

60 023 – AN – 06.2002

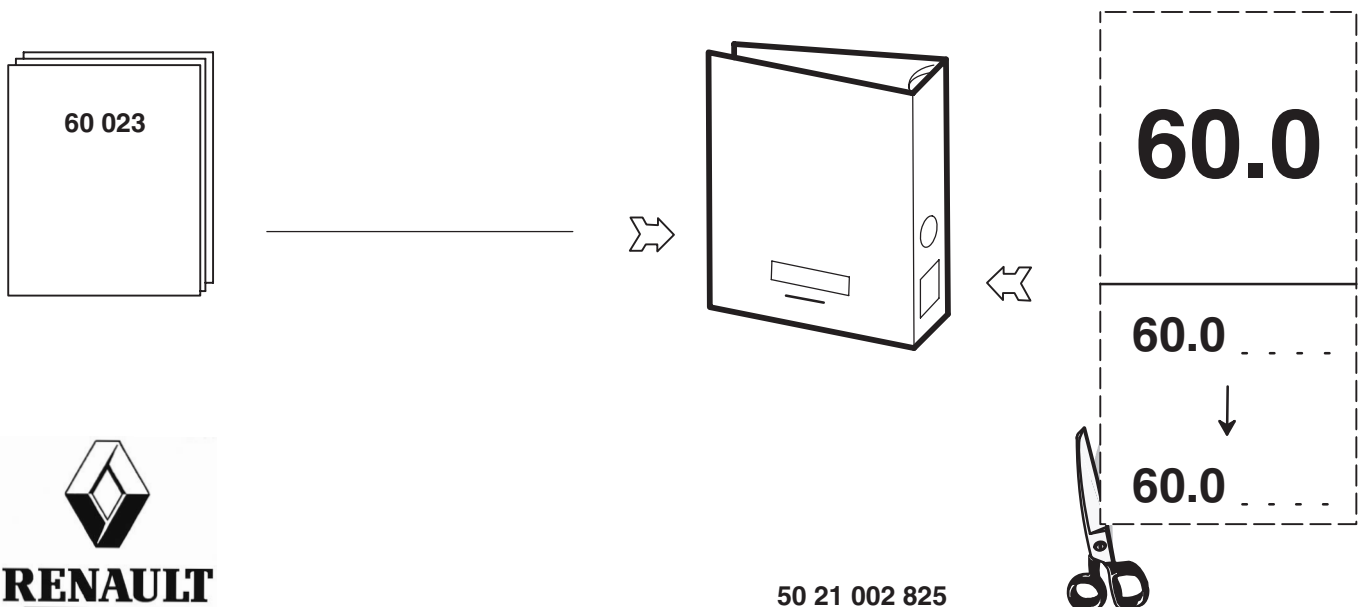
CAB X24

CAB	VEHICLE
CAB X24	RENAULT MASCOTT
AIR BAG	

NOTE

The above information may change in the course of time.

Only the "Consult" section of the workshop manuals repertory in standard N° 10320 serves as reference.



CONTENTS**CAB X24**

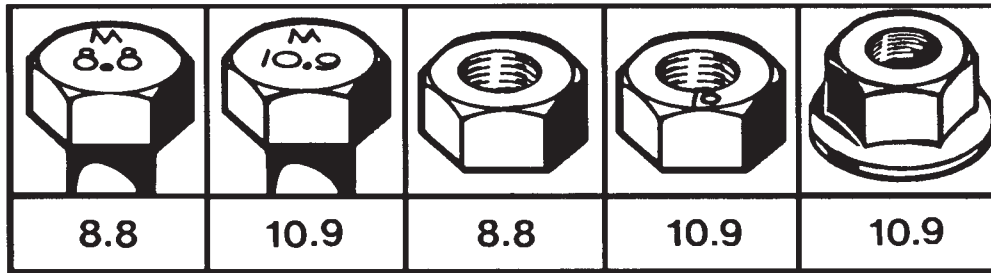
VOLUME	DESCRIPTION	PAGES
A	Technical data	A1 → A3
B	To remove / to fit	B1 → B4
C	Airbag – Operation – Generalities – Diagnostics – Removal / Fitting – Destruction procedure	C1 → C15 C2 → C3 C4 → C7 C8 C9 → C13 C14 → C15
D	Tools	D1 → D2

TECHNICAL DATA

Cab type :	X 24
Weight	
Day cab	550 kg
Sleeper cab	715 kg
Van	1 200 kg

CONVENTIONAL SYMBOLS

Tighten at indicated torque (Nm) (right-hand thread)



21 0122

Tightening torques

There are several types of tightening:

- Tightening to torque (in **Nm.**)
- Tightening to angle (in °)
- Tightening to torque–angle (in **Nm. + °**)

Torques given in **Nm.** are nominal torques (average value calculated on the basis of the minimum torque and the maximum torque).

The tightening accuracy class defines the tolerance of this torque in percent as a function of the nominal torque applied.

Tightening accuracy classes:

