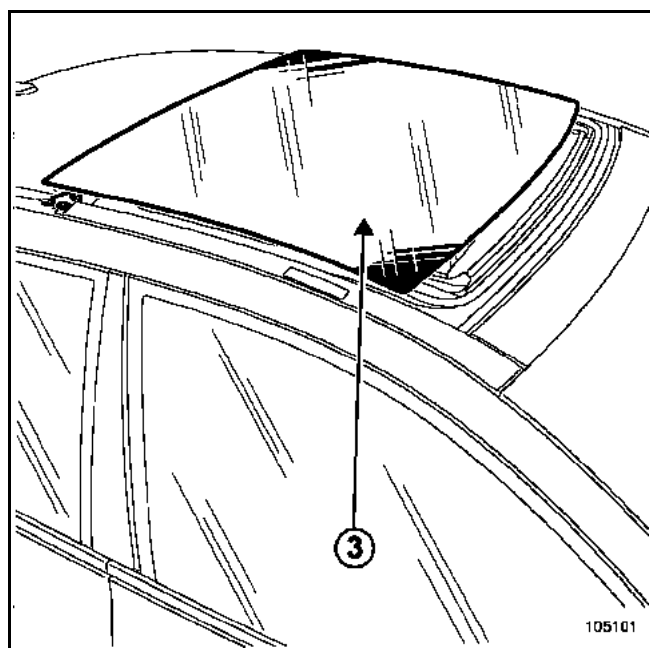
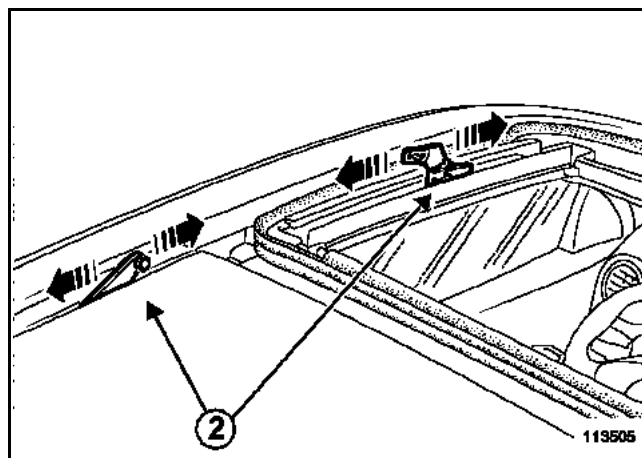
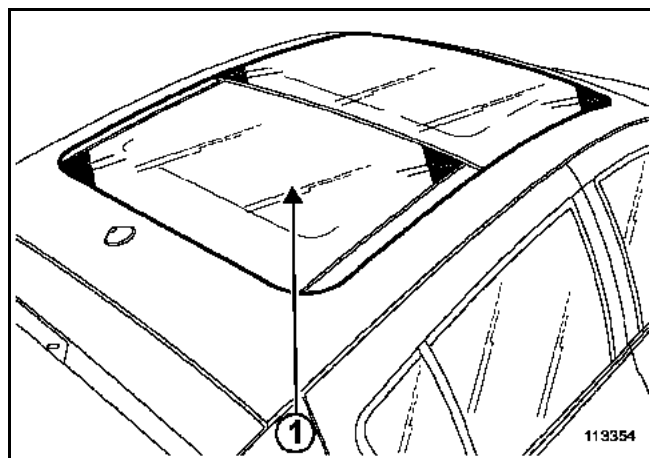
After the operation, check that the operation was successful by performing an operational test or road test.

Check the operation of the mobile panel* by initialising the sunroof motor, with the vehicle's engine running (see fault finding MR for vehicle, **87D ELECTRIC WINDOW - SUNROOF, Electric sunroof: Initialisation**)



*: see the illustrations on the following page

<p>ALP 23 CONTINUED 1</p>	<p>Sunroof chattering: jerky movement when opening/closing sunroof mobile panel</p>
---	--



- 1 Sunroof operating mechanism (sunroof assembly)
- 2 Linkages and side runners (position of sliding linkages)

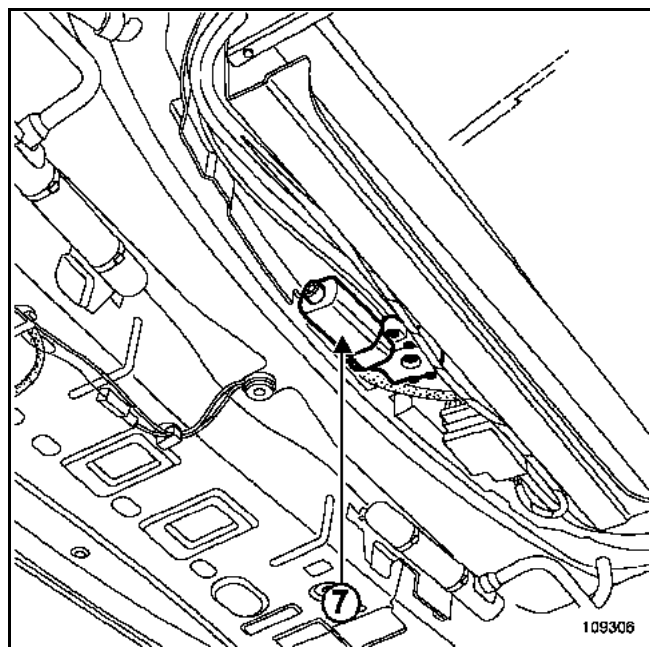
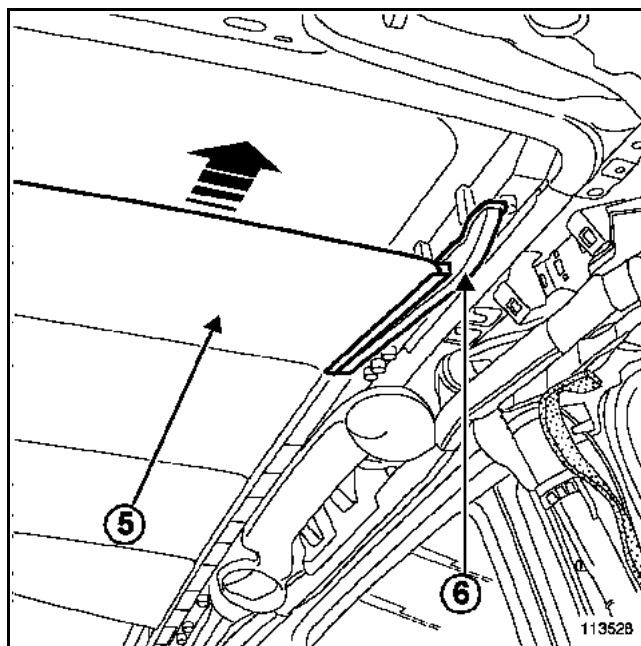
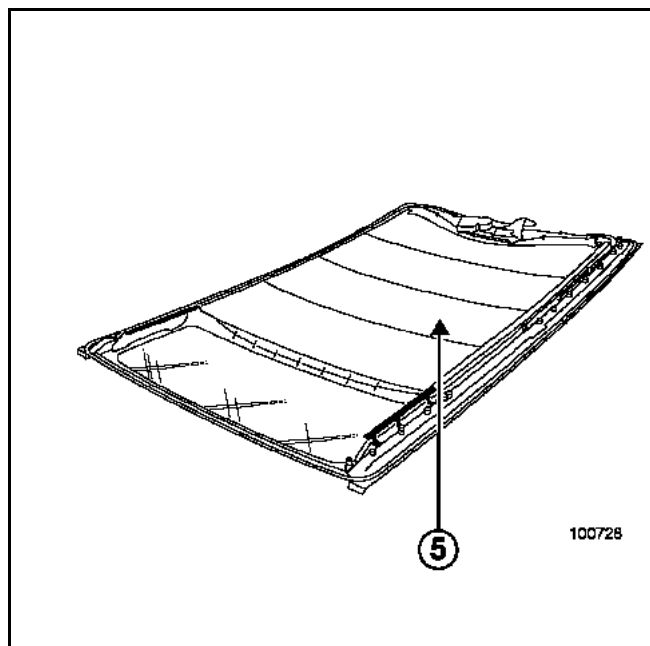
- 3 Sunroof mobile panel
- 4 Seal

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01

<p>ALP 23 CONTINUED 2</p>	<p>Sunroof chattering: jerky movement when opening/closing sunroof mobile panel</p>
-------------------------------	---



- 5 Sunroof blind (e.g. Espace IV)
- 6 Sunblind storage unit
- 7 Sunroof motor

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

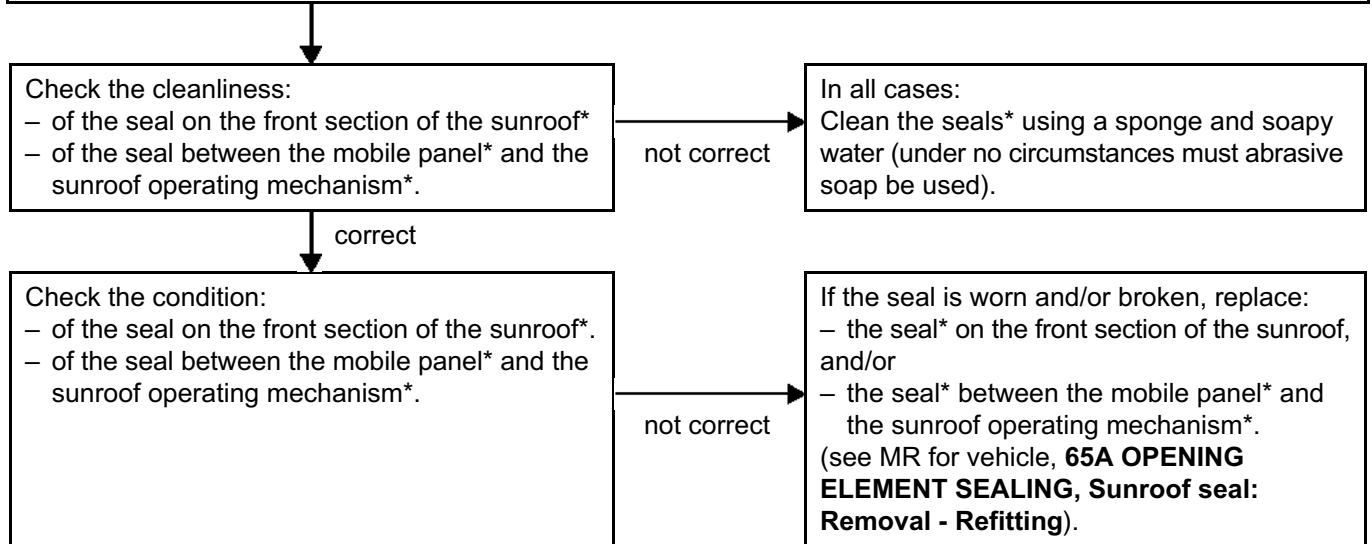
ALP 24	Sunroof creaking
---------------	-------------------------

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Consult the ICM database and check the conformity of the vehicle.
 Check the tyre pressures.
 Visually inspect the vehicle:

- exterior cleanliness,
- no foreign bodies in the sunroof side runners,
- no parts are broken.

After the operation, check that the operation was successful by performing an operational test or road test.



*: see the illustrations in ALP: Sunroof chattering

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

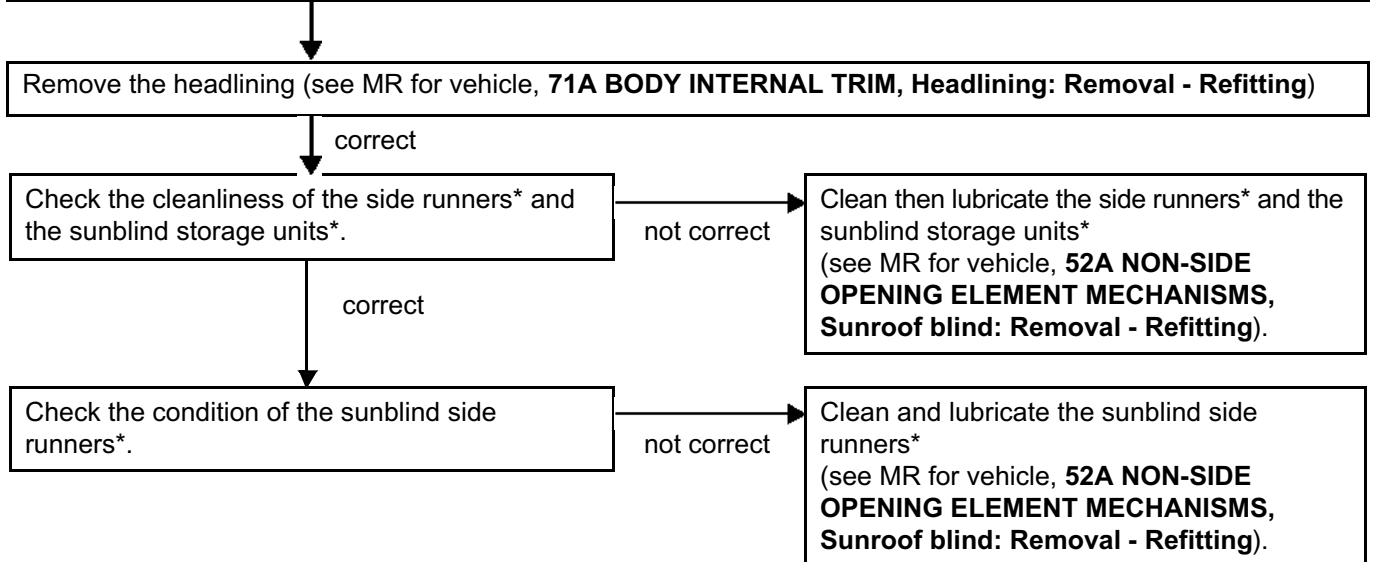
ALP 25	Grating noise from the sunblind
---------------	--

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Consult the ICM database and check the conformity of the vehicle.
 Check the tyre pressures.
 Visually inspect the vehicle:

- exterior cleanliness,
- no foreign bodies in the sunroof side runners,
- no parts are broken.

After the operation, check that the operation was successful by performing an operational test or road test.



*: see the illustrations in ALP: Sunroof chattering

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

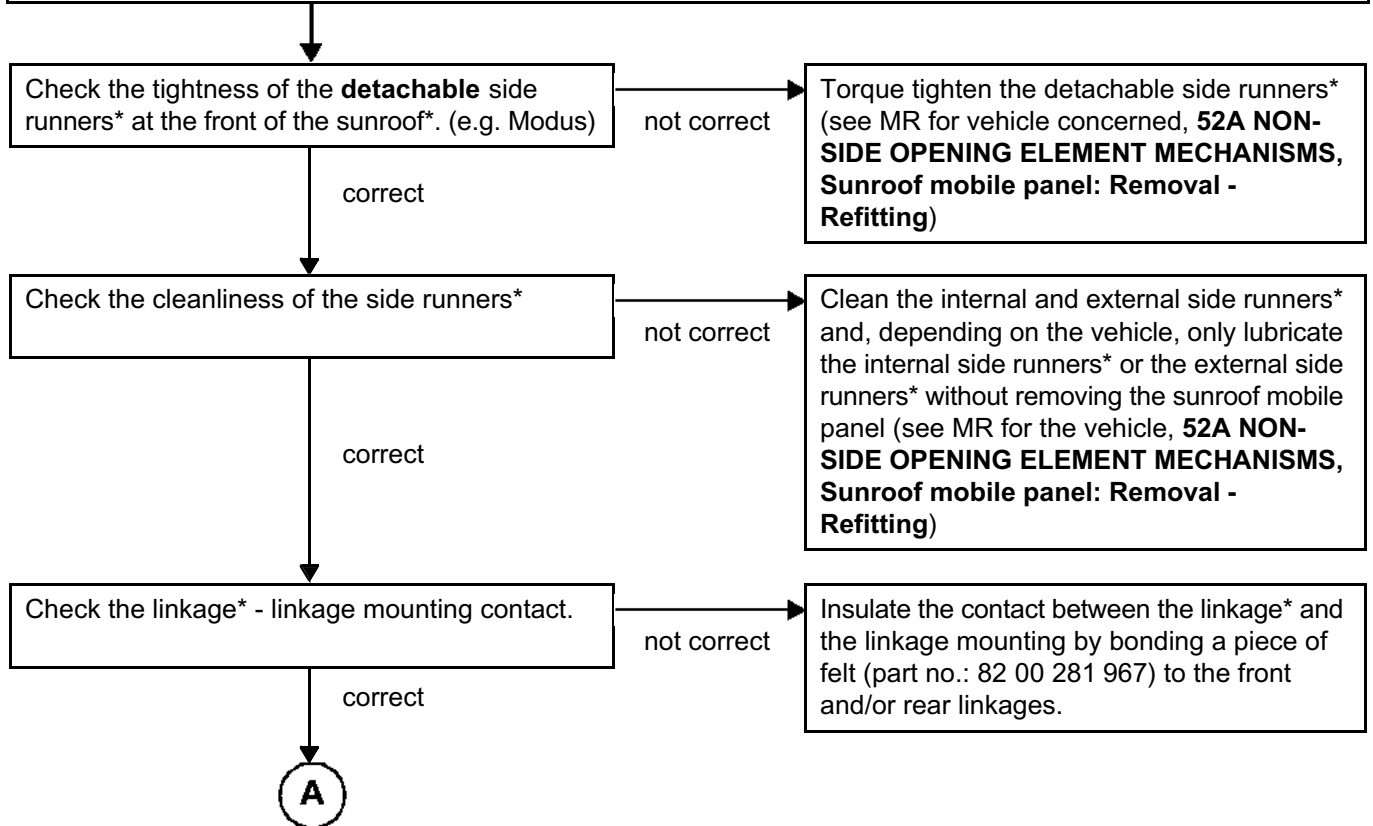
CHART 26	Sunroof rattling
-----------------	-------------------------

NOTES	Only consult this customer complaint after a complete check with the diagnostic tool.
--------------	---

Consult the ICM database and check the conformity of the vehicle.
 Check the tyre pressures.
 Visually inspect the vehicle:

- exterior cleanliness,
- no foreign bodies in the sunroof side runners,
- no parts are broken.

After the operation, check that the operation was successful by performing an operational test or road test.



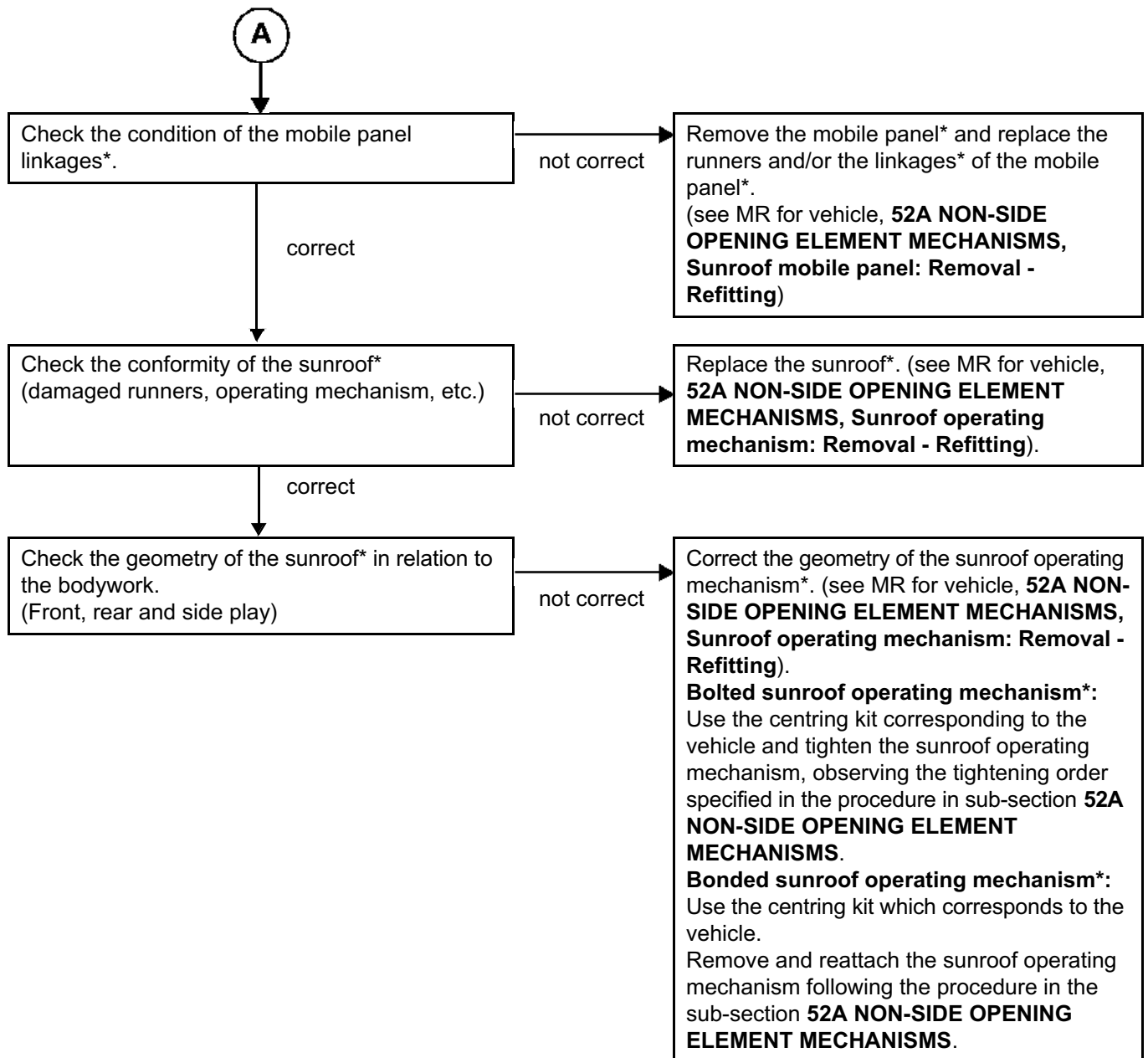
*: see the illustrations in ALP: Sunroof chattering

FAULT FINDING INTRODUCTION

Fault finding – Fault Finding Chart

01E

CHART 26 CONTINUED	Sunroof rattling
-------------------------------	-------------------------



*: see the illustrations in ALP: Sunroof chattering

FAULT FINDING INTRODUCTION

Noise diagnostic tool – Use

01E

Introduction:

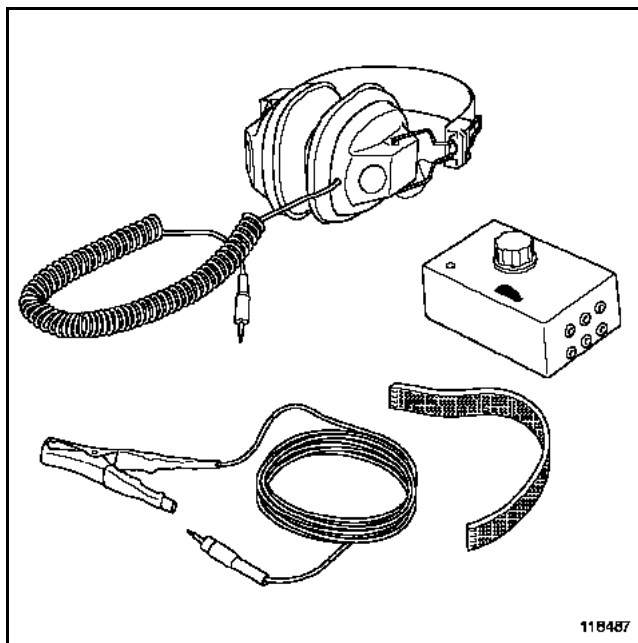
Before using the diagnostic tool (**Part no. 77 11 421 103**), it is essential to identify that the noise heard by the customer comes from the vehicle (and not from various objects in the vehicle or from the surrounding environment, etc.).

Note: Whenever possible, empty the contents of the vehicle's various storage compartments.

The **ChassisEar** is an electronic, versatile diagnostic tool designed to enable the user, during a road test, to amplify the sounds produced by different areas of the vehicle:

- Suspension
- Rotating components
- Front panel
- Engine
- Engine sub-frame
- Steering column
- Under body
- Rear face

Diagram of the tool:



The tool case is composed of the following:

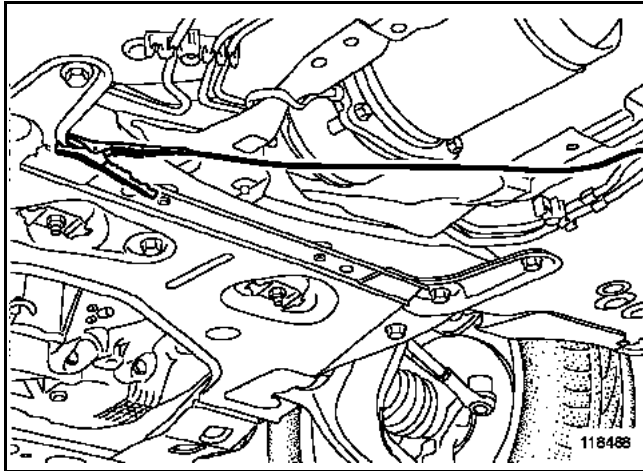
- Control unit (1)
- Clamp - Cable assembly (2)
- Headset (3)
- Velcro strip (4)

1) Fitting the tool:

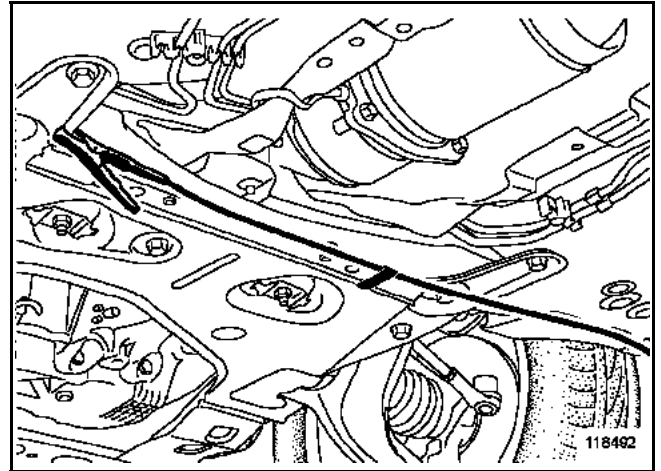
1.1) Precautions to observe when fitting the tool:

1.1.1) Assembly (wire – clamp):

- Ensure that the clamps are not:
 - In contact with or near to sources of heat (exhaust, etc.)

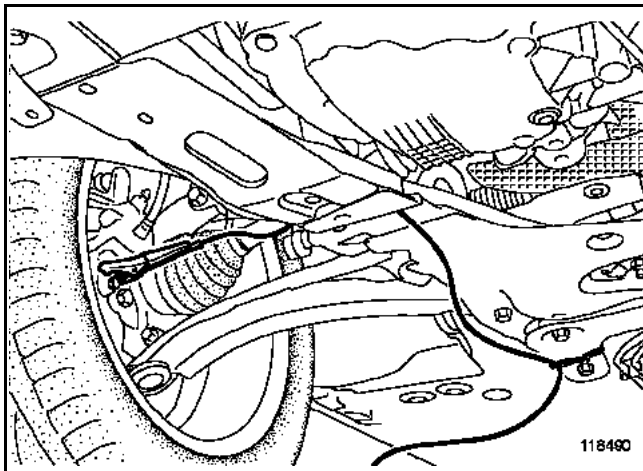


Incorrect fitting

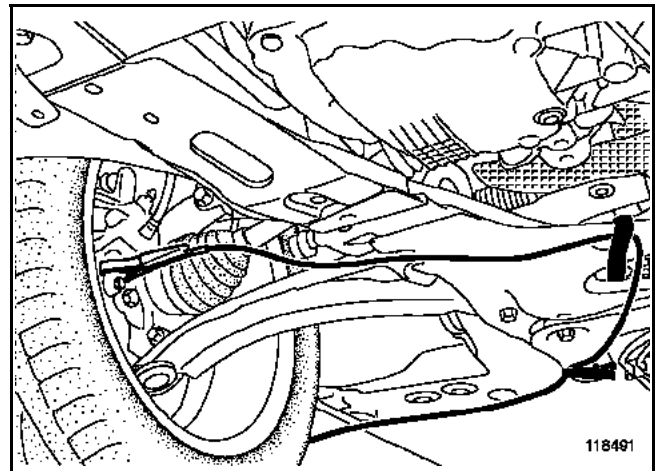


Correct fitting

- In contact with highly corrosive liquids (brake fluid, etc.).
- Ensure that the clamps are not:
 - In contact with rotating components.



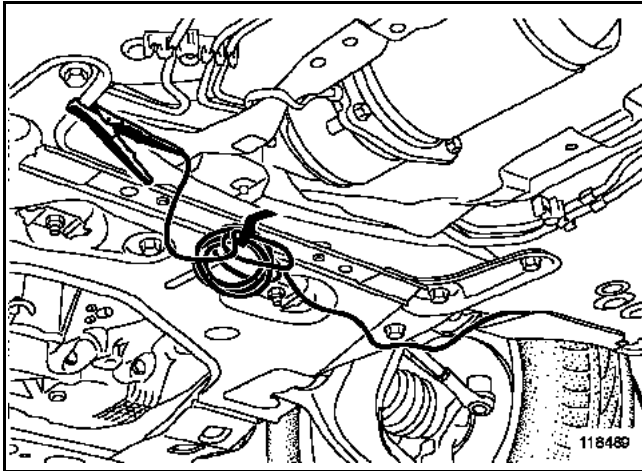
Incorrect fitting



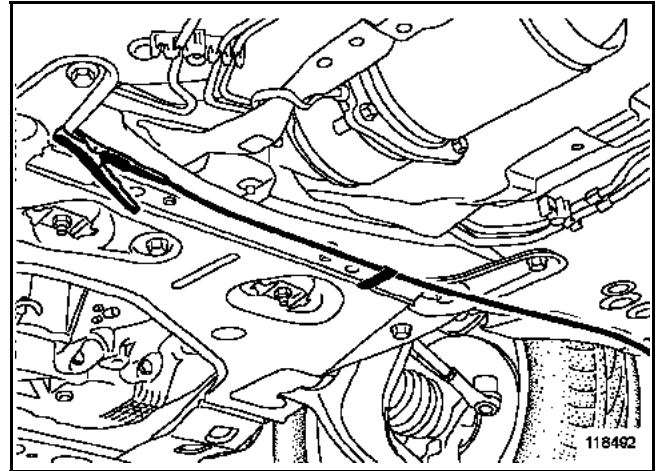
Correct fitting

- Make provision for parts to move whilst driving (wheels turned to full lock, movement) to prevent the clamp from becoming unclipped and the wire being severed.

- Do not twist the wires.



Incorrect fitting



Correct fitting

- Only attach the wires using the velcro strips supplied in the tool case.

1.1.1) Connection (Clamps-Control unit):

The control unit has 6 inputs which correspond to clamps of the following colours:

- 1: Red
- 2: Green
- 3: White
- 4: Pink
- 5: Blue
- 6: Orange

FAULT FINDING INTRODUCTION

Noise diagnostic tool – Use

01E

1.1.2) Fitting the tool:

- Place the vehicle on a lift.
- Fit the clamps to the components which may be causing the noise.
 - Attach the wires using velcro strips.
 - A coloured ring on the wire aids their identification.

- Remember the area or the component studied, according to the position of the clamps.
- Connect the clamps to the control unit.
- Connect the headset.

2) Stages of the test:

WARNING

When driving, **2 people are required**. Someone other than the driver must wear the headpiece.

Do not move the clamps during the driving test.

If the position of the clamps has to be adjusted, the vehicle must be in the workshop.

Perform the vehicle test according to the information collected and shown on the **Fault finding log**, when the customer complaint was registered (conditions under which noise appears).

Confirm the components in question during the test phase by a performing a check in the workshop:

- Special tooling.
- Visual or tactile inspection.

OIL DECANter: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



parts always to be replaced:



[Oil decanter seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

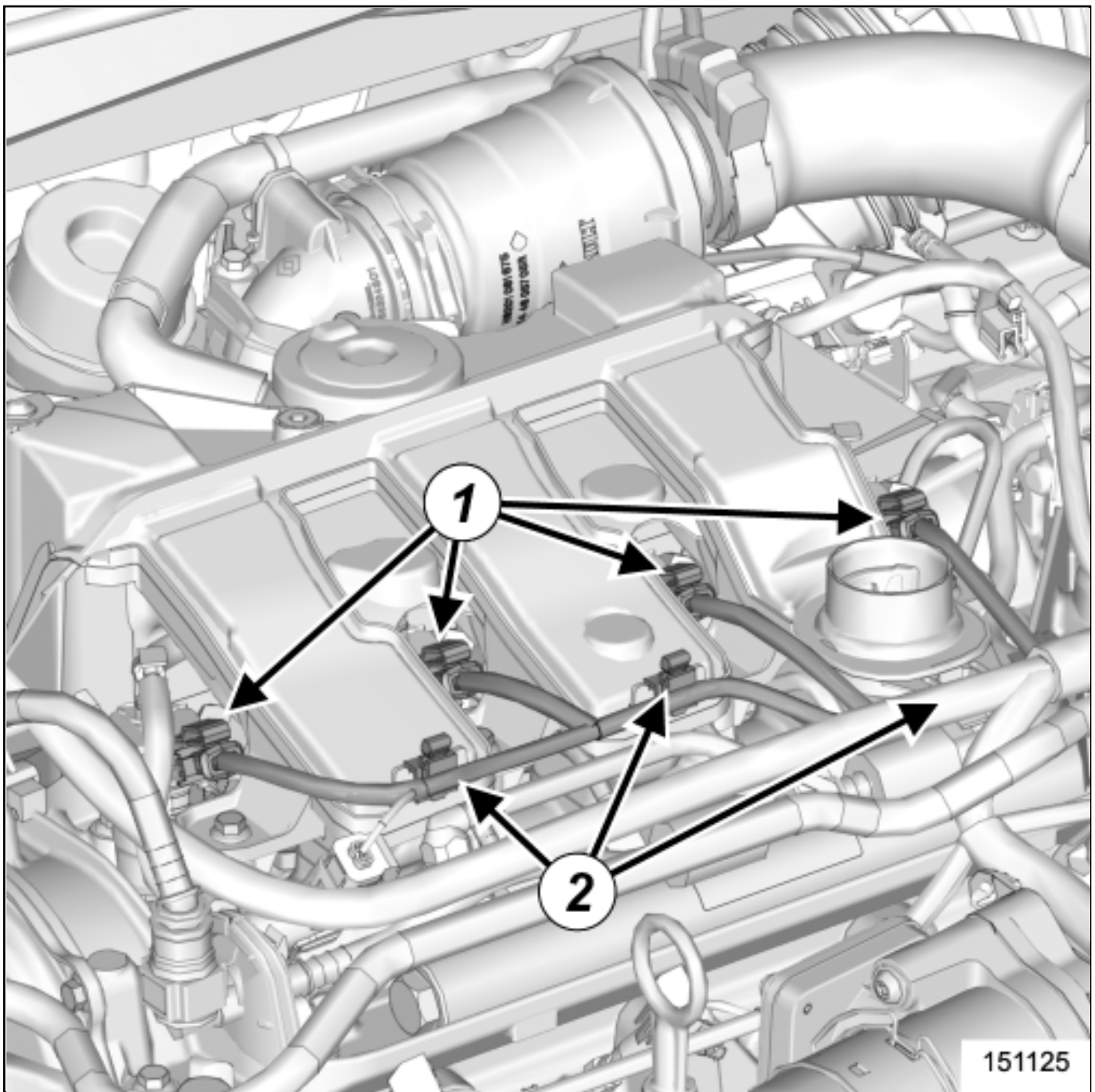
Location and specifications (tightening torques, parts always to be replaced, etc.) [Engine oil circuit assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Disconnect the battery (see [Battery : Exploded view](#)) .

- ❑ Remove the injector rail protector [Injector rail protector: Removal - Refitting](#) .



■ Disconnect the diesel injector connectors(1) .

■

Unclip the injection wiring at(2) .

■ Disconnect the oil vapour rebreathing pipe from the oil separator [Engine oil circuit assembly: Exploded view](#) .

2. REMOVAL OPERATION

Remove [Engine oil circuit assembly: Exploded view](#) :

- the oil decanter bolts,
- the oil decanter,
-

the oil decanter seals.



Note:

Do not handle the oil decanter by its heat shield.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:

[Oil decanter seal](#) .



CAUTION

To ensure proper sealing, the gasket surfaces must be clean, dry and not greasy (avoid any finger marks).



Use surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean and degrease:

- - the oil decanter seal housings, if they are being reused,
 -
- the rocker cover joint faces.



Note:

In the event of replacement, lubricate the seal of the engine oil filler cap.

2. REFITTING OPERATION



Refit [Engine oil circuit assembly: Exploded view](#) :



new oil decanter seals,



the oil decanter.



Proceed in the reverse order to removal.



[Repair-11x04x06x22-01x37-1-61-1.xml](#)



XSL version : 3.02 du 22/07/11

OUTPUT SHAFT: STRIPPING - REBUILDING



Note, one or more warnings are present in this procedure



Special tooling required

Tool kit for PK6 gearbox operations.

Bvi. 1510-01



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair([see 21A, Manual gearbox , Manual gearbox: Precautions for the repair](#)) .

STRIPPING

1. STRIPPING PREPARATION OPERATION

- Remove the gearbox([Manual gearbox: Removal - Refitting](#)) .
- Position the gearbox on the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .
- Remove:
 - the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) ,
 - the gearbox shafts([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) .

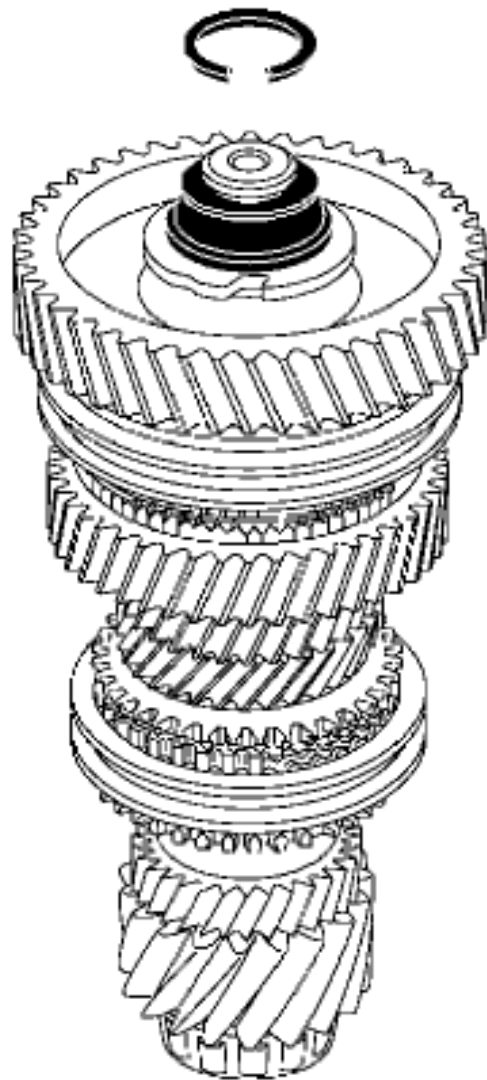
2. STRIPPING OPERATION FOR PART CONCERNED

1- REMOVING THE LONG OUTPUT SHAFT GEARING

Note:

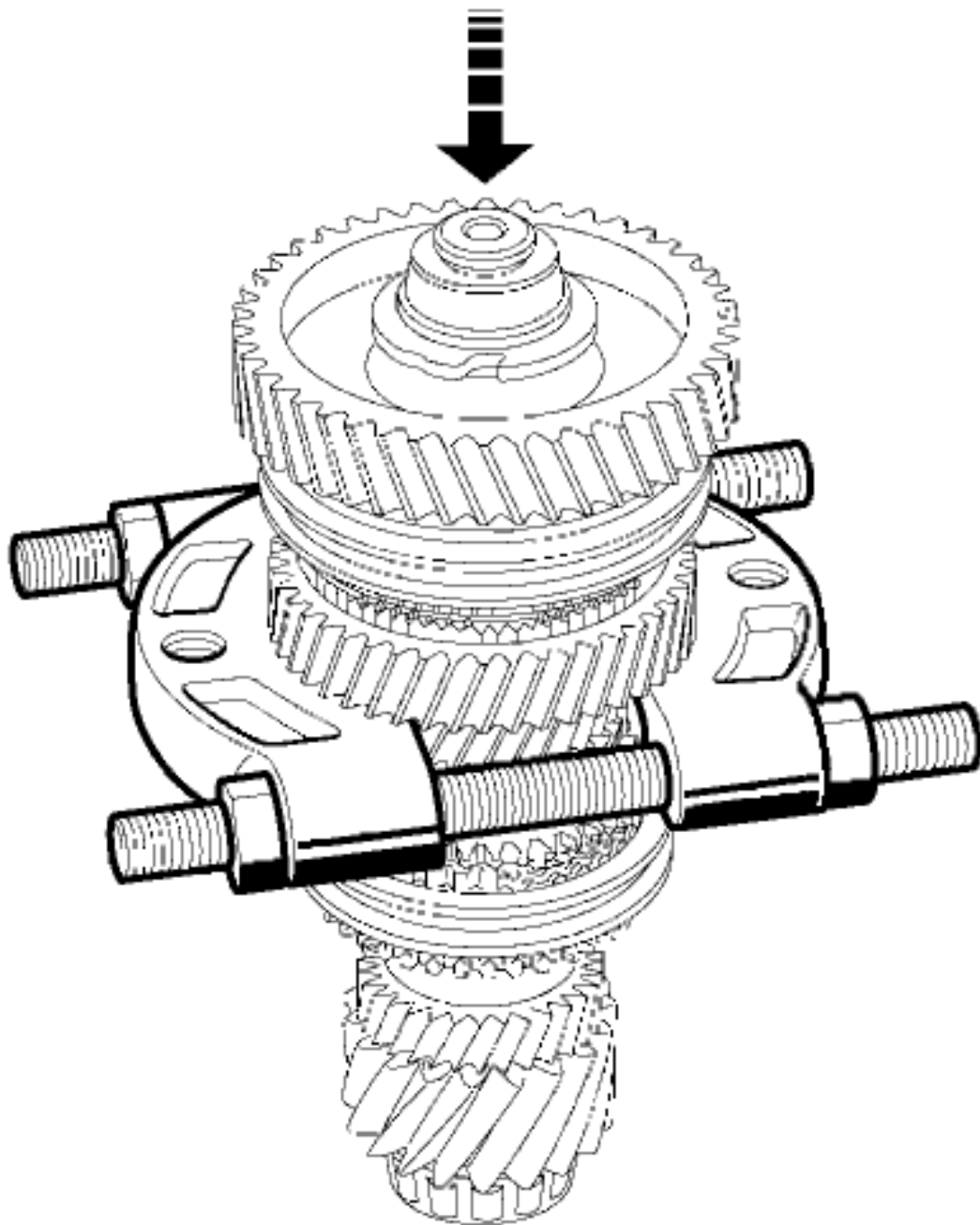


The gear supporting rings are tightly fitted onto the shafts. The thrust required for separation is around 10 to 15 tonnes, so the proper equipment is needed (press and support).



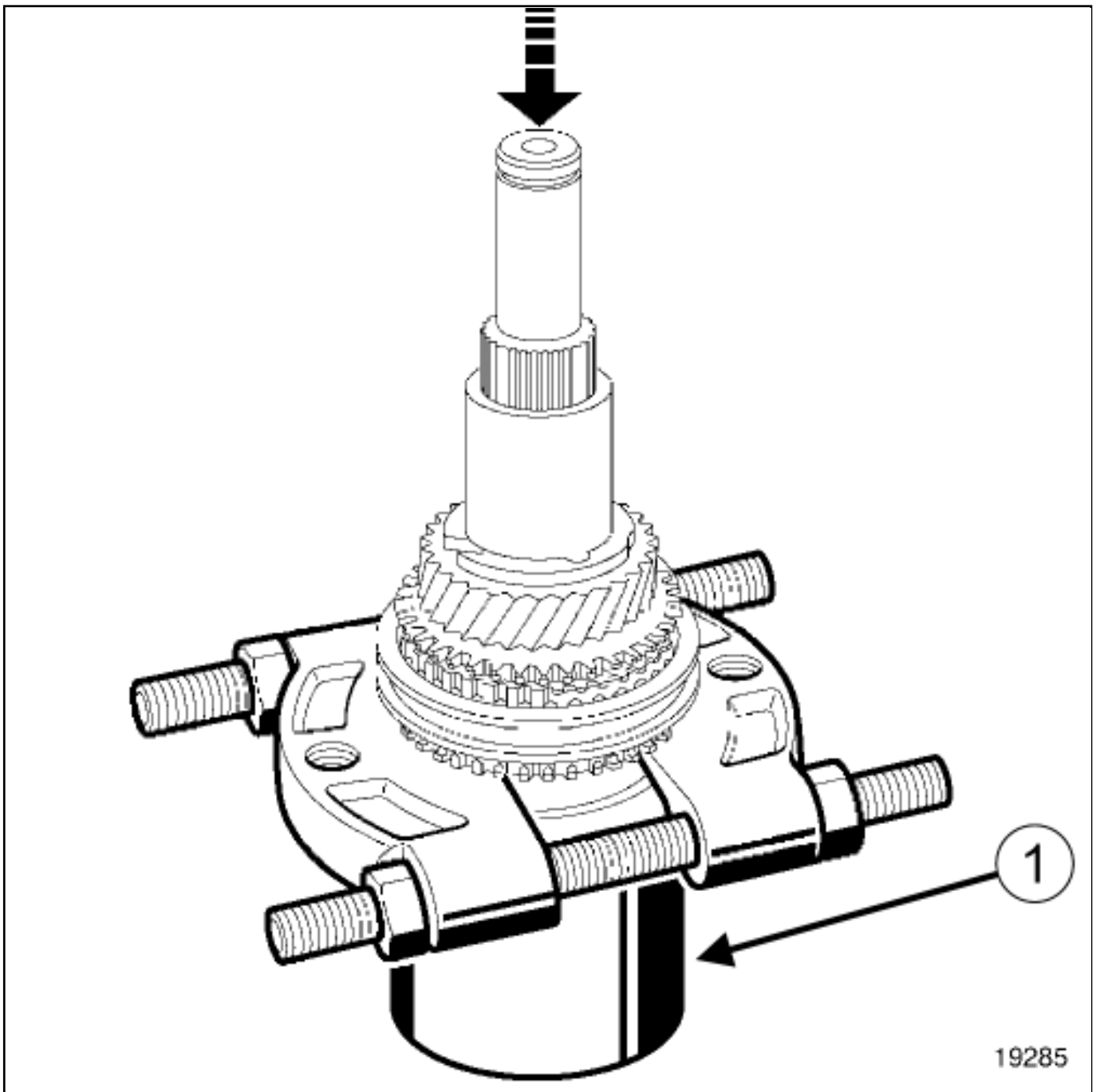
19283

- Remove the circlip using horseshoe type circlip pliers, Part no.:7711214712.

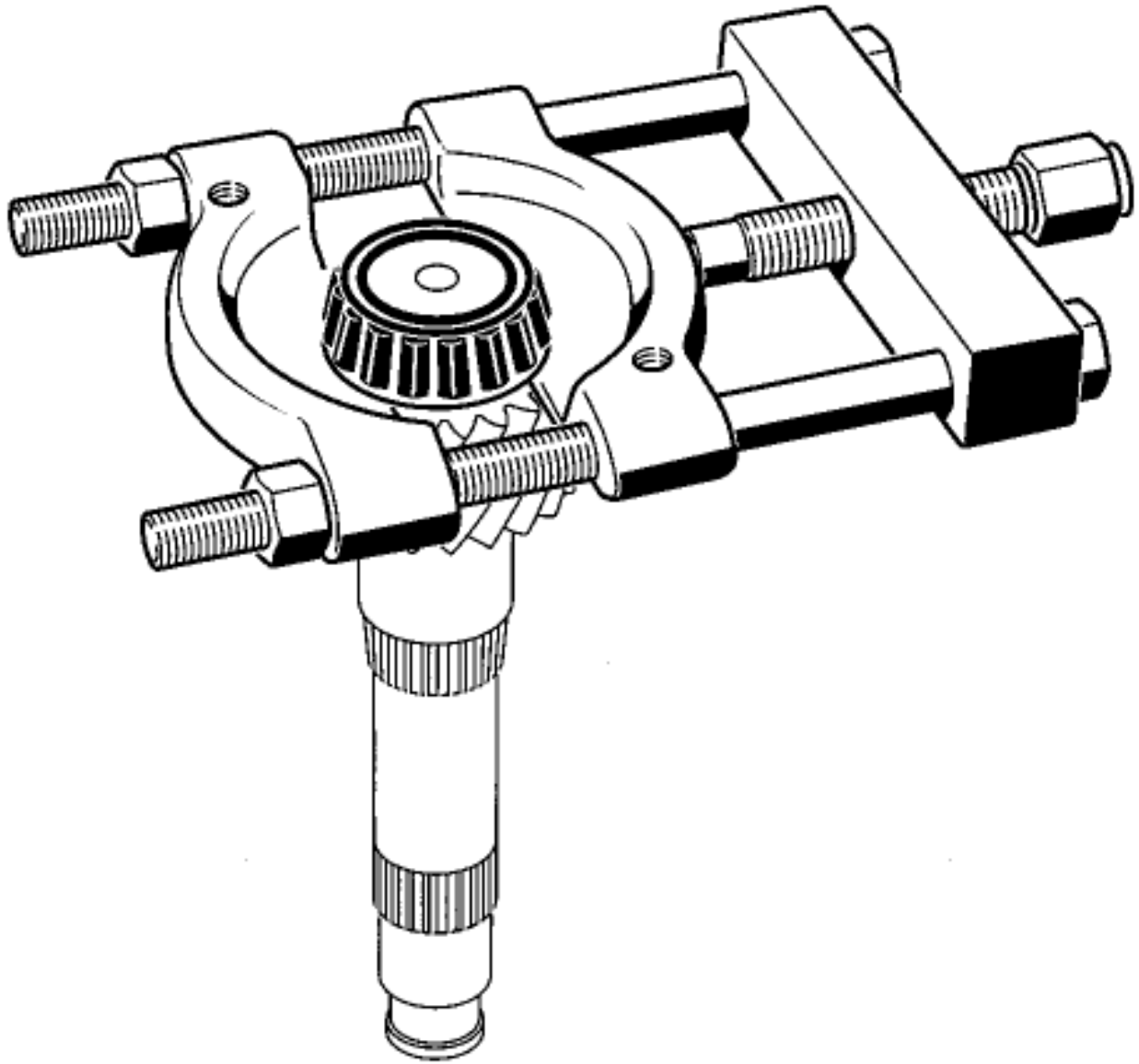


19284

■ Remove the bearings - pinions - hubs assembly using a press and a separator, using the second gear pinion for support.



Remove the bearings - pinions - hubs assembly using a press and a separator, with the tool kit for PK6 gearbox operations. (Bvi. 1510-01) suffix L (1) using the fifth gear pinion as support (or the sixth gear pinion, depending on the gearbox type).



15275

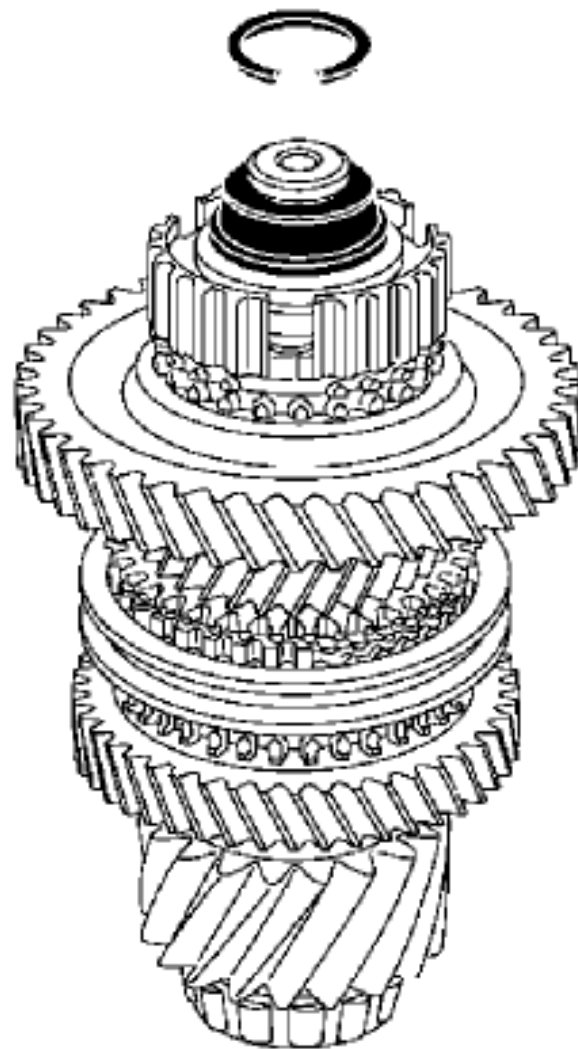
- Remove the bearing with an extractor.

2- REMOVING THE SHORT OUTPUT SHAFT GEARING

Note:

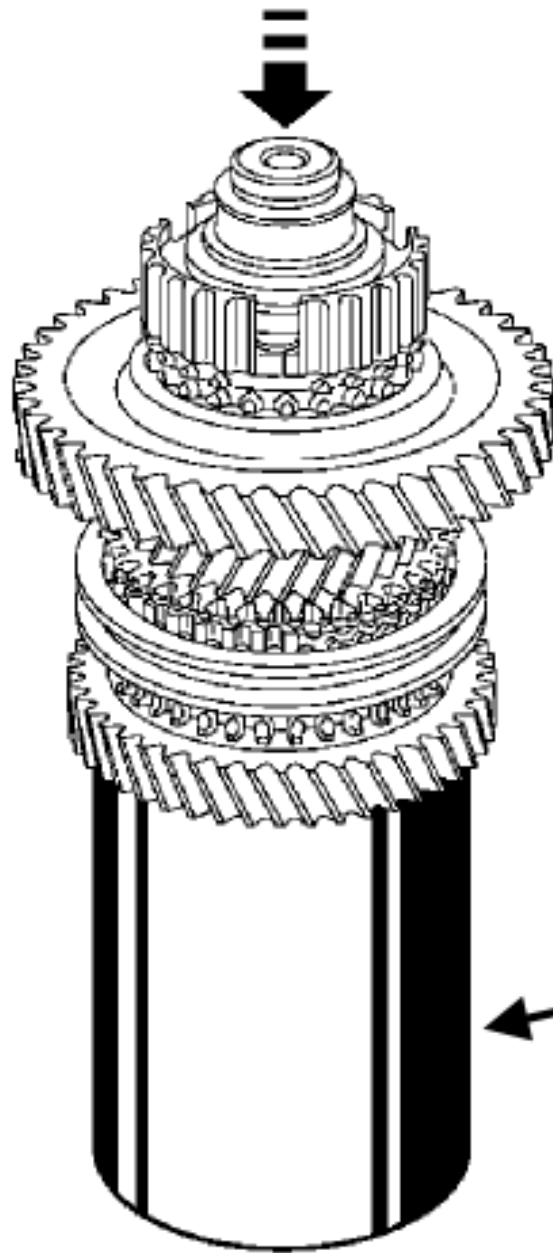


The gear supporting rings are tightly fitted onto the shafts. The thrust required for separation is around 10 to 15 tonnes, so the proper equipment is needed (press and support).



19286

■ Remove the circlip using horseshoe type circlip pliers, Part no.:7711214712.



19287



Note:

Place a rag at the base of the tool to cushion the shaft when it drops.

- Remove the bearings - pinions - hubs assembly using the toolTool kit for PK6 gearbox operations. (Bvi. 1510-01) suffix L (2).

1. REBUILDING PREPARATION OPERATION

■ Parts always to be replaced if removed:

- the circlips,
- the differential output seals,
- the input shaft output seal,
- the pins,
- the hydraulic clutch slave cylinder.

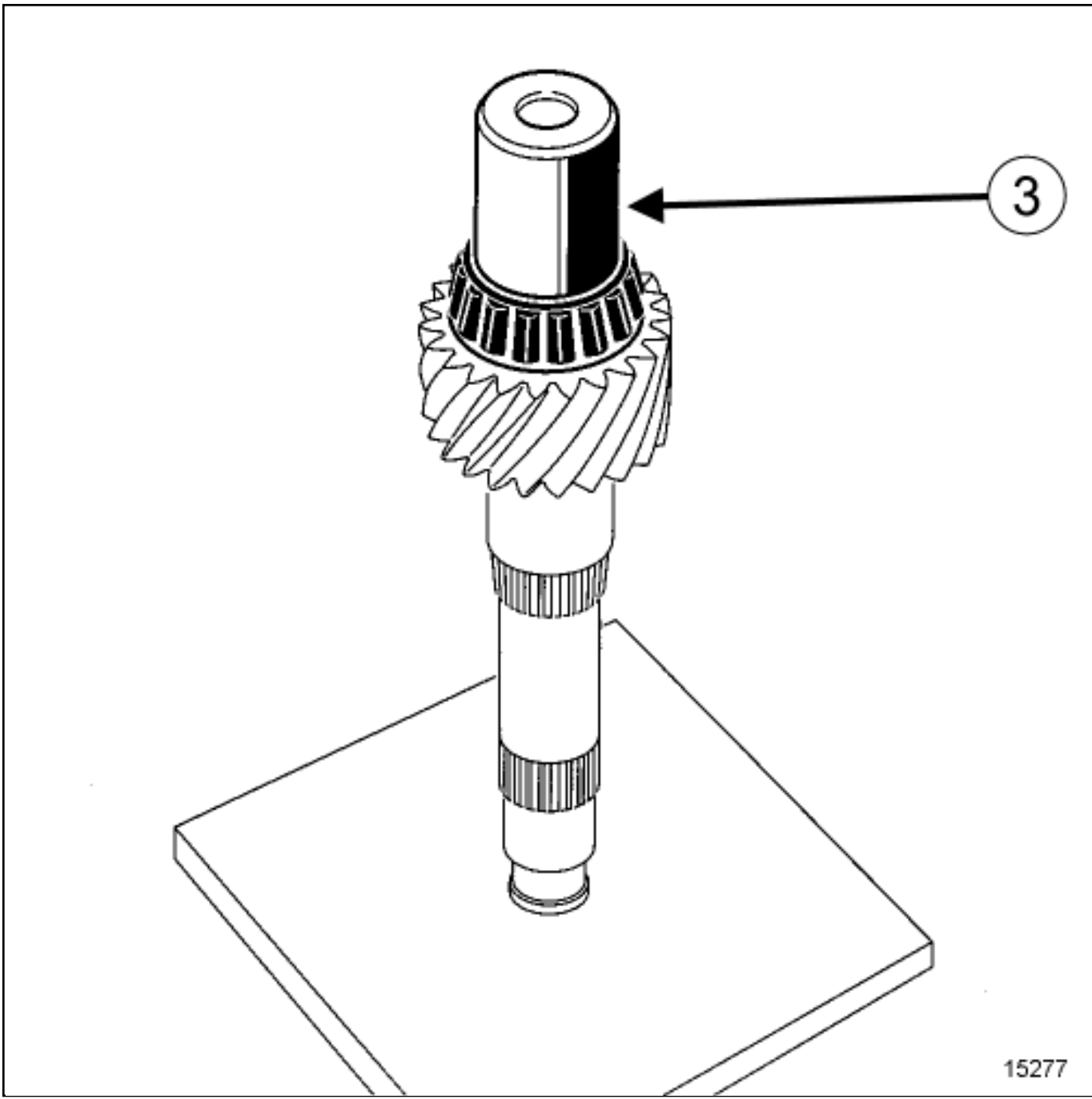
■ Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) to clean:

- the shafts,
- the shaft mating surfaces,
- the mechanism housing.

2. REBUILDING OPERATION FOR PART CONCERNED

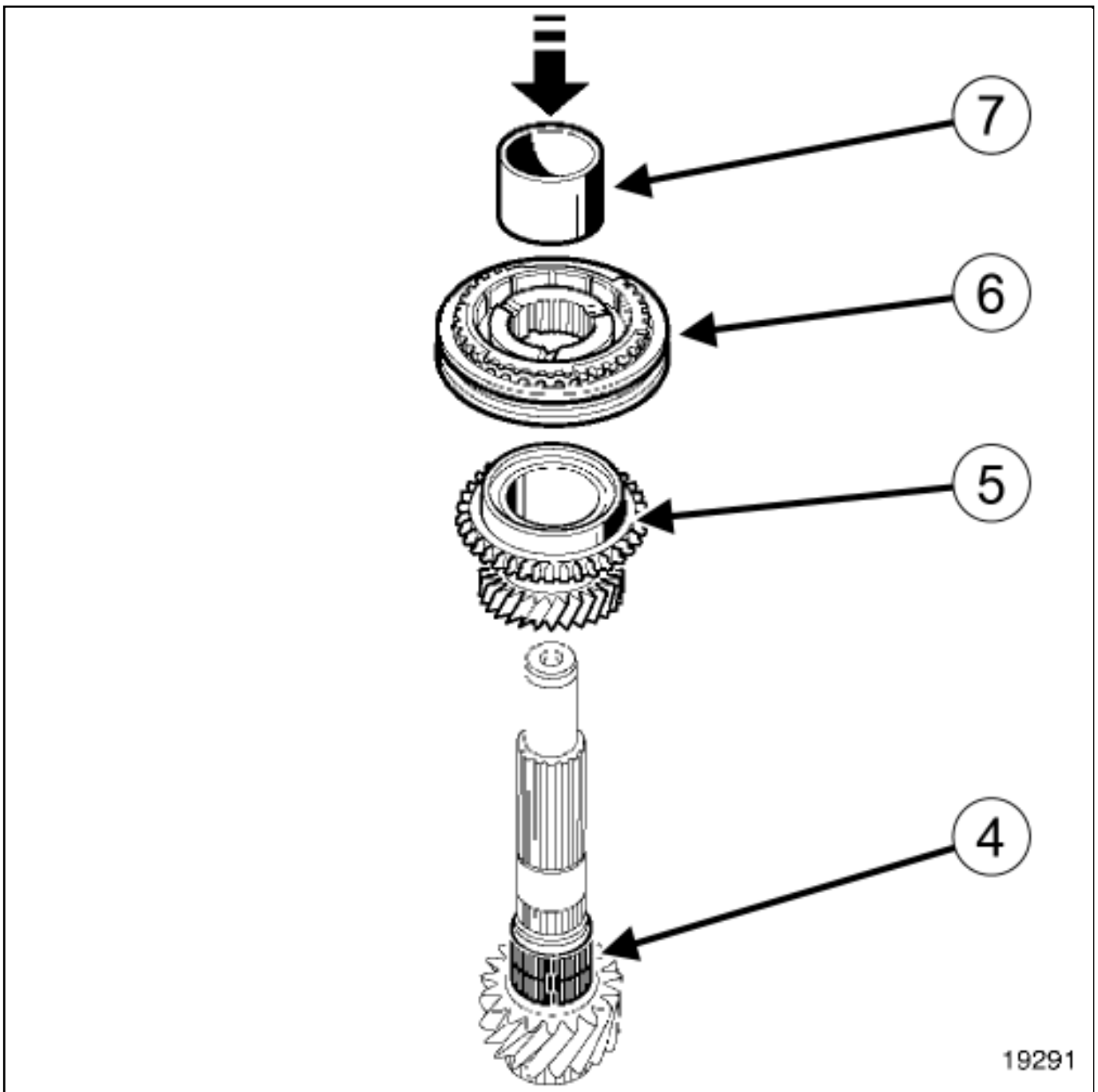
■ Adjust the shafts ([see 21A, Manual gearbox , Gearbox shaft: Adjustment](#)) if replacing a shaft or housing.

1- REFITTING THE LONG SECONDARY SHAFT GEARING



15277

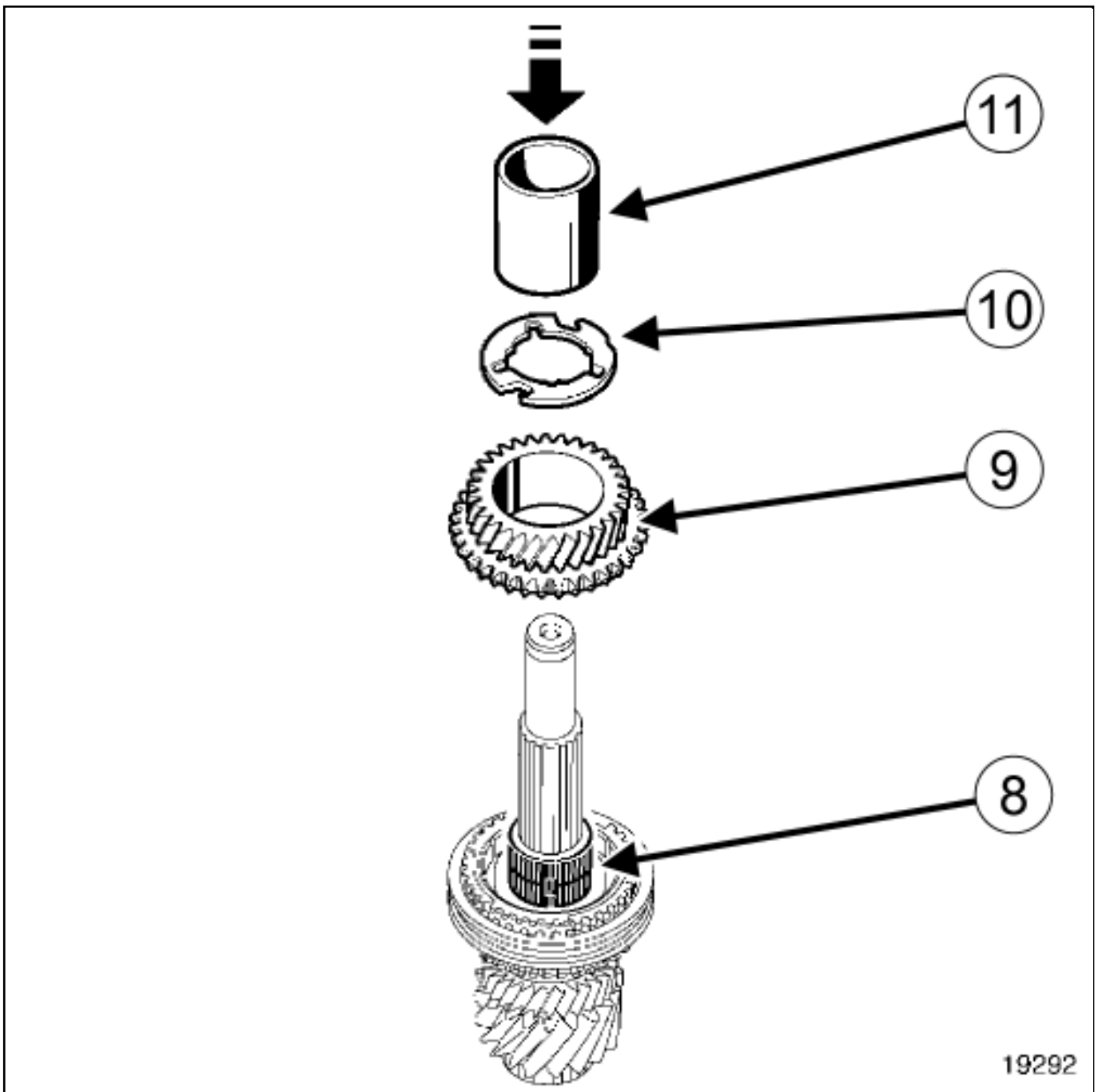
■ Refit the bearing using the tool kit for PK6 gearbox operations. (Bvi. 1510-01) suffix 0 (3) .



■ Fit the needle bearing(4) .

■ Refit:

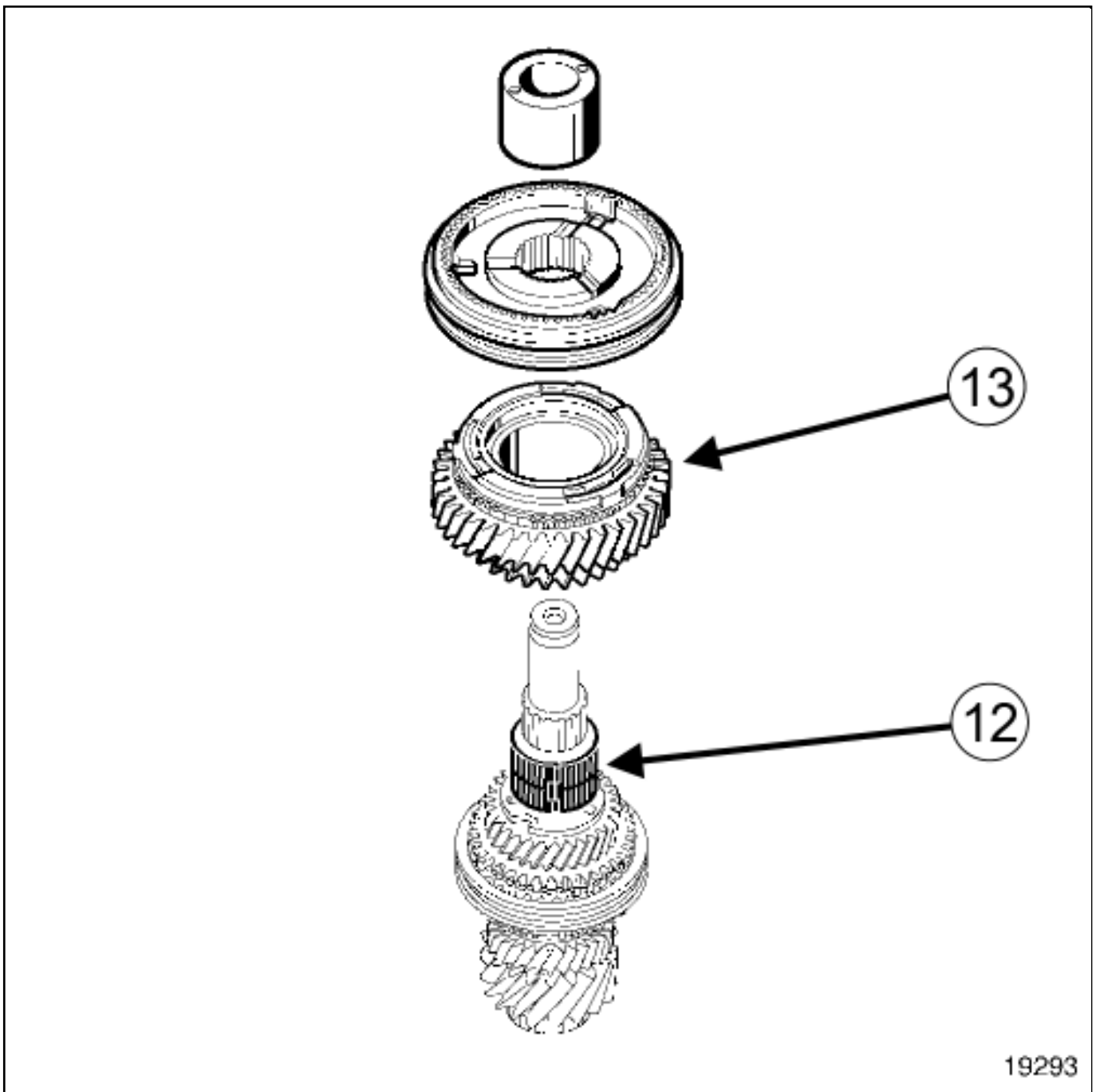
- the sixth gear idler pinion(5) with its synchroniser,
- the sixth - fifth synchroniser hub(6) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N , and align the hub notches with those on the synchroniser ring,
- the fifth gear idler pinion bearing(7) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N and apply a final pressure of 5 tonnes.



■ Fit the needle bearing(8) .

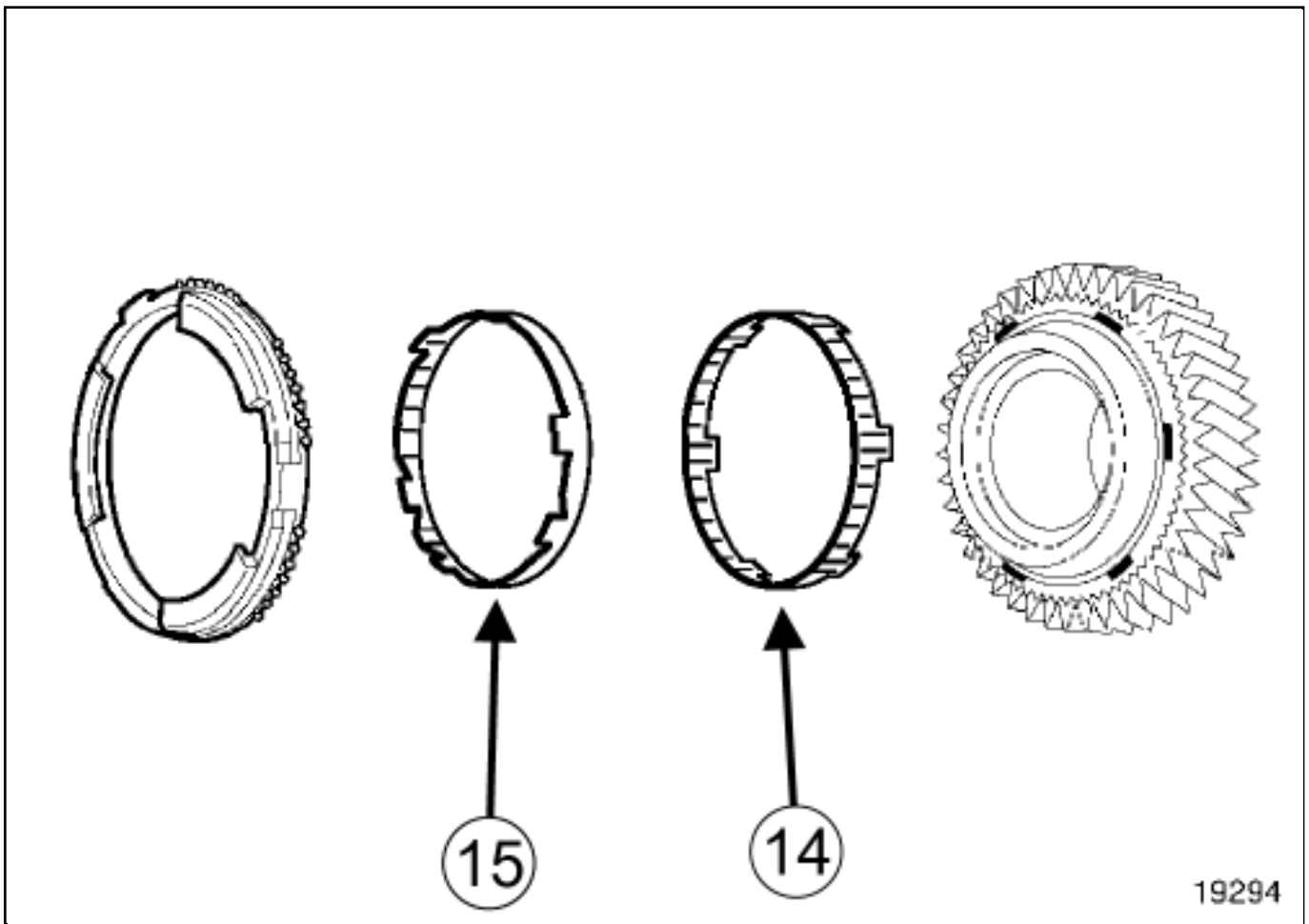
■ Refit:

- the fifth gear idler pinion(9) with its synchroniser,
- the splined washer(10) ,
- the second gear idler pinion bearing(11) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N and apply a final pressure of 5 tonnes.



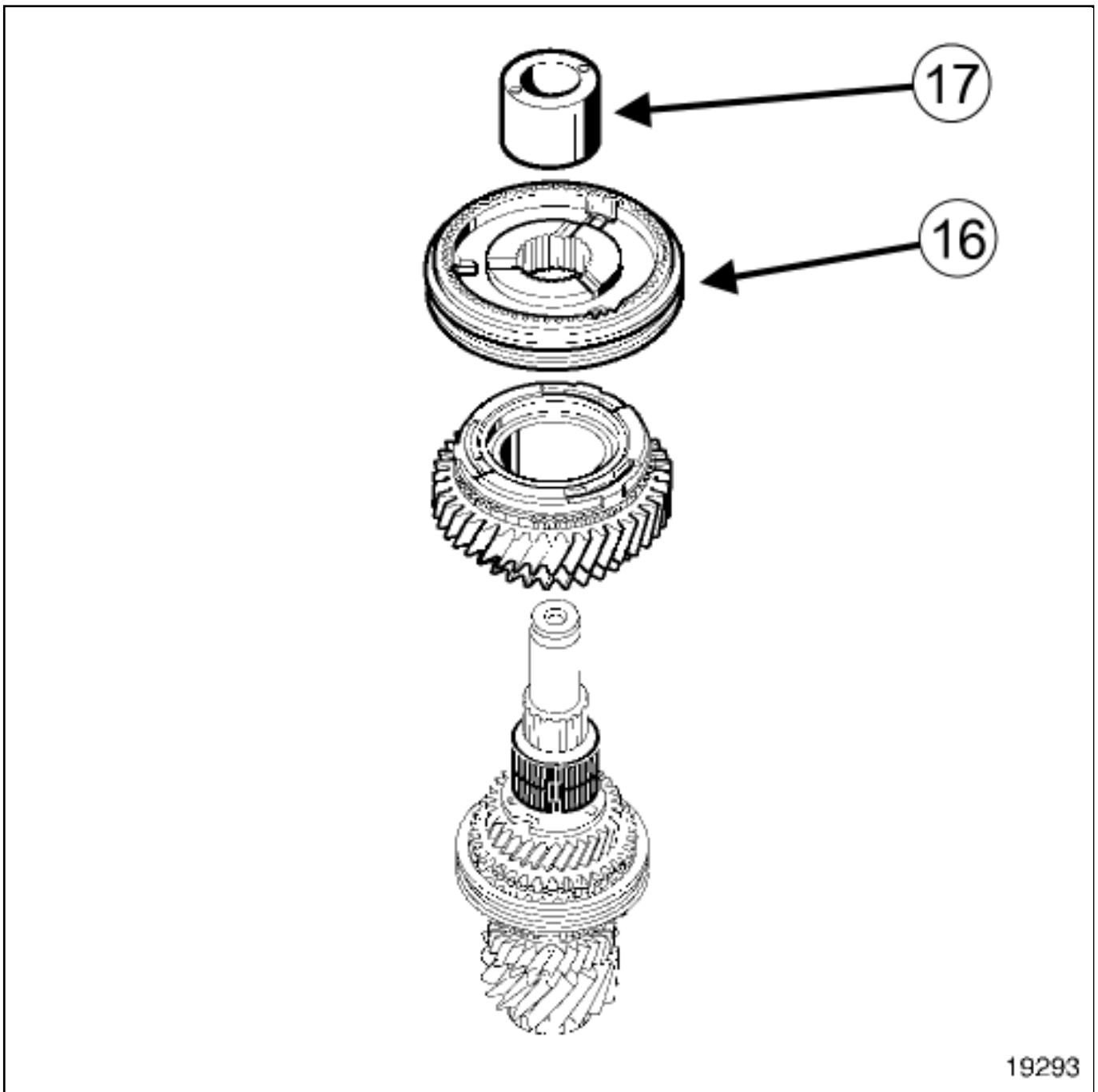
■ Fit the needle bearing(12) .

■ Fit the second gear idler pinion(13) .



19294

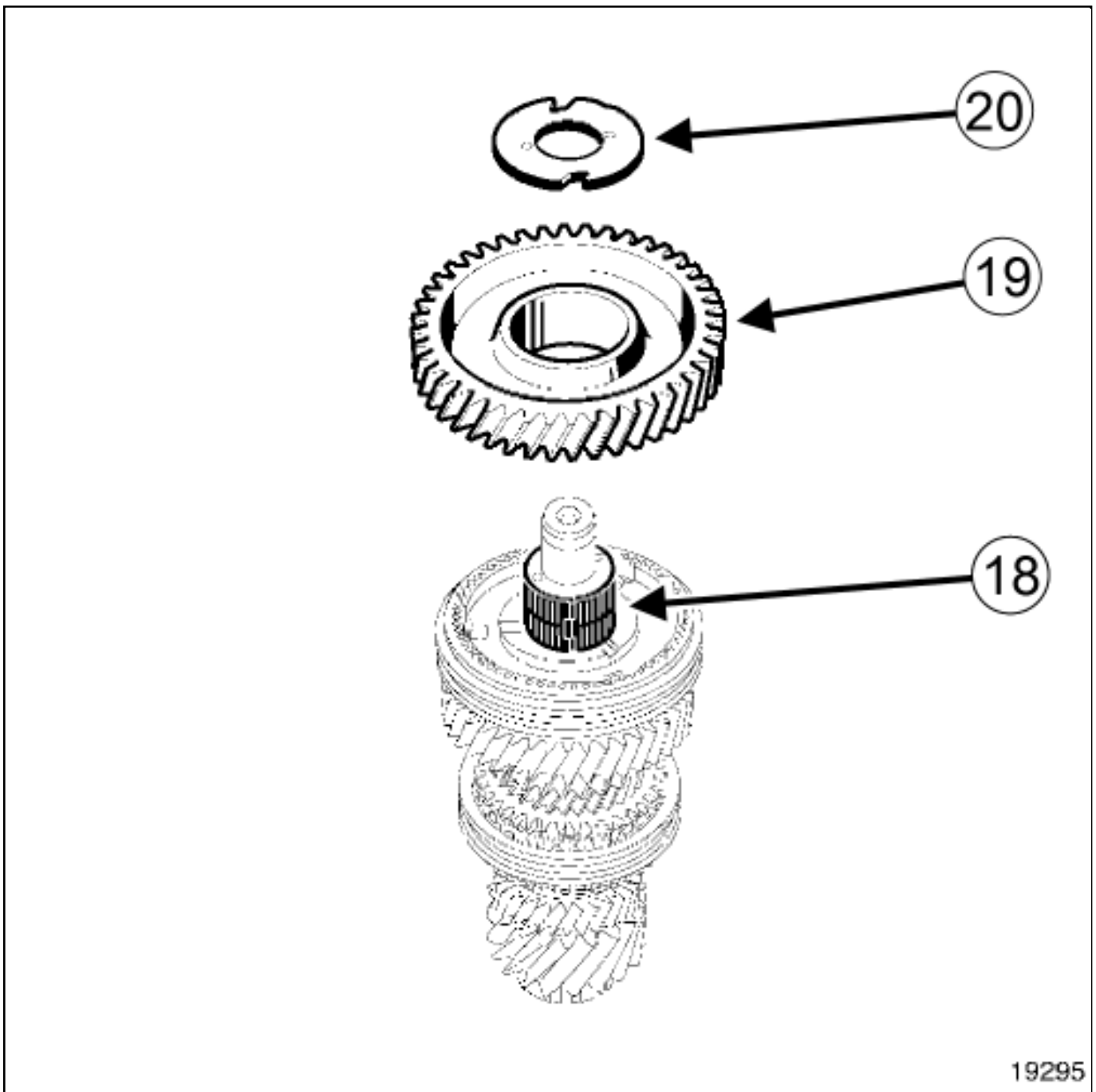
Position the notches of the triple cone synchroniser(14) and (15) .



19293

■ Refit:

- the first - second synchroniser hub(16) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N (the long collar of the hub at the second gear pinion end),
- the second gear idler pinion bearing(17) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N and apply a final pressure of 5 tonnes.

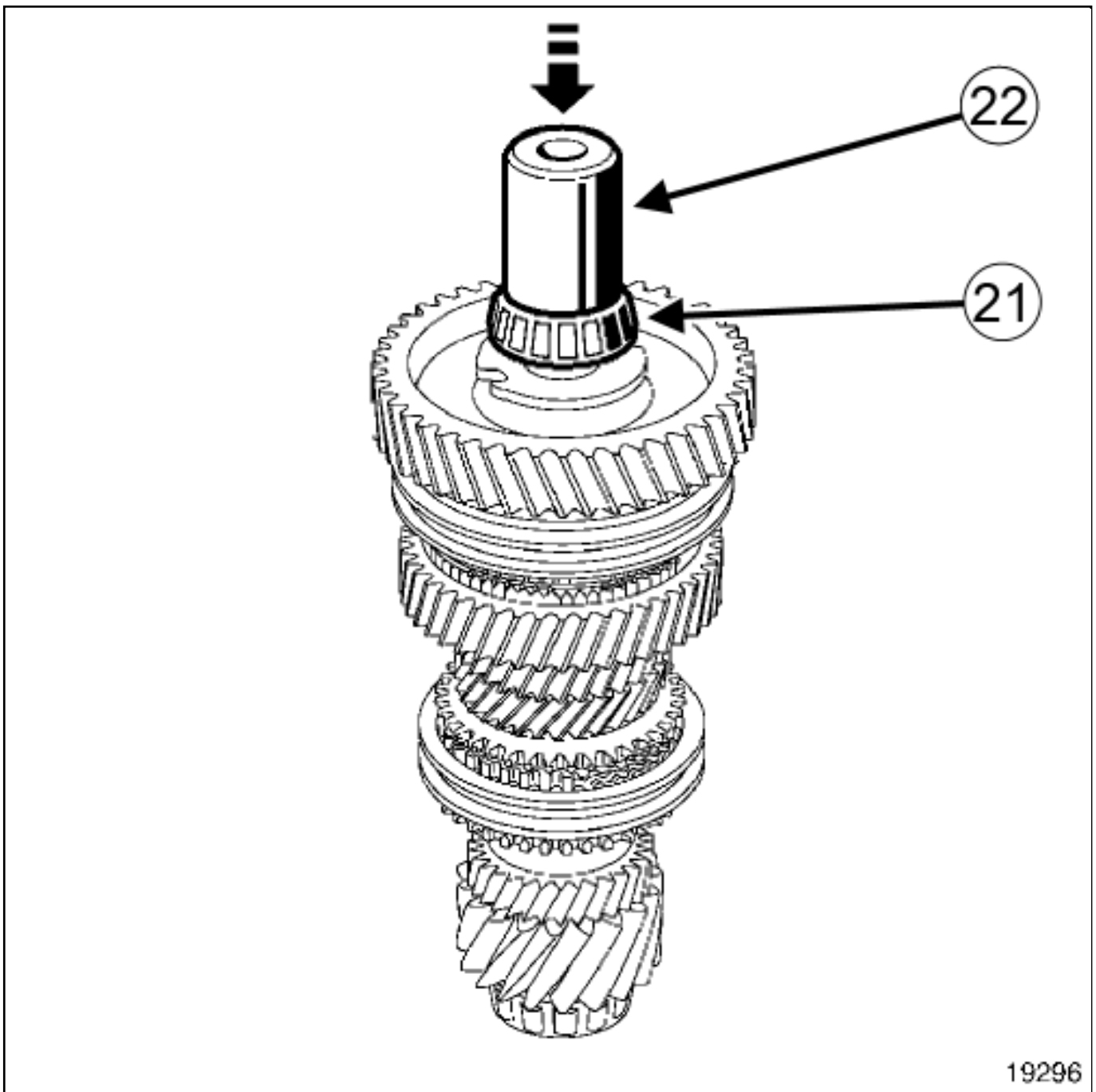


19295

■ Fit the needle bearing(18) .

■ Refit:

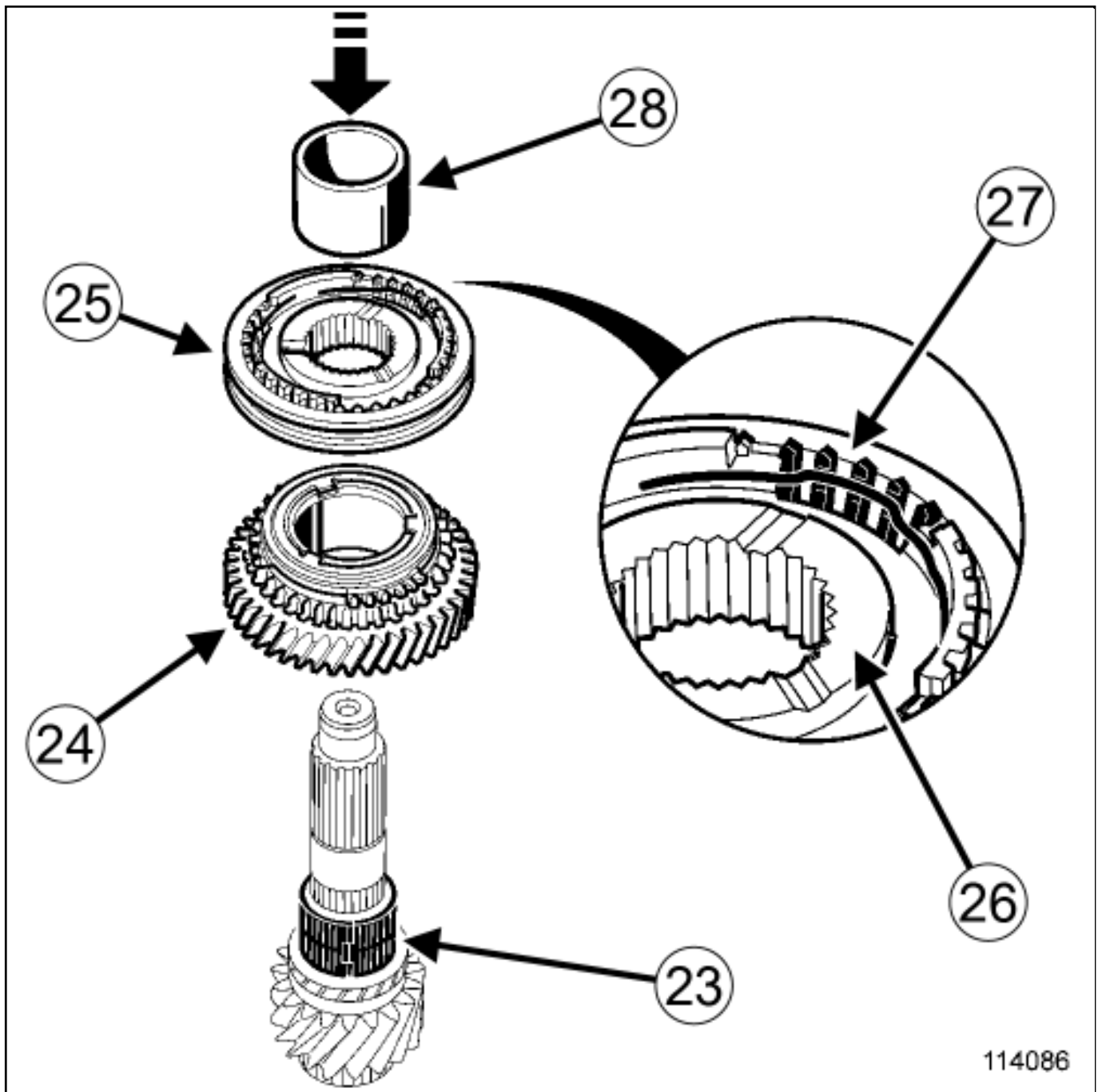
- the first gear idler pinion(19) ,
- the splined washer(20) .



■ Refit the bearing(21) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix 0 (22) .

■ Select and refit a new circlip which just fits in the neck using horseshoe type circlip pliers Part no.: 7711214712 .

2- REFITTING THE SHORT OUTPUT SHAFT GEARING



114086

- Fit the needle bearing(23) .
- the third gear idler pinion(24) with its triple cone synchroniser.

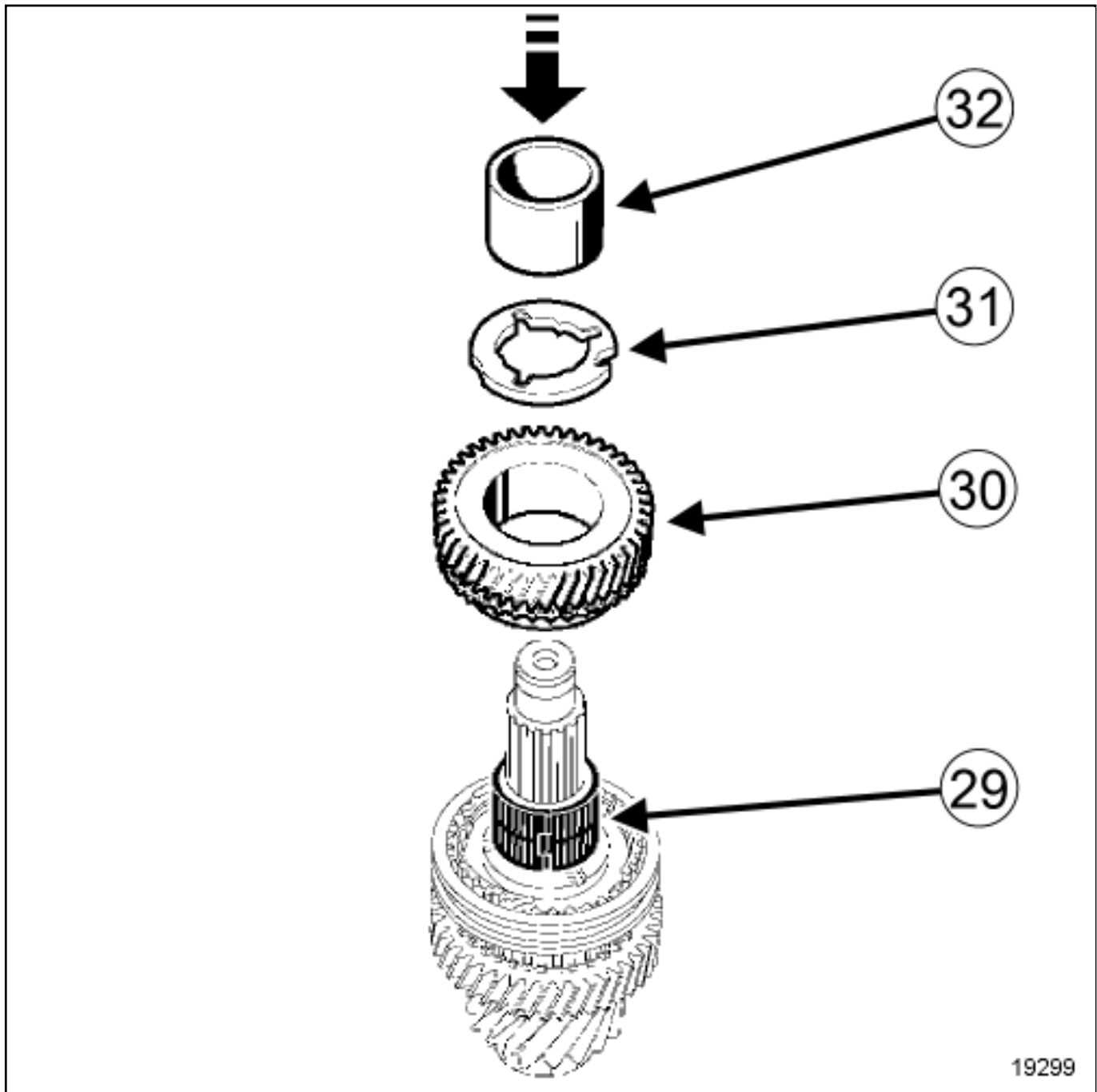
Note:



- Observe the correct direction of fitting the third - fourth synchroniser hub(25) :
 - large bearing face of the hub on the fourth idler gear end(26) ,
 - large claw teeth of the synchroniser hub on the fourth gear end(27) .

■ Refit:

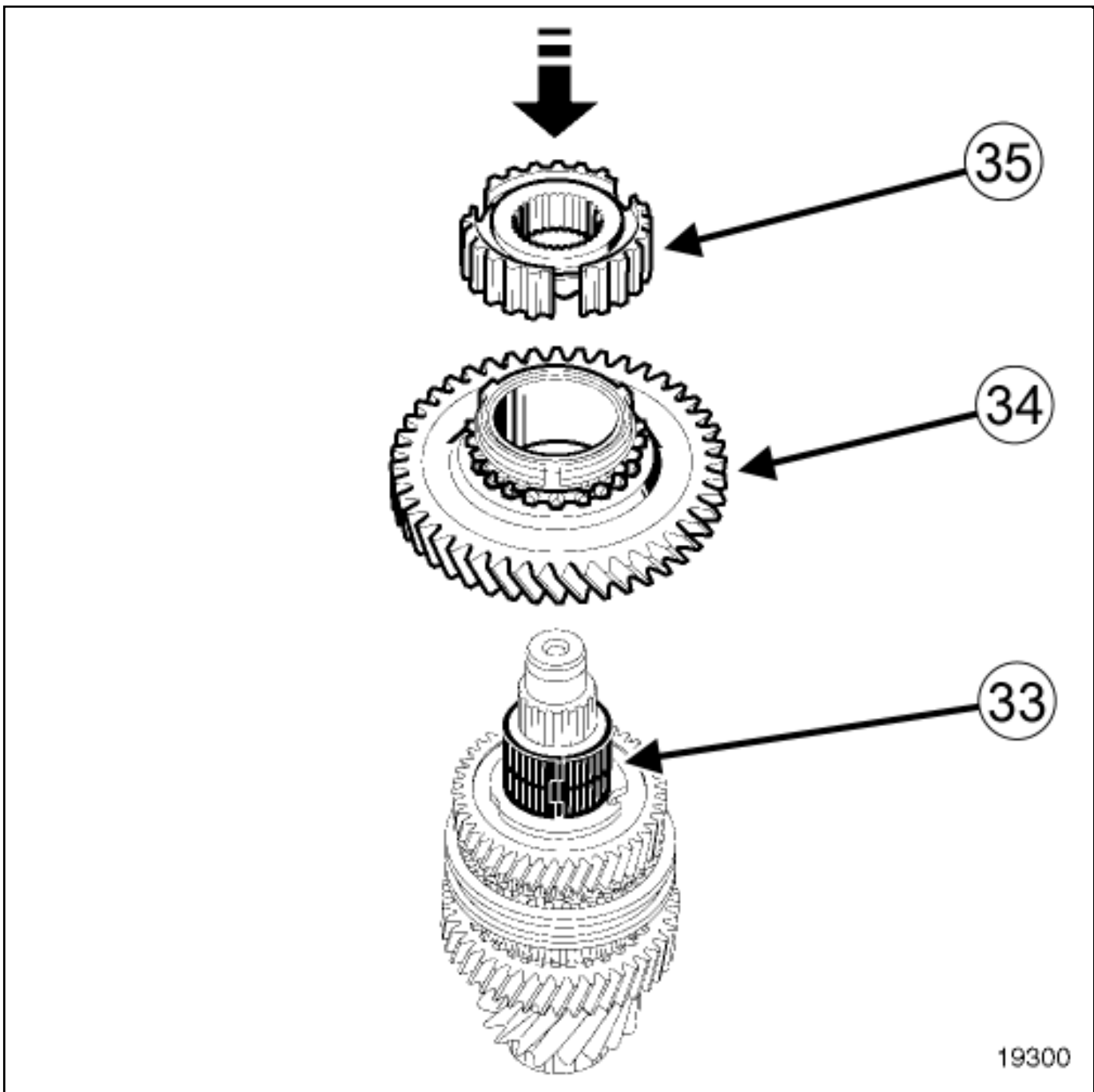
- the third - fourth synchroniser hub(25) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N ,
- the fourth gear idler pinion bearing(28) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N and apply a final pressure of 5 tonnes.



■ Fit the needle bearing(29) .

■ Refit:

- the fourth gear idler pinion(30) with its synchroniser,
- the splined washer(31) ,
- the reverse gear idler pinion bearing(32) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N and apply a final pressure of 5 tonnes.



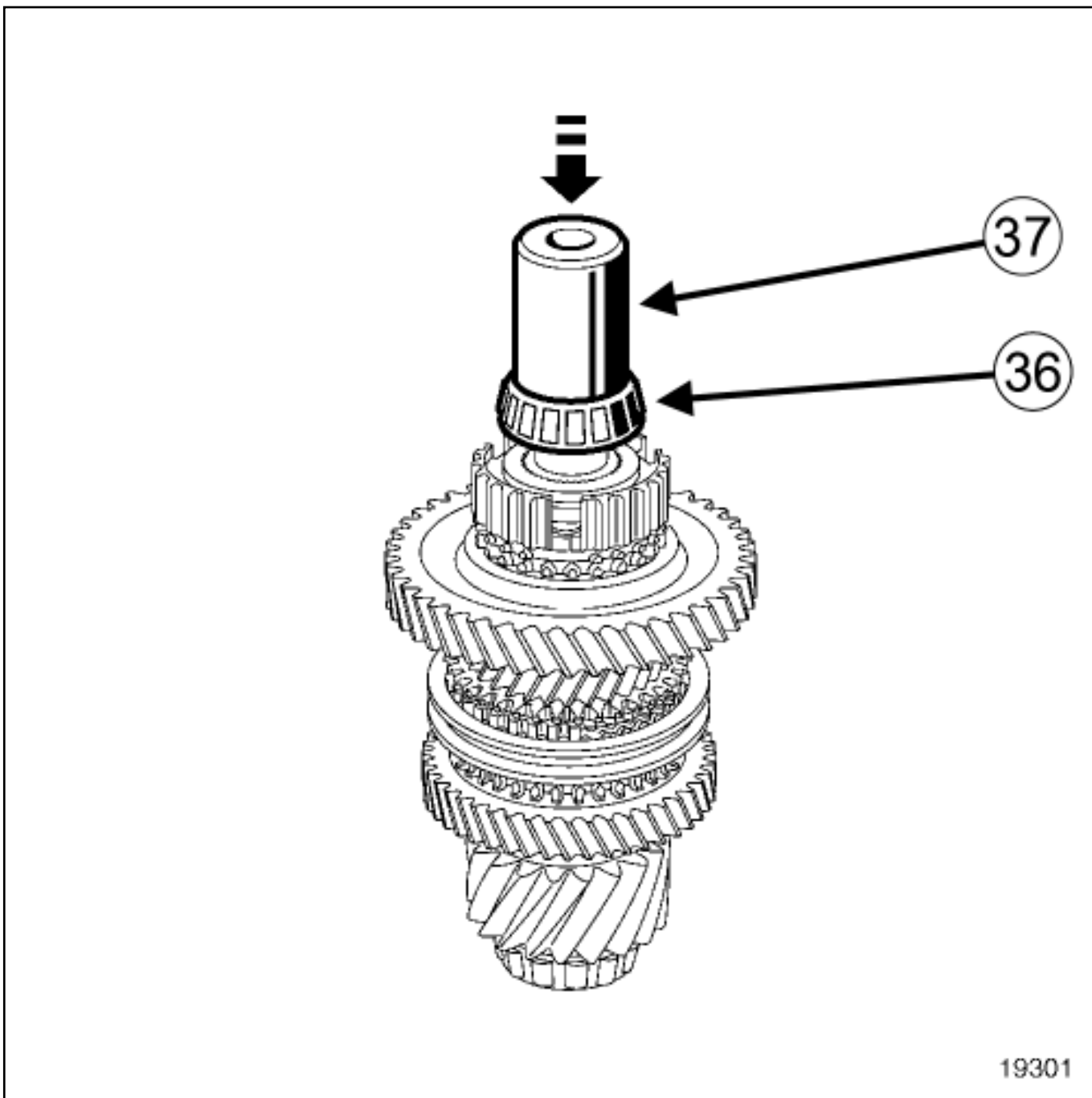
■ Fit the needle bearing(33) .

■ Refit:



the reverse gear idler pinion(34) with its synchroniser,

■ the reverse gear synchroniser hub(35) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix N .



■ Refit the bearing(36) using the toolTool kit for PK6 gearbox operations.(Bvi. 1510-01) suffix 0 (37) .

■

Select and refit a new circlip which just fits in the neck using horseshoe type circlip pliers Part no.: 7711214712.

3. FINAL OPERATION

Refit:

-
- the gearbox shafts([see 21A, Manual gearbox , Gearbox shaft: Removal - Refitting](#)) ,
- the mechanism housing([see 21A, Manual gearbox , Mechanism housing: Removal - Refitting](#)) .

Remove the gearbox from the component support([see 21A, Manual gearbox , Gearbox support equipment: Use](#)) .

Refit the gearbox[Manual gearbox: Removal - Refitting](#) .



Repair-12x01x04x07-01x31-1-3-1.xml



PANHARD BAR : REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 33A, Rear axle components, Rear axle components: Precautions for the repair](#)) .

CAUTION



To avoid any damage to the axle assemblies, the vehicle must not be raised using the front suspension arms for support or under the rear axle.

▣ Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)) .

WARNING



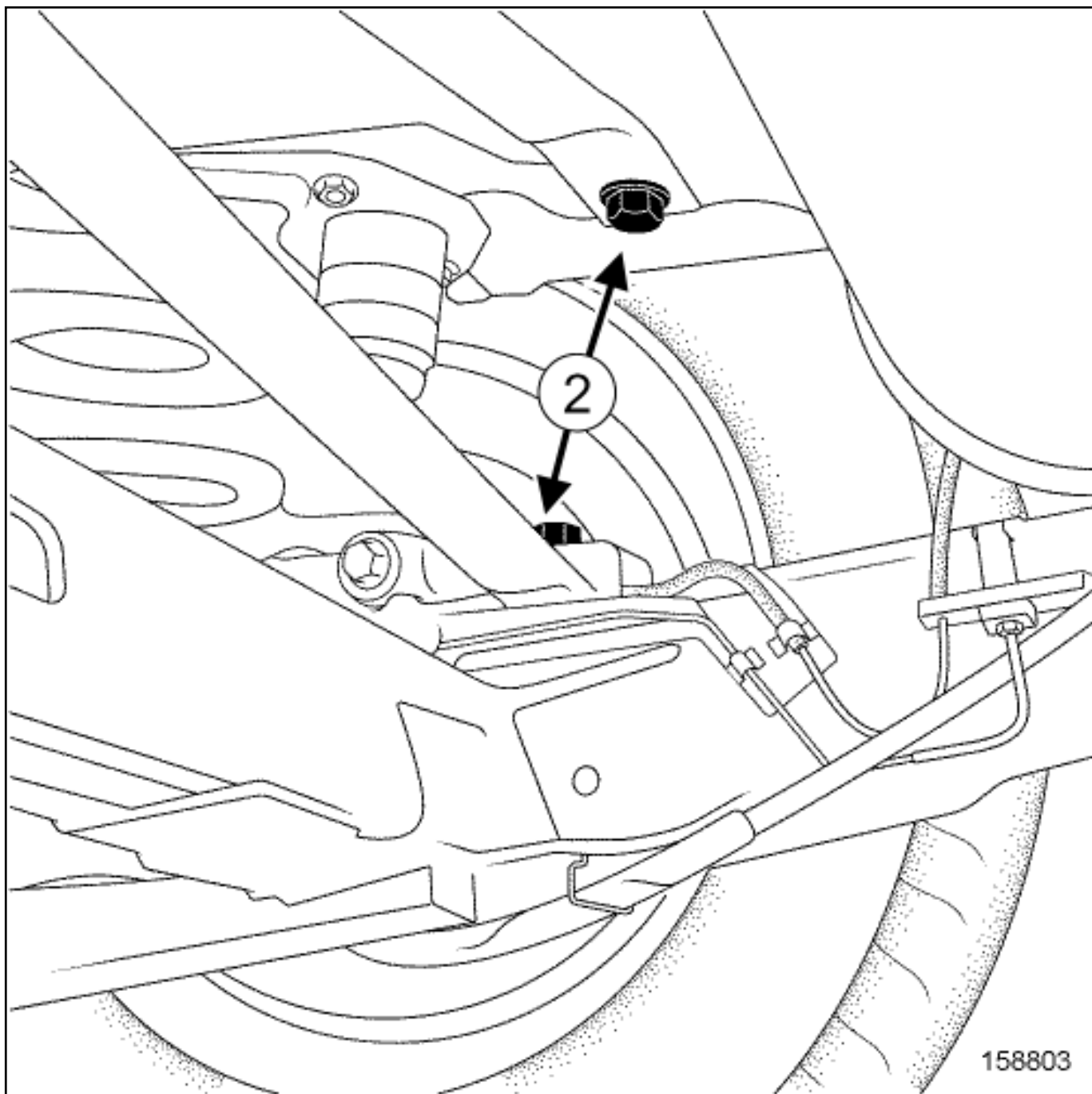
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

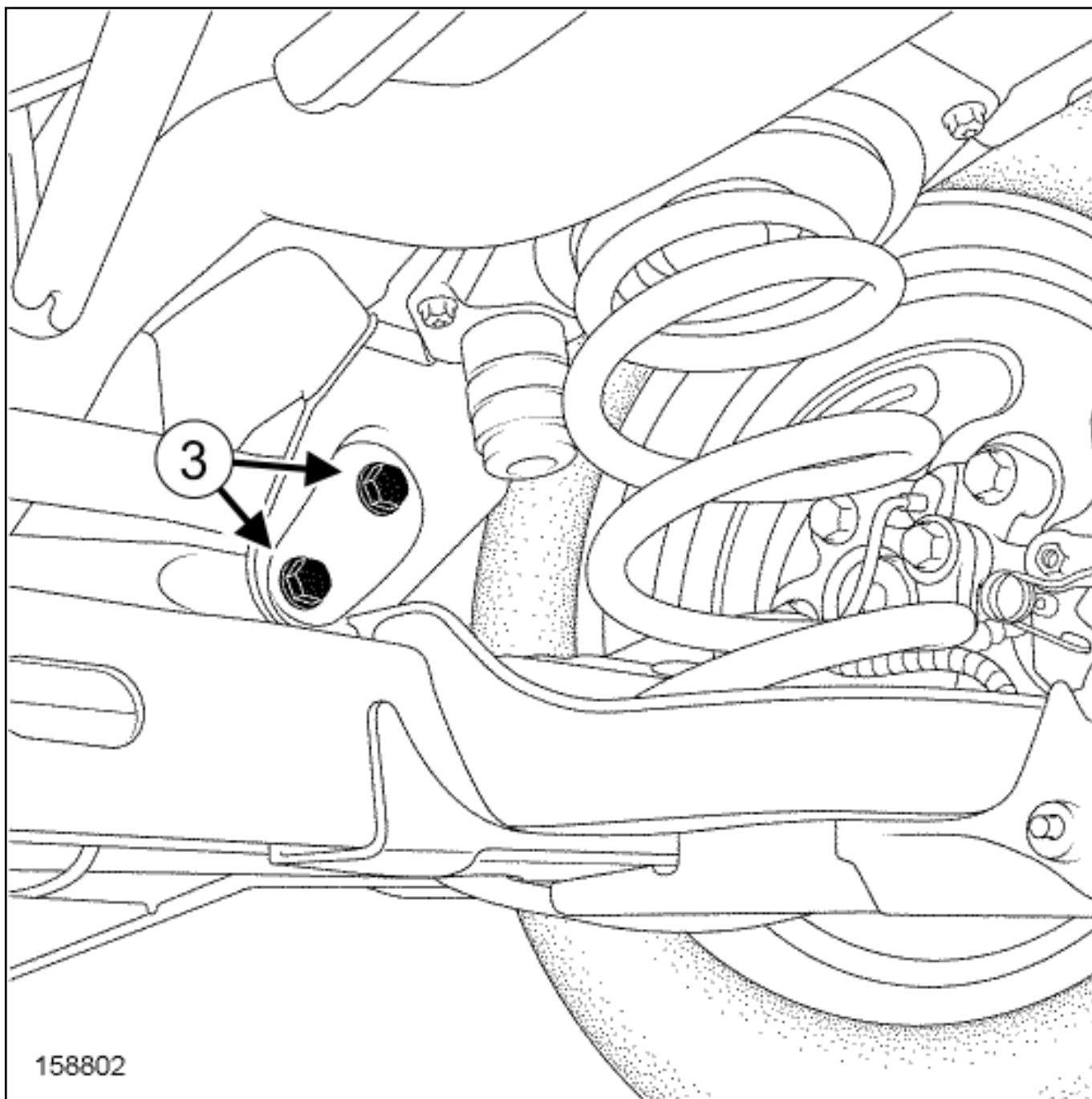
1. REMOVAL PREPARATION OPERATION

▣ Position the vehicle on the two-post lift [Vehicle: Towing and lifting](#) .

2. REMOVAL OPERATION



158803



Remove:

-
- the panhard bar bolts(2) from the rear axle,
- the panhard bar nuts from the vehicle,
- the panhard bar bolts(3) from the vehicle.



Note:

Mark the position of the panhard bars before removal.

Remove the panhard bars.

REFITTING

1. REFITTING OPERATION

Proceed in the reverse order to removal.

Torque tighten [\(see 33A, Rear axle components, Rear axle assembly: Exploded view\)](#) :

-
- the panhard bar nuts on the vehicle,
- the panhard bar bolt on the rear axle.



Repair-13x02x06x06-01x37-1-1-1.xml



PARKING BRAKE ASSEMBLY: EXPLODED VIEW



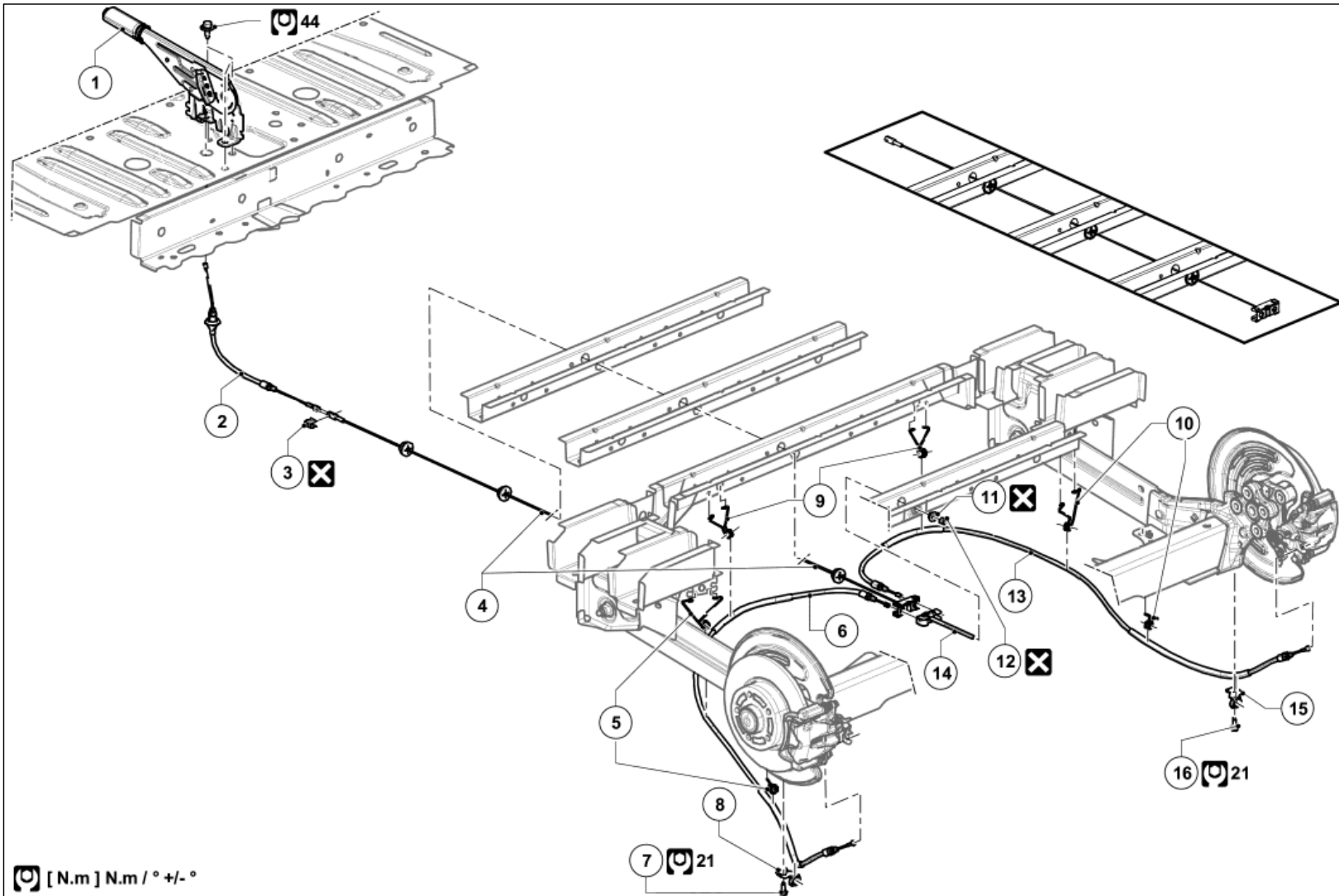
Note, one or more warnings are present in this procedure



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- Brake mechanism: Precautions for the repair .
- Vehicle: Precautions for the repair .



Marks	Designations	Informations
1	Parking brake lever	Parking brake lever: Removal - Refitting
2	Parking brake primary cable	Parking brake cables: Removal - Refitting
3	Parking brake primary cable connecting shaft	Parking brake cables: Removal - Refitting
4	Parking brake cable	Parking brake cables: Removal - Refitting
5	Retaining hooks	
6	Parking brake secondary cable	Parking brake cables: Removal - Refitting
7	Bolt	
8	Parking brake secondary cable support	
9	Retaining hooks	
10	Retaining hooks	
11	Spacer	
12	Adjustment nut	
13	Parking brake secondary cable	Parking brake cables: Removal - Refitting
14	Parking brake compensator	
15	Parking brake secondary cable support	
16	Bolt	



Repair-13x03x11-02x50-1-7-1.xml



XSL version : 3.02 du 22/07/11

PARKING BRAKE CABLES: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:



■ [Brake circuit: Precautions for the repair](#) ,

■ [Vehicle: Precautions for the repair](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

■ Location and specifications (tightening torques, parts always to be replaced, etc.):

■ [Parking brake assembly: Exploded view](#) ,

■ [Fuel tank assembly: Exploded view](#) ,

■ [Rear brake calliper assembly: Exploded view](#) .

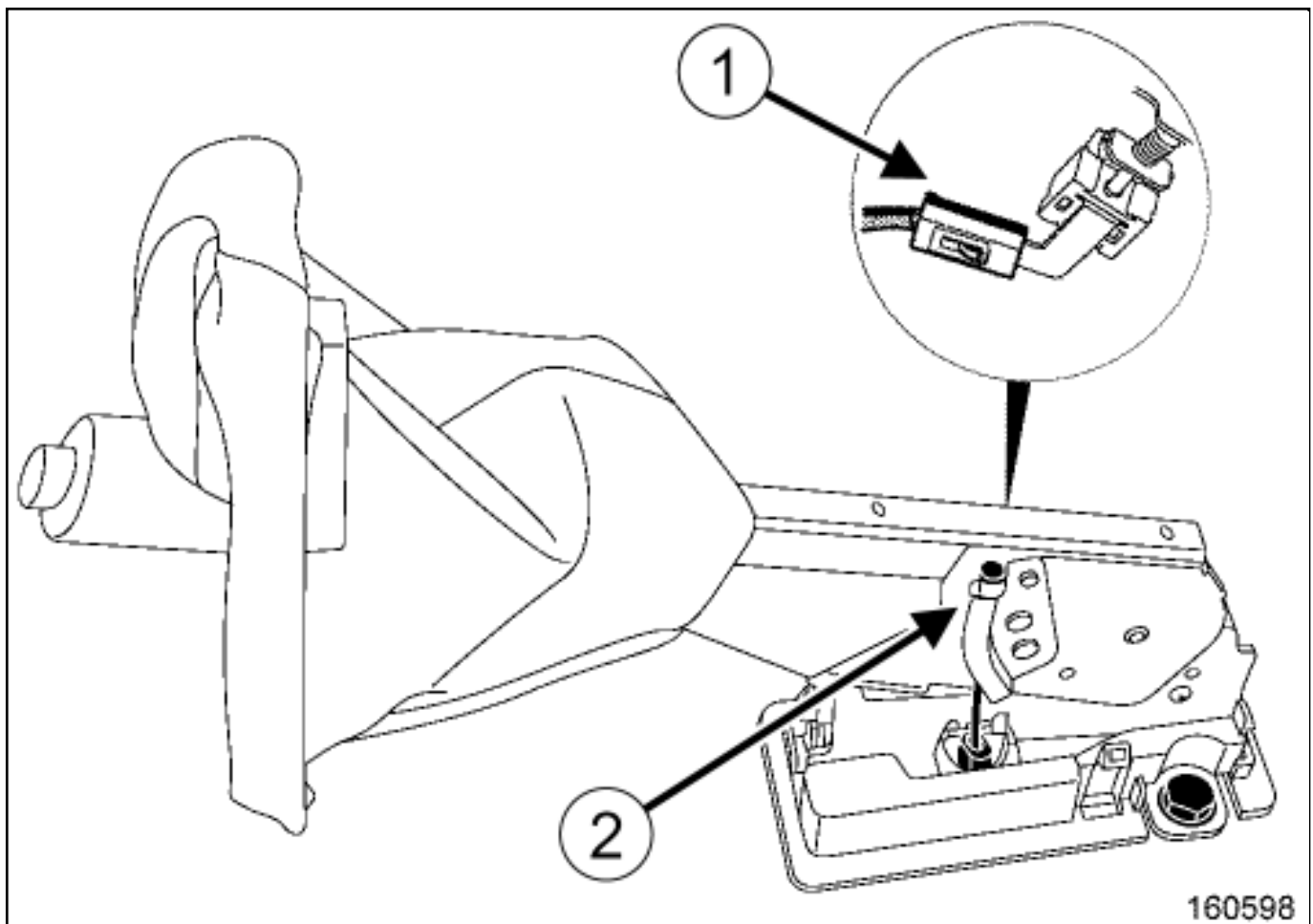
REMOVAL

1. REMOVAL OPERATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

2. REMOVAL OPERATION

Loosen the adjusting nut of the parking brake cables.



Unclip the parking brake control lever gaiter.

Disconnect the parking brake switch connector(1) .

Unclip the parking brake cable(2) .

Remove the parking brake cable connecting shaft [Parking brake assembly: Exploded view](#) .

Remove the parking brake cables [Parking brake assembly: Exploded view](#) .

REFITTING



Proceed in the reverse order to removal.



Adjust the parking brake cables ([see 37A, Mechanical component controls, Parking brake lever: Adjustment](#)) .



Repair-13x03x11x03-01x37-1-37-1.xml



XSL version : 3.02 du 22/07/11

PARKING DISTANCE CONTROL: LIST AND LOCATION OF COMPONENTS



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

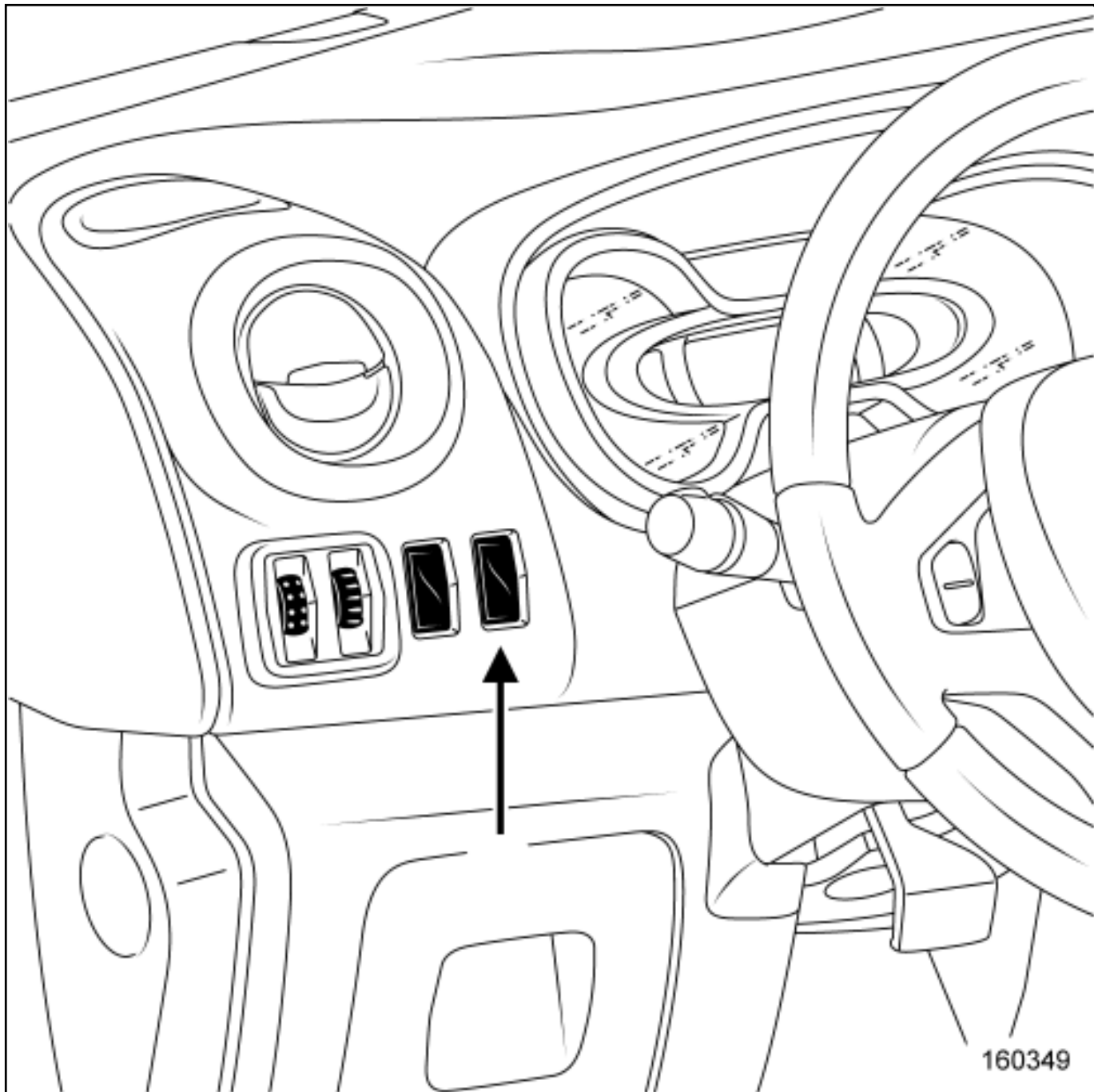
1. LIST OF COMPONENTS

1- THE PARKING DISTANCE CONTROL EQUIPMENT CONSISTS OF:

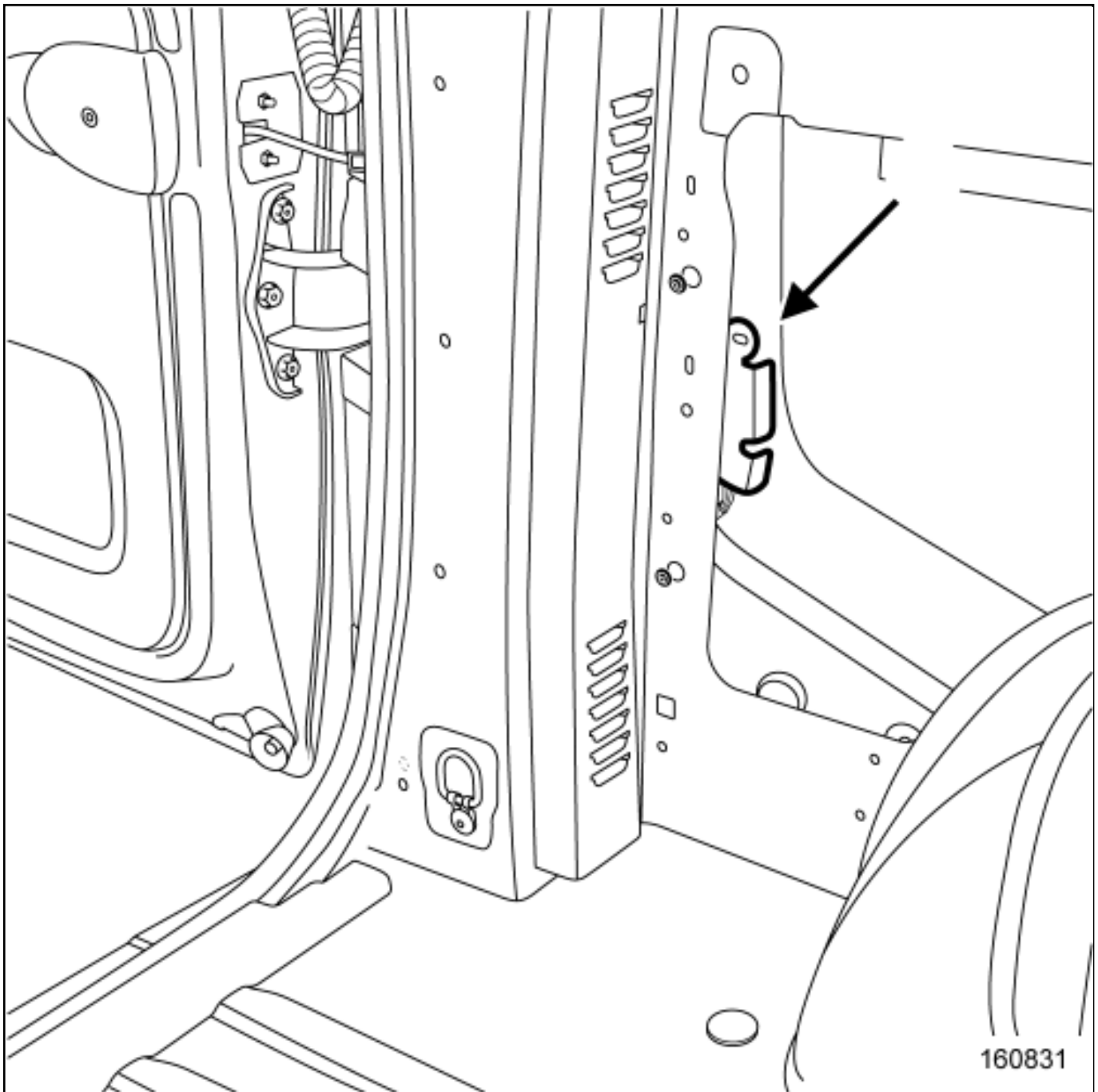
- a parking distance control switch
- a parking distance control computer
- a rear proximity sensors(see **Rear bumper assembly: Exploded view**)
- a rear parking distance control buzzer

2. LOCATION OF COMPONENTS

1- PARKING DISTANCE CONTROL SWITCH



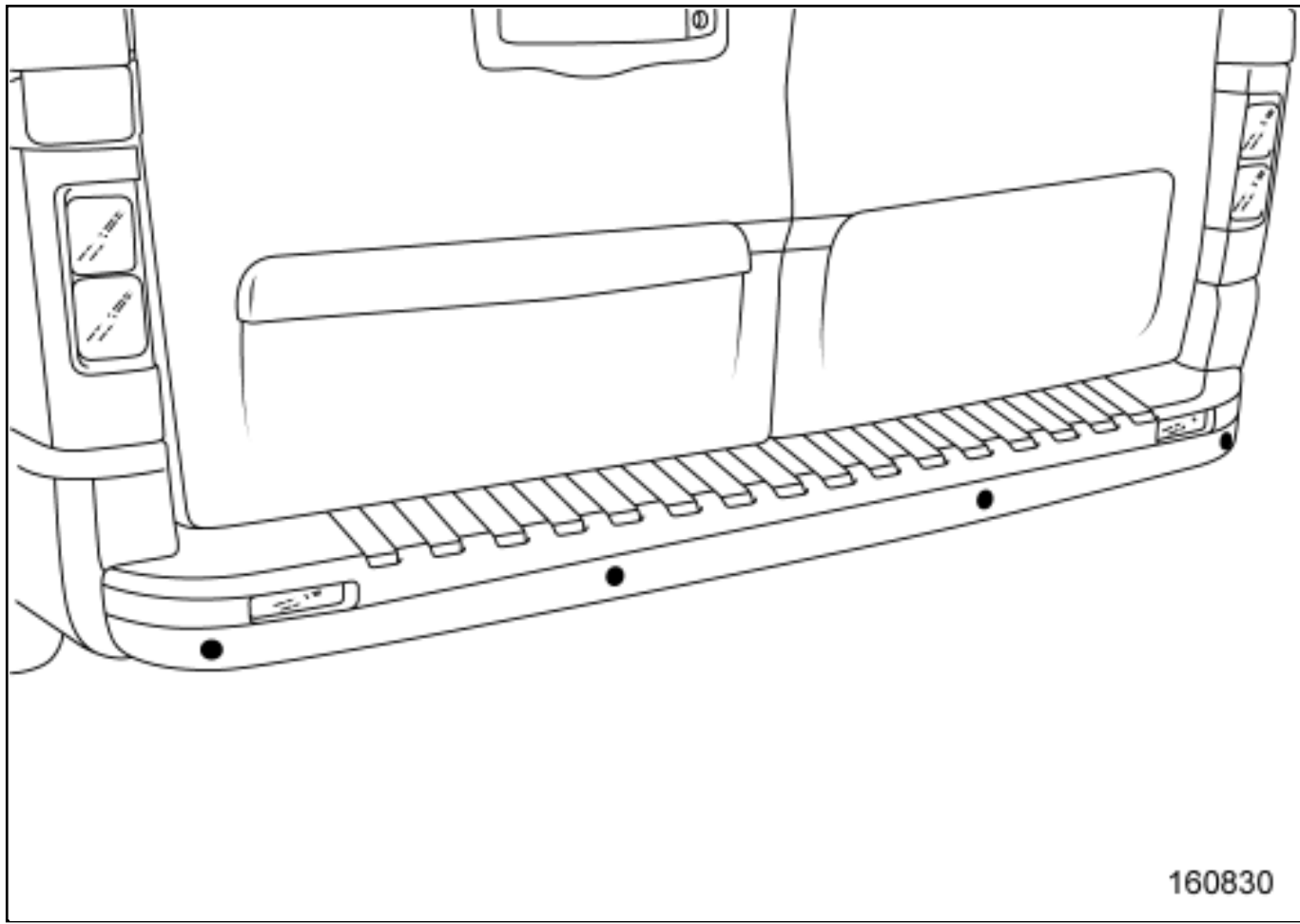
2- PARKING DISTANCE CONTROL COMPUTER



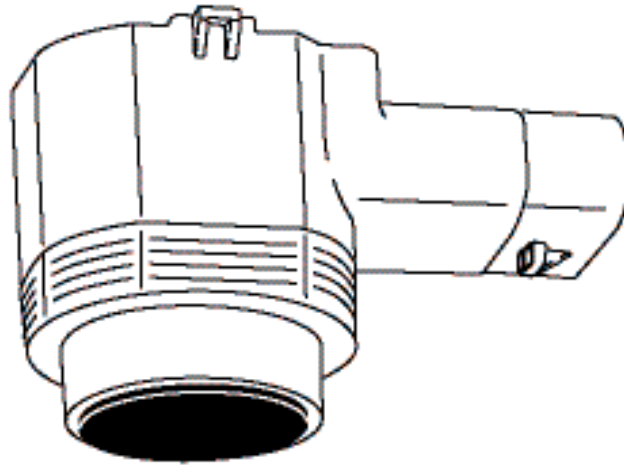
In the event of a replacement:

- Apply the before / after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :
- Computer concerned by the Before / After repair procedure:
 -

"Parking distance control computer" .

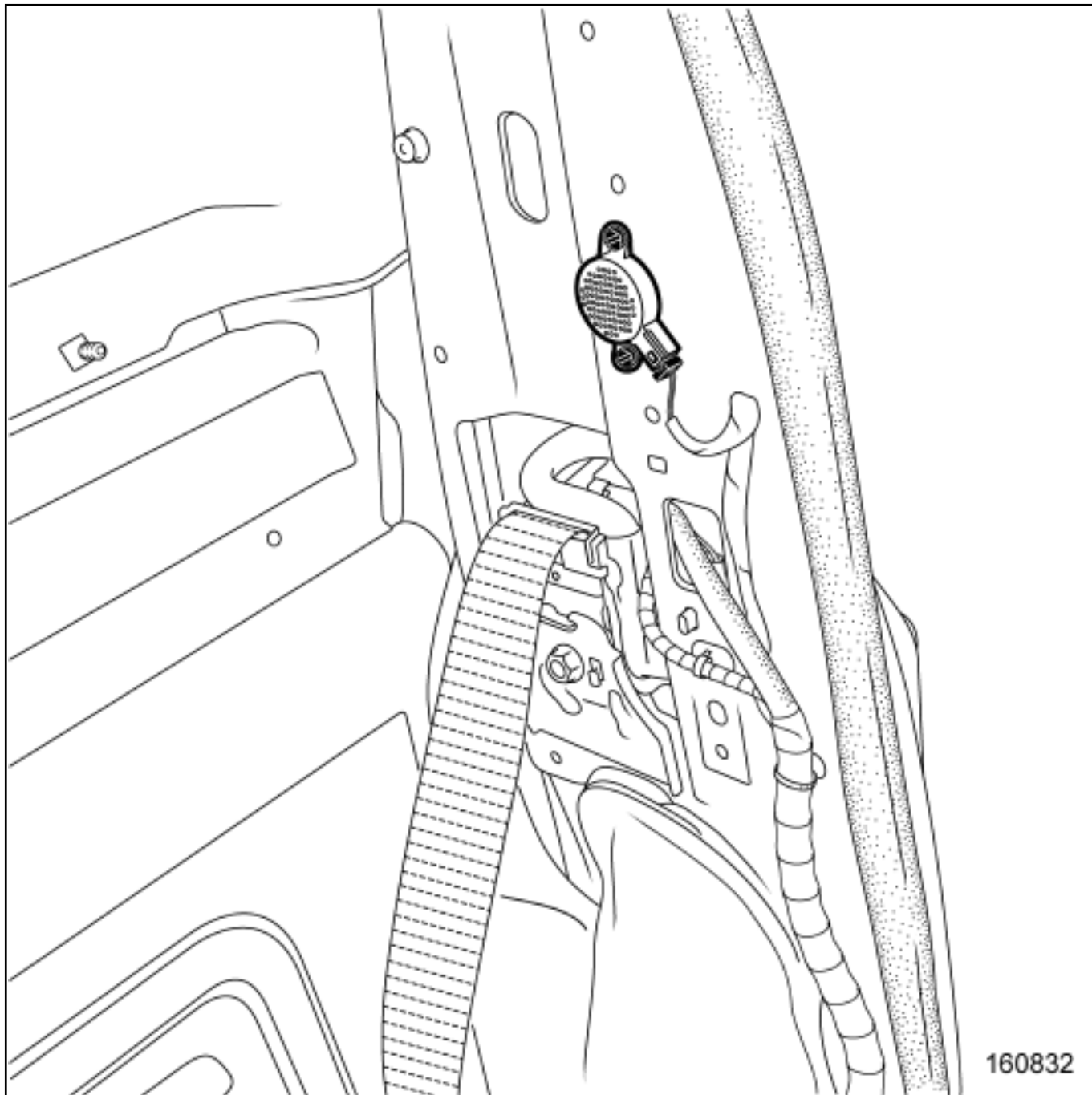


160830



CAUTION

The proximity sensors are fragile. Handle with care as the external part cannot withstand impacts.



160832



Repair-80x03x03-02x51-1-23-1.xml



PARTICLE FILTER PRESSURE SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Remote pliers for exhaust gas recirculation pipe clamps.

Mot. 1567

Equipment required

Diagnostic tool

tweezers



parts always to be replaced:



turbocharger air cooler air inlet pipe seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view\)](#) .



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 19B, Exhaust, Exhaust: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

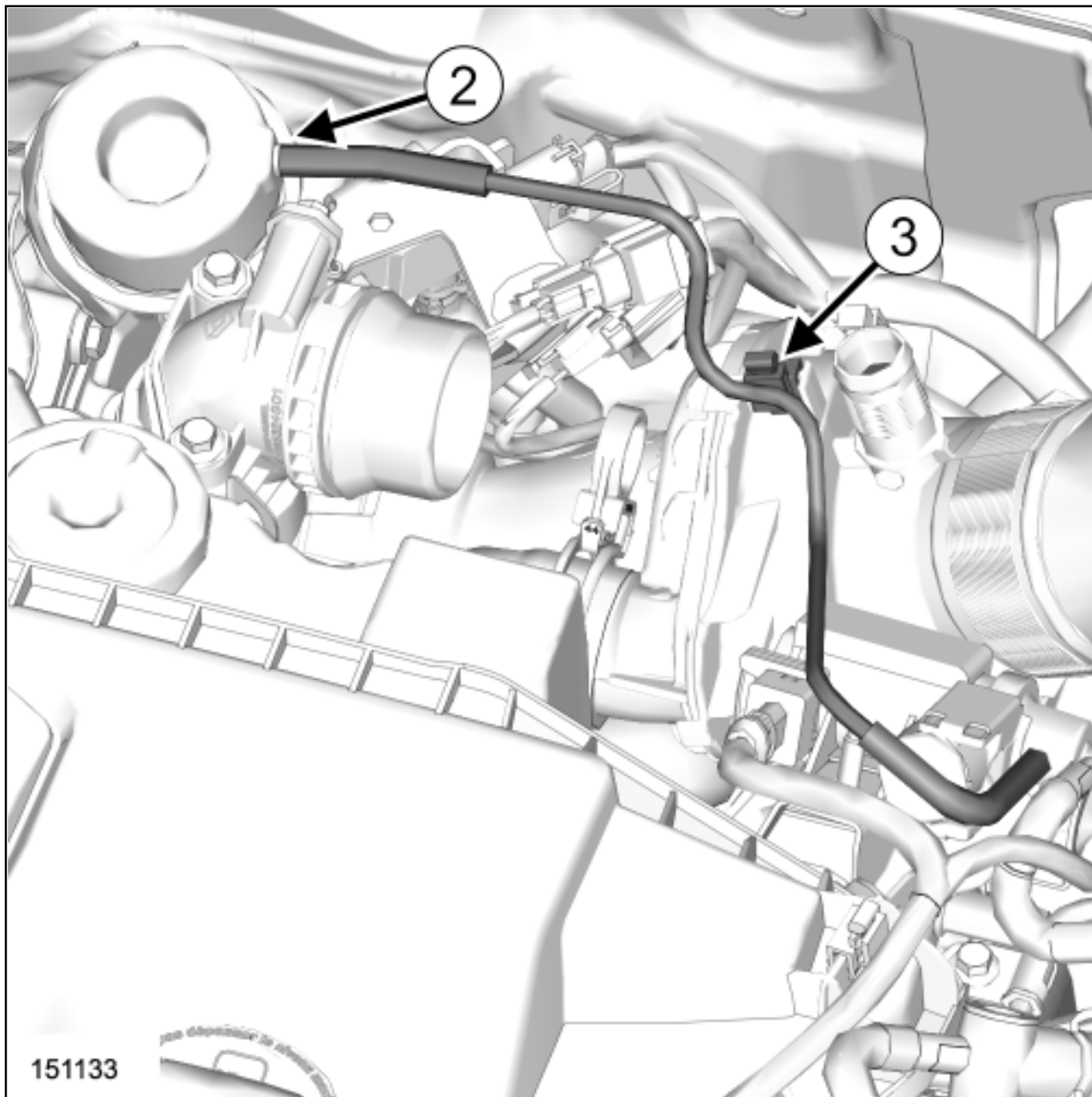
Any damaged heat shields must be replaced.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- ❑ Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).

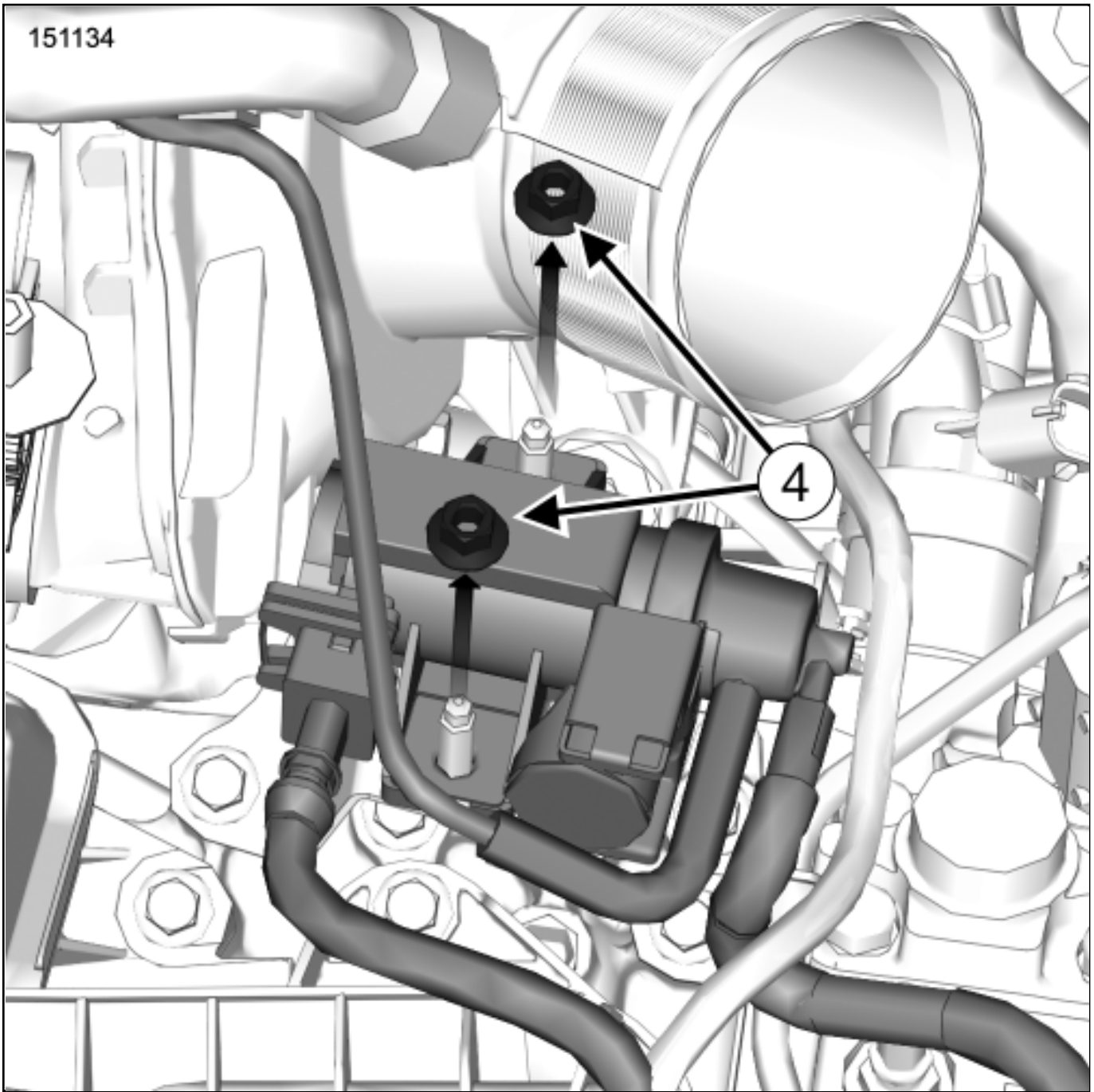
- ❑ Undo the clips on the air outlet pipe of the air filter unit [Air inlet assembly: Exploded view](#) .
- ❑ Remove the air outlet pipe from the air filter unit [Air inlet assembly: Exploded view](#) .
- ❑ Remove the oil vapour rebreathing pipe from the oil separator [Engine oil circuit assembly: Exploded view](#) .
- ❑ Unclip the oil vapour rebreathing pipe.
- ❑ Remove the oil vapour rebreathing pipe from the turbocharger air inlet pipe.



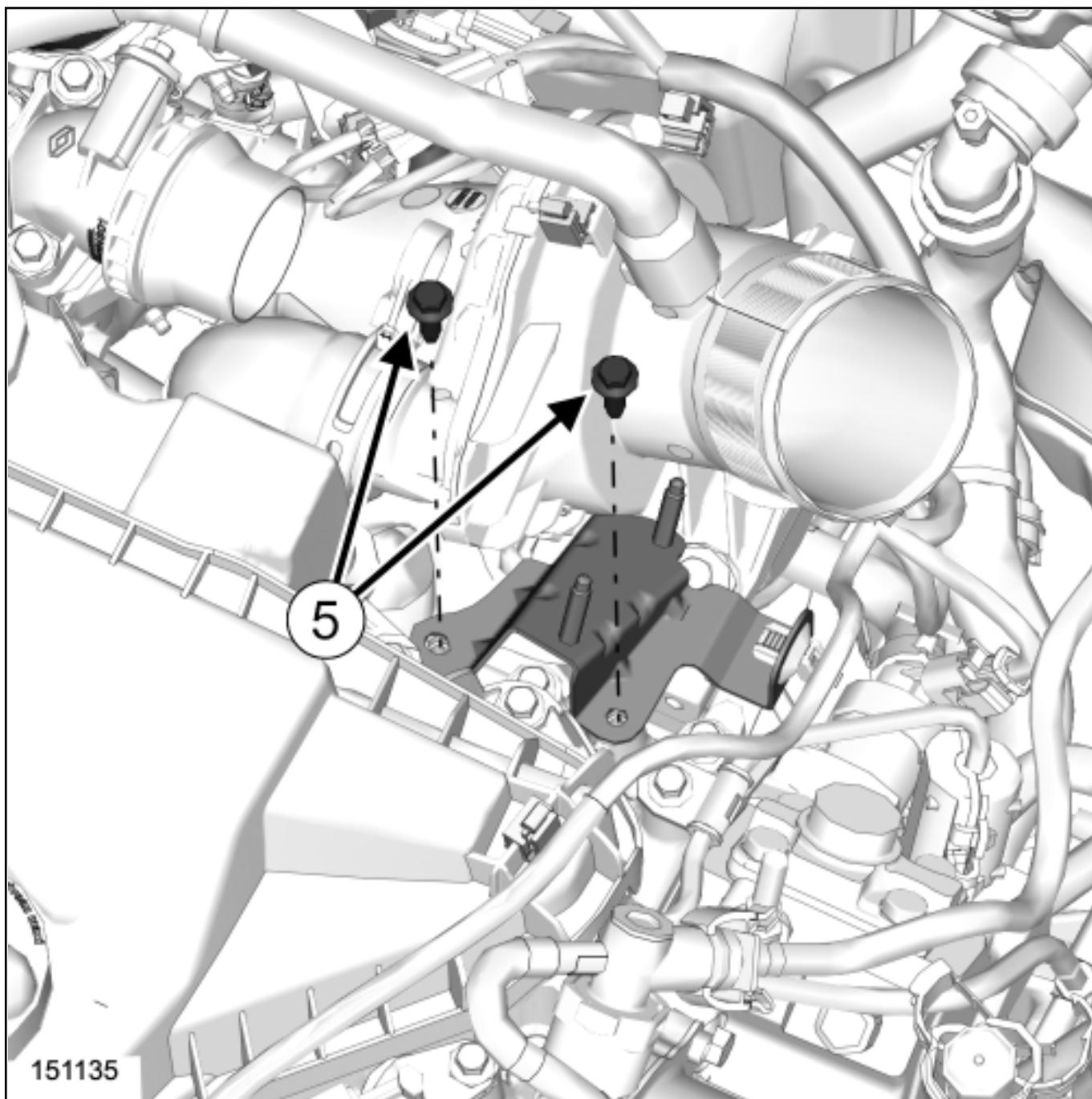
■ Disconnect the turbocharging pressure regulation vacuum pipe(2) .

■ Unclip the turbocharging pressure regulation vacuum pipe at(3) .

151134



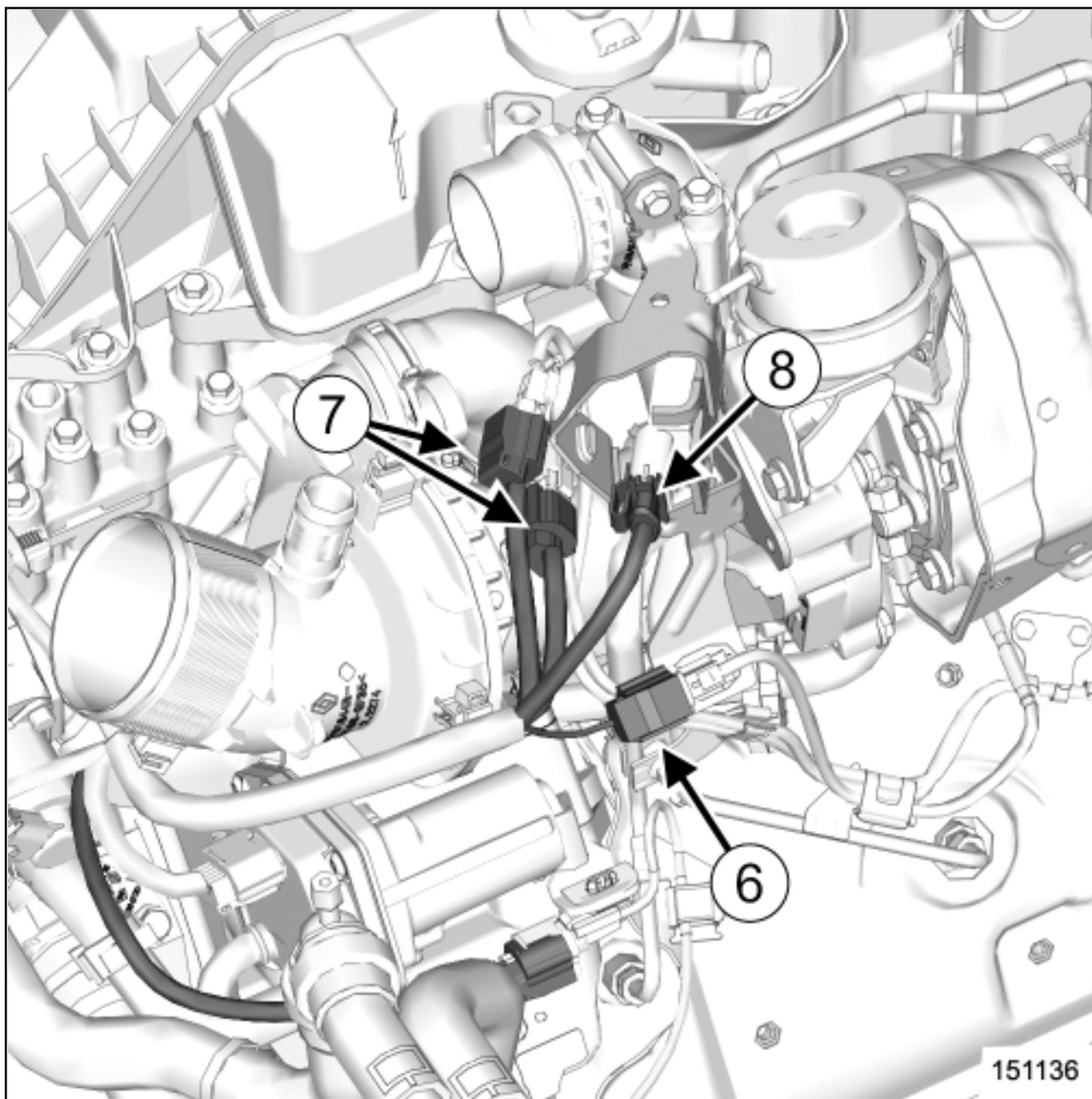
- Remove the nuts(4) from the turbocharging pressure regulation solenoid valve.
- Move the turbocharging pressure regulation solenoid valve.



Remove the bolts(5) from the turbocharging pressure regulation solenoid valve support.

Unclip the wiring of the turbocharging pressure regulation solenoid valve support.

Remove the turbocharging pressure regulation solenoid valve support.



Unclip:

-
- the connector of the exhaust gas temperature sensor(6) ,
- the particle filter temperature sensor connectors(7) .

Disconnect the connector of the particle filter pressure sensor(8) .

Unclip the wiring from the turbocharger air inlet pipe.



Remove the bolts of the particle filter pressure sensor support([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .



Move aside the particle filter pressure sensor support([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .



Remove the bolts of the turbocharger air inlet pipe([Air inlet assembly: Exploded view](#) .



Pinch the clip from the exhaust gas recirculation pipe between the turbocharger air inlet pipe and the exhaust gas recirculation solenoid valve([Exhaust gas recirculation circuit assembly: Exploded view](#) .



Disconnect the exhaust gas recirculation pipe between the turbocharger air inlet pipe and the exhaust gas recirculation solenoid valve([Exhaust gas recirculation circuit assembly: Exploded view](#) .



Remove the turbocharger air inlet pipe([Air inlet assembly: Exploded view](#) .

2. REMOVAL OPERATION



Remove ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) :



the particle filter pressure sensor nut,



the pressure pipes clips from the particle filter pressure sensor using a screwdriver.



Disconnect the pressure pipes from the particle filter pressure sensor([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .



Remove the particle filter pressure sensor([see 19B, Exhaust, Exhaust assembly in engine compartment:](#)

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:

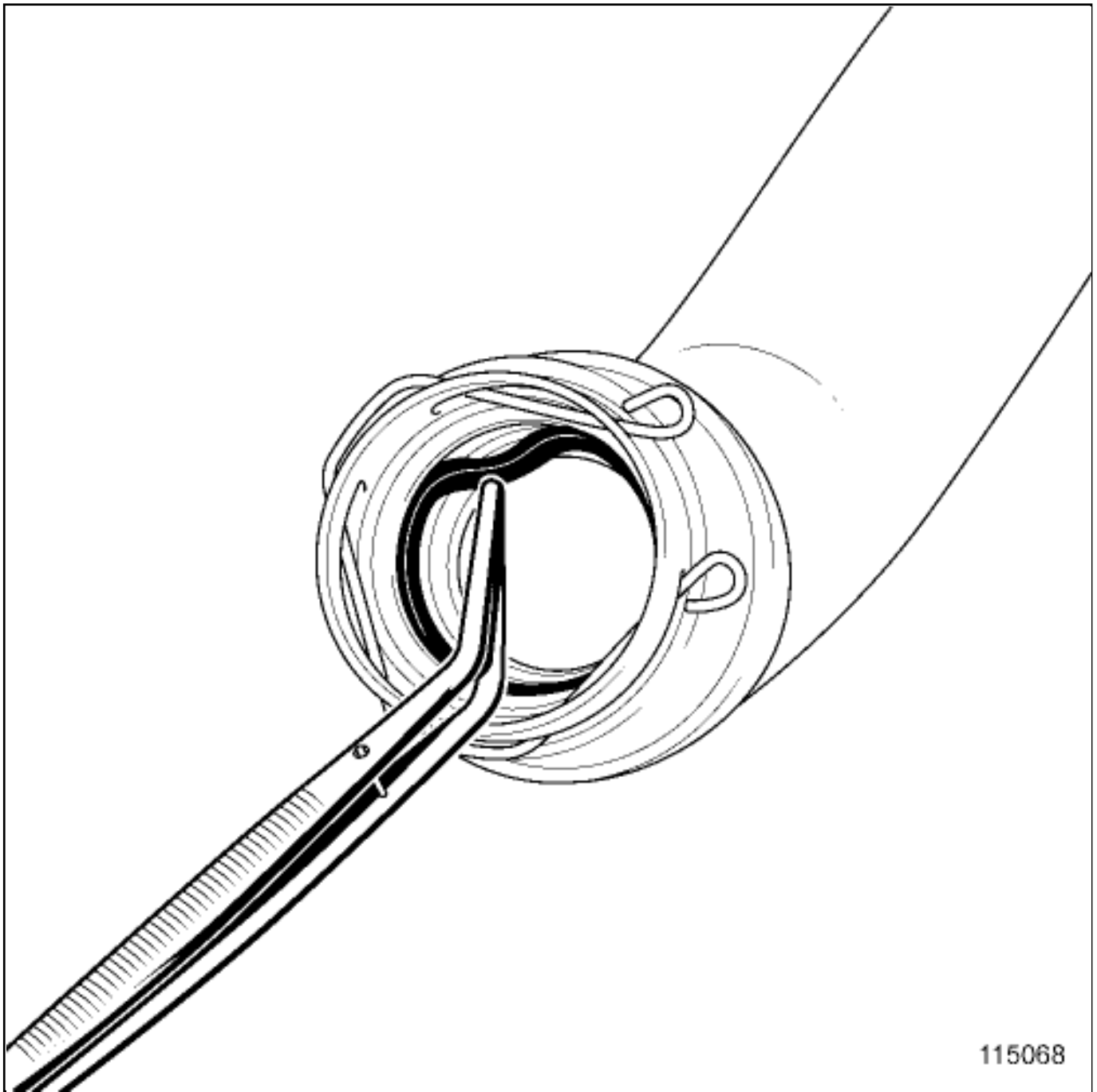
[turbocharger air cooler air inlet pipe seal](#) .



Always replace the the pressure pipes clips .

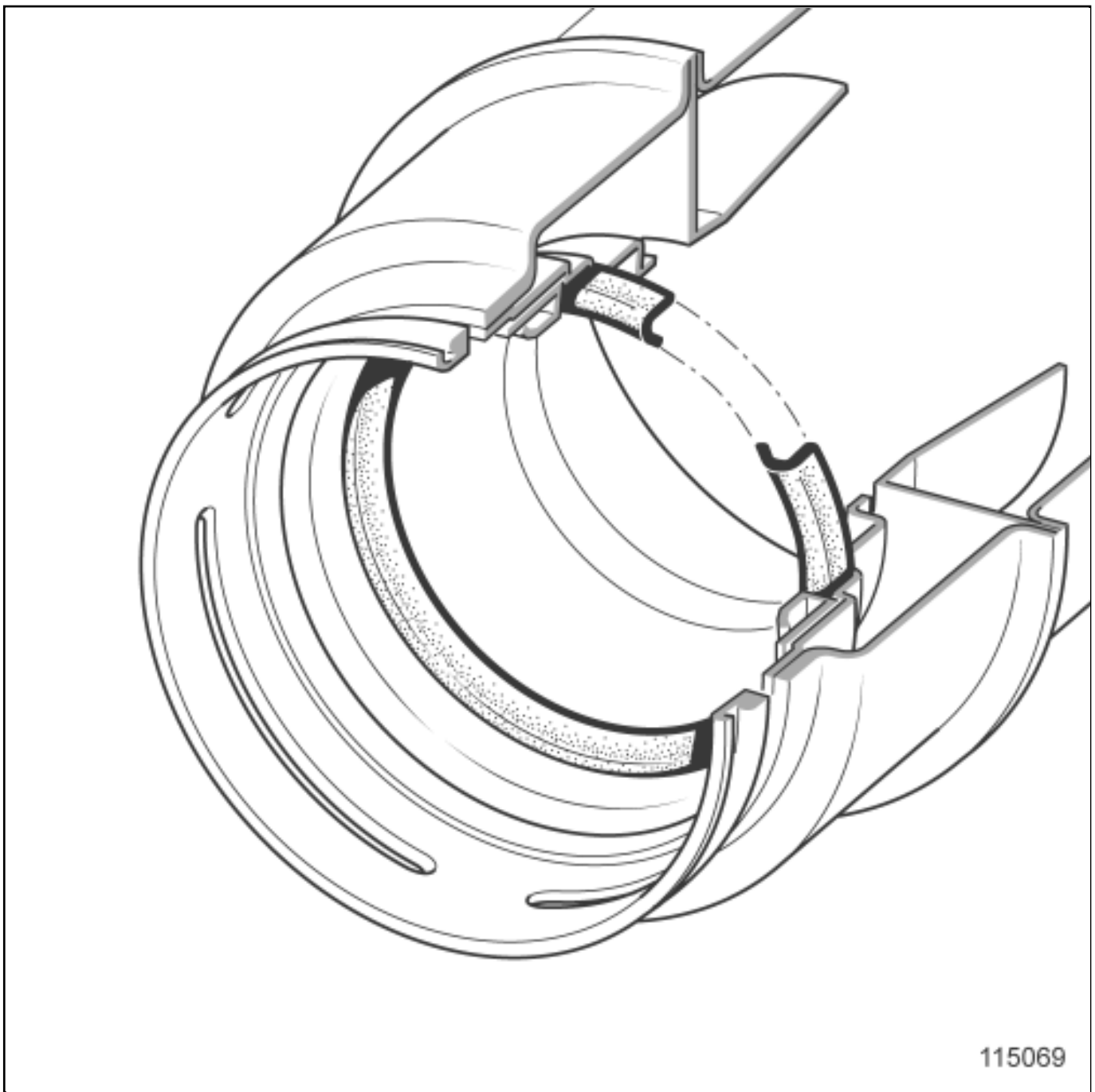


Coat the air inlet duct turbocharger with silicone grease [Vehicle: Parts and consumables for the repair](#)
(04B, Consumables - Products).



115068

Remove the intercooler air inlet pipe seals using a tweezers.



115069



Note:

Check that the intercooler air inlet pipe seal is fitted in the right direction.

Refit new seals on the intercooler air inlet pipe.

Fit new pressure pipes clips([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#))

Refit the pressure pipes on the particle filter pressure sensor without lubricant([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .

Note:



Both pressure pipes of the particle filter pressure sensor have no lead the same diameter.

Lock the pressure pipes clips on the particle filter pressure sensor using the Remote pliers for exhaust gas recirculation pipe clamps.([Mot. 1567](#)) .

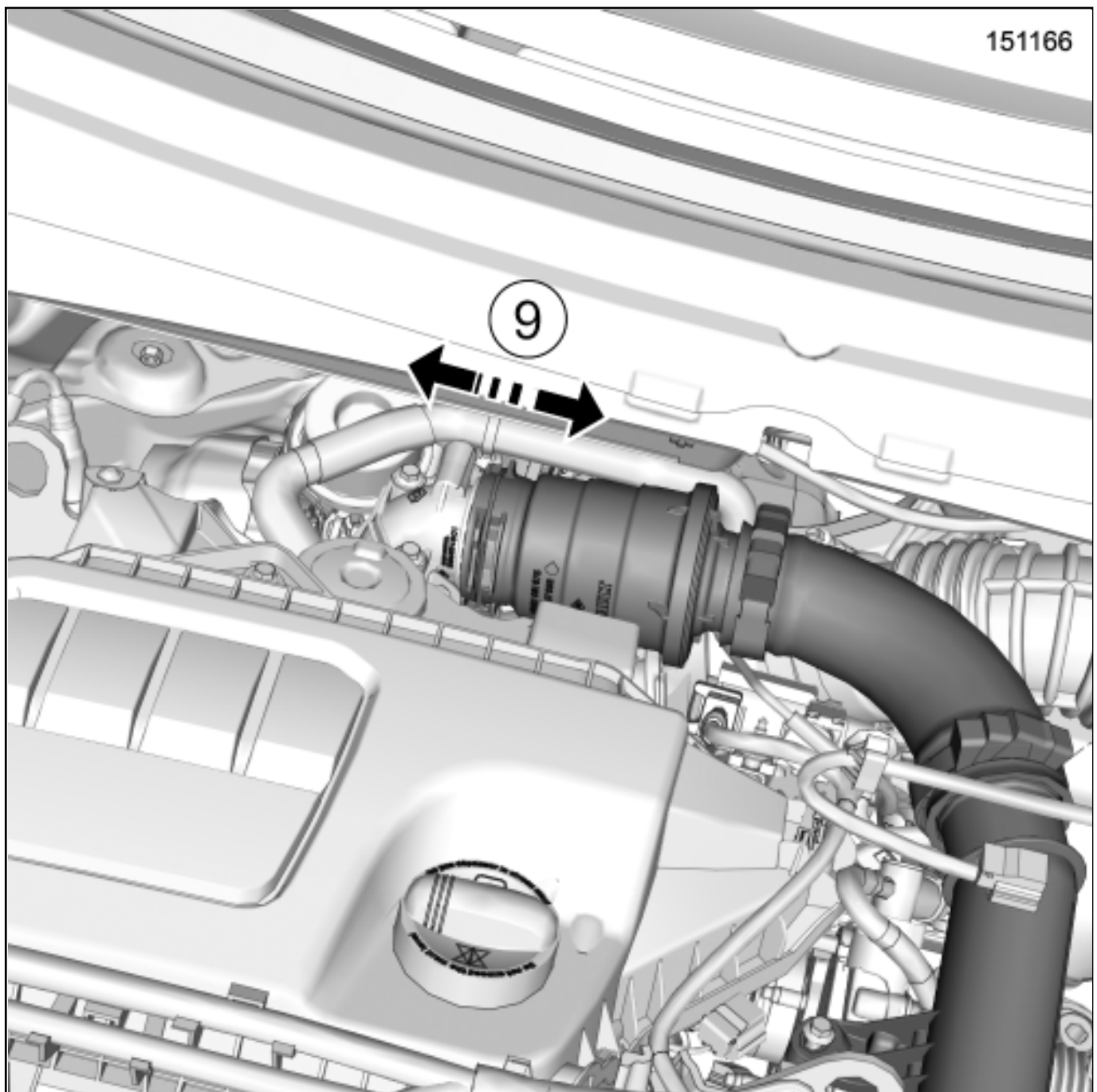
Refit the particle filter pressure sensor([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .

Proceed in the reverse order to removal.

When replacing, apply the after repair procedure using the Diagnostic tool:

-
- select the "injection computer",
- go to repair mode,
- display the "Before/After repair procedure" for the computer selected,
- select "Particle filter relative pressure sensor" in the "List of components controlled by this computer" section,
-
- carry out the operations described in the "After repair procedure" section.

Check that the plastic ring is positioned correctly on the turbocharger air inlet pipe.



Always carry out a "push - pull" test at(9) , to check that the intercooler air inlet pipe is correctly inserted.



PARTICLE FILTER TEMPERATURE SENSORS: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Spanner for tightening the exhaust gas temperature sensor

Mot. 1807

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973

Equipment required

tweezers



parts always to be replaced:



[turbocharger air cooler air inlet pipe seal](#)

[turbocharger air cooler air inlet pipe seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view\)](#) .



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 19B, Exhaust, Exhaust: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

Any damaged heat shields must be replaced.

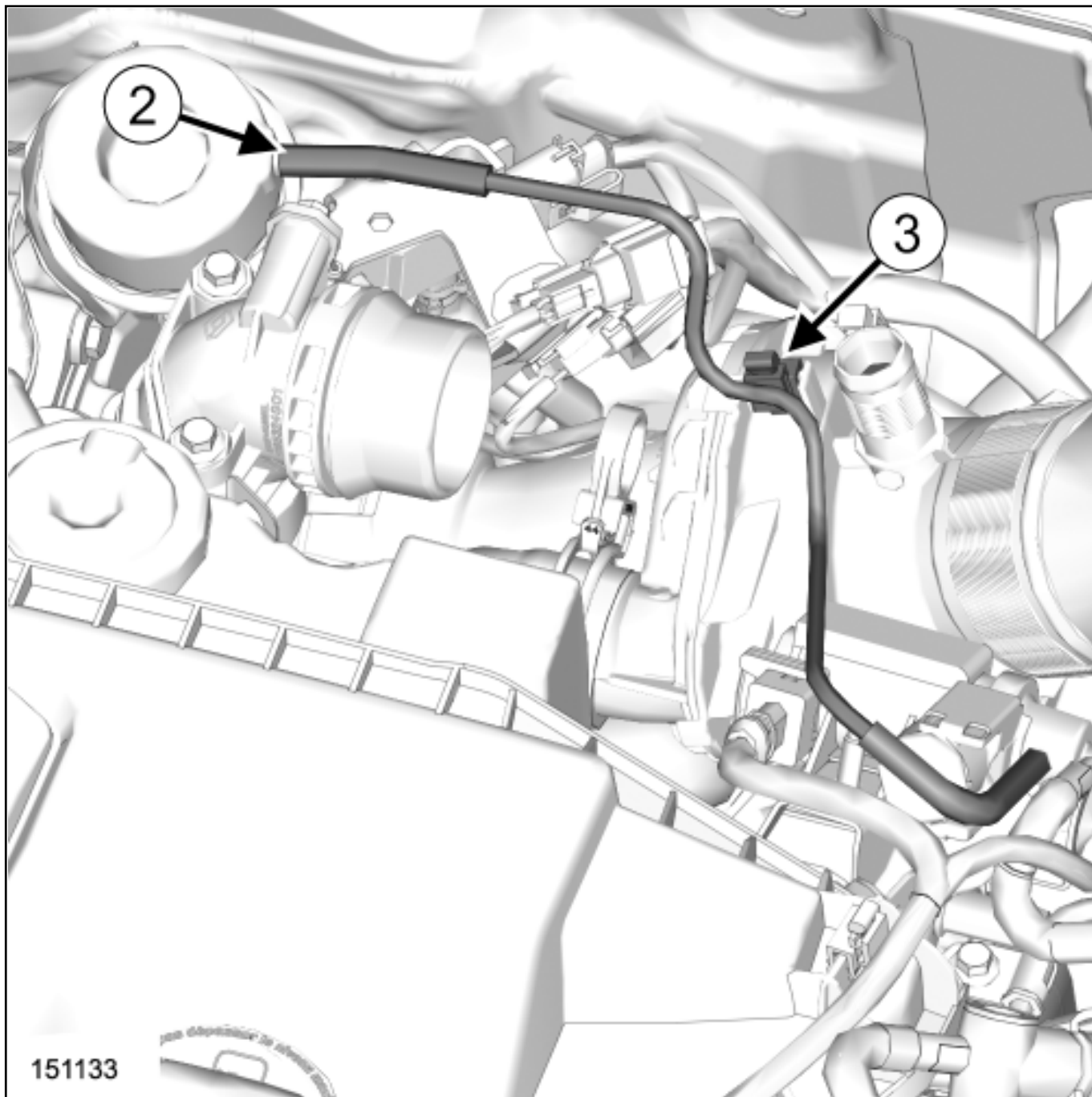
REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- ❑ Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).

- ❑ Remove the air outlet pipe [Air inlet assembly: Exploded view](#) .

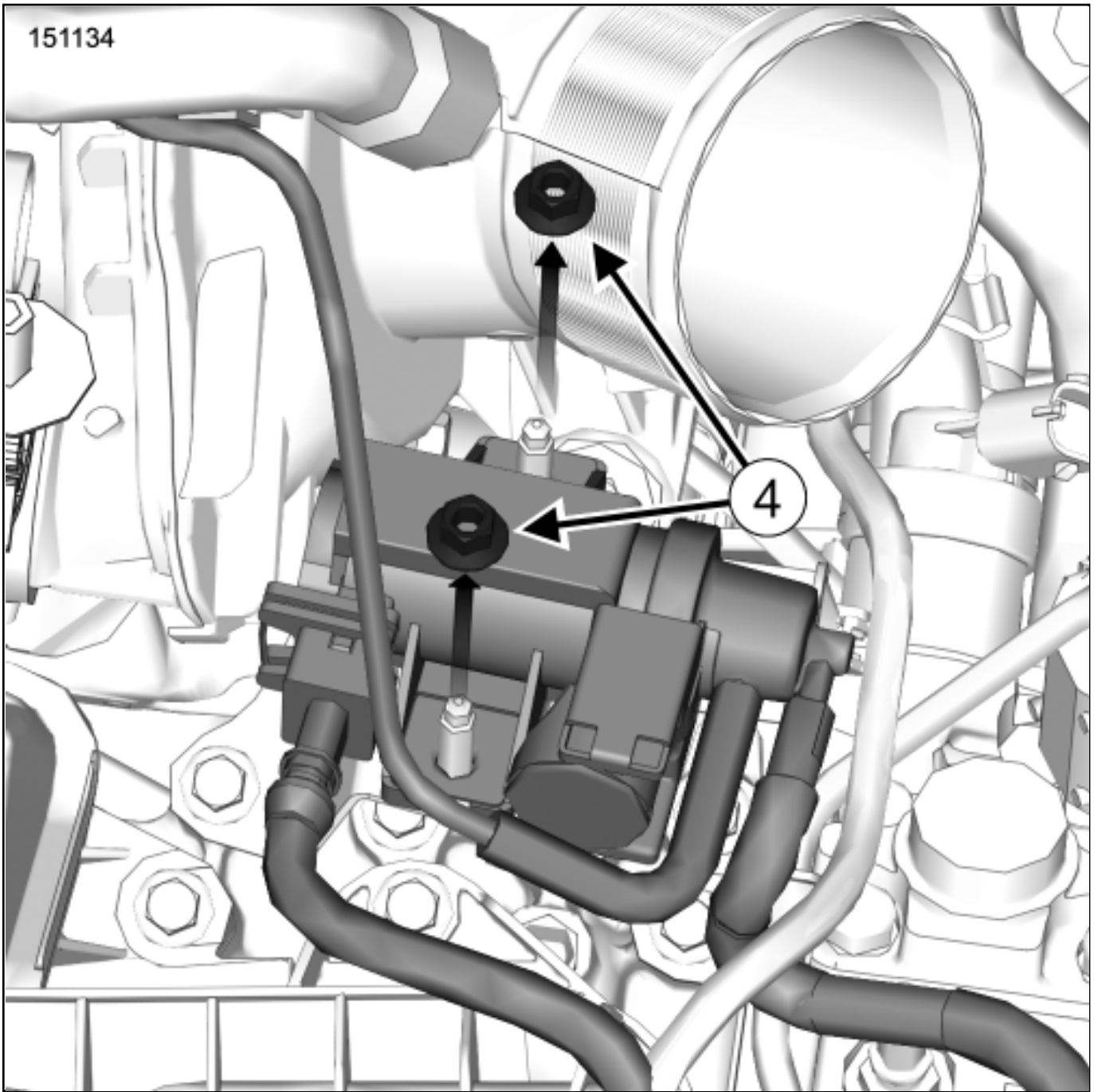
- ❑ Remove the oil vapour rebreathing pipe from the oil separator [Engine oil circuit assembly: Exploded view](#) .
- ❑ Unclip the oil vapour rebreathing pipe.
- ❑ Remove the oil vapour rebreathing pipe from the turbocharger air inlet pipe



■ Disconnect the turbocharging pressure regulation vacuum pipe(2) .

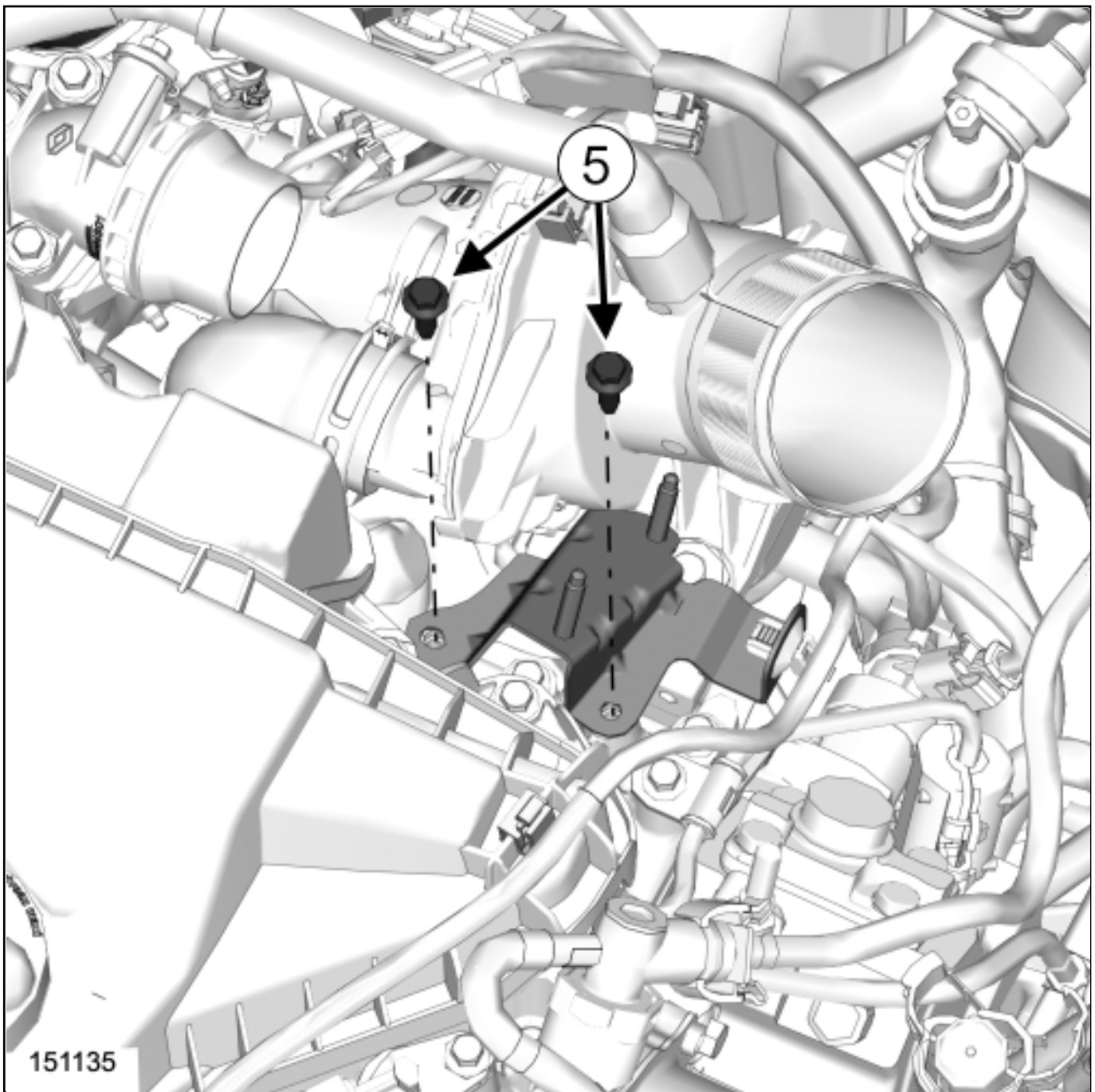
■ Unclip the turbocharging pressure regulation vacuum pipe(3) .

151134



Remove the nuts(4) from the turbocharging pressure regulation solenoid valve.

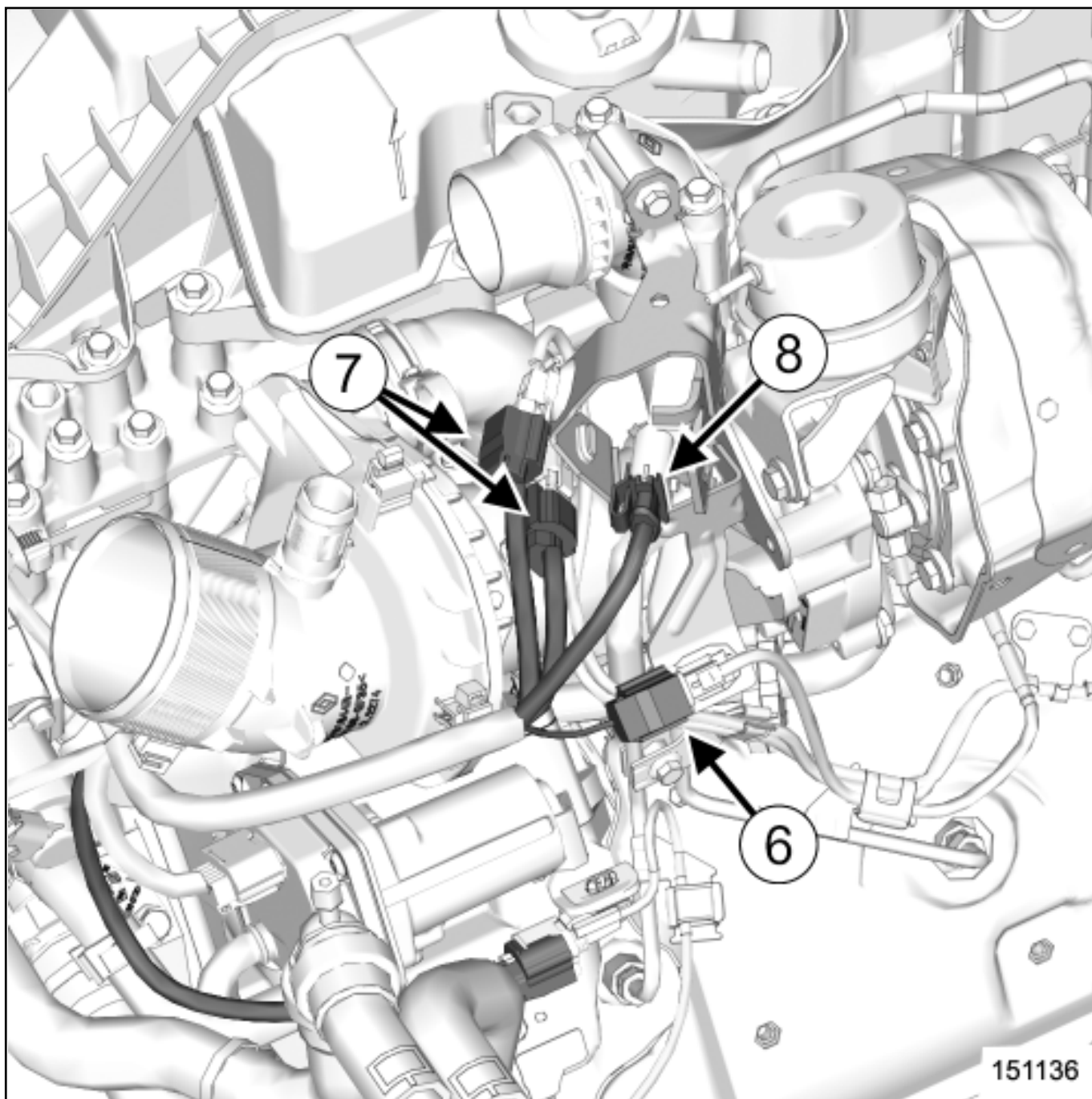
Move the turbocharging pressure regulation solenoid valve.



- Remove the bolts(5) from the turbocharging pressure regulation solenoid valve support,

- Unclip the wiring of the turbocharging pressure regulation solenoid valve support.

- Remove the turbocharging pressure regulation solenoid valve support.



Unclip:

-
- the connector(6) of the exhaust gas temperature sensor,
- the particle filter temperature sensor connectors(7) .

Disconnect the connector of the particle filter pressure sensor(8) .

Unclip the wiring from the turbocharger air inlet pipe.



Remove the bolts of the particle filter pressure sensor support([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .



Move aside the particle filter pressure sensor support([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .



Remove the bolts of the turbocharger air inlet pipe[Air inlet assembly: Exploded view](#) .



Pinch the clip from the exhaust gas recirculation pipe between the turbocharger air inlet pipe and the exhaust gas recirculation solenoid valve[Exhaust gas recirculation circuit assembly: Exploded view](#) .

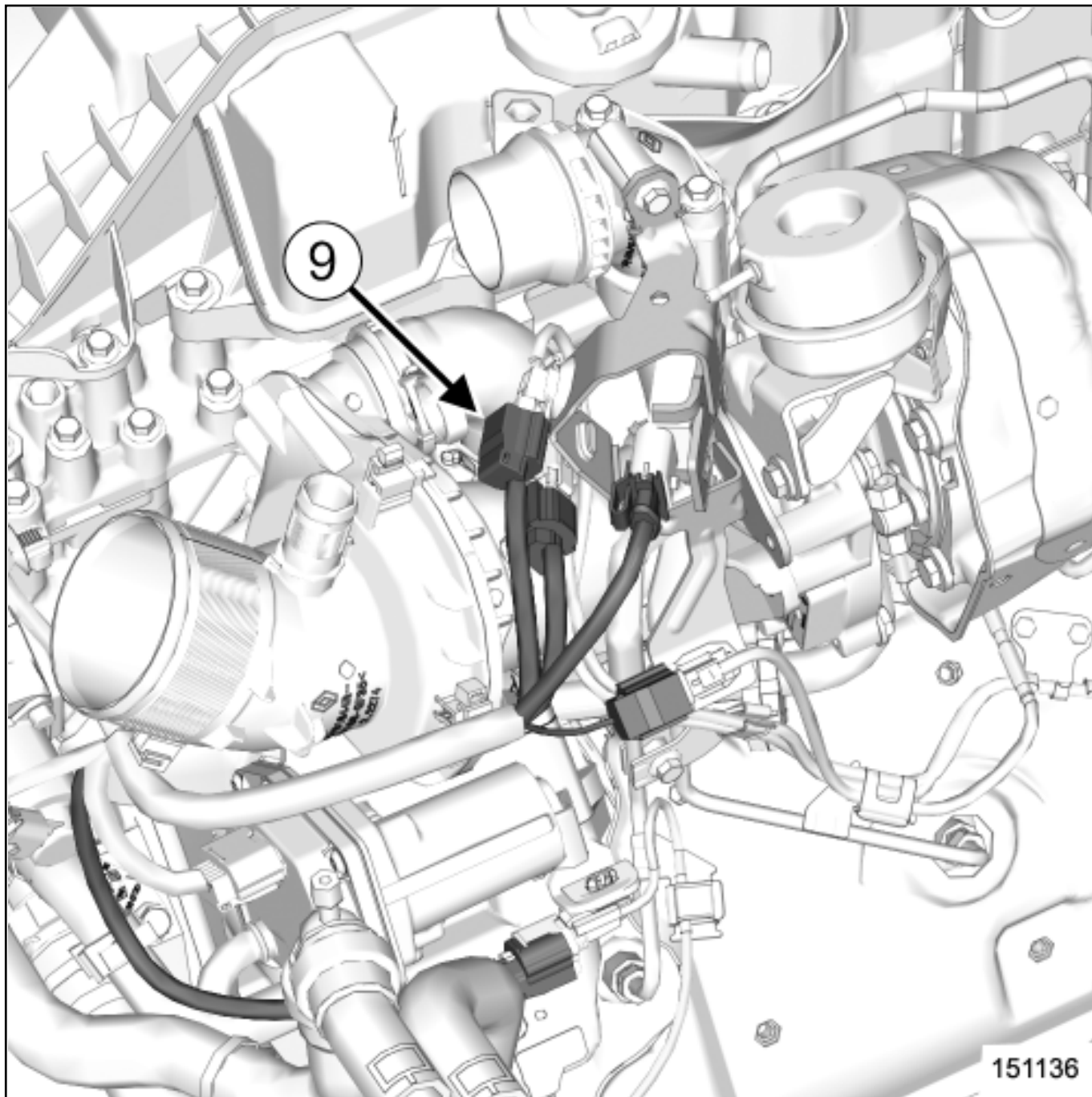


Disconnect the exhaust gas recirculation pipe between the turbocharger air inlet pipe and the exhaust gas recirculation solenoid valve[Exhaust gas recirculation circuit assembly: Exploded view](#) .

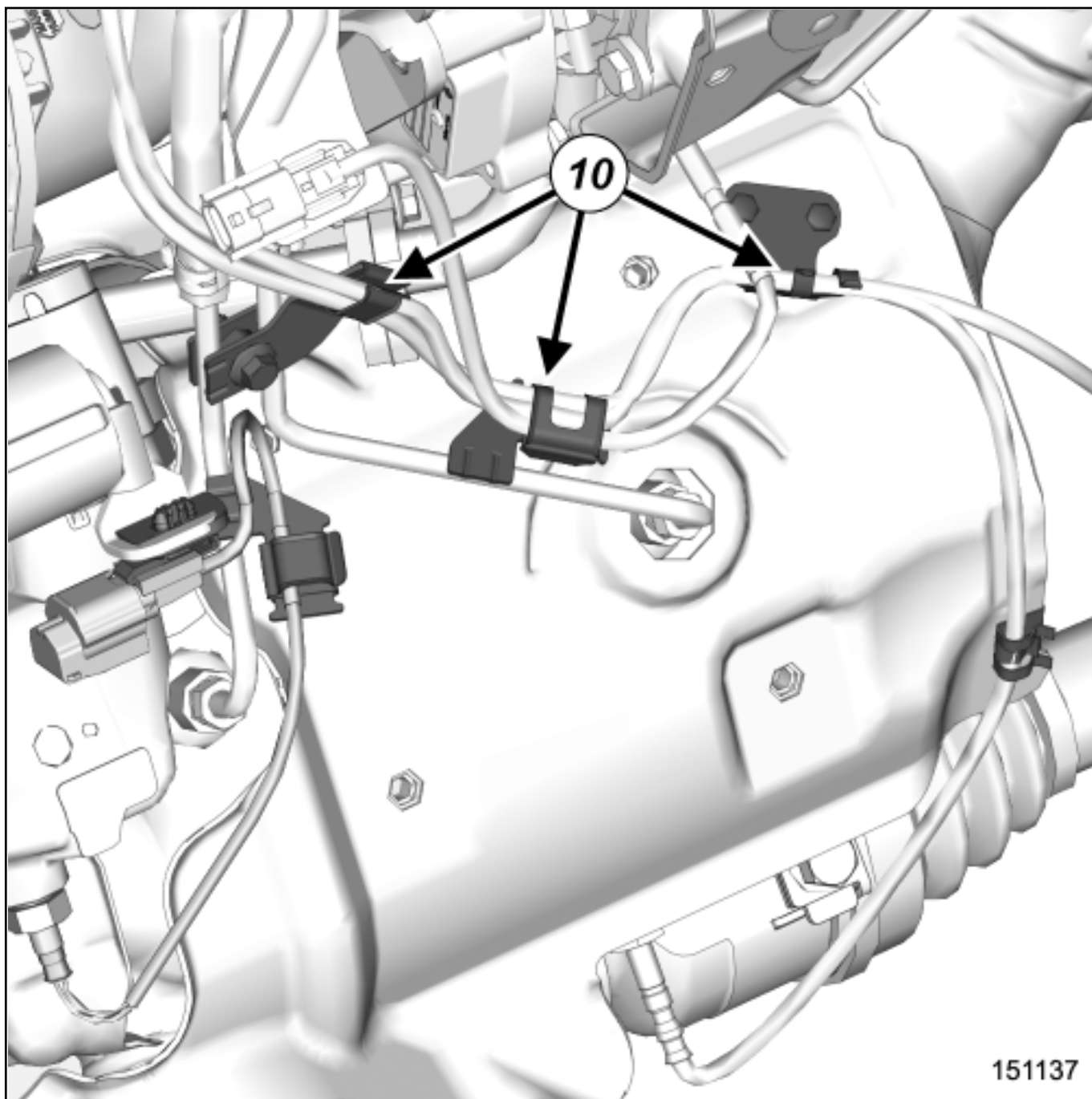


Remove the turbocharger air inlet pipe[Air inlet assembly: Exploded view](#) .

2. REMOVAL OPERATION

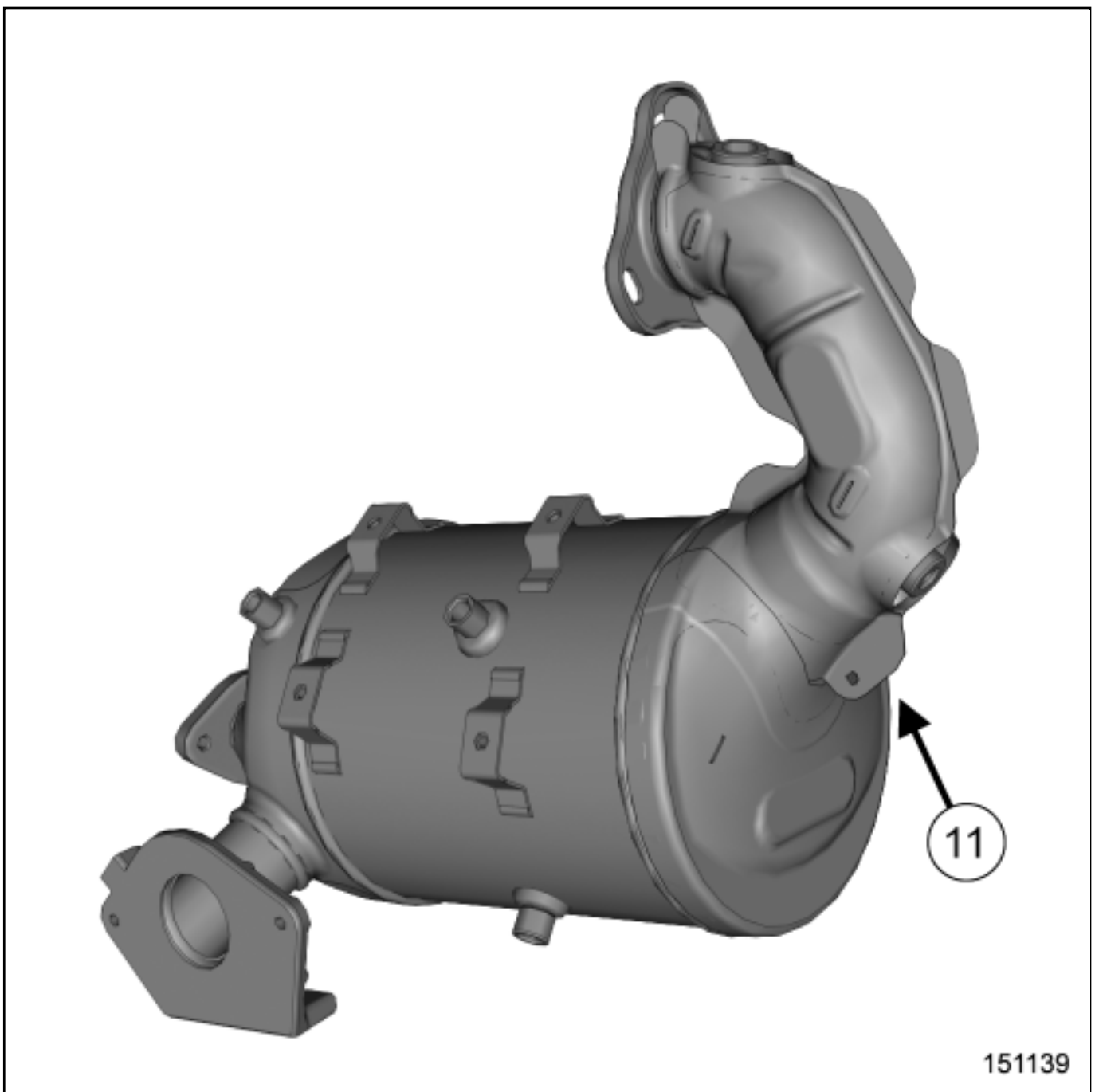


Disconnect the particle filter inlet temperature sensor connector(9) .



151137

Unclip the wiring from the particle filter inlet temperature sensor at(10) .



■ Pull down the particle filter heat shield at(11) .

■ Remove the particle filter inlet temperature sensor using the toolSpanner for tightening the exhaust gas temperature sensor(Mot. 1807) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .

1. REFITTING PREPARATION OPERATION



parts always to be replaced:

turbocharger air cooler air inlet pipe seal



2. REFITTING OPERATION



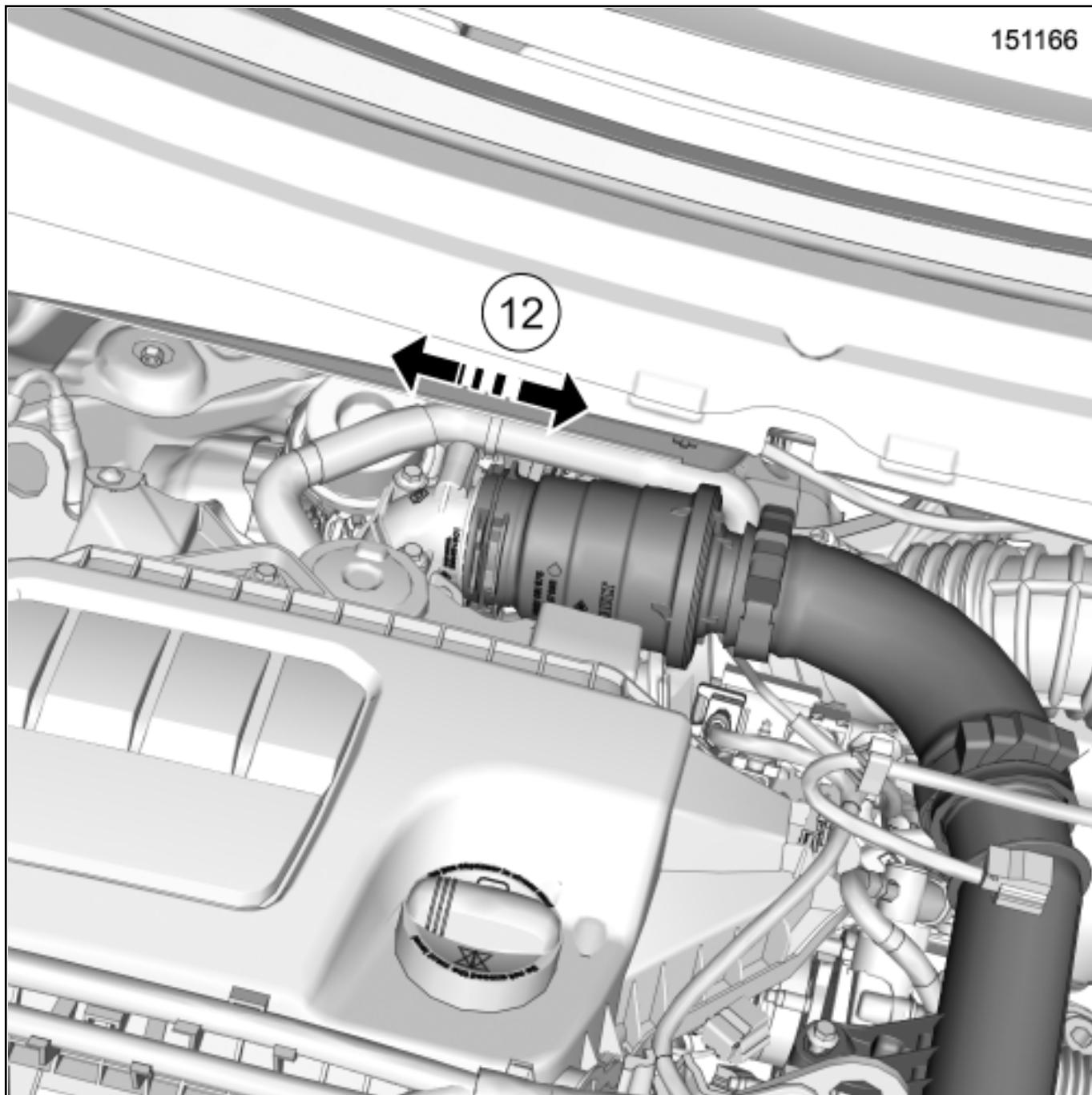
Refit the particle filter inlet temperature sensor using the toolSpanner for tightening the exhaust gas temperature sensor([Mot. 1807](#)) and the tool4-40 N.m torque wrench with 1/4 drive ratchet end piece ([Ms. 1973](#)) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)).



Proceed in the reverse order to removal.



Check that the plastic ring is positioned correctly on the turbocharger air inlet pipe.



Always carry out a "push - pull" test at(12) , to check that the intercooler air inlet pipe is correctly inserted.

REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).

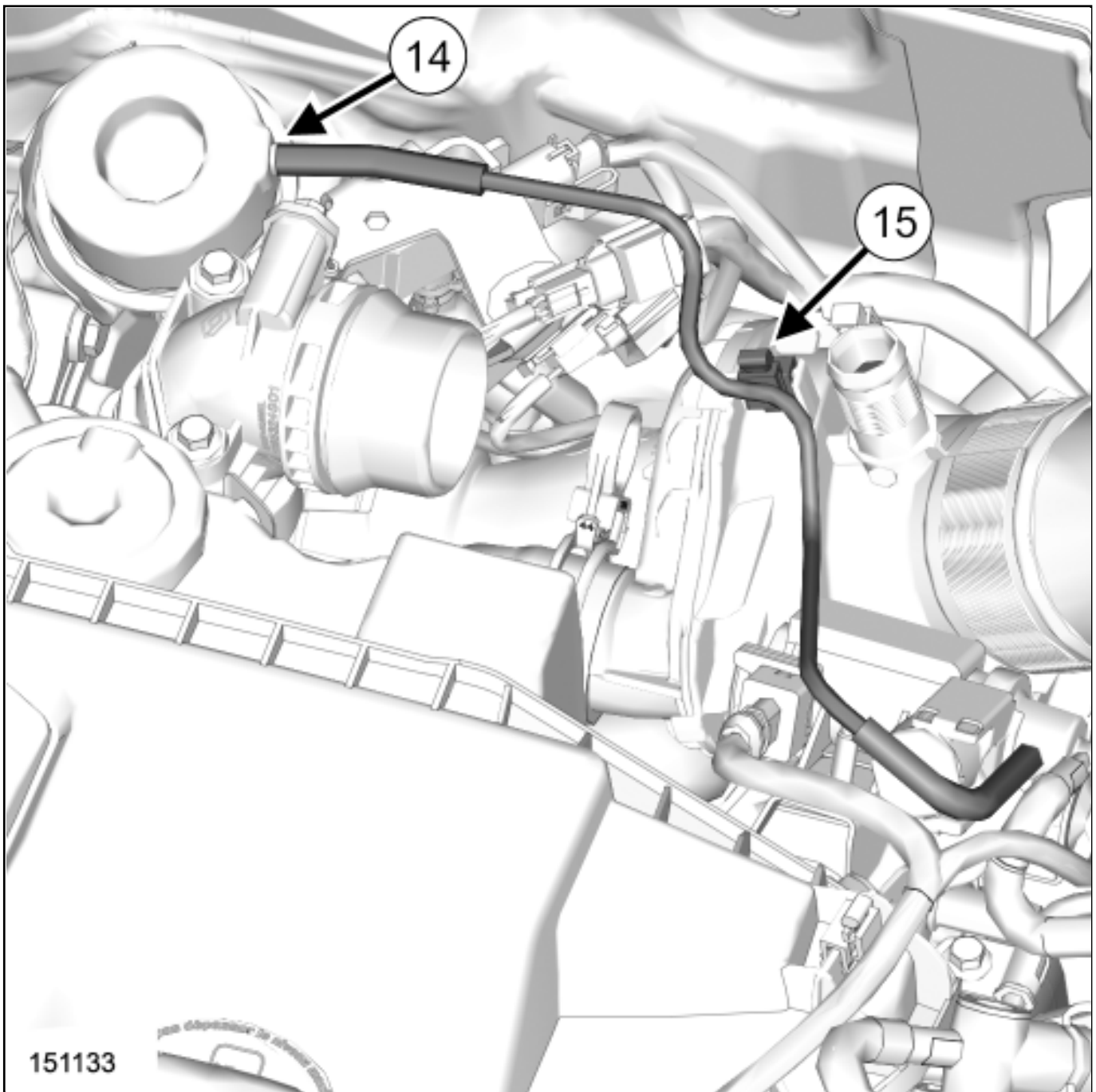
Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).

Remove the air outlet pipe [Air inlet assembly: Exploded view](#) .

Remove the oil vapour rebreathing pipe from the oil separator [Engine oil circuit assembly: Exploded view](#) .

Unclip the oil vapour rebreathing pipe.

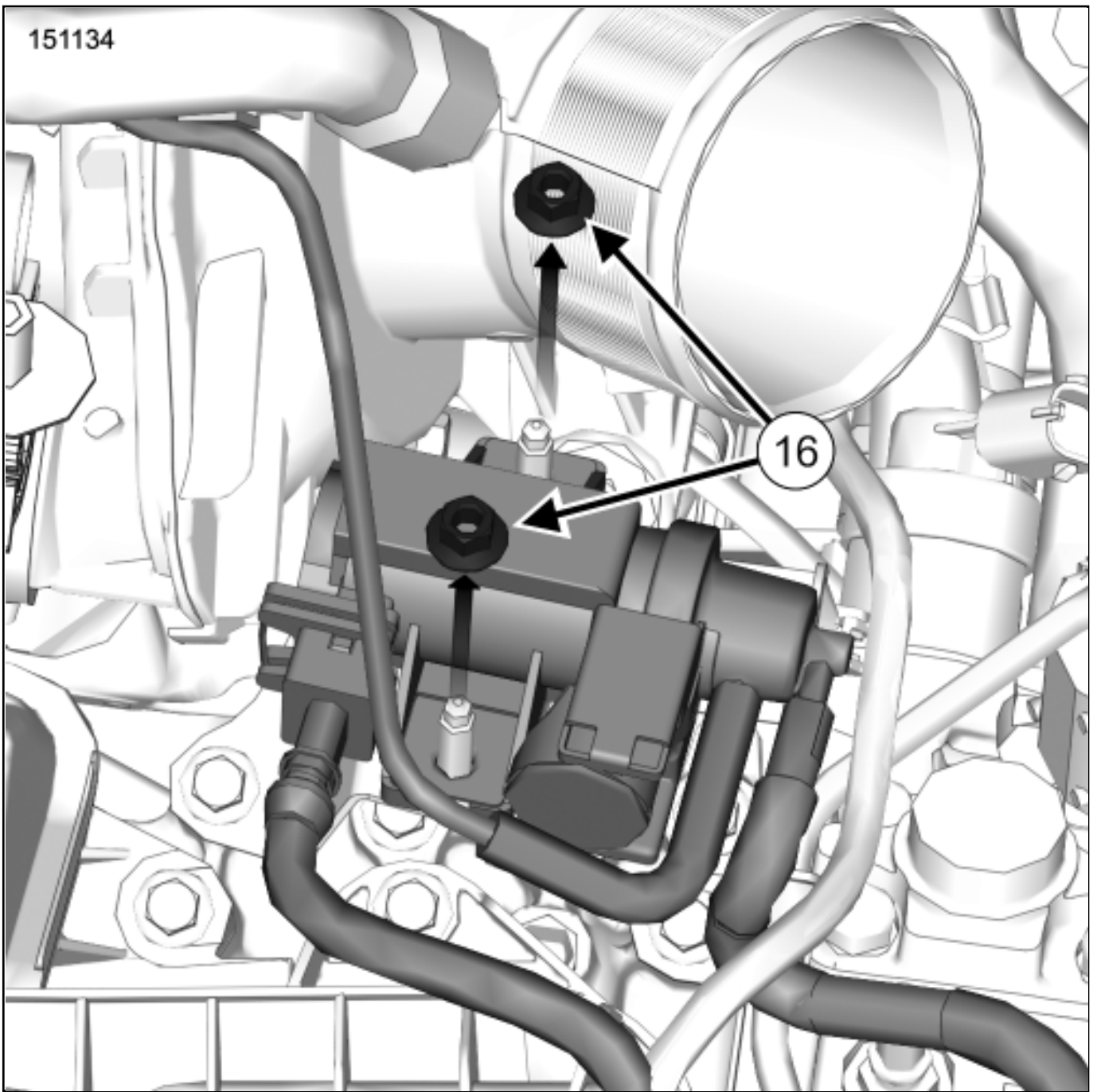
Remove the oil vapour rebreathing pipe from the turbocharger air inlet pipe.



