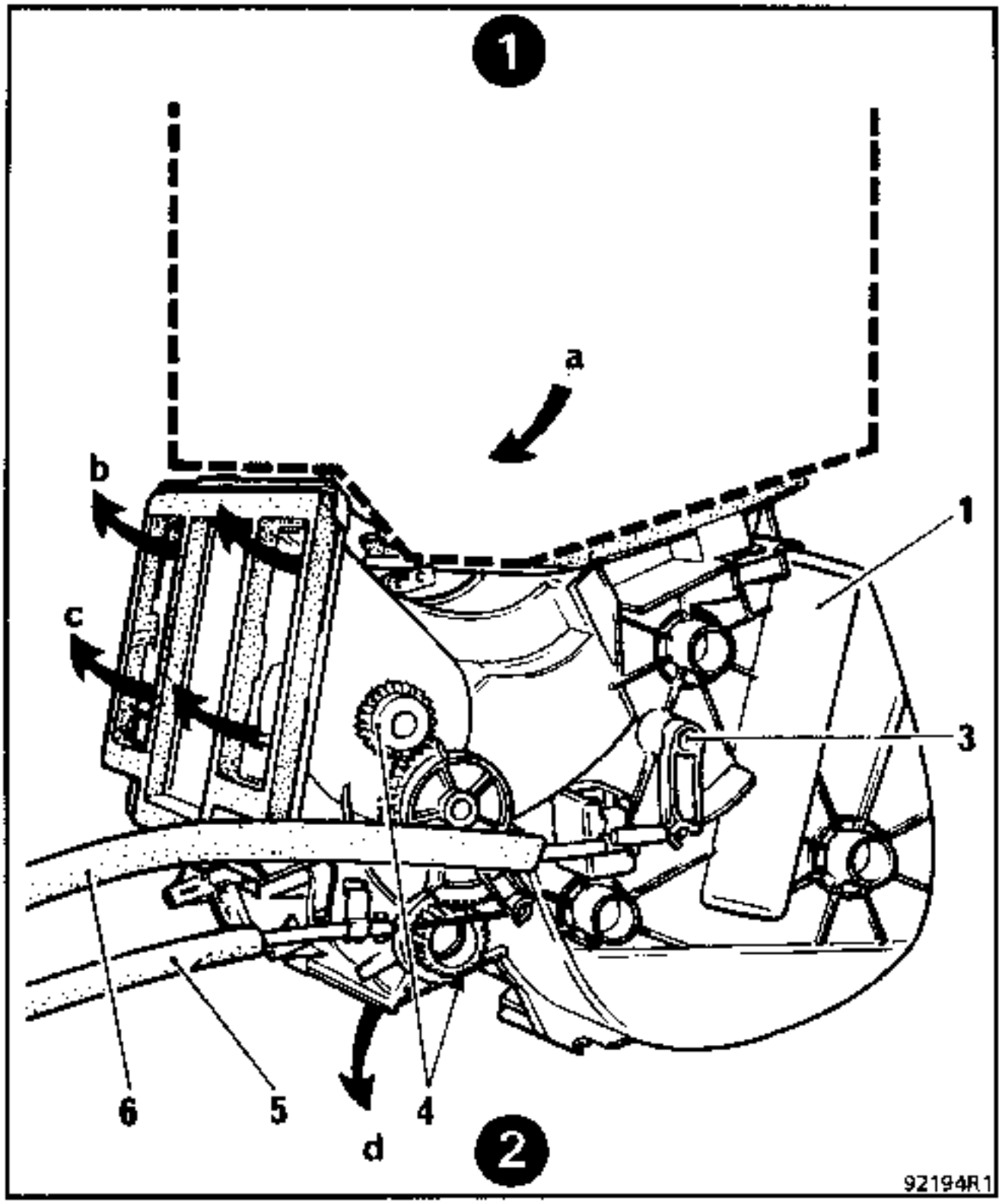
SECTION VIEW OF FAN UNIT AND AIR DISTRIBUTION UNIT