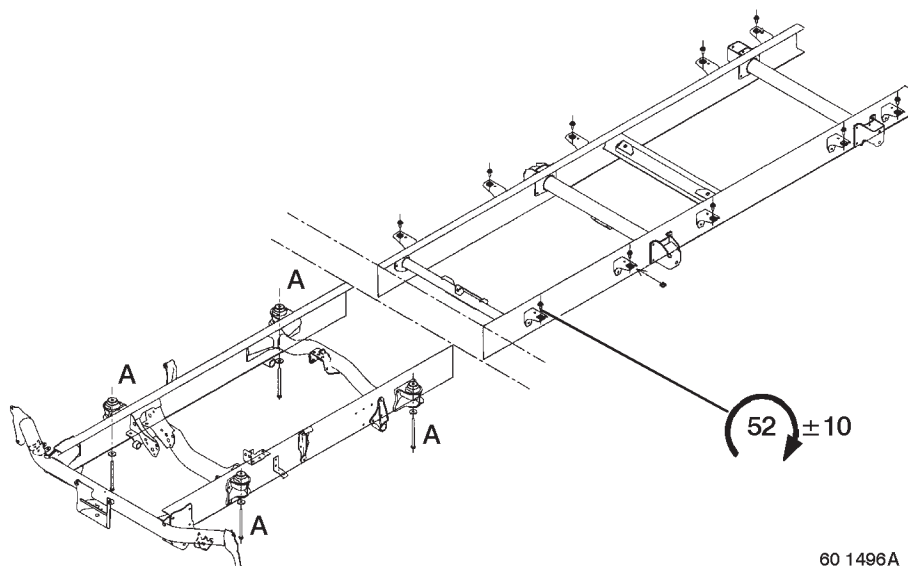
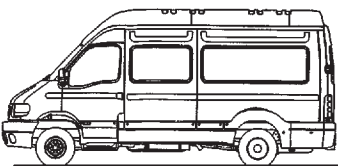
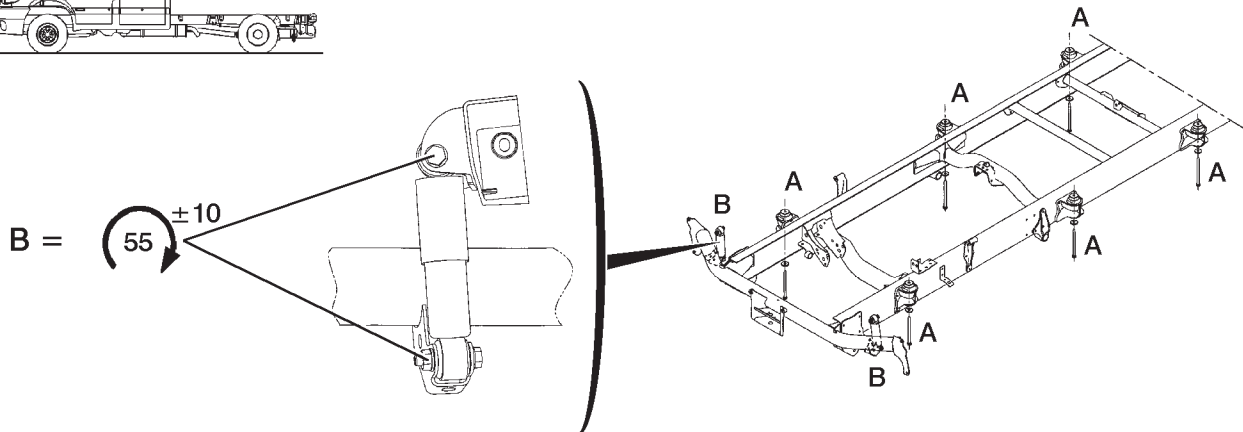
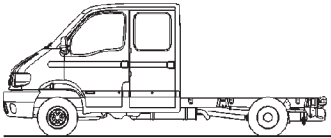
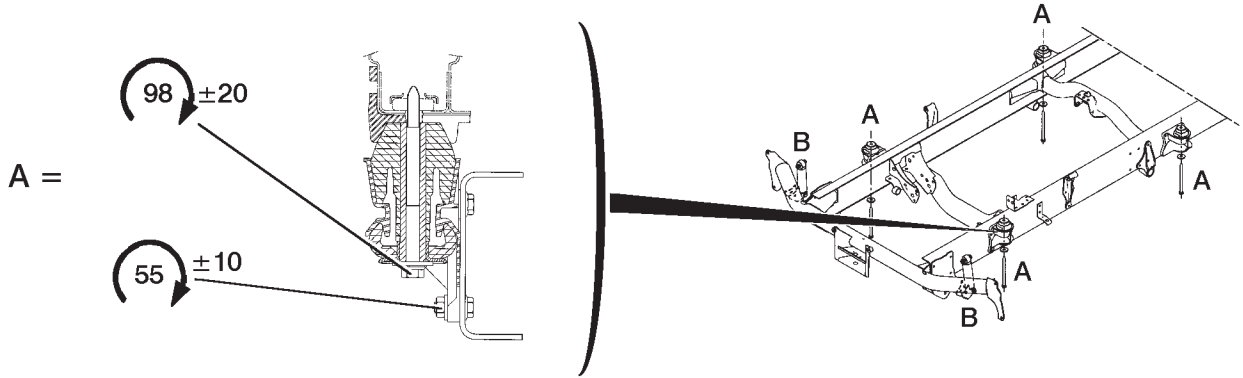
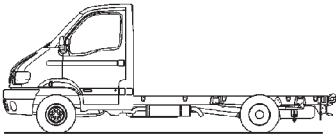
- **Classe I:** Special threaded hardware (tolerances variable depending on assembly).
- **Classe II:** Reserved for precise tightening (tolerance $\pm 10\%$ of the nominal torque).
- **Classe III:** Reserved for normal standard tightening (tolerance $\pm 20\%$ of the nominal torque).

For standard threaded hardware indicated in the table below, use tightening class **III**.

For other torques, see page **A3**.

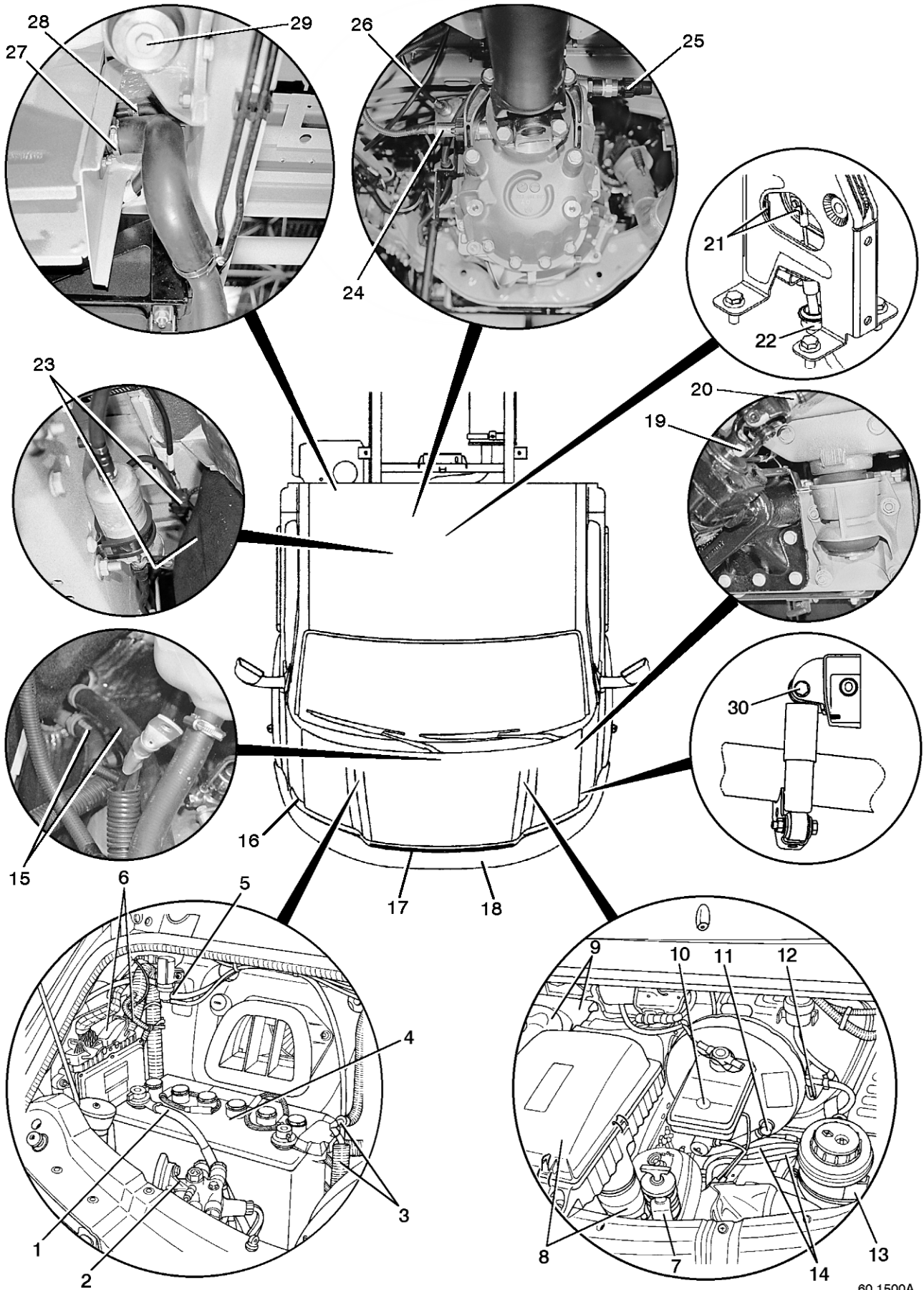
Tightening torques for conventional nut and bolt hardware to "METRIC system" standard 01.50.4002		
Dia. and pitch of nuts and bolts (in mm)	Quality class 8.8	Quality class 10.9
	Tightening class III ($\pm 20\%$)	Tightening class III ($\pm 20\%$)
6 x 1.00	7.4	10.8
7 x 1.00	12.1	17.8
8 x 1.00	19.2	28.2
8 x 1.25	17.9	26.3
10 x 1.00	39.4	58
10 x 1.25	37.4	55
10 x 1.50	35.4	52
12 x 1.25	67	98
12 x 1.50	64	94
12 x 1.75	61	90
14 x 1.50	105	155
14 x 2.00	98	143
16 x 1.50	161	237
16 x 2.00	151	222
18 x 1.50	235	346
18 x 2.50	210	308
20 x 1.50	328	481
20 x 2.50	296	435
22 x 1.50	444	652
22 x 2.50	406	596

