RENAULT Clio

N.T. 1976

C57D

Basic manual : AIR CONDITIONING Section and M.R. 295

DIAVIA AIR CONDITIONING

For information not contained in this Technical Note, refer to M.R. 295.

77 11 097 854 **Edition Anglaise**

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

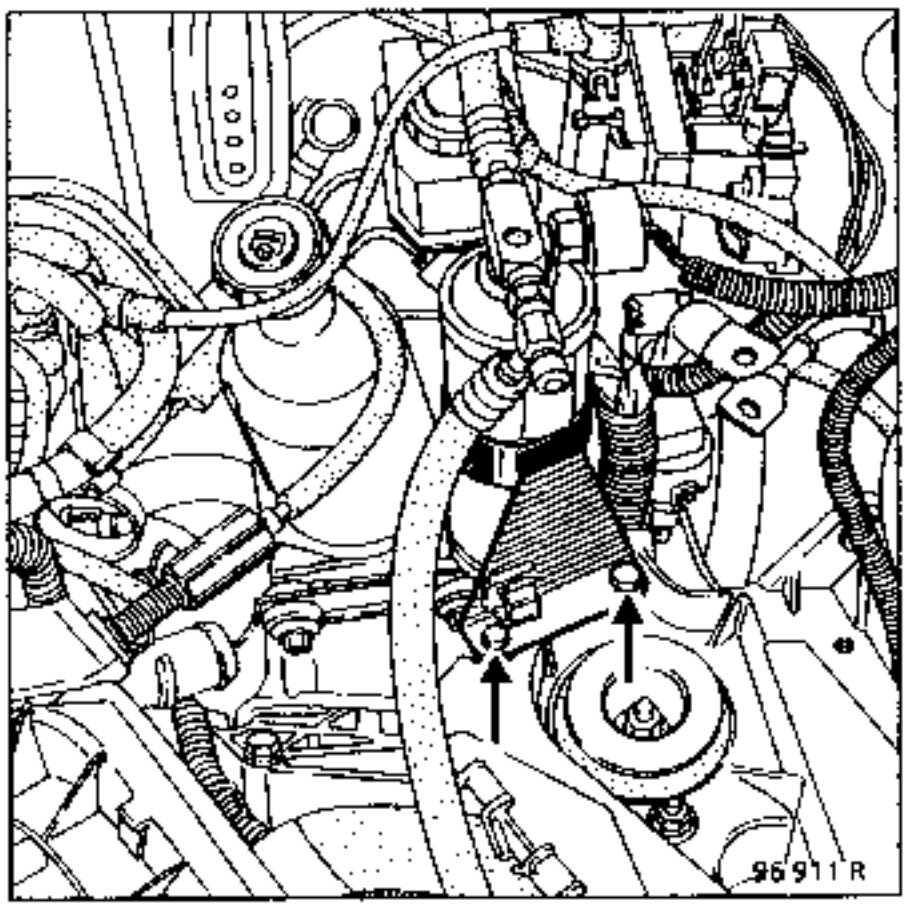
The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed.

PUMPS
Electric power assisted steering pump

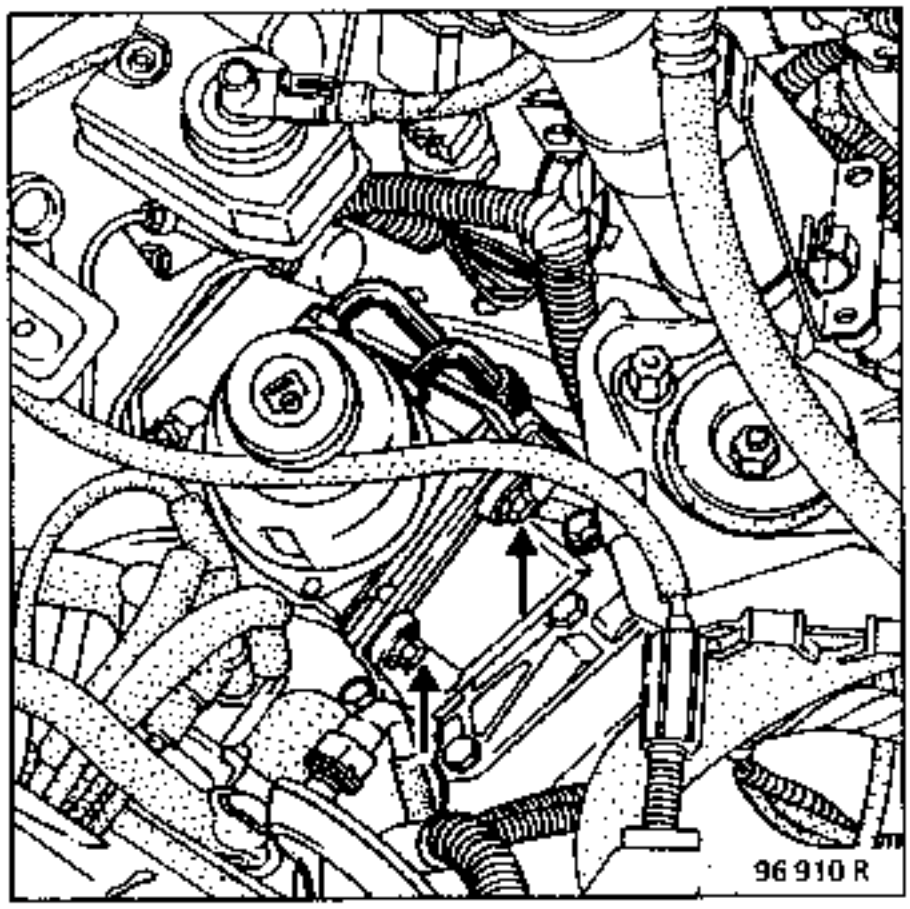
TIGHTENING TORQUES (in daN.m)		
Pipe union	Ø 16	2,5
	Ø 18	3
Pump assembly mounting bolt		4

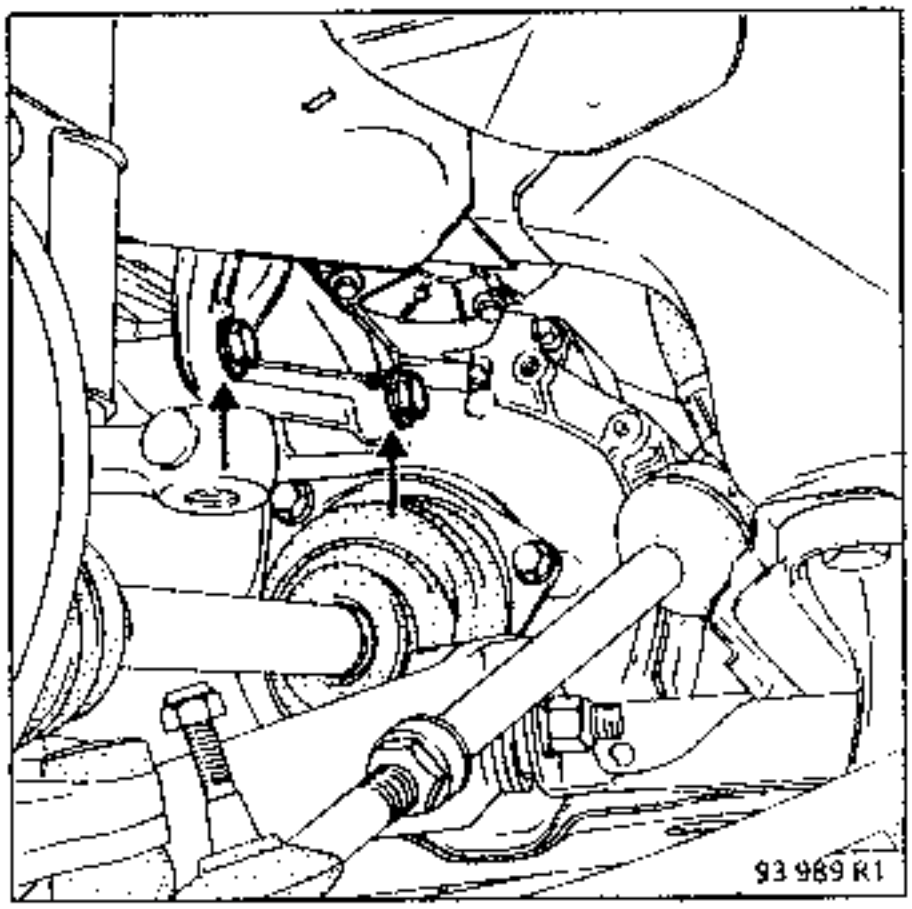
REMOVAL

Remove:
- the battery,
- the air filter,
- the 2 dehydrating bottle mounting bolts,



- the 4 pump mountings.





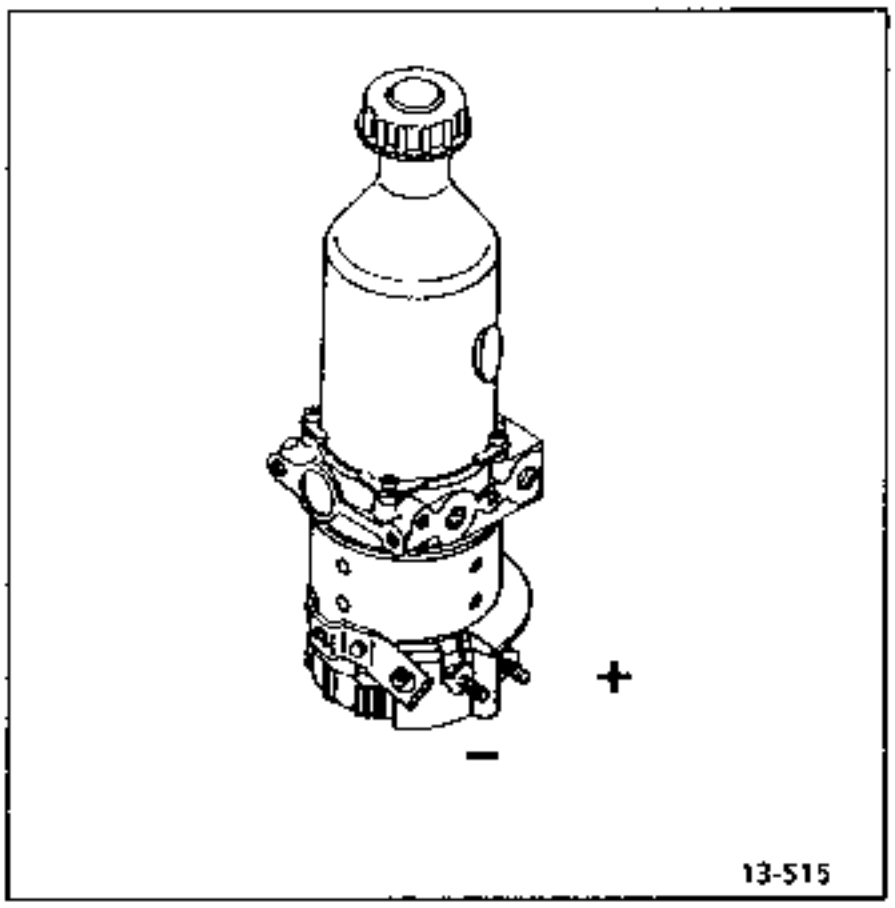
Disconnect the low and high pressure pipes.

PRECAUTION !

The pump openings must be blocked off to prevent any oil entering the electric motor.

Disconnect the pump assembly electrical feed wiring.

Remove the pump and mounting assembly.



REFITTING

Reconnect the pump assembly electric feed wiring.

Refit the pump and mounting assembly and tighten the 4 mounting bolts.

Refit the high and low pressure pipes.

Refit the dehydrating bottle mounting (2 bolts).

Refit the air filter.

Reconnect the battery.

Fill and bleed the circuit.

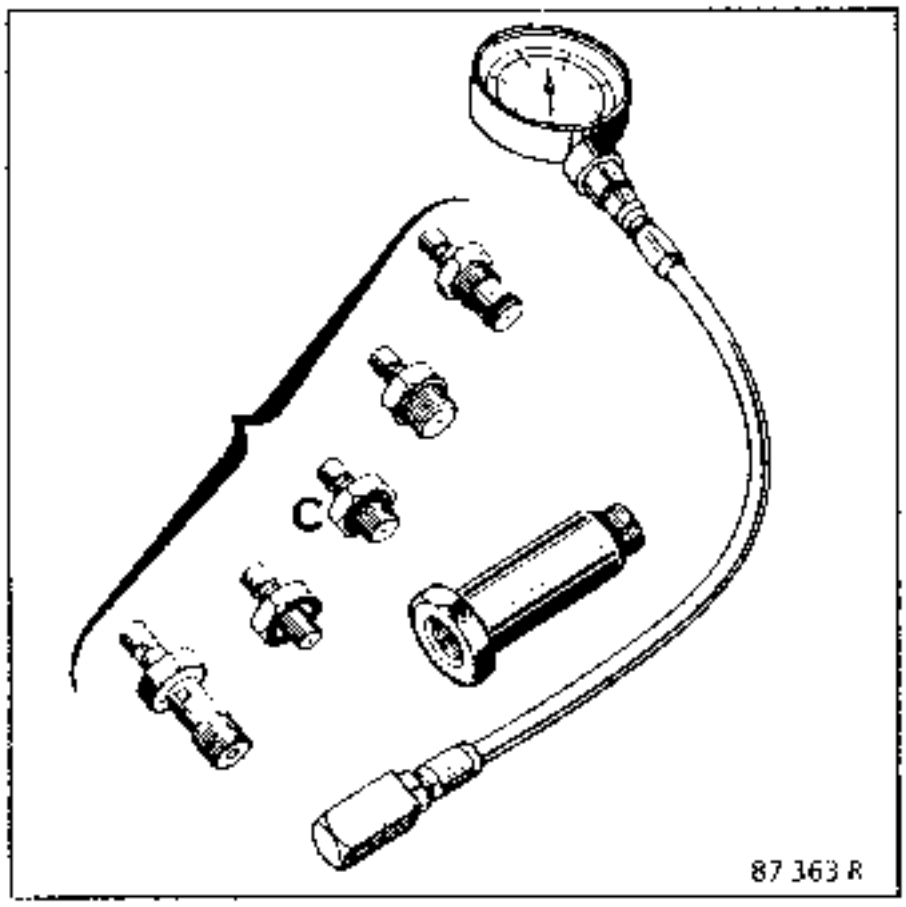
PUMPS
Electric power assisted steering pump

PRESSURE CHECK FOR POWER ASSISTED STEERING WITH ELECTRIC PUMP

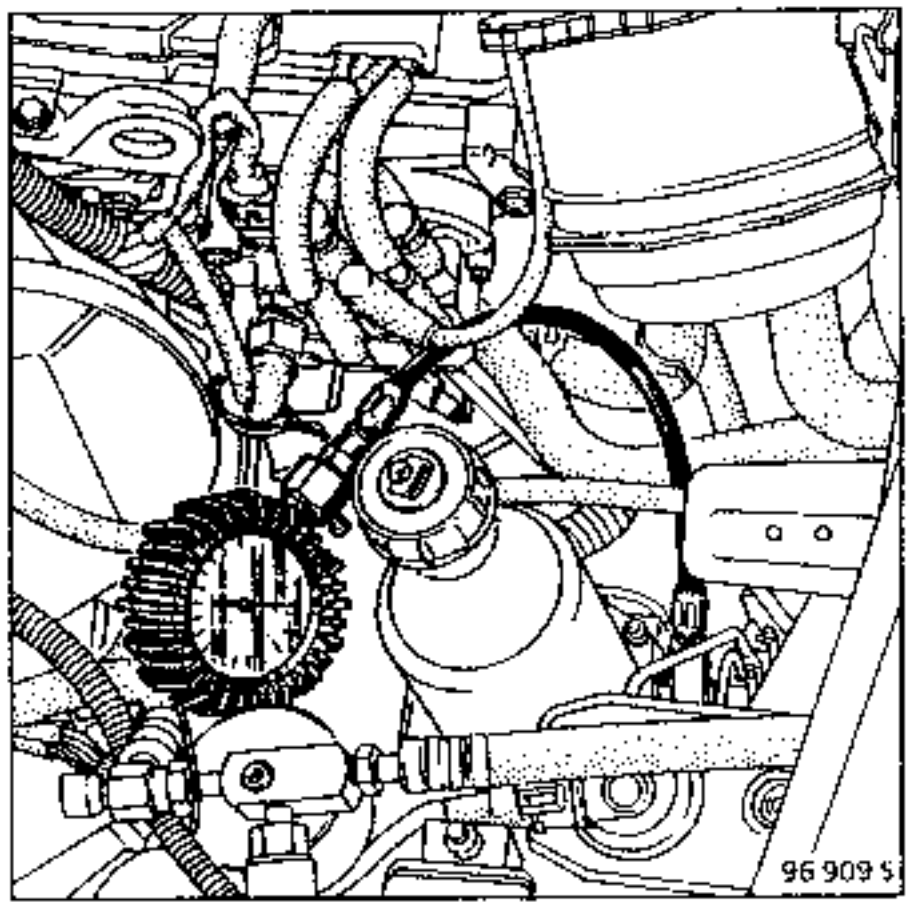
SPECIAL TOOLING REQUIRED			
	Mot.	836 -05	Pressure check kit
	Fre.	244 -03	Pressure gauge
+	Fre.	284 -06	Pressure gauge
or	Fre.	1085	Pressure gauge

Remove the pressure checking plug.

Fit the adapter marked (C) from the kit **Mot. 836-05**



Connect the pressure gauge **Fre. 244-03** and the flexible pipe **Fre. 284-06** or fit the pressure gauge from kit **Fre. 1085**.



OIL PRESSURE AT 45°C

Wheels in straight line :
Whatever the engine speed, the pressure should **not exceed 5 bars.**

Turn to and maintain full lock :
The **maximum pressure should be 71 to 75 bars.**

IMPORTANT :
This operation should be carried out for as short a time as possible to avoid overheating the oil.

Electric power assisted steering pump

OPERATION

IGNITION ON, ENGINE NOT RUNNING

The oil pressure pressure gauge permits track 2 on the electro-pump assembly relay to be earthed (595-1).

Since track 1 on this relay (595-1) is fed with + 12 Volts after ignition, the connection between the two electro-pump assembly relays is cut (409-1) and (409-2).

The power assisted steering electro-pump assembly motor does not operate.

When the vehicle is started, the oil pressure pressure gauge opens the circuit. The relay (595-1) is no longer energised.

The relay (595-2) is then fed on track 1 by the starter information (+ 12 Volts). Track 2 receives a direct earth and the relay is then energised.

The connection to the two electro-pump assembly relays (595) is then cut.

The power assisted steering electro-pump assembly motor does not operate.

ENGINE RUNNING

The electro-pump assembly control relay (595-1) is not fed.

Since the relay (595-2) is no longer fed, the earth on track 3 only reaches track 2 on each of the two electro-pump assembly relays (409).

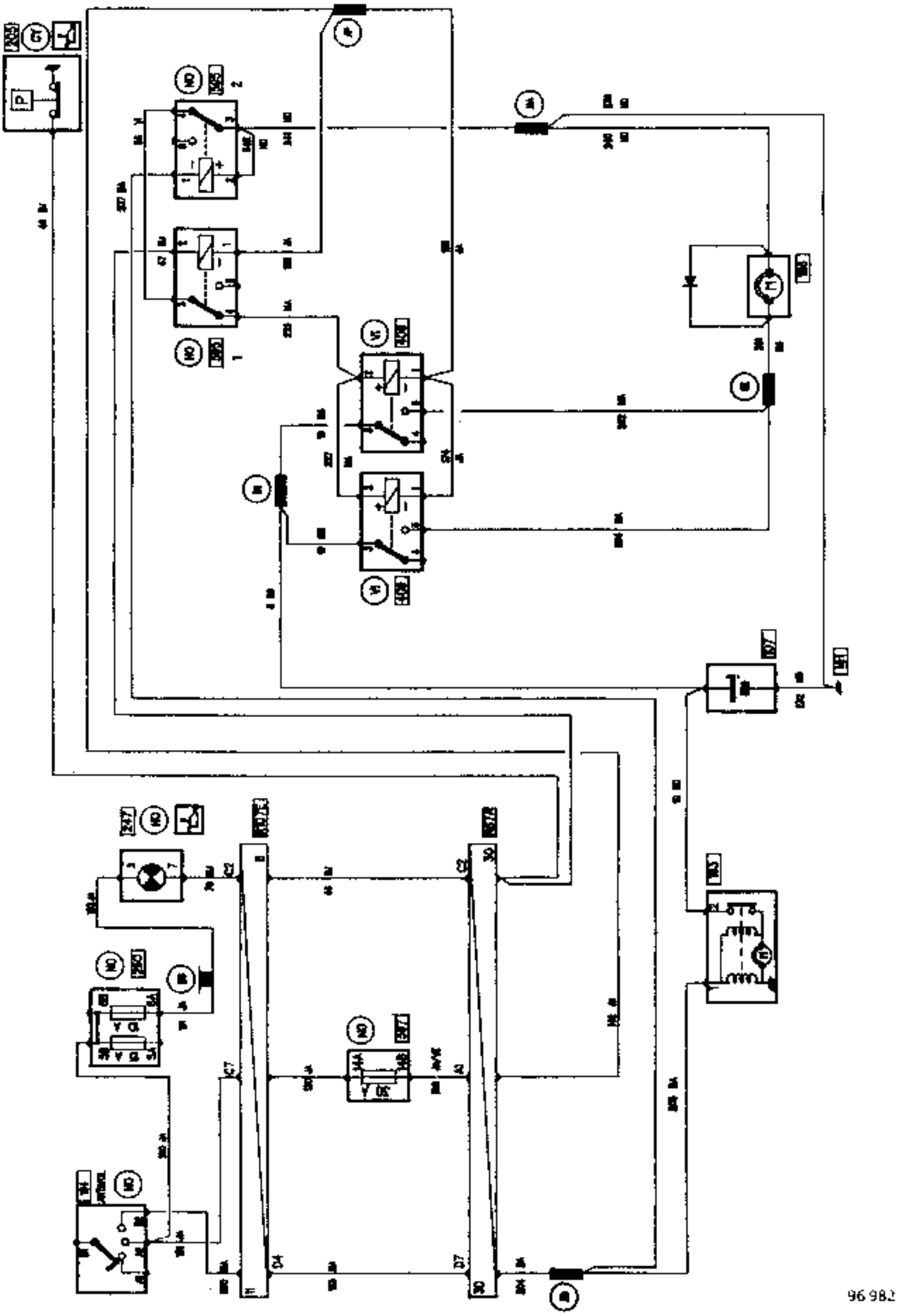
Track 1 on each of the two electro-pump assembly relays (409) is fed with + 12 Volts after ignition.

The two relays (409) are therefore energised.

The power assisted steering electro-pump assembly motor operates.

WIRING DIAGRAM KEY

107	Alternator
163	Starter motor
186	Electro-pump assembly
205	Pressure switch
247	Instrument panel warning light
260	+ after ignition
409-1	Electro-pump assembly relay
409-2	Electro-pump assembly relay
595-1	Control relay
595-2	Blocking relay in starting phase



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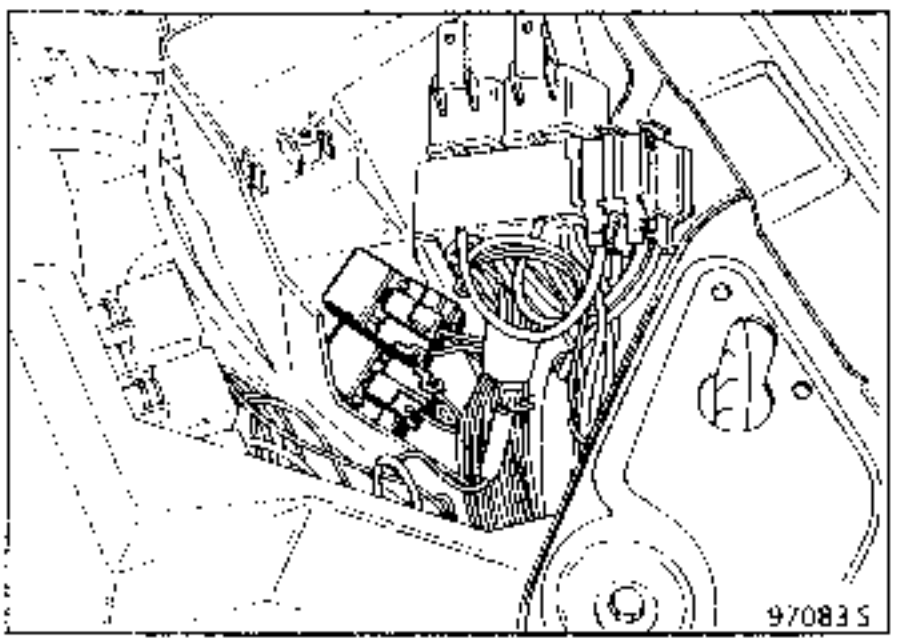
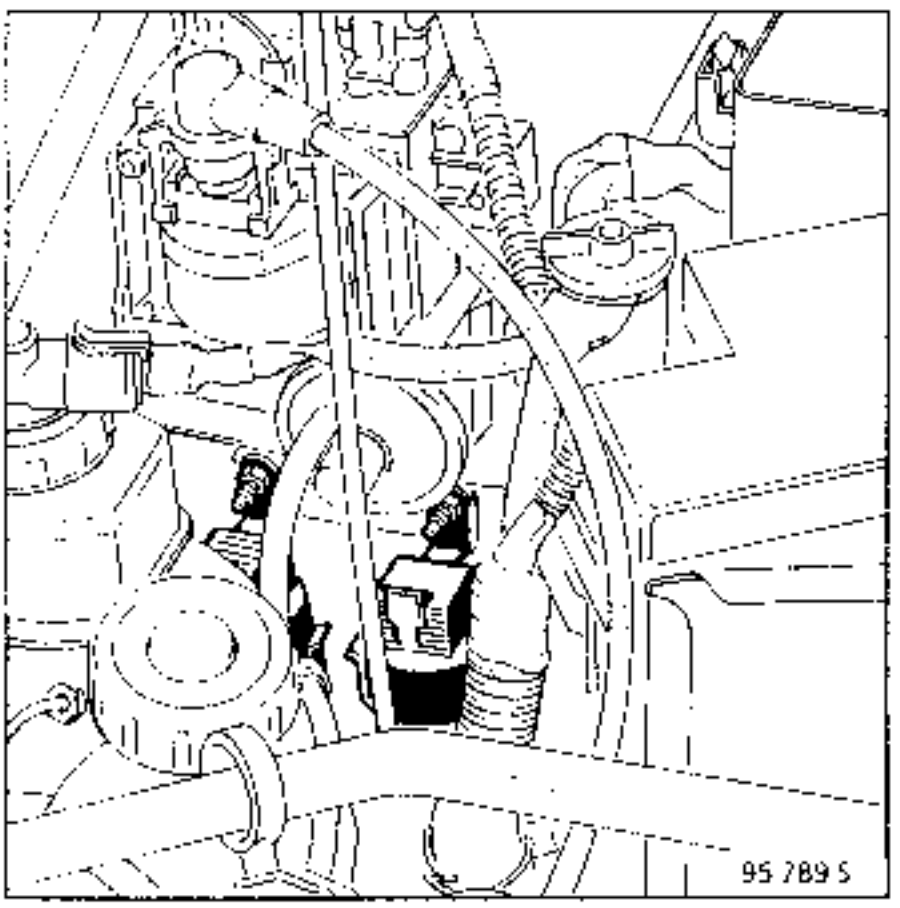
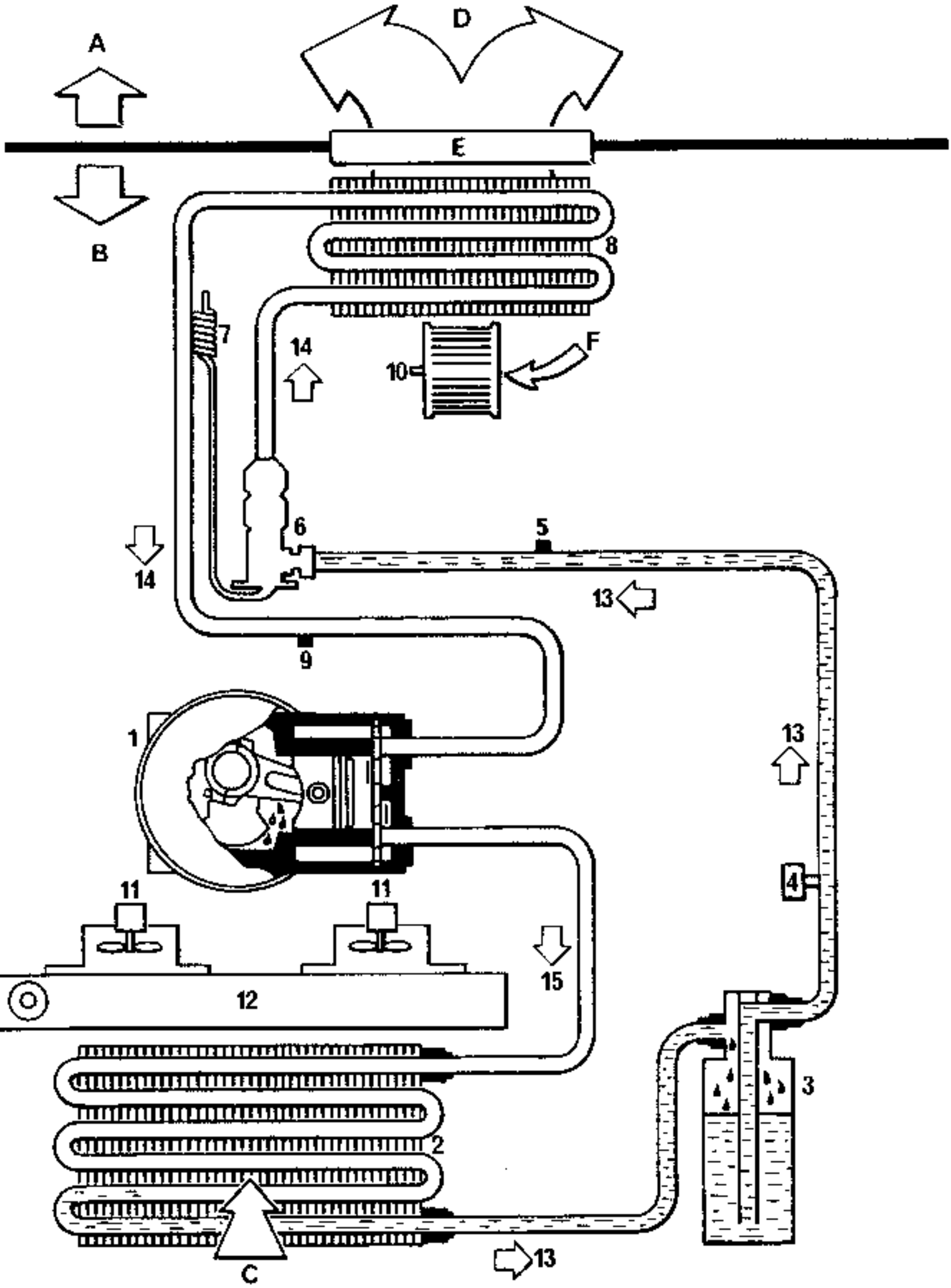
LOCATION OF THE RELAYS

The control relays (595-1) and (595-2) for the electro-pump assembly are located in the lower section of the connection unit.



