RENAULT

Workshop Repair Manual

N.T. 2613A

Basic manual: **M.R. 312**

Special notes for

Mégane Scénic vehicles

77 11 190 019 **JULY 1996** **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."

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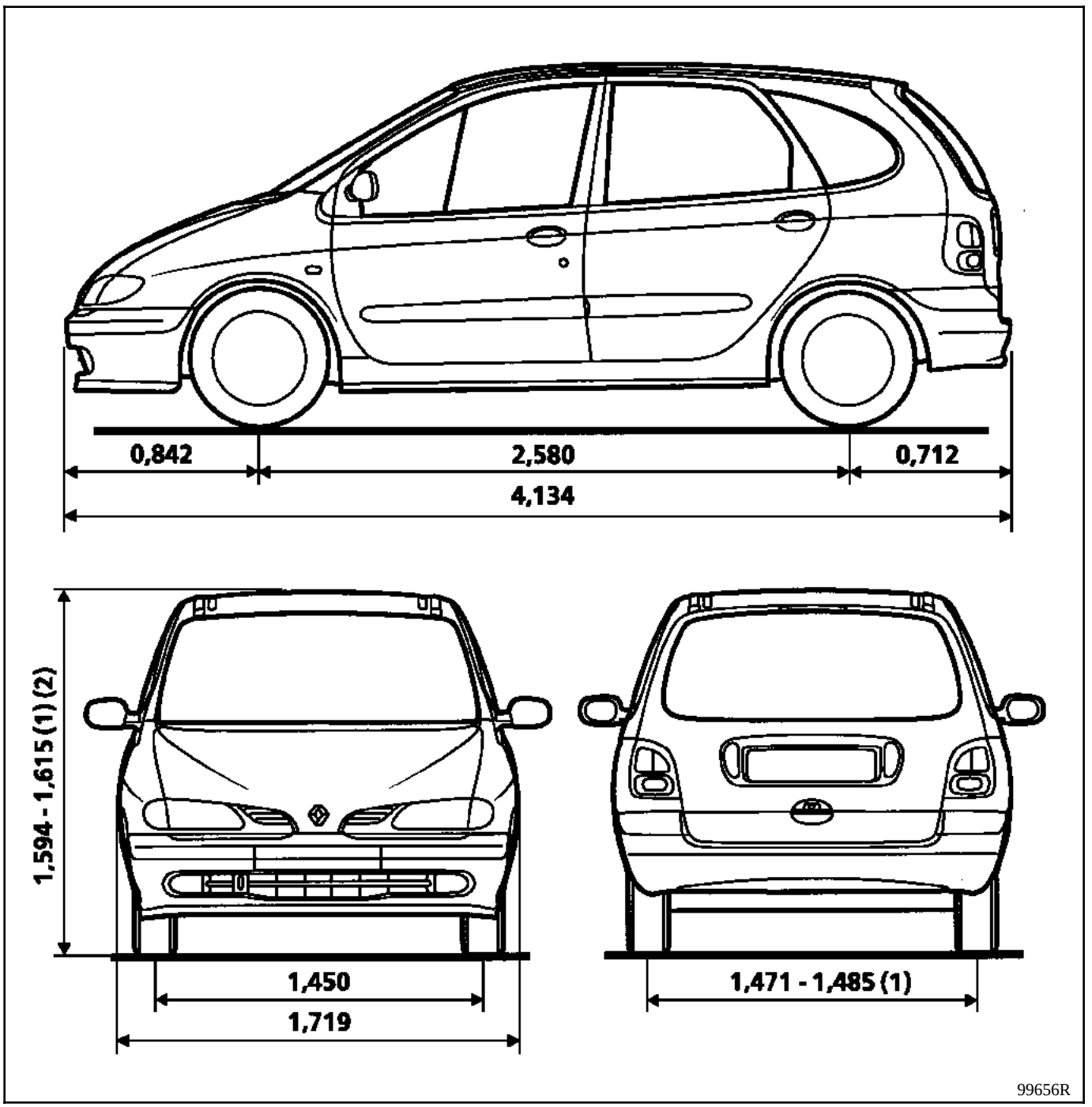
Vehicle type	Engine		Clutch type	Type of manual gearbox or automatic transmission
	Type	Capacity		
JA0F	K7M 702 K7M 703	1 598	200 HR 4 000 -	JB3 AD4
JA0Y JA0K	F8Q 784	1 870	200 HRV 4 600	JC5
JA0E	E7J 764	1 390	180 DST 3 050 180 CP 3 300	JB1
JA0G	F3R 750 F3R 751	1 998	215 HRN 4 000 -	JC5 AD4
JA0L	K7M 720	1 598	200 HR 4 000	JB3

VEHICLE IDENTIFICATION

Example : **JA0E**

J : Bodywork type (example 5 door monocoque)
A : Project code (example 64)
0E : Engine suffix (example E7J 764)



Dimensions are given in metres

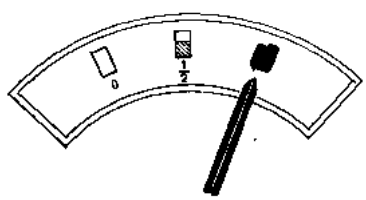
Turning circle between walls : **11.20 m**
(1) Depending on version
(2) Unladen, for vehicles with roof rack bars, add **7.5 cm**

	JA0E JA0F (1) JA0L	JA0F (2) JA0G JA0K JA0Y
FRONT BRAKE (dimensions in mm)		
Brake caliper piston diameter	48	54
Disc diameter	259	262
Disc thickness	20.6	22
Minimum disc thickness	17.7	19.8
Lining thickness (including backing plate)	18	18
Minimum lining thickness (including backing plate)	6	6
Maximum disc run-out	0.07	0.07
REAR BRAKE (dimensions in mm)		
Wheel cylinder diameter	20.6	20.6
Drum diameter	228.5	228.5
Maximum drum diameter after regrinding	229.5	229.5
MASTER CYLINDER (dimensions in mm)		
Diameter	20.6	22.2

(1) Manual gearbox
(2) Automatic transmission
Brakes discs cannot be repaired. They must be replaced if large scratches or excessive wear occurs.

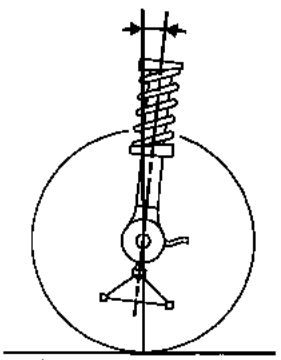
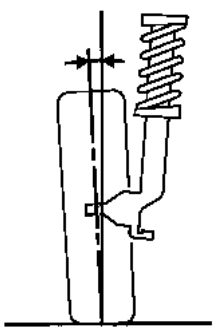
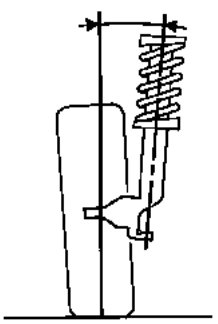
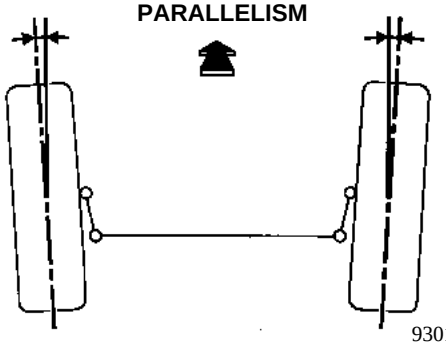
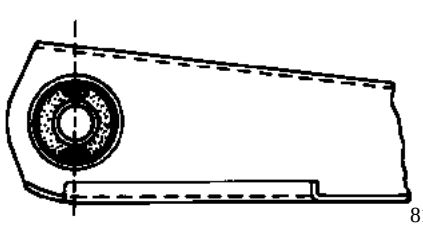
These vehicles are fitted with a load sensitive compensator.

Checking and adjusting must be carried out with the :
- **vehicle unladen,**
- **fuel tank full,**
- **driver on board.**

Vehicle type	Fuel tank	Test pressure (Bar)	
		Front	Rear
JA0E JA0F JA0L JA0G JA0K JA0Y	 Full 90966S	140 →	40 +0 -11

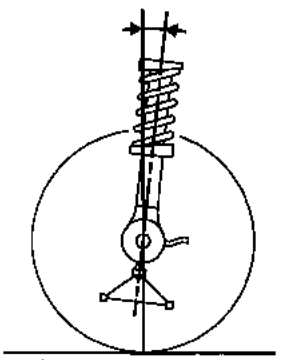
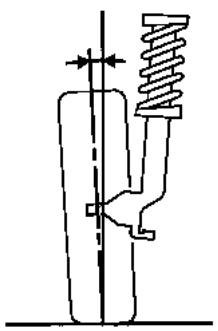
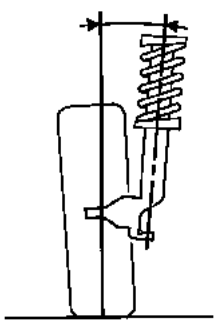
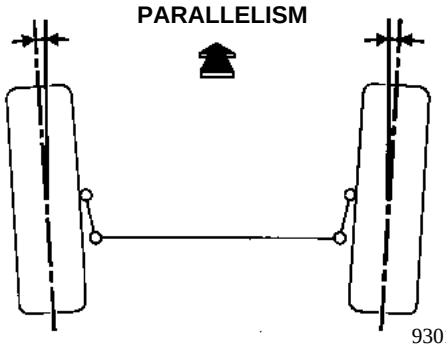
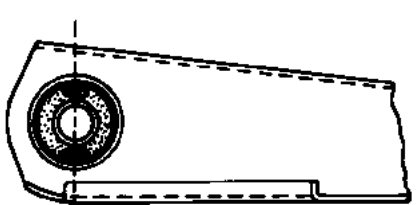
JA0E - JA0F (1) - JA0L

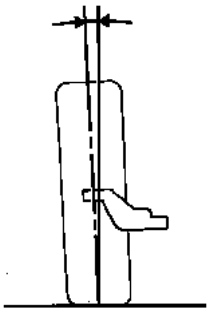
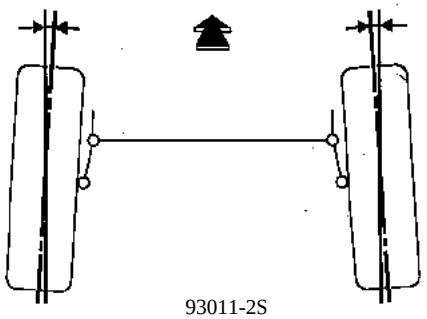
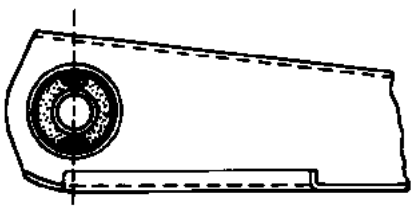
(1) Manual gearbox

ANGLES	VALUES	POSITION OF FRONT AXLE	ADJUSTMENT
CASTOR  93012-1S	4°15’ 3°45’ 3°15’ 2°45’ 2°15’ } ± 30’ Maximum left / right difference = 1°	H5-H2= 79 mm H5-H2= 99 mm H5-H2= 119 mm H5-H2= 139 mm H5-H2= 159 mm	NON-ADJUSTABLE
CAMBER  93013-1S	1°14’ - 0°15’ - 0°33’ - 0°30’ } ± 30’ Maximum left / right difference = 1°	H1-H2= 33.1 mm H1-H2= 96.8 mm H1-H2= 119 mm H1-H2= 187.7 mm	NON-ADJUSTABLE
KINGPIN  93014-1S	10°11’ 13°14’ 13°45’ 14°31’ } ± 30’ Maximum left / right difference = 1°	H1-H2= 33.1 mm H1-H2= 96.8 mm H1-H2= 119 mm H1-H2= 187.7 mm	NON-ADJUSTABLE
PARALLELISM  93011-1S	(For 2 wheels) (toe-out) 10’ ± 10’ (1 ± 1 mm)	UNLADEN	Adjustable by rotating track rod sleeves 1 rotation= 30’ (3 mm)
RUBBER BUSHES  81603S1	-	UNLADEN	-

JA0F (2) - JA0G - JA0K - JA0Y

(2) Automatic transmission

ANGLES	VALUES	POSITION OF FRONT AXLE	ADJUSTMENT
CASTOR  93012-1S	4°15’ 3°45’ 3°15’ 2°45’ 2°15’ } ± 30’ Maximum left / right difference = 1°	H5-H2= 78 mm H5-H2= 98 mm H5-H2= 118 mm H5-H2= 138 mm H5-H2= 158 mm	NON-ADJUSTABLE
CAMBER  93013-1S	1°42’ - 0°12’ - 0°33’ - 0°38’ } ± 30’ Maximum left / right difference = 1°	H1-H2= 21.7 mm H1-H2= 94.6 mm H1-H2= 118.4 mm H1-H2= 187.7 mm	NON-ADJUSTABLE
KINGPIN  93014-1S	10°33’ 13°02’ 13°37’ 14°31’ } ± 30’ Maximum left / right difference = 1°	H1-H2= 21.7 mm H1-H2= 94.6 mm H1-H2= 118.4 mm H1-H2= 187.7 mm	NON-ADJUSTABLE
PARALLELISM  93011-1S	(For 2 wheels) (toe-out) 10’ ± 10’ (1 ± 1 mm)	UNLADEN	Adjustable by rotating track rod sleeves 1 rotation= 30’ (3 mm)
RUBBER BUSHES  81603S1	-	UNLADEN	-

ANGLES	VALUES FOR 4 BAR REAR AXLE	POSITION OF REAR AXLE	ADJUSTMENT
CAMBER  93013-2S	- 1°15' ± 15'	UNLADEN	NON-ADJUSTABLE
PARALLELISM  93011-2S	- 0°25' ± 20' (Toe-in) or - 2.5 ± 2 mm	UNLADEN	NON-ADJUSTABLE
RUBBER BUSHES  81603S1	-	UNLADEN	-

Vehicle type	JA0E - JA0F - JA0G - JA0K - JA0L - JA0Y
Axle type	4 bar axle assembly
Rim diameter (inches)	14"
H1 - H2 (mm)	103 ± 5 mm
H4 - H5 (mm)	24 ± 7.5 mm

Type	Quantity	Components
RHODORSEAL 5661	Coat	Driveshaft roll pin holes
Loctite FRENBLOC Brake and sealing resin	Coat	Brake caliper mounting bolts
Loctite FRENETANCH Brake and sealing resin	Coat	Crankshaft pulley mounting bolts
Exhaust pipe paste	Coat	Sealing the exhaust

Identification

Vehicle type	Engine	Manual gearbox and automatic transmission	Capacity (cm^3)	Bore (mm)	Stroke (mm)	Compression Ratio
JA0E	E7J 764	JB1	1 390	75.8	77	9.5 / 1
JA0G	F3R 750 F3R 751	JC5 AD4	1 998	82.7	93	9.8 / 1
JA0L	K7M 720	JB3	1 598	79.5	80.5	9 / 1
JA0F	K7M 702 K7M 703	JB3 AD4	1 598	79.5	80.5	9.7 / 1
JA0Y JA0K	F8Q 784	JC5	1 870	80	93	20.5 / 1

Engine repair manuals to be consulted depending on the engine type:

Engine / Document	E7J	F3R	K7M	F8Q
Mot. E	X			
Mot. F (E)		X		
Mot. K (E)			X	
Mot. F (D)				X

TESTING METHOD

Oil consumption of **1 litre** for **1 000 km (620 miles)** is acceptable.

Check there is no external oil leak from the engine.

For accurate testing, certain conditions must be observed when draining the engine oil :

- the engine should be warm,

- the dipstick and filling plug should be removed.

Drain the engine and leave the oil running out for **15 minutes** minimum.

Refit the drain plug and "seal" it (spot of paint covering the plug and the sump) in order to check at a later date that it has not been removed.

Fill the engine with oil, ensuring it aligns with the **Maximum** mark on the dipstick.

Refit the filling plug and seal it.

Ask the driver to return the vehicle after **1 000 km (500 miles)** during which time the oil level should be monitored regularly with the dipstick.

When the vehicle is returned, check the drain and filling plugs have not been tampered with.

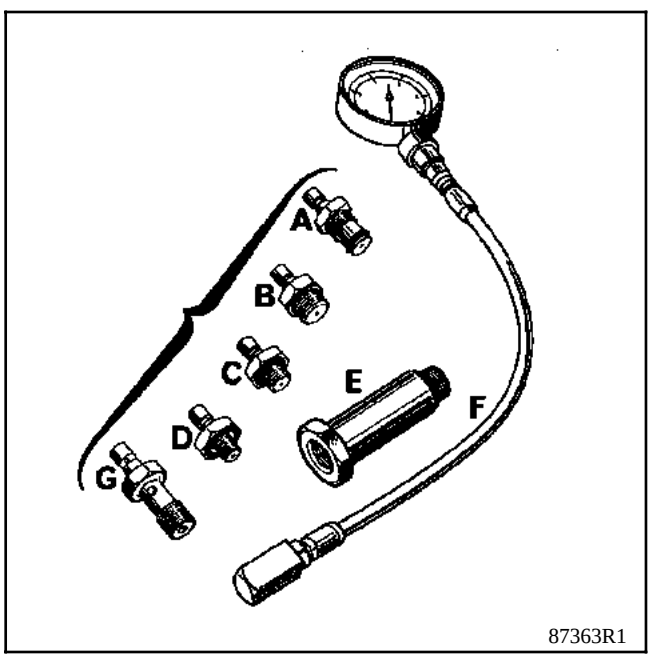
Using a measuring cylinder, adjust the level to the **Maximum** mark and note the volume of oil required.

SPECIAL TOOLING REQUIRED	
Mot.836-05	**Oil pressure testing kit**
EQUIPMENT REQUIRED	
22 mm long socket	

CHECKING

The oil pressure must be checked when the engine is warm (approximately 80°C).

Composition of the kit **Mot. 836-05**.



USE

F engine	E and K engines
B + F	**C + E + F**

CHECKING THE ENGINE

E and K engines

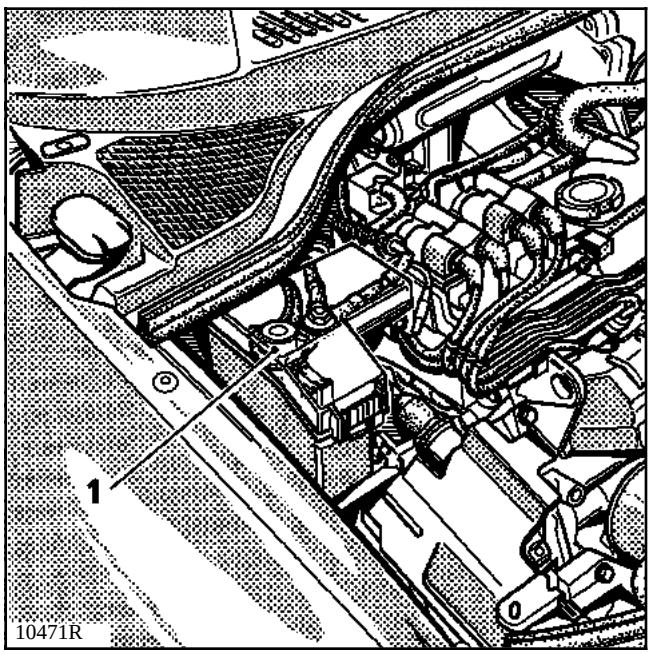
Idle speed	**1 bar**
3 000 rpm	**3 bars**

F engine

1 000 rpm	**1.2 bars**
3 000 rpm	**3.5 bars**

Removal and refitting of the engine and transmission assembly is identical to that for the B version, except for:

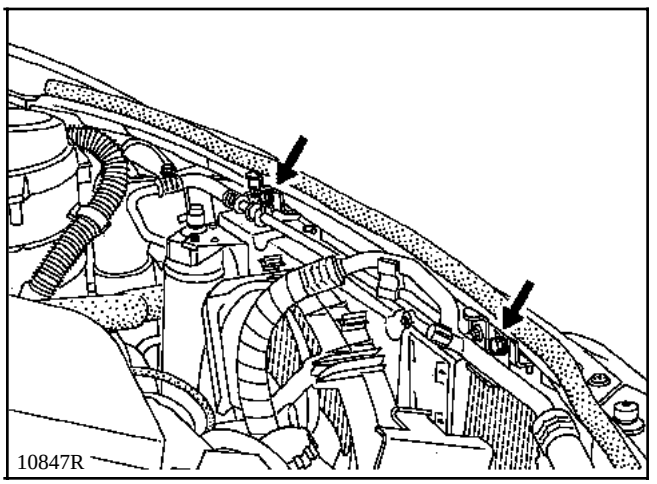
Disconnect the battery at terminal (1).



Remove the two shock absorber base bolts as the spring and shock absorber assemblies remain attached to the body.

Special notes for versions fitted with air conditioning

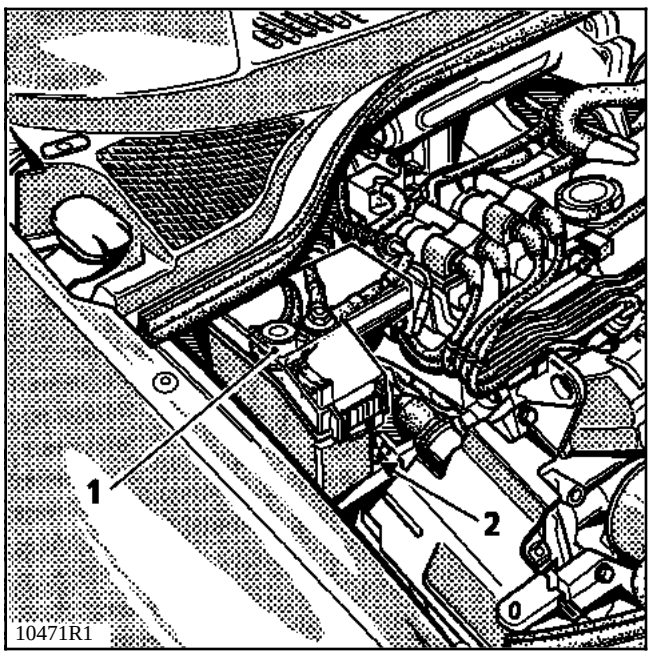
Remove:
- the accessories belt,
- the two mounting bolts for the air conditioning pipes



- the engine cooling radiator (see section 19 of M.R. 312),
- the power assisted steering pump pulley,
- the air conditioning compressor (without opening the circuit) and put it to one side.

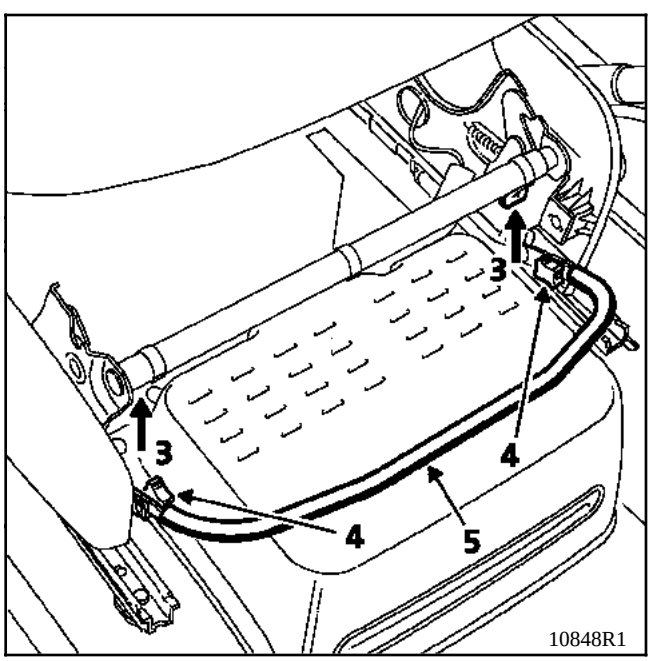
Removal and refitting of the engine and transmission assembly is identical to that for the B version, except for:

Remove :
- terminal (1),
- mounting bolt (2) for the terminal unit then release it.



Disconnect the battery under the passenger seat.
To do this:

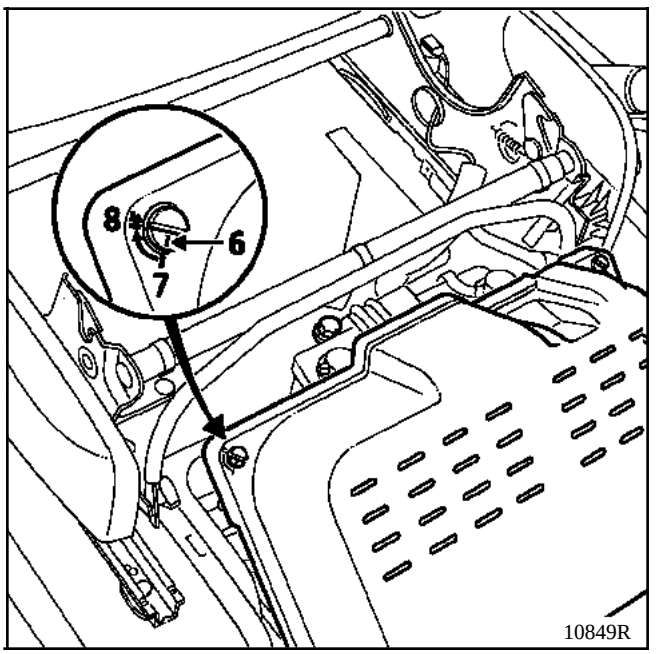
- Move levers (3) to lift the front of the seat.



- Partially slacken the two bolts (4) to lift bar (5).

To open the battery cover, align reference marks (6) and (7) opposite each other.

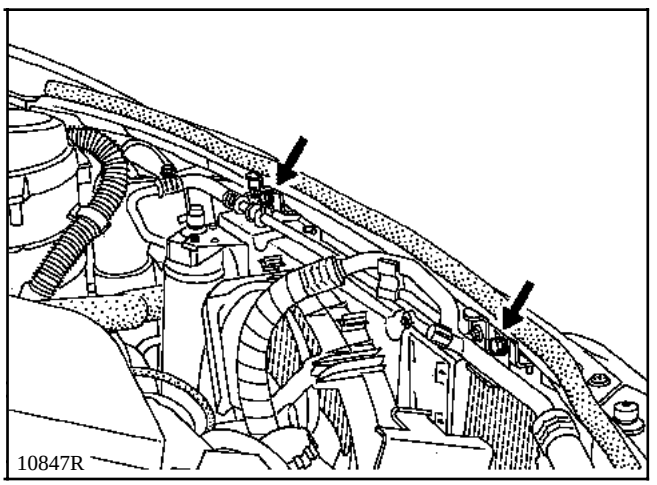
To close the cover, align reference marks (6) and (8) opposite each other.



Remove the two shock absorber base bolts as the spring and shock absorber assemblies remain attached to the body.

Special notes for versions fitted with air conditioning

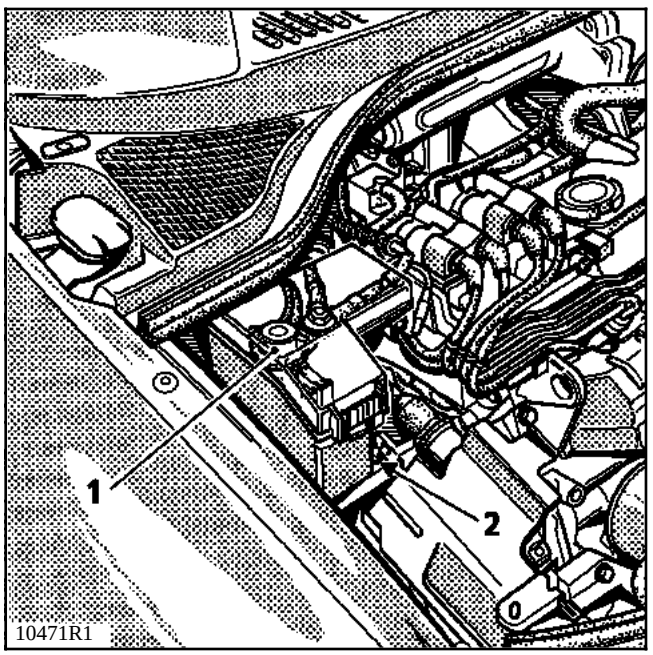
Remove:
- the accessories belt,
- the two mounting bolts for the air conditioning pipes



- the engine cooling radiator (see section 19 of M.R. 312),
- the power assisted steering pump pulley,
- the air conditioning compressor (without opening the circuit) and put it to one side.

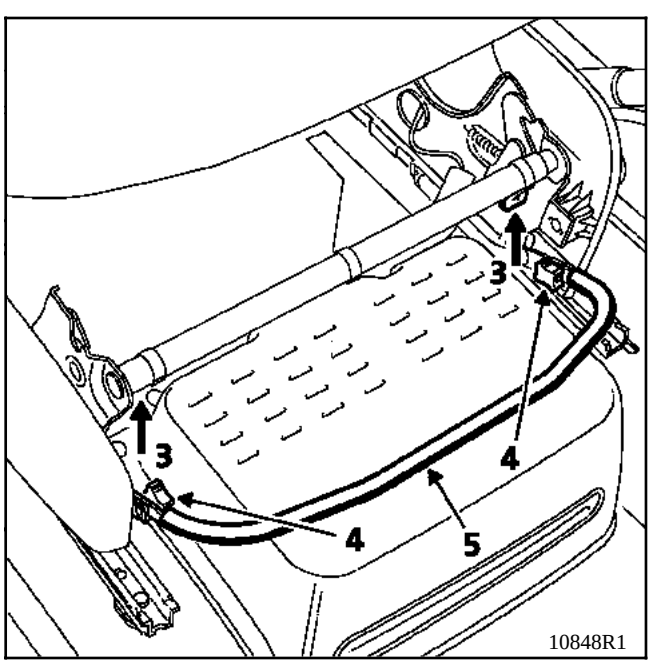
Removal and refitting of the engine and transmission assembly is identical to that for the B version, except for:

Remove :
- terminal (1),
- mounting bolt (2) for the terminal unit then release it.



Disconnect the battery under the passenger seat.
To do this:

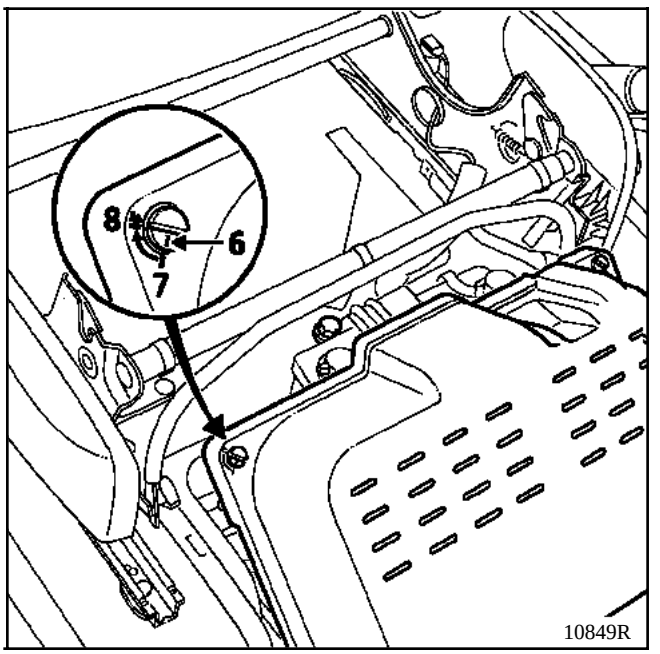
- Move levers (3) to lift the front of the seat.



- Partially slacken the two bolts (4) to lift bar (5).

To open the battery cover, align reference marks (6) and (7) opposite each other.

To close the cover, align reference marks (6) and (8) opposite each other.



Remove the two shock absorber base bolts as the spring and shock absorber assemblies remain attached to the body.

The removal and refitting of the sump is identical to that for the B version and does not require an engine support tool.

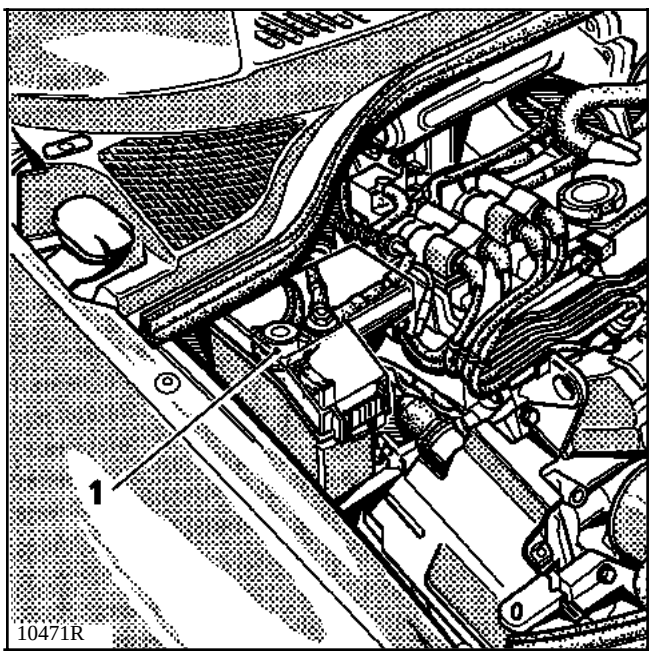
SPECIAL TOOLING REQUIRED	
T.Av. 476	Ball joint extractor
B.Vi. 31-01	Set of punches
Elé. 1294-01	Tool for removing the wiper arm
EQUIPMENT REQUIRED	
Engine support tool	

TIGHTENING TORQUES (in daN.m)	
Wheel bolts	9
Track rod end nut	3.5
Shock absorber base bolt	17
Engine tie bar bolt:	
- on gearbox	6.5
- on sub-frame	7.5
Right hand engine mounting nut	4.5
Left hand gearbox mounting nut	4.5
Sump bolt	0.7 to 0.9
Oil pump bolt	2.5
Tie rod bolt on gearbox	2.5
Tie rod bolt on engine	5

REMOVAL

Put the vehicle on a 2 post lift.

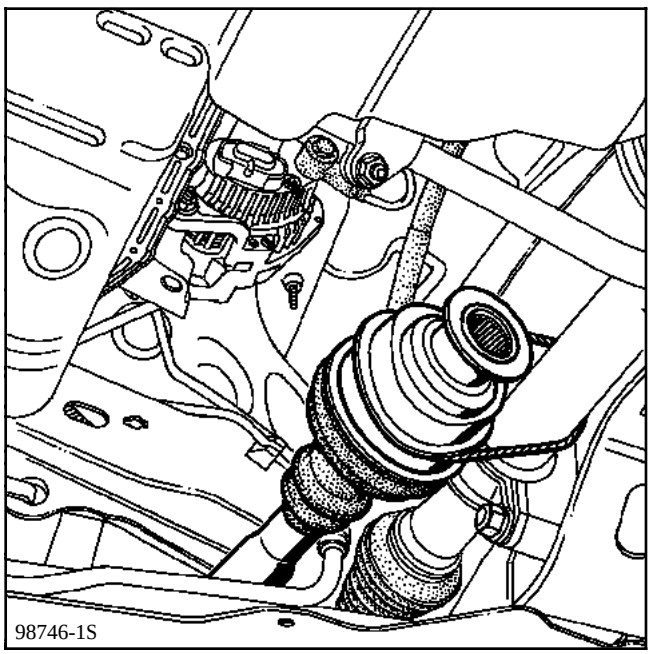
Disconnect the battery at terminal (1).



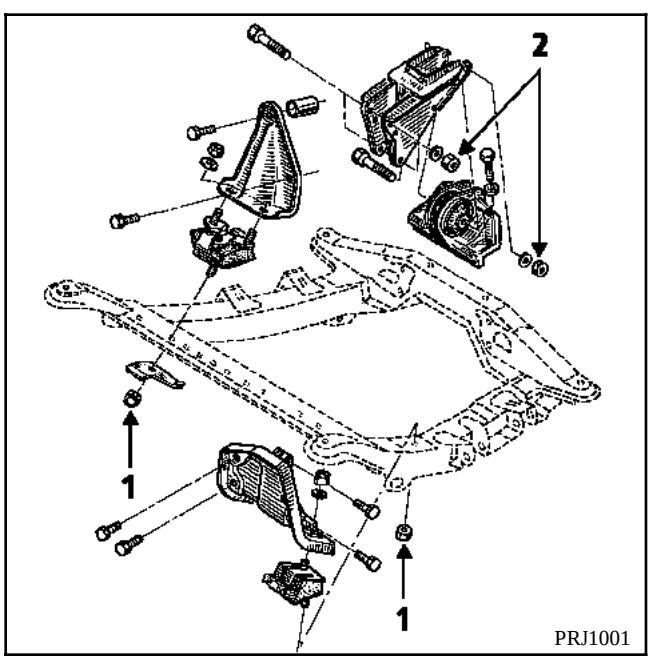
Drain the engine oil.

Remove:
- the exhaust heat shield,
- the catalytic converter,
- the front right hand wheel,
- the track rod end using tool **T.Av. 476**,
- the upper shock absorber base bolt and slacken the lower bolt (without removing it),

- the right hand driveshaft roll pin using tool **B.Vi. 31-01**, then tilt the hub to release the driveshaft from the gearbox and attach it to the steering,

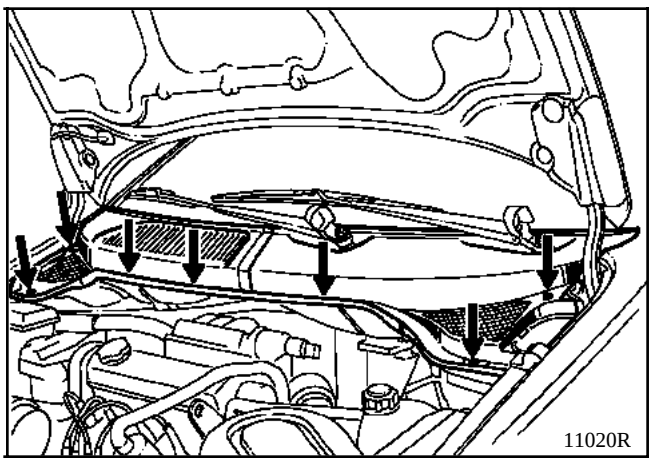

98746-1S

- the engine - gearbox tie rod,
- nuts (1) for the engine and gearbox mounting pads,
- nuts (2) for the engine tie bar mounting,

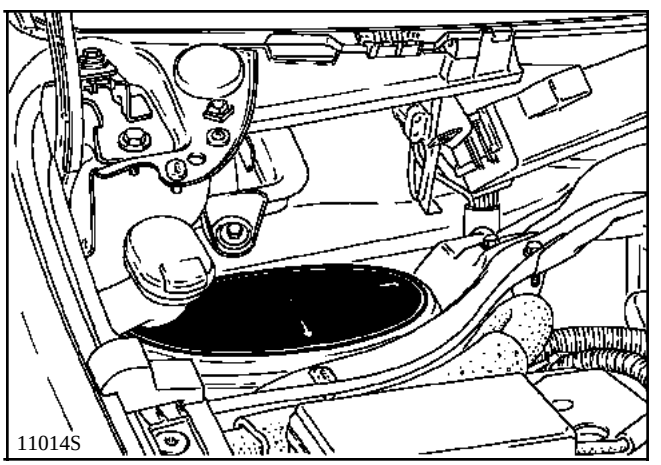


PRJ1001

- the two windscreen wiper arms using tool **Elé. 1294-01** as described in N.T. 2280A.
- the seal,
- the mounting bolts for the two scuttle panel grilles,
- the scuttle panel grilles, pushing them towards the centre of the windscreen to release the centring pin at each end of the grilles,


11020R

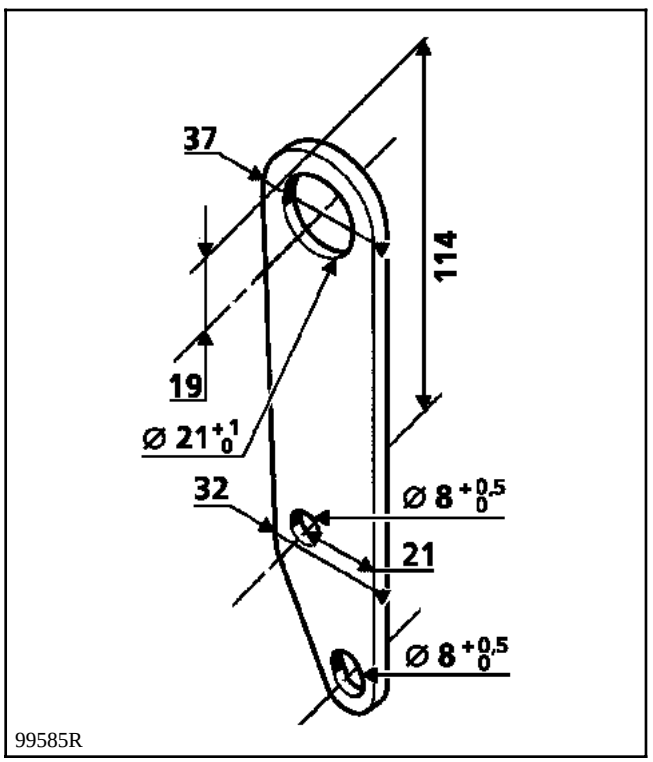
- the shock absorber turret sealing covers.


11014S

Tie the bonnet up as high as possible.

Remove:
- the lower partition from the water bottle,
- the air filter,
- the engine lifting ring next to the ignition distributor and fit the lifting bracket (see next page) in its place.

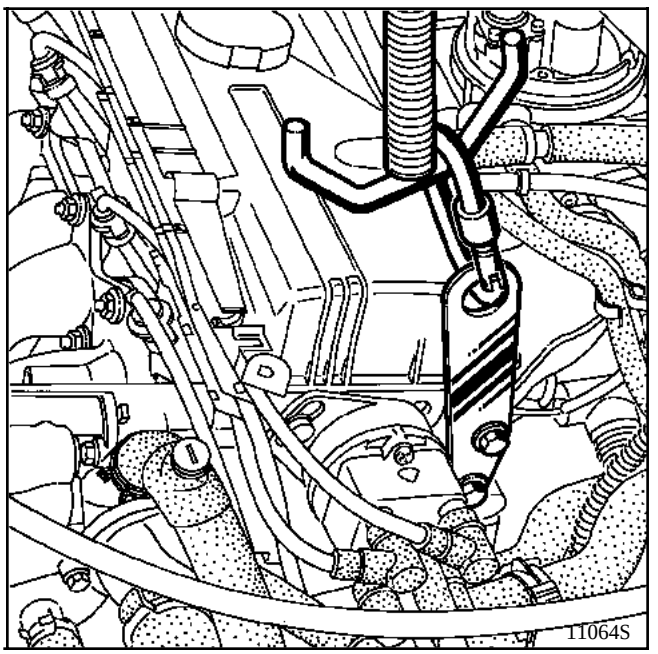
LIFTING BRACKET



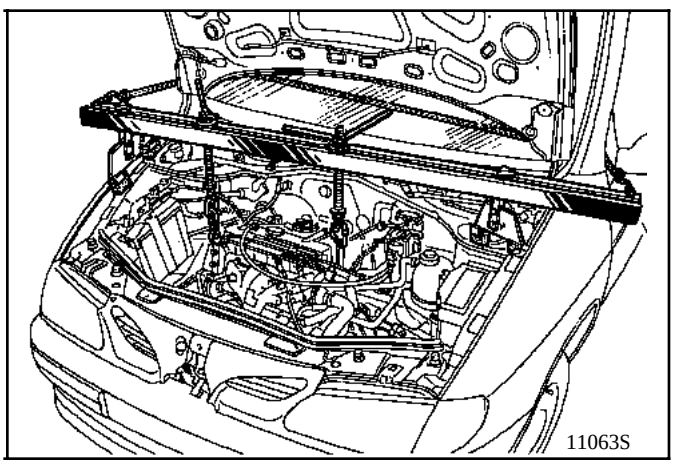
There are two ways of making this lifting bracket.

1. Modify the existing bracket on the E7J engine (air filter mounting bracket mounted on the cylinder head).

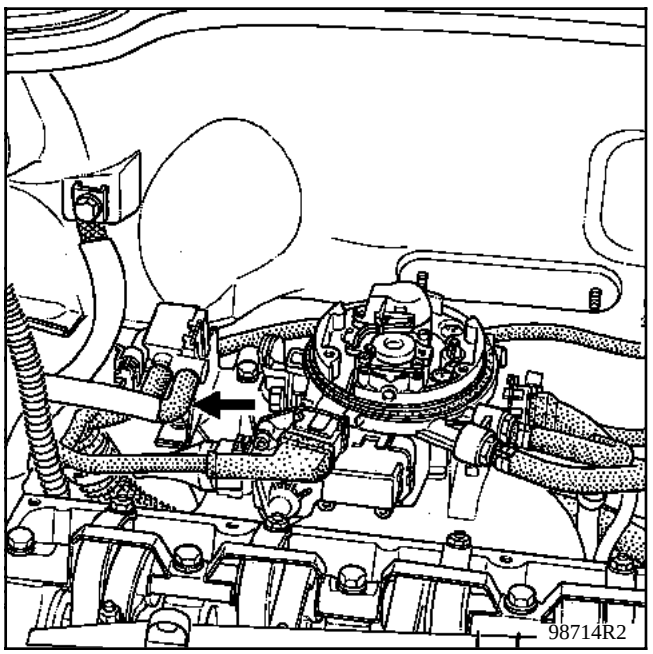
2. Locally made tool.
Key:
- 1 plate of thickness 4 or 5 mm in medium hard steel,
- 2 bolts - M8 X 20 (flanged bolts).



The engine support must be positioned as shown in the diagram, then fit the strap around the windscreen aperture.

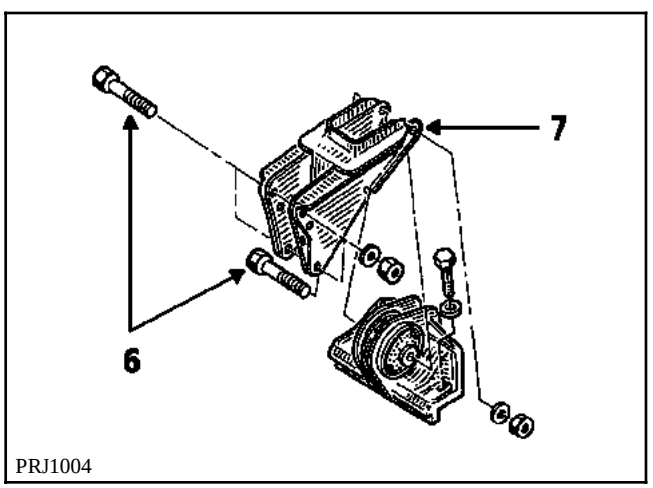


Remove:
- the canister solenoid valve pipe,

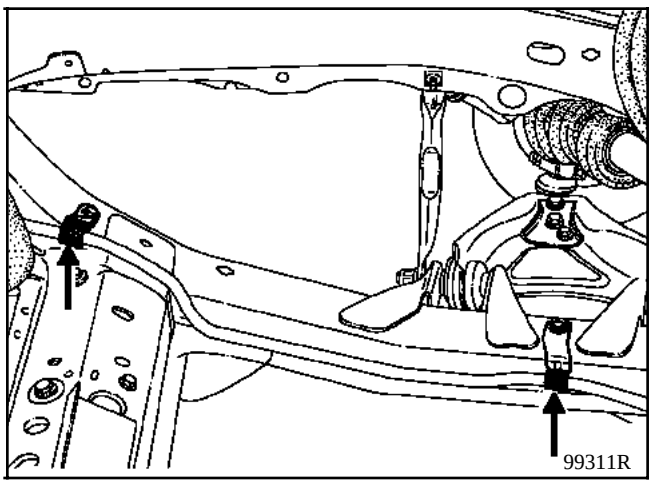


- the petrol pipes from their mounting on the right hand side member and the inlet manifold,
- the power assisted steering reservoir,
- the speedo from the gearbox.

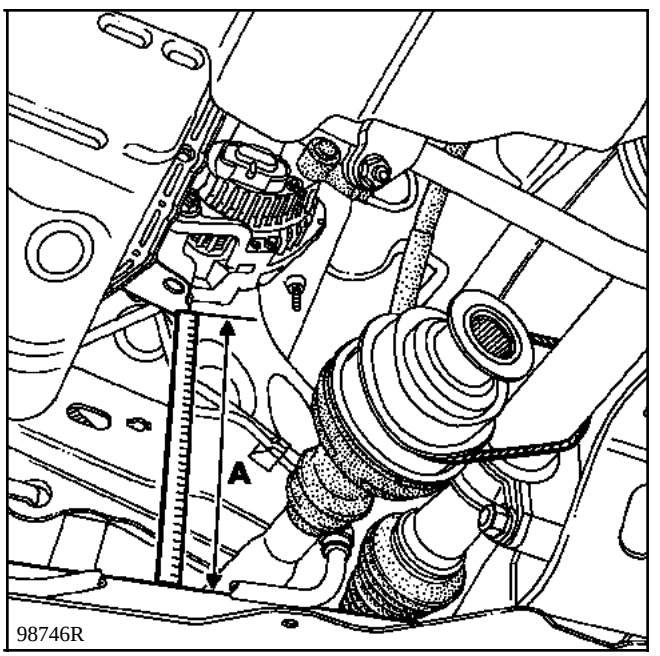
Lift the engine using the two rings so that the three bolts (6) may be removed from the mounting (7) and remove it by pulling up.



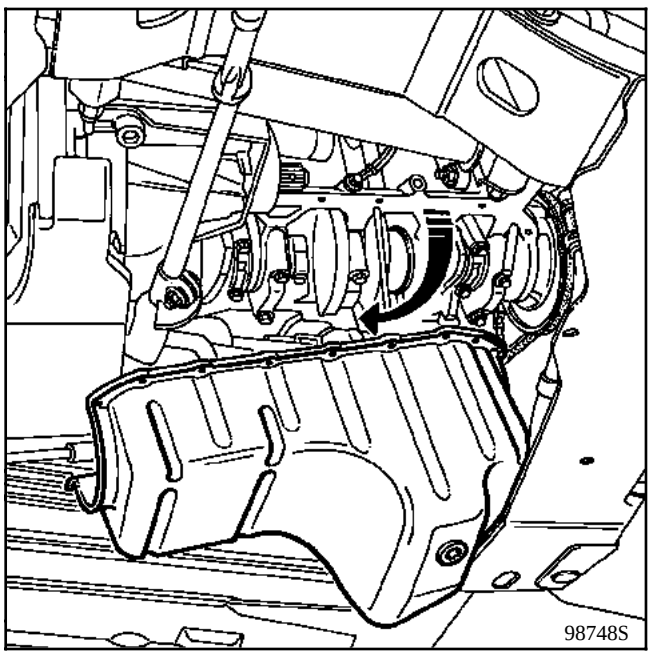
Remove the two mounting bolts from the power assisted steering pipe on the sub-frame.



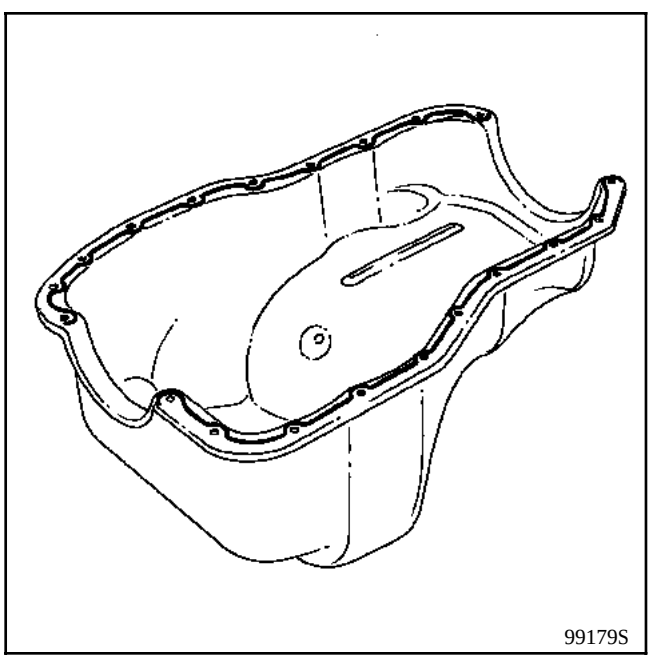
Lift the engine using the ring on the timing side until you obtain dimension (A) of **25 cm** between the sub-frame and the edge of the cylinder block.



Remove:
- the sump bolts then release the sump,
- the sump in the direction of the arrow.



Clean the sump before applying a bead of **RHODORSEAL 5661** of width **3 mm**.



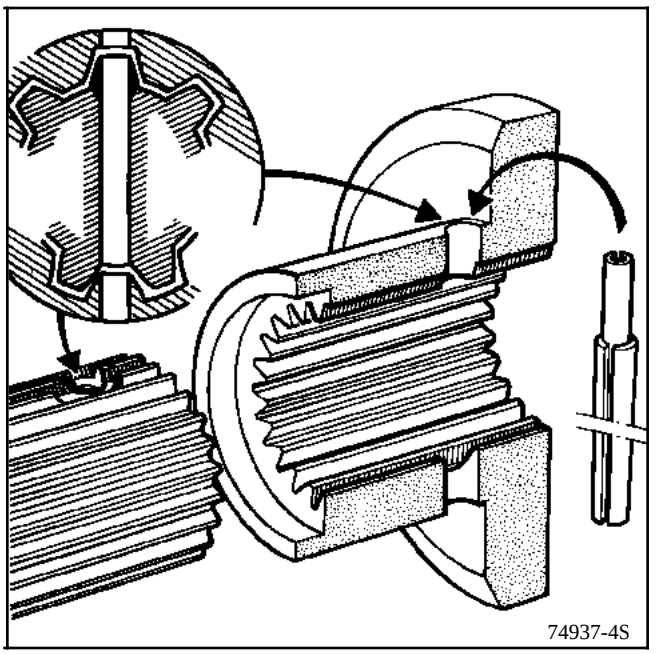
NOTE: Remember to renew the two rubber seals at each end of the sump.

REFITTING

Refitting is the reverse of removal.

An input chamfer on the sunwheel makes fitting the new roll pins easier.

Seal the ends with **RHODORSEAL 5661**.



Refitting the shock absorber turret sealing covers.

A new bead of mastic (eg SODICAM sealing mastic for door vinyl and trim), should be applied to replace the old mastic to ensure the shock absorber turrets are perfectly sealed.

Fill the engine with oil.

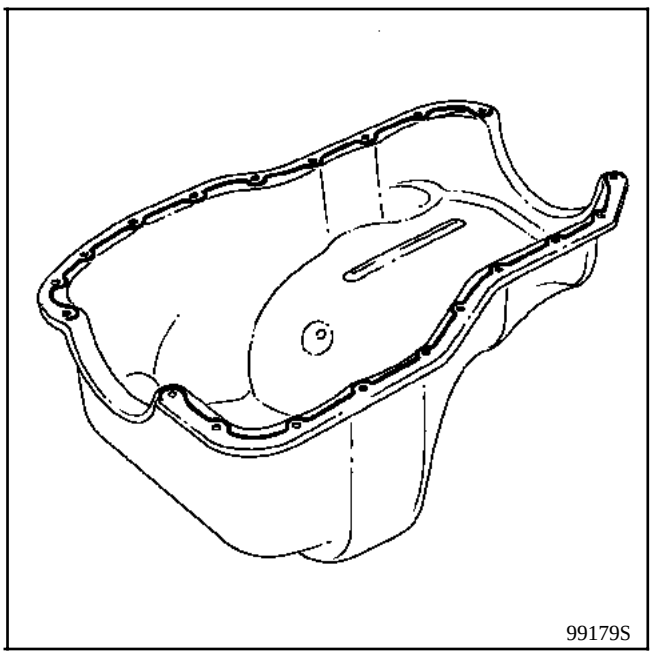
TIGHTENING TORQUES (in daN.m)	
Sump bolt	**0.7 to 0.9**

REMOVAL

The engine - gearbox assembly must be removed to remove an aluminium sump.

REFITTING

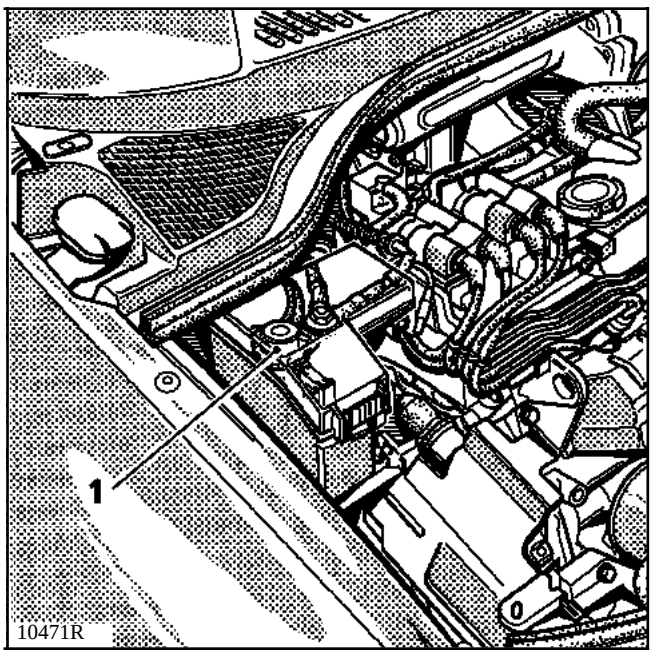
Clean the sump before applying a bead of **RHODORSEAL 5661** of width **3 mm**.



NOTE: Remember to renew the two rubber seals at each end of the sump.

Removal and refitting of the timing belt is identical to that for the B version.