Steering universal joint clamp bolt **23 \pm 5 N.m**



60 1496A

REMOVAL / FITTING



60 1500A

To remove

Chock the vehicle's rear wheels.
Drain the cooling system.

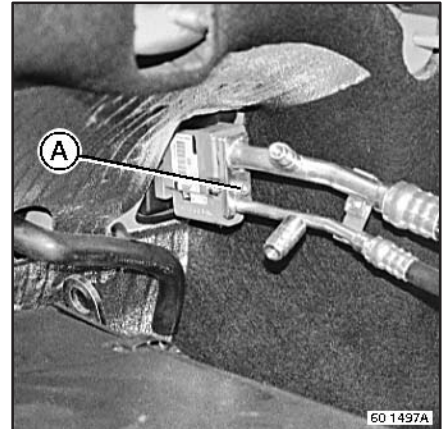
Unplug the connectors from the junction unit.

With the front wheels parallel and in the straight ahead position and the steering wheel spokes in a horizontal position, withdraw the ignition key and lock the steering column.

The item numbers indicated on the drawing on page **B2** correspond to the **sequence of disassembly**.

The removal of hydraulic components (**2 – 10 – 13**) does not require the circuits to be drained.

Place removed components in the vicinity of the engine.

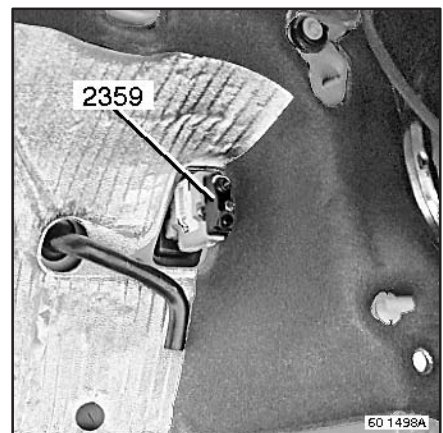


Cab equipped with air conditioning

Drain the air conditioning system.
(See MR **63 613**).

Remove the screw (**A**) holding the clamp on the pressure reducer.

Blank off the pressure reducer ports with tool **2359**.
Blank off the high and low pressure pipes.



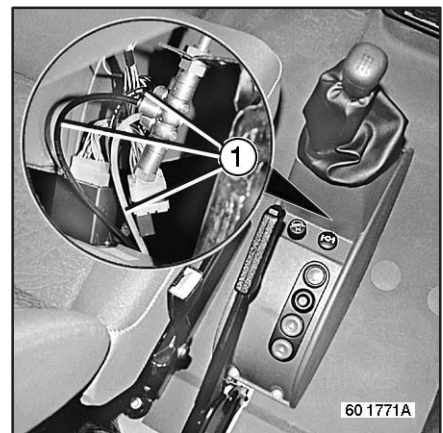
Depending on the assembly.

Take off the cover and unfasten the "ABS" box from the cab.

Mark and disconnect the differential lock pipes (**1**).

Disconnect the accelerator cable.

Disconnect the hand throttle cable.



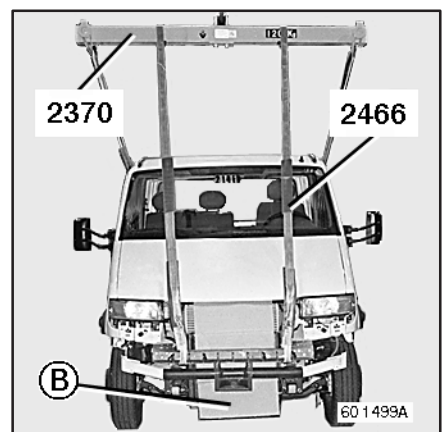
Protect the radiator with a guard (**B**).

To remove the cab:

Day cab: use tool **2370 + 2466**.

Sleeper cab: use tool **2370**.

Remove the cab.



To fit

To fit, proceed in the reverse sequence to removal.

To install the steering column, refer to MR **41 041**.

Check the efficiency of the controls (accelerator cable, connectors, etc...).

Fill the cooling system.

(See servicing handbook)

Connect up the speed sensor harness (**24**) and get a lead seal fitted by an SIM-approved workshop.

Tighten to torque.

Cab equipped with air conditioning

Recharge the air conditioning system.

(See MR **63 613**).

AIRBAG

OPERATION

Airbag + pretensioner

The system consists of:

- an inflatable “bag” and its gas generator mounted under the steering wheel protective cover (1).
- A seat belt pretensioner.
- An electronic box located under the driver’s seat.
- an “AIRBAG” “Information” and defect test warning light(T30)
- an “Airbag” marking on the steering wheel protective cover (1) and a self-adhesive sticker on the windscreen reminding the presence of this equipment.
- A rotary switch under the wheel.

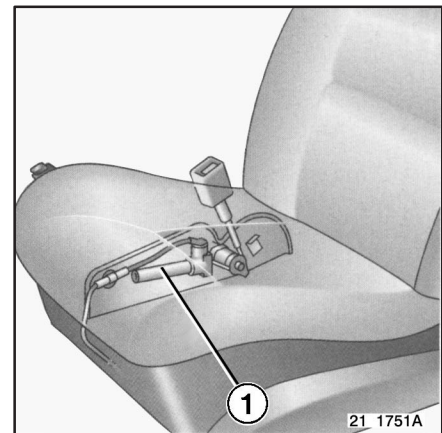


Airbag (inflatable safety bag)

The “airbag” system uses a pyrotechnic principle which explains why, upon deployment, it produces heat, gives off smoke (which is not the sign of an outbreak of fire) and generates a detonating noise. Deployment of the airbag, which must be immediate, may cause minor, reversible injuries to the surface of the skin.

Seat belt pretensioner

The pretensioner system uses a piston (1) which instantaneously retracts the seat belt buckle, flattening it against the occupant’s body and thus increasing its effectiveness.



Electronic box

The box is an electronic control unit (ECU) which is provided with an independent accelerations acquisition system allowing it to trigger off firing or not.