The two electro-pump assembly relays (409-1) and (409-2) are protected by sealed units mounted on the front left hand shock absorber turret (violet).





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

CONSUMABLES

Compressor oil :
ELF RIMA 100 : 135 cm^3 ± 15

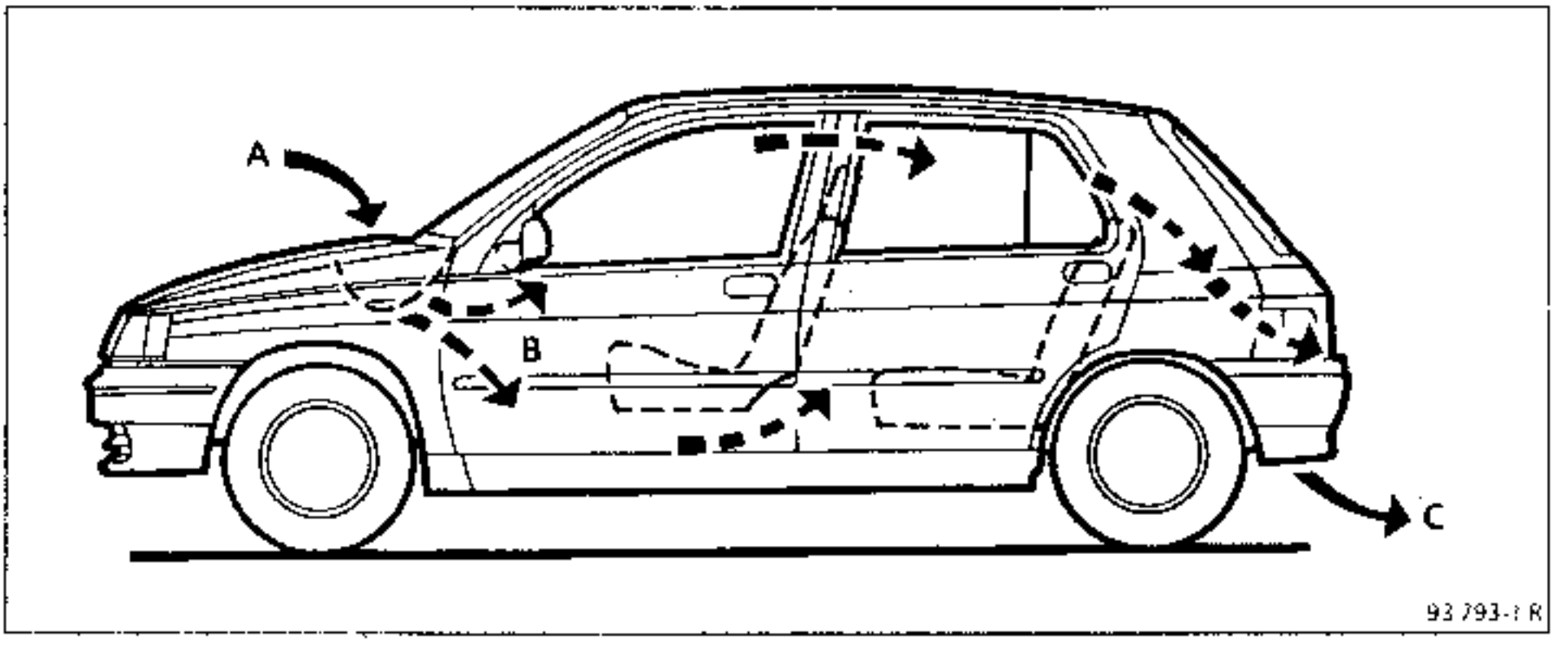
Refrigerant :
FREON R12 → 900 g ± 25 g

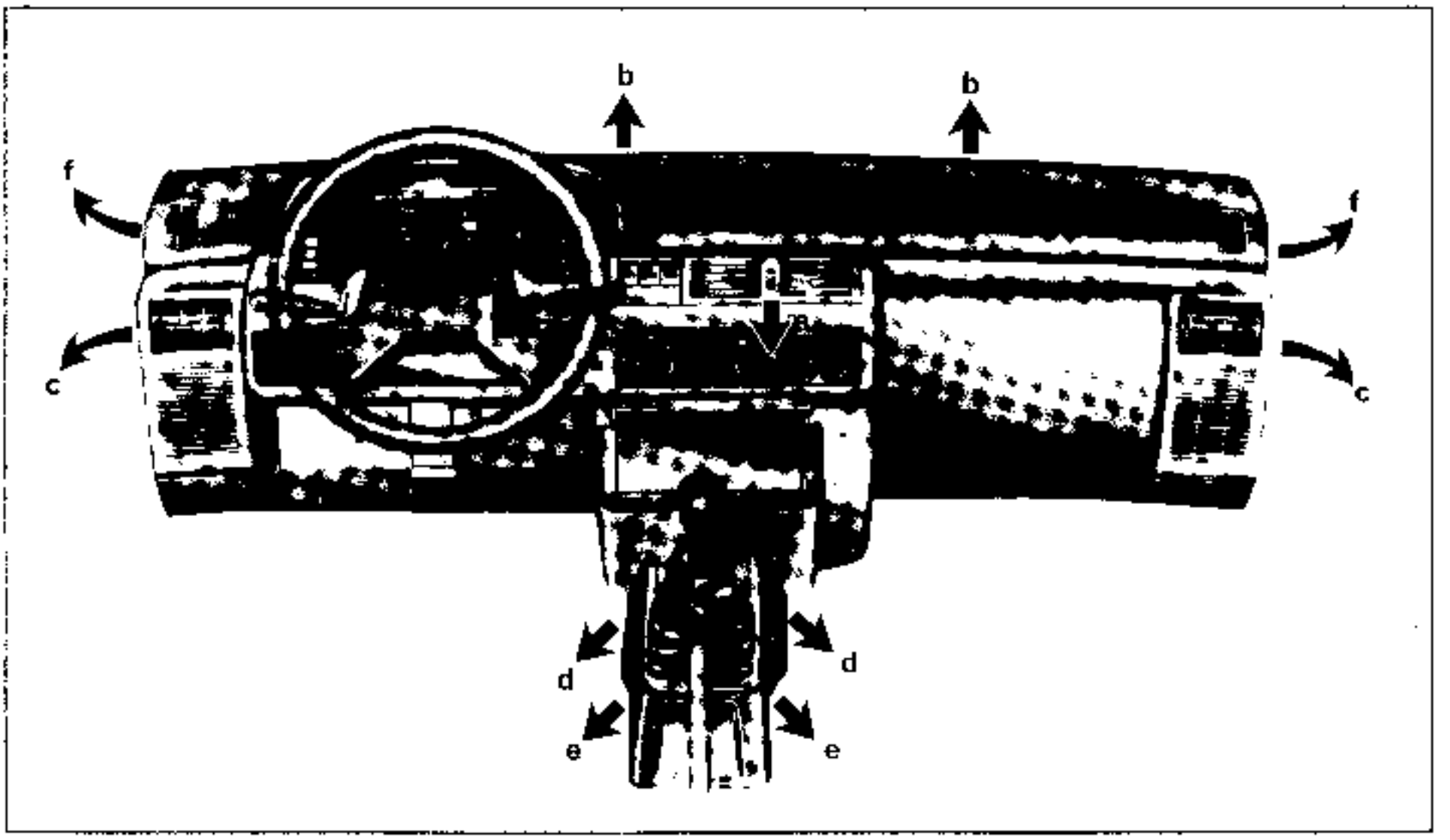
1 SANDEN compressor : SD 709
2 Condenser
3 Freon reservoir
4 Trifunction pressostat
5 High pressure bleed
6 Pressure release valve
7 Thermostat regulator for pressure release valve
8 Evaporator
9 Low pressure bleed
10 Air conditioning fan
11 Engine cooling fan
12 Engine radiator
13 High pressure fluid
14 Low pressure vapour
15 High pressure vapour

AIR CONDITIONING
General

RENAULT CLIO 1.8 litre and 16 valve vehicles now have the "DIAVIA" air conditioning system available as an option.

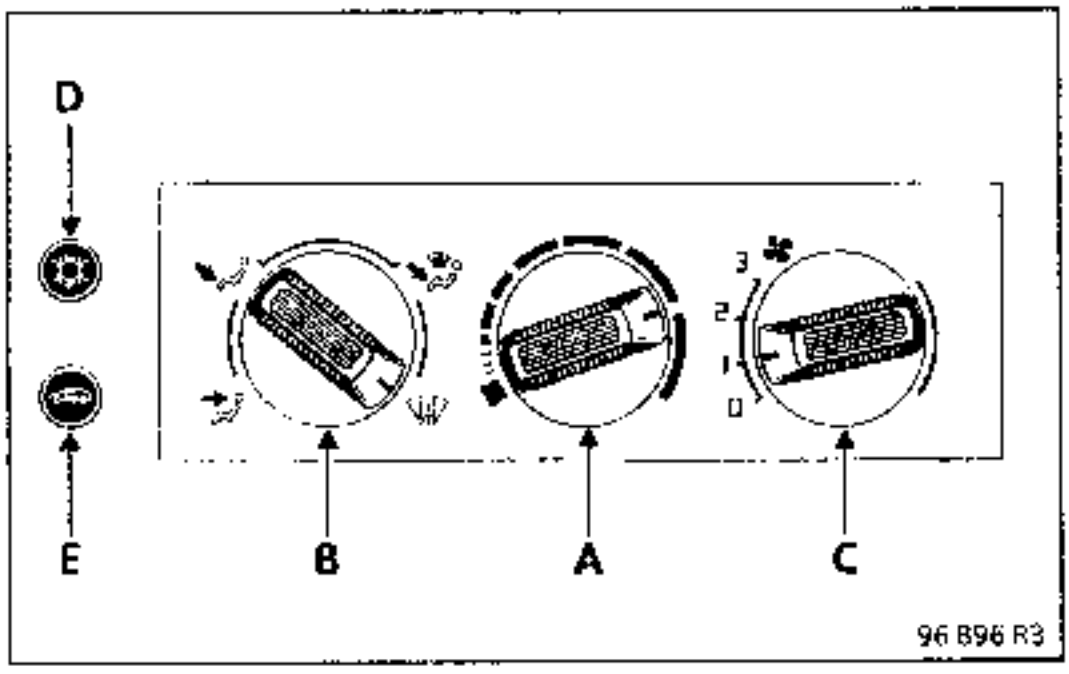
The air distribution and circulation is the same as for all vehicle types.





A External air inlet
B Air distribution
C Air extraction through luggage compartment

a Central ventilator outlets
b Windscreen demister outlet
c Dashboard ventilator outlet
d Footwell ventilator outlets
e Rear seat ventilator outlets
f Front side window demister outlets

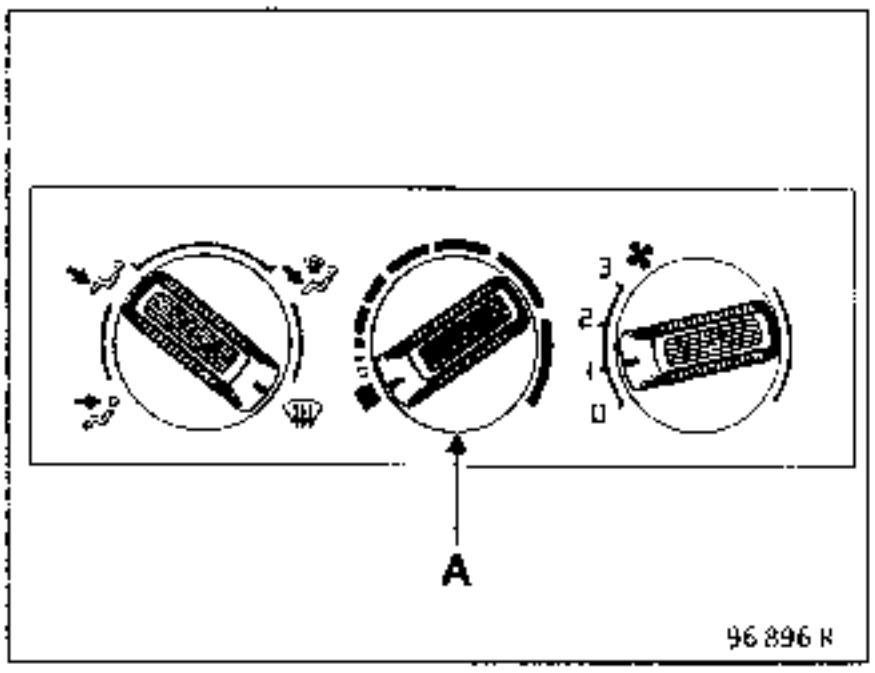


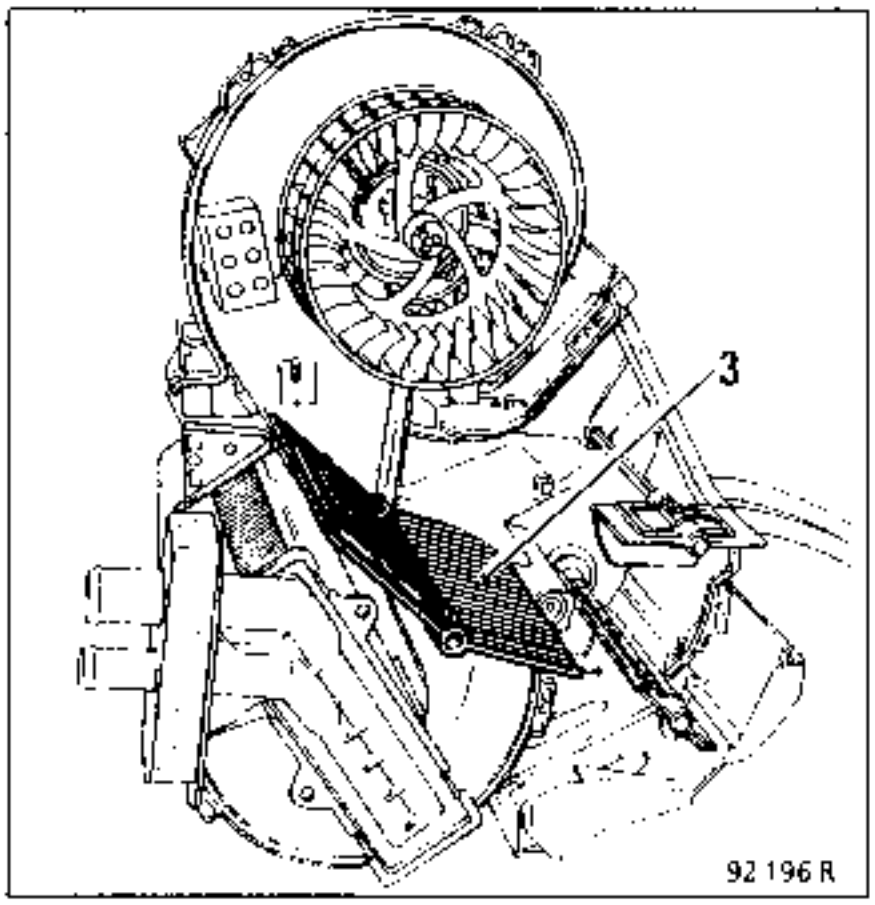
A Temperature control knob
B Air distribution control
C Fan speed control
D Air conditioning on / off switch
E Air recycling control

TEMPERATURE CONTROL KNOB (A) (Same as basic version)

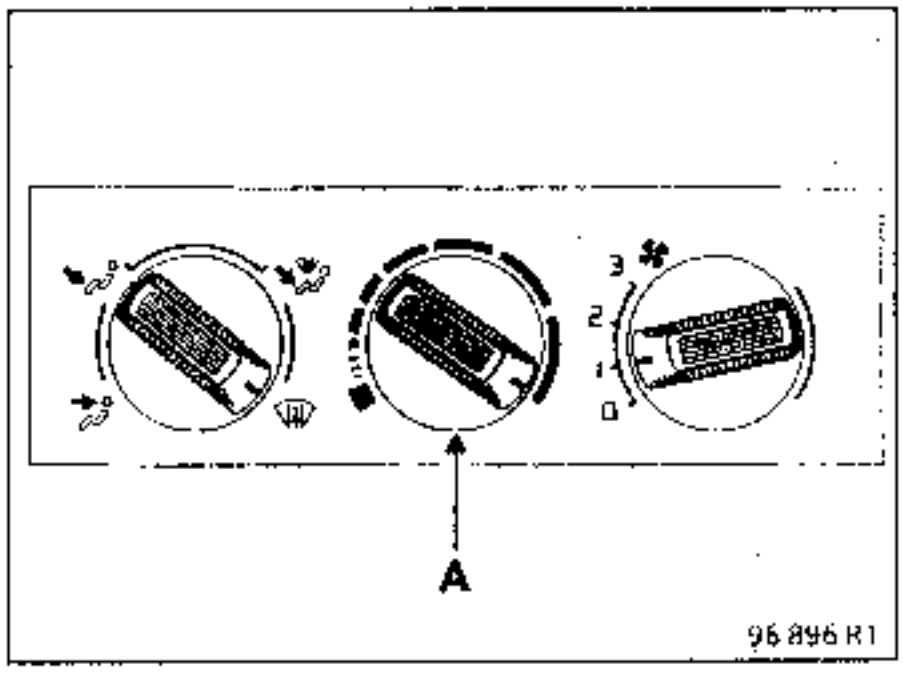
Controls the warm / cold air flap (3) .

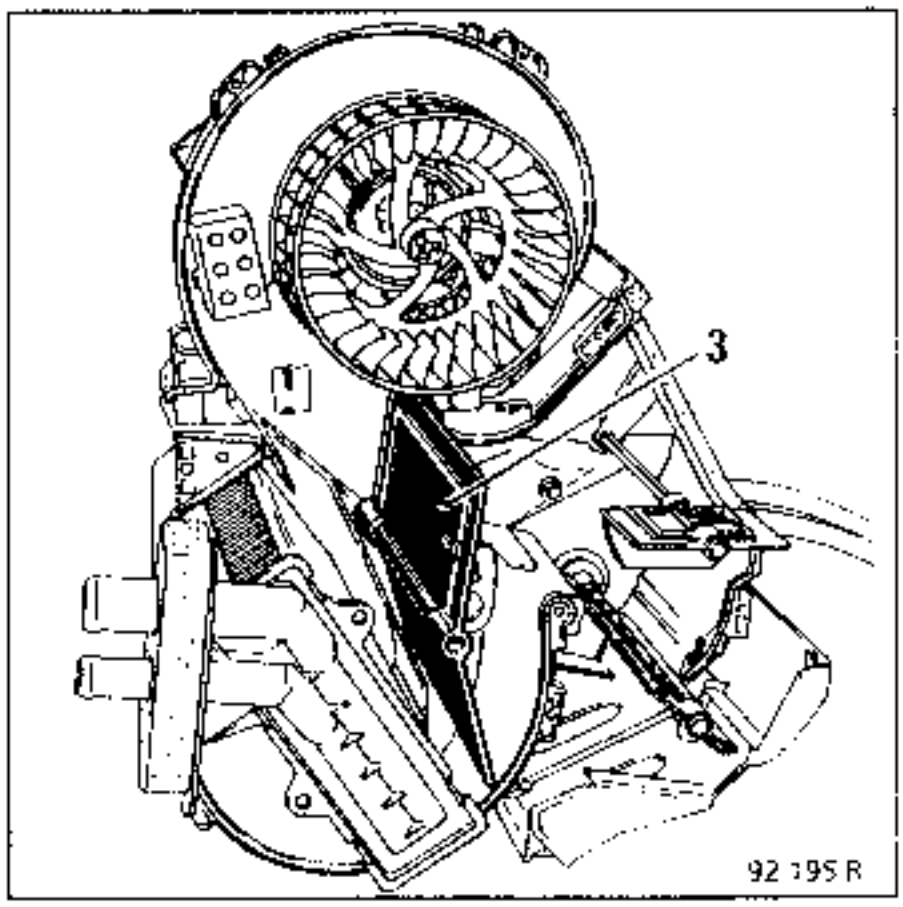
COLD AIR





WARM AIR

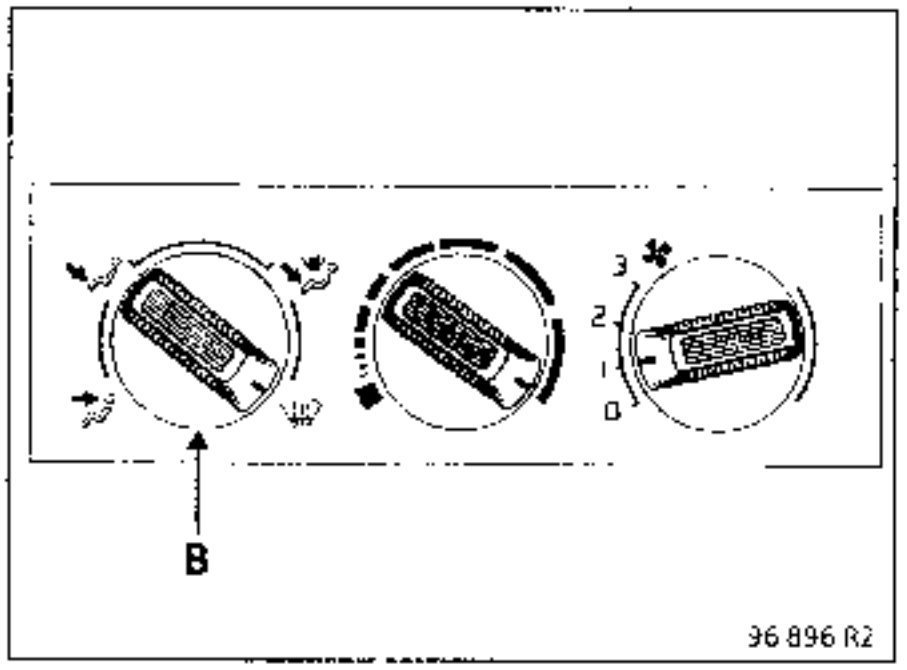


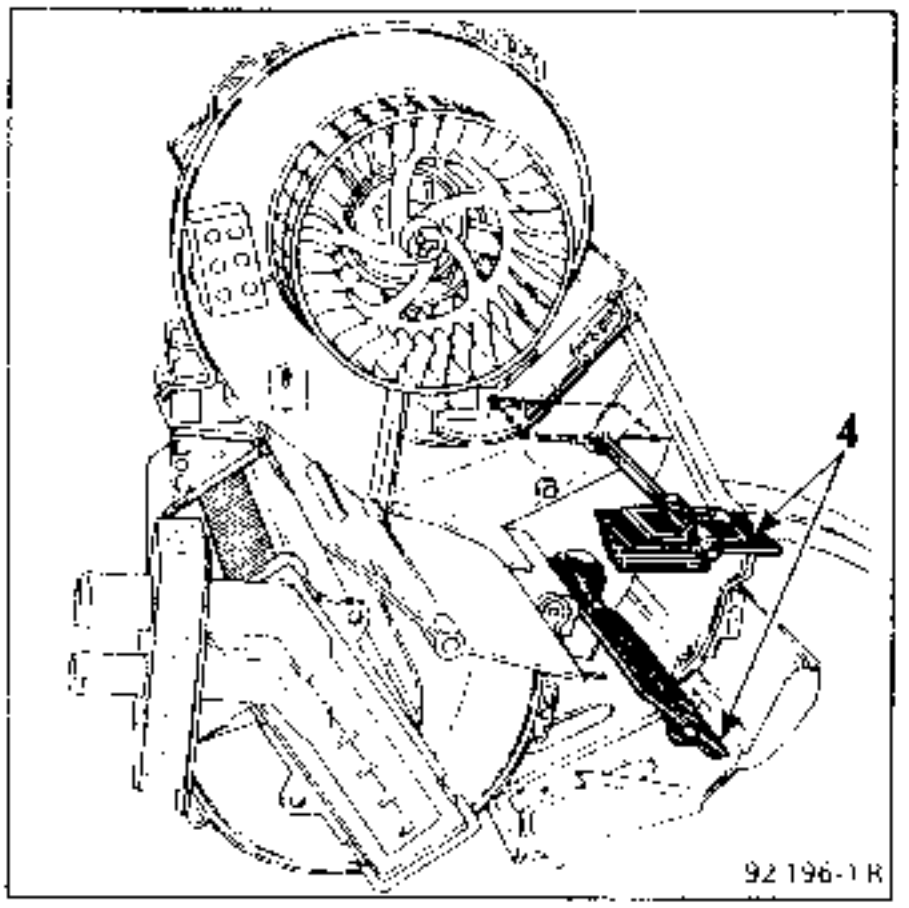


The fan has no heating valve - it is permanently fed. Flap (3) is used for fresh air heating system operation

AIR DISTRIBUTION CONTROL (B)
(Same as basic version)

Controls the air distribution flaps (4).





POSITION

The air flow is only directed to the dashboard ventilators (c).

Each ventilator has three settings :
- open or closed,
- up or down,
- left or right.

POSITION

The air flow is directed to the footwell ventilators (d) (e) and the dashboard ventilators (c).

POSITION

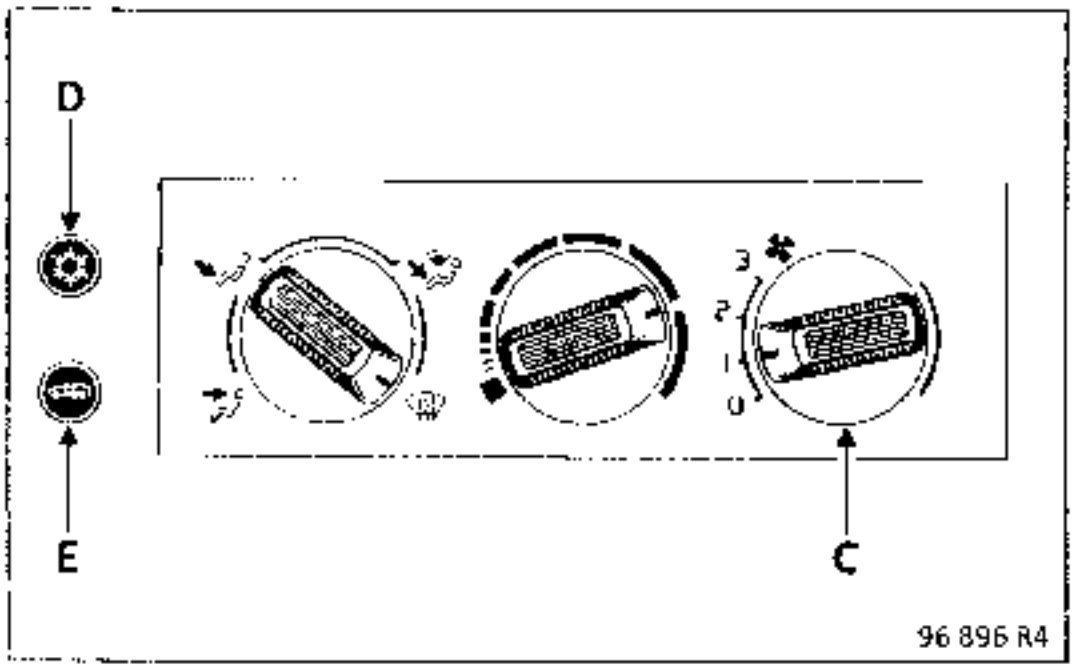
The air flow is directed to all the ventilators (b), (c), (d), (e), (f).

The dashboard ventilators (c) may be closed.

POSITION

The air flow is directed to the windscreen ventilators (b), the side windows (f), and the dashboard (c).

For efficient windscreen demisting or de-icing ventilators (c) should be closed.



FAN SPEED CONTROL (C)

Ventilation is by blown air. The amount of air flow circulating in the passenger compartment is determined by the positions of the control (C)

NOTE : to improve the efficiency of windscreen demisting and de-icing, the fan speed control (C) should be set to the last but one position.

AIR CONDITIONING ON / OFF SWITCH (D) AND AIR RECYCLING CONTROL (E)

These two switches give three operating settings :

1 Normal air conditioning operation

2 Air conditioning operation with isolation of the passenger compartment

3 Isolation of the passenger compartment (without operation of the air conditioning system).

1 Normal air conditioning operation

Press switch (D) (tell tale illuminates).

Position the fan speed control (C) to a position other than "0"

The air conditioning is operational. This is normal operation since fresh air is taken from outside the vehicle and is constantly renewed.

