

RENAULT

3 Chassis

30A GENERAL INFORMATION

31A FRONT AXLE COMPONENTS

33A REAR AXLE COMPONENTS

35A WHEELS AND TYRES

35B TYRE PRESSURE MONITOR

36A STEERING ASSEMBLY

37A MECHANICAL COMPONENT CONTROLS

37B ELECTRONIC PARKING BRAKE

38C ANTI-LOCK BRAKING SYSTEM

X45

FEBRUARY 2009

Edition Anglaise

"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."

All copyrights reserved by Renault.

The reproduction or translation in part or whole of the present document, as well as the use of the spare parts reference numbering system, are prohibited without the prior written consent of Renault.

KOLEOS - Section 3

Contents

Page

30A	GENERAL INFORMATION		31A	FRONT AXLE COMPONENTS	
	Brake circuit Operating diagram	30A-1		Front brake disc shield: Removal - Refitting	31A-11
	Brake circuit Precautions for repair	30A-2		Front brake disc: Removal - Refitting	31A-13
	Brake circuit Bleeding	30A-3		Front brake disc: Description	31A-15
	Brake fluid: Specifications	30A-5		Hydraulic unit - master cylinder brake pipe: Removal - Refitting	31A-16
	Brake: Specifications	30A-6		Hydraulic unit - underbody union brake pipe: Removal - Refitting	31A-22
	Underbody height: Adjustment values	30A-7		Hydraulic unit - front left-hand calliper brake pipe: Removal - Refitting	31A-27
	Front axle: Adjustment values	30A-8		Hydraulic unit - front right-hand calliper brake pipe: Removal - Refitting	31A-32
	Front axle: Adjusting	30A-10		Front driveshaft hub carrier: Removal - Refitting	31A-39
	Rear axle: Adjustment values	30A-11		Hub carrier-driveshaft assembly: Removal - Refitting	31A-42
	Rear axle: Adjusting	30A-12		Front hub carrier bearing: Removal - Refitting	31A-47
				Spring and front shock absorber: Removal - Refitting	31A-49
31A	FRONT AXLE COMPONENTS			Front driveshaft lower arm: Removal - Refitting	31A-54
	Front brake pads: Removal - Refitting	31A-1		Front driveshaft lower arm ball joint: Check	31A-56
	Front brake hose: Removal - Refitting	31A-3			
	Front brake calliper: Removal - Refitting	31A-5			
	Front brake calliper: Repair	31A-7			
	Front brake calliper support: Removal - Refitting	31A-9			

Contents

31A FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting	31A-58
Front anti-roll bar: Removal - Refitting	31A-69

33A REAR AXLE COMPONENTS

Upper arm: Removal - Refitting	33A-45
Rear axle sub-frame: Removal - Refitting	33A-47

33A REAR AXLE COMPONENTS

Rear brake pads: Removal - Refitting	33A-1
Rear brake hose: Removal - Refitting	33A-3
Rear brake caliper: Removal - Refitting	33A-5
Rear brake calliper mounting: Removal - Refitting	33A-7
Rear brake disc shield: Removal - Refitting	33A-8
Rear brake disc: Removal - Refitting	33A-13
Rear brake disc: Description	33A-14
Rear brake lining: Removal - Refitting	33A-15
Brake pipe: Removal - Refitting	33A-18
Shock absorber: Removal - Refitting	33A-20
Rear suspension spring: Removal - Refitting	33A-22
Rear wheel hub: Removal - Refitting	33A-26
Rear stub-axle carrier: Removal - Refitting	33A-30
Rear anti-roll bar tie rod: Removal - Refitting	33A-41
Rear anti-roll bar: Removal - Refitting	33A-42
Lower trailing link: Removal - Refitting	33A-43

35A WHEELS AND TYRES

Wheel: Removal - Refitting	35A-1
Wheel: Balancing	35A-3
Tyres: Identification	35A-5
Tyres: Removal - Refitting	35A-6
Tyre inflation pressure: Identification	35A-8
Wheel rim: Identification	35A-9

35B TYRE PRESSURE MONITOR

SSPP: List and location of components	35B-1
SSPP: Precautions for repair	35B-3
Tyre pressure monitor computer: Removal - Refitting	35B-4
Pressure sensor: Removal - Refitting	35B-5
Tyre pressure monitor receiver: Removal - Refitting	35B-7

36A STEERING ASSEMBLY

Steering: List and location of components	36A-1
Steering rack: Removal - Refitting	36A-2
Track rod: Removal - Refitting	36A-12

Contents

36A STEERING ASSEMBLY

Axial ball joint linkage: Removal - Refitting	36A-14
Steering column: Removal - Refitting	36A-16
Steering rack gaiter: Removal - Refitting	36A-26
Bulkhead seal: Removal - Refitting	36A-27
Intermediate shaft: Removal - Refitting	36A-33
Steering wheel: Removal - Refitting	36A-39

37A MECHANICAL COMPONENT CONTROLS

Master cylinder: Removal - Refitting	37A-1
Brake servo: Removal - Refitting	37A-7
Vacuum pump: Removal - Refitting	37A-20
Accelerator/brake pedal assembly: Removal - Refitting	37A-23
Accelerator pedal: Removal - Refitting	37A-28
Brake pedal: Removal - Refitting	37A-31
Brake pedal switch: Removal - Refitting	37A-34
Parking brake lever: Removal - Refitting	37A-37
Parking brake lever: Adjusting	37A-38
Clutch control: List and location of components	37A-40
Clutch pedal: Removal - Refitting	37A-42
Clutch pedal position sensor: Removal - Refitting	37A-47

37A MECHANICAL COMPONENT CONTROLS

Clutch circuit: Bleeding	37A-48
Clutch master cylinder: Removal - Refitting	37A-55
Clutch pedal switch: Removal - Refitting	37A-61
Clutch circuit: Removal - Refitting	37A-66
Manual gearbox selector cable: Removal - Refitting	37A-70
Gear control unit: Removal - Refitting	37A-76
Automatic gear control cable: Removal - Refitting	37A-79
Mechanical gear control cable: Adjustment	37A-84
Parking brake cables: Removal - Refitting	37A-85

37B ELECTRONIC PARKING BRAKE

Assisted parking brake: List and location of components	37B-1
Emergency handle: Removal - Refitting	37B-3
Control unit: Removal - Refitting	37B-4
Handle: Removal - Refitting	37B-8

38C ANTI-LOCK BRAKING SYSTEM

ABS system: List and location of components	38C-1
Brake hydraulic assembly: Removal - Refitting	38C-4
Front wheel speed sensor: Removal - Refitting	38C-8
Rear wheel speed sensor: Removal - Refitting	38C-10

Contents

38C

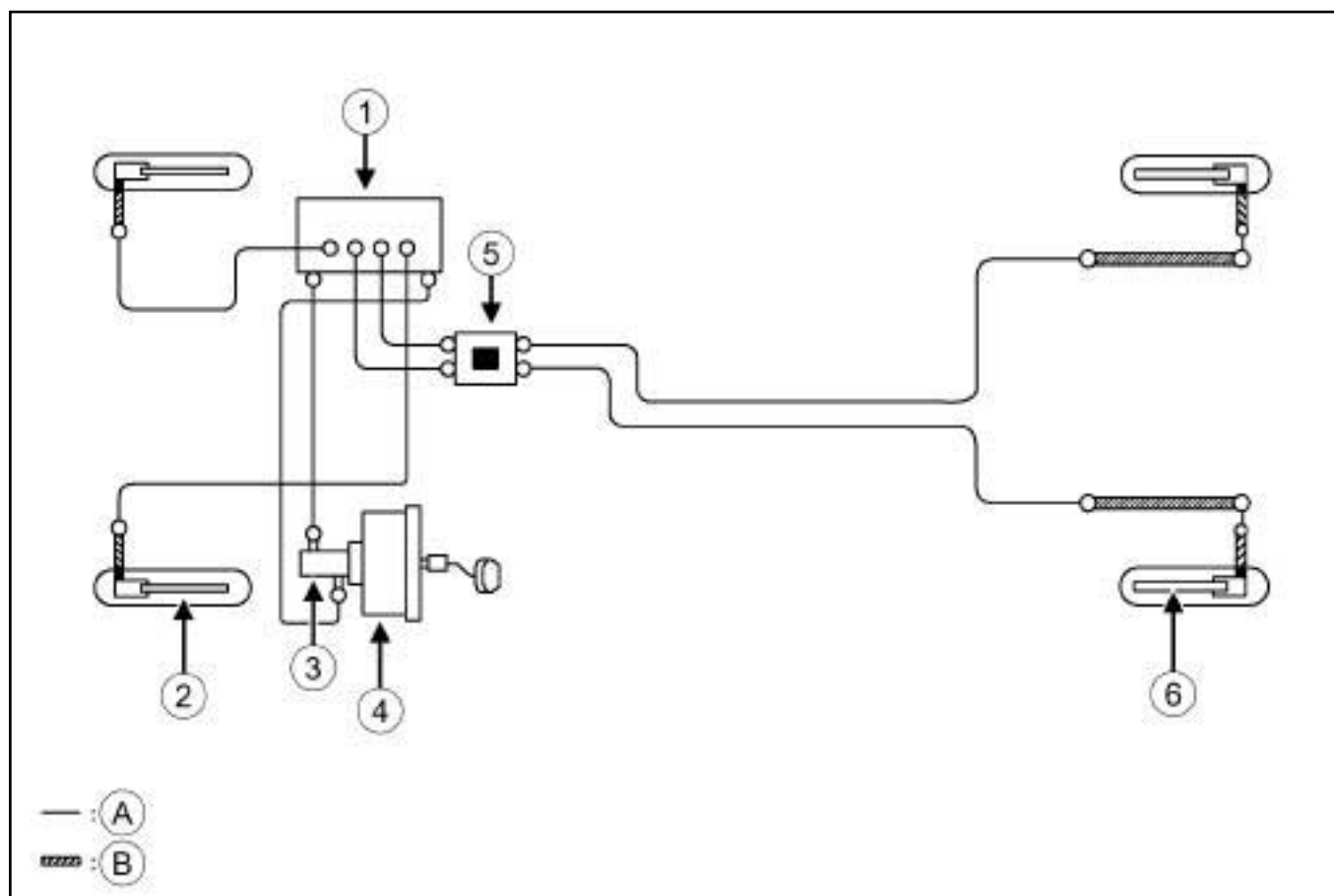
ANTI-LOCK BRAKING SYSTEM

Yaw speed and transversal acceleration sensor:	
Removal - Refitting	38C-12
Steering wheel angle sensor:	
Removal - Refitting	38C-14
Braking computer: Removal - Refitting	38C-16

GENERAL INFORMATION

Brake circuit Operating diagram

30A



130805

- (1) ABS hydraulic unit
- (2) Front brake disc
- (3) Master cylinder
- (4) Brake servo
- (5) Underbody connection
- (6) Rear brake disc
- (A) Rigid brake pipes
- (B) Brake hoses

IMPORTANT

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.

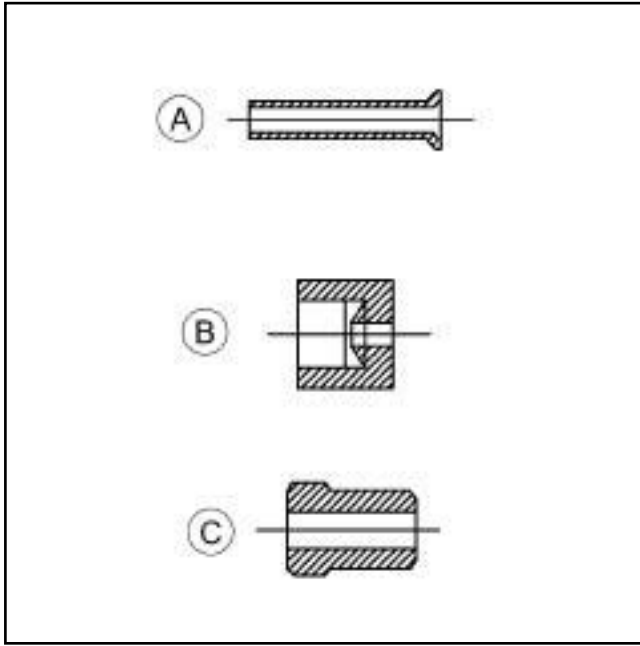
GENERAL INFORMATION

Brake circuit Precautions for repair

30A

Reminder:

- The pipes between the master cylinder, callipers and the hydraulic assembly are connected using threaded unions with a metric thread.
- Therefore, only parts specified in the Parts Catalogue for this vehicle should be used.



130806

Parts identification:

- shape of steel or copper pipe end piece (A) ,
- shape of threaded housing on components (B) ,
- shape of unions (C) .

GENERAL INFORMATION

Brake circuit Bleeding

30A

Essential equipment

- pedal press
- brake circuit bleeding device

Tightening torques

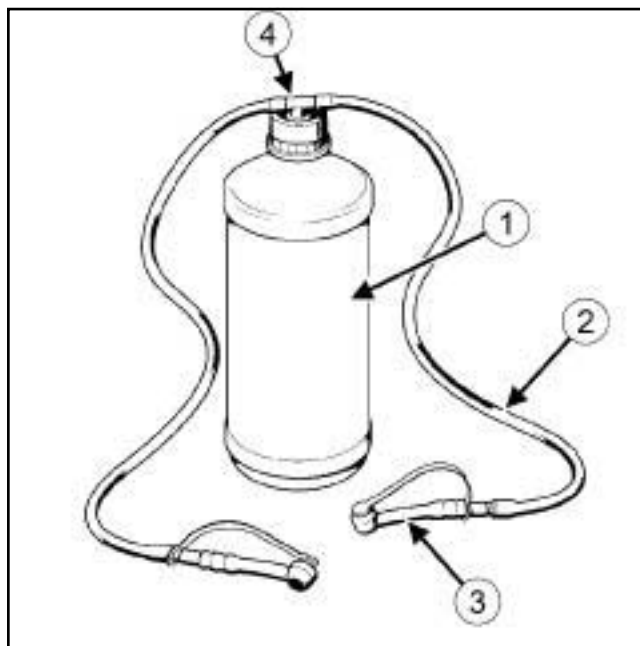
- | | |
|--------------------|-------|
| front bleed screws | 10 Nm |
| rear bleed screws | 10 Nm |

Precautions to be taken before and during the brake circuit bleeding operation:

- The ignition must be switched off to ensure that the hydraulic unit solenoid valves do not operate.
- use brake fluid which conforms to the Renault standard (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products),
- check the brake fluid levels in the brake circuit and the bleeding device,
- the braking regulation circuit must be free of all hydraulic and electrical faults,
- check that the pressure of the bleeding device is between **1.5 bar** and **2 bar**.

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.



130807

- ☐ 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) (part no: 00 00 081 501),
- 2 T-unions (4) .

Note:

The new hydraulic unit is pre-filled.

When working on one of the following components, position a **pedal press** to 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 (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ 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 < P < 2 bar** for **3 minutes** to stabilise it in the braking circuit.
- ☐ Close the circuit between the bleed screw and the brake fluid reservoir without letting the pressure fall.

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 four bleed screws of the callipers.
- ☐ Undo the calliper bleed screws:
 - front left,
 - front right,
 - rear left-hand,
 - rear right.
- ☐ 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,
 - front right,
 - rear left-hand,
 - rear right.
- ☐ Undo the calliper bleed screw:
 - front left,
 - 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,
 - rear left-hand,
 - rear right.
- ☐ 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 tightness of the **front bleed screws (10 Nm)** and the **rear bleed screws (10 Nm)** and make sure that the sealing caps are fitted.
- ☐ During a road test, trigger braking regulation to confirm that the brake pedal travel is correct.
- ☐ Clean any traces of brake fluid present on the vehicle with **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

BRAKE FLUID REPLACEMENT INTERVAL

Our braking technology, and in particular the disc brakes (hollow pistons which conduct little heat, have a low volume of fluid in the cylinder, sliding callipers avoiding the need for a fluid reserve in the least cooled area of the wheel), has allowed us to prevent the risk of « vapour lock » as far as possible, even with heavy braking (mountainous area). However, current brake fluids are subject to minor deterioration during the first months of use due to slight humidity intake. This is why it is recommended that you change the brake fluid: see **maintenance booklet for the vehicle**.

1 - Topping up the level

Wear of the brake pads will result in a gradual drop in the fluid level in the reservoir.

Do not top up the fluid, as the level will rise again when the pads are next changed. The brake fluid level must not fall below the minimum mark.

2 - Approved brake fluid

Using a mixture of two incompatible brake fluids in the brake circuit may give rise to:

- significant risk of leaks mainly due deterioration of the cups,
- impaired operation of the ESP system.

To prevent such risks, it is essential to use only brake fluids that comply with the RENAULT standard (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

GENERAL INFORMATION
Brake: Specifications

30A

FRONT BRAKE (mm)	
Piston diameter	45 x 2
Disc diameter	320
Disc thickness	28
Minimum disc thickness (1)	26
Maximum disc run-out	0.035
Brake pad thickness	10.0
Wear limit of brake pad thickness	2
Rear brake (mm)	
Piston diameter	42.86
Disc diameter	292
Drum diameter	172
Maximum drum diameter	173
Disc thickness	16
Minimum disc thickness (1)	14.0
Maximum disc run-out	0.070
Brake pad thickness	8.5
Wear limit of brake pad thickness	1.5
Brake pad thickness	3.25
Minimum thickness of disc lining	1.5
Master cylinder	
Diameter	23.81

(1) Brake discs cannot be reground. The brake discs must be replaced if they are excessively scratched or worn.

GENERAL INFORMATION

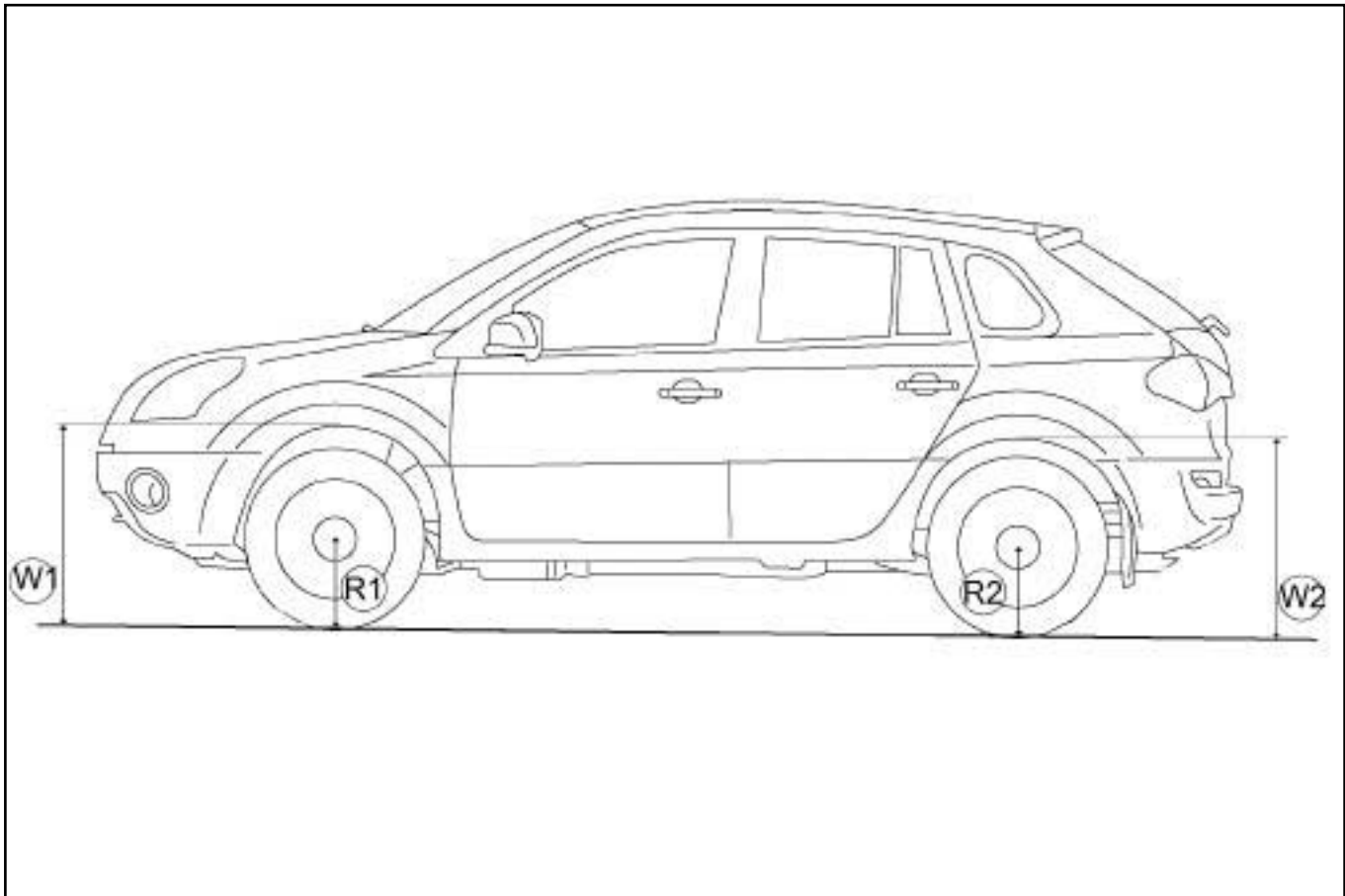
Underbody height: Adjustment values

30A

I - MEASURING POINTS

Note:

Measure the value unladen. Unladen means that the fuel tank and engine coolant and oil reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.



131428

- | | |
|------|--|
| (R1) | Distance between the ground and the front wheel axis. |
| (R2) | Distance between the ground and the rear wheel axis. |
| (W1) | Distance between the ground and the top of the front wheel arch. |
| (W2) | Distance between the ground and the top of the rear wheel arch. |

W1 = 779 mm ± 5 mm

W2 = 785 mm ± 5 mm

II - VEHICLE IN WORKING CONDITION

- Position VODM (Vehicle in working condition):
- Tank full,
 - Empty vehicle (without luggage, etc.).

GENERAL INFORMATION

Front axle: Adjustment values

30A

Note:

Measure the value unladen. Unladen means that the fuel tank and the engine and lubricant coolant reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.

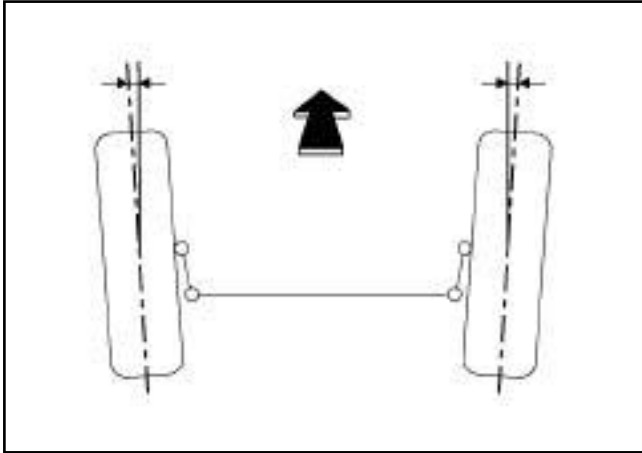
I - WHEEL ALIGNMENT: MEANING OF SYMBOLS

WARNING

Symbols used by RENAULT:

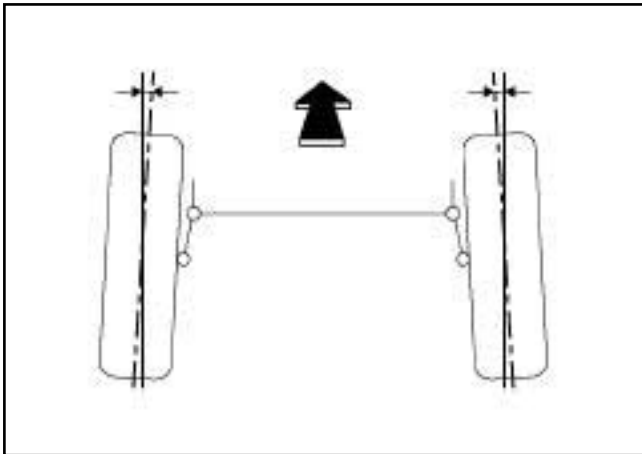
-: toe-out,
+: toe-in.

Toe-out: minus sign



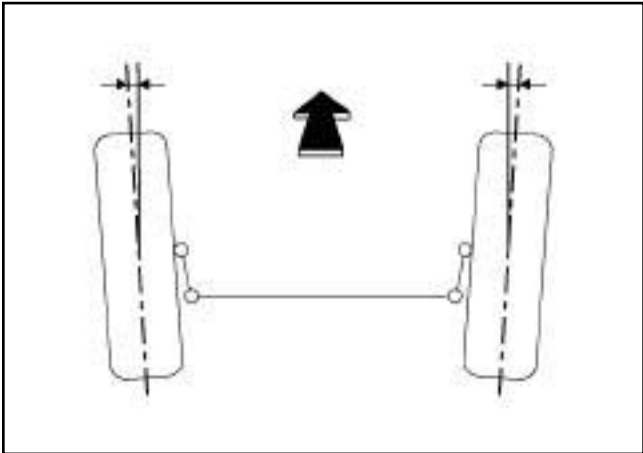
131429

Toe-in: plus sign



131430

II - WHEEL ALIGNMENT

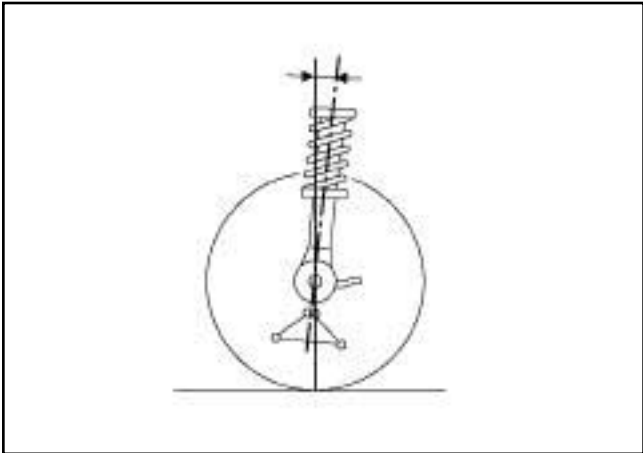


131429

Value	
2TR	M9R
0°05' ± 0°10'	0°05' ± 0°10'

III - CASTOR ANGLE

Not adjustable

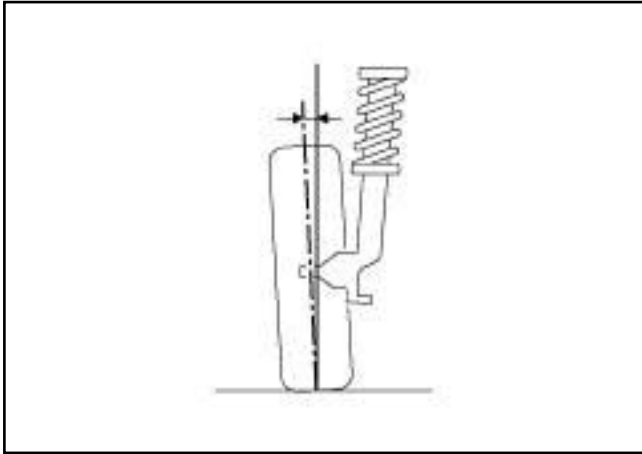


131432

Value	
2TR	M9R
4°40' ± 0°45'	4°35' ± 0°45'
Maximum right-left difference = 0°36'	

IV - CAMBER

Not adjustable

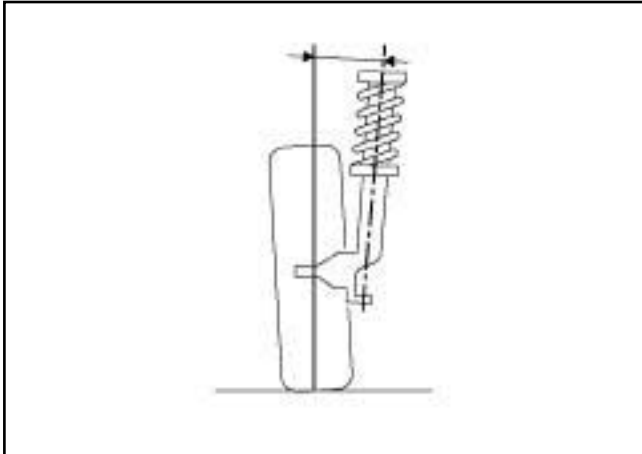


131433

Value
$-0^{\circ}30' \pm 0^{\circ}45'$
Maximum right-left difference = $0^{\circ}33'$

V - PIVOT

Not adjustable



131434

Value	
2TR	M9R
$10^{\circ}30' \pm 0^{\circ}45'$	$10^{\circ}35' \pm 0^{\circ}45'$

Essential equipment

steering wheel lock

Tightening torques

wheel alignment adjustment lock nut

88 N.m**I - ADJUSTMENT VALUES**

Note:

Measure the value unladen. Unladen means that the fuel tank and the engine and oil coolant reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.

(see **30A, General information, Front axle: Adjustment values**, page **30A-8**).

II - ADJUSTMENT

- ☐ Before checking the axle assemblies on the test bench, check the tyre inflation pressure (see **35A, Wheels and tyres, Tyre inflation pressure: Identification**, page **35A-8**) (35A, Wheels and tyres).

1 - Castor angle

- ☐ Not adjustable.

2 - Camber

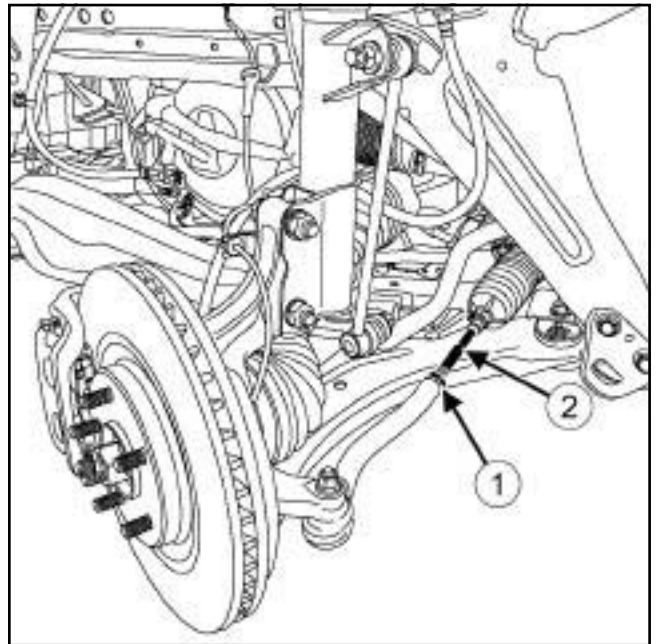
- ☐ Not adjustable.

3 - Pivot

- ☐ Not adjustable.

4 - Wheel alignment

- ☐ Set the wheels straight ahead.
- ☐ Lock the steering wheel using the **steering wheel lock**.
- ☐ Adjust the wheel alignment by rotating the track rod sleeves.



131435

- ☐ Loosen the wheel alignment adjustment lock nut (1).
- ☐ Turn the track rod sleeve (2) to obtain the required value.
- ☐ After adjustment, torque tighten the **wheel alignment adjustment lock nut (88 N.m)**.

GENERAL INFORMATION

Rear axle: Adjustment values

30A

Note:

Measure the value unladen. Unladen means that the fuel tank and the engine and oil coolant reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.

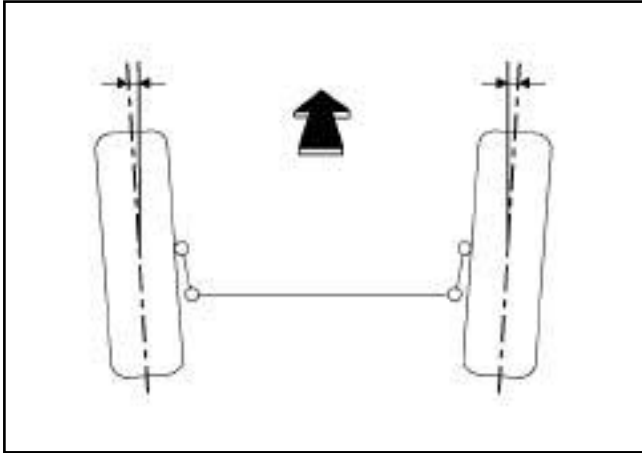
I - WHEEL ALIGNMENT: MEANING OF SYMBOLS

WARNING

Symbols used by RENAULT:

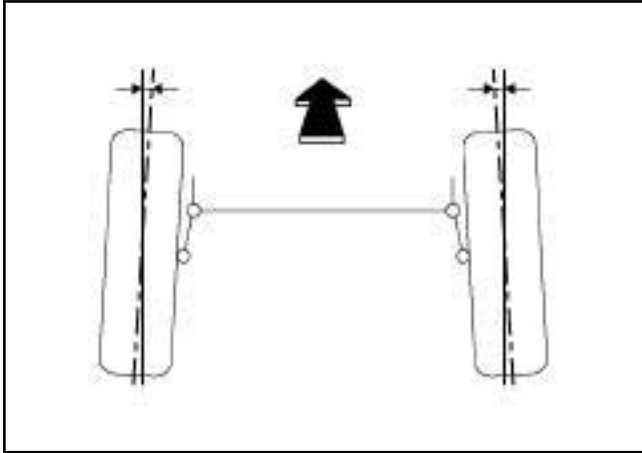
-: toe-out,
+: toe-in.

Toe-out: minus sign



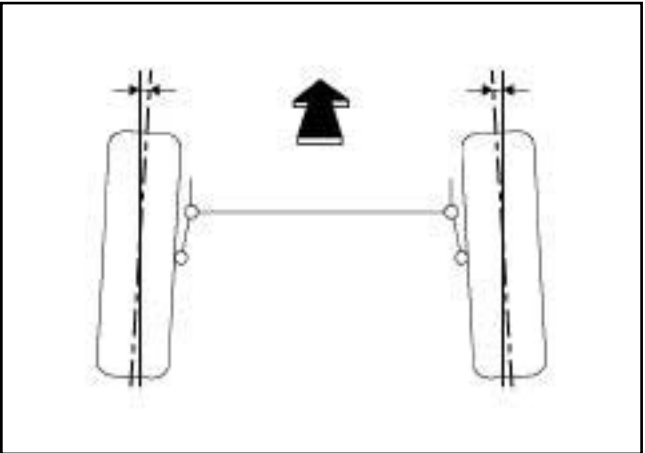
131429

Toe-in: plus sign



131430

II - WHEEL ALIGNMENT

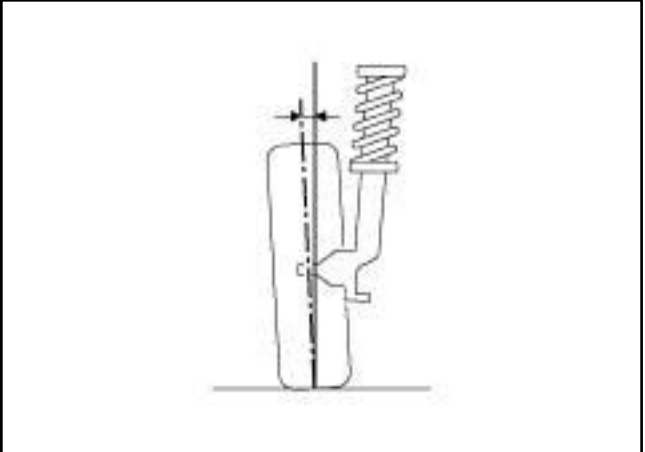


131430

Value

$0^{\circ}05' \pm 0.10'$

III - CAMBER



131433

Value

$0^{\circ}50' \pm 0.30'$

Tightening torques

nut on the lower trailing link on the rear axle subframe	130N.m
nut of the rear stub axle carrier	150N.m

I - ADJUSTMENT VALUES

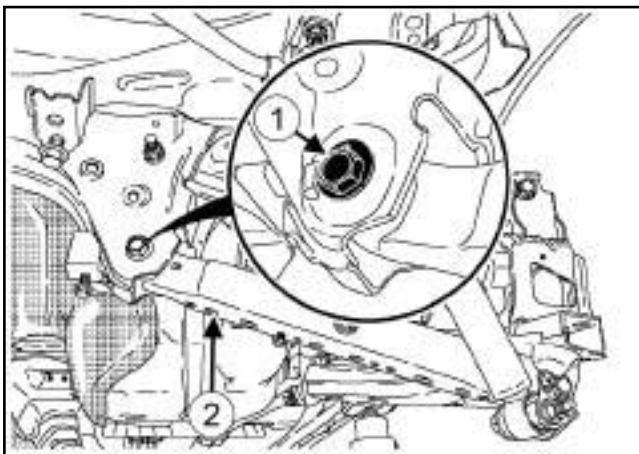
Note:

Measure the value unladen. Unladen means that the fuel tank and the engine and oil coolant reservoirs are full. The emergency spare wheel, jack, hand tools and carpets are in place.

(see **30 A, General information, Rear axle: Adjustment values**, page 30A-11) .

II - ADJUSTMENT

- ☐ Before checking the axle assemblies on the test bench, check the tyre inflation pressure (see **35A, Wheels and tyres, Tyre inflation pressure: Identification**, page 35A-8) (35A, Wheels and tyres).

1 - Camber

131440

- ☐ If the camber exceeds the adjustment value, adjust it using the adjusting screw (1) on the lower trailing link (2) .
- ☐ After adjusting, torque tighten the **nut on the lower trailing link on the rear axle subframe (130N.m)**.



Note:

After the adjustment, remember to check the toe-in.

2 - Toe-in

131441

- ☐ If the toe-in exceeds the adjustment value, adjust it using the adjusting screw (3) on the rear stub axle carrier (4) .
- ☐ After the adjustment, torque tighten the **nut of the rear stub axle carrier (150N.m)**.

FRONT AXLE COMPONENTS

Front brake pads: Removal - Refitting

31A

Essential special tooling

Fre. 1190-01 Brake calliper piston return tool.

Tightening torques

guide pin bolt **29 N.m**

Note:

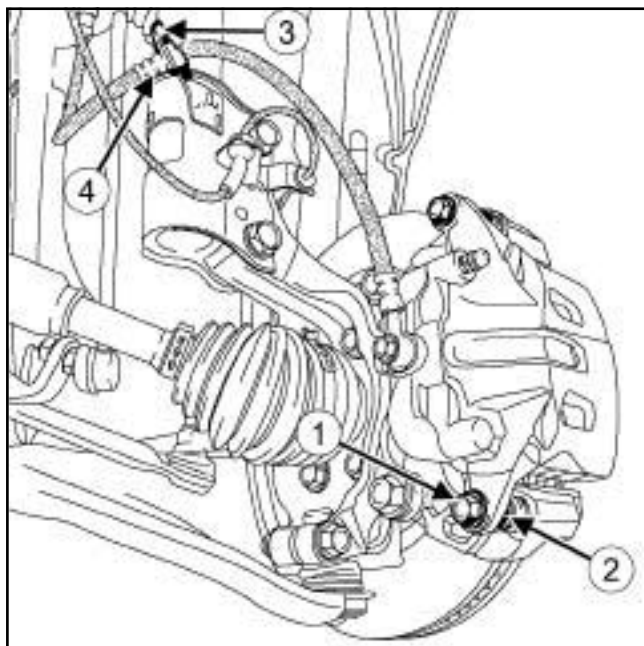
When replacing a brake pad, it is essential to replace the brake pad on the opposite side as well.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Unlock the steering column.
- ☐ Remove the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131446

- ☐ Remove the lower guide pin bolt (1) while holding the nut (2) .

- ☐ Unclip:
 - the clip (3) ,
 - the brake hose (4) from the shock absorber.
- ☐ Rotate the calliper upwards.
- ☐ Remove the brake pad.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the guide pin bolt.
- ☐ Check the brake pad thickness (see **30A, General information, Brake: Specifications**, page **30A-6**) (30A, General information).
- ☐ Replace any faulty parts.
- ☐ Clean:
 - the calliper,
 - the calliper mounting,
 - the calliper mounting bolts.
- ☐ Push the piston fully into its housing using tool (**Fre. 1190-01**) part no. **77 11 223 715**.

WARNING

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.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the brake pad, starting from the inside.
- ☐ Rotate the calliper downwards to return it to its original position.
- ☐ Refit the new guide pin bolt.
- ☐ Torque tighten the **guide pin bolt (29 N.m)**.
- ☐ Clip:
 - the brake hose to the shock absorber,
 - the clip.

FRONT AXLE COMPONENTS

Front brake pads: Removal - Refitting

31A

III - FINAL OPERATION.

- ☐ Refit the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

FRONT AXLE COMPONENTS

Front brake hose: Removal - Refitting

31A

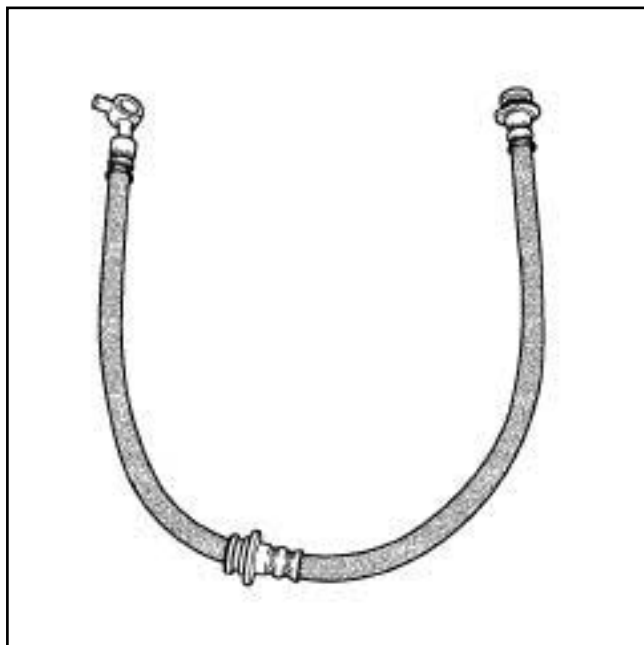
Essential equipment

pedal press

Tightening torques

brake hose on the calliper	18 N.m
----------------------------	--------

brake hose on the union	16 N.m
-------------------------	--------



131447

WARNING

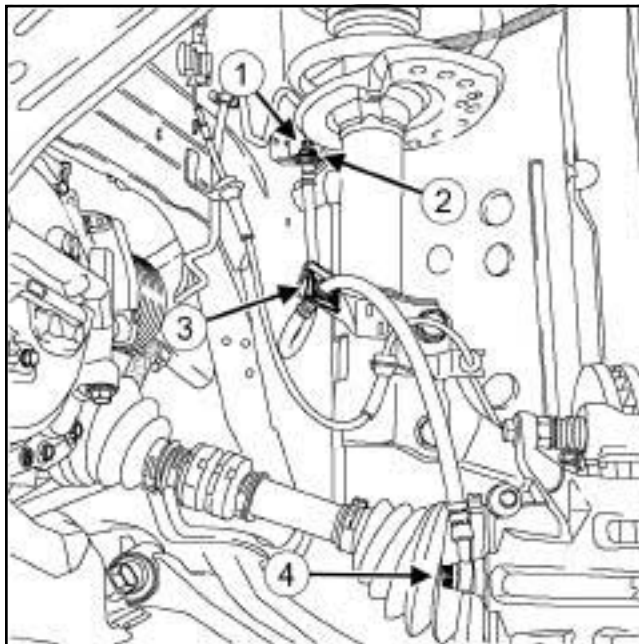
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Set the wheels straight ahead.
- ☐ Remove the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).
- ☐ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

II - OPERATION FOR REMOVAL OF PART CONCERNED



131448

- ☐ Undo the brake hose (1) at the union.
- ☐ Unclip:
 - the union clip (2) ,
 - the shock absorber clip (3) ,
 - the brake hose.
- ☐ Remove:
 - the brake hose bolt (4) on the calliper,
 - the brake hose.

REFITTING

I - REFITTING PREPARATION OPERATION

☐

WARNING

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.

Note:

The hoses supplied as replacement parts are encased in a spring to prevent them from being twisted during the refitting operation.

FRONT AXLE COMPONENTS

Front brake hose: Removal - Refitting

31A

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the brake hose bolt on the calliper side.
- ☐ Manually pretighten the brake hose bolt on the calliper.
- ☐ Clip on:
 - the brake hose,
 - the clip on the shock absorber,
 - the clip on the union.
- ☐ Refit the brake hose on the union side.
- ☐ Tighten to torque:
 - the **brake hose on the calliper (18 N.m)**,
 - the **brake hose on the union (16 N.m)**.

III - FINAL OPERATION.

- ☐ Remove the **pedal press** from the brake pedal.
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) (see 30A, General information).
- ☐ Refit the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

FRONT AXLE COMPONENTS

Front brake calliper: Removal - Refitting

31A

Essential equipment

pedal press

Tightening torques

guide pin bolts	29 N.m
brake hose on the calliper	18 N.m
brake calliper bolts	165 N.m

Note:

The callipers supplied as replacement parts are pre-filled with brake fluid.

REMOVAL

I - REMOVAL PREPARATION OPERATION

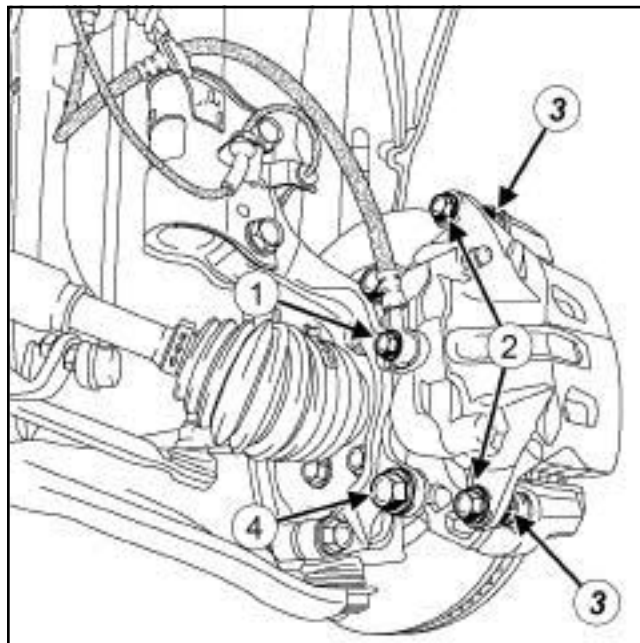
- ❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

WARNING

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

- ❑ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.
- ❑ Unlock the steering column.
- ❑ Remove the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131449

- ❑ Remove:

- the brake hose (1) from the calliper,
- the guide pin bolt (2) while holding the nut (3) ,
- the brake pad,
- the brake calliper bolts (4) ,
- the front brake calliper.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace the guide pin bolt.
- ❑ Check the condition of the gaiter and the calliper piston (replace defective parts).
- ❑ Clean the backplate and the calliper.
- ❑ Push the piston back until it is at the end of its bore.

WARNING

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.

FRONT AXLE COMPONENTS

Front brake calliper: Removal - Refitting

31A

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Set the front wheels straight.
- ☐ Without using a tool, screw the brake hose onto the calliper as tightly as possible.
- ☐ Refit:
 - the front brake calliper,
 - the brake calliper bolts,
 - the pads starting from the inside,
 - the new guide pin bolts.
- ☐ Torque tighten
 - the **guide pin bolts (29 N.m)**,
 - the **brake hose on the calliper (18 N.m)**,
 - the **brake calliper bolts (165 N.m)**.

III - FINAL OPERATION.

- ☐ Partially bleed the brake circuit if the compensation reservoir was not completely emptied during the operation.
- ☐ If necessary, bleed the circuit completely (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) (30A, General information).
- ☐ Check the brake fluid level.

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

- ☐ Refit the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

Essential special tooling

Fre. 1190-01 Brake calliper piston return tool.

Essential equipment

pedal press

WARNING

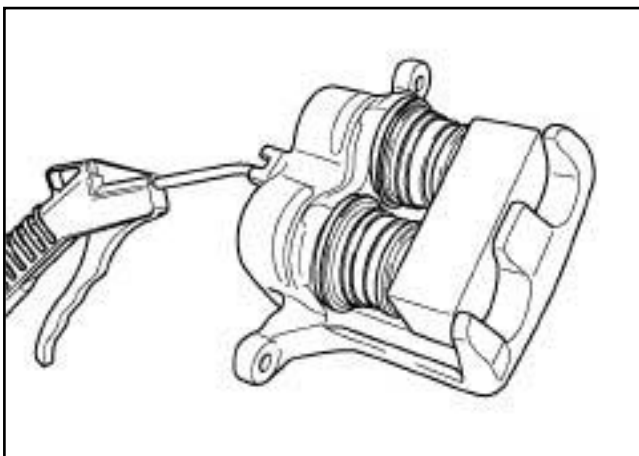
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REPAIR PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
 - the brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**).

II - REPAIR OPERATION FOR PART CONCERNED



131450

- ☐ Remove:
 - the piston using compressed air and taking care to place a wooden block between the calliper and the piston to avoid damaging it. Any sign of impact on the piston skirt makes it unfit for use,

- the dust seal.



131451

- ☐ Remove the rectangular section seal from the calliper groove using a round edged spring blade (feeler gauge).

Note:

The whole calliper must systematically be replaced if there are any scratches in the calliper bore.

- ☐ Clean the parts using methylated spirit.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the rectangular section seal in the calliper groove,
 - the piston (after having coated it with the grease supplied in the repair kit) using tool (**Fre. 1190-01**),
 - the dust seal.

II - FINAL OPERATION.

- ☐ Refit the brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**).
- ☐ Remove the **pedal press** from the brake pedal.
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) (see **30A, General information**).

- ❑ Refit the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

FRONT AXLE COMPONENTS

Front brake calliper support: Removal - Refitting

31A

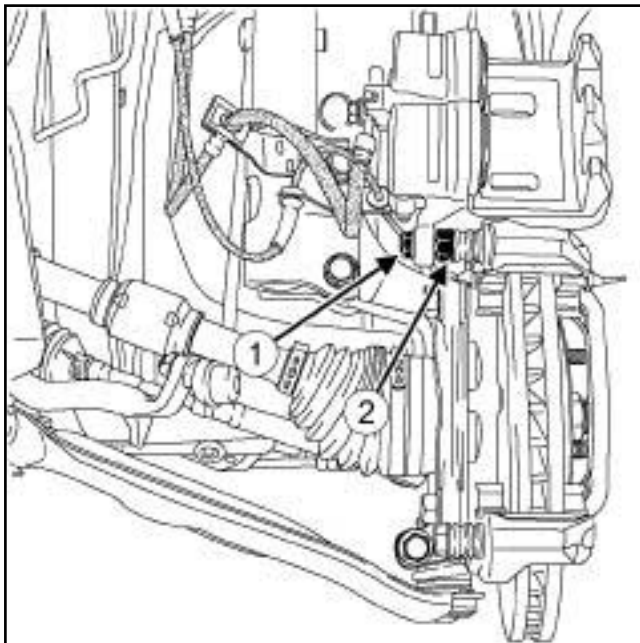
Tightening torques

calliper mounting bolts	165 N.m
guide pin bolt	29 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres),
 - the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page 31A-1) .



131452

- ☐ Remove the upper guide pin bolt (1) while holding the nut (2) .

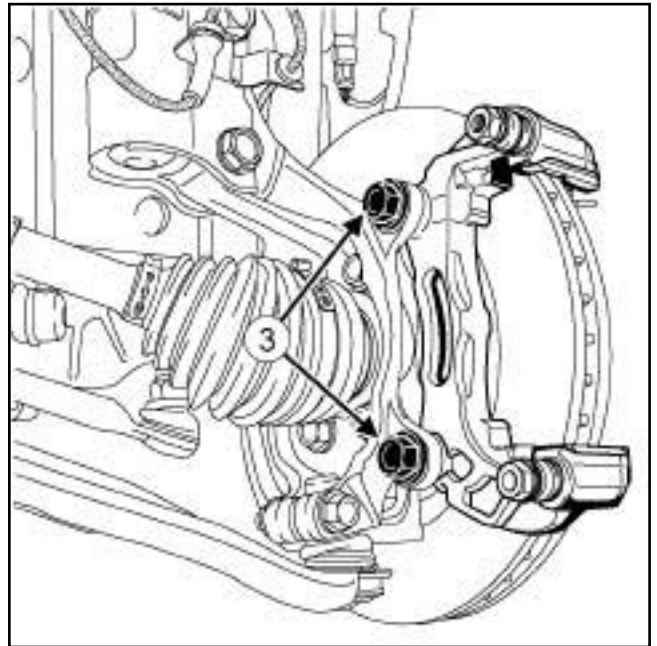
WARNING

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.

- ☐ Suspend the brake calliper from the suspension spring.

II - OPERATION FOR REMOVAL OF PART CONCERNED



131453

- ☐ Remove:
 - the calliper mounting bolts (3) ,
 - the calliper mounting.

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the upper guide pin bolt.
- ☐ Clean:
 - the calliper mounting,
 - the hub carrier.
- ☐ Coat the calliper mounting bolt with **HIGH STRENGTH THREAD LOCK** (see **Vehicle: Parts and ingredients for the repairwork**) or a similar product before refitting.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the calliper mounting,
 - the calliper mounting bolts.
- ☐ Torque tighten the **calliper mounting bolts (165 N.m)**.
- ☐ Refit:
 - the calliper,

Front brake calliper support: Removal - Refitting

- the new upper guide pin bolt.

- Torque tighten the **guide pin bolt (29 N.m)**.

III - FINAL OPERATION.

- Refit:

- the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting, page 31A-1**) ,

- the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting, page 35A-1**) (35A, Wheels and tyres).

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

FRONT AXLE COMPONENTS

Front brake disc shield: Removal - Refitting

31A

Tightening torques

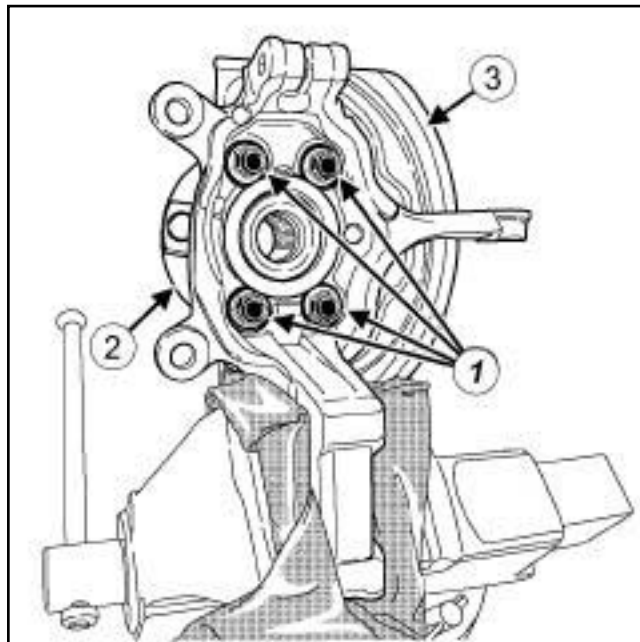
bolts of the front hub carrier bearing	88 N.m
--	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
 - the front brake hose (see **31A, Front axle components, Front brake hose: Removal - Refitting**, page **31A-3**).
 - the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**),
 - the front brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**),
 - the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page **31A-9**),
 - the brake disc (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page **31A-13**),
 - the front driveshaft hub carrier (see **31A, Front axle components, Front driveshaft hub carrier: Removal - Refitting**, page **31A-39**).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131461

- ☐ Remove:
 - the bolts (1) of the front hub carrier bearing,
 - the front hub carrier bearing (2),
 - the front brake disc guard (3).

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the bearing whenever a hub is removed.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the front brake disc guard,
 - the front hub carrier bearing,
 - the bolts of the front hub carrier bearing.
- ☐ Torque tighten the **bolts of the front hub carrier bearing (88 N.m)**.

FRONT AXLE COMPONENTS

Front brake disc shield: Removal - Refitting

31A

III - FINAL OPERATION.

□ Refit:

- the front driveshaft hub carrier (see **31A, Front axle components, Front driveshaft hub carrier: Removal - Refitting**, page **31A-39**) ,
- the brake disc (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page **31A-13**) ,
- the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the front brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake hose (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**) .
- the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

FRONT AXLE COMPONENTS

Front brake disc: Removal - Refitting

31A

Note:

Brake discs cannot be reground. If there is excessive scoring or wear, they will need to be replaced (see **30A, General information, Brake: Specifications**, page **30A-6**) (30A, General information).

When replacing a brake disc, be sure to replace the disc on the opposite side.

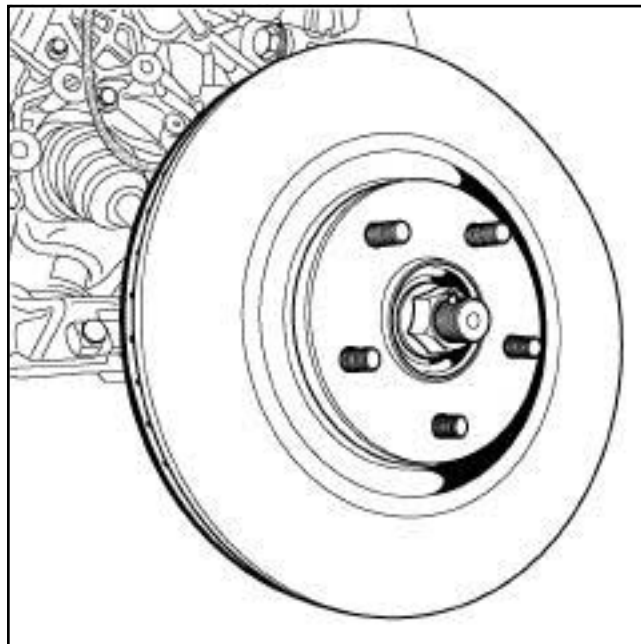
When replacing brake discs, you must replace the brake pads.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
 - the front brake hose (see **31A, Front axle components, Front brake hose: Removal - Refitting**, page **31A-3**) .
 - the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**) ,
 - the front brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**) ,
 - the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page **31A-9**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131455

- ☐ Remove the brake disc.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Clean the brake disc using brake cleaner.

II - REFITTING PART CONCERNED

- ☐ Refit the brake disc.

III - FINAL OPERATION.

☐ Refit:

- the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
- the front brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake hose (see **31A, Front axle components, Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

I - PREPARATION OPERATION FOR CHECK

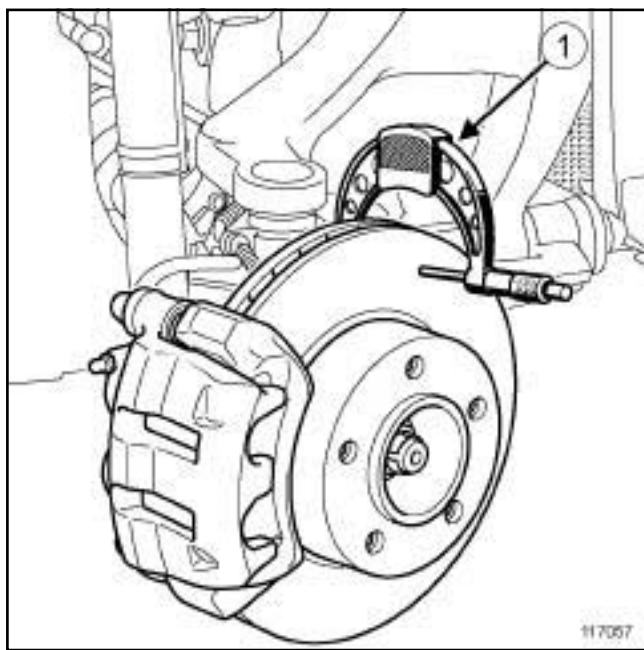
Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

Remove the wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

II - CHECKING OPERATION FOR PART CONCERNED

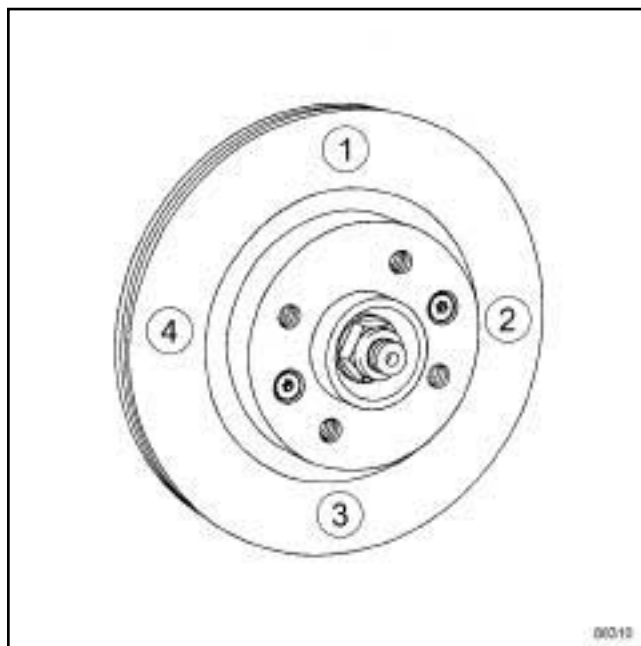
Note:

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 **30A, General information, Brake: Specifications**, page 30A-6) .

III - FINAL OPERATION

Replace the discs if necessary (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page 31A-13) .

Refit the wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

LEFT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

brake pipe unions on the hydraulic unit	16 N.m
brake pipe unions on the master cylinder	16 N.m
brake pipe unions on the hydraulic unit	18 N.m
brake pipe unions on the master cylinder	18 N.m

WARNING

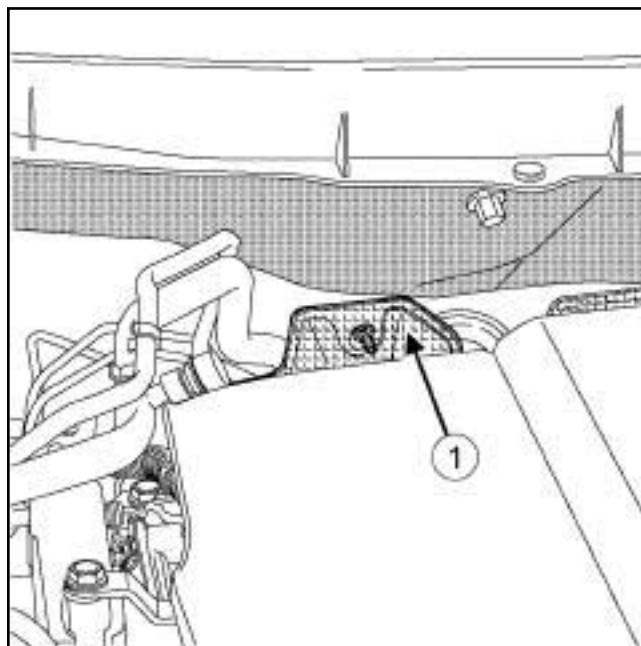
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove the engine undertray.
- ☐ Drain the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system).
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.
- ☐ Remove:
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),

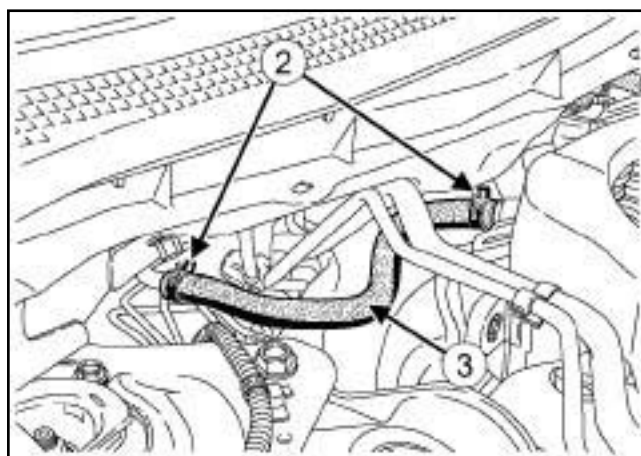
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

- ☐ Remove the insulation (1) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

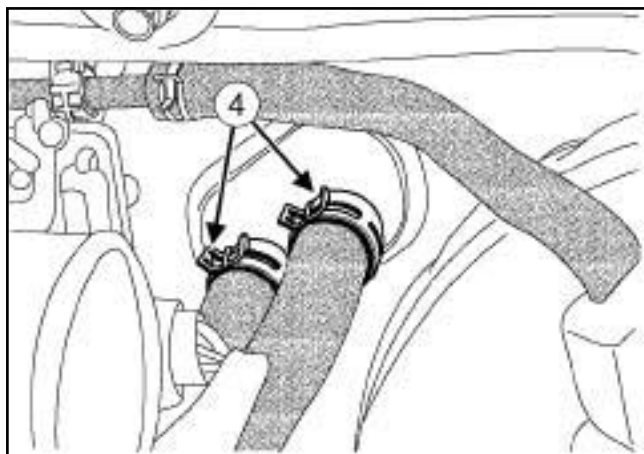
2TR



131552

- ☐ Remove:
 - the clips (2) ,
 - the vacuum hose (3) .

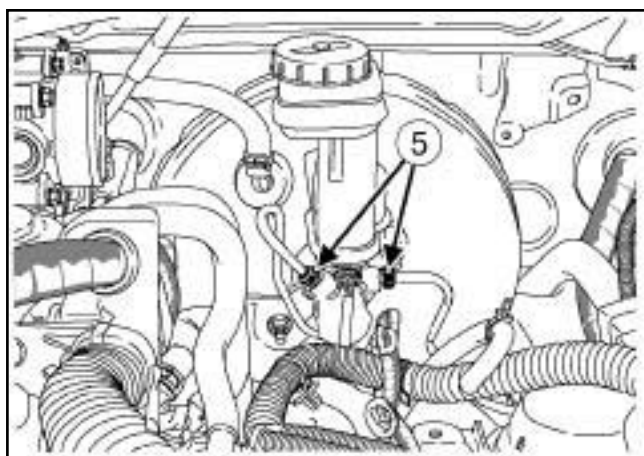
LEFT-HAND DRIVE



130898

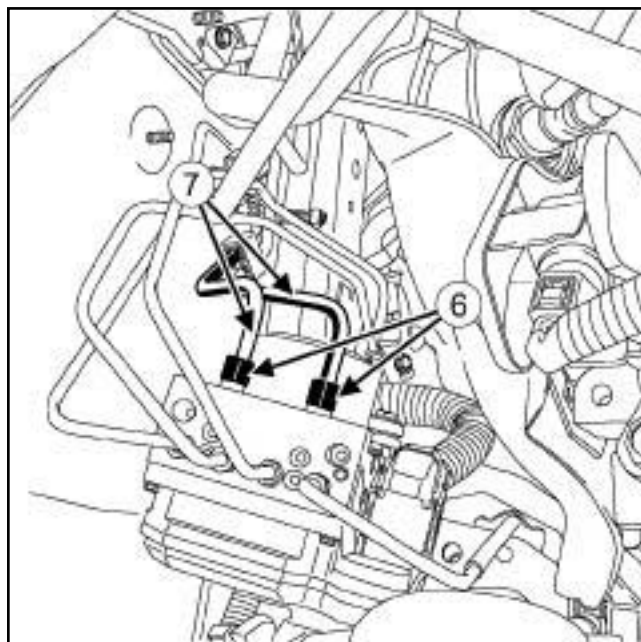
- ☐ Remove the clips (4) .
- ☐ Disconnect the heater matrix hoses.
- ☐ Remove the brake pipe between the hydraulic unit and the underbody union (see **31A, Front axle components, Hydraulic unit - underbody union brake pipe: Removal - Refitting, page 31A-22**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



130899

- ☐ Loosen the master cylinder brake pipe unions (5) .



130900

- ☐ Loosen the brake pipe unions (6) on the hydraulic unit.
- ☐ Remove the brake pipes (7) between the hydraulic unit and the master cylinder.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the brake pipes between the hydraulic unit and the master cylinder,
 - the brake pipe unions on the hydraulic unit,
 - the brake pipe unions on the master cylinder.

WITHOUT ESP

- ☐ Torque tighten:
 - the **brake pipe unions on the hydraulic unit (16 N.m)**,
 - the **brake pipe unions on the master cylinder (16 N.m)**,

LEFT-HAND DRIVE

ESP 2 or ESP

- ☐ Torque tighten:
 - the **brake pipe unions on the hydraulic unit (18 N.m)**,
 - the **brake pipe unions on the master cylinder (18 N.m)**.

II - FINAL OPERATION

- ☐ Refit the brake pipe between the hydraulic unit and the underbody union (see **31A, Front axle components, Hydraulic unit - underbody union brake pipe: Removal - Refitting**, page **31A-22**) .
- ☐ Connect the heater matrix hoses.
- ☐ Refit the clips.

2TR

- ☐ Refit:
 - the vacuum hose,
 - the clips.

☐ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

☐ Remove the **pedal press**.

☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) .

☐ Fill and bleed the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system).

☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

☐ Refit the engine undertray.

RIGHT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

brake pipe unions on the hydraulic unit	16 N.m
brake pipe unions on the master cylinder	16 N.m
brake pipe unions on the hydraulic unit	18 N.m
brake pipe unions on the master cylinder	18 N.m

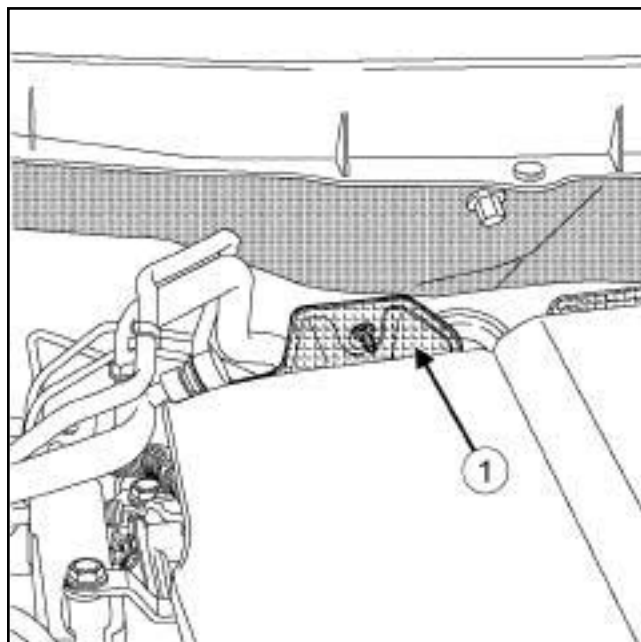
WARNING

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

REMOVAL

I - REMOVAL PREPARATION OPERATION

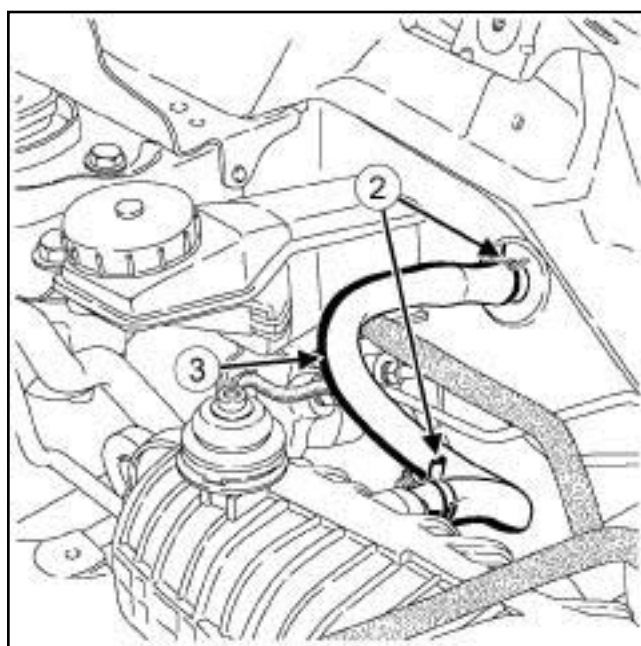
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.
- ☐ Remove:
 - the engine cover,
 - the air intake sleeve,
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

- ☐ Remove the insulation (1) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR

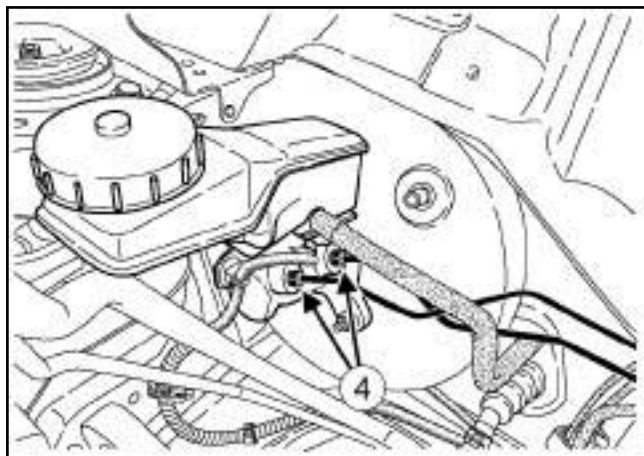


130901

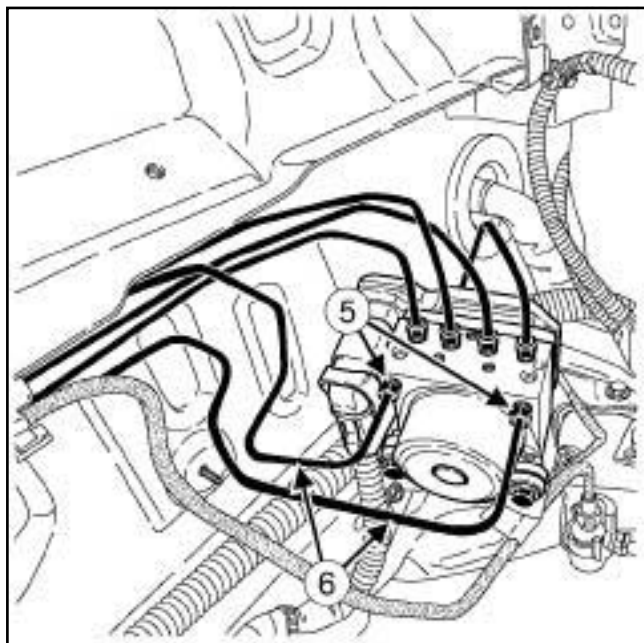
- ☐ Remove:
 - the clips (2) ,
 - the vacuum hose (3) .

RIGHT-HAND DRIVE

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ☐ Undo the brake pipe unions (4) on the master cylinder.



- ☐ Undo the brake pipe unions (5) on the hydraulic unit.
- ☐ Remove the brake pipes (6) between the hydraulic unit and the master cylinder.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the brake pipes (6) between the hydraulic unit and the master cylinder,
 - the brake pipe unions (5) on the hydraulic unit,

- the brake pipe unions (4) on the master cylinder.

WITHOUT ESP

- ☐ Torque tighten:
 - the **brake pipe unions on the hydraulic unit (16 N.m)**,
 - the **brake pipe unions on the master cylinder (16 N.m)**,

ESP 2 or ESP

- ☐ Torque tighten:
 - the **brake pipe unions on the hydraulic unit (18 N.m)**,
 - the **brake pipe unions on the master cylinder (18 N.m)**.

II - FINAL OPERATION

2TR

- ☐ Refit:
 - the vacuum hose (3) ,
 - the clips (2) .

RIGHT-HAND DRIVE

☐ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve,
- the engine cover.

☐ Remove the **pedal press**.

- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

LEFT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

brake pipe unions on the hydraulic unit **16 N.m**

underbody brake pipe unions **16 N.m**

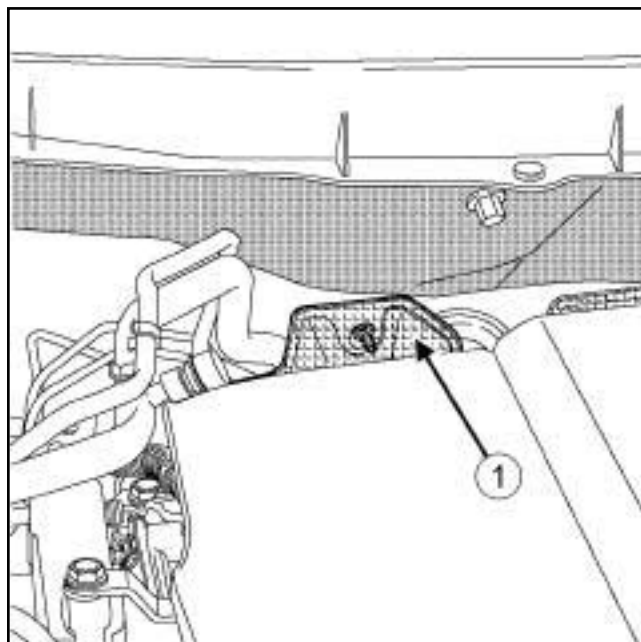
WARNING

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

REMOVAL

I - REMOVAL PREPARATION OPERATION

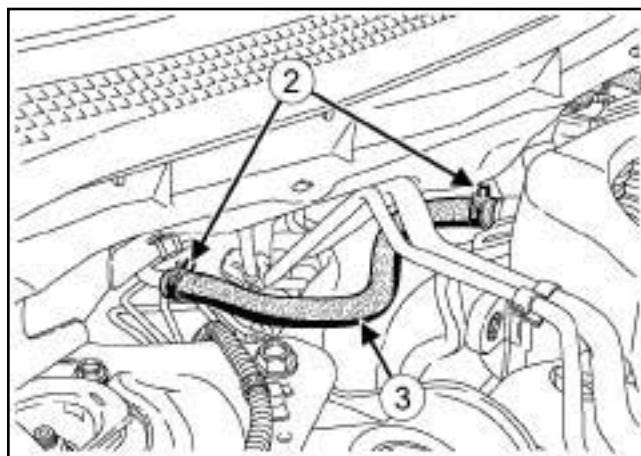
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.
- ☐ Remove:
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

- ☐ Remove the insulation (1) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR

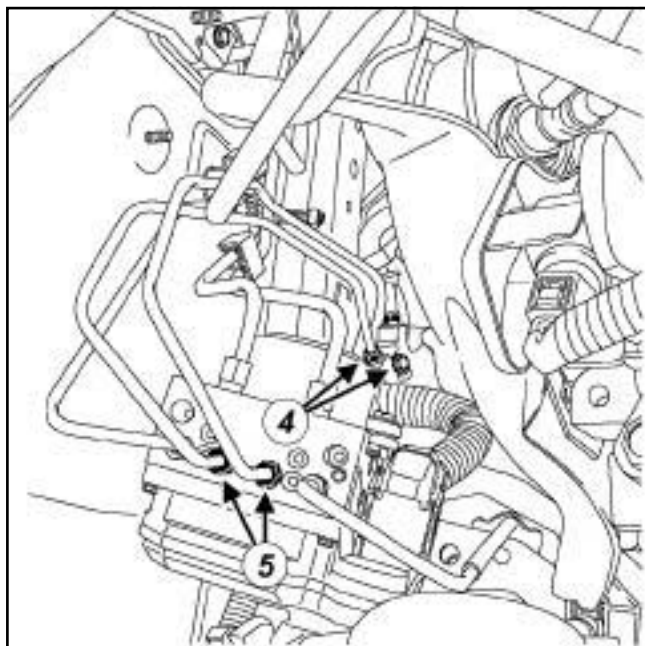


131552

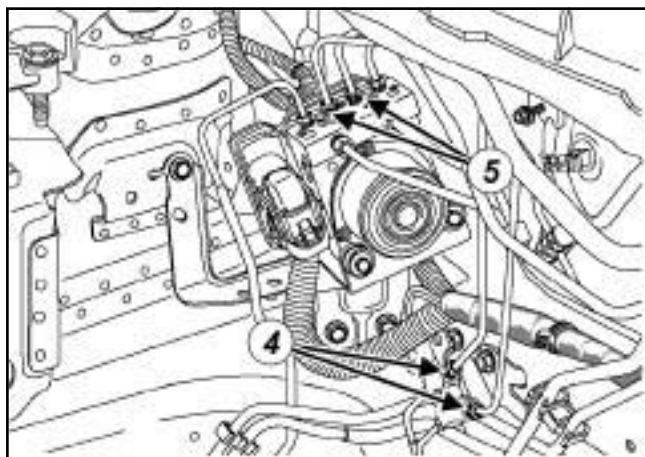
- ☐ Remove:
 - the clips (3) ,
 - the vacuum hose (2) .

LEFT-HAND DRIVE

II - OPERATION FOR REMOVAL OF PART CONCERNED



130906



130907

- ☐ Undo:
 - the underbody brake pipe unions (4) ,
 - the brake pipe unions (5) on the hydraulic unit.
- ☐ Remove the brake pipes between the hydraulic unit and the underbody brake pipe unions.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the brake pipes between the hydraulic unit and the underbody unions,

- the brake pipe unions on the hydraulic unit,
- the underbody brake pipe unions.

☐ Torque tighten:

- the **brake pipe unions on the hydraulic unit (16 N.m)**,
- the **underbody brake pipe unions (16 N.m)**.

II - FINAL OPERATION

2TR

☐ Refit:

- the vacuum hose (3) ,
- the clips (2) .

☐ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).

☐ Remove pedal press.

☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .

☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

RIGHT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

brake pipe unions on the hydraulic unit	16 N.m
---	--------

underbody brake pipe unions	16 N.m
-----------------------------	--------

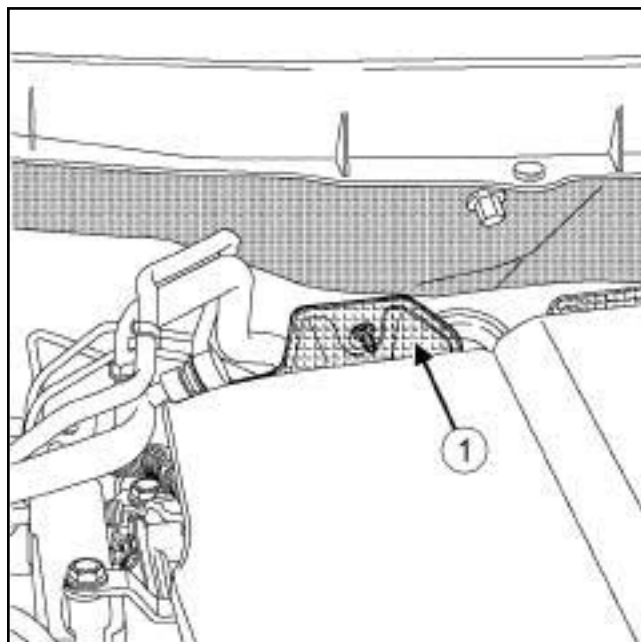
WARNING

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

REMOVAL

I - REMOVAL PREPARATION OPERATION

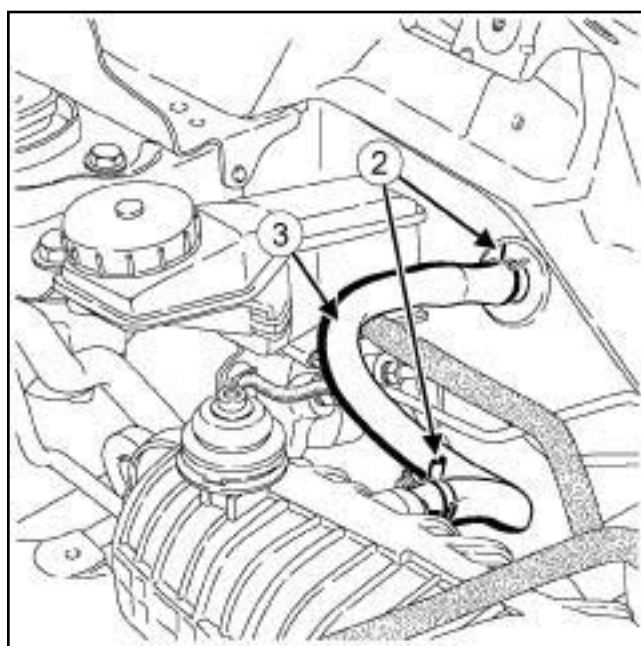
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.
- ☐ Remove:
 - the engine cover,
 - the air intake sleeve,
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

- ☐ Remove the insulation (1) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR



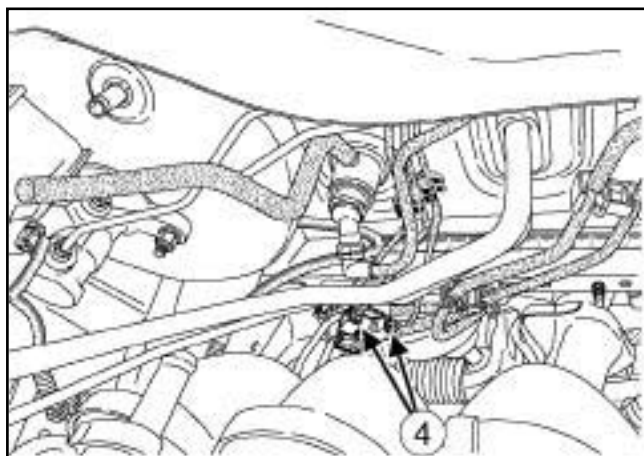
130901

- ☐ Remove:
 - the clips (2) ,
 - the vacuum hose (3) .

RIGHT-HAND DRIVE

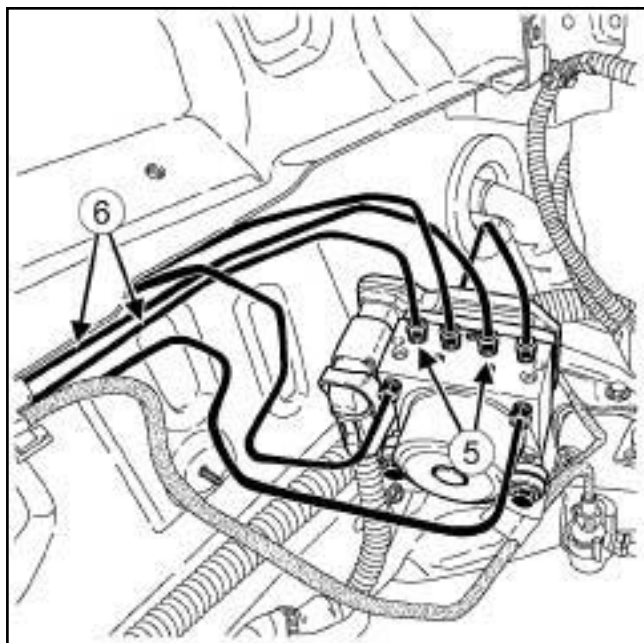
- ❑ Remove the brake pipe between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page 31A-16) (31A, Front axle components).

II - OPERATION FOR REMOVAL OF PART CONCERNED



130909

- ❑ Remove the underbody brake pipe unions (4) .



130903

- ❑
 - the brake pipe unions (5) on the hydraulic unit,
 - the brake pipes (6) between the hydraulic unit and the underbody brake pipe unions.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ❑ Refit:
 - the brake pipes between the hydraulic unit and the underbody unions,
 - the brake pipe unions on the hydraulic unit,
 - the underbody brake pipe unions.
- ❑ Torque tighten:
 - the **brake pipe unions on the hydraulic unit (16 N.m)**,
 - the **underbody brake pipe unions (16 N.m)**.

II - FINAL OPERATION

- ❑ Refit the brake pipe between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page 31A-16) (31A, Front axle components).

2TR

- ❑ Refit:
 - the vacuum hose,
 - the clips.
-
- ❑ Refit:
 - the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
 - the air intake sleeve,

RIGHT-HAND DRIVE

- the engine cover.

- ☐ Remove the **pedal press**.
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**).
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

LEFT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

brake pipe union on the hydraulic unit **16 N.m**

brake pipe union on the brake hose **16 N.m**

WARNING

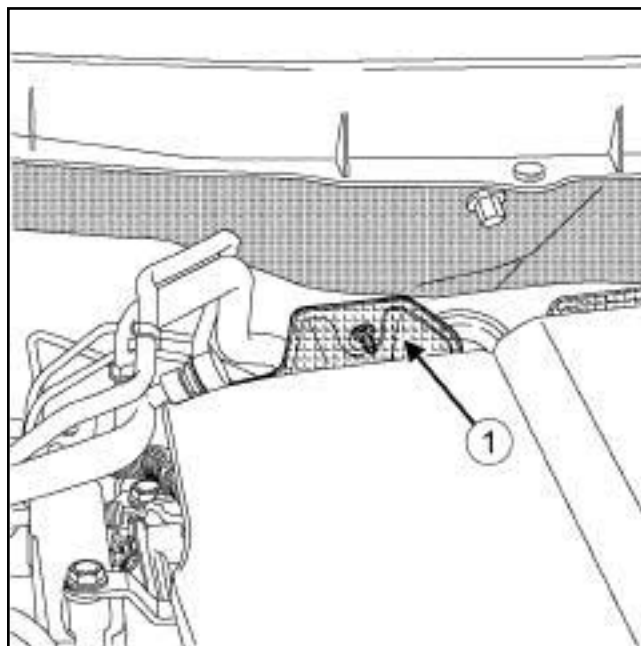
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.
- ☐ Remove the engine undertray.
- ☐ Drain the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system).
- ☐ Remove:
 - the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres),
 - the engine cover,
 - the air intake sleeve,
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),

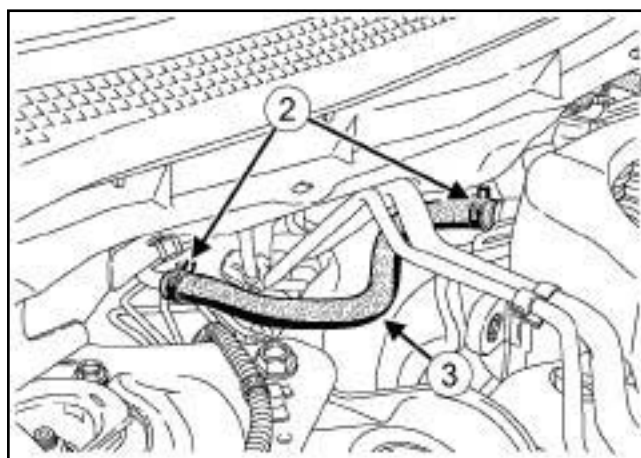
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

- ☐ Remove the insulation (1) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

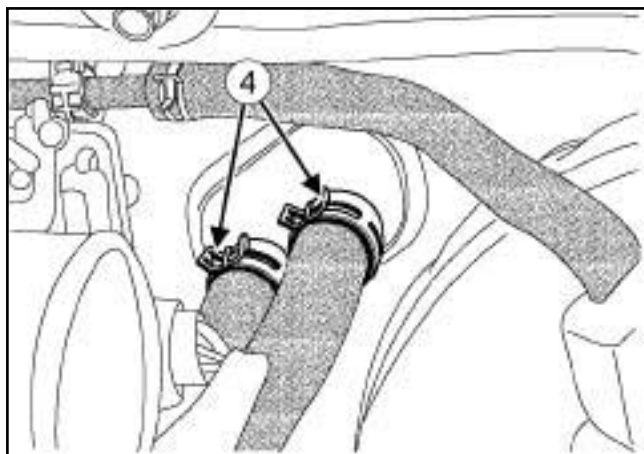
2TR



131552

- ☐ Remove:
 - the clips (2) ,
 - the vacuum hose (3) .

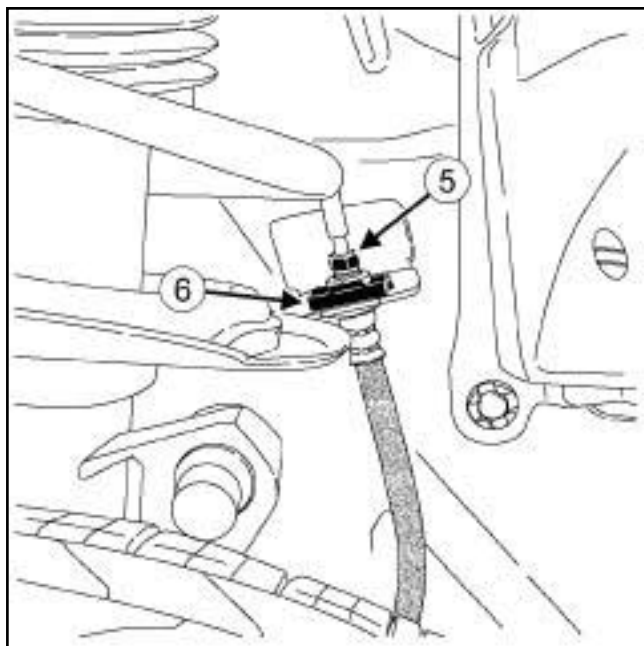
LEFT-HAND DRIVE



130898

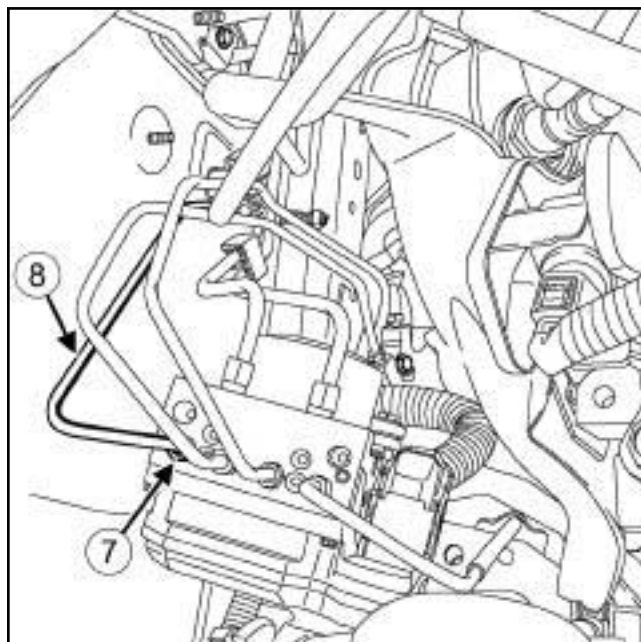
- ☐ Remove the clips (4) .
- ☐ Disconnect the heater matrix hoses.
- ☐ Remove the brake pipe between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) (31A, Front axle components).

II - OPERATION FOR REMOVAL OF PART CONCERNED



130914

- ☐ Undo the brake pipe union (5) .
- ☐ Remove the retaining clip (6) .



130915

- ☐ Undo the brake pipe union (7) on the hydraulic unit.
- ☐ Remove the brake pipe (8) between the hydraulic unit and the front left-hand brake hose.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the brake pipe between the hydraulic unit and the front left-hand brake hose,
 - the brake pipe union on the hydraulic unit,
 - the retaining clip,
 - the brake pipe union on the brake hose.
- ☐ Torque tighten:
 - the **brake pipe union on the hydraulic unit (16 N.m)**,
 - the **brake pipe union on the brake hose (16 N.m)**.

II - FINAL OPERATION

- ☐ Refit the brake pipe between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) (31A, Front axle components).

LEFT-HAND DRIVE

2TR

☐ Refit:

- the vacuum hose,
- the clips.

☐ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve,
- the engine cover,
- the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),

☐ Remove the **pedal press**.

☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**).

☐ Fill and bleed the cooling system (see **Cooling circuit: Draining - Refilling**) (19A, Cooling system).

☐ Refit the engine undertray.

☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

RIGHT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

brake pipe union on the hydraulic unit **16 N.m**

brake pipe union on the brake hose **16 N.m**

WARNING

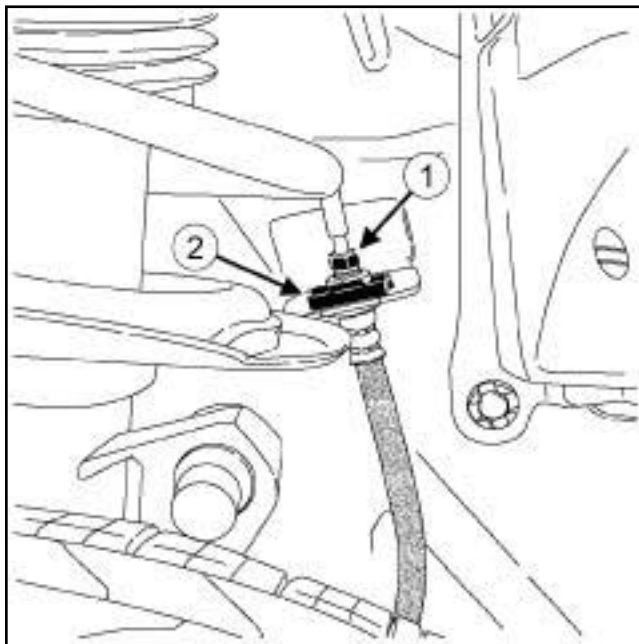
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REMOVAL PREPARATION OPERATION

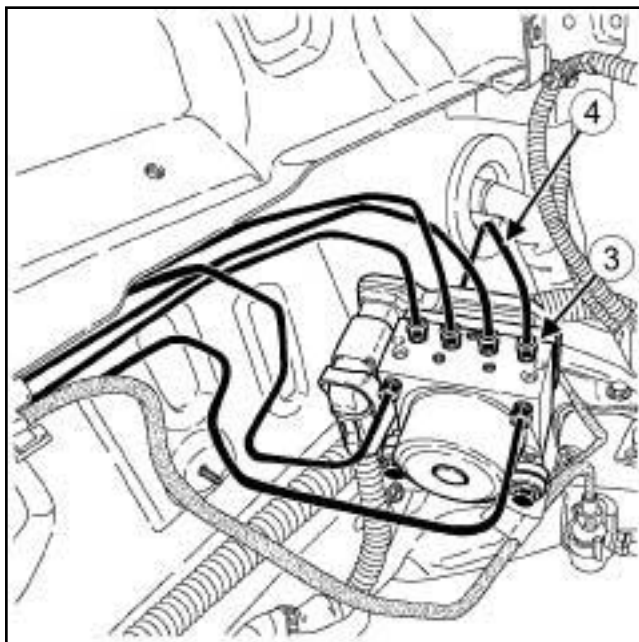
- ☐ Position the vehicle on a two-post lift (see **Position of the attachment points**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.
- ☐ Remove:
 - the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres),
 - the air intake sleeve,
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



130914

- ☐ Undo the brake pipe union (1) .
- ☐ Remove the retaining clip (2) .



130916

- ☐ Undo the brake pipe union (3) on the hydraulic unit.
- ☐ Remove the brake pipe (4) between the hydraulic unit and the front left-hand brake hose.

RIGHT-HAND DRIVE

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the brake pipe between the hydraulic unit and the front left-hand brake hose,
- the brake pipe union on the hydraulic unit,
- the retaining clip,
- the brake pipe union on the brake hose.

☐ Torque tighten:

- the **brake pipe union on the hydraulic unit (16 N.m)**,
- the **brake pipe union on the brake hose (16 N.m)**.

II - FINAL OPERATION

☐ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve,
- the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),

☐ Remove the **pedal press**.

☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) .

☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

LEFT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

brake pipe union on the hydraulic unit	16 N.m
--	---------------

brake pipe union on the brake hose	16 N.m
------------------------------------	---------------

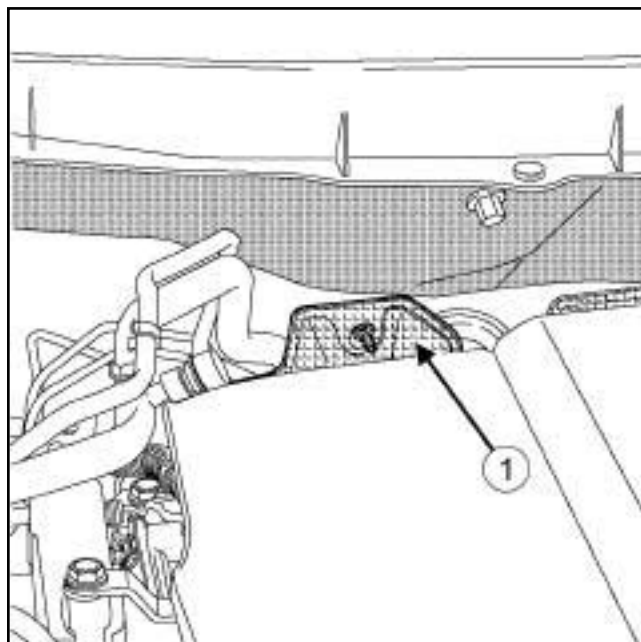
WARNING

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

REMOVAL

I - REMOVAL PREPARATION OPERATION

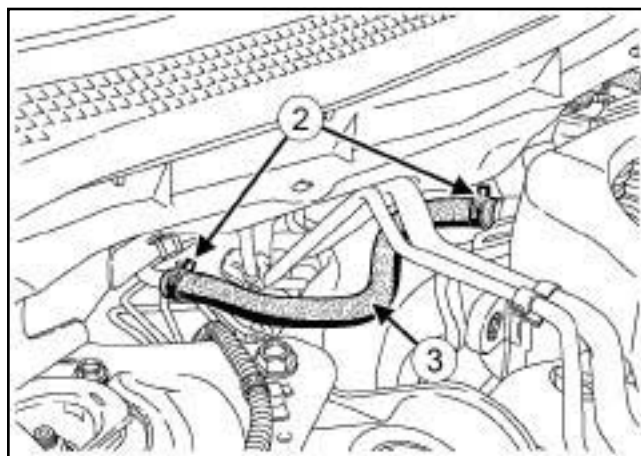
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.
- ☐ Remove:
 - the front right-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres),
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).



130896

- ☐ Remove the insulation (1) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

2TR

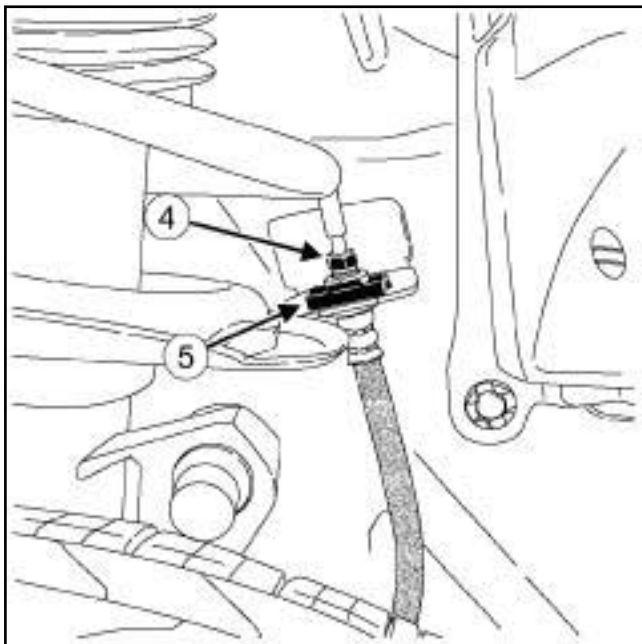


131552

- ☐ Remove:
 - clips (2) ,
 - the vacuum hose (3) .

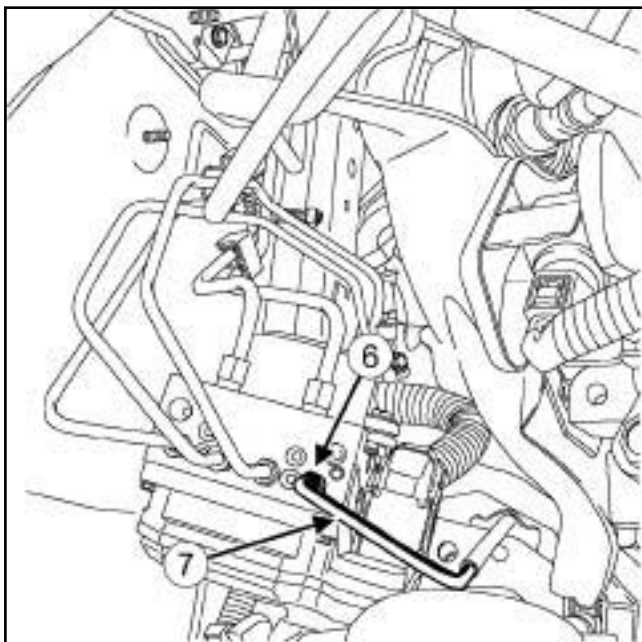
LEFT-HAND DRIVE

II - OPERATION FOR REMOVAL OF PART CONCERNED



130914

- ☐ Undo the brake pipe union (4) .
- ☐ Remove the retaining clip (5) .



130920

- ☐ Undo the brake pipe union (6) on the hydraulic unit.
- ☐ Remove the brake pipe (7) between the hydraulic unit and the front right-hand brake hose.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the brake pipe between the hydraulic unit and the front right-hand brake hose,
 - the brake pipe union on the hydraulic unit,
 - the retaining clip,
 - the brake pipe union on the brake hose.
- ☐ Torque tighten:
 - the **brake pipe union on the hydraulic unit (16 N.m)**,
 - the **brake pipe union on the brake hose (16 N.m)**.

II - FINAL OPERATION

2TR

- ☐ Refit:
 - the vacuum hose,
 - the clips.

LEFT-HAND DRIVE

☐ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (86A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the front right-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres),

☐ Remove the **pedal press**.

- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

RIGHT-HAND DRIVE

Essential equipment
refrigerant charging station
pedal press

Tightening torques 	
brake pipe union on the hydraulic unit	16 N.m
brake pipe union on the brake hose	16 N.m
pipe union bolt	4 N.m

WARNING

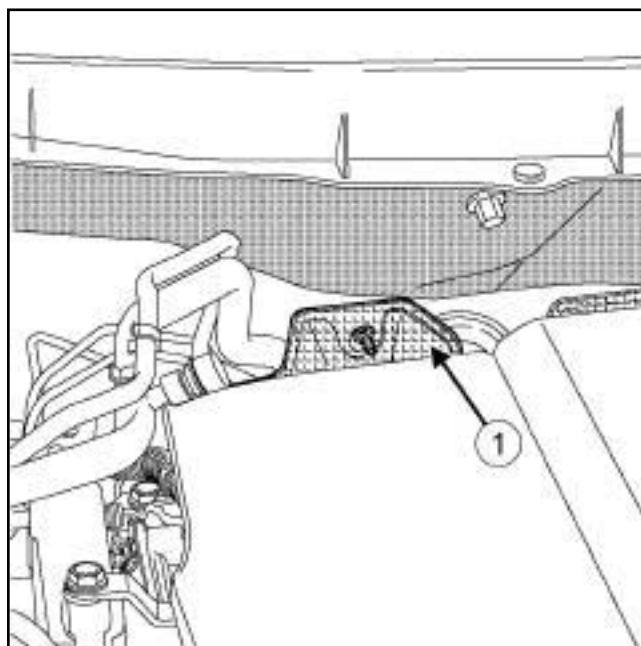
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Position of the attachment points**) (02A, Lifting equipment).
- ☐ Drain the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) 62A, Air conditioning).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.
- ☐ Remove:
 - the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres),
 - the engine cover,
 - the air intake sleeve,
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture)
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),

- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

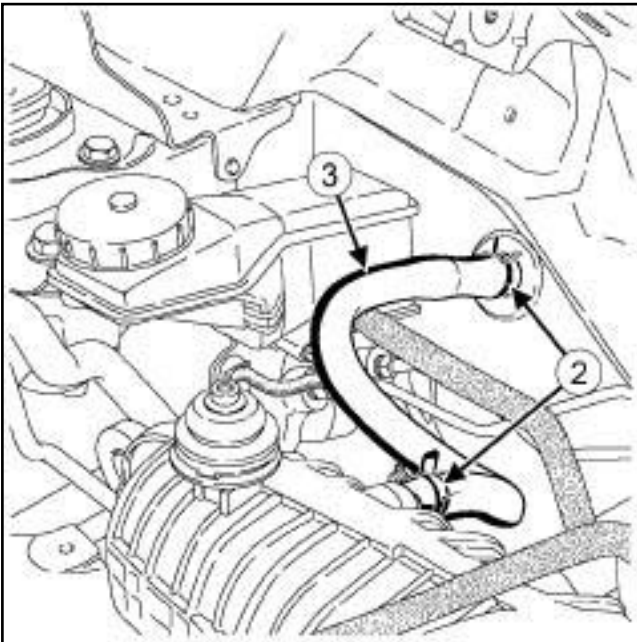


130896

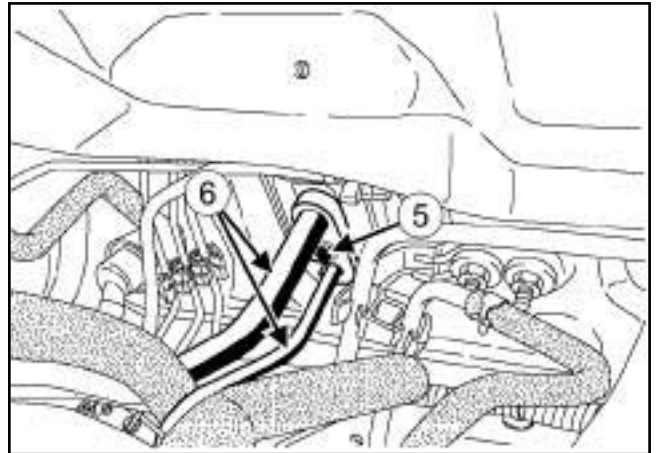
- ☐ Remove the insulation (1) from the bulkhead (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

RIGHT-HAND DRIVE

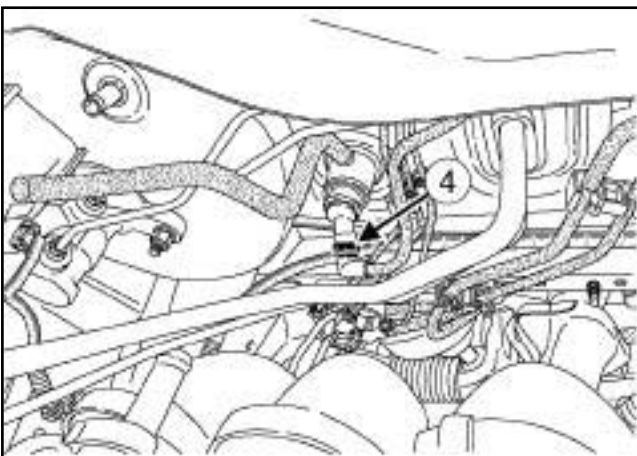
2TR



- ☐ Remove:
 - clips (2) ,
 - the vacuum hose (3) .



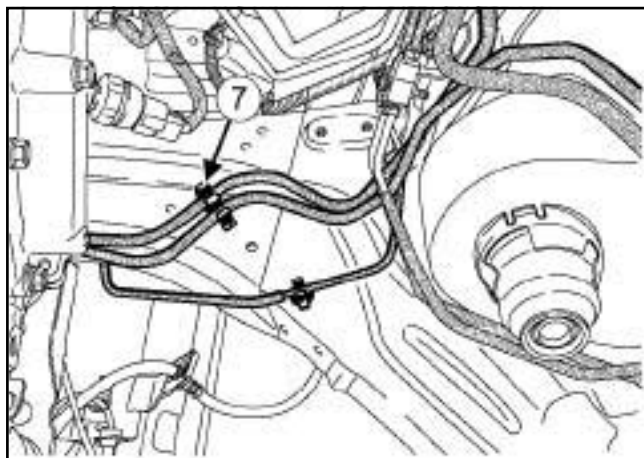
- ☐ Remove the bolt (5) from the pipe union.
- ☐ Disconnect the pipes (6) .



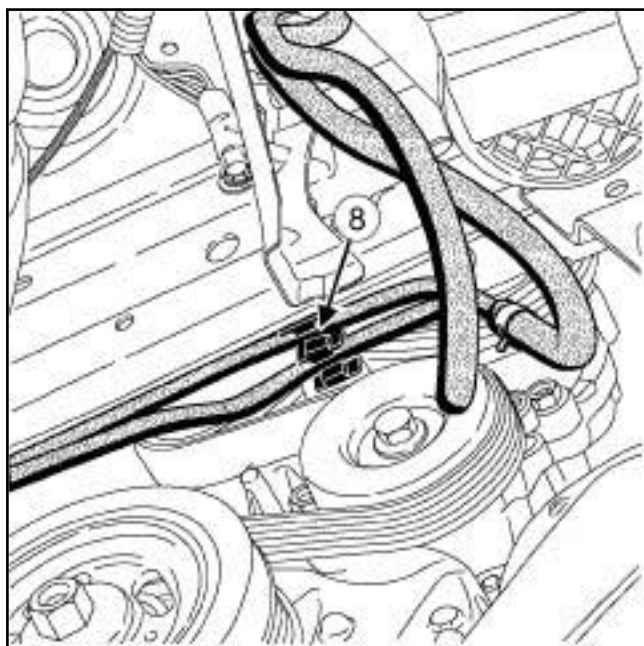
- ☐ Disconnect the clutch pipe (4) .

RIGHT-HAND DRIVE

2TR



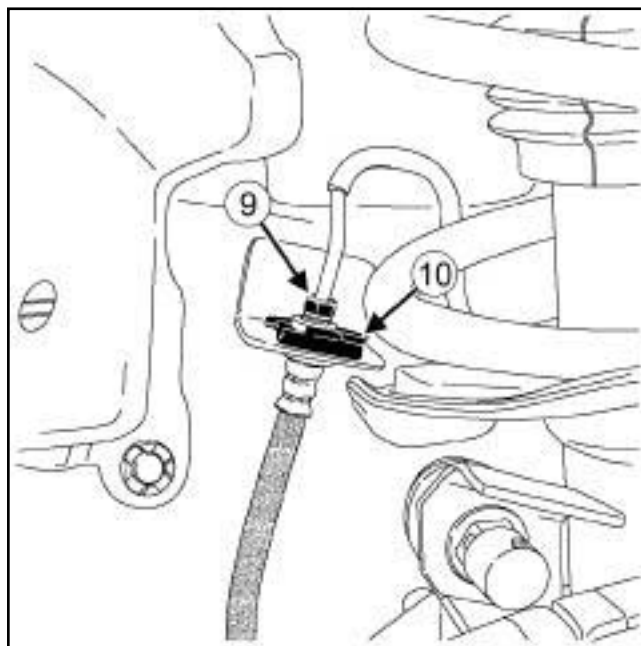
130924



130925

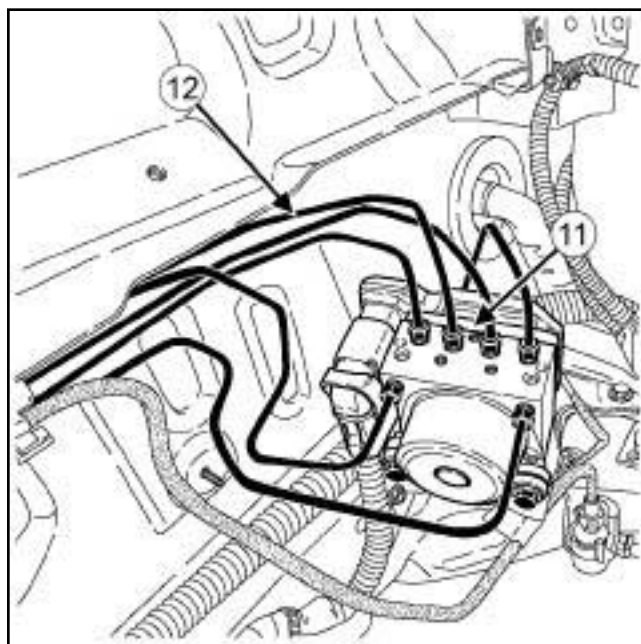
- ☐ Unclip the petrol vapour absorber pipe at (7) .
- ☐ Unclip the petrol vapour absorber pipe at (8) .
- ☐ Remove the brake pipe between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



130919

- ☐ Undo the brake pipe union (9) .
- ☐ Remove the retaining clip (10) .



130927

- ☐ Undo the brake pipe union (11) on the hydraulic unit.
- ☐ Remove the brake pipe (12) between the hydraulic unit and the front right-hand brake hose.

RIGHT-HAND DRIVE

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the brake pipe **(12)** between the hydraulic unit and the front right-hand brake hose,
- the brake pipe union **(11)** on the hydraulic unit,
- the retaining clip **(10)** ,
- the brake pipe union **(9)** on the brake hose.

☐ Torque tighten:

- the **brake pipe union on the hydraulic unit (16 N.m)**,
- the **brake pipe union on the brake hose (16 N.m)**.

II - FINAL OPERATION

- ☐ Refit the brake pipe between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page **31A-16**) .

2TR

☐ Clip:

- the petrol vapour absorber pipe at **(8)** ,
- the petrol vapour absorber pipe at **(7)**

- ☐ Connect the pipes **(6)** .

- ☐ Refit the pipe union bolt **(5)** .

- ☐ Torque tighten the **pipe union bolt (4 N.m)**.

- ☐ Connect the clutch pipe **(4)** .

2TR

☐ Refit:

- the vacuum hose **(3)** ,
- the clips **(2)** .

☐ Refit:

- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (86A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve,
- the engine cover,
- the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

- ☐ Remove the **pedal press**.

- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) .

- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

- ☐ Fill the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) 62A, Air conditioning).

- ☐ Check the sealing of the cooling system (see **Air conditioning: Check**) (62A, Air conditioning).

FRONT AXLE COMPONENTS

Front driveshaft hub carrier: Removal - Refitting

31A

Essential special tooling	
Rou. 604-01	Hub locking tool.
Tav. 1420-01	Screw jack for tools Tav. 1420, Tav.1050-04 , Tar. 1454, Tar. 1850.
Tav. 1050-04	Universal driveshaft pusher tool (back-plate and claws, without jack).
Tav. 476	Ball joint extractor.

Tightening torques 	
wheel speed sensor bolt	10 N.m
shock absorber lower nuts	142 N.m
lower arm ball joint nut	63 N.m
track rod ball joint nut	34 N.m
hub nut	125 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
 - the front brake hose (see **31A, Front axle components, Front brake hose: Removal - Refitting**, page **31A-3**).
 - the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**),
 - the front brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**),
 - the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page **31A-9**),
 - the brake disc (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page **31A-13**).

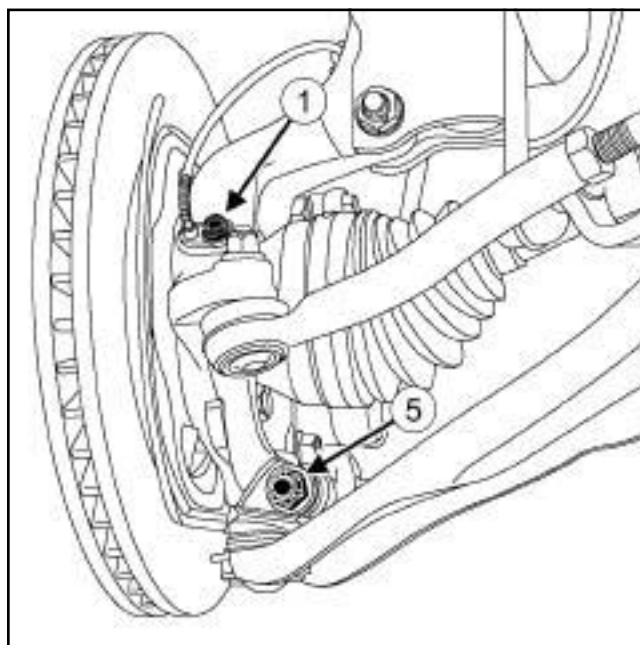
II - OPERATION FOR REMOVAL OF PART CONCERNED



WARNING

In order to prevent irreversible damage to the front hub bearing:

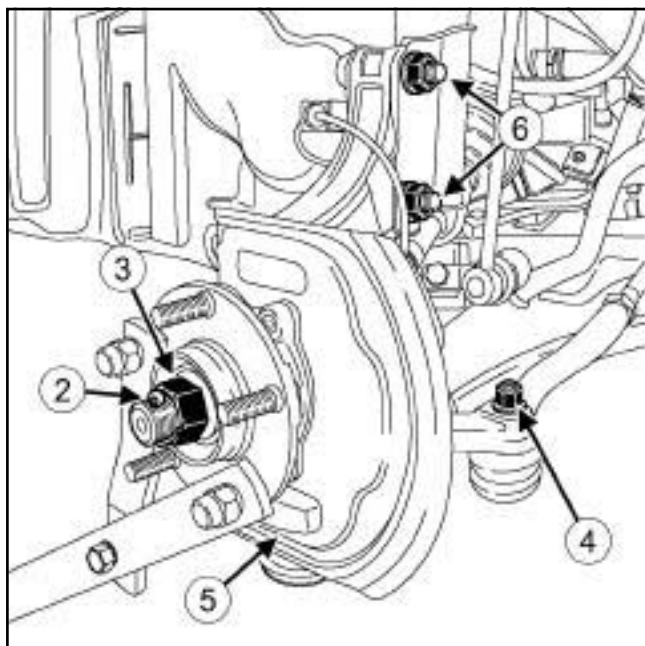
- Do not loosen or tighten the driveshaft nut when the wheels are on the ground.
- Do not place the vehicle with its wheels on the ground when the driveshaft has been loosened or removed.



131458

- ☐ Remove:

- the wheel speed sensor bolt (1),
- the wheel speed sensor.

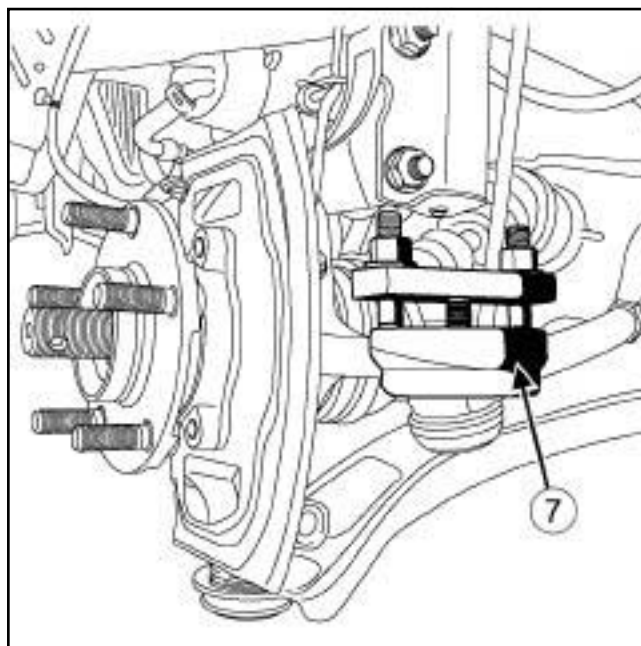


131459

❑ Remove:

- the driveshaft cotter pin (2) ,
- the nut (3) from the hub using the **(Rou. 604-01)**,
- the track rod ball joint nut (4) ,
- the lower arm ball joint nut (5) ,
- the shock absorber lower nuts (6) .

- ❑ Remove the driveshaft from the hub carrier using the **(Tav. 1420-01)** and **(Tav. 1050-04)**, if necessary.



131460

- ❑ Extract the track rod end using the **(Tav. 476) (7)** .

❑ Remove:

- the lower arm ball joint,
- the front driveshaft hub carrier.

REFITTING

I - REFITTING PREPARATION OPERATION

❑ Refit:

- the driveshaft on the hub carrier,
- the lower arm ball joint on the hub carrier,
- the track rod on the hub carrier,
- the shock absorber lower bolts and nuts,
- the lower arm ball joint nut,
- the track rod ball joint nut,
- the hub nut,
- the driveshaft cotter pin,
- the wheel speed sensor,
- the wheel speed sensor bolt.

❑ Torque tighten:

- the **wheel speed sensor bolt (10 N.m)**,
- the **shock absorber lower nuts (142 N.m)**,
- the **lower arm ball joint nut (63 N.m)**,
- the **track rod ball joint nut (34 N.m)**,
- the **hub nut (125 N.m)**, using the **(Rou. 604-01)**.

II - FINAL OPERATION.

☐ Refit:

- the brake disc (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page **31A-13**) ,
- the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page **31A-9**) .
- the front brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front brake hose (see **31A, Front axle components, Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

- ☐ Check the front axle geometry (see **30A, General information, Front axle: Adjusting**, page **30A-10**) (30A, General information).

Essential special tooling

Tav. 476 Ball joint extractor.

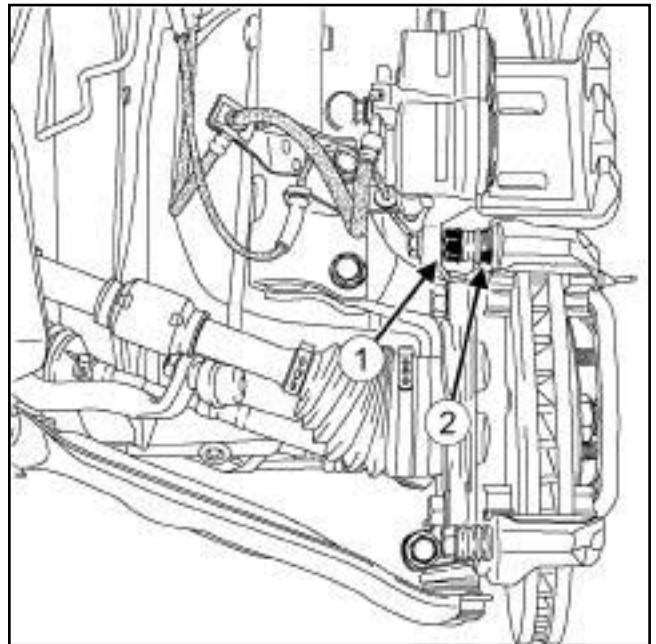
Tightening torques

driveshaft bearing bracket bolts [2TR]	30 N.m
driveshaft bearing bracket bolts [M9R]	25 N.m
shock absorber lower nuts	142 N.m
lower arm ball joint nut	63 N.m
track rod ball joint nut	34 N.m
wheel speed sensor bolt	10 N.m
guide pin bolts	29 N.m

REMOVING - REFITTING

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Drain the gearbox (see **Manual gearbox oil: Draining - Refilling**) (21A, Manual gearbox).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the front brake pads (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page 31A-1) .

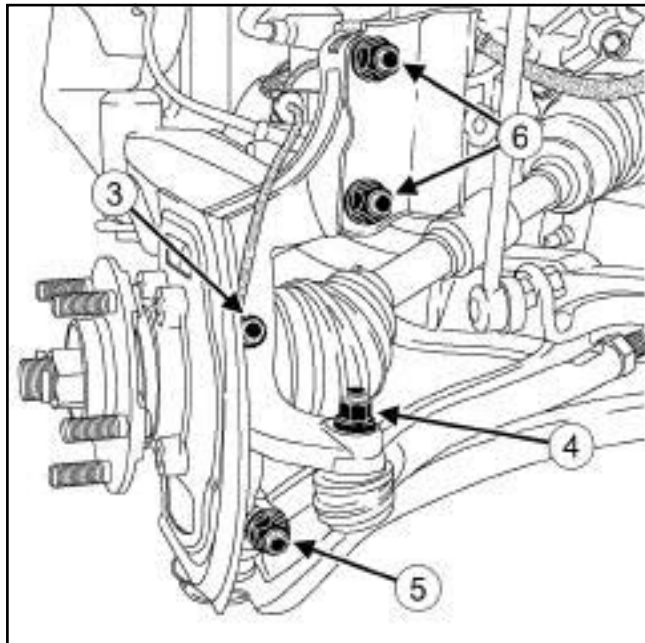


132612

- ☐ Remove the guide pin bolt (1) while holding the nut (2) .
- ☐ Suspend the brake calliper from the suspension spring.
- ☐ Remove:
 - the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page 31A-9) ,
 - the brake disc (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page 31A-13) .
- ☐ Repeat the operation on the opposite side.

II - OPERATION FOR REMOVAL OF PART CONCERNED

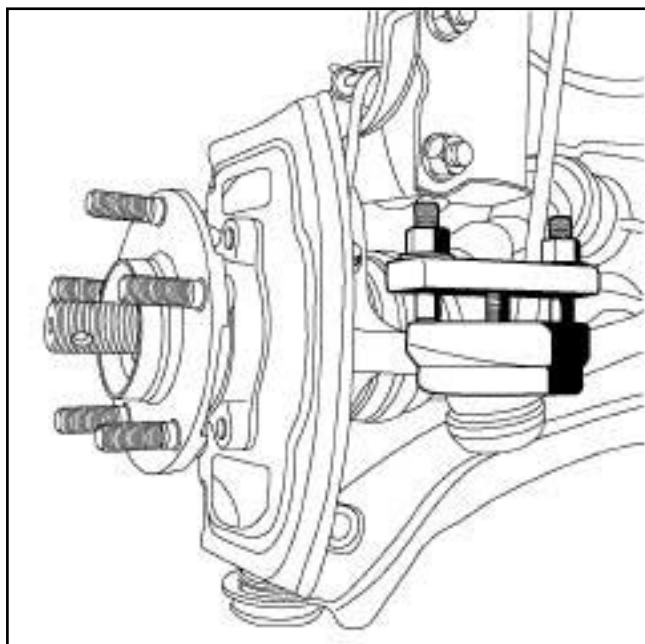
1 - Left-hand side of the vehicle



132613

❑ Remove:

- the wheel speed sensor bolt (3) ,
- the wheel speed sensor,
- the track rod ball joint nut (4) ,
- the lower arm ball joint nut (5) ,
- the shock absorber lower nuts (6) .



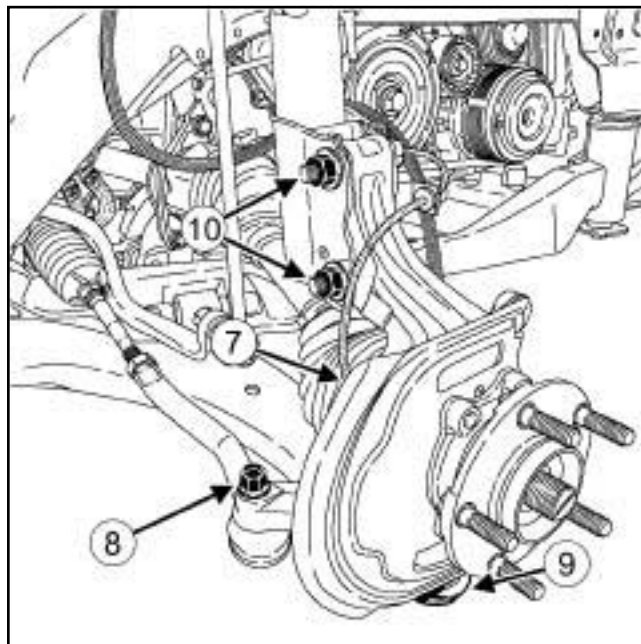
132614

- ❑ Extract the track rod end using the (Tav. 476).

❑ Remove:

- the lower arm ball joint,
- the hub carrier with its driveshaft.

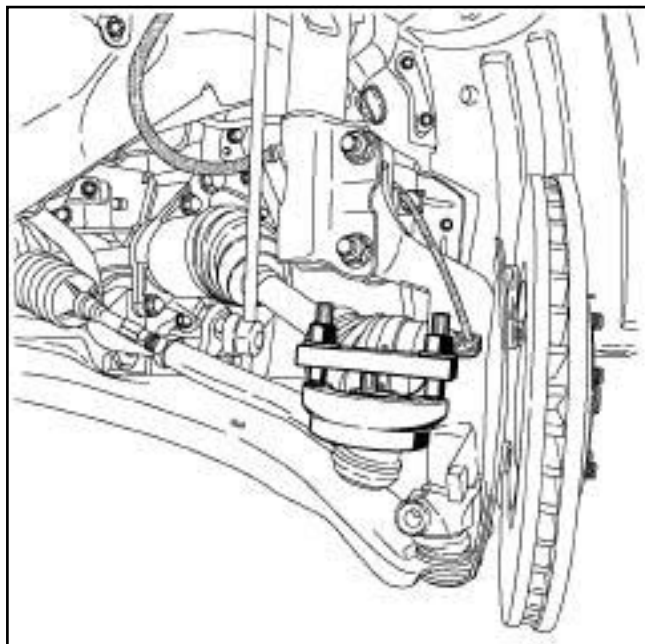
2 - Right-hand side of the vehicle



132615

❑ Remove:

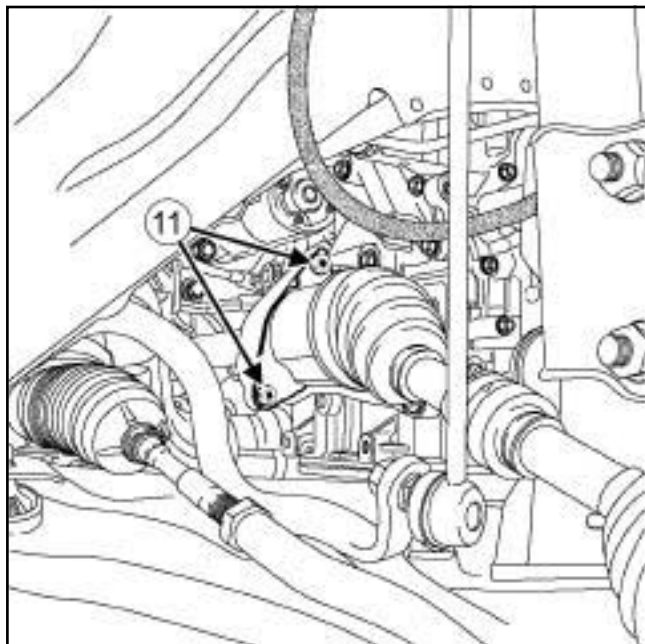
- the wheel speed sensor bolt (7) ,
- the wheel speed sensor,
- the track rod ball joint nut (8) ,
- the lower arm ball joint nut (9) ,
- the shock absorber lower nuts (10) .



132616

- ☐ Extract the track rod end using the (Tav. 476).
- ☐ Remove the lower arm ball joint.

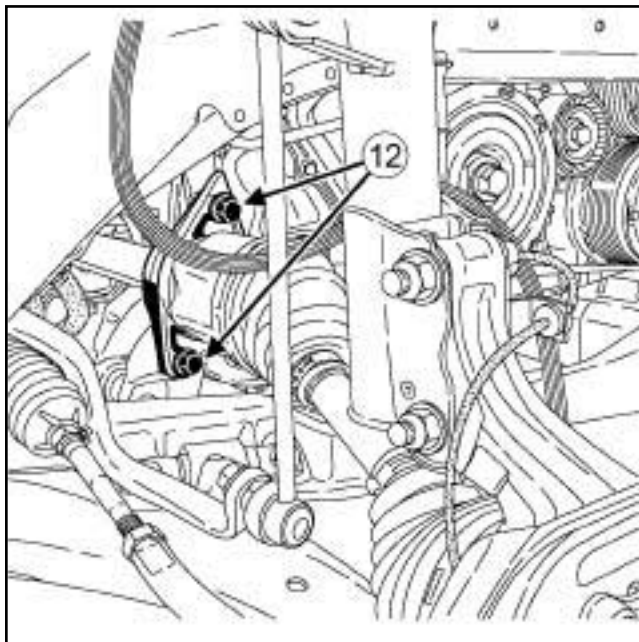
2TR



132617

- ☐ Remove:
 - the driveshaft bearing bracket bolts (11) ,
 - the driveshaft bearing bracket.

M9R



132618

- ☐ Remove the driveshaft bearing bracket bolts (12) .

- ☐ Remove the hub carrier with its driveshaft.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Clean and lubricate the driveshaft bearing bore into which the bearing is inserted.
- ☐ Replace the O-ring at the bottom of the driveshaft bearing if it is worn.
- ☐ Always replace:
 - the differential output lip seals,
 - the driveshaft bearing ring on the left-hand side if fitted to the vehicle,
 - the guide pin bolts.

II - REFITTING OPERATION FOR PART CONCERNED

1 - Right-hand side of the vehicle

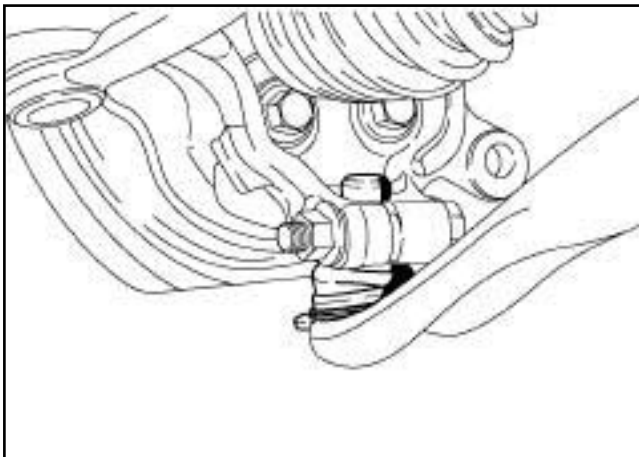
- ☐ Refit the hub carrier with its driveshaft.

2TR

- ☐ Refit the driveshaft bearing bracket.

☐ Refit:

- the driveshaft bearing bracket bolts,
- the shock absorber lower nuts,
- the lower arm ball joint nut,
- the track rod ball joint nut,
- the wheel speed sensor,
- the wheel speed sensor bolt.



132619

☐

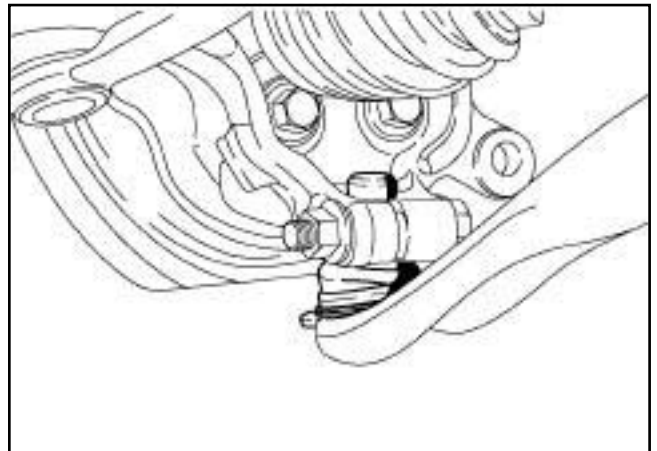
Note:

Check that the ring is correctly positioned on the lower arm ball joint.

2 - Left-hand side of the vehicle

☐ Refit:

- the hub carrier with its driveshaft,
- the shock absorber lower nuts,
- the lower arm ball joint nut,
- the track rod ball joint nut,
- the wheel speed sensor,
- the wheel speed sensor bolt.



132619

☐

Note:

Check that the ring is correctly positioned on the lower arm ball joint.

2TR

- ☐ Torque tighten the **driveshaft bearing bracket bolts [2TR] (30 N.m)**.

M9R

- ☐ Torque tighten the **driveshaft bearing bracket bolts [M9R] (25 N.m)**.

☐ Torque tighten:

- the **shock absorber lower nuts (142 N.m)**,
- the **lower arm ball joint nut (63 N.m)**,
- the **track rod ball joint nut (34 N.m)**,
- the **wheel speed sensor bolt (10 N.m)**.

III - FINAL OPERATION

☐ Refit:

- the callipers to their supports,
- the guide pin bolts.

- ☐ Torque tighten the **guide pin bolts (29 N.m)**.

☐ Refit:

- the brake disc (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page **31A-13**),

Hub carrier-driveshaft assembly: Removal - Refitting

- the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page **31A-9**) ,
 - the front brake pads (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**) ,
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .
- ☐ Fill up the gearbox oil and check the level (see **Manual gearbox oil: Draining - Refilling**) (21A, Manual gearbox).
 - ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
 - ☐ Check the front axle geometry (see **30A, General information, Front axle: Adjusting**, page **30A-10**) .
-

Tightening torques

bolt of the front hub carrier bearing	88 N.m
---------------------------------------	--------

WARNING

In order to prevent irreversible damage to the front hub bearing:

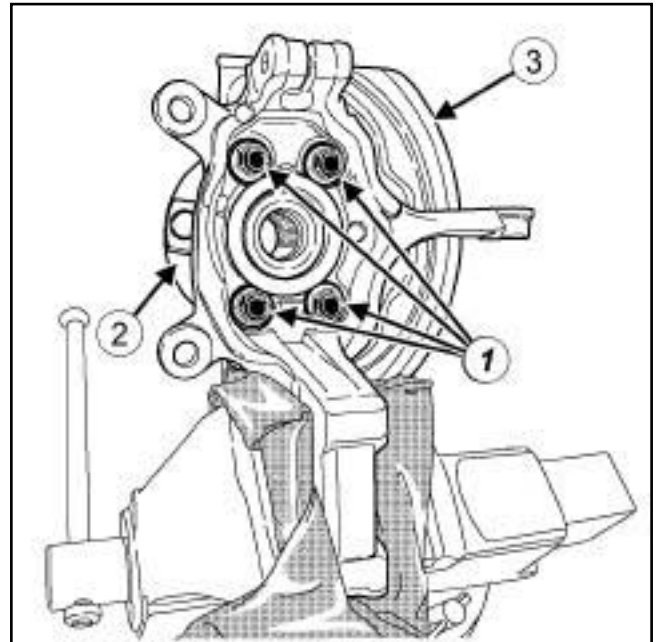
- Do not loosen or tighten the driveshaft nut when the wheels are on the ground.
- Do not place the vehicle with its wheels on the ground when the driveshaft has been loosened or removed.

REMOVAL

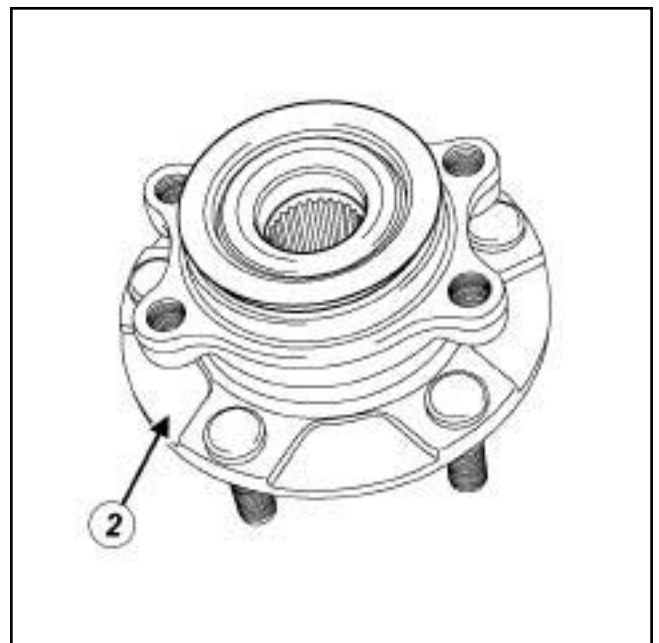
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres),
 - the front brake hose (see **31A, Front axle components, Front brake hose: Removal - Refitting**, page 31A-3) .
 - the front wheel speed sensor (see **38C, Anti-lock braking system, Front wheel speed sensor: Removal - Refitting**, page 38C-8) (38C, Anti-lock braking system),
 - the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page 31A-1) ,
 - the front brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page 31A-5) ,
 - the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page 31A-9) ,
 - the brake disc (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page 31A-13) ,
 - the front driveshaft hub carrier (see **31A, Front axle components, Front driveshaft hub carrier: Removal - Refitting**, page 31A-39) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131461



131462

- ☐ Remove:
 - the bolts (1) of the front hub carrier bearing,
 - the hub carrier bearing (2) ,
 - the front brake disc guard (3) .

REFITTING

I - REFITTING PREPARATION OPERATION

☐ Clean:

- the inner and outer surfaces of the new bearing in contact with the stub-axle carrier and the hub,
- the stub axle carrier surfaces in contact with the new bearing,
- the hub surfaces in contact with the new bearing.

WARNING

To ensure that the wheel speed sensor works properly, do not mark the sensor target on the bearing.

WARNING

Do not press the bearing's internal bush so as to avoid damaging the bearing (very high shrink-fitting force).

Note:

It is essential to check the condition of the hub surface and the hub carrier bore before refitting the bearing. Replace the hub carrier if it is faulty.

II - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the front brake disc guard,
- the hub carrier bearing,
- the bolts of the front hub carrier bearing.

☐ Torque tighten the **bolt of the front hub carrier bearing (88 N.m)**.

III - FINAL OPERATION.

☐ Refit:

- the front driveshaft hub carrier (see **31A, Front axle components, Front driveshaft hub carrier: Removal - Refitting**, page **31A-39**) ,
- the brake disc (see **31A, Front axle components, Front brake disc: Removal - Refitting**, page **31A-13**) ,
- the front brake calliper mounting (see **31A, Front axle components, Front brake calliper support: Removal - Refitting**, page **31A-9**) ,

- the front brake calliper (see **31A, Front axle components, Front brake calliper: Removal - Refitting**, page **31A-5**) ,
- the front brake pad (see **31A, Front axle components, Front brake pads: Removal - Refitting**, page **31A-1**) ,
- the front wheel speed sensor (see **38C, Anti-lock braking system, Front wheel speed sensor: Removal - Refitting**, page **38C-8**) (38C, Anti-lock braking system),
- the front brake hose (see **31A, Front axle components, Front brake hose: Removal - Refitting**, page **31A-3**) .
- the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

Essential equipment

spring compressor

spanner for shock absorber rod nut

Tightening torques

shock absorber rod nut **79 N.m**

upper shock absorber bolts **19 N.m**

shock absorber lower nuts **142 N.m**

new nut on the anti-roll bar tie rod **84 N.m**

IMPORTANT

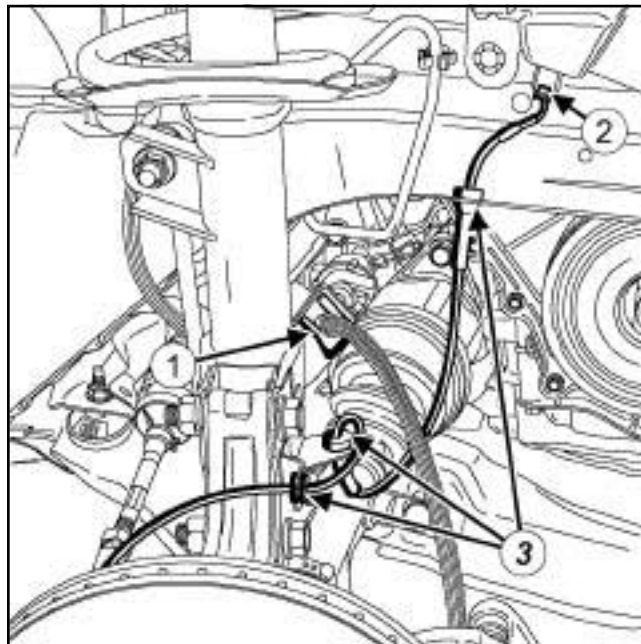
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Front axle assemblies: Precautions for repair**) .

REMOVAL

I - REMOVAL PREPARATION OPERATION

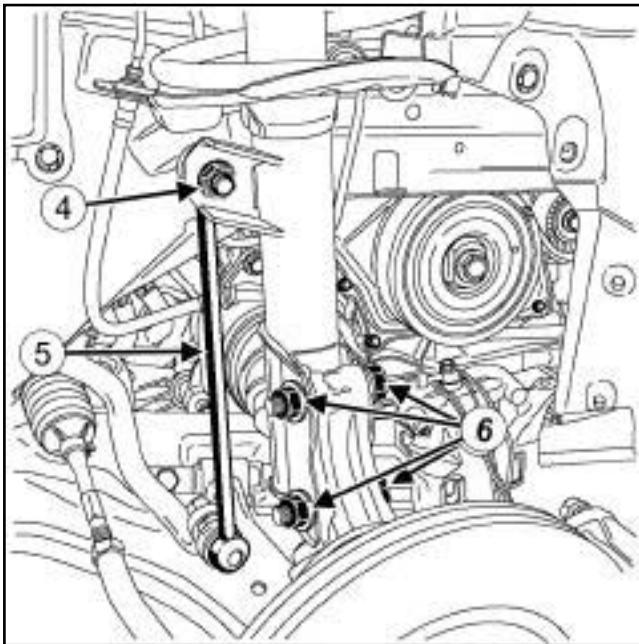
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Unlock the steering column.
- ☐ Remove the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131238

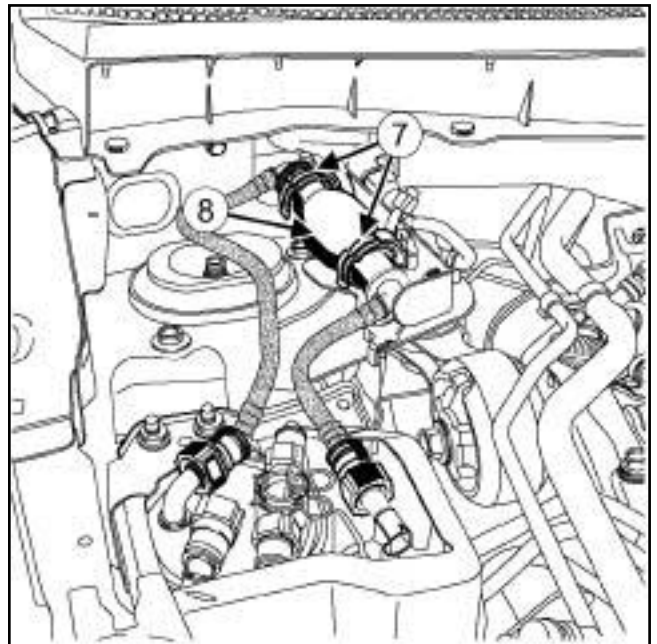
- ☐ Remove the clip (1) from the brake hose.
- ☐ Unclip the brake hose.
- ☐ Disconnect the connector (2) from the front wheel speed sensor.
- ☐ Unclip the wiring from the front wheel speed sensor at (3) .



131239

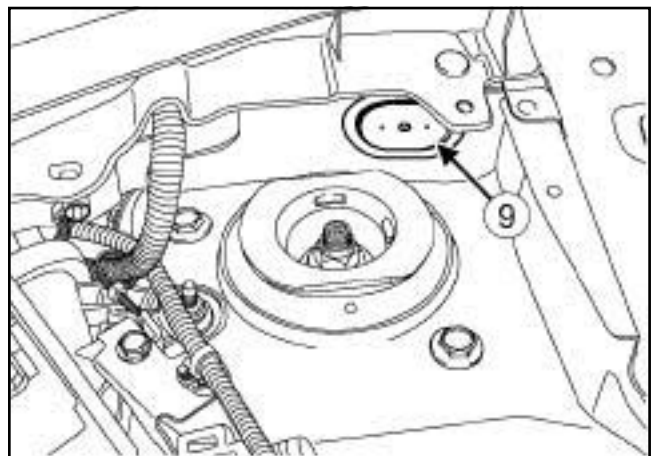
- ❑ Remove the upper nut (4) from the anti-roll bar tie rod.
- ❑ Separate the anti-roll bar tie rod (5) from the shock absorber.
- ❑ Remove the lower bolts and nuts (6) from the shock absorber.
- ❑ Suspend the hub carrier.

M9R



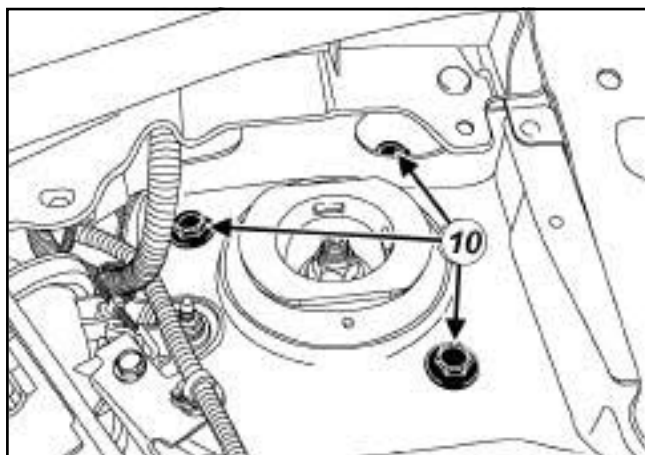
131240

- ❑ Unclip the clips (7) .
- ❑ Move aside the manual priming pump (8) in order to access the upper shock absorber bolts (see **Manual priming pump: Removal - Refitting**) (13A, Fuel supply).



131241

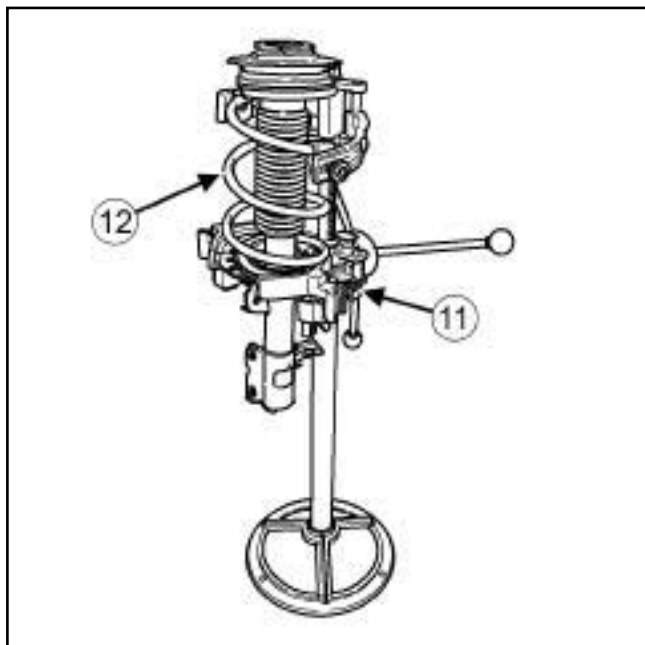
- ❑ Remove cap (9) .



132872

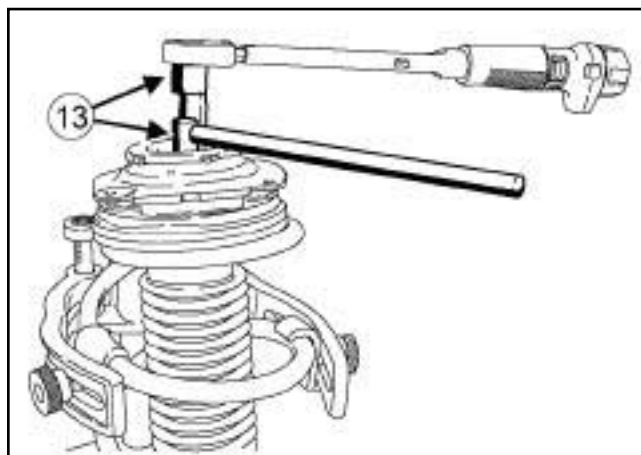
❑ Remove:

- the upper shock absorber bolts (10) ,
- the spring-shock absorber assembly.



132873

- ❑ Position the spring on the **spring compressor (11)** .
- ❑ Compress the spring (12) until it is released.



132874

- ❑ Remove the shock absorber rod nut using the **spanner for shock absorber rod nut (13)** .
- ❑ Separate the components which make up the "spring-shock absorber" unit.
- ❑ Decompress the spring.

REFITTING

I - REFITTING PREPARATION OPERATION

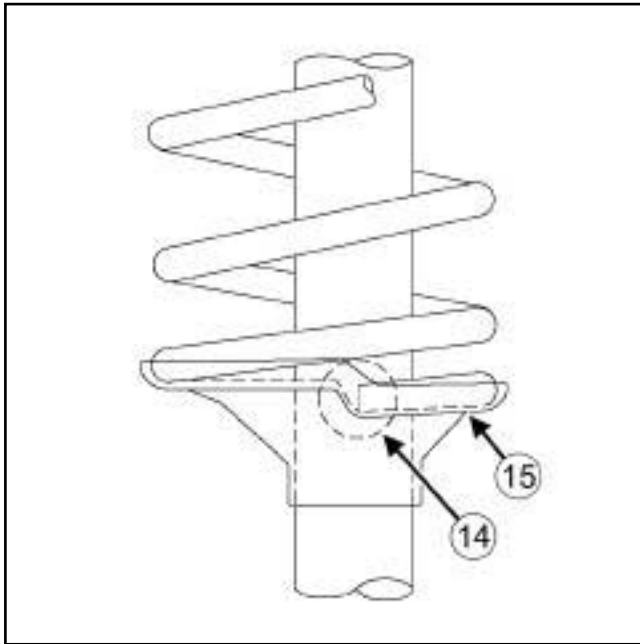


WARNING

To prevent any suspension asymmetry, replace both of the shock absorbers on the same axle.

- ❑ Always replace:
 - the shock absorber rod nut,
 - the anti-roll bar tie-rod nut.

II - REFITTING OPERATION FOR PART CONCERNED



- ☐ Insert the spring in the neck of the cup.
- ☐ Align the lower end (**14**) of the spring on the cup of the tool (**15**) .
- ☐ Compress the spring.



- ☐ Respect the order and direction of fitting for the constituent parts.
- ☐ Refit the shock absorber rod nut using the **spanner for shock absorber rod nut**.
- ☐ Torque tighten the **shock absorber rod nut (79 N.m)**.
- ☐ Decompress the spring.
- ☐ Remove the spring compressor.
- ☐ Refit:
 - the "spring - shock absorber" assembly,
 - the upper shock absorber bolts,
 - the cap.
- ☐ Torque tighten the **upper shock absorber bolts (19 N.m)**.

M9R

- ☐ Position the manual priming pump.
- ☐ Attach the clips.

- ☐ Refit:
 - the lower shock absorber bolts and nuts,
 - the new nut on the anti-roll bar tie rod.
- ☐ Torque tighten:
 - the **shock absorber lower nuts (142 N.m)**,
 - the **new nut on the anti-roll bar tie rod (84 N.m)**.

☐ Connect the front wheel speed sensor connector.

☐ Refit:

- the wiring of the front wheel speed sensor,
- the brake hose,
- the clip.

III - FINAL OPERATION.

☐ Refit the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

☐ Adjust the axle assemblies (see **30A, General information, Front axle: Adjusting**, page 30A-10) .

FRONT AXLE COMPONENTS

Front driveshaft lower arm: Removal - Refitting

31A

Essential equipment

component jack

Tightening torques

lower arm bolts	171 N.m
lower arm nut	142 N.m
lower arm ball joint nut	63 N.m
anti-roll bar tie-rod lower nut	84 N.m

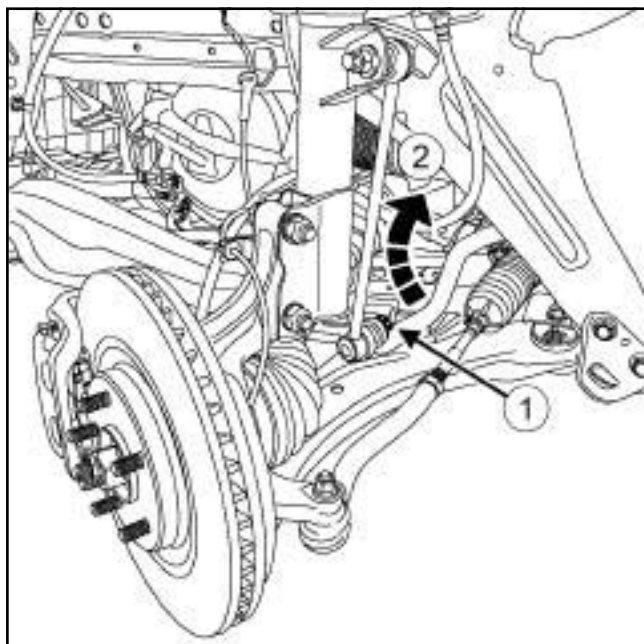
WARNING

To prevent any damage, do not use the lower arm as support for the lifting system.

REMOVAL

I - REMOVAL PREPARATION OPERATION

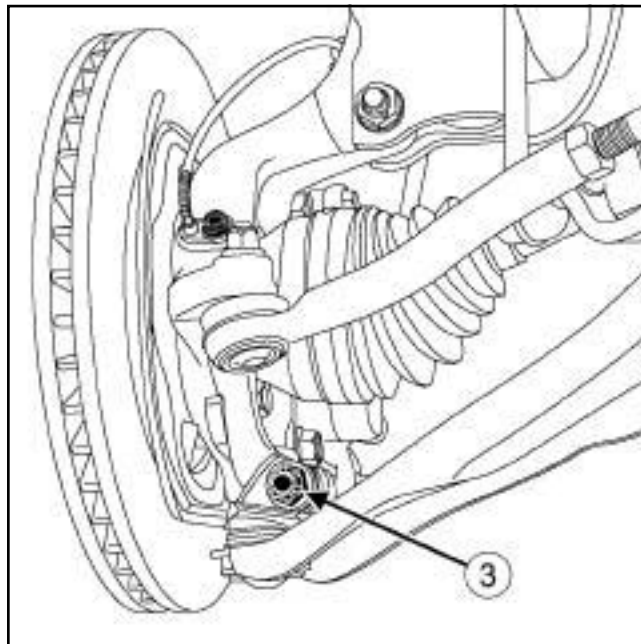
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).



131463

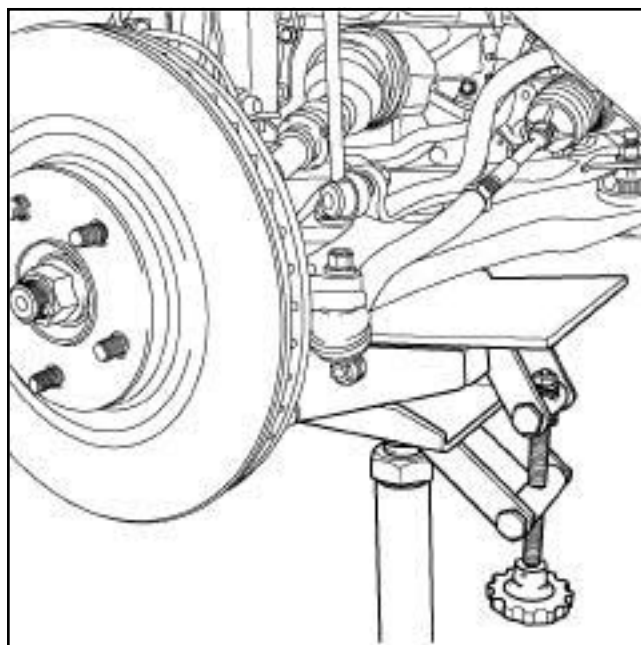
- ☐ Remove the lower nut (1) from the anti-roll bar tie rod.
- ☐ Position the anti-roll bar behind the vehicle.

II - OPERATION FOR REMOVAL OF PART CONCERNED



131464

- ☐ Remove the nut (3) from the lower arm ball joint.



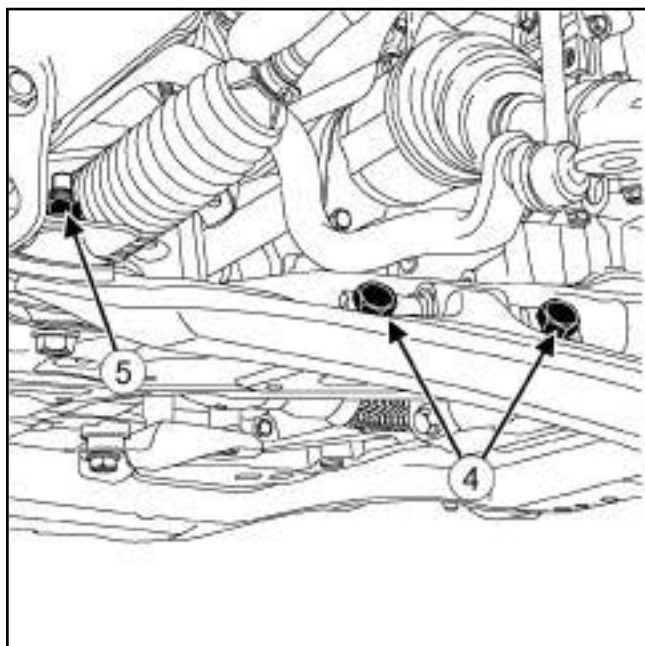
131465

- ☐ Place the **component jack** under the subframe.

FRONT AXLE COMPONENTS

Front driveshaft lower arm: Removal - Refitting

31A



131466

❑ Remove:

- the bolts (4) from the lower arm,
- the nut (5) from the lower arm,
- the lower arm.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace the lower arm bolts.
- ❑ Leave the **component jack** under the subframe.
- ❑ Position the lower arm ball joint bolt head so that it faces the front of the vehicle.

II - REFITTING PART CONCERNED

❑ Refit:

- the lower arm,
- the lower arm nut,
- the lower arm bolts,
- the lower arm ball joint in its housing,
- the lower arm ball joint nut.

- ❑ Remove the **component jack**.

Note:

When torque tightening the lower arm bolt and nut, make sure that the wheel is placed on the ground and that the vehicle is unladen.

❑ Torque tighten:

- the **lower arm bolts** (171 N.m),
- the **lower arm nut** (142 N.m),
- the **lower arm ball joint nut** (63 N.m).

III - FINAL OPERATION.

- ❑ Place the anti-roll bar in its original position.
- ❑ Refit the anti-roll bar tie rod lower nut.
- ❑ Torque tighten the **anti-roll bar tie-rod lower nut** (84 N.m).
- ❑ Refit the front wheel (see 35A, **Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres).
- ❑ Check the front axle geometry (see 30A, **General information, Front axle: Adjusting**, page 30A-10) (30A, General information).

FRONT AXLE COMPONENTS

Front driveshaft lower arm ball joint: Check

31A

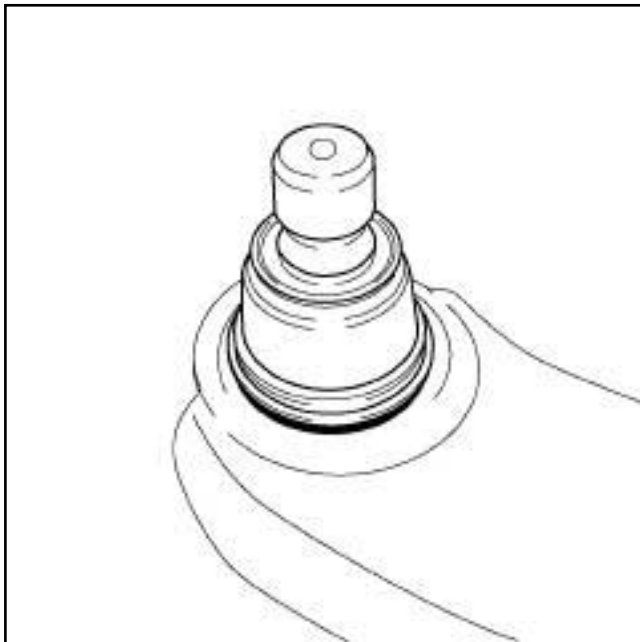
CHECKING

I - CHECKING PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the lower arm ball joint (see **31A, Front axle components, Front driveshaft lower arm: Removal - Refitting**, page 31A-54) .

II - CHECKING THE PART CONCERNED

1 - Checking the condition of the front driveshaft lower arm ball joint gaiter



- ☐ Check:
 - the gaiter crimping on the front driveshaft lower arm ball joint,
 - that the gaiter of the lower arm ball joint gaiter of the front driveshaft is not torn.
 - that the grease starts to flow.

If the lower arm ball joint gaiter of the front driveshaft is in poor condition or not crimped, replace the lower arm of the front driveshaft (see **31A, Front axle components, Front driveshaft lower arm: Removal - Refitting**, page 31A-54) .

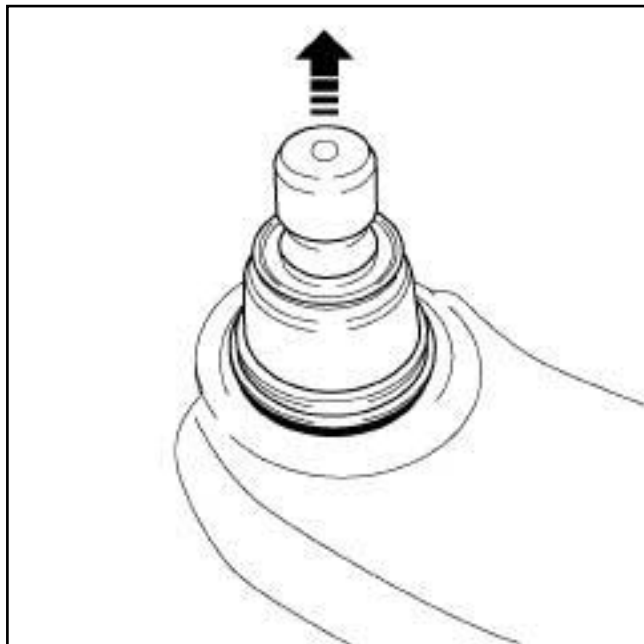
2 - Check the fitting of the lower arm ball joint



- ☐ Manually check that the ball joint stud moves easily and does not get jammed.

If the ball joint stud does not move easily, replace the front driveshaft lower arm (see **31A, Front axle components, Front driveshaft lower arm: Removal - Refitting**, page 31A-54) .

3 - Checking the longitudinal play of the lower arm ball joint



132628

- ☐ Check the longitudinal play by pulling on the stud manually.

If the longitudinal play values (axle side) at the ball joint stud are incorrect, replace the front driveshaft lower arm (see **31A, Front axle components, Front driveshaft lower arm: Removal - Refitting**, page **31A-54**) .

The longitudinal play value of the lower arm ball joint is **0 mm**.

III - FINAL OPERATION

- ☐ Refit:
 - the lower arm ball joint (see **31A, Front axle components, Front driveshaft lower arm: Removal - Refitting**, page **31A-54**) ,
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .
- ☐ Check the front axle geometry (see **30A, General information, Front axle: Adjusting**, page **30A-10**) .

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

M9R

Essential special tooling

Tav. 476 Ball joint extractor.

Essential equipment

component jack

Tightening torques

subframe bolts **94 N.m**

acoustic tie-rod bolts **73 N.m**

exhaust pipe rubber mounting bush nuts **14 N.m**

lower engine tie-bar bolt on the engine **155 N.m**

lower arm ball joint nut **63 N.m**

track rod ball joint nut **34 N.m**

lower nut of the anti-roll bar tie rod84 **N.m**

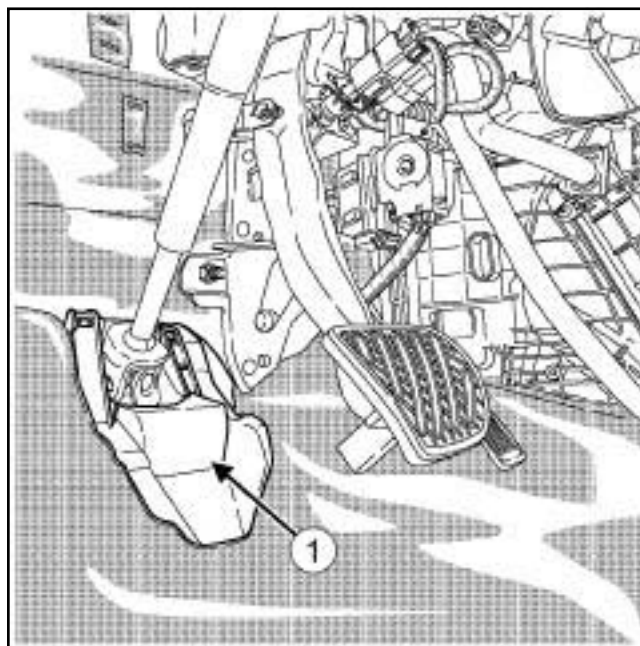
universal joint bolt on the steering box **39 N.m**

REMOVING - REFITTING

I - REMOVAL PREPARATION OPERATION

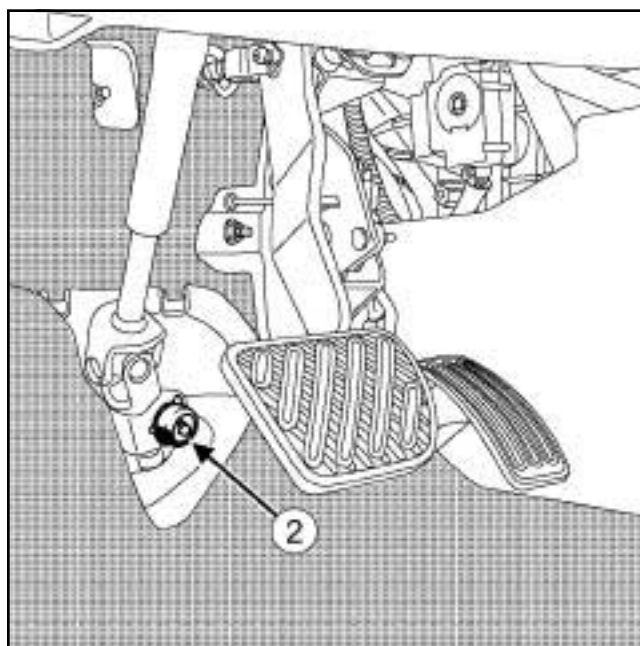
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the engine undertray.

II - OPERATION FOR REMOVAL OF PART CONCERNED



132629

- ☐ Remove the steering cover (1) .



132630

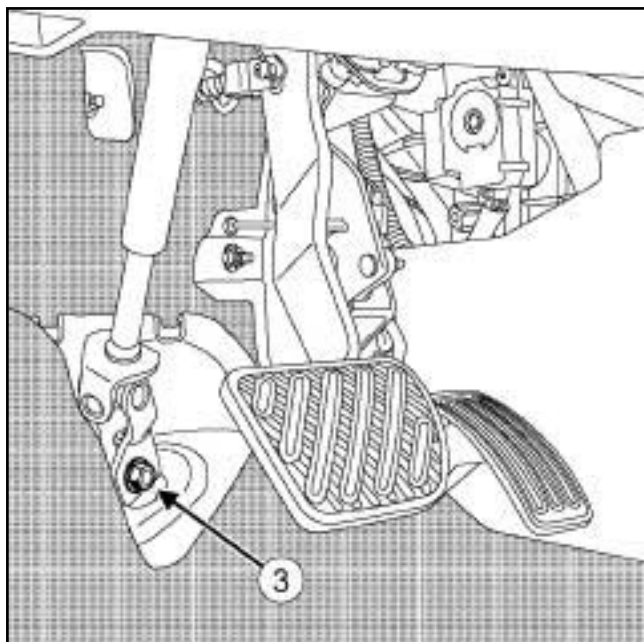
- ☐ Remove the cover (2) from the universal joint (do not keep).
- ☐ Set the wheels straight ahead.
- ☐ Lock the steering column.

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

M9R



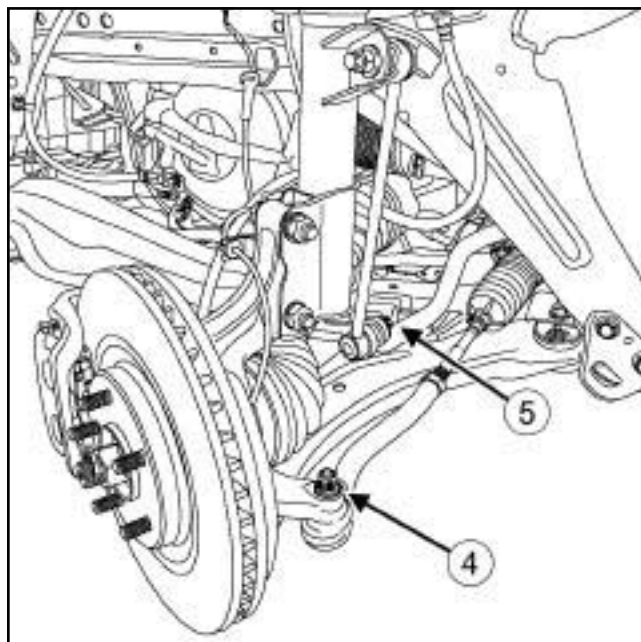
132631

❑ Remove:

- the universal joint bolt (3) (do not keep),
- the universal joint nut,
- the universal joint.

Note:

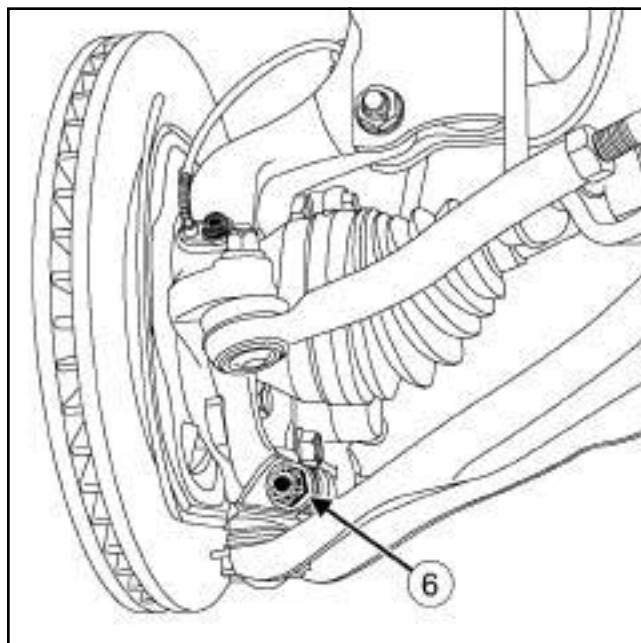
Swivel the universal joint to detach it from the pinion; do not retract the intermediate shaft.



132632

❑ Remove:

- the track rod ball joint nut (4) ,
- the lower nut (5) from the anti-roll bar tie rod.



132633

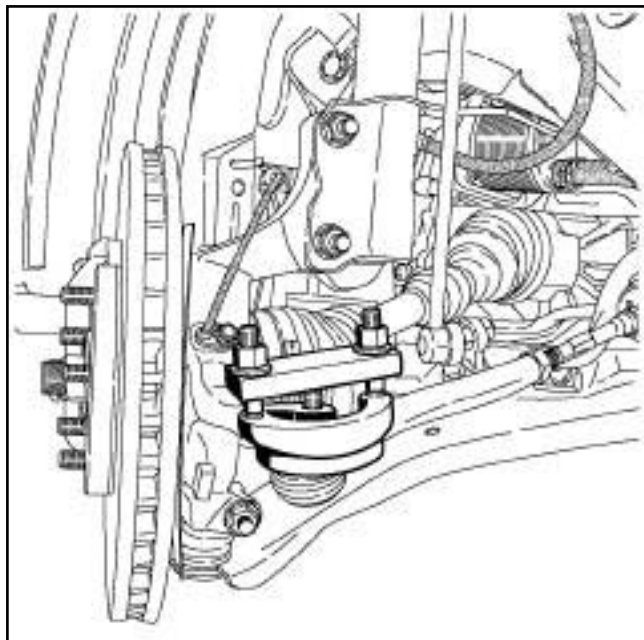
- ❑ Remove the lower arm ball joint nut (6) .

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

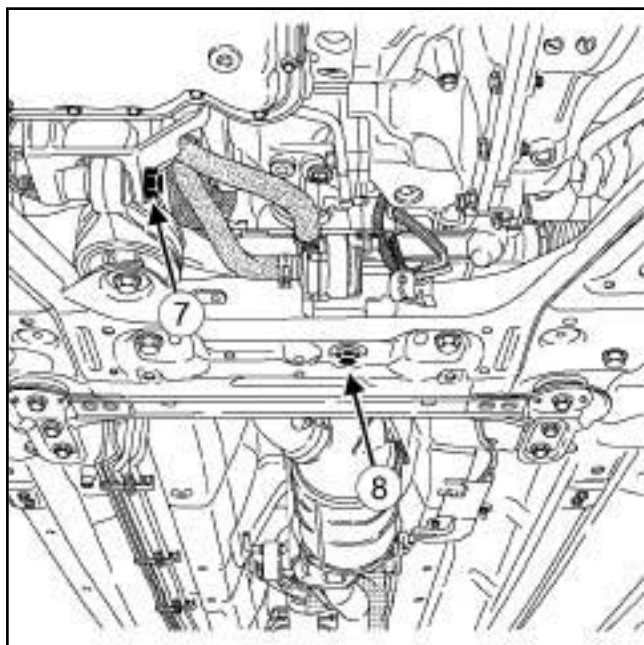
31A

M9R



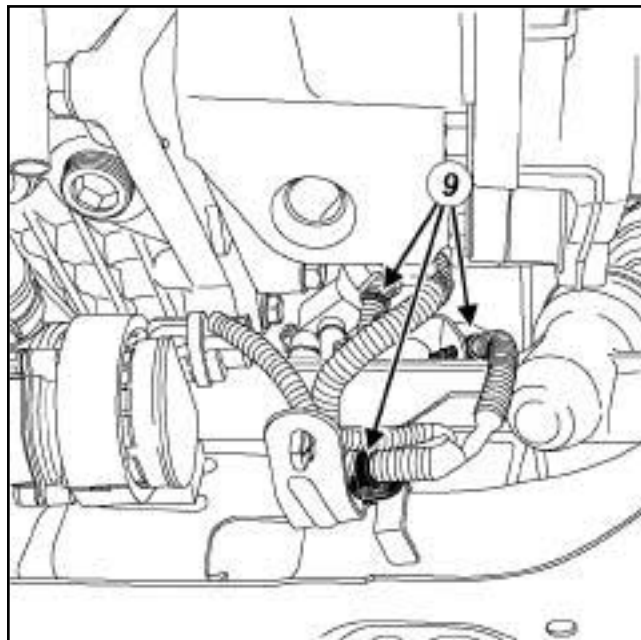
132634

- ❑ Extract the track rod end using the **(Tav. 476)**.



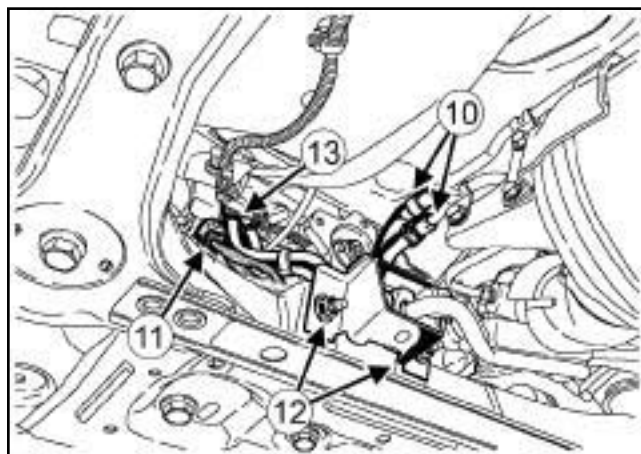
132640

- ❑ Remove:
 - the bolt **(7)** from the lower engine tie-bar on the engine,
 - the bolt **(8)** from the turbocharger cooling pump.



132641

- ❑ Unclip the wiring clips **(9)**.



132642

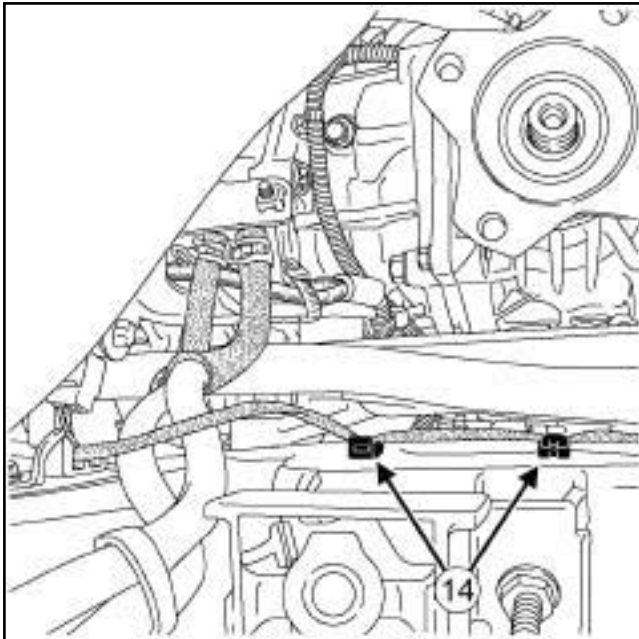
- ❑ Remove the clips **(10)**.
- ❑ Disconnect:
 - the hose from the particle filter,
 - the particle filter upstream temperature sensor connector **(11)**.
- ❑ Remove the rubber mounting bush nuts **(12)** from the exhaust pipe.
- ❑ Unclip the clip **(13)** from the wiring.

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

M9R



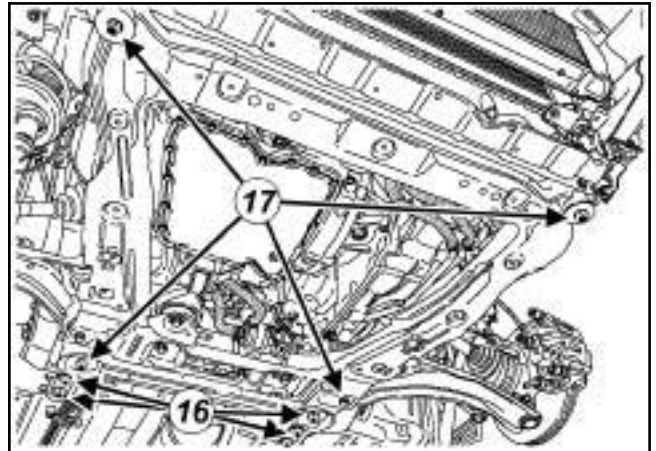
132643

- ❑ Unclip the clips (14) from the particle filter upstream temperature sensor wiring.



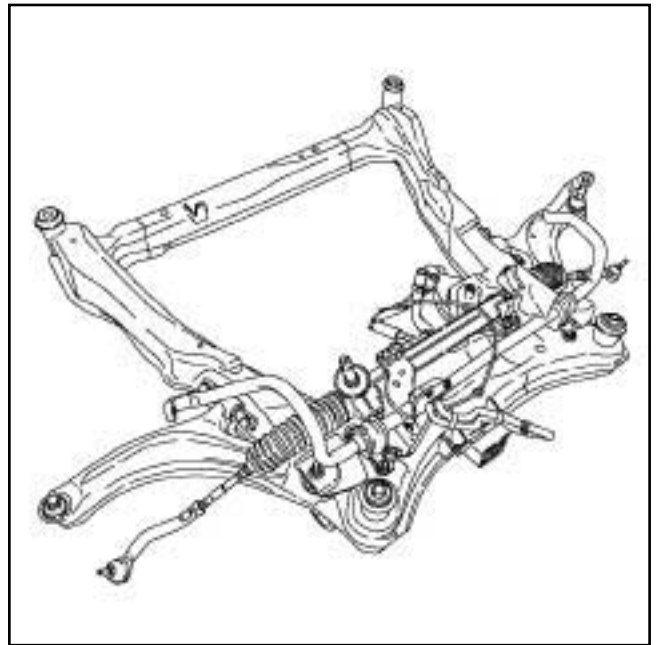
132644

- ❑ Unclip the hose clip (15) from the radiator hose.
- ❑ Place the **component jack** under the subframe.
- ❑ Extract the lower arm ball joints.



132645

- ❑ Remove:
 - the acoustic tie-rod bolts (16) ,
 - the acoustic tie-rod,
 - the subframe bolts (17) ,
 - the subframe, slowly.



132646

- ❑ Remove the subframe mountings.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace:
 - the anti-roll bar tie rod lower nuts,
 - the bolt from the universal joint.

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

M9R

II - REFITTING OPERATION FOR PART CONCERNED

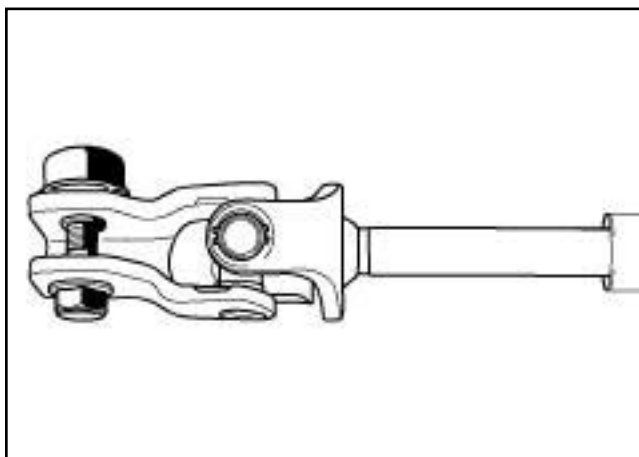
- ☐ Refit the subframe mountings.
- ☐ Degrease the surfaces of the body which are in contact with the subframe and the cross member using surface cleaner.
- ☐ Position the subframe using the **component jack**.
- ☐ Refit:
 - the subframe bolts,
 - the acoustic tie-rod,
 - the acoustic tie-rod bolts.

Note:

Make sure that the tightening order of the sub-frame bolts is respected (rear left-hand - rear right-hand - front left-hand - front right-hand).

- ☐ Torque tighten:
 - the **subframe bolts (94 N.m)**,
 - the **acoustic tie-rod bolts (73 N.m)**.
- ☐ Refit the lower arm ball joint.
- ☐ Remove the **component jack**.
- ☐ Clip:
 - the hose clip on the radiator hose,
 - the clips of the particle filter upstream temperature sensor wiring,
 - the wiring clip.
- ☐ Refit the rubber mounting bush nuts on the exhaust pipe.
- ☐ Torque tighten the **exhaust pipe rubber mounting bush nuts (14 N.m)**.
- ☐ Connect:
 - the particle filter upstream temperature sensor connector,
 - the particle filter hose.
- ☐ Clip on the wiring clips.
- ☐ Refit:
 - the turbocharger cooling pump bolts,
 - the lower engine tie-bar bolt on the engine.
- ☐ Torque tighten the **lower engine tie-bar bolt on the engine (155 N.m)**.
- ☐ Refit the lower arm ball joint nut.

- ☐ Torque tighten the **lower arm ball joint nut (63 N.m)**.
- ☐ Refit:
 - the anti-roll bar linkage lower nut,
 - the track rod ball joint nut.
- ☐ Torque tighten:
 - the **track rod ball joint nut (34 N.m)**,
 - the **lower nut of the anti-roll bar tie rod 84 (N.m)**.
- ☐ Set the wheels straight ahead.



132638

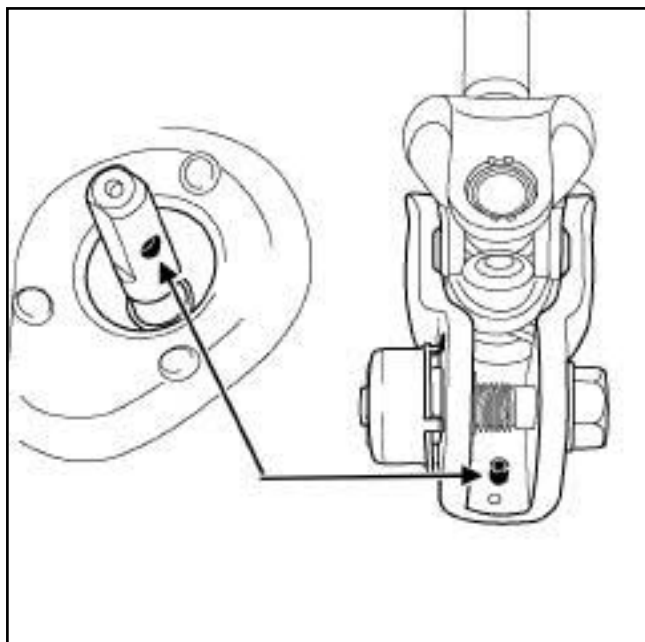
- ☐ Observe the direction of fitting for the universal joint cam nut and bolt.
- ☐ Refit:
 - the universal joint,
 - the new universal joint bolt,
 - the cam nut from the universal joint.

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

M9R



132639

- ☐ Check that the universal joint is in the correct position.
- ☐ Torque tighten the **universal joint bolt on the steering box (39 N.m)**.
- ☐ Refit the steering cover.

III - FINAL OPERATION

- ☐ Refit:
 - the engine undertray,
 - the wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ☐ Check the front axle geometry (see **30A, General information, Front axle: Adjusting**, page 30A-10)

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

2TR

Essential special tooling	
Tav. 476	Ball joint extractor.

Essential equipment	
component jack	

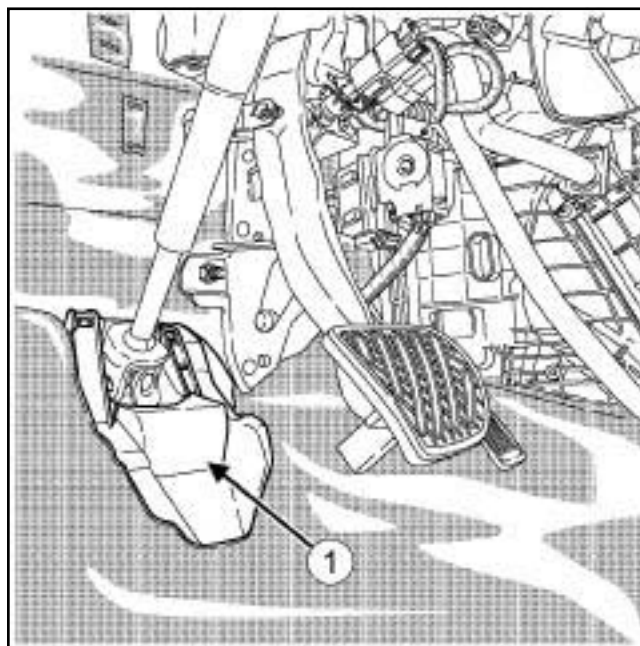
Tightening torques 	
subframe bolts	94 N.m
acoustic tie-rod bolts	73 N.m
nuts of the exhaust pipe	rubber mounting bush14 N.m
lower engine tie-bar retaining bracket bolt	110 N.m
lower engine tie-bar bolts on the gearbox	110 N.m
lower arm ball joint nut	63 N.m
track rod ball joint nut	34 N.m
lower nut of the anti-roll bar tie rod84	N.m
universal joint bolt on the steering box	39 N.m

REMOVING - REFITTING

I - REMOVAL PREPARATION OPERATION

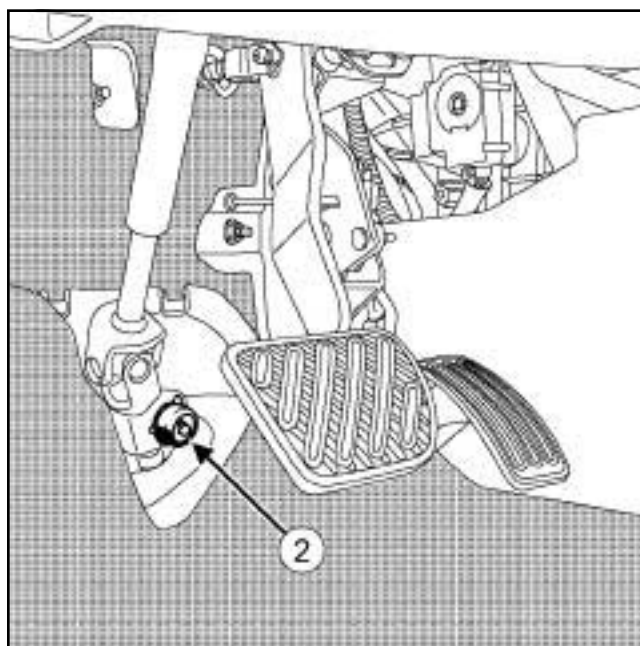
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the engine undertray.

II - OPERATION FOR REMOVAL OF PART CONCERNED



132629

- ☐ Remove the steering cover (1) .



132630

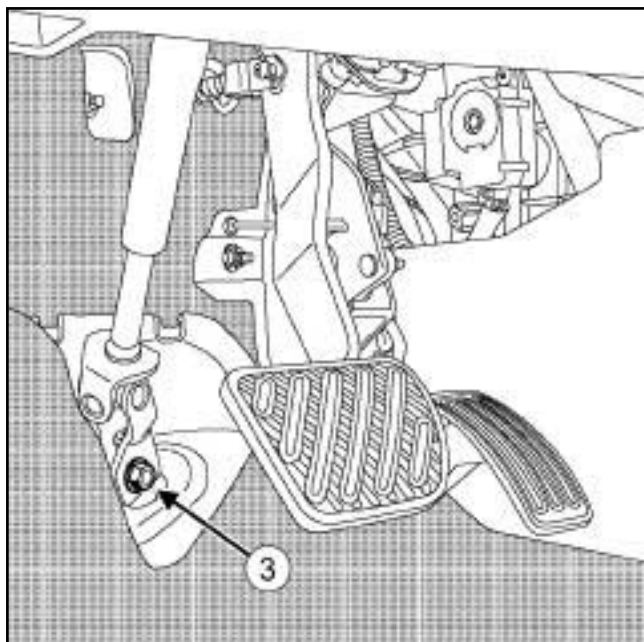
- ☐ Remove the cover (2) from the universal joint (do not keep).
- ☐ Set the wheels straight ahead.
- ☐ Lock the steering column.

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

2TR

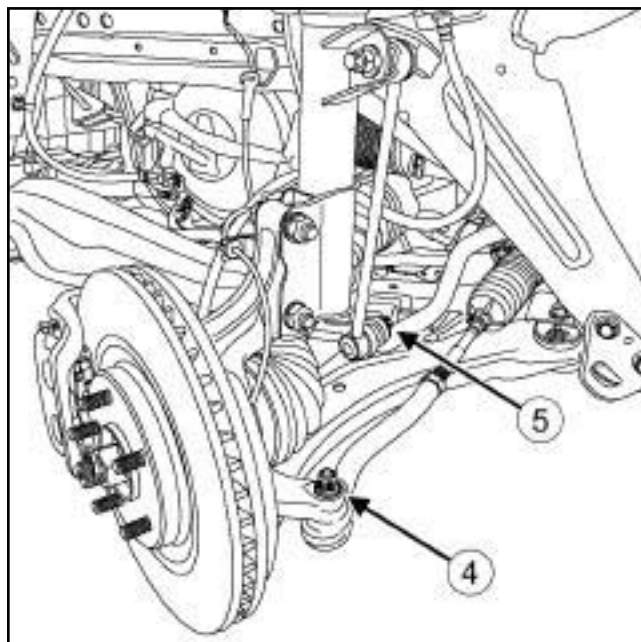


❑ Remove:

- the universal joint bolt (3) (do not keep),
- the universal joint nut,
- the universal joint.

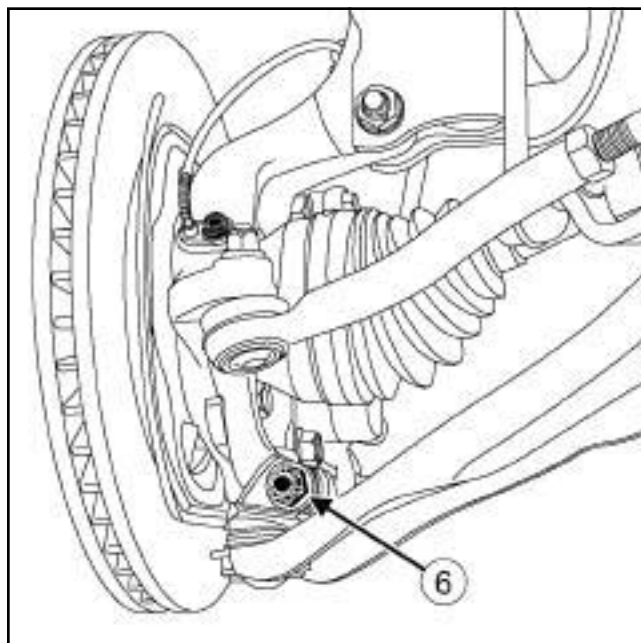
Note:

Swivel the universal joint to detach it from the pinion; do not retract the intermediate shaft.



❑ Remove:

- the track rod ball joint nut (4) ,
- the lower nut (5) from the anti-roll bar tie rod.



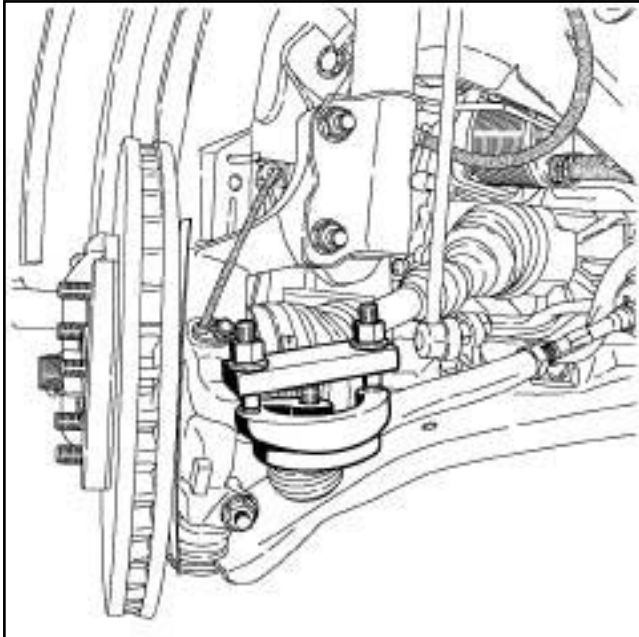
- ❑ Remove the lower arm ball joint nut (6) .

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

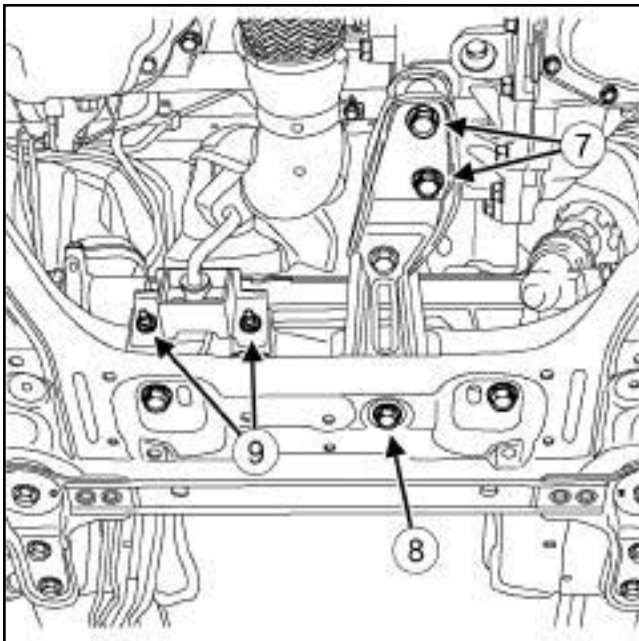
31A

2TR



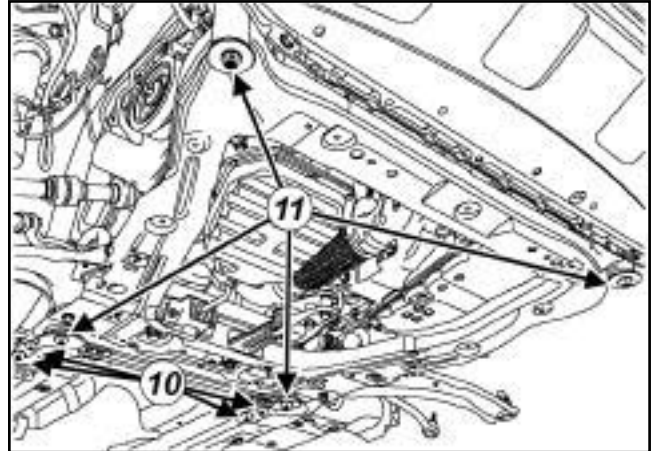
132634

- ❑ Extract the track rod end using the (Tav. 476).



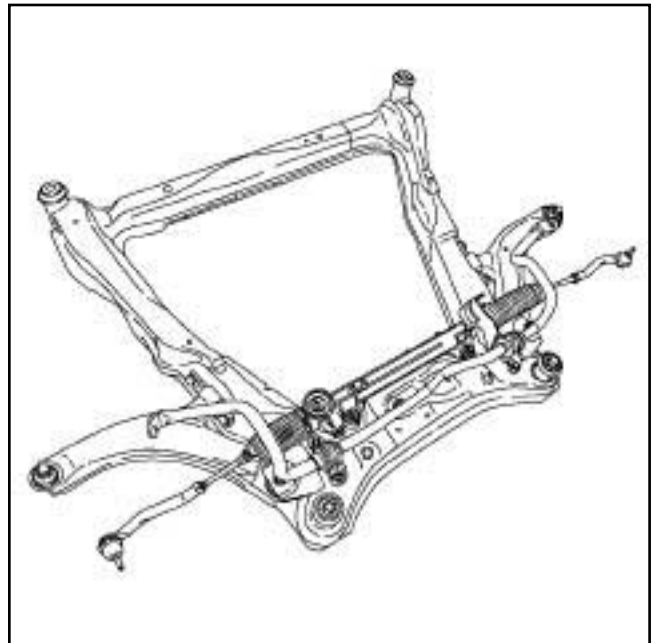
132635

- ❑ Remove:
 - the bolt (7) from the lower engine tie-bar on the engine,
 - the lower engine tie-bar retaining bracket bolt (8) ,
 - the lower engine tie-bar retaining bracket,
 - the nuts (9) from the exhaust pipe rubber mounting bush.
- ❑ Place the **component jack** under the subframe.
- ❑ Extract the lower arm ball joints.



132636

- ❑ Remove:
 - the acoustic tie-rod bolts (10) ,
 - the acoustic tie-rod,
 - the subframe bolts (11) ,
 - the subframe, slowly.



132637

- ❑ Remove the subframe mountings.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace:
 - the anti-roll bar tie rod lower nuts,
 - the bolt from the universal joint.

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

2TR

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the subframe mountings.
- ☐ Degrease the surfaces of the body which are in contact with the subframe and the cross member using surface cleaner.
- ☐ Position the subframe using the **component jack**.
- ☐ Refit:
 - the subframe bolts,
 - the acoustic tie-rod,
 - the acoustic tie-rod bolts.

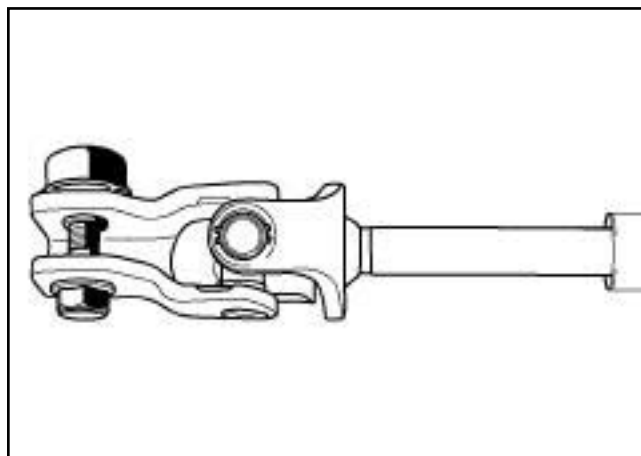
Note:

Make sure that the tightening order of the sub-frame bolts is respected (rear left-hand - rear right-hand - front left-hand - front right-hand).

- ☐ Torque tighten:
 - the **subframe bolts (94 N.m)**,
 - the **acoustic tie-rod bolts (73 N.m)**.
- ☐ Refit the lower arm ball joint.
- ☐ Remove the **component jack**.
- ☐ Refit:
 - the nuts on the exhaust pipe rubber mounting bush,
 - the lower engine tie-bar retaining bracket,
 - the lower engine tie-bar retaining bracket bolts,
 - the lower engine tie-bar bolt on the gearbox.
- ☐ Torque tighten:
 - the **nuts of the exhaust pipe (rubber mounting bush 14 N.m)**,
 - the **lower engine tie-bar retaining bracket bolt (110 N.m)**,
 - the **lower engine tie-bar bolts on the gearbox (110 N.m)**.
- ☐ Refit the lower arm ball joint nut.
- ☐ Torque tighten the **lower arm ball joint nut (63 N.m)**.
- ☐ Refit:
 - the anti-roll bar linkage lower nut,
 - the track rod ball joint nut.
- ☐ Torque tighten:
 - the **track rod ball joint nut (34 N.m)**,

- the **lower nut of the anti-roll bar tie rod 84 (N.m)**.

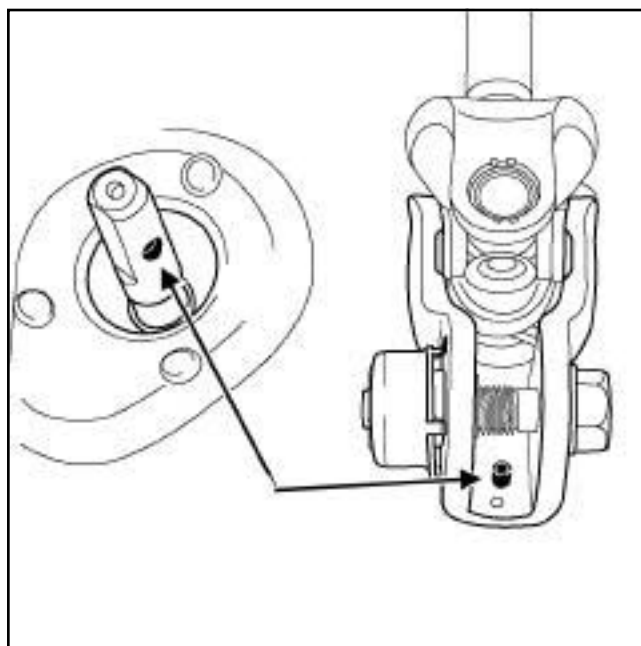
- ☐ Set the wheels straight ahead.



132638

- ☐ Observe the direction of fitting for the universal joint cam nut and bolt.

- ☐ Refit:
 - the universal joint,
 - the new universal joint bolt,
 - the cam nut from the universal joint.



132639

- ☐ Check that the universal joint is in the correct position.
- ☐ Torque tighten the **universal joint bolt on the steering box (39 N.m)**.
- ☐ Refit the steering cover.

FRONT AXLE COMPONENTS

Front axle sub-frame: Removal - Refitting

31A

2TR

III - FINAL OPERATION

☐ Refit:

- the engine undertray,
- the wheel arch liners (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
- the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

☐ Check the front axle geometry (see **30A, General information, Front axle: Adjusting**, page **30A-10**)

FRONT AXLE COMPONENTS

Front anti-roll bar: Removal - Refitting

31A

M9R

Tightening torques

anti-roll bar bolts	24 N.m
---------------------	--------

REMOVAL

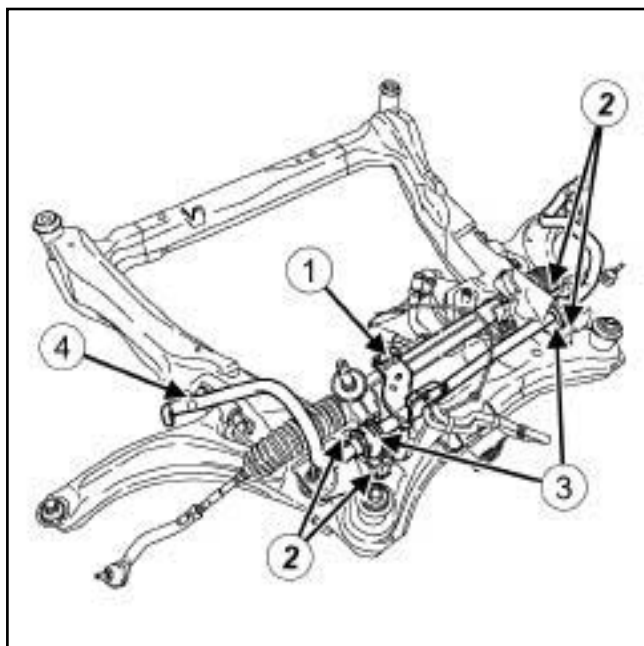
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

- ☐ Remove:

- the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
- the engine undertray,
- the front axle subframe (see **31A, Front axle components, Front axle sub-frame: Removal - Refitting**, page **31A-58**) .

II - REMOVAL OF PART CONCERNED



131468

- ☐ Remove:

- the particle filter pressure sensor support (1) ,
- the anti-roll bar bolts (2) ,
- the anti-roll bar bearings (3) ,
- the anti-roll bar (4) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:

- the anti-roll bar,
- the anti-roll bar bearings,
- the anti-roll bar bolts,
- the particle filter pressure sensor support.

- ☐ Torque tighten the **anti-roll bar bolts (24 N.m)**.

II - FINAL OPERATION

- ☐ Refit:

- the front axle sub-frame (see **31A, Front axle components, Front axle sub-frame: Removal - Refitting**, page **31A-58**) ,
- the engine undertray,
- the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

FRONT AXLE COMPONENTS

Front anti-roll bar: Removal - Refitting

31A

2TR

Tightening torques

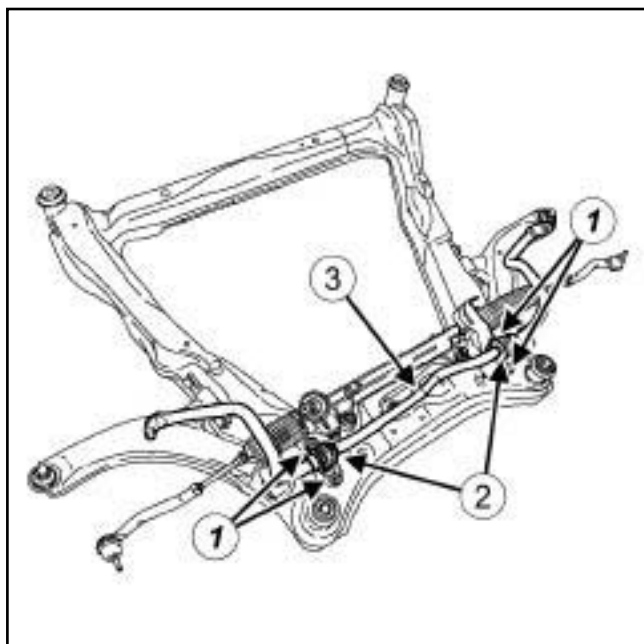
anti-roll bar bolts	24 N.m
---------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres),
 - the engine undertray,
 - the front axle subframe (see **31A, Front axle components, Front axle sub-frame: Removal - Refitting**, page **31A-58**) .

II - REMOVAL OF PART CONCERNED



131467

- ☐ Remove:
 - the anti-roll bar bolts (1) ,
 - the anti-roll bar bearings (2) ,
 - the anti-roll bar (3) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the anti-roll bar,
 - the anti-roll bar bearings,
 - the anti-roll bar bolts.
- ☐ Torque tighten the **anti-roll bar bolts (24 N.m)**.