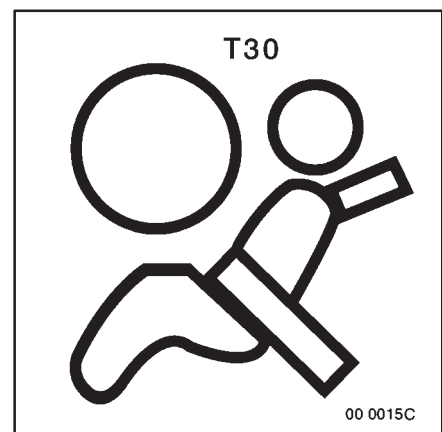
Warning light

When the ignition is switched on, warning light (T30) comes on for 10 seconds then goes out. The system is henceforth operational. An illumination defect or permanent illumination of the warning light (T30) means system trouble or locking (airbag inactive).

Operation

In the event of **head-on** impact, these systems combined with the seat belt are designed to work separately or in conjunction with one another according to the violence of the impact. There are three possible cases:

- 1 – Only the seat belt provides protection.
- 2 – The pretensioner is tightened.
- 3 – The airbag inflates and deadens the impact of the driver against the steering wheel, then deflates.



	FU1-10A APV	FU2-10A 	FU3-10A APV	FU4-30A (ABS)
	FU5-25A 	FU6-10A 	FU7-15A 	FU8-30A
	FU9-30A 	FU10-10A 	FU11-7,5A 	FU12-25A
	FU13-10A 	FU14-20A 	FU15 	FU16-25A
	FU17-2A 	FU18-10A 	FU19 	FU20-15A
	FU21-10A 	FU22-5A (ABS)	FU23-15A 	FU24-7,5A
	FU25-10A 	FU26-5A 	FU27-7,5A 	FU28
FU45-40A 	FU29-15A ABS +	FU30-20A 	FU31-15A 	FU32-10A
	FU33-25A 	FU34-20A STOP	FU35-30A 	FU36-10A
FU46-40A 	FU37-25A 	FU38-7,5A SECURITE	FU39 BLINCK CODE 80CV	FU40-20A
	FU41-10A 	FU42-15A 	FU43 BLINCK CODE CR	FU44-25A

01 0265

Airbag fuse

Assignment

"AIRBAG" ECU FU42

Item

Amp.

15

GENERALITIES

IMPORTANT

Any work on the airbag system must be carried out by qualified personnel who have undergone suitable training.

IDENTIFICATION OF A VEHICLE EQUIPPED WITH AN AIRBAG SYSTEM

A vehicle equipped with a driver's airbag can be identified by:

- the inscription "airbag" in the middle of the steering wheel.
- a sticker placed in the bottom corner of the windscreen, on the driver's side. (If the windscreen has to be replaced, affix a new sticker in the same bottom corner of the new windscreen).

WORK ON THE AIRBAG

The RENAULT V.I. diagnostics tool serves to check out:

- the ECU.
- the wiring harness.
- the connecting arrangements.

IMPORTANT

Before working on the airbag system, lock the electronic box using Diagnostica, disconnect the battery and wait for 5 minutes.

Wiring harness

In the event of trouble found on the wiring or a connector, it is essential to replace the wiring harness (do not repair it). For the wiring harness routing: see **Electrics Workshop Manual**.

ECU

The airbag ECU should not undergo any knocks or distortion and should not be submitted to any splashing water. Protect the electrical connections against dust. The attachment surface of the ECU should be clean and free from any foreign matter.

Subsequent to triggering off at least one component in the system, the ECU locks and illuminates the airbag warning light – it cannot be unlocked and must be replaced.

Airbag module and pretensioner

It is forbidden to assemble any unit that has undergone knocks, distortion or scratching. Take the unit out of its packaging at the very last moment prior to assembly.

During assembly of the unit, do not forget foreign bodies (screws, staples...) and ensure that the connector on the module is completely unobstructed.

IMPORTANT

Do not make readings on the module using a multimeter or any electrical measuring instrument whatsoever. Do not manipulate the pyrotechnic devices close to a flame or any source of heat.

INSTRUCTIONS TO BE OBSERVED AFTER RELEASE OF THE AIRBAG AND/OR TAUTENING OF THE PRETENSIONERS

It is essential to replace:

- Pretensioner (if it was tautened).
- Airbag module (if it was released).
- Rotary switch (if the airbag was released).
- Airbag ECU.
- Seat belt (if it was attached when the pretensioner was tautened).

It is essential to keep the electronic box and the list of defects recorded on the airbag system after the accident.

INSTRUCTIONS TO BE OBSERVED AFTER AN INCIDENT WITH AN AIRBAG SYSTEM

Return of an airbag electronic box involved in an incident for expert appraisal or warranty failure review must be accompanied by at least the following information:

- Chassis number of vehicle on which the box was assembled.
- State of connecting arrangement (locking or not of connector).
- State of fastening (tightness of attaching screws).
- Context of the incident (place, date, vehicle moving or stationary).
- State of warning light before the incident.
- Names and addresses of persons to be contacted.

In the special case where supplier expert appraisal is necessary, it is **essential** to not dismantle or disconnect the box, not dismount the wiring harness and not fire non-triggered igniters by hand.

SCRAPPING OF A VEHICLE

Before scrapping a vehicle with a non-released airbag or non-tautened pretensioners, it is essential to proceed with its destruction by following the recommended method (see chapitre H).

WORK ON THE VEHICLE (EXCLUDING WORK ON AIRBAG) IMPLYING PRECAUTIONS TO BE TAKEN TO AVOID INADVERTENT DEPLOYMENT OF THE AIRBAG

During repair or adaptation work, the vehicle is not to undergo significant knocks (hammer blows...) nor is welding work to be undertaken without previously locking the electronic box using DIAGNOSTICA, disconnecting the battery and waiting for a period of 5 minutes.

No aftermarket electrical accessory should be installed within the close surrounds of an airbag electronic box. (A loudspeaker or any other appliance generating a magnetic field might cause the airbag to release).

Before removing the steering wheel, it is essential to unplug the airbag module connector so as to avoid any damage.

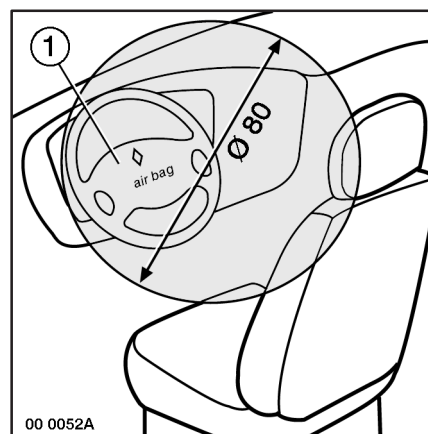
In the event of any work requiring uncoupling of the steering box universal joint, the roadwheels must be in the straight-ahead position and the steering wheel must be immobilized, in order to keep to the mid-point of the rotary switch.