■ Disconnect the turbocharging pressure regulation vacuum pipe(14) .

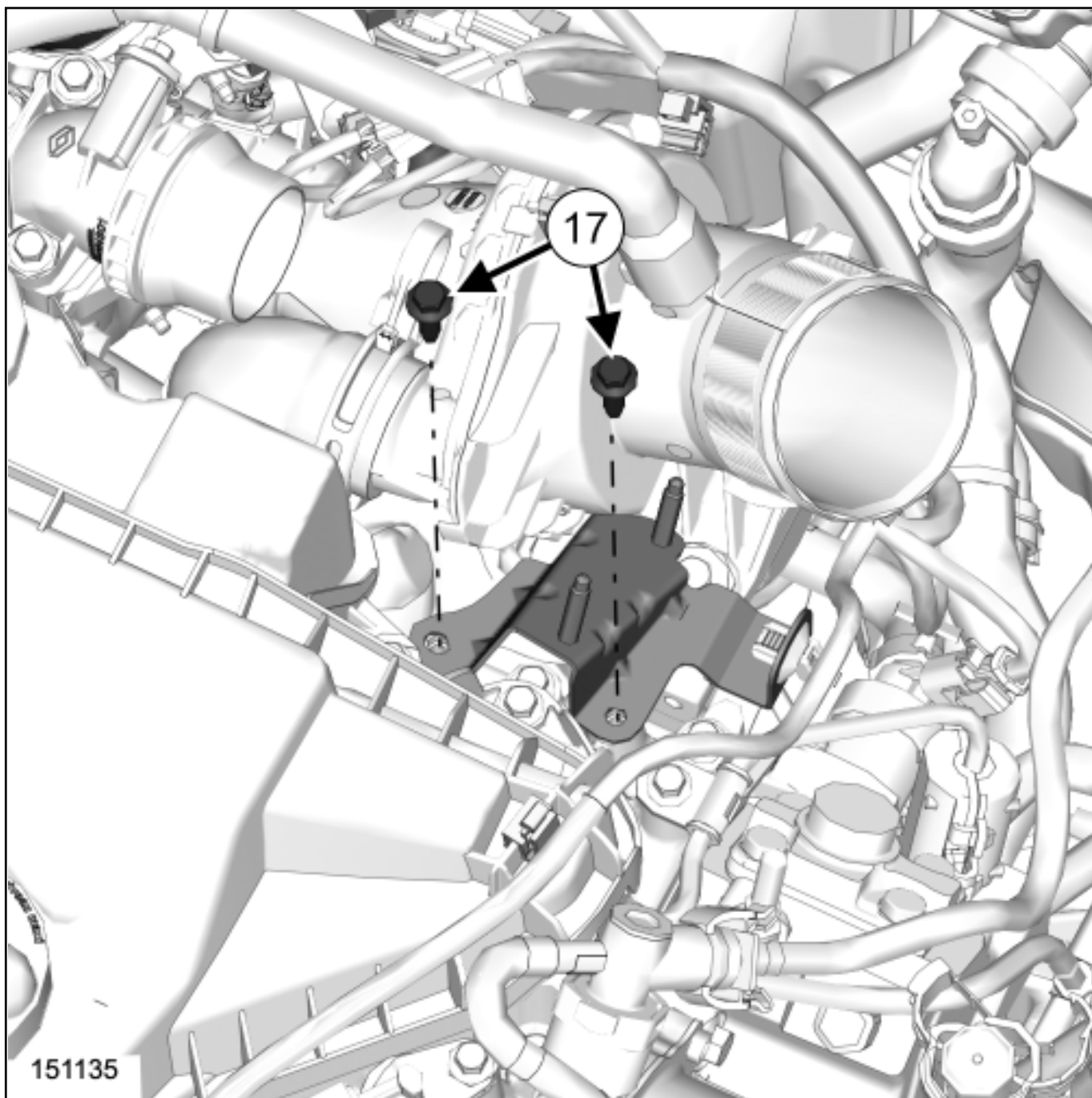
■ Unclip the turbocharging pressure regulation vacuum pipe(15) .

151134



Remove the nuts(16) from the turbocharging pressure regulation solenoid valve.

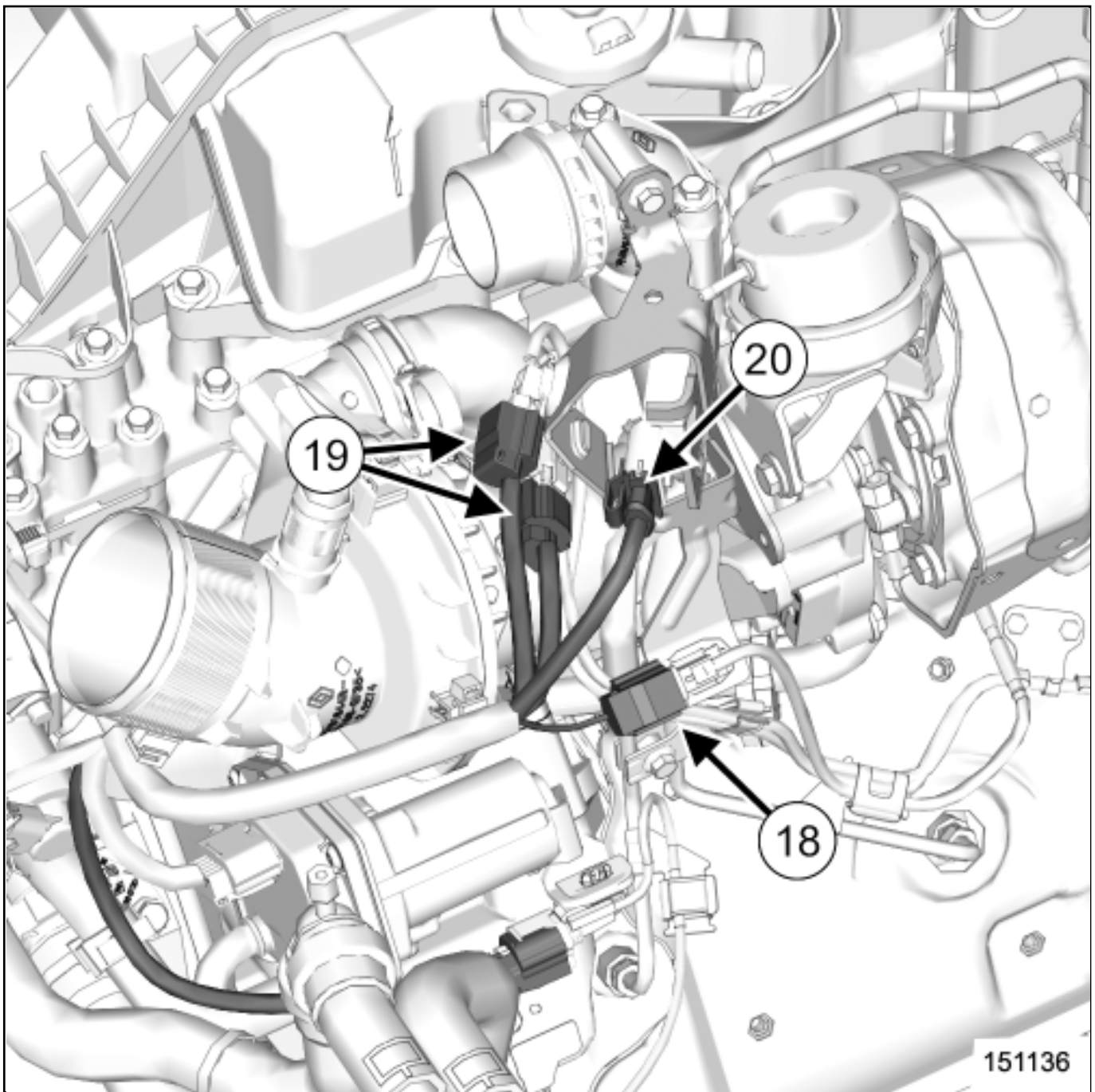
Move the turbocharging pressure regulation solenoid valve.



Remove the bolts(17) from the turbocharging pressure regulation solenoid valve support.

Unclip the wiring of the turbocharging pressure regulation solenoid valve support.

Remove the turbocharging pressure regulation solenoid valve support.



Unclip:

- the connector of the exhaust gas temperature sensor(18),
- the particle filter temperature sensor connectors(19).

Disconnect the connector of the particle filter pressure sensor(20).

Unclip the wiring from the turbocharger air inlet pipe.



Remove the bolts of the particle filter pressure sensor support([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .



Move aside the particle filter pressure sensor support([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .



Remove the bolts of the turbocharger air inlet pipe[Air inlet assembly: Exploded view](#) .



Pinch the clip from the exhaust gas recirculation pipe between the turbocharger air inlet pipe and the exhaust gas recirculation solenoid valve[Exhaust gas recirculation circuit assembly: Exploded view](#) .



Disconnect the exhaust gas recirculation pipe between the turbocharger air inlet pipe and the exhaust gas recirculation solenoid valve[Exhaust gas recirculation circuit assembly: Exploded view](#) .



Remove:

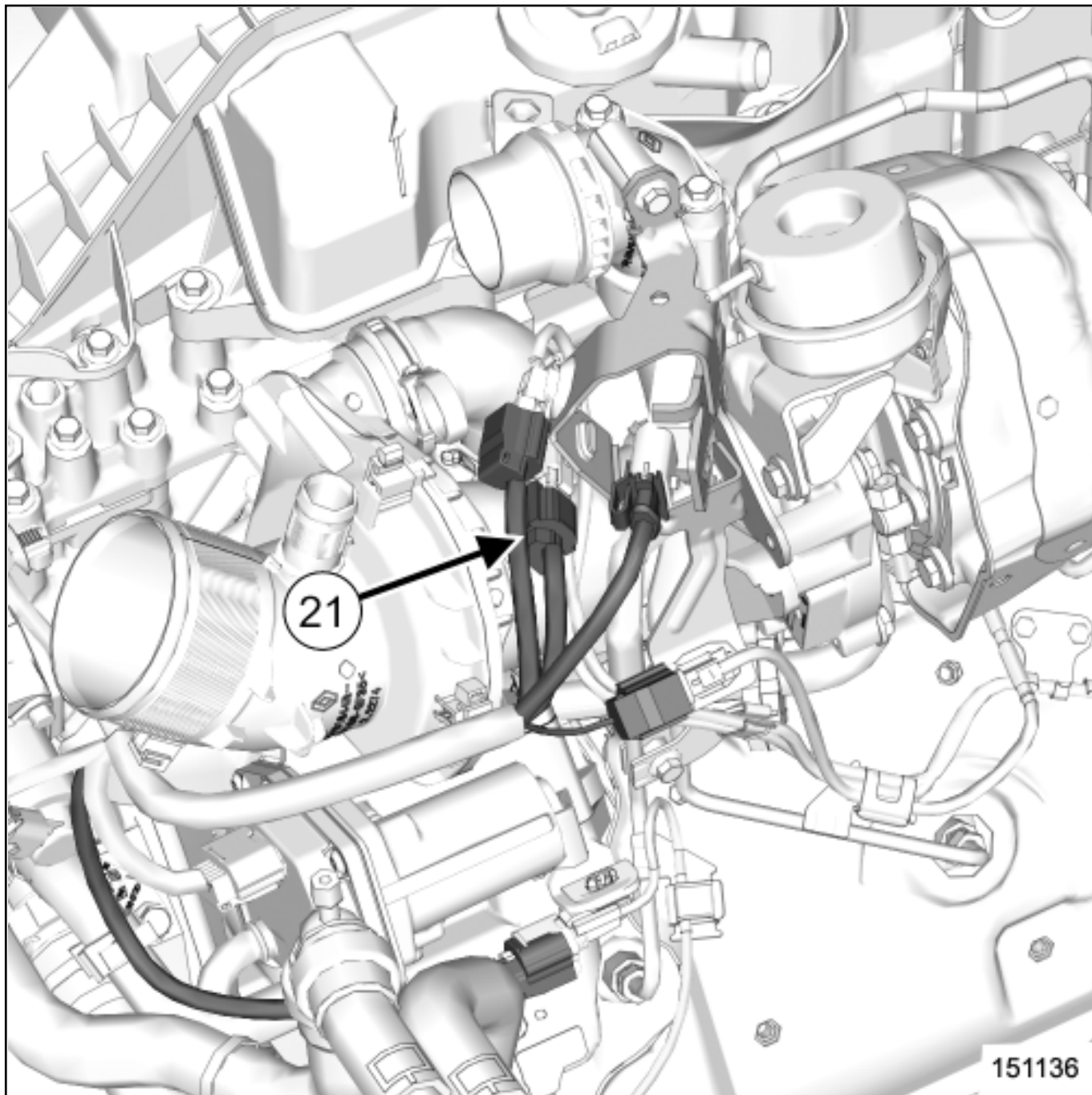


the turbocharger air inlet pipe[Air inlet assembly: Exploded view](#) ,

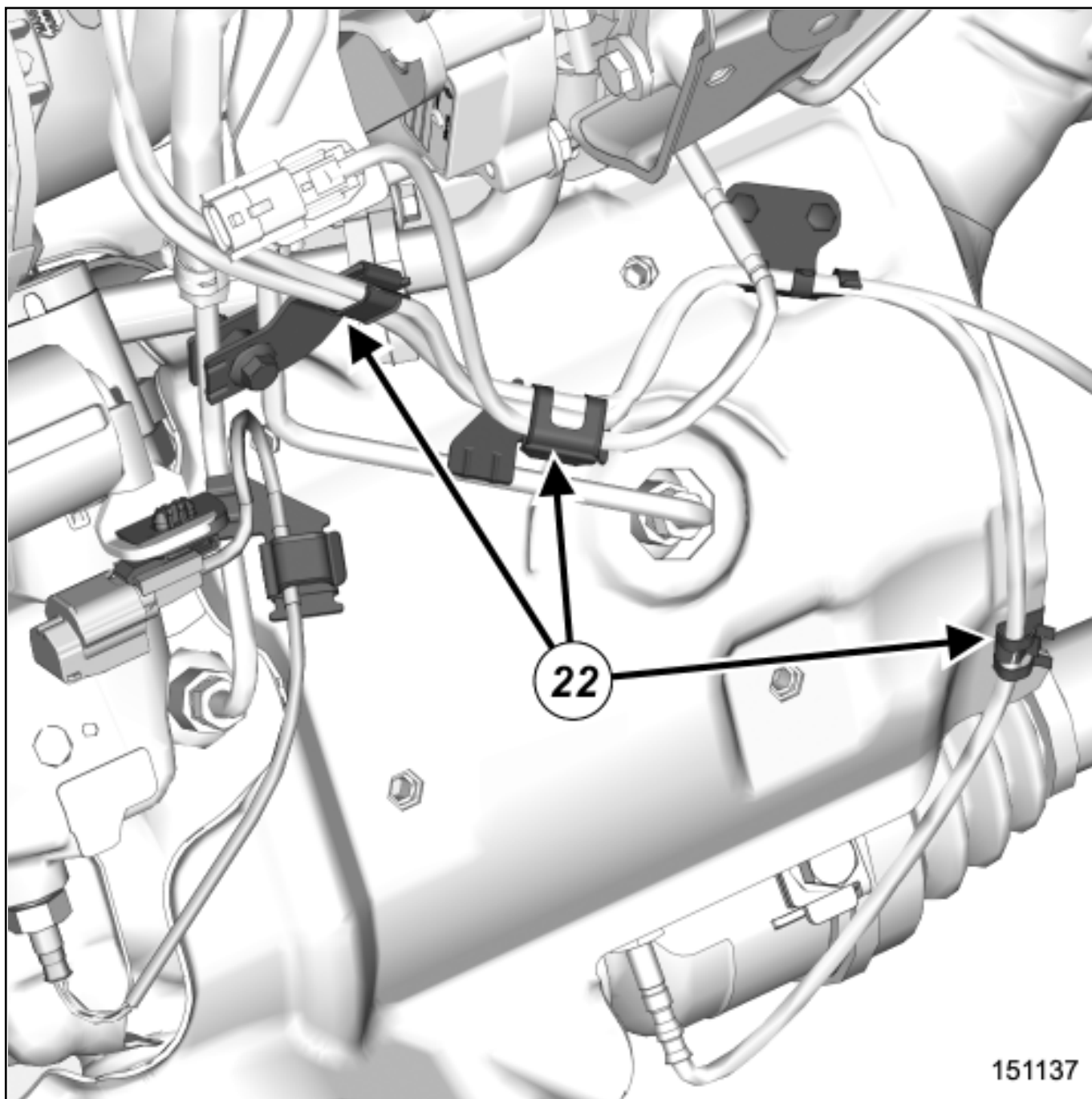


the lower engine tie-bar[Engine-gearbox unit support assembly: Exploded view](#) .

2. REMOVAL OPERATION



Disconnect the particle filter outlet temperature sensor connector(21) .



■ Unclip the wiring from the particle filter outlet temperature sensor at(22) .

■ Remove the particle filter outlet temperature sensor using the toolSpanner for tightening the exhaust gas temperature sensor(Mot. 1807) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .

1. REFITTING PREPARATION OPERATION

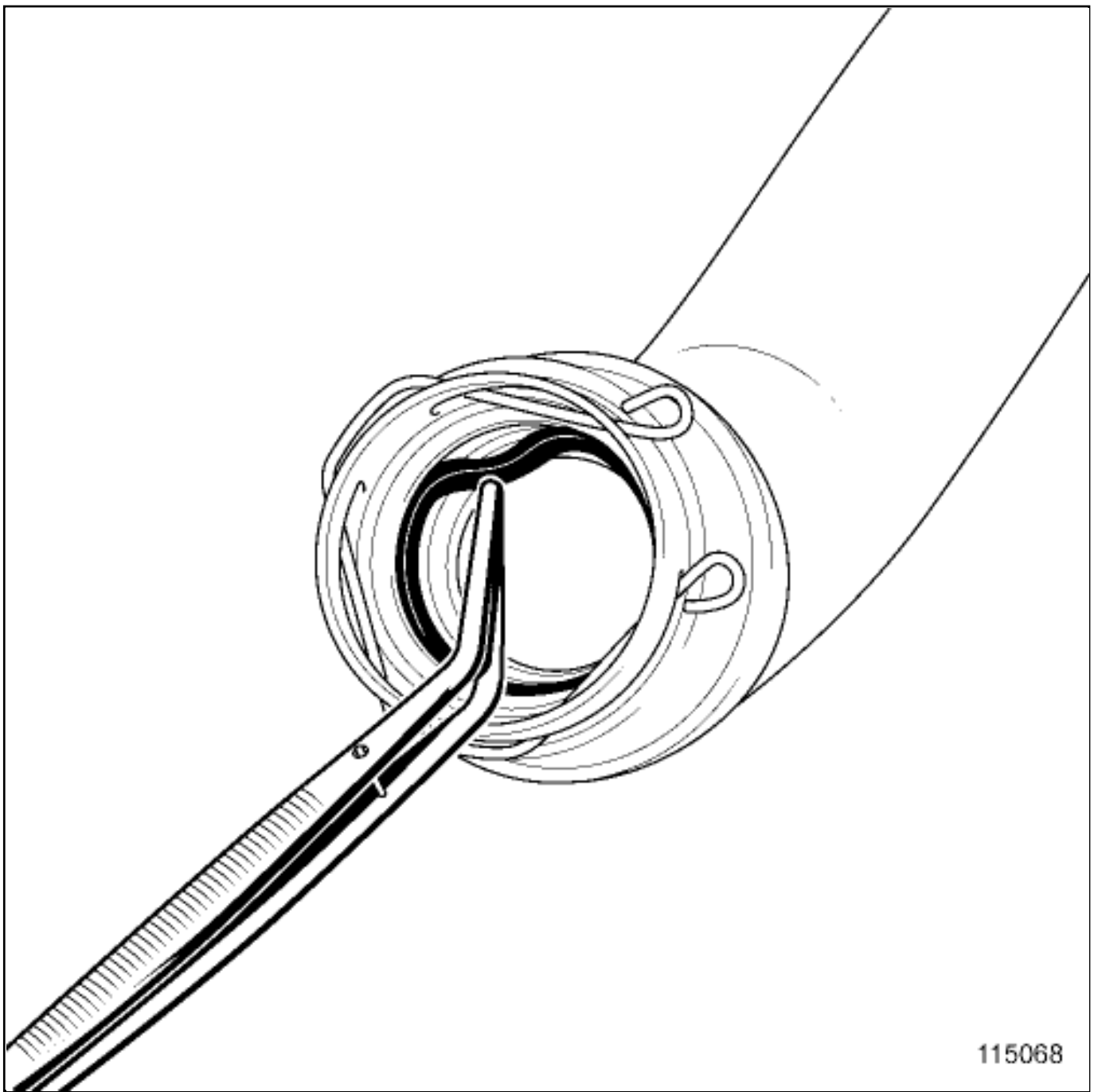


parts always to be replaced:

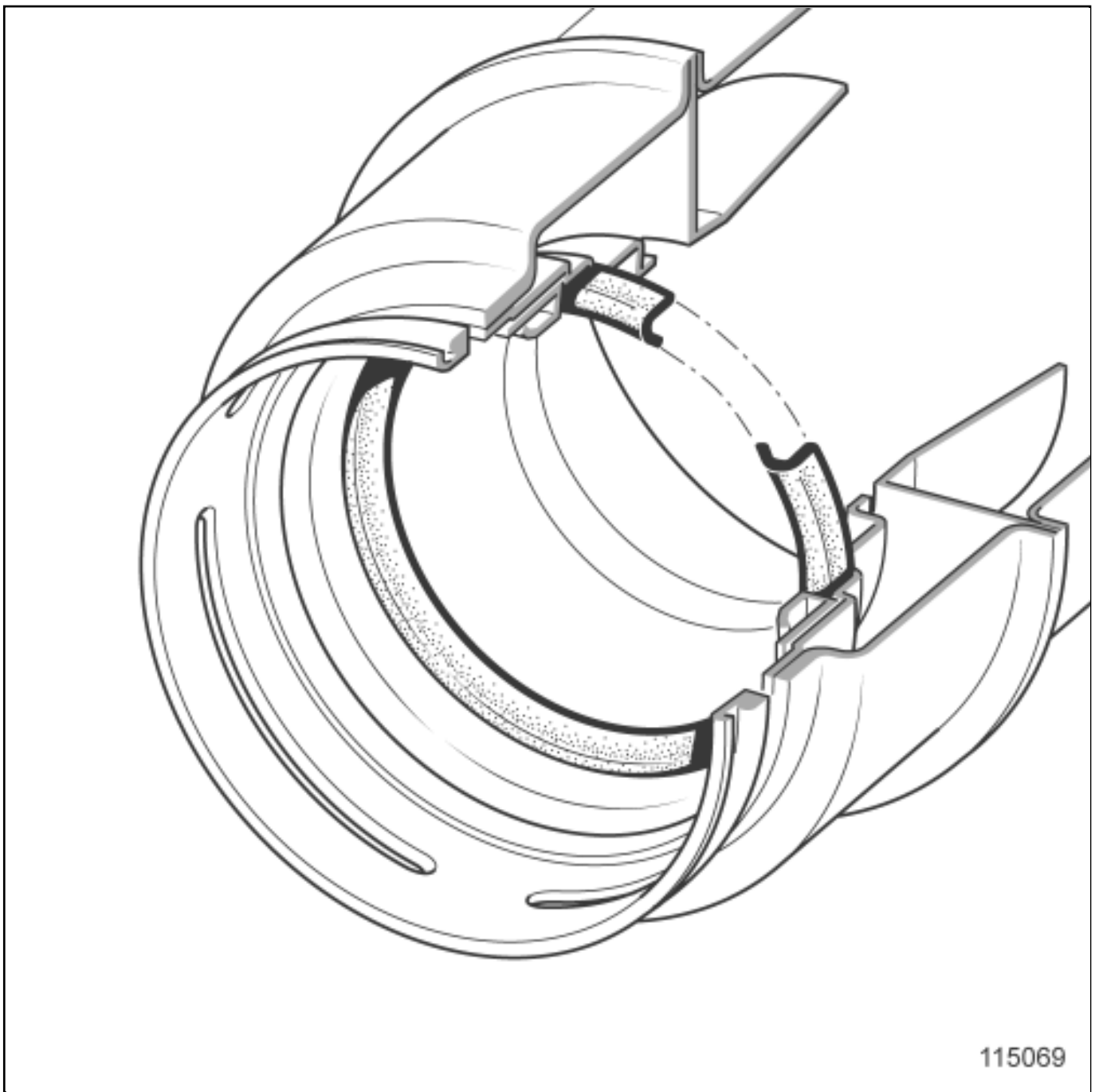
turbocharger air cooler air inlet pipe seal



If reusing the particle filter temperature sensor, coat the particle filter outlet temperature sensor threading with copper-anti seize grease [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



Remove the intercooler air inlet pipe seals using a tweezers.



Note:

Check that the intercooler air inlet pipe seal is fitted in the right direction.

Refit new seals on the intercooler air inlet pipe.



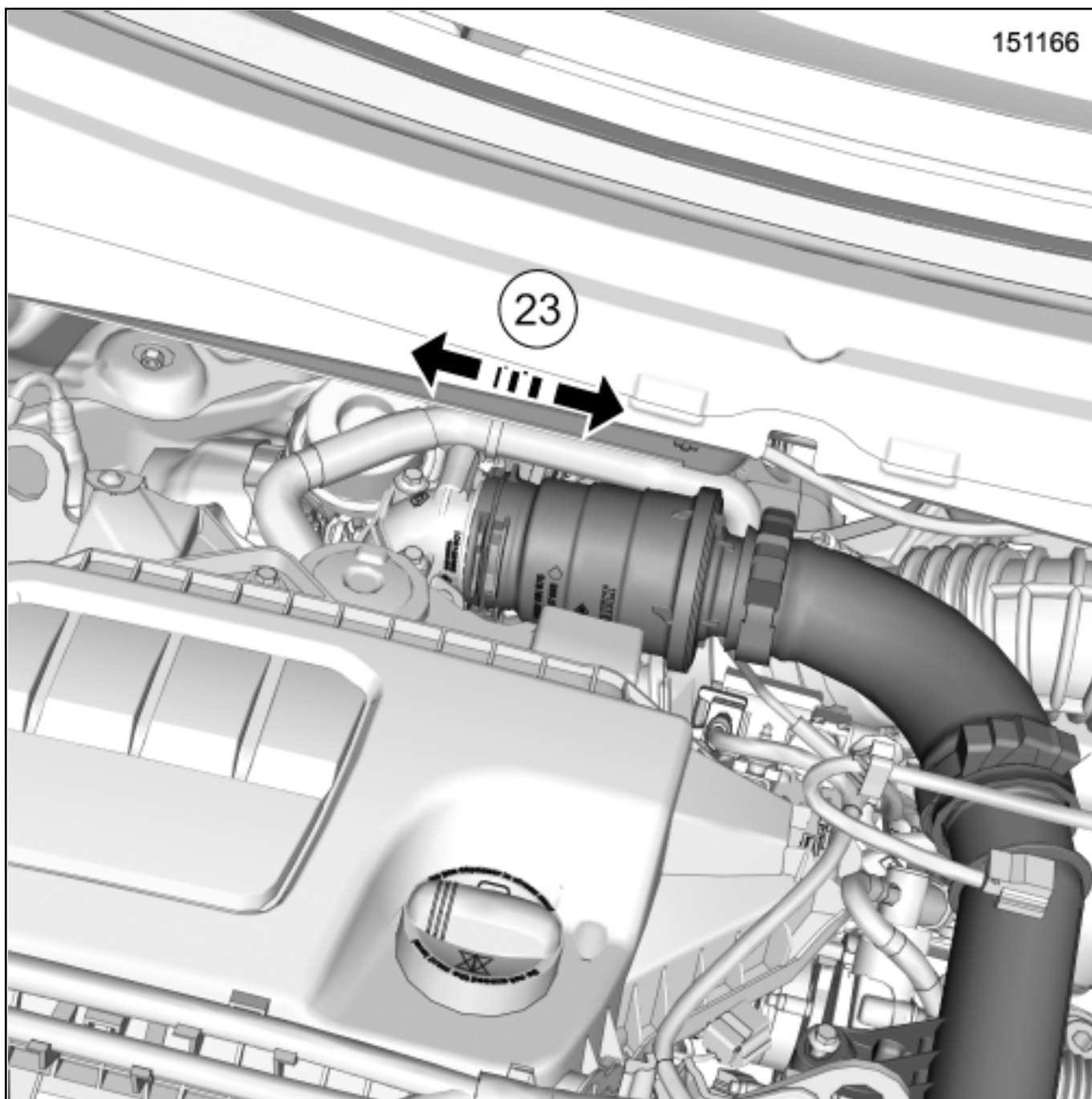
Refit the particle filter outlet temperature sensor using the toolSpanner for tightening the exhaust gas temperature sensor(Mot. 1807) and the tool4-40 N.m torque wrench with 1/4 drive ratchet end piece (Ms. 1973) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .



Proceed in the reverse order to removal.



Check that the plastic ring is positioned correctly on the turbocharger air inlet pipe.





Always carry out a "push - pull" test at(23) , to check that the intercooler air inlet pipe is correctly inserted.



Repair-10x08x04x02-01x37-1-44-1.xml



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PARTICLE FILTER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973

Equipment required

torque wrench

Diagnostic tool

open-ended spanner for torque wrench



parts always to be replaced:



[catalytic converter stud on the turbocharger \(if loosened\)](#)

[Catalytic converter nut](#)

[seal between catalytic converter and exhaust downpipe hose](#)

[exhaust downpipe hose stud on the catalytic converter \(if loosened\)](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view\)](#) .



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - [\(see 19B, Exhaust, Exhaust: Precautions for the repair\)](#) ,
 - [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



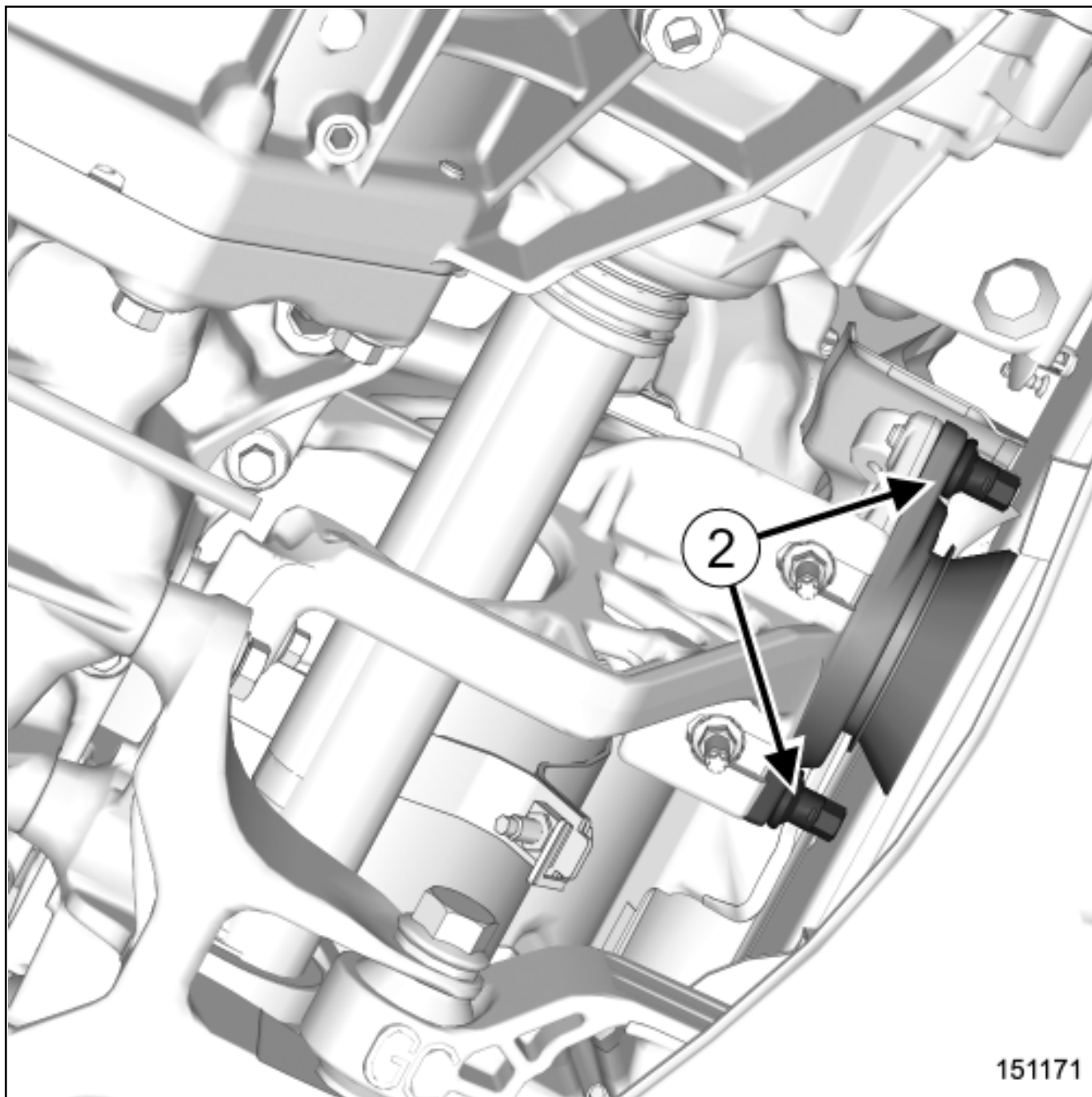
WARNING

- Wear cut-resistant gloves during the operation.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Remove the engine undertray.
- Remove the air filter unit air outlet pipe [Air inlet assembly: Exploded view](#) .
- Remove:
 - the bolts of the lower engine tie-bar mounting [Engine-gearbox unit support assembly: Exploded view](#) ,
 - the lower engine tie-bar mounting [Engine-gearbox unit support assembly: Exploded view](#) .
- Remove the front axle subframe [Front axle subframe: Removal - Refitting](#) .
- Remove:
 - the particle filter temperature sensors [\(see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view\)](#) ,
 - the particle filter pressure sensor support [\(see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view\)](#) ,
 - the exhaust gas pressure sensor upstream of the turbocharger [\(see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view\)](#) ,
 - the oxygen sensor [\(see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view\)](#) .



■ Remove the exhaust bracket nuts(2) .

■ Move the exhaust bracket.

■ Remove the exhaust bracket seal.

■ Remove [Exhaust gas recirculation circuit assembly: Exploded view](#) :

- the intercooler heat shield bolts,
- the heat shield on the intercooler,
- the exhaust gas cooler bolts from the particle filter,
- the seal between the particle filter and the exhaust gas cooler.

■ Pull down the heat shield of the elbow of the particle filter in face to face of the take-off pipe of the exhaust gas pressure sensor



Note:

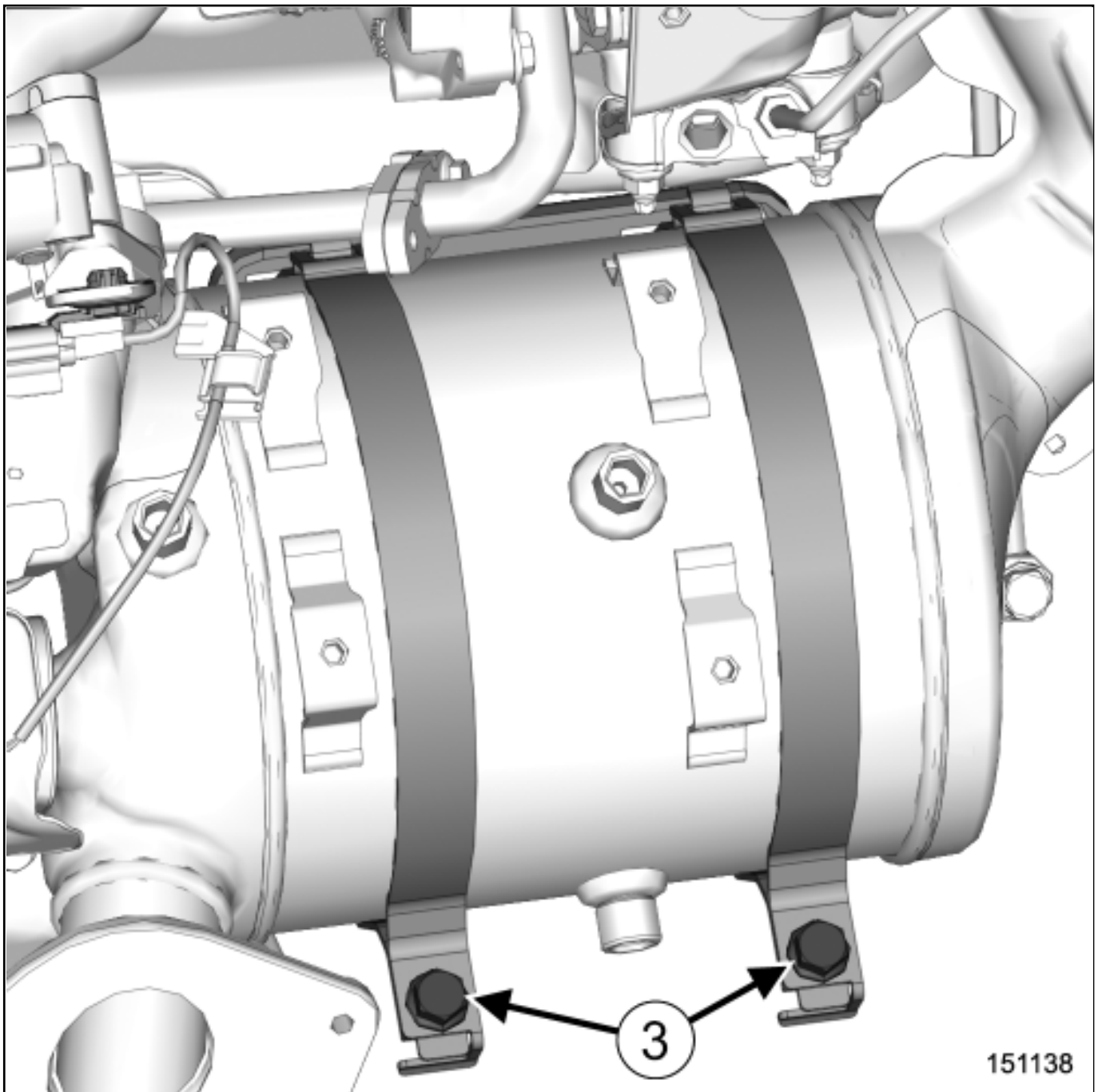
The flap of this part of the particle filter elbow heat shield is necessary to be able to manipulate it, without damaging the take-off pipe of the exhaust gas pressure sensor.

■ Remove ([see 19B. Exhaust. Exhaust assembly in engine compartment: Exploded view](#)) :

- the take-off points of the particle filter pressure sensor,
- the particle filter heat shield bolts,
- the particle filter heat shield,
- the particle filter strut nuts,
- the particle filter strut bolts,
- the particle filter strut,
- the nuts of the particle filter from the turbocharger,
-

the particle filter washers.

2. REMOVAL OPERATION



Remove:

-
- the bolts(3) of the particle filter straps,
- the upper straps,
- the lower straps.

Note:



Remove the particle filter from bellow of the vehicle, without forcing on the take-off pipe of the exhaust gas pressure sensor upstream of the turbocharger.

Remove ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) :

-
- the turbocharger heat shield bolt,
-
- the turbocharger heat shield.

REFITTING

1. REFITTING PREPARATION OPERATION

parts always to be replaced:  [catalytic converter stud on the turbocharger \(if loosened\)](#)  .

parts always to be replaced:  [Catalytic converter nut](#)  .

parts always to be replaced:  [seal between catalytic converter and exhaust downpipe hose](#)  .



parts always to be replaced:

exhaust downpipe hose stud on the catalytic converter (if



loosened)



Always replace:

-
- the exhaust bracket nuts,
- the turbocharger heat shield,
- the seal between the particle filter and the exhaust gas cooler.



Use surface cleaner Vehicle: Parts and consumables for the repair (04B, Consumables - Products) to clean and degrease:

-
- the turbocharger,
- the particle filter if it is being reused,
- the exhaust gas cooler.

2. REFITTING OPERATION



Refit (see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view):

-
- a new turbocharger heat shield,
- a new seal between the particle filter and the exhaust gas cooler,
- the particle filter on the turbocharger.



Note:

The flap of this part of the particle filter elbow heat shield is necessary to be able to manipulate it, without damaging the take-off pipe of the exhaust gas pressure sensor.

Attach:

-
- the lower straps,
- the upper straps.

Lock the straps.

Fit the particle filter strut([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) .

Fit without tightening([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) :

-
- the particle filter strut nuts,
- the particle filter strut bolts,

Refit ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) :

-
- the particle filter washers,
- a new nuts of the particle filter on the turbocharger.

Torque tighten using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece([Ms. 1973](#)) ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)) :

-
- the nuts of the particle filter on the turbocharger,

- the bolts of the particle filter straps,
- the upper particle filter strut bolts,
- the lower particle filter strut bolts,
- the particle filter strut nuts.

Proceed in the reverse order to removal.

Torque tighten the take-off points of the particle filter pressure sensor using the torque wrench and open-ended spanner for torque wrench ([see 19B, Exhaust, Exhaust assembly in engine compartment: Exploded view](#)).

Proceed in the reverse order to removal.

Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :
-Computer concerned by the After repair procedure:

"Particle filter" .



Repair-10x08x04-01x37-1-46-1.xml



XSL version : 3.02 du 22/07/11

PASSENGER COMPARTMENT COOLING ASSEMBLY: EXPLODED VIEW

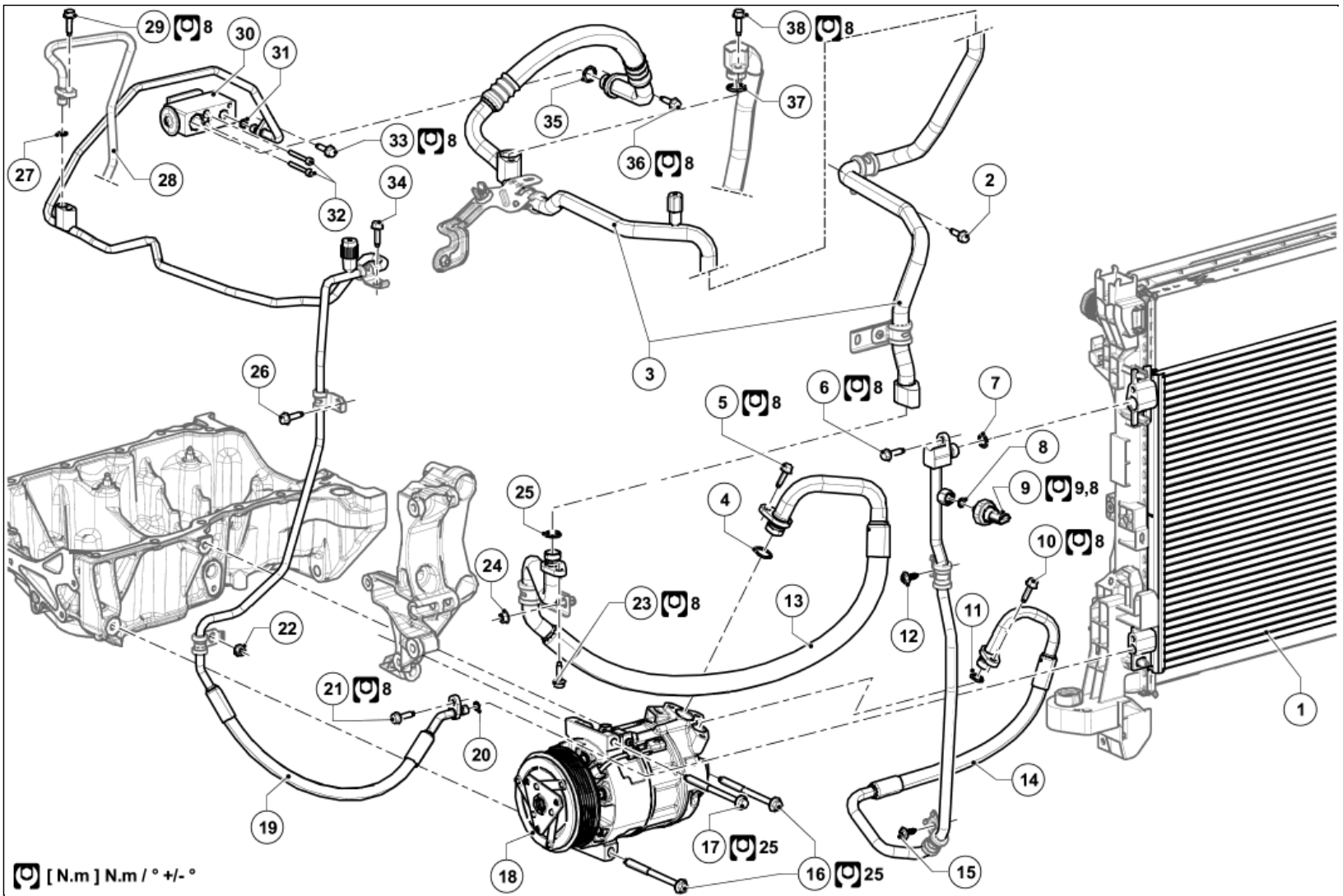


Illustration key: [Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Condenser	(see 62A, Air conditioning, Condenser: Removal - Refitting)
2	Bolt	
3	Expansion valve - intermediate pipe connecting pipe at the expansion valve outlet	(see 62A, Air conditioning, Expansion valve - intermediate pipe connecting pipe at the expansion valve outlet: Removal - Refitting)
4	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
5	Bolt	
6	Bolt	
7	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
8	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
9	Pressure sensor	(see Pressure sensor: Removal - Refitting)
10	Bolt	
11	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
12	Bolt	
13	Intermediate pipe - compressor connecting pipe	(see 62A, Air conditioning, Compressor - intermediate pipe connecting pipe: Removal - Refitting)
14	Condenser - compressor connecting pipe	(see 62A, Air conditioning, Compressor - condenser connecting pipe: Removal - Refitting)
15	Bolt	
16	Bolt	
17	Bolt	
18	Compressor	(see 62A, Air conditioning, Compressor: Removal - Refitting)
19	Condenser - expansion valve connecting pipe	(see 62A, Air conditioning, Condenser - expansion valve connecting pipe: Removal - Refitting)
20	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
21	Bolt	
22	Bolt	
23	Bolt	
24	Bolt	
25	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
26	Bolt	

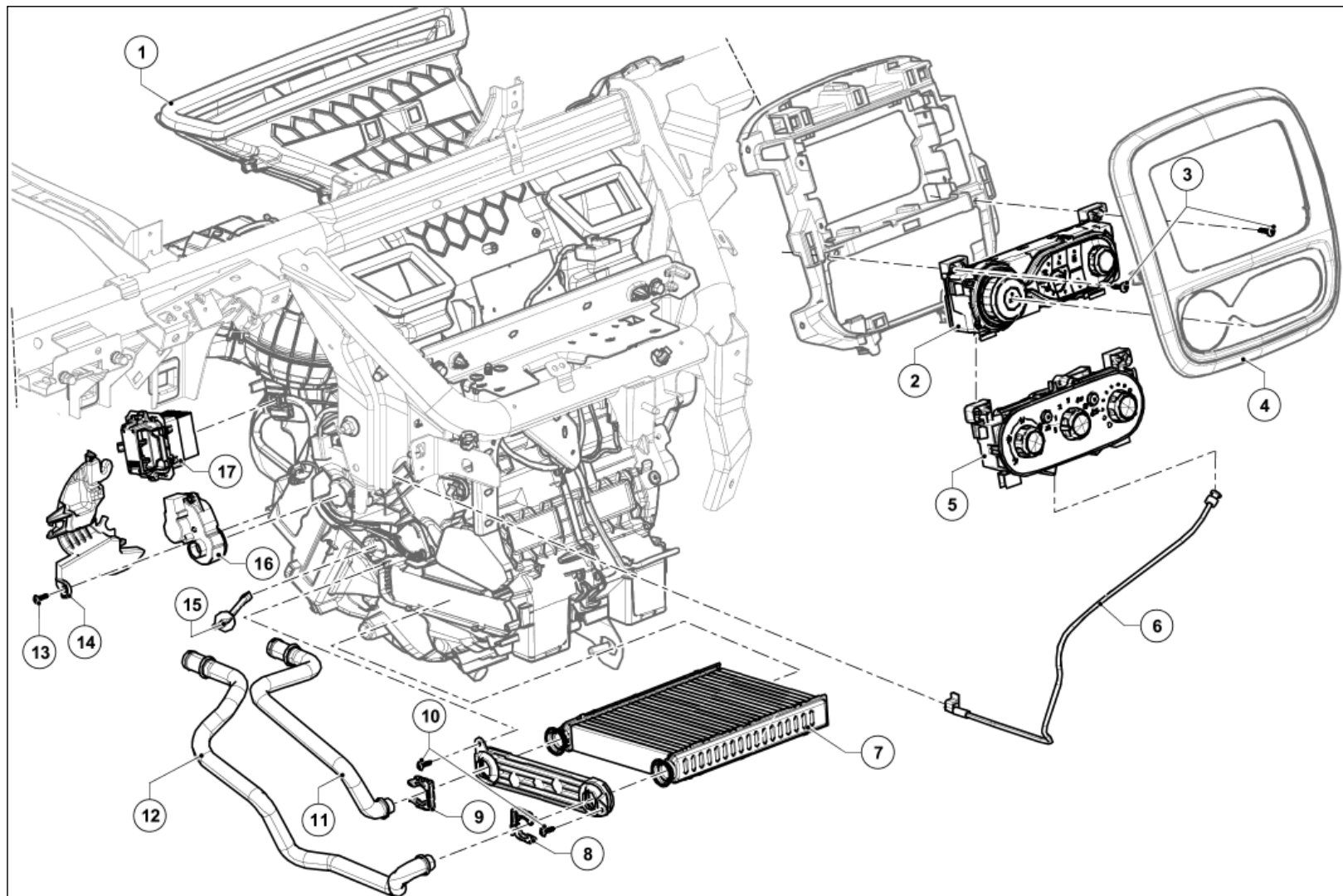
27	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
28	Rear intermediate - expansion valve pipe connecting pipe	Refrigerant circuit pipe: Removal - Refitting
29	Bolt	
30	Expansion valve	(see 62A, Air conditioning, Expansion valve: Removal - Refitting)
31	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
32	Bolt	
33	Bolt	
34	Bolt	
35	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
36	Bolt	
37	Refrigerant pipe seal	(see 62A, Air conditioning, Refrigerant pipe seal: Removal - Refitting)
38	Bolt	



Repair-30x02x02-02x50-1-8-1.xml



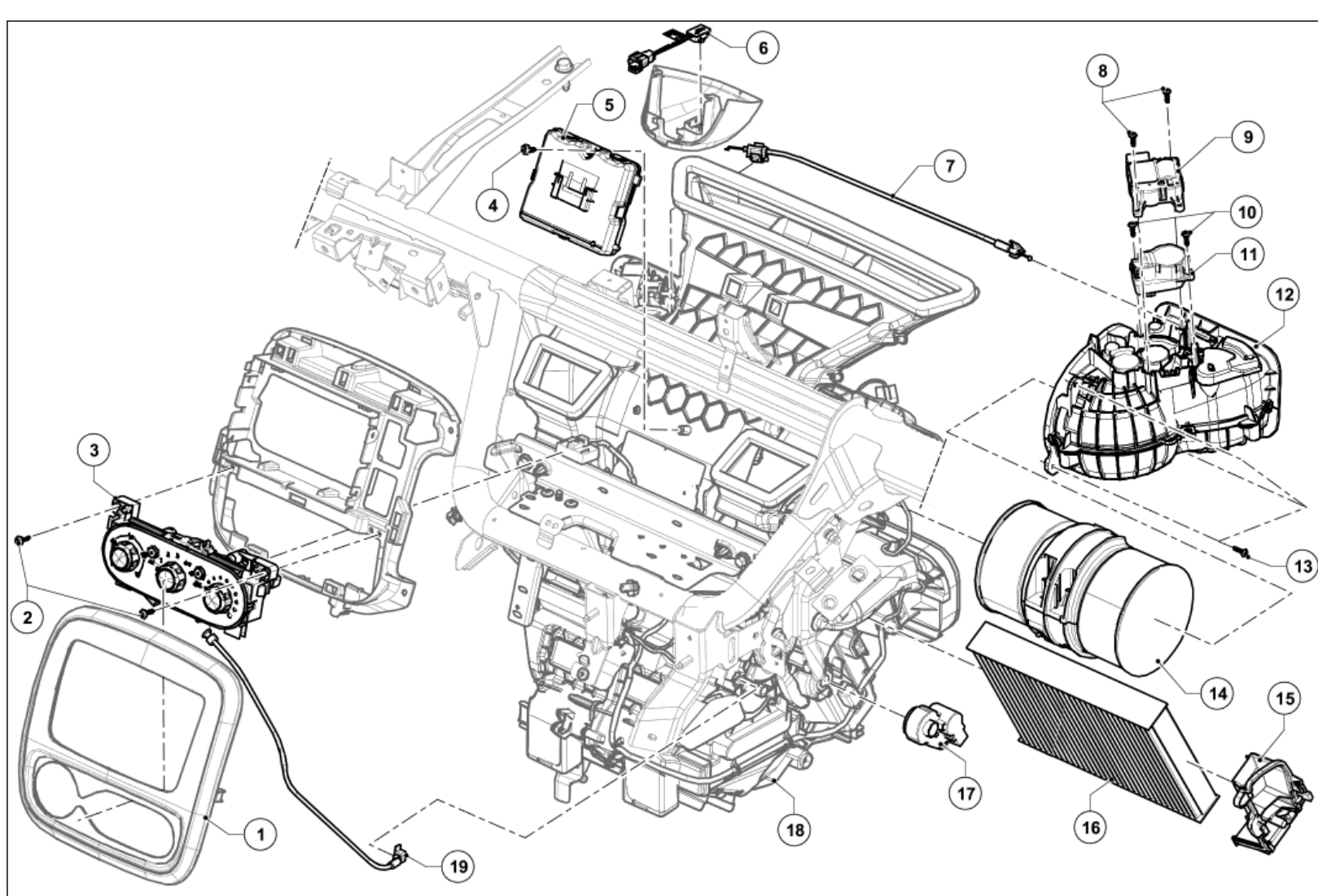
PASSENGERCOMPARTMENTHEATINGANDVENTILATIONASSEMBLY:EXPLODEDVIEW



[Illustration key: Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

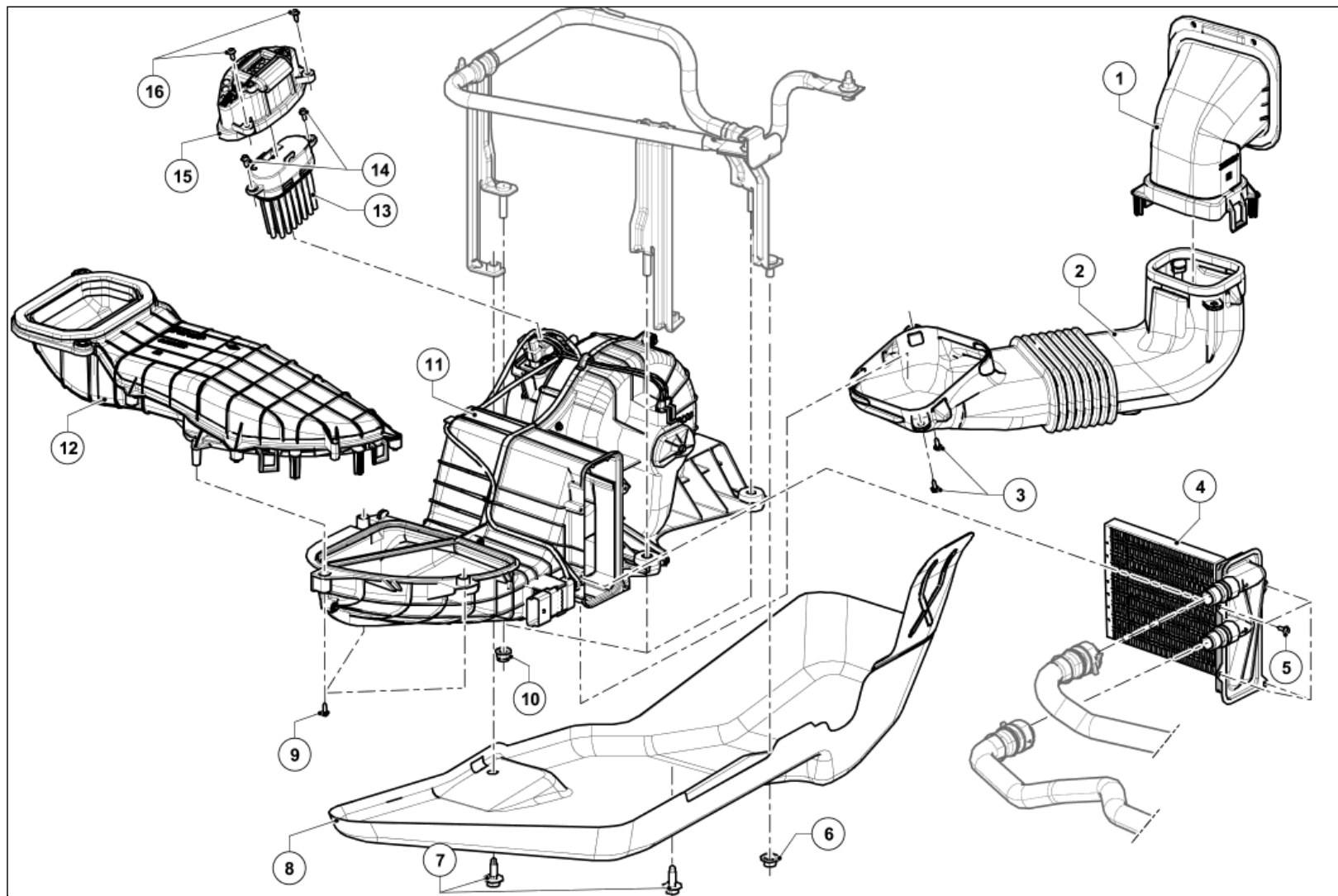
Marks	Designations	Informations
1	Distribution unit	(see 61A, Heating, Distribution unit: Removal - Refitting)
2	Control panel	(see 61A, Heating, Control panel: Removal - Refitting)
3	Bolt	
4	Center front panel trim	
5	Control panel	(see 61A, Heating, Control panel: Removal - Refitting)
6	Air mixing cable	(see 61A, Heating, Air mixing cable: Removal - Refitting)
7	Heater matrix	(see 61A, Heating, Heater matrix: Removal - Refitting)
8	Clip	
9	Clip	
10	Bolt	
11	Heater matrix pipe	
12	Heater matrix pipe	
13	Bolt	
14	Bracket	
15	Evaporator sensor	Evaporator sensor: Removal - Refitting
16	Mixer motor	(see 61A, Heating, Mixing motor: Removal - Refitting)
17	Modulate variation of speed of fan assembly for passenger compartment	(see Traction battery air conditioning fan assembly speed variation : Removal - Refitting)



[Illustration key: Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Center front panel trim	
2	Bolt	
3	Control panel	(see 61A, Heating, Control panel: Removal - Refitting)
4	Bolt	
5	Air conditioning computer	Air conditioning computer: Removal - Refitting
6	Passenger compartment temperature sensor	(see 61A, Heating, Passenger compartment temperature sensor: Removal - Refitting)
7	Recirculation control cable: Removal - Refitting	(see 61A, Heating, Recirculation control cable: Removal - Refitting)
8	Bolt	
9	Recirculation motor	(see 61A, Heating, Recirculation motor: Removal - Refitting)
10	Bolt	
11	Recirculation motor	(see 61A, Heating, Recirculation motor: Removal - Refitting)
12	Front air inlet duct	
13	Bolt	
14	Fan assembly	(see 61A, Heating, Fan assembly: Removal - Refitting)
15	Cabin filter access flap	
16	Cabin filter	(see 61A, Heating, Cabin filter: Removal - Refitting)
17	Distribution motor	(see 61A, Heating, Distribution motor: Removal - Refitting)
18	Distribution unit	(see 61A, Heating, Distribution unit: Removal - Refitting)
19	Air distribution cable	(see 61A, Heating, Air distribution cable: Removal - Refitting)



[Illustration key: Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Heating duct	Heating duct: Removal - Refitting
2	Heating duct	Heating duct: Removal - Refitting
3	Bolt	
4	Rear heater matrix	(see 61A, Heating, Rear heater matrix: Removal - Refitting)
5	Bolt	
6	Bolt	
7	Bolt	
8	Protective hood	
9	Bolt	
10	Bolt	
11	Additional distribution unit	
12	Heating duct	Heating duct: Removal - Refitting
13	Rear passenger compartment fan assembly control unit	(see 61A, Heating, Rear passenger compartment fan assembly control unit: Removal - Refitting)
14	Bolt	
15	Protective hood	
16	Bolt	



Repair-30x02x07-02x50-1-9-1.xml



PASSENGER COMPARTMENT SWITCHES : LIST AND LOCATION OF COMPONENTS

1. LIST OF COMPONENTS

1- THE PASSENGER COMPARTMENT SWITCHES CONSIST OF:

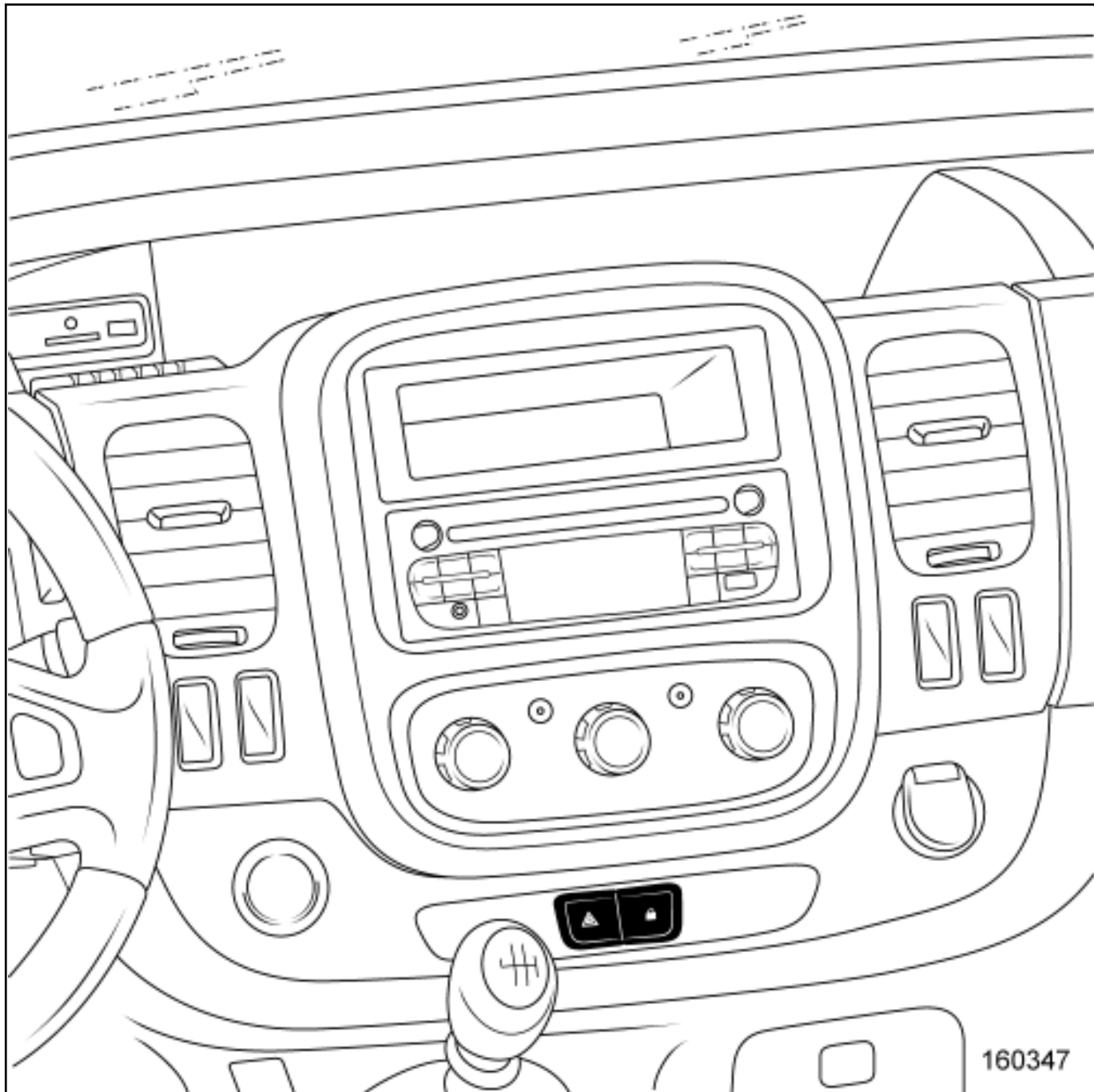
- a central door locking and hazard warning lights control
 - a remote headlight beam adjustment control and lighting dimmer
 - an electric window switches on driver's door
 - an exterior rear view mirror control switch
 - an electric window switch on passenger door
 - a fast idle speed switch
 - an ESP inhibitor switch
 - an "ECO mode" switch
-
- a heated rear screen switch

WITHSTOPANDSTART(STOSTA)

- a "Stop and start" system activation control

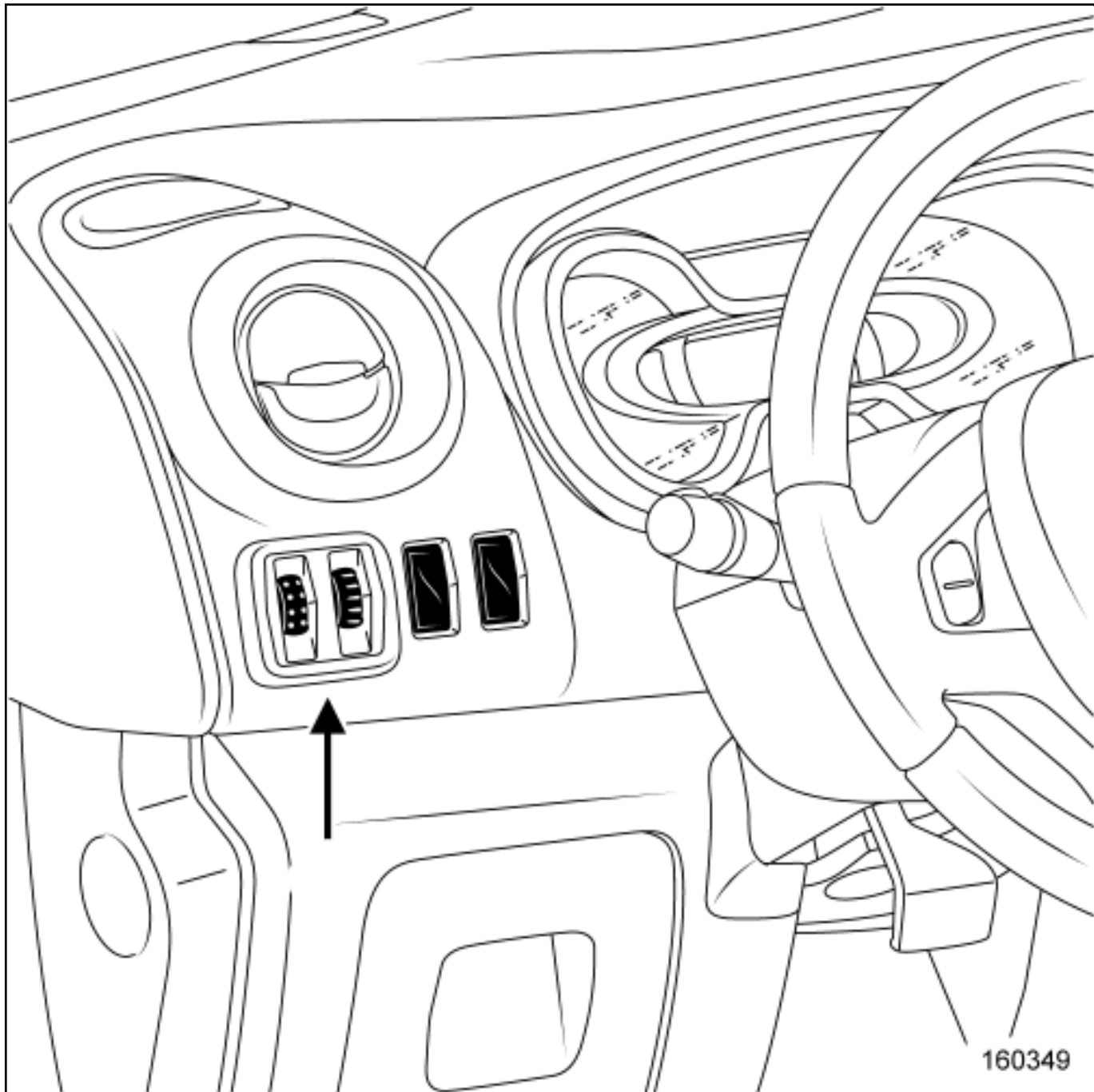
2. LOCATION OF COMPONENTS

CENTRAL DOOR LOCKING AND HAZARD WARNING LIGHTS CONTROL



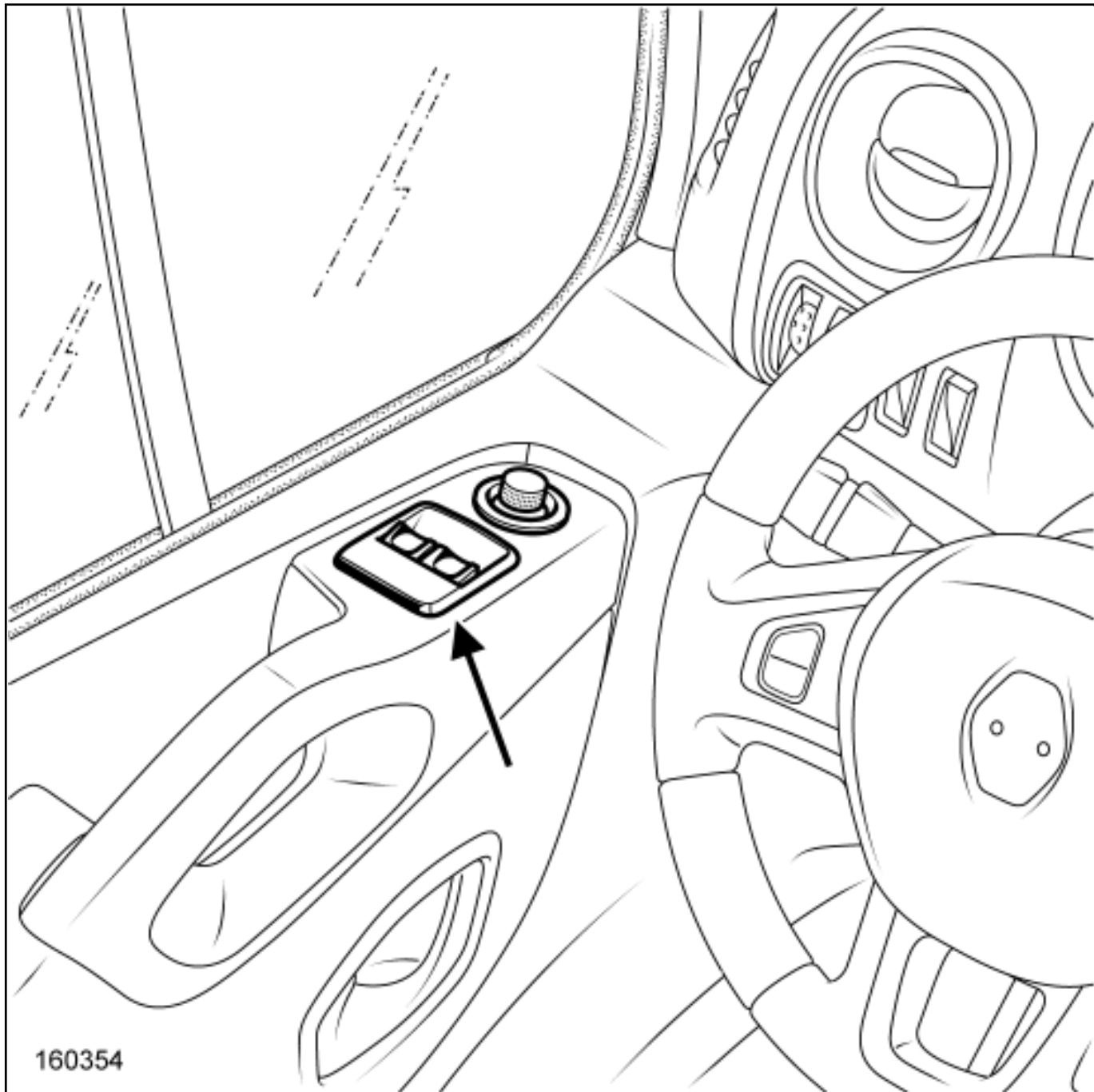
160347

REMOTE HEADLIGHT BEAM ADJUSTMENT CONTROL AND LIGHTING DIMMER



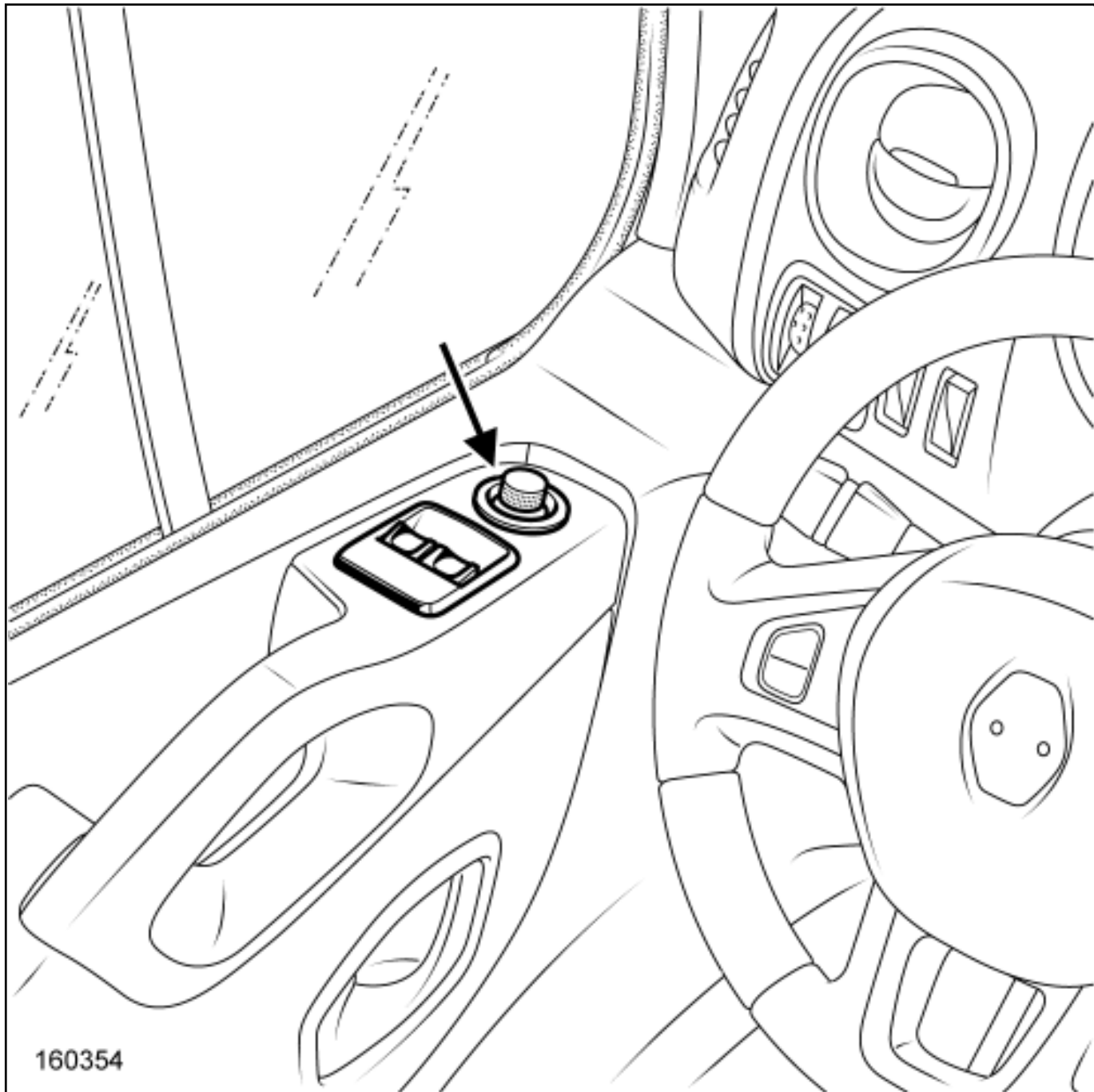
160349

ELECTRIC WINDOW SWITCHES ON DRIVER'S DOOR



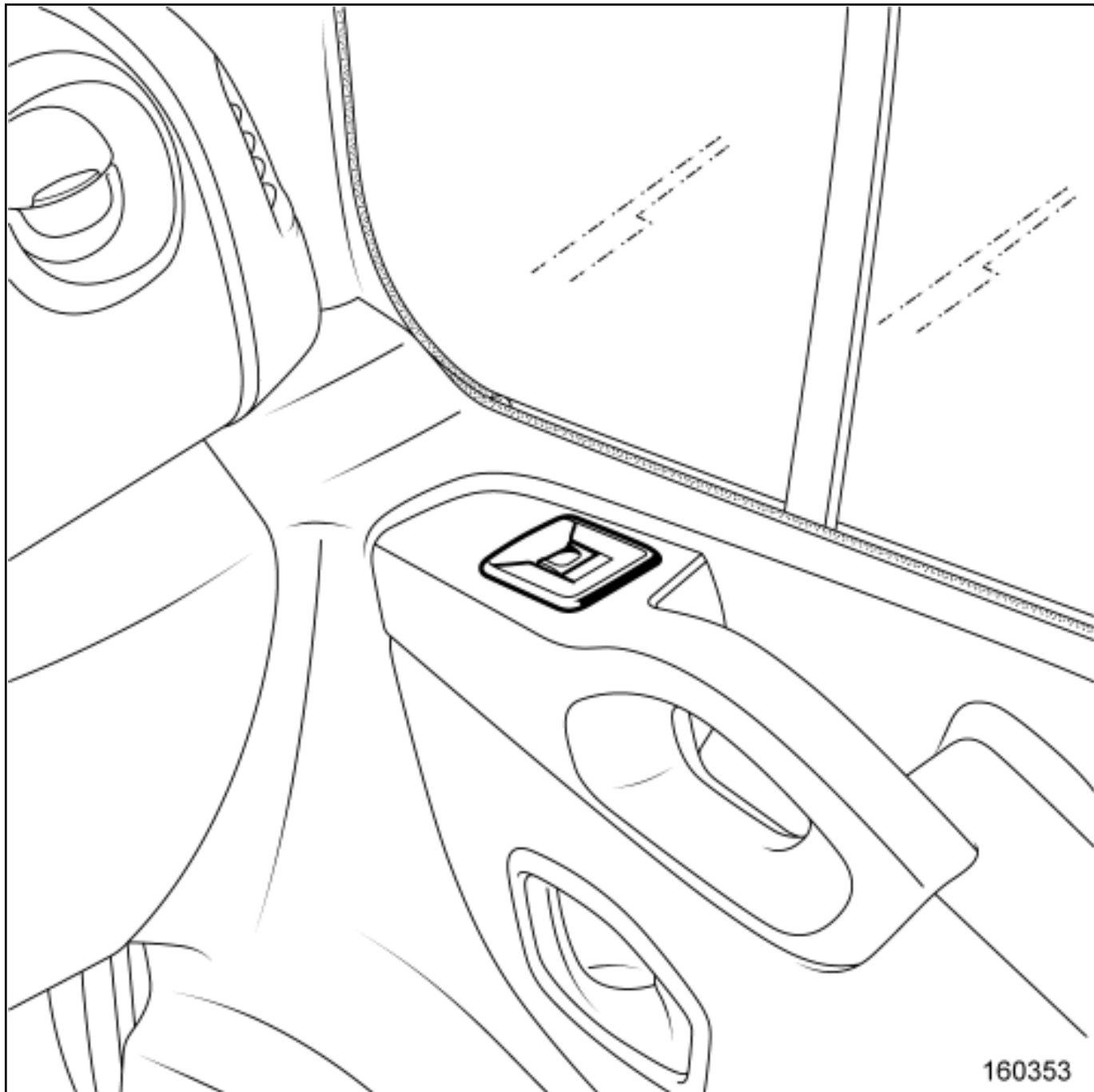
160354

EXTERIOR REAR VIEW MIRROR CONTROL SWITCH



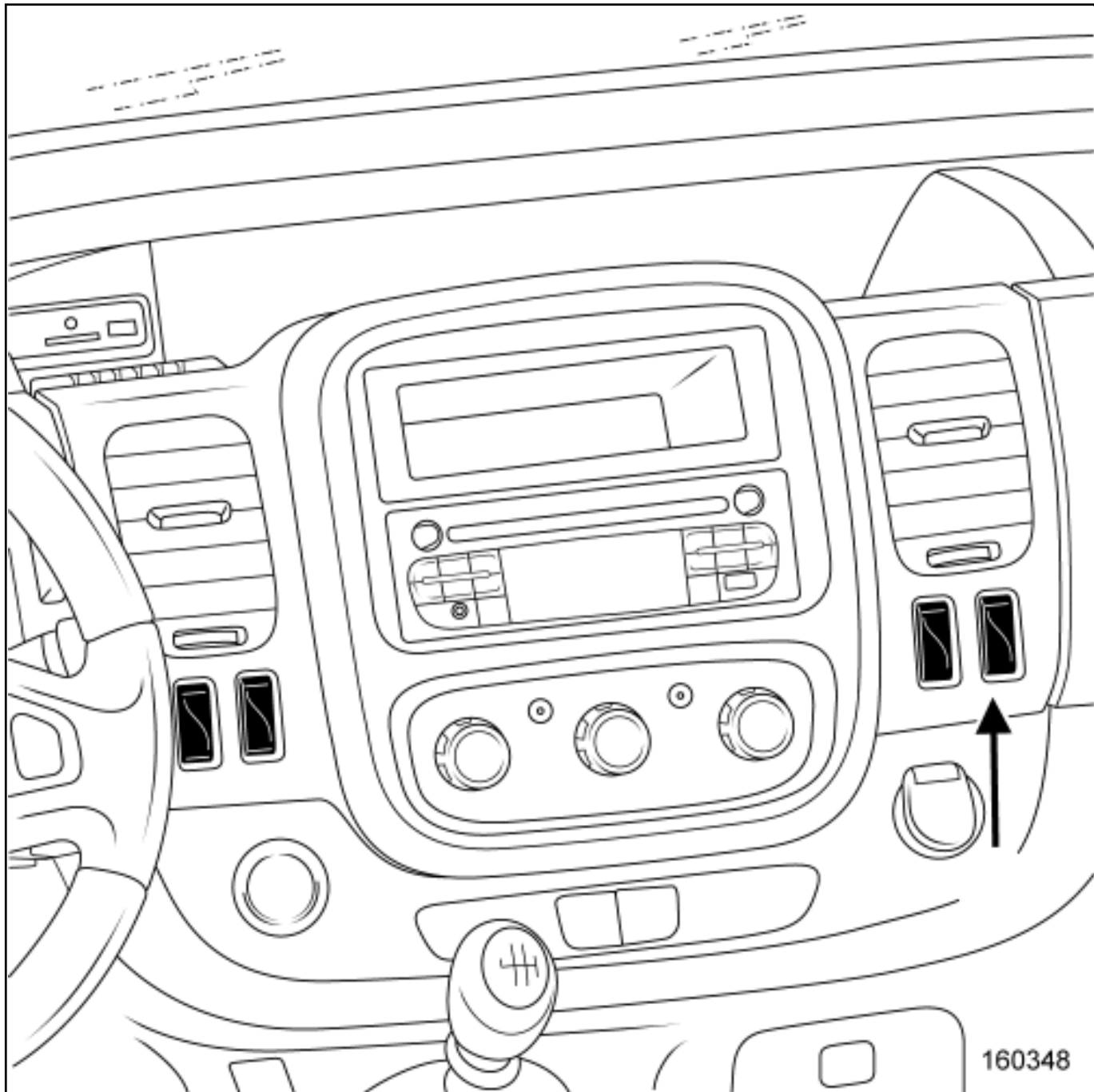
160354

ELECTRIC WINDOW SWITCH ON PASSENGER DOOR



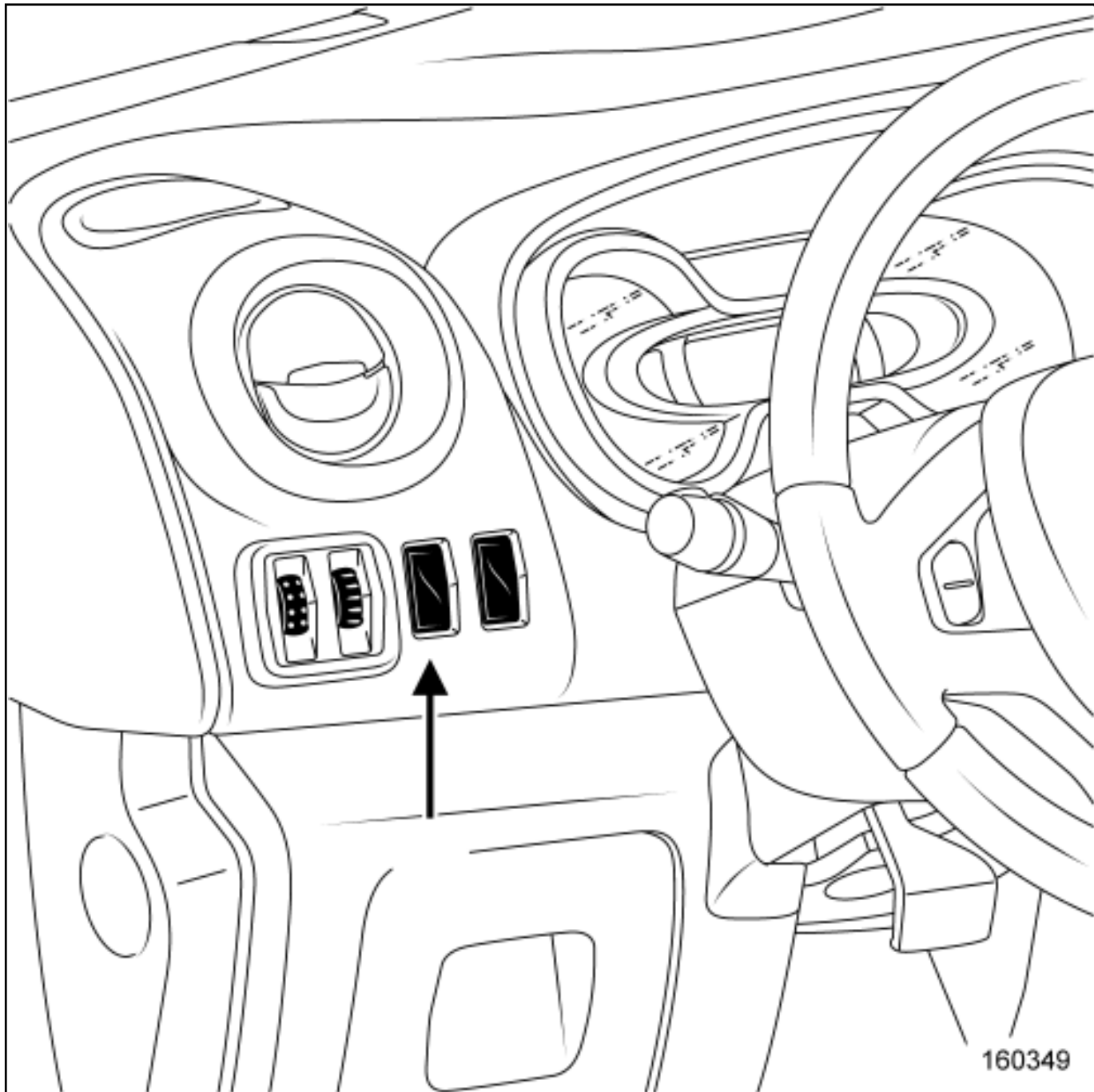
160353

FAST IDLE SPEED SWITCH

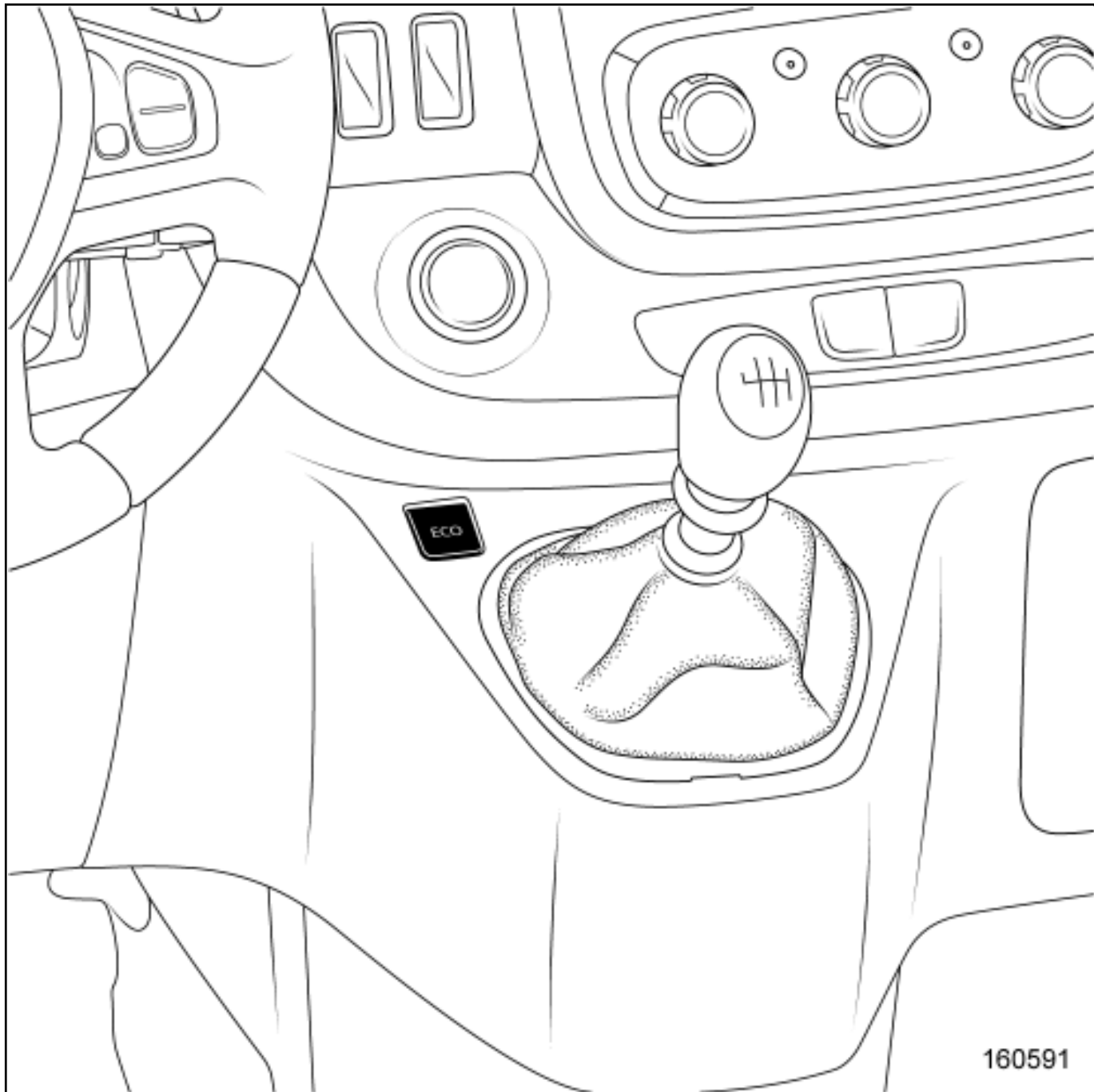


160348

ESP INHIBITOR SWITCH

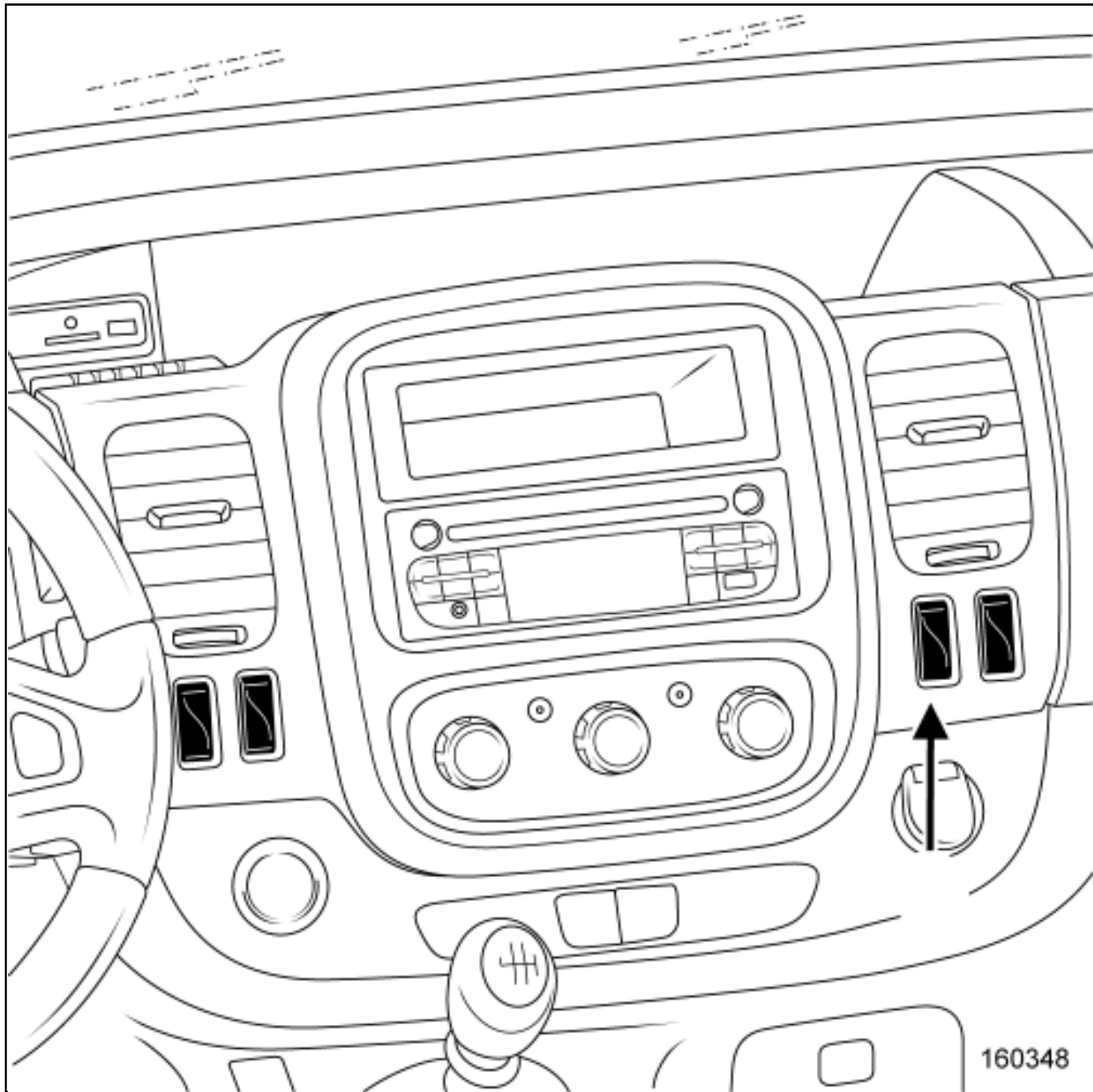


"ECO MODE" SWITCH



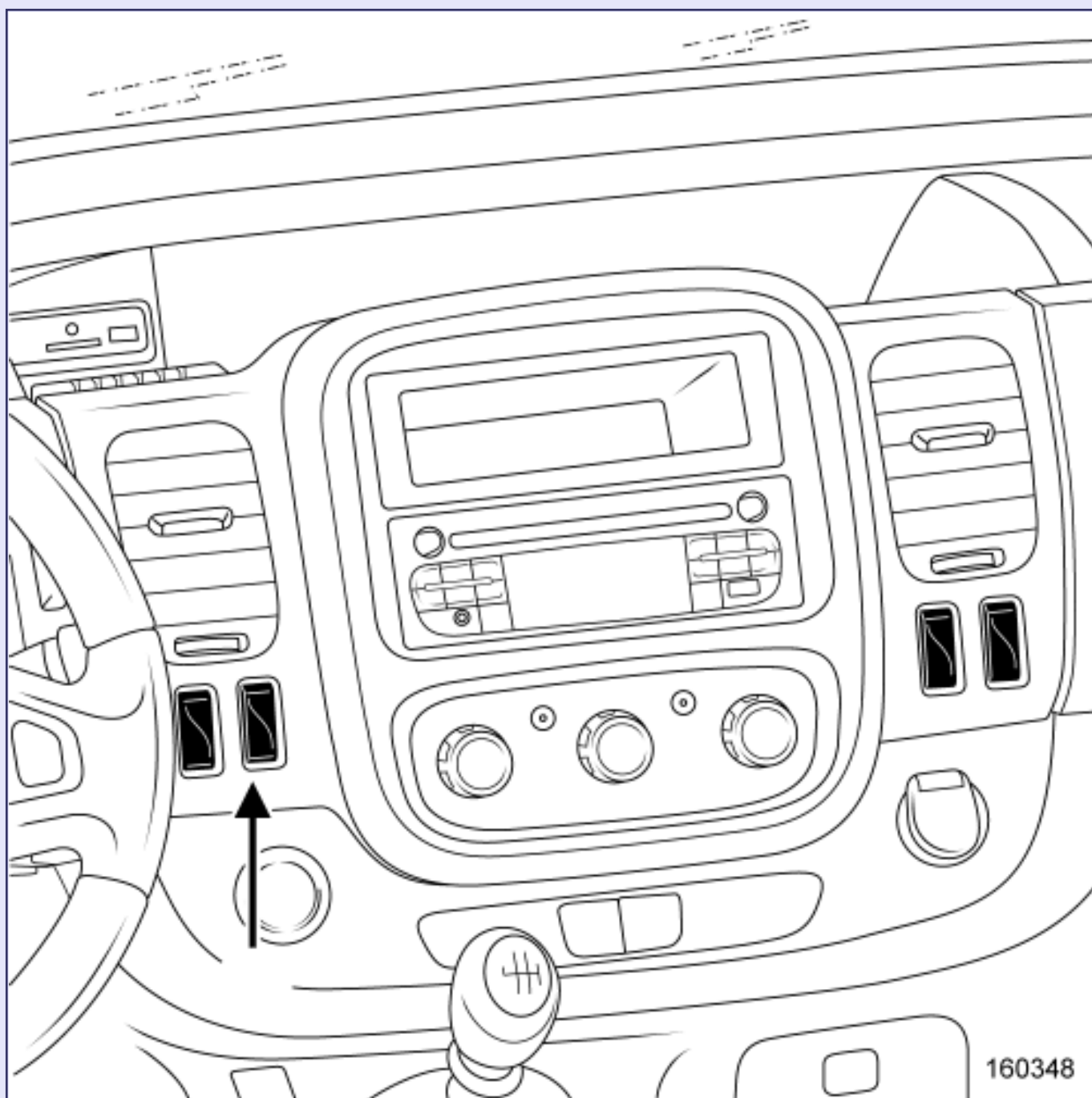
160591

HEATED REAR SCREEN SWITCH



160348

WITH STOP AND START(STOSTA)"STOP AND START" SYSTEM ACTIVATION CONTROL



Repair-30x04x03-02x51-1-3-1.xml



PASSENGER COMPARTMENT SWITCHES : LIST AND LOCATION OF COMPONENTS

1. LIST OF COMPONENTS

1- THE PASSENGER COMPARTMENT SWITCHES CONSIST OF:

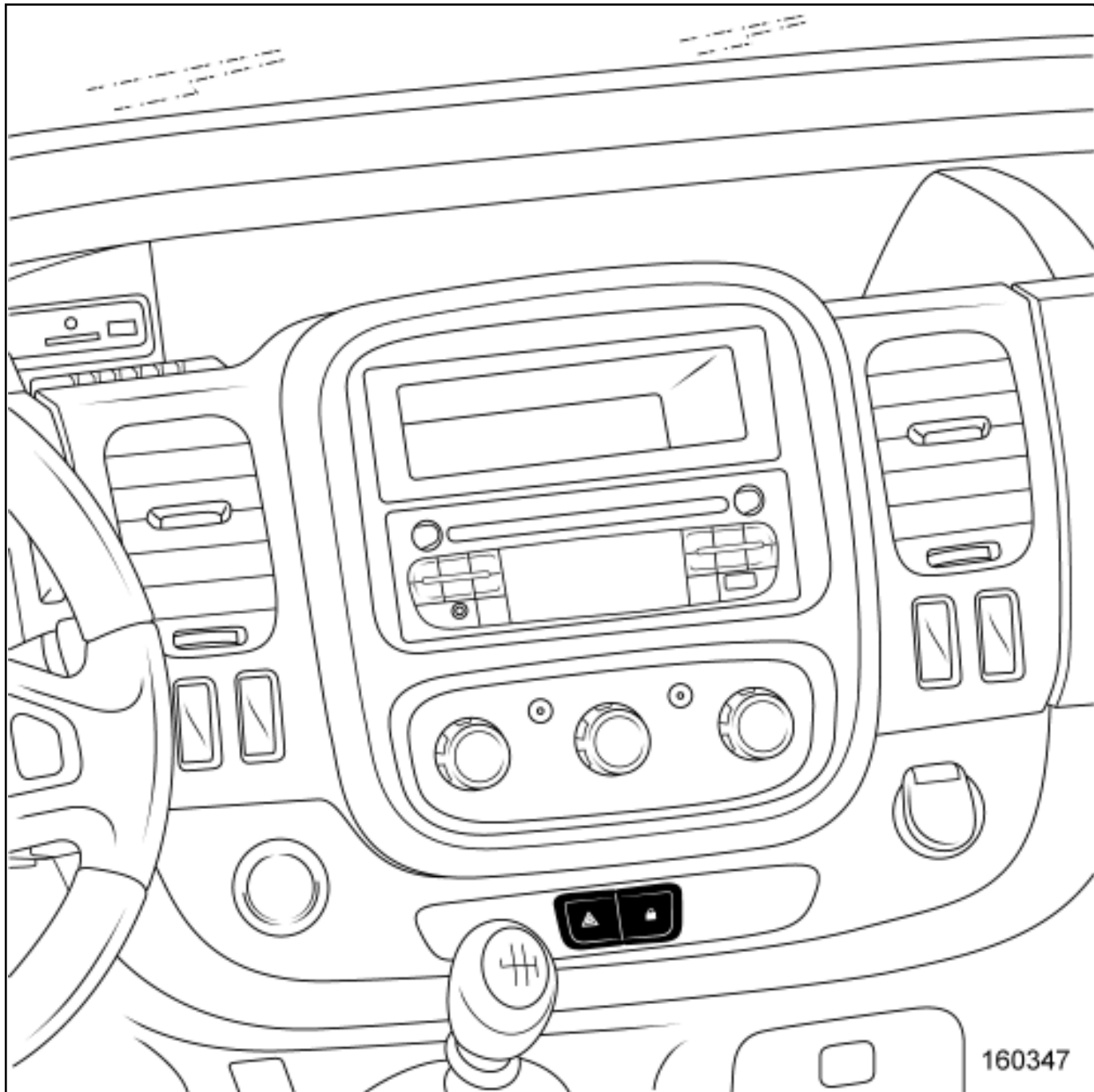
- a central door locking and hazard warning lights control
 - a remote headlight beam adjustment control and lighting dimmer
 - an electric window switches on driver's door
 - an exterior rear view mirror control switch
 - an electric window switch on passenger door
 - a fast idle speed switch
 - an ESP inhibitor switch
 - an "ECO mode" switch
-
- a heated rear screen switch

WITH STOP AND START (STOSTA)

- a "Stop and start" system activation control

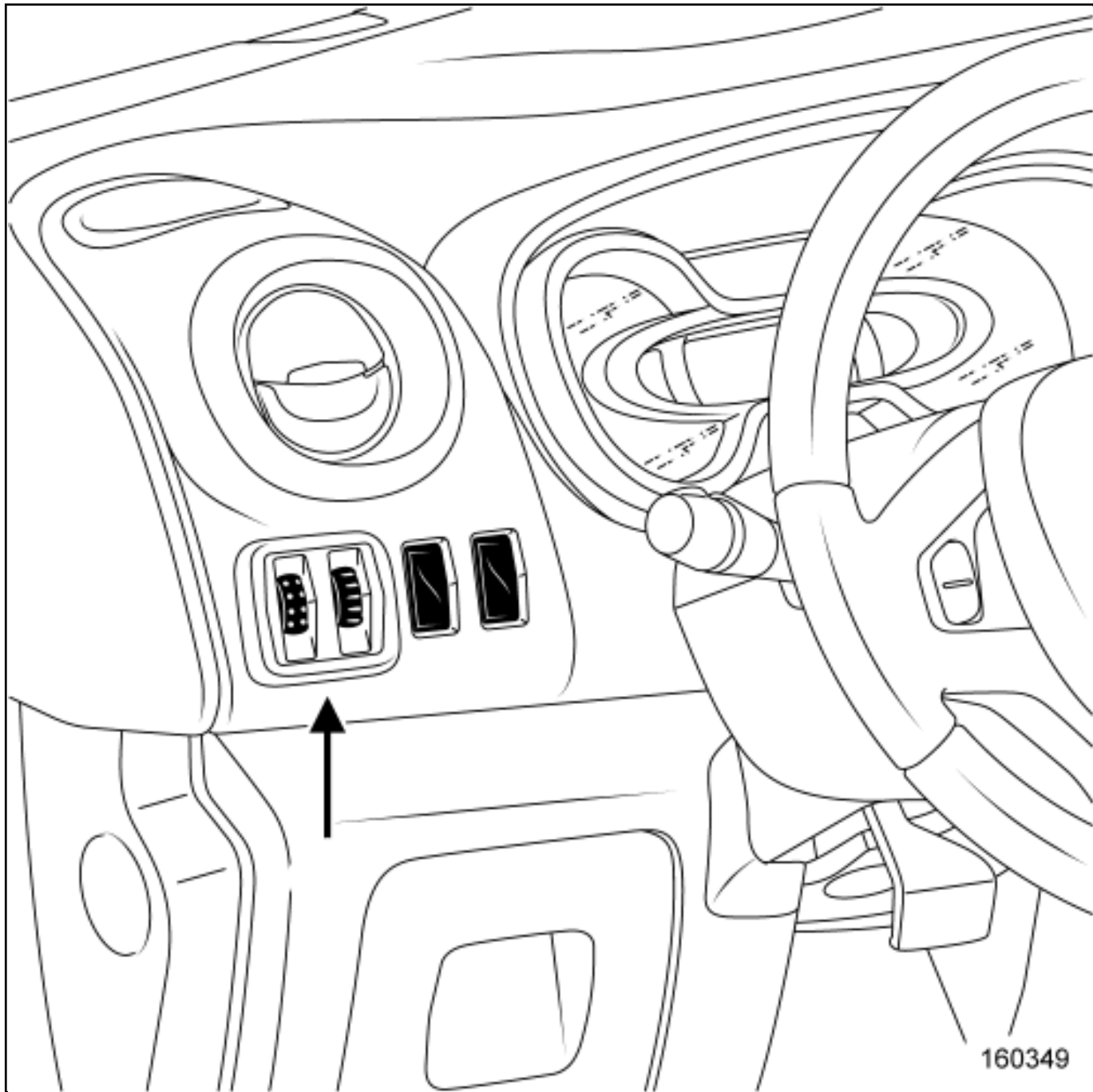
2. LOCATION OF COMPONENTS

CENTRAL DOOR LOCKING AND HAZARD WARNING LIGHTS CONTROL



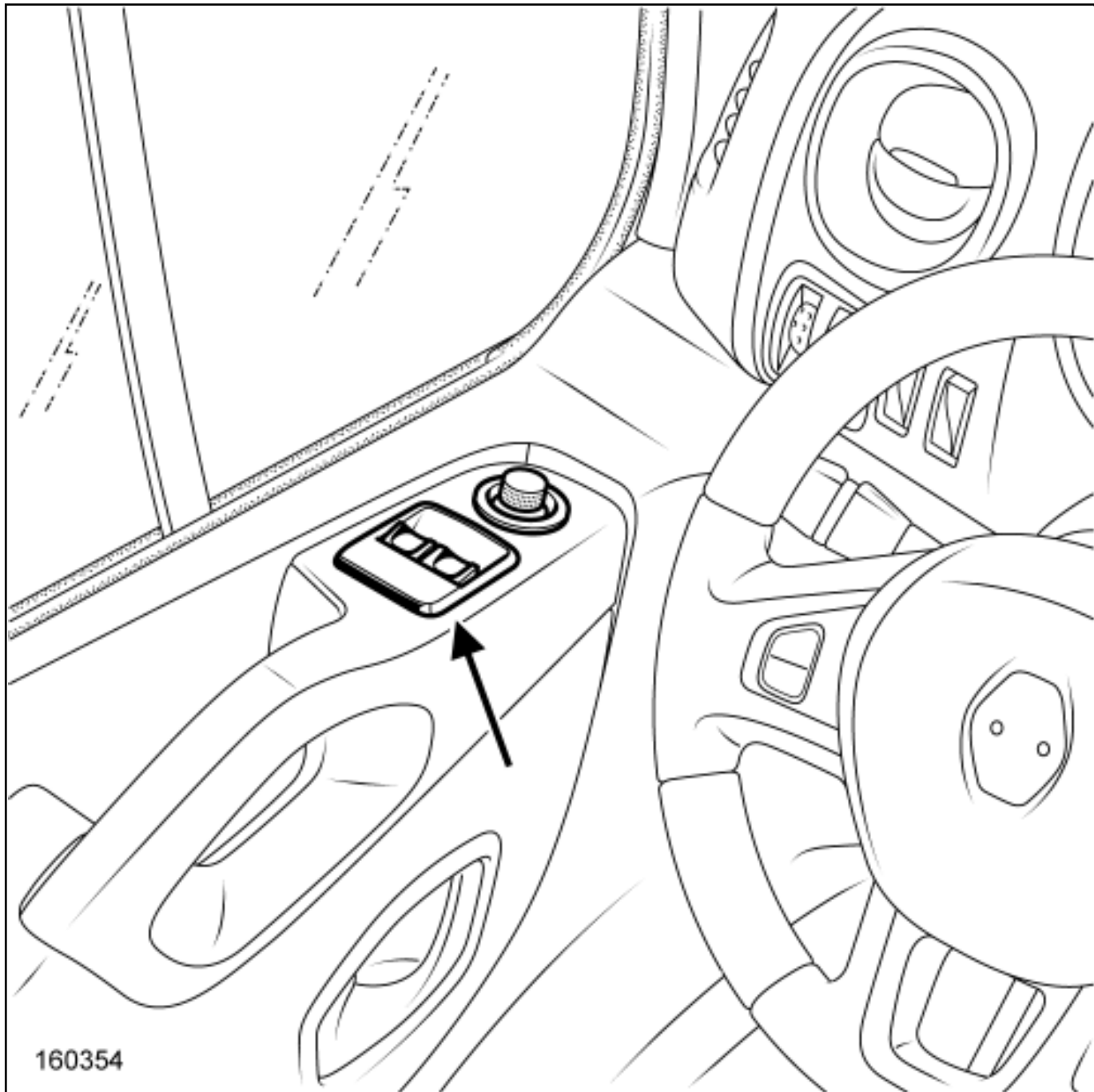
160347

REMOTE HEADLIGHT BEAM ADJUSTMENT CONTROL AND LIGHTING DIMMER



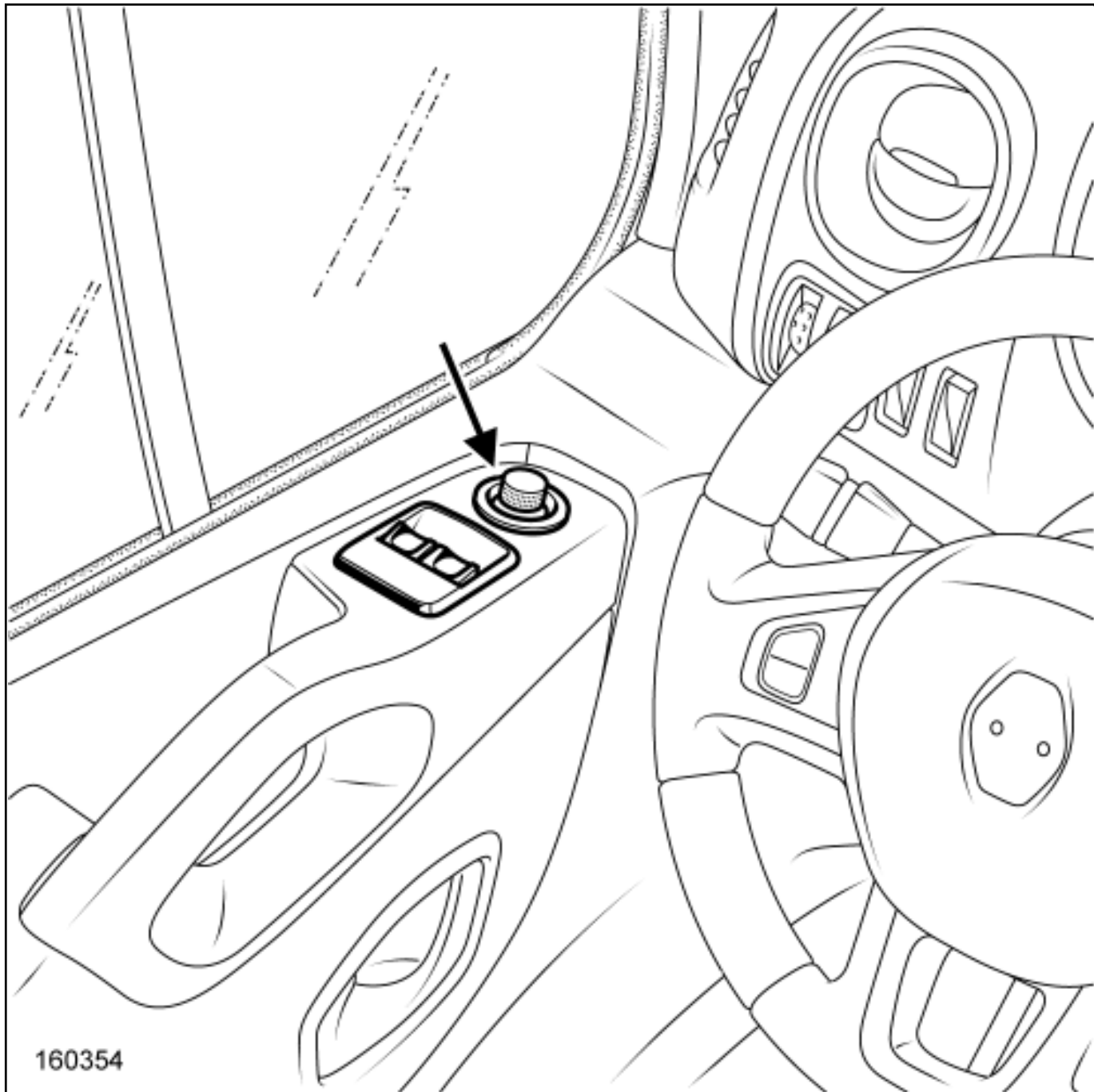
160349

ELECTRIC WINDOW SWITCHES ON DRIVER'S DOOR



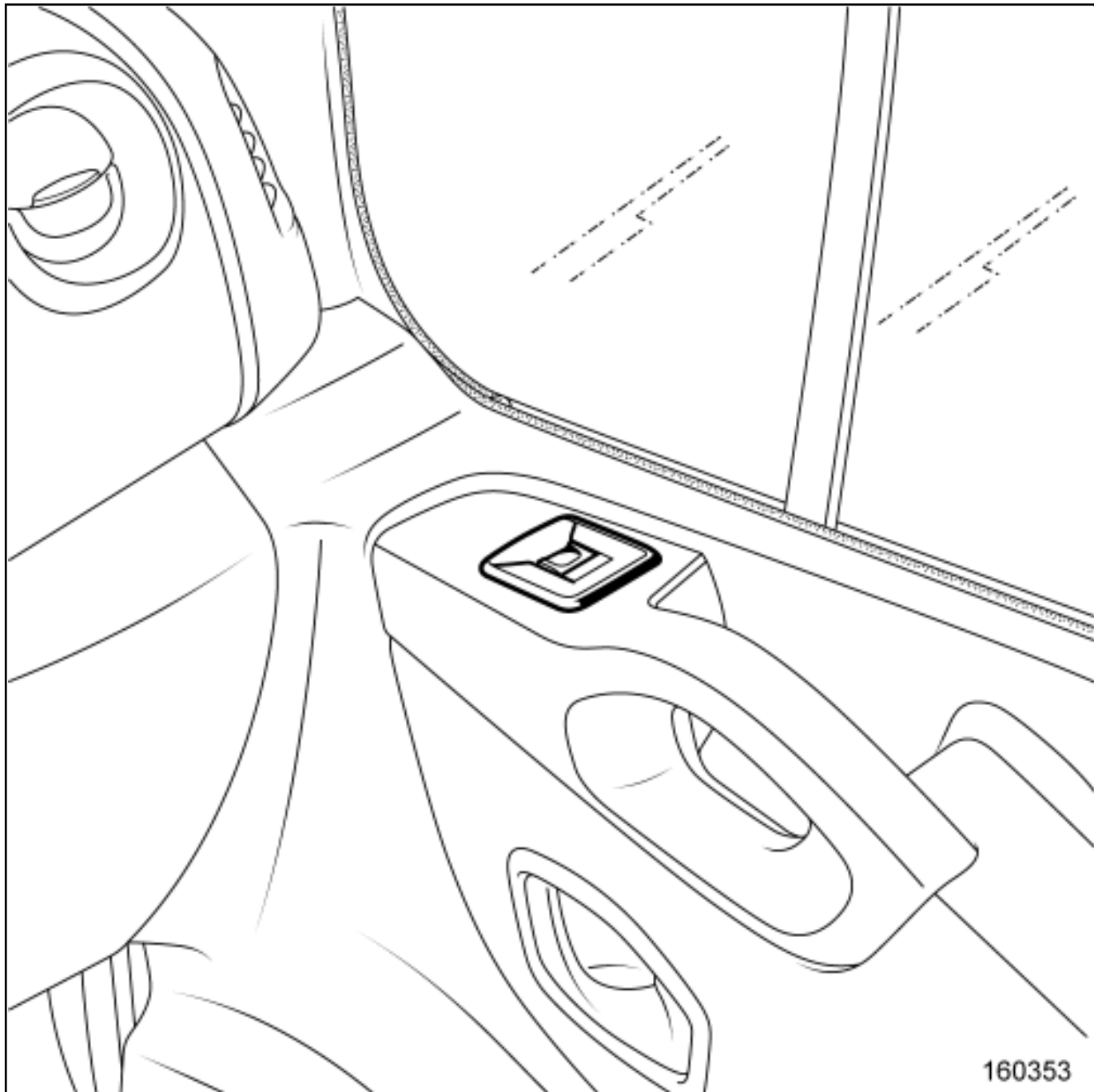
160354

EXTERIOR REAR VIEW MIRROR CONTROL SWITCH



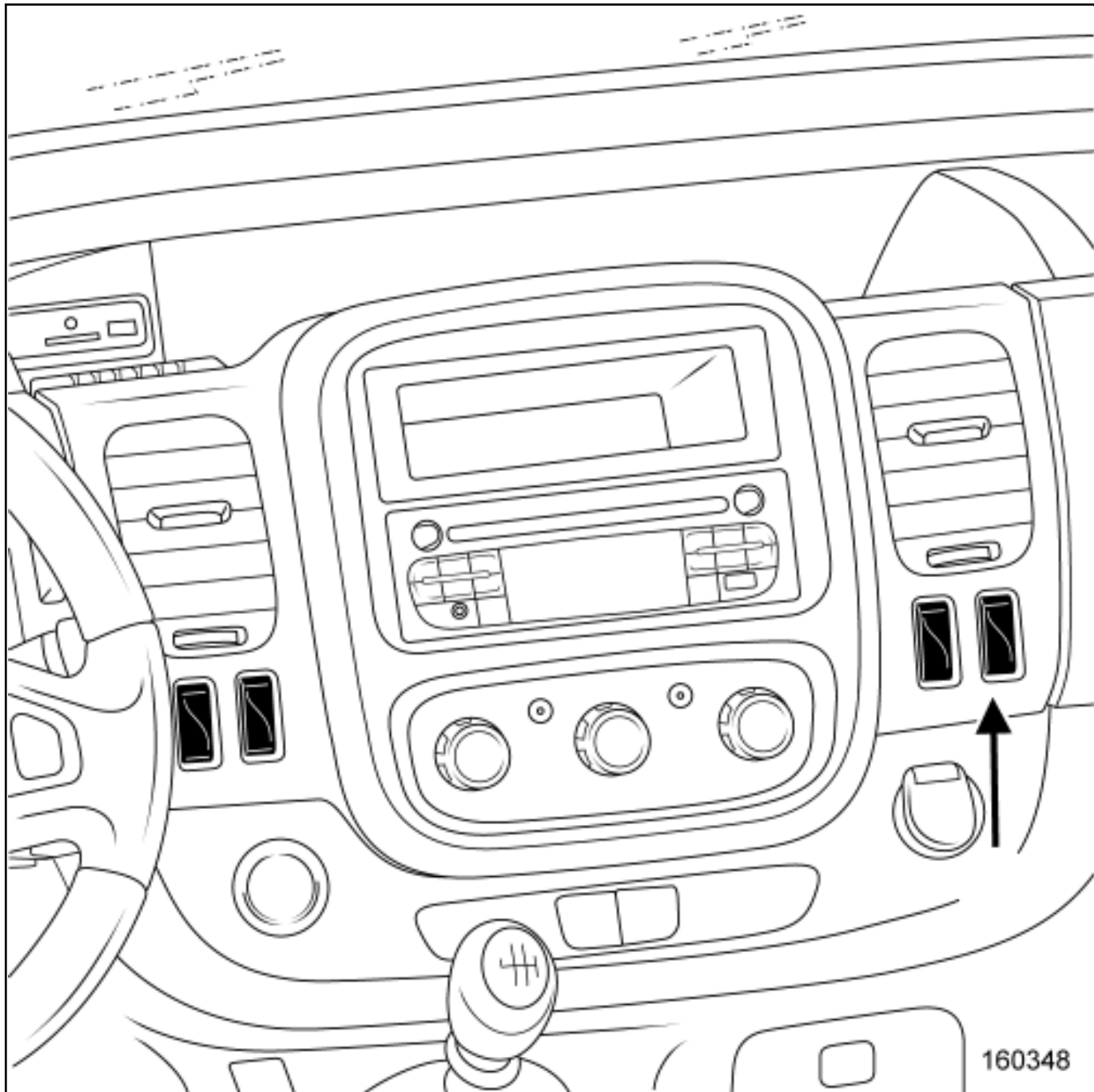
160354

ELECTRIC WINDOW SWITCH ON PASSENGER DOOR



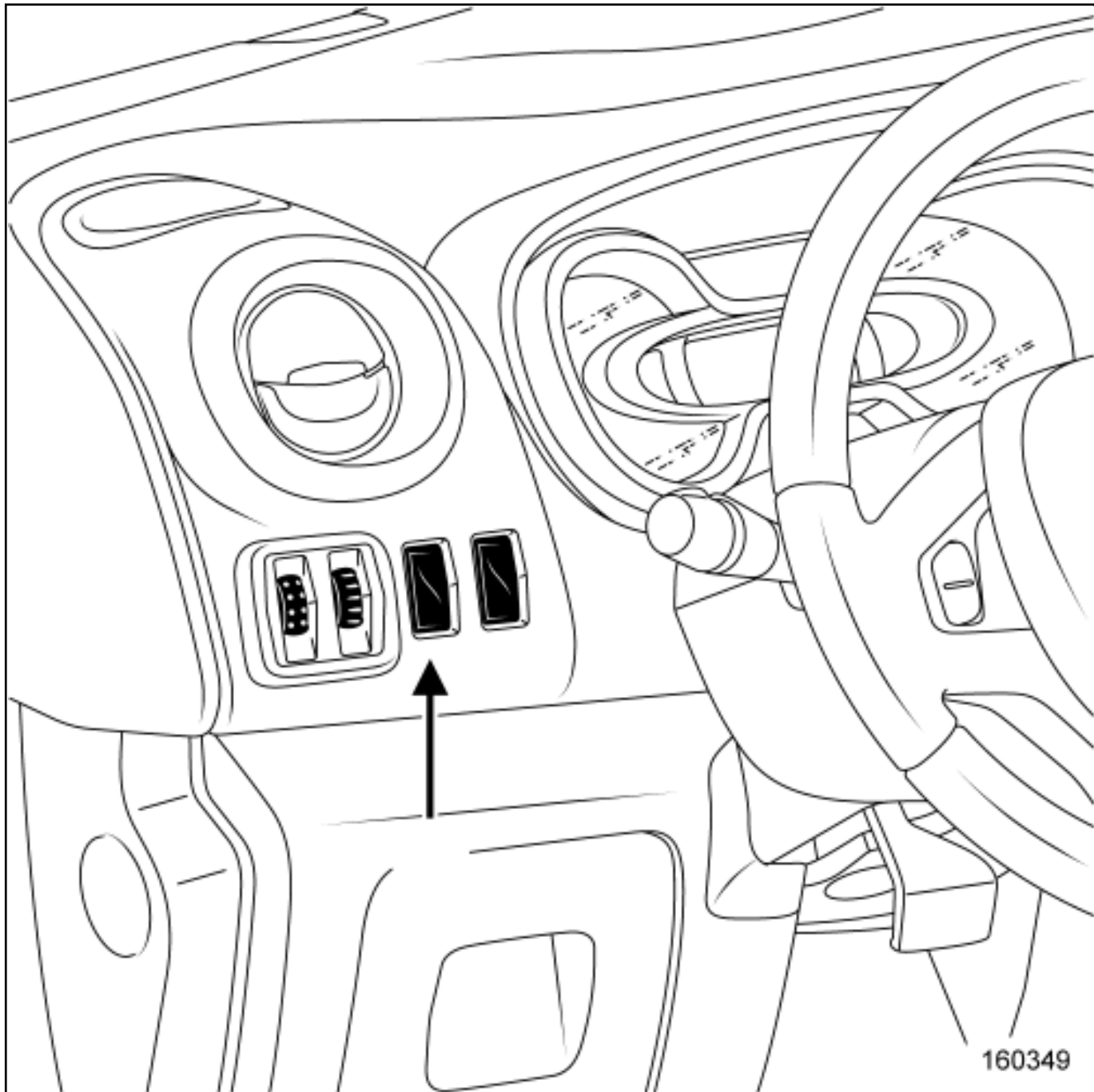
160353

FAST IDLE SPEED SWITCH



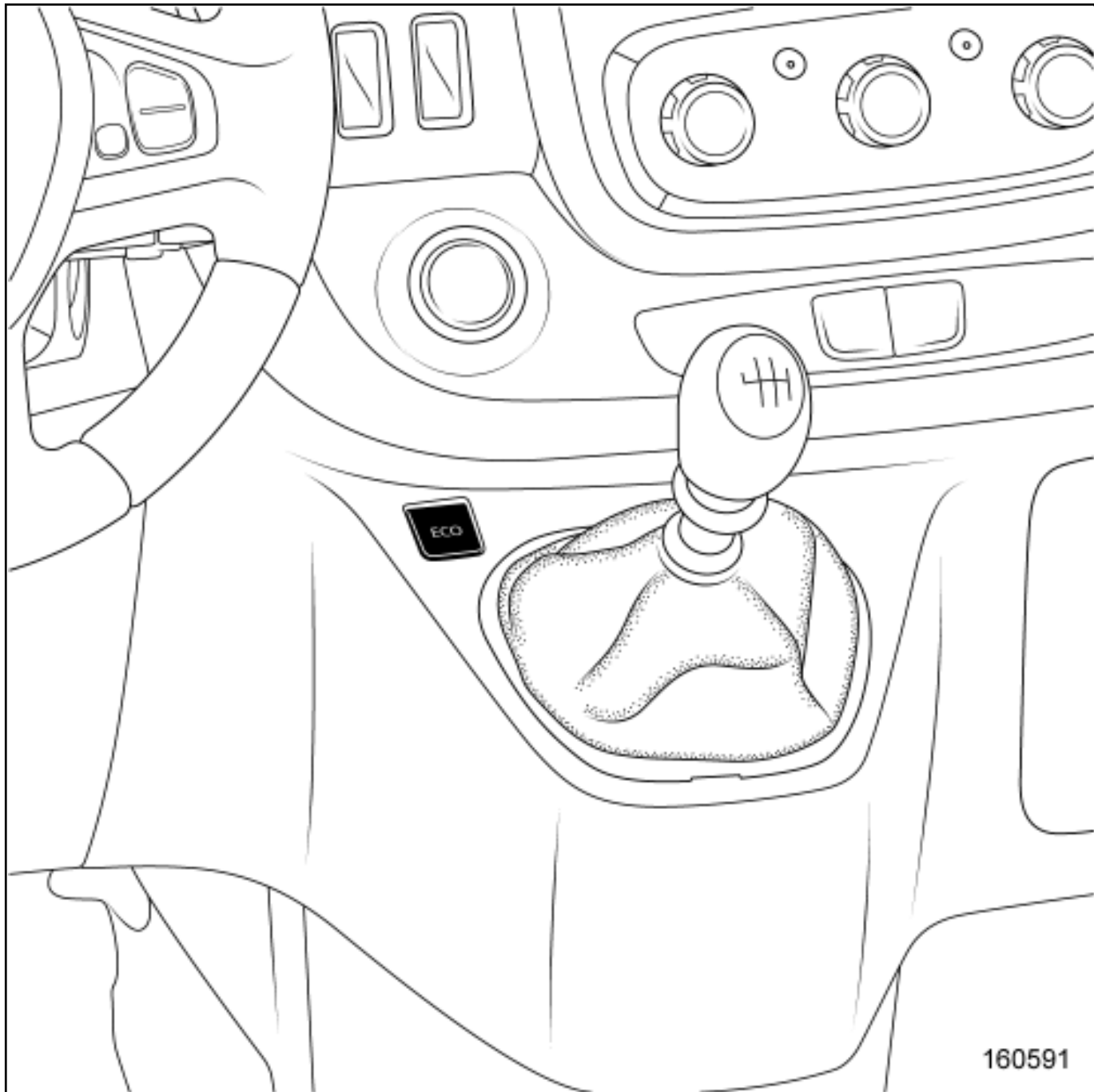
160348

ESP INHIBITOR SWITCH



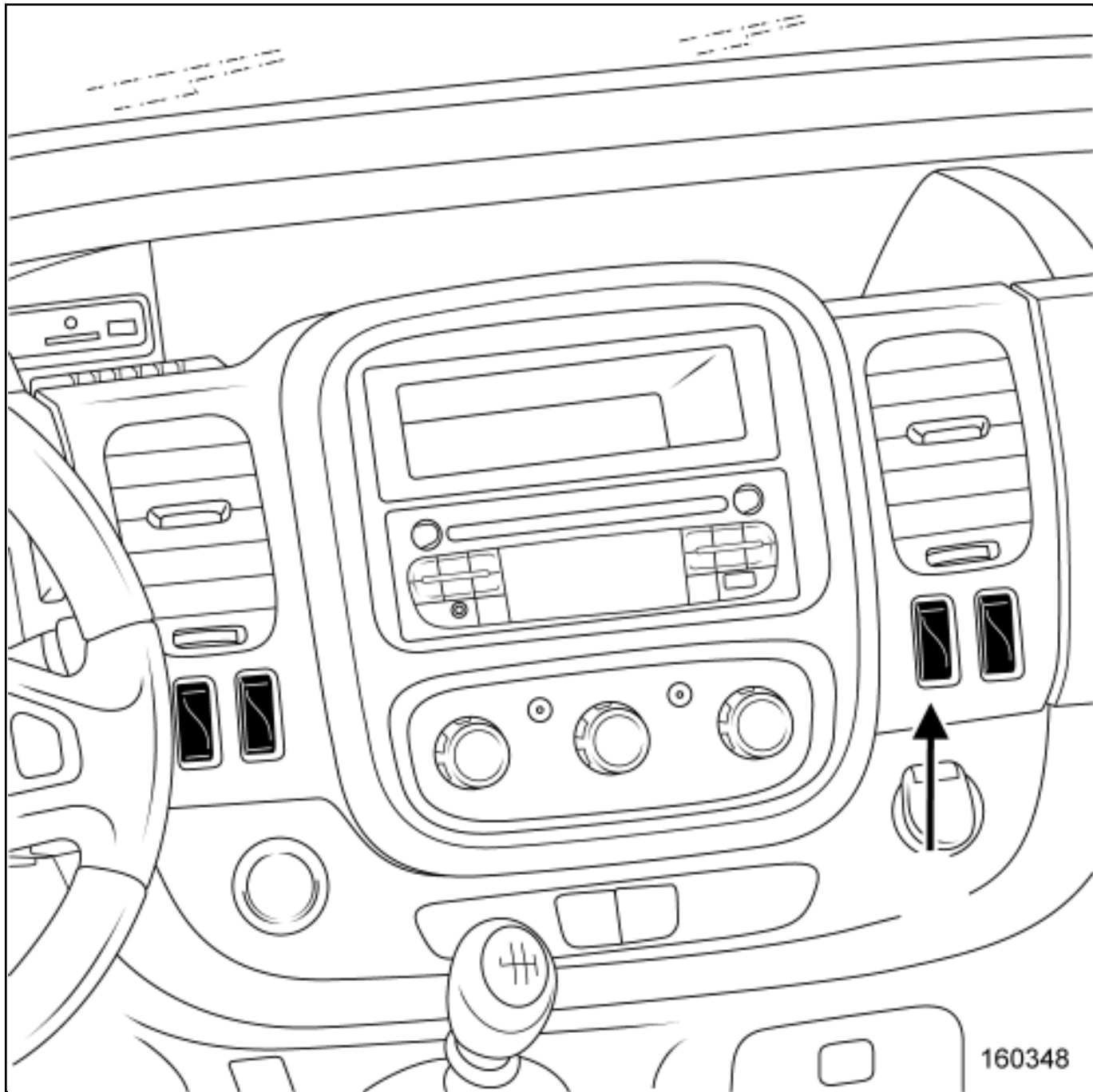
160349

"ECO MODE" SWITCH



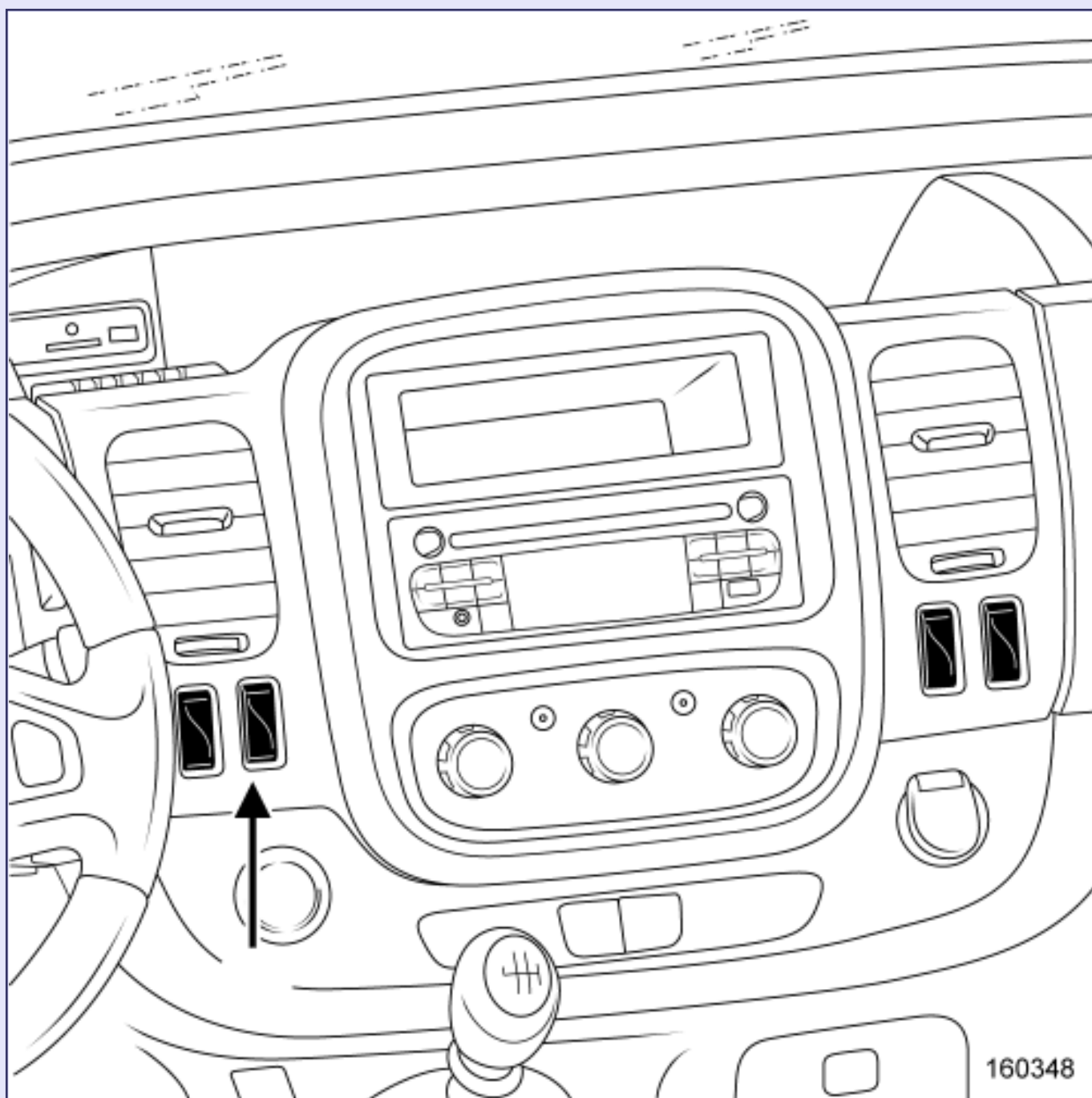
160591

HEATED REAR SCREEN SWITCH



160348

WITH STOP AND START(STOSTA)"STOP AND START" SYSTEM ACTIVATION CONTROL



Repair-30x04x03-02x51-1-3-1.xml



PASSENGER'S FRONTAL AIRBAG: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Set of trim removal levers.

Car. 1363



parts always to be replaced:



Passenger's frontal airbag mounting on dashboard cross member



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

❑ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 88C, Airbags and pretensioners, Airbag and pretensioners: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

REMOVAL

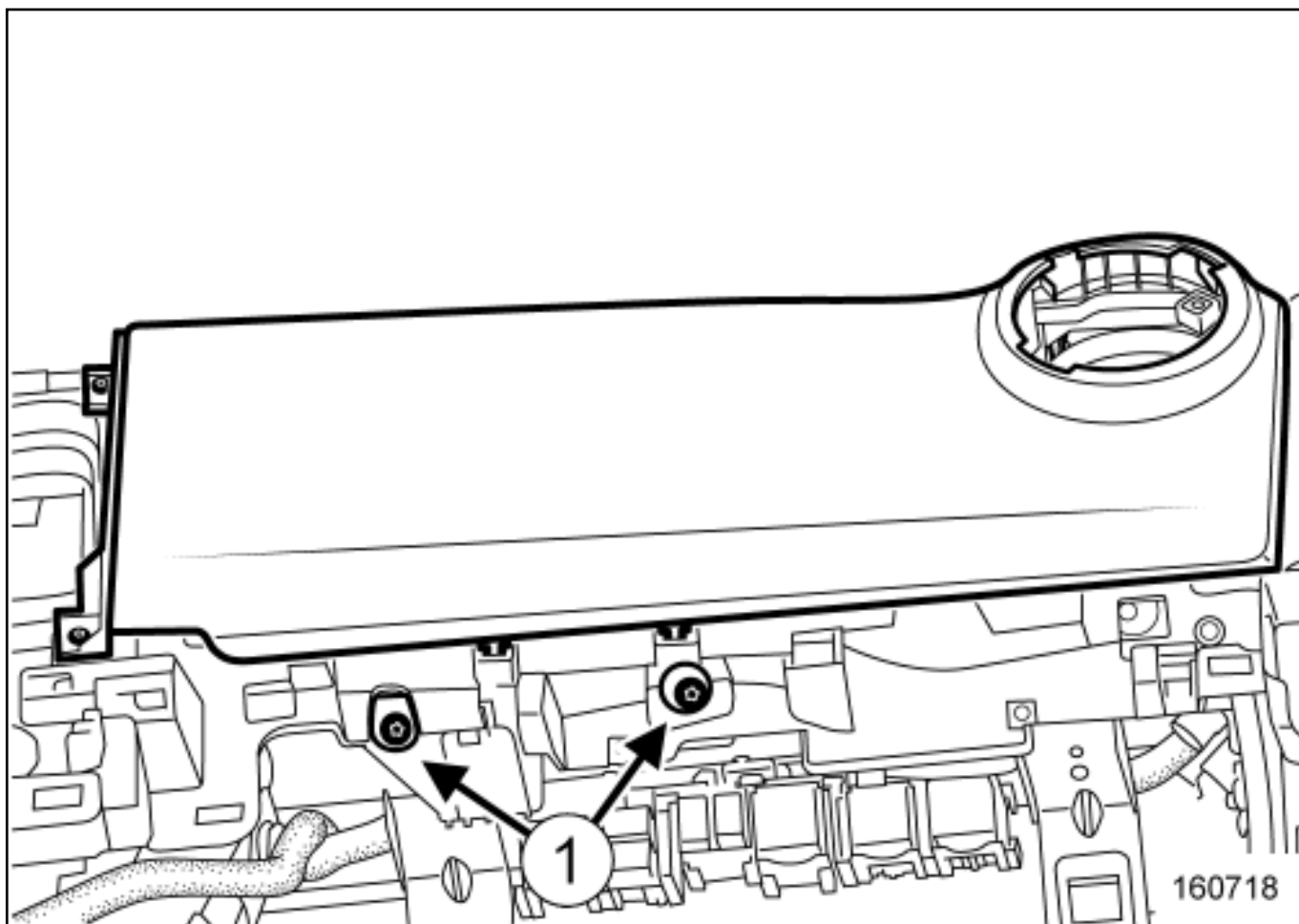
1. REMOVAL PREPARATION OPERATION

- ❑ Disconnect the battery [Battery: Removal - Refitting](#) .

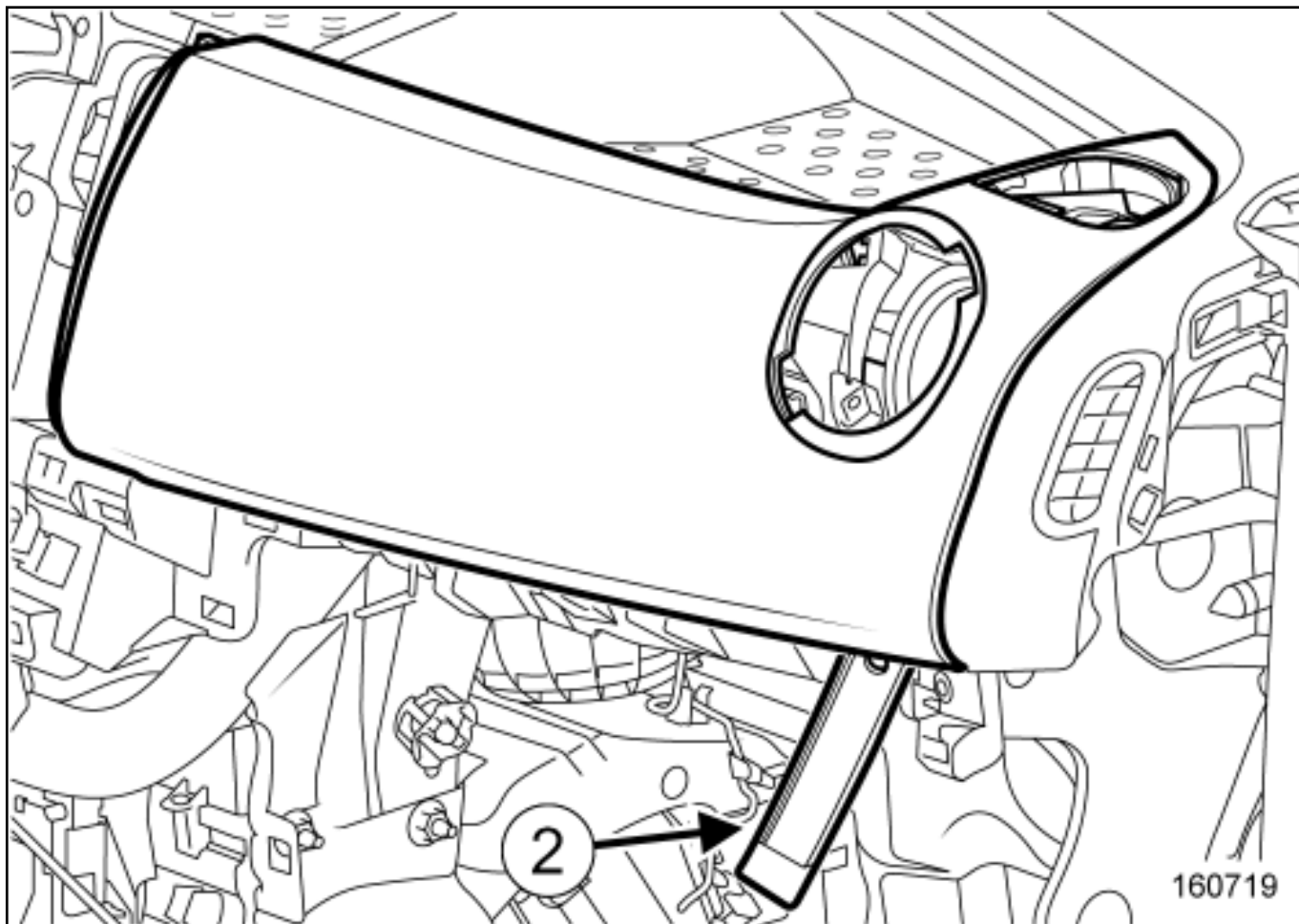
■ Remove (see **Dashboard assembly: Exploded view**) :

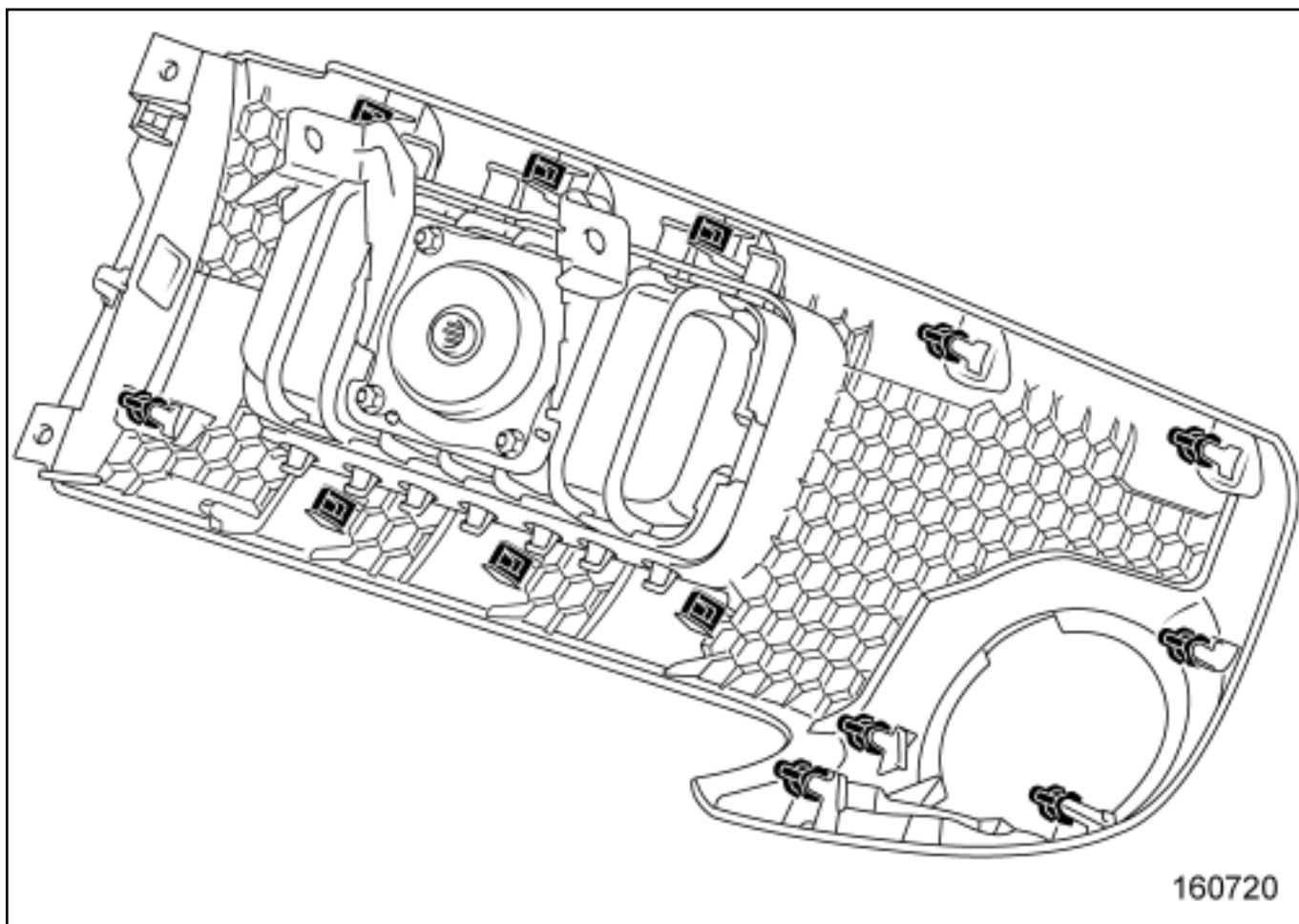
- the centre console front sections,
- the centre front panel,
- the dashboard centre front panel trim.
- the central upper trim dashboard,
- the glovebox,
- the storage compartment-cup holder,
- the dashboard air vent.

2. REMOVAL OPERATION



■ Remove the passenger frontal airbag bolts(1) .





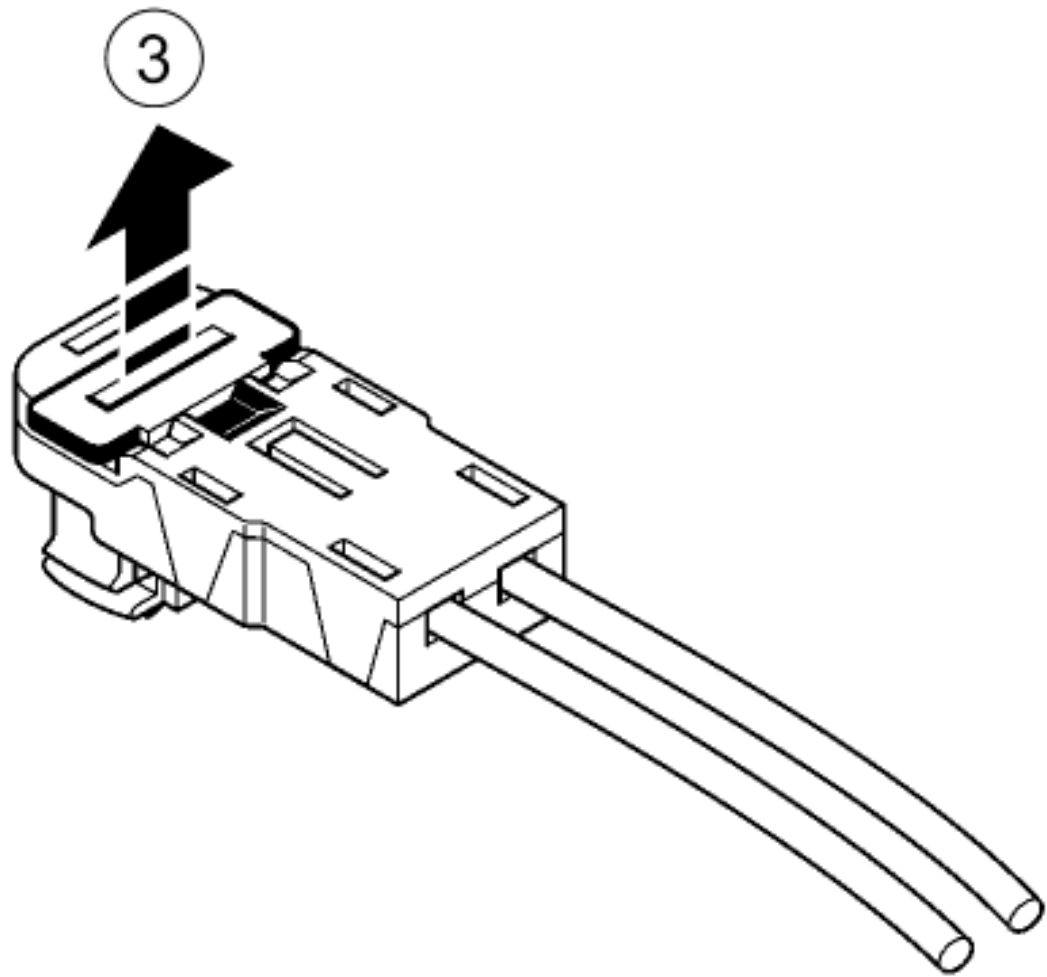
160720



Partially remove the "support - passenger frontal airbag" assembly by pressing on the clips using the toolSet of trim removal levers.(Car. 1363) (2) .



Mark the wiring routing of the passenger frontal airbag.

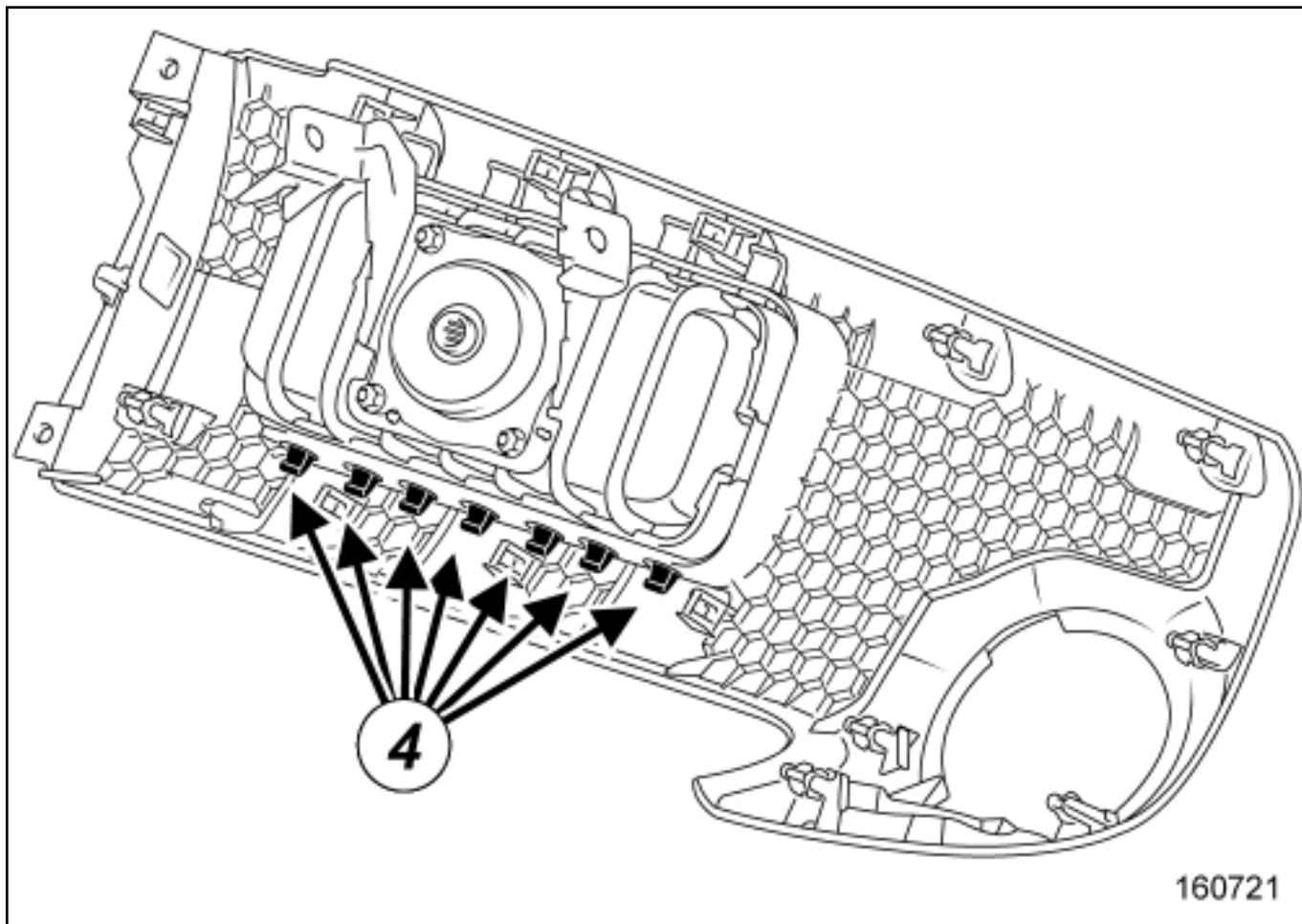


101920

Unlock the passenger frontal airbag connector at(3) .

Disconnect the passenger frontal airbag connector.

Remove the "support - passenger frontal airbag" assembly.



Unclip the passenger frontal airbag from its support by pressing carefully on the support to release the hooks(4) using the toolSet of trim removal levers.(Car. 1363) .



Remove the passenger frontal airbag.



WARNING

To prevent the any component from being thrown upwards, store the airbag with the inflatable cushion facing upwards.

REFITTING

1. REFITTING PREPARATION OPERATION

parts always to be replaced:



Passenger's frontal airbag mounting on dashboard cross

member



WARNING

After a pyrotechnic component is triggered, it is essential to replace certain parts (see 88C, Airbags and pretensioners, Airbag and pretensioners: Precautions for the repair)



WARNING

When the passenger front airbag is triggered, the consequent damage caused to the mountings always requires the dashboard to be replaced. Affix the label warning against fitting a rear-facing child seat on the front passenger seat to the passenger side of the dashboard.

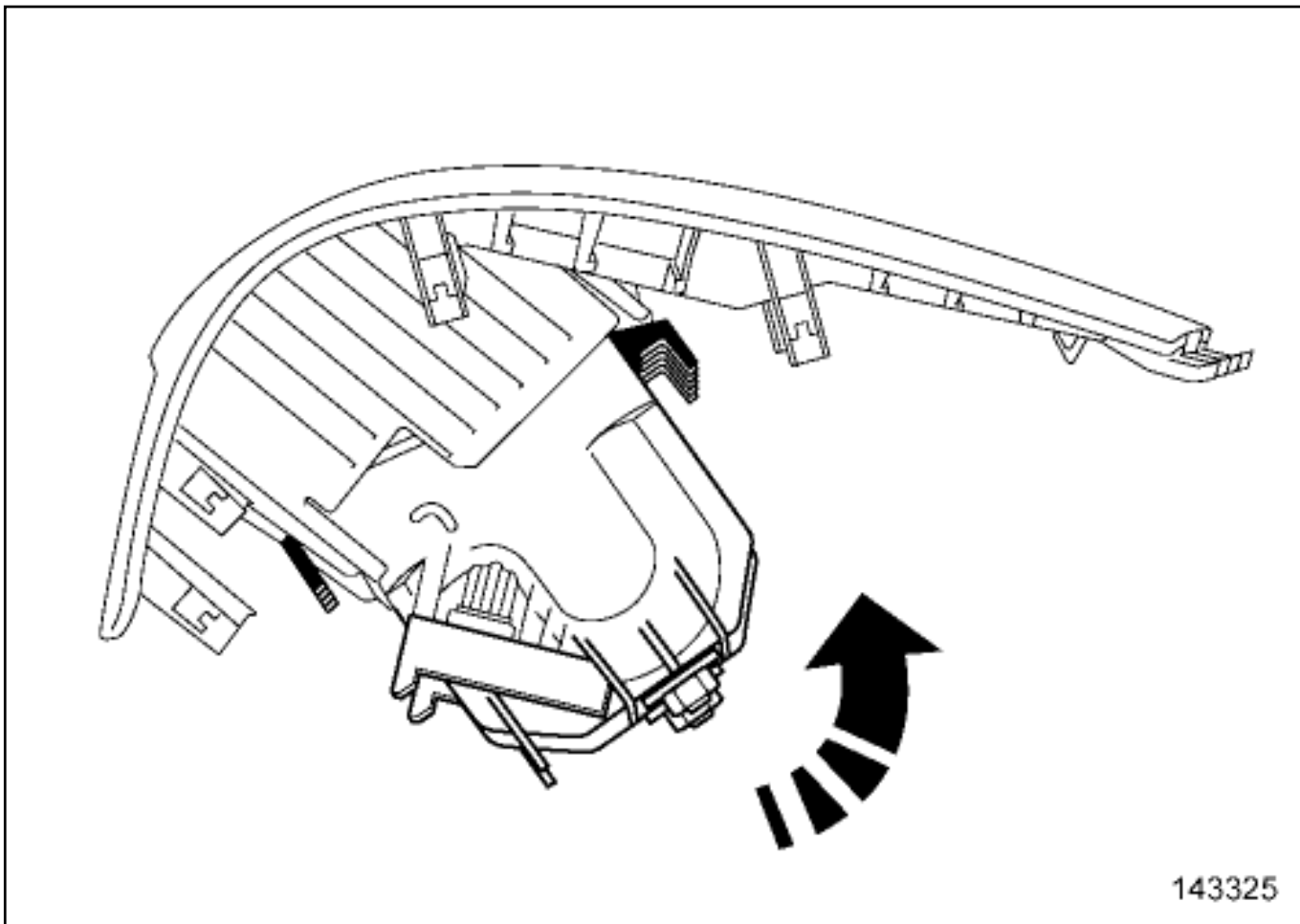
Note:



Check the points where the passenger frontal airbag clips onto its support.

Replace the passenger frontal airbag support if one of the clipping points is weakened.

2. REFITTING OPERATION



Clip the passenger frontal airbag onto its support as shown in the illustration.



Note:

Check that all the hooks of the passenger airbag module are correctly fitted in the support.



CAUTION

To prevent damage to the wiring harness when refitting, observe the original routing.

Proceed in the reverse order to removal.

Torque tighten the passenger frontal airbag bolts 21 N.m.

WARNING



To eliminate the risk of any accident, do not reuse pyrotechnic components.

It is essential to destroy pretensioners or airbags before scrapping a vehicle or a part only ([see 88C, Airbags and pretensioners, Airbags and pretensioners: Recycling - Destruction](#)).

3. CHECKING AFTER REPAIR



Switch on the ignition.



Check that there are no faults on the instrument panel.



Repair-31x02x01x16-01x37-1-33-1.xml



XSL version : 3.02 du 22/07/11

PEDALASSEMBLY:EXPLODEDVIEW

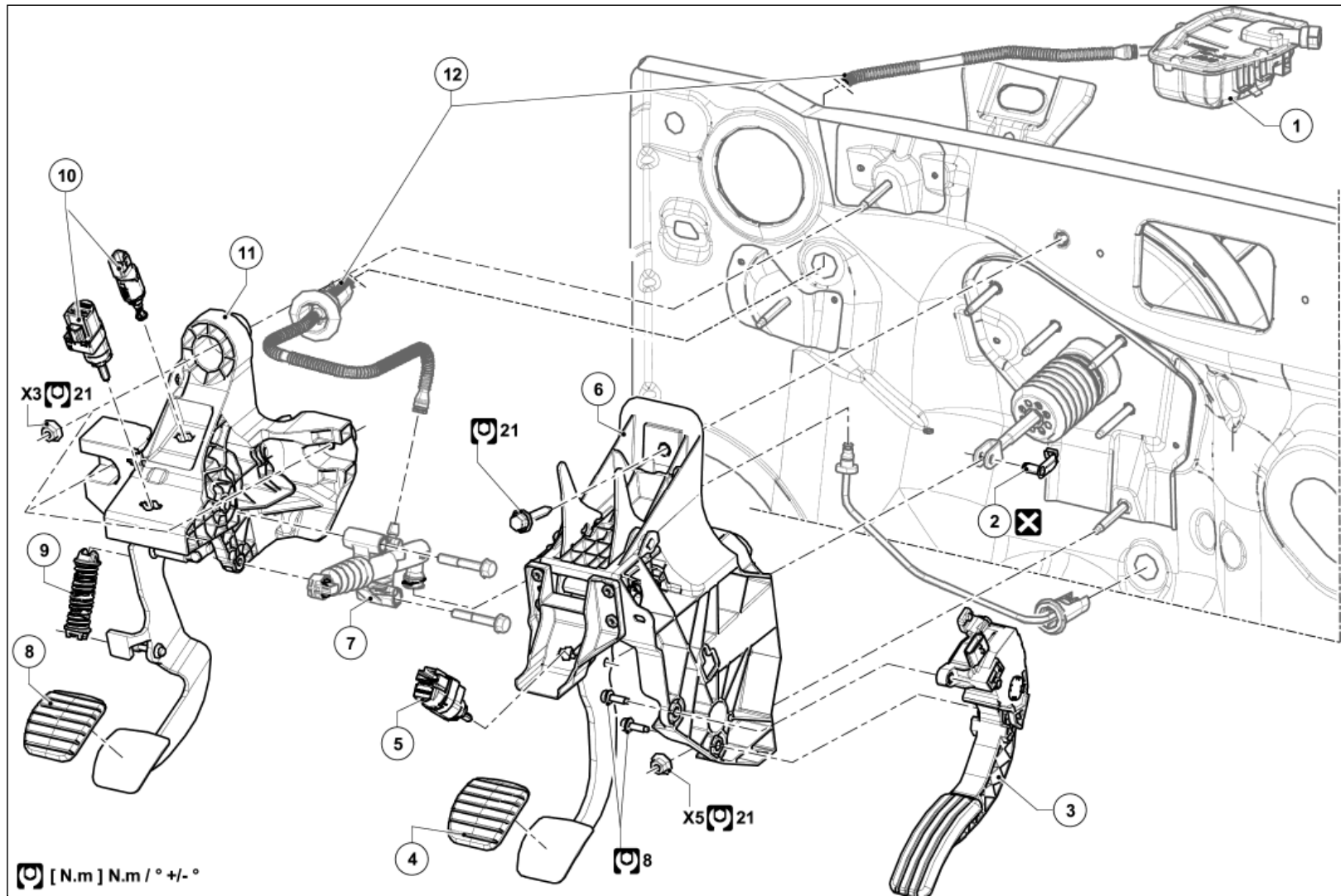


Illustration key: [Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques: [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Brake fluid reservoir	(see 37A, Mechanical component controls, Braking control assembly: Exploded view)
2	Brake pedal - servo rod connecting pin	(see 37A, Mechanical component controls, Brake servo: Removal - Refitting)
3	Accelerator pedal	
4	Brake pedal cover	
5	Brake pedal switch	(see 37A, Mechanical component controls, Pedal switches: Adjustment)
6	Brake pedal	(see 37A, Mechanical component controls, Brake pedal: Removal - Refitting)
7	Clutch master cylinder	Clutch assembly: Exploded view
8	Clutch pedal cover	
9	Clutch pedal spring	
10	Clutch pedal switches	(see 37A, Mechanical component controls, Pedal switches: Adjustment)
11	Clutch pedal	(see 37A, Mechanical component controls, Clutch pedal: Removal - Refitting)
12	Clutch master cylinder feeder pipe	Clutch assembly: Exploded view



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PEDALSWITCHES:ADJUSTMENT



Note, one or more warnings are present in this procedure



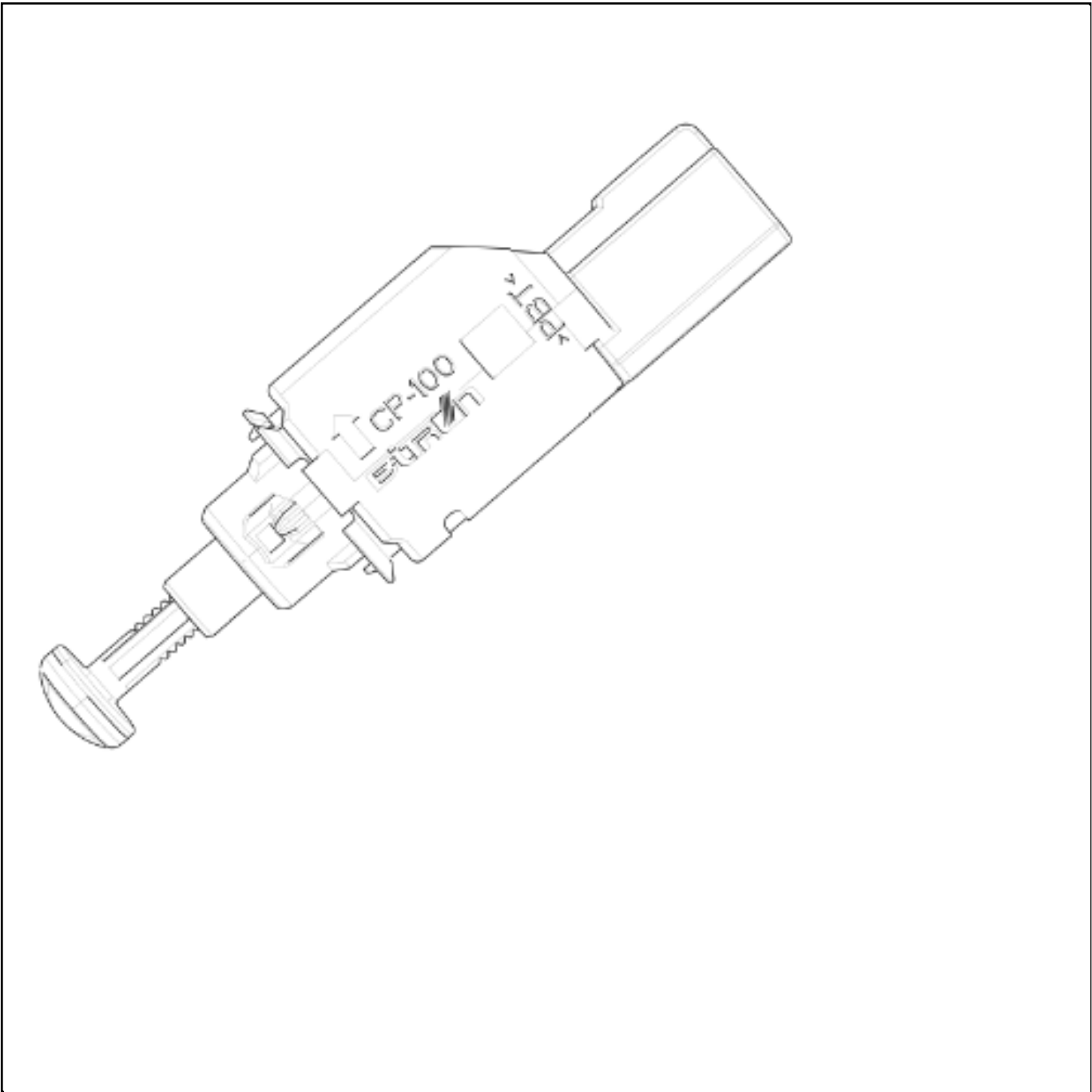
WARNING



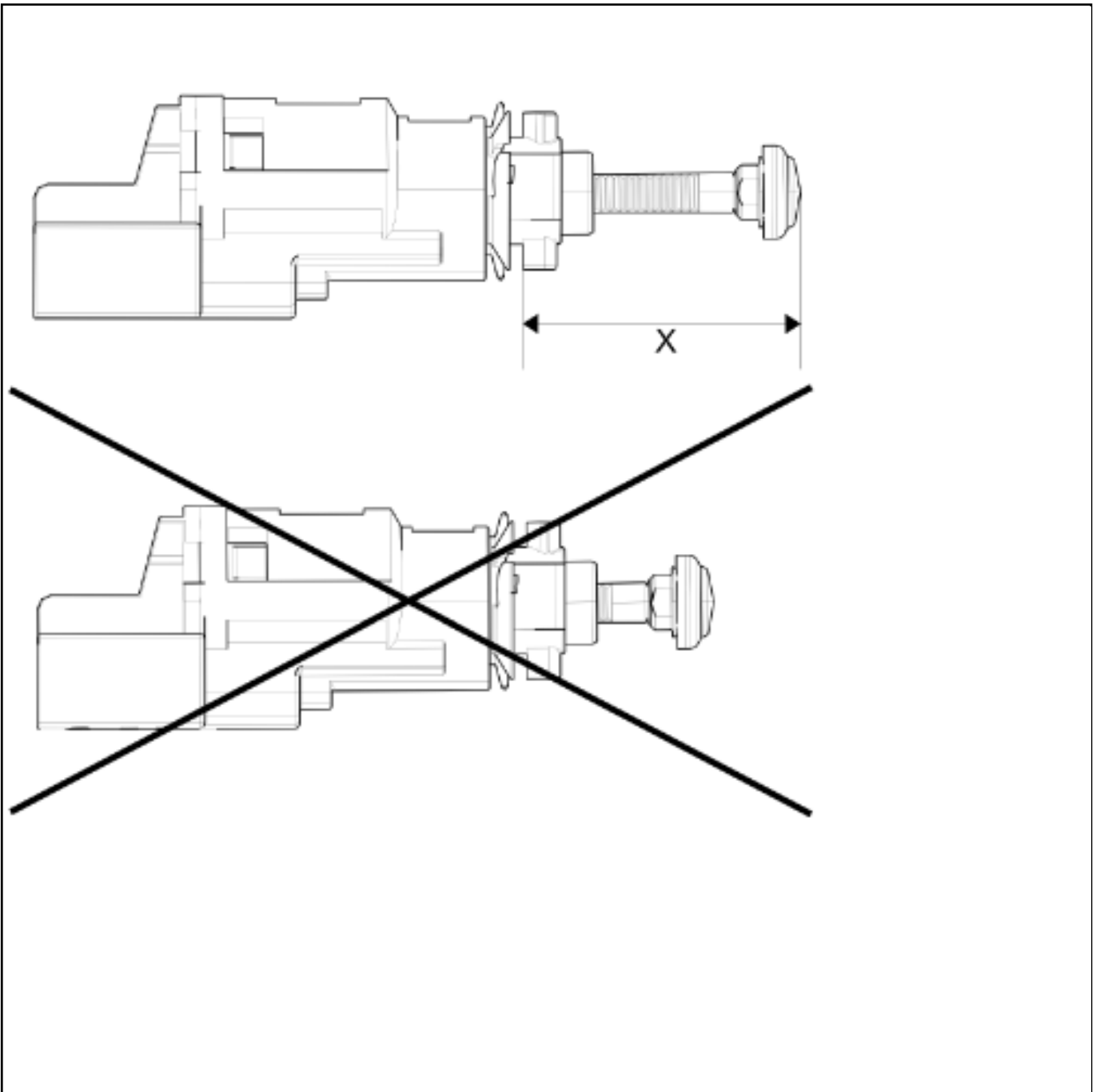
■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 37A, Mechanical component controls, Pedal assembly mechanism: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .

1. VIMERCATI AND BITRON SWITCH (GENERATION 1)



SWITCH BEFORE FITTING



- If adjusting the brake pedal switch, check that the brake servo pushrod is connected to the brake pedal.
- Depress the pedal by hand.
- Refit the switch
- Lock the switch by turning it a quarter of a turn clockwise.
- At the same time, carefully return the pedal.

Note:



The switch is automatically adjusted by fully depressing the pedal.

The automatic adjustment makes a clicking noise when in operation.

■ Connect the switch connector.

2. BITRON SWITCH (GENERATION 2)

3. METHODE ELECTRONICS (GENERATION 4)



Note:

Do not press or move the pedal during installation in order to avoid incorrect adjustment of the switch.



Note:

Do not press or move the pedal during disassembly in order to avoid damaging the switch.

1- BRAKE PEDAL SWITCH



Note:

Do not remove or fit the brake pedal switch if the brake pedal is not connected to the brake servo pushrod.



Note:

Hold the switch against the bracket.

- ❑ Remove the brake pedal switch by turning it a quarter of a turn anti-clockwise.
- ❑ Press the switch against the bracket and hold it perpendicular to the pedal aperture.
- ❑ Refit the brake pedal switch by turning it a quarter of a turn clockwise.



Note:

There is no adjustment operation for this type of brake pedal switch.

2- CLUTCH PEDAL SWITCH



Note:

Do not remove or fit the clutch pedal switch if the clutch pedal is not connected to the clutch master cylinder.



Note:

Hold the switch against the bracket.

- ❑ Remove the clutch pedal switch by turning it a quarter of a turn anti-clockwise.
- ❑ Press the switch against the bracket and hold it perpendicular to the pedal aperture.
- ❑ Refit the clutch pedal switch by turning it a quarter of a turn clockwise.



Note:

There is no adjustment operation for this type of clutch pedal switch.



Repair-30x03x05x01-01x67-1-1-1.xml



XSL version : 3.02 du 22/07/11

PLASTIC MATERIAL BODYWORK COMPONENT: REPAIR



Note, one or more warnings are present in this procedure



1. PROCEDURES FOR REPAIRING PLASTICS









WARNING

Always wear protective gear (gloves, goggles and breathing masks).


Use extra ventilation source.

Use a supplied air mask if the area is not ventilated.

1- SPECIAL NOTES FOR REPAIRING PLASTICS

-  Procedure 1 : repairing a deep scratch on a plastic chassis element.
-  Procedure 2 : repairing a crack on a plastic chassis element.
-  Procedure 3 : repairing a hole on a plastic chassis element.
-  Procedure 4 : repairing a mounting bracket on a plastic chassis element.
-  Procedure 5 : partial replacement of an element by cutting.
-  Procedure 6 : partial replacement of an element by cutting with patch drilling.

2. PROCEDURE 1

-  Repairing a deep scratch on a plastic chassis element

1- BONDING METHOD

Note:



Before any repairs, check the reparability of components made from plastic materials.

(see 50A, General information, Products for plastic material bodywork components: Description) .

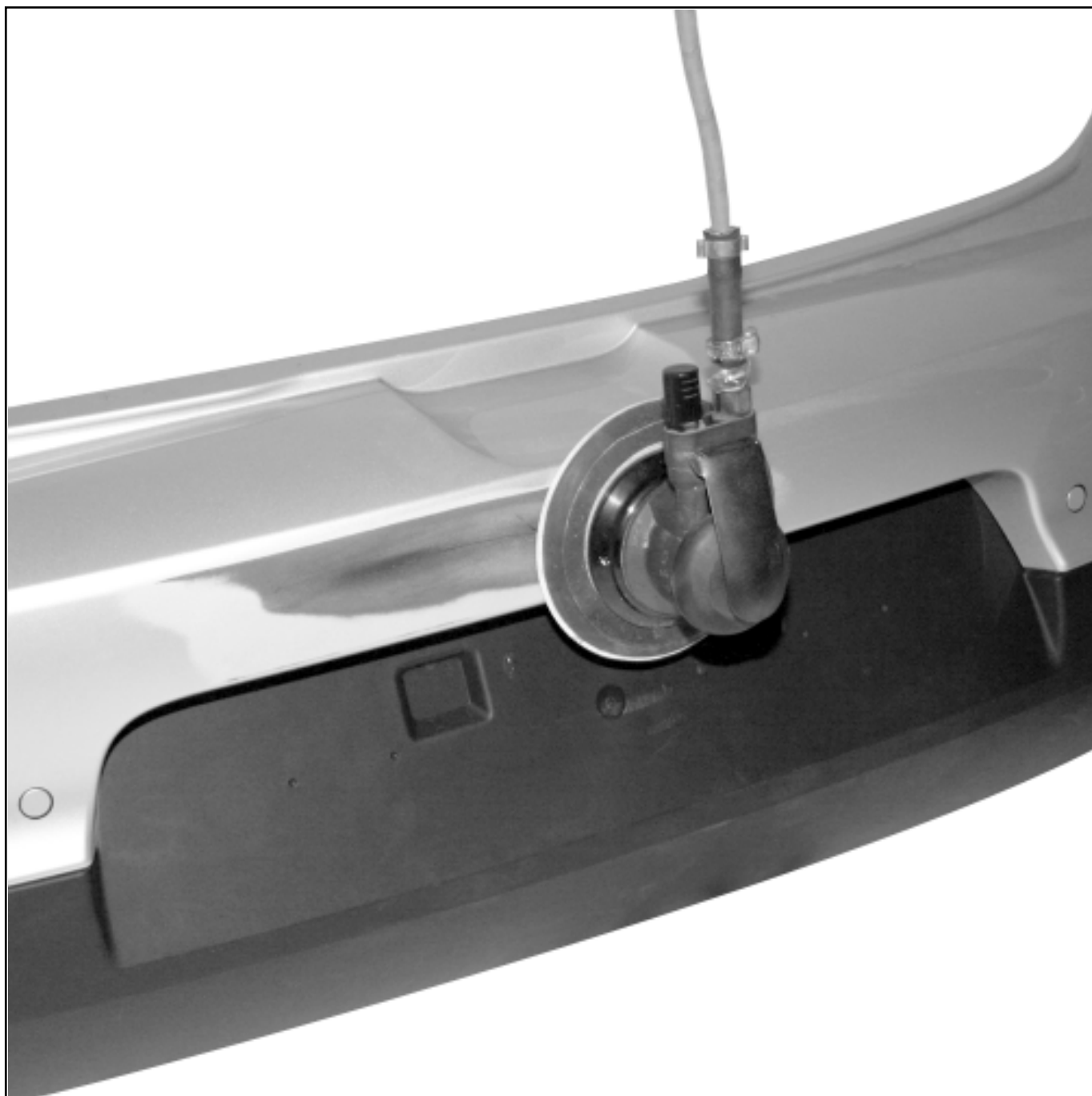
(see 50A, General information, Plastic material bodywork component: Precautions for the repair) .



■ Wash the component in soapy water and rinse in clean water.

■ Clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

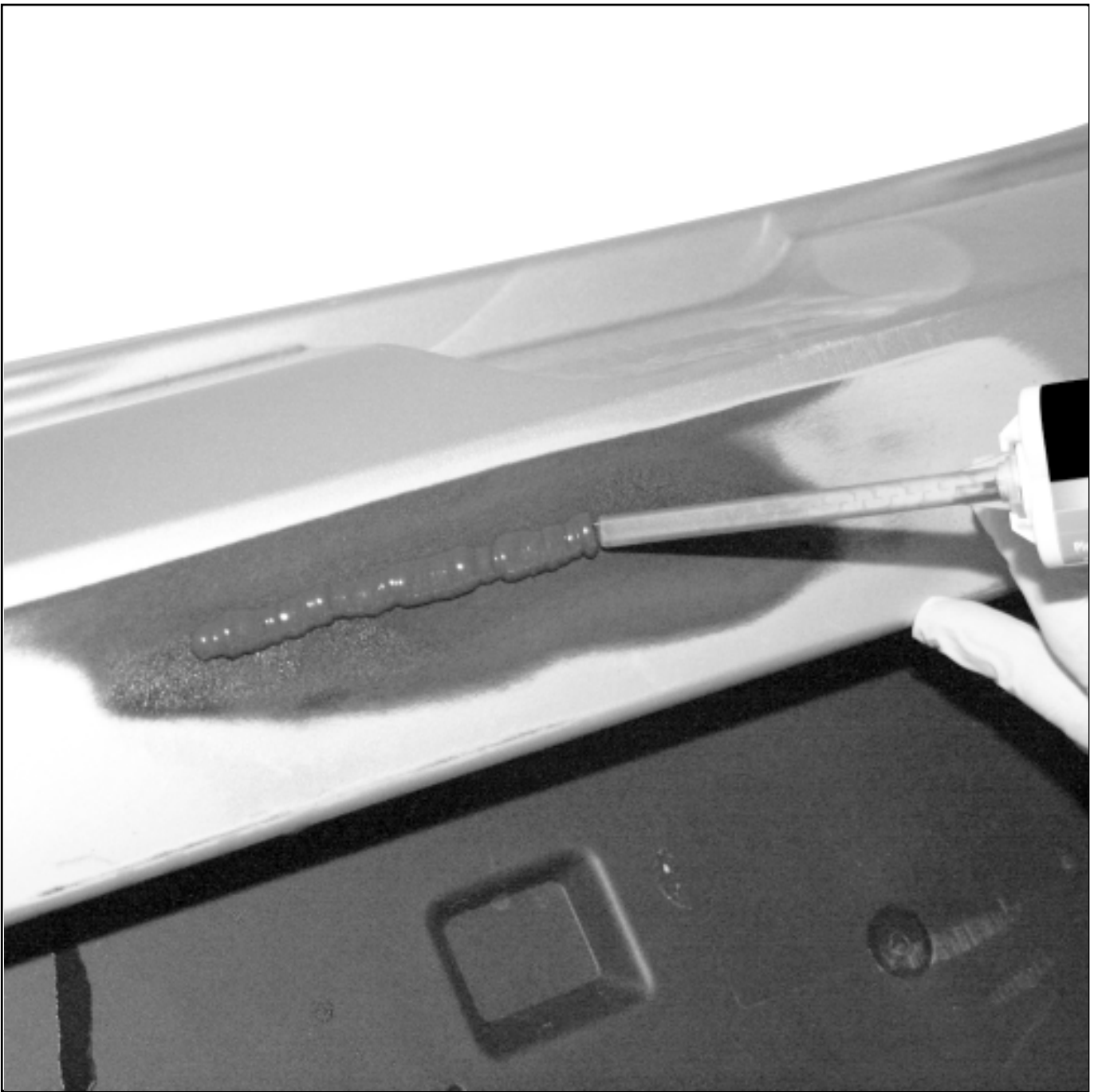
■ Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



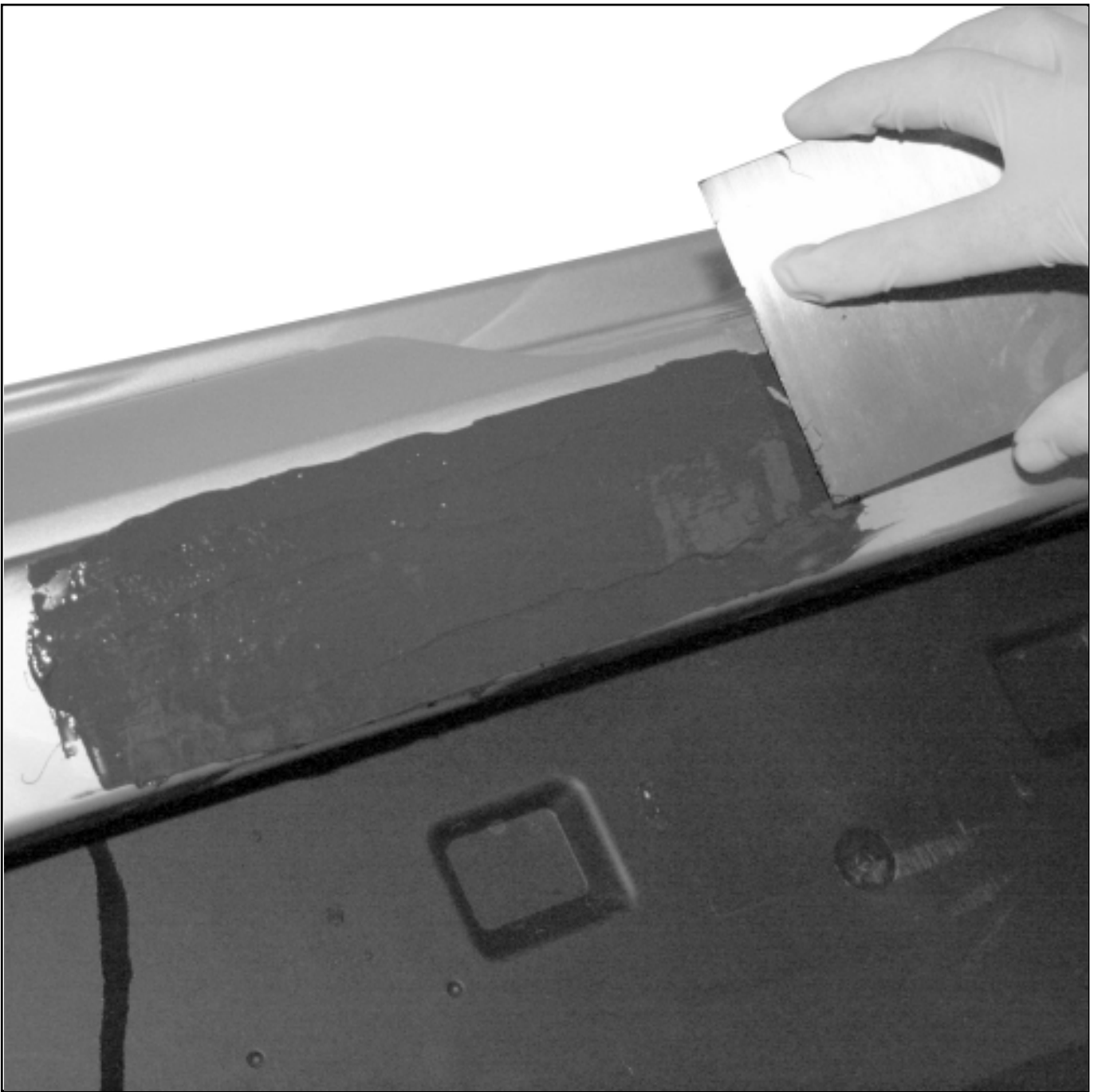
■ Surface the scratch using the orbital sander with a P 150.



- ❑ Blow the component and clean the area to be repaired with the cleaner included in the Plastic repair kit.
- ❑ Apply the adhesive primer included in the Plastic repair kit to the damaged area.
- ❑ Leave the adhesive primer to dry (see product technical sheet).
- ❑ Prepare the bi-component repair mastic ([see 50A, General information, Products for plastic material bodywork components: Description](#)).



■ Apply the bi-component repair mastic to the component.



- Smooth using a mastic block creating a dome shape.
- Leave the bi-component repair mastic to dry (see product technical sheet).



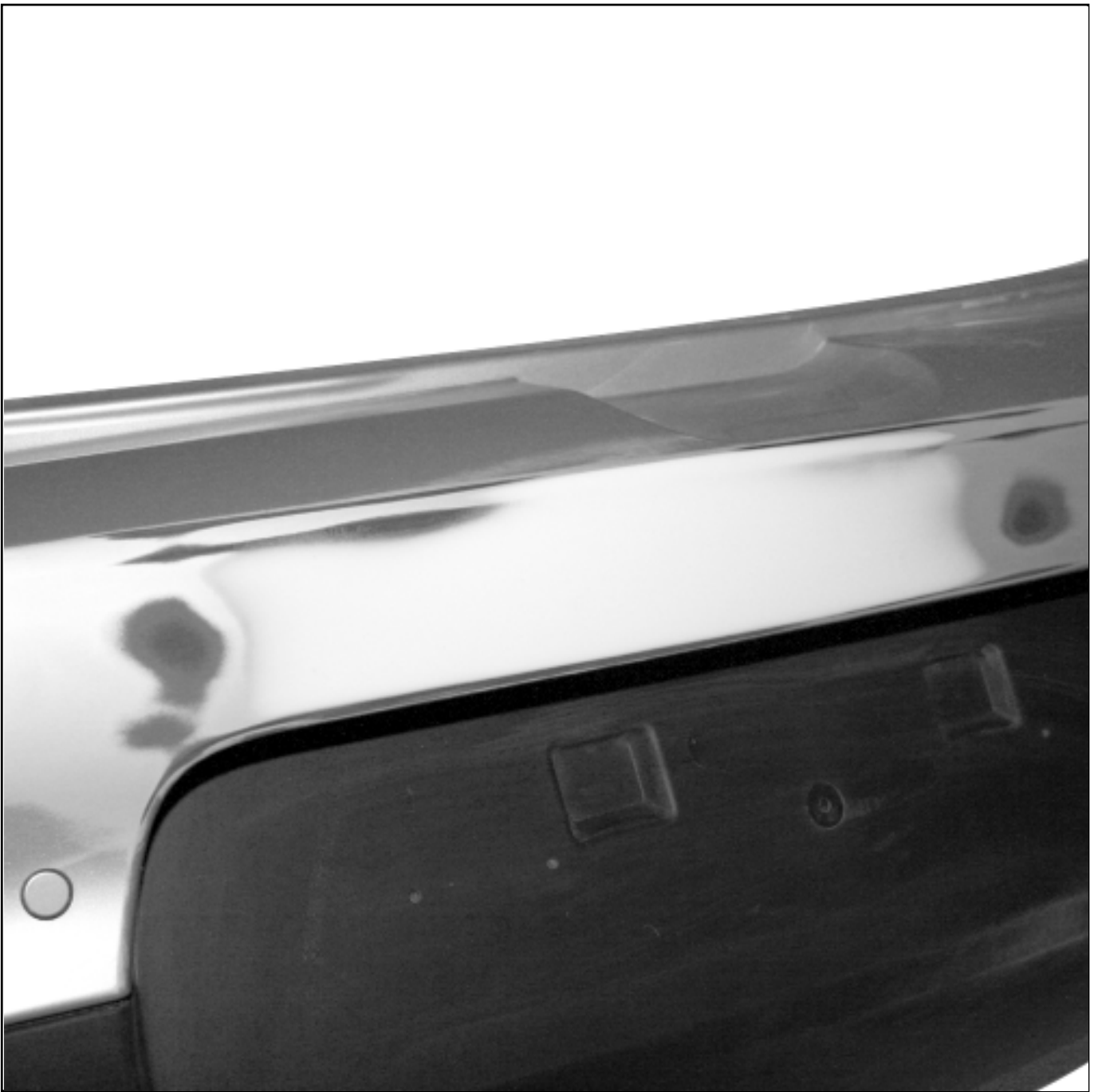
■ Surface with a P 150 then finish with a P 240.

■ Blow the component and clean the area to be repaired with the cleaner included in the Plastic repair kit.



■ If necessary, apply a finishing mastic(see product technical sheet) [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

■ Sand the finishing mastic with a P 150 then finish with a P 240.

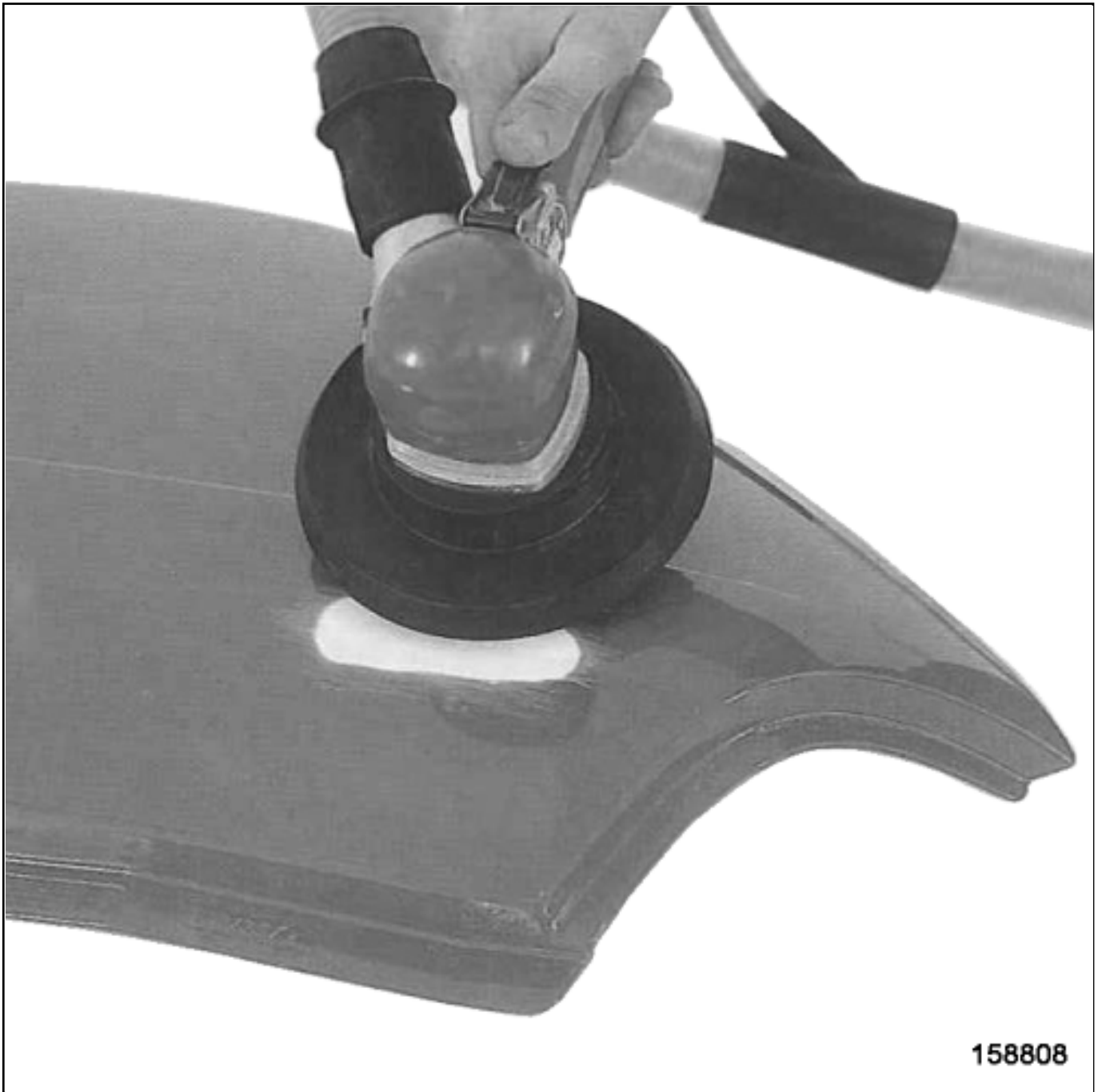


- Follow the paint application procedure according to the material concerned:
 - [SMC bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),
 - [Polypropylene / polyethylene bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),
 - [Noryl bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),
 - [ABS bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic).



Note:

Method apply only on RTM component.



- Chamfering 20 to 30mm around the crack using the orbital sander with a P 150.

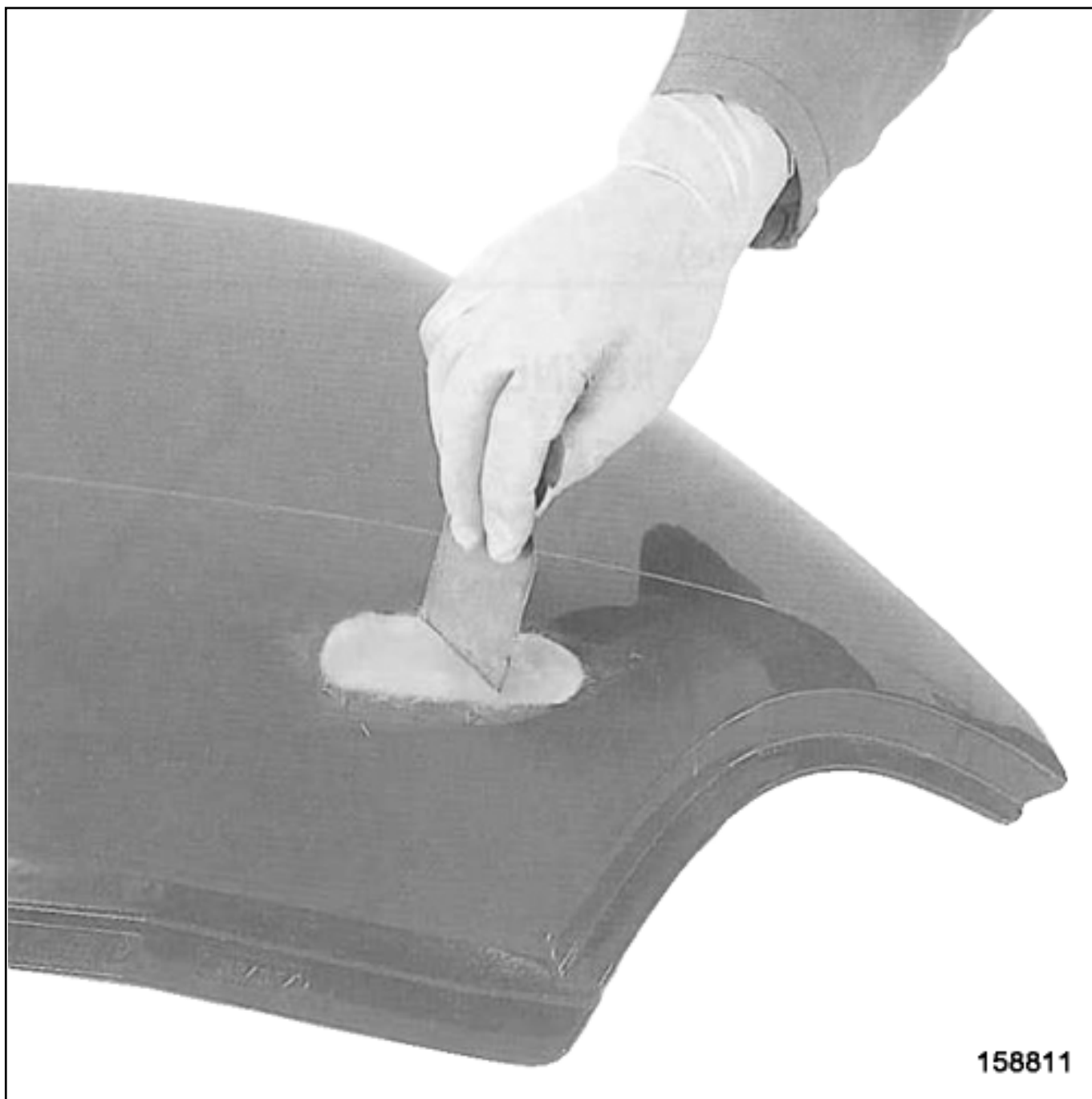


- Sand the paint around the zone to be repaired using the orbital sander with a P 150
- Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).
- Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components: Description](#)) .



158810

- Wet the chamfer using a brush soaked with Epoxy resin.



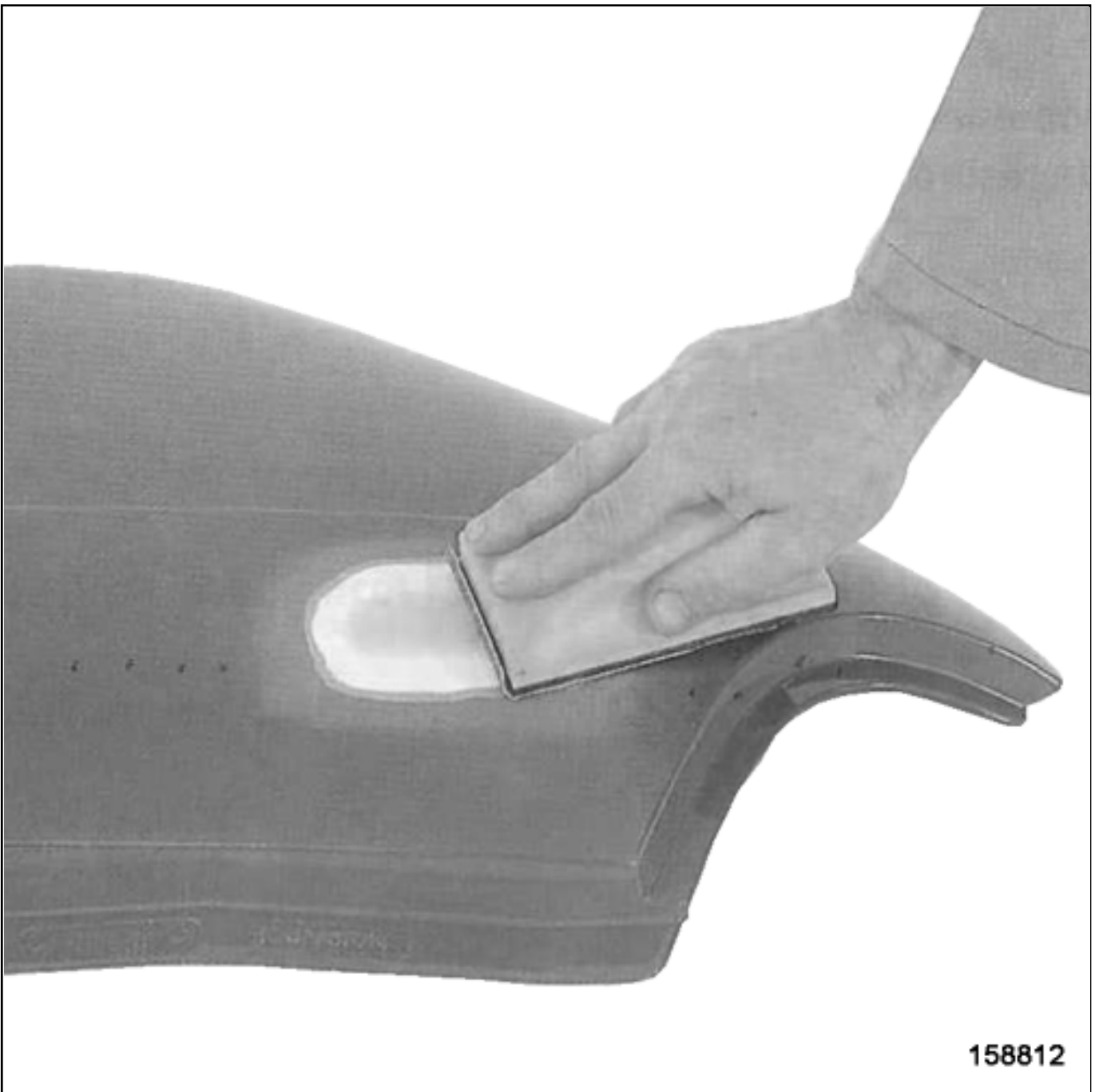
■ Add short fibres with resin(50 % maxi.).

■ Apply the mixture using a spatula.

Note:



After 15 minutes, accelerate the hardening in drying oven or in infrared drying device(60° C maxi at a distance of 70 cm).



- Sand using the orbital sander with a P 80 then with a P180 and P240.
- Apply if necessary a finishing mastic (SEE product technical sheet). (see **Vehicle: Parts and consumables for the repair**)
- Sand the finishing mastic using a P 150 then finish using a P240.