2 Air conditioning operation with isolation of the passenger compartment (air recycling)

Press switches (D) and (E) (tell-tales illuminate).

Position the fan speed control (C) to a position other than "0".

The air conditioning is operational. Air is taken from inside the passenger compartment and is recirculated. No fresh air is taken from outside the vehicle.

This function allows the passenger compartment temperature to be lowered quickly and to isolate the compartment from the external atmosphere (driving through a polluted area).

Prolonged use of this position may cause the air in the passenger compartment to become stale and humid . It is therefore advisable to turn off the "air recycling" function (switch (E)) as soon as the polluted area is left or as soon as the required passenger compartment temperature is reached.

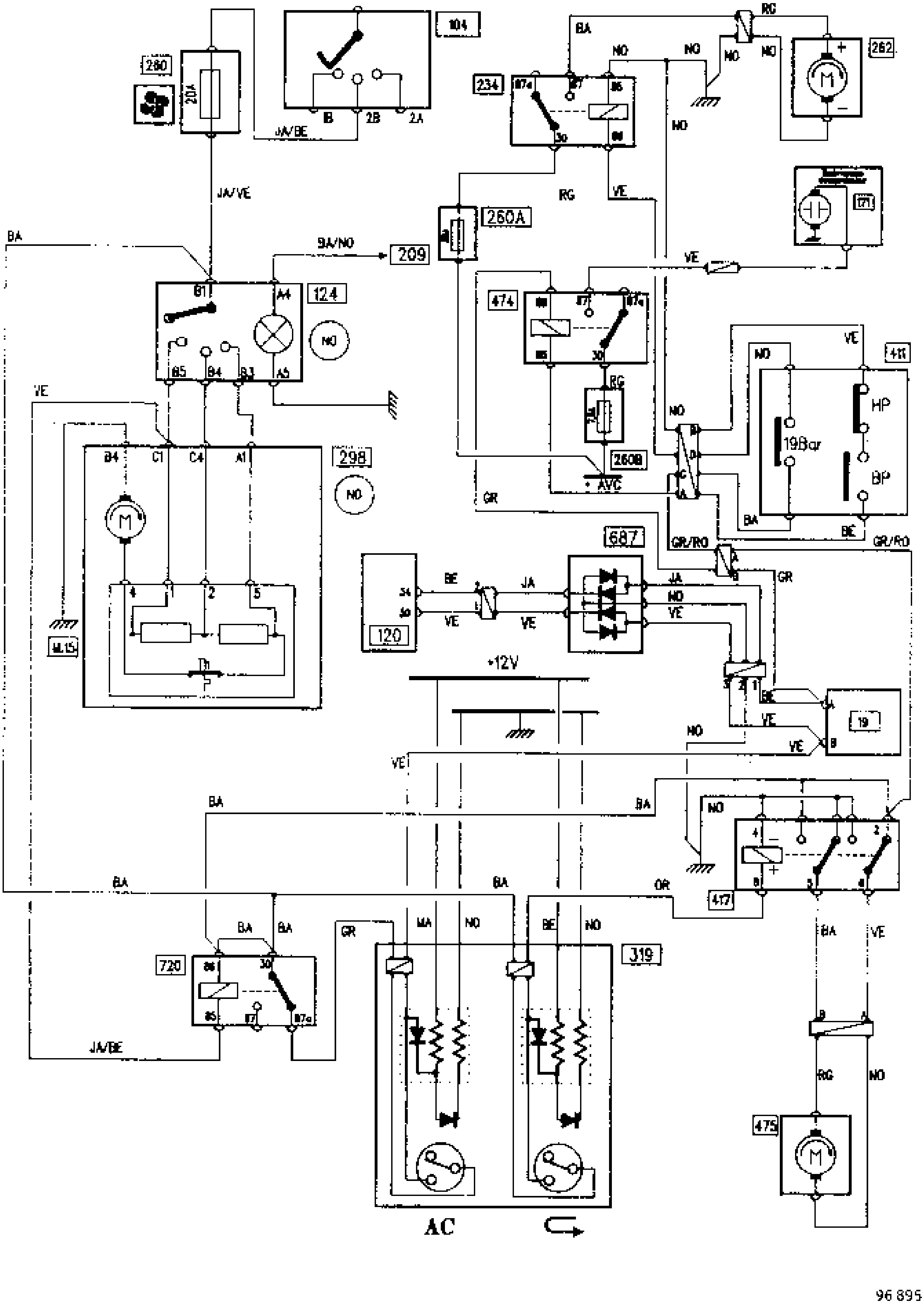
3 Isolation of the passenger compartment (without operation of the air conditioning system)

Press switch (E) (tell-tale illuminated).

Air is recycled. Operation is identical to that described in the paragraph above (but without operation of the air conditioning system).

19 Electronic thermostat (mounted on the right hand side of the fuse box in the passenger compartment)
104 Anti-theft - ignition switch
120 Injection computer
124 Heating control
171 Air conditioning compressor clutch
209 Lighting stalk
234 Fan assembly relay
260 Fuse box
262 Air conditioning cooling fan assembly
298 Heating unit
319 Control panel
411 Air conditioning pressostat
417 Air conditioning recycling motor relay
474 Compressor relay
475 Air recycling motor
687 Diode unit
720 Air conditioning on / off resay

M15 Heating casing earth


104
280
20A
1B
2B
2A
JA/BE
JA/VE
BA
BA/NO
209
124
B1
A4
NO
B5
B4
B3
A5
VE
298
B4
C1
C4
A1
4
1
2
5
ML15
234
87a
87
86
30
85
RG
NO
262
260A
RG
VE
171
474
86
87
87a
85
30
RG
260B
+ AVC
GR
411
HP
19Bar
BP
BA
BE
GR/RO
687
120
54
50
BE
JA
VE
NO
+12V
19
VE
417
4
2
5
3
OR
BA
VE
475
720
86
30
85
87
87a
JA/BE
GR
MA
NO
BE
319
AC
96 895

AIR CONDITIONING
Fault finding

CUSTOMER COMPLAINTS

- Air conditioning faults
  - No cold air — **Chart 1**
  - Lack of efficiency — **Chart 2**
  - Too much cold air — **Chart 3**
- Recycling flap does not work — **Chart 4**
- Ventilation fan does not operate correctly — **Chart 5**
- Cooling fan does not operate correctly — **Chart 6**

Chart 1 : No cold air

Does the compressor operate?
— no → (A) (See following page)

yes ↓

Engine at idle speed, fan at maximum speed. Check dehydrating bottle inspection window for bubbles. Are there bubbles ?
— yes → Replace the freon in the circuit

no ↓

Check that moving the heating control moves the mixing flap. Does the flap move?
— no → Adjust the cable or replace any faulty parts

yes ↓

Visually check that the flap moves as far as it should. Adjust if necessary. Does the fault persist?
— no → Correct

yes ↓

Connect the high pressure and low pressure gauges and check the pressures at idle speed with the air conditioning system on and the fan at maximum speed :
- **If high pressure = low pressure the pressure release valve is fully open**
- **If low pressure ≦ 0 the pressure release valve is closed.**

If one of these two conditions is noted, replace the pressure release valve and replace the freon. Does the fault persist?.
— no → Correct

yes ↓

If the engine cooling fan does not operate when the air conditioning is on and the ventilation fan is at maximum speed (engine at 2000 rpm, wait for a moment for the pressure to reach 16 ± 1 bar) ,shunt the trifunction pressostat connector between tracks C and D and check if the engine cooling fan assembly operates. Does the engine cooling fan assembly operate?
— no → See Chart 6

yes ↓

Replace the air conditioning compressor.

Chart 1 : No cold air (cont)

(A)

Check the 7.5 A feed fuse located in the relay unit in the engine compartment. Is this correct ?

— no → Replace the fuse

yes ↓

Engine not running, ignition on. Air conditioning on, ventilation fan on 1st speed. Check the + 12 volts and earth on the compressor connector. Are they correct?

— yes → Check the clutch resistance (3.2 ± 0,5 Ω) Replace the clutch if necessary.

no ↓

Engine at idle speed, air conditioning on and ventilation fan on maximum. Shunt tracks A and B on the trifunction pressostat connector. Does the compressor operate?

— yes → **2 cases may arise** : Fit the high pressure and low pressure gauges, engine not running. Check if the pressures are:
1) < 2 bar → replace the freon in the circuit (remember to check the circuit for leaks).
2) > 5 bar → replace the pressostat.

no ↓

Ignition on, air conditioning on and ventilation fan running, check for + 12 Volts on track 86 of the compressor control relay 474 . Is there + 12 volts ?

— yes → Ignition on, air conditioning on and ventilation fan running. Check for + 12 volts between tracks 85 and 86. Is there + 12 volts ?

yes ↓ Ignition on, air conditioning on and ventilation fan running, shunt tracks 30 and 87 on the connector for compressor relay 474. Does the compressor operate?

yes ↓ Replace compressor relay 474

no ↓ Is there + 12 volts on track 30 of the air conditioning relay 474 ?

yes ↓ Repair the wiring between track 87 on compressor relay 474 and the compressor.

no ↓ Repair the wiring between track 30 on compressor relay 474 and the + 12 volts before ignition feed (7.5 A fuse).

no ↓ Repair the wiring between :
- Track 85 on compressor relay 474 and track A on the trifunction connector.
- Track B on the trifunction connector and the vehicle earth.

no ↓

(8)

following page

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Chart 1 : No cold air (cont)

B

Connect the XR 25 using injection fiche n° 3. Enter D03 (S8), engine not running. Turn the air conditioning on and check that bargraphs 14 left and right illuminate .
Do the bargraphs illuminate?

— no → See Chart 1A.

yes

Shunt the evaporator sensor between tracks A and B.
Ignition on, air conditioning and ventilation fan on maximum.
Does the compressor operate?

— yes → Replace the evaporator sensor

no

Repair the wiring between tracks :

- A on evaporator thermostat (blue and grey wires)	and	B on 2 track black connector next to the evaporator
- B on 2 track black connector next to the evaporator	and	86 on compressor relay 474.

Chart 1 : No cold air (cont)

Ignition on, air conditioning on and ventilation fan running. Check the voltage on track B (2 green wires) on the evaporator thermostat.
Is there + 12 volts ?

yes → Repair the wiring between :
- thermostat ▮ diode plate
- diode plate ▮ injection computer (tracks 30 and 34).

no ↓

Ignition on, air conditioning on and ventilation fan running,
check for + 12 volts on track 30 of air conditioning control relay 720 and check for a shunt between tracks 30 and 86.
Is this correct?

no → Repair the wiring between track 30 of air conditioning control relay 720 and track B1 on the black connector for the ventilation fan assembly control knob,
or the shunt between tracks 30 and 86.

yes ↓

Ignition on, air conditioning on and ventilation fan running,
check for + 12 volts on track 85 of air conditioning control relay 720.
Is there + 12 volts ?

no → Check the wiring continuity between track 85 of the air conditioning control relay 720 and track C1 on the resistance unit connector.

yes ↓

Ignition on, air conditioning on and ventilation fan running,
check for + 12 volts on track 87 of air conditioning control relay 720.
Is there + 12 volts ?

no → Replace the air conditioning control relay 720.

yes ↓

Check and repair if necessary :
- The wiring (grey wire) between track 87a of the air conditioning control relay 720 and the air conditioning control knob connector
- The air conditioning control knob.
- The wiring (brown wire) between the air conditioning control knob connector and track 8 on the evaporator thermostat.

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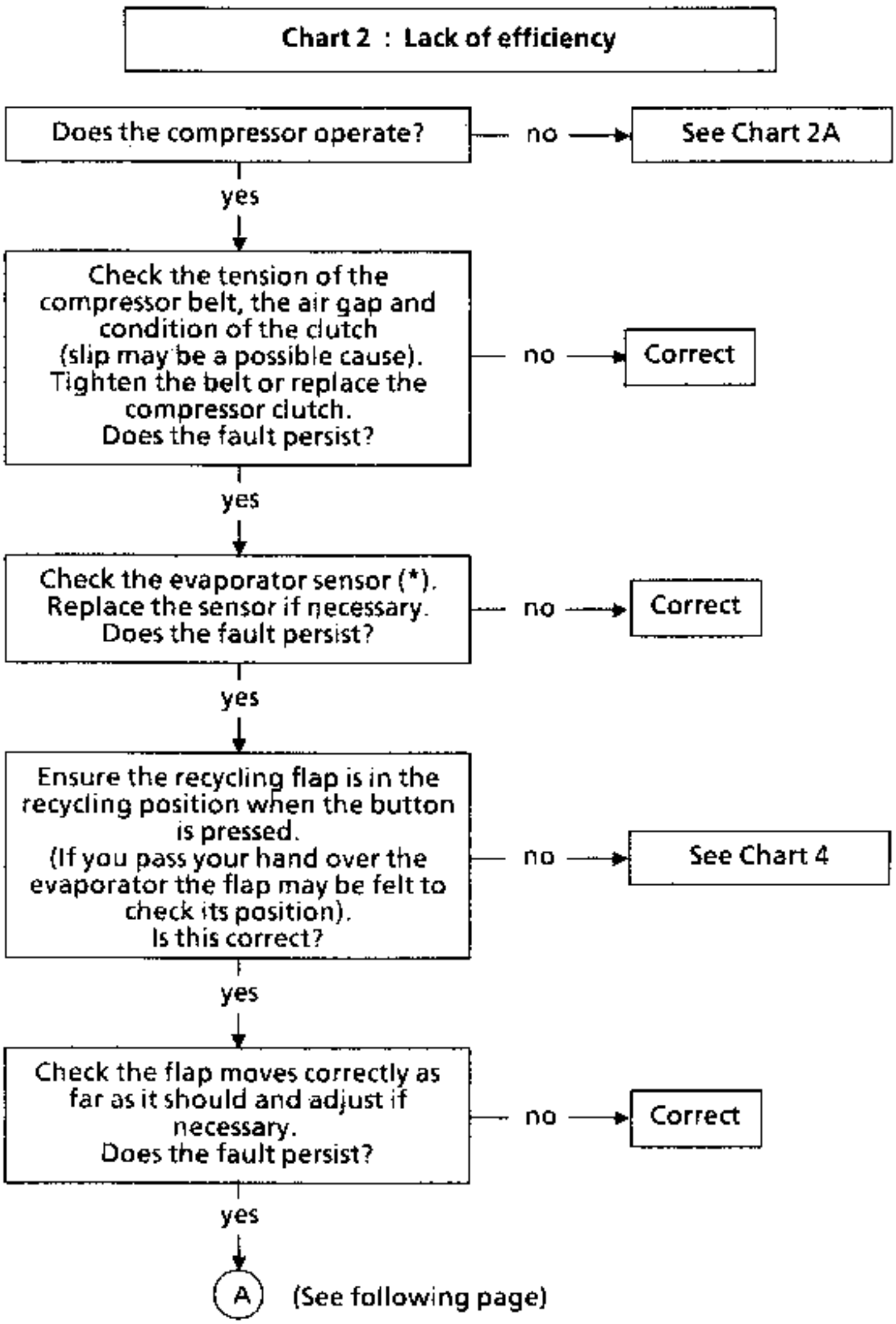


(*) Checking the evaporator sensor by using the compressor clutch operation method.
Vehicle stationary in a shady location, air conditioning and recycling on, fan set to speed 3, windows and doors closed.
Engine running at 2500 rpm, use a thermometer in the central air vent to check the air temperature, when the compressor clutch engages.
If $\theta > 8$ °C for an external temperature between 20 and 35 °C replace the evaporator sensor. (Wait for approximately 15 minutes).

Chart 2 : Lack of efficiency (cont)

A

Is there an air flow problem ? — yes → See Chart 6

no ↓

Connect the high and low pressure gauges and check the pressures. Vehicle stationary, engine running at idle speed and air conditioning on maximum. If high pressure > 25 ± 1.5 bar, there is :
- too much freon in the circuit,
- or the cooling fan is not operating correctly,
- or the condenser is contaminated,
- or the engine is overheating.

In these cases, the compressor is operating via the high pressure pressostat
Is the high pressure correct?

yes → It is possible that humidity in the circuit has created a plug of ice in the pressure release valve or the pressure release valve is faulty. Replace the dehydrating bottle, the pressure release valve and the freon in the circuit.

no ↓

Check the condenser wiring and connectors are clean.
Clean or replace the condenser.
Does the fault persist?

no → Correct

yes ↓

Check the operation of the engine cooling fan.
Off if high pressure ≦ 12 ± 1 bar
On if high pressure ≧ 16 ± 1 bar
Does the fan operate correctly?

no → See Chart 6

yes ↓

Replace the freon in the circuit. There is too much freon in the circuit.

Note : Excess freon causes the compressor to operate too early and reduces the efficiency of the air conditioning system by cutting the circuit at the high pressure pressostat.

(*) Checking the evaporator sensor by using the compressor clutch operation method.
Vehicle stationary in a shady location, air conditioning and recycling on, fan set to speed 3, windows and doors closed.
Engine running at 2500 rpm, use a thermometer in the central air vent to check the air temperature, when the compressor clutch engages.
If it > 8 °C for an external temperature between 20 and 35 °C replace the evaporator sensor. (Wait for approximately 15 minutes).

edi 57 1 0

Chart 2 : Lack of efficiency (cont)

Engine at idle speed, air conditioning and ventilation fan on, check for bubbles at the dehydrating bottle inspection window . If bubbles are found, there is a lack of freon in the circuit - add freon as necessary.
Is the system still inefficient?

— no → Correct

yes ↓

Check the cooling fan operates for high pressure ≦ 16 ± 1 bar.
Repair the fan wiring if necessary (relay, pressostat 12/16 ± 1 bar).
Does the fault persist?

— no → Correct

yes ↓

Check the evaporator sensor. (*)
Replace the sensor if necessary.
Does the fault persist?

— no → Correct

yes ↓

Connect the high pressure and low pressure gauges and check the pressures, air conditioning and ventilation fan on.
If low pressure > 4 bar the pressure release valve is fully open.
If low pressure ≦ 0 bar the pressure release valve is closed.
Do you read these values?

— yes → Replace the pressure release valve and replace the freon in the circuit.

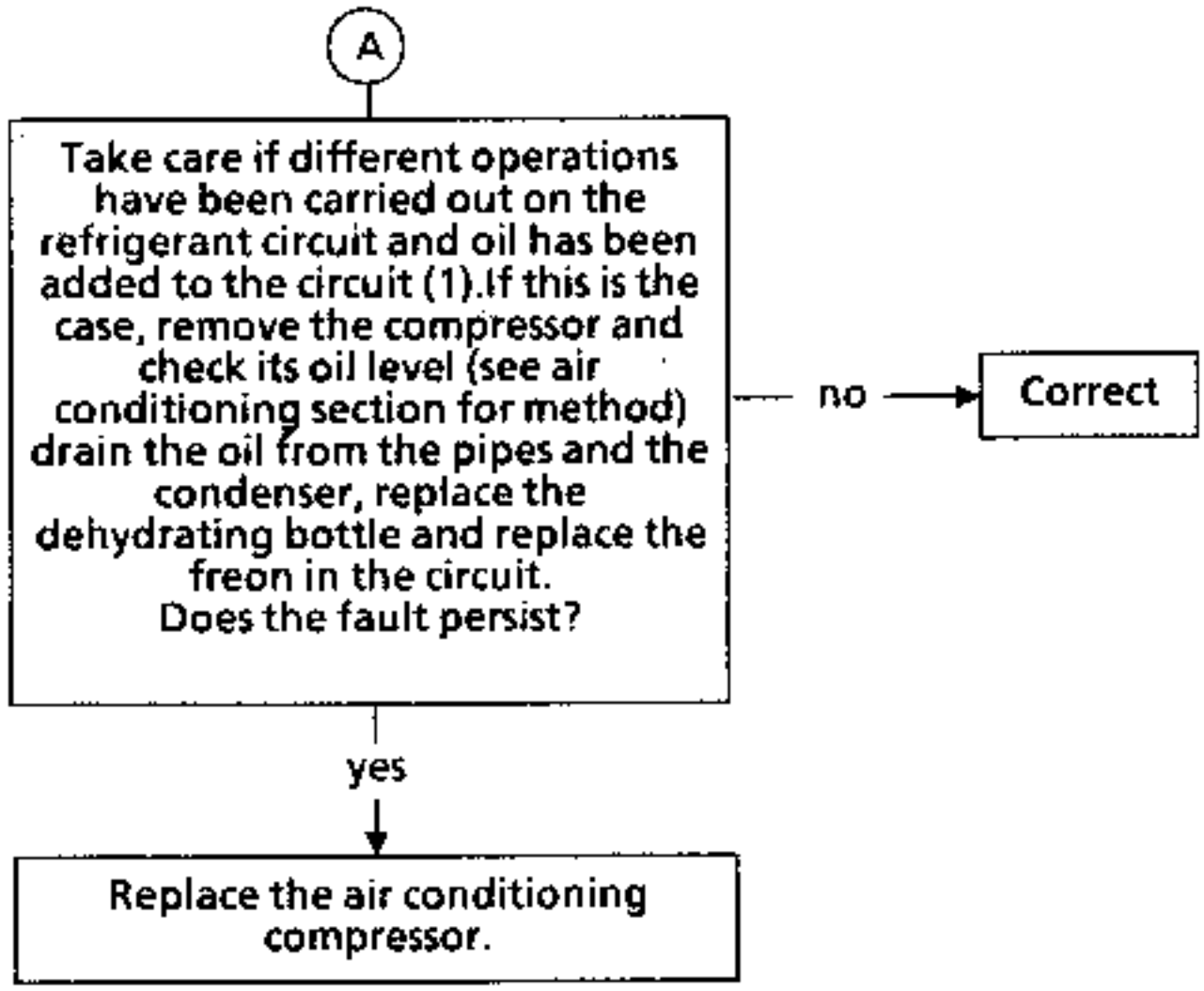
no ↓

(A)

(*) Checking the evaporator sensor by using the compressor clutch operation method.
Vehicle stationary in a shady location, air conditioning and recycling on, fan set to speed 3, windows and doors closed.
Engine running at 2500 rpm, use a thermometer in the central air vent to check the air temperature, when the compressor clutch engages.
If θ > 8 °C for an external temperature between 20 and 35 °C replace the evaporator sensor. (Wait for approximately 15 minutes).

(See following page)

Chart 2 : Lack of efficiency (cont)



(1) Compressors of type 709 allow more oil to circulate in the circuit than compressors of type 508 and type 510. Do not use the dipstick to check the oil level.

(*) Checking the evaporator sensor by using the compressor clutch operation method.
Vehicle stationary in a shady location, air conditioning and recycling on, fan set to speed 3, windows and doors closed.
Engine running at 2500 rpm, use a thermometer in the central air vent to check the air temperature, when the compressor clutch engages.
If 0 > 8 °C for an external temperature between 20 and 35 °C replace the evaporator sensor. (Wait for approximately 15 minutes).

Chart 3 : Too much cold air

Does the compressor operate?

no → Disconnect the evaporator sensor and ensure the compressor stops. Does the compressor stop ?

yes → Replace the evaporator sensor

no → Check the wiring (short circuit to +) for the compressor and the compressor control relay 474.

yes → Is the engine cooling fan always operating? Incorrect if high pressure ≦ 12 ± 1 bar.

yes → See Chart 6

no → Check the evaporator sensor. (*) Note : An incorrect sensor (minimum tolerance incorrect) causes the compressor to operate too late. Replace the sensor if necessary Does the fault persist?

no → Correct

yes → Check that the mixing flap moves when the heating control is moved Does the flap move?

no → Repair the air conditioning assembly, the mixing flap control cable or the control panel .

yes → Visually check that the flap moves as far as it should. Adjust the flap if necessary.

(*) Checking the evaporator sensor by using the compressor clutch operation method.
Vehicle stationary in a shady location, air conditioning and recycling on, fan set to speed 3, windows and doors closed. Engine running at 2500 rpm, use a thermometer in the central air vent to check the air temperature, when the compressor clutch engages.
If θ > 8 °C for an external temperature between 20 and 35 °C replace the evaporator sensor. (Wait for approximately 15 minutes).

Chart 4 : Recycling flap does not work

Disconnect the black 2 track recycling motor connector which is next to the evaporator.
Ignition on, recycling button not depressed.
Check on the connector, vehicle wiring side, for + 12 volts between the two tracks A and B.
Is there + 12 volts ?

yes → Ignition on, recycling button depressed, check for + 12 Volts on the black 2 track connector for the recycling motor on the vehicle wiring side between the two tracks A and B.
Is there + 12 volts ?

yes → Remove the evaporator assembly and before replacing the recycling flap motor, check the flap moving parts and their condition.

no → Ignition on, recycling on, check on the connector for the recycling flap control relay 417 for + 12 Volts between tracks 4 and 8.
Is there + 12 volts ?

yes → Replace the recycling flap control relay 417.

no → Ignition on, recycling on, check on track 8 of the connector for the recycling flap control relay 417 for + 12 volts.
Is there + 12 volts ?

no → Check:
- The wiring between track 8 of the recycling flap control relay 417 and the air conditioning control button.
- The air conditioning control button.
- The wiring between the air conditioning control button and track 30 on the air conditioning control relay 720 .

yes → Check the earth on the recycling flap control relay 417 on track 4.
Repair if necessary.
If correct, replace the relay.

no → Ignition on, check on track 2 of recycling flap control relay 417 for + 12 volts.
Is there + 12 volts ?

yes → Check the wiring between tracks :

Recycling motor connector { A → 6 / B → 5 } Connector for recycling flap control relay 417

Repair if necessary. Does the fault persist?

yes → Replace the recycling flap control relay 417.

no → Correct

no → Repair the wiring between track 2 on the connector for the recycling flap control relay 417 and track 86 on the air conditioning control relay 720 . Also check the shunt between tracks 86 and 30.

edi 57 1.0

Chart 5 : Ventilation fan does not operate correctly

Check the 20 A fuse for the passenger compartment ventilation fan assembly. Is it correct?

— no → Replace the fuse.

yes ↓

Ignition on.
On the control panel connector for the ventilation fan, check for + 12 volts between tracks B1 and A5.
Is this correct?

— no → Repair the wiring.
- Earth on track A5.
- + 12 volts between track B1 of the control panel connector for the fan assembly and the fuse box.

yes ↓

Ignition on.
On the control panel connector for the ventilation fan, check for + 12 volts between tracks :
Position 1 : B5 and A5
Position 2 : B4 and A5
Position 3 : B3 and A5
Is this correct?

— no → Replace the control panel.

yes ↓

Disconnect the feed connector for the resistance unit and the ventilation fan assembly.
Ignition on
Check for + 12 volts on the connector, wiring side, between tracks :
Position 1 : B4 and C1
Position 2 : B4 and C1
Position 3 : B4 and A1
Is this correct?

— no → Repair the wiring between the control panel connector and the connector for the resistance unit and the ventilation fan assembly.

yes ↓

(A)

(See following page)

Chart 5 : Ventilation fan does not operate correctly (cont)

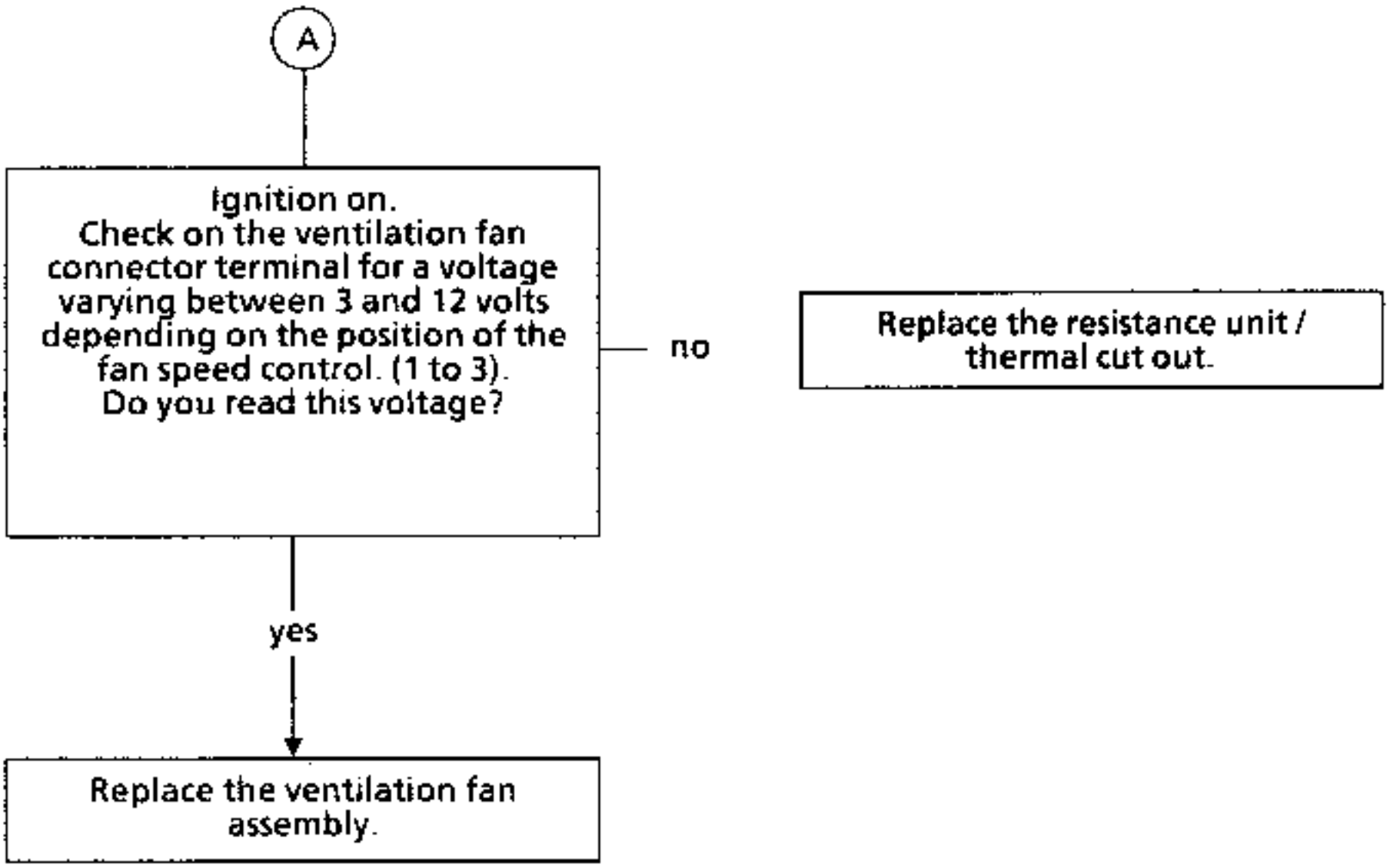


Chart 6 : Cooling fan does not operate correctly

Check the 30 A fuse in the relay unit in the engine compartment. Is it correct?

no → Replace the fuse.

yes ↓

Engine running, engine temperature warm, air conditioning off. Does the engine cooling fan operate correctly?

no → Check the thermostat on the radiator and the electric wiring. Repair if necessary. Does the fault persist?

no ↓ Replace the engine cooling fan assembly.

yes ↓ Correct

yes ↓

Disconnect the trifunction pressostat connector. Turn the ignition on. Shunt tracks C and D on the pressostat connector, vehicle wiring side. Does the engine cooling fan operate?

yes → Reconnect the pressostat. Connect the high pressure gauge and with the engine running at 2500 rpm, air conditioning on and ventilation fan on the 1st speed, check if the engine cooling fan comes on and turns off for pressures between 12 and 16 bar (± 1 bar).