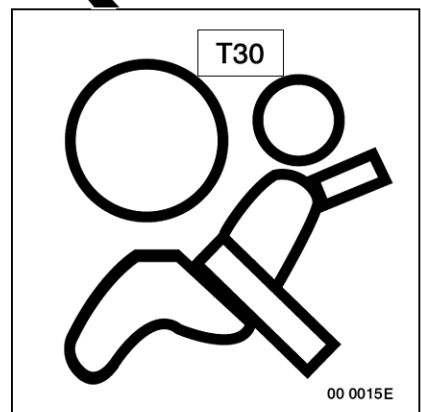
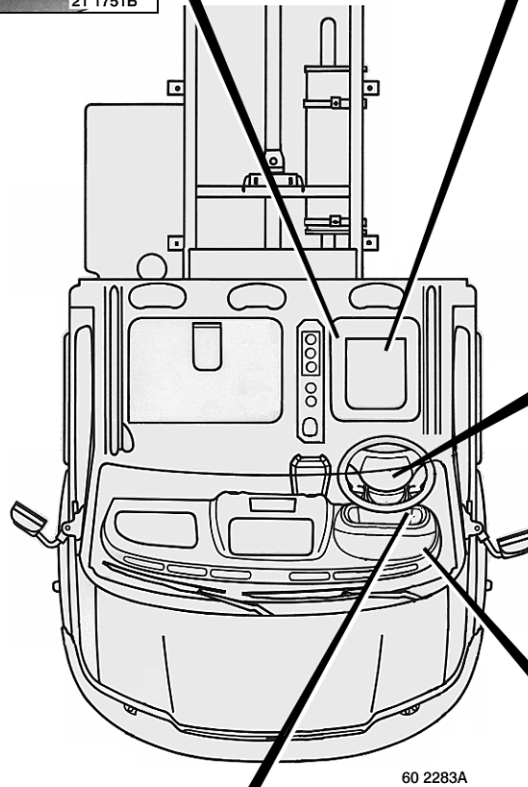
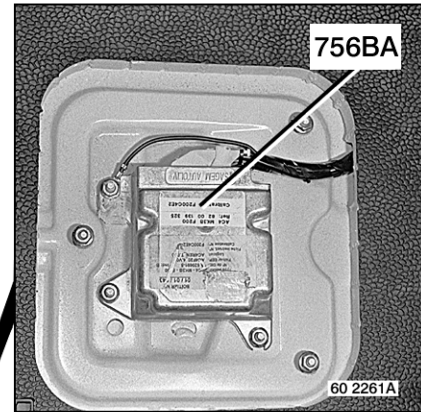
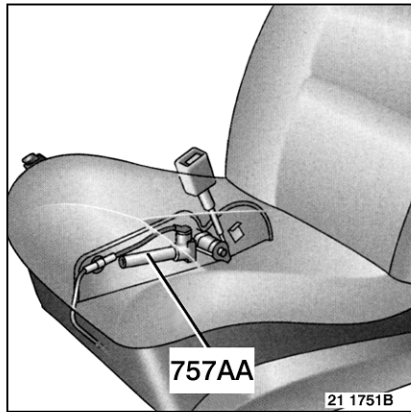
No other electrical consumer should use the airbag electronic box earth point.

Non-observance of these instructions might cause malfunction or even inadvertent deployment of the airbag.

IMPORTANT

- If the seat designed for the airbag system has to be changed, it must be replaced by a seat identical to the one originally fitted.
 - The airbag protective cover must be free from any article (ledge, clock, various accessories...).
 - There should be no objects within the airbag deployment area (80 cm).
 - Get the airbag system checked out in the case of accident or if there has been attempted theft of or from the vehicle.
 - For safety reasons, replace the airbag every 10 years.
 - If water is splashed onto the electronic box, replace it.
 - Any significant modification to the front end of the vehicle or any vehicle overloading may lead to inadvertent release of the airbag system.
- It is forbidden to fit a bull-bar (cattle guard) or a forward winch on a vehicle equipped with an AIRBAG system.**

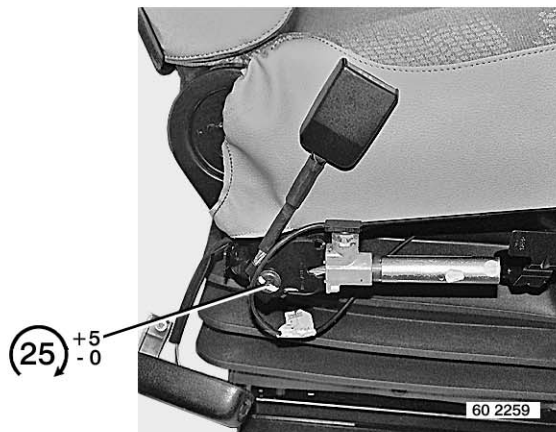
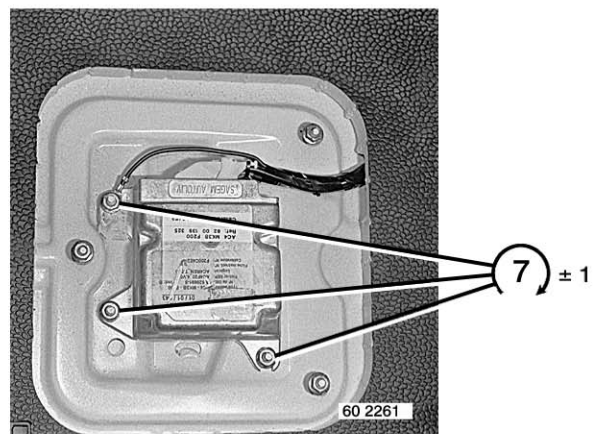
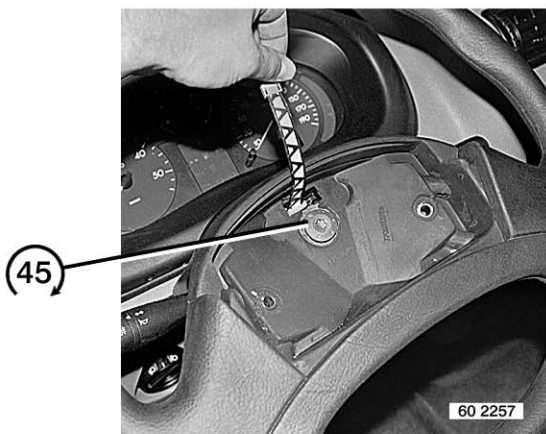
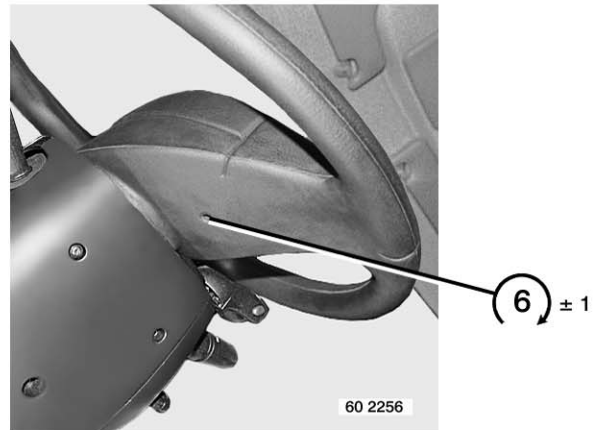
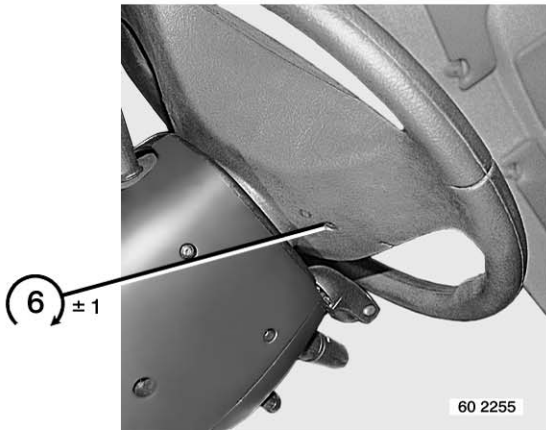