3. PROCEDURE 2

- Repairing cracks on a plastic chassis element.

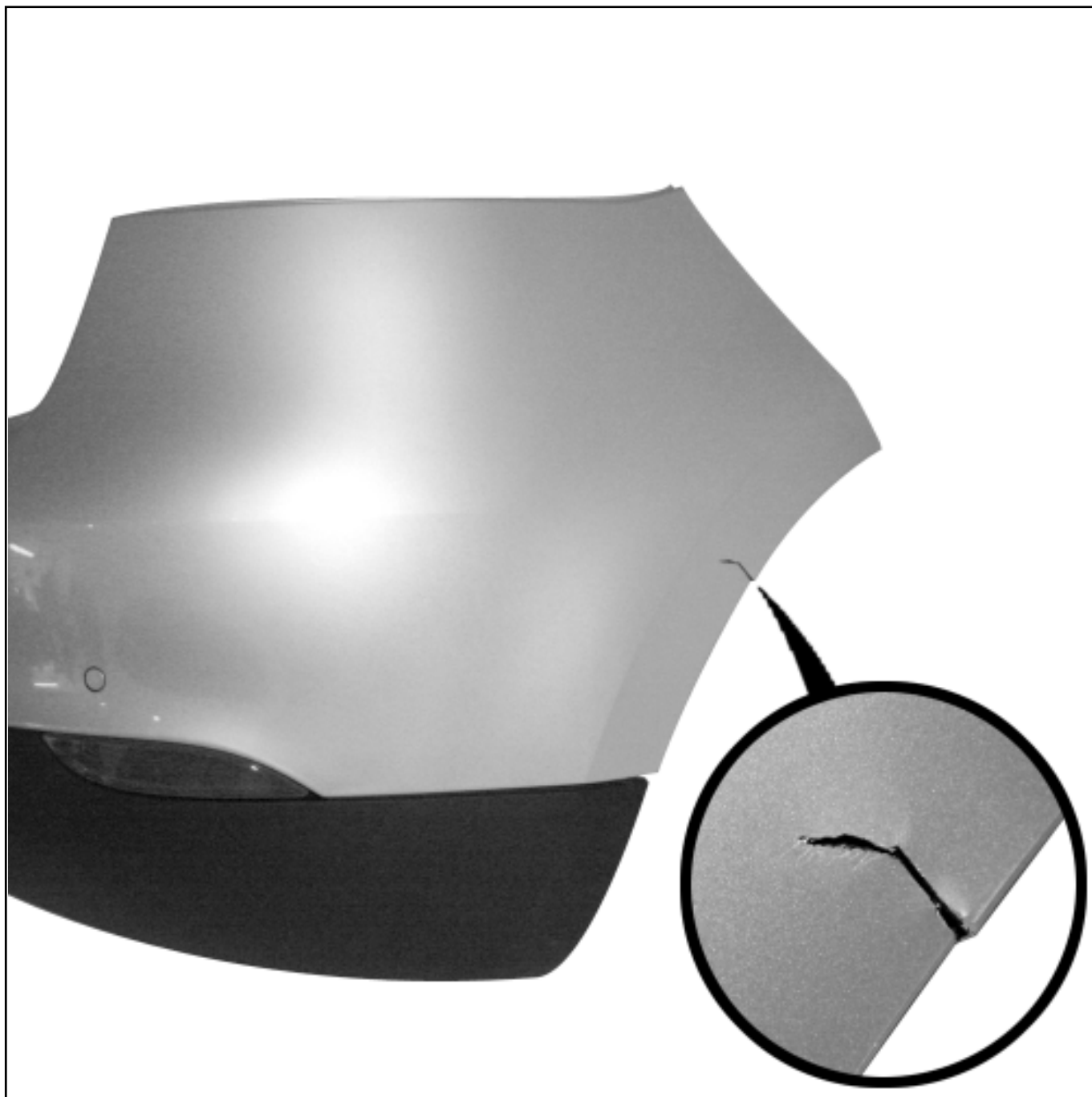
Note:



Before any repairs, check the reparability of components made from plastic materials.

(see 50A, General information, Products for plastic material bodywork components: Description) .

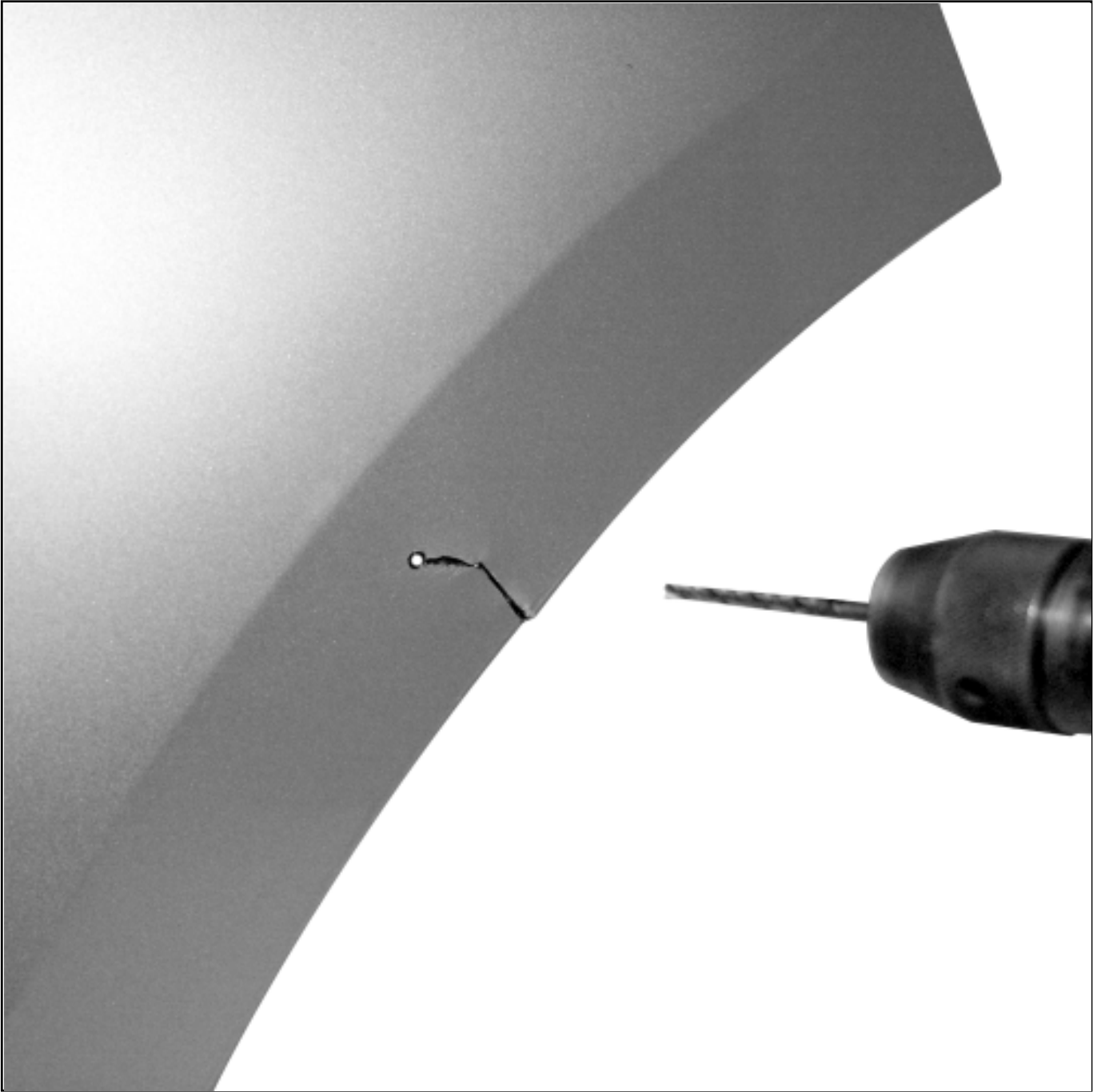
(see 50A, General information, Plastic material bodywork component: Precautions for the repair) .



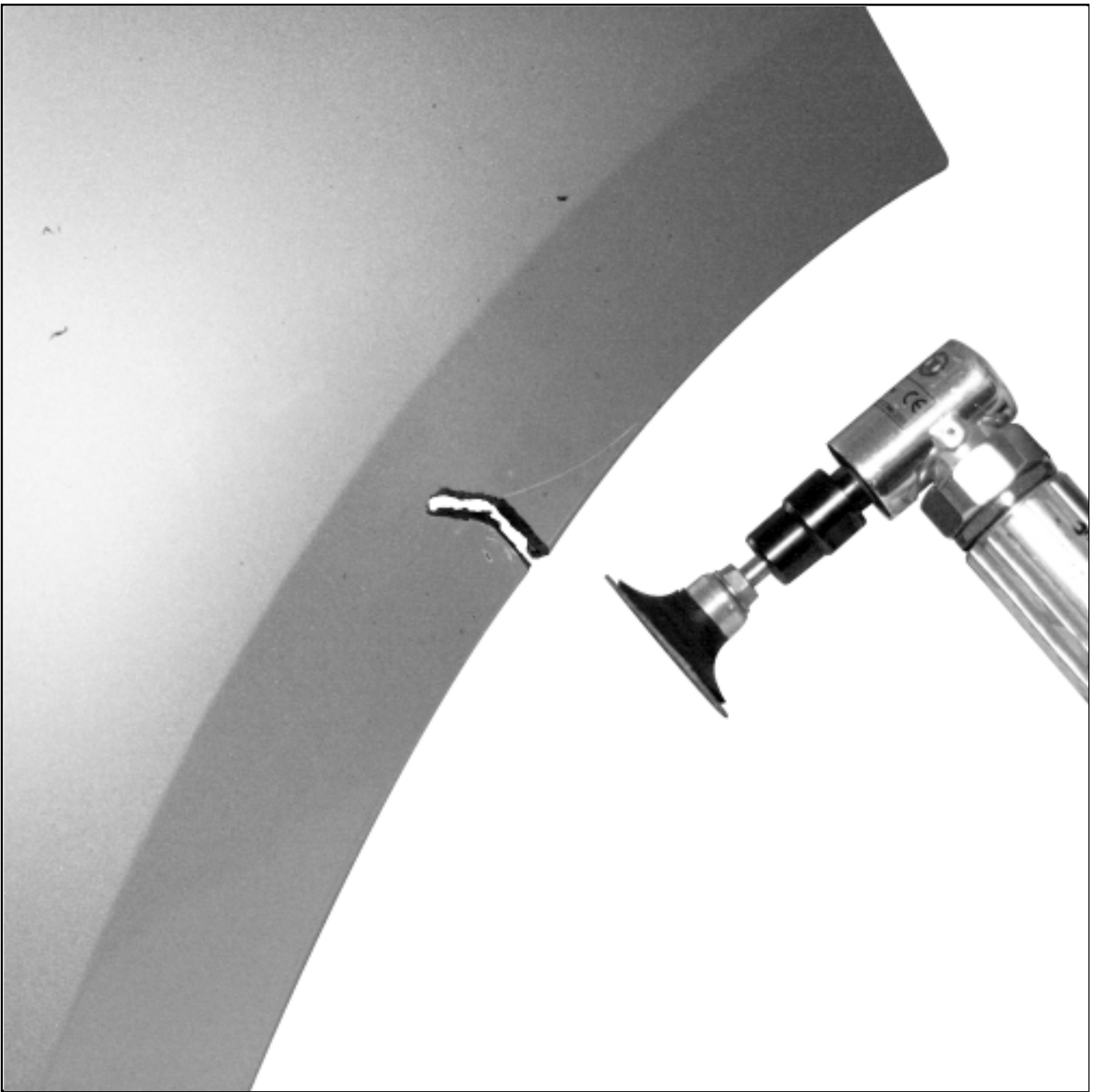
■ Wash the component in soapy water and rinse in clean water.

■ Clean the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

■ Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



■ Drill the end of the crack using a 4 mm drill bit to stop it spreading.



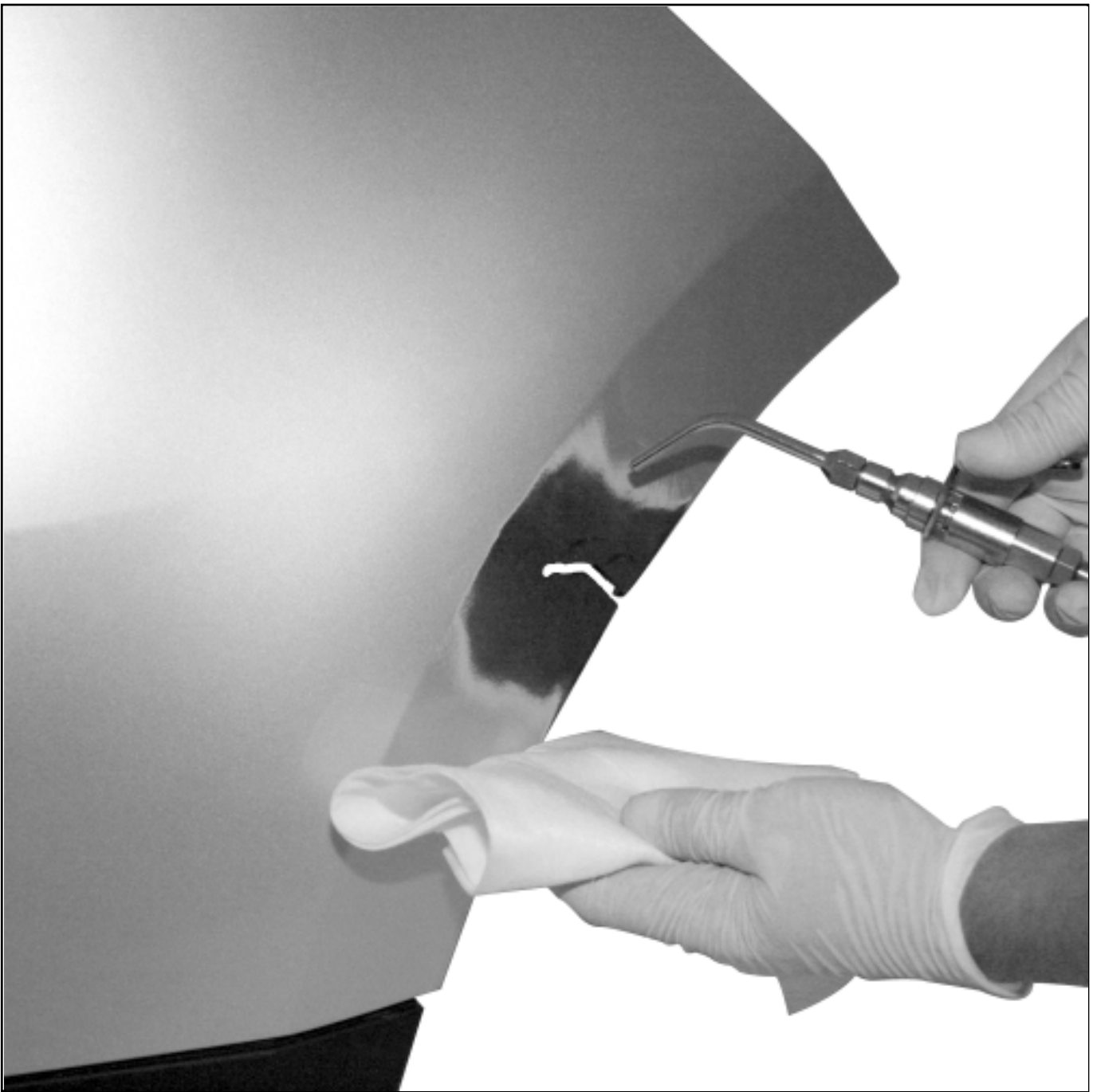
- Extend the length of the crack by 2 mm using an angle grinder or a sharp tool.



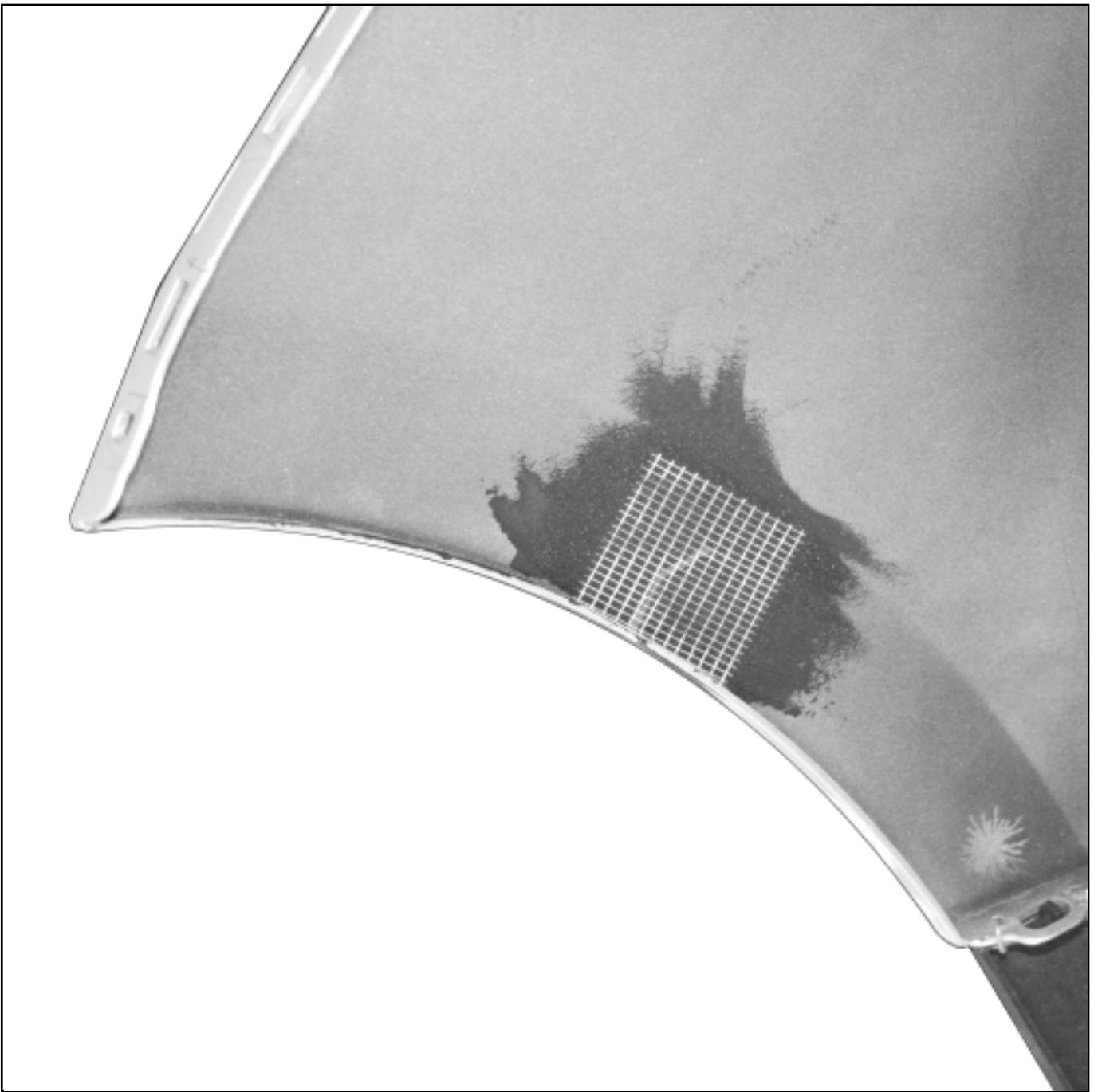
■ Chamfer the crack on the exterior side using an angle grinder or a belt sander equipped with a P 120 abrasive pad.



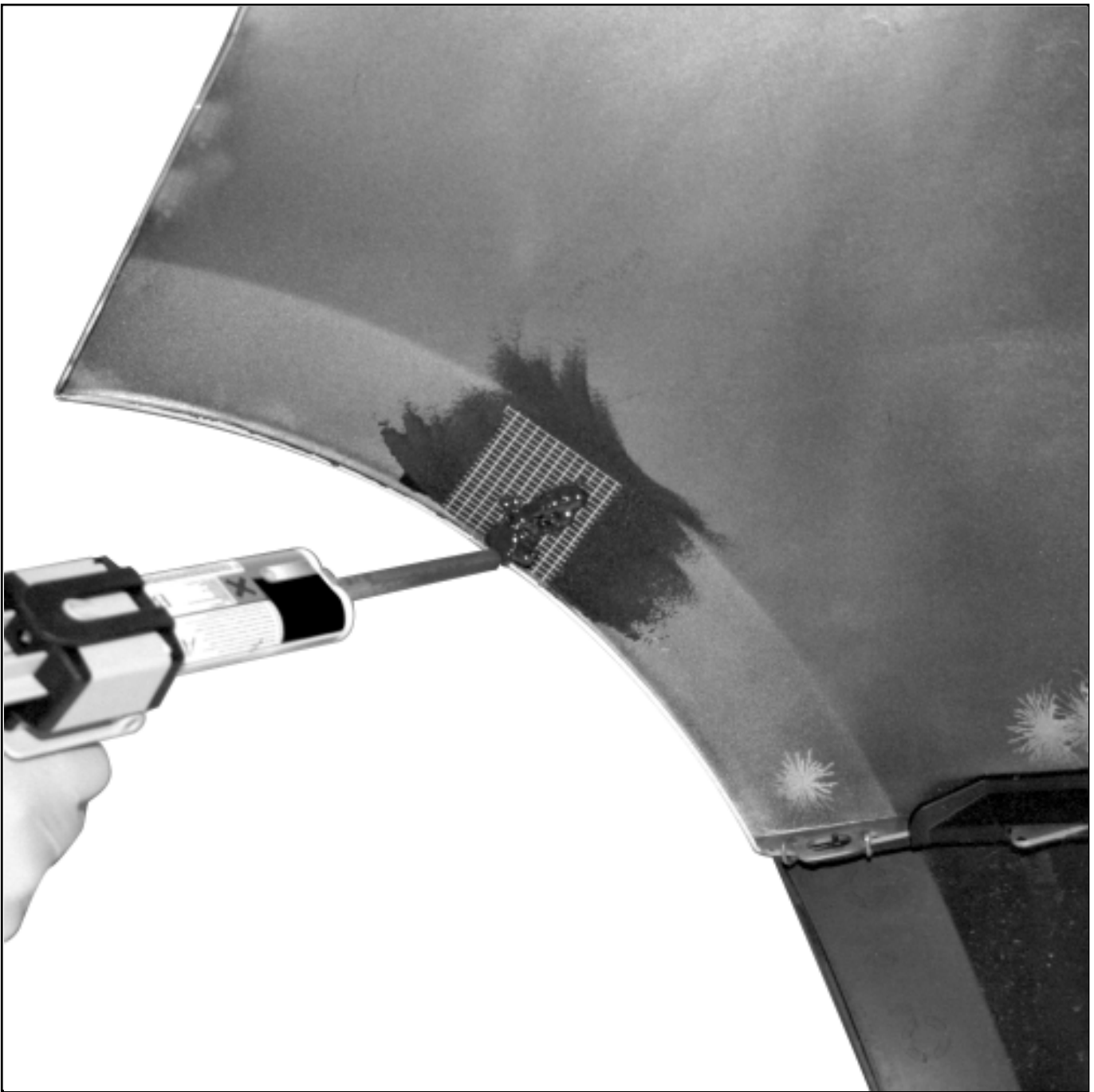
■ Surface the interior and exterior areas to be repaired with a P 150.



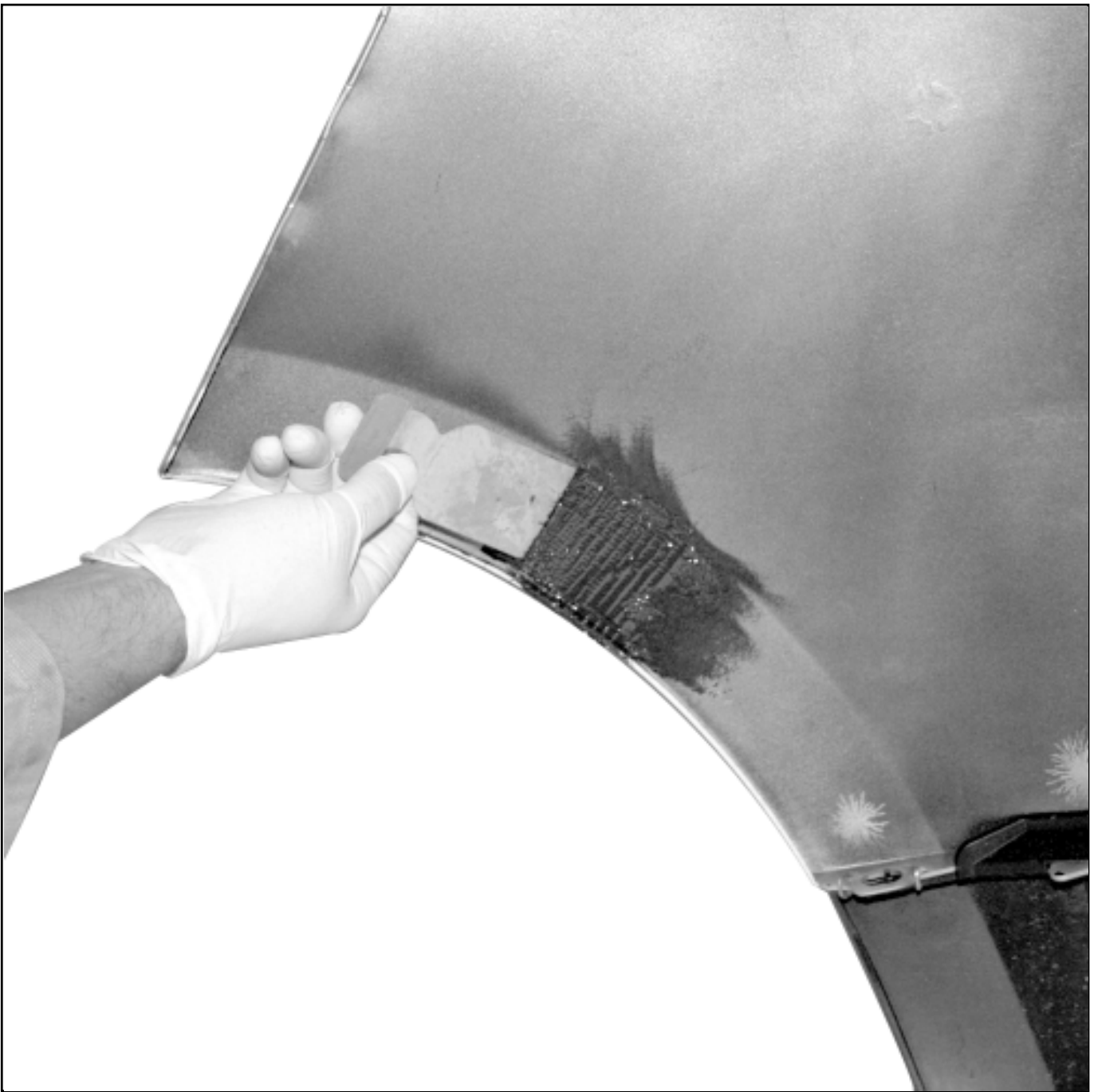
- Blow the component and clean the area to be repaired with the cleaner included in the plastic repair kit box.
- Apply the adhesive primer included in the plastic repair kit to the interior and exterior areas.
- Leave the adhesive primer to dry (see product technical sheet).



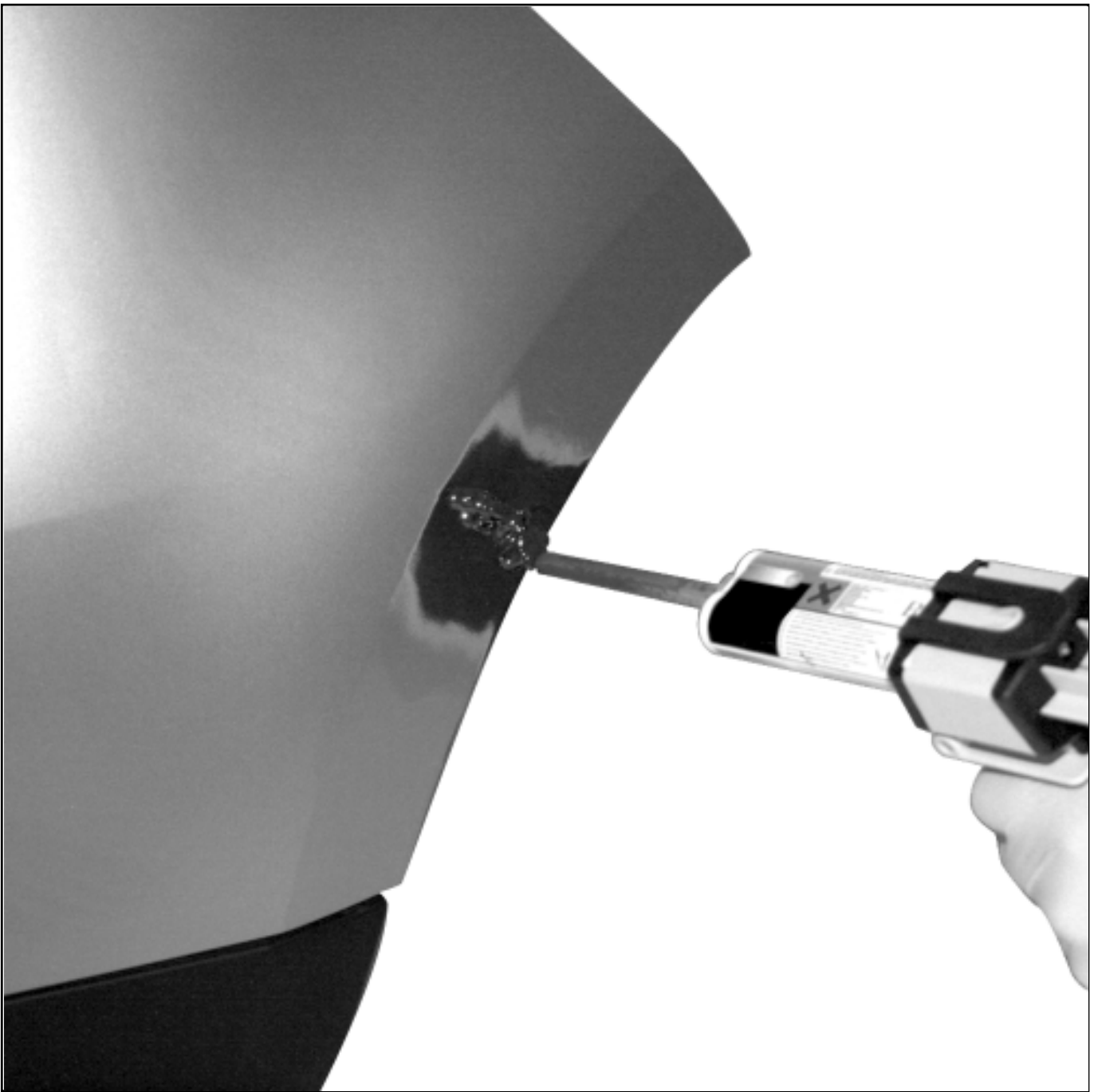
- ▣ Adjust a piece of reinforcing film (cloth) suitable for repairing the inside of the component.
- ▣ Prepare the bi-component repair mastic ([see 50A, General information, Products for plastic material bodywork components: Description](#)).
- ▣ Extrude a narrow bead around the area to be repaired on the inside of the component and apply reinforcing film (cloth).



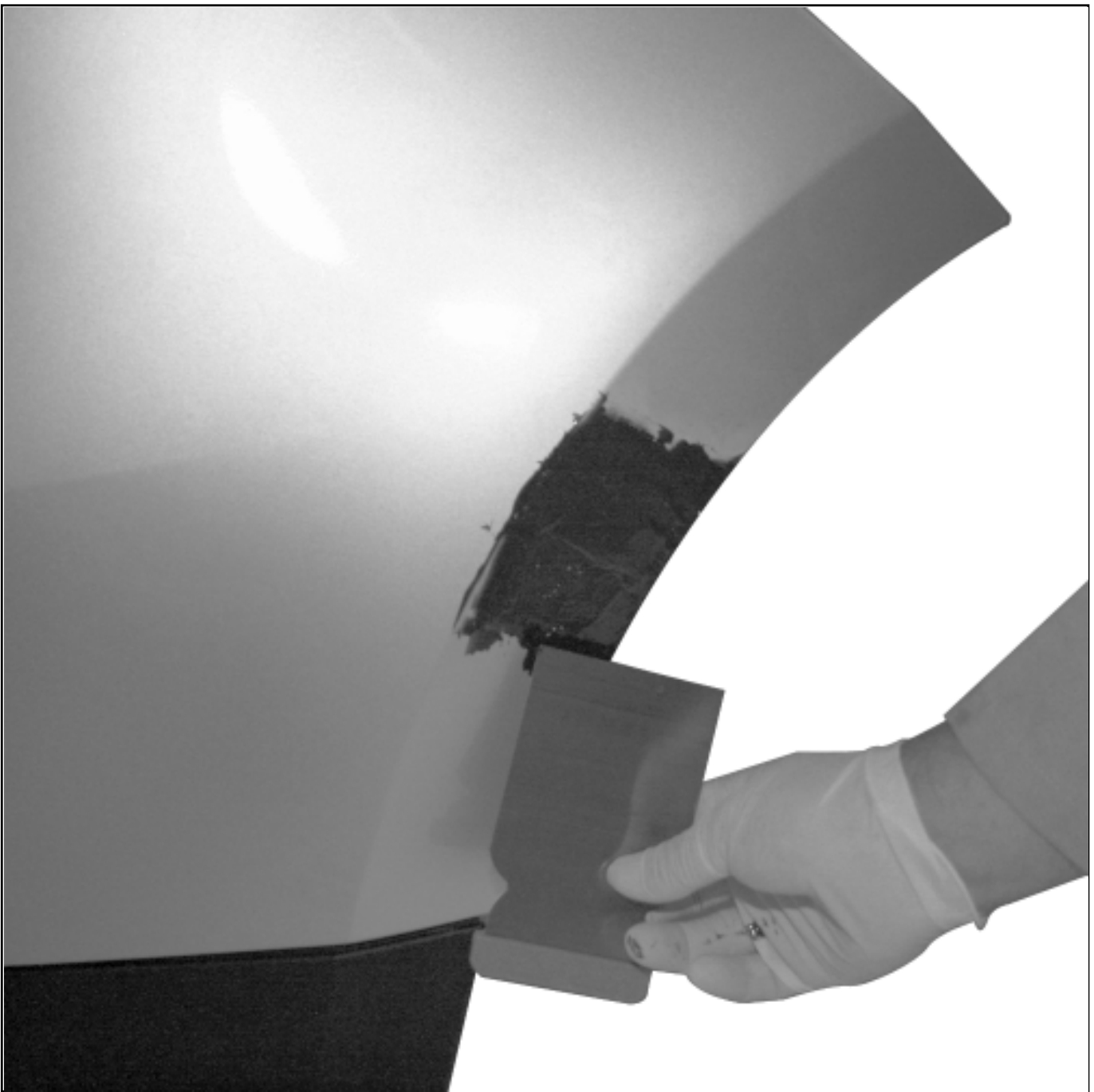
- Extrude a thick bead on the reinforcing film at the crack.



Smooth using a spatula.



■ Extrude a thick bead in the chamfer on the exterior side.

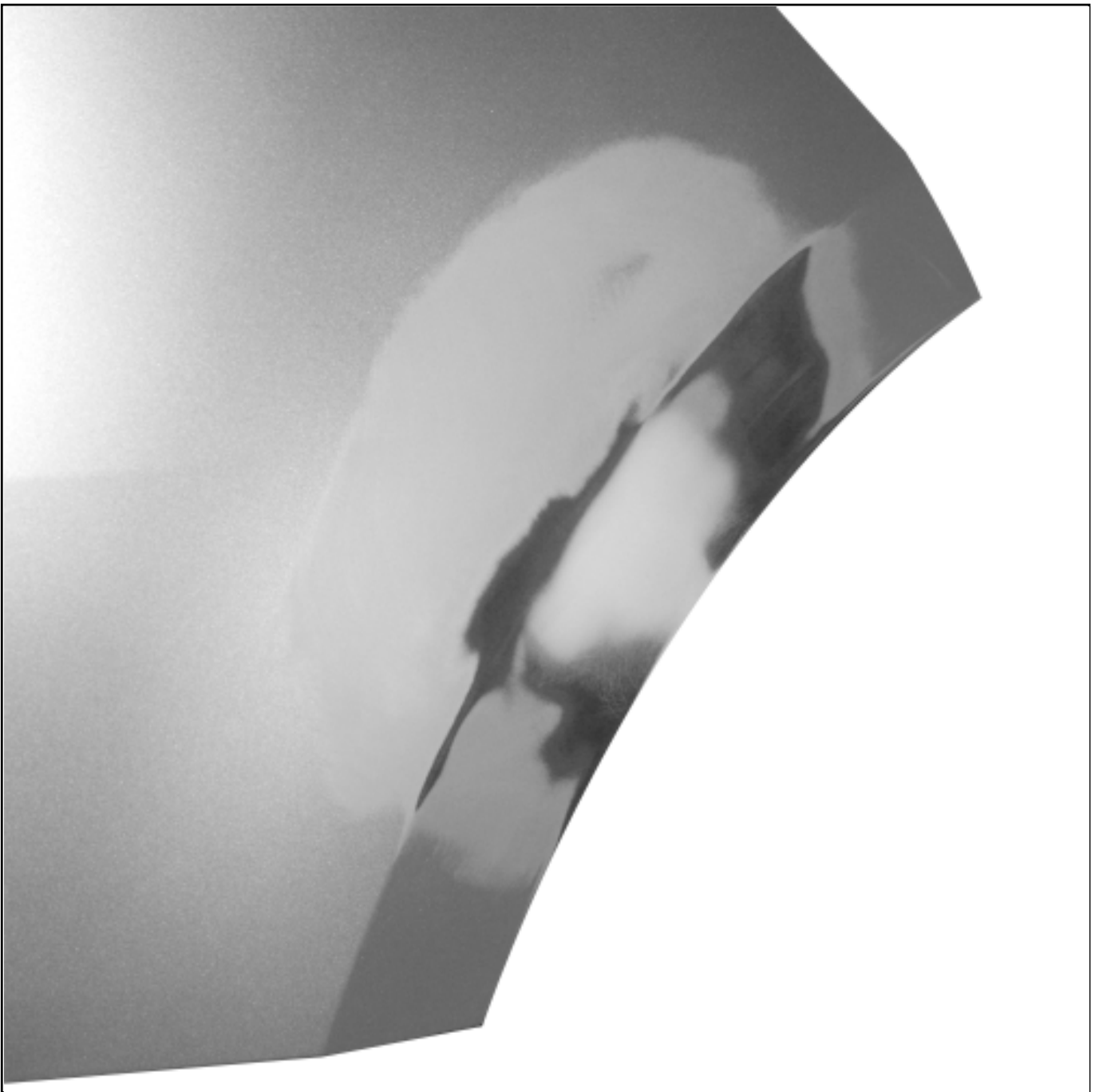


- Smooth using a spatula.
- Leave the bi-component repair mastic to dry (see product technical sheet).
- Surface on the exterior side with a P 150 then finish with a P 240.
- Blow the component and clean the area to be repaired with the cleaner included in the Plastic repair kit.



■ If necessary, apply a finishing mastic(see product technical sheet) [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

■ Sand the finishing masticwith a P 150then finish with a P 240.



- Follow the paint application procedure according to the material concerned:
 - [SMC bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),
 - [Polypropylene / polyethylene bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),
 - [Noryl bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),
 - [ABS bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic).

Note:

Before any repairs, check the reparability of components made from plastic materials.



(see 50A, General information, Products for plastic material bodywork components: Description) .

(see 50A, General information, Plastic material bodywork component: Precautions for the repair) .



■ Wash the component in soapy water and rinse in clean water.

■ Clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER Vehicle: Parts and

[consumables for the repair](#) (04B, Consumables - Products).

▣ Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



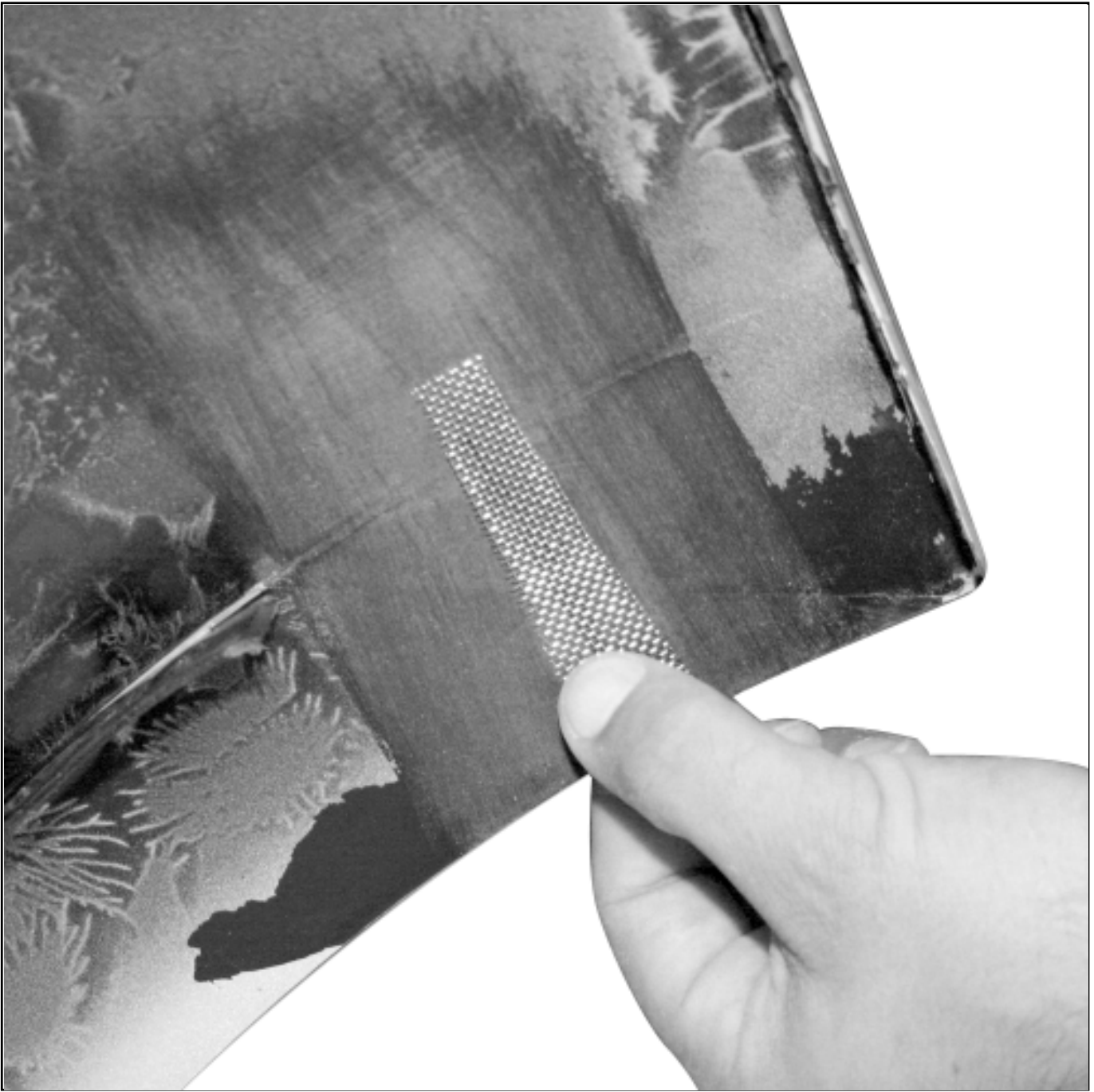
▣ Strip the paint with a P 150 over a width of 50 mm.



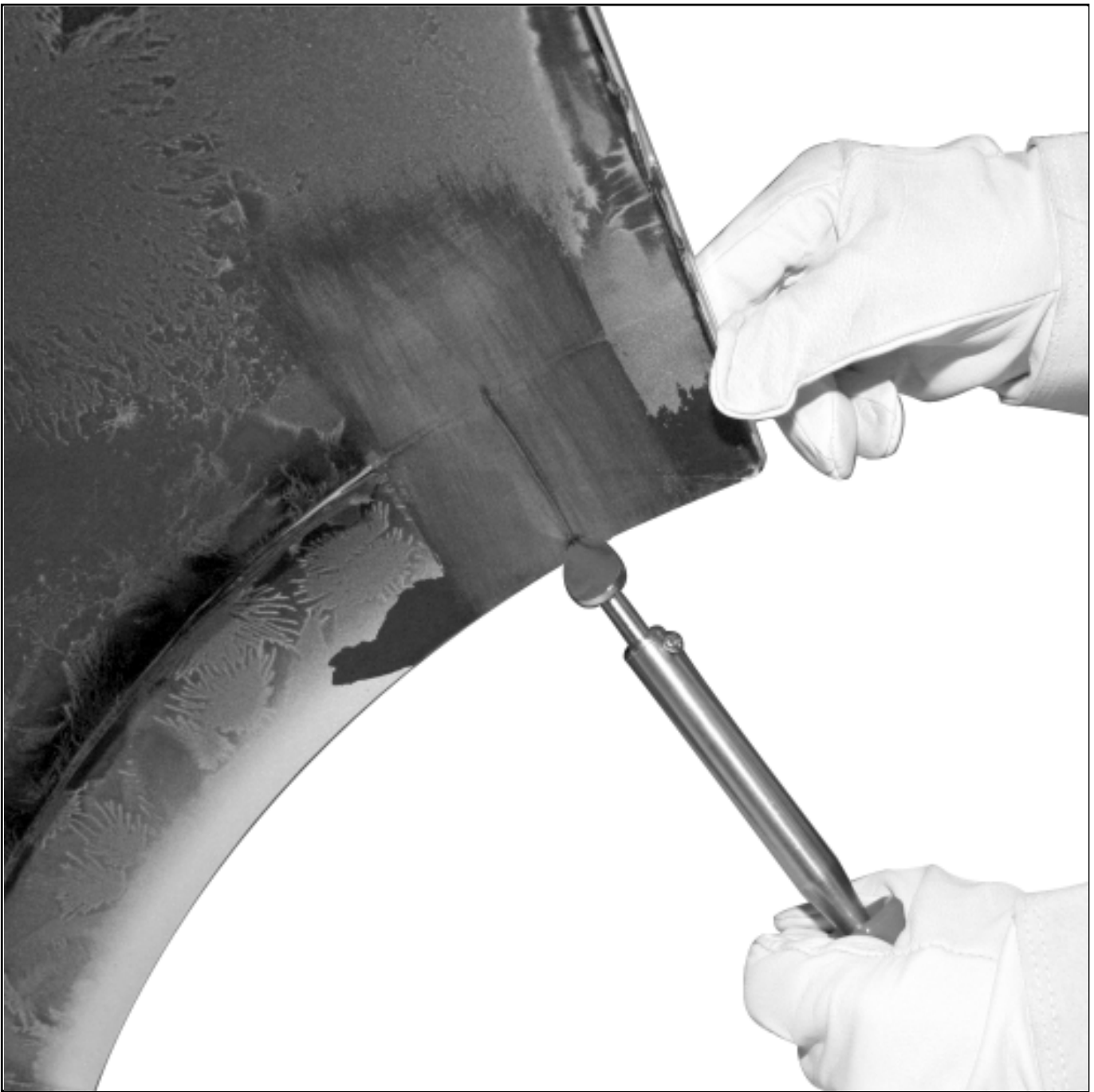
- ❑ Blow the component and clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).
- ❑ Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).
- ❑ Preheat the soldering iron.



■ Cut the stainless steel mesh wider at the start of the crack.



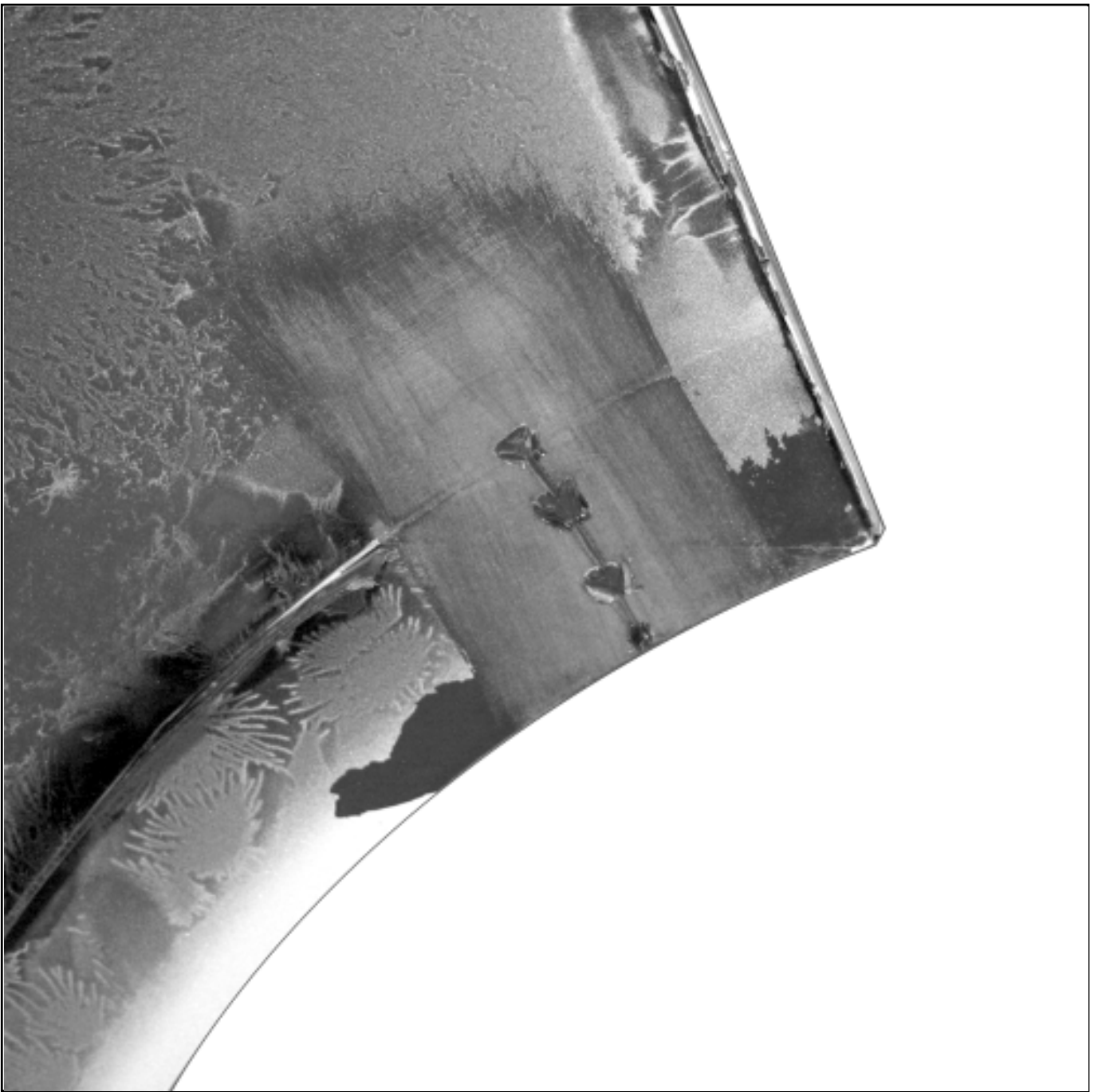
■ Adjust the stainless steel mesh according to the shape of the support.



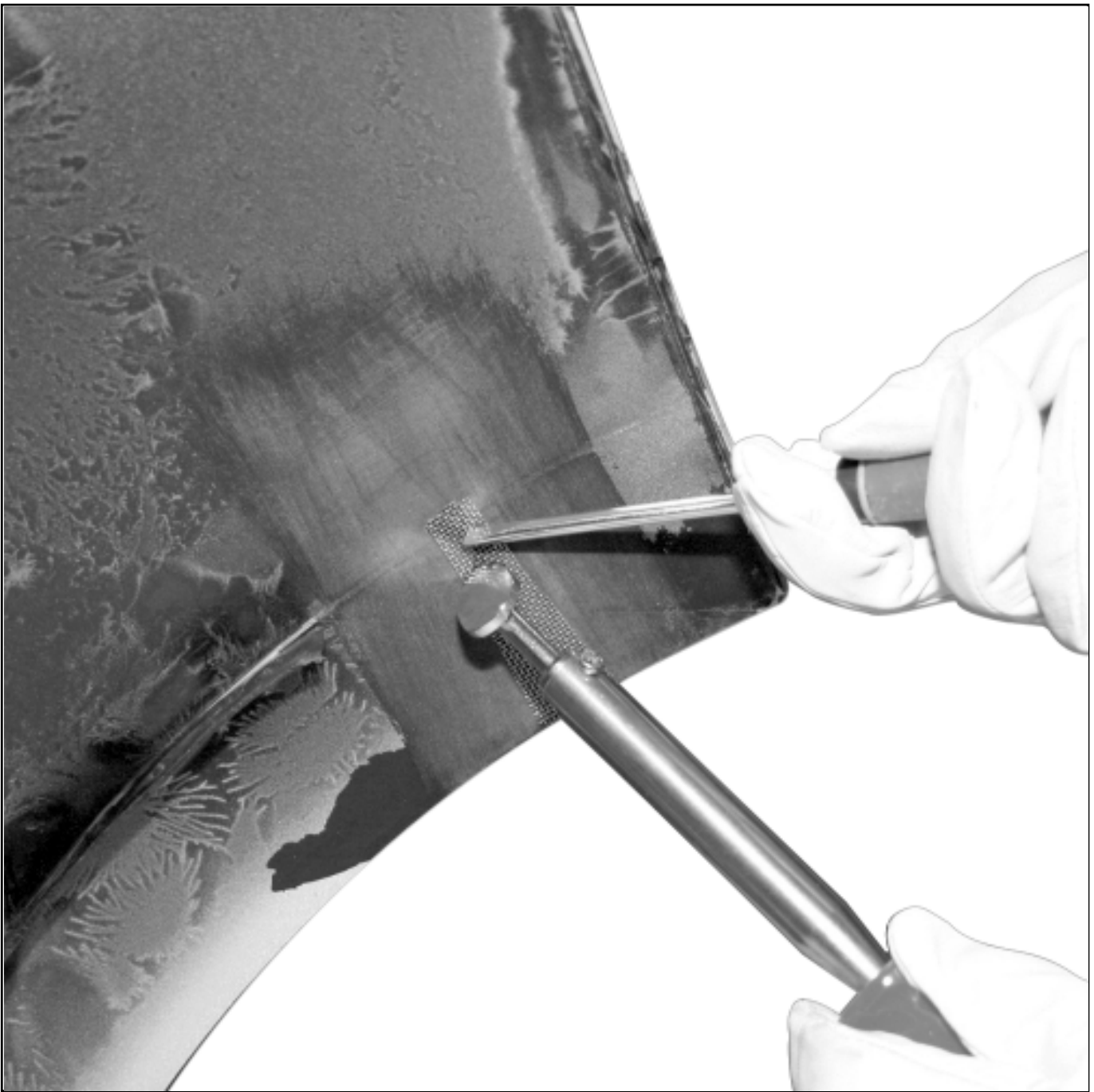
- Spot-weld the start of the crack with the tip of the soldering iron in order to maintain the shape.



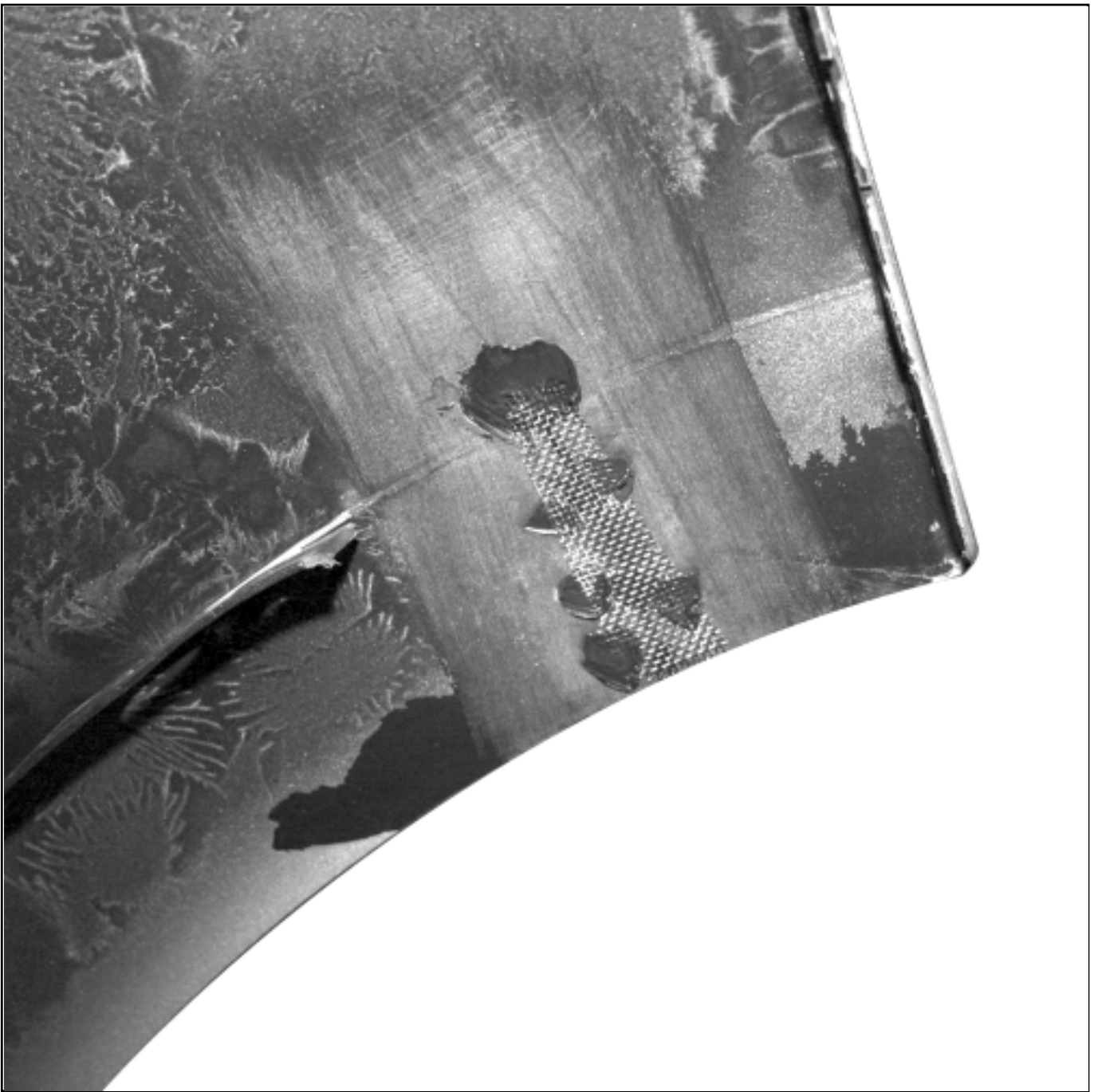
■ Cool the spot weld, for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



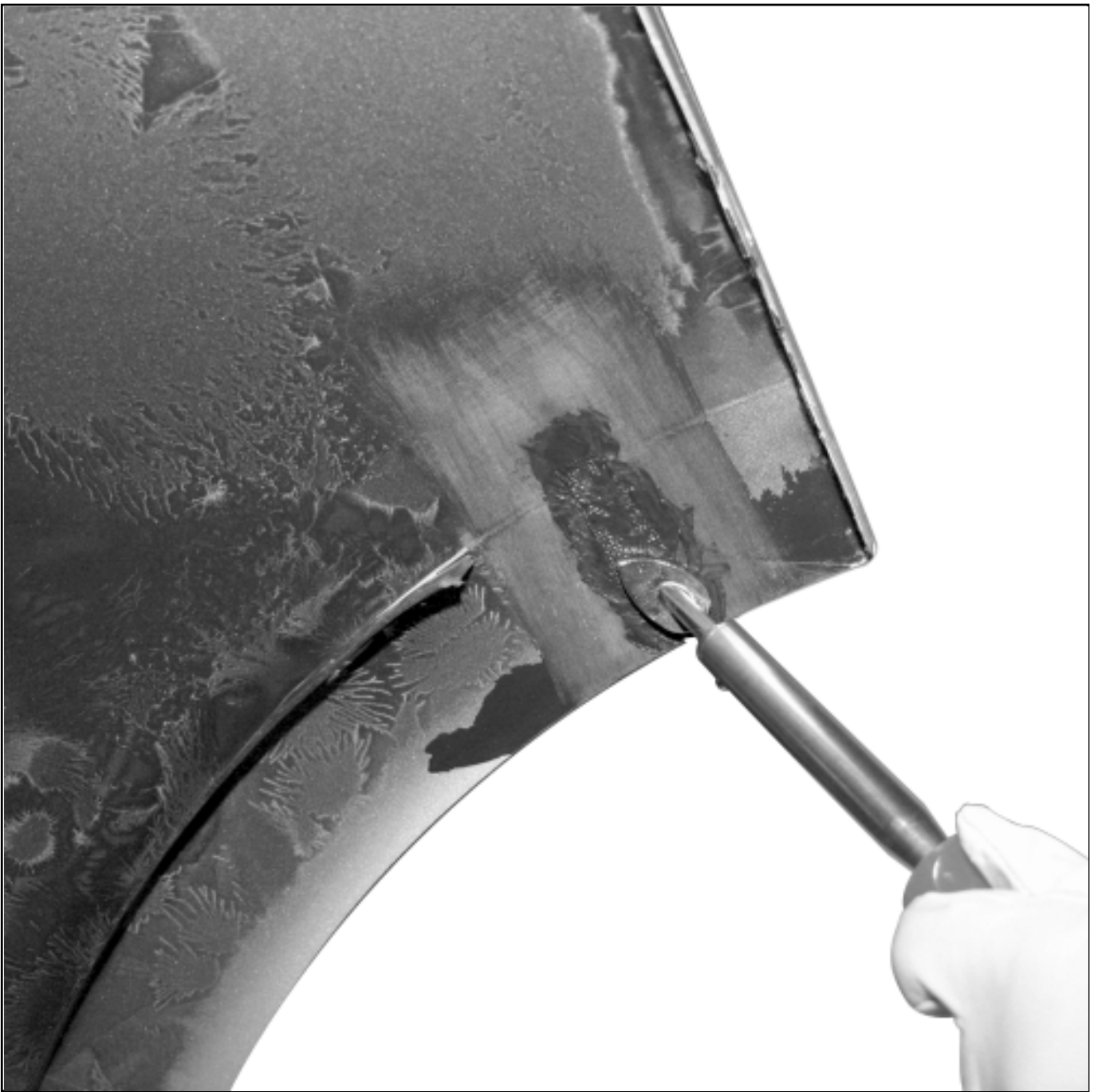
- ❑ Repeat this operation along the length of the crack.
- ❑ Cool each spot weld, for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



■ Position the stainless steel mesh and hold it using a dedicated tool.

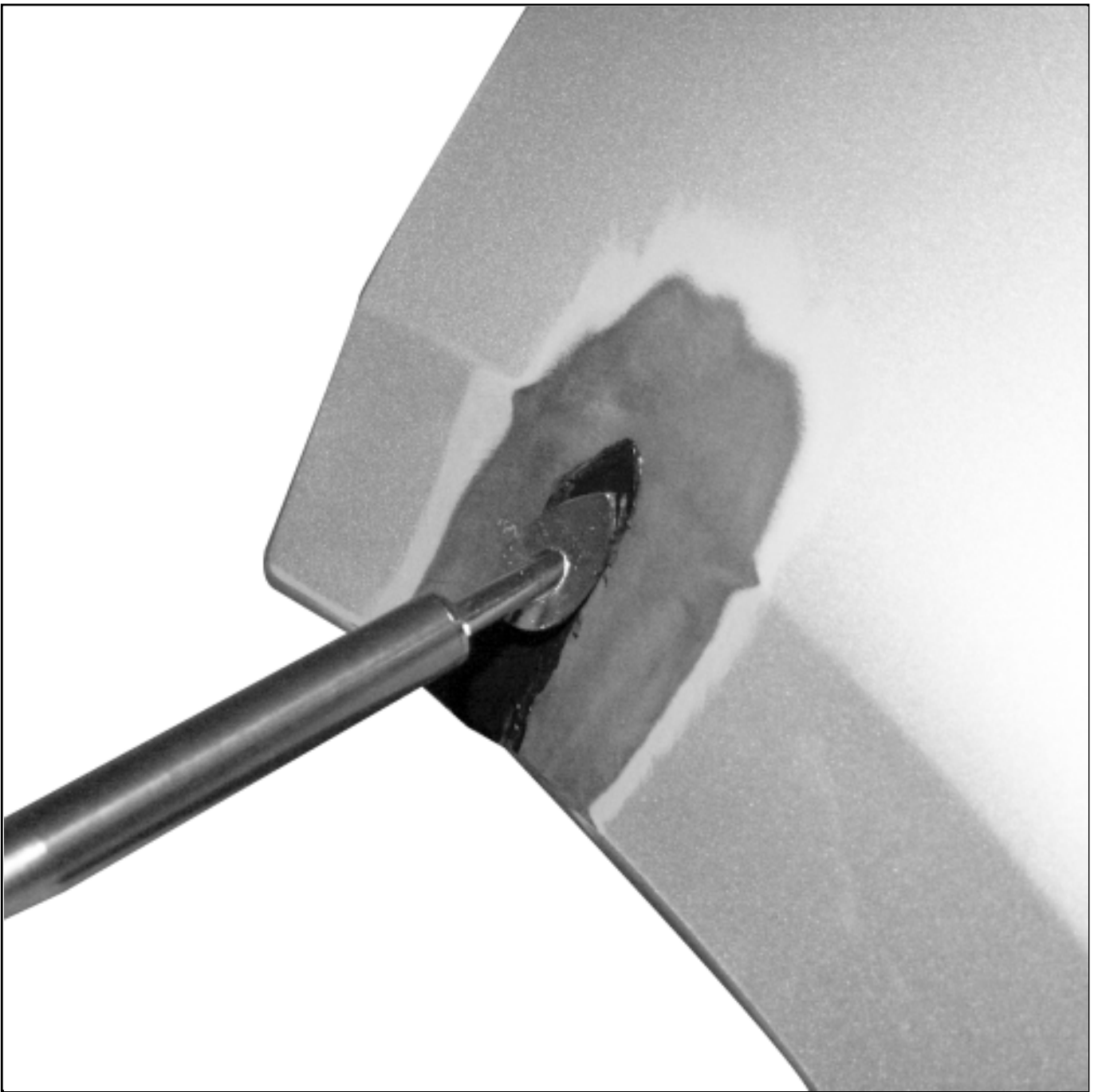


- ▣ Spot-weld the stainless steel mesh.
- ▣ Cool each spot weld, for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

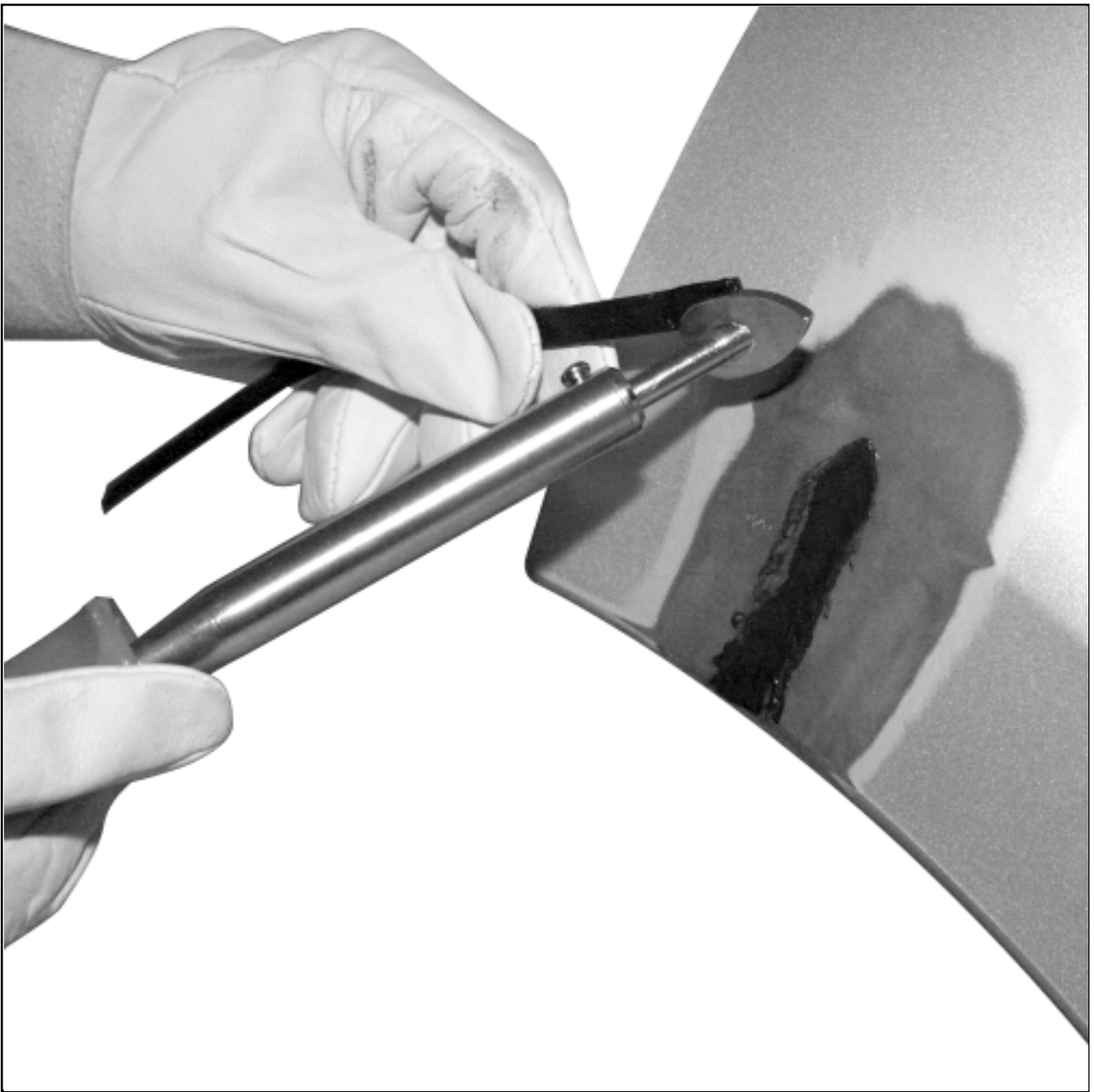


- ▣ Enclose the stainless steel mesh in the plastic material along the length of the crack.

- ▣ Cool the whole of the repaired area for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



■ Weld the exterior part of the bumper.



■ Add material by preheating the welding rod with the tip of the soldering iron (except for ABS, ASA and Polycarbonate type materials).



Note:

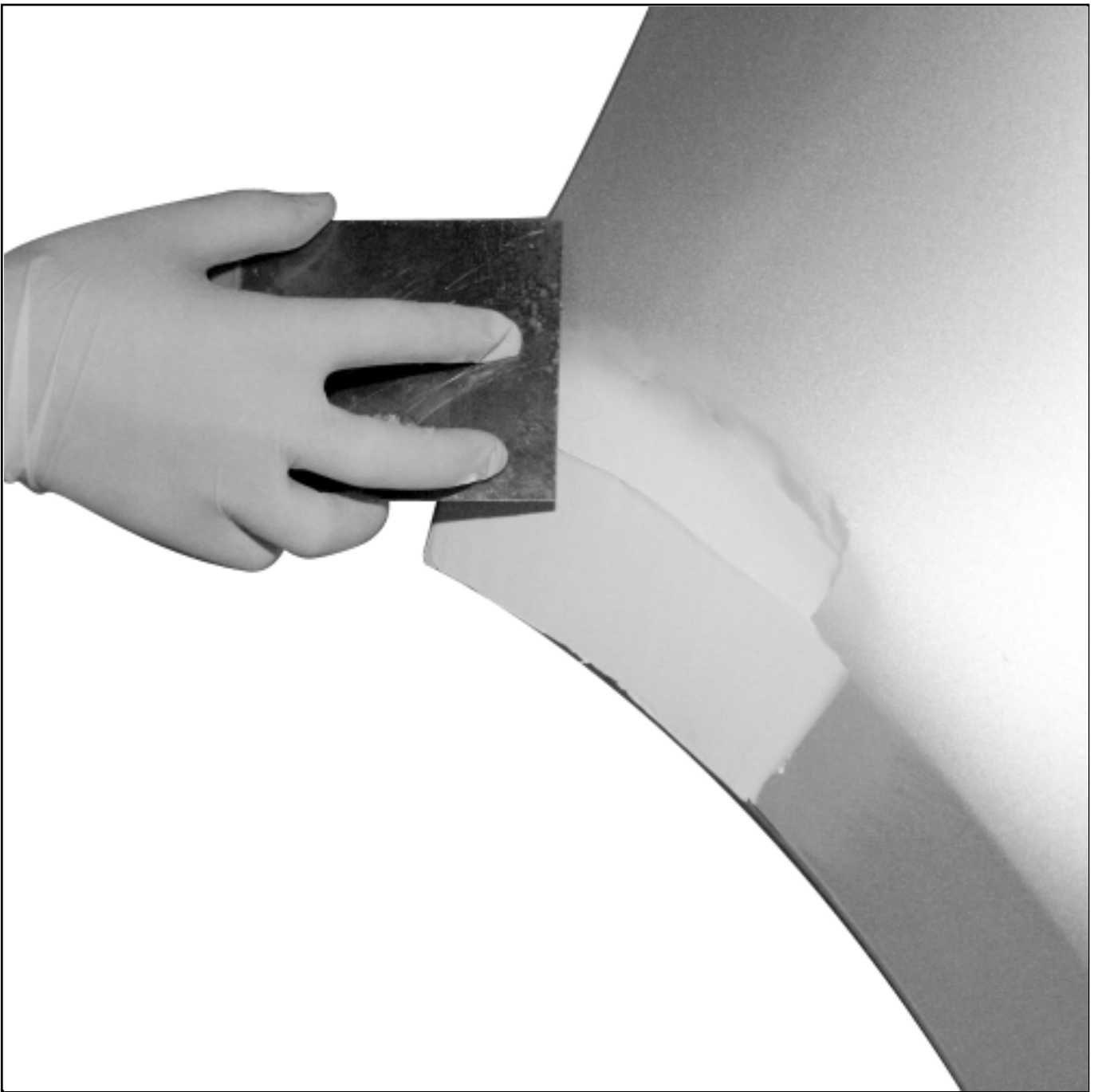
For ABS, ASA and Polycarbonate, fill the crack with the surrounding material

■ Cool the whole of the repaired area for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

- ▣ Surface with a P 80to P 150then finish with a P 240.

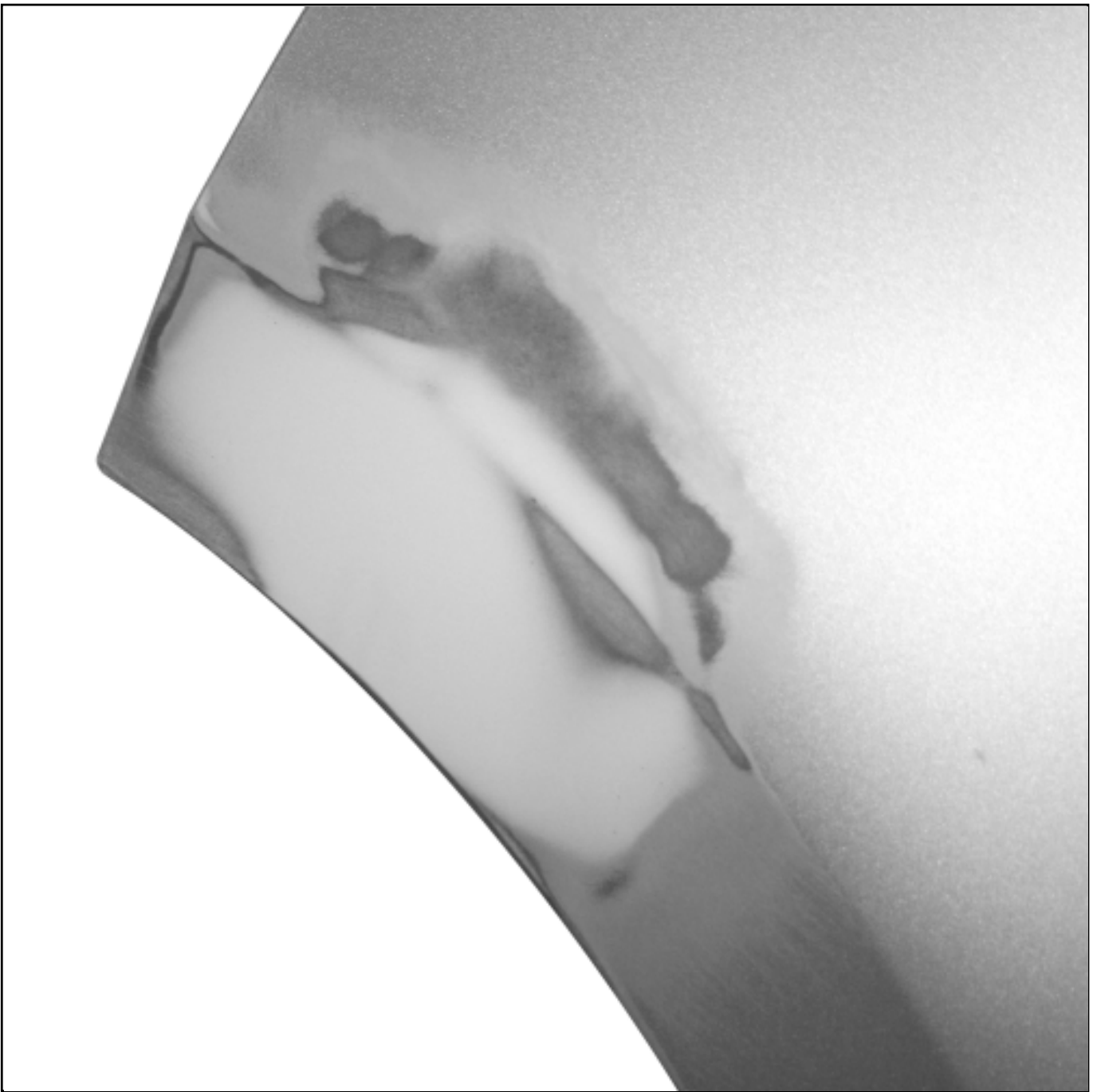


- ▣ Blow the component and clean the area to be repaired with a LINT-FREE CLOTHsoaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).
- ▣ Wipe the area with a clean, dry LINT-FREE CLOTH[Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



■ If necessary, apply a finishing mastic(see product technical sheet) [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

■ Sand the finishing mastic with a P 150 then finish with a P 240.



- Follow the paint application procedure according to the material concerned:
 - [Polypropylene / polyethylene bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),
 - [ABS bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic).

3- EPOXY RESINE METHOD



Note:

Method apply only on RTM component.

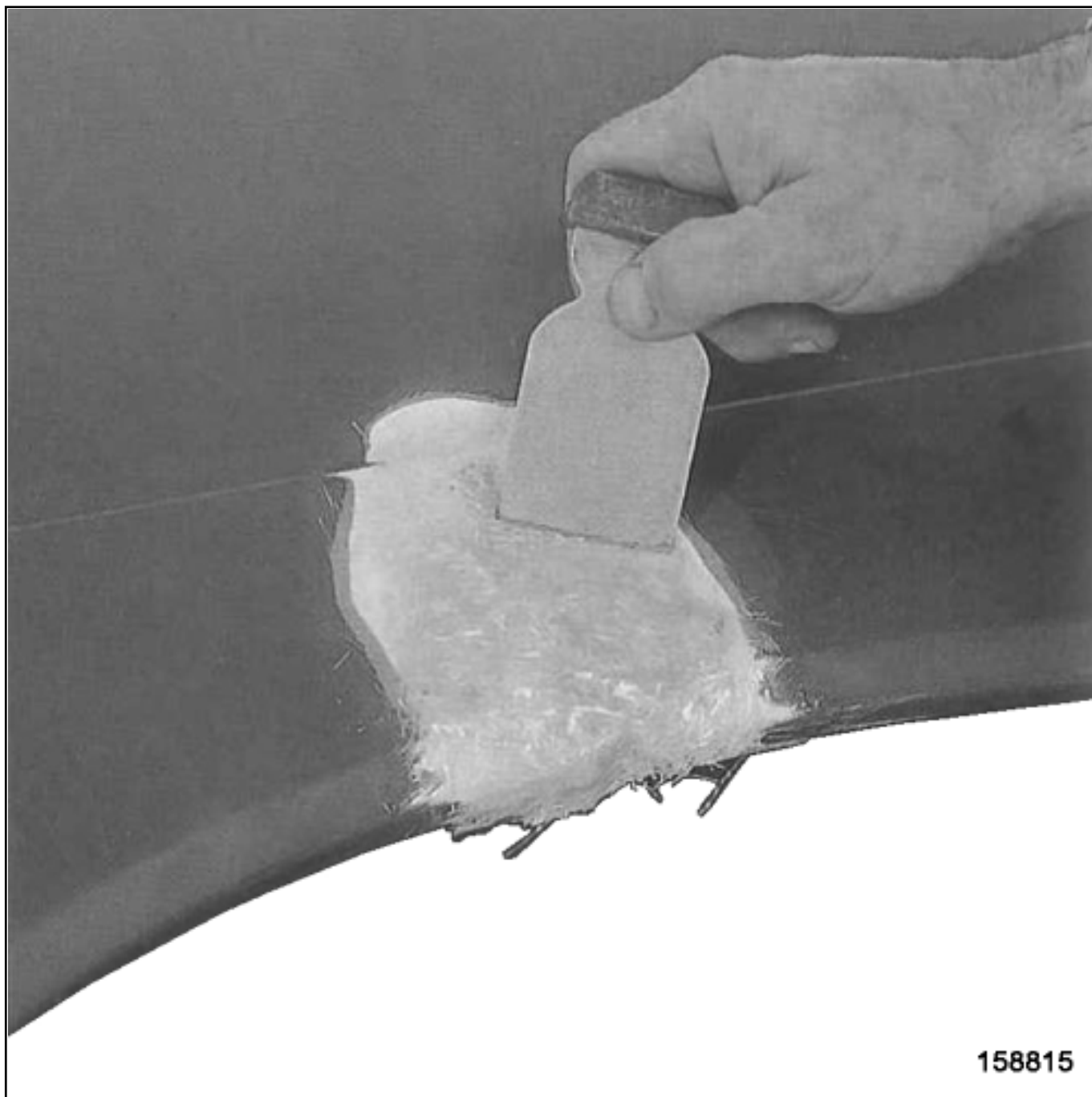


- Open the crack to let a hole of 10 mm wide.
- Chamfering between 30 to 40 mm around the crack using the orbital sander with a P 80.
- Sand the paint around the zone to be repaired using the orbital sander with a P 150

- Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).



- Align the borders of the component using a plate pad(local manufactured)and fix them with plate screws.
- Cut 2 strips of materialwith repair length, first of 50mmwide and second of 100 mmwide.
- Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).
- Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components: Description](#)) .



- Fit the strip of material.
- Soaked the component interior with Epoxy resin.

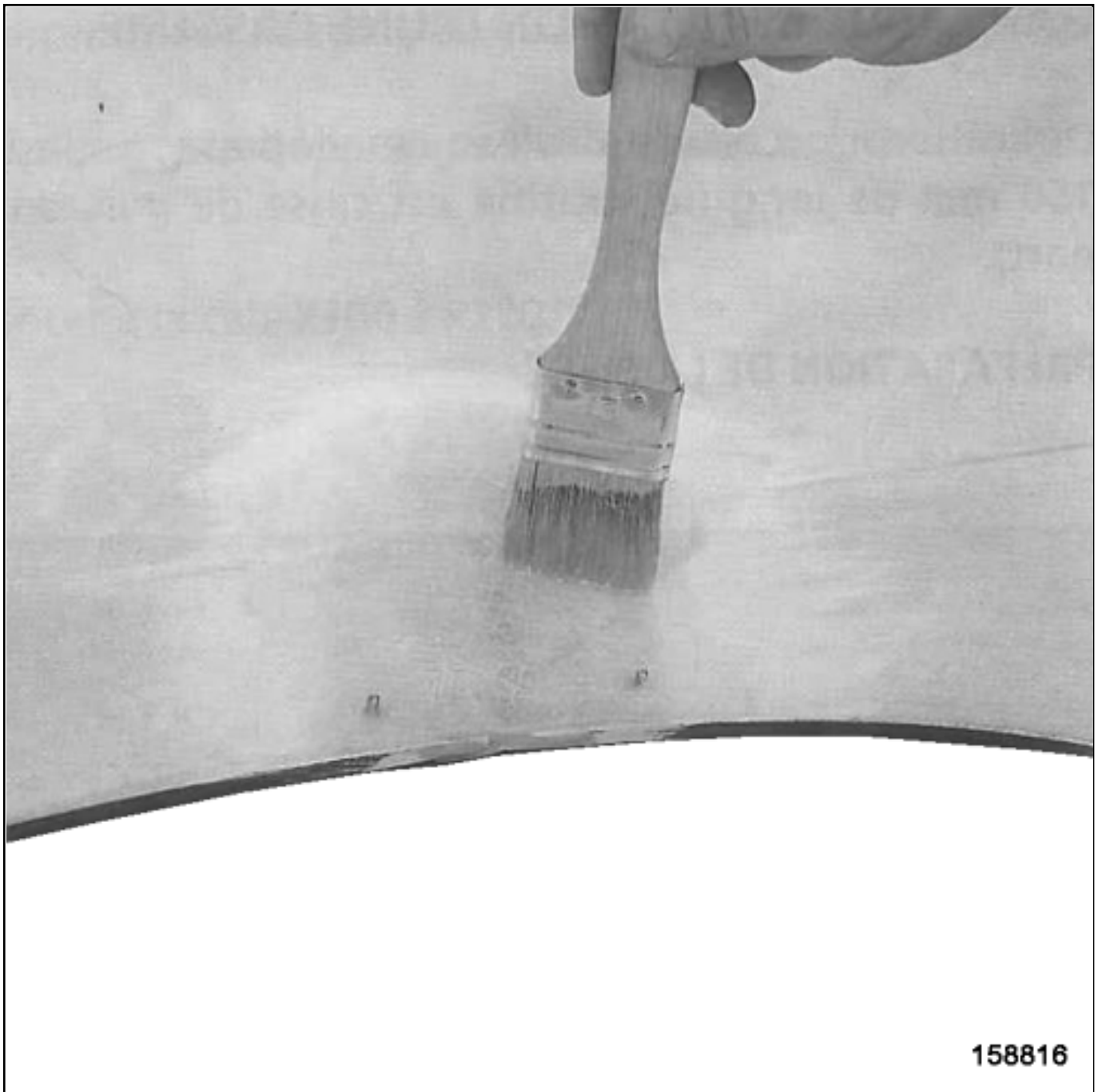


Note:

After 15 minutes, accelerate the hardening in drying oven or in infrared drying device (60° C maxi at a distance of 70 cm).

- Remove the plate pads.

- Cut a strip covering the chamfer.



- Chamfering the screws holes.

- Fit the strip soaking with resin.



Note:

Pay particular attention at output screw area and at strips junction reinforcement to prevent the air bubbles form.

- ▣ Add short fibres with resin(50 % maxi.).
- ▣ Apply the mixture using a spatula.



Note:

After 15 minutes,accelerate the hardening in drying oven or in infrared drying device(60° C maxi at a distance of 70 cm).

- ▣ Sand using the orbital sander with a P 80then with a P180and P240.
- ▣ Apply if necessary a finishing mastic(see product technical sheet). (see **Vehicle: Parts and consumables for the repair**)
- ▣ Sand the finishing masticusing a P 150then finish using a P240.

4. PROCEDURE 3

- ▣ Repairing a hole on a plastic chassis element.

1- BONDING METHOD

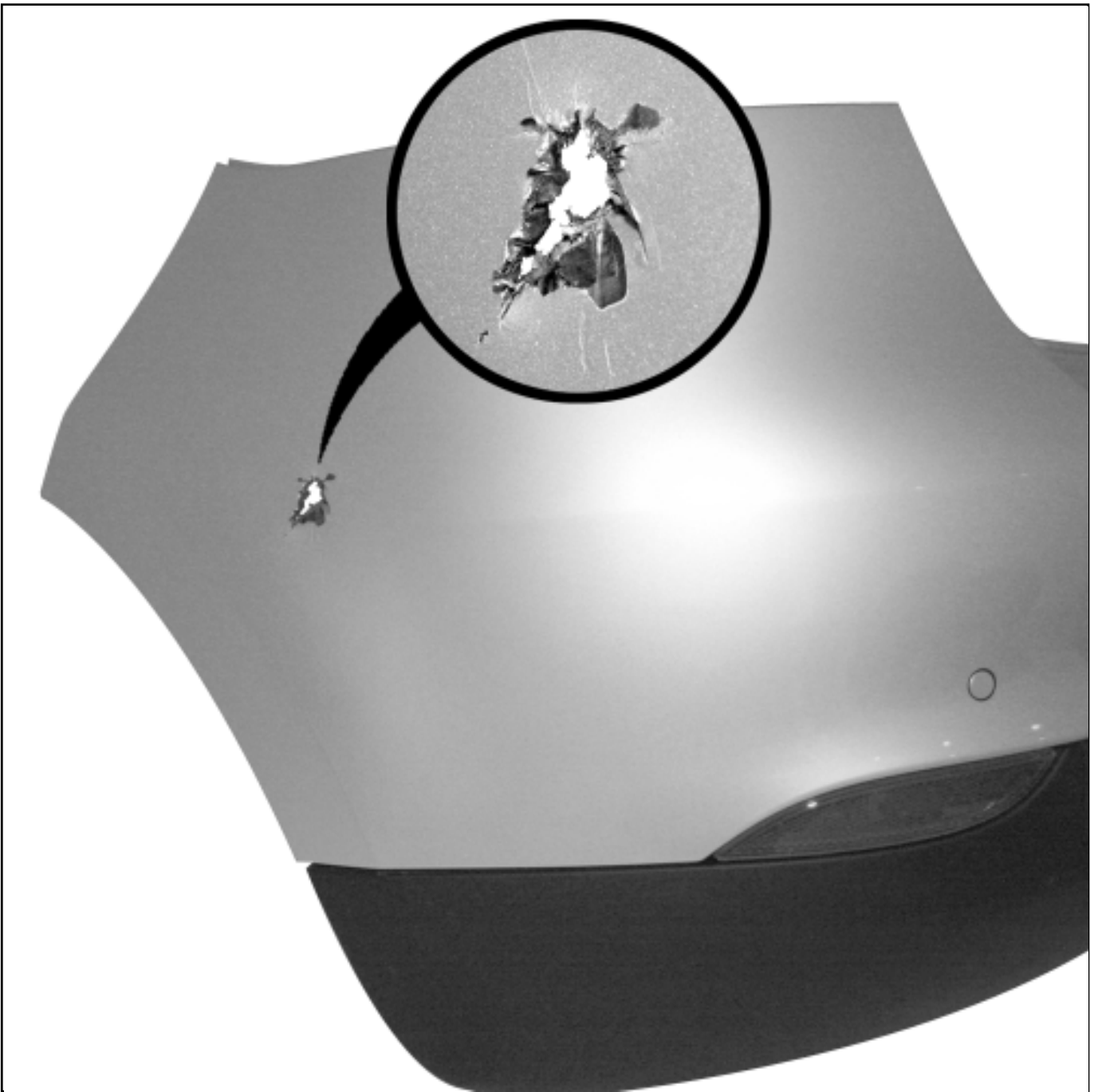


Note:

Before any repairs, check the reparability of components made from plastic materials.

(see 50A, General information, Products for plastic material bodywork components: Description) .

(see 50A, General information, Plastic material bodywork component: Precautions for the repair) .



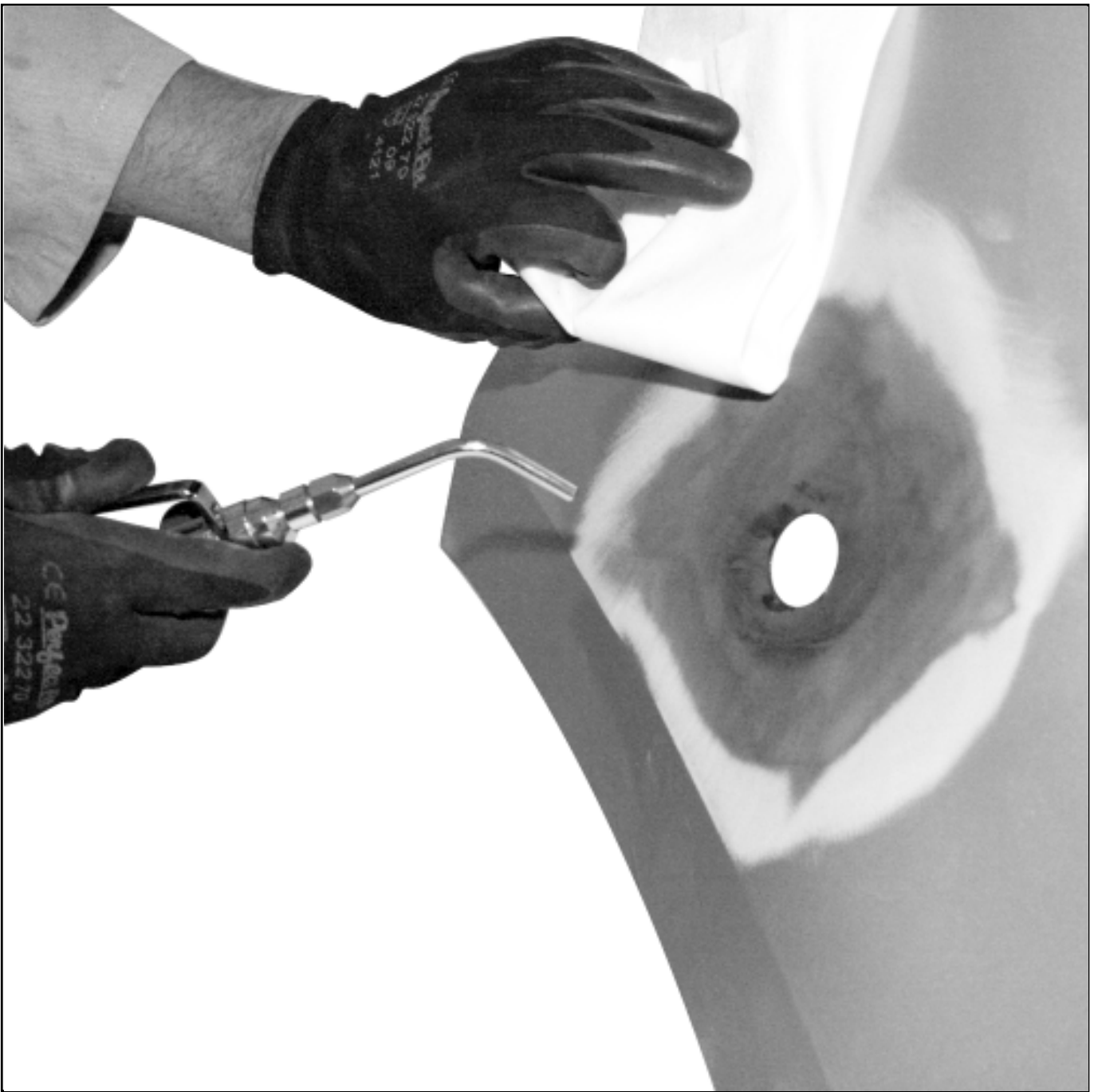
- Wash the component in soapy water and rinse in clean water.
- Clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).
- Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



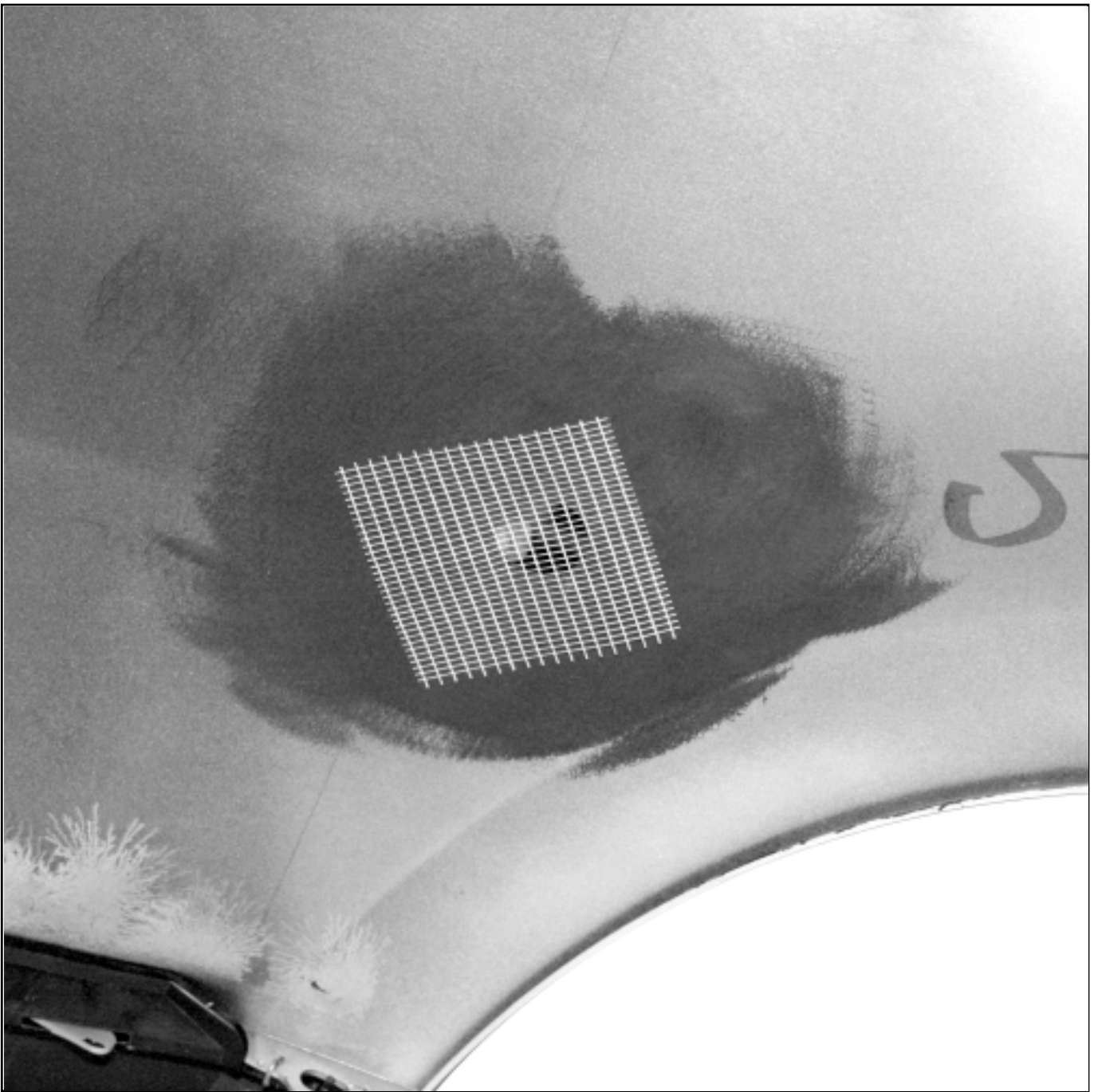
- Chamfer on the exterior side using an angle grinder or a belt sander equipped with a P 120 abrasive pad.



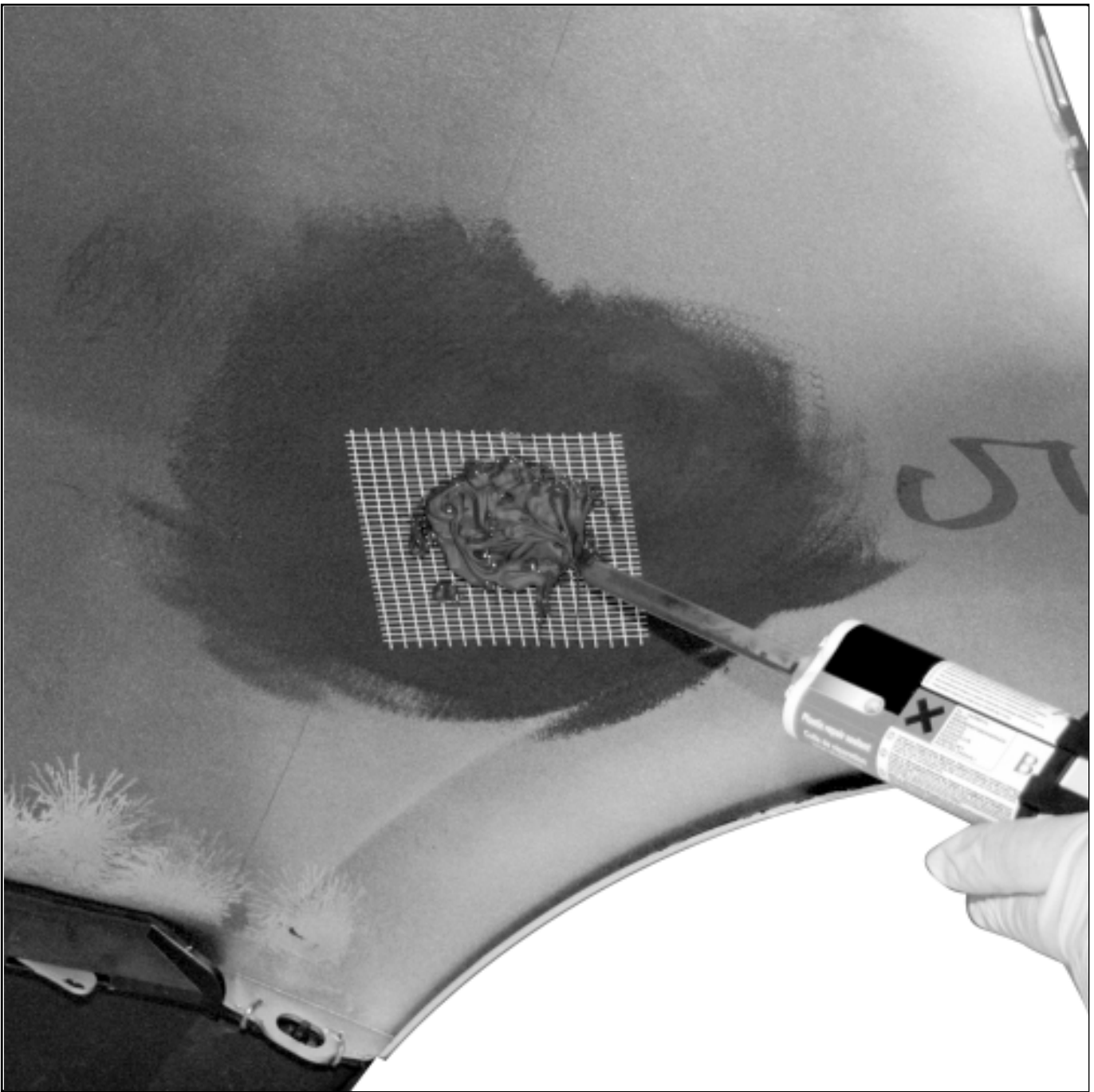
- Surface the interior and exterior areas with the orbital sander using a P 150.



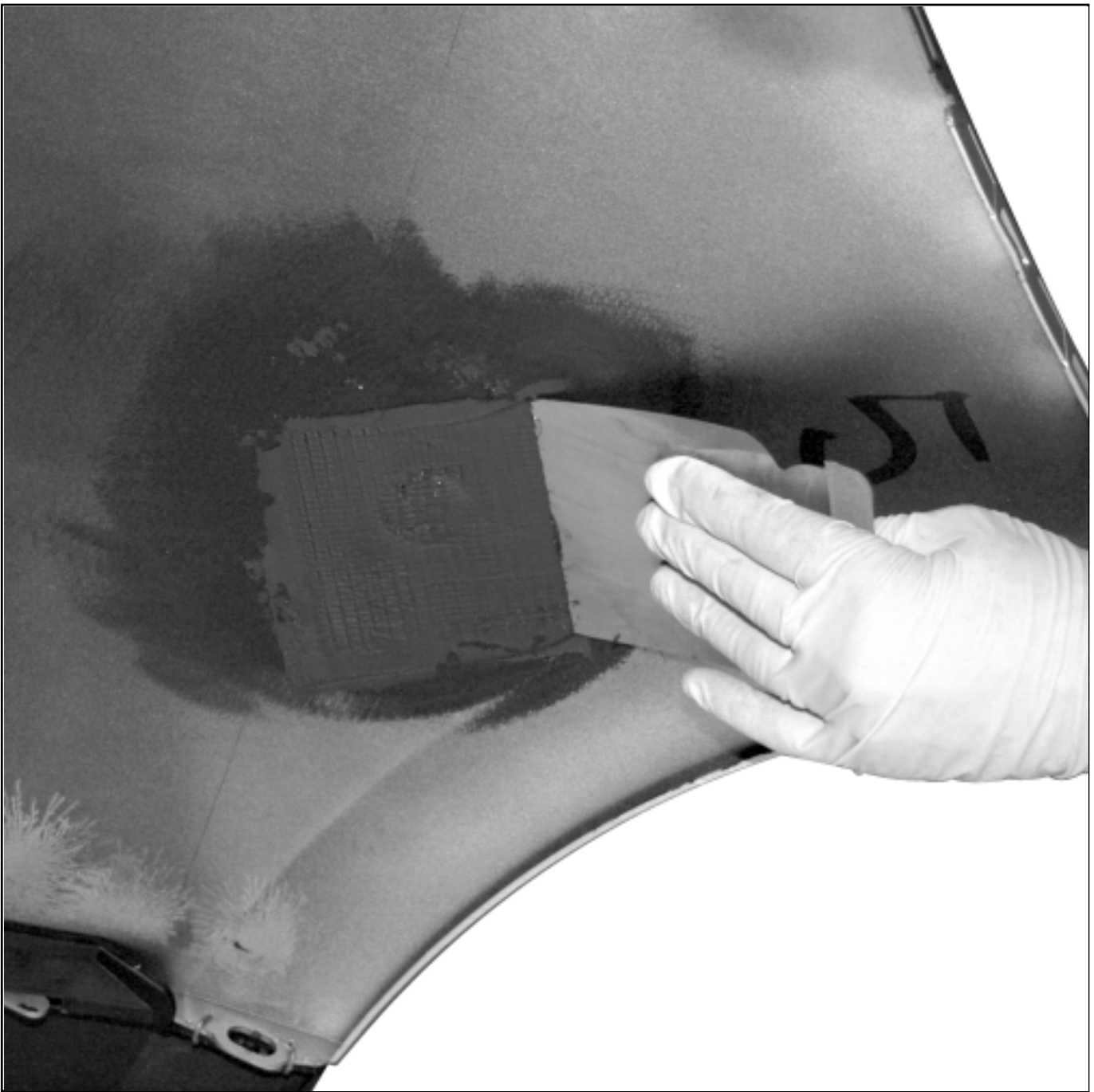
- Blow the component and clean the area to be repaired with the cleaner included in the plastic repair kit box.
- Apply the adhesive primer included in the plastic repair kit to the interior and exterior areas.
- Leave the adhesive primer to dry (see product technical sheet).



- ▣ Adjust a piece of reinforcing film (cloth) suitable for repairing the inside of the component.
- ▣ Prepare the bi-component repair mastic ([see 50A, General information, Products for plastic material bodywork components: Description](#)).
- ▣ Extrude a narrow bead around the areas to be repaired on the inside of the component and apply reinforcing film (cloth).



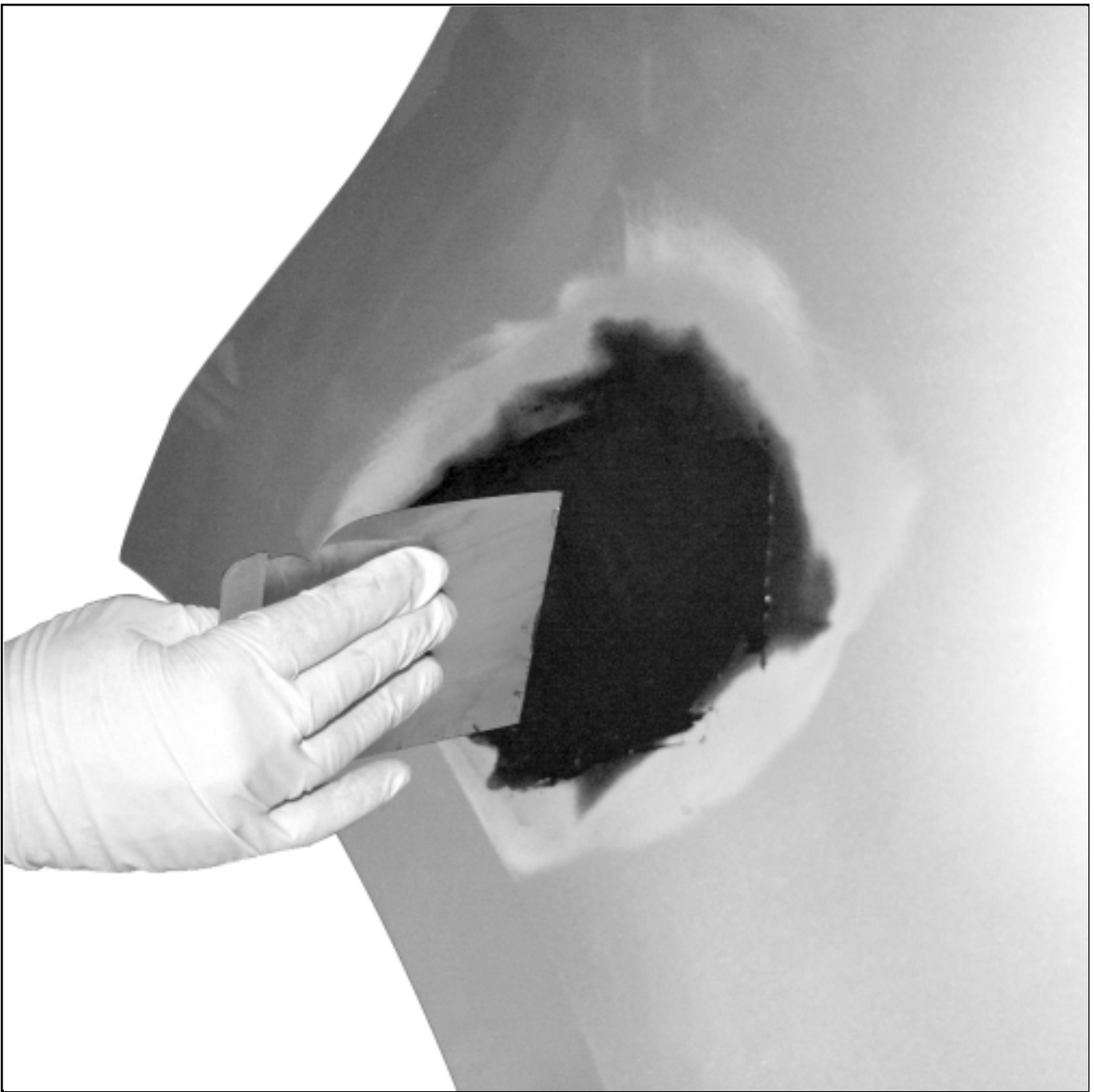
- Extrude a thick bead on the reinforcing film (cloth) at the hole.



Smooth using a spatula.

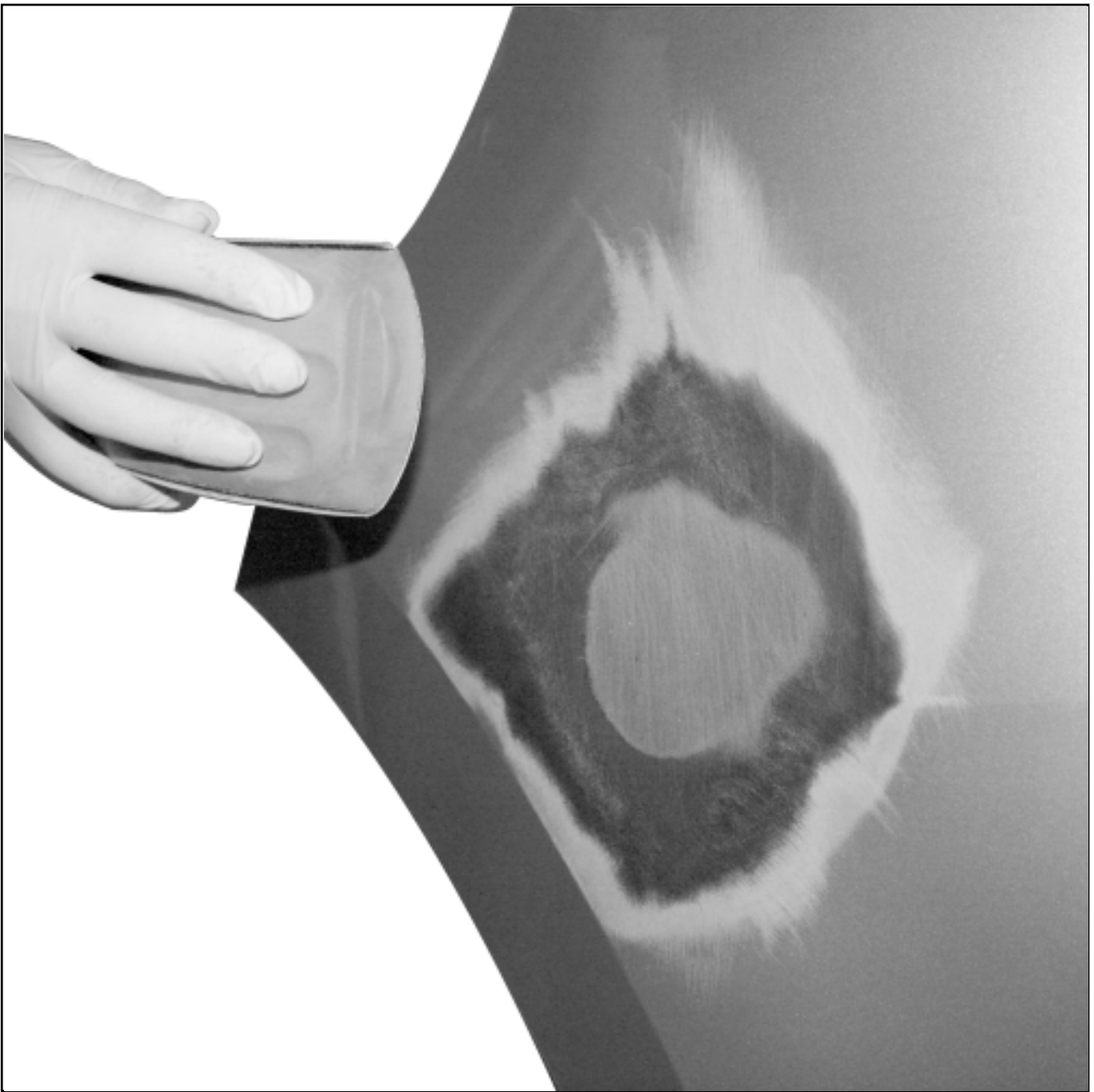


- Extrude a thick bead on the reinforcing film (cloth) at the hole on the exterior.

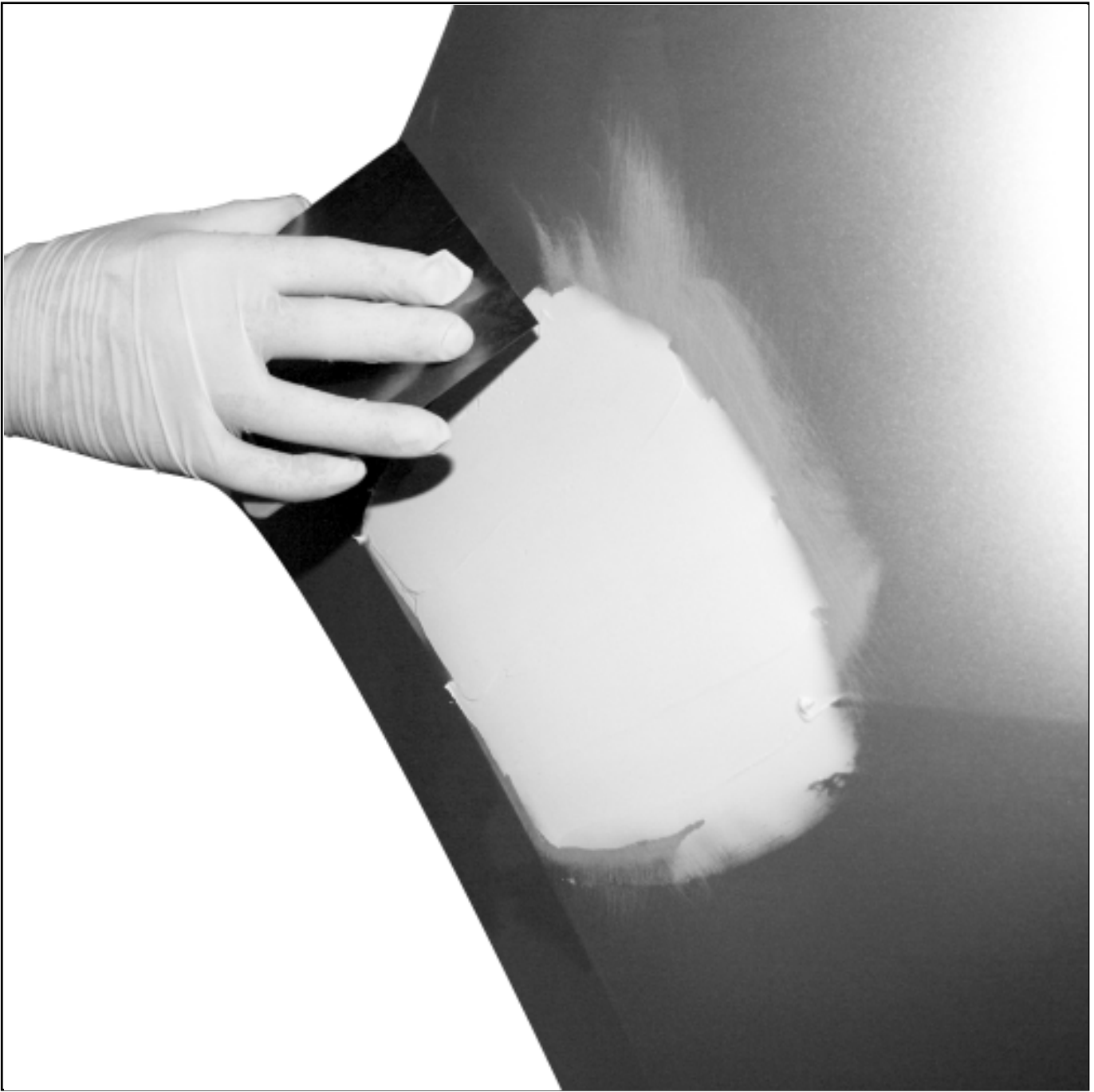


▣ Smooth using a spatula.

▣ Leave the bi-component repair mastic to dry (see product technical sheet).

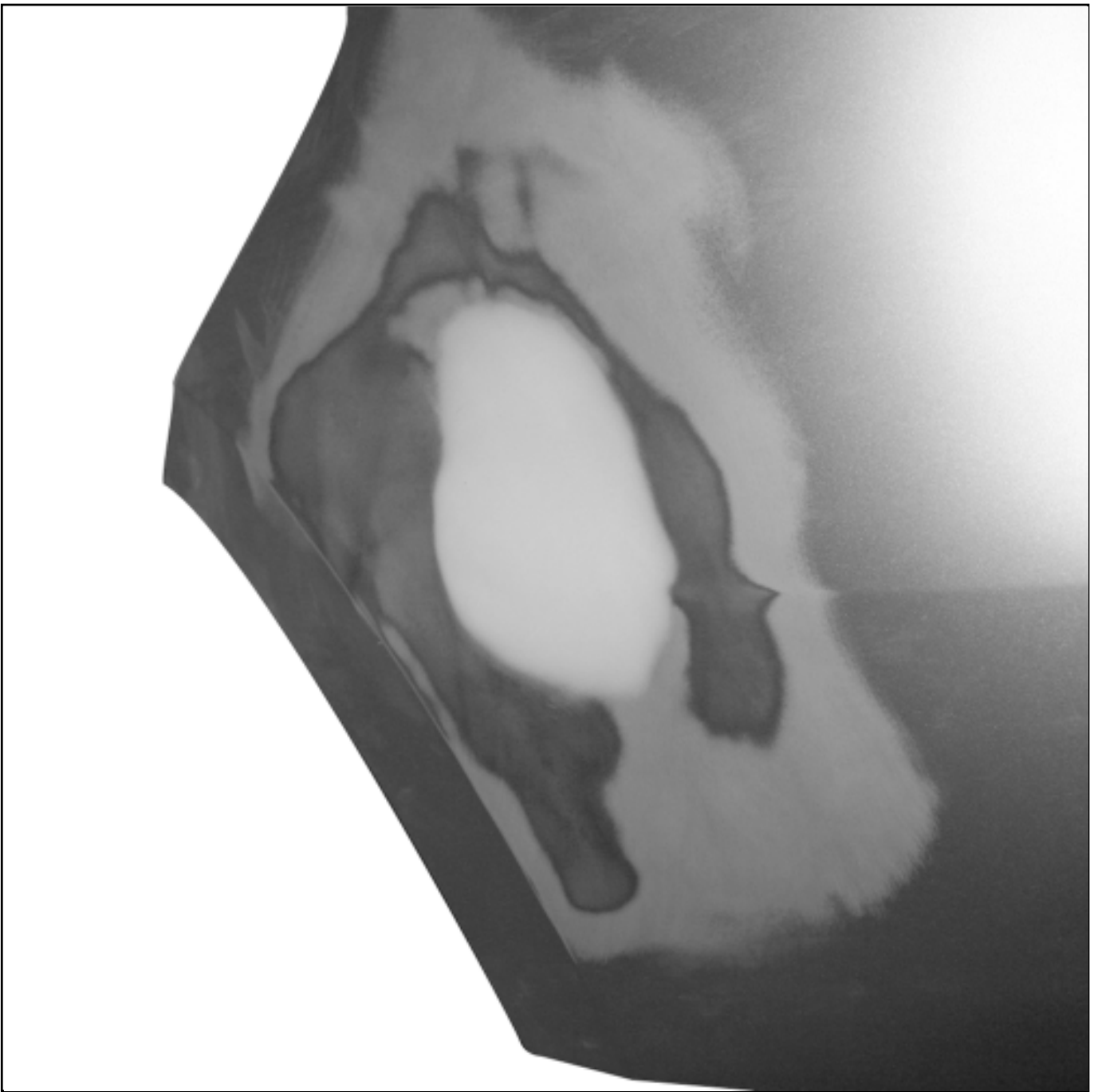


■ Surface on the exterior side with a P 150 then finish with a P 240.



■ If necessary, apply a finishing mastic(see product technical sheet) [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

■ Sand the finishing mastic with a P 150 then finish with a P 240.



Follow the paint application procedure according to the material concerned:

■ [SMC bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),

■ [Polypropylene / polyethylene bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),

■ [ABS bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),

■
Noryl bodywork component: Preparation and paint range (Technical Note 592A, 95A, Paint application procedure on plastic).

2- WELD METHOD

Note:



Before any repairs, check the reparability of components made from plastic materials.

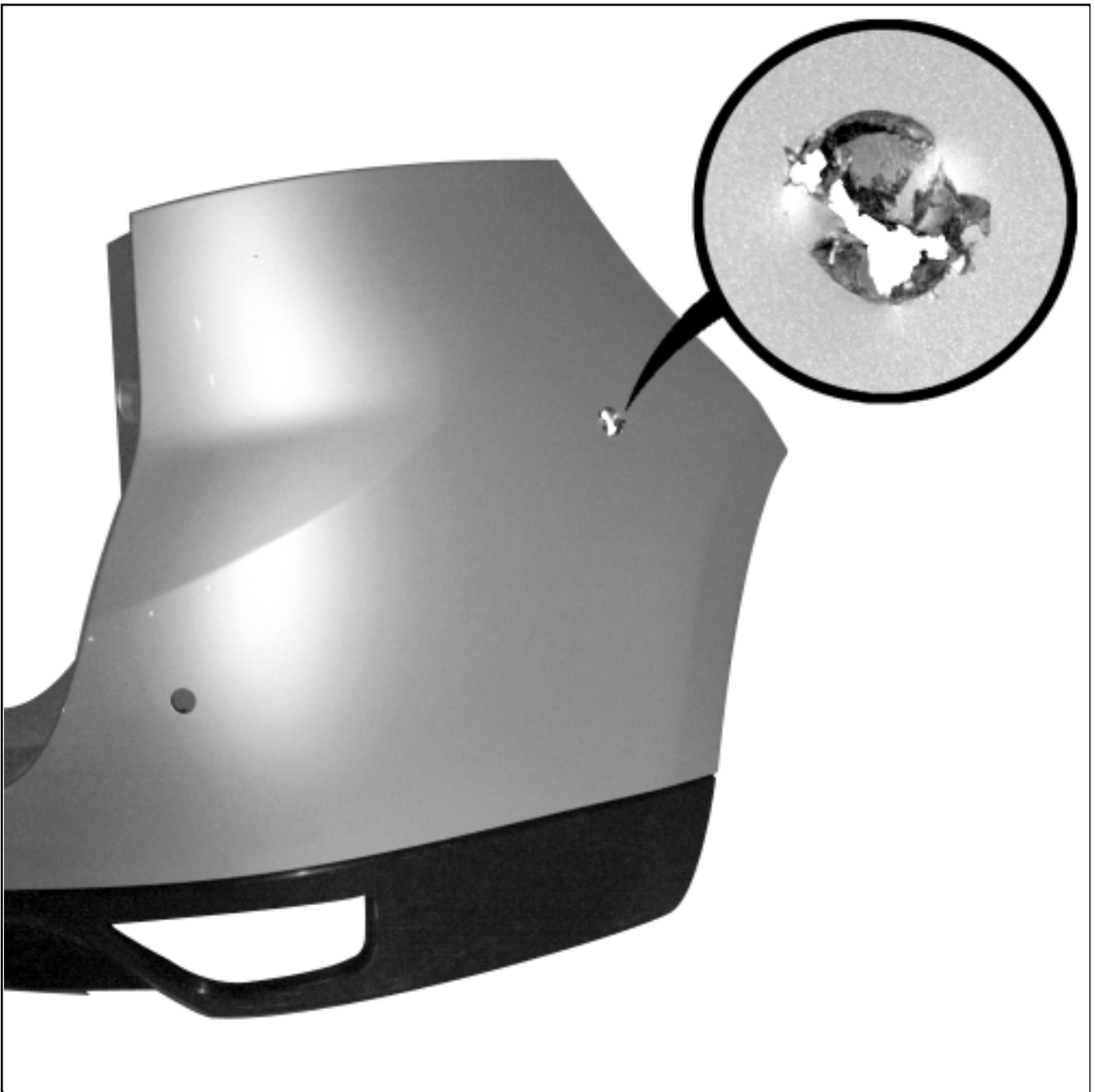
(see 50A, General information, Products for plastic material bodywork components: Description) .

(see 50A, General information, Plastic material bodywork component: Precautions for the repair) .

Note:



This repair cannot be carried out on ABS, ASA and Polycarbonate plastics.



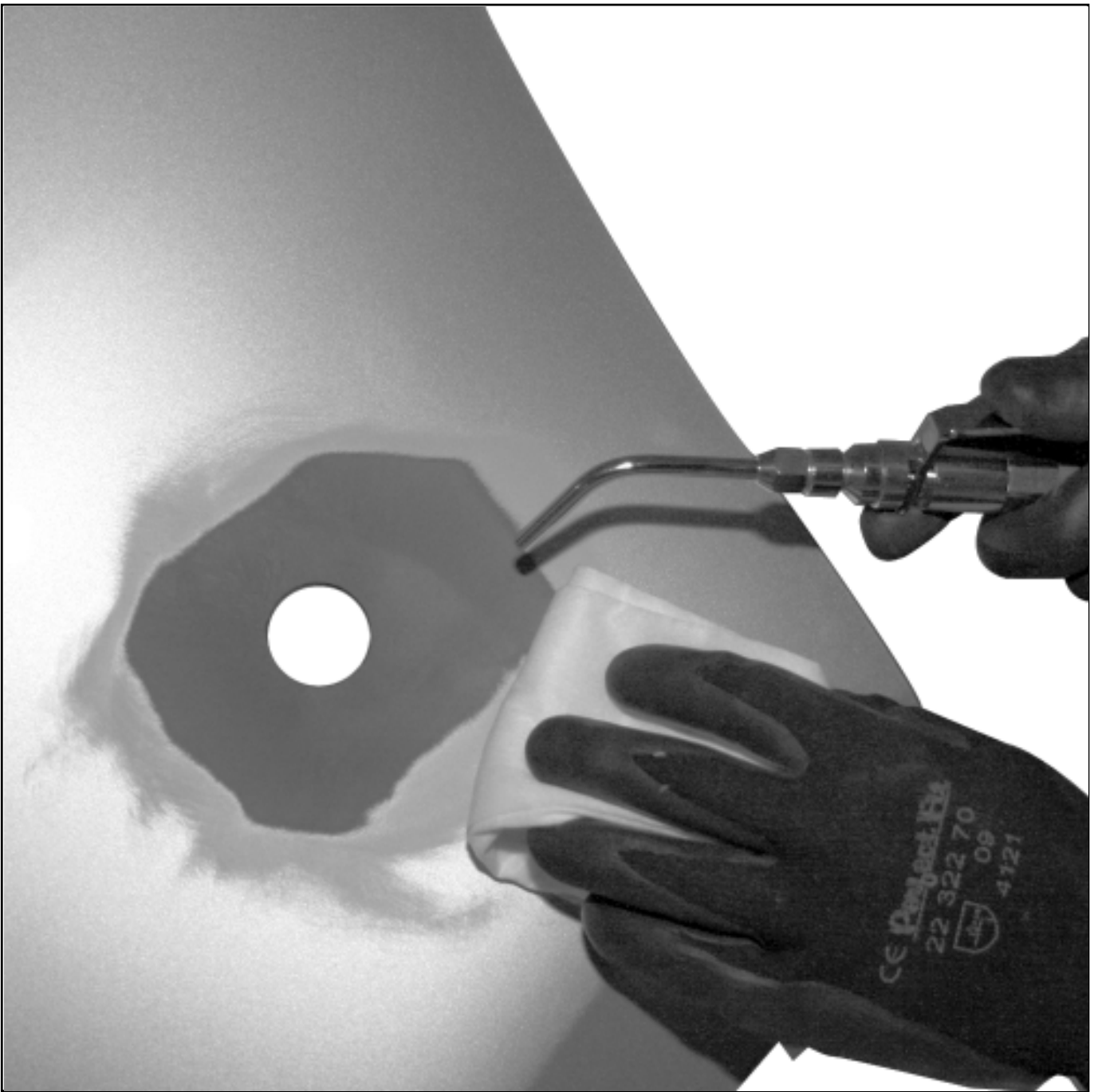
- Wash the component in soapy water and rinse in clean water.

- Clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

- Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



Strip the paint with a P 150 over a radius of 100 mm.



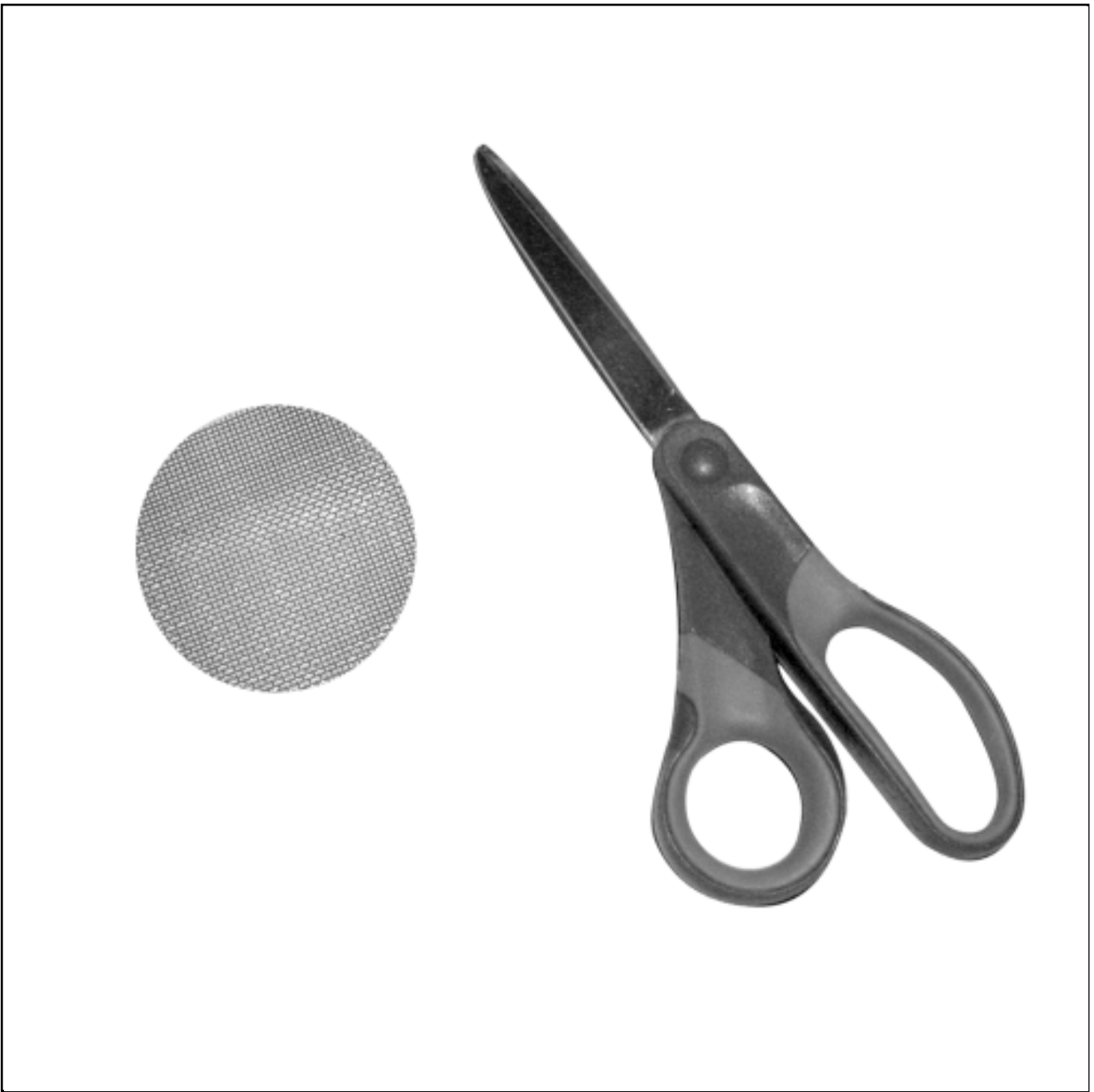
Blow the component and clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



Preheat the soldering iron.



■ Cut the stainless steel mesh suitable for the repair.



Adjust the stainless steel mesh and hold it using a dedicated tool.



Spot weld around the edge of the stainless steel mesh frame with the tip of the soldering iron.

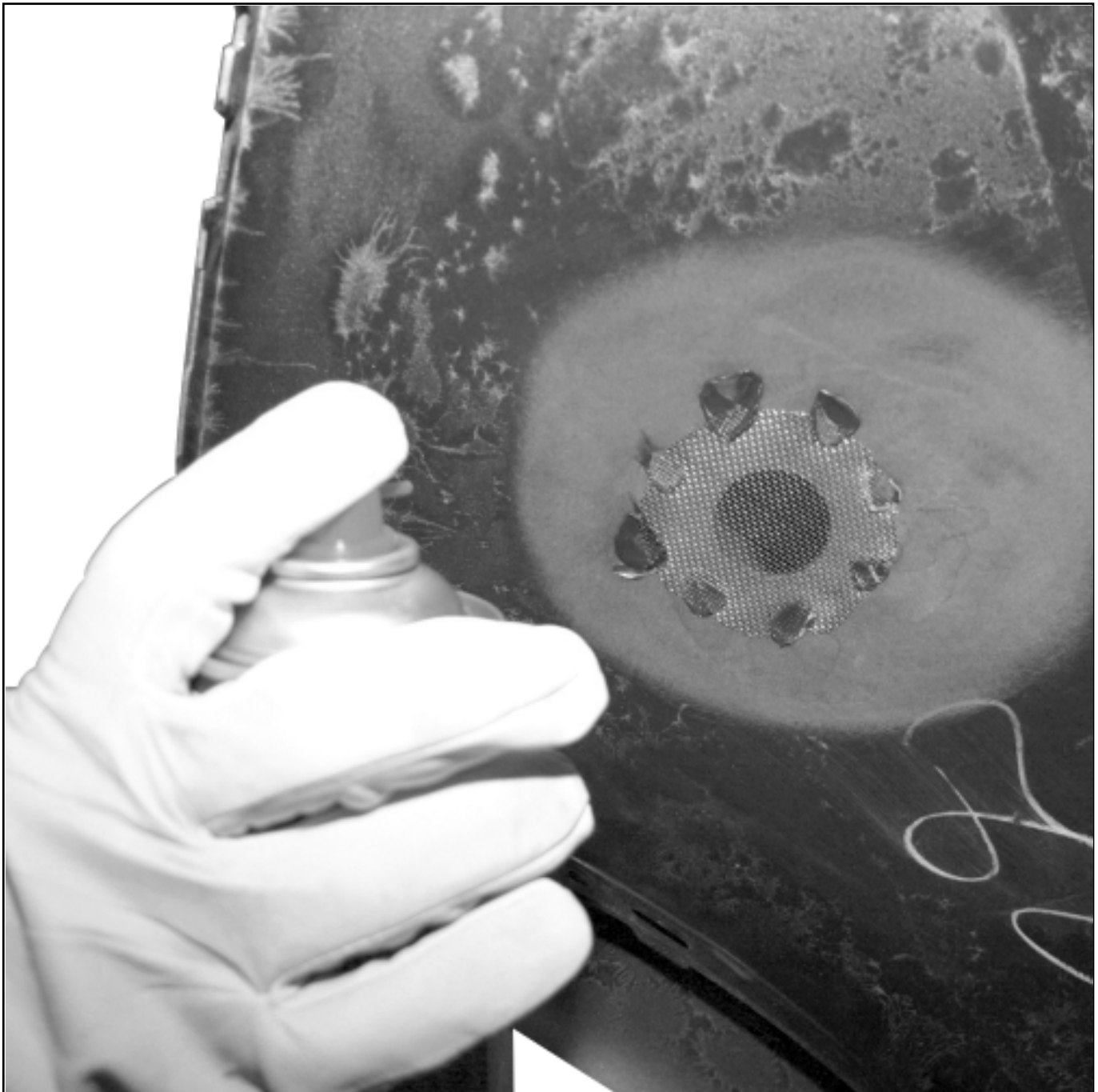
Note:

For noryl:



Add material around the edge of the hole by preheating the welding rod with the tip of the soldering iron.

Enclose the stainless steel mesh in the additional material.



Cool each spot weld, for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



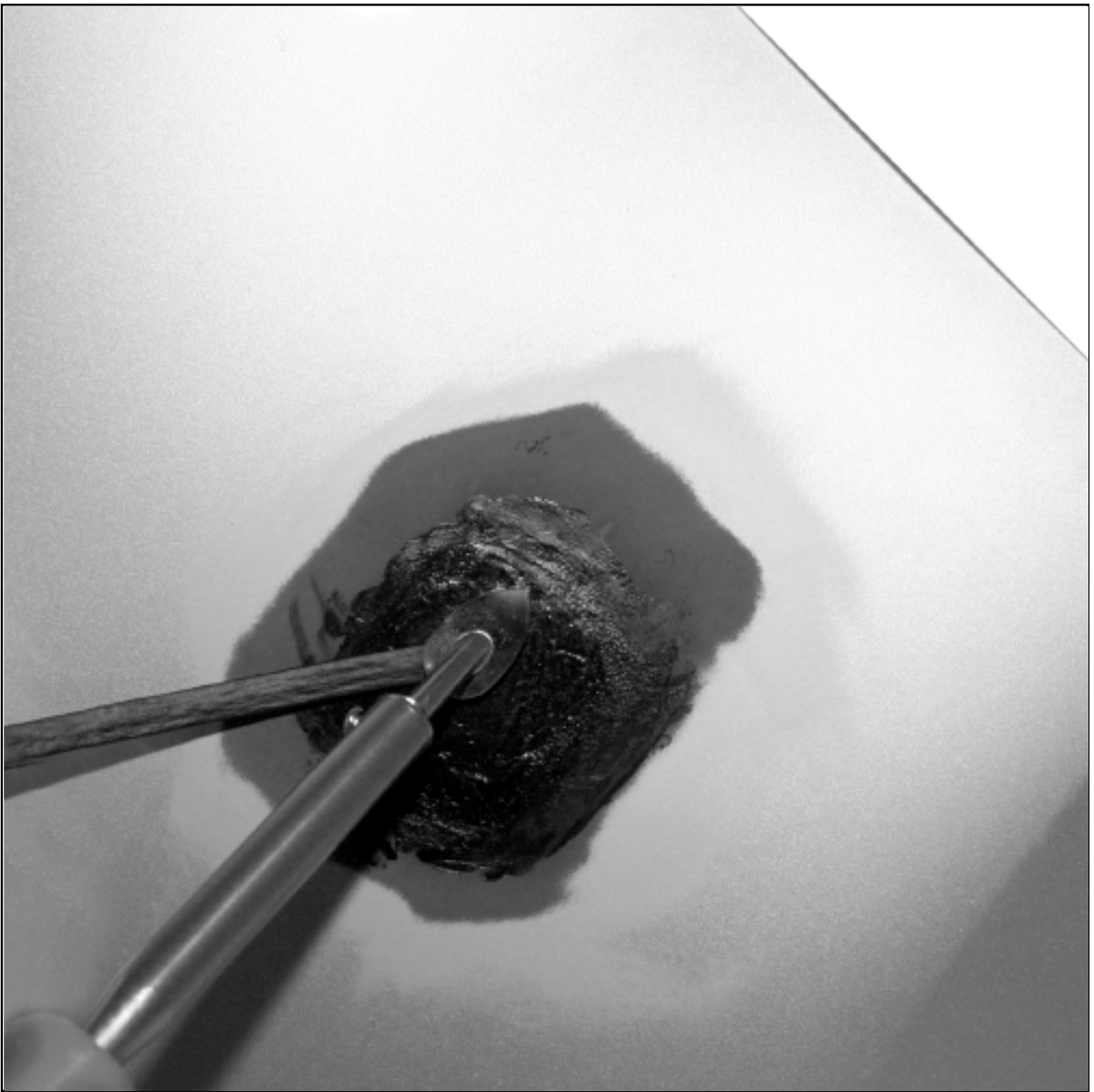
Enclose the stainless steel frame in the plastic material.

Cool the whole of the repaired area for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



■ Add material by preheating the welding rod with the tip of the soldering iron.

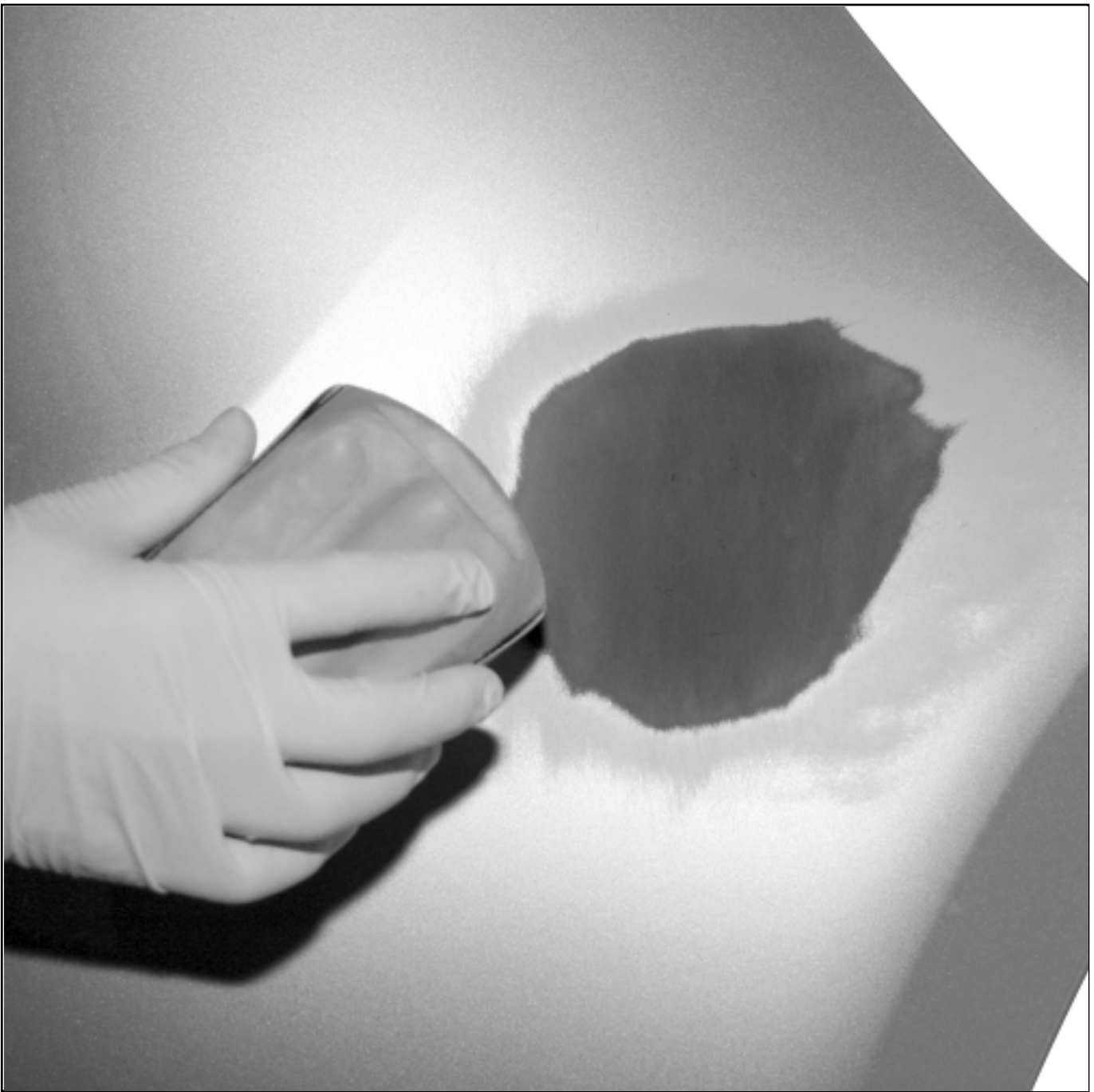
■ Cool the whole of the repaired area for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



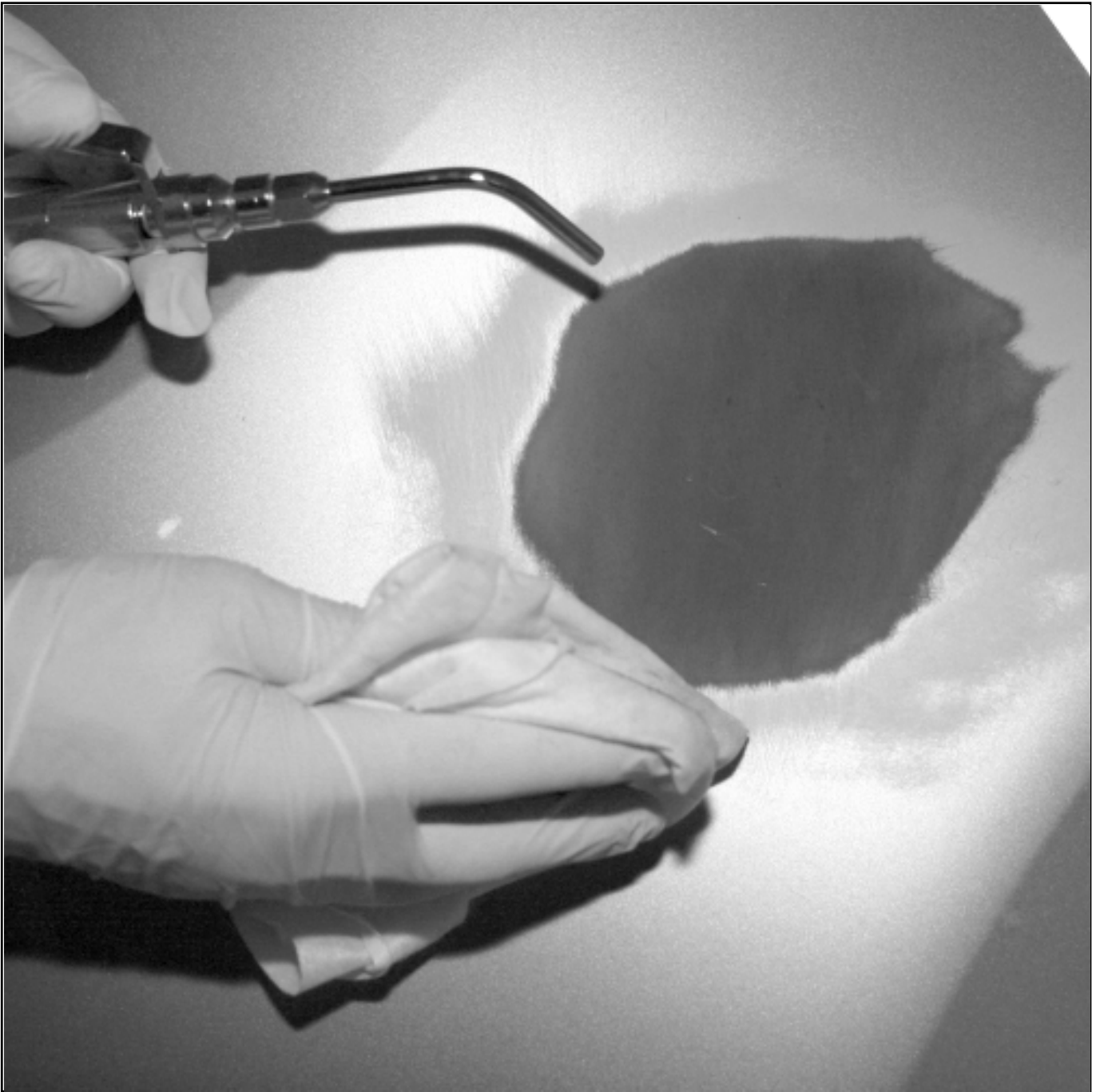
■ Add material to the exterior by preheating the welding rod with the tip of the soldering iron.

■

Cool the whole of the repaired area for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



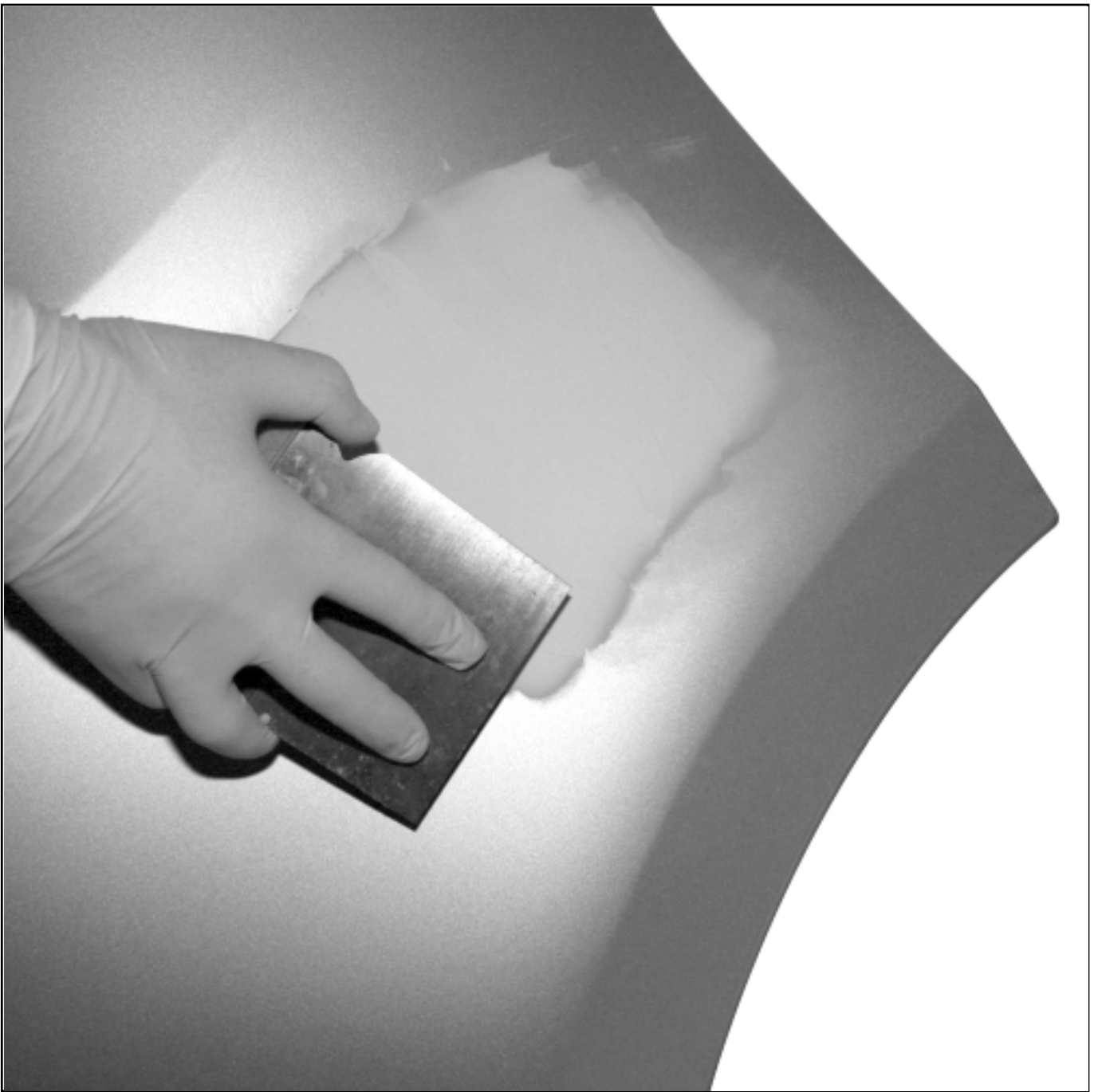
Surface with a P 80 to P 150 then finish with a P 240.



Blow the component and clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



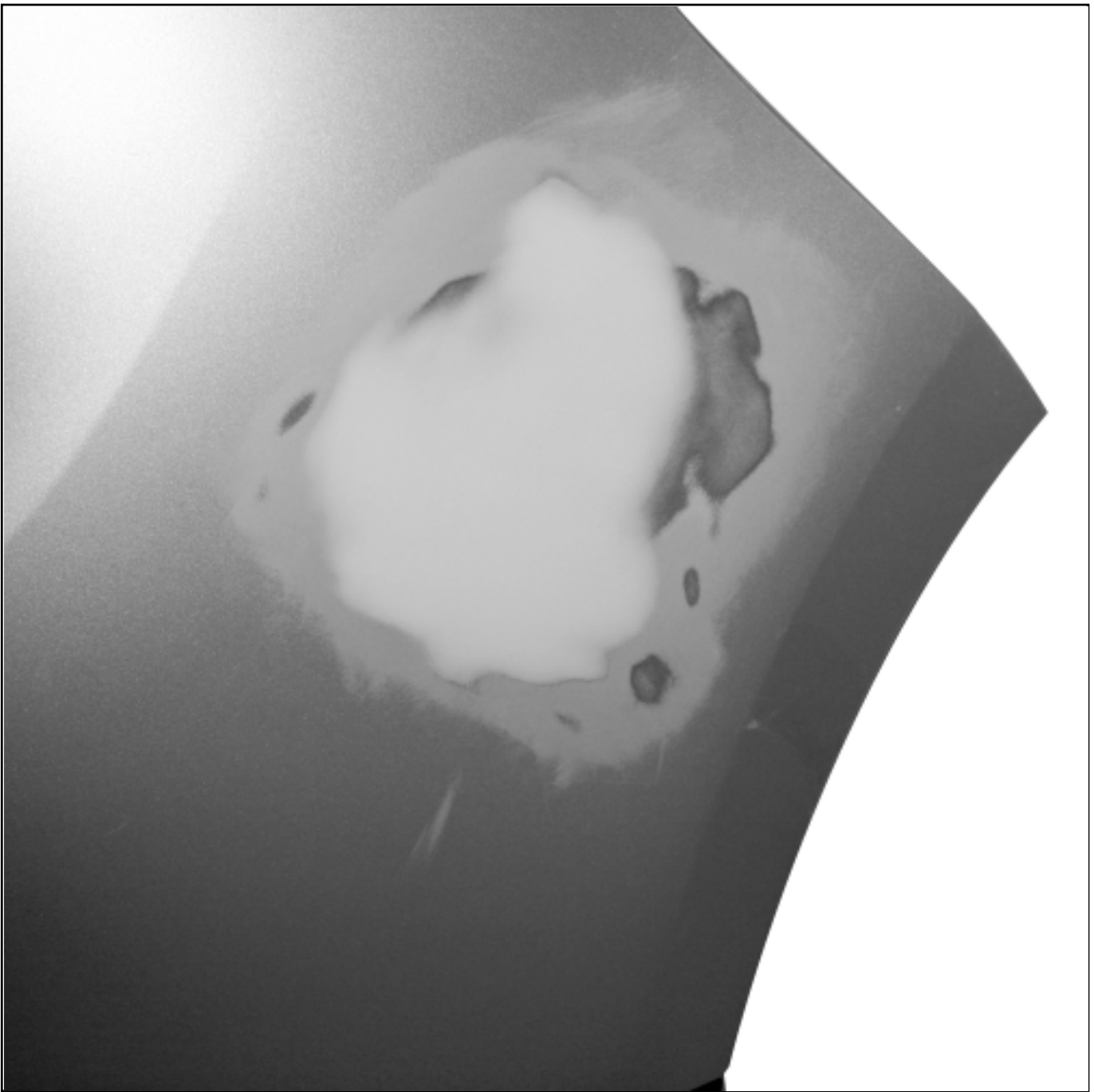
Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



If necessary, apply a finishing mastic(see product technical sheet) [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



Sand the finishing mastic with a P 150 then finish with a P 240.



Follow the paint application procedure according to the material concerned:

■

[Polypropylene / polyethylene bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic),

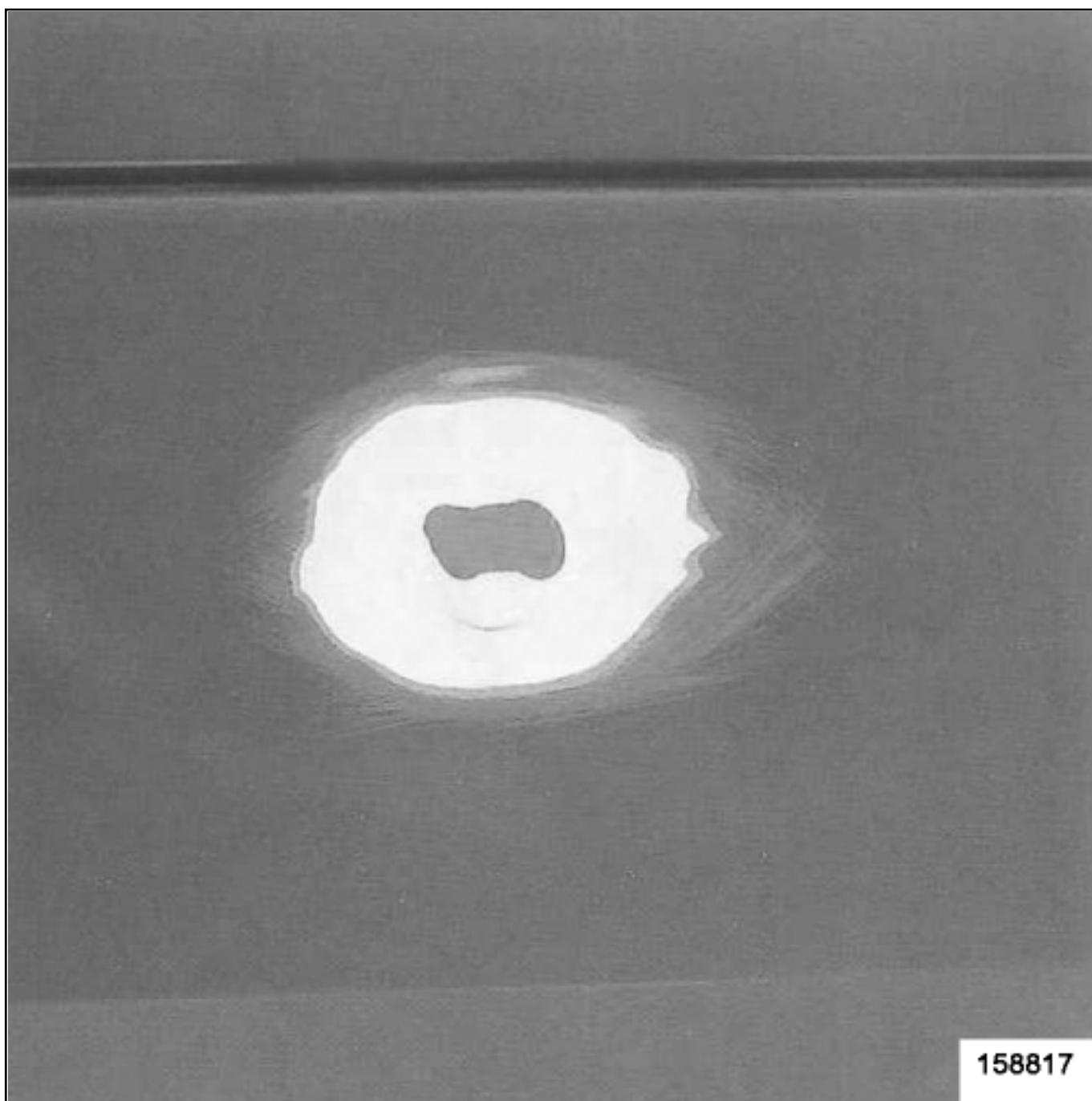
■

[Noryl bodywork component: Preparation and paint range](#) (Technical Note 592A, 95A, Paint application procedure on plastic).



Note:

Method apply only on RTM component.



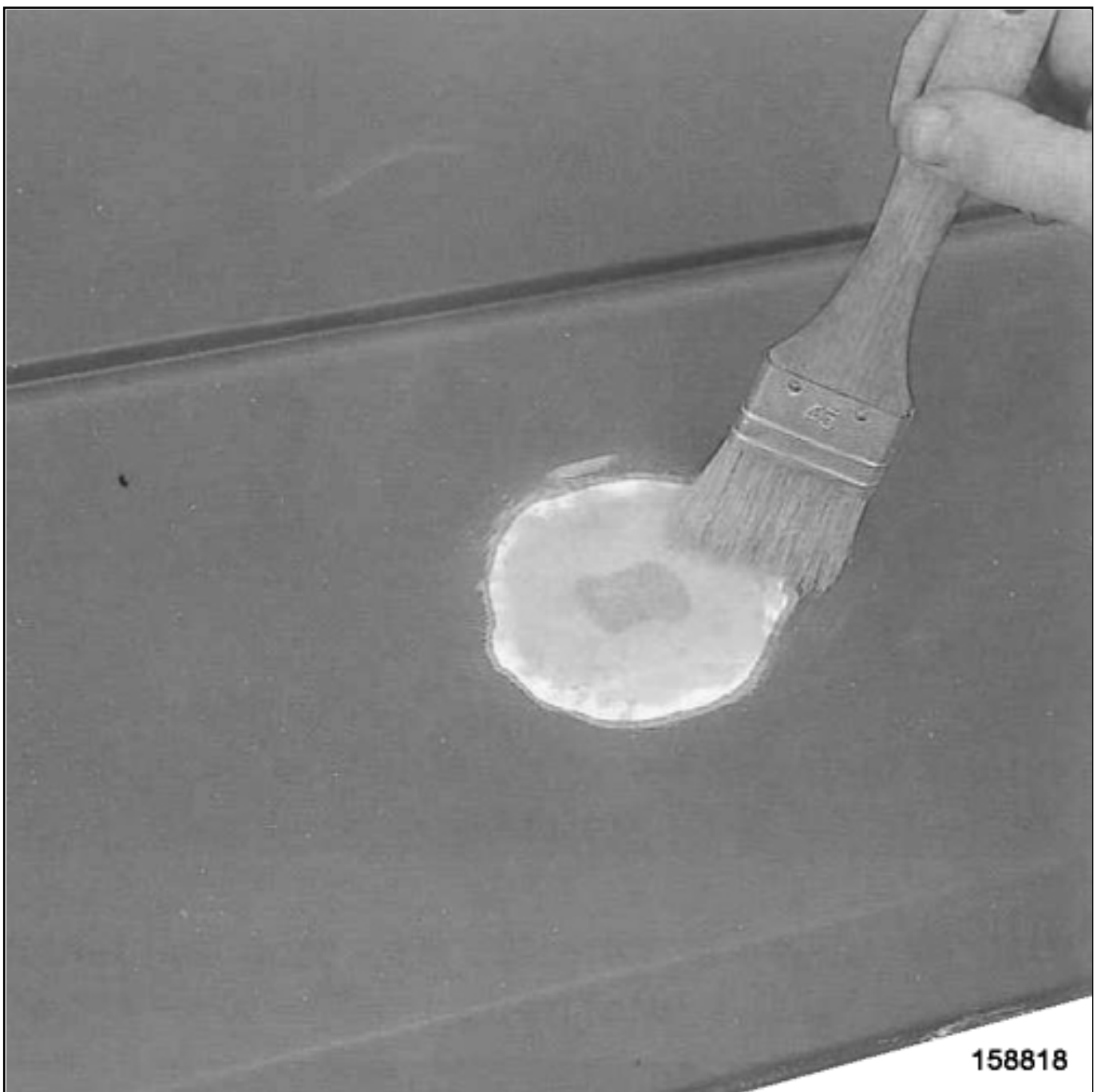
Chamfering around a radius between 30 to 40 mm using the orbital sander with a P80.

Sand the paint around the zone to be repaired using the orbital sander with a P 150

Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).

Cut a piece of material recovering the chamfering.

Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components: Description](#)) .



Wet the chamfer with Epoxy resin.

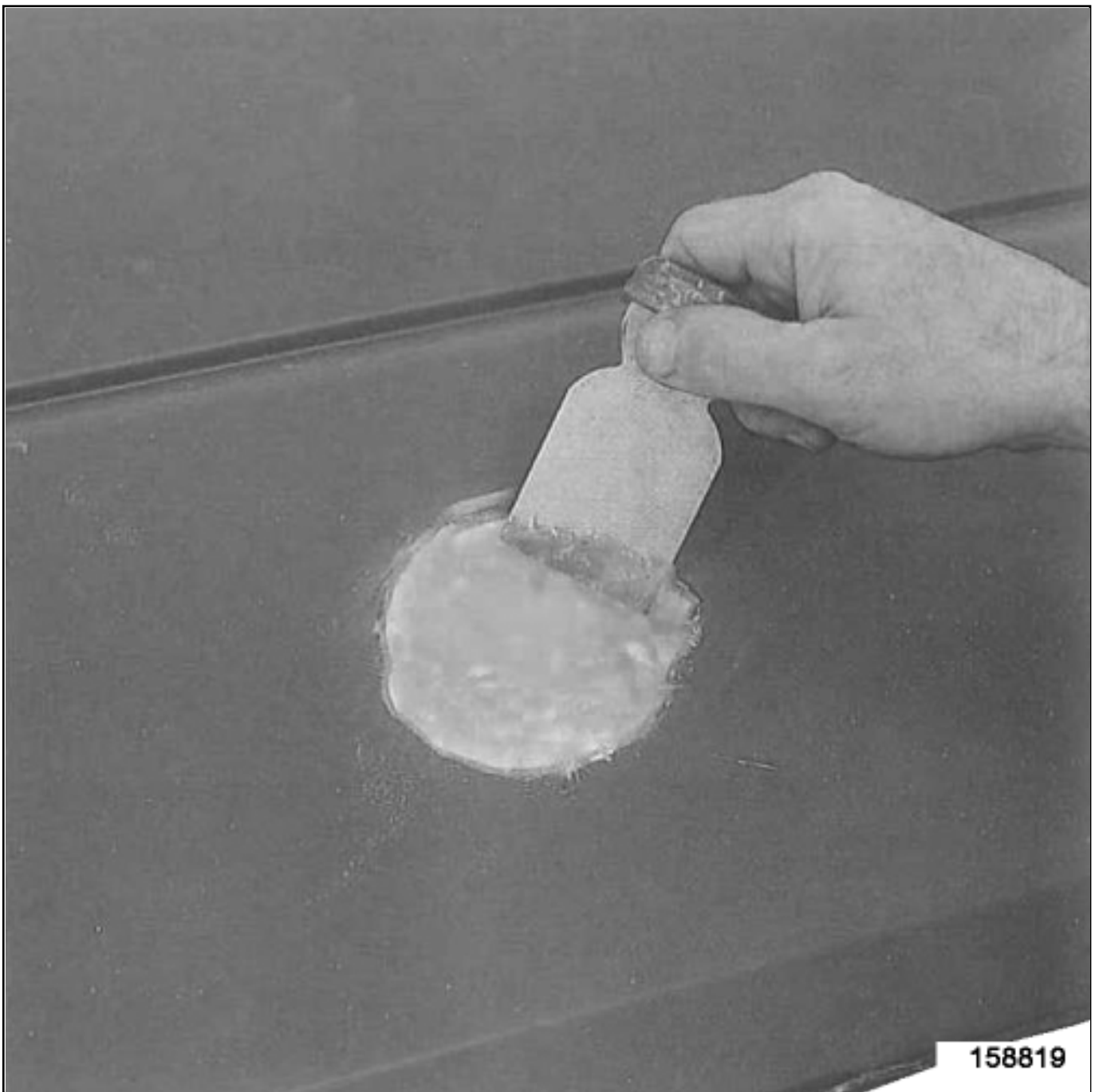
Position the reinforcement a poket.

Soak the reinforcement with Epoxy resin.

Note:



After 15 minutes, accelerate the hardening in drying oven or in infrared drying device (60° C maxi at a distance of 70 cm).



Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components: Description](#)) .



Add short fibres with resin and well mix.



Fill the pocket with mixture.



Note:

After 15 minutes, accelerate the hardening in drying oven or in infrared drying device (60° C maxi at a distance of 70 cm).

■ Sand using the orbital sander with a P 80 then with a P 180 and P 240.

■ Apply if necessary a finishing mastic (see product technical sheet). (see **Vehicle: Parts and consumables for the repair**)

■ Sand the finishing mastic using a P 150 then finish using a P 240.

5. PROCEDURE 4

■ Repairing a mounting bracket on a plastic chassis element

1- BONDING METHOD



Note:

Before any repairs, check the reparability of components made from plastic materials.

(see 50A, General information, Products for plastic material bodywork components: Description) .

(see 50A, General information, Plastic material bodywork component: Precautions for the repair) .



Chamfer the two sections of the mounting bracket on both sides using a grinder with an angular member .

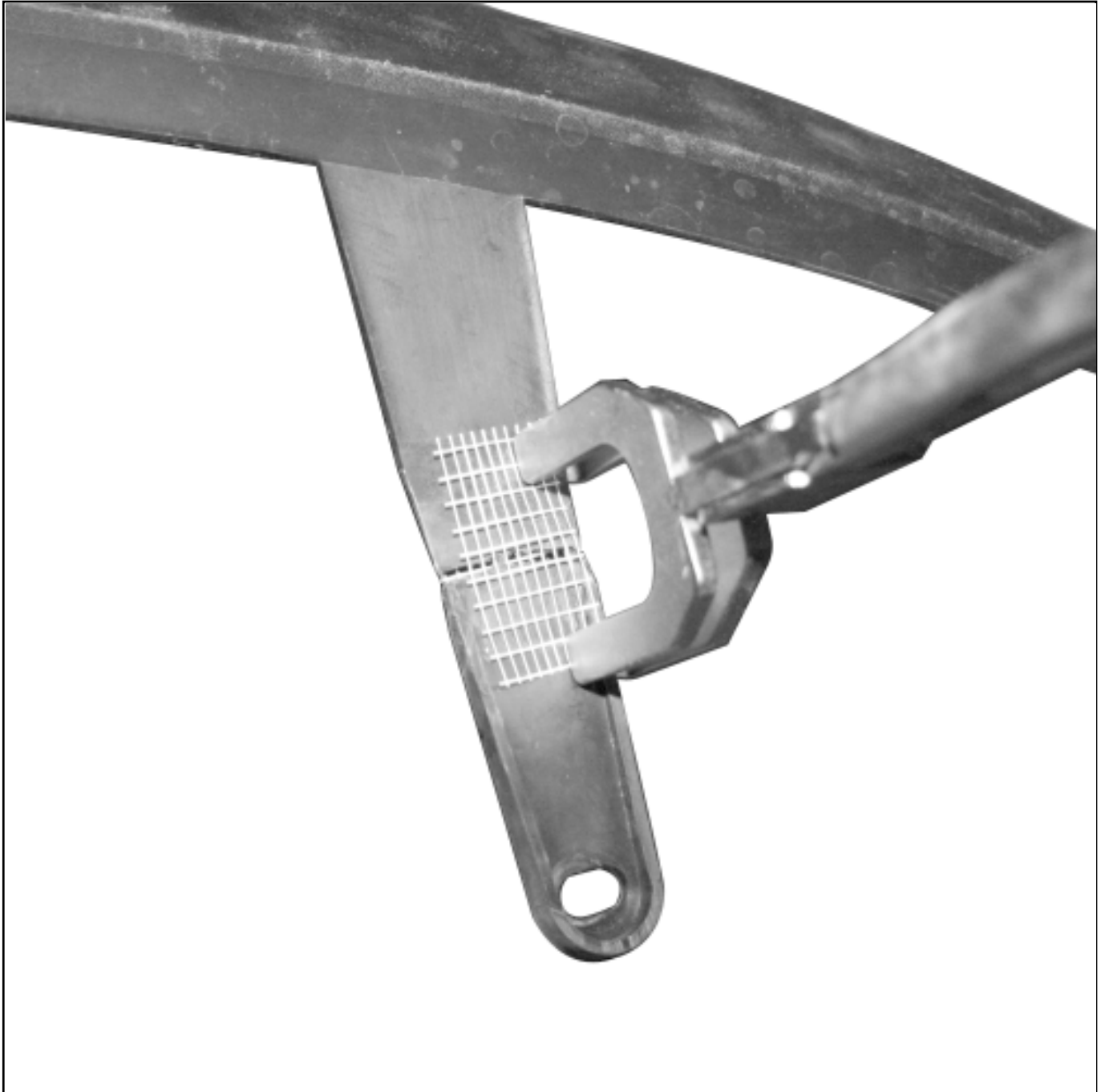


Blast and clean the inside and outside of the component with the cleaner included in the Plastic repair kit box.



Apply the adhesive primer included in the Plastic repair kit box to the inside and outside of the component.

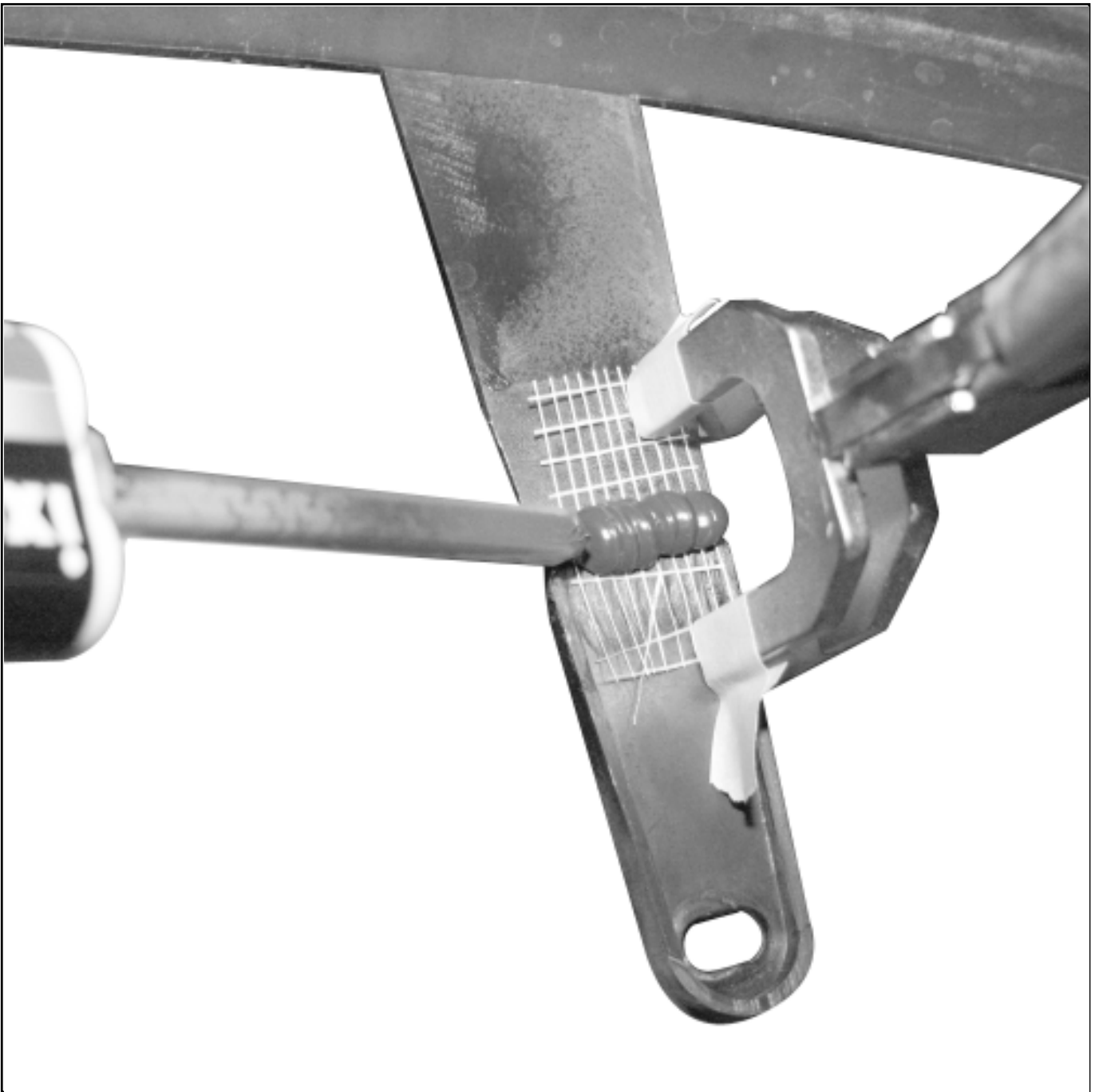
Leave the adhesive primer to dry (see product technical sheet).



Adjust a piece of reinforcing film (cloth) adapted to repairing the internal and external faces.

Prepare the bi-component repair mastic ([see 50A, General information, Products for plastic material bodywork components: Description](#)).

Maintain pressure on the two parts with pliers.



Extrude bi-component repair mastic between the two parts.

Smooth the bi-component repair mastic on the internal and external faces.

Leave the bi-component repair mastic to dry (see product technical sheet).



■ Surface the exterior side with a P 150 then finish with a P 240.

■ Retouch the paintwork if necessary.

Note:



Before any repairs, check the reparability of components made from plastic materials.

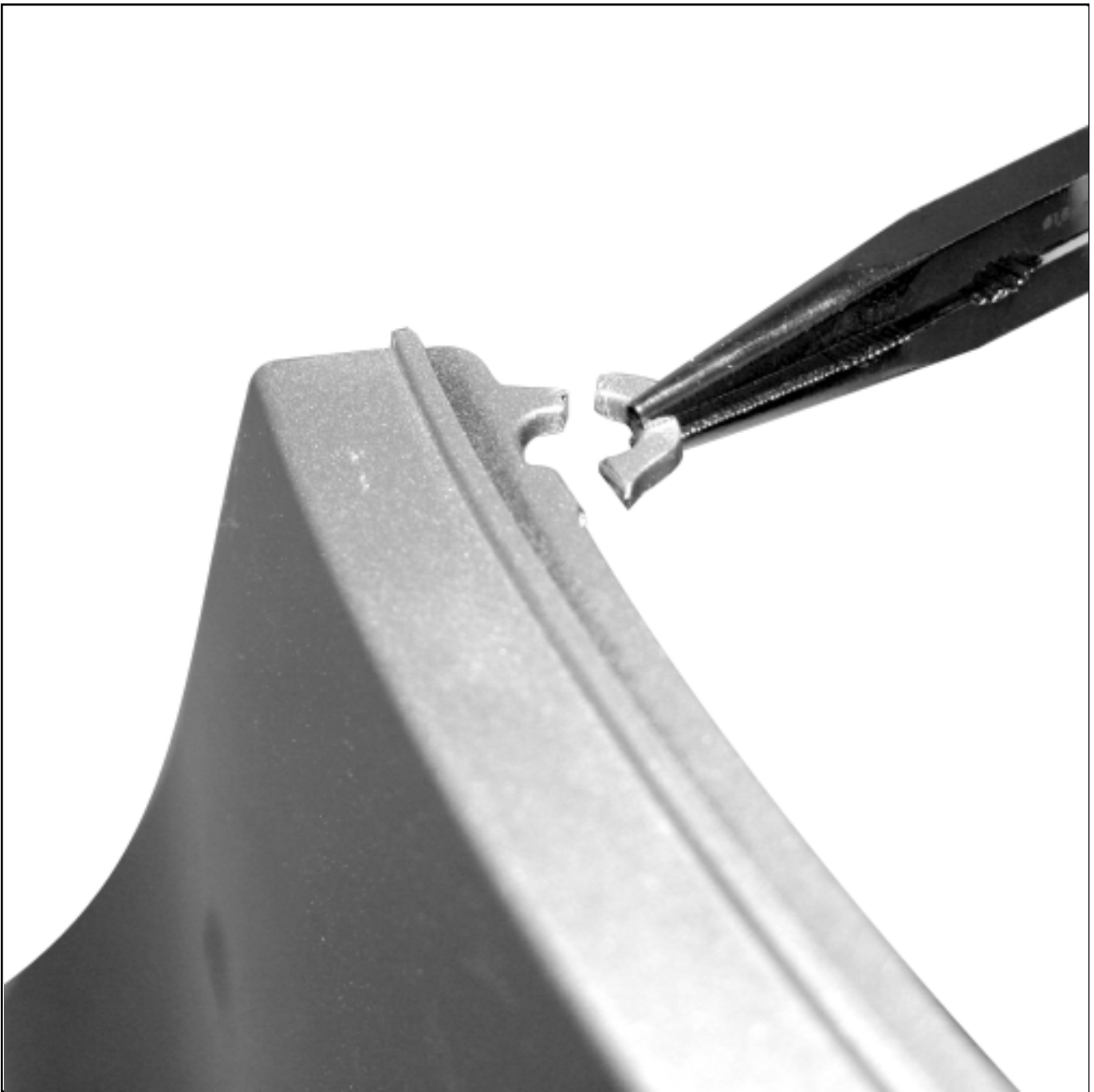
(see 50A, General information, Products for plastic material bodywork components: Description) .

(see 50A, General information, Plastic material bodywork component: Precautions for the repair) .

Note:



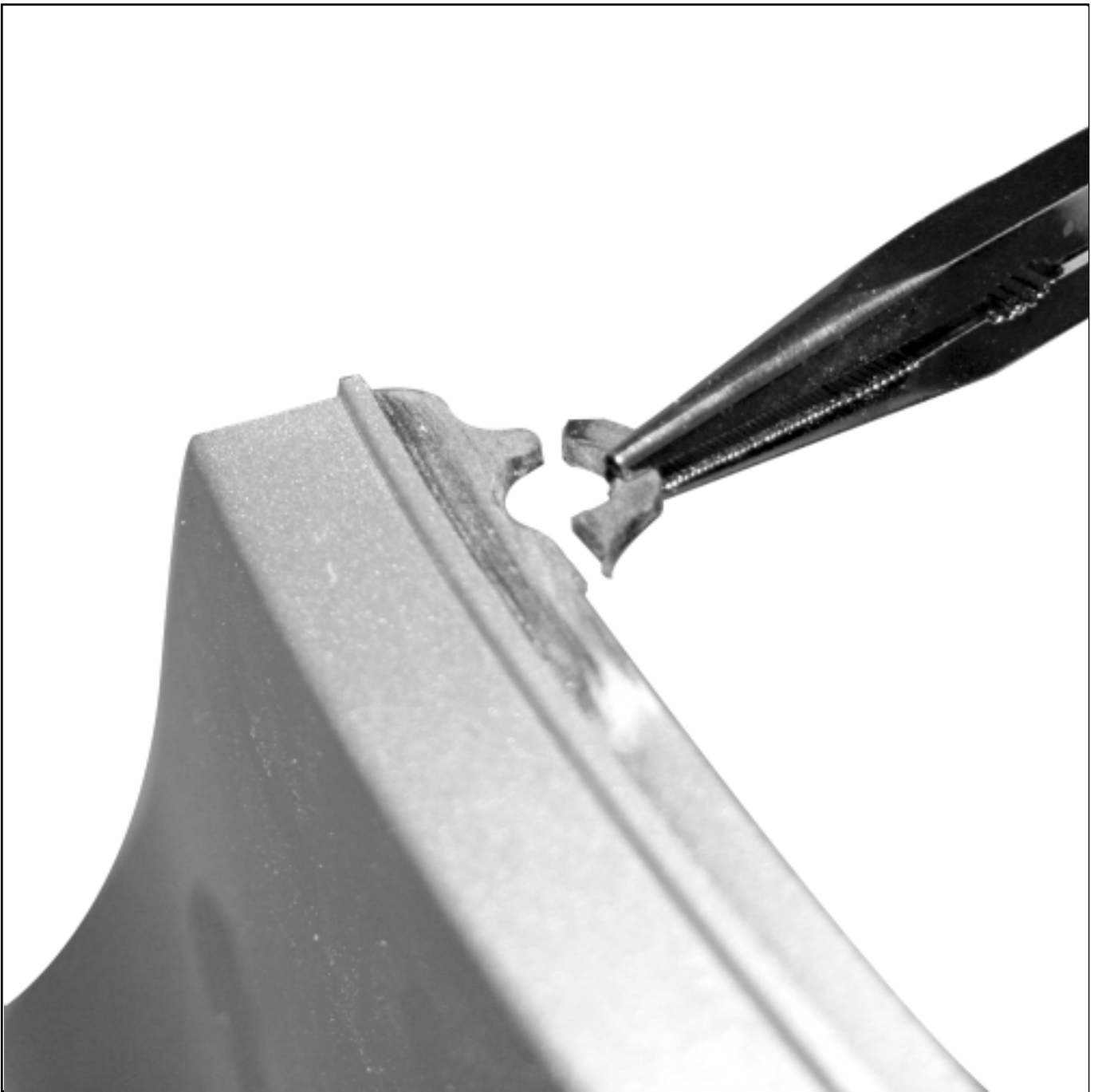
This repair cannot be carried out on ABS, ASA and Polycarbonate plastics.



- Wash the component in soapy water and rinse in clean water.

- Clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

- Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



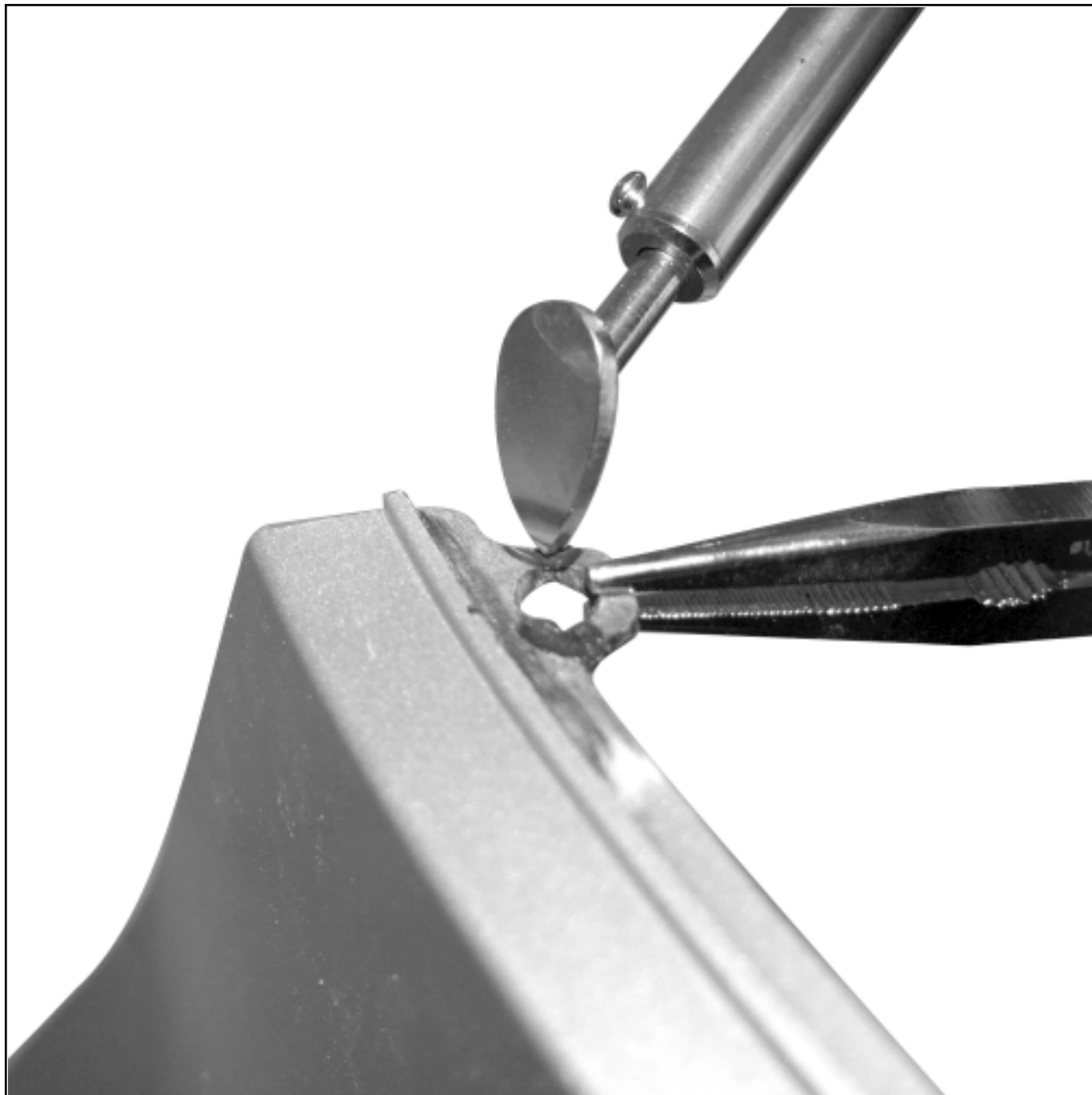
Strip the paint with P 150 on the repair area.

Blow the component and clean the area to be repaired with a LINT-FREE CLOTH soaked in ANTISTATIC THINNER [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

Wipe the area with a clean, dry LINT-FREE CLOTH [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

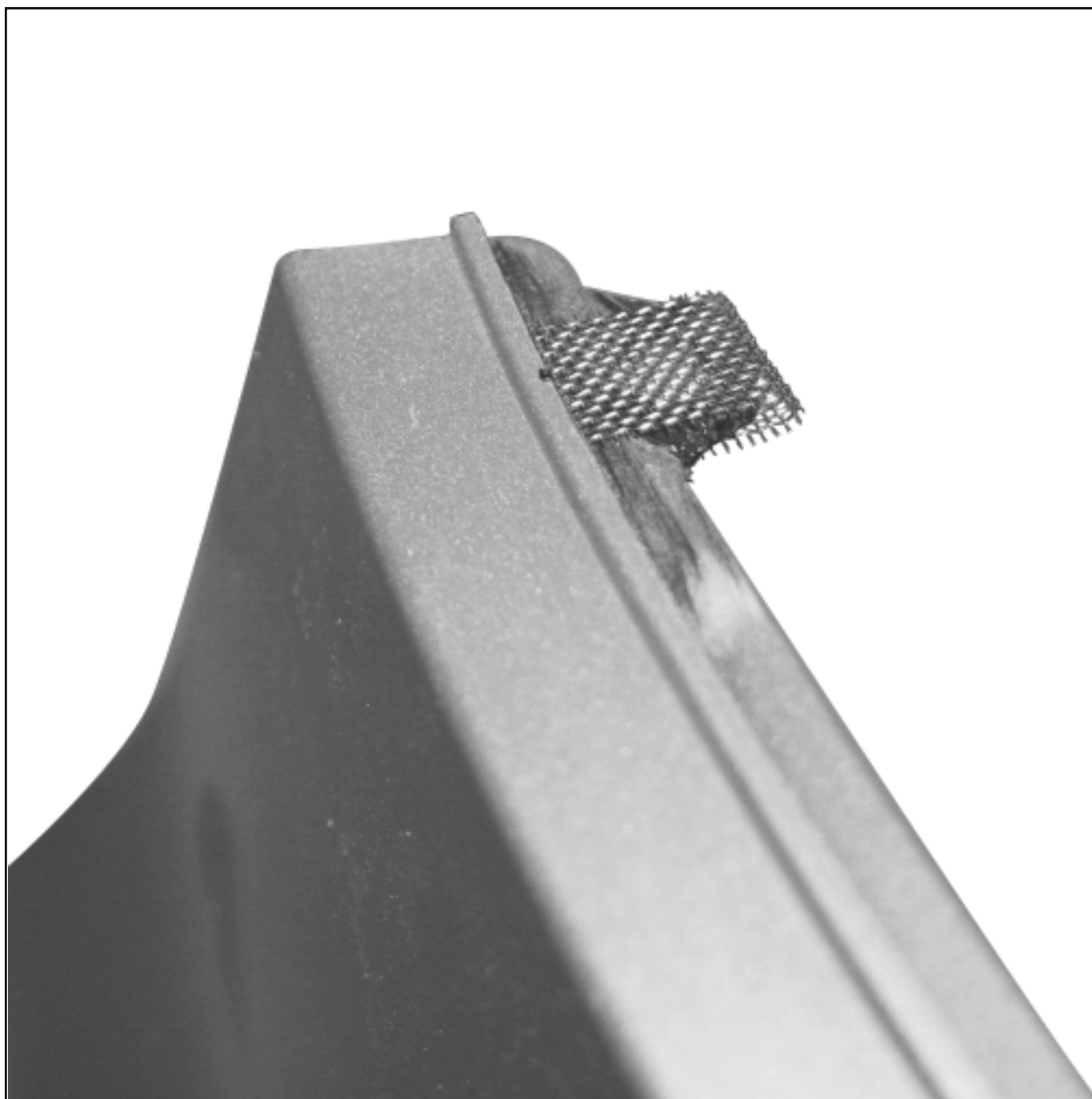
Preheat the soldering iron.

Cut the stainless steel mesh according to the shape of the support.



Spot-weld with the tip of the soldering iron on the ends in order to hold the mounting bracket.

Cool each spot weld, for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



Position the stainless steel mesh and hold it using a dedicated tool.





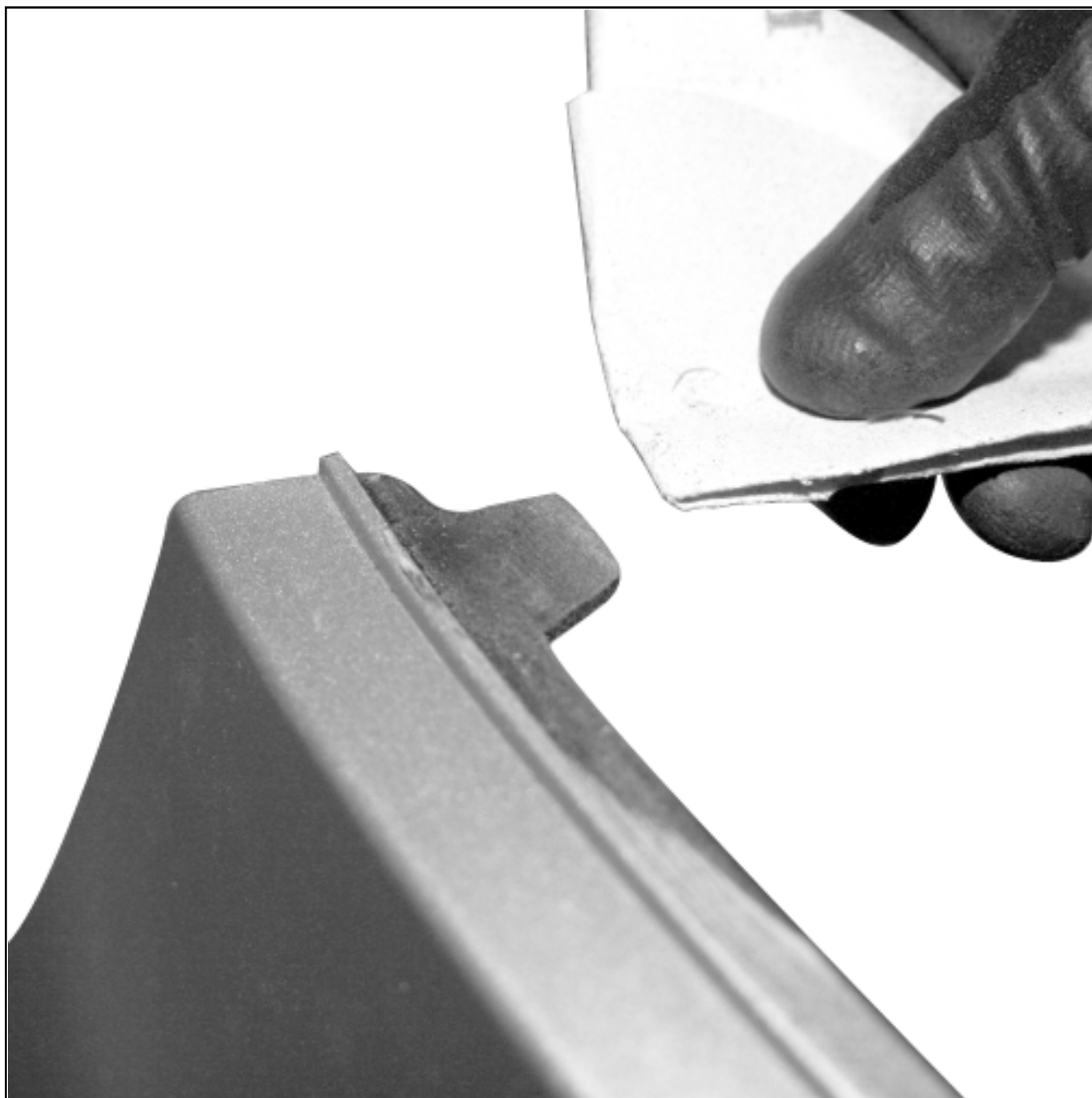
■ Enclose the stainless steel frame in the plastic material.

■ Cool the whole of the repaired area for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

■ Add material by preheating the welding rod with the tip of the soldering iron.



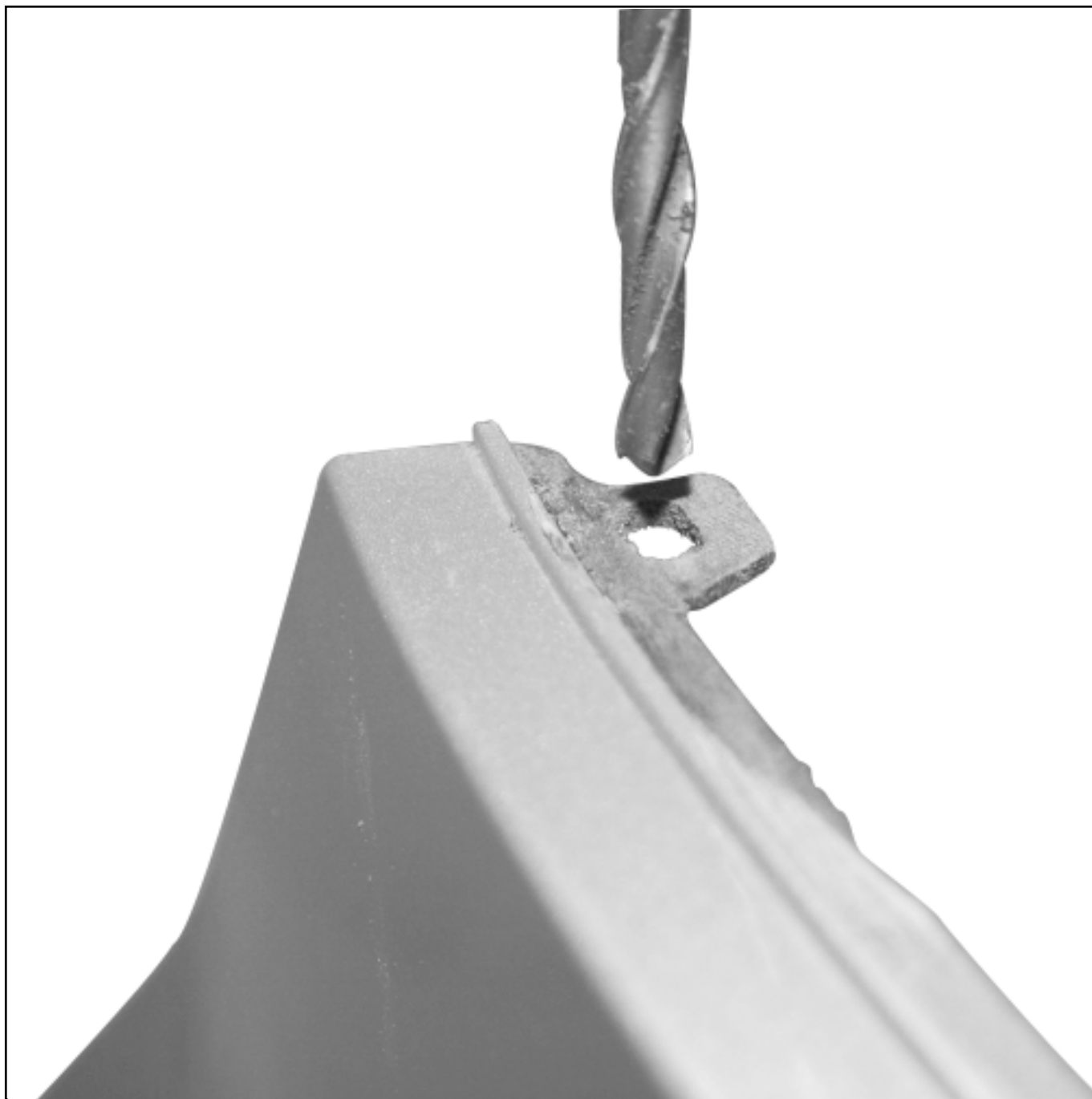
Cool the whole of the repaired area for two seconds, vigorously with the cooler [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



Surface with a P 80 to P 150 then finish with a P 240.



Blow the component and clean the area to be repaired with a LINT-FREE CLOTH soaked in



Adjust the shape of the part to return it to its original appearance.



Retouch the paintwork if necessary.

6. PROCEDURE 5



Partial replacement of an element by cutting.



Note:

Method apply only on RTM component.



Note:

The components are manufactured by the method referred to as "contact" .

The reparation is performed by the interne face of the component.



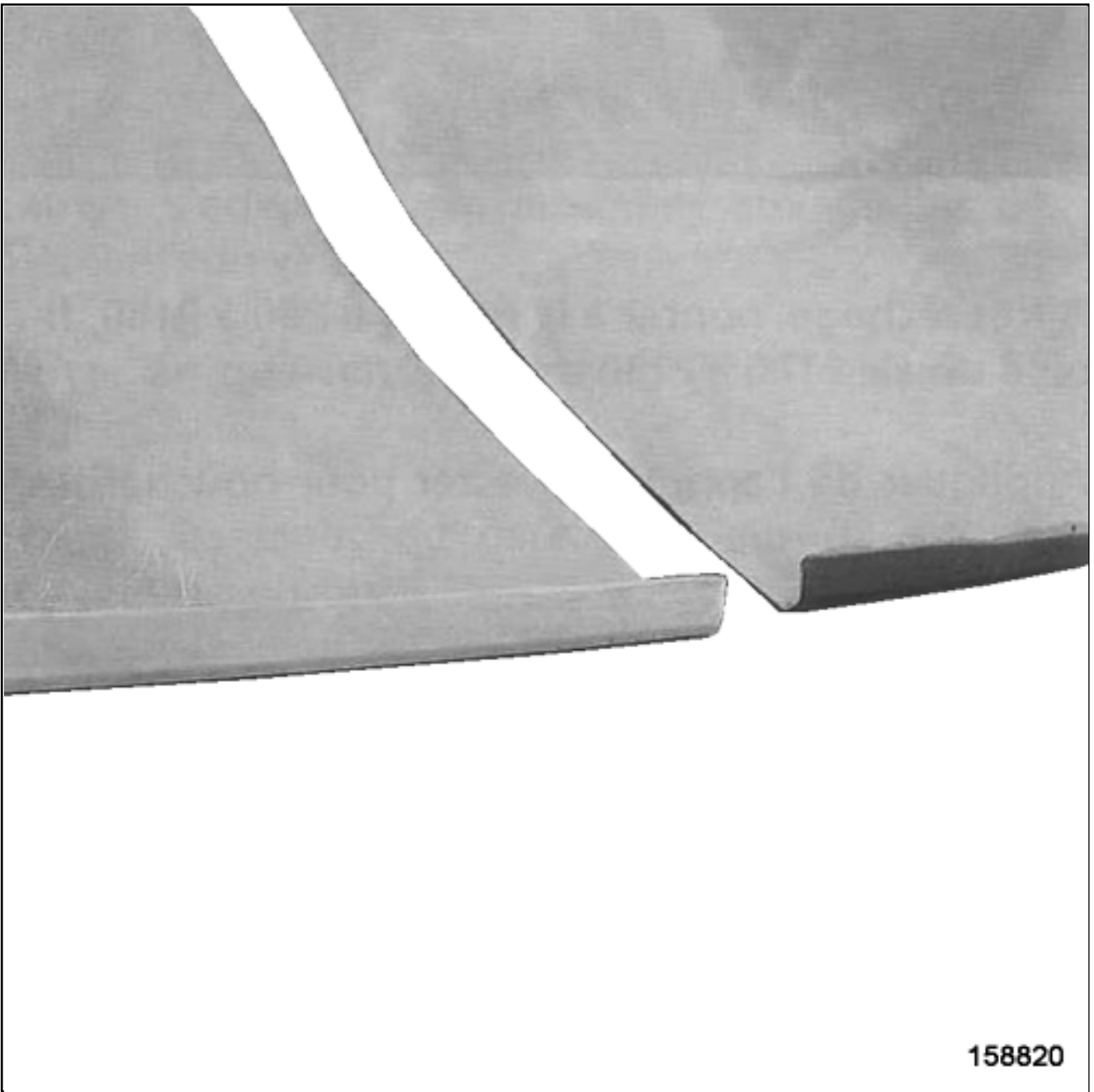
Cut the damaged component beyond the cracks.