2 faults are possible :

1) If high pressure < 15 bar. Replace the freon in the circuit.
2) If high pressure > 17 bar and the engine cooling fan does not operate, replace the pressostat.

no ↓

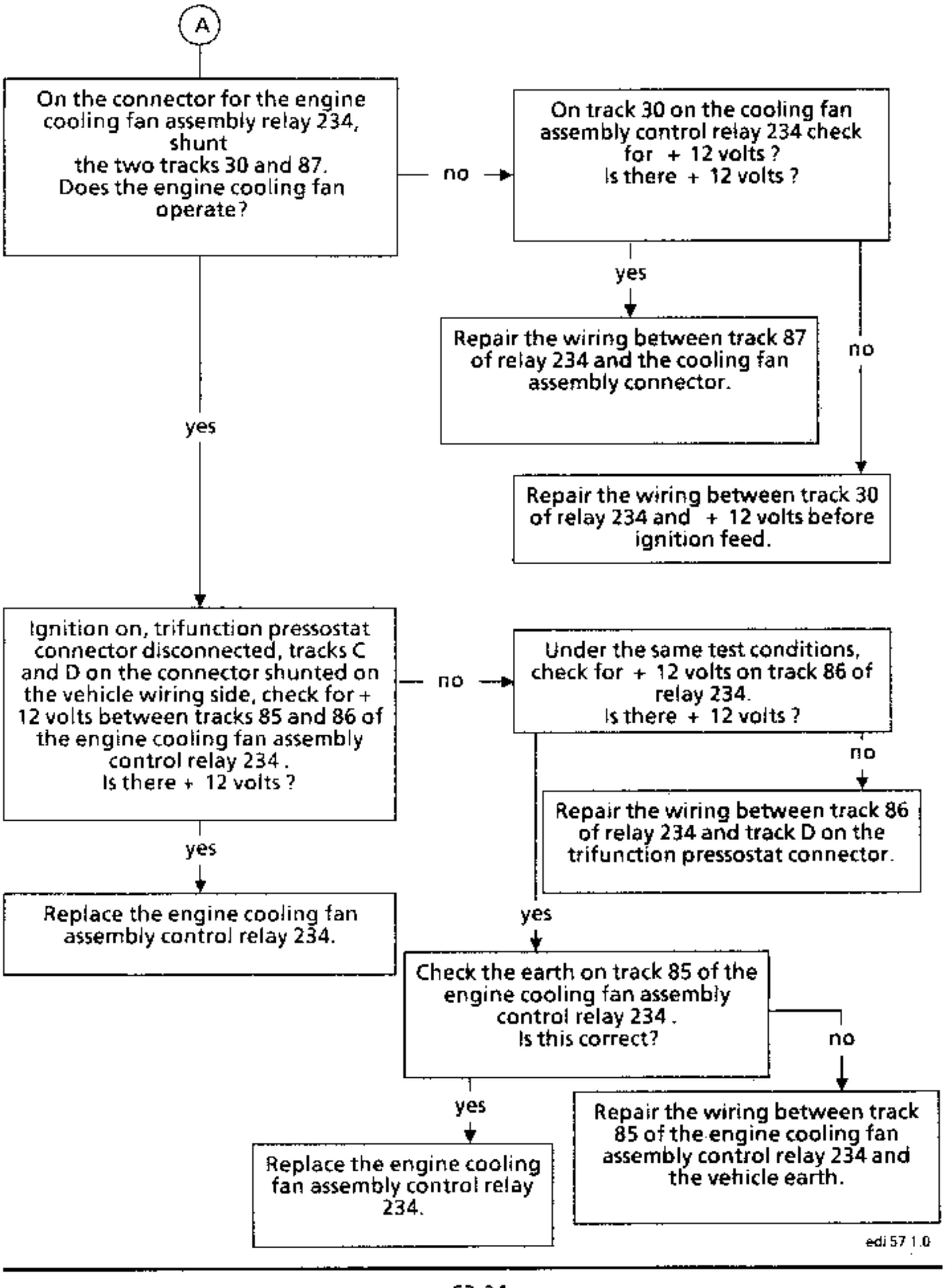
Ignition on, connector still disconnected, check on track C, vehicle wiring side, for + 12 volts. Is there + 12 volts ?

no → Repair the wiring between track C of the trifunction pressostat connector and track 2 of the recycling flap control relay 417.

yes ↓

(A) (See following page)

Chart 6 : Cooling fan does not operate correctly (cont)



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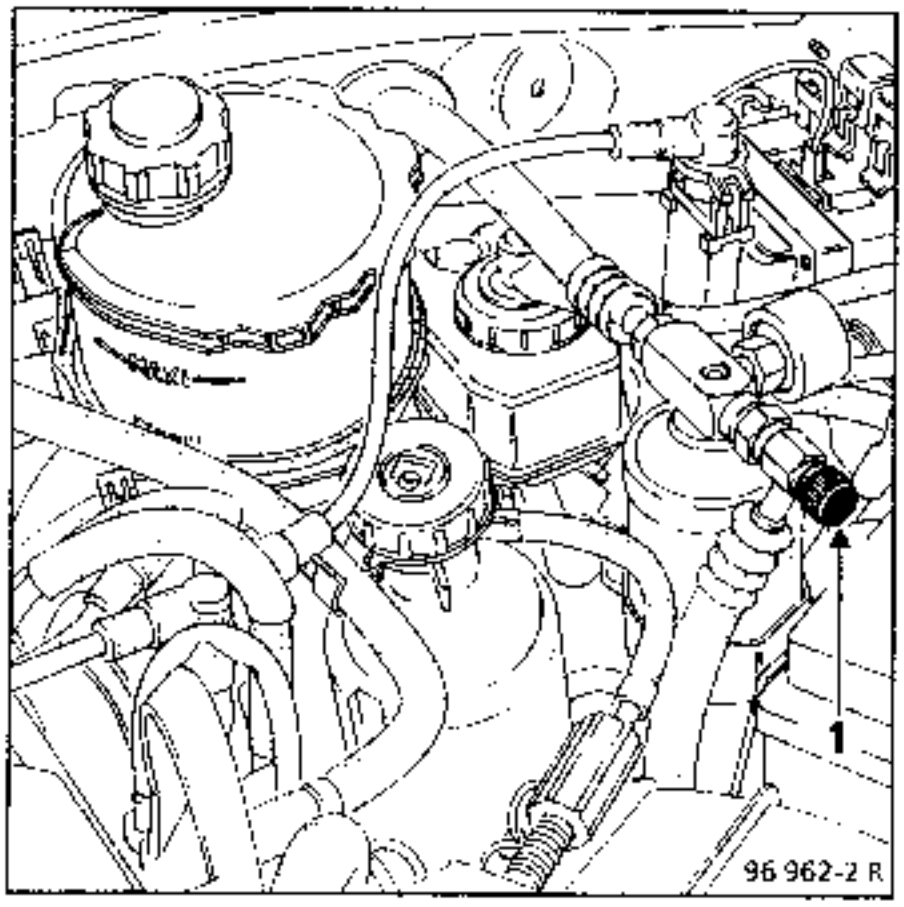
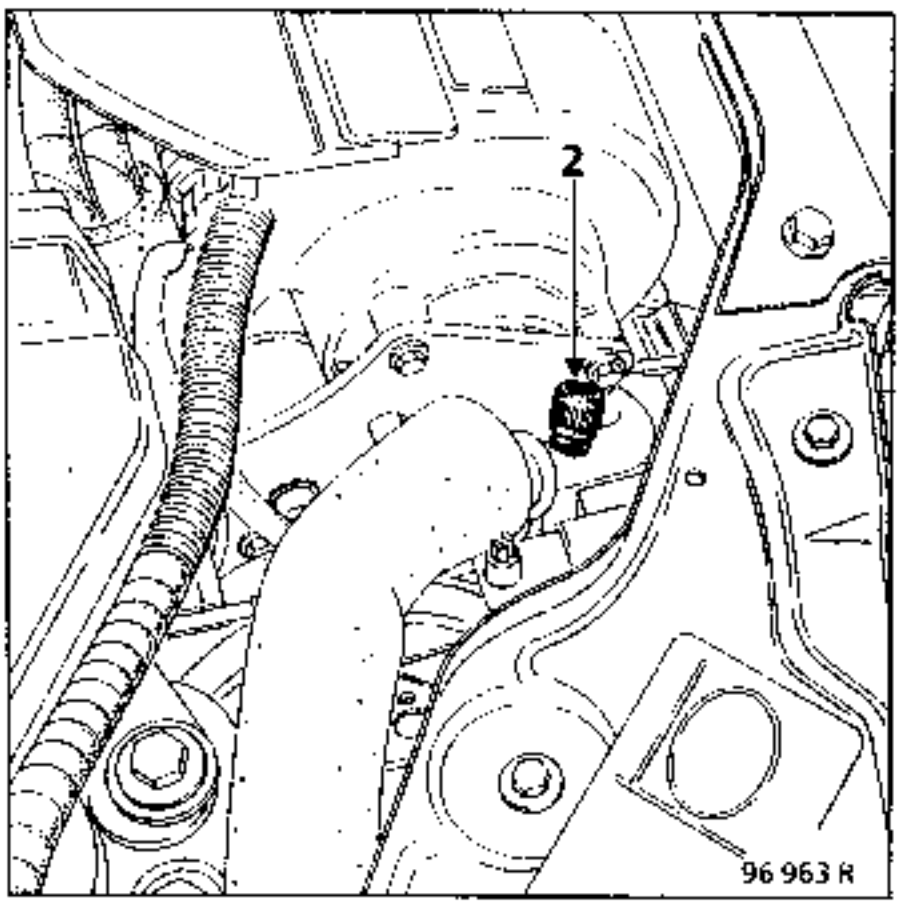
REMOVAL

Disconnect the battery.

Remove the bonnet.

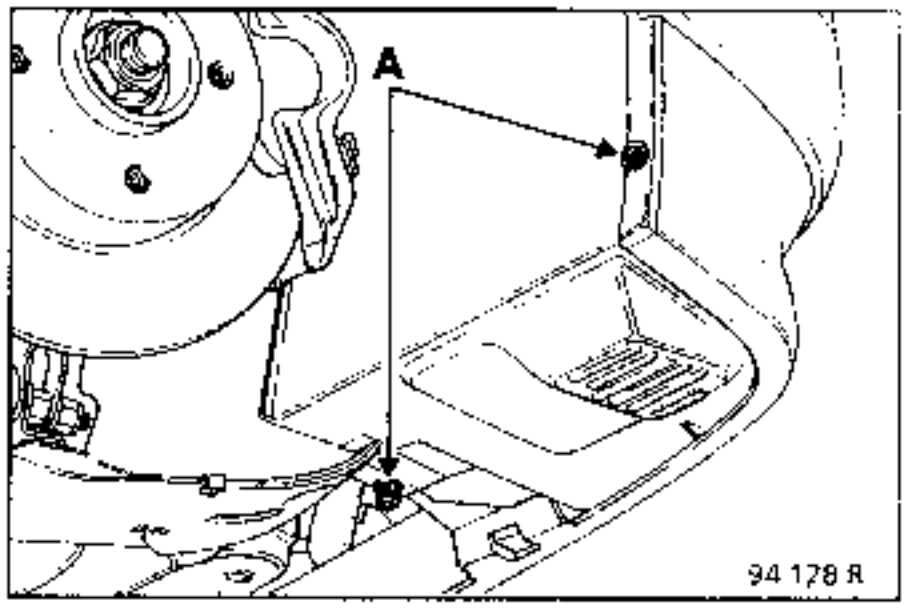
Drain the freon circuit (see method in "air conditioning" section) using the high pressure (1) and low pressure (2) valves.



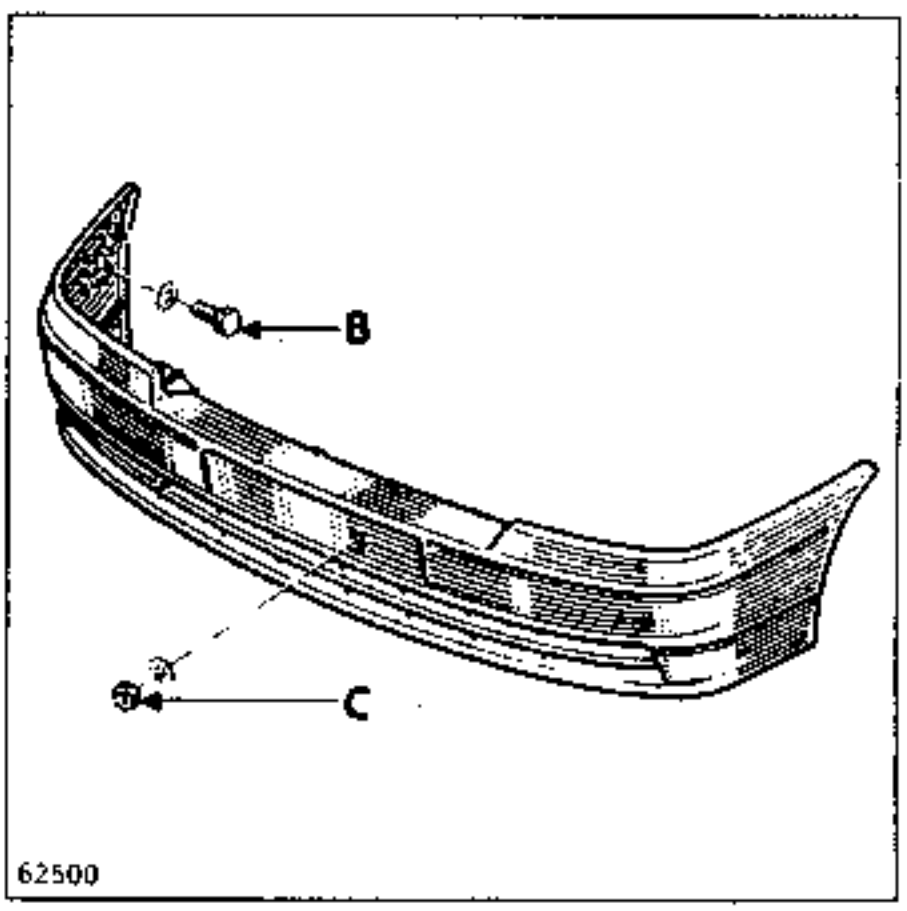


Remove:
- the radiator grille,
- the number plate,
- the bolts and nuts (A) in order to remove part of the plastic mudguards,

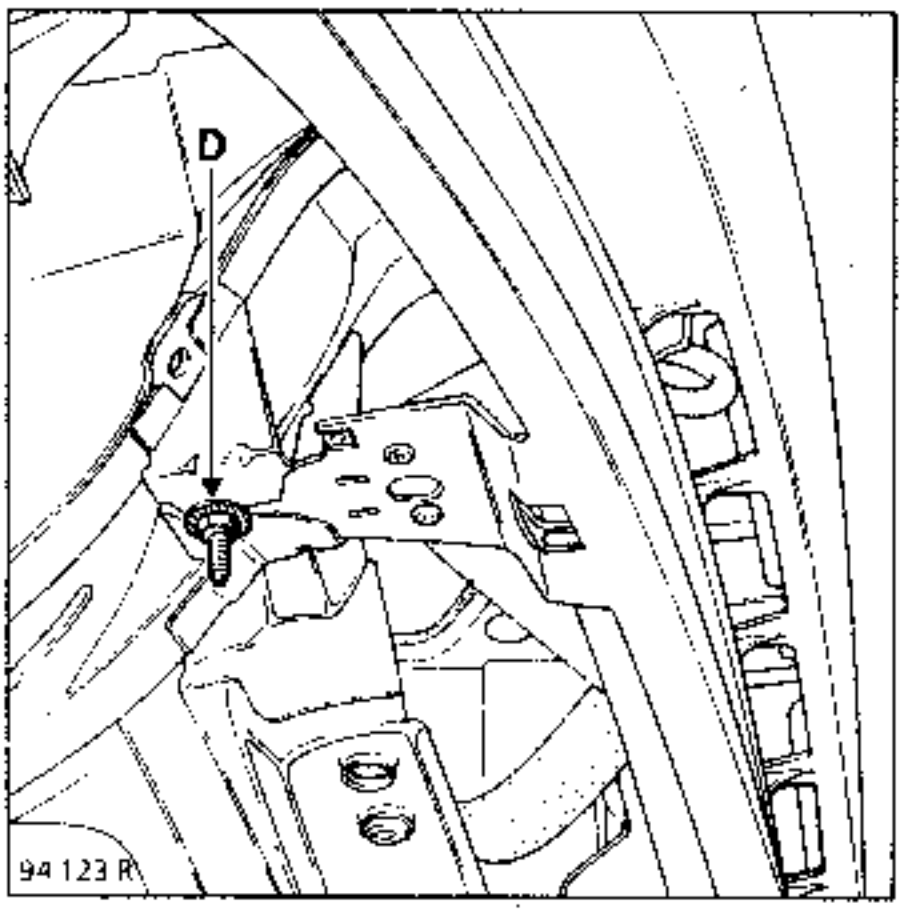
Remove the front bumper.



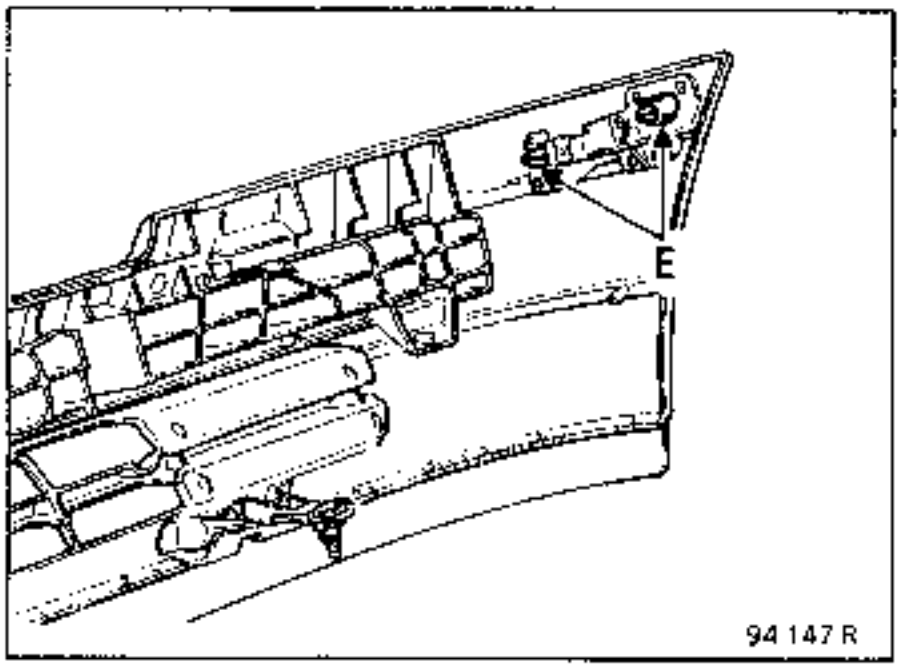
- the side mountings (B) and the central nut (C).



Release the two lower mounting nuts (D).

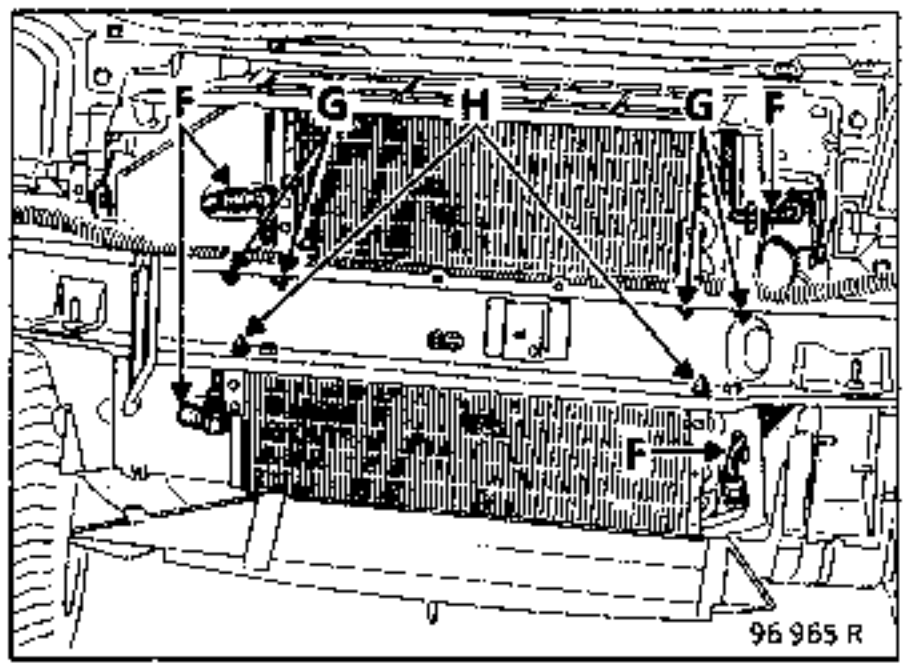


Separate the ends of the bumper to release the centring pins (E) and remove the bumper.



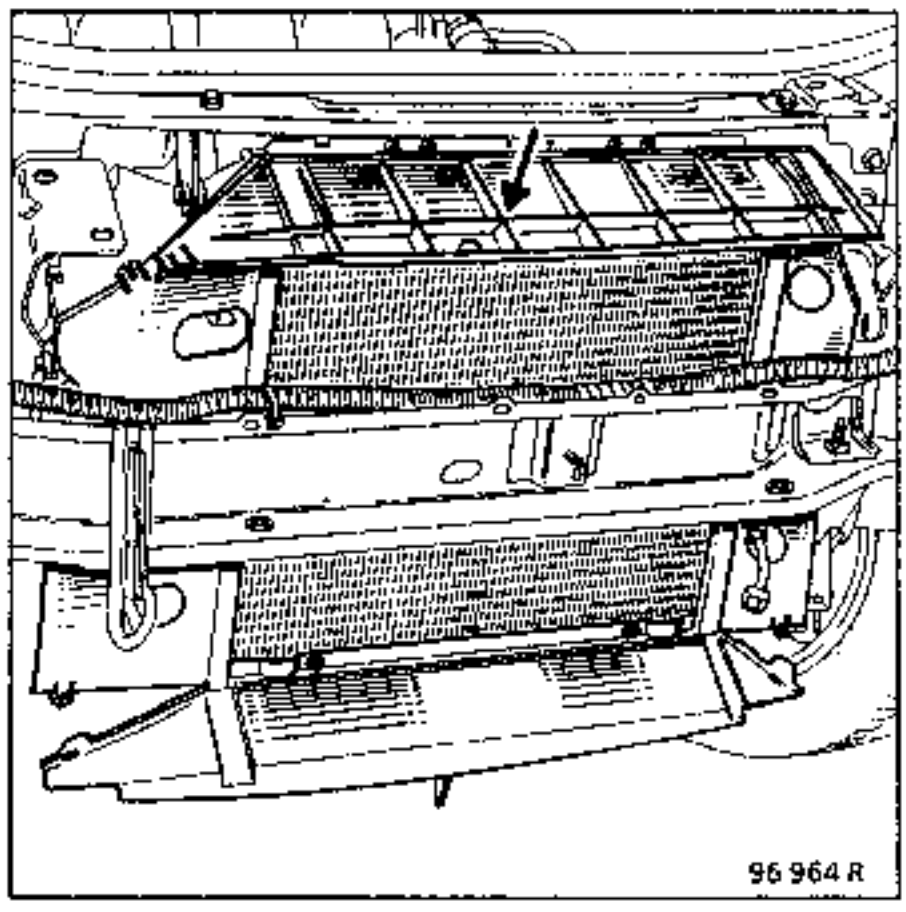
Remove the condensers as follows :

Remove:
- the condenser freon pipes (F) (hold the pipe on the condenser side using an open spanner as the pipes are fragile),
- the upper condenser mounting bolts (G) and remove the upper condenser,
- the lower condenser mounting bolts (H) and remove the lower condenser.



Remove the radiator as follows:

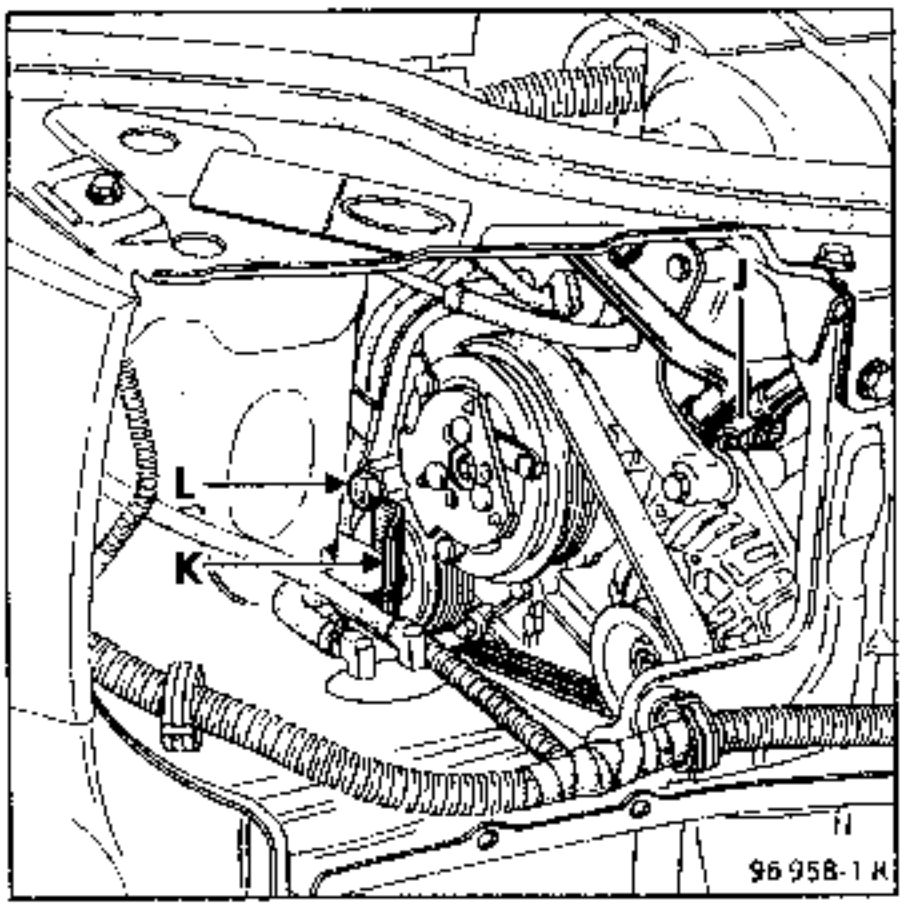
Remove:
- the shield,



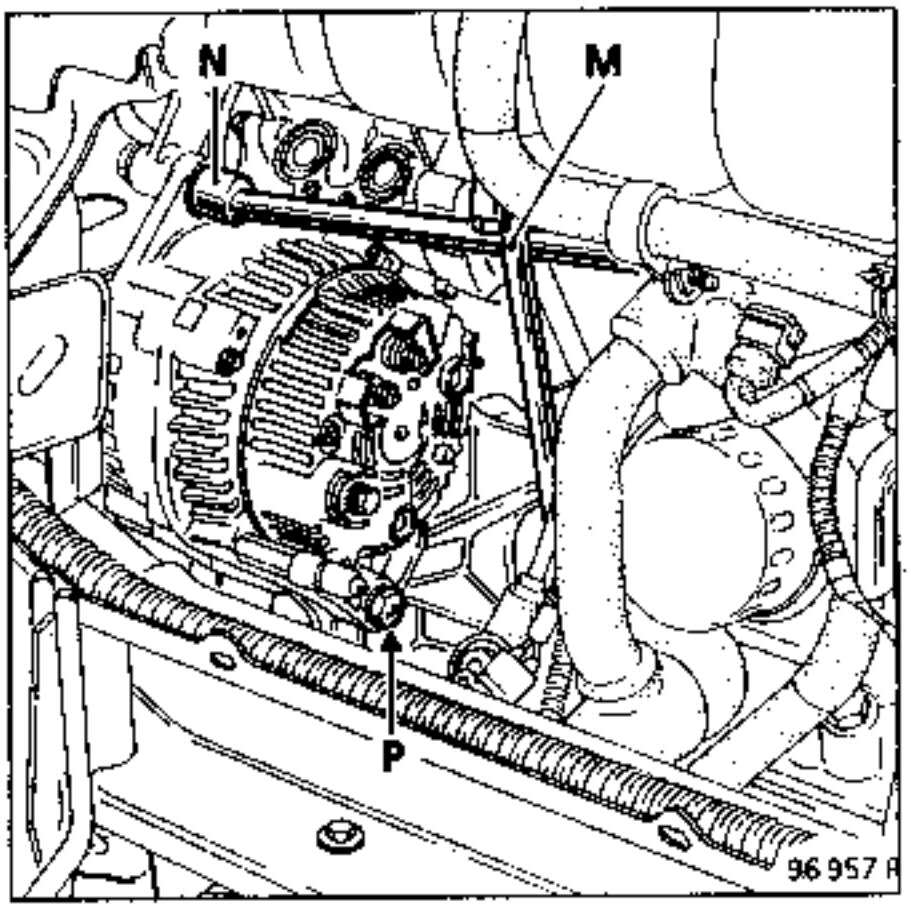
- the upper radiator cross member,
- the radiator coolant pipes,
- the radiator.