APPLIANCE LAYOUT IN CAB

- 1249 BA – Driver's airbag module + rotary switch
- 225 FAA – Diagnostics socket
- 756 BA – Airbag ECU
- T 30 – Airbag test and defect warning lamp
- 757 AA – Pretensioner

TIGHTENING TORQUES in Nm



60 2262

DIAGNOSTICS

Defects can be visualized using the RENAULT V.I. diagnostics tool DIAGNOSTICA plugged into the vehicle diagnostics socket.

IMPORTANT

*Do not make readings on the module using a multimeter or any electrical measuring instrument whatsoever. Before working on the airbag system, **lock the electronic box using Diagnostica**, disconnect the battery and wait for 5 minutes.*

To obtain more accurate diagnostics, use an inert igniter. Tool **2623**.

Lock the electronic box using Diagnostica.

Connect the inert igniter to the airbag wiring harness in the place of the module or pretensioner of the line concerned.

Unlock the electronic box.

If the defect is still present, it originates from the line.

If the defect is no longer present, it originates from the module or the pretensioner.

CHECKING THE WIRING HARNESS

The wiring harness and the rotary switch can be checked using a multimeter if they are completely disconnected from the other components.

NOTE

Some connectors short-circuit when they are disconnected in order to avoid any risk of inadvertent deployment.

After the work, erase the defect code numbers using the RENAULT V.I. tool DIAGNOSTICA.

REMOVAL / FITTING

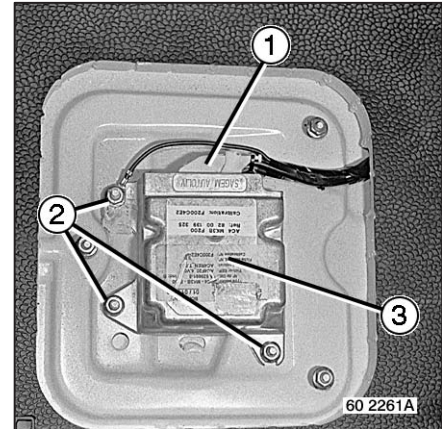
AIRBAG ECU

IMPORTANT

Before carrying out any work on the airbag system, **lock the electronic box using Diagnostica**, disconnect the battery and wait for 5 minutes.

To remove

Remove the driver's seat.
Depending on the equipment.
Unplug the heated seat and pretensioner connectors.
Remove the airbag ECU protective cover.
Unplug the connector (1).
Disconnect the earth.
Remove screws (2).
Remove the airbag ECU (3).



NOTE

New electronic boxes are supplied locked without definition of parameters.
It is necessary to switch the ignition on again after the parameters have been defined so that they are taken into account.

To fit

To fit, proceed in the reverse sequence to removal.
Tighten to torque.
Check that the electronic box connector is locked.

Testing

Turn the anti-theft/ignition key to the "ignition" position.
Get out of the cab and take all necessary steps to forbid access.
Reconnect the battery and switch the ignition back on.
The airbag warning light should go out after about 10 seconds.

IMPORTANT

It is essential to fasten the ECU to the vehicle before plugging in to the connector.
If the airbag has been released and/or the pretensioner has been tautened, it is **ESSENTIAL** to change the airbag electronic box. It locks automatically and cannot be unlocked (some components lose their rated characteristics after the firing energy has passed through them).

AIRBAG MODULE

IMPORTANT

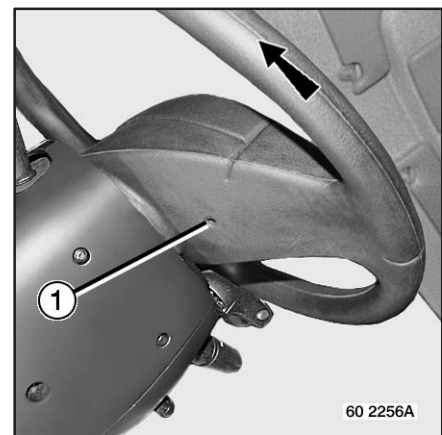
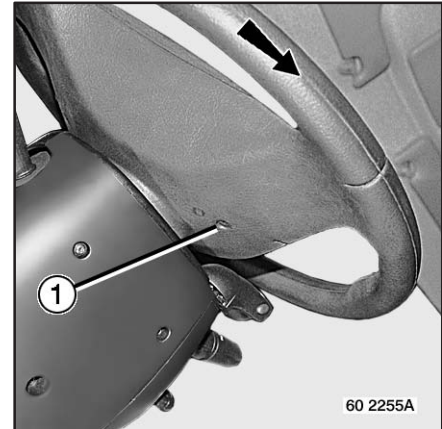
Before working on the airbag system, **lock the electronic box using Diagnostica**, disconnect the battery and wait for 5 minutes.

Move the roadwheels to the straight-ahead position.

The components of an airbag module cannot be separated.

Do not manipulate the pyrotechnic devices close to a flame or any source of heat as you run the risk of triggering off the airbag release system.

Do not make readings on these systems using a multimeter or any electrical measuring instrument whatsoever as you run the risk of triggering release of the airbag due to the operating current of these systems.



To remove

Move the roadwheels to the straight-ahead position.

Turn the steering wheel slightly.

Remove screws (1).

Move the roadwheels back to the straight-ahead position.

Unplug the connector (2).

Remove the airbag module (3).

To fit

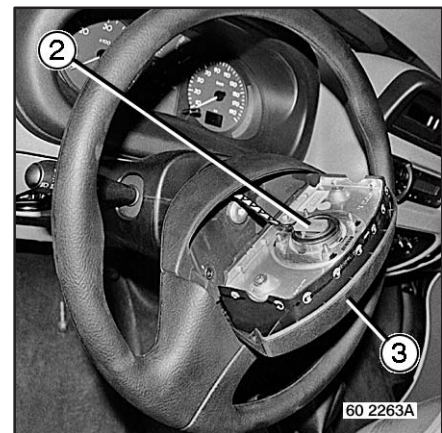
Reposition the airbag module (3).

Plug in the connector (2) (Stiff clip-in arrangement).

Tighten the screws (1).

Tighten to torque.

Unlock using Diagnostica.



Testing

Turn the anti-theft/ignition key to the "ignition" position.

Get out of the cab and take all necessary steps to forbid access.

Reconnect the battery and switch the ignition back on.

The airbag warning light should go out after about 10 seconds.

ROTARY SWITCH

To remove

Remove the airbag module.

See page (G3).

Do not bend or damage the connecting strip (5).

IMPORTANT

Before working on the airbag system, **lock the electronic box using Diagnostica**, disconnect the battery and wait for 5 minutes.