II - FINAL OPERATION

- ☐ Refit:
 - the front axle sub-frame (see **31A, Front axle components, Front axle sub-frame: Removal - Refitting**, page **31A-58**) ,
 - the engine undertray,
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

REAR AXLE COMPONENTS

Rear brake pads: Removal - Refitting

33A

Essential special tooling

Fre. 1190-01 Brake calliper piston return tool.

Tightening torques

calliper guide pin bolt **43 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1).

II - OPERATION FOR REMOVAL OF PART CONCERNED

☐

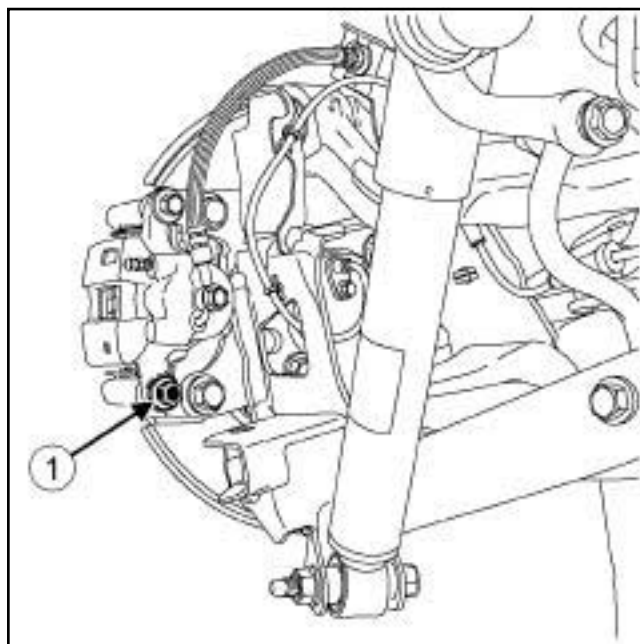
WARNING

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.

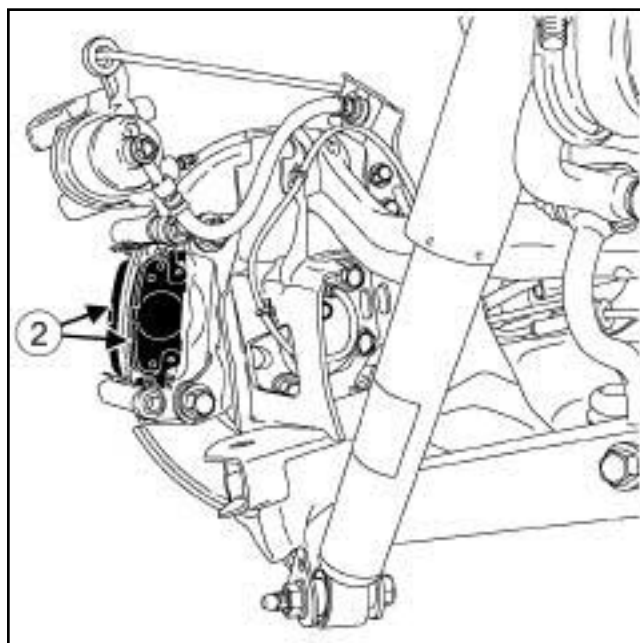
Note:

When replacing brake pads, it is essential to replace the pads on the opposite side.



130928

- ☐ Remove the lower guide pin bolt (1) of the brake calliper.



130929

- ☐ Rotate the rear brake calliper upwards.
- ☐ Suspend the rear brake calliper.
- ☐ Remove the brake pads (2) from the brake calliper mountings.

REFITTING

I - REFITTING PREPARATION OPERATION

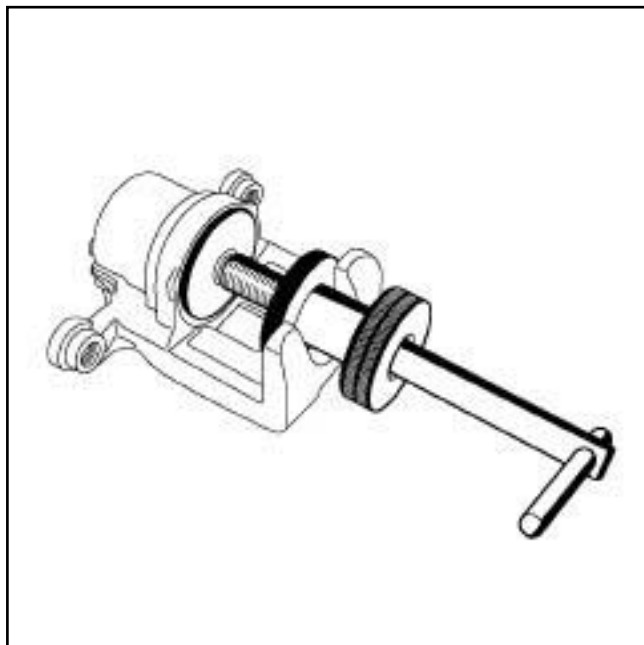
- ☐ Always replace the guide pin bolts.

REAR AXLE COMPONENTS

Rear brake pads: Removal - Refitting

33A

- ❑ Check the thickness of the brake pads (see **30A, General information, Brake: Specifications**, page **30A-6**).
- ❑ Clean using a wire brush and **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repair-work**) (04B, Consumables - Products):
 - the calliper supports,
 - the callipers,
 - the guide pin bolts.

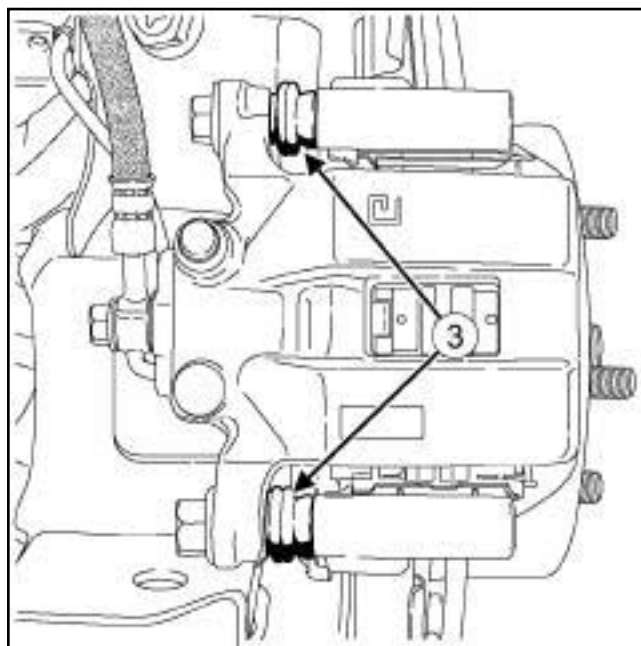


130930

- ❑ Push the calliper piston back using the tool (**Fre. 1190-01**) until it is at the end of its bore.

II - REFITTING OPERATION FOR PART CONCERNED

- ❑ Refit the rear brake pads.
- ❑ Rotate the rear brake calliper downwards.
- ❑ Refit the new lower guide pin bolt.



130931

- ❑ The guide pin bolt rubber boots (**3**) must be correctly positioned.
- ❑ Torque tighten the **calliper guide pin bolt (43 N.m)**.

III - FINAL OPERATION.

- ❑ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**).

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

REAR AXLE COMPONENTS

Rear brake hose: Removal - Refitting

33A

Essential equipment

pedal press

Tightening torques

brake hose on the union	16 N.m
brake hose on the calliper	18 N.m

IMPORTANT

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Rear axle assemblies: Precautions for repair**) .

WARNING

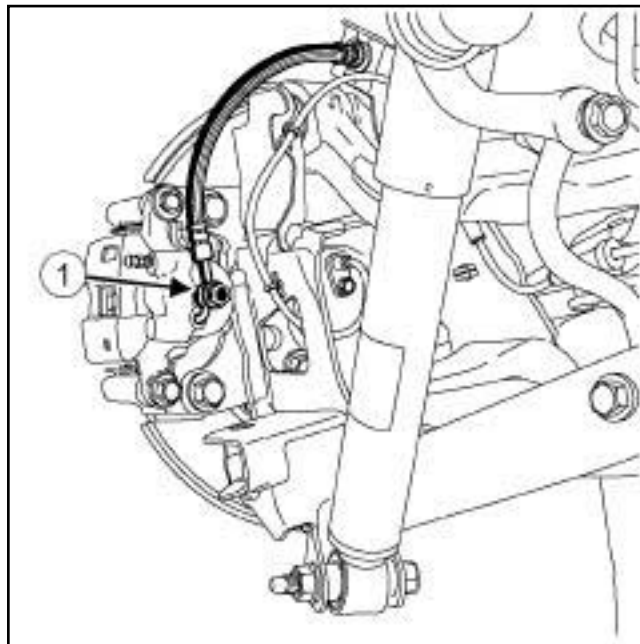
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REMOVAL PREPARATION OPERATION

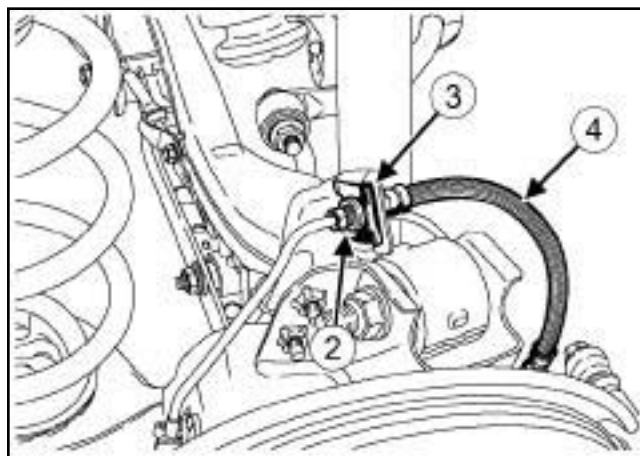
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

II - OPERATION FOR REMOVAL OF PART CONCERNED



130808

- ☐ Undo the rear brake hose at the rear brake calliper union (1) .
- ☐ Disconnect the rear brake hose from the rear brake calliper.



130809

- ☐ Undo the rear brake hose at the pipe connection (2) .
- ☐ Remove:
 - the brake hose clip (3) ,
 - the brake hose (4) .

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the brake hose copper washers on the calliper.

REAR AXLE COMPONENTS

Rear brake hose: Removal - Refitting

33A



WARNING

In order to not damage the brake hose:

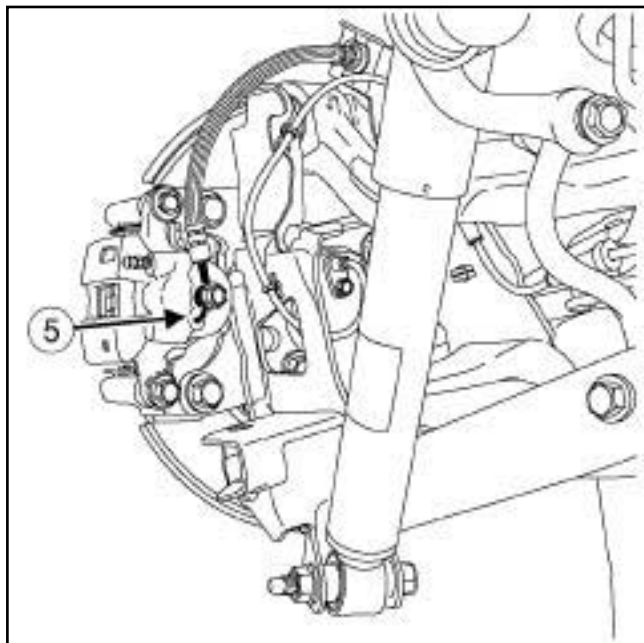
- do not tension the hose,
- do not twist the hose,
- check that there is no contact with the surrounding components.

II - REFITTING OPERATION FOR PART CONCERNED

Refit:

- the rear brake hose **(4)** ,
- the rear brake hose on the union **(2)** ,
- the brake hose clip **(3)** on the union,

Torque tighten the **brake hose on the union (16 N.m)**.



130810



Note:

Put the brake hose retaining pin **(5)** in the calliper hole.

Refit the brake hose on the calliper with the new copper washers.

Torque tighten the **brake hose on the calliper (18 N.m)**.

III - FINAL OPERATION.

- Remove the **pedal press** from the brake pedal.
- Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) .
- Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .
- Check the brake fluid level.

REAR AXLE COMPONENTS

Rear brake caliper: Removal - Refitting

33A

Essential special tooling

Fre. 1190-01 Brake calliper piston return tool.

Essential equipment

pedal press

Tightening torques

bolts on the brake calliper guide pins **43 N.m**

brake hose union on the calliper **18 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

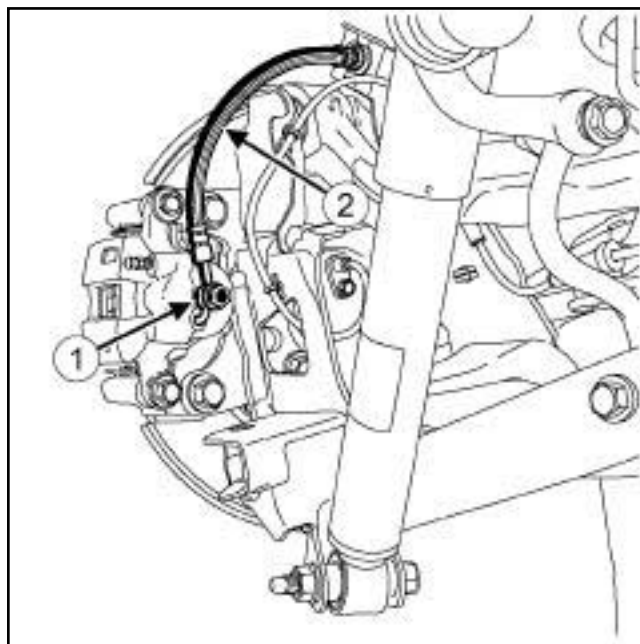
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**).

WARNING

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

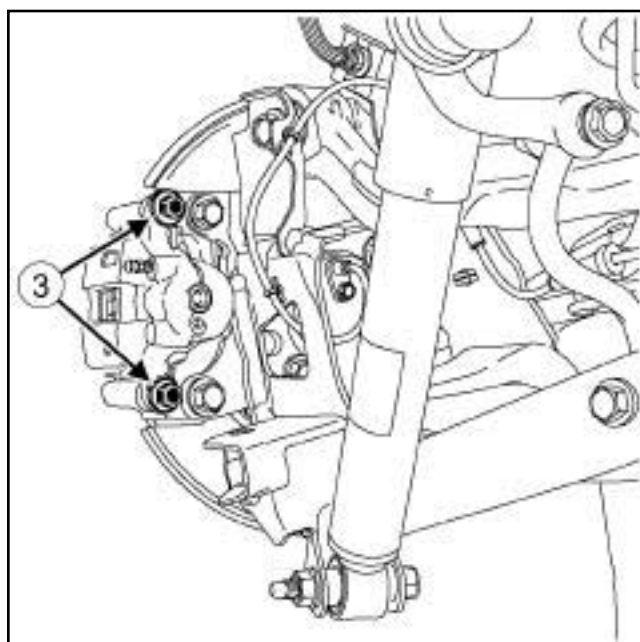
- ☐ Position a **pedal press** on the brake pedal to limit the outflow of brake fluid.

II - OPERATION FOR REMOVAL OF PART CONCERNED



130808

- ☐ Undo the brake hose on the calliper at (1).
- ☐ Disconnect the rear brake hose (2) from the rear brake calliper.



130812

- ☐ Remove:
 - the rear brake calliper guide pin bolts (3),
 - the rear brake calliper from the mounting,
 - the rear brake pads.

REAR AXLE COMPONENTS

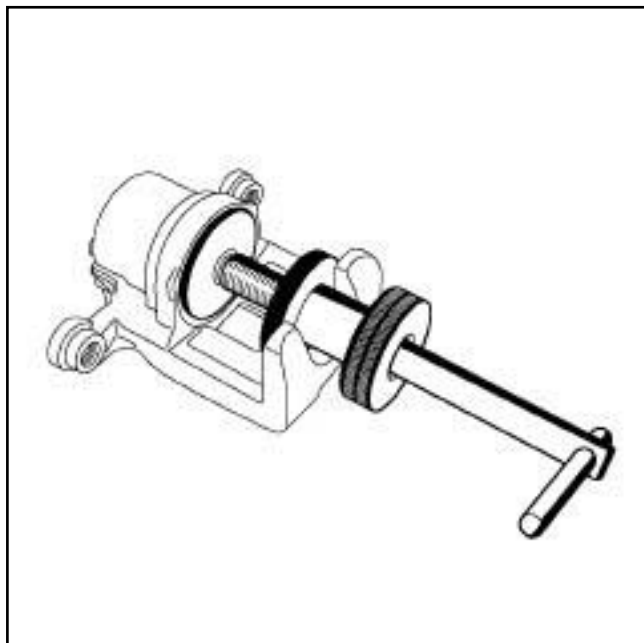
Rear brake caliper: Removal - Refitting

33A

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace:
 - the calliper guide pin bolts,
 - the copper washers on the brake hose on the calliper.
- ☐ Clean using a wire brush and **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products):
 - the calliper supports,
 - the callipers.

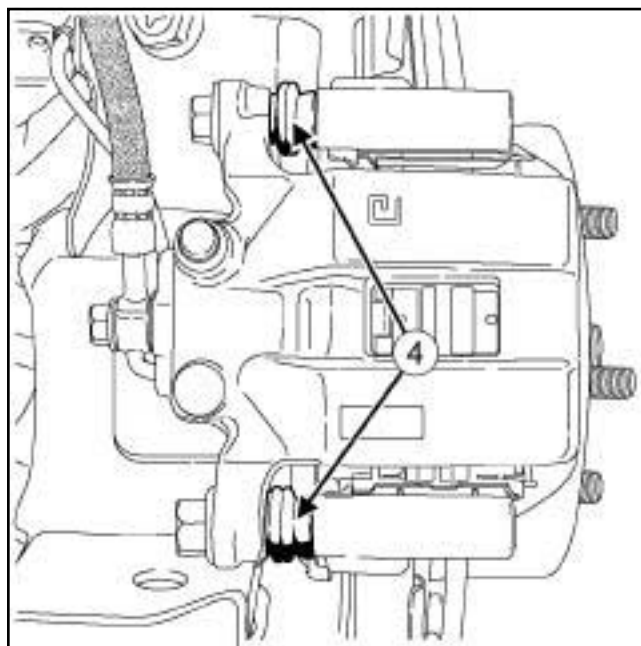


130930

- ☐ Push the piston to the bottom of its housing using the (**Fre. 1190-01**).

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the rear brake pads,
 - the rear brake calliper,
 - the new guide pin bolts,
 - the brake hose to the calliper, with new copper washers.



130931

- ☐ Ensure that the guide pin bolt rubber boots (4) are correctly positioned.
- ☐ Tighten to torque:
 - the **bolts on the brake calliper guide pins (43 N.m)**,
 - the **brake hose union on the calliper (18 N.m)**.

III - FINAL OPERATION.

- ☐ Remove the **pedal press** from the brake pedal.
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .
- ☐ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ☐ Check the brake fluid level.

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

Tightening torques

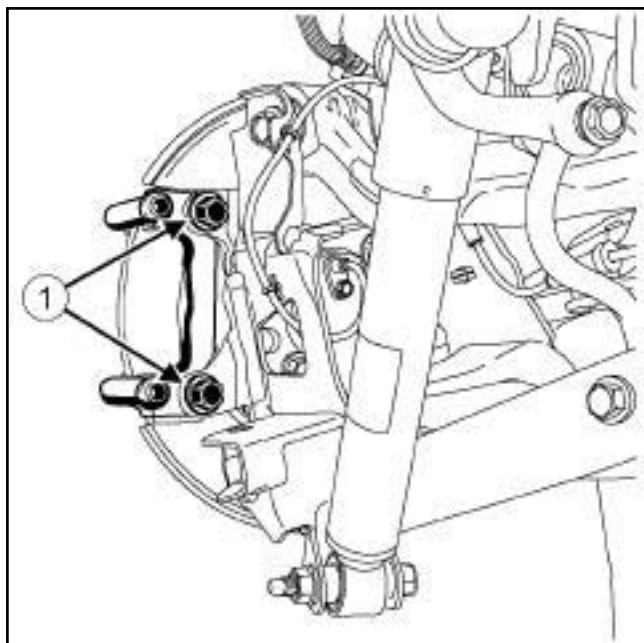
brake calliper mounting bolts	84 N.m
-------------------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the rear brake calliper without disconnecting the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) .
- ☐ Suspend the rear brake calliper.
- ☐ Remove the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



130815

- ☐ Remove:
 - the rear brake calliper mounting bolts (1) ,
 - the rear brake calliper mounting.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the brake calliper guide pin bolts.
- ☐ Clean using a wire brush and **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products):
 - the calliper brackets,
 - the callipers.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the calliper mounting,
 - the calliper mounting bolts.
- ☐ Torque tighten the **brake calliper mounting bolts (84 N.m)**.

III - FINAL OPERATION.

- ☐ Refit:
 - the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) .
 - the rear brake calliper (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) ,
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

REAR AXLE COMPONENTS

Rear brake disc shield: Removal - Refitting

33A

4X2 TRANSMISSION

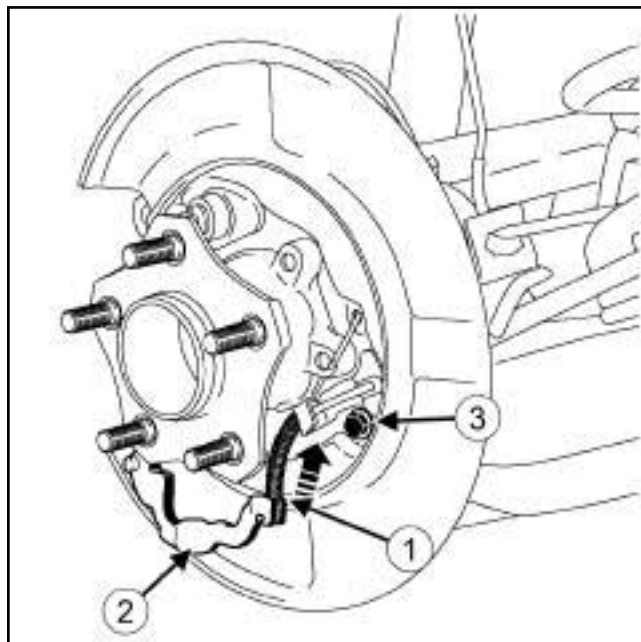
Tightening torques 	
rear wheel hub bolts	88 N.m
rear wheel speed sensor bolt	10 N.m
parking brake cable bolt	13 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

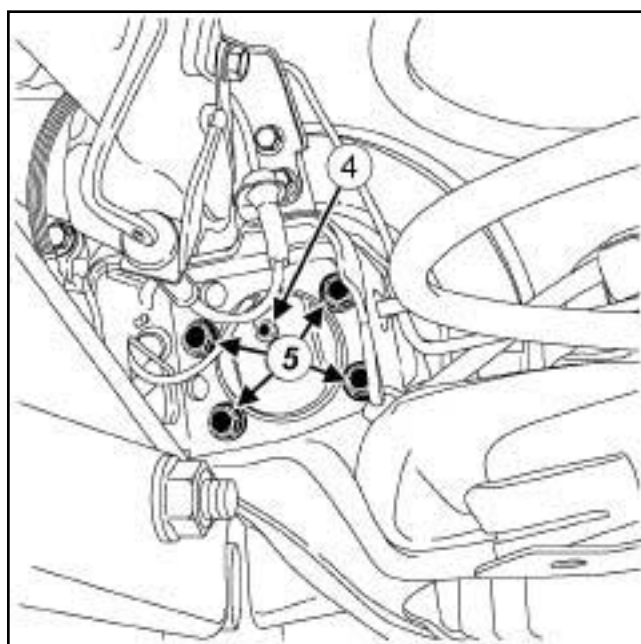
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the rear brake calliper without disconnecting it from the brake hose (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) .
- ☐ Suspend the rear brake calliper.
- ☐ Remove:
 - the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,
 - the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7) ,
 - the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13) ,
 - the rear brake lining (see **33A, Rear axle components, Rear brake lining: Removal - Refitting**, page 33A-15)

II - OPERATION FOR REMOVAL OF PART CONCERNED



130816

- ☐ Unhook the parking brake cable (1) from the parking brake lever (2) .
- ☐ Remove the bolt (3) of the parking brake cable from the rear brake disc shield.



130817

- ☐ Remove:
 - the rear wheel speed sensor bolt (4) ,
 - the rear wheel speed sensor of the rear wheel hub,
 - the rear wheel hub bolts (5) ,
 - the rear wheel hub,

REAR AXLE COMPONENTS

Rear brake disc shield: Removal - Refitting

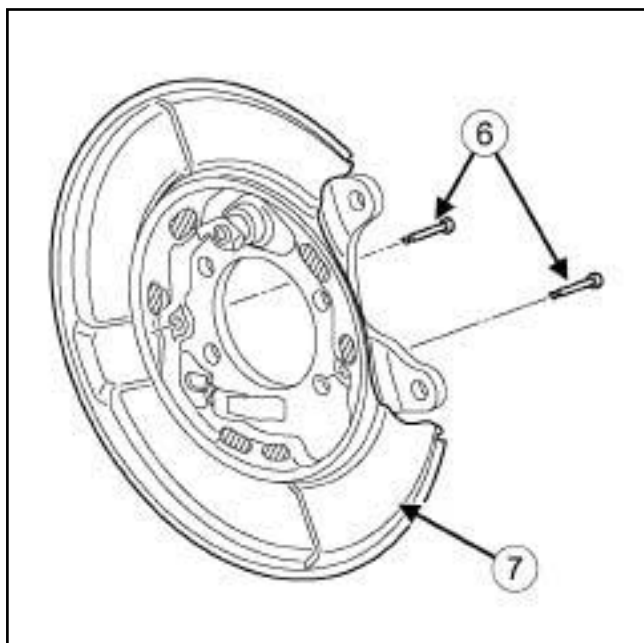
33A

4X2 TRANSMISSION

- the rear brake disc shield.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



130818

☐ Refit:

- the rear brake lining connecting rods (6) on the rear brake disc shield,
- the rear brake disc shield (7) ,
- the rear wheel hub,
- the rear wheel hub bolts,
- the rear wheel speed sensor on the rear wheel hub,
- the rear wheel speed sensor bolt.

☐ Torque tighten:

- the **rear wheel hub bolts (88 N.m)**,
- the **rear wheel speed sensor bolt (10 N.m)**.

☐ Refit:

- the parking brake cable to the parking brake lever,
- the parking brake cable bolt on to the rear brake disc shield,

- ☐ Torque tighten the **parking brake cable bolt (13 N.m)** on the rear brake disc shield.

II - FINAL OPERATION.

☐ Refit:

- the rear brake lining (see **33A, Rear axle components, Rear brake lining: Removal - Refitting**, page **33A-15**) ,
- the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

FOOT BRAKE MANUAL CONTROL

- ☐ Adjust the parking brake cables (see **37A, Mechanical component controls, Parking brake lever: Adjusting**, page **37A-38**) .

FOOT BRAKE AUTO CONTROL

- ☐ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle, so that automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

REAR AXLE COMPONENTS

Rear brake disc shield: Removal - Refitting

33A

4X4 TRANSMISSION

Essential special tooling

Rou. 604-01 Hub locking tool.

Tightening torques

rear wheel hub bolts **88 N.m**

rear wheel speed sensor bolt **10 N.m**

parking brake cable bolt **13 N.m**

parking brake cable bolt **13 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

☐ Remove:

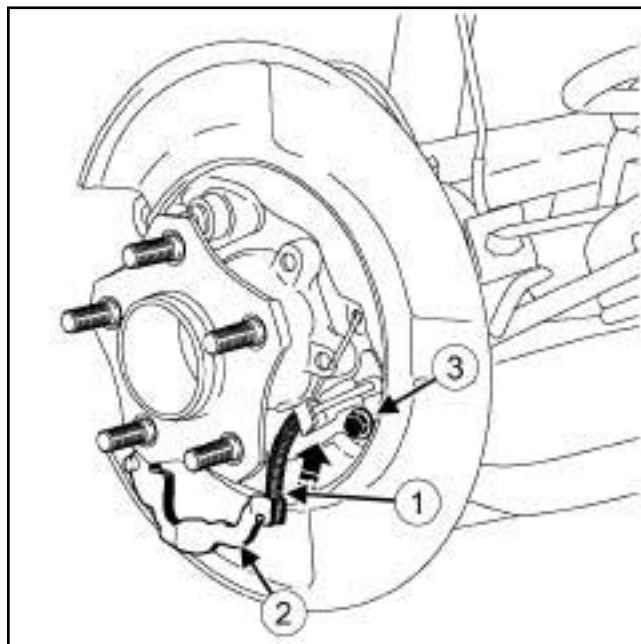
- the rear wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
- the rear brake calliper without disconnecting the brake hose (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) .

☐ Suspend the rear brake calliper.

☐ Remove:

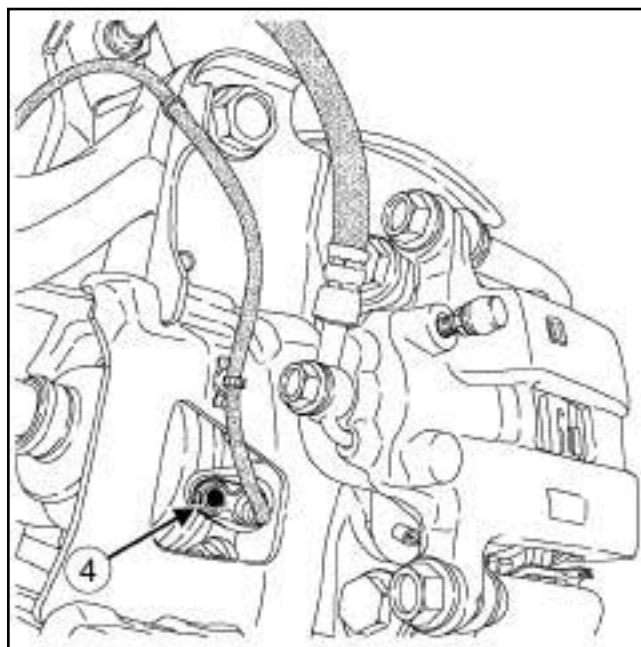
- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,
- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7) ,
- the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13) ,
- the rear brake lining (see **33A, Rear axle components, Rear brake lining: Removal - Refitting**, page 33A-15)

II - OPERATION FOR REMOVAL OF PART CONCERNED



☐ Unhook the parking brake cable (1) from the parking brake lever (2) .

☐ Remove the parking brake cable bolt (3) from the rear brake disc shield.



☐ Remove:

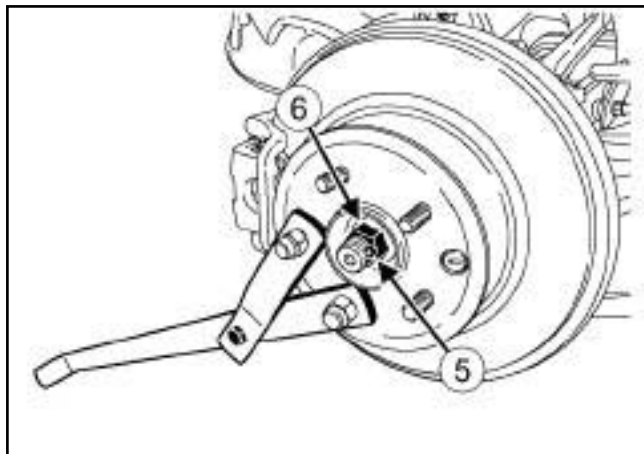
- the rear wheel speed sensor bolt (4) ,
- the rear wheel speed sensor of the rear wheel hub.

REAR AXLE COMPONENTS

Rear brake disc shield: Removal - Refitting

33A

4X4 TRANSMISSION

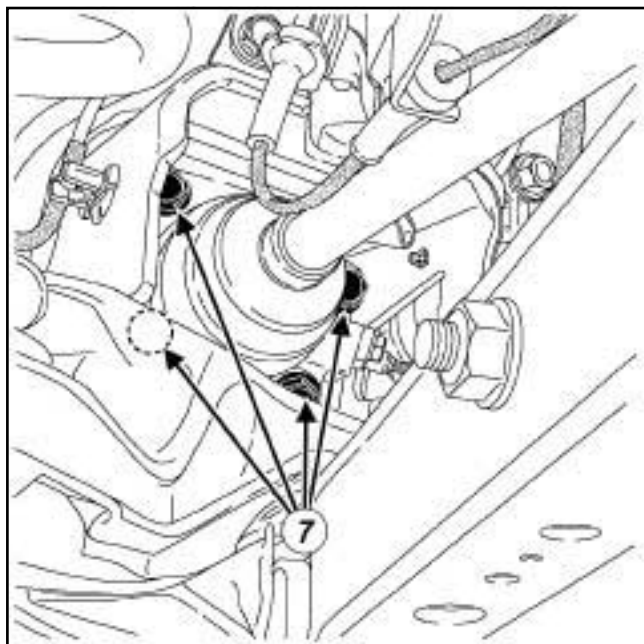


130828

- ☐ Position the tool (**Rou. 604-01**) on the rear wheel hub.
- ☐ Remove:
 - the cotter pin (5) ,
 - the rear wheel hub nut (6) .

Note:

To avoid damaging the « rear brake lining - brake disc shield » assembly, carefully remove the rear wheel hub.



130829

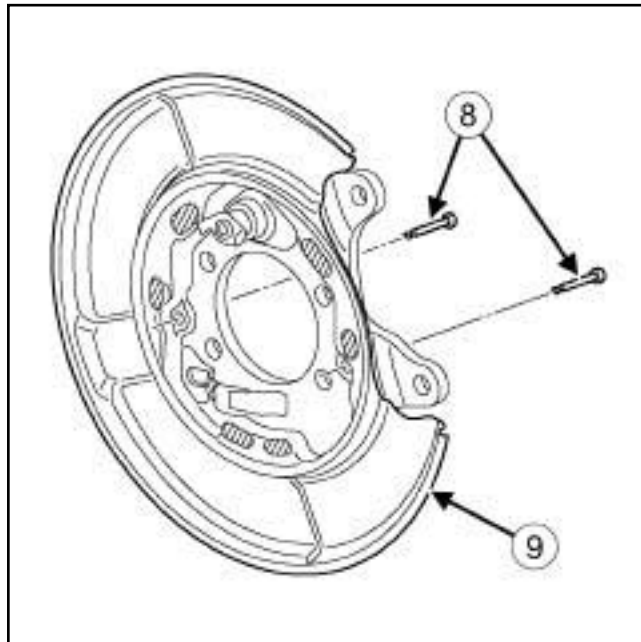
- ☐ Remove:
 - the rear wheel hub bolts (7) ,
 - the rear wheel hub,
 - the rear brake disc protector.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the cotter pin.

II - REFITTING OPERATION FOR PART CONCERNED



130818

- ☐ Refit:
 - the rear brake lining connecting rods (8) on to the rear brake disc shield (9) ,
 - the rear brake disc shield,
 - the rear wheel hub,
 - the rear wheel hub bolts,
 - the rear wheel speed sensor on the rear wheel hub,
 - the rear wheel speed sensor bolt.
- ☐ Torque tighten:
 - the **rear wheel hub bolts (88 N.m)**,
 - the **rear wheel speed sensor bolt (10 N.m)**.
- ☐ Refit the rear wheel hub nut using the tool (**Rou. 604-01**).
- ☐ Torque tighten the **parking brake cable bolt (13 N.m)** on the rear brake disc shield.
- ☐ Refit the new cotter pin.
- ☐ Refit:
 - the parking brake cable to the parking brake lever,

REAR AXLE COMPONENTS

Rear brake disc shield: Removal - Refitting

33A

4X4 TRANSMISSION

- the parking brake cable bolt on to the rear brake disc shield,

- ☐ Torque tighten the **parking brake cable bolt (13 N.m)** on the rear brake disc shield.

III - FINAL OPERATION.

- ☐ Refit:

- the rear brake lining (see **33A, Rear axle components, Rear brake lining: Removal - Refitting**, page **33A-15**) ,

- the brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**) ,

- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,

- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,

- the rear brake calliper without disconnecting it from the brake hose (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,

- the rear wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

FOOT BRAKE MANUAL CONTROL

- ☐ Adjust the parking brake cables (see **37A, Mechanical component controls, Parking brake lever: Adjusting**, page **37A-38**) .

FOOT BRAKE AUTO CONTROL

- ☐ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle, so that automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

REAR AXLE COMPONENTS

Rear brake disc: Removal - Refitting

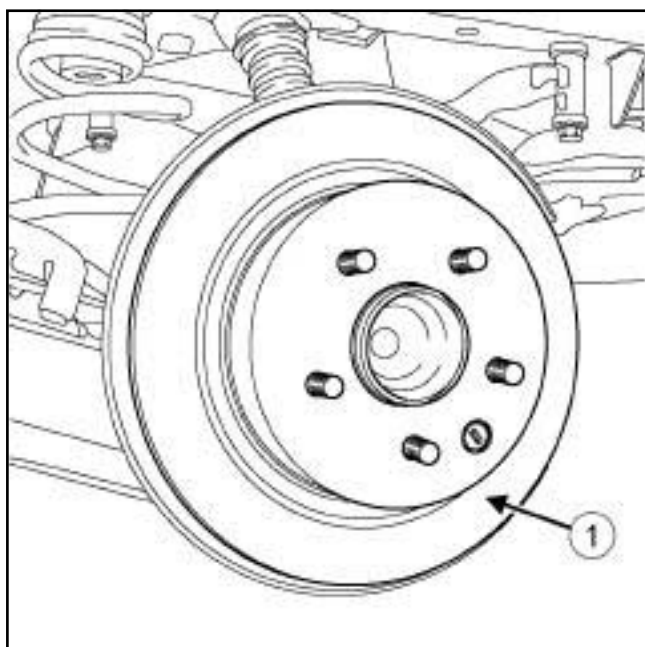
33A

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the rear brake calliper without disconnecting it from the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) .
- ☐ Suspend the rear brake calliper.
- ☐ Remove:
 - the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,
 - the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



130932

- ☐ Remove the rear brake disc (1) .

REFITTING

I - REFITTING PREPARATION OPERATION

☐

Note:

Brake discs cannot be reground.

If there is excessive wear or scoring, the brake discs must be replaced.

When replacing a brake disc, it is essential to replace the following:

- the rear brake disc on the opposite side,
- the brake pads.

- ☐ Use a cleaning fountain to clean the discs.
- ☐ Dry the disc surfaces.
- ☐ Clean using a wire brush and **BRAKE CLEANER** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products):
 - the calliper supports,
 - the callipers,
 - the guide pin bolts.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the rear brake disc.

III - FINAL OPERATION.

- ☐ Refit:
 - the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7) ,
 - the brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,
 - the rear brake calliper without disconnecting it from the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) ,
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

☐

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

I - PREPARATION OPERATION FOR CHECK

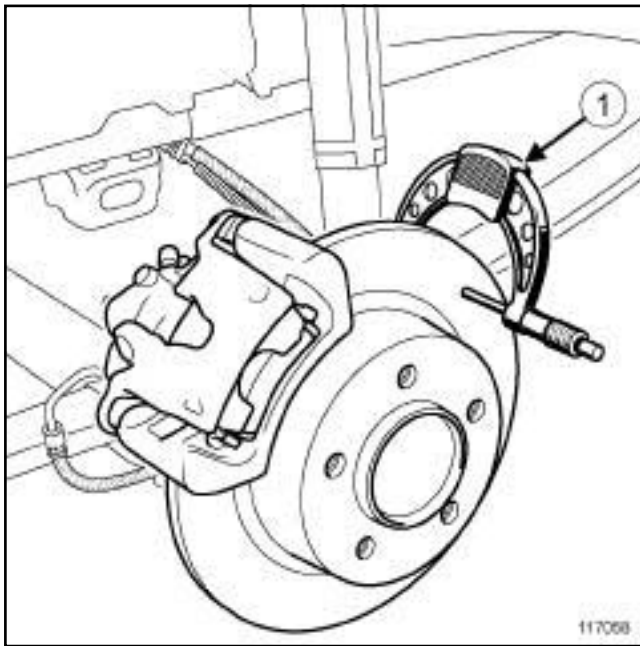
Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

Remove the rear wheel concerned (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

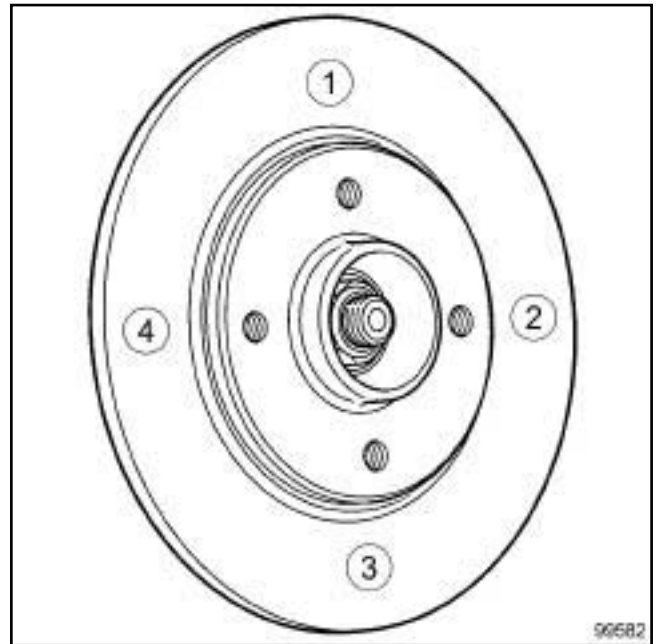
II - CHECKING OPERATION FOR PART CONCERNED

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).

Compare the values with those recommended by the manufacturer (see **30A, General information, Brake: Specifications**, page 30A-6) .

III - FINAL OPERATION

Replace the discs if necessary (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13) .

Refit the rear wheel concerned (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

REAR AXLE COMPONENTS

Rear brake lining: Removal - Refitting

33A

Essential equipment

diagnostic tool

☐

Note:

After replacing the rear brake linings, it is ABSOLUTELY ESSENTIAL to run in the linings. Perform this running in operation by driving the vehicle. Refer to the end of this procedure for a more detailed explanation.

REMOVAL

I - REMOVAL PREPARATION OPERATION

☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

☐ Release the parking brake.

☐ Remove:

- the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres),

- the rear brake calliper without disconnecting it from the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) .

☐ Suspend the rear brake calliper.

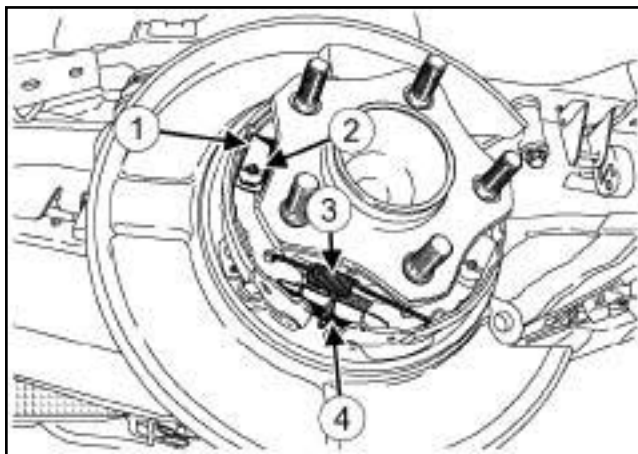
☐ Remove:

- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,

- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7) ,

- the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



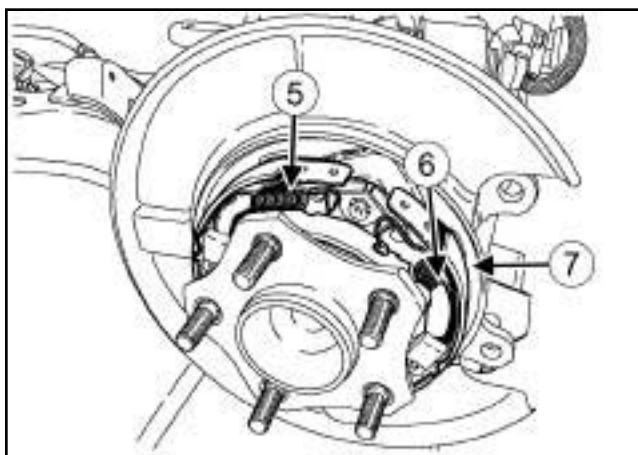
131469

☐ Remove:

- the side retainers (1) by rotating the connecting rods (2) while pressing against the rear brake disc shield on both sides,

- the lower return spring (3) ,

- the lower return spring adjuster (4) .



131470

☐ Remove:

- the upper return springs, (5)

- the upper return spring bracket (6) ,

- the brake linings (7) .

REFITTING

I - REFITTING PREPARATION OPERATION

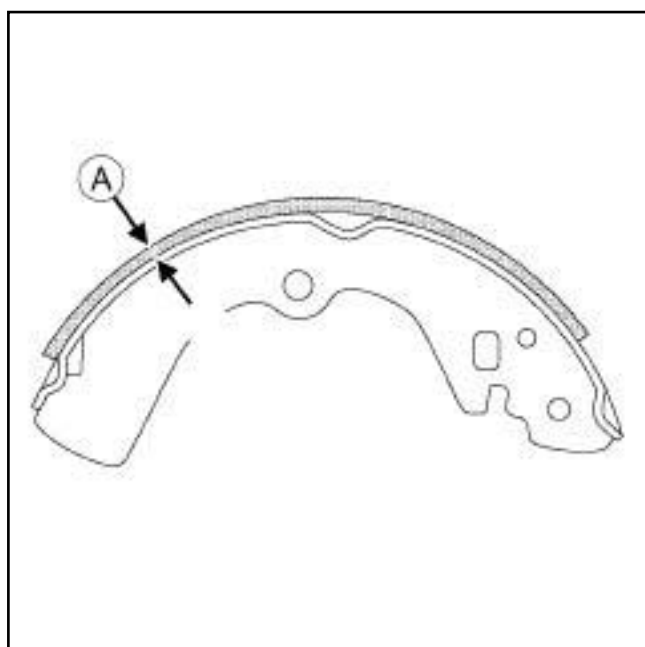
☐ Clean the parking brake linings and the rear brake disc.

☐ Lightly lubricate the lower return spring adjuster (4) .

REAR AXLE COMPONENTS

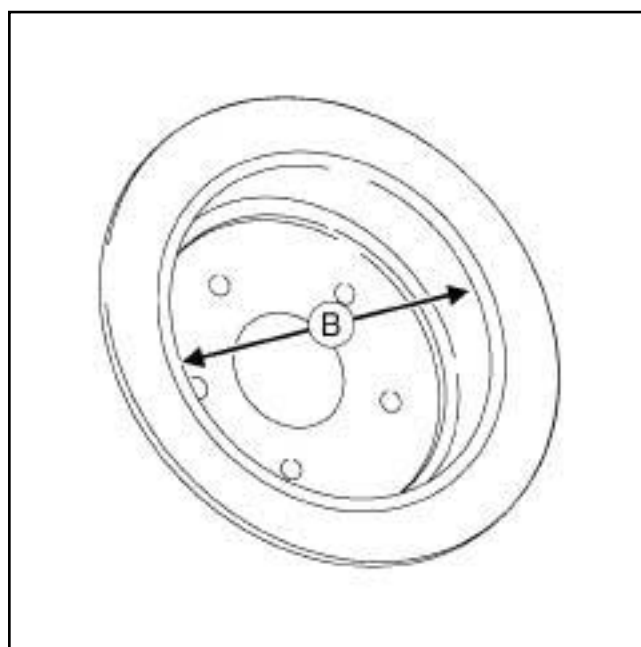
Rear brake lining: Removal - Refitting

33A



131471

- ❑ Check the thickness (A) of the rear brake lining:
 - thickness of the disc lining: **3.25 mm**,
 - minimum thickness of the disc lining: **1.5 mm**.

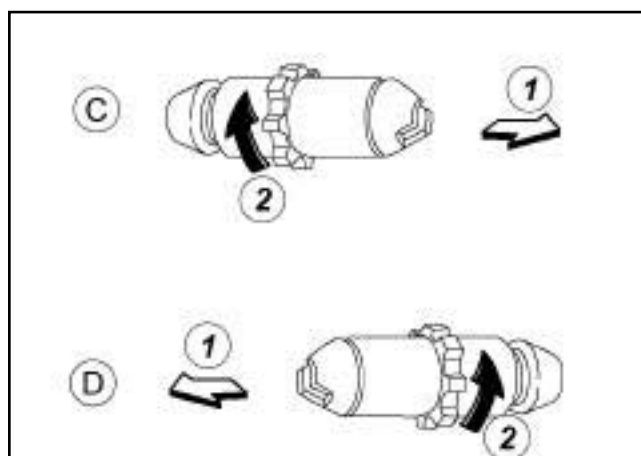


131472

- ❑ Check the diameter (B) of the rear brake drum:
 - drum diameter: **172 mm**,
 - maximum diameter of drum wear: **173 mm**.

Note:

The parking brake linings for the front side are made out of different materials from those at the rear. Do not mix them up when removing and refitting.



131473

- (C) For the right-hand side brake
- (D) For the left-hand side brake
- (1) Front of the vehicle
- (2) Expanding the adjuster

REAR AXLE COMPONENTS

Rear brake lining: Removal - Refitting

33A

- ❑ Assemble the adjuster so that the threaded part is expanded when rotating the adjuster in the direction shown by the arrow.

II - REFITTING PART CONCERNED

- ❑ Refit:
 - the brake linings **(7)** ,
 - the upper return spring bracket **(6)** ,
 - the upper return springs, **(5)**
 - the lower return spring adjuster **(3)** ,
 - the side retainers **(1)** by rotating the connecting rods **(2)** while pressing against the rear brake disc shield.

III - FINAL OPERATION

- ❑ Refit:
 - the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**) ,
 - the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
 - the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,
 - the rear brake calliper (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

Note:

For safety reasons, it is strongly recommended:

- to run in the brake linings with the help of two people: a driver and a passenger who uses the diagnostic tool,
- to perform the driving test on a road that is closed if possible, or as clear as possible.

FOOT BRAKE MANUAL CONTROL

- ❑ Adjust the parking brake cables (see **37A, Mechanical component controls, Parking brake lever: Adjusting**, page **37A-38**) (37A, Mechanical component controls).
- ❑ After replacing the parking brake linings, perform the brake-in operation as follows:
 - adjust the parking brake cables (see **37A, Mechanical component controls, Parking brake lever: Adjusting**, page **37A-38**) (37A, Mechanical component controls),
 - perform the parking brake break-in operation using **diagnostic tool** by driving the vehicle under the following conditions:
 - Vehicle speed: 25 mph (40 km/h),
 - Parking brake lever operating force: 130N (5 notches),
 - Distance: 200~233m,
 - Braking time: 18~21sec.

Note:

To prevent the lining from overheating, allow a cool-off period of approximately 5 minutes after every break-in operation.

- ❑ After the break-in procedure, check the lever stroke of the parking brake. If it does not conform to the specifications, adjust again (see **37A, Mechanical component controls, Parking brake lever: Adjusting**, page **37A-38**) (37A, Mechanical component controls),

FOOT BRAKE AUTO CONTROL

- ❑ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.
- ❑ After replacement of the parking brake linings, perform the break-in operation as follows **diagnostic tool** (see **Fault finding: Programming**)(37B, Electronic parking brake).

REAR AXLE COMPONENTS

Brake pipe: Removal - Refitting

33A

Essential equipment

pedal press

Tightening torques

rear brake hose on the union	16 N.m
------------------------------	--------

The pipes have a rigid and a flexible section.

REMOVAL

I - REMOVAL PREPARATION OPERATION

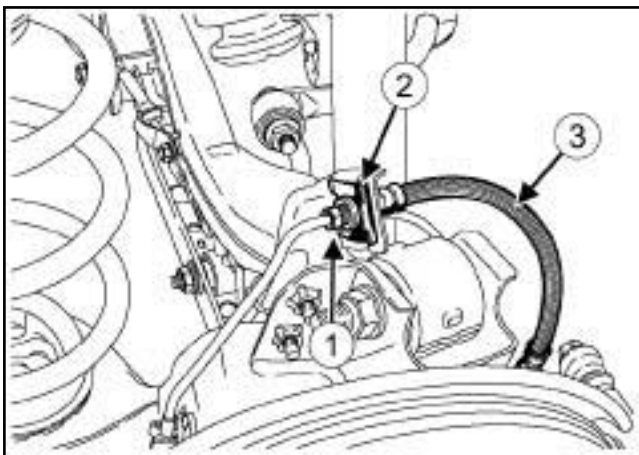
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (MR 388, 02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1).

WARNING

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

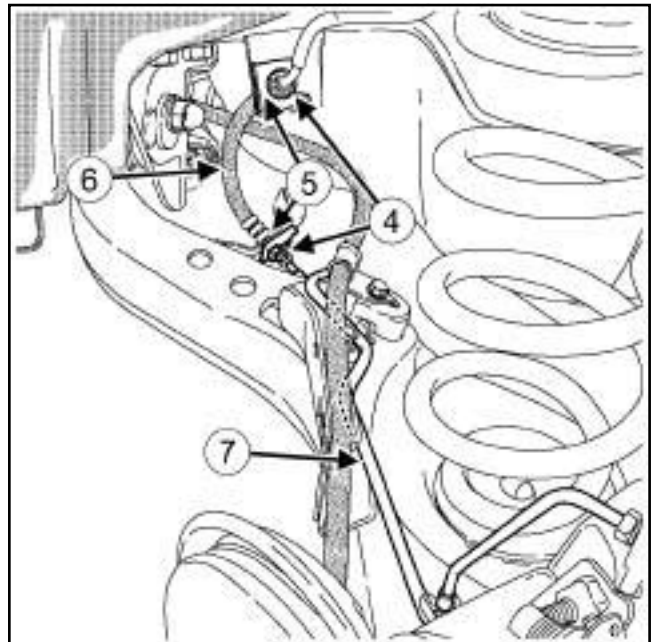
- ☐ Fit the **pedal press** to the brake pedal to limit the amount of brake fluid running out.

II - OPERATION FOR REMOVAL OF PART CONCERNED



130809

- ☐ Undo the rear brake hose at the pipe connection (1).
- ☐ Remove the rear brake hose clip (2).
- ☐ Disconnect the rear brake hose (3).



130825

- ☐ Undo the rear brake hose at the pipe connection (4).
- ☐ Remove:
 - the clips (5) from the rear brake hose (6),
 - the rear brake hose.
- ☐ Detach the rigid brake pipe (7) from the rear stub axle carrier.
- ☐ Remove the rigid brake pipe.

REFITTING

I - REFITTING PREPARATION OPERATION

☐

WARNING

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.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the rigid brake pipe in its initial position.
 - the rear brake hose (6),

REAR AXLE COMPONENTS

Brake pipe: Removal - Refitting

33A

- the rear brake hose on the union **(4)** ,
- the clips **(5)** on the rear brake hose.

☐ Torque tighten the **rear brake hose on the union (16 N.m)**.

☐ Refit:

- the rear brake hose **(3)** ,
- the rear brake hose on the union **(1)** ,
- the clip **(2)** on the rear brake hose.

III - FINAL OPERATION.

☐ Remove the **pedal press**.

☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .

☐ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

REAR AXLE COMPONENTS

Shock absorber: Removal - Refitting

33A

Essential equipment

trolley jack
diagnostic tool

Tightening torques

bolt of the shock absorber	120N.m
nut of the shock absorber	120N.m

WARNING

To prevent any suspension asymmetry, replace both of the shock absorbers on the same axle.

WARNING

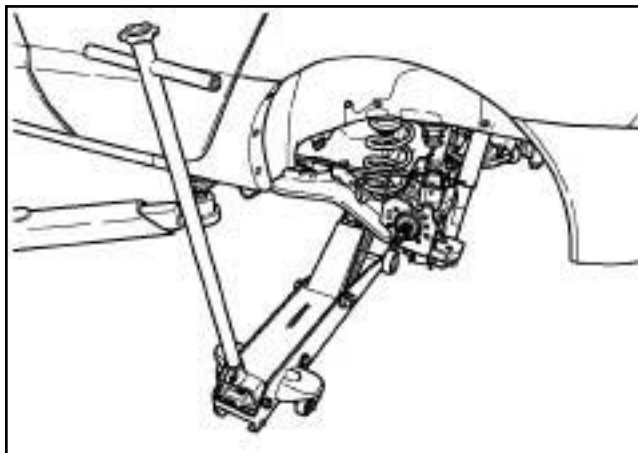
To prevent the components of the rear axle from deteriorating (rubber bushes, brake hoses, etc.) do not remove the two shock absorbers at the same time. Proceed one side at a time.

REMOVAL

I - REMOVAL PREPARATION OPERATION

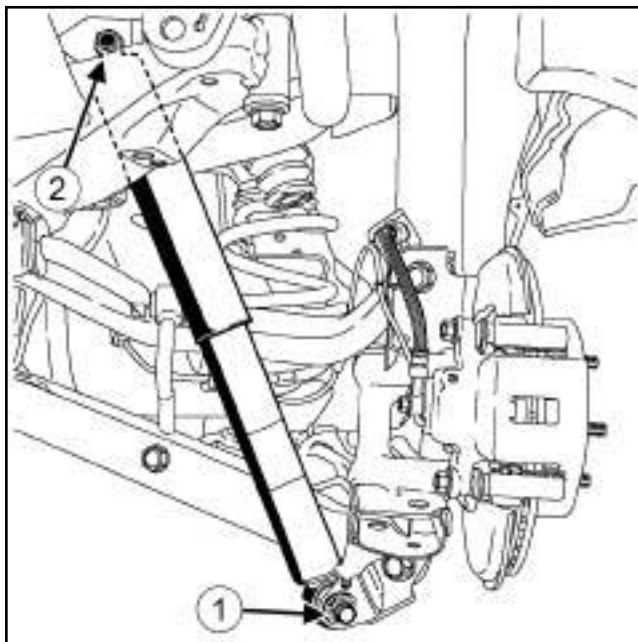
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).

II - REMOVAL OF PART CONCERNED



131474

- ☐ Position the **trolley jack** with a shim under the lower seat of the spring.



131475

- ☐ Remove the lower bolt and nut (1) of the rear shock absorber.
- ☐ Lower the **trolley jack**.
- ☐ Remove:
 - the upper bolt and nut (2) of the rear shock absorber,
 - the rear shock absorber.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the shock absorber nuts.

REAR AXLE COMPONENTS

Shock absorber: Removal - Refitting

33A

II - REFITTING PART CONCERNED

- ☐ Refit:
 - the rear shock absorber,
 - the new upper bolt and nut of the rear shock absorber.
- ☐ Torque tighten the upper **bolt of the shock absorber (120N.m)**.
- ☐ Position the **trolley jack** under the lower seat of spring.
- ☐ Fit the new lower bolt and nut of the rear shock absorber.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

III - FINAL OPERATION.

- ☐ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).
- ☐ Torque tighten the lower **nut of the shock absorber (120N.m)**.
- ☐ Adjust:
 - the alignment (see **30A, General information, Front axle: Adjusting**, page **30A-10**) (30A, General information),
 - the neutral position of the steering wheel angle sensor using the **diagnostic tool** (see **Fault finding - Programming**)(80B, Headlights)

REAR AXLE COMPONENTS

Rear suspension spring: Removal - Refitting

33A

Essential equipment

pedal press
trolley jack
diagnostic tool

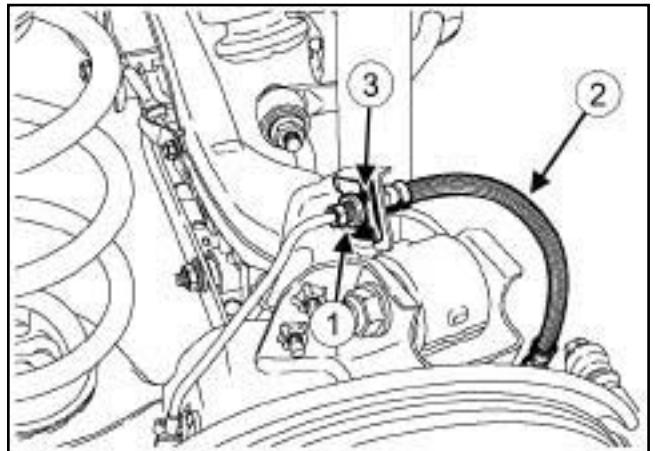
Tightening torques

bolt of the upper arm on the rear stub axle carrier	150N.m
lower trailing link bolt on the rear stub axle carrier	150 N.m
lower nut of the tie rod of the rear anti-roll bar	110N.m
upper nut of the tie rod of the rear anti-roll bar	110N.m
nut of the lower trailing link on the rear axle subframe	130N.m
upper arm bolt on the rear axle subframe	130N.m
bolts on the rear brake hose bracket	25N.m
brake hose on the union	16 N.m
bolt and the lower nut of the rear shock absorber	120N.m

REMOVAL

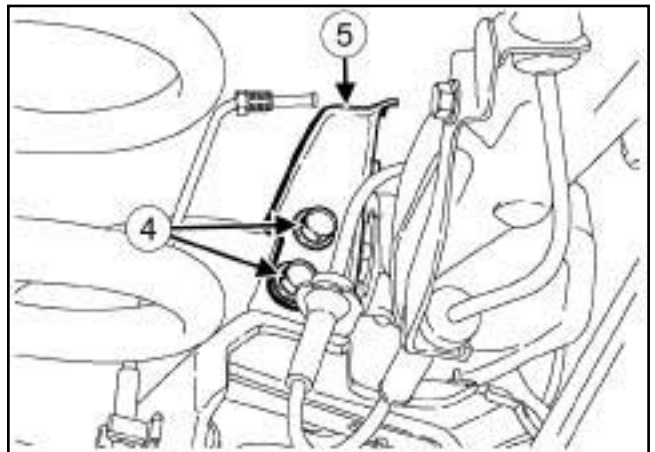
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).
- ☐ Place the **pedal press** on the brake pedal to limit the amount of brake fluid running out.



131498

- ☐ Unscrew the rear brake hose at the union (1) .
- ☐ Remove the clip (3) from the rear brake hose.
- ☐ Disconnect the rear brake hose (2) .



131499

- ☐ Remove:
 - the bolts (4) from the rear brake hose bracket,
 - the rear brake hose bracket (5) ,
 - the rear wheel speed sensor of the rear stub axle carrier (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) (38C, Anti-lock braking system).

XENON BULBS

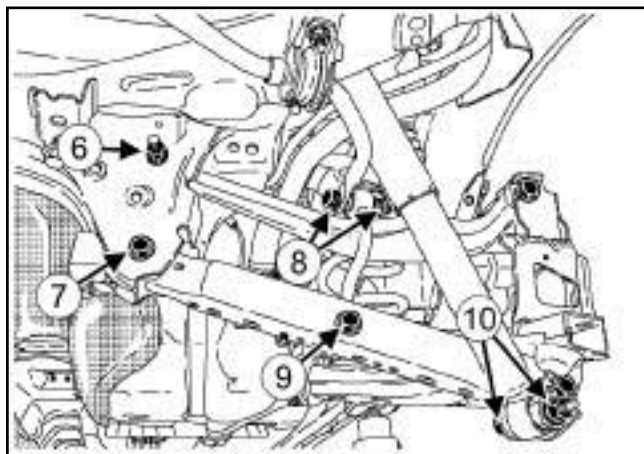
- ☐ Remove the rear sensor of the headlight beam adjustment (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

II - OPERATION FOR REMOVAL OF PART CONCERNED



Note:

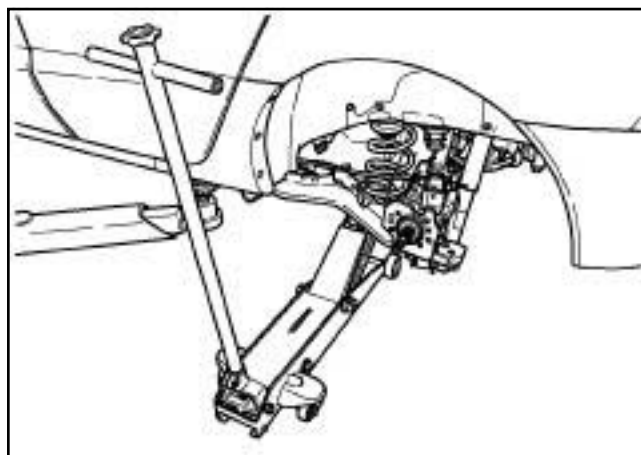
Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.



131500

□ Undo:

- the bolt and nut (6) of the upper arm of the rear axle subframe,
- the lower trailing link bolt and nut (7) of the rear axle subframe,
- the upper bolt and nut (8) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (9) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (10) of the rear shock absorber.

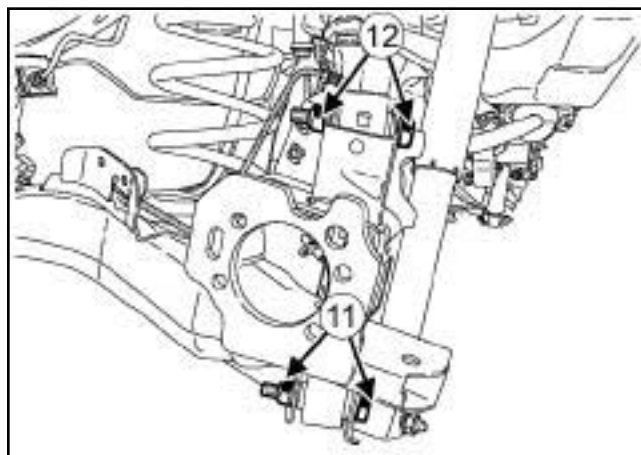


131501

- Position the **trolley jack** with a shim under the lower seat of the spring.

□ Remove:

- the lower bolt and nut (9) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (10) of the rear shock absorber.



131502

□ Remove:

- the bolt and nut of the lower trailing link (11) ,
- the bolt and nut (12) of the upper arm.

□ Lower the **trolley jack**.

□ Remove the rear suspension spring.

REFITTING

I - REFITTING PREPARATION OPERATION

□ Always replace:

- the upper arm nut,
- the lower trailing link nut,

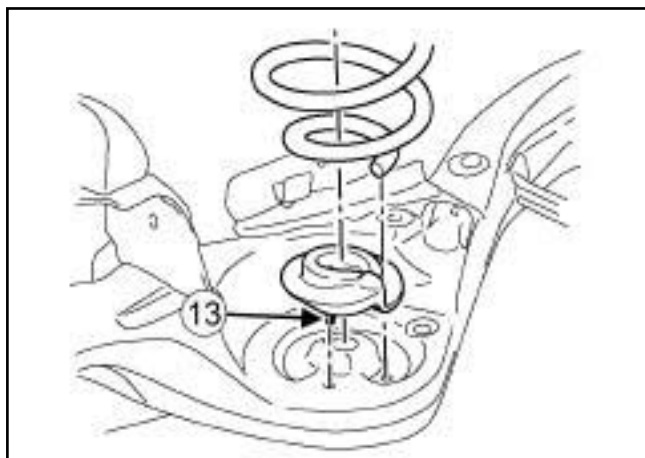
REAR AXLE COMPONENTS

Rear suspension spring: Removal - Refitting

33A

- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber lower nut,

II - REFITTING OPERATION FOR PART CONCERNED



131503



Note:

The lower elastic bearing **(13)** of the rear suspension spring must be firmly inserted into the opening of the rear stub axle carrier.

- ❑ Refit the rear suspension spring by aligning the lower end of widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.
- ❑ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two technicians.

❑ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut **(12)** on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut **(11)** of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

❑ Lower the trolley jack.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

❑ Torque tighten:

- the **bolt of the upper arm on the rear stub axle carrier (150N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130N.m)**,
- the **upper arm bolt on the rear axle subframe (130N.m)**.

XENON BULBS

- ❑ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

❑ Refit:

- the rear wheel speed sensor (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) (38C, Anti-lock Braking System),
- the rear brake hose bracket,
- the bolts on the rear brake hose bracket,
- the rear brake hose,
- the brake hose on the union,
- the clip on the rear brake hose.

❑ Torque tighten:

- the **bolts on the rear brake hose bracket (25N.m)**,
- the **brake hose on the union (16 N.m)**.

III - FINAL OPERATION.

- ❑ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) (see 30A, General information).

- ☐ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) (35A, Wheels and tyres).
- ☐ Torque tighten the **bolt and the lower nut of the rear shock absorber (120N.m)**.

XENON BULBS

- ☐ Adjust:
 - the headlights (see **Front headlight: Adjusting**) (80B, Headlights),
 - the headlight beam adjustment rear sensor (see **fault Finding - Programming**) (80B, Headlights).
-
- ☐ Adjust:
 - the alignment (see **30A, General information, Rear axle: Adjusting**, page **30A-12**) (30A, General information),
 - the neutral position of the steering wheel angle sensor using the **diagnostic tool** (see **Fault finding - Programming**) (80B, Headlights)

4X2 TRANSMISSION

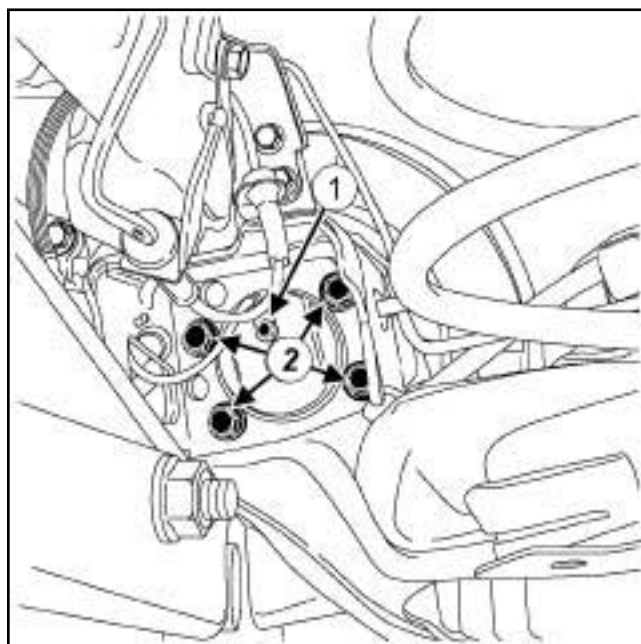
Tightening torques 	
rear wheel hub bolts	88 N.m
rear wheel speed sensor bolt	10 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the rear brake calliper without disconnecting the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) .
- ☐ Suspend the rear brake calliper.
- ☐ Remove:
 - the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,
 - the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7)
 - the brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



130817

- ☐ Remove:
 - the rear wheel speed sensor bolt (1) ,
 - the rear wheel speed sensor of the rear wheel hub,
 - the rear wheel hub bolts (2) ,
 - the rear wheel hub from the rear stub-axle carrier.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the rear wheel hub to the rear stub-axle carrier,
 - the rear wheel hub bolts,
 - the rear wheel speed sensor on to the rear wheel hub,
 - the rear wheel speed sensor bolt.
- ☐ Torque tighten:
 - the **rear wheel hub bolts (88 N.m)**,
 - the **rear wheel speed sensor bolt (10 N.m)**.

REAR AXLE COMPONENTS

Rear wheel hub: Removal - Refitting

33A

4X2 TRANSMISSION

II - FINAL OPERATION.

☐ Refit:

- the brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper without disconnecting the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

4X4 TRANSMISSION

Essential special tooling

Rou. 604-01 Hub locking tool.

Tightening torques

rear wheel hub bolts	88 N.m
rear wheel speed sensor bolt	10 N.m
wheel hub nut	125 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

☐ Remove:

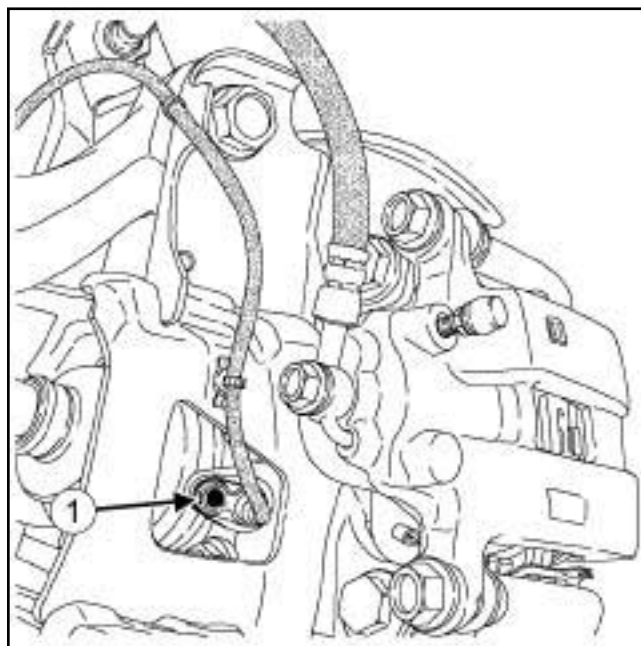
- the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**),
- the rear brake calliper without disconnecting the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page **33A-5**).

☐ Suspend the rear brake calliper.

☐ Remove:

- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**),
- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**)
- the brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**).

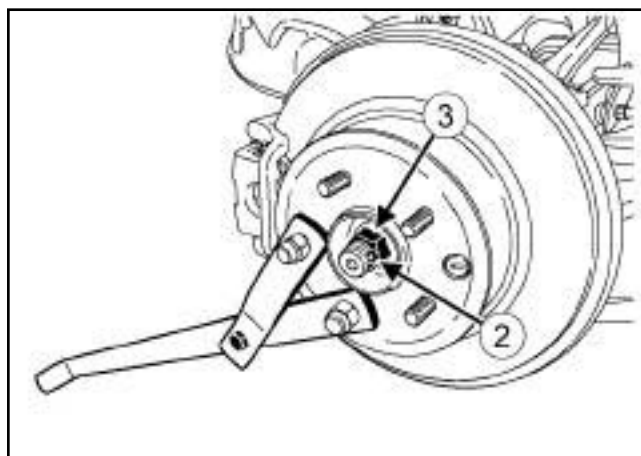
II - OPERATION FOR REMOVAL OF PART CONCERNED



130819

☐ Remove:

- the rear wheel speed sensor bolt (1),
- the rear wheel speed sensor from the rear wheel hub.



130828

☐ Place the tool (**Rou. 604-01**) on the rear hub,

☐ Remove:

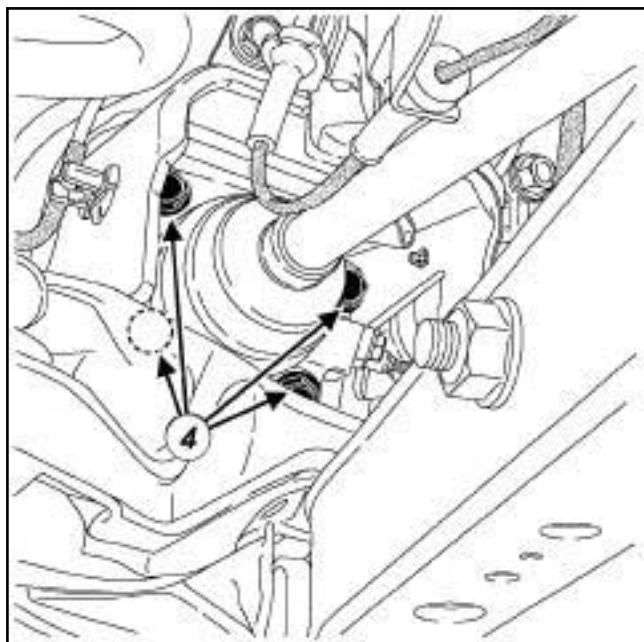
- the cotter pin (2),
- the rear hub nut (3),

REAR AXLE COMPONENTS

Rear wheel hub: Removal - Refitting

33A

4X4 TRANSMISSION



130829

❑ Remove:

- the rear wheel hub bolts (4) ,
- the rear wheel hub from the rear stub-axle carrier.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace the cotter pin.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the rear wheel hub to the rear stub-axle carrier,
- the rear wheel hub nuts,
- the rear wheel speed sensor on to the rear wheel hub,
- the rear wheel speed sensor bolt.

❑ Torque tighten:

- the **rear wheel hub bolts (88 N.m)**,
- the **rear wheel speed sensor bolt (10 N.m)**.

- ❑ Refit the rear wheel hub nut using tool (**Rou. 604-01**).

- ❑ Torque tighten the **wheel hub nut (125 N.m)**.

- ❑ Refit the new cotter pin.

III - FINAL OPERATION.

❑ Refit:

- the brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**)
- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**)
- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper without disconnecting the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

IMPORTANT

To avoid any accident, bring the pistons, brake pads and brake discs into contact by depressing the brake pad several times.

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X2 TRANSMISSION

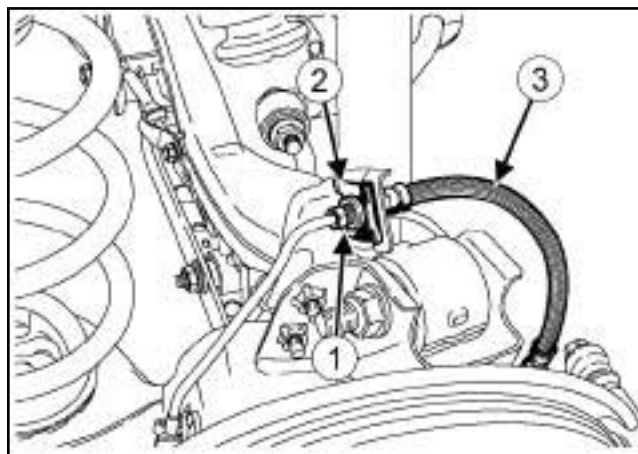
Essential equipment
pedal press
trolley jack

Tightening torques 	
rear stub axle carrier nut	150 N.m
bolt of the upper arm on the rear stub axle carrier	150 N.m
lower trailing link bolt on the rear stub axle carrier	150 N.m
lower nut of the tie rod of the rear anti-roll bar	110 N.m
upper nut of the tie rod of the rear anti-roll bar	110 N.m
nut of the lower trailing link on the rear axle subframe	130 N.m
upper arm bolt on the rear axle subframe	130 N.m
bolts on the rear brake hose bracket	25 N.m
brake hose on the union	16 N.m
rear shock absorber lower nut ¹²⁰	N.m

REMOVAL

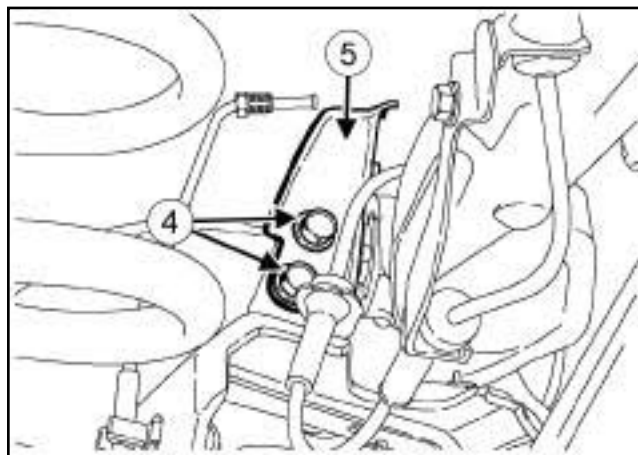
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Release the parking brake.
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1).
- ☐ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.



131498

- ☐ Undo the rear brake hose at the union (1)
- ☐ Remove the mounting clip (2) from the rear brake hose (3).
- ☐ Disconnect the rear brake hose.



131499

- ☐ Remove:
 - the bolts (4) from the rear brake hose bracket,
 - the rear brake hose bracket (5),
 - the rear brake calliper (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5),
 - the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1),
 - the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7),
 - the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13),

4X2 TRANSMISSION

- the rear wheel speed sensor of the rear stub axle carrier (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake pipe (see **33A, Rear axle components, Brake pipe: Removal - Refitting**, page **33A-18**) ,

XENON BULBS

- ❑ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

- ❑ Remove the parking brake cables from the underbody (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page **37A-85**) .

Note:

It is not necessary to remove the parking brake cables from the rear brake disc shield.

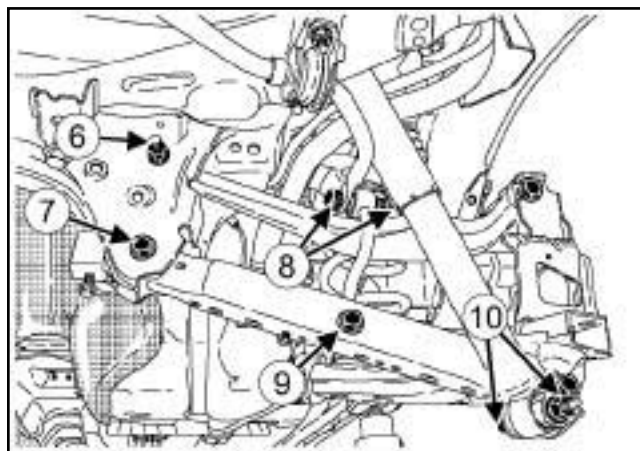
II - OPERATION FOR REMOVAL OF PART CONCERNED

- ❑ Remove:

- the rear wheel hub (see **33A, Rear axle components, Rear wheel hub: Removal - Refitting**, page **33A-26**) ,
- the "rear brake disc shield - rear brake lining - parking brake cable" assembly from the rear stub-axle carrier.

Note:

Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.



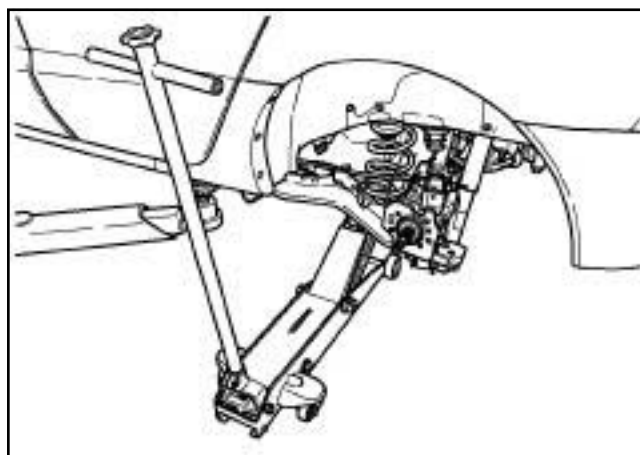
131500

- ❑ Undo:

- the bolt and nut (6) of the upper arm of the rear axle subframe,
- the lower trailing link bolt and nut (7) on the rear axle subframe,
- the upper bolt and nut (8) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (9) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (10) of the rear shock absorber.

WARNING

To prevent any damage, do not use the rear axle as support for the lifting system.



131501

- ❑ Position the **trolley jack** with a shim under the lower seat of the spring.
- ❑ Remove:
 - the lower bolt and nut of the tie rod of the rear anti-roll bar (9) ,

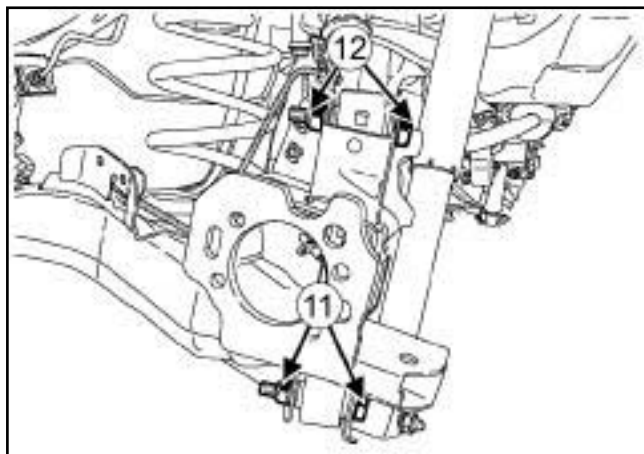
REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X2 TRANSMISSION

- the lower bolt and nut **(10)** of the rear shock absorber.



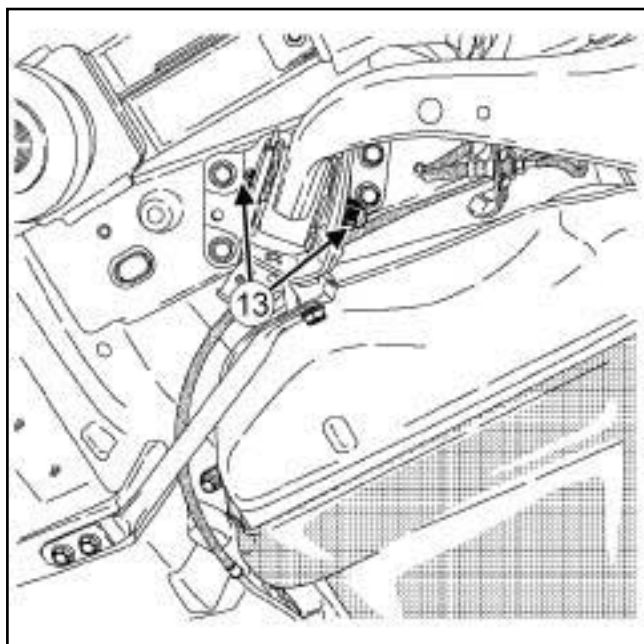
131502

❑ Remove:

- the lower trailing link bolt and nut **(11)** of the rear stub axle carrier,
- the upper arm bolt and nut **(12)** of the rear stub axle carrier.

❑ Lower the **trolley jack**.

❑ Remove the rear suspension spring.



131628

❑ Remove:

- the bolt and nut **(13)** of the rear stub axle carrier,
- the rear stub axle carrier.

REFITTING

I - REFITTING PREPARATION OPERATION

❑ Always replace:

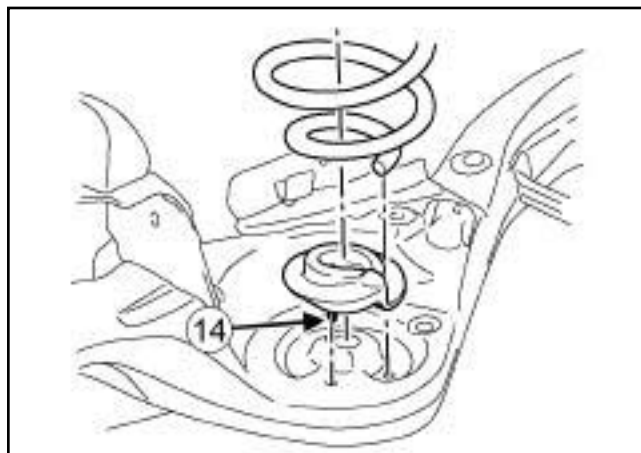
- the upper arm nut,
- the lower trailing link nut,
- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber lower nut,
- the rear stub axle carrier nut.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the rear stub axle carrier,
- the bolt and nut of the rear stub axle carrier.

❑ Tighten to torque the **rear stub axle carrier nut (150 N.m)**.



131503

❑

Note:

The lower elastic bearing **(14)** of the rear suspension spring must be firmly inserted into the opening of the rear stub axle carrier.

❑ Refit the rear suspension spring by aligning the lower end of widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.

❑ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two people.

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X2 TRANSMISSION

☐ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

☐ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

☐ Torque tighten:

- the **bolt of the upper arm on the rear stub axle carrier (150 N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130 N.m)**,
- The **upper arm bolt on the rear axle subframe (130 N.m)**.

☐ Refit:

- the "rear brake disc shield - rear brake lining - parking brake cable" assembly from the rear stub-axle carrier,
- the rear wheel arch (see **33A, Rear axle components, Rear wheel hub: Removal - Refitting**, page **33A-26**) .

III - FINAL OPERATION.

- ☐ Refit the parking brake cables on to the underbody (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page **37A-85**) .

XENON BULBS

- ☐ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

☐ Refit:

- the rear brake pipe (see **33A, Rear axle components, Brake pipe: Removal - Refitting**, page **33A-18**) ,
- the rear wheel speed sensor of the rear stub axle carrier (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page **33A-5**) ,
- the rear brake hose bracket,
- the bolts on the rear brake hose bracket,
- the rear brake hose,
- the brake hose on the union,
- the mounting clip on the rear brake hose.

☐ Torque tighten:

- the **bolts on the rear brake hose bracket (25 N.m)**,
- the **brake hose on the union (16 N.m)**.

- ☐ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

- ☐ Torque tighten the **rear shock absorber lower nut 120 (N.m)**.

XENON BULBS

☐ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights),

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X2 TRANSMISSION

- the headlight beam adjustment rear sensor (see **Fault finding - Configuration and programming**) (80C, Xenon bulbs).

FOOT BRAKE AUTO CONTROL

- ☐ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

FOOT BRAKE MANUAL CONTROL

- ☐ Adjust the parking brake cables (see **37A, Mechanical component controls, Parking brake lever: Removal - Refitting**, page 37A-37) .
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .
- ☐ Adjust:
 - the alignment (see **30A, General information, Rear axle: Adjusting**, page 30A-12) ,
 - the neutral position of the steering wheel angle sensor (see **Fault finding - Configuration and programming**) (80B, Headlights).

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X4 TRANSMISSION

Essential special tooling	
Rou. 604-01	Hub locking tool.

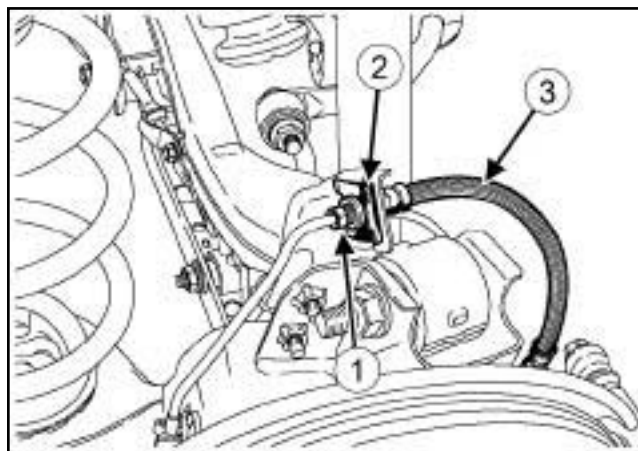
Essential equipment	
pedal press	
trolley jack	

Tightening torques 	
rear stub axle carrier nut	150 N.m
bolt of the upper arm on the rear stub axle carrier	150 N.m
lower trailing link bolt on the rear stub axle carrier	150 N.m
lower nut of the tie rod of the rear anti-roll bar	110 N.m
upper nut of the tie rod of the rear anti-roll bar	110 N.m
nut of the lower trailing link on the rear axle subframe	130 N.m
upper arm bolt on the rear axle subframe	130 N.m
wheel hub nut	125 N.m
bolts on the rear brake hose bracket	25 N.m
brake hose on the union	16 N.m
shock absorber lower nut1	20 N.m

REMOVAL

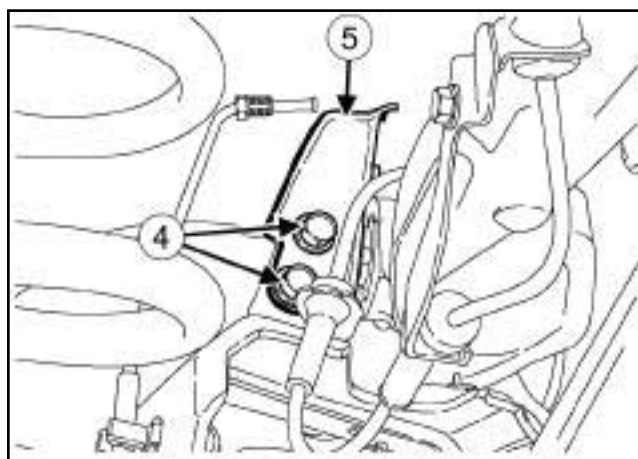
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Release the parking brake.
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ☐ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.



131498

- ☐ Undo the rear brake hose (1) at the union.
- ☐ Remove the clip (2) from the rear brake hose (3) .
- ☐ Disconnect the rear brake hose.



131499

- ☐ Remove:
 - the bolts (4) from the rear brake hose bracket,
 - the rear brake hose bracket (5) ,
 - the rear brake calliper (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) ,
 - the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,
 - the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7) ,
 - the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13) ,

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X4 TRANSMISSION

- the rear wheel speed sensor of the rear stub axle carrier (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake pipe (see **33A, Rear axle components, Brake pipe: Removal - Refitting**, page **33A-18**) ,

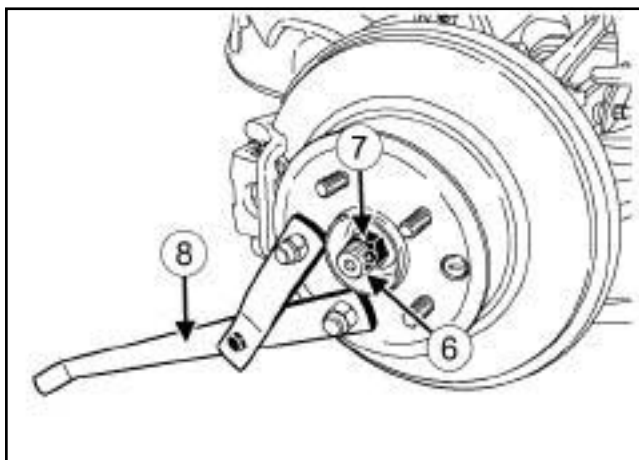
XENON BULBS

- ☐ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).
- ☐ Remove the parking brake cables from the underbody (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page **37A-85**) .

Note:

It is not necessary to remove the parking brake cables from the rear brake disc shield.

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ☐ Remove:
 - the cotter pin (6)
 - the wheel hub nut (7) using the tool (**Rou. 604-01**) (8) ,
 - the rear wheel hub (see **33A, Rear axle components, Rear wheel hub: Removal - Refitting**, page **33A-26**) ,
 - the "rear brake disc shield - rear brake lining - parking brake cable" assembly from the rear stub-axle carrier.

Note:

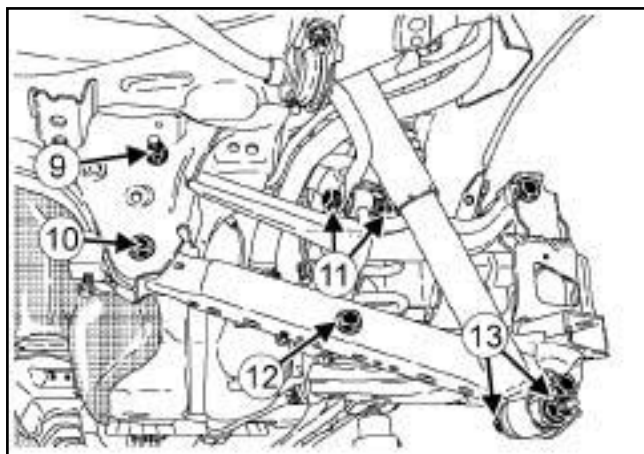
Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X4 TRANSMISSION



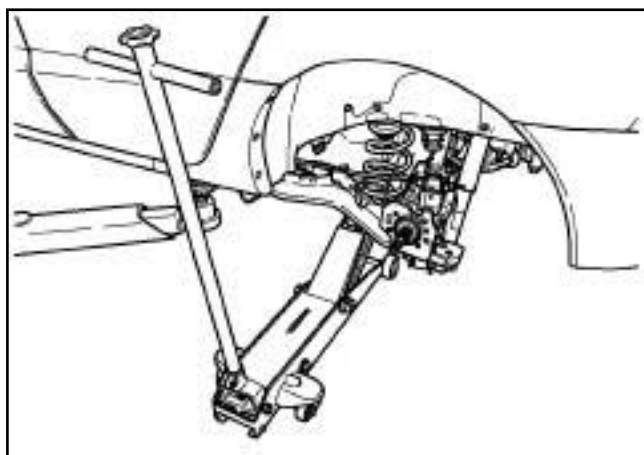
131500

□ Undo:

- the bolt and nut (9) of the upper arm of the rear axle subframe,
- the lower trailing link bolt and nut (10) on the rear axle subframe,
- the upper bolt and nut (11) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (12) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (13) of the rear shock absorber.

WARNING

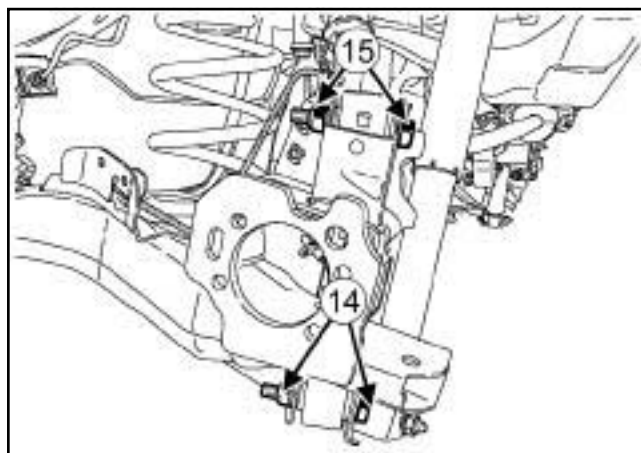
To prevent any damage, do not use the rear axle as support for the lifting system.



131501

- Position the **trolley jack** with a shim under the lower seat of the spring.
- Remove:
 - the lower bolt and nut (12) of the tie rod of the rear anti-roll bar,

- the lower bolt and nut (13) of the rear shock absorber.



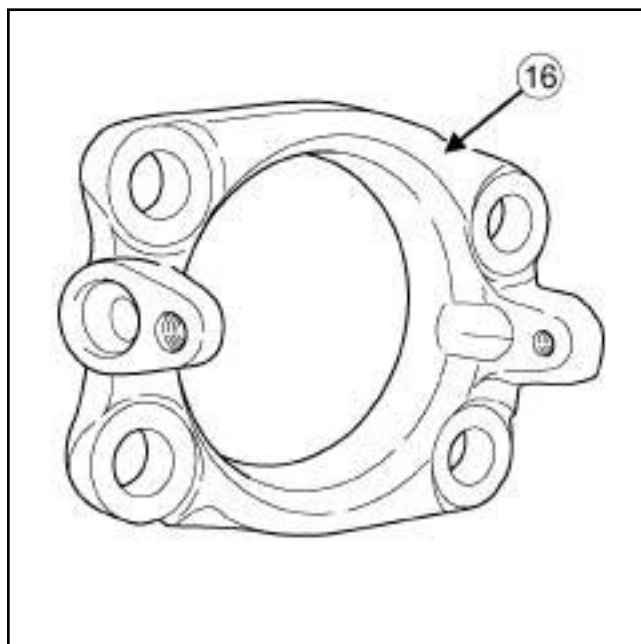
131502

□ Remove:

- the lower trailing link bolt and nut (14) of the rear stub axle carrier,
- the upper arm bolt and nut (15) of the rear stub axle carrier.

□ Lower the **trolley jack**.

□ Remove the rear suspension spring.



131636

□ Remove:

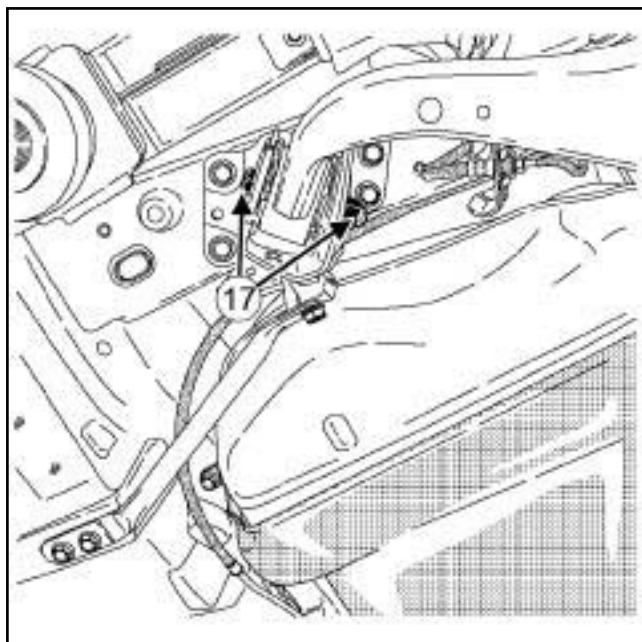
- the rear driveshaft of the rear stub axle carrier,
- the rear axle bearing (16) of the rear stub axle carrier.

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X4 TRANSMISSION



131628

❑ Remove:

- the bolt and nut (17) of the rear stub axle carrier,
- the rear stub axle carrier.

REFITTING

I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the upper arm nut,
- the lower trailing link nut,
- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber lower nut,
- the rear stub axle carrier nut,
- the cotter pin.

II - REFITTING OPERATION FOR PART CONCERNED

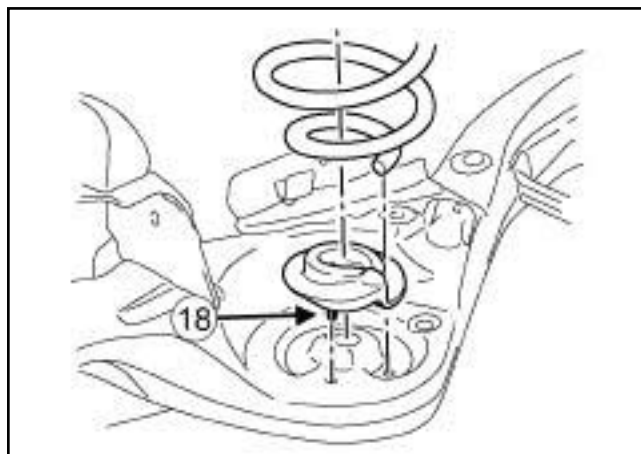
❑ Refit:

- the rear stub axle carrier,
- the bolt and nut of the rear stub axle carrier.

❑ Torque tighten the **rear stub axle carrier nut (150 N.m)**.

❑ Refit:

- the rear axle bearing on to the rear stub axle carrier,
- the rear driveshaft on to the rear stub axle carrier.



131503



Note:

The lower elastic bearing of the rear suspension spring (18) must be firmly inserted into the opening of the rear stub axle carrier.

- ❑ Refit the rear suspension spring by aligning the lower end of the widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.
- ❑ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two people.

❑ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

❑ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X4 TRANSMISSION

☐ Torque tighten:

- the **bolt of the upper arm on the rear stub axle carrier (150 N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130 N.m)**,
- the **upper arm bolt on the rear axle subframe (130 N.m)**.

☐ Refit:

- the "rear brake disc shield - rear brake lining - parking brake cable" assembly to the rear stub-axle carrier,
- the rear wheel hub (see **33A, Rear axle components, Rear wheel hub: Removal - Refitting**, page **33A-26**) ,
- the wheel hub nut using the tool (**Rou. 604-01**).

☐ Torque tighten the **wheel hub nut (125 N.m)**.

☐ Refit the new cotter pin.

III - FINAL OPERATION.

- ☐ Refit the parking brake cables on to the underbody (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page **37A-85**) .

XENON BULBS

- ☐ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

☐ Refit:

- the rear brake pipe (see **33A, Rear axle components, Brake pipe: Removal - Refitting**, page **33A-18**) ,
- the rear wheel speed sensor on to the rear stub axle carrier (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
- the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**) ,

- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,

- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,

- the rear brake calliper (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page **33A-5**) ,

- the rear brake hose bracket,

- the bolts on the rear brake hose bracket,

- the rear brake hose,

- the brake hose on the union,

- the clip on the rear brake hose.

☐ Torque tighten:

- the **bolts on the rear brake hose bracket (25 N.m)**,

- the **brake hose on the union (16 N.m)**.

- ☐ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

- ☐ Torque tighten the **shock absorber lower nut1 (20 N.m)**.

XENON BULBS

☐ Adjust:

- the headlights (see **Front headlight: Adjusting**) (80B, Headlights),

- the headlight beam adjustment rear sensor (see **Fault finding - Configuration and programming**) (80C, Xenon bulbs).

FOOT BRAKE AUTO CONTROL

- ☐ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

REAR AXLE COMPONENTS

Rear stub-axle carrier: Removal - Refitting

33A

4X4 TRANSMISSION

FOOT BRAKE MANUAL CONTROL

- ☐ Adjust the parking brake cables (see **37A, Mechanical component controls, Parking brake lever: Removal - Refitting**, page **37A-37**) .
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) .
- ☐ Adjust:
 - the alignment (see **30A, General information, Rear axle: Adjusting**, page **30A-12**) ,
 - the neutral position of the steering wheel angle sensor (see **Fault finding - Configuration and programming**) (80B, Headlights).

REAR AXLE COMPONENTS

Rear anti-roll bar tie rod: Removal - Refitting

33A

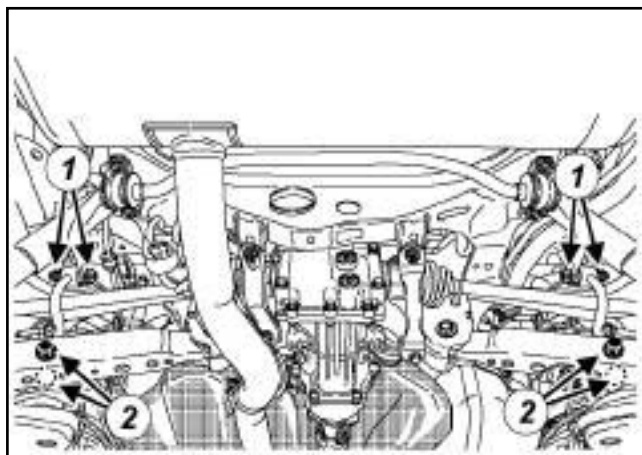
Tightening torques 	
rear anti-roll bar tie rod upper bolts and nuts	110 N.m
rear anti-roll bar tie rod lower bolts and nuts	110 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ☐ Undo:
 - the rear anti-roll bar tie rod upper bolts and nuts (1) on both sides,
 - the rear anti-roll bar tie rod lower bolts and nuts (2) on both sides.
- ☐ Remove:
 - the rear anti-roll bar tie rod upper bolts and nuts (1) on both sides,
 - the rear anti-roll bar tie rod lower bolts and nuts (2) on both sides.
 - the rear anti-roll bar tie-rod.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the tie rod nuts of the rear anti-roll bar.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the anti-roll bar tie-rod,
 - the rear anti-roll bar tie rod upper bolts and nuts on both sides,
 - the rear anti-roll bar tie rod lower bolts and nuts on both sides.
- ☐ Torque tighten:
 - the **rear anti-roll bar tie rod upper bolts and nuts (110 N.m)**,
 - the **rear anti-roll bar tie rod lower bolts and nuts (110 N.m)**.