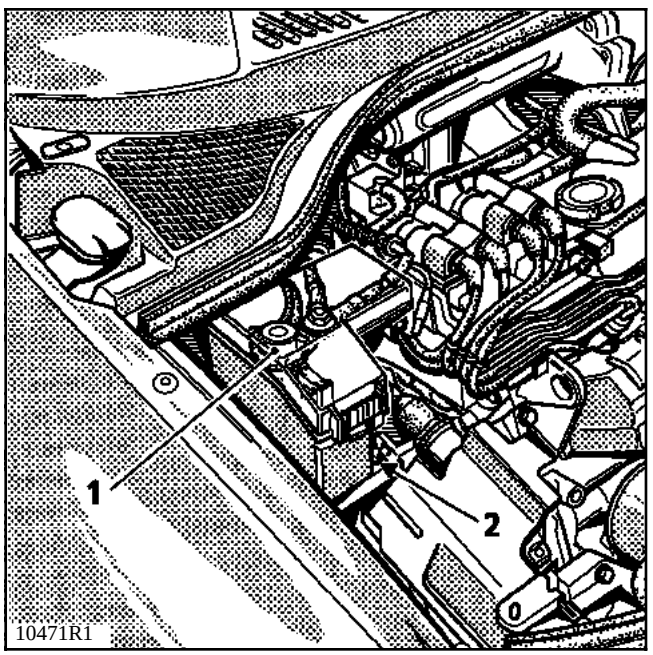
Disconnect the battery at terminal (1).



Removal and refitting of the timing belt is identical to that for the B version for the F3R engine and to N.T. 2526A for the F8Q Turbo engine, except for:

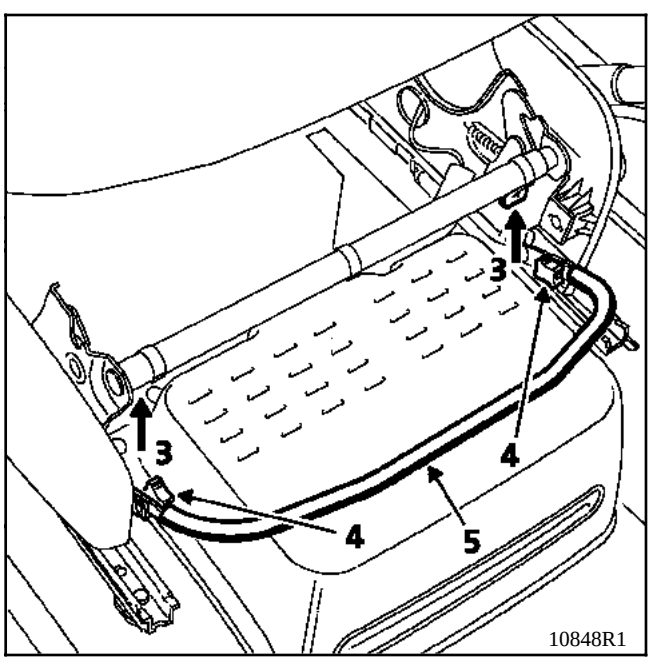
Remove :

- terminal (1),
- mounting bolt (2) for the terminal unit then release it.



Disconnect the battery under the passenger seat.
To do this:

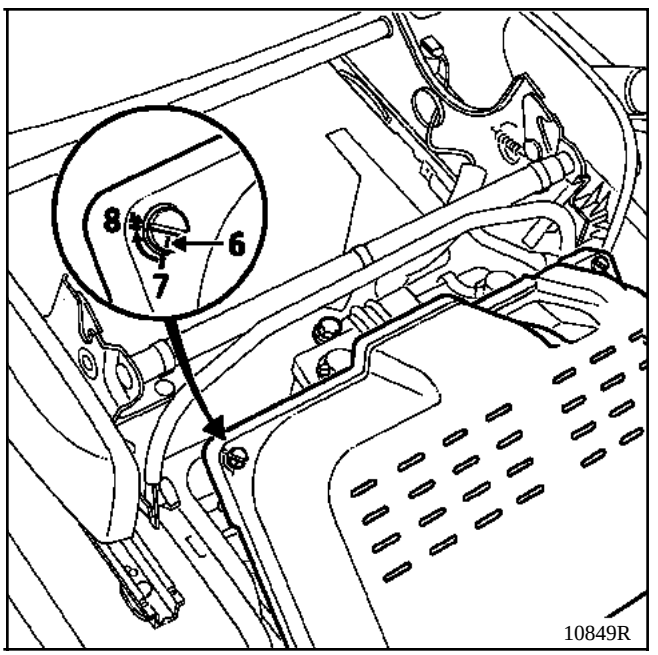
- Move levers (3) to lift the front of the seat.



- Partially slacken the two bolts (4) to lift bar (5).

To open the battery cover, align reference marks (6) and (7) opposite each other.

To close the cover, align reference marks (6) and (8) opposite each other.



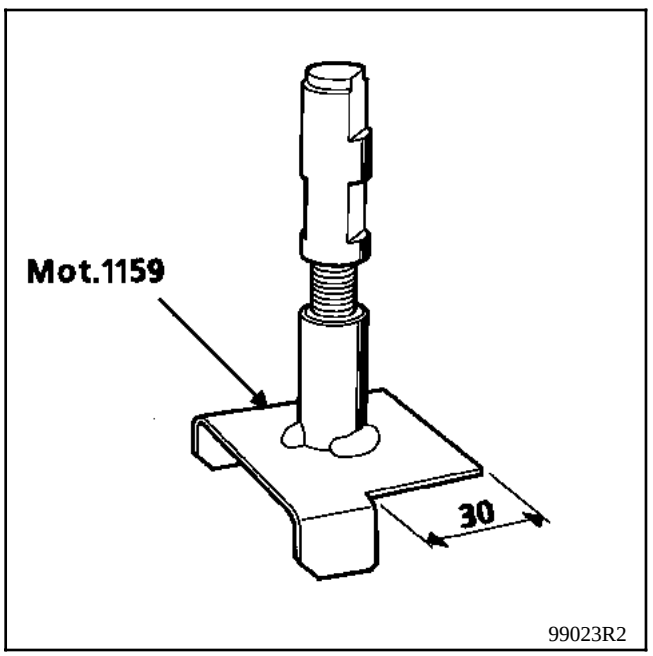
Special notes

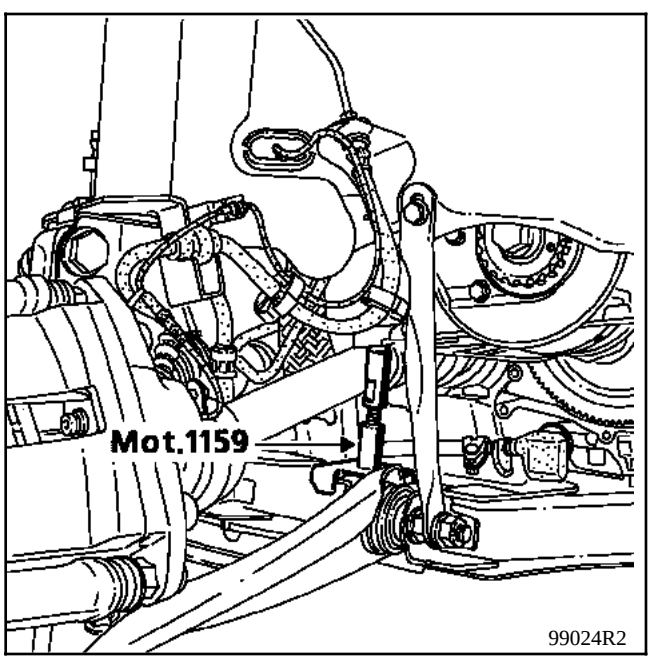
Use tool **Mot. 1159** in the place of the engine support tool.

Remove the two mounting bolts for the power assisted steering pipe.

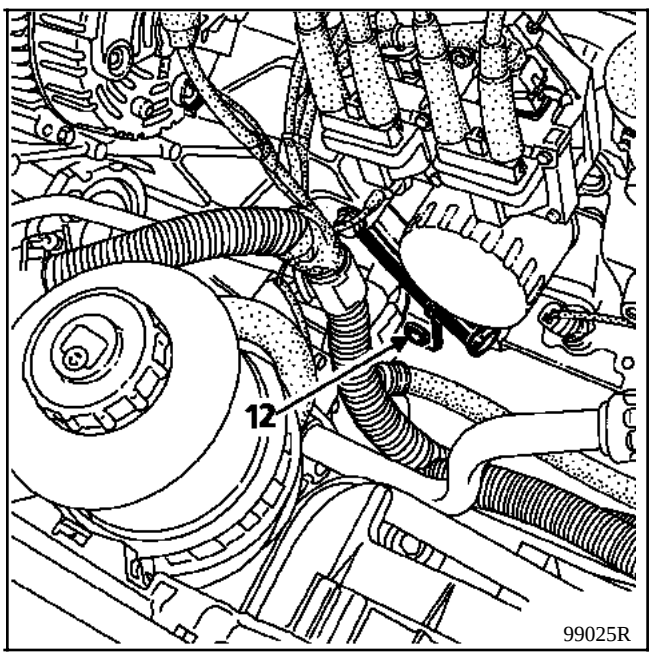
Before removing the engine support tool, fit tool **Mot. 1159** under the oil pump.

NOTE : cut the base of tool **Mot. 1159** by **30 mm**.





Remove the water pipe mounting bolt (12).



Fit the bracket of tool **Mot. 1159** under the water pump.

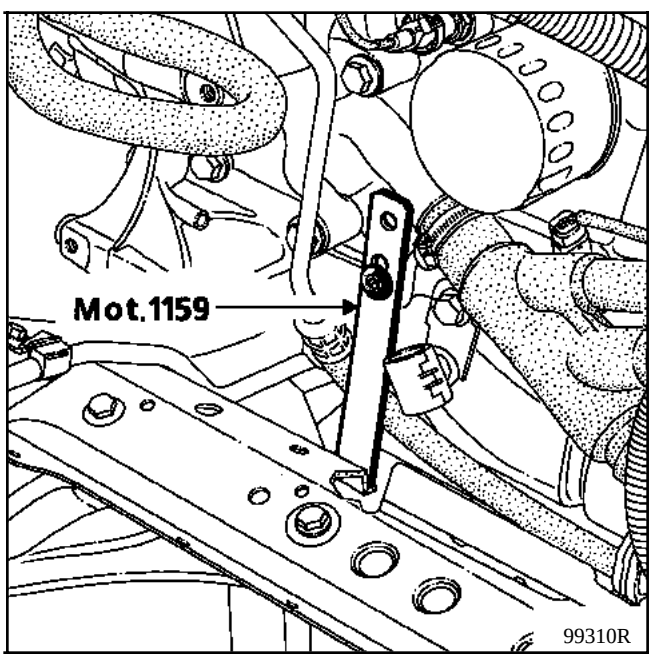
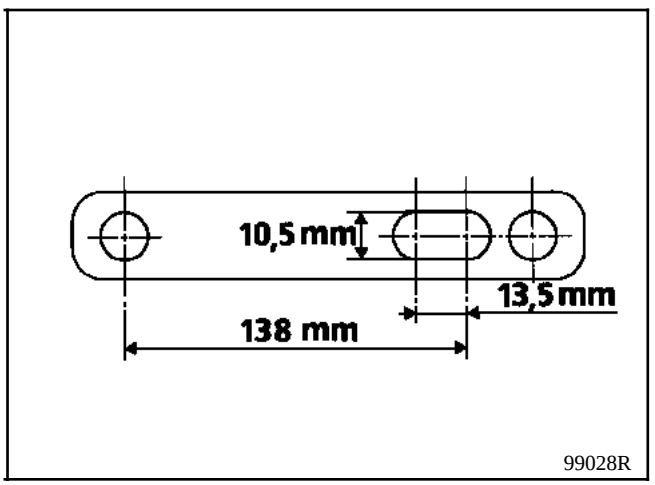
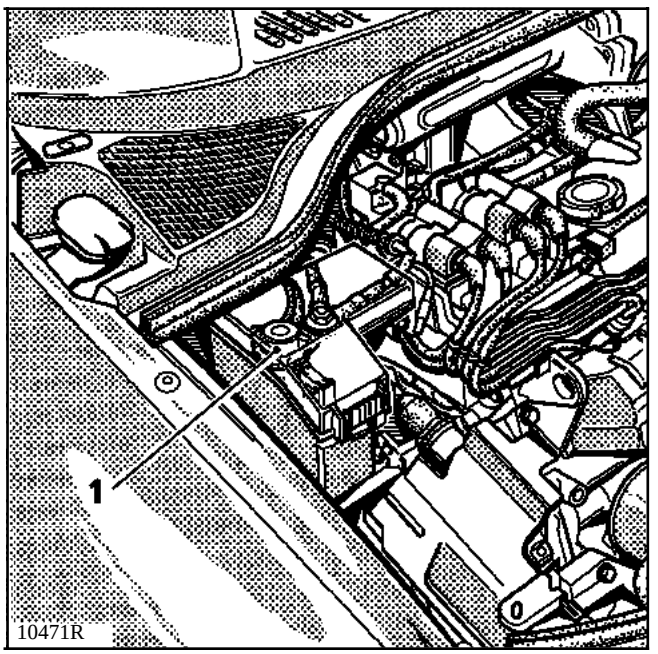


Diagram for drilling tool **Mot. 1159** (diameter **10.5 mm**).



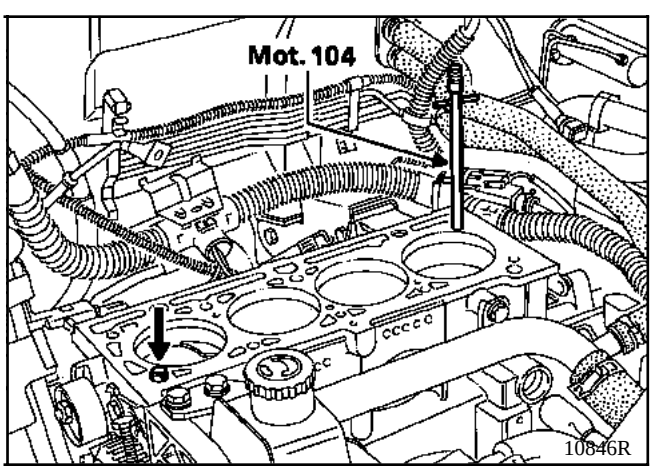
Removal and refitting of the cylinder head gasket is identical to that for the B version.

Disconnect the battery at terminal (1).



Special notes

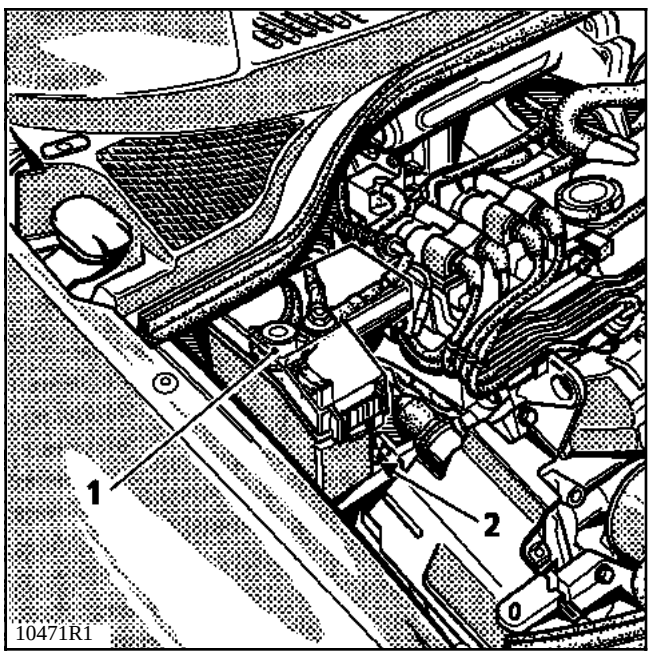
To ensure the cylinder head is fitted in the correct position, fit tool **Mot. 104** to the cylinder block and check the centring dowel is present.



Removal and refitting of the cylinder head gasket is identical to that for the B version for the F3R engine and to N.T. 2526A for the F8Q Turbo engine, except for:

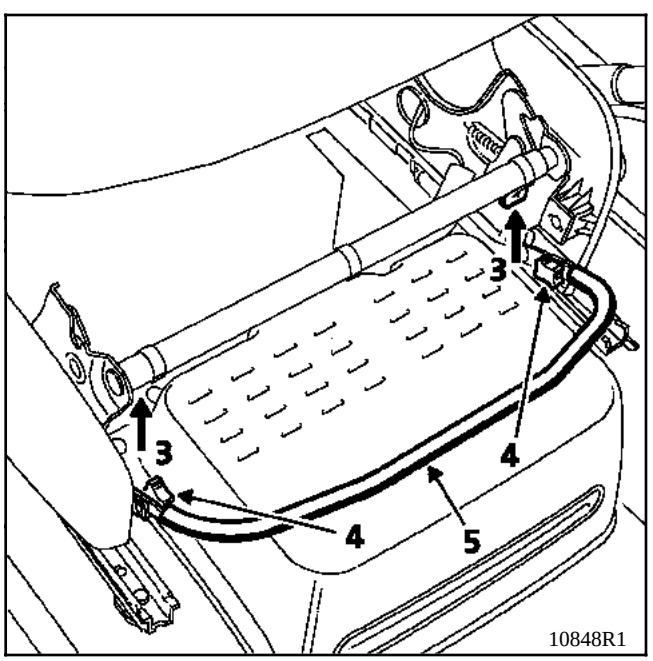
Remove :

- terminal (1),
- mounting bolt (2) for the terminal unit then release it.



Disconnect the battery under the passenger seat.
To do this:

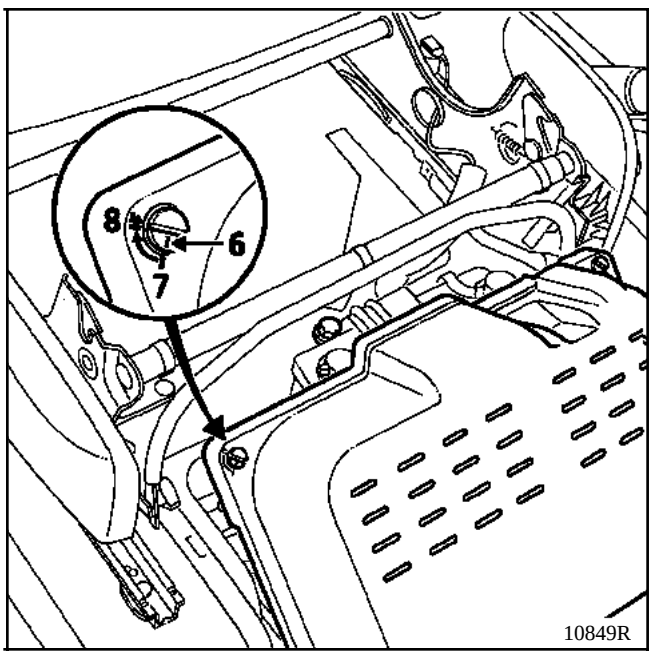
- Move levers (3) to lift the front of the seat.



- Partially slacken the two bolts (4) to lift bar (5).

To open the battery cover, align reference marks (6) and (7) opposite each other.

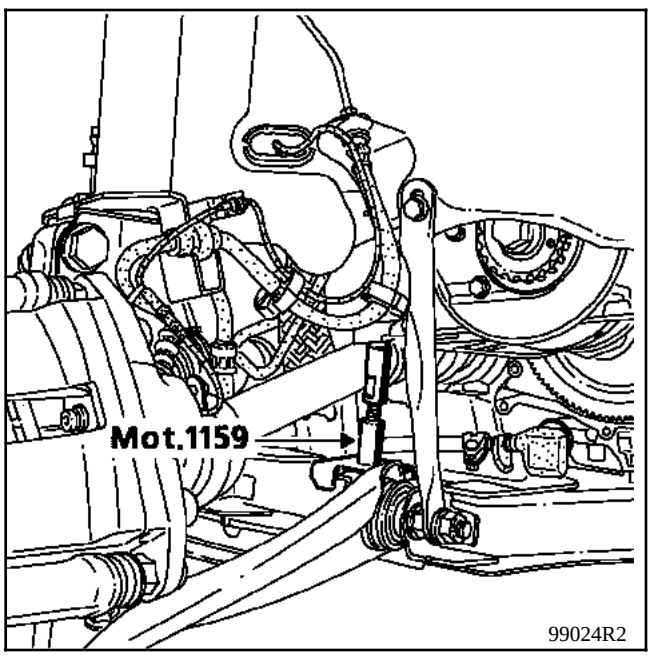
To close the cover, align reference marks (6) and (8) opposite each other.



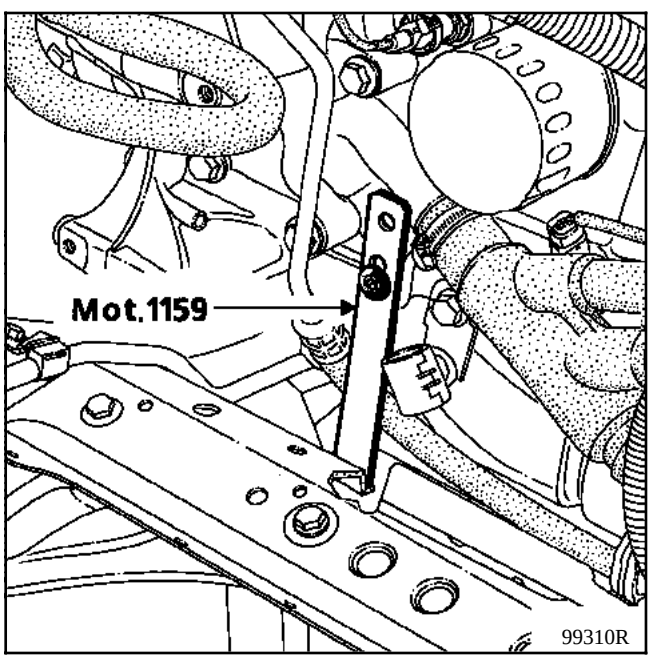
Special notes

Fit tool **Mot. 1159** :

- under the oil pump,

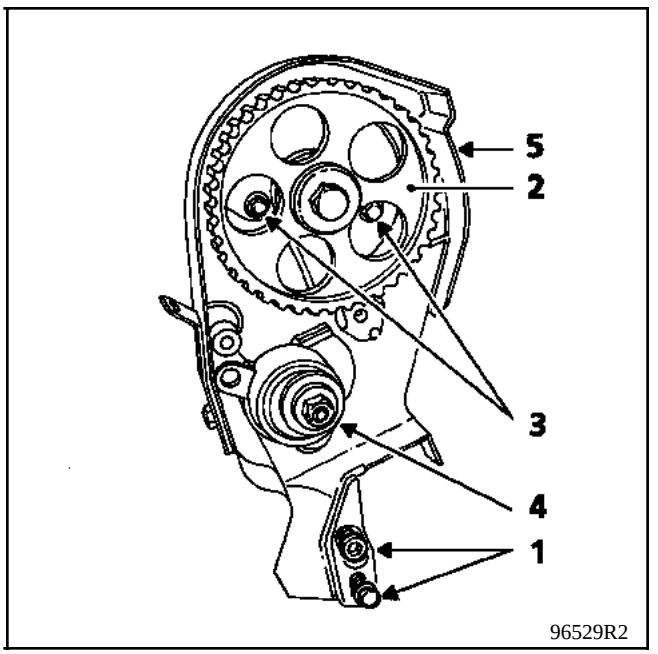


- under the water pump,



Special notes (F3R engine only)

Remove:
- the coil mounting,
- the alternator,
- the two mounting bolts (1) for the upper inner timing cover,
- the camshaft pulley (2),
- the two inner housing bolts (3),
- the timing tensioner (4).



Remove the inner timing cover (5).

Vehicle	Gearbox	Engine							Depollution standard
		Type	Suffix	Bore (mm)	Stroke (mm)	Capacity (cm^3)	Compression Ratio	Catalytic converter	
JA0F	Manual	K7M	702	79.5	80.5	1598	9.7 / 1	◊ C45	EU 96
JA0F	AT	K7M	703	79.5	80.5	1598	9.7 / 1	◊ C45	EU 96
JA0L	Manual	K7M	720	79.5	80.5	1598	9 / 1	◊ C45	EU 96

Engine		Tests carried out at idle speed*					Fuel *** (minimum octane index)
		Engine speed (rpm)	Emission of pollutants **				
Type	Suffix		CO (%) (1)	CO_2 (%)	HC (ppm)	Lambda (λ)	
K7M	702 720	720±50	0.3 max.	14.5 min.	100 max.	0.97<λ<1.03	Unleaded (OR 95)
K7M	703	750±50	0.3 max.	14.5 min.	100 max.	0.97<λ<1.03	Unleaded (OR 95)

(1) At 2 500 rpm, CO must be a maximum of 0.3

Engine		Computer	Supplier's No.	Approval No.	RENAULT No. (G70*)
Type	Suffix				
K7M	702	SIEMENS 55 tracks (FENIX 5)	S 105 300 102	77 00 875 745	77 00 102 199 77 00 103 718
			S 115 300 102	77 00 875 745	77 00 102 315
K7M	703	SIEMENS 55 tracks (FENIX 5)	S 105 300 208	77 00 875 744	77 00 102 200 77 00 103 719
			S 115 300 208	77 00 875 744	77 00 102 318
K7M	720	SIEMENS 55 tracks (FENIX 5)	S 115 300 105	77 00 875 743	77 00 102 320 77 00 103 720
			S 105 300 105	77 00 875 743	77 00 102 203

* For a coolant temperature greater than 80°C and at stable engine speed of 2 500 rpm for approximately 30 seconds.

** For legislative values, refer to specification for individual country.

*** Compatible with OR 91 unleaded.

Temperature in °C (± 1°)	0	20	40	80	90
Air temperature sensor Type CTN Resistance in Ohms	7 470 to 11 970	3 060 to 4 045	1 315 to 1 600	-	-
Coolant temperature sensor Type CTN Resistance in Ohms	-	3 060 to 4 045	1 315 to 1 600	300 to 370	210 to 270

DESCRIPTION	MAKE / TYPE	SPECIAL NOTES
Computer	SIEMENS FENIX 5	55 tracks
Injection		Semi-sequential regulated multipoint
Ignition		Static, with two dual output coils Power module integral in computer One pinking sensor
Plugs	EYQUEM FC 52 LS CHAMPION C10YC	Gap: 0.9 mm Tightening : 2.5 to 3 daN.m
Air filter		Renew every other oil change
Fuel filter		Mounted at the front of the fuel tank under the vehicle Replace at a major service
Fuel pump	WALBRO	Submerged in fuel tank Flow: 80 litres / hour minimum under regulated pressure of 3 bars and voltage of 12 volts
Pressure regulator		Regulated pressure Zero vacuum: 3 ± 0.2 bars Vacuum of 500 mbar : 2.5 ± 0.2 bars
Solenoid injector	SIEMENS	Voltage: 12 V Resistance : 14,5 ± 1 Ω
Throttle body	PIERBURG 714 186	Diameter 44 mm
EGR (K7M 703) solenoid valve	PIERBURG 72213000	Voltage: 12 V Resistance : 30 ± 3 Ω
Fuel vapour recirculation canister Solenoid valve	CAN 10 DELCO REMY	Voltage: 12 V Resistance : 35 ± 5 Ω
Heated oxygen sensor	NGK	Voltage at 850°C Rich mixture: > 625 mvolt Lean mixture: 0 to 80 mvolt Tightening torque: 4.5 daN.m
Fault finding	FICHE n° 27 CODE D13 SELECTOR ON S8	<u>Throttle potentiometer</u> Idle regulation: 5 ≤ #17 ≤ 47 Full load: 164 ≤ #17 ≤ 253 R.C.O. idle: 4 % ≤ #12 ≤ 14 % (K7M 720) 6 % ≤ #12 ≤ 15 % (K7M 702 / 703 in P and N) 10 % ≤ #12 ≤ 20 % (K7M 703 in D) Adaptive R.C.O idle: - 2,4 % ≤ #21 ≤ + 6.2% Adaptive richness operation: 0 ≤ #30 ≤ 208 Adaptive richness idle: 100 ≤ #31 ≤ 255 (K7M 720) 104 ≤ #31 ≤ 255 (K7M 702 / 703)

Vehicle	Gearbox	Engine							Depollution standard
		Type	Suffix	Bore (mm)	Stroke (mm)	Capacity (cm^3)	Compression Ratio	Catalytic converter	
JA0G	Manual	F3R	750	82.7	93	1998	9.8 / 1	◊ C47	EU 96
JA0G	AT	F3R	751	82.7	93	1998	9.8 / 1	◊ C47	EU 96

Engine		Tests carried out at idle speed*					Fuel*** (minimum octane rating)
		Engine speed (rpm)	Emission of pollutants **				
Type	Suffix		CO (%) (1)	CO_2 (%)	HC (ppm)	Lambda (λ)	
F3R	750	820±50	0.5 max.	14.5 min.	100 max.	0.97<λ<1.03	Unleaded (OR 95)
F3R	751	770±50	0.5 max.	14.5 min.	100 max.	0.97<λ<1.03	Unleaded (OR 95)

(1) at 2500 rpm, the CO should be a maximum of 0.3.

Engine		Computer	Supplier's No.	Approval No.	RENAULT No. (G70*)
Type	Suffix				
F3R	750 / 751	SIEMENS 55 tracks (FENIX 5)	S 103 717 113	77 00 868 304	77 00 102 303
			S 103 717 213	77 00 868 304	77 00 865 825

* For a coolant temperature greater than 80°C and at stable engine speed of 2 500 rpm for approximately 30 seconds.
** For legislative values, refer to specification for individual country.
*** Compatible with OR 91 unleaded.

Temperature in °C (± 1°)	0	20	40	80	90
Air temperature sensor Type CTN Resistance in Ohms	7 470 to 11 970	3 060 to 4 045	1 315 to 1 600	-	-
Coolant temperature sensor Type CTN Resistance in Ohms	-	3 060 to 4 045	1 315 to 1 600	300 to 370	210 to 270

DESCRIPTION	MAKE/TYPE	SPECIAL NOTES
Computer	SIEMENS FENIX 5	55 tracks
Injection		Sequential regulated multipoint
Ignition		Static, with two dual output coils Power module integral in computer One pinking sensor
Plugs	EYQUEM C 52 LS CHAMPION N7YCX BOSCH W7DCO	Gap: 0.9 mm Tightening torque: 2.5 to 3 daN.m
Air filter		Renew every other oil change
Fuel filter		Mounted at the front of the fuel tank under the vehicle Replace at a major service
Fuel pump	WALBRO	Submerged in fuel tank Flow: 80 litres / hour minimum under regulated pressure of 3 bars and voltage of 12 volts
Pressure regulator	WEBER BOSCH	Regulated pressure Zero vacuum: 3 ± 0.2 bars Vacuum of 500 mbar : 2.5 ± 0.2 bars
Solenoid injector	SIEMENS	Voltage: 12 V Resistance : 14.5 ± 1 Ω
Throttle body	SOLEX ∅ 60 mm	Reference: 127 F3R 751 without AC- F3R 750 Reference: 132 F3R 751 AC
Idle regulation solenoid valve	HITACHI AESP 207-17	Voltage: 12 V Resistance : 9.5 ± 1 Ω
Fuel vapour recirculation canister Solenoid valve	CAN 10 DELCO REMY	Voltage: 12 V Resistance : 35 ± 5 Ω
Heated oxygen sensor	BOSCH LSH 25	Voltage at 850°C Rich mixture: > 625 mvolt Lean mixture: 0 to 80 mvolt Tightening torque: 4.5 daN.m
Fault finding	FICHE n° 27 CODE D13 SELECTOR ON S8	<u>Throttle potentiometer</u> Idle regulation: 8 ≤ #17 ≤ 38 Full load: 188 ≤ #17 ≤ 245 R.C.O. idle: 20 % ≤ #12 ≤ 45 % (F3R 750) 18 % ≤ #12 ≤ 38 % (F3R 751) Adaptive R.C.O idle: - 6.2 % or - 8.6 ≤ #21 ≤ + 6.2 % Adaptive richness operation: 82 ≤ #30 ≤ 224 Adaptive richness idle: 32 ≤ #31 ≤ 224

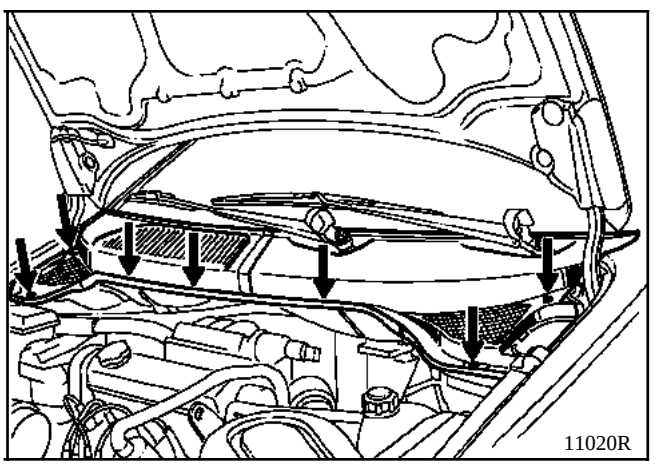
For removal and adjustment:
- of the turbocharger,
- of the wastegate,
- of the air / air exchanger,
- of the inlet and exhaust manifolds,

refer to N.T. 2526A.

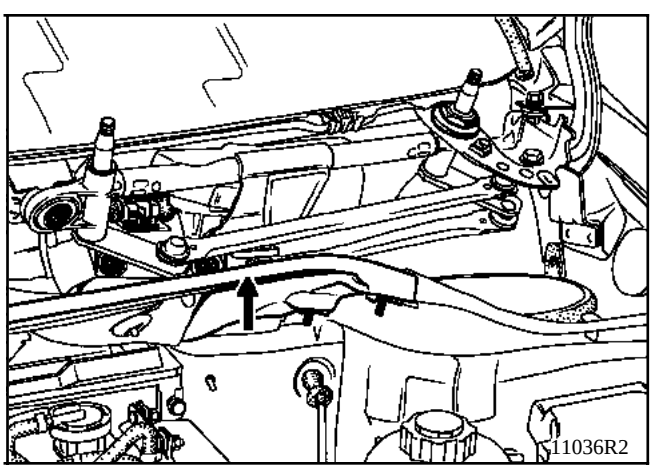
Special notes

The scuttle panel grilles must be removed in order to reach the mounting bolts for the turbocharger and manifolds.

To do this, remove:
- the two wiper arms using tool **Elé. 1294-01** as described in N.T. 2280A.
- the seal,
- the mounting bolts for the two scuttle panel grilles,
- the scuttle panel grilles, pushing them towards the centre of the windscreen to release the centring pin at each end of the grilles,



- the bulkhead panel.



Vehicles	Gear box	Engine							Depollution standard	HP power
		Type	Suffix	Bore (mm)	Stroke (mm)	Capacity (cm^3)	Comp. Ratio	Catalytic converter		
JA0Y	JC5	F8Q	784	80	93	1 870	20,5 / 1	◊ C25	EU96	95
JA0K	JC5	F8Q	784	80	93	1 870	20,5 / 1	◊ C25	EU96	92

* Non-impregnated oxidation chamber

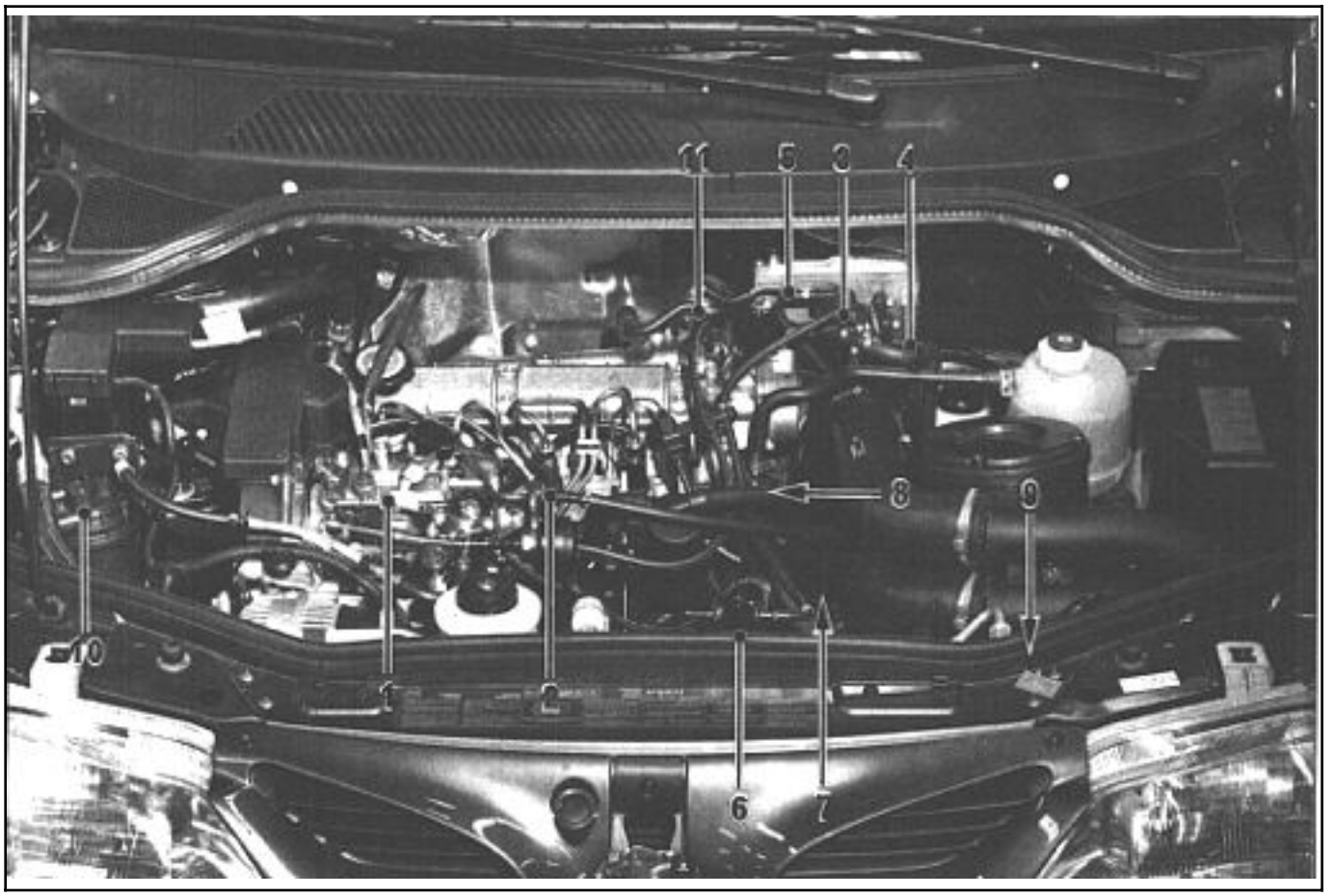
Vehicles	IDLE SPEED (rpm)			SMOKE OPACITY	
	Idle	Maximum no load	Maximum with load	Homologation value	Legal maximum
JA0Y	825 ± 25	5 000 ± 100	4 350 ± 100	1,4 m^{-1} (44 %)	3 m^{-1} (71 %)
JA0K	825 ± 25	5 000 ± 100	4 350 ± 100	1,4 m^{-1} (44 %)	3 m^{-1} (71 %)

Vehicles	Computer	Approval No.
JA0Y	LUCAS DIESEL 25 TRACKS	77 00 868 189
JA0K	LUCAS DIESEL 25 TRACKS	77 00 868 315

Temperature in °C (± 1°)	0	20	40	80	90
Air temperature sensor Type CTN Resistance in Ohms	7470 to 11970	3060 to 4045	1315 to 1600	-	-
Coolant temperature sensor Type CTN Resistance in Ohms	-	3060 to 4045	1315 to 1600	300 to 370	210 to 270

DESCRIPTION	MAKE/TYPE	SPECIAL NOTES
Injection pump	LUCAS DIESEL 8448B020A	Rotary pump with: - boost pressure corrector - fast idle device with LDA (AC version or not)
Pump timing (timing by TDC pin , diameter 8 mm)		Dimension (X) on the pump
Injector holders	LUCAS DIESEL LCR 6733 402D	Tightening torque: 7 daN.m
Injectors	LUCAS DIESEL RDN 4SDC 6878D	Test: $130\ ^{+8}_{-5}$ bars Maximum tolerance : 8 bars
Injector with sensor (needle lift)	LUCAS DIESEL	Tightening torque: 7 daN.m Resistance ≈ 105 Ω
EGR solenoid valve		Voltage : 12 volts Resistance : 5.5 ± 5 Ω
Return pipes		External diameter : 6 mm Internal diameter : 2.5 mm Length: 339 ± 5 mm
Preheating relay unit		With pre-postheating function (controlled by computer)
Plugs	BERU Sheathed element plug	Current: 16 A approximately after 5 seconds heating Tightening torque: 2 daN.m
TDC sensor		Resistance : 220 Ω
Fast idle solenoid valve		Voltage: 12 V Resistance : 50 Ω
Advance corrector		Voltage: 12 V Resistance : 11.5 Ω
Load potentiometer		Voltage: 5 V Resistance : (in K Ωapproximate)

Track	No load	Full load
1-3	4.5	4.5
1-2	5.2	2.6
2-3	3	5.7



The operation and the method for removing and refitting the component parts of the DPC numerical injection system are identical to those in N.T. 2526A.

1 DPC numerical injection pump.

2 Injector with sensor (needle lift),

3 RCO solenoid valve (EGR).

4 Pre-postheating plug relay unit.

5 Diesel injection computer.

6 Fast idle solenoid valve.

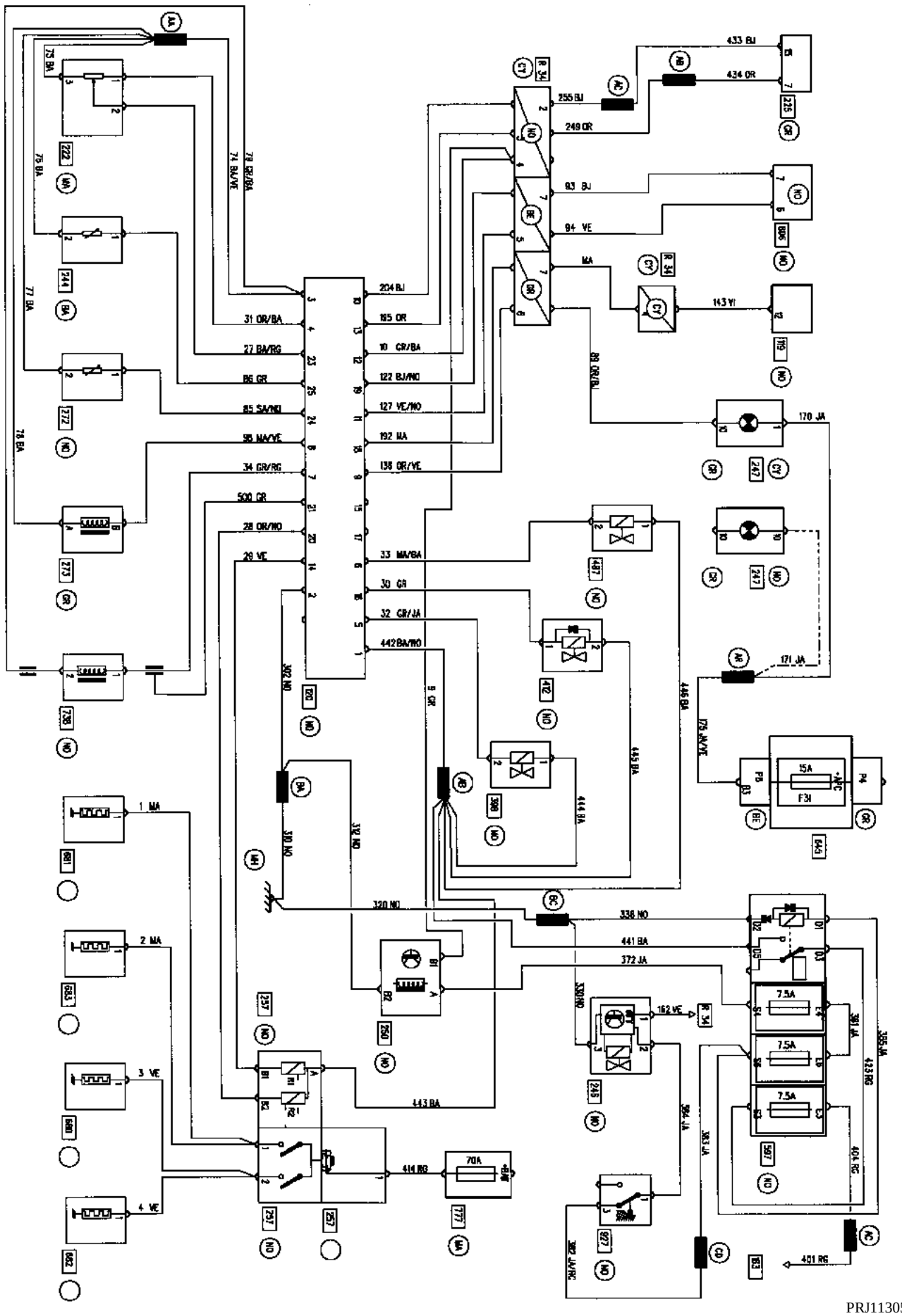
7 TDC sensor

8 Coolant temperature sensor (white connector).

9 Air temperature sensor

10 Fuel filter with integral electric heater in the top.

11 Exhaust gas recirculation valve (EGR)


433 BU
424 OR
255 BU
249 OR
93 BU
94 VE
MA
143 YE
170 JA
171 JA
204 BU
185 OR
10 GR/BA
122 BU/NO
127 VE/NO
192 MA
136 GR/VE
31 OR/BA
27 BA/RG
85 GR
85 SA/NO
95 MA/VE
34 GR/RG
500 GR
28 OR/NO
29 VE
33 MA/BA
30 GR
32 GR/JA
442 BA/NO
89 GR/BA
446 BA
445 BA
444 BA
443 BA
414 RG
336 NO
441 BA
372 JA
162 VE
394 JA
383 JA
385 JA
423 RG
404 RG
401 RG
382 JA/RG
320 NO
332 NO
330 NO
302 NO
175 JA/VE
15A
F31
7.5A
70A
1 MA
2 MA
3 VE
4 VE
PRJ11305

KEY

120 Injection computer

163 Starter motor

206 AC control

222 Load potentiometer

225 Diagnostic socket

244 Coolant sensor

246 Fuel shut-off (coded)

247 Preheating warning light

250 Speed sensor

272 Air sensor

273 Needle lift sensor

398 E.G.R. solenoid valve

412 Fast idle solenoid valve

487 Advance corrector

597 Engine fuse box (LH shock absorber turret)

680 Heater plug n° 1

681 Heater plug n° 2

682 Heater plug n° 3

683 Heater plug n° 4

777 Engine power fuse unit (near battery)

927 Impact sensor

MH Engine earth (near to oil filter)

IDENTIFICATION

ENGINE	ALTERNATOR	CURRENT
F3R F8Q Turbo	Valéo A 11 VI - 59 Valéo A 13 VI - 45	75 A 110 A
F3R AC F8Q Turbo AC	Valéo A 13 VI - 57	110 A
K7M	Valéo A 11 VI - 61 Valéo A 13 VI - 105	75 A 110 A
E7J	Valéo A 13 VI - 104 Valéo A 13 VI - 105	80 A 110 A

CHECKING

After **15 minutes** warming up for a voltage of **13.5 volts.**

Engine rpm	75 amps	80 amps	110 amps
1 000	46	54	57
2 000	68	75	94
3 000	71	80	105
4 000	72	82	108

OPERATION - FAULT FINDING

These vehicles are fitted with alternators with internal ventilation, an integral regulator and a warning light on the instrument panel which operates as follows :

- when the ignition is turned on, the warning light illuminates,
- when the engine starts, the warning light extinguishes,
- if the warning light illuminates again when the engine is running, there is a "charging" fault.

LOOKING FOR FAULTS

The warning light does not illuminate when the ignition is turned on.

Check:

- the electrical connections are correct,
- the bulb is not blown (to do this, earth the circuit; the bulb should illuminate).

The warning light illuminates when the engine is running

There is a charging fault which could be due to:

- the alternator drive belt being broken or the charging cable being cut,
- internal damage to the alternator (rotor, stator, diodes or brushes),
- regulator fault,
- an excess voltage.

The customer complains of a charging fault and the warning light operates correctly.

If the regulated voltage is less than **13.5 V**, check the alternator. The fault could be caused by:

- a destroyed diode,
- a cut phase,
- track contamination or wear.

Checking the voltage

Connect a voltmeter across the battery terminals and read the battery voltage.

Start the engine and increase the engine speed until the voltmeter needle stabilises at the regulated voltage.

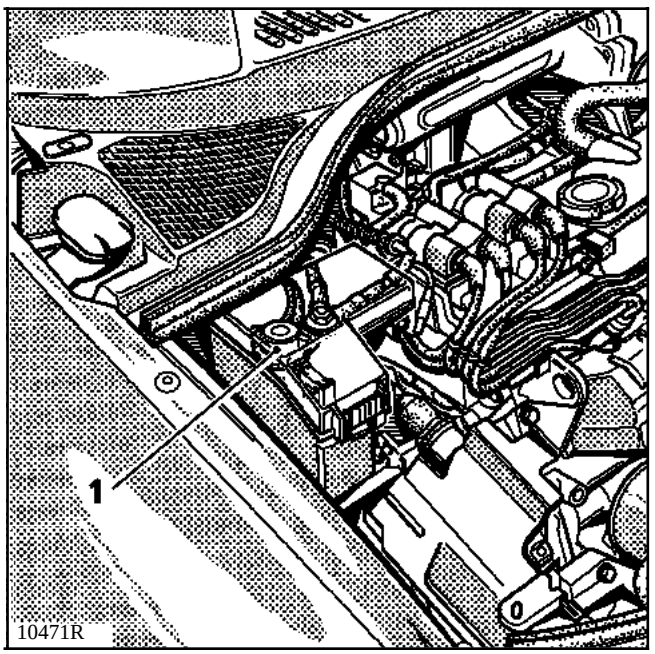
This voltage should be between **13.5 V** and **14.8 V.**

Connect as many consumers as possible, the regulated voltage should remain between **13.5 V** and **14.8 V.**

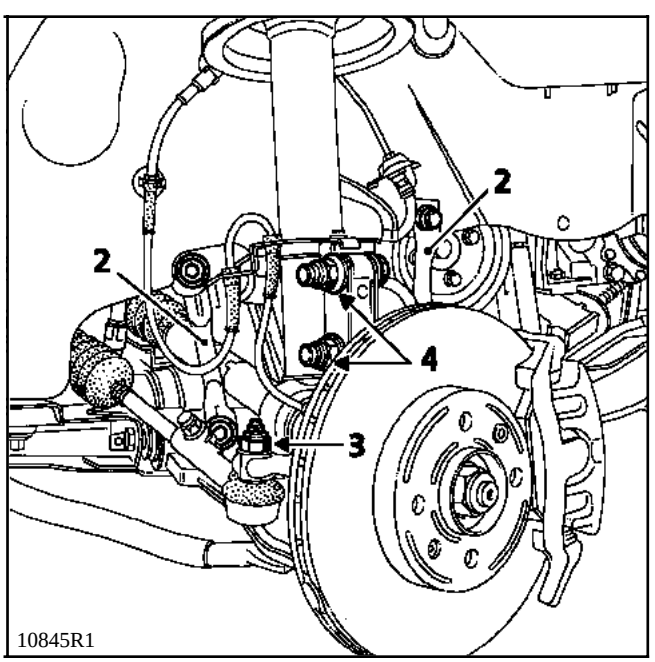
IMPORTANT: if arc welding is carried out on the vehicle, the battery and the regulator must be disconnected.

Removal and refitting of the alternator is identical to that for the B version.

Disconnect the battery at terminal (1).



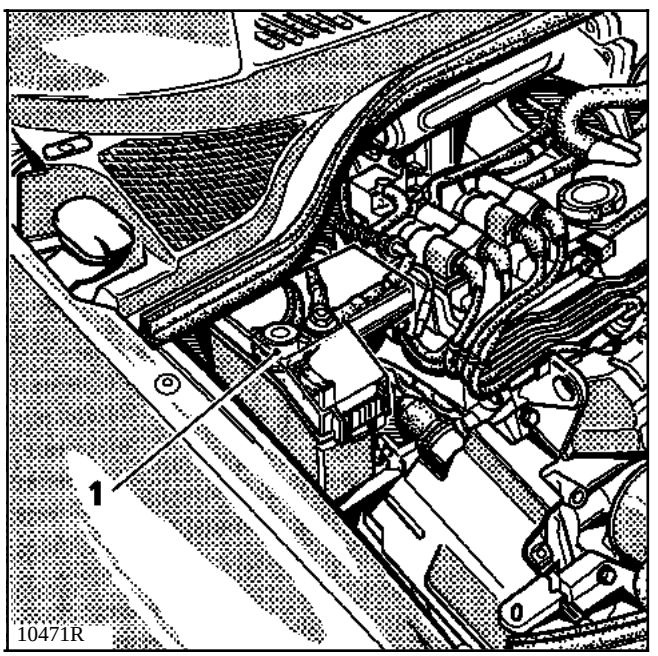
Remove:
- the two tie-rods (2),
- the track rod end nut (3),
- the two shock absorber base mounting bolts (4).



Removal and refitting of the alternator is identical to that for the B version for the F3R engine and to N.T. 2526A for the F8Q Turbo engine.

Special notes

Disconnect the battery at terminal (1).

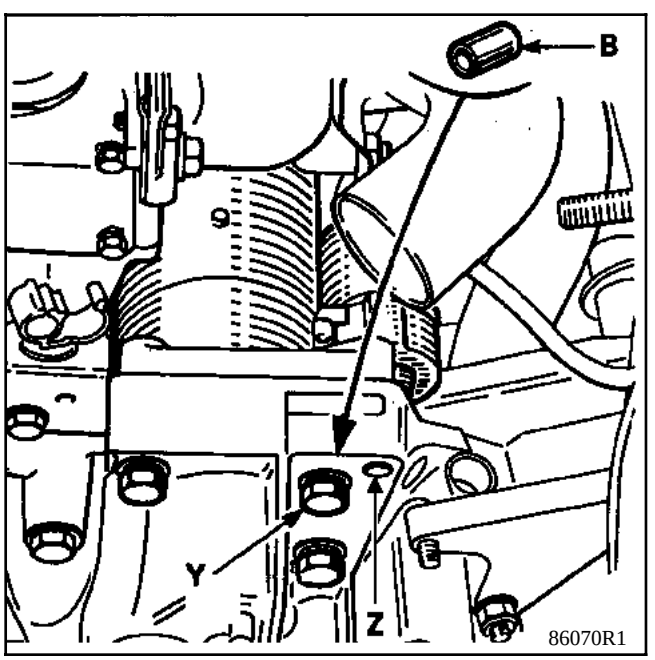


VEHICLE	ENGINE	STARTER MOTOR
JA0E	E7J	VALEO D6R A133
JA0L JA0F	K7M	VALEO D6R A133
JA0G	F3R	VALEO D6R A133 BOSCH 0001107047
JA0Y JA0K	F8Q Turbo	VALEO D7R P86

REMOVAL

There are no special notes for the removal and re-fitting of the starter motor.

Check the centring dowel (B) is present, see table below.



Engine	Dowel location
E 7 J K 7 M	Y
F3R F8Q Turbo	Z

POWER ASSISTED STEERING PRESSOSTAT - INJECTION COMPUTER CONNECTION

The injection computer receives information from the power assisted steering pressostat. This information depends on the pressure in the hydraulic circuit. The higher the pressure, the more energy is used by the power assisted steering pump.

The injection computer increases the idle speed regulation valve percentage opening, to compensate for this energy use.

Information is received on track 9 of the injection computer. When the pressostat is closed, the computer receives an earth. The idle speed regulation valve percentage opening is increased, while the idle speed remain at **820 rpm** (the idle speed may however reach **850 rpm**).

VOLUME AND GRADE OF COOLANT

Engine	Quantity (in litres)	Grade
F8Q Turbo	7.5	**GLACEOL RX (type D)** use coolant only
F3R	7	
E7J - K7M	6	

THERMOSTAT

Engine type	Begins to open (in °C)	Fully open (in °C)	Travel (in mm)
E7J K7M F8Q Turbo F3R	89	101	7.5

There is no heater matrix water control valve.

Coolant circulates continuously in the heater matrix, assisting engine cooling.

FILLING

The following bleed screws must be opened:

- on the top of the radiator,
- on the heating hose,
- on the thermostat mounting (except E7J and K7M engines).

Fill the circuit at the expansion bottle opening.

Close the bleed screws as soon as fluid runs out in a continuous jet.

Start the engine (**2 500 rpm**).

Adjust the level by overflow for approximately **4 minutes**.

Close the expansion bottle.

BLEEDING

Let the engine run for **20 minutes** at **2 500 rpm**,until the engine cooling fan operates (time required for automatic degassing).

Check the fluid level is close to the "**Maximum**" mark.

NEVER OPEN THE BLEED SCREWS WHEN THE ENGINE IS RUNNING.

TIGHTEN THE EXPANSION BOTTLE CAP WHEN THE ENGINE IS WARM.

SPECIAL TOOLING REQUIRED	
M.S. 554-07	**Kit for checking cooling circuit sealing**
M.S. 554-01	**Adaptor for M.S. 554-07**
M.S. 554-06	**Adaptor for M.S. 554-07**

1 - Checking the cooling circuit sealing

Replace the expansion bottle cap with tool **M.S. 554-01**.

To this, connect tool **M.S. 554-07**.

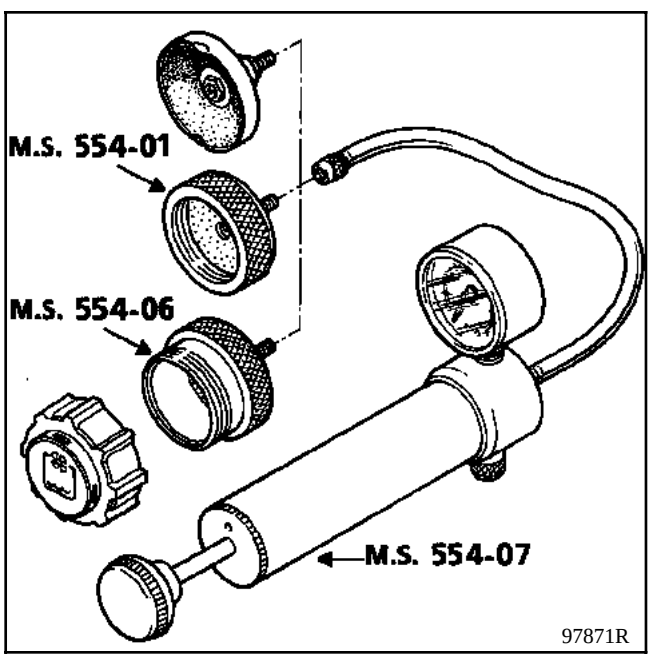
Let the engine warm up then turn the ignition off.