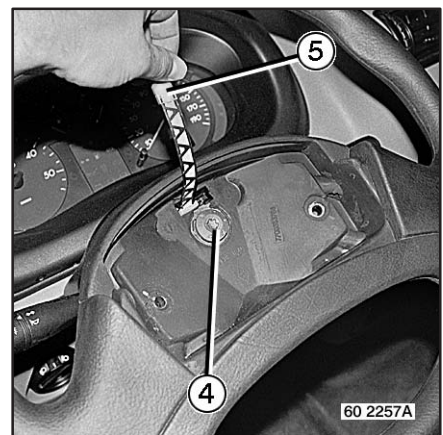
Move the roadwheels to the straight-ahead position.

Make sure that the roadwheels are still in the straight-ahead position.

Remove the screw (4).

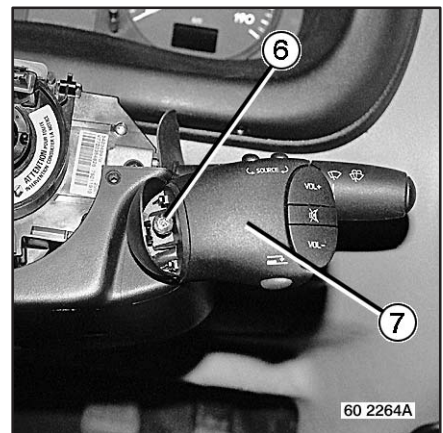
Remove the steering wheel.

When the steering wheel is removed, a device immobilizes the rotary switch.



Remove the screw (6).

Remove the radio fingertip control (7) from the steering wheel.

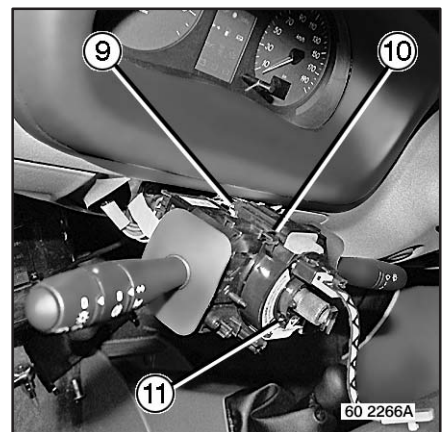


Before removing the rotary switch, immobilize it with a piece of adhesive tape.

Unplug the connector (9).

Press on the two clips (10).

Remove the rotary switch (11).



To fit

IMPORTANT

Do not bend or damage the connector.

The new rotary switch is supplied held in the centred position by label which tears as soon as the steering wheel is turned for the first time.

Check that the switch is still immobilized before assembly (if it is not, see "Finding the mid-point").

Assembly must be carried out with the roadwheels in the straight-ahead position.

Non-observance of these instructions might cause malfunction or even inadvertent deployment of the airbag.

Finding the mid-point

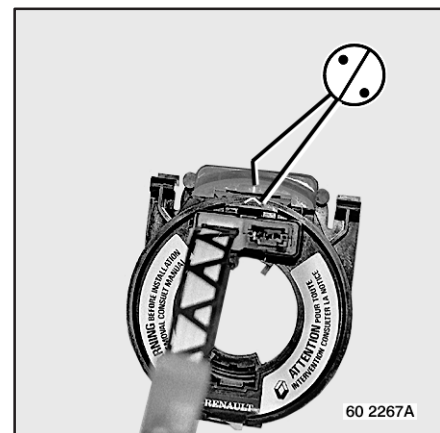
Move the rotary switch to abutment in one direction of rotation, without forcing.

Mark its position.

Move the rotary switch to abutment in the other direction, without forcing and count the number of revolutions.

Divide the number of revolutions by two to determine the mid-point and move the rotary switch to that position.

Fine adjust by aligning the two marks (photo opposite).

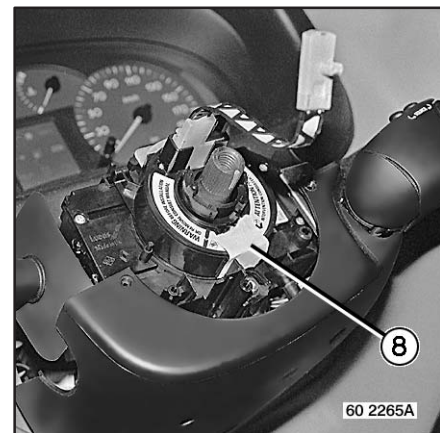


Fit the rotary switch (11).

The catches on the rotary switch must be properly engaged in the steering column immobilizing device.

Plug in the connector (9).

If it is the rotary switch that has been removed, withdraw the adhesive tape (8).



Align and fit the steering wheel.

It is essential to change the screw (4).

Screw up the screw (4).

Fit the airbag module.

See page (G3).

Unlock using Diagnostica.

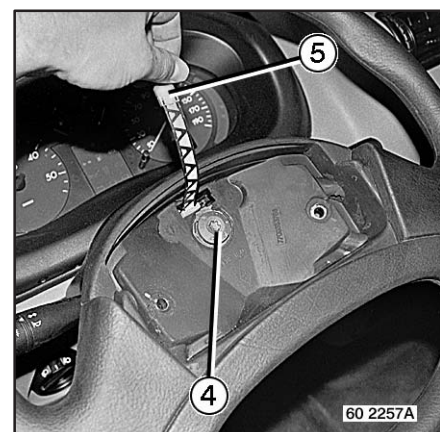
Testing

Turn the anti-theft/ignition key to the "ignition" position.

Get out of the cab and take all necessary steps to forbid access.

Reconnect the battery and switch the ignition back on.

The airbag warning light should go out after about 10 seconds.



PRETENSIONER

IMPORTANT

Before working on the airbag system, **lock the electronic box using Diagnostica**, disconnect the battery and wait for 5 minutes.

The components of an airbag module cannot be separated.

Do not manipulate the pyrotechnic devices close to a flame or any source of heat as there is risk of triggering off the airbag release system.

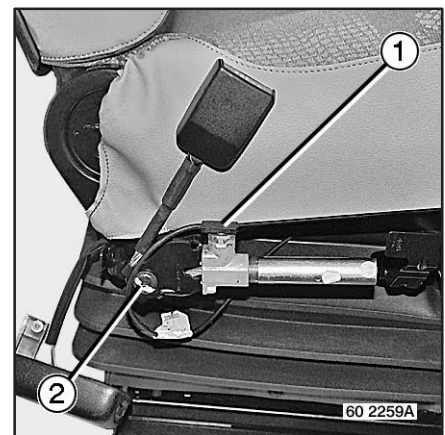
Do not make readings on these systems using a multimeter or any electrical measuring instrument whatsoever as there is risk of triggering release of the airbag due to the operating current of these systems.

To remove

- Remove the cover.
- Unplug the connector (1).
- Remove the screw (2).
- Remove the pretensioner.

To fit

- It is essential to change the screw (2).
- Proceed in the reverse sequence to removal.
- Tighten to torque.
- Plug in the connector (1) (Stiff clip-in arrangement).
- Unlock using Diagnostica.