REAR AXLE COMPONENTS

Rear anti-roll bar: Removal - Refitting

33A

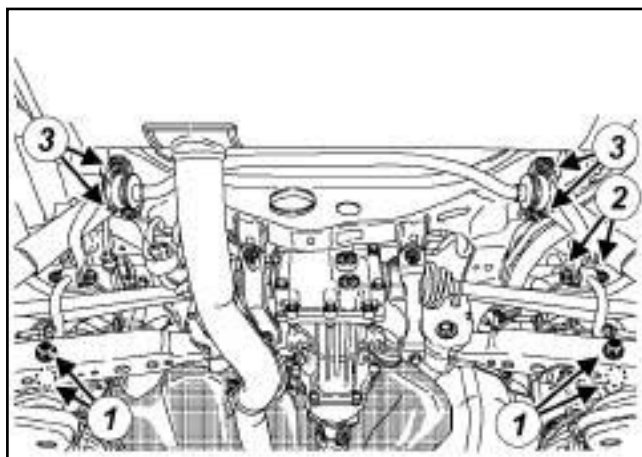
Tightening torques 	
rear anti-roll bar nuts36	N.m
upper nuts of the anti-roll bar tie rod	110 N.m
lower nuts of the anti-roll bar tie rod110	N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

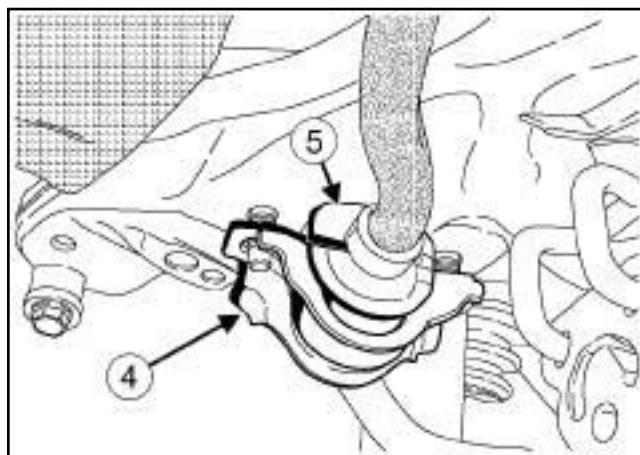
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



130933

- ☐ Loosen the rear anti-roll bar tie rod lower bolts and nuts (1) on both sides.
- ☐ Remove:
 - the upper bolts and nuts of the rear anti-roll bar tie rod (2) ,
 - the rear anti-roll bar nuts (3) .



130935

- ☐ Remove:
 - the rear anti-roll bar mounting (4) ,
 - the rear anti-roll bar,
 - the rubber bush (5) of the rear anti-roll bar.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the nuts of the rear anti-roll bar.
- ☐ Check the condition of the rubber bushes.
- ☐ Replace the rubber bushes if they are damaged.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the rubber bushes of the rear anti-roll bar,
 - the rear anti-roll bar,
 - the rear anti-roll bar mounting,
 - the rear anti-roll bar nuts.
- ☐ Torque tighten the **rear anti-roll bar nuts36 (N.m)**.
- ☐ Refit the upper bolts and nuts of the rear anti-roll bar tie rod.
- ☐ Torque tighten:
 - the **upper nuts of the anti-roll bar tie rod (110 N.m)**,
 - the **lower nuts of the anti-roll bar tie rod110 (N.m)**.

REAR AXLE COMPONENTS

Lower trailing link: Removal - Refitting

33A

Essential equipment

trolley jack

Tightening torques

nut of the lower trailing link on the rear axle subframe	130N.m
--	---------------

lower trailing link bolt on the rear stub axle carrier	150 N.m
--	----------------

lower nut of the anti-roll bar tie rod110	N.m
---	------------

upper nut of the anti-roll bar tie rod110	N.m
---	------------

REMOVAL

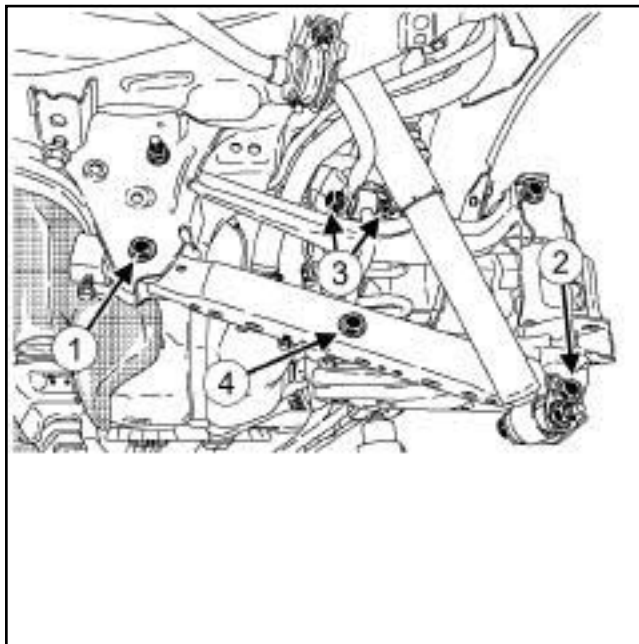
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**).

XENON BULBS

- ☐ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

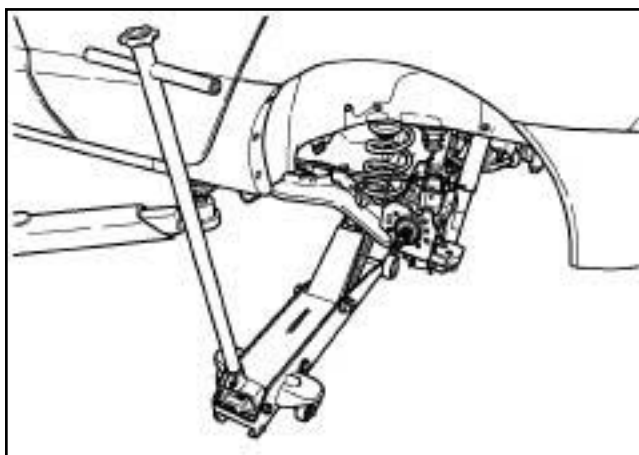
II - OPERATION FOR REMOVAL OF PART CONCERNED



130042

☐ Loosen:

- the lower trailing link bolt and nut on the rear axle subframe (1),
- the lower trailing link bolt and nut (2) on the rear stub axle carrier,
- the rear anti-roll bar tie-rod upper bolt and nut (3) of the rear anti-roll bar on both sides,
- the lower bolt and nut (4) of the rear anti-roll bar tie rod.



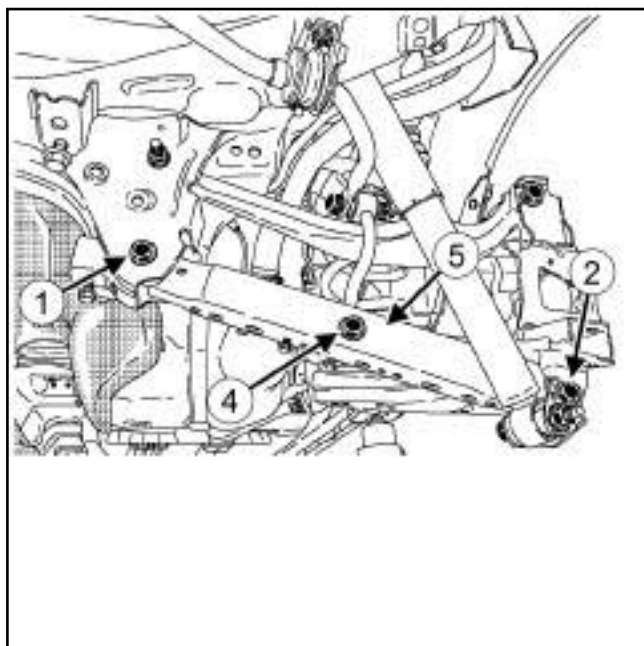
130937

- ☐ Position the **trolley jack** with a shim under the lower seat of the spring.

REAR AXLE COMPONENTS

Lower trailing link: Removal - Refitting

33A



130042

❑ Remove:

- the lower bolt and nut (4) of the rear anti-roll bar tie rod,
- the lower trailing link bolt and nut (2) of the rear stub axle carrier,
- the lower trailing link bolt and nut (1) of the rear axle subframe,
- the lower trailing link (5) .

(This operation requires two technicians).

REFITTING

I - REFITTING PREPARATION OPERATION

❑ Always replace:

- the lower trailing link nuts,
- the rear anti-roll bar tie rod lower nut.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Fit the **trolley jack** with a shim under the lower seat of the spring;

❑ Refit:

- the lower trailing link (5) ,
- the new lower trailing link bolt and nut (1) on to the rear axle subframe,
- the new lower trailing link bolt and nut (2) on to the rear stub axle carrier,

- the new lower bolt and nut (4) of the rear anti-roll bar tie rod.

❑ Lower the **trolley jack**.

❑ Torque tighten:

- the **nut of the lower trailing link on the rear axle subframe (130N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the anti-roll bar tie rod 110 (N.m)**.
- the **upper nut of the anti-roll bar tie rod 110 (N.m)**.

III - FINAL OPERATION.

XENON BULBS

- ❑ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

- ❑ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

XENON BULBS

❑ Adjust:

- the headlight wiring (see **Front headlight: Adjusting**) (80 B, Headlights)
- the headlight beam adjustment rear sensor **Fault finding - Programming** (80C, Xenon bulbs).

❑ Adjust:

- the alignment (see **30A, General information, Rear axle: Adjusting**, page 30A-12) ,
- the neutral position of the steering wheel angle sensor **Fault Finding- Programming** (80B, Headlights).

REAR AXLE COMPONENTS

Upper arm: Removal - Refitting

33A

Essential equipment

pedal press

trolley jack

Tightening torques

upper arm bolt on the rear axle sub-frame **130 N.m**

upper arm bolt on the rear stub-axle carrier **150 N.m**

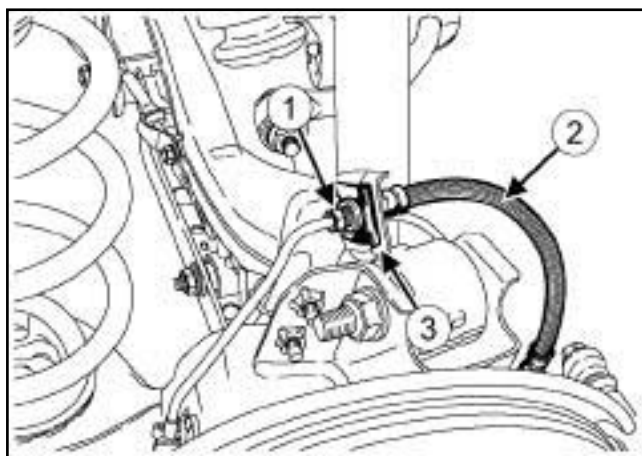
rear brake hose mounting bolts **25 N.m**

rigid pipe union on to the rear brake hose **16 N.m**

REMOVAL

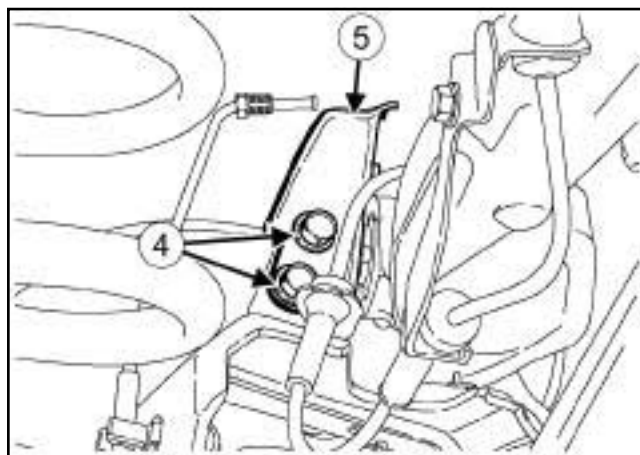
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1).
- ☐ Fit the **pedal press** to the brake pedal to limit the outflow of brake fluid.



130809

- ☐ Undo the rigid pipe union (1) on the rear brake hose.
- ☐ Remove the clip (3) from the rear brake hose.
- ☐ Disconnect the rear brake hose (2).

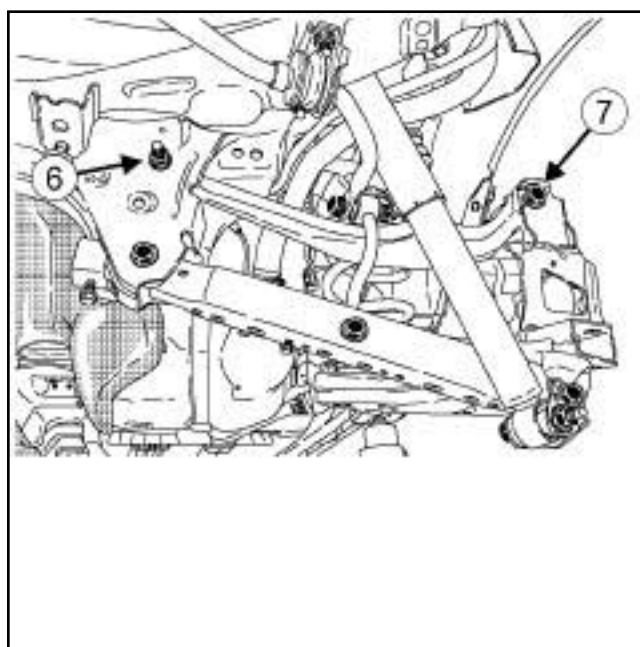


130940

☐ Remove:

- the bolts (4) from the rear brake hose mounting,
- the rear brake hose mounting (5),
- the rear wheel speed sensor (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page 38C-10)

II - OPERATION FOR REMOVAL OF PART CONCERNED



130042

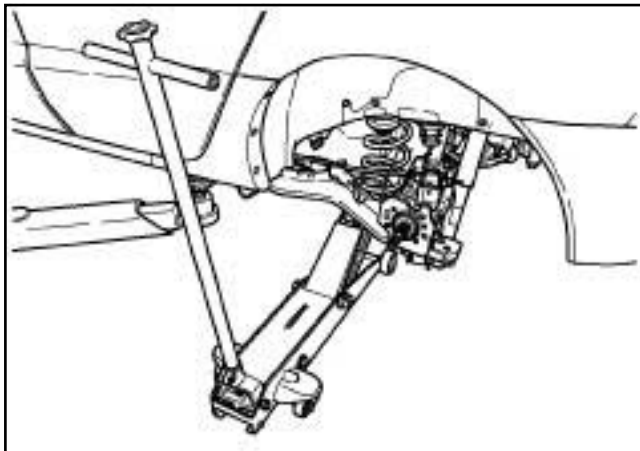
☐ Loosen:

- the bolt and nut (6) of the upper arm of the rear axle subframe,
- the upper arm bolt and nut (7) of the rear stub axle carrier.

REAR AXLE COMPONENTS

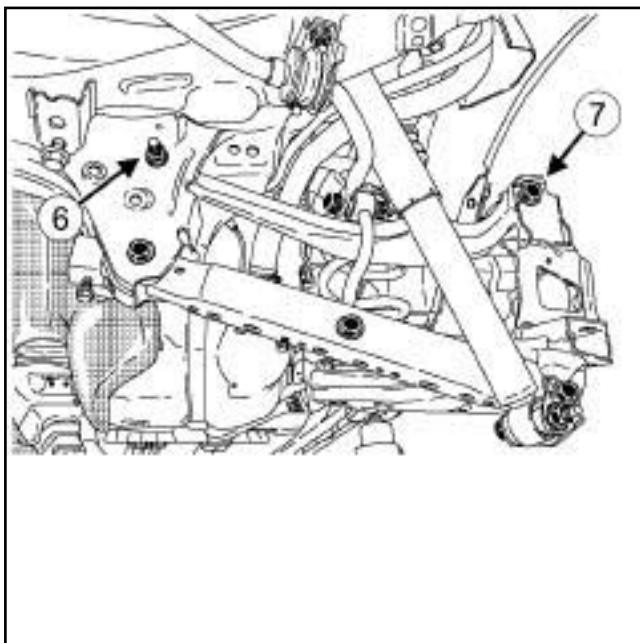
Upper arm: Removal - Refitting

33A



130937

- ❑ Position the **trolley jack** with a shim under the lower seat of the spring.



130042

- ❑ Remove:
 - the bolt and nut **(6)** of the upper arm of the rear axle subframe,
 - the upper arm bolt and nut **(7)** of the rear stub axle carrier,
 - the upper arm.
- (This operation requires two technicians).

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace the upper arm nuts.

II - REFITTING OPERATION FOR PART CONCERNED

- ❑ Position the **trolley jack** with a shim under the lower seat of the spring.
- ❑ Refit:
 - the upper arm,
 - the bolt and nut **(6)** of the upper arm of the rear axle subframe,
 - the upper arm bolt and nut **(7)** of the rear stub axle carrier.
- ❑ Lower the **trolley jack**.
- ❑ Torque tighten:
 - the **upper arm bolt on the rear axle sub-frame (130 N.m)**,
 - the **upper arm bolt on the rear stub-axle carrier (150 N.m)**,

III - FINAL OPERATION.

- ❑ Refit:
 - the rear wheel speed sensor (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page **38C-10**) ,
 - the rear brake hose mounting **(5)** ,
 - the rear brake hose mounting bolts **(4)** ,
 - the rear brake hose **(2)** ,
 - the rigid pipe union **(1)** on to the rear brake hose,
 - the clip **(3)** on the rear brake hose.
- ❑ Torque tighten:
 - the **rear brake hose mounting bolts (25 N.m)**,
 - the **rigid pipe union on to the rear brake hose (16 N.m)**.
- ❑ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) .
- ❑ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .
- ❑ Adjust:
 - the alignment (see **30A, General information, Rear axle: Adjusting**, page **30A-12**) ,
 - the neutral position of the steering wheel angle sensor (see: **Fault finding - Programming**) (80B, Headlights).

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

4X2 TRANSMISSION

Essential equipment
pedal press
trolley jack
component jack

Tightening torques 	
upper bolt of the rear shock absorber	120 N.m
rear axle subframe bolts	100 N.m
upper arm bolt on the rear axle subframe	130 N.m
nut of the lower trailing link on the rear axle subframe	130 N.m
bolt and the nut of the rear stub axle carrier	150 N.m
bolt of the upper arm on the rear stub axle carrier	150 N.m
lower trailing link bolt on the rear stub axle carrier	150 N.m
lower nut of the tie rod of the rear anti-roll bar	110 N.m
upper nut of the tie rod of the rear anti-roll bar	110 N.m
brake hose on the union	16 N.m
bolts on the rear brake hose bracket	25 N.m
brake hose on the union	16 N.m
shock absorber lower nut1	20 N.m

REMOVAL

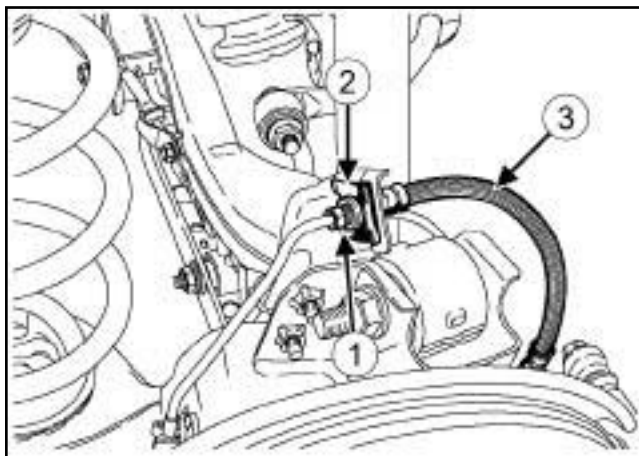
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Release the parking brake.

☐ Remove:

- the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1),
- the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).

- ☐ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.

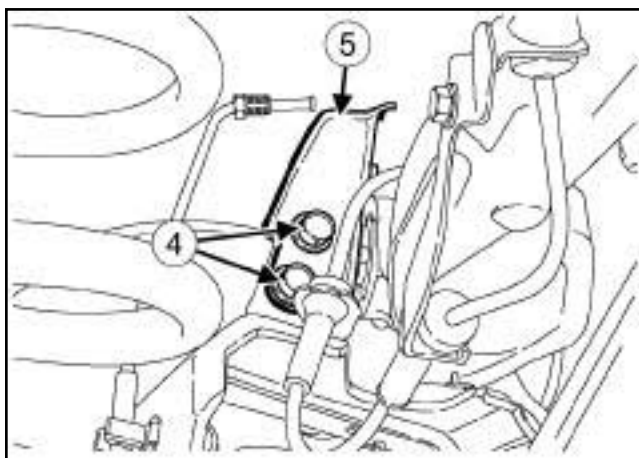


131498

- ☐ Undo the rear brake hose at the pipe connection (1).

- ☐ Remove the clip (2) from the rear brake hose (3).

- ☐ Disconnect the rear brake hose.



131499

☐ Remove:

- the bolts (4) from the rear brake hose bracket,
- the rear brake hose bracket,
- the rear wheel speed sensor (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page 38C-10).

REAR AXLE COMPONENTS

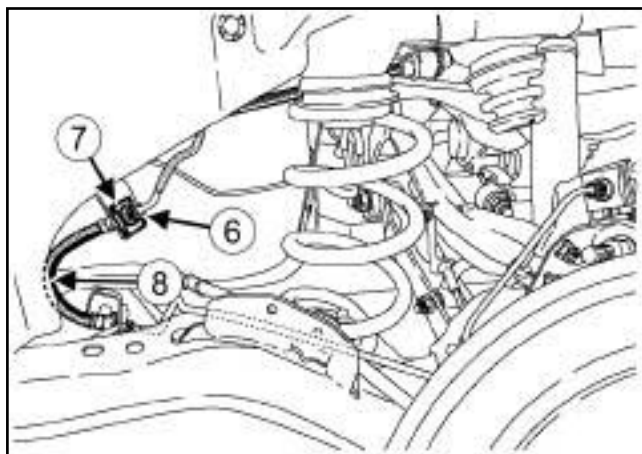
Rear axle sub-frame: Removal - Refitting

33A

4X2 TRANSMISSION

XENON BULBS

- ❑ Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).



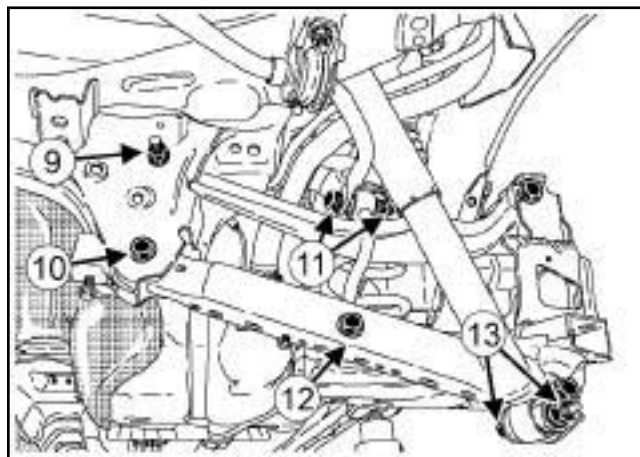
131641

- ❑ Undo the rear brake hose at the pipe connection (6) .
- ❑ Remove clip (7) .
- ❑ Disconnect the brake hose (8) .
- ❑ Remove the parking brake cables from the underbody (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page 37A-85) .

Note:

It is not necessary to remove the parking brake cables from the rear brake disc shield.

II - OPERATION FOR REMOVAL OF PART CONCERNED



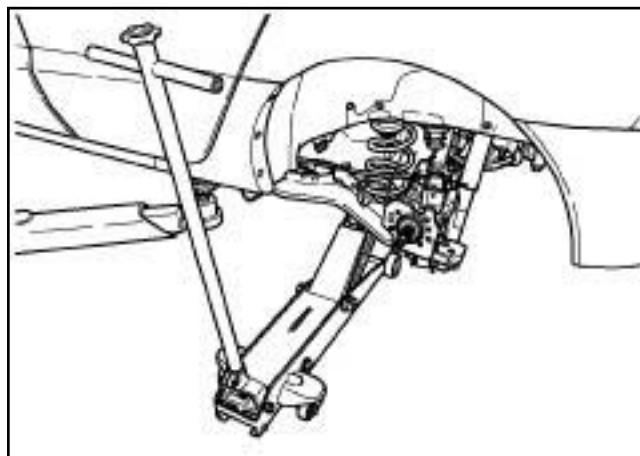
131642

❑ Undo:

- the bolt and the nut (9) of the upper arm of the rear axle subframe,
- the lower trailing link bolt and the nut (10) on the rear axle subframe,
- the upper bolt and nut (11) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (12) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (13) of the rear shock absorber.

WARNING

To prevent any damage, do not use the rear axle as support for the lifting system.



131643

- ❑ Position the **trolley jack** with a shim under the lower seat of the spring.

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

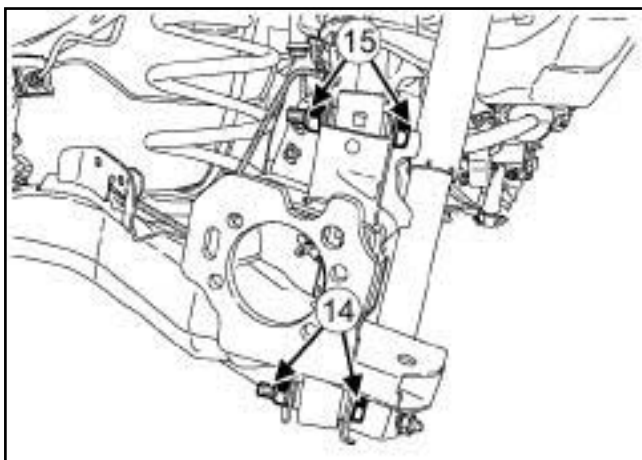
4X2 TRANSMISSION

❑ Remove:

- the lower bolt and nut of the tie rod of the rear anti-roll bar **(12)** ,
- the lower bolt and nut **(13)** of the rear shock absorber.

Note:

Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.



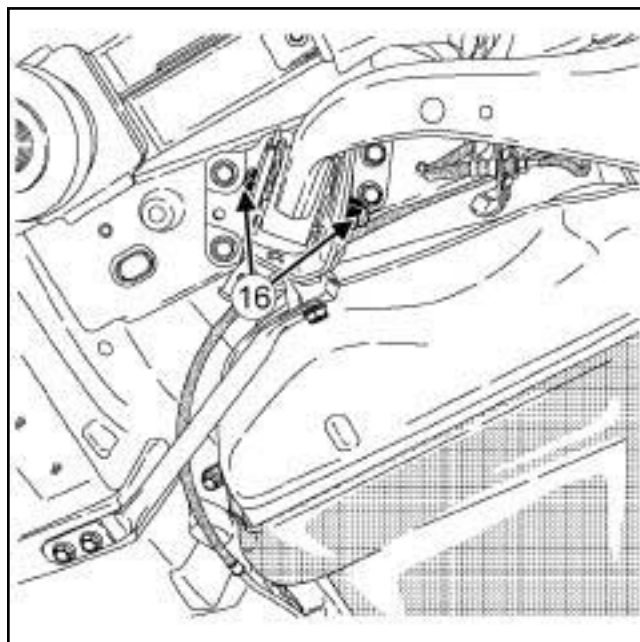
131644

❑ Remove:

- the lower trailing link bolt and the nut **(14)** of the rear stub axle carrier,
- the upper arm bolt and the nut **(15)** of the rear stub axle carrier.

❑ Lower the **trolley jack**.

❑ Remove the rear suspension spring.



131645

- ❑ Remove the bolt and the nut **(16)** from the rear stub axle carrier.
- ❑ Position the **component jack** under the rear stub axle carrier.

Note:

This operation requires two people.

❑ Remove:

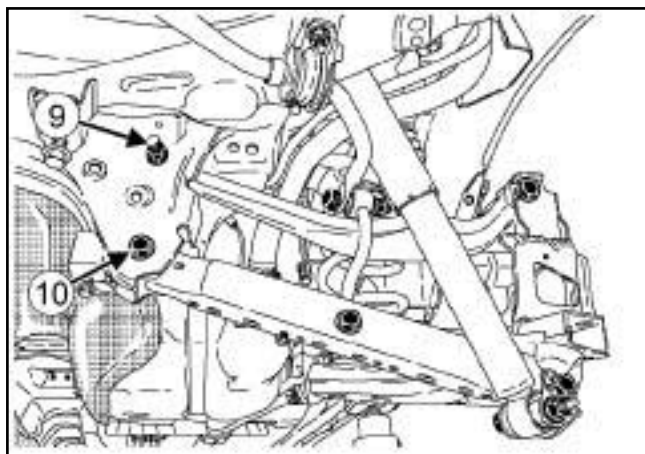
- the "rear stub-axle carrier - rear brake disc shield - rear brake lining - rear brake disc - rear brake calliper - parking brake cable" assembly,
- the "rear anti-roll bar - rear anti-roll bar tie rod" assembly.

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

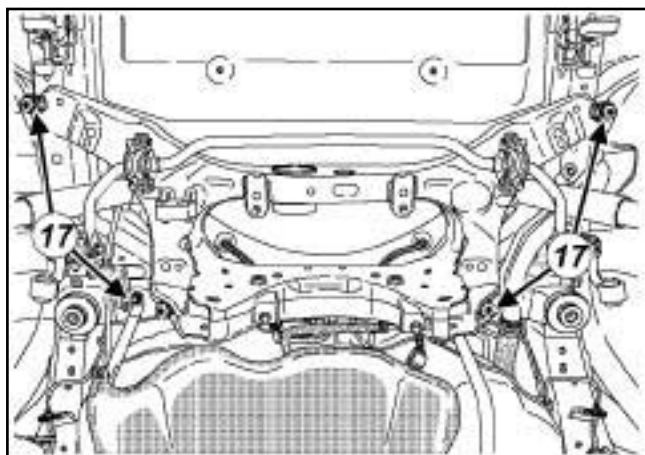
4X2 TRANSMISSION



131646

☐ Remove:

- the lower trailing link bolt and the nut (10) from the rear axle subframe,
- the lower trailing link,
- the bolt and the nut (9) of the upper arm of the rear axle subframe,
- the upper arm.



131647

- ☐ Position the **component jack** under the rear axle subframe.

Note:

This operation requires two people.

☐ Remove:

- the rear axle subframe bolts (17) ,
- the rear axle sub-frame with the rear shock absorber,
- the upper bolt and nut of the rear shock absorber,
- the rear shock absorber of the rear axle subframe.

REFITTING

I - REFITTING PREPARATION OPERATION

☐ Always replace:

- the upper arm nut,
- the lower trailing link nut,
- the lower nut of the tie rod of the rear anti-roll bar,
- the rear shock absorber nut,
- the rear stub axle carrier nut.

II - REFITTING OPERATION FOR PART CONCERNED

☐

Note:

This operation requires two people.

☐ Refit:

- the rear shock absorber on the rear axle subframe,
- the new upper bolt and nut of the rear shock absorber,
- the rear axle sub-frame with the rear shock absorber,
- the rear axle subframe bolts.

☐ Torque tighten:

- the **upper bolt of the rear shock absorber (120 N.m)**,
- the **rear axle subframe bolts (100 N.m)**.

☐ Refit:

- the rear anti-roll bar - rear anti-roll bar tie rod assembly,
- the upper arm,
- the new arm upper bolt and nut on the rear axle subframe,
- the lower trailing link,
- the new lower trailing link bolt and nut on the rear axle subframe.

Note:

This operation requires two people.

☐ Refit:

- the "rear stub-axle carrier - rear brake disc shield - rear brake lining - rear brake disc - rear brake calliper - parking brake cable" assembly,

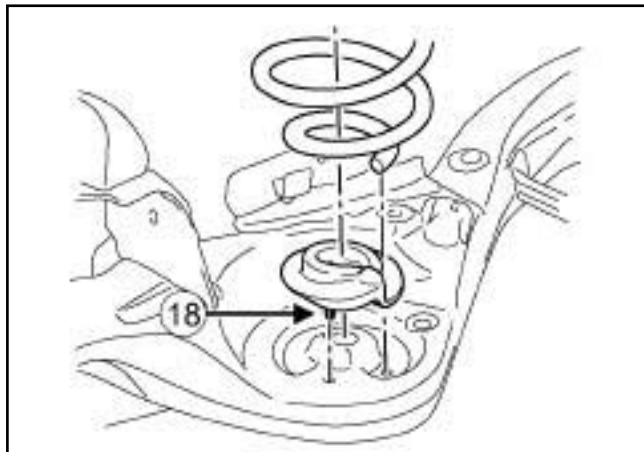
REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

4X2 TRANSMISSION

- the new bolt and nut of the rear stub axle carrier.



131503



Note:

The lower elastic bearing of the rear suspension spring (18) must be firmly inserted into the opening of the rear stub axle carrier.

- ☐ Refit the rear suspension spring by aligning the lower end of the widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.
- ☐ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two people.

☐ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

- ☐ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

☐ Torque tighten:

- The **upper arm bolt on the rear axle subframe (130 N.m)**,
- the **nut of the lower trailing link on the rear axle subframe (130 N.m)**
- the **bolt and the nut of the rear stub axle carrier (150 N.m)**,
- the **bolt of the upper arm on the rear stub axle carrier (150 N.m)**,
- the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
- the **lower nut of the tie rod of the rear anti-roll bar (110 N.m)**,
- the **upper nut of the tie rod of the rear anti-roll bar (110 N.m)**.

III - FINAL OPERATION.

- ☐ Refit the parking brake cables on to the underbody (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page 37A-85) or (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page 37A-85) .

XENON BULBS

- ☐ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

- ☐ Remove the brake hose.

☐ Refit:

- the brake hose on the union,
- the clip.

- ☐ Torque tighten the **brake hose on the union (16 N.m)**.

☐ Refit:

- the rear wheel speed sensor (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page 38C-10) ,
- the rear brake hose bracket,
- the bolts on the rear brake hose bracket,
- the rear brake hose,
- the brake hose on the union,
- the clip on the rear brake hose.

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

4X2 TRANSMISSION

- ☐ Torque tighten:
 - the **bolts on the rear brake hose bracket (25 N.m)**,
 - the **brake hose on the union (16 N.m)**.
- ☐ Refit:
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).
- ☐ Torque tighten the **shock absorber lower nut1 (20 N.m)**.

XENON BULBS

- ☐ Adjust:
 - the headlights (see **Front headlight: Adjusting**) (80B, Headlights),
 - the headlight beam adjustment rear sensor (see **Fault finding - Configuration and programming**) (80C, Xenon bulbs).

FOOT BRAKE AUTO CONTROL

- ☐ With the ignition on, push the handle to release the electronic parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

FOOT BRAKE MANUAL CONTROL

- ☐ Adjust the parking brake cables (see **37A, Mechanical component controls, Parking brake lever: Removal - Refitting**, page 37A-37) .
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .
- ☐ Adjust:
 - the alignment (see **30A, General information, Rear axle: Adjusting**, page 30A-12) ,
 - the neutral position of the steering wheel angle sensor (see **Fault finding - Configuration and programming**) (80B, Headlights).

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

4X4 TRANSMISSION

Essential special tooling	
Rou. 604-01	Hub locking tool.

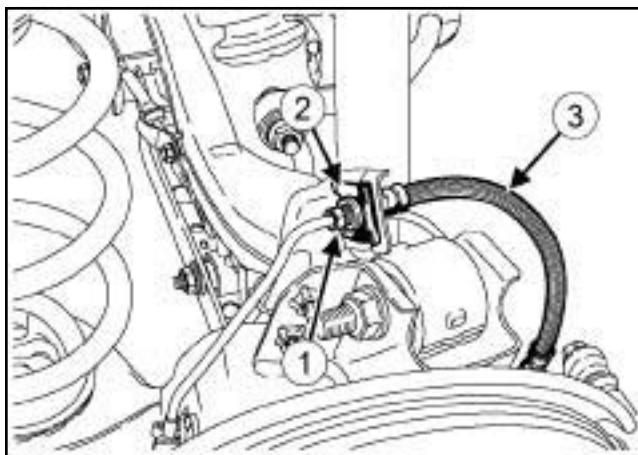
Essential equipment	
pedal press	
trolley jack	
component jack	

Tightening torques 	
upper bolt of the rear shock absorber	120 N.m
rear axle subframe bolts	100 N.m
upper arm bolt on the rear axle subframe	130 N.m
nut of the lower trailing link on the rear axle subframe	130 N.m
bolt and nut of the rear stub axle carrier	150 N.m
bolt of the upper arm on the rear stub axle carrier	150 N.m
lower trailing link bolt on the rear stub axle carrier	150 N.m
lower nut of the tie rod of the rear anti-roll bar	110 N.m
upper nut of the tie rod of the rear anti-roll bar	110 N.m
wheel hub nut	125 N.m
brake hose on the union	16 N.m
bolts on the rear brake hose bracket	25 N.m
brake hose on the union	16 N.m
shock absorber lower nut1	20 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Release the parking brake.
- ☐ Drain the rear final drive oil (see **Rear axle oil: Draining - Refilling**) (26A, Rear final drive).
- ☐ Remove:
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**),
 - the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).
- ☐ Uncouple the rear final drive propshaft (see **Propshaft: Removal - Refitting**) (29A, Driveshafts).
- ☐ Secure the propshaft with string.
- ☐ Fit the **pedal press** on the brake pedal to limit the amount of brake fluid running out.



131498

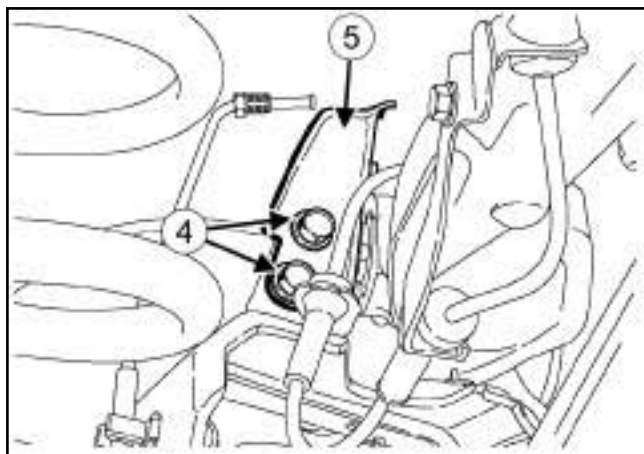
- ☐ Undo the rear brake hose at the pipe connection **(1)**.
- ☐ Remove the clip **(2)** from the rear brake hose **(3)**.
- ☐ Disconnect the rear brake hose.

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

4X4 TRANSMISSION



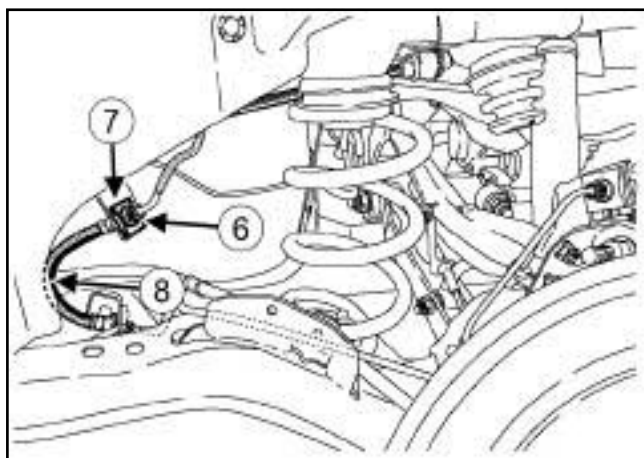
131499

Remove:

- the bolts (4) from the rear brake hose bracket,
- the rear brake hose bracket (5) ,
- the rear wheel speed sensor (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page 38C-10) .

XENON BULBS

- Remove the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).



131641

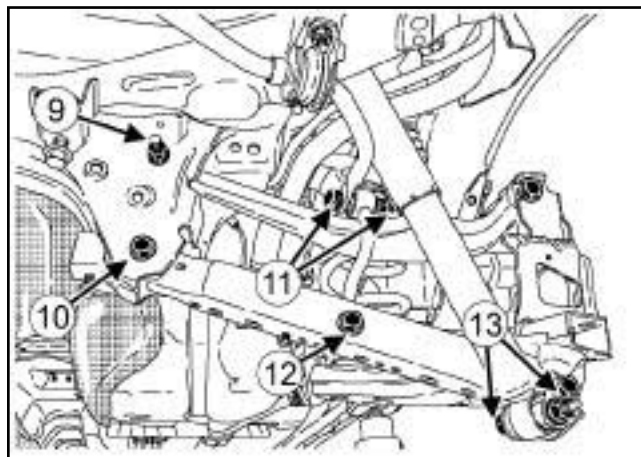
- Undo the rear brake hose at the pipe connection (6) .
- Remove clip (7) .
- Disconnect the brake hose (8) .

- Remove the parking brake cables from the underbody (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page 37A-85) .

Note:

It is not necessary to remove the parking brake cables from the rear brake disc shield.

II - OPERATION FOR REMOVAL OF PART CONCERNED



131642

Undo:

- the bolt and the nut (9) of the upper arm on the rear axle subframe,
- the lower trailing link bolt and the nut (10) on the rear axle subframe,
- the upper bolt and nut (11) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (12) of the tie rod of the rear anti-roll bar,
- the lower bolt and nut (13) of the rear shock absorber.

WARNING

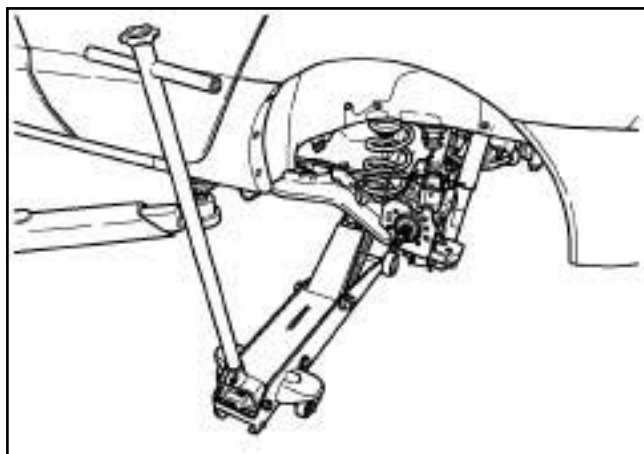
To prevent any damage, do not use the rear axle as support for the lifting system.

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

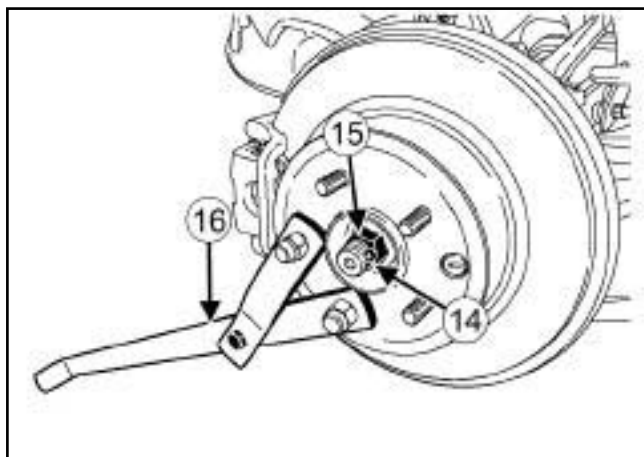
33A

4X4 TRANSMISSION



131643

- ❑ Position the **trolley jack** with a shim under the lower seat of the spring.

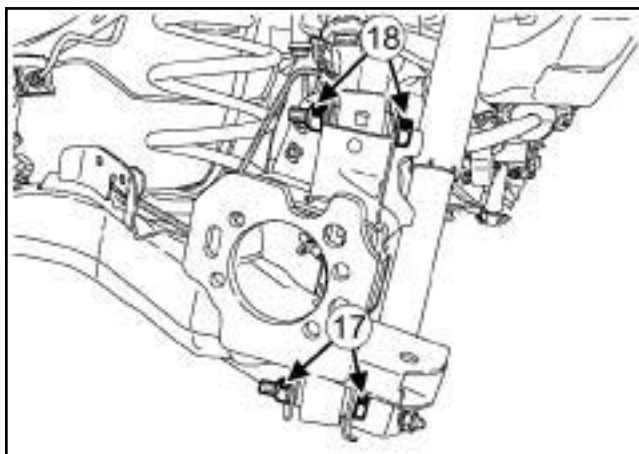


131632

- ❑ Remove:
 - the cotter pin (**14**) ,
 - the wheel hub nut (**15**) using the tool (**Rou. 604-01**) (**16**) .
- ❑ Remove:
 - the lower bolt and nut (**12**) of the tie rod of the rear anti-roll bar,
 - the lower bolt and nut (**13**) of the rear shock absorber.

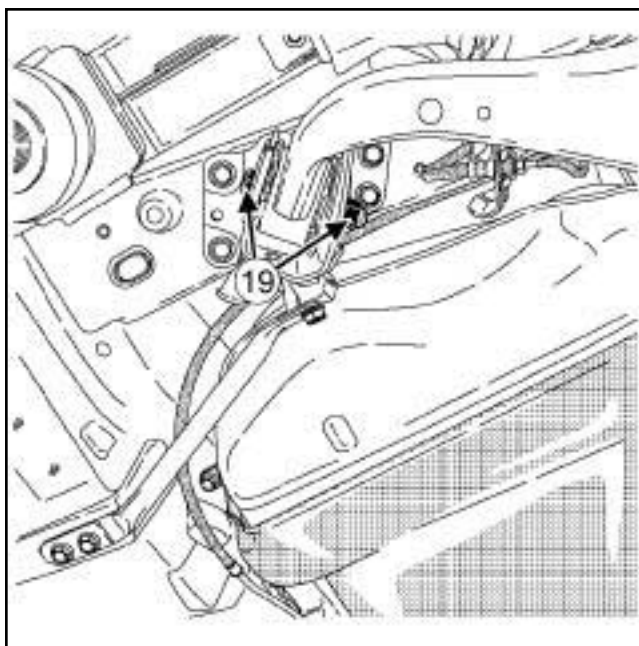
Note:

Remove and refit one suspension spring, then remove and refit the suspension spring on the other side to avoid the springs being suddenly released.



131502

- ❑ Remove:
 - the lower trailing link bolt and nut (**17**) of the rear stub axle carrier,
 - the upper arm bolt and nut (**18**) of the rear stub axle carrier.
- ❑ Lower the **trolley jack**.
- ❑ Remove:
 - the rear suspension spring,
 - the rear driveshaft of the rear stub axle carrier.



131628

- ❑ Remove the bolt and nut (**19**) from the rear stub axle carrier.

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

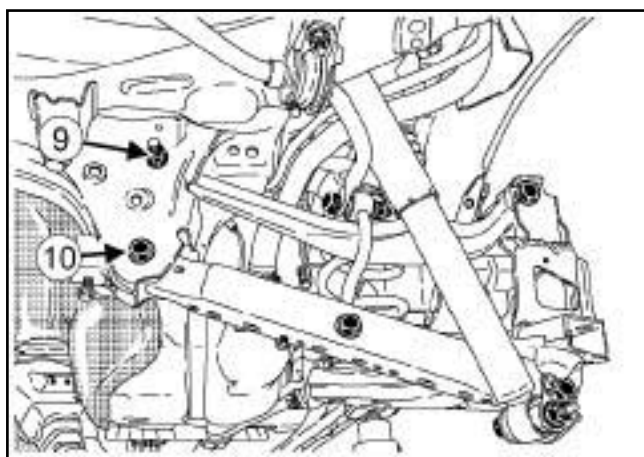
4X4 TRANSMISSION

- ❑ Position the **component jack** under the rear stub axle carrier.

Note:

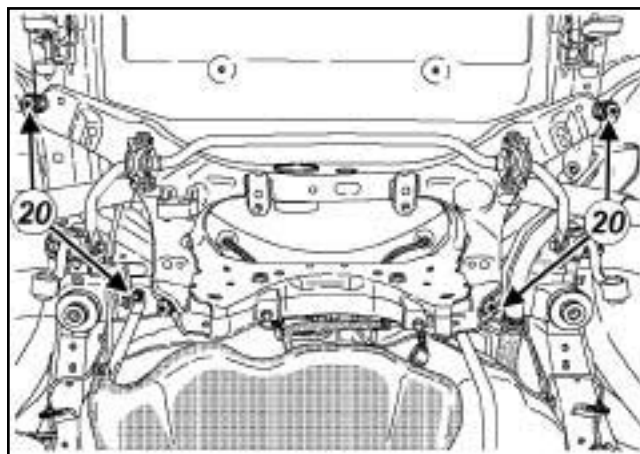
This operation requires two people.

- ❑ Remove:
 - the "rear stub-axle carrier - rear brake disc shield - rear brake lining - rear brake disc - rear brake calliper - parking brake cable" assembly,
 - the rear final drive (see **Rear axle assembly: Removing - Refitting**),
 - the "rear anti-roll bar - rear anti-roll bar tie rod" assembly.



131642

- ❑ Remove:
 - the lower trailing link bolt and nut **(10)** from the rear axle subframe,
 - the lower trailing link,
 - the bolt and nut **(9)** of the upper arm of the rear axle subframe,
 - the upper arm.



131647

- ❑ Position the **component jack** under the rear axle subframe.

Note:

This operation requires two people.

- ❑ Remove:
 - the rear axle subframe bolts **(20)**,
 - the rear axle sub-frame with the rear shock absorber,
 - the bolt and the upper nut of the rear shock absorber,
 - the rear shock absorber of the rear axle subframe.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace:
 - the upper arm nut,
 - the lower trailing link nut,
 - the lower nut of the tie rod of the rear anti-roll bar,
 - the rear shock absorber nut,
 - the rear stub axle carrier nut,
 - the cotter pin.

II - REFITTING OPERATION FOR PART CONCERNED

❑

Note:

This operation requires two people.

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

4X4 TRANSMISSION

❑ Refit:

- the rear shock absorber on the rear axle subframe,
- the new upper bolt and nut of the rear shock absorber,
- the rear axle sub-frame with the rear shock absorber,
- the rear axle subframe bolts.

❑ Torque tighten:

- the **upper bolt of the rear shock absorber (120 N.m)**,
- the **rear axle subframe bolts (100 N.m)**.

❑ Refit:

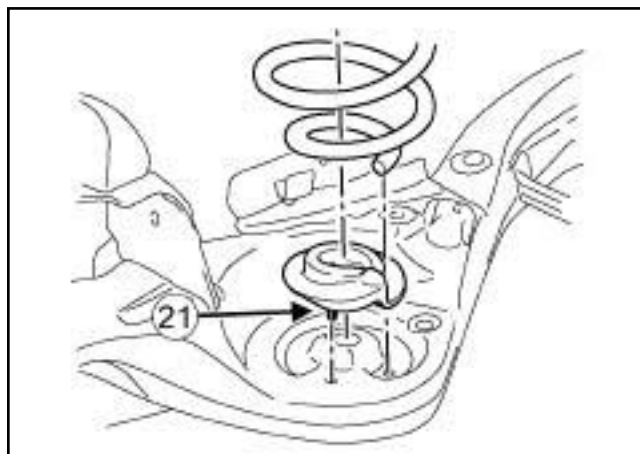
- the rear anti-roll bar - rear anti-roll bar tie rod assembly,
- the rear final drive (see **Rear axle assembly: Removing - Refitting**) (26A, Rear final drive),
- the upper arm,
- the new arm upper bolt and nut on the rear axle subframe,
- the lower trailing link,
- the new lower trailing link bolt and nut on the rear axle subframe.

Note:

This operation requires two people.

❑ Refit:

- the "rear stub-axle carrier - rear brake disc shield - rear brake lining - rear brake disc - rear brake calliper - parking brake cable" assembly,
- the new bolt and nut of the rear stub axle carrier.
- the rear driveshaft on to the rear stub axle carrier.



131503

❑

Note:

The lower elastic bearing (21) of the rear suspension spring must be firmly inserted into the opening of the rear stub axle carrier.

- ❑ Refit the rear suspension spring by aligning the lower end of the widest section so it is positioned between the lower elastic bearing and the rear stub axle carrier.

- ❑ Position the **trolley jack** with a shim under the lower seat of the spring.

Note:

This operation requires two people.

❑ Refit:

- the upper arm on to the rear stub-axle carrier,
- the new bolt and nut on to the upper arm,
- the lower trailing link of the rear stub-axle carrier,
- the new bolt and nut of the lower trailing link,
- the new lower bolt and nut of the rear shock absorber,
- the new lower bolt and nut of the tie rod of the rear anti-roll bar.

- ❑ Lower the **trolley jack**.

Note:

Tighten the lower nut of the shock absorber with the wheels on the ground.

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

4X4 TRANSMISSION

- ☐ Torque tighten:
 - The **upper arm bolt on the rear axle subframe (130 N.m)**,
 - the **nut of the lower trailing link on the rear axle subframe (130 N.m)**
 - the **bolt and nut of the rear stub axle carrier (150 N.m)**,
 - the **bolt of the upper arm on the rear stub axle carrier (150 N.m)**,
 - the **lower trailing link bolt on the rear stub axle carrier (150 N.m)**,
 - the **lower nut of the tie rod of the rear anti-roll bar (110 N.m)**,
 - the **upper nut of the tie rod of the rear anti-roll bar (110 N.m)**.
- ☐ Refit the wheel hub nut using the tool (**Rou. 604-01**).
- ☐ Torque tighten the **wheel hub nut (125 N.m)**.
- ☐ Refit the new cotter pin.

III - FINAL OPERATION.

- ☐ Refit the parking brake cables on to the underbody (see **37A, Mechanical component controls, Parking brake cables: Removal - Refitting**, page **37A-85**).

XENON BULBS

- ☐ Refit the headlight beam adjustment rear sensor (see **Headlight adjustment rear sensor: Removal - Refitting**) (80C, Xenon bulbs).

- ☐ Remove the brake hose.
- ☐ Refit:
 - the brake hose on the union,
 - the clip.
- ☐ Torque tighten the **brake hose on the union (16 N.m)**.
- ☐ Refit:
 - the rear wheel speed sensor (see **38C, Anti-lock braking system, Rear wheel speed sensor: Removal - Refitting**, page **38C-10**),
 - the rear brake hose bracket,
 - the bolts on the rear brake hose bracket,
 - the rear brake hose,

- the brake hose on the union,
- the clip on the rear brake hose.

- ☐ Torque tighten:
 - the **bolts on the rear brake hose bracket (25 N.m)**,
 - the **brake hose on the union (16 N.m)**.
- ☐ Refit the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**).
- ☐ Torque tighten the **shock absorber lower nut1 (20 N.m)**.
- ☐ Refit:
 - the propshaft on the rear final drive (see **Propshaft: Removal - Refitting**) (29A, Driveshafts),
 - the silencer (see **Silencer: Removal - Refitting**) (19B, Exhaust).
- ☐ Top up the rear final drive with oil (see **Rear axle oil: Draining - Refilling**) (26A, Rear final drive).

XENON BULBS

- ☐ Adjust:
 - the headlights (see **Front headlight: Adjusting**) (80B, Headlights),
 - the headlight beam adjustment rear sensor(see **Fault finding - Configuration and programming**) (80C, Xenon bulbs).

FOOT BRAKE AUTO CONTROL

- ☐ With the ignition on, push the handle to release the assisted parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

FOOT BRAKE MANUAL CONTROL

- ☐ Adjust the parking brake cables (see **37A, Mechanical component controls, Parking brake lever: Removal - Refitting**, page **37A-37**).
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**).

REAR AXLE COMPONENTS

Rear axle sub-frame: Removal - Refitting

33A

4X4 TRANSMISSION

☐ Adjust:

- the alignment (see **30A, General information, Rear axle: Adjusting**, page **30A-12**) ,
- the neutral position of the steering wheel angle sensor (see **Fault finding - Configuration and programming**) (80B, Headlights).

WHEELS AND TYRES

Wheel: Removal - Refitting

35A

Tightening torques

wheel nuts	108 N.m
------------	---------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Release the parking brake.
- ☐ Remove the trim (depending on equipment level).

II - OPERATION FOR REMOVAL OF PART CONCERNED

☐

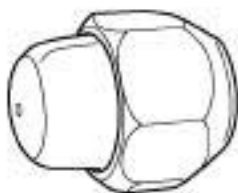
Note:

Use sockets with protective sheaths in order to avoid scratching the alloy wheel rims.

- ☐ Undo the wheel nuts, with the wheels on the ground.
- ☐ Raise the lift.
- ☐ Position the wheel valve at the top.
- ☐ Remove:
 - the wheel nuts,
 - the wheel.

REFITTING

I - REFITTING PREPARATION OPERATION



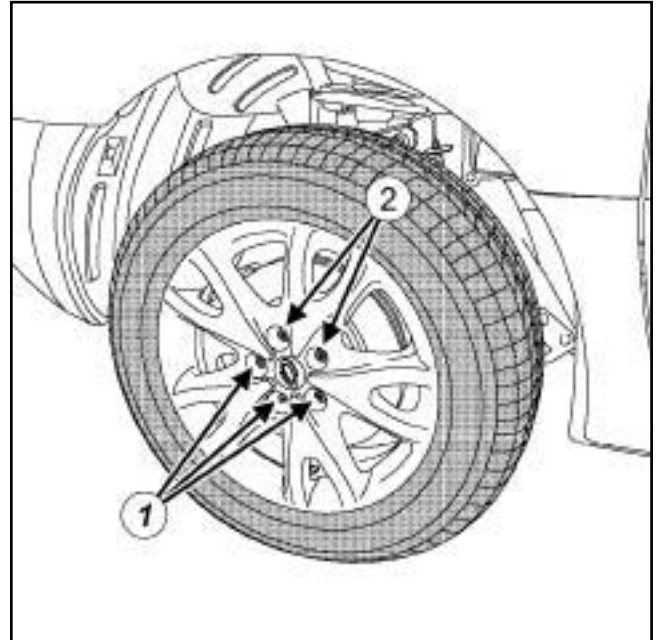
130944

- ☐ Clean the mating surfaces between the wheel and the hub carrier using a wire brush.

- ☐ Check the condition of the tyre.
- ☐ Do not move or remove the balance weights.

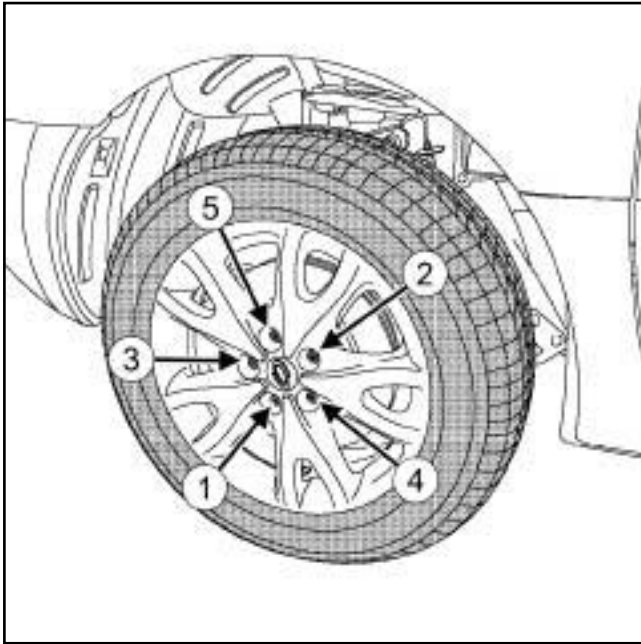
II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the wheel to the vehicle, positioning the valve at the top.
- ☐ Insert the wheel bolts.



130945

- ☐ 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 lower nuts (1) and finishing with the upper nuts (2) .
- ☐ Rotate the wheel through **180°** to bring the valve into the bottom position.
- ☐ Position the vehicle on its wheels.



130945

- ❑ Torque tighten in order the **wheel nuts (108 N.m)**.

III - FINAL OPERATION.

- ❑ Refit the trim (depending on equipment level).

Essential equipment

pedal press

I - PREREQUISITES FOR WHEEL BALANCING

- ❑ Wheel balancing is a measurement operation.

Several conditions must be met to achieve a reliable result in a single operation.

The wheel balancer must be installed in accordance with the manufacturer's instructions.

It is essential that the machine is recalibrated at the intervals specified by the manufacturer.

Never grease the threaded shaft.

Check the condition of the supports, centring components and mountings.

Replace any faulty parts (see manufacturer's instructions).

The wheel and the wheel balancer must be clean.

Driver's perception

- ❑ If the wheels are not correctly balanced this causes the steering wheel and/or the vehicle floor to vibrate.

These vibrations appear between **54 mph (90 km/h)** and **90 mph (150 km/h)**.

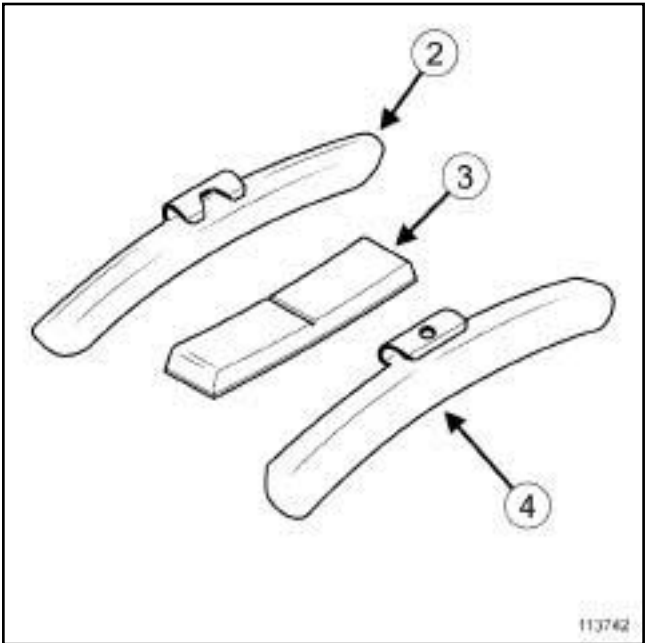
II - BALANCING PREPARATION OPERATION

- ❑ Adjust the tyre pressures (see **35A, Wheels and tyres, Tyre inflation pressure: Identification**, page **35A-8**) .
- ❑ Always carry out a road test for a minimum distance of **1 mile (2 km)** before balancing the wheels, in order to remove any flat spots on the tread caused by the vehicle being immobilised.
- ❑ After the road test:
 - raise the vehicle immediately,
 - leave the four wheels hanging free,
 - release the parking brake.



105870

- ❑ To reproduce the exact vehicle wheel assembly, it is essential to fit a ring (1) with a diameter of **66 mm** on the wheel balancer.
- ❑ There are three types of weight:



113742

- (2) Steel wheel with flange
- (3) Alloy wheel with flange
- (4) Alloy wheel without flange

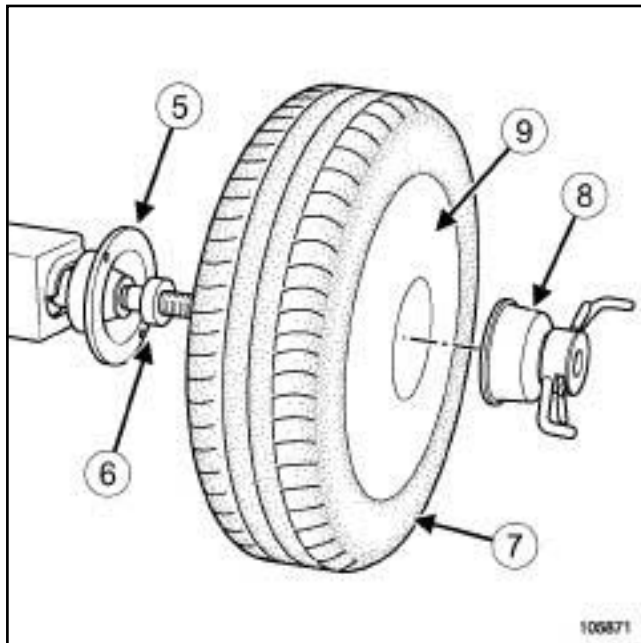
- ❑ In some countries, the use of lead weights is forbidden; in this case it is recommended to use **ZAMAK** weights instead.

Only use weights provided by the Parts Department.

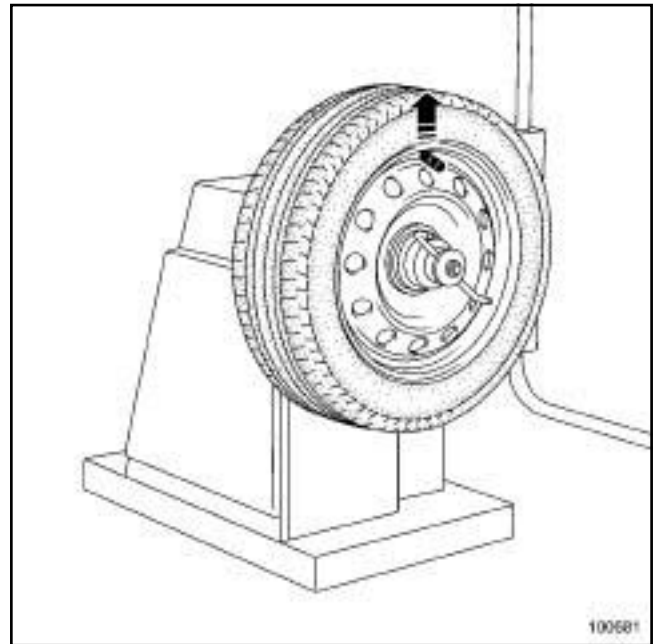
- ❑ Position the vehicle on a two-post lift immediately after the road test (see **Vehicle: Towing and lifting**) (MR 415, 02A, Lifting equipment).
- ❑ Fit a **pedal press**.
- ❑ Remove the wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ❑ Always clean the wheel, disc, and hub bearing surfaces.

III - PROCEDURE FOR BALANCING THE WHEEL IN QUESTION

- ❑ Make sure that the wheel balancer bearing surface and all the centring equipment (ring, thrust plate, etc.) are kept clean.
- ❑ Try not to scratch the (alloy) wheel rim with the wheel tightening device.



- ❑ The wheel is fitted on the wheel balancer as follows:
 - (5) wheel balancer back-plate,
 - (6) ring 66 mm in diameter,
 - (7) wheel,
 - (8) wheel tightening device (certain alloy wheels require a device 200 mm in diameter to ensure that the wheel has been correctly tightened),
 - outer wheel plane (9) .



100681

- ❑ Place the wheel on the wheel balancer, with the valve at the top, then lock the wheel in place.
- ❑ Remove any stones trapped in the tyre tread.
- ❑ Enter the specific wheel parameters into the wheel balancer.
- ❑ Start the wheel balancer and check the wheel balance, which should be **0 g** on each plane of the wheel.
- ❑ If this is not the case:
 - remove the old balance weights,
 - repeat the balancing procedure.
- ❑ Repeat the operation until the wheel balance is **0** on each plane of the wheel.
- ❑ Repeat this operation on the other vehicle wheels.

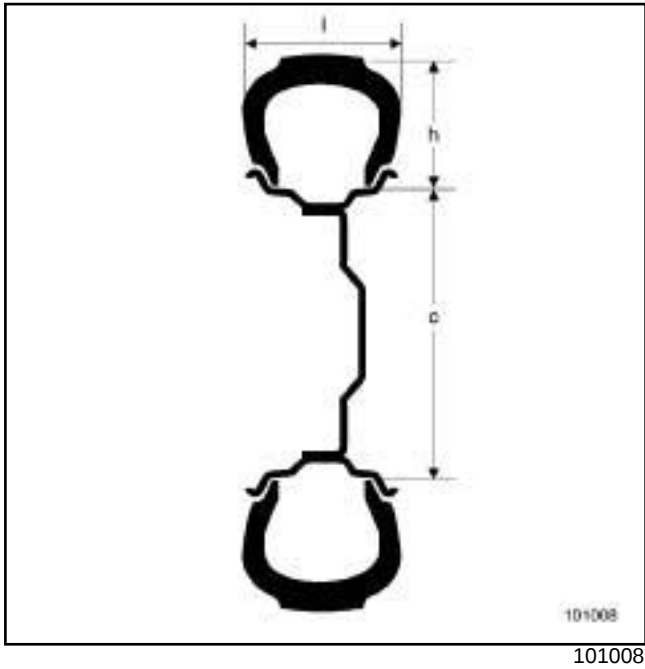
WARNING

To avoid detachment of the balance weights, use only weights which correspond to the vehicle wheel rims

IV - FINAL OPERATION.

- ❑ Refit the wheel on the vehicle in the position noted during removal (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ❑ Remove the **pedal press**.
- ❑ Carry out a road test to confirm the customer complaint is resolved.

Example of tyre identification marking: **185/60 R 15 84 H**.



185	Tyre width in mm (<i>l</i>)
60	Ratio(<i>h/w</i>)
R	Radial structure
15	Internal diameter in inches
84	Load index
H	Speed code

Speed code table:

Maximum speed	mph (km/h)
R	170
S	180
T	190
U	200
H	210
V	240
ZR	above 240

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the wheel in question (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1),
 - the balance weights,
 - the valve mechanism.

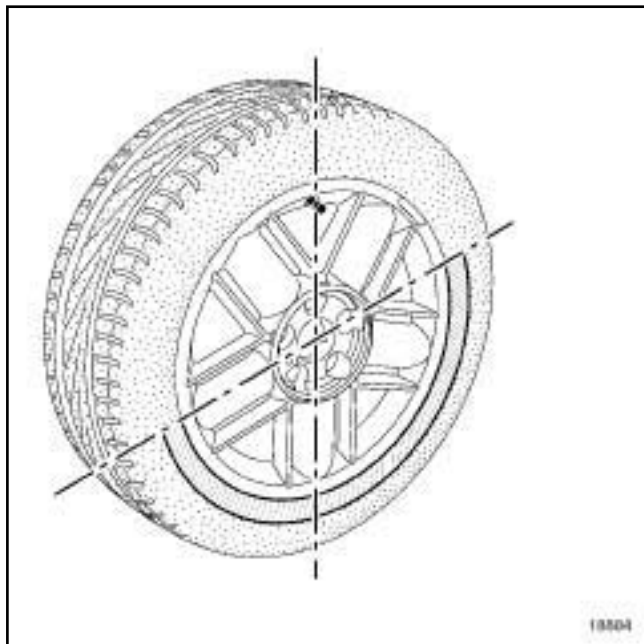
II - OPERATION FOR REMOVAL OF PART CONCERNED

TYRE PRESSURE SENS.

☐

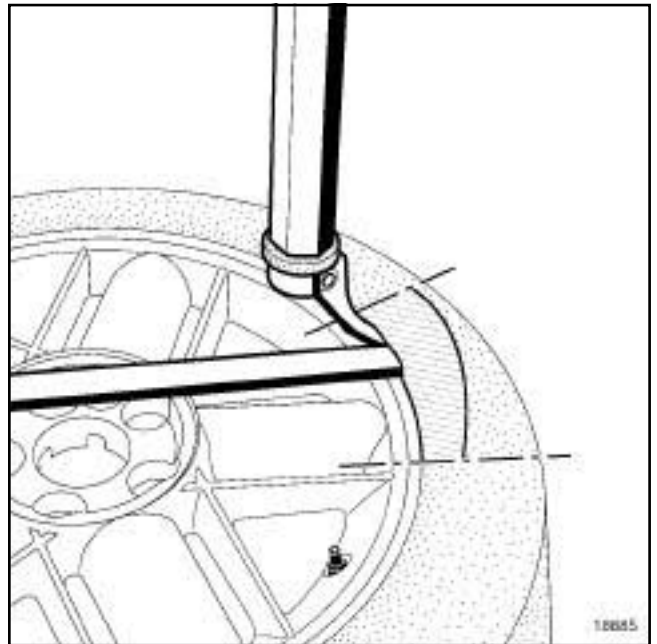
WARNING

To avoid any damage to the sensor, make sure the tyre bead never presses on the sensor.



18884

- ☐ Detach:
 - the bead from the outside of the tyre, starting with the side opposite the valve,
 - the bead from the inside of the tyre.



18885

- ☐ 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

I - REFITTING PREPARATION OPERATION

WITHOUT TYRE PRESSURE SENS.

- ☐ **parts always to be replaced:** Tyre valve (13,05, 02,02)
- ☐ Lubricate the two tyre beads correctly using the **TYRE PASTE** (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

II - 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.

III - FINAL OPERATION

- ☐ Refit the valve mechanism.
- ☐ Inflate the tyre to the recommended pressure (see **35A, Wheels and tyres, Tyre inflation pressure: Identification**, page **35A-8**) .

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**, page **35A-3**) .
- ☐ Refit the wheel in question (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

WHEELS AND TYRES

Tyre inflation pressure: Identification

35A

Essential equipment

diagnostic tool

I - INFLATION

WARNING

If checking the pressure when hot, increase the tyre inflation pressure by **0.2** to **0.3** bar above the recommended pressure.

Tyre	Wheel rim	Tyre inflation pressure when cold (bar)	
		Front	Rear
225/60 R 17 99H	6 1/2 J	2.3	2.1

Emergency spare wheel	Wheel rim	Tyre inflation pressure when cold (bar)	
		Front	Rear
225/60 R 17 99H	6 1/2 J	2.3	2.1
T155/80 R 17 100M	6 1/2 J	2.3	2.3

The specified pressure values assume that the tyres are cold.

II - CONFORMITY CHECK AND ADJUSTMENT

If the tyre size is changed, calibrate the electric power assisted steering computer using the tool **diagnostic tool** (see **Replacement of components**) (36B, Electric power steering).

Wheel offset:

- 17-inch alloy wheel rim: **40 mm**,
- emergency spare wheel 17 x 4T: **30 mm**.

For fitting chains (see Driver's handbook).

IDENTIFICATION

1 - Marking

There are two types of identification marking on the wheel rims:

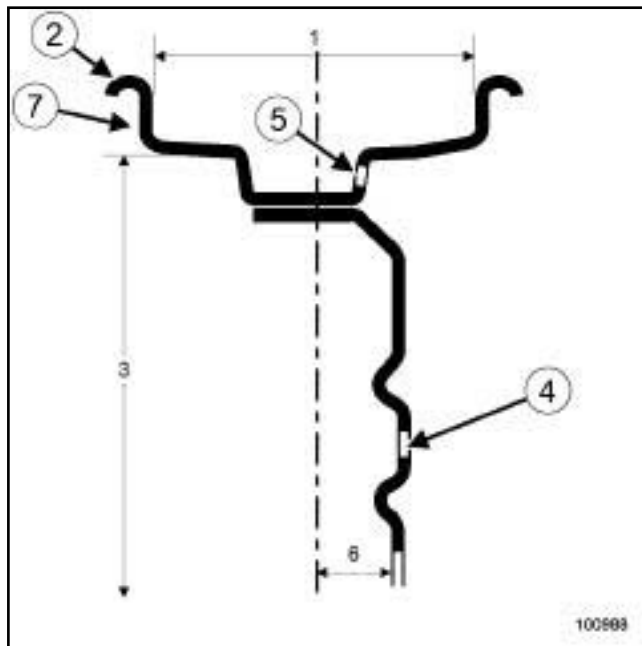
- engraved marking for steel wheel rims,
- cast marking for alloy wheel rims.

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



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) .

0.3 mm

4 - Out-of-roundness

The maximum out-of-round value is measured on the tyre bead bearing surface.

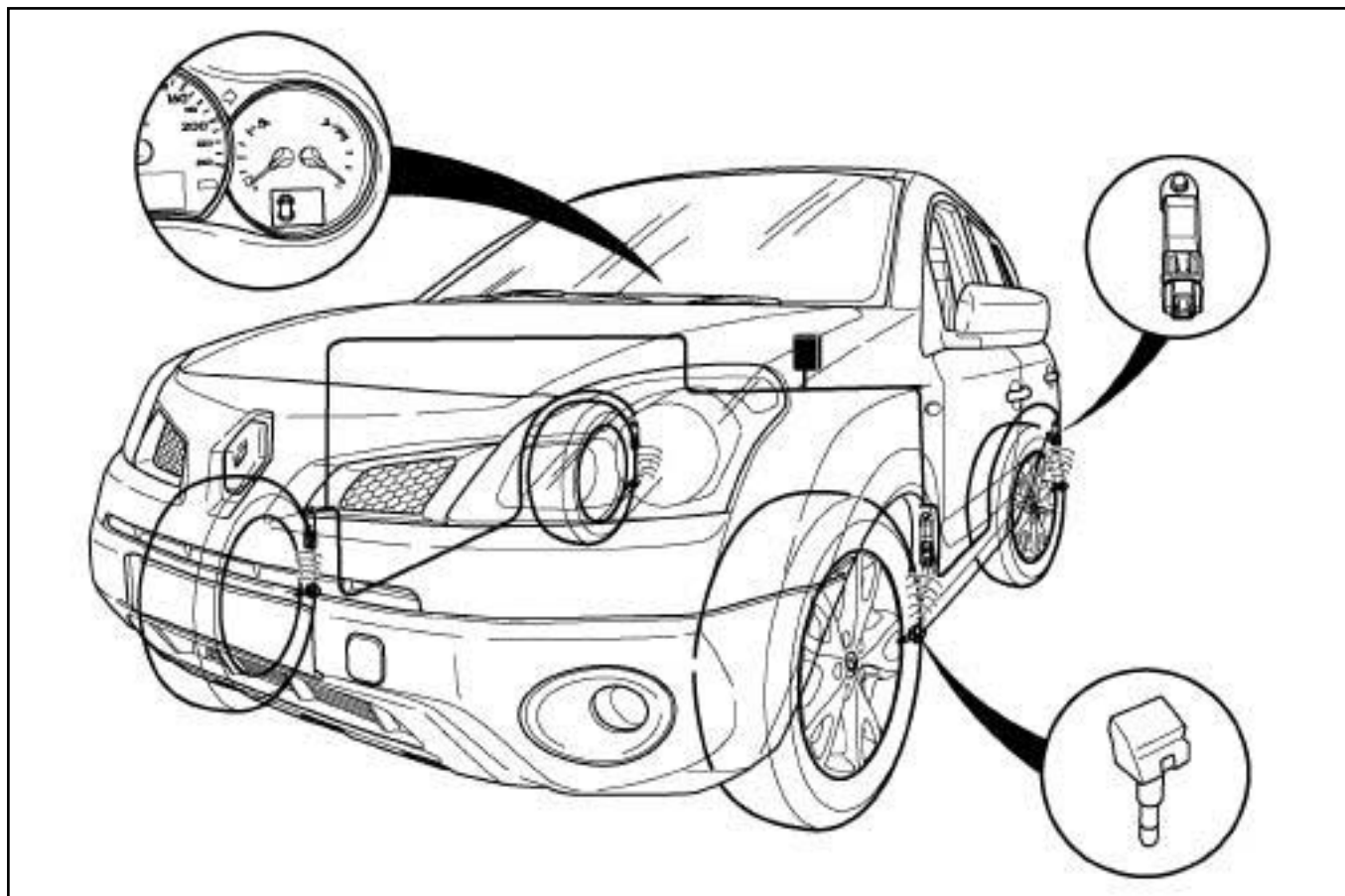
0.3 mm

TYRE PRESSURE MONITOR

SSPP: List and location of components

35B

TYRE PRESSURE SENS.



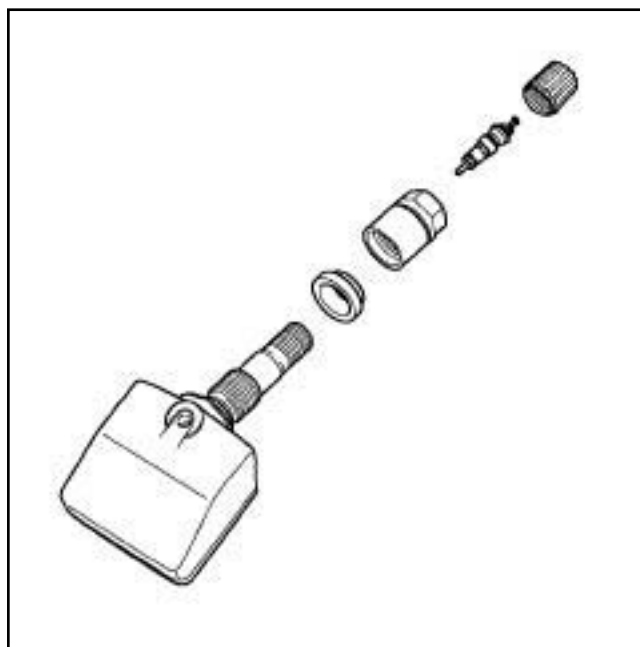
130954

The system is made up of:

- four pressure sensors built into the valves (one per wheel); they transmit a radio frequency signal,
- four tyre pressure monitor receivers, for the purpose of receiving and decoding the sensor signals and transmitting them to the UCH,
- a computer that receives, decodes and processes information from the receivers, and then determines which message to display,
- a display integrated into the instrument panel.

Note:

The position of the sensor on each wheel is automatically identified by the UCH computer.



130955

Composition of the pressure sensor:

- a conventional valve,
- a pressure sensor,

TYRE PRESSURE MONITOR

SSPP: List and location of components

35B

TYRE PRESSURE SENS.

- a specific radio frequency transmitter,
- a non-removable battery.

TYRE PRESSURE MONITOR

SSPP: Precautions for repair

35B

TYRE PRESSURE SENS.

I - CLEANLINESS

Clean the bearing faces on the tyre pressure monitor valve.

II - GENERAL RECOMMENDATIONS

Do not swap the wheels if they have been removed.

WARNING

Hold the sensor in position on the wheel to prevent it from turning during tightening.

WARNING

To avoid any damage to the sensor, make sure the tyre bead never presses on the sensor.

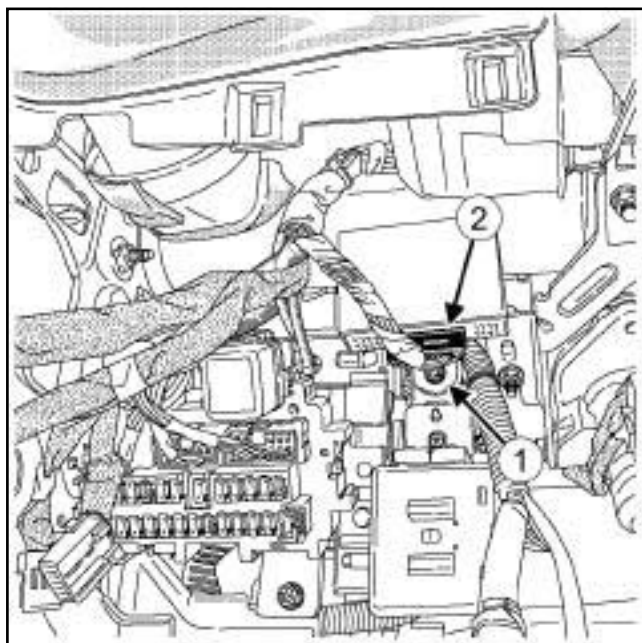
TYRE PRESSURE SENS.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Remove the lower cover of the driver's side dashboard (see **Dashboard: Removal - Refitting**) (MR 393, 57A, Interior equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



130960

- ☐ Remove the bolt (1) .
- ☐ Disconnect the connector (2) .
- ☐ Remove the tyre pressure monitor computer.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the tyre pressure monitor computer.
- ☐ Connect the connector.
- ☐ Refit the tyre pressure monitor computer bolt.

II - FINAL OPERATION.

- ☐ Refit the lower cover of the driver's side dashboard (see **Dashboard: Removal - Refitting**) (MR 393, 57A, Interior equipment).

TYRE PRESSURE MONITOR

Pressure sensor: Removal - Refitting

35B

TYRE PRESSURE SENS.

Tightening torques

tyre pressure sensor retaining nut	8 N.m
------------------------------------	-------

IMPORTANT

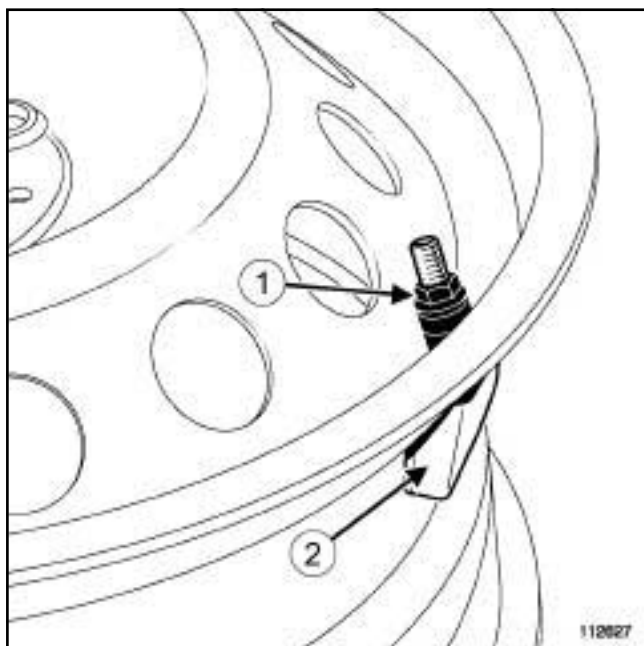
To avoid all risk of damage to the systems, apply the safety and cleanliness instructions and operating recommendations before carrying out any repair (see **35B, Tyre pressure monitor, SSPP: Precautions for repair**, page **35B-3**) (35B, Tyre pressure monitor system).

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) ,
 - the tyres (see **35A, Wheels and tyres, Tyres: Removal - Refitting**, page **35A-6**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

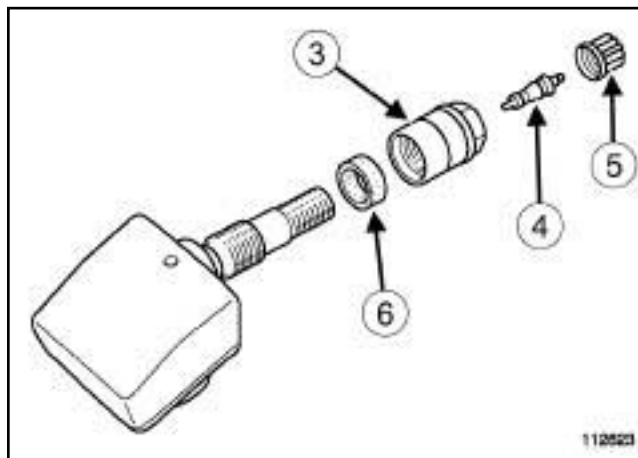


- ☐ Remove:
 - the tyre pressure sensor nut (1) ,

- the tyre pressure sensor (2) .

REFITTING

I - REFITTING PREPARATION OPERATION



- ☐ If necessary, replace the tyre pressure sensor nut (3) .
- ☐ Always replace the following parts:
 - the mechanism (4) ,
 - the cap (5) ,
 - the seal (6) .

II - REFITTING OPERATION FOR PART CONCERNED

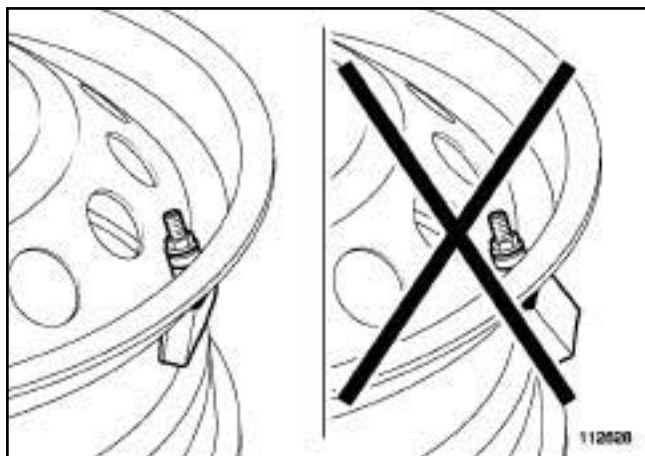
- ☐ Position the sensor in the valve opening, checking that the seal is attached all around the edge of the opening.
- ☐ Refit the tyre pressure sensor nut.

TYRE PRESSURE MONITOR

Pressure sensor: Removal - Refitting

35B

TYRE PRESSURE SENS.



112628



WARNING

Hold the sensor in position on the wheel to prevent it from turning during tightening.

- ☐ Torque tighten the **tyre pressure sensor retaining nut (8 N.m)**.

Note:

After using a tyre repair aerosol, remove the product residue from the valve with a dry cloth or air gun before refitting it on the wheel rim.

III - FINAL OPERATION

- ☐ Refit:

- the tyres (see **35A, Wheels and tyres, Tyres: Removal - Refitting**, page 35A-6) ,
- the wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

Tyre pressure monitor receiver: Removal - Refitting

TYRE PRESSURE SENS.

Tightening torques

tyre pressure monitor receiver bolt	11 N.m
-------------------------------------	--------

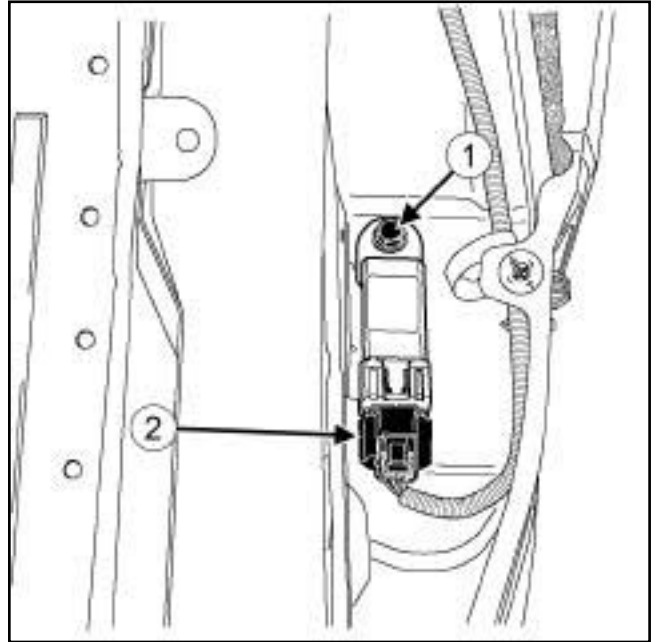
REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front or rear wheel (on the side concerned) (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**),
 - the front wheel arch liner (side concerned) (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection) or the rear wheel arch liner (side concerned) (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

II - OPERATION FOR REMOVAL OF PART CONCERNED

1 - Front left-hand tyre pressure monitor receiver



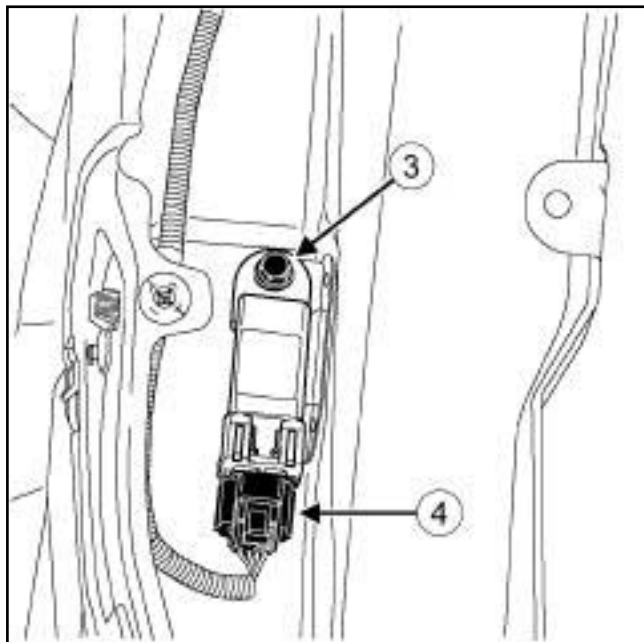
130956

- ☐ Remove the bolt (1) from the front left-hand tyre pressure monitor receiver.
- ☐ Disconnect the connector (2) from the front left-hand tyre pressure monitor receiver.
- ☐ Remove the front left-hand tyre pressure monitor receiver.

Tyre pressure monitor receiver: Removal - Refitting

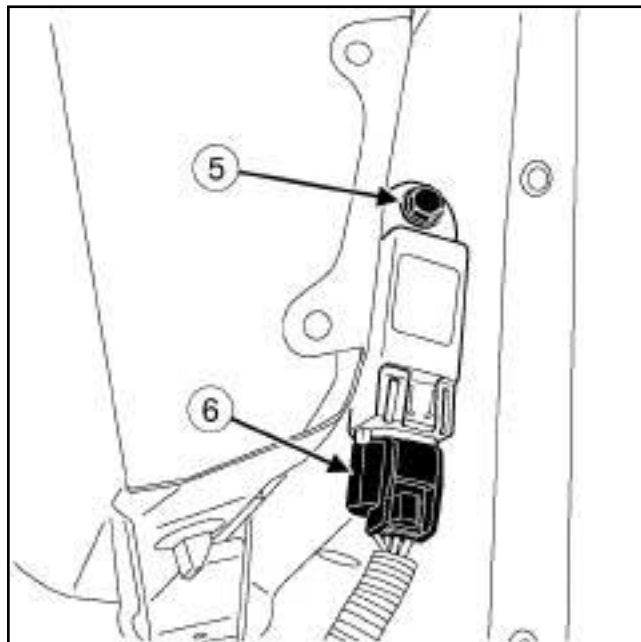
TYRE PRESSURE SENS.

2 - Front right-hand tyre pressure monitor receiver



- ☐ Remove the front right-hand tyre pressure monitor receiver bolt (3) .
- ☐ Disconnect the connector (4) from the front right-hand tyre pressure monitor receiver.
- ☐ Remove the front right-hand tyre pressure monitor receiver.

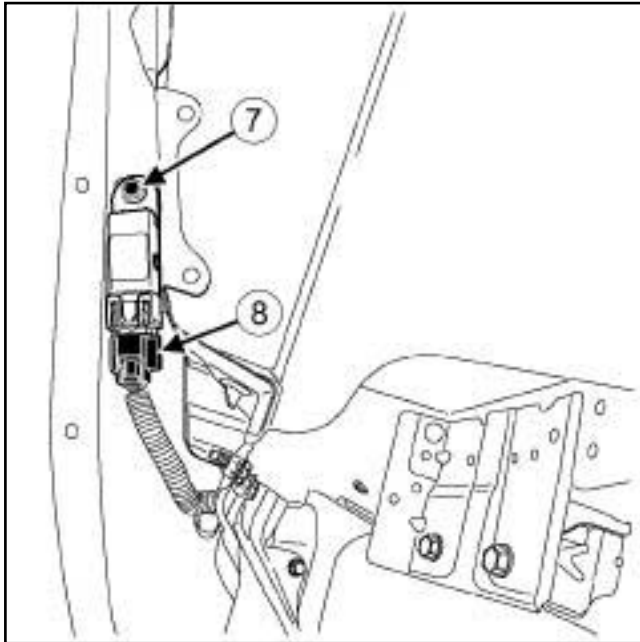
3 - Rear left-hand tyre pressure monitor receiver



- ☐ Remove the bolt (5) from the rear left-hand tyre pressure monitor receiver.
- ☐ Disconnect the connector (6) from the rear left-hand tyre pressure monitor receiver.
- ☐ Remove the rear left-hand tyre pressure monitor receiver.

TYRE PRESSURE SENS.

4 - Rear right-hand tyre pressure monitor receiver



130959

- ☐ Remove the bolt (7) from the rear right-hand tyre pressure monitor receiver.
- ☐ Disconnect the connector (8) from the rear right-hand tyre pressure monitor receiver.
- ☐ Remove the rear right-hand tyre pressure monitor receiver.

REFITTING

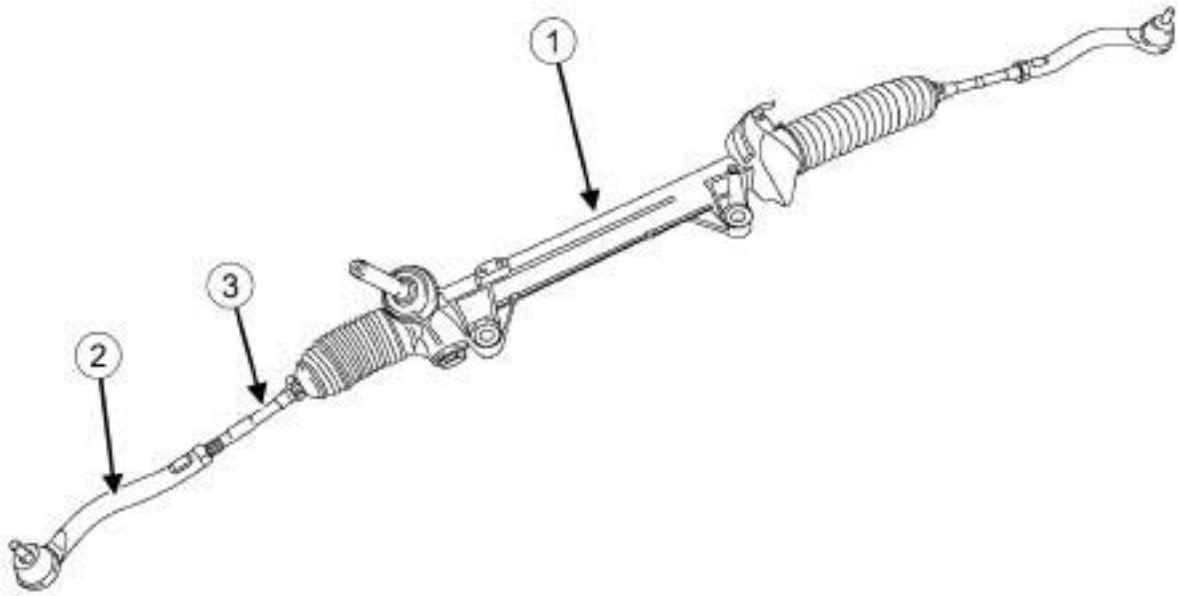
I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the tyre pressure monitor receiver (on the side concerned).
- ☐ Connect the connector of the tyre pressure monitor receiver (on the side concerned).
- ☐ Refit the bolt on the tyre pressure monitor receiver (on the side concerned).
- ☐ Torque tighten the **tyre pressure monitor receiver bolt (11 N.m)** (on the side concerned).

II - FINAL OPERATION.

- ☐ Refit:
 - the front wheel arch liner (side concerned) (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection) or the rear wheel arch liner (side concerned) (see **Rear wheel arch liner: Removal - Refitting**) (55A, Exterior protection),

- the front or rear wheel (on the side concerned) (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .



130964

- | | |
|-----|--------------------------|
| (1) | Steering box |
| (2) | Track rod |
| (3) | Axial ball joint linkage |

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

M9R, and LEFT-HAND DRIVE

Tightening torques

steering box nuts	148 N.m
-------------------	---------

IMPORTANT

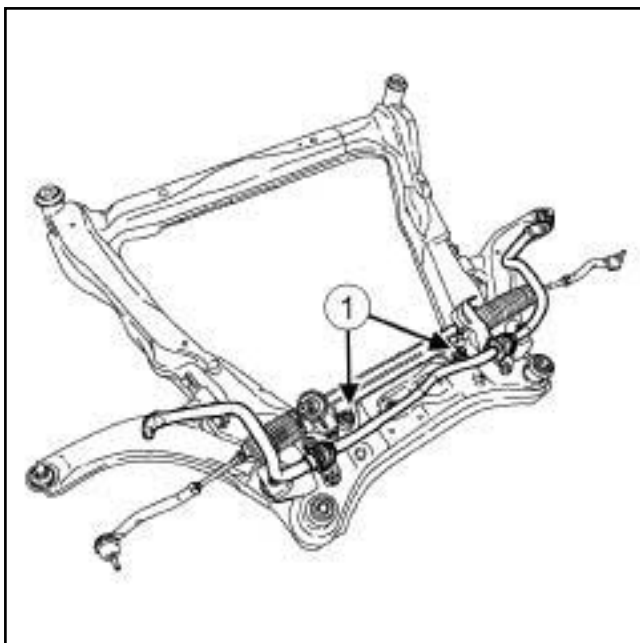
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the front axle subframe (see **31A, Front axle components, Front axle sub-frame: Removal - Refitting**, page 31A-58) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131467

- ☐ Remove:
 - the steering box nuts (**1**) ,
 - the steering box.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the universal joint bolt
- ☐ Set the wheels straight ahead.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the steering box,
 - the steering box nuts.
- ☐ Torque tighten the **steering box nuts (148 N.m)**.

III - FINAL OPERATION

- ☐ Refit:
 - the front axle sub-frame (see **31A, Front axle components, Front axle sub-frame: Removal - Refitting**, page 31A-58) ,
 - the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ☐ Adjust the front axle (see **30A, General information, Front axle: Adjusting**, page 30A-10) .

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

M9R, and RIGHT-HAND DRIVE

Tightening torques

steering box nuts	148 N.m
-------------------	---------

IMPORTANT

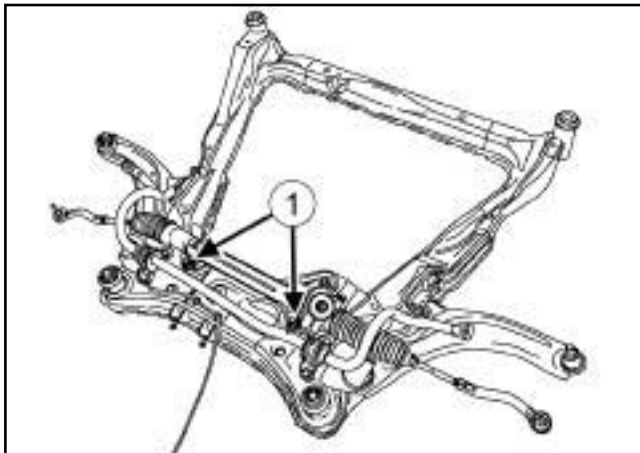
Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**).

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1),
 - the front axle subframe (see **31A, Front axle components, Front axle sub-frame: Removal - Refitting**, page 31A-58).

II - OPERATION FOR REMOVAL OF PART CONCERNED



132725

- ☐ Remove:
 - the steering box nuts (1),
 - the steering box.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the universal joint bolt.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the steering box,
 - the steering box nuts.
- ☐ Torque tighten the **steering box nuts (148 N.m)**.

III - FINAL OPERATION

- ☐ Refit:
 - the front axle sub-frame (see **31A, Front axle components, Front axle sub-frame: Removal - Refitting**, page 31A-58),
 - the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1).
- ☐ Adjust the front axle (see **30A, General information, Front axle: Adjusting**, page 30A-10).

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

2TR, and LEFT-HAND DRIVE

Essential special tooling

Tav. 476 Ball joint extractor.

Tightening torques

nuts of the steering box	148 N.m
heat shield bolts	4 N.m
lower nuts of the anti-roll bar tie rod	84 N.m
track rod ball joint nuts	34 N.m
universal joint bolt on the steering box	39 N.m

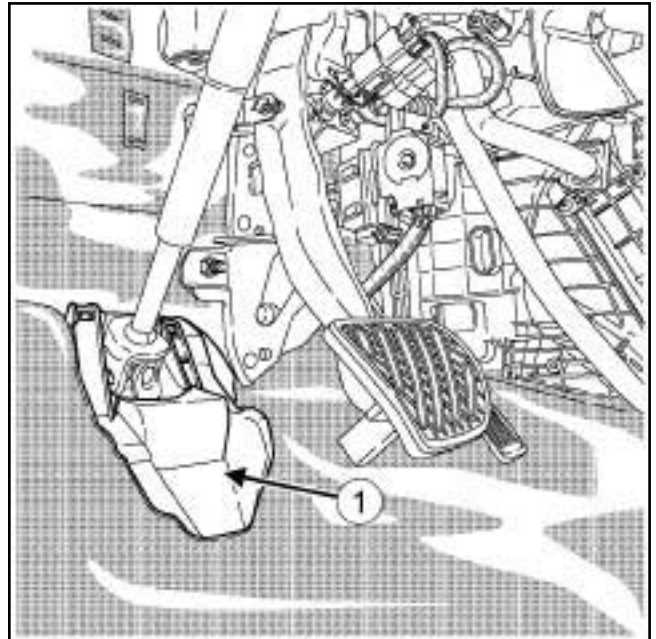
IMPORTANT

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

REMOVAL

I - REMOVAL PREPARATION OPERATION

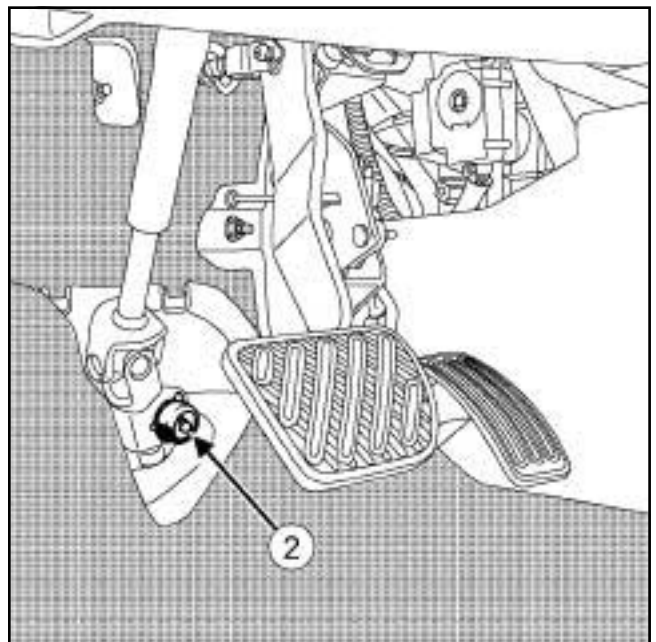
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .



131514

- ☐ Remove the steering cover (1) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131515

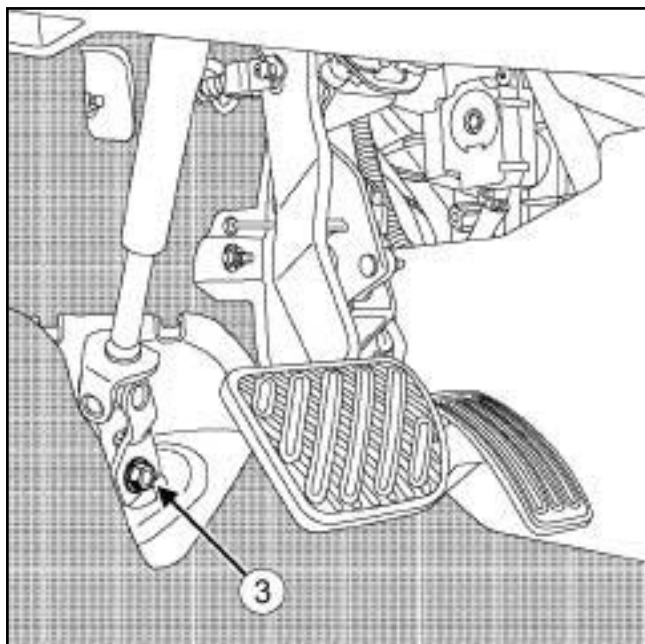
- ☐ Remove the cover (2) from the universal joint (do not keep).
- ☐ Set the wheels straight ahead.

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

2TR, and LEFT-HAND DRIVE

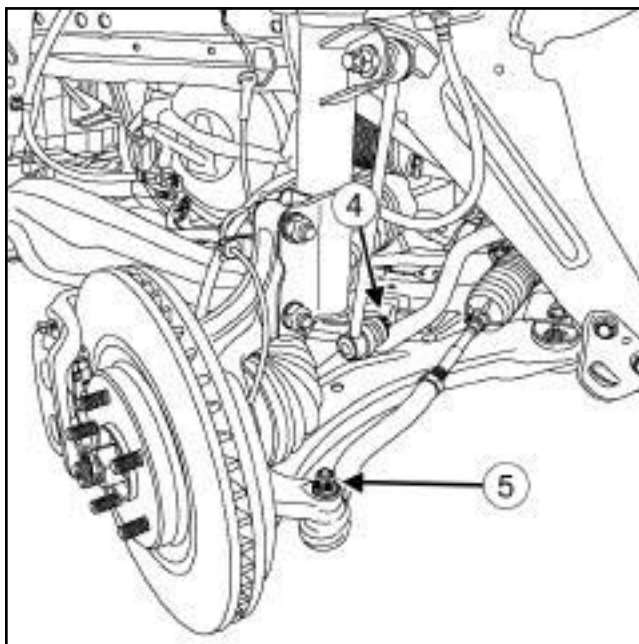


131516

❑ Remove:

- the universal joint bolt (3) (do not keep),
- the universal joint nut (do not keep),
- the universal joint from the steering box.