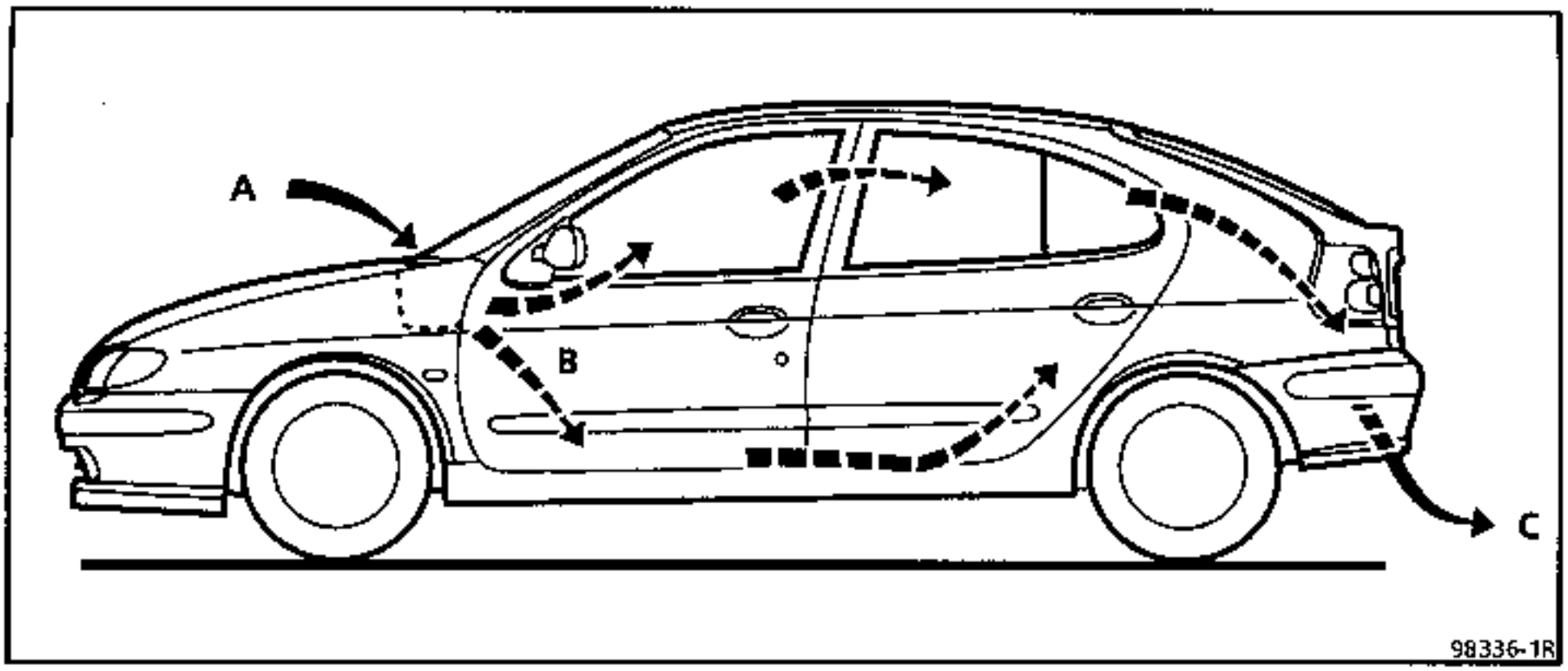


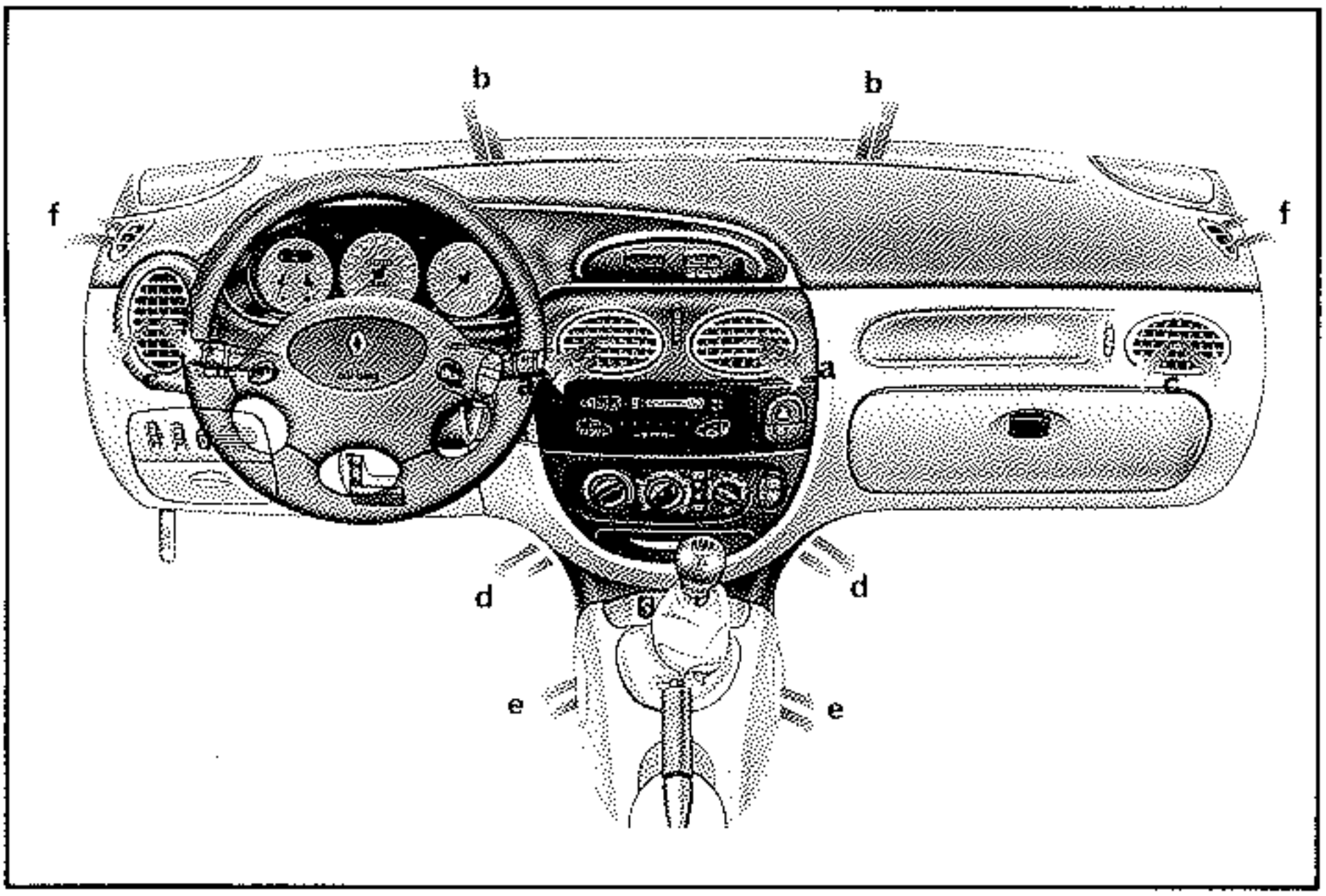
1 SCUTTLE PANEL

2 PASSENGER COMPARTMENT

1 - Heater radiator
2 - Heater fan
3 - Hot air / cold air flap
4 - Air distribution flaps
5 - Air distribution cable
6 - Air mixing cable
a - Air inlet
b - Windscreen demister outlet
c - Dashboard vent outlet
d - Lower vent outlets