Pump to put the circuit under pressure.

Stop pumping at **0.1 bar** less than the rating value of the expansion bottle cap.

The pressure should not drop. If it does, look for the leak.

Slowly unscrew the union of tool **M.S. 554-07** to decompress the cooling circuit, then remove tool **M.S. 554-01** and refit the expansion bottle cap fitted with a new seal.



2 - Checking the rating of the expansion bottle cap

If fluid passes through the expansion bottle cap valve, the cap must be replaced.

On the pump **M.S. 554-07** fit tool **M.S. 554-06** and fit this to the valve to be checked.

Increase the pressure which should stabilise at the calibration value for the cap valve, with a test tolerance of ± **0.1 bar**.

Valve rating value:

Engine	Valve colour	Rating (in bar)
F8Q - E7J	Brown	1.2
K7M - F3R	Blue	1.6

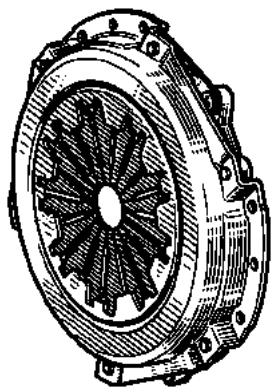
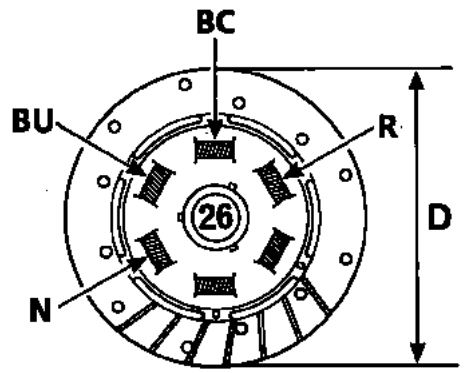
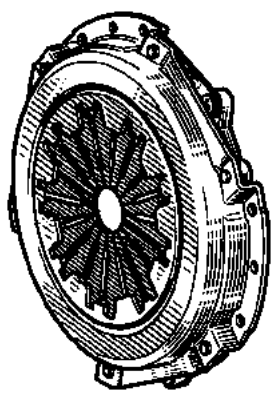
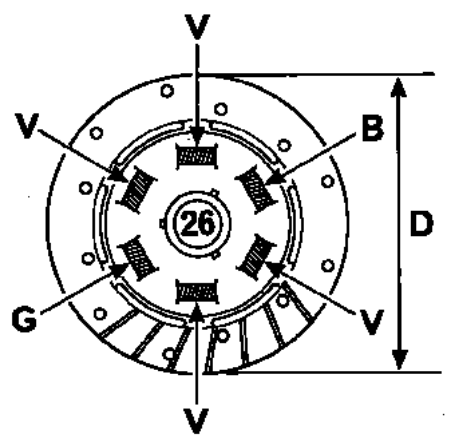
Removal and refitting of the radiator is identical to that for the B version.

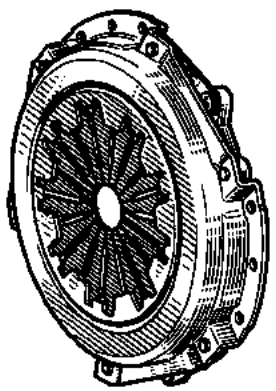
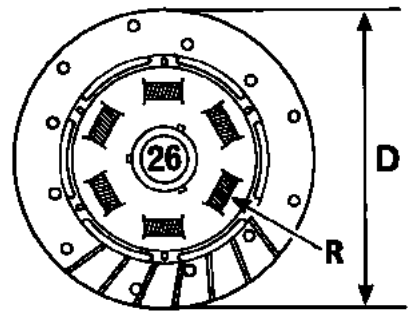
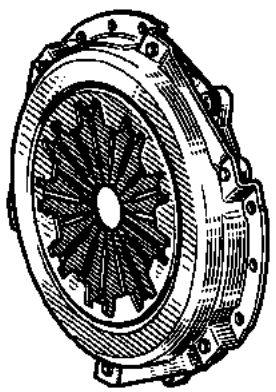
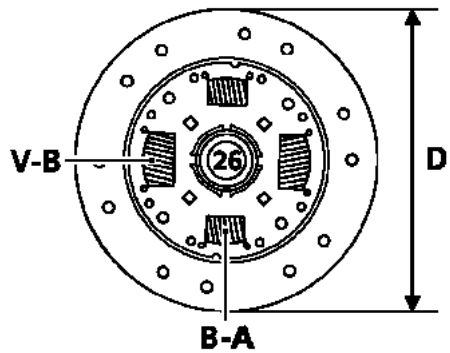
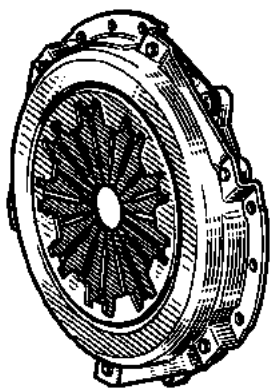
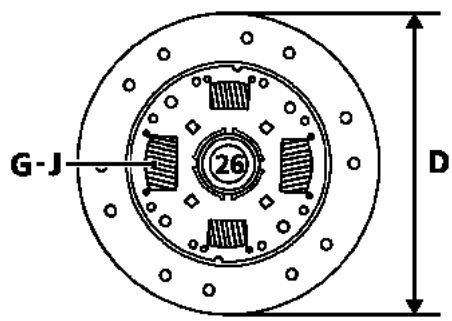
Diagram

The cooling circuit diagrams are identical to those for the B version for the E7J, K7M, F3R engines and to N.T. 2526A for the F8Q Turbo engine.

Suspended engine mountings

The suspended engine mountings are identical to those for the B version for the E7J, K7M, F3R engines and to N.T. 2526A for the F8Q Turbo engine.

ENGINE TYPE	MECHANISM	DISC
E7J	 85873S **180 DST 3050**	 90693R4  76906R **26 splines** E = 8.5 mm D = 181.5 mm **BC**= White **BU**= Blue **R** = Red **N** = Black
E7J	 85873S **180 CP 3300**	 90693R3  76906R **26 splines** E = 8.3 mm D = 181.5 mm **V** = Green **G** = Grey blue **B** = White

ENGINE TYPE	MECHANISM	DISC
K7M	 85873S **200 HR 4000**	 90693R5  **26 splines** D = 200 mm E = 8.3 mm **R** = Light pink 76906R
F3R	 85873S **215 HRN 4000**	 90693-2R8  **26 splines** D = 215 mm E = 8.3 mm **V-B**= Green - Light blue **B-A**= White - Aluminium 94990R1
F8Q Turbo	 85873S **200 HRV 4600**	 90693-2R9  **26 splines** D = 200 mm E = 8.4 mm **G** = Grey aluminium **J** = Yellow 94990R1

JB1									
Suffix	**Vehicle**	**Differential ratio**	**Speedo drive**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Reverse**
130 097	JA0E	14/63	21/18	11/41	21/43	28/39	34/35	39/32	11/39 26

JB3									
Suffix	**Vehicle**	**Differential ratio**	**Speedo drive**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Reverse**
119 120	JA0F JA0L	14/59	21/18	11/37	22/41	28/37	30/29	39/31	11/39 26

Gearbox	JB1	JB3
Suffix	097	120
A.C.	X	X

JC5									
Suffix	**Vehicle**	**Differential ratio**	**Speedo drive**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**Reverse**
066 059	JA0G	15/61	22/18	11/41	21/43	28/39	31/34	39/32	11/39 26
067 058	JA0K JA0Y	15/56				28/37	35/34	42/31	

SPECIAL TOOLING REQUIRED	
B.Vi. 31-01	Set of punches
Mot. 1040-01	Dummy cradle for removing - refitting engine and transmission assembly
T.Av. 476	Ball joint extractor

EQUIPMENT REQUIRED
Engine support tool
Component jack

TIGHTENING TORQUES (in daN.m)	
Sub-frame front mounting bolt	6
Sub-frame rear mounting bolt	11
Wheel mounting bolt	9
Brake caliper mounting bolt	3.5
Steering column universal joint eccentric bolt	2.5
Shock absorber base mounting bolt	17
Key bolt on stub axle carrier	6
Engine tie bar bolt	6
Track rod end nut	3.5
Gearbox control bar mounting bolt	2.8
Driveshaft gaiter mounting bolt	2.4
Steering box mounting bolt	3.5
Side member - sub-frame tie rod bolt	3
Gearbox mounting upper mounting bolt	5.5

REMOVAL

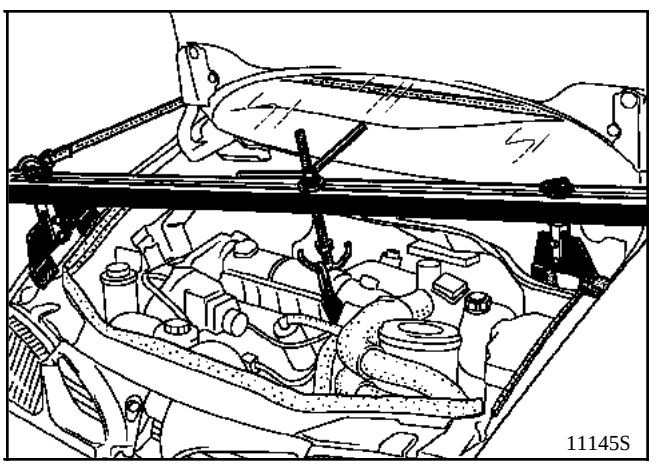
Remove the gearbox according to the method described in **M.R. 312 section 21 for F3R and F8Q engines** or **N.T. 2526A for the Turbo Diesel engine**.

Special notes for fitting of the engine support tool

Remove:
- the two scuttle panel grilles,
- the sealing cover from the front left hand shock absorber turret.

Tie the bonnet up as high as possible.

The engine support must be positioned as shown in the diagram, then fit the strap around the windscreen aperture.



Special notes for vehicles fitted with a driver's air-bag

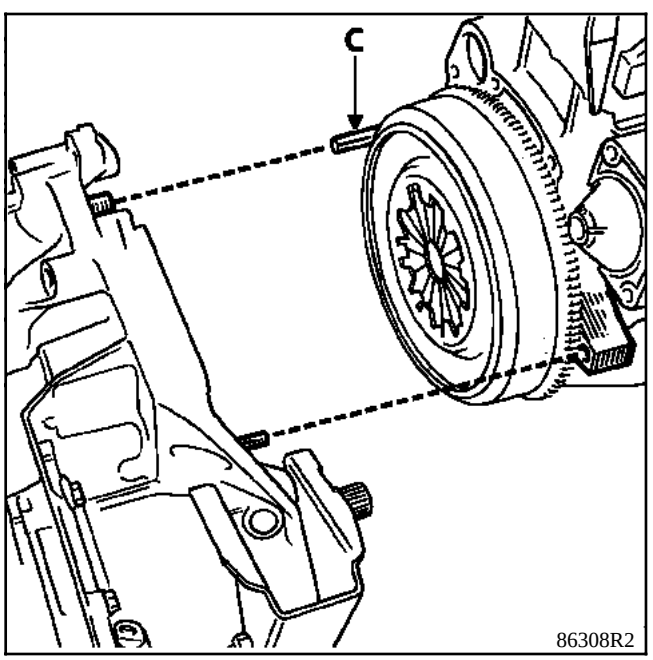
IMPORTANT

The following instructions must be observed to avoid all risks of damaging the rotary switch under the steering wheel:

- **Before removing the steering column and the steering rack, the steering wheel MUST be immobilised, with the wheels straight, using a steering wheel locking tool for the complete duration of the operation.**
- **If there is any doubt that the rotary switch is not correctly centred, the steering wheel must be removed to apply the centring method in section 88 "Airbag".**

REMINDER: Only qualified personnel who have received appropriate training may carry out this operation.

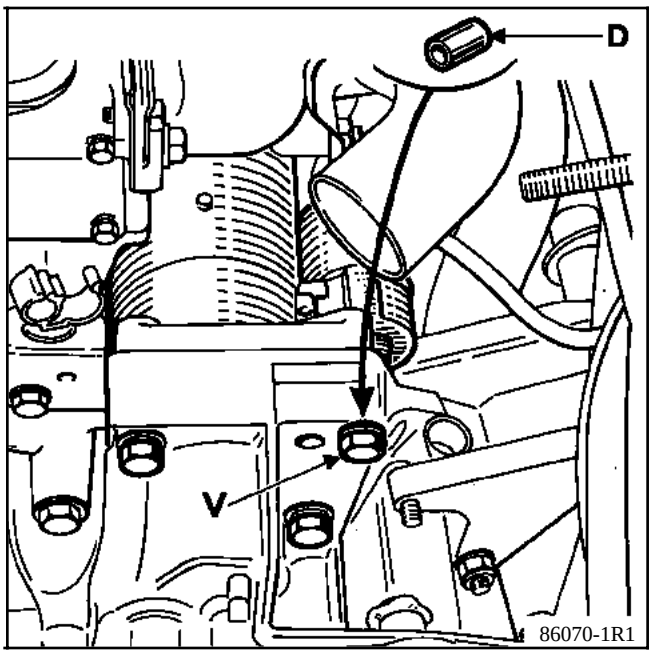
Release the gearbox from the engine by removing stud (C).



REFITTING

Refit the gearbox according to the method described in **M.R. 312 section 21 for F3R and F8Q engines** or **N.T. 2526A for the Turbo Diesel engine**.

F engine



SPECIAL TOOLING REQUIRED	
Mot. 1040-01	Dummy cradle for removing - refitting engine and transmission assembly
Mot. 1202	Hose clip pliers

TIGHTENING TORQUES (in daN.m)	
Sub-frame front mounting bolt	6
Sub-frame rear mounting bolt	11
Upper shock absorber cup mounting bolt	3
Wheel bolt	9
Brake caliper mounting bolt	3.5
Steering joint mounting bolt	3.5

REMOVAL

Remove the engine and transmission assembly according to the method described in **M.R. 312 section 10 .**

Special notes for vehicles fitted with a driver's air-bag

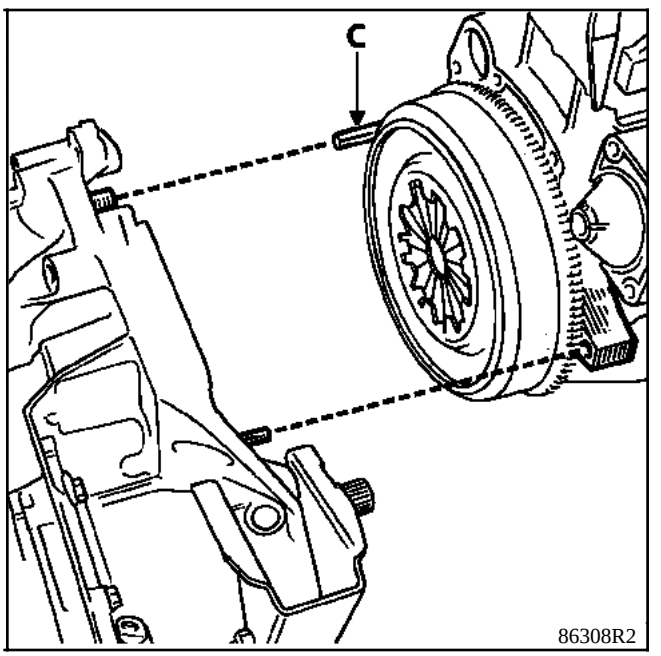
IMPORTANT

The following instructions must be observed to avoid all risks of damaging the rotary switch under the steering wheel:

- **Before removing the steering column and the steering rack, the steering wheel MUST be immobilised, with the wheels straight, using a steering wheel locking tool for the complete duration of the operation.**
- **If there is any doubt that the rotary switch is not correctly centred, the steering wheel must be removed to apply the centring method in section 88 "Airbag".**

REMINDER: Only qualified personnel who have received appropriate training may carry out this operation.

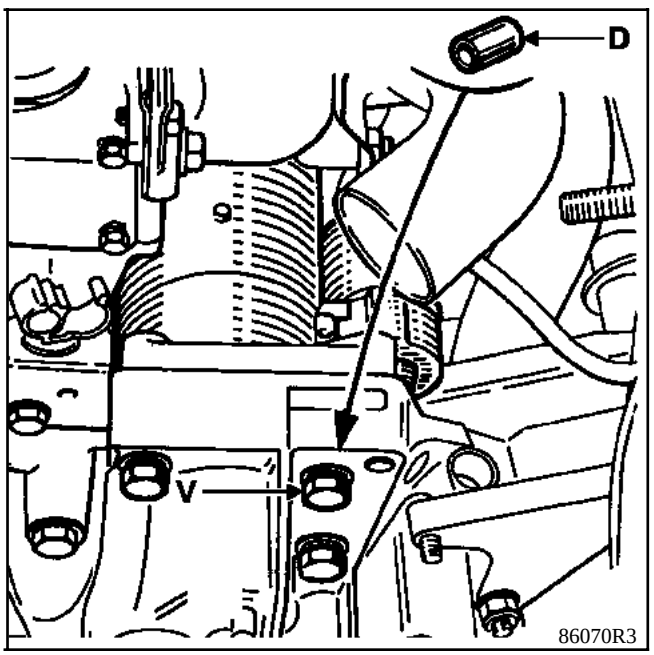
Release the gearbox from the engine by removing stud (C).



REFITTING

Refitting is the reverse of removal.

IMPORTANT: ensure the bolt (V) and starter motor centring dowel (D) are correctly located.



The engine and transmission assembly are refitted according to the method described in **M.R. 312 section 10 .**

Vehicle	AT type	Engine	Converter	Step down	Differential ratio	Speedo drive	Computer*
JA0F	AD4 029	K7M	227	69 / 77	17 / 70	18 / 15	77 00 874 167

***** For identification using the **XR25** refer to **TA.A**.

Ratios

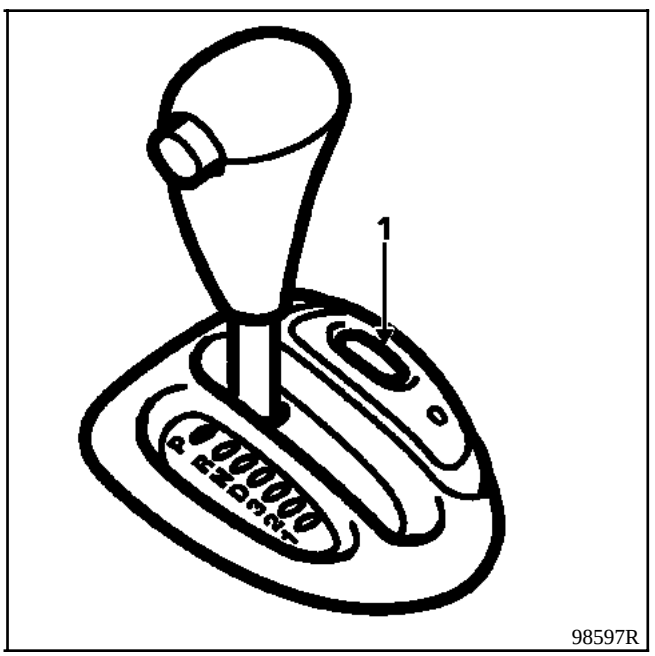
Gear ratios	1st	2nd	3rd	4th	Reverse
Gear reduction	2.71	1.55	1	0.68	2.11
Overall reduction	12.45	7.12	4.59	3.12	9.69
Speed in km/h at 1 000 rpm with 185/70-14 tyres	9.117	15.954	24.744	36.496	11.733

Vehicles	A.T. type	Accelerator position	1 → 2		2 → 3		3 → 4		4 → 3		3 → 2		2 → 1	
			A	B	A	B	A	B	A	B	A	B	A	B
JA0F	AD4	PL	15	18	36	41	60	65	46	53	26	34	8	13
		PF	41	45	74	83	123	136	107	120	65	71	28	32
		RC	46		84		140		130		77		39	

The values given in the table are theoretical average gear change threshold values in **km/h**, tolerance ± **10 %**.

PL : no load - accelerator pedal not depressed.
PF : full load - accelerator pedal fully depressed.
RC : kickdown (change down to a lower gear).

A : gear change thresholds offset in downward direction. Gears change at lower engine speeds. Switch (**1**) is not depressed and warning light **EXC** is extinguished.
B : gear change thresholds offset in upward direction. Gears change at higher engine speeds. Switch (**1**) is depressed and warning light **EXC** is illuminated.



98597R

For special notes concerning vehicles fitted with the F3R engine, refer to N.T. 2593A.

REMOVAL FROM BELOW

SPECIAL TOOLING REQUIRED	
Mot. 1040-01	**Dummy cradle for removing - refitting engine and transmission assembly**
Mot. 1202	**Hose clip pliers**
Mot. 1311-06	**Tool for removing fuel pipe**

TIGHTENING TORQUES (in daN.m)	
Sub-frame front mounting bolt	**6**
Sub-frame rear mounting bolt	**11**
Shock absorber upper cup mounting bolt	**3**
Wheel bolts	**9**
Brake caliper mounting bolt	**3.5**
Steering joint mounting bolt	**3.5**
Mounting nut for rubber mounting pad on front left hand side member	**7.5**

REMOVAL

Remove the automatic transmission according to the method described in **M.R. 312 section 23.**

Special notes for vehicles fitted with a driver's air-bag

IMPORTANT

The following instructions must be observed to avoid all risks of damaging the rotary switch under the steering wheel:

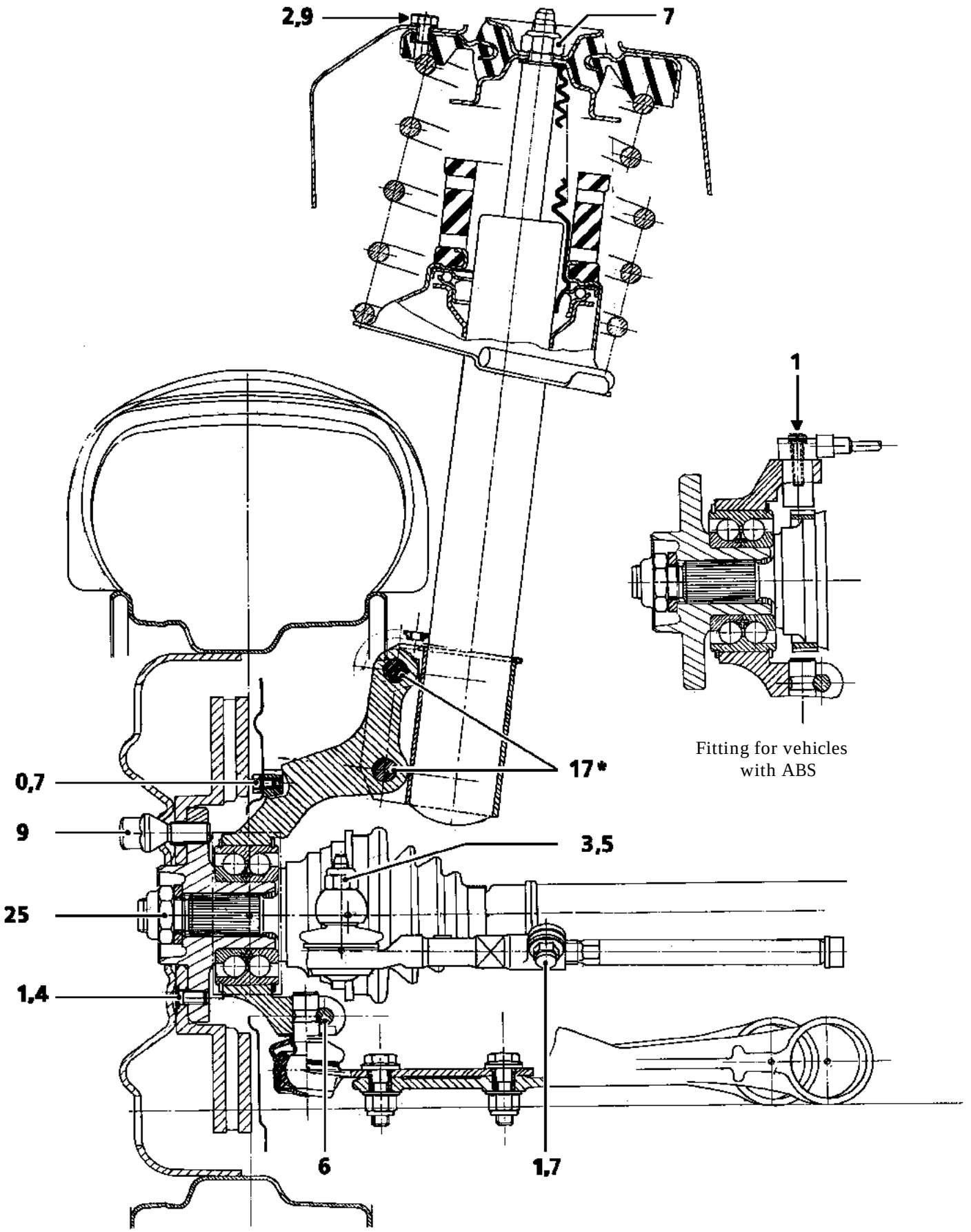
- **Before removing the steering column and the steering rack, the steering wheel MUST be immobilised, with the wheels straight, using a steering wheel locking tool for the complete duration of the operation.**
- **If there is any doubt that the rotary switch is not correctly centred, the steering wheel must be removed to apply the centring method in section 88 "Airbag".**

REMINDER: Only qualified personnel who have received appropriate training may carry out this operation.

REFITTING

Refit the automatic transmission according to the method described in **M.R. 312 section 23.**

GENERAL
Tightening torques (in daN.m)

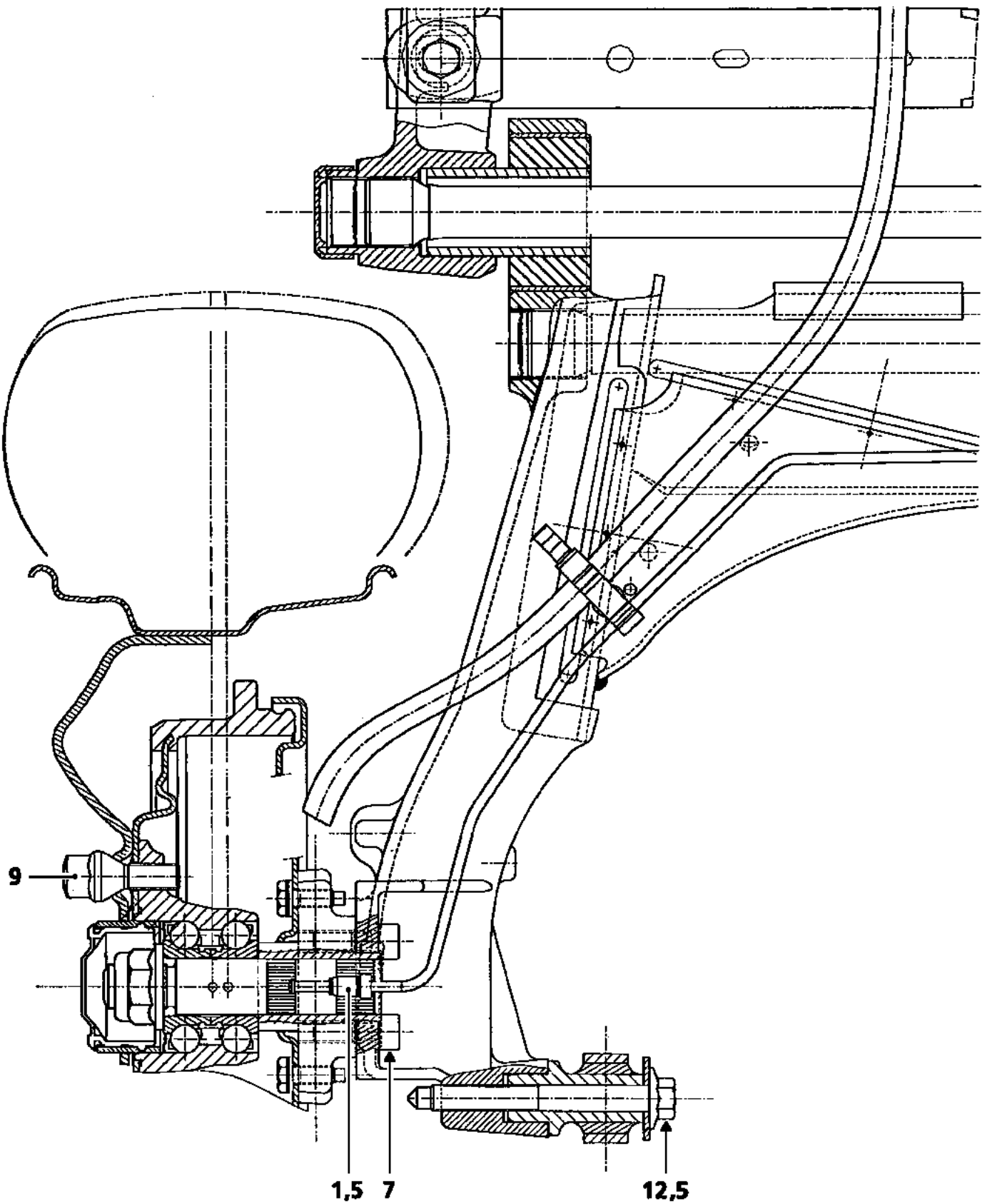


Fitting for vehicles with ABS

DI3027

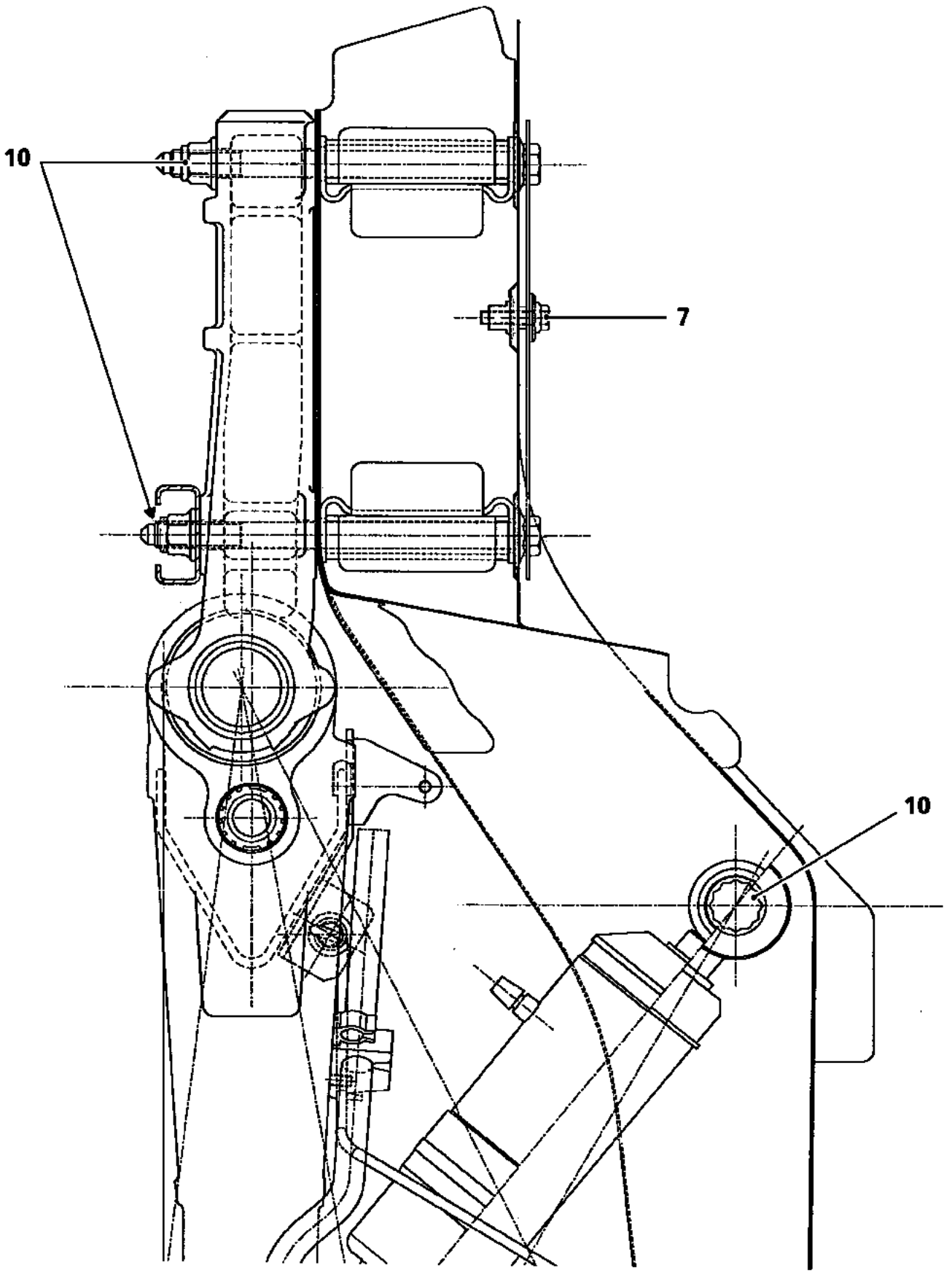
(*) Fitting direction must be observed (bolt head next to brake caliper)

GENERAL
Tightening torques (in daN.m)

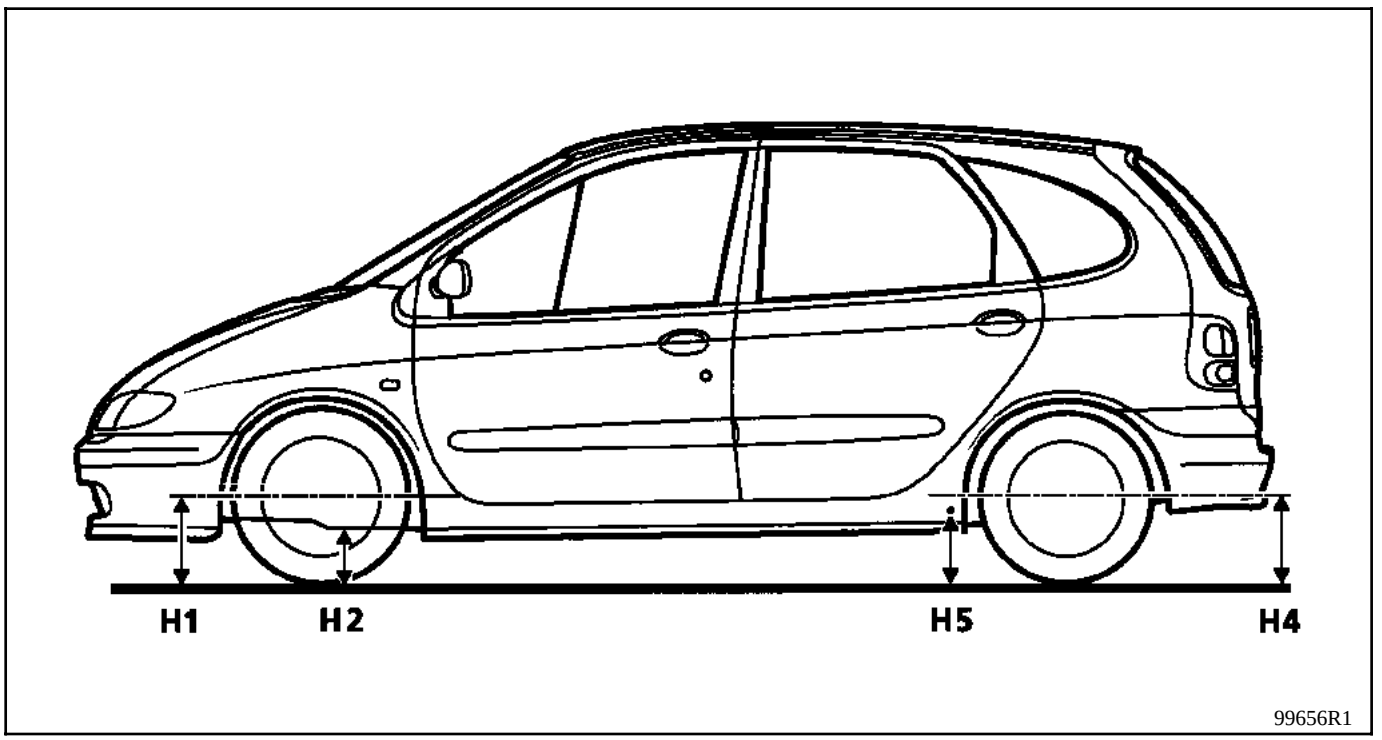


DI3028

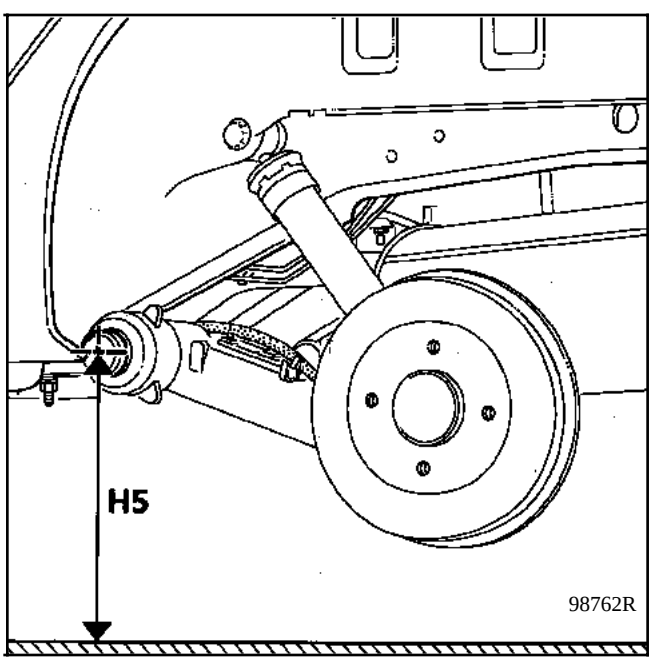
GENERAL
Tightening torques (in daN.m)



DI3029



Dimension H5 is measured from the suspension arm axis.



Underbody heights are measured with the vehicle **unladen** on a flat surface (preferably on a 4 post lift) :
- fuel tank full,
- correct tyre inflation pressures.

H1 and H4 : wheel axis to ground

H2 : front side member to ground in wheel axis.

H5 : suspension arm axis to ground

Measure the dimensions
H1 and **H2** at the front
H4 and **H5** at the rear
and subtract.

See the values given in the section on values and adjustments.

Consumables

TYPE	QUANTITY	COMPONENTS
Loctite FRENBLOC	1 to 2 drops	Axial ball joint threads Rear brake backing plate mounting bolt
Loctite SCELBLOC	5 to 6 drops	Driveshaft stub axle
SAE 80W oil	Coat	Rear stub axle
Sealing mastic		Shock absorber turret sealing cover Part Number **77 01 423 330**

Specifications of front anti-roll bars

Vehicle types	JA0E JA0F (1) JA0L	JA0G JA0F (2) JA0K JA0Y
Diameter (mm)	24	25

(1) Manual gearbox
(2) Automatic transmission

Specifications of rear anti-roll bars

Vehicle types	JA0E JA0F JA0G JA0K JA0L JA0Y
Diameter (mm)	23
Number of splines, bearing end	31
Number of splines, shackle end	30

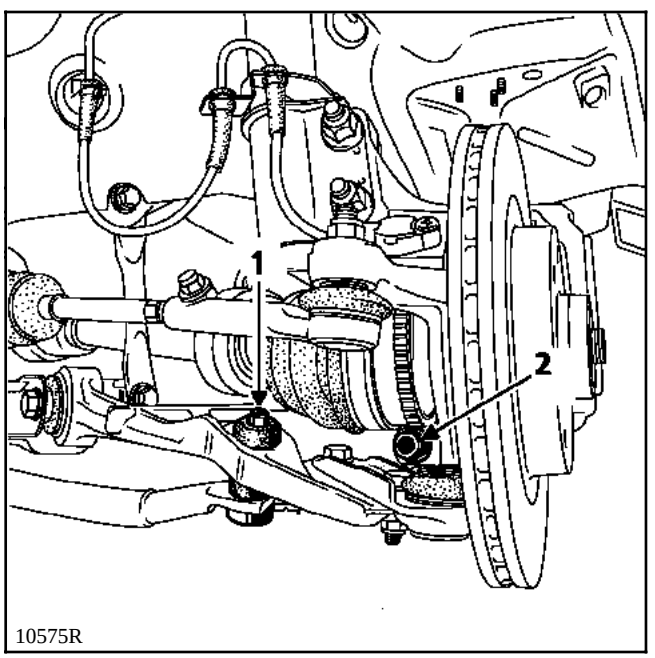
Specifications of rear suspension arms

Vehicle types	JA0E JA0F JA0G JA0K JA0L JA0Y
Diameter (mm)	23.3
Number of splines, bearing end	31
Number of splines, shackle end	30

TIGHTENING TORQUES (in daN.m)	
Lower wishbone nuts on sub-frame	**10**
Key nut on stub axle carrier	**6**
Anti-roll bar bearing nut	**2**
Lower ball joint nut	**8**
Wheel bolts	**9**

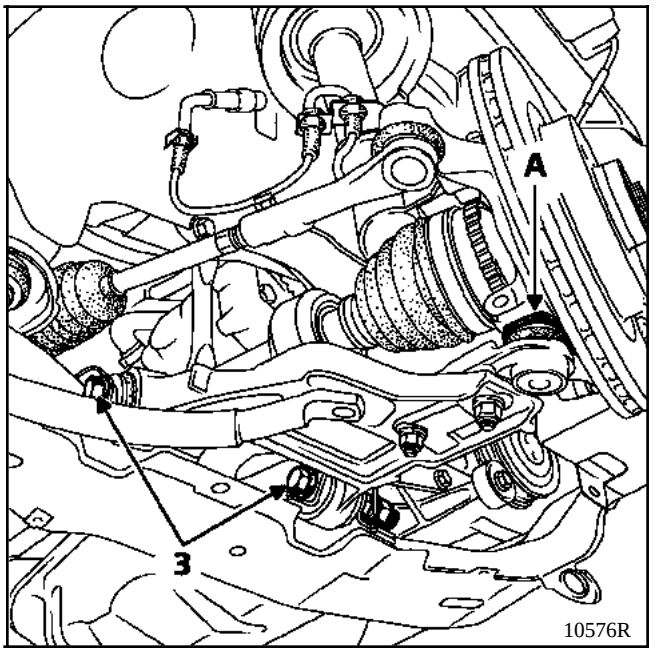
REMOVAL

Remove:
- the mounting nuts (1) for the anti-roll bar on the lower wishbones,
- the mounting bolts and the bushes,
- the nut and key (2),



10575R

- the two mounting bolts (3) for the wishbone on the sub-frame,
- the wishbone.



10576R

REFITTING

NOTE : ensure the plastic protective washer (A) is present on the lower ball joint shaft.

Fit:
- the wishbone,
- the two bolts (3) without tightening them,
- the ball joint pin in the stub axle carrier and tighten the nut (2) for the key to the recommended torque.

With the vehicle on its wheels, refit the anti-roll bar without tightening the mounting nuts.

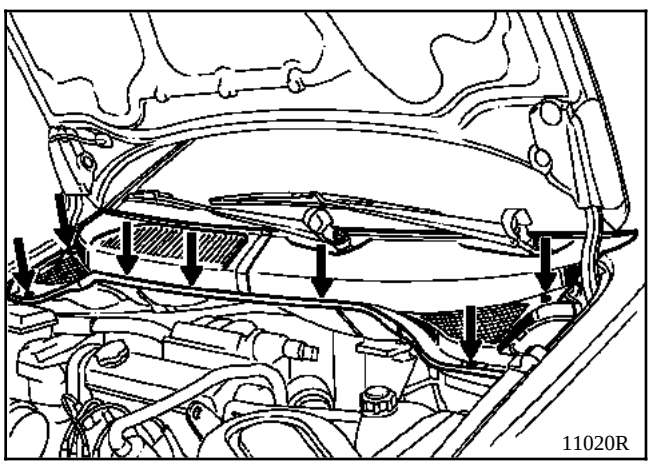
Bounce the suspension and tighten the mounting nuts for the wishbone and the anti-roll bar to the recommended torques (tighten when the vehicle is **unladen**)

TIGHTENING TORQUES (in daN.m)	
Shock absorber rod nut	**6**
Shock absorber base mounting bolt	**17**
Shock absorber bowl mounting bolt	**3**
Wheel bolts	**9**

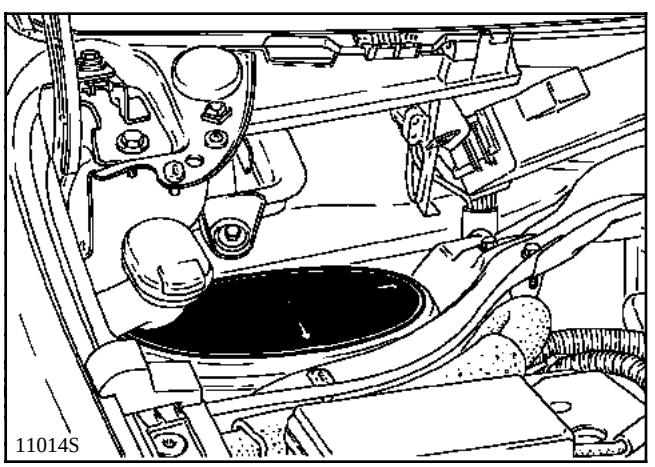
REMOVAL

Remove:

- the two windscreen wiper arms using tool **Elé. 1294-01** as described in N.T. 2280,
- the seal,
- the mounting bolts for the two scuttle panel grilles,
- the scuttle panel grilles, pushing them towards the centre of the windscreen to release the centring pin at each end of the grille,


11020R

- the shock absorber turret sealing covers.

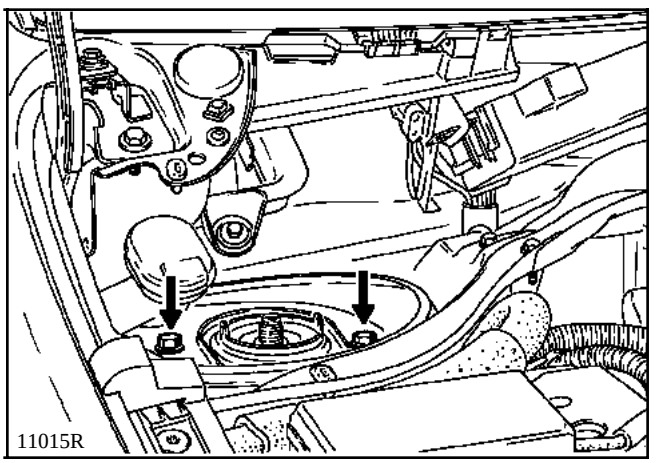

11014S

The remainder of the removal operation is described in **M.R. 312 section 31**.

REFITTING

Refitting is the reverse of removal. **Take care not to damage the driveshaft gaiters.**

Position the mountings for the upper cup in the correct holes.


11015R

Torque tighten:

- the shock absorber base bolts,
- the upper mounting bolts.

Refitting the shock absorber turret sealing covers.

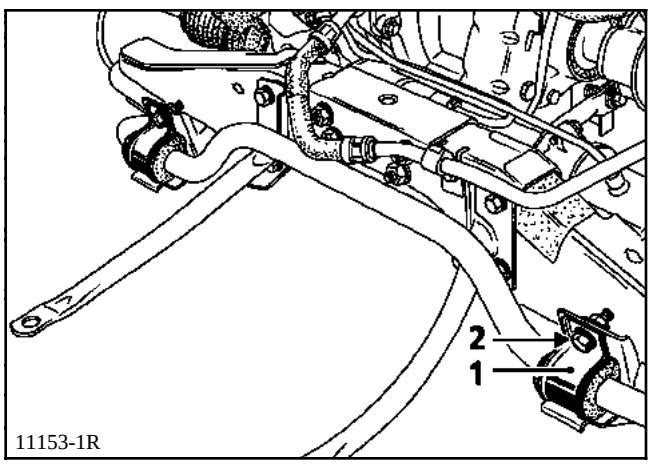
A new bead of mastic (eg SODICAM sealing mastic for door vinyl and trim), should be applied to replace the old mastic to ensure the shock absorber turrets are perfectly sealed.

TIGHTENING TORQUES (in daN.m)	
Bearing mounting nut on sub-frame	**3.2**
Bearing mounting nut on wishbone	**1.8**

REMOVAL

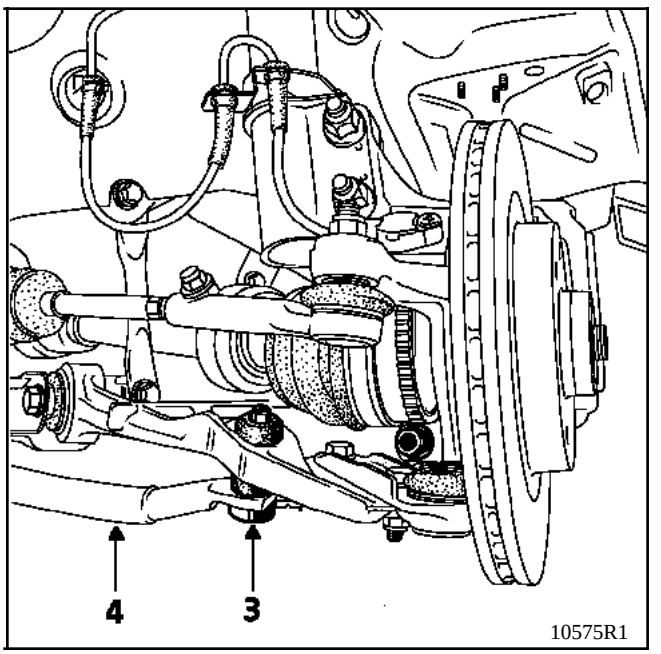
Vehicle on a lift, battery disconnected, remove:
- the front wheels,
- the engine undertray,
- the exhaust downpipe,
- the selection control (manual gearbox),
- the two sub-frame - chassis acoustic tie rods,

then on each side:
- the bearing (1) after removing bolt (2),



- mounting (3) on the wishbone,
- the anti-roll bar (4),
- the two sub-frame - chassis acoustic tie rods in order to release the anti-roll bar.

Check the condition of the bearings and the bushes. Replace them if necessary.



REFITTING

Only the bushes on the wishbone (3) should be coated with **Molykote 33 Médium grease**.

The bushes on the sub-frame (1) must not be lubricated (the bar may move and noise may be caused).

Refitting is the reverse of removal.

The bearings must be tightened when the vehicle is **unladen**.

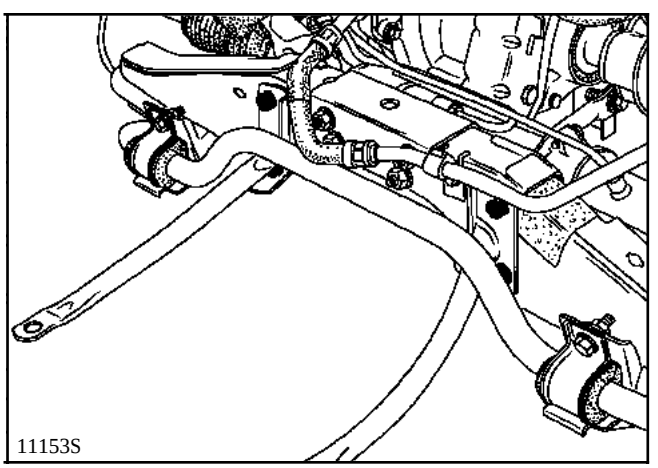
The anti-roll bar must be removed before this operation to give access to the mounting bolts and allow them to be removed.

TIGHTENING TORQUES (in daN.m)	
Mounting bolt for acoustic tie rod between steering box and sub-frame	**5**

REMOVAL

Remove:

- the mounting bolts on the rear sub-frame cross member, taking care not to move the power assisted steering box, as these bolts also serve to mount the steering box on the cross member,
- the mounting bolts on the tunnel,
- the tie rod(s).


11153S

REFITTING

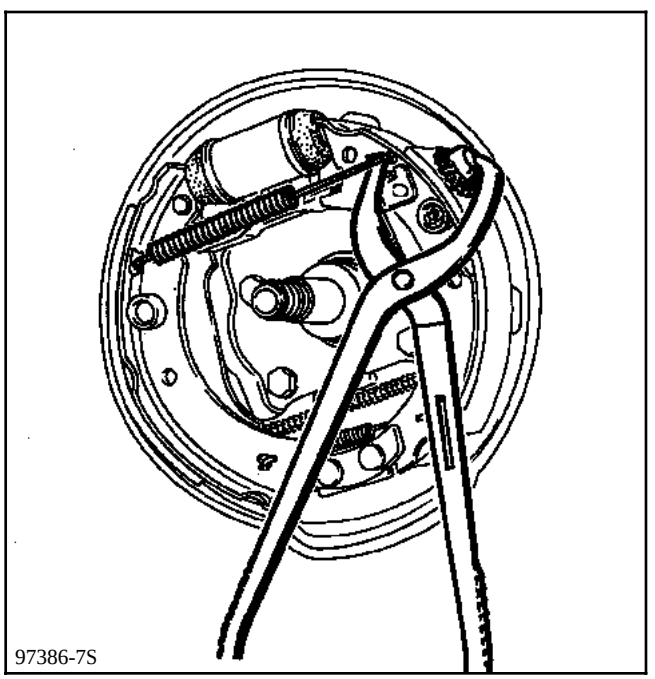
Refitting is the reverse of removal.

SPECIAL TOOLING REQUIRED	
Fre. 573-01	Handbrake cable pliers
EQUIPMENT REQUIRED	
Brake shoe spring pliers	

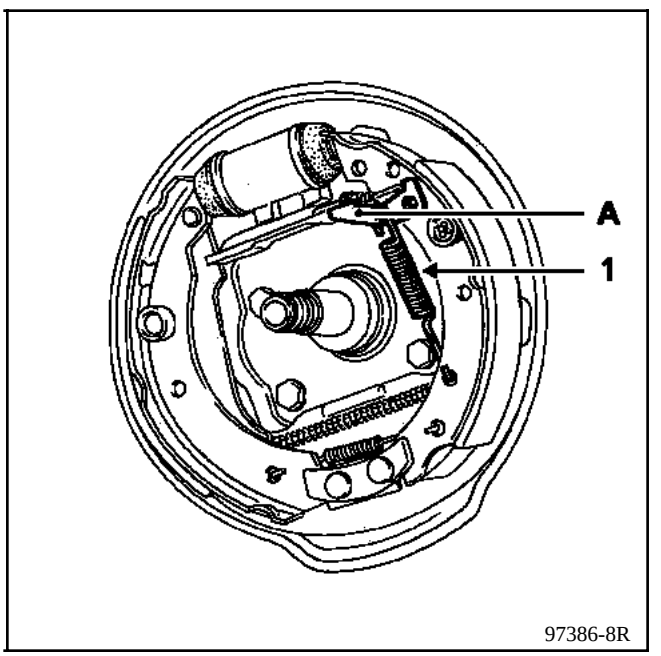
REMOVAL

The brake linings must be replaced on a complete axle; never fit brake linings of different makes or different grades.

Remove:
- the wheel and the brake drum,
- the upper return spring,

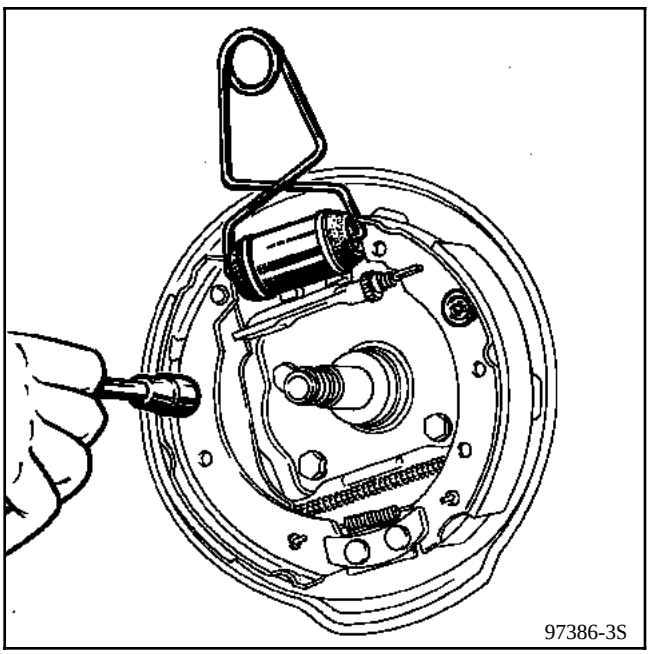


- the spring (1) which tensions the adjustment lever,
- the adjustment lever (A).

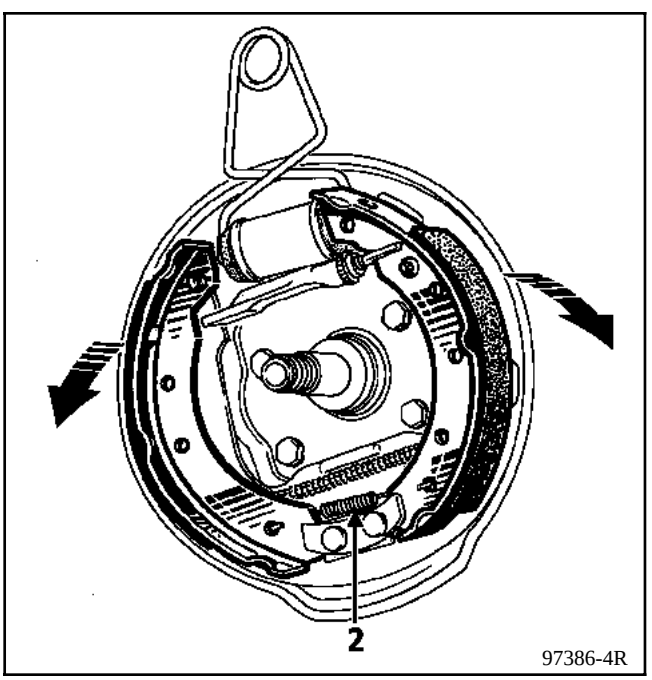


Fit a clamp on the wheel cylinder pistons.