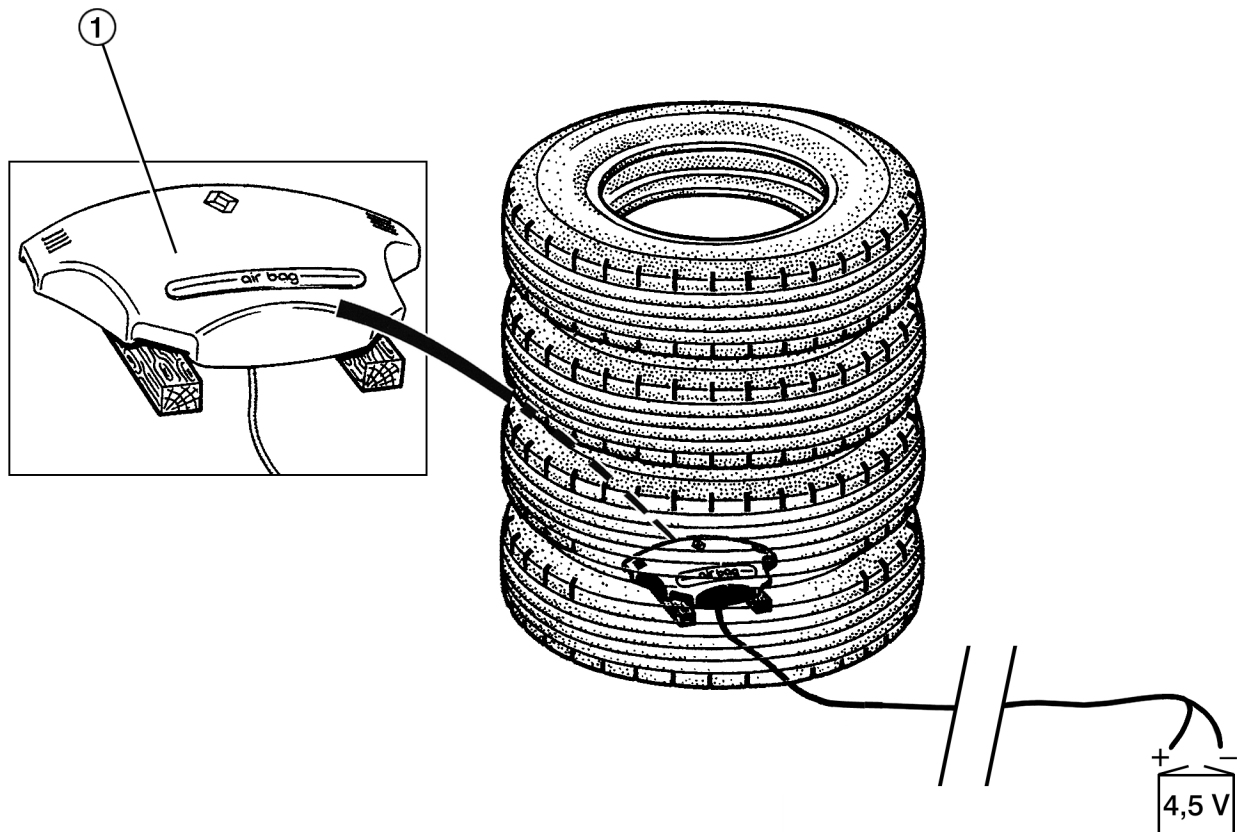
Testing

- Turn the anti-theft/ignition key to the "ignition" position.
- Get out of the cab and take all necessary steps to forbid access.
- Reconnect the battery and switch the ignition back on.
- The airbag warning light should go out after about 10 seconds.

IMPORTANT

After a pretensioner has been tautened, the stresses exerted on the seat belt buckle are passed on to the inertia reel and thus risk damaging the internal mechanism, so the seat belt must be replaced if it was attached when the pretensioner was tautened or if there is any doubt on the matter.

DESTRUCTION PROCEDURE



60 2149A

Airbag module destruction procedure

IMPORTANT

This procedure complies with French regulations. For other countries, refer to the national regulations in force.

This operation must be performed outside the workshop.

To avoid any risk of accident, the pyrotechnic devices must be released before the vehicle or the single component is scrapped.

Method:

- 1 – Connect tool **2632** to the module.
- 2 – Place the module (1) on two wooden blocks, the switch wires directed downwards to prevent them from being damaged.
- 3 – Cover the unit with a stack of four used tyres.
- 4 – Unwind two wires over a distance of about 10 metres so as to be well away from the detonation zone.
- 5 – Ensure there is no-one nearby.
- 6 – Proceed with destruction of the airbag by connecting the two supply wires to a 4.5 Volt battery. (There is no polarity to be observed).

Do not touch the metal part around the connector after destruction: risk of serious burning. Disconnect tool 2632 immediately after destruction to prevent it from melting.

IMPORTANT

Do not release modules having to be returned under the warranty, as this would make analysis impossible. It is essential to return the defective part in the original packing for the new part.

Pretensioner destruction procedure

This operation must be performed outside the workshop.

IMPORTANT

Before working on the airbag system, lock the electronic box using Diagnostica, disconnect the battery and wait for 5 minutes.

Unplug the connector from the pretensioner to be destroyed.

Method:

- 1 – Connect tool **2632** to the pretensioner.
- 2 – Unwind two wires by a distance of about 10 metres so as to be well away from the release zone.
- 3 – Ensure there is nobody nearby.
- 4 – Proceed with destruction of the airbag by connecting the two supply wires to a 4.5 Volt battery.
(There is no polarity to be observed).

IMPORTANT

*Do not tauten pretensioners having to be returned under the warranty, as this would make analysis impossible.
It is essential to return the defective part in the original packing for the new part.*

TOOLS

RENAULT TRUCKS divide tools into 3 categories:

- **General-purpose tools:** Commercially available tools.
 - . **50 00 26 reference number** (possibility of purchasing through the RENAULT TRUCKS Spare Parts department).
 - . **4-figure reference number** (tools with RENAULT TRUCKS reference number, but available from the supplier).
- **Special tools:** Specially created tools, distributed by the RENAULT TRUCKS spare parts division.
- **Locally manufactured tools:** these tools are classified differently according to their degree of sophistication:
 - . **4-figure reference number** (represented by a drawing): tools that are simple to make without need for special qualification.
 - . **50 00 26 reference number** (possibility of purchasing through the RENAULT TRUCKS Spare Parts department): a certain skill is needed to make these tools.

Three levels (or echelons) determine their assignment:

- **LEVEL 1:** Tools for servicing and minor tasks.
- **LEVEL 2:** Tools for major repairs.
- **LEVEL 3:** Tools for refurbishment.

NOTE

Standard tools mentioned in this manual do not appear in the tools list. These tools are identified in the standard tools manual (MO) by a 4-figure number.

Specific tools				
RENAULT TRUCKS Ref. N°	Designation	Level	Quantity	Pages
50 00 26 2370	Lifting beam	2	1	B3
50 00 26 2466	Strap	2	1	B3
50 00 26 2359	Blanking plug	1	1	B3

Locally manufactured tools				
RENAULT TRUCKS Ref. N°	Designation	Level	Quantity	Pages
50 00 26 2623	Inert igniter	1	1	C8
2632	Harness	1	1	C14 → C15

Locally manufactured tools