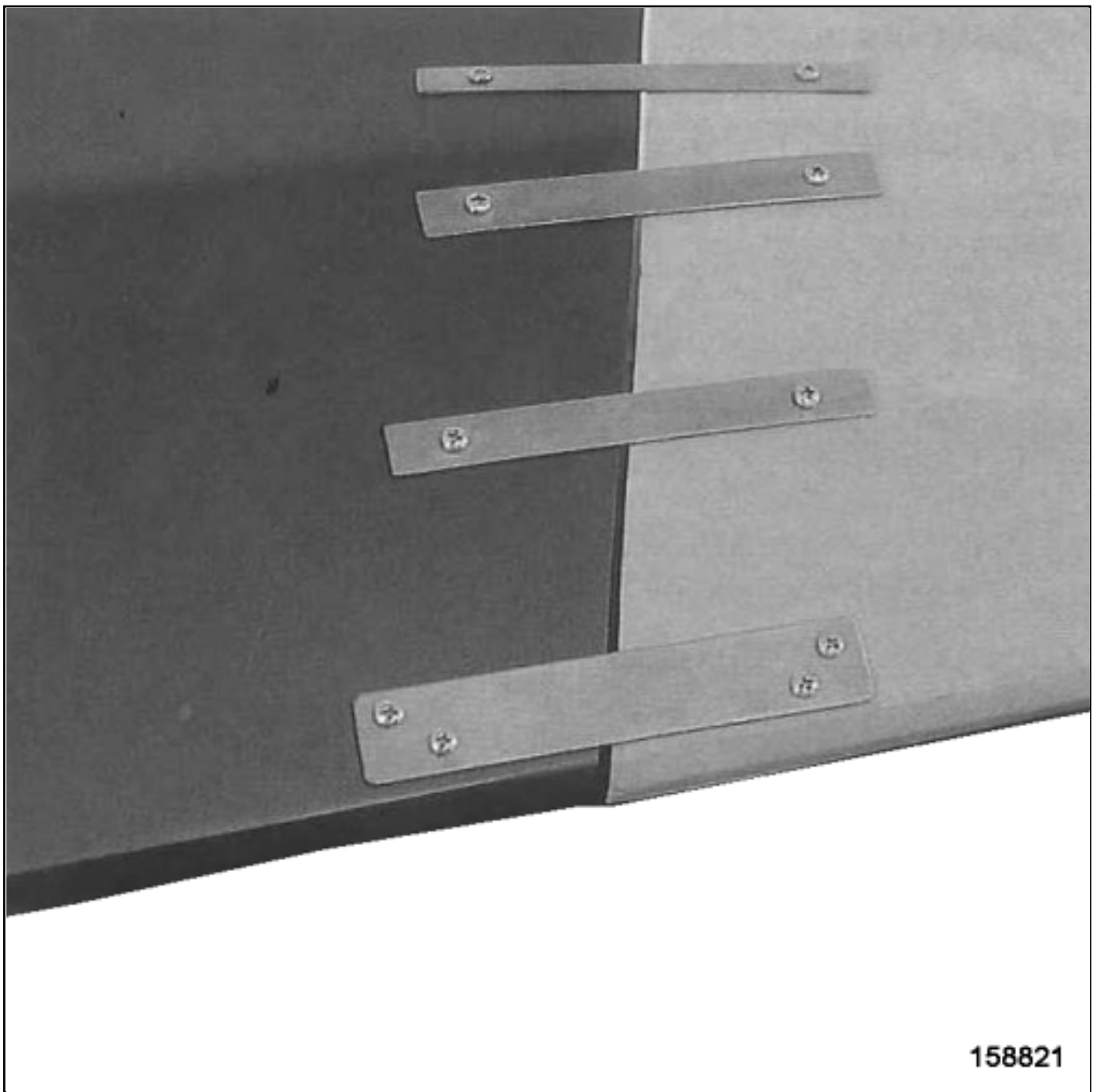
Cut and adjust the new component.



Prepare a space from 5to 10mm between the two components.



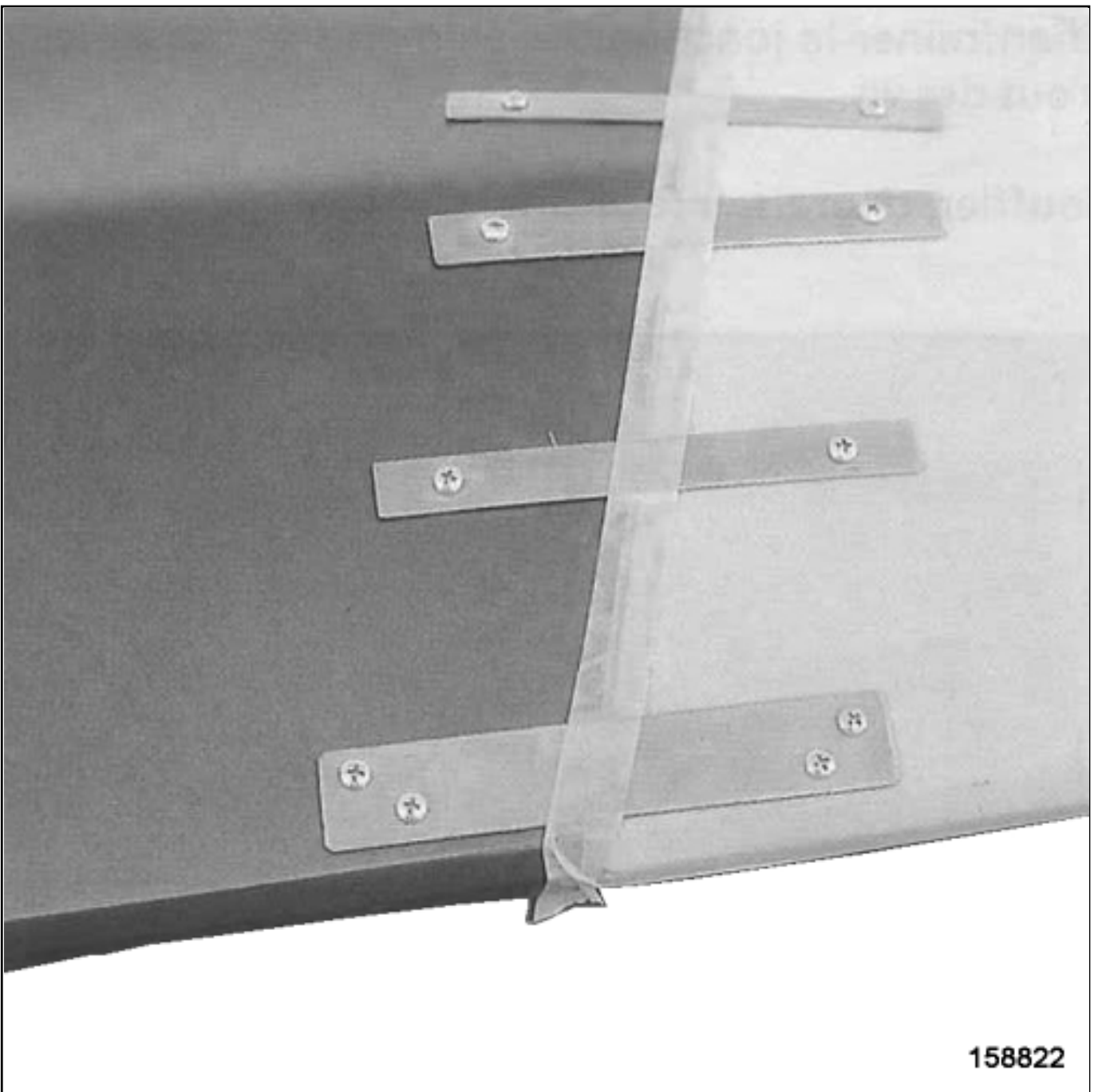
Chamfering the interne face of components on 100 mmwide.



- Position the new component.

- Hold the new component by the externe face using a plate pad(local manufactured)and fix them with plate screws.

- Check the clearance and the flush fitting.



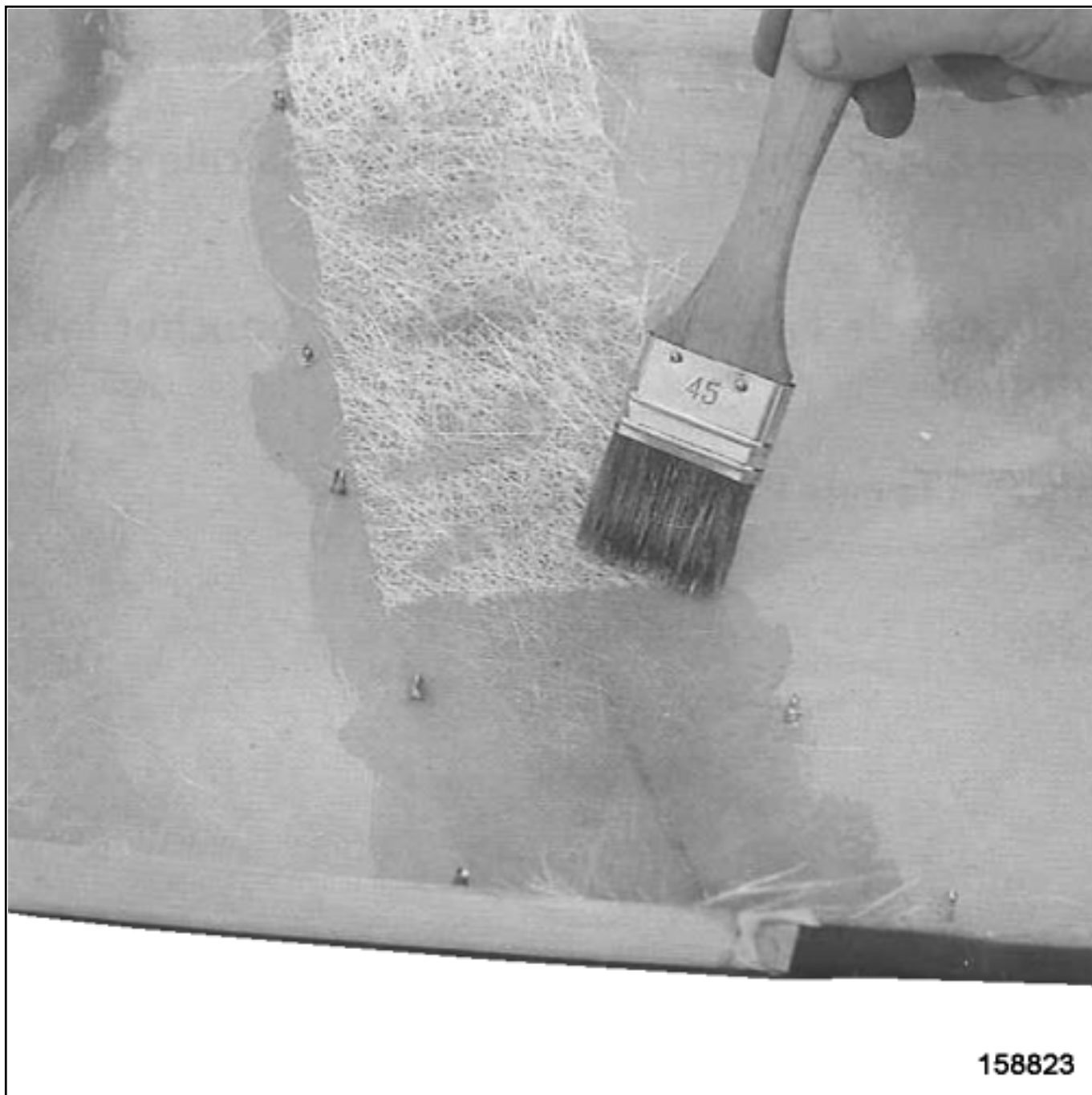
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■ Bond a masking tape on externe face on all reparation length.

■ Blow the component and clean the area to be repaired with the Acetone(see product techincal sheet).

■ Cut a piece of materielrecovering the reparation assembly.

■ Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components:](#)



Put the material strip by soaking with resin.



Note:

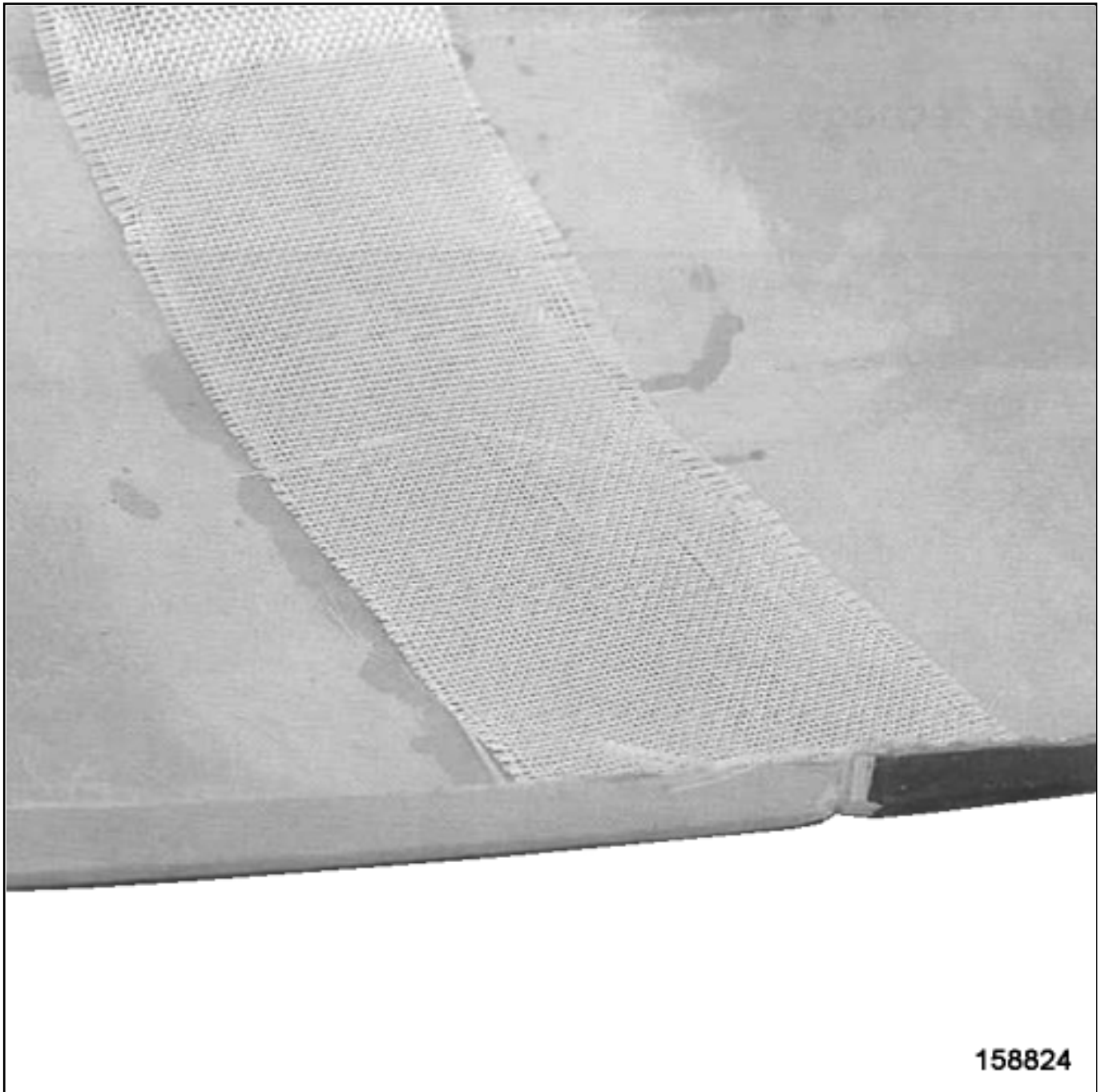
Pay particular attention at output screw area and at strips junction reinforcement to prevent the air bubbles form.



Note:

After 15 minutes, accelerate the hardening in drying oven or in infrared drying device (60° C maxi at a distance of 70 cm).

Remove the pads.



Prepare the reinforcement strips (material, cloth) by cutting them in a growing order 10 to 15 mm



Note:

According with the component width, the reinforcement strips number is variable, the purpose is to conserve the characteristic similar to the original.

■ Sand the zone to be repaired using the orbital sander with a P 40

■ Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).

■ Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components: Description](#)) .



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Put the material strip by soaking with resin.

Pass the spiked roller.



Note:

After 15 minutes, accelerate the hardening in drying oven or in infrared drying device (60° C maxi at a distance of 70 cm).



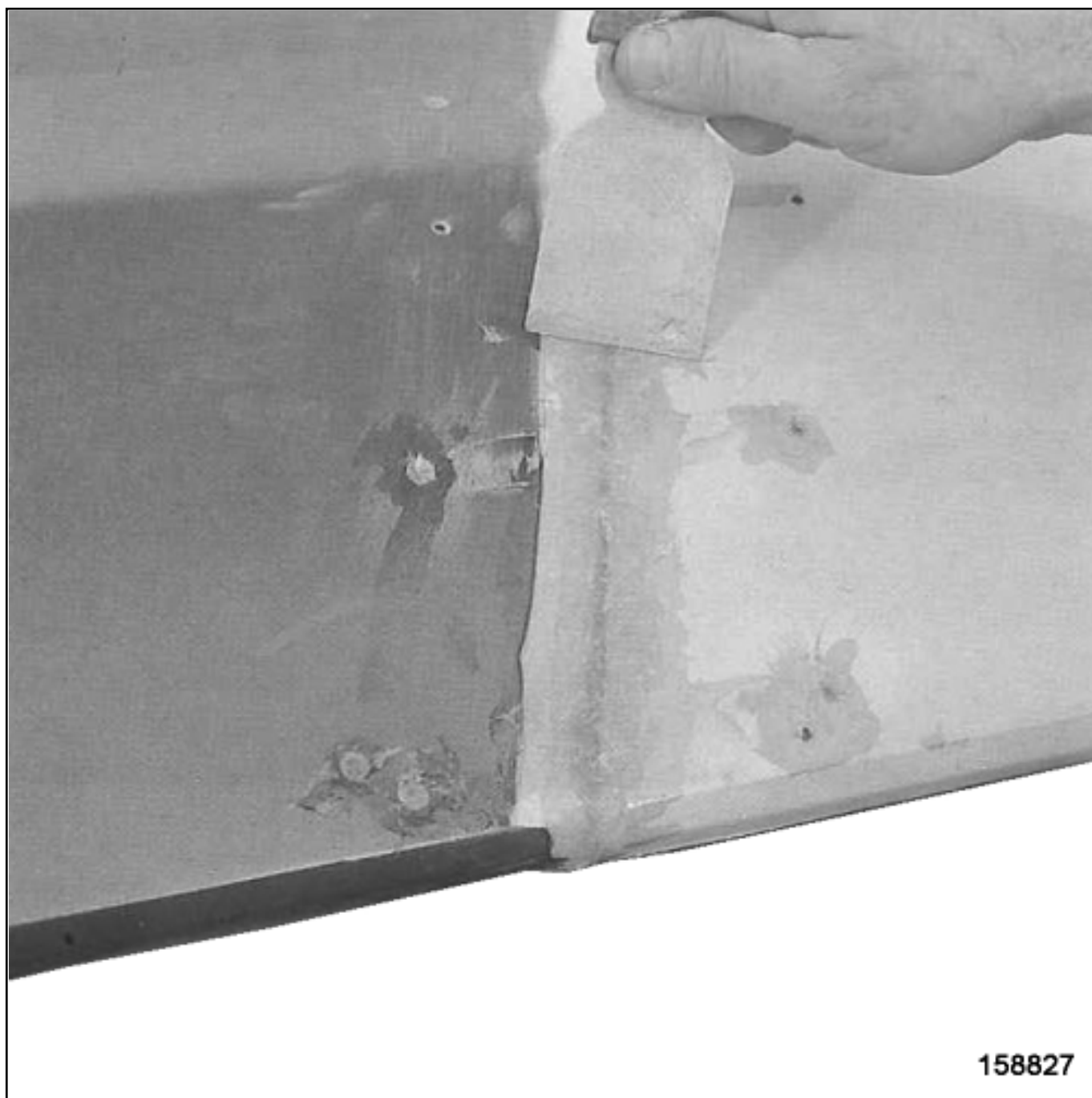
Chamfering the components junction.

Countersink the screws holes.

Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).

Prepare the Epoxy resin(see [50A, General information, Products for plastic material bodywork components: Description](#)) .

Add short fibres with resin and well mix.



Fill the chamfer and the holes using a spatula.

Note:



After 15 minutes, accelerate the hardening in drying oven or in infrared drying device (60° C maxi at a distance of 70 cm).

Apply if necessary a finishing mastic (see product technical sheet). (see **Vehicle: Parts and consumables for the repair**)

Sand the finishing mastic using a P 150 then finish using a P240.

7. PROCEDURE 6

Partial replacement of an element by cutting with patcht drilling.

Note:



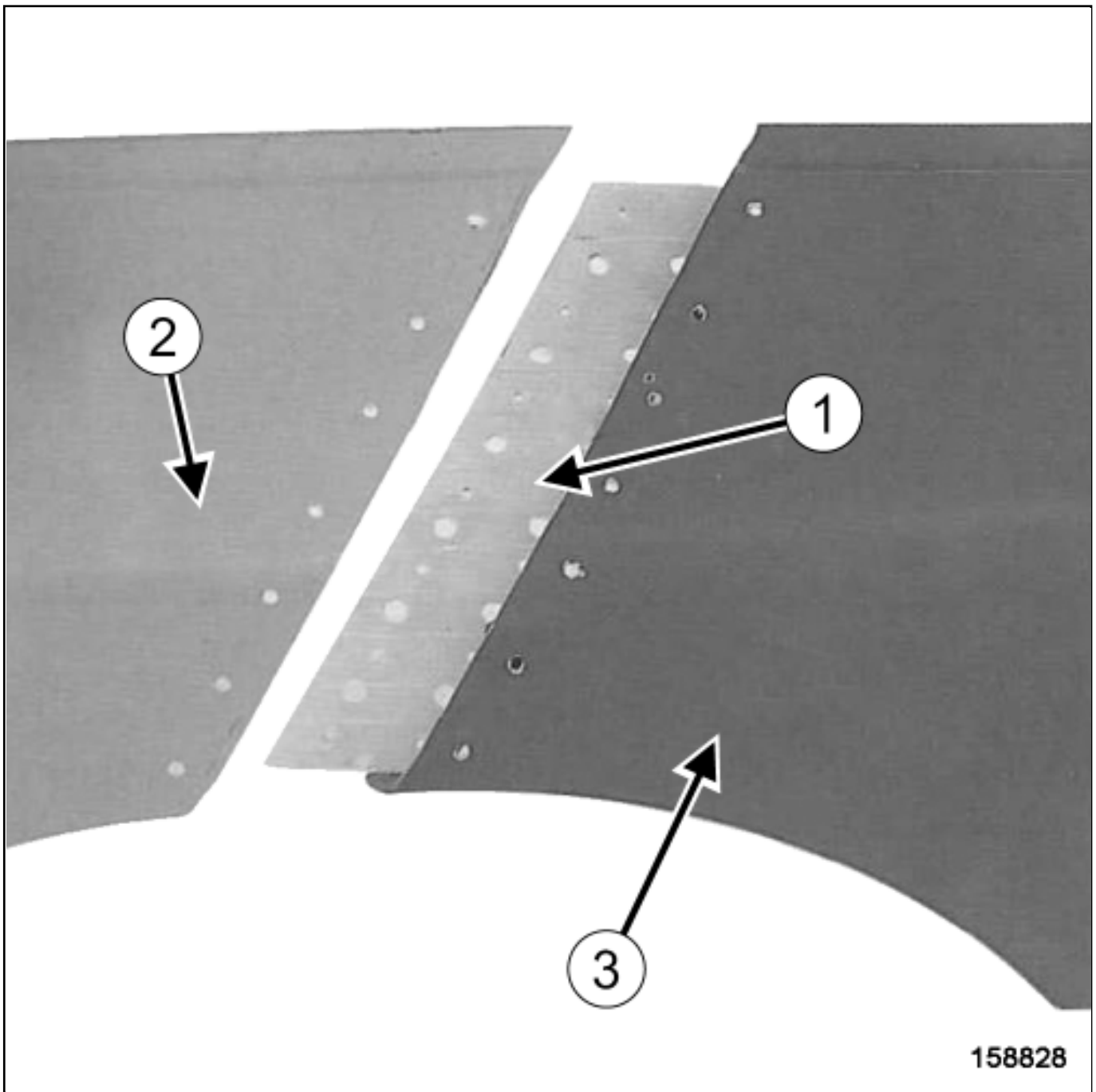
Method apply only on RTM component.

Note:



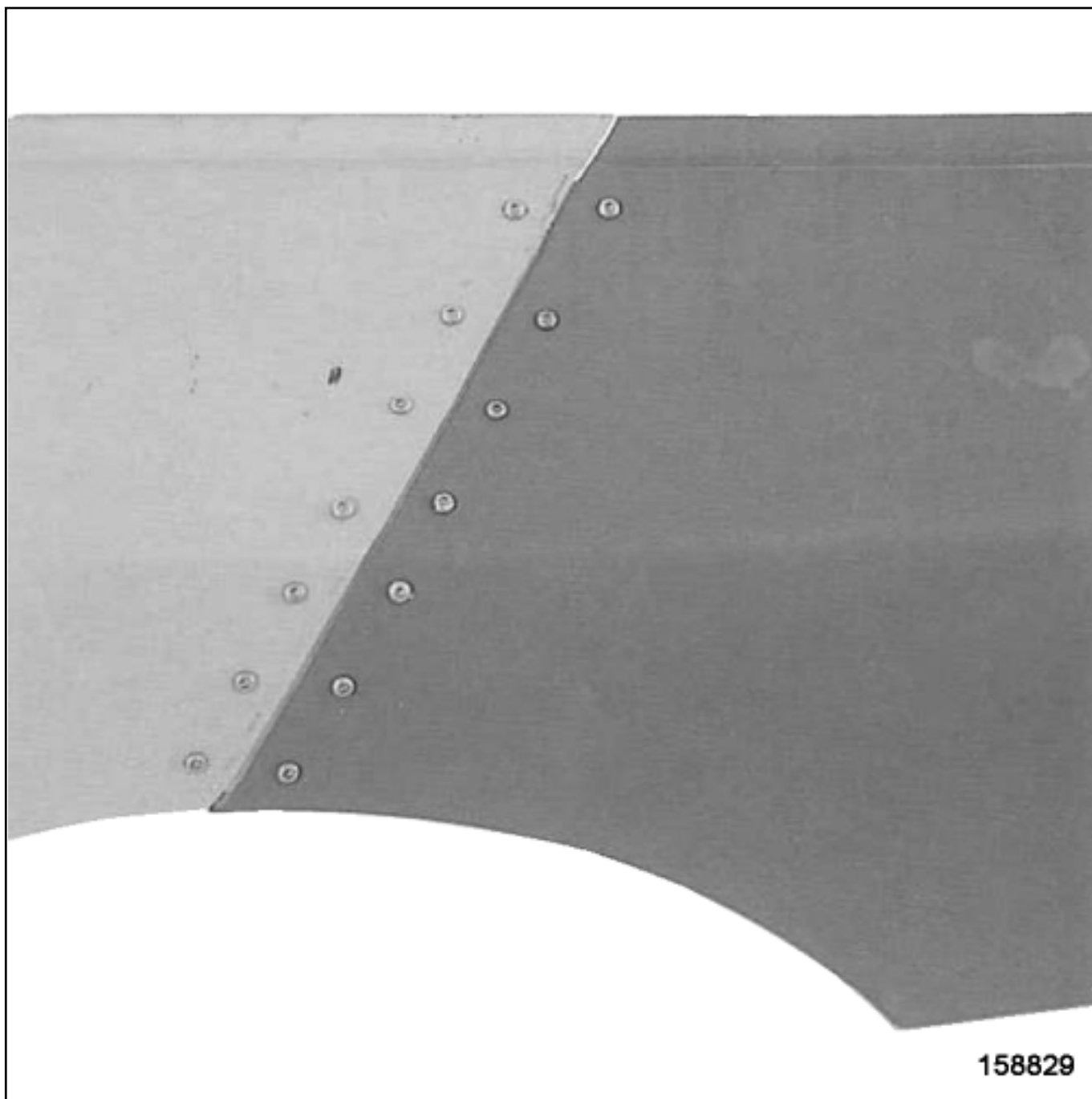
The components are manufactured by the method referred to as "contact" .

The reparation is performed by the interne face of the component.



■ Cut the damaged component for facilitate the patcht drilling.

■ Cut and adjust the new component.



- Drill the component on the vehicle.

- Temporary fit on the vehicle the patch drilling with plate screws.

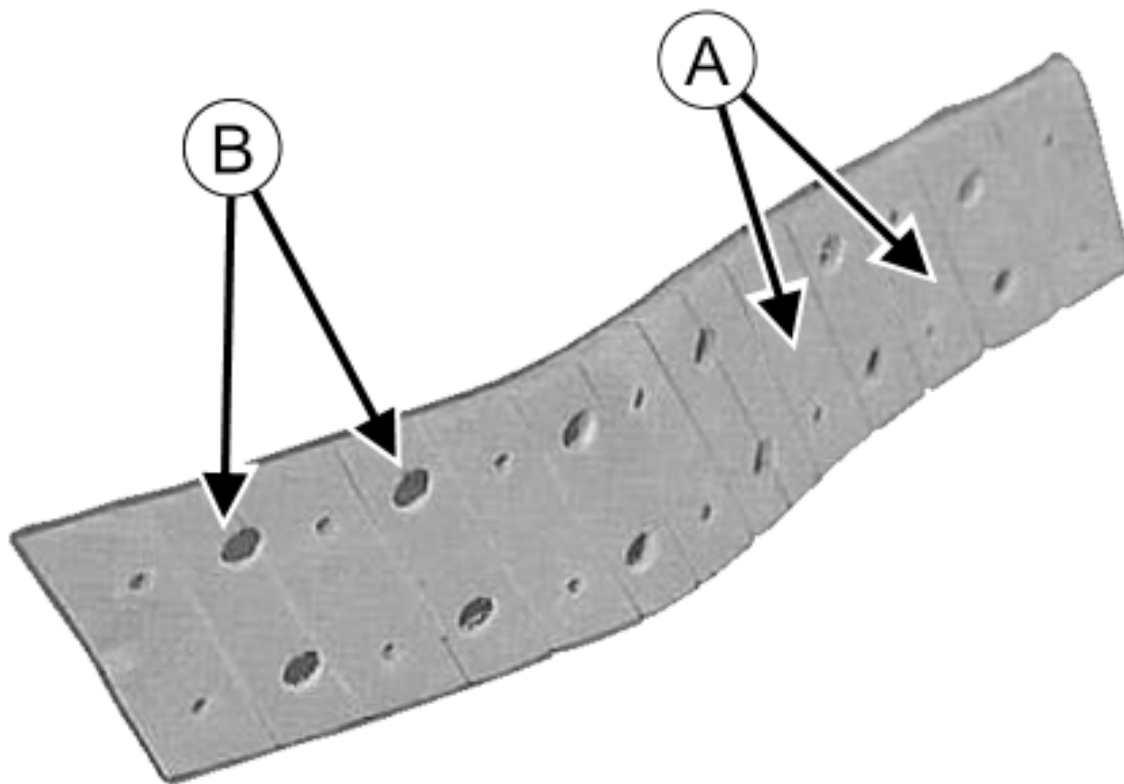
- Position the new component on the vehicle.

Fit on the vehicle the patch drilling with plate screws.

If necessary hold the new components with locking pliers.

Check the new component position.

Remove all components.



158830

Do the grooves(A) , in the internal side of patch drilling for adjust to the curve of component on the vehicle.



Drill the holes(B) with a 8 mmdiameter.



Countersink the holes from external side.



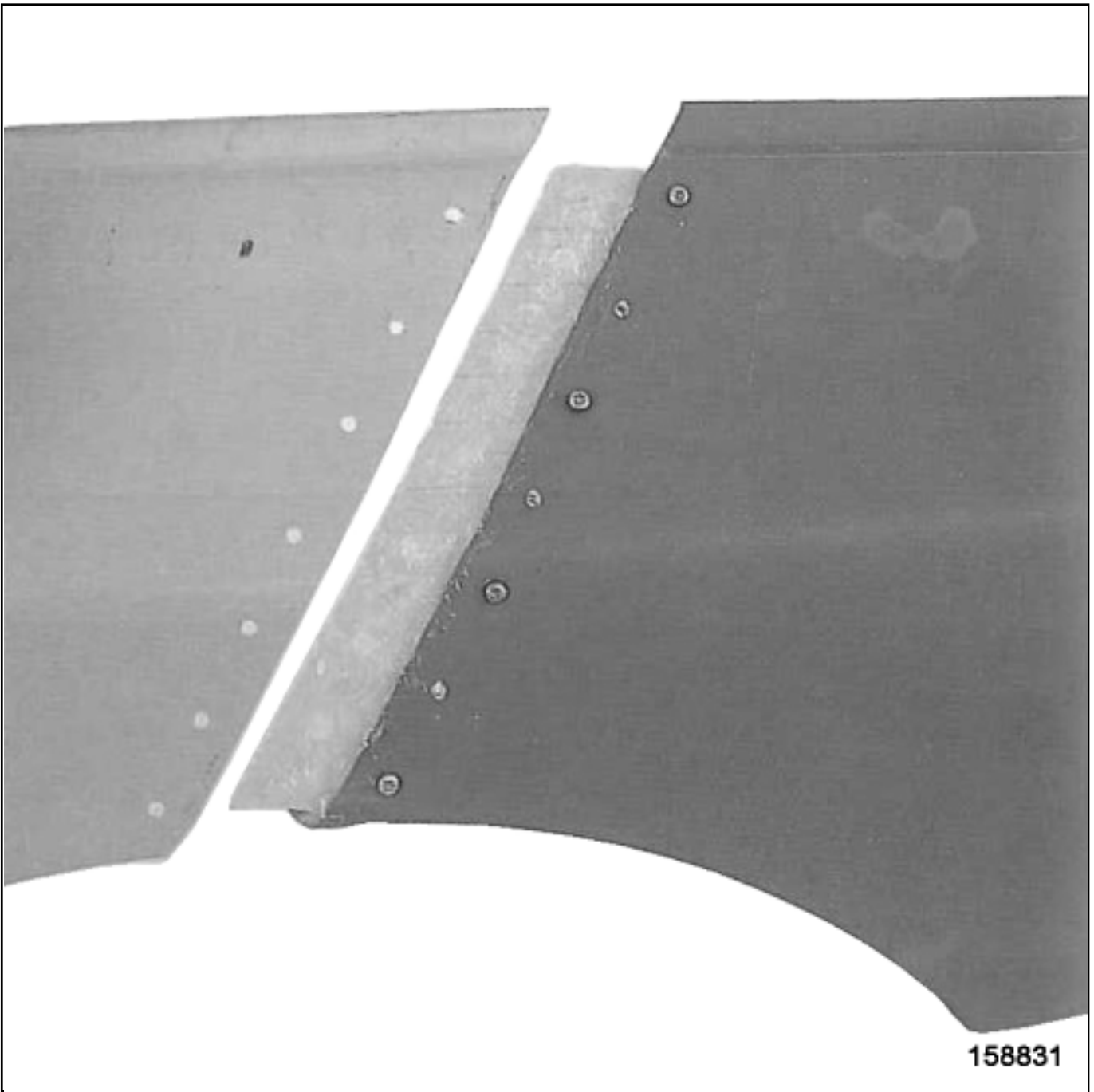
Sand the zone to be repaired using the orbital sander with a P 40



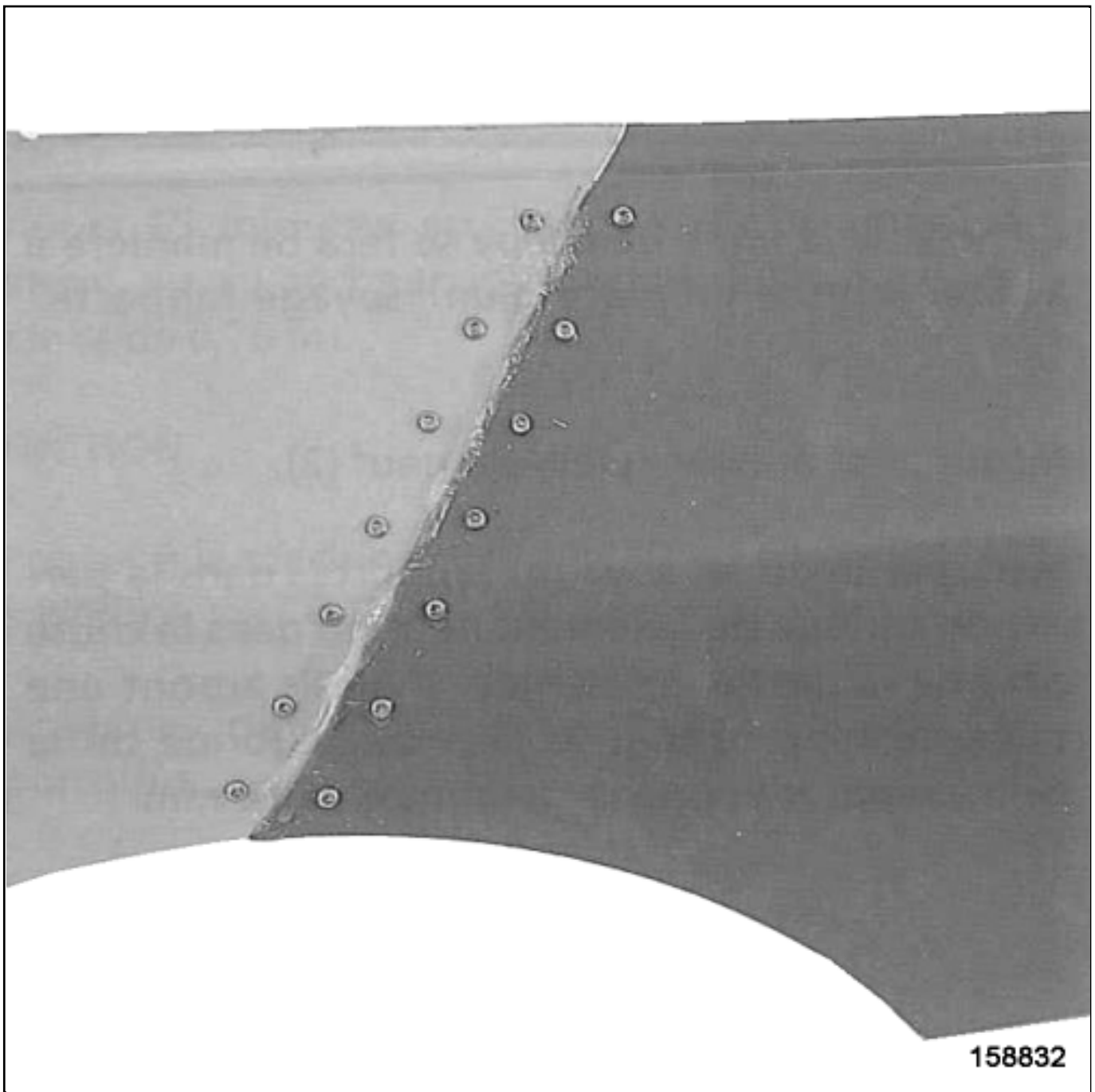
Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).



Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components: Description](#)) .



Band the half way of patcht drilling and fit on the component on the vehicle using plate screws.



Band the second half way of patcht drilling.



Note:

After 15 minutes, accelerate the hardening in drying oven or in infrared drying device (60° C maxi at a distance of 70 cm).

Remove the plate screws.

Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).

Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components: Description](#)) .



Apply the reinforcement by soaking of resin.



Note:

After 15 minutes, accelerate the hardening in drying oven or in infrared drying device(60° C maxi at a distance of 70 cm).

■ Sand the zone to be repaired using the orbital sander with a P 40

■ Blow the component and clean the area to be repaired with the Acetone(see product technical sheet).

■ Prepare the Epoxy resin([see 50A, General information, Products for plastic material bodywork components: Description](#)) .

■ Add short fibres with resin and well mix.

■ Apply the mixture on reparation zone.



■ Sand using the orbital sander with a P 80 then with a P 180 and P 240.

■ Apply if necessary a finishing mastic (see product technical sheet). (see **Vehicle: Parts and consumables for the repair**)

■ Sand the finishing mastic using a P 150 then finish using a P 240.



POWER-ASSISTED STEERING CIRCUIT: BLEEDING



Note, one or more warnings are present in this procedure

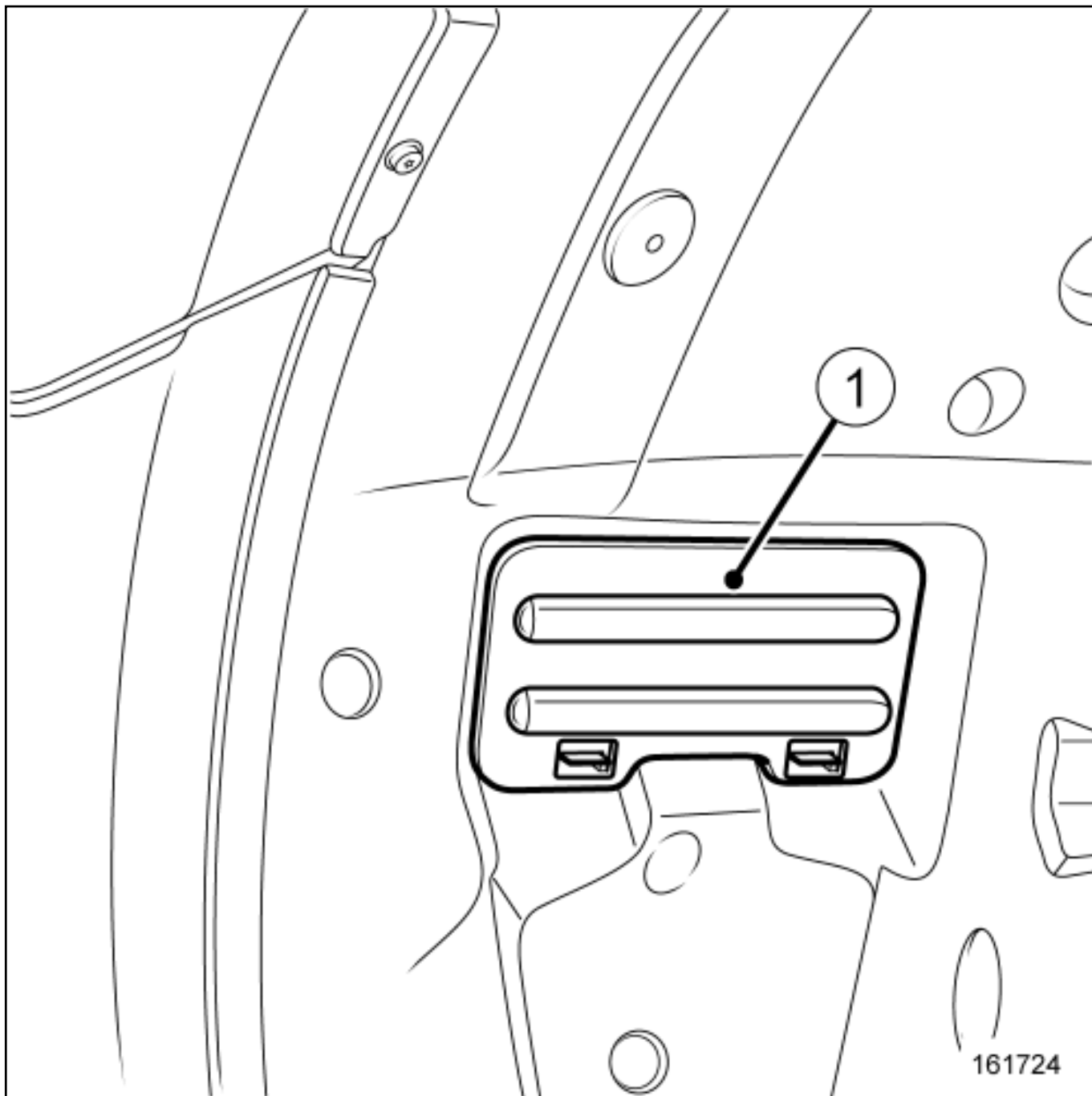


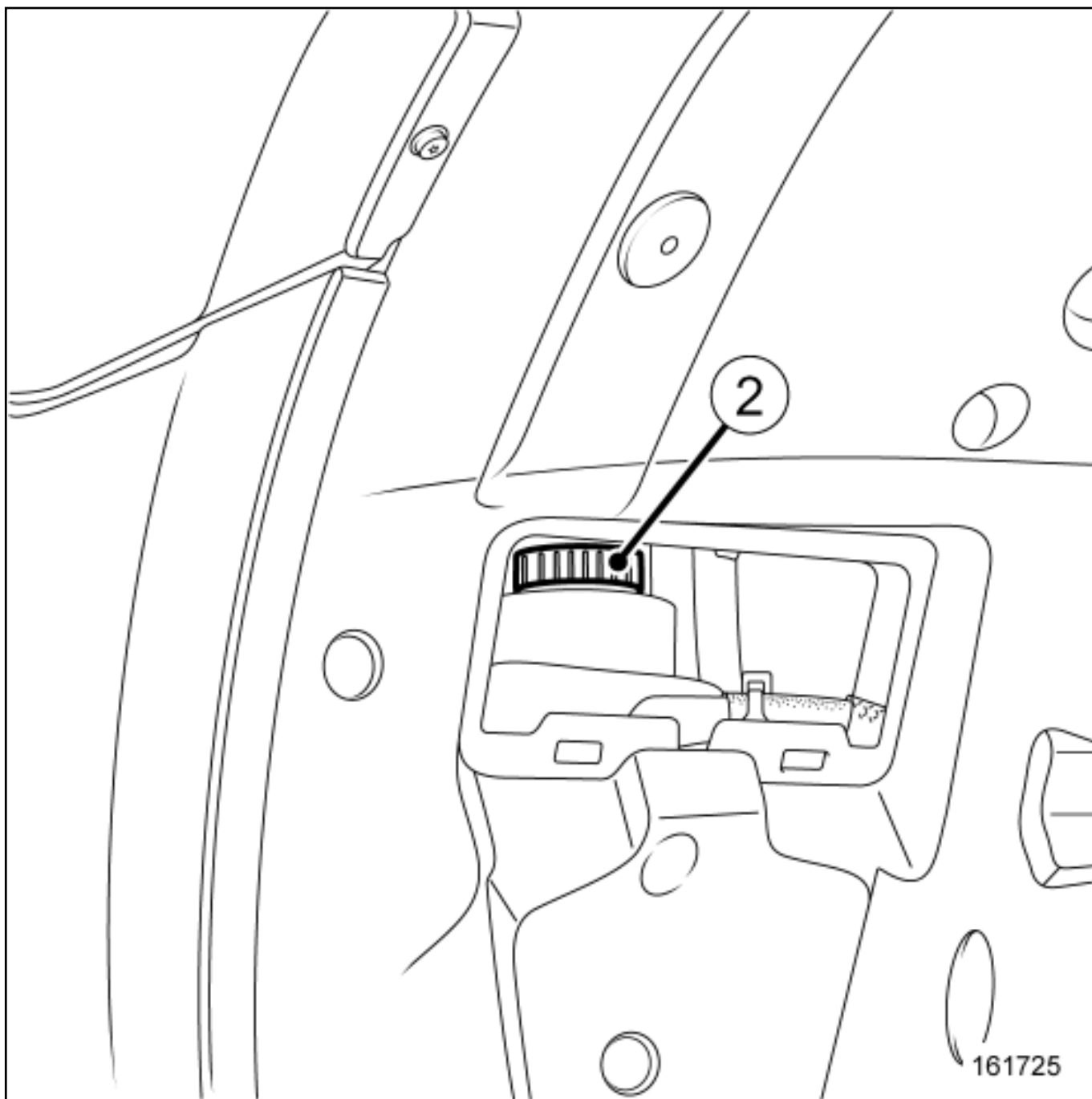
WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

BLEEDING

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- ❑ Raise the vehicle until the front wheels are lifted off the ground.





Turn the steering wheel fully to the left.

Remove:

- the cover(1) of the front left-hand wheel arch liner,
- the cap(2) of the power-assisted steering reservoir.

Fill the power-assisted steering reservoir using a syringe.

Start the engine.

Top up the power-assisted steering fluid.



CAUTION

To prevent damaging the power-assisted steering system, do not keep the steering at full lock.

Repeat the following operation three times:

-
- turn the steering wheel to the left to lock the steering,
- turn the steering wheel to the right to lock the steering.

Top up the power-assisted steering fluid.



CAUTION

The level must be between the "MIN" and "MAX" markings on the reservoir.

Refit:

-
- the cap(2) of the power-assisted steering reservoir,
- the cover(1) of the front left-hand wheel arch liner.



Repair-13x04x04-01x76-1-1-1.xml



XSL version : 3.02 du 22/07/11

POWER-ASSISTED STEERING PIPES: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Remote operation pliers for hose clips.

Mot. 1448

Equipment required

oil recovery tray



parts always to be replaced:



Power-assisted steering pipe seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) [Steering assembly: Exploded view](#) .

WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:



[Steering: Precautions for the repair](#) ,



[Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).





CAUTION

Prepare for the flow of fluid, and protect the surrounding components.



WARNING

Wear leaktight gloves (Nitrile type) for this operation.

REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove:



the front left-hand wheel [Front hub carrier assembly: Exploded view](#) ,

the engine undertray bolts,

the engine undertray,

the front left-hand wheel arch liner [Front wheel arch liner: Removal - Refitting](#) .

2. REMOVAL OPERATION



Position an oil recovery tray under the vehicle.



Undo the clip of the power-assisted steering pump low pressure pipe using the tool [Remote operation pliers for hose clips \(Mot. 1448\)](#) .



Disconnect the low pressure pipe.

Drain the power-assisted steering reservoir.

Remove the power-assisted steering pipes [Steering assembly: Exploded view](#) .

REFITTING

1. REFITTING PREPARATION OPERATION

parts always to be replaced:



[Power-assisted steering pipe seal](#)



2. REFITTING OPERATION

Refit the power-assisted steering pipes [Steering assembly: Exploded view](#) .

3. FINAL OPERATION

Proceed in the reverse order to removal.

Fill the power-assisted steering reservoir [Vehicle: Parts and consumables for the repair](#) .

Bleed the power-assisted steering circuit ([see 36B, Power assisted steering, Power-assisted steering circuit: Bleeding](#)) .



POWER-ASSISTED STEERING PUMP ASSEMBLY: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Remote operation pliers for hose clips.

Mot. 1448

Pipe clamps.

Ms. 583

Equipment required

Diagnostic tool

oil recovery tray



parts always to be replaced:



Power-assisted steering pipe seal



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair [Steering: Precautions for the repair](#) .

□ Location and specifications (tightening torques, parts always to be replaced, etc.) [Steering assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove:
 - the front left-hand wheel [Front hub carrier assembly: Exploded view](#) ,
 - the front left-hand wheel arch liner [Front wheel arch liner: Removal - Refitting](#) ,
 - the front bumper [Exterior body front trim assembly: Exploded view](#) .

2. REMOVAL OPERATION

- Position an oil recovery tray under the vehicle.
- Disconnect the power-assisted steering pump assembly connectors.
- Position the Pipe clamps. (Ms. 583) on the low pressure pipe.
- Undo the clip of the power-assisted steering pump low pressure pipe using the tool Remote operation pliers for hose clips. (Mot. 1448) .
- Disconnect the low pressure pipe.
- Drain the power-assisted steering reservoir.
- Disconnect the high pressure pipe [Steering assembly: Exploded view](#) .
- Remove the power-assisted steering pump assembly with its mounting [Steering assembly: Exploded view](#) .



Note:

Do not remove the pump assembly from its mounting.

REFITTING

1. REFITTING PREPARATIONS OPERATION



parts always to be replaced:

Power-assisted steering pipe seal



Note:

The pump assembly is supplied with its mounting.

2. REFITTING OPERATION



Refit the power-assisted steering pump assembly Steering assembly: Exploded view .

3. FINAL OPERATION.



Proceed in the reverse order to removal.



Fill the pump assembly reservoir with power-assisted steering fluid Vehicle: Parts and consumables for the repair .



Bleed the power-assisted steering circuit([see 36B, Power assisted steering, Power-assisted steering circuit: Bleeding](#)) .



Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the after repair procedure:



"Power-assisted steering computer"

-Component affected by the after repair procedure:



"Power-assisted steering pump assembly"



Repair-13x04x04x09-01x37-1-7-1.xml



XSL version : 3.02 du 22/07/11

PRE-POSTHEATING UNIT:REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION



Disconnect the battery [Battery: Removal - Refitting](#) .

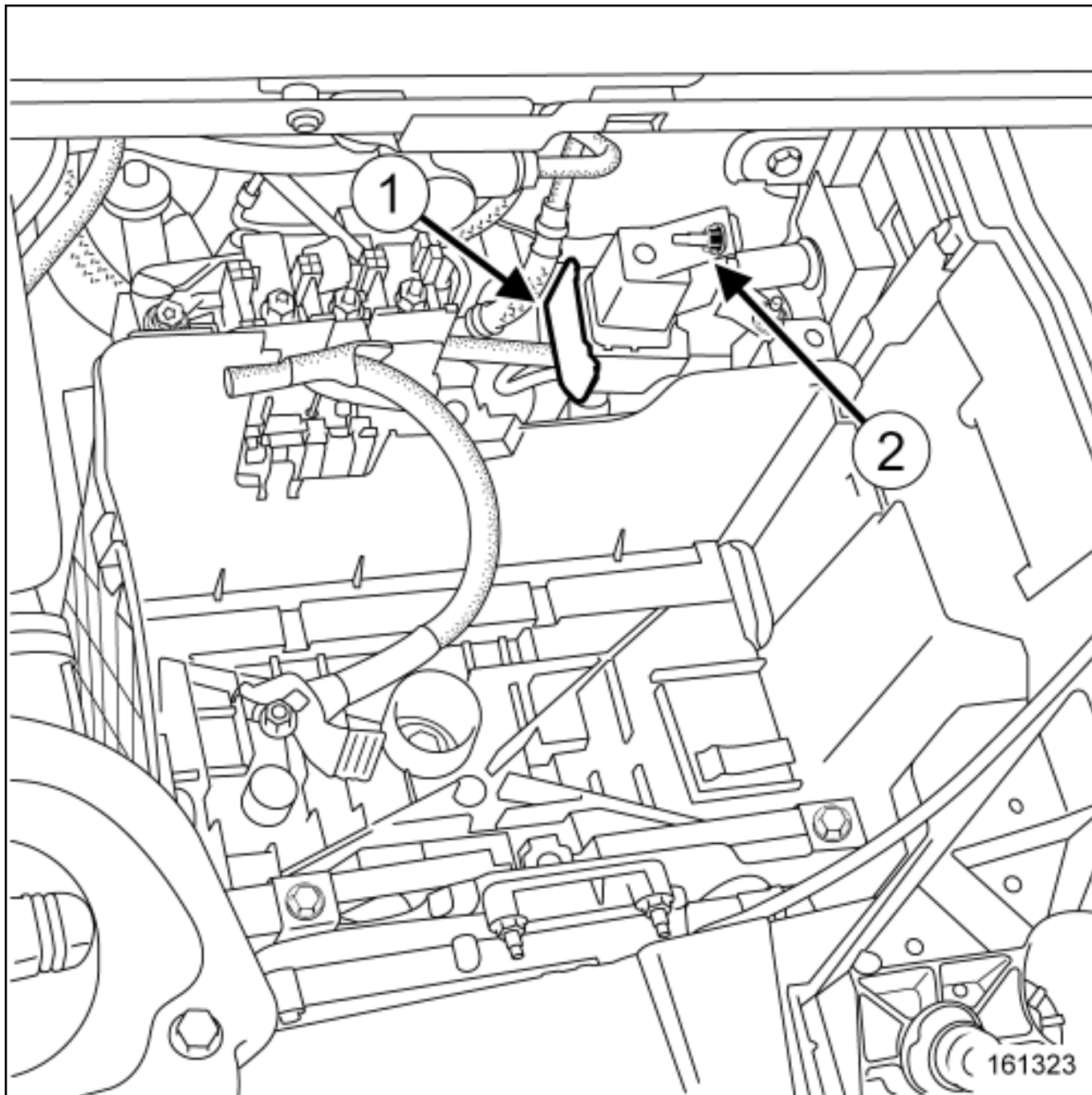


Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove the battery cover.

2. REMOVAL OPERATION



Disconnect the pre-postheating unit connector(1) .

Remove:

- the nut(2) from the pre-postheating unit,
- the pre-postheating unit.

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-11x05x08x01-01x37-1-48-1.xml



XSL version : 3.02 du 22/07/11

PRESSURE AT END OF COMPRESSION: CHECK



Note, one or more warnings are present in this procedure



Special tooling required

Flexible end piece for taking end of compression pressure measurements.

Mot. 1772

Equipment required

Diagnostic tool

diesel compression gauge



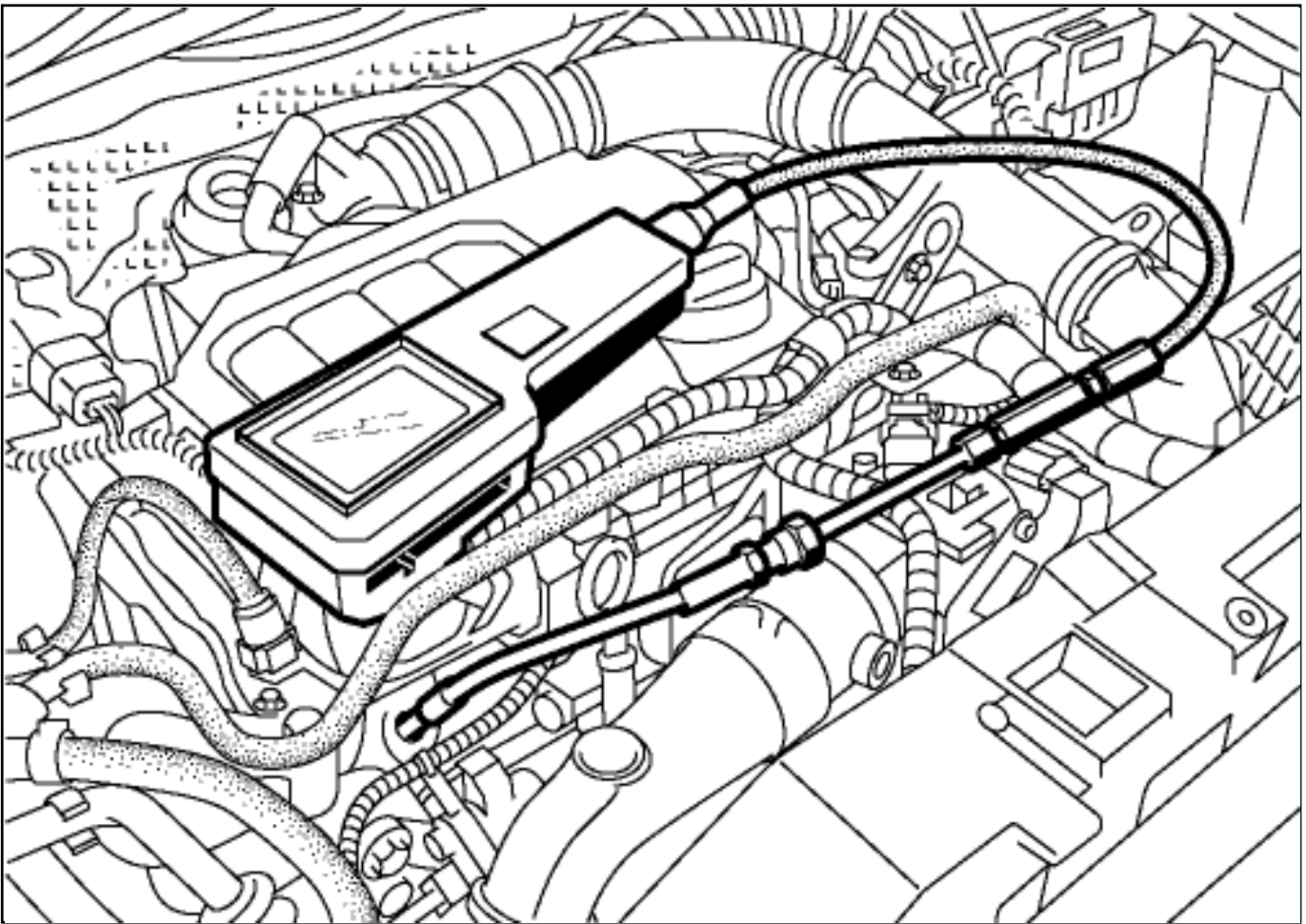
WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

CHECK

1. PREPARATION OPERATION FOR CHECK

- Remove:
 - the engine cover,
 - the heater plugs(see **Heater plugs: Removal - Refitting**) .
- Fit the hose end pieceFlexible end piece for taking end of compression pressure measurements.(**Mot. 1772**) in place of one of the removed plugs.
- Moderately tighten the hose end pieceFlexible end piece for taking end of compression pressure measurements. (**Mot. 1772**) using an open-jawed spanner.
- Screw the conversion hose end pieceFlexible end piece for taking end of compression pressure measurements. (**Mot. 1772**) of the diesel compression gaugeonto the hose.



■ Connect the diesel compression gauge to the flexible end piece for taking end of compression pressure measurements. (Mot. 1772) .

- Run command with Diagnostic tool:
 - RZ03 : "ENGINE ADAPTIVES",
 - VP036 : "FUEL SUPPLY INHIBITION".

- Put the vehicle under starting conditions:
 - gear lever in neutral position for a manual gearbox,
 - "P" (park) position for an automatic gearbox,
 - brake pedal depressed.

2. TEST OPERATION

- Press the vehicle start button to trigger the engine starting phase.

Note:



The engine will be driven for 20 s without starting.

■ Check the compression of cylinder no. 1.



Depress the accelerator pedal fully.

Note:



Put the vehicle back in forced + after ignition feed as soon as the starter has stopped (in order to maintain engine start inhibition and to measure the compression of the other cylinders).

Note:



It is necessary to wait for at least 10 seconds before starting the engine each time (the starter will not run due to its thermal protection).



Measure the compression of the other cylinders.

3. FINAL OPERATION



Disconnect the diesel compression gauge.



Remove:



the conversion hose end piece of the diesel compression gauge,



the flexible end piece for taking end of compression pressure measurements. ([Mot. 1772](#)).



Refit:



the heater plugs (see [Heater plugs: Removal - Refitting](#)),



the engine cover.



Remove the card from the reader to interrupt the + after ignition feed and wait for the loss of communication message to appear on the Diagnostic tool.



Note:

If the message does not appear, wait 9 minutes.



When the loss of dialogue message appears or after waiting 9 minutes, force the vehicle's + after ignition feed.



Repair-10x02x05-01x58-1-70-1.xml



XSL version : 3.02 du 22/07/11

PRESSURE PLATE - DISC: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Flywheel locking tool.

Mot. 1431

Clutch plate centring mandrel

Emb. 2056



parts always to be replaced:



[Clutch thrust bearing](#)

[Differential output seal](#)



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - [Manual gearbox: Precautions for the repair](#) ,



CAUTION

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

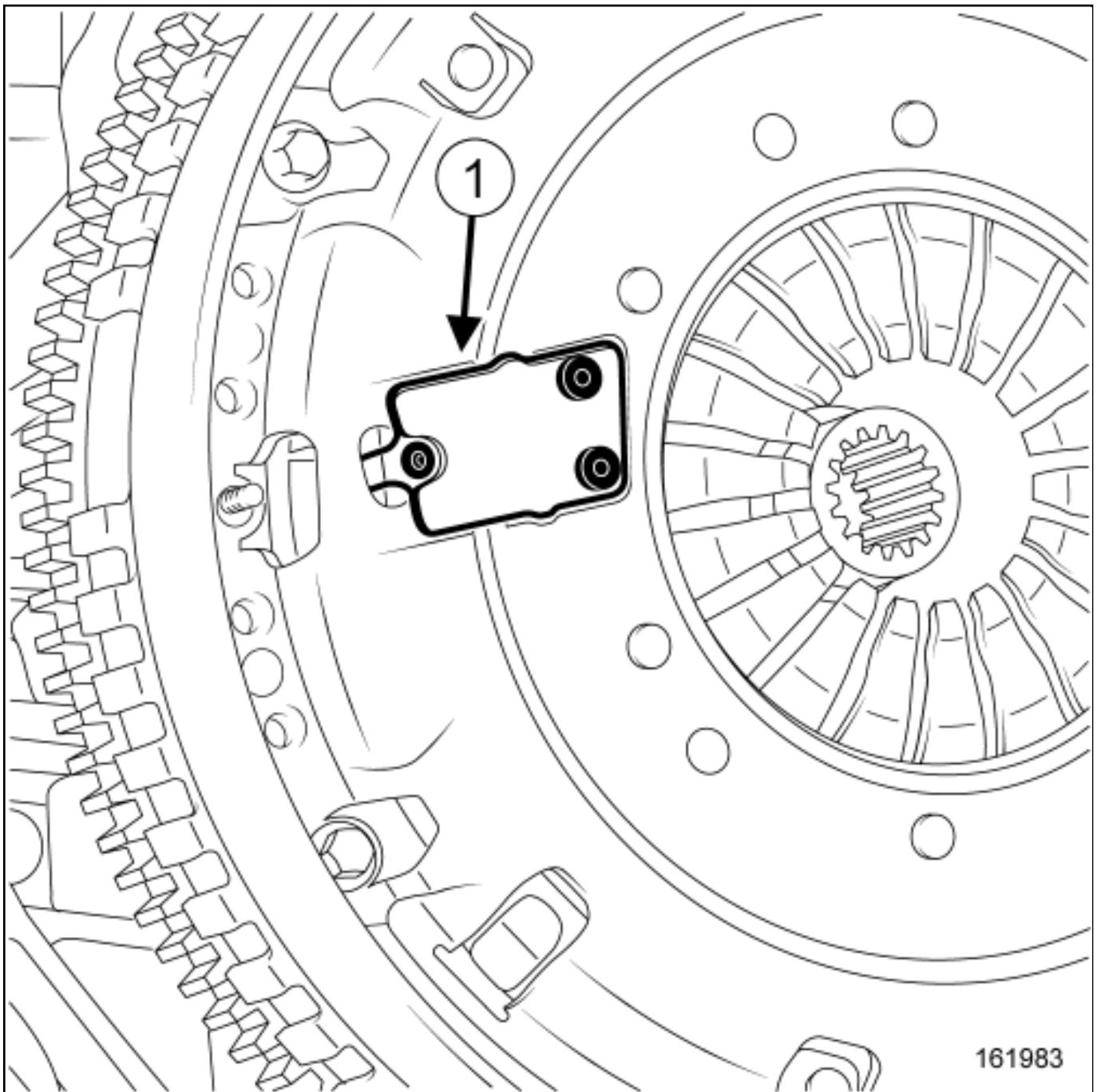
- Remove the manual gearbox [Manual gearbox: Removal - Refitting](#) .

2. REMOVAL OPERATION



CAUTION

Failure to observe the following procedure may damage the clutch.



161983

Note:

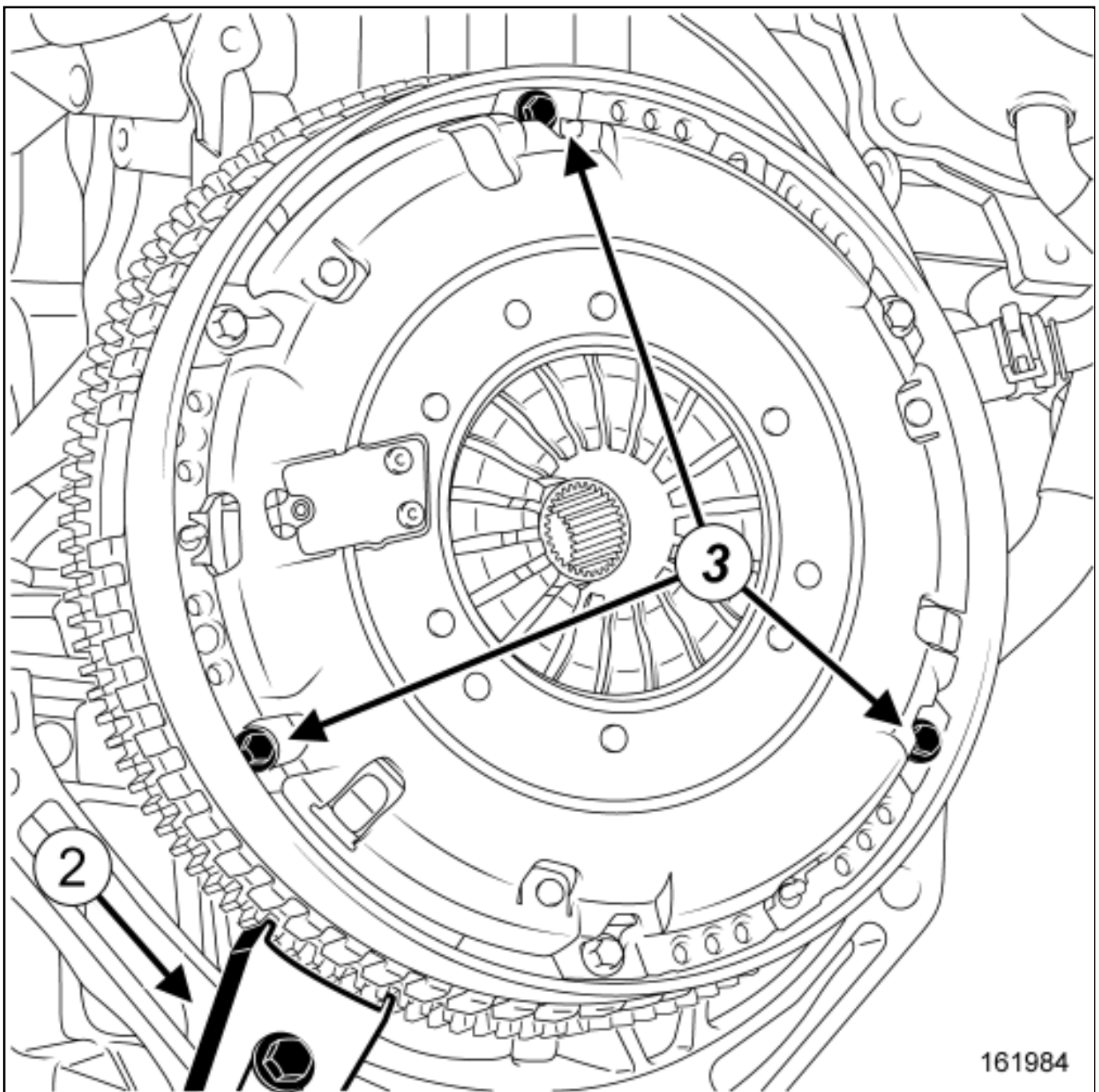
The automatic compensation system(1) is not reversible.



Never touch the automatic compensation system.

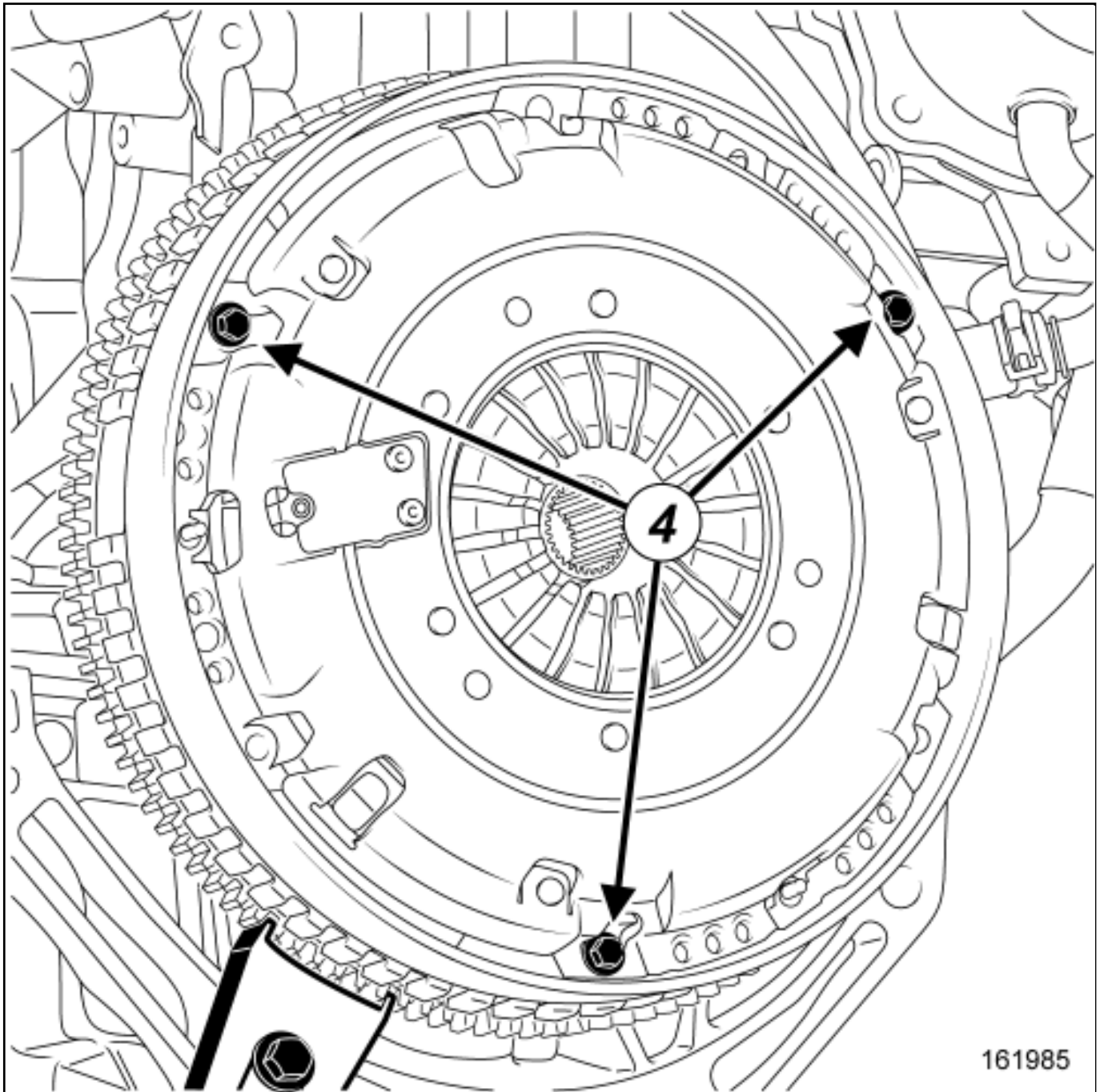
Never manipulate or adjust the automatic compensation system bolt.

Never put the clutch pressure plate on the clutch plate cover side (risk the misadjust the system).



Lock the flywheel using the Flywheel locking tool.(Mot. 1431) at (2) .

Unscrew the three clutch mounting bolts(3) by 120° alternately.



Regularly unscrew by 120° the three remaining clutch mounting bolts(4) .

Remove the "pressure plate - disc" assembly.

REFITTING

1. REFITTING PREPARATION OPERATION



Clean all the removed parts [Manual gearbox: Precautions for the repair](#) .



CAUTION

Do not grease the friction surfaces, the clutch pressure plate compression surface, also the flywheel friction face.



Always replace the clutch pressure plate bolts.



parts always to be replaced:



[Clutch thrust bearing](#) .



parts always to be replaced:



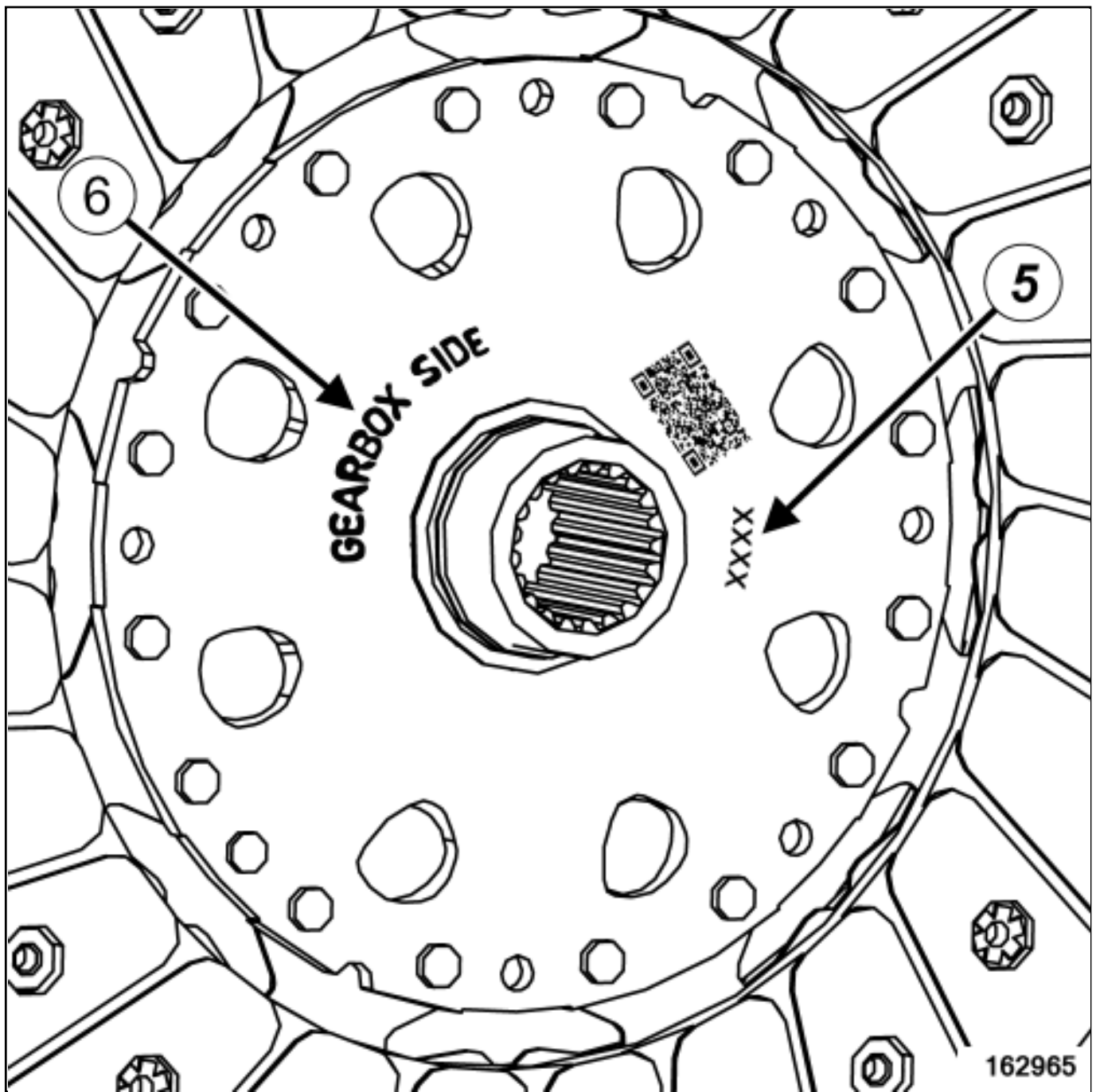
[Differential output seal](#) .

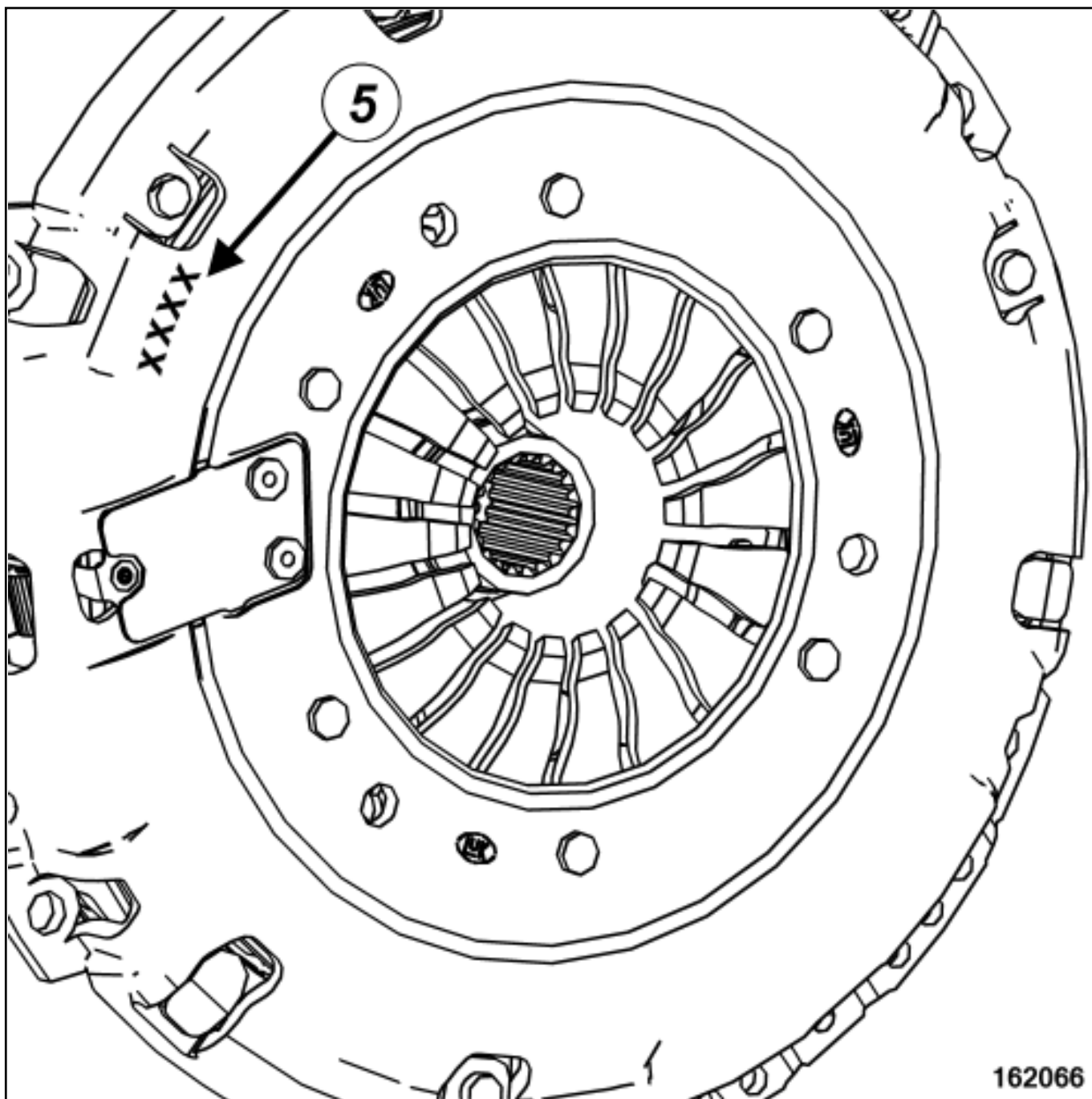


2. REFITTING OPERATION



Check and ensure the presence of the grease on the clutch disc splines and on the gearbox input shaft.





Note:

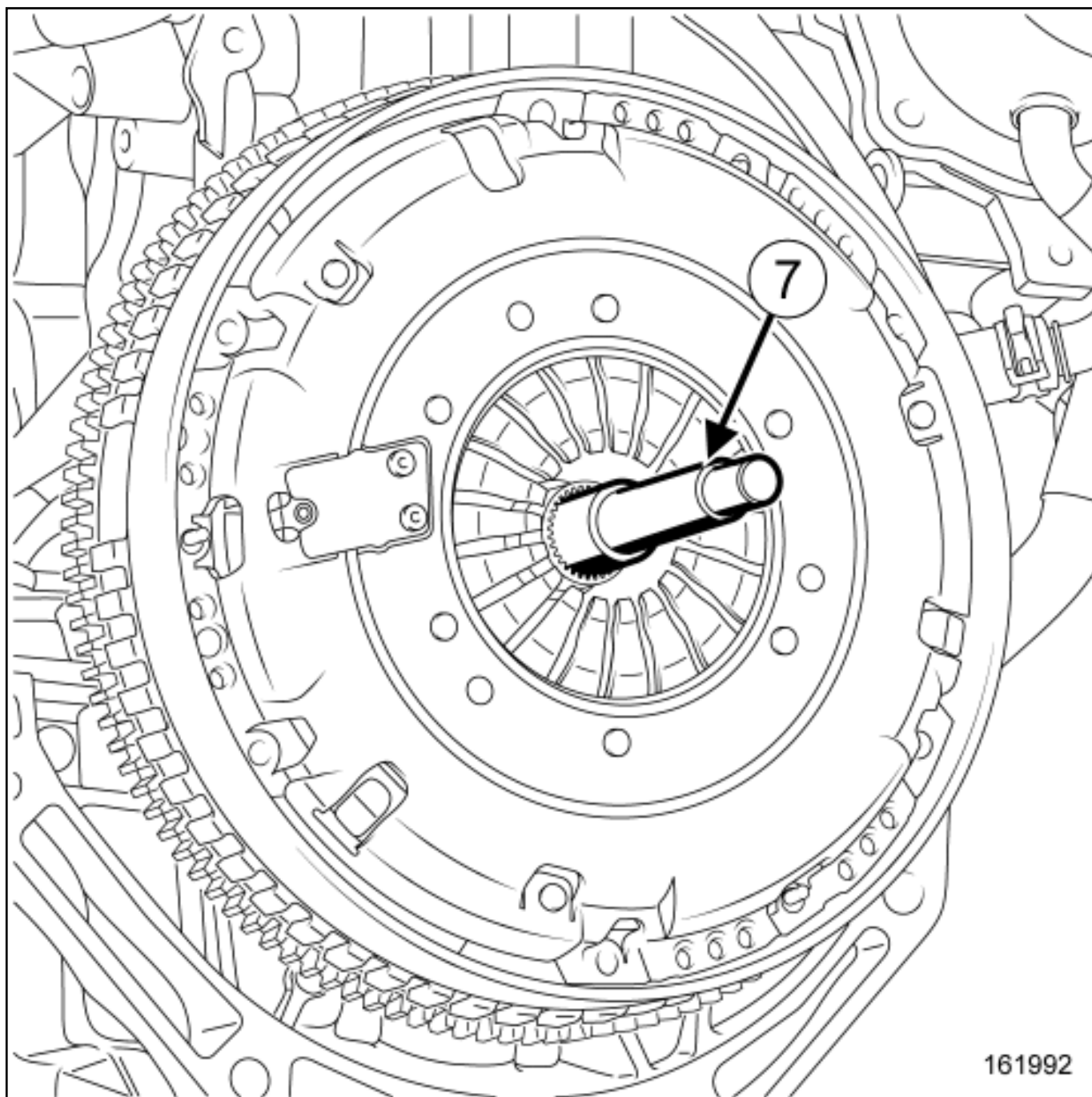


The "pressure plate - disc" assembly is paired, therefore can not be separated.

The pairing numbers(5) on the clutch pressure plate and on the clutch disc must correspond.

Fit the clutch plate on the engine flywheel by orienting the marked side with "GEARBOX SIDE"(6)

toward the gearbox.



Centre the clutch plate on the engine flywheel using the centring device(7) of tool Clutch plate centring mandrel (Emb. 2056) .



Refit and tighten slightly:



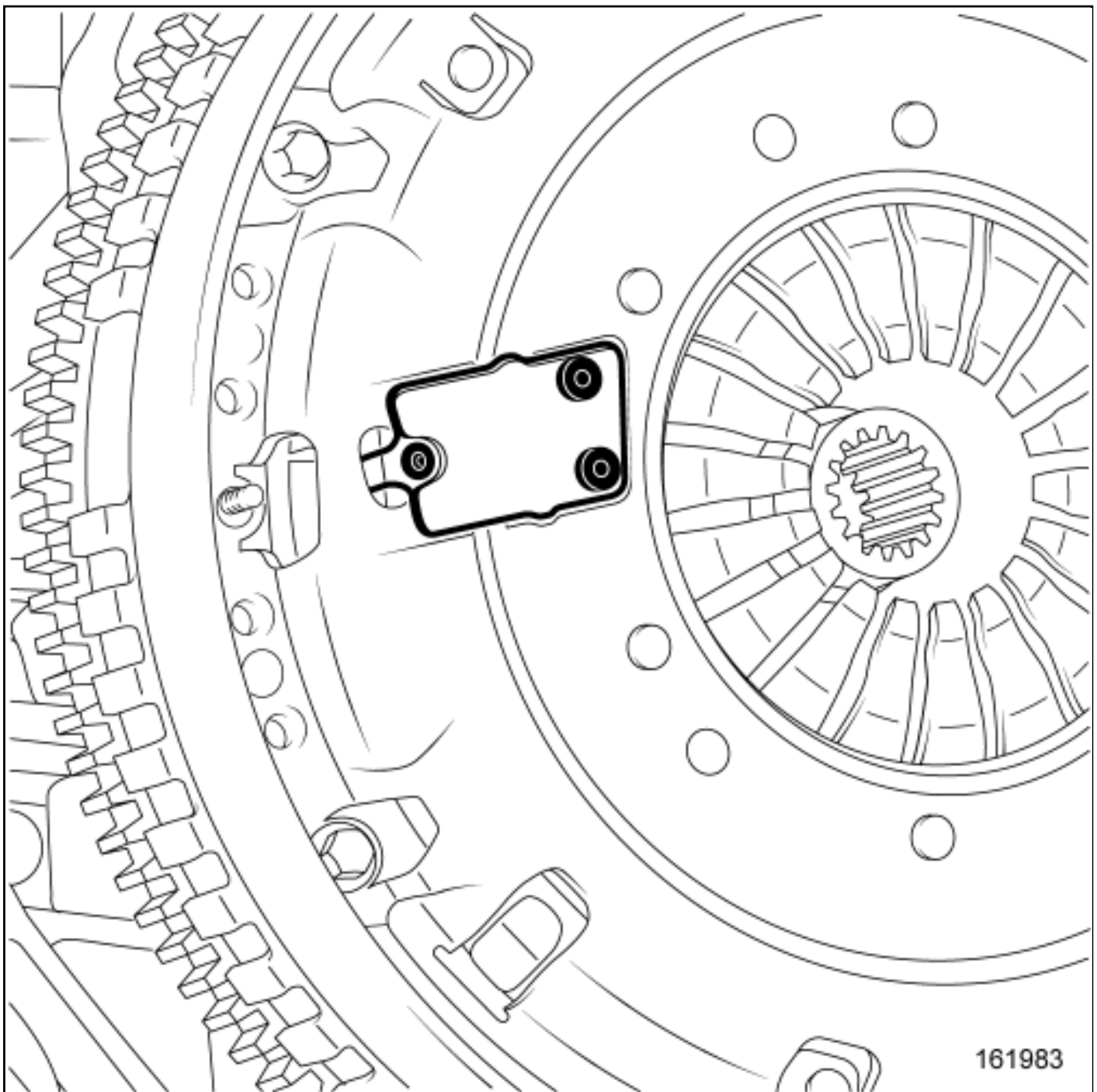
the three mounting bolts by 120° alternately,



the remaining three mounting bolts.

Torque tighten the clutch pressure plate bolts 25 N.m by 120° alternately and gradually.

Remove the Clutch plate centring mandrel (Emb. 2056) and Flywheel locking tool (Mot. 1431).





Note:

The "pressure plate - disc" assembly refit operation leads to a lifting of the automatic compensation system.



Never touch the wear compensation system, it will automatically reposition itself on the actuation of the clutch system.

3. FINAL OPERATION



Refit the manual gearbox [Manual gearbox: Removal - Refitting](#) .



Repair-12x03x01x02-01x37-1-88-1.xml



XSL version : 3.02 du 22/07/11

PROXIMITY SENSOR: PREPARATION AND PAINT RANGE



Note, one or more warnings are present in this procedure

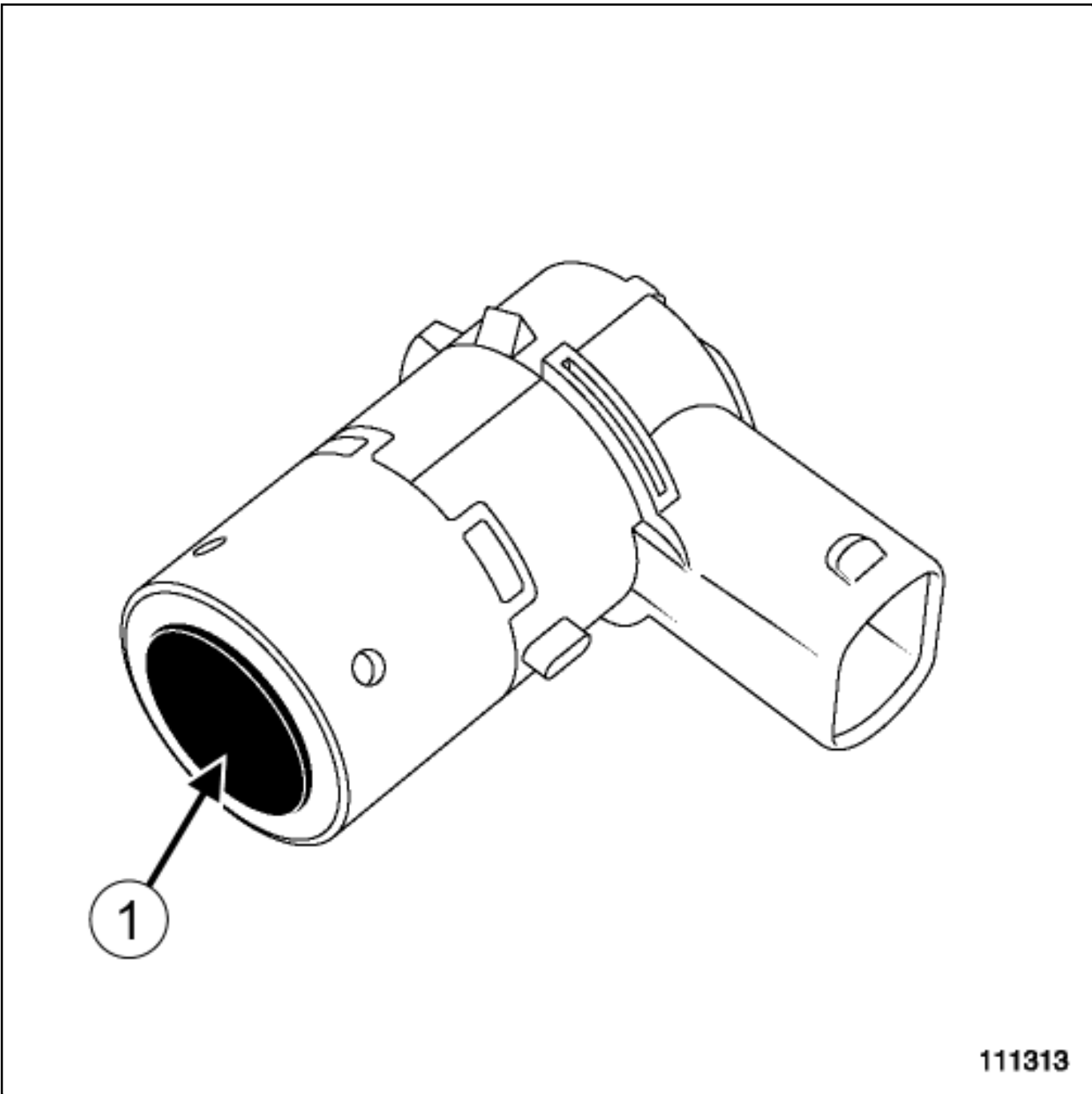


CAUTION



The proximity sensors are fragile. Handle with care as the external part cannot withstand impacts.

When drying the bumper and/or proximity radars, the temperature must not exceed 60°C .



111313

The radar detects using a highly sensitive membrane(1) .

The sensitivity of the membrane may be affected by an unsuitable coating.

The radar will then detect false information or nothing at all.

1. PAINTING

Only proximity radars sold and prepared in the Parts Department can be painted.

Paint the proximity radars and the bumper separately.

Put masking tape on the part of the proximity radar which must not be painted.

For proximity radars which are supplied unassembled, paint the proximity radar only and assemble the unit after drying.

Apply the product range for painting on polypropylene([see 95A, Paint application range for plastic, Polypropylene / polyethylene bodywork component: Preparation and paint range](#)) .

If retouching the paintwork on the bumper, mask or remove the proximity radars.

The proximity radars must not be painted several times.

2. MALFUNCTION

Faults leading to proximity radar malfunctioning:

- excessive run or paint thickness on the membrane,
- run in the peripheral section of the membrane's neck,
- damage to the membrane,
- deformed bumper changing the alignment of the proximity radars.



Repair-80x03x03x09-02x65-1-1-1.xml



XSL version : 3.02 du 22/07/11

RADIO: LIST AND LOCATION OF COMPONENTS



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

1. LIST OF COMPONENTS

1- THE RADIO SYSTEM COMPRISES:

- a radio aerial
- a radio control satellite
- a front speakers
- an offset multimedia socket
- an "hands-free" microphone
-

a radio

J82(J82)

- a rear speakers

2. LOCATION OF COMPONENTS



CAUTION

To prevent damaging the navigation system, wait 1 minute after switching off the + after ignition feed.

CAUTION

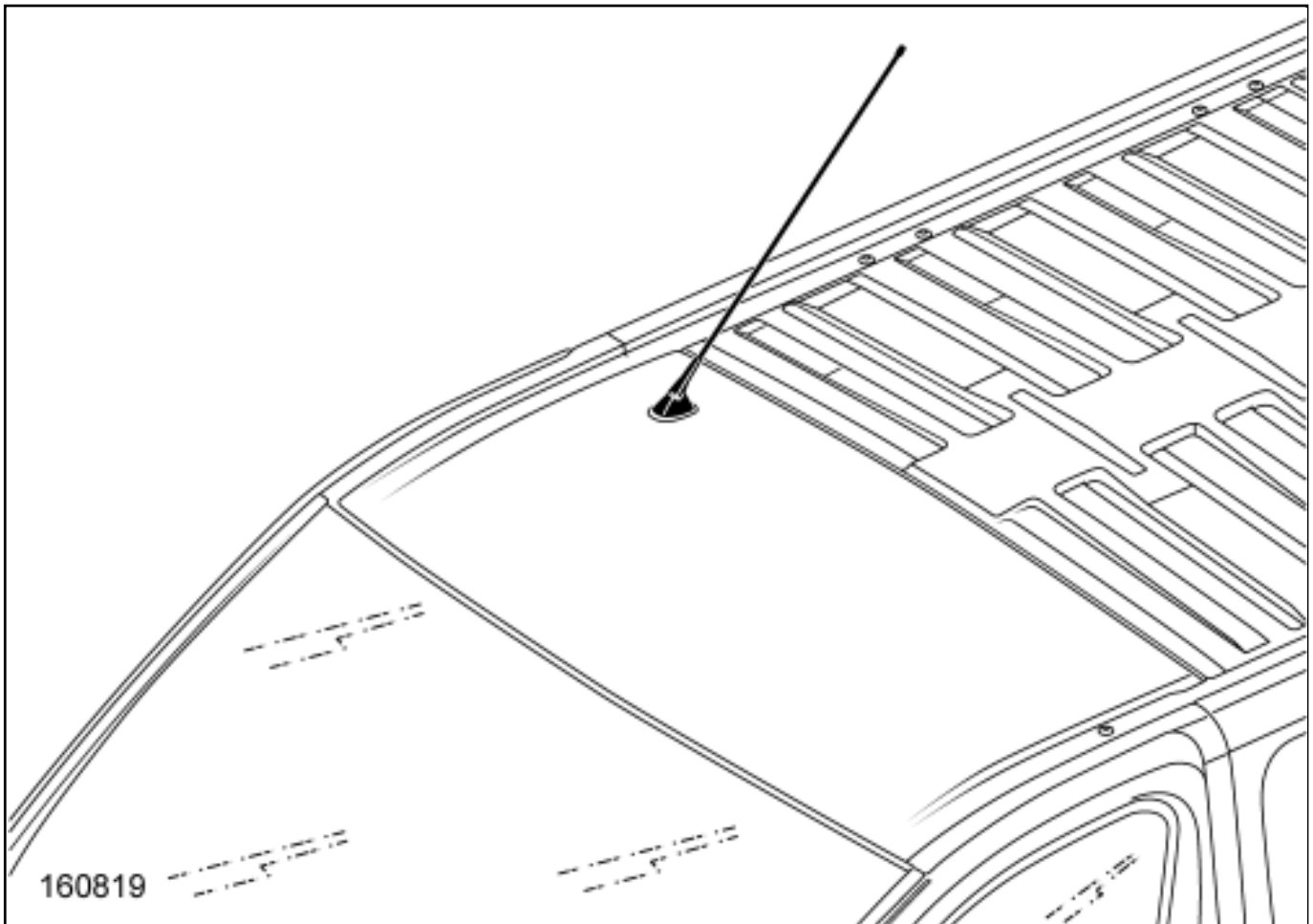


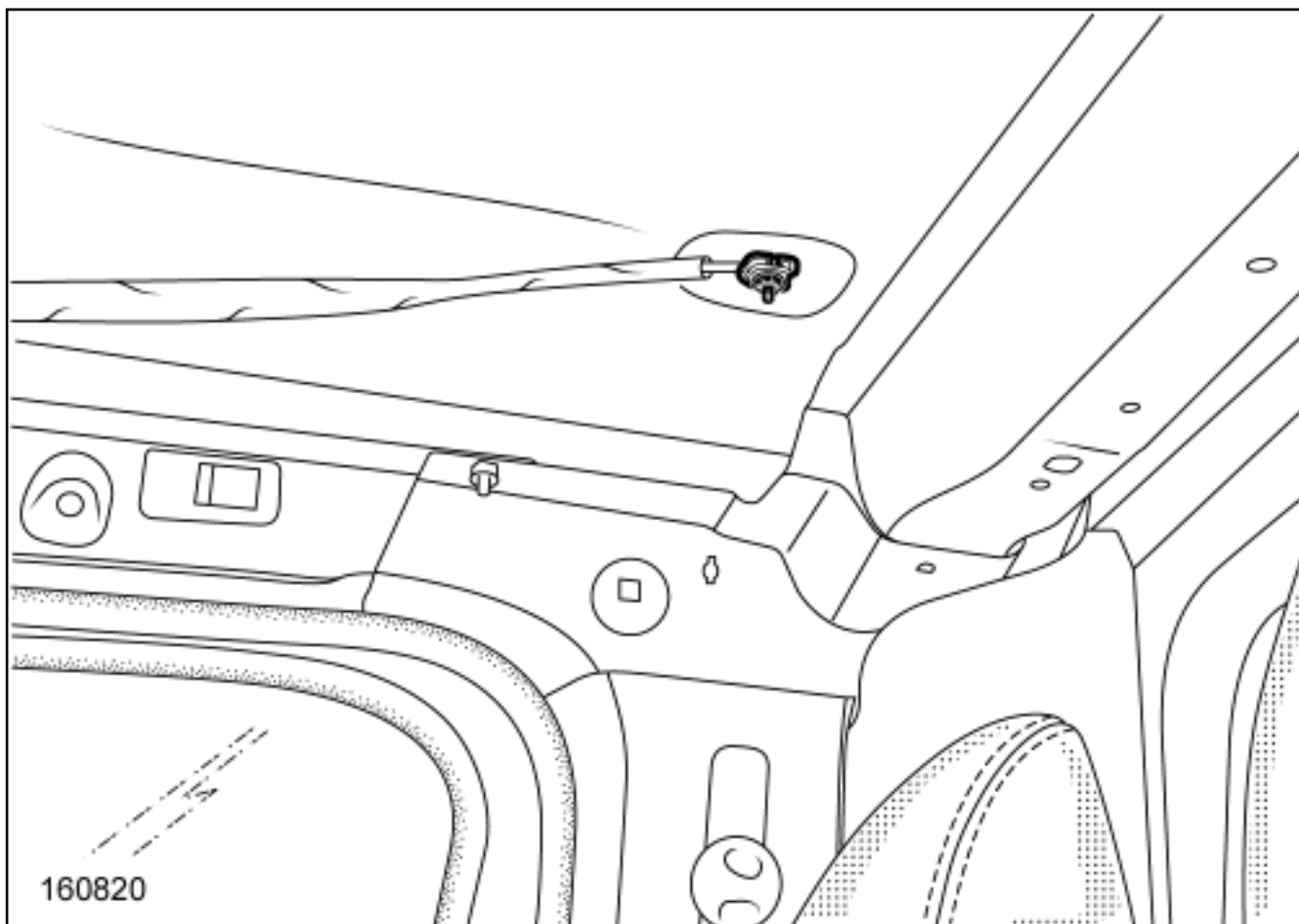
To ensure correct operation:

- do not pinch the aerial cable,
- do not bend the aerial cable,
- do not force the aerial cable when refitting.

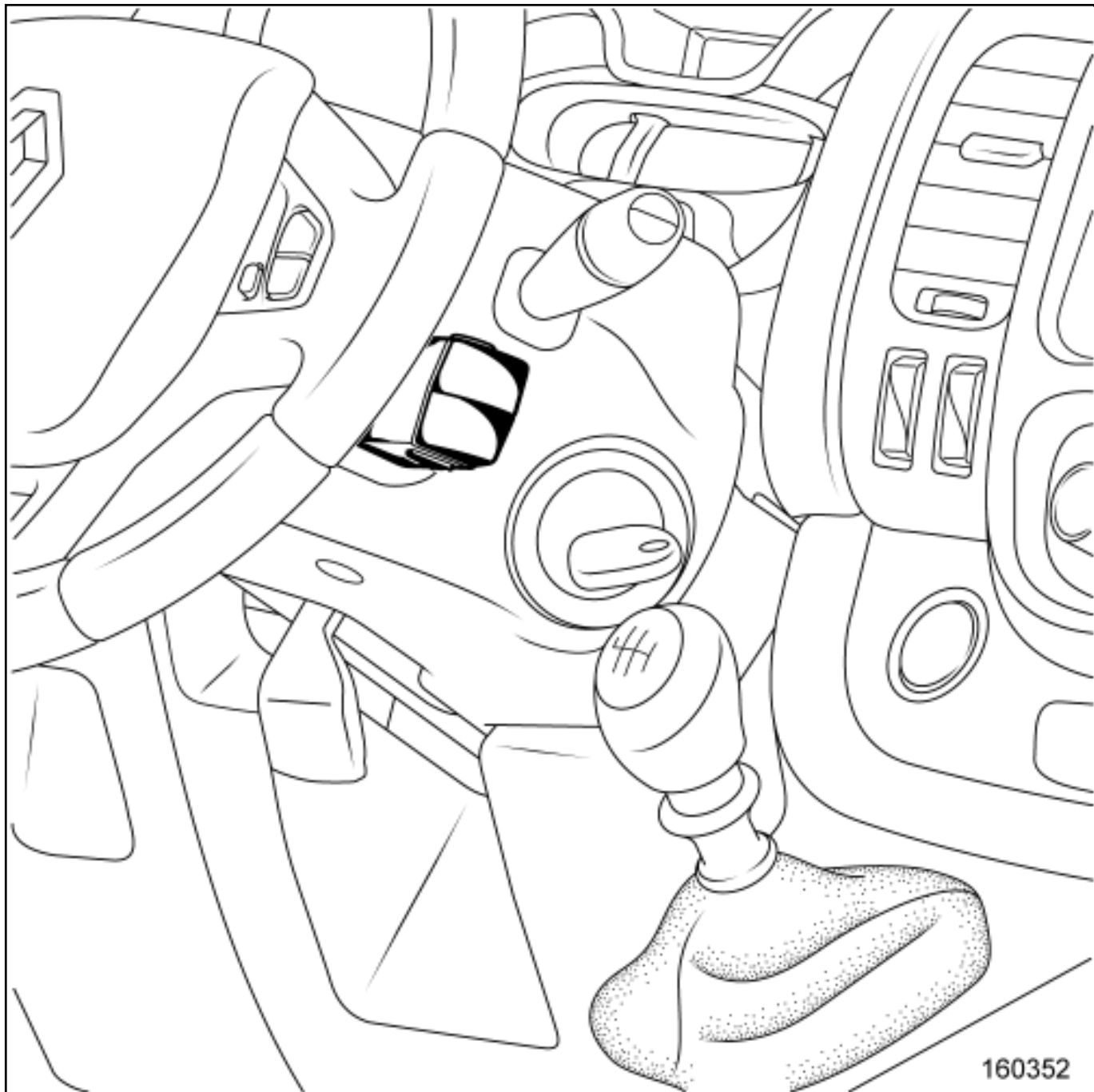


1- AERIAL



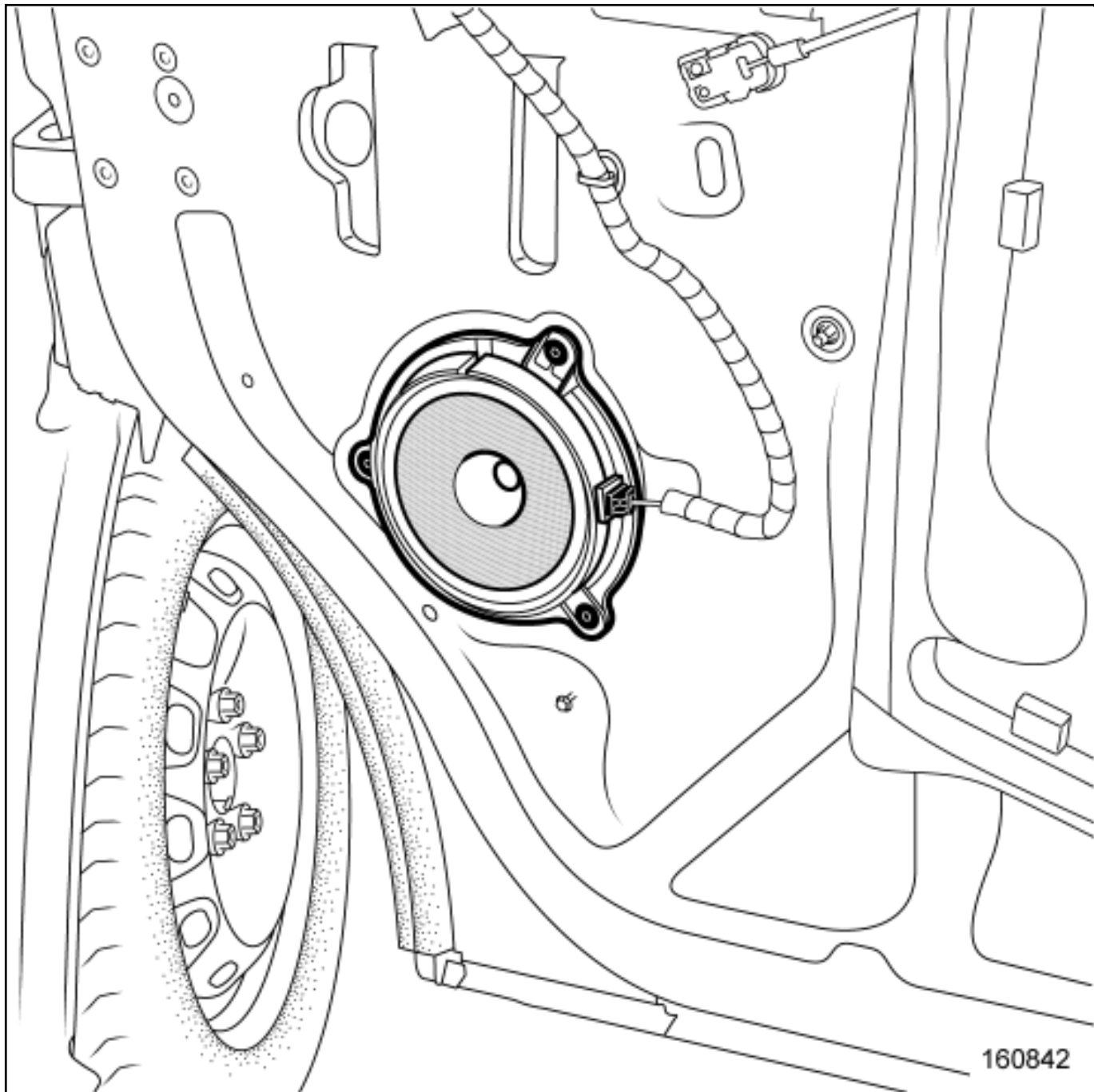


2- RADIO CONTROL SATELLITE



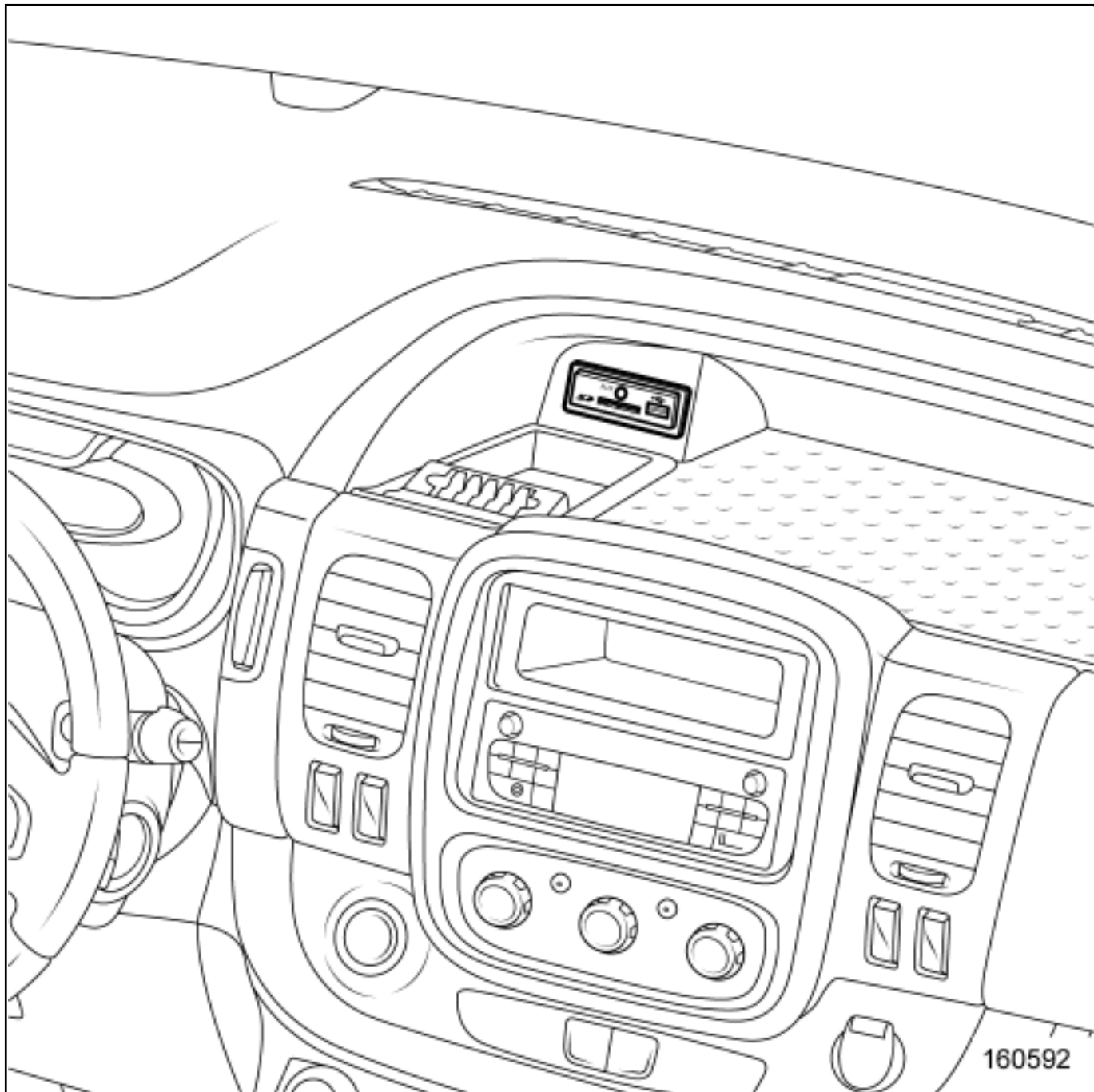
160352

3- FRONT SPEAKERS



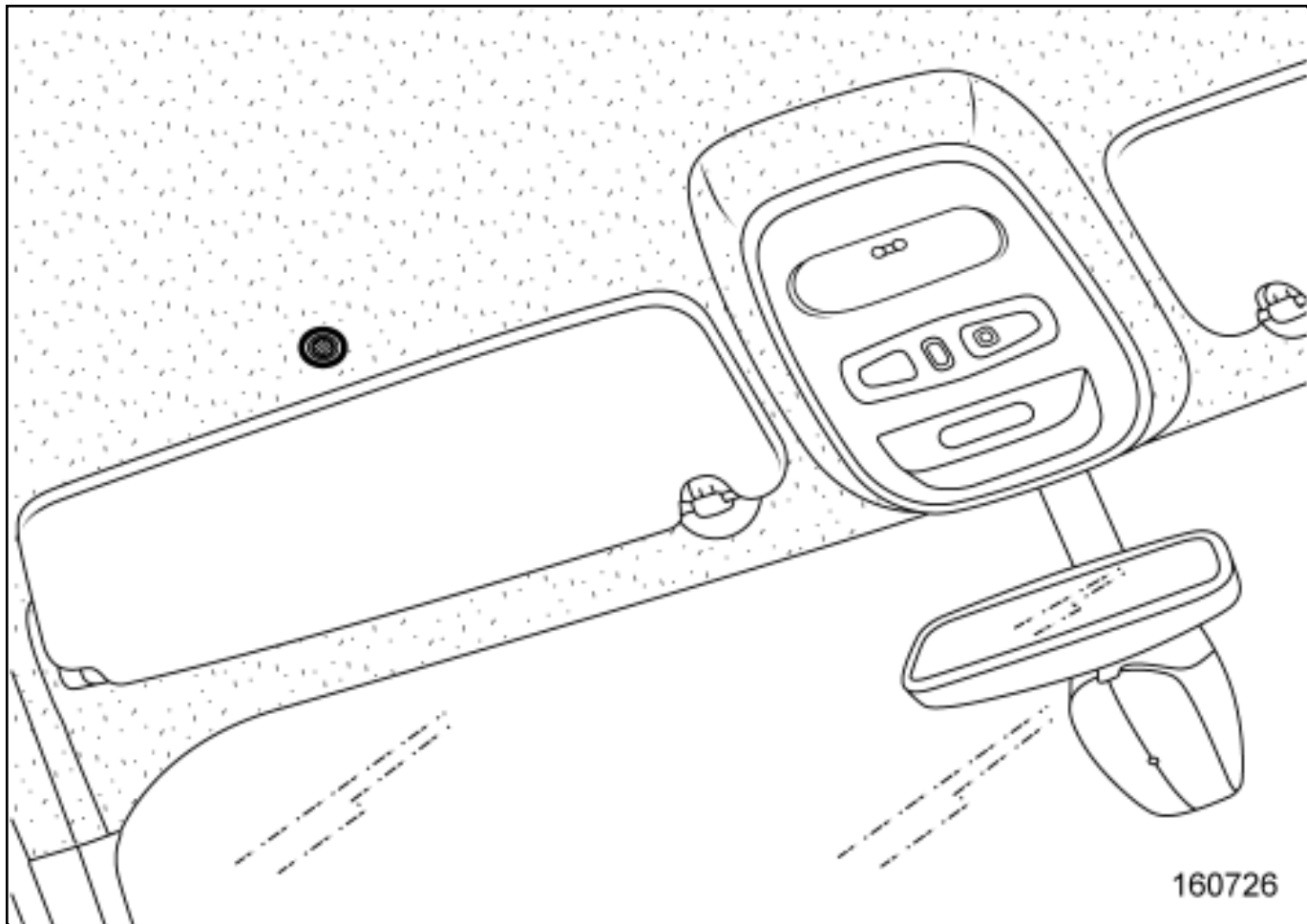
160842

4- OFFSET MULTIMEDIA SOCKET



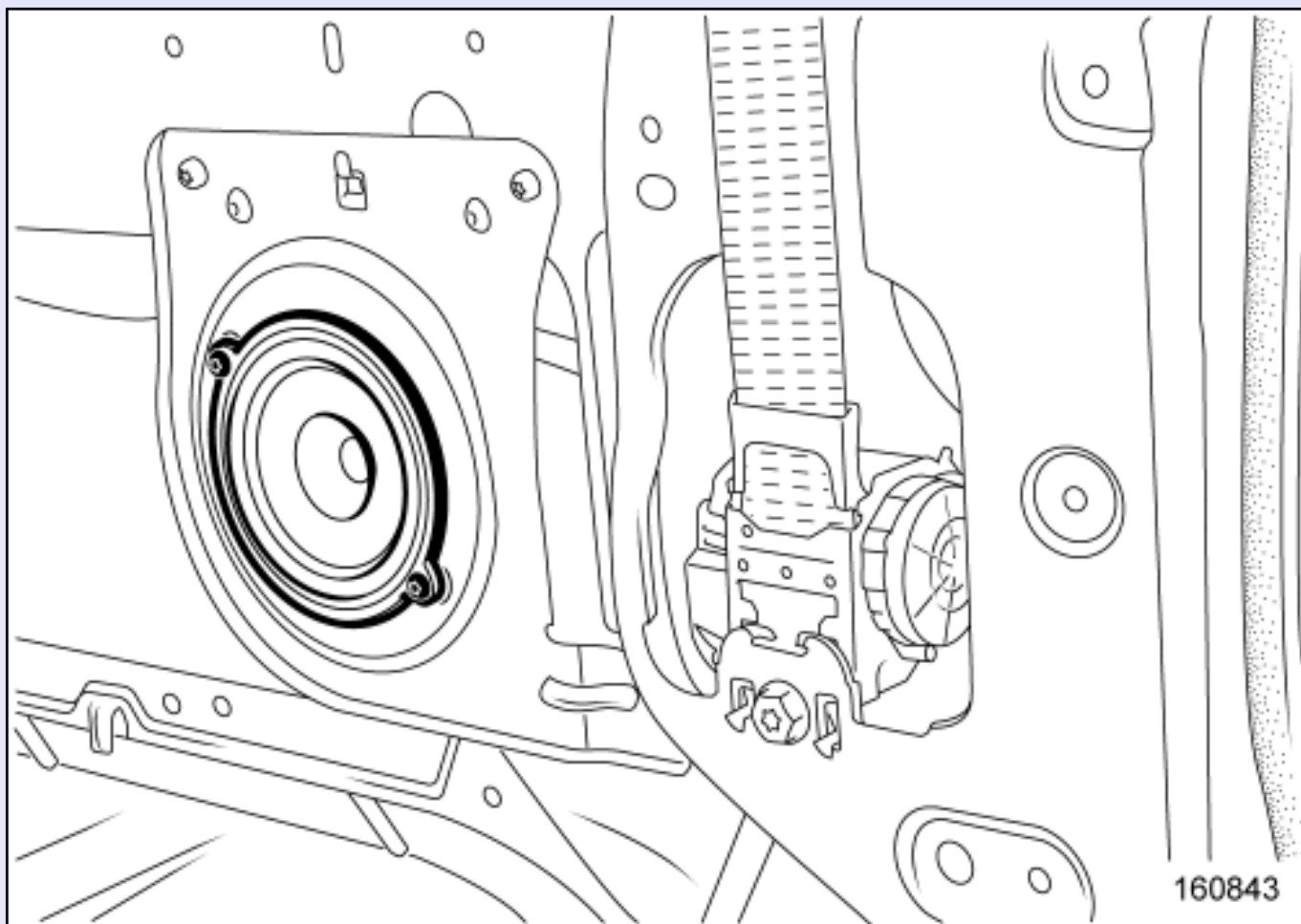
160592

5- "HANDS-FREE" MICROPHONE



160726

1- REAR SPEAKERS



RAIL PRESSURE SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 13B, Diesel injection, Injection assembly: Exploded view](#)).



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see [Diesel injection: Precautions for the repair](#)),
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



CAUTION

Once the warranty period for the injector rail has expired, only the pressure sensor can be replaced.

During the injector rail warranty period, the injector rail should be completely replaced if the pressure sensor fails.

WARNING



- Use the diagnostic tool before any operation is carried out on the injection circuit to check:
 - that the rail is not under pressure,
 - that the fuel temperature is not too high.

Working on the circuit with the engine running is strictly forbidden.

CAUTION



To avoid any corrosion or damage, protect the areas on which fuel is likely to run.

WARNING



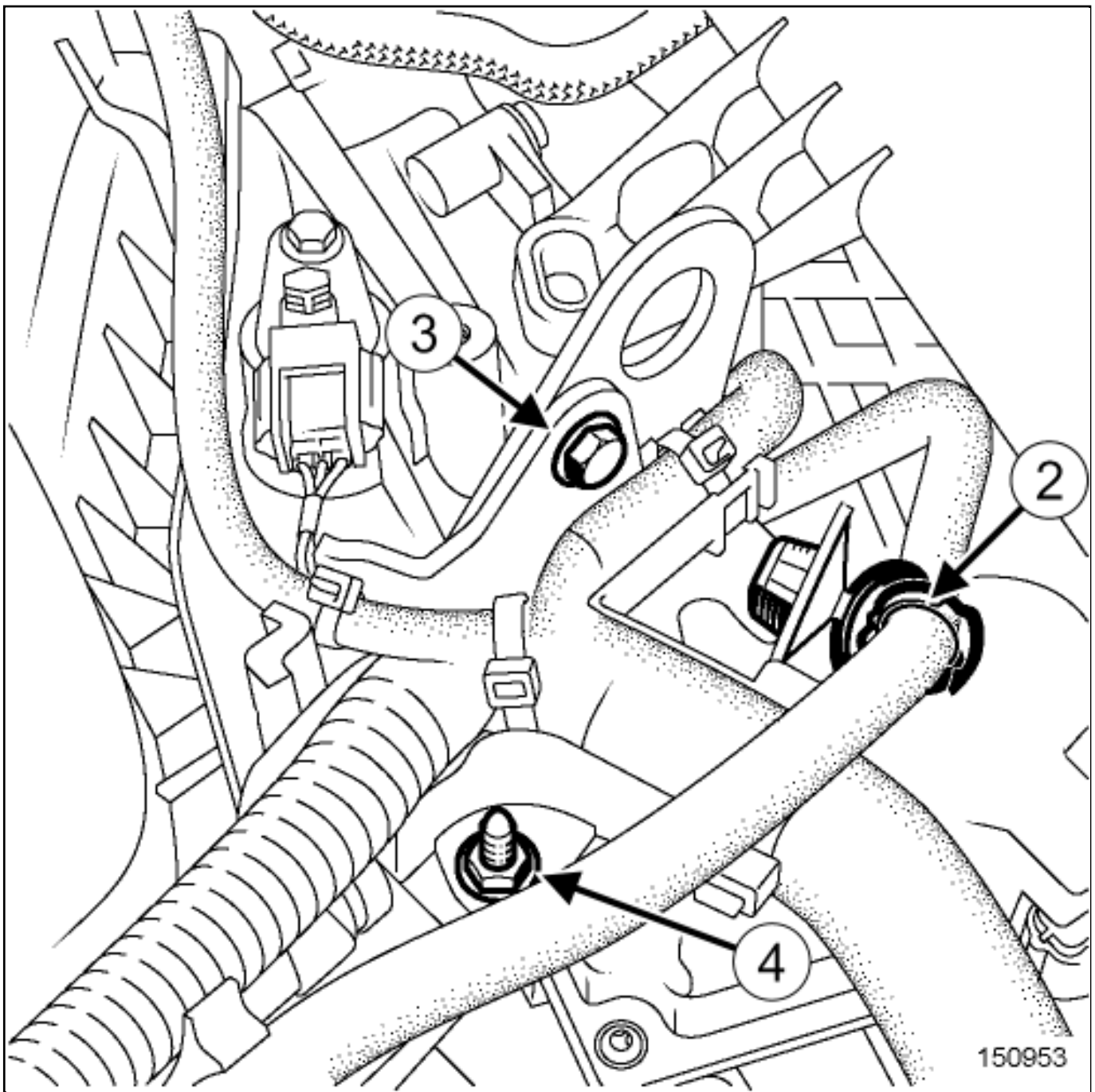
Wear leaktight gloves (Nitrile type) for this operation.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- When replacing, apply the before repair procedure using the Diagnostic tool:
 - select the "injection computer",
 - go to repair mode,
 - display the "Before/After repair procedure" for the computer selected,
 - select "Injector rail pressure sensor" in the "List of components controlled by this computer" section,
 - carry out the operations described in the "Before repair procedure" section.

Disconnect the battery [Battery: Removal - Refitting](#) .



Unclip the fuel pipe at(2) .

Remove:

- the wiring channel bolt(3) ,
- the wiring channel nuts(4) .

Move the wiring aside.

Remove:

-
- the wiring support bolt,
- the wiring support.

2. REMOVAL OPERATION

Disconnect the injector rail pressure sensor connector .

Remove the injector rail pressure sensor using a 27 mmlong socket([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION



CAUTION

Do not remove the blanking plugs from each component until the last moment.

Also, do not remove the components from their packaging until they are to be fitted to the vehicle.

2. REFITTING OPERATION

Proceed in the reverse order to removal.

Torque tighten the rail pressure sensor([see 13B, Diesel injection, Injection assembly: Exploded view](#)) .

When replacing, apply the after repair procedure using the Diagnostic tool:

-
- select the "injection computer",
- go to repair mode,
- display the "Before/After repair procedure" for the computer selected,
- select "Injector rail pressure sensor" in the "List of components controlled by this computer" section,
-
- carry out the operations described in the "After repair procedure" section.

Using the Diagnostic tool, SIE



Repair-11x05x06x08-01x37-1-65-1.xml



XSL version : 3.02 du 22/07/11

RAIL UNIT:REPLACEMENT



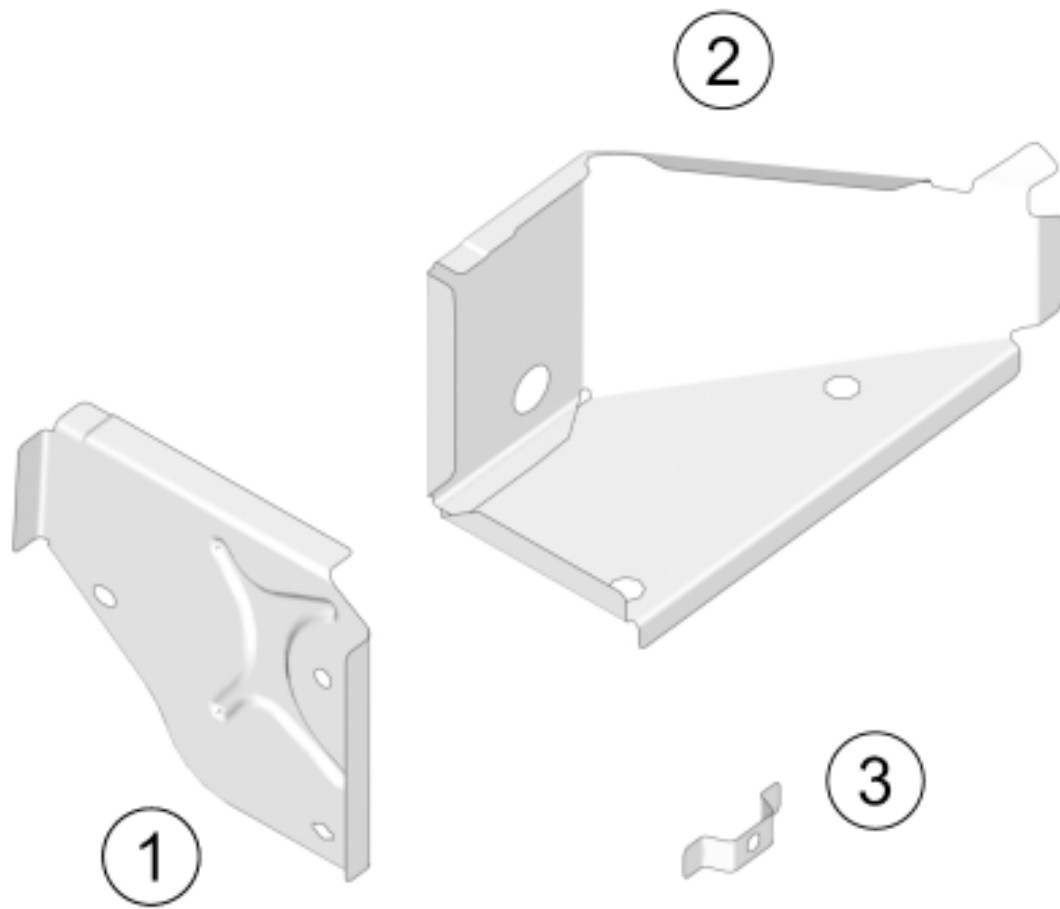
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



160933

No.	Description	Type	Thickness (mm)
(1)	B-pillar support bracket	Mild steel	1.47
(2)	Lower rail unit -protection	Mild steel	0.80
(3)	Retaining support	Mild steel	0.98

2. IN THE EVENT OF REPLACEMENT



There is only one way of replacing this part:



complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

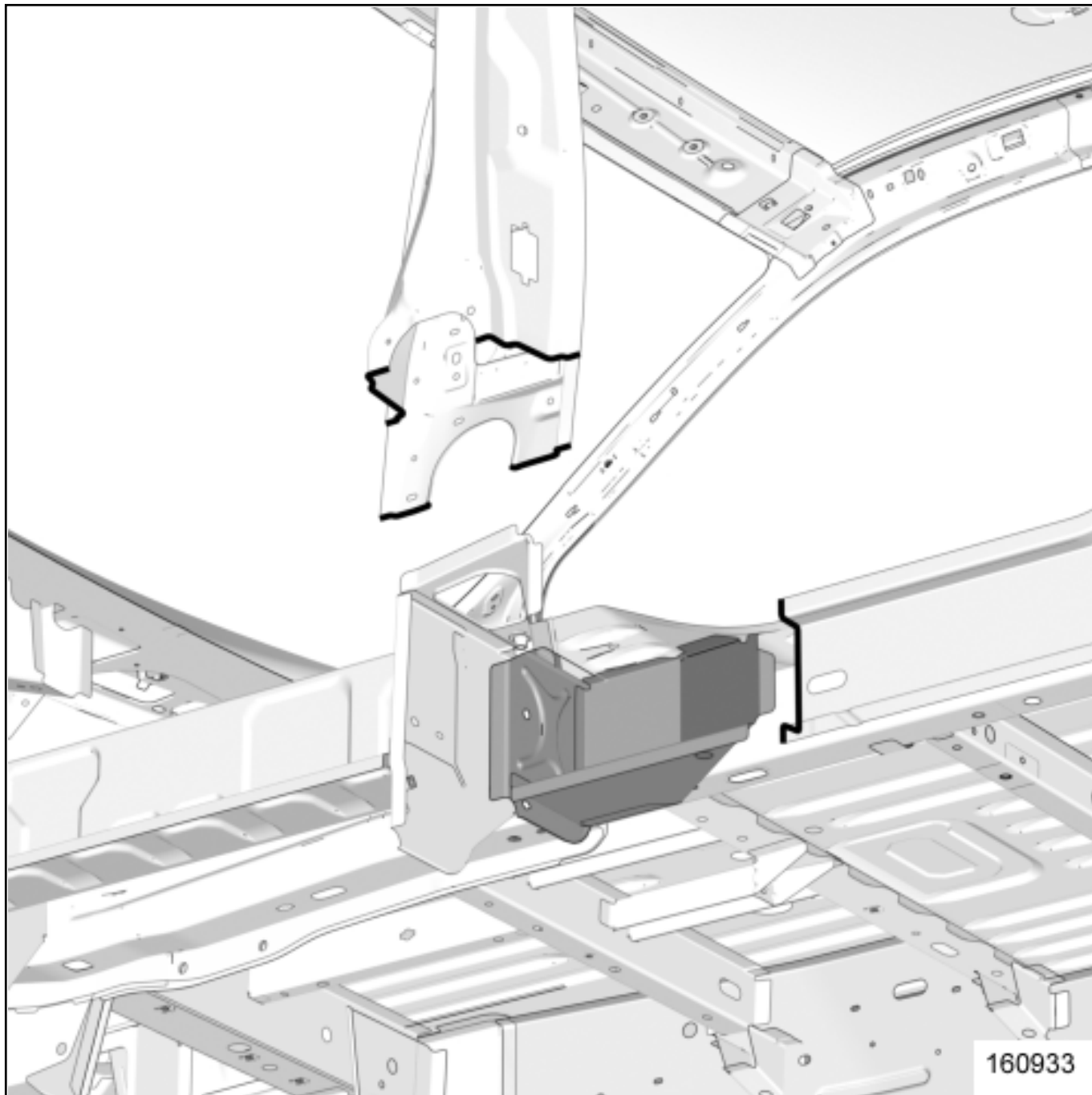
To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x04x12-02x49-1-2-1.xml



REAR AXLE ASSEMBLY: EXPLODED VIEW

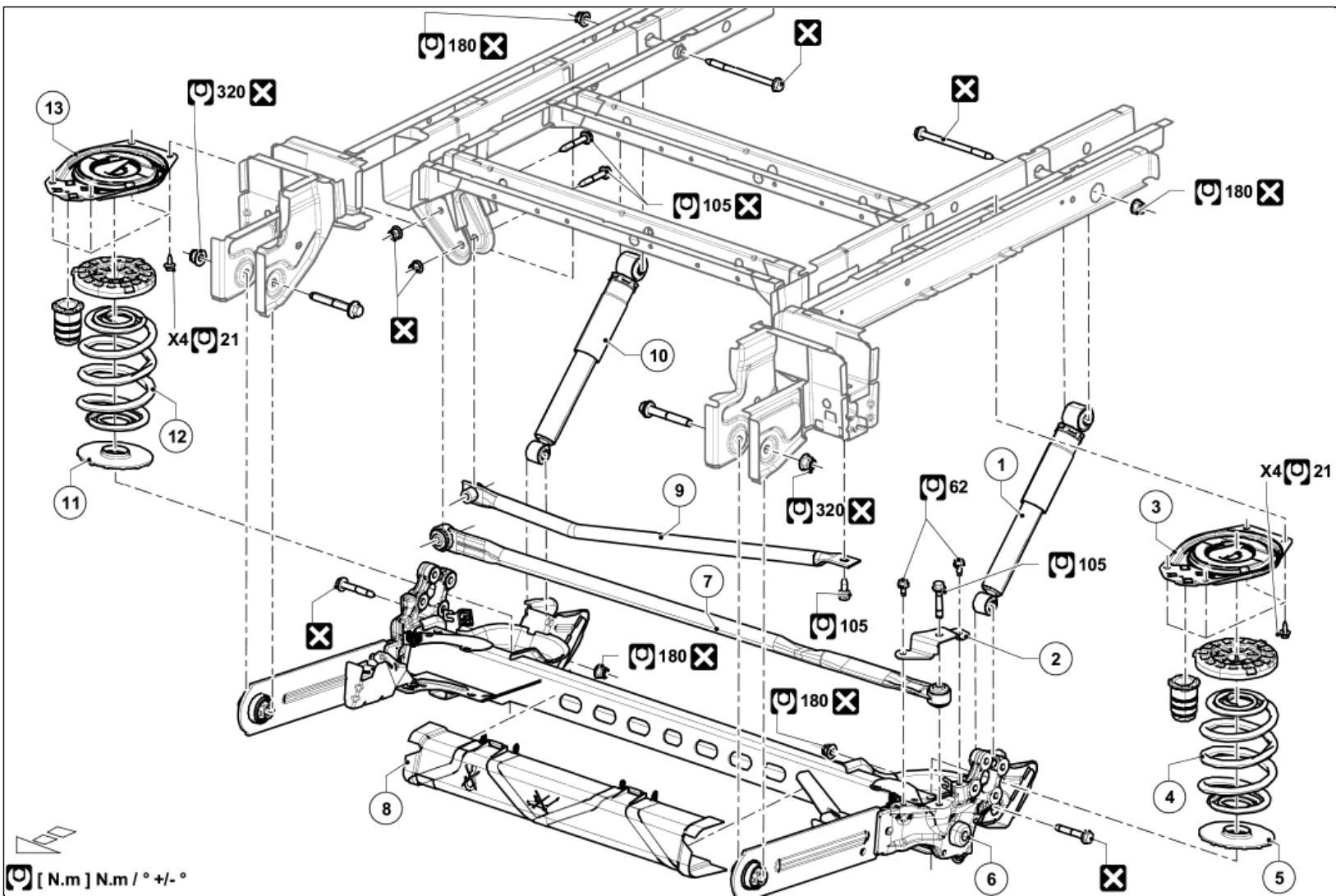


Illustration key: Description Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Shock absorber	(see 33A, Rear axle components, Shock absorber: Removal - Refitting)
2	Panhard bar support	(see 33A, Rear axle components, Panhard bar : Removal - Refitting)
3	Filtration plate	Position the vehicle on a two-post lift Vehicle: Towing and lifting
4	Spring	(see 33A, Rear axle components, Rear suspension spring: Removal - Refitting)
5	Lower spring support	(see 33A, Rear axle components, Rear suspension spring: Removal - Refitting)
6	Rear axle	(see 33A, Rear axle components, Complete rear axle system: Removal - Refitting)
7	Panhard bar	(see 33A, Rear axle components, Panhard bar : Removal - Refitting)
8	Rear axle fairing	Position the vehicle on a two-post lift Vehicle: Towing and lifting
9	Force pick-up bar	(see 33A, Rear axle components, Panhard bar : Removal - Refitting)
10	Shock absorber	(see 33A, Rear axle components, Shock absorber: Removal - Refitting)
11	Lower spring support	(see 33A, Rear axle components, Rear suspension spring: Removal - Refitting)
12	Spring	(see 33A, Rear axle components, Rear suspension spring: Removal - Refitting)
13	Filtration plate	Position the vehicle on a two-post lift Vehicle: Towing and lifting



Repair-13x02x05-02x50-1-9-1.xml



REAR AXLE RUBBER BEARING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Tool for removing and refitting rear axle rubber bushes

Tar. 2065

- Location and specifications (tightening torques, parts always to be replaced, etc.):
 - [\(see 33A, Rear axle components, Rear axle assembly: Exploded view\)](#) ,
 - [\(see 33A, Rear axle components, Rear brake calliper assembly: Exploded view\)](#) ,
 - [\(see 33A, Rear axle components, Rear hub carrier assembly: Exploded view\)](#) .

WARNING



□ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

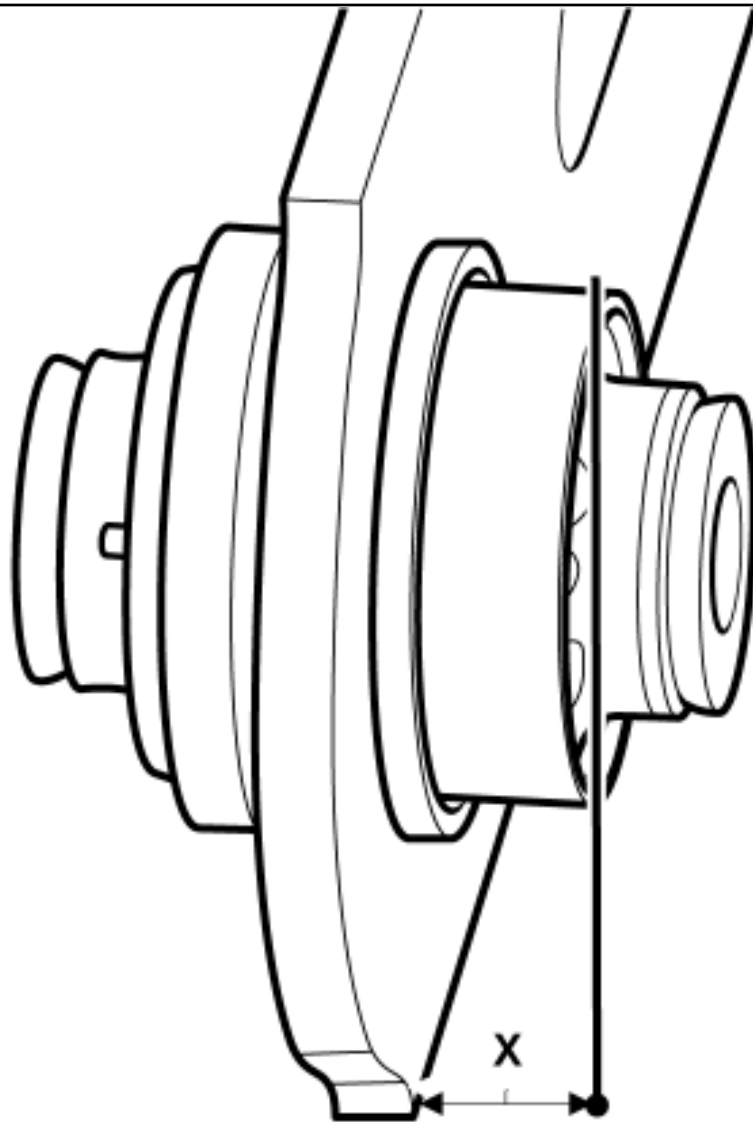
- [\(see 33A, Rear axle components, Rear axle components: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

REMOVAL

1. REMOVAL PREPARATION OPERATION

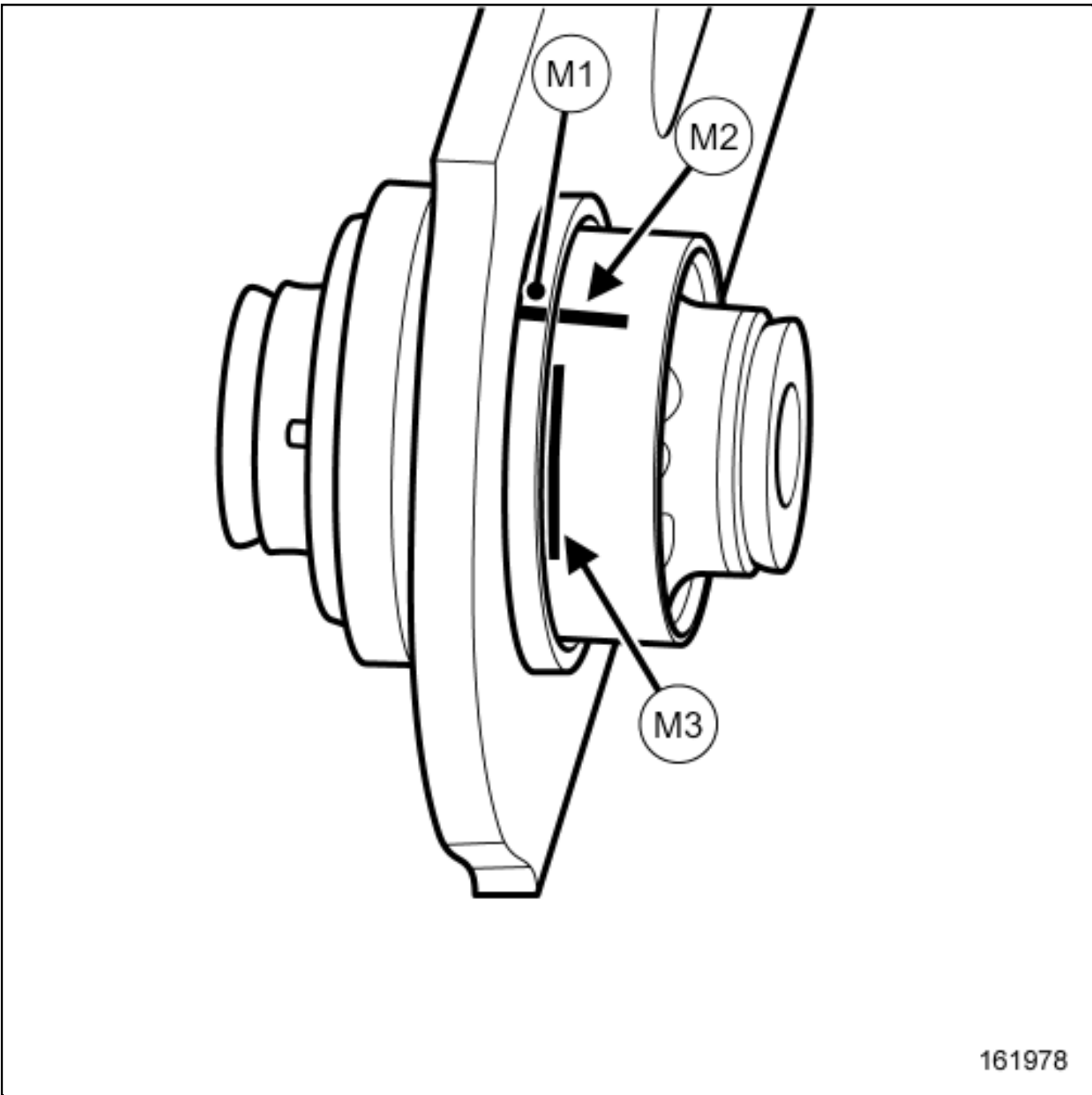
- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove [\(see 33A, Rear axle components, Rear hub carrier assembly: Exploded view\)](#) :
 - the rear wheels,
 - the wheel speed sensors.
- Unclip the parking brake cables on the brake callipers [\(see 33A, Rear axle components, Rear brake calliper assembly: Exploded view\)](#) .
- Remove the complete rear axle [\(see 33A, Rear axle components, Rear axle assembly: Exploded view\)](#) .

2. REMOVAL OPERATION



161979

■ Note the dimension(x) .



161978

Before removing the rear axle rubber bearing, mark the position of the rubber bearing:

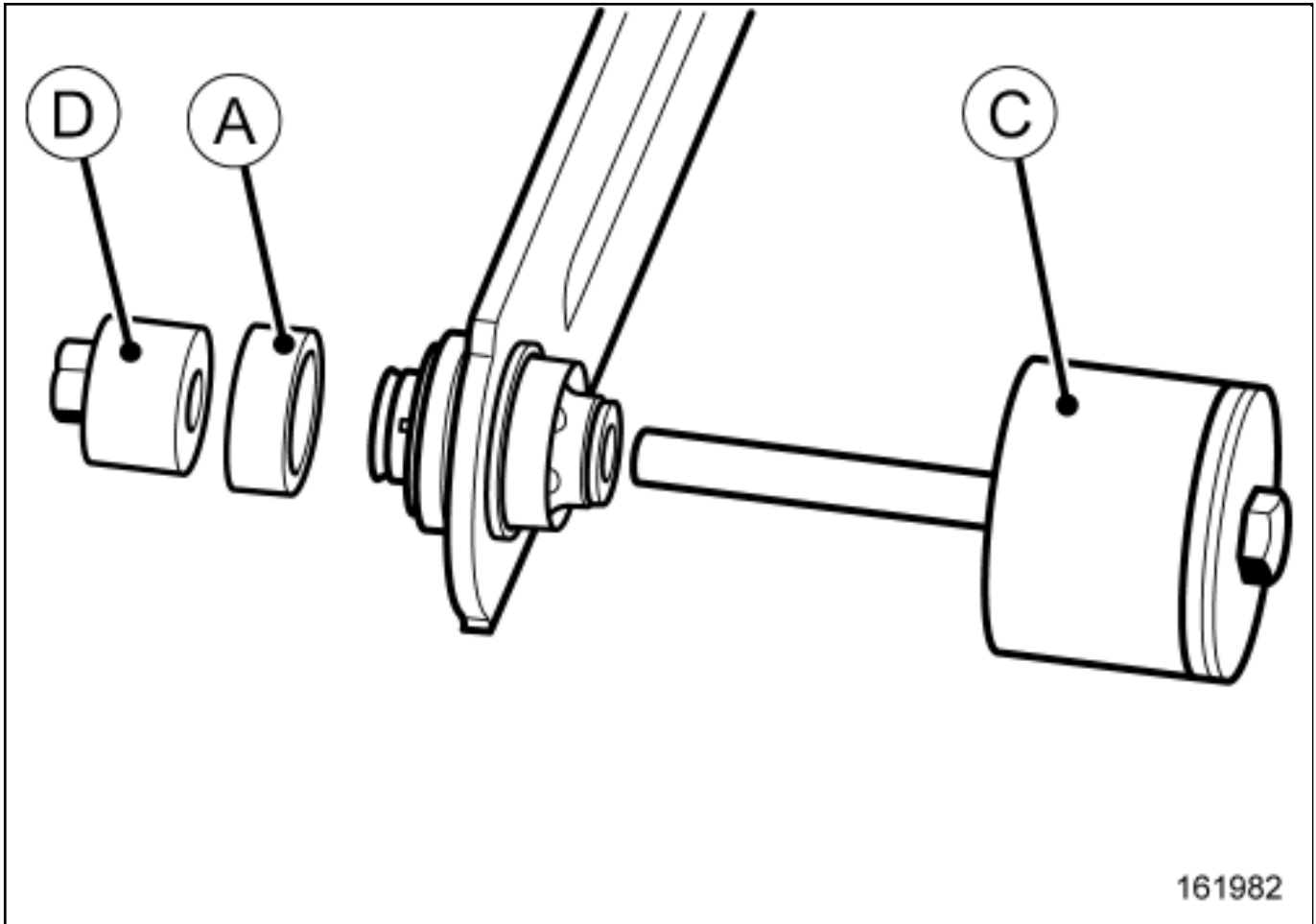
- make marks(M1) and (M2) on the rear axle arm bushing and on the rubber bearing,

- make a mark(M3) using as support the rear axle arm bushing.

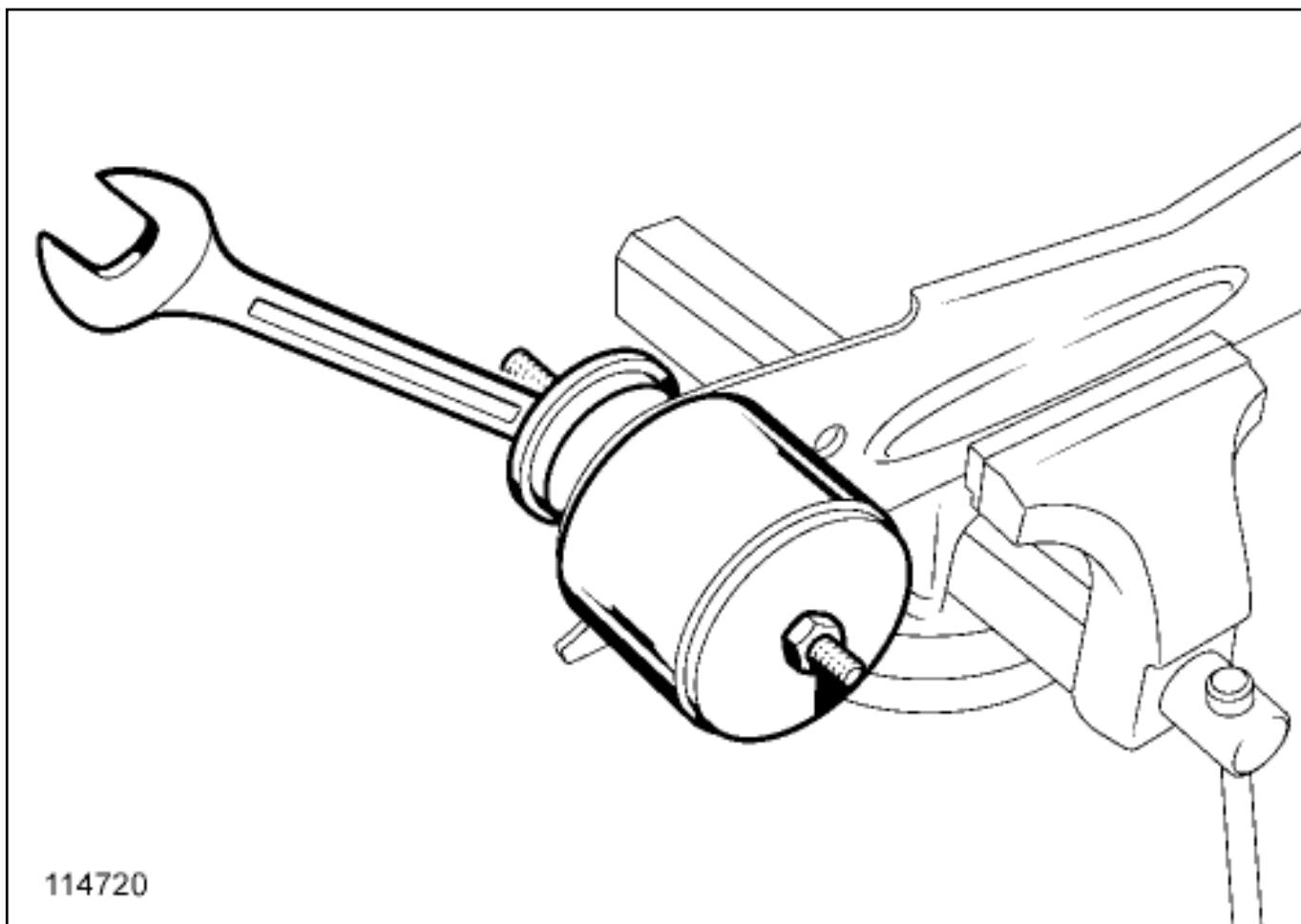
Note:



These marks are necessary to ensure correct refitting, and to avoid premature wear of the rubber bearings and good road holding for the vehicle.



Remove the rear axle rubber bearing, using the tools marked with (D) , (A) and (C) of the Tool for removing and refitting rear axle rubber bushes (Tar. 2065) .



- Position the Tool for removing and refitting rear axle rubber bushes(Tar. 2065) used for removal.

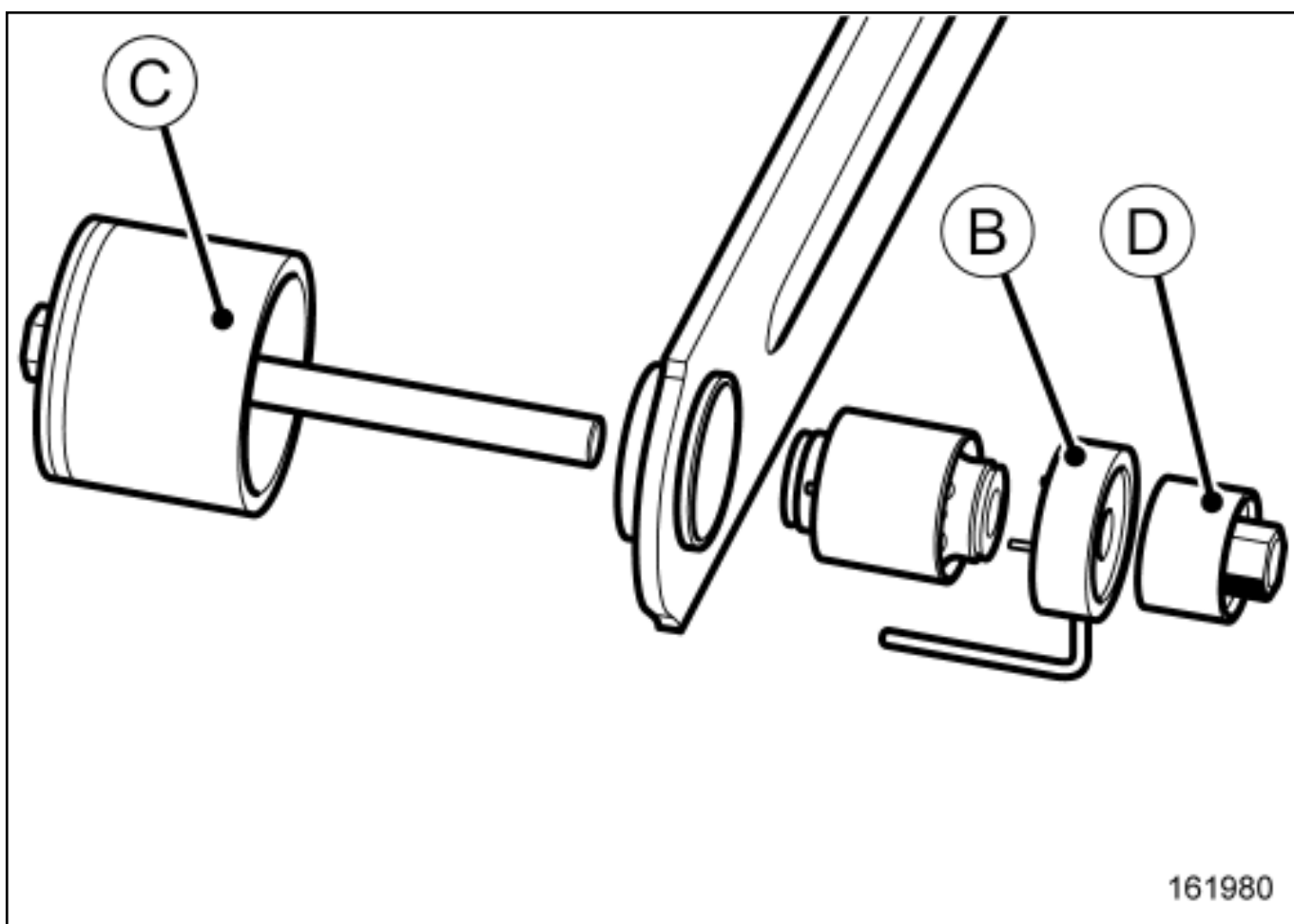
- Tighten the nut of the toolTool for removing and refitting rear axle rubber bushes(Tar. 2065) D until the rear axle rubber bearing is removed.

REFITTING

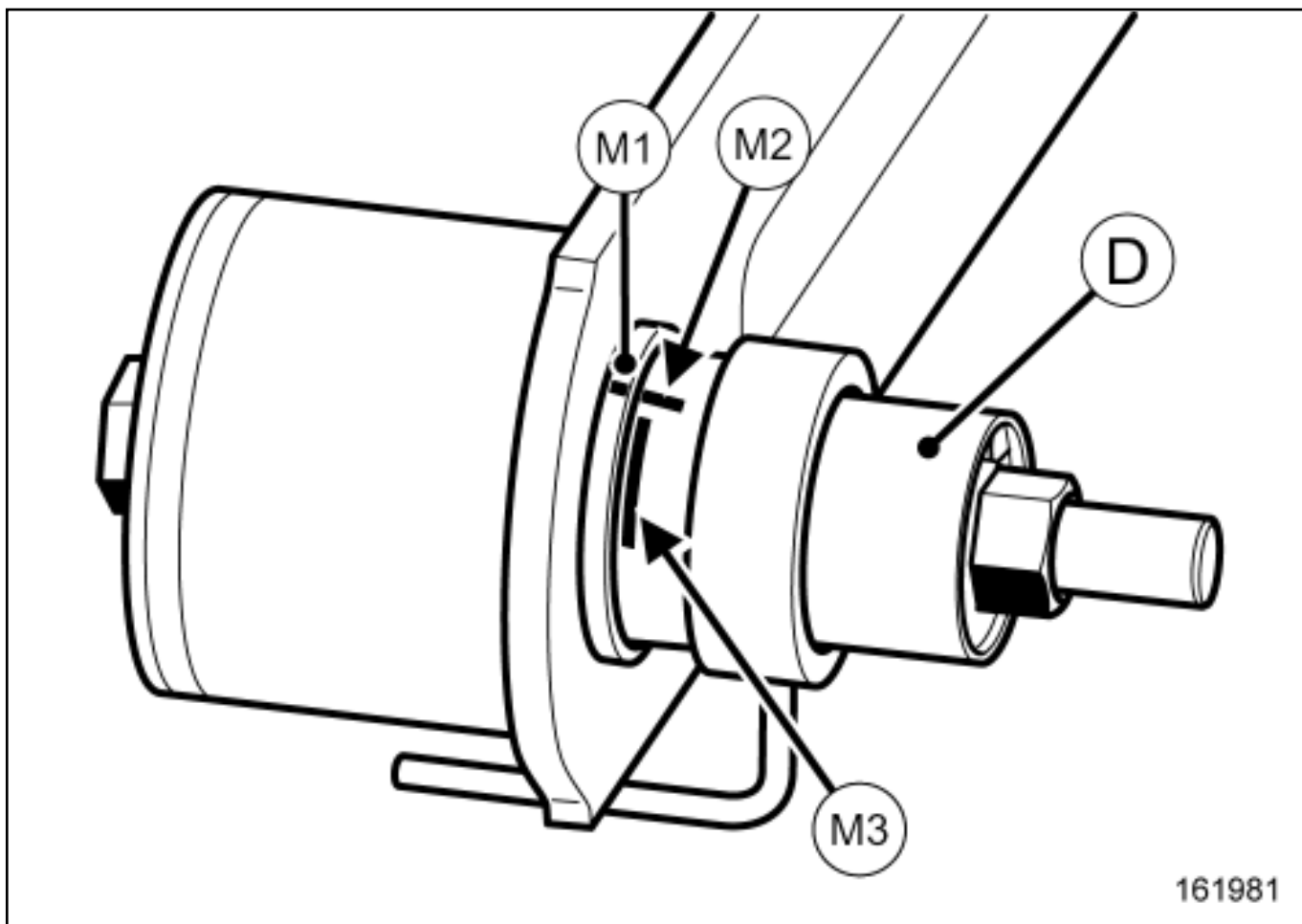
1. REFITTING PREPARATION OPERATION

- Copy the marks from the used rubber bearing onto the new one.

2. REFITTING OPERATION



Refit the rear axle rubber bearing, using the tools marked with (C) , (B) and (D) of the Tool for removing and refitting rear axle rubber bushes (Tar. 2065) .



Position the rubber bearing in the bore of the rear axle arm bushing so that the marks(M1) and (M2) are aligned.



Tighten the nut of the toolTool for removing and refitting rear axle rubber bushes(Tar. 2065) (D) until the mark(M3) are aligned with the rear axle arm bushing.



Remove the toolTool for removing and refitting rear axle rubber bushes(Tar. 2065) .



Observe the fitting dimension(x) .

3. FINAL OPERATION



Refit:

■
■ the complete rear axle([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)),

■ the rear wheels([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)).

■
Refit the complete rear axle([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)).

■
Clip the parking brake cables on the brake callipers([see 33A, Rear axle components, Rear brake calliper assembly: Exploded view](#)).

■
Refit ([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)):

■
■ the wheel speed sensors,

■ the rear wheels.

■
Check the geometry of the axle assemblies([Axle assemblies: Check](#)).

■
Bleed the brake circuit([Braking circuit: Bleed](#)).

■
Adjust the parking brake([Parking brake lever: Adjustment](#)).



Repair-13x02x05x12-01x37-1-25-1.xml



REAR AXLE



Note, one or more warnings are present in this procedure



1. WHEEL ALIGNMENT SYMBOL MEANINGS

CAUTION

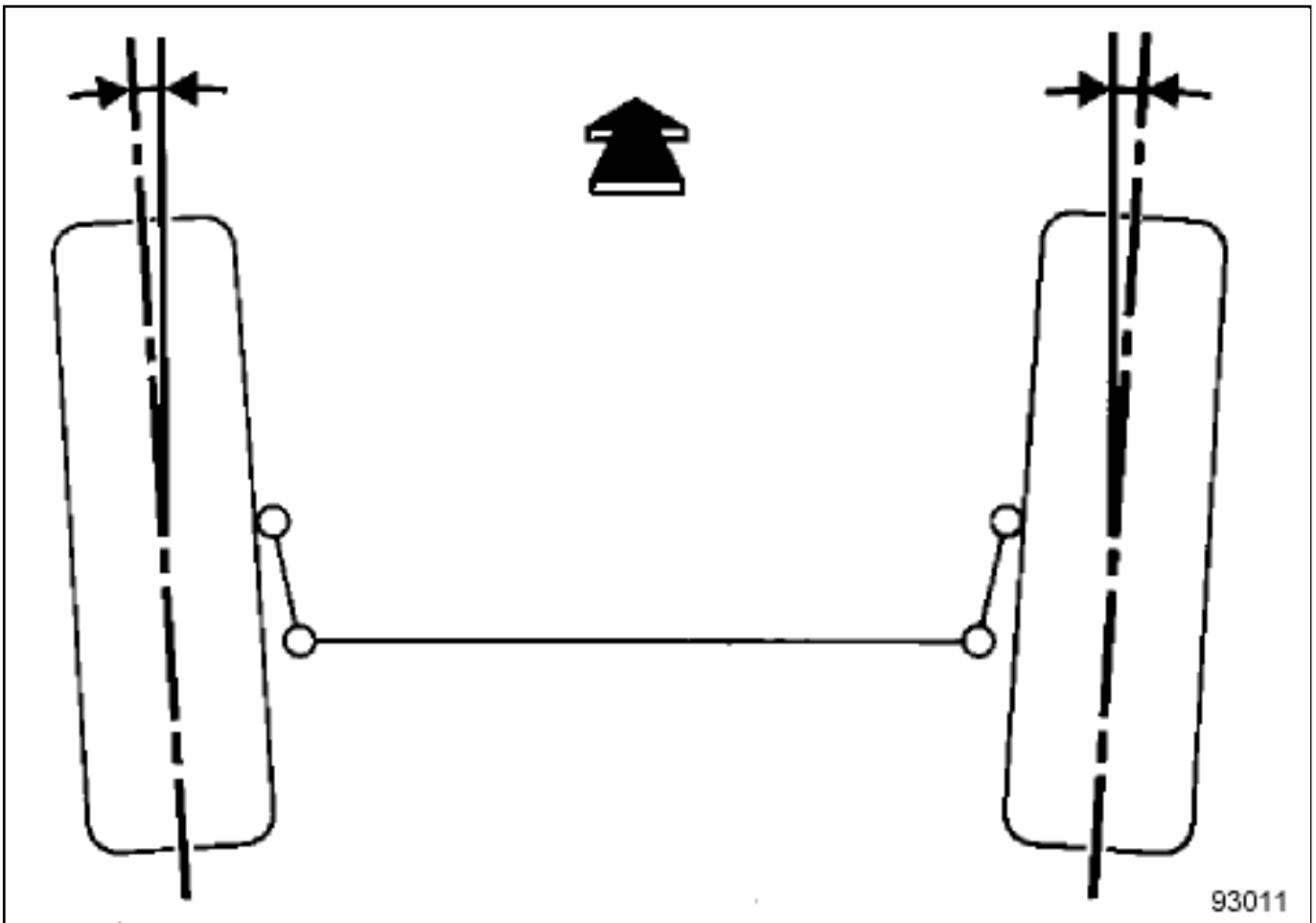
Symbols used by RENAULT:



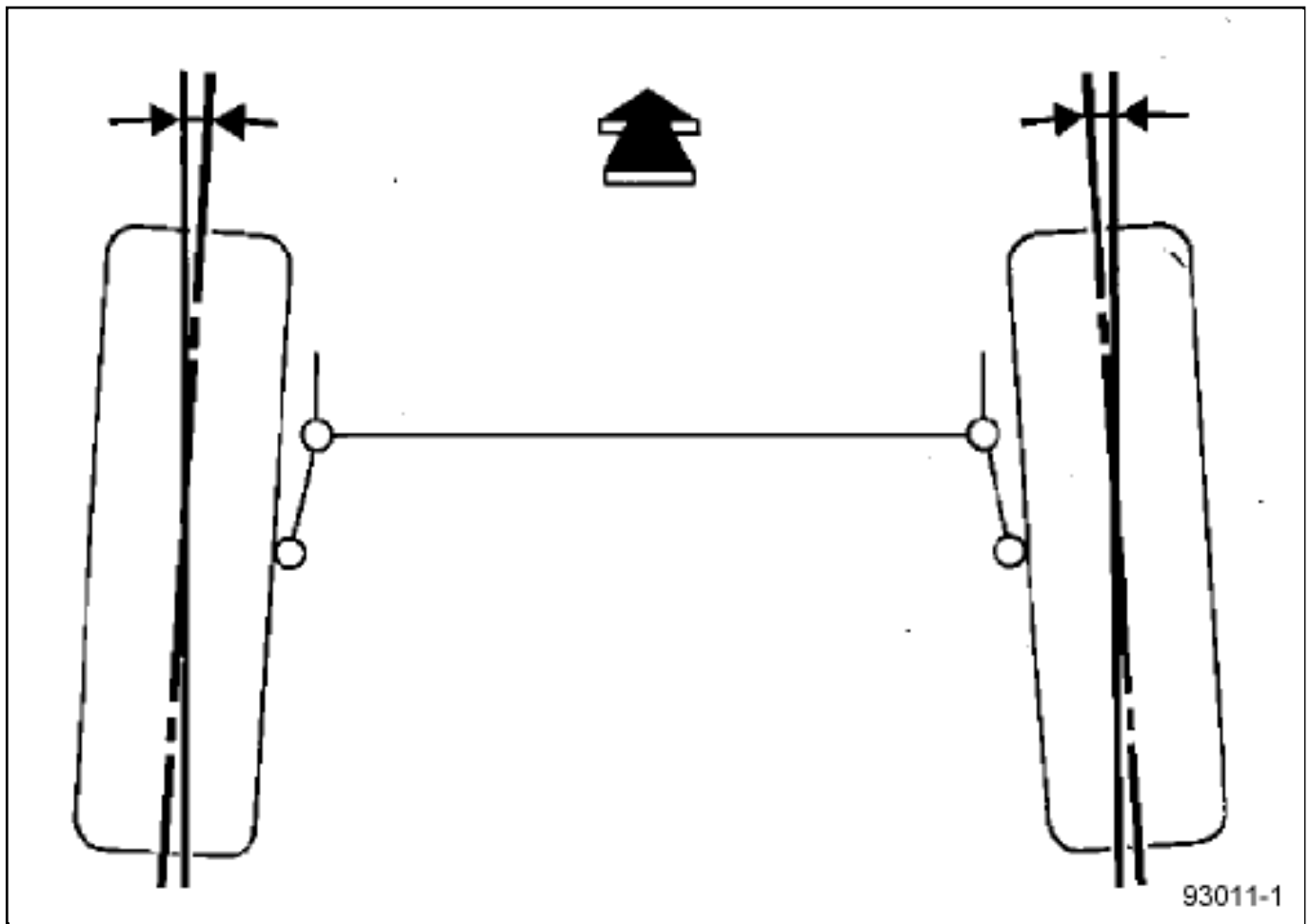
- toe-out: -,

- toe-in: +.

TOE-OUT: MINUS SIGN

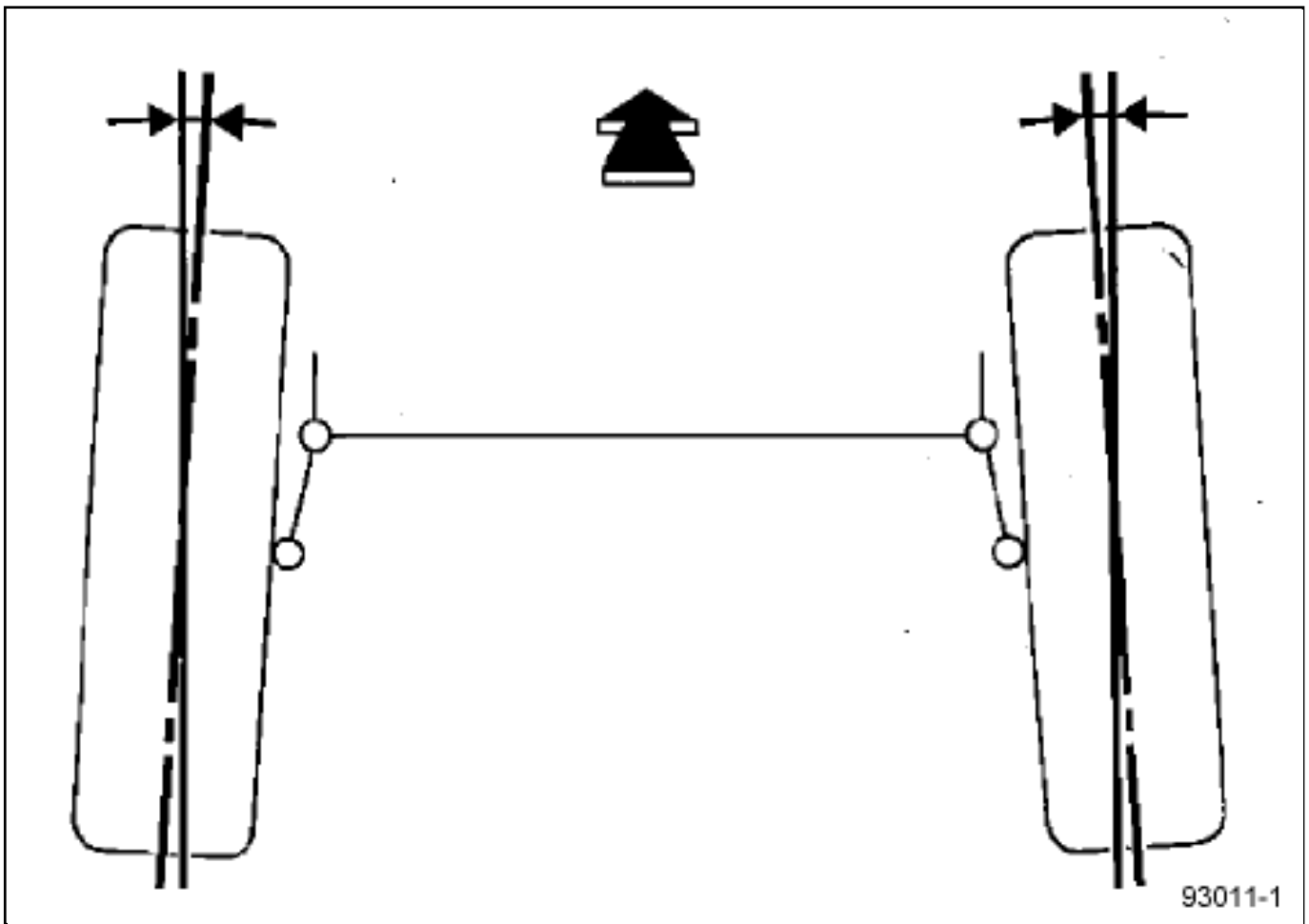


TOE-IN: PLUS SIGN



2. WHEEL ALIGNMENT

Not adjustable.

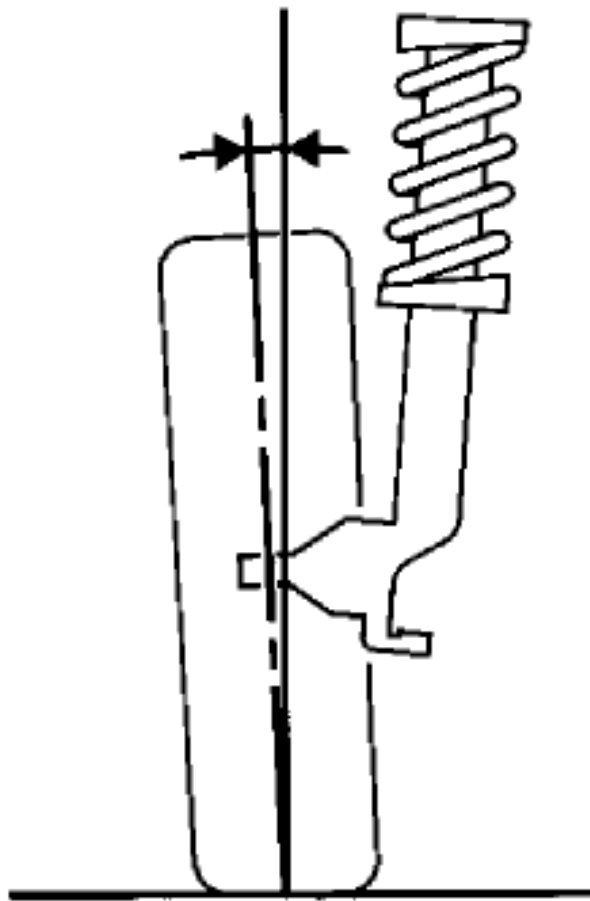


93011-1

Value (for two wheels)	Tolerance	Position of vehicle
+0°15'	+0°20'	Vehicle in running order
	-0°20'	

3. CAMBER

Not adjustable.



93013

Value	Tolerance	Position of vehicle
-0°45'	+0°20'	Vehicle in running order
	-0°20'	



Repair-13x02x05-02x13-6-40-1.xml



XSL version : 3.02 du 22/07/11

REAR BENCH SEAT HEADREST GUIDE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



REMOVAL

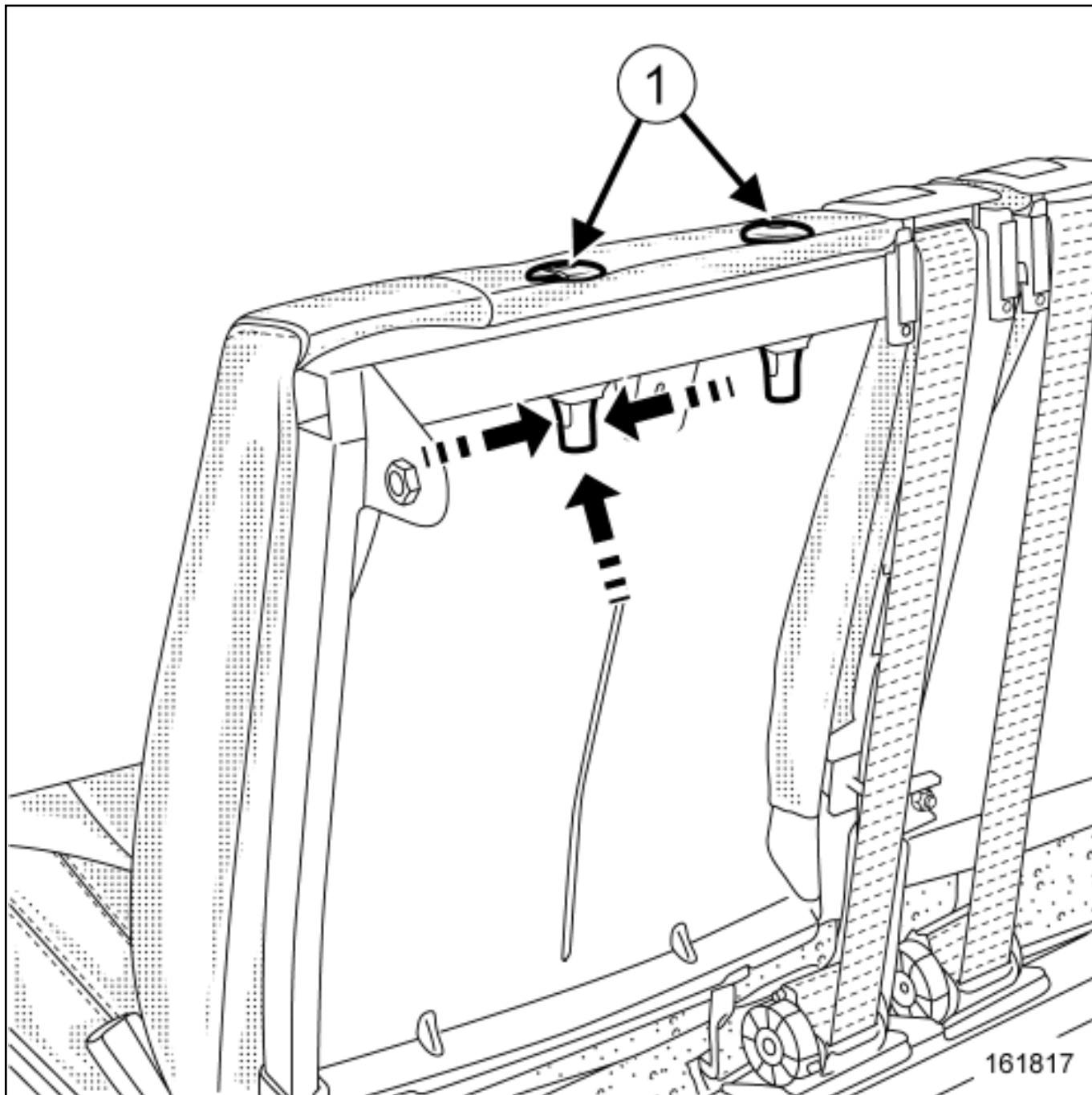
1. REMOVAL OPERATION PREPARATION

Remove:

- the rear headrest([see 79A, Seat accessories, Rear headrest: Removal - Refitting](#)) ,

the crew cab partition[Crew cab partition: Removal - Refitting](#) .

2. REMOVAL OPERATION



Remove the headrest guides(1) as indicated.

REFITTING

1. REFITTING OPERATION

Proceed in the reverse order to removal.



WARNING

To prevent the headrest coming away from the guide during a collision, check that the headrest guide locking system is functioning correctly.



Repair-70x18x04x10-01x37-1-14-1.xml



XSL version : 3.02 du 22/07/11

REAR BRAKE CALLIPER ASSEMBLY: EXPLODED VIEW



Note, one or more warnings are present in this procedure



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- Brake circuit: [Precautions for the repair](#) ,
- Vehicle: [Precautions for the repair](#) .

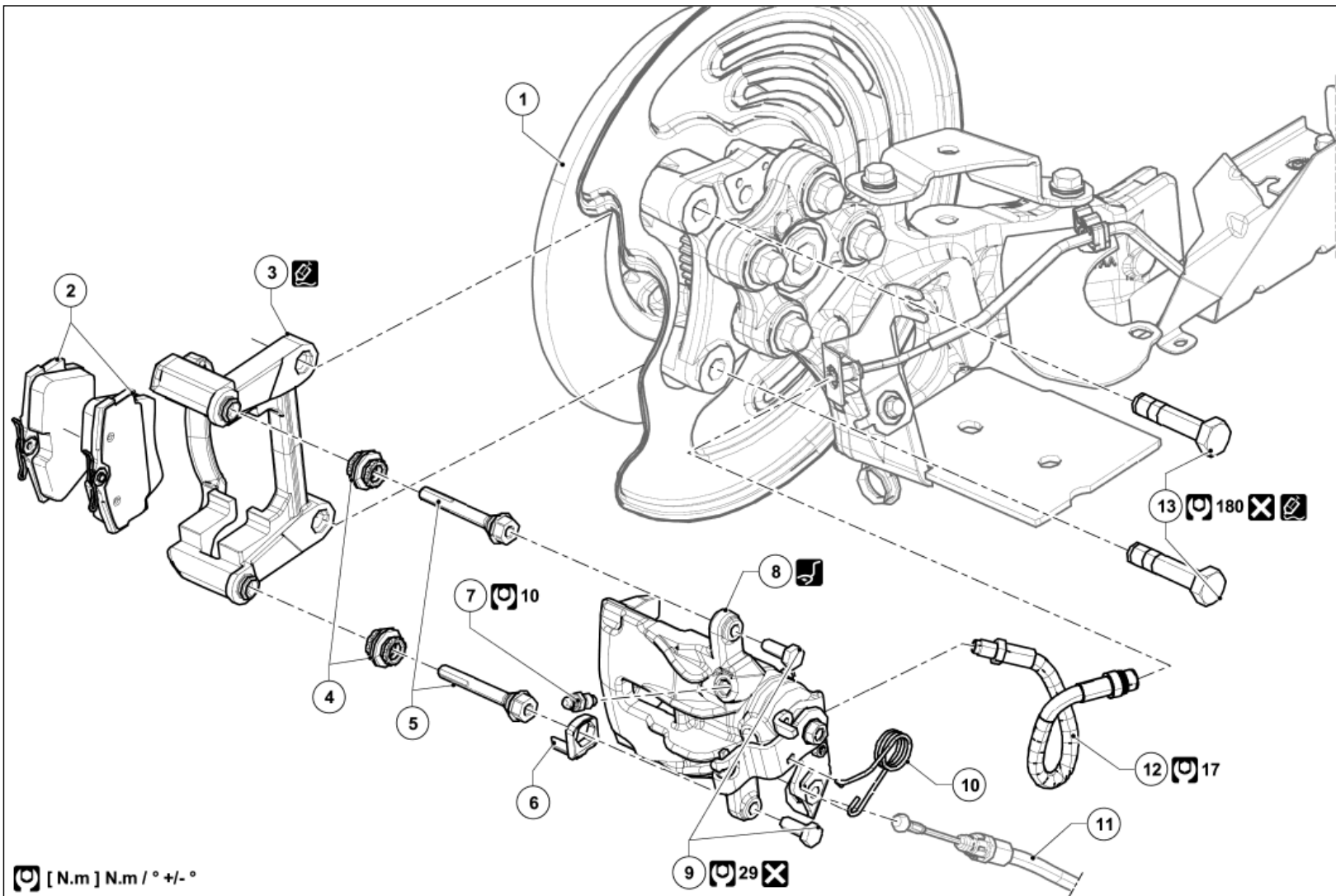


Illustration key: [Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Rear brake disc	(see 33A, Rear axle components, Rear hub carrier assembly: Exploded view)
2	Brake pads	(see 33A, Rear axle components, Rear brake pads: Removal - Refitting)
3	Brake calliper mounting	(see 33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting)
4	Brake calliper guide pin gaiter	
5	Brake calliper guide pins	
6	Brake pad wear warning tab	
7	Brake calliper bleed screw	
8	Brake calliper	(see 33A, Rear axle components, Rear brake calliper: Removal - Refitting) BRAKE CLEANER Vehicle: Parts and consumables for the repair (Fre. 1190-01)
9	Brake calliper bolts	(see 33A, Rear axle components, Rear brake calliper: Removal - Refitting)
10	Return spring	
11	Parking brake secondary cable	Parking brake cables: Removal - Refitting
12	Rear brake hose	(see 33A, Rear axle components, Rear brake hose: Removal - Refitting)
13	Brake calliper mounting bolts	HIGH STRENGTH THREAD LOCK Vehicle: Parts and consumables for the repair



Repair-13x03x04x13-02x50-1-6-1.xml



XSL version : 3.02 du 22/07/11

REAR BRAKE CALLIPER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Brake calliper piston return tool.

Fre. 1190-01

Equipment required

pedal press

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 33A, Rear axle components, Rear axle components: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .



CAUTION

To avoid damaging the parking brake cable protectors and causing premature wear of the system, do not handle the cables with a tool.



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

■ Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 33A, Rear axle components, Rear brake calliper assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

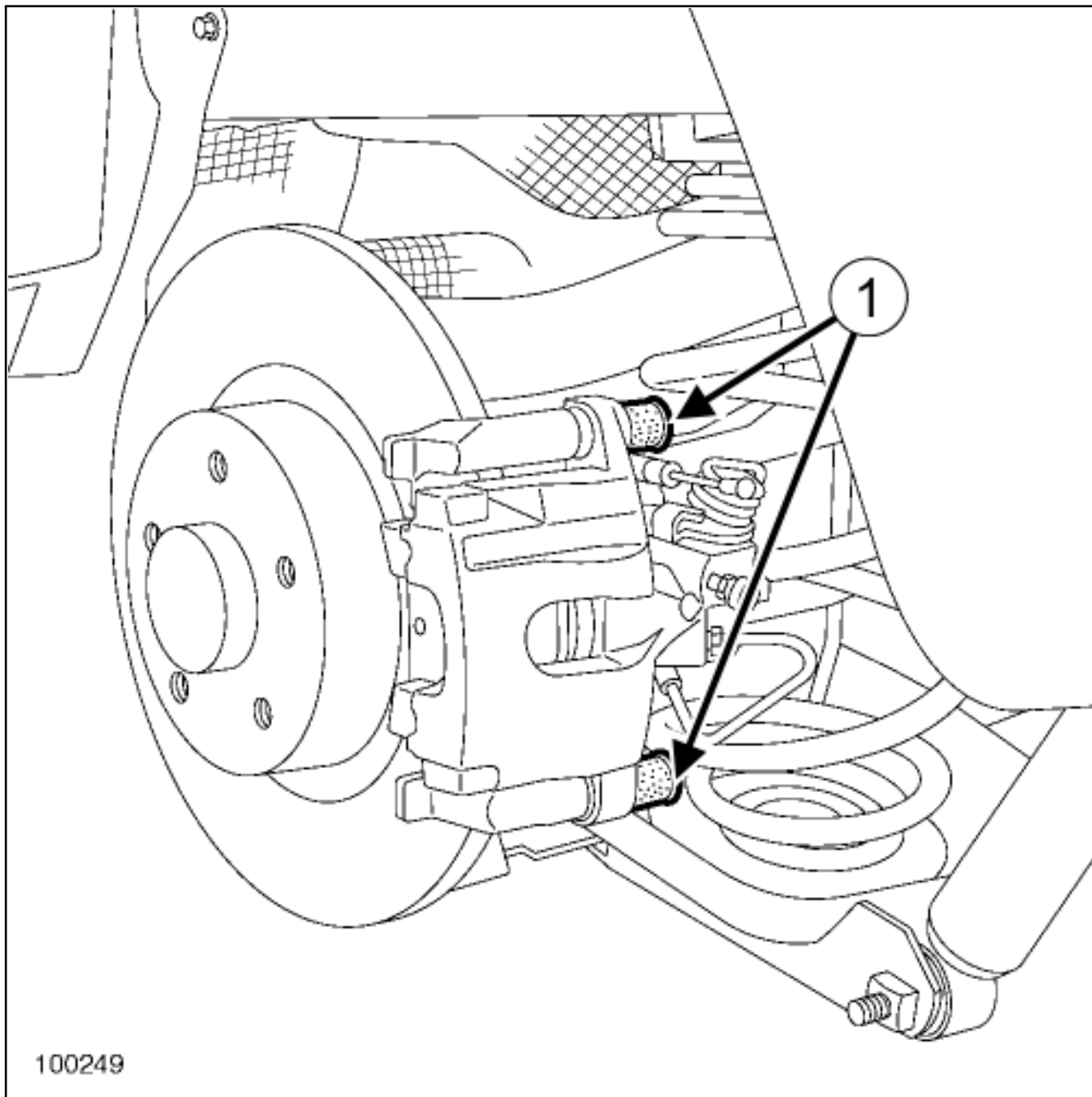
REMOVAL

1. REMOVAL PREPARATION OPERATION

- ▣ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- ▣ Release the parking brake.
- ▣ Fit the pedal press to the brake pedal to limit the outflow of brake fluid.
- ▣ Remove the rear wheel ([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .

2. REMOVAL OPERATION

- ▣ Unclip the parking brake cable.
- ▣
Move aside the parking brake cable.
- ▣
Undo the brake hose union on the brake calliper.
- ▣
Fit blanking plugs in the openings.



Remove:

-
- the guide pin bolts(1) ,
- the rear brake calliper,
- the rear brake pads.

1. REFITTING PREPARATION OPERATION



Check the condition of the gaiter and the calliper piston.



Replace any faulty parts.



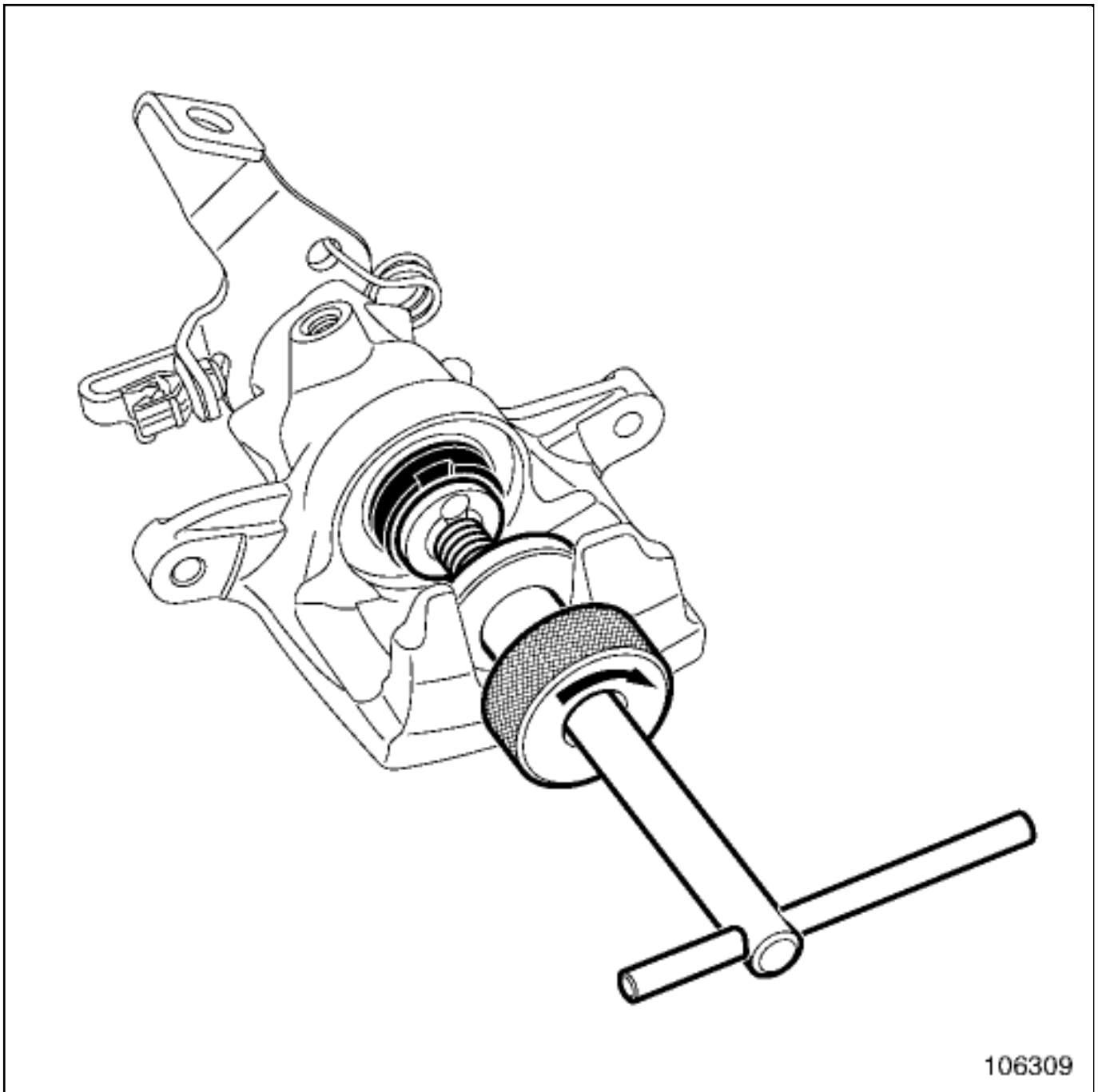
Clean using a wire brush and brake cleaner [Vehicle: Parts and consumables for the repair](#) :



the rear brake calliper,



the rear brake calliper mounting.



106309



Push the piston to the bottom of its housing using the Brake calliper piston return tool. (Fre. 1190-01).



Always replace the guide pin bolts each time they are removed.

2. REFITTING OPERATION



Refit:

-
- the rear brake pads,
- the rear brake calliper,
- the new guide pin bolts.

Tighten the brake hose union on the brake calliper.

Torque tighten([see 33A, Rear axle components, Rear brake calliper assembly: Exploded view](#)) :

-
- the guide pin bolts,
- the brake hose union on the brake calliper.

Refit the parking brake cable.

Check that the parking brake cable stops are properly inserted in their housing.

3. FINAL OPERATION.

Bleed the brake circuit([Braking circuit: Bleed](#)) .

Refit the rear wheel([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .



WARNING

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



Repair-13x03x04x08-01x37-1-38-1.xml



XSL version : 3.02 du 22/07/11

REAR BRAKE DISC: DESCRIPTION

1. PREPARATION OPERATION FOR CHECK

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

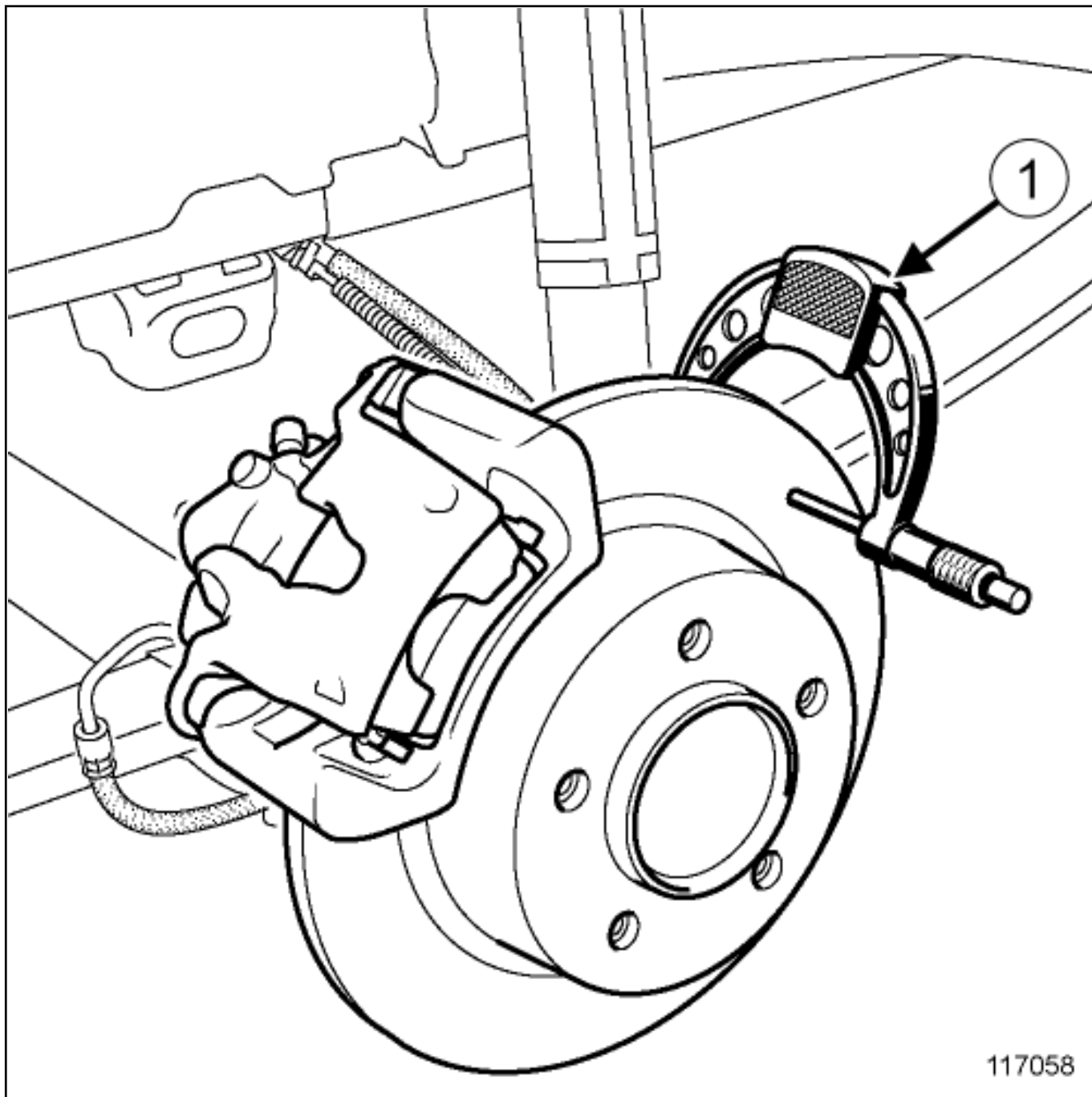
Remove the wheel in question [Wheel: Removal - Refitting](#) .

2. CHECKING OPERATION FOR PART CONCERNED

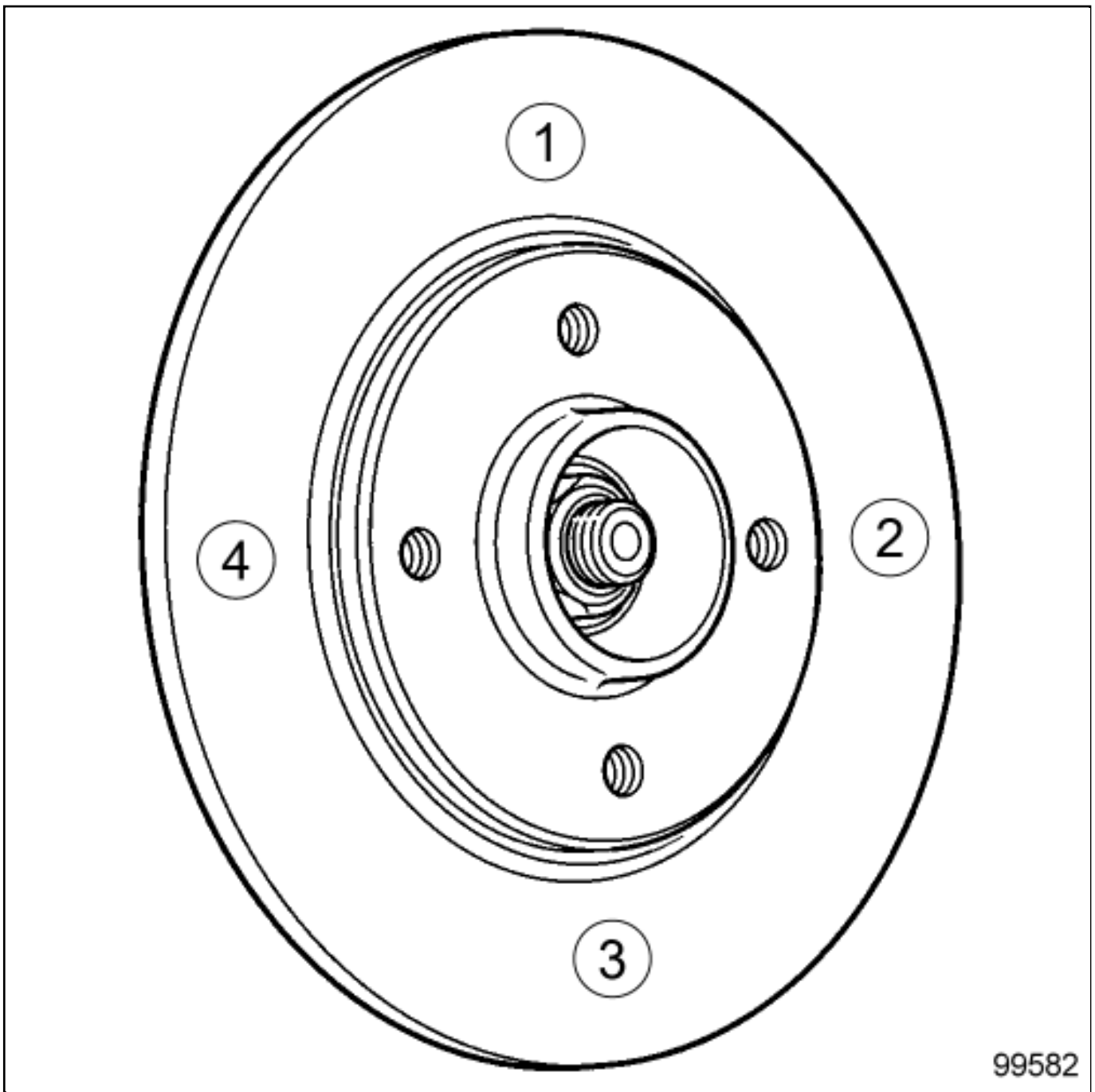


Note:

Use a Palmer type tool to check the thickness of the disc.



Position the Palmer tool(1) to measure the disc thickness.



Measure the thickness of the disc at 4 points in order (90° apart).

3. FINAL OPERATION

Replace the discs if necessary ([see 33A, Rear axle components, Rear brake disc: Removal - Refitting](#)).

Refit the wheel in question ([Wheel: Removal - Refitting](#)).



REAR BRAKE DISC: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Brake calliper piston return tool.

Fre. 1190-01

Equipment required

parts washer

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [Brake circuit: Precautions for the repair](#) ,
- [Vehicle: Precautions for the repair](#) .

Brake discs cannot be reground. If there is excessive scoring or wear, they will need to be replaced.

When replacing a rear brake disc, be sure to replace the disc on the opposite side.

■ Be sure to replace the rear brake pads if the rear brake discs are being replaced [Rear brake calliper assembly: Exploded view](#) .

■ Location and specifications (tightening torques, parts always to be replaced, etc.) [Rear brake calliper assembly: Exploded view](#) and [Rear hub carrier assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

■ Remove the rear wheel [Rear hub carrier assembly: Exploded view](#) .

■ Unclip the parking brake cable from the brake calliper.

■ Remove [Rear brake calliper assembly: Exploded view](#) :



the rear brake pads,



the lower guide pin bolt.