Remove:
- the pin / spring assembly retaining the linings on the backing plate (press and turn a quarter turn using a pipe wrench for example),

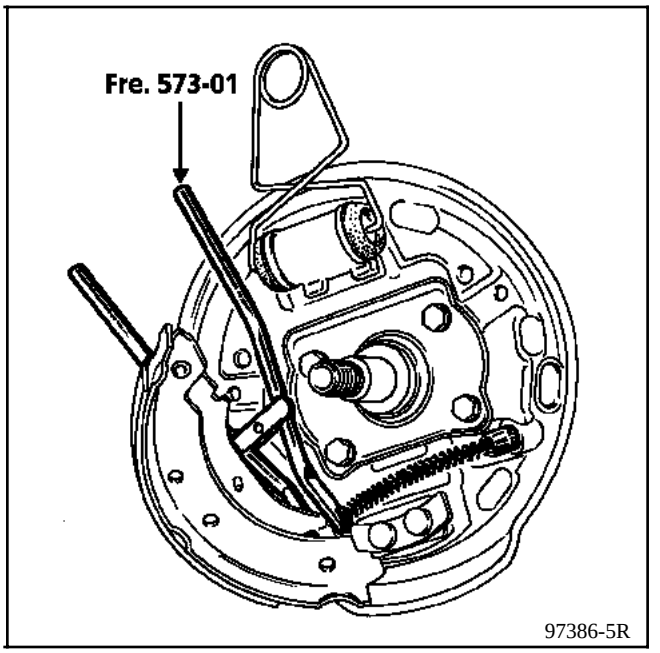

97386-3S

- the brake shoes, crossing them over on the stub axle to release the lower spring (2), behind the fixed point bracket,



97386-4R

- the handbrake cable using tool **Fre. 573-01**.



97386-5R

Remove all dust from the drums and backing plates using brake cleaner **Part Number 77 11 170 801**.

REFITTING

NOTE : The brake components are specific to the left or right hand sides. They must not be confused.

Check the condition of the drums and the pipes.

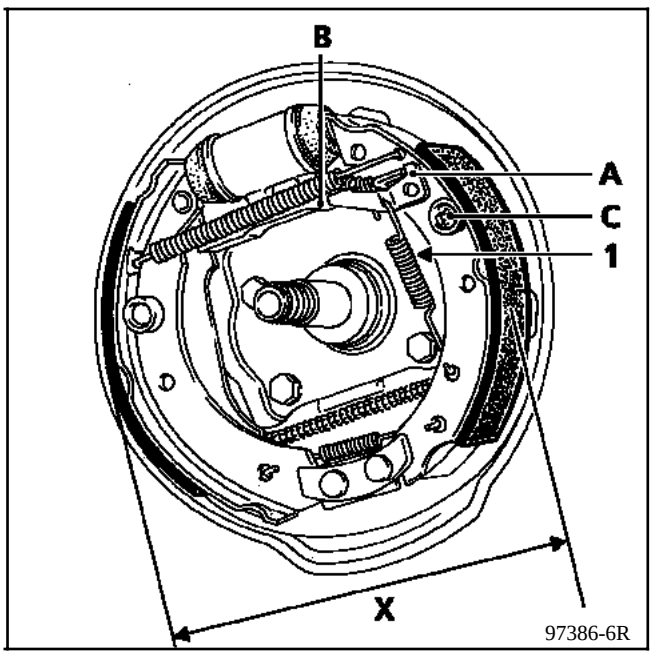
Fit the handbrake cable using tool **Fre. 573-01**.

Attach the lower spring to the shoes,

Cross the shoes over on the stub axle.

Push the lower spring behind the fixed point bracket.

Fit:
- the brake shoes,
- the adjusting bar (B),
- the shoe retaining assembly (C) (press and turn through a quarter turn),
- the spring (1) which tensions the adjustment lever,
- the adjustment lever (A).



Check the ends of the lower and upper springs are correctly positioned on the shoes.

ADJUSTMENT

Using a screwdriver adjust the shoe diameter position using bar (B) to give a diameter of :

X = 227.4 to 227.9 mm

Carry out the same operation on the other brake backing plate.

Refit the hub.

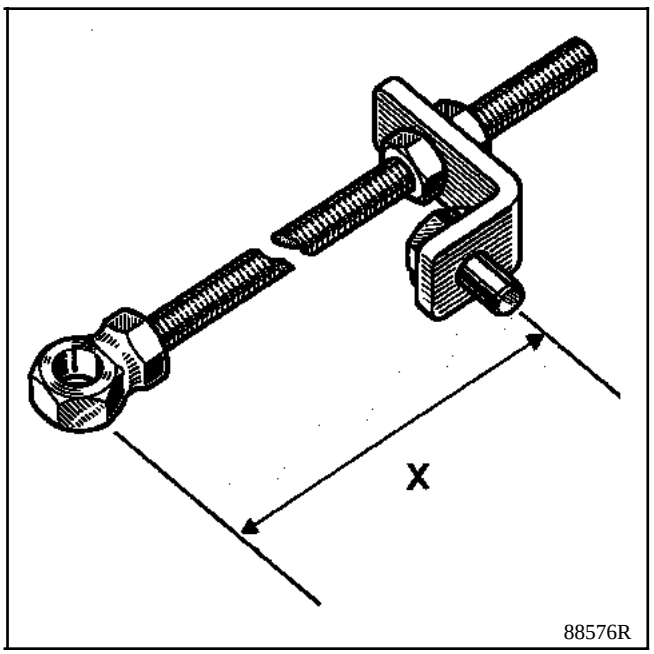
Tighten the stub axle nut to the correct torque.

Refit the drum and the wheel.

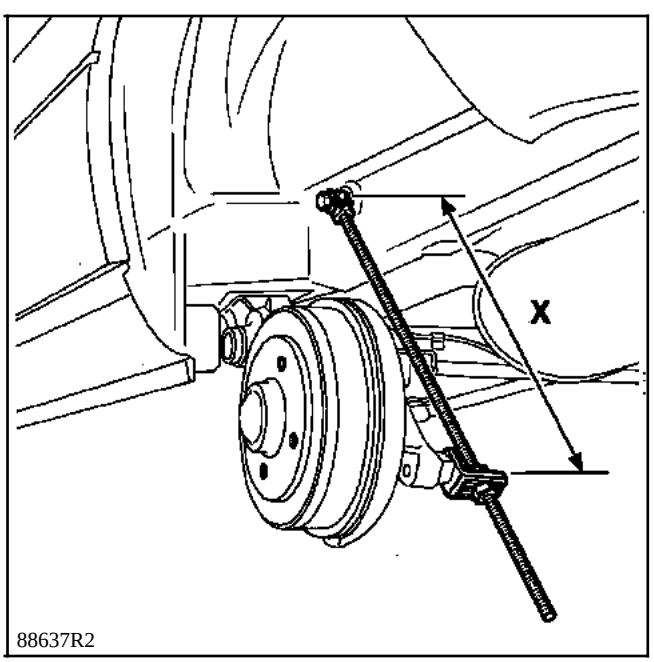
Adjust
- the brake linings by repeatedly pressing the brake pedal,
- the handbrake.

When replacing the rear axle assembly, the locally made tools should be set to the following dimensions:

X = 470 ± 1.5 mm



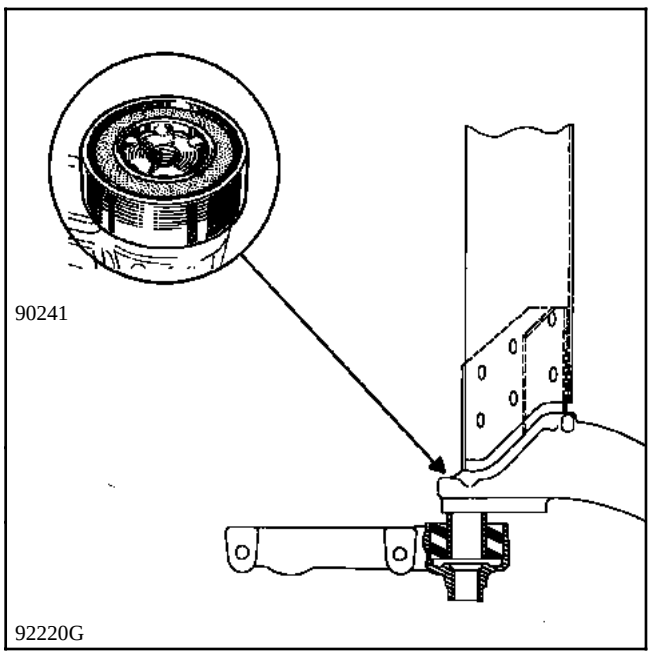
Fit the tool in place of the shock absorber.



This operation is carried out after removing the rear axle assembly and the suspension arms.

DISASSEMBLY

Weld a spacer (example : nut) in the central tube of the bush.



Remove the bush - bearing assembly on the press.

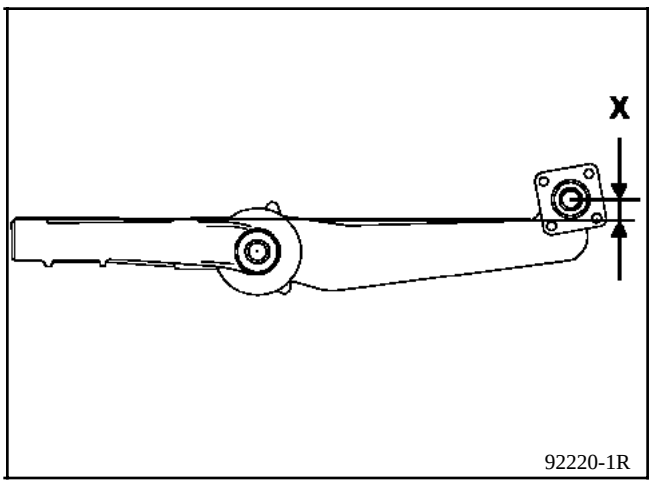
REFITTING

The bearing is fitted in the suspension arm on the press, ensuring the orientation and distance from the suspension arm is observed.

Orientation

Ensure dimension "X" between the bearing face of the bearing and the stub axle shaft:

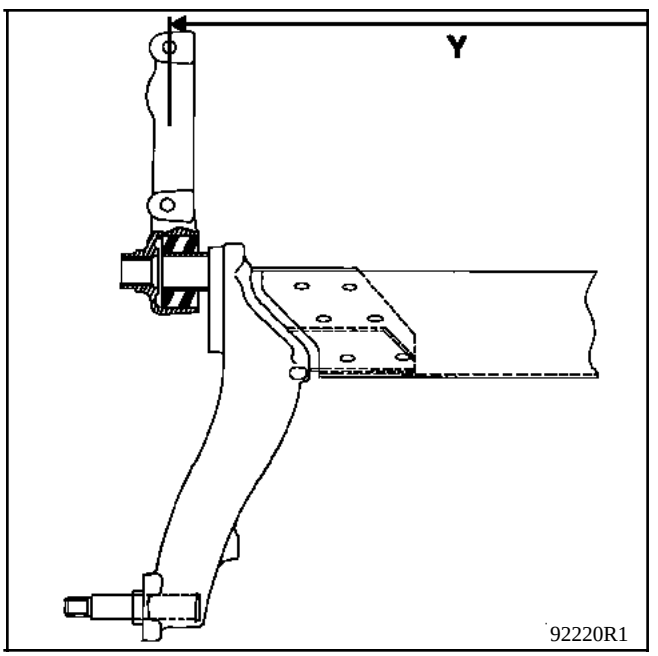
X = 37 mm



Gap

In this position, press on the bearing until the dimension between the bearing axes is :

Y = 1 235 ± 1 mm



Refit the rear axle assembly to the vehicle and refit the suspension arms (see corresponding section).

Type	Rim	Rim run-out (mm)	Wheel bolt torque (daN.m)	Tyres	Inflation pressure (bar)	
					Front	Rear
JA0E JA0F JA0L	5.5 J 14	1.2	9	175 / 70R14T	2.5	2.5
JA0F* JA0G JA0K JA0Y				185 / 70R14T	2.4	

(*) Vehicle fitted with automatic transmission.

The values given are for "motorway" driving.

The tyre inflation pressure must be checked when cold. The increase in temperature during driving increases the pressure by **0.2** to **0.3 bar.**

If the inflation pressures are checked when the tyres are warm, take this pressure increase into consideration. **Never deflate a warm tyre**.

Chains

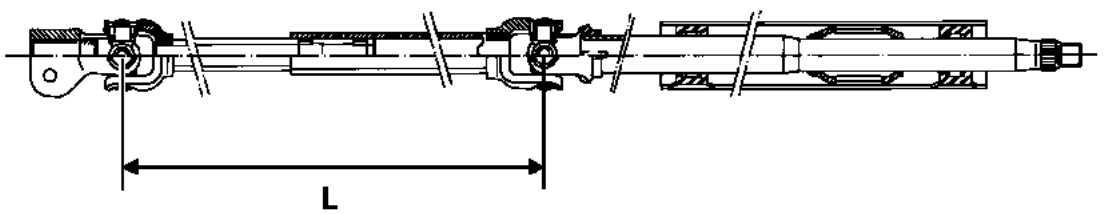
For safety reasons, it is strictly forbidden to fit chains to the rear axle.

Snow" or "thermorubber" tyres : all four wheels must be fitted with these tyres to preserve the vehicle’s adhesion qualities as far as possible.

REMOVAL - REFITTING

These vehicles are fitted with a retractable shaft - steering wheel shaft - steering column assembly which cannot be disassembled. If it proves impossible to fit the retractable shaft eccentric bolt, check that the length of the shaft is correct, otherwise replace the complete assembly (refer to the section on the steering column in M.R. 312).

CHECKING



92218R1

LEFT HAND DRIVE

Power assisted steering
L = 378.1 ± 0.5 mm

RIGHT HAND DRIVE

Power assisted steering
L = 391.1 ± 0.5 mm

The method for removal and refitting is identical to that described in M.R. 312 except for **F engines**.

Two additional operations are required before the power assisted steering unit is removed:

- Remove the lower wishbone - body acoustic tie rod the on the left hand side.

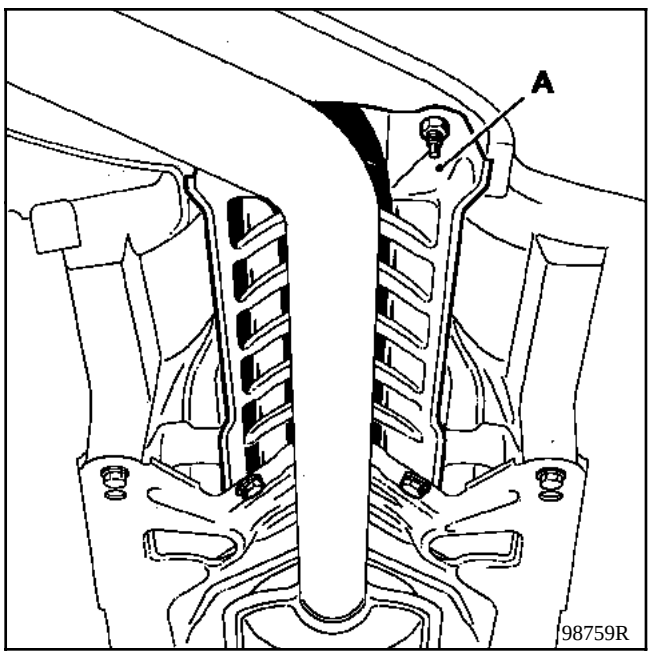
- Pull the engine - gearbox assembly towards the front of the vehicle while a second person releases the power assisted steering unit on the left hand side, using successive rotations.

REPLACEMENT

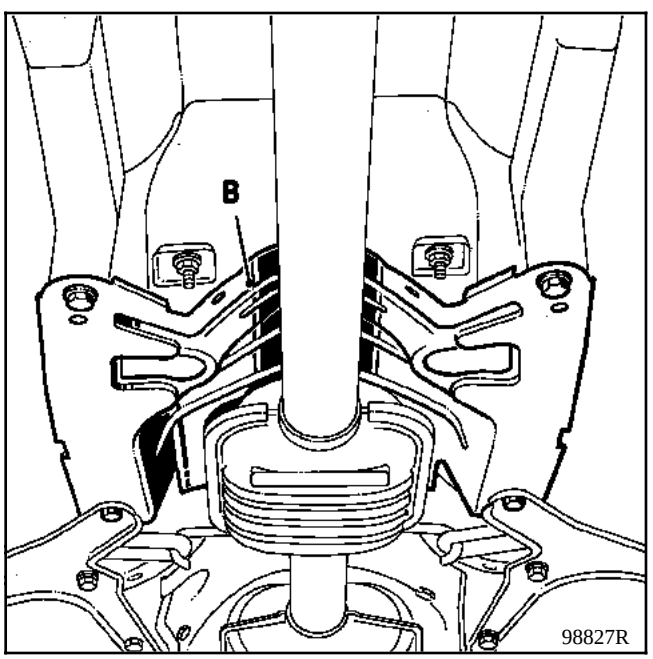
Release the handbrake.

Under the vehicle:

Remove:
- the heat shield (A),

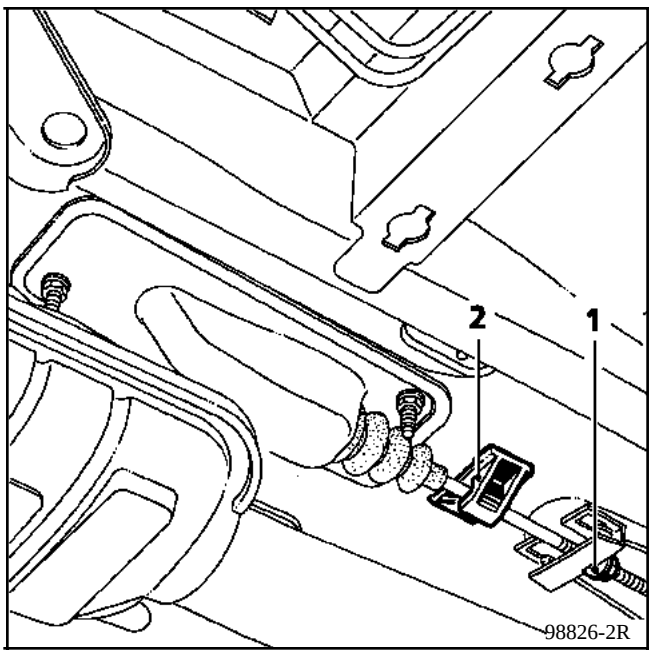


- the rubber mountings for the exhaust pipe,
- the heat shield mountings (B) and allow it to rest on the exhaust pipe after pulling it towards the rear of the vehicle.



Note the handbrake adjustment dimension between the end of the rod and the caliper.

Release then remove nut (1).

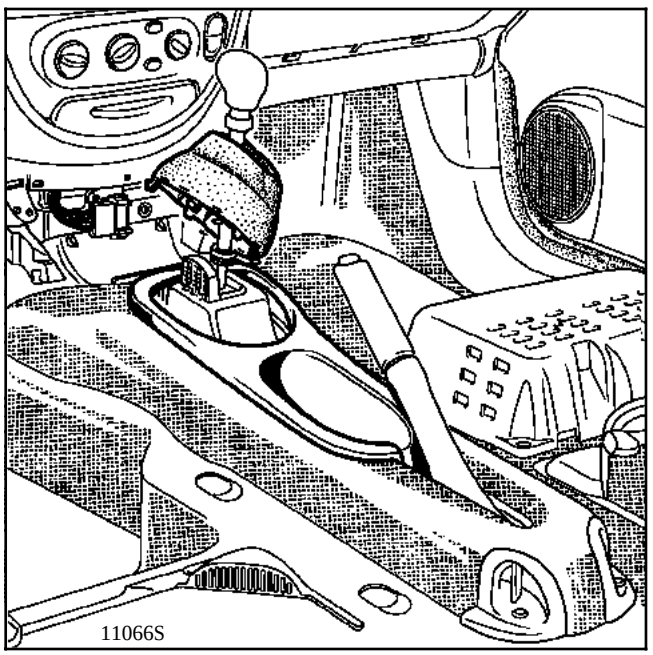


Release the linkage from its clip (2).

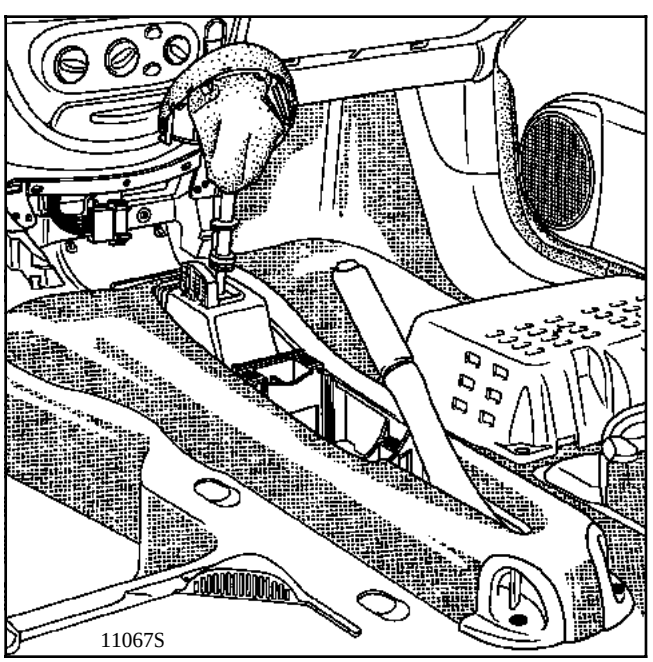
In the passenger compartment:

Remove the centre console.

To do this, unclip:
- the gear lever gaiter,
- the storage tray trim on the console.

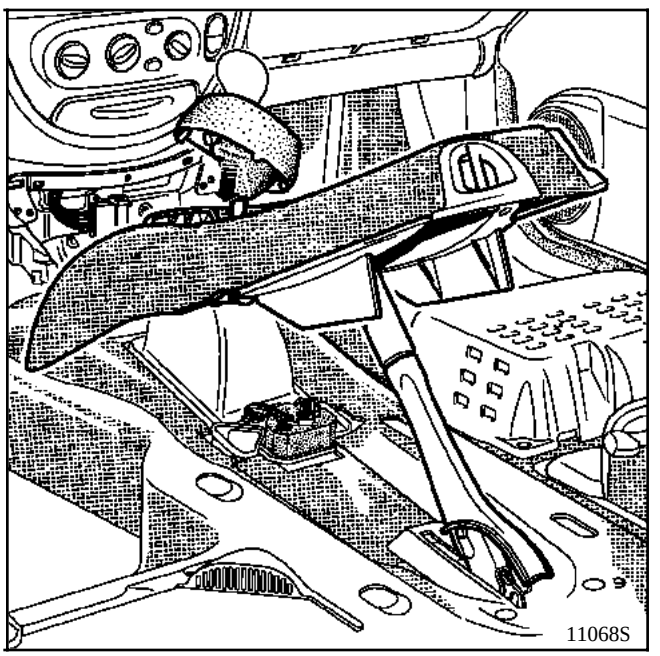

11066S

Remove the four mounting bolts from the console (two bolts at the front, two bolts at the rear).


11067S

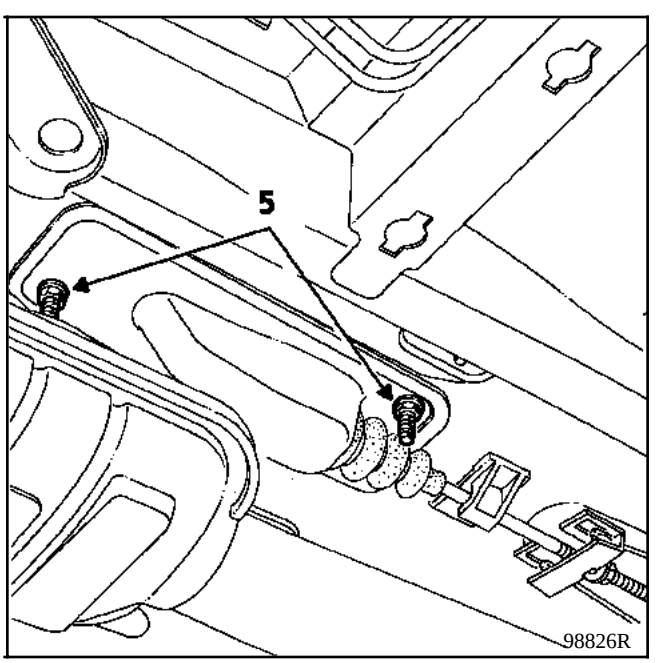
Lift the console to release the handbrake lever.

Lift off the handbrake lever trim.


11068S

Disconnect the handbrake connector.

Remove the two lever mounting nuts (5).



98826R

Remove the handbrake lever from under the vehicle.

REFITTING (Special notes)

Refitting is the reverse of removal.

Remember to refit the heat shields.

Ensure the handbrake linkage is set to the handbrake setting marked before removal.

If necessary adjust the lever travel (see section "Adjusting the control" in M.R. 312).

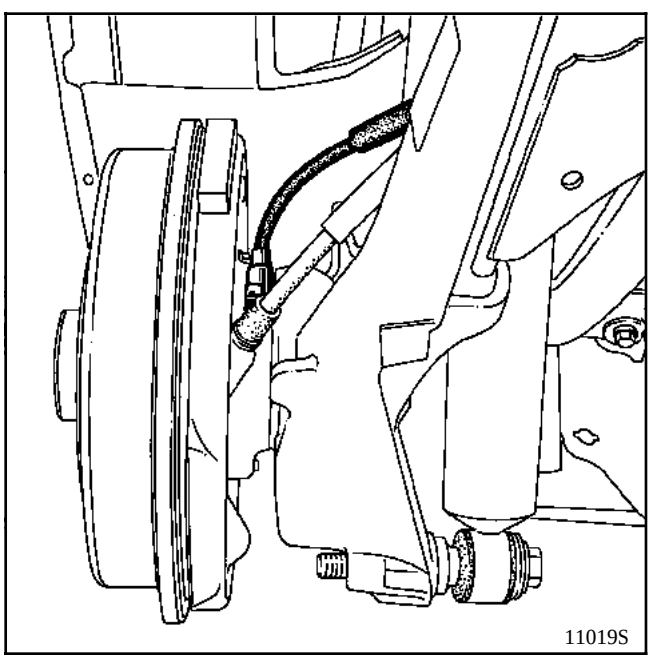
SPECIAL TOOLING REQUIRED	
T.Av. 1239	**Tool for fitting ABS targets**

TIGHTENING TORQUES (in daN.m)	
Wheel bolts	**9**
Hub nut	**17.5**
Stub axle mounting bolt	**7.2**
Sensor mounting bolt	**0.8 ± 0.2**

1. REAR WHEEL SENSOR

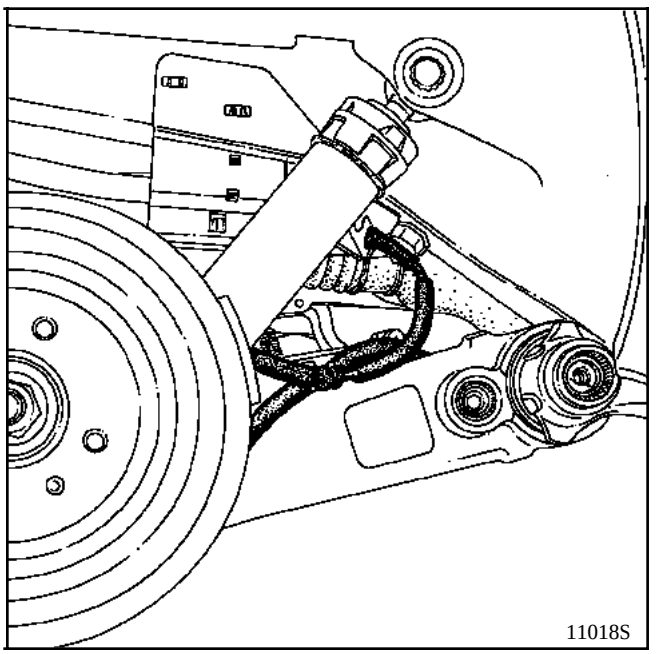
REMOVAL

Remove:
- the wheel,
- the sensor mounting bolt.

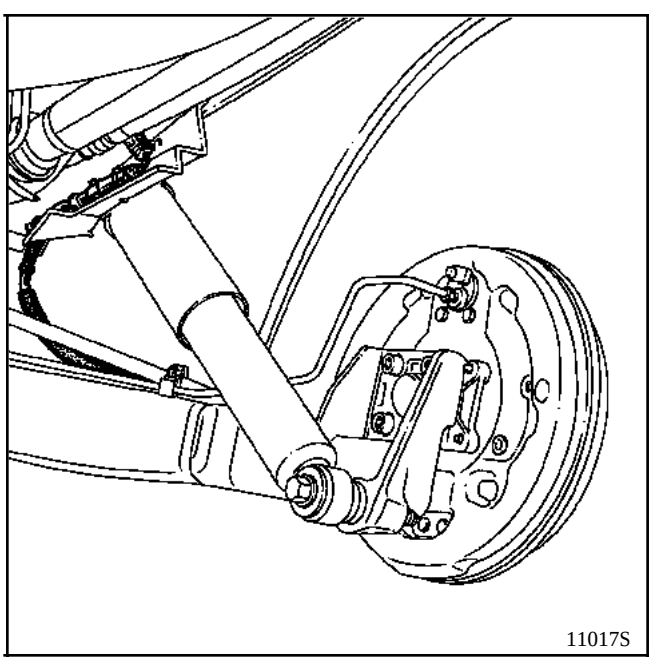

11019S

Release:
- the sensor wire,
- the rigid brake pipe,
- the handbrake cable

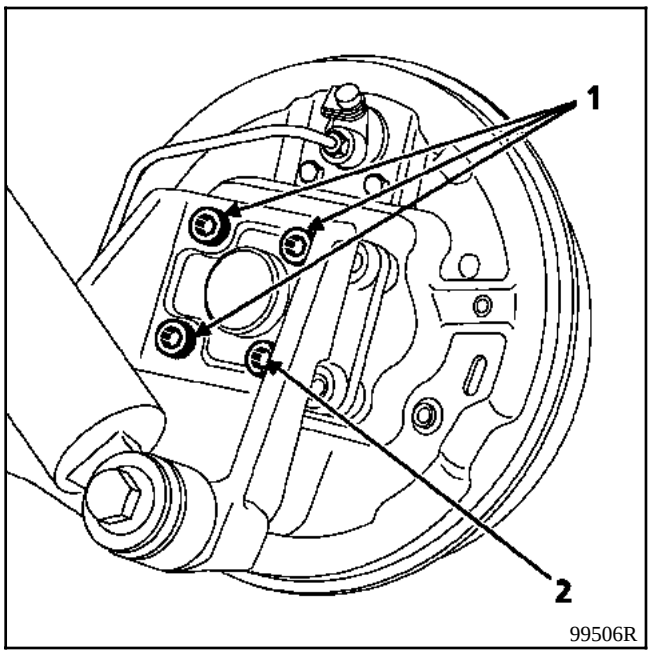
from the mountings under the suspension arm.


11018S

Disconnect the sensor connector located under the vehicle.


11017S

Remove:
- the three bolts (1) and slacken bolt (2) mounting the stub axle on the arm (leave it screwed in by two or three threads to prevent the stub axle - drum assembly from falling),



- the sensor, pushing the stub axle - drum assembly outwards.

REFITTING

Fit the sensor after coating it in **Multipurpose** grease, Part Number **77 01 422 308**.

The sensor must be fitted by hand.

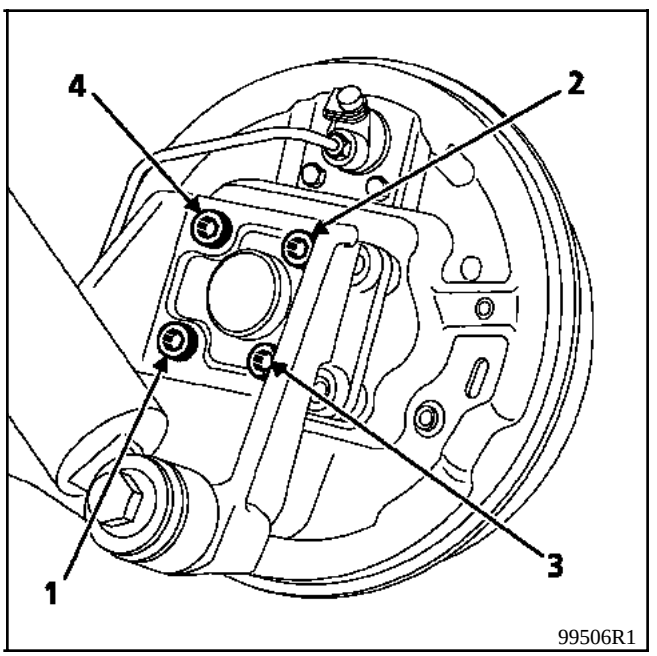
- Do not hit the sensor when refitting it.
- Do not pull or push on the wire.

Fit **new** mounting bolts (1) for the stub axle on the arm.

Renew bolt (2).

Tighten the four bolts in the order (1), (2), (3), (4) as shown on the diagram. Observe the correct tightening torque.

NOTE : the new bolts are microcapsulated. If the old bolts are re-used, they must be coated with **LOCTITE FRENBLOC** or a **split washer** (**Grower)** must be used**.**



Reconnect the sensor connector and attach it to its mounting.

Clip into position:
- the sensor wire,
- the rigid brake pipe,
- the handbrake cable.

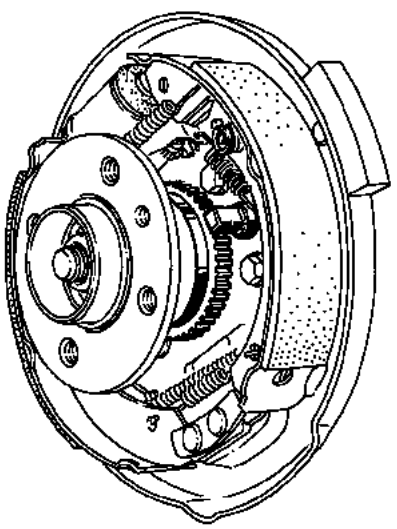
NOTE : to eliminate the risk of faults, it is essential to ensure the connector is correctly connected.

2. REAR WHEEL TARGET / SENSOR GAP

Position the target so that the top of one tooth is parallel with the sensor.

Use a set of shims to check that the gap dimension X is:

0.5 mm ≤ X ≤ 1.7 mm



11016S

FAULT FINDING

Fault finding for TEVES ABS is covered in section 3 of M.R. 312 (Mégane).

This fault finding applies to the J64, with the following special notes:

- Configuration of the ABS on the J64 is identical to the other vehicles in the Mégane range for right hand drive, insofar as the wiring is concerned.
  There is however an additional connection on the connection between the ABS and the dashboard:
  R255 ABS / scuttle panel+ R254 dashboard / scuttle panel

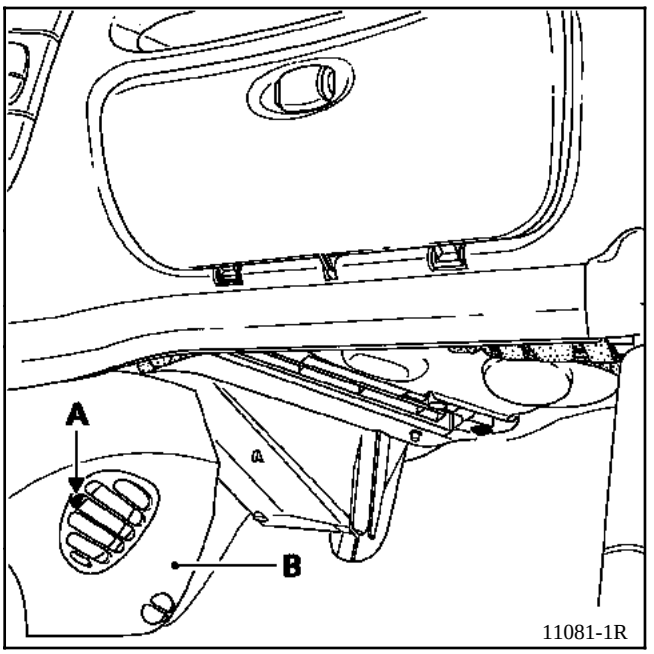
  Location:
  R255 : near to + battery terminal in the engine compartment (14 tracks),
  R254 : at the front right hand pillar in the passenger compartment.

- The 60 A ABS fuse is in the power fuse box in the scuttle panel.

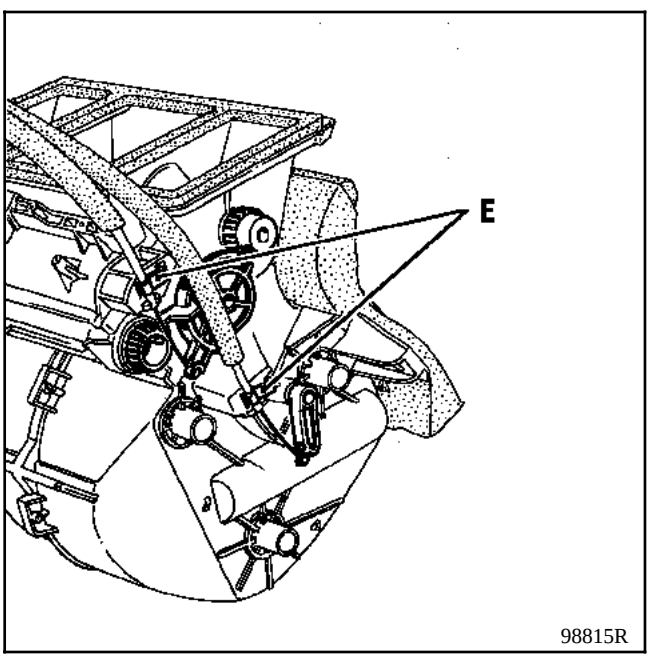
REMOVAL

The control cables may be removed without having to remove the dashboard.

Remove:
- the ashtray,
- the control unit,
- bolt (A) and cover (B),



- the cable retaining clips (E).



Special notes for vehicles fitted with air conditioning

Only the temperature control cable may be removed in this manner.

To remove the air distribution cable, the dashboard must be removed.

REFITTING

Refitting is the reverse of removal.

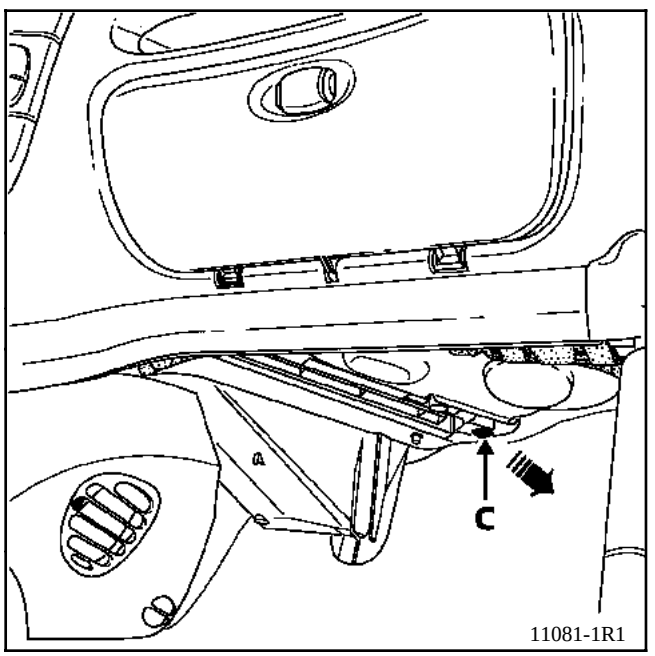
Refer to section 61 of M.R. 312. for adjusting and operation.

REPLACEMENT

Refer to the vehicle's Warranty and Servicing Booklet.

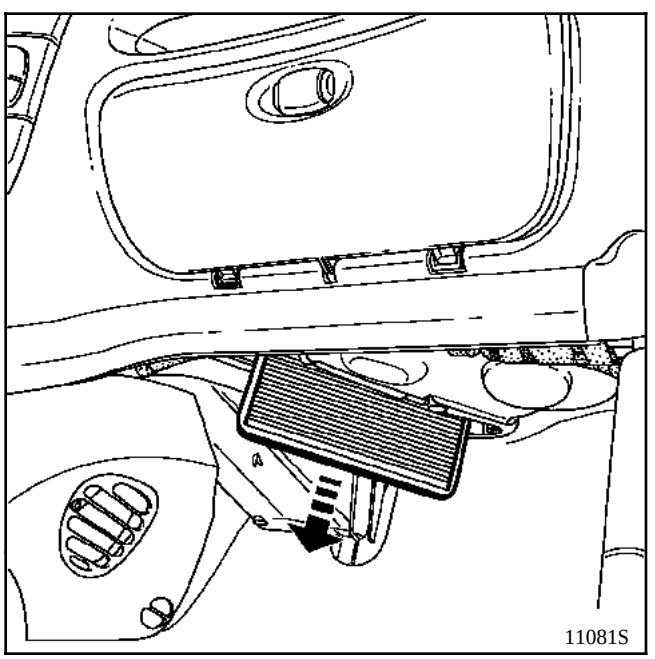
REMOVAL

Remove bolt (C).



Slide the cover in the direction shown.

Remove the particle filter, pulling on the foam seal.



REFITTING

After replacing the particle filter, fit the cover in the reverse manner to removal.

Refit bolt (C).

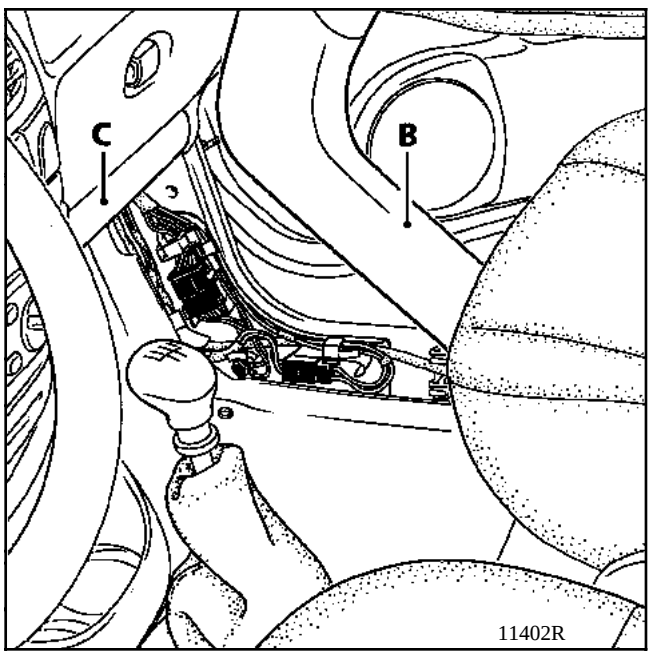
FAN ASSEMBLY (GMV)

REMOVAL

Disconnect the battery.

Remove the bottom of the door seal.

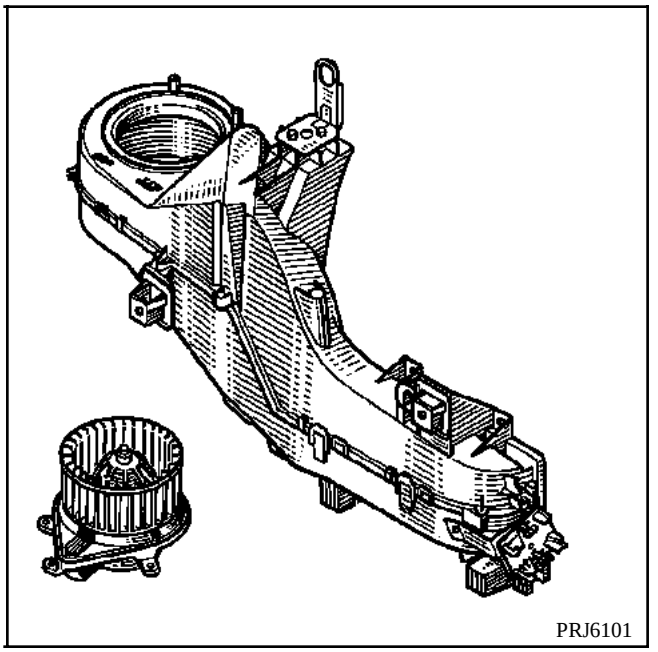
Release:
- the plastic inner sill trim (B),
- the wiring under the dashboard, towards the outside (C).



Remove the insulating foam under the fan.

Disconnect the connector on the fan assembly.

Remove the three fan mounting bolts.



Release the fan assembly, then turn it anti-clockwise through 90° to remove it.

REFITTING

Fit the fan, turning it through 90° in the opposite direction to removal.

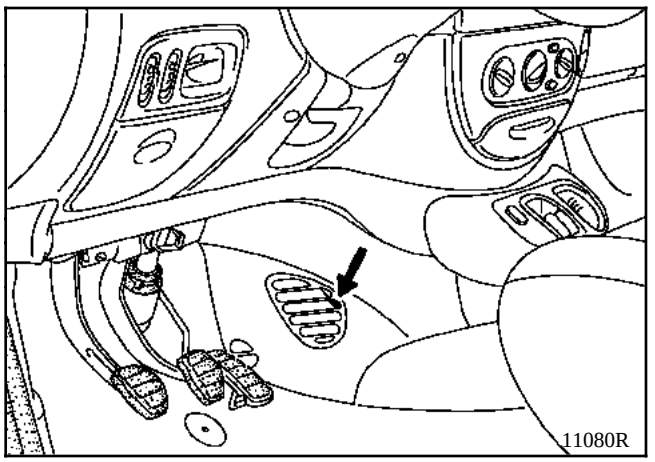
Refit:
- the three mounting bolts and reconnect the fan assembly,
- the trim,
- the door seal and the insulating foam under the fan assembly.

Refit the wiring under the dashboard.

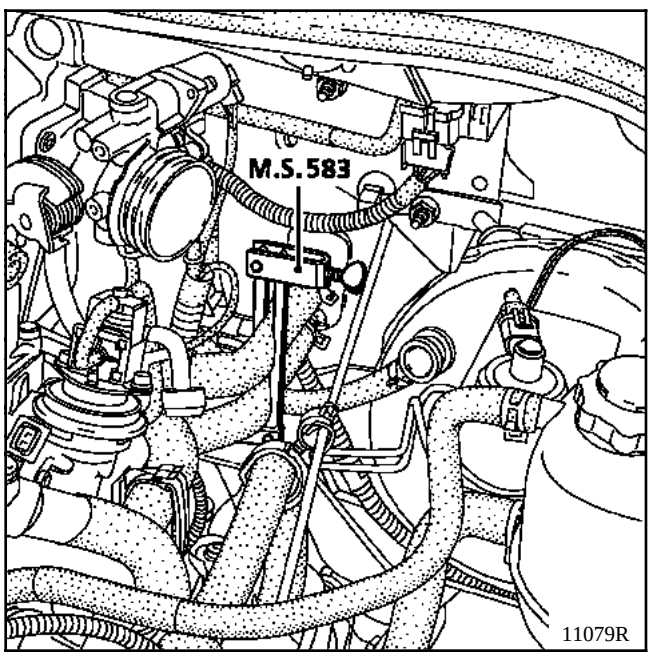
REMOVAL

Disconnect the battery.

Remove the bolt.



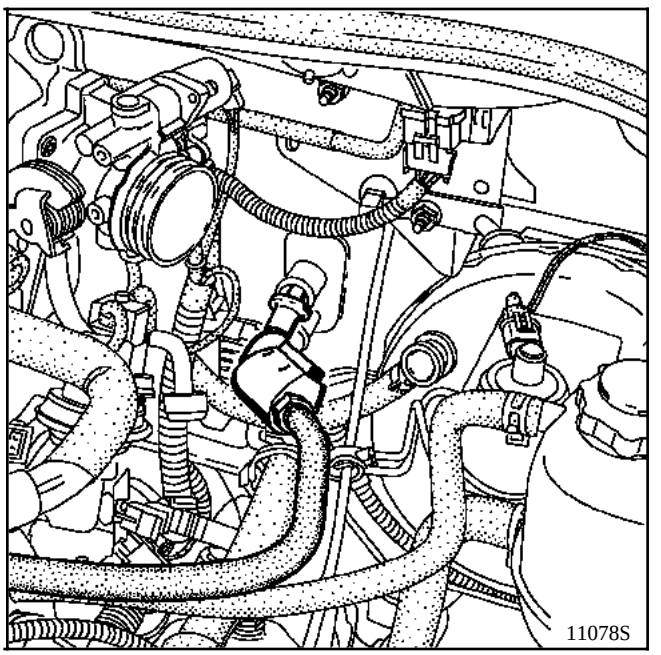
Fit a hose clamp of type **M.S. 583** on the heating pipes in the engine compartment.



Disconnect the pipes.

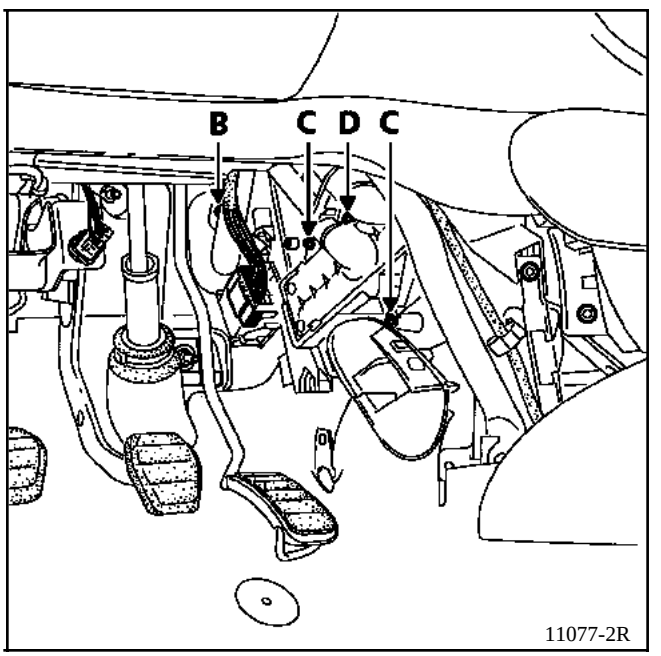
Blow compressed air into the upper pipe to drain as much water as possible from the matrix.

NOTE : the water may drain out quite quickly. Fit a short section of hose or a deflector to direct the water downwards.



In the passenger compartment:

Remove the mounting bolt (B), the two bolts (C) from the heater matrix and bolt (D) connecting the water downpipe to the unit.



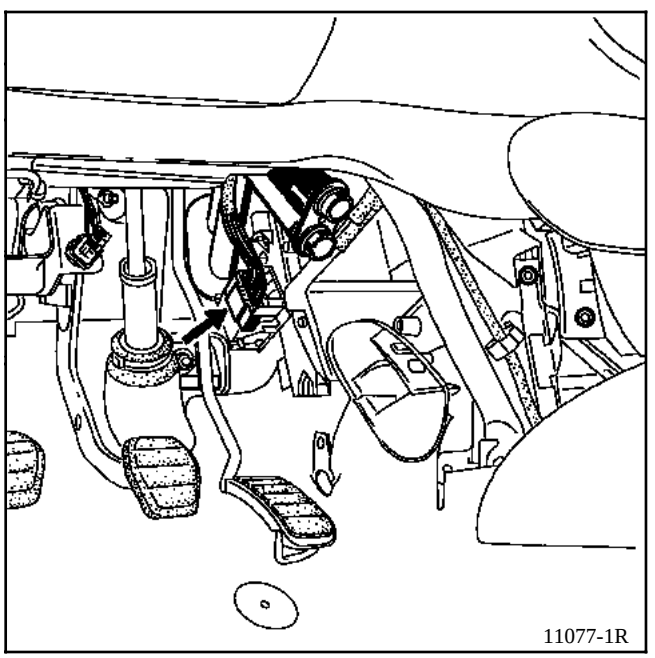
Separate the water downpipe from the matrix.

Remove the matrix, pressing on the upper part of the pillar air vent (E) to make the operation easier.

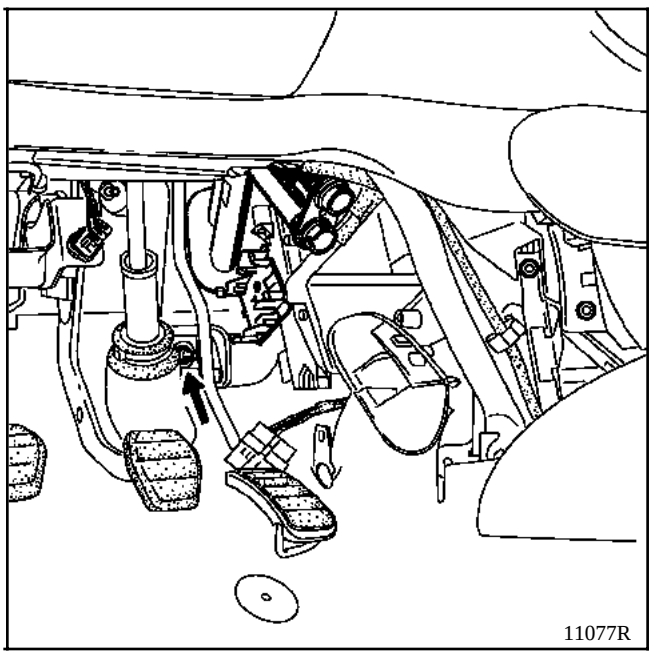
NOTE: the water downpipe does not need to be removed if it is in good condition. The seals, however, **must** be renewed, retaining the new seals from the new radiator.

Special notes for removing the water downpipe

Release the wiring and disconnect the connector.


11077-1R

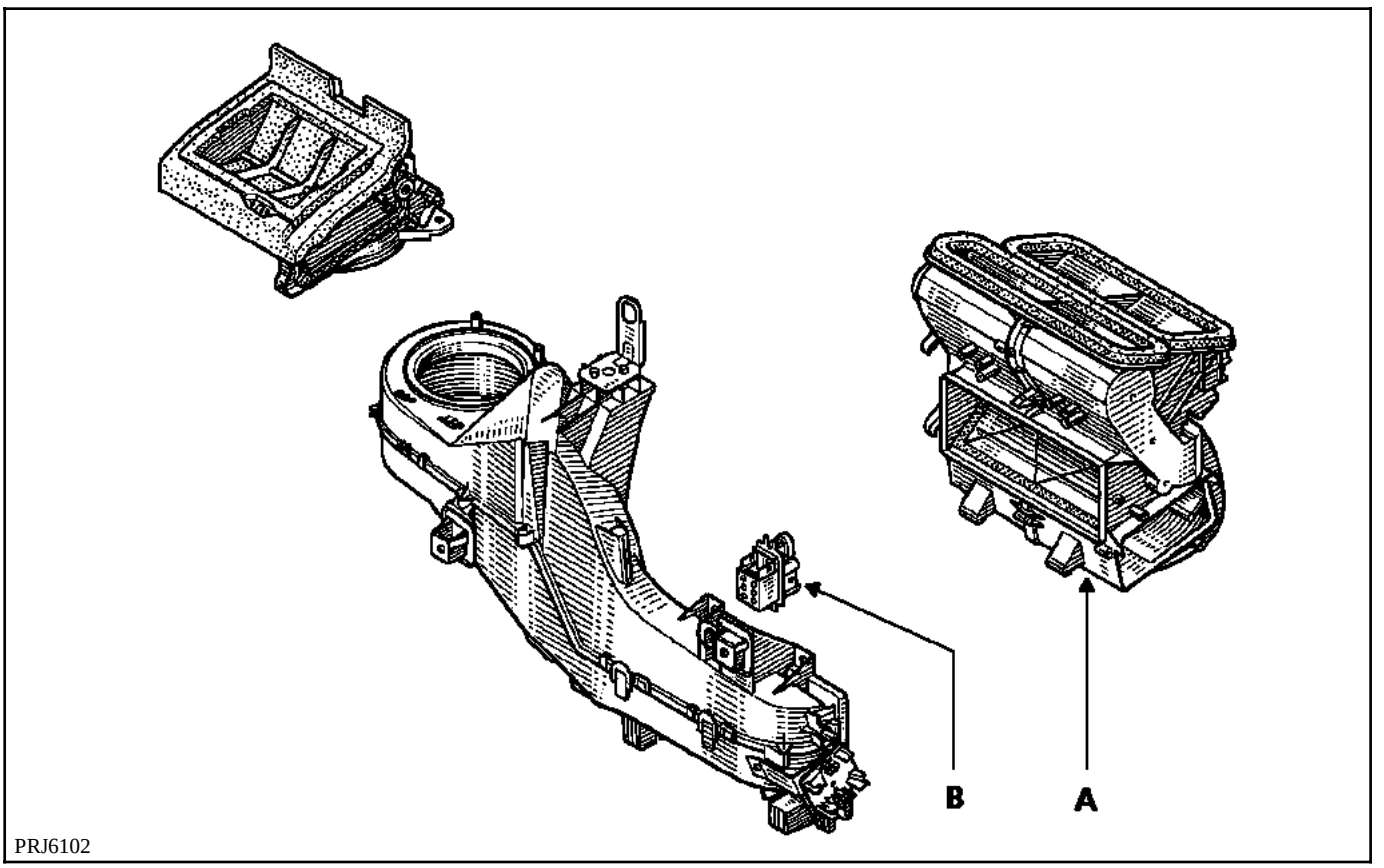
Remove:
- the connector support mounting bolt,
- the accelerator pedal mounting.


11077R

REFITTING

There are no special notes for refitting.

Fill the cooling circuit and bleed it.



PRJ6102

The distribution unit (A) may be reached after removing the dashboard.