Then remove the alternator as follows :

Remove:
- the right hand headlight,
- the mounting plate (J) holding the pipes on the compressor,
- the fuel vapour recirculation pipe protective plate (K) ,
- loosen the bolt (L) for the tensioner and slacken the alternator belt,

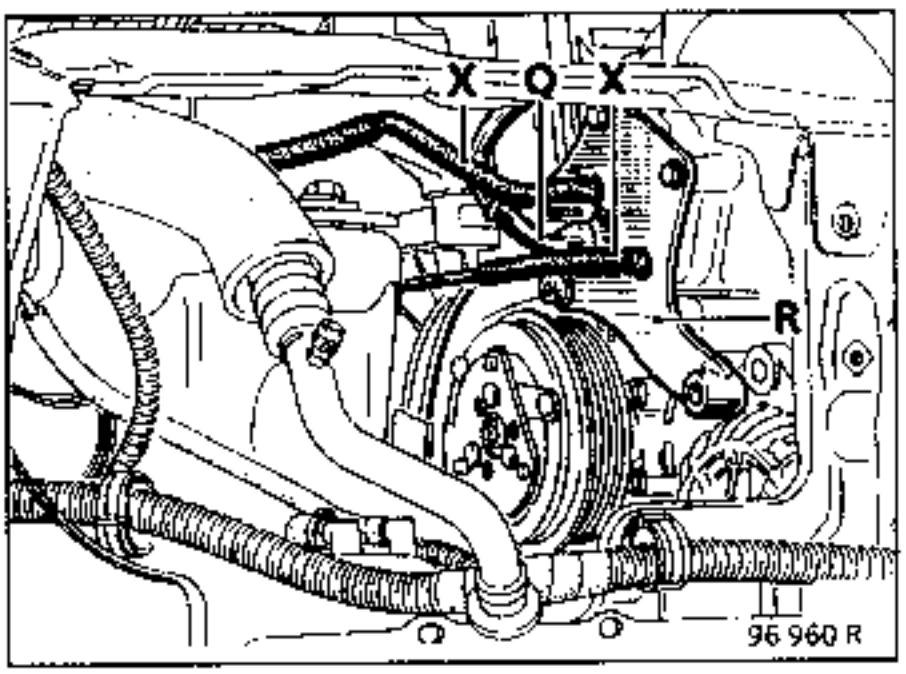


- the engine / inlet manifold tie-rod (M),
- the alternator / engine tie-rod (N) ,
- the alternator electrical connections,
- the lower alternator mounting bolt (P).



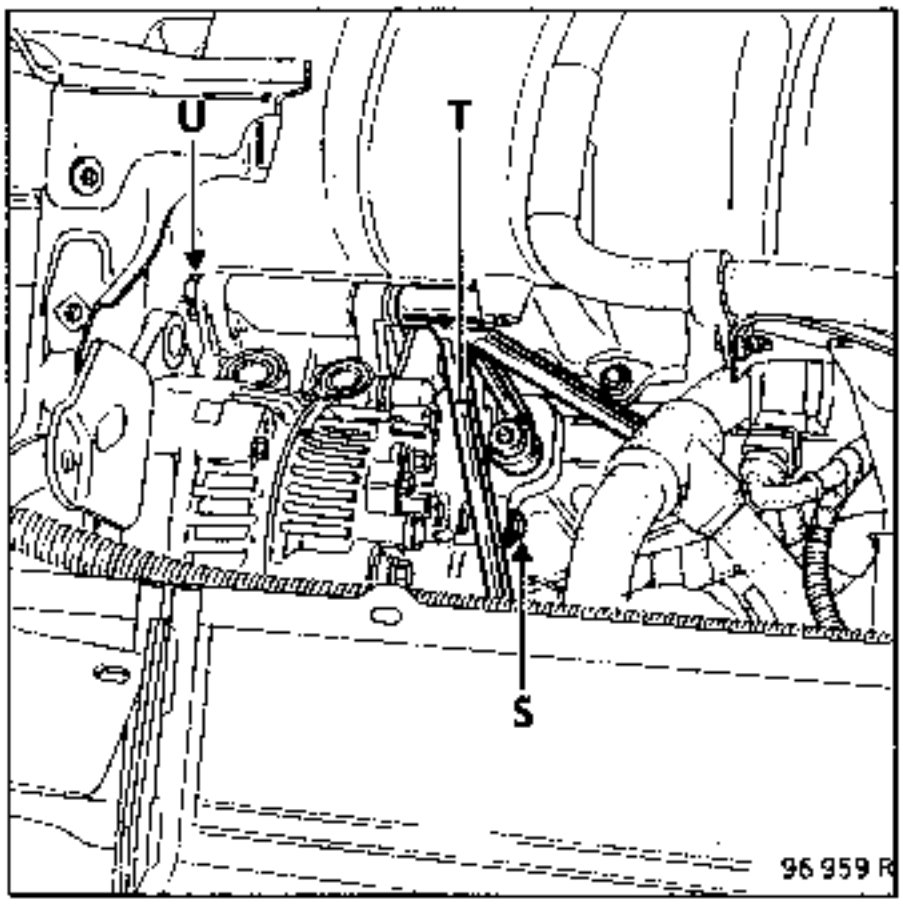
Disconnect the two pipes (X) and the air temperature sensor connector (Q).

Remove the plate (R) and remove the alternator.



Remove the compressor as follows :

Remove:
- the two lower compressor mounting bolts (S) ,
- the tie-rod (T),
- the upper mounting bolt (U),
- the compressor.



REFITTING

There are no special notes for refitting.

The following advice should be observed:

If the compressor is replaced with a new part, the new part is supplied filled with oil. Check the oil level before refitting (see "oil level" section).

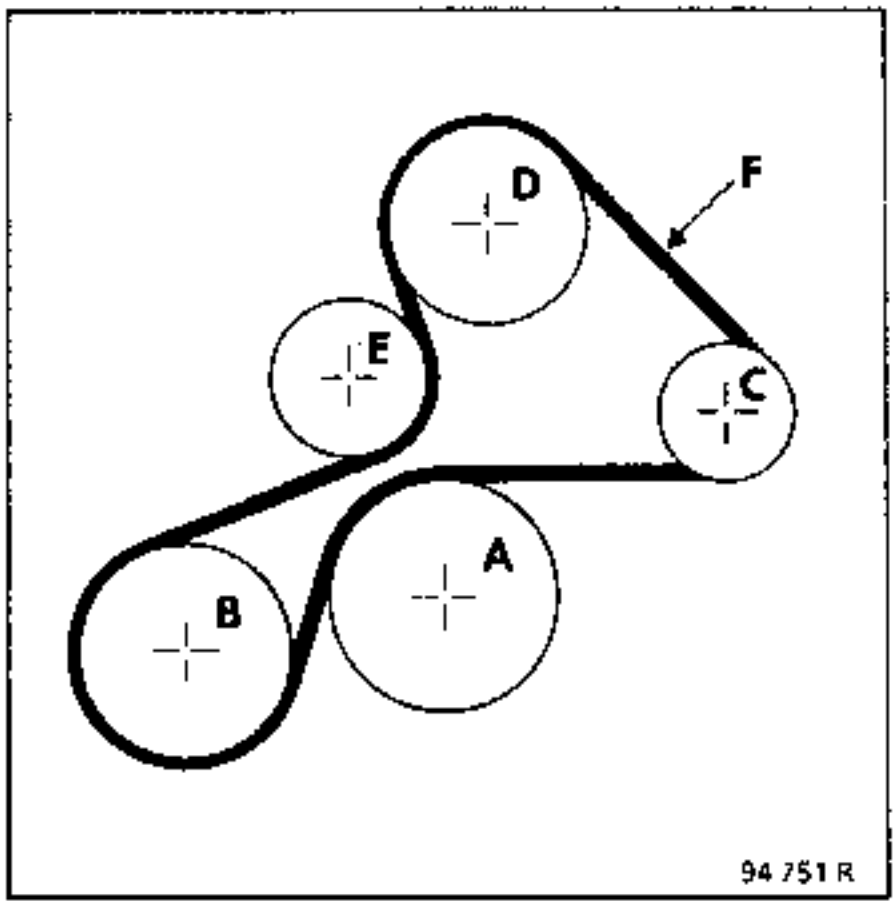
Check all pipe seals are in good condition.

Torque tighten the flange bolts holding the compressor freon pipes in position to 3 daN.m $^{+0,5}_{-0}$

When refitting the pipes to the condensers remember to oil them and support them with an open spanner when tightening the unions.

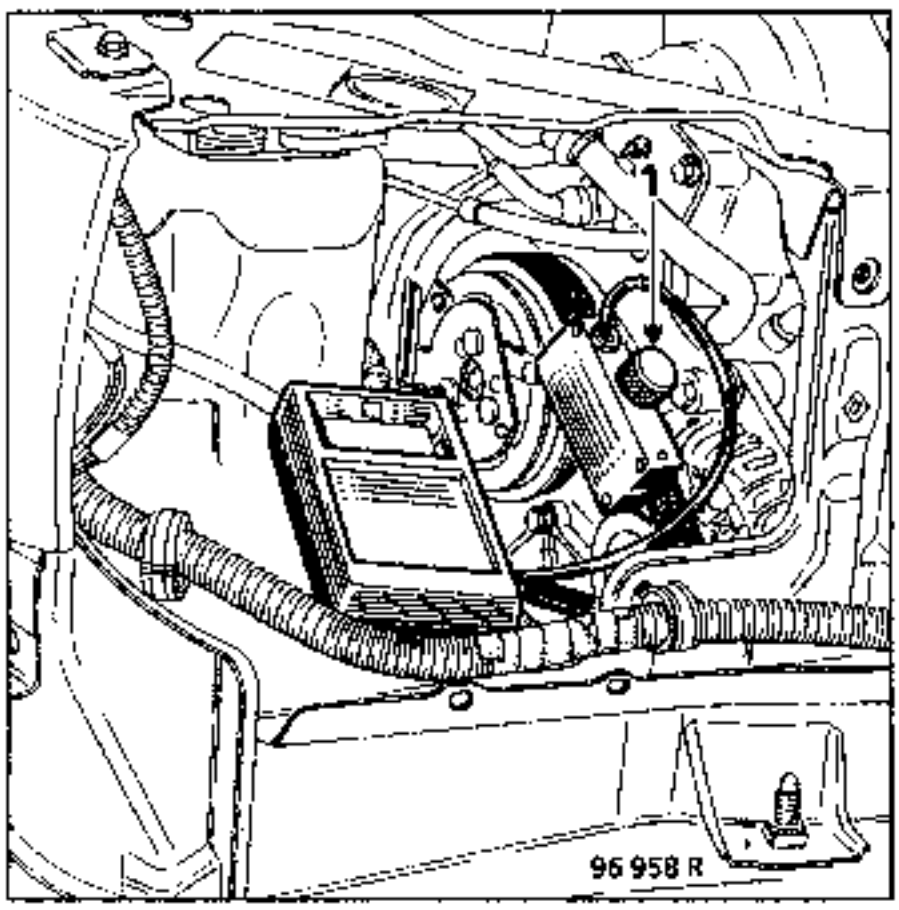
Tightening the alternator belt.

Refit the belt.

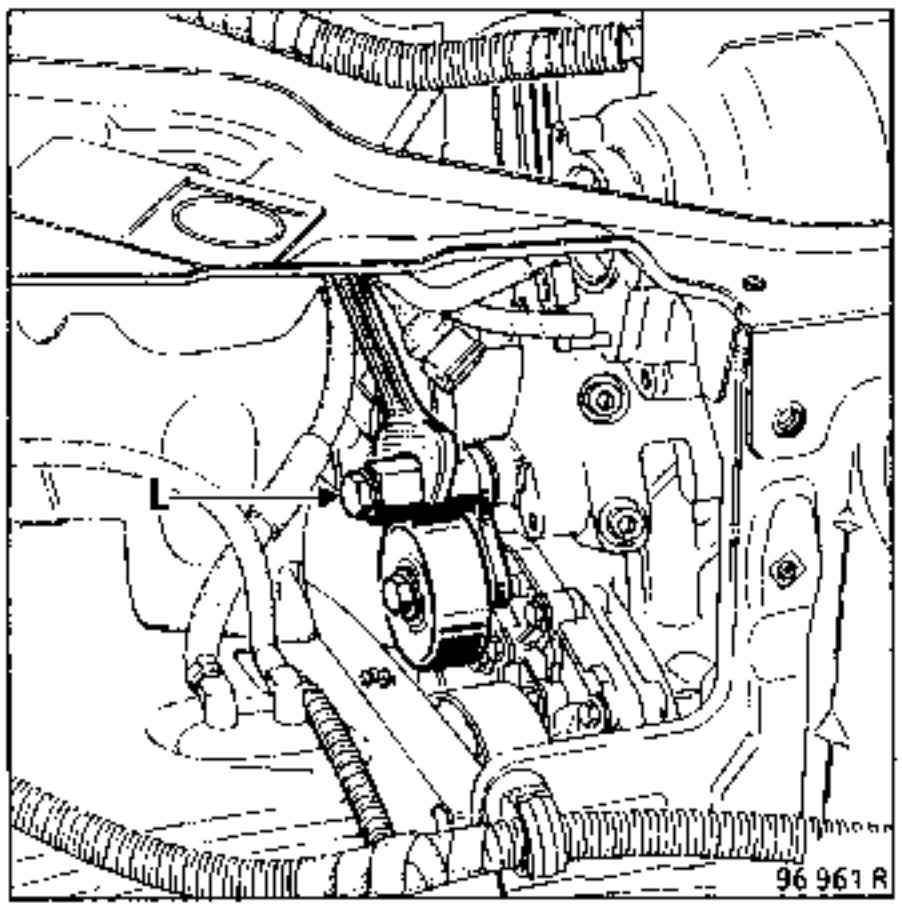


A Water pump pulley
B Crankshaft pulley
C Alternator pulley
D Compressor clutch pulley
E Tensioner
F Location for fitting the clamp of tool **Mot. 1273** for checking belt tension.

Clamp the belt using tool **Mot. 1273** as shown on the diagram, and turn the wheel on the tool (1) until it clicks into place.



Using a **22 mm** open spanner, tighten the belt to 111 ± 6 US (SEEM units) and lock the bolt (L).



Turn the crankshaft three times.

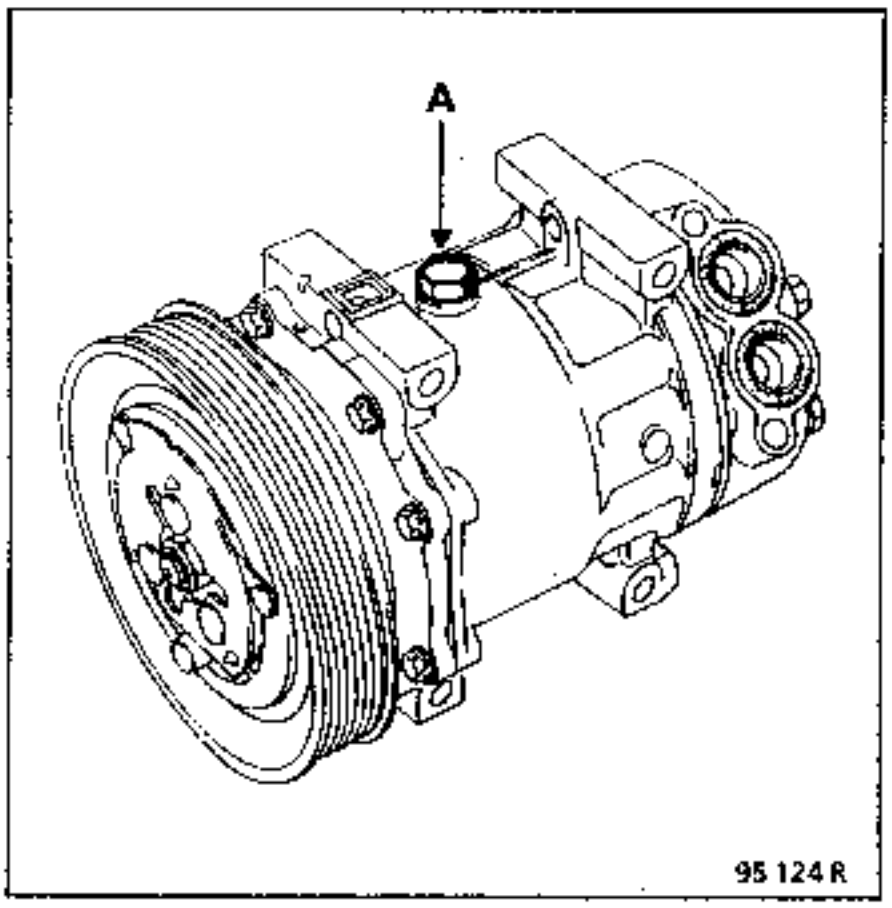
Check the tension value is between 64 and 111 US (SEEM units).

Fill the circuit with freon using the filling station (900 ± 25 g).

COMPRESSOR Type SD 709

The compressor must be removed.

Unscrew and remove the oil plug (A).



Turn the compressor over and let the oil drain out of the housing (to remove as much oil as possible turn the compressor by hand).

Refill the compressor by injecting 120 cm^3 of oil (15 cm^3 will remain in the compressor even after draining it), **ELF RIMA 100.**

Refit the plug making sure the seal and sealing surface are clean (torque tighten to 1 **daN.m**).

Refit the compressor.

Fill the circuit with R12 freon : 900 g ± 25 g.

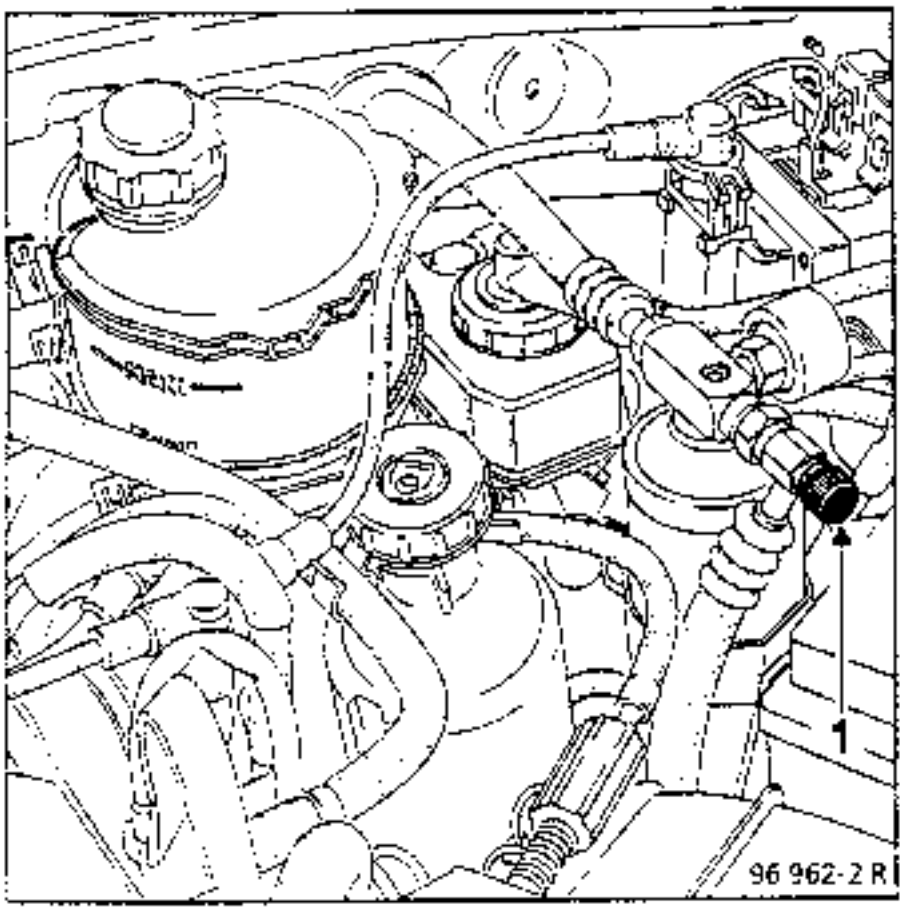
IMPORTANT : If a pipe bursts, the compressor oil level must be checked and topped up.

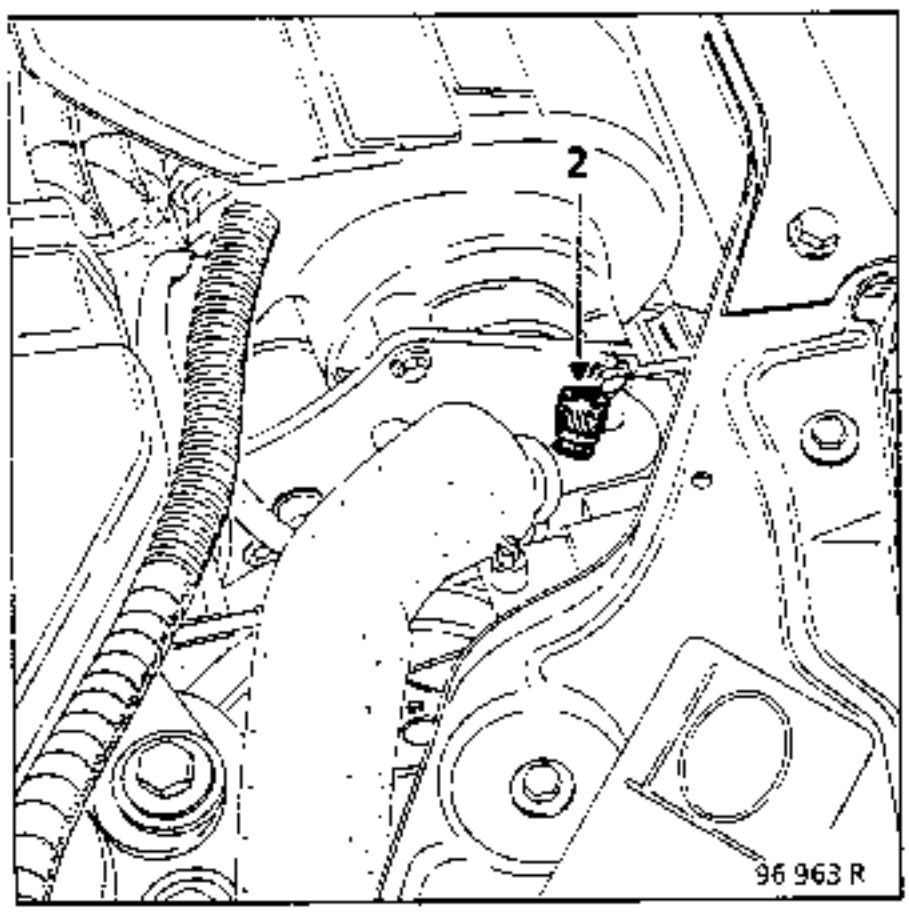
REMOVAL

Disconnect the battery.

Remove the bonnet.

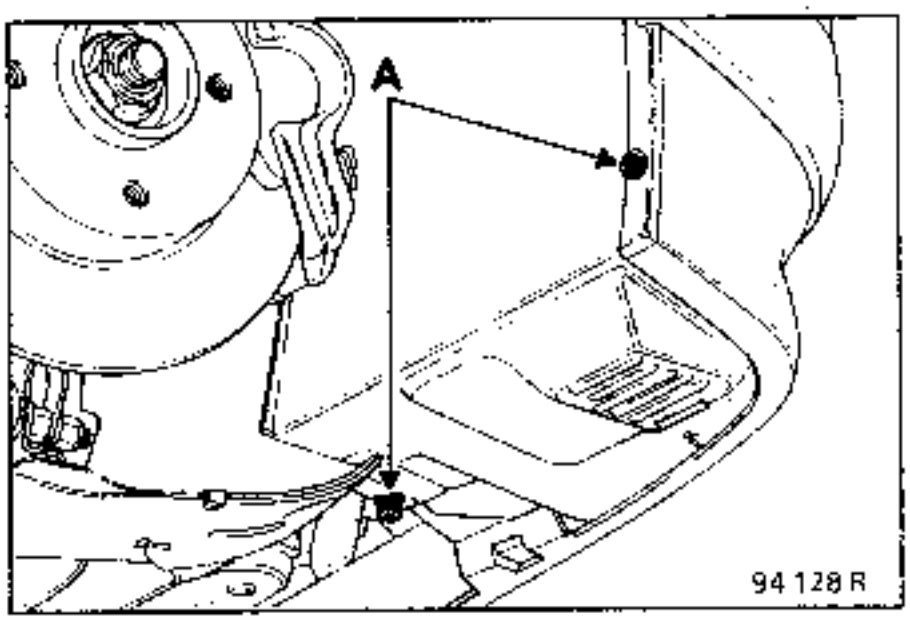
Drain the freon circuit (see method in "air conditioning" section) using the high pressure (1) and low pressure (2) valves.



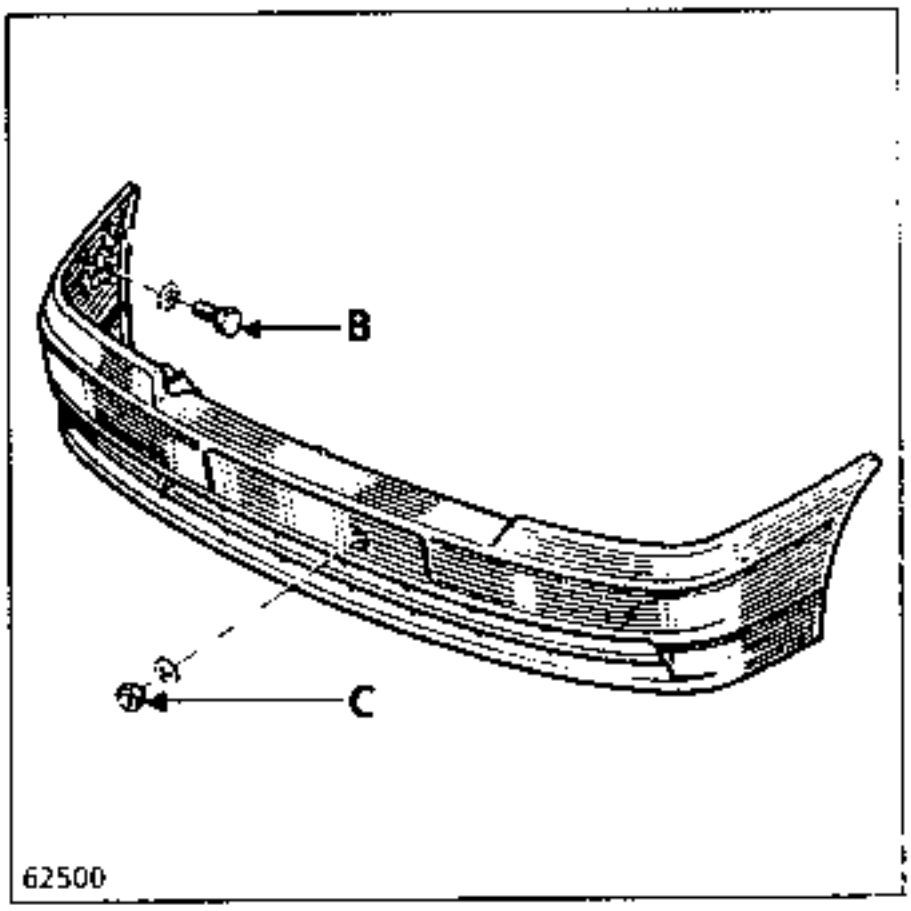


Remove:
- the radiator grille,
- the number plate,
- the bolts and nuts (A) in order to remove part of the plastic mudguards,

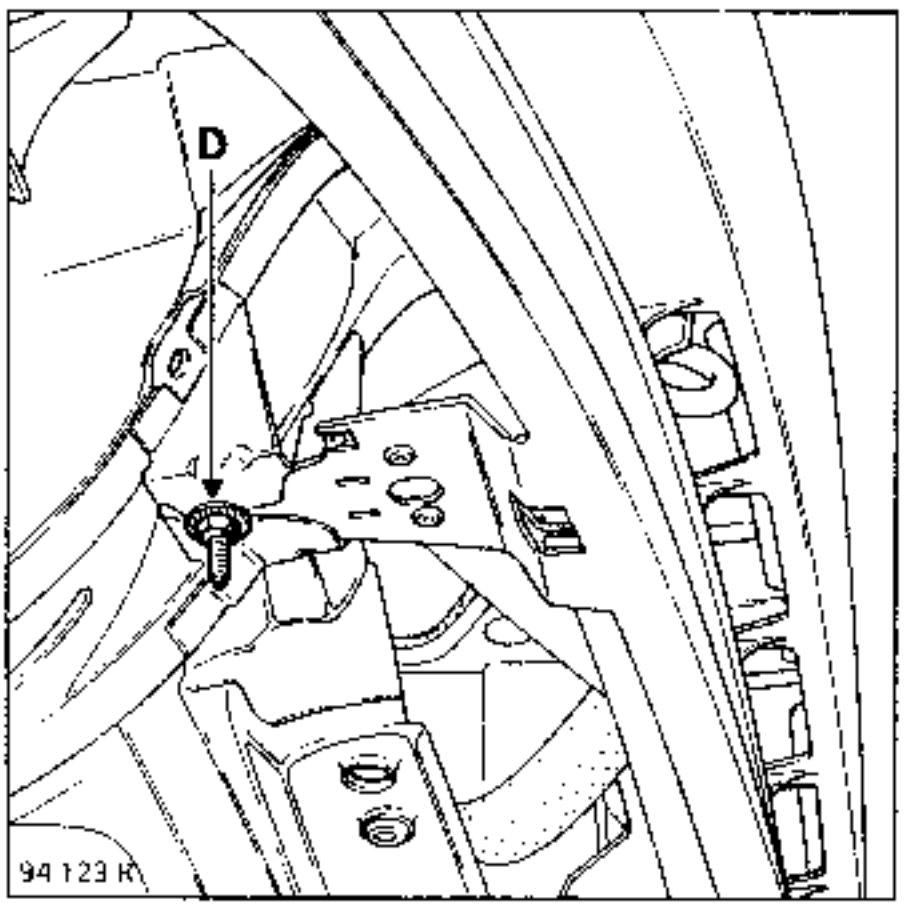
Remove the front bumper.