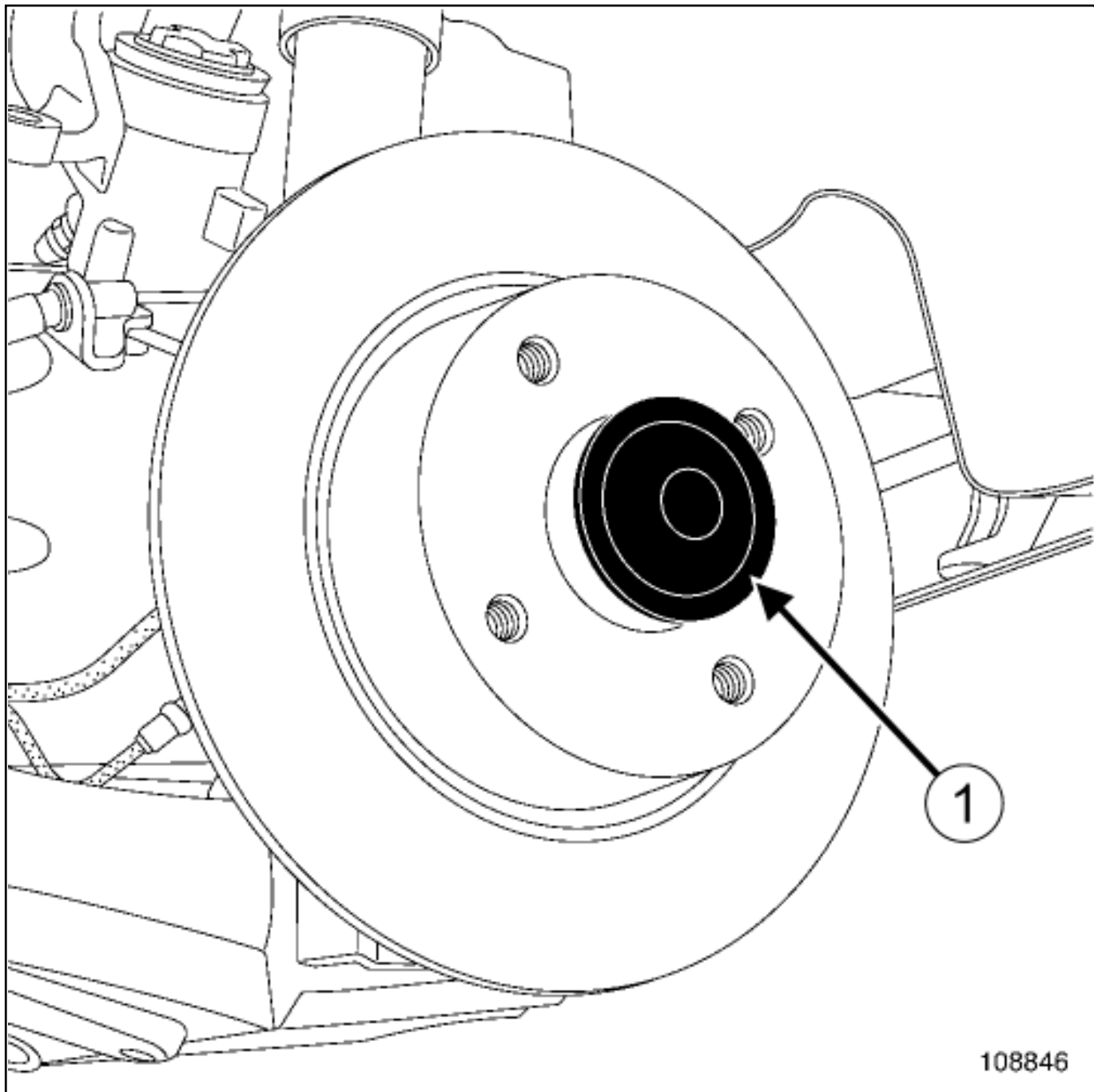


Hang the rear brake calliper on the suspension spring.

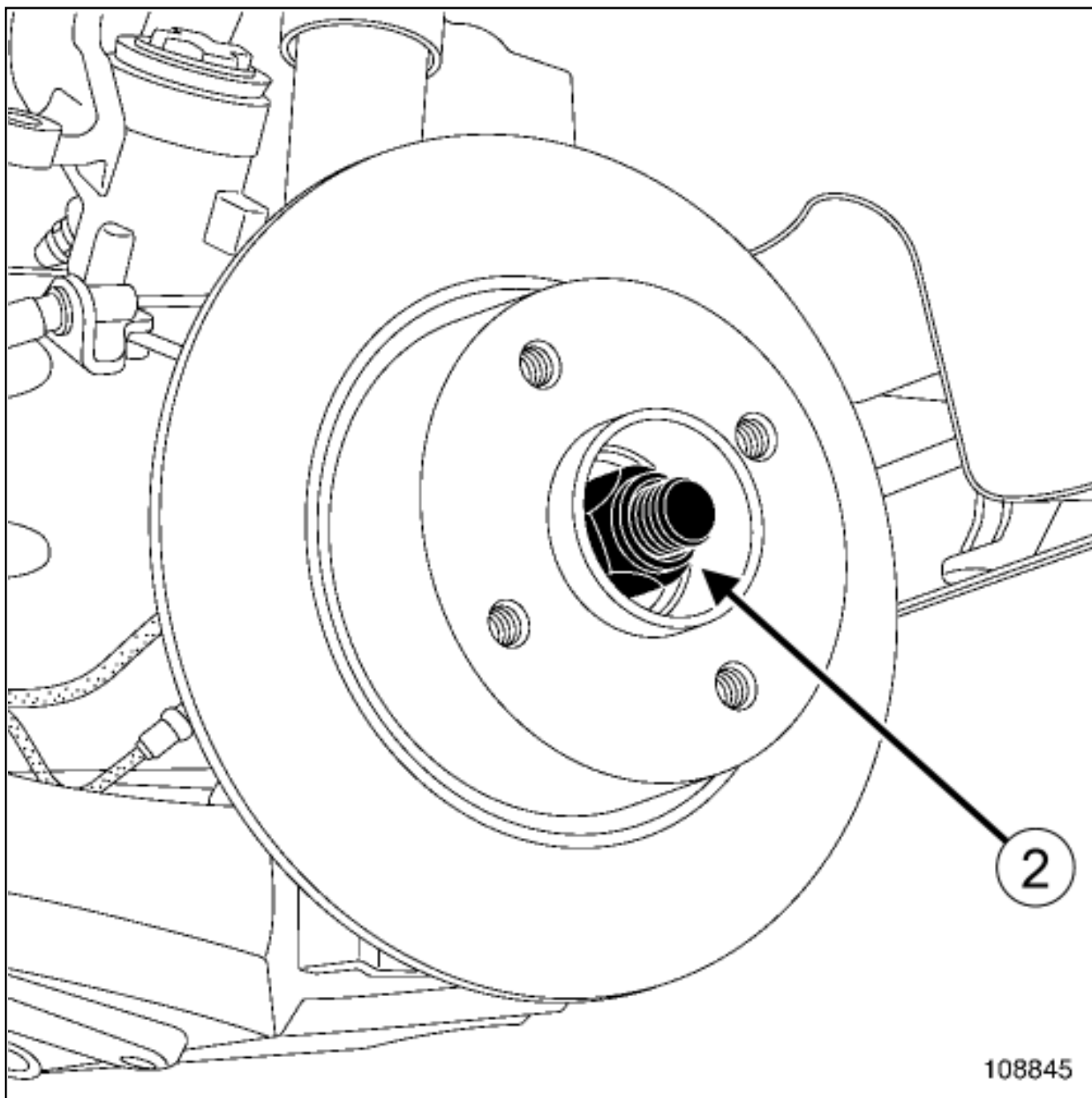


Remove the rear brake calliper mounting [Rear brake calliper assembly: Exploded view](#) .

2. REMOVAL OPERATION



108846



108845

Remove:

- the hub cover(1) ,
- the stub axle nut(2) ,
- the rear brake disc.

1. REFITTING PREPARATION OPERATION



Clean using a wire brush and brake cleaner [Vehicle: Parts and consumables for the repair](#) :

-
- the rear brake calliper mounting,
- the rear brake calliper.



Clean the rear stub axle using a wire brush.



Clean the rear brake disc using a parts washer.



Dry the disc surfaces.

2. REFITTING OPERATION



Refit:

-
- the rear brake disc,
- the new stub axle nut.



CAUTION

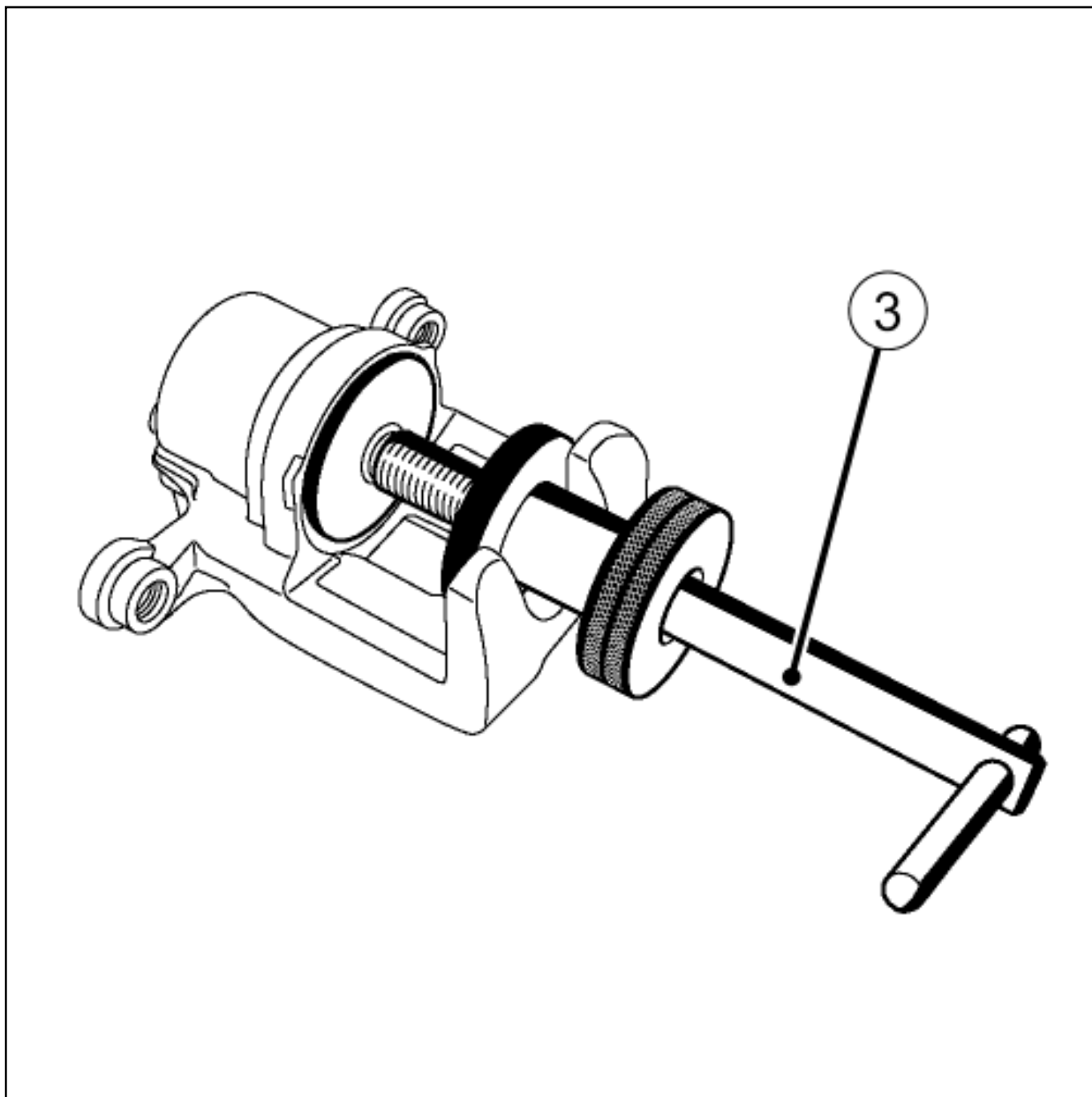
Always replace the stub axle nut.



Torque tighten the rear stub axle nut [Rear hub carrier assembly: Exploded view](#) .

Refit the hub cover plug.

3. FINAL OPERATION.



Push the piston to the bottom of its housing using the tool Brake calliper piston return tool. (Fre. 1190-01) (3) .

Proceed in the reverse order to removal.



WARNING

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



Repair-13x03x04x06-01x37-1-15-1.xml



XSL version : 3.02 du 22/07/11

REAR BRAKE HOSE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

pedal press

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 33A, Rear axle components, Rear axle components: Precautions for the repair\)](#) ,

[Vehicle: Precautions for the repair](#) .



CAUTION

To avoid damaging the parking brake cable protectors and causing premature wear of the system, do not handle the cables with a tool.



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.



Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 33A, Rear axle components, Rear brake calliper assembly: Exploded view\)](#) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions[Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION



Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove the rear wheel ([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .



Fit the [pedal pres](#) to the brake pedal to limit the outflow of brake fluid.

2. REMOVAL OPERATION



Remove the rear brake hose ([see 33A, Rear axle components, Rear brake calliper assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION

CAUTION



In order to not damage the brake hose:



do not tension the hose,



do not twist the hose,



check that there is no contact with the surrounding components.

2. REFITTING OPERATION



Fit without tightening the rear brake hose on the rear brake calliper side.



Torque tighten the rear brake hose union on the rear brake calliper([see 33A, Rear axle components, Rear brake calliper assembly: Exploded view](#)) .



Fit the rear brake hose to the rigid union ensuring that the rear brake hose does not twist when being fitted.



Torque tighten the brake hose union on the rigid pipe union([see 33A, Rear axle components, Rear brake calliper assembly: Exploded view](#)) .

3. FINAL OPERATION.



Refit the rear wheel([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .

Remove the pedal press from the brake pedal.

Bleed the brake circuit Braking circuit: Bleed .



Repair-13x03x09x03-01x37-1-16-1.xml



XSL version : 3.02 du 22/07/11

REAR BRAKE PADS: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Brake calliper piston return tool.

Fre. 1190-01

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 33A, Rear axle components, Rear axle components: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .

WARNING



Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

CAUTION



■ In order not to damage the brake hose:

- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.

CAUTION



Prepare for the flow of fluid, and protect the surrounding components.

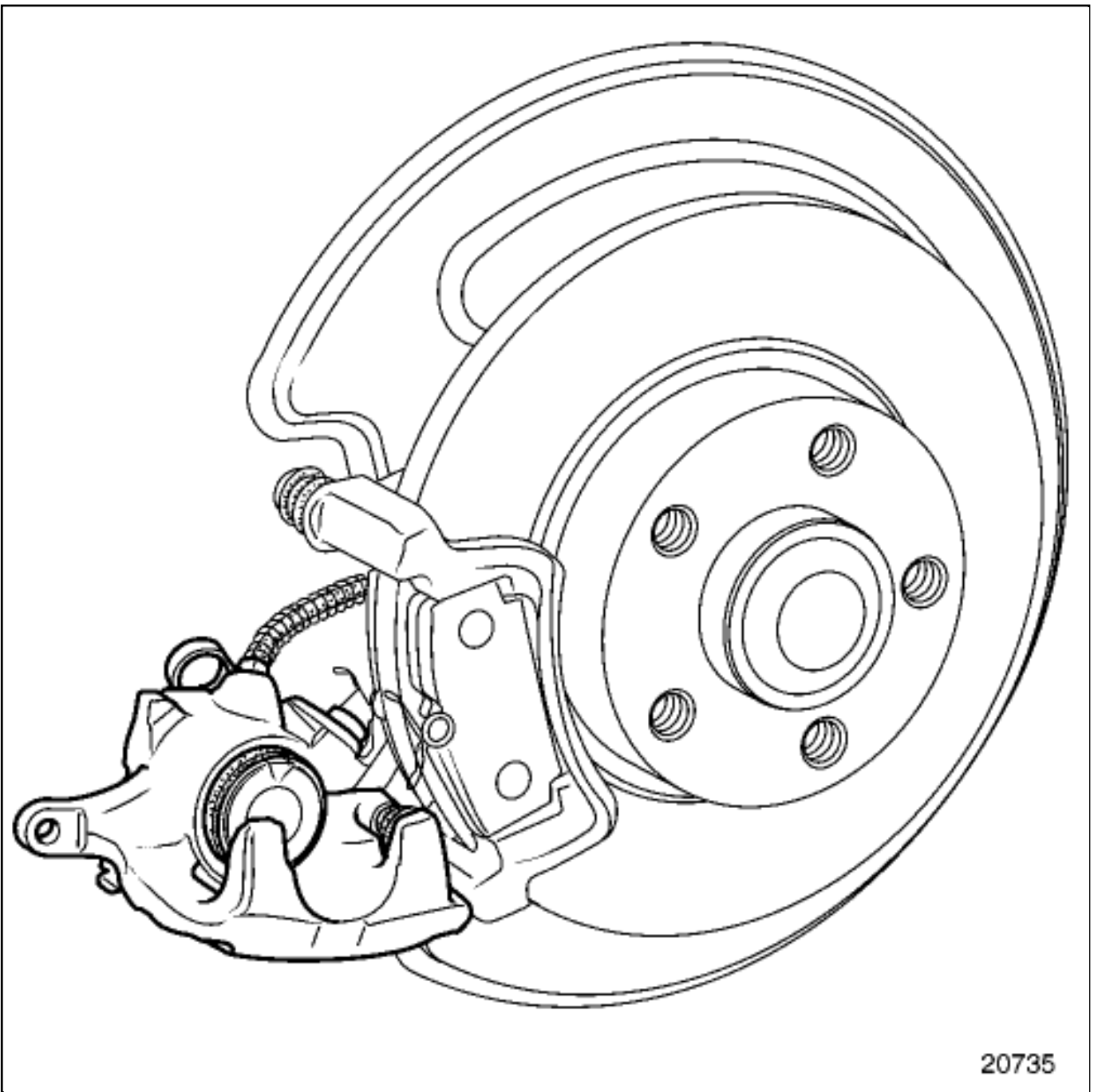
■ Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 33A, Rear axle components, Rear brake calliper assembly: Exploded view\)](#) and [\(see 33A, Rear axle components, Rear hub carrier assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- ❑ Release the parking brake.
- ❑ Remove the rear wheels ([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .
- ❑ Remove the parking brake cables from the rear brake callipers.

2. REMOVAL OPERATION



20735

Remove the rear brake calliper upper bolt on each side.

Loosen the rear brake calliper lower bolt on each side.

Tilt the rear brake callipers downwards.

Remove the rear brake pads.

REFITTING

1. REFITTING PREPARATION OPERATION



Check:

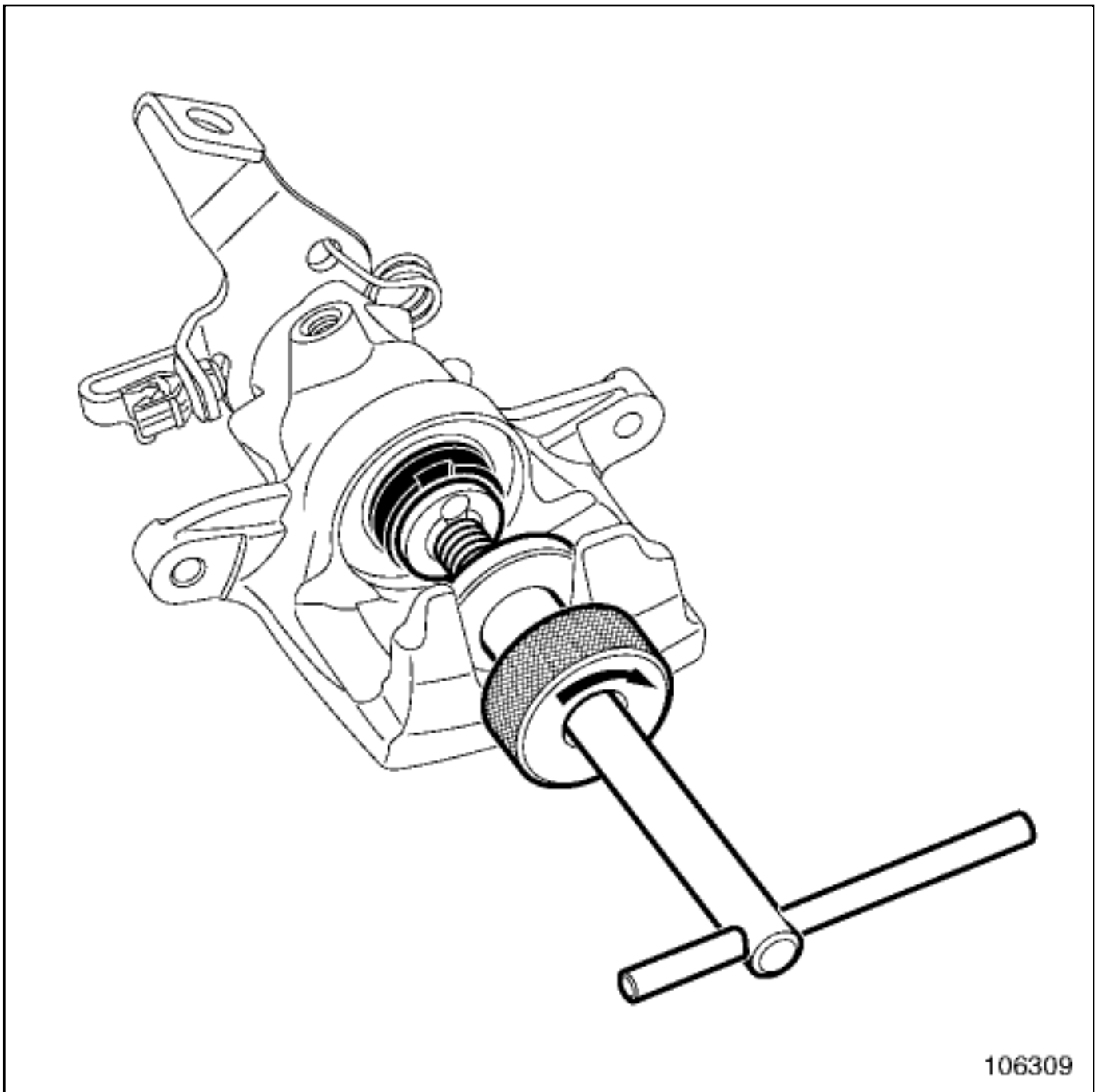
-
- the condition of the calliper gaiter,
- the condition of the calliper if it has any deep scratches or cracks,
- the rear brake discs,
- the condition of the rear brake pads.



Clean using a wire brush and brake cleaner [Vehicle: Parts and consumables for the repair](#) :

-
- the rear brake calliper,
- the rear brake calliper mounting.

2. REFITTING OPERATION



106309



Push the piston to the bottom of its housing using the Brake calliper piston return tool. (Fre. 1190-01) .



Refit the rear brake pads.



Fit the rear brake calliper.



Refit the rear brake calliper upper bolt.



Torque tighten the rear brake calliper bolts([see 33A, Rear axle components, Rear brake calliper assembly: Exploded view](#)) .

3. FINAL OPERATION.



Refit the parking brake cables at the brake callipers.



Refit the rear wheels([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .



WARNING

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.



Repair-13x03x04x05-01x37-1-37-1.xml



XSL version : 3.02 du 22/07/11

REAR BUMPER ASSEMBLY: EXPLODED VIEW

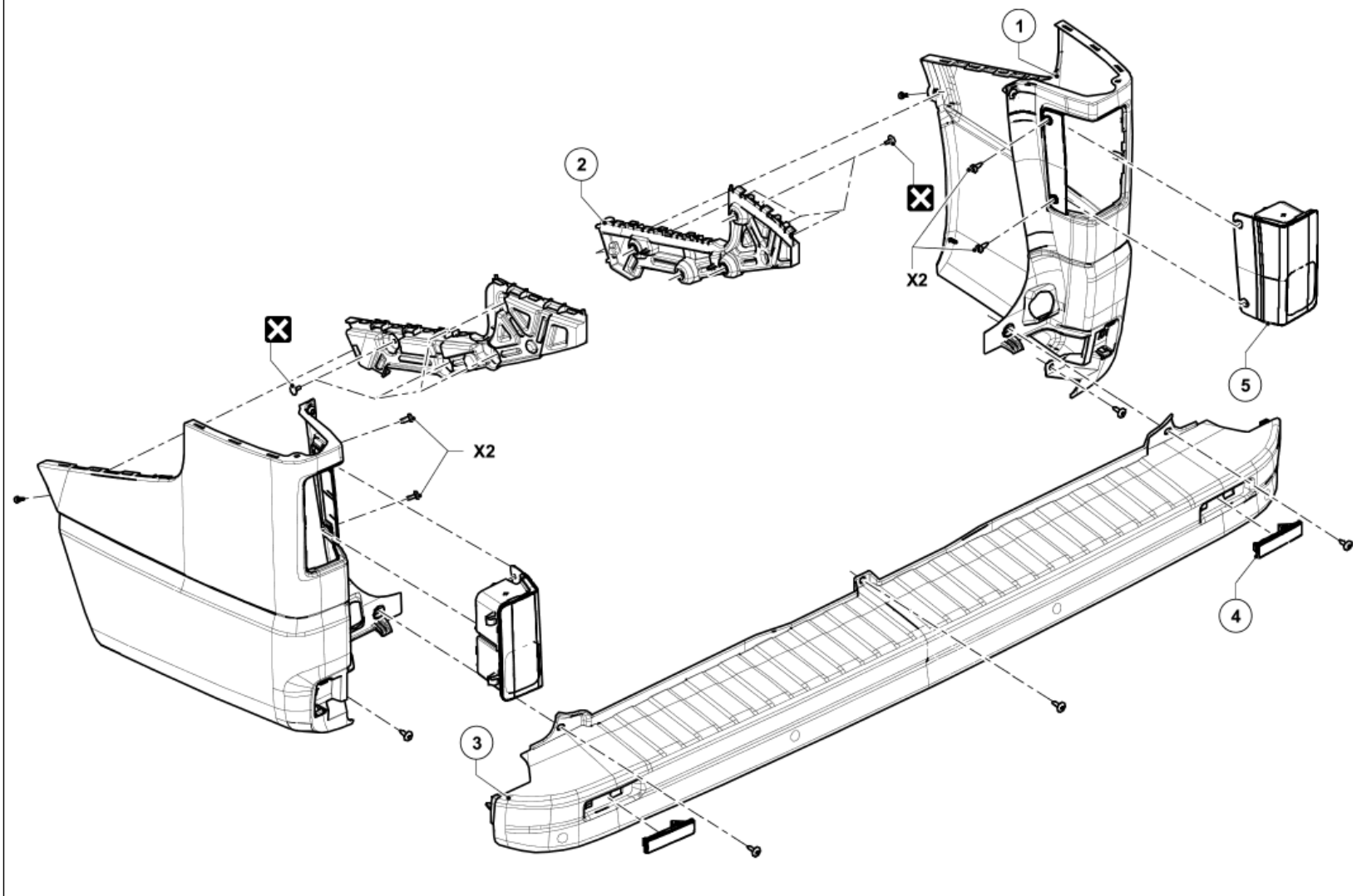


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



[Illustration key: Description](#) .

For fastenings with no specified tightening torques, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Rear bumper, side section	<p>(see 55A, Exterior protection, Rear bumper: Removal - Refitting)</p> <p>Polypropylene / polyethylene bodywork component: Preparation and paint range (Technical Note 0592A).</p>
2	Side pressure piece of rear bumper	
3	Rear bumper, centre section	<p>(see 55A, Exterior protection, Rear bumper: Removal - Refitting)</p> <p>Polypropylene / polyethylene bodywork component: Preparation and paint range (Technical Note 0592A).</p>
4	Reflector	
5	Rear light	(see Rear wing light: Removal - Refitting)



Repair-50x05x03-02x50-1-9-1.xml



XSL Version : 3.02 du 22/07/11

REAR BUMPER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 55A, Exterior protection, Rear bumper assembly: Exploded view](#)).



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

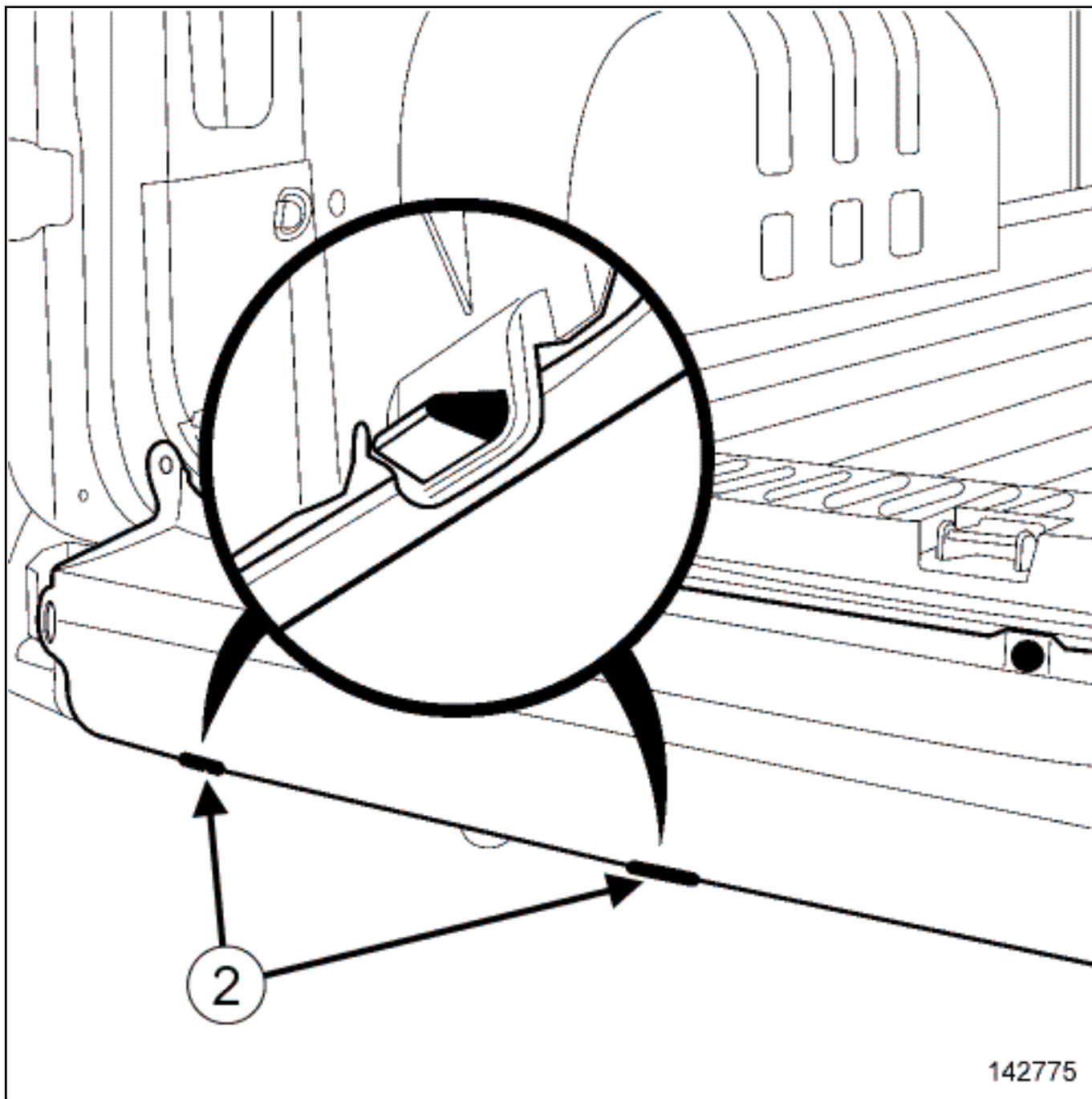
REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#).
- ❑ Open the rear opening element.

2. REMOVAL OPERATION

1- CENTRE SECTION OF THE REAR BUMPER



142775

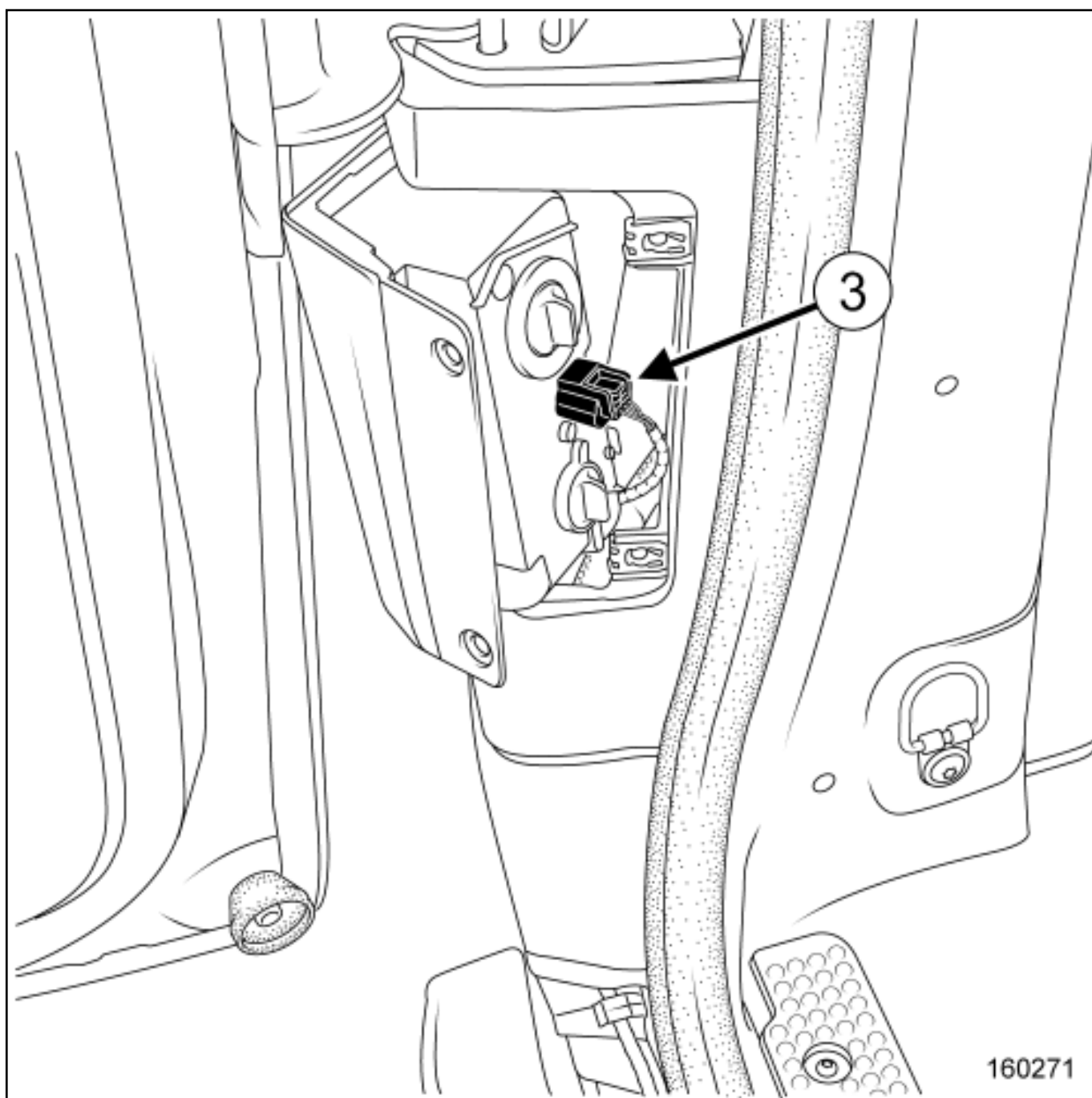
Unclip the centre section of the rear bumper at(2) .

Remove [\(see 55A. Exterior protection, Rear bumper assembly: Exploded view\)](#) :

-
- the centre section of the rear bumper bolts,
- the centre section of the rear bumper.

Remove the rear lights bolts [Rear signals - lighting assembly: Exploded view](#) .

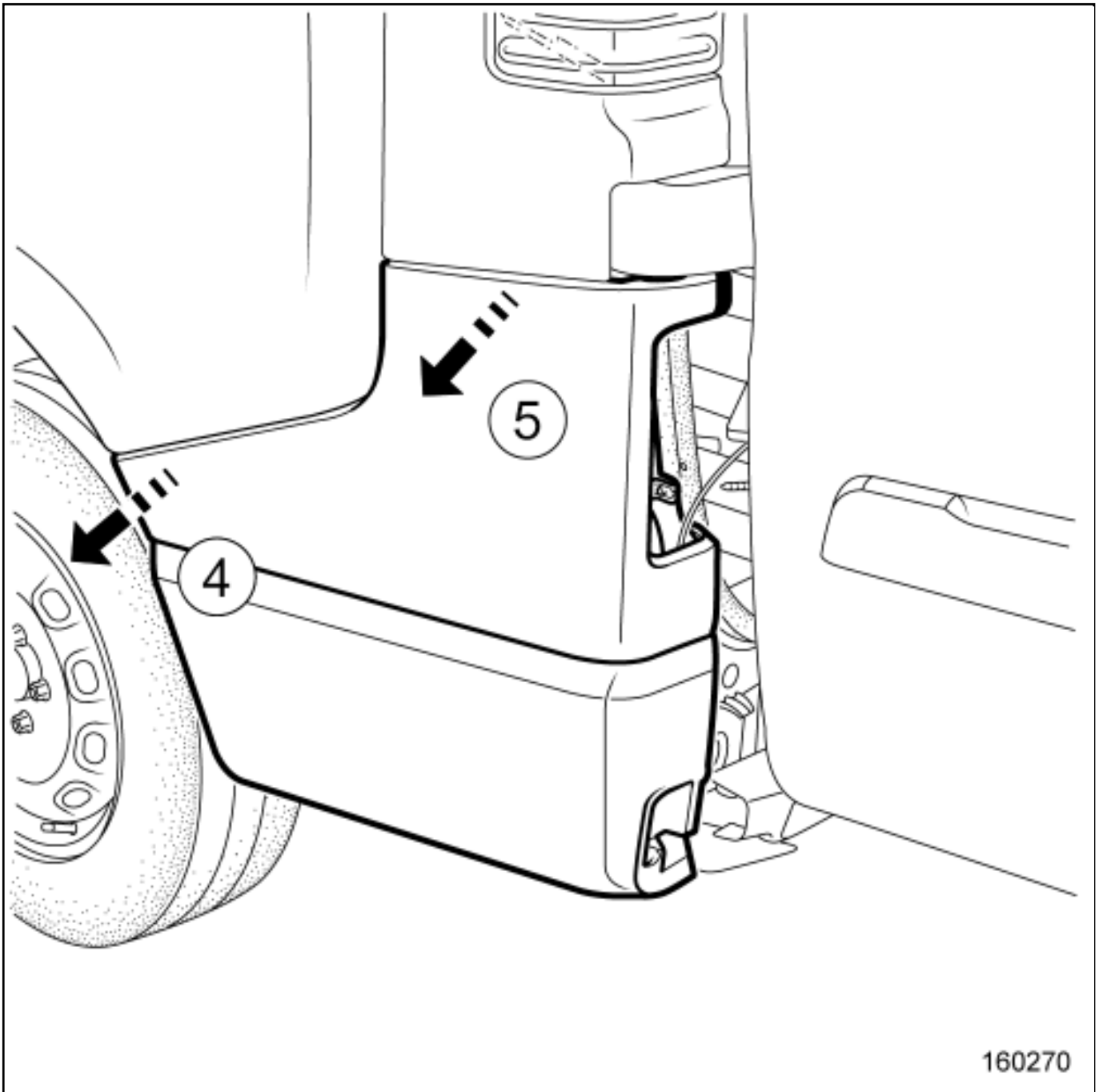
Partially remove the rear lights.



Disconnect the rear lights connectors at(3) .

Remove [\(see 55A. Exterior protection, Rear bumper assembly: Exploded view\)](#) :

-
- the side sections of the rear bumper bolts,
- the rear wheel arch liner bolts on the side section of the rear bumper on each side of the vehicle.



160270

Unclip the side sections of the rear bumper at(4) and (5) .

Remove the side sections of the rear bumper.

REFITTING

Proceed in the reverse order to removal.



Repair-50x05x04-01x37-1-45-1.xml



XSL version : 3.02 du 22/07/11

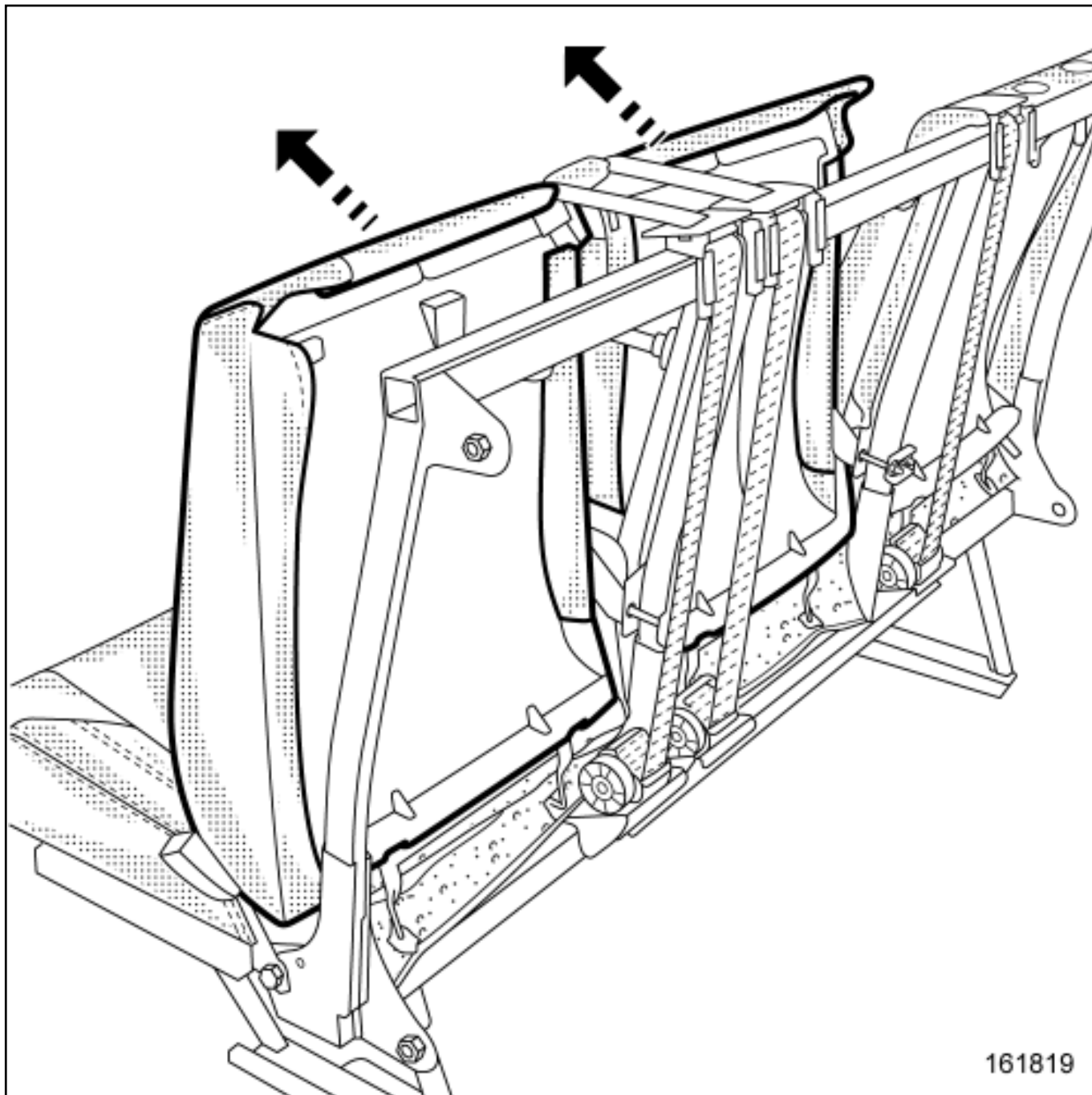
REAR CENTRE ARMREST: REMOVAL - REFITTING

REMOVAL

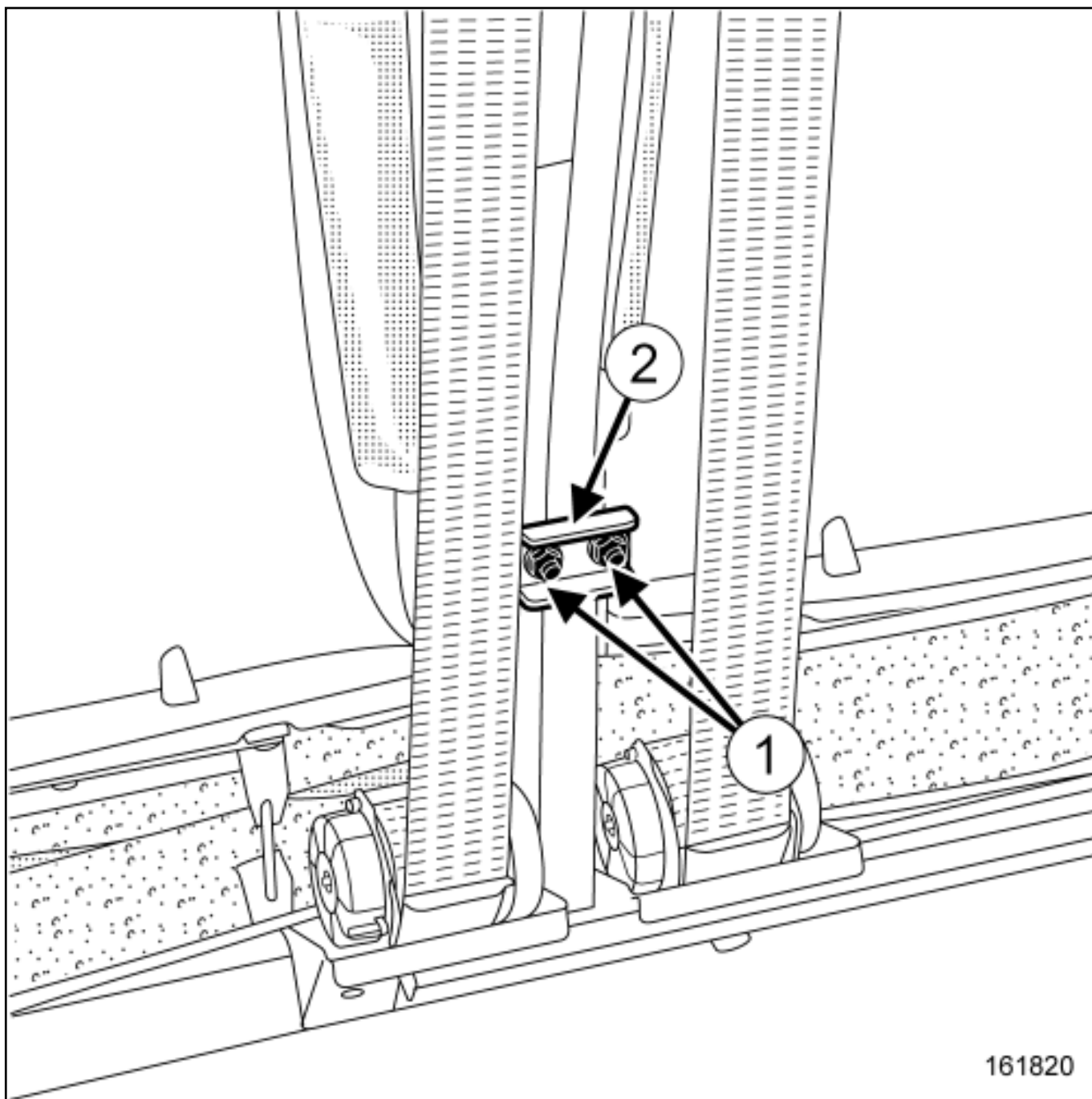
1. REMOVAL OPERATION PREPARATION

- Remove:
- the crew cab partition [Crew cab partition: Removal - Refitting](#) ,
 - the rear headrests ([see 79A, Seat accessories, Rear headrest: Removal - Refitting](#)) ,
 - the rear headrest guides ([see 79A, Seat accessories, Rear bench seat headrest guide: Removal - Refitting](#)) .

2. REMOVAL OPERATION



■ Move aside the rear bench seatback, as indicated.



161820

Remove:



the nuts(1) ,



the bracket(2) ,



the rear centre armrest.

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-70x18x04x03-01x37-1-10-1.xml



XSL version : 3.02 du 22/07/11

REAR END PANEL: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Rear end panel	HSS	1.5

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

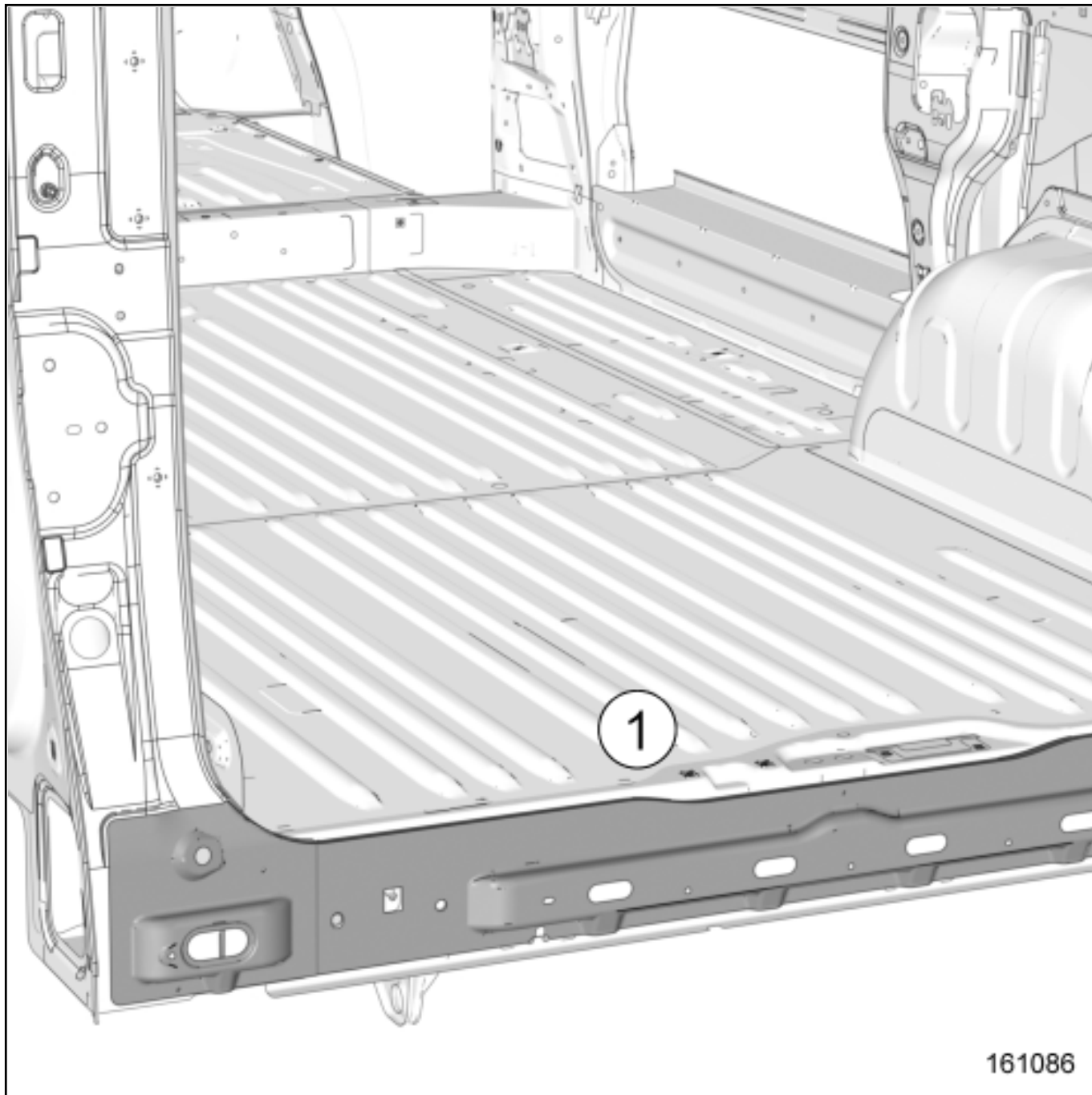
1- COMPLETE REPLACEMENT



WARNING

Use a repair bench to ensure the positioning of the points and the geometry of the axle assemblies.

1)PART IN POSITION



161086



Repair-40x09x26x01-02x49-1-15-1.xml



REAR END PILLAR LINING: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Rear end pillar lining	HSS	1.2

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



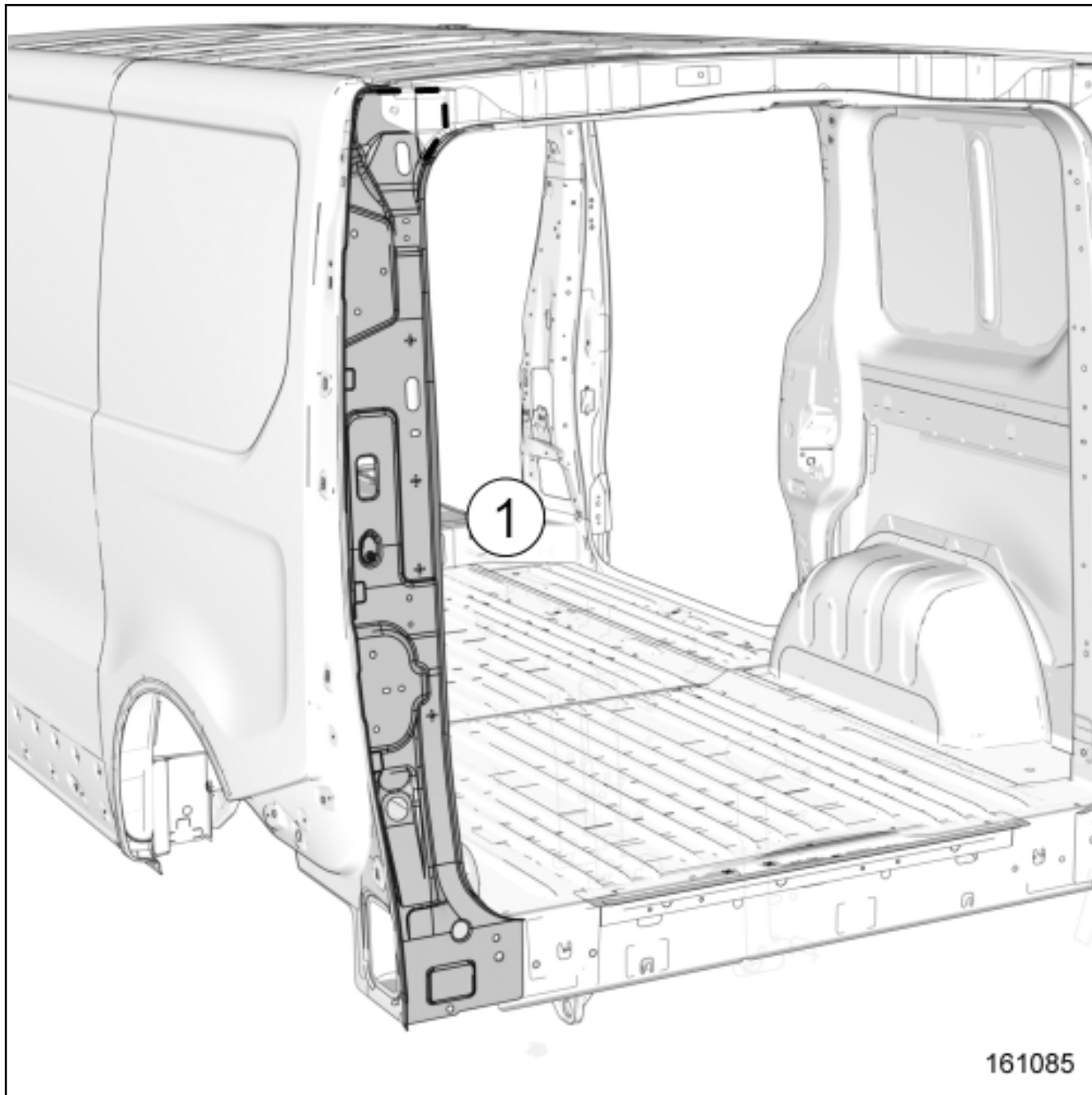
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x09x13x07-02x49-1-2-1.xml



REAR FAN ASSEMBLY: REMOVAL - REFITTING

Special tooling required

Pipe clamps.

Ms. 583

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view\)](#) .

Note:

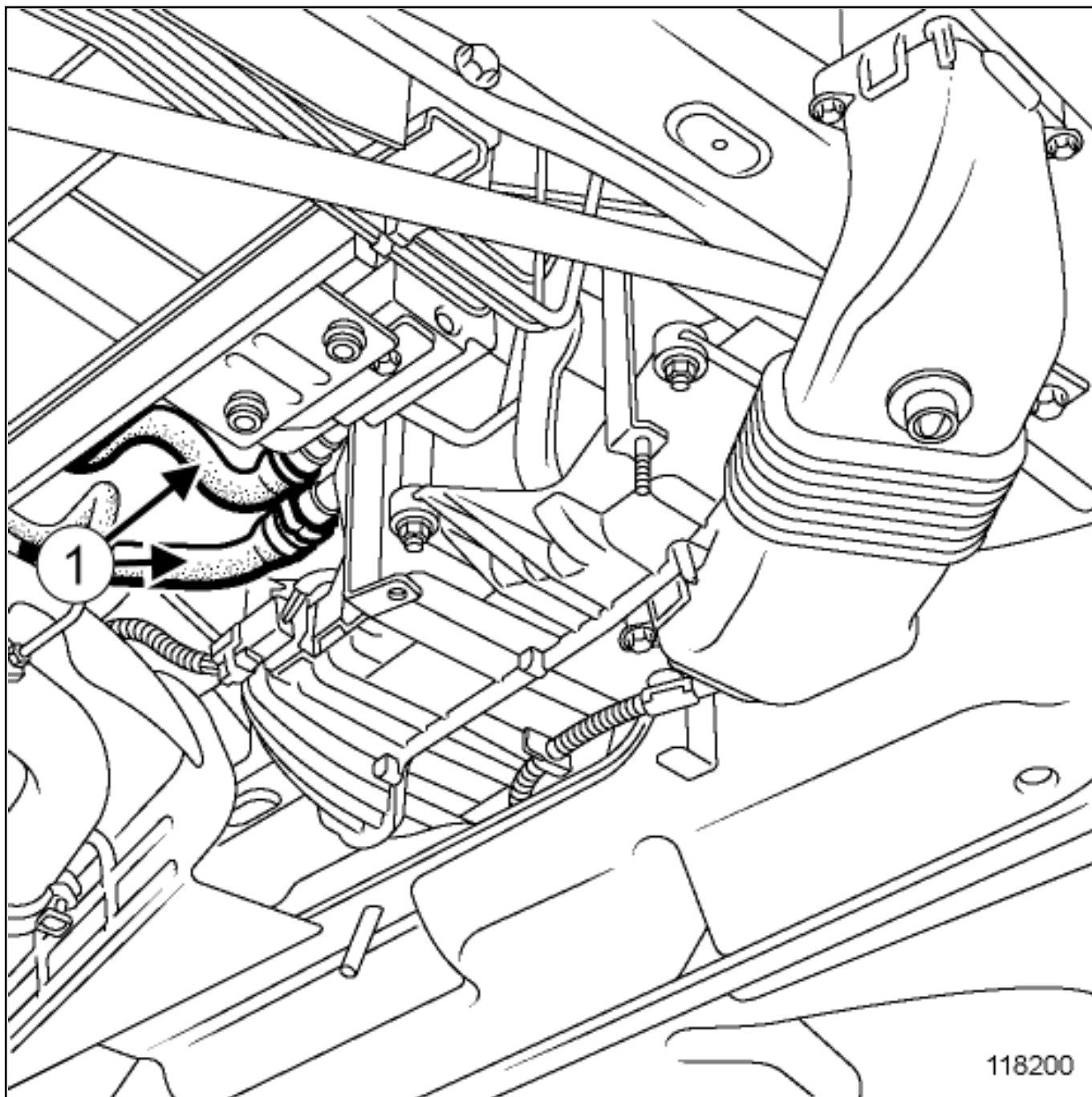


The rear fan assembly is not sold separately by the Parts Department. To replace the rear fan assembly, replace the entire rear distribution unit.

REMOVAL

1. REMOVAL PREPARATION OPERATION

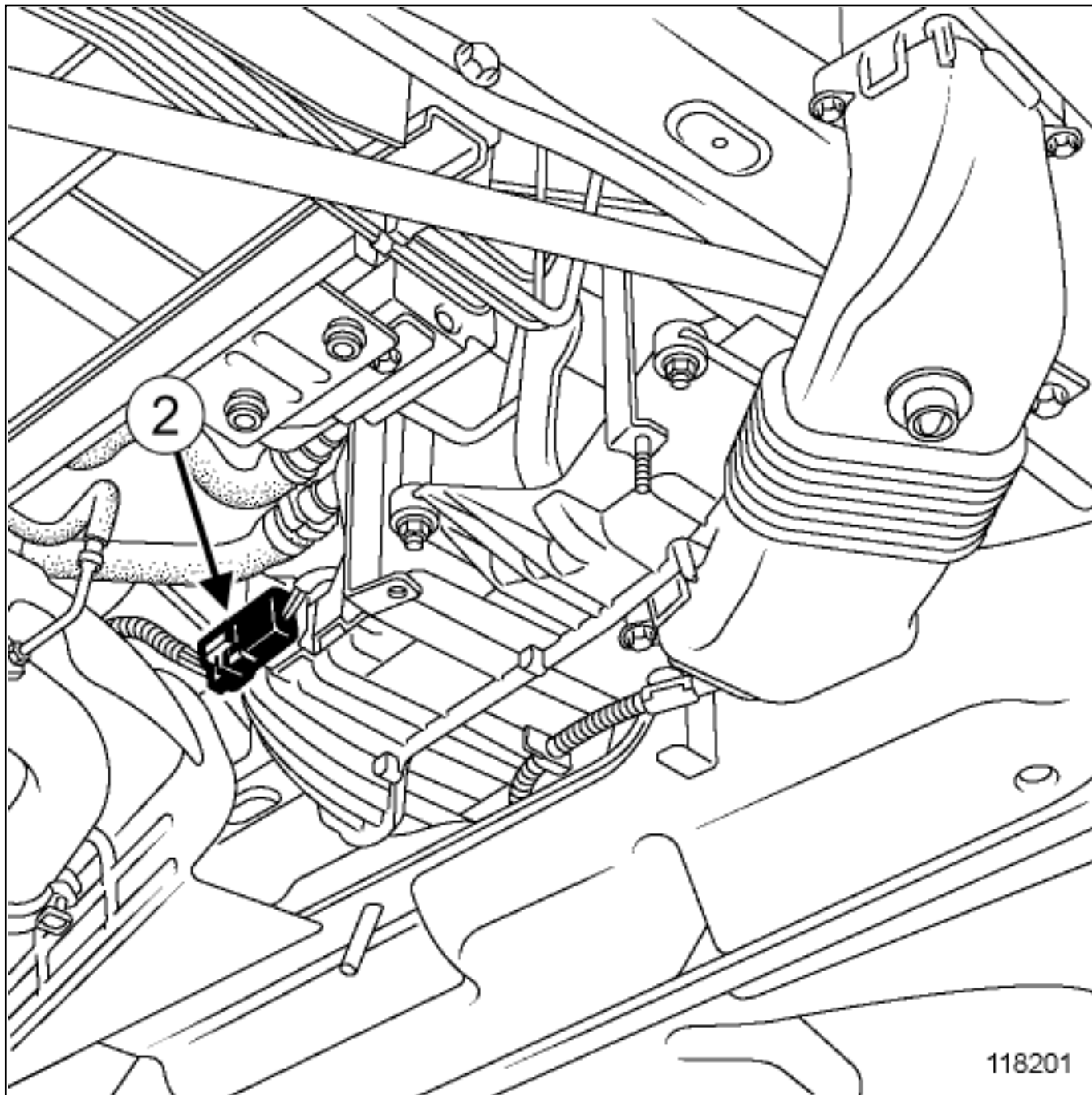
- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Disconnect the battery (see **Battery: Removal - Refitting**) .
- [\(see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view\)](#) :
 - remove the rear distribution unit protective hood mountings,
 - remove the rear distribution unit protective hood,
 - remove the bolts from the lower air inlet duct,
 - unclip the lower air inlet duct from the upper air inlet duct,
 - remove the lower air outlet duct bolts from the rear distribution unit.



■ Fit hose clamps/Pipe clamps. (Ms. 583) to the pipes(1).

■ Unclip the pipes.

2. REMOVAL OPERATION



■ Disconnect the connector(2) .

■ [\(see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view\)](#) :

- remove the rear distribution unit nuts,
- unclip the rear distribution unit from the lower air outlet duct,
-

remove the rear distribution unit.



Note:

The rear fan assembly is not sold separately by the Parts Department. To replace the rear fan assembly, replace the entire rear distribution unit.

REFITTING

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Fill up and bleed the cooling system [Cooling system: Draining - Refilling](#) .



Repair-30x02x01x20-01x37-1-14-1.xml



REAR FLOOR FRONT CROSS MEMBER, FRONT SECTION: REPLACEMENT



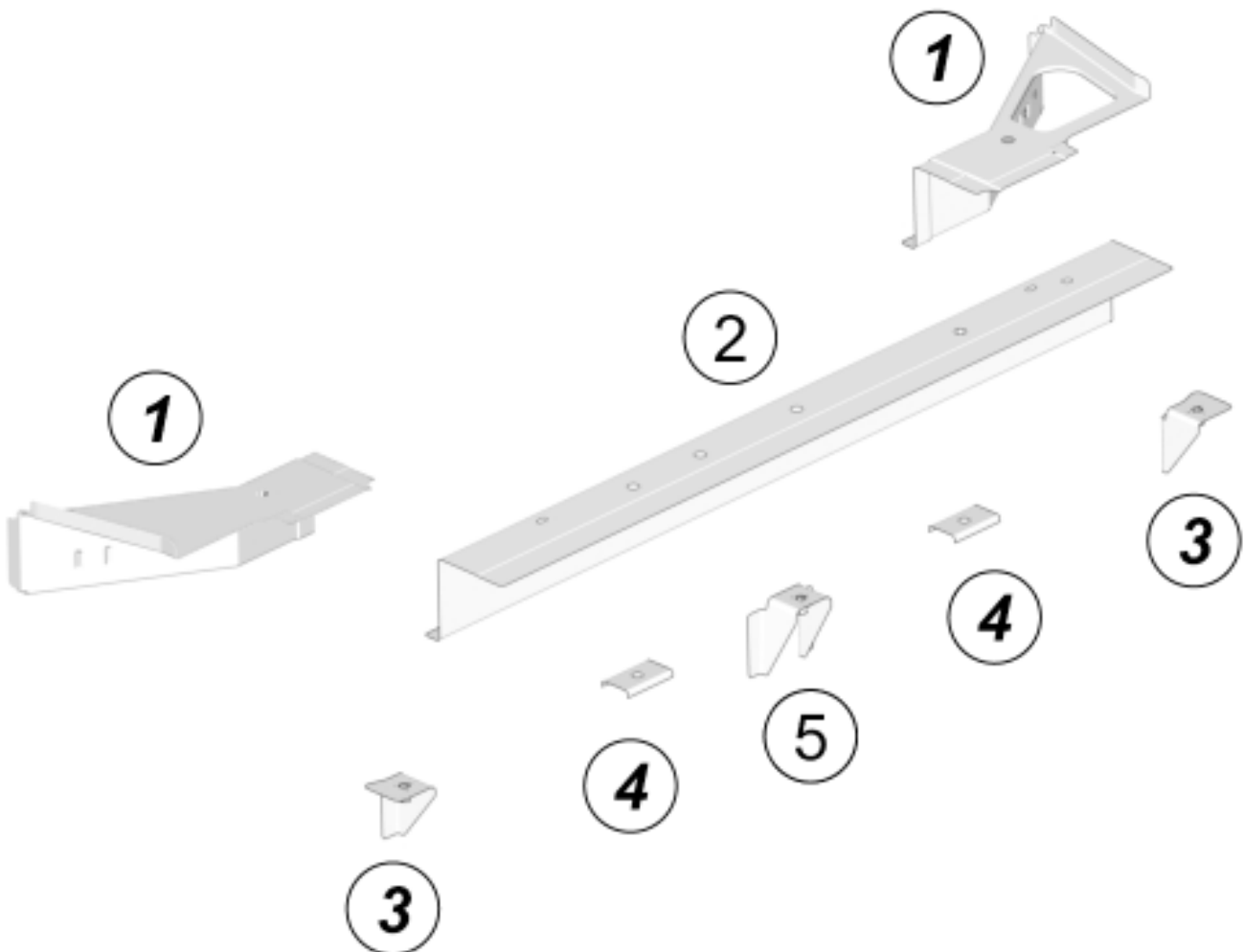
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



160956

No.	Description	Type	Thickness (mm)
(1)	Floor partition side cross member	HSS	1.5
(2)	Floor partition cross member	HSS	1.5
(3)	Front seat rear mounting side bracket	HSS	2
(4)	Mounting reinforcement plate of second row rear seat	Mild steel	2
(5)	Front seat rear mounting bracket	HSS	2

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

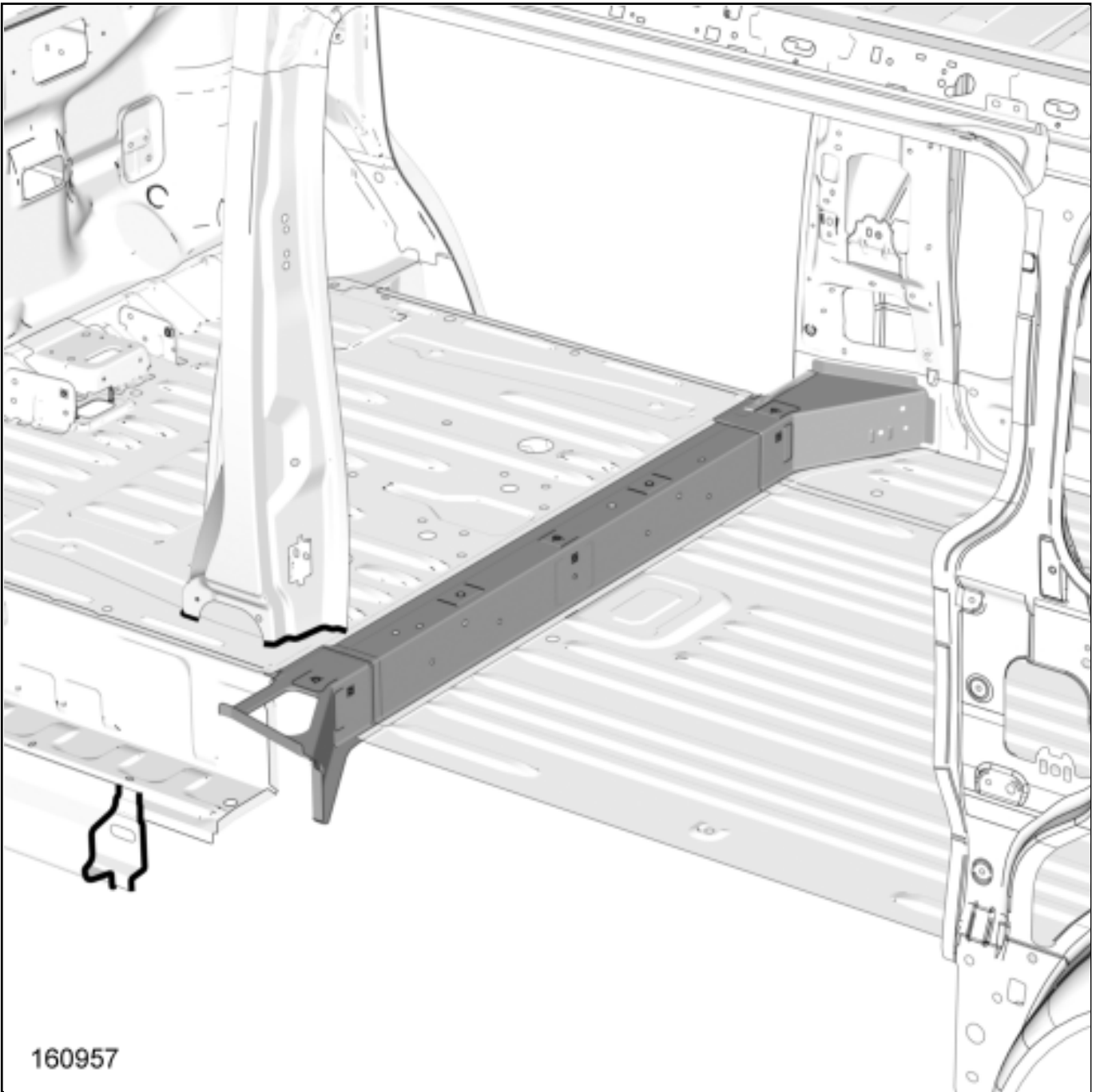


CAUTION

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .



Repair-40x05x06x10-02x49-1-2-1.xml



REAR HEADREST: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



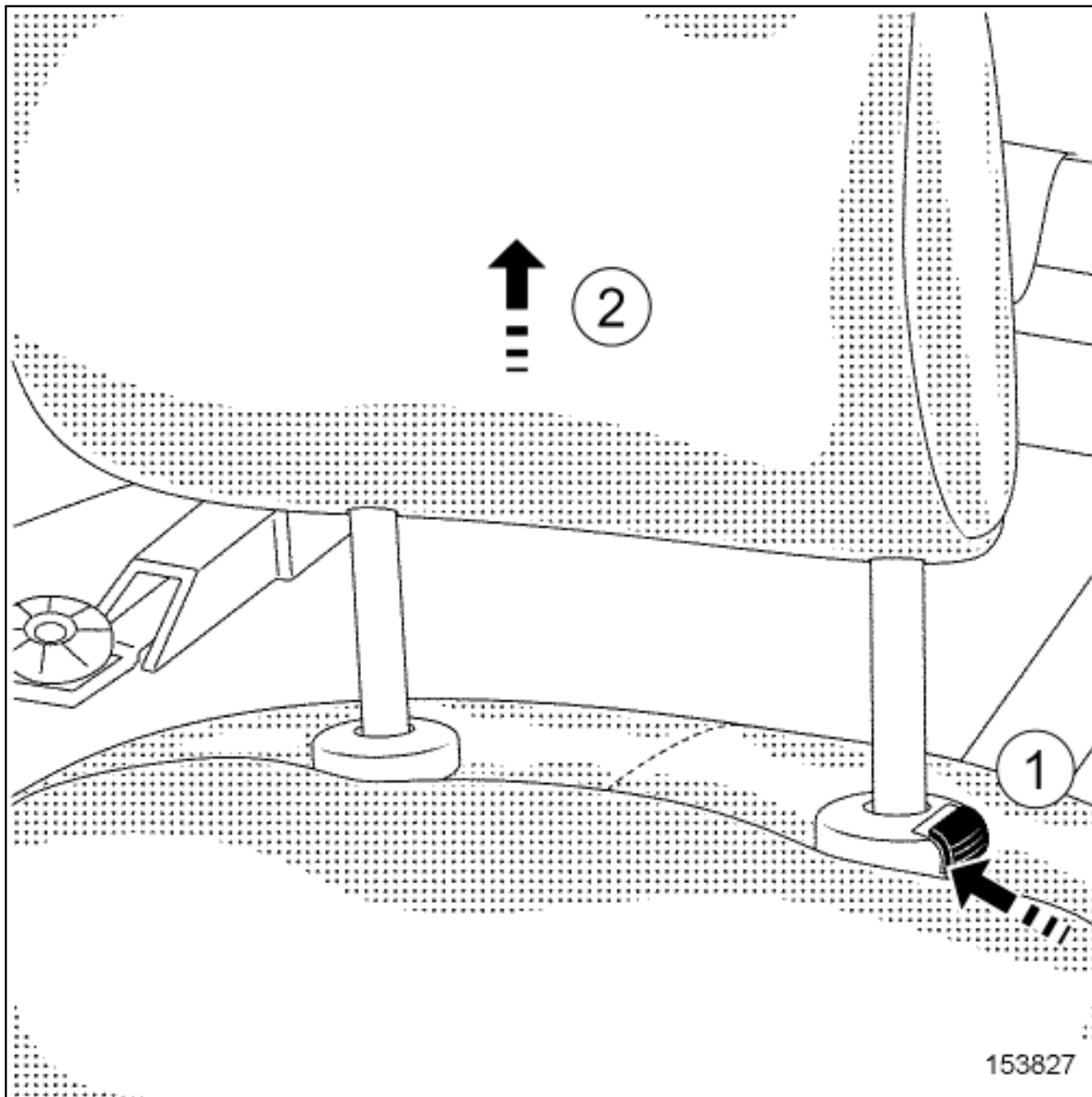
REMOVAL

1. REMOVAL OPERATION



Note:

There is no need to remove the bench seat to carry out this operation.



153827

■ Press on the tab(1) .

■

Remove the headrest(2) .

REFITTING

1. REFITTING OPERATION

■

Refit the headrests.

Carry out a function test.



WARNING

To prevent the headrest coming away from the guide during a collision, check that the headrest guide locking system is functioning correctly.



Repair-70x18x04x04-01x37-1-7-1.xml



XSL version : 3.02 du 22/07/11

REAR IMPACT LOWER CROSS MEMBER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

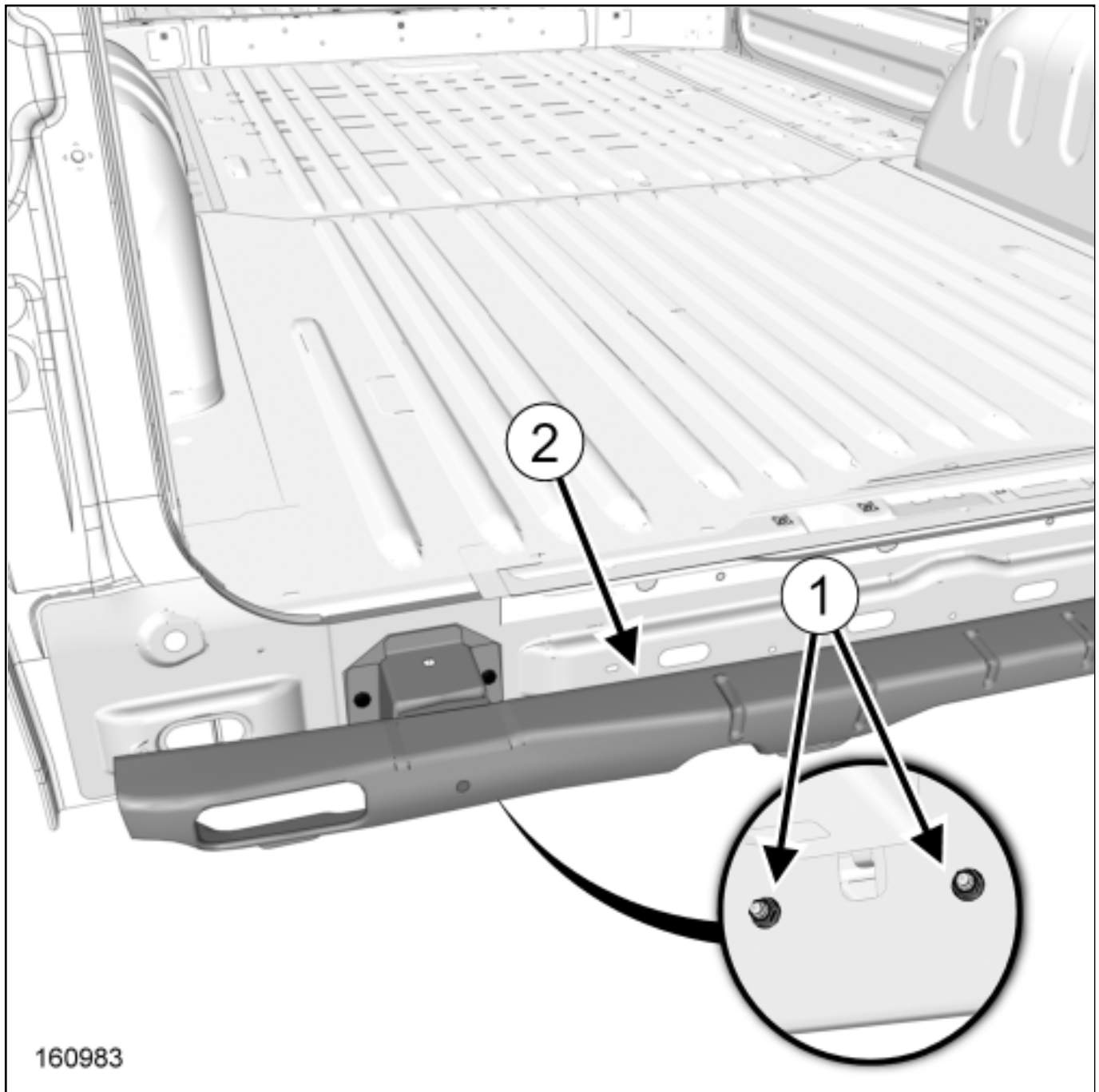


Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



Remove the rear bumper centre section [Rear bumper assembly: Exploded view](#) .

2. REMOVAL OPERATION



Remove:

- the nuts(1) ,
- the rear impact lower cross member(2) .

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-40x09x28-01x37-1-15-1.xml



XSL version : 3.02 du 22/07/11

REAR LASHING RING: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Rear lashing ring mounting	Mild steel	1.47

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



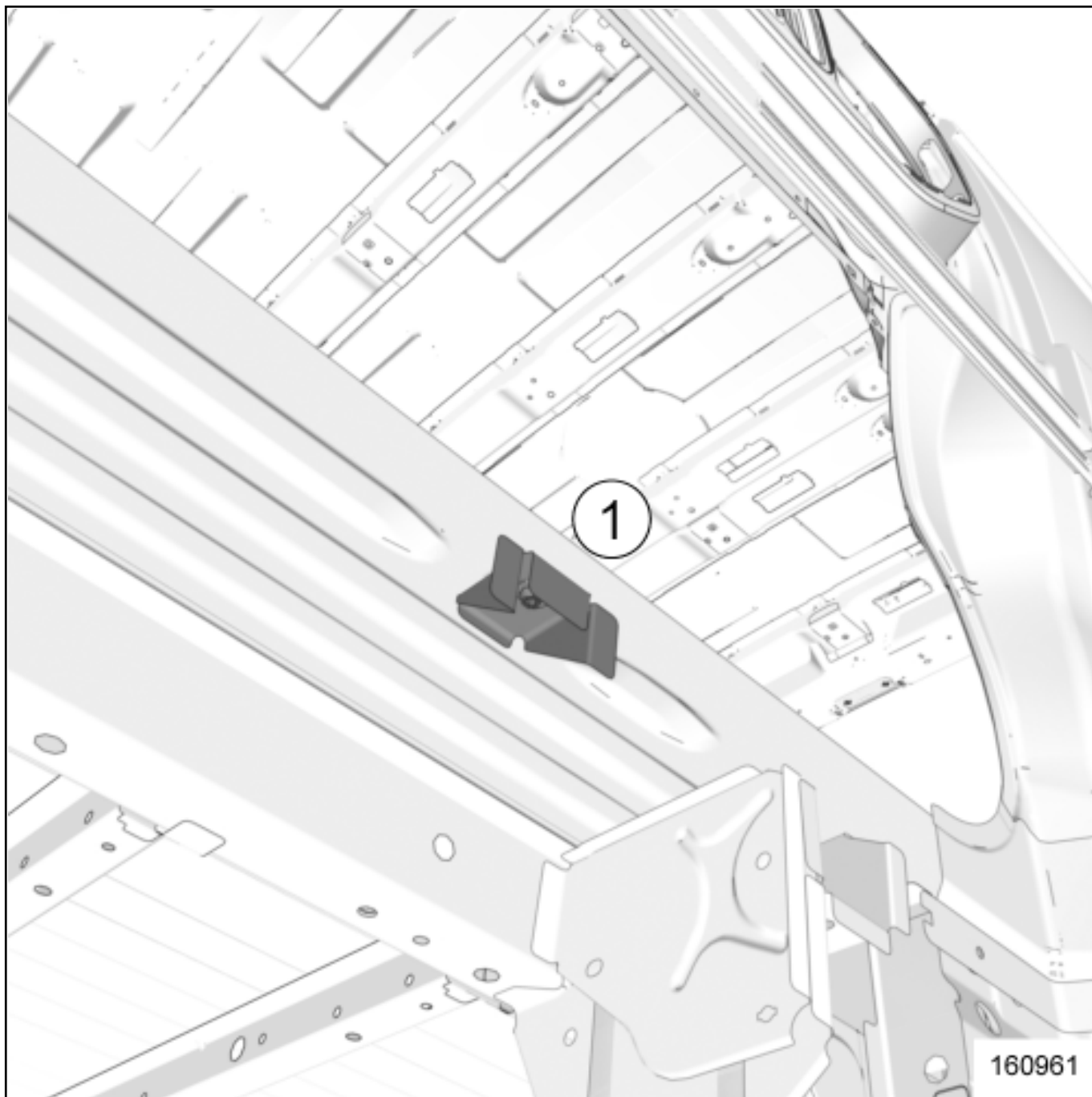
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x05x14-02x49-1-1-1.xml



REAR LIGHT UPPER TRIM: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

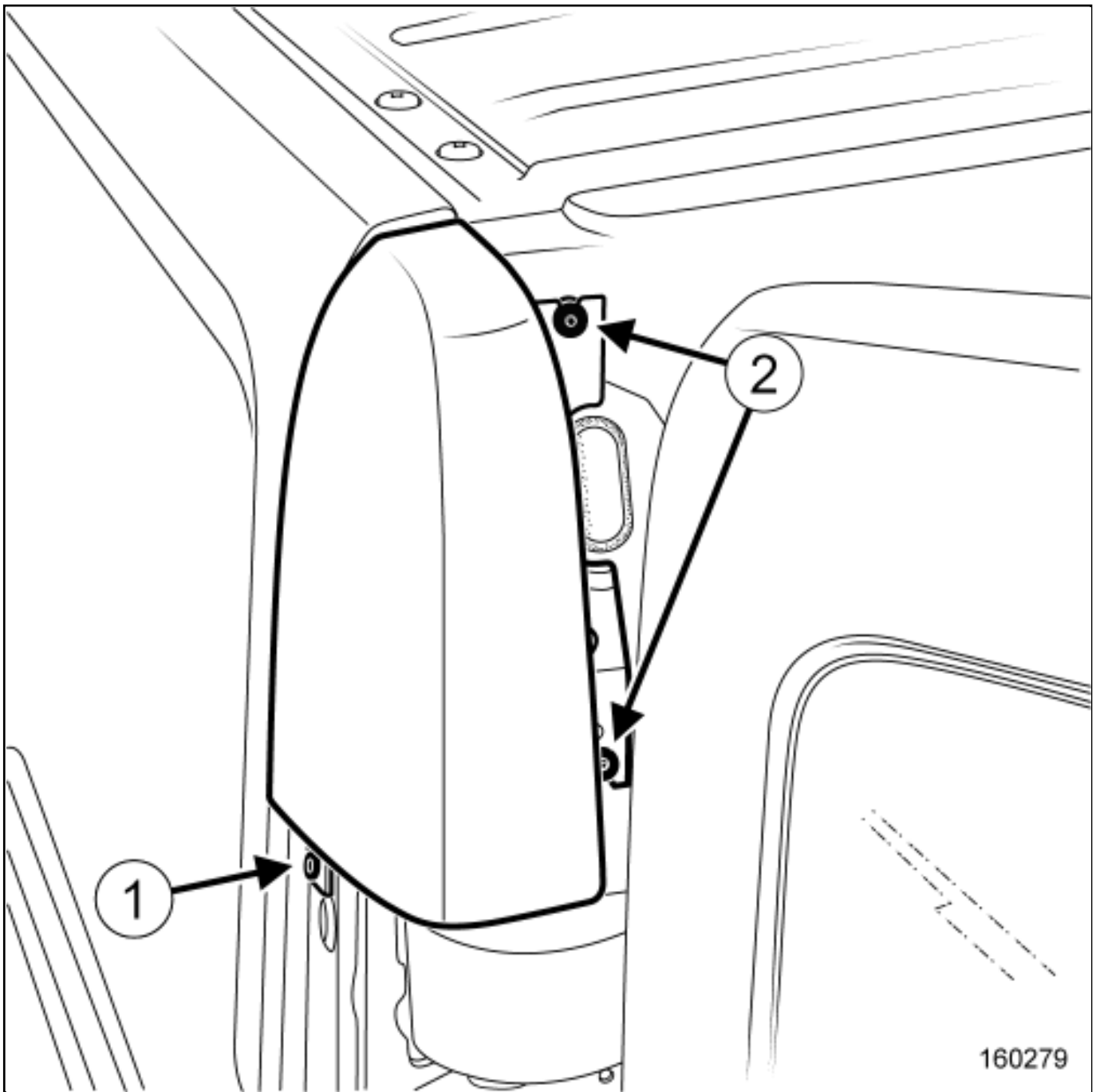
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the rear light on the wing [Exterior rear side opening element assembly: Exploded view](#) .

2. REMOVAL OPERATION



Remove:

- the rear light upper trim bolt(1) ,
- the rear light upper trim clips(2) ,
- the rear light upper trim.

REFITTING

- Proceed in the reverse order to removal.



REAR OPENING ELEMENT: ADJUSTMENT

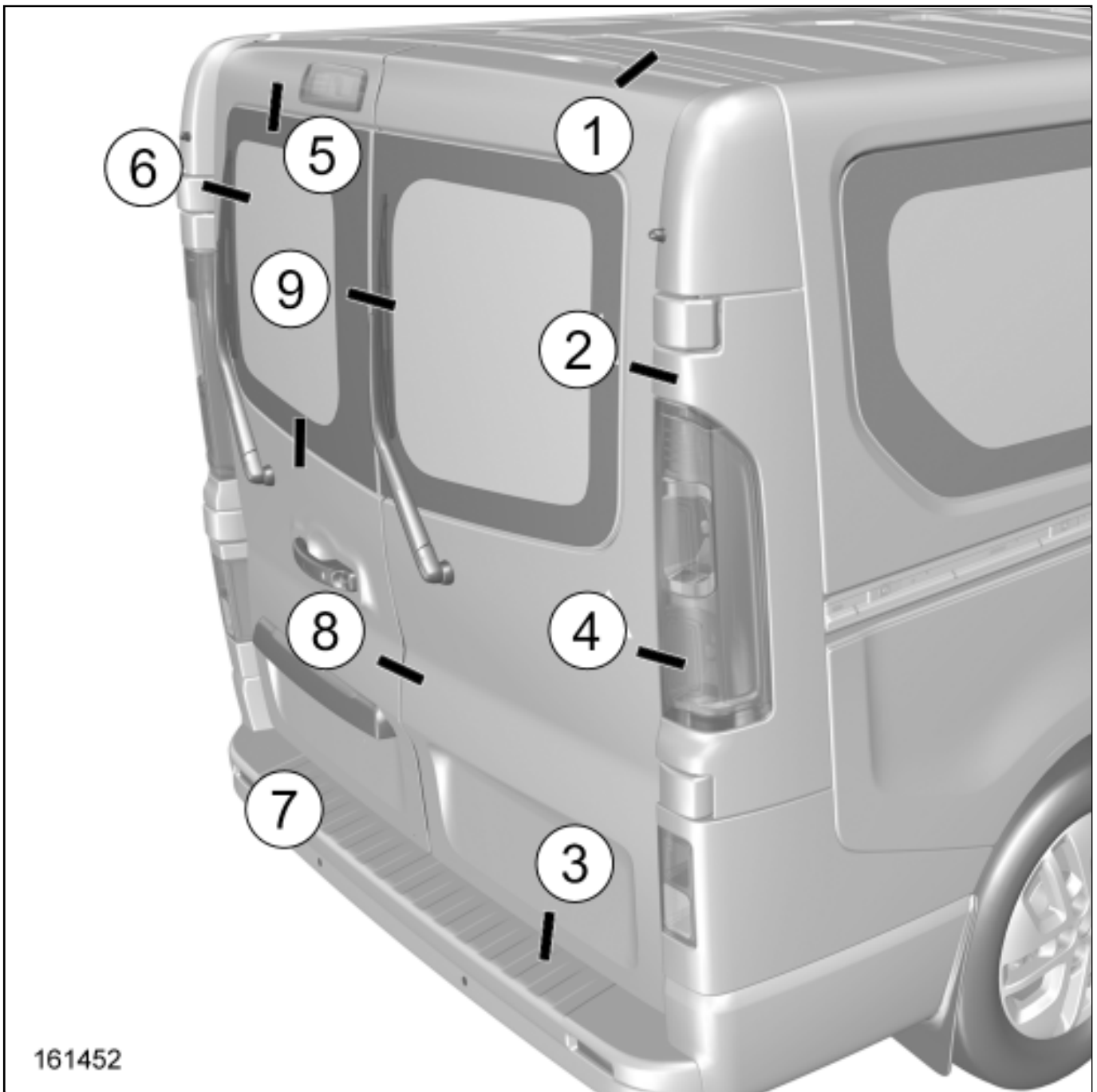
ADJUSTMENT VALUES

- For any information on the rear loading door adjustment values [Vehicle panel gaps: Adjustment value](#) .

ADJUSTMENT

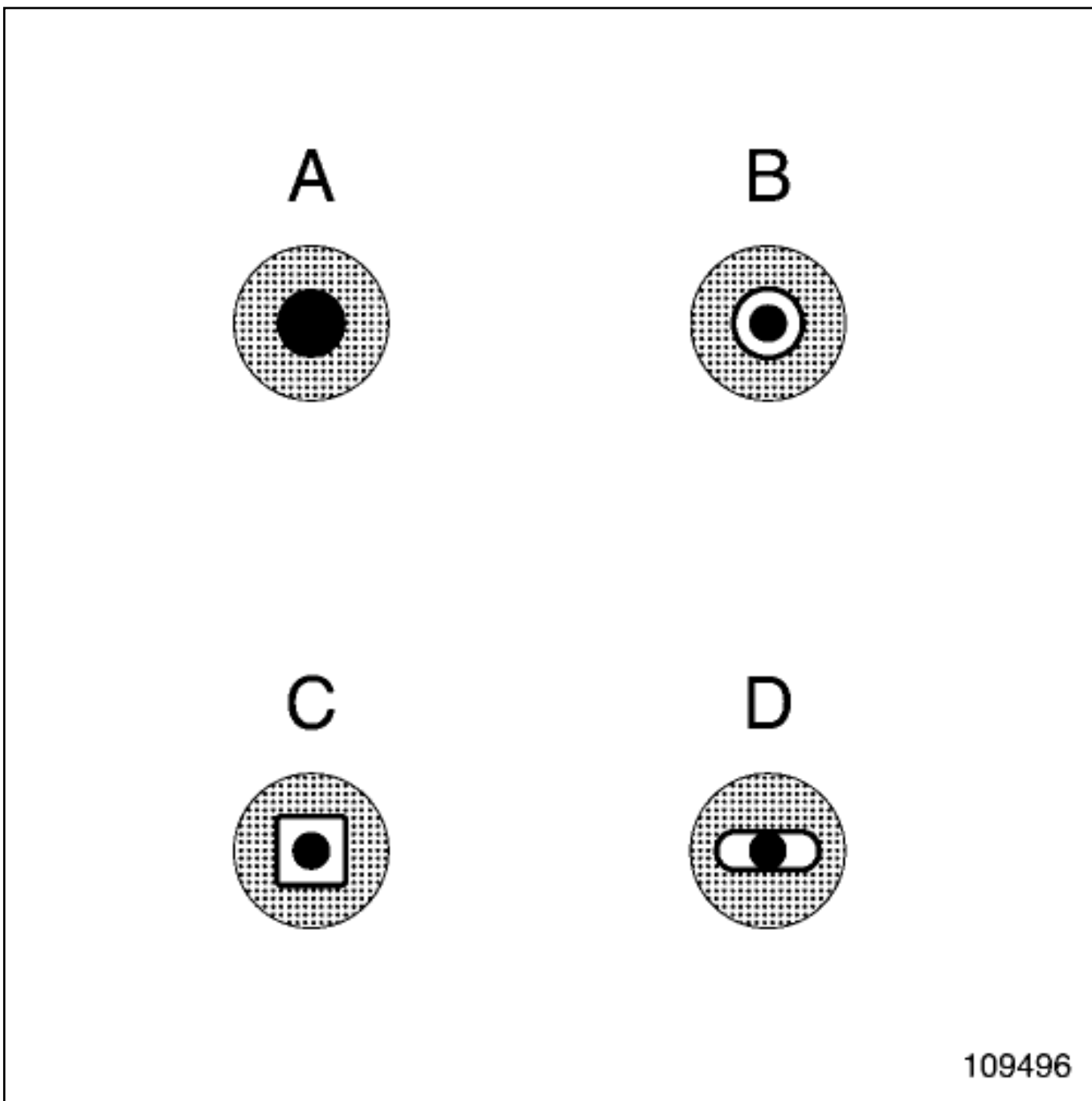
- The options for adjusting the rear loading door are as follows:

- via the hinge bolts on the rear loading door box section,
- via the hinge bolts on the body,
- via the upper and lower striker plate bolts,
- via the upper and lower lock bolts.



161452

■ Adjust both rear doors starting with the right-hand one and observe the following adjustment sequence: (1), (2), (3), (4), (5), (6), (7), (8) and (9).



109496

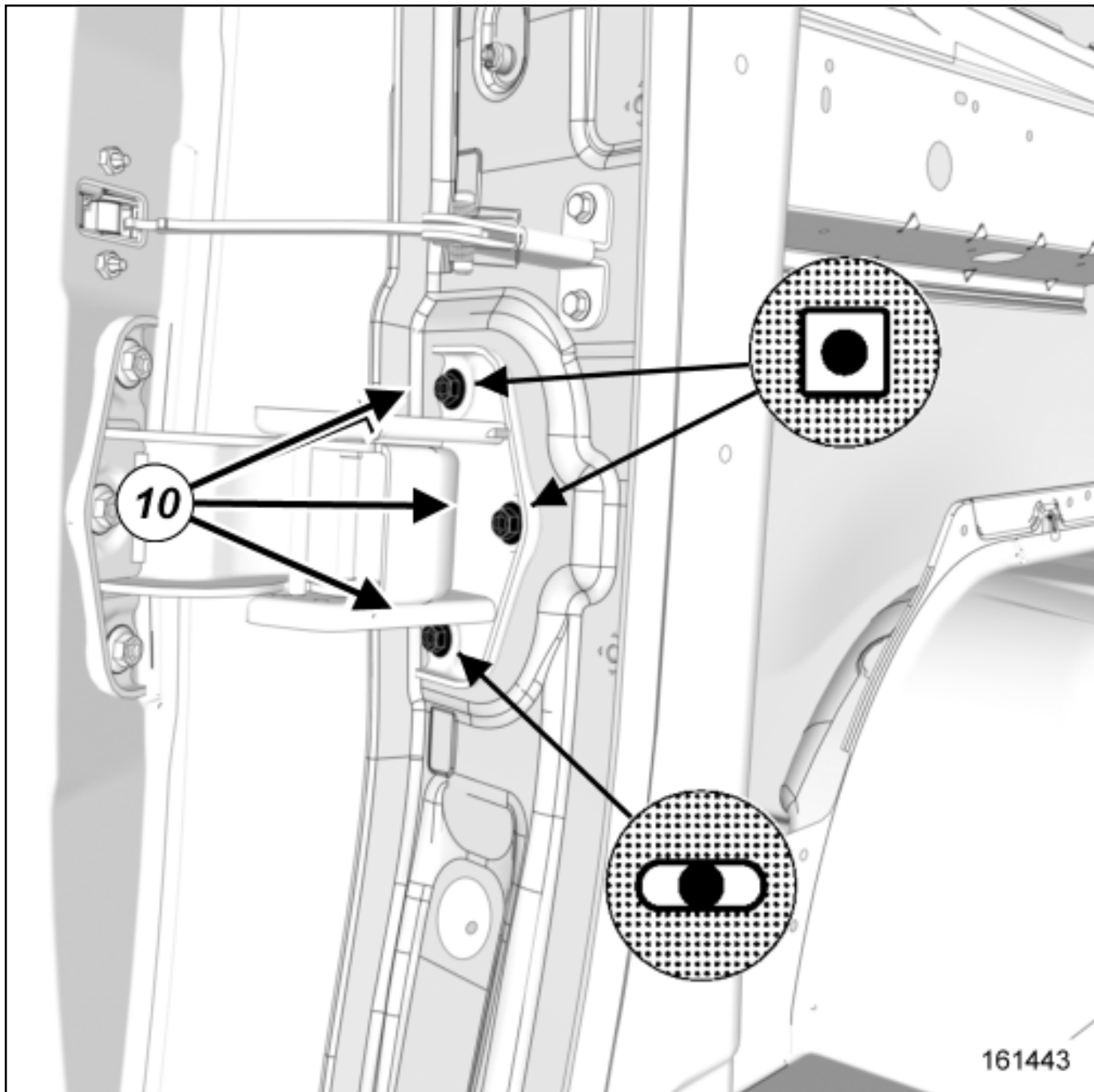
▣ Symbols A, B, C, D represent the adjustment options.

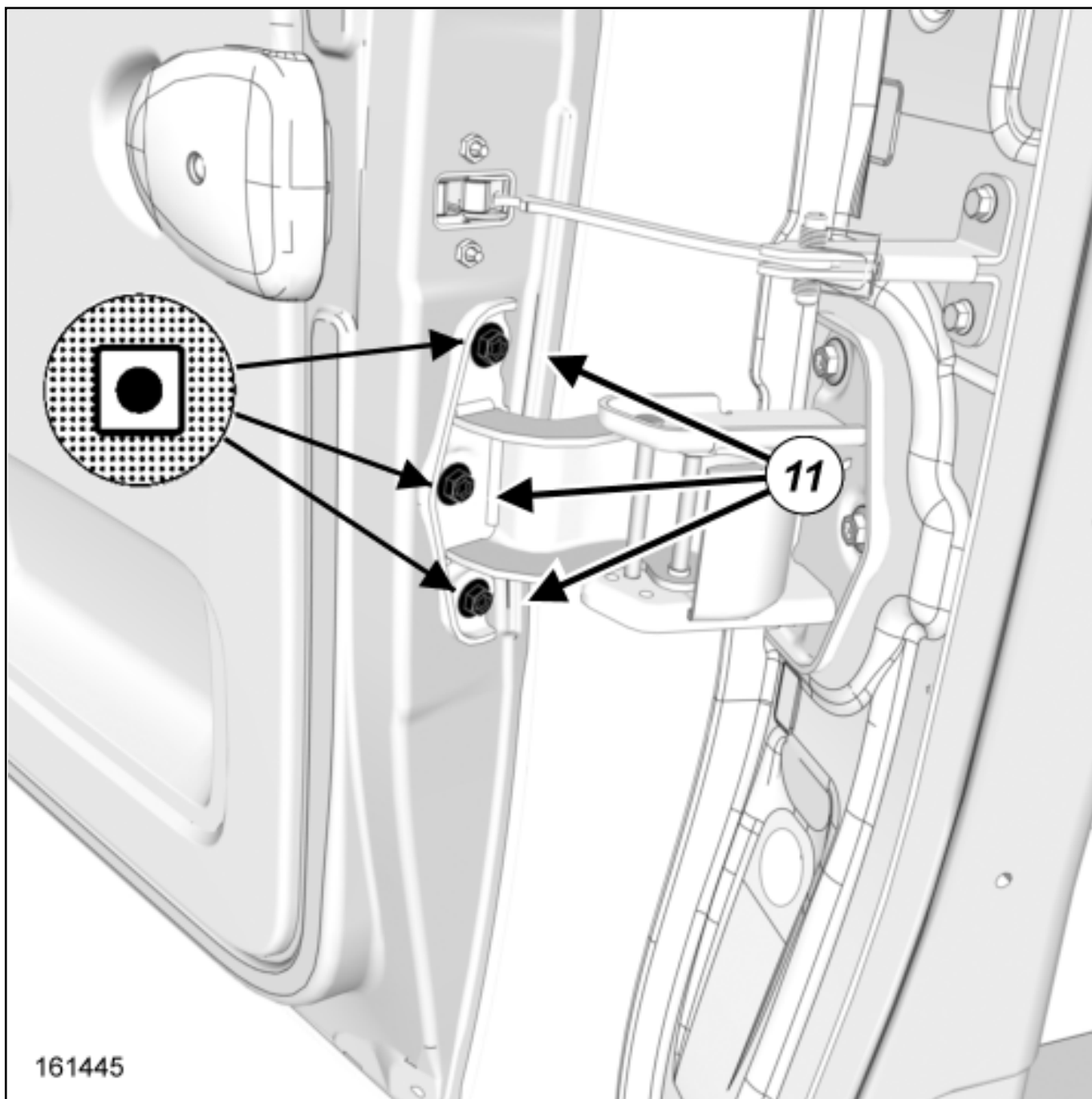
The black dot in the centre represents the body of the bolt.

The grey section represents the component to be adjusted.

The white section represents the adjustment area.

1. ADJUSTMENT USING THE HINGE BOLTS ON THE BODY AND ON THE DOOR BOX SECTION





Remove:

-
- the rear light on the wing [Rear signals - lighting assembly: Exploded view](#) ,
- the rear light upper trim [Rear light upper trim: Removal - Refitting](#) ,
- the rear bumper, centre section [Rear bumper assembly: Exploded view](#) ,
- the rear bumper, side section [Rear bumper assembly: Exploded view](#) .

Undo:

- the rear loading door hinge bolts on the body(10) (upper and lower sections),
- the rear loading door hinge bolts on the door box section(11) (upper and lower section).

Adjust the panel gaps and flush fitting of the rear opening element.

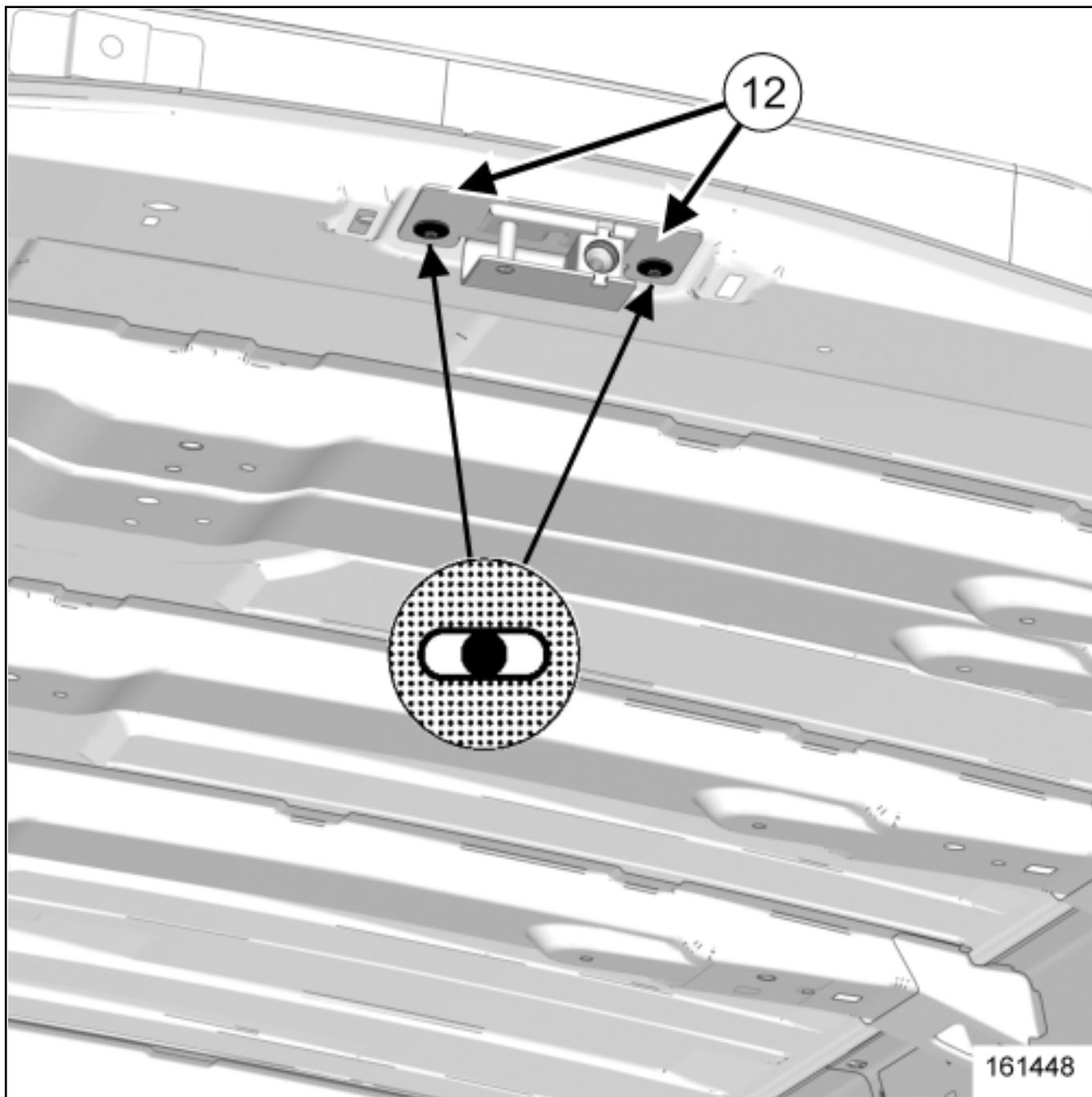
Torque tighten the rear opening element bolts 28 Nm .

Refit:

- the rear bumper, side section [Rear bumper assembly: Exploded view](#) ,
- the rear bumper, centre section [Rear bumper assembly: Exploded view](#) ,
- the rear light upper trim [Rear light upper trim: Removal - Refitting](#) ,
- the rear light on the wing [Rear signals - lighting assembly: Exploded view](#) .

2. ADJUSTMENT VIA THE STRIKER PLATE BOLT

UPPER SECTION

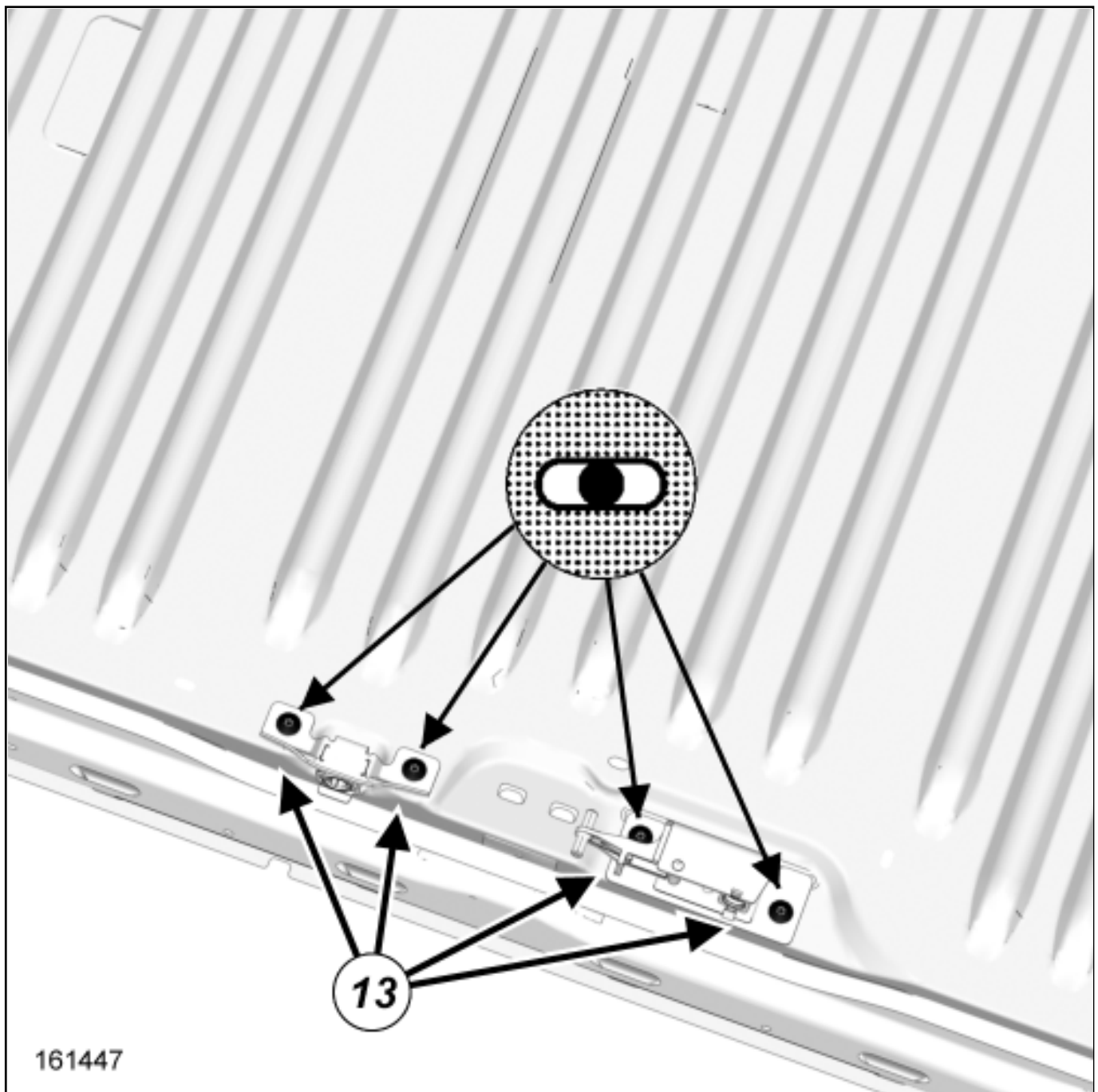


- Undo the upper striker plate bolts(12) .

- Adjust the flush fitting.

- Tighten the upper striker plate bolt.

LOWER SECTION



Remove the loading door sill.

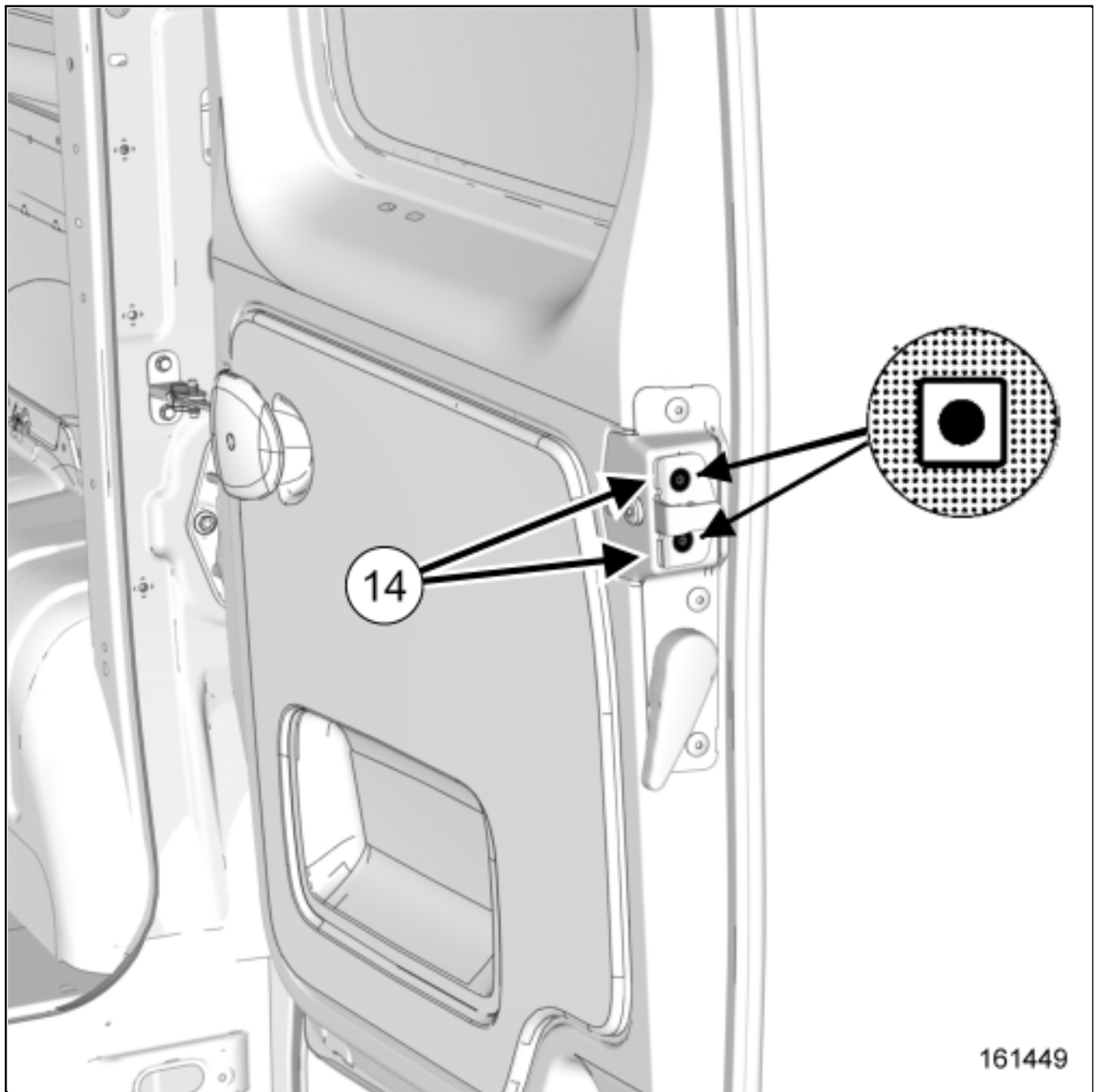
Undo the lower striker plate bolts(13) .

Adjust the flush fitting.

Tighten the lower striker plate bolts.

Refit the loading door sill.

CENTRAL SECTION



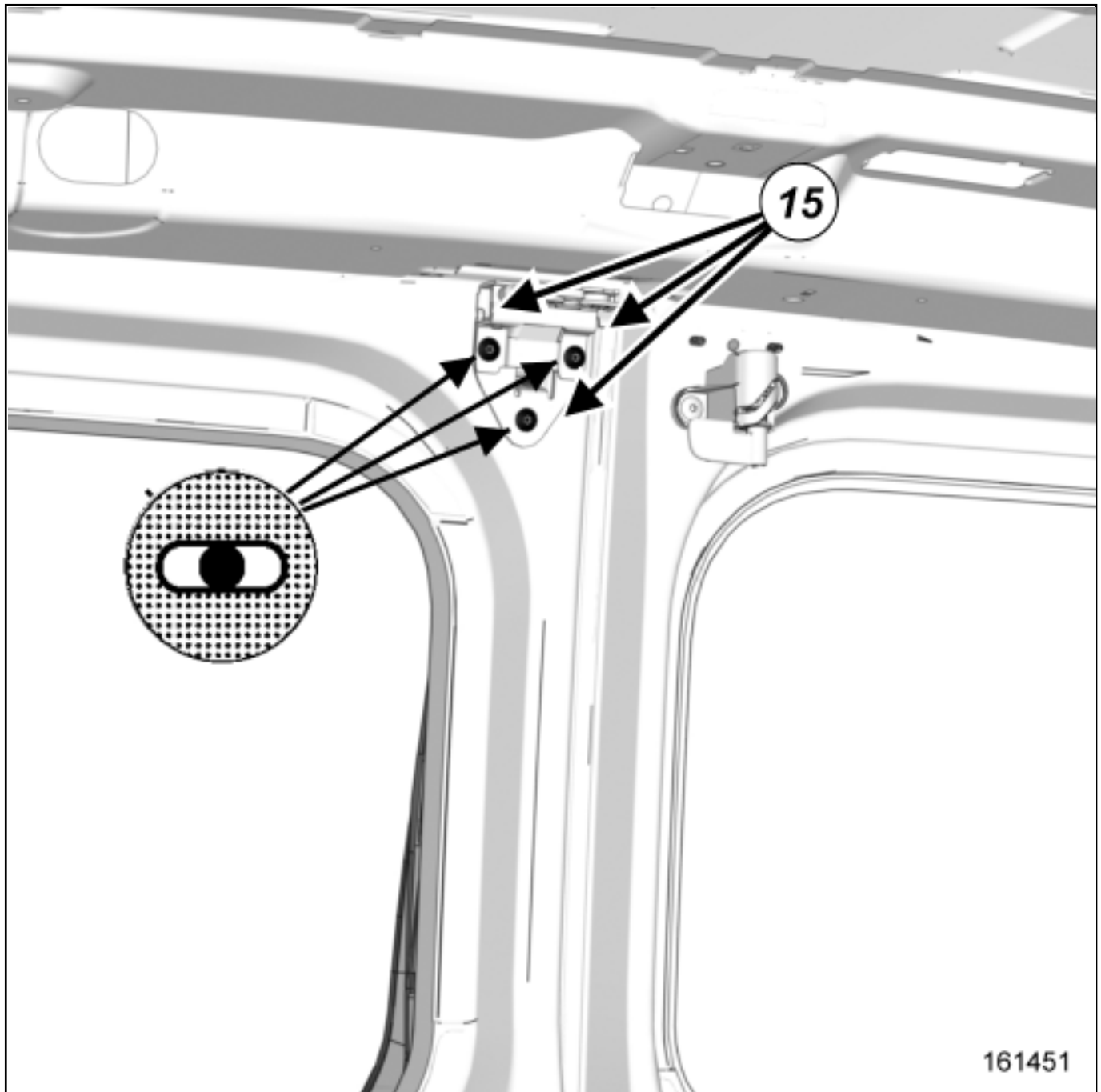
Undo the central striker plate bolts(14) .

Adjust the doors until they are flush with one another.

Tighten the central striker plate bolts.

3. ADJUSTING VIA THE LOCK BOLTS

UPPER SECTION

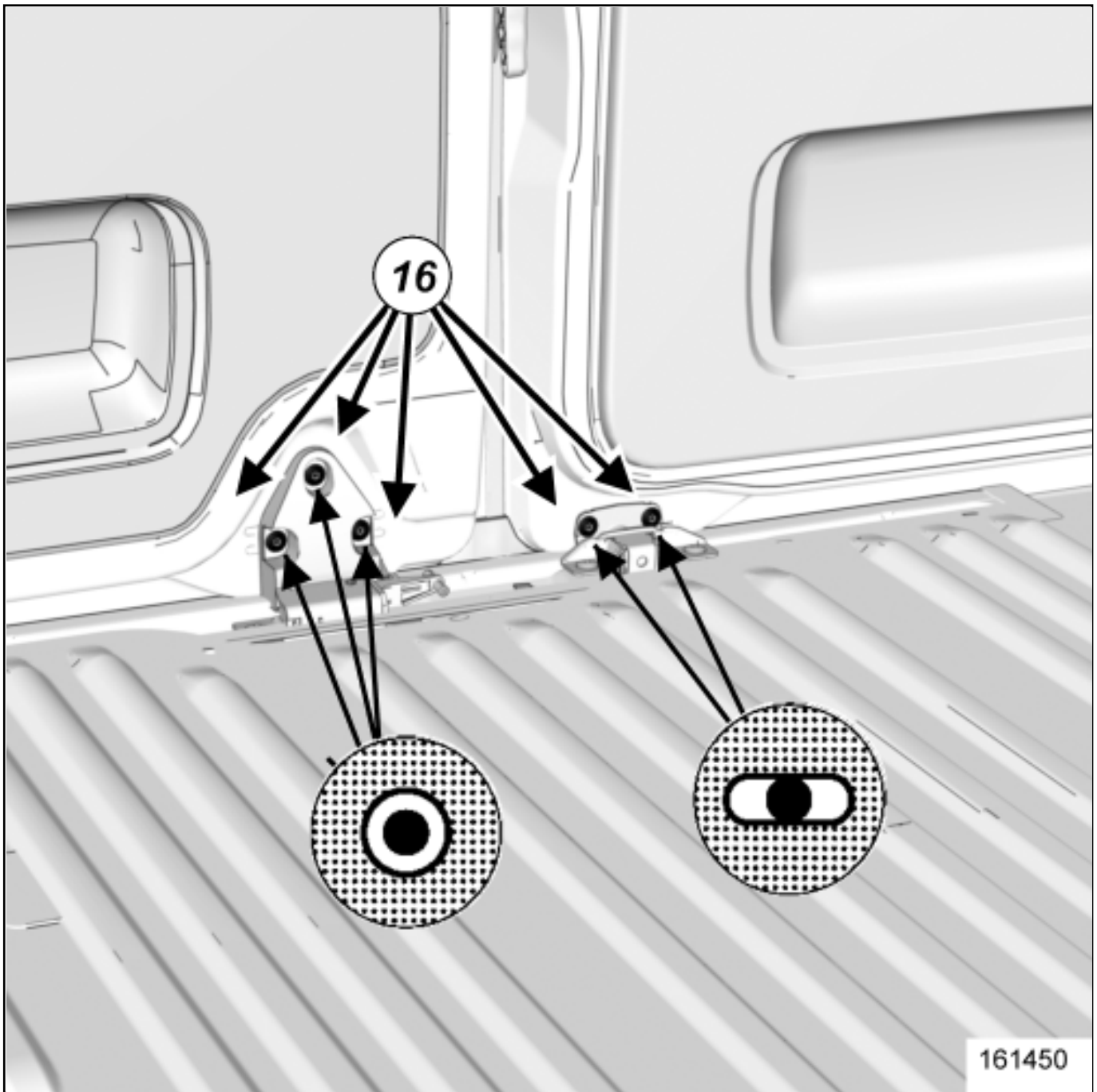


Undo the upper lock bolts(15) .

Adjust the flush fitting.

Tighten the lock bolts.

LOWER SECTION



Undo the lower lock bolts(16) .

Adjust the flush fitting.

Tighten the lock bolts.



Repair-40x10x25x01-01x67-1-12-1.xml



XSL version : 3.02 du 22/07/11

REAR OPENING ELEMENT: REMOVAL - REFITTING

- This operation can be carried out in two ways:
 - removal without hinges: used when replacing the door.
 - removal with hinges: allows the initial adjustments to be kept.

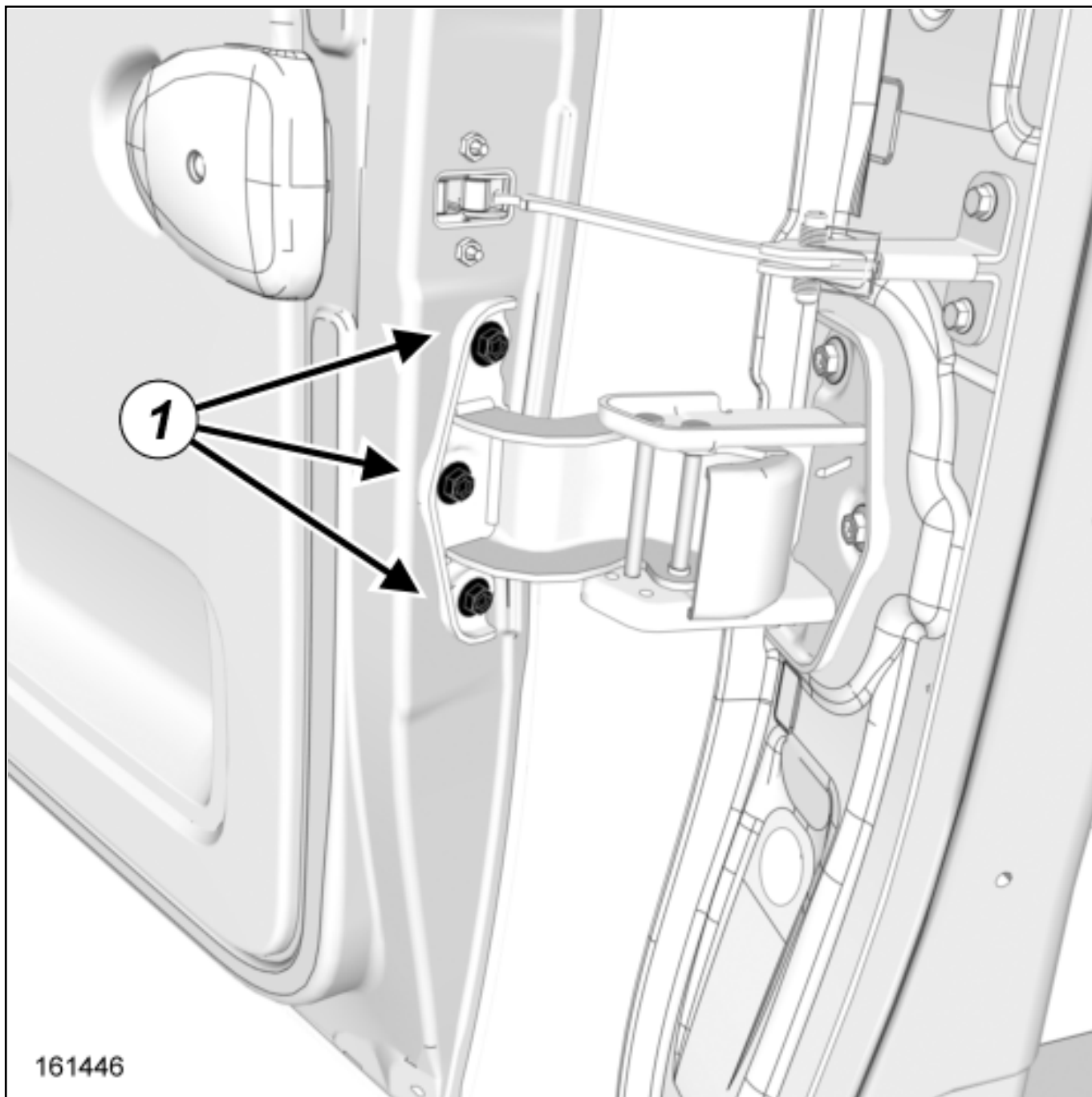
1. REMOVAL WITHOUT THE HINGES

1- REMOVAL PREPARATION OPERATION

1) REAR LEFT-HAND LOADING DOOR AND GLAZED VERSION OF THE REAR RIGHT-HAND LOADING DOOR

- Remove rear end pillar upper trim [Interior body side trim assembly: Exploded view](#) .
- Disconnect the rear opening element wiring connector.
- Extract the protector of the rear opening element wiring on the rear end pillar.

2- REMOVAL OPERATION



161446

■ Remove:

- the upper and lower bolts(1) ,
- the rear opening element (this operation requires two people).

2. REFITTING WITHOUT HINGES

■ Proceed in the reverse order to removal.

■ Adjust the rear opening element([see 48A, Non-side opening elements, Rear opening element: Adjustment](#)) .

- Torque tighten the rear opening element bolts 28 N.m.

3. REMOVAL WITH HINGES

1- REMOVAL PREPARATION OPERATION

- Remove:

- the rear light on the wing [Rear signals - lighting assembly: Exploded view](#) ,
- the rear light upper trim [Rear light upper trim: Removal - Refitting](#) ,
- the rear bumper, centre section [Rear bumper assembly: Exploded view](#) ,
- the rear bumper, side section [Rear bumper assembly: Exploded view](#) .

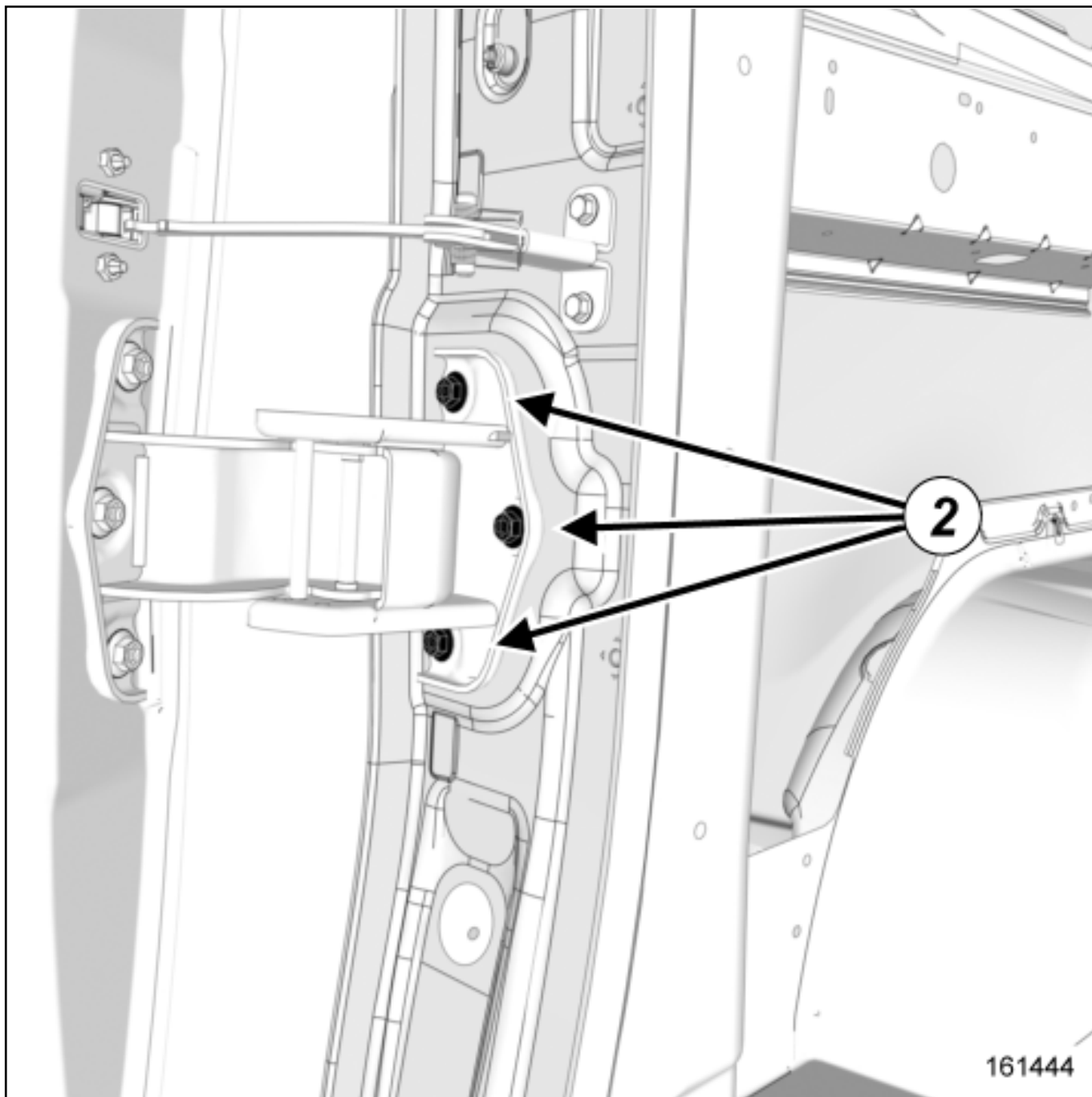
1) REAR LEFT-HAND LOADING DOOR AND GLAZED VERSION OF THE REAR RIGHT-HAND LOADING DOOR

- Remove the rear end pillar upper trim [Interior body side trim assembly: Exploded view](#) .

- Disconnect the rear opening element wiring connector.

- Extract the protector of the rear opening element wiring on the rear end pillar.

2- REMOVAL OPERATION



161444

- Remove:
 - the upper and lower bolts(2) ,
 - the rear loading door (this operation requires two people).

4. REFITTING WITH HINGES

- Proceed in the reverse order to removal.
- Adjust the rear opening element([see 48A, Non-side opening elements, Rear opening element: Adjustment](#)) .

Torque tighten the rear opening element hinge bolts 28 N.m.



Note:

In the event of replacement or repairing the rear opening element, verify the presence of the security label and replace it if necessary.



Repair-40x10x25x01-01x37-1-11-1.xml



XSL version : 3.02 du 22/07/11

REAR ROOF: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Rear roof	Mild steel	0.75

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



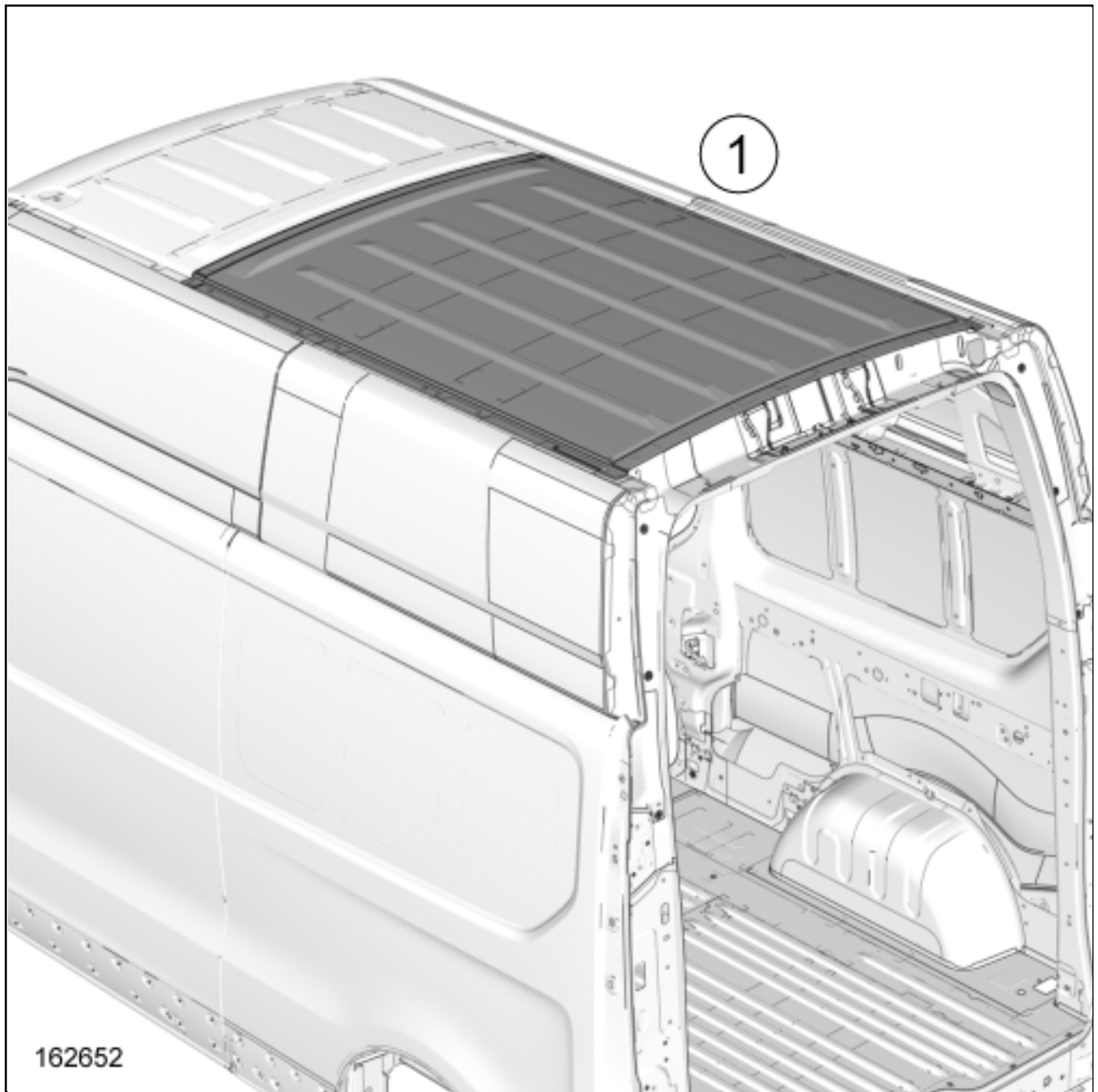
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

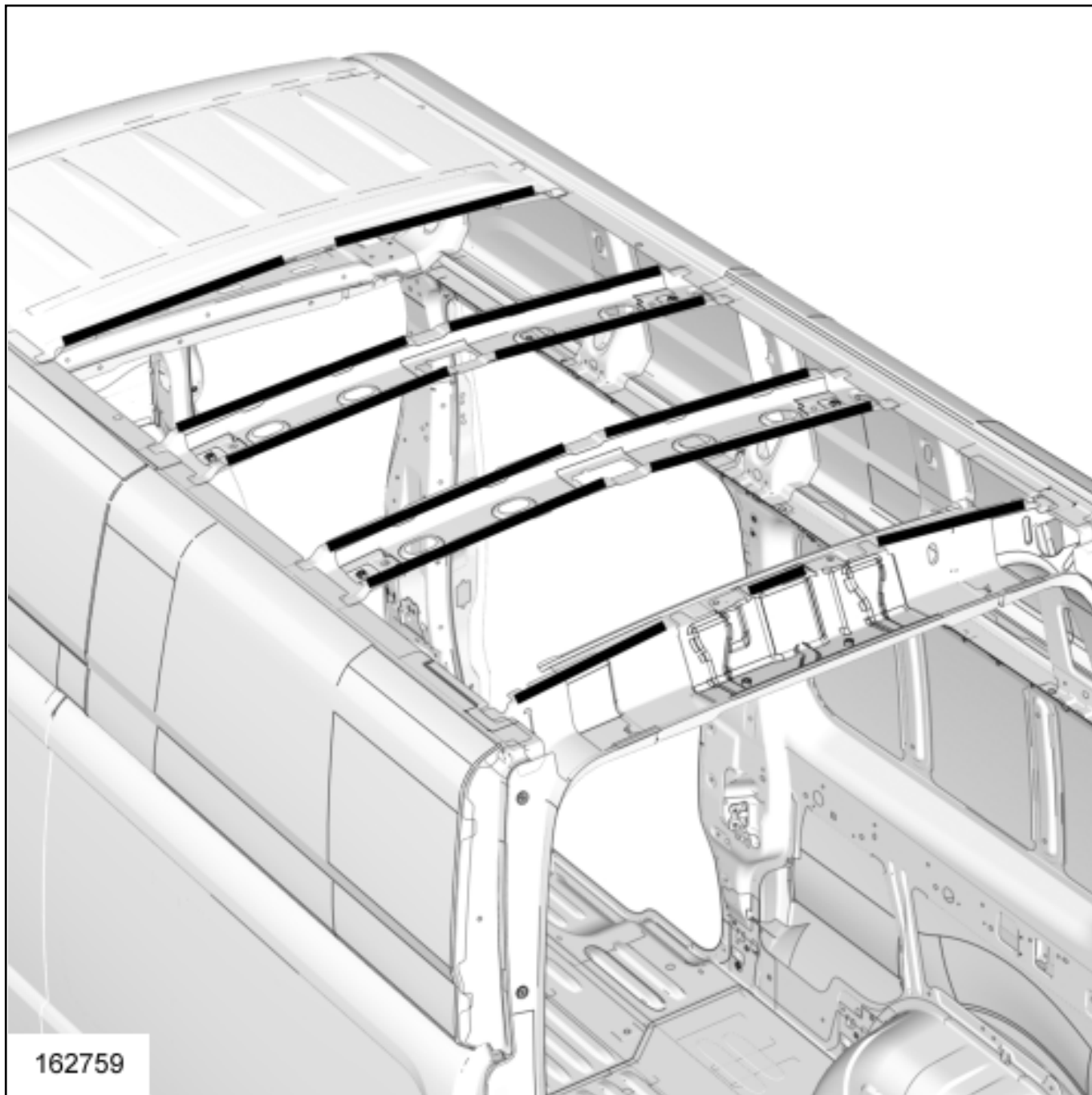
Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



2) BONDING AREA



Repair-40x07x08-02x49-1-3-1.xml

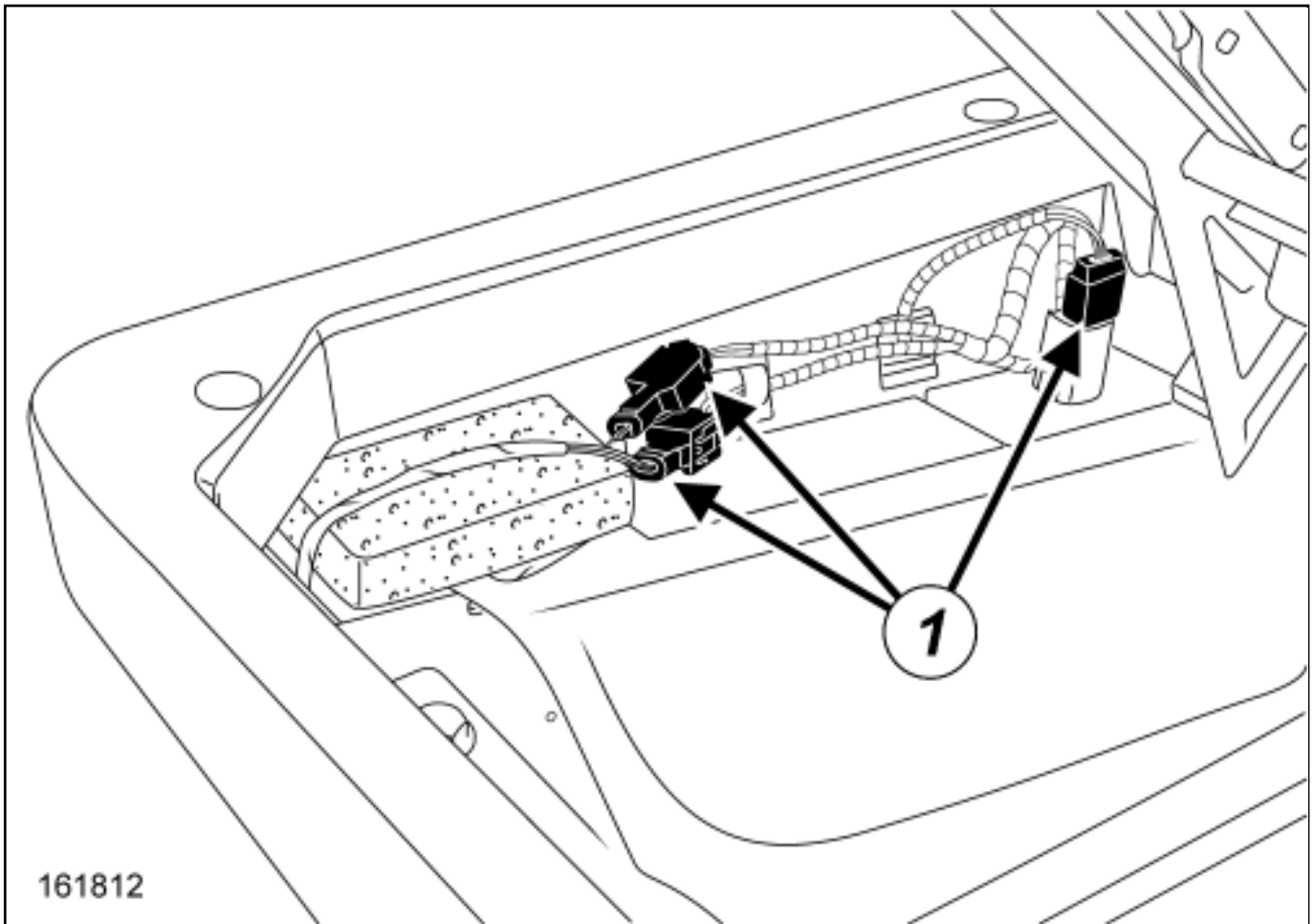


REAR SEAT BASE INTERIOR CASING: REMOVAL - REFITTING

REMOVAL

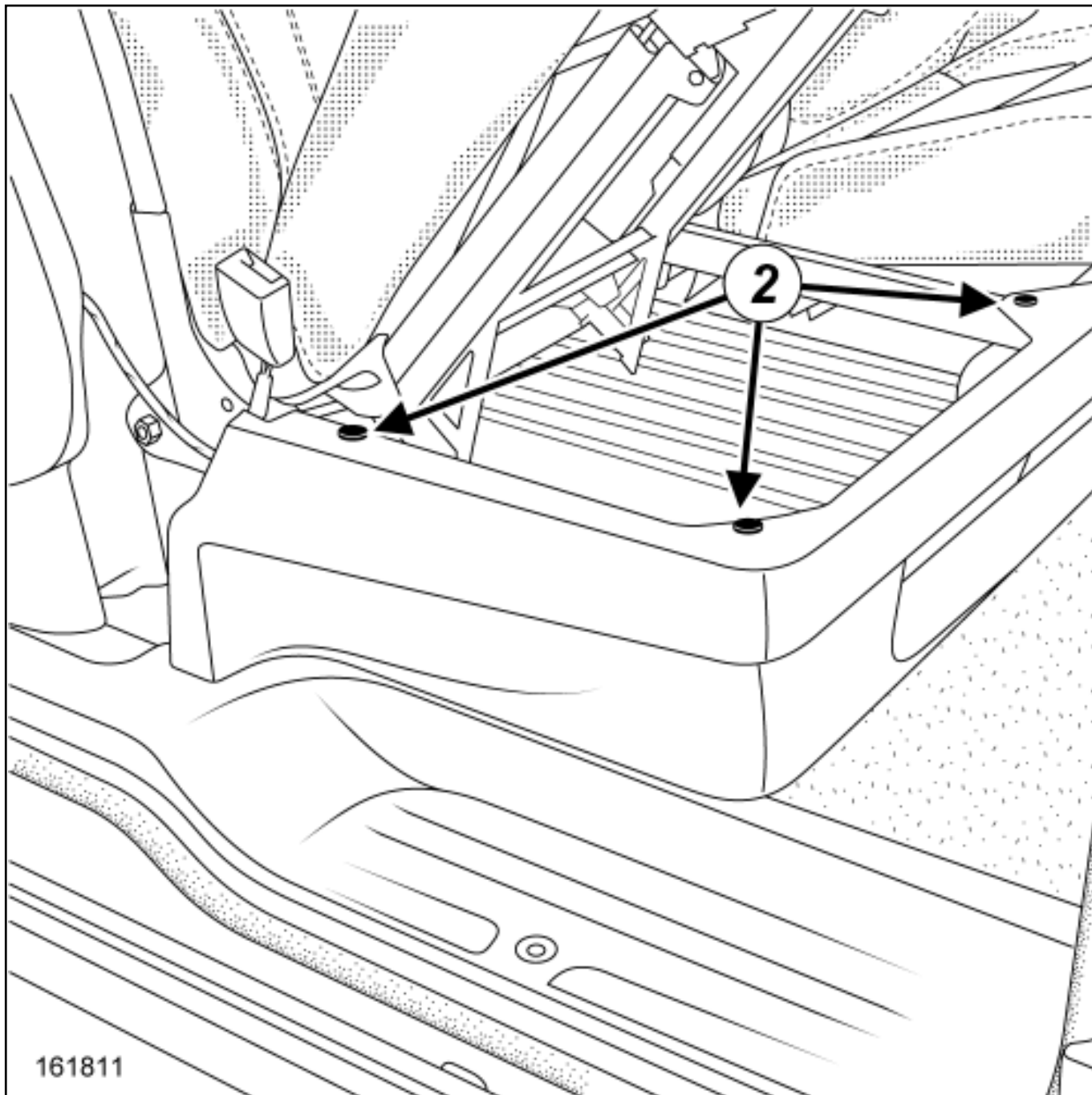
1. REMOVAL OPERATION PREPARATION

- Partially remove the rear bench seat base [Rear seat base trim: Removal - Refitting](#) .

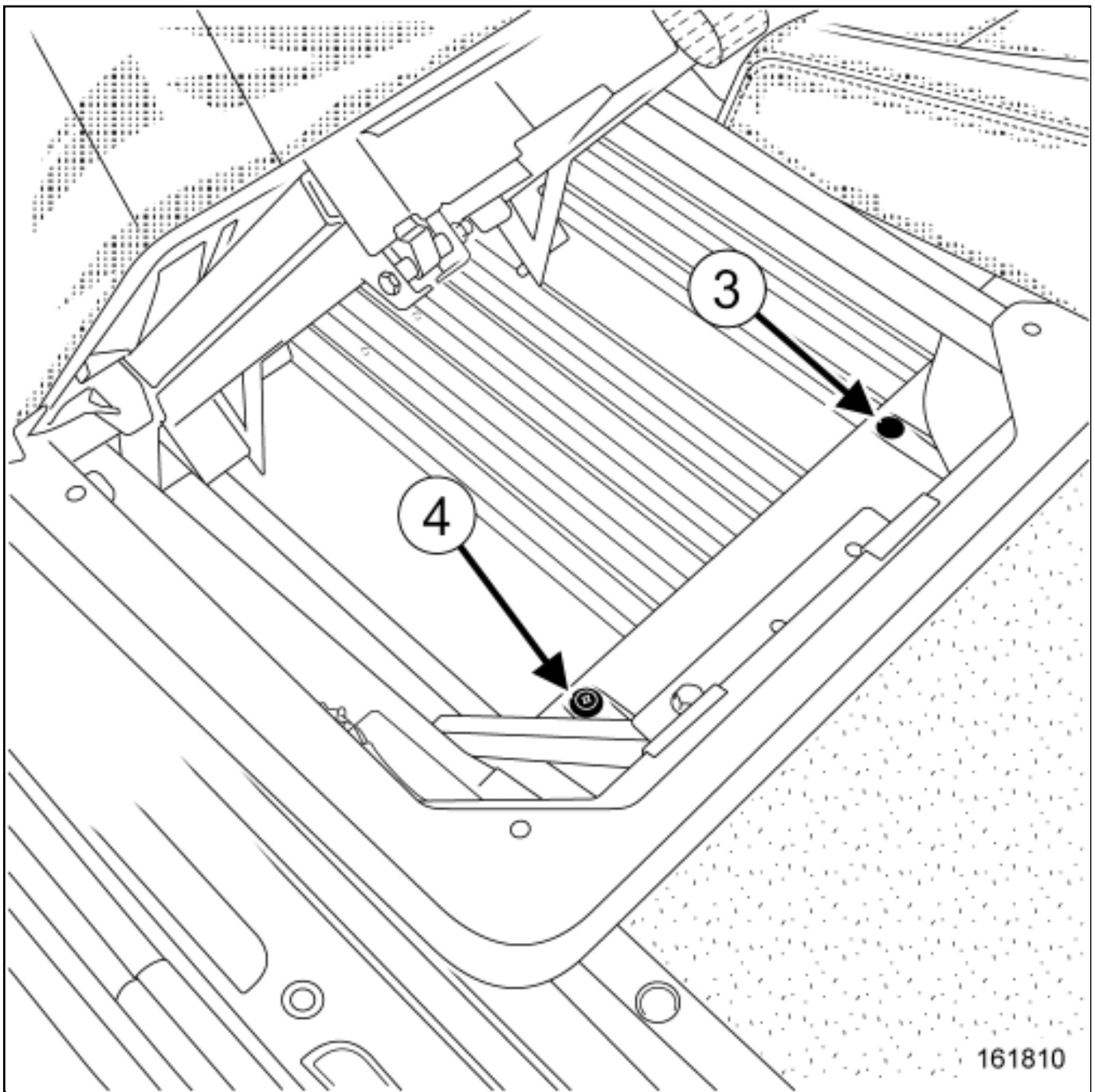


- Disconnect the wiring connectors(1) .

2. REMOVAL OPERATION



Remove the clips(2) .



161810

- Remove the clip(3) .

- Drill out the rivets(4) .

- Remove the rear seat base interior casing.

1. REFITTING PREPARATION OPERATION



Systematic spare part : rear seat base interior casing rivets.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-70x14x04x04-01x37-1-1-1.xml



XSL version : 3.02 du 22/07/11

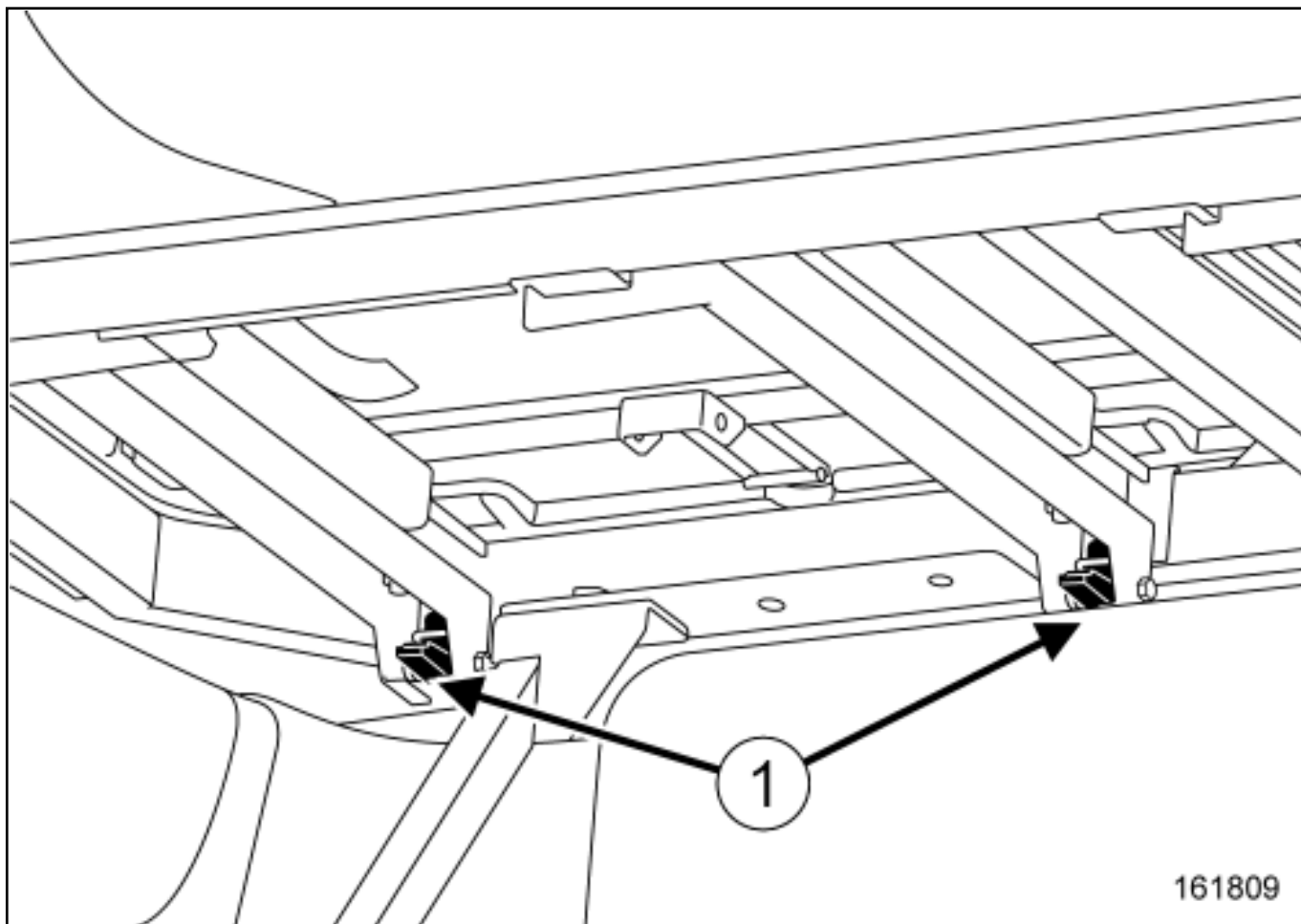
REAR SEAT BASE TRIM: REMOVAL - REFITTING

REMOVAL

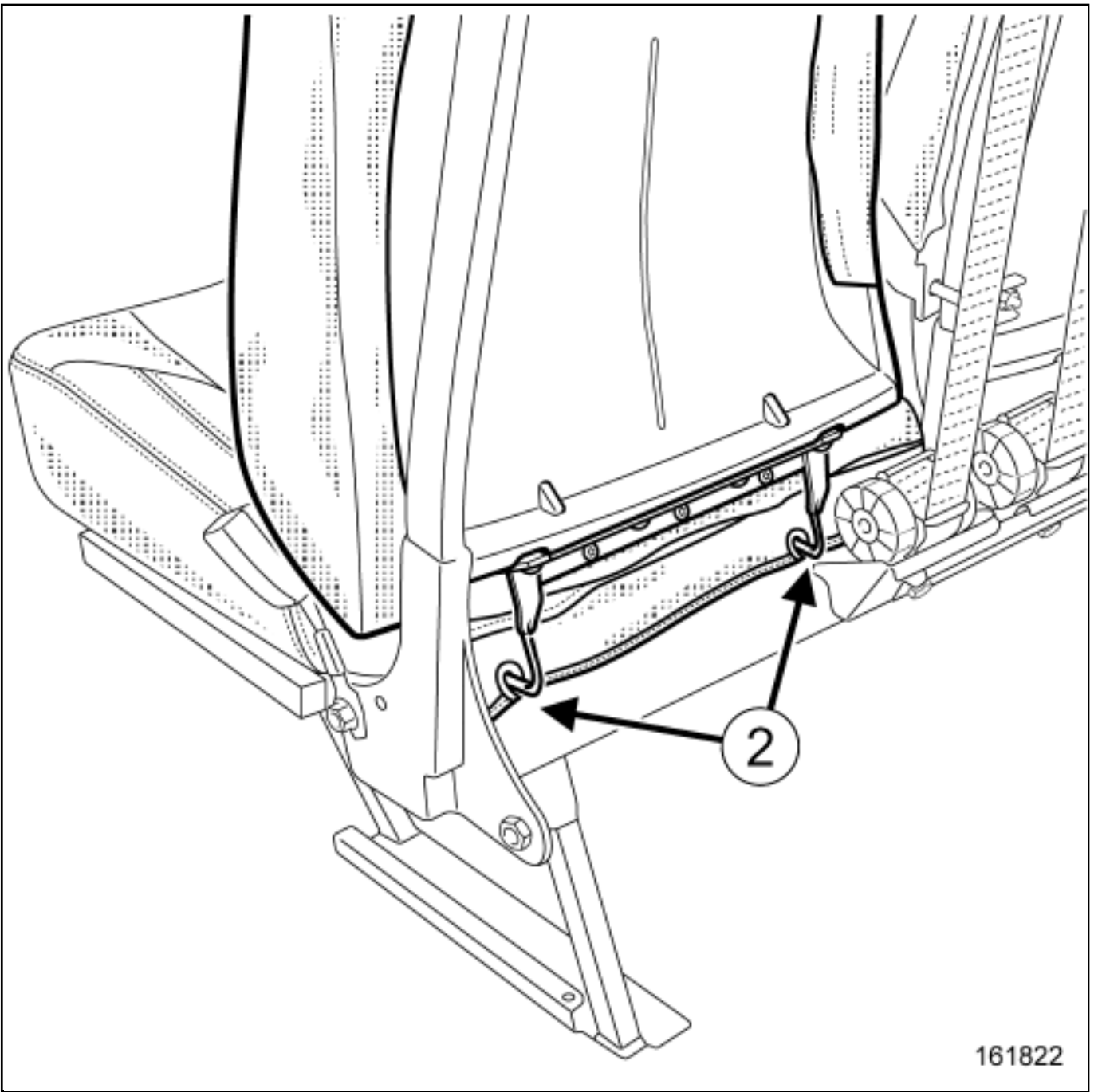
1. REMOVAL OPERATION PREPARATION

Remove:

- the crew cab partition [Crew cab partition: Removal - Refitting](#) ,
- the complete rear seat [Complete rear seat: Removal - Refitting](#) .



Push the pins(1) and unlock the seat base.

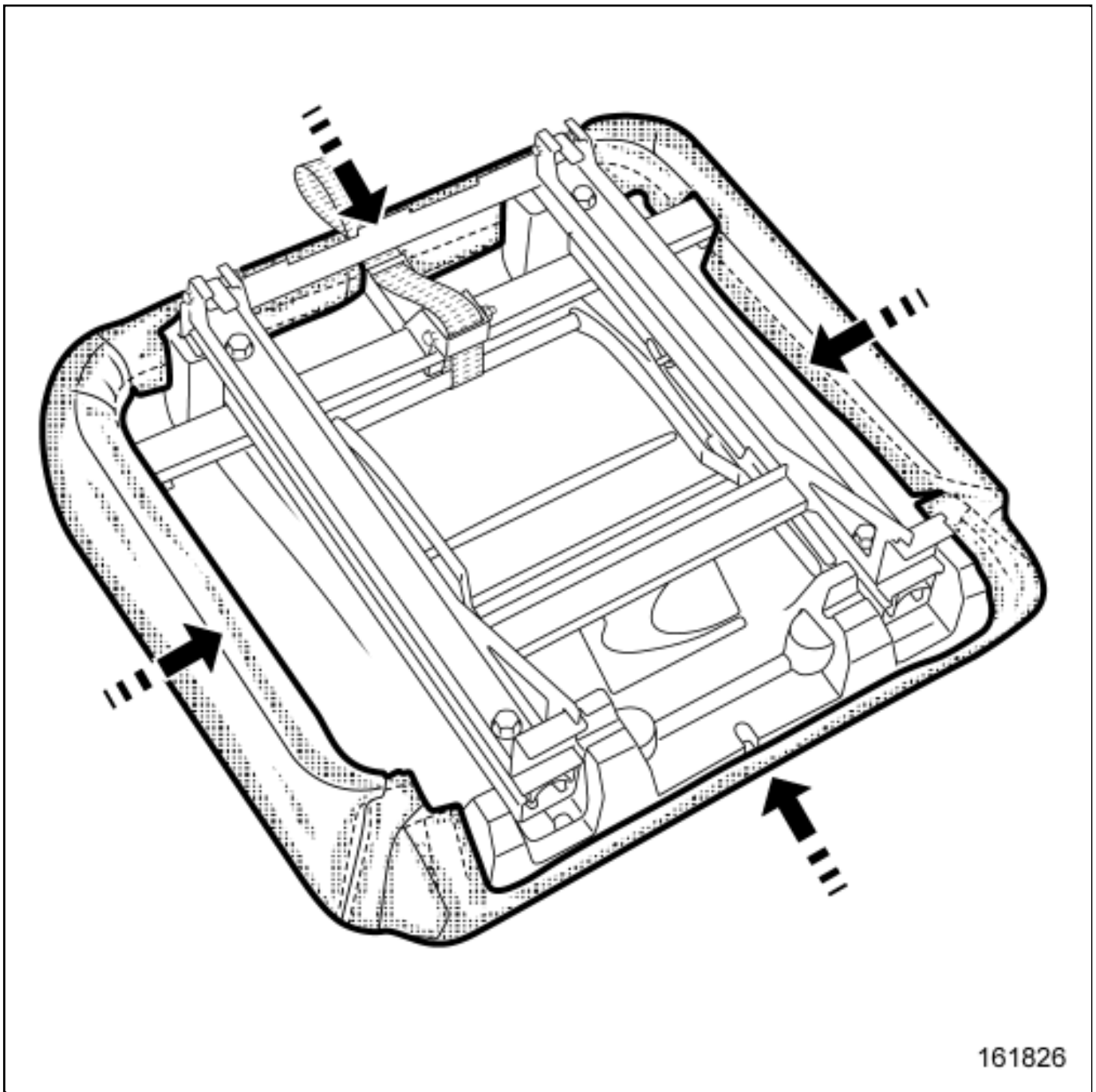


161822

■ Unclip the seatbase from the hooks(2) .

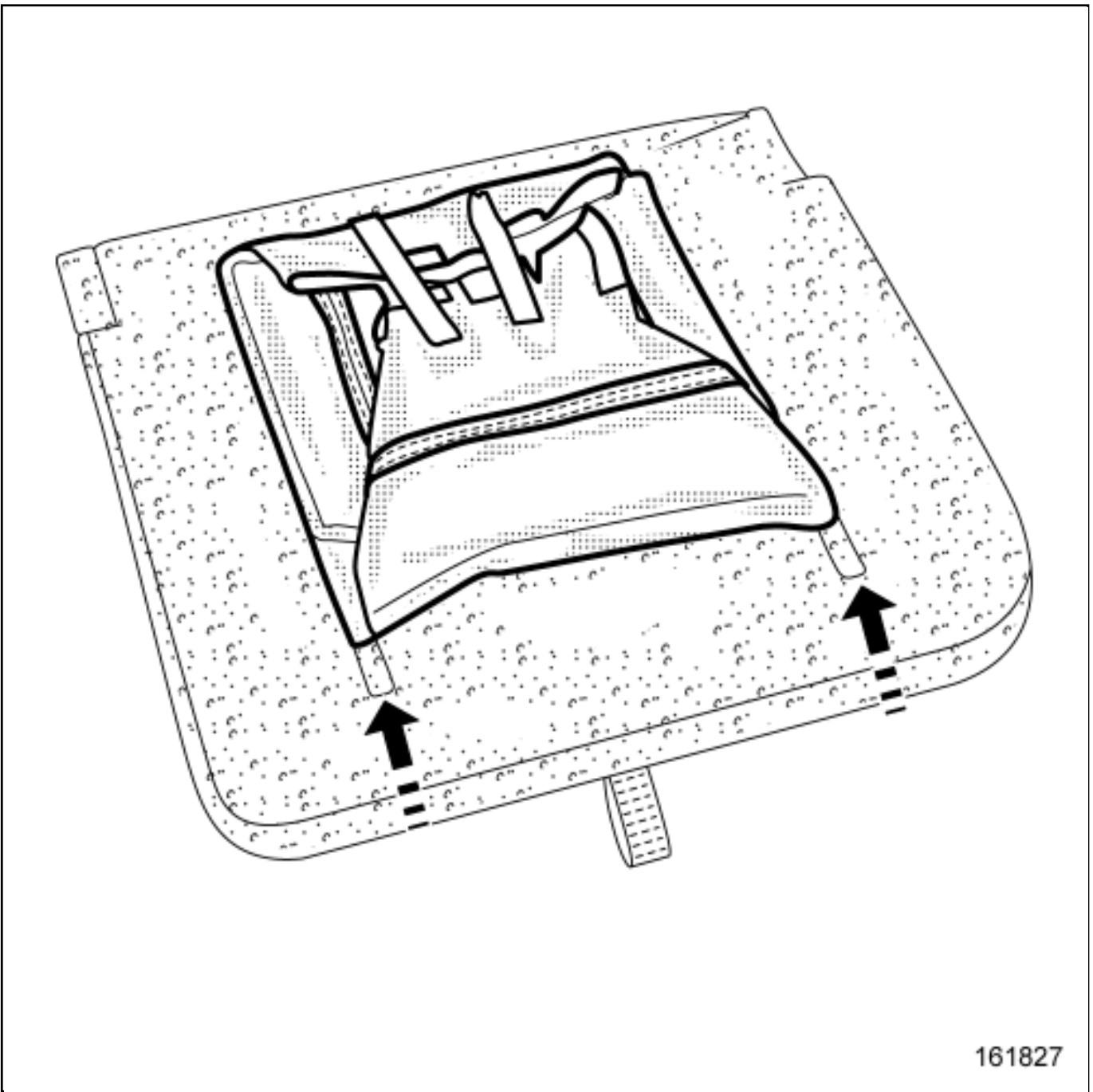
■ Remove the seat base.

2. REMOVAL OPERATION



161826

■ Detach the seat base trim around the contour.



161827

■ Detach the seat base trim along the indicated lines.

■ Remove the seat base trim.

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-70x16x02x02-01x37-1-17-1.xml



XSL version : 3.02 du 22/07/11

REAR SEAT FRAME: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

- Remove:
 - the crew cab partition [Crew cab partition: Removal - Refitting](#) ,
 - the complete rear seat ([see 76A, Rear seat frames and mechanisms, Complete rear seat: Removal - Refitting](#)) ,
 - the rear seat base trim [Rear seat base trim: Removal - Refitting](#) ,
 - the rear seatback trim [Rear seatback trim: Removal - Refitting](#) ,
 - the rear central armrest [Rear centre armrest: Removal - Refitting](#) ,
 - the rear centre seat belt [Rear centre seat belt: Removal - Refitting](#) ,
 - the rear side seat belt [Rear side seat belt: Removal - Refitting](#) .

2. REMOVAL OPERATION

- Remove the rear seat frame.

REFITTING

1. REFITTING OPERATION

- Proceed in the reverse order to removal.

2. FINAL OPERATION

- Torque tighten the rear seat bolts 62 N.m.



Repair-70x14x02-01x37-1-6-1.xml



XSL version : 3.02 du 22/07/11

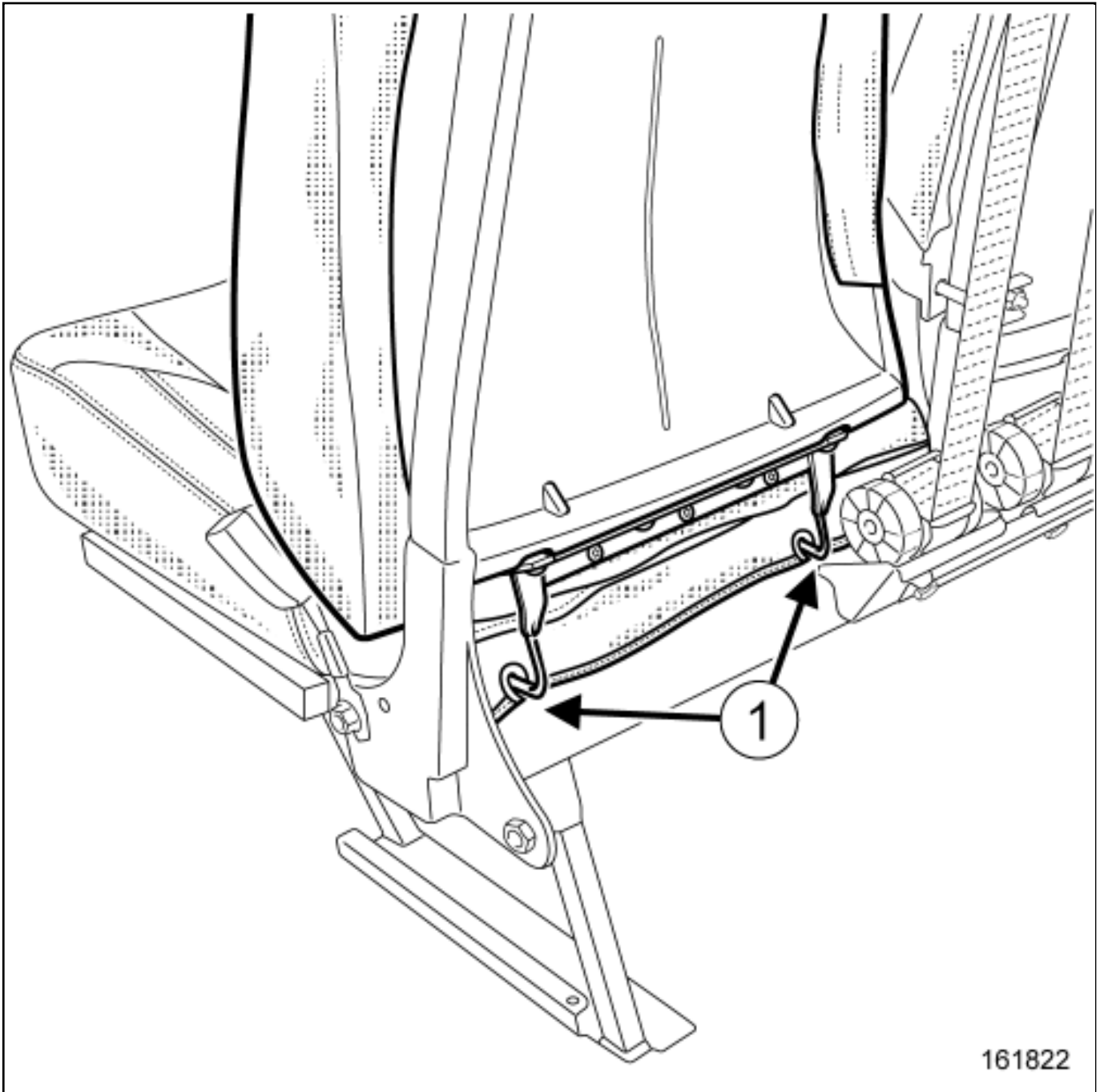
REAR SEATBACK TRIM: REMOVAL - REFITTING

REMOVAL

1. REMOVAL OPERATION PREPARATION

Remove:

- the crew cab partition [Crew cab partition: Removal - Refitting](#) ,
- the complete rear seat [Complete rear seat: Removal - Refitting](#) ,
- the rear bench seat headrest guides [Rear bench seat headrest guide: Removal - Refitting](#) .

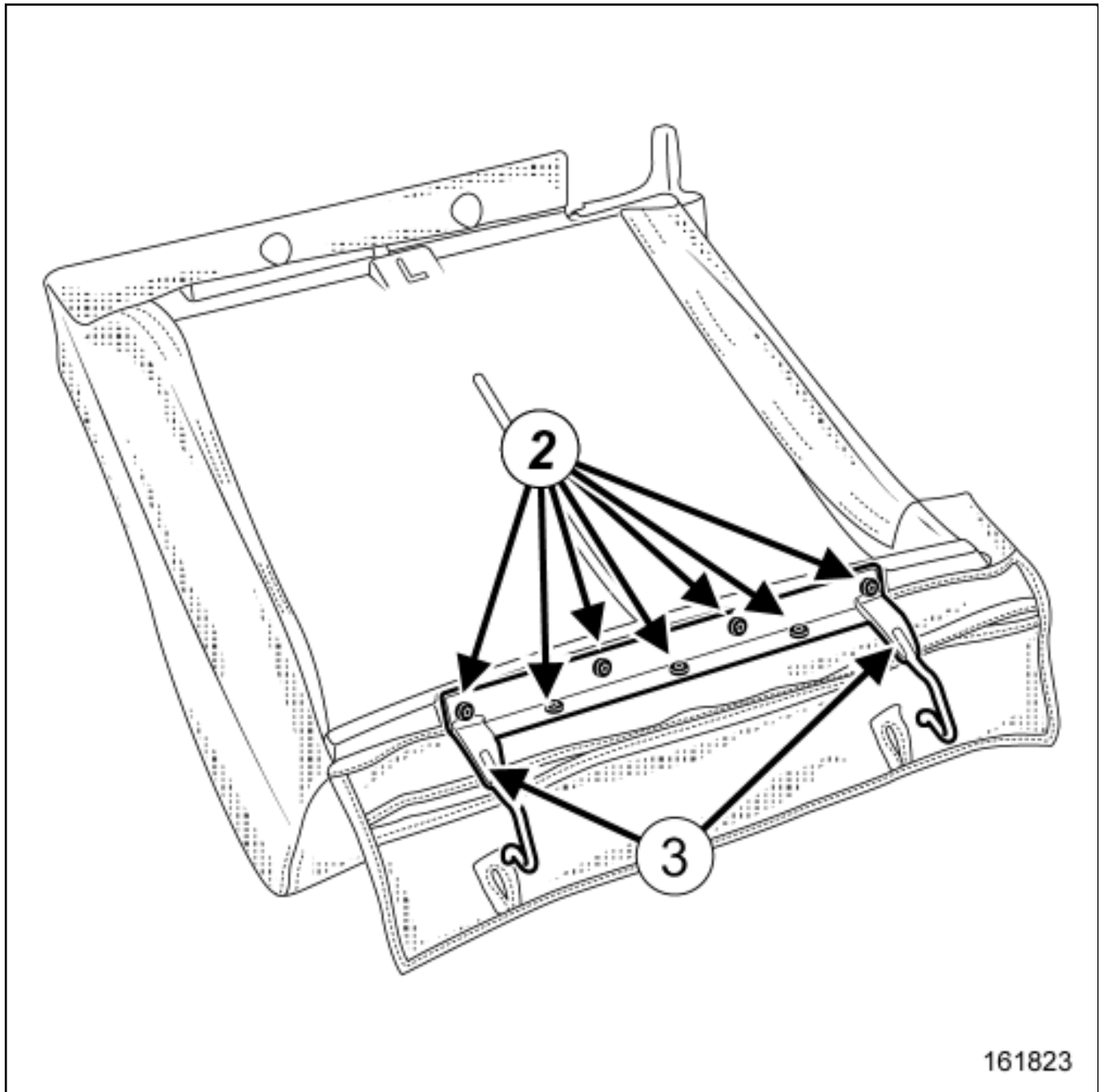


161822

■ Unclip the seatback from the hooks(1) .

■ Remove the rear seat seatback.

2. REMOVAL OPERATION



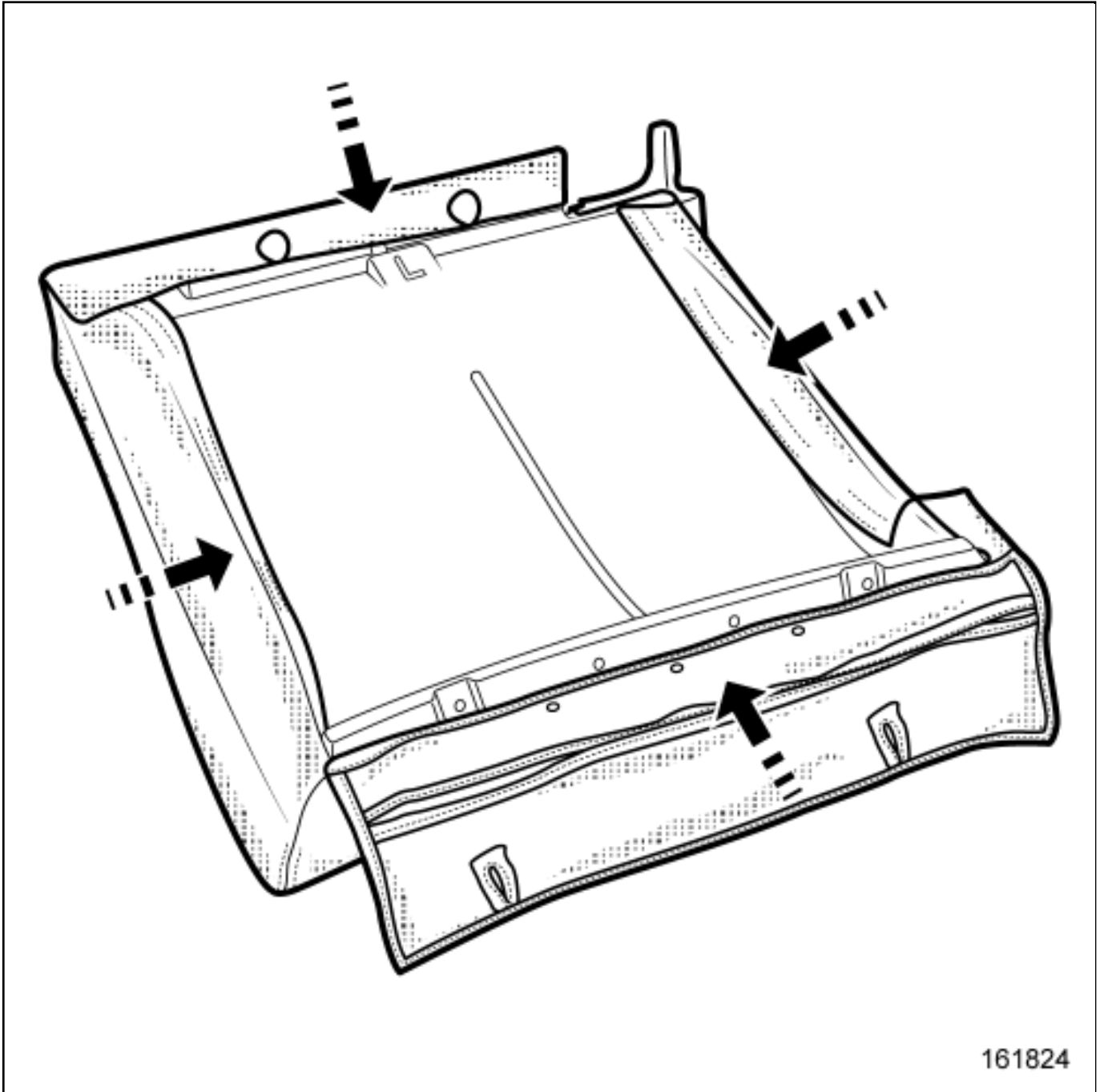
Remove:



the bolts(2) ,

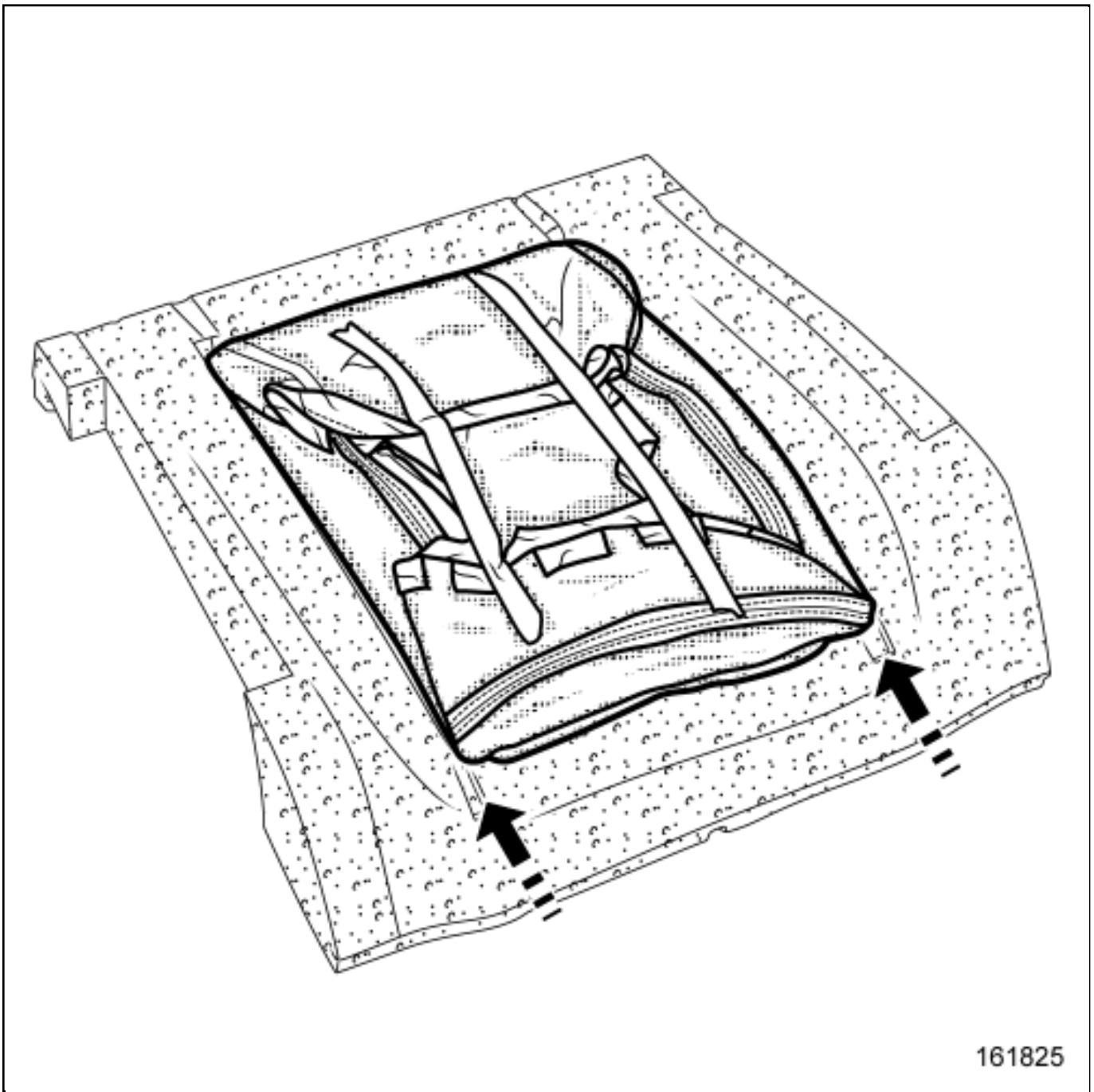


the hooks(3) .



161824

Detach the seatback trim around the contour.



161825

- Detach the seatback trim along the indicated lines.

- Remove the seatback trim.

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-70x16x02x04-01x37-1-14-1.xml



XSL version : 3.02 du 22/07/11

REAR SIDE DOOR MECHANISM: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

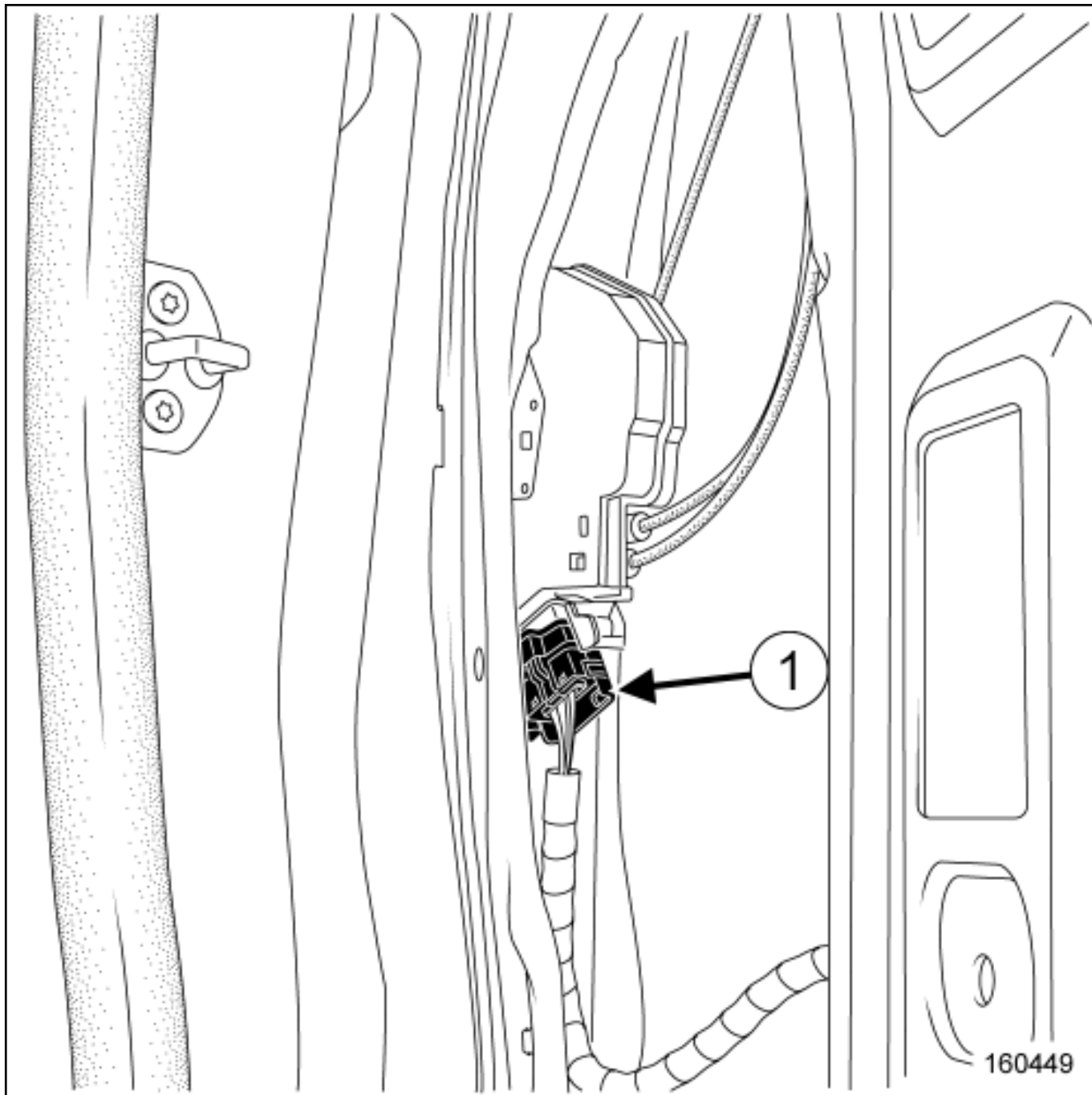
1. REMOVAL PREPARATION OPERATION

Remove:

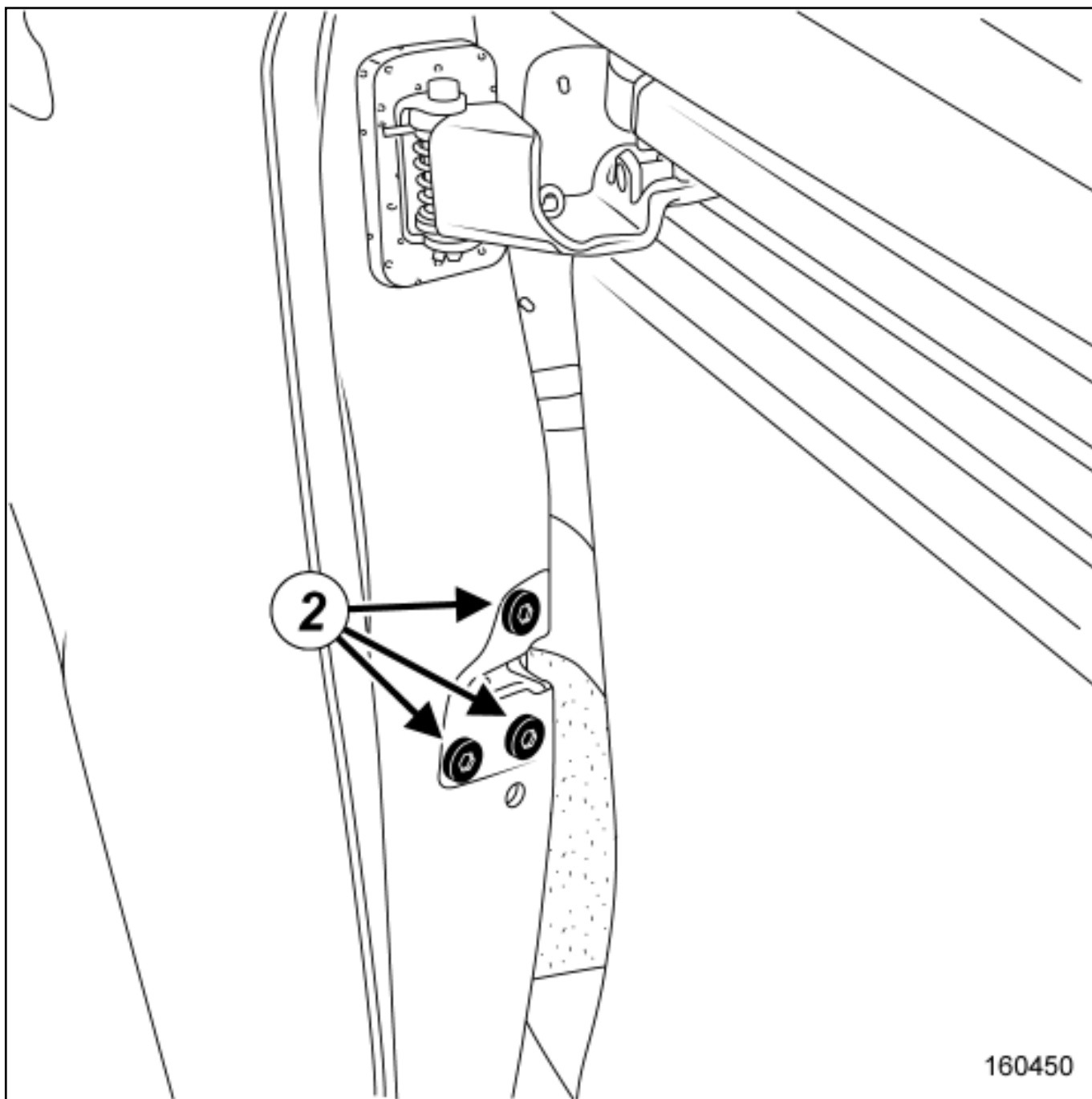
- the rear side door trim [Interior body side trim assembly: Exploded view](#) ,
- the side opening element sealing film [Side opening element sealing film: Removal - Refitting](#) .

2. REMOVAL OPERATION

1- REAR SIDE DOOR LOCK

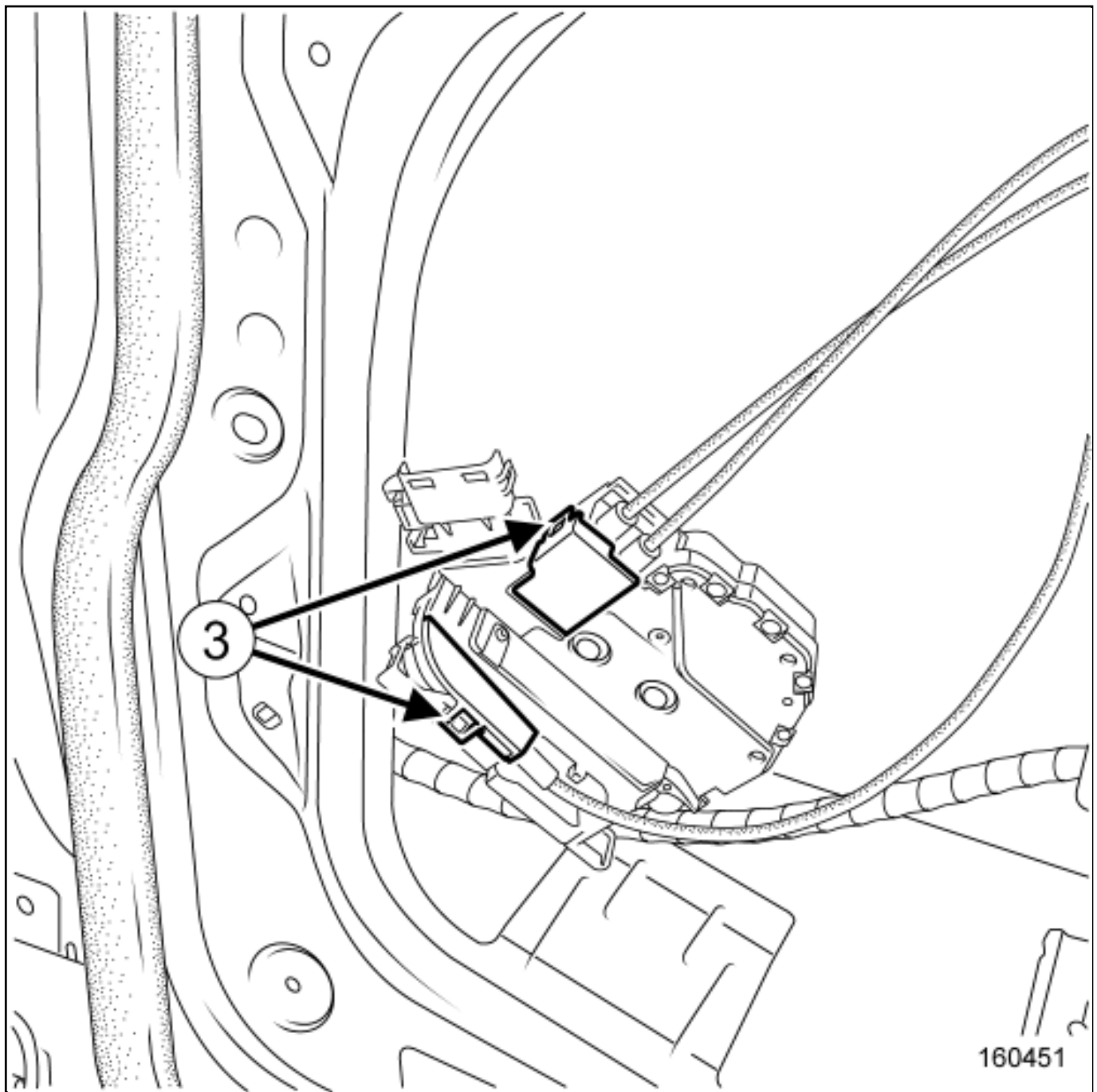


■ Disconnect the connector(1) from the lock motor.



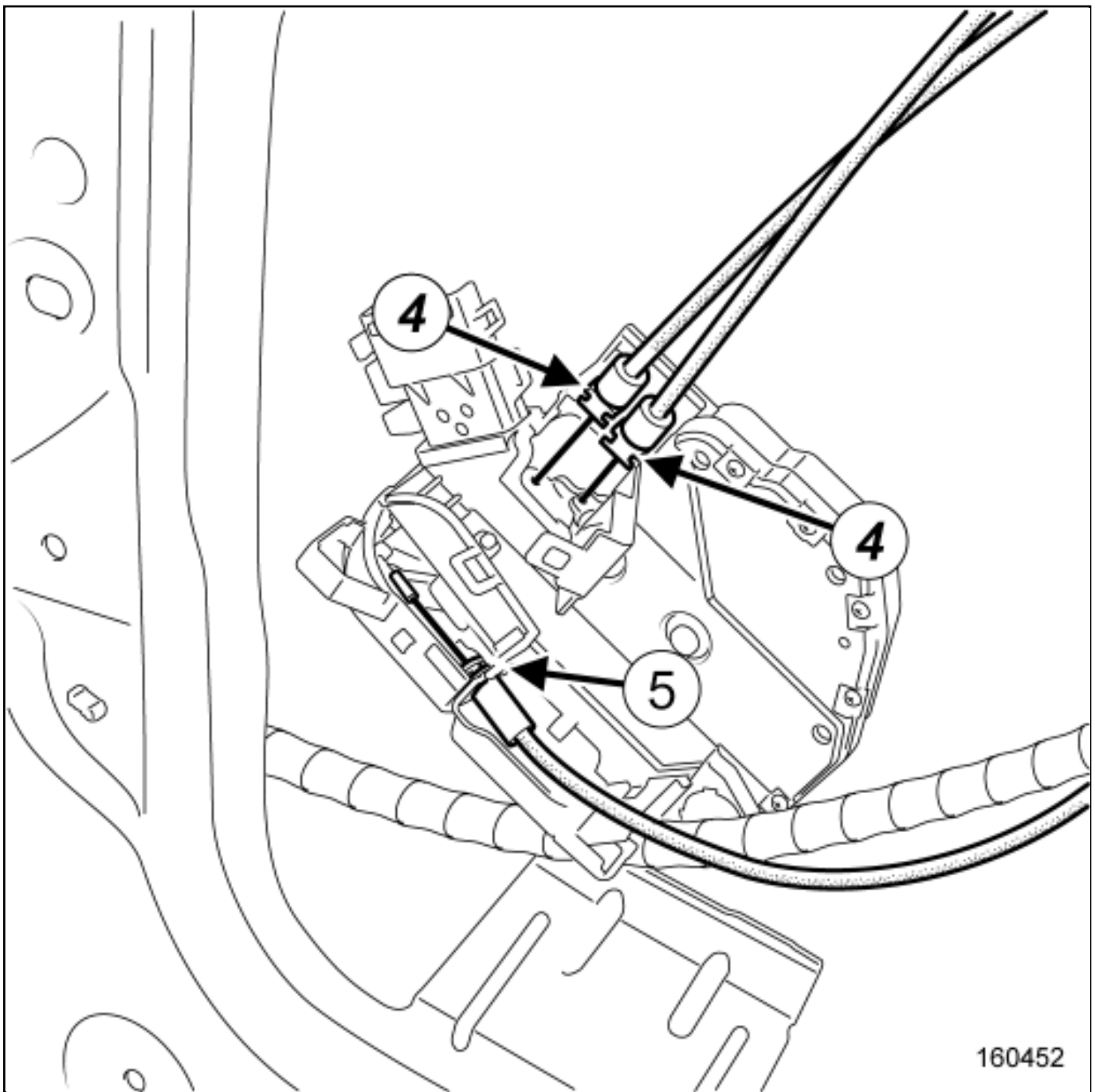
160450

Remove the rear side door lock bolts(2) .



Partially remove the rear side door lock.

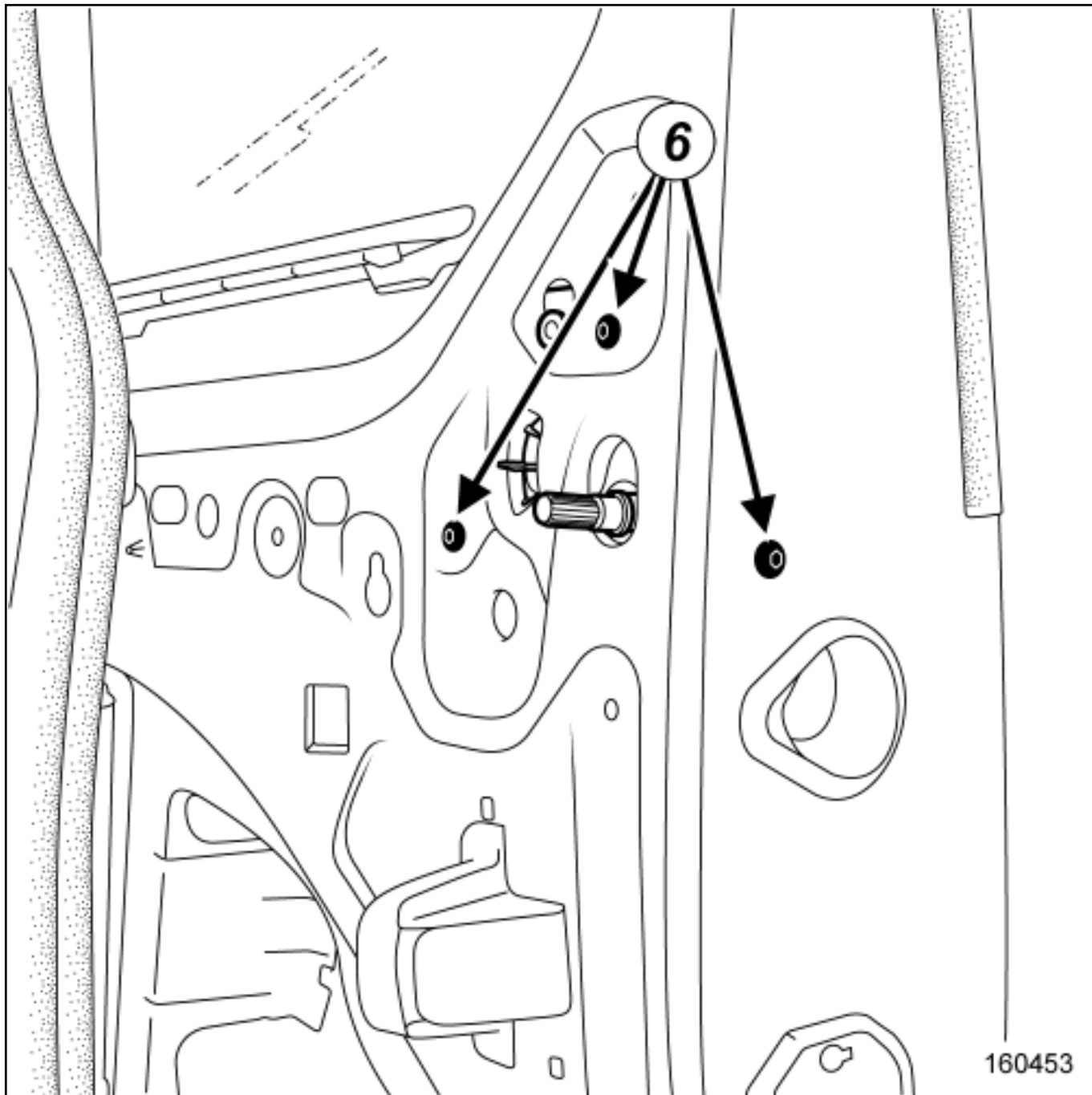
Unclip the rear side door lock covers at(3) .



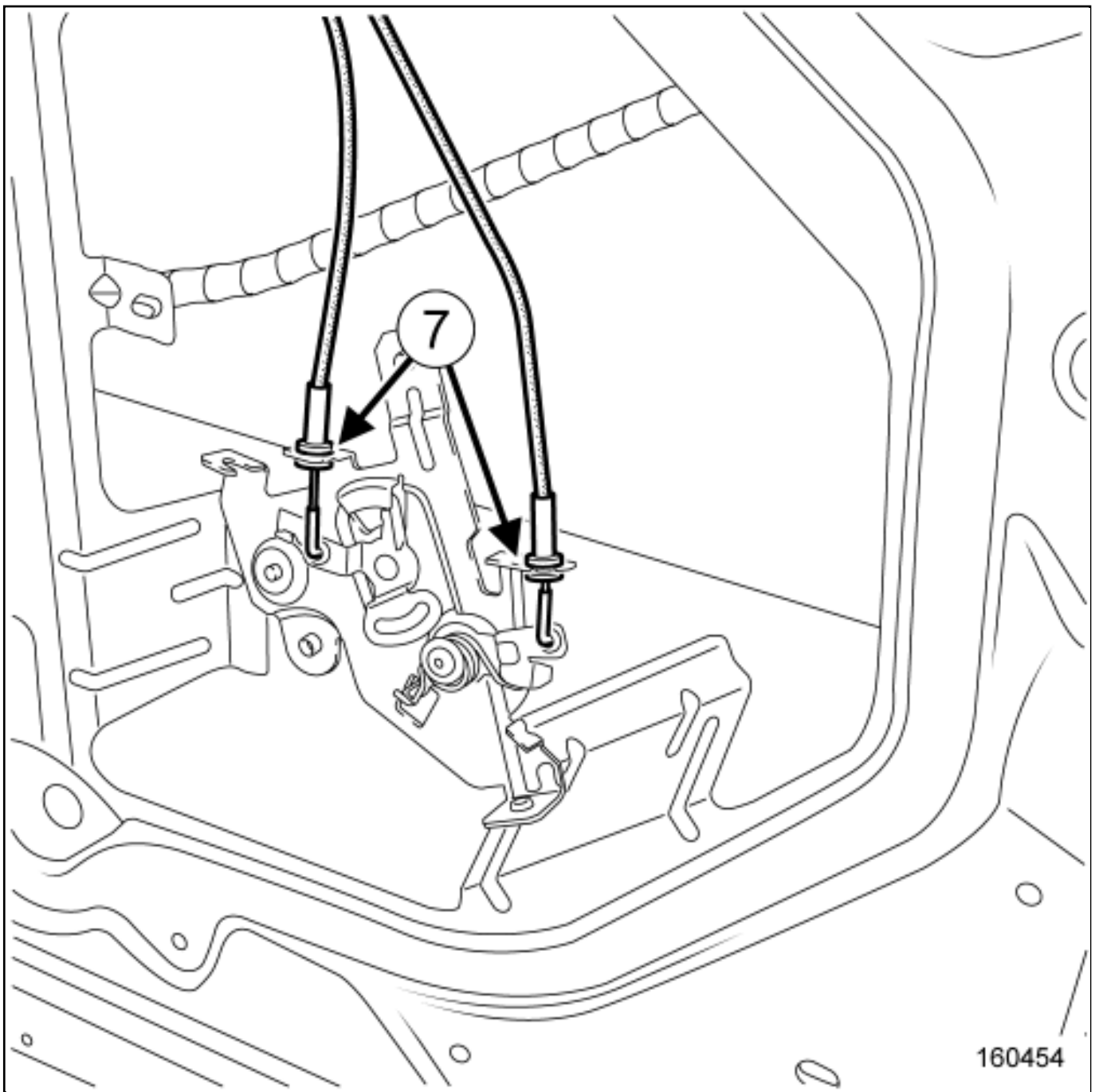
160452

Unclip the cables from the rear side door lock at(4) and (5) .