Follow the instructions for removal and refitting in section 62 "Removing - refitting the evaporator".

Resistance unit

REMOVAL

The resistance unit (B) is located behind the dashboard on the passenger side.

Disconnect the battery and the connector.

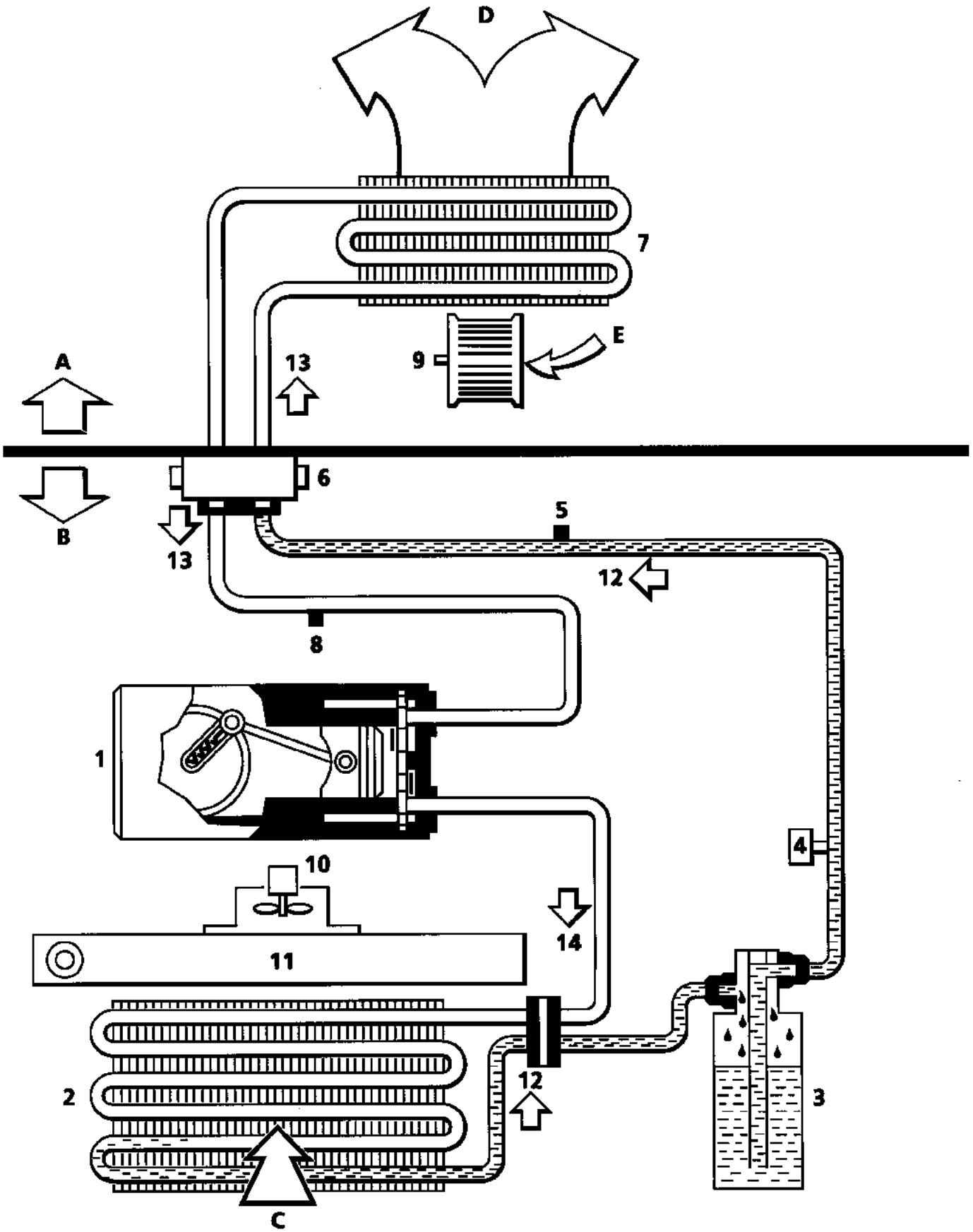
Remove the lower mounting bolt for the resistance unit.

Slacken the upper bolt but do not remove it.

Remove the unit, tilting it backwards to release it.

REFITTING

Refitting is the reverse of removal.



91096-3R

A Passenger compartment
B Engine compartment
C External air
D To air mixing unit
E External air or recycled air

1 Compressor
2 Condenser
3 Dehydration canister
4 Trifunction pressostat
5 High pressure bleed
6 Pressure relief valve
7 Evaporator
8 Low pressure bleed
9 Ventilation fan
10 Cooling fan
11 Engine cooling radiator
12 High pressure fluid
13 Low pressure vapour
14 High pressure vapour

Consumables:

- Compressor oil
  SANDEN SP 10 (P.A.G.)
  135 cm^3

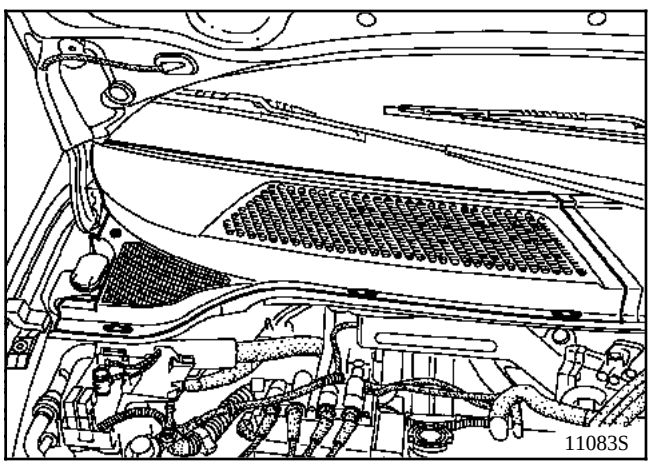
- Refrigerant fluid
  R134a
  800 g ± 35

REMOVAL

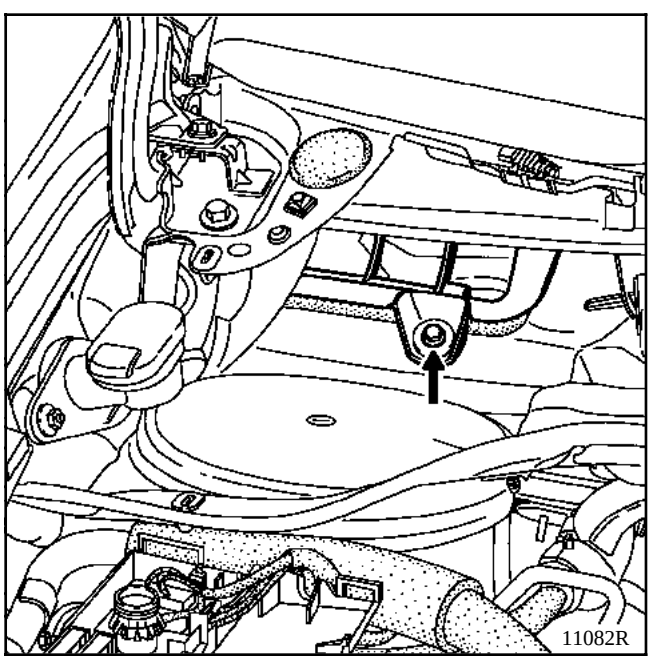
The evaporator unit is attached to the distribution unit and the assembly is located under the dashboard.

Disconnect :
- the battery,
- the heating pipes and drain the water from the radiator (see method "Removing the heater matrix").

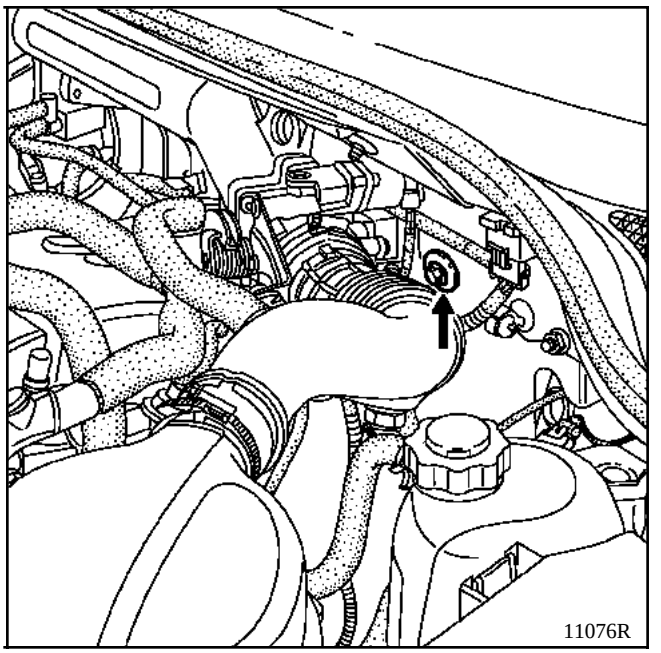
Remove:
- the external air inlet half-grille,



- the air inlet mounting bolt,

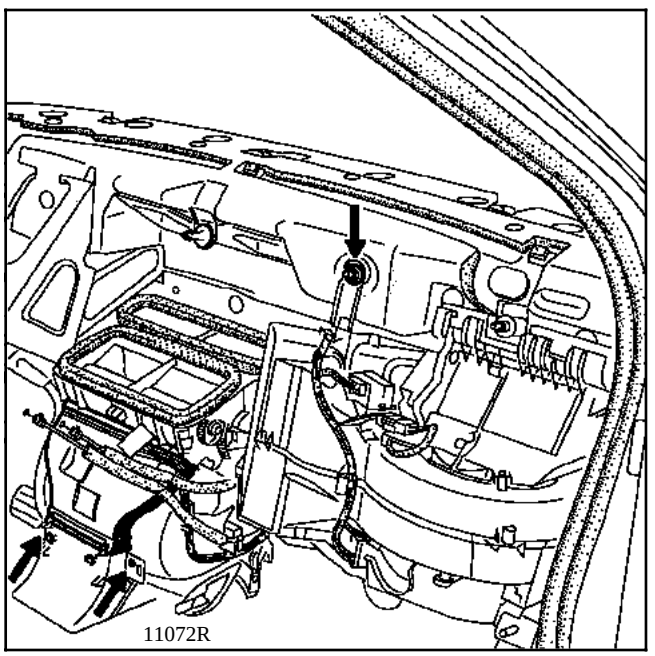


- the pressure relief valve (see method "Removing - refitting the pressure relief valve"),
- the two bolts mounting the base for the pressure relief valve on the bulkhead,
- the fan mounting bolt on the bulkhead.

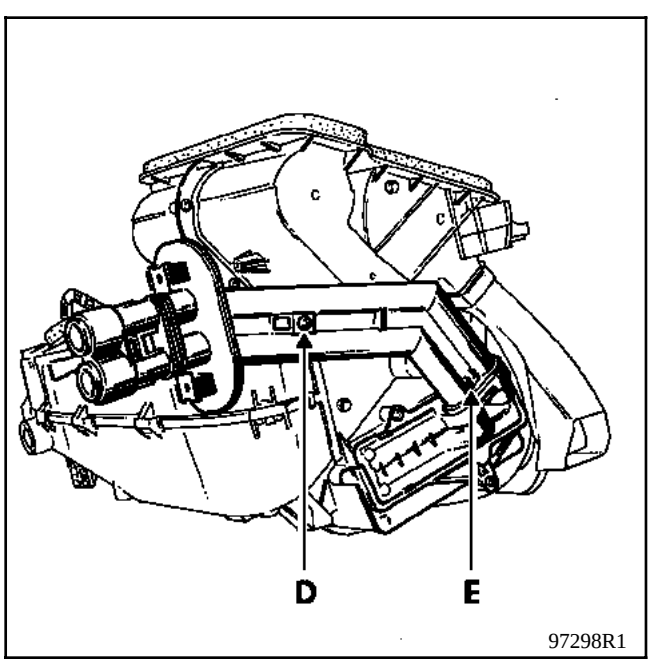


In the passenger compartment:

Remove :
- the dashboard (see method, section 57),
- the mounting nut on the bulkhead and the two bolts,



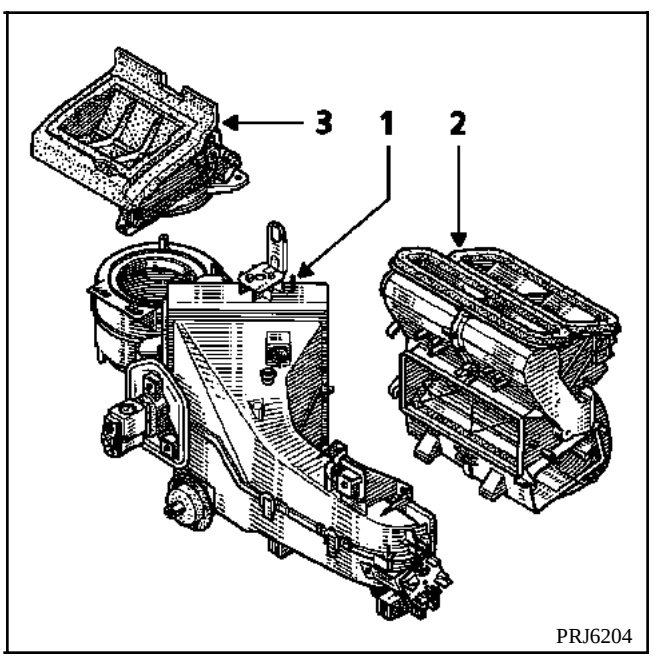
- the mounting bolt (D) for the water downpipe and bolt (E) connecting the pipe to the radiator.



Separate the water downpipe from the heater matrix.

Disconnect:
- the connector on the distribution unit,
- the condensation drain pipe on the bulkhead near the right hand side member.

Remove the air conditioning unit and separate the evaporator (1) from the distribution unit (2) and the air inlet unit (3).



REFITTING

Refitting is the reverse of removal.

K7M ENGINE

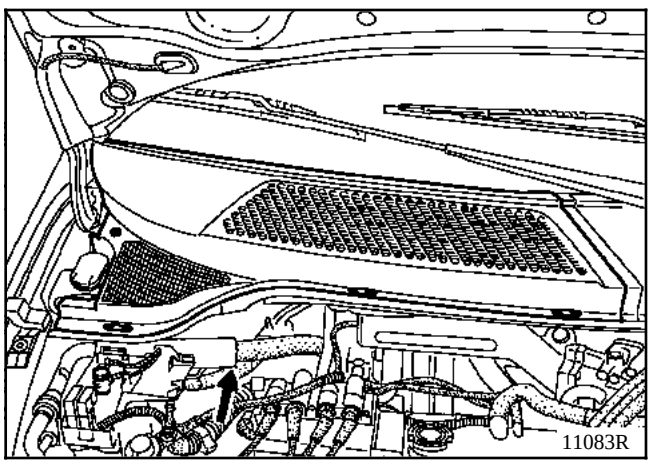
REMOVAL

Drain the circuit of refrigerant R134a using the filling station.

Disconnect the battery.

Using a ratchet (6.35 mm square) with a long extension, remove the bolt mounting the pipes to the pressure relief valve.

Fit the ratchet between the side member and the engine.



Remove the two retaining bolts for the pressure relief valve on the evaporator following the same method as above.

Fit plugs to the evaporator pipes for the low and high pressure circuits.

F3R ENGINE

REMOVAL

Drain the circuit of refrigerant R134a using the filling station.

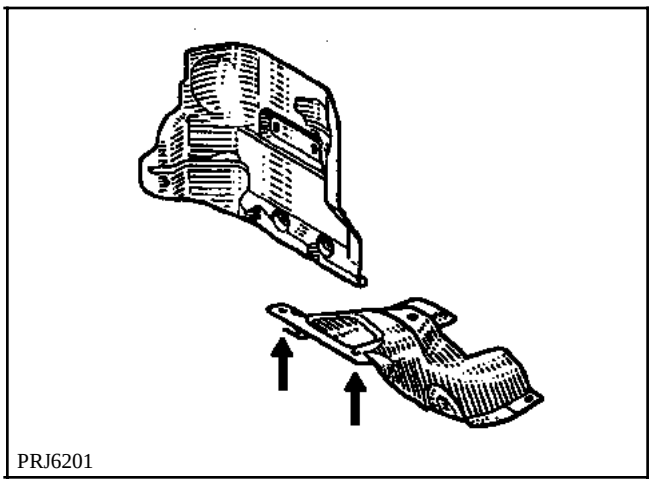
Put the vehicle on a lift.

Disconnect the battery.

Remove:
- the windscreen wiper arms,
- the air inlet grille,
- the scuttle panel removable partition (four bolts).

Under the vehicle:

Remove the bulkhead heat shield mounting bolts.



From above:

Release the bulkhead heat shield.

Remove:
- the earth bolt,
- the pressure relief valve pipe connecting bolt,
- the two retaining bolts for the pressure relief valve on the evaporator.

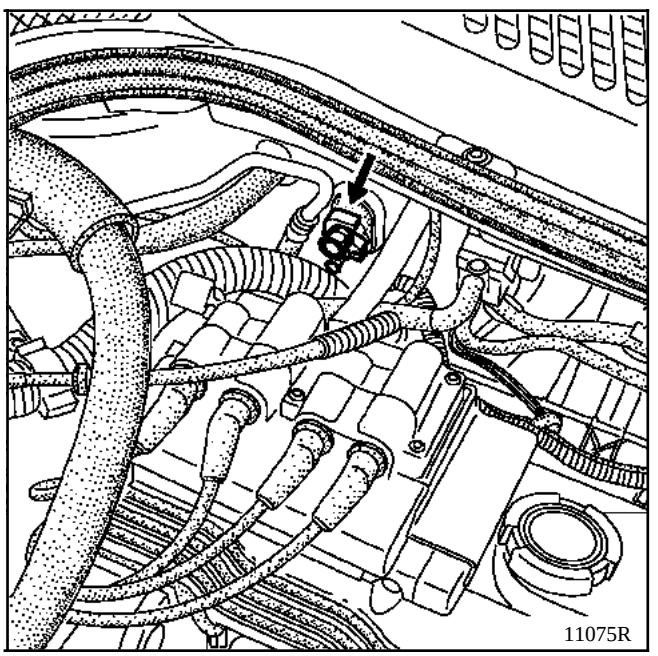
F8Q TURBO ENGINE

Identical to the method for the F3R engine, except that the operation to remove the scuttle panel removable partition is not carried out.

ALL TYPES

REFITTING

Check the pressure relief valve unit mounting flange is present on the pipes.



Check the pipe seals are in good condition.

Disconnect the battery.

Drain the circuit of refrigerant R134a using a filling station.

LOW PRESSURE PIPE

REMOVAL

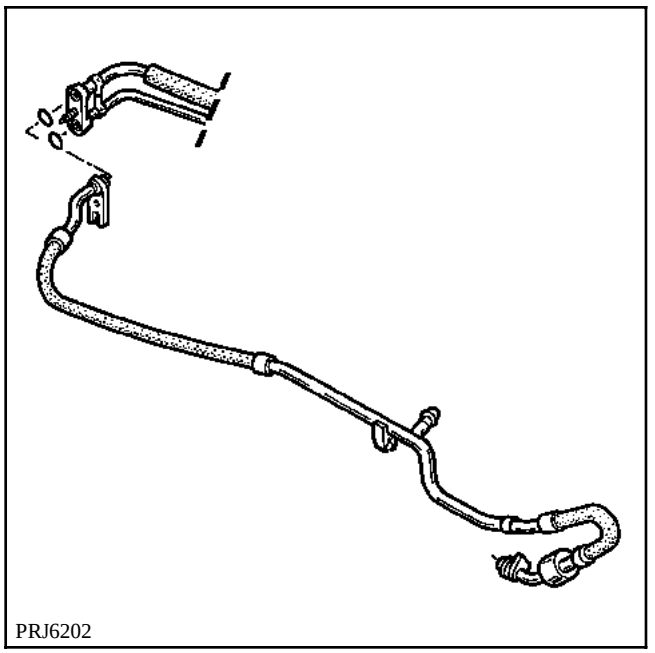
Remove the mounting bolt on the intermediate pipe.

Fit plugs to the intermediate pipe.

Remove the mounting bolt on the compressor.

Fit plugs to the compressor and the low pressure pipe on the cold loop.

Remove the low pressure pipe.


PRJ6202

REFITTING

Refitting is the reverse of removal.

HIGH PRESSURE PIPE BETWEEN COMPRESSOR AND CONDENSER

REMOVAL

Remove the mounting bolt on the compressor.

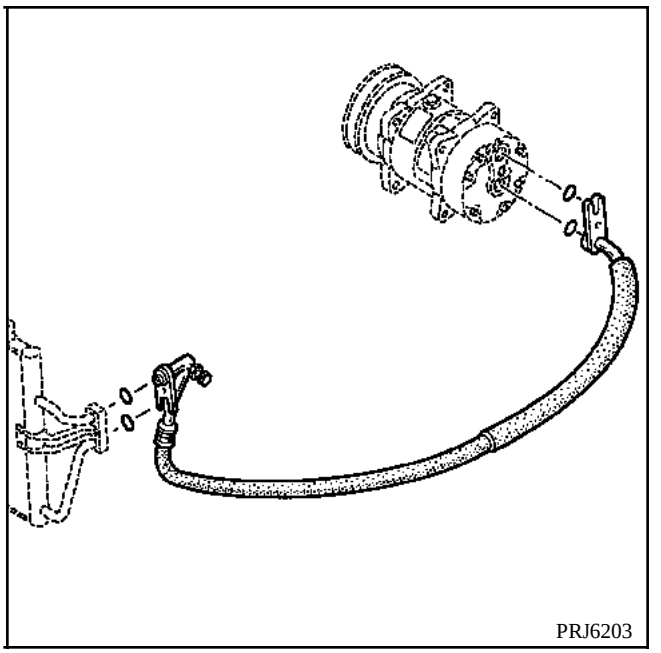
Fit plugs to the compressor and the pipe.

Remove the mounting bolt on the condenser.

Disconnect and remove the trifunction pressostat.

Remove the pipe.

Fit plugs.


PRJ6203

REFITTING

Refitting is the reverse of removal.

When replacing a pipe, add **10 ml** of **SP 10** oil, or if a pipe has burst (rapid leak), add **100 ml**.

Disconnect the battery.

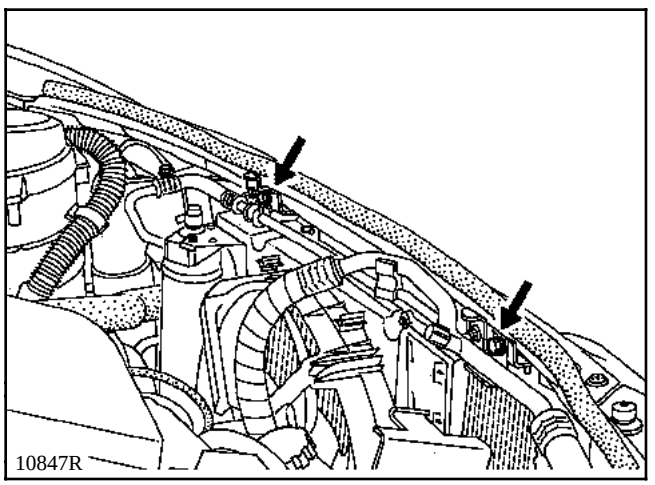
Drain the circuit of refrigerant R134a using a filling station.

HIGH PRESSURE PIPE BETWEEN DEHYDRATION CANISTER AND PRESSURE RELIEF VALVE

Remove the mounting bolts on the dehydration canister and the intermediate pipe.

Fit plugs to the openings on the cold loop.

Remove the mounting bolts from the pipe clips.



REFITTING

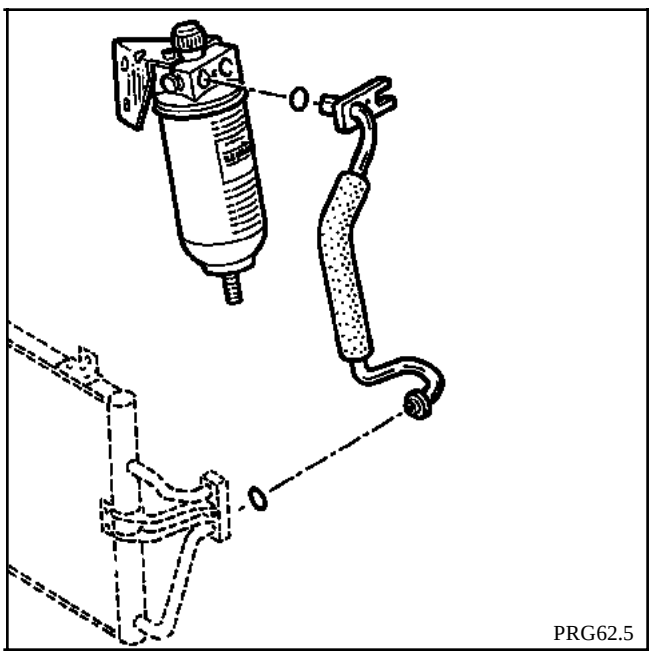
Refitting is the reverse of removal.

HIGH PRESSURE PIPE BETWEEN DEHYDRATION CANISTER AND CONDENSER

Remove:
- the mounting bolt on the dehydration canister,
- the mounting bolt on the condenser.

Fit plugs.

Remove the pipe.



REFITTING

Refitting is the reverse of removal.

When replacing a pipe, add **10 ml** of **SP 10** oil, or if a pipe has burst (rapid leak), add **100 ml**.

Disconnect the battery.

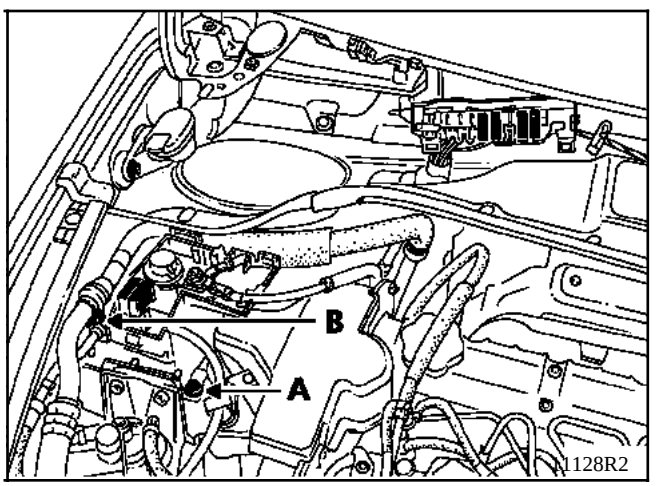
Drain the circuit of refrigerant R134a using a filling station.

HIGH PRESSURE PIPE AND LOW PRESSURE PIPE CONNECTING THE PRESSURE RELIEF VALVE AND COLD LOOP

REMOVAL

Remove:
- bolt (A) mounting the fuse box,
- the pipe mounting bolt (B),
- the bolt mounting the pipe to the pressure relief valve (see method "Removing - Refitting the pressure relief valve").

Fit plugs to the cold loop and the pressure relief valve.



REFITTING

Refitting is the reverse of removal.

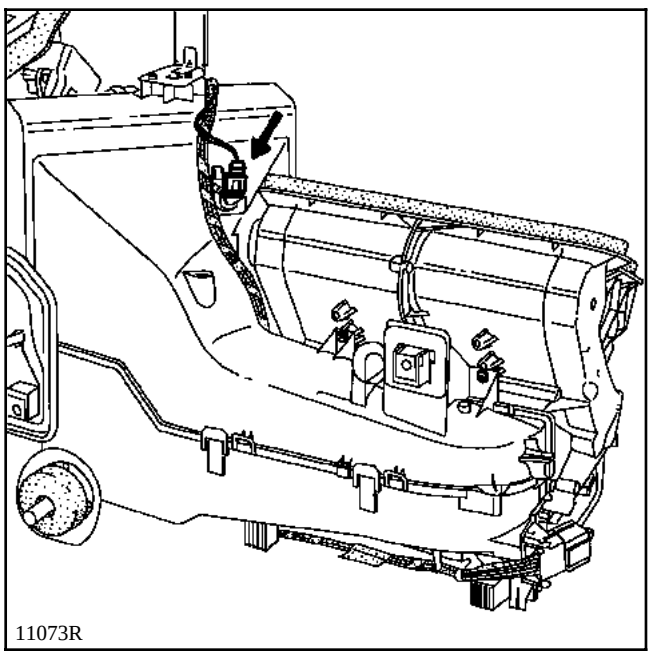
When replacing a pipe, add **10 ml** of **SP 10** oil, or if a pipe has burst (rapid leak), add **100 ml**.

The electrical components are removed after removing the dashboard.

EVAPORATOR SENSOR

The evaporator sensor is mounted on the evaporator unit body.

Disconnect the connector and remove the evaporator sensor.


11073R

POWER MODULE (B)

This is mounted on the evaporator unit by two bolts.

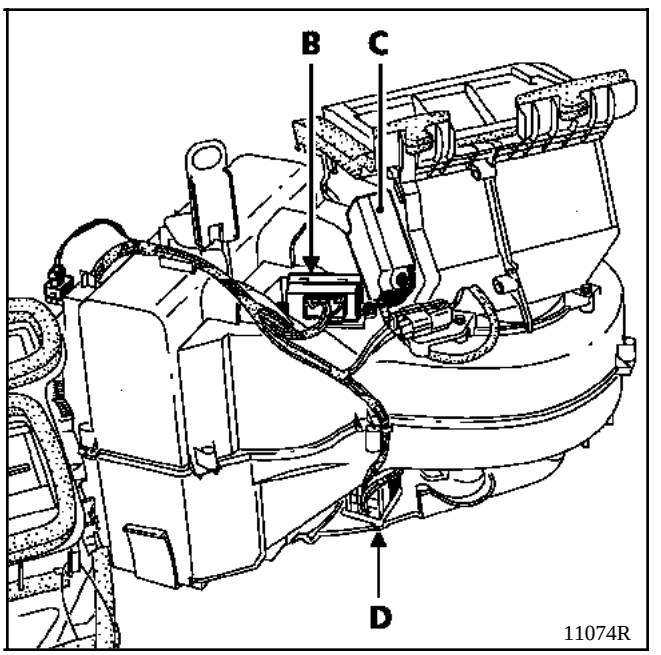
AIR RECYCLING MODULE (C)

This is mounted on the air inlet unit by two bolts.

Refer to M.R. 312 section 6 for special notes on removal and refitting.

FAN ASSEMBLY RELAY(D)

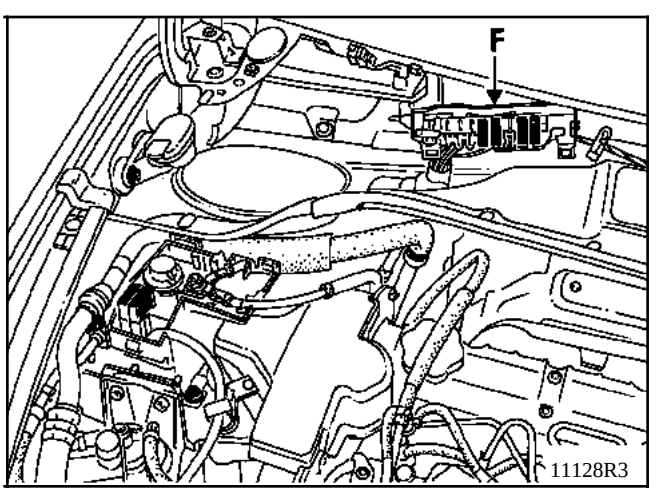
This is mounted on the evaporator unit. It is reached after removing the insulating foam under the air conditioning unit.



11074R

AIR CONDITIONING FUSE (F)

The fuse is reached after removing the air inlet half scuttle grille.



11128R3

The battery is located in a special compartment under the front right hand seat.

Locating the battery in the passenger compartment meant that special technology was required, which was tested using an "operational safety" study.

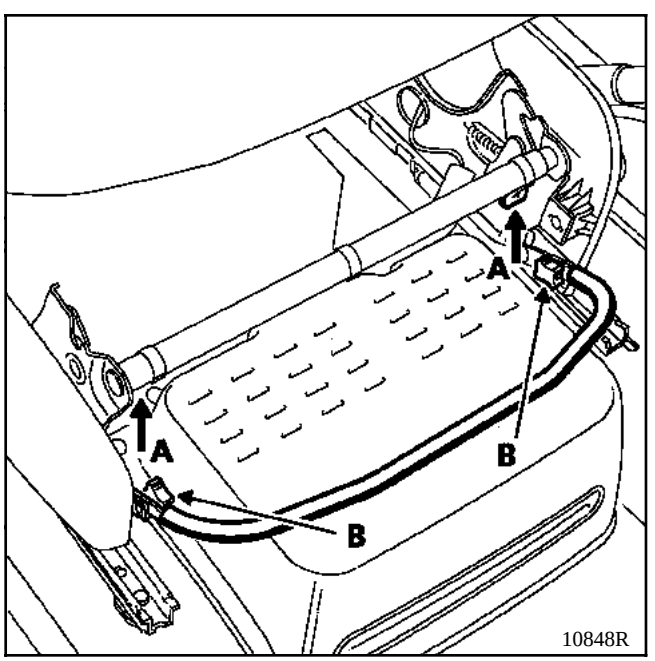
The battery is a maintenance free sealed "valve" type unit. It is a lead battery with an electrolyte which is immobilised in absorbent separators. There is therefore no electrolyte reservoir in the monoblock unit.

95% of the gas released during charging is re-used to form water.

The addition of water is therefore strictly prohibited as this would reduce the life of the battery and could cause acid to overflow from the safety valves.

REMOVAL

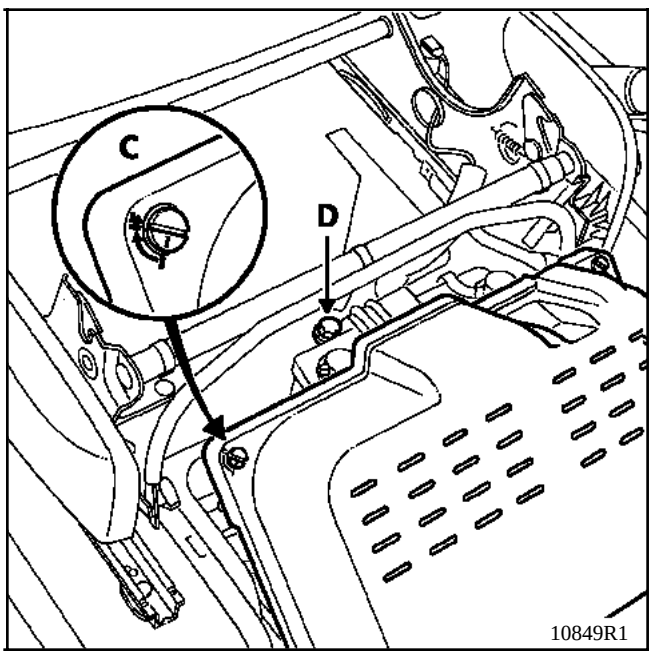
Move the two levers (A) to lift the front of the passenger seat.



Slacken the two bolts (B) to lift the seat longitudinal position adjustment bar.

The seat may then be tilted backwards far enough to allow the battery cover to be removed.

Remove:
- the cover after slackening the two mountings (1/4 turn),

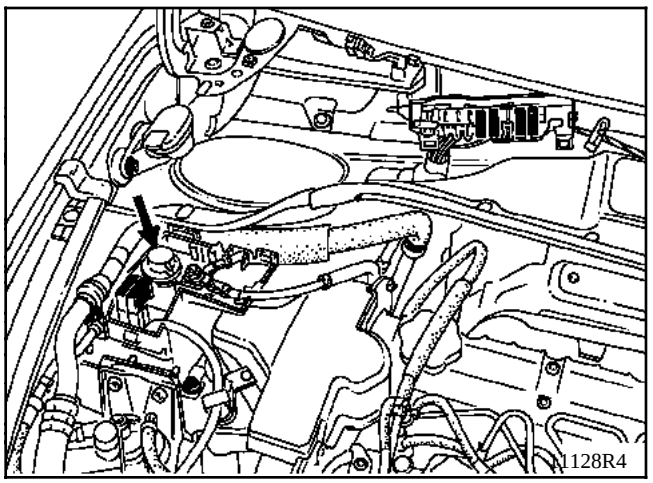


- the two nuts (D) mounting the battery in its compartment and remove the retaining bar before removing the battery.

The battery **MUST** be replaced with one of the same type (sealed "valve type" battery).

SPECIAL NOTES

The positive battery lead has been extended to the secondary terminal in a special unit in the engine compartment.



This terminal only must be used for jump-starting the vehicle (using the battery from another vehicle) and for recharging the battery. When recharging the battery, use an approved charger and an automatic charging programme with constant voltage to avoid over-consumption of electrolyte.

Use this secondary terminal for operations on the vehicle which require the battery to be disconnected.

NOTES

- Measurement of the battery voltage on the vehicle using this secondary terminal in the engine compartment does not affect the presentation or quality of the information, but requires more careful interpretation.

As the loss in the line between the battery and the secondary terminal is negligible, the voltage measured (**without consumers**) is approximately that measured at the battery terminals regardless of the earthing point (as long as it is clean).

PRECAUTIONS

- Check that the "consumers" are switched off, before disconnecting or reconnecting a battery.
- When a battery is being charged in a room, switch off the charger before connecting or disconnecting the battery.
- Never put a metal object on the battery to avoid creating a short circuit between the terminals, or between the secondary terminal (+) in the engine compartment and the bodywork.
- Never place a naked flame, a welding torch, hot air gun, a cigarette or a lighted match near to a battery.

A - CHECKING

Check and ensure that:

- the battery tray and cover are not cracked or split,
- the top of the battery is clean,
- the terminals are in good condition.

It is vital to:

- Ensure that there is no sulphation on the terminals.
- Clean and grease the terminals if necessary, including the secondary terminal (+) in the engine compartment.
- Check that the nuts are correctly tightened on the terminals (including the secondary terminal in the engine compartment). Incorrect contact could cause starting faults or charging faults which could cause sparks, making the battery liable to explode.

B - PRECAUTIONS

Remember that a battery:

- Contains sulphuric acid which is a dangerous substance.
- Gives off oxygen and hydrogen when charging. The mixture of these two gases forms an explosive gas, likely to cause explosions.

1 - DANGER = ACID

The sulphuric acid solution is a very harmful, toxic and corrosive substance. It attacks skin, clothing, concrete and corrodes most metals.

In addition, when handling a battery, the following precautions must be taken :

- Wear safety glasses.
- Wear anti-acid gloves and clothing.

If acid is spilt, rinse the affected areas with copious quantities of water. If the acid comes into contact with the eyes, consult a doctor.

2) DANGER = RISK OF EXPLOSION

When a battery is charging (either in a vehicle or elsewhere), oxygen and hydrogen are produced. Gas production is at a maximum when the battery is completely charged and the quantity of gas produced is proportional to the intensity of the charging current.

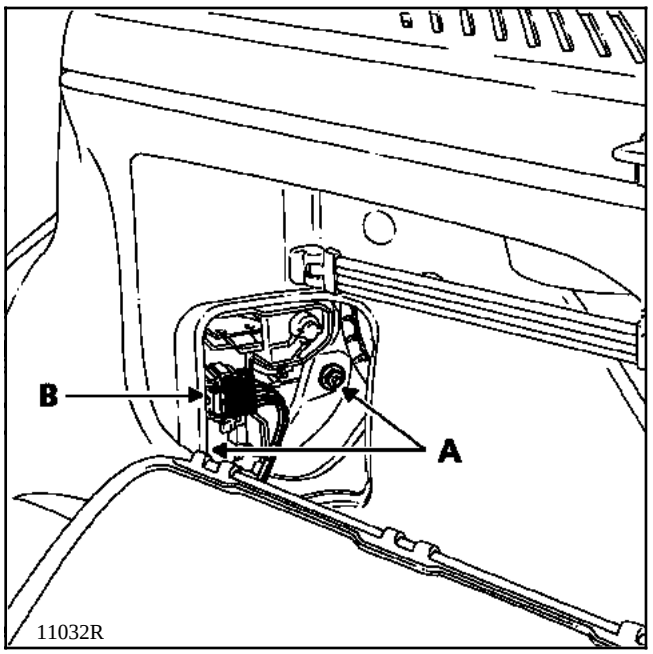
The oxygen and the hydrogen join together in the open air, on the surface of the plates and form a highly explosive mixture.

The smallest of sparks, a cigarette or a recently extinguished match are sufficient to cause an explosion. The explosion is so strong that the battery can shatter and the acid is dispersed into the surrounding atmosphere. People nearby are at risk (shattered casing parts, acid splashes). The acid splashes are harmful to the eyes, face and hands. They also attack clothes.

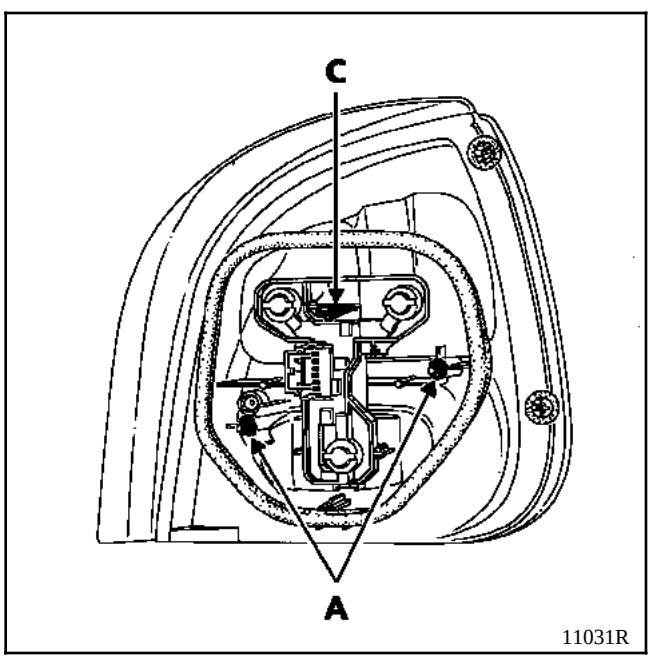
Safeguarding against the danger of explosion, which can be caused by a poorly handled battery, must be taken very seriously. Avoid all risks of sparks.

REMOVING THE LIGHTS FROM THE WING

Open the cover in the rear storage tray on the side in question and remove the access cover to the rear light units.



Slacken the two mounting nuts (A) on the rear lights unit and release the unit to the outside after disconnecting the connector (B).



To reach the bulbs, unclip the bulb holder by pressing tab (C).

NOTE : the bulbs may be replaced without having to remove the light unit.

CONNECTIONS

Rear right hand light unit connector

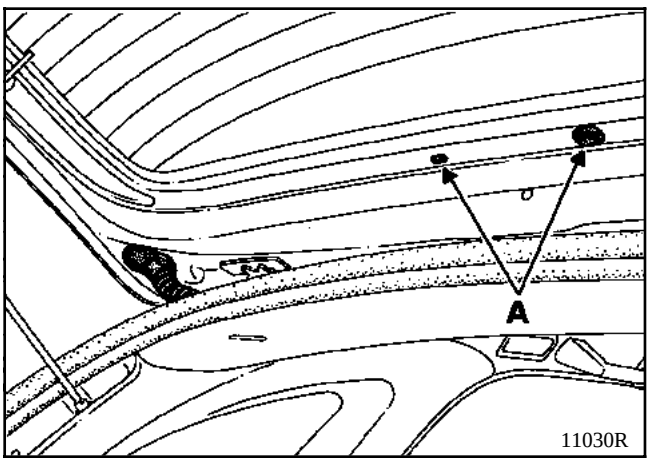
Track	Allocation
1	Earth
2	Reversing light
3	Indicator
4	Earth
5	Stop light
6	Side light

Rear left hand light unit connector

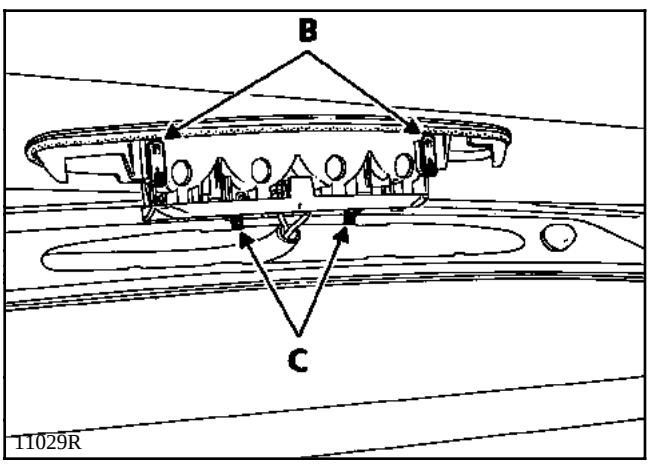
Track	Allocation
1	Side light
2	Stop light
3	Earth
4	Indicator
5	Reversing light
6	Earth

REMOVING THE 3RD STOP LIGHT

With the tailgate open, remove the two plastic covers (A).



Through the two openings revealed, press the two clips (B) which secure the light to the bodywork.



Lower the tailgate and release the light unit to the outside.

The bulb holder may then be separated from the red light by pressing the two tabs (C) at the same time.

The bulbs, which may now be reached, may be replaced.

To remove the bulb holder, release the end of the wiring which is welded above.

To do this:

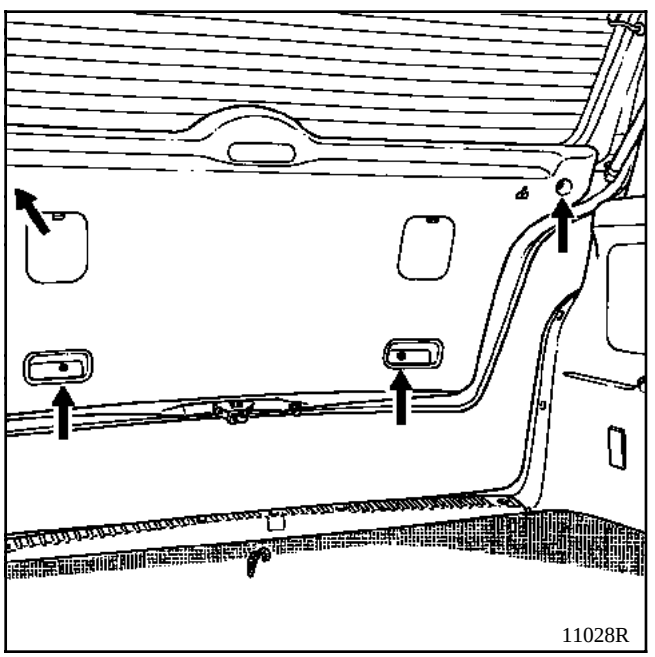
- Release the tailgate wiring guide (at the top left hand side of the tailgate).
- Through the opening revealed, disconnect the connector for the 3rd stop light wiring.
- Remove the bulb holder and its wiring.

REMOVING - REFITTING THE REAR FOG LIGHTS

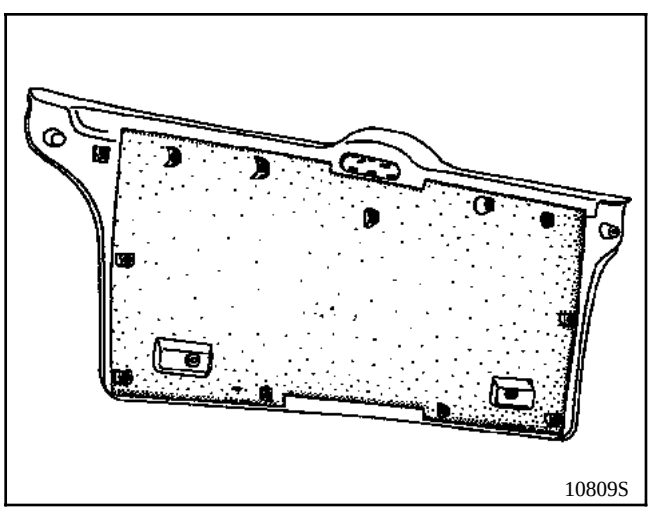
These are mounted on the rear strip. The inner tailgate trim must be removed to remove these lights.

The strip does not however need to be removed to change the bulbs.

Remove the four mounting bolts for the inner trim.

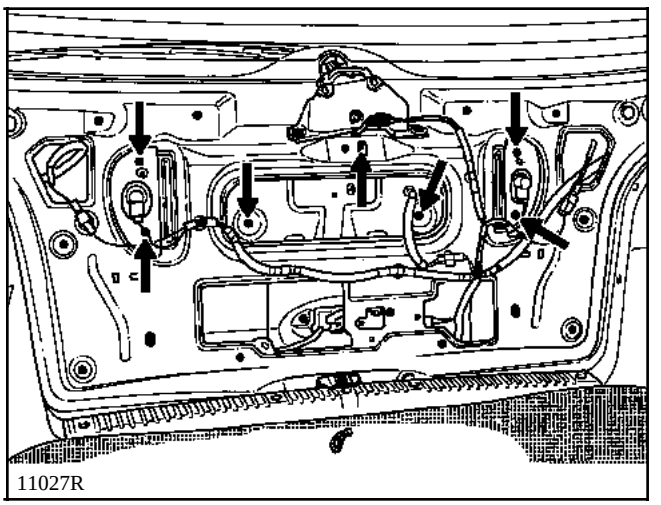

11028R

Unclip the trim, eleven clips secure it around the edge.

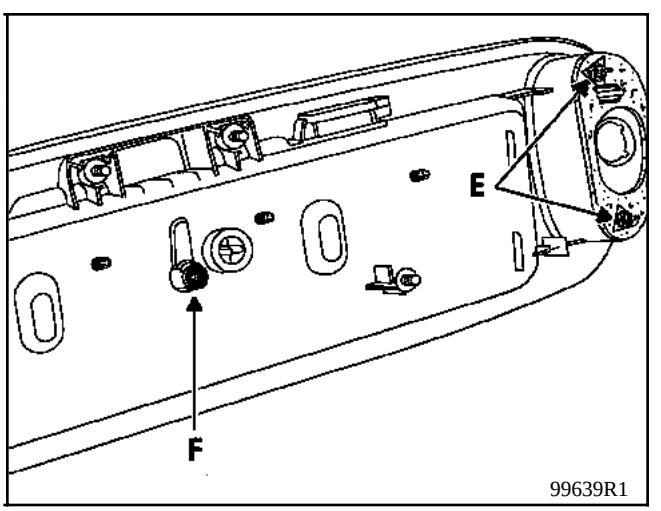

10809S

Disconnect the connectors for the two rear fog lights.

Remove the seven mounting nuts for the rear strip:
- 2 behind each fog light,
- 2 in the centre,
- 1 under the rear wiper motor.


11027R

Unclip the strip at (F) and gently separate it from the vehicle to disconnect the connectors for the two number plate lights and release the wiring.



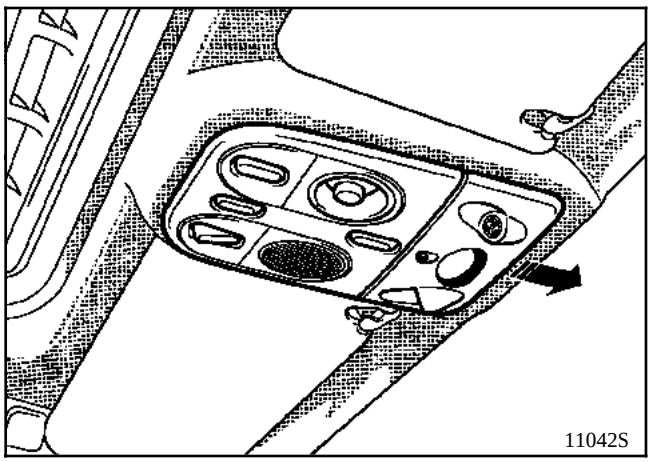
99639R1

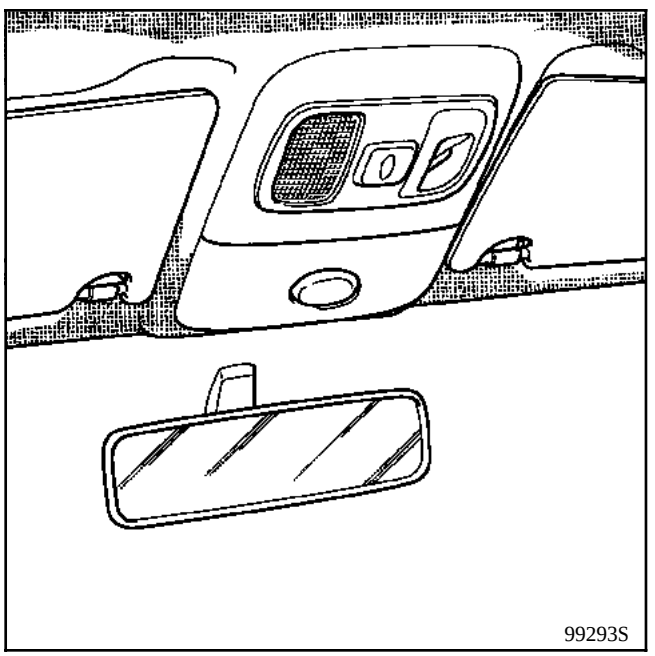
Remove the fog light(s) by slackening the two nuts (E).

ROOF CONSOLE

REMOVAL

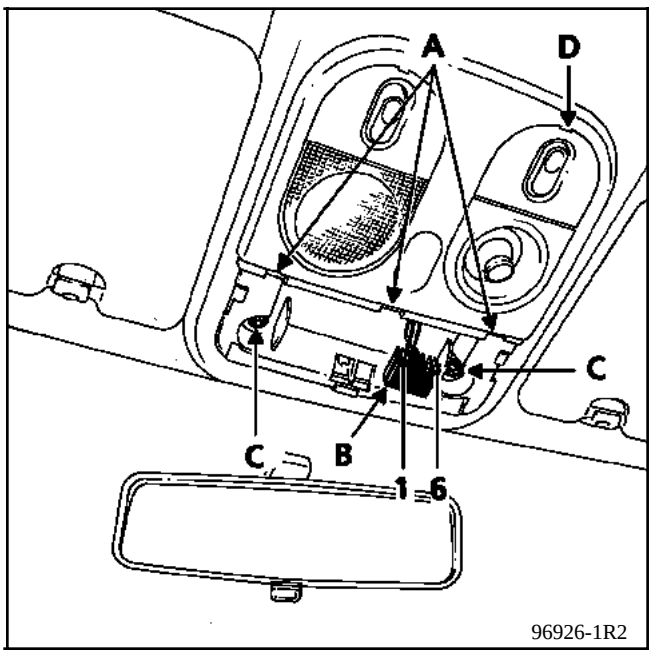
Slide forward the plastic cover for the roof console which mounts the infrared receiver and the ultrasound detectors (if the vehicle is fitted with an alarm) to release the three clips (A).





Disconnect the connector (B) if necessary and remove the cover.

For vehicles fitted with two electric sunroofs, remove the map reading light by sliding a flat blade screwdriver into lug (D) to disconnect the connector.



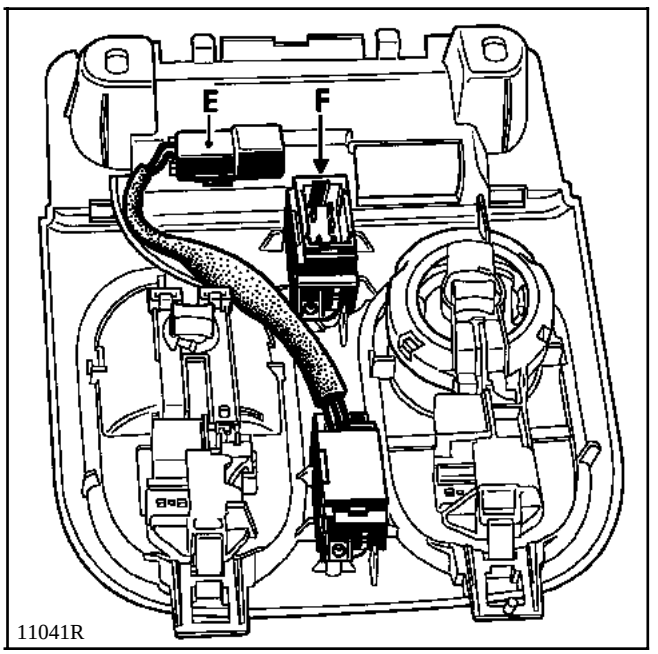
Remove the two mounting bolts (C) and release the roof console towards the front of the vehicle.

Disconnect the various remaining connectors.

CONNECTIONS

Connector (B) (twin sunroof versions)

Track	Allocation
1	Ultrasound detector information
2	Ultrasound feed
3	Earth
4	Infrared receiver return
5	Infrared receiver feed
6	Not used



Connector (E) : rear sunroof

Track	Allocation
A	To motor via "end of travel switch"
B	+ after ignition
C	Not used
D	To motor via "end of travel switch"

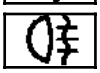
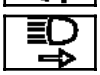
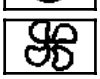
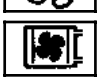
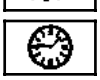
Connector (F) : front sunroof

Track	Allocation
A1	Motor and relay
A2	Not used
A3	+ after ignition to end of travel via "end of travel switch"
B1	
B2	Earth
B3	Motor via relay

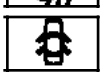
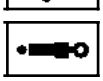
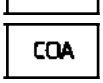
FUSE BOX (passenger compartment side)

This unit is located in the passenger compartment on the driver's side.