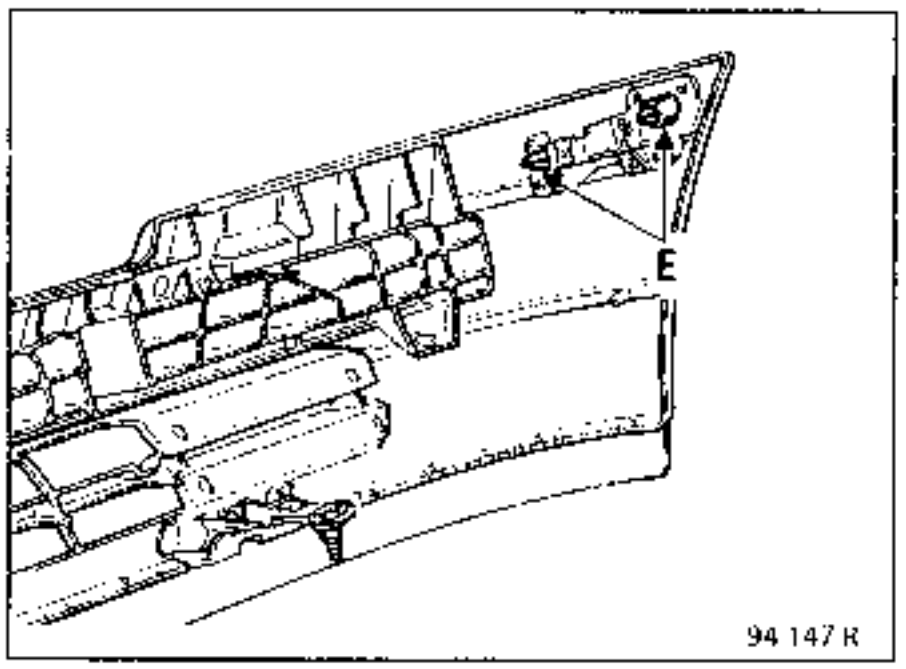
- the side mountings (B) and the central nut (C).



Release the two lower mounting nuts (D).

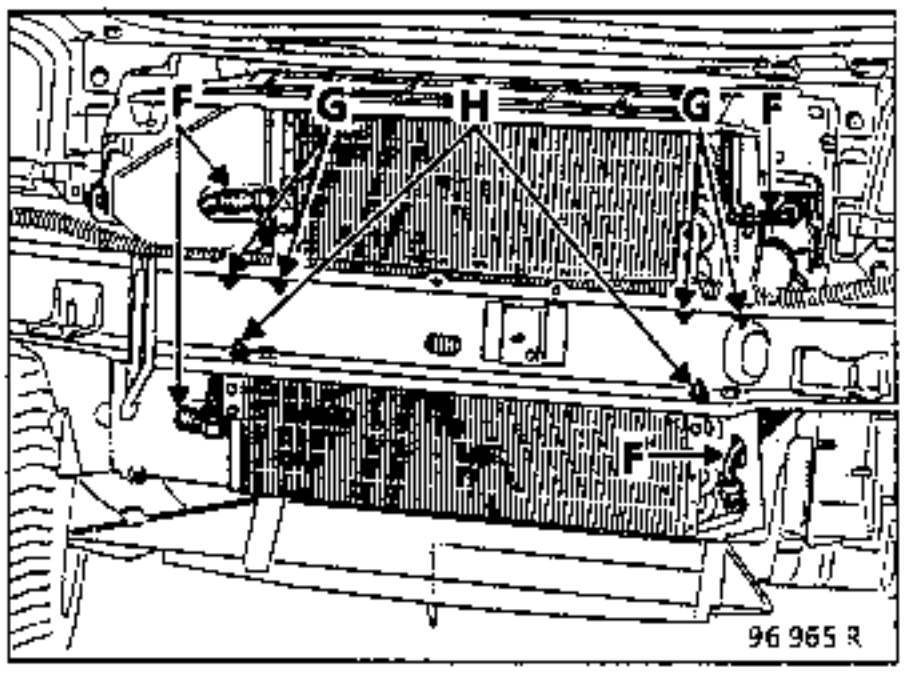


Separate the ends of the bumper to release the centring pins (E) and remove the bumper.



Remove the condensers as follows :

Remove:
- the condensoer freon pipes (F) (hold the pipe on the condenser side using an open spanner as the pipes are fragile),
- the upper condenser mounting bolts (G) and remove the upper condenser,
- the lower condenser mounting bolts (H) and remove the lower condenser.



REFITTING

There are no special notes for refitting. When refitting the pipes to the condensers remember to oil them and support them with an open spanner when tightening the unions.

Refit all parts which have been removed.

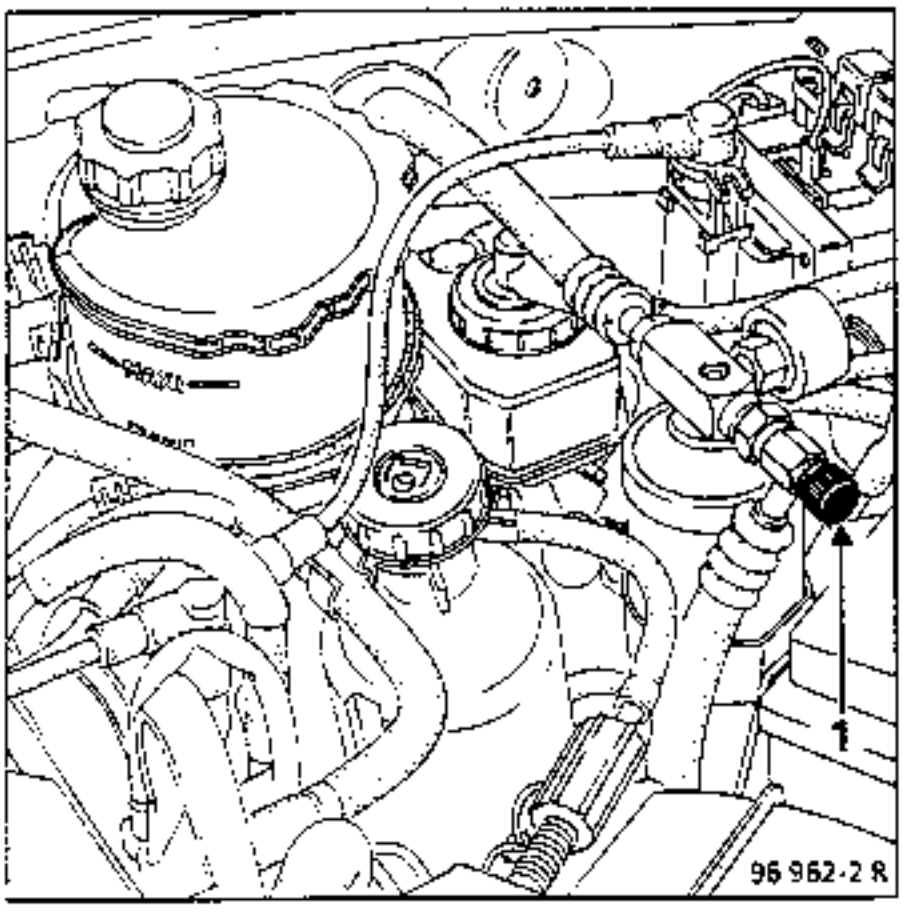
Fill the refrigerant circuit using the filling station (filling amount : 900 g ± 25 g).

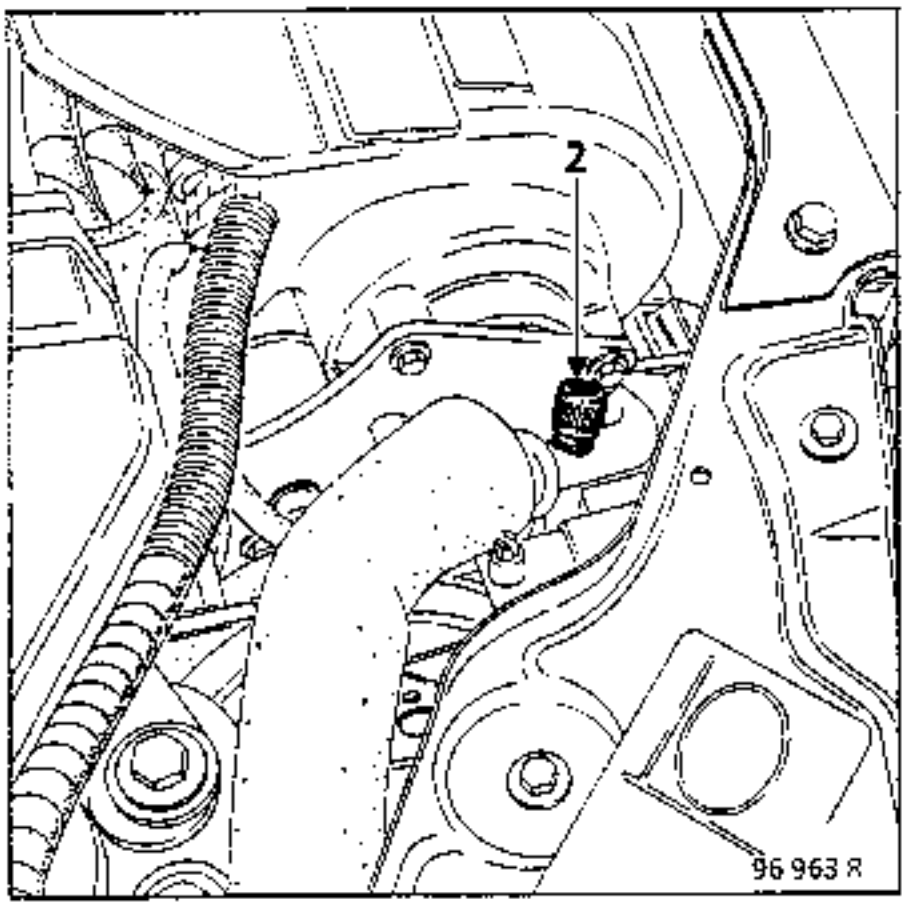
IMPORTANT : to each condenser replaced add approximately 15 cm³ of ELF RIMA 100 oil.

REMOVAL

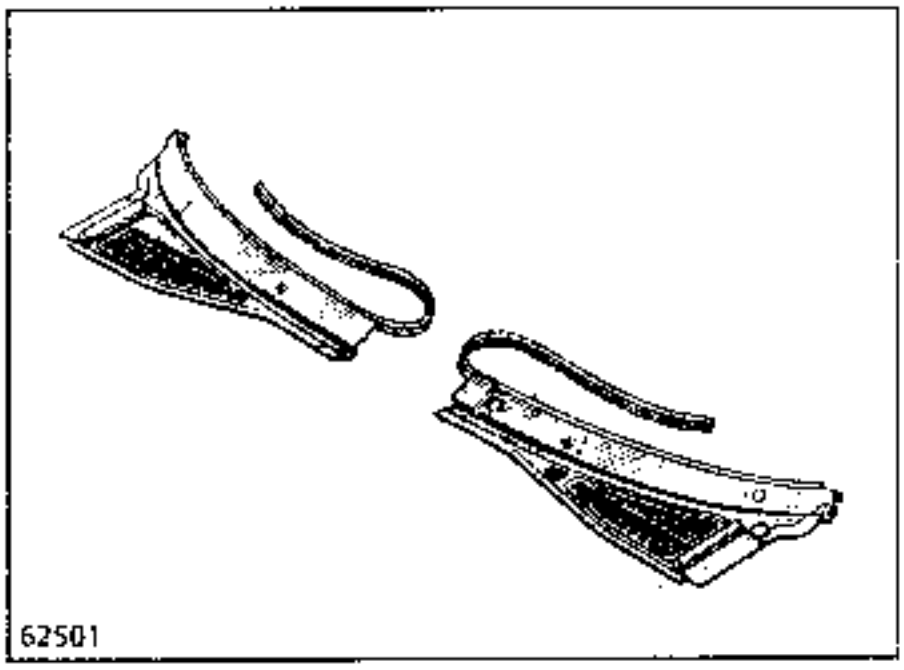
Disconnect the battery.

Drain the freon circuit with the filling station (see method in air conditioning manual) using the high pressure valve (1) and the low pressure valve (2).

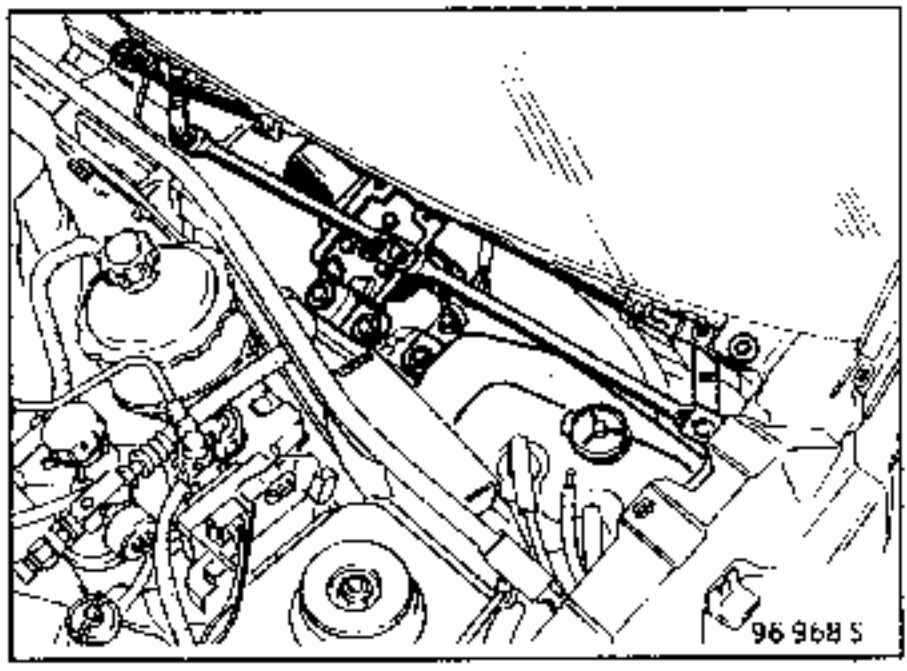




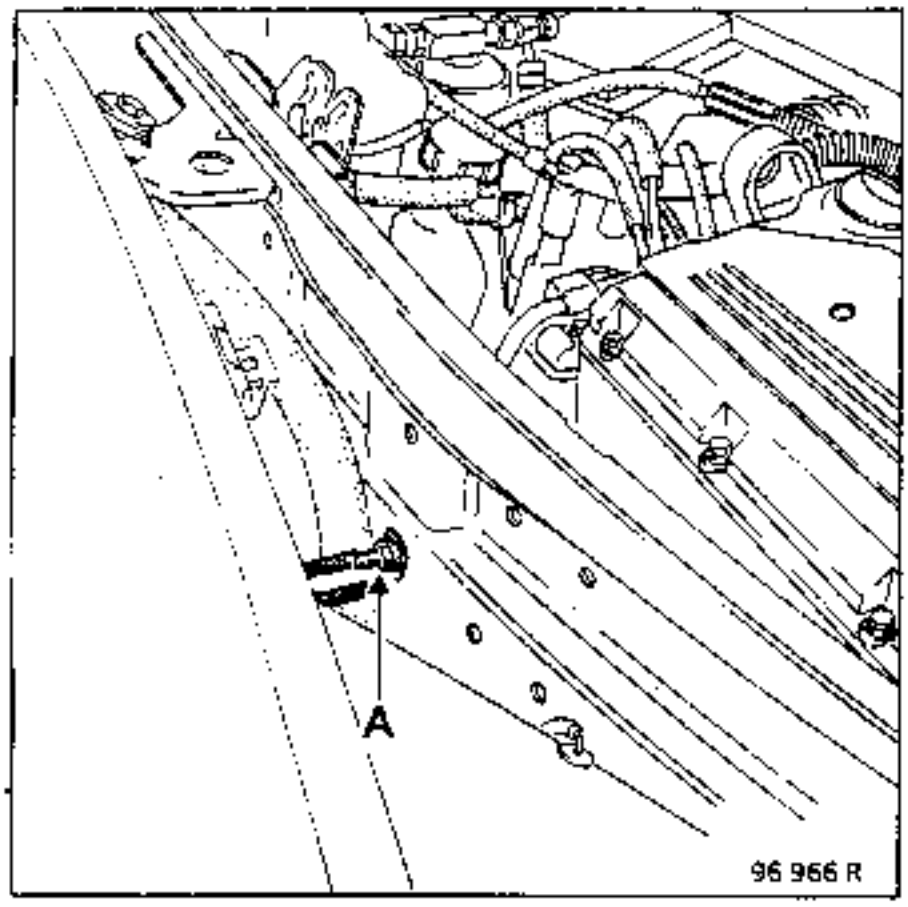
Remove
- the external air inlet grilles,

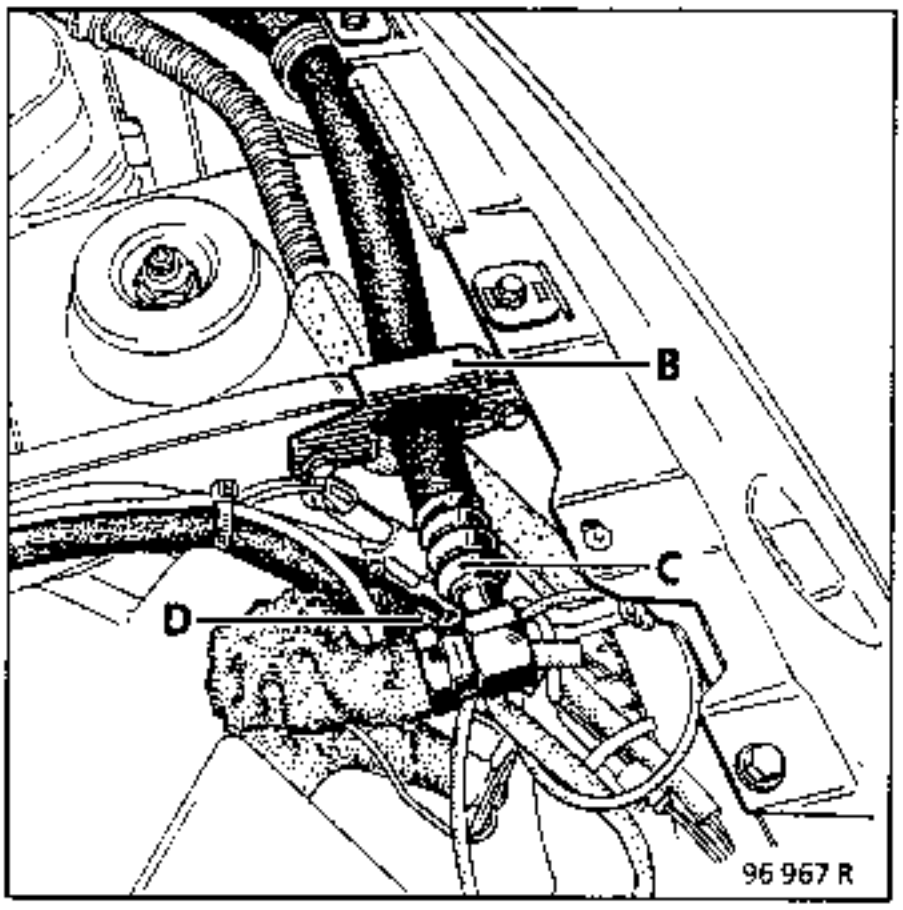


- the windscreen washer reservoir,
- the windscreen wiper mechanism,



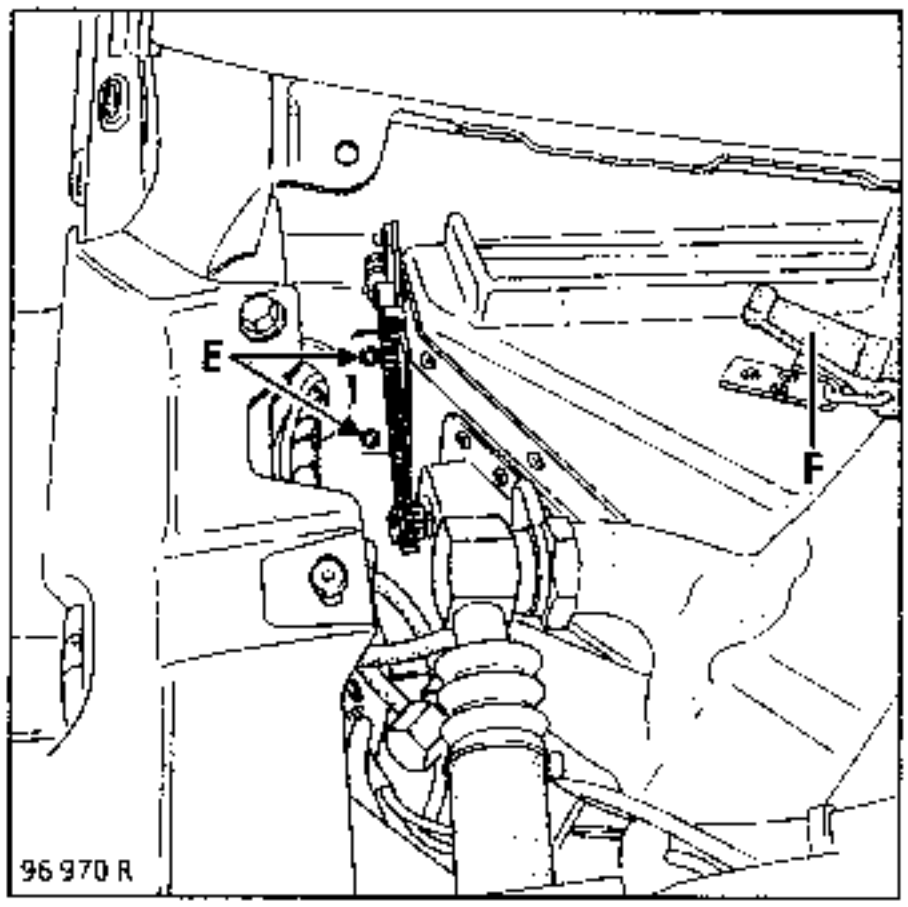
- pipe retaining flanges (A) and (B),
- the refrigerant inlet (C) and outlet pipes (D) on the evaporator.





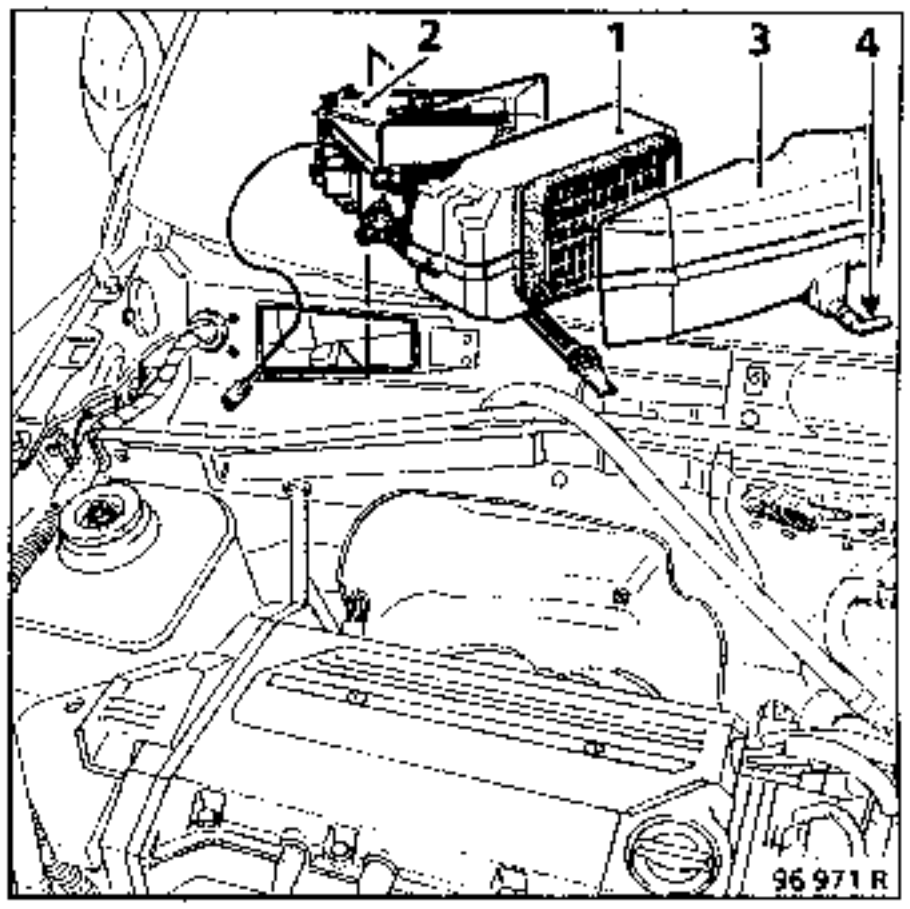
Disconnect the various connectors.

Remove:
- the two mounting bolts (E) holding the recycling unit on the body,
- strap (F).



Remove the evaporator as follows:

Remove:
- the evaporator (1),
- the air inlet unit (2),
- the air duct (3) after disconnecting the condensation drain pipe (4).



REFITTING

There are no special notes for refitting.

Replace all seals.

Refitting is the reverse of removal.

Fill the air conditioning circuit using the filling station (see method described in the air conditioning section).

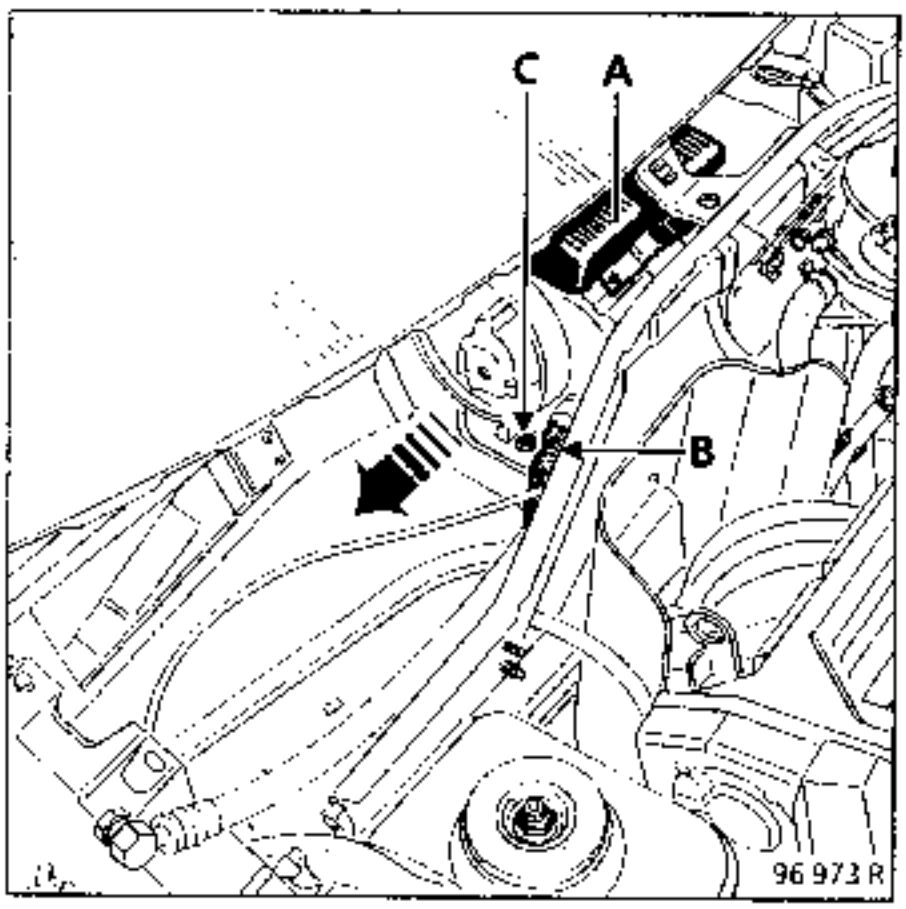
IMPORTANT : when replacing the evaporator, add approximately 30 cm^3 of ELF RIMA 100 oil to the evaporator.

AIR CONDITIONING
Passenger compartment fan

The fan can be reached after removing the evaporator (see corresponding section).

Remove :
- the cover (A) from the fan assembly (attention : this may have a silicon seal),
- connector (B),
- the two bolts (C) on each side of the unit.