Remove the rear side door lock.



Remove the lock control mechanism bolts(6).



- Partially remove the lock control mechanism.

- Unclip the cables from the lock control mechanism at(7) .

- Remove the lock control mechanism.



Proceed in the reverse order to removal.



Carry out a function test.



Repair-50x02x13-01x37-1-1-1.xml



XSL version : 3.02 du 22/07/11

REAR SIDE OPENING ELEMENT: ADJUSTMENT

Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior rear side opening element assembly: Exploded view](#) .

ADJUSTMENT VALUES

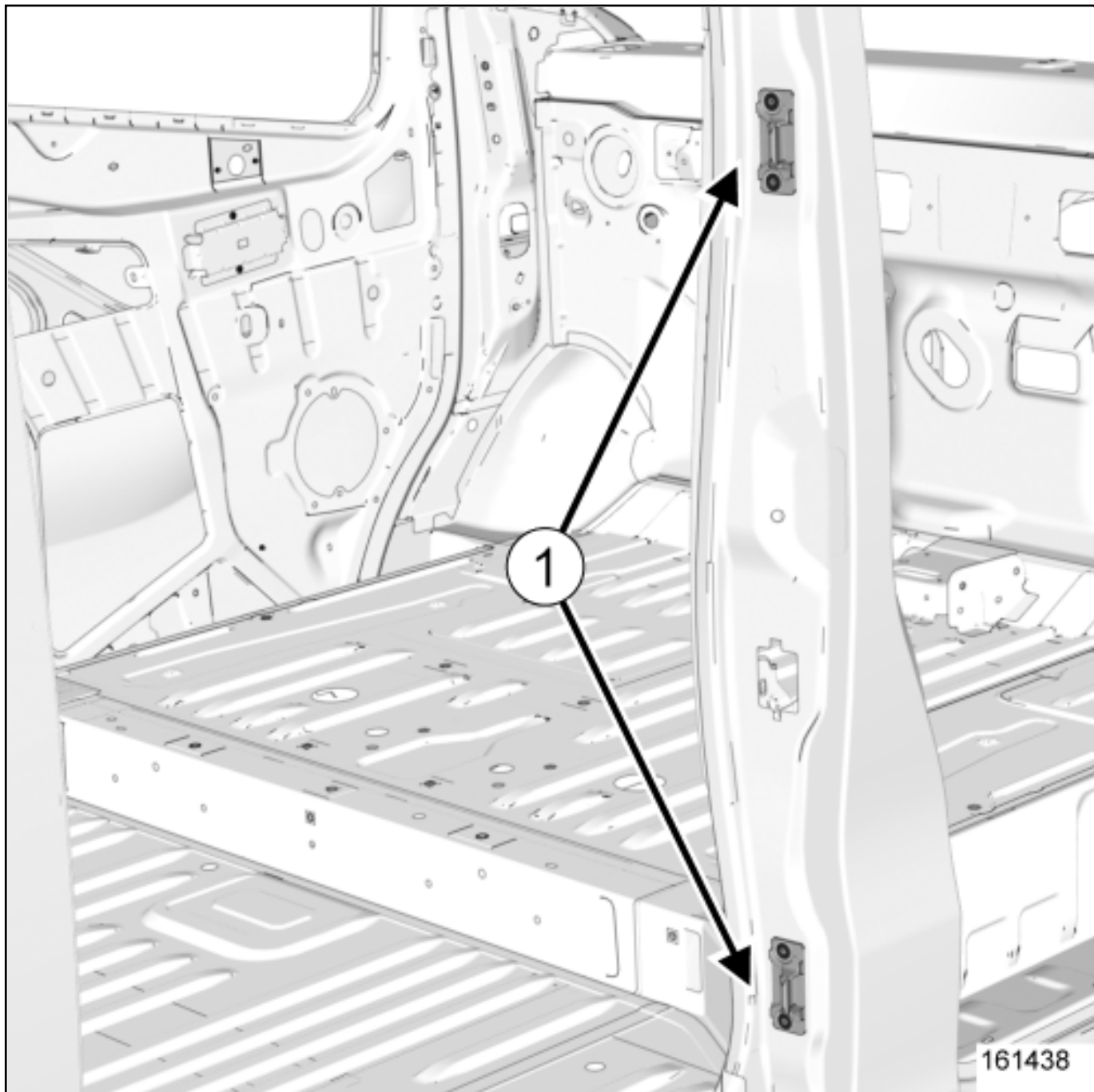
■ For information on the side opening element adjustment values [Vehicle panel gaps: Adjustment value](#) .

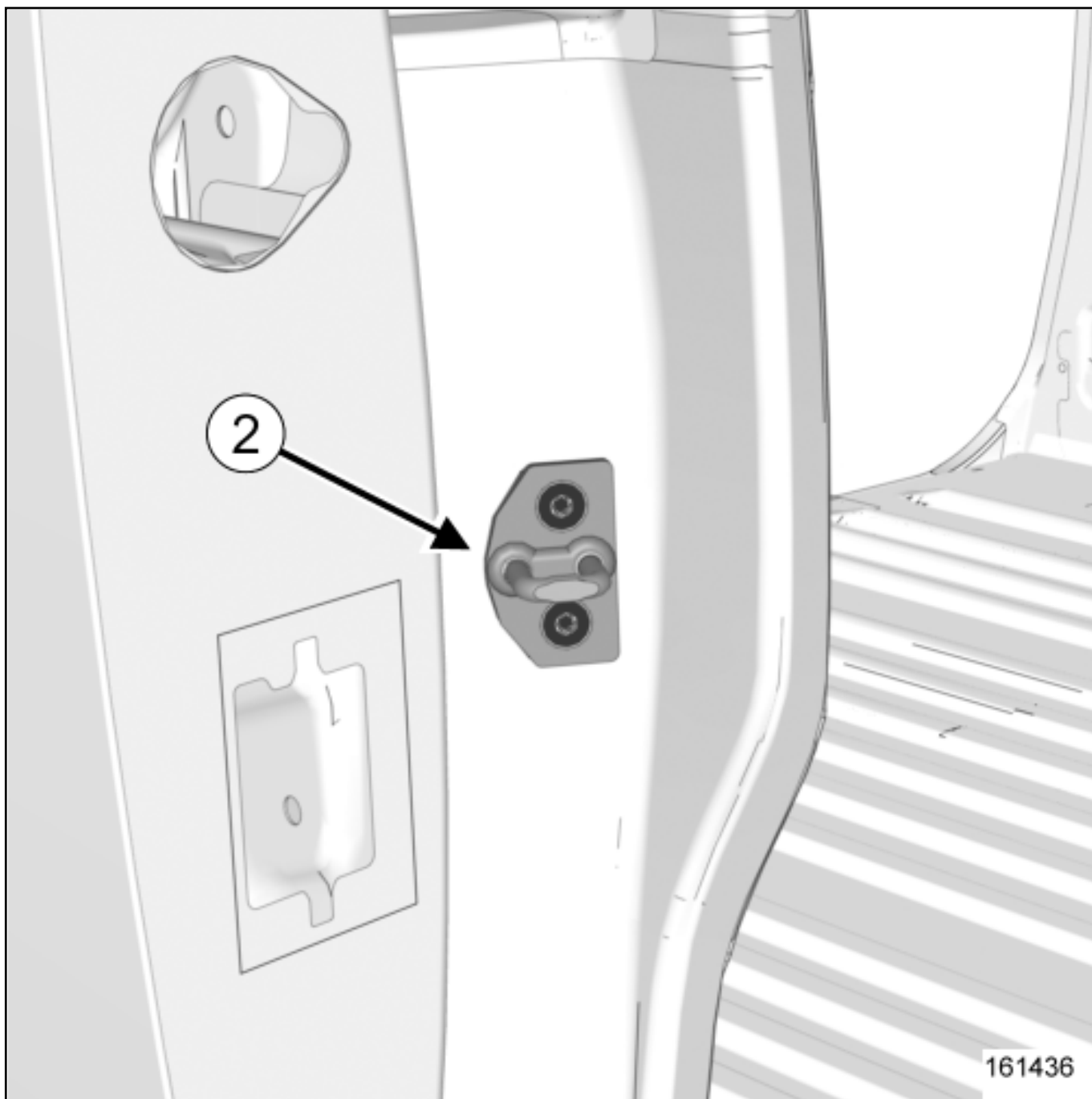
ADJUSTMENT

■ There are three types of components used for adjusting the rear side door:

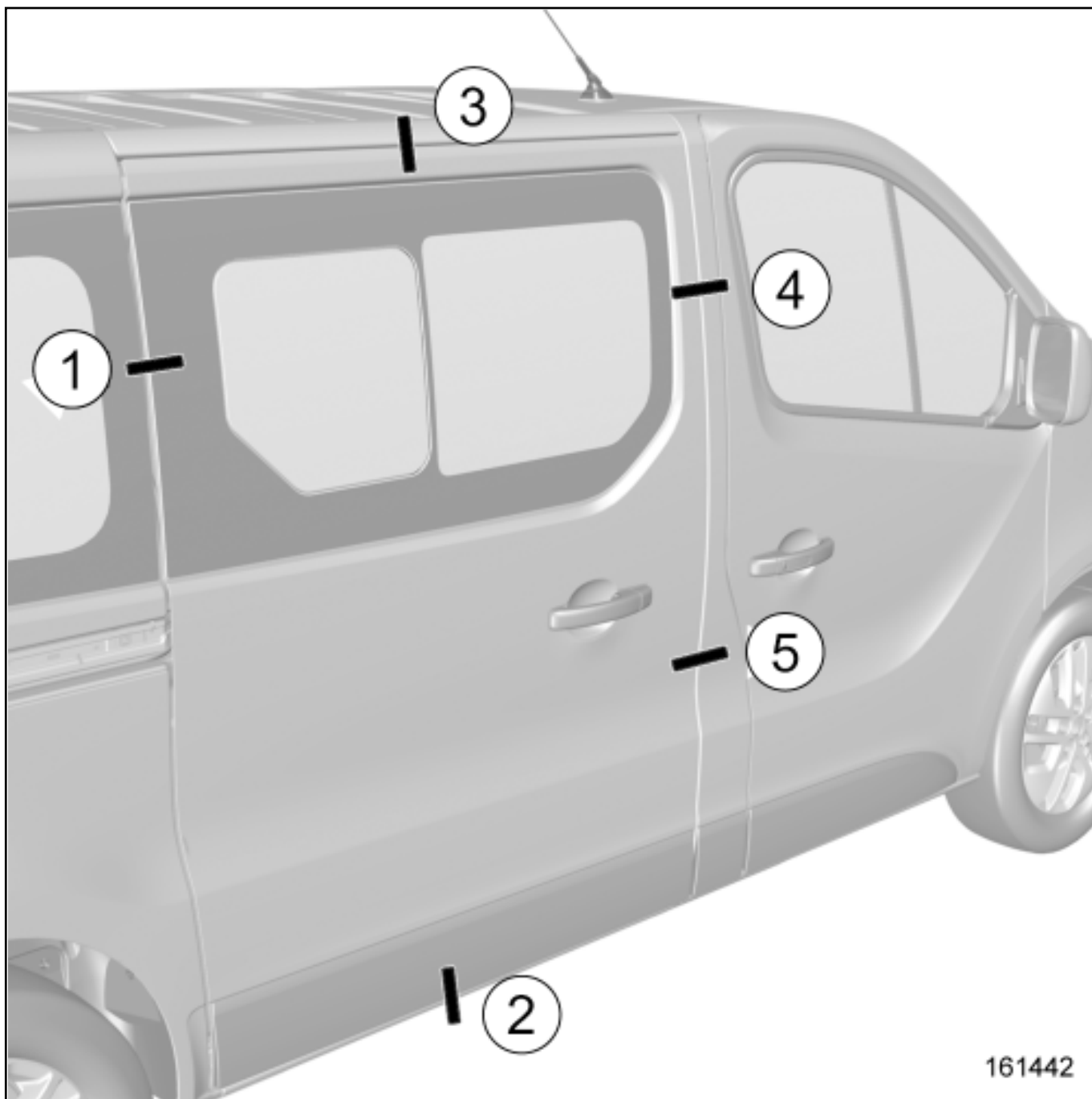
- the rear side door rail arms,
- the centring devices,
- the striker panel.

1. PRELIMINARY OPERATIONS

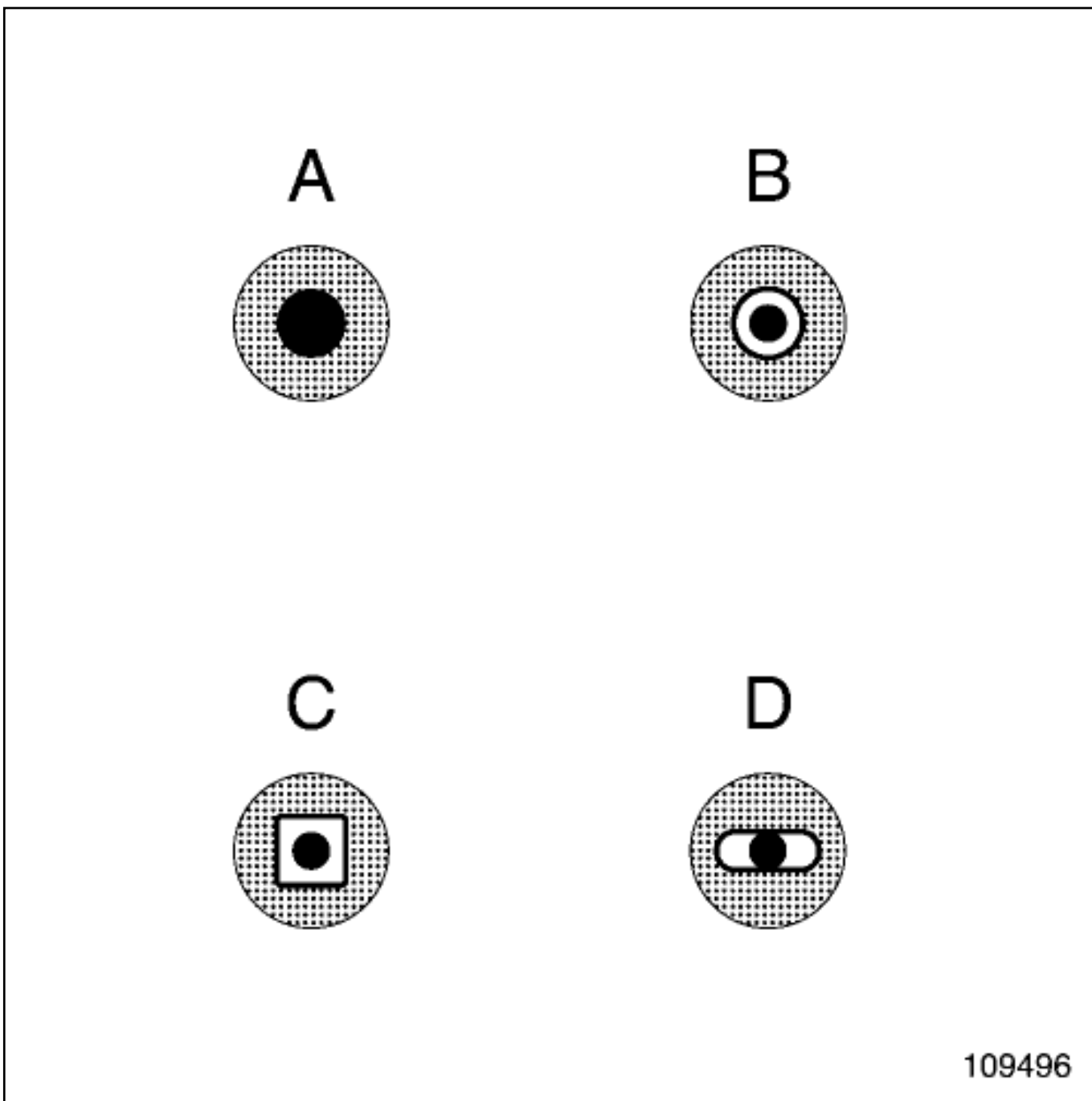




- Before adjusting the rear side door it is necessary to release the secondary geometric constraints, for this remove:
- the centring devices(1) from the body,
 - the rear side door striker panel(2) .



Observe the adjustment sequence:(1) , (2) , (3) , (4) and (5) .



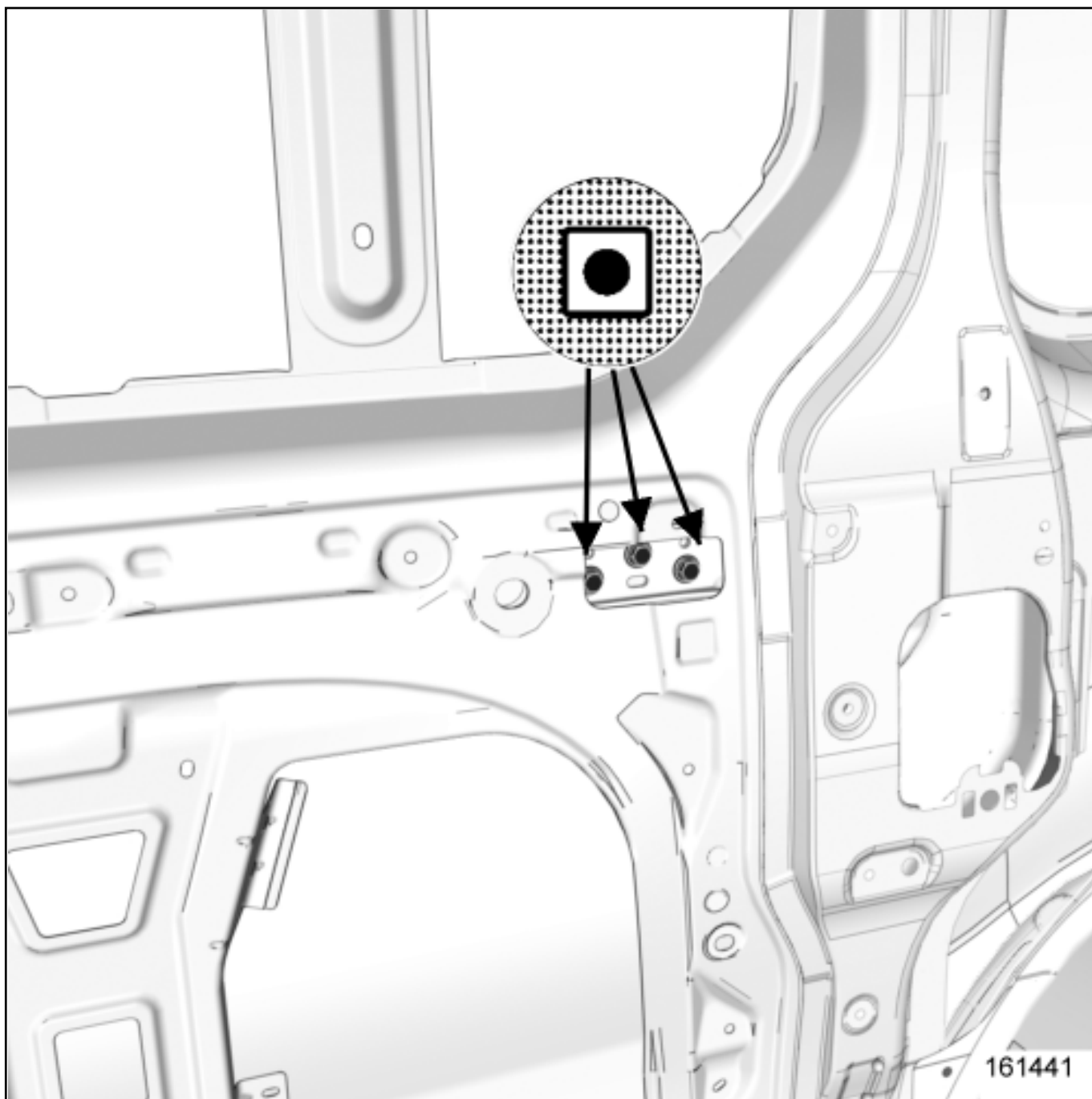
Symbols A, B, C and D show the adjustment options.

The black dot in the centre represents the body of the bolt.

The grey section represents the component to be adjusted.

The white section represents the adjustment area.

2. ADJUSTING THE REAR HEIGHT AND THE FRONT AND REAR PANEL GAPS OF THE REAR SIDE DOOR



Note:



To avoid impact between the door and the body, perform the operation using a step-by-step approach and by carefully manipulating the door.

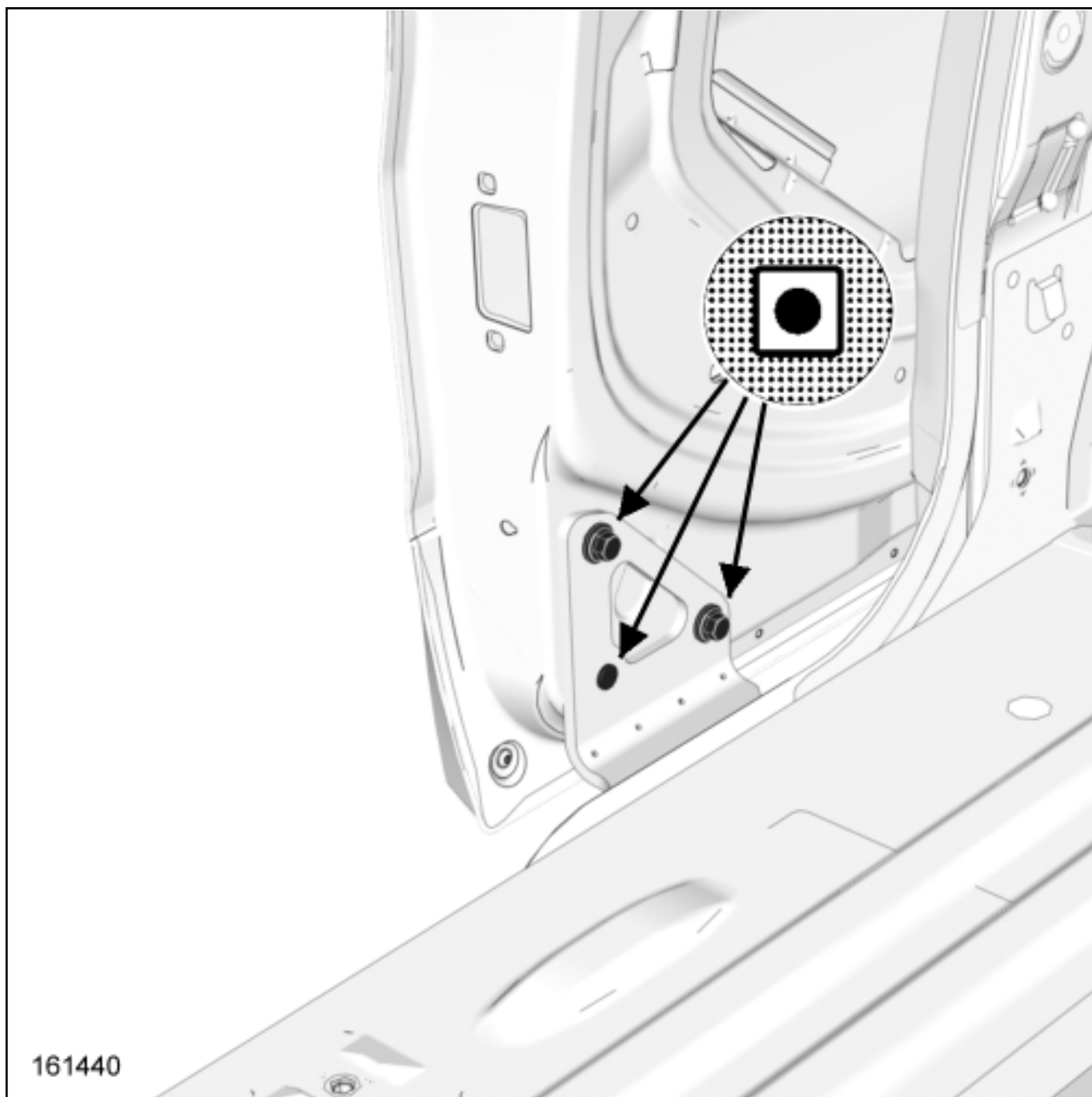
Loosen the bolts of the central rail arm of the rear side door.

Adjust the rear height and the front and rear panel gaps of the rear side door by tapping the yoke with a mallet.



Tighten the bolts of the central rail arm of the rear side door.

3. ADJUSTING THE FRONT HEIGHT OF THE REAR SIDE DOOR





Note:

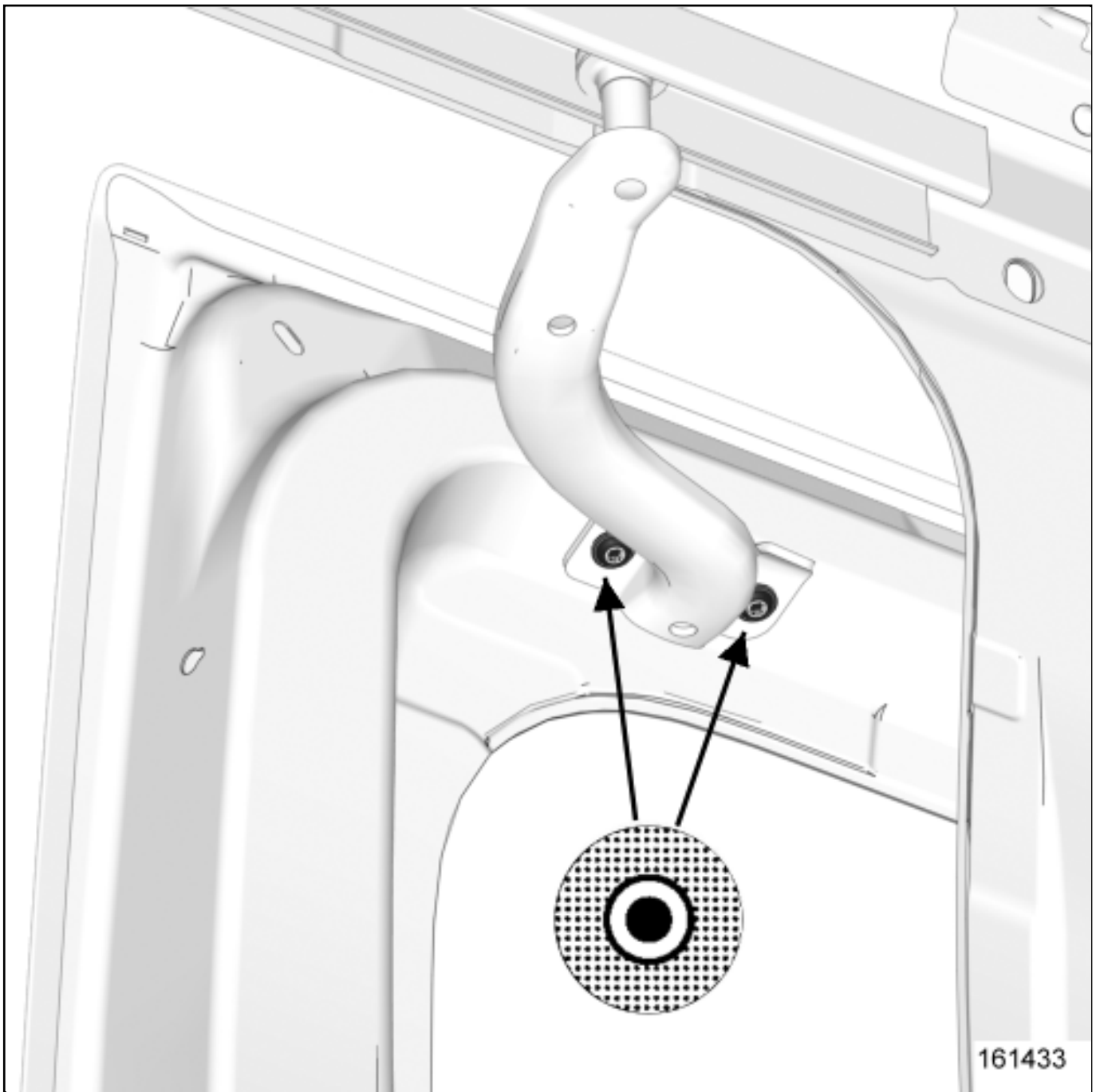
To avoid impact between the door and the body, perform the operation using a step-by-step approach and by carefully manipulating the door.

Loosen the bolts of the lower rail arm of the rear side door.

Adjust the front height of the rear side door by tapping the yoke with a mallet.

Tighten the bolts of the lower rail arm of the rear side door.

4. ADJUSTING THE FLUSH FITTING OF THE REAR SIDE DOOR WITH THE BODY SIDE IN THE UPPER FRONT SECTION



Note:



To avoid impact between the door and the body, perform the operation using a step-by-step approach and by carefully manipulating the door.



Note:

Maintain a slight overshoot of the door in relation to the body side. This will be needed for the final adjustment with striker plate.



Note:

Adjust the height of the roller in the centre of the rail, without vertical constraint.



Loosen the bolts of the upper rail arm of the rear side door.

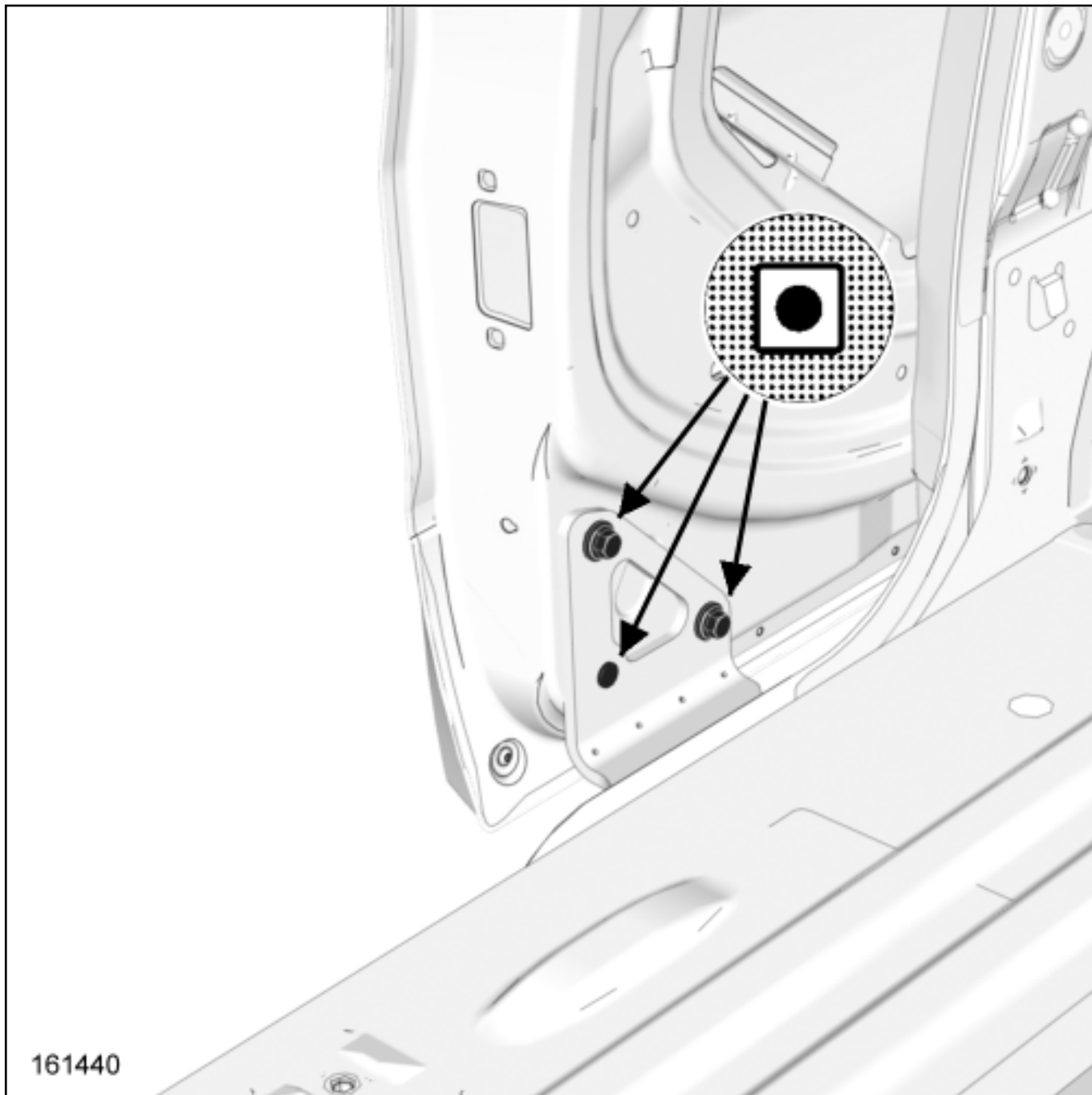


Adjust the flush fitting of the rear side door with the body side in the upper front part by tapping the yoke with a mallet.



Tighten the bolts of the upper rail arm of the rear side door.

5. ADJUSTING THE FRONT LOWER FLUSH FITTING OF THE REAR SIDE DOOR



161440



Note:

To avoid impact between the door and the body, perform the operation using a step-by-step approach and by carefully manipulating the door.



Note:

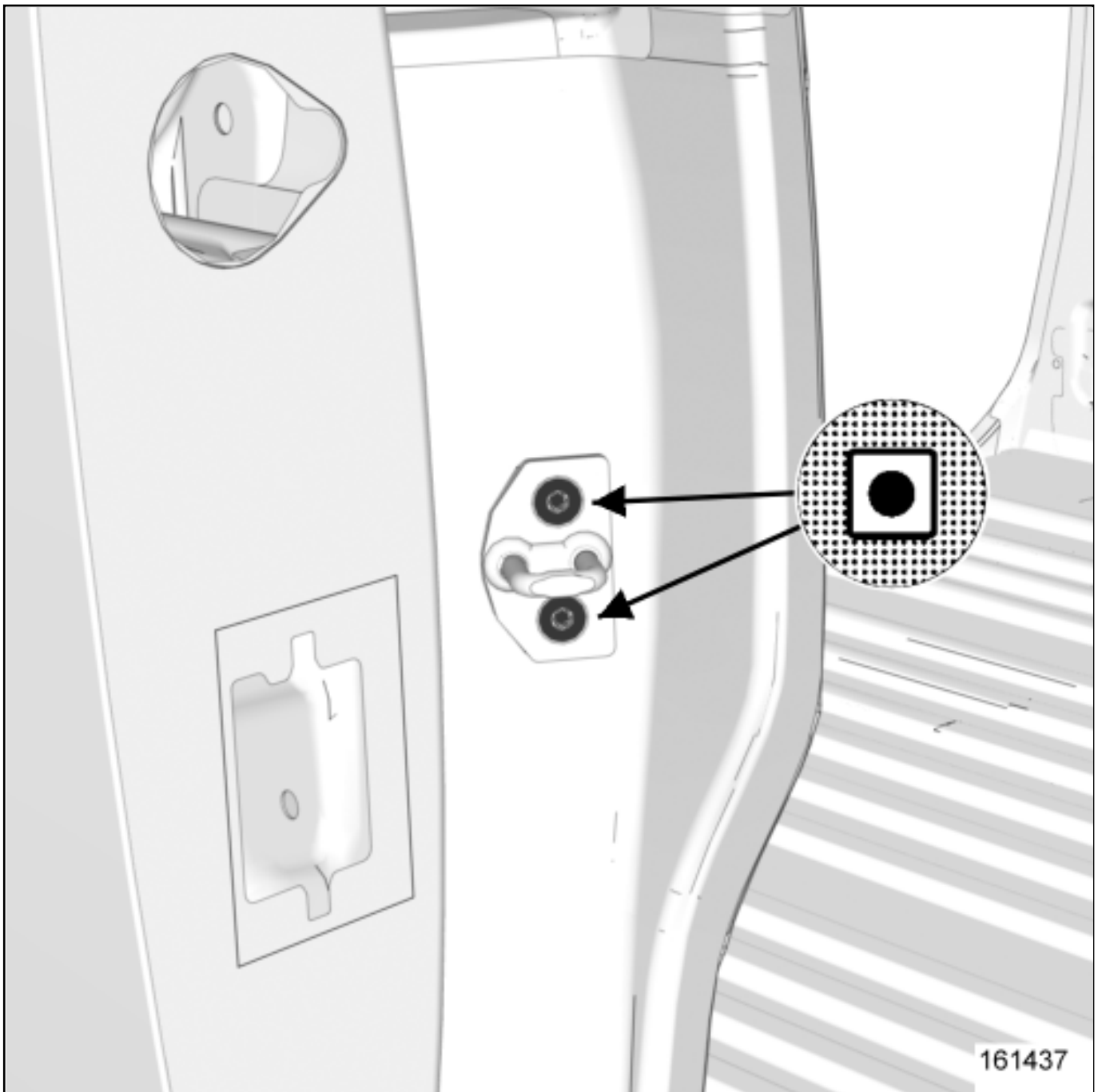
Maintain a slight overshoot of the door in relation to the body side. This will be needed for the final adjustment with striker plate.

Loosen the bolts of the lower rail arm of the rear side door.

Adjust the front lower flush fitting of the rear side door by tapping the yoke with a mallet.

Tighten the bolts of the lower rail arm of the rear side door.

6. ADJUSTING THE REAR FLUSH FITTING OF THE REAR SIDE DOOR

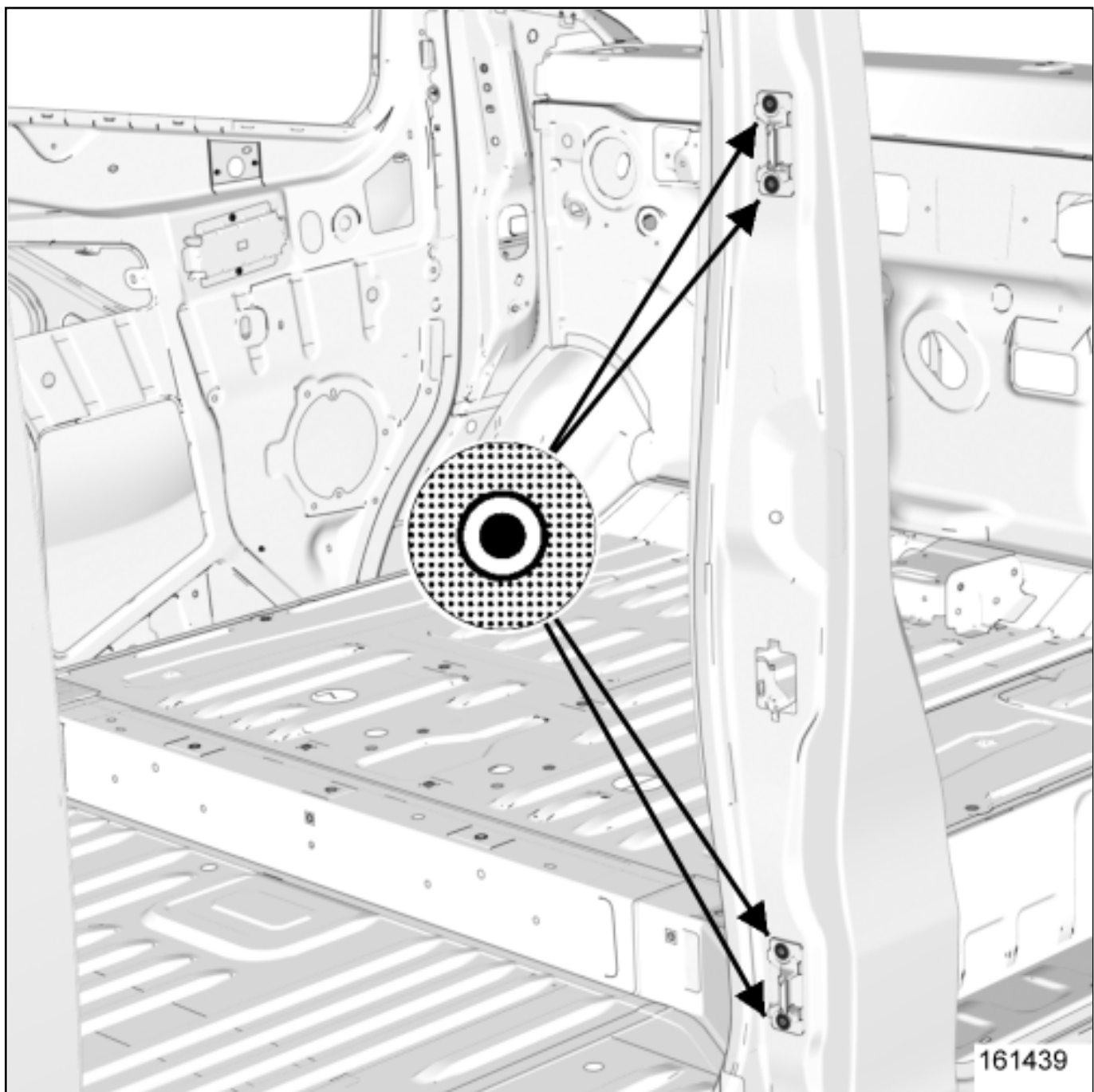


Adhere to the following adjustment sequence:

-
- adjust the height of the striker panel in relation to the lock to prevent them touching,
- adjust the rear side door flush fitting with the rear side panel.

Tighten the bolts of the rear side door rear striker panel.

7. ADJUSTING THE FRONT CENTRING DEVICES



Fit the front centring devices on the B-pillar.

Slightly tighten the bolts of the front centring devices.

Operate the door by opening and closing it several times consecutively in order to self-align the centring devices from the rear side door with the centring devices on the B-pillar.

Once the adjustment it is obtained tighten the rear side door centring devices bolts.

8. FINAL OPERATION

Following this adjustment operation, it is essential to:

- check that all the parameters remain stable (if one of them has changed, repeat the procedure starting with the modified parameter),

- touch up the paintwork to hide the painted areas that were damaged during the movement of the different parts [Paint touch up: Preparation and paint range](#) .



Repair-40x10x04x08-01x67-1-9-1.xml



XSL version : 3.02 du 22/07/11

REAR SIDE OPENING ELEMENT: REMOVAL - REFITTING

Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior rear side opening element assembly: Exploded view](#) .

REMOVAL

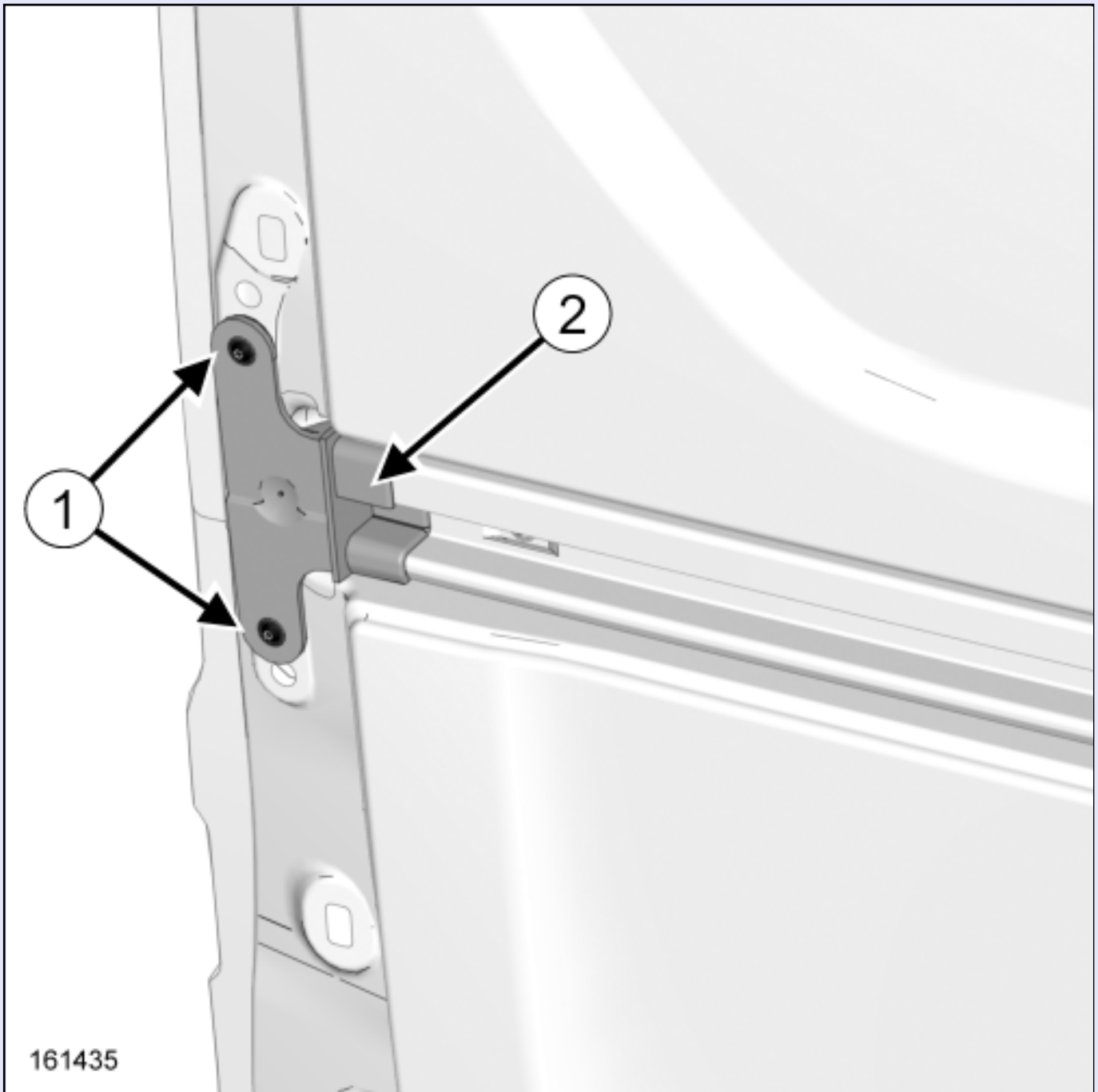
1. REMOVAL PREPARATION OPERATION

- ❑ Remove the rear light [Exterior rear side opening element assembly: Exploded view](#) .

J82(J82)

□ Remove the rear side opening element rail trim [Exterior rear side opening element assembly: Exploded view](#) .

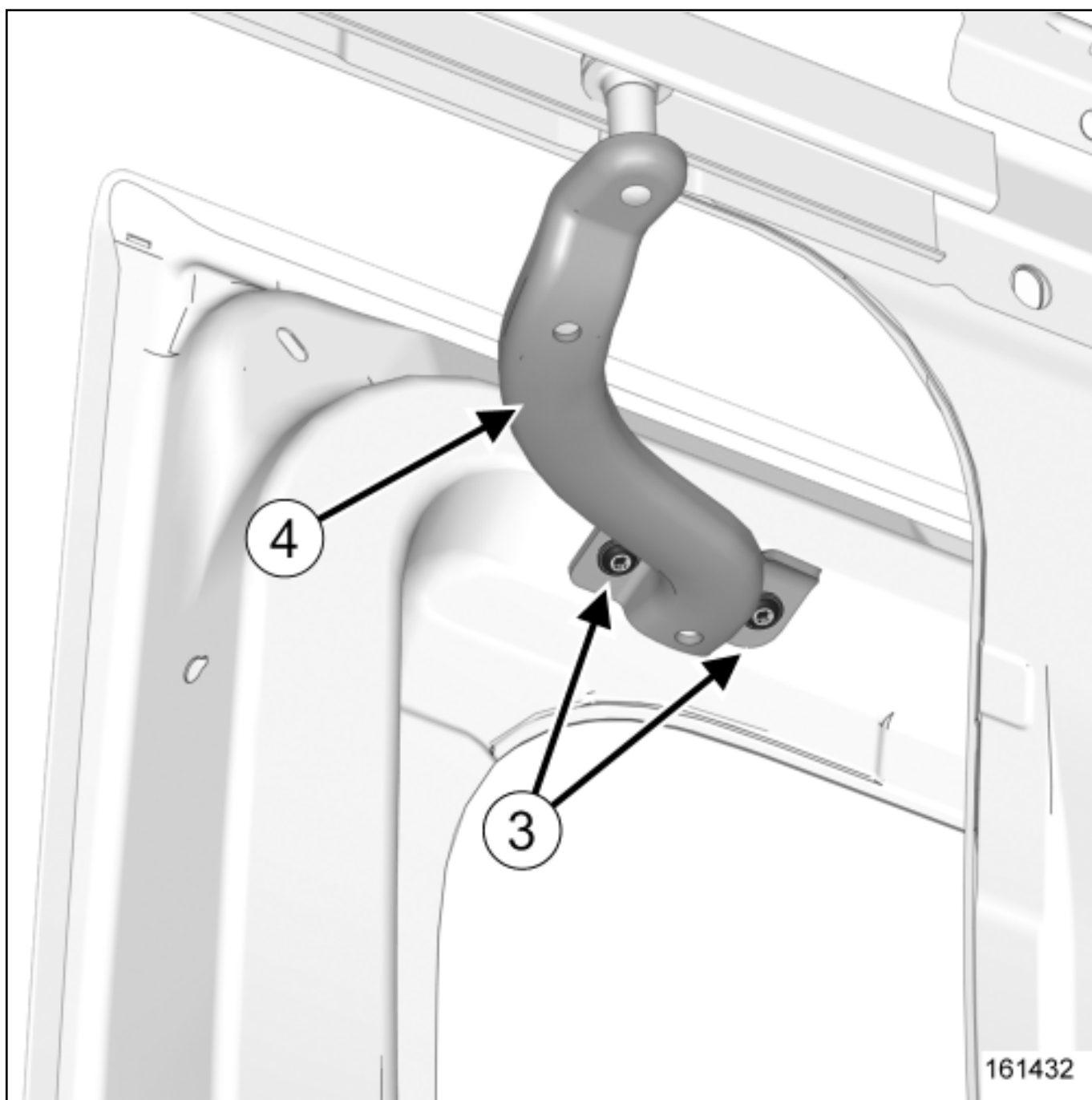
F82(F82)



□ Remove:

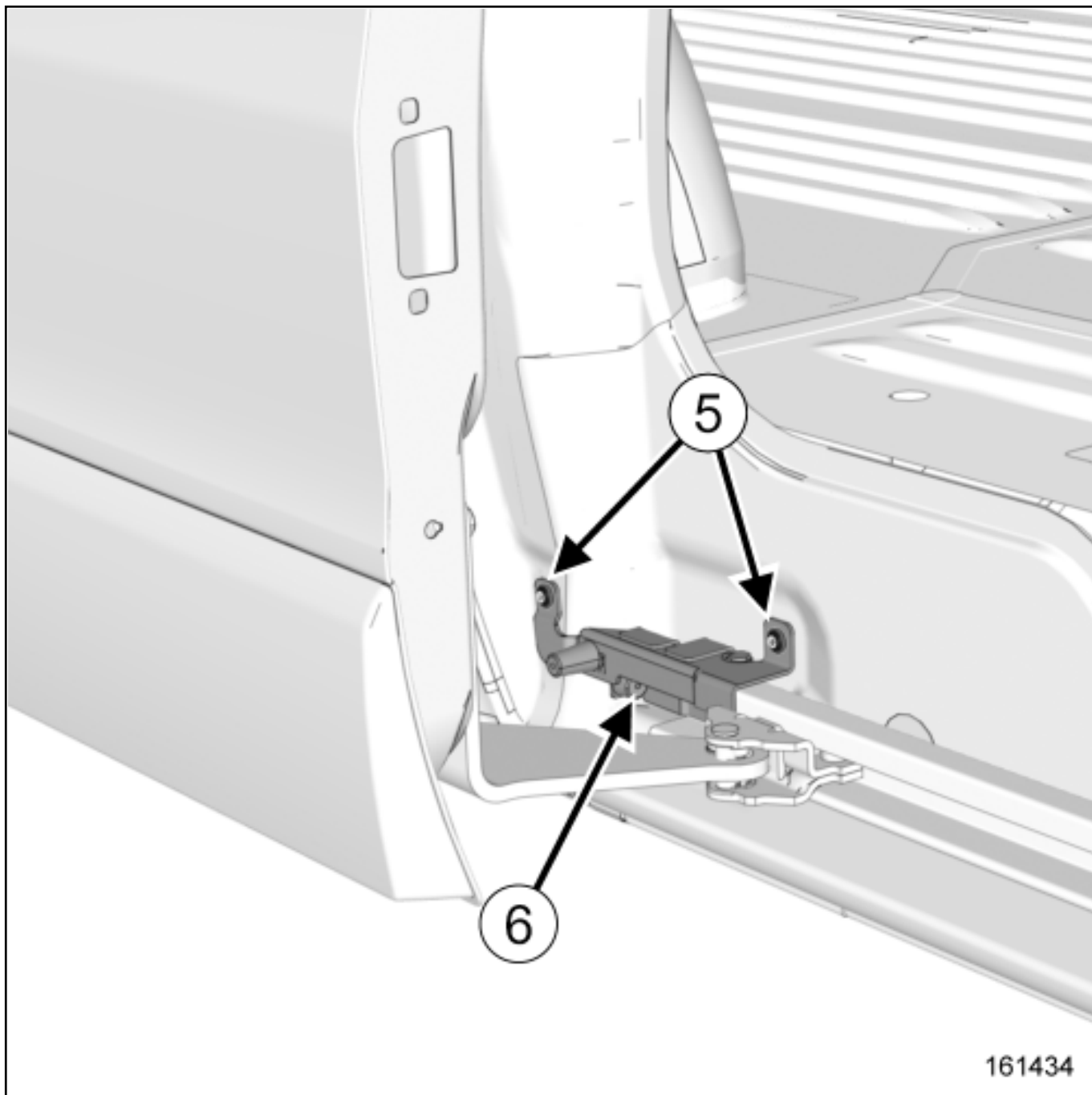
- the bolts(1) ,
- the centre stop(2) of the rear side opening element.

2. REMOVAL OPERATION



■ Remove:

- the bolts(3) ,
- the upper rail arm(4) of the rear side opening element.



Remove:

-
- the bolts(5) ,
- the lower stop of the(6) rear side opening element,
- the rear side door (this operation requires two people).

1. REFFITING OPERATION



Proceed in the reverse order to removal.



Adjust the rear side door clearances and flush fittings(see **Rear side door: Adjustment**) .



Carry out a function test on all functions.



Repair-40x10x04x08-01x37-1-8-1.xml



XSL version : 3.02 du 22/07/11

REAR SIDE OPENING ELEMENT STRIP: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Set of trim removal levers.

Car. 1363

Location and specifications (tightening torques, parts always to be replaced, etc.) [Exterior rear side opening element assembly: Exploded view](#) .



WARNING

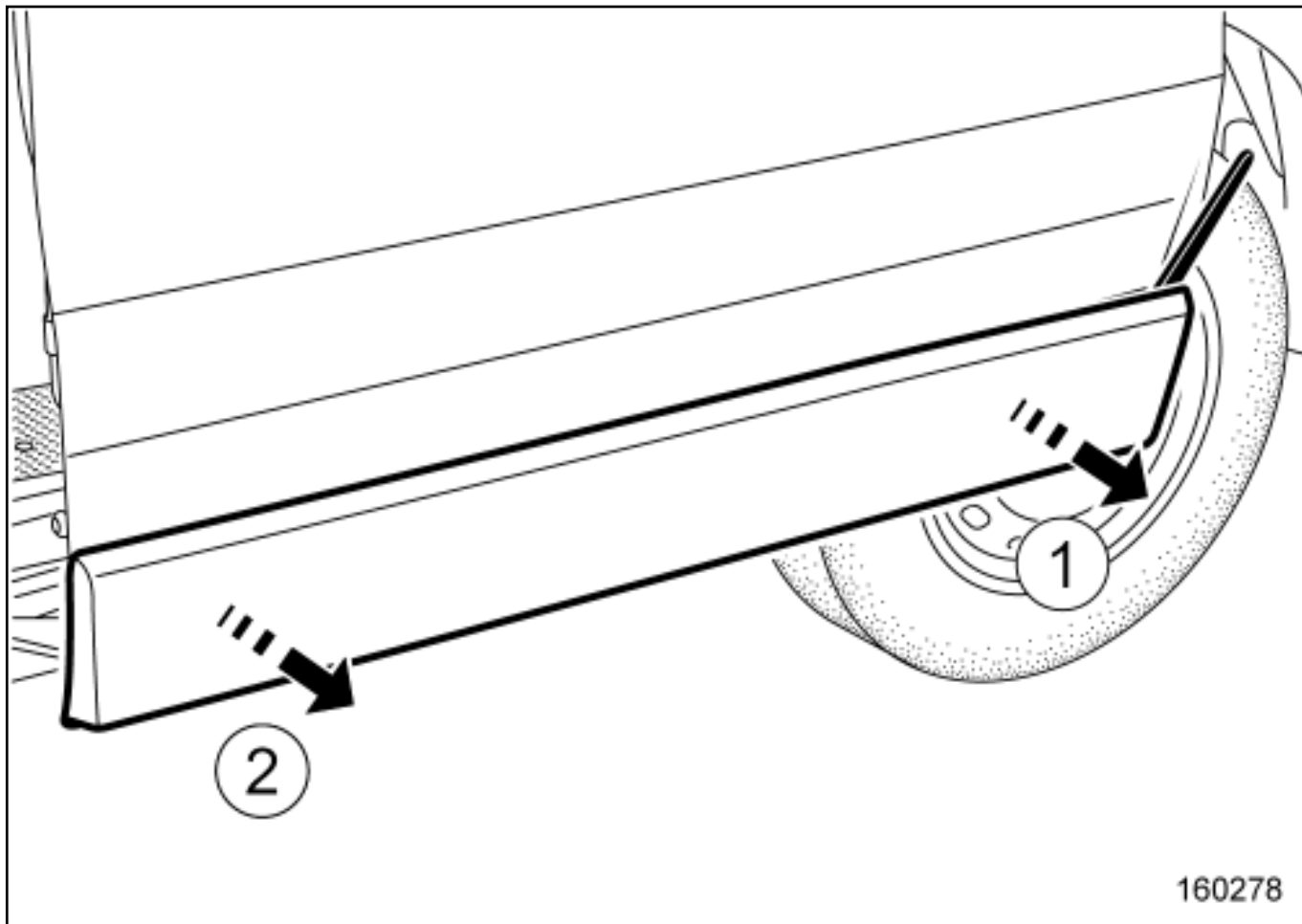
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the rear side opening element strip bolt [Exterior rear side opening element assembly: Exploded view](#) .

2. REMOVAL OPERATION



Remove the rear side opening element strip at(1) then at (2) using the toolSet of trim removal levers. (Car. 1363) .

REFITTING

1. REFITTING PREPARATION OPERATION



Check the condition of the clips and replace them if necessary.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-50x05x06x05-01x37-1-1-1.xml



XSL version : 3.02 du 22/07/11

REAR SIDE PANEL, REAR SECTION: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

PANEL VERSION



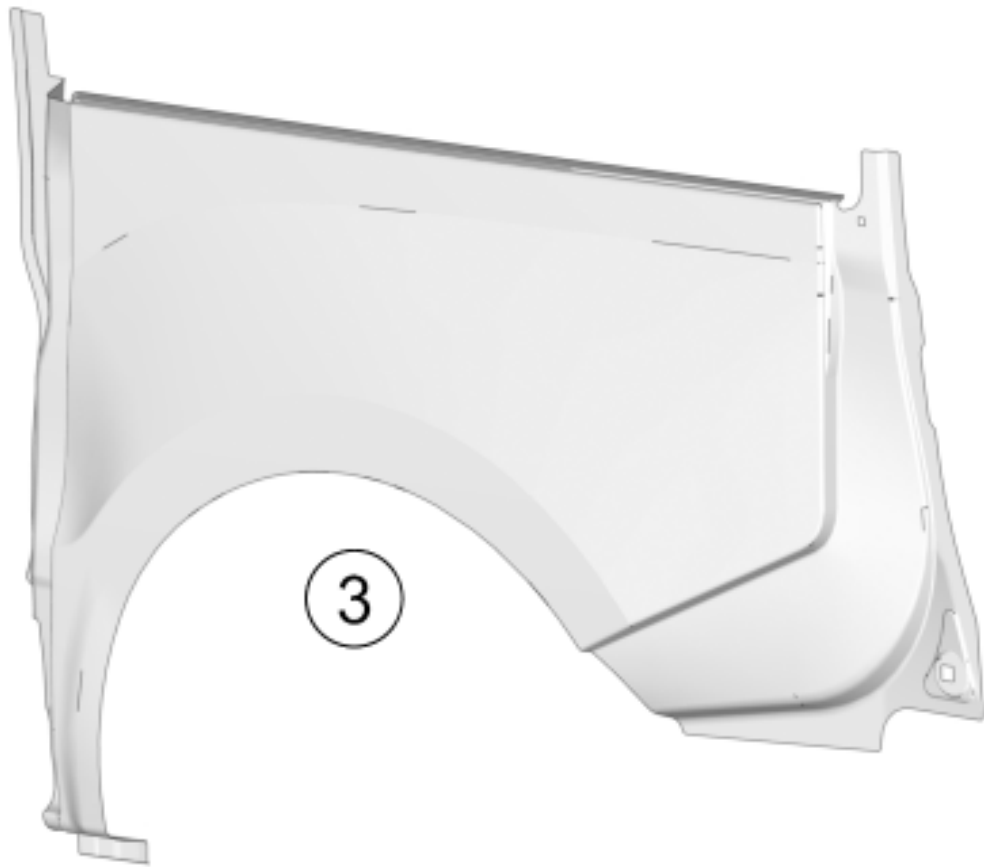
161105

GLAZED VERSION



161110

No.	Description	Type	Thickness (mm)
(2)	Rear side panel, upper rear section	Mild steel	0.75



161103

No.	Description	Type	Thickness (mm)
(3)	Rear side panel, lower rear section	Mild steel	0.75

2. IN THE EVENT OF REPLACEMENT



There is only one way of replacing this part:

complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

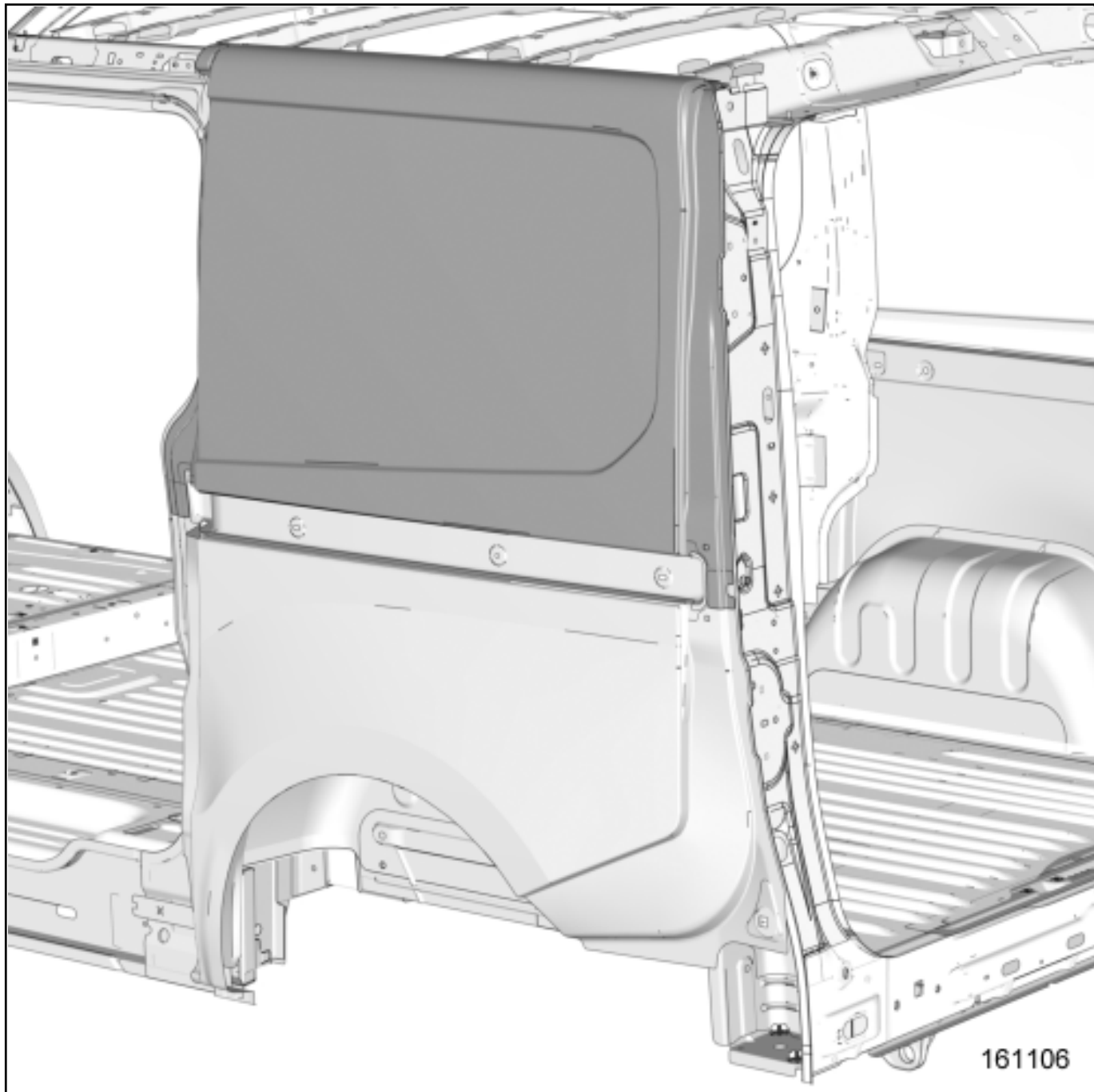
Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT OF THE UPPER SECTION

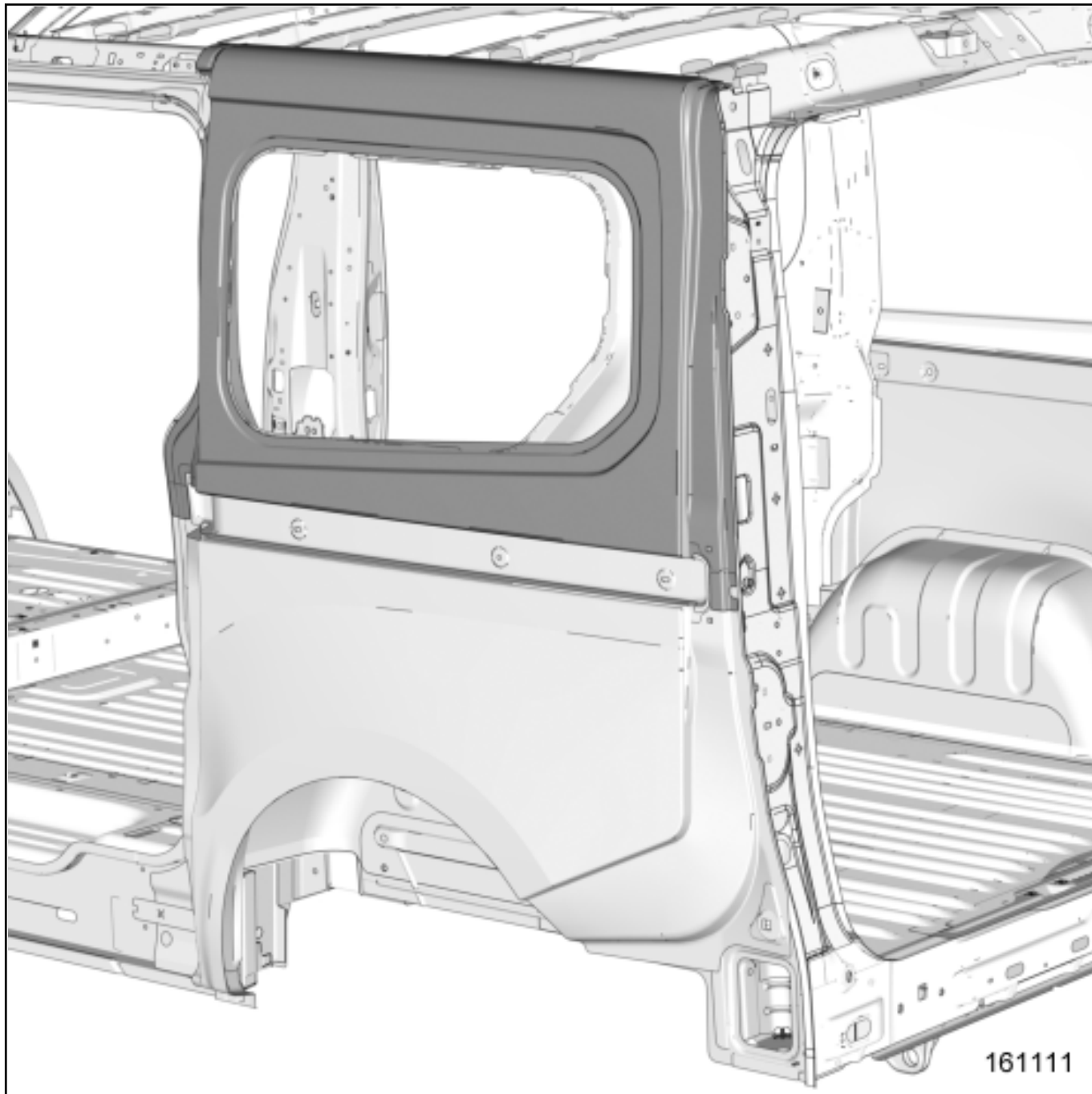
1)PART IN POSITION

PANEL VERSION



161106

GLAZED VERSION



161111

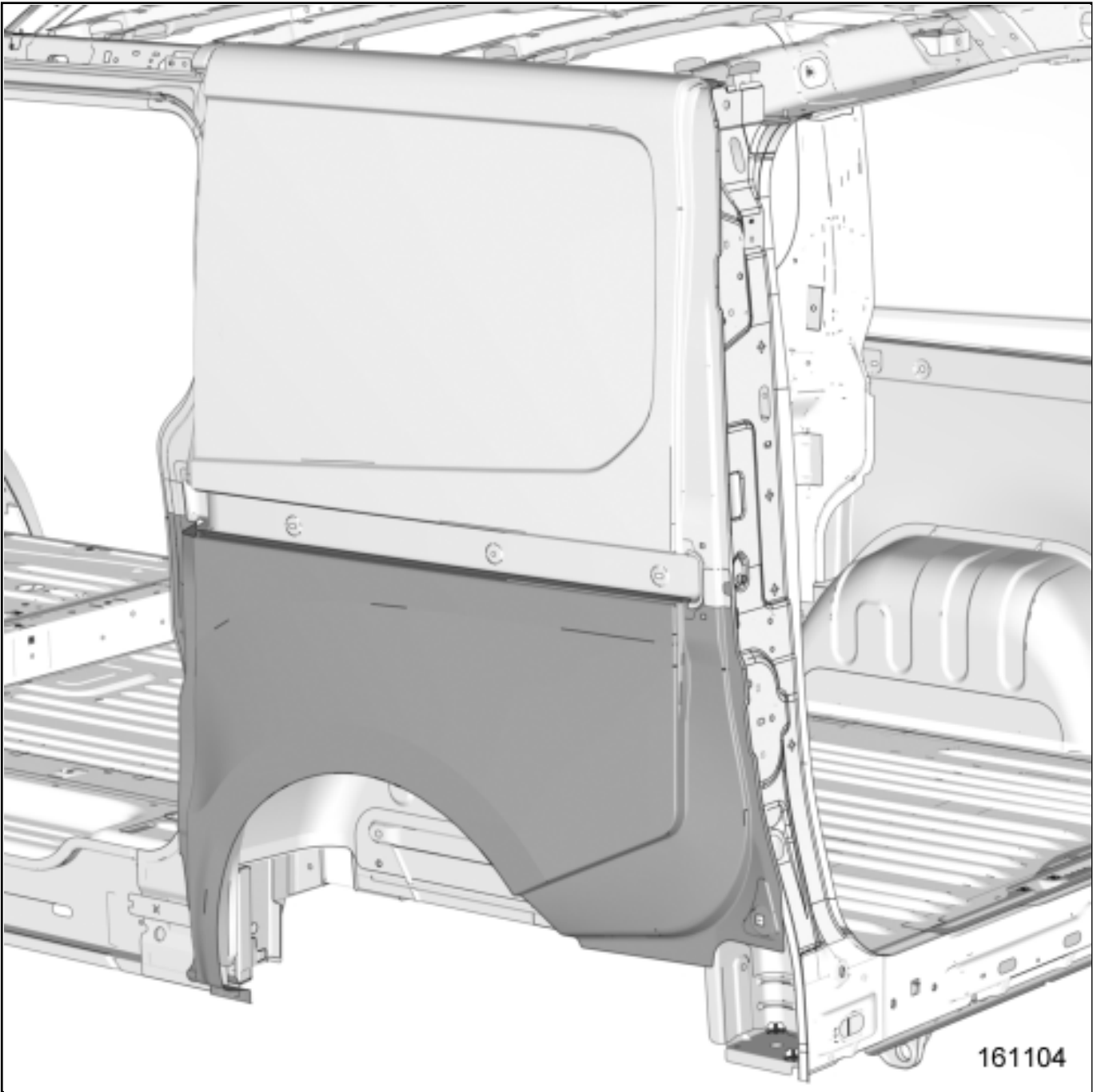
2)IRREMOVABLE BODYWORK COMPONENTS - STRUCTURES TO BE REMOVED IN ORDER TO CARRY OUT THE REPLACEMENT OPERATION

Remove the roof [Roof: Replacement](#) .

2- COMPLETE REPLACEMENT OF THE LOWER SECTION

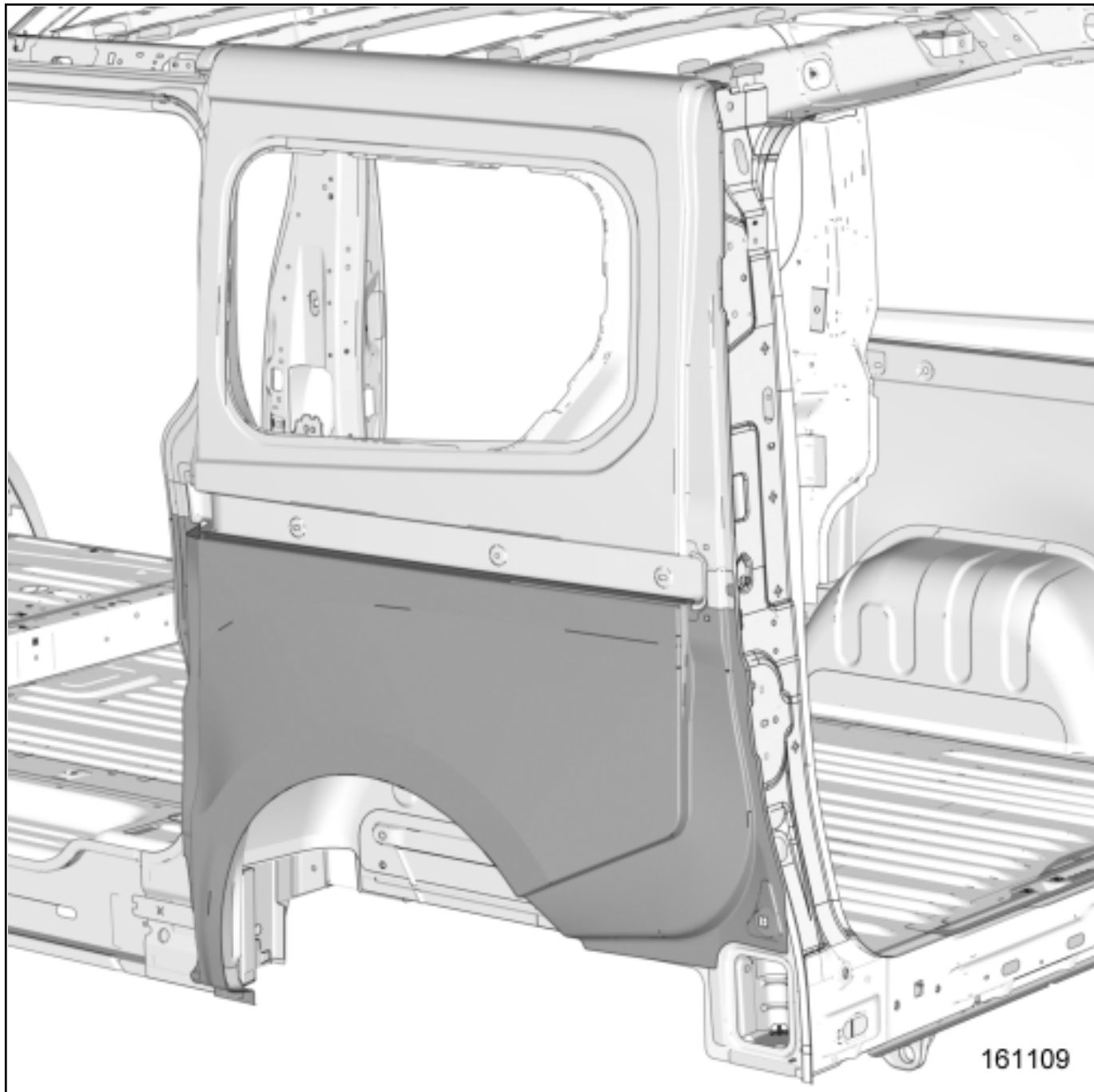
1)PART IN POSITION

PANEL VERSION



161104

GLAZED VERSION



Repair-40x09x08-02x49-1-4-1.xml



XSL version : 3.02 du 22/07/11

REAR SIDE ROOF RAIL: REPLACEMENT



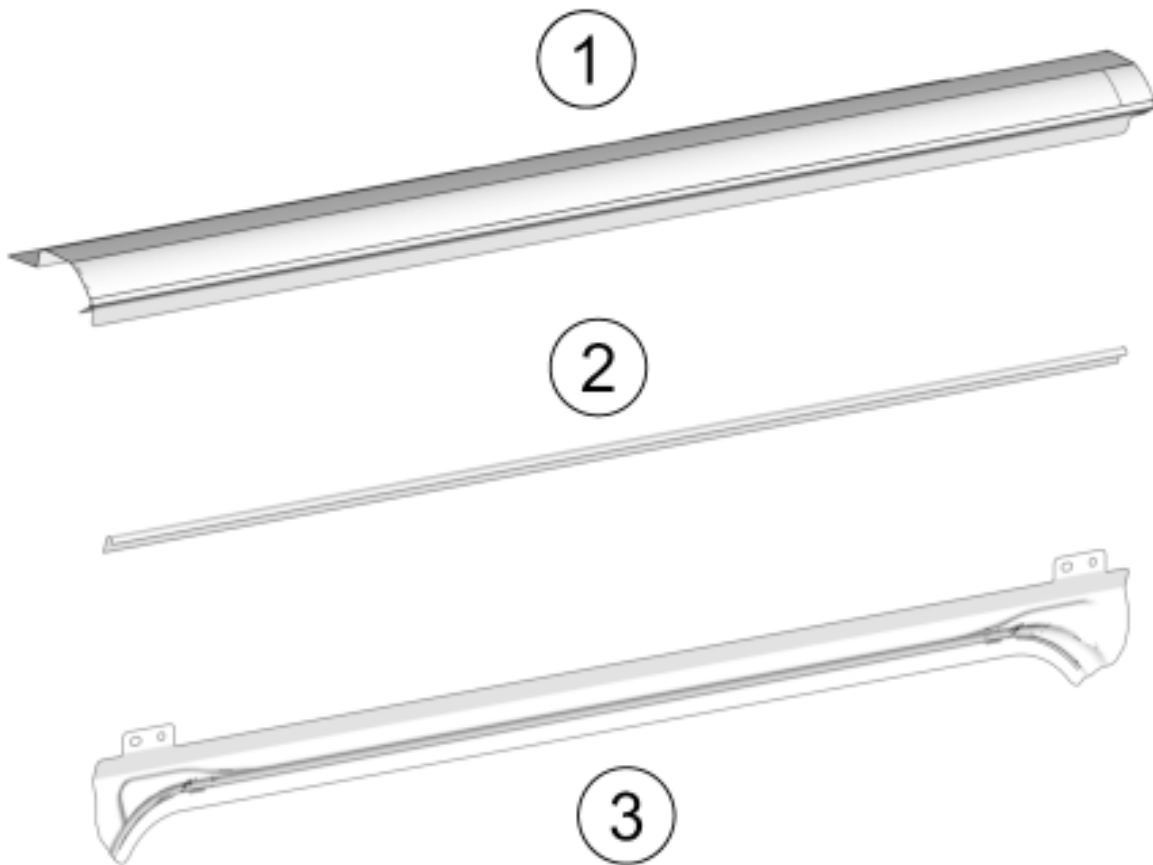
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



161072

No.	Description	Type	Thickness (mm)
(1)	Rear side roof rail	Mild steel	0.75
(2)	Double seal support	Mild steel	1.5
(3)	Side roof rail closure panel	Mild steel	0.75

2. IN THE EVENT OF REPLACEMENT



There is only one way of replacing this part:



complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



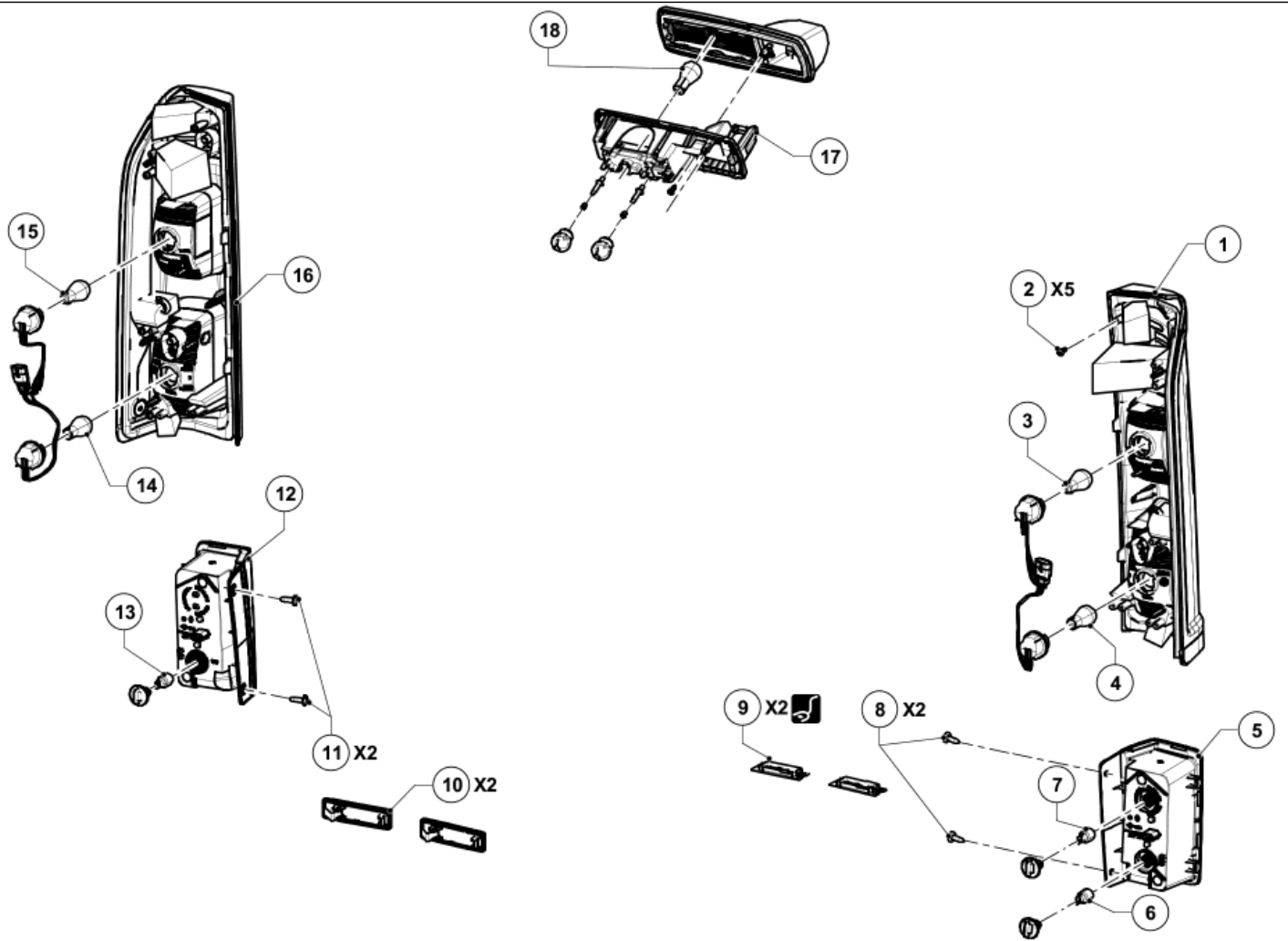
161073



Repair-40x09x22-02x49-1-3-1.xml



REAR SIGNALS - LIGHTING ASSEMBLY: EXPLODED VIEW



[Illustration key: Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Rear light	(see Exterior rear side opening element assembly: Exploded view)
2	Bolts	
3	Direction indicator bulb	
4	Brake light and side light bulb	
5	Rear light	
6	Reverse bulb	
7	Fog light bulb	
8	Rear light bolts	
9	Number plate light	(Car. 1363)
10	Reflectors	
11	Rear light bolts	
12	Rear light	
13	Reverse bulb	
14	Brake light and side light bulb	
15	Direction indicator bulb	
16	Rear light	(see Exterior rear side opening element assembly: Exploded view)
17	3rd brake light	
18	3rd brake light bulb	



Repair-80x02x06x21-02x50-1-9-1.xml



REAR SUSPENSION SPRING: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

spring compressor

component jack



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 33A, Rear axle components, Rear axle components: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



CAUTION

To prevent the components of the rear axle from deteriorating (rubber bushes, brake hoses, etc.) do not remove the two shock absorbers at the same time. Proceed one side at a time.



CAUTION

To prevent any damage, do not use the rear axle as support for the lifting system.



CAUTION

Never use the rear axle as support for a lifting system.

During removal, note the colours of the springs to ensure the conformity of the parts for refitting.

■ Location and specifications (tightening torques, parts always to be replaced, etc.) [\(see 33A, Rear axle](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

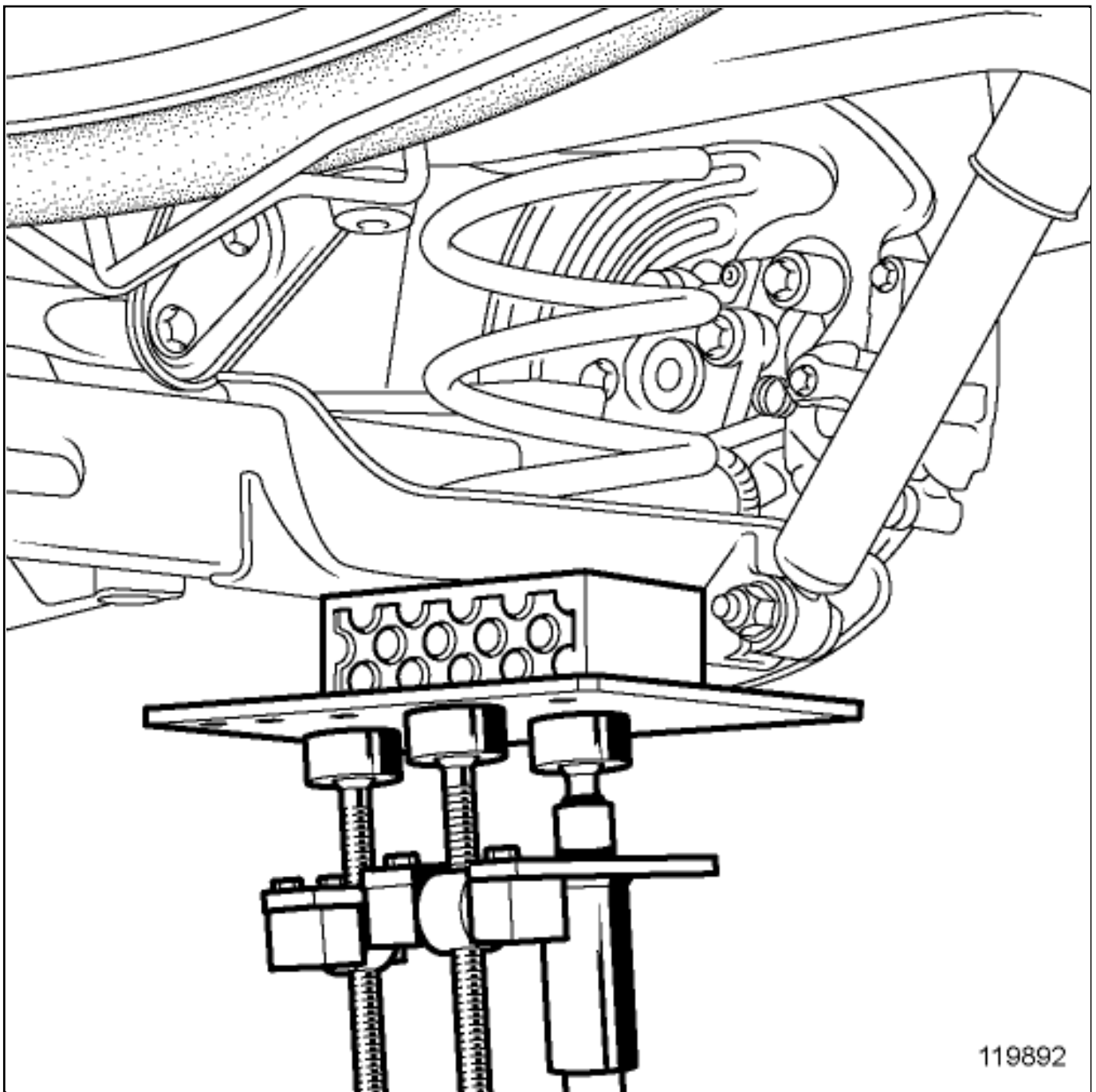
REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- ❑ Remove the rear wheels ([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .

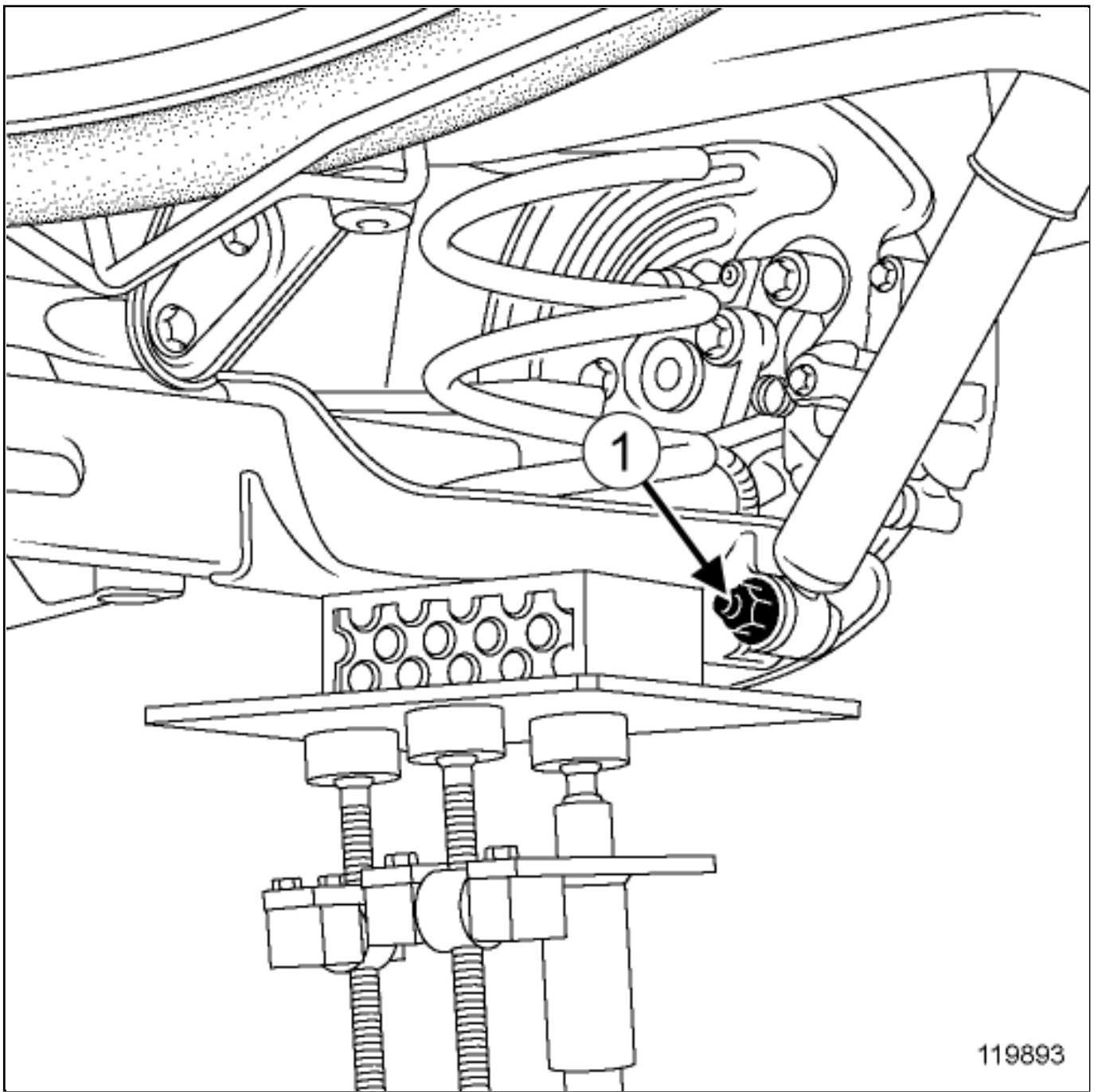
2. OPERATION FOR REMOVAL OF PART CONCERNED

- ❑ Unpick the harness from the ABS sensors.
- ❑ Position the appropriate cups on the spring compressor.



119892

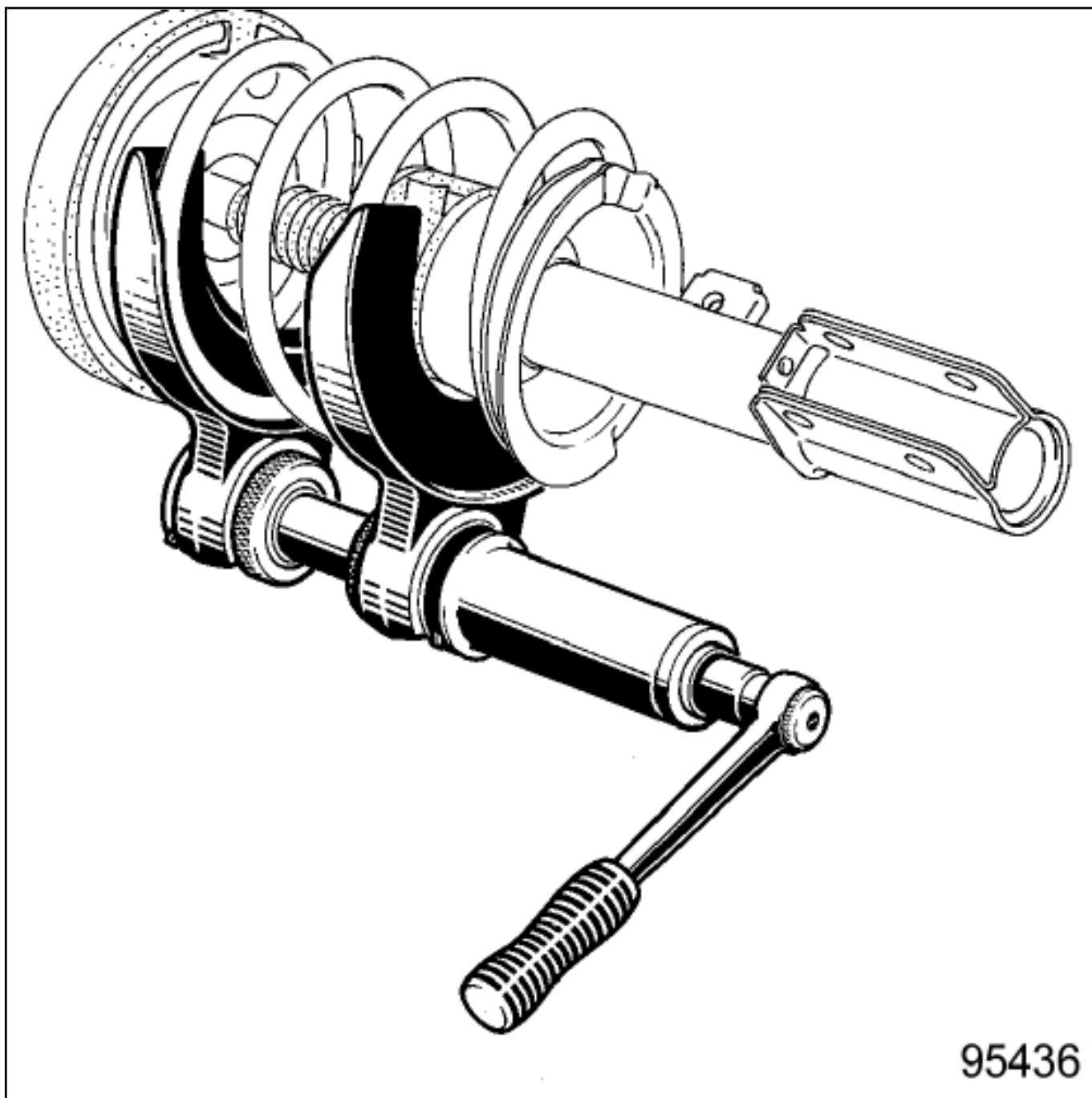
Fit a component jack under the lower suspension spring cup.



119893

Remove the shock absorber lower bolt(1) .

Remove the component jack.



95436

Position the "spring compressor - cups" assembly on the spring.

Compress the spring using the spring compressor until the spring is released.

Remove [\(see 33A, Rear axle components, Rear axle assembly: Exploded view\)](#) :

the vehicle's "compressor - spring" assembly,

the lower spring support.



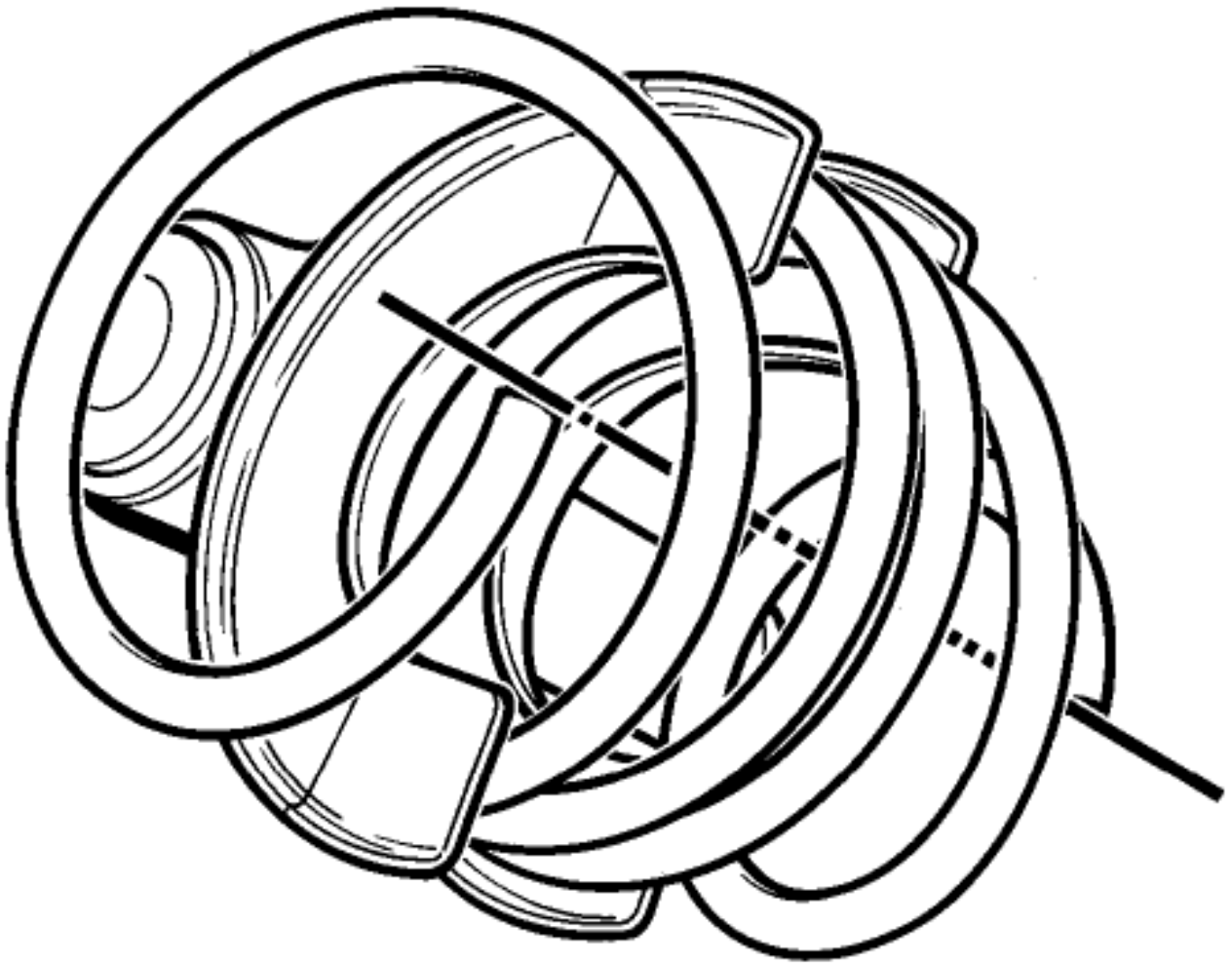
Decompress the suspension spring.



Remove the spring compressor from the suspension spring.

REFITTING

1. REFITTING OPERATION



95435

Fit the spring compressor on the suspension spring.

Compress the spring using the spring compressor.

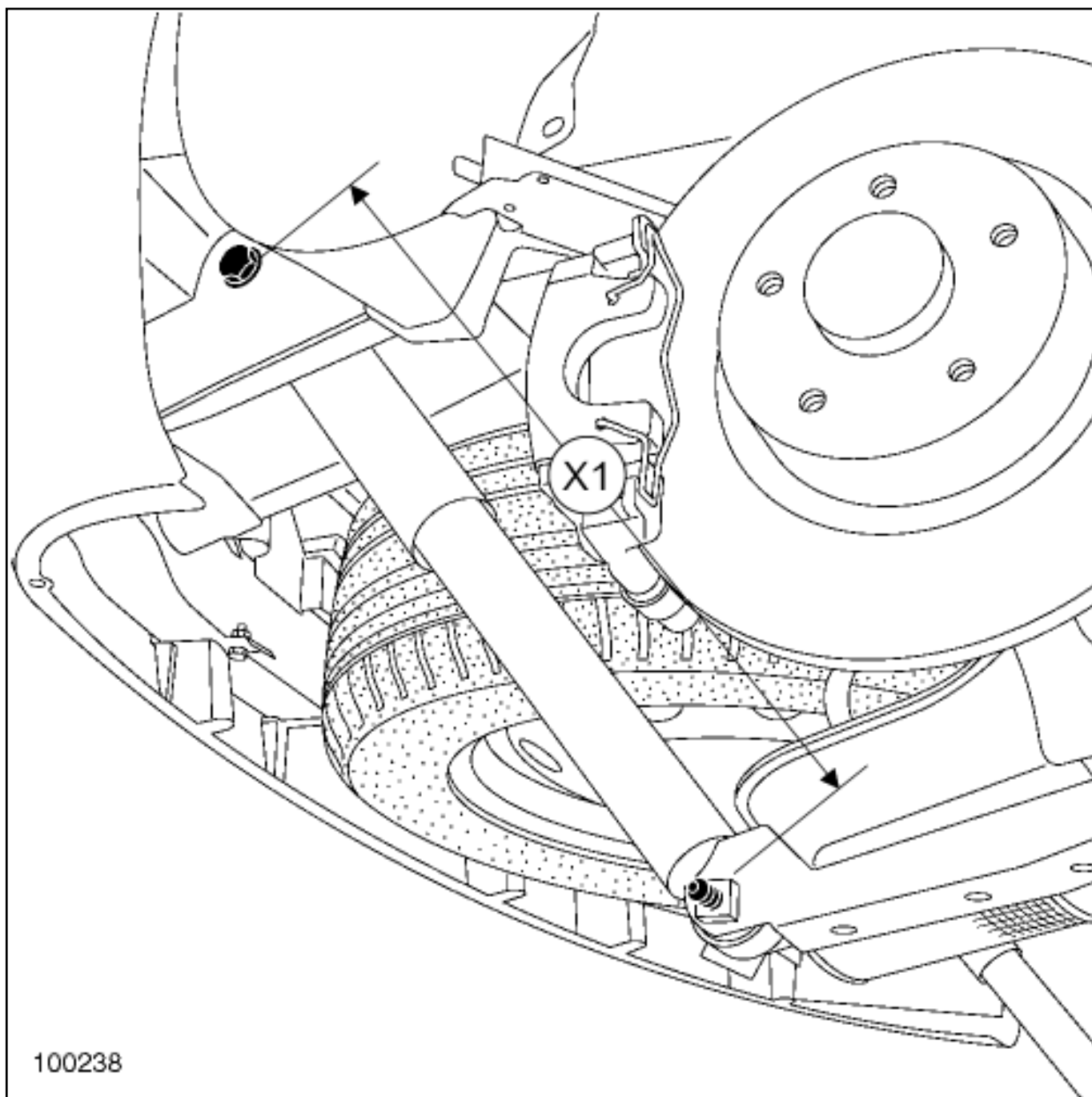
Refit:



the lower spring support,



Decompress the suspension spring.



Fit a component jack under the shock absorber spring cup.

Refit the lower bolt of the shock absorber.

Adjust using the component jack the dimension(x1) = 380 mm.

Note:



The vehicle must be in "half-empty - load" position when tightening the shock absorber rubber bushes (shock absorber length of 380 mm.)



Torque tighten the shock absorber lower bolt([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)).



Clip on the ABS sensor harnesses.

2. FINAL OPERATION.



Remove the component jack.



Bleed the braking circuit([Braking circuit: Bleed](#)).



Refit the rear wheels([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)).



Repair-13x02x06x07-01x37-1-19-1.xml



REAR WHEEL SPEED SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Location and specifications (tightening torques, parts always to be replaced, etc.) [Rear hub carrier assembly: Exploded view](#) .



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair (see **ABS: List and location of components**) .



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

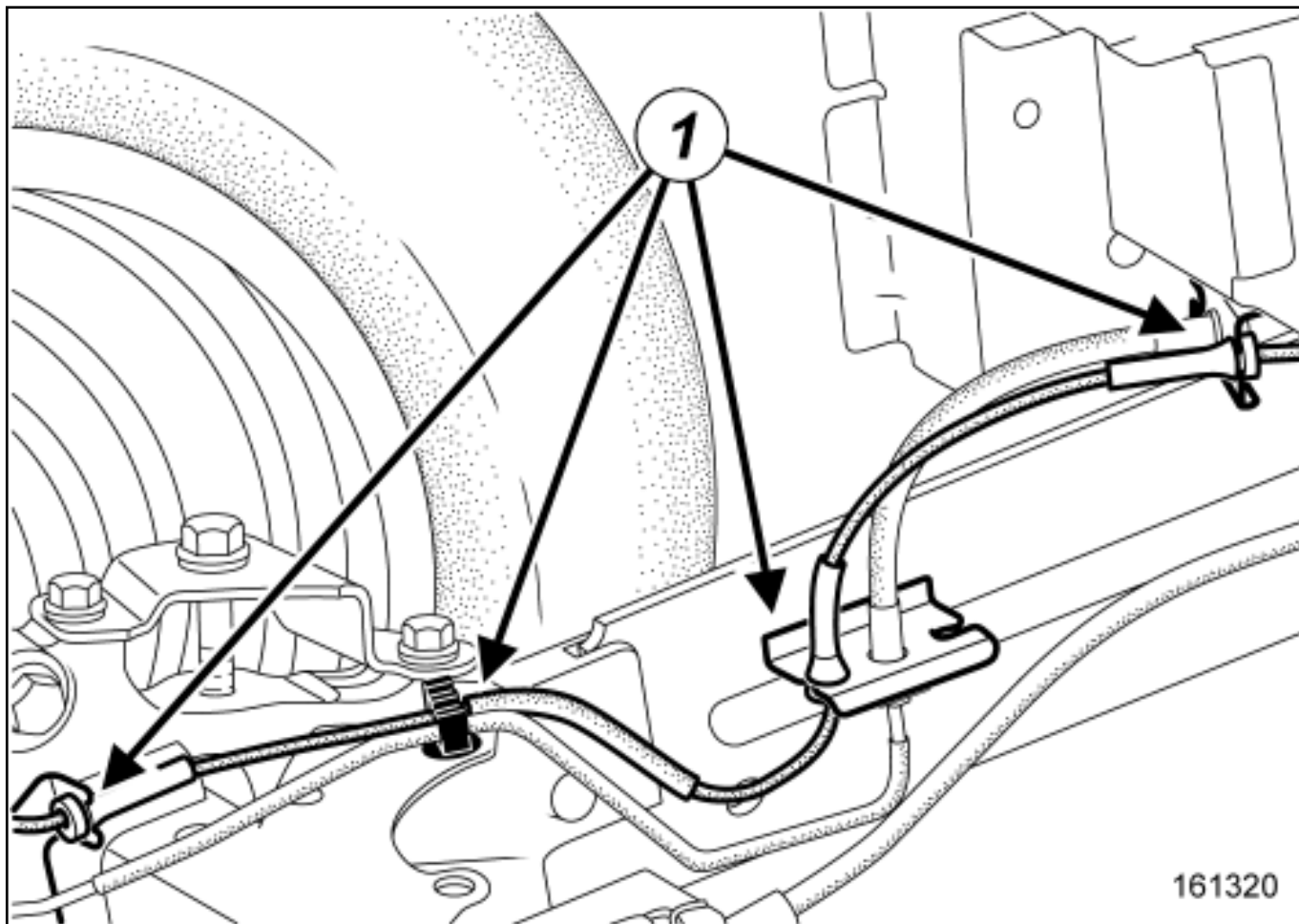
REMOVAL

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

2. REMOVAL OPERATION

- ❑ Disconnect the wheel speed sensor connector.



■
Unclip the wheel speed sensors from the rear axle(1) .

■
Remove the rear wheel speed sensor [Rear hub carrier assembly: Exploded view](#) .

REFITTING

1. REFITTING OPERATION

CAUTION



To avoid damaging the wheel speed sensor cable:



- Do not tension the cable,
- Do not twist the cable,
- Check that there is no contact with the surrounding components,
- Do not use tools that may damage the cable.



Proceed in the reverse order to removal.



[Repair-13x03x10x04-01x37-1-16-1.xml](#)



REAR WING PANEL PROTECTIVE STRIP: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Set of trim removal levers.

Car. 1363

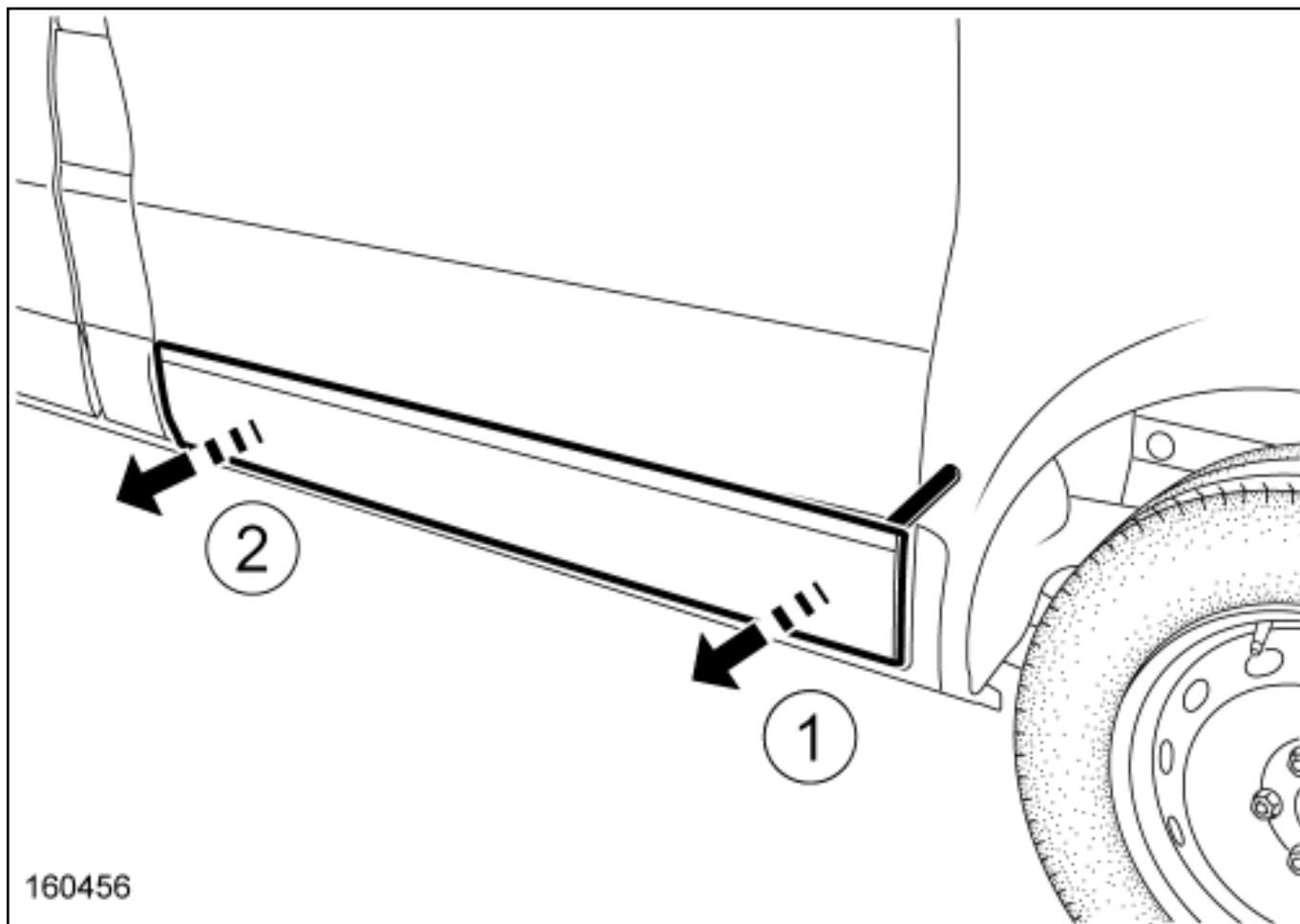


WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL OPERATION





Remove the rear wing panel protective strip at(1) then at (2) using the toolSet of trim removal levers. (Car. 1363) .

REFITTING

1. REFITTING PREPARATION OPERATION



Check the condition of the clips and replace them if necessary.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-50x05x08x11-01x37-1-1-1.xml



XSL version : 3.02 du 22/07/11

RECIRCULATION CONTROL CABLE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION



Disconnect the battery [Battery: Removal - Refitting](#).

Remove:

- the dashboard (see [Dashboard assembly: Exploded view](#)),
-

the front side air distribution ducts ([see 61A, Heating, Air distribution circuit assembly: Exploded view](#)).

2. OPERATION FOR REMOVAL OF PART CONCERNED



([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)):

-
- unclip the recirculation control cable,
-
- remove the recirculation control cable.



Proceed in the reverse order to removal.



Repair-30x02x01x24-01x37-1-20-1.xml



XSL version : 3.02 du 22/07/11

RECIRCULATION MOTOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION



Disconnect the battery [Battery: Removal - Refitting](#) .



Remove:



the dashboard (see **Dashboard assembly: Exploded view**) ,



the right-hand front side air distribution duct ([see 61A, Heating, Air distribution circuit assembly: Exploded view](#)) .

2. REMOVAL OPERATION



Disconnect the recirculation motor connector.



Remove [\(see 61A, Heating, Passenger compartment heating and ventilation assembly: Exploded view\)](#) :

-
- the bolts from the recirculation motor,
-
- the recirculation motor.

REFITTING

Proceed in the reverse order to removal.

Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the After repair procedure:

■ "Air conditioning computer" ,

-Component affected by the After repair procedure:

■ "Air recirculation flap motor" .



Repair-30x02x04x07-01x37-1-40-1.xml



XSL version : 3.02 du 22/07/11

REFRIGERANT CIRCUIT: DRAINING - FILLING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair ([see 62A, Air conditioning, Air conditioning: Precautions for the repair](#)).



CAUTION

Consult the device's operating manual to avoid incorrect use.



CAUTION

To avoid damaging the cold loop components (corrosions, etc.), do not use dye if the traces reveal that some product has already been injected.

Note:



A summary table gives the quantities of refrigerant in the system according to the engine type ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)).

1. RECOVERING REFRIGERANT FLUID



Note:

- If the air conditioning circuit is fitted with a single filler valve, some filling equipment only requires the use of the high pressure pipe (refer to the filling station instructions).
- Depending on the situation, run the system for a few minutes before recovering the coolant to improve drainage.

Note:

It is essential to follow these procedures to prevent:



- gas escaping when the circuit is opened,
- pollution of the environment through the release of gas into the atmosphere when the circuit is opened or when a vacuum is created.

■ When draining or checking the refrigerant fill load, three scenarios are to be taken into account:

- the engine is running and the air conditioning is in operation (A),
- the engine is running but the air conditioning is not in operation (B),
- the engine is not running nor is the air conditioning in operation (C).



Scenario A:

-
- Operate the air conditioning until the cooling fan assembly is triggered twice,
-
- Switch off the engine,
-
- drain for the first time (note down the original value),
-
- wait **15 minutes**,
-
- check that the relative pressure is no more than **0 bar**,
-
- repeat the cycles until the relative pressure is equal to or less than **0 bar**,
-
- add together the values of the various draining operations; the fill is confirmed as being correct if the

volume of refrigerant fluid is the specified fill +35g or -100g.

Scenario B:



run the engine until the cooling fan is triggered twice,



Switch off the engine,



drain for the first time (note down the value),



wait 15 minutes,



run the engine until the cooling fan is triggered twice,



Switch off the engine,



drain for the second time (note down the value),



repeat the cycles until the relative pressure is equal to or less than 0 bar,



add together the values of the various draining operations; the fill is confirmed as being correct if the volume of refrigerant fluid is the specified fill +35g or -100g.

Scenario C:



drain for the first time (note down the value),



wait 2 hours,



repeat the cycles until the relative pressure is equal to or less than 0 bar,



add together the values of the various draining operations; the fill is confirmed as being correct if the volume of refrigerant fluid is the specified fill +35g or -100g.

It is essential to carry out vacuum extraction correctly before loading, otherwise the air conditioning will not work properly.

There are two scenarios to consider:

- vacuum created immediately after discharge (scenario A),
- vacuum created after an interval of several hours or days (scenario B).

Scenario A:

■ creation of a vacuum takes **20 minutes**.

Scenario B:

■ creation of a vacuum takes **45 minutes** to eliminate any trace of moisture.

Test the seal once the vacuum has been created (some stations do this automatically).

3. FILLING

Fill up the refrigerant circuit using the refrigerant charging station.

Top up the oil with the recommended type and volume of oil and refrigerant, depending on the work carried out ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)).

Check there are no leaks using the electronic detector ([see 62A, Air conditioning, Refrigerant circuit: Check](#)).

CAUTION



After injecting dye into the refrigerant, be sure to indicate this on a label (supplied with the dye capsule), and the date of the operation.

Position the label so it is visible near to the cold loop filler valve.



Check that the air conditioning system is operating correctly ([see 62A, Air conditioning, Air conditioning: Check](#)).



Repair-30x02x02x02-01x73-1-16-1.xml



XSL version : 3.02 du 22/07/11

REFRIGERANT PIPE SEAL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 62A, Air conditioning, Air conditioning: Precautions for the repair\)](#)
- [Vehicle: Precautions for the repair](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Drain the refrigerant circuit using the refrigerant charging station [\(see 62A, Air conditioning, Refrigerant circuit: Draining - Filling\)](#) .

■ Remove the connecting pipe concerned:

- (see **Condenser - evaporator connecting pipe: Removal - Refitting**)
- [\(see 62A, Air conditioning, Condenser - expansion valve connecting pipe: Removal - Refitting\)](#)
- (see **Rear condenser - front condenser connecting pipe: Removal - Refitting**)
- (see **Evaporator - dehydrator reservoir connecting pipe: Removal - Refitting**)
- (see **Compressor - rear condenser connecting pipe: Removal - Refitting**)
- (see **Condenser - evaporator connecting pipe: Removal - Refitting**)
- (see **Compressor - dehydrator reservoir connecting pipe: Removal - Refitting**)
- (see **Dehydrator reservoir - rear expansion valve connecting pipe: Removal - Refitting**)
- (see **Main expansion valve - additional expansion valve pipe: Removal - Refitting**)
- [\(see 62A, Air conditioning, Expansion valve - intermediate pipe connecting pipe at the expansion valve outlet:](#)

Removal - Refitting)

■ (see **Dehydrator reservoir - expansion valve connecting pipe: Removal - Refitting**)

■ (see **Condenser - dehydrator reservoir connecting pipe: Removal - Refitting**)

■

■ (see **Expansion valve - compressor connecting pipe: Removal - Refitting**)

■

■ (see **Expansion valve - rear expansion valve connecting pipe: Removal - Refitting**)

■

■ (see **Rear expansion valve - compressor connecting pipe: Removal - Refitting**)

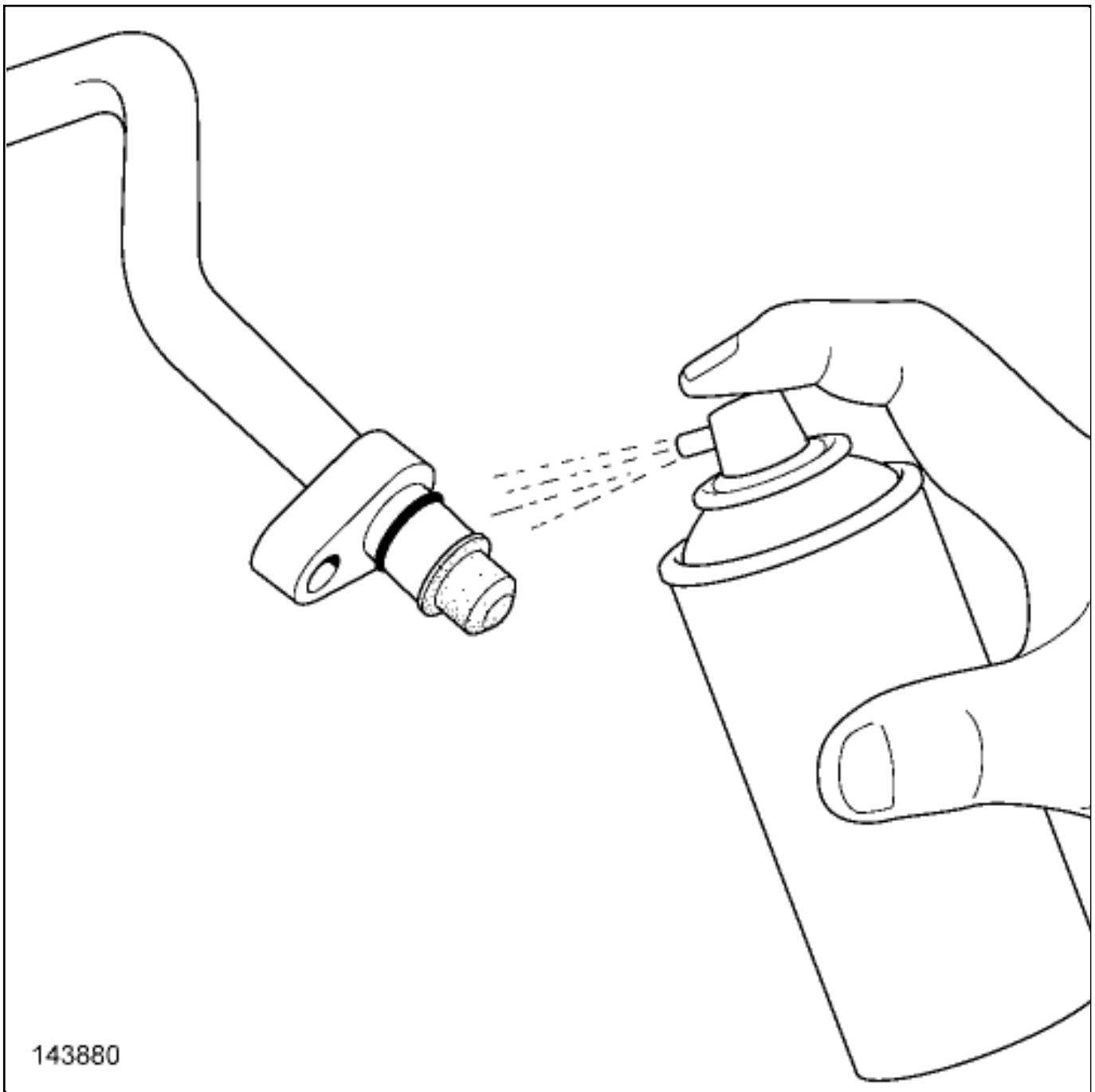
■

■ (see 62A, Air conditioning, Compressor - condenser connecting pipe: Removal - Refitting)

■

(see 62A, Air conditioning, Compressor - intermediate pipe connecting pipe: Removal - Refitting)

2. OPERATION FOR REMOVAL OF PART CONCERNED



■ Clean the surface of the pipe([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

REFITTING

1. REFITTING OPERATION FOR PART CONCERNED

Refit the seal on the connecting pipe.

2. FINAL OPERATION



Proceed in the reverse order to removal.

Note:



A summary table gives the quantities of refrigerant in the system according to the engine types ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .



Perform the following operations:

- refill the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) ,



check for leaks ([see 62A, Air conditioning, Refrigerant circuit: Check](#)) .



Check that the air conditioning system is operating correctly ([see 62A, Air conditioning, Air conditioning: Check](#)) .



Repair-30x02x02x52-01x37-1-3-1.xml



XSL version : 3.02 du 22/07/11

REFRIGERANT PRESSURE SENSOR : REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

refrigerant charging station



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 62A, Air conditioning, Air conditioning: Precautions for the repair](#)) .



CAUTION

To prevent moisture from entering the system, place plugs on the cold loop components which are open to the air.

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION



Drain the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) .



Disconnect the battery ([Battery: Removal - Refitting](#)) .



Remove:



- the front opening element opening control [Front opening element mechanism assembly : Exploded view](#) ,

- the radiator grille [Front bumper assembly: Exploded view](#) .

2. REMOVAL OPERATION



Remove the pressure sensor ([see 62A, Air conditioning, Passenger compartment cooling assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION



Clean the seals of the refrigerant circuit pipes ([see 62A, Air conditioning, Refrigerant circuit pipe seal: Cleaning](#)) .

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Consult the refrigerant and oil quantity values before filling the circuit ([see 62A, Air conditioning, Air conditioning: Parts and consumables for the repair](#)) .



Perform the following operations:



- fill the refrigerant circuit using the refrigerant charging station ([see 62A, Air conditioning, Refrigerant circuit: Draining - Filling](#)) ,



- check for leaks ([see 62A, Air conditioning, Refrigerant circuit: Check](#)) .



Check that the air conditioning system is operating correctly ([see 62A, Air conditioning, Air conditioning: Check](#)) .



Repair-30x02x02x05-01x37-1-38-1.xml



XSL version : 3.02 du 22/07/11

RELAY SHAFT BEARING: REMOVAL - REFITTING

Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 29A, Driveshafts , Driveshaft assembly: Exploded view\)](#) .

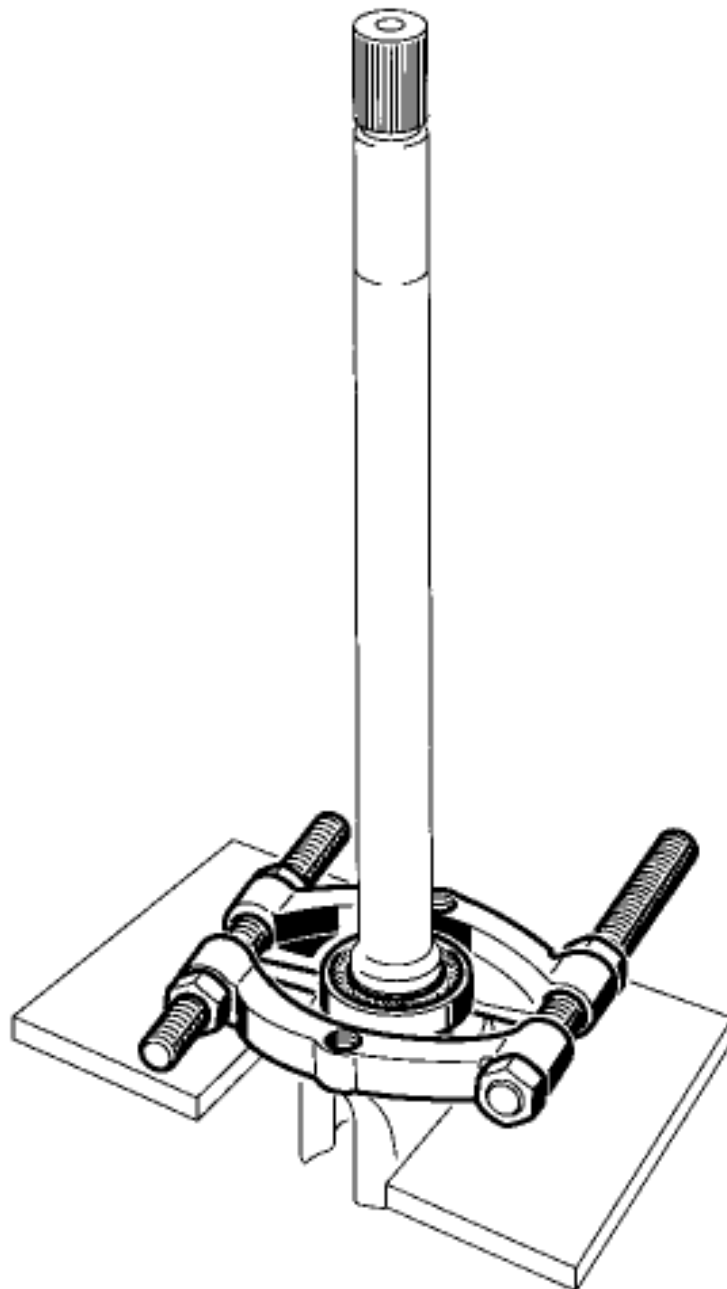
REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift[Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Remove:
 - the engine undertray,
 - the front right-hand wheel[Wheel: Removal - Refitting](#) (35A, Wheels and tyres).
- Drain the manual gearbox oil[Manual gearbox oils: Draining - Filling](#) .
- Remove [\(see 29A, Driveshafts , Driveshaft assembly: Exploded view\)](#) :
 - the front right-hand driveshaft.
 - the right-hand side differential output seal.
- Separate the relay shaft from the driveshaft[\(see 29A, Driveshafts , Driveshaft assembly: Exploded view\)](#) .

2. REMOVAL OPERATION

- Remove the relay shaft bearing circlip[\(see 29A, Driveshafts , Driveshaft assembly: Exploded view\)](#) .



13611

- Remove the relay shaft bearing([see 29A, Driveshafts , Driveshaft assembly: Exploded view](#)) using a press and an extractor.

REFITTING

1. REFITTING PREPARATION OPERATION

- Clean and degrease the bore of the relay bearing with surface cleaner([Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products)).

- ❑ Lubricate the relay shaft mating face into which the bearing is inserted.

2. REFITTING OPERATION

- ❑ Fit a new bearing on the relay shaft.
- ❑ Fit the bearing to the end using a tube, so that it rests on the inner bearing race.
- ❑ Refit a new relay shaft bearing circlip.
- ❑ Proceed in the reverse order to removal.
- ❑ Fill up the manual gearbox [Manual gearbox oils: Draining - Filling](#) .



Repair-13x01x01x07-01x37-1-18-1.xml



XSL version : 3.02 du 22/07/11

REVERSE GEAR SWITCH: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Socket for removing/refitting reverse gear switch

Bvi. 1934



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

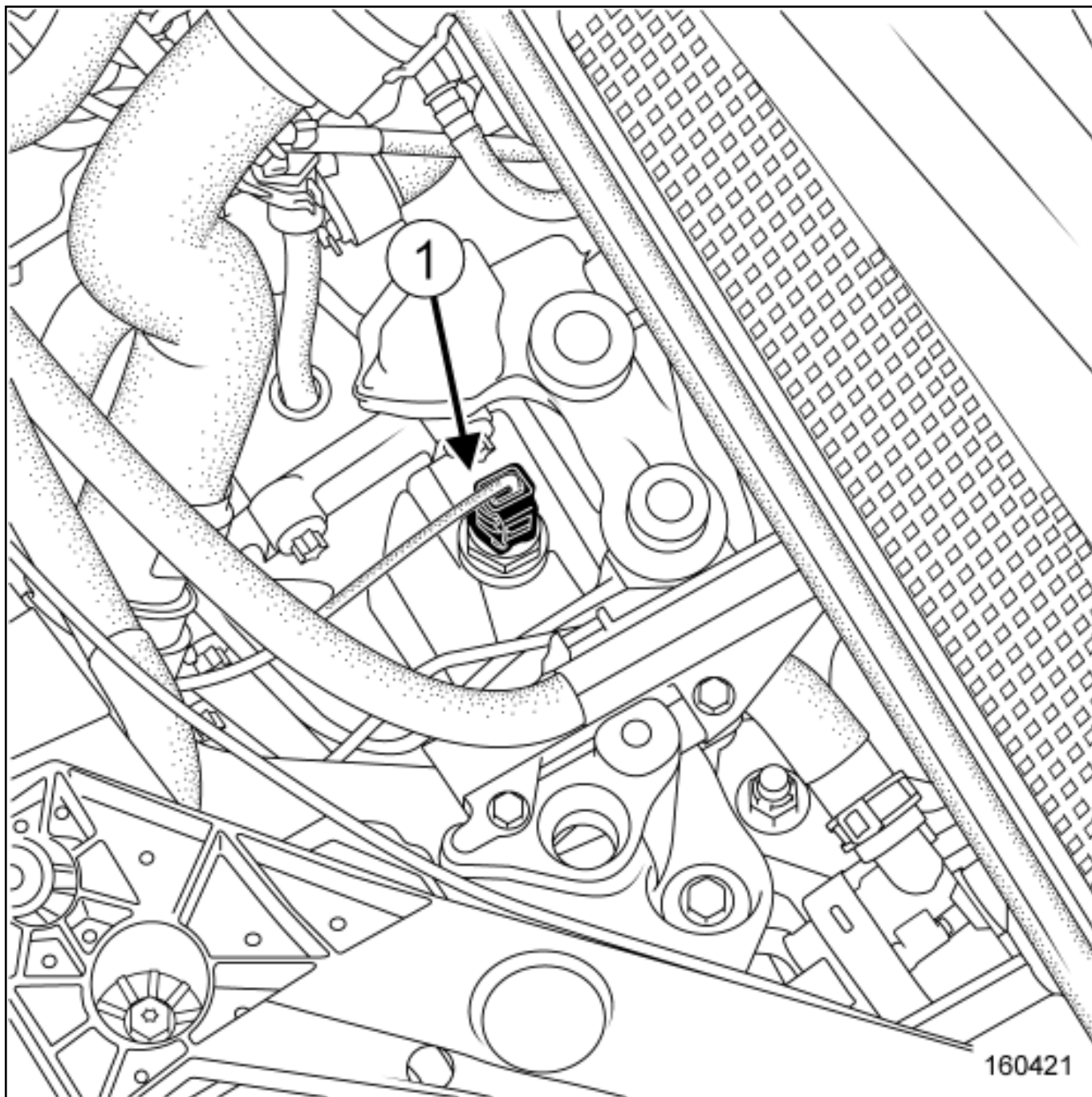
Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 21A, Manual gearbox, Gearbox assembly: Exploded view](#)).

REMOVAL

1. REMOVAL OPERATION

Remove:

-
- the battery [Battery: Removal - Refitting](#) ,
- the battery tray [Battery tray: Removal - Refitting](#) .



■ Disconnect the reverse gear switch connector(1) .

■ Remove the reverse gear switch using the tool Socket for removing/refitting reverse gear switch (Bvi. 1934) (see [21A, Manual gearbox , Gearbox assembly: Exploded view](#)) .

1. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-12x01x10-01x37-1-14-1.xml



XSL version : 3.02 du 22/07/11

RIGID BRAKE PIPE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

pedal press

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 33A, Rear axle components, Rear axle components: Precautions for the repair\)](#) ,
- [Brake circuit: Precautions for the repair](#) ,
- [Vehicle: Precautions for the repair](#) .



CAUTION

Prepare for the flow of fluid, and protect the surrounding components.

The pipes have a rigid and a flexible section.



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

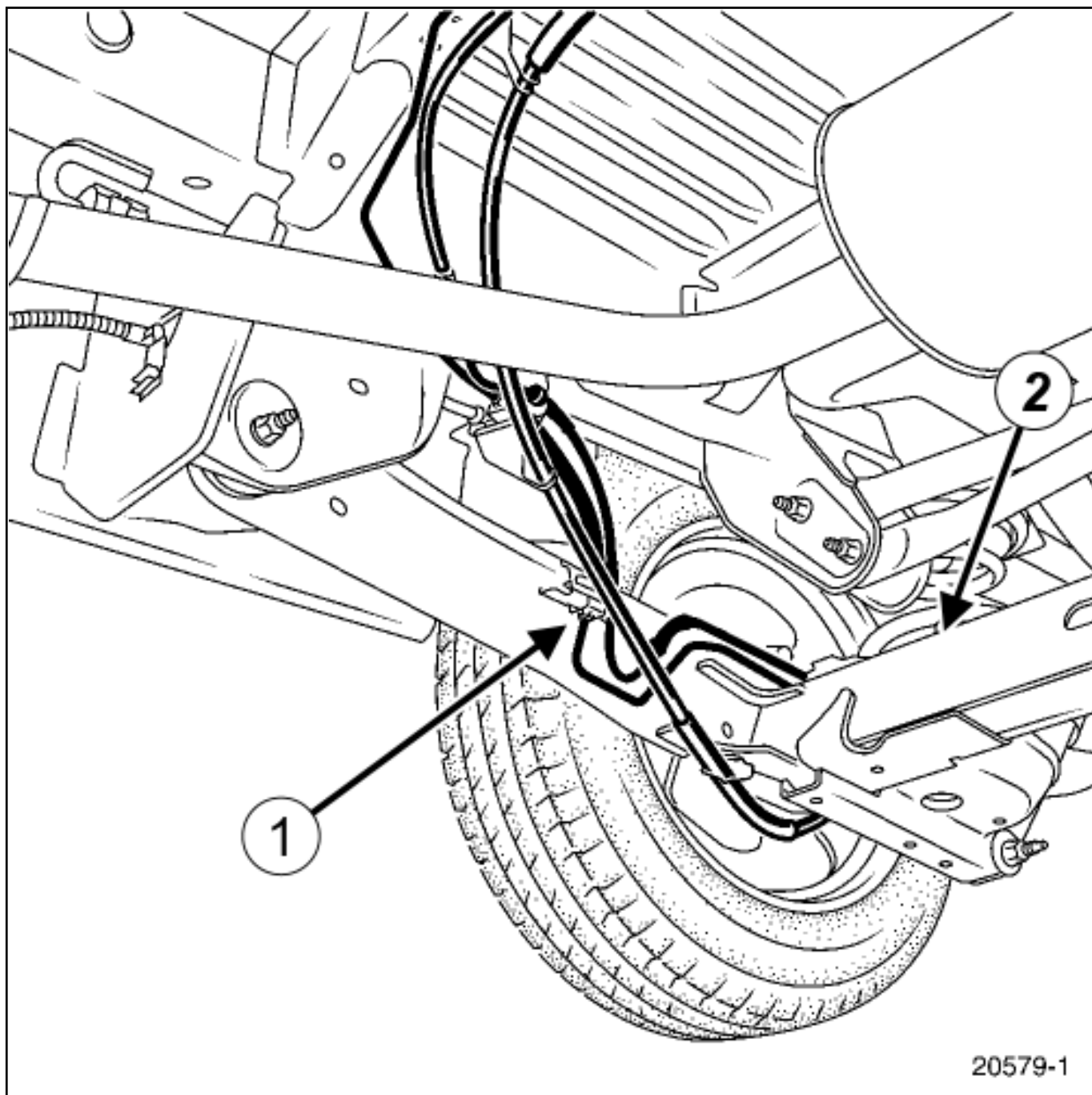
REMOVAL

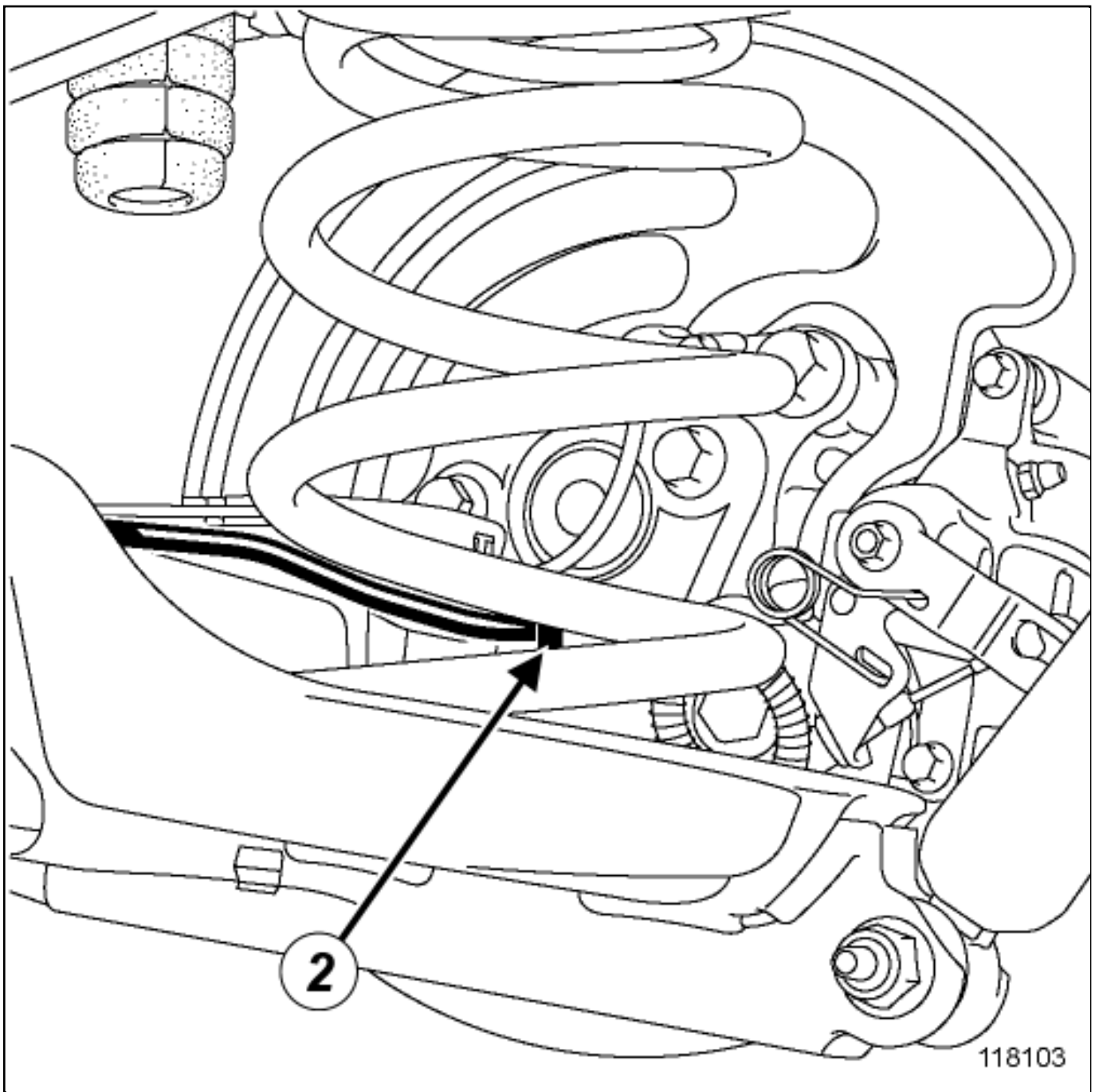
1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Fit the pedal press to the brake pedal to limit the outflow of brake fluid.

Remove the rear wheel(see 33A, Rear axle components, Rear hub carrier assembly: Exploded view) .

2. REMOVAL OPERATION





Loosen:

-
- the rigid brake pipe at(1) ,
- the rigid brake pipe at(2) .

Unclip the rear axle rigid brake pipe.

Remove the rigid brake pipe.

Fit blanking plugs on the pipe openings.

REFITTING

1. REFITTING OPERATION FOR PART CONCERNED

CAUTION



In order to not damage the brake hose:



do not tension the hose,



do not twist the hose,



check that there is no contact with the surrounding components.



Remove the blanking plugs from the openings.

Refit the rigid pipe in its original position.

Torque tighten the rigid brake pipe unions on the rear brake hoses 17 N.m.

2. FINAL OPERATION

Refit the rear wheel ([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)).

Bleed the brake circuit Braking circuit: Bleed .



Repair-13x03x09x01-01x37-1-20-1.xml



XSL version : 3.02 du 22/07/11

ROOF FRONT SIDE HEIGHT ADJUSTER: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Roof front side height adjuster	Mild steel	0.75

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



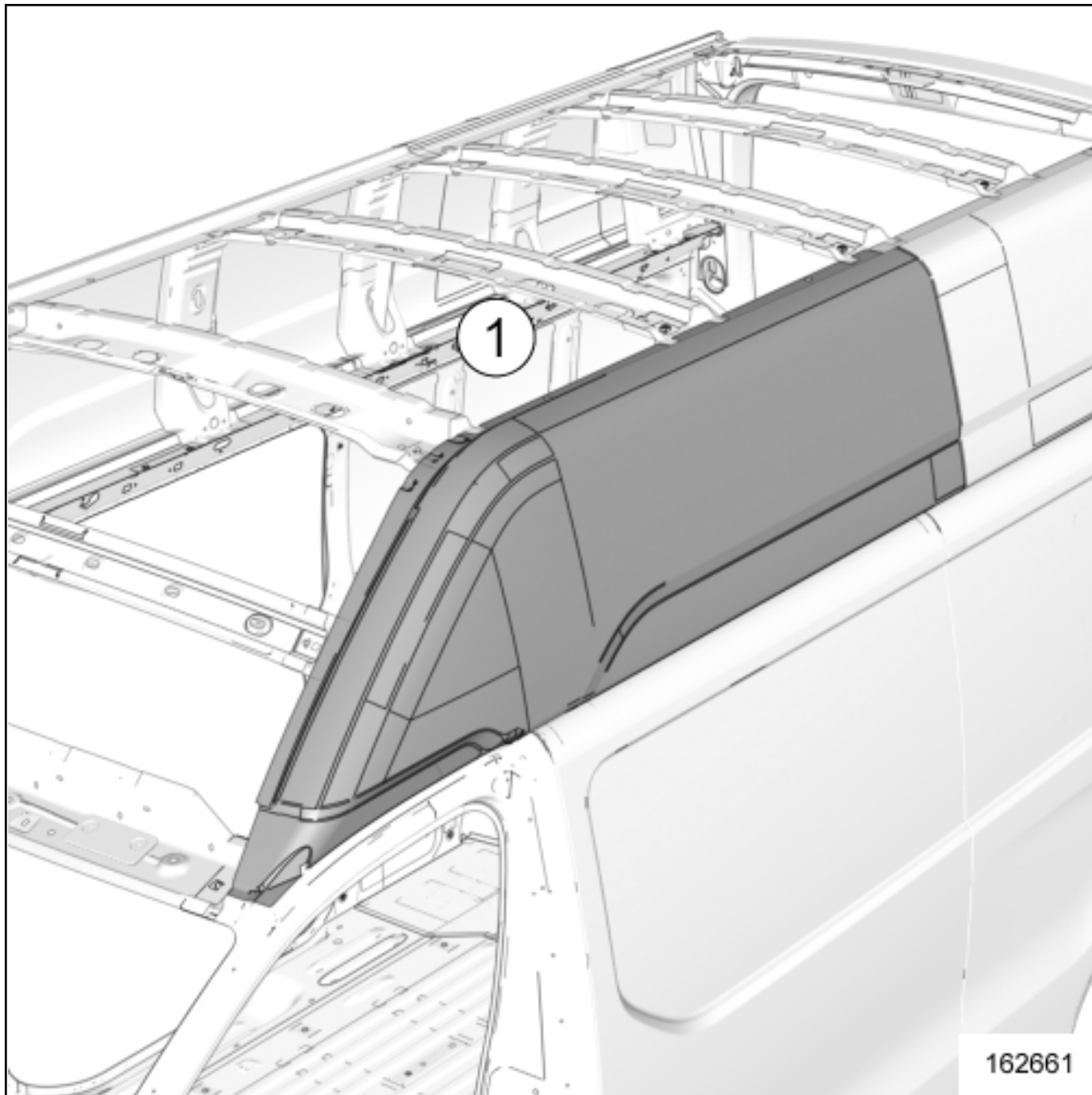
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



2) REMOVABLE BODYWORK COMPONENTS - STRUCTURES TO BE REMOVED IN ORDER TO CARRY OUT THE REPLACEMENT OPERATION

Remove:



the front roof ([see 45A, Top of body, Front roof: Replacement](#)),



the rear roof ([see 45A, Top of body, Rear roof: replacement](#)).



ROOF REAR CROSS MEMBER LINING: REPLACEMENT



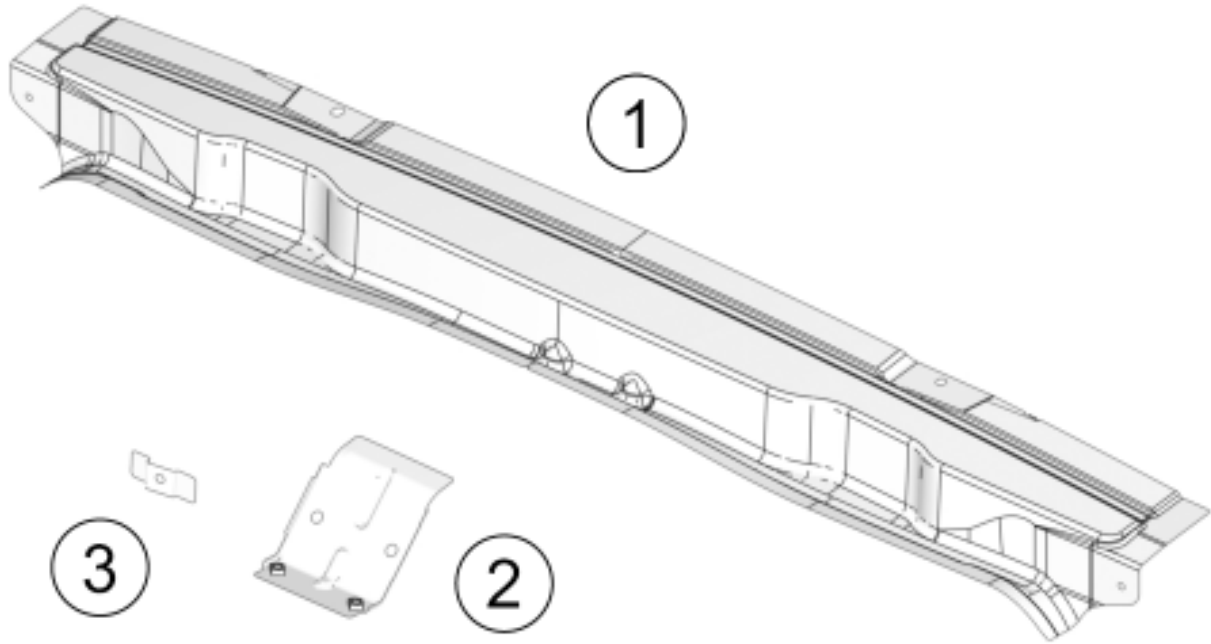
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



161129

No.	Description	Type	Thickness (mm)
(1)	Roof rear cross member lining	HSS	1.0
(2)	Luggage compartment lid striker panel reinforcement	Mild steel	1.2
(3)	Mounting bridge piece	HSS	1.5

2. IN THE EVENT OF REPLACEMENT

- ▣ There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

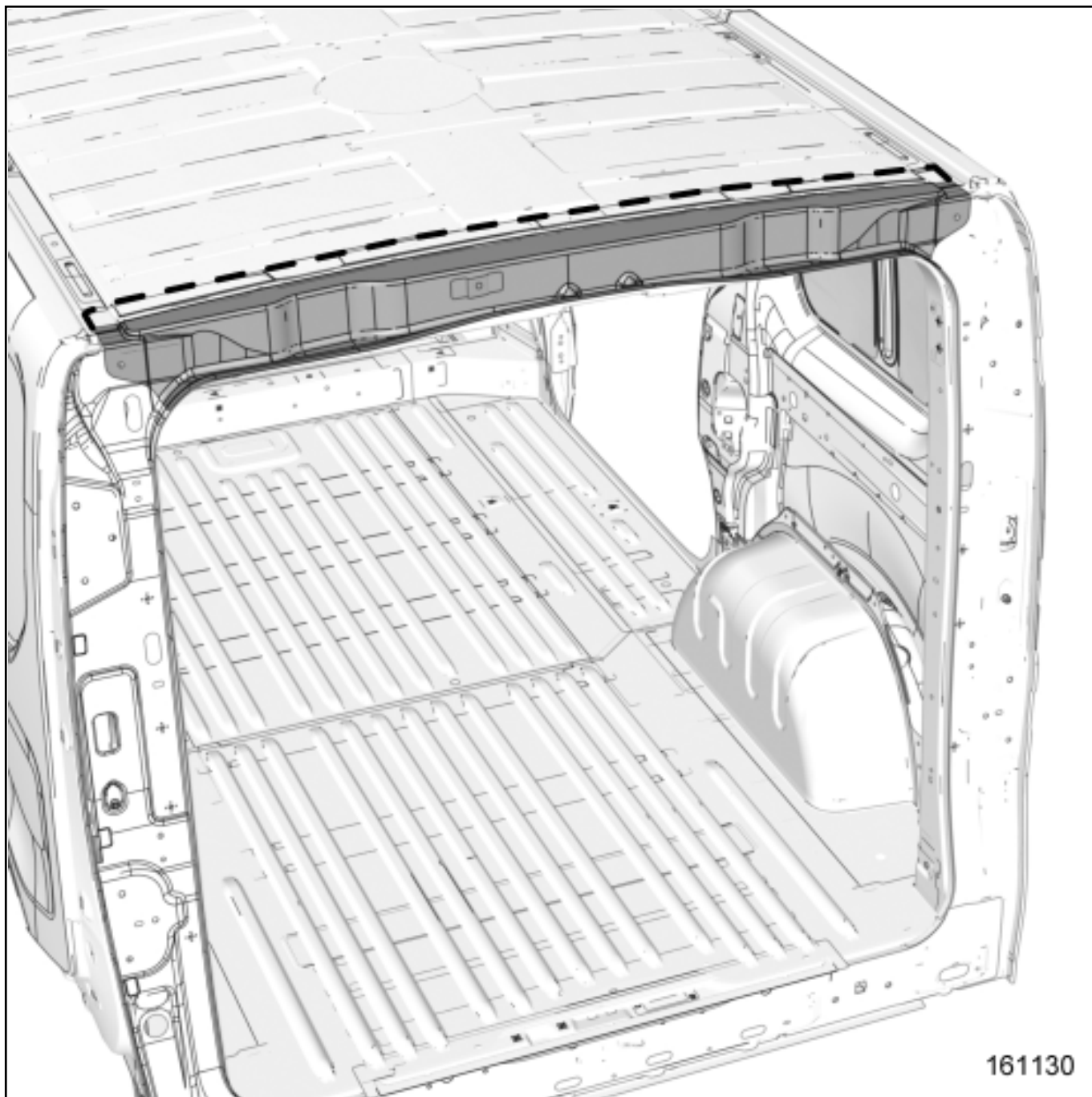
To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



Repair-40x07x04x16-02x49-1-3-1.xml



ROOF REAR SIDE HEIGHT ADJUSTER: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Roof rear side height adjuster	Mild steel	0.75

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



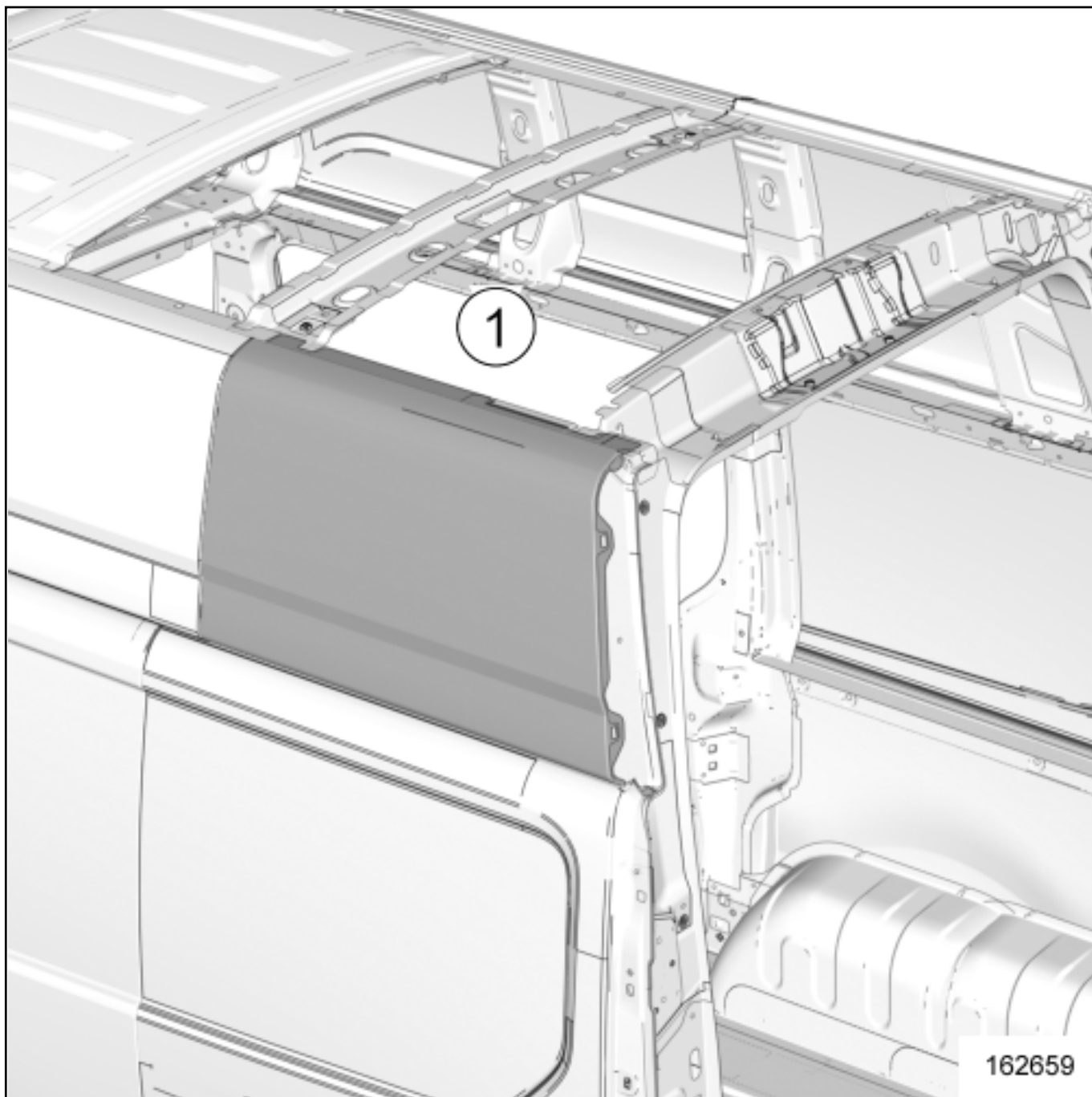
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



2)IRREMOVABLE BODYWORK COMPONENTS - STRUCTURES TO BE REMOVED IN ORDER TO CARRY OUT THE REPLACEMENT OPERATION

Remove the rear roof([see 45A, Top of body, Rear roof: replacement](#)) .



ROOF:REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Roof	Mild steel	0.65

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
- complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

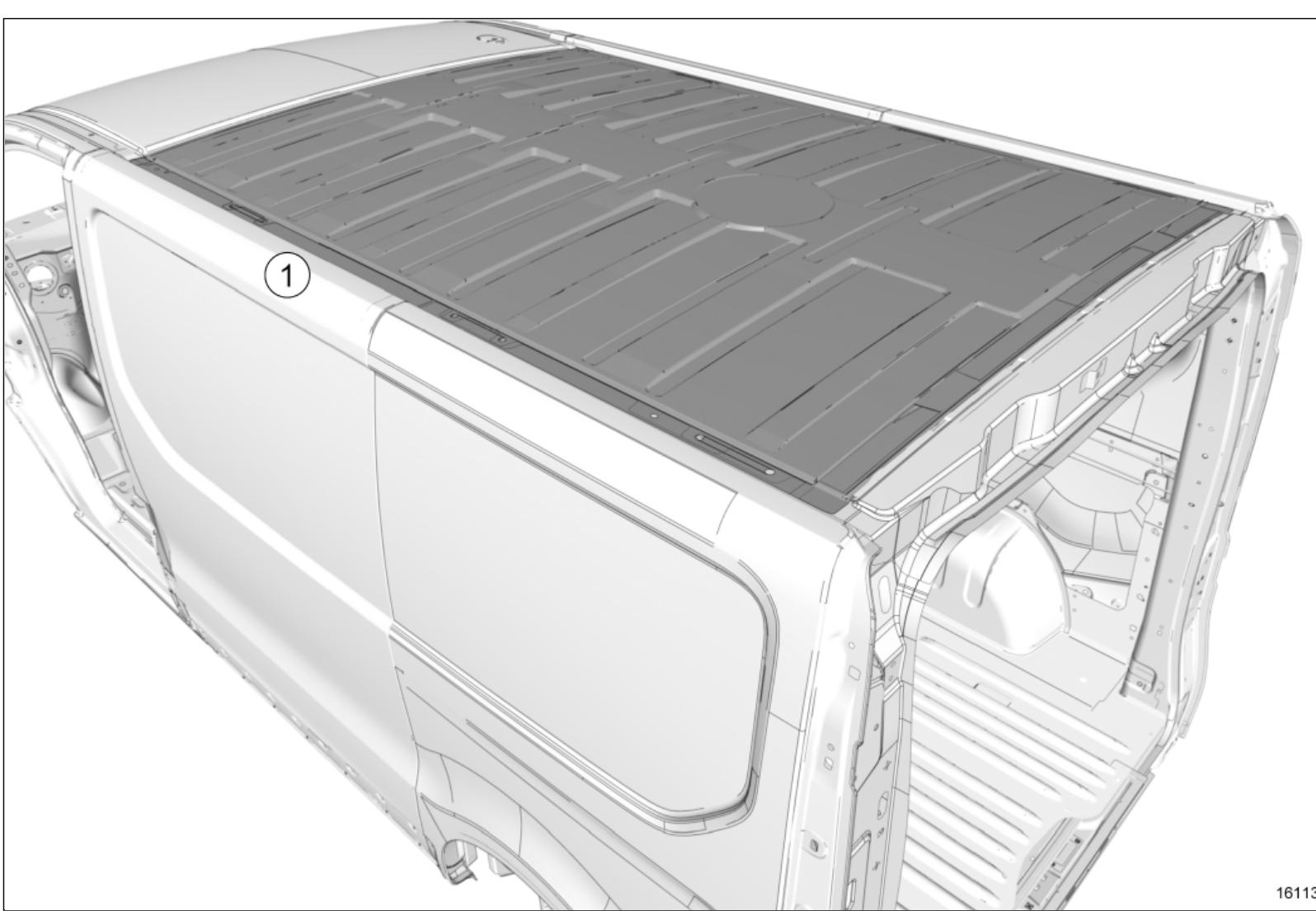
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

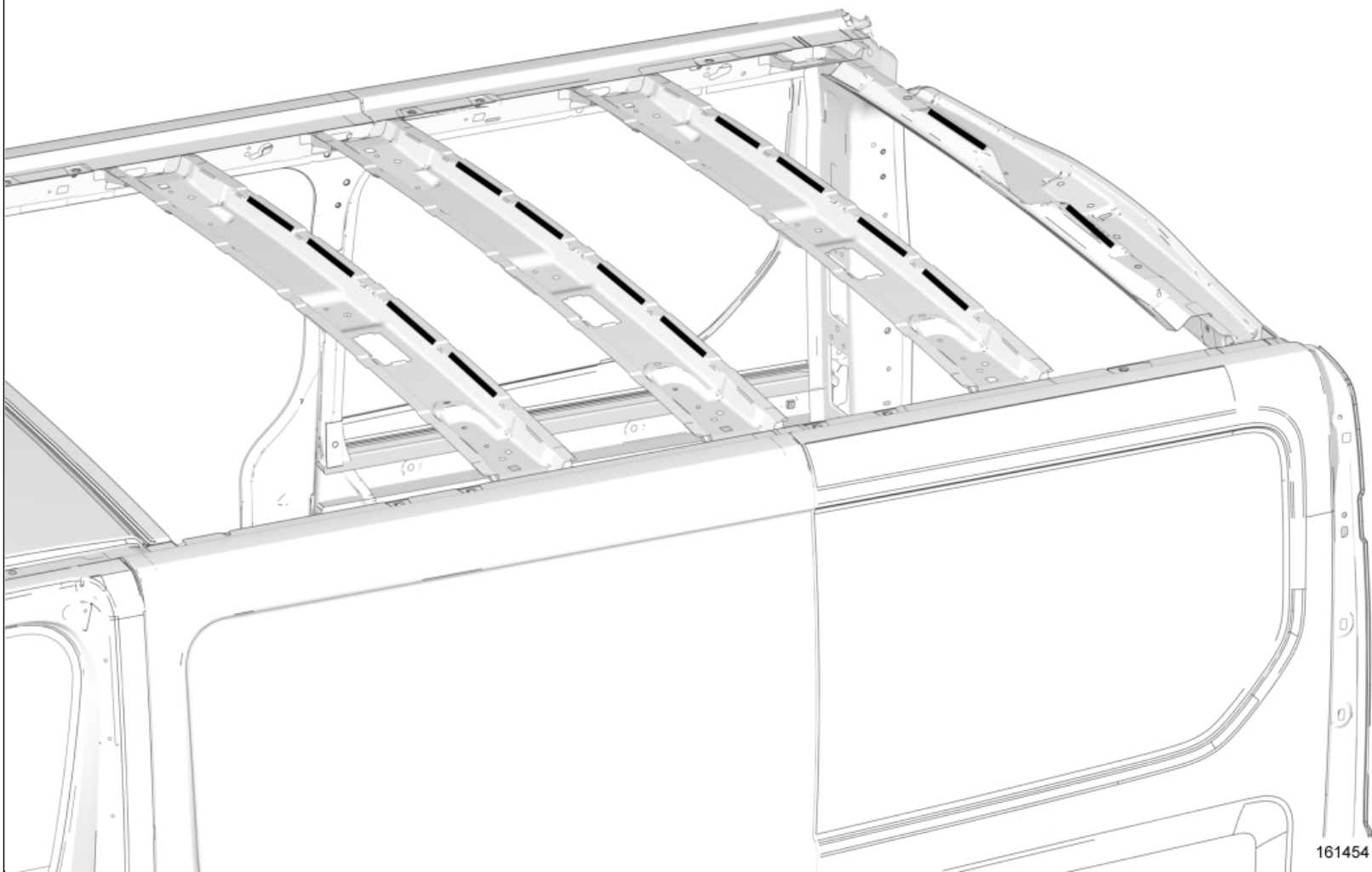
1-COMplete REPLACEMENT

¹PART IN POSITION



161131

2) BONDING AREA



161454

XSL version : 3.02 du 22/07/11



Repair-40x07x02-02x49-1-15-1.xml



ROOF STIFFENER HEIGHT ADJUSTER: REPLACEMENT



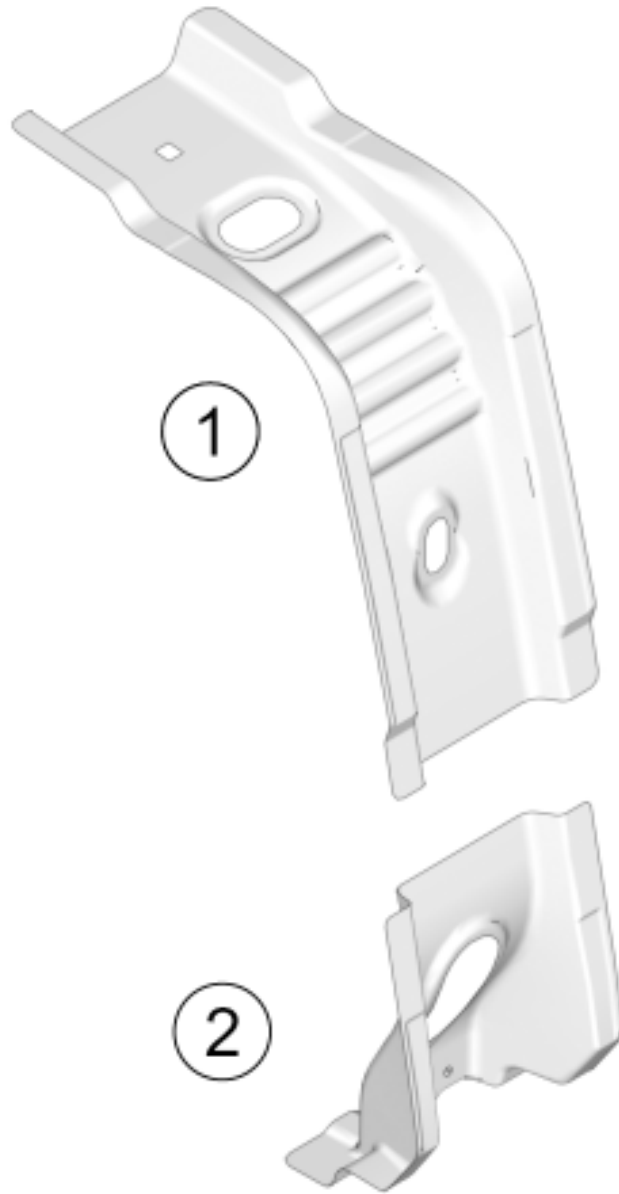
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART



162655

No.	Description	Type	Thickness (mm)
(1)	Roof stiffener support	Mild steel	1.2
(2)	Roof stiffener support	Mild steel	1.2

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

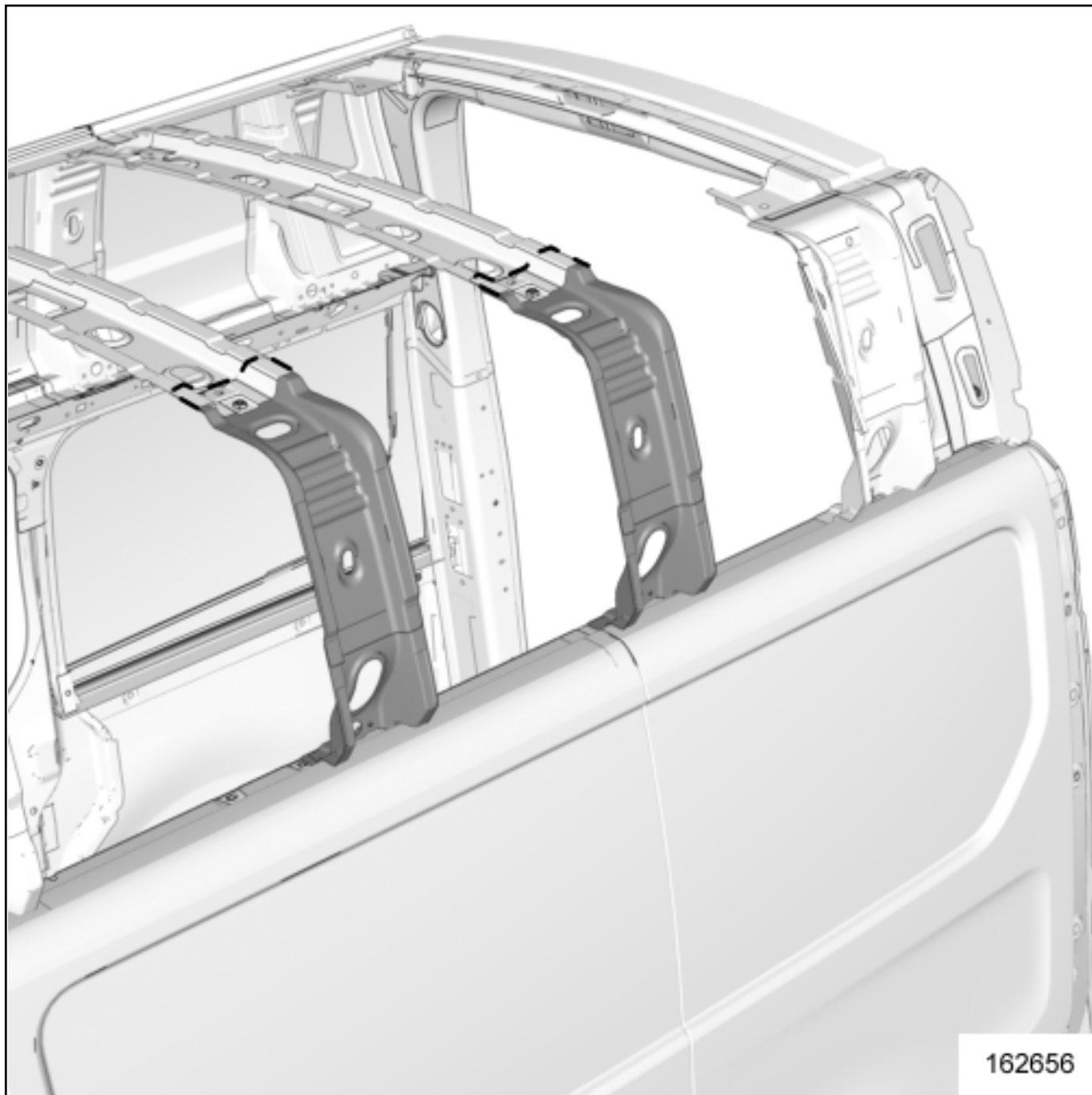
To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



162656



Repair-40x07x02x26-02x49-1-1-1.xml



ROOFTRIM ASSEMBLY: EXPLODED VIEW

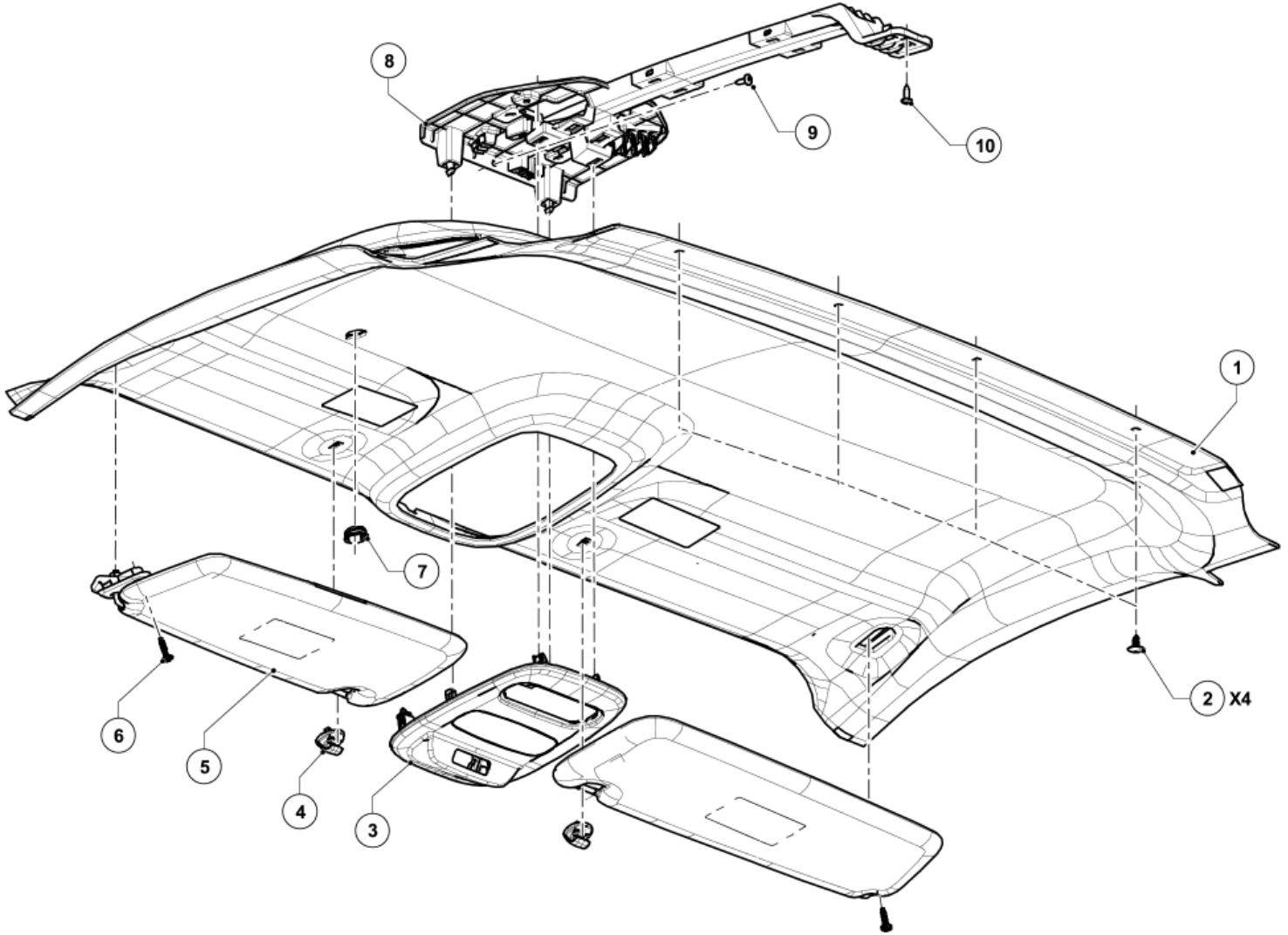


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

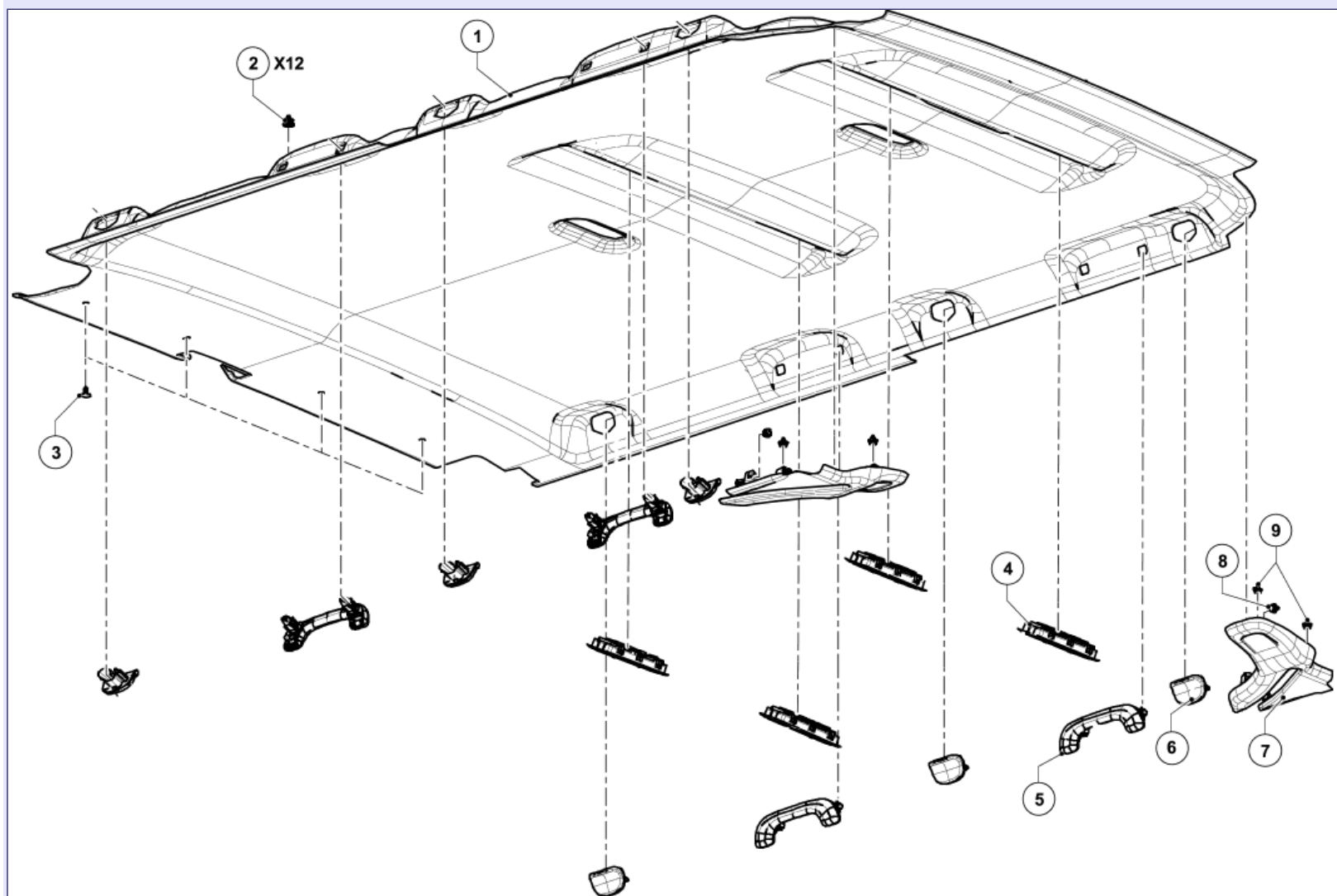


[Illustration key: Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Headlining	(see 71A, Body internal trim, Headlining: Removal - Refitting)
2	Headlining clip	
3	Courtesy light	Interior lighting: List and location of components
4	Sun visor hook	
5	Sun visor	Sun visor: Removal - Refitting
6	Sun visor bolt	
7	"Hands-free" microphone	
8	Roof trim console support	
9	Roof trim console support screw	
10	Roof trim console support screw	

J82(J82)



[Illustration key: Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#).

Marks	Designations	Informations
1	Headlining	(see 71A, Body internal trim, Headlining: Removal - Refitting)
2	Headlining clip	
3	Headlining clip	
4	Air vent on roof trim	
5	Grab handle	Grab handle: Removal - Refitting
6	Headlining blanking cover	
7	Roof front cross member trim	
8	Roof upper cross member side trim clip	
9	Roof upper cross member side trim clip	



Repair-70x02x04x01-02x50-1-9-1.xml



KSL version : 3.02 du 22/07/11

ROOFTRIM ASSEMBLY: EXPLODED VIEW

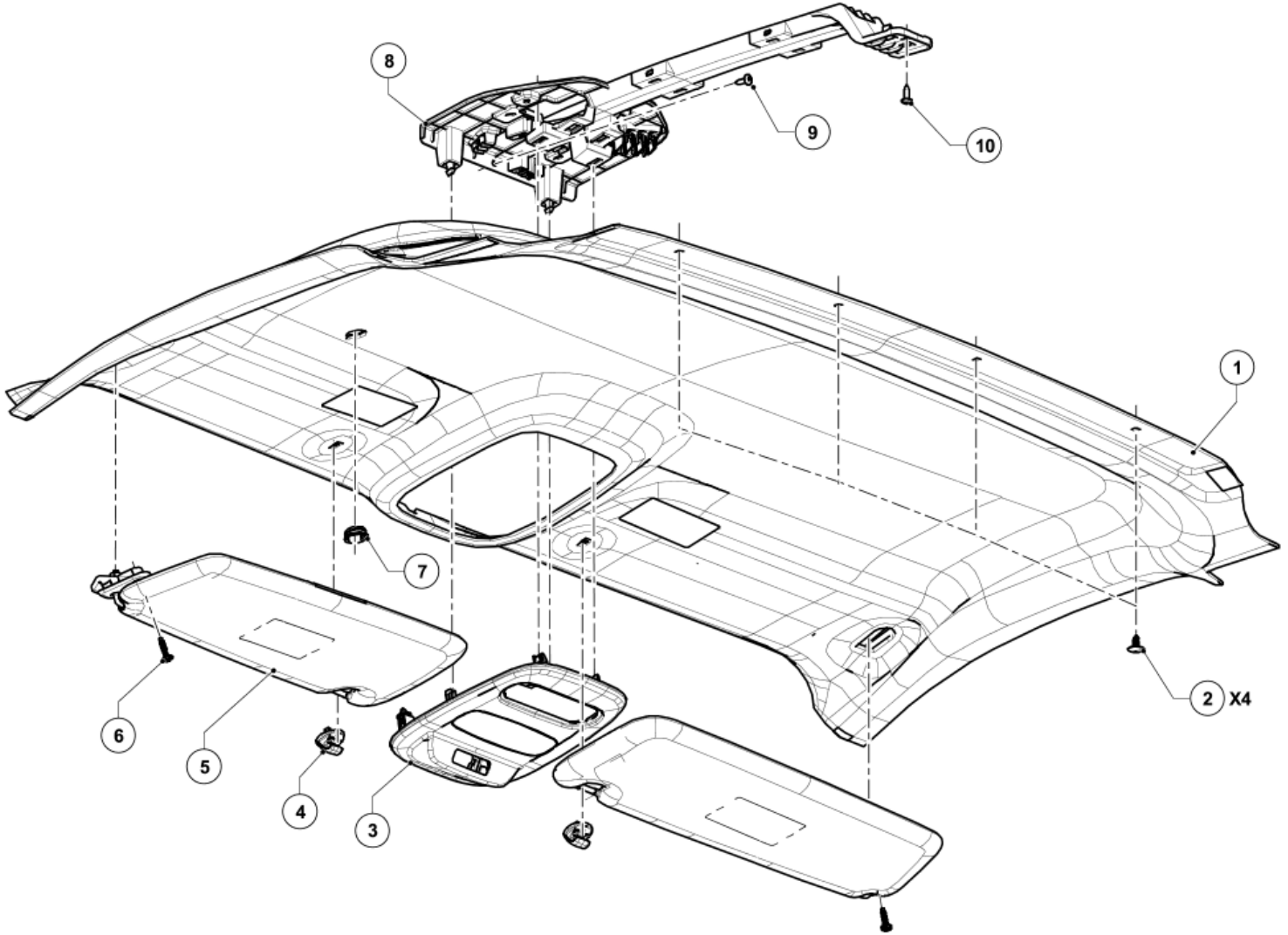


Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

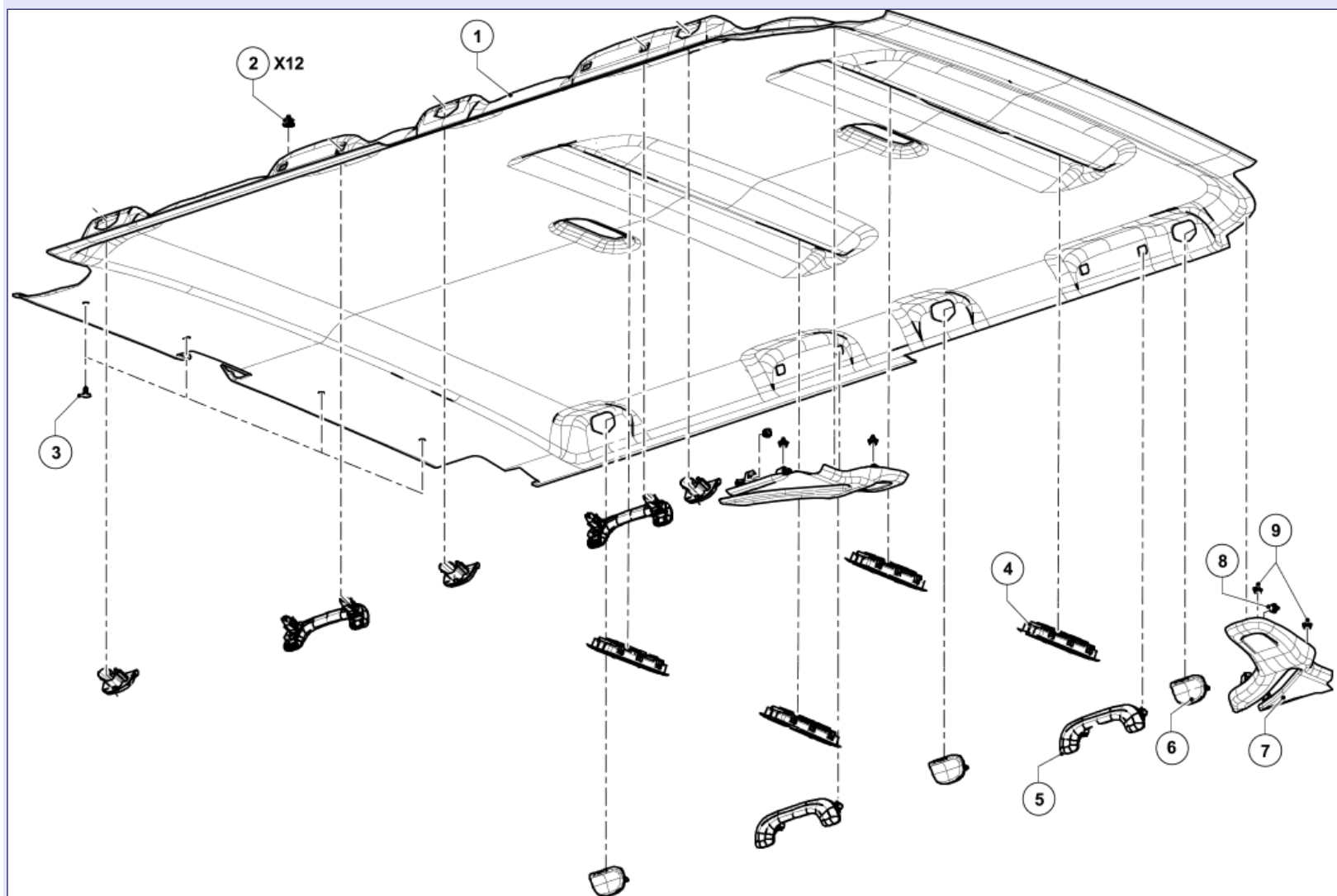


[Illustration key: Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Headlining	(see 71A, Body internal trim, Headlining: Removal - Refitting)
2	Headlining clip	
3	Courtesy light	Interior lighting: List and location of components
4	Sun visor hook	
5	Sun visor	Sun visor: Removal - Refitting
6	Sun visor bolt	
7	"Hands-free" microphone	
8	Roof trim console support	
9	Roof trim console support screw	
10	Roof trim console support screw	

J82(J82)



[Illustration key: Description](#)

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#).

Marks	Designations	Informations
1	Headlining	(see 71A, Body internal trim, Headlining: Removal - Refitting)
2	Headlining clip	
3	Headlining clip	
4	Air vent on roof trim	
5	Grab handle	Grab handle: Removal - Refitting
6	Headlining blanking cover	
7	Roof front cross member trim	
8	Roof upper cross member side trim clip	
9	Roof upper cross member side trim clip	



Repair-70x02x04x01-02x50-1-9-1.xml



KSL version : 3.02 du 22/07/11

SCUTTLE PANEL GRILLE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION



Remove:

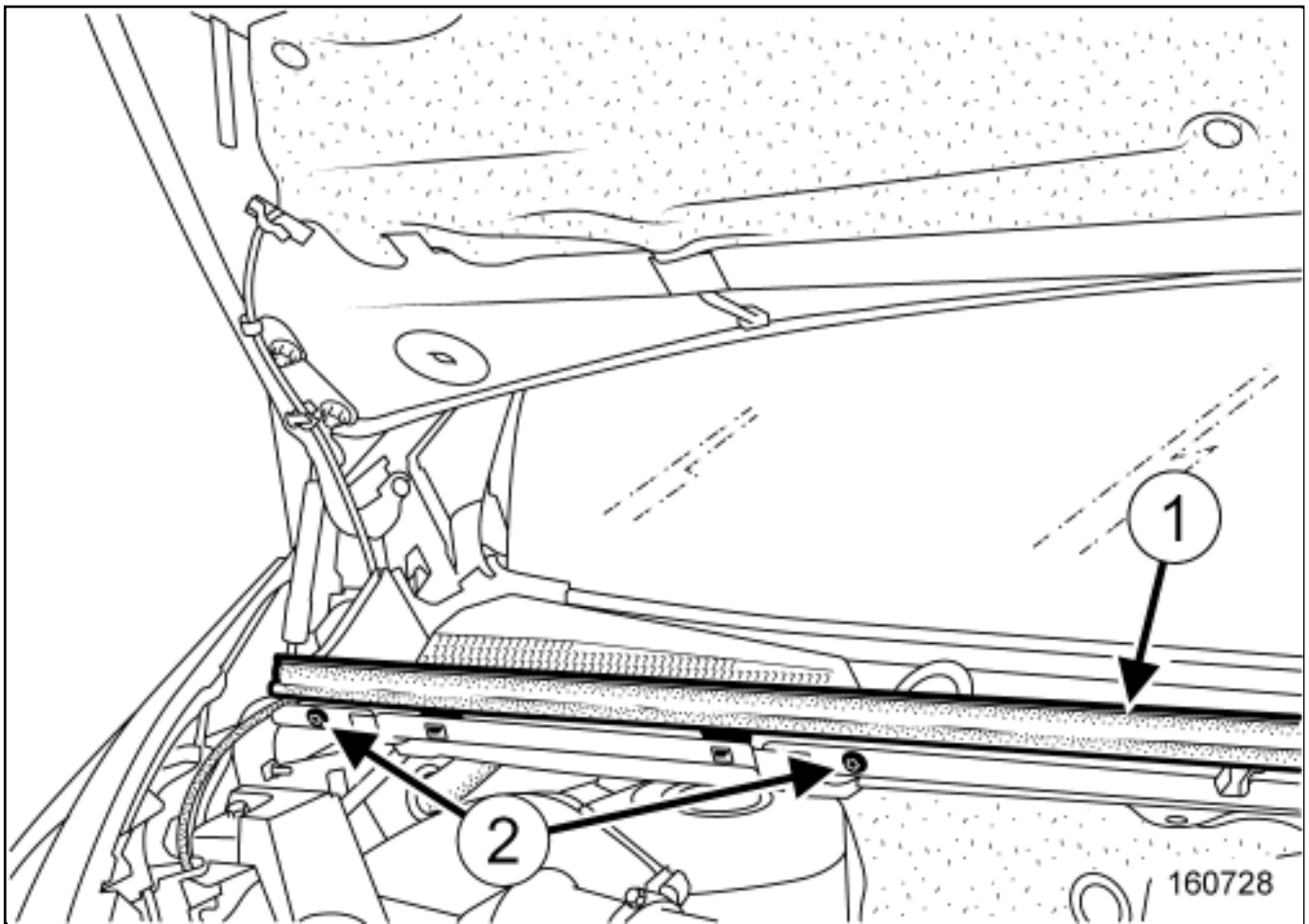


the windscreen wiper arms [Wipers/washing assembly : Exploded view](#) ,



the windscreen pillar trim [Windscreen pillar trim: Removal - Refitting](#) .

2. REMOVAL OPERATION



Remove :

- the engine compartment seal(1) ,
- the bolts(2) on both sides of the scuttle panel grille.

Remove the scuttle panel grille [Wipers/washing assembly : Exploded view](#) .

REFITTING

Proceed in the reverse order to removal.



Repair-50x07x06x04-01x37-1-30-1.xml



XSL version : 3.02 du 22/07/11

SEATANCHORAGEREINFORCEMENT:REPLACEMENT



Note, one or more warnings are present in this procedure

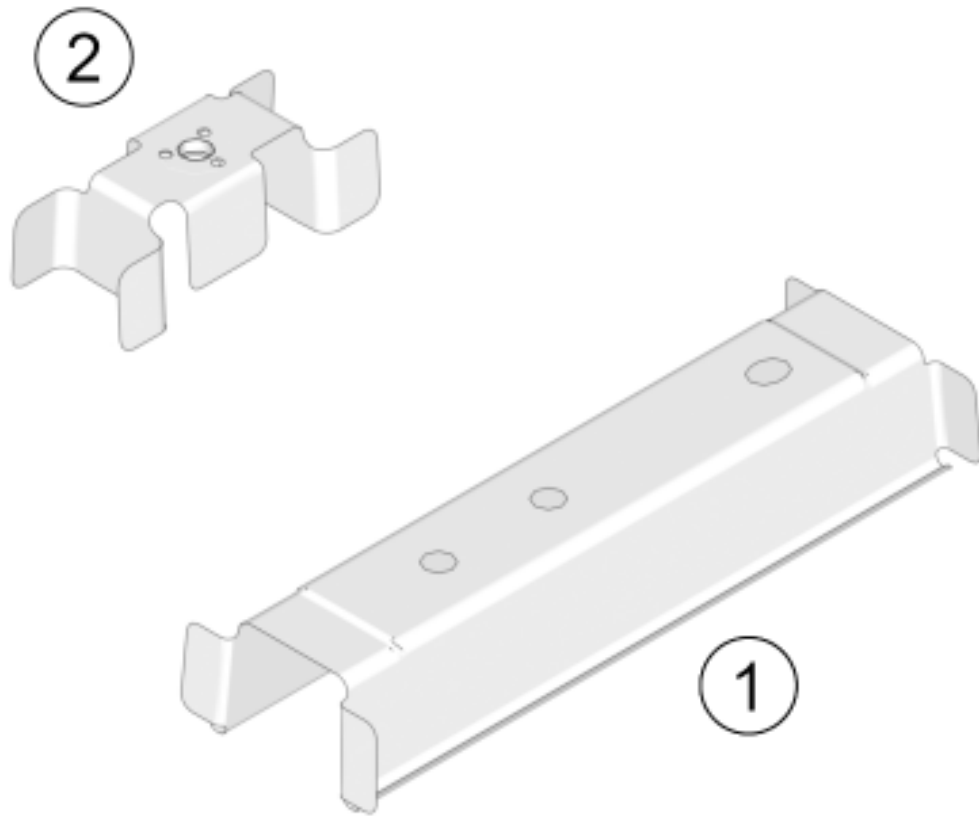


WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

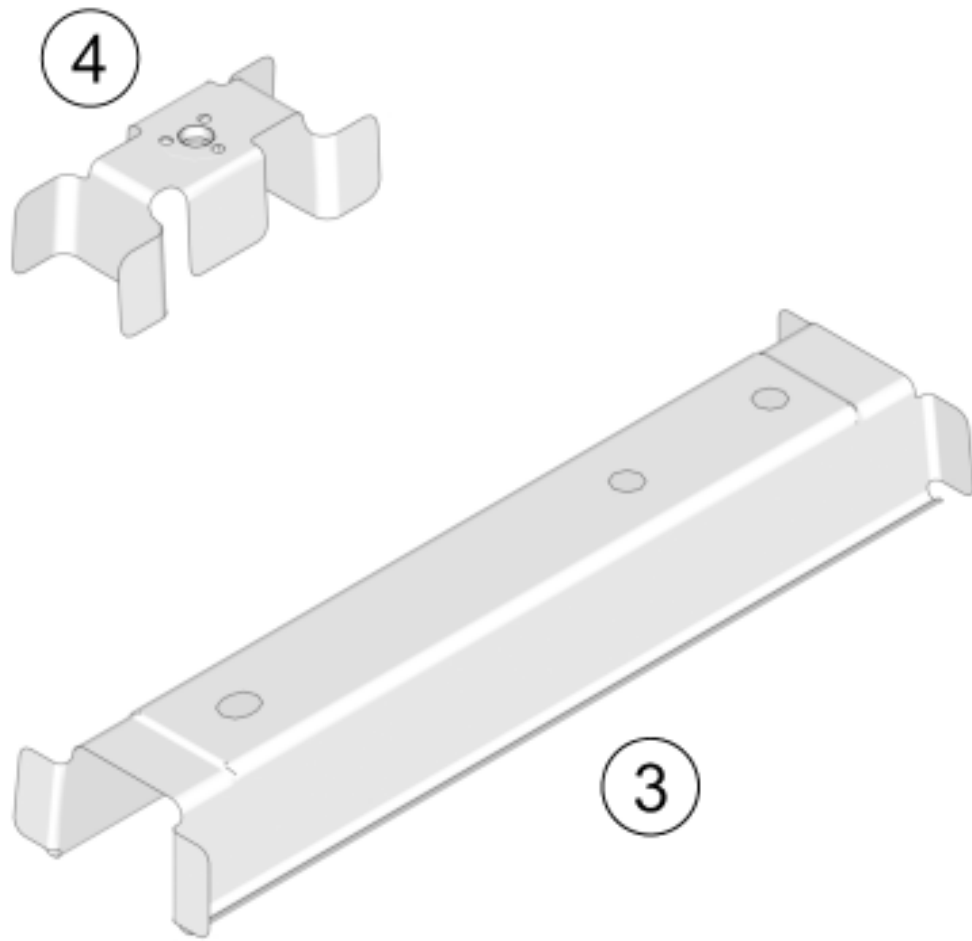
2ND ROW SEATS



161324

No.	Description	Type	Thickness (mm)
(1)	Mounting side member of second row seat	HSS	1.8
(2)	Mounting reinforcement of second row seat	HSS	2

3RD ROW SEATS



161326

No.	Description	Type	Thickness (mm)
(3)	Mounting side member of third row seat	HSS	1.8
(4)	Mounting reinforcement of third row seat	HSS	2

2. IN THE EVENT OF REPLACEMENT



There is only one way of replacing this part:



complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

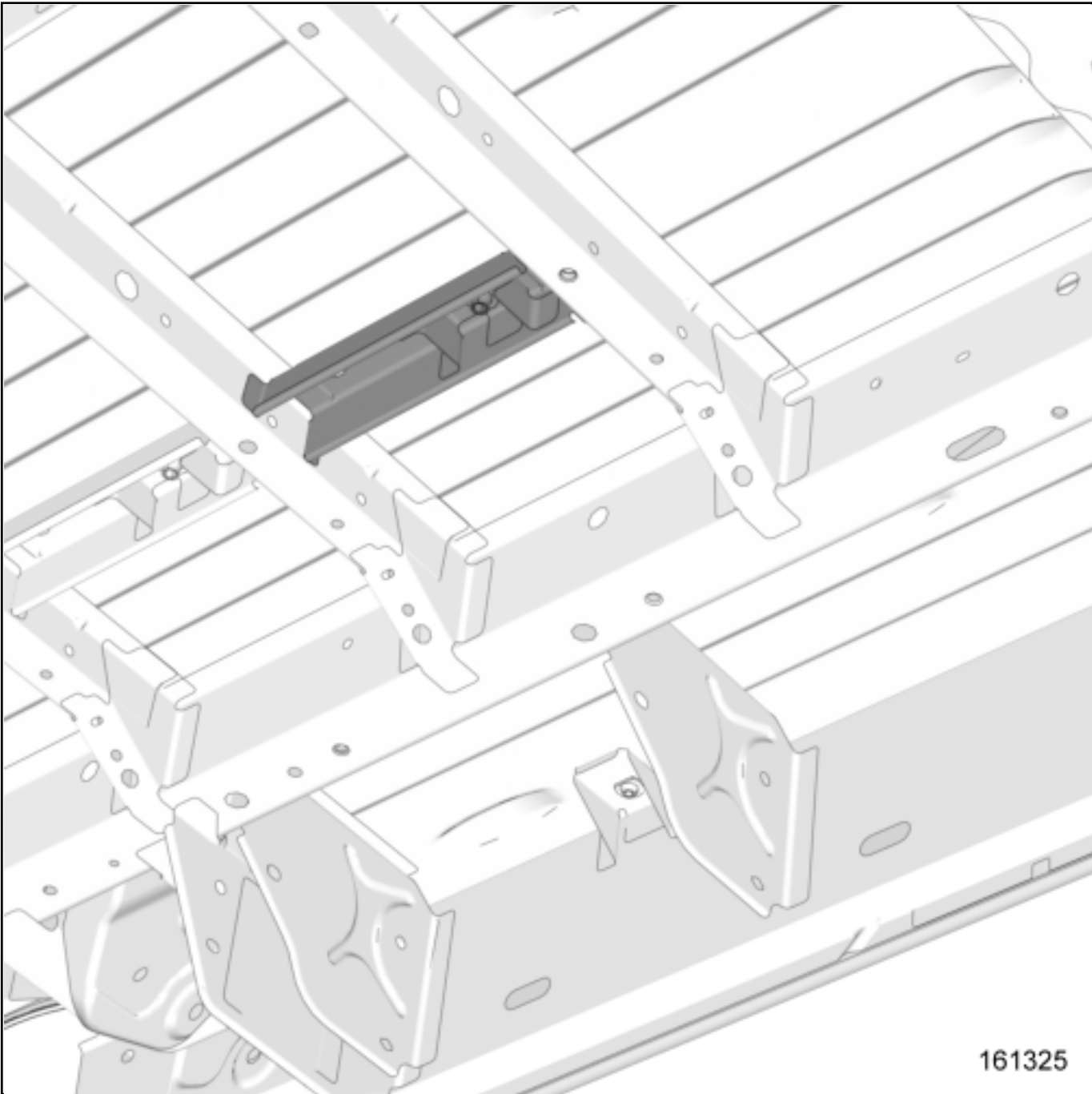
Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

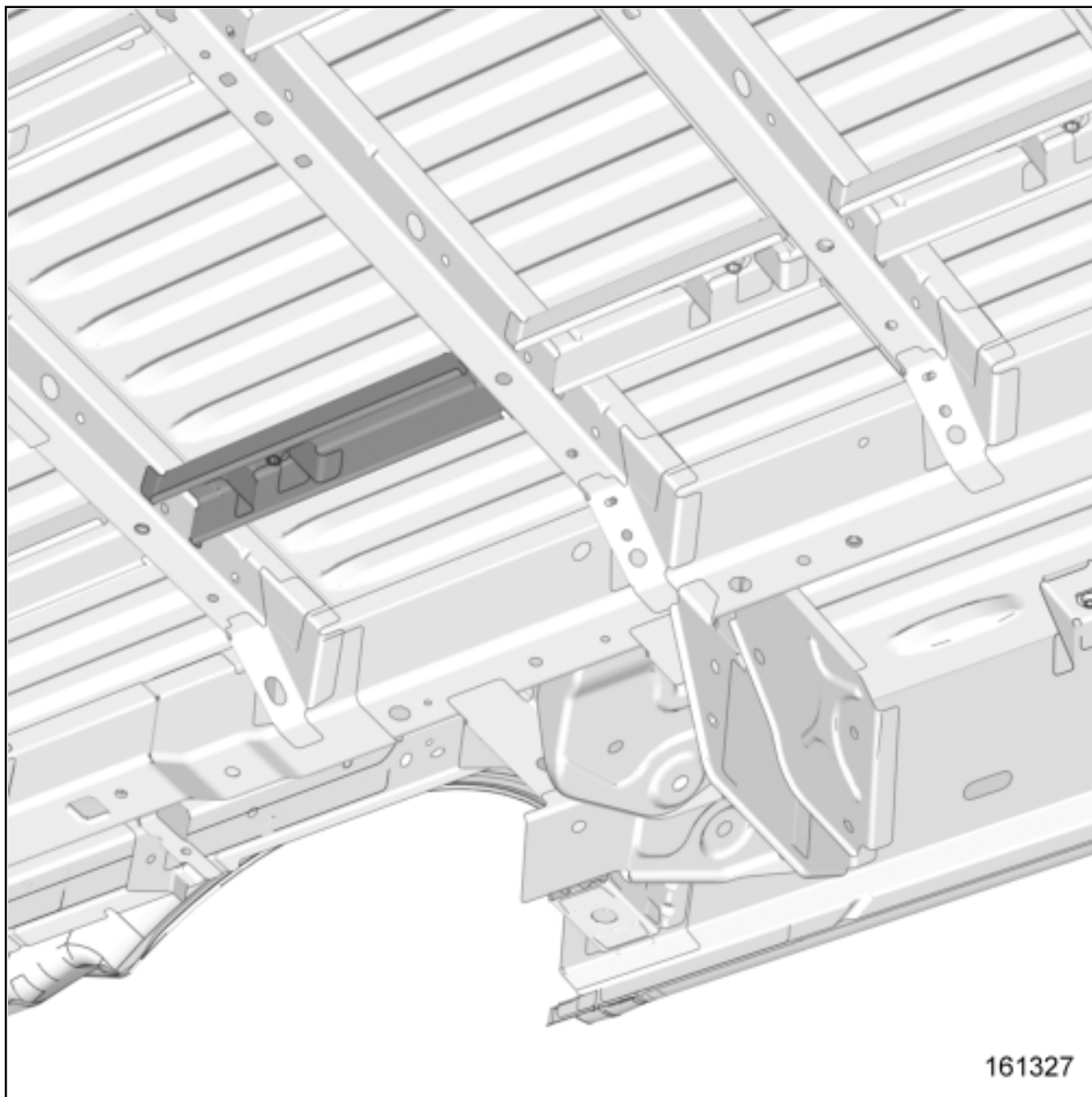
1)PART IN POSITION

2ND ROW SEATS



161325

3RD ROW SEATS



Repair-40x05x02x16-02x49-1-2-1.xml



SHOCK ABSORBER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

component jack

WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 33A, Rear axle components, Rear axle components: Precautions for the repair](#)).