Allocation of fuses (depending on equipment level)

Symbol	Amps	Description
	25	Heated rear screen
	15	Horn
	5	ABS
	7.5	LH side light / glovebox
	7.5	RH side light / instrument panel
	5	Rear fog light
	10	RH main beam headlight
	10	LH main beam headlight
	10	RH dipped headlight / headlight adjustment
	10	LH dipped headlight / headlight adjustment
	-	Not used (blanking cover)
	15	Instrument panel / stop lights / airbag / pretensioners
	15	Cigar lighter / radio / control lighting
	7.5	Accessories socket
	20	Heating
	20	Cooling fan
	10	Headlight washers
	15	Interior and luggage compartment lighting
	15	Clock / instrument panel lighting / radio
	5	Connection unit / remote control / alarm / immobiliser system
	5	Injection

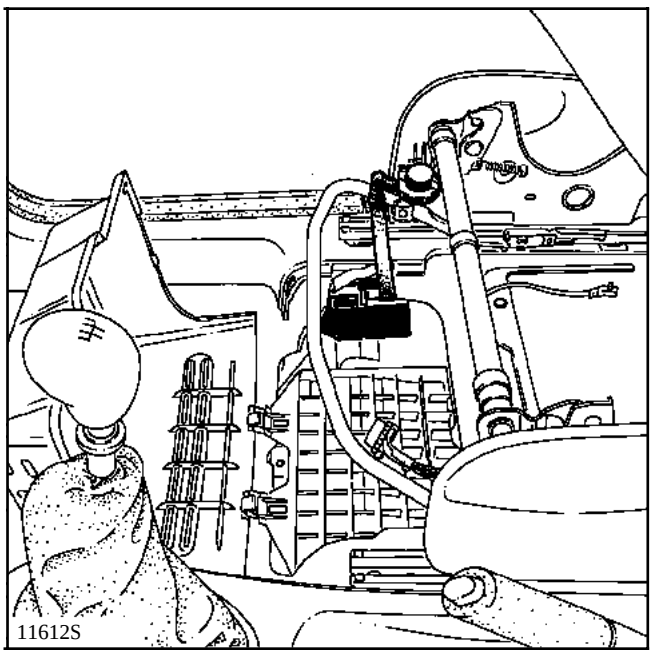
Allocation of fuses (depending on equipment level) (cont)

Symbol	Amps	Description
	15	Flasher unit
	-	Not used
	20	Sunroofs
	25	Electric windows
	15	Front wipers
	15	Heated seats
	-	Not used
	7.5	Heated rear view mirrors
	20	Electric door locking
	15	Front fog lights
	30	Consumer cut-out
	15	Reversing lights / rear wiper / rear screen washer / heated windscreen
	-	Not used
	-	Not used

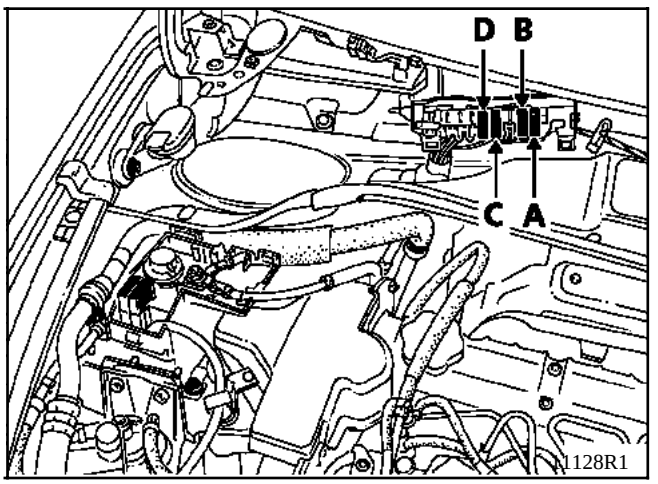
NOTE : to locate the exact position of the fuses, refer to the vehicle diagram or the Wiring Diagram Technical Note for the vehicle.

FUSES (passenger compartment side)

This fuse is located under the passenger seat, next to the battery.



Base colour	Amps	Description
Green	60	Connection unit feed



FUSE BOX (engine side)

- **Unit located in the scuttle panel**

Allocation of "maxi" fuses (depending on equipment level)

Ref.	Base colour	Amps	Description
A	Orange	60	Connection unit feed and lights stalk
B	Orange	60	Ignition switch / lights stalk / engine
C	Black	40	Air conditioning
D	Red	60	Heated windscreen

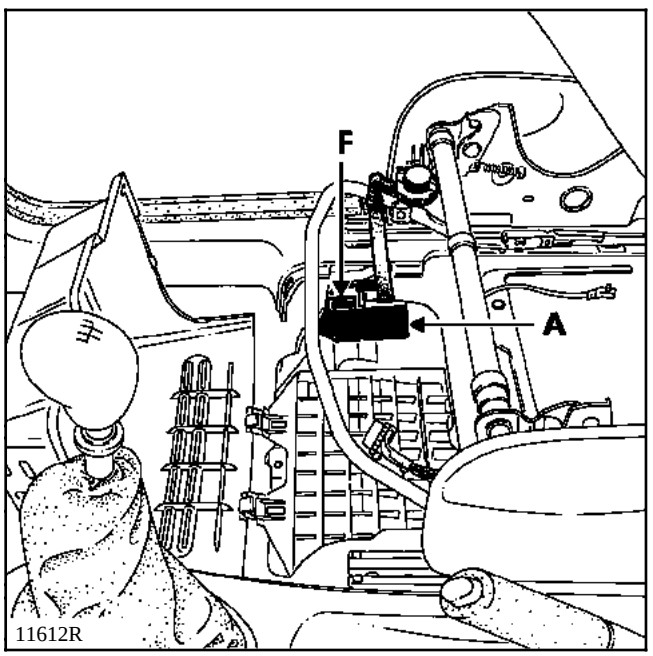
- **Unit located on the right hand side of the engine compartment**

Allocation of fuses (depending on the engine and equipment level)

Amps	Description
30 / 70	Petrol injection (30A) / Diesel preheating (70A)
40	ABS

FUSES (passenger compartment side)

A fuse box (A) containing one "maxi" fuse (F) and one "fuse bar" (B) is located under the passenger seat, next to the battery.



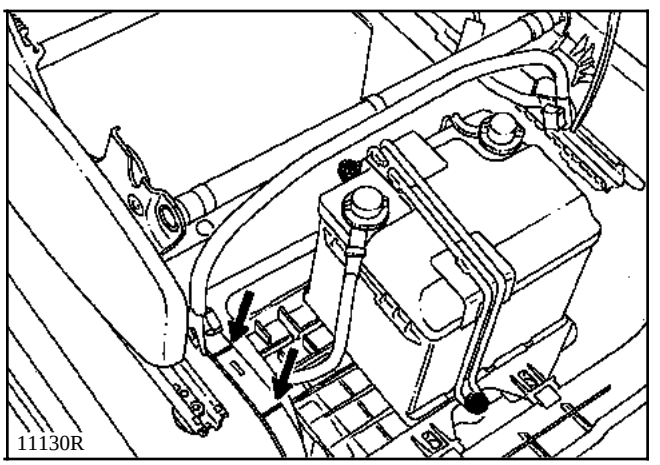
Ref.	Amps	Description
A	60	Passenger compartment connection unit feed

Replacing a 60 A fuse

To reach this fuse, the plastic trim on the door inner sill must be cut, as must the carpet (see diagram below).

This allows the fuse access cover to be released so it may be slid to one side.

To aid with the cutting, a cutting line is marked on the inner sill plastic trim.

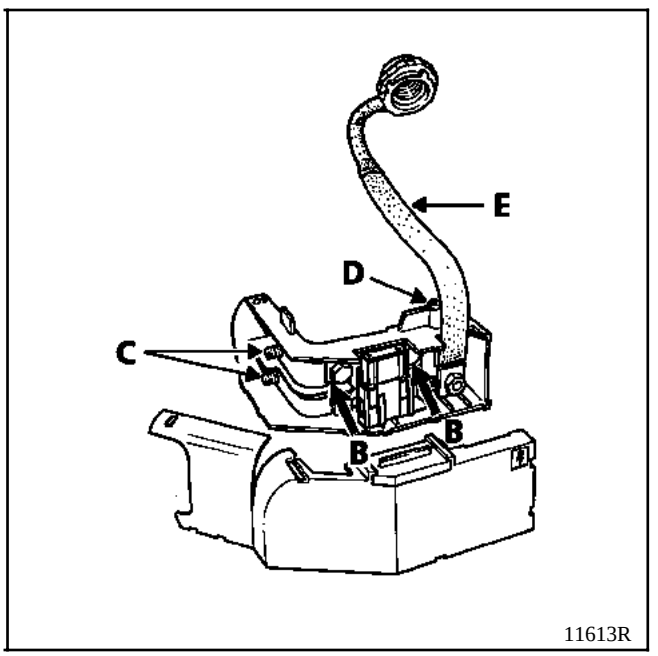


Replacing the "fuse bar"

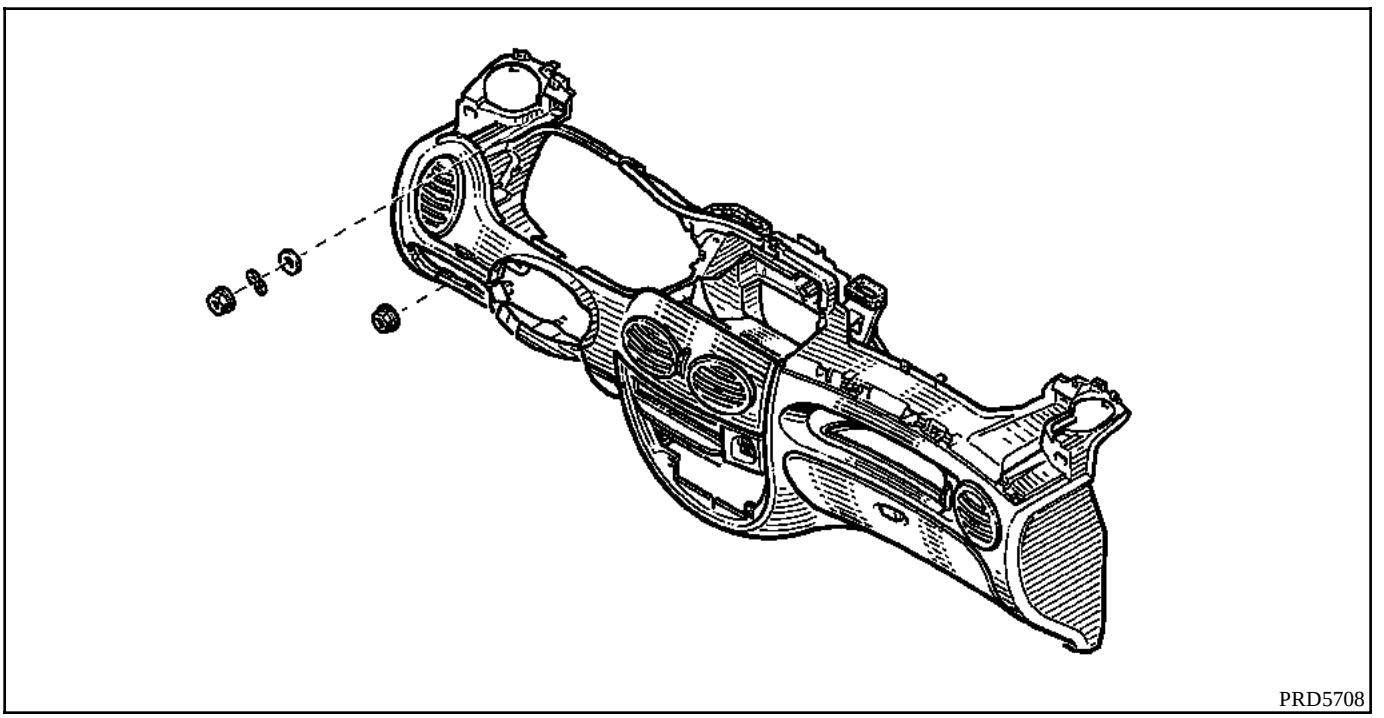
The "fuse bar" is not replaced alone - renew the complete unit.

To do this:

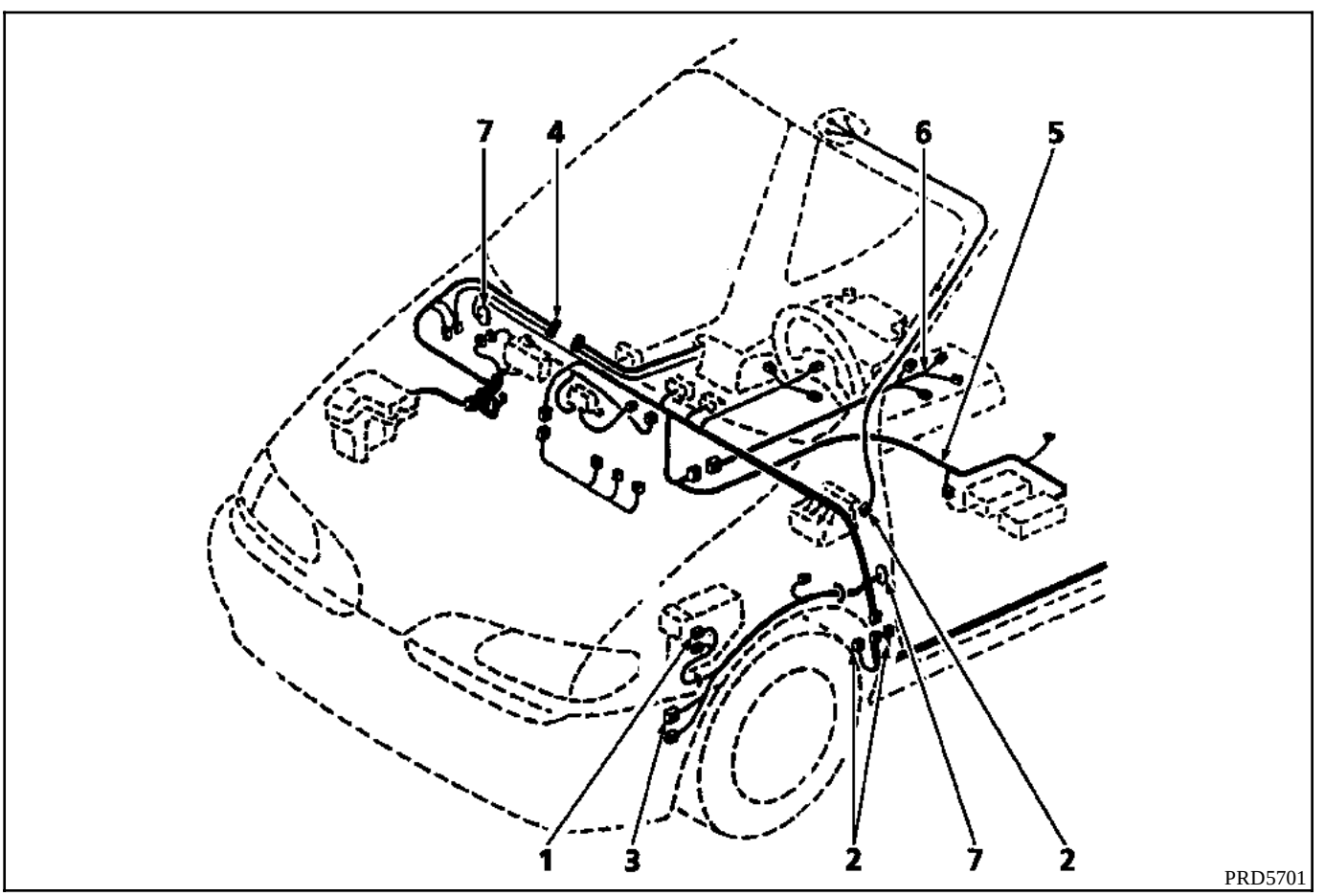
- Remove the battery then the door inner sill plastic trim.
- Release the carpet.
- Open the "door" at the side of the fuse box to disconnect the two wires attached at (C).



- Remove the upper unit mounting (D).
- Release the fuse box assembly, taking with it the positive strap (E), if possible.


PRD5708

DASHBOARD WIRING ROUTING



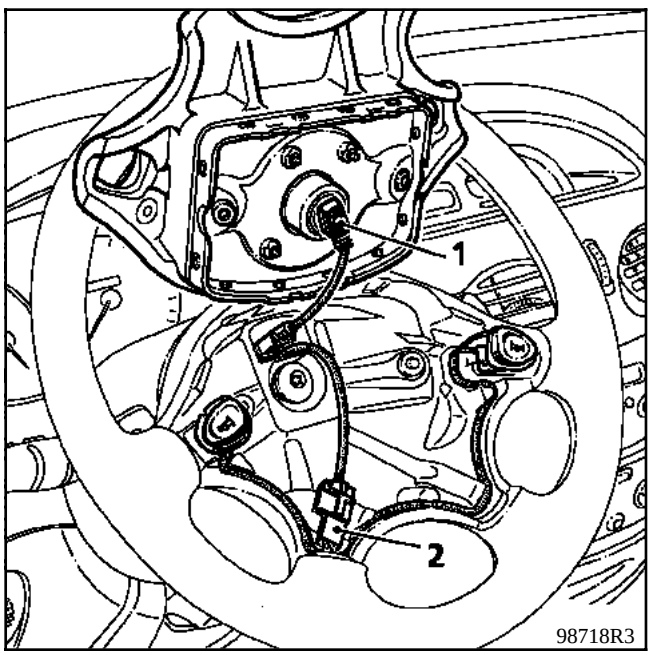
PRD5701

REMOVING THE STEERING WHEEL WITH AIRBAG CUSHION

Disconnect the battery.

Remove the airbag by the two bolts behind the steering wheel and disconnect the white airbag connector (1).

Disconnect the horn connector (2).

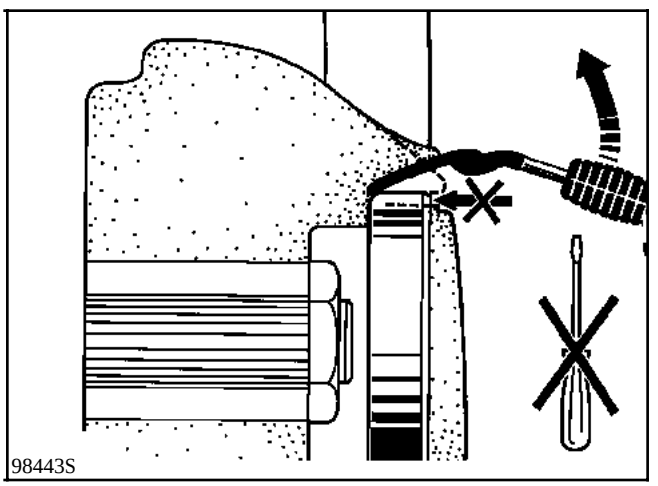


Immobilise the rotor of the rotary switch under the steering wheel using adhesive tape.

Remove:
- the connectors on the rotary switch (airbag and cruise control if fitted),
- the steering wheel bolt (renew it),
- the steering wheel after noting its position in relation to the steering column, for refitting.

IMPORTANT: it is forbidden to handle the pyrotechnic systems of the airbag and pretensioners near to a heat source or a flame. There is a risk they may be triggered.

REMOVING THE STEERING WHEEL (WITHOUT AIRBAG)



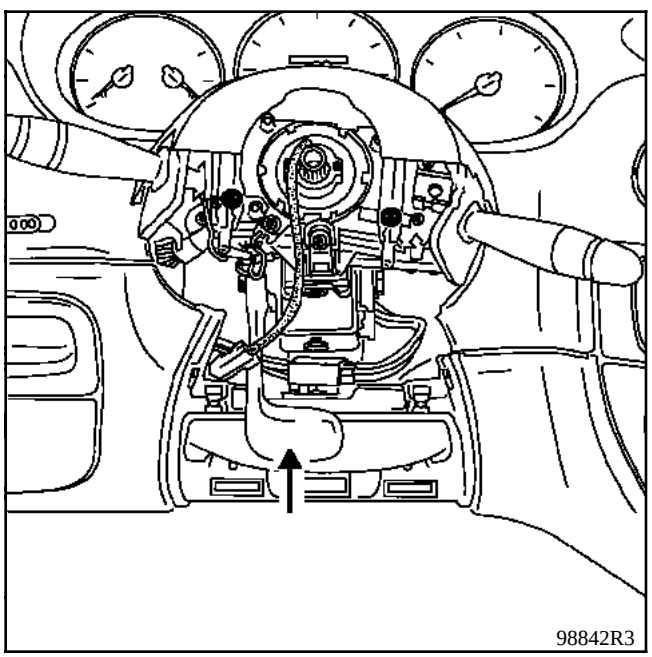
Separate the foam from the steering wheel in the centre, so that tool **Facom D115** may be correctly positioned.

Remove the assembly.

SPECIAL TOOLING REQUIRED
Torque wrench

RELEASING THE STEERING COLUMN HEIGHT ADJUSTMENT SYSTEM

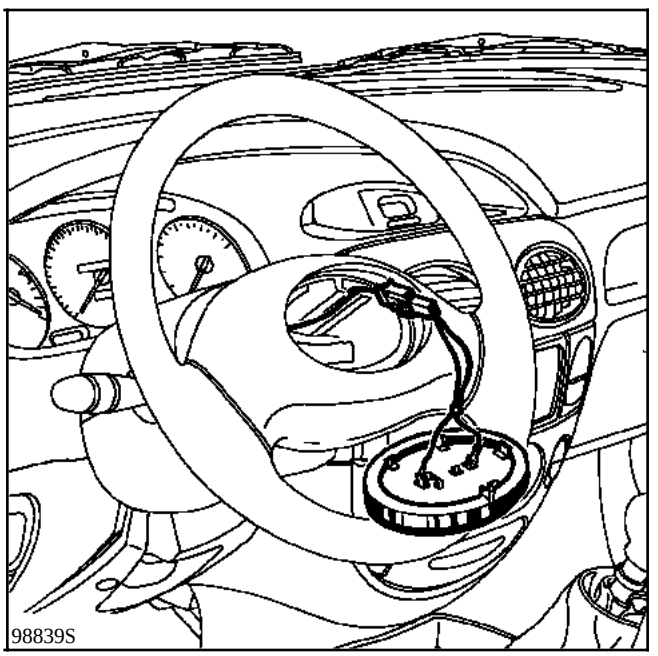
TIGHTENING TORQUES (in daN.m)	
Self-locking nut	0.6
Lock nut	1.2


98842R3

IMPORTANT: to remove the dashboard, the steering column height adjustment handle must be released.

Observe the method in the section "**Releasing the steering column height adjustment handle " described below.**

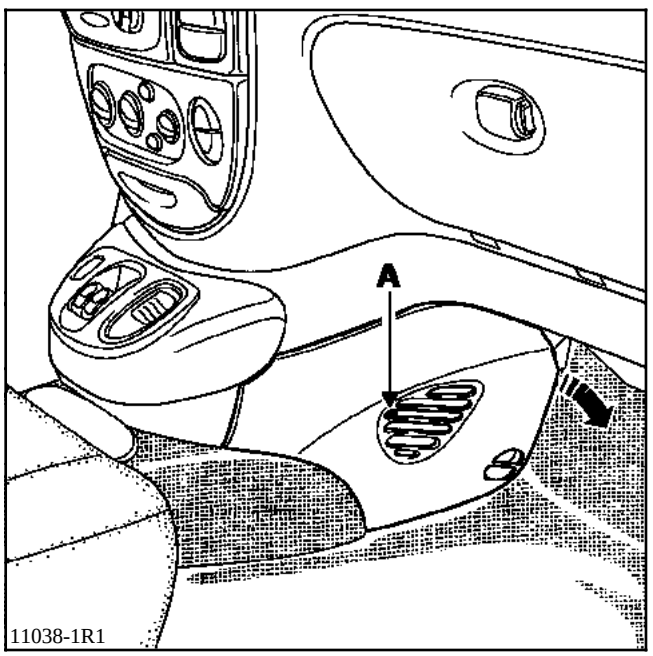
If this torque is not observed, it is very dangerous and may cause the driver serious discomfort.


98839S

Disconnect the horn assembly and remove it.

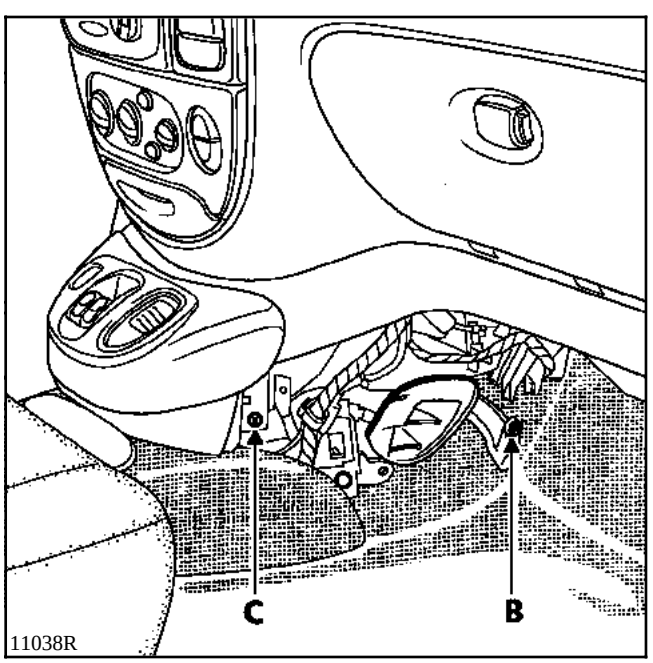
Remove the steering wheel bolt.

REMOVING THE LOWER SECTION OF THE DASHBOARD



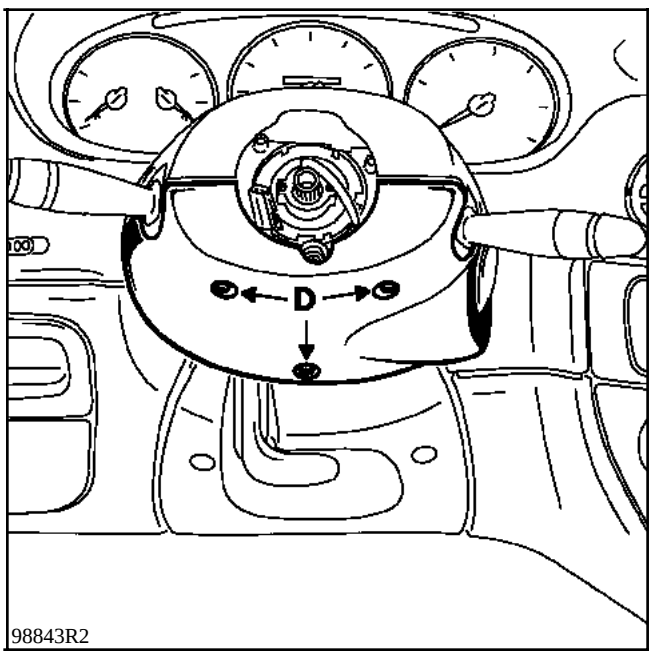
Remove the mounting bolt (A) for the side vent (on each side).

Release pin (B) while pivoting the front of the vent downwards, then release it from the front panel by pulling towards the front.

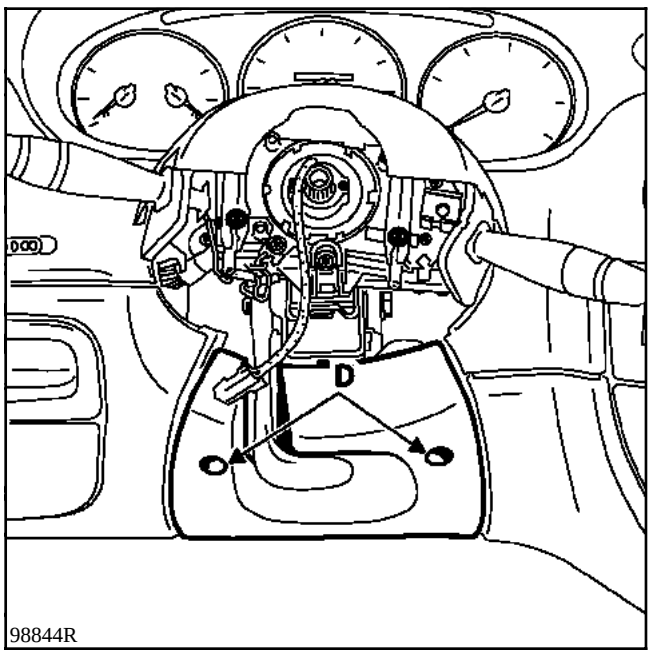


Remove the two mounting bolts (C).

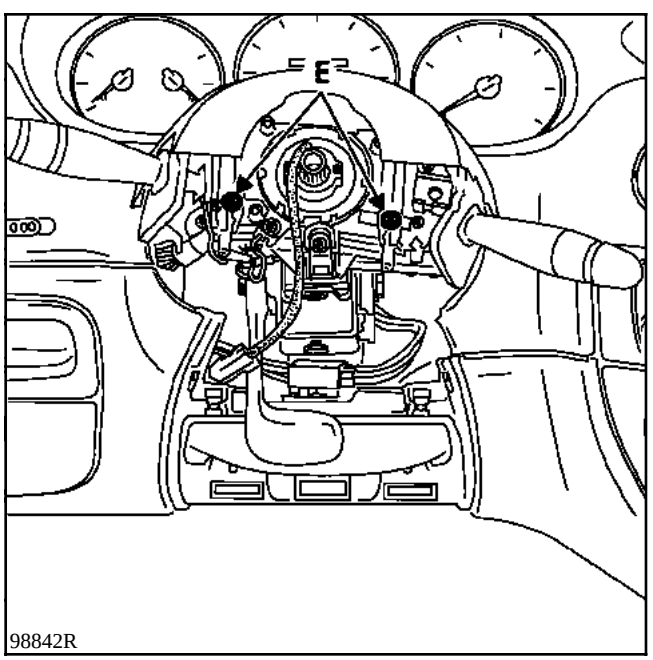
Release the front panel, pivoting it slightly upwards.



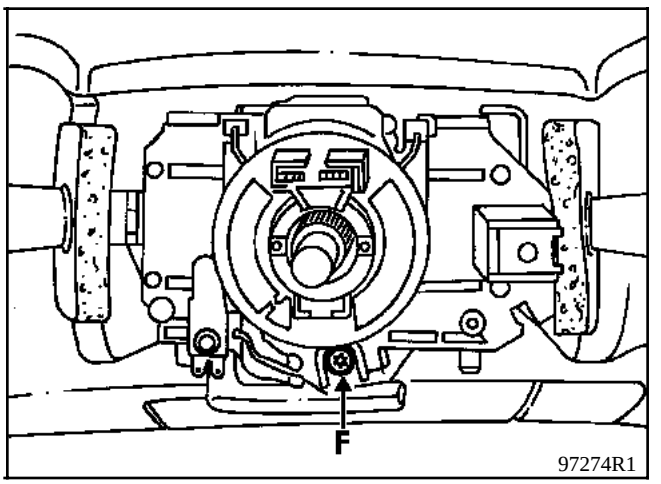
Remove the half cowling under the steering wheel by the three bolts (D).



Remove:
- the steering column lower cover, two bolts (D),

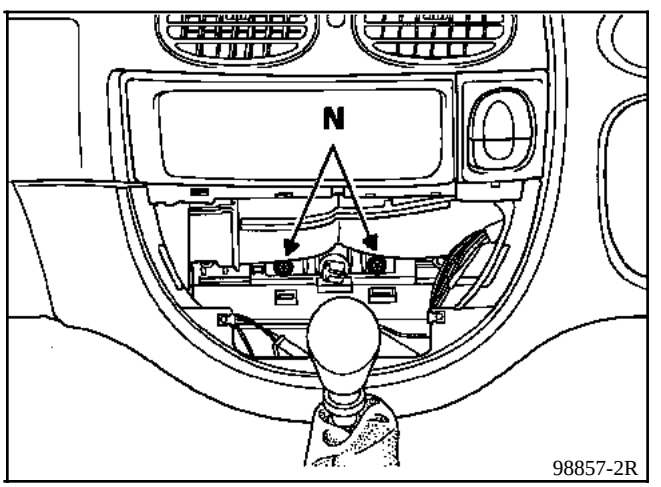


- the upper half cowling, two bolts (E).

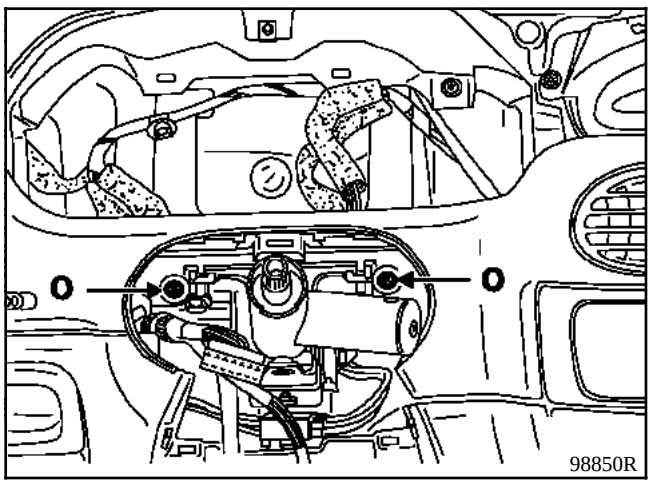


Slacken bolt (F) so that the control stalk assembly may be removed.

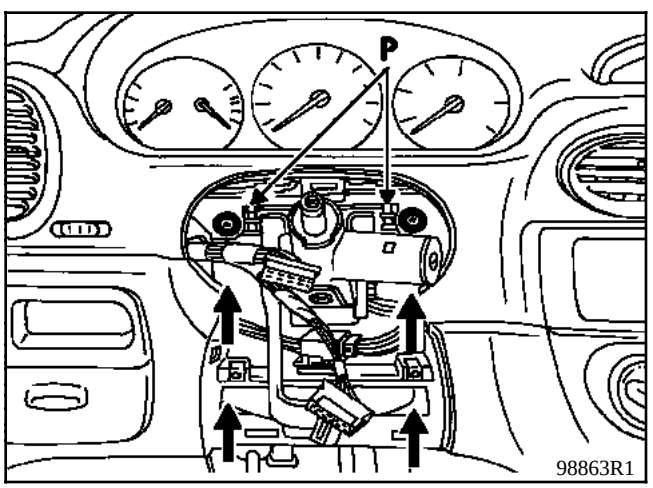
Disconnect the connectors.



Remove the dashboard mountings on the heating unit, two bolts (N).

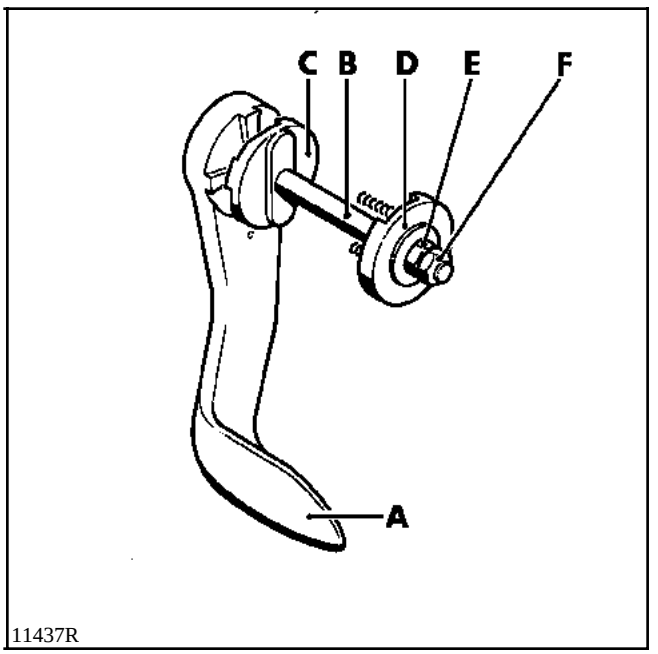


Remove:
- the dashboard mountings on the steering column sleeve, two bolts (O),



- the two mounting bolts and two mounting nuts on the steering column so that the two clips (P) can be released from the dashboard.

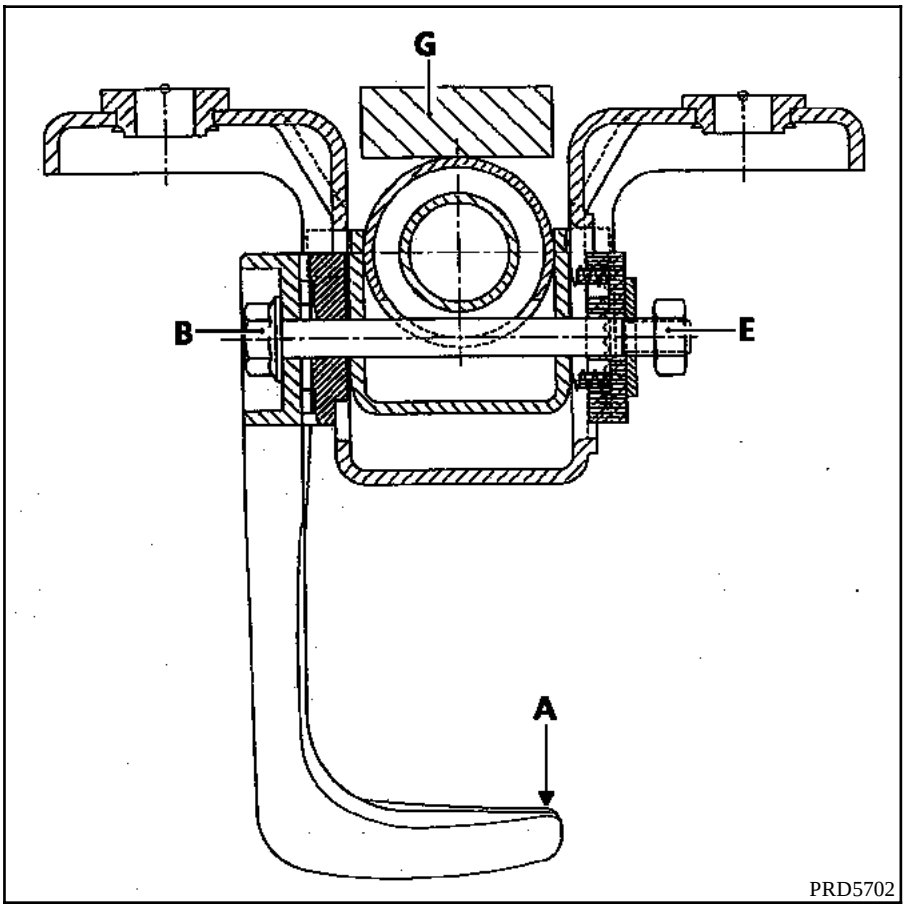
RELEASING THE STEERING COLUMN HEIGHT ADJUSTMENT HANDLE



The height adjustment system comprises the following components:

A Adjusting handle
B Bolt
C Eccentric plastic washer
D Aluminium washer
E Self locking nut
F Lock nut

NOTE : after slackening the self locking nut (E), the adjusting handle releases and may be held in an intermediate position along the steering column, allowing the dashboard to be removed, without having to remove the steering column assembly.



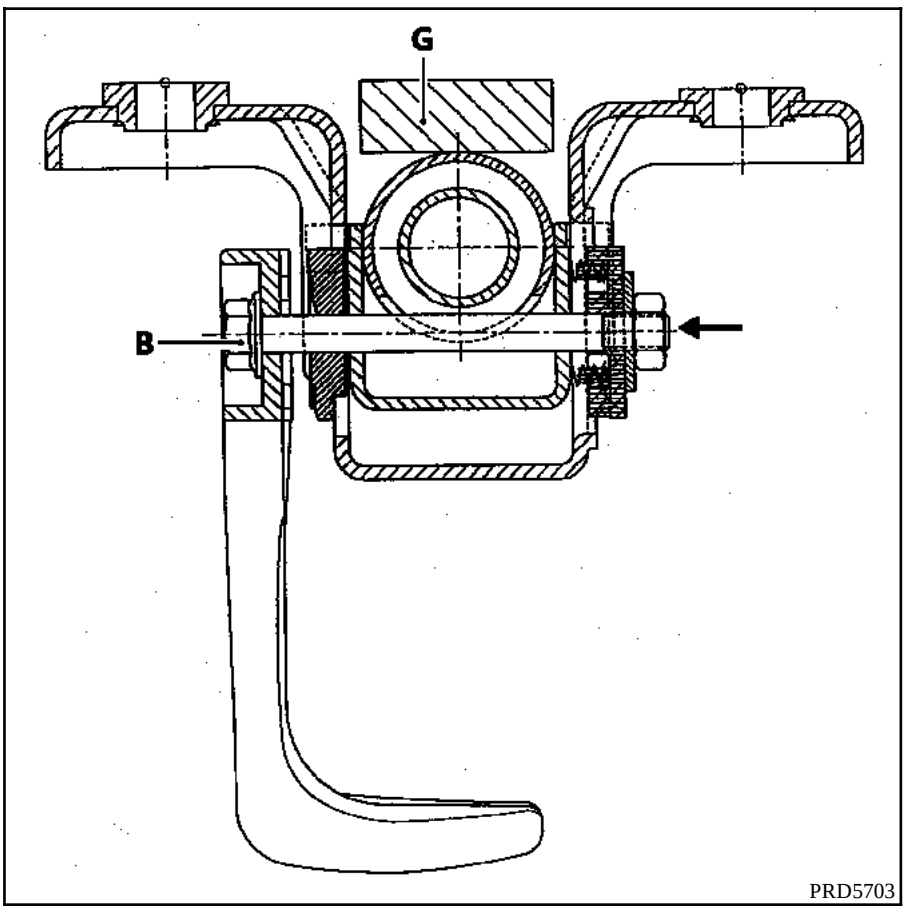
Fit a 15 mm thick shim (G) between the body and the steering column.

Set the handle (A) in the locked position (column locked).

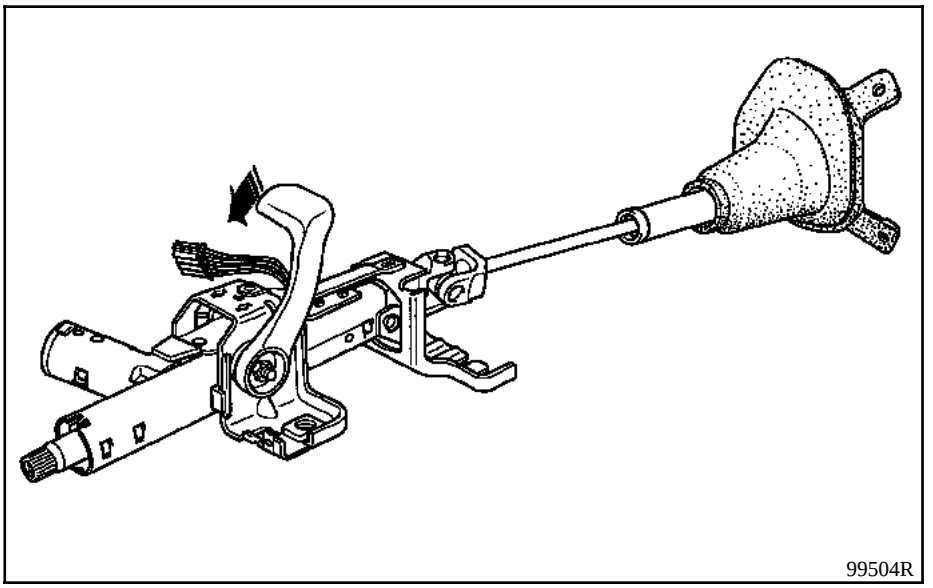
Remove the lock nut (F) while keeping the self locking nut (E) in position.

Slacken nut (E) by a maximum of two turns while holding bolt (B) immobilised (handle end).

IMPORTANT : the self locking nut (E) MAY NOT be removed. DO NOT remove the adjusting system from its location on the steering column.



Press on the self locking nut to release bolt (B) to the left.



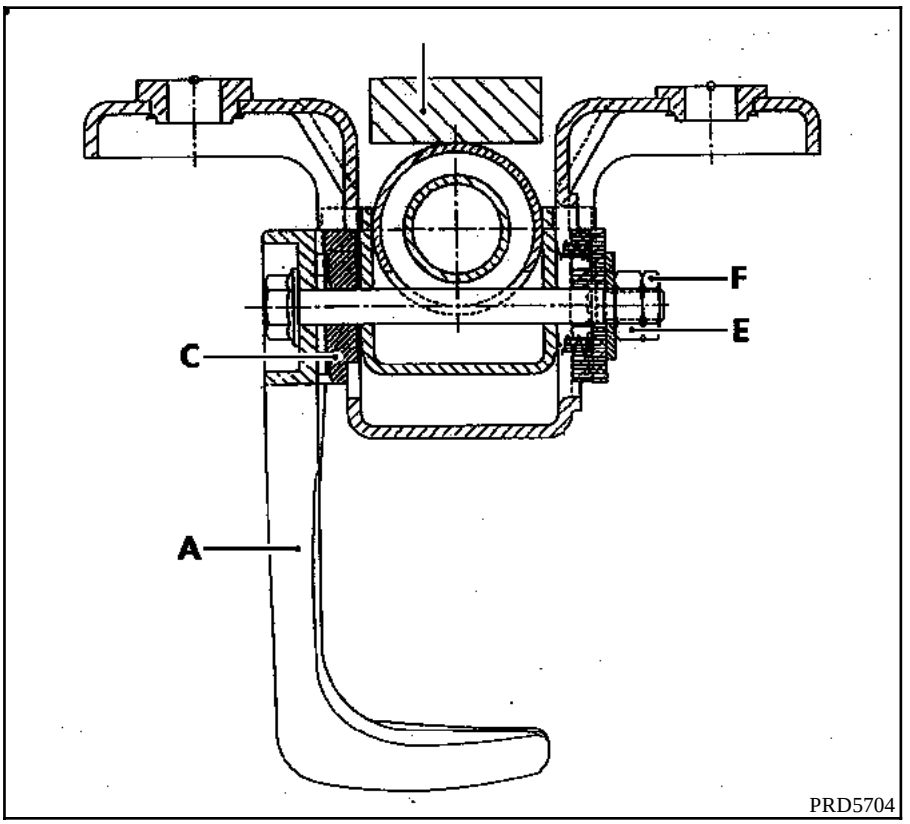
Remove the handle from the cams on the plastic washer (C) and turn it so that it is parallel to the steering column tube at the steering wheel end.

Hold it in position with adhesive tape.

Remove the shim (G) while pulling gently down on the steering column.

The dashboard may be removed in this position.

REFITTING THE STEERING COLUMN HEIGHT ADJUSTMENT HANDLE



TIGHTENING TORQUES (in daN.m)	
Self locking nut	**0.6**
Lock nut	**1.2**

Fit a 15 mm thick shim between the body and its mounting, so that it is set vertically and the adjustment system may then be tightened later on.

Turn the adjusting handle to the locked position (the handle should be against the stop at the upper section of the notches on the plastic washer (C)), while pressing on the self locking nut in the same way as for releasing the handle.

Tighten the self locking nut (E) while holding the head of the bolt with a second wrench. Observe the correct tightening torque : 0.6 daN.

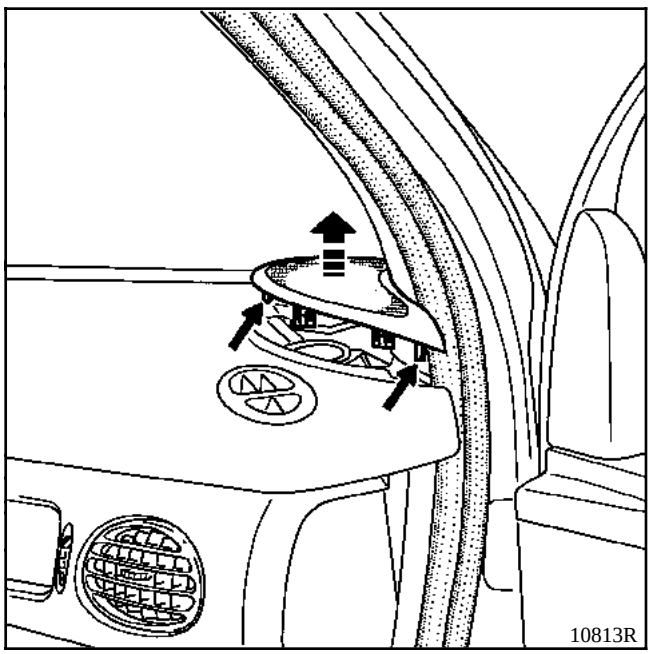
Remove the shim.

Manually check that the handle can be moved easily. It should not have any points of stiffness when moving.

Progressively tighten the lock nut (F) observing the correct tightening torque of 1.2 daN.m while preventing the self locking nut (E) from moving.

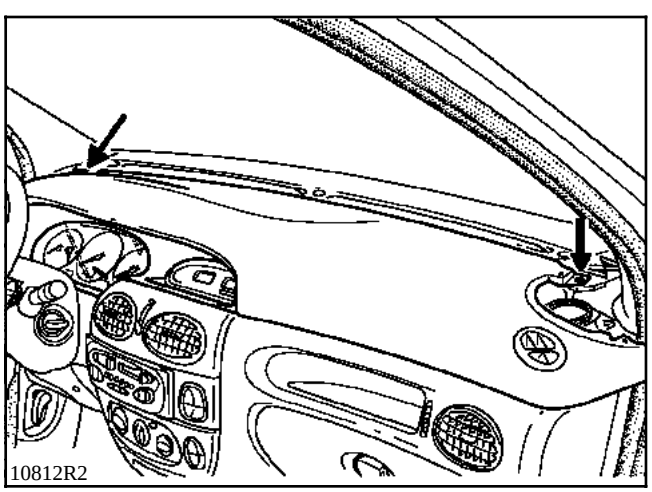
Manually check that the handle can be moved easily again (A).

REMOVING THE UPPER PART OF THE DASHBOARD



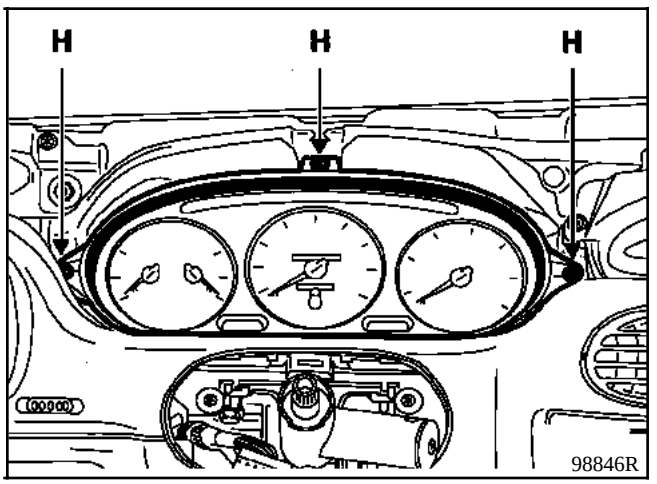
Unclip the speaker grilles and release the centring devices.

Pull towards the rear of the vehicle to release the grilles from their locations.

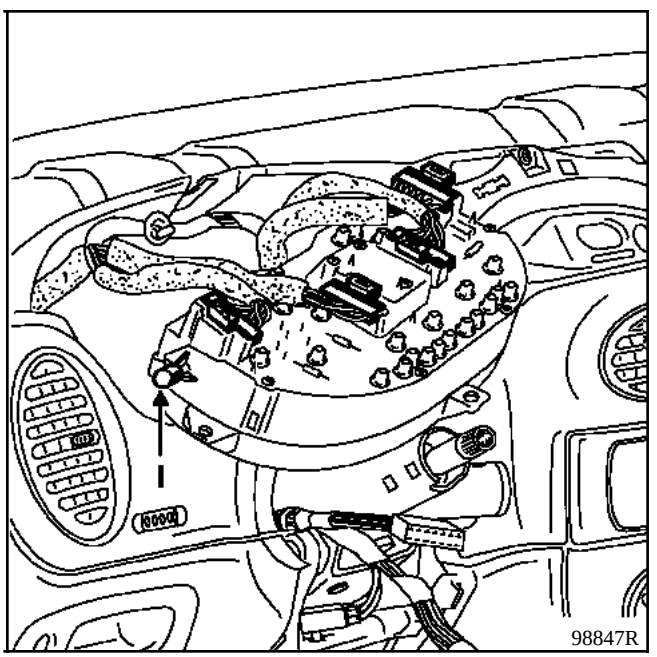


Remove the upper mounting bolts.

Unclip the trim, lifting it up by hand, then pull the assembly towards you to release the three retaining clips on the vent.

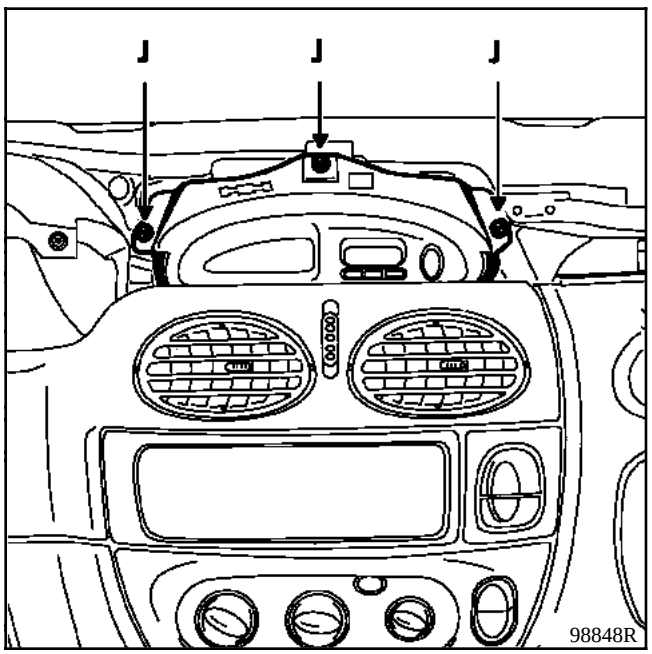


Remove the instrument panel, three bolts (H).



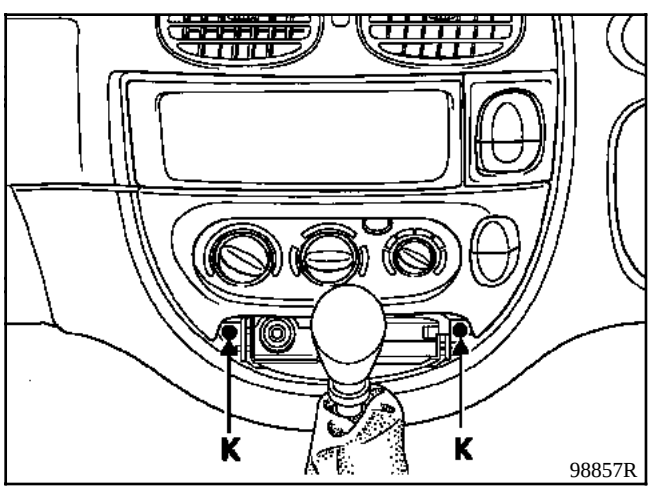
Disconnect the instrument panel.

IMPORTANT - take care to retain and reposition the small rubber stops (I).

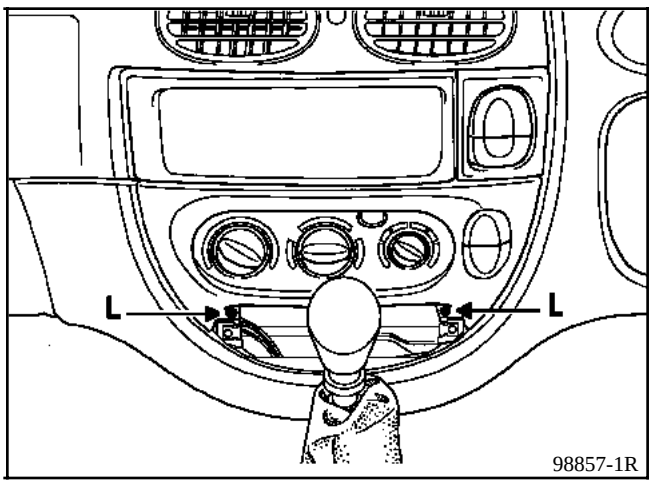


Remove the clock, three bolts (J).

Disconnect the connectors.

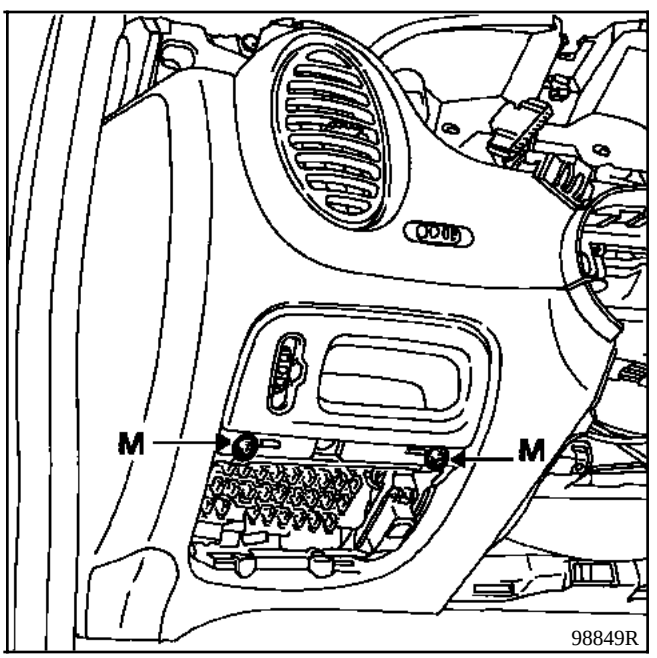


Remove:
- the ashtray mounting, two bolts (K),



- the heating control panel, two bolts (L).

Disconnect the connectors from the control.

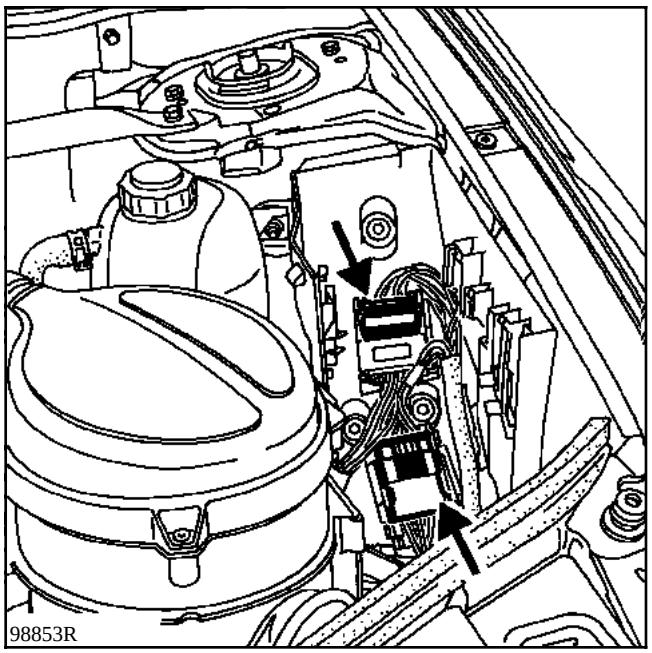


Remove the headlight adjustment unit mounting, two bolts (M).