- ❑ Remove the bulkhead seal (see **36A, Steering assembly, Bulkhead seal: Removal - Refitting**, page **36A-27**) .



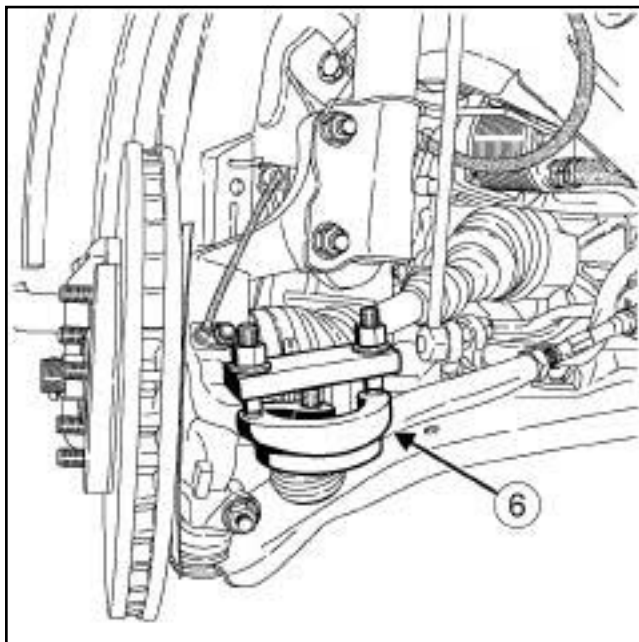
132632

❑ Remove:

- the track rod ball joint nuts (5) ,
- the lower nuts (4) from the anti-roll bar tie rod.

Note:

It is necessary to rotate the anti-roll bar on itself in order to make it easier to position the steering box on the sub-frame cross member.



132713

- ❑ Extract the track rod end using the (Tav. 476) (6) .
- ❑ Tilt the anti-roll bar towards the rear of the vehicle.

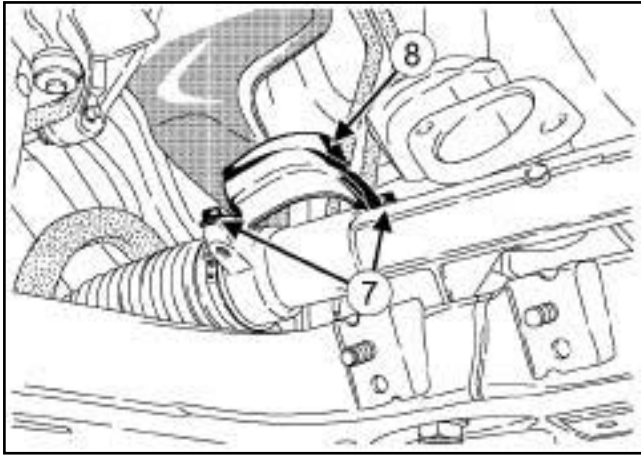
STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

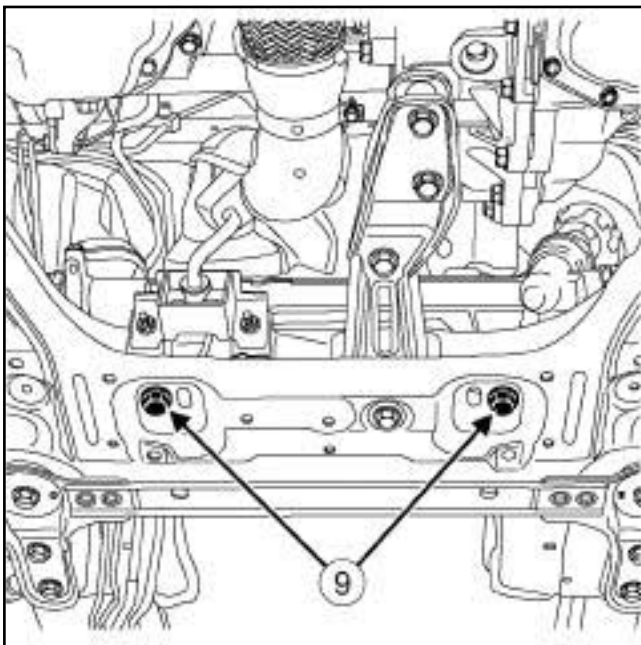
2TR, and LEFT-HAND DRIVE

- ❑ Remove the intermediate pipe (see **Connector pipe: Removal - Refitting**) .



132718

- ❑ Remove:
 - the bolts (7) ,
 - the heat shield (8) .



132724

- ❑ Remove:
 - the steering box bolts (9) ,
 - the steering box towards the left-hand side of the vehicle.

REFITTING

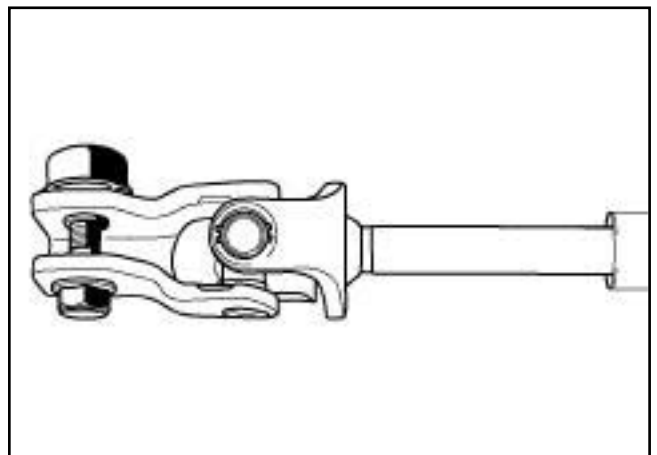
I - REFITTING PREPARATION OPERATION

- ❑ Always replace:
 - the universal joint cam nut and bolt,

- the lower nuts of the anti-roll bar tie rod.

II - REFITTING OPERATION FOR PART CONCERNED

- ❑ Refit:
 - the steering box, inserting it from the left-hand side of the vehicle,
 - the steering box nuts,
 - the heat shield,
 - the heat shield bolts.
- ❑ Torque tighten
 - the **nuts of the steering box (148 N.m)**,
 - the **heat shield bolts (4 N.m)**.
- ❑ Refit the intermediate pipe (see **Connector pipe: Removal - Refitting**) .
- ❑ Tilt the anti-roll bar back into its original position.
- ❑ Fit the track rod end in the hub carrier.
- ❑ Refit:
 - the lower nuts of the anti-roll bar tie rod.
 - the track rod ball joint nuts.
- ❑ Torque tighten:
 - the **lower nuts of the anti-roll bar tie rod (84 N.m)**,
 - the **track rod ball joint nuts (34 N.m)**.
- ❑ Refit the bulkhead seal (see 36A, **Steering assembly, Bulkhead seal: Removal - Refitting**, page 36A-27) .



132714

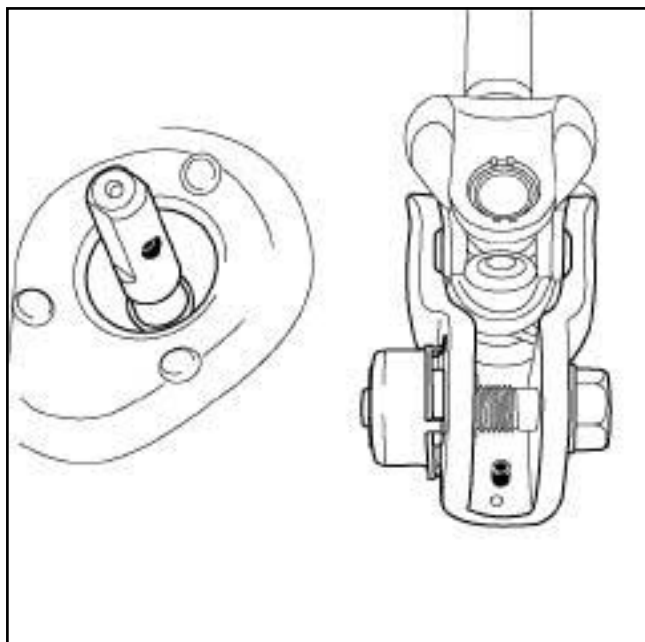
- ❑ Observe the direction of fitting for the universal joint cam nut and bolt.

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

2TR, and LEFT-HAND DRIVE



132715

- ☐ Check that the universal joint is in the correct position.
- ☐ Refit:
 - the universal joint on the steering box,
 - the new universal joint bolt,
 - the new cam nut on the universal joint.
- ☐ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

III - FINAL OPERATION.

- ☐ Refit:
 - the steering cover,
 - the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ☐ Adjust the front axle (see **30A, General information, Front axle: Adjusting**, page 30A-10) .

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

2TR, and RIGHT-HAND DRIVE

Essential special tooling

Tav. 476 Ball joint extractor.

Tightening torques

steering box bolts	148 N.m
heat shield bolts	4 N.m
lower nuts of the anti-roll bar tie rod	84 N.m
track rod ball joint nuts	34 N.m
universal joint bolt on the steering box	39 N.m

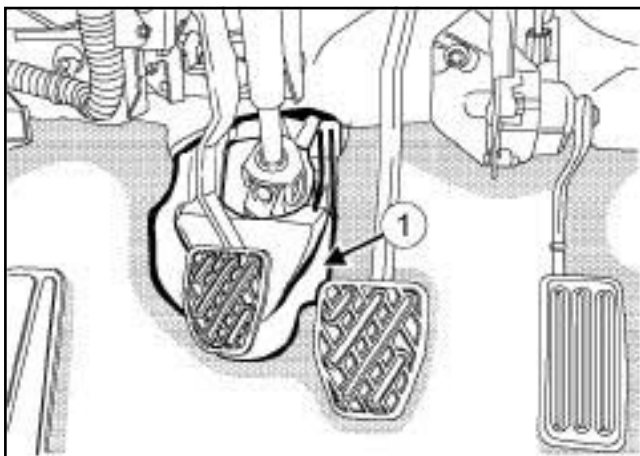
IMPORTANT

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

REMOVAL

I - REMOVAL PREPARATION OPERATION

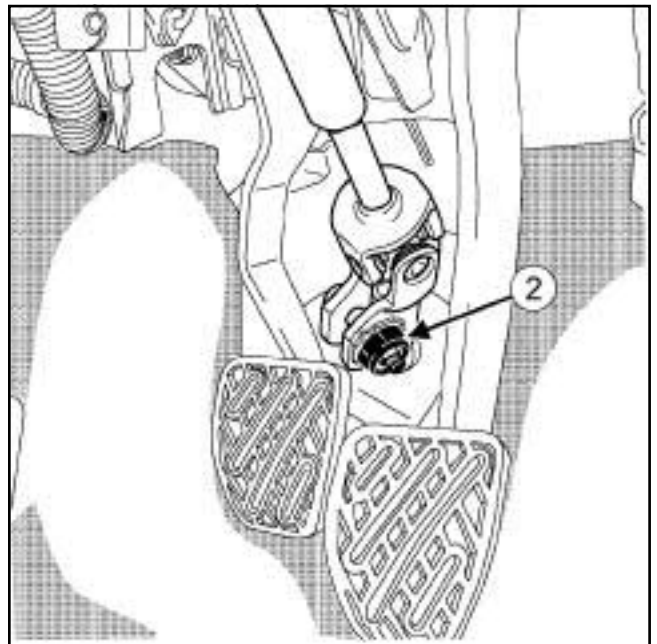
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .



131506

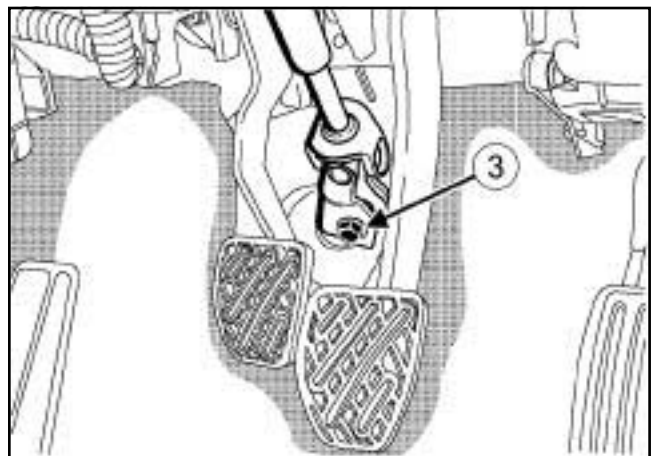
- ☐ Remove the steering cover (1) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131507

- ☐ Remove the cover (2) from the universal joint (do not keep).
- ☐ Set the wheels straight ahead.



131508

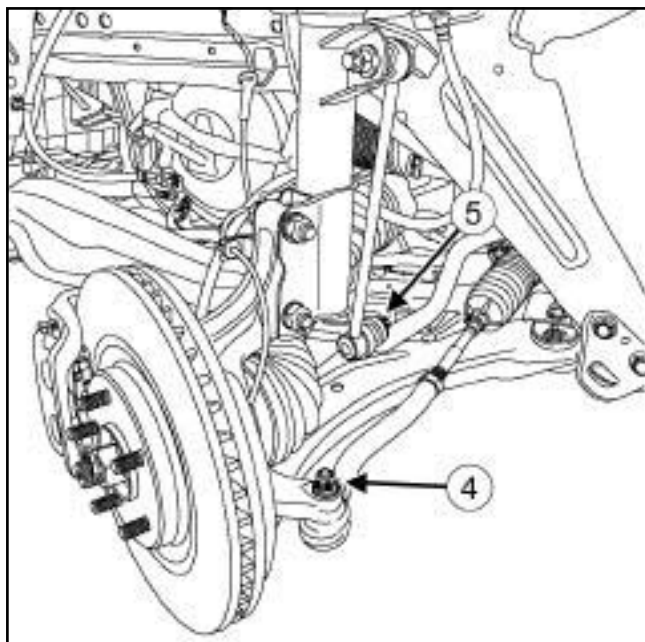
- ☐ Remove:
 - the universal joint bolt (3) (do not keep),
 - the universal joint nut (do not keep),
 - the universal joint from the steering box.
- ☐ Remove the bulkhead seal (see **36A, Steering assembly, Bulkhead seal: Removal - Refitting**, page 36A-27) .

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

2TR, and RIGHT-HAND DRIVE



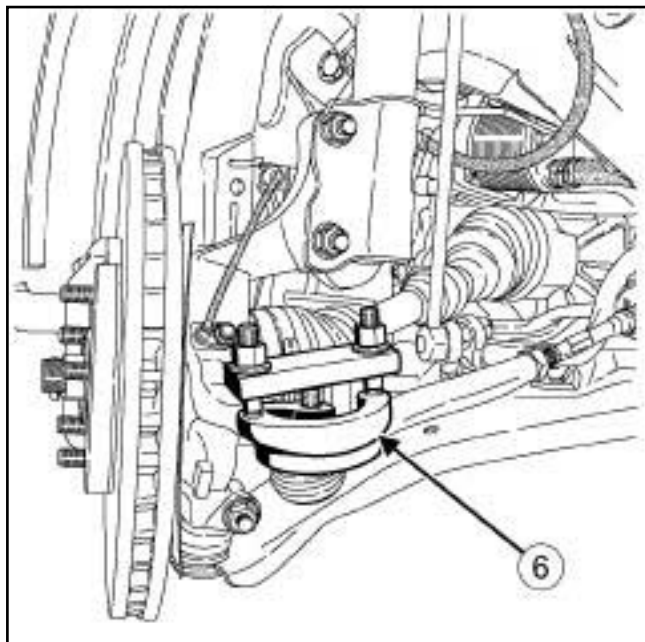
132632

❑ Remove:

- the track rod ball joint nuts (4) ,
- the lower nuts (5) of the anti-roll bar tie rod.

Note:

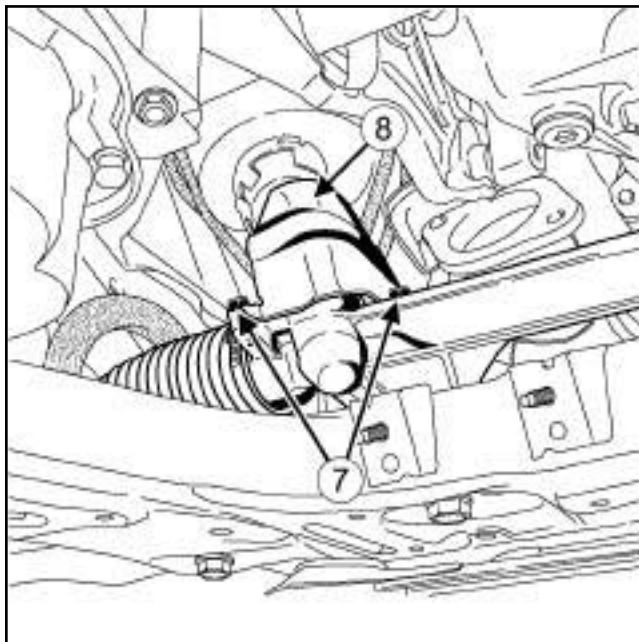
It is necessary to rotate the anti-roll bar on itself in order to make it easier to position the steering box on the sub-frame cross member.



131478

- ❑ Extract the track rod end using the (Tav. 476) (6) .
- ❑ Tilt the anti-roll bar towards the rear of the vehicle.

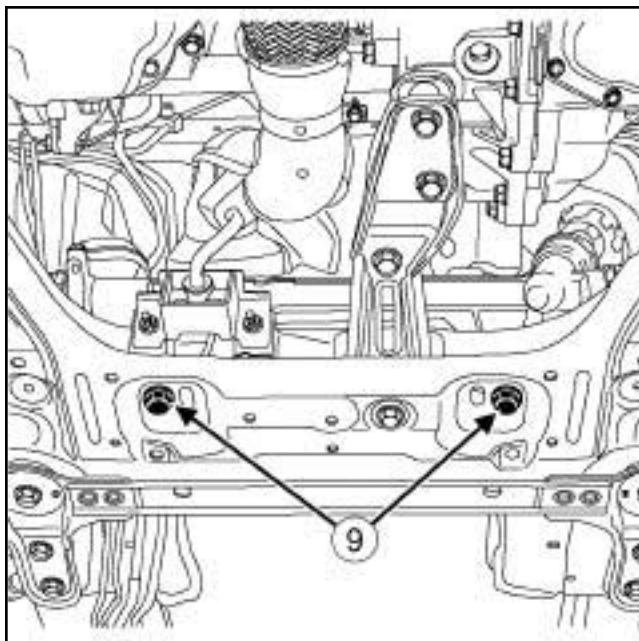
- ❑ Remove the intermediate pipe (see **Connector pipe: Removal - Refitting**) .



132723

❑ Remove:

- the bolts (7) ,
- the heat shield (8) .



132724

❑ Remove:

- the steering box bolts (9) ,
- the steering box towards the right-hand side of the vehicle.

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

2TR, and RIGHT-HAND DRIVE

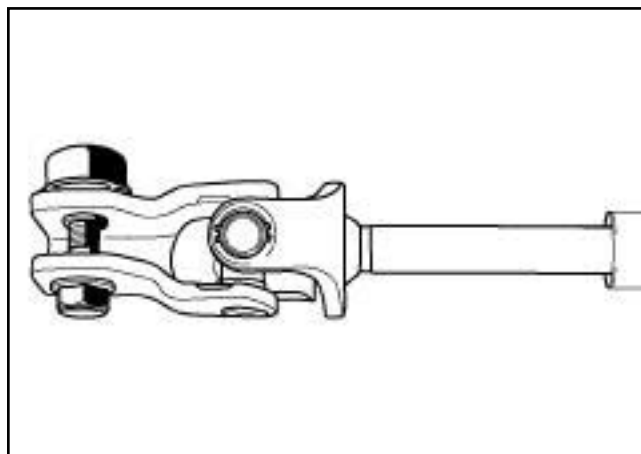
REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace:
 - the universal joint cam nut and bolt,
 - the lower nuts of the anti-roll bar tie rod.

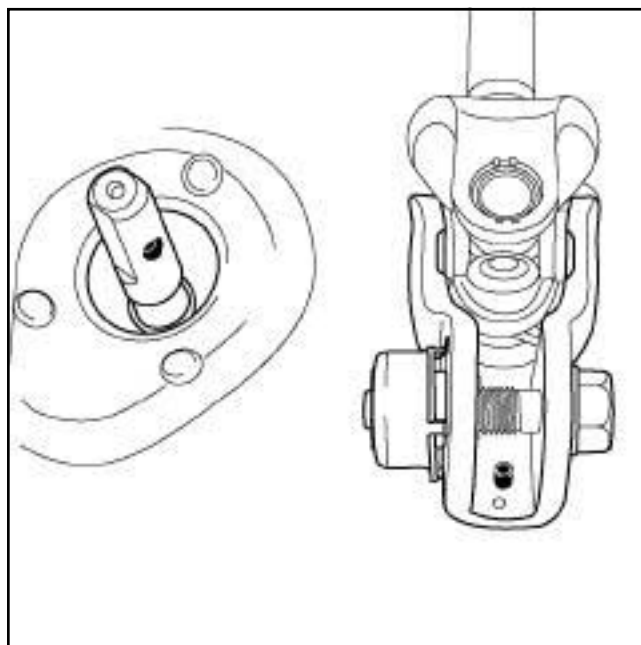
II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the steering box, inserting it from the right-hand side of the vehicle,
 - the steering box nuts,
 - the heat shield,
 - the heat shield bolts.
- ☐ Torque tighten
 - the **steering box bolts (148 N.m)**,
 - the **heat shield bolts (4 N.m)**.
- ☐ Refit the intermediate pipe (see **Connector pipe: Removal - Refitting**).
- ☐ Tilt the anti-roll bar back into its original position.
- ☐ Fit the track rod end in the hub carrier.
- ☐ Refit:
 - the lower nuts of the anti-roll bar tie rod,
 - the track rod ball joint nuts.
- ☐ Torque tighten:
 - the **lower nuts of the anti-roll bar tie rod (84 N.m)**,
 - the **track rod ball joint nuts (34 N.m)**.
- ☐ Refit the bulkhead seal (see **36A, Steering assembly, Bulkhead seal: Removal - Refitting**, page 36A-27).



132714

- ☐ Observe the direction of fitting for the universal joint cam nut and bolt.



132715

- ☐ Check that the universal joint is in the correct position.
- ☐ Refit:
 - the universal joint on the steering box,
 - the new universal joint bolt,
 - the new cam nut on the universal joint.
- ☐ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

III - FINAL OPERATION.

- ☐ Refit:
 - the steering cover,

STEERING ASSEMBLY

Steering rack: Removal - Refitting

36A

2TR, and RIGHT-HAND DRIVE

- the front wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .
- ☐ Adjust the front axle (see **30A, General information, Front axle: Adjusting**, page **30A-10**) .

STEERING ASSEMBLY

Track rod: Removal - Refitting

36A

Essential special tooling

Tav. 476 Ball joint extractor.

Tightening torques

track rod ball joint nut **35 N.m**

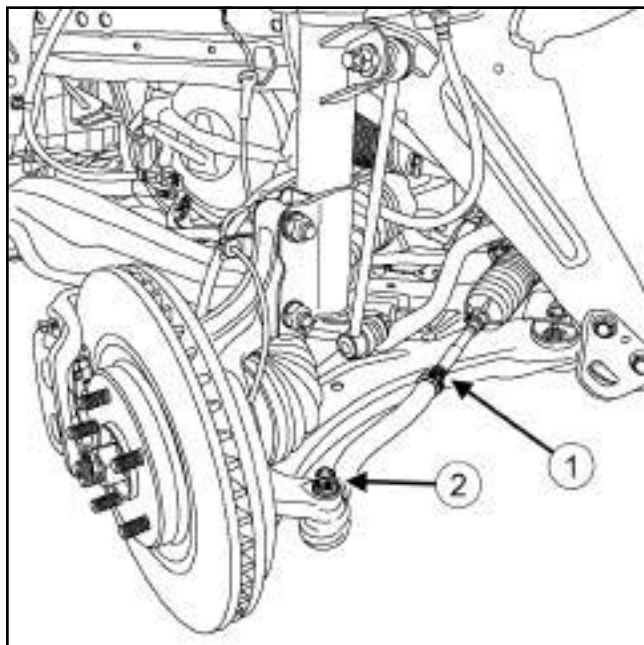
wheel alignment adjustment lock nut **88 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

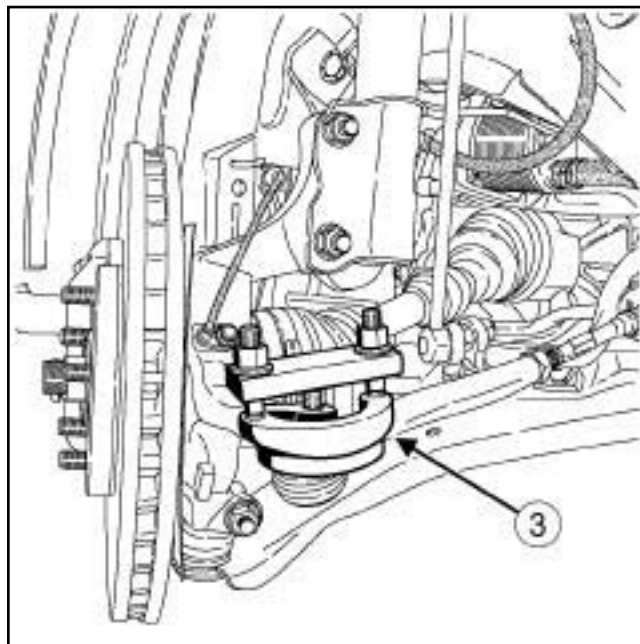
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the front wheel on the side concerned (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



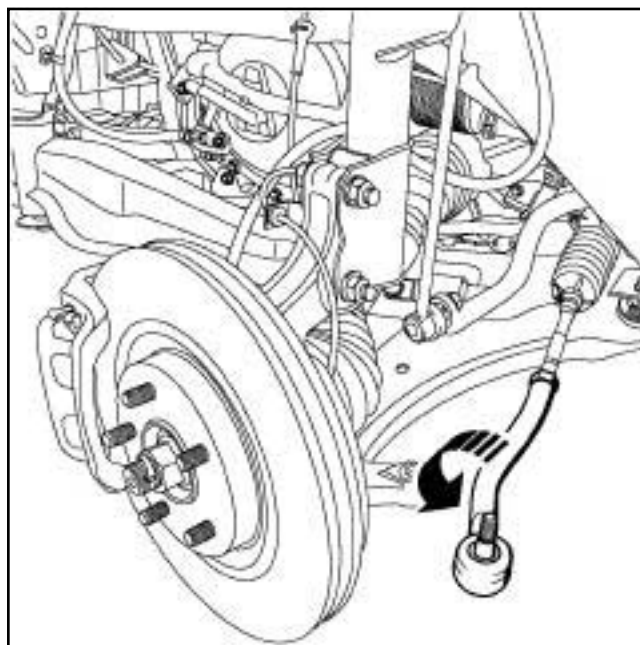
131477

- ☐ Loosen the wheel alignment adjustment lock nut (1) .
- ☐ Remove the track rod ball joint nut (2) .



131478

- ☐ Extract the ball joint using (**Tav. 476**) (3) .



131479

- ☐ Unscrew the track rod anti-clockwise and note the number of turns for refitting.
- ☐ Remove the track rod.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Screw the track rod back in place by the number of turns noted during removal.

STEERING ASSEMBLY

Track rod: Removal - Refitting

36A

☐ refit:

- the track rod end in the hub carrier,
- the track rod end nut.

☐ Torque tighten:

- the **track rod ball joint nut (35 N.m)**,
- the **wheel alignment adjustment lock nut (88 N.m)**.

II - FINAL OPERATION.

- ☐ Refit the front wheel on the side concerned (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**)



Note:

Always check the front axle geometry (adjust if necessary) (see **30 A, General information, Front axle: Adjustment values**, page **30A-8**) .

STEERING ASSEMBLY

Axial ball joint linkage: Removal - Refitting

36A

Essential special tooling

Dir. 1741	Tool for locking steering rack.
Dir. 1305-01	Tool for removing/refitting 35 mm to 41 mm diameter axial ball joints.

Tightening torques

axial ball joint	89 N.m
------------------	---------------

REMOVING - REFITTING

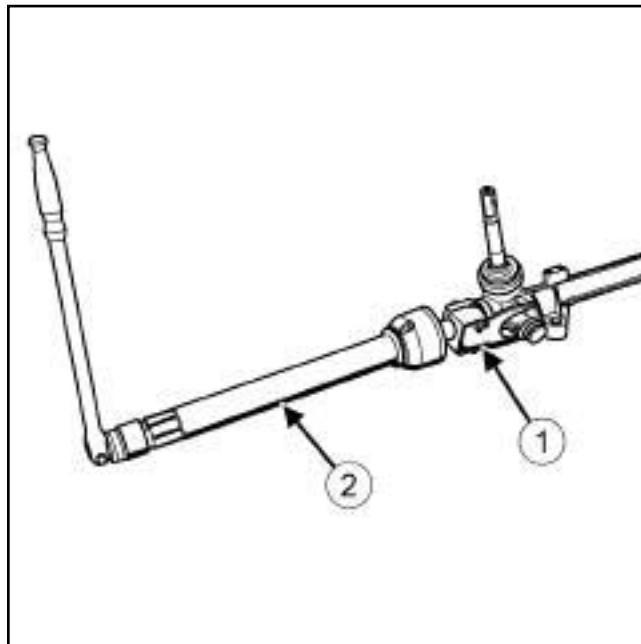
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel on the side in question (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**),
 - the track rod, (see **36A, Steering assembly, Track rod: Removal - Refitting**, page **36A-12**)
 - the steering box gaiter (see **36A, Steering assembly, Steering rack gaiter: Removal - Refitting**, page **36A-26**)
- ☐ Unlock the steering column.

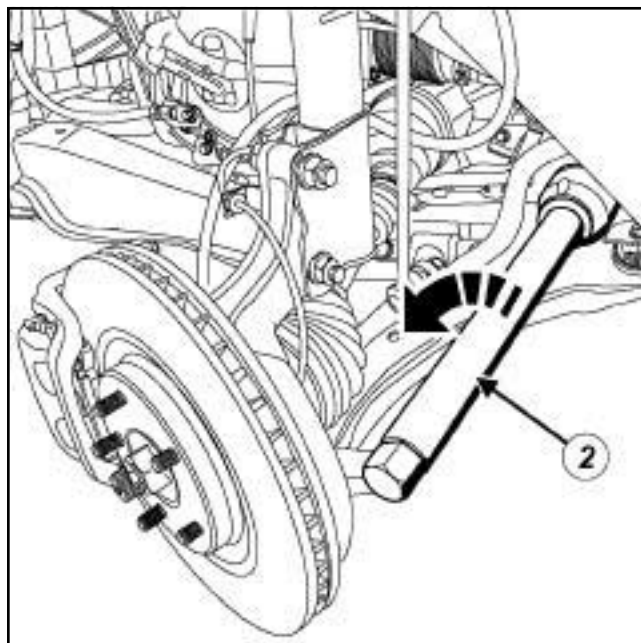
Note:

During this operation, the steering unit must be in place on the vehicle.

II - OPERATION FOR REMOVAL OF PART CONCERNED



131480



131481

- ☐ Set up the (1) (**Dir. 1741**) on the steering rack, at the pinion end.
- ☐ Unlock the axial ball joint using tool (2) (**Dir. 1305-01**).
- ☐ Remove the axial ball joint.

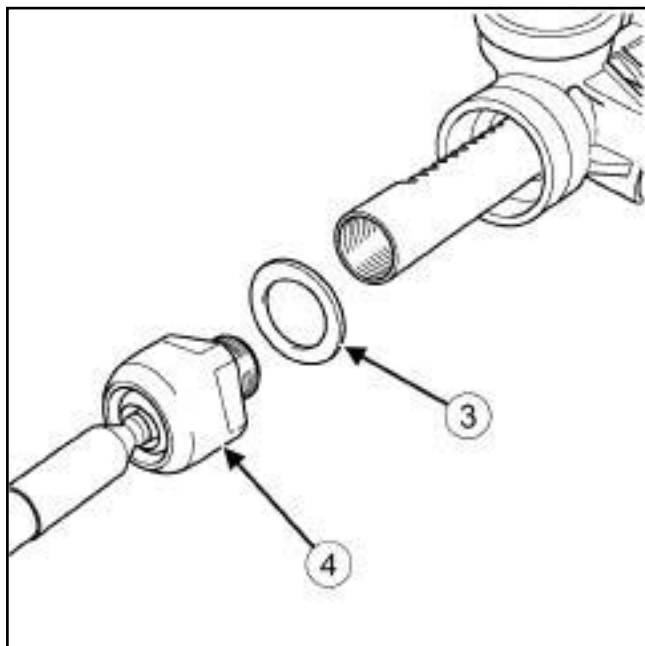
STEERING ASSEMBLY

Axial ball joint linkage: Removal - Refitting

36A

REFITTING

I - REFITTING PREPARATION OPERATION



131482

☐ Always replace:

- the washer (3) ,
- the gaiter.

☐

Note:

Take care not to deform the gaiters: they could be irreparably damaged.

II - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the washer (3) ,
- the axial ball joint (4) .

☐ Torque tighten the **axial ball joint (89 N.m)** using the tool (**Dir. 1305-01**).

☐ Remove the (**Dir. 1741**).

☐ Coat the following parts with lithium grease:

- the steering rack,
- the axial ball joint.

III - FINAL OPERATION.

☐ Refit:

- the steering box gaiter (see **36A, Steering assembly, Steering rack gaiter: Removal - Refitting**, page **36A-26**) ,
- the track rod, (see **36A, Steering assembly, Track rod: Removal - Refitting**, page **36A-12**)
- the front wheel on the side concerned (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**)

☐

Note:

Always check the front axle geometry (adjust if necessary) (see **30A, General information, Front axle: Adjustment values**, page **30A-8**) .

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

LEFT-HAND DRIVE

Tightening torques

bolt connecting the steering column to the intermediate shaft	31 N.m
steering column nuts and bolts	17 N.m
universal joint bolt on the steering box	39 N.m

IMPORTANT

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

IMPORTANT

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

IMPORTANT

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Unlock the steering column.

IMPORTANT

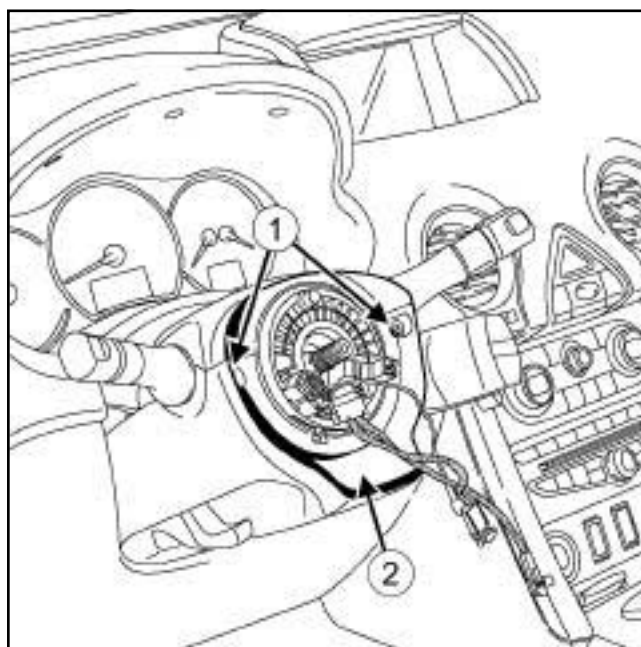
To avoid any risk of triggering when working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the diagnostic tool.

When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Set the wheels straight ahead.

- ☐ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page 36A-39) .



132750

- ☐ Remove:

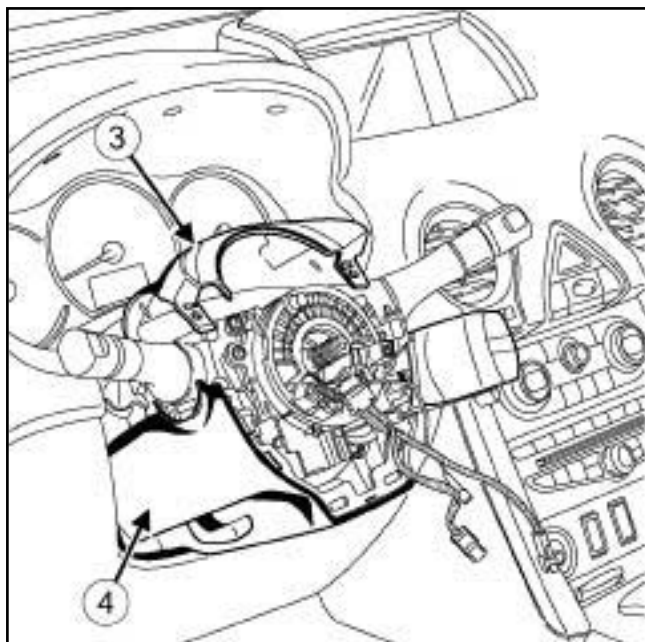
- the bolts (1) ,
- the half shell (2) ,
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) .

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

LEFT-HAND DRIVE

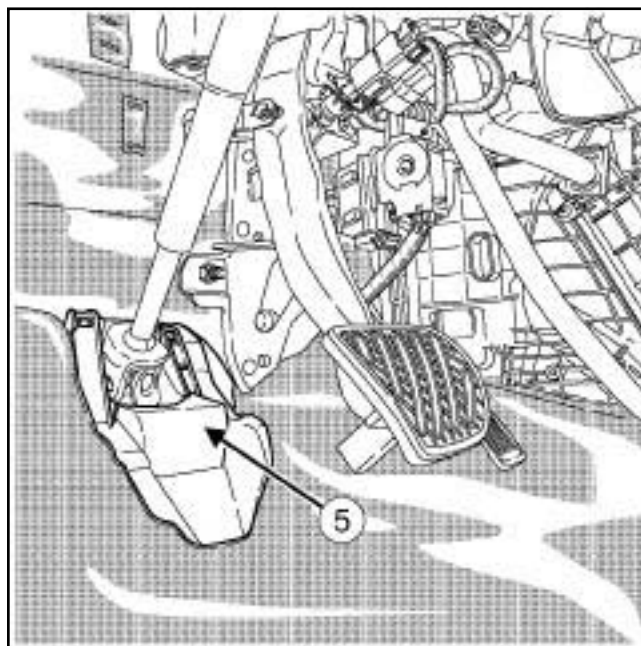


132751

❑ Remove:

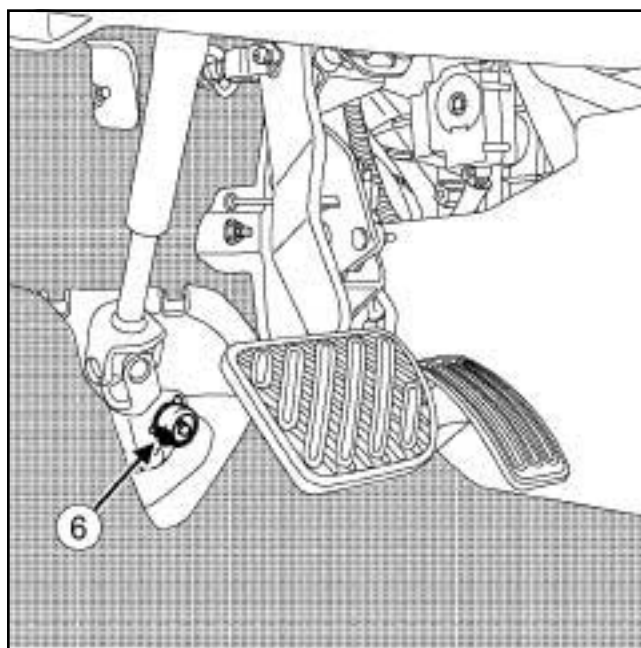
- the upper half shell (3) ,
- the lower half shell (4) ,
- the rotary switch (see **Rotary switch: Removal - Refitting**) ,
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the front air distribution duct (see **Front air distribution duct: Removal - Refitting**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131514

- ❑ Remove the steering cover (5) .



131515

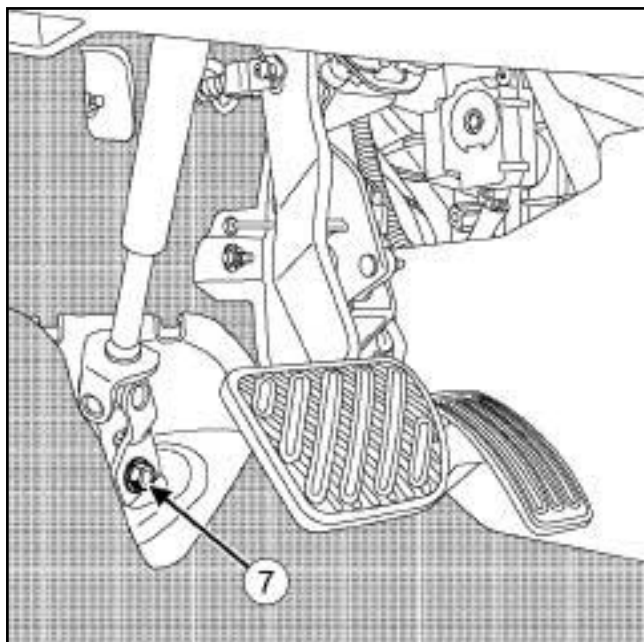
- ❑ Remove the cover (6) from the universal joint (do not keep).

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

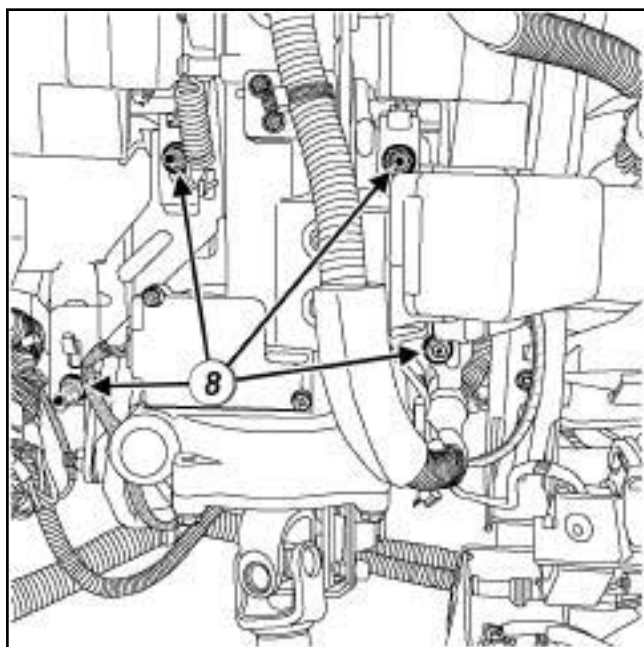
LEFT-HAND DRIVE



131516

❑ Remove:

- the universal joint bolt (7) (do not keep),
- the universal joint nut (do not keep).

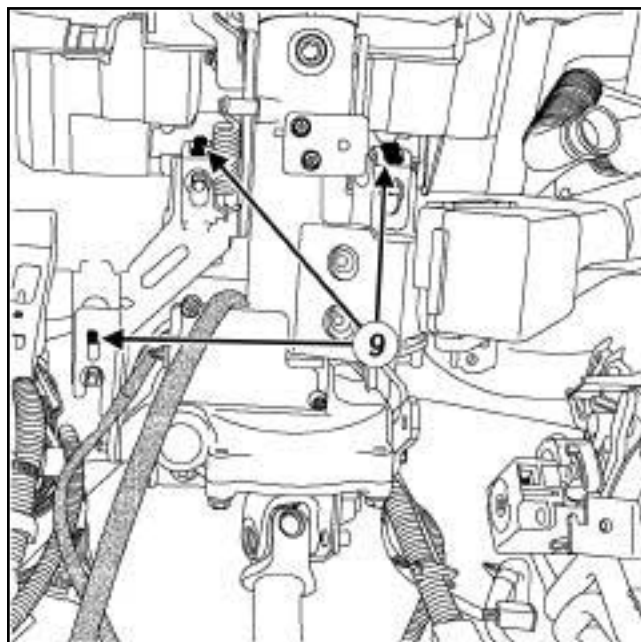


132752

- ❑ Remove the steering column bolts and nuts (8) from the cross member.

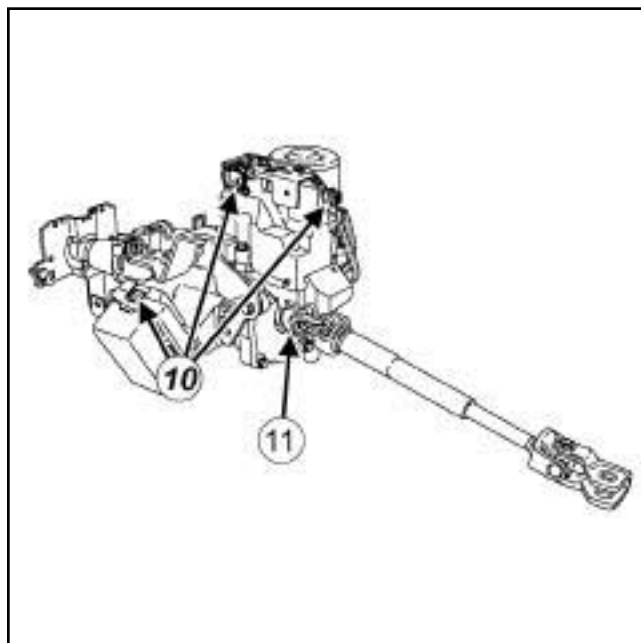
Note:

The column cannot be set down directly on the floor since the cable is not long enough.



132753

- ❑ Remove the steering column from the retainers (9) .



132726

- ❑ Disconnect the connectors (10) .

❑ Remove:

- the steering column,
- the bolt (11) ,
- the intermediate shaft.

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

LEFT-HAND DRIVE

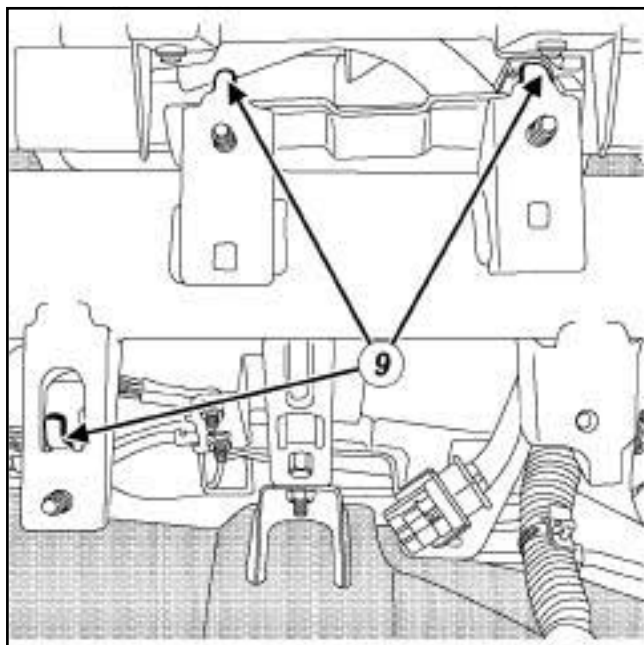
REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace:
 - the steering wheel nut,
 - the steering wheel nut and bolt,
 - the universal joint cam nut and bolt.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the intermediate shaft,
 - the bolt.
- ☐ Torque tighten the **bolt connecting the steering column to the intermediate shaft (31 N.m)**.
- ☐ Connect the connector.



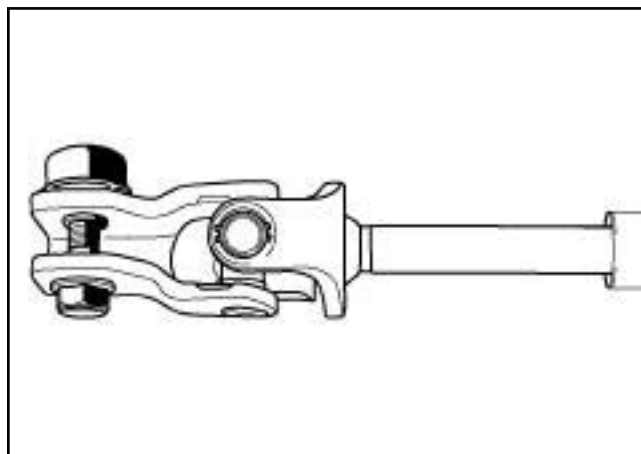
132754

- ☐ Refit:
 - the steering column,
 - the steering column bolts and nuts.

Note:

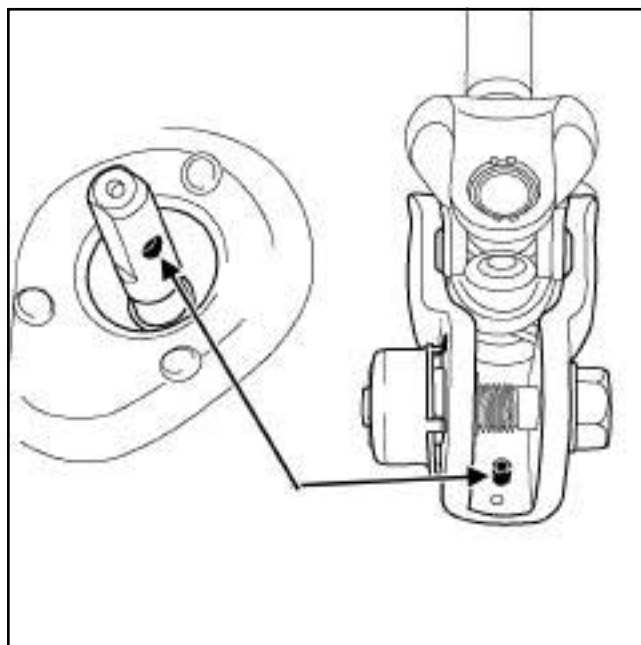
Check that the steering column is held on the cross member using the front and rear retainers (9) before tightening it.

- ☐ Torque tighten the **steering column nuts and bolts (17 N.m)**.



131510

- ☐ Observe the direction of fitting for the universal joint cam nut and bolt.



131511

- ☐ Check that the universal joint is in the correct position.
- ☐ Fit the universal joint.
- ☐ Refit the universal joint new bolt and cam nut.
- ☐ Position the universal joint cam nut and bolt.
- ☐ Lock the cam nut in its housing (on the universal joint).
- ☐ Pretighten the universal joint bolt.
- ☐ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

LEFT-HAND DRIVE

III - FINAL OPERATION.

☐ Refit:

- the steering cover,
- the front air distribution duct (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system).
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signals),
- the lower cover,
- the upper cover,
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) ,
- the half shell,
- the bolts,
- the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page **36A-39**) ,
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and seat belt pretensioners).

☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

☐ Configure the steering wheel angle sensor (see **Fault finding - Configurations and programming** (38C, Anti-lock braking system).

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

RIGHT-HAND DRIVE

Tightening torques

bolt connecting the steering column to the intermediate shaft	31 N.m
steering column nuts and bolts	17 N.m
universal joint bolt on the steering box	39 N.m

IMPORTANT

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

IMPORTANT

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

IMPORTANT

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Unlock the steering column.

IMPORTANT

To avoid any risk of triggering when working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the diagnostic tool.

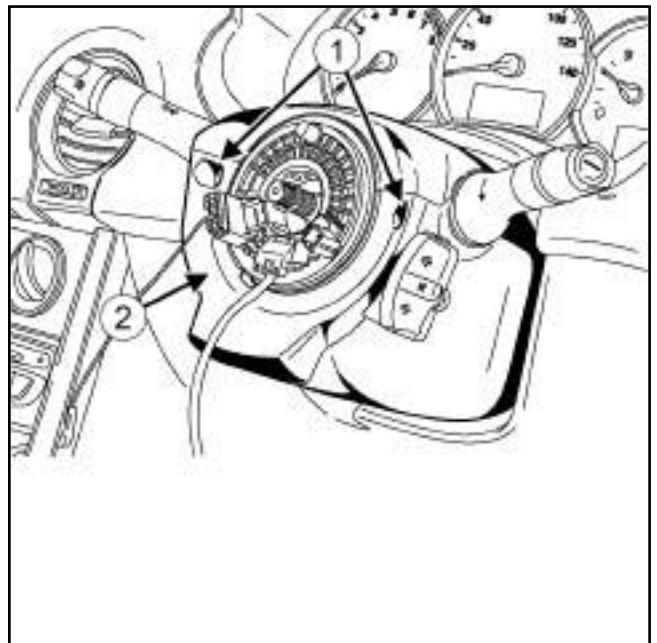
When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

Note:

If the airbag has been triggered, the steering column must be replaced.

- ☐ Set the wheels straight ahead.
- ☐ Remove:
 - the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
 - the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page 36A-39) .



132729

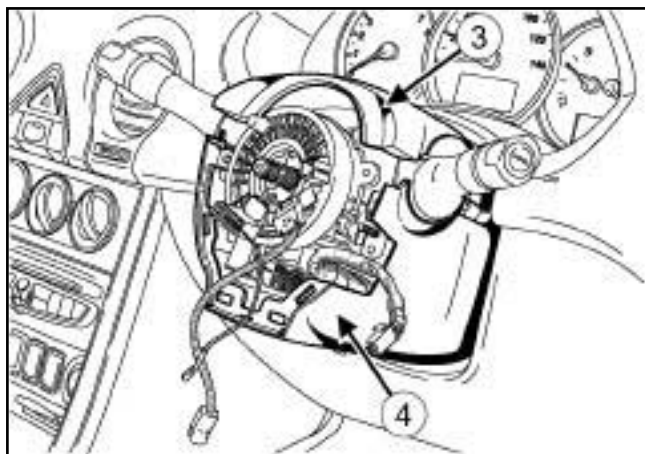
- ☐ Remove:
 - the bolts (1) ,
 - the half shell (2) ,
 - the radio control satellite (see **Radio control satellite: Removal - Refitting**) .

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

RIGHT-HAND DRIVE

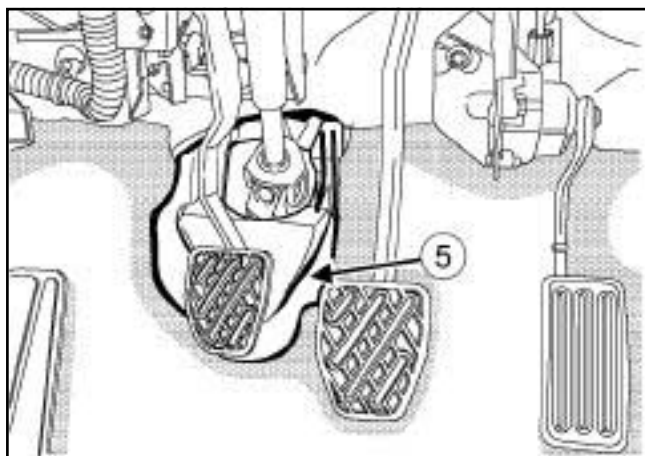


132730

❑ Remove:

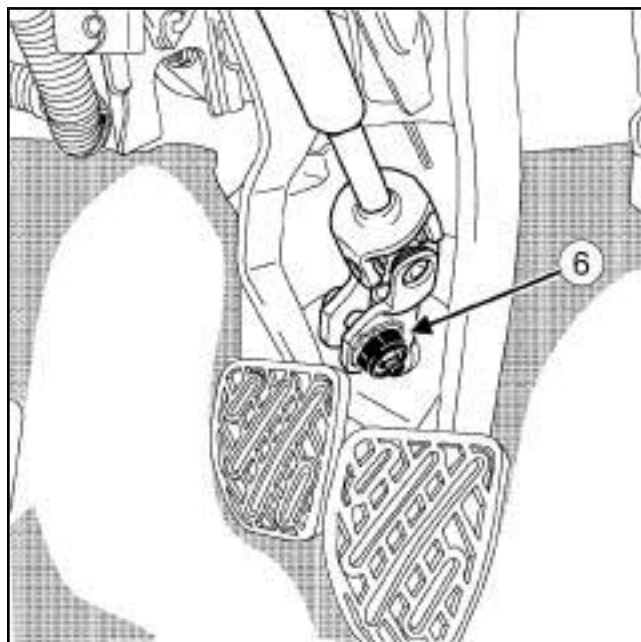
- the upper half shell,
- the upper half shell,
- the rotary switch (see **Rotary switch: Removal - Refitting**) ,
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the front air distribution duct (see **Front air distribution duct: Removal - Refitting**) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



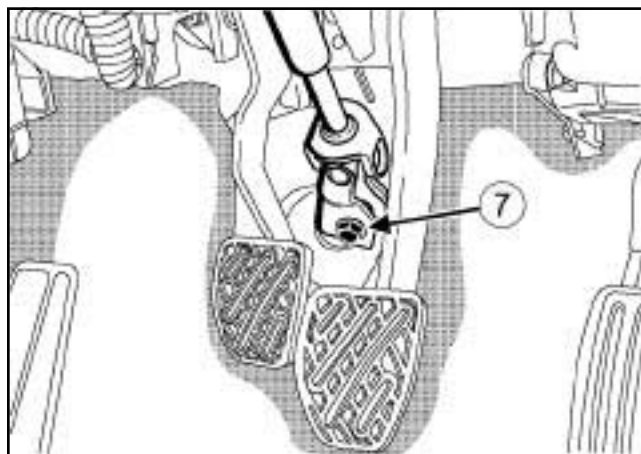
131506

- ❑ Remove the steering cover (5) .



131507

- ❑ Remove the universal joint cover (6) (do not keep).



131508

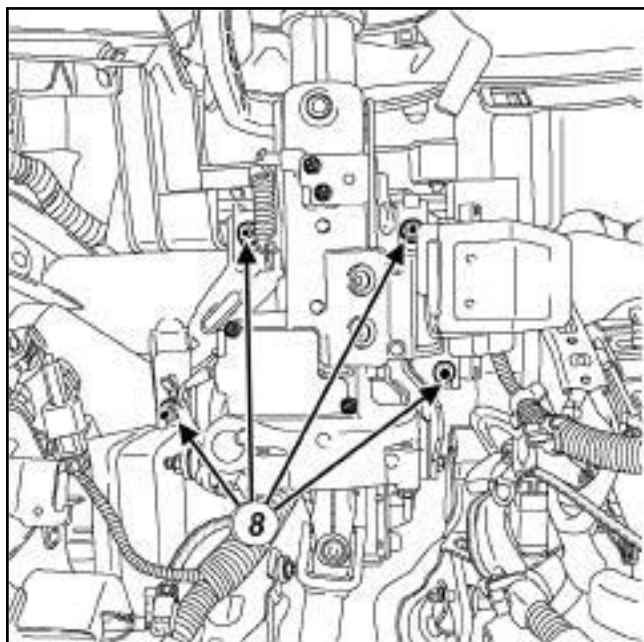
- ❑ Remove:
 - the universal joint bolt (7) (do not keep),
 - the universal joint nut (do not keep).

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

RIGHT-HAND DRIVE

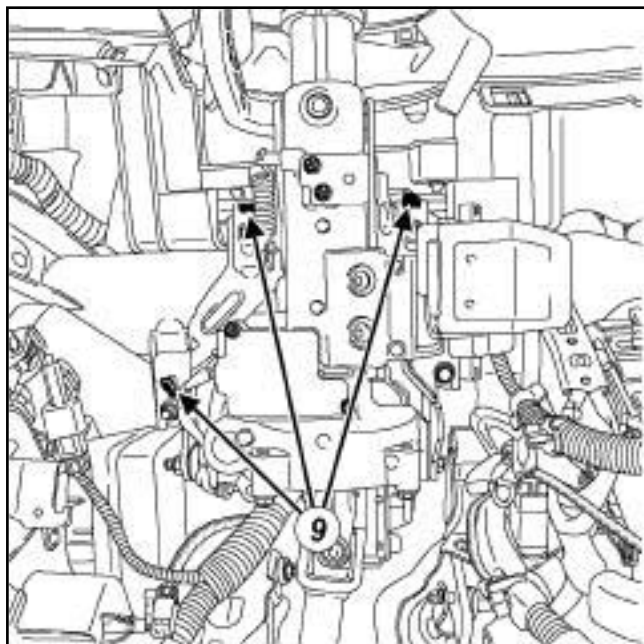


132734

- ❑ Remove the steering column bolts and nuts (8) from the cross member.

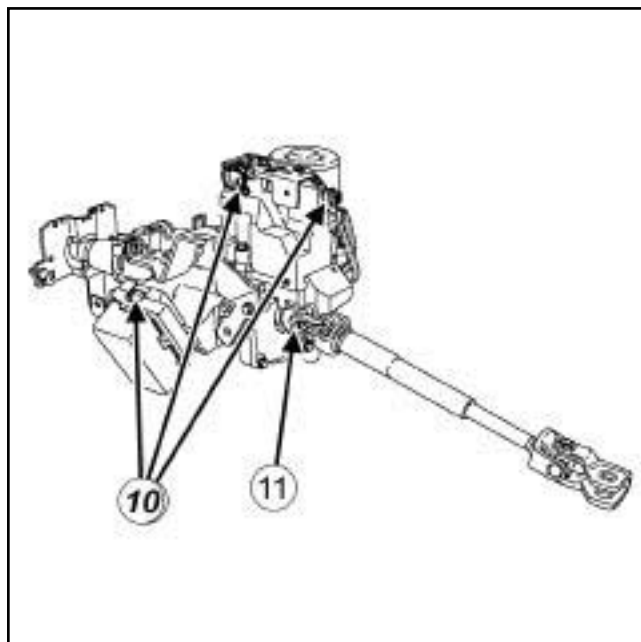
Note:

The column cannot be set down directly on the floor since the cable is not long enough.



132735

- ❑ Remove the steering column from the retainers (9) .



132726

- ❑ Disconnect the connectors (10) .
- ❑ Remove:
 - the steering column,
 - the bolt (11) ,
 - the intermediate shaft.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace:
 - the steering wheel nut,
 - the steering column nut and bolt,
 - the universal joint cam nut and bolt.

II - REFITTING OPERATION FOR PART CONCERNED

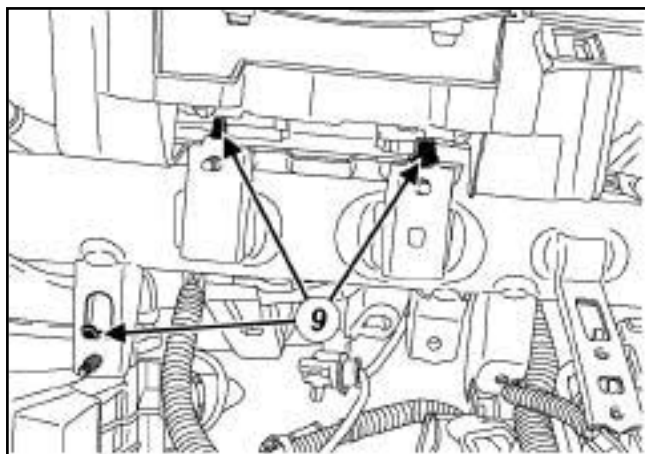
- ❑ Refit:
 - the intermediate shaft,
 - the bolt.
- ❑ Torque tighten the **bolt connecting the steering column to the intermediate shaft (31 N.m)**.
- ❑ Connect the connectors.

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

RIGHT-HAND DRIVE



132736

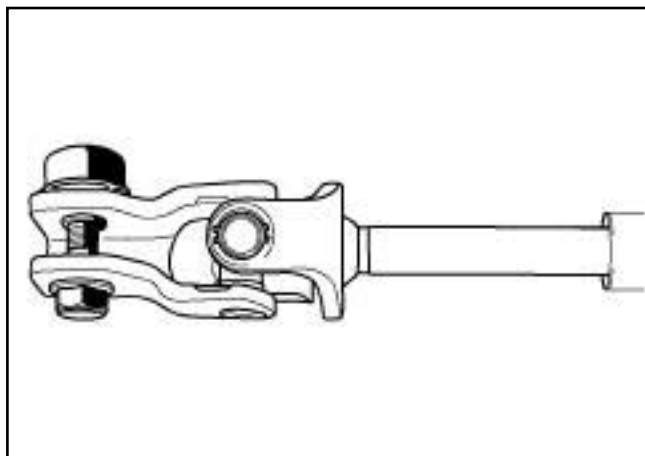
☐ Refit:

- the steering column,
- the steering column nuts and bolts.

Note:

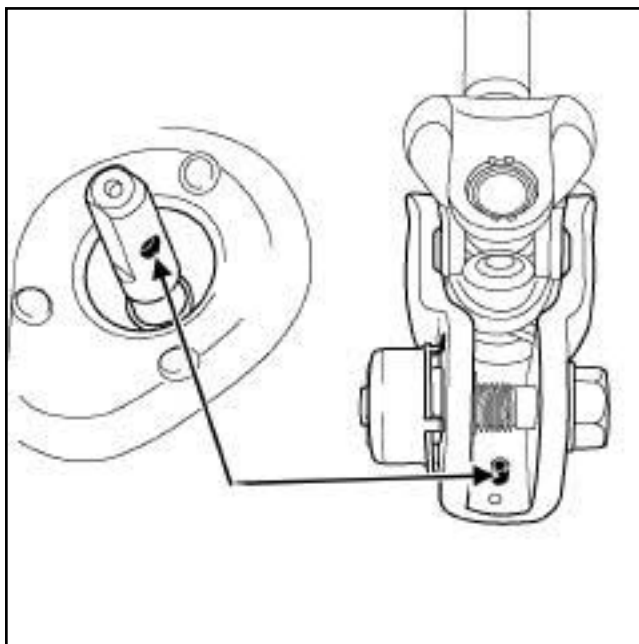
Check that the steering column is held on the cross member using the front and rear retainers (9) before tightening it.

- ☐ Torque tighten the **steering column nuts and bolts (17 N.m)**.



131510

- ☐ Observe the direction of fitting for the universal joint cam nut and bolt.



131511

- ☐ Check that the universal joint is in the correct position.
- ☐ Fit the universal joint.
- ☐ Refit the universal joint new bolt and cam nut.
- ☐ Position the universal joint cam nut and bolt.
- ☐ Lock the cam nut in its housing (on the universal joint).
- ☐ Pretighten the universal joint bolt.
- ☐ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.

III - FINAL OPERATION.

☐ Refit:

- the steering cover,
- the front air distribution duct (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system).
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Control - Signals),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signals),
- the lower cover,
- the upper cover,

STEERING ASSEMBLY

Steering column: Removal - Refitting

36A

RIGHT-HAND DRIVE

- the radio control satellite (see **Radio control satellite: Removal - Refitting**) ,
 - the half shell,
 - the bolts,
 - the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page **36A-39**) ,
 - the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and seat belt pretensioners).
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ☐ Configure the steering wheel angle sensor (see **Fault finding - Configurations and programming** (38C, Anti-lock braking system).

STEERING ASSEMBLY

Steering rack gaiter: Removal - Refitting

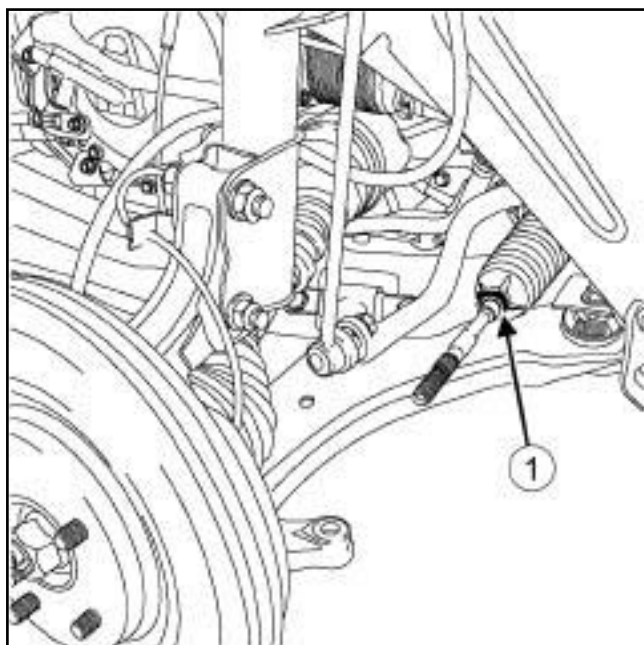
36A

REMOVAL

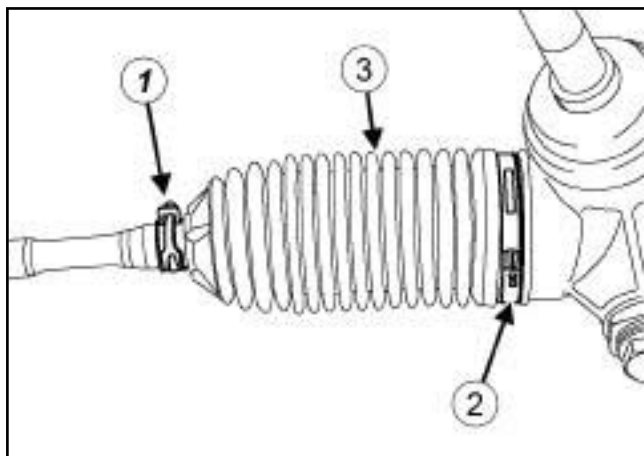
I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the track rod, (see **36A, Steering assembly, Track rod: Removal - Refitting**, page 36A-12)
 - the wheel alignment adjustment lock nut.

II - OPERATION FOR REMOVAL OF PART CONCERNED



131483



131484

- ☐ Cut:
 - the small gaiter retaining clip (1) ,

- the large gaiter retaining clip (2) .

- ☐ Remove the gaiter (3) .

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the steering box gaiter.
- ☐ Coat the bearing face of the gaiter on the axial ball joint with grease to prevent the gaiter from twisting.

Note:

During this operation, the steering box must be in place on the vehicle.

Note:

Take care not to deform the gaiter: risk of irreversible damage.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the gaiter in its original position,
 - the gaiter retaining clips.

III - FINAL OPERATION.

- ☐ Refit:
 - the wheel alignment adjustment lock nut,
 - the track rod, (see **36A, Steering assembly, Track rod: Removal - Refitting**, page 36A-12)
 - the wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .
- ☐ Check the axle geometry (see **Axle assemblies: Check**) .
- ☐ If necessary, adjust the axle assemblies' geometry (see **30A, General information, Front axle: Adjusting**, page 30A-10) .

STEERING ASSEMBLY

Bulkhead seal: Removal - Refitting

36A

LEFT-HAND DRIVE

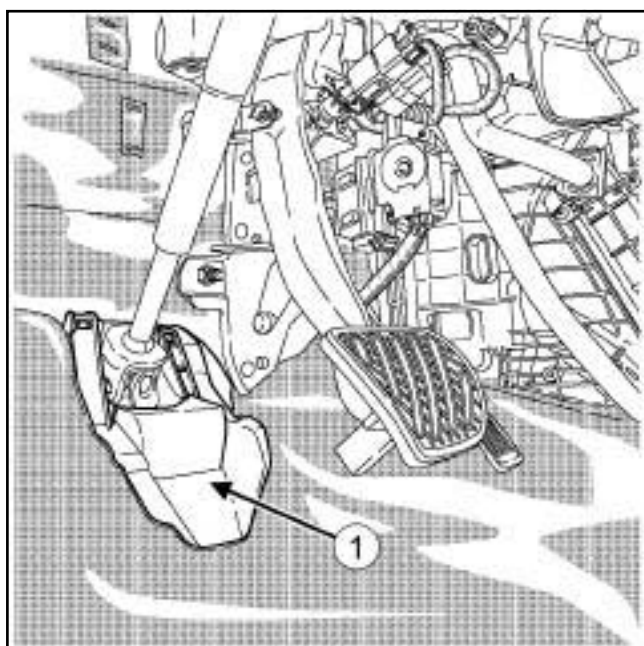
Tightening torques

universal joint bolt on the steering box	39 N.m
--	--------

REMOVAL

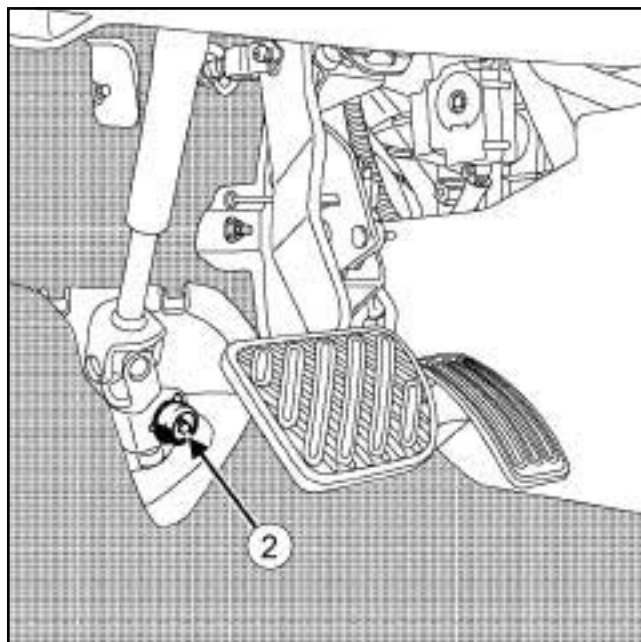
I - REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).



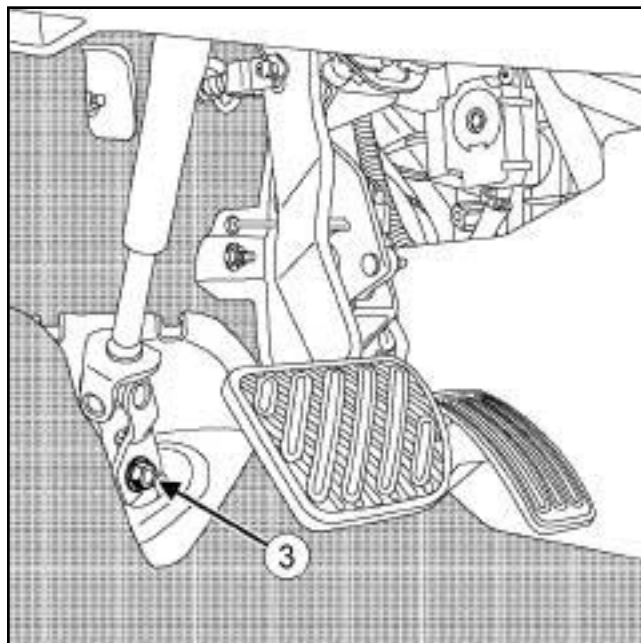
131514

- ❑ Remove the cover (1) from the steering column.



131515

- ❑ Remove the universal joint cover (2) (do not keep).
- ❑ Set the wheels straight ahead.



131516

- ❑ Remove:
 - the universal joint bolt (3) (do not keep),
 - the universal joint nut (do not keep),
 - the universal joint from the steering box.

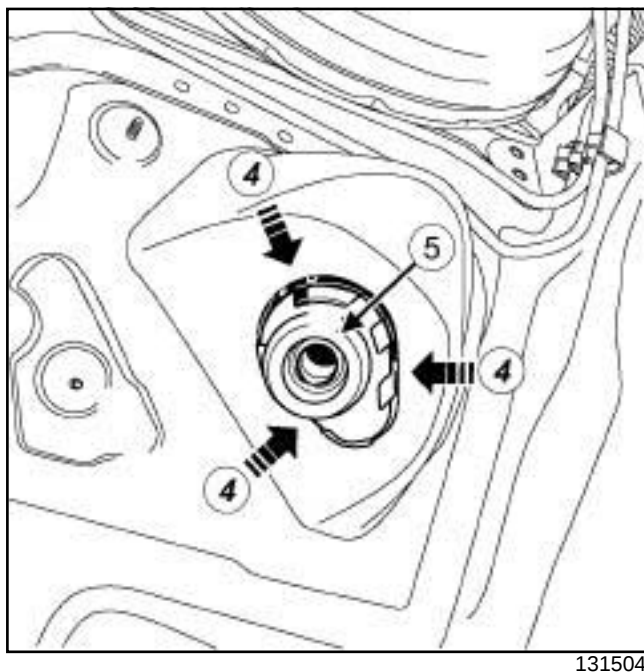
STEERING ASSEMBLY

Bulkhead seal: Removal - Refitting

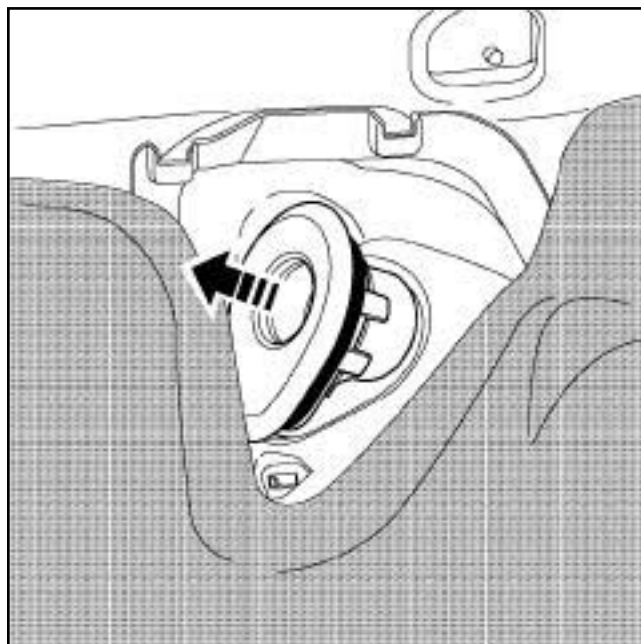
36A

LEFT-HAND DRIVE

II - OPERATION FOR REMOVAL OF PART CONCERNED



- ❑ Unclip the bulkhead seal (5) at (4) using a flat-blade screwdriver.



- ❑ Remove the bulkhead seal.

REFITTING

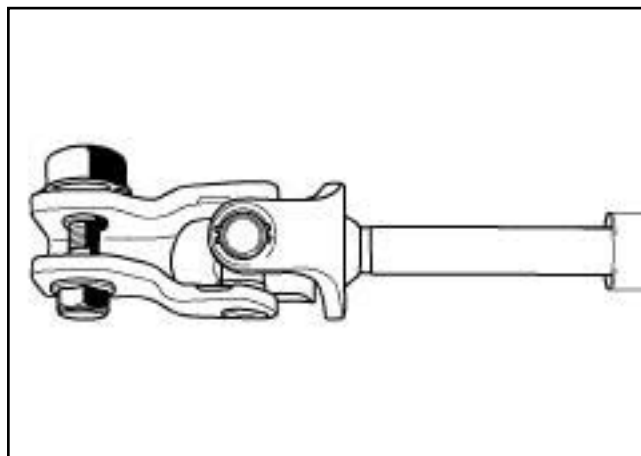
I - REFITTING PREPARATION OPERATION

- ❑ Always refit the universal joint bolt and cam nut.

II - REFITTING OPERATION FOR PART CONCERNED

- ❑ Refit the bulkhead seal.

III - FINAL OPERATION.



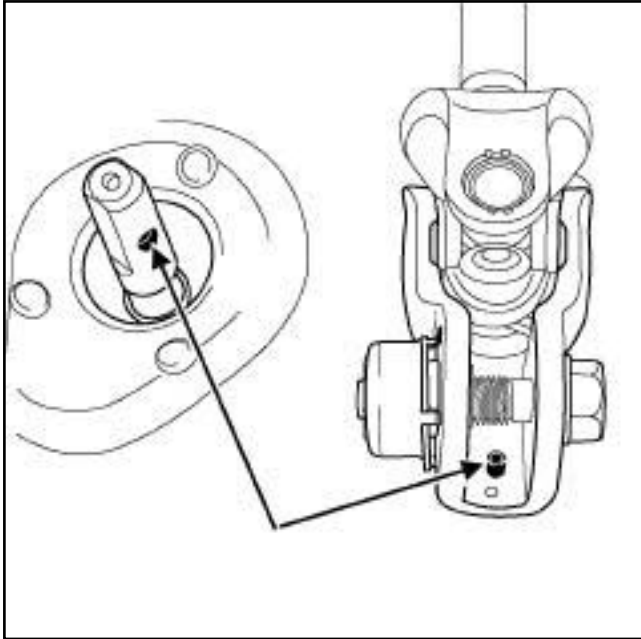
- ❑ Observe the direction of fitting for the universal joint cam nut and bolt.

STEERING ASSEMBLY

Bulkhead seal: Removal - Refitting

36A

LEFT-HAND DRIVE



131511

- ☐ Check that the universal joint is in the correct position.
- ☐ Refit:
 - the universal joint,
 - the new universal joint bolt,
 - the new universal joint nut.
- ☐ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.
- ☐ Refit the steering column cover.

STEERING ASSEMBLY

Bulkhead seal: Removal - Refitting

36A

RIGHT-HAND DRIVE

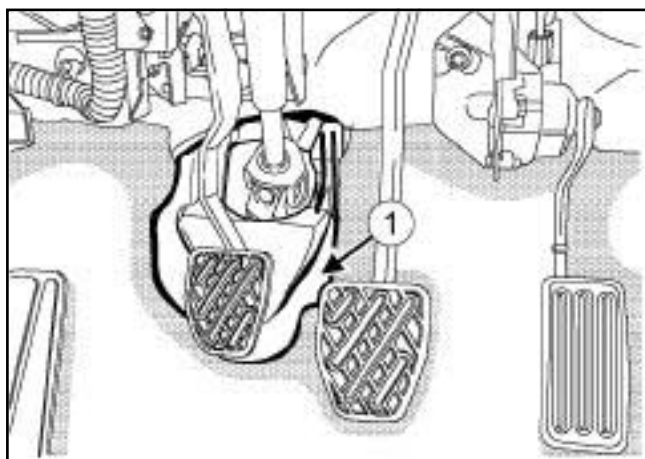
Tightening torques

universal joint bolt on the steering box	39 N.m
--	--------

REMOVAL

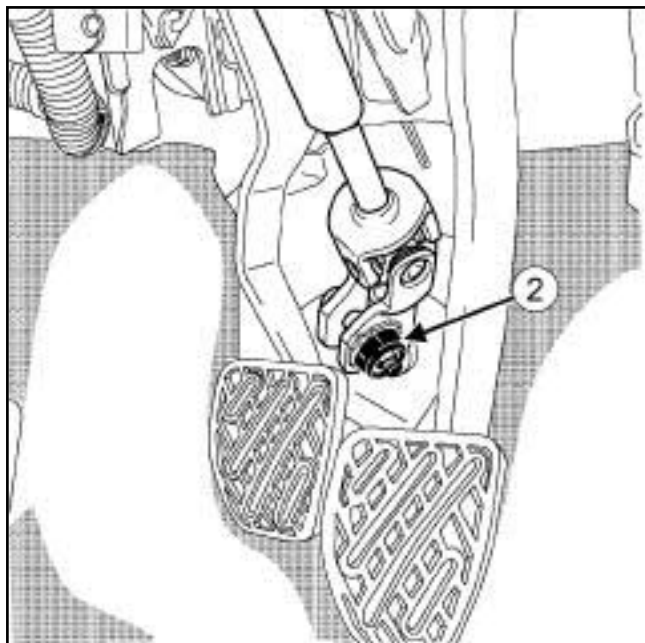
I - REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).



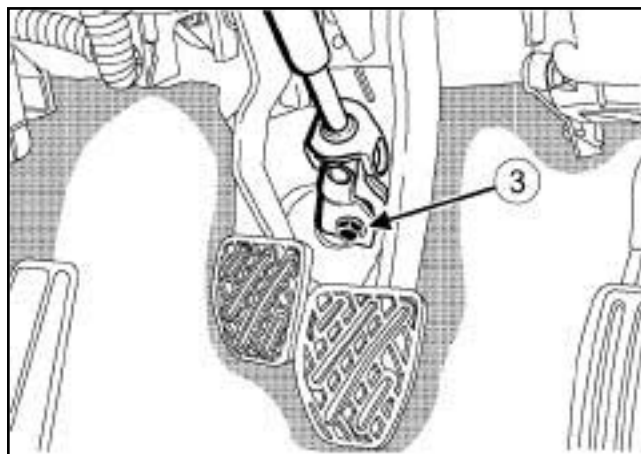
131506

- ❑ Remove the cover (1) from the steering column.



131507

- ❑ Remove the cover (2) from the universal joint (do not keep).



131508

- ❑ Remove:
 - the universal joint bolt (3) (do not keep).
 - the universal joint nut (do not keep),
 - the universal joint from the steering box.

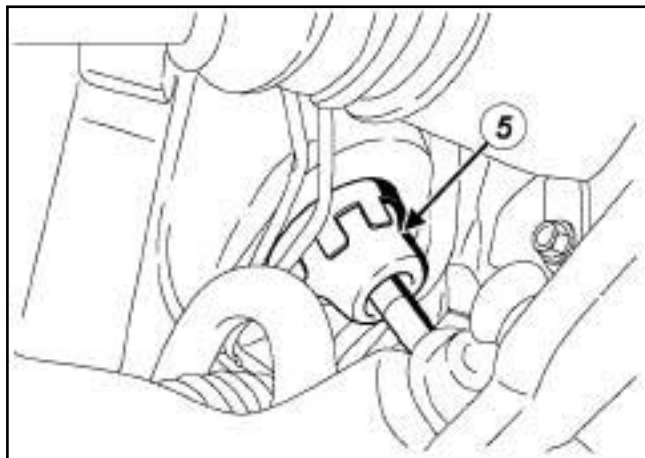
STEERING ASSEMBLY

Bulkhead seal: Removal - Refitting

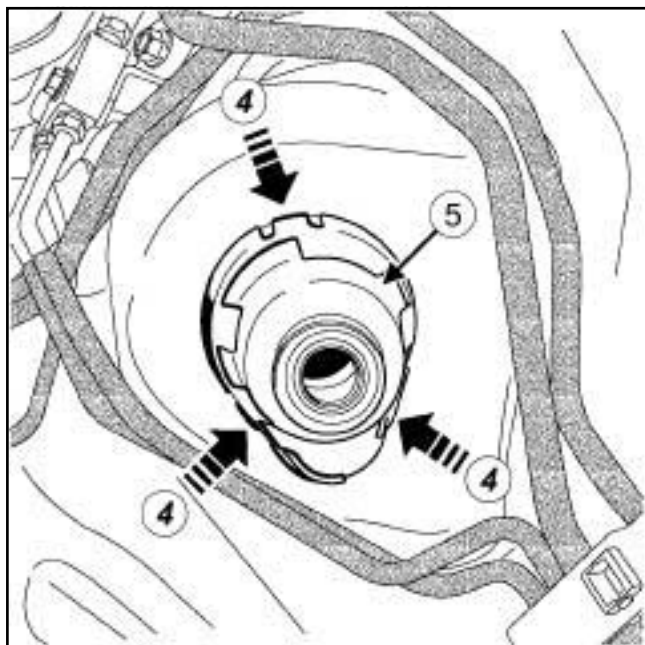
36A

RIGHT-HAND DRIVE

II - OPERATION FOR REMOVAL OF PART CONCERNED

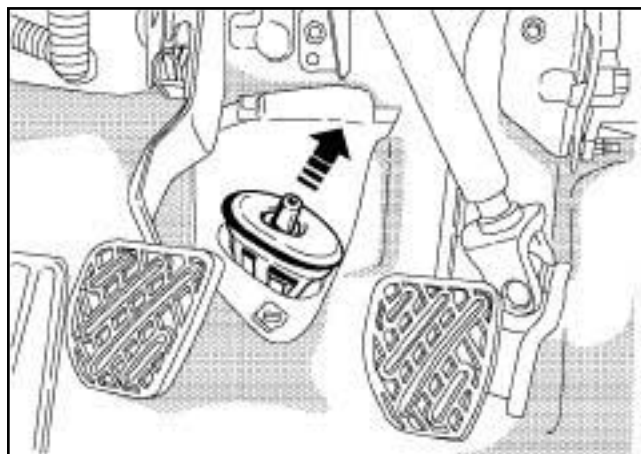


131509



131512

- ❑ Unclip the bulkhead seal (5) at (4) using a flat-blade screwdriver.



131513

- ❑ Remove the bulkhead seal.

REFITTING

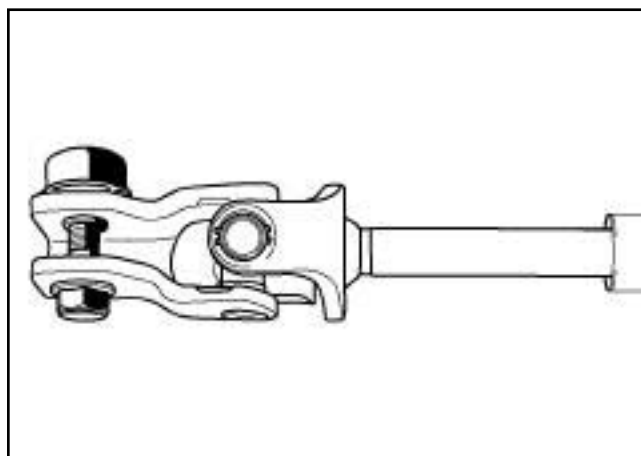
I - REFITTING PREPARATION OPERATION

- ❑ Always replace the universal joint bolt and cam nut.

II - REFITTING OPERATION FOR PART CONCERNED

- ❑ Refit the bulkhead seal.

III - FINAL OPERATION.



131510

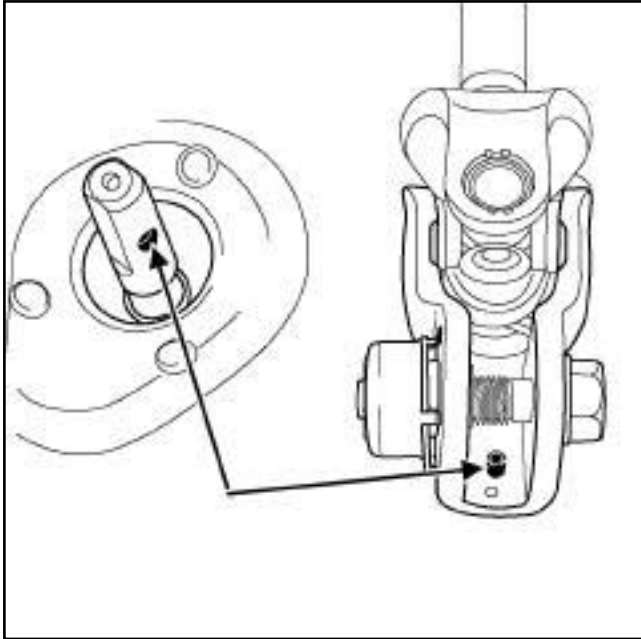
- ❑ Observe the direction of fitting for the universal joint cam nut and bolt.

STEERING ASSEMBLY

Bulkhead seal: Removal - Refitting

36A

RIGHT-HAND DRIVE



131511

- ☐ Check that the universal joint is in the correct position.
- ☐ Refit:
 - the universal joint,
 - the new universal joint bolt,
 - the new universal joint nut.
- ☐ Tighten to torque the **universal joint bolt on the steering box (39 N.m)**.
- ☐ Refit the steering column cover.

STEERING ASSEMBLY

Intermediate shaft: Removal - Refitting

36A

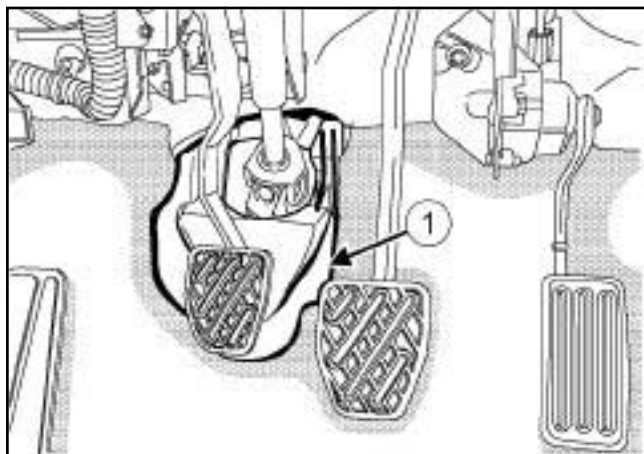
RIGHT-HAND DRIVE

Tightening torques 	
bolt connecting the steering column to the intermediate shaft	31 N.m
universal joint bolt on the steering box	39 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

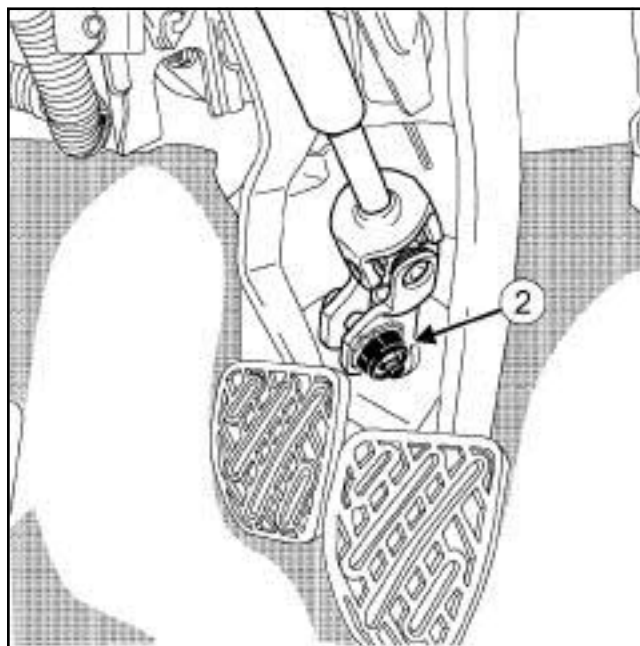
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),



131506

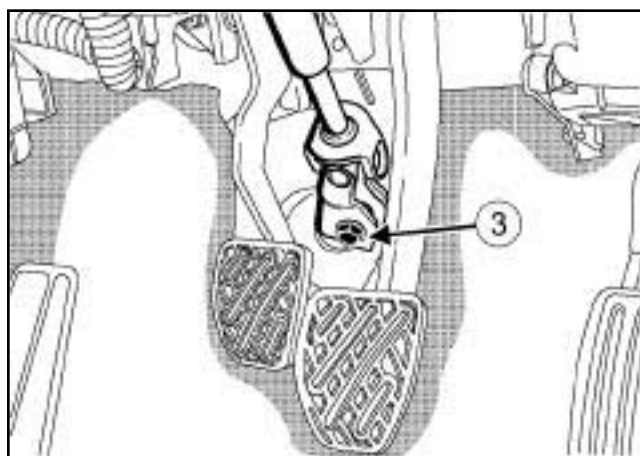
- ☐ Remove the steering cover (1) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131507

- ☐ Remove the cover (2) from the universal joint (do not keep).
- ☐ Set the wheels straight ahead.



131508

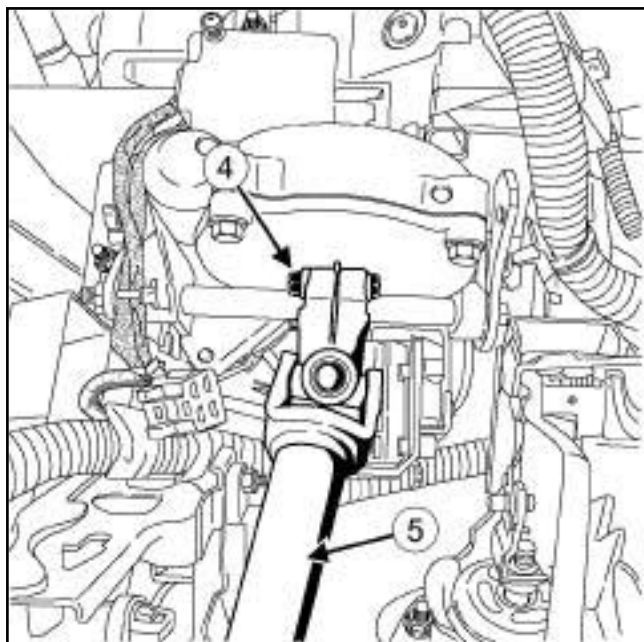
- ☐ Remove:
 - the universal joint bolt (3) (do not keep),
 - the universal joint nut,
 - the universal joint.

STEERING ASSEMBLY

Intermediate shaft: Removal - Refitting

36A

RIGHT-HAND DRIVE



132746

❑ Remove:

- the bolt (4) connecting the steering column to the intermediate shaft,
- the intermediate shaft (5) .

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace the universal joint bolt.

II - REFITTING OPERATION FOR PART CONCERNED

- ❑ Place the intermediate shaft in its initial position.

Note:

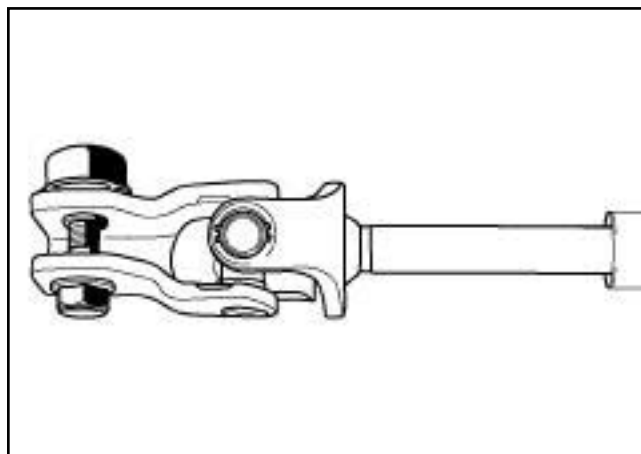
Take care not to separate the two sliding parts of the intermediate shaft.

Note:

On a new intermediate shaft, the universal joint cam nut is prefitted; do not remove the cover.

❑ Refit:

- the bolt from the universal joint,
- the intermediate shaft on the steering column.

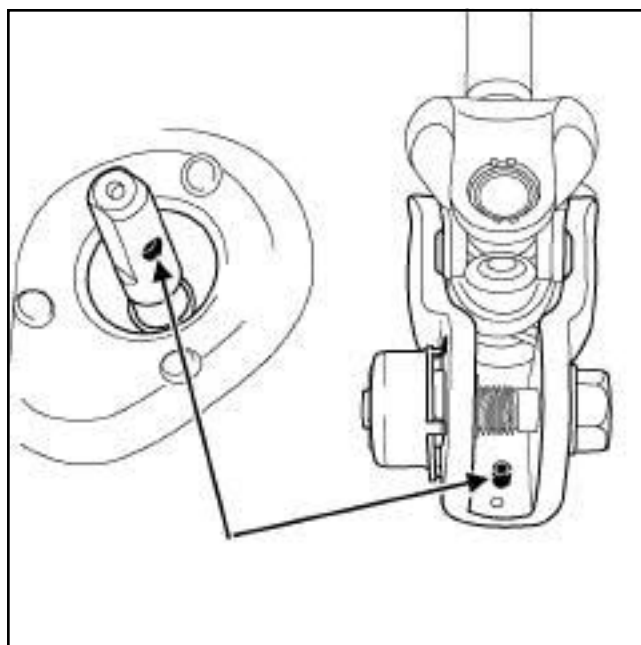


131510

- ❑ Observe the direction of fitting for the universal joint cam nut and bolt.

❑ Refit:

- the universal joint,
- the new universal joint bolt,
- the cam nut from the universal joint.



131511

- ❑ Check that the universal joint is in the correct position.

❑ Torque tighten:

- the **bolt connecting the steering column to the intermediate shaft (31 N.m)**,
- the **universal joint bolt on the steering box (39 N.m)**.

STEERING ASSEMBLY

Intermediate shaft: Removal - Refitting

36A

RIGHT-HAND DRIVE

III - FINAL OPERATION

☐ Refit:

- the steering column cover,
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

STEERING ASSEMBLY

Intermediate shaft: Removal - Refitting

36A

LEFT-HAND DRIVE

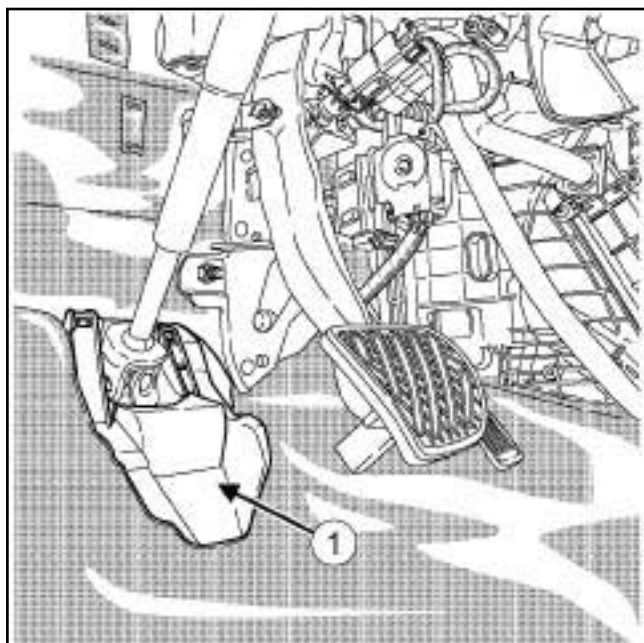
Tightening torques 	
bolt connecting the steering column to the intermediate shaft	31 N.m
universal joint bolt on the steering box	39 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

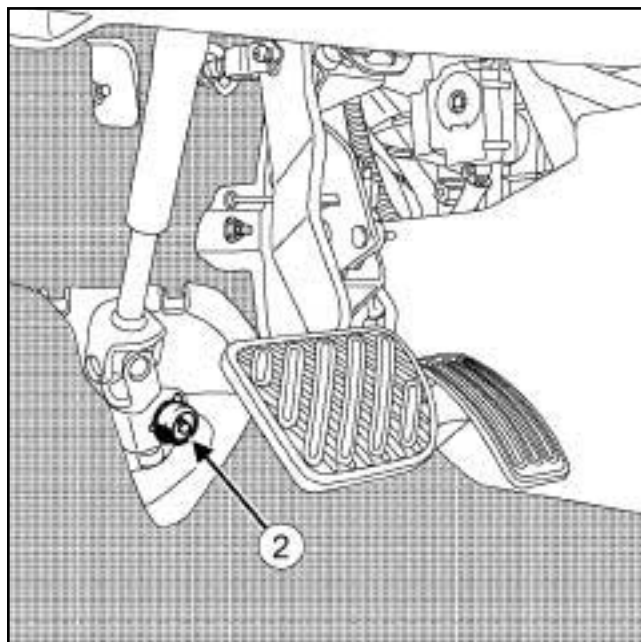
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

II - OPERATION FOR REMOVAL OF PART CONCERNED



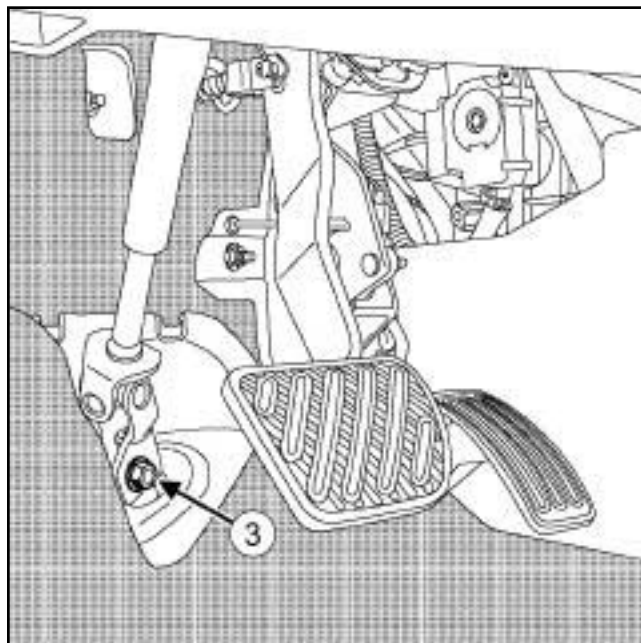
131514

- ☐ Remove the steering cover (1) .



131515

- ☐ Remove the universal joint cover (2) (do not keep).
- ☐ Set the wheels straight ahead.



131516

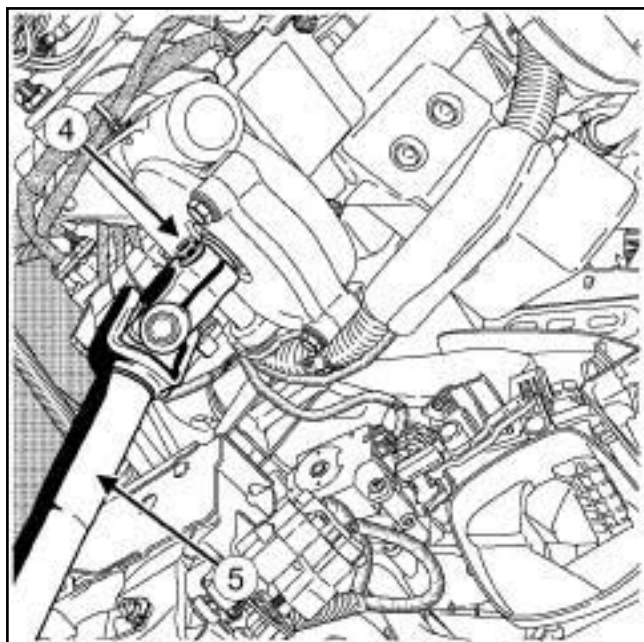
- ☐ Remove:
 - the universal joint bolt (3) (do not keep),
 - the universal joint nut (do not keep),
 - the universal joint.

STEERING ASSEMBLY

Intermediate shaft: Removal - Refitting

36A

LEFT-HAND DRIVE



132740

Remove:

- the bolt (4) connecting the steering column to the intermediate shaft,
- the intermediate shaft.

REFITTING

I - REFITTING PREPARATION OPERATION

- Always replace the universal joint bolt and nut after each removal.

II - REFITTING OPERATION FOR PART CONCERNED

- Place the intermediate shaft in its initial position.

Note:

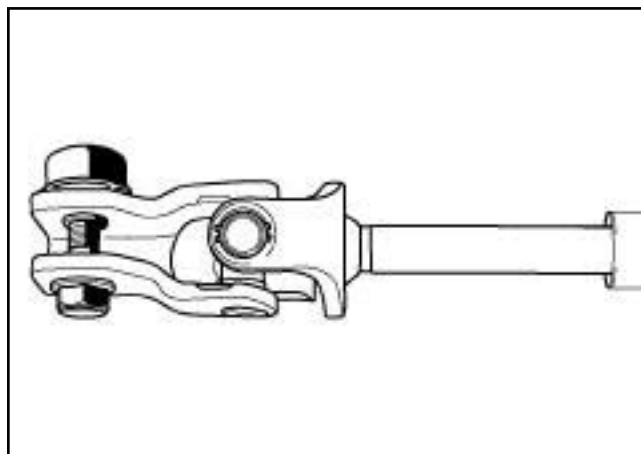
Take care not to separate the two sliding parts of the intermediate shaft.

Note:

On a new intermediate shaft, the universal joint cam nut is prefitted; do not remove the cover.