WARNING



Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#).

CAUTION



To avoid any damage to the axle assemblies, the vehicle must not be raised using the front suspension arms for support or under the rear axle.

CAUTION



To prevent any suspension asymmetry, replace both of the shock absorbers on the same axle.



CAUTION

To prevent the components of the rear axle from deteriorating (rubber bushes, brake hoses, etc.) do not remove the two shock absorbers at the same time. Proceed one side at a time.

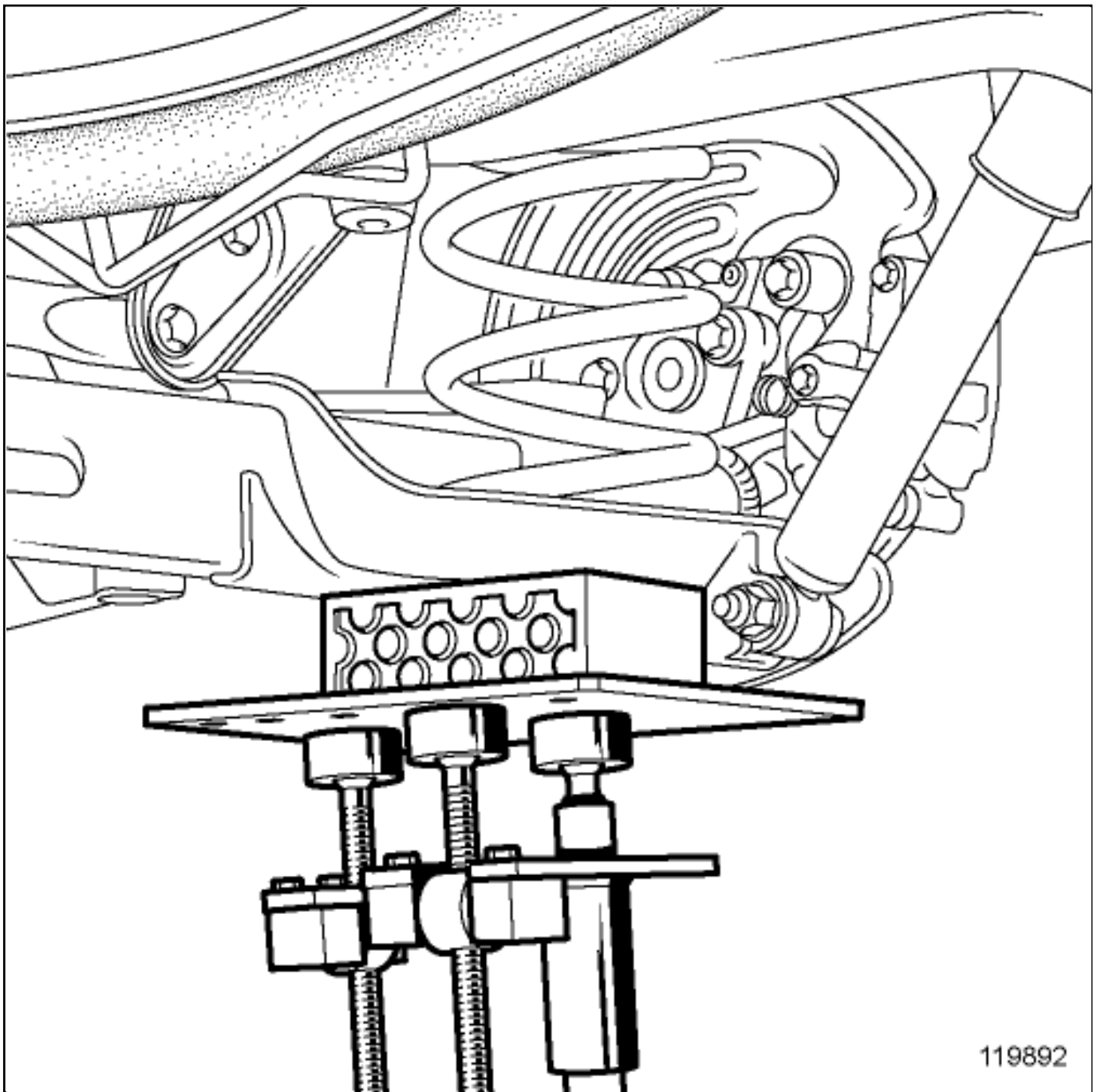
- ❑ Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

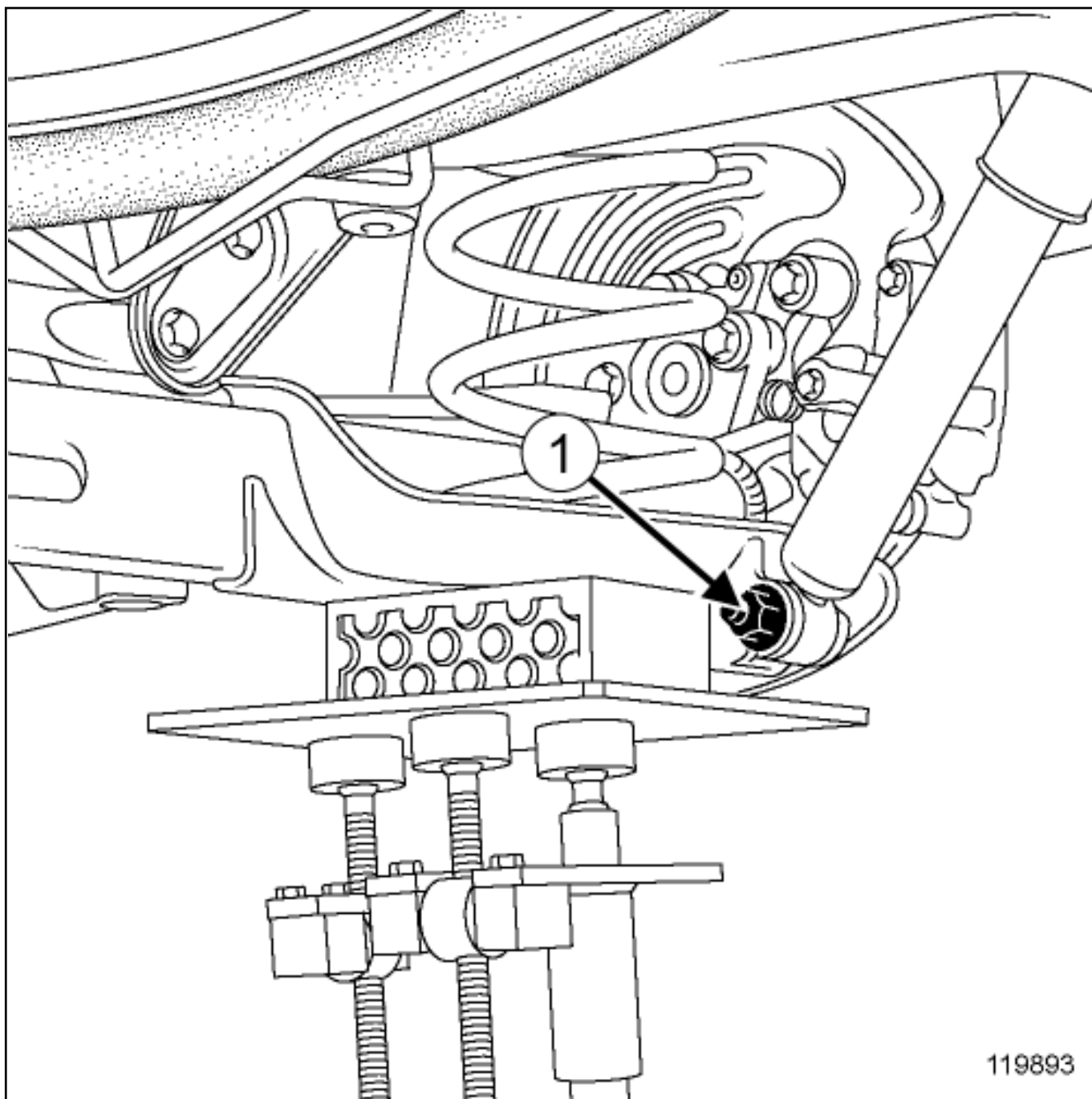
- ❑ Position the vehicle on a two-post lift ([Vehicle: Towing and lifting](#)).
- ❑ Remove the rear wheels ([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)).

2. OPERATION FOR REMOVAL OF PART CONCERNED



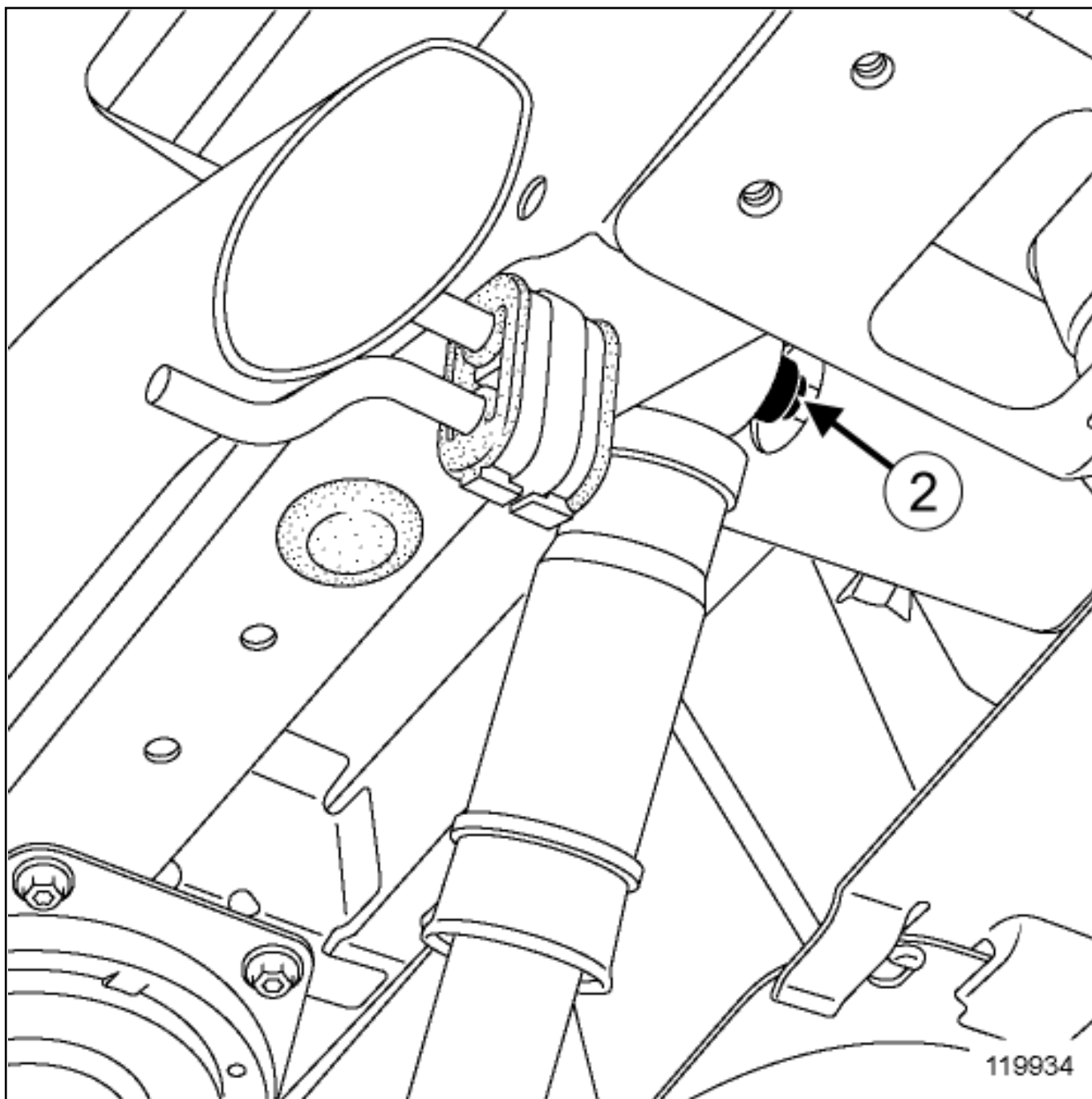
119892

- Using a block, bring the component jack into contact under the rear axle, near the shock absorber.



119893

■ Remove the shock absorber lower bolt(1) .



■ Remove:

- the shock absorber upper bolt(2) ,
- the shock absorber.

1. REFITTING OPERATION FOR PART CONCERNED



Refit:



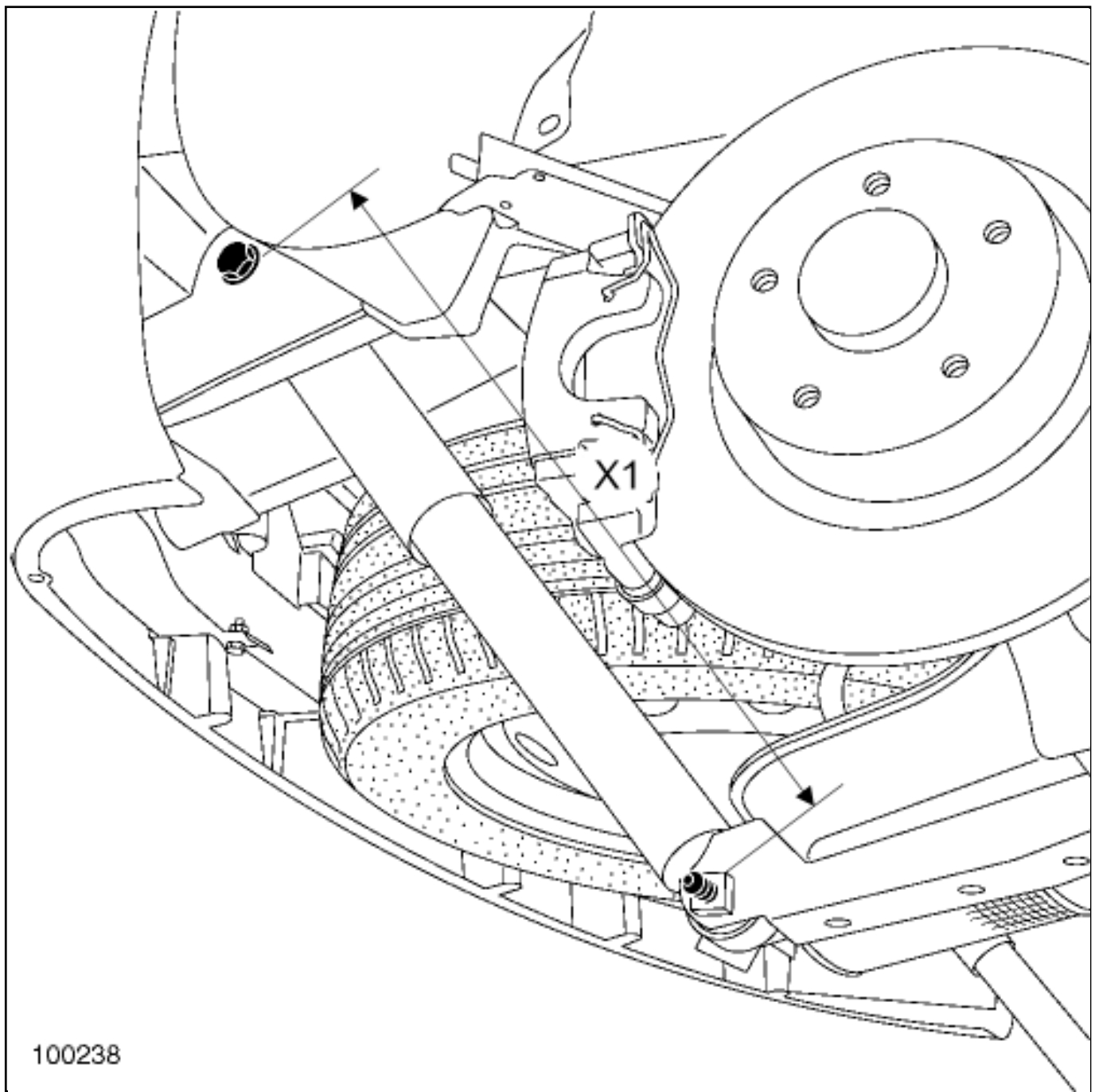
the shock absorber,



the shock absorber upper bolt.



Refit the shock absorber lower bolt with the component jackin contact with a block under the rear axle near the shock absorber.



Adjust using the component jack the dimension (X1) = 380 mm.

Note:



The vehicle must be in "half-empty load" position when tightening the rubber bushes of the shock absorbers (shock absorber length of 380 mm).

Torque tighten([see 33A, Rear axle components, Rear axle assembly: Exploded view](#)) :

-
- the shock absorber lower bolt with the component jackin position,
- the shock absorber upper bolt.

Repeat the operation on the opposite side.

2. FINAL OPERATION.

Refit the rear wheels([see 33A, Rear axle components, Rear hub carrier assembly: Exploded view](#)) .



Repair-13x02x06x09-01x37-1-17-1.xml



XSL version : 3.02 du 22/07/11

SIDE OPENING ELEMENT SEALING FILM: REMOVAL - REFITTING

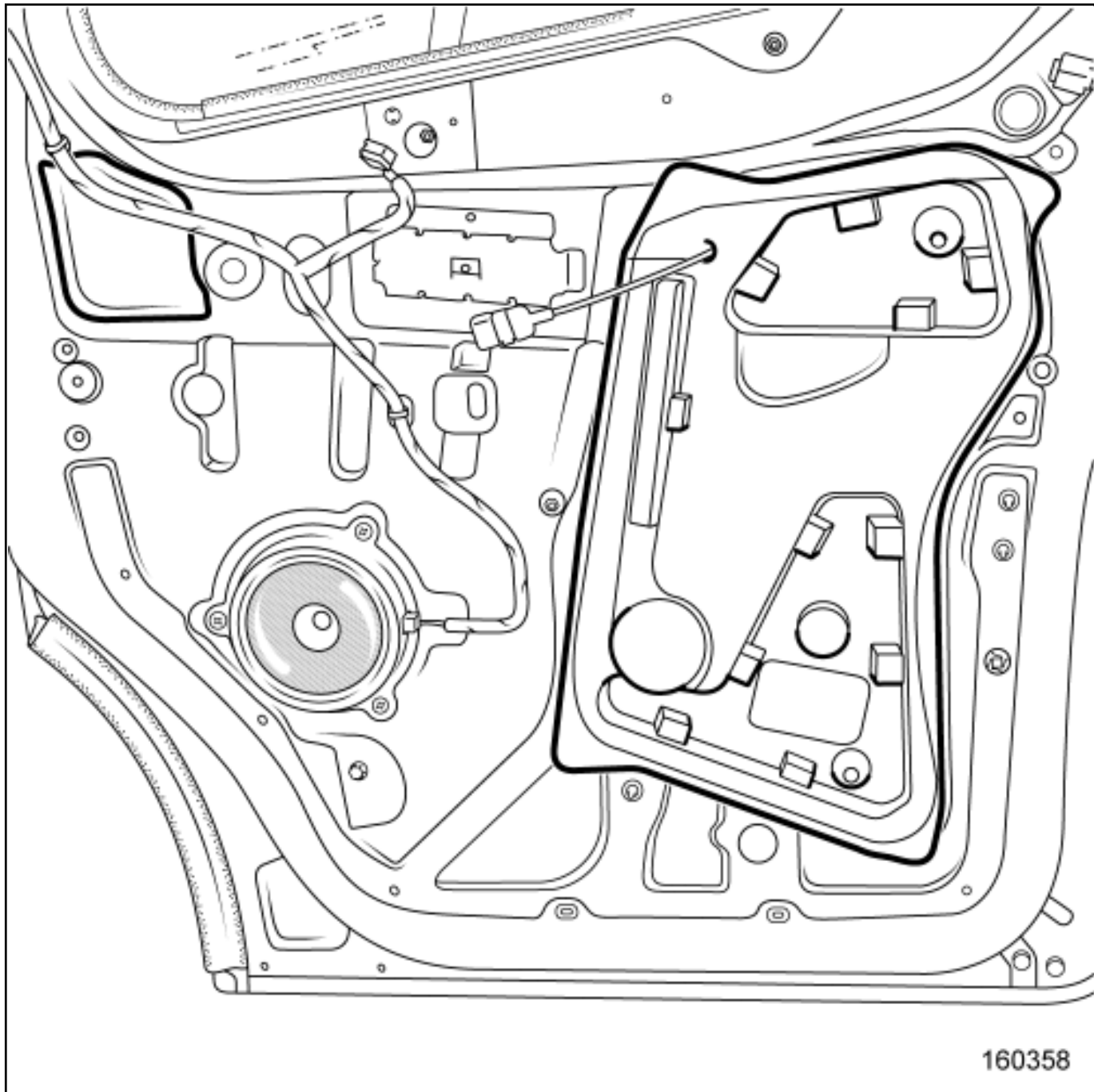
REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the front side opening element trim [Front side opening element assembly on the passenger compartment side: Exploded view](#) or rear side opening element trim [Interior body side trim assembly: Exploded view](#) .

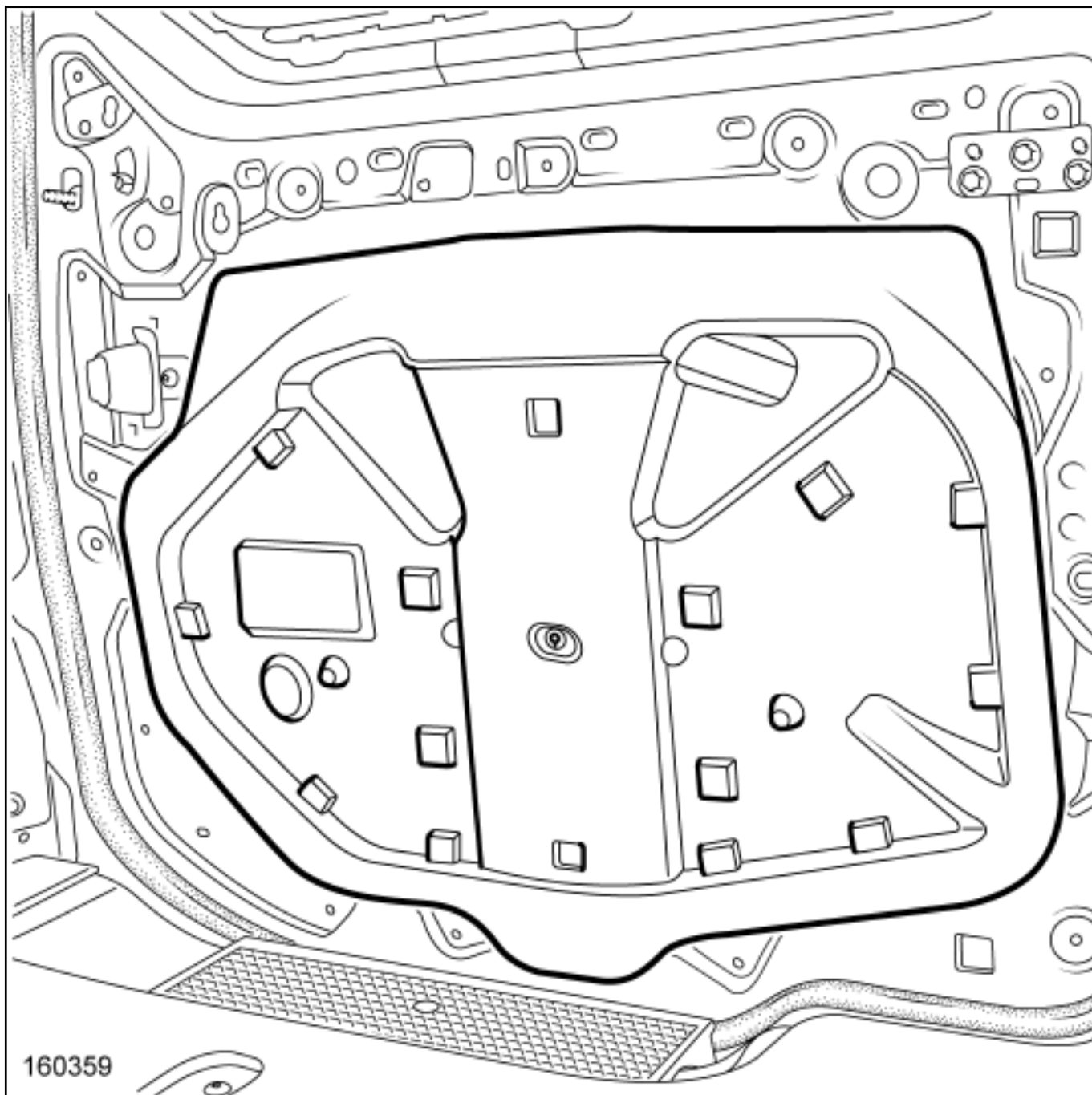
2. REMOVAL OPERATION

FOR FRONT SIDE OPENING ELEMENT



160358

FOR REAR SIDE OPENING ELEMENT



- Detach carefully the sealing film of the side opening element.

REFITTING

1. REFITTING OPERATION PREPARATION

- Check the condition of the sealing film and replace it if necessary.

2. REFITTING OPERATION

Proceed in the reverse order to removal.



Repair-60x03x02x17-01x37-1-3-1.xml



XSL version : 3.02 du 22/07/11

SIDE OPENING ELEMENTS: ADJUSTMENT

1. HINGED SIDE DOOR

- ▣ Check that the peripheral components are adjusted correctly.

Refit the heavy door fittings (closing system, window winder system).

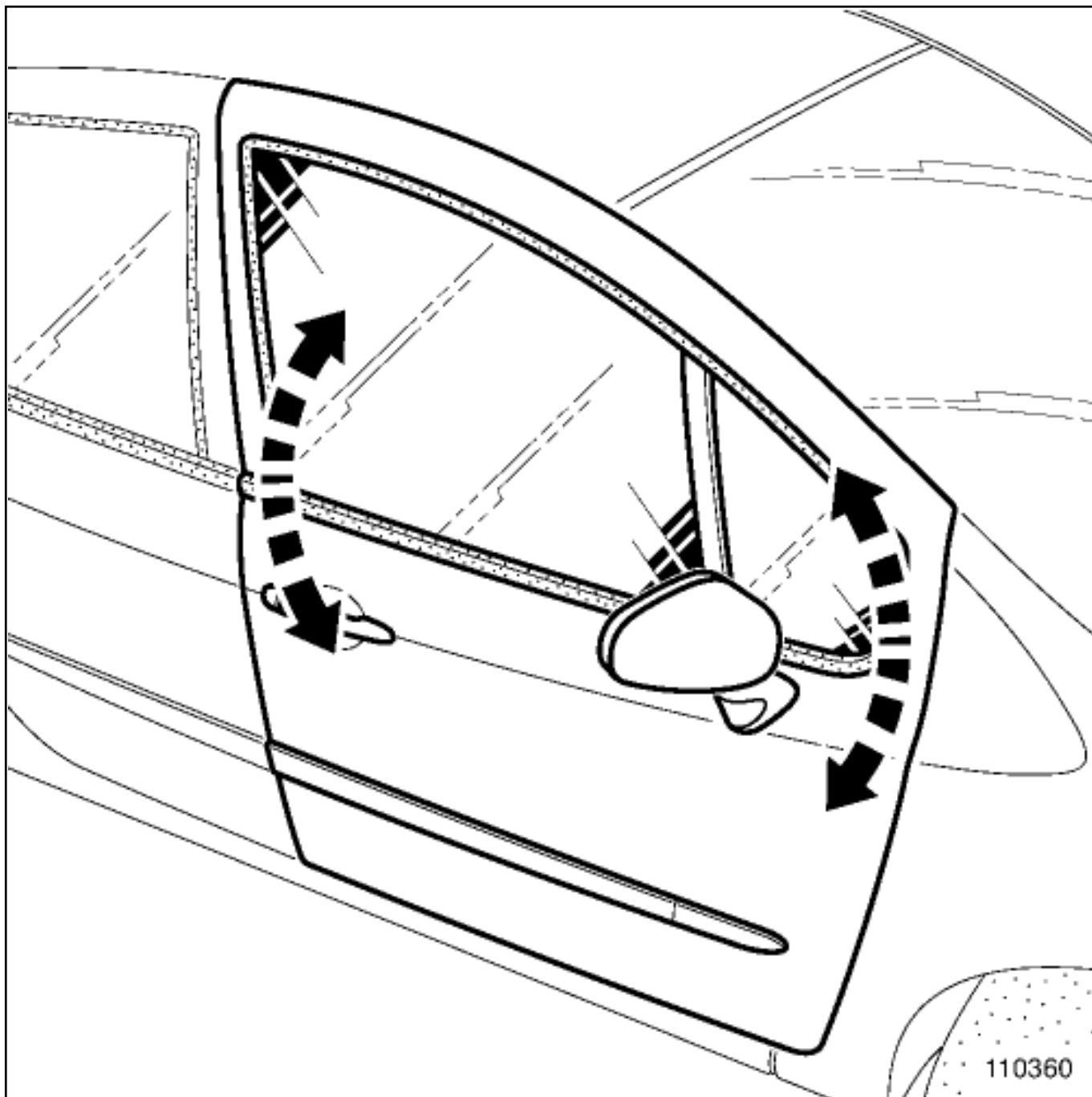
Before carrying out the adjustments, release the striker panel and fit the hinges, pre-tightening in the middle of the adjustment.



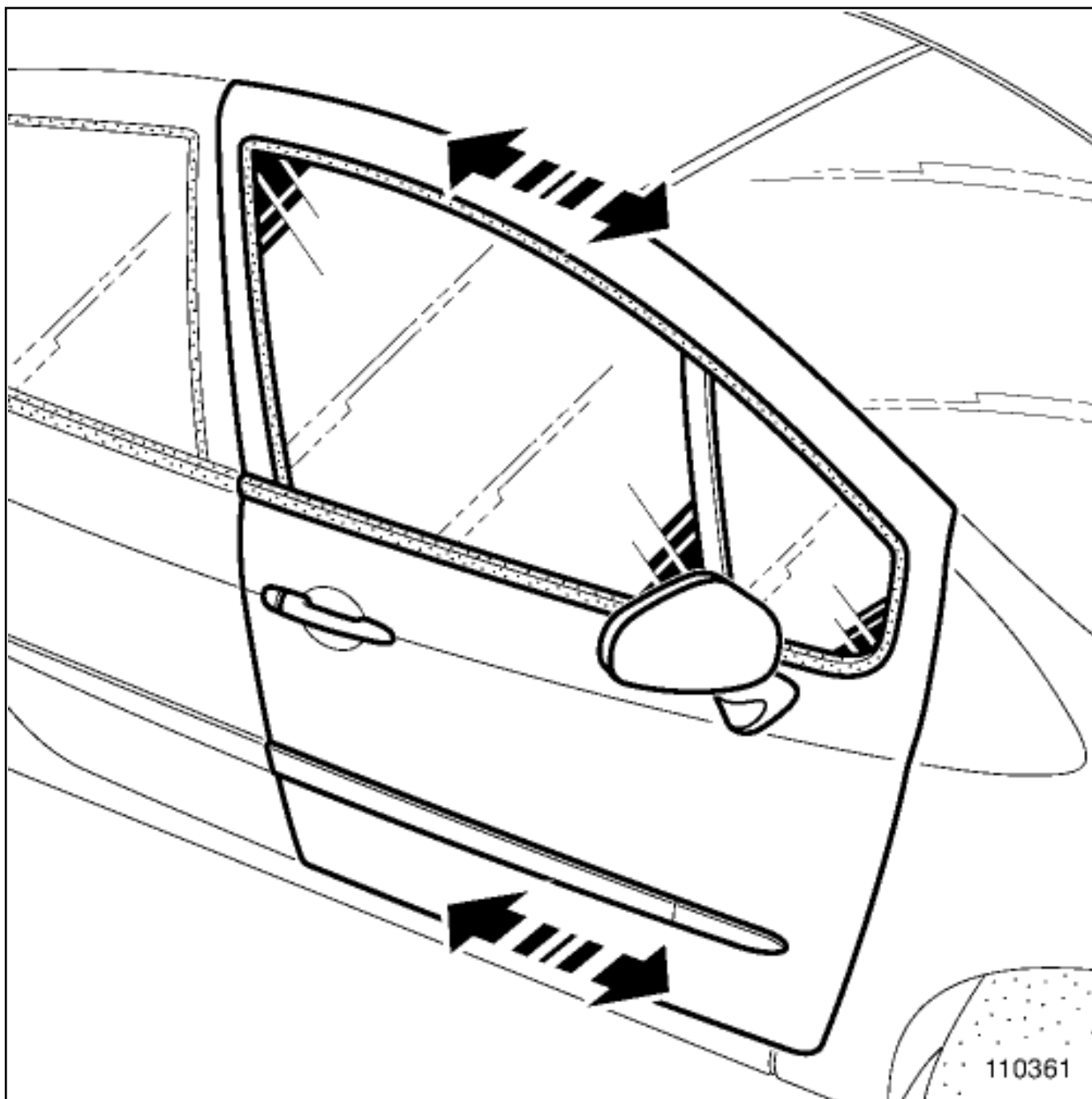
Note:

For information about the adjustment zones, refer to the MR for the vehicle concerned.

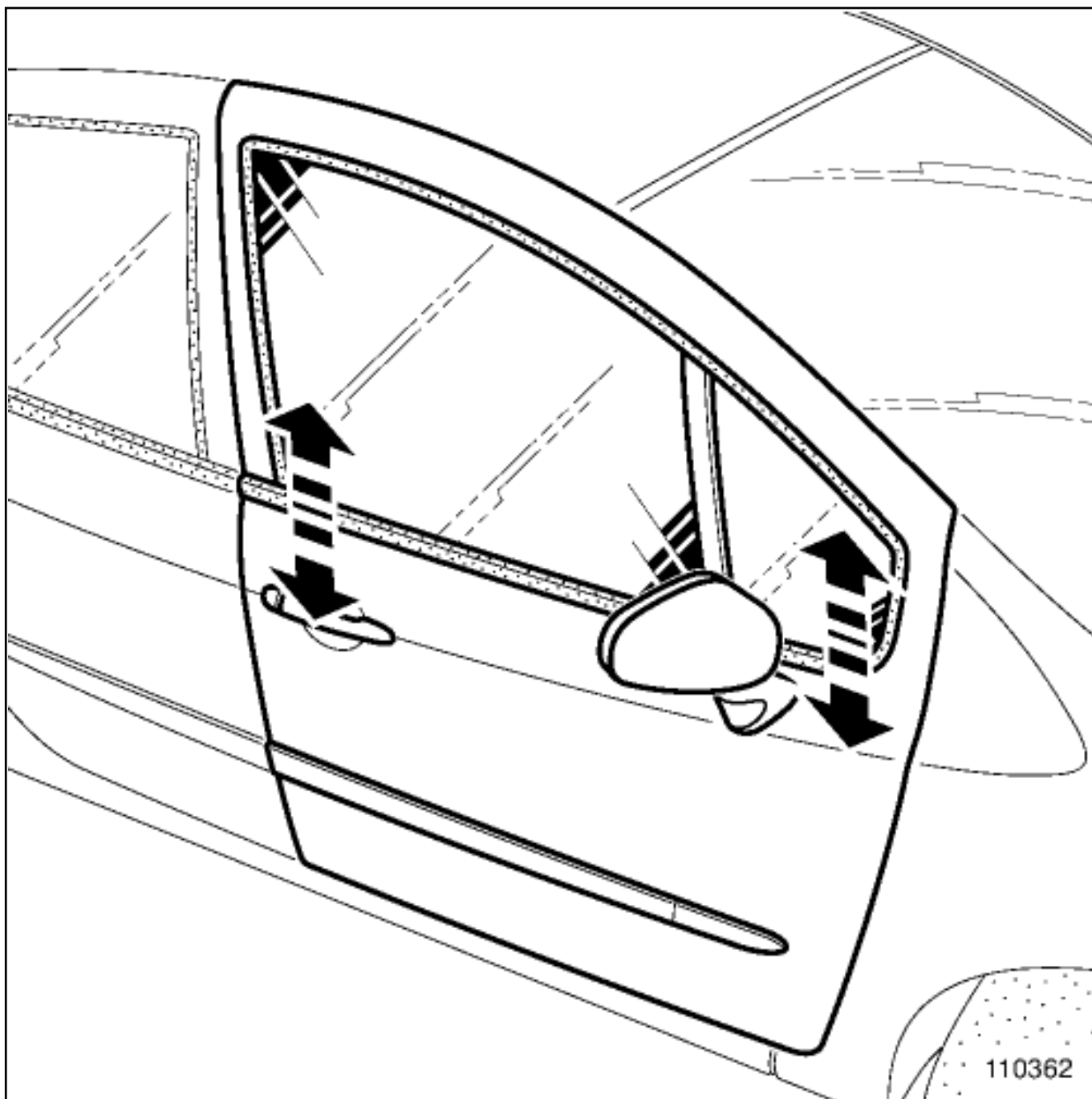
1- ADJUSTMENT CHRONOLOGY



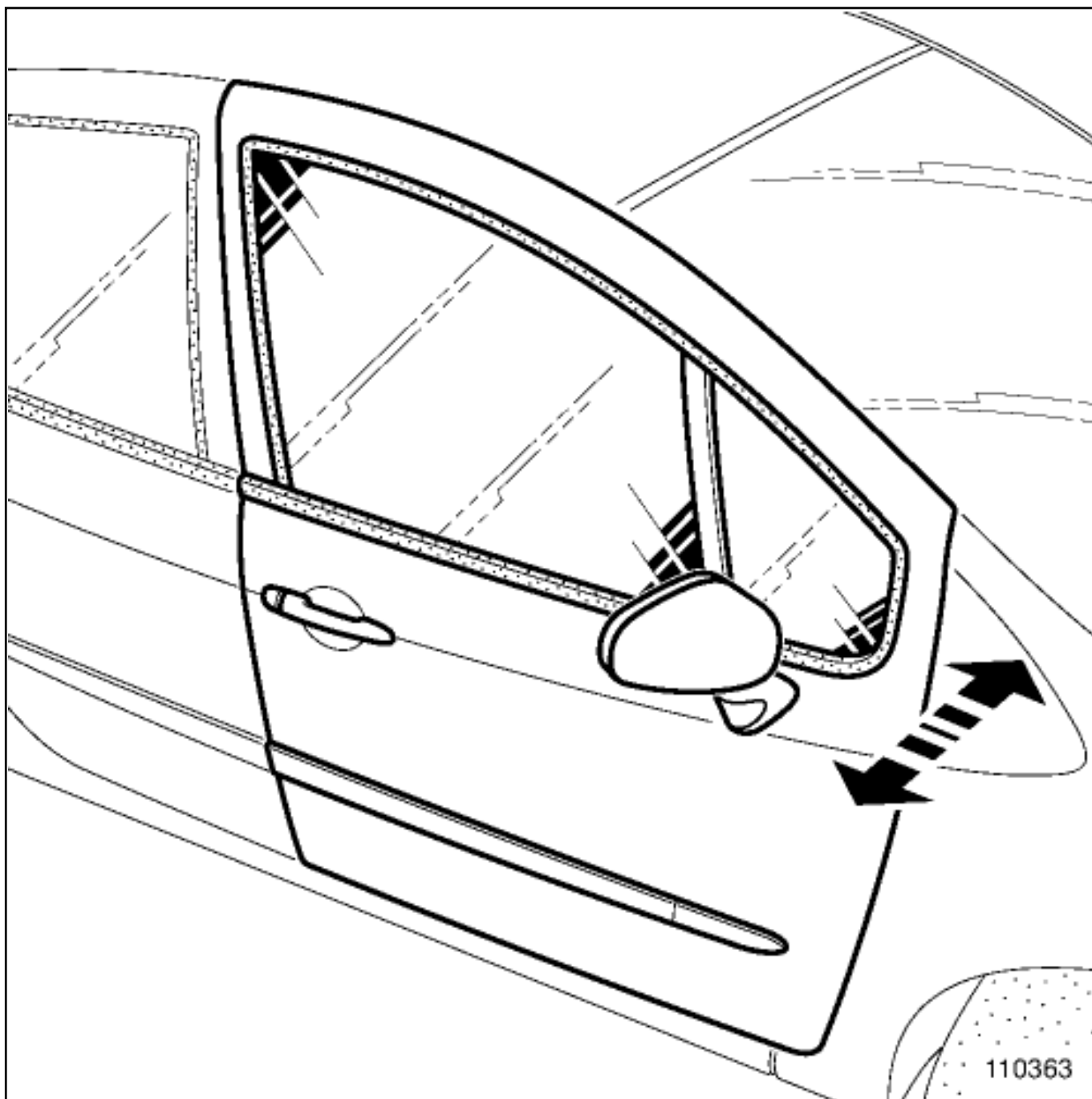
■ Adjust the centring of the door.



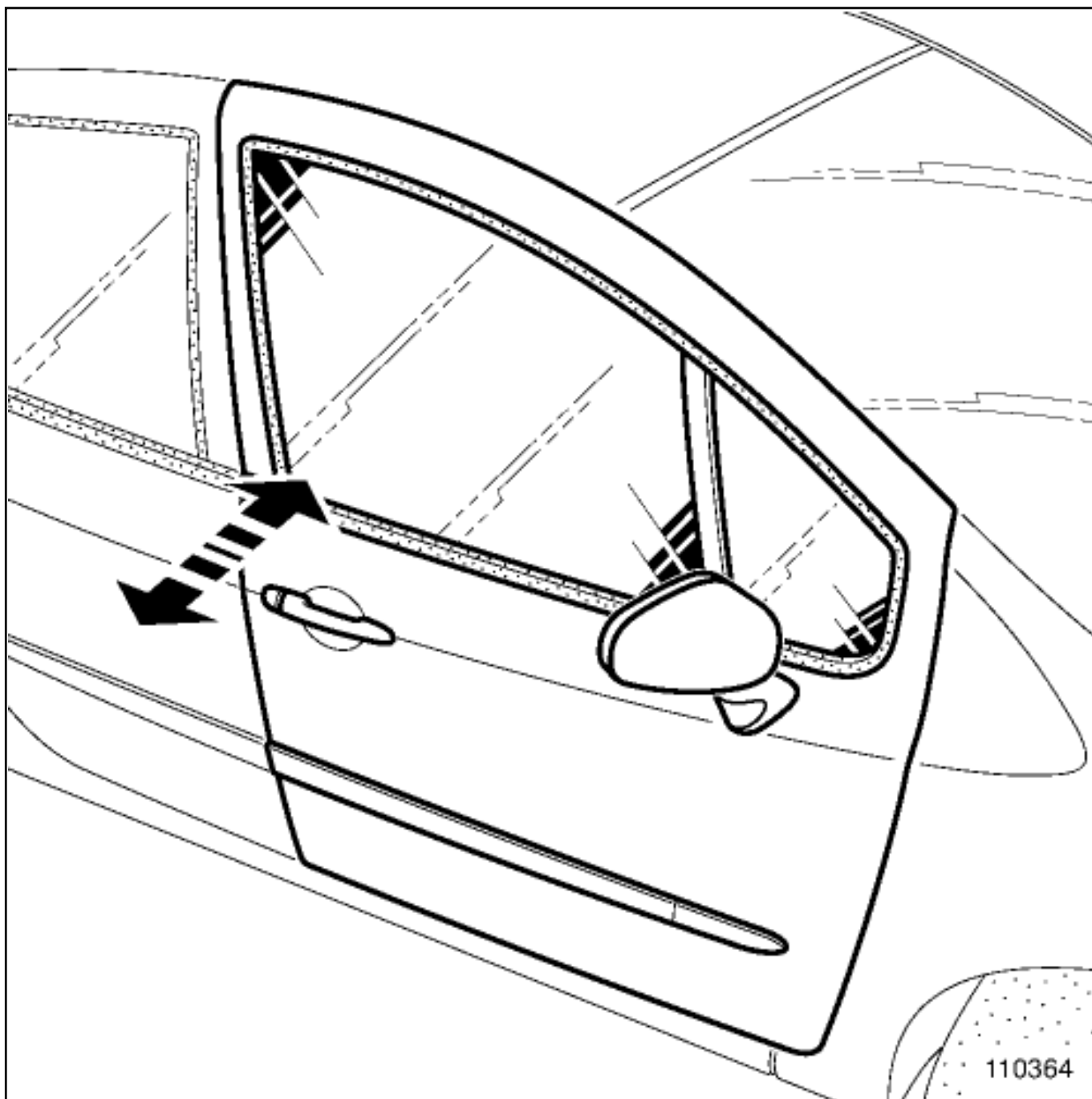
Adjust the side alignment of the door.



▣ Adjust the alignment of the door height.



Adjust the front flush fitting of the door.



Adjust the rear flush fitting of the door, as well as the contact and the closure firmness.

Check the adjustment and the correct operation then tighten into position.

2. SLIDING SIDE DOOR

Check that the peripheral components are adjusted correctly.

Refit the heavy door fittings (closing system, window winder system).

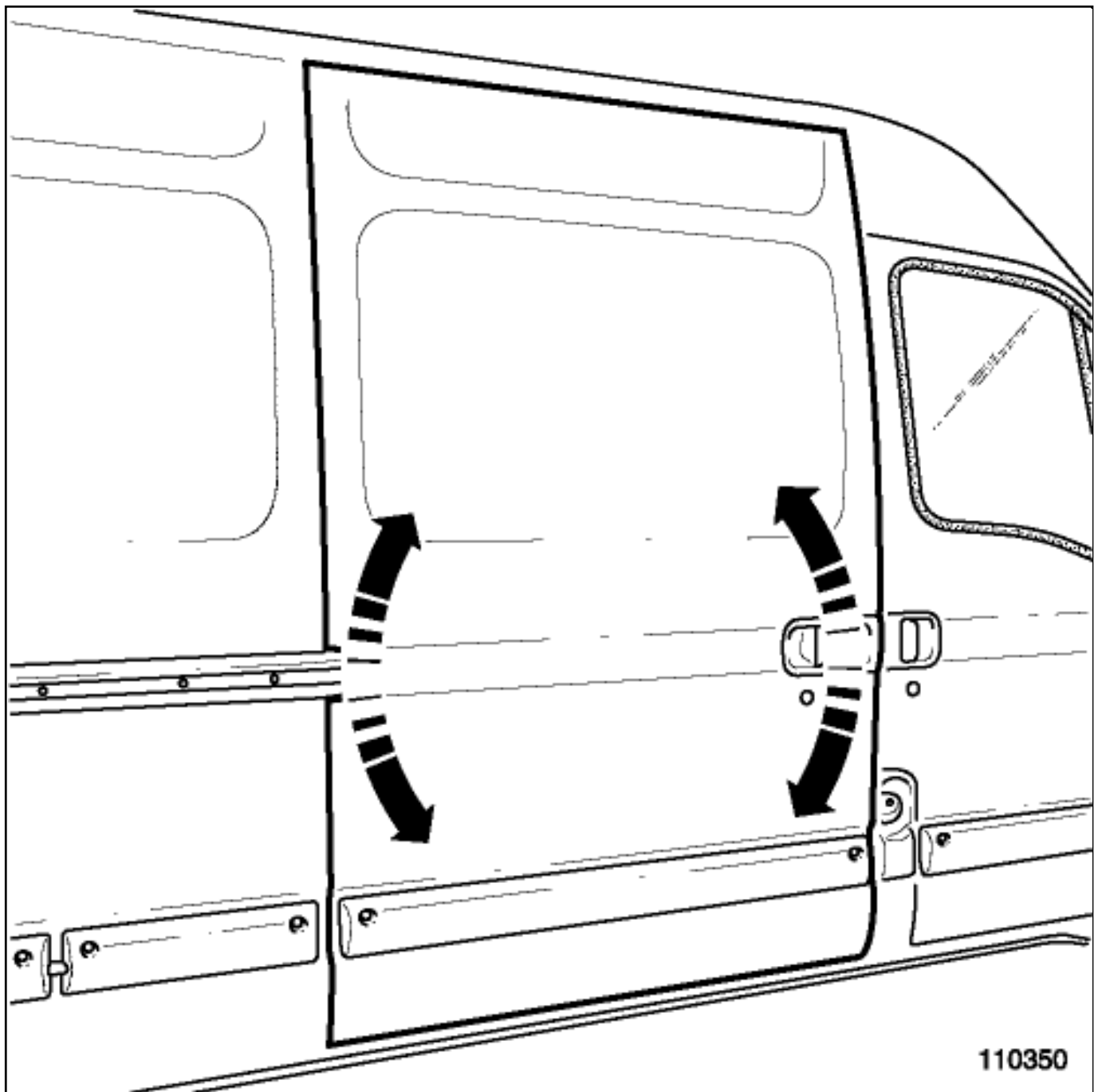
Before carrying out the adjustments, release the striker panel and fit the hinges, pre-tightening in the middle of the adjustment.



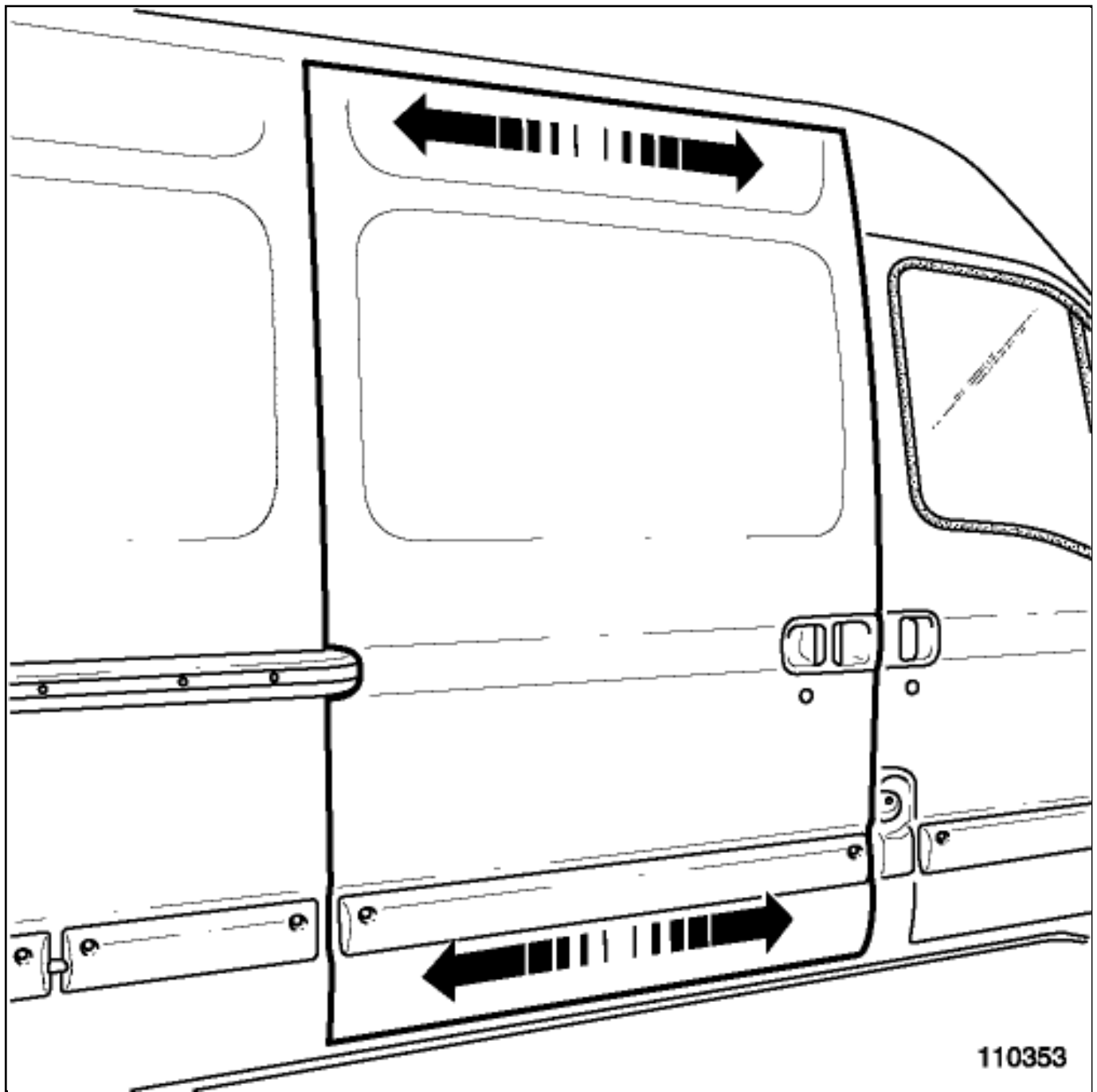
Note:

For information about the adjustment zones, refer to the MR for the vehicle concerned.

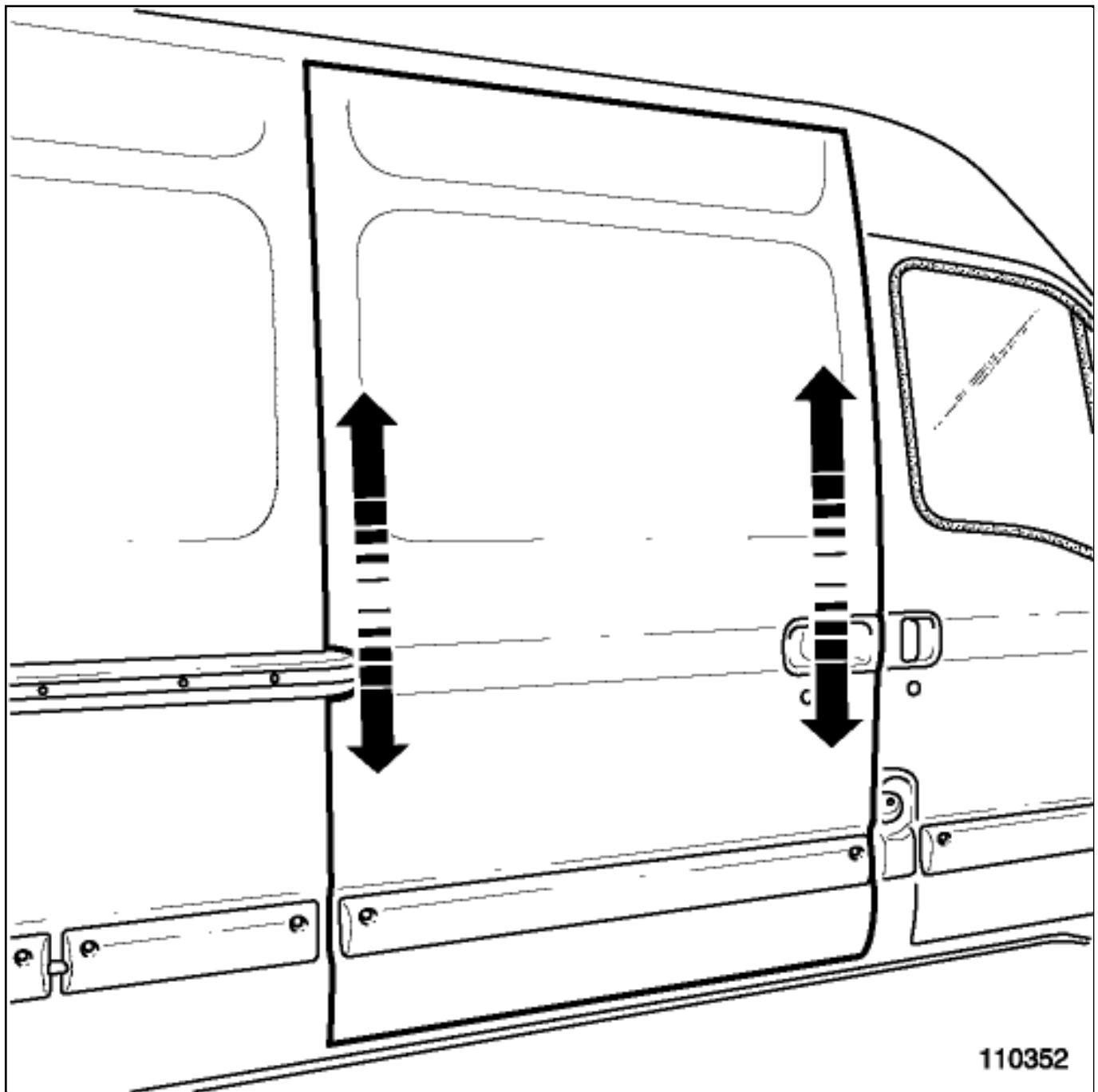
1- ADJUSTMENT CHRONOLOGY



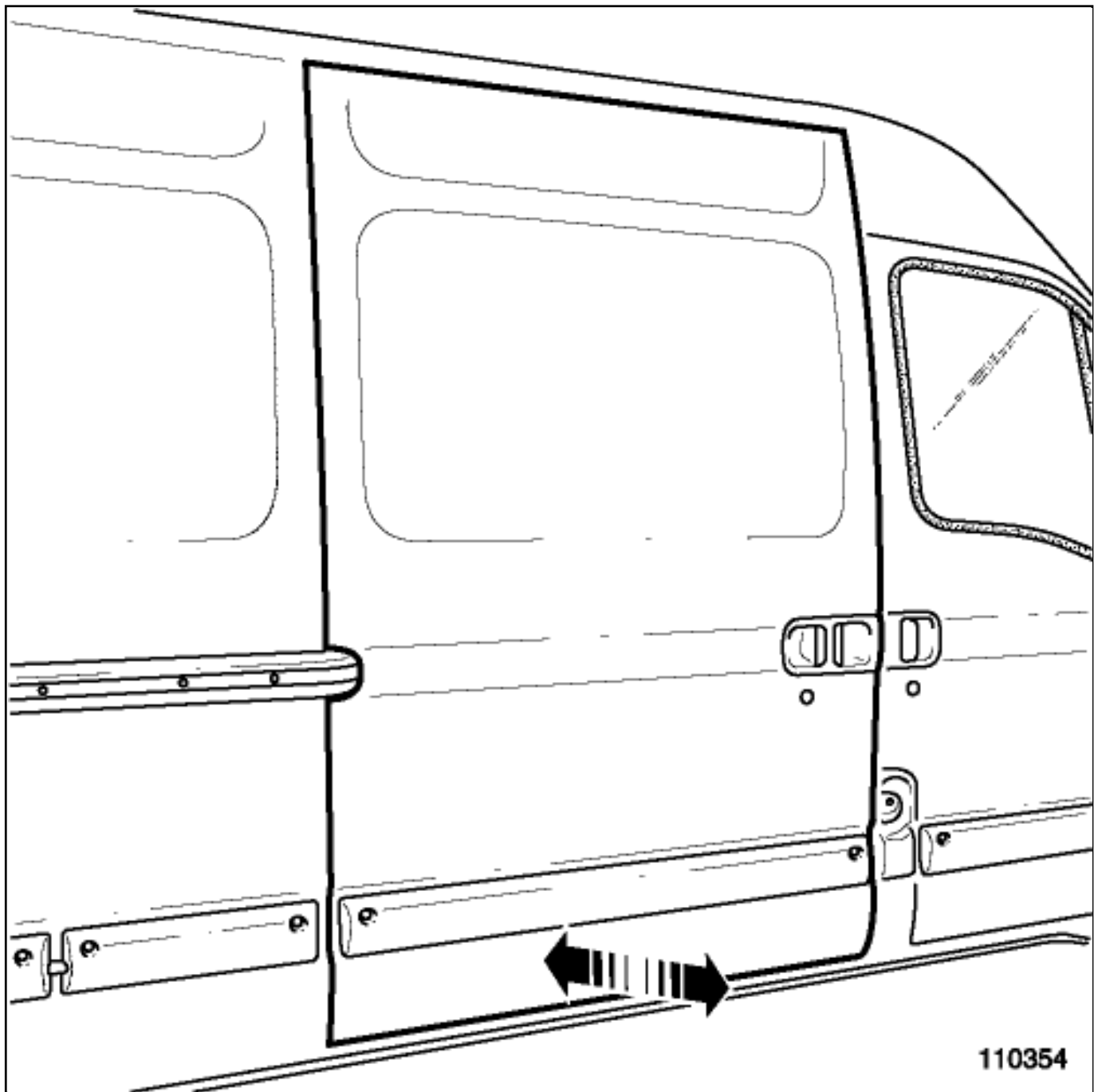
Adjust the centring of the door.



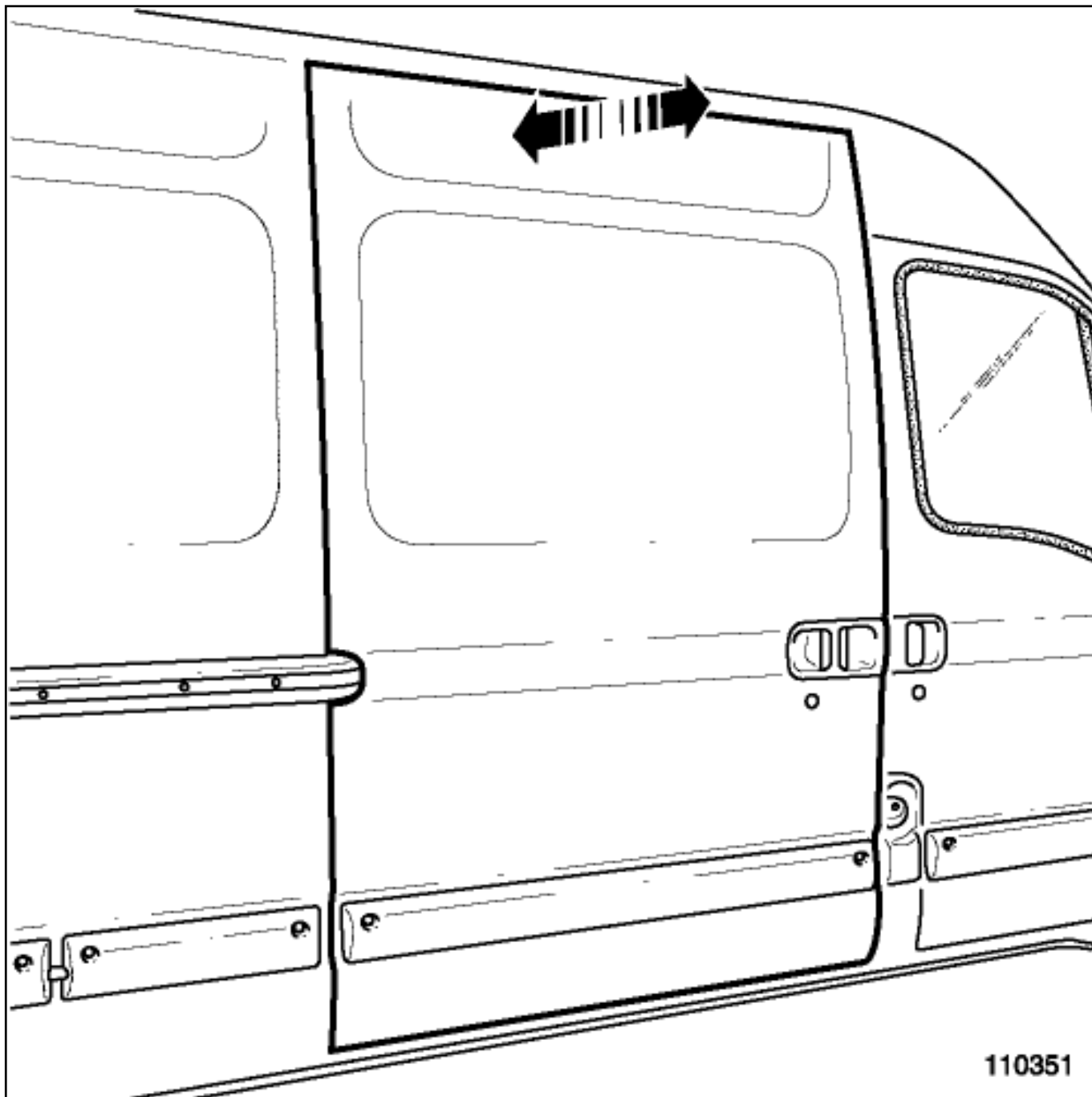
Adjust the side alignment of the door.



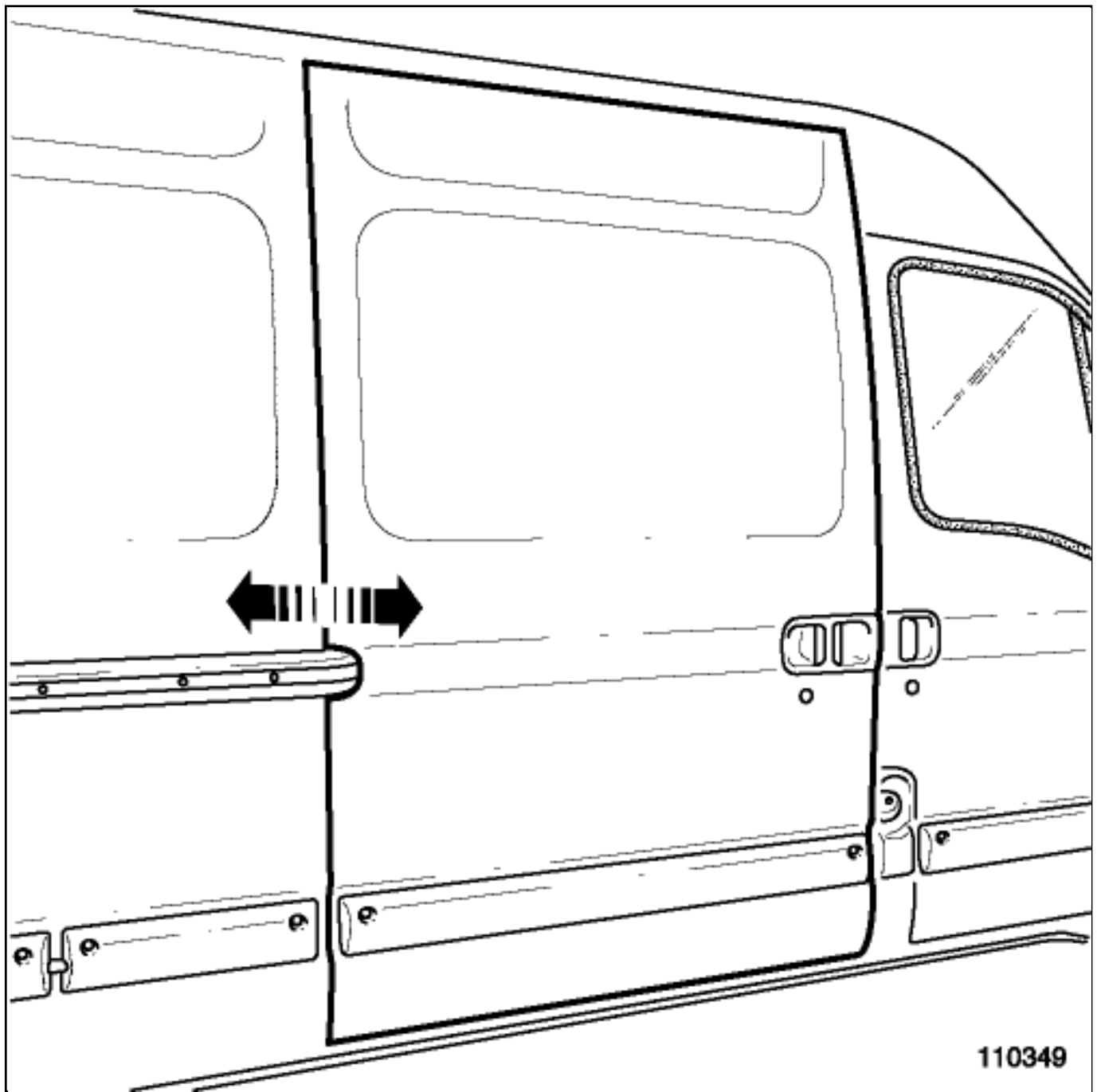
Adjust the alignment of the door height.



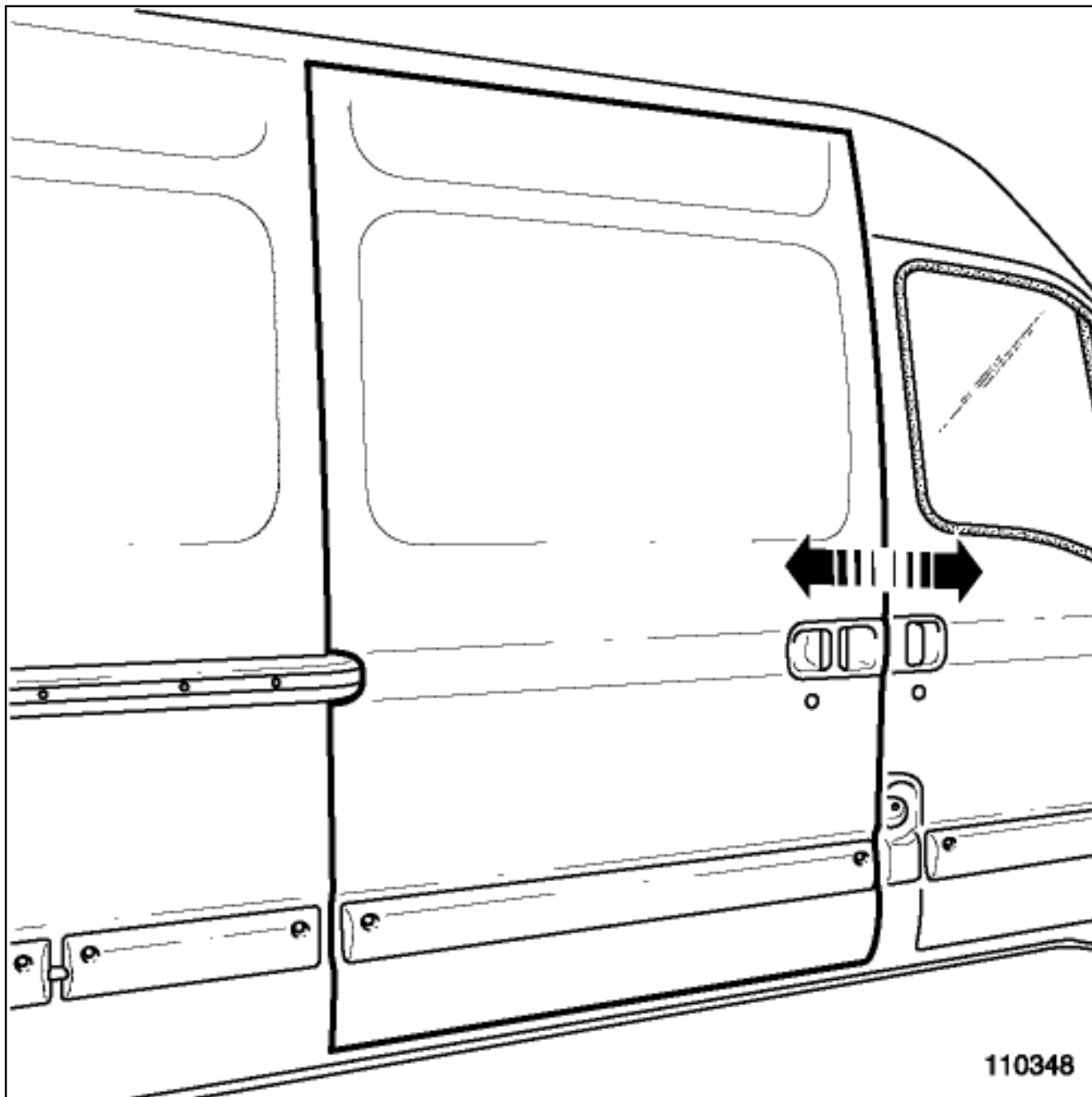
Adjust the flush fitting of the bottom section of the door.



Adjust the flush fitting of the top section of the door.



Adjust the rear flush fitting of the door.



Adjust the front flush fitting of the door.

Check the adjustment and the correct operation then tighten into position.



SIDEROOF RAIL REAR LINING: REPLACEMENT



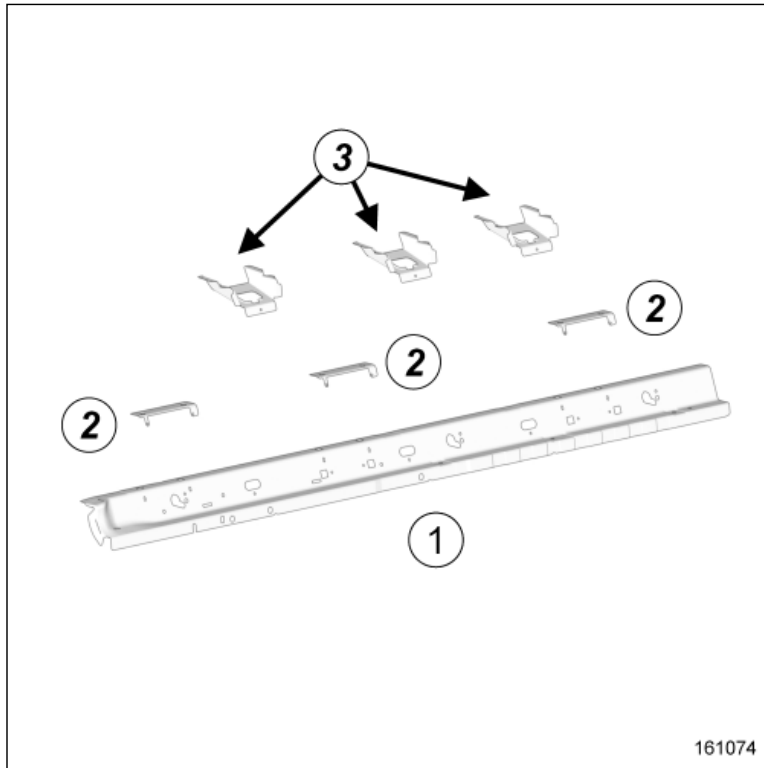
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#).

1. COMPOSITION OF THE SPARE PART



161074

No.	Description	Type	Thickness (mm)
(1)	Side roof rail lining	Mild steel	0.75
(2)	Roof rack mounting reinforcement	Mild steel	2
(3)	Roof stiffener support	Mild steel	0.75

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).



CAUTION

To avoid damaging the vehicles electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

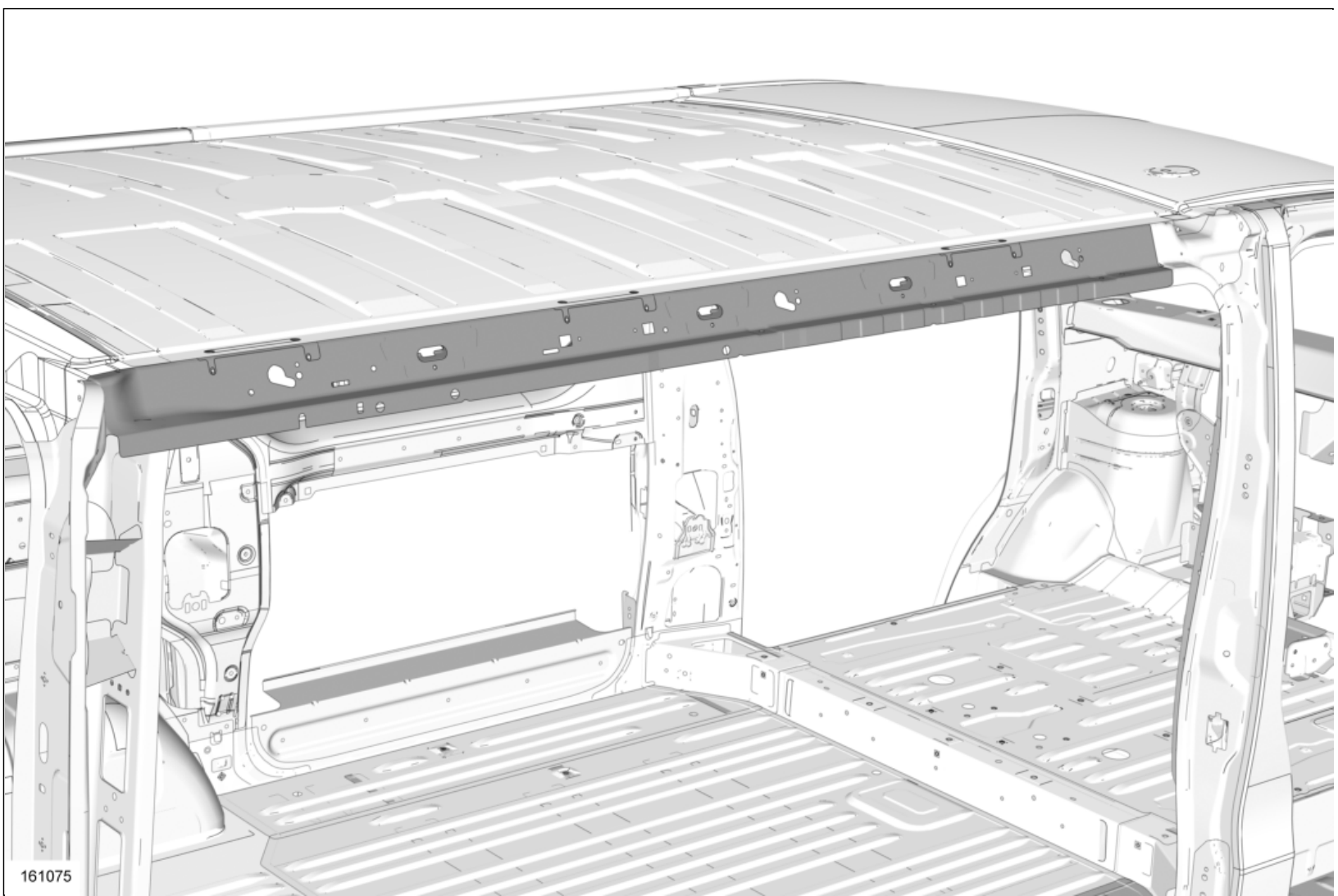
Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

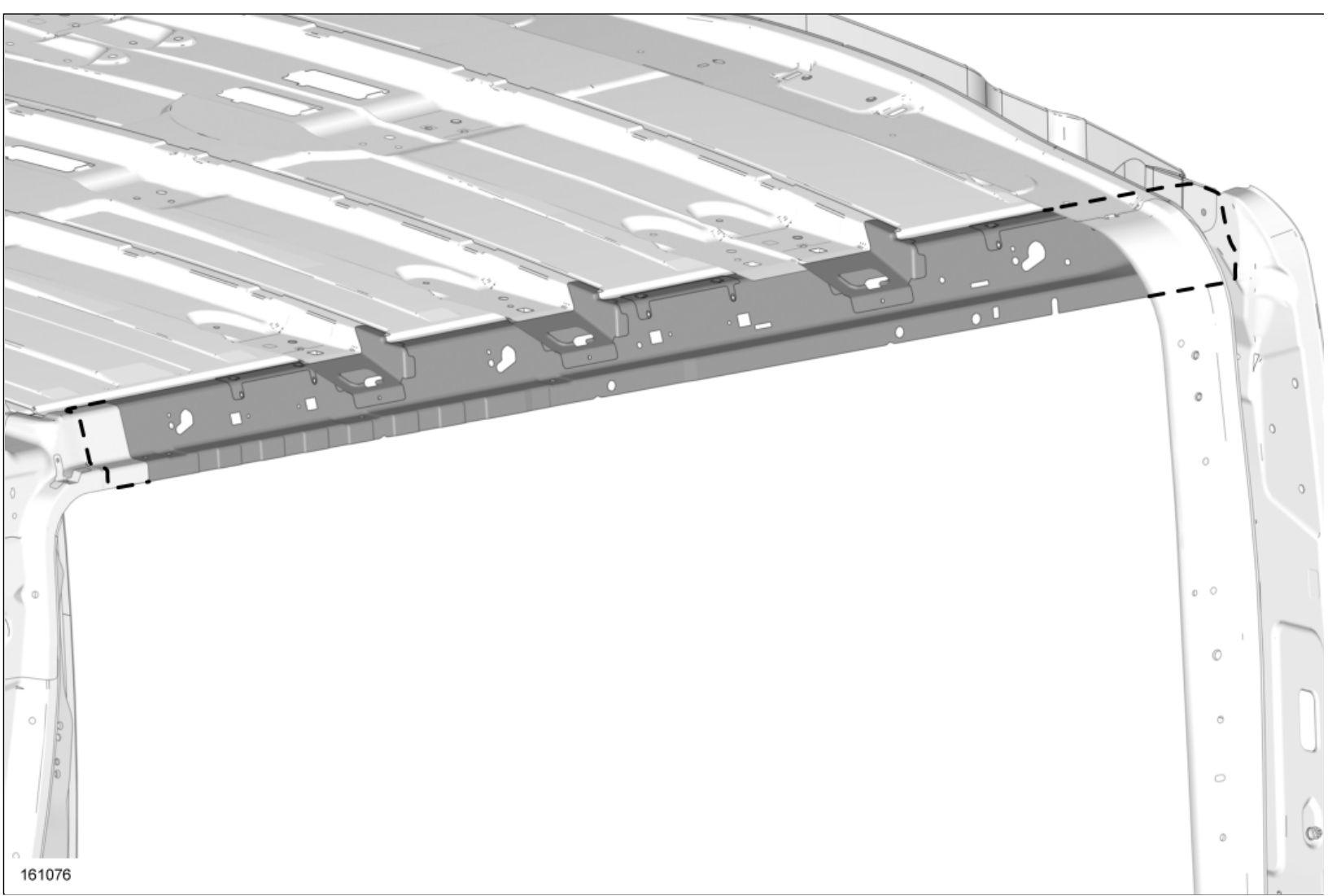
1-COMPLETE REPLACEMENT

1)PART IN POSITION

EXTERNAL VIEW



INTERNAL VIEW



161076



Repair-40x09x22x04-02x49-1-4-1.xml



KSL version : 3.02 du 22/07/11

SILENCER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Exhaust pipe cutter (diameter 35/50 mm and diameter 50/65mm). Complete kit in a case.

Mot. 1199-01

Pliers for removing exhaust pipe rubber mounting bushes

Mot. 1857

Equipment required

component jack

Locations and specifications (tightening torques, parts always to be replaced, etc.) ([see 19B, Exhaust, Exhaust assembly under body: Exploded view](#)).



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 19B, Exhaust, Exhaust: Precautions for the repair](#)).



WARNING

Wear heat protective gloves during the operation.



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

Any damaged heat shields must be replaced.

1. REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- ❑ Place a component jack under the silencer.

2. REMOVAL OPERATION

- ❑ Locate the area of the silencer to be cut ([see 19B, Exhaust, Exhaust assembly under body: Exploded view](#)) .
- ❑ Use the tool Exhaust pipe cutter (diameter 35/50 mm and diameter 50/65mm). Complete kit in a case. ([Mot. 1199-01](#)) to cut the exhaust pipe in the area to be cut ([see 19B, Exhaust, Exhaust: Precautions for the repair](#)) .
- ❑ Remove ([see 19B, Exhaust, Exhaust assembly under body: Exploded view](#)) :
 - the front rubber mounting bush on the silencer,
 - the rear rubber mounting bush on the silencer.



Note:

In case of difficulty removing the rubber mounting bushes, use the tool Pliers for removing exhaust pipe rubber mounting bushes ([Mot. 1857](#)) .

- ❑ Remove the silencer.

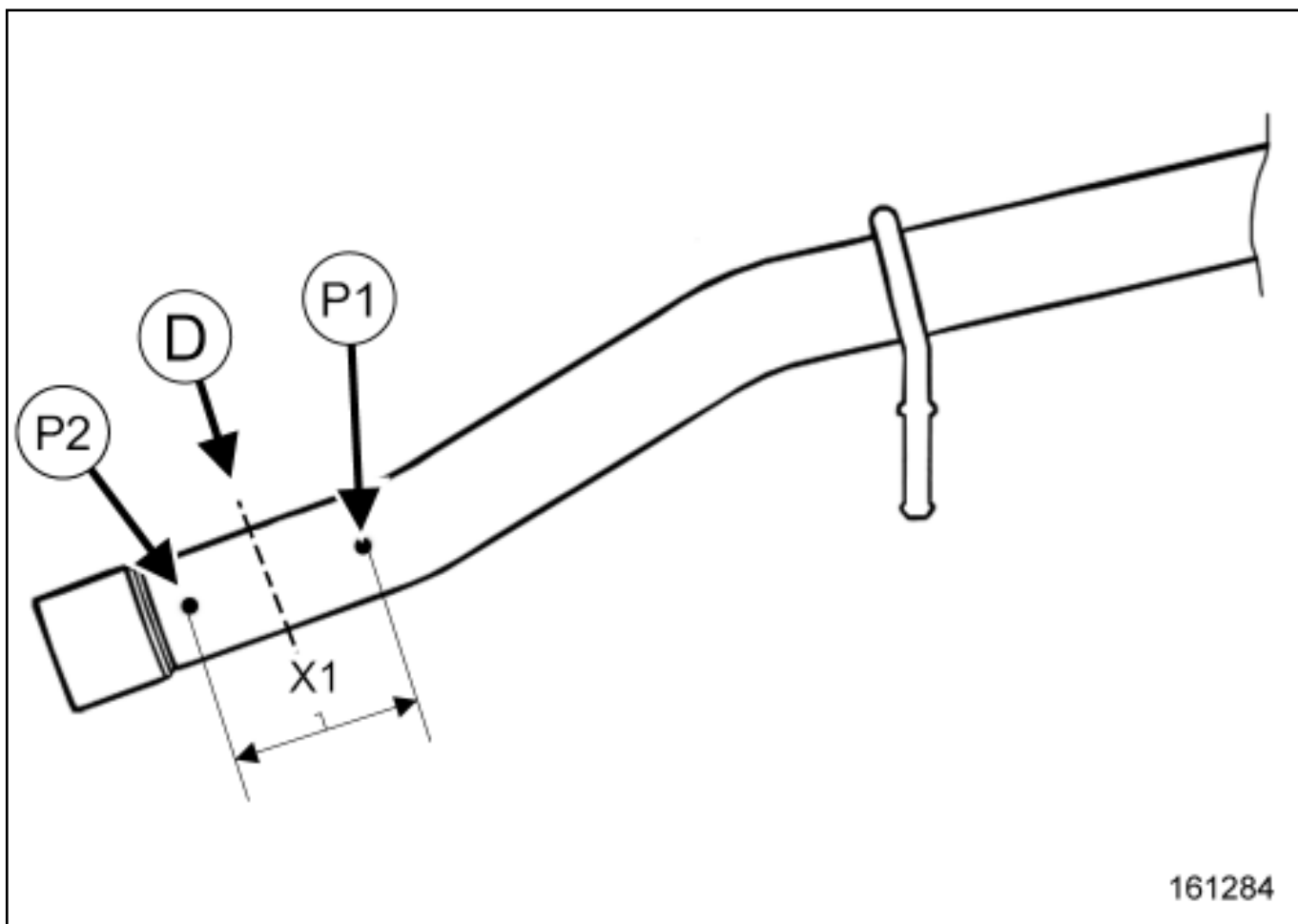
REFITTING

1. REFITTING PREPARATION OPERATION



Note:

An adaptation is necessary before refitting operation of a spare part.



- Draw a line(D) between the two marks(P1) and (P2) .

The distance between the two marks on the exhaust pipe is(x1) : 90 mm .

- Use the tool Exhaust pipe cutter (diameter 35/50 mm and diameter 50/65mm). Complete kit in a case. (Mot. 1199-01) to cut the pipe of silencer in the area to be cut(see 19B, Exhaust, Exhaust: Precautions for the repair) .

2. REFITTING OPERATION

- Refit :
 - the silencer,
 - the rubber mounting bushes.
- Fit a new After-Sales exhaust sleeve(see 19B, Exhaust, Exhaust: Precautions for the repair) .



WARNING

Position the "nut and bolt securing the sleeve" assembly so that the assembly cannot come into contact with the underbody.

- Tighten the sleeve while relieving the exhaust to ensure alignment([see 19B, Exhaust, Exhaust: Precautions for the repair](#)) .

3. FINAL OPERATION

- Check:
 - that all the exhaust pipe heat shields are in place and properly attached,
 - that there is no contact with the underbody.
- Start the vehicle.
- Check that there are no leaks and deal with them if necessary.



Repair-10x08x02x02-01x37-1-62-1.xml



XSL version : 3.02 du 22/07/11

STARTER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973



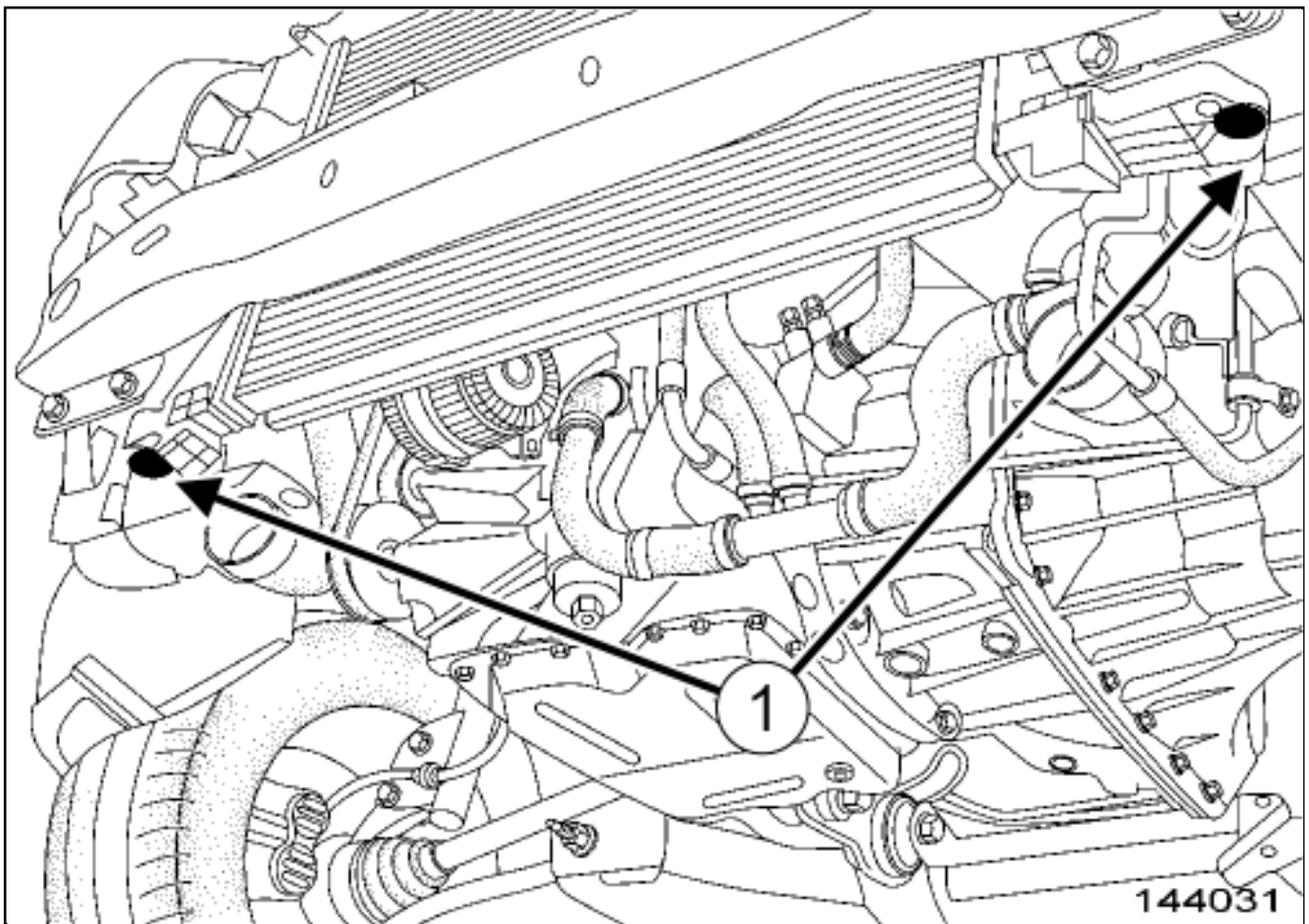
WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

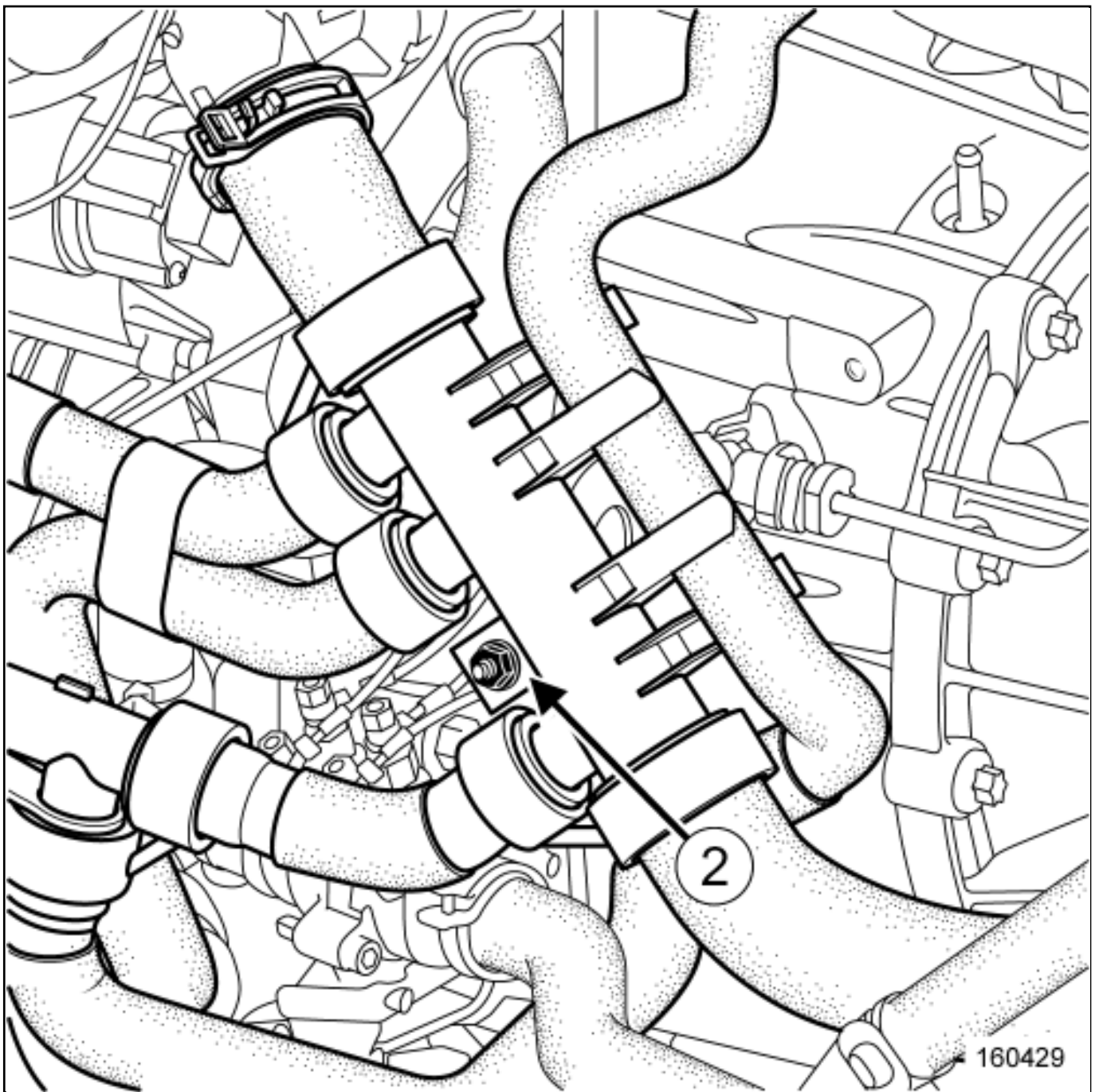
REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Disconnect the battery [Battery: Removal - Refitting](#) (80A, Battery).
- Remove:
 - the engine undertray,
 - the front bumper (see **Front bumper assembly: Exploded view**),
 - the headlights [Front signals - lighting assembly: Exploded view](#),
 - the front end panel (see **Front end panel: Removal - Refitting**),
 - the air deflectors,
 - the intercooler air outlet pipe [Air inlet assembly: Exploded view](#).

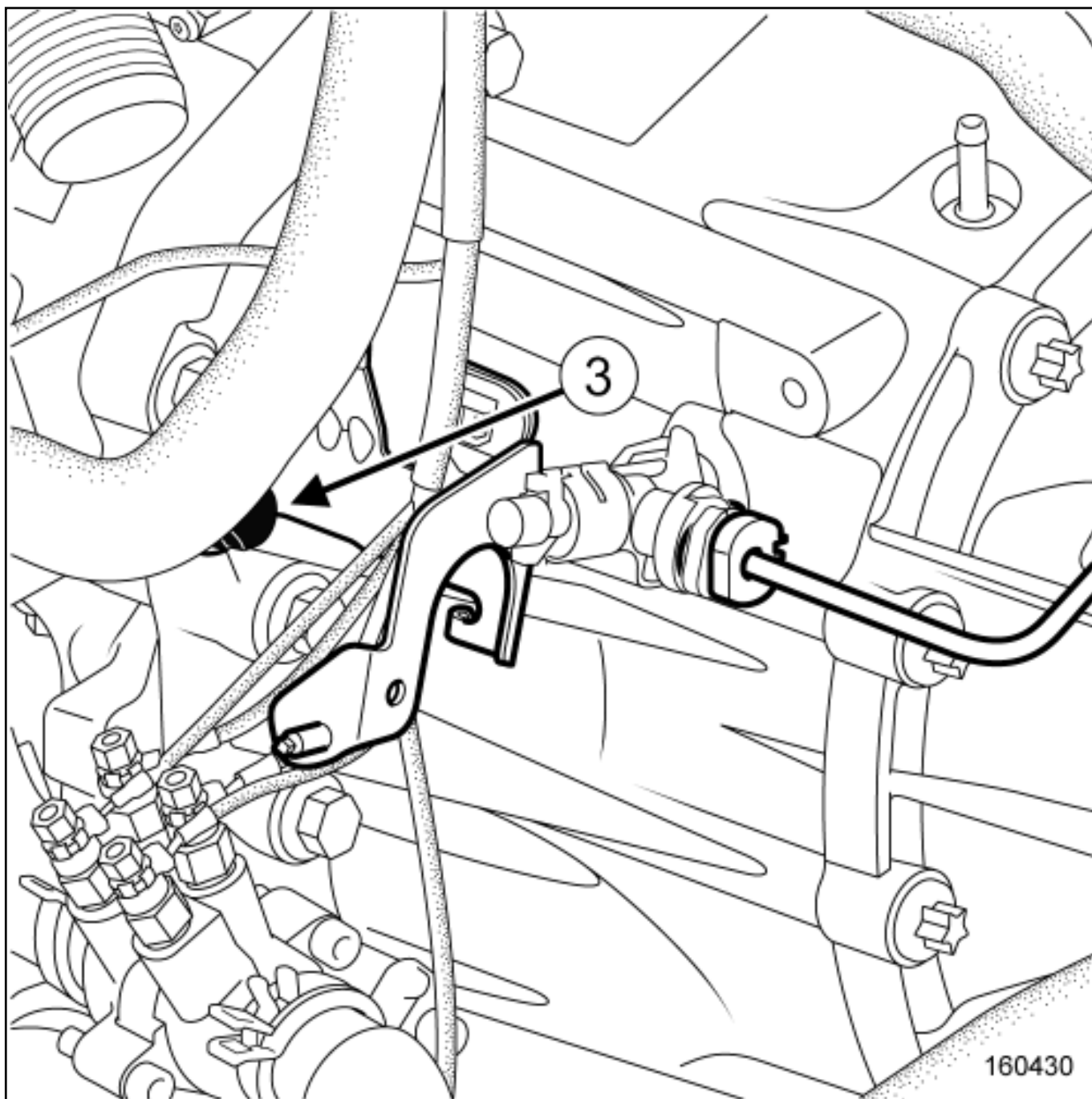


- Loosen the bolts(1) .
- Move aside the cooling radiator assembly.



■ Remove the radiator outlet pipe nut(2) .

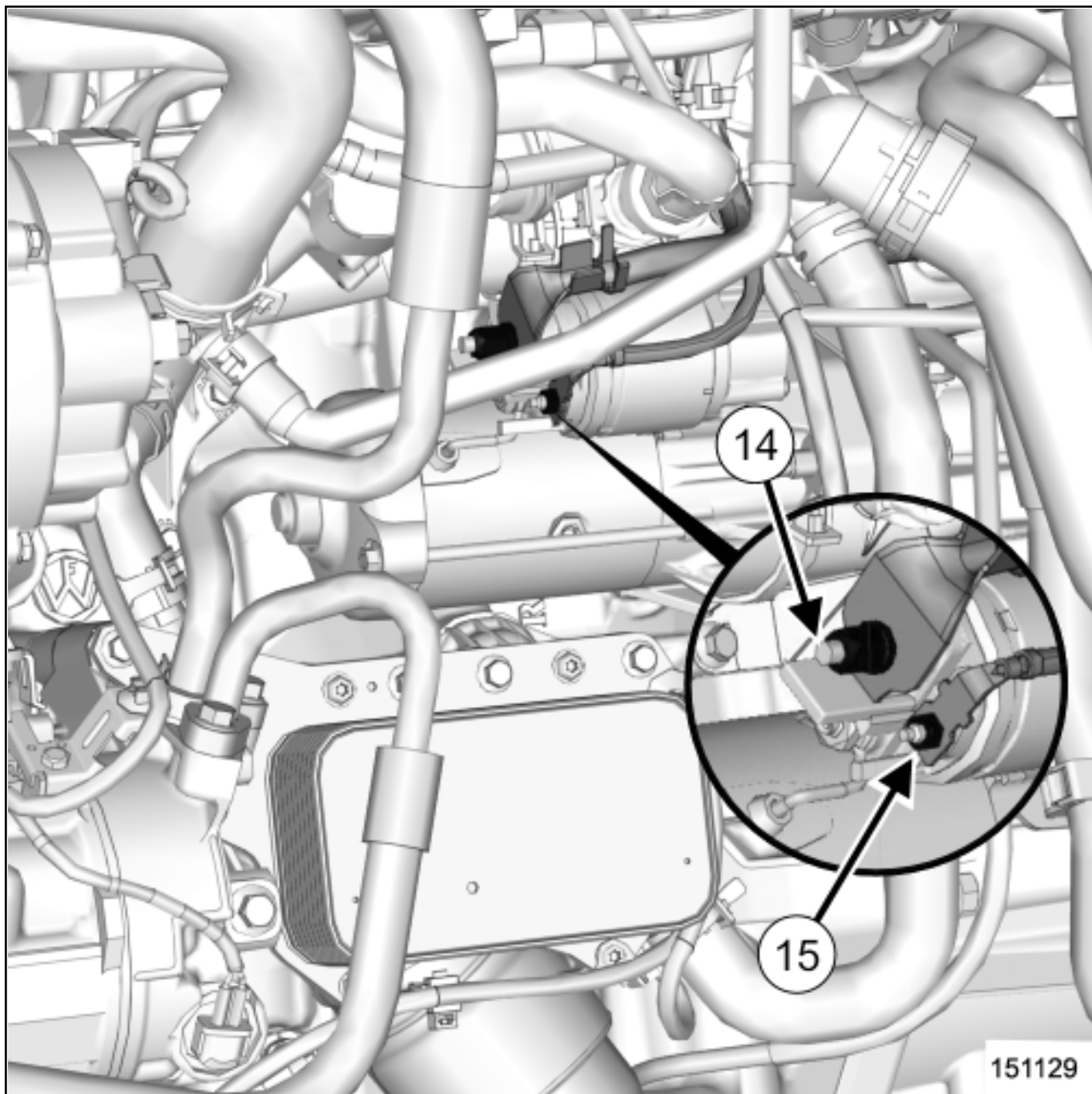
■ Move aside the radiator outlet pipe.



- Remove the wiring channel bolt(3) .

- Move aside the wiring channel.

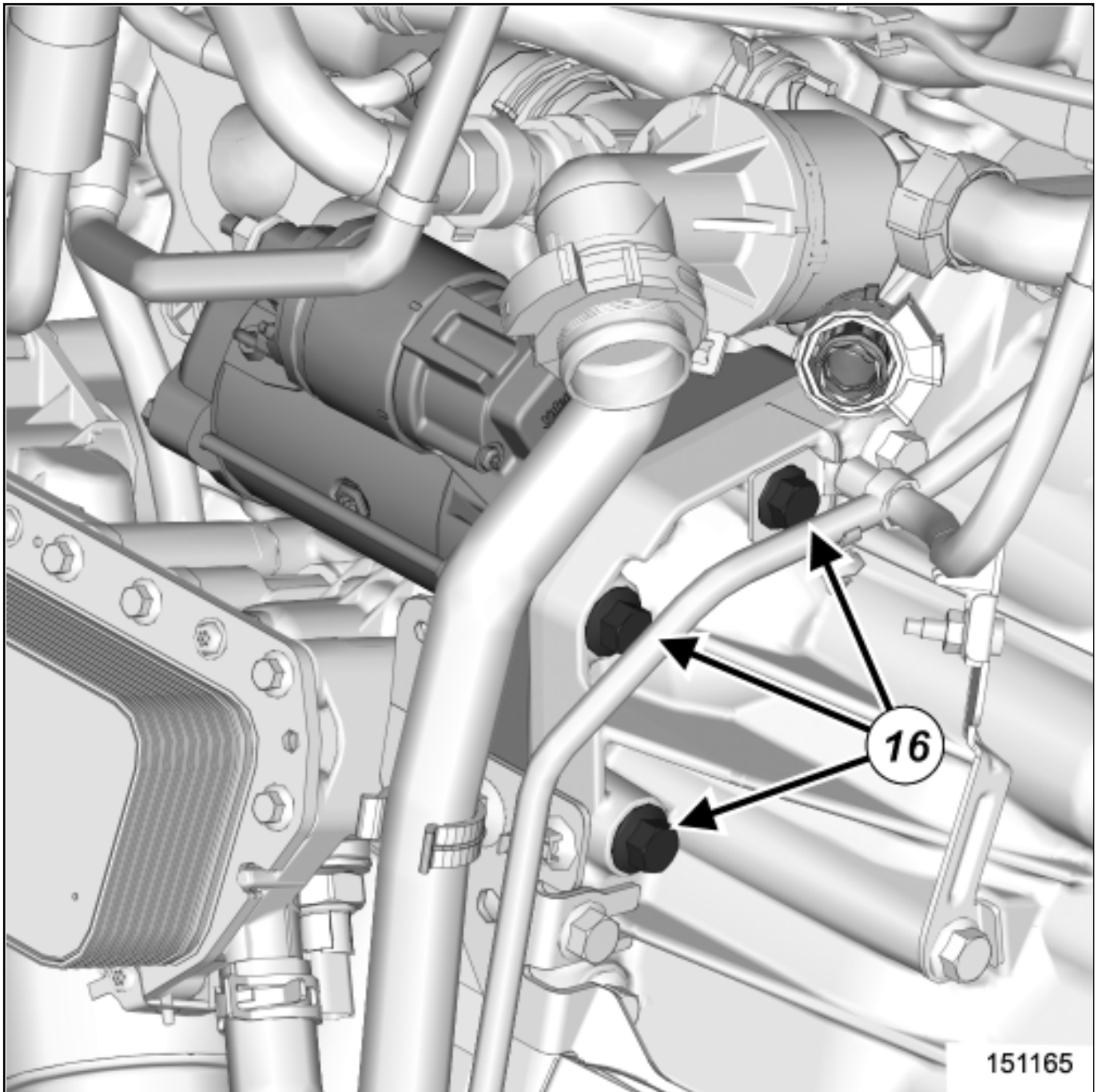
2. REMOVAL OPERATION



Remove:
■

the nut(14) on the positive terminal of the starter,

the nut(15) on the starter excitation terminal.



Remove:

the starter bolts(16) ,

the starter.

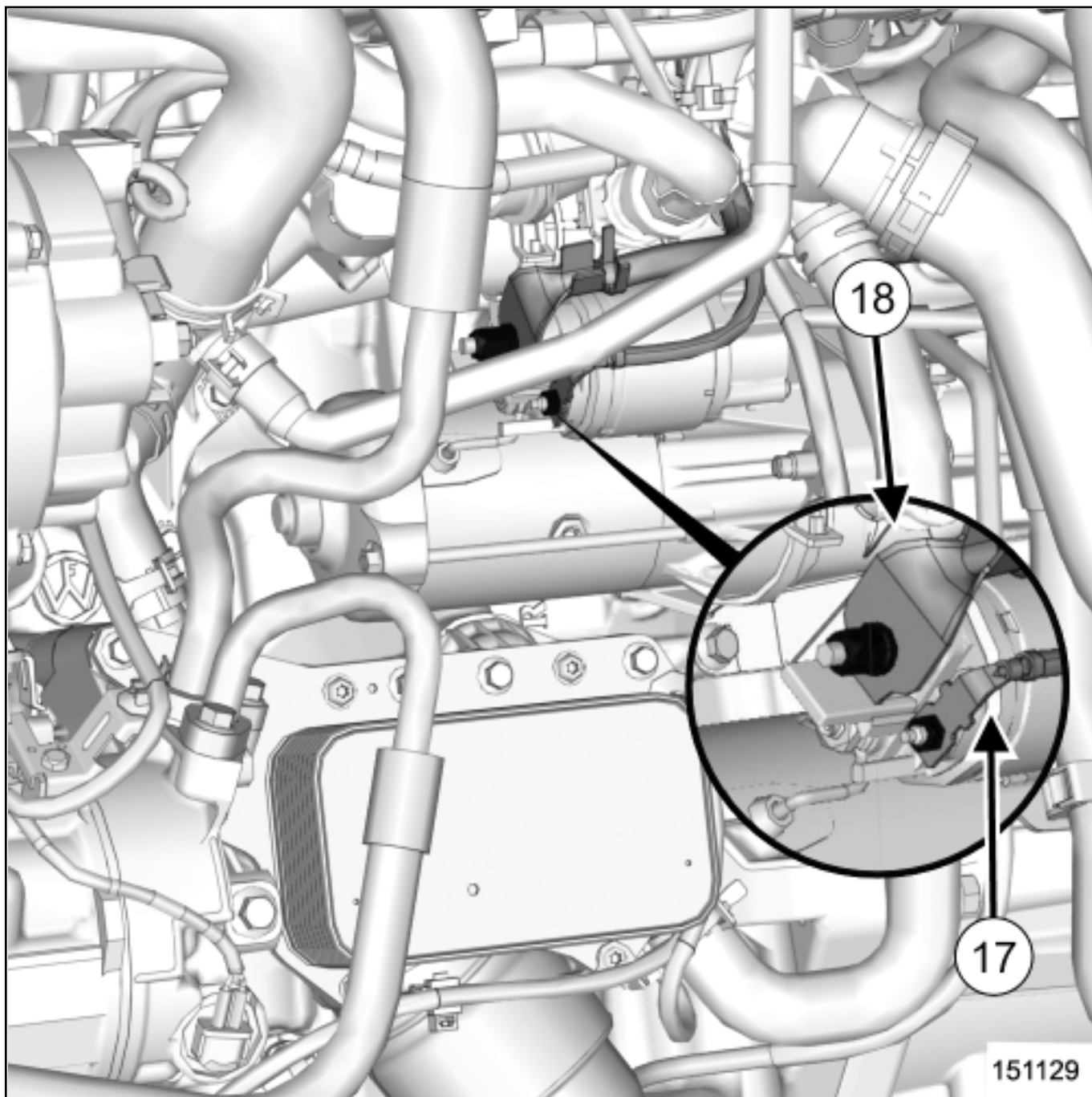
REFITTING

1. REFITTING PREPARATION OPERATION

2. REFITTING OPERATION



Refit the starter.



Fit the starter cables in accordance with the positions above:

-
- the excitation cable terminal flange(17) to be aligned with the flange facing the solenoid,
- the positive terminal flange(18) to be aligned with the flange facing the solenoid.

Torque tighten the starter bolts 44 N.m.

Torque tighten using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece (Ms. 1973) :

-
- the nut on the positive terminal of the starter 8 N.m,
- the nut on the starter excitation terminal 5 N.m.

Proceed in the reverse order to removal.



Repair-32x04x01x01-01x37-1-159-1.xml



XSL version : 3.02 du 22/07/11

STEERINGASSEMBLY:EXPLODEDVIEW



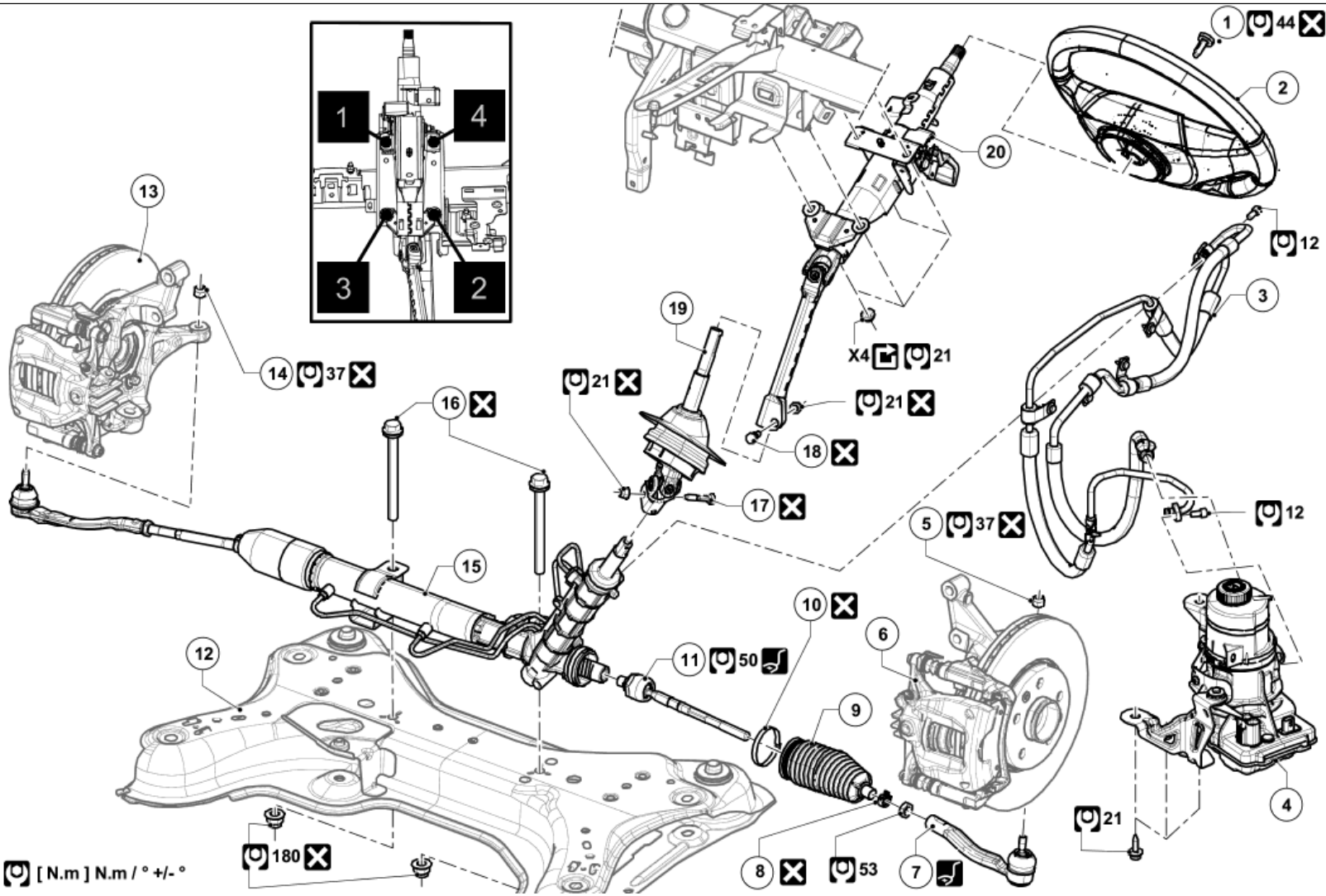
Note, one or more warnings are present in this procedure



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - (see 36A, [Steering assembly, Steering: Precautions for the repair](#)),
 - [Vehicle: Precautions for the repair](#).

Illustration key: Description Legend .



Marks	Designations	Informations
1	Steering wheel bolt	
2	Steering wheel	(see 36A, Steering assembly , Steering wheel: Removal - Refitting)
3	Power-assisted steering pipes	Power-assisted steering pipes: Removal - Refitting
4	Power-assisted steering pump assembly	Power-assisted steering pump assembly: Removal - Refitting
5	Track rod end nut	
6	Front brake calliper	Front brake calliper assembly: Exploded view
7	Track rod	Position the vehicle on a two-post lift Vehicle: Towing and lifting Tav. 476
8	Steering gaiter rubber clip	
9	Steering box gaiter	Position the vehicle on a two-post lift Vehicle: Towing and lifting
10	Steering gaiter clip	
11	Axial ball joint linkage	(see 36A, Steering assembly , Axial ball joint linkage: Removal - Refitting) Dir. 1306-01, Dir. 1923
12	Front axle subframe	Front axle assembly: Exploded view
13	Brake disc	Front hub carrier assembly: Exploded view
14	Track rod end nut	
15	Steering box	(see 36A, Steering assembly , Steering box: Removal - Refitting)
16	Steering box bolts	
17	Universal joint bolt	
18	Intermediate shaft bolt on steering column side	
19	Steering intermediate shaft	(see 36A, Steering assembly , Intermediate shaft: Removal - Refitting)
20	Steering column	(see 36A, Steering assembly , Steering column: Removal - Refitting)



Repair-13x04-02x50-1-8-1.xml



STEERING BOX GAITER: REMOVAL - REFITTING

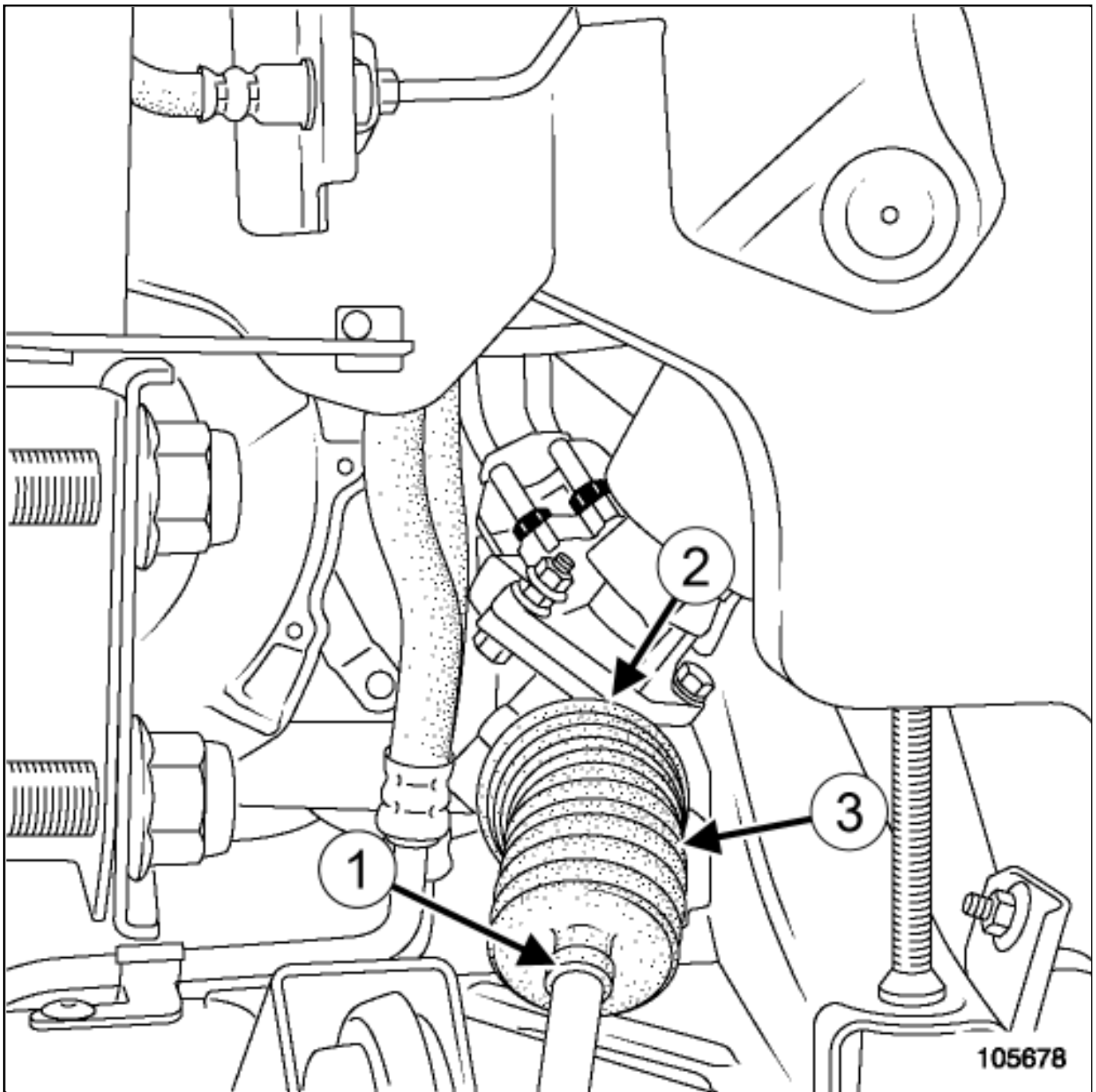
-
- Location and specifications (tightening torques, parts always to be replaced, etc.)([see 36A, Steering assembly, Steering assembly: Exploded view](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift([Vehicle: Towing and lifting](#)) .
- Remove:
 - the front wheel([Front hub carrier assembly: Exploded view](#)) ,
 - the track rod([see 36A, Steering assembly, Steering assembly: Exploded view](#)) ,
 - the wheel alignment adjusting lock nut.

2. REMOVAL OPERATION



Note:



When removing the steering gaiter, blast the gaiter surfaces with compressed air to eliminate any impurities that could enter the steering box.

- Remove the gaiter retaining clip(1)
- Cut the gaiter retaining clip(2) .
- Remove the gaiter(3) .

REFITTING

1. REFITTING PREPARATION OPERATION

- Always replace:
 - the steering box gaiter,
 - the retaining clips.
- Clean the contact surfaces between the steering box and the gaiter using Surface cleaner [Vehicle: Parts and consumables for the repair](#) .
- Coat the gaiter bearing face on the axial ball joint with silicone lubricant [Vehicle: Parts and consumables for the repair](#) to prevent the gaiter from twisting.



Note:

Be sure to centre the steering to ensure the air in the gaiters is equalised.



Note:

Be careful not to damage the gaiters: risk of irreversible damage.

2. REFITTING OPERATION

- Refit:
 - a new steering box gaiter,
 - new retaining clips.

3. FINAL OPERATION.

- Refit:
 - the wheel alignment adjusting lock nut,
 - the track rod ([see 36A, Steering assembly, Steering assembly: Exploded view](#)),

the front wheel [Front hub carrier assembly: Exploded view](#) .

Check the axle geometry [Axle assemblies: Check](#) .

If necessary, adjust the geometry of the axle assemblies [Front axle system: Adjustment](#) .



Repair-13x04x03x02-01x37-1-10-1.xml



XSL version : 3.02 du 22/07/11

STEERING BOX: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Ball joint extractor.

Tav. 476

Pipe clamps.

Ms. 583

Equipment required

component jack

safety strap(s)

WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair ([see 36A, Steering assembly , Steering: Precautions for the repair](#)) .

WARNING



Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

- Location and specifications (tightening torques, parts always to be replaced, etc.):
 - [\(see 36A, Steering assembly , Steering assembly: Exploded view\)](#) ,
 - [Front axle assembly: Exploded view](#) ,
 - [Engine-gearbox unit support assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

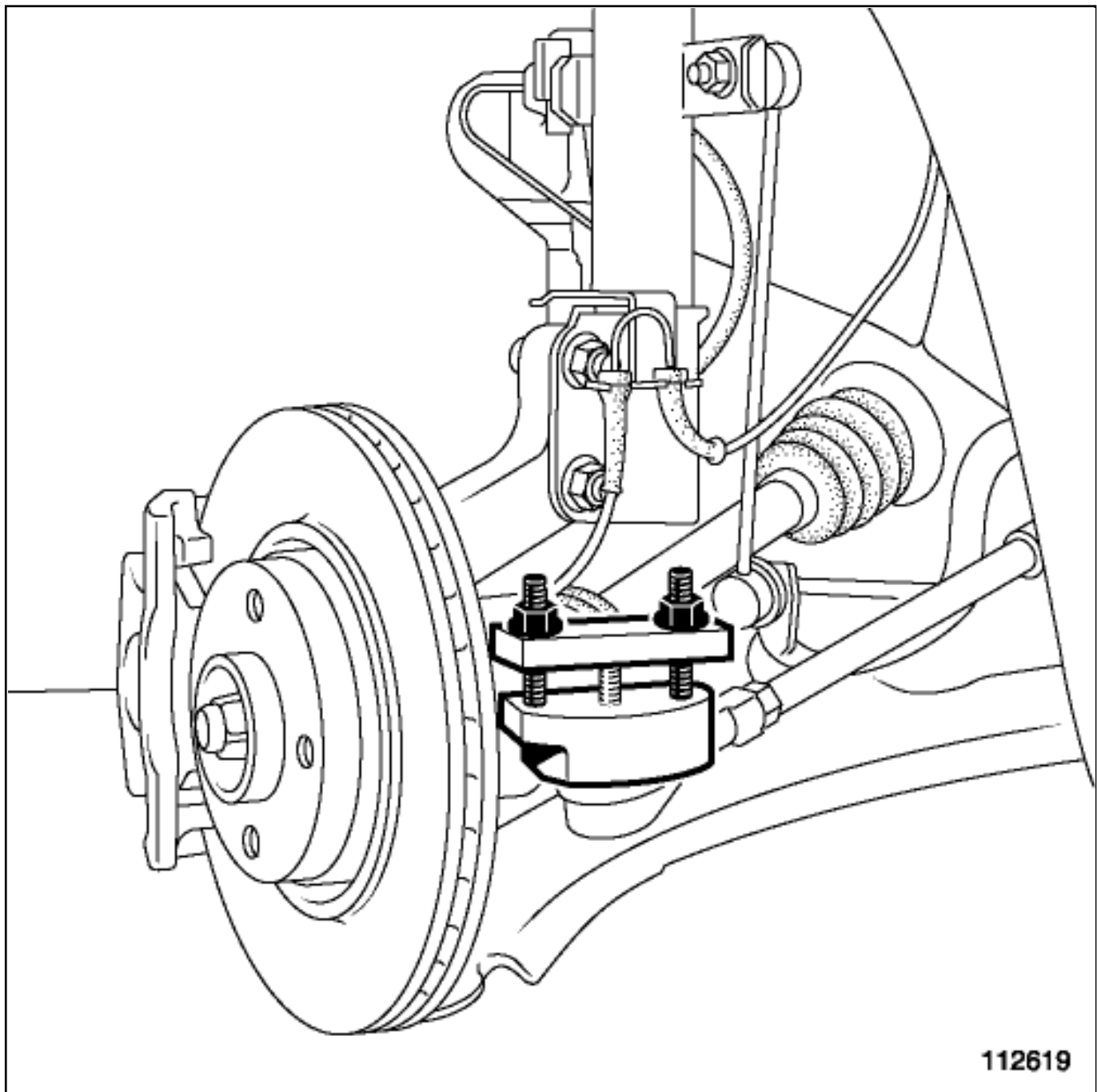
- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

■ Set the wheels straight ahead.

■ Remove:

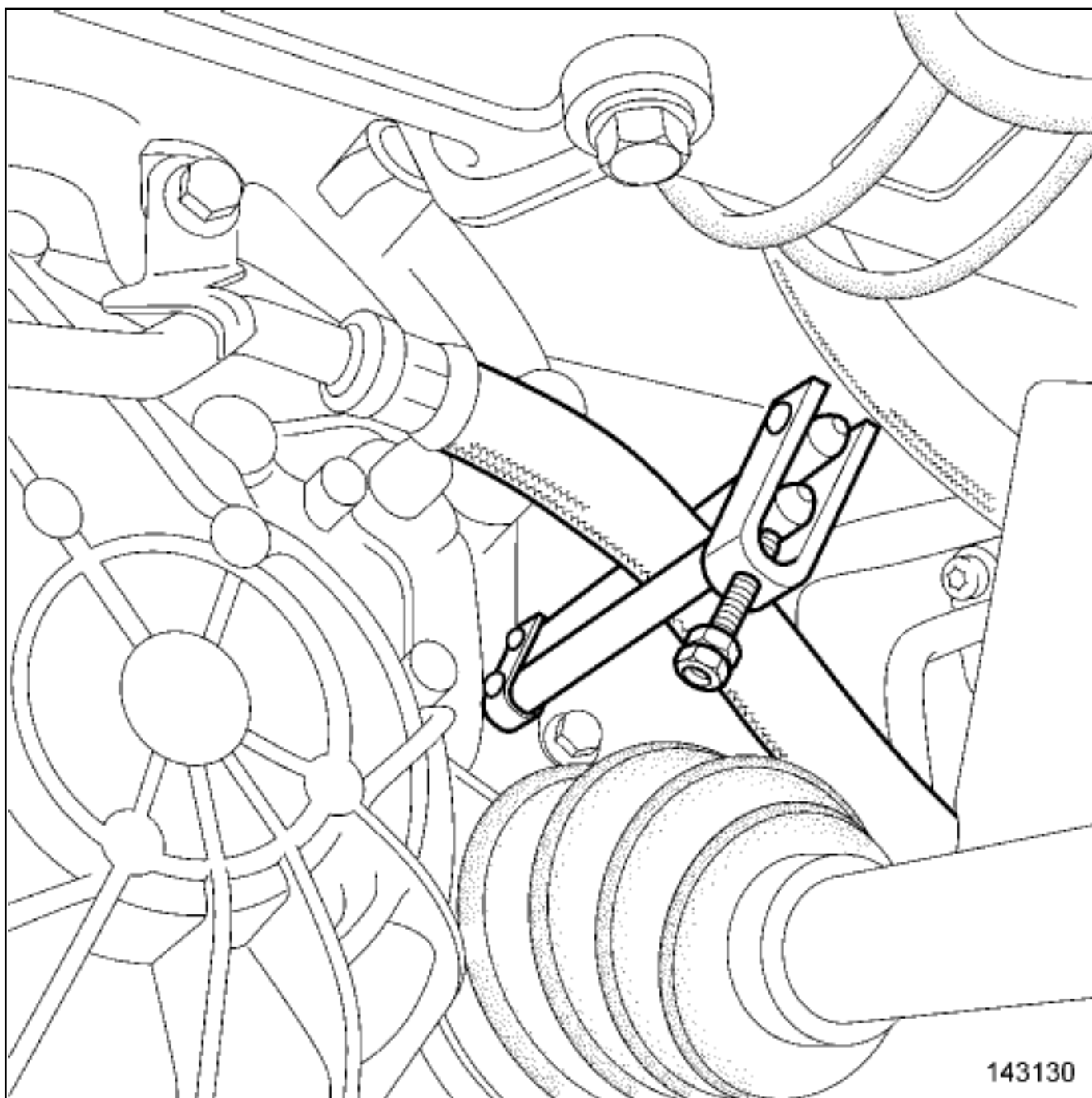
- the front wheels [Front hub carrier assembly: Exploded view](#) ,
- the engine undertray bolts,
- the engine undertray.

2. REMOVAL OPERATION



■ Remove the track rod end nuts.

- Detach the track rod ends using the toolBall joint extractor.([Tav. 476](#)) .



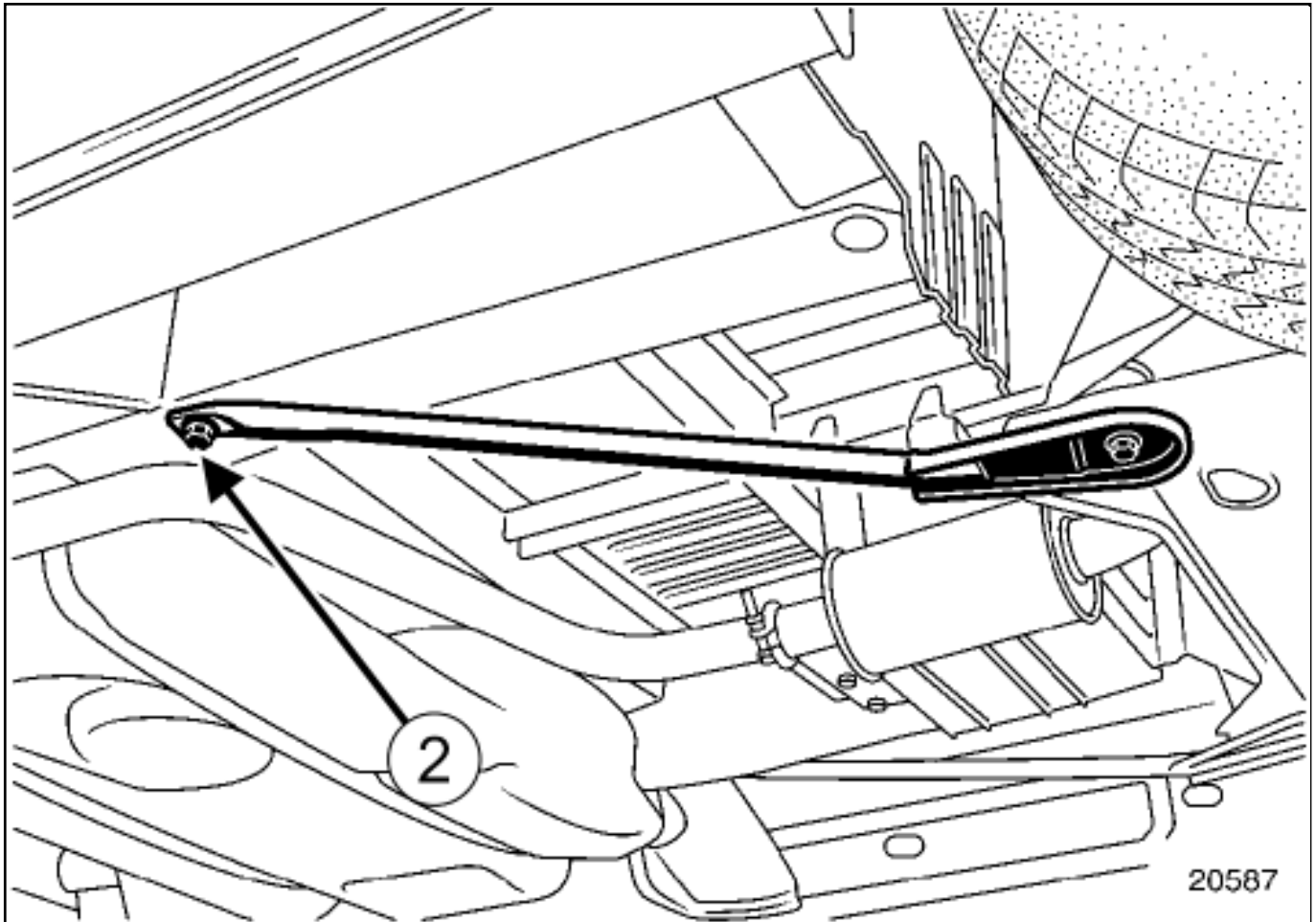
- Fit the toolPipe clamps.([Ms. 583](#)) on the power-assisted steering low pressure pipe.
- Remove the bolt of the power-assisted steering pipe bracket from the steering box([see 36A, Steering assembly, Steering assembly: Exploded view](#)) .

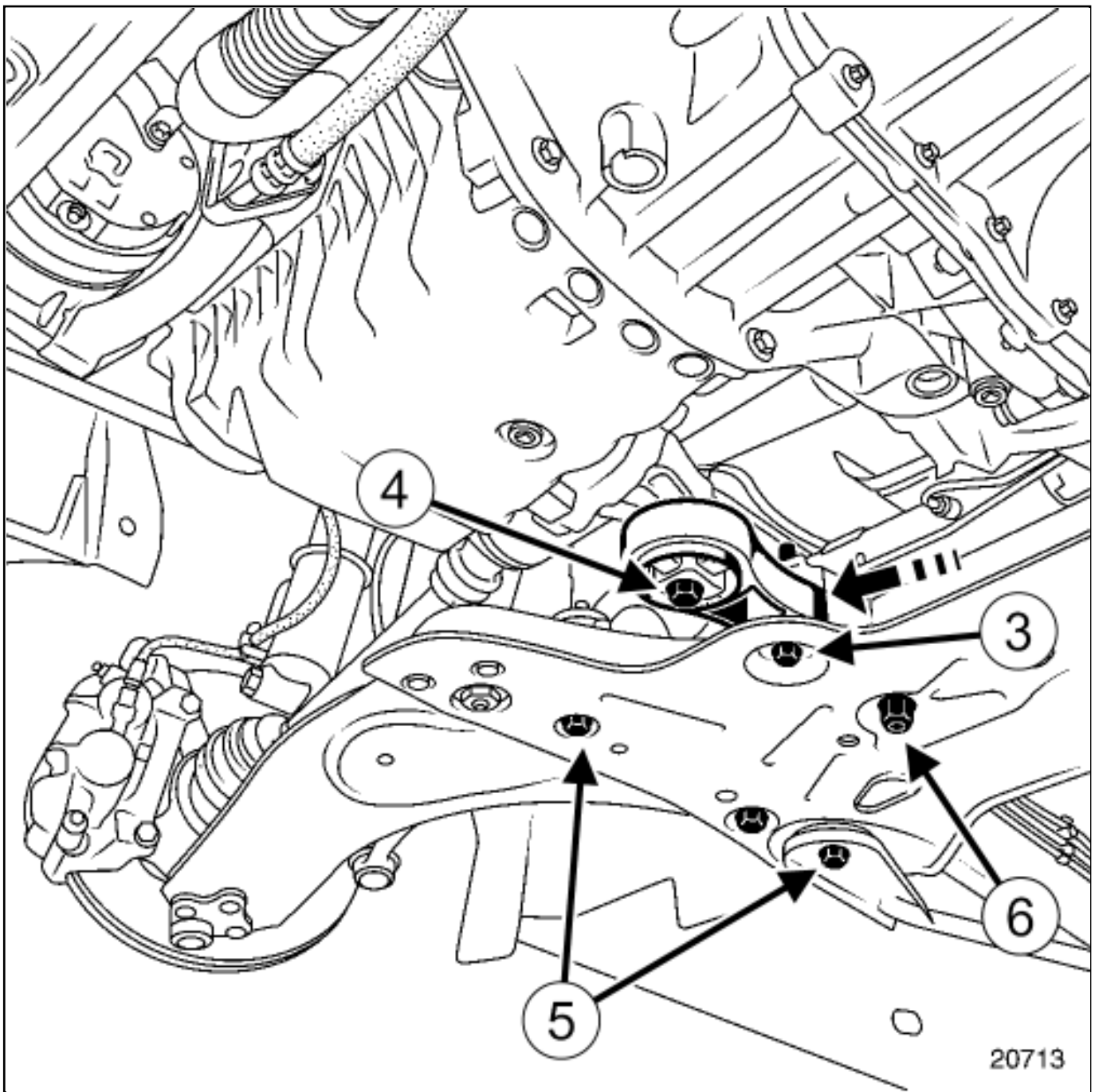


Insert the blanking plugs.

Remove:

-
- the bolt from the universal joint([see 36A, Steering assembly , Steering assembly: Exploded view](#)) ,
- the nuts from the anti-roll bar tie-rods([Front axle assembly: Exploded view](#)) .





Remove the engine tie-bar bolt(3) .

Loosen the engine tie-bar bolt(4) .

Rotate the engine tie-bar.

Unscrew the rear bolts(2) on the subframe reinforcement bars.

Position a component jack under the subframe.

Fit safety strap(s).

Pivot the reinforcement bars towards the outside.

Remove the subframe bolts(5) .

Lower the front axle subframe with the component jack.

Remove the steering box bolts(6) .

Tilt the anti-roll bar towards the rear of the vehicle.

Remove the steering box([see 36A, Steering assembly , Steering assembly: Exploded view](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION

Use surface cleaner [Vehicle: Parts and consumables for the repair](#) to clean the surfaces of the subframe in contact with the steering box.

2. REFITTING OPERATION

Proceed in the reverse order to removal.

Torque tighten:

-
- the subframe bolts [Front axle assembly: Exploded view](#) ,
- the steering box bolts [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) ,
- the anti-roll bar tie-rods nuts [Front axle assembly: Exploded view](#) ,
- the universal joint bolt [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) ,
- the track rod end nuts [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) ,
- the power-assisted steering pipes bolt on the steering box [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) ,
- the engine tie-bar bolts [Engine-gearbox unit support assembly: Exploded view](#) .

3. FINAL OPERATION

■ Fill the power-assisted steering reservoir [Vehicle: Parts and consumables for the repair](#) .

■ Bleed the power-assisted steering circuit (see **Power-assisted steering circuit: Bleeding**) .

■ Check the front axle geometry [Front axle assembly: Adjustment values](#) .

■ Adjust the front axle, if necessary [Front axle system: Adjustment](#) .



Repair-13x04x03-01x37-1-33-1.xml



STEERING COLUMN: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool

Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) .

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 36A, Steering assembly, Steering: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

WARNING



Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Set the wheels straight ahead.
- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove:
 - the driver's front airbag [Driver's frontal airbag: Removal - Refitting](#) ,
 - the steering wheel [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) ,
 - the steering column switch assembly (see [Steering column switch assembly: Removal - Refitting](#)) ,
 - the steering wheel cover (see [Dashboard assembly: Exploded view](#)) ,
 - the ignition switch (see [Ignition switch: Removal - Refitting](#)) .

2. REMOVAL OPERATION

- Remove the steering column ([see 36A, Steering assembly , Steering assembly: Exploded view](#)) .

REFITTING

- Proceed in the reverse order to removal.



Note:

Check that the secured locking system of the connectors is correctly engaged.

- Check:

- the alignment of the rotary switch (see **Rotary switch: Adjustment**) .
- that the steering wheel is properly aligned.

ELECTRONIC STABILITY PROGRAM(Yes)



Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :

-Computer concerned by the after repair procedure:



"ABS-ESP computer" .

-Component affected by the after repair procedure:



"Steering wheel angle sensor"



Repair-13x04x01x02-01x37-1-42-1.xml



XSL version : 3.02 du 22/07/11

STEERING WHEEL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



parts always to be replaced:



[Steering wheel bolt](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 36A, Steering assembly , Steering: Precautions for the repair\)](#) ,
- [Control - Signals: Precautions for repair](#) ,
- [Vehicle: Precautions for the repair](#) .

■ Location and specification (tightening torques, parts always to be replaced, etc.) [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Apply the procedure for deactivating the safety systems [Airbag and pretensioners: Precautions for the repair](#) .
- Remove the driver's frontal airbag [Driver's frontal airbag: Removal - Refitting](#) .
- Set the wheels straight ahead.

- ❑ Disconnect the connectors.

2. REMOVAL OPERATION

- ❑ Remove the steering wheel bolt.
- ❑ Remove the steering wheel.

REFITTING

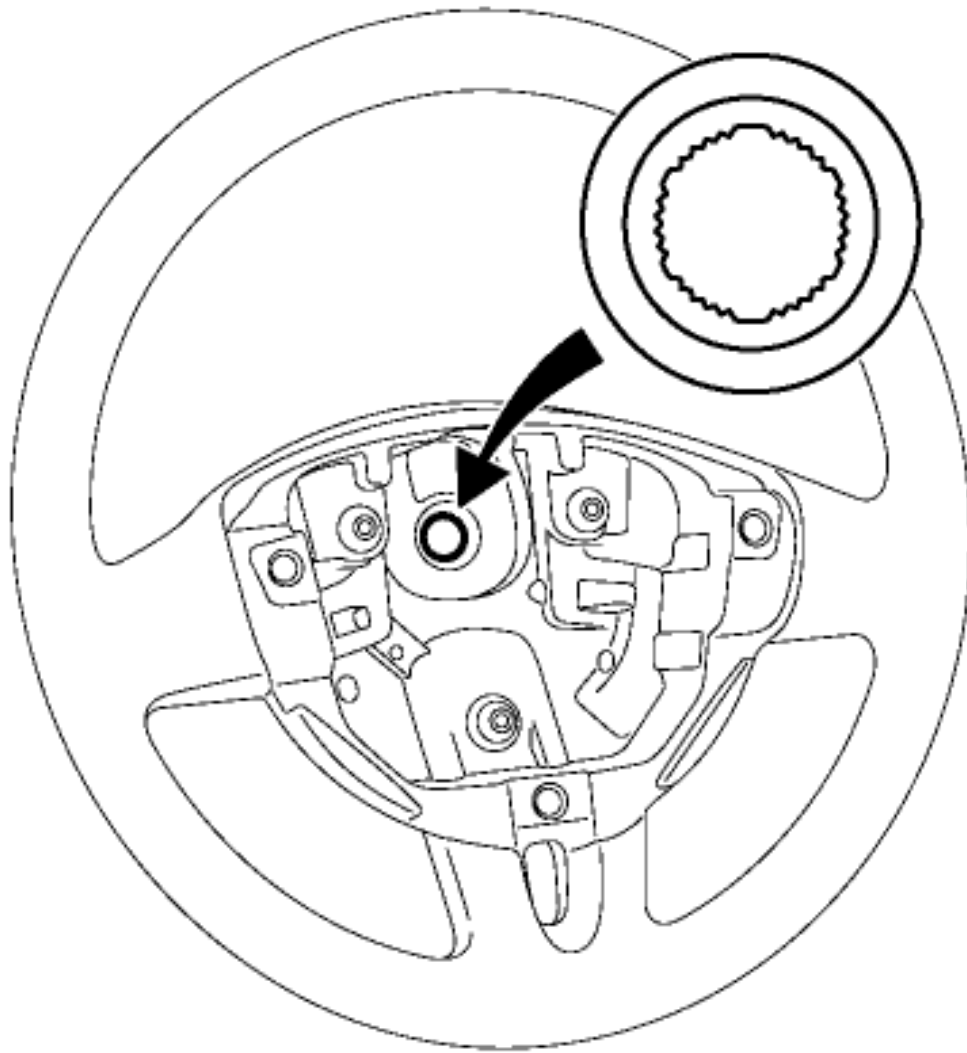
1. REFITTING PREPARATION OPERATION



parts always to be replaced:  Steering wheel bolt .

- ❑ Check the alignment of the rotary switch(see **Rotary switch: Adjustment**) .

2. REFITTING OPERATION



105327



CAUTION

In order not to damage the steering wheel or steering column, the steering wheel-column foolproofing devices must be aligned.

- Refit the steering wheel.
- Connect the connectors.
- Refit a new steering wheel bolt.

- Torque tighten the steering wheel bolt([see 36A, Steering assembly , Steering assembly: Exploded view](#)) .

3. FINAL OPERATION

- Refit the driver's front airbag[Driver's frontal airbag: Removal - Refitting](#) .
- Apply the procedure for activating the safety systems[Airbag and pretensioners: Precautions for the repair](#) .

4. CHECKING AFTER REPAIR

- Switch on the ignition.

- Check the operation of the rotary switch:

- ■ turn the steering wheel to the left until it stops,
- ■ turn the steering wheel to the right until it stops,
- check that there are no faults on the instrument panel.



Repair-13x04x01x01-01x37-1-24-1.xml



XSL version : 3.02 du 22/07/11

STEERING WHEEL: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



parts always to be replaced:



[Steering wheel bolt](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 36A, Steering assembly , Steering: Precautions for the repair\)](#) ,
- [Control - Signals: Precautions for repair](#) ,
-

[Vehicle: Precautions for the repair](#) .

■ Location and specification (tightening torques, parts always to be replaced, etc.) [Steering assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION



Apply the procedure for deactivating the safety systems [Airbag and pretensioners: Precautions for the repair](#) .

Remove the driver's frontal airbag [Driver's frontal airbag: Removal - Refitting](#) .

Set the wheels straight ahead.

Disconnect the connectors.

2. REMOVAL OPERATION

Remove the steering wheel bolt.

Remove the steering wheel.

REFITTING

1. REFITTING PREPARATION OPERATION

parts always to be replaced:

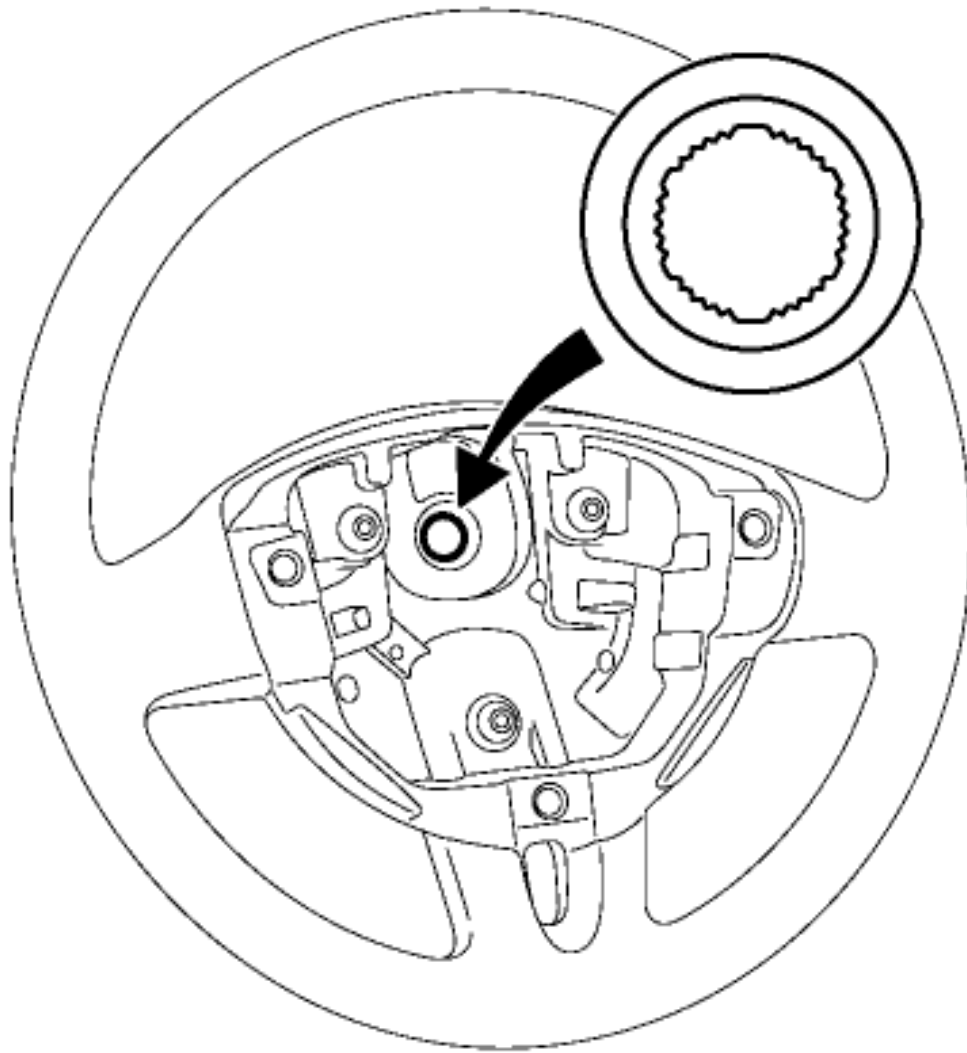


[Steering wheel bolt](#)



Check the alignment of the rotary switch [Rotary switch: Adjustment](#) .

2. REFITTING OPERATION



105327



CAUTION

In order not to damage the steering wheel or steering column, the steering wheel-column foolproofing devices must be aligned.

Refit the steering wheel.

Connect the connectors.

Refit a new steering wheel bolt.

Torque tighten the steering wheel bolt [Steering assembly: Exploded view](#) .

3. FINAL OPERATION

Refit the driver's front airbag [Driver's frontal airbag: Removal - Refitting](#) .

Apply the procedure for activating the safety systems [Airbag and pretensioners: Precautions for the repair](#) .

4. CHECKING AFTER REPAIR

Switch on the ignition.

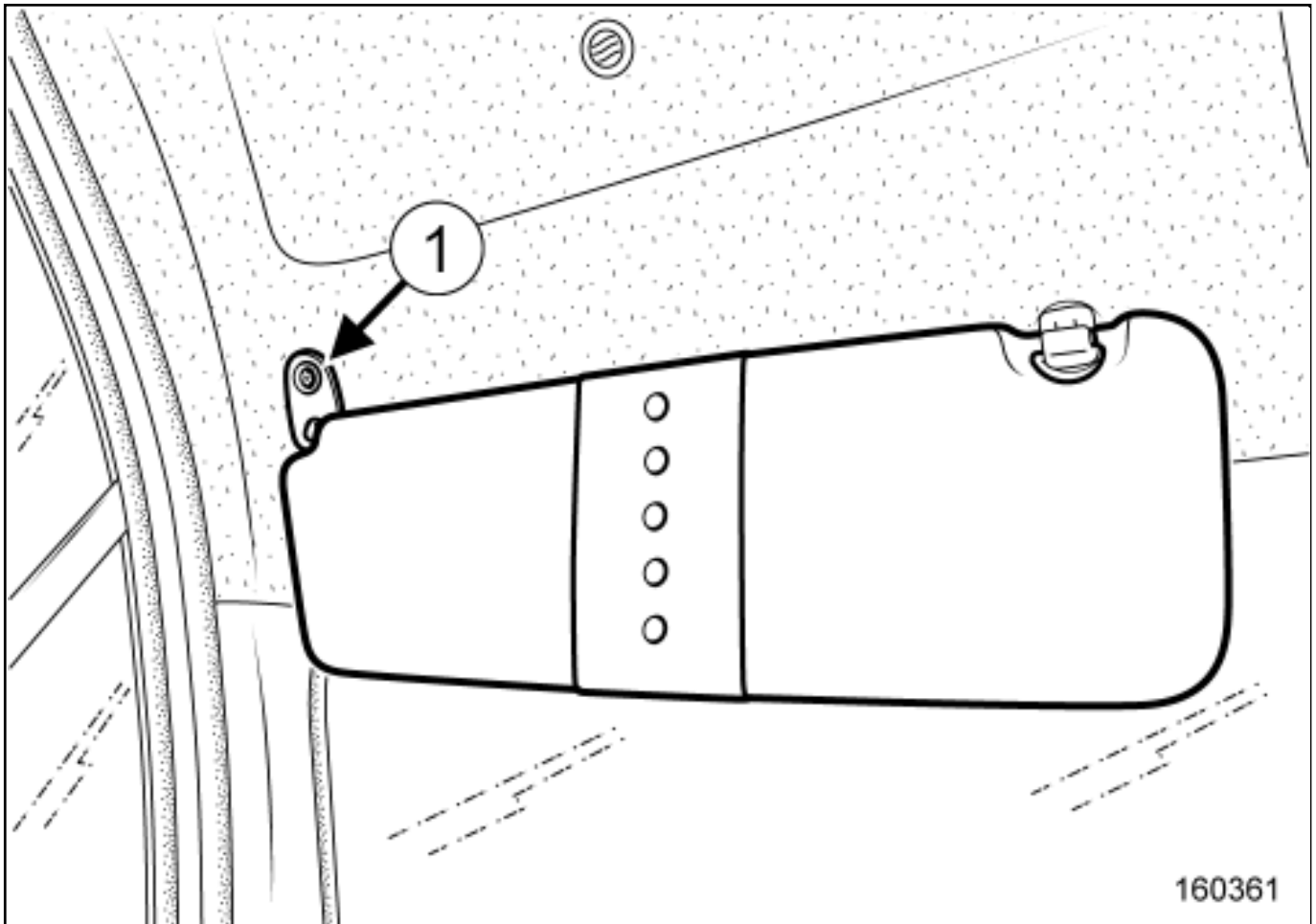
Check the operation of the rotary switch:

- - turn the steering wheel to the left until it stops,
 - turn the steering wheel to the right until it stops,
 -
- check that there are no faults on the instrument panel.



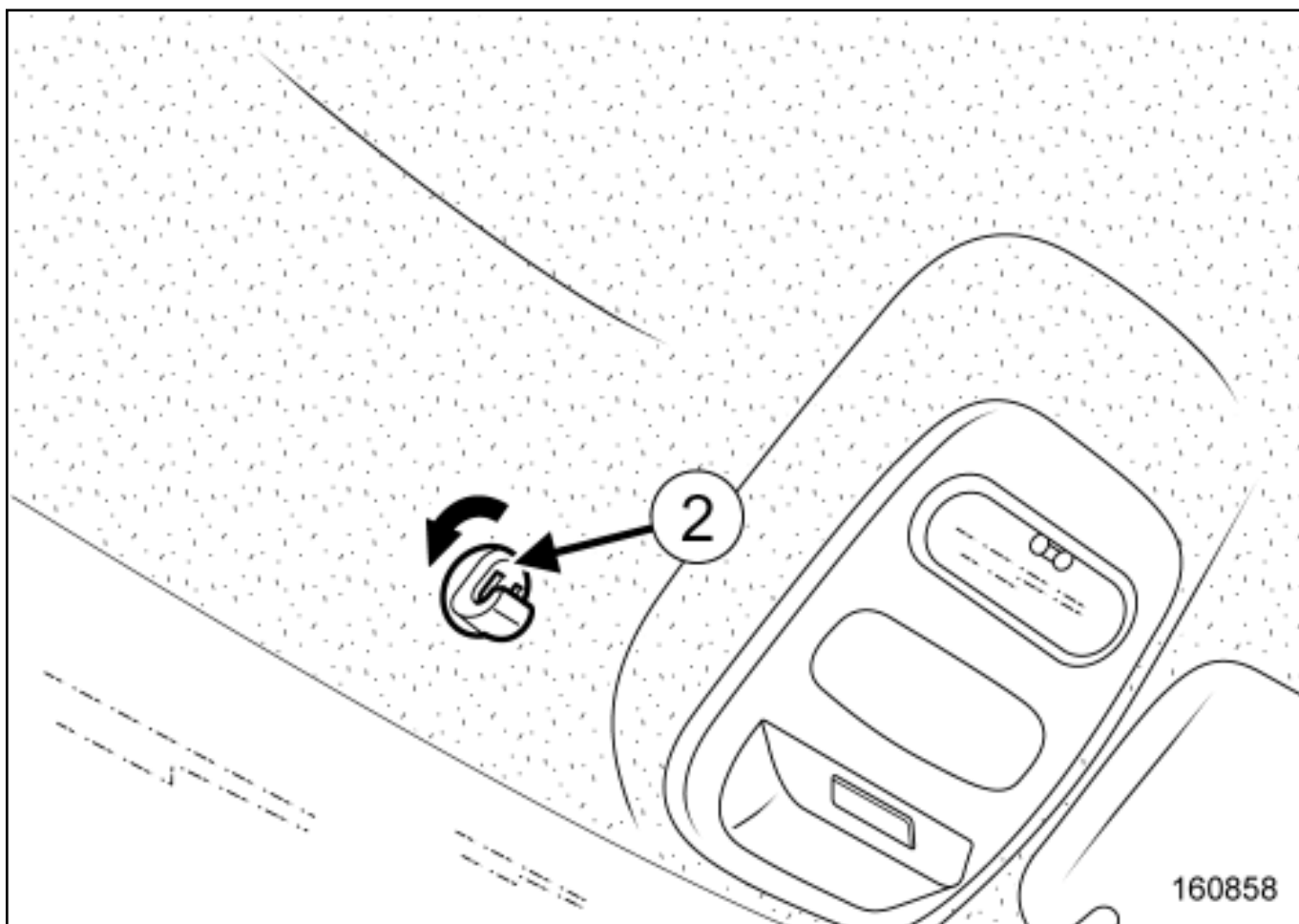
SUN VISOR: REMOVAL - REFITTING

REMOVAL



■ Remove:

- the bolt(1) ,
- the sun visor.



Remove the sun visor retaining element(2) by turning anticlockwise direction.

REFITTING

Proceed in the reverse order to removal.



Repair-50x08x06x06-01x37-1-22-1.xml



SWIRL VALVE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973

Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

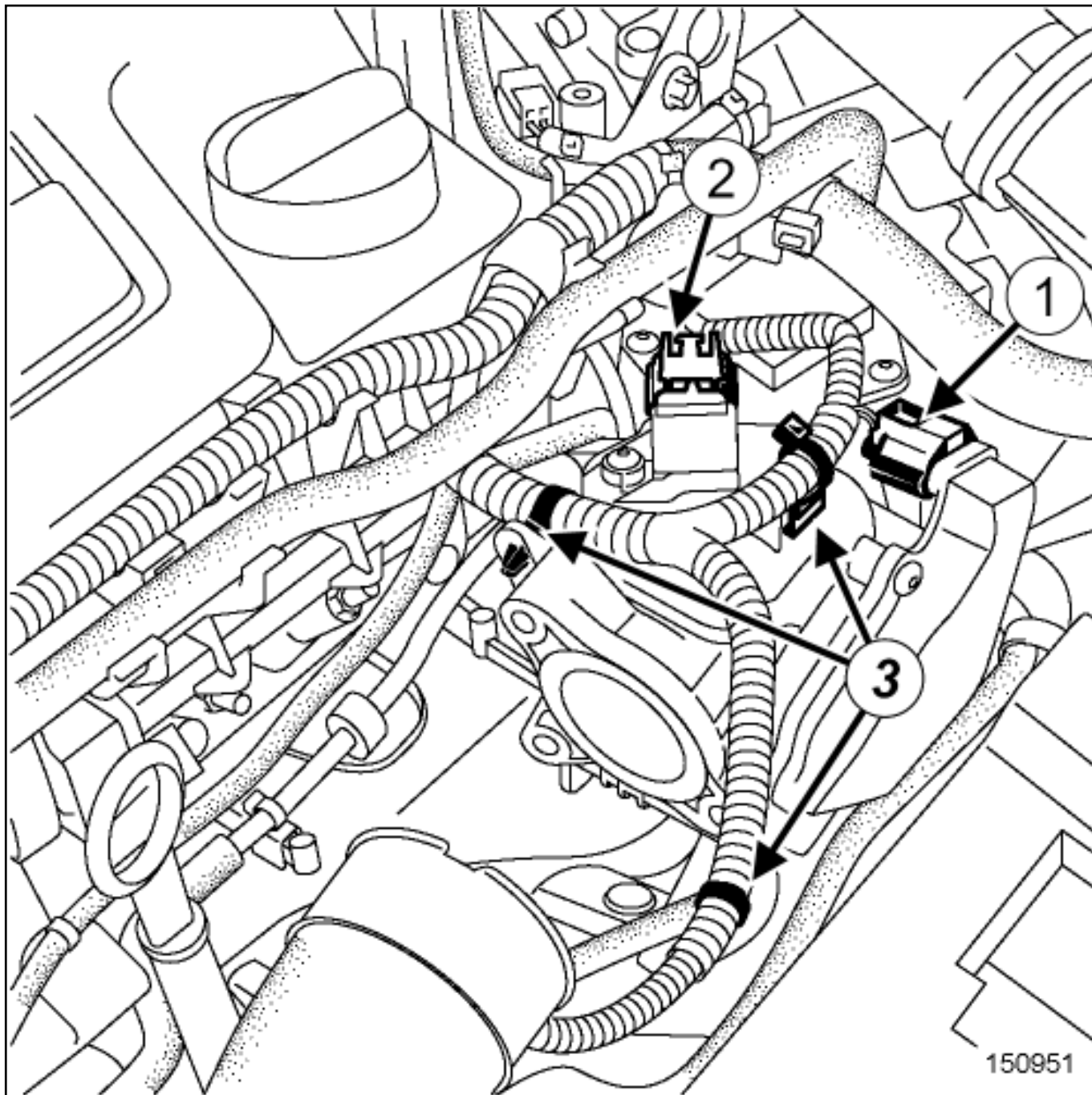
Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

❑ Remove the damper valve ([see 12A, Fuel mixture, Air inlet assembly: Exploded view](#)) .

2. REMOVAL OPERATION



- Disconnect the connectors:
 - from the swirl valve(1) ,
 - from the air pressure sensor(2) .

- Unclip the wiring(3) .

- Remove [\(see 12A, Fuel mixture, Air inlet assembly: Exploded view\)](#) :
 - the swirl valve screw,
 - the swirl valve,
 - the swirl valve seal.

1. REFITTING PREPARATION OPERATION

■ Always replace the swirl valve seal.

■ Using surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products), clean and degrease the bearing faces of:

- the inlet distributor,
- the swirl valve.

1- IN THE EVENT OF REPLACEMENT

■ Remove [\(see 12A, Fuel mixture, Air inlet assembly: Exploded view\)](#) :

- the air pressure sensor bolt,
- the air pressure sensor.

■ Refit on the new swirl valve [\(see 12A, Fuel mixture, Air inlet assembly: Exploded view\)](#) :

- the air pressure sensor,
- the air pressure sensor bolt.

■

Torque tighten the air pressure sensor bolt on the swirl valve 4 N.m using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece ([Ms. 1973](#)) .

2. REFITTING OPERATION

■

Refit [\(see 12A, Fuel mixture, Air inlet assembly: Exploded view\)](#) :

-
- a new swirl valve seal,
- the swirl valve,
- the swirl valve screw.

■

Torque tighten the swirl valve screw using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece ([Ms. 1973](#)) [\(see 12A, Fuel mixture, Air inlet assembly: Exploded view\)](#) .

■

Proceed in the reverse order to removal.

When replacing, apply the after repair procedure using the Diagnostic tool:

- - select the "injection computer",
 - go to repair mode,
 - display the "Before/After repair procedure" for the computer selected,
 - select "Swirl flap" in the "List of components controlled by this computer" section,
 -
- carry out the operations described in the "After repair procedure" section.



[Repair-11x01x10x05-01x37-1-1-1.xml](#)



TIGHTENING TORQUES: GENERAL INFORMATION

1. TABLE OF STANDARD TORQUES

Fastenings		Standard tightening torque (N.m)
Diameter	Property class	
M6	8.8	10
M8	8.8	25
M10	8.8	50
M10	10.9	62
M12	10.9	105
M14	10.9	180
M16	10.9	280
M18	10.9	400

SPECIAL NOTES ON ELECTRICAL EARTHS

Fastenings

Standard tightening torque (N.m)

Diameter

M6

8

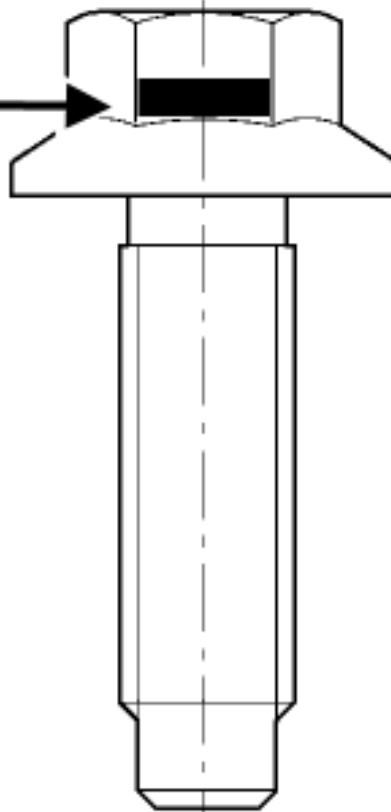
M8

21

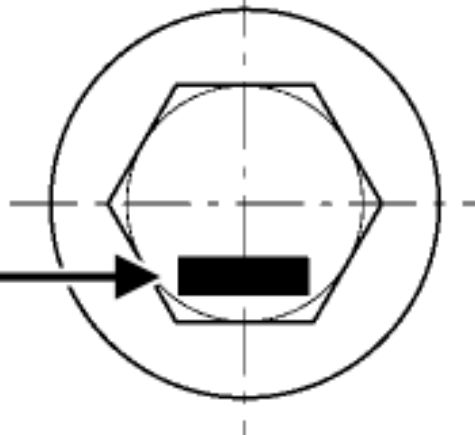
M10

44

1



2



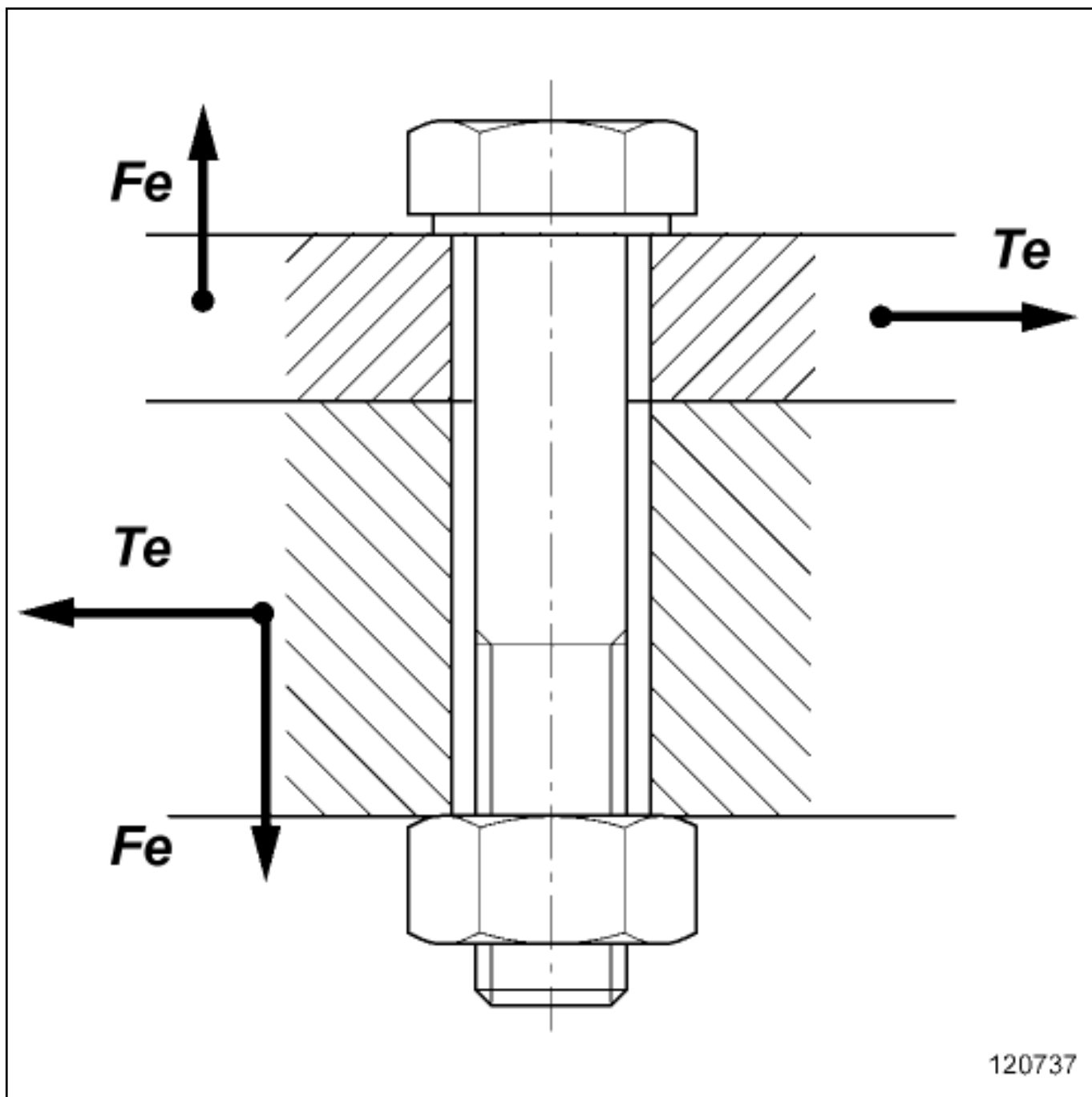
120736

The property class is indicated on the bolt(1) or (2) .

2. FUNCTION OF A BOLTED ASSEMBLY

The bolting system connects parts of an assembly to prevent their separation or sliding when submitted to exterior forces.

EXTERIOR FORCES

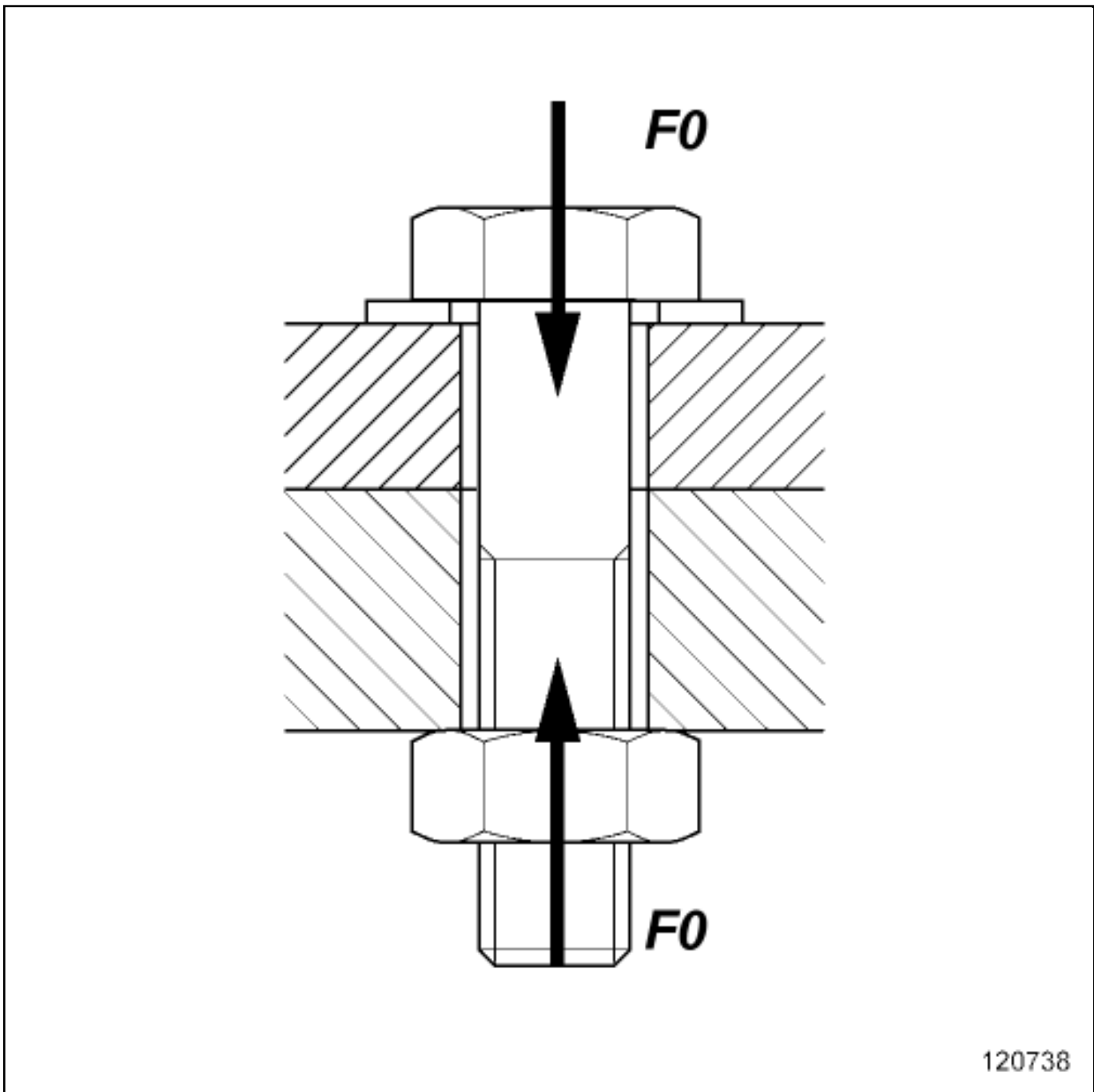


■ The assembly is submitted to forces that are:

- static and / or dynamic,
- simple (e.g. simple traction),

- multiple (traction + flexion + torsion).

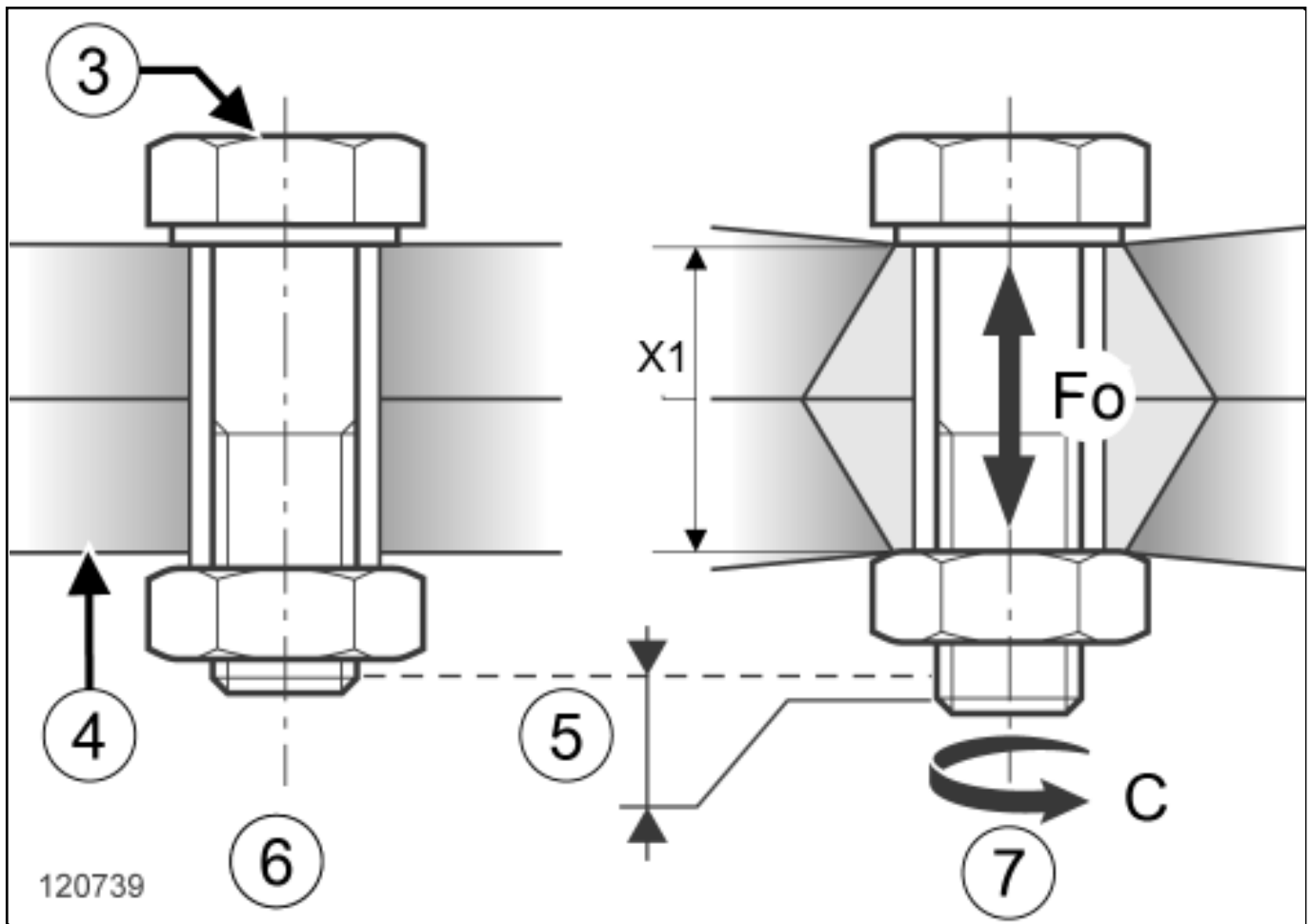
CREATING TENSION (OR PRELOAD) F_0



The assembly is held together by the tension created in the bolt when it is tightened.

■ A reliable assembly is only possible if the correct tension is used:

- insufficient tension: risk of loosening,
- too much tension: risk of deformation of the parts to be assembled, or shearing of the bolt.



- (3) Bolt
- (4) Assembled components
- (5) Extension of the bolt
- (6) Non-tightened assembly
- (7) Tightened assembly
- (X1) Compression of the assembly
- (Fo) Sensor
- (C) Tightening torque

Customer complaints resulting from incorrect tightening may be, following assembly, a safety issue (fire, loss of control of the vehicle etc.), an immobilising fault or a noise.

3. TIGHTENING PROCEDURES

The two controlled tightening procedures adapted to automotive repairs because of their low cost and

simple operation are torque tightening and angle tightening (also called torque and angle).

1- TORQUE TIGHTENING

This is the most commonly used procedure. It consists of tightening until a given resisting torque is reached, known as tightening torque.

The tightening torque is distributed in a large part as friction torque (under the head and in the thread) and in a small part as useful torque (to create the tension).

This practice spreads the tension significantly due to the variation in the friction coefficients from one assembly to another and the uncertainty of the tightening procedures and methods.

2- ANGLE TIGHTENING

The principle consists of putting the parts of the assembly in contact using a mating torque (approximately 25 to 30% of the final torque) then to tighten to a determined angle.

This method, which is not dependent on the friction of the tightened assembly, gives more precise results than torque tightening.

4. OBSERVING THE TIGHTENING TORQUES AND ANGLES

Bolted assemblies whose tightening torques and angles are explicitly specified in the removal / refitting procedures must be observed using the appropriate tools (torque wrench, angle measuring disc). Failure to observe this can lead to safety risks, immobilising faults or unwanted noises.

For other bolted assemblies, non-measured tightening (using standard spanners) is acceptable. Nevertheless, the corresponding tightening torque is indicated in the table of standard tightening torques.

5. RECOMMENDED TIGHTENING TOOLS

For measured tightening, the repairer must have available torque wrenches to tighten from 4 to 400 N.m as well as an angle measuring disc.

The torque wrenches used may be click type or electronic.

■ For example:

- 1 torque wrench 4 - 40 N.m,
- 1 torque wrench 20 - 100 N.m,
- 1 torque wrench 80 - 400 N.m,
- 1 angle measurement disc.

The torque wrenches used must comply with the ISO 6789 standard. They must be calibrated regularly following the supplier's recommendations using the appropriate procedures.

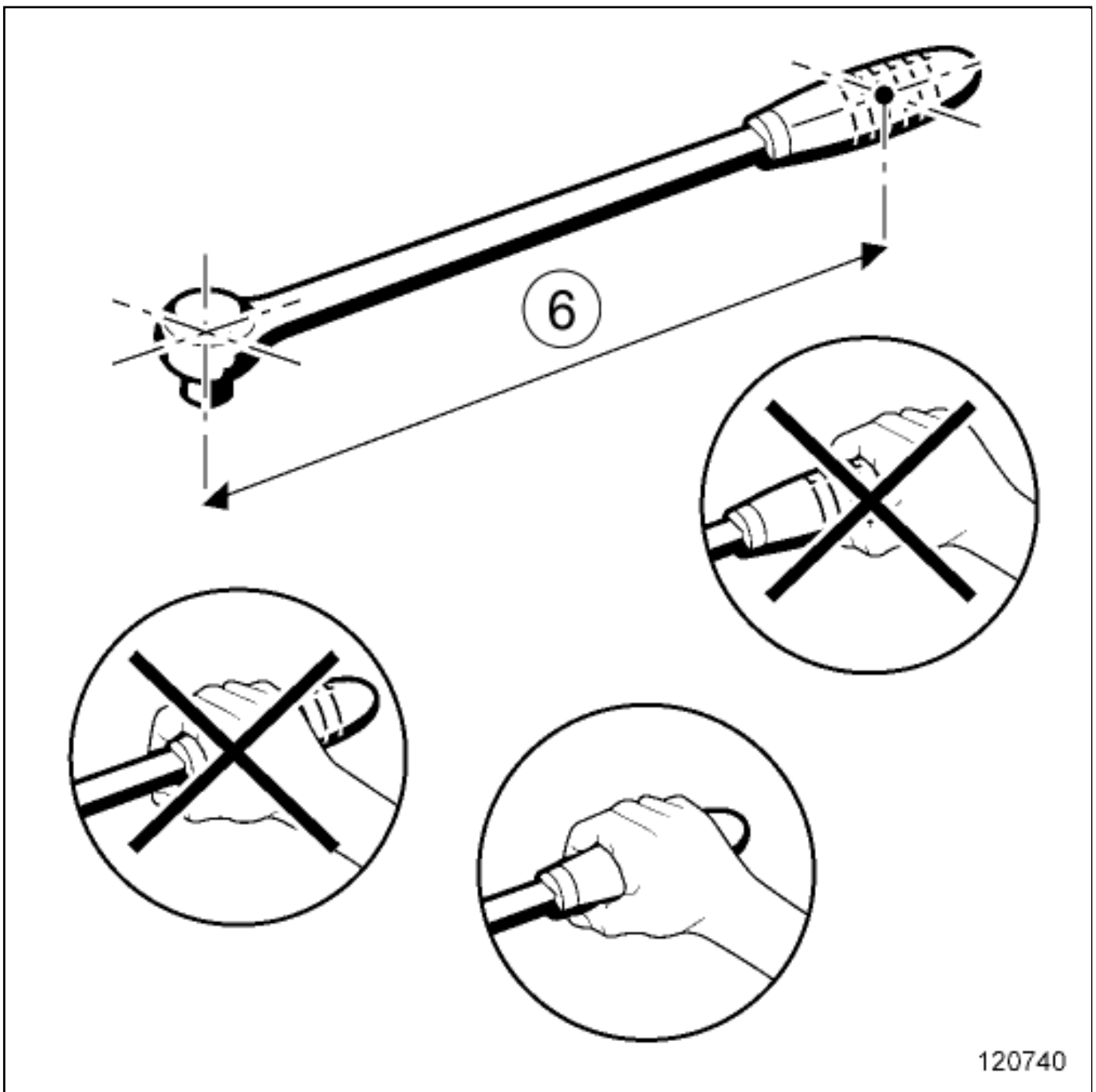
6. PRECAUTIONS WHEN USING A CLICK TYPE TORQUE WRENCH

A click type torque wrench is a manual tightening tool. The trigger mechanism causes a break or disengagement of the wrench past a force threshold.

This threshold depends on the setting of the wrench but also depends on the way the wrench is handled.

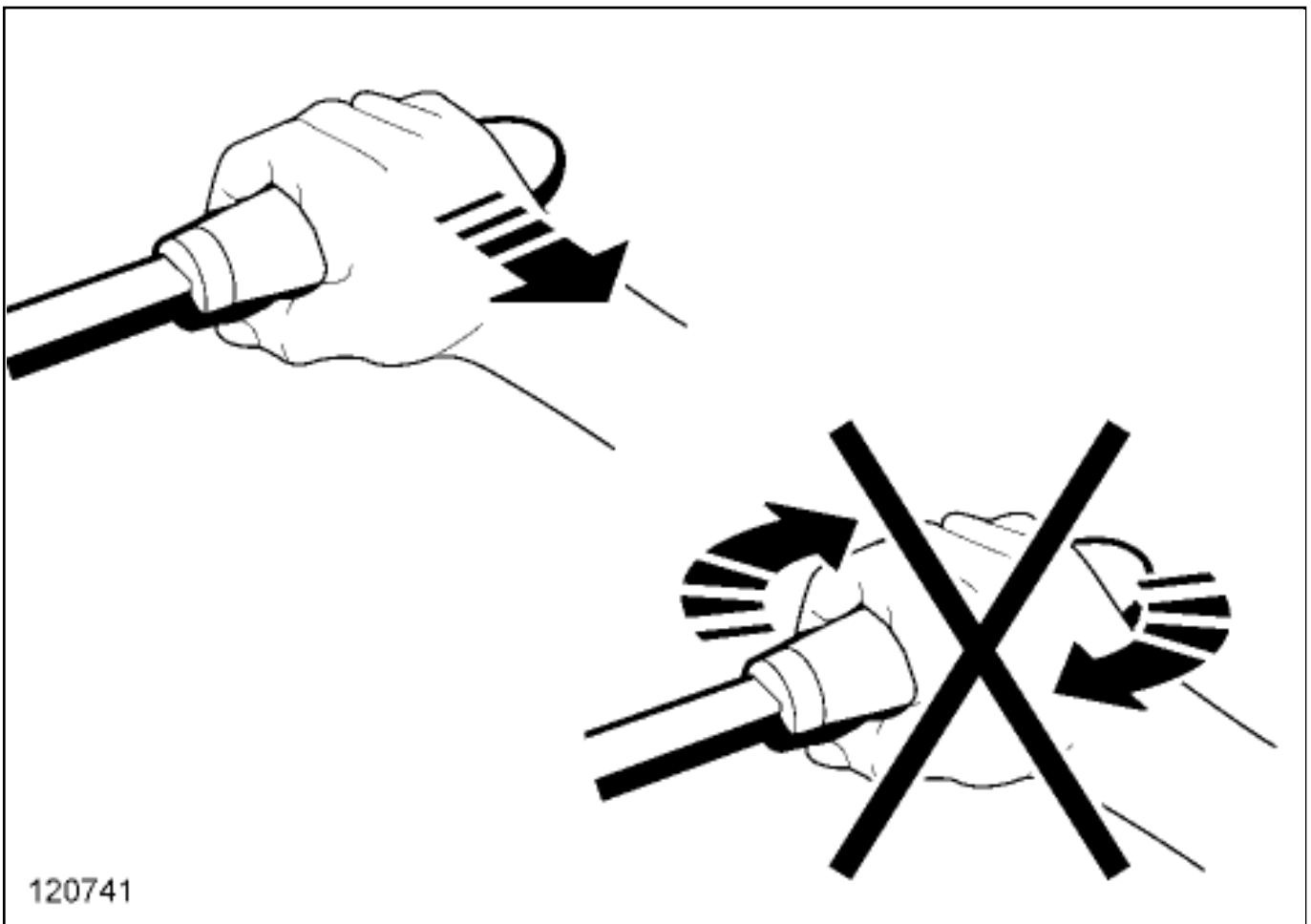
When used following best practises, the accuracy of the tightness when using a click type torque wrench is $\pm 15\%$.

The instructions to be observed are:



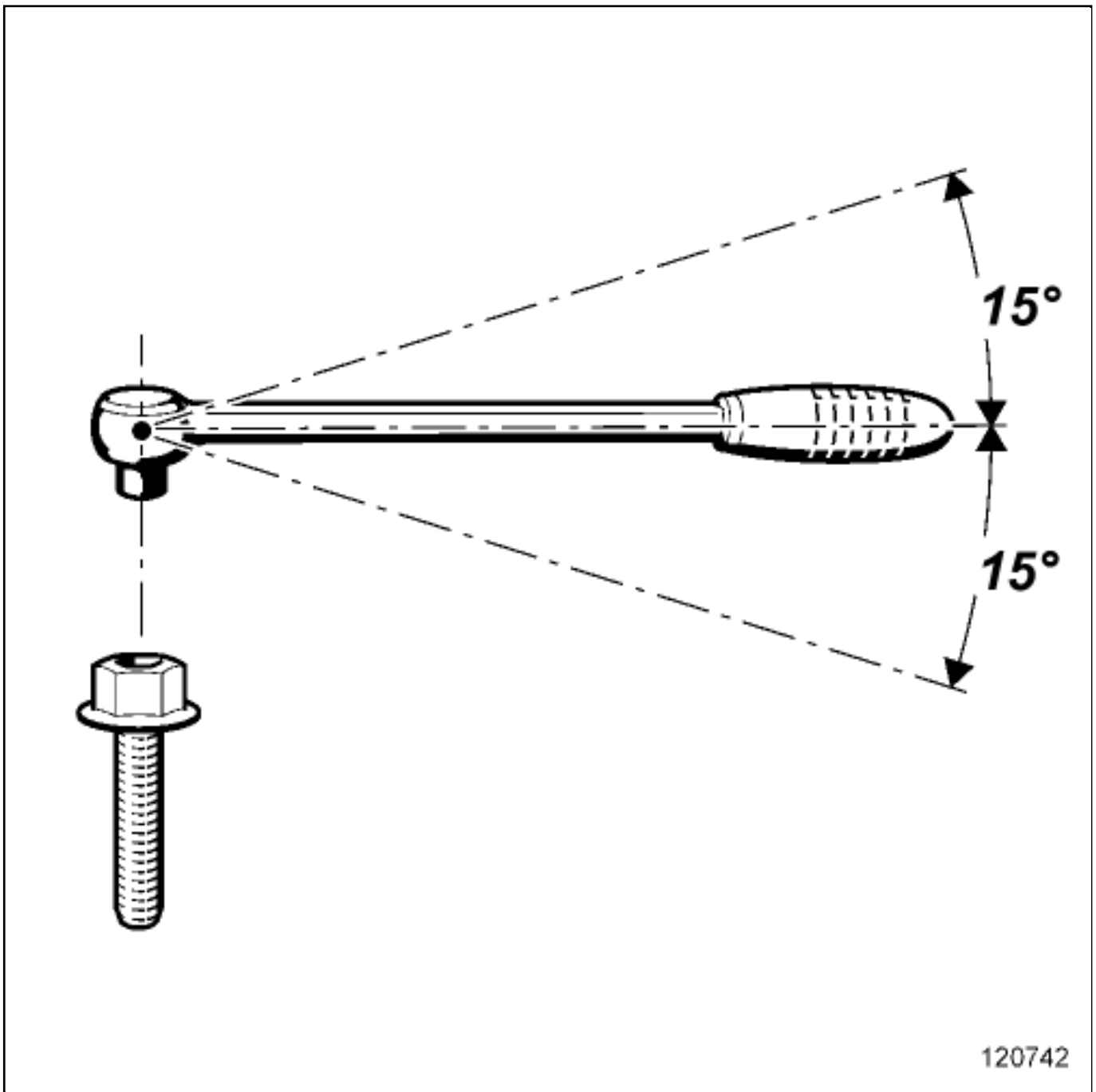
(6) lever arm

- Place the hand in the centre of the handle. An incorrectly positioned hand on the handle will alter the trigger threshold.



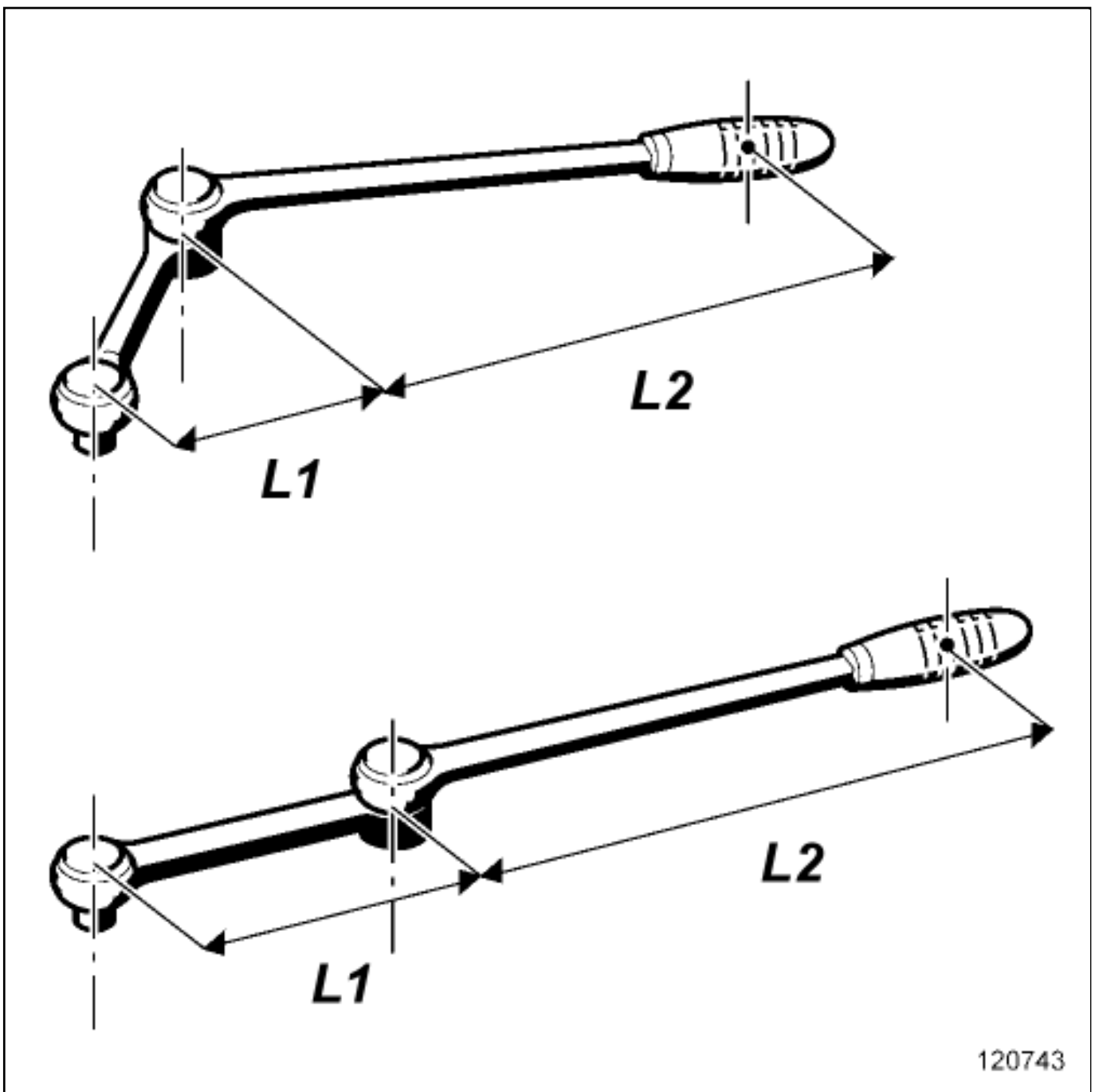
- Pull the wrench gently and steadily, without applying any torsion. Excessive tightening speed as well as jerkiness are major causes of overtightening. Any torsion applied to the wrench will alter the trigger threshold.

- Hold the wrench on the bolt using a minimum of effort. Any effort applied to the wrench head will alter the trigger threshold.



- Apply the tightening effort perpendicular to the mounting observing a tolerance of $\pm 15^\circ$ relative to the perpendicularity. If the wrench is not perpendicular to the mounting axis, this will result in insufficient tightening.

- Stop tightening as soon as the wrench is triggered. Continued tightening after the wrench is triggered will lead to overtightening.



120743

If the length of the wrench is modified (extending the handle, adapting an end piece) it is essential to recalibrate the wrench to its new configuration.

Modifying the length of the wrench will modify its trigger threshold.

■ Use the formula: $C1 = CO \times L2 / (L1+L2)$

- CO: torque to apply,
- C1: adjustment torque to be displayed on the wrench,
- L1: length of the extension,
- L2: length of the wrench.

Unless there are special instructions in the repair method, a universal joint (CARDAN joint type) should be used for measured tightening. Using a universal joint will result in a difference between the set torque

of the wrench and the actual torque applied.

Before storing the wrench, loosen the adjustment spring completely. A wrench stored with a spring under tension will lose its tightening accuracy.

7. PRECAUTIONS WHEN USING ELECTRONIC TORQUE WRENCHES

An electronic torque wrench is a manual tightening tool. The tightening torque and, depending on the model, the angle is read directly.

When used following best practises, the accuracy of the tightness when using an electronic torque wrench is $\pm 5\%$.

Electronic torque wrenches are not affected by the position of the operator's hand.

It is advisable to handle the wrench with care and to stop tightening when the required value is displayed on the wrench.



Repair-00x01x02-02x01-1-1-1.xml



XSL version : 3.02 du 22/07/11

Marks	Designations	Informations
1	Timing cover bolt	
2	Cylinder head suspended mounting	(see 11A, Top and front of engine, Timing chain: Removal - Refitting)
3	Exhaust camshaft pulley bolt	
4	Crankshaft seal on timing end	Crankshaft seal on timing end: Removal - Refitting
5	Timing chain guide bolt	
6	Timing cover	(see 11A, Top and front of engine, Timing chain: Removal - Refitting)
7	Timing chain sprocket spacer on crankshaft side	(see 11A, Top and front of engine, Timing chain: Removal - Refitting)
8	Inlet camshaft pulley bolt	
9	Timing hydraulic tensioner	
10	Timing chain sprocket on crankshaft side	
11	Oil pump chain	
12	Oil pump	Engine oil circuit assembly: Exploded view
13	Oil pump drive sprocket	
14	Crankshaft	Cylinder block assembly: Exploded view
15	Timing chain guide	(see 11A, Top and front of engine, Timing chain: Removal - Refitting)
16	Inlet camshaft timing sprocket spacer	
17	Inlet camshaft timing sprocket	Timing sprocket: Removal - Refitting
18	Inlet camshaft	
19	Exhaust camshaft	(see 11A, Top and front of engine, Camshaft: Removal - Refitting)
20	Exhaust camshaft timing sprocket	Timing sprocket: Removal - Refitting
21	Timing chain sprocket on camshaft side	
22	Timing chain	
23	Timing chain sprocket washer on camshaft side	
24	Chain tensioner guide	
25	Timing hydraulic tensioner	(see 11A, Top and front of engine, Timing chain: Removal - Refitting)
26	Timing cover centring pin	



TIMING CHAIN: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Crankshaft pulley locking tool.	Mot. 1770
Removes housing with silicone seals.	Mot. 1716
Camshaft timing tool	Mot. 1969
TDC locating pin	Mot. 1970

Equipment required

component support



parts always to be replaced:



Timing chain



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [\(see 11A, Top and front of engine, Timing assembly: Exploded view\)](#) .



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see **Engine: Precautions for the repair**) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



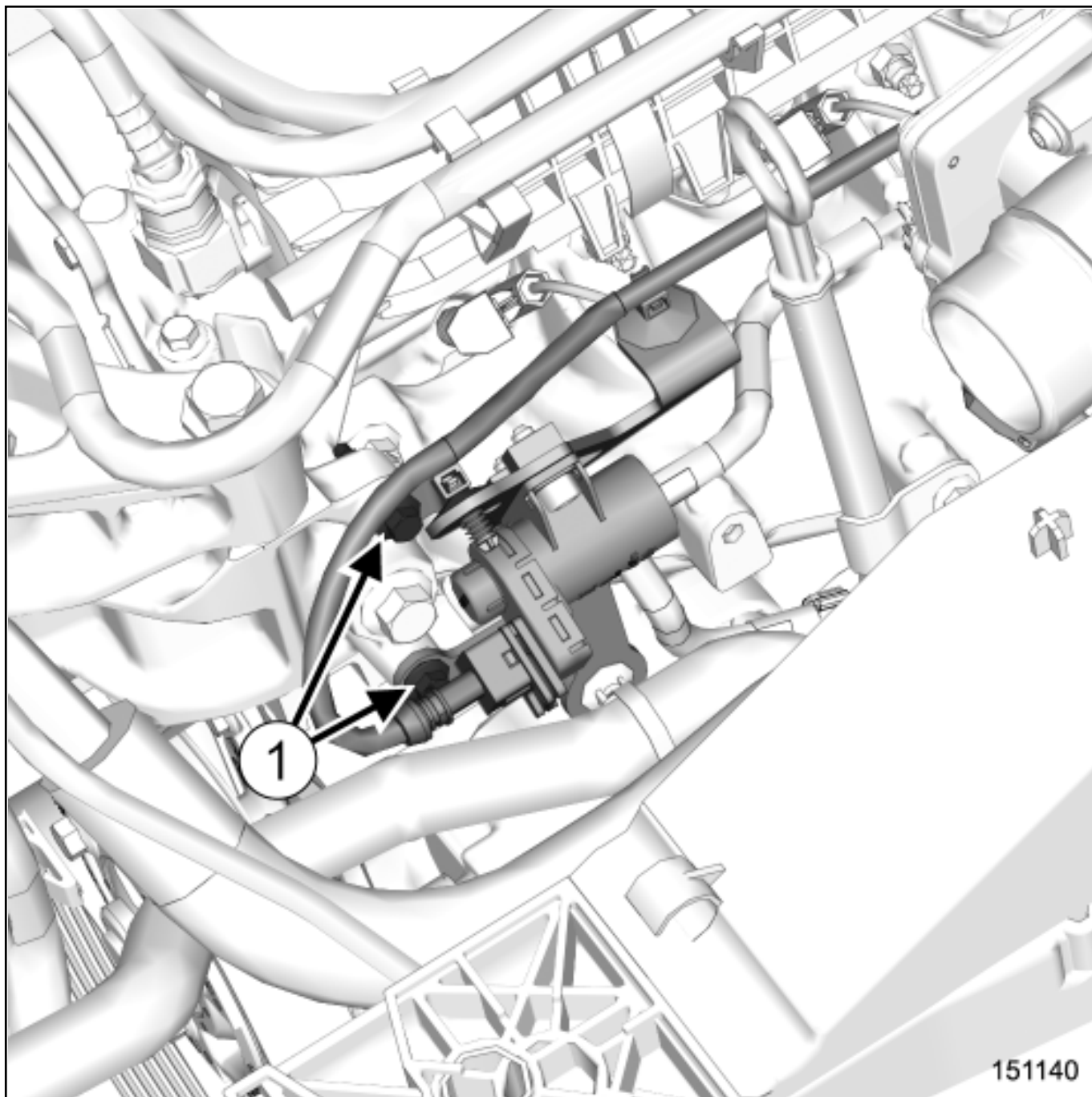
CAUTION

Applying pressure to the engine oil sump is strictly forbidden. Any damage to the sump may also damage the engine.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Remove the "engine and gearbox" assembly [Engine - gearbox assembly: Removal - Refitting](#) .
- Disconnect the manual gearbox [Manual gearbox: Removal - Refitting](#) .
- Remove:
 - the clutch pressure plate [Pressure plate - Disc: Removal - Refitting](#) ,
 - the flywheel [Cylinder block assembly: Exploded view](#) .
- Place the engine on the component support [Engine support equipment: Use](#) .
- Drain the engine (see **Engine oil: Draining - Refilling**) .
- Remove:
 - the accessories belt ([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) ,
 - the coolant pump [Cylinder block assembly: Exploded view](#) ,
 - the crankshaft accessories pulley ([see 11A, Top and front of engine, Engine accessories assembly: Exploded view](#)) ,
 - the crankshaft seal on the timing side ([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .



■ Remove the bolts(1) of the coolant outlet unit regulation solenoid valve.

■ Move the coolant outlet unit regulation solenoid valve.

■ Remove [Engine-gearbox unit support assembly: Exploded view](#) :

- the engine mounting bolts,
- the engine mounting.

2. REMOVAL OPERATION

■ Remove the timing cover bolts([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .