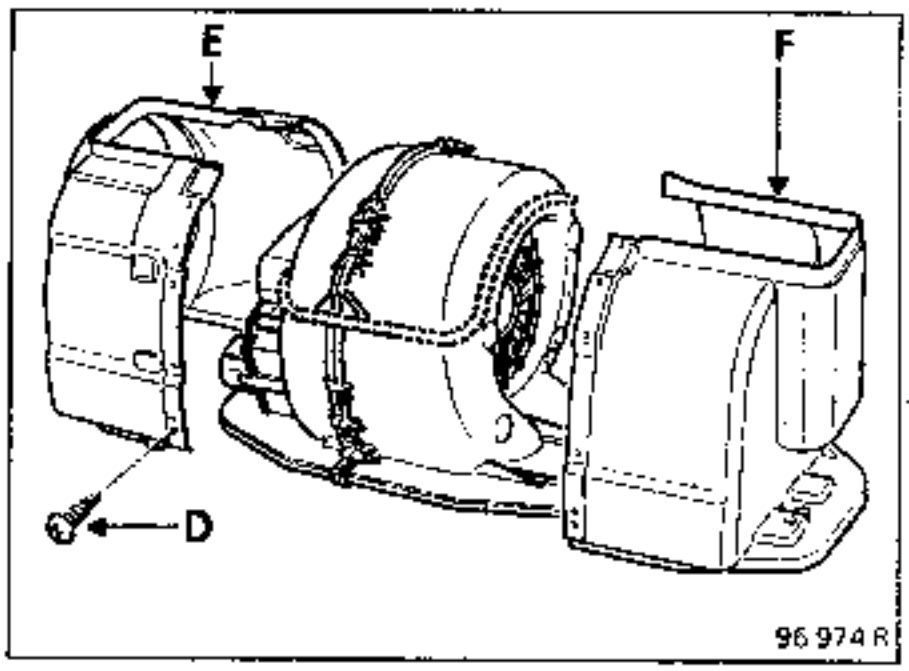
Remove the fan in the direction shown by the arrow on the diagram.



After removing bolts (D), loosen the two 1/2 covers (E) and (F).

SPECIAL NOTE FOR REFITTING

If a new fan assembly is being fitted, remove the sections marked on the diagram with a dotted line.



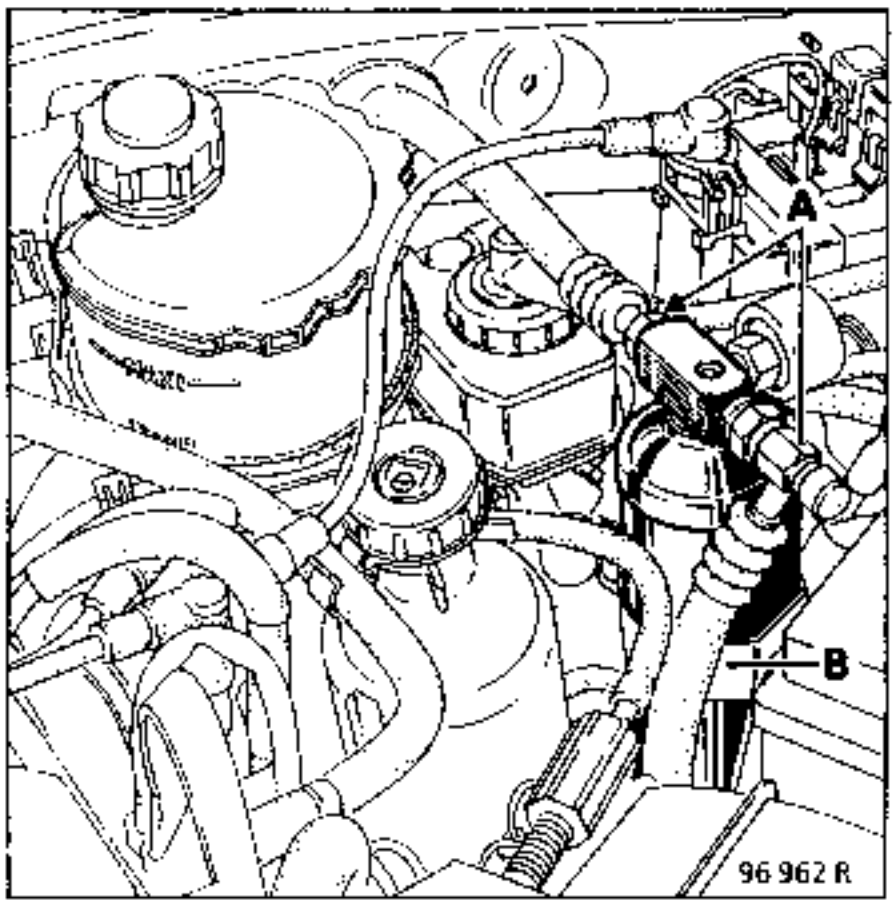
Fit a new seal on the edges of the 1/2 covers using **AUTOJOINT NOIR paste, Part Number 77 01 394 075.**

REPLACEMENT

Drain the air conditioning circuit using the filling station (see method in air conditioning section).

Disconnect the two pipes (A).

Undo the flange (B), then remove the bottle upwards.

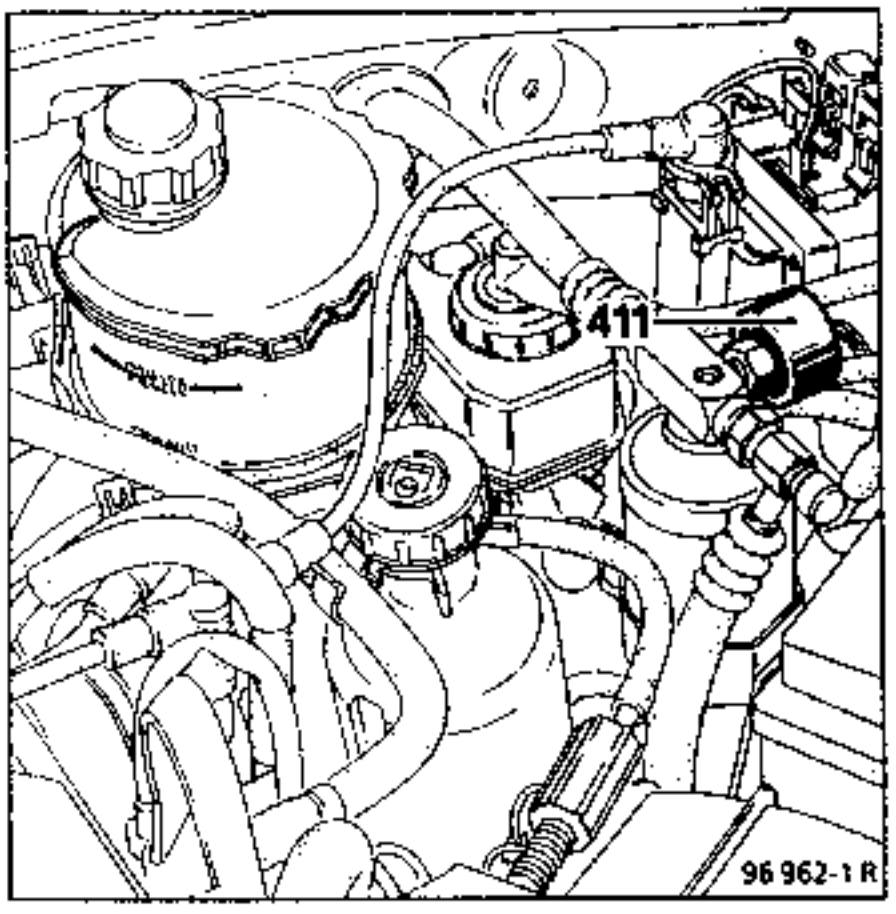


When refitting, oil the threads using compressor oil and check they are in good condition.

AIR CONDITIONING
Trifunction pressostat (411)

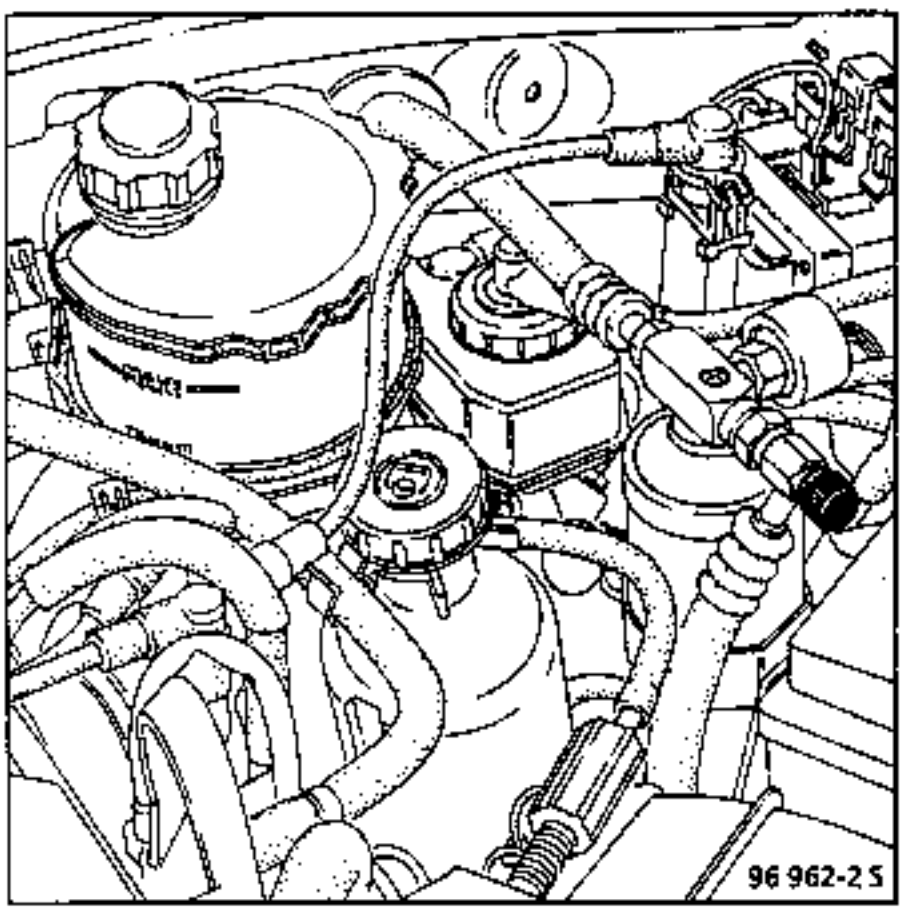
This is located on the dehydrating bottle.

The refrigerant circuit does not need to be drained to work on the pressostat ; it is fitted with a "SKADER" valve.

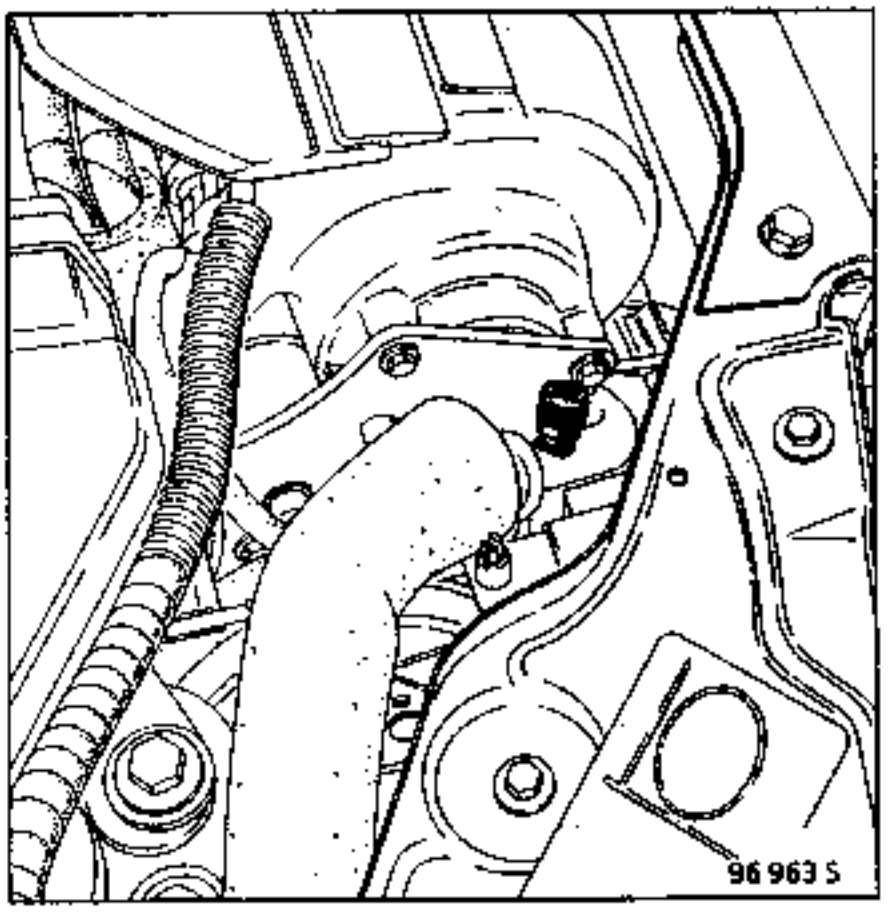


Filling valves

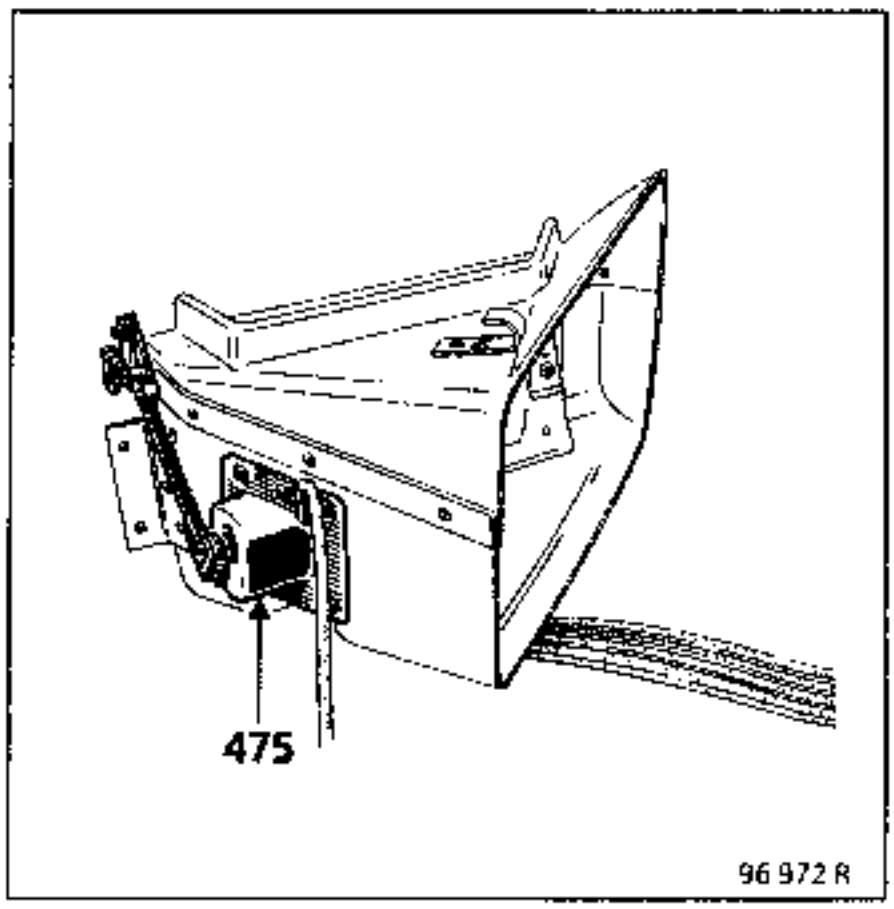
HIGH PRESSURE FILLING VALVE



LOW PRESSURE FILLING VALVE



Recycling motor (475)

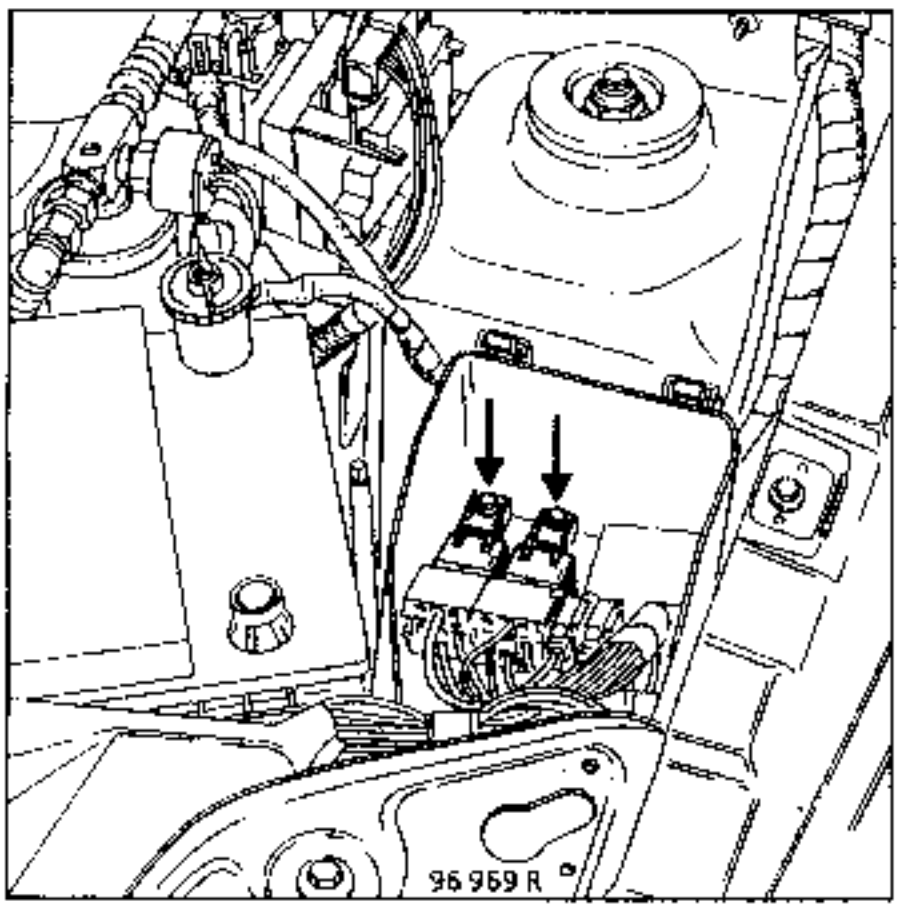


The evaporator must be removed to reach the recycling motor (see corresponding chapter).

The motor is sold with the air recycling unit.

No adjustment may therefore be made.

Relay



Compressor relay (474)

Engine cooling fan relay (234)

The recycling motor relay (475) and the air conditioning cut out relay (720) are in the passenger compartment close to the radio connector.

The special parts required for the DIAVIA air conditioning system should be ordered from your DIAVIA agent below.

COUNTRY	DIAVIA DISTRIBUTOR	ADDRESS	TELEPHONE
FRANCE	Liotard Division Automobile	65, Avenue Jean Mermoz 93120 LA COURNEUVE	49.92.51.07
ITALY	DIAVIA S R.L.	Via Nobil, 2 40062 MOLINELLA (BO)	(39.51) 69 06 111
SPAIN	DIAVIA AIRE S.A.	Callo Mar Tisseno, 33 Pol. Ind. S. Fernando De Henares 28850 MADRID	(34-1) 65 65 212 67 70 130
PORTUGAL	AUTO LINEA EQUIPAMENTOS ESPECIALS LDA	Rua D. Luis 3R/C P1200 LISBOA	(351-1) 600 502 600 536
BELGIUM LUXEMBOURG	AIRCOSERVICE N.V.	Europarklaan 88 B3530 HOUTHALEN	(32-11) 52 42 55
GERMANY	WAECO -WAEHNING et CO GMBH	Postfach 1144 Sinningerstrasse 36 D 4407 EMSDETTEN	(49-2572) 8790
ENGLAND CYPRUS GIBRALTAR MALTA	DIAVIA UK	Argent House Whitney Road Daneshill Industrial Park BASINGSTOKE Hamps RG24 ONS	(44-256) 84 21 11 (when dialling from outside of the UK. Within the UK dial 0256-842111)
DENMARK	WAECO DANEMARK APS	Tvaervej 2 - Postbox 1 DK 6640 LUNDERSKOV	(45-75) 58 59 66
FINLAND	WAECO FINLAND OY	Levytie 5-7 SF 00880 HELSINKI	(358-0) 75 99 03 12
SWEDEN	WAECO SVENSKA AB	GRUVGATAN 9 42130 VASTRA FROLUNDA SWENDEN	(46-31)49 00 40
NORWAY	KOLBERG, CASPARY MASKIN AS	Ensjovein 7 Postboks 2945 TOEYEN N 0608 OSLO 6	(47-2) 68 08 20
HOLLAND	WAECO BENELUX B.V.	Ettenseweg, 60 NL-4706 PB ROOSENDAAL	(31-1650) 86 700
SWITZERLAND	CRESTA COOL S.A.	Glatta Istr. 501 CH-8153 RUEMLANG	(41-1) 81 73 031

COUNTRY	DIAVIA DISTRIBUTOR	ADDRESS	TELEPHONE
TURKEY	START DIS TICARET VE PAZARLAMA	Gonenoglu Sokak Birlik Nr. 7/4 80280 Gayrettepe ISTANBUL	(90-1) 27 32 732
SAUDI ARABIA	AL BALBEESI WORKSHOP	CR 5221 P.O. BOX 3715 RIYADH	(966-1) 49 10 759
EGYPT	BIFCO FOR TRADING AND SUPPLY	4, El Marwa Street ROXY - HELIOPOLIS-CAIRO	(20-2) 25 77 112
CHILE	SIDAV et CIA LTDA	Diez de Julio 946 SANTIAGO	(56-2) 63 96 557 63 82 477
JAPAN	CONTINENTAL PRODUCTS CO LTD	Park Minami-Azabu 4F-2-13-12, MINAMI AZABU MINATOKU TOKYO	(81-3) 54 42 16 11
AUSTRALIA	AUTO-ELEKTRIK O. GINNER	Erlgasse 22 A 1120 WIEN	(43-1) 81 31 596

Listing of parts for the DIAVIA air conditioning system.

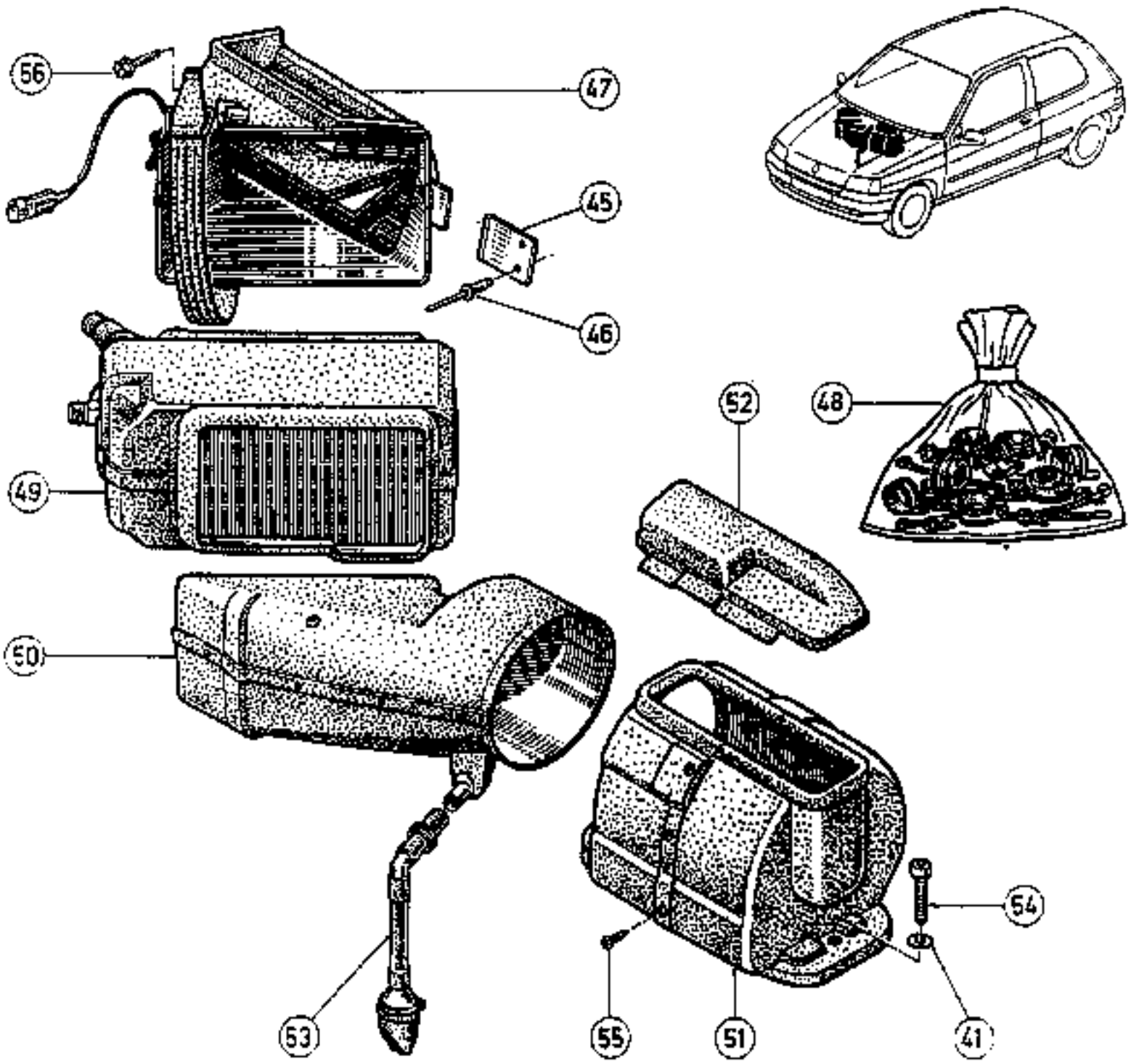
The parts listed should be ordered from DIAVIA agents.