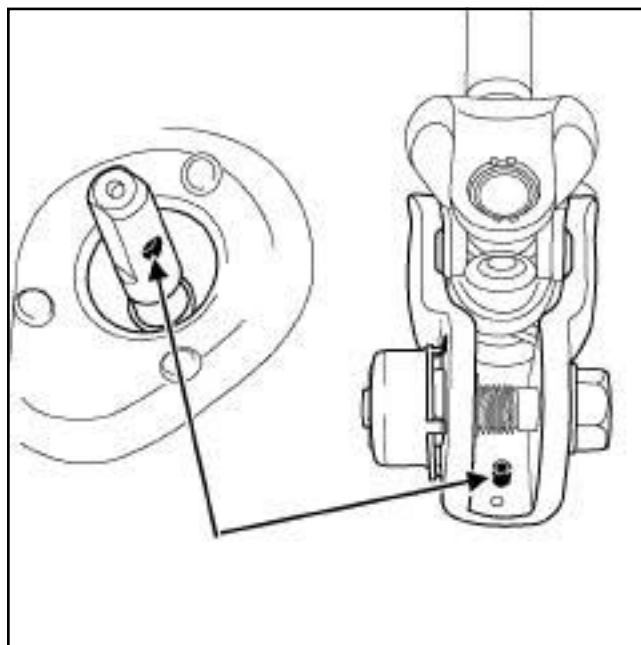
Refit:

- the intermediate shaft (5) on the steering column,
- the bolt from the universal joint.



131510

- Observe the direction of fitting for the universal joint cam nut and bolt.



131511

- Check that the universal joint is in the correct position.

Refit:

- the universal joint,
- the new universal joint bolt,
- the new cam nut on the universal joint.

Torque tighten:

- the **bolt connecting the steering column to the intermediate shaft (31 N.m)**,
- the **universal joint bolt on the steering box (39 N.m)**.

STEERING ASSEMBLY

Intermediate shaft: Removal - Refitting

36A

LEFT-HAND DRIVE

III - FINAL OPERATION.

☐ Refit:

- the steering column cover,
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

STEERING ASSEMBLY

Steering wheel: Removal - Refitting

36A

Tightening torques

steering wheel nut	34 N.m
--------------------	--------

IMPORTANT

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair (see **Steering: Precautions for repair**) .

IMPORTANT

To avoid any risk of triggering when working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the diagnostic tool.

When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

IMPORTANT

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

IMPORTANT

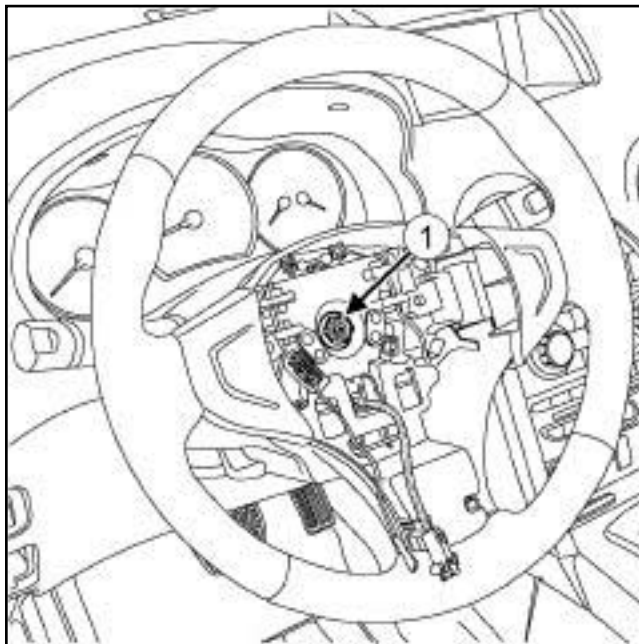
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Unlock the steering column.
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).
- ☐ Set the wheels straight ahead.

II - OPERATION FOR REMOVAL OF PART CONCERNED



132747

☐ Remove:

- the steering wheel nut (1) ,
- the steering wheel.

REFITTING

I - REFITTING PREPARATION OPERATION

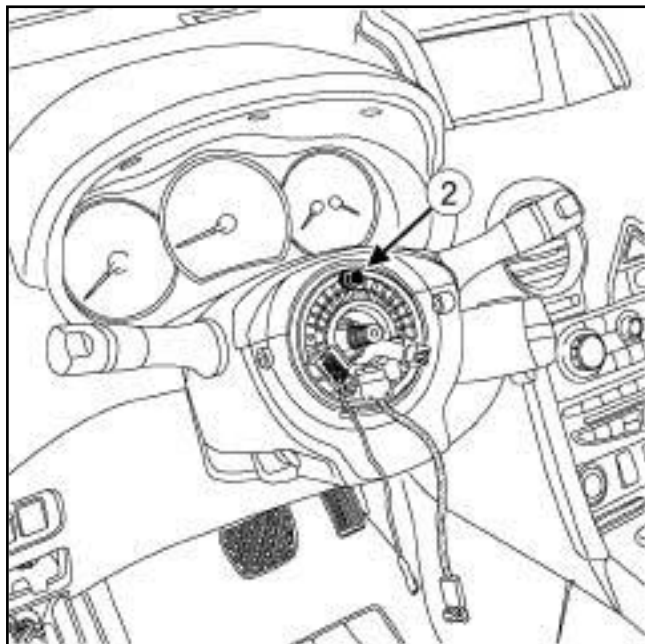
- ☐ Always replace the steering wheel nut.

STEERING ASSEMBLY

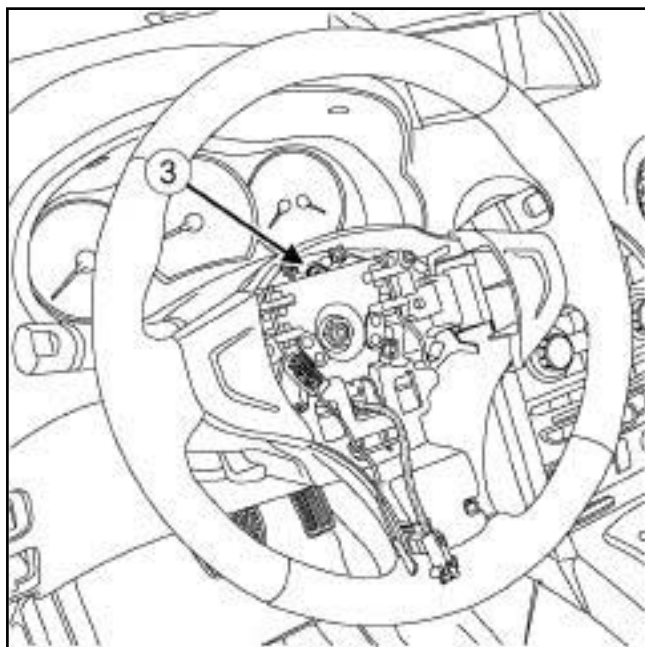
Steering wheel: Removal - Refitting

36A

II - REFITTING OPERATION FOR PART CONCERNED



132748



132749



Note:

When refitting the steering wheel, align the (2) of the rotary switch with the opening (3) in the steering wheel.

- ☐ Torque tighten the **steering wheel nut** (34 N.m).
- ### III - FINAL OPERATION.
- ☐ Refit the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (MR 415, 88C, Airbags and pretensioners).
 - ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
 - ☐ Configure the steering wheel angle sensor (see **Configurations and Programming** (38C, Anti-lock braking system)).
- ☐ Pass the wiring connectors through the opening in the steering wheel.
 - ☐ Move the steering wheel to its original position.
 - ☐ Refit the new steering wheel nut.

Master cylinder: Removal - Refitting

LEFT-HAND DRIVE

Tightening torques

master cylinder nuts	18 N.m
brake pipe unions on the master cylinder	16 N.m

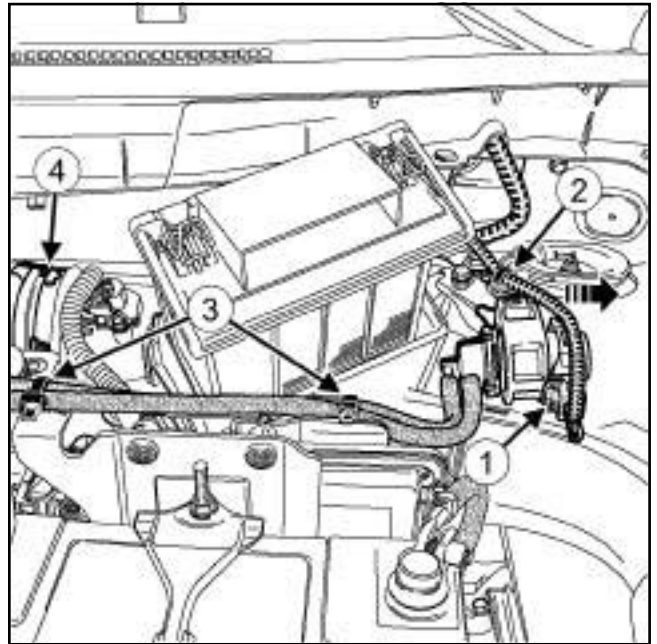
WARNING

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

REMOVAL**I - REMOVAL PREPARATION OPERATION**

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

M9R

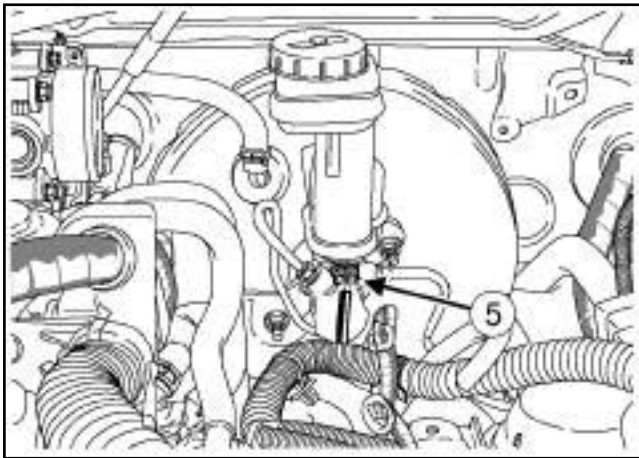


131242

- Disconnect the connector (1) from the turbocharging pressure regulation solenoid valve.
- Unclip:
 - the turbocharging pressure regulation solenoid valve (2) from its support,
 - the hoses of the turbocharging pressure regulation solenoid valve from the battery tray (3) .
- Remove:
 - the battery (see **Battery : Removal - Refitting**) (80A, Battery),
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the air outlet pipe (4) from the air filter unit.
- Remove partially the bulkhead insulation (see **Bulk-head insulating material: Removal - Refitting**) (68A, Soundproofing).

LEFT-HAND DRIVE

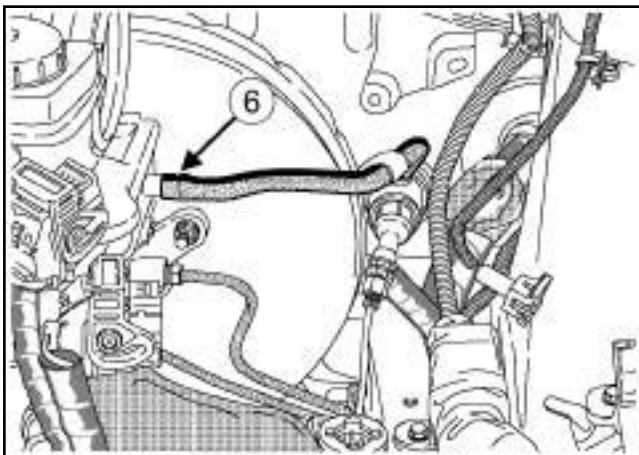
II - OPERATION FOR REMOVAL OF PART CONCERNED



131243

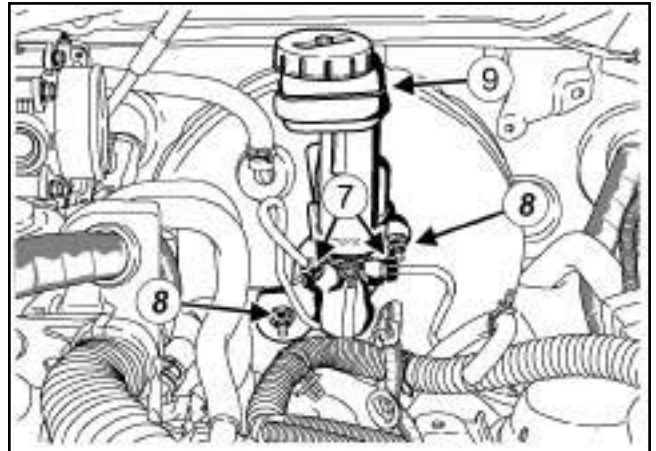
- ☐ Disconnect the brake fluid level sensor connector (5)
- ☐ Drain the brake fluid reservoir with a syringe.

6 SPEED MANUAL GBOX



131244

- ☐ Disconnect the clutch master cylinder supply hose (6) from the brake fluid reservoir.

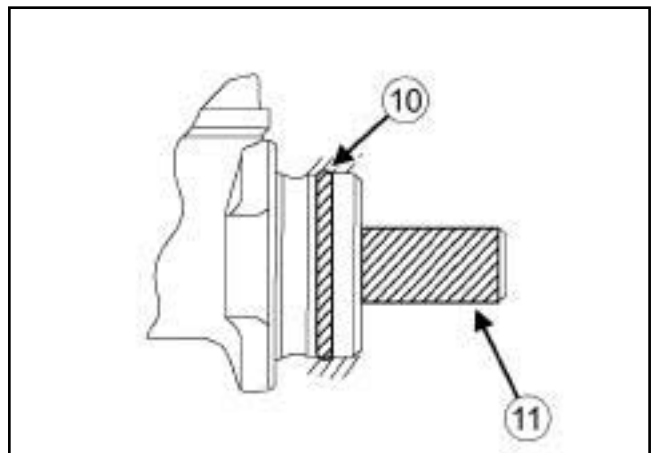


131245

- ☐ Remove:
 - the brake pipe unions (7) on the master cylinder after having marked them,
 - the master cylinder nuts (8) on the brake servo,
 - the master cylinder with the brake fluid reservoir (9)

REFITTING

I - REFITTING PREPARATION OPERATION



131246

- ☐ Always replace the master cylinder seal (10) .
- ☐ Coat the seal and the shaft (11) of the master cylinder with **SILICONE** grease (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

Master cylinder: Removal - Refitting

LEFT-HAND DRIVE

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Line up the master cylinder with the brake servo so that the pushrod goes into the master cylinder housing.
- ☐ Refit:
 - the master cylinder with a new seal,
 - the master cylinder nuts.
- ☐ Torque tighten the **master cylinder nuts (18 N.m)** on the brake servo.
- ☐ Refit the brake pipe unions on the master cylinder.
- ☐ Torque tighten the **brake pipe unions on the master cylinder (16 N.m)**.
- ☐ Connect the connector on the brake fluid reservoir.

6 SPEED MANUAL GBOX

- ☐ Connect the clutch master cylinder supply hose on the brake fluid reservoir.

III - FINAL OPERATION

- ☐ Refit:
 - the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).
 - the air filter box air outlet pipe,
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery).

M9R

- ☐ Clip:
 - the hoses of the turbocharging pressure regulation solenoid valve on the battery tray,
 - the turbocharging pressure regulation solenoid valve on its support.
- ☐ Connect the turbocharging pressure regulation solenoid valve connector.

- ☐ Fill up the brake fluid reservoir.

- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**).

6 SPEED MANUAL GBOX

- ☐ Bleed the clutch circuit (see **37A, Mechanical component controls, Clutch circuit: Bleeding**, page **37A-48**).

RIGHT-HAND DRIVE

Tightening torques

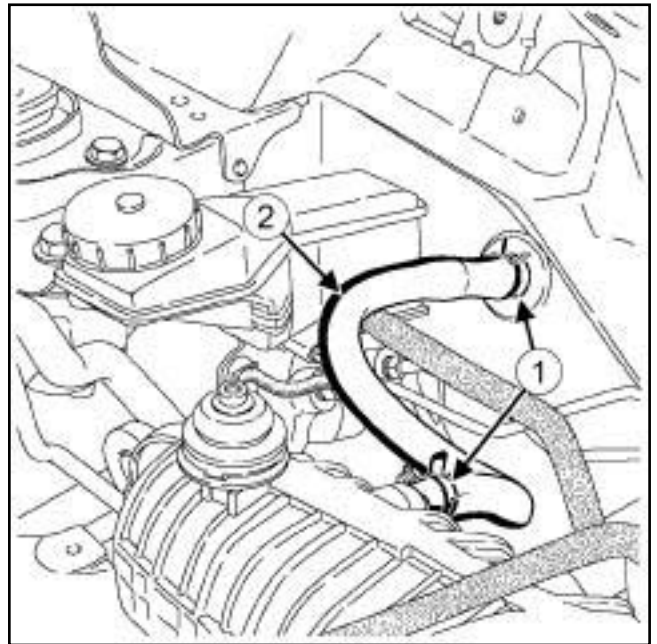
master cylinder nuts	18 N.m
the brake pipe unions on the master cylinder	16 N.m

WARNING

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

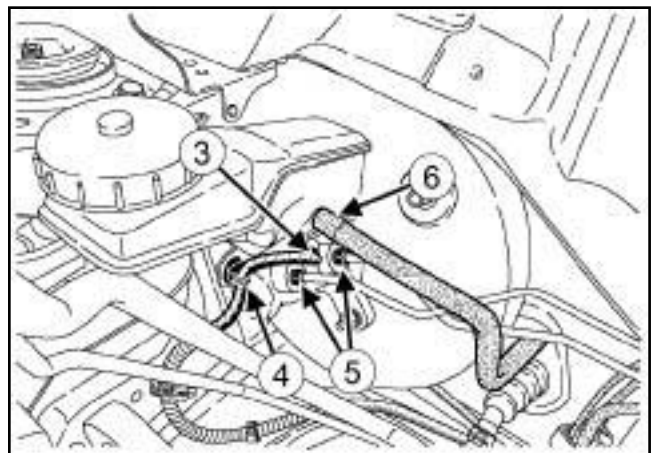
REMOVAL**I - REMOVAL PREPARATION OPERATION**

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery),
- ☐ Remove:
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior accessories),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

II - OPERATION FOR REMOVAL OF PART CONCERNED

131247

- ☐ Unfasten clips (1) .
- ☐ Remove the vacuum pipe (2) from the brake servo.



131248

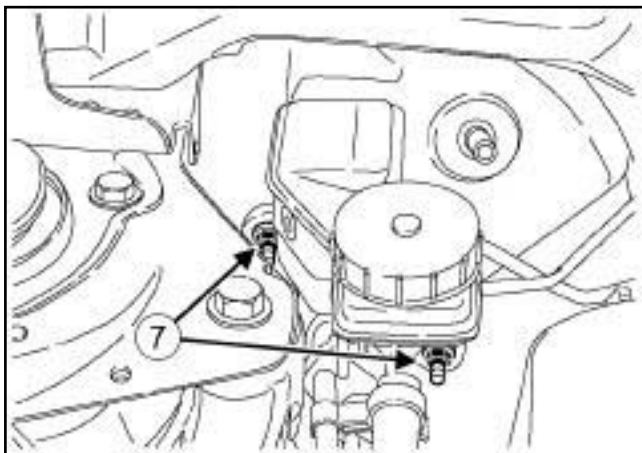
- ☐ Disconnect the brake fluid level sensor connector (3) .
- ☐ Unclip the clip (4) from the wiring of the brake fluid reservoir
- ☐ Drain the brake fluid reservoir with a syringe.
- ☐ Remove the master cylinder brake pipe unions (5) .

Master cylinder: Removal - Refitting

RIGHT-HAND DRIVE

6 SPEED MANUAL GBOX

- ❑ Disconnect the clutch master cylinder supply hose (6) from the brake fluid reservoir.

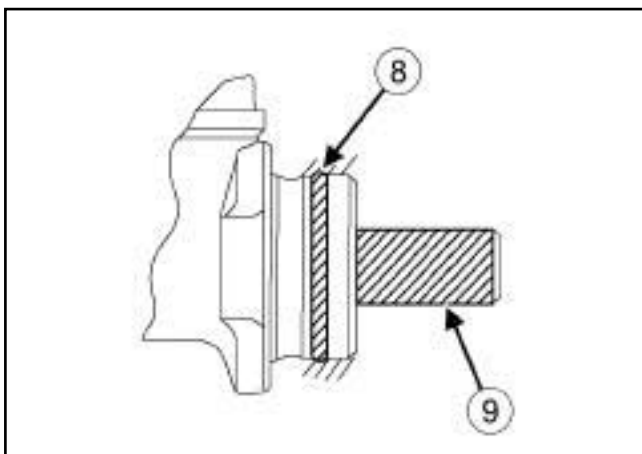


131249

- ❑ Remove:
 - the master cylinder nuts (7) ,
 - the master cylinder with the brake fluid reservoir.

REFITTING

I - REFITTING PREPARATION OPERATION



131246

- ❑ Always replace the master cylinder seal (8) .
- ❑ Coat the seal and the master cylinder shaft (9) with **SILICONE** grease (see **Vehicle: Parts and ingredients for the repairwork**) (04B, Consumables - Products).

II - REFITTING OPERATION FOR PART CONCERNED

- ❑ Line up the master cylinder with the brake servo so that the pushrod goes into the master cylinder housing.
- ❑ Refit:
 - the master cylinder with a new seal,
 - the master cylinder nuts.
- ❑ Torque tighten the **master cylinder nuts (18 N.m)** on the brake servo.
- ❑ Refit the brake pipe unions on the master cylinder.
- ❑ Torque tighten **the brake pipe unions on the master cylinder (16 N.m)**.
- ❑ Connect the brake fluid level sensor connector.
- ❑ Clip the wiring clip to the brake fluid reservoir.

6 SPEED MANUAL GBOX

- ❑ Connect the clutch master cylinder supply hose on the brake fluid reservoir.

- ❑ Refit the vacuum pipe on the brake servo.
- ❑ Tighten the clips.

III - FINAL OPERATION.

- ❑ Refit:
 - the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle panel half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior accessories),
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- ❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ❑ Fill up the brake fluid reservoir.
- ❑ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .

Master cylinder: Removal - Refitting

RIGHT-HAND DRIVE

6 SPEED MANUAL GBOX

- ☐ Bleed the clutch circuit (see **37A, Mechanical component controls, Clutch circuit: Bleeding**, page **37A-48**) .

LEFT-HAND DRIVE

Tightening torques

lock nut of the brake servo pushrod	19 N.m
brake servo bracket nuts	14 N.m
brake servo nut	14 N.m

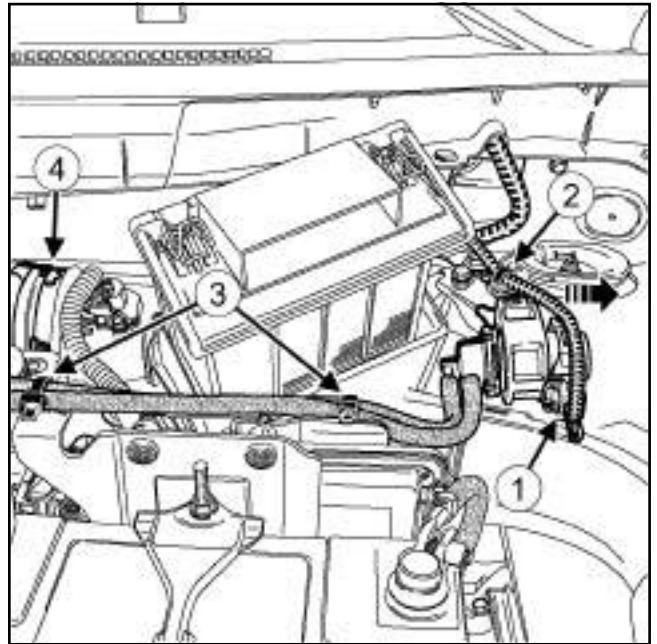
WARNING

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

REMOVAL**I - REMOVAL PREPARATION OPERATION**

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

M9R

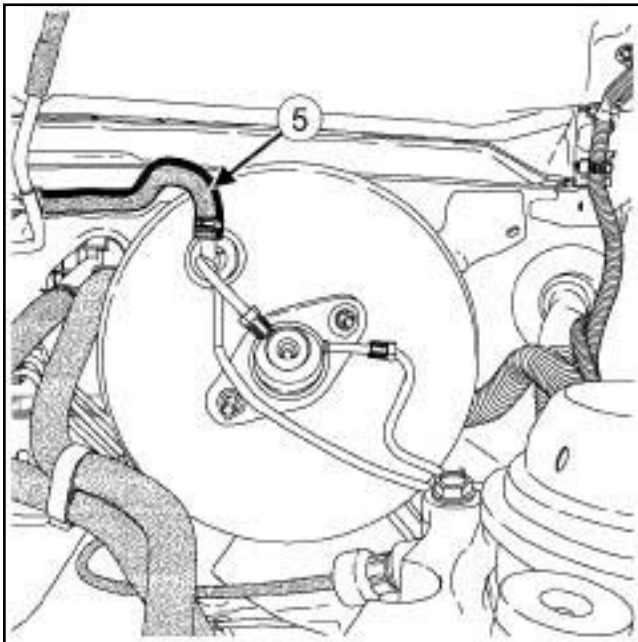


131242

- ☐ Disconnect the turbocharging pressure regulation solenoid valve connector (1) .
- ☐ Unclip:
 - the turbocharging pressure regulation solenoid valve from its support (2) ,
 - the hoses of the turbocharging pressure regulation solenoid valve at (3) from the battery tray.
- ☐ Remove:
 - the battery (see **Battery : Removal - Refitting**) (80A, Battery),
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the air filter box air outlet pipe,
 - the brake master cylinder (see **37A, Mechanical component controls, Master cylinder: Removal - Refitting**, page 37A-1) .

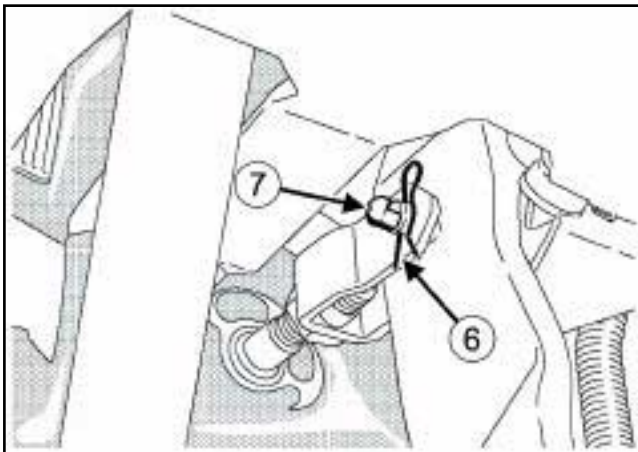
LEFT-HAND DRIVE

II - OPERATION FOR REMOVAL OF PART CONCERNED



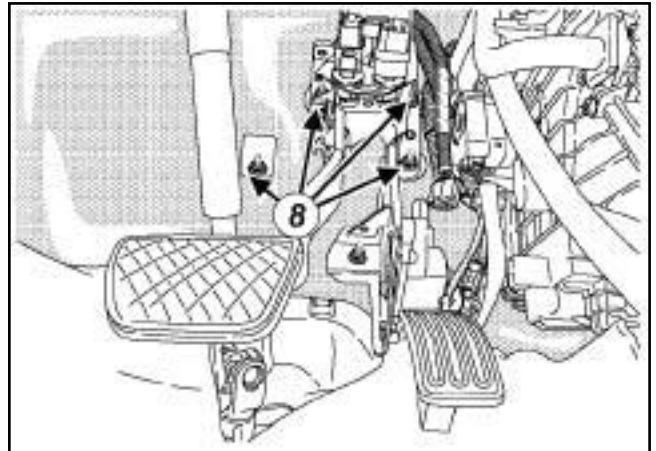
131519

- ❑ Disconnect the hose (5) from the brake servo.



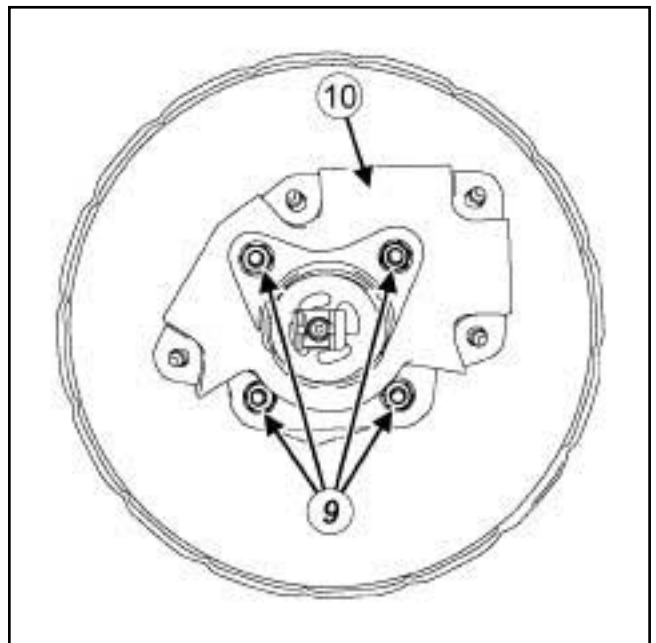
131520

- ❑ Remove:
 - the brake pedal circlip (6) ,
 - the connector shaft (7) between the brake pedal and the brake servo pushrod.



131521

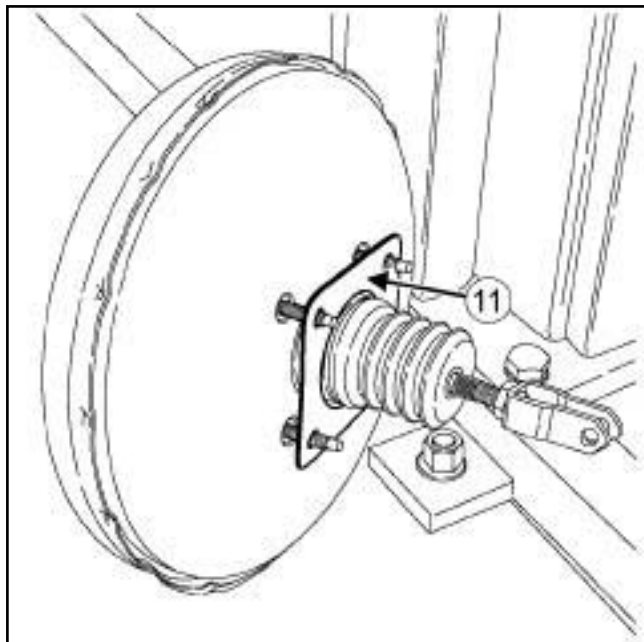
- ❑ Remove:
 - the brake servo nuts (8) ,
 - the brake servo.



131522

- ❑ Remove:
 - the nuts (9) from the brake servo bracket,
 - the bracket (10) from the brake servo.

LEFT-HAND DRIVE



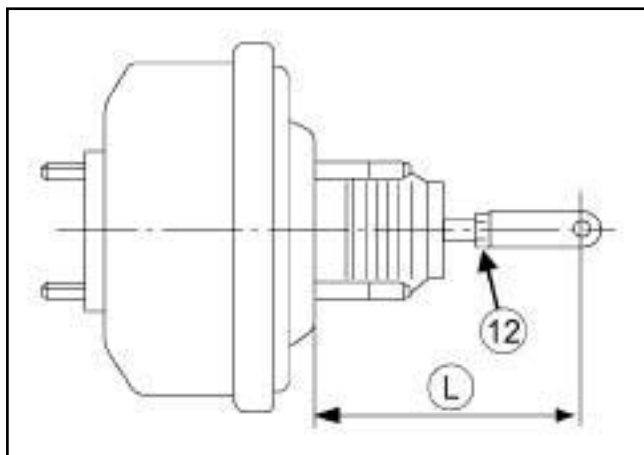
131523

- ☐ Remove the seal (11) from the brake servo.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the brake servo seal.



131524

- ☐ Undo the lock nut (12) of the brake servo pushrod.
- ☐ Check that dimension L is between **150.7** and **157.7 mm**.
- ☐ If dimension L is not correct, adjust the pushrod.
- ☐ Torque tighten the **lock nut of the brake servo pushrod (19 N.m)**

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:

- the new seal of the brake servo,
- the brake servo bracket,
- the brake servo bracket nuts.

- ☐ Torque tighten the **brake servo bracket nuts (14 N.m)**.

IMPORTANT

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.

- ☐ Refit:

- the brake servo on the vehicle,
- the brake servo nuts (8) ,

- ☐ Torque tighten the **brake servo nut (14 N.m)**.

- ☐ Refit:

- the connector shaft (7) between the brake pedal and the brake servo pushrod,
- the brake pedal circlip (6) .

AIR CON 01

- ☐ Connect the vacuum pipe on the brake servo.

III - FINAL OPERATION

- ☐ Refit:

- the brake master cylinder (see **37A, Mechanical component controls, Master cylinder: Removal - Refitting**, page 37A-1) ,
- the air filter box air outlet pipe,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).

LEFT-HAND DRIVE

M9R

- ☐ Clip:
 - the hoses of the turbocharging pressure regulation solenoid valve on the battery tray,
 - the turbocharging pressure regulation solenoid valve on its support.
 - ☐ Connect the turbocharging pressure regulation solenoid valve connector.
-
- ☐ Refit the battery (see **Battery : Removal - Refitting**) (80A, Battery).
 - ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page **30A-3**) .

6 SPEED MANUAL GBOX

- ☐ Bleed the clutch circuit (see **37A, Mechanical component controls, Clutch circuit: Bleeding**, page **37A-48**) .

M9R, and RIGHT-HAND DRIVE

Essential equipment

refrigerant charging station

Tightening torques

lock nut of the brake servo pushrod	19 N.m
-------------------------------------	---------------

brake servo nuts	14 N.m
------------------	---------------

electrical wiring bracket bolts of the exhaust gas pressure sensor	10 N.m
--	---------------

lifting eye bolts	25 N.m
-------------------	---------------

WARNING

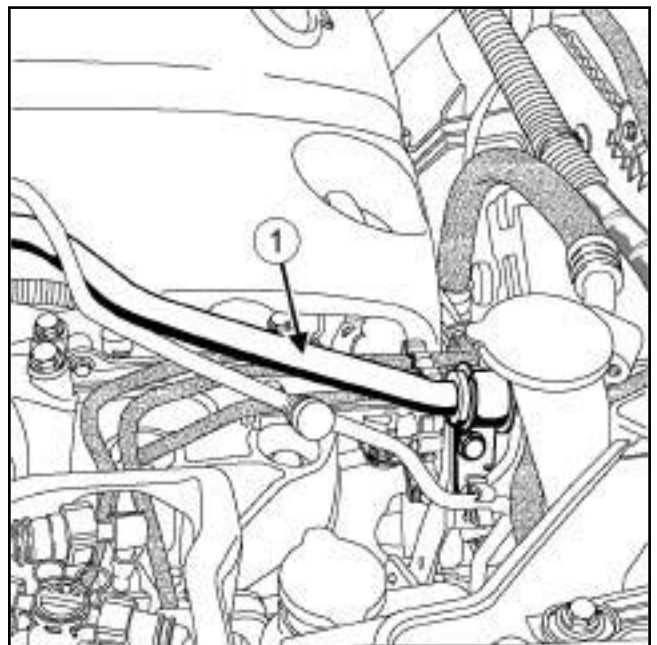
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL**I - REMOVAL PREPARATION OPERATION**

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Drain the refrigerant fluid circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the engine cover,
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),

- the master cylinder (see **37A, Mechanical component controls, Master cylinder: Removal - Refitting**, page 37A-1) (37A, Mechanical component controls),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (Fuel mixture),
- the air filter box (see **Air filter unit: Removal - Refitting**) (Fuel mixture),
- the brake pipes between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page 31A-16) .

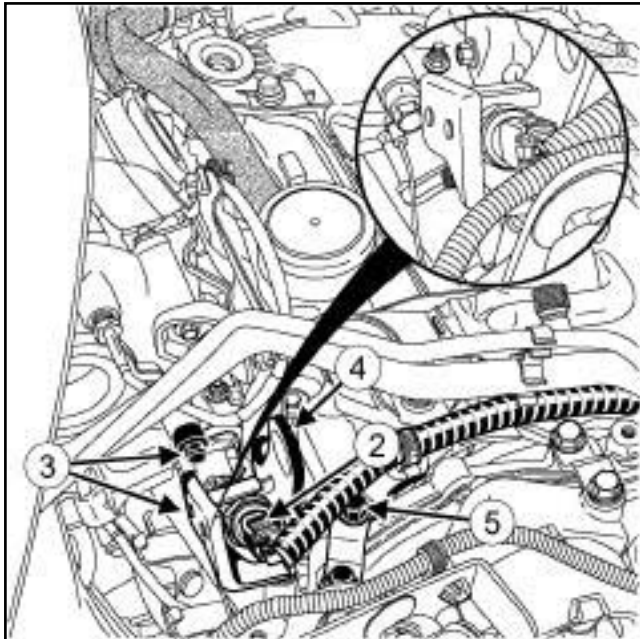
AIR CON 01 or AIR CON 02



131525

- ☐ Remove the connecting pipe (1) (see **Condenser - compressor connecting pipe: Removal - Refitting**) .
- ☐ Remove:
 - the heat shield from the turbocharger (see **Turbocharger: Removal - Refitting**) (12B, Turbocharging),
 - the oxygen sensor (see **Oxygen sensor: Removal - Refitting**) (13B, Diesel injection).

M9R, and RIGHT-HAND DRIVE



131526

- ❑ Disconnect the exhaust gas pressure sensor connector (2) .

- ❑ Remove:

- the pipe (3) of the exhaust gas pressure sensor from the lifting eye (see **Turbocharger: Removal - Refitting**) (12B, Turbocharging),
- the lifting eye (4) ,
- the bolt (5) from the wiring bracket.

- ❑ Move aside the electrical wiring with the bracket.

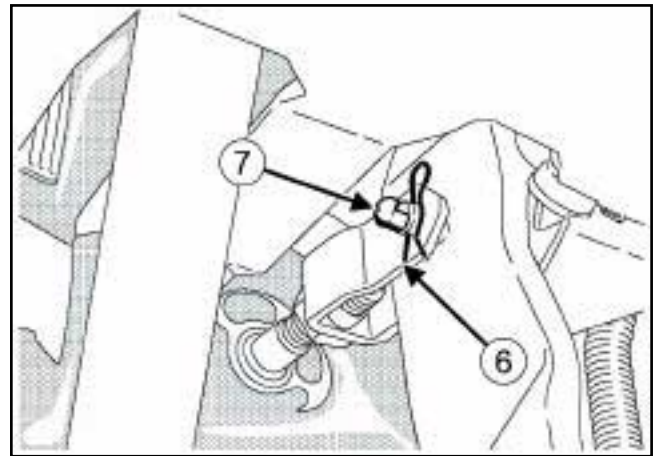
6 SPEED MANUAL GBOX

- ❑ Remove the clutch master cylinder (see **37A, Mechanical component controls, Clutch master cylinder: Removal - Refitting**, page 37A-55) .

- ❑ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

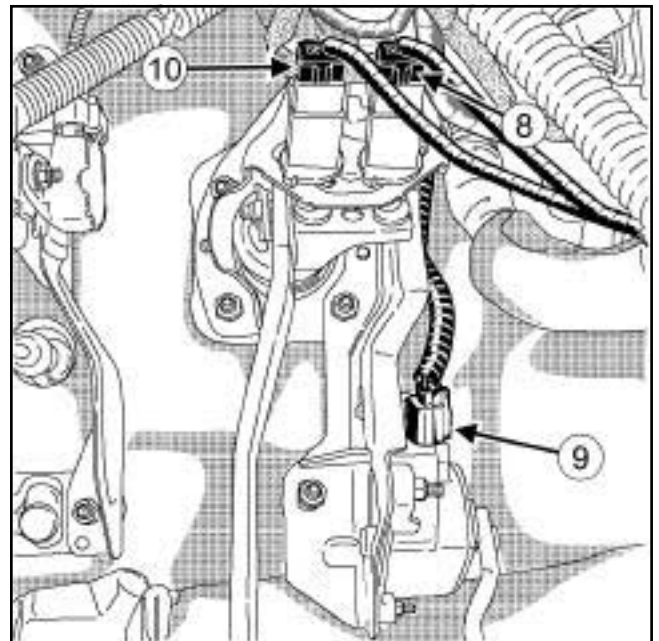
II - OPERATION FOR REMOVAL OF PART CONCERNED



131520

- ❑ Remove:

- the brake pedal circlip (6) ,
- the connector shaft (7) between the brake pedal and the brake servo pushrod.



131528

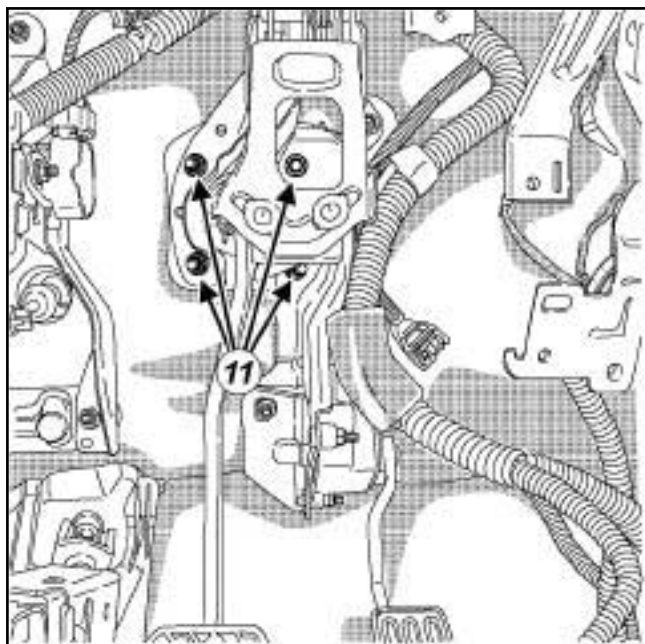
- ❑ Disconnect:

- the connector (8) from the brake light switch,
- the accelerator position sensor connector (9) .

AIR CON 01

- ❑ Disconnect the connector (10) from the brake switch.

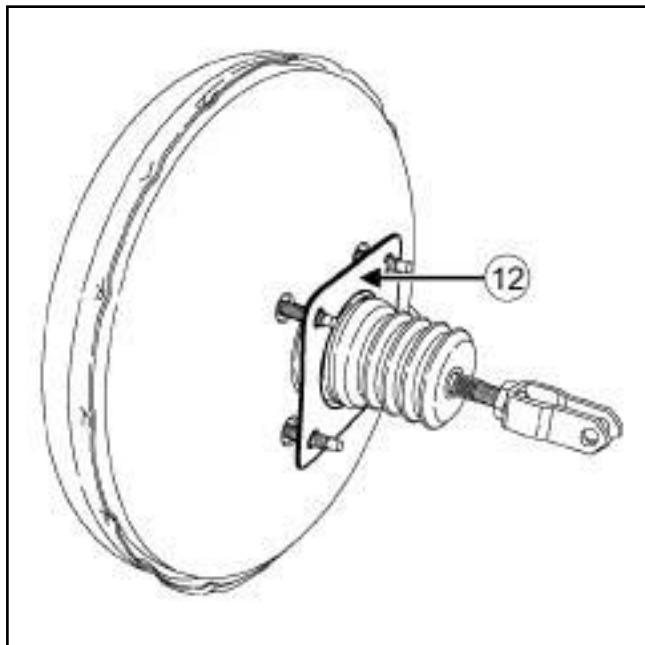
M9R, and RIGHT-HAND DRIVE



131529

❑ Remove:

- the brake servo nuts (11) ,
- the brake servo.



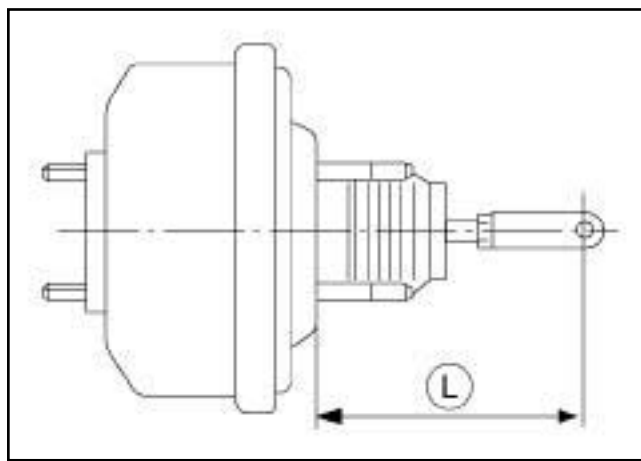
131530

- ❑ Remove the seal (12) from the brake servo.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace the brake servo seal.
- ❑ Check the condition of the connecting shaft and replace it if it is damaged.



131524

- ❑ Loosen the lock nut of the brake servo pushrod.
- ❑ Check that dimension **L** is between **150.7** and **157.7 mm**.
- ❑ If dimension **L** is not correct, adjust the pushrod.
- ❑ Torque tighten the **lock nut of the brake servo pushrod (19 N.m)**.

II - REFITTING OPERATION FOR PART CONCERNED

❑

Note:

This operation requires two people.

Refit:

- the brake servo with a new seal,
- the brake servo nuts.

- ❑ Torque tighten the **brake servo nuts (14 N.m)**.

❑ Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip.

❑ Connect:

- the brake light switch connector,
- the accelerator position sensor connector.

M9R, and RIGHT-HAND DRIVE

AIR CON 01

- ☐ Connect the brake switch connector.

III - FINAL OPERATION.

- ☐ Refit:

- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

6 SPEED MANUAL GBOX

- ☐ Refit the clutch master cylinder (see **37A, Mechanical component controls, Clutch master cylinder: Removal - Refitting**, page 37A-55) .

- ☐ Refit:

- the wiring bracket bolts,
- the lifting eye.

- ☐ Torque tighten:

- the **electrical wiring bracket bolts of the exhaust gas pressure sensor (10 N.m)**,
- the **lifting eye bolts (25 N.m)**.

- ☐ Refit the exhaust gas pressure sensor pipe on the lifting eye (see **Turbocharger: Removal - Refitting**) (12B, Turbocharging).

- ☐ Connect the exhaust gas pressure sensor connector.

- ☐ Refit:

- the oxygen sensor (see **Oxygen sensor: Removal - Refitting**) (13B, Diesel injection),
- the heat shield on the turbocharger (see **Turbocharger: Removal - Refitting**) (12B, Turbocharging).

AIR CON 01 or AIR CON 02

- ☐ Refit the expansion valve connecting pipe (see **Expansion valve: Removal - Refitting**) (62A, Air conditioning).

- ☐ Refit:

- the brake pipes between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page 31A-16) ,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the brake master cylinder (see **37A, Mechanical component controls, Master cylinder: Removal - Refitting**, page 37A-1) ,
- the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
- the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the engine cover.

- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

AIR CON 01 or AIR CON 02

- ☐ Fill the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).

- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .

M9R, and RIGHT-HAND DRIVE

6 SPEED MANUAL GBOX

- ☐ Bleed the clutch circuit (see **37A, Mechanical component controls, Clutch circuit: Bleeding**, page **37A-48**) .
-

2TR, and RIGHT-HAND DRIVE

Essential equipment

refrigerant charging station

Tightening torques

lock nut of the brake servo pushrod	19 N.m
-------------------------------------	---------------

brake servo nuts	14 N.m
------------------	---------------

WARNING

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

REMOVAL**I - REMOVAL PREPARATION OPERATION**

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Drain the refrigerant fluid circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the bulkhead insulation, partially (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

6 SPEED MANUAL GBOX

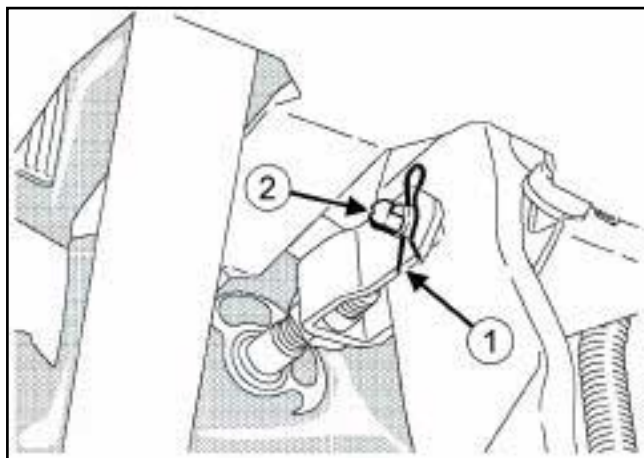
- ☐ Remove the supply hose from the clutch master cylinder (see **37A, Mechanical component controls, Clutch master cylinder: Removal - Refitting**, page 37A-55) .
- ☐ Remove:
 - the brake master cylinder (see **37A, Mechanical component controls, Master cylinder: Removal - Refitting**, page 37A-1) ,
 - the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the brake pipes between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page 31A-16) .

AIR CON 01 or AIR CON 02

- ☐ Disconnect the connecting pipes from the expansion valve (see **Expansion valve: Removal - Refitting**) (62A, Air Conditioning).
- ☐ Remove:
 - the upper engine tie-bar (see **Right-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting),
 - the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

2TR, and RIGHT-HAND DRIVE

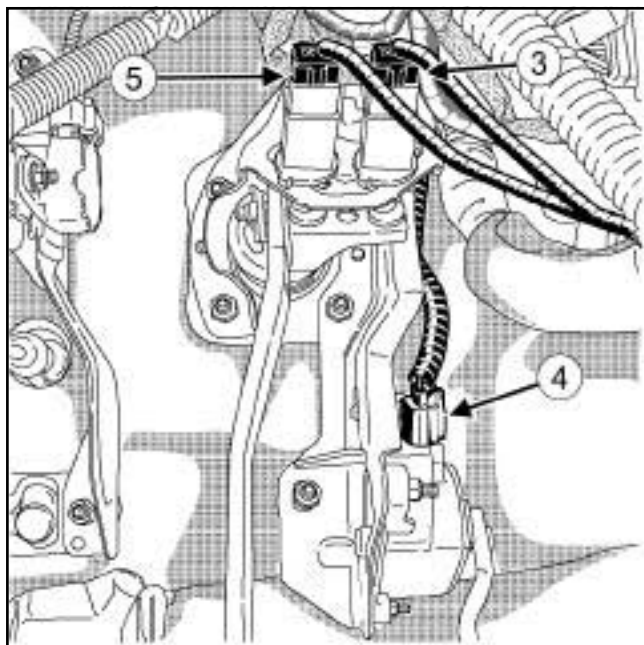
II - OPERATION FOR REMOVAL OF PART CONCERNED



131520

❑ Remove:

- the brake pedal circlip (1) ,
- the connector shaft (2) between the brake pedal and the brake servo pushrod.



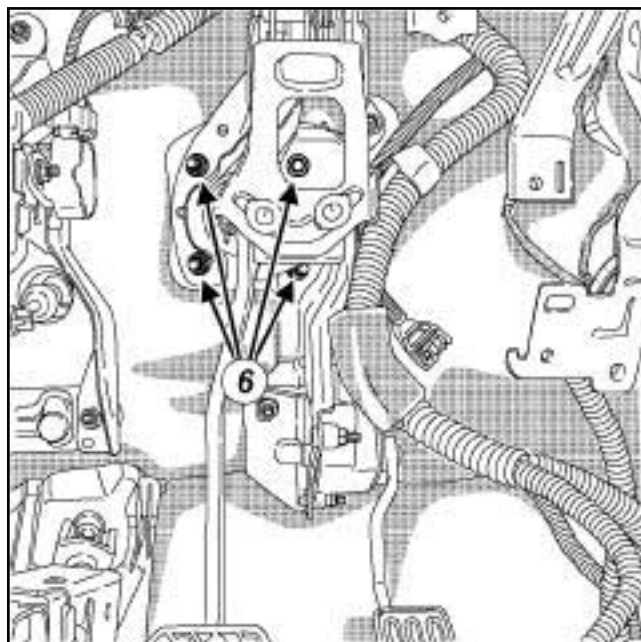
131528

❑ Remove:

- the connector (3) from the brake light switch,
- the accelerator position sensor connector (4) .

AIR CON 01

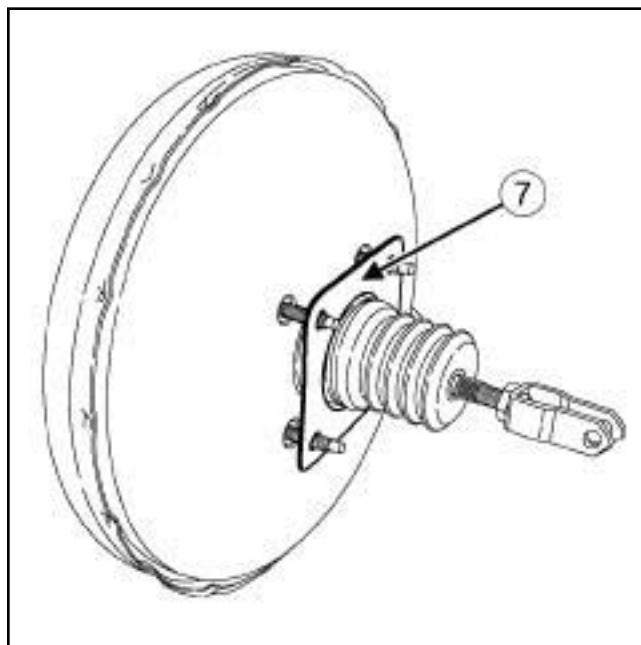
- ❑ Disconnect the connector (5) from the brake switch.



131529

❑ Remove:

- the brake servo nuts (6) ,
- the brake servo.



131530

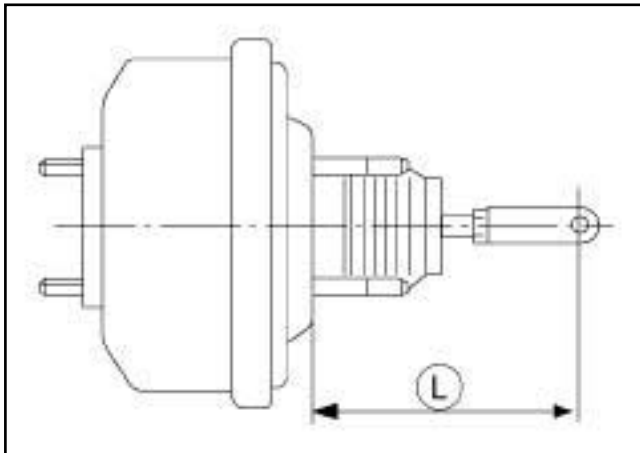
- ❑ Remove the seal (7) from the brake servo

2TR, and RIGHT-HAND DRIVE

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Always replace the brake servo seal.
- ☐ Check the condition of the connecting shaft and replace it if it is damaged.



131531

- ☐ Loosen the lock nut of the brake servo pushrod.
- ☐ Check that dimension **L** is between **150.7** and **157.7 mm**.
- ☐ If dimension **L** is not correct, adjust the pushrod.
- ☐ Torque tighten the **lock nut of the brake servo pushrod (19 N.m)**

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the brake servo with a new seal,
 - the brake servo nuts.
- ☐ Torque tighten the **brake servo nuts (14 N.m)**.
- ☐ Refit:
 - the connecting shaft between the brake pedal and the brake servo pushrod,
 - the brake pedal circlip.
- ☐ Connect:
 - the accelerator position sensor connector,
 - the brake light switch connector.

AIR CON 01

- ☐ Connect the brake switch connector.

III - FINAL OPERATION.

- ☐ Refit:
 - the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
 - the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the upper engine tie-bar (see **Right-hand suspended engine mounting: Removal - Refitting**) (19D, Engine mounting).

AIR CON 01 or AIR CON 02

- ☐ Connect the expansion valve connector pipes (see **Expansion valve: Removal - Refitting**) (62A, Air Conditioning).

☐ Refit:

- the brake pipes between the hydraulic unit and the master cylinder (see **31A, Front axle components, Hydraulic unit - master cylinder brake pipe: Removal - Refitting**, page 31A-16) ,
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air inlet sleeve (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the brake master cylinder (see **37A, Mechanical component controls, Master cylinder: Removal - Refitting**, page 37A-1) .

6 SPEED MANUAL GBOX

- ☐ Refit the supply hose on the clutch master cylinder (see **37A, Mechanical component controls, Clutch master cylinder: Removal - Refitting**, page 37A-55) .

☐ Refit:

- the bulkhead insulation, partially (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),

Brake servo: Removal - Refitting

2TR, and RIGHT-HAND DRIVE

- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
 - the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

AIR CON 01 or AIR CON 02

- ☐ Fill the refrigerant circuit using the **refrigerant charging station** (see **Coolant circuit Draining - Refilling**) (62A, Air conditioning).
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .

6 SPEED MANUAL GBOX

- ☐ Bleed the clutch circuit (see **37A, Mechanical component controls, Clutch circuit: Bleeding**, page 37A-48) .

M9R

Tightening torques

vacuum pump bolts

15 N.m**IMPORTANT**

Consult the safety and cleanliness advice and operation recommendations before carrying out any repair work (see **Diesel injection: Precautions for repair**) (13B, Diesel injection).

IMPORTANT

During this operation, be sure to:

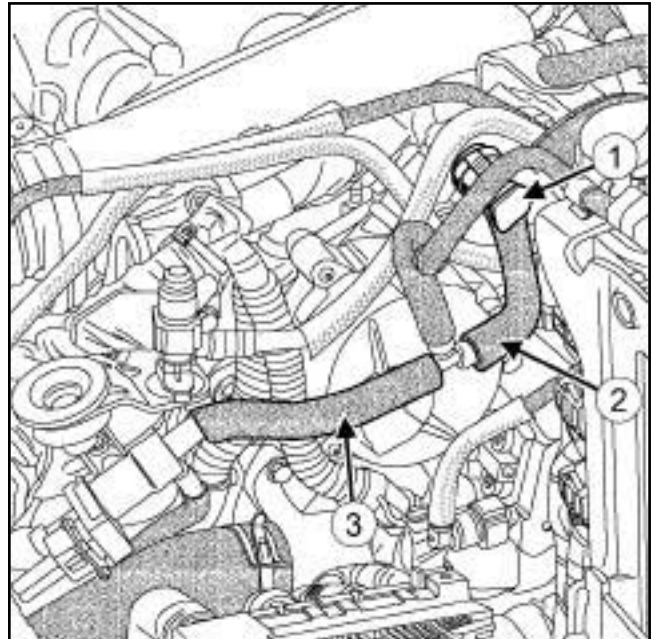
- refrain from smoking or bringing red hot objects close to the working area,
- be careful of fuel splashes when disconnecting the union.

WARNING

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

REMOVAL**I - REMOVAL PREPARATION OPERATION**☐ Remove:

- the engine cover,
- the battery (see **Battery: Removal - Refitting**) (80A, Battery).

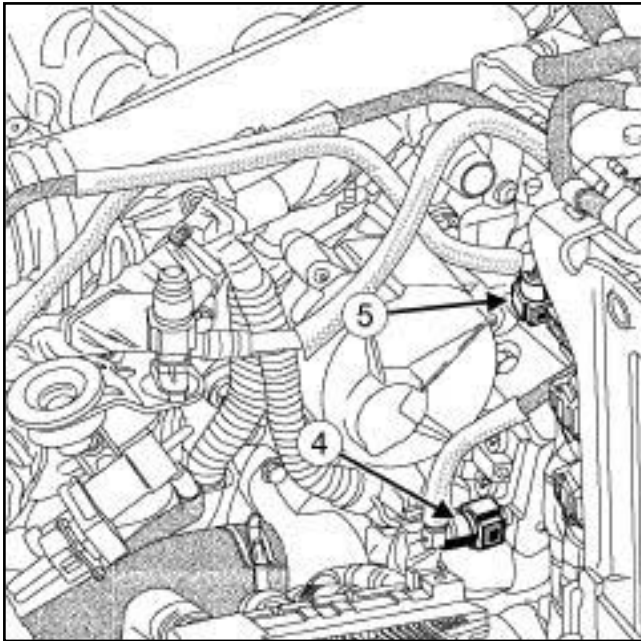


130263

☐ Disconnect:

- the vacuum pipe at (1) from the non-return valve,
- the vacuum pipe (2) from the non-return valve,
- the vacuum pipe (3) from the EGR cooler bypass solenoid valve.

M9R



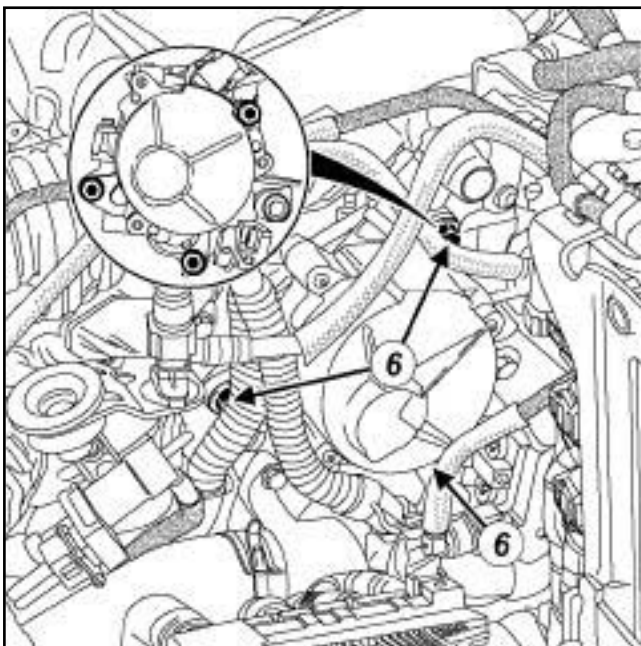
130335

☐ Disconnect:

- the quick-release union (4) from the high pressure pump diesel supply pipe,
- the quick-release union (5) from the diesel return pipe on the high pressure pump.

☐ Put blanking plugs in the openings.

II - OPERATION FOR REMOVAL OF PART CONCERNED



130336

☐ Remove:

- the vacuum pump bolts (6) ,

- the vacuum pump.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Be sure to replace the vacuum pump seal.

WARNING

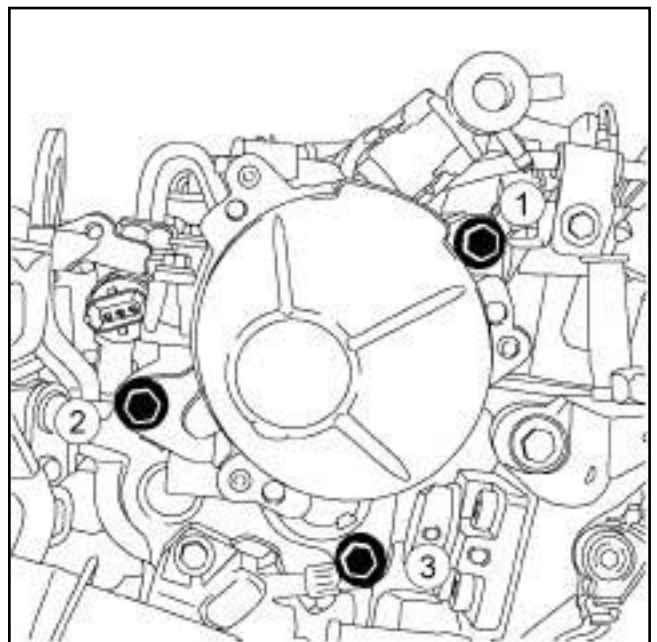
Do not remove the blanking plugs from each component until the last moment.

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

II - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the vacuum pump new seal,
- the vacuum pump,
- the vacuum pump bolts.



130337

- ☐ Torque tighten in order the **vacuum pump bolts (15 N.m)**.

III - FINAL OPERATION.

- ☐ Remove the blanking plugs from the openings.

Vacuum pump: Removal - Refitting

M9R

☐ Connect:

- the diesel return pipe quick release union to the high pressure pump,
- the diesel supply pipe quick-release union to the high pressure pump,
- the vacuum pipe on the EGR cooler by-pass solenoid valve,
- the vacuum pipe on the non-return valve,
- the non-return valve vacuum pipe on the brake servo.

☐ Refit:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the engine cover.

☐ Prime the diesel circuit using the manual priming pump (see **Manual priming pump: Removal - Refitting**) .

LEFT-HAND DRIVE

Tightening torques 	
nuts of the brake-accelerator pedal assembly	14 N.m
brake pedal protector bolts	10 N.m

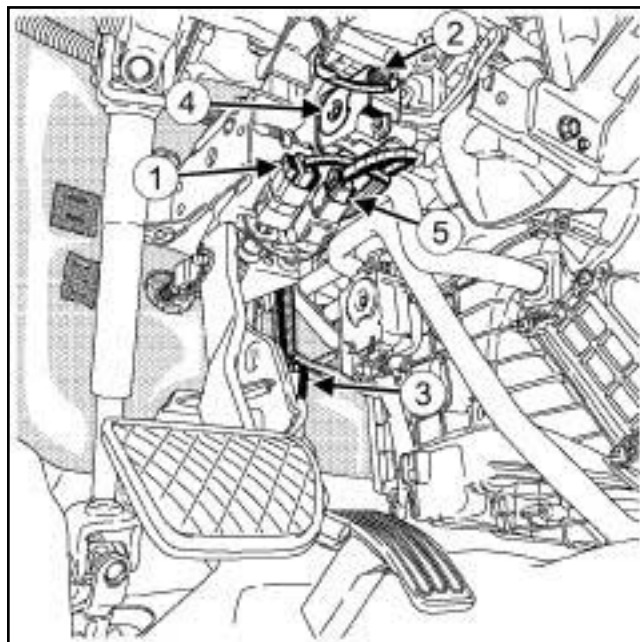
REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the left-hand trim on the centre panel (see **Centre front panel: Removal - Refitting**) (57A, Interior equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131142

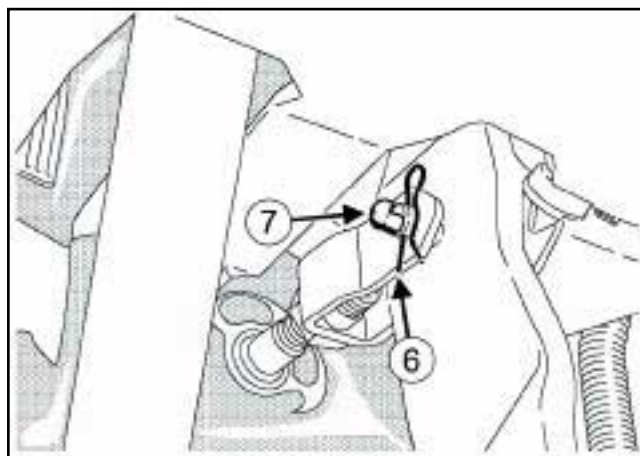
❑ Remove:

- the connector (5) from the brake light switch,
- the connector (2) from the mode flap motor,
- the connector (3) from the accelerator pedal position sensor.

❑ Remove the mode flap motor (4) .

CRUISE CONTROL

❑ Disconnect the connector (1) from the brake switch.



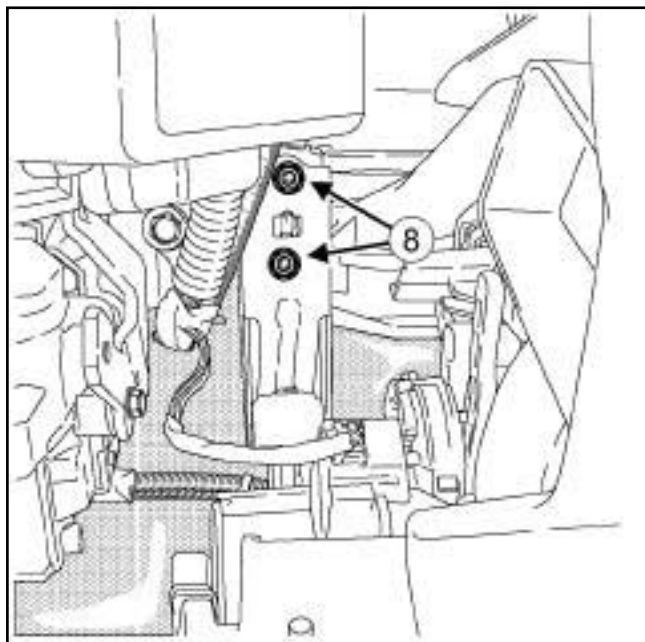
131139

❑ Remove:

- the brake pedal circlip (6) ,

LEFT-HAND DRIVE

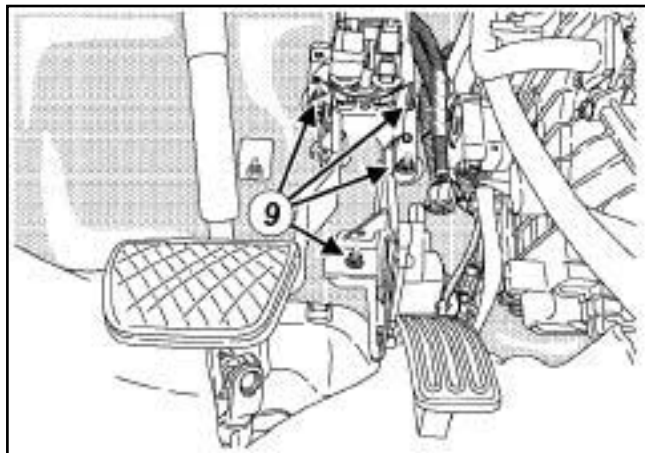
- the connector shaft (7) between the brake pedal and the brake servo pushrod.



131143

❑ Remove:

- the brake pedal protector bolts (8) ,
- the brake pedal protector.



131144

❑ Remove:

- the nuts (9) from the brake - accelerator pedal assembly,
- the brake - accelerator pedal assembly,
- the brake pedal switch from the brake-accelerator pedal assembly (see 37A, **Mechanical component controls, Brake pedal switch: Removal - Refitting**, page 37A-34) .

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Check the condition of the connecting shaft and replace it if it is damaged.

II - REFITTING OPERATION FOR PART CONCERNED

❑ Refit:

- the brake pedal switch on the brake-accelerator pedal assembly (see 37A, **Mechanical component controls, Brake pedal switch: Removal - Refitting**, page 37A-34) ,
- the brake - accelerator pedal assembly,
- the nuts on the brake-accelerator pedal assembly.

- ❑ Torque tighten the **nuts of the brake-accelerator pedal assembly (14 N.m)**.

❑ Refit:

- the brake pedal protector,
- the brake pedal protector bolts.

- ❑ Torque tighten the **brake pedal protector bolts (10 N.m)**.

❑

IMPORTANT

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.

Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip,
- the mode flap motor.

❑ Connect:

- the connector on the accelerator pedal position sensor,
- the connector on the mode flap motor,
- the brake light switch connector.

CRUISE CONTROL

- ❑ Connect the brake switch connector.

LEFT-HAND DRIVE

III - FINAL OPERATION

☐ Refit:

- the left-hand trim on the centre panel (see **Centre front panel: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the lower cover of the dashboard on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

MECHANICAL COMPONENT CONTROLS

Accelerator/brake pedal assembly: Removal - Refitting

37A

RIGHT-HAND DRIVE

Tightening torques

brake-accelerator pedal assembly nuts	14 N.m
---------------------------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

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

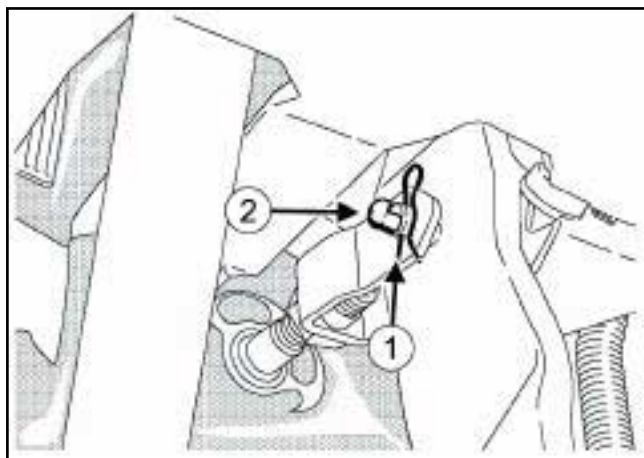
IMPORTANT

To avoid any risk of triggering when working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the diagnostic tool.

When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

- Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- Remove:
 - the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).
 - the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure).

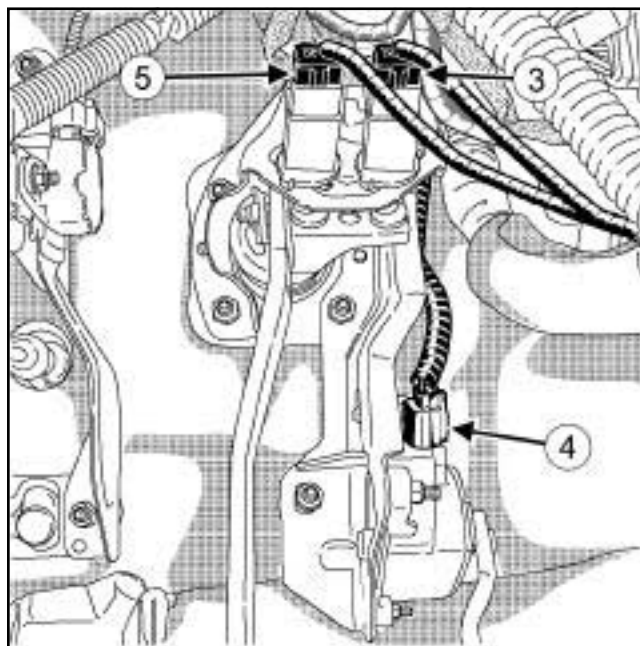
II - OPERATION FOR REMOVAL OF PART CONCERNED



131139

- Remove:
 - the brake pedal circlip (1) ,

- the connector shaft (2) between the brake pedal and the brake servo pushrod.



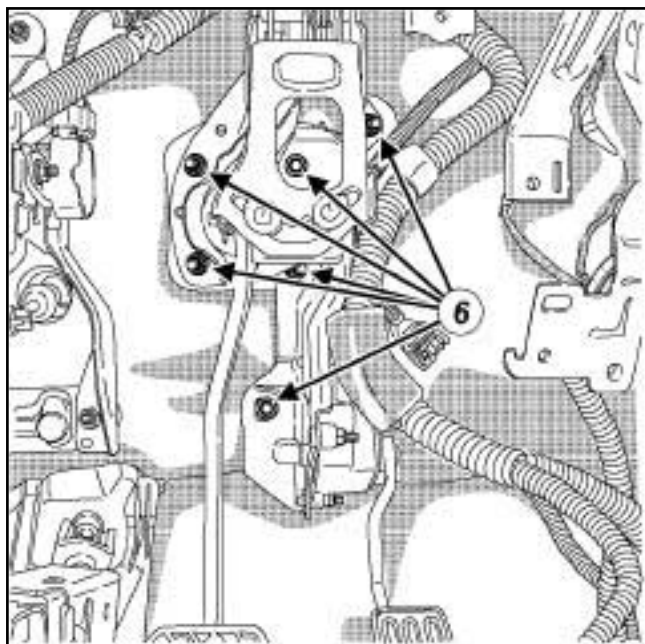
131140

- Disconnect:
 - the connector (3) from the brake light switch,
 - the position sensor connector (4) from the accelerator pedal.

CRUISE CONTROL

- Disconnect the brake switch connector (5) .
- Remove the brake pedal switch from the brake-accelerator pedal assembly (see **37A, Mechanical component controls, Brake pedal switch: Removal - Refitting**, page 37A-34) .
- Unclip the electrical wiring from the brake-accelerator pedal assembly.

RIGHT-HAND DRIVE



131141

☐ Remove:

- the nuts (6) from the brake-accelerator pedal assembly,
- the brake-accelerator pedal assembly.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ Check the condition of the connecting shaft and replace it if it is damaged.

II - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the brake-accelerator pedal assembly,
- the nuts on the brake-accelerator pedal assembly.

- ☐ Torque tighten the **brake-accelerator pedal assembly nuts (14 N.m)**.

- ☐ Refit the brake pedal switch on the brake-accelerator pedal assembly (see **37A, Mechanical component controls, Brake pedal switch: Removal - Refitting**, page 37A-34)

☐ Connect:

- the brake light switch connector,
- the accelerator position sensor connector.

CRUISE CONTROL

- ☐ Connect the brake switch connector.

- ☐ Clip the electrical wiring on the brake-accelerator pedal assembly.

IMPORTANT

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.

☐ Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip,

III - FINAL OPERATION.

☐ Refit:

- the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure).
- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

LEFT-HAND DRIVE

Tightening torques

accelerator pedal nuts	5 N.m
------------------------	-------

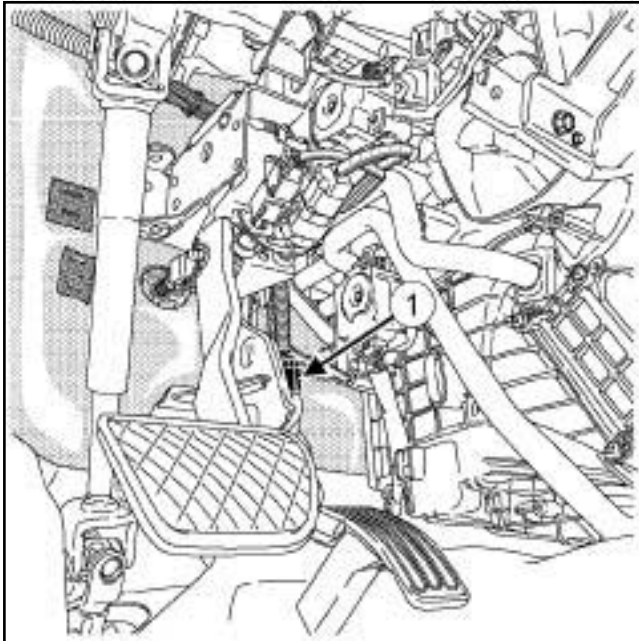
REMOVAL

I - REMOVAL PREPARATION OPERATION

☐ Remove:

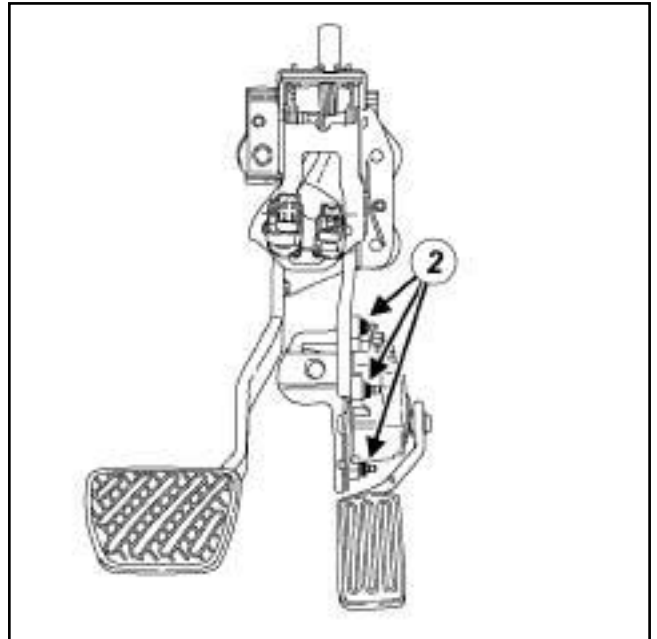
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower trim on the driver's side (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system),
- the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (57A, Interior equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131149

- ☐ Disconnect the accelerator pedal position sensor connector (1) .



131147

☐ Remove:

- the accelerator pedal nuts (2) ,
- the accelerator pedal from the brake-accelerator pedal assembly.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the accelerator pedal on the brake-accelerator pedal assembly.
- the accelerator pedal nuts.

☐ Torque tighten the **accelerator pedal nuts (5 N.m)**.

- ☐ Connect the accelerator pedal position sensor connector.

II - FINAL OPERATION.

☐ Refit:

- the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (57A, Interior equipment),
- the dashboard lower trim on the driver's side (see **Front air distribution duct: Removal - Refitting**) (61A, Heating System),
- the dashboard lower cover (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

RIGHT-HAND DRIVE

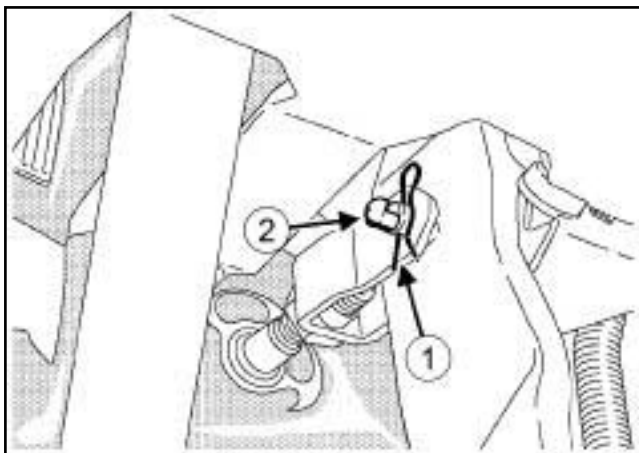
Tightening torques 	
brake-accelerator pedal assembly nuts	14 N.m
accelerator pedal nuts	5 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

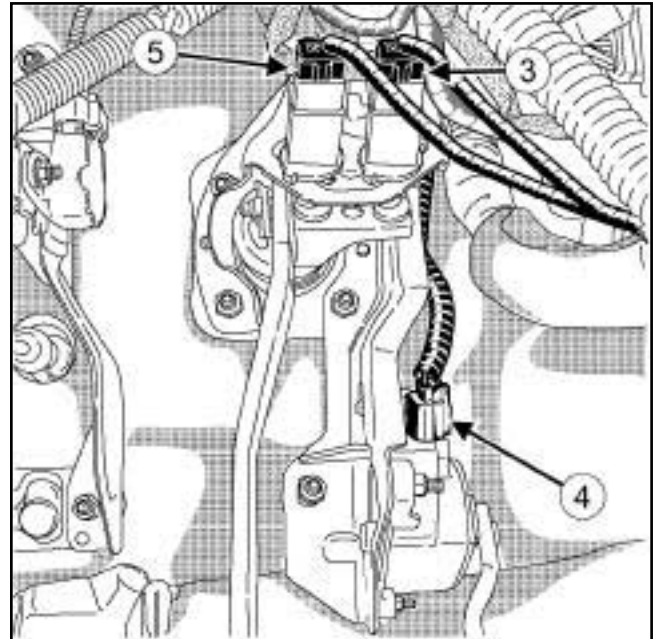
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131145

- ☐ Remove:
 - the brake pedal circlip (1) ,
 - the connector shaft (2) between the brake pedal and the brake servo pushrod.

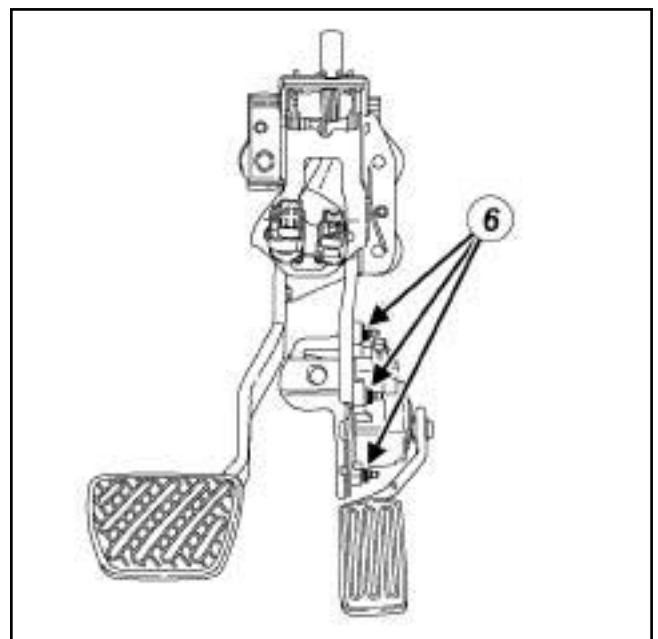


131146

- ☐ Disconnect:
 - the brake light switch connector (3) ,
 - the accelerator pedal sensor connector (4) .

CRUISE CONTROL

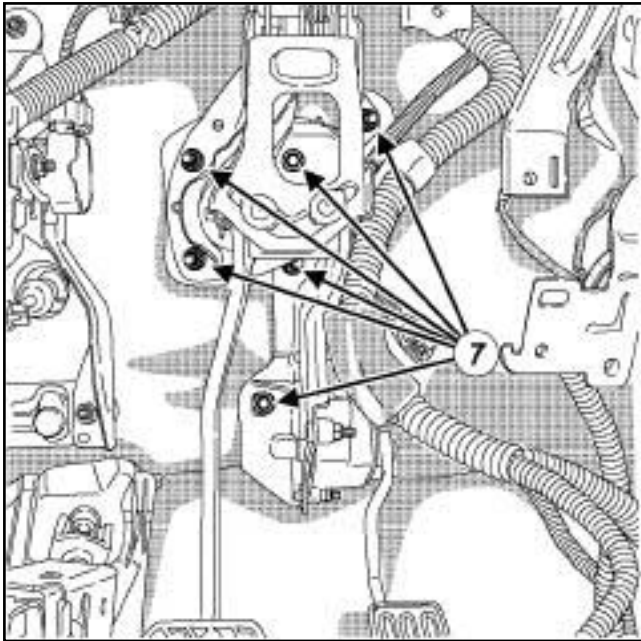
- ☐ Disconnect the connector (5) from the brake switch.



131147

- ☐ Remove the accelerator pedal nuts (6) .

RIGHT-HAND DRIVE



131148

☐ Remove:

- the nuts (7) from the brake-accelerator pedal assembly,
- the accelerator pedal from the brake-accelerator pedal assembly.

Note:

It is not necessary to remove the brake-accelerator pedal assembly.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the accelerator pedal on the brake-accelerator pedal assembly,
- the nuts on the brake-accelerator pedal assembly.

☐ Torque tighten the **brake-accelerator pedal assembly nuts (14 N.m)**.

☐ Refit the accelerator pedal nuts.

☐ Torque tighten the **accelerator pedal nuts (5 N.m)**.

☐ Refit:

- the connecting shaft between the brake pedal and the brake servo pushrod,
- the brake pedal circlip.

☐ Connect:

- the brake light switch connector,
- the accelerator position sensor connector.

CRUISE CONTROL

☐ Connect the accelerator pedal position sensor connector.

II - FINAL OPERATION.

☐ Refit:

- the A-pillar air distribution duct (see **Front air distribution duct: Removal - Refitting**) (61A, Heating system),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),

☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

LEFT-HAND DRIVE

Tightening torques

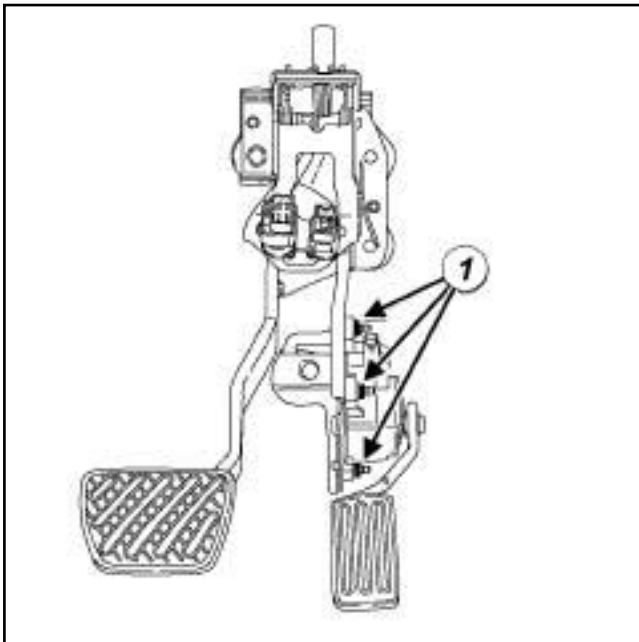
accelerator pedal nuts	5 N.m
------------------------	-------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the A pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating),
 - the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (57A, Interior equipment),
 - the brake - accelerator pedal assembly (see **37A, Mechanical component controls, Accelerator/ brake pedal assembly: Removal - Refitting**, page 37A-23) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131147

- ☐ Remove:
 - the accelerator pedal nuts (1) ,

- the accelerator pedal of the brake-accelerator pedal assembly,
- the brake pedal.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the brake pedal,
 - the accelerator pedal on the brake-accelerator pedal assembly,
 - the accelerator pedal nuts.
- ☐ Torque tighten the **accelerator pedal nuts (5 N.m)**.

II - FINAL OPERATION.

- ☐ Refit:
 - the brake - accelerator pedal assembly (see **37A, Mechanical component controls, Accelerator/ brake pedal assembly: Removal - Refitting**, page 37A-23) ,
 - the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (57A, Interior equipment),
 - the A pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating),
 - the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

RIGHT-HAND DRIVE

Tightening torques

accelerator pedal nuts	5 N.m
------------------------	-------

REMOVAL

I - REMOVAL PREPARATION OPERATION

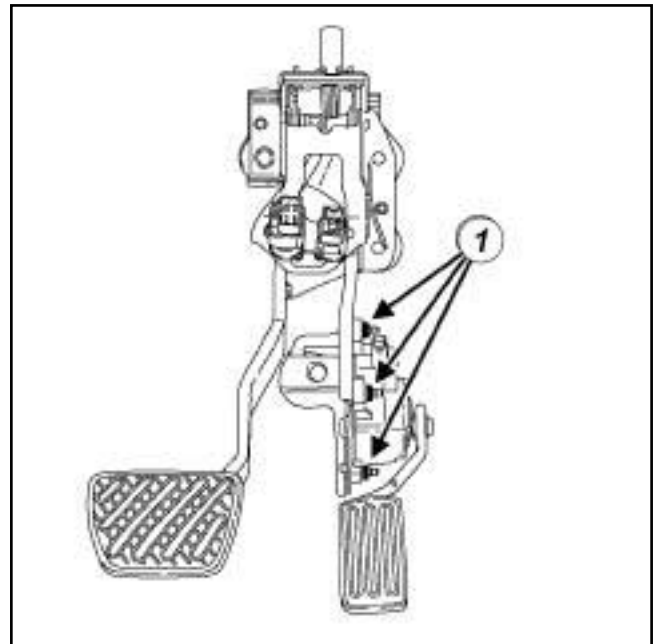
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

IMPORTANT

To prevent the pyrotechnic components from being permanently deactivated or triggered (air-bags or pretensioners), wait for at least **3 minutes** after disconnecting the battery.

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),
 - the brake - accelerator pedal assembly (see **37A, Mechanical component controls, Accelerator/ brake pedal assembly: Removal - Refitting**, page 37A-23) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131147

- ☐ Remove:
 - the accelerator pedal nuts (1) ,
 - the accelerator pedal from the brake-accelerator pedal assembly,
 - the brake pedal.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the brake pedal,
 - the accelerator pedal on the brake-accelerator pedal assembly,
 - the accelerator pedal nuts.
- ☐ Torque tighten the **accelerator pedal nuts (5 N.m)**.

II - FINAL OPERATION.

- ☐ Refit:
 - the brake - accelerator pedal assembly (see **37A, Mechanical component controls, Accelerator/ brake pedal assembly: Removal - Refitting**, page 37A-23) .
 - the dashboard cross member (see **Dashboard cross member: Removal - Refitting**) (42A, Upper front structure),

Brake pedal: Removal - Refitting

RIGHT-HAND DRIVE

- the dashboard (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

REMOVAL

I - REMOVAL PREPARATION OPERATION

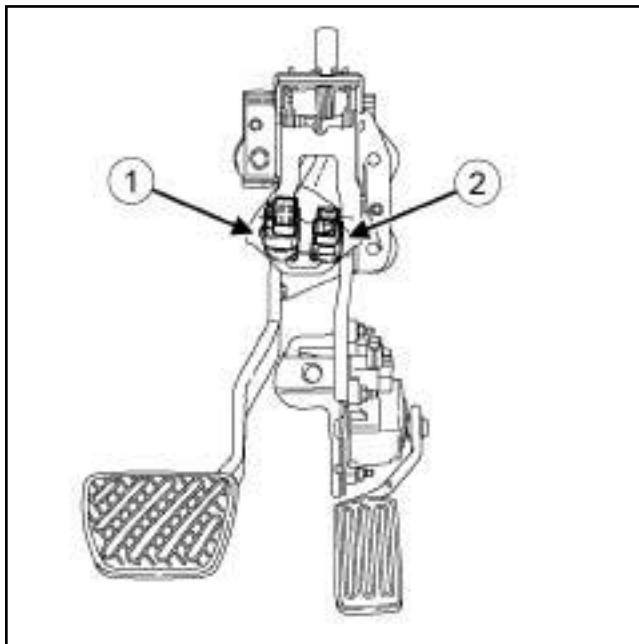
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the A pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating).

LEFT-HAND DRIVE

- ☐
 - the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (59A, Interior equipment),
 - the brake - accelerator pedal assembly (see **37A, Mechanical component controls, Accelerator/brake pedal assembly: Removal - Refitting**, page 37A-23) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

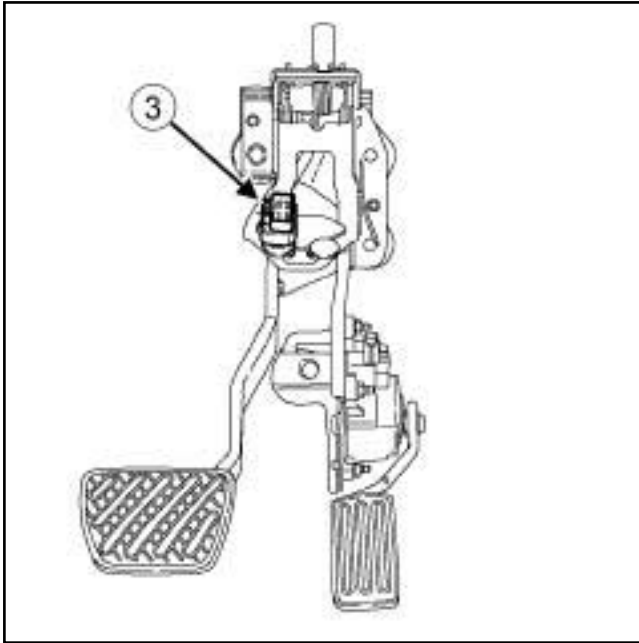
CRUISE CONTROL



131250

- ☐ Remove:
 - the brake light switch (1) by rotating it a quarter turn anticlockwise,
 - the brake switch (2) by rotating it a quarter turn anticlockwise.

WITHOUT CRUISE CONTROL

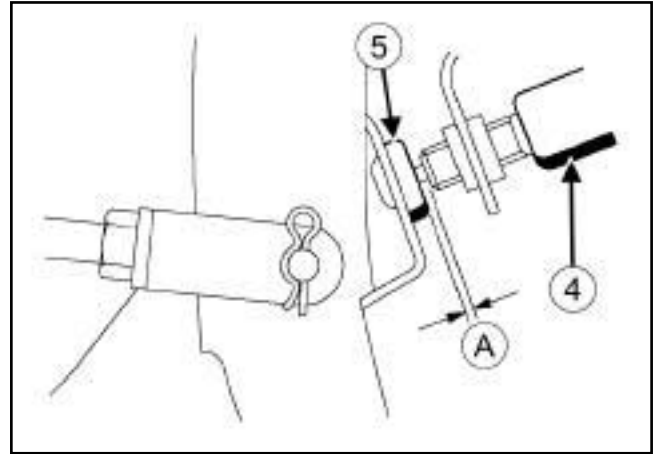


131251

- ❑ Remove the brake light switch (3) by rotating it a quarter turn anticlockwise.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



131252

- ❑ Position the brake pedal switches.
- ❑ Press on the brake pedal switches (4) until the end of the piston touches the rubber stop (5) .
- ❑ Rotate the brake pedal switches a quarter of a turn clockwise.
- ❑ Measure the dimension (A) between the rubber stop and the end of the piston.
- ❑ Adjust the dimension (A) between **0.74 mm** and **1.96 mm**.

II - FINAL OPERATION.

LEFT-HAND DRIVE

- ❑ Refit:
 - the brake - accelerator pedal assembly (see **37A, Mechanical component controls, Accelerator/brake pedal assembly: Removal - Refitting**, page **37A-23**) ,
 - the left-hand trim on the centre panel (see **Centre console lower fascia: Removal - Refitting**) (59A, Interior equipment).
- ❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ❑ Check that the brake light switch is operating correctly:
 - depress the brake pedal to switch on the lights,
 - release the brake pedal to switch off the lights.

☐ Refit:

- the A pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) , (61A, Heating),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

Tightening torques

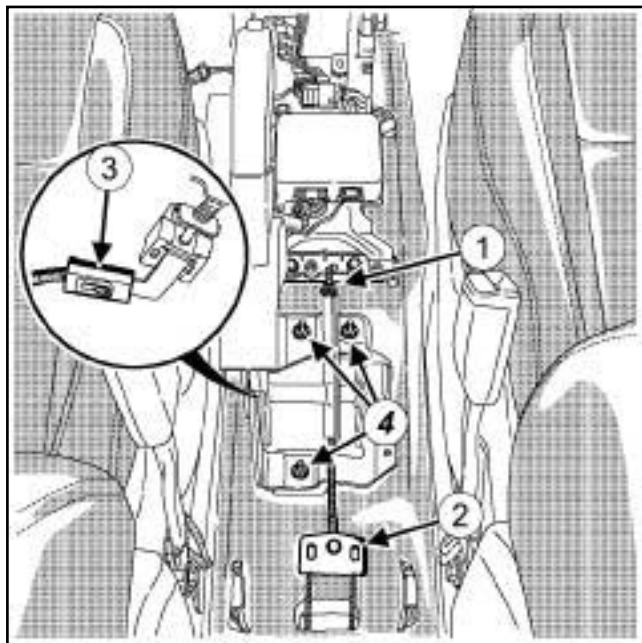
parking brake lever nuts	14 N.m
--------------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the centre console (see **Centre console: Removal - Refitting**) (MR 416, 57A, Interior equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131253

- ☐ Remove the adjustment nut (1) to completely loosen the parking brake cable.
- ☐ Separate the parking brake cable from the parking brake compensator (2) .
- ☐ Disconnect the connector (3) from the parking brake switch.
- ☐ Remove:
 - the nuts (4) from the parking brake lever,
 - the parking brake lever.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the parking brake lever,
 - the parking brake lever nuts.
- ☐ Torque tighten the **parking brake lever nuts (14 N.m)**.
- ☐ Connect:
 - the parking brake switch connector,
 - the parking brake cable to the parking brake compensator.
- ☐ Refit the adjustment nut.

II - FINAL OPERATION.

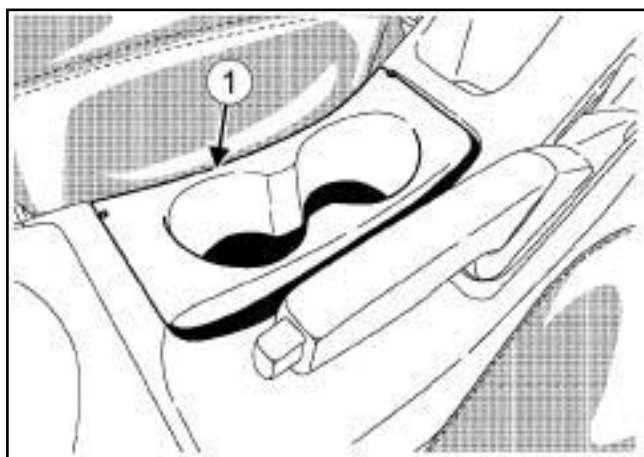
- ☐ Adjust the parking brake (see **37A, Mechanical component controls, Parking brake lever: Adjusting**, page 37A-38) .
- ☐ Refit the centre console (see **Centre console: Removal - Refitting**) (MR 416, 57A, Interior equipment).

Parking brake lever: Adjusting

FOOT BRAKE MANUAL CONTROL

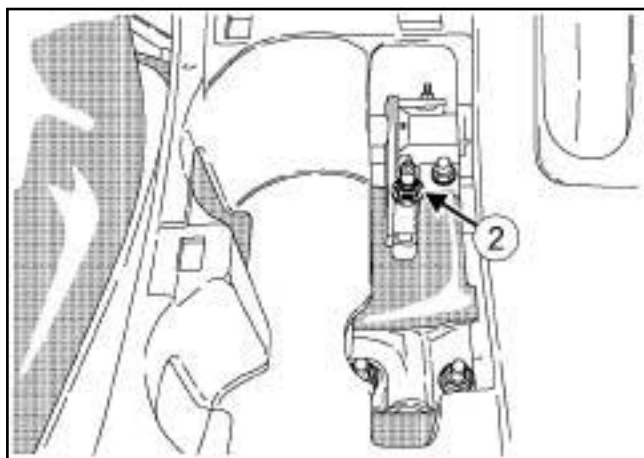
ADJUSTMENT

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1).
- ☐ Fit the rear brake disc using the wheel nuts.
- ☐ Check:
 - that the cables slide freely,
 - the travel of the parking brake cables and engage them fully on the rear internal drum type disc.



131254

- ☐ Remove the cup holder (1).



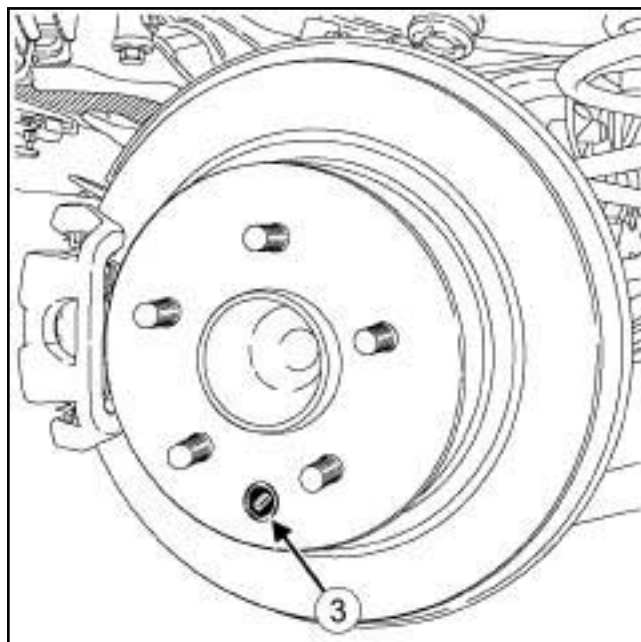
131255

- ☐ Raise the parking brake lever until the lock nut (2) can be accessed.

Note:

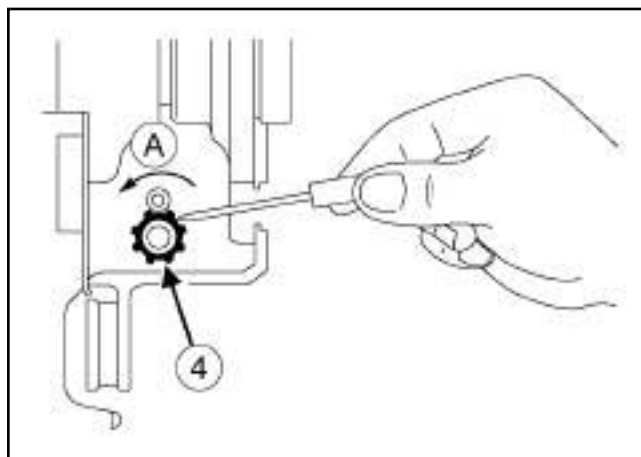
Always replace the lock nut if it was removed.

- ☐ Adjust the lock nut in order to loosen the cable completely.
- ☐ Release the parking brake lever.



131256

- ☐ Remove the plug (3) from the rear brake disc adjustment opening.



131257

- ☐ Turn:
 - the adjustment mechanism (4) in the direction of (A) until it locks.
 - the adjustment mechanism 7 notches from the locked position,
 - the rear brake disc to check the absence of traction.
- ☐ Refit the plug on the rear brake disc adjustment opening.

Note:

The standard number of notches is 7 or 8.

Parking brake lever: Adjusting

FOOT BRAKE MANUAL CONTROL

- Adjust the parking brake cable.
 - activate the parking brake lever with a force of **294 N** about ten times minimum,
 - adjust the parking brake lever travel by turning the adjustment nut,
 - activate the parking brake lever with a force of **196 N**,
 - check if the lever travel corresponds to the number of notches specified,
 - turn the rear brake disc with the released parking brake lever,
 - check for the absence of traction.