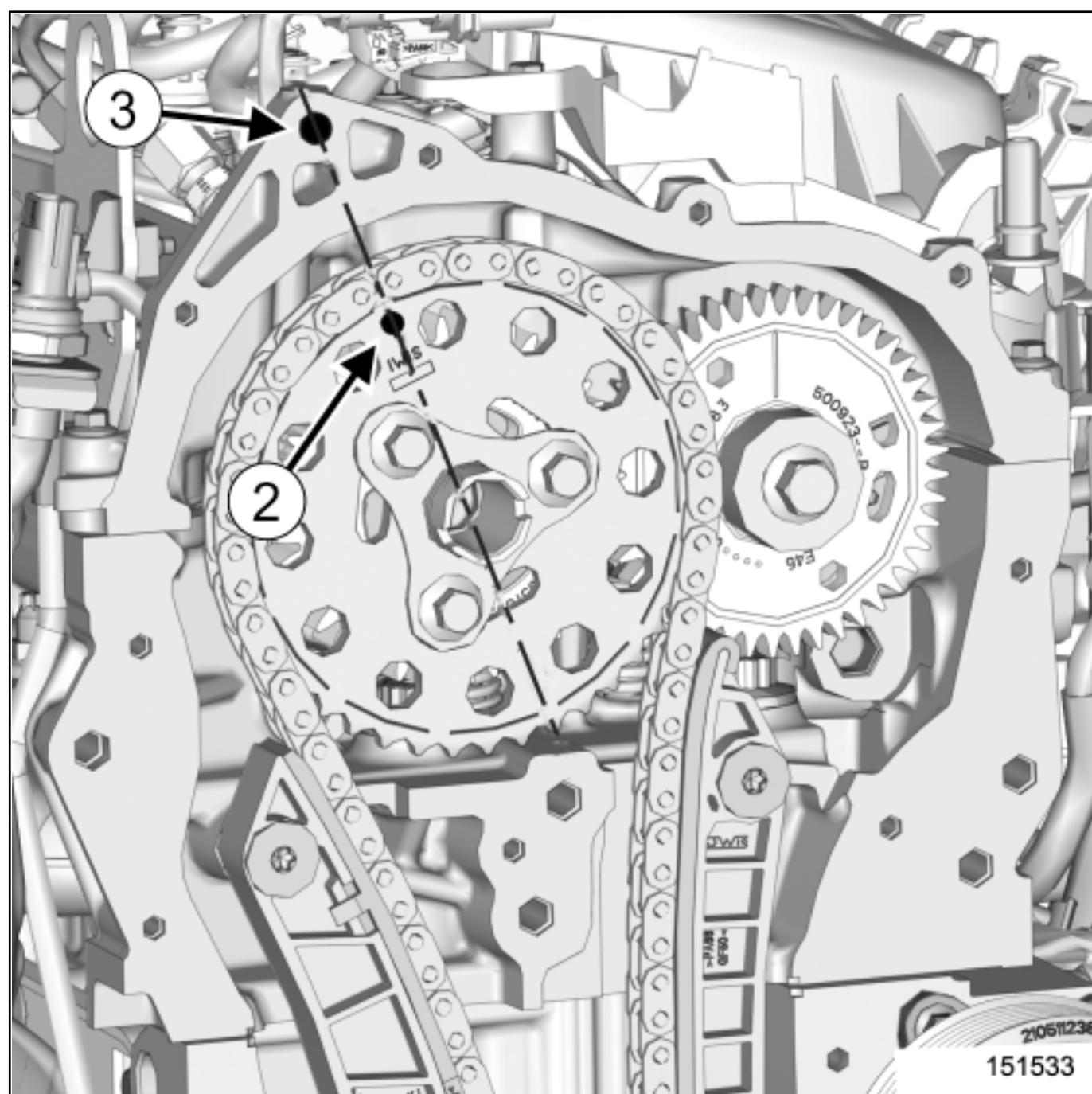
❑ Cut the silicone seal from the rim of the timing cover using the tool Removes housing with silicone seals. (Mot. 1716) .

❑ Remove the timing cover (see 11A, Top and front of engine, Timing assembly: Exploded view) .

Note:



Remove the timing cover carefully by hand, with small movements, to prevent damaging it.

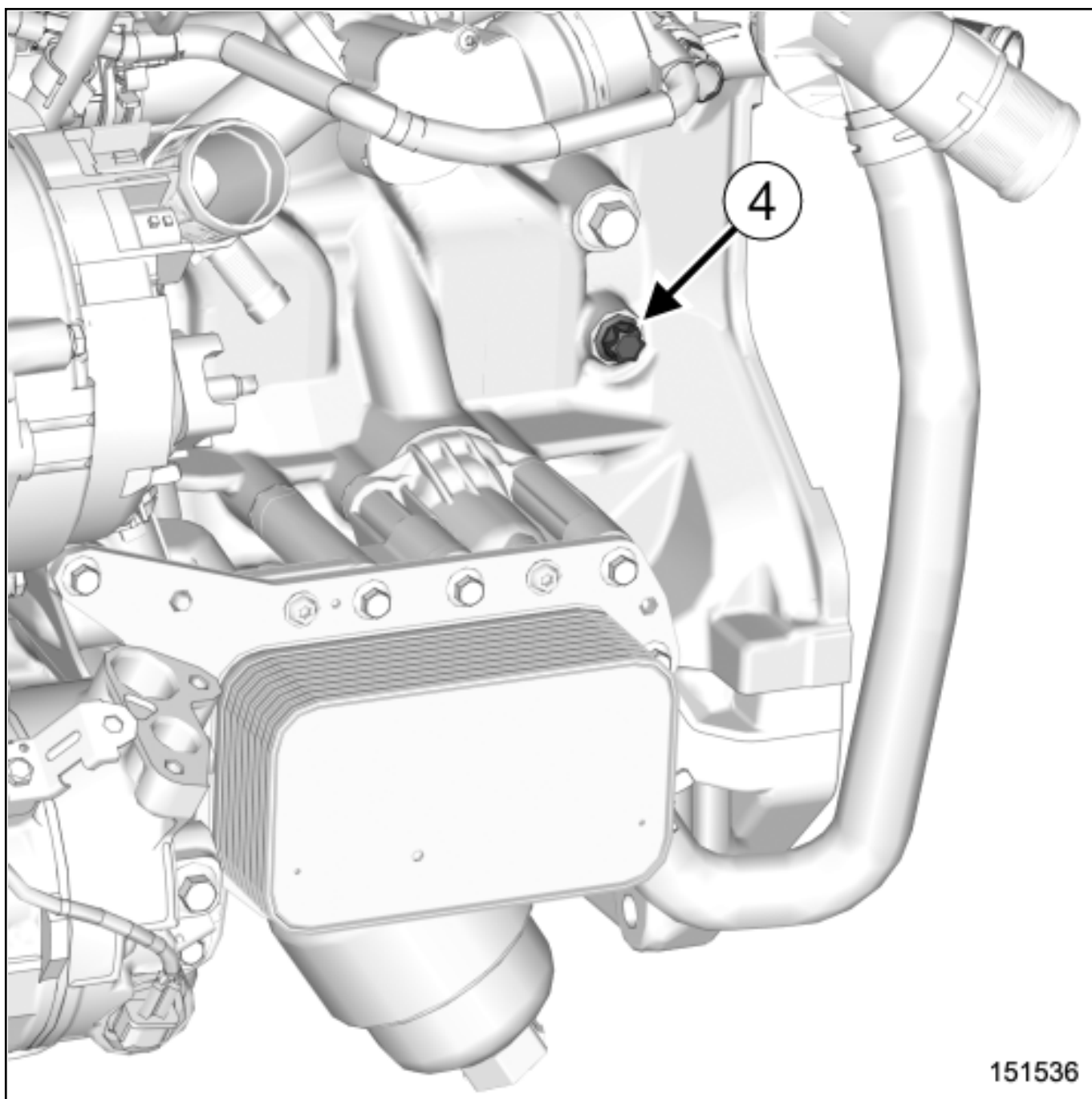


Align the hole(2) on the timing chain sprocket on camshaft side with the hole(3) on the the rocker cover.



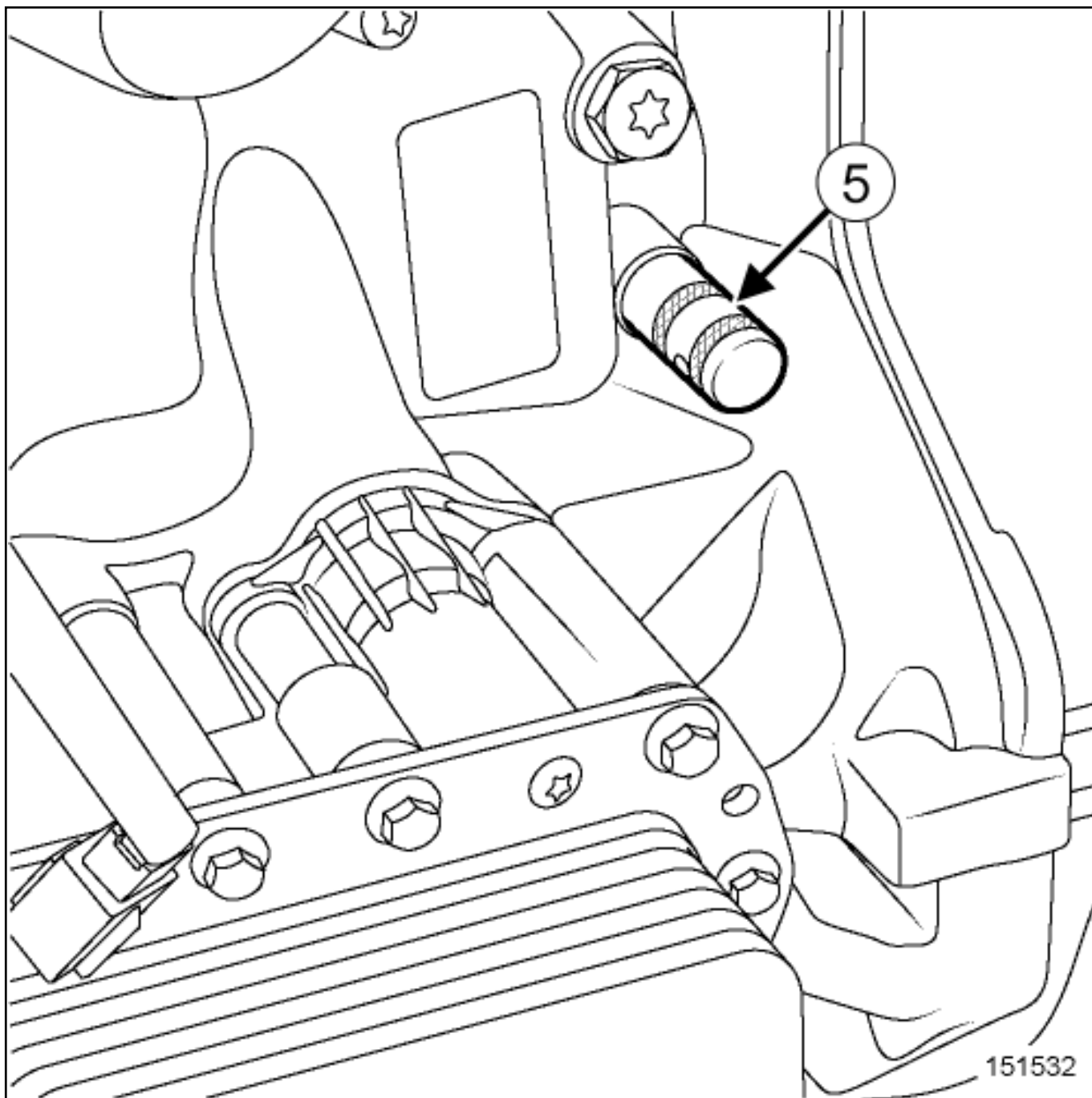
Note:

Turn the crankshaft clockwise using the toolCrankshaft pulley locking tool.(Mot. 1770) .



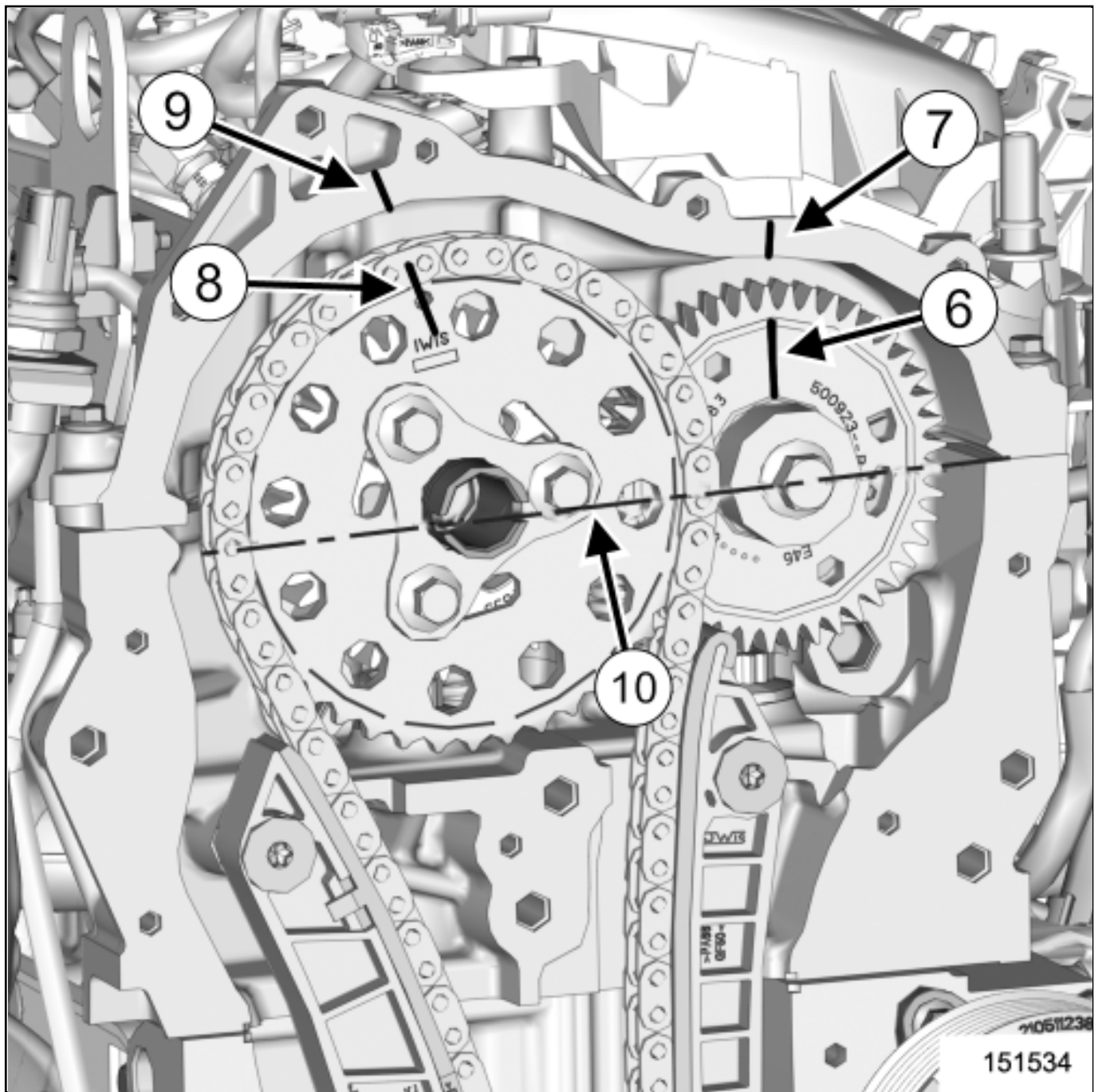
151536

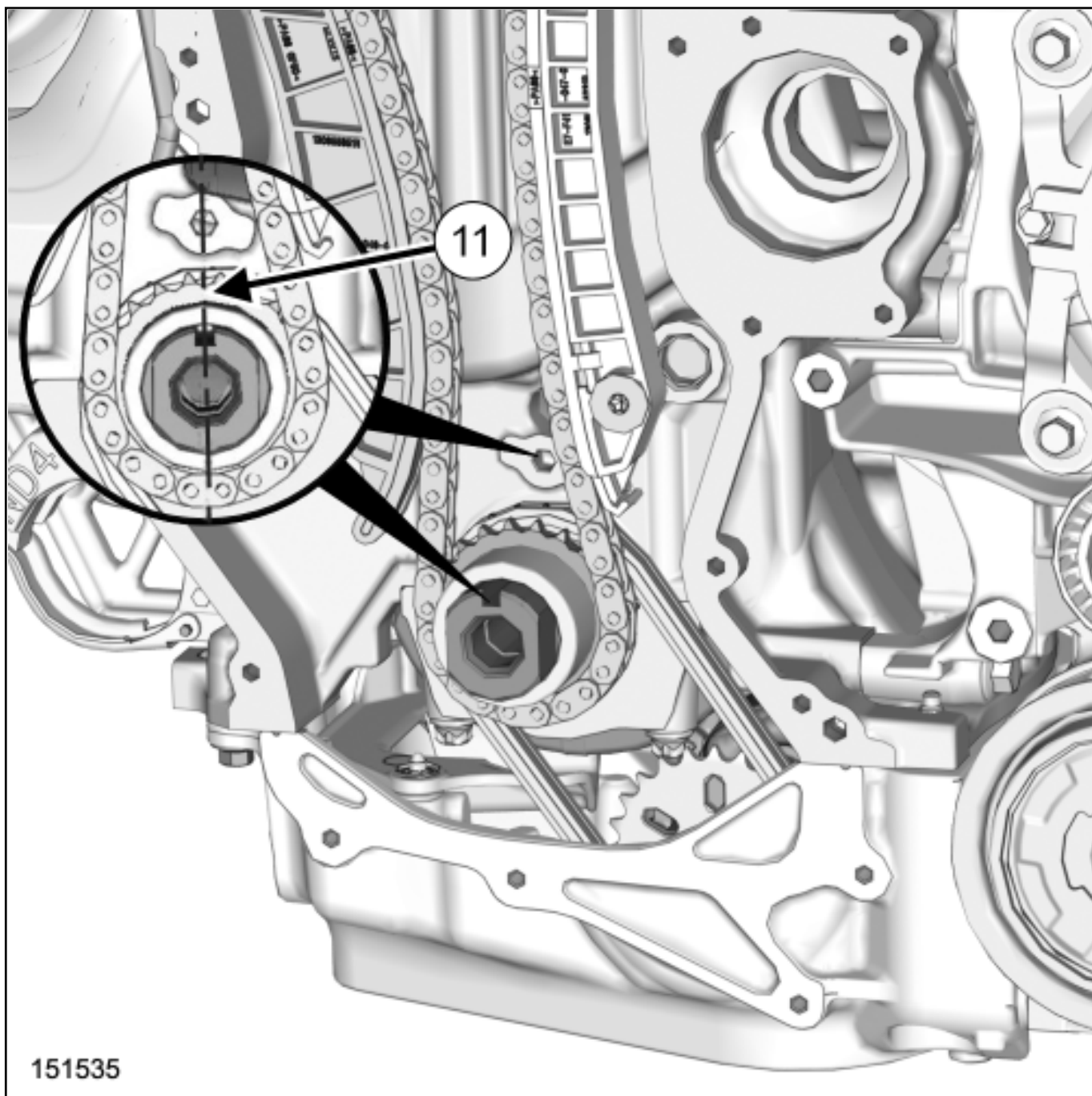
Remove the top dead centre setting pin plug(4) .



■ In place of the plug, manually tighten the toolTDC locating pin(Mot. 1970) (5) .

■ Turn the crankshaft clockwise until it makes contact with the pin.





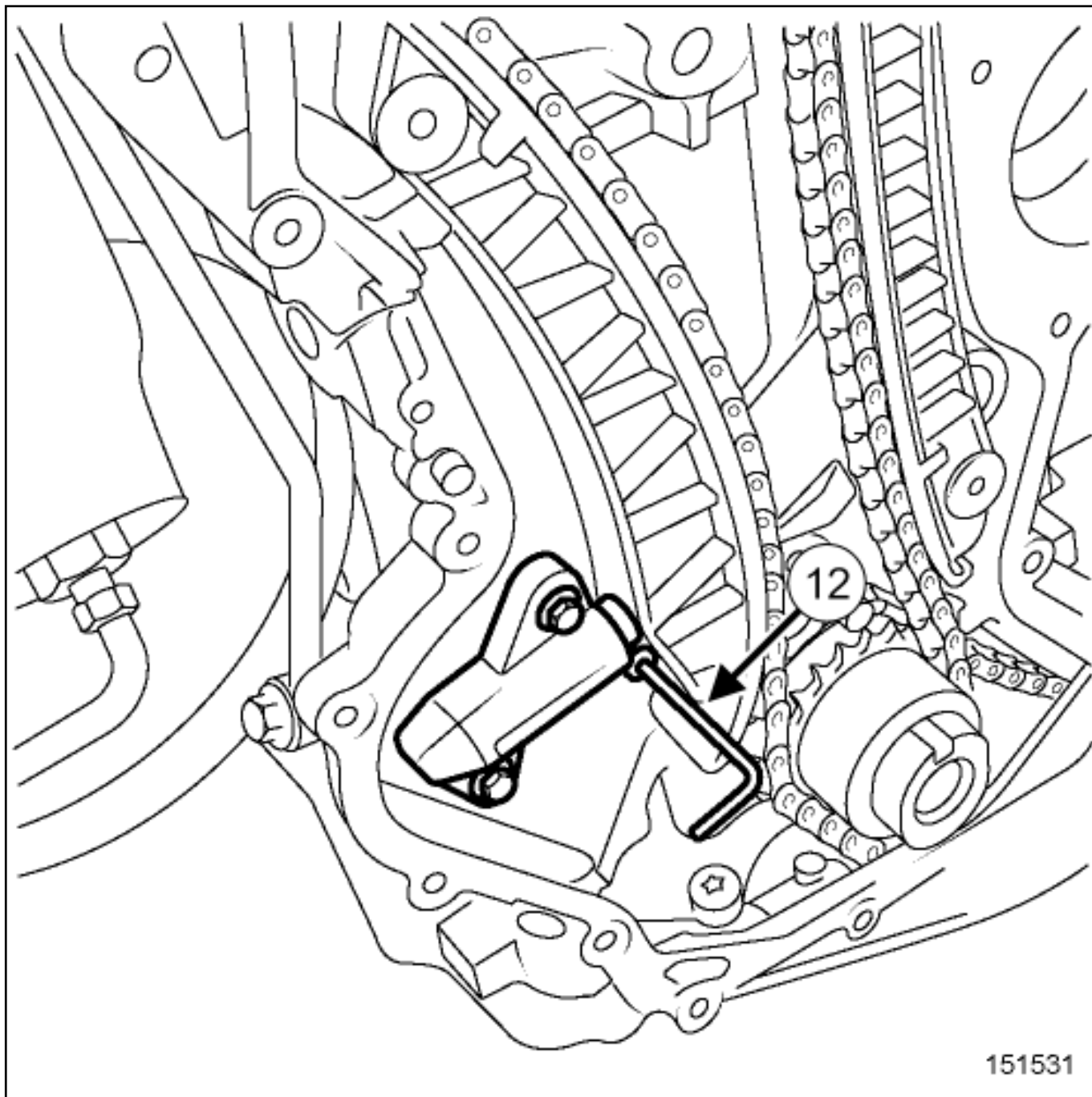
151535

■ Make a mark:

- on the inlet camshaft timing sprocket(6) and the rocker cover(7) (vertically),
- on the hole(8) on the timing chain sprocket on camshaft side and on the rocker cover(9) .

■ Check the mark alignment(10) and (11) .

■ Loosen the exhaust camshaft pulley bolts([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .



- Compress the timing hydraulic tensioner piston with the timing chain tensioner guide.
- Lock the timing hydraulic tensioner piston in the "compressed" position using a 3 mm Allen key (12).
- Remove ([see 11A, Top and front of engine, Timing assembly: Exploded view](#)):
 - the timing hydraulic tensioner bolts,
 - the timing hydraulic tensioner,
 - the chain tensioner guide bolt,
 - the timing chain tensioner guide.
 - the exhaust camshaft pulley bolts,
 - the timing chain sprocket washer on camshaft side,
 - the timing chain sprocket spacer on crankshaft side,
 - the "timing chain sprocket on camshaft side- timing chain - timing chain sprocket on crankshaft side" assembly,

- the timing chain guide bolts,
- the timing chain guide,
- the toolTDC locating pin([Mot. 1970](#)) .

REFITTING

1. REFITTING PREPARATION OPERATION

- Clean the joint faces of the timing cover using SUPER CLEANING AGENT FOR JOINT FACES [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).



CAUTION

Do not scrape the joint faces of the aluminium, any damage caused to the joint face will result in a risk of leaks.

- Remove the residue using a plastic spatula.
- Finish cleaning the joint faces using a grey abrasive pad [Vehicle: Parts and consumables for the repair](#) .
- Use SURFACE CLEANER [Vehicle: Parts and consumables for the repair](#) to clean:
 - the joint face of the timing cover on the cylinder block and on the cylinder head,
 - the timing cover.





CAUTION

To ensure proper sealing, the gasket surfaces must be clean, dry and not greasy (avoid any finger marks).



CAUTION

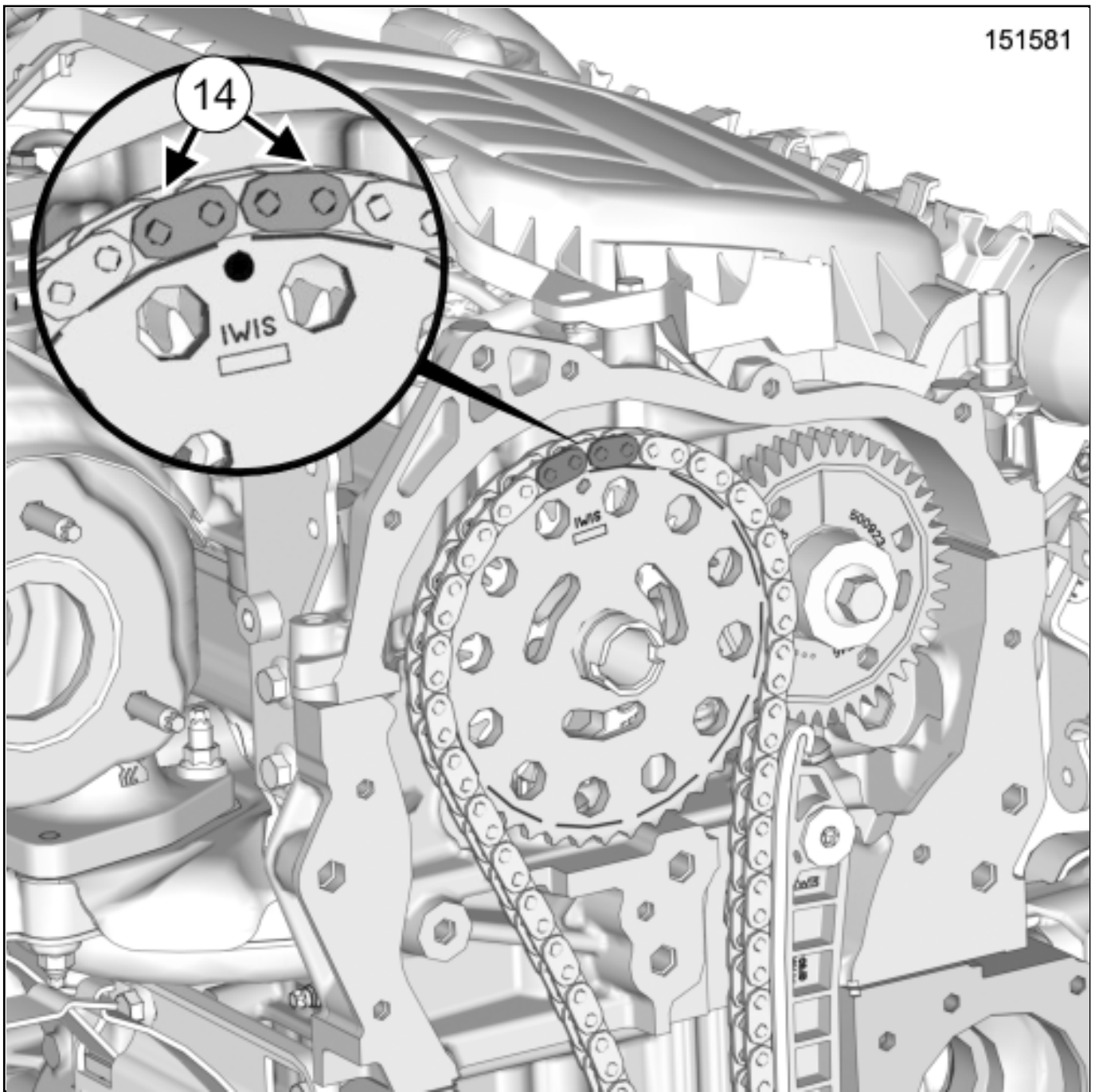
Applying excess sealant could cause it to be squeezed out when parts are tightened. A mixture of sealant and fluid could damage certain components (engine, radiator, etc.).

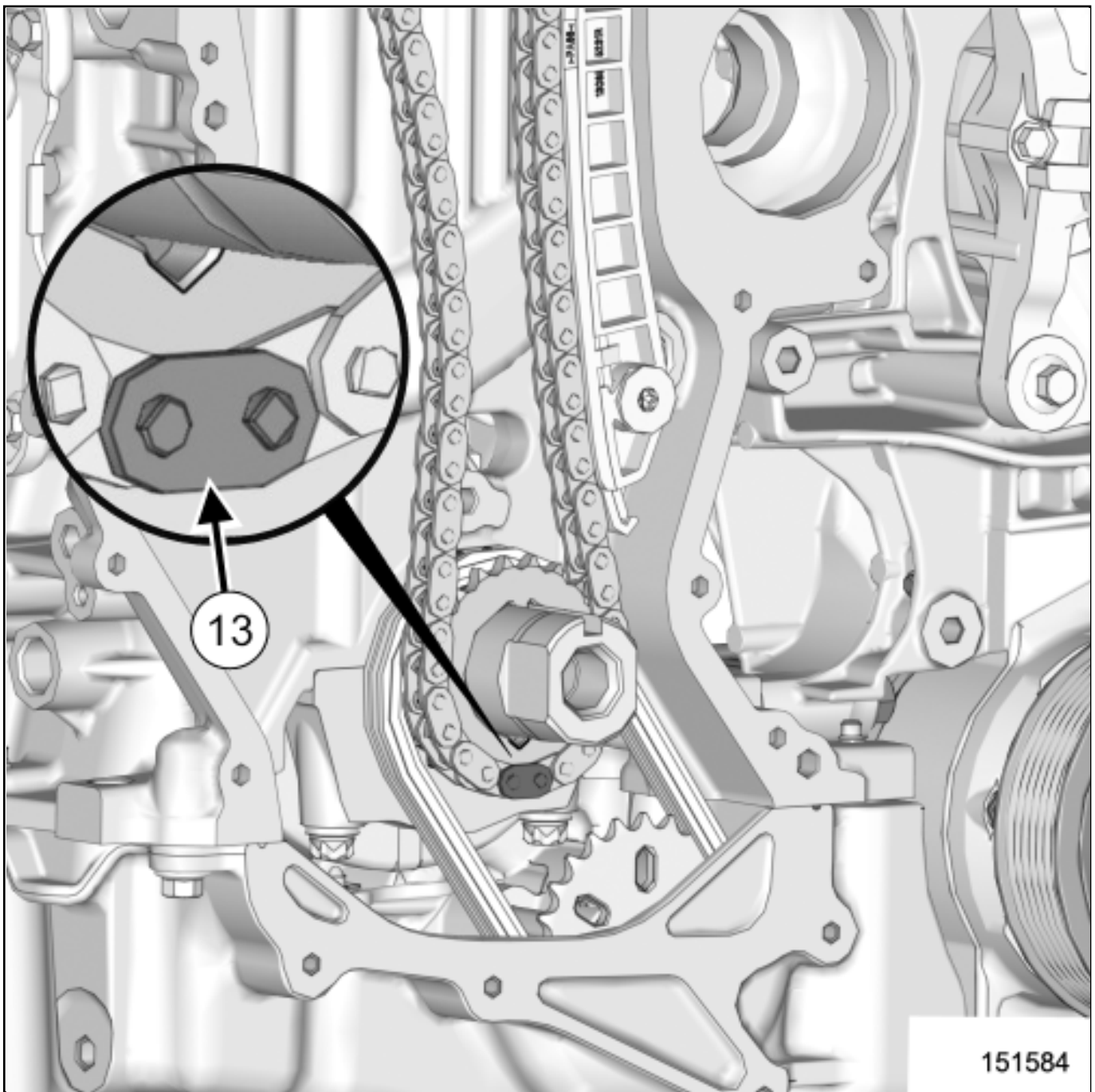
- parts always to be replaced:  [Timing chain](#)  .

- Parts always to be replaced:
 - timing hydraulic tensioner,
 - the timing chain sprocket on camshaft side,
 - the timing chain sprocket on crankshaft side,
 - the exhaust camshaft pulley bolts,
 - the timing chain sprocket washer on camshaft side,
 - the timing chain sprocket spacer on crankshaft side,
 - timing chain guide
 - timing chain guide bolts.
 - timing chain tensioner guide.
 - timing chain tensioner guide bolt.

2. REFITTING OPERATION

- Set the engine at top dead centre.
- Fit the toolTDC locating pin([Mot. 1970](#)) .
- Refit a new timing chain guide([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .
- Torque tighten new timing chain guide bolts([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .





■ Place the new the timing chain sprocket spacer on crankshaft side([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .

■ Position ([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) :

- the new timing chain on the timing chain sprocket on the crankshaft side (align the sprocket mark with the copper chain link (13)) .
- the new timing chain sprocket on camshaft side on the timing chain (align the mark on the sprocket with the copper chain links(14)) ,

■ Refit the timing chain sprocket on camshaft side onto the camshaft on the exhaust side([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .

- ❑ Place the new timing chain sprocket washer on camshaft side([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .
- ❑ Finger tighten the new exhaust camshaft pulley bolts([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .



Note:

Allow the timing sprocket to rotate freely.

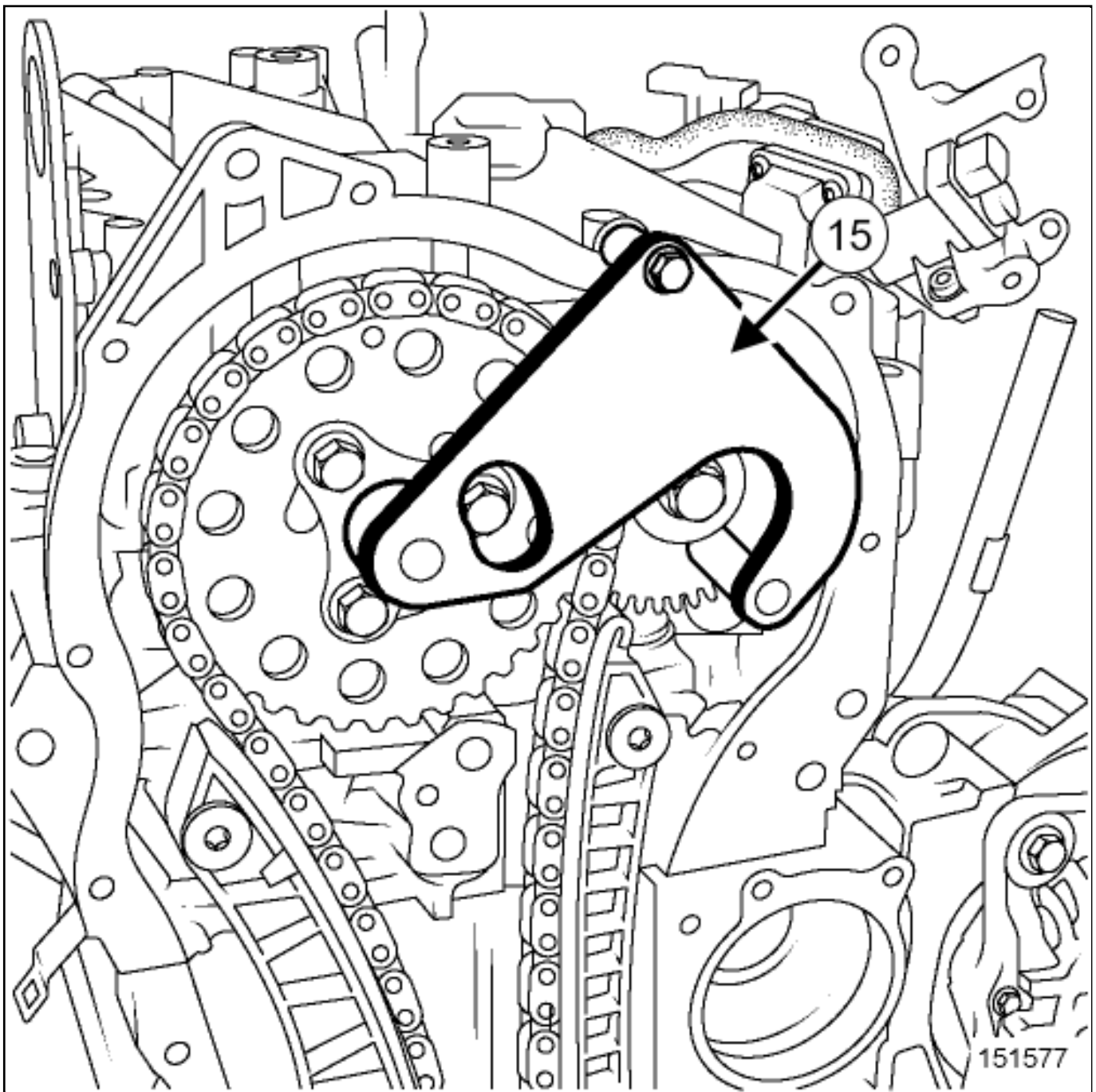
- ❑ Fit the new timing chain tensioner guide([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .
- ❑ Torque tighten the bolt of the timing chain tensioner guide([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .
- ❑ Fit the new timing hydraulic tensioner with its locking pin([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .



Note:

Check that the hydraulic tensioner is in contact with the cylinder block before tightening the bolts.

- ❑ Torque tighten the timing hydraulic tensioner bolts([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .
- ❑ Remove the locking pin.



- Engage the collet of the tool Camshaft timing tool (Mot. 1969) (15) into the exhaust camshaft groove.

Note:



Do not engage the pins of the tool in the holes of the inlet camshaft timing sprocket.

- Turn the tool to align the shafts on the spacer and the hole of the rocker cover.
- Detach the collet of the tool from the exhaust camshaft groove.

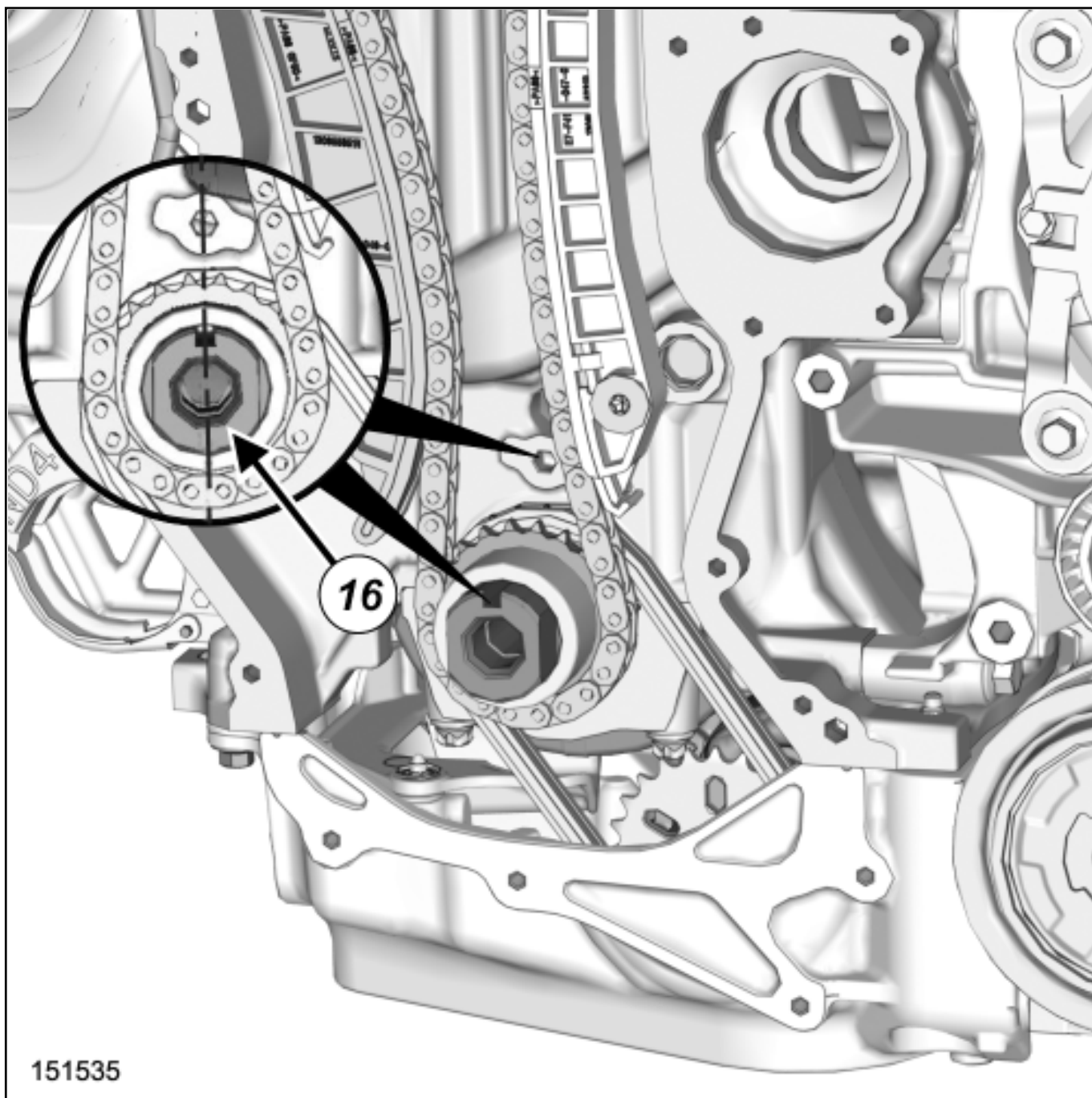
- Engage the pins of the tool in the holes of the inlet camshaft timing sprocket.



Note:

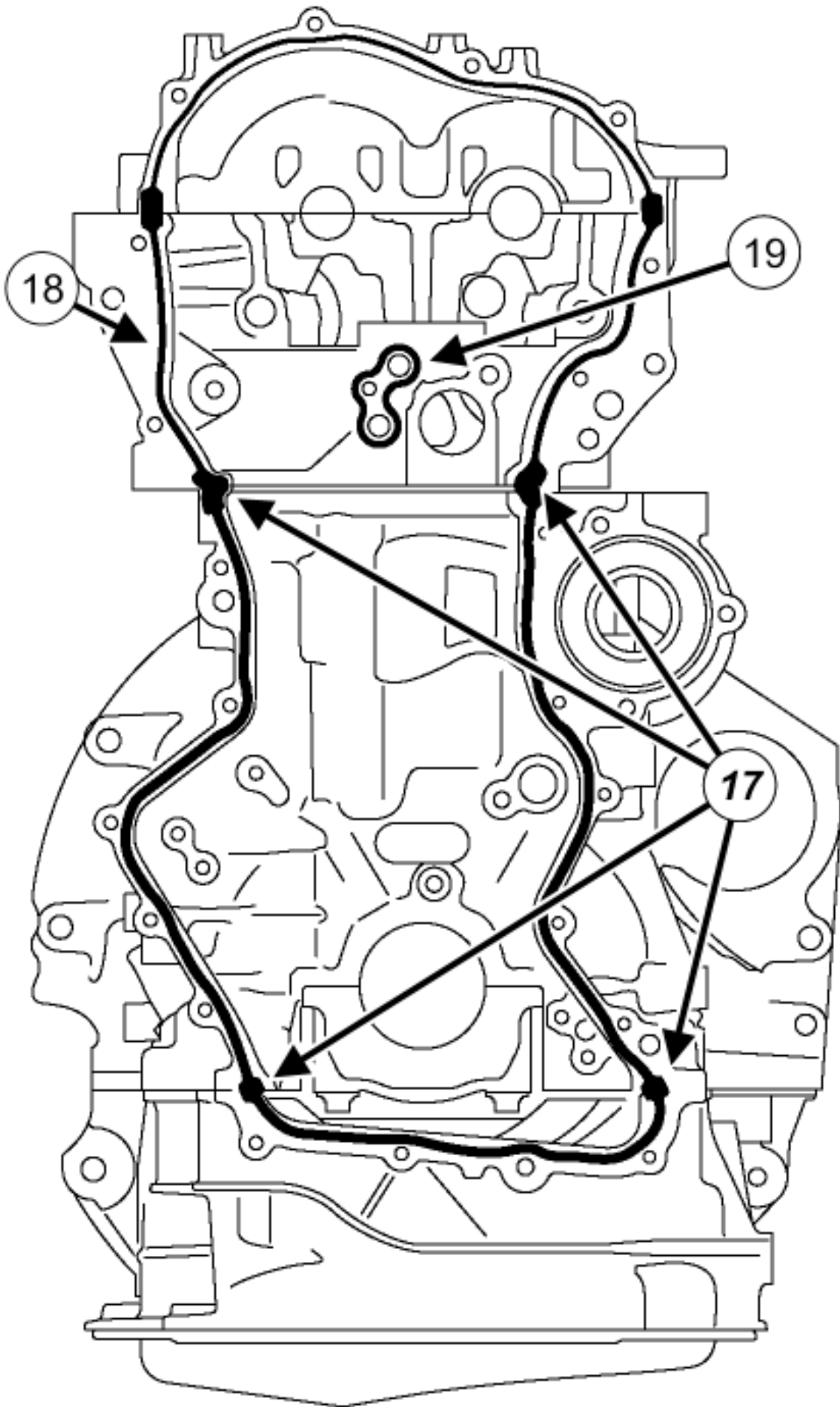
Do not fit the collet of the tool into the groove on the exhaust side of the camshaft.

- Turn the tool to align the shafts on the spacer and the hole of the rocker cover.
- Fit the collet of the tool into the groove on the exhaust camshaft, without forcing it (if necessary, start the previous operations again).
- Fit the rocker cover bolt onto the toolCamshaft timing tool([Mot. 1969](#)) .
- Torque tighten the exhaust camshaft pulley bolts([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .
- Refit:
 - the bolts from the toolCamshaft timing tool([Mot. 1969](#)) ,
 - the toolCamshaft timing tool([Mot. 1969](#)) ,
 - the toolTDC locating pin([Mot. 1970](#)) .
- Put two drops of FRENETANCHE[Vehicle: Parts and consumables for the repair](#) on the threading of the TDC setting pin hole plug.
- Torque tighten the TDC setting pin hole plug[Cylinder block assembly: Exploded view](#) .



151535

■ Check the marks(16) (if necessary, start the previous operations again).



114905

- Apply a bead of Silicone adhesive sealant [Vehicle: Parts and consumables for the repair](#) to the timing face:
 - 1 bead of $\varnothing 7 \pm 2$ mm for a length of 10 to 15 mm:
 - on the points(17) ,
 - 1 bead of $\varnothing 6 \pm 2$ mm:
 - on the outline of the timing cover(18) ,
 - 1 bead of $\varnothing 2.5 \pm 1$ mm:
 - on the edge(19) .

- Refit the timing cover([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .
- Pretighten the timing cover bolts 5 N.m.
- Torque tighten the timing cover bolts([see 11A, Top and front of engine, Timing assembly: Exploded view](#)) .
- Proceed in the reverse order to removal.
- Torque tighten the engine mounting bolts [Engine-gearbox unit support assembly: Exploded view](#) .
- Proceed in the reverse order to removal.



Repair-10x02x04x03-01x37-1-38-1.xml



XSL version : 3.02 du 22/07/11

PRESSURE SENSOR: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



parts always to be replaced:



Tyre valve

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 35B. Tyre pressure monitor. Tyre pressure monitor: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .



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No.	Description
1	pressure sensor
2	pressure sensor bolt
3	tyre valve
4	type valve cap

REMOVAL

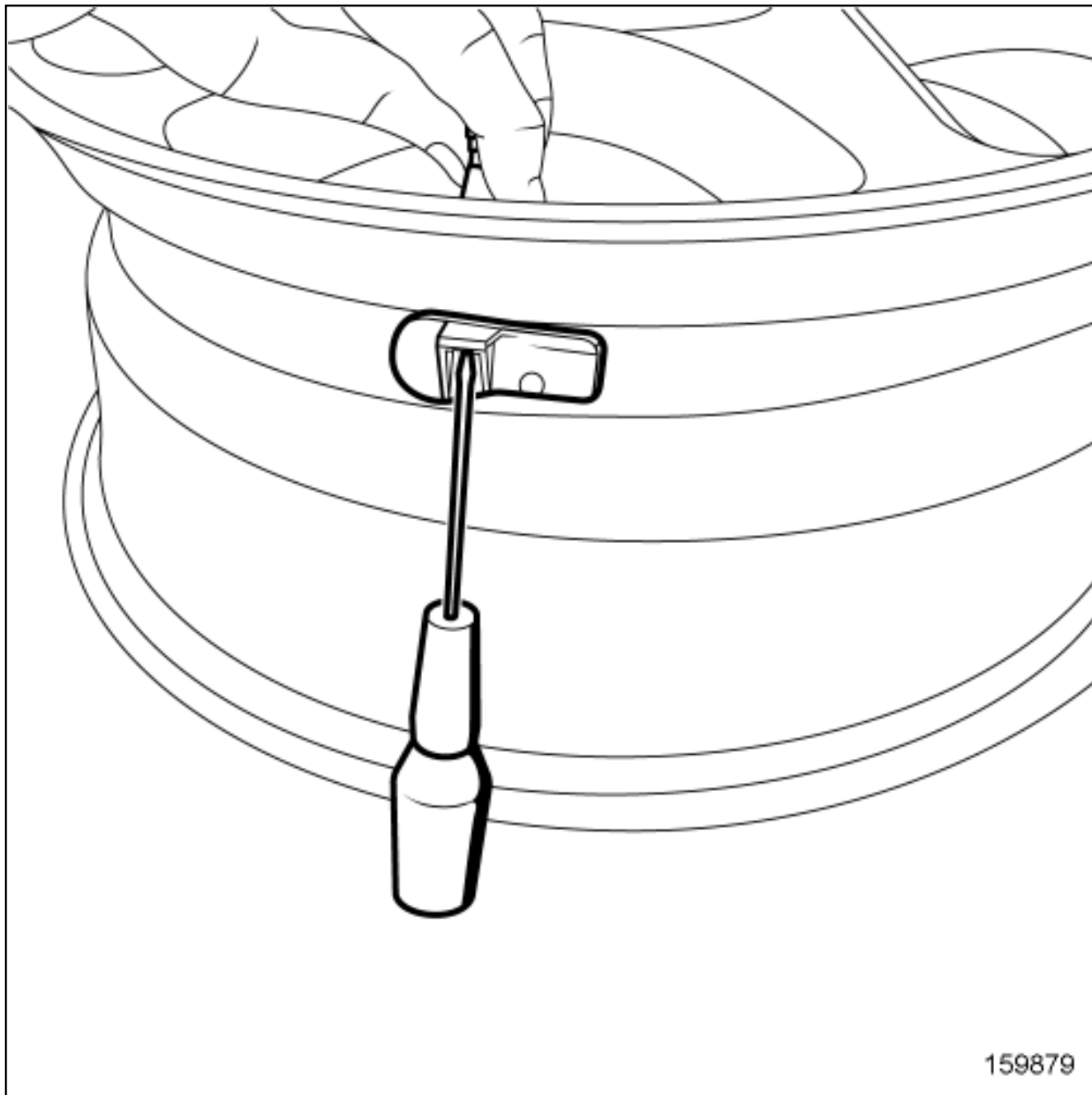
1. REMOVAL PREPARATION OPERATION

Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

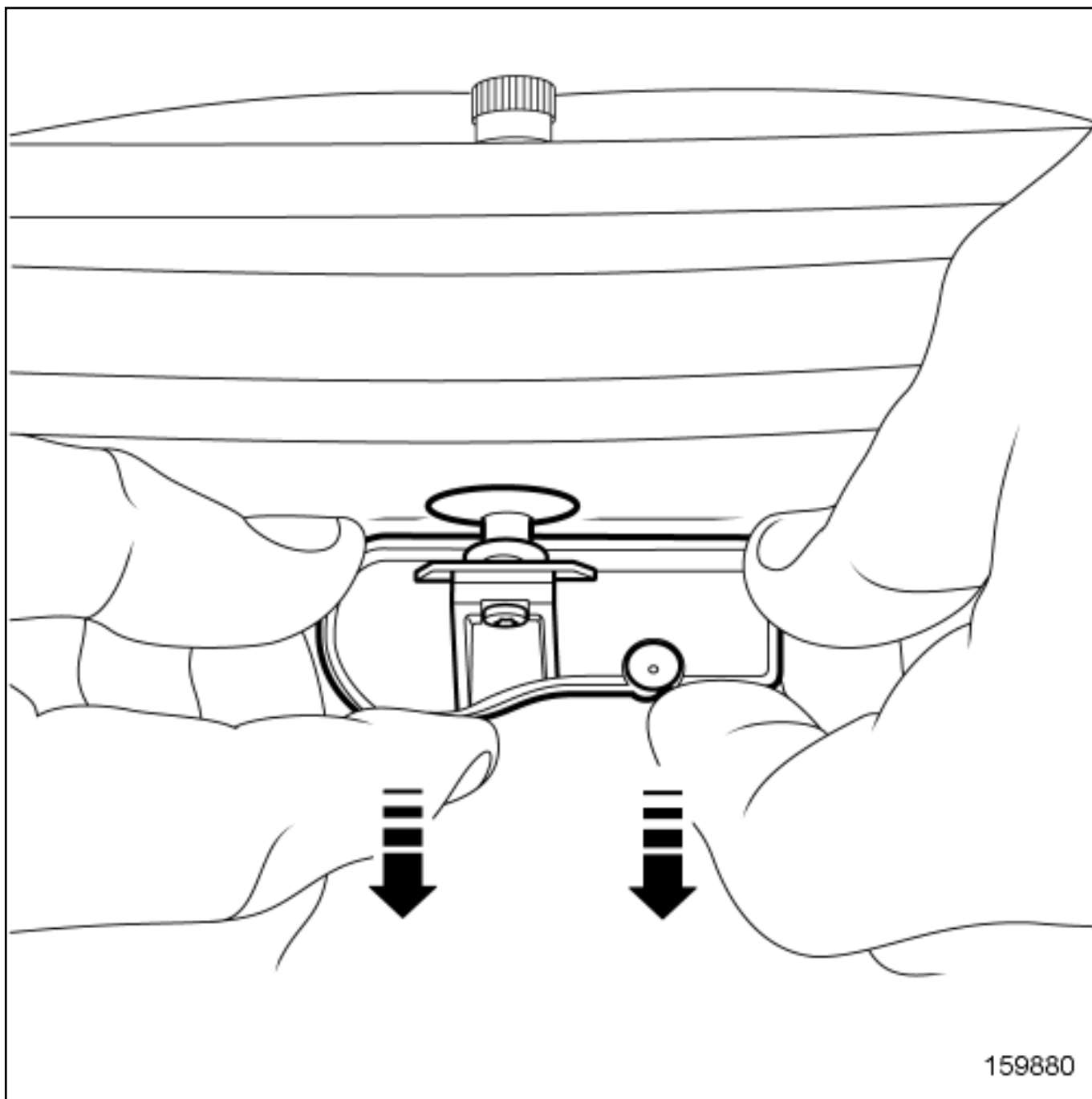
Remove:

- the wheels [Wheel: Removal - Refitting](#) ,
- the tyres [Tyres: Removal - Refitting](#) .

2. REMOVAL OPERATION



- Remove the pressure sensor mounting bolt using a screwdriver as shown in the picture.





- Carefully remove by pulling the pressure sensor as shown in the picture.
- Remove the tyre valve.

REFITTING

1. REFITTING PREPARATION OPERATION

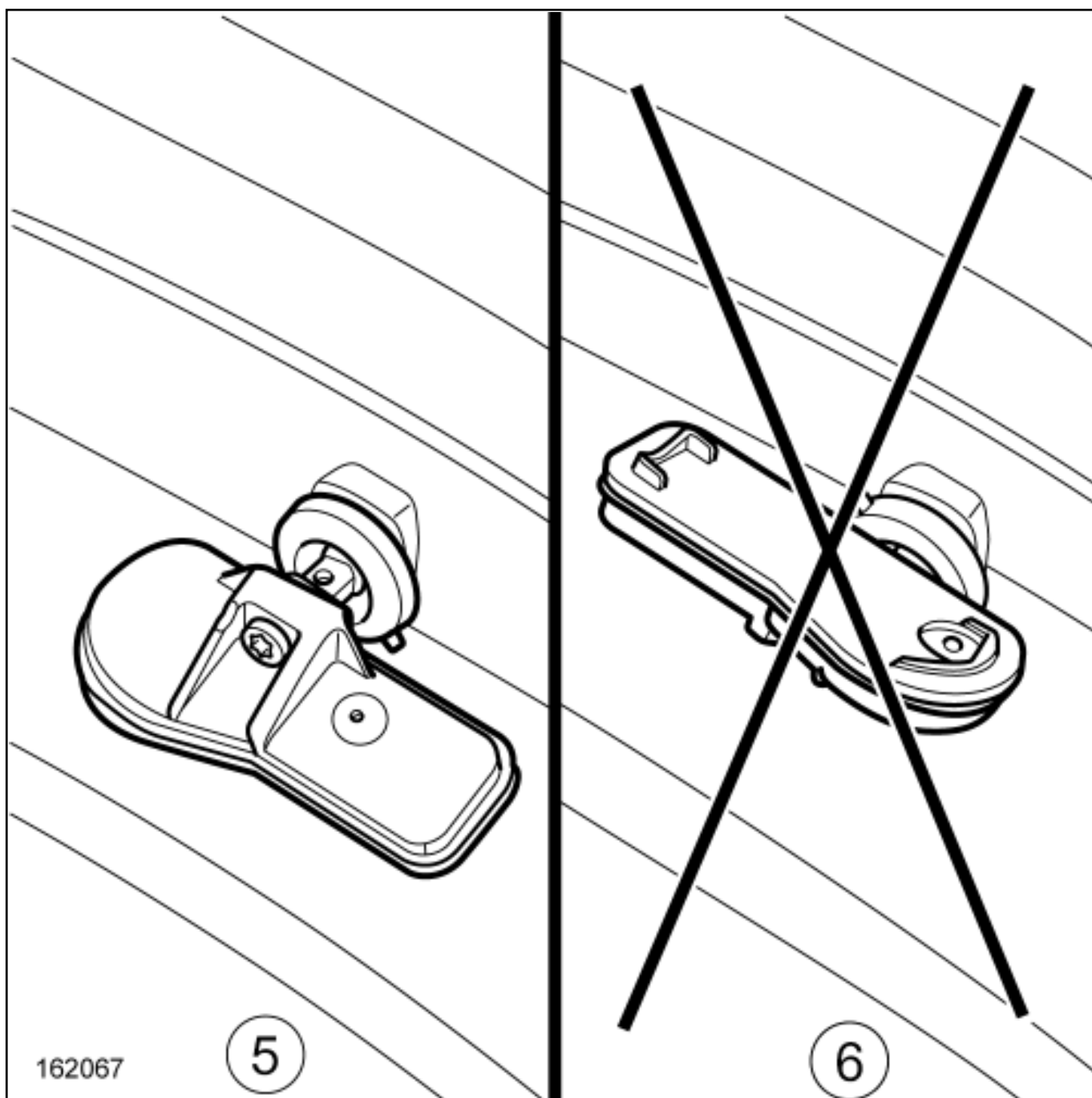
- Always replace the pressure sensor bolt.

parts always to be replaced:  Tyre valve 

2. REFITTING OPERATION

Refit:

- the tyre valve,
- the pressure sensor.



Make sure that the sensor is correctly positioned on the wheel rim:

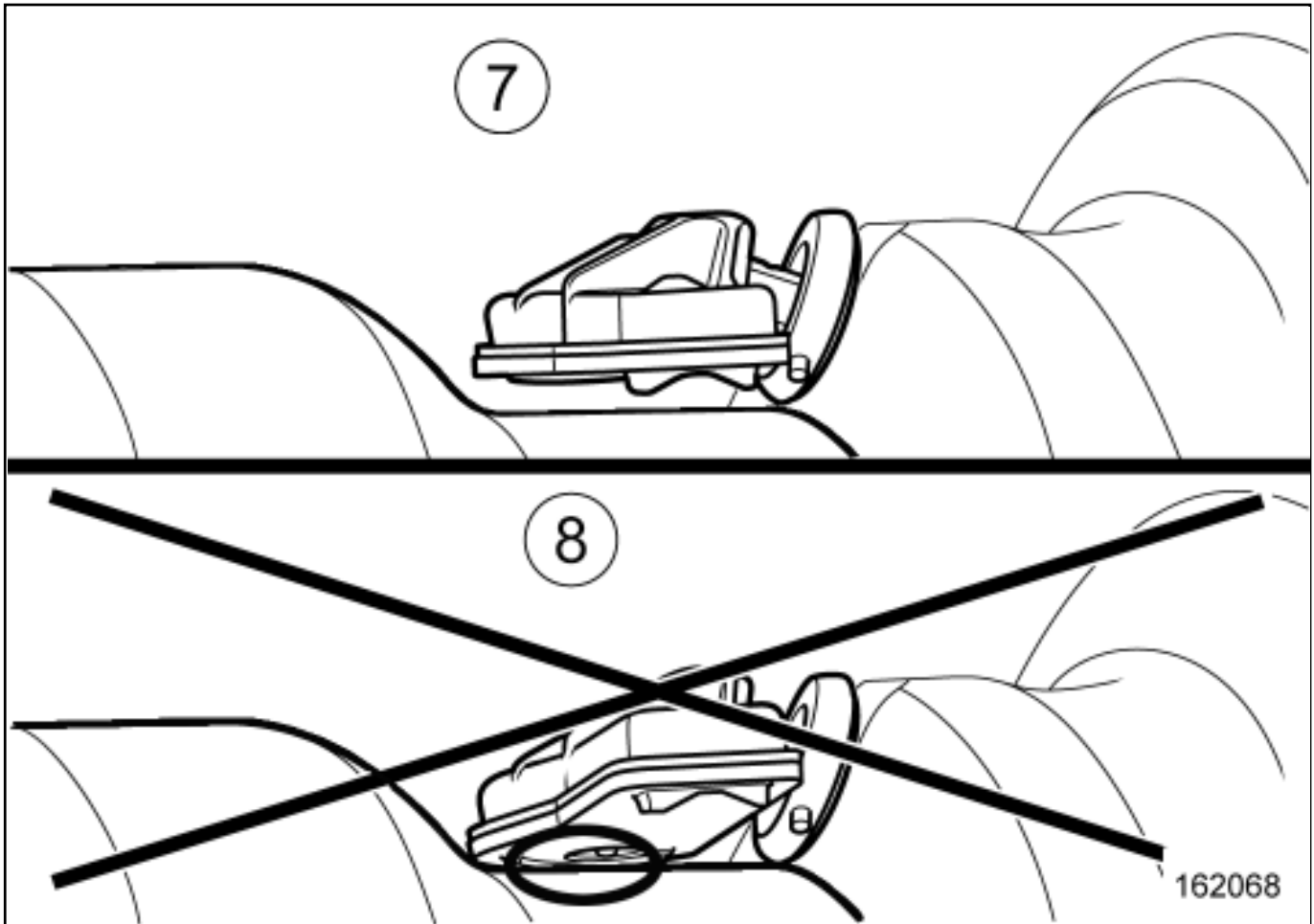
- correctly fitted(5) .

incorrectly fitted(6) ,



Note:

Position the pressure sensor so you can see the mounting bolt from above.



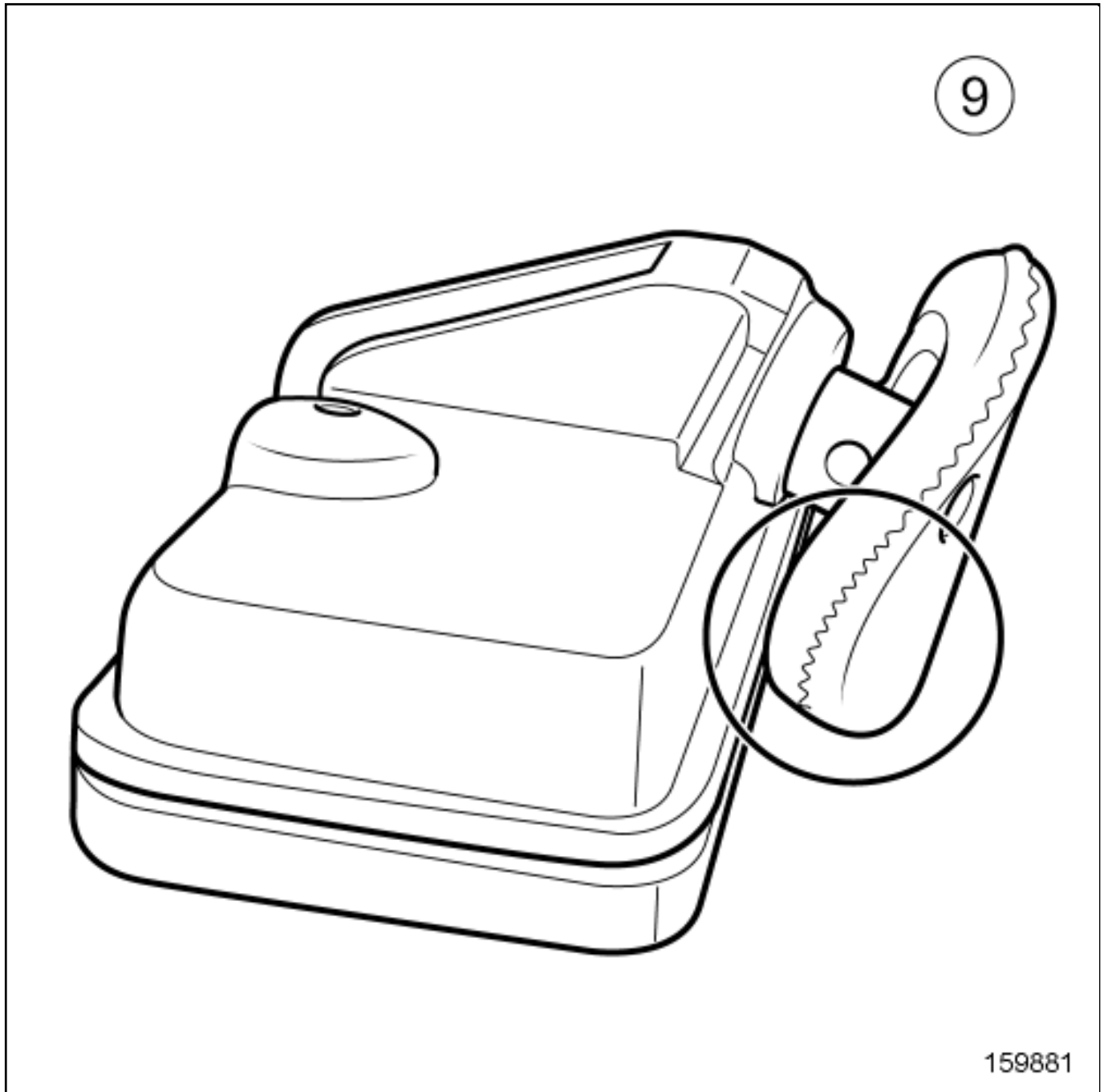
Make sure that the sensor is correctly positioned on the wheel rim:

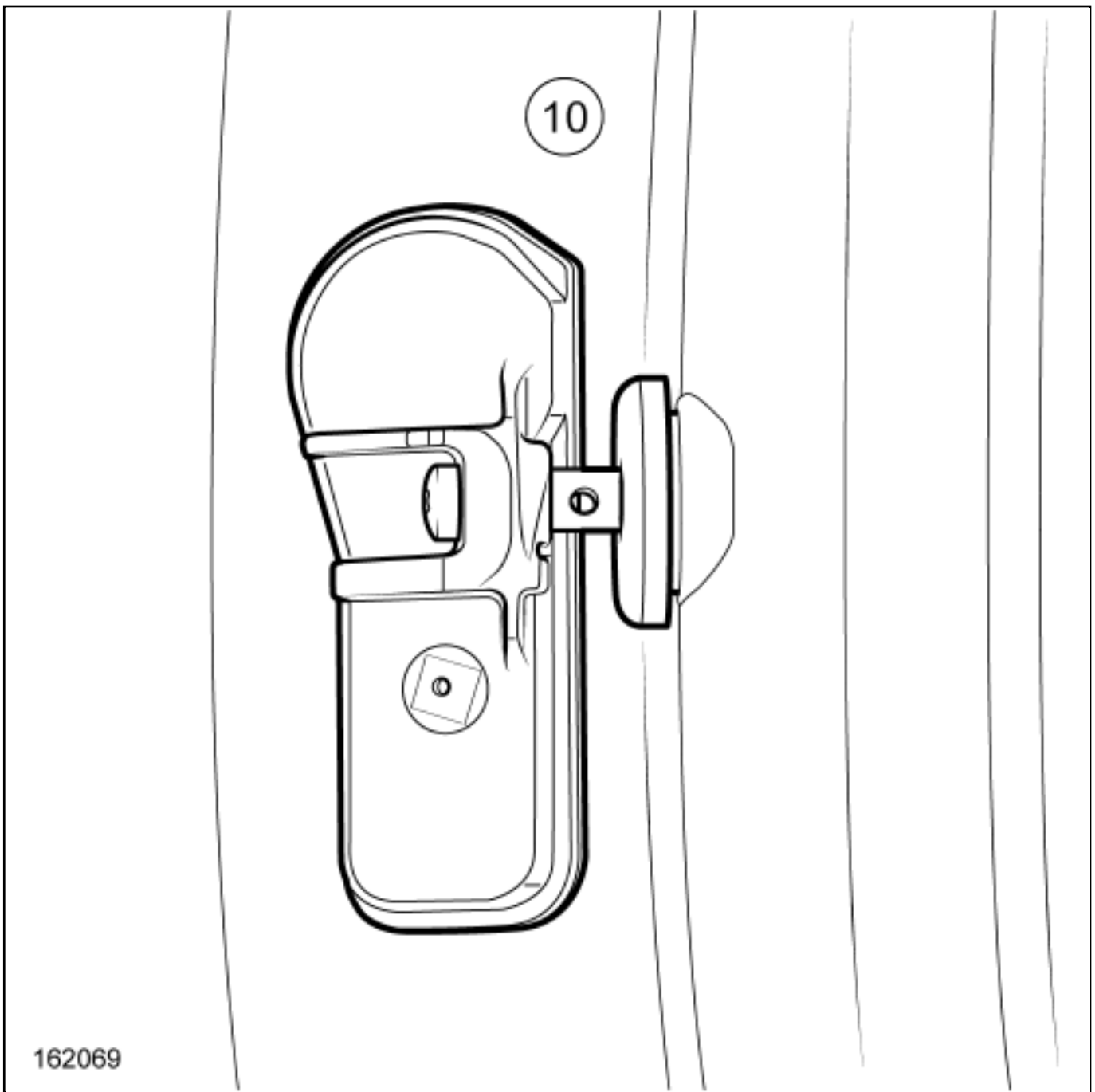
-
- correctly fitted(7) ,
- incorrectly fitted(8) .



Note:

There is no contact between the pressure sensor and the wheel rim.





162069

Make sure that the sensor is correctly positioned on the wheel rim:

- incorrectly fitted(9) ,
- correctly fitted(10) .

Check that the cup is completely pressed around the wheel hole.

Refit the pressure sensor bolt.

Torque tighten the pressure sensor bolt 1.4 N.m .

3. FINAL OPERATION

Proceed in the reverse order to removal.

1- WHEN REPLACING THE PRESSURE SENSOR

Adjust the tyres to the recommended pressure (see **Tyre pressure: Identification**) .

Apply the after repair procedure using the Diagnostic tool **Diagnostic tool : Use** :

-Computer concerned by the after repair procedure:

"UCH"

-Component affected by the after repair procedure:

"Pressure sensor"



Repair-13x05x03x01-01x37-1-16-1.xml



XSL version : 3.02 du 22/07/11

TRACK ROD: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Ball joint extractor.

Tav. 476

WARNING



To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:



■ [\(see 36A, Steering assembly , Steering: Precautions for the repair\) ,](#)

■ [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



Location and specifications (tightening torques, parts always to be replaced, etc.) [Steering assembly: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

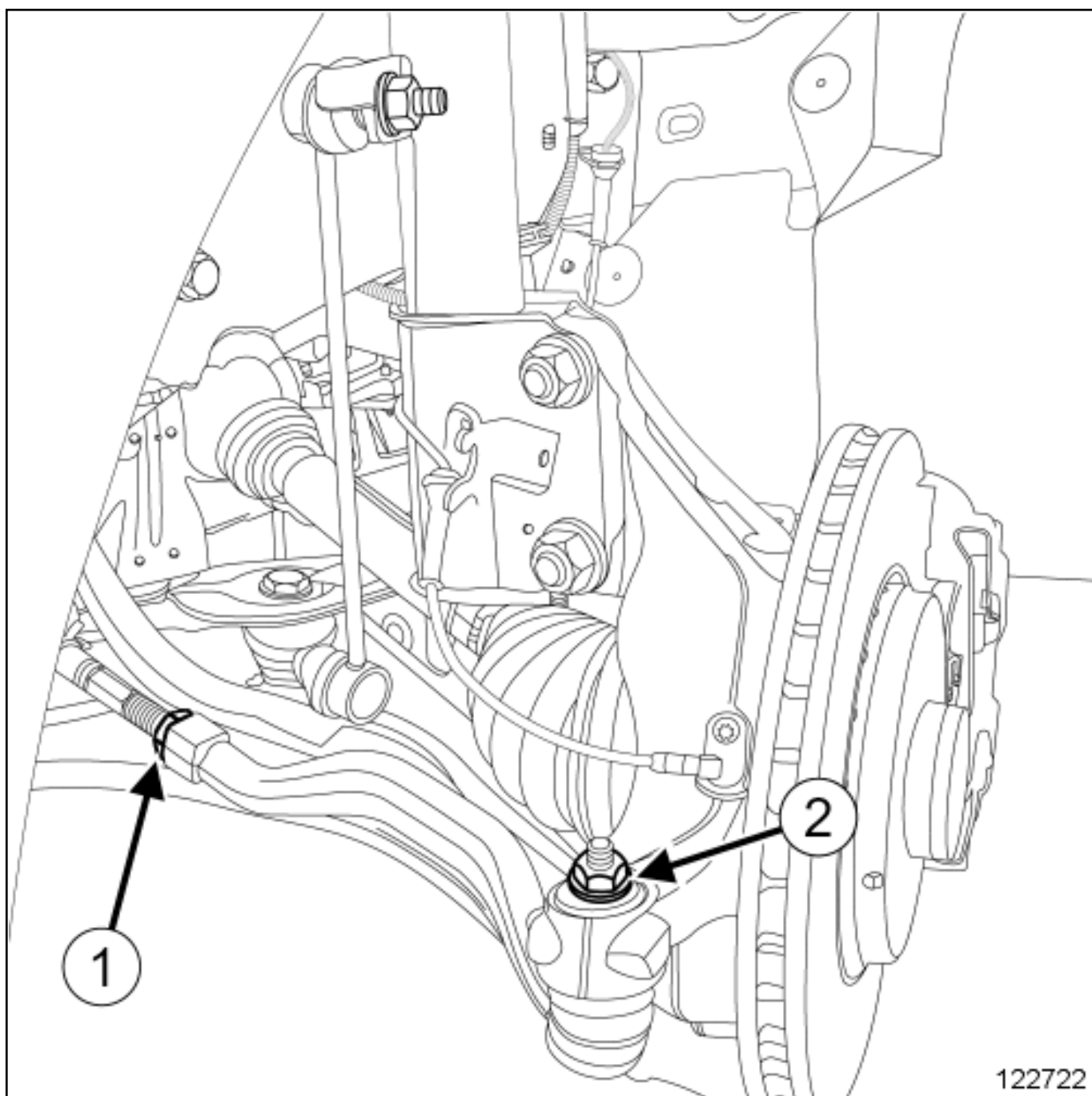


Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .



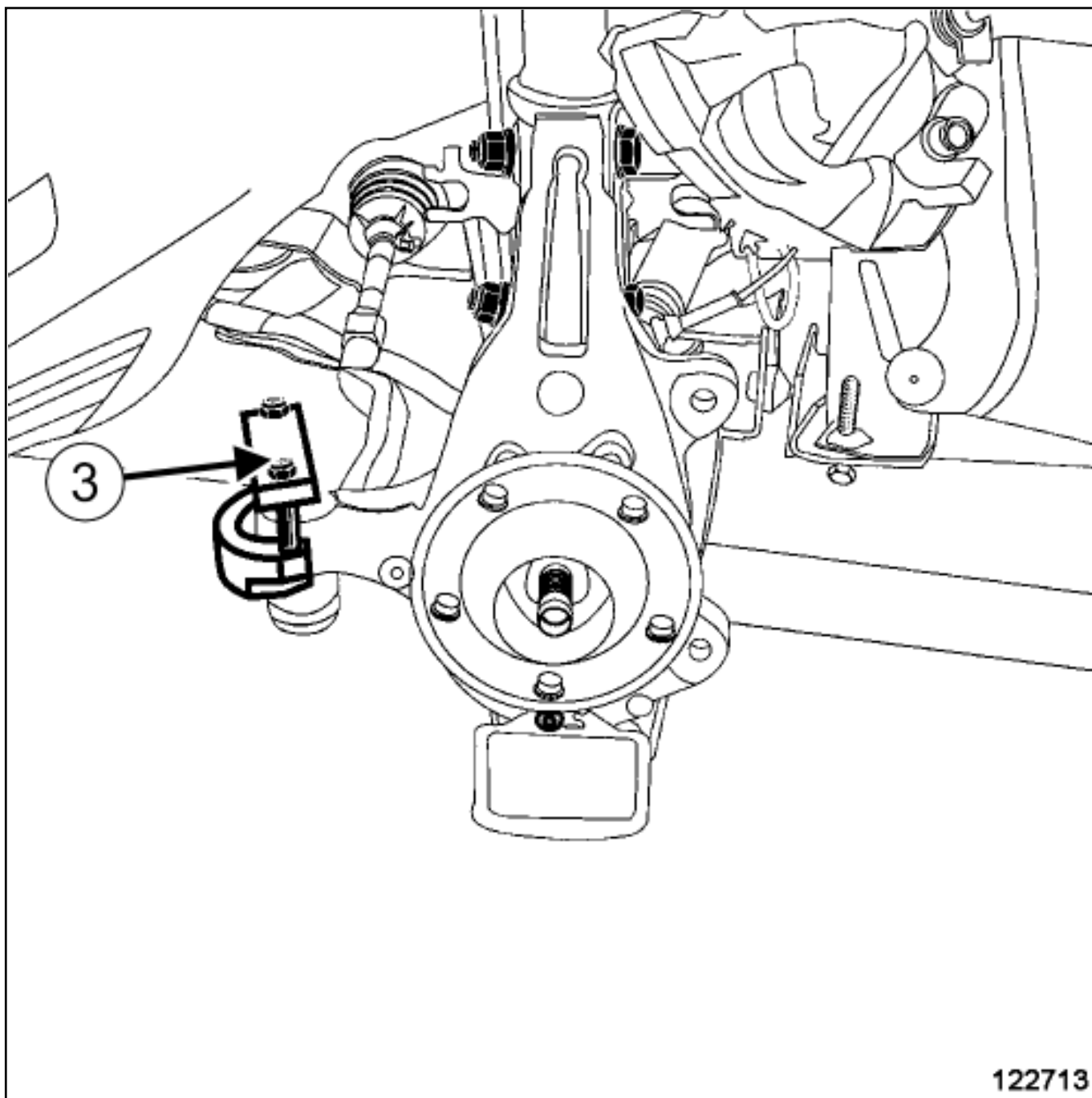
Remove the front wheel [Front hub carrier assembly: Exploded view](#) .

2. REMOVAL OPERATION



Loosen the wheel alignment adjustment lock nut(1) .

Remove the track rod ball joint nut(2) .



Extract the ball joint using Ball joint extractor. (Tav. 476).

Unscrew the track rod anti-clockwise and note the number of turns for refitting.

Remove the track rod.

1. REFITTING OPERATION



Screw the track rod back in place by the number of turns noted during removal.



Fit the track rod end in the hub carrier.



Refit the track rod ball joint nut.



Torque tighten [Steering assembly: Exploded view](#) :



the track rod ball joint nut,



the wheel alignment adjusting lock nut.

2. FINAL OPERATION



Refit the front wheel [Front hub carrier assembly: Exploded view](#) .



Check the axle geometry [Axle assemblies: Check](#) .



If necessary, adjust the geometry of the axle assemblies [Front axle system: Adjustment](#) .



TRACK ROD: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Ball joint extractor.

Tav. 476

WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 36A, Steering assembly, Steering: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

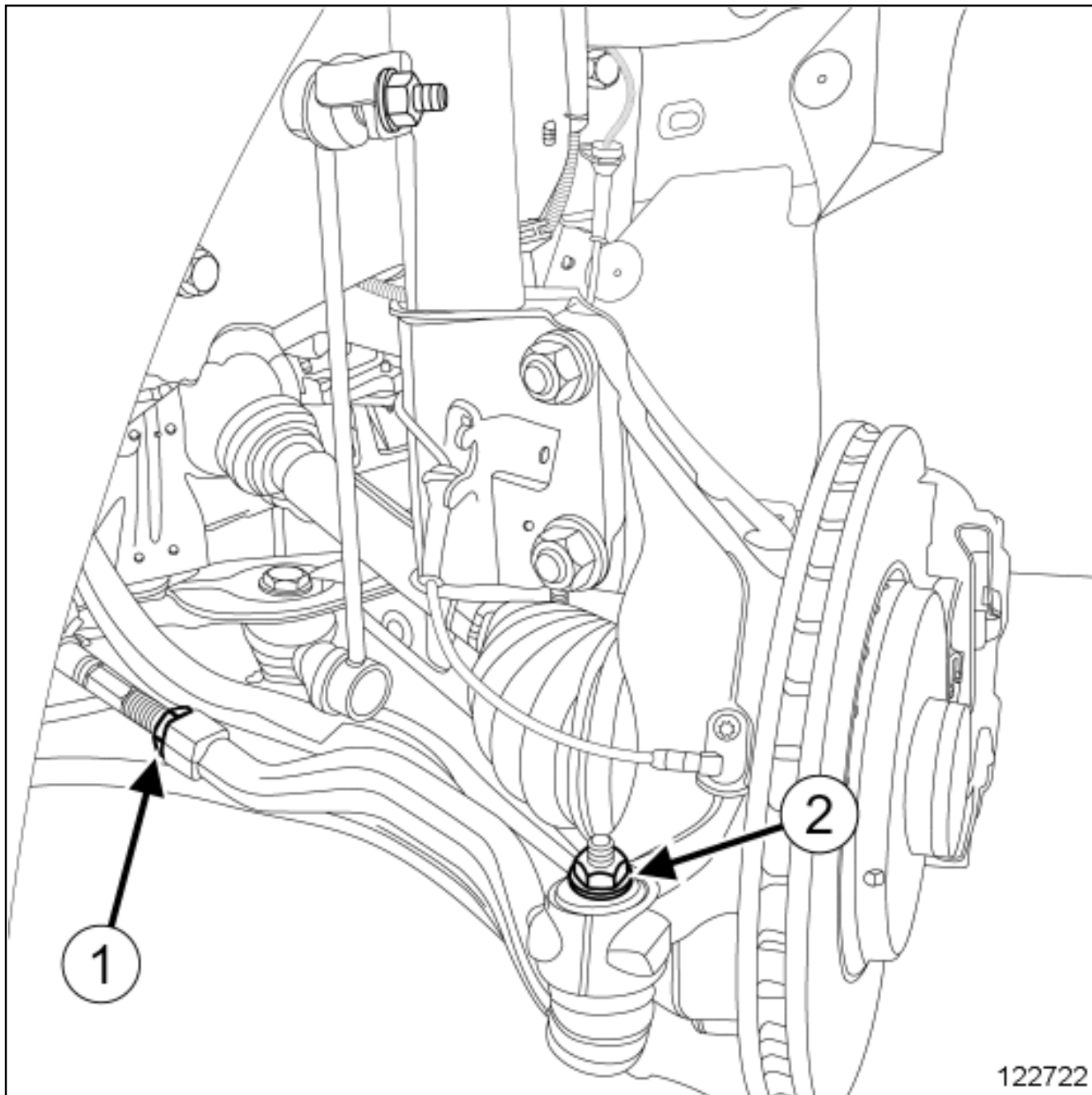
■ Location and specifications (tightening torques, parts always to be replaced, etc.)[\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Remove the front wheel [Front hub carrier assembly: Exploded view](#) .

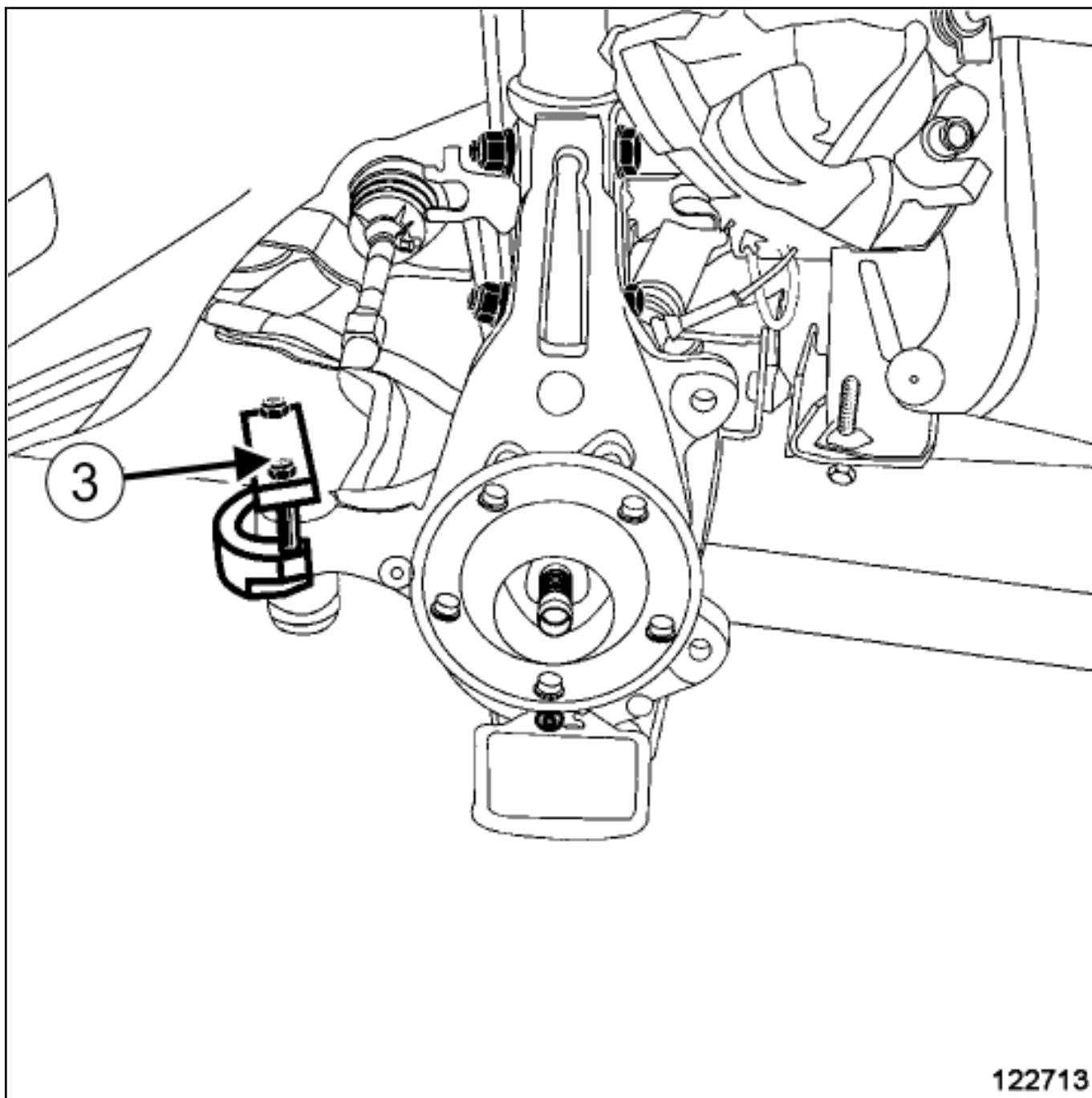
2. REMOVAL OPERATION



122722

Loosen the wheel alignment adjustment lock nut(1) .

Remove the track rod ball joint nut(2) .



- Extract the ball joint using the tool Ball joint extractor. (Tav. 476) (3) .
- Unscrew the track rod anti-clockwise and note the number of turns for refitting.
- Remove the track rod.

REFITTING

1. REFITTING OPERATION

 Screw the track rod back in place by the number of turns noted during removal.



Fit the track rod end in the hub carrier.



Refit the track rod ball joint nut.



Torque tighten [\(see 36A, Steering assembly, Steering assembly: Exploded view\)](#) :



the track rod ball joint nut,



the wheel alignment adjusting lock nut.

2. FINAL OPERATION



Refit the front wheel [Front hub carrier assembly: Exploded view](#) .



Check the axle geometry [Axle assemblies: Check](#) .



If necessary, adjust the geometry of the axle assemblies [Front axle system: Adjustment](#) .



Repair-13x04x02x02-01x37-1-13-1.xml



TURBOCHARGER OIL PIPE: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

4-40 N.m torque wrench with 1/4 drive ratchet end piece

Ms. 1973



parts always to be replaced:



[turbocharger oil supply pipe](#)

[turbocharger oil pipe seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Locations and specifications (tightening torques, parts always to be replaced, etc.) [Exhaust assembly in engine compartment: Exploded view](#) .



WARNING

To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- (see **Turbocharging: Precautions for the repair**) ,
- [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).

CAUTION



Ensure that no foreign bodies enter the turbine or compressor during the refitting operation.

Check that the turbocharger oil return pipe is not partially or completely blocked by scale. Check that there are no leaks. If there are, replace the part.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove the engine undertray.
- Disconnect the oil vapour rebreathing pipe from the oil decanter [Engine oil circuit assembly: Exploded view](#) .
- Move aside the oil vapour rebreathing pipe.

2. REMOVAL OPERATION

- Remove [Exhaust assembly in engine compartment: Exploded view](#) :
 - the cylinder block oil supply pipe bolt,
 - the turbocharger oil supply pipe bolt,
 - the turbocharger oil supply pipe.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:  [turbocharger oil supply pipe](#)  .

- Degrease and clean using surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) the pressure faces:
 - of the turbocharger oil supply pipe on the turbocharger,
 - of the turbocharger oil supply pipe on the cylinder block.

2. REFITTING OPERATION

■ Refit [Exhaust assembly in engine compartment: Exploded view](#) :

- a new turbocharger oil supply pipe,
- the oil supply pipe bolt on the cylinder block,
- the oil supply pipe bolt on the turbocharger.

■ Using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece ([Ms. 1973](#)), tighten to torque [Exhaust assembly in engine compartment: Exploded view](#) :

- the oil supply pipe bolt on the cylinder block,
-

the oil supply pipe bolt on the turbocharger.

■

Proceed in the reverse order to removal.

REMOVAL

1. REMOVAL PREPARATION OPERATION

■ Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .

■

Disconnect the battery [Battery: Removal - Refitting](#) .

■

Remove the engine undertray.

■

Remove:

■

the lower engine tie-bar [Engine-gearbox unit support assembly: Exploded view](#) ,

■

the front axle subframe [Front axle subframe: Removal - Refitting](#) .

■

Remove:

■

the particle filter temperature sensors [Exhaust assembly in engine compartment: Exploded view](#) ,



the exhaust gas pressure sensor upstream of the turbocharger [Exhaust assembly in engine compartment: Exploded view](#) ,



the oxygen sensor [Exhaust assembly in engine compartment: Exploded view](#) ,



the particle filter [Exhaust assembly in engine compartment: Exploded view](#) .

2. REMOVAL OPERATION



Remove [Exhaust assembly in engine compartment: Exploded view](#) :



the turbocharger upper oil return pipe bolts,



the turbocharger upper oil return pipe bolts from the turbocharger,



the turbocharger upper oil return pipe,



the turbocharger upper oil return pipe seals,



the turbocharger oil return pipe support bolt,



the turbocharger oil return pipe,



the turbocharger oil return pipe seal.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:

[turbocharger oil pipe seal](#) .



Oil the turbocharger oil return pipe O-ring.



Degrease and clean using surface cleaner [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products) the pressure faces:

-
- of the turbocharger oil return pipe on the turbocharger,
- of the turbocharger oil return pipe on the cylinder block.

2. REFITTING OPERATION



Refit a new turbocharger oil return pipe seal [Exhaust assembly in engine compartment: Exploded view](#) .



Fit the turbocharger oil return pipe on the cylinder block.



Refit [Exhaust assembly in engine compartment: Exploded view](#) :

-
- new turbocharger upper oil return pipe seals,
- the turbocharger upper oil return pipe,
- the turbocharger upper oil return pipe bolts on the turbocharger,
- the turbocharger upper oil return pipe bolts,
- the turbocharger oil return pipe support bolt.



Using the tool 4-40 N.m torque wrench with 1/4 drive ratchet end piece (Ms. 1973) , tighten to torque [Exhaust assembly in engine compartment: Exploded view](#) :

-
- the turbocharger upper oil return pipe bolts from the turbocharger,
- the turbocharger upper oil return pipe bolts,

the turbocharger oil return pipe support bolt.

Proceed in the reverse order to removal.



Repair-10x09x03x03-01x37-1-74-1.xml



XSL version : 3.02 du 22/07/11

TURBOCHARGER: REMOVAL-REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



parts always to be replaced:



[seal between exhaust manifold and turbocharger](#)

[Turbocharger nut](#)

[exhaust manifold stud on the turbocharger \(if loosened\)](#)

[turbocharger stud on exhaust manifold \(if loosened\)](#)

[turbocharger oil pipe seal](#)



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)



WARNING

- To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:
 - (see **Turbocharging: Precautions for the repair**),
 - [Vehicle: Precautions for the repair](#) (01D, Mechanical introduction).



WARNING

Wear cut-resistant gloves during the operation.



CAUTION

To prevent the surrounding components from overheating, do not damage (tear, pierce, bend, etc.) a heat shield.

Any damaged heat shields must be replaced.

Locations and specifications (tightening torques, parts always to be replaced, etc.) [Exhaust assembly in engine compartment: Exploded view](#) .

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove the engine undertray.
- Remove:
 - the lower engine tie-bar [Engine-gearbox unit support assembly: Exploded view](#) ,
 - the front axle subframe [Front axle subframe: Removal - Refitting](#) (31A, Front axle components).
- Remove:
 - the particle filter temperature sensors [Exhaust assembly in engine compartment: Exploded view](#) ,
 - the exhaust gas pressure sensor upstream of the turbocharger [Exhaust assembly in engine compartment: Exploded view](#) ,
 - the oxygen sensor [Exhaust assembly in engine compartment: Exploded view](#) ,
 - the particle filter [Exhaust assembly in engine compartment: Exploded view](#) .
- Remove [Exhaust assembly in engine compartment: Exploded view](#) :
 - the turbocharger oil supply pipe,
 - the turbocharger oil return pipe bracket bolts.

Note:



Check that the turbocharger oil return pipe is not partially or completely blocked.
Check that there are no leaks. If there are, replace the pipe.

2. REMOVAL OPERATION

Remove [Exhaust assembly in engine compartment: Exploded view](#) :

- the turbocharger nuts,
- the turbocharger.



CAUTION

Don't remove the horn of outlet of the turbocharger.

Remove [Exhaust gas recirculation circuit assembly: Exploded view](#) :

- the bolts of the exhaust gas recirculation solenoid valve from the support,
- the bolts of the exhaust gas cooler from the support.

Move the "exhaust gas cooler - exhaust gas recirculation solenoid valve" assembly.



Note:

Don't open the cooling system of the exhaust gas cooler.

Remove [Exhaust gas recirculation circuit assembly: Exploded view](#) :

- the bolts of the exhaust gas recirculation solenoid valve support,
- the exhaust gas recirculation solenoid valve support.

Remove [Exhaust assembly in engine compartment: Exploded view](#) :

- the exhaust manifold heat shield bolts,
-

the exhaust manifold heat shield.

REFITTING

1. REFITTING PREPARATION OPERATION

■



parts always to be replaced:

[seal between exhaust manifold and turbocharger](#)



■



parts always to be replaced:

Turbocharger nut



parts always to be replaced:

exhaust manifold stud on the turbocharger (if loosened)



parts always to be replaced:

turbocharger stud on exhaust manifold (if loosened)



parts always to be replaced:

turbocharger oil pipe seal



Using surface cleaner Vehicle: Parts and consumables for the repair (04B, Consumables - Products), clean and degrease the bearing faces of:

-
- the exhaust manifold,
- the turbocharger.

CAUTION



Ensure that no foreign bodies enter the turbine or compressor during the refitting operation.

Check that the turbocharger oil return pipe is not partially or completely blocked by scale. Check that there are no leaks. If there are, replace the part.



CAUTION

Following a turbocharger fault, check that the intercooler and air circuit assembly are not full of oil. If they are, remove them and clean them with a cleaning tray or station and dry them with a compressed air gun.



CAUTION

Metal objects may enter the oil and air circuits as a result of a broken turbocharger.

Failure to observe the following instructions will lead to the turbocharger breaking again.

Refit new studs on the turbocharger using the stud recesses.

Torque tighten the new studs on the turbocharger [Exhaust assembly in engine compartment: Exploded view](#) .

Refit a new stud on the exhaust manifold using the stud recesses.

Torque tighten the new exhaust manifold stud [Exhaust assembly in engine compartment: Exploded view](#) .

2. REFITTING OPERATION

Refit [Exhaust assembly in engine compartment: Exploded view](#) :

-
- the exhaust manifold heat shield,
- the exhaust manifold heat shield bolts.

Refit [Exhaust gas recirculation circuit assembly: Exploded view](#) :

■

- the exhaust gas recirculation solenoid valve support,

- the bolts of the exhaust gas recirculation solenoid valve support.

Fit the "exhaust gas cooler - exhaust gas recirculation solenoid valve" assembly.

Refit [Exhaust gas recirculation circuit assembly: Exploded view](#) :

- the bolts of the exhaust gas cooler on the support,

- the bolts of the exhaust gas recirculation solenoid valve on the support.

Refit [Exhaust assembly in engine compartment: Exploded view](#) :

- the turbocharger,

- the turbocharger nuts.

Torque tighten the turbocharger nuts [Exhaust assembly in engine compartment: Exploded view](#) .

Proceed in the reverse order to removal.

When replacing, apply the after repair procedure using the Diagnostic tool:

- select the "Injection computer",

- go to repair mode,

- display the "Before/After repair procedure" for the computer selected,

- select "Turbocharger" in the "List of components controlled by this computer" section,

- carry out the operations described in the "After repair procedure" section.



Repair-10x09x01-01x37-1-116-1.xml



XSL version : 3.02 du 22/07/11

TYRE PRESSURE MONITOR RECEIVER: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



WARNING



■ To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operation recommendations before carrying out any repair:

- [\(see 35B. Tyre pressure monitor, Tyre pressure monitor: Precautions for the repair\)](#) ,
- [Vehicle: Precautions for the repair](#) .



WARNING

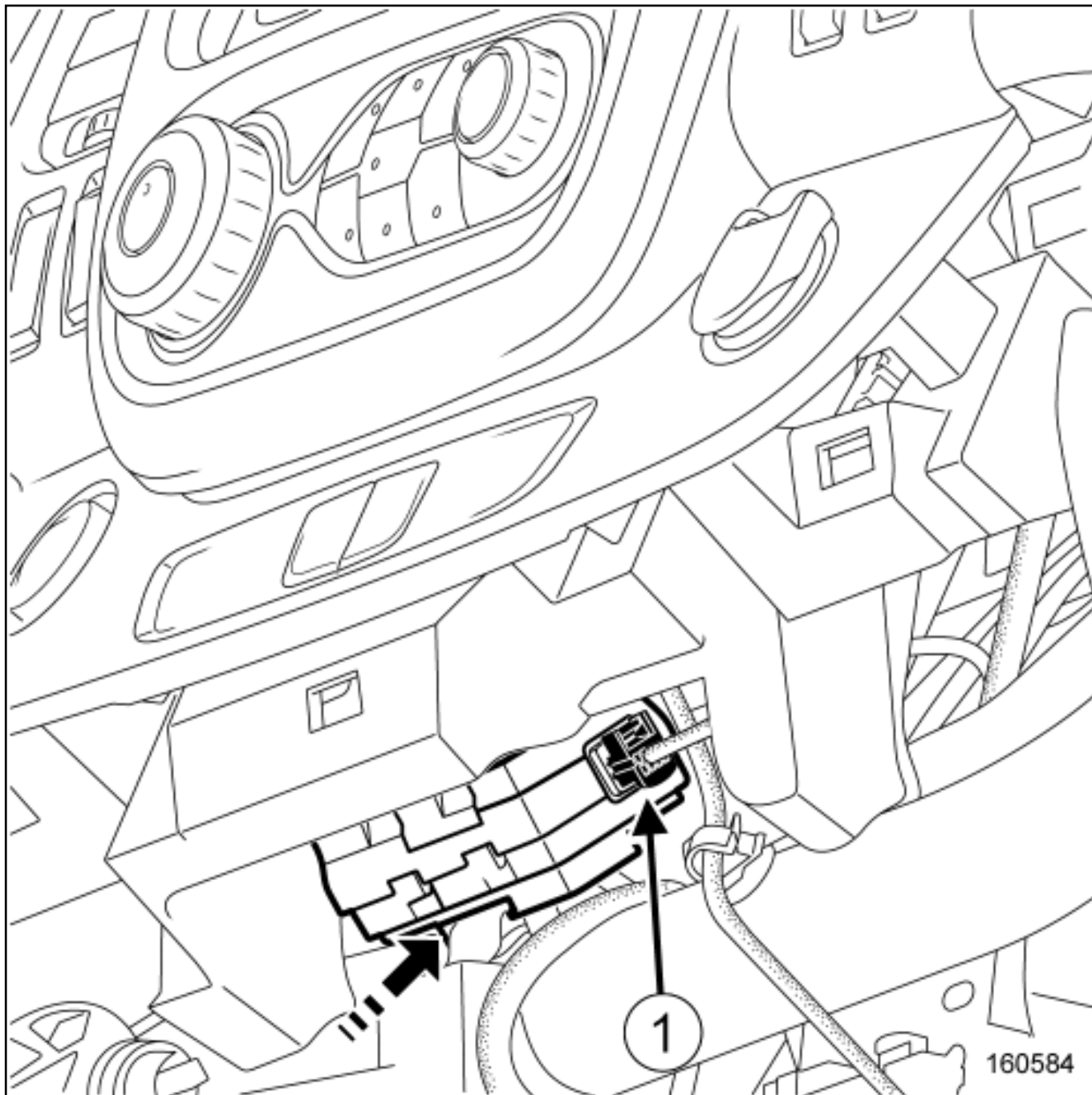
Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Disconnect the battery [Battery: Removal - Refitting](#) .
- Remove the dashboard centre front panel trim [Dashboard assembly: Exploded view](#) .

2. REMOVAL OPERATION



■ Disconnect the receiver connector(1) .

■ Remove the receiver in the direction of the arrow.

REFITTING

Proceed in the reverse order to removal.



Repair-13x05x03x04-01x37-1-2-1.xml



XSL version : 3.02 du 22/07/11

TYRES: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



parts always to be replaced:



Tyre valve

REMOVAL

1. REMOVAL PREPARATION OPERATION

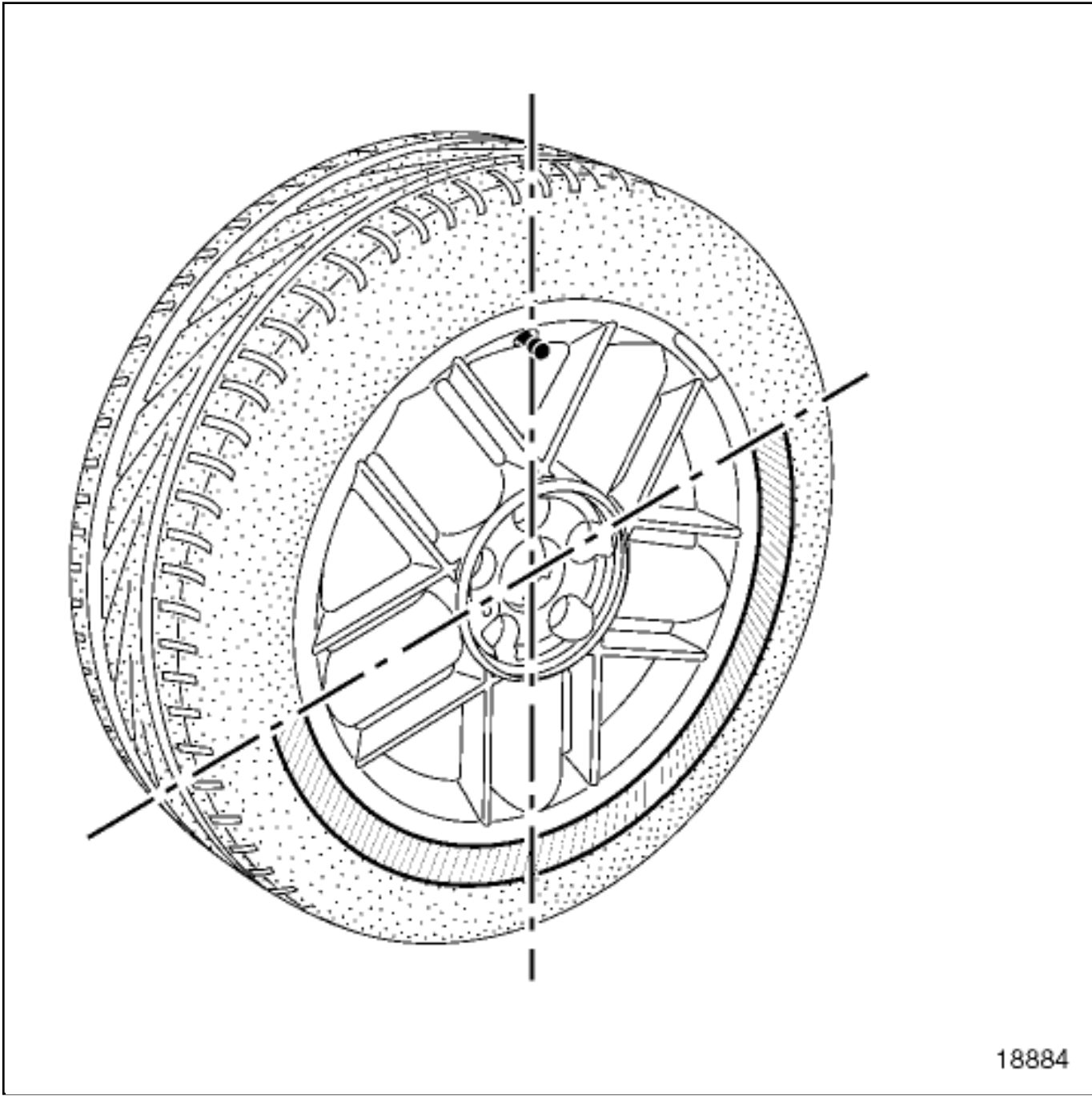
- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) (02A, Lifting equipment).
- Remove:
 - the wheel in question ([see 35A. Wheels and tyres. Wheel: Removal - Refitting](#)),
 - the balance weights,
 - the valve mechanism.

2. OPERATION FOR REMOVAL OF PART CONCERNED



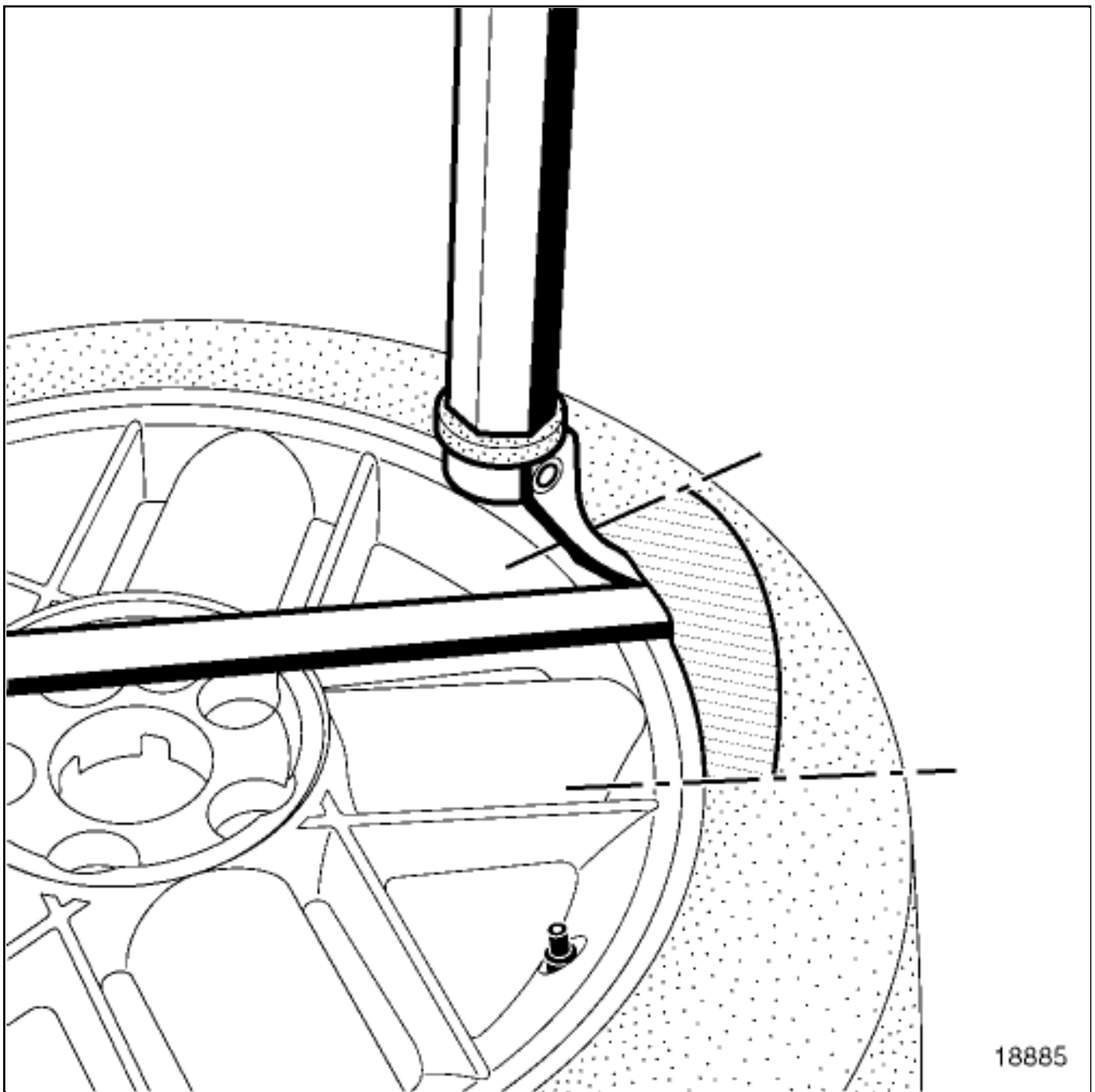
CAUTION

To avoid any damage to the sensor, make sure the tyre bead never presses on the sensor.



Detach:

-
- the bead from the outside of the tyre, starting with the side opposite the valve,
- the bead from the inside of the tyre.



Position the tyre lever approximately 15 cm from the valve on the outside of the wheel rim in order to remove the exterior bead from the tyre.



Remove the exterior bead of the tyre, finishing at the valve.



Position the tyre lever approximately 15 cm from the valve on the outside of the wheel rim in order to remove the bead from inside the tyre.

Remove the interior bead of the tyre, finishing at the valve.

REFITTING

1. REFITTING PREPARATION OPERATION



parts always to be replaced:  Tyre valve  .



Lubricate the two tyre beads correctly using the tyre paste [Vehicle: Parts and consumables for the repair](#) (04B, Consumables - Products).

2. REFITTING OPERATION FOR PART CONCERNED



Engage the lower tyre bead approximately 15 cm after the valve.



Finish fitting the tyre at the valve.



Fit the exterior bead approximately 15 cm after the valve using the tyre lever.



Inflate the tyre to 3.5 bar to press the tyre beads against the wheel rim.

3. FINAL OPERATION



Refit the valve mechanism.



Inflate the tyre to the recommended pressure (see [Tyre pressure: Identification](#)) .



Note:

It is not necessary to drive the vehicle before and after a new wheel is balanced.



Balance the wheel([see 35A, Wheels and tyres, Wheel: Balancing](#)) .



Refit the wheel in question([see 35A, Wheels and tyres, Wheel: Removal - Refitting](#)) .



Repair-13x05x02-01x37-1-1-1.xml



XSL version : 3.02 du 22/07/11

UCH: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Equipment required

Diagnostic tool



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Apply the before repair procedure using the Diagnostic tool [Diagnostic tool : Use](#) :
-Computer concerned by the Before repair procedure:

- "UCH" .

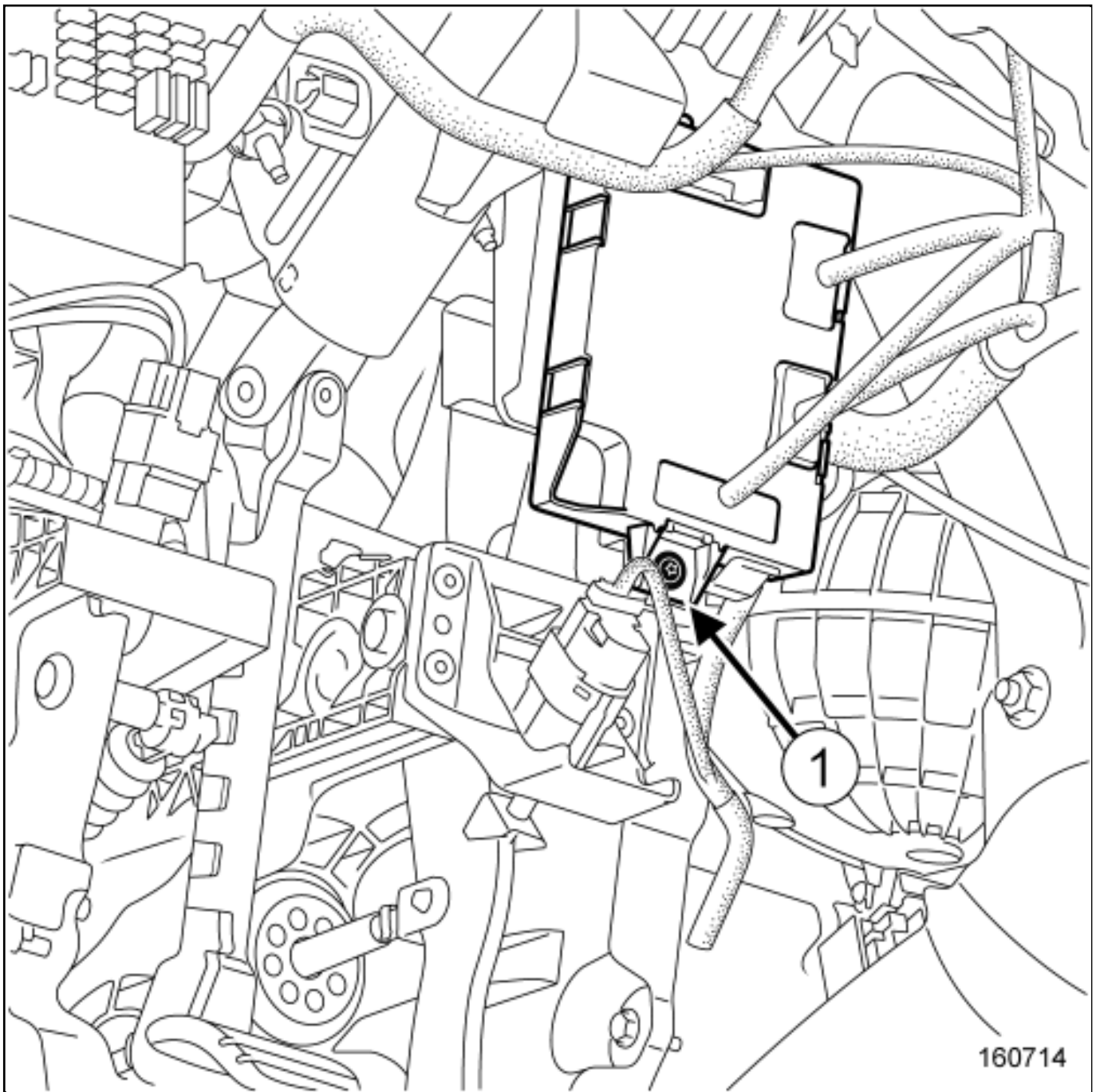
- Disconnect the battery [Battery: Removal - Refitting](#) .

- Remove:

- the centre console front section (see **Dashboard assembly: Exploded view**) ,

- the front footwell air distribution duct [Air distribution circuit assembly: Exploded view](#) .

2. REMOVAL OPERATION



- Remove the UCH screw(1) .

- Disconnect the UCH connectors.

- Remove the UCH.

1. REFITTING OPERATION



Proceed in the reverse order to removal.

2. FINAL OPERATION



Apply the after repair procedure using the Diagnostic tool [Diagnostic tool : Use :](#)

-Computer concerned by the After repair procedure:



"UCH" .



Repair-32x05x01x06-01x37-1-43-1.xml



UPPER WINDSCREEN TRIM: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Set of trim removal levers.

Car. 1363

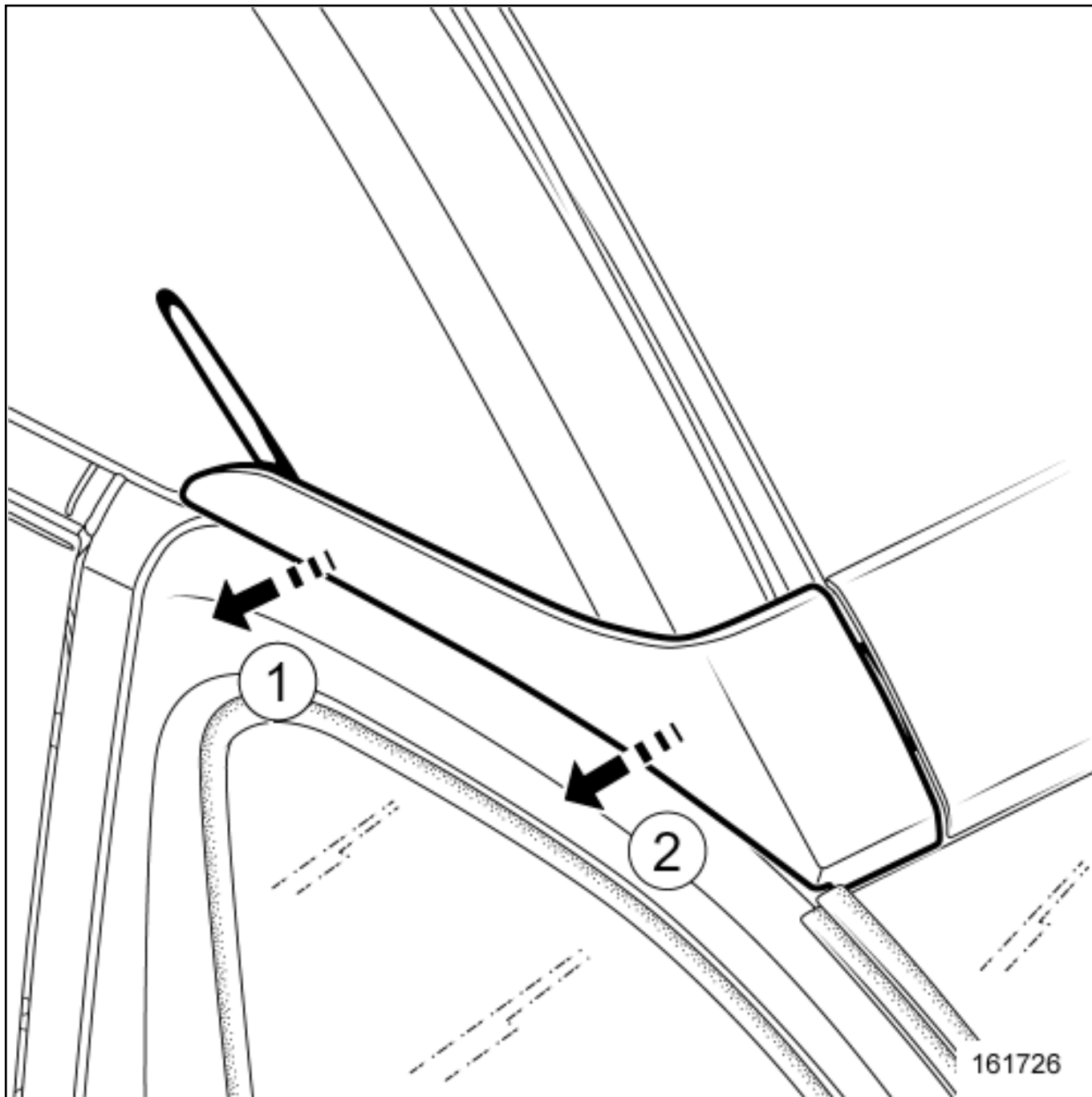


WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

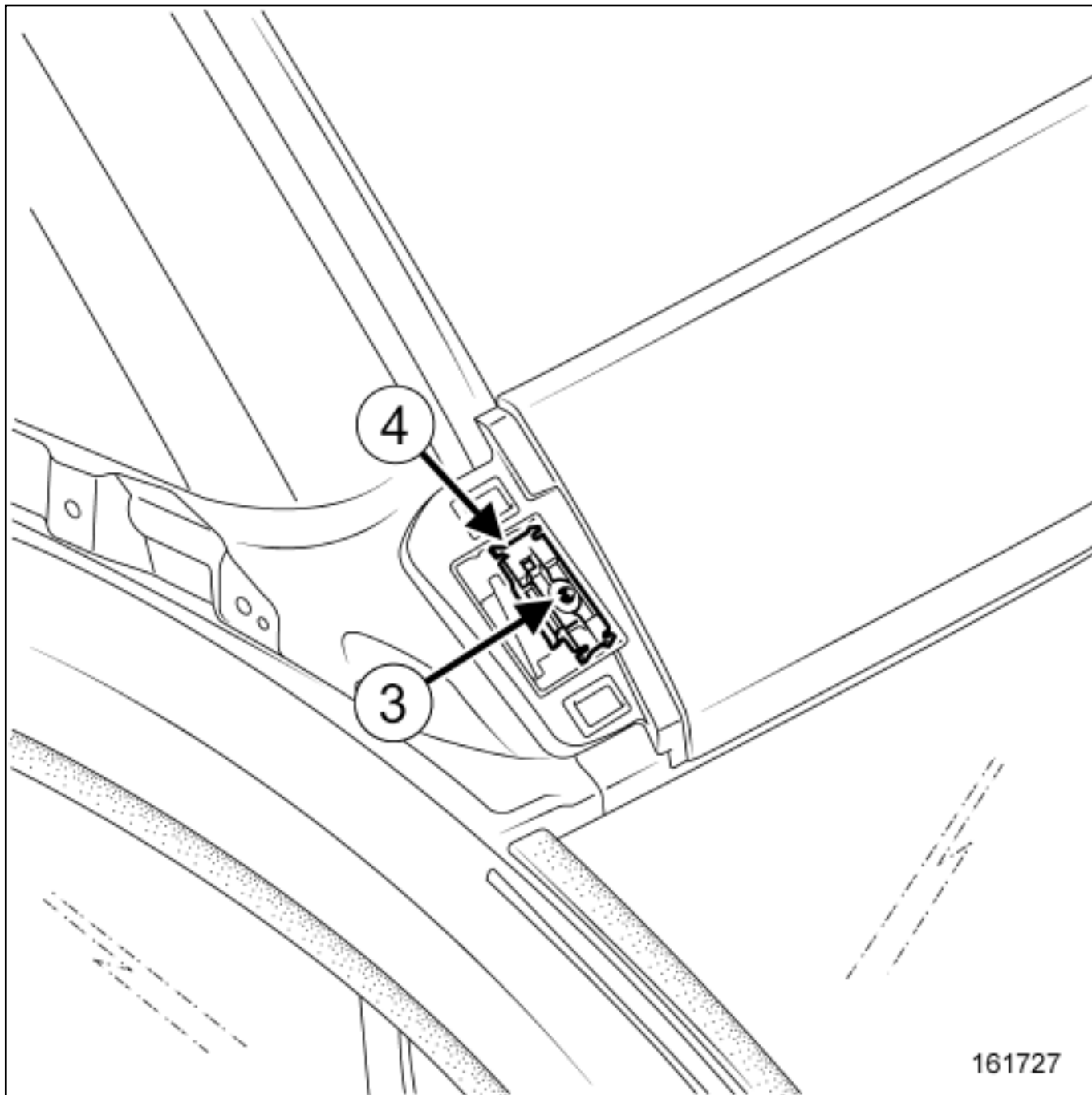
REMOVAL

1. REMOVAL PREPARATION OPERATION



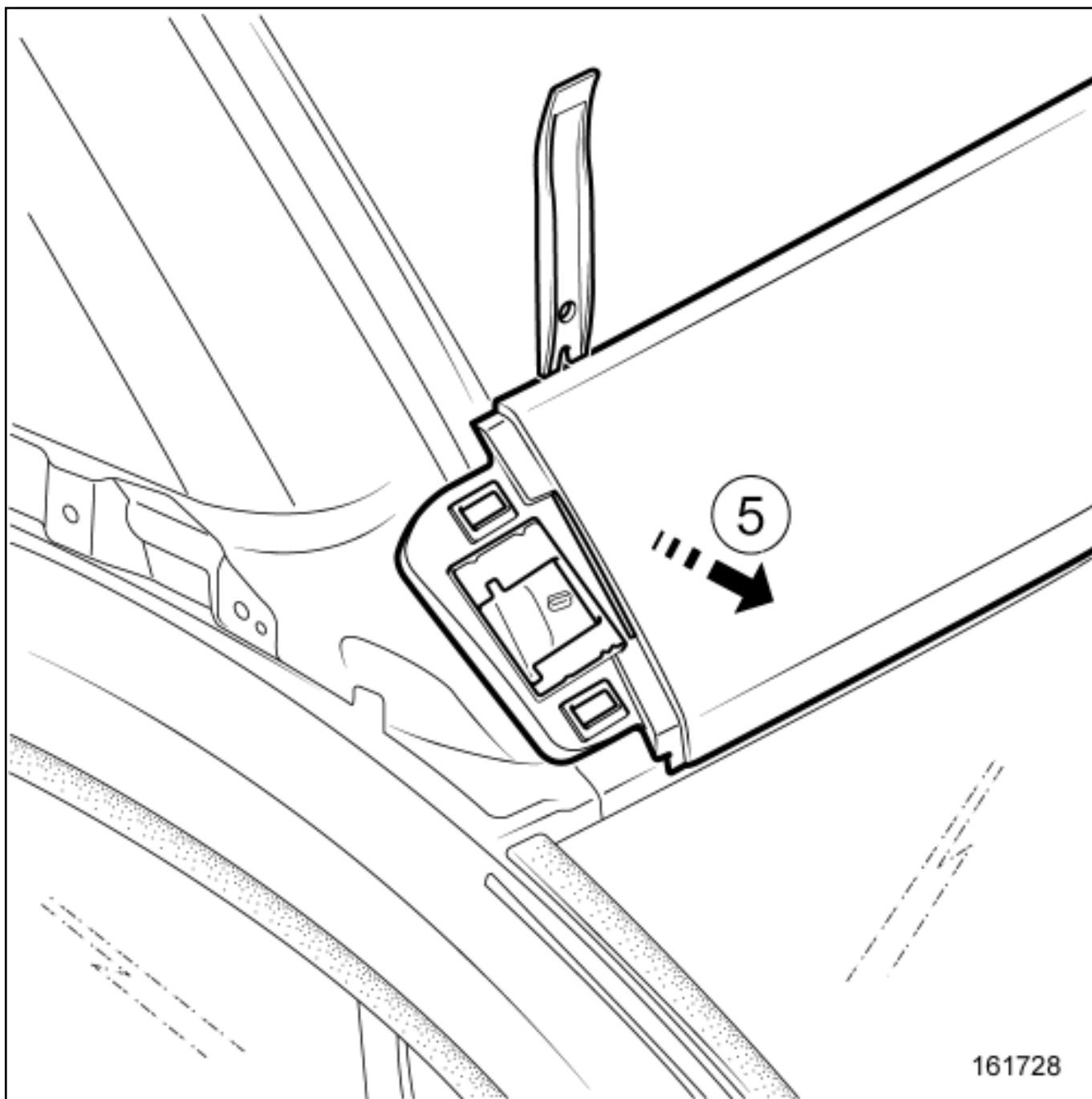
Remove the right-hand side trim roof at(1) then at (2) using the toolSet of trim removal levers.(Car. 1363) .

2. REMOVAL OPERATION



Remove:

-
- the upper windscreen trim bolt(3) ,
-
- the support(4) .



Remove the upper windscreen trim at(5) using the toolSet of trim removal levers.(Car. 1363) .

REFITTING

1. REFITTING PREPARATION OPERATION

Check the condition of the clips and replace them if necessary.

2. REFITTING OPERATION



Proceed in the reverse order to removal.



Repair-50x07x04x14-01x37-1-2-1.xml



XSL version : 3.02 du 22/07/11

VEHICLE PANEL GAPS: ADJUSTMENT VALUE



Note, one or more warnings are present in this procedure



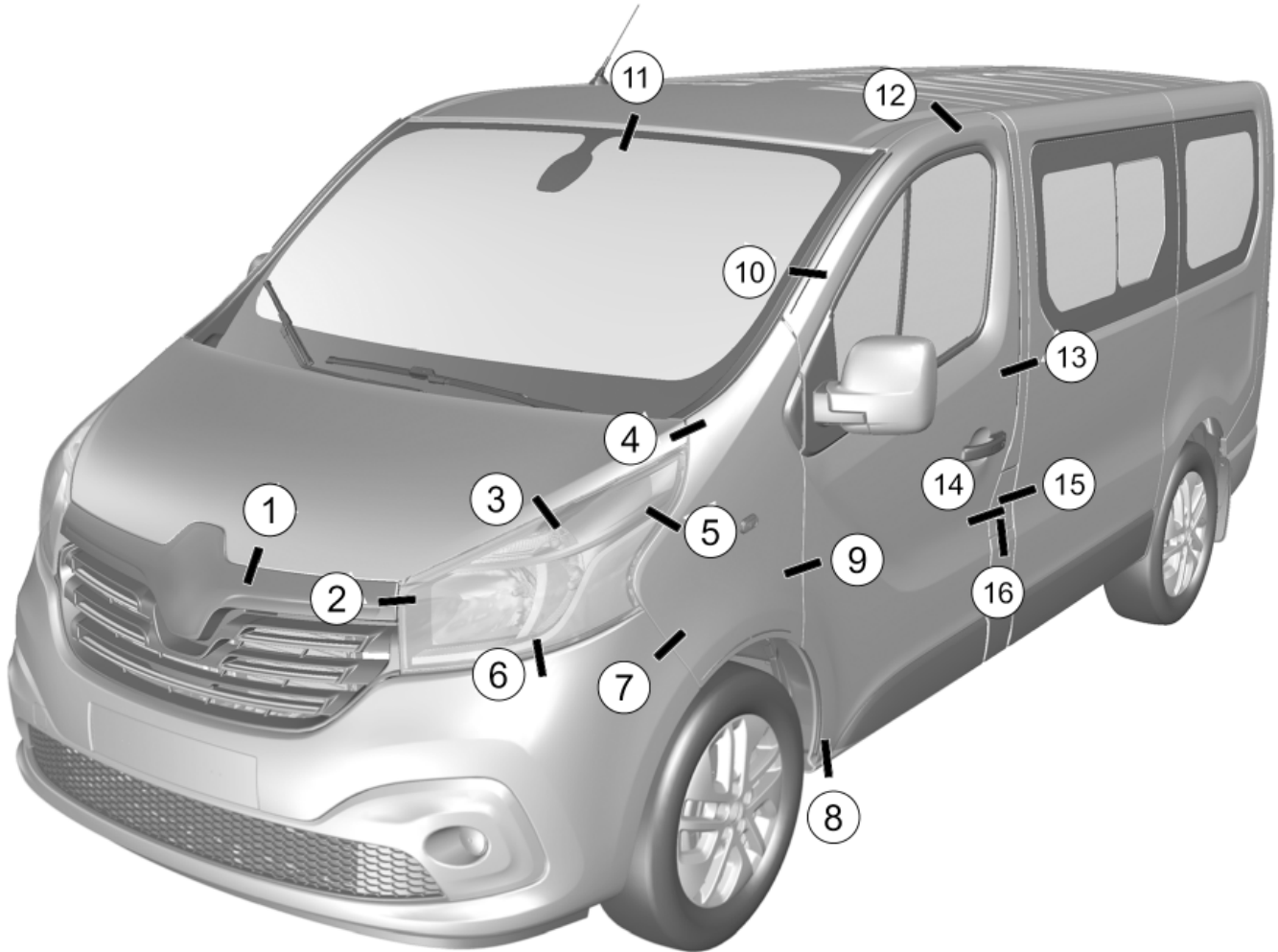
CAUTION

The clearance values are given for information purposes.



When adjusting clearances, certain rules have to be followed:

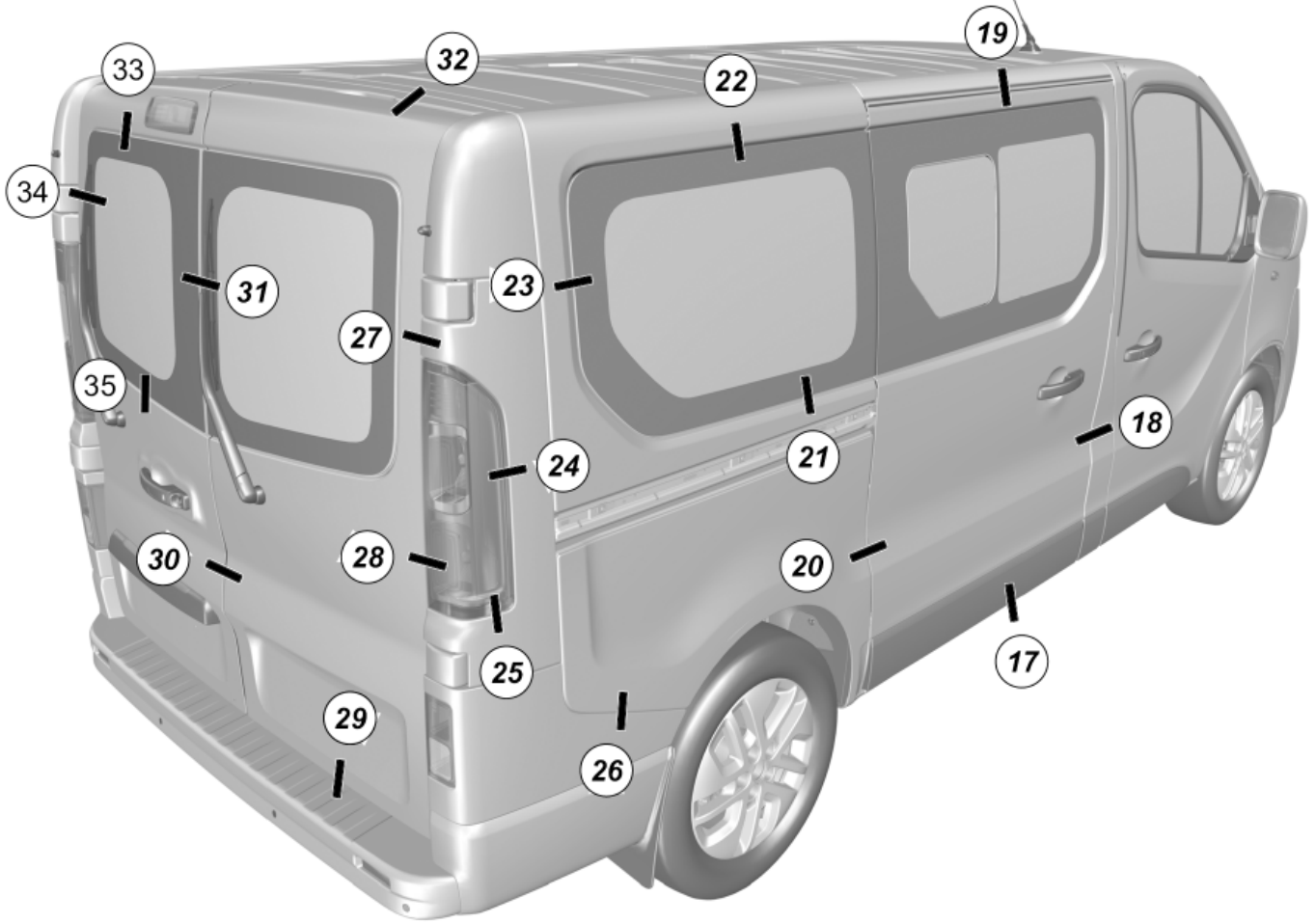
- maintain symmetry with respect to the opposite side,
- ensure that the flush fitting is correct,
- check the correct operation of the opening element, and the water/air-tightness.



161199

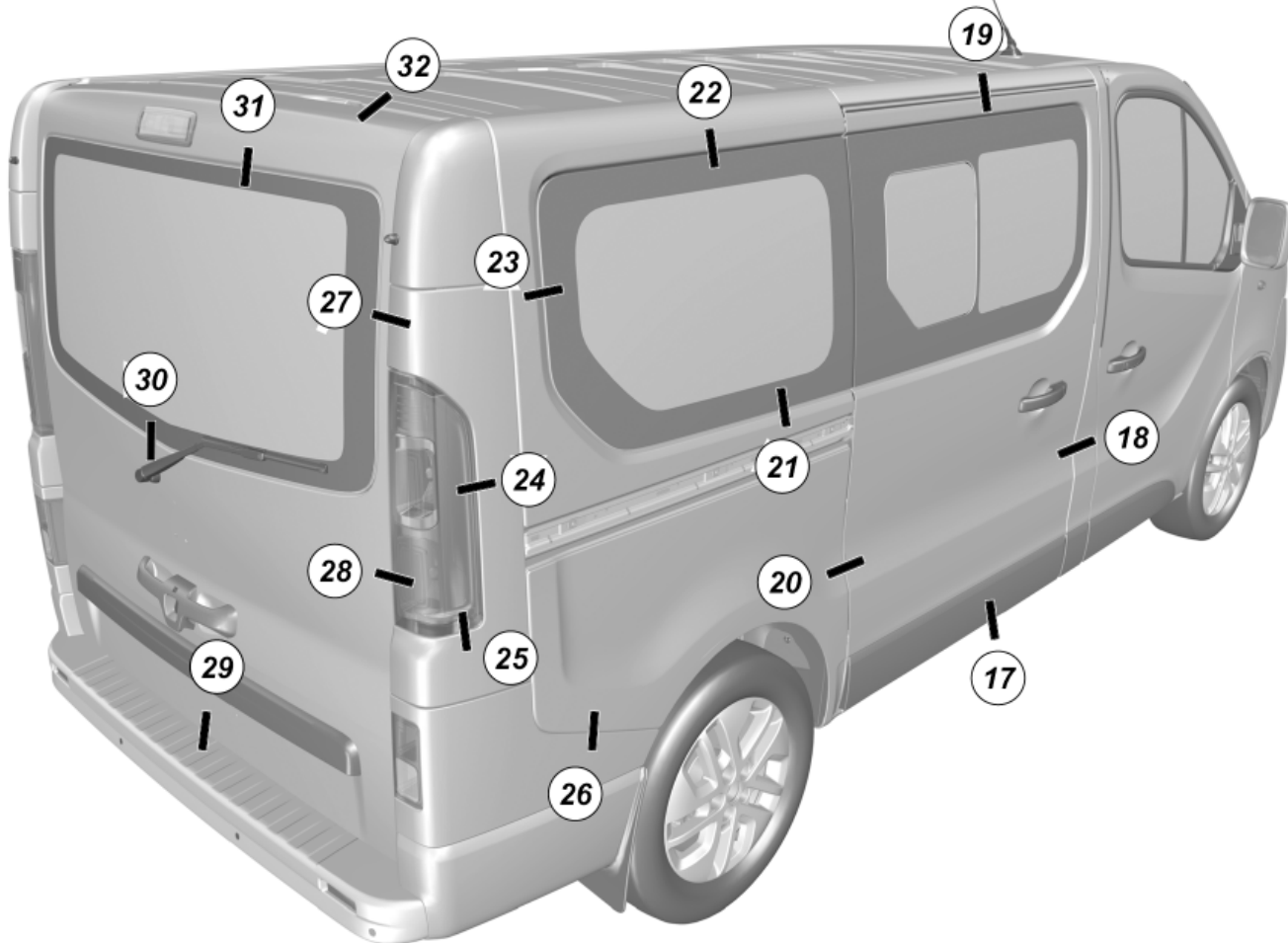
No.	Location	Clearances (mm)
(1)	bonnet / front badge support	1 ± 1
(2)	headlight / front badge support	4 ± 2.5
(3)	bonnet / headlight	4 ± 2
(4)	bonnet / front wing	3.5 ± 1.5
(5)	headlight / front wing	1.5 ± 1.5
(6)	headlight / front bumper	2 ± 1.5
(7)	front wing / front bumper	0.5 ± 1
(8)	front side door / sill panel	5 ± 2
(9)	front wing / front side door	5 ± 1.5
(10)	front side door / windscreen pillar	5 ± 2
(11)	windscreen / roof	5 ± 1.5
(12)	front side door / roof	5 ± 1.5
(13)	front side door / B-pillar	5 ± 1.5
(14)	fuel filler flap / front side door	5 ± 1.5
(15)	fuel filler flap / body side	2.5 ± 1.5
(16)	fuel filler flap / B-pillar lower section	2.5 ± 2.5

LOADING DOOR VERSION



161200

TAILGATE VERSION



161201

No.	Location	Clearances (mm)
(17)	sliding side door / inner sill	5 ± 1.5
(18)	sliding side door / B-pillar	5 ± 2
(19)	sliding side door /side roof rail	5 ± 1.5
(20)	sliding side door / body side	6 ± 2
(21)	rear side panel window / rear side panel	4 ± 1
(22)	rear side panel window / rear side panel	4 ± 1
(23)	rear side panel window / rear side panel	4 ± 1.5
(24)	light holder / rear light	1.5 ± 1.5
(25)	light holder / rear light	2 ± 2
(26)	rear bumper / rear side panel	0.5 ± 0.5

LOADING DOOR VERSION

No.	Location	Clearances (mm)
(27)	rear loading door / light holder	5 ± 2.5
(28)	rear loading door / rear light	6 ± 2.5
(29)	rear loading door / rear bumper	9 ± 2.5
(30)	rear left-hand loading door / rear right-hand loading door	6 ± 2
(31)	rear left-hand door window / rear right-hand door window	6 ± 2.5
(32)	rear loading door / roof	5 ± 2.5
(33)	rear loading door window / rear loading door	4.5 ± 1
(34)	rear loading door window / rear loading door	4.5 ± 1
(35)	rear loading door window / rear loading door	4.5 ± 1.5

TAILGATE VERSION

No.	Location	Clearances (mm)
(27)	tailgate / light holder	5 ± 2.5
(28)	tailgate / rear light	6 ± 2.5
(29)	tailgate / rear bumper	9 ± 2.5
(30)	rear screen / tailgate	5 ± 1.5
(31)	rear screen / tailgate	5 ± 1
(32)	roof / tailgate	5 ± 2.5

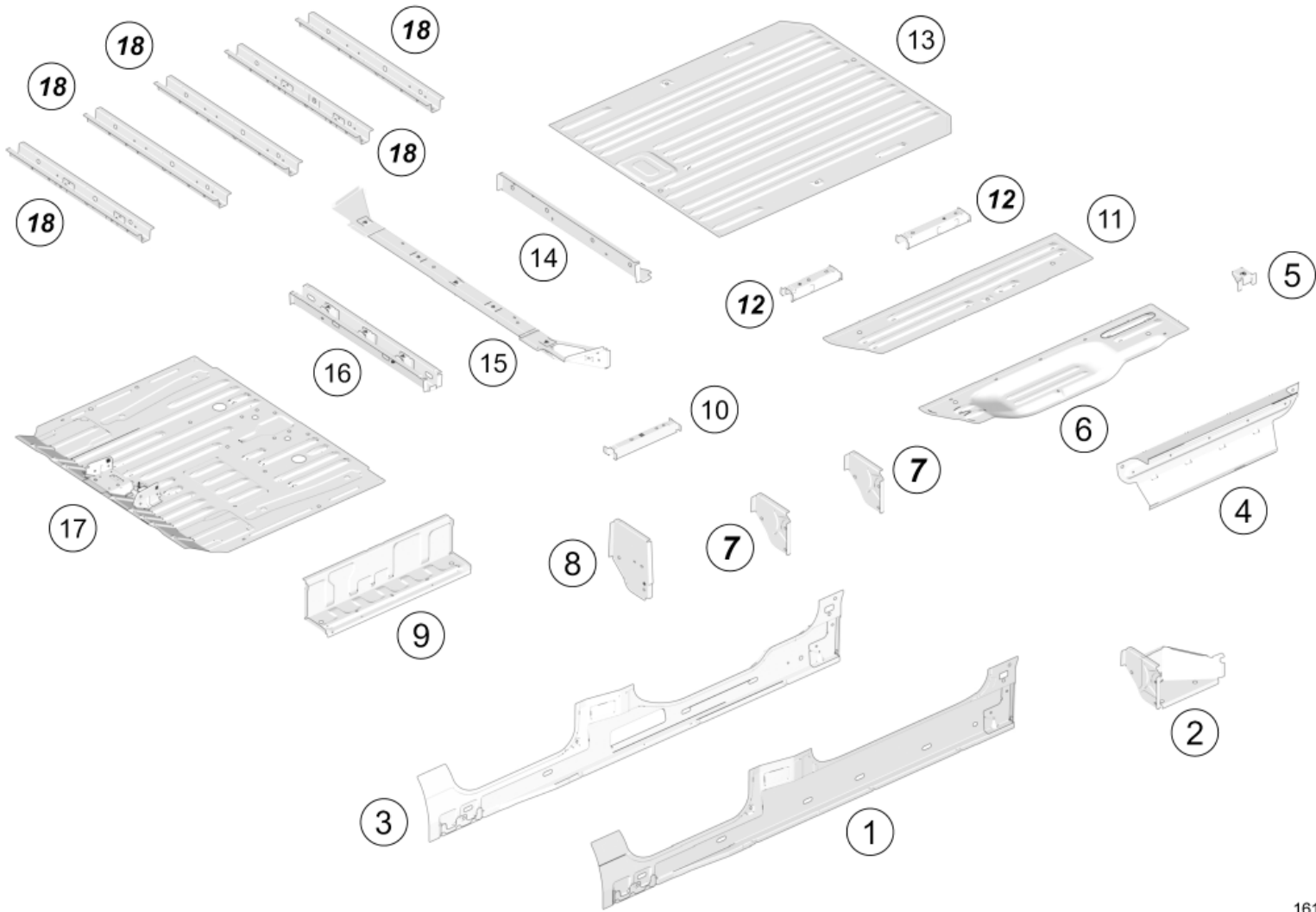


Repair-00x01x01x05-02x13-1-36-1.xml



XSL version : 3.02 du 22/07/11

VEHICLE STRUCTURE, CENTRE SECTION: DESCRIPTION



161469

No.	Description	Classification	Type	Thickness (mm)
(1)	Sill panel closure panel	Sill panel closure panel: Replacement		
(2)	Rail unit	Rail unit: Replacement		
(3)	Sill panel closure panel	Sill panel closure panel: Replacement		
(4)	Sill panel closure panel reinforcement	Sill panel closure panel reinforcement: Replacement		
(5)	Rear lashing ring	Rear lashing ring: Replacement		
(6)	Rear side foot panel	Rear side foot panel: Replacement		
(7)	Front section of rear floor rear side stiffener		Mild steel	1.47
(8)	Front section of rear floor front side stiffener		Mild steel	1.5
(9)	Front side foot panel	Front side foot panel: Replacement		
(10)	Centre floor reinforcement	Centre floor reinforcement: Replacement		
(11)	Rear floor, front side section		Mild steel	0.77
(12)	Seat anchorage reinforcement	Seat anchorage reinforcement: Replacement		
(13)	Rear floor, front section	Rear floor, front section: Replacement		
(14)	Rear floor front cross member closure panel	Rear floor front cross member closure panel: Replacement		
(15)	Rear floor front cross member, front section	Rear floor front cross member, front section: Replacement		
(16)	Front cross member under front seat		Mild steel	1.5/2
(17)	Centre floor	Centre floor: Replacement		
(18)	Rear floor centre cross member	Rear floor centre cross member: Replacement		

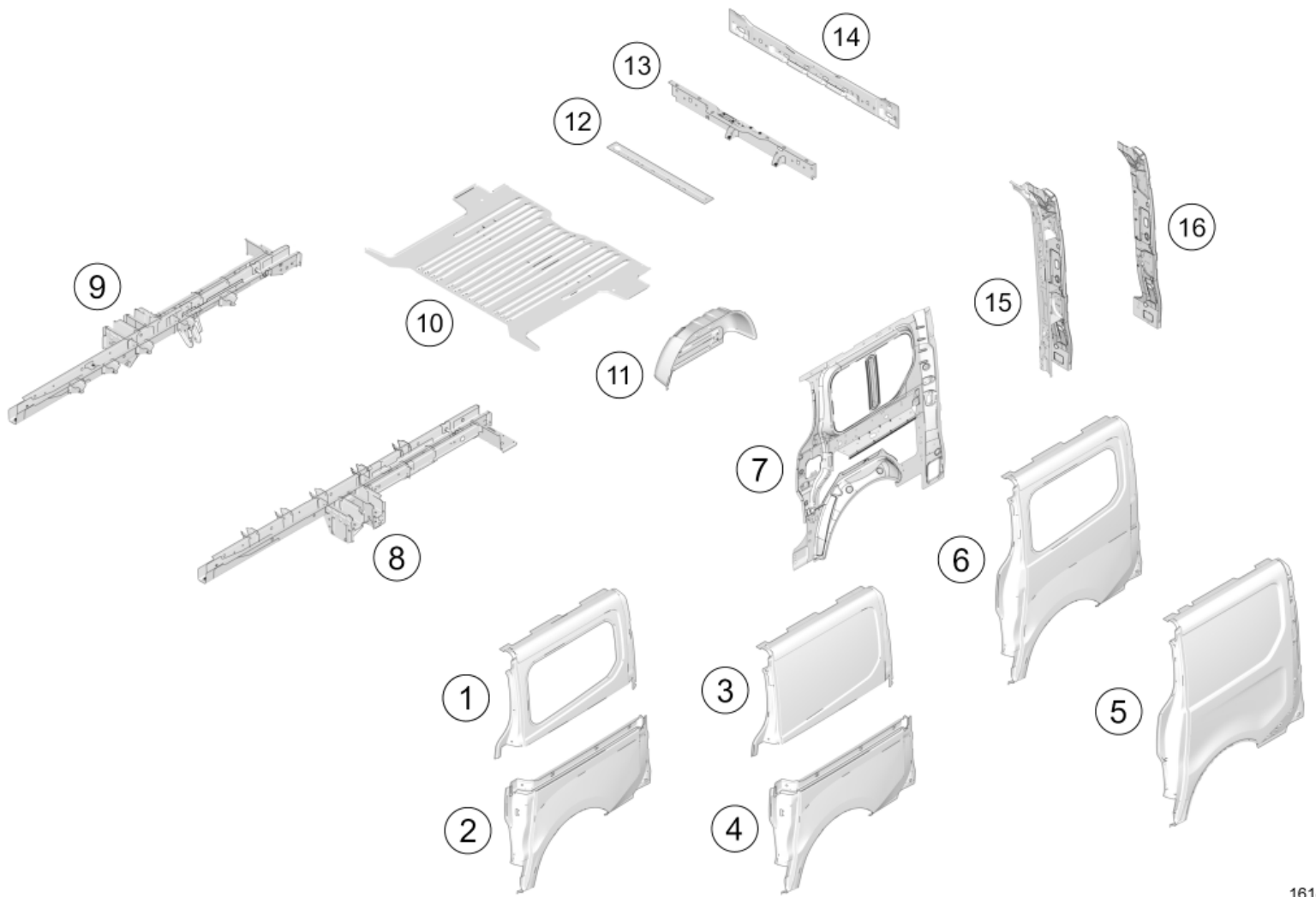


Repair-40x01x01x10-02x21-1-24-1.xml



XSL version : 3.02 du 22/07/11

VEHICLESTRUCTURE,REARSECTION:DESCRIPTION



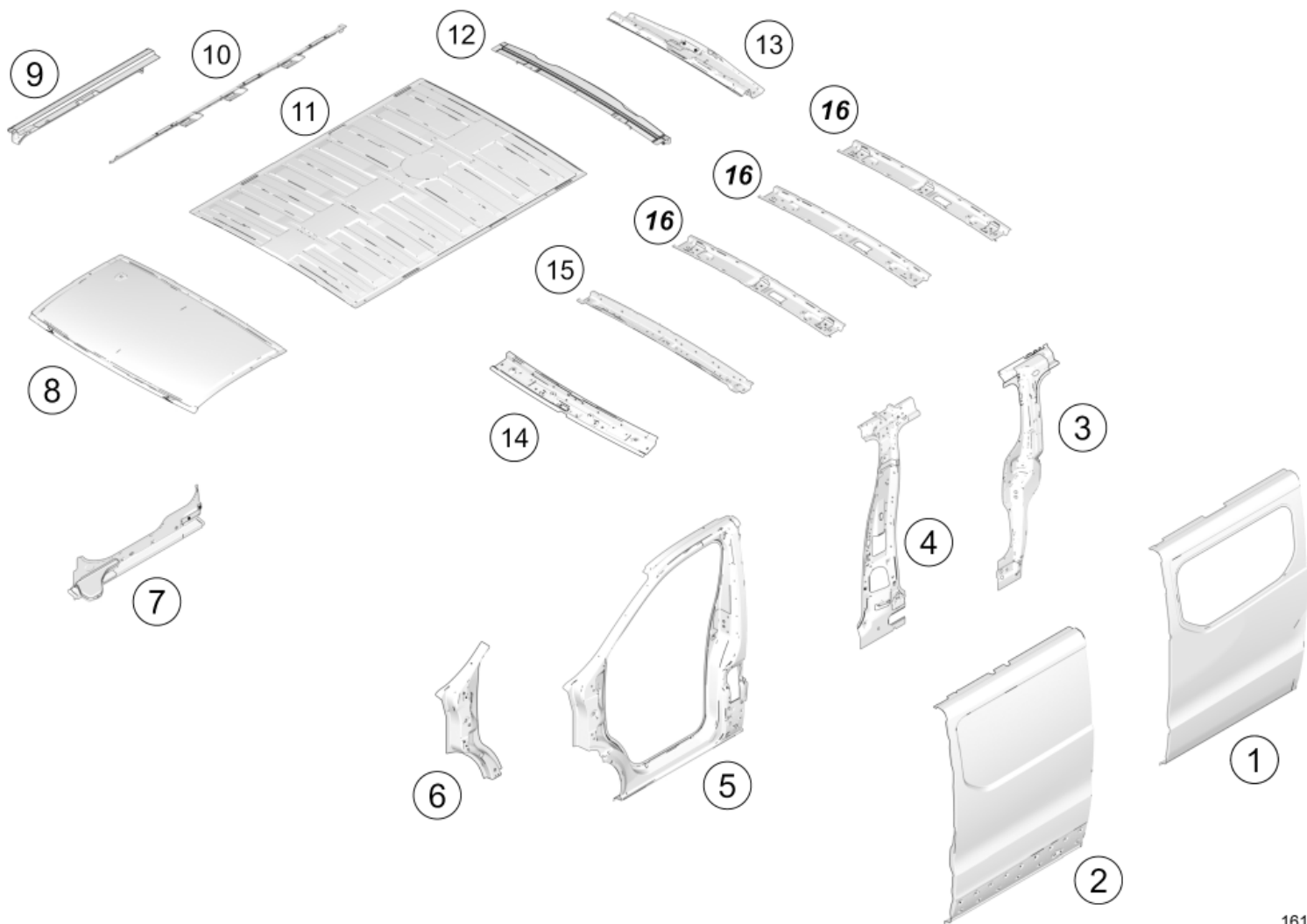
161471

No.	Description	Classification	Type	Thickness (mm)
(1)	Rear side panel, upper rear section (glazed version)		Rear side panel, rear section: Replacement	
(2)	Rear side panel, lower rear section		Rear side panel, rear section: Replacement	
(3)	Rear side panel, upper rear section (panelled version)		Rear side panel, rear section: Replacement	
(4)	Rear side panel, lower rear section		Rear side panel, rear section: Replacement	
(5)	Rear side panel, rear section (panelled version)		Rear side panel, rear section: Replacement	
(6)	Rear side panel, rear section (glazed version)		Rear side panel, rear section: Replacement	
(7)	Body side rear lining		Body side rear lining: Replacement	
(8)	Rear left-hand side member		Rear side member: Replacement	
(9)	Rear right-hand side member		Rear side member: Replacement	
(10)	Rear floor, rear section		Rear floor, rear section: Replacement	
(11)	Inner rear wheel arch		Inner rear wheel arch: Replacement	
(12)	Rear floor rear cross member		Rear floor rear cross member: Replacement	
(13)	Rear end lower cross member		Rear end lower cross member: Replacement	
(14)	Rear end panel		Rear end panel: Replacement	
(15)	Rear end pillar		Rear end pillar: Replacement	
(16)	Rear end pillar lining		Rear end pillar lining: Replacement	



Repair-40x01x01x11-02x21-1-29-1.xml





161472

No.	Description	Classification	Type	Thickness (mm)
(1)	Rear side panel, middle section (glazed version)	Rear side panel, middle section: Replacement		
(2)	Rear side panel, middle section (panel version)	Rear side panel, middle section: Replacement		
(3)	C-pillar lining	Rear pillar lining: Replacement		
(4)	B-pillar lining	B-pillar lining: Replacement		
(5)	Body side, front section	Body side, front section: Replacement		
(6)	A-pillar reinforcement	A-pillar reinforcement: Replacement		
(7)	Sill panel	-	Mild steel	0.7/0.9
(8)	Cab roof	Cab roof: Replacement		
(9)	Rear side roof rail	Rear side roof rail: Replacement		
(10)	Rear side roof rail lining	Side roof rail rear lining: Replacement		
(11)	Roof	Roof: Replacement		
(12)	Roof rear cross member lining	Roof rear cross member lining: Replacement		
(13)	Roof rear cross member	Roof rear cross member: Replacement		
(14)	Roof front cross member	-	Mild steel	0.75
(15)	Roof centre cross member	-	Mild steel	0.75
(16)	Roofstiffener	-	Mild steel	0.75



Repair-40x01x01x09-02x21-1-31-1.xml



XSL version : 3.02 du 22/07/11

WHEELRIMIDENTIFICATION

1. IDENTIFICATION

1- MARKING

There are two types of identification marking on the wheel rims:

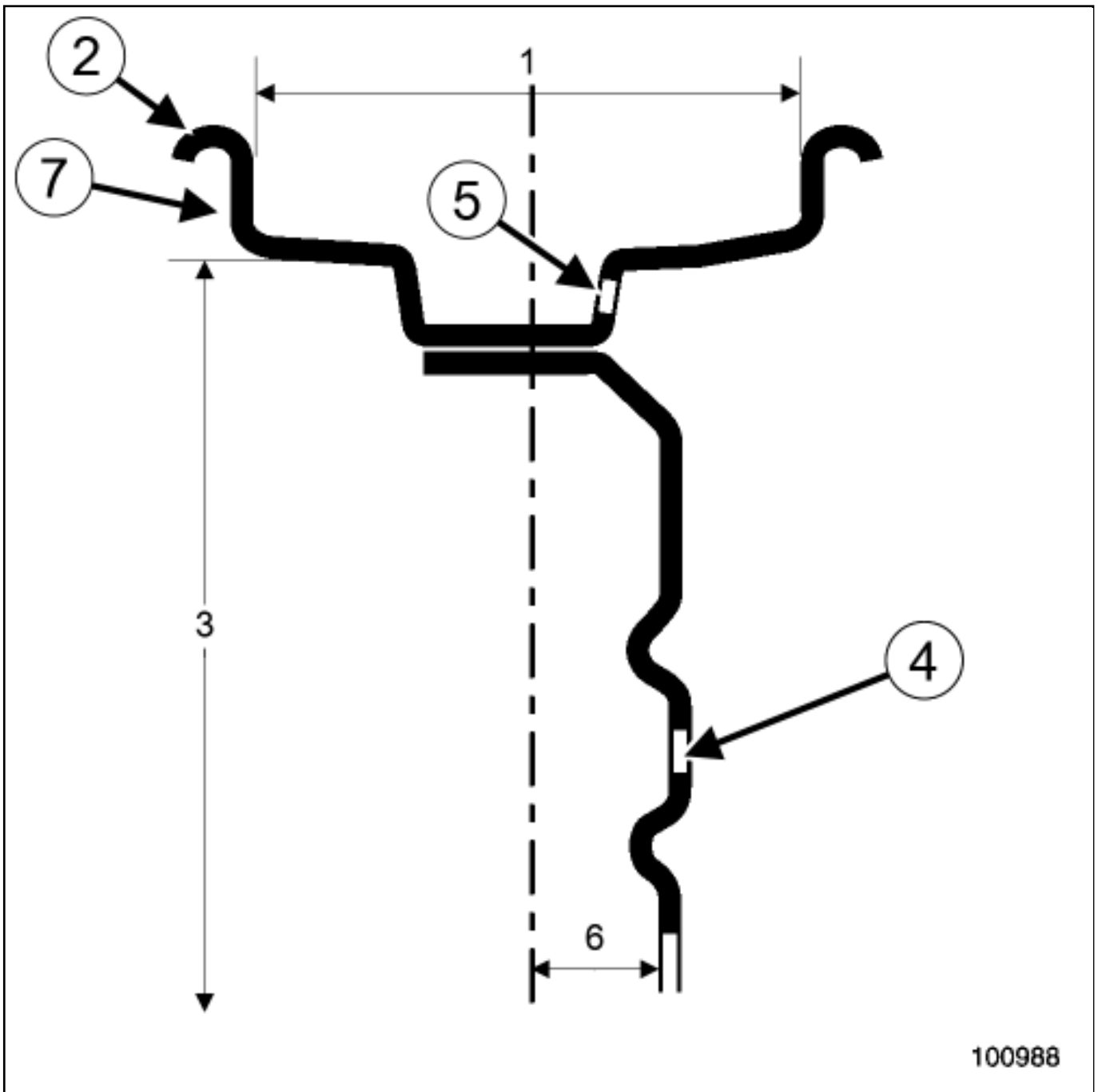
- engraved marking for steel wheel rims,
- cast marking for alloy wheel rims.

The marking gives the main dimensional specifications of the wheel rim.

■ This marking may be:

- complete, for example 6 J 15 5 CH 36,
- simplified, for example 6 J 15.

	Wheel type	6 J 15
1	Width (in inches)	6
2	Rim edge profile	J
3	Nominal diameter (in inches)	15
4	Number of holes	5
5	Anchorage profile of the tyre	CH
6	Offset (in mm)	36



100988

- There are 3 types of wheel rim edges(2) :
- those with two flat edges,
 - those with two raised edges,
 - those with one flat edge and one raised edge.

2- INSTALLATION DIAMETER FOR THE WHEEL BOLTS

The wheel bolts are positioned with a pitch circle diameter of 114.3 mm(5 holes).

3- RIM RUN-OUT

The maximum run-out is measured at the wheel rim edge(7) .

Steel wheel rims: 0.8 mm

Alloy wheel rims: 0.3 mm

4- OUT-OF-ROUNDNESS

The maximum out-of-round value is measured on the tyre bead bearing surface.

Steel wheel rims: 0.7 mm

Alloy wheel rims: 0.3 mm



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WHEEL: REMOVAL - REFITTING

The removal - refitting procedure is the same for all wheels.

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Position the vehicle on a two-post lift [Vehicle: Towing and lifting](#) .
- Release the parking brake.
- Remove the trim .
- Position the wheel so that the valve is at the top.
- Mark the position of the wheel on the hub.

Note:



- This mark is required in order to:
 - Note the original position of the wheel on the hub,
 - perform the balancing operation.

2. REMOVAL OPERATION

- Loosen the wheel bolts with the wheel on the ground.

Note:

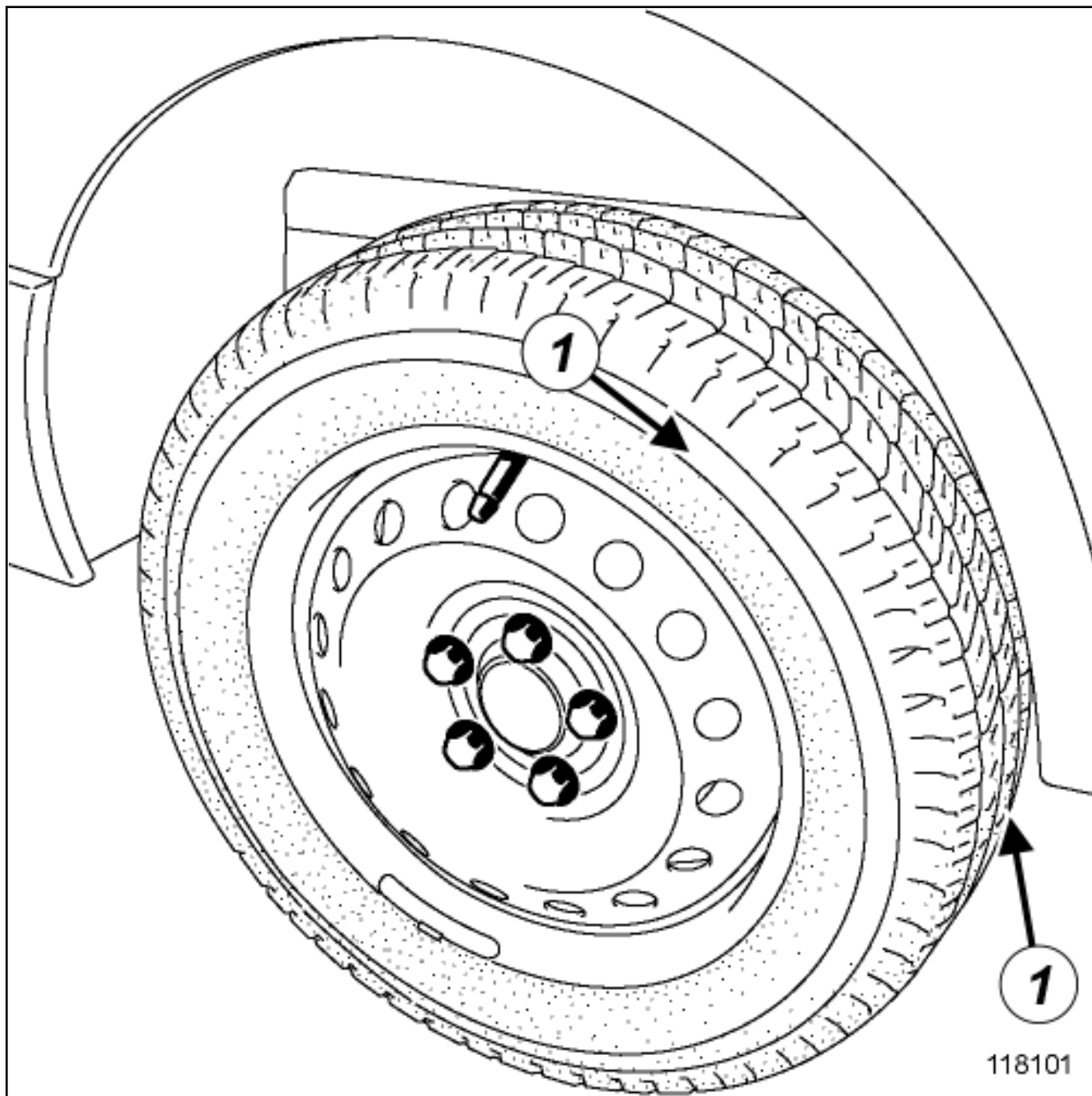


Use sockets with protective sheaths in order to avoid scratching the alloy wheel rims.

- Raise the lift.
- Remove:
 - the wheel bolts,
 - the wheel.

1- IF THE WHEEL CANNOT BE REMOVED AFTER THE BOLT HAS BEEN UNDONE:

- Position all the wheel bolts.
- Tighten the wheel bolts to bring all the bolt heads into contact with the wheel.
- Undo the wheel bolts by one turn.

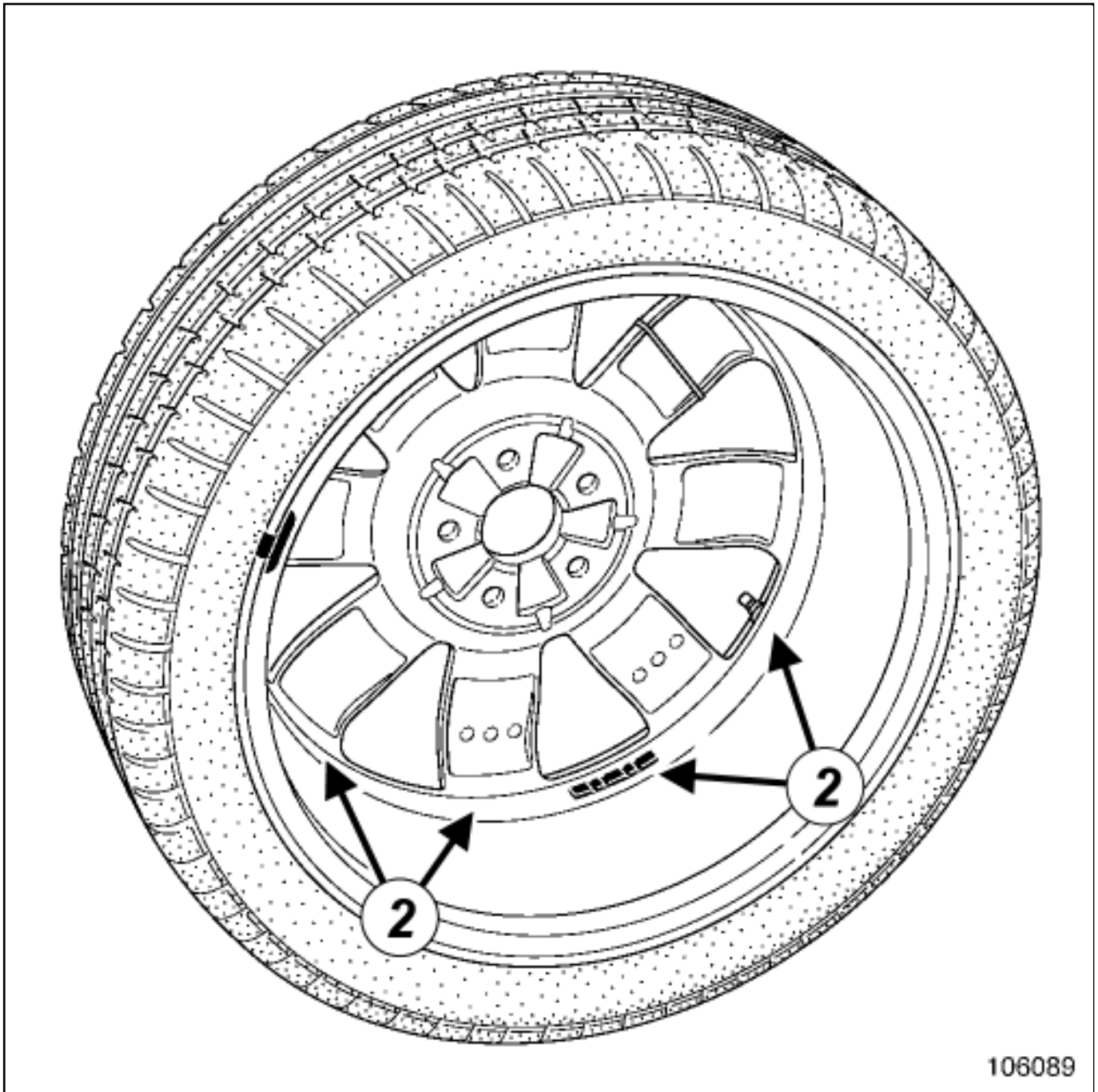


- Strike around the edge of the tyre walls(1) several times using a mallet on the inner and outer surfaces of the wheel to detach the wheel.

- Remove:

- the wheel bolts,
- the wheel.

1) IF THIS PROCEDURE DOES NOT WORK:



- Strike the inner surface of the wheel(2) using a mallet and a wooden block to detach it.



Note:

Do not strike the surface of the wheel using excessive force as this may damage it.

- Remove:
 - the wheel bolts,
 - the wheel.

REFITTING

1. REFITTING PREPARATION OPERATION

- Clean the hub carrier using a wire brush.



Note:

There are two types of wheel bolts for alloy and steel wheel rims; do not swap them.

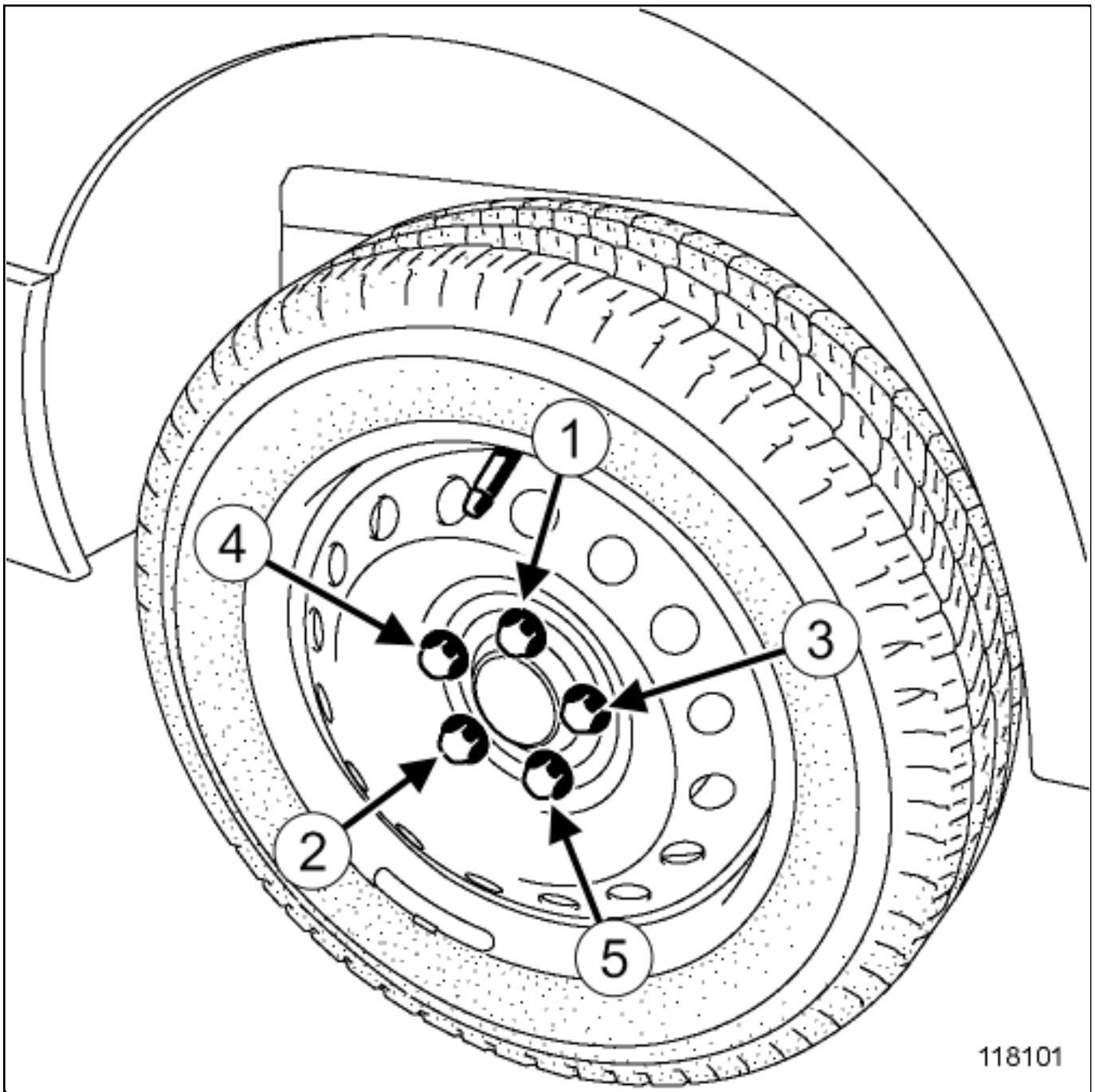
- Check the condition of the tyre.
- Do not move or remove the balance weights.

2. REFITTING OPERATION

- Clean the mating surfaces between the wheel and the hub carrier using a wire brush.



- ❑ Coat the wheel mating face(3) with COPPER ANTI-SEIZE GREASE [Vehicle: Parts and consumables for the repair](#) .
- ❑ Align the mark on the wheel with the mark made on the hub when it was removed.
- ❑ Fit the wheel to the vehicle, positioning the valve at the top.
- ❑ Insert the wheel bolts.



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- Tighten the wheel bolts to bring all the bolt heads into contact with the wheel.
- Pretighten the wheel bolts to 30 N.m, with the wheel suspended, starting with the bolts at the bottom.
- Rotate the wheel through 180° to bring the valve into the bottom position.
- Position the vehicle on its wheels.



Note:

Use sockets with protective sheaths in order to avoid scratching the alloy wheel rims.

- Torque tighten the wheel bolts in order:
 - [Front hub carrier assembly: Exploded view](#) ,
 - [Rear hub carrier assembly: Exploded view](#) .

- Refit the trim piece.



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WINDSCREEN APERTURE LOWER CROSS MEMBER: REPLACEMENT



Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#) .

1. COMPOSITION OF THE SPARE PART

No.	Description	Type	Thickness (mm)
(1)	Windscreen aperture lower cross member	Mild steel	0.85

2. IN THE EVENT OF REPLACEMENT

- There is only one way of replacing this part:
 - complete replacement.



CAUTION

If the mating faces of the parts to be welded are not accessible, make EGW plug welds to replace the original resistance welds (see MR 400).

CAUTION



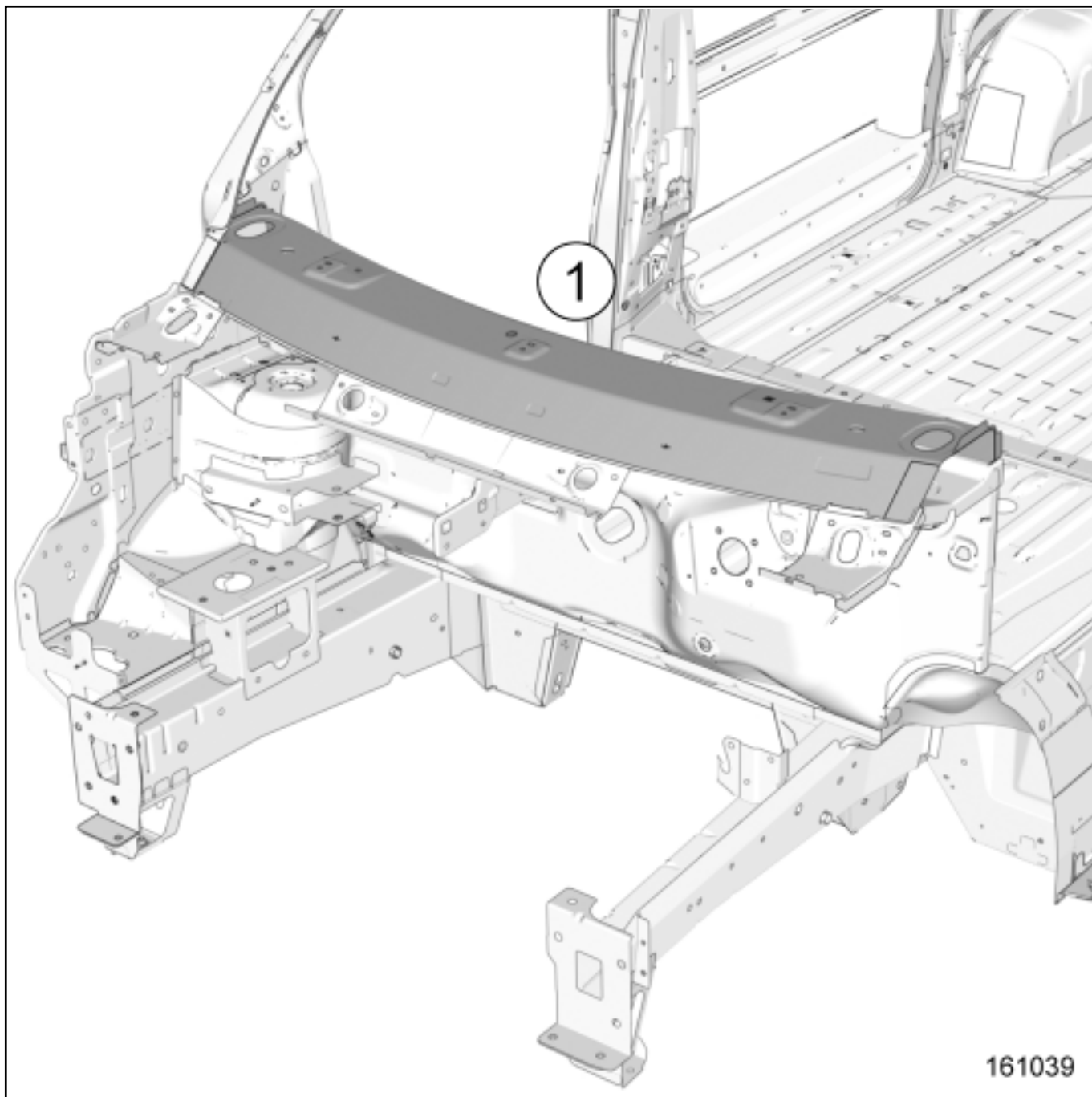
To avoid damaging the vehicle's electric and electronic components, the earths of any wiring harness near the weld area must be disconnected.

Position the earth of the welding machine as close as possible to the weld area (see MR 400).

Locate the earths located near to the weld area [Earths on body: List and location of components](#) .

1- COMPLETE REPLACEMENT

1)PART IN POSITION



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WINDSCREEN WIPER ARM: REMOVAL - REFITTING



Note, one or more warnings are present in this procedure



Special tooling required

Tool for removing windscreen wiper arms

Ele. 2000



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

Location and specifications (tightening torques, parts always to be replaced, etc.) ([see 85A, Wiping - Washing, Wipers/washing assembly : Exploded view](#)).

REMOVAL

1. REMOVAL PREPARATION OPERATION

- Switch on the ignition.



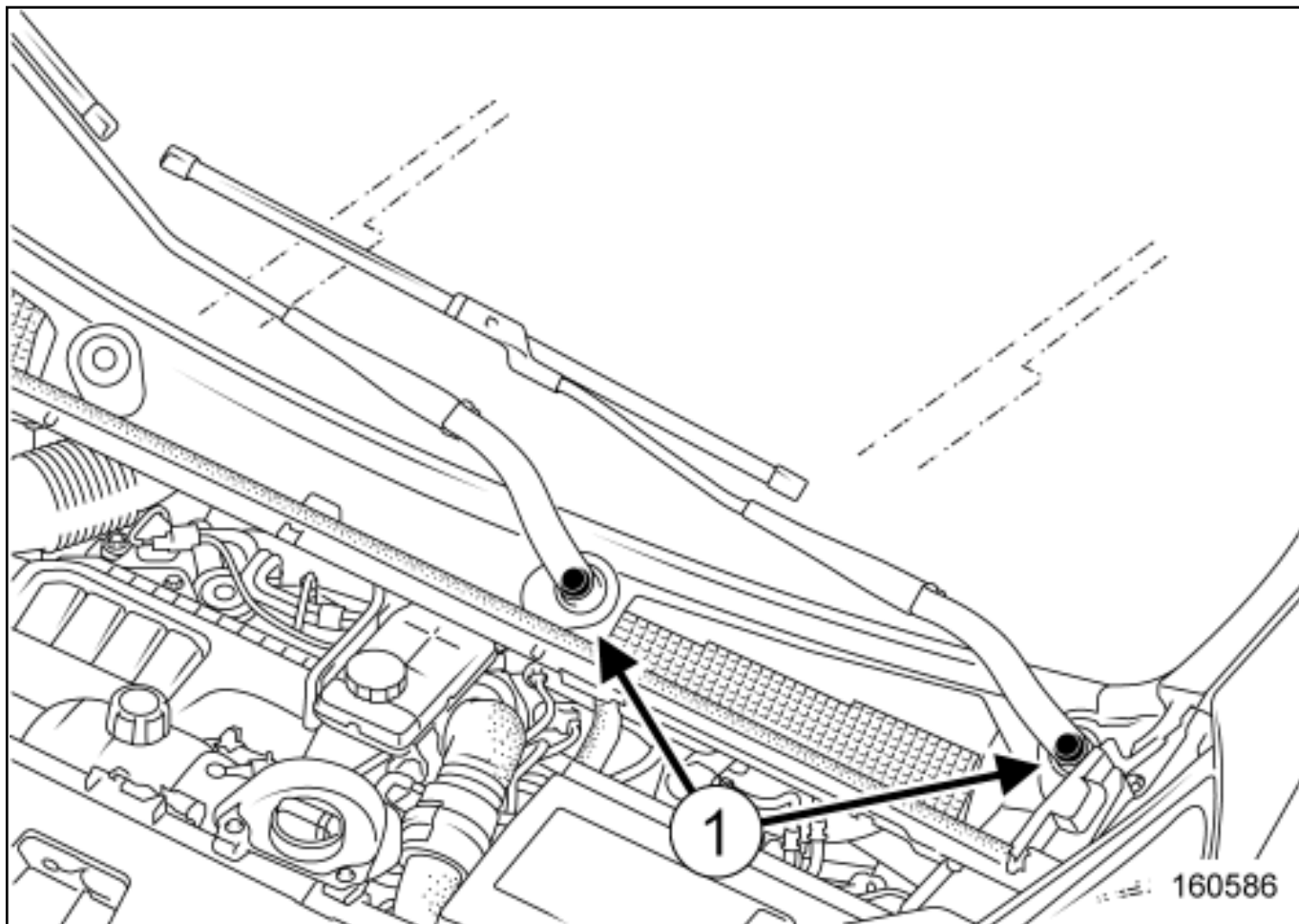
CAUTION

To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

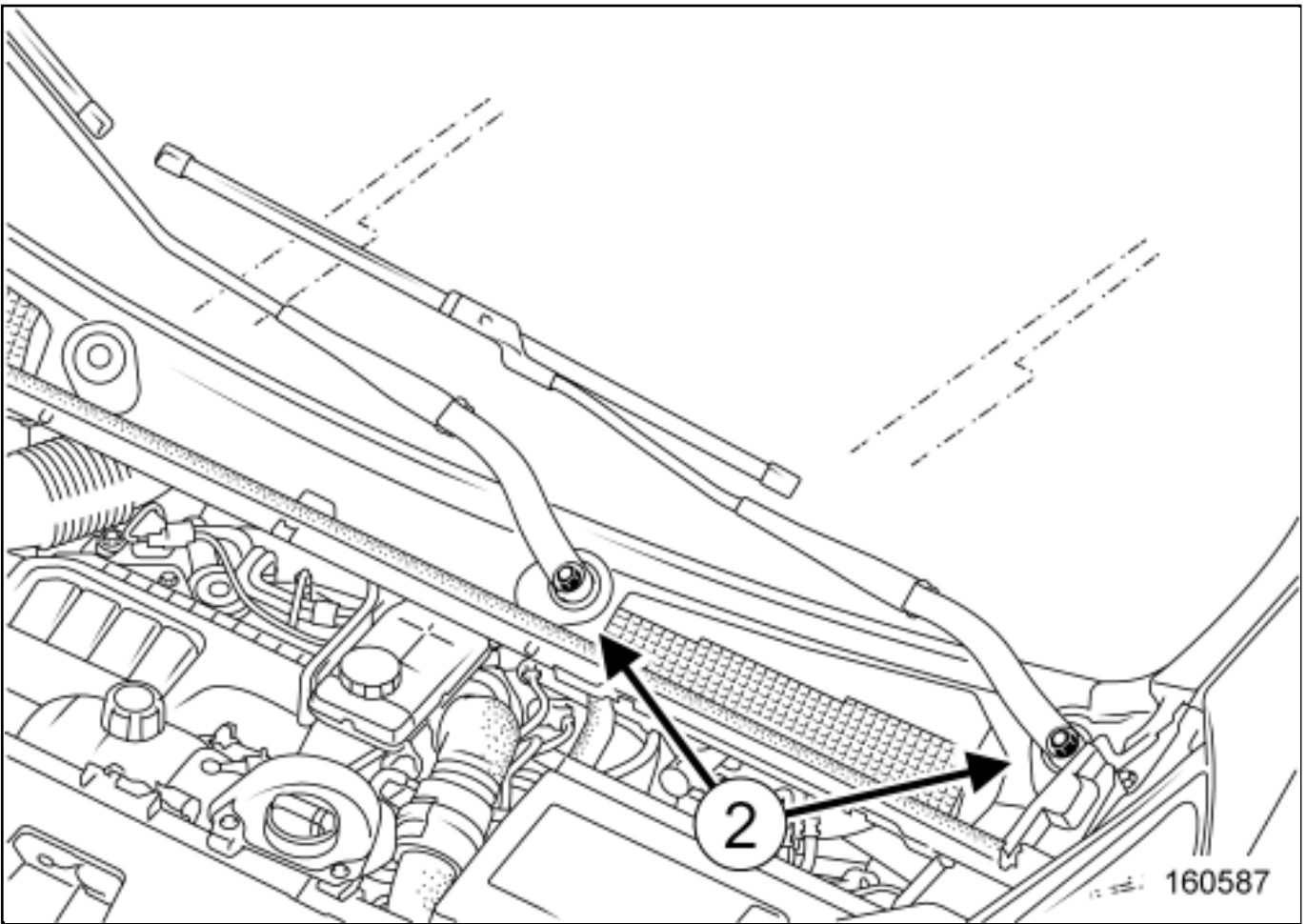
- Turn the wiper stalk from (0) to (1), and then from (1) to (0).
- Switch off the ignition.

2. REMOVAL OPERATION

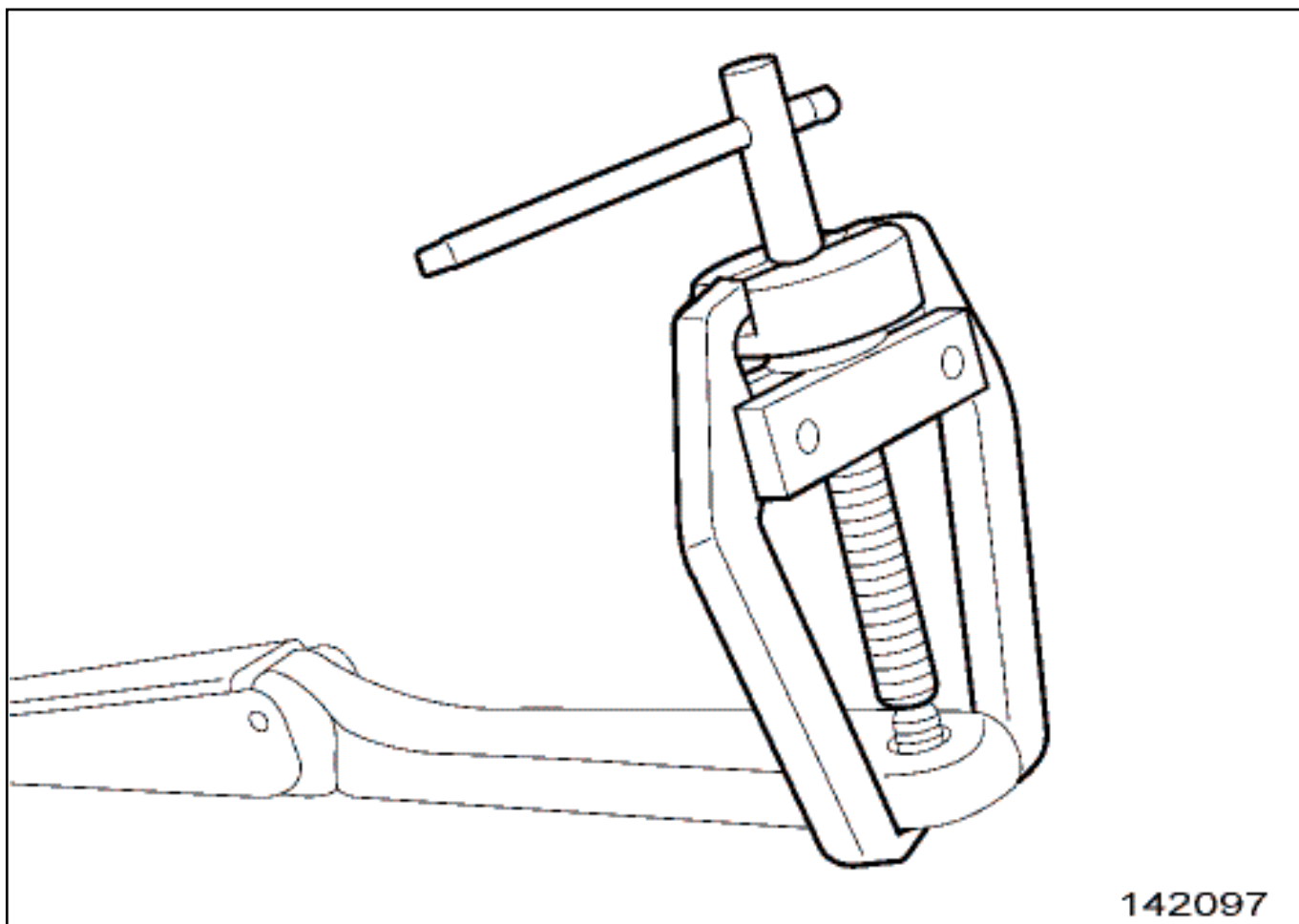
- Mark the position of the wiper arms on the windscreen.



■ Remove the nut covers(1) .



■ Remove the windscreen wiper arm nuts(2) .



Remove the wiper arms using the Tool for removing windscreen wiper arms (Ele. 2000) .

REFITTING

1. REFITTING PREPARATION OPERATION

Switch on the ignition.



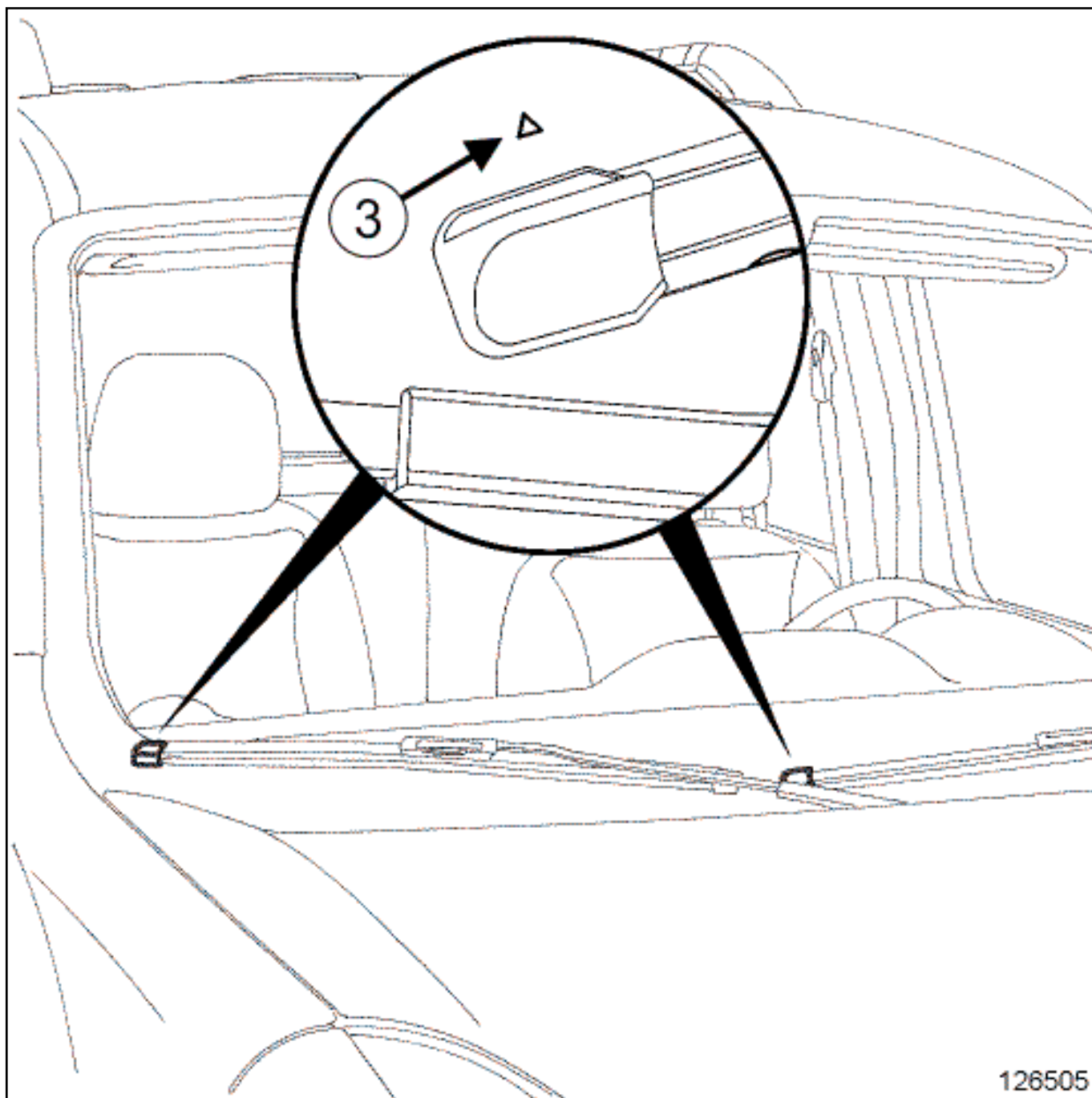
CAUTION

To ensure that the wiper arms can travel smoothly, the wiper motor must be initialised.

Turn the wiper stalk from (0) to (1), and then from (1) to (0).

Switch off the ignition.

2. REFITTING OPERATION



Fit the wiper arms, aligning them with the screen-printed mark(3) on the windscreen.

Proceed in the reverse order to removal.

Torque tighten the wiper arm nut([see 85A, Wiping - Washing, Wipers/washing assembly : Exploded view](#)).



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WIPERS/WASHING ASSEMBLY : EXPLODED VIEW



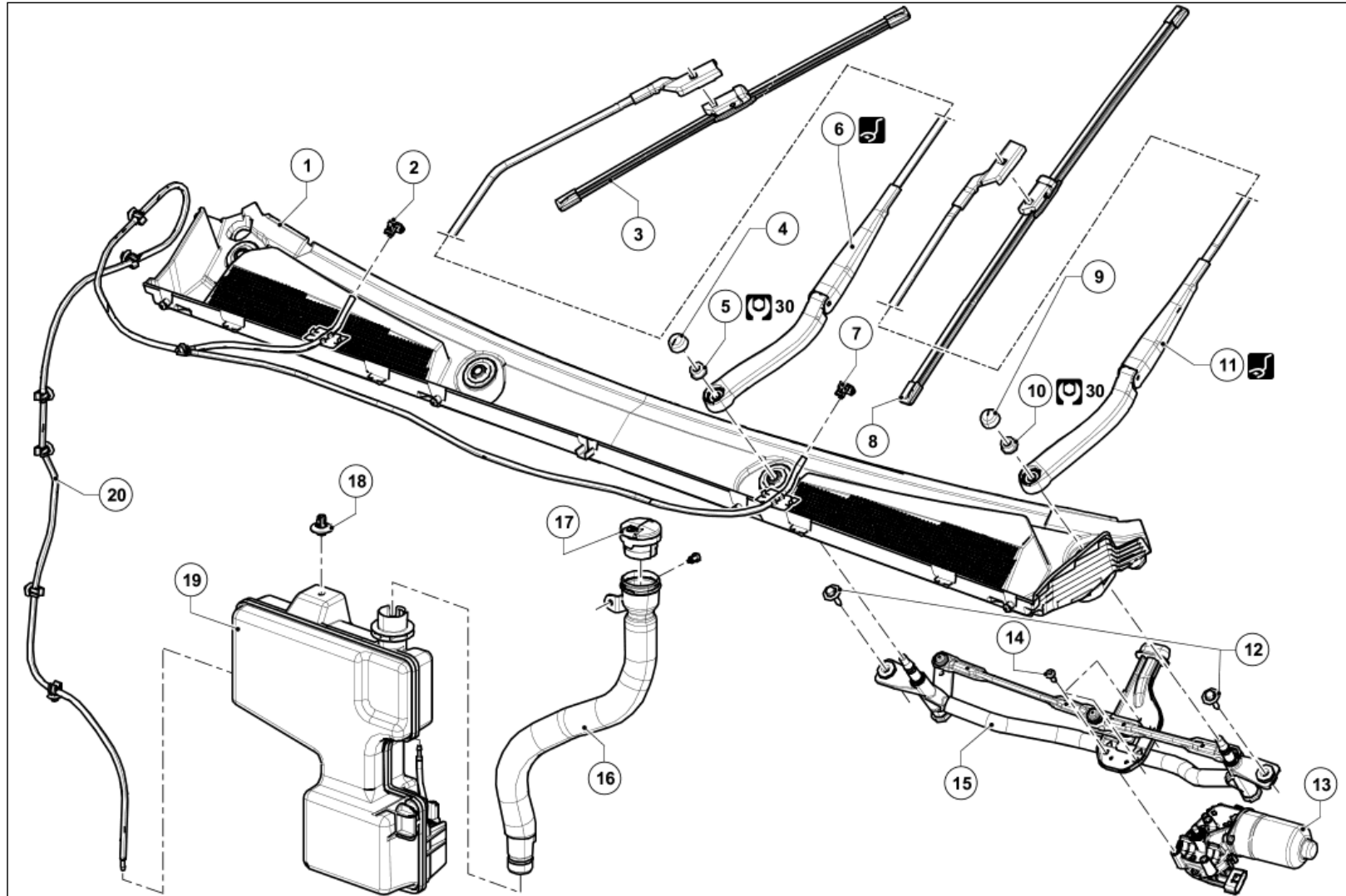
Note, one or more warnings are present in this procedure



WARNING

Before carrying out any operation on a vehicle fitted with the Stop & Start system, always follow the safety instructions [Vehicle: Precautions for the repair](#)

FRONT



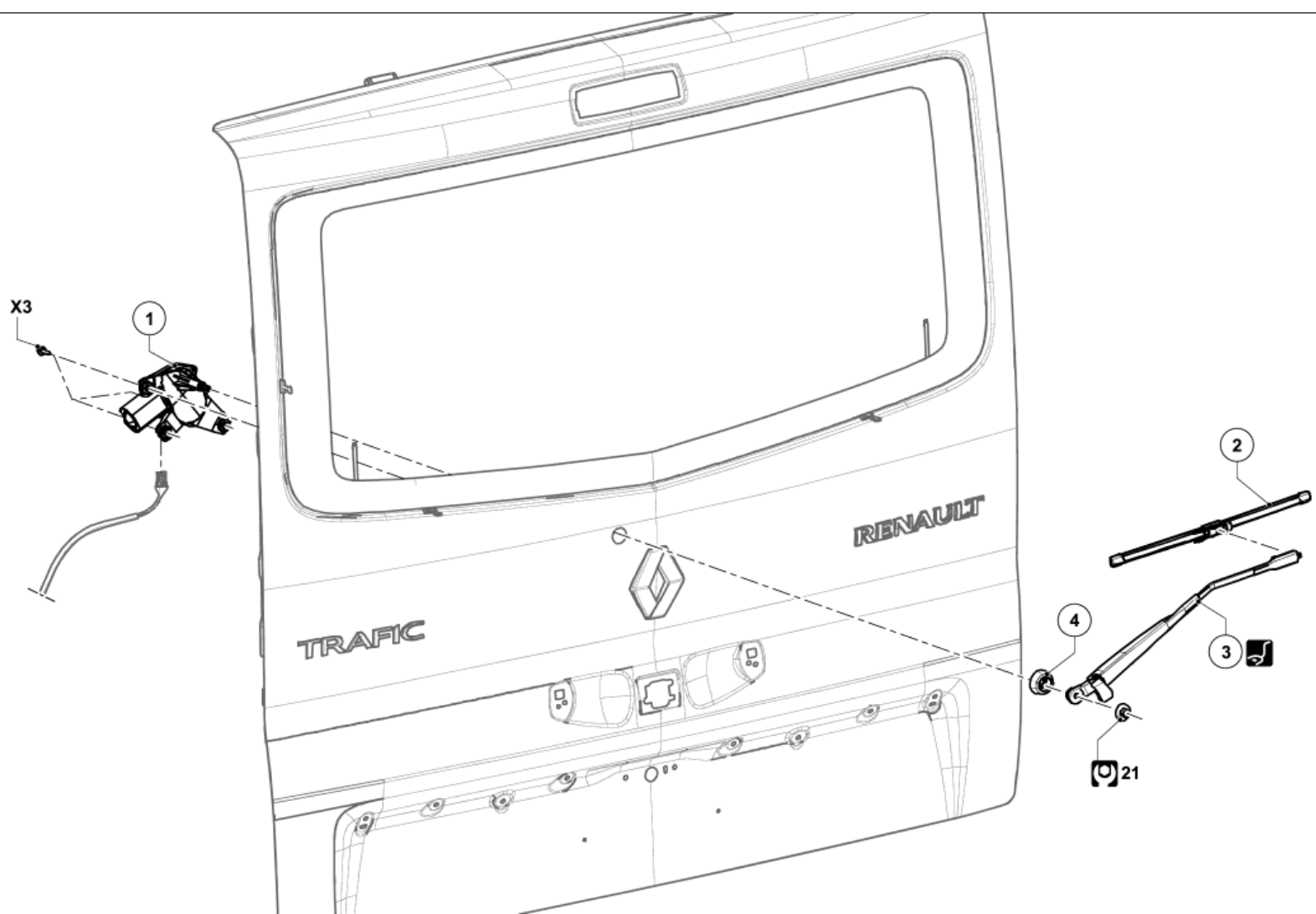
[Illustration key: Description](#) Legend .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Scuttle panel grille	
2	Windscreen washer jet	
3	Wiper blade	
4	Windscreen wiper arm nut cover	
5	Windscreen wiper arm nut	
6	Windscreen wiper arm	(see 85A, Wiping - Washing, Windscreen wiper arm: Removal - Refitting) (Ele.2000)
7	Windscreen washer jet	
8	Wiper blade	
9	Windscreen wiper arm nut cover	
10	Windscreen wiper arm nut	
11	Windscreen wiper arm	(see 85A, Wiping - Washing, Windscreen wiper arm: Removal - Refitting) (Ele.2000)
12	Windscreen wiper mechanism screws	
13	Windscreen wiper motor	
14	Windscreen wiper motor screws	
15	Windscreen wiper mechanism	
16	Windscreen washer reservoir neck	
17	Windscreen washer reservoir plug	
18	Windscreen washer bottle screw	
19	Windscreen washer bottle	
20	Windscreen washer hose, pump outlet	

Marks	Designations	Informations
1	Rear screen wiper motor	
2	Wiper blade	
3	Rear screen wiper arm	(Ele. 2000)
4	Rear screen wiper ring	
5	Rear screen wiper arm cap nut	

REAR



[Illustration key: Description Legend](#) .

For fastenings with no specified tightening torque values, refer to the Table of Standard Torques [Tightening torques: General information](#) .

Marks	Designations	Informations
1	Rear screen wiper motor	
2	Wiper blade	
3	Rear screen wiper arm	(Ele.2000)
4	Rear screen wiper ring	



Repair-80x04x10-02x50-1-5-1.xml



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