Disconnect the connector.

Remove the connectors (2) which can be reached at the lower part of the fuse box, without removing it (see page 57-7).

In the engine compartment :



In the housing, left hand side:

Disconnect the engine wiring connectors.

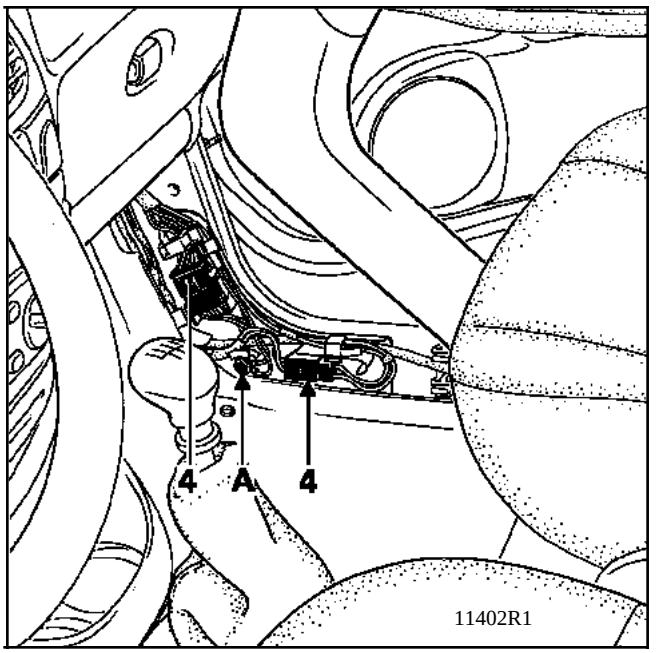
Remove the front left hand mudguard.

Release the wiring mounting clips.

Disconnect the repeater indicator light on the wing.

Pass the wiring through into the passenger compartment.

In the passenger compartment, right hand side:

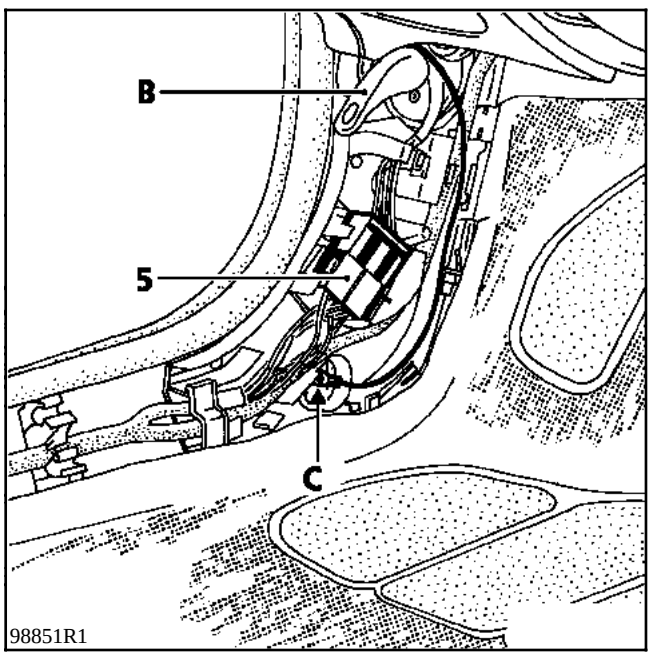


Partially remove the door seals.

Separate the front part of the trim at the front door inner sill.

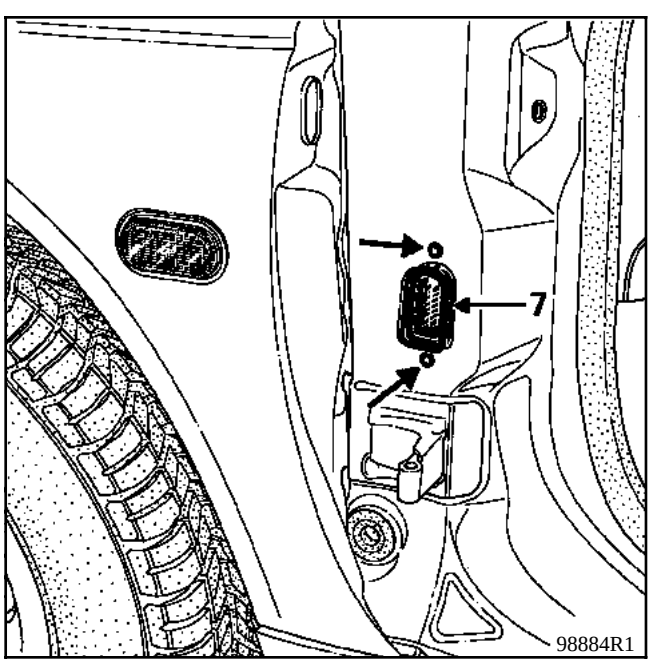
Disconnect the two wiring looms (4) and remove bolt (A) from the earth wire.

In the passenger compartment, left hand side:



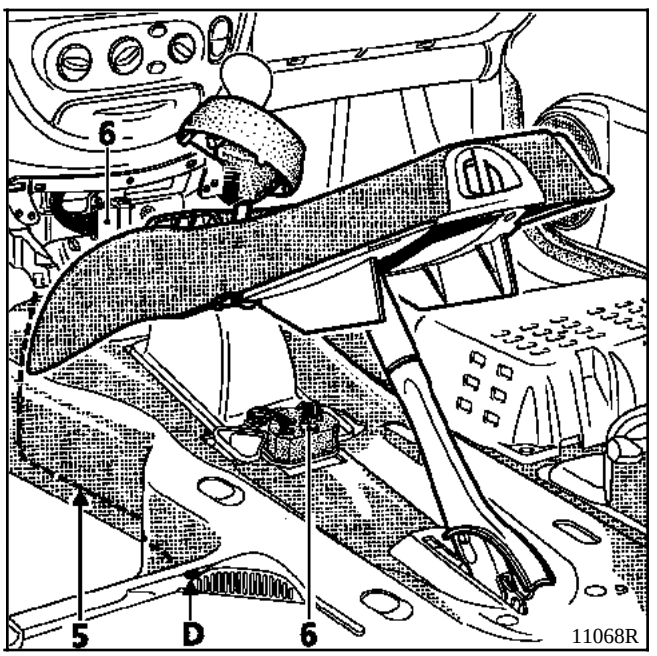
Remove the bonnet release handle (B).

Disconnect the wiring (5) and remove the bolt from the earth wires (C).



Remove the two bolts for the front door wiring (7), then pass the wiring through into the passenger compartment.

REMOVING THE CONSOLE



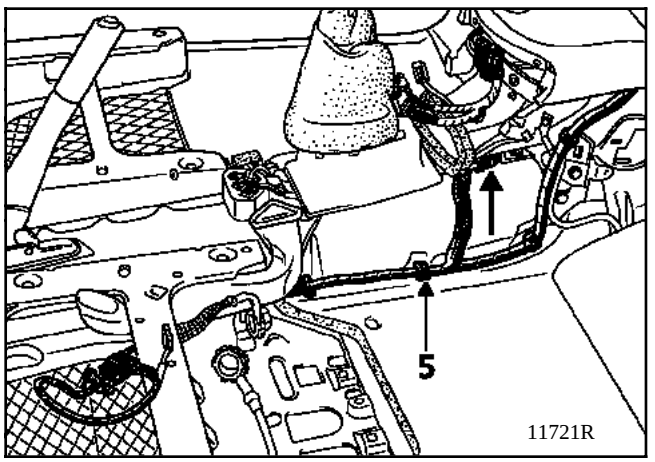
Remove the console.

Push the seats as far forward as possible so that the inspection covers under the seats may be reached.

Remove the two clips (D) using SODICAM unpicking pliers or a similar tool and open the cover to disconnect the seat belt pretensioners wiring (5) mounted under the cover.

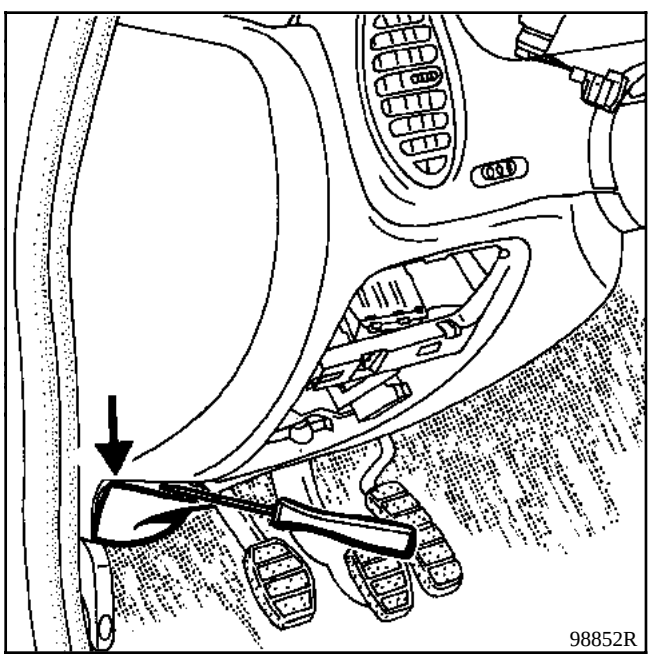
Disconnect the wiring (6).

Cut the strip of carpet at the base of the gear lever so that the carpet may be moved to one side and unclip the seat belt pretensioners wiring.

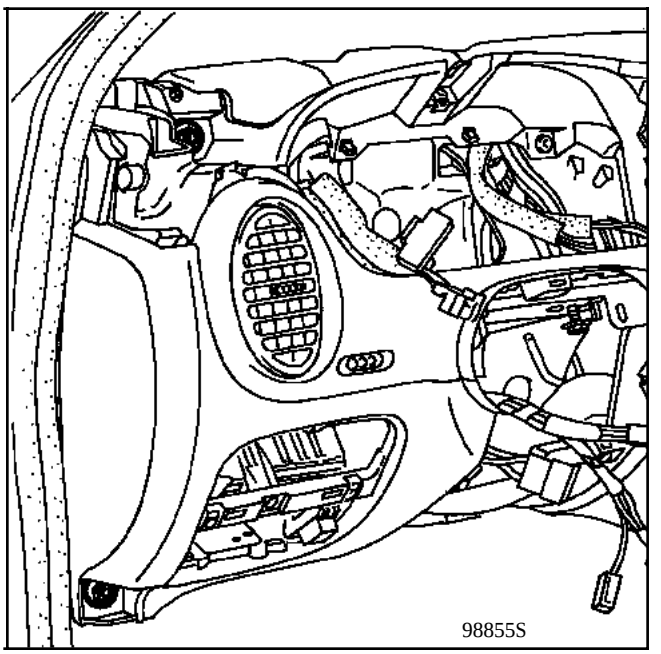


Release the wiring (5) on each side.

Disconnect the airbag computer connector mounted in front of the gear lever.



Remove:
- the two lower blanking covers.



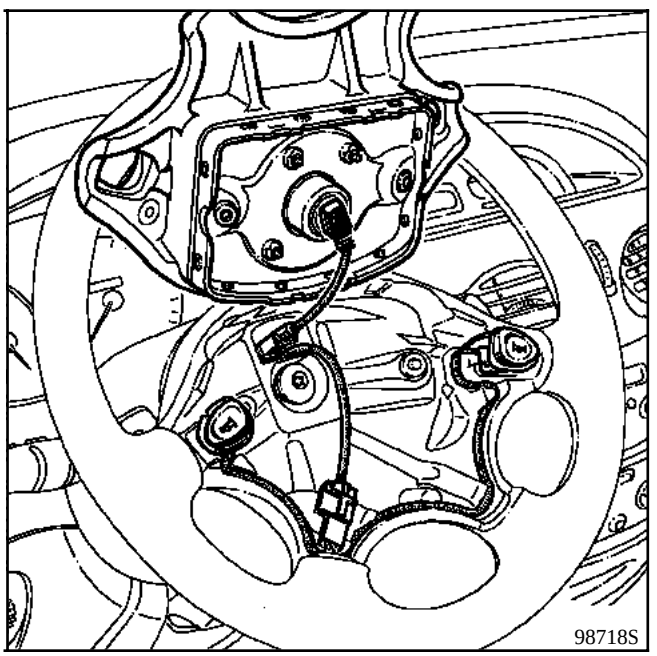
- the four dashboard mounting nuts.

Remove the dashboard with care (two people required).

Mark and if possible replace the various mountings and wiring clips to facilitate refitting.

REFITTING

TIGHTENING TORQUES (in daN.m)	
Steering wheel bolt	**4.5**
Steering column mounting nut	**2**



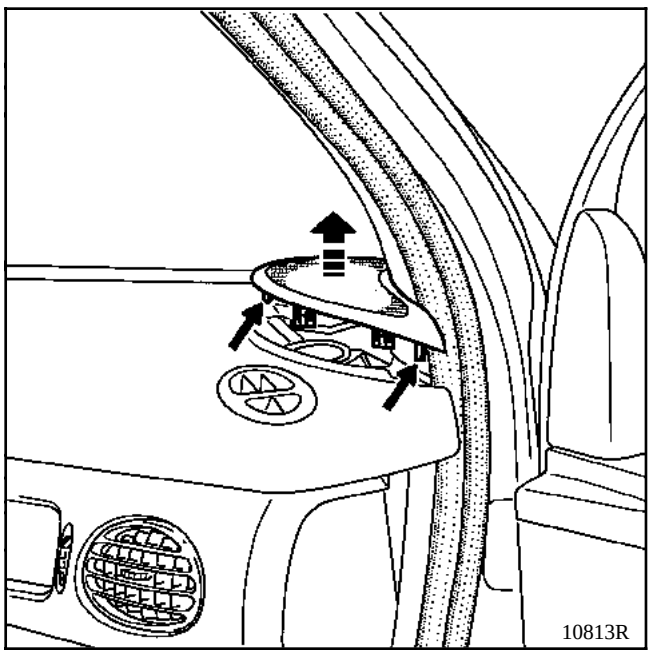
The steering wheel bolt MUST be renewed.

When refitting the mounting nuts and bolts for the steering column, ensure the correct tightening torque is used (see above).

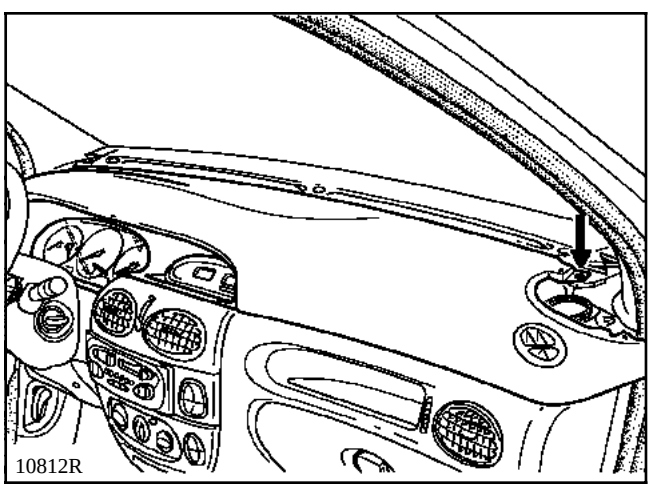
REMOVAL - REFITTING

Disconnect the battery terminal (+) in the engine compartment.

Unclip the speaker grilles and remove them by pulling them upwards to release the centring pins.

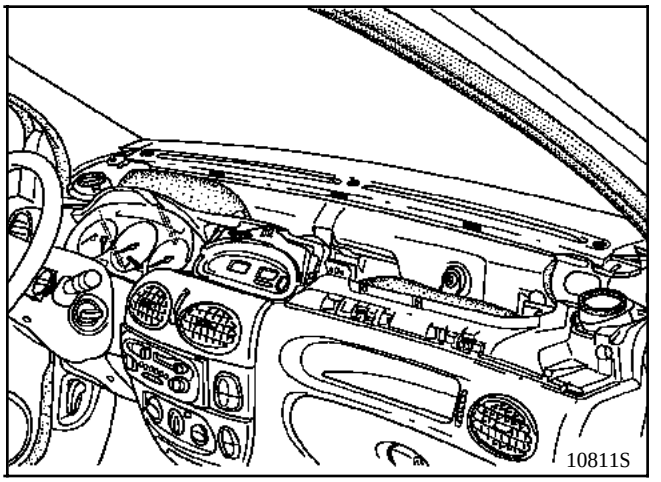


Remove the two mounting bolts for the upper part of the dashboard.



Unclip it, lift it up and remove towards the front of the vehicle.

Remove the three instrument panel mounting bolts.



Release the instrument panel and disconnect the connectors.

Remove the instrument panel.

SPECIAL NOTES FOR REFITTING

Before reconnecting the connectors, check they are in good condition and check their wires.

Ensure the connectors are correctly re-clipped.

Check the operation of the instrument panel gauges.

REMOVAL

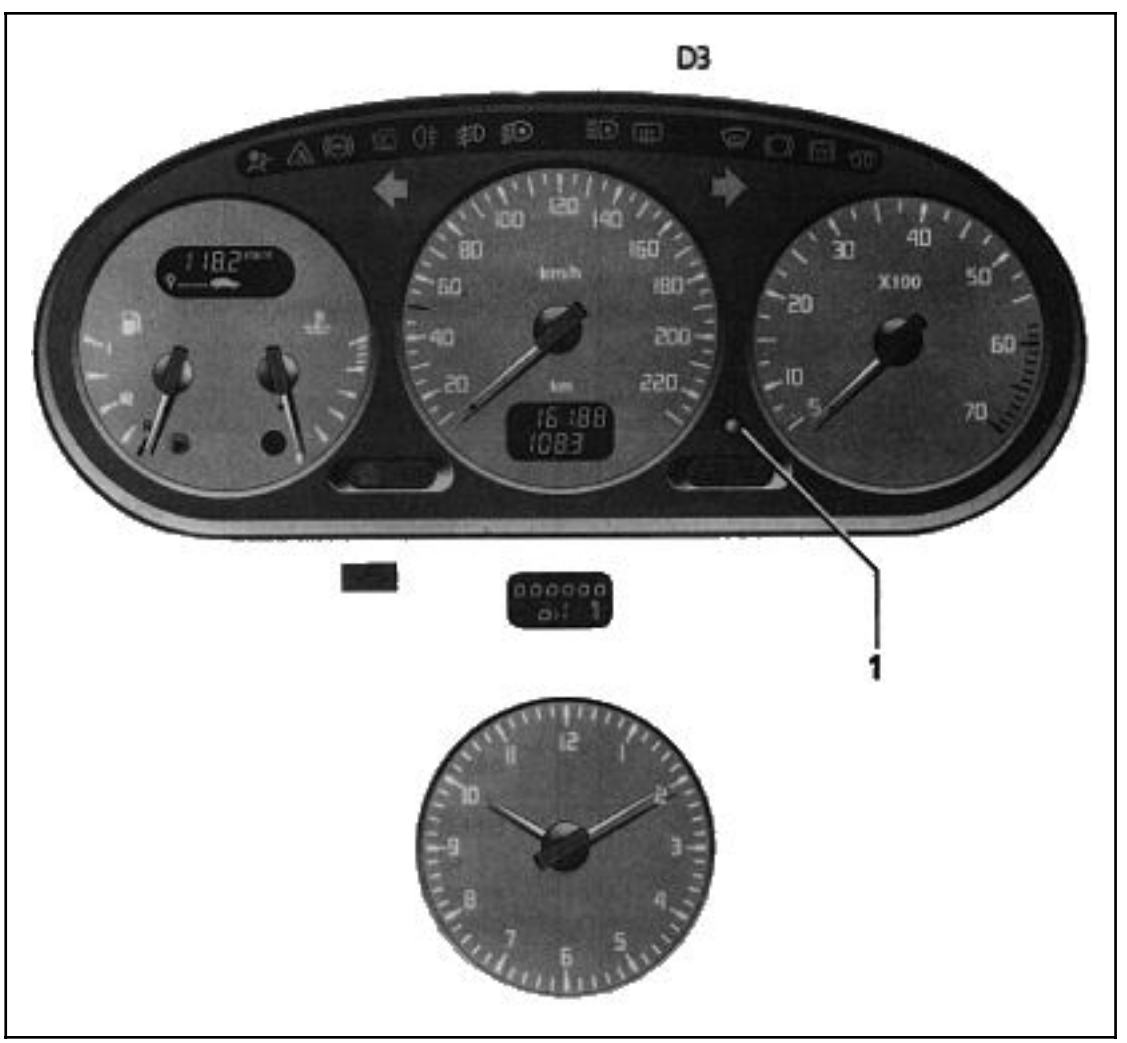
The instrument panel may not be dis-assembled.

If there is a fault, it must be replaced.

NOTE : only the plastic transparent shield may be replaced.

DESCRIPTION

- electronic speedometer,
- analogue clock (with hands) or rev counter with special integrated circuit, depending on equipment,
- electronic mileometers with liquid crystal display,
- coolant temperature gauge,
- engine oil level function with liquid crystal display,
- fuel gauge,
- warning light function,
- on-board computer (depending on equipment).



1 Trip recorder reset button

OPERATION (Special notes)

This instrument panel is outwardly different to those fitted to the Mégane saloon and coupé as it has a liquid crystal display in the speedometer dial, replacing, amongst others, the overall and trip mileometers.

- When the ignition is turned on and for approximately 30 seconds, this display shows the engine oil level in the form of "blocks" (maximum of six) which extinguish one after the other as the oil level drops.
  When the minimum oil level is reached, the "blocks" are replaced by dashes and the display flashes (only the dipstick symbol remains fixed).

- After approximately 30 seconds, the odometer function (mileometers) replaces the oil level function on the central liquid crystal display.
  Pressing the trip recorder zeroing button before the end of the timed period will however set the instrument to the odometer function immediately.

If the engine oil level information is not shown on the instrument panel, the mileometers will be displayed as soon as the ignition is turned on.

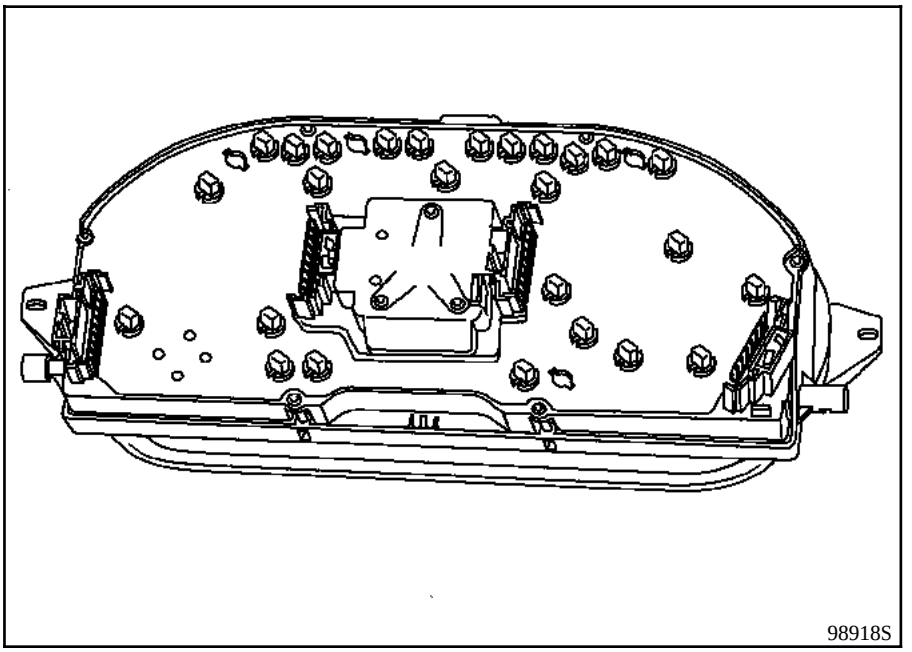
NOTE :

- Under normal operating conditions, the oil level is only measured if the ignition has been turned off for more than one minute; otherwise the old value will be displayed once more.

  If a fault is detected, however, the oil level is measured each time the ignition is turned on to determine if the fault is persisting.

- It is normal to find that the oil level is not always the same. various parameters may affect the reading:
  - parking on a slope,
  - waiting for too short a time after turning the engine over for short periods (especially when the oil is cold)...

CONNECTIONS (fullest version)



Connector A (clear)

Track	Allocation
1	+ after ignition
2	Instrument panel lighting
3	Lighting earth
4	Fuel flow information
5	Fuel sender unit information
6	Coolant temperature warning light
7	Not used
8	Fuel sender unit earth
9	Info 1 oil level sensor
10	Info 2 oil level sensor

Connector B (brown)

Track	Allocation
1	Handbrake / brake information warning light (nivocode)
2	ADAC sequence / reset
3	Immobiliser warning light
4	Airbag warning light
5	Not used
6	ABS warning light
7	Low screen wash / headlight wash level
8	Left hand indicators tell-tale
9	Rear fog light warning light
10	Front fog lights warning light

Connector C (black)

Track	Allocation
1	Speed information
2	Dipped headlights warning light
3	Main beam headlights warning light
4	Right hand indicators tell-tale
5	Electronic earth
6	Heated rear screen warning light
7	Catalytic converter warning light
8	Heated windscreen warning light
9	Brake pad wear warning light
10	+ after ignition

Connector D (grey)

Track	Allocation
1	Coolant temperature gauge
2	Oil pressure warning light
3	Battery charge warning light
4	+ before ignition
5	Not used
6	Rev counter
7	Not used
8	Electronic fault warning light (various computers)
9	Not used
10	Preheating warning light

FAULT FINDING

INCORRECT OPERATION OF OIL LEVEL RECEIVER

↓

Oil level sensor disconnected or in short circuit.

↓

otherwise

↓

Check using an ohmmeter:

- the resistance of the oil level sensor (between tracks **A** and **B1** on the sensor connector) : correct value 7 to 15 Ω,

- the continuity and insulation of the oil level lines:

  - between track **B1** on the sensor connector and track **C5** on the grey module of connection R34 (dashboard / engine) then between this track **C5** and track **9** on the instrument panel clear connector,

  - between track **A** on the sensor connector and track **C4** on the grey module of connection R34 then between this track **C4** and track **10** on the instrument panel clear connector.

OPERATION

The sensor has a high resistance coefficient wire. When the wire has a current passing through it, it does not have the same thermal conductivity when immersed in a fluid as when it is in air.

After a fixed period of time, a difference in voltage at the sensor terminal is obtained, depending on the wire immersion. This difference in voltage is processed by an electronic unit which creates the oil level display and also processes the "low oil level" warning on the central liquid crystal display.

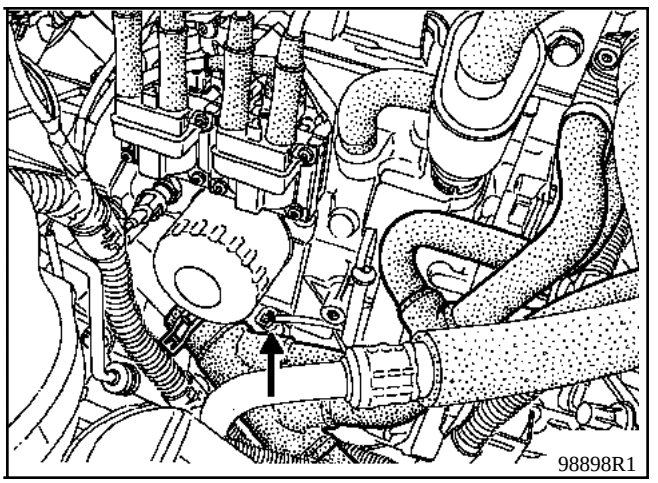
When the ignition is turned on, the central display shows the oil level in the form of "blocks" for approximately 30 seconds before switching to displaying the overall and trip mileometers (or odometer function).

NOTE: Pressing the trip recorder zeroing button before the end of the timed period will however set the instrument to the odometer function immediately.

NOTE: the oil level sensor is identical to that fitted to the Mégane saloon and coupé, but the processing of information is different.

LOCATION

F Engines



LOOKING FOR FAULTS

If the engine oil level information is not shown on the instrument panel, the mileometers will be displayed as soon as the ignition is turned on.

CHECKING

See fault finding on previous page.

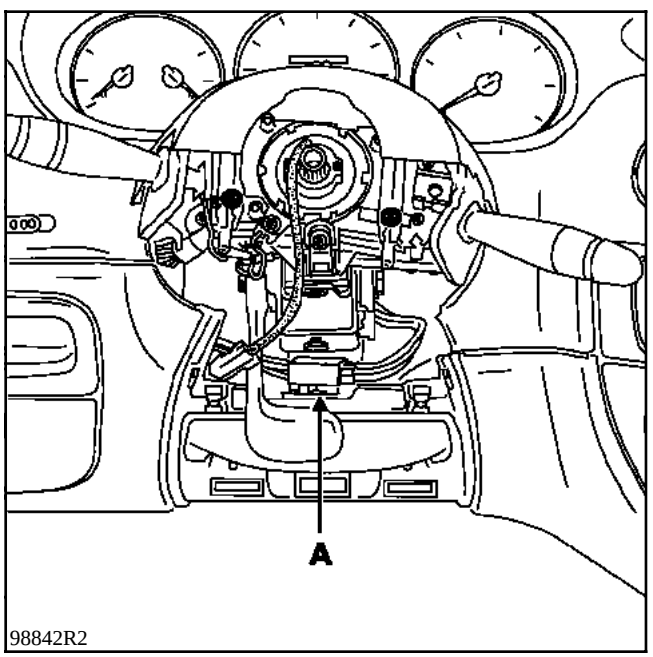
REMOVAL - REFITTING

Disconnect the battery at the secondary terminal in the engine compartment.

Set the wheels straight.

Remove:
- the steering wheel, the two half cowlings and steering column cover, following the method in the paragraph "removing the dashboard" in section 83,
- the plastic ignition switch surround.

Release the switch connector from its mounting at (A) after tilting it and disconnect it.

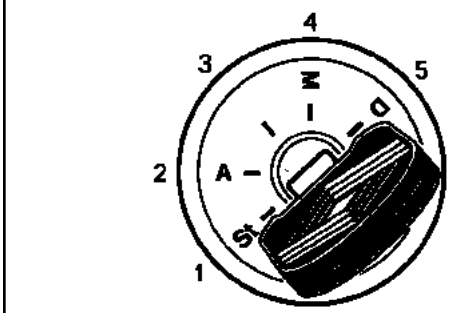


98842R2

Remove the ignition switch bolt.

Put the ignition key in position (3).

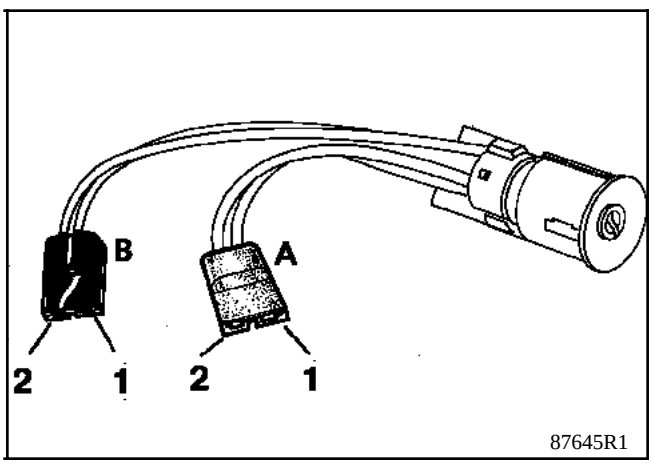
Press on the retaining lug and release the ignition switch with its wiring.



DI8401

When refitting, ensure the wiring is correctly routed.

CONNECTIONS



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Black connector (B)

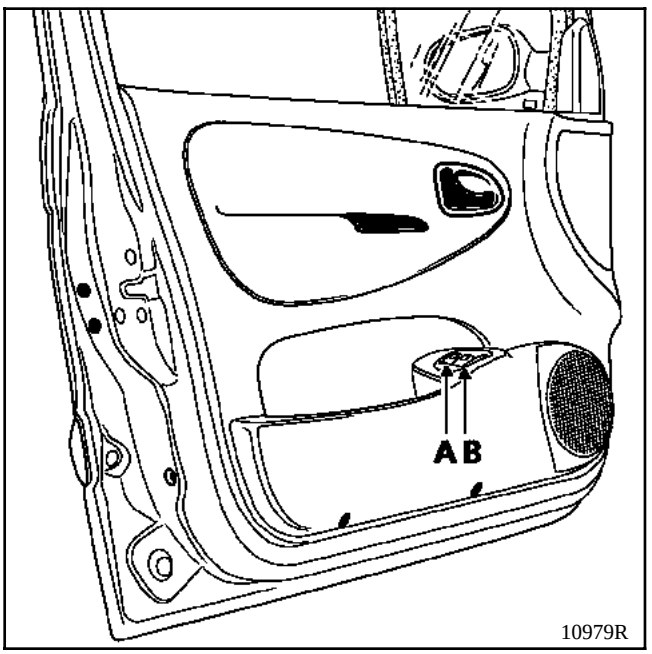
Track	Allocation
1	+ before ignition
2	Starter motor

Grey connector (A)

Track	Allocation
1	Accessories
2	+ after ignition

FRONT ELECTRIC WINDOWS SWITCH

These are clipped onto a mounting plate, which in turn is fixed to the door storage tray.



A Driver's window switch
B Passenger's window switch

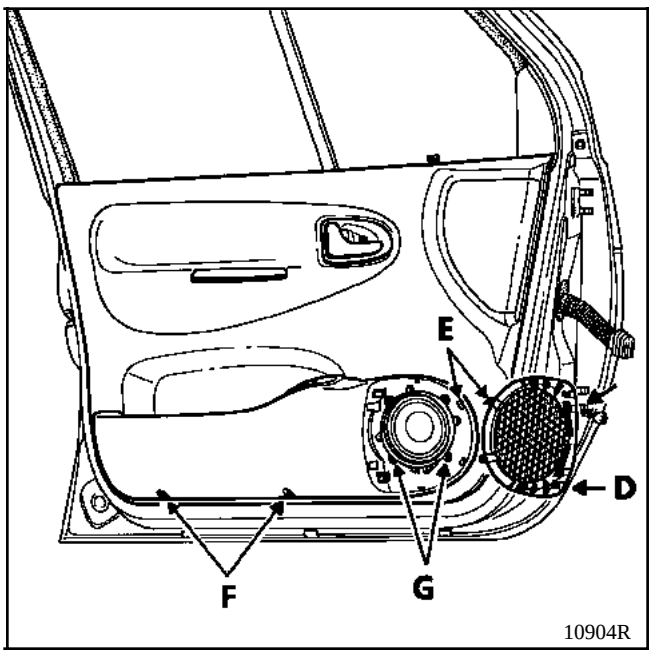
REMOVAL

The door tray must be removed to remove the switches.

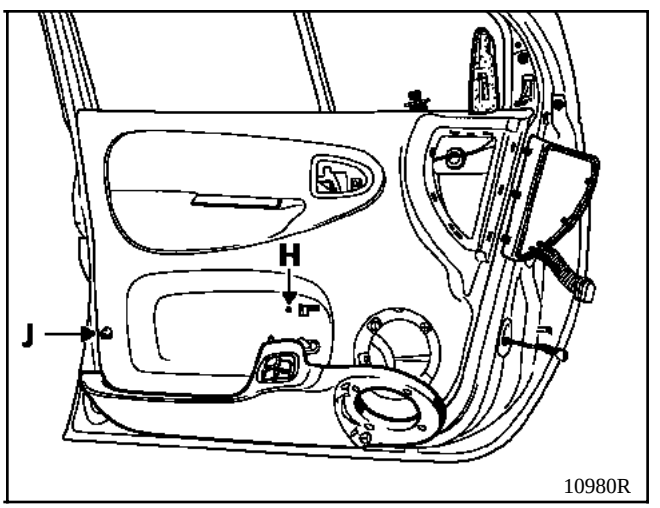
To do this:

- Unclip the speaker grille by sliding a flat blade screwdriver into the two clips (E). Then release the two clips (D), pulling the grille towards the front of the vehicle.

- Remove:
  - the two lower mounting bolts (F) for the door tray,
  - the four other mounting bolts (G) around the speaker location.



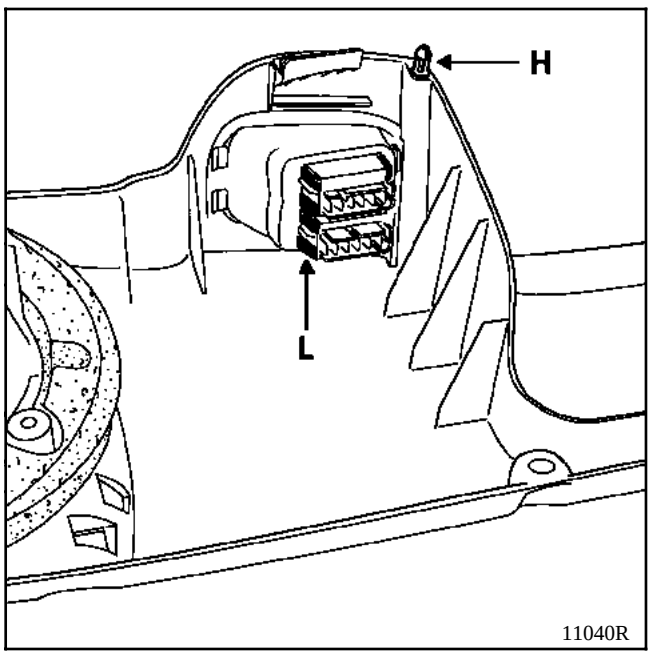
- Unclip the tray at (H) and release the pin (J) by lifting the tray.



- Disconnect the connectors for the front windows and the speaker connector if necessary.

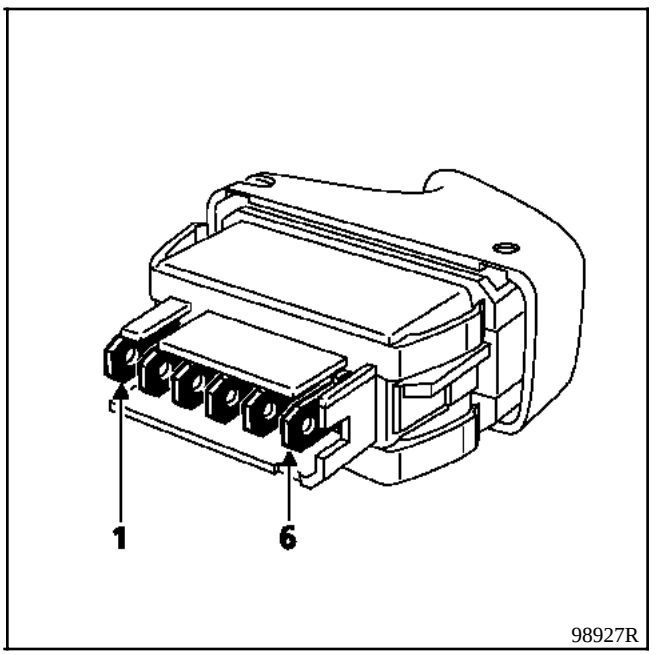
- Remove the front door tray.

The switches may now be removed by pressing the four tabs (L), **after noting their position on the mounting plate.**



NOTE : a marking on each unit notes the connector colour to which it is connected. In addition, foolproofing on the tab clips ensures each unit is correctly refitted to the mounting plate.

DRIVER'S ONE TOUCH WINDOW SWITCH (A)

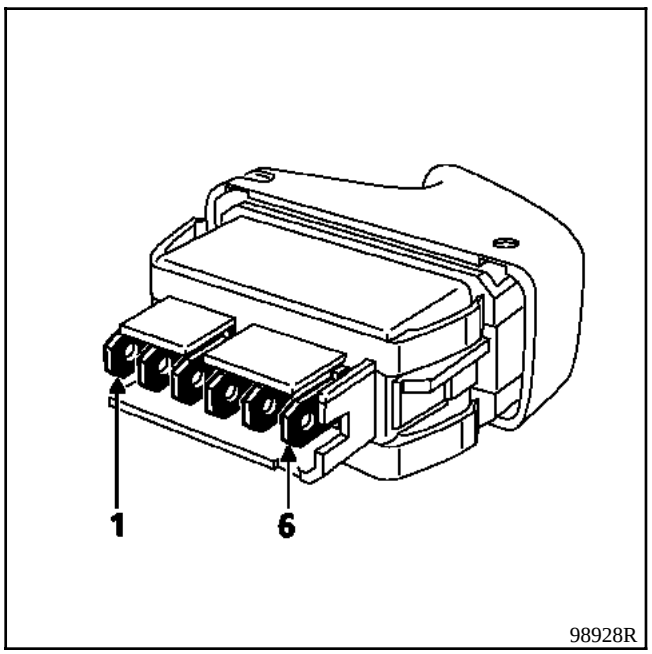


CONNECTIONS

Red connector

Track	Allocation
1	+ lighting
2	One touch raise
3	Not used
4	Earth
5	Not used
6	One touch lower

PASSENGER WINDOW SWITCH ON DRIVER'S DOOR (B)

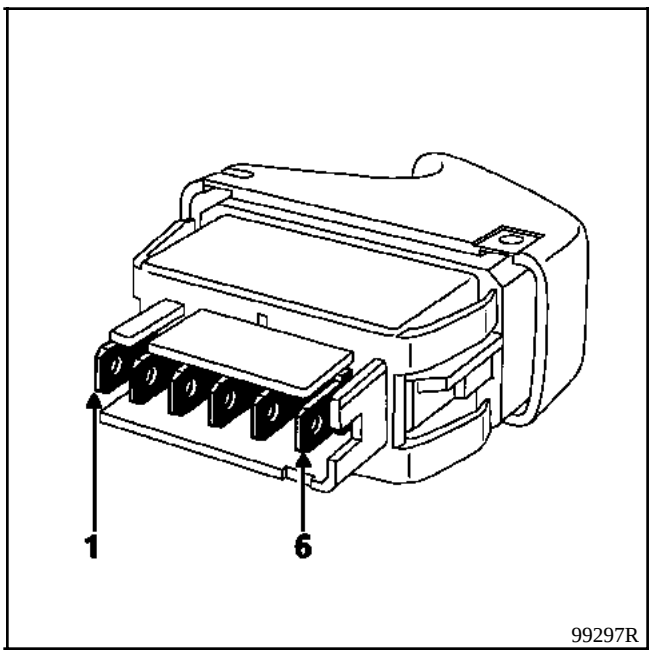


CONNECTIONS

Brown connector

Track	Allocation
1	+ lighting
2	+ or - motor
3	+ after ignition
4	Earth
5	+ after ignition
6	+ or - motor

PASSENGER WINDOW SWITCH ON PASSENGER'S DOOR

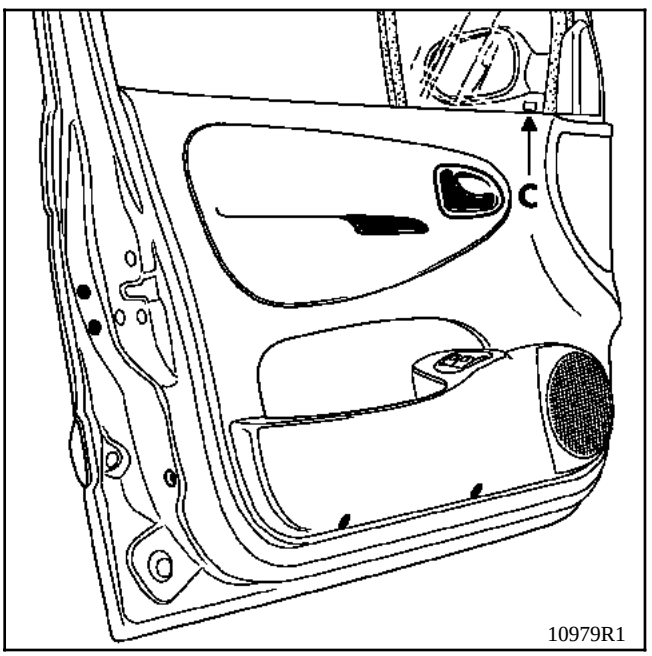


CONNECTIONS

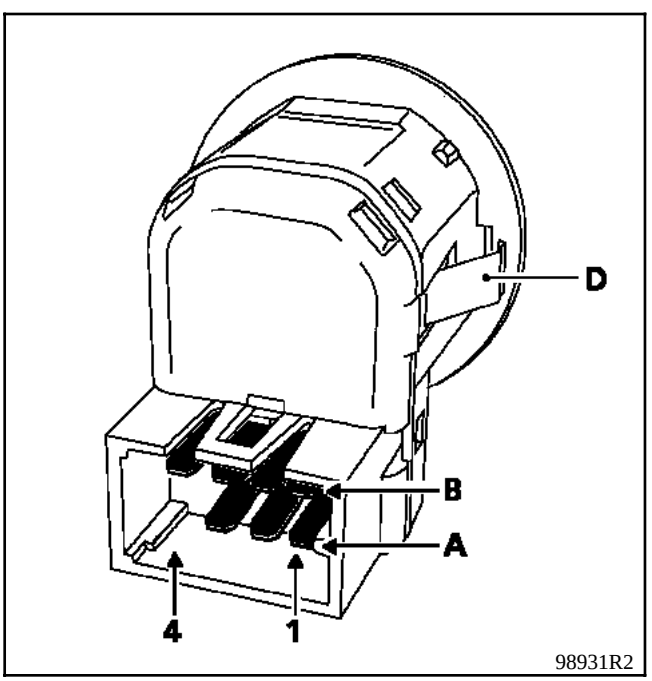
Red connector

Track	Allocation
1	+ lighting
2	Motor feed
3	+ or - motor
4	Earth
5	+ or - motor
6	Motor feed

ELECTRIC REAR VIEW MIRROR CONTROL



Unclip control (C) by pressing the tabs (D).



CONNECTIONS

Track	Allocation
A1	Right /left movement, driver's mirror
A2	Earth
A3	Up / down movement, driver's mirror
A4	Not used
B1	Right /left movement, passenger's mirror
B2	Up / down movement, passenger's mirror
B3	+ before ignition
B4	Mirror common

Control position		Outputs				
		B4	B2	B1	A1	A3
RH mirror	↑	-	+			
	↓	+	-			
	←	-		+		
	→	+		-		
LH mirror	↑	-				+
	↓	+				-
	←	-			+	
	→	+			-	

NOTE : this switch has no night-time lighting.

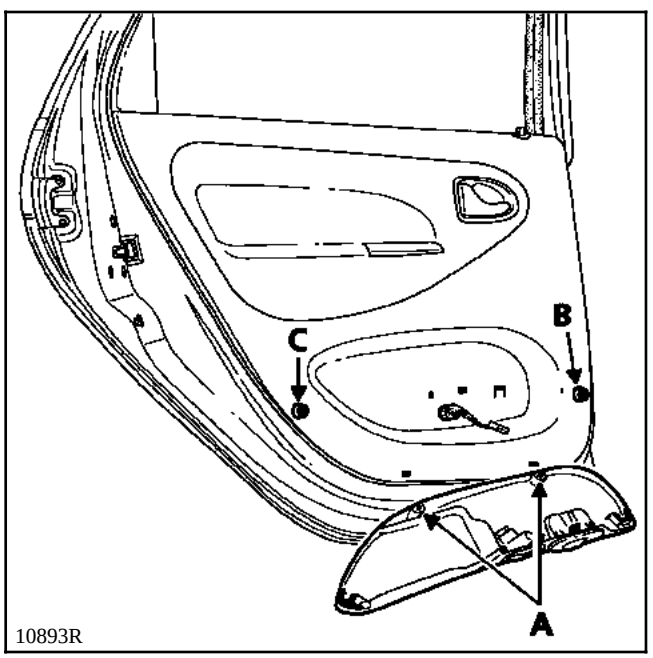
REAR WINDOW SWITCH ON REAR DOOR

Each switch is clipped onto a mounting plate, which in turn is fixed to the door storage tray of the corresponding rear door.

The door tray must be removed to remove the switches.

REMOVAL

Remove the two lower mounting bolts (A) for the tray.



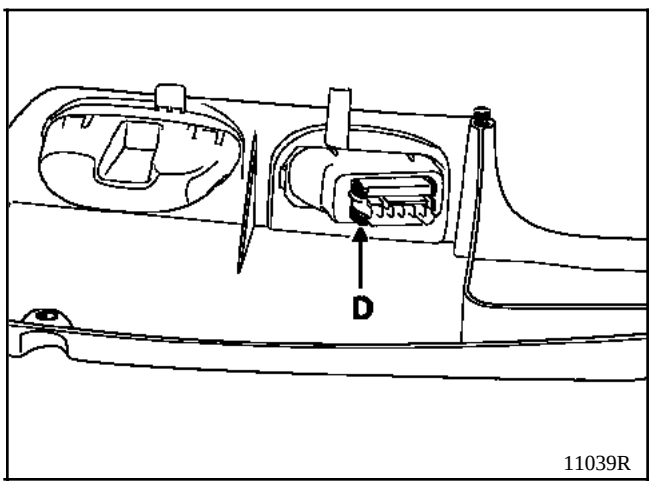
Lift the front of the tray to release clip (B).

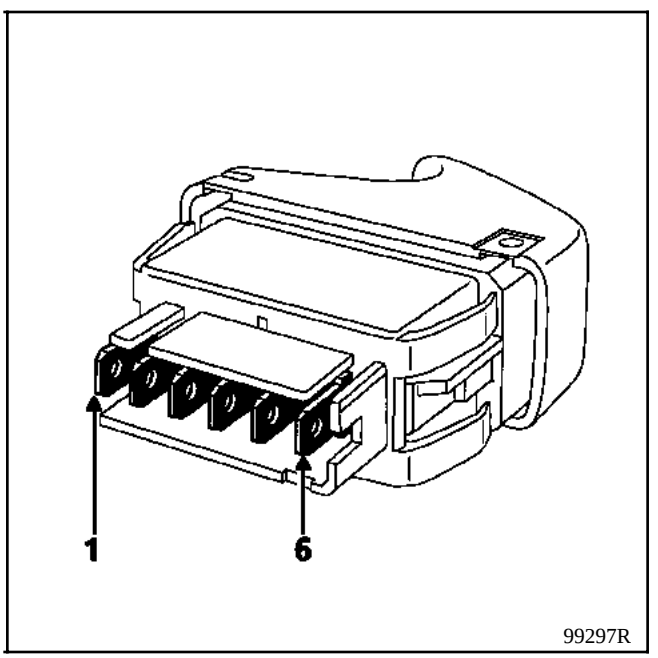
Release the tray by pushing it backwards to release clip (C).

Disconnect the rear window switch connector.

The switch may now be removed by pressing the four tabs (D).

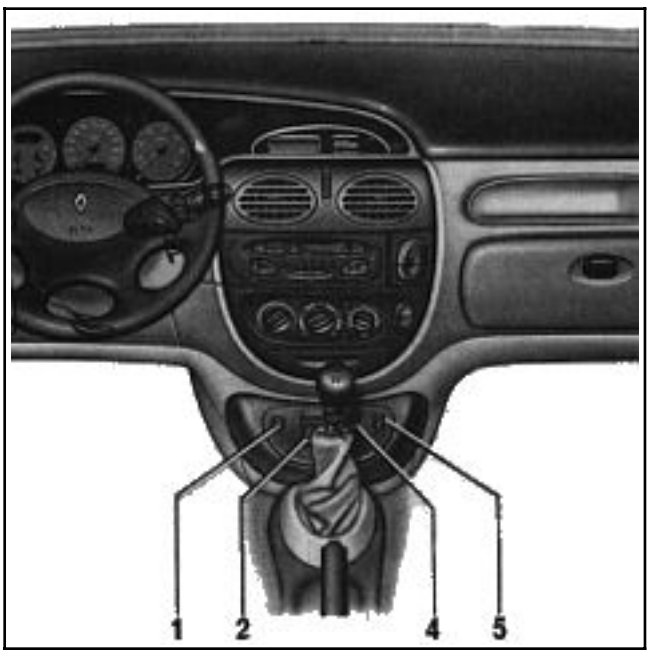
CONNECTIONS





Red connector

Track	Allocation
1	+ lighting
2	Motor feed
3	+ or - motor
4	Earth
5	+ or - motor
6	Motor feed

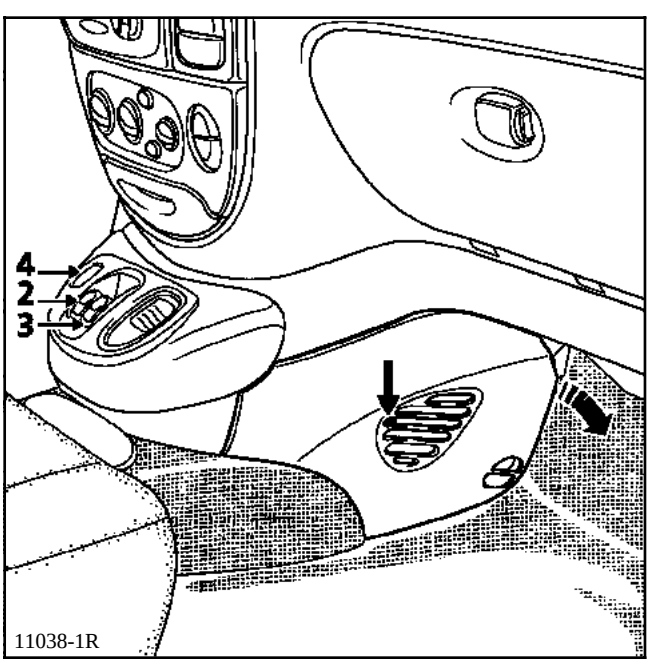


1 Driver's heated seat switch
2 Rear left hand window switch
3 Rear right hand window switch
4 Child safety switch
5 Passenger's heated seat switch

REMOVING THE CENTRE CONSOLE

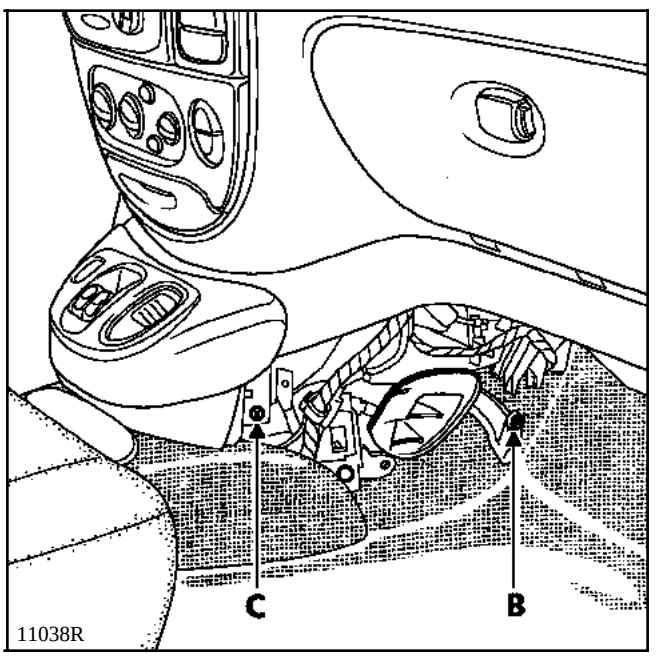
On each side:

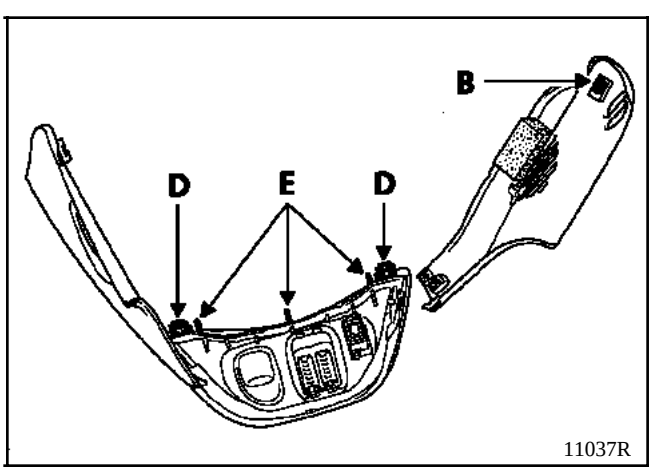
Remove the mounting bolt for the side trim at the bottom of the dashboard.



Release pin (B) by tilting the front of this trim downwards, then release it towards the front of the vehicle.

Now remove the two mounting bolts for the centre console (C) and pull it while tilting it slightly upwards to release the clips (D) and the centring pins (E).





Disconnect the various connectors.

The various switches may now be removed, either by pressing the four tabs for the rear window switches or by removing the two mounting bolts for the other switches.

NOTE : note the position of the switches on the console before removing them, and note their respective connectors.

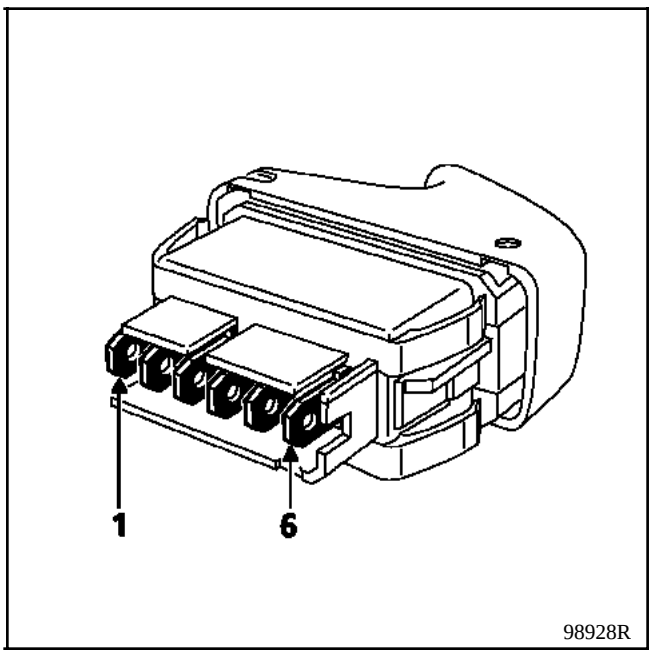
A marking on each unit for the rear windows repeats the colour of the connector to which it should be connected.