MECHANICAL COMPONENT CONTROLS

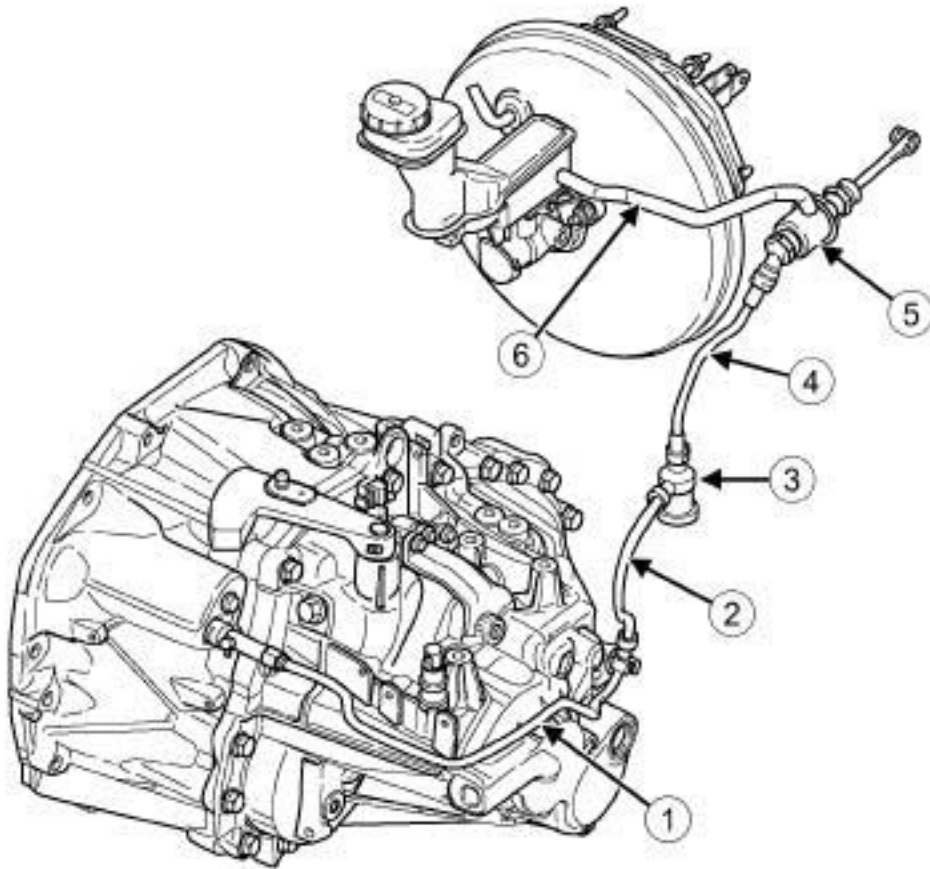
Clutch control: List and location of components

37A

6 SPEED MANUAL GBOX

No.	Description
(1)	Hydraulic clutch control pipe
(2)	Connecting hose (in a unit with the clutch control pipe)
(3)	Clutch hydraulic shock absorber
(4)	Connecting pipe
(5)	Clutch master cylinder
(6)	Clutch master cylinder supply hose

LEFT-HAND DRIVE



131485

No.	Description
(1)	Clutch control pipe
(2)	Clutch hydraulic shock absorber
(3)	Connecting pipe

MECHANICAL COMPONENT CONTROLS

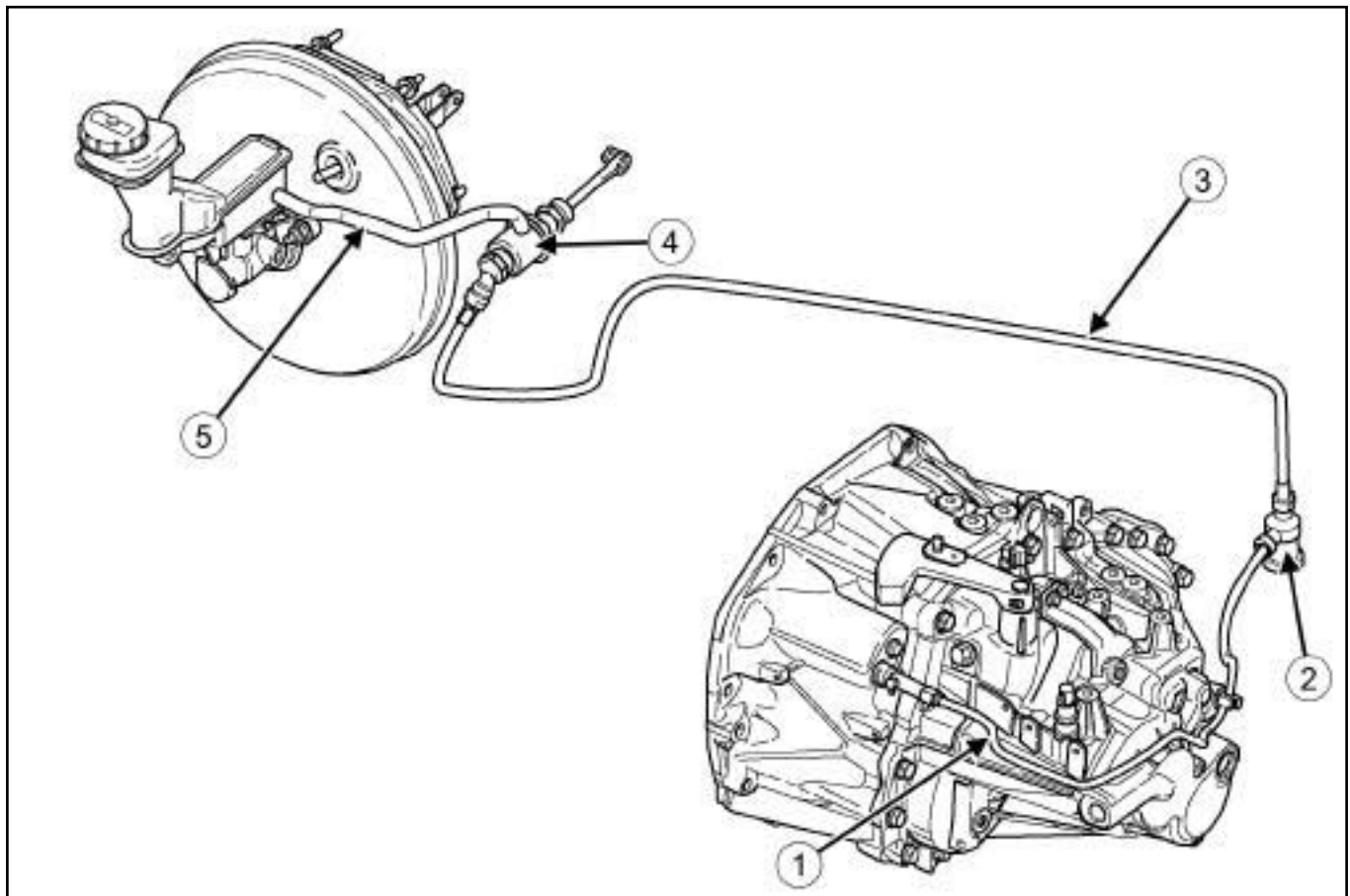
Clutch control: List and location of components

37A

6 SPEED MANUAL GBOX

No.	Description
(4)	Clutch master cylinder
(5)	Clutch master cylinder supply hose

RIGHT-HAND DRIVE

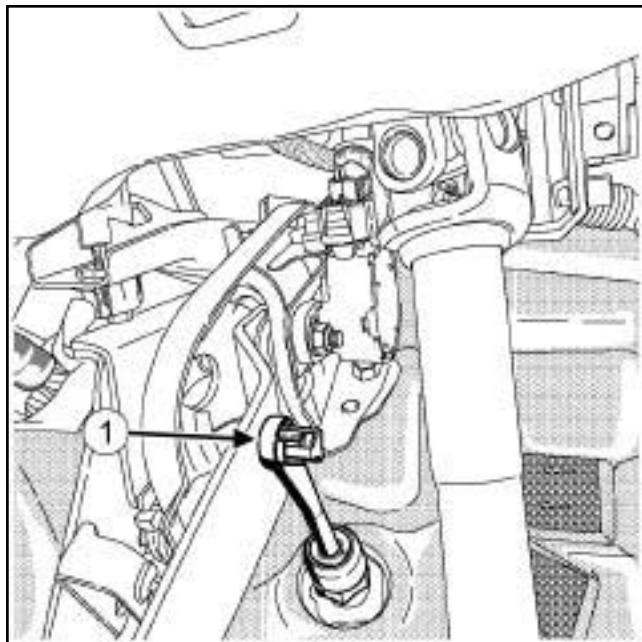


131486

LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

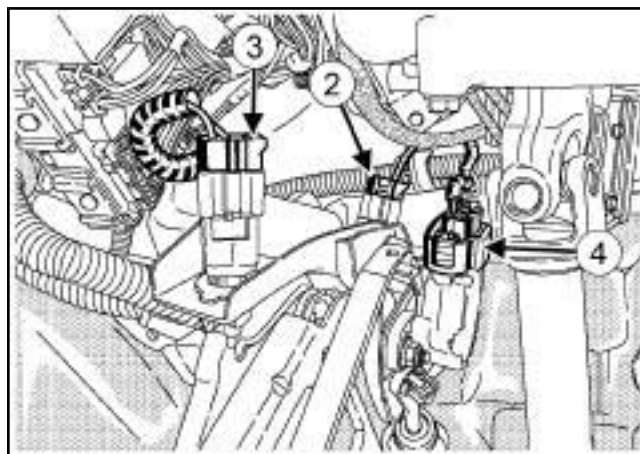
Tightening torques clutch pedal nuts **14 N.m****REMOVAL****I - REMOVAL PREPARATION OPERATION**

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the dashboard lower cover on the driver's side (see **Lower section of dashboard trim: Removal - Refitting**) (57A, Interior equipment),
 - the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),

II - OPERATION FOR REMOVAL OF PART CONCERNED

131532

- ☐ Separate the clutch master cylinder ball joint (1) from the clutch pedal.



131537

- ☐ Disconnect the connector (2) from the clutch pedal switch.

CRUISE CONTROL

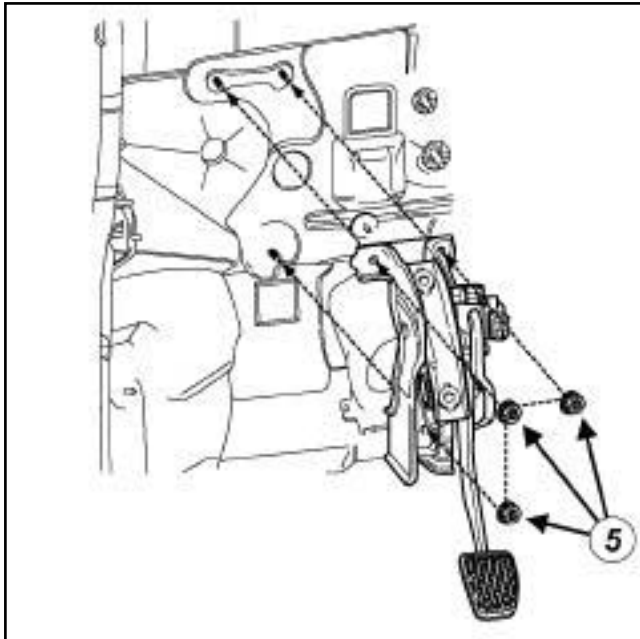
- ☐ Disconnect the connector (3) from the clutch pedal switch.

FOOT BRAKE AUTO CONTROL

- ☐ Disconnect the position sensor connector (4) from the clutch pedal.

Clutch pedal: Removal - Refitting

LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX



131534

☐ Remove:

- the accelerator pedal nuts (5) ,
- the clutch pedal.

FOOT BRAKE AUTO CONTROL

- ☐
- Remove the clutch pedal position sensor from the clutch pedal (see
- 37A, Mechanical component controls, Clutch pedal position sensor: Removal - Refitting**
- , page 37A-47) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED
FOOT BRAKE AUTO CONTROL

- ☐
- Refit the clutch pedal position sensor on the clutch pedal (see
- 37A, Mechanical component controls, Clutch pedal position sensor: Removal - Refitting**
- , page 37A-47) .

☐ Refit:

- the clutch pedal,
- the clutch pedal nuts.

- ☐
- Torque tighten the
- clutch pedal nuts (14 N.m)**
- .

- ☐
- Connect the clutch pedal switch connector.

CRUISE CONTROL

- ☐
- Connect the clutch pedal switch connector.

FOOT BRAKE AUTO CONTROL

- ☐
- Connect the clutch pedal position sensor connector.

- ☐
- Place the clutch cylinder ball joint on the clutch pedal.

II - FINAL OPERATION.
☐ Refit:

- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
 - the dashboard lower cover on the driver's side (see **Lower section of dashboard trim: Removal - Refitting**) (57A, Interior equipment).
- ☐
- Connect the battery (see
- Battery : Removal - Refitting**
-) (80A, Battery).

Clutch pedal: Removal - Refitting

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

Tightening torques

clutch pedal nuts	14 N.m
-------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Unlock the steering column.

IMPORTANT

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

IMPORTANT

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

- ☐ Remove:

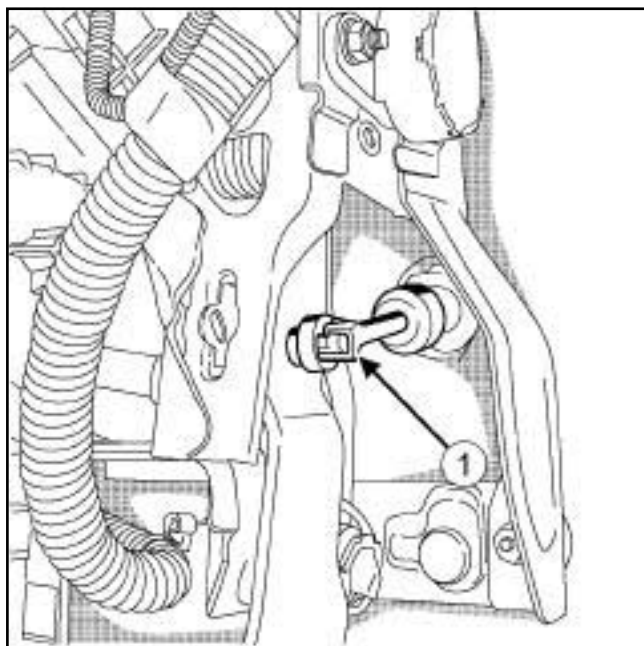
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page **36A-39**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (61A, Heating system),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the right-hand trim from the centre front panel,
- the steering column from the dashboard cross member (see **36A, Steering assembly, Steering column: Removal - Refitting**, page **36A-16**) (36A, Steering assembly).

Note:

It is not necessary to remove the steering column from the steering box.

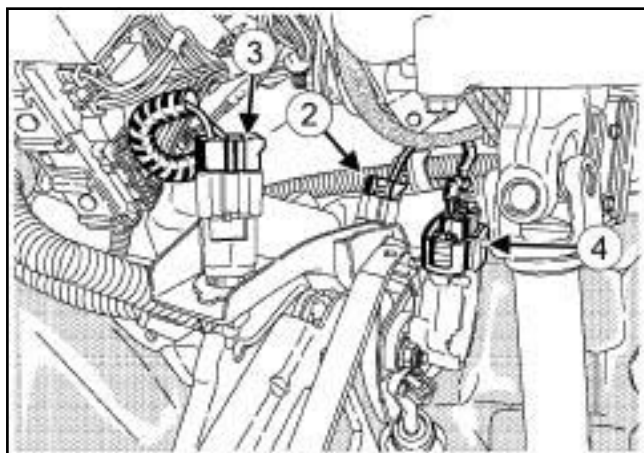
RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

II - OPERATION FOR REMOVAL OF PART CONCERNED



131536

- ☐ Separate the clutch master cylinder ball joint (1) from the clutch pedal.



131533

- ☐ Disconnect the connector (2) from the clutch pedal switch.

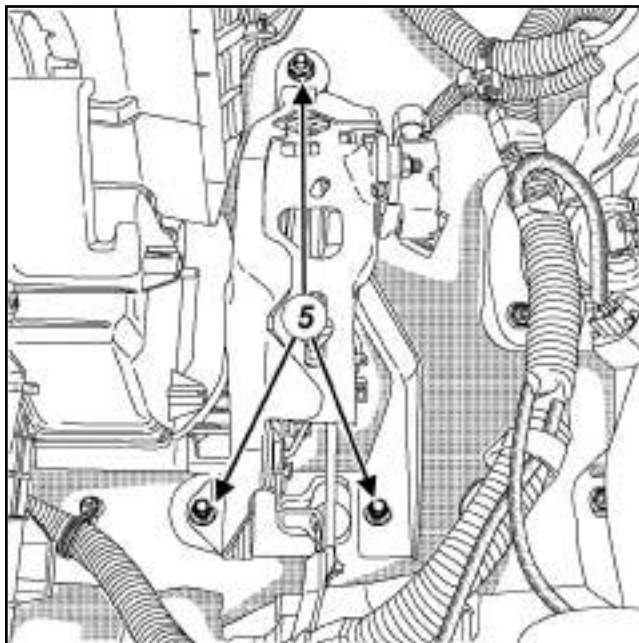
CRUISE CONTROL

- ☐ Disconnect the connector (3) from the clutch pedal switch.

FOOT BRAKE AUTO CONTROL

- ☐ Disconnect the position sensor connector (4) from the clutch pedal.

- ☐ Unclip the electrical wiring from the clutch.



131538

- ☐ Remove:
 - the accelerator pedal nuts (5) ,
 - the clutch pedal.

FOOT BRAKE AUTO CONTROL

- ☐ Remove the position sensor from the clutch pedal (see 37A, Mechanical component controls, Clutch pedal position sensor: Removal - Refitting, page 37A-47) .

Clutch pedal: Removal - Refitting

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

FOOT BRAKE AUTO CONTROL

- ☐ Refit the clutch pedal position sensor on the clutch pedal (see **37A, Mechanical component controls, Clutch pedal position sensor: Removal - Refitting**, page **37A-47**).

- ☐ Refit:

- the clutch pedal,
- the clutch pedal nuts.

- ☐ Torque tighten the **clutch pedal nuts (14 N.m)**.
- ☐ Connect the clutch pedal switch connector.

CRUISE CONTROL

- ☐ Connect the clutch pedal switch connector.

FOOT BRAKE AUTO CONTROL

- ☐ Connect the clutch pedal position sensor connector.

- ☐ Fit the clutch cylinder ball joint on the clutch pedal.

II - FINAL OPERATION.

- ☐ Refit:

- the steering column on the dashboard cross member (see **36A, Steering assembly, Steering column: Removal - Refitting**, page **36A-16**) (36A, Steering assembly),
- the centre front panel right-hand trim
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (61A, Heating system),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signalling),

- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Controls - Signalling),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page **36A-39**) (36A, Steering assembly),
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ☐ Adjust the neutral position of the steering wheel angle sensor (see **Fault finding - Configurations and programming**) (80C, Xenon bulbs).

MECHANICAL COMPONENT CONTROLS

Clutch pedal position sensor: Removal - Refitting

37A

FOOT BRAKE AUTO CONTROL, and 6 SPEED MANUAL GBOX

Tightening torques 	
clutch pedal position sensor nuts	8 N.m

REMOVAL

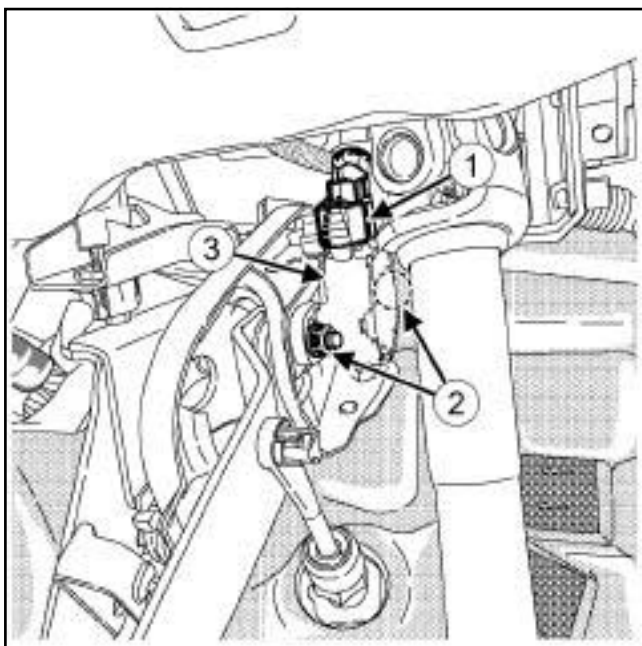
I - REMOVAL PREPARATION OPERATION

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the dashboard lower cover on the driver's side (see **Lower section of dashboard trim: Removal - Refitting**) (57A, Interior equipment),
 - the centre front panel side trim.

RIGHT-HAND DRIVE

- ☐ Remove the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131535

- ☐ Disconnect the connector (1) from the clutch pedal position sensor.

☐ Remove:

- the clutch pedal position sensor nuts (2) ,
- the clutch pedal position sensor (3) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the clutch pedal position sensor,
- the clutch pedal position sensor nuts.

- ☐ Torque tighten the **clutch pedal position sensor nuts (8 N.m)**.
- ☐ Reconnect the clutch pedal position sensor connector.

II - FINAL OPERATION.

RIGHT-HAND DRIVE

- ☐ Refit the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

☐ Refit:

- the centre front panel side trim,
- the dashboard lower cover on the driver's side (see **Lower section of dashboard trim: Removal - Refitting**) (57A, Interior equipment).

Clutch circuit: Bleeding

ND5 or ND8

Essential equipment

brake circuit bleeding device

hydraulic circuit bleed syringe

Bleed in the event of:

- dead travel,
- pedal at mid-travel,
- pedal to the floor,
- poor gear changing.

I - PRECAUTIONS DURING REPAIR

Risks relating to contamination.

- ☐ The hydraulic clutch system is very sensitive to contamination. The risks caused by contamination are:
 - impossible to change gears,
 - damage to or destruction of the clutch system,
 - leaks on the hydraulic circuit.

All the operations on the hydraulic clutch circuit system must be carried out under excellent cleanliness conditions. This ensures that no impurities enter the hydraulic circuit during the operation.

The cleanliness principles apply to all components of the hydraulic clutch circuit.

Items causing contamination are:

- metal or plastic swarf,
- fibres:
 - cardboard,
 - brushes,
 - paper,
 - clothing,
 - cloth,
 - dust and particles in the air,
 - etc.

Cleaning cloths.

- ☐ Use lint-free cleaning cloths (see **Recommended products for repairwork**) (04B, Consumables - Products).

Each cloth must only be used once.

There are two types of equipment used to bleed the clutch circuit:

- ☐ ARC50 via the brake fluid reservoir.
- ☐ Syringe via the bleed hole located on the clutch slave cylinder.

There are two procedures used to bleed the clutch circuit:

- ☐ If no parts of the clutch hydraulic circuit are removed:
 - Carry out the bleed operation using the ARC50 via the brake fluid reservoir or using a new syringe via the bleed hole located on the clutch slave cylinder.
- ☐ If no parts of the clutch hydraulic circuit are removed:
 - Only carry out the bleed operation using a new syringe by injecting the brake fluid via the bleed hole on the clutch slave cylinder.

Note:

- Even the tiniest air bubble in the circuit can cause faulty operation (pedal failing to return properly, crunching sound when changing gear, etc.).
- Incorrect bleeding can lead to incorrect detection of faults and unnecessary part replacements.

Consumables required for the repair:

- ☐ Bleed the clutch circuit using approved (see **Vehicle: Parts and ingredients for the repairwork**) brake fluid (04B, consumables - products).

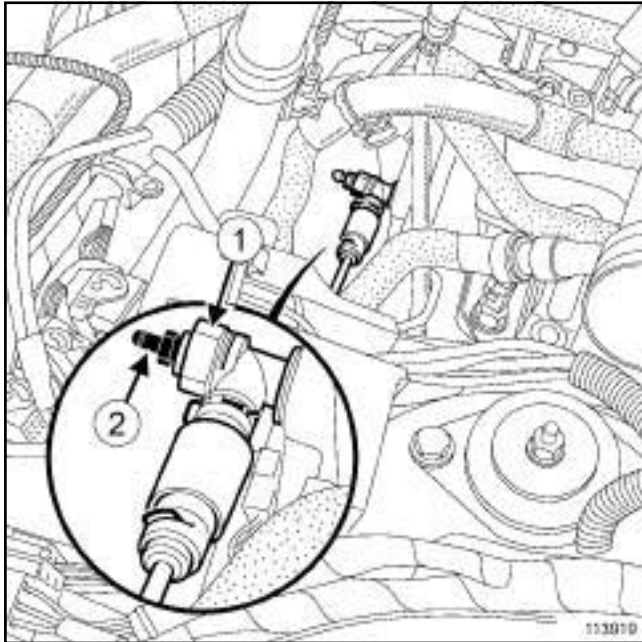
II - PREPARATION STAGE

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

ND5 or ND8

There are several versions of bleed screw:

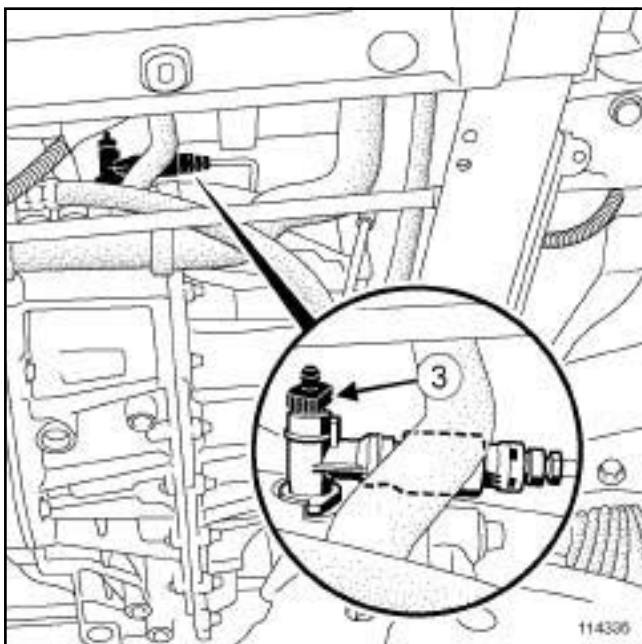
Screw type bleed screw.



113919

- ❑ To open the bleed screw, hold the plastic union (1) using a ring spanner and undo the bleed screw (2) .

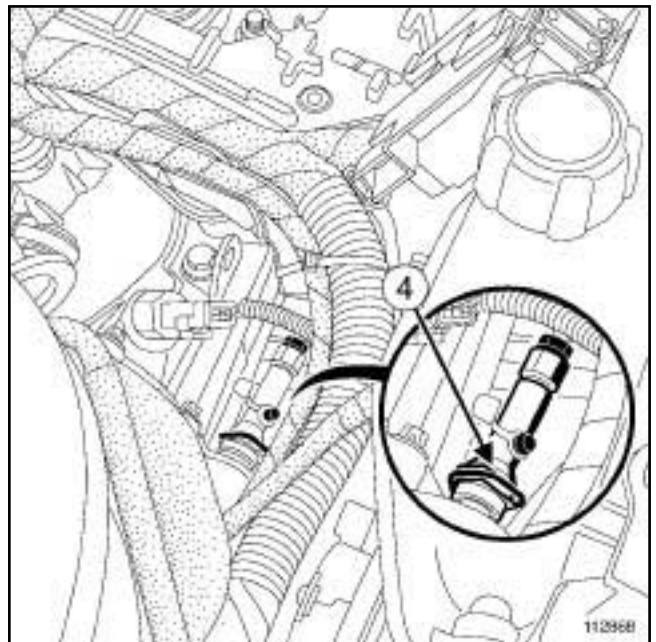
Half-turn bleed screw.



114335

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

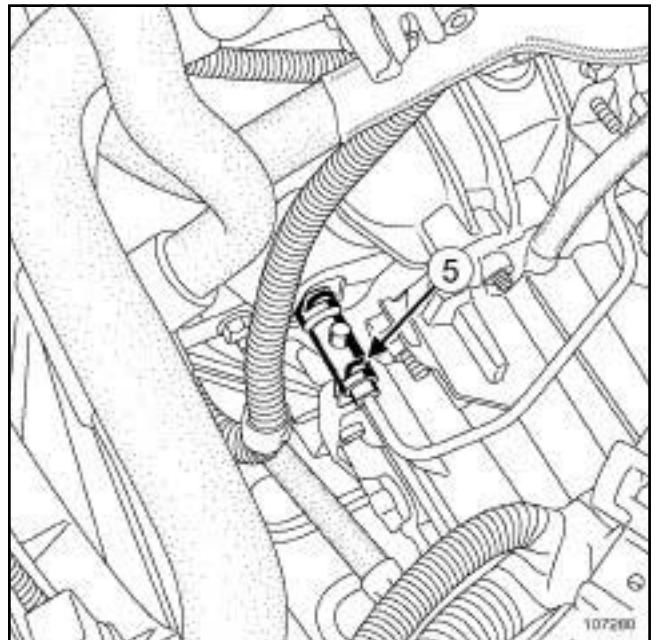
Bleed screw with a clip.



112868

- ❑ To open the bleed screw, press and hold the clip (4) while pulling by one notch.

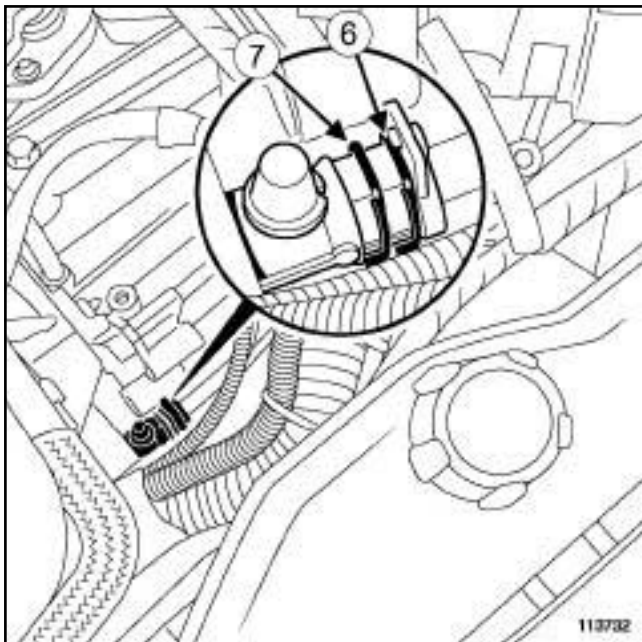
Bleed screw with a clip.



107280

- ❑ To open the bleed screw, lift the clip (5) while pulling by one notch.

ND5 or ND8

Bleed screw with two clips.

113732

- ☐ To open the bleed screw, lower the clip (6) and lift the clip (7) while pulling by one notch.

III - BLEED PROCEDURE IF NO PARTS OF THE HYDRAULIC CIRCUIT ARE REMOVED**1 - Bleed using the ARC50.**

- ☐ Keep the clutch pedal in the upper position using a strap attached to the steering wheel to ensure continuity of the hydraulic circuit during the bleed operation.

Note:

Take care not to disrupt the adjustment of the clutch start of travel switch.

- ☐ Connect the **brake circuit bleeding device** (after having received Renault approval) to the master cylinder reservoir (see the instructions for the equipment).
- ☐ Remove the bleed plug from the clutch slave cylinder.
- ☐ Connect a transparent pipe to the bleed hole running to an empty container placed under the bleed hole.
- ☐ Open the bleed screw.
- ☐ Open the circuit between the bleeding device and the brake fluid reservoir.
- ☐ Let the brake fluid run until all air bubbles have been released.
- ☐ Stop the bleeding device to dump the pressure in the clutch circuit.
- ☐ Close the bleed screw.
- ☐ Remove the transparent pipe from the bleed hole.
- ☐ Refit the bleed plug.
- ☐ Top up the brake fluid level in the master cylinder reservoir after disconnecting the bleed device.
- ☐ Disengage and engage the clutch quickly around twenty times.
- ☐ Check that the clutch system is operating correctly.
- ☐ Repeat the bleed operation if necessary.
- ☐ Check the adjustment of the switch. (see **37A, Mechanical component controls, Clutch pedal switch: Removal - Refitting**, page **37A-61**) (37A, mechanical control elements).

ND5 or ND8

2 - Bleed using a new syringe.

- ☐ Keep the clutch pedal in the upper position using a strap attached to the steering wheel to ensure continuity of the hydraulic circuit during the bleed operation.

Note:

Take care not to disrupt the adjustment of the clutch start of travel switch.

- ☐ Remove the bleed plug from the clutch slave cylinder.
- ☐ Connect a transparent pipe of sufficient length to the bleed hole (at least thirty centimeters) in order to place it at the same height as the reservoir.
- ☐ Open the bleed screw.
- ☐ Fill the brake fluid master cylinder reservoir until brake fluid flows out of the bleed screw.

Note:

The transparent pipe must remain at the same height as the master cylinder reservoir to prevent air from entering inside the clutch circuit.

- ☐ Connect a new **hydraulic circuit bleed syringe** filled with a useful volume of **60 ml** of approved brake fluid to the end of the transparent pipe.
- ☐ Slowly inject the entire contents of the syringe into the hydraulic clutch circuit without injecting any of the air from the top section of the syringe.
- ☐ Close the bleed screw.
- ☐ Remove the transparent pipe from the bleed hole.
- ☐ Refit the bleed plug.
- ☐ Top up the brake fluid level in the master cylinder reservoir.
- ☐ Disengage and engage the clutch quickly around twenty times.
- ☐ Check that the clutch system is operating correctly.
- ☐ Repeat the bleed operation if necessary.
- ☐ Check the adjustment of the switch. (see **37A, Mechanical component controls, Clutch pedal switch: Removal - Refitting**, page **37A-61**) (37A, mechanical control elements).

IV - BLEED PROCEDURE IF PARTS OF THE HYDRAULIC CIRCUIT ARE REMOVED.

☐

WARNING

The slave cylinder pipe must be disconnected from its take-off point on the brake fluid reservoir, to avoid any foreign matter penetrating inside the brake system hydraulic circuit.

WARNING

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

Note:

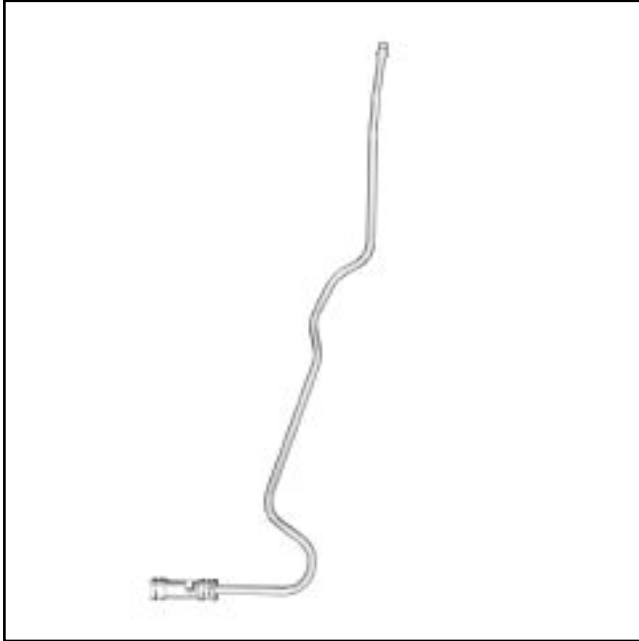
Prefill the hydraulic circuit pipe equipped with a filter.

Position the filter head facing downwards to ensure that it fills.

ND5 or ND8

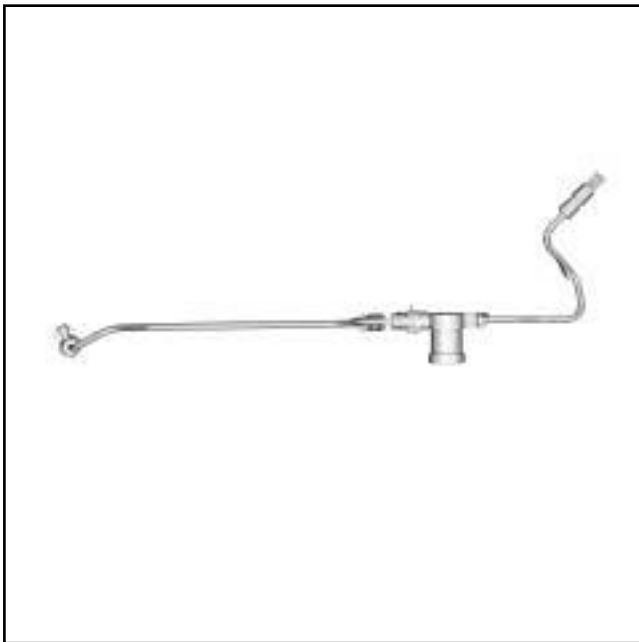
There are several versions of pipe with and without a filter:

Pipe without filter.



141812

Filling position for pipe with filter.



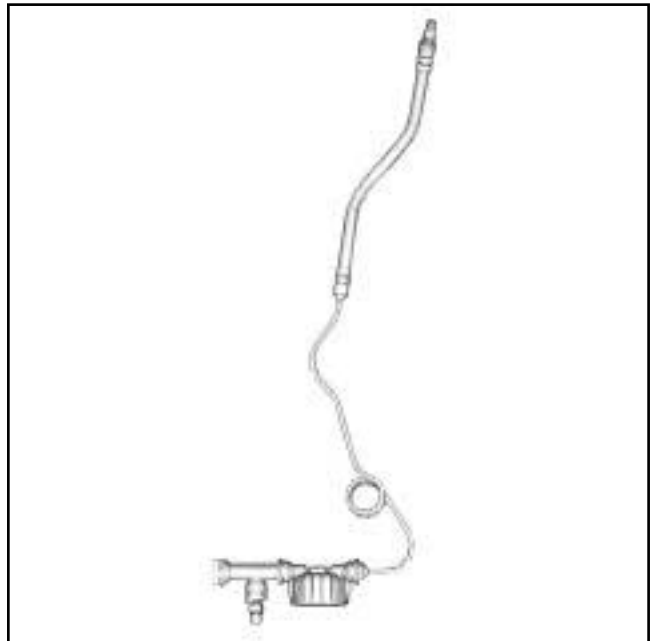
141811

Filling position for pipe with filter.



141810

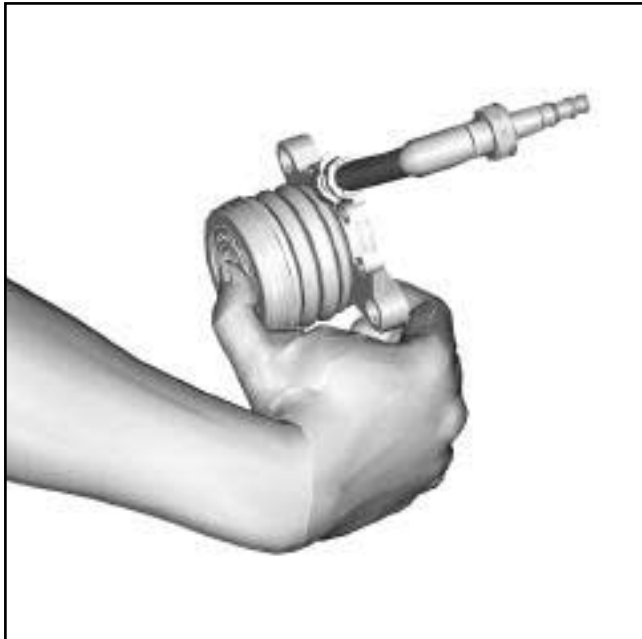
Filling position for pipe with filter.



141813

- ☐ Prefill the clutch pipe using the syringe.
- ☐ Plug the prefilled pipe on the clutch slave cylinder end to stop any brake fluid from escaping.

ND5 or ND8



141809

- ☐ Prefill the hydraulic tappet using the new syringe (by gravity).
- ☐ Refit the part(s) concerned.

V - BLEED PROCEDURE AFTER A REMOVING A COMPONENT OF THE HYDRAULIC CIRCUIT.

- ☐ Keep the clutch pedal in the upper position using a strap attached to the steering wheel to ensure continuity of the hydraulic circuit during the bleed operation.

Note:

Take care not to disrupt the adjustment of the clutch start of travel switch.

- ☐ Remove the bleed plug from the clutch slave cylinder.
- ☐ Connect a transparent pipe of sufficient length to the bleed hole (at least thirty centimeters) in order to place it at the same height as the reservoir.
- ☐ Open the bleed screw.
- ☐ Fill the brake fluid master cylinder reservoir until brake fluid flows out of the bleed screw.

Note:

The transparent pipe must remain at the same height as the master cylinder reservoir to prevent air from entering inside the clutch circuit.

- ☐ Connect a new syringe containing **60 ml** of approved brake fluid to the end of the transparent pipe.
- ☐ Slowly inject the entire contents of the syringe into the hydraulic clutch circuit without injecting any of the air from the top section of the syringe.
- ☐ Close the bleed screw.
- ☐ Remove the transparent pipe from the bleed hole.
- ☐ Refit the bleed plug.
- ☐ Top up the brake fluid level in the master cylinder reservoir.
- ☐ Disengage and engage the clutch quickly around twenty times.
- ☐ Check that the clutch system is operating correctly.
- ☐ Repeat the bleed operation if necessary.
- ☐ Check the adjustment of the switch. (see **37A, Mechanical component controls, Clutch pedal switch: Removal - Refitting**, page **37A-61**) (37A, mechanical control elements).

Clutch circuit: Bleeding

ND5 or ND8

VI - FINAL OPERATION

- ☐ Refit the engine undertray.
- ☐ Remove the vehicle from the two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

MECHANICAL COMPONENT CONTROLS

Clutch master cylinder: Removal - Refitting

37A

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

Essential special tooling

Emb. 1797 24 mm socket for removing and refitting clutch master cylinder

WARNING

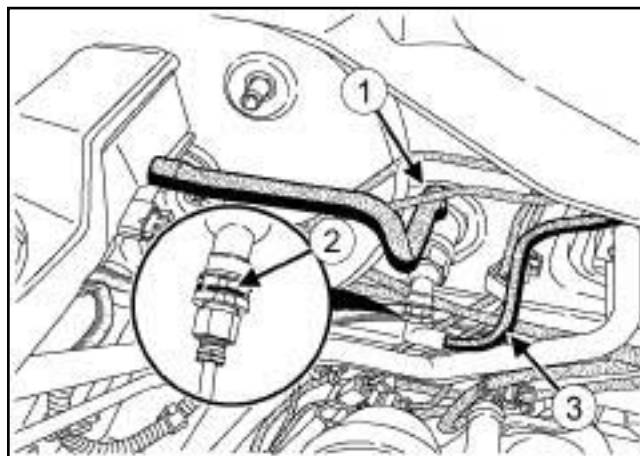
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REMOVAL PREPARATION OPERATION

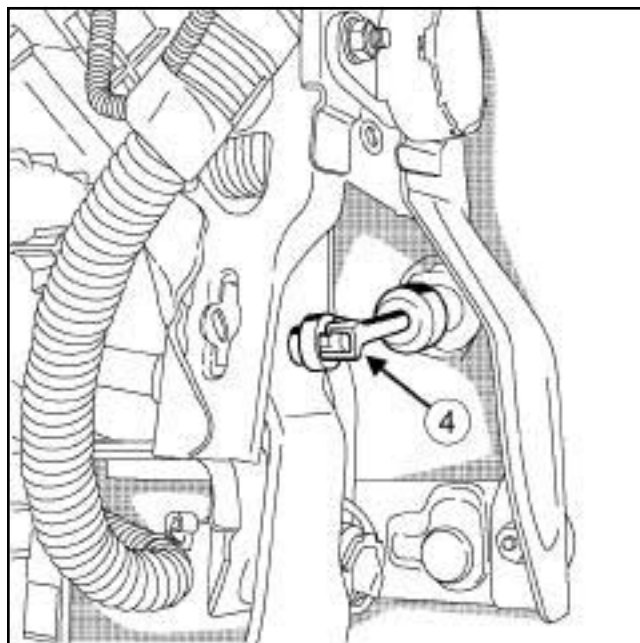
- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the bulkhead insulation, partially (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

II - OPERATION FOR REMOVAL OF PART CONCERNED



132860

- ☐ Disconnect the supply hose (1) from the clutch master cylinder.
- ☐ Remove the retaining clip (2) from the connecting pipe.
- ☐ Disconnect the end of the clutch control pipe (3).



131536

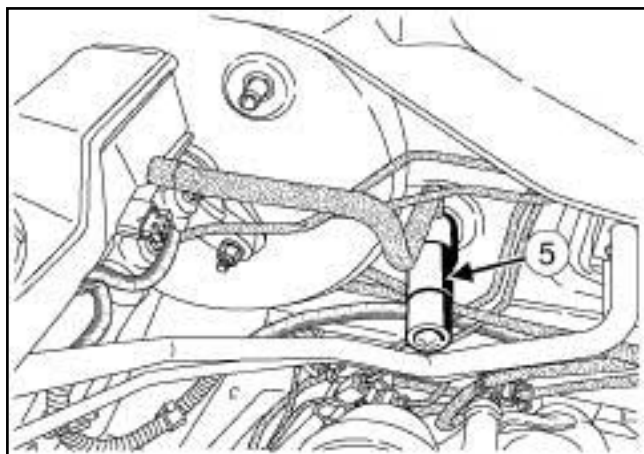
- ☐ Remove:
 - the lower cover from the dashboard on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the lower trim from the dashboard on the driver's side (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).
- ☐ Separate the clutch master cylinder rod (4) from the clutch pedal.

MECHANICAL COMPONENT CONTROLS

Clutch master cylinder: Removal - Refitting

37A

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

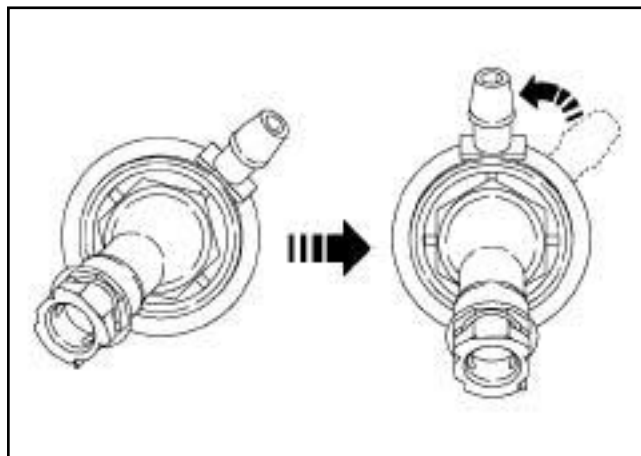


132859

- ☐ Turn the clutch master cylinder a quarter of a turn clockwise using the tool (**Emb. 1797**) (5) .
- ☐ Remove the clutch master cylinder.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



132858

- ☐ Position the clutch master cylinder.
- ☐ Refit the clutch master cylinder by turning it a quarter of a turn anticlockwise using the tool (**Emb. 1797**).

Note:

The master cylinder has a foolproofing device, it only fits in one position.

- ☐ Refit:
 - the clutch master cylinder rod on the clutch pedal,
 - the lower trim on the dashboard on the driver's side (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
 - the lower cover on the dashboard driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).
- ☐ Connect the end of the clutch control pipe on the clutch master cylinder.
- ☐ Refit the clip on the connecting pipe.
- ☐ Connect the supply hose on the clutch master cylinder.

II - FINAL OPERATION.

- ☐ Bleed the hydraulic clutch circuit (see **37A, Mechanical component controls, Clutch circuit: Bleeding**, page **37A-48**) .
- ☐ Refit:
 - the bulkhead insulation, partially (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),

MECHANICAL COMPONENT CONTROLS

Clutch master cylinder: Removal - Refitting

37A

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing).
 - the scuttle half-grille (see **Scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper arms (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).
- ☐ Check that the hydraulic clutch system is operating correctly.
- ☐ Refit the battery (see **80A, Battery, Battery: Removal - Refitting**).

MECHANICAL COMPONENT CONTROLS

Clutch master cylinder: Removal - Refitting

37A

LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

Essential special tooling

Emb. 1797 24 mm socket for removing and refitting clutch master cylinder

WARNING

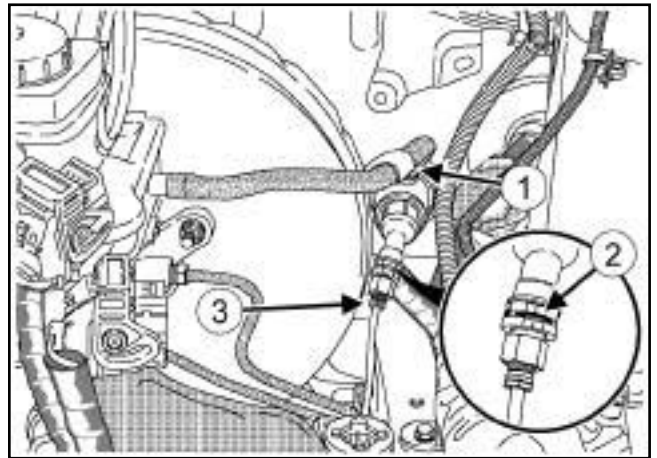
Prepare for the flow of fluid, and protect the surrounding components.

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery)
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
- ☐ Drain the brake fluid reservoir with a syringe.

II - OPERATION FOR REMOVAL OF PART CONCERNED



132855

☐

WARNING

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

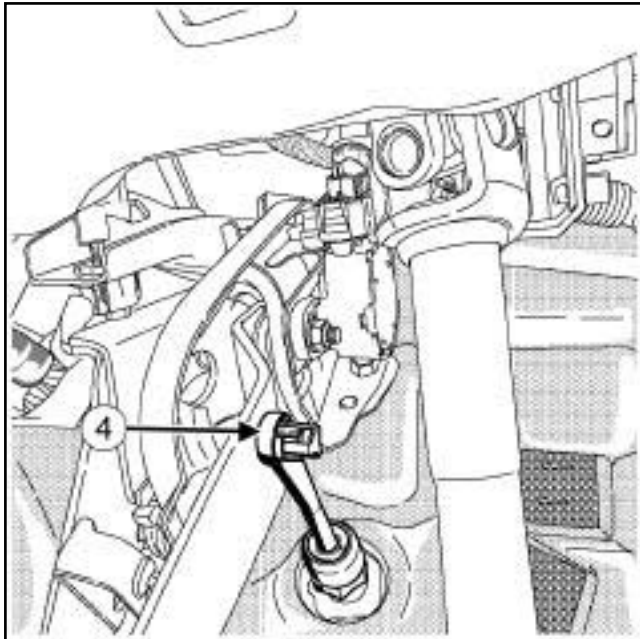
- ☐ Disconnect the supply hose (1) from the clutch master cylinder.
- ☐ Remove the clip (2) from the connecting pipe.
- ☐ Disconnect the end of the clutch control pipe (3) .

MECHANICAL COMPONENT CONTROLS

Clutch master cylinder: Removal - Refitting

37A

LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

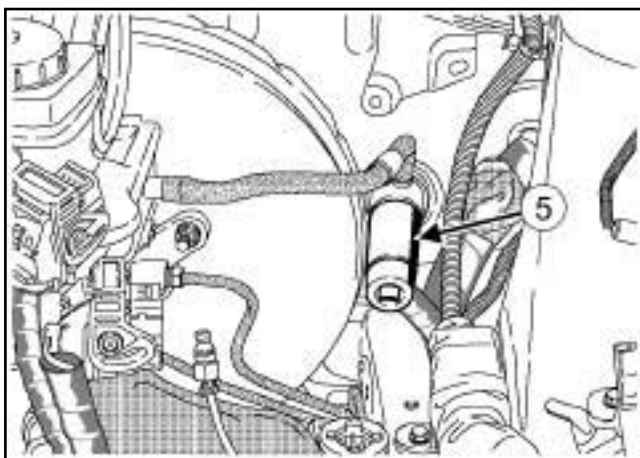


132856

❑ Remove:

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the lower trim from the dashboard on the driver's side (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).

- ❑ Separate the clutch master cylinder rod (4) from the clutch pedal.

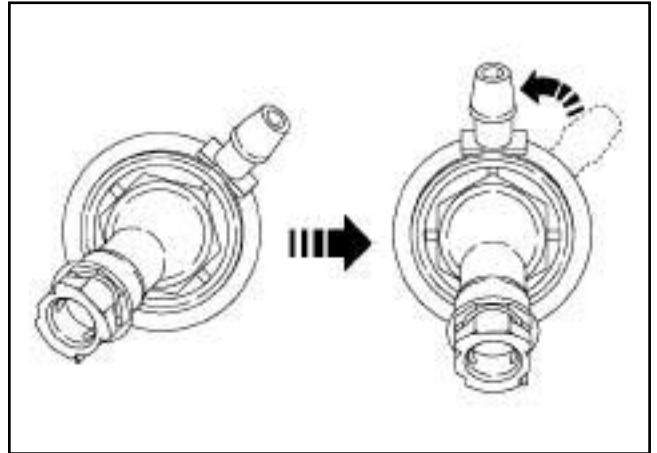


132857

- ❑ Remove the clutch master cylinder by turning it a quarter of a turn clockwise using the **(Emb. 1797) (5)**.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



132858

- ❑ Position the clutch master cylinder.
- ❑ Refit the clutch master cylinder by turning it a quarter of a turn anticlockwise using the tool **(Emb. 1797) (5)**.

Note:

The master cylinder is fitted with a foolproofing device; there is only one possible position.

❑ Refit:

- the clutch master cylinder rod on the clutch pedal,
- the lower trim of the dashboard on the driver's side (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system).
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).

- ❑ Connect the end of the clutch control pipe on the clutch master cylinder.
- ❑ Refit the clip on the connecting pipe.
- ❑ Connect the supply hose on the clutch master cylinder.

II - FINAL OPERATION.

- ❑ Bleed the hydraulic clutch circuit (see **37A, Mechanical component controls, Clutch circuit: Bleeding**, page 37A-48).
- ❑ Refit:
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),

MECHANICAL COMPONENT CONTROLS

Clutch master cylinder: Removal - Refitting

37A

LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Check that the clutch system is operating correctly.

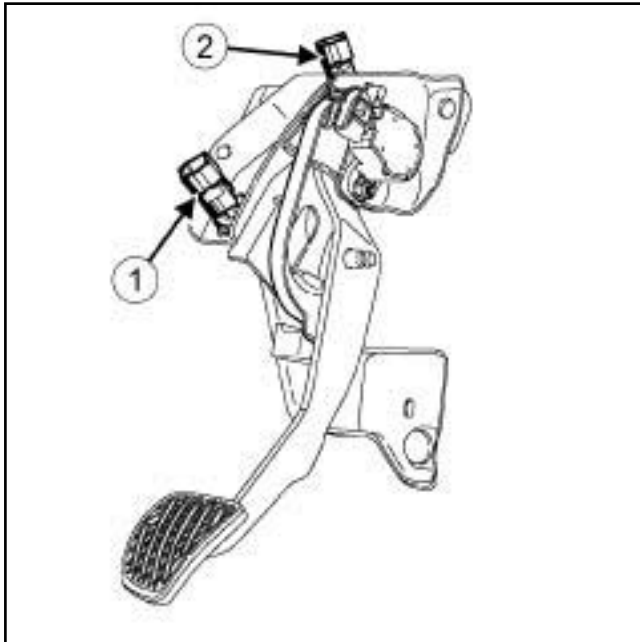
LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
 - the clutch pedal (see **37A, Mechanical component controls, Clutch pedal: Removal - Refitting**, page 37A-42) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



132863

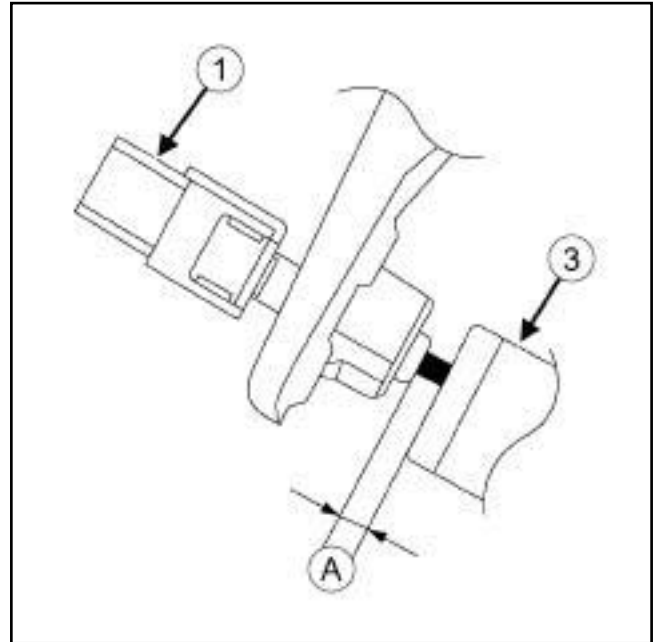
- ☐ Remove the clutch pedal switch (1) by turning it a quarter of a turn anticlockwise.

CRUISE CONTROL

- ☐ Remove the clutch pedal switch (2) by turning it a quarter of a turn anticlockwise.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

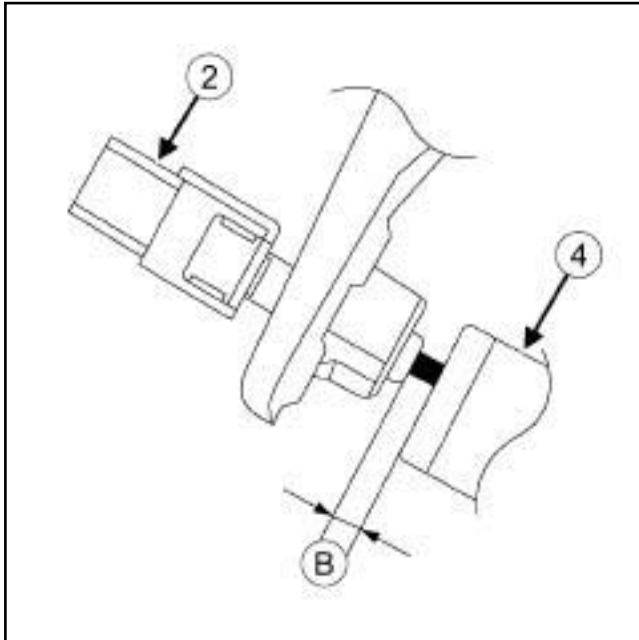


132861

- ☐ Position the clutch pedal switch (1) .
- ☐ Depress the clutch pedal switch until the end of the piston touches the rubber stop (3) .
- ☐ Measure the dimension (A) between the rubber stop and the end of the piston when the clutch pedal is fully depressed.
- ☐ If the dimension (A) is outside the limits, turn the clutch pedal switch carefully to adjust the dimension between **0.74 mm** and **1.96 mm**.

LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

CRUISE CONTROL



132862

- ☐ Position the clutch pedal switch (2) .
- ☐ Depress the clutch pedal switch until the end of the piston touches the rubber stop (4) .
- ☐ Measure the dimension (B) between the rubber stop and the end of the piston when the clutch pedal is fully depressed.
- ☐ If the dimension (B) is outside the limits, turn the clutch pedal switch carefully to adjust the dimension between **0.74 mm** and **1.96 mm**.

II - FINAL OPERATION.

- ☐ Refit:
 - the clutch pedal (see **37A, Mechanical component controls, Clutch pedal: Removal - Refitting**, page 37A-42) ,
 - the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
 - the lower cover of the dashboard on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment).
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Unlock the steering column.

IMPORTANT

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

IMPORTANT

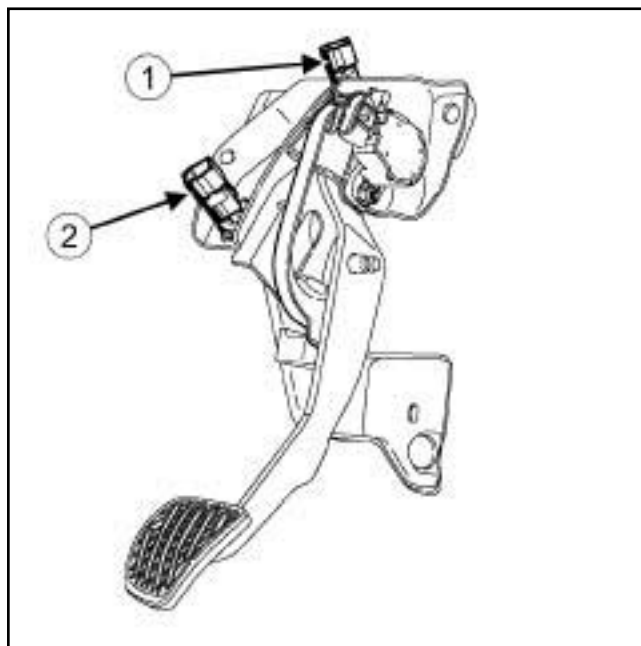
To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least 3 minutes after disconnecting the battery.

- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).

- ☐ Remove:

- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
- the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page **36A-39**) (36A, Steering assembly),
- the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signals),
- the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signals),
- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),
- the right-hand trim of the central front panel,
- the steering column of the dashboard cross member (see **36A, Steering assembly, Steering column: Removal - Refitting**, page **36A-16**) (36A, Steering assembly),
- the clutch pedal (see **37A, Mechanical component controls, Clutch pedal: Removal - Refitting**, page **37A-42**).

II - OPERATION FOR REMOVAL OF PART CONCERNED



132863

- ☐ Remove the clutch pedal switch (1) by turning it a quarter of a turn anticlockwise.

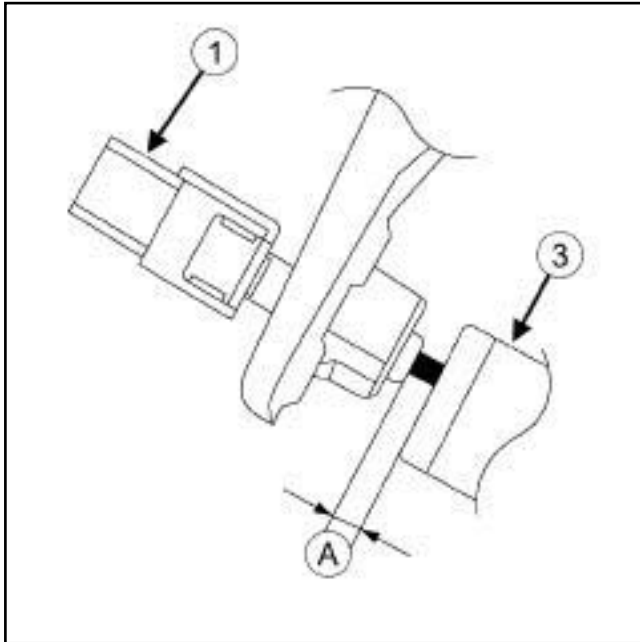
CRUISE CONTROL

- ☐ Remove the clutch pedal switch (2) by turning it a quarter of a turn anticlockwise.

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

REFITTING

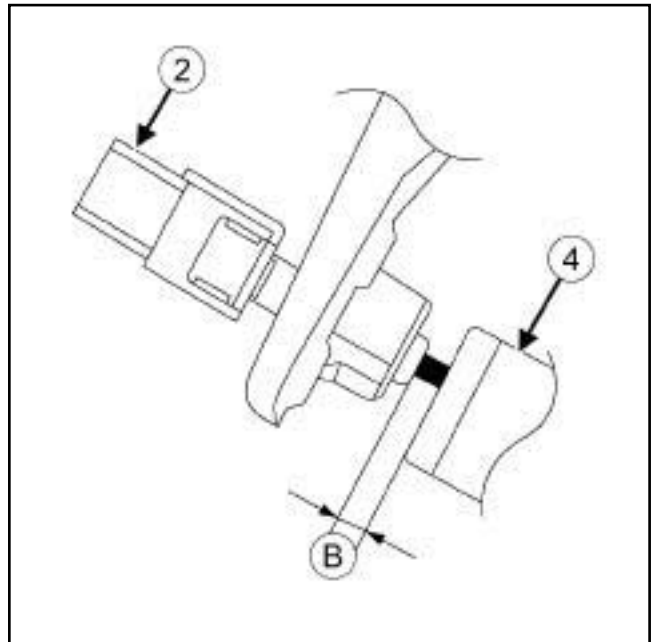
I - REFITTING OPERATION FOR PART CONCERNED



132861

- ☐ Position the clutch pedal switch (1) .
- ☐ Depress the clutch pedal switch until the end of the piston touches the rubber stop (3) .
- ☐ Measure the dimension (A) between the rubber stop and the end of the piston when the clutch pedal is fully depressed.
- ☐ If the dimension (A) is outside the limits, turn the clutch pedal switch carefully to adjust the dimension between **0.74 mm** and **1.96 mm**.

CRUISE CONTROL



132862

- ☐ Position the clutch pedal switch (2) .
- ☐ Depress the clutch pedal switch until the end of the piston touches the rubber stop (4) .
- ☐ Measure the dimension (B) between the rubber stop and the end of the piston when the clutch pedal is fully depressed.
- ☐ If the dimension (B) is outside the limits, turn the clutch pedal switch carefully to adjust the dimension between **0.74 mm** and **1.96 mm**.

II - FINAL OPERATION

☐ Refit:

- the clutch pedal (see **37A, Mechanical component controls, Clutch pedal: Removal - Refitting**, page **37A-42**) ,
- the steering column of the dashboard cross member (see **36A, Steering assembly, Steering column: Removal - Refitting**, page **36A-16**) (36A, Steering assembly),
- the right-hand trim of the central front panel,
- the A-pillar air distribution duct (see **A-pillar air distribution duct: Removal - Refitting**) (61A, Heating system),

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

- the dashboard lower cover on the driver's side (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the steering column switch assembly (see **Steering wheel controls assembly: Removal - Refitting**) (84A, Controls - Signals),
 - the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signals),
 - the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
 - the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page **36A-39**) (36A, Steering assembly),
 - the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ☐ Adjust the neutral position of the steering wheel angle sensor (see **Fault finding - Configurations and programming**) (80C, Xenon bulbs).

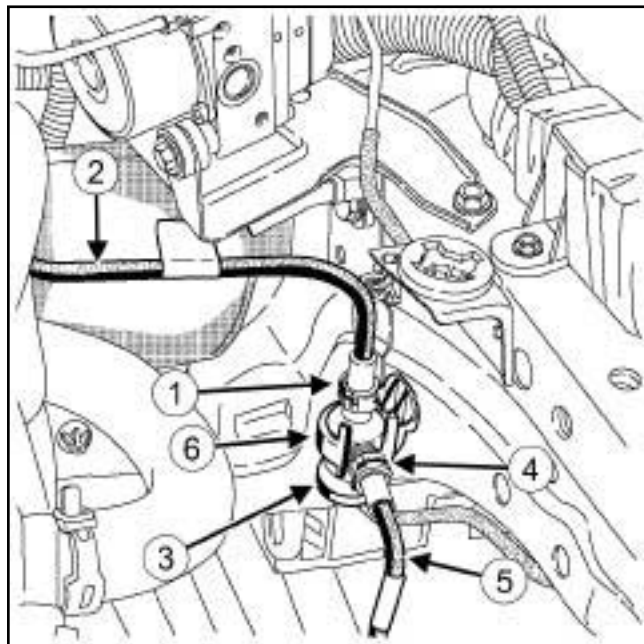
RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX

WARNING

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

REMOVAL**I - REMOVAL PREPARATION OPERATION**

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres).
 - the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery)
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
- ☐ Drain the brake fluid reservoir with a syringe.

II - OPERATION FOR REMOVAL OF PART CONCERNED

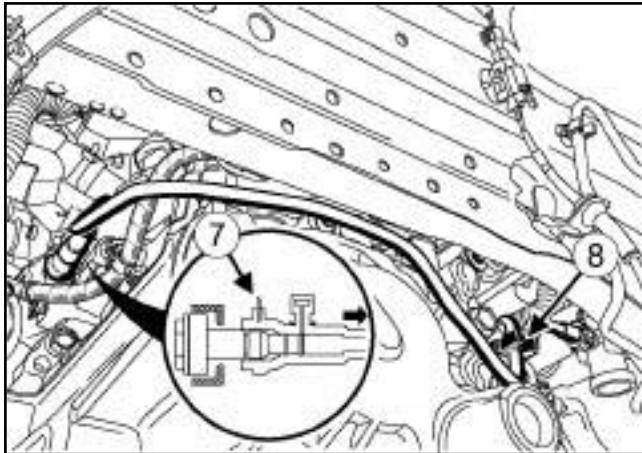
132866

WARNING

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

- ☐ Remove the clip (1) from the connecting pipe (2) between the clutch master cylinder and the hydraulic damper (3) .
- ☐ Disconnect the connecting pipe from the hydraulic damper.
- ☐ Remove the clip (4) from the clutch control pipe (5) on the hydraulic damper.
- ☐ Disconnect the clutch control pipe from the hydraulic damper.
- ☐ Unclip the clutch hydraulic damper from its support (6) .

RIGHT-HAND DRIVE, and 6 SPEED MANUAL GBOX



132867

- ☐ Remove the clip (7) from the clutch control pipe on the clutch slave cylinder on the gearbox.
- ☐ Disconnect the clutch control pipe from the clutch slave cylinder.
- ☐ Unclip the clutch control pipe from its clip (8) .
- ☐ Remove the clutch control pipe.
- ☐ Fit plugs into the openings.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the clutch control pipe, taking care not to damage anything,
 - the clutch hydraulic damper on its support.
- ☐ Connect:
 - the clutch control pipe on the slave cylinder side,
 - the clutch control pipe on the hydraulic damper side.
- ☐ Refit:
 - the clutch control pipe onto its clip,
 - the clutch control pipe clip onto the clutch slave cylinder,
 - the clutch control pipe clip onto the hydraulic damper.
- ☐ Connect the connecting pipe onto the hydraulic damper.
- ☐ Refit the connecting pipe clip between the clutch master cylinder and the hydraulic damper.

II - FINAL OPERATION

- ☐ Bleed the clutch circuit (see 37A, **Mechanical component controls, Clutch circuit: Bleeding**, page 37A-48) .
- ☐ Check that the clutch system is operating correctly.
- ☐ Refit:
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture)
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the battery (see **Battery : Removal - Refitting**) (80A, Battery)
 - the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the front left-hand wheel (see 35A, **Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres).

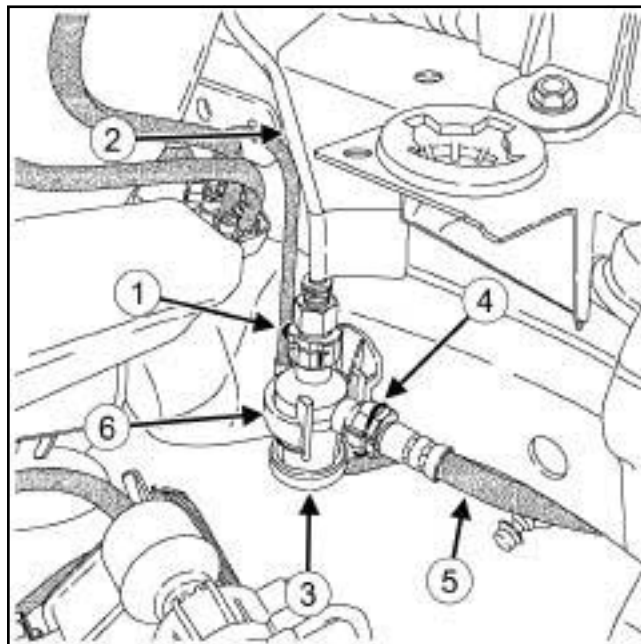
LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX

WARNING

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

REMOVAL**I - REMOVAL PREPARATION OPERATION**

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front left-hand wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres).
 - the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery)
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).
- ☐ Drain the brake fluid reservoir with a syringe.

II - OPERATION FOR REMOVAL OF PART CONCERNED

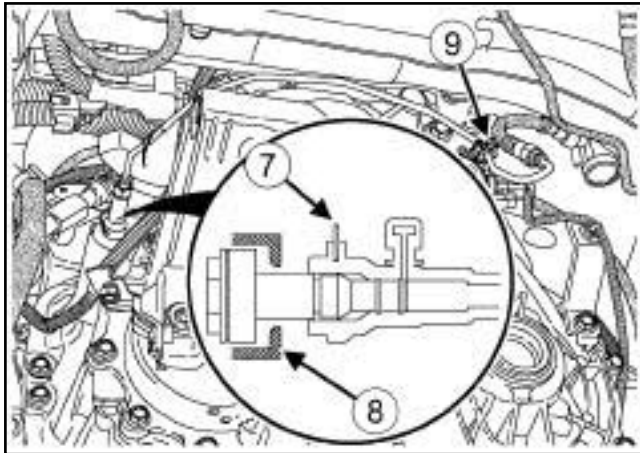
132864

WARNING

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

- ☐ Remove the clip (1) from the connecting pipe (2) between the clutch master cylinder and the hydraulic damper (3) .
- ☐ Disconnect the connecting pipe from the hydraulic damper.
- ☐ Remove the clip (4) from the connecting hose (5) on the hydraulic damper.
- ☐ Disconnect the connecting hose from the hydraulic damper.
- ☐ Unclip the clutch shock damper from its support (6) .

LEFT-HAND DRIVE, and 6 SPEED MANUAL GBOX



132865

- ☐ Remove the clip (7) from the clutch control pipe on the clutch slave cylinder on the gearbox (8) .
- ☐ Disconnect the clutch control pipe from the clutch slave cylinder.
- ☐ Unclip the clutch control pipe from its clip (9) .
- ☐ Remove the clutch control pipe.
- ☐ Fit plugs into the openings.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the clutch control pipe, taking care not to damage anything,
 - the clutch hydraulic damper on its support.
- ☐ Connect:
 - the clutch control pipe on the slave cylinder side,
 - the connecting hose on the hydraulic damper side.
- ☐ Refit:
 - the clutch control pipe on its clip,
 - the clutch control pipe clip on the clutch slave cylinder,
 - the connecting hose clip on the hydraulic damper.
- ☐ Connect the connecting pipe on the hydraulic damper.
- ☐ Refit the connecting pipe clip between the clutch master cylinder and the hydraulic damper.

II - FINAL OPERATION.

- ☐ Bleed the clutch circuit (see 37A, **Mechanical component controls, Clutch circuit: Bleeding**, page 37A-48) .
- ☐ Refit:
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the battery (see **Battery : Removal - Refitting**) (80A, Battery),
 - the front left-hand wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the front left-hand wheel (see 35A, **Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) (35A, Wheels and tyres).

MECHANICAL COMPONENT CONTROLS

Manual gearbox selector cable: Removal - Refitting

37A

M9R, and 6 SPEED MANUAL GBOX

Tightening torques 	
heater matrix water outlet pipe bolt	25 N.m
wiring channel bolts	10 N.m

REMOVAL

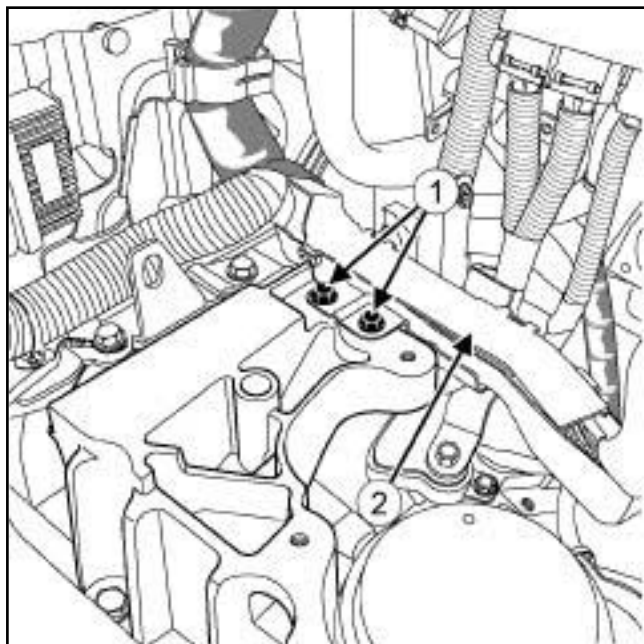
I - REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

IMPORTANT

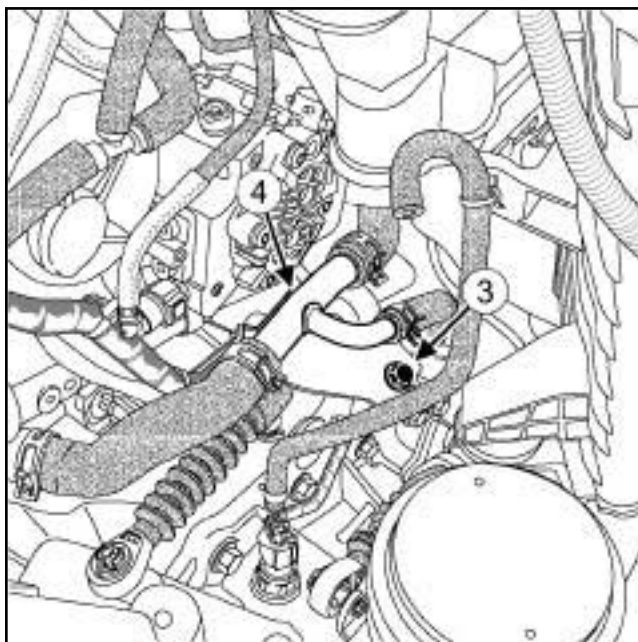
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

- ❑ Remove:
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery)
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).



131655

- ❑ Remove:
 - the bolts (1) from the wiring channel,
 - the wiring channel (2) .
- ❑ Disconnect the manual gearbox control cable from the gear control unit (see **37A, Mechanical component controls, Gear control unit: Removal - Refitting**, page 37A-76) .



131656

- ❑ Remove:
 - the bolt (3) from the heater matrix water outlet hose.
 - the heater matrix water outlet pipe (4) .

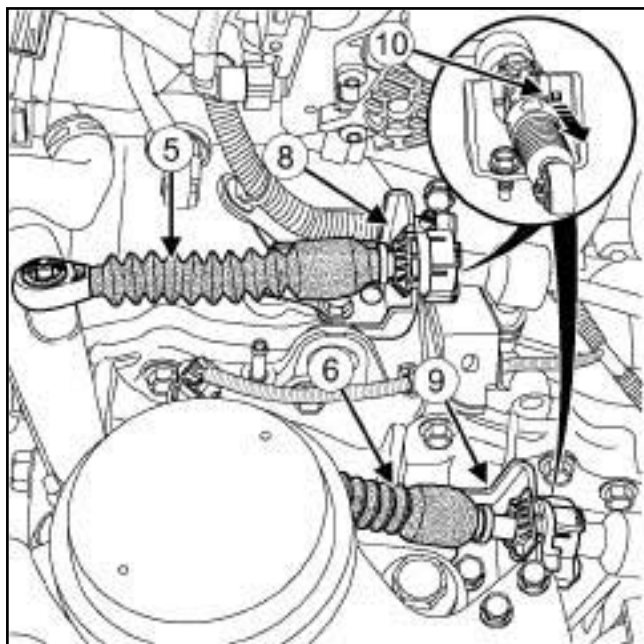
MECHANICAL COMPONENT CONTROLS

Manual gearbox selector cable: Removal - Refitting

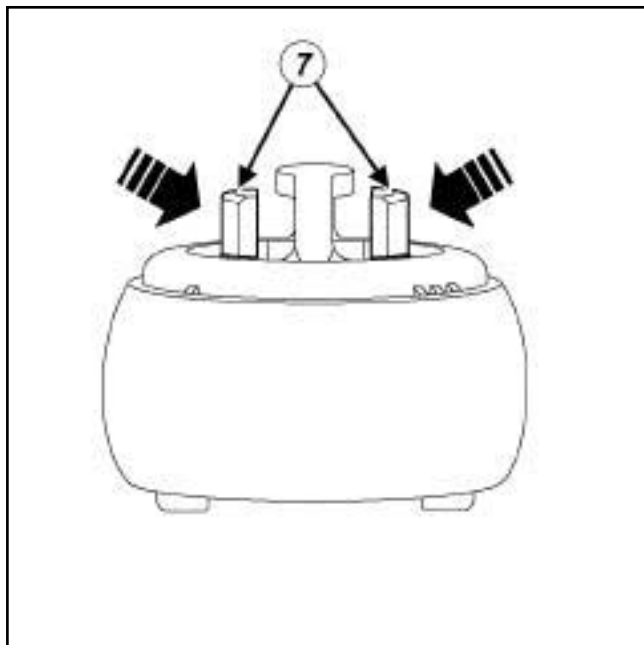
37A

M9R, and 6 SPEED MANUAL GBOX

II - OPERATION FOR REMOVAL OF PART CONCERNED



131657



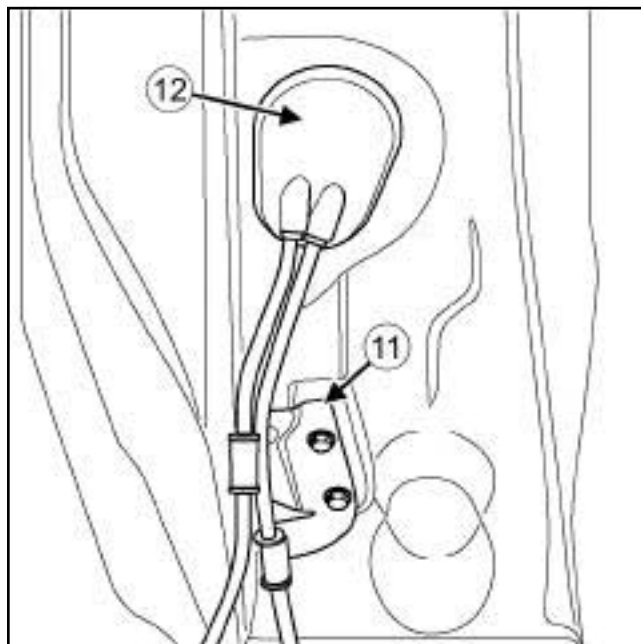
131658

□ Unclip:

- the cable (5)
- gear lever A while by pressing the brackets (7) ,
- the cable (6) from the selector lever by pressing the brackets (7) ,
- the gear lever cable (5) from the upper bracket of control cable A (8) by pulling on the locking brackets (10) ,

- the gear lever cable (6) from the upper bracket of control cable B (9) by pulling on the locking brackets (10) .

4X2 TRANSMISSION



131659

□ Unclip:

- the manual gearbox control cable from the lower bracket (11) of the control cable,
- the control cable stop (12) from the manual gearbox.

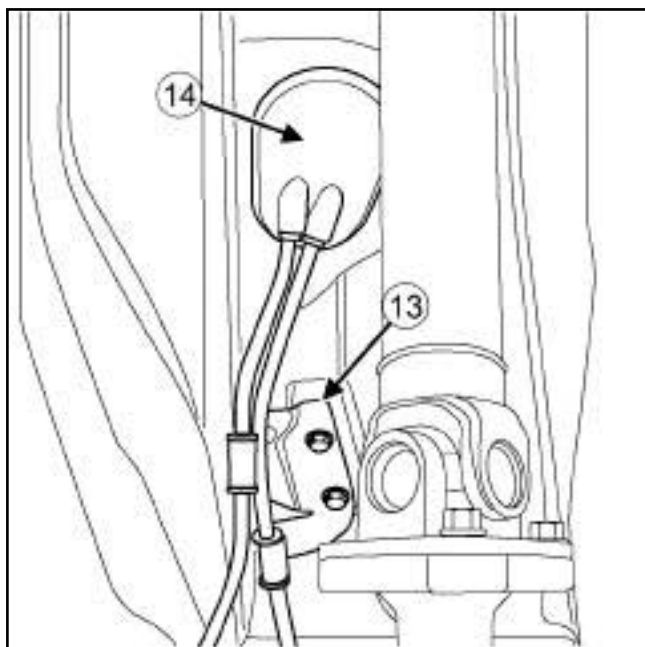
MECHANICAL COMPONENT CONTROLS

Manual gearbox selector cable: Removal - Refitting

37A

M9R, and 6 SPEED MANUAL GBOX

4X4 TRANSMISSION



131660

- ☐ Unclip:
 - the manual gearbox control cable from the lower bracket (13) of the control cable,
 - the control cable stop (14) from the manual gearbox.

- ☐ Remove the manual gearbox control cable.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the manual gearbox control cable.
- ☐ Clip:
 - the manual gearbox control cable on the lower bracket of the control cable,
 - the control cable stop of the manual gearbox,
 - the gear lever cable on the upper bracket of control cable A,
 - the gear lever cable on the upper bracket of control cable B,
 - the gear lever cable on gear lever A,
 - the selector lever cable on the selector lever.

II - FINAL OPERATION.

- ☐ Connect the manual gearbox control cable to the gear control unit (see **37A, Mechanical component controls, Gear control unit: Removal - Refitting, page 37A-76**) (Mechanical component controls).
- ☐ Adjust the selector lever cable (see **Gear control unit: Adjusting**) (Mechanical component controls).
- ☐ Refit:
 - the heater matrix water outlet pipe,
 - the heater matrix water outlet pipe bolt.
- ☐ Torque tighten the **heater matrix water outlet pipe bolt (25 N.m)**.
- ☐ Refit:
 - the wiring channel,
 - the wiring channel bolts.
- ☐ Torque tighten the **wiring channel bolts (10 N.m)**.
- ☐ Refit:
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the battery (see **Battery : Removal - Refitting**) (80A, Battery).

MECHANICAL COMPONENT CONTROLS

Manual gearbox selector cable: Removal - Refitting

37A

2TR, and 6 SPEED MANUAL GBOX

Tightening torques

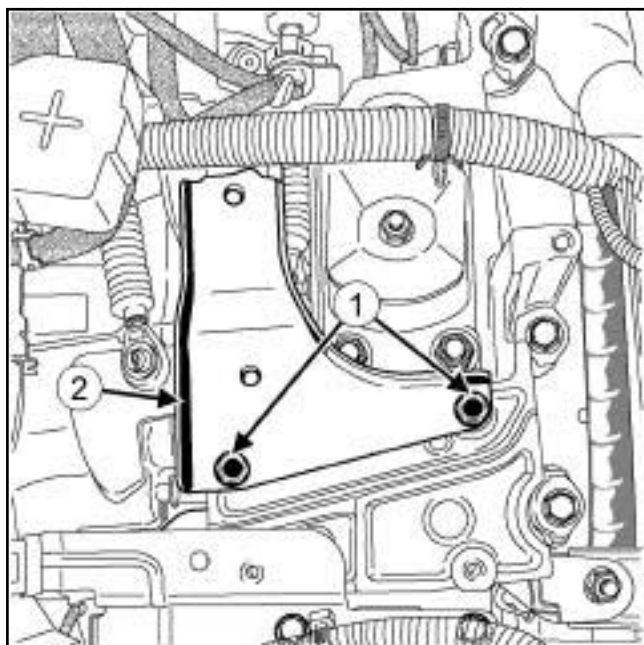
battery tray bracket mounting bolts	28 N.m
-------------------------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

❑ Remove:

- the battery (see **Battery: Removal - Refitting**) (80A, Battery)
- the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).



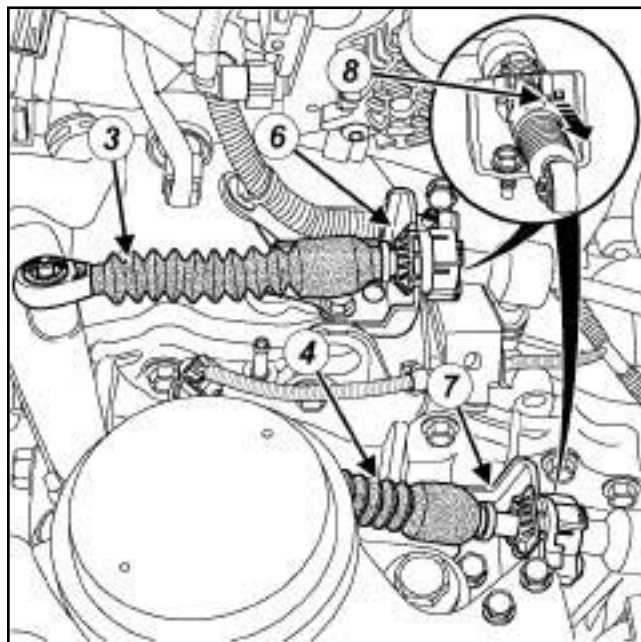
132484

❑ Remove:

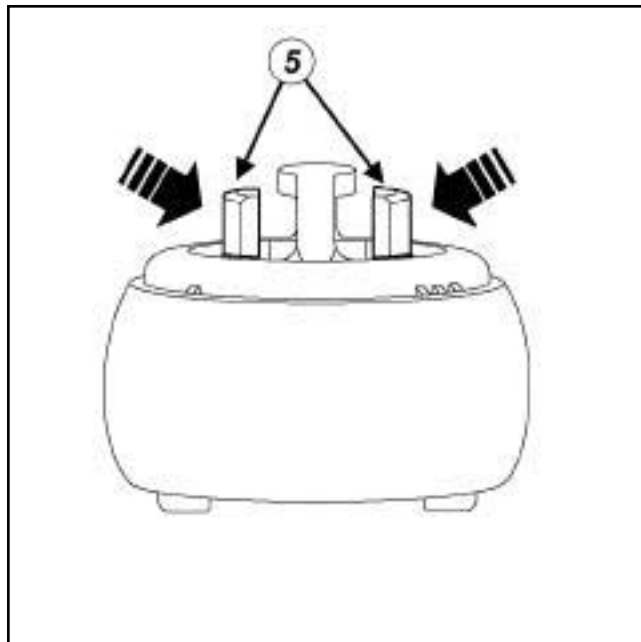
- the bolts (1) from the battery tray bracket,
- the battery tray bracket (2) .

- ❑ Disconnect the manual gearbox control cable from the gear control unit (see **37A, Mechanical component controls, Gear control unit: Removal - Refitting**, page 37A-76) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131657



131658

❑ Unclip:

- the cable (3) from the gear lever A by pressing on the brackets (5) ,
- the cable (4) from the gear lever by pressing on the brackets (5) ,
- the gear lever cable (3) from the upper bracket of control cable A (6) by pulling on the locking brackets (8) ,

MECHANICAL COMPONENT CONTROLS

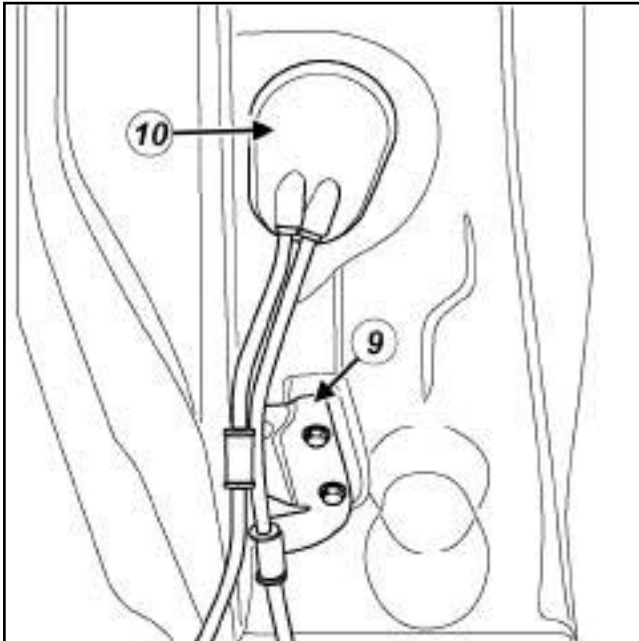
Manual gearbox selector cable: Removal - Refitting

37A

2TR, and 6 SPEED MANUAL GBOX

- the selector lever cable (4) from the upper bracket of control cable B (7) by pulling on the locking brackets (8) .

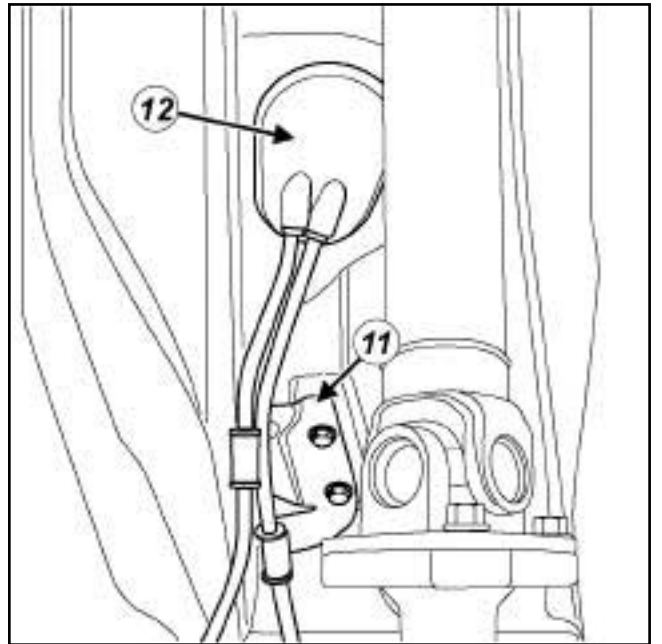
4X2 TRANSMISSION



□ Unclip:

- the manual gearbox control cable from the lower bracket (9) of the control cable,
- the stop (10) from the manual gearbox control cable.

4X4 TRANSMISSION



□ Unclip:

- the manual gearbox control cable from the lower bracket (11) of the control cable,
- the stop (12) from the manual gearbox control cable.

- Remove the manual gearbox control cable.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- Refit the manual gearbox control cable.

□ Clip:

- the manual gearbox control cable on the lower bracket of the control cable,
- the control cable stop on the manual gearbox,
- the selector lever cable on the upper bracket of control cable A,
- the selector lever cable on the upper bracket of control cable B,
- the gear lever cable on gear lever A,
- the selector lever cable on the selector lever.

2TR, and 6 SPEED MANUAL GBOX

II - FINAL OPERATION

- ☐ Connect the manual gearbox control cable to the gear control unit (see **37A, Mechanical component controls, Gear control unit: Removal - Refitting, page 37A-76**) .
- ☐ Adjust the selector lever cable (see **37A, Mechanical component controls, Mechanical gear control cable: Adjustment, page 37A-84**) .
- ☐ Refit:
 - the battery tray bracket,
 - the battery tray bracket bolts.
- ☐ Tighten to torque the **battery tray bracket mounting bolts (28 N.m)**.
- ☐ Refit:
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery).

Tightening torques

gear control unit bolts

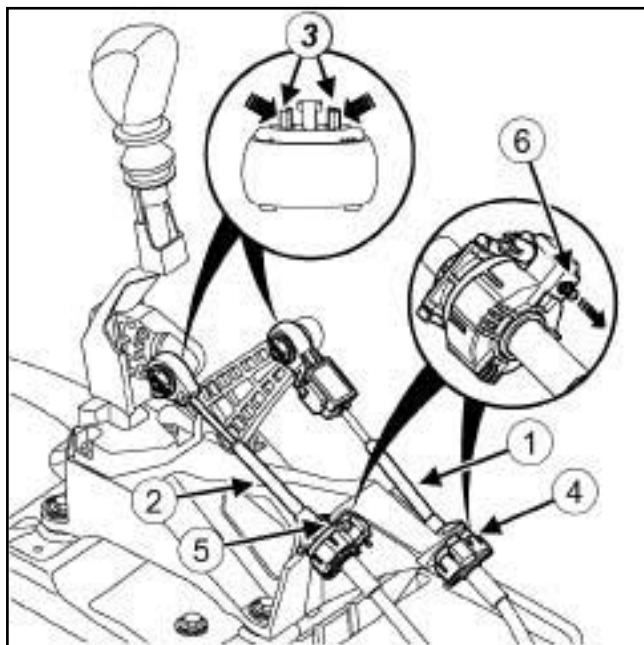
7 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Remove the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

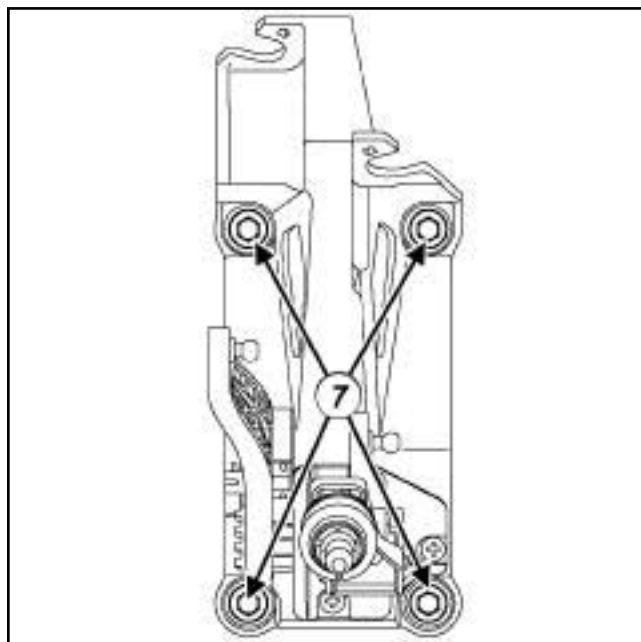
II - OPERATION FOR REMOVAL OF PART CONCERNED



131661

☐ Unclip:

- the selector lever cable (1) from the gear control unit by pressing on the brackets (3) ,
- the selector cable stop (4) from the gear control unit by pulling on the locking bracket (6) ,
- the cable (2) from the gear control unit gear lever by pressing on the brackets (3) ,
- the gear lever cable stop (5) from the gear control unit by pulling on the locking bracket (6) .



131662

☐ Remove:

- the bolts (7) from the gear control unit,
- the gear control unit.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the gear control unit,
- the bolts on the gear control unit.

☐ Torque tighten the **gear control unit bolts (7 N.m)**.☐ Clip:

- the gear lever cable stop on the gear control unit by pulling on the locking bracket,
- the gear lever cable on the gear control unit,
- the selector lever cable stop on the gear control unit by pulling on the locking bracket,
- the selector lever cable on the gear control unit.

II - FINAL OPERATION.

- ☐ Adjust the selector lever cable (see **37A, Mechanical component controls, Mechanical gear control cable: Adjustment**, page 37A-84) .
- ☐ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

6 SPEED AUTO GBOX or VARIABLE GEARBOX

Tightening torques

gear control unit bolts

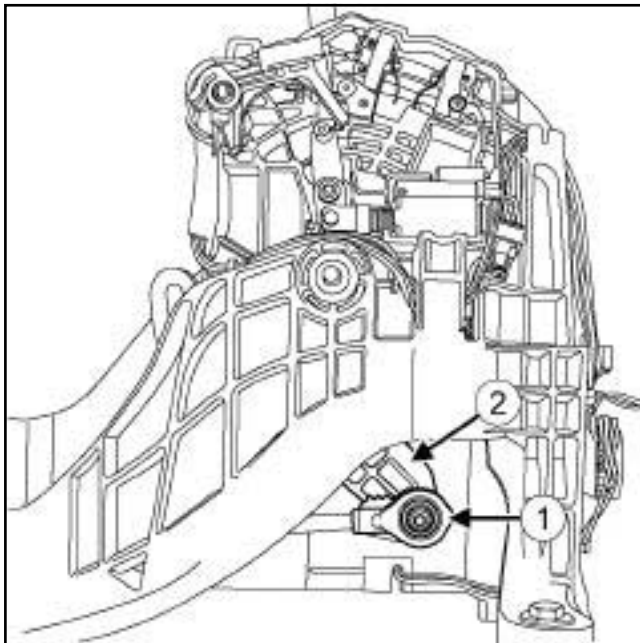
6 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

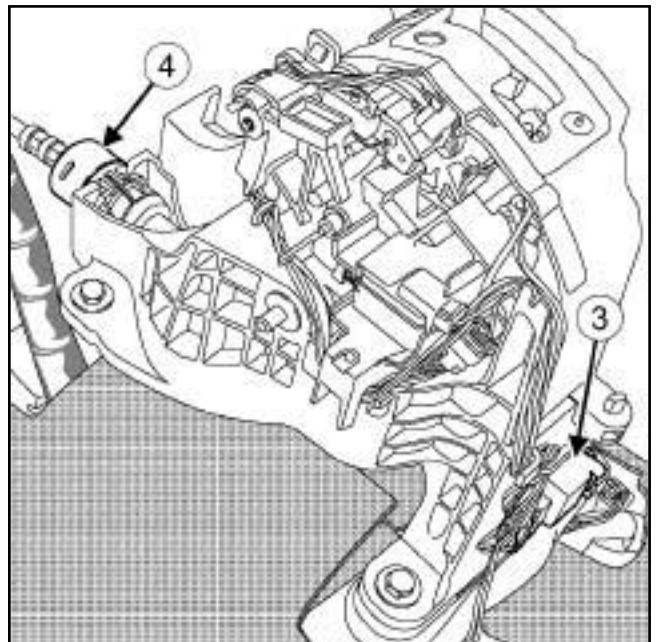
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Remove the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



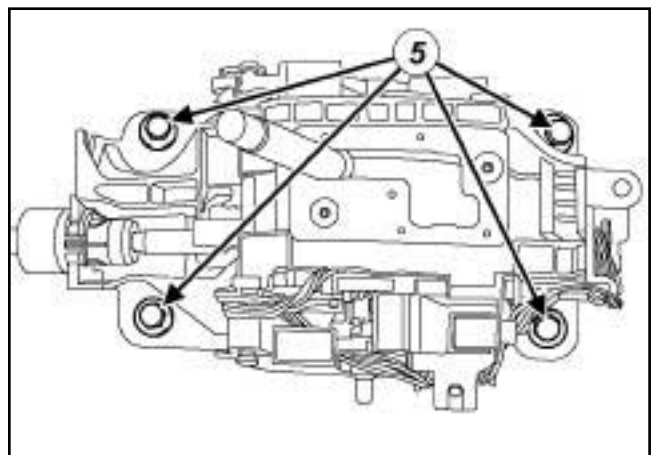
131663

- ☐ Unclip the automatic gearbox control cable (1) from the lever of the gear control unit (2) .



131664

- ☐ Unclip:
 - the connector (3) from the gear control unit,
 - the automatic gearbox control cable stop (4) from the gear control unit.
- ☐ Move aside the automatic gearbox control cable.



131665

- ☐ Remove:
 - the gear control unit bolts (5) ,
 - the gear control unit.

Gear control unit: Removal - Refitting

6 SPEED AUTO GBOX or VARIABLE GEARBOX

REFITTING

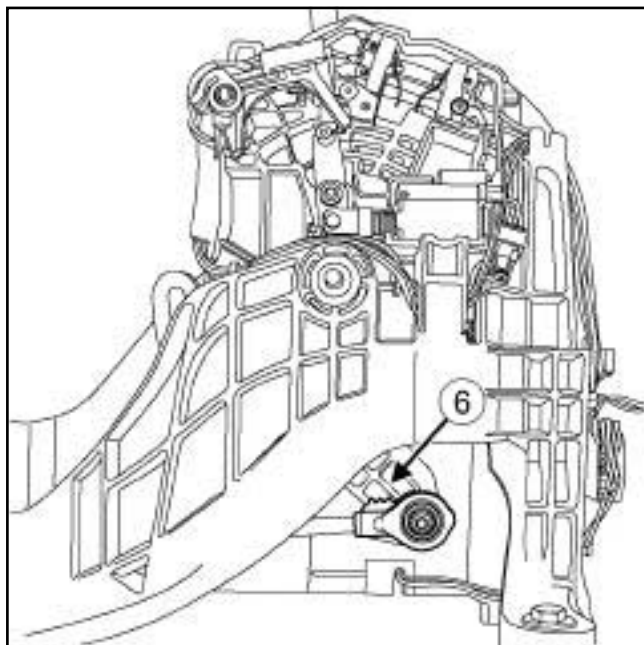
I - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the gear control unit.
- the gear control unit bolts,

☐ Torque tighten the **gear control unit bolts (6 N.m)**.☐ Clip:

- the automatic gearbox control cable stop onto the gear control unit,
- the connector onto the gear control unit.



131666

☐ Clip:

- the automatic gearbox control cable onto the gear control unit lever by positioning the ribbed side (6) upwards,
- the automatic gearbox control cable stop onto the gear control unit.

II - FINAL OPERATION

- ☐ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

MECHANICAL COMPONENT CONTROLS

Automatic gear control cable: Removal - Refitting

37A

VARIABLE GEARBOX

Tightening torques

automatic gearbox control cable nut	14 N.m
-------------------------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

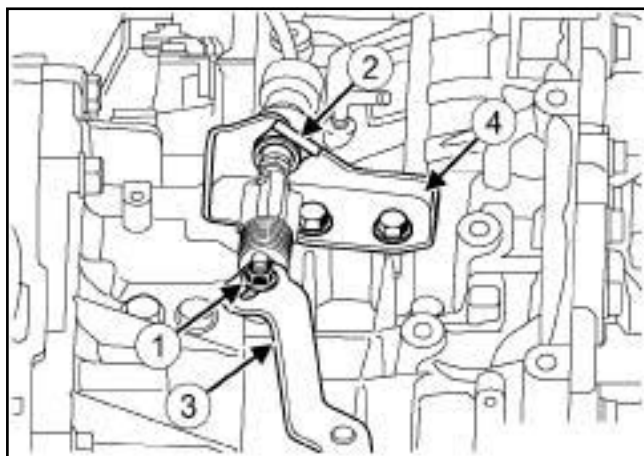
- Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

IMPORTANT

To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

- Remove:
 - the air inlet pipe (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery)
 - the battery tray (see **Battery: Removal - Refitting**) (80A, Battery).
- Disconnect the automatic gearbox control cable from the gear control unit (see **37A, Mechanical component controls, Gear control unit: Removal - Refitting**, page 37A-76) .

II - OPERATION FOR REMOVAL OF PART CONCERNED

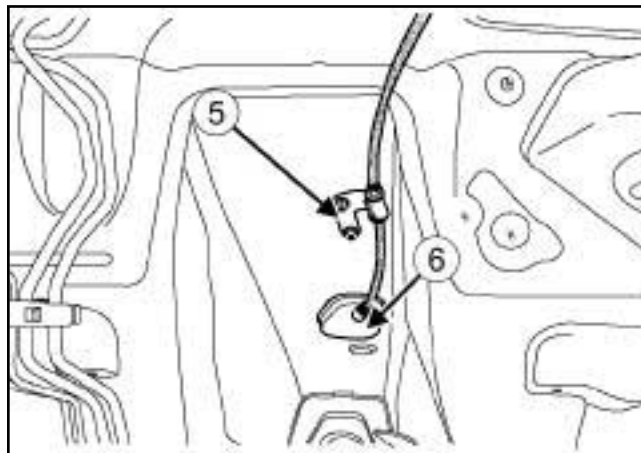


131673

- Remove:
 - the nut (1) of the automatic gearbox control cable,
 - the sheath stop (2) from the automatic gearbox control cable.

Unclip:

- the automatic gearbox control cable from the multi-function switch lever (3) .
- the automatic gearbox control cable from the upper bracket (4) of the control cable.



131674

Unclip:

- the automatic gearbox control cable from the lower bracket (5) of the control cable,
- the cover (6) of the automatic gearbox control cable.

- Remove the automatic gearbox control cable.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- Refit the automatic gearbox control cable.

Clip:

- the automatic gearbox control cable cover,
- the automatic gearbox control cable on the lower bracket of the control cable,
- the automatic gearbox control cable on the upper bracket of the control cable,
- the automatic gearbox control cable on the multi-function switch lever.

Refit:

- the sheath stop on the automatic gearbox control cable,
- the nut on the automatic gearbox control cable.

- Torque tighten the **automatic gearbox control cable nut (14 N.m)**.

MECHANICAL COMPONENT CONTROLS

Automatic gear control cable: Removal - Refitting

37A

VARIABLE GEARBOX

II - FINAL STEP

- ☐ Connect the automatic gearbox control cable on the gear control unit (see **37A, Mechanical component controls, Gear control unit: Removal - Refitting, page 37A-76**).
- ☐ Adjust the multifunction switch (see **Multifunction switch: Adjusting**) (23A, Automatic gearbox).
- ☐ Remove:
 - the battery tray (see **Battery : Removal - Refitting**) (80A, Battery),
 - the battery (see **Battery : Removal - Refitting**) (80A, Battery)
 - the air inlet pipe (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture).