Number	Description	Part No
1	Cable sleeve clip	036703
2	Spacer	009204ZN
4	Cable ring	069564
6	Computer mounting bracket	036702
7	Special nuts	009070ZN
8	Computer wiring protection	036701
10	Bolt	–
11	Shaped washer	–
12	Bolt	–
13	Bolt	–
14	Plastic clip	069030
16	Protection against sharp edges	069122
17	Plastic clip	069029
18	Rubber U section	069005
19	Bolt	–
20	Anti-condensation mastic	070012
21	Hexagonal spacer	009596
22	Cable ring sleeve	069079
23	Bolt	–
24	Cable mounting	008251
25	Lock nut	–
26	Compressor	014207
27	Pulley and compressor mounting	001834RE
28	Retaining bracket	002915RE
29	Retaining bracket	002916RE
31	Alternator mounting	002917RE
32	Mounting plate	002918RE
33	Retaining rod	002919RE
34	Flat washer	–
35	Lock nut	–
36	Mounting bracket for refrigerant pipes.	043065
37	Bolt	–
38	Spacer	–
39	Return pulley	004036 DV
40	Roller mounting	006141/1
41	Flat washer	–
42	Bolt	–
43	Bolt	–
44	Pressostat	0431012
45	Evaporator mounting bracket	060614
46	Rivet	062023
47	Air distribution unit	032929
48	Bag of bolts and clips	039001
49	Evaporator	030417/1
50	Air duct	032853
51	Engine cooling fan housing	032930/1
52	Engine cooling fan cover	032931/1
53	Condensation drain pipe	032932/1
54	Bolt	–
55	Bolt	061009

Number	Description	Part No
56	Lock bolt	061031
57	Bolt	-
58	Hexagonal spacer	009595
59	Relay	068998
60	Fan control circuit wiring	0281168
61	Relay	0681207
62	Cable ring	-
63	7.5 A fuse	-
64	30 A fuse	068300
65	Air conditioning control circuit wiring	0281236
66	Commutator relay	068535/2
67	Wiring	0681047
68	Air conditioning switch	0681255
69	Recycling switch	0681254
70	Adhesive trim	070186
71	Thermostat	068012/1
72	Bolt	–
73	RAYCHEM blue connector	064273
74	PACKARD connector - exploded view	–
75	Bolt	-
76	Bolt	–
77	Bolt	-
78	Bolt	-
79	Bolt	–
80	Bolt	-
81	Shaped washer	–
82	Shaped washer	–

Number	Description	Part No
83	Conical washer	108306
85	Bolt	–
86	Bolt	-
87	Bolt	–
88	Bolt	–
89	Bolt	-
90	Bolt	–
91	Bolt	-
92	Shaped washer	–
94	Lock nut	–
95	Bolt	-
96	Conical washer	112306
97	Dehydrating bottle	017032
98	Upper condenser	022291 OR/1
99	Lower condenser	0222920R
100	Fan	080084.1
102	PACKARD compressor connector	028839
103	Bolt	061030
104	Bolt	
105	Bolt	
106	Washer	
107	Upper fan mounting bracket	023 695
108	Lower fan mounting bracket	023696
109	Retaining ring	036124.1
110	Upper left hand condenser mounting bracket	081749

Number	Description	Part No
111	Upper right hand condenser mounting bracket	081750
112	Lower left hand condenser mounting bracket	081751
113	Lower right hand condenser mounting bracket	081752
114	Condenser mounting bracket	081754
115	Dehydrating bottle mounting	036820
116	Bolt	–
117	Bolt	–
118	Rubber protection	–
119	Protective sleeve for electronic wiring	–
121	Lock nut	–
–	5/16" FE (evaporator - filter) pipe	906GC414
–	5/16" CF (lower condenser - filter) pipe	906GC003
–	5/16" CC (compressor - condenser) pipe	906GC415
–	13/32" CC (compressor - upper condenser) pipe	908GC416
–	1/2" EC (evaporator - compressor) pipe	910GC417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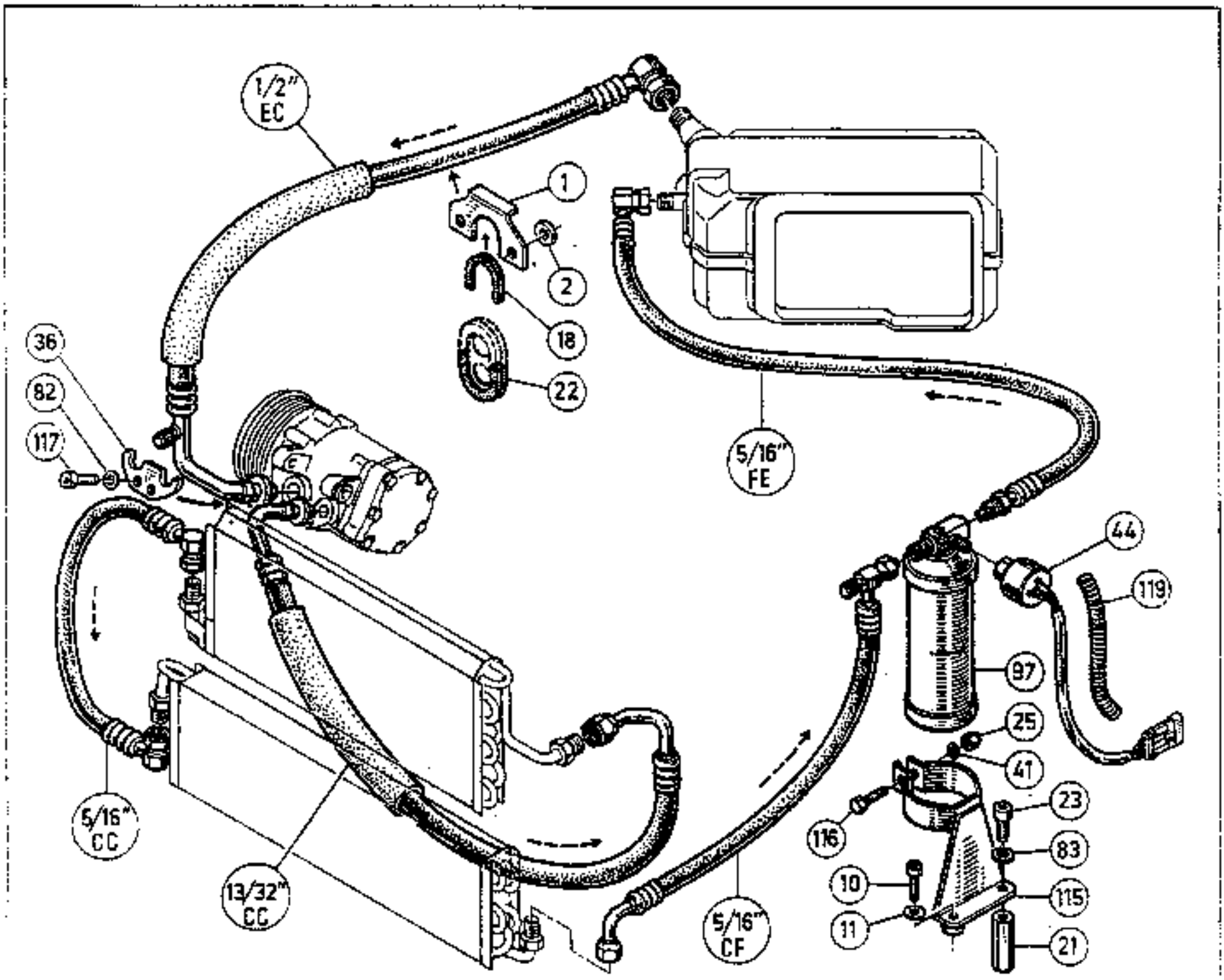
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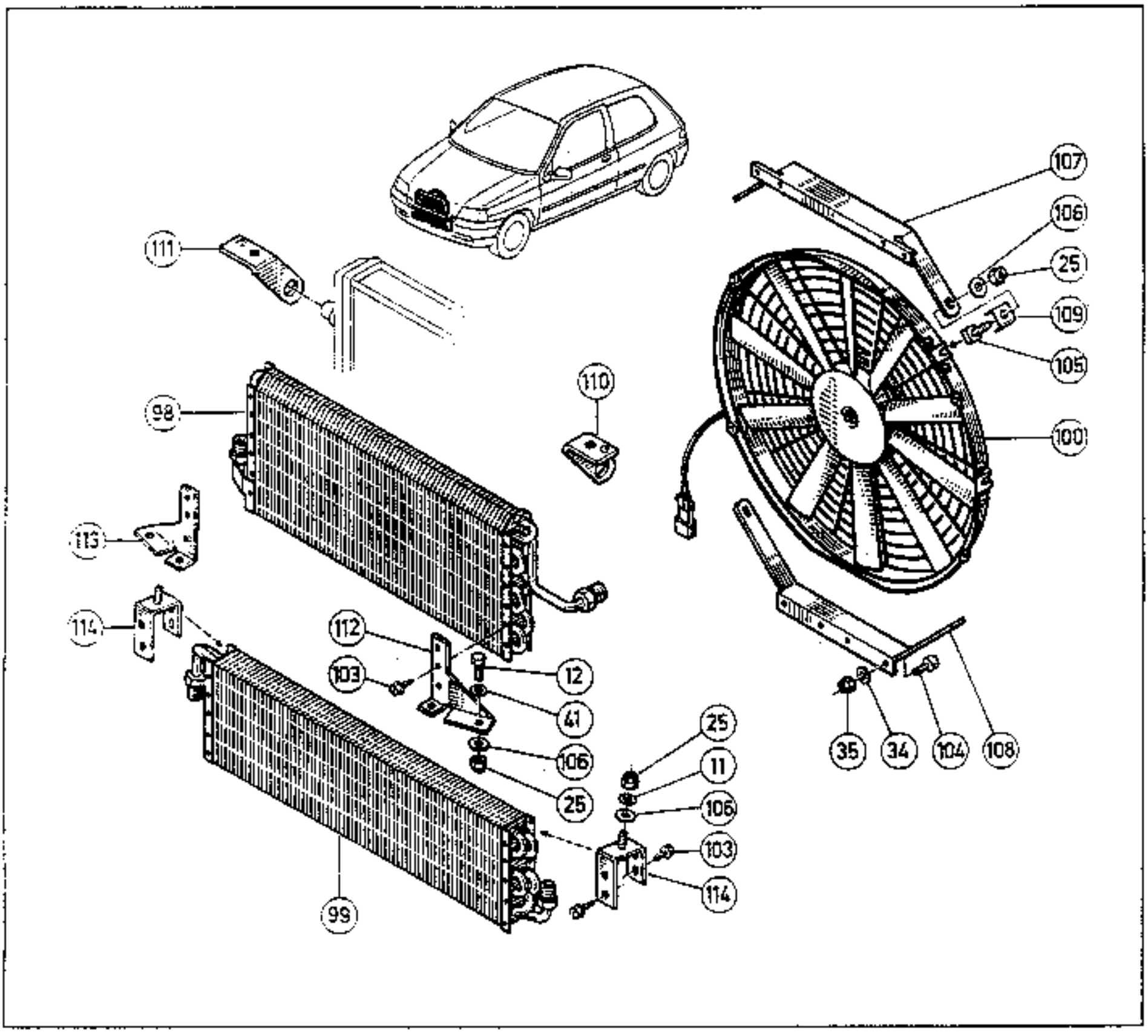
13/32" CC
5/16" CF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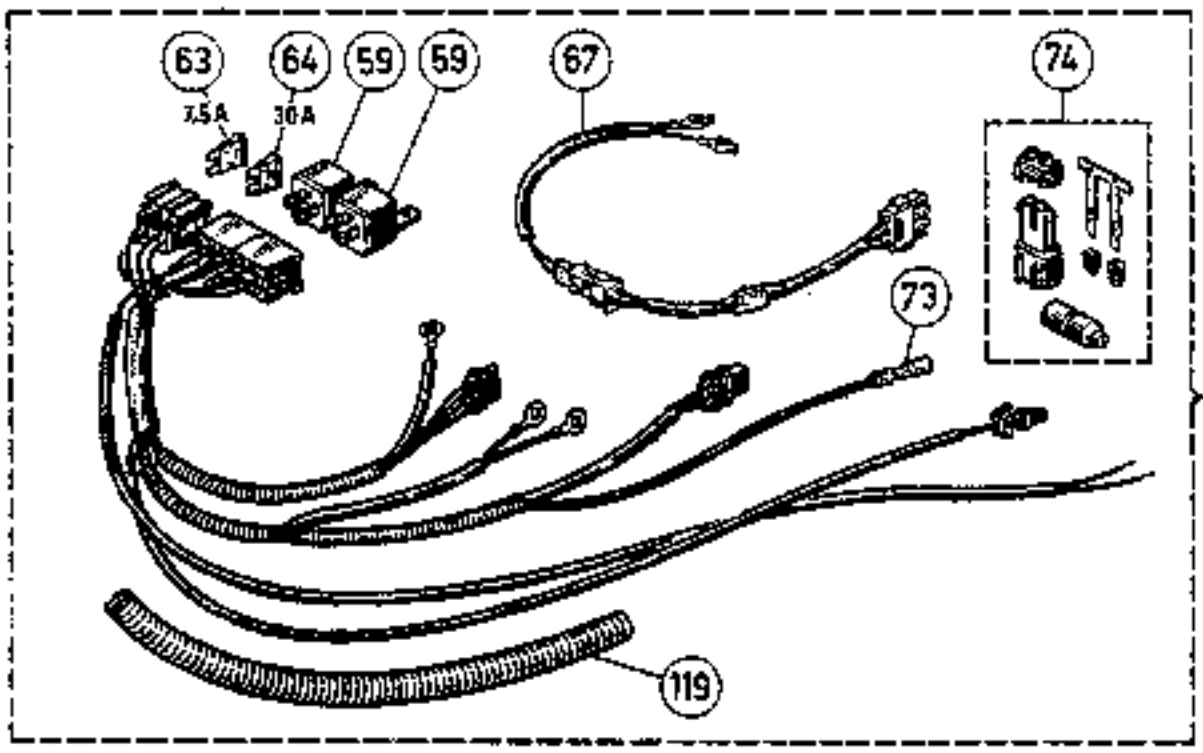
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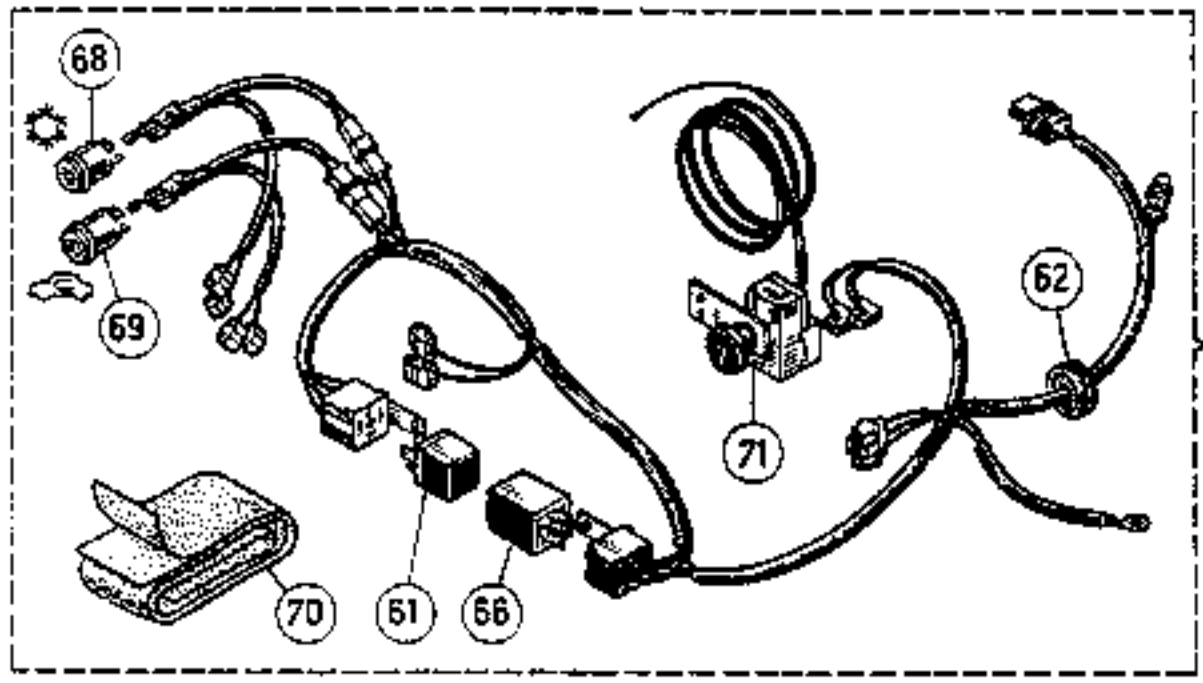
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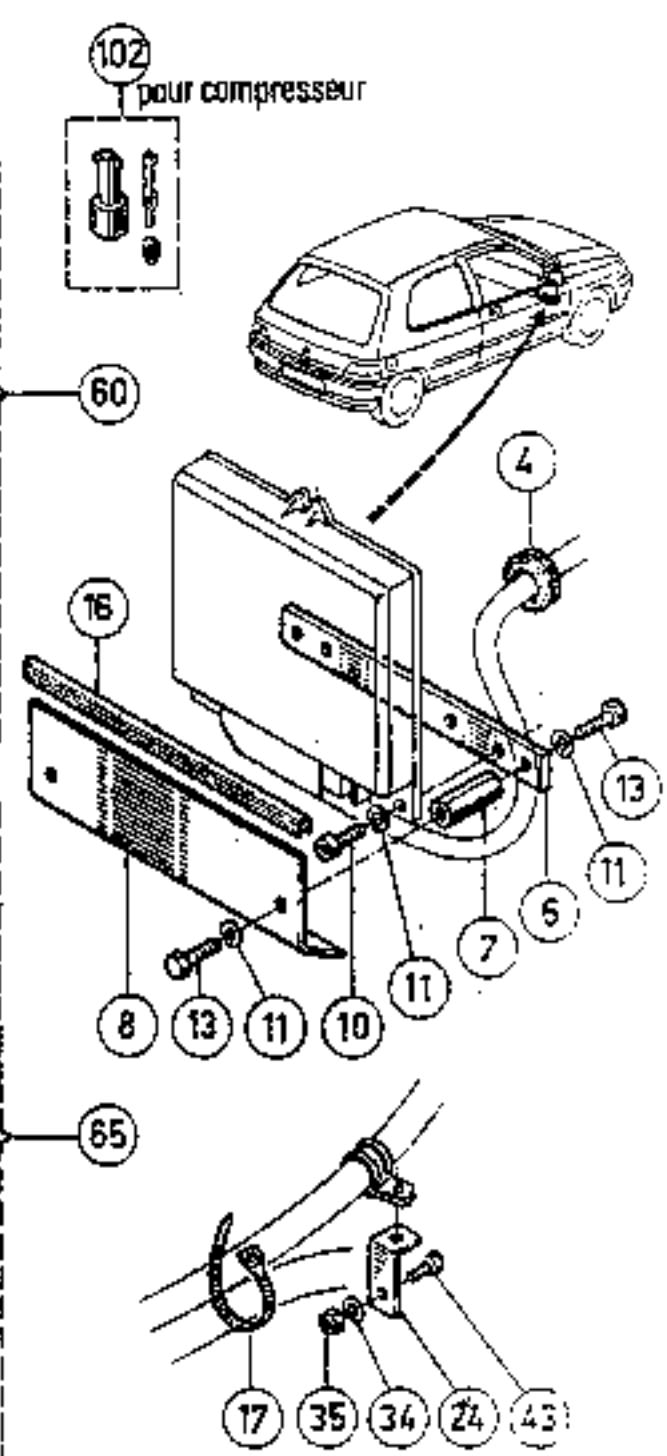
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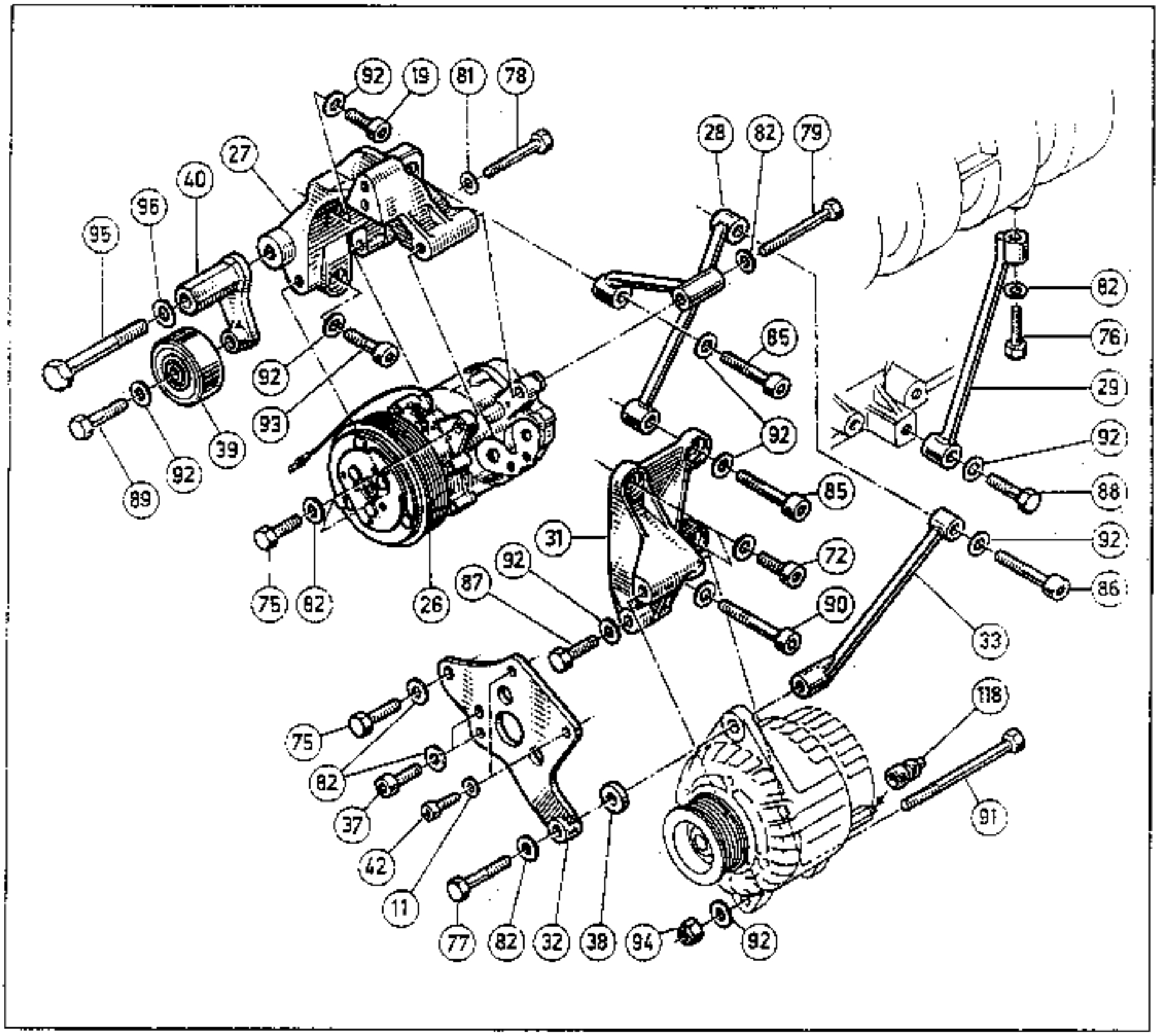
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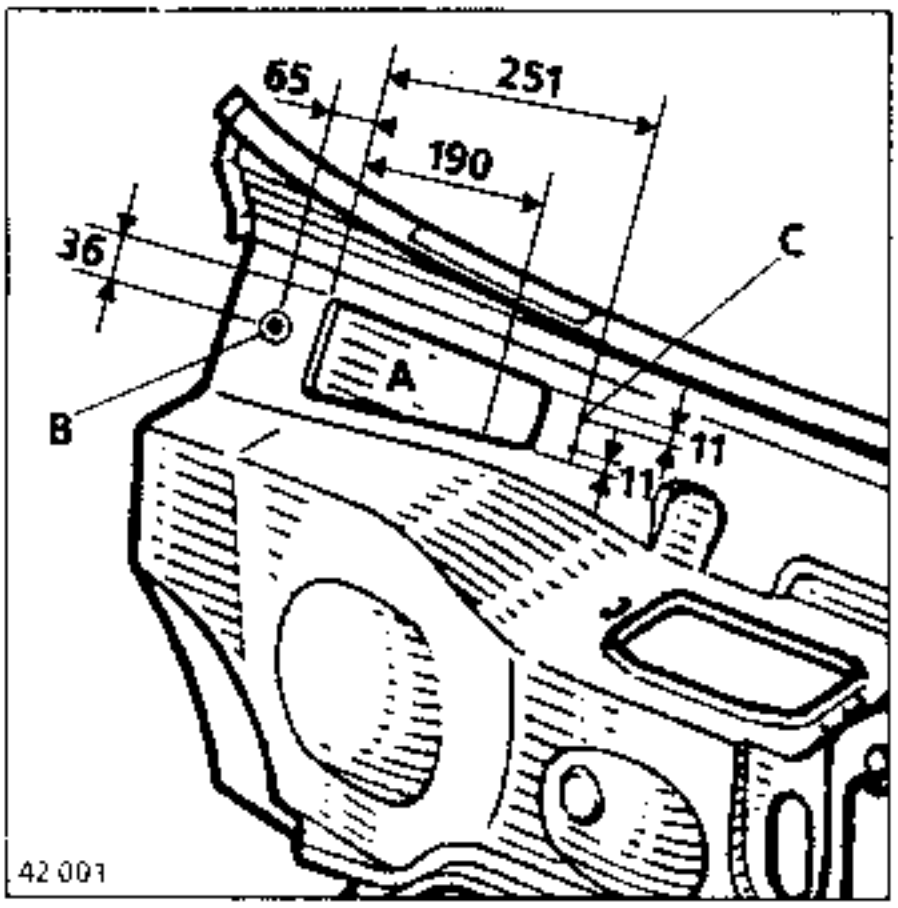
UPPER FRONT STRUCTURE
General

42

As a general rule, the dimensions required when drilling holes for mounting specific DIAVIA parts should be measured on the parts replaced. All drilling work should be carried out before painting to avoid the risk of corrosion.

Bulkhead



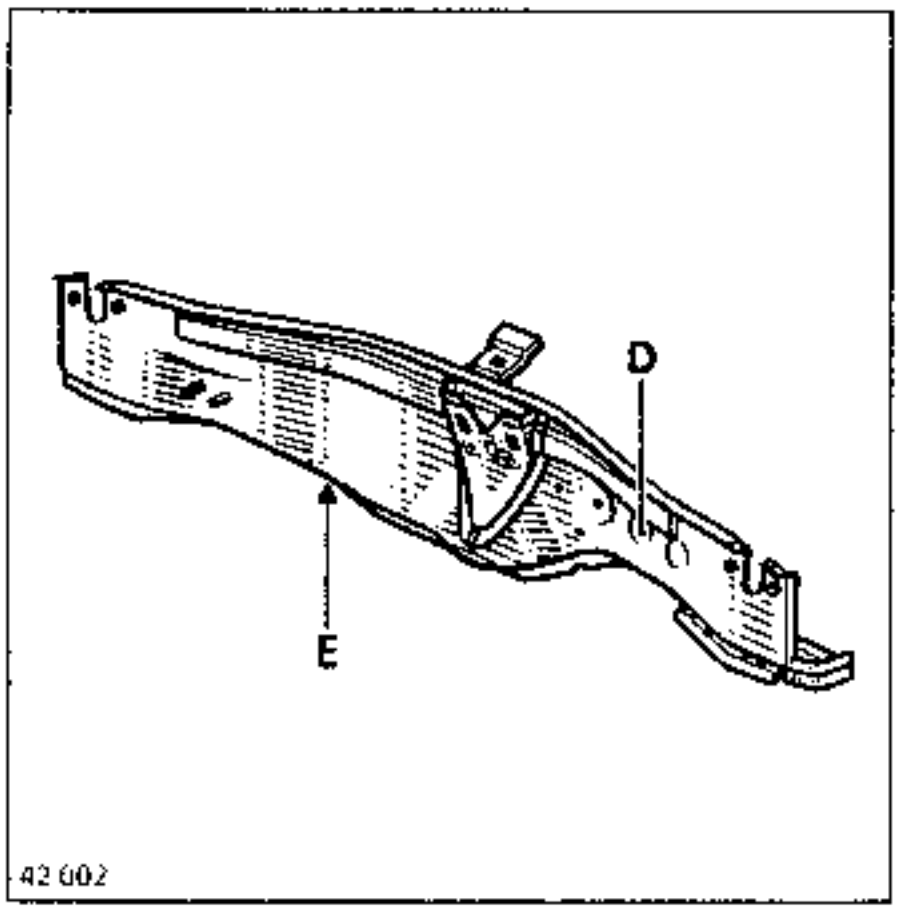
CUTTING THE BULKHEAD AS SUPPLIED BY THE PARTS DEPARTMENT

Drill a 10 mm diameter hole in each corner of the section to be cut out (A) then cut out section (A) using a power saw.

Drill 20.5 mm diameter holes (C).

Drill a 38 mm diameter hole (B) using a conical drill bit.

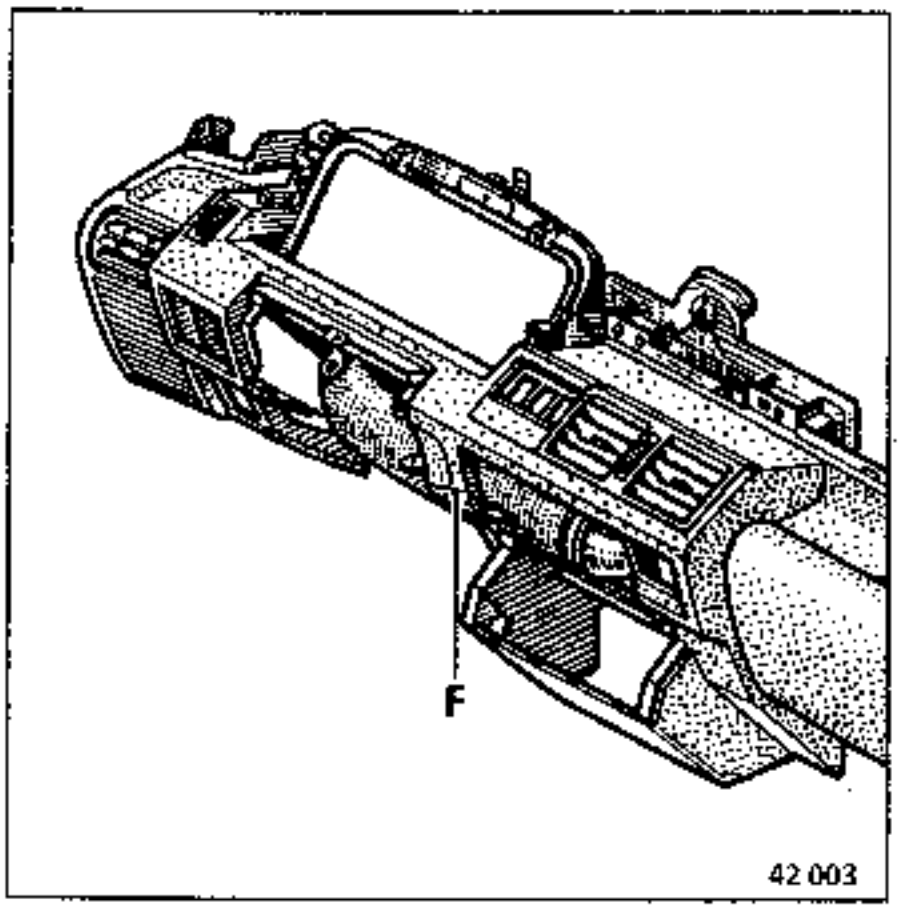
Plenum chamber



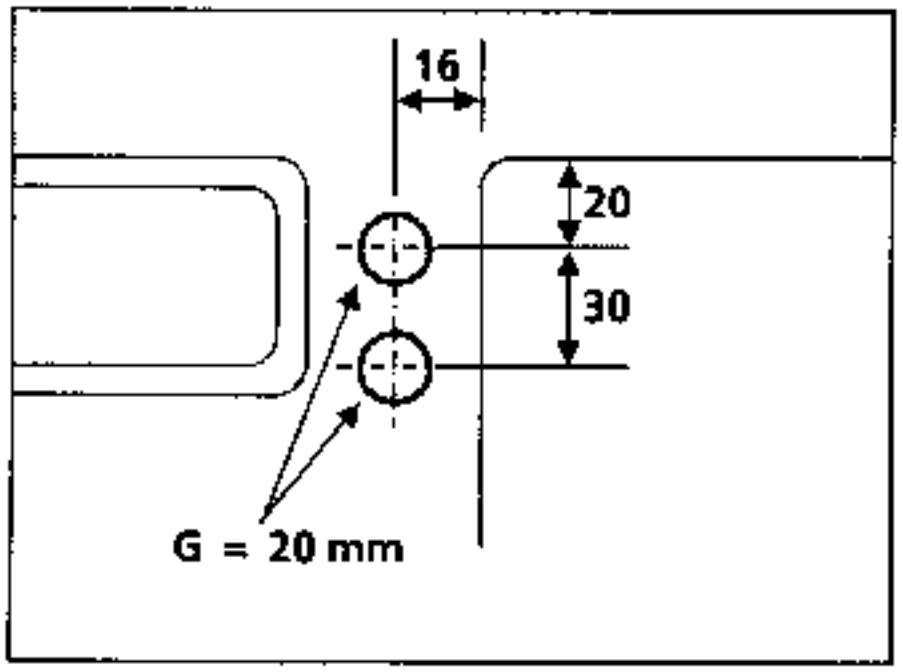
CUTTING THE PLENUM CHAMBER AS SUPPLIED BY THE PARTS DEPARTMENT

At (D) : Drill a 38 mm diameter hole using a conical drill bit.

At (E) : an 18 mm diameter hole



Detail (F)



Drill 2 holes (G) 20 mm diameter using a conical drill bit.