CONNECTIONS

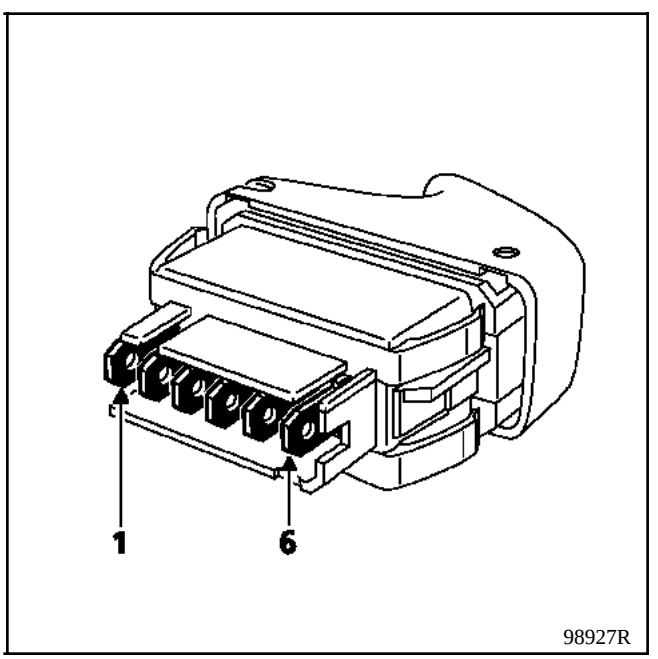
Rear window switches

Track	Allocation
1	+ lighting
2	+ or - motor
3	+ after ignition
4	Earth
5	+ after ignition
6	+ or - motor

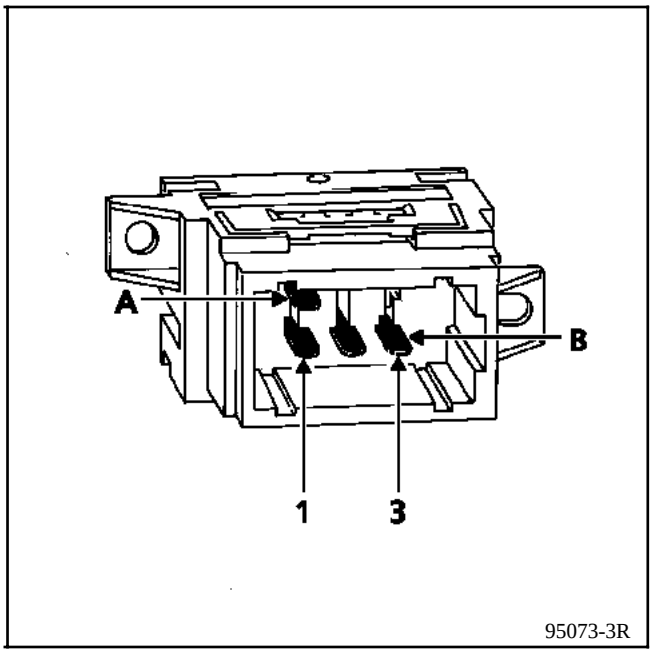
Rear right hand window switch (brown connector)



Rear left hand window switch (red connector)



CONNECTIONS (cont)



Child safety switch : clear connector

Track	Allocation
A1	+ after ignition
A2	Not used
A3	Not used
B1	+ lighting
B2	Earth
B3	Rear windows locking

Heated seats switches:
- **black connector: driver's seat**
- **grey connector: passenger's seat**

Track	Allocation
A1	Earth
A2	Not used
A3	Not used
B1	+ lighting
B2	+ after ignition
B3	Heated seat relay control

SUNROOF SWITCHES

To remove the switches for the front and rear sunroofs, the roof console must be removed.

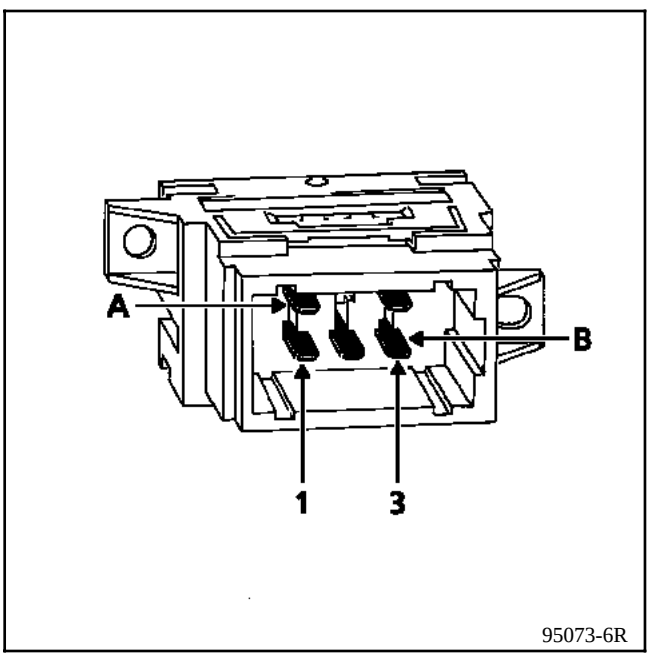
To do this, follow the method in the paragraph "Courtesy light" in section 81.

Front sunroof switch

REMOVAL

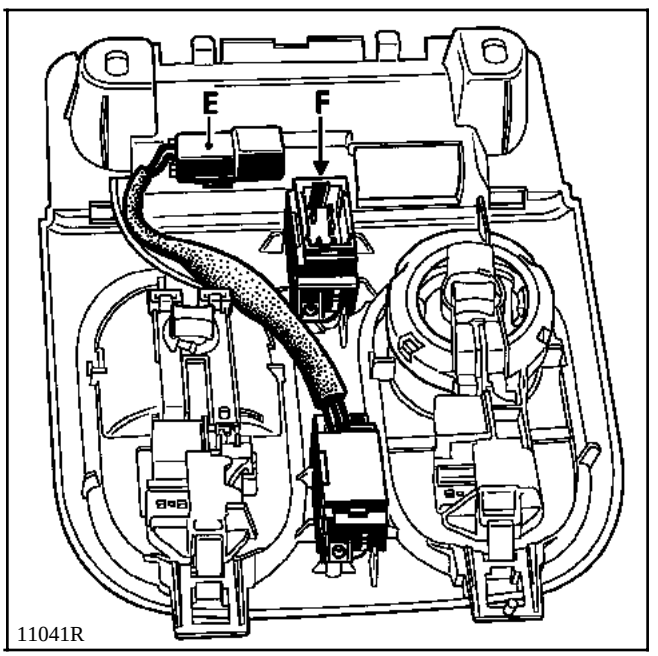
After removing the roof console, slacken the two switch mountings (F).

CONNECTIONS



Track	Allocation
A1	Motor and relay
A2	Not used
A3	+ after ignition up to end of travel via "end of travel" switch
B1	
B2	Earth
B3	Motor via relay

Rear sunroof switch



REMOVAL

After removing the roof console, release connector (E) from its runner.

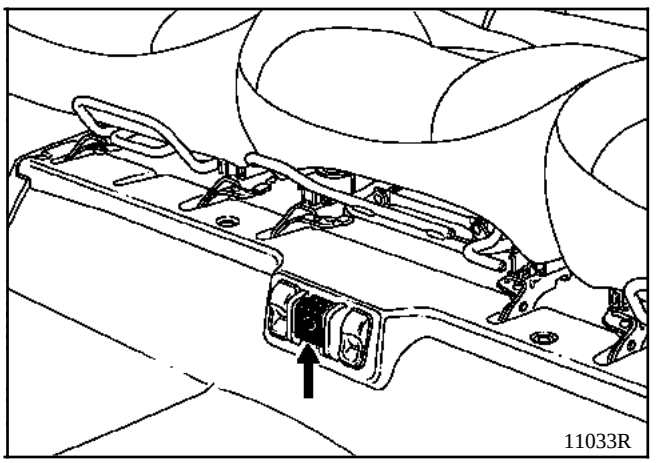
Slacken the two switch mountings.

CONNECTIONS

Track	Allocation
A	To motor via "end of travel" switch
B	+ after ignition
C	Not used
D	To motor via "end of travel" switch

REMOVAL

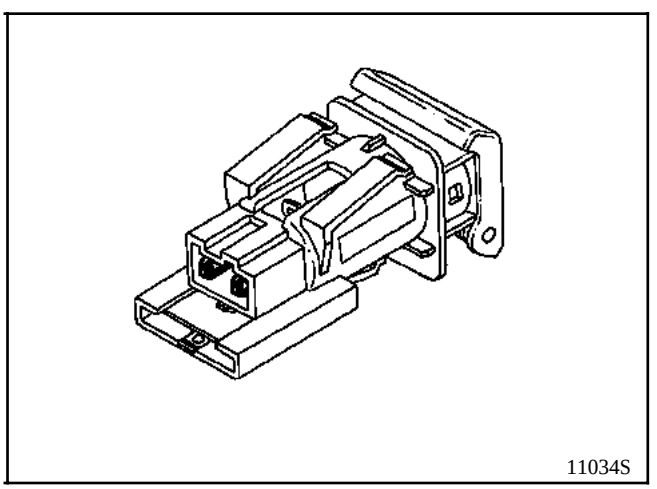
Ignition off, unclip the socket.



To do this:

- Press on the unit to release the two upper tabs.
- Pull the assembly to release the socket completely.

Disconnect the brown connector.



CONNECTIONS

Track	Allocation
1	Earth
3	+accessories

NOTE : the accessories socket power output is limited to 120 V.

SPECIAL TOOLING REQUIRED	
Elé. 1294-01	**Tool for removing wiper arm**

FRONT WIPERS AUTOMATIC OPERATION

Special operating notes

During normal use, the front wipers operate at intermittent, slow or high speed.

Under certain conditions and depending on the equipment of the vehicle, the connection unit will operate the front wipers.

When driving, when a wiper speed is selected, stopping the vehicle will reduce the wiper speed to the next slowest speed:
- from continuous high speed to continuous slow speed,
- from continuous slow speed to intermittent wipe.

When the vehicle starts to move, the wipe speed returns to the original speed.

NOTE:
- operating the stalk takes priority and therefore cancels the automatic operation,
- automatic operation is not active if slow or fast speed is selected when the vehicle is stationary.

SPECIAL NOTES:
- if a large force is exerted on the wiper arm (e.g.: at high speed,...) when operating at high speed, the electronic connection unit automatically switches to the slow speed in order to improve wiping in certain climatic conditions,
- if the wiper mechanism seizes (e.g.: frozen windscreen, ...) the system automatically cuts its supply.

Fault finding

For fault finding, refer to chapter 87 (fault finding using the XR25 and the connection unit) of M.R. 312.

REMOVING THE MECHANISM/MOTOR ASSEMBLY

Ensure that the motor is in the park position.

Disconnect the battery at the secondary terminal in the engine compartment.

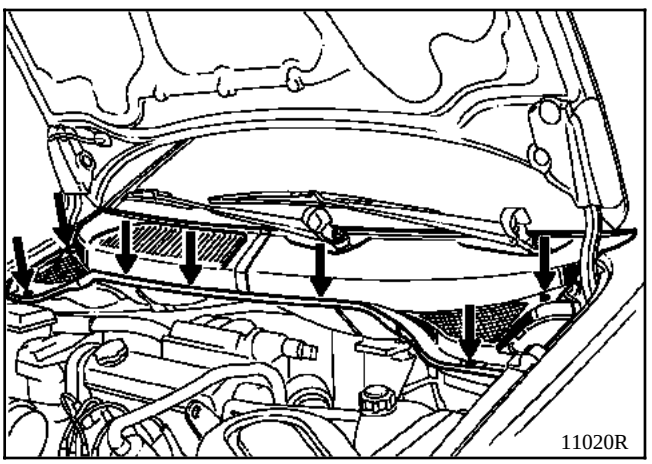
Note the wiper arm park position (for refitting).

Remove the wiper arm mounting nuts.

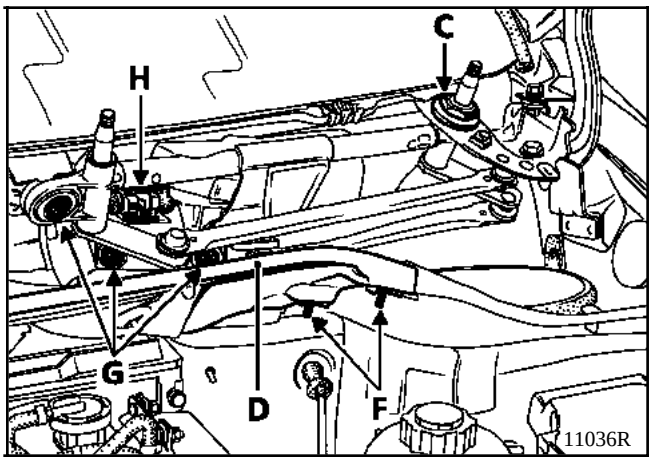
Remove the wiper arms from their pins using the special tool **Elé. 1294-01**.

Open the bonnet.

Remove:
- the scuttle panel seal,
- the seven mounting bolts for the two scuttle panel grilles,



- the scuttle panel grilles towards the front to release them from the windscreen,
- the sealing plugs and nut (C) from the "external" wiper arm pin,
- the removable section (D) of the scuttle panel after slackening the four mounting bolts (F), to give better access to the wiper mechanism mounting bolts,



- the three bolts (G) mounting the mechanism / motor assembly after disconnecting the motor connector (H).

Remove the wiper motor / mechanism assembly.

REFITTING THE MECHANISM/MOTOR ASSEMBLY (Special notes)

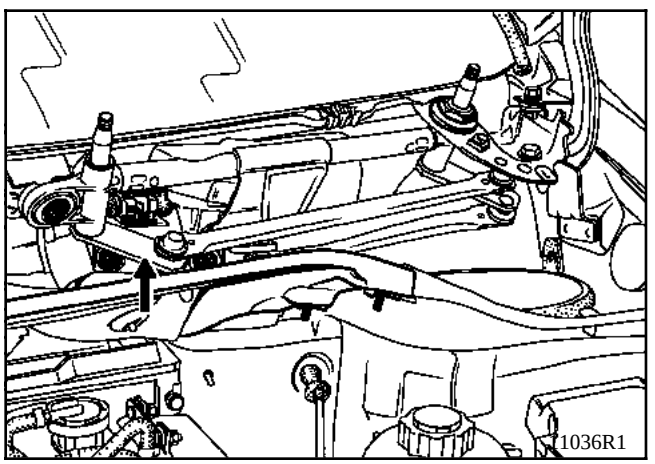
Check that the motor is in the park position before refitting the wiper arms.

Clean the splines on the wiper arm pins using a wire brush.

Fit new nuts and tighten to a torque of **3.5 daN.m** using a torque wrench.

REMOVING THE MOTOR ONLY

Following the same recommendations and the same method as previous for removing the mechanism / motor assembly, remove
- the wiper arms,
- the two scuttle panel grilles,
- the removable part of the scuttle panel.



Disconnect and release the motor connector.

Mark the position of the linkage.

Remove the nut and washer from the motor shaft.

Release the linkage from the shaft.

Remove the three motor mounting bolts.

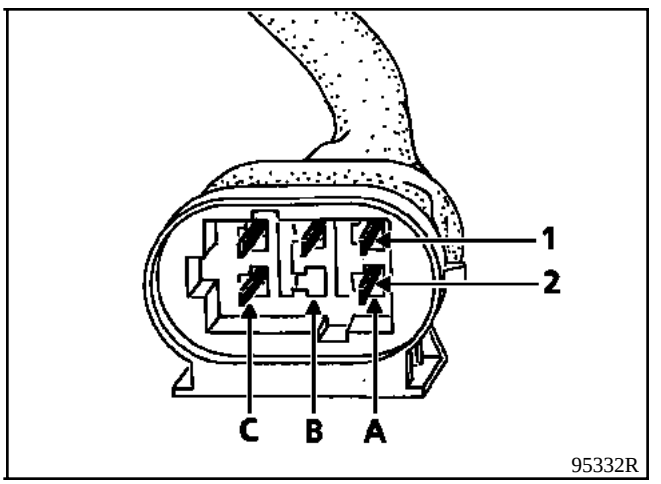
Release the motor.

REFITTING THE MOTOR ONLY (Special notes)

Refit the rubber cover around the motor before repositioning the motor itself.

Reposition the linkage using the mark made during removal.

CONNECTIONS



Track	Allocation
A1	Slow speed
A2	Park
B1	High speed
B2	Not used
C1	+ park
C2	Earth

SPECIAL TOOLING REQUIRED	
Elé. 1294-01	**Tool for removing wiper arms**

REAR WIPER AUTOMATIC OPERATION

Special operating notes

During normal use, the rear wiper operates at an intermittent speed.

Under certain conditions and depending on the equipment of the vehicle, the connection unit will operate the rear wiper.

This function will be automatically triggered if:
- reverse gear is engaged and,
- the front wipers are working (intermittent, slow or high speed).

NOTE: if the wiper is activated whilst the heated rear screen is operating, the heated rear screen timer will be extended by approximately 5 minutes.

Fault finding

For fault finding, refer to chapter 87 (fault finding using the XR25 and the connection unit) of M.R. 312.

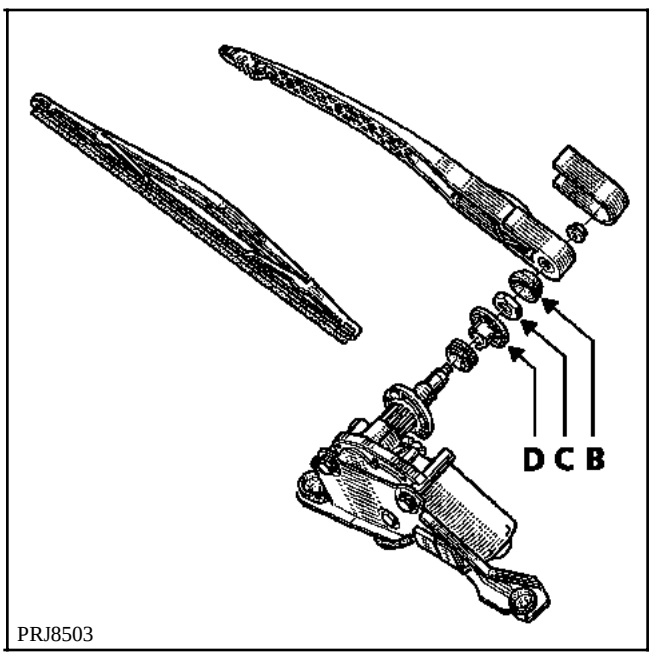
REMOVING THE REAR WIPER MOTOR

Ensure the motor is in the park position.

Disconnect the battery at the secondary terminal in the engine compartment.

Note the wiper arm park position.

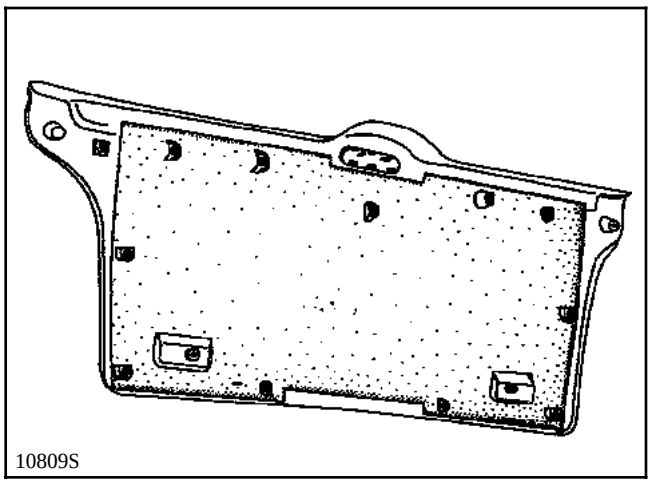
Remove:
- the wiper arm mounting nut,
- the wiper arm from its shaft using the special tool **Elé. 1294-01**,
- the nut cover (B) and the nut (C),
- the ring (D).



PRJ8503

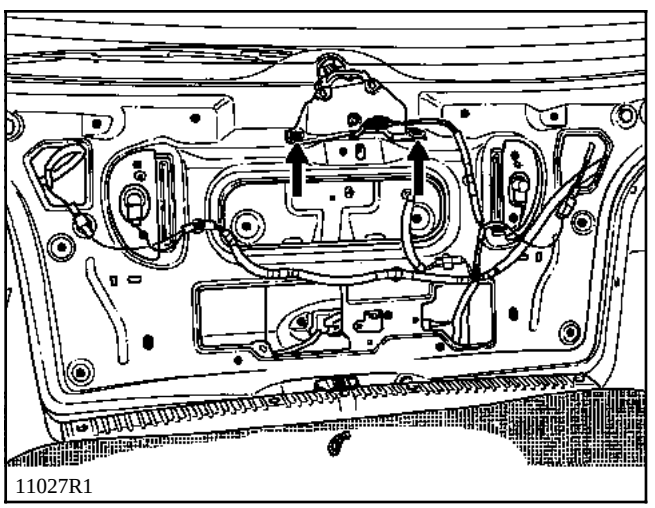
Remove the inner tailgate trim.

To do this, remove the four mounting bolts and unclip the trim (ten clips secure it around the edge and one in the centre).


10809S

Disconnect the rear wiper motor connector.

Remove the two wiper motor mounting bolts and release the motor.


11027R1

REFITTING

Reconnect the connector after refitting the motor.

Ensure the motor is in the park position before refitting the wiper arm.

Clean the splines on the wiper arm pin using a wire brush.

Refit the wiper arm.

Tighten the new nut to a torque of **1.2 daN.m** (±20%) using a torque wrench.

OPERATING PRINCIPLE

This consists of a two-way electric pump which allows fluid from the same bottle to be supplied either to the front screen wash or, to the rear screen wash depending on the electrical supply of the two tracks of the connector (E).

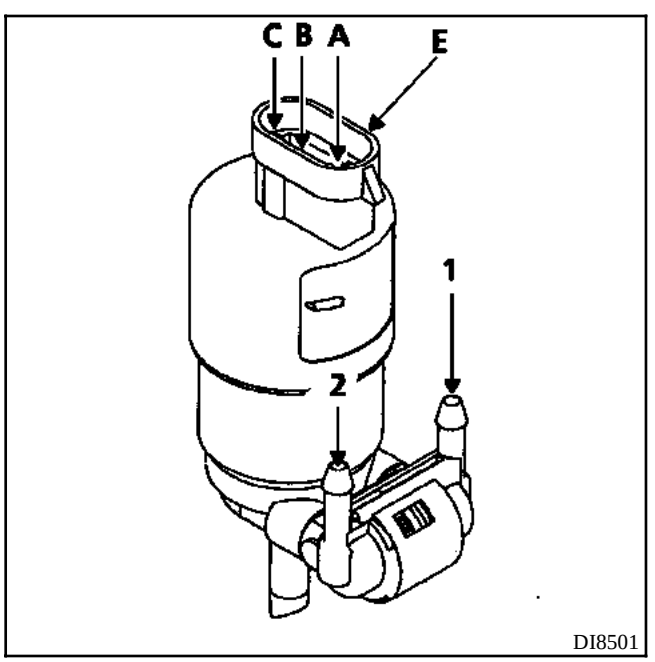
There are two possible cases:

Track	Allocation
A	+
B	-
C	Not used

The pipe is supplied through the white end piece (1), the front screen wash operates.

Track	Allocation
A	-
B	+
C	Not used

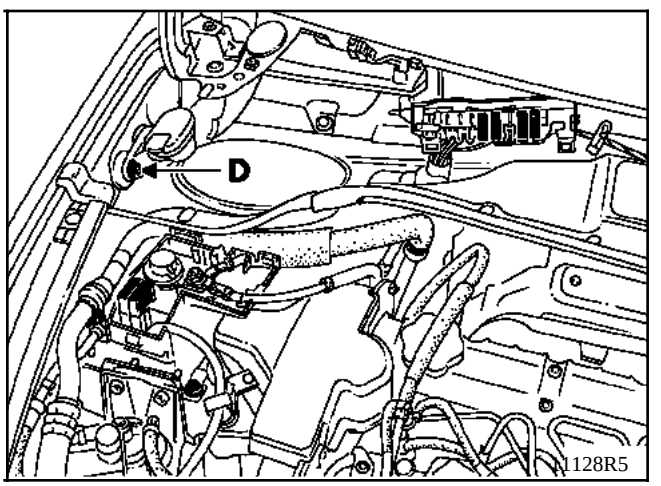
The pipe is supplied through the black end piece (2), the rear screen wash operates.



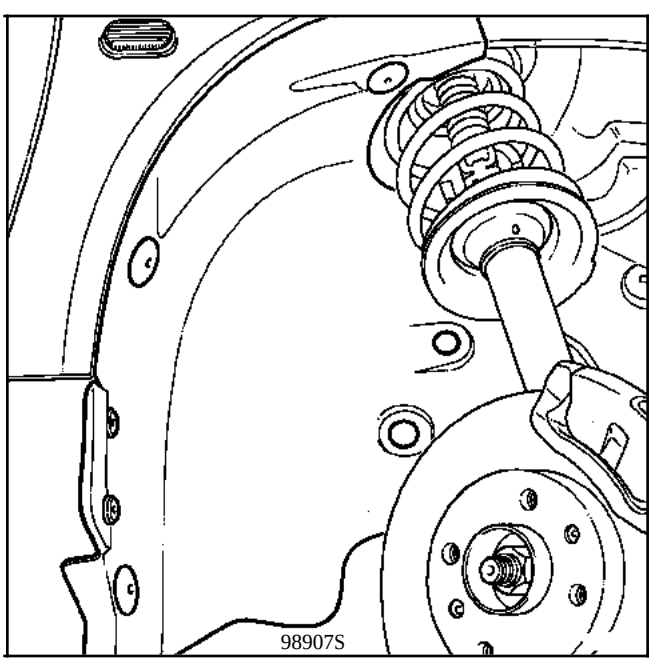
REMOVING THE SCREEN WASH BOTTLE

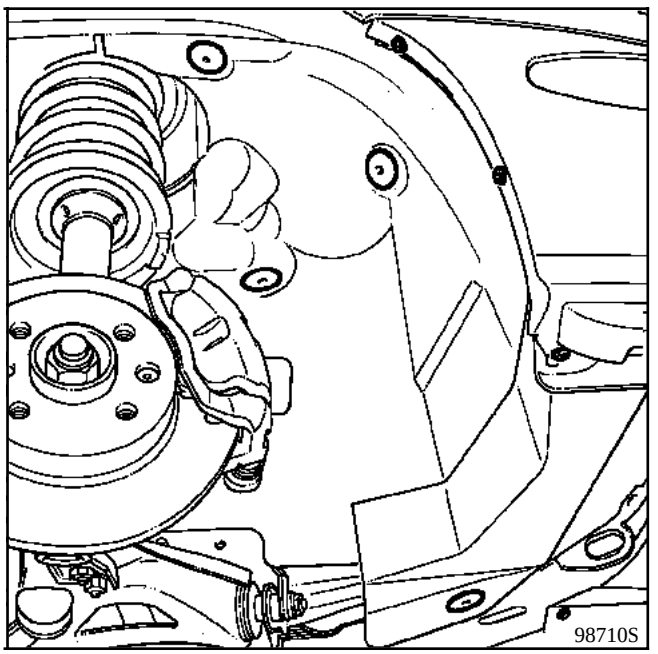
ADVICE: partially drain the bottle to reduce the amount of fluid which will run out when the bottle is removed.

Remove:
- the bottle filler neck by the nut (D),

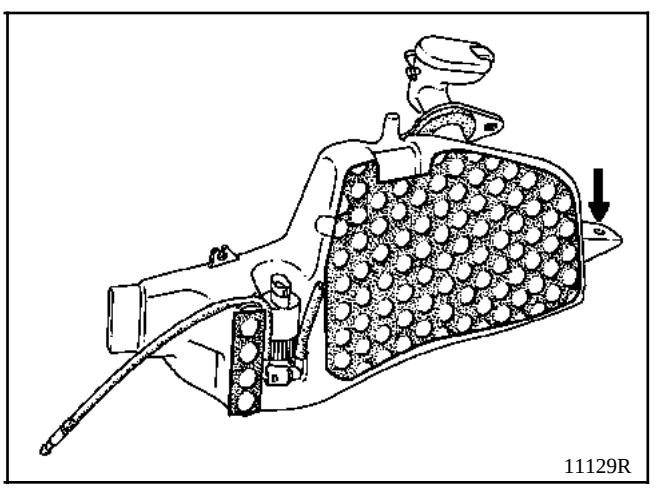


- the front right hand wheel,
- the two protectors under the wing.





Remove the screen wash bottle from its mounting (F) after having disconnected its wiring.



ATTENTION : When removing, disconnect the pump making sure that the two front and rear screen wash pipes are identifiable.

FAULT FINDING - INTRODUCTION

SETTING UP XR25 / PASSENGER COMPARTMENT CONNECTION UNIT DIALOGUE

- Connect the XR25 to the diagnostic socket
- Use fiche n° 45 side 1 / 2
- ISO selector on S8
- Enter **D45**

I.blc

PRECAUTION

For all tests using the 20 track P16 connector, bornier **Elé. 1371** must be used. Any other tooling (pin, wire, etc.) may not be used as the connector may be permanently damaged.

Bornier **Elé. 1371** is used for testing continuity. To do this, simply connect the bornier to the passenger compartment connection unit or the vehicle wiring as for a conventional bornier.

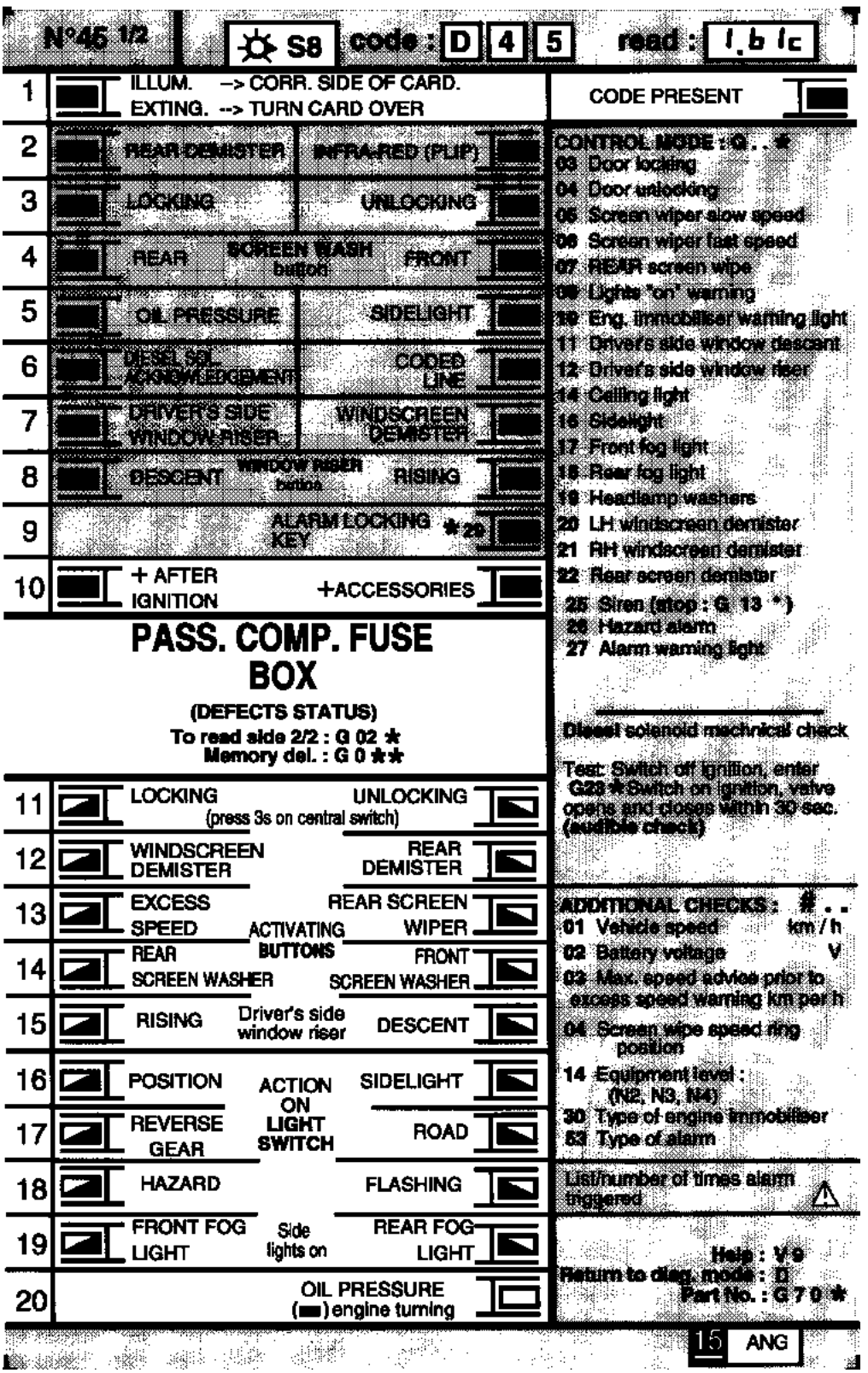
ANNOTATION

In the following fault finding pages, annotations of type **P16-16** and **P7-B3** are used.

These annotations correspond to the tracks connected to the passenger compartment connection unit.

Examples : **P16-16** corresponds to track 16 on connector P16 of the passenger compartment connection unit.
P7-B3 corresponds to track B3 on connector P7 of the passenger compartment connection unit.

FAULT FINDING - XR25 FICHE

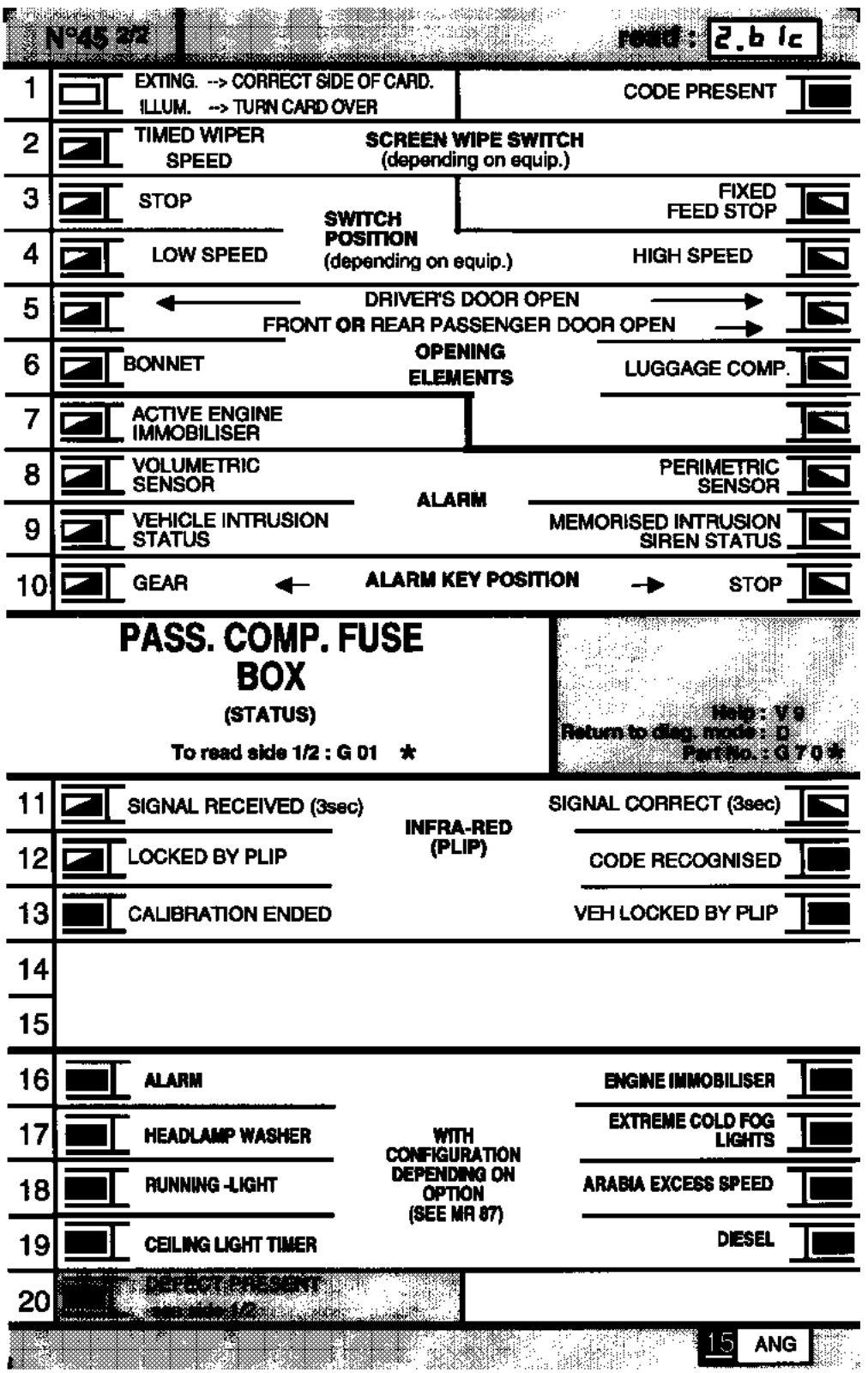


FI215451

NOTE : Enter G02* for the other side of the fiche

O64001.0

FAULT FINDING - XR25 FICHE



FI215452

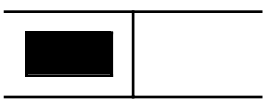
NOTE : Enter G01* for the other side of the fiche

O64001.0

FAULT FINDING - XR25 FICHE

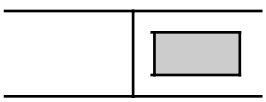
BARGRAPH SYMBOLS

FAULTS (always on a coloured background)



If illuminated, there is a fault with the product tested. The associated text defines the fault.
This bargraph may be:
- Permanently illuminated : fault present
- Flashing : fault memorised
- Extinguished : fault absent or not diagnosed

STATUS (always on a white background)



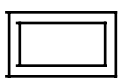
Bargraph always located at the top right.
If illuminated, dialogue has been established with the computer for the product.
If it remains extinguished :
- The code does not exist.
- There is a fault with the tool, the computer or the XR25 / computer link.

The representation of the following bargraphs indicates their initial status:
Initial status: (ignition on, engine stopped, no operator action)


or


Indefinite

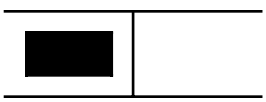
illuminated when the function or condition on the fiche is met



Extinguished

Illuminated extinguished when the function or condition on the fiche is no longer met

FAULT FINDING - INTERPRETATION OF THE BARGRAPHS

8 	**Bargraph 8 LH side illuminated** Fiche n° 45, side 1/2 DRIVER'S WINDOW CONTROL CIRCUIT **XR25 aid :** fault on the lower circuit

NOTES	None

Disconnect connector P16 for the passenger compartment connection unit and check if bargraph 8 LH side remains illuminated.

If bargraph 8 LH side remains illuminated, replace the passenger compartment connection unit.

Check there is no short circuit to earth on the wiring between track P16-16 on the passenger compartment connection unit and 6 on the driver's window switch.

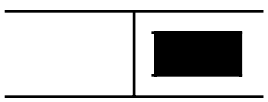
Is the wiring correct?

YES	Replace the driver's window switch.
NO	Repair the wiring.

AFTER REPAIR	Enter G0** on the XR25 to erase the fault. Check that the driver's window operates correctly.

O64001.0

FAULT FINDING - INTERPRETATION OF THE BARGRAPHS

8 	**Bargraph 8 RH side illuminated** Fiche n° 45, side 1/2 DRIVER'S WINDOW CONTROL CIRCUIT **XR25 aid :** fault on the raise circuit

NOTES	None

Disconnect connector P16 for the passenger compartment connection unit and check if bargraph 8 RH side remains illuminated.

If bargraph 8 RH side remains illuminated, replace the passenger compartment connection unit.

Check there is no short circuit to earth on the wiring between track P16-15 on the passenger compartment connection unit and 2 on the driver's window switch.

Is the wiring correct?

YES	Replace the driver's window switch.
NO	Repair the wiring.

AFTER REPAIR	Enter G0** on the XR25 to erase the fault. Check that the driver's window operates correctly.

O64001.0

FAULT FINDING - CUSTOMER COMPLAINTS

NOTES	Only consult these customer complaints after a complete check using the XR25.

FAULT FINDING - FAULT CHARTS

Chart 1	LOSS OF DRIVER'S WINDOW FUNCTION
NOTES	Only consult this customer complaint after checking using the XR25 that no fault bargraphs are illuminated and that the status bargraphs illuminate correctly.

Check the condition of the "driver's window" 25 A fuse. Has it blown?

yes → Replace the "driver's window " 25 A fuse.

no ↓

Check the continuity and that there is no short circuit to earth on the following wiring:
- P16-15/2 on the driver's window switch,
- P16-16/6 on the driver's window switch,
- 4 on the driver's window switch/earth,
- P10-1/1 on the driver's window motor,
- P10-2/2 on the driver's window motor.

Is the wiring correct?

no → Repair the faulty wiring.

yes ↓

Check the operation of the driver's window switch. Disconnect the 6 track driver's window switch connector. Disconnect clip 2 from the connector and connect it to earth. Reconnect the connector and turn the ignition on. The driver's window should be raised. Reconnect clip 2 and disconnect clip 6 on the connector then connect to earth. Reconnect the connector and turn the ignition on. The driver's window should be lowered.
Does the driver's window operate during these tests?

yes → Replace the driver's window switch.

no ↓

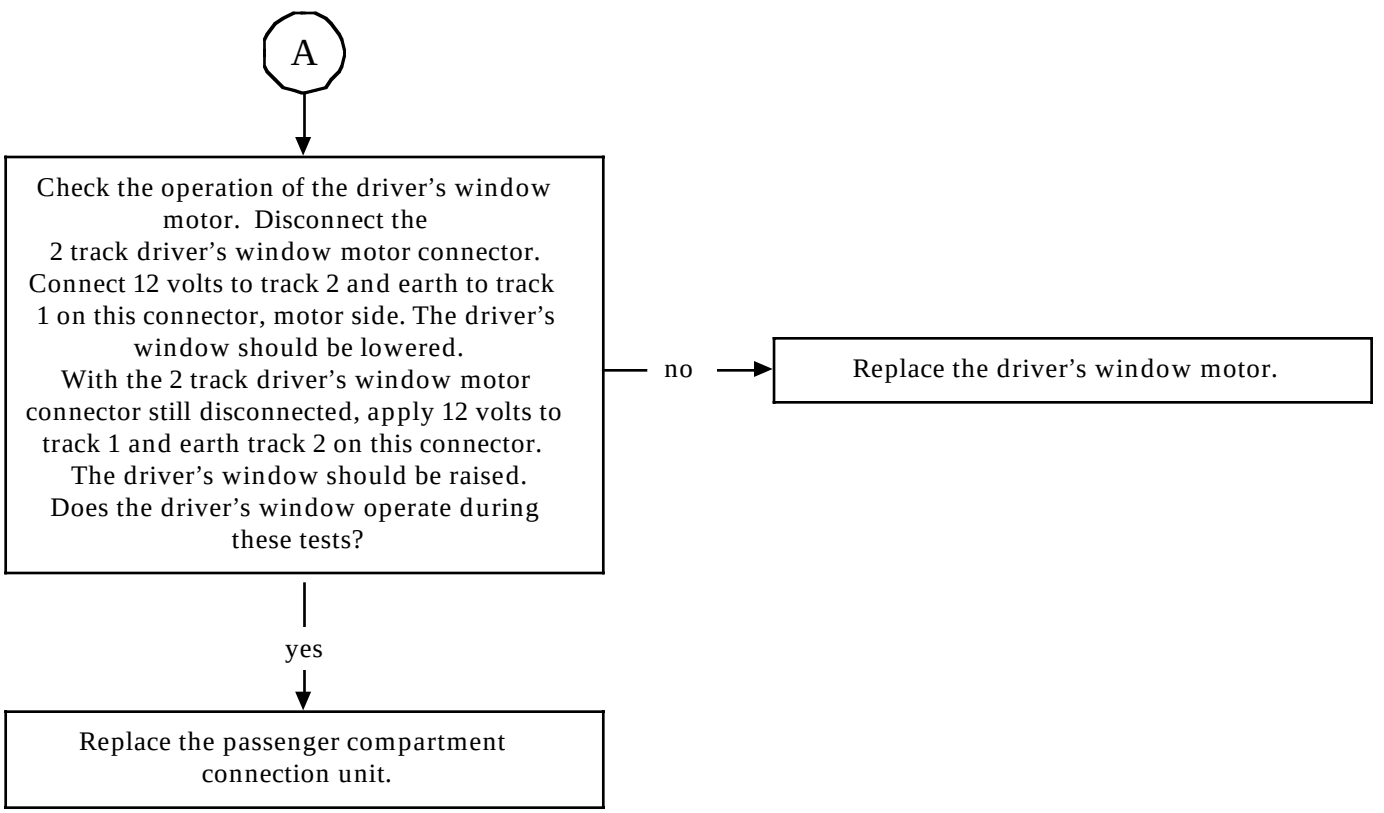
A

AFTER REPAIR	Check the driver's window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 1 CONT	



AFTER REPAIR	Check the driver's window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 2	LOSS OF PASSENGER'S WINDOW FUNCTION

NOTES	Only consult this customer complaint after checking using the XR25 that no fault bargraphs are illuminated and that the status bargraphs illuminate correctly.

Check the condition of the "passenger's window" 25 A fuse. Has it blown?
- no → A
- yes ↓

Replace the "passenger's window" fuse. Does it blow again?
- no → End of fault finding.
- yes ↓

Replace clip P7-B3 on the passenger compartment connection unit and reconnect connector P7. Replace the "passenger's window" fuse. Does it blow again?
- yes → Replace the passenger compartment connection unit.
- no ↓

Check the operation of the passenger's window motor. Disconnect the 2 track passenger's window motor connector. Connect 12 volts to track 2 and earth to track 1 on this connector, motor side. The passenger's window should be lowered. With the 2 track passenger's window motor connector still disconnected, apply 12 volts to track 1 and earth track 2 on this connector. The passenger's window should be raised. Does the passenger's window operate during these tests?
- yes → There is a short circuit to earth on the line. Check and ensure the insulation from earth of the lines:
  - P7-B3 / passenger's window switch,
  - the condition of the driver's side switch,
  - the connections driver's side switch / passenger's side switch,
  - the connections passenger's side switch / passenger's window motor.
- no ↓

Replace the passenger window motor.

AFTER REPAIR	Check the passenger's window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 2
CONT

A

Ignition on, check on track P7-B3 of the passenger compartment connection unit for 12 volts ?
Is there 12 volts ?

no → Replace the passenger compartment connection unit.

yes

Check the operation of the passenger's window motor. Disconnect the 2 track passenger's window motor connector. Connect 12 volts to track 2 and earth to track 1 on this connector, motor side. The passenger's window should be lowered. With the 2 track passenger's window motor connector still disconnected, apply 12 volts to track 1 and earth track 2 on this connector. The passenger's window should be raised.
Does the passenger's window operate during these tests?

no → Replace the passenger's window motor.

yes

The line is cut.
Check and ensure the continuity of the lines:
- P7-B3 / passenger's window switch,
- the condition of the driver's side switch,
- the connections driver's side switch / passenger's side switch,
- the connections passenger's side switch / passenger's window motor.

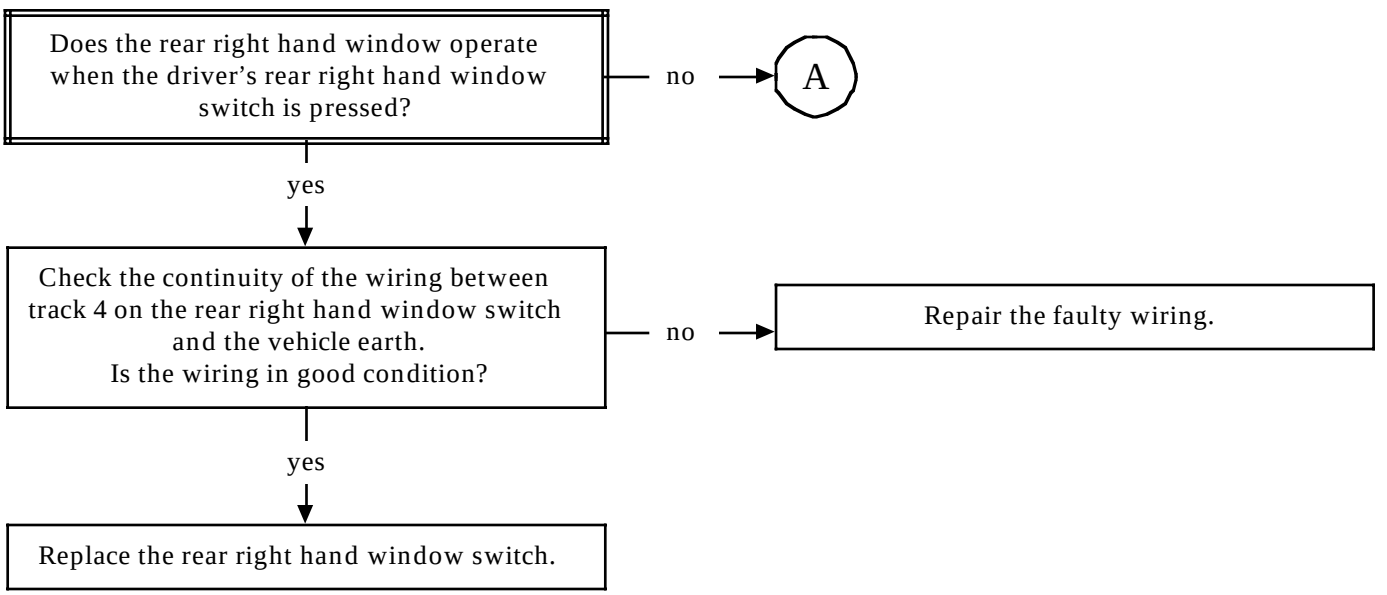
AFTER REPAIR	Check the passenger's window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 3	LOSS OF REAR RIGHT HAND WINDOW FUNCTION

NOTES	Only consult this customer complaint after checking using the XR25 that no fault bargraphs are illuminated and that the status bargraphs illuminate correctly.



AFTER REPAIR	Check the rear right hand window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 3 CONT 1	

A

Check the continuity and that there is no short circuit to earth on the wiring between:
- rear right hand switch / P5-A6,
- rear right hand switch / driver's rear right hand window switch,
- driver's rear right hand window switch / vehicle earth,
- driver's rear right hand window switch / rear right hand window motor.

Is the wiring correct?

no → Repair the faulty wiring.

yes

Check the operation of the rear right hand window switch. Disconnect the 6 track rear right hand window switch connector. Disconnect clip 2 from the connector and connect it to earth. Reconnect the connector and turn the ignition on. The rear right hand window should be raised. Reconnect clip 2 and disconnect clip 6 on the connector then connect to earth. Reconnect the connector and turn the ignition on. The rear right hand window should be lowered.

Does the rear right hand window operate during these tests?

yes → Replace the rear right hand window switch.

no

B

AFTER REPAIR	Check the rear right hand window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 3
CONT 2

B

Check the operation of the rear right hand window switch. Disconnect the 6 track rear right hand window switch connector. Disconnect clip 2 from the connector and connect it to earth. Reconnect the connector and turn the ignition on. The rear right hand window should be raised. Reconnect clip 2 and disconnect clip 6 on the connector then connect to earth. Reconnect the connector and turn the ignition on. The rear right hand window should be lowered.
Does the rear right hand window operate during these tests?

yes → Replace the rear right hand window switch.

no

Check the operation of the rear right hand window motor. Disconnect the 2 track rear right hand window motor connector. Connect 12 volts to track 2 and earth to track 1 on this connector, motor side. The rear right hand window should be raised. With the 2 track rear right hand window motor connector still disconnected, apply 12 volts to track 1 and earth track 2 on this connector. The rear right hand window should be lowered. Does the rear right hand window operate during these tests?

no → Replace the rear right hand window motor.

yes

Replace the passenger compartment connection unit.

AFTER REPAIR

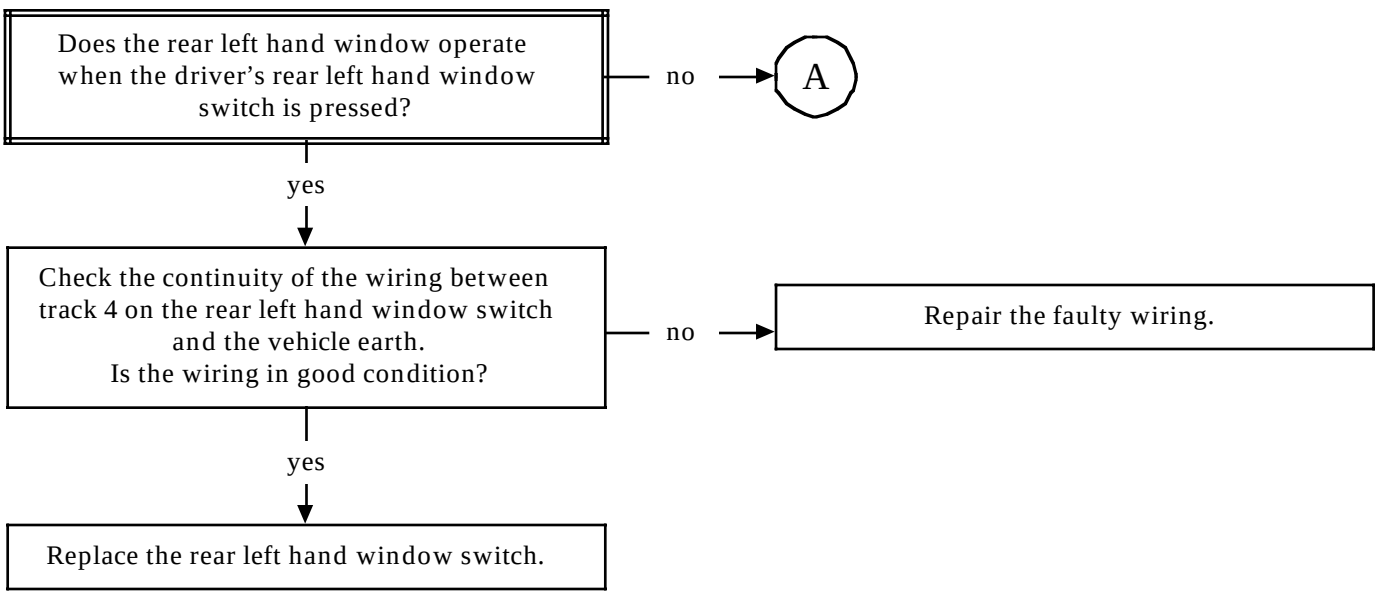
Check the rear right hand window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 4	LOSS OF REAR LEFT HAND WINDOW FUNCTION

NOTES	Only consult this customer complaint after checking using the XR25 that no fault bargraphs are illuminated and that the status bargraphs illuminate correctly.



AFTER REPAIR	Check the rear left hand window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 4 **CONT 1**	

A

Check the continuity and that there is no short circuit to earth on the wiring between:
- rear left hand switch / P5-B3,
- rear left hand switch / driver's rear left hand window switch,
- driver's rear left hand window switch / vehicle earth,
- driver's rear left hand window switch / rear left hand window motor.

Is the wiring correct?

no → Repair the faulty wiring.

yes

Check the operation of the rear left hand window switch. Disconnect the 6 track rear left hand window switch connector. Disconnect clip 2 from the connector and connect it to earth. Reconnect the connector and turn the ignition on. The rear left hand window should be raised. Reconnect clip 2 and disconnect clip 6 on the connector then connect to earth. Reconnect the connector and turn the ignition on. The rear left hand window should be lowered.
Does the rear left hand window operate during these tests?

yes → Replace the rear left hand window switch.

no

B

AFTER REPAIR	Check the rear left hand window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 4
CONT 2

B

Check the operation of the rear left hand window switch. Disconnect the 6 track rear left hand window switch connector. Disconnect clip 2 from the connector and connect it to earth. Reconnect the connector and turn the ignition on. The rear left hand window should be raised. Reconnect clip 2 and disconnect clip 6 on the connector then connect to earth. Reconnect the connector and turn the ignition on. The rear left hand window should be lowered.
Does the rear left hand window operate during these tests?

yes → Replace the rear left hand window switch.

no

Check the operation of the rear left hand window motor. Disconnect the 2 track rear left hand window motor connector. Connect 12 volts to track 2 and earth to track 1 on this connector, motor side. The rear left hand window should be raised. With the 2 track rear left hand window motor connector still disconnected, apply 12 volts to track 1 and earth track 2 on this connector. The rear left hand window should be lowered. Does the rear left hand window operate during these tests?

no → Replace the rear left hand window motor.

yes

Replace the passenger compartment connection unit.

AFTER REPAIR	Check the rear left hand window operates correctly.

O64001.0

FAULT FINDING - FAULT CHARTS

Chart 5	LOSS OF REAR RIGHT AND REAR LEFT HAND WINDOW FUNCTIONS

NOTES	Only consult this customer complaint after checking using the XR25 that no fault bargraphs are illuminated and that the status bargraphs illuminate correctly.

Check that the rear window locking switch is in the unlocked position.
Is the switch in the unlocked position?

no → Unlock the rear window locking switch by pressing it.

yes ↓

Disconnect the 6 track connector for the rear window locking switch and using a multimeter, measure the resistance between tracks A1 and B3 (measure on switch connector side) :
- when the switch is in the locked position, you should note R≈ 0 Ω,
- when the switch is in the unlocked position, you should note R = infinity.

Is the resistance noted correct?

no → Replace the rear window locking switch.

yes ↓

Check the continuity and that there is no short circuit to earth on the wiring between :
- P6-B3 and A1
- P7-B7 and B3

} on the rear window locking switch

Is the wiring correct?

no → Repair the wiring.

yes ↓

Replace the passenger compartment connection unit.

AFTER REPAIR	Check the rear right and left hand windows operate correctly.

O64001.0