MECHANICAL COMPONENT CONTROLS

Automatic gear control cable: Removal - Refitting

37A

6 SPEED AUTO GBOX

Tightening torques 	
automatic gearbox control cable nut	14 N.m
heater matrix water inlet pipe bolt	25 N.m
heater matrix water outlet pipe bolt	25 N.m
wiring channel bolts	10 N.m

REMOVAL

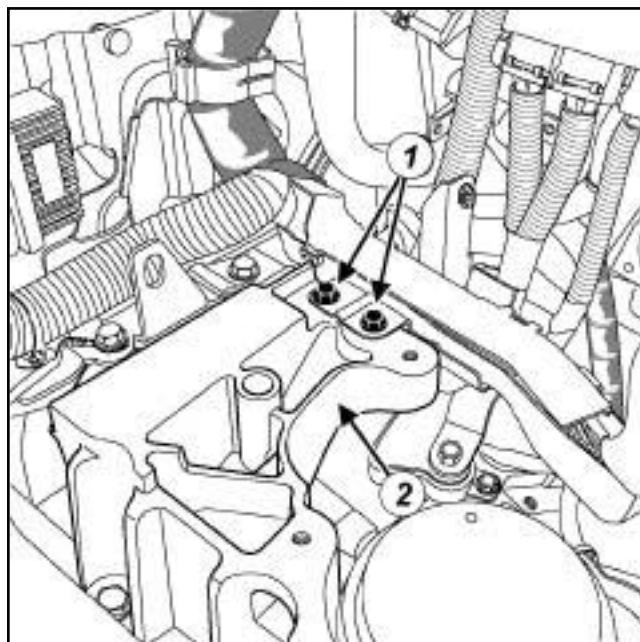
I - REMOVAL PREPARATION OPERATION

- ❑ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

IMPORTANT

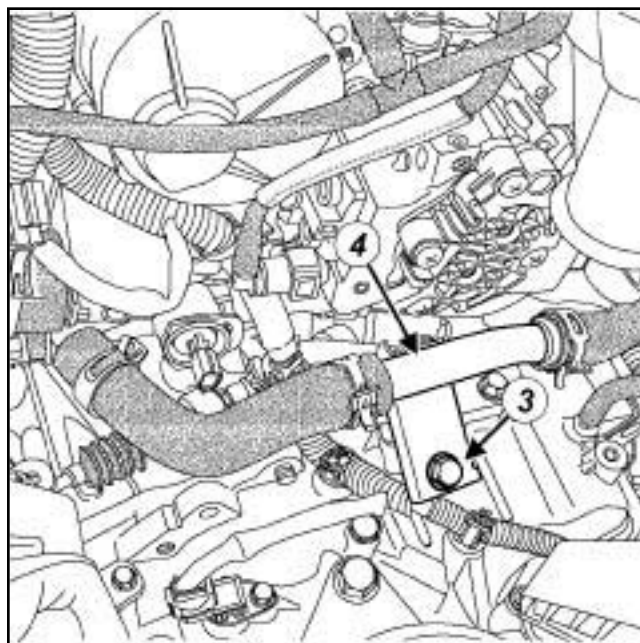
To prevent the vehicle from falling, lash it to the vehicle lift using a strap.

- ❑ Remove:
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery)
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery).
- ❑ Disconnect the manual gearbox control cable from the gear control unit (see **37A, Mechanical component controls, Gear control unit: Removal - Refitting**, page 37A-76) .



131667

- ❑ Remove:
 - the bolts (1) from the wiring channel,
 - the wiring channel (2) .



131668

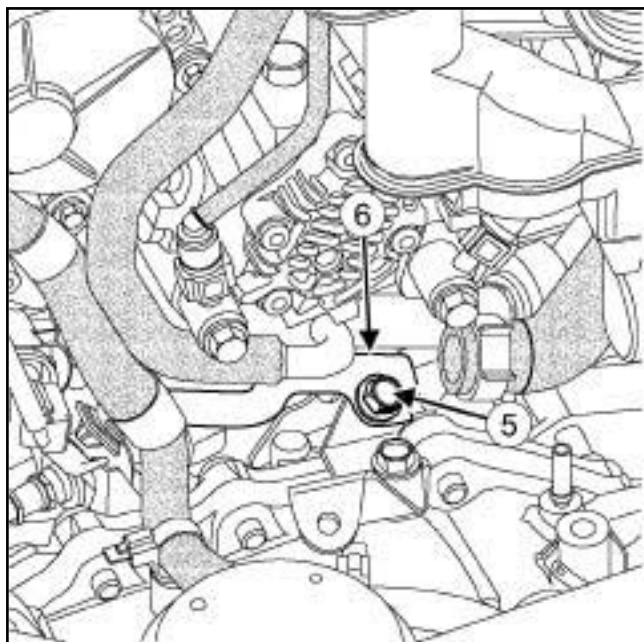
- ❑ Remove:
 - the bolt (3) from the heater matrix water outlet pipe,
 - the heater matrix water outlet pipe (4) .

MECHANICAL COMPONENT CONTROLS

Automatic gear control cable: Removal - Refitting

37A

6 SPEED AUTO GBOX

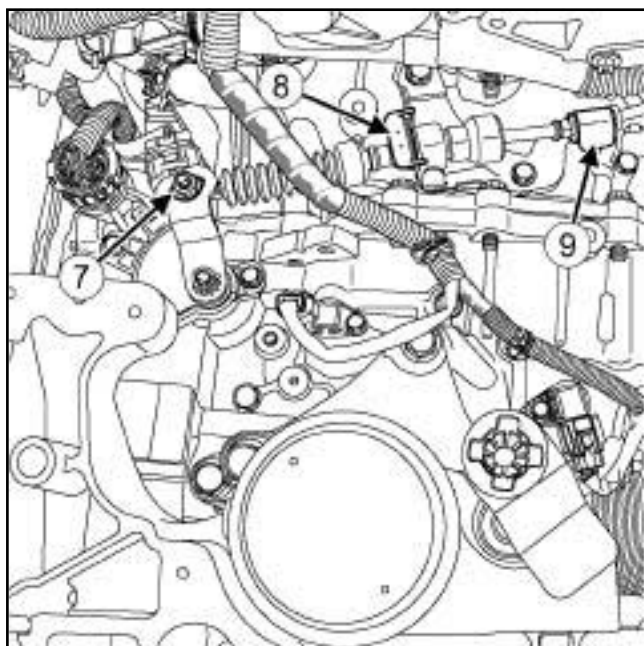


131669

Remove:

- the bolt (5) from the heater matrix inlet pipe,
- the heater matrix inlet pipe (6) .

II - OPERATION FOR REMOVAL OF PART CONCERNED



131670

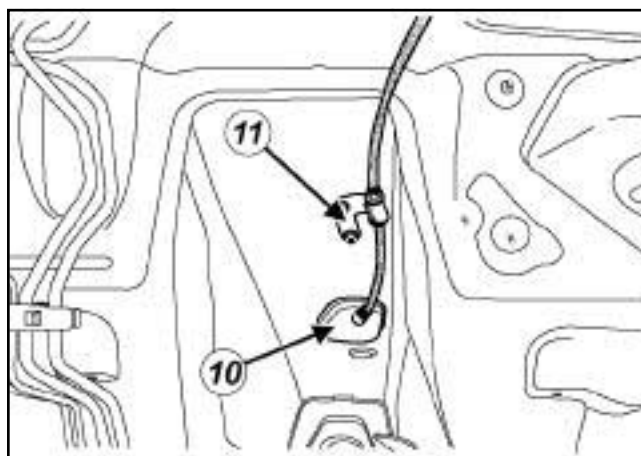
Remove:

- the nut (7) from the automatic gearbox control cable,
- the sheath stop (8) from the automatic gearbox control cable.

Unclip:

- the automatic gearbox control cable from the multi-function switch lever,
- the automatic gearbox control cable from the upper bracket (9) of the control cable.

4X2 TRANSMISSION



131671

Unclip:

- the automatic gearbox control cable from the lower bracket (11) of the control cable,
- the stop (10) from the control cable of the automatic gearbox.

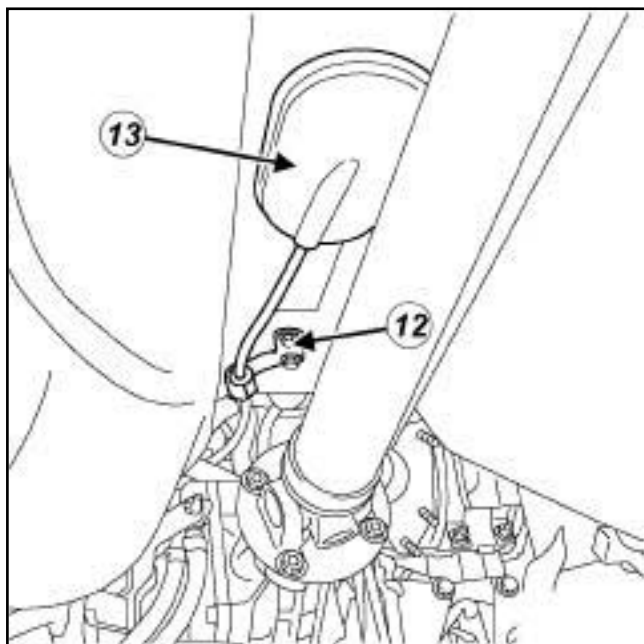
MECHANICAL COMPONENT CONTROLS

Automatic gear control cable: Removal - Refitting

37A

6 SPEED AUTO GBOX

4X4 TRANSMISSION



131672

- ☐ Unclip:
 - the automatic gearbox control cable from the lower bracket (12) of the control cable,
 - the stop (13) from the control cable of the automatic gearbox.

- ☐ Remove the automatic gearbox control cable.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED:

- ☐ Refit the automatic gearbox control cable.
- ☐ Clip:
 - the automatic gearbox control cable on the lower bracket of the control cable,
 - the stop of the automatic gearbox control cable,
 - the automatic gearbox control cable on the upper bracket of the control cable,
 - the automatic gearbox control cable onto the multifunction switch lever.
- ☐ Refit:
 - the control cable sheath stop on the automatic gearbox,

- the automatic gearbox control cable nut.

- ☐ Torque tighten the **automatic gearbox control cable nut (14 N.m)**.

II - FINAL OPERATION.

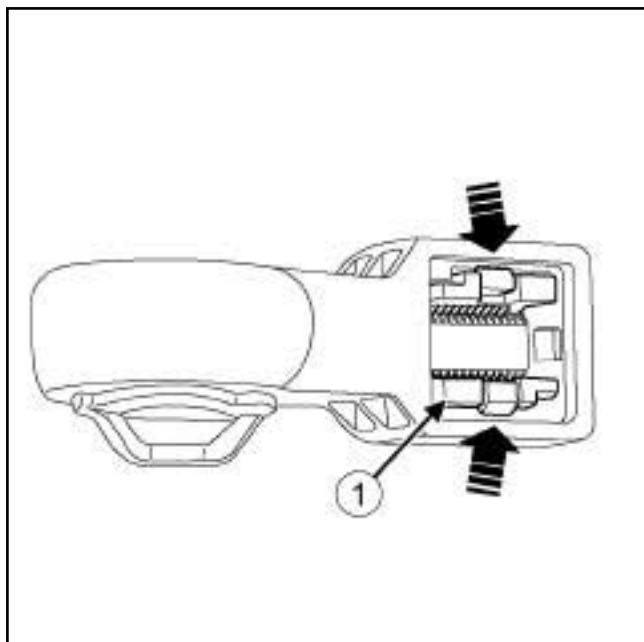
- ☐ Refit:
 - the heater matrix water inlet pipe,
 - the bolt of the heater matrix water inlet pipe.
- ☐ Torque tighten the **heater matrix water inlet pipe bolt (25 N.m)**.
- ☐ Refit:
 - the heater matrix water outlet pipe,
 - the bolt of the heater matrix water outlet pipe.
- ☐ Torque tighten the **heater matrix water outlet pipe bolt (25 N.m)**.
- ☐ Refit:
 - the wiring channel,
 - the wiring channel bolts.
- ☐ Torque tighten the **wiring channel bolts (10 N.m)**.
- ☐ Connect the manual gearbox control cable to the gear control unit (see **37A, Mechanical component controls, Gear control unit: Removal - Refitting, page 37A-76**).
- ☐ Adjust the multifunction switch (see **Multifunction switch: Adjusting**) (23A, Automatic gearbox).
- ☐ Refit:
 - the battery tray (see **Battery tray: Removal - Refitting**) (80A, Battery),
 - the battery (see **Battery: Removal - Refitting**) (80A, Battery).

MECHANICAL COMPONENT CONTROLS

Mechanical gear control cable: Adjustment

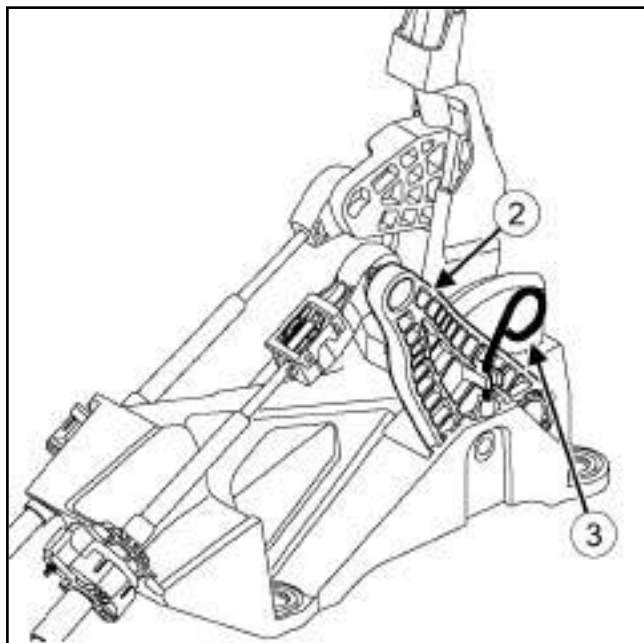
37A

6 SPEED MANUAL GBOX



132945

- ❑ Unlock the selector lever cable by pressing on the adjustment clip (1) and pushing it downwards.



132946

- ❑ Clip the selector lever cable onto the gear lever (2) of the gear control unit.
- ❑ Push the pin (3) (3 mm) on the gear control unit and the selector lever of the gear control unit.
- ❑ Put the gear control unit in 4th gear.
- ❑ Lock the selector lever cable by compressing the adjustment clip (1).
- ❑ Remove the pin (3).
- ❑ Check that this gear selection is correct.

MECHANICAL COMPONENT CONTROLS

Parking brake cables: Removal - Refitting

37A

FOOT BRAKE AUTO CONTROL

Essential equipment

diagnostic tool

Tightening torques

parking brake cable on the underbody	6 N.m
parking brake cable bolt near the rear stub axle carrier bracket	8 N.m
bolt of the parking brake cable on the rear stub axle carrier	6 N.m
parking brake cable on the rear brake disc shield	13 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Release the parking brake.
- ☐ Remove:
 - the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,
 - the rear brake calliper without disconnecting it from the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) .
- ☐ Suspend the rear brake calliper.
- ☐ Remove:
 - the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,
 - the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7) ,
 - the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13) ,
 - the rear brake lining (see **33A, Rear axle components, Rear brake lining: Removal - Refitting**, page 33A-15) .

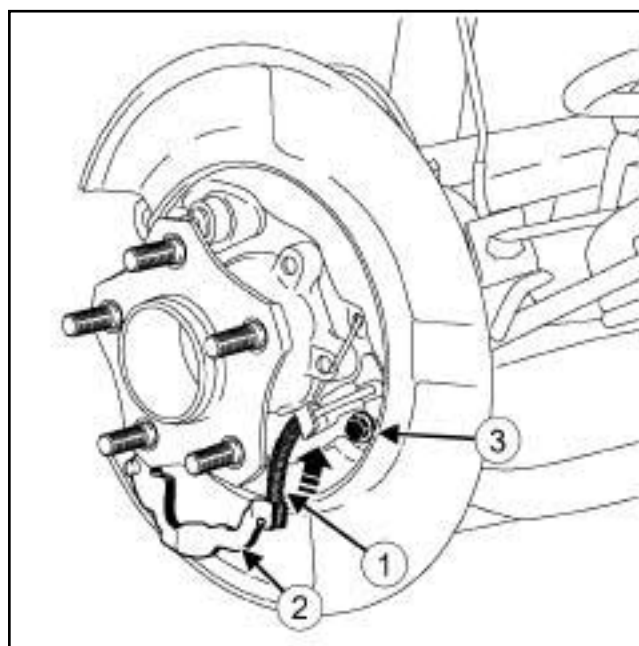
II - OPERATION FOR REMOVAL OF PART CONCERNED



WARNING

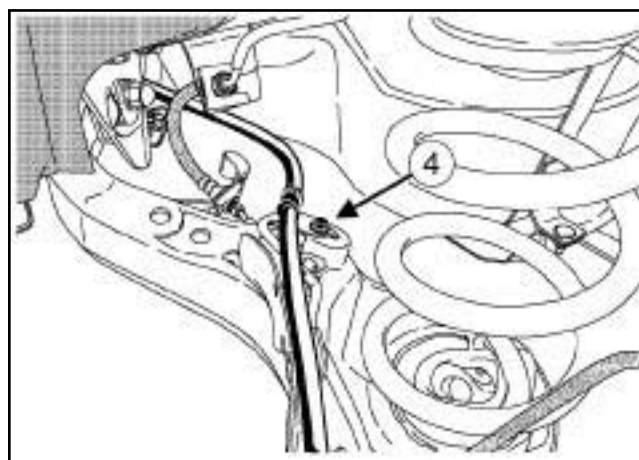
To avoid damaging the parking brake cable protectors and causing premature wear of the system, do not handle the cables with a tool.

- ☐ Note the parking brake cable routing for refitting.



131701

- ☐ Separate the parking brake cable (1) from the parking brake lever (2) .
- ☐ Remove the bolt (3) from the parking brake cable.



131702

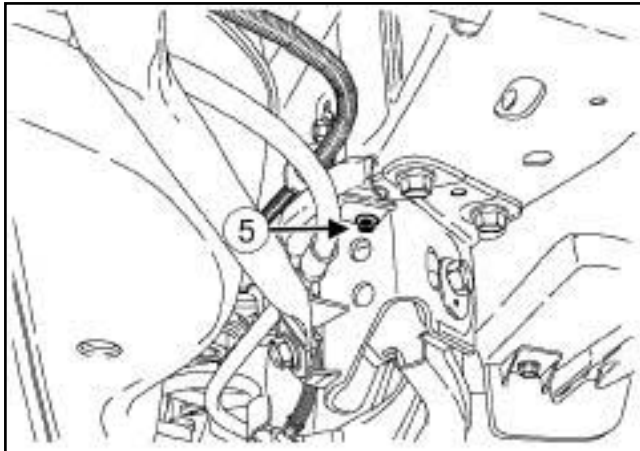
- ☐ Remove the parking brake cable bolt (4) from the rear stub axle carrier.

MECHANICAL COMPONENT CONTROLS

Parking brake cables: Removal - Refitting

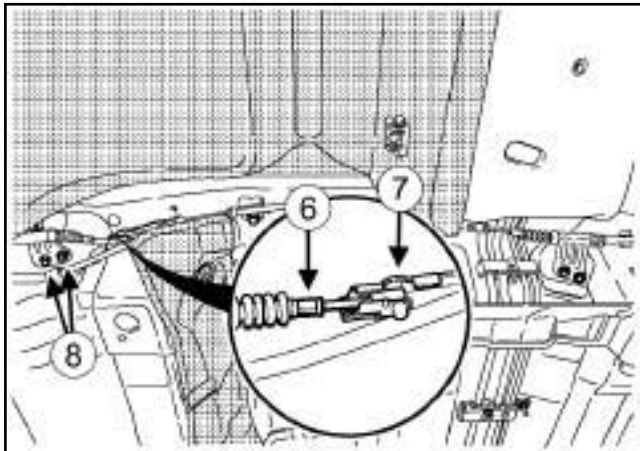
37A

FOOT BRAKE AUTO CONTROL



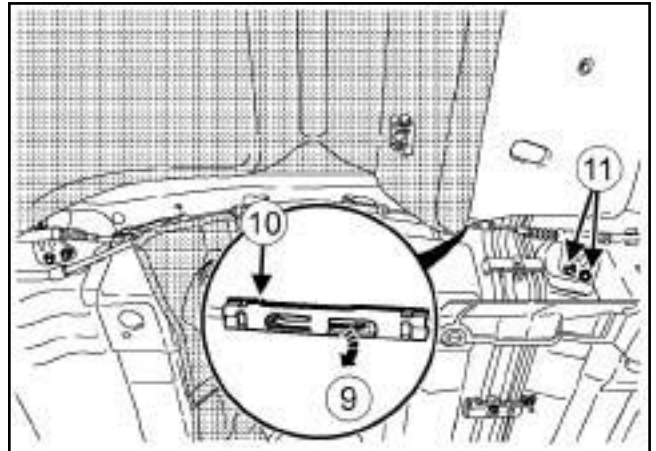
131703

- ❑ Remove the parking brake cable bolt (5) near the rear stub axle carrier support.



131704

- ❑ Disconnect the left-hand section (6) of the parking brake cable from its clip (7) .
- ❑ Remove:
 - the bolts (8) from the left-hand section of the parking brake cable,
 - the right-hand section of the parking brake cable.



131705

- ❑ Lift up the stopper (9) .
- ❑ Disconnect the right-side of the parking brake cable from its clip (10) .
- ❑ Remove:
 - the bolts (11) from the right-hand section of the parking brake cable,
 - the right-hand section of the parking brake cable.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace the clip (10) on the right-side of parking brake cable.

II - REFITTING OPERATION FOR PART CONCERNED

- ❑ Refit the parking brake cables.
- ❑ Refit:
 - the right-hand section of the parking brake cable,
 - the bolts from the right-hand section of the parking brake cable,
 - the right-hand section of the parking brake cable,
 - the bolts from the left-hand section of the parking brake cable.
- ❑ Torque tighten the **parking brake cable on the underbody (6 N.m)**.
- ❑ Connect the right-side of the parking brake cable onto its new clip.
- ❑ Press the stopper.
- ❑ Connect the left-side of the parking brake cable onto its new clip.

MECHANICAL COMPONENT CONTROLS

Parking brake cables: Removal - Refitting

37A

FOOT BRAKE AUTO CONTROL

☐ Refit:

- the parking brake cable bolt near the rear stub axle carrier bracket,
- the bolt of the parking brake cable on the rear stub axle carrier.

☐ Torque tighten:

- the **parking brake cable bolt near the rear stub axle carrier bracket (8 N.m)**,
- the **bolt of the parking brake cable on the rear stub axle carrier (6 N.m)**.

☐ Refit:

- the parking brake cable to the parking brake lever,
- the bolt of the parking brake cable on to the rear brake disc shield.

☐ Torque tighten the **parking brake cable on the rear brake disc shield (13 N.m)**.

☐ Follow the brake cable routing noted during removal.

III - FINAL OPERATION.

☐ Refit:

- the rear brake lining (see **33A, Rear axle components, Rear brake lining: Removal - Refitting, page 33A-15**) ,
- the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting, page 33A-13**) ,
- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting, page 33A-7**) ,
- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting, page 33A-1**) ,
- the rear brake calliper (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting, page 33A-5**) .

☐ With the ignition on, push the handle to release the electronic parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.

☐ Carry out a complete check and clear any faults generated using the **diagnostic tool**. Configure the new brake control unit (see **Fault Finding - Replacement of components**) (37B, Automatic parking brake).

MECHANICAL COMPONENT CONTROLS

Parking brake cables: Removal - Refitting

37A

FOOT BRAKE MANUAL CONTROL

Tightening torques 	
parking brake cable bolts on the underbody	6 N.m
parking brake cable bolt near the rear stub axle carrier support	8 N.m
bolt of the parking brake cable on the rear stub axle carrier	6 N.m
parking brake cable bolt on the rear brake disc protector	13 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).

- ☐ Release the parking brake.

- ☐ Remove:

- the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) ,

- the rear brake calliper without disconnecting it from the brake hose (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page 33A-5) .

- ☐ Suspend the rear brake calliper.

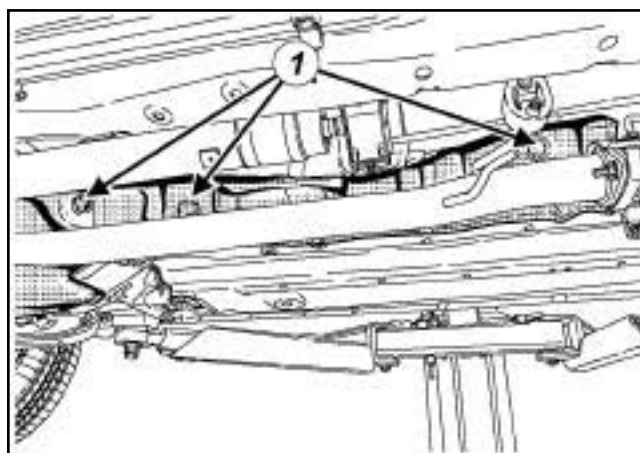
- ☐ Remove:

- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page 33A-1) ,

- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page 33A-7) ,

- the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page 33A-13) ,

- the rear brake lining (see **33A, Rear axle components, Rear brake lining: Removal - Refitting**, page 33A-15) .



131679

- ☐ Remove:

- the clips (1) of the silencer front heat shield,
- the silencer heat shield.

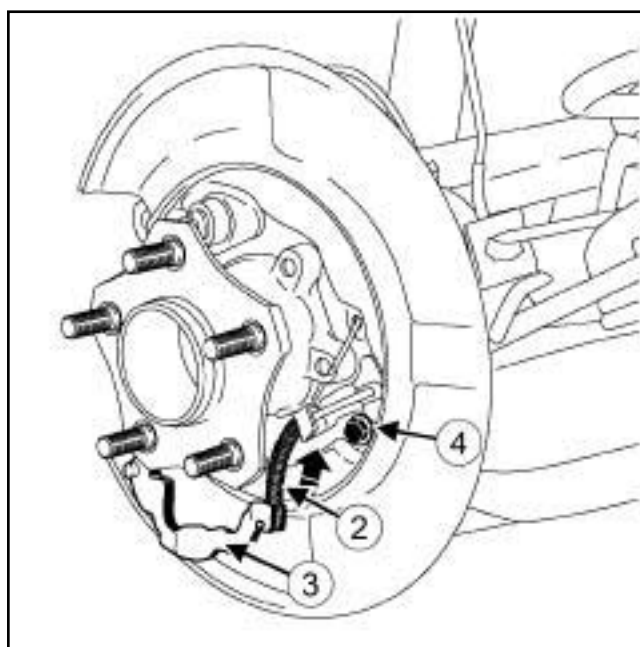
II - OPERATION FOR REMOVAL OF PART CONCERNED

- ☐

WARNING

To avoid damaging the parking brake cable protectors and causing premature wear of the system, do not handle the cables with a tool.

- ☐ Note the parking brake cable routing for refitting.



131680

- ☐ Separate the parking brake cable (2) from the parking brake lever (3) .

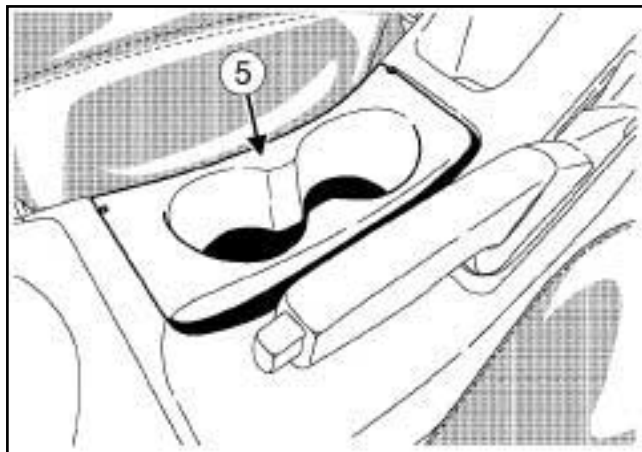
- ☐ Remove the bolt (4) from the parking brake cable.

MECHANICAL COMPONENT CONTROLS

Parking brake cables: Removal - Refitting

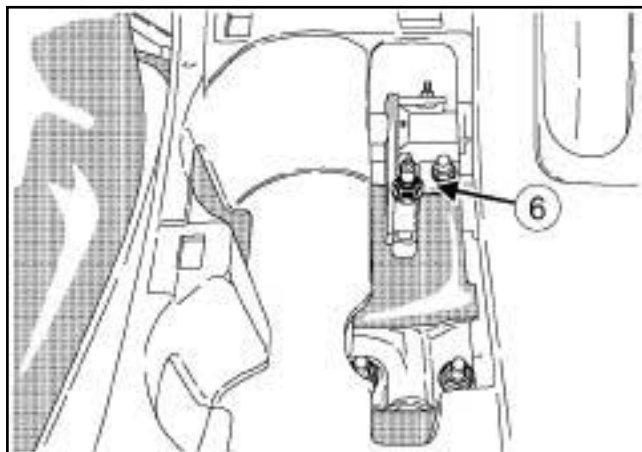
37A

FOOT BRAKE MANUAL CONTROL



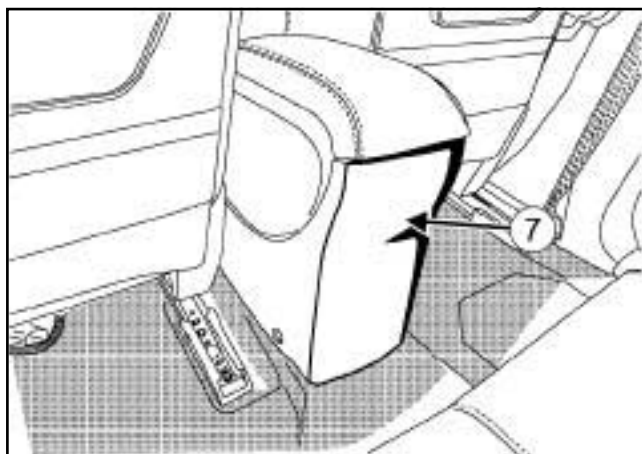
131681

- ❑ Remove the cup holder (5) .



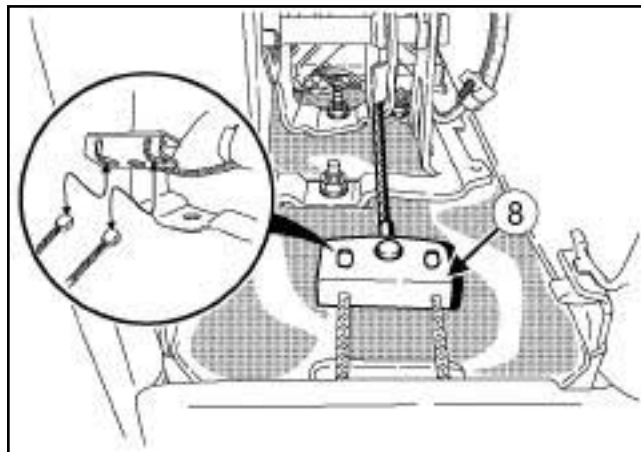
131682

- ❑ Loosen the adjustment nut (6) to completely loosen the parking brake cable.



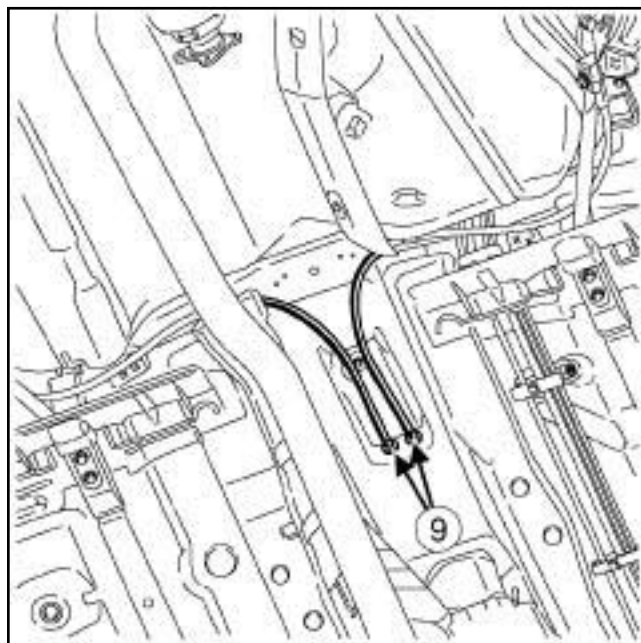
131683

- ❑ Remove the rear cover (7) from the centre console.



131684

- ❑ Disconnect the parking brake cables on the parking brake compensator (8) .



131685

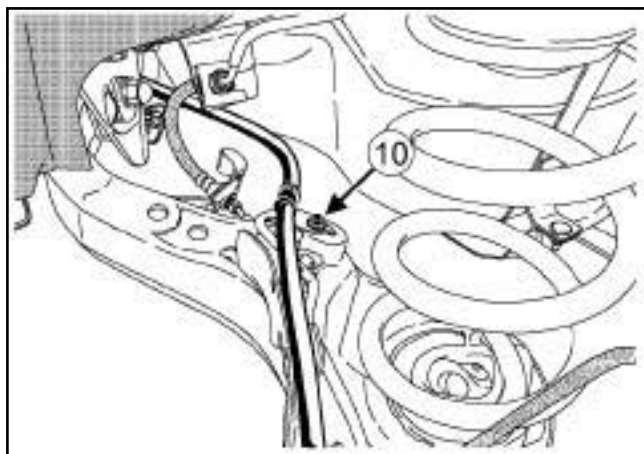
- ❑ Remove the parking brake cables through the underbody openings (9) .

MECHANICAL COMPONENT CONTROLS

Parking brake cables: Removal - Refitting

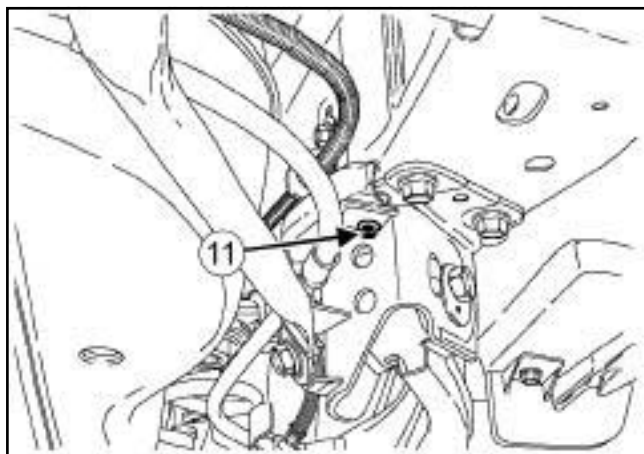
37A

FOOT BRAKE MANUAL CONTROL



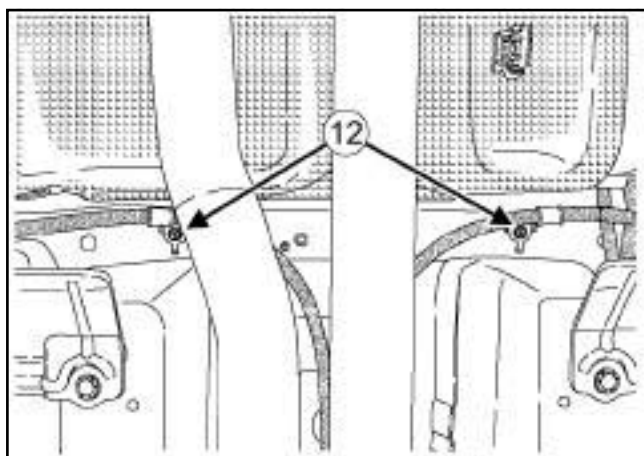
131686

- ☐ Remove the parking brake cable bolt (10) from the rear stub axle carrier.



131687

- ☐ Remove the parking brake cable bolt (11) near the rear stub axle carrier support.



131688

- ☐ Remove:
 - the parking brake cable bolts (12) from the underbody,

- the parking brake cables.

REFITTING

I - REFITTING PREPARATION OPERATION

- ☐ If the adjustment nut (6) has been removed, replace it with a new one.

II - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the parking brake cables.
- ☐ Refit:
 - the parking brake cable bolts on the underbody,
 - the parking brake cable bolt near the rear stub axle carrier support,
 - the bolt of the parking brake cable on the rear stub axle carrier.
- ☐ Torque tighten:
 - the **parking brake cable bolts on the underbody (6 N.m)**,
 - the **parking brake cable bolt near the rear stub axle carrier support (8 N.m)**,
 - the **bolt of the parking brake cable on the rear stub axle carrier (6 N.m)**.
- ☐ Refit:
 - the parking brake cable through the openings of the underbody
 - the parking brake cable to the parking brake lever,
 - the bolt of the parking brake cable on the rear brake disc protector.
- ☐ Torque tighten the **parking brake cable bolt on the rear brake disc protector (13 N.m)**.
- ☐ Follow the brake cable routing noted during removal.
- ☐ Connect the parking brake cables on the parking brake compensator.
- ☐ Refit the rear cover on the centre console.

III - FINAL OPERATION

- ☐ Refit:
 - the silencer heat shield,
 - the clips of the silencer front heat shield.
 - the rear brake lining (see **33A, Rear axle components, Rear brake lining: Removal - Refitting, page 33A-15**),

MECHANICAL COMPONENT CONTROLS

Parking brake cables: Removal - Refitting

37A

FOOT BRAKE MANUAL CONTROL

- the rear brake disc (see **33A, Rear axle components, Rear brake disc: Removal - Refitting**, page **33A-13**) ,
- the rear brake calliper mounting (see **33A, Rear axle components, Rear brake calliper mounting: Removal - Refitting**, page **33A-7**) ,
- the rear brake pads (see **33A, Rear axle components, Rear brake pads: Removal - Refitting**, page **33A-1**) ,
- the rear brake calliper (see **33A, Rear axle components, Rear brake caliper: Removal - Refitting**, page **33A-5**) .
- the cup holder,
- the rear wheels (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

ELECTRONIC PARKING BRAKE

Assisted parking brake: List and location of components

37B

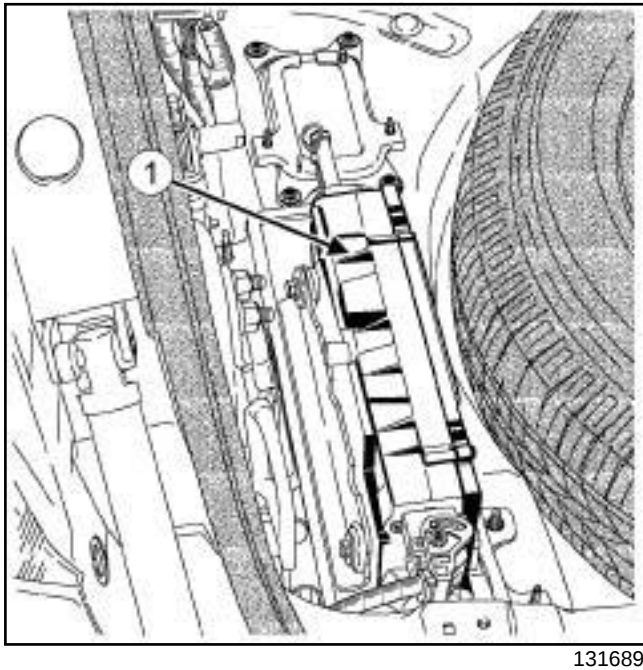
FOOT BRAKE AUTO CONTROL

I - LIST OF COMPONENTS

No.	Description
(1)	Control unit
(2)	Emergency handle
(3)	Unit
(4)	Clutch pedal position sensor

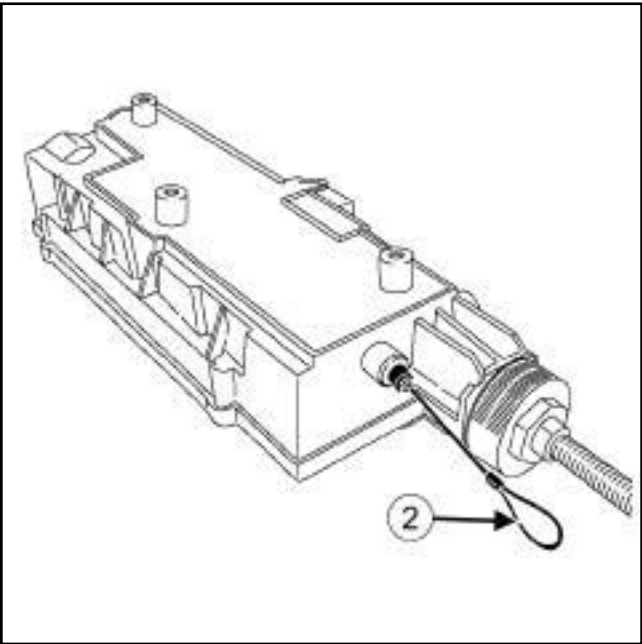
II - LOCATION OF COMPONENTS

1 - Control unit



131689

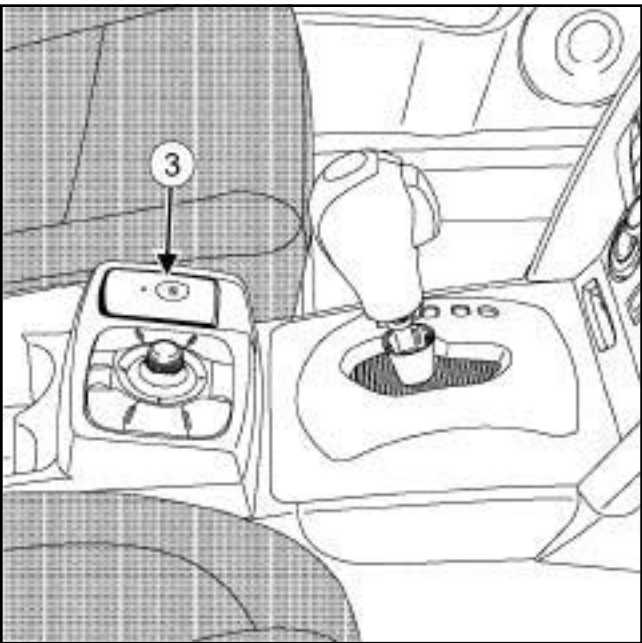
2 - Emergency handle



131690

The emergency handle is integrated into the control unit.

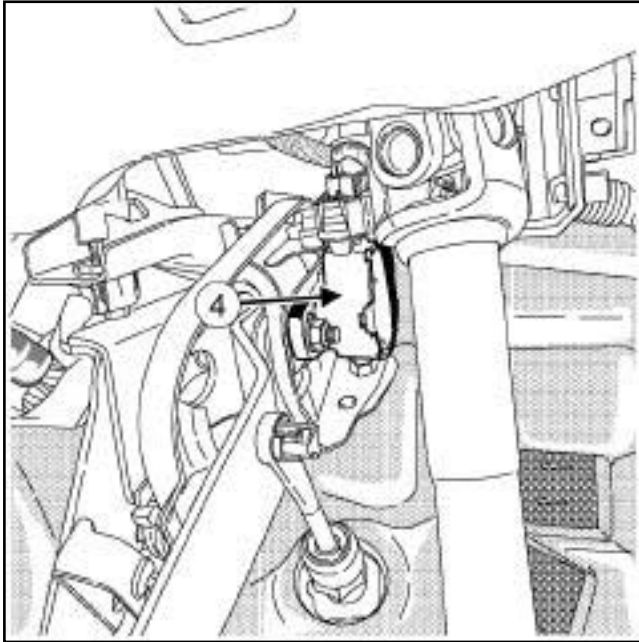
3 - Unit



131691

FOOT BRAKE AUTO CONTROL

4 - Clutch pedal position sensor



131692

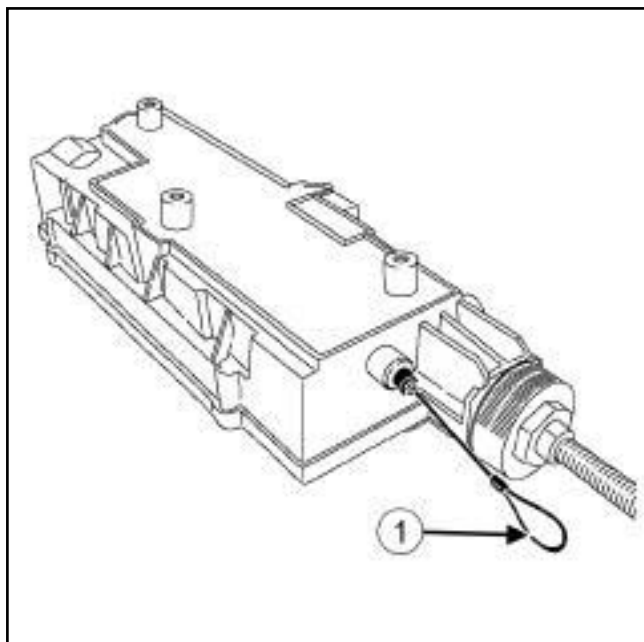
To remove the clutch pedal position sensor (see **37A**, **Mechanical component controls**, **Clutch pedal position sensor: Removal - Refitting**, page **37A-47**) .

ELECTRONIC PARKING BRAKE

Emergency handle: Removal - Refitting

37B

FOOT BRAKE AUTO CONTROL



131693



Note:

The emergency handle (1) is integrated into the control unit.

ELECTRONIC PARKING BRAKE

Control unit: Removal - Refitting

37B

FOOT BRAKE AUTO CONTROL

Essential equipment

diagnostic tool

Tightening torques

nuts of the electronic parking brake control unit	6 N.m
electronic parking brake cable bracket bolts	6 N.m
the cover nuts on the electronic parking brake control unit	4 N.m
bolt of the electronic parking brake cable on the rear left-hand side of the fuel tank	14 N.m
bolt of the electronic parking brake cable on the front left-hand side of the fuel tank	14 N.m
parking brake cable bolts on the underbody	6 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Release the parking brake.
- ☐ Remove:
 - the rear centre luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
 - the front luggage compartment floor box (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
 - the rear luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
 - the front centre luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),

- the left-hand side C-pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
- the left-hand section of the luggage compartment side box (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- the receiver (see **Tuner-amplifier: Removal - Refitting**) (86A, Radio).

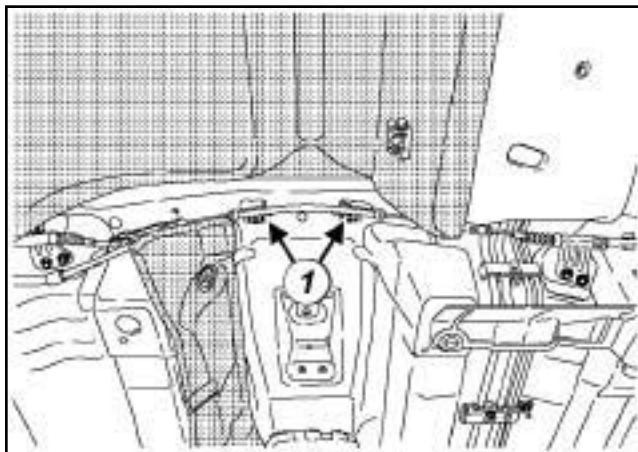
II - REMOVAL OF PART CONCERNED



WARNING

To avoid damaging the parking brake cable protectors and causing premature wear of the system, do not handle the cables with a tool.

- ☐ For vehicles fitted with a manual gearbox: before removing the control unit, always save the clutch data (see **Fault finding - Replacement of components**) (37B, Electronic parking brake).



131694

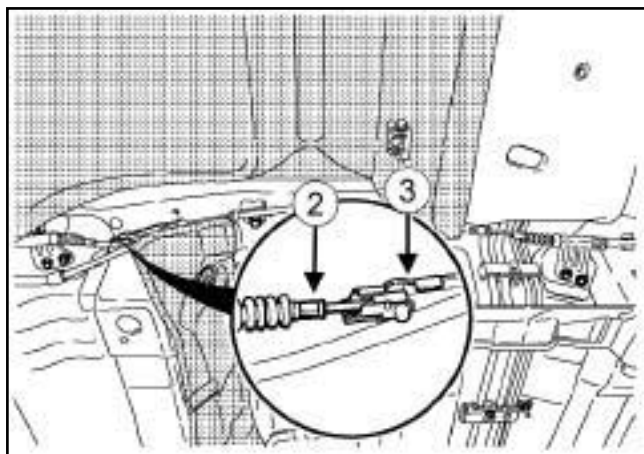
- ☐ Remove the parking brake cable bolts (1) from the underbody.

ELECTRONIC PARKING BRAKE

Control unit: Removal - Refitting

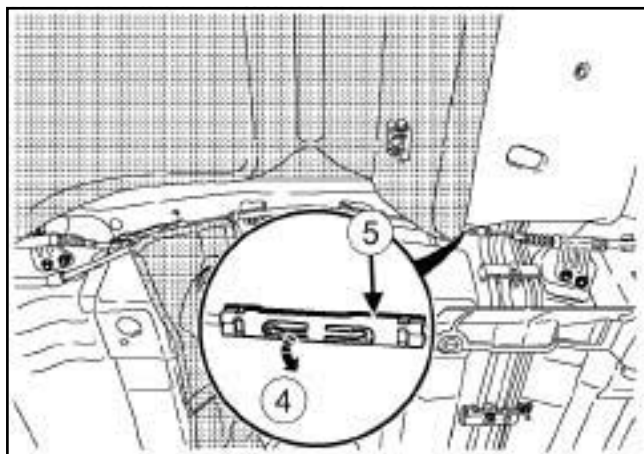
37B

FOOT BRAKE AUTO CONTROL



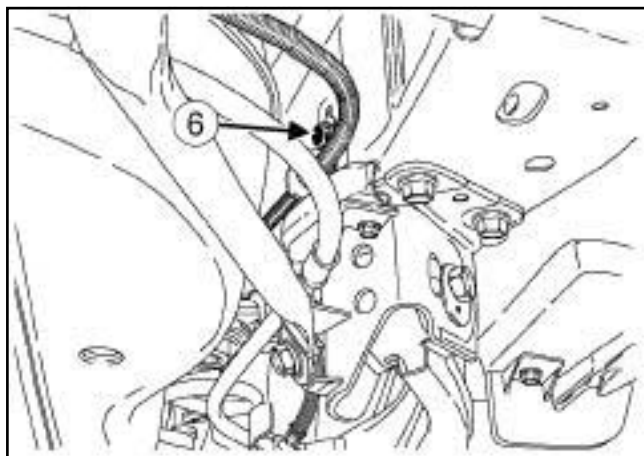
131695

- ❑ Disconnect the left-hand section (2) of the parking brake cable from its clip (3) .



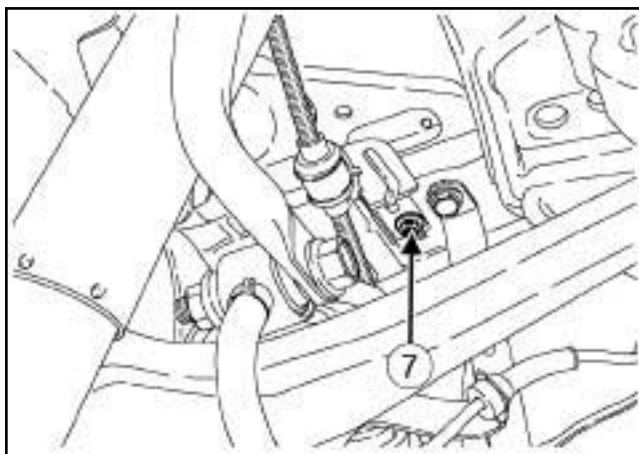
131696

- ❑ Lift up the stopper (4) .
- ❑ Disconnect the right-side of the parking brake cable from its clip (5) .



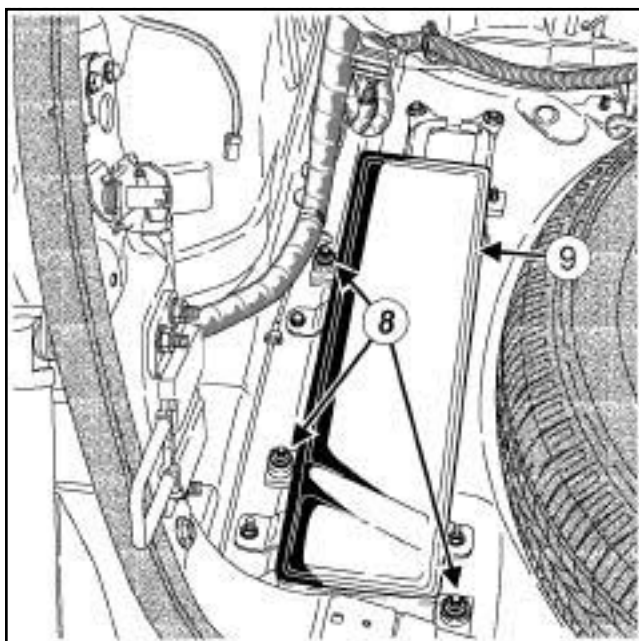
131697

- ❑ Remove the parking brake cable bolt (6) on the front-left side of the fuel tank.



131698

- ❑ Remove the bolt of the electronic parking brake (7) on the rear left-hand face of the fuel tank.
- ❑ Let the electronic parking brake cable hang freely.



131699

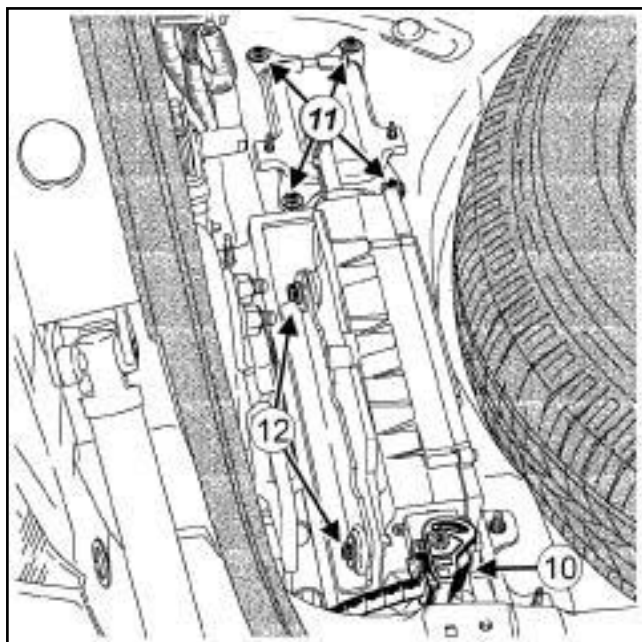
- ❑ Remove:
 - the cover nuts (8) from the electronic parking brake control unit,
 - the cover (9) from the electronic parking brake control unit.

ELECTRONIC PARKING BRAKE

Control unit: Removal - Refitting

37B

FOOT BRAKE AUTO CONTROL



131700

- ❑ the connector (10) from the electronic parking brake control unit.
- ❑ Remove:
 - the bolt (11) from the electronic parking brake cable support,
 - the electronic parking brake cable bracket,
 - the nuts (12) from the electronic parking brake control unit,
 - the electronic parking brake control unit - electronic parking brake cable assembly.

Note:

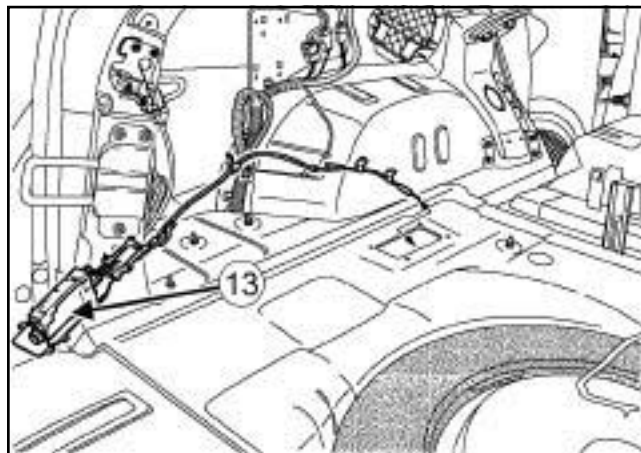
The electronic parking brake cable cannot be separated from the electronic parking brake control unit.

REFITTING

I - REFITTING PREPARATION OPERATION

- ❑ Always replace the clip on the right-side of parking brake cable.

II - REFITTING PART CONCERNED



132022

- ❑ Fit the electronic parking brake control unit - electronic parking brake cable assembly
- ❑ Refit:
 - the nuts of the electronic parking brake control unit,
 - the electronic parking brake cable bracket,
 - the bolts on to the electronic parking brake cable bracket.
- ❑ Tighten to torque:
 - the **nuts of the electronic parking brake control unit (6 N.m)**,
 - the **electronic parking brake cable bracket bolts (6 N.m)**.
- ❑ Connect the connector to the electronic parking brake control unit.
- ❑ Refit:
 - the cover on the electronic parking brake control unit.
 - the cover nuts on the electronic parking brake control unit.
- ❑ Torque tighten **the cover nuts on the electronic parking brake control unit (4 N.m)**.
- ❑ Refit:
 - the left-side of the parking brake cable into its clip,
 - the right-side of the parking brake cable into its new clip,
 - the bolt of the electronic parking brake cable on the rear left-hand side of the fuel tank.
 - the bolt of the electronic parking brake bolt on the front left-hand side of the fuel tank.
 - the parking brake cable bolts on the underbody.

ELECTRONIC PARKING BRAKE

Control unit: Removal - Refitting

37B

FOOT BRAKE AUTO CONTROL

- ☐ Tighten to torque:
 - the **bolt of the electronic parking brake cable on the rear left-hand side of the fuel tank (14 N.m)**,
 - the **bolt of the electronic parking brake cable on the front left-hand side of the fuel tank (14 N.m)**,
 - the **parking brake cable bolts on the underbody (6 N.m)**.
- ☐ Observe the parking brake cable routing noted during removal.

III - FINAL OPERATION

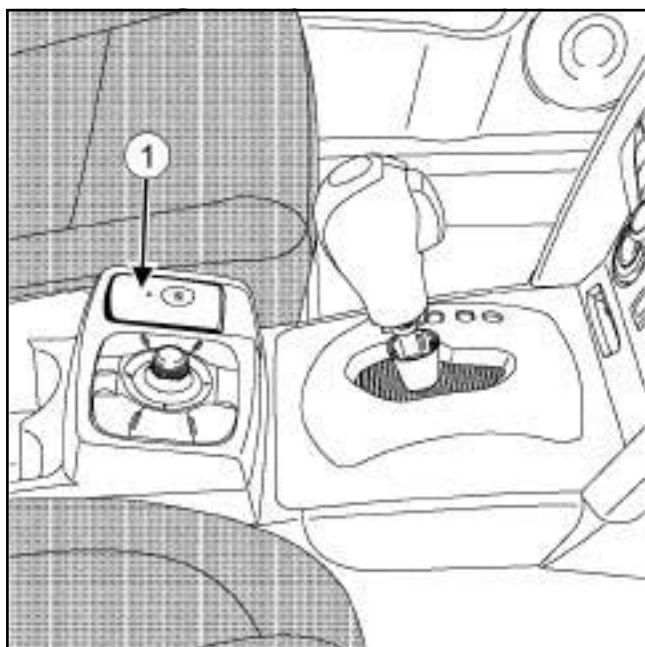
- ☐ Refit:
 - the receiver (see **Tuner-amplifier: Removal - Refitting**) (86A, Radio).
 - the left-hand section of the luggage compartment side box (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
 - the left-hand side C-pillar lower trim (see **C-pillar lower trim: Removal - Refitting**) (71A, Body internal trim),
 - the front centre luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
 - the rear luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
 - the front luggage compartment floor box (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
 - the rear centre luggage compartment floor (see **Luggage compartment floor lining: Removal - Refitting**) (71A, Body internal trim),
- ☐ With the ignition on, push the handle to release the electronic parking brake. Then pull the handle so that the automatic parking brake locking function is signalled by a sound and the play compensation is set automatically.
- ☐ Carry out a complete check and clear any faults generated using the **diagnostic tool**. Configure the new brake control unit see (**Fault finding - Replacement of components**).

REMOVAL

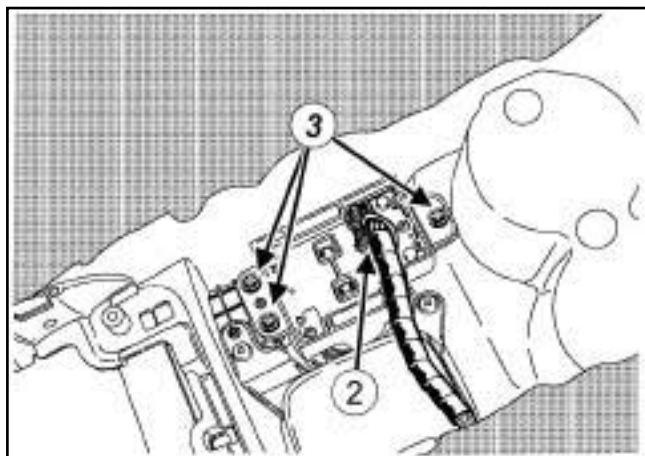
I - REMOVAL PREPARATION OPERATION

- ☐ Remove the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131706



131707

- ☐ Disconnect the connector (2) from the electronic parking brake lever (1).
- ☐ Remove:
 - the bolts (3) from the electronic parking brake lever,
 - the electronic parking brake lever,

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the electronic parking brake lever,
 - the bolts of the electronic parking brake lever.
- ☐ Connect the electronic parking brake handle connector.

II - FINAL OPERATION.

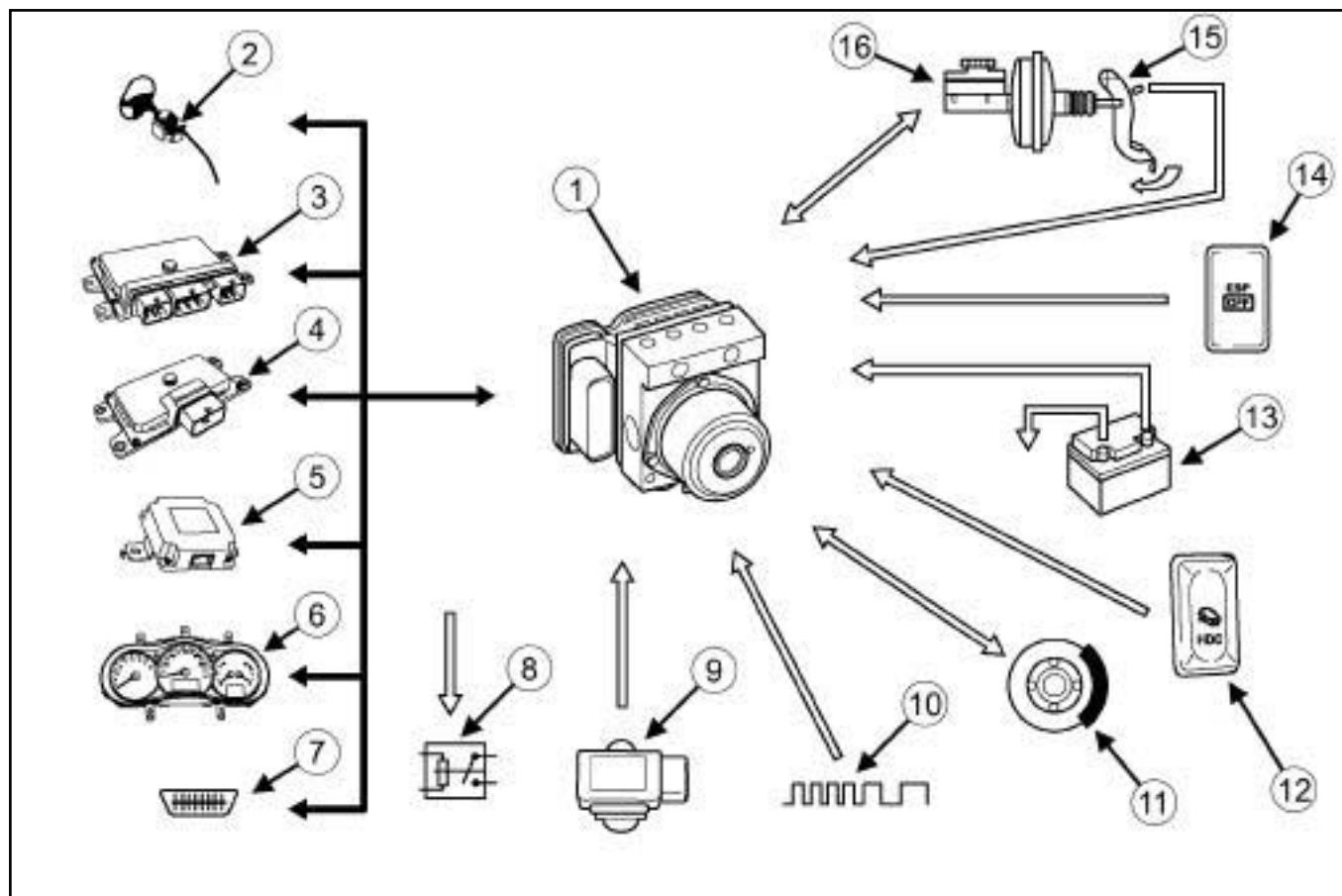
- ☐ Refit the centre console (see **Centre console: Removal - Refitting**) (57A, Interior equipment).

ANTI-LOCK BRAKING SYSTEM

ABS system: List and location of components

38C

ESP 2 or ESP



131488

No.	Description
(1)	Hydraulic unit
(2)	Steering wheel angle sensor
(3)	Injection computer
(4)	Automatic transmission computer (depending on version)
(5)	4WS control unit (4WS vehicle only)
(6)	ESP warning light on the instrument panel
(7)	Diagnostic socket
(8)	Brake light switch
(9)	Lateral acceleration and yaw speed sensor
(10)	Vehicle speed
(11)	Wheel speed sensor
(12)	HDC switch (4WS vehicle only)
(13)	Battery

ANTI-LOCK BRAKING SYSTEM

ABS system: List and location of components

38C

ESP 2 or ESP

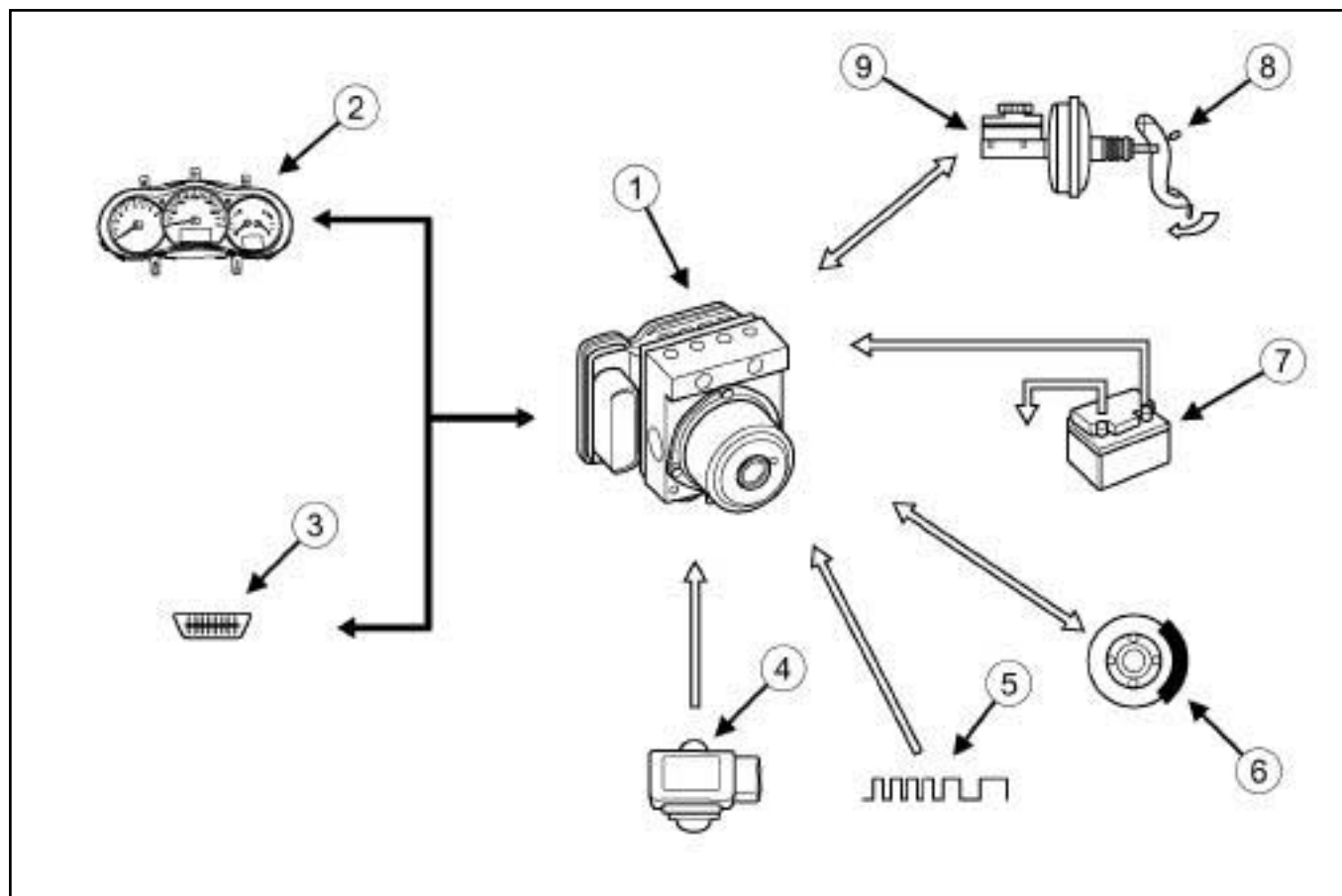
No.	Description
(14)	ESP inhibitor switch
(15)	Brake lights switch
(16)	Master cylinder

ANTI-LOCK BRAKING SYSTEM

ABS system: List and location of components

38C

WITHOUT ESP



131487

No.	Description
(1)	Hydraulic unit
(2)	ABS warning light on the instrument panel
(3)	Diagnostic socket
(4)	Lateral acceleration sensor (4WS vehicle only)
(5)	Vehicle speed
(6)	Wheel speed sensor
(7)	Battery
(8)	Brake light switch
(9)	Master cylinder

ANTI-LOCK BRAKING SYSTEM

Brake hydraulic assembly: Removal - Refitting

38C

LEFT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

brake pipe unions (4) on the hydraulic unit **16 N.m**

brake pipe unions (5) on the hydraulic unit (without ESP) **16 N.m**

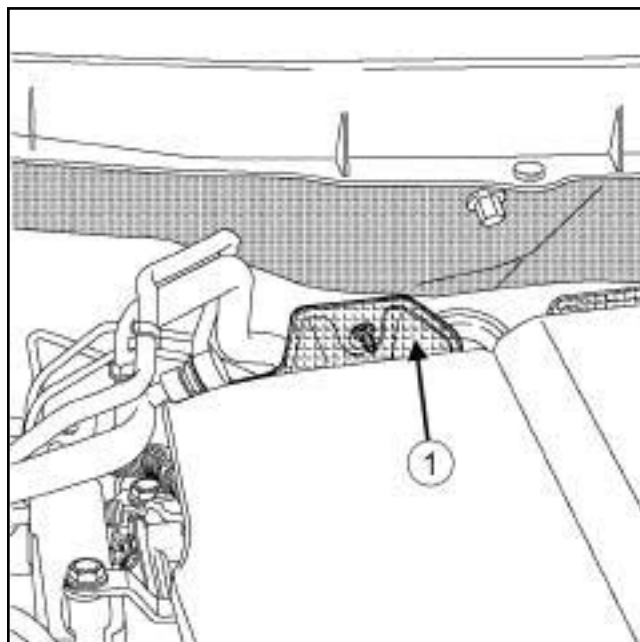
brake pipe unions (5) on the hydraulic unit (with ESP) **18 N.m**

hydraulic brake unit bolts **9 N.m**

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Place the **pedal press** on the brake pedal.
- ☐ Remove:
 - the engine cover,
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

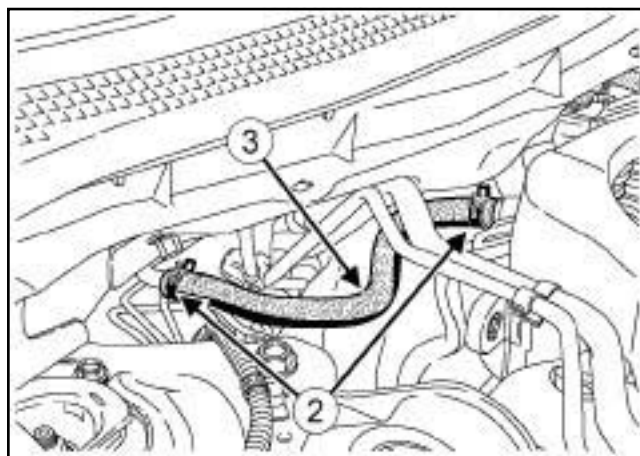


131551

- ☐ Remove the bulkhead insulation (1) (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

II - OPERATION FOR REMOVAL OF PART CONCERNED

2TR



131552

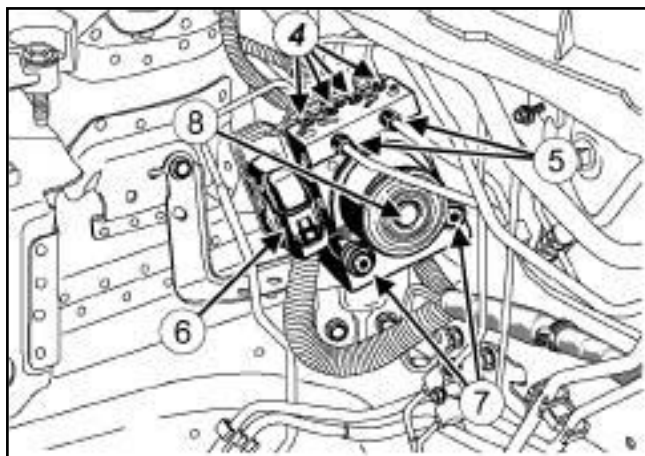
- ☐ Remove:
 - clips (2) ,
 - the vacuum hose (3) .

ANTI-LOCK BRAKING SYSTEM

Brake hydraulic assembly: Removal - Refitting

38C

LEFT-HAND DRIVE



132648

- ☐ Undo:
 - the brake pipe unions (4) on the hydraulic unit,
 - the brake pipe unions (5) on the hydraulic unit.
- ☐ Disconnect the connector (6) .
- ☐ Remove:
 - the bolts (7) from the hydraulic brake unit,
 - the hydraulic brake unit (8) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the hydraulic brake unit,
 - the hydraulic brake unit bolts.
- ☐ Connect the hydraulic brake unit connector.
- ☐ Refit:
 - the brake pipe unions (5) on the hydraulic unit,
 - the brake pipe unions (4) on the hydraulic unit.
- ☐ Torque tighten:
 - the brake pipe unions (4) on the hydraulic unit (16 N.m),
 - the brake pipe unions (5) on the hydraulic unit (without ESP) (16 N.m),
 - the brake pipe unions (5) on the hydraulic unit (with ESP) (18 N.m),
 - the hydraulic brake unit bolts (9 N.m).

II - FINAL OPERATION.

2TR

- ☐ Refit:
 - the vacuum hose,
 - the clips.
- ☐ Refit:
 - the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the engine cover.
- ☐ Remove the pedal press from the brake pedal.
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3) .
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

ANTI-LOCK BRAKING SYSTEM

Brake hydraulic assembly: Removal - Refitting

38C

RIGHT-HAND DRIVE

Essential equipment

pedal press

Tightening torques

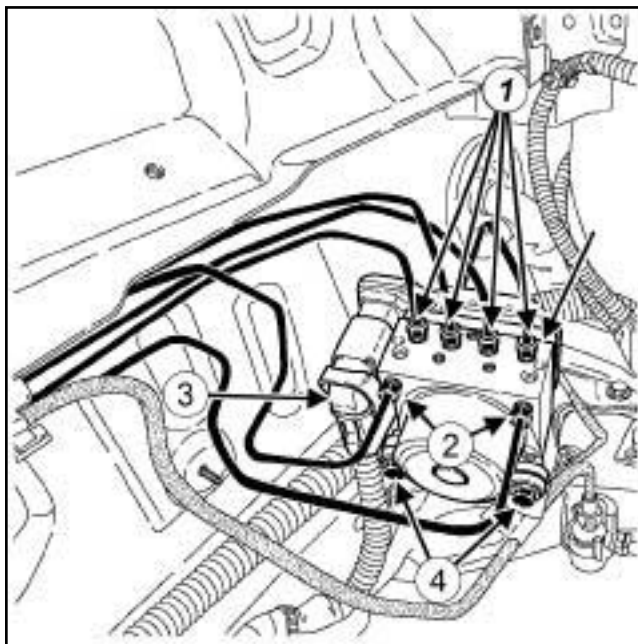
brake pipe unions (1) on the hydraulic unit	16 N.m
brake pipe unions (2) on the hydraulic unit (without ESP)	16 N.m
brake pipe unions (2) on the hydraulic unit (with ESP)	18 N.m
brake hydraulic unit bolts	9 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Place the **pedal press** on the brake pedal.
- ☐ Remove:
 - the air intake sleeve,
 - the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

II - OPERATION FOR REMOVAL OF PART CONCERNED



131539

☐ Undo:

- the brake pipe unions (1) on the hydraulic unit,
- the brake pipe unions (2) on the hydraulic unit.

☐ Disconnect the connector (3) .

☐ Remove:

- the bolts (4) from the hydraulic brake unit,
- the hydraulic brake unit.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

☐ Refit:

- the hydraulic brake unit,
- the bolts on the hydraulic brake unit.

☐ Connect the hydraulic brake unit connector.

☐ Refit:

- the brake pipe unions (2) on the hydraulic unit,
- the brake pipe unions (1) on the hydraulic unit.

☐ Torque tighten:

- the **brake pipe unions (1) on the hydraulic unit (16 N.m)**,
- the **brake pipe unions (2) on the hydraulic unit (without ESP) (16 N.m)**,

ANTI-LOCK BRAKING SYSTEM

Brake hydraulic assembly: Removal - Refitting

38C

RIGHT-HAND DRIVE

- the **brake pipe unions (2)** on the hydraulic unit **(with ESP) (18 N.m)**,
- the **brake hydraulic unit bolts (9 N.m)**.

II - FINAL OPERATION.

☐ Refit:

- the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper mechanism (see **Windscreen wiper mechanism: Removal - Refitting**) (85A, Wiping - Washing),
- the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
- the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
- the air filter box (see **Air filter unit: Removal - Refitting**) (12A, Fuel mixture),
- the air intake sleeve.

☐ Remove the **pedal press** from the brake pedal.

☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3)

☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

ANTI-LOCK BRAKING SYSTEM

Front wheel speed sensor: Removal - Refitting

38C

Tightening torques

front wheel speed sensor bolt	10 N.m
-------------------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove:
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1),
 - the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection).

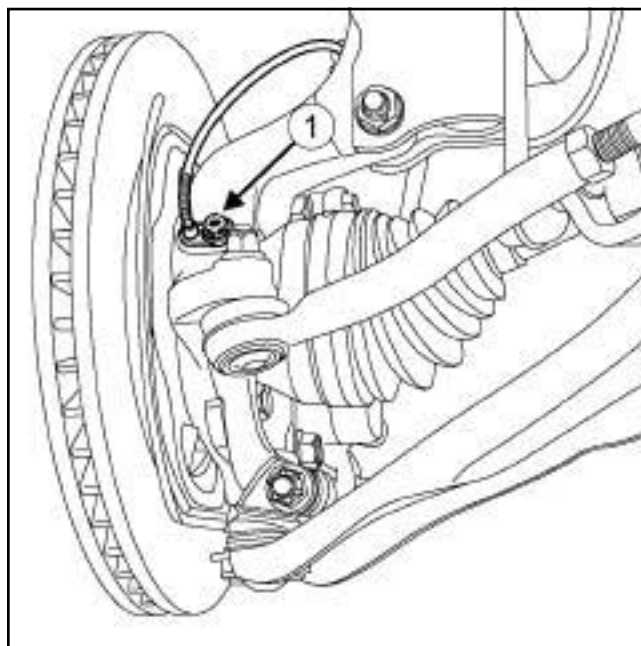
II - OPERATION FOR REMOVAL OF PART CONCERNED

☐

WARNING

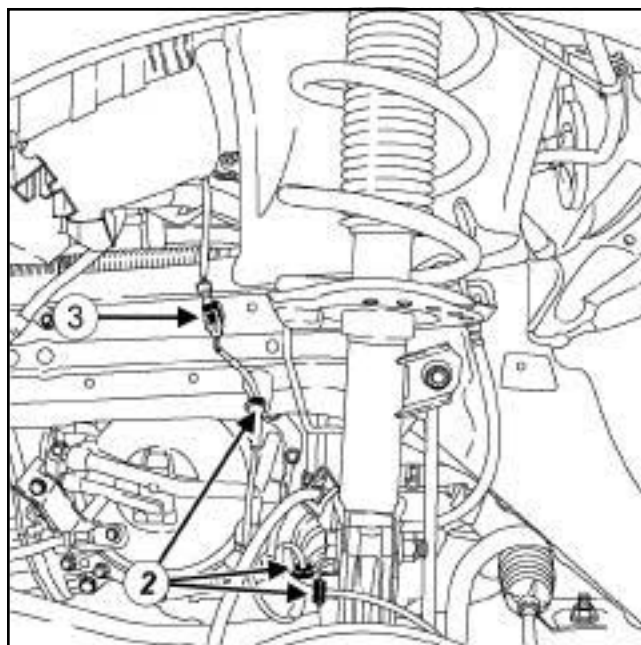
To avoid damaging the wheel speed sensor cable:

- 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.



131489

- ☐ Remove:
 - the front wheel speed sensor bolt (1),
 - the front wheel speed sensor.



131490

- ☐ Unclip the front wheel speed sensor cable at (2).
- ☐ Disconnect the connector (3).

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Connect the front wheel speed sensor connector.

ANTI-LOCK BRAKING SYSTEM

Front wheel speed sensor: Removal - Refitting

38C

- ☐ Clip on the front wheel speed sensor cable.
- ☐ Refit the front wheel speed sensor.
- ☐ Torque tighten the **front wheel speed sensor bolt (10 N.m)**.

II - FINAL OPERATION.

- ☐ Refit:
 - the front wheel arch liner (see **Front wheel arch liner: Removal - Refitting**) (55A, Exterior protection),
 - the front wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1) .

ANTI-LOCK BRAKING SYSTEM

Rear wheel speed sensor: Removal - Refitting

38C

Tightening torques

rear wheel speed sensor bolt	10 N.m
------------------------------	--------

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Remove the rear wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page 35A-1).
- ☐

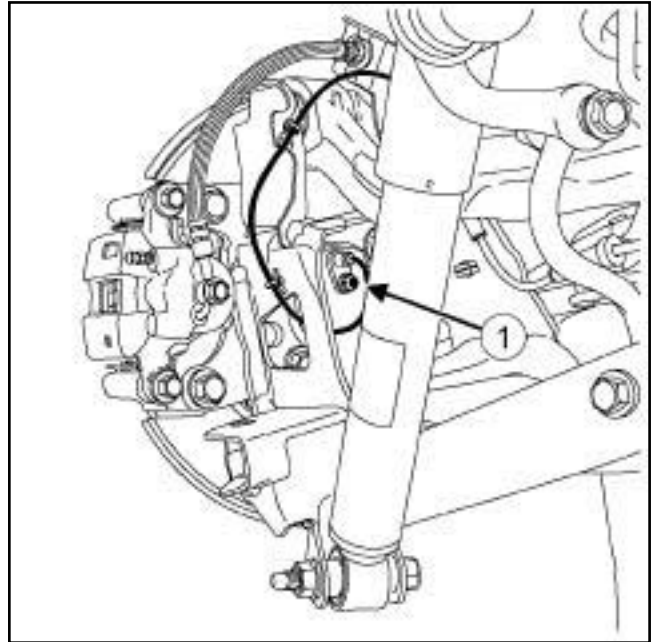
WARNING

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.

II - OPERATION FOR REMOVAL OF PART CONCERNED

4X2 TRANSMISSION



130830

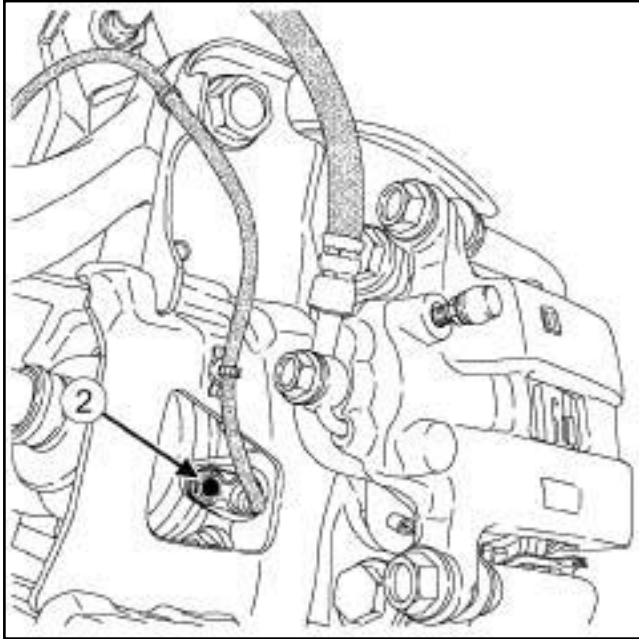
- ☐ Remove the bolt (1) from the rear wheel speed sensor.
- ☐ Unclip the stub axle carrier cable.

ANTI-LOCK BRAKING SYSTEM

Rear wheel speed sensor: Removal - Refitting

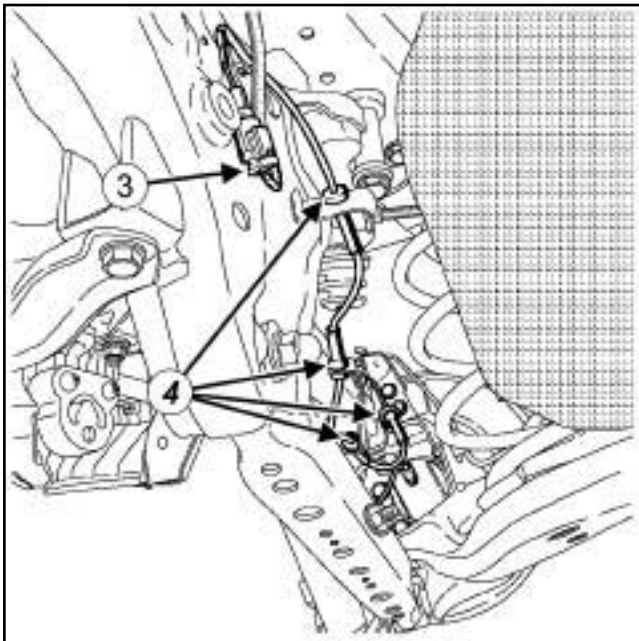
38C

4X4 TRANSMISSION



130831

- ☐ Remove the bolt (2) from the rear wheel speed sensor.
- ☐ Unclip the stub axle carrier cable.



130832

- ☐ Disconnect the connector (3) from the rear wheel speed sensor.
- ☐ Unclip the cable from the wheel speed sensor at (4) .
- ☐ Remove the wheel speed sensor.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Connect the speed sensor connector.
- ☐ Clip on the cable of the rear wheel speed sensor at (4) .
- ☐ Refit the rear wheel speed sensor bolt.
- ☐ Torque tighten the **rear wheel speed sensor bolt (10 N.m)**.

II - FINAL OPERATION.

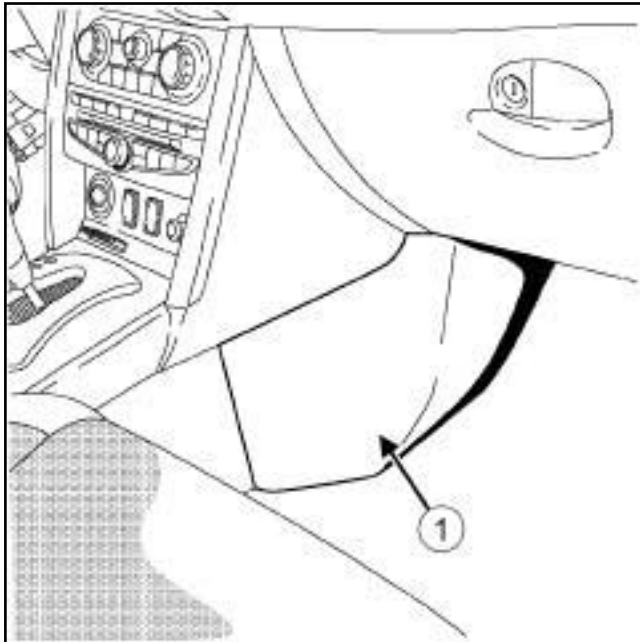
- ☐ Refit the rear wheel (see **35A, Wheels and tyres, Wheel: Removal - Refitting**, page **35A-1**) .

Tightening torques

lateral acceleration and yaw sensor nuts	6 N.m
--	-------

REMOVAL

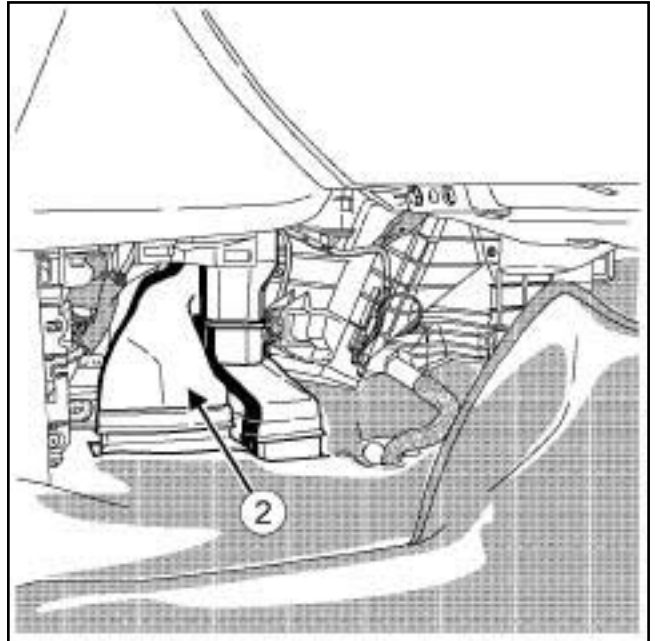
I - REMOVAL PREPARATION OPERATION



131543

- ❑ Remove the lower cover (1) .

REAR SEATS AIR DUCT

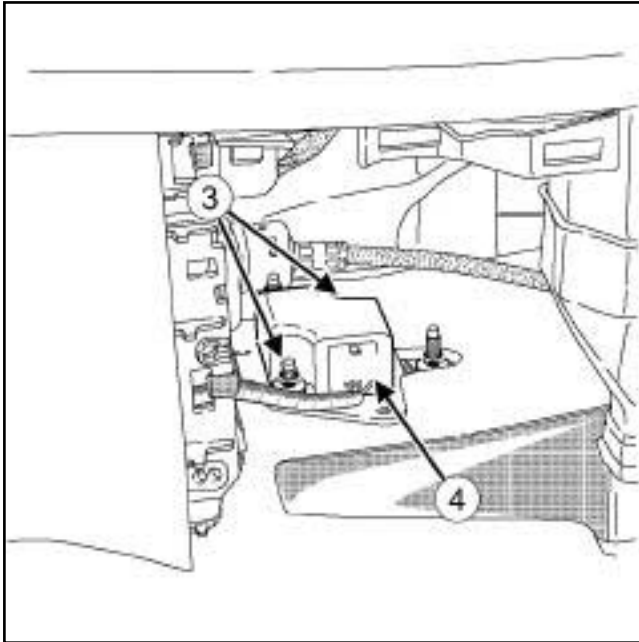


131544

- ❑ Remove the duct (2) from the floor.

II - OPERATION FOR REMOVAL OF PART CONCERNED

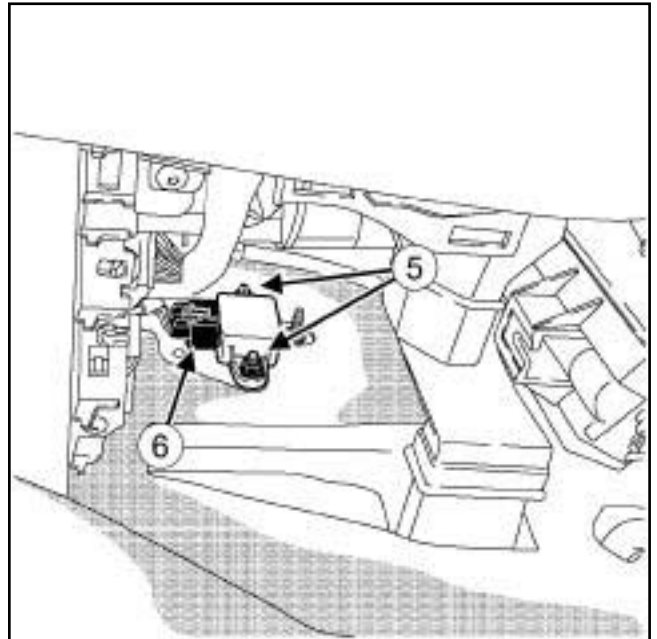
WITHOUT ESP



131545

- ☐ Remove nuts (3) .
- ☐ Disconnect the connector (4) .

ESP 2 or ESP



131546

- ☐ Remove nuts (5) .
- ☐ Disconnect the connector (6) .

- ☐ Remove the lateral acceleration and yaw sensor.

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit the lateral acceleration and yaw sensor.
- ☐ Connect the lateral acceleration and yaw sensor connector.
- ☐ Refit the lateral acceleration and yaw sensor nuts.
- ☐ Torque tighten the **lateral acceleration and yaw sensor nuts (6 N.m)**.

II - FINAL OPERATION.

REAR SEATS AIR DUCT

- ☐ Refit the floor duct.

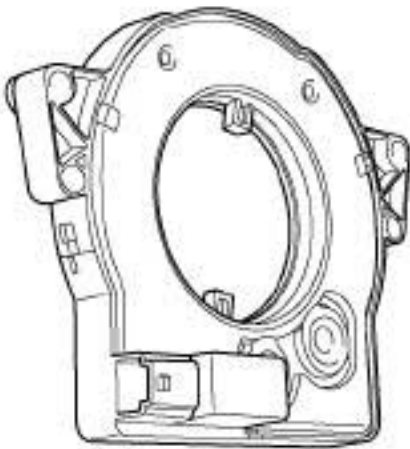
- ☐ Refit the lower cover.

Steering wheel angle sensor: Removal - Refitting

ESP 2 or ESP

Essential equipment

diagnostic tool



131547

Note:

The steering wheel angle sensor is located on the steering column and clipped onto the rotary switch.

IMPORTANT

To prevent any accidental triggering whilst working on or near a pyrotechnic component (airbags or pretensioners), lock the airbag computer using the **diagnostic tool**.

When this function is activated, all the trigger lines are inhibited and the airbag warning light on the instrument panel lights up continuously (ignition on).

IMPORTANT

To prevent the pyrotechnic components from being permanently deactivated or triggered (airbags or pretensioners), wait for at least **3 min** after disconnecting the battery.

IMPORTANT

Never handle the pyrotechnic systems (pretensioners or airbags) near to a source of heat or naked flame - they may be triggered.

REMOVAL

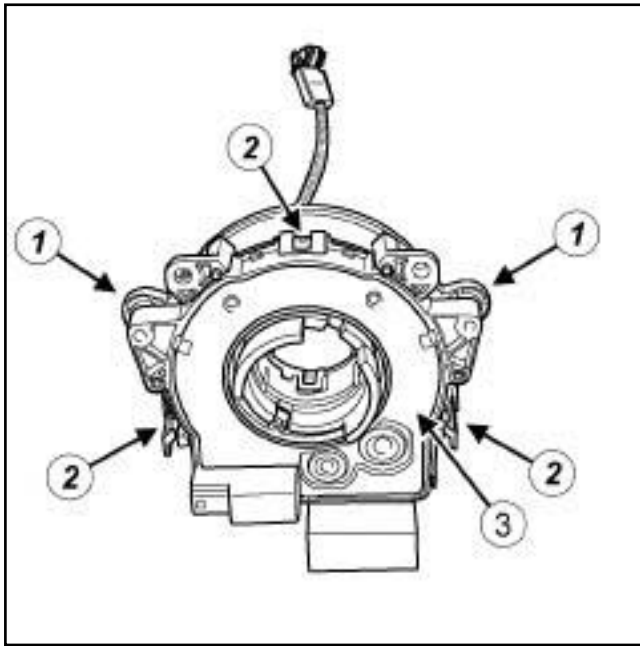
I - REMOVAL PREPARATION OPERATION

- ☐ Disconnect the battery (see **Battery : Removal - Refitting**) (80A, Battery).
- ☐ Remove:
 - the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners),
 - the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page 36A-39),
 - the radio control satellite (see **Radio control satellite: Removal - Refitting**) (86A, Radio),
 - the steering column covers (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
 - the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signal).

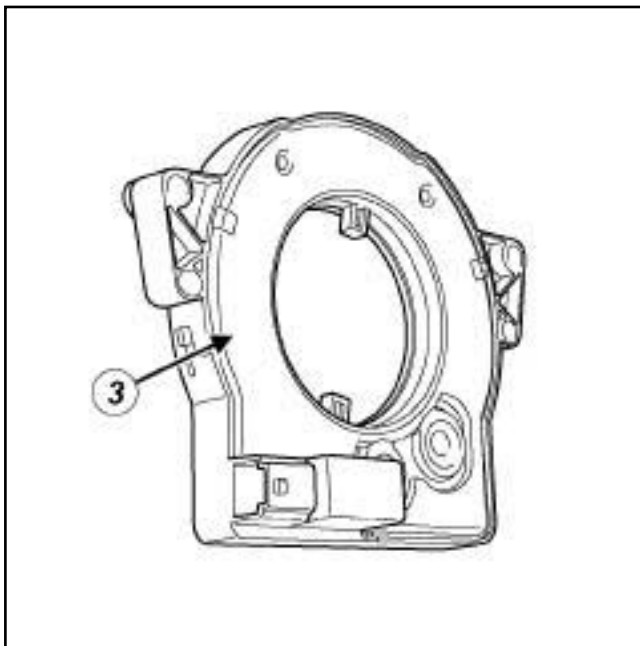
Steering wheel angle sensor: Removal - Refitting

ESP 2 or ESP

II - OPERATION FOR REMOVAL OF PART CONCERNED



131548



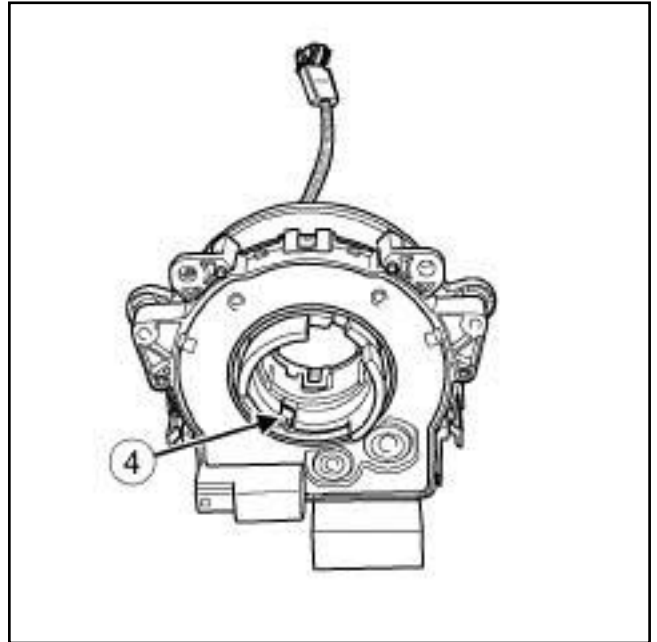
131549

❑ Remove:

- the bolts (1) from the steering wheel angle sensor,
- the steering wheel angle sensor (3) from the rotary switch by unclipping it at (2) .

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED



131550

- ❑ Clip the steering wheel angle sensor onto the rotary switch by placing the rotor (4) into its original position.
- ❑ Refit the bolts of the steering wheel angle sensor.

II - FINAL OPERATION.

❑ Refit:

- the rotary switch (see **Rotary switch: Removal - Refitting**) (84A, Control - Signal),
- the steering column covers (see **Dashboard: Removal - Refitting**) (57A, Interior equipment),
- the steering wheel (see **36A, Steering assembly, Steering wheel: Removal - Refitting**, page 36A-39) ,
- the driver's front airbag (see **Driver's front airbag: Removal - Refitting**) (88C, Airbags and pretensioners).

- ❑ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).

- ❑ Configure the steering wheel angle sensor (see **Fault finding - Configurations and Programming**) (38C, Anti-lock braking system).

ANTI-LOCK BRAKING SYSTEM

Braking computer: Removal - Refitting

38C

Essential equipment

pedal press

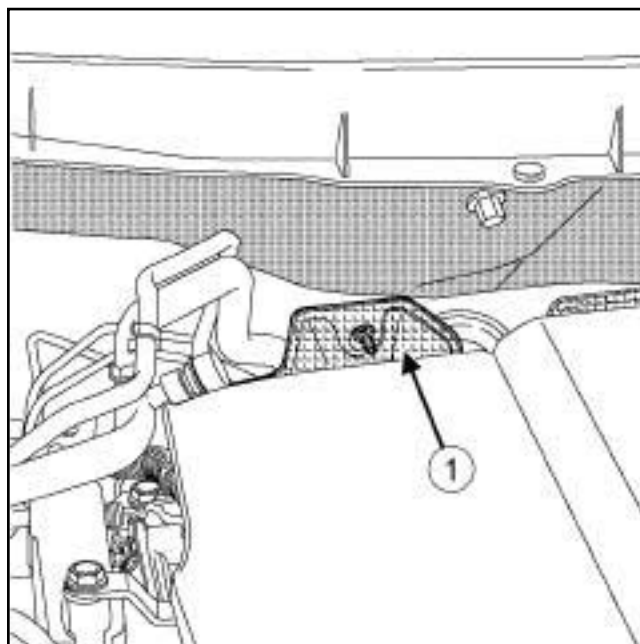
Tightening torques

braking computer bolts	9 N.m
brake pipe unions (4) on the hydraulic unit	16 N.m
brake pipe unions (5) on the hydraulic unit (without ESP)	18 N.m
brake pipe unions (5) on the hydraulic unit (with ESP)	16 N.m

REMOVAL

I - REMOVAL PREPARATION OPERATION

- ☐ Position the vehicle on a two-post lift (see **Vehicle: Towing and lifting**) (02A, Lifting equipment).
- ☐ Disconnect the battery (see **Battery: Removal - Refitting**) (80A, Battery).
- ☐ Place the **pedal press** on the brake pedal.
- ☐ Remove:
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper mechanism (see **Windscreen wiper motor: Removal - Refitting**) (85A, Wiping - Washing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).

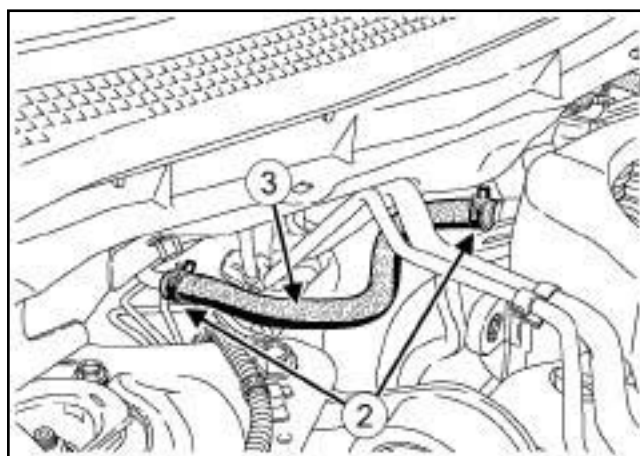


131551

- ☐ Remove the bulkhead insulation (1) (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing).

II - OPERATION FOR REMOVAL OF PART CONCERNED

2TR



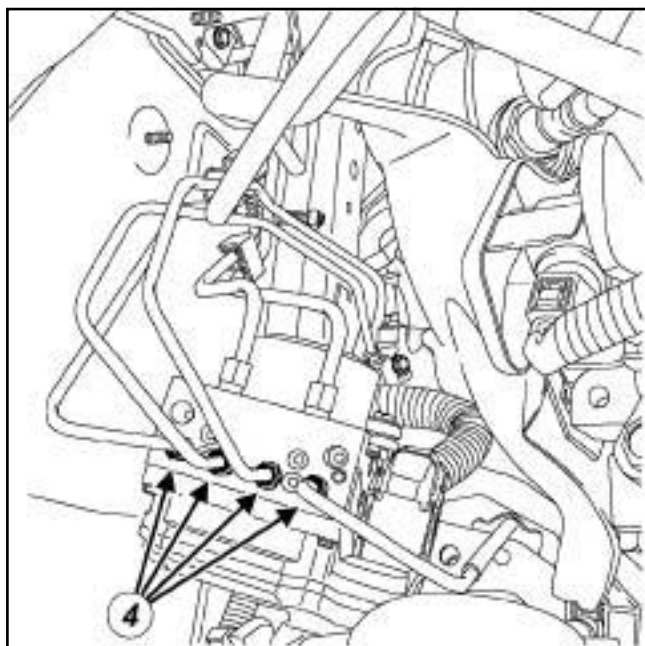
131552

- ☐ Remove:
 - the clips (2) ,
 - the vacuum hose (3) .

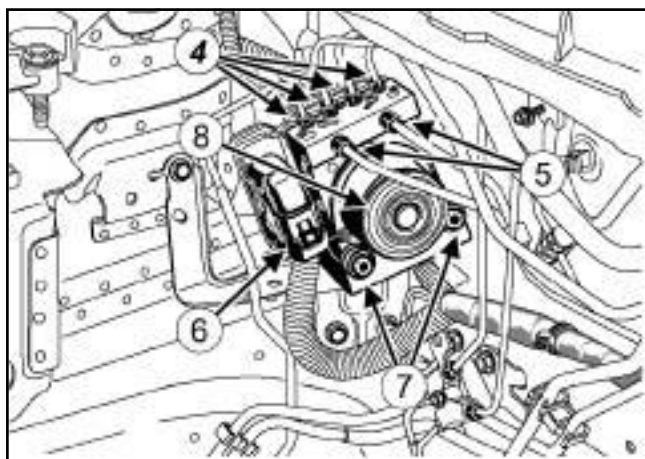
ANTI-LOCK BRAKING SYSTEM

Braking computer: Removal - Refitting

38C



131553



132648

- ☐ Undo the brake pipe unions (4) and (5) on the hydraulic unit.
- ☐ Disconnect the connector (6).
- ☐ Remove:
 - the bolts (7),
 - the braking computer (8).

REFITTING

I - REFITTING OPERATION FOR PART CONCERNED

- ☐ Refit:
 - the braking computer,
 - the braking computer bolts.

- ☐ Torque tighten the **braking computer bolts** (9 N.m).
- ☐ Connect the braking computer connector.
- ☐ Refit the brake pipe unions on the hydraulic unit.
- ☐ Torque tighten:
 - the **brake pipe unions (4) on the hydraulic unit** (16 N.m),
 - the **brake pipe unions (5) on the hydraulic unit (without ESP)** (18 N.m),
 - the **brake pipe unions (5) on the hydraulic unit (with ESP)** (16 N.m).

2TR

- ☐ Refit:
 - the vacuum hose (3),
 - the clips (2).

II - FINAL OPERATION.

- ☐ Refit:
 - the bulkhead insulation (see **Bulkhead insulating material: Removal - Refitting**) (68A, Soundproofing),
 - the scoop under the scuttle panel grille (see **Scoop under scuttle panel grille: Removal - Refitting**) (56A, Exterior equipment).
 - the windscreen wiper mechanism (see **Windscreen wiper motor: Removal - Refitting**) (85A, Wiping - Washing),
 - the scuttle half-grille (see **Scuttle half-grille: Removal - Refitting**) (56A, Exterior equipment),
 - the windscreen wiper arm (see **Windscreen wiper arm: Removal - Refitting**) (85A, Wiping - Washing).
- ☐ Remove the **pedal press** from the brake pedal.
- ☐ Bleed the brake circuit (see **30A, General information, Brake circuit Bleeding**, page 30A-3)
- ☐ Connect the battery (see **Battery : Removal - Refitting**) (80A, Battery).