AIR DISTRIBUTION AND CIRCULATION

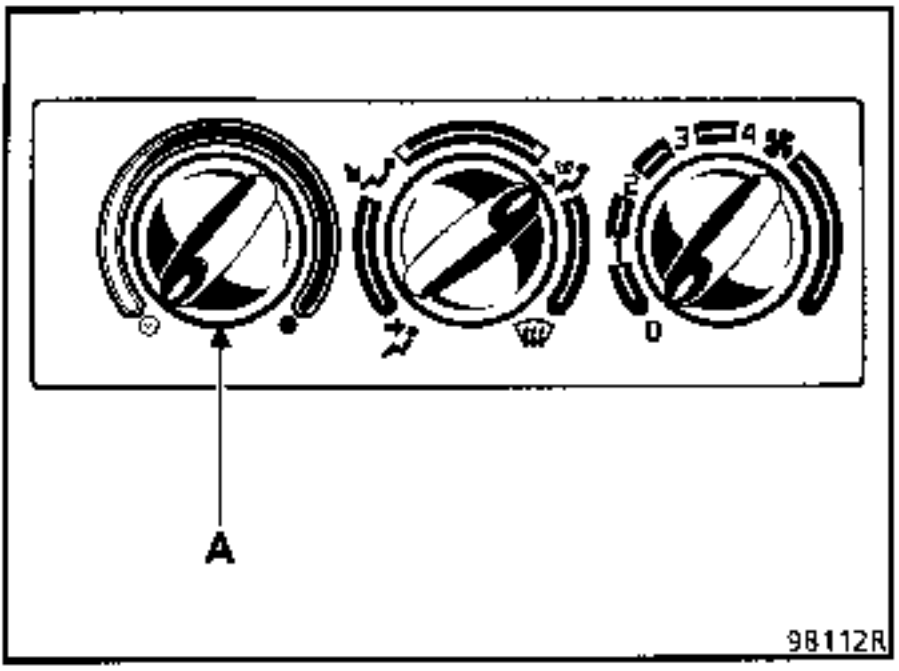




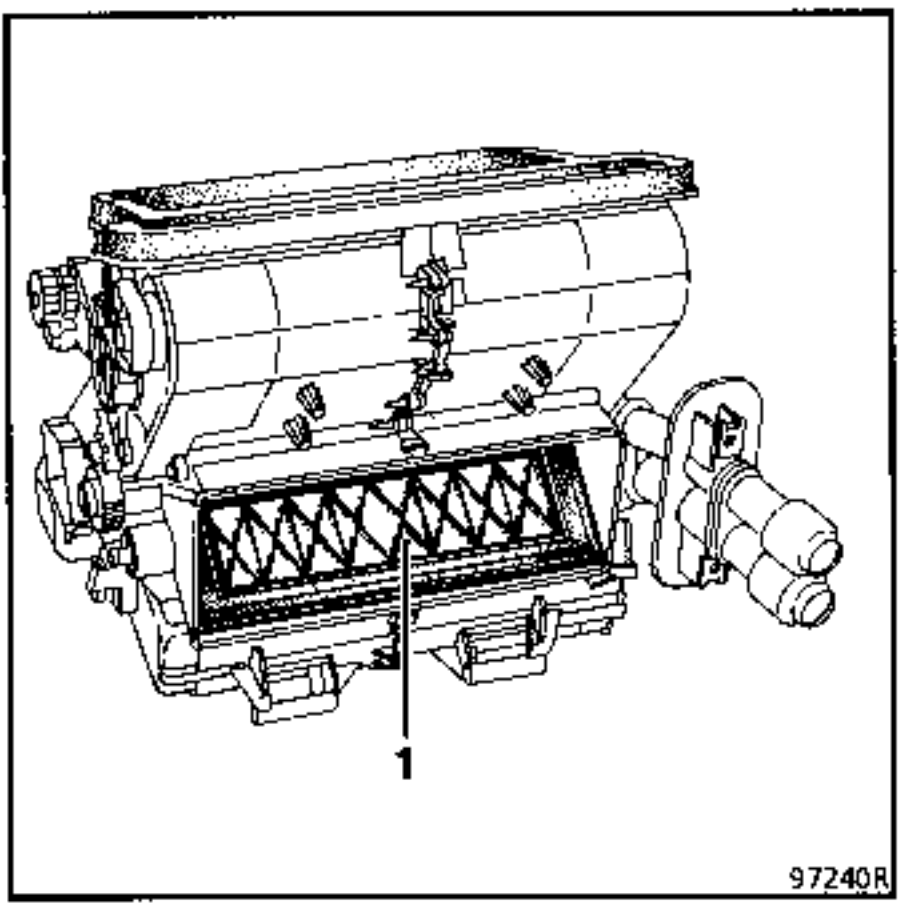
A - External air inlet
B - Distribution of air
C - Air extraction via the rear end panel

a - Central vent outlets
b - Windscreen demister outlet
c - Dashboard vent outlet
d - Lower vent outlets
e - Rear seat vent outlets
f - Front side window demister outlet

TEMPERATURE CONTROL KNOB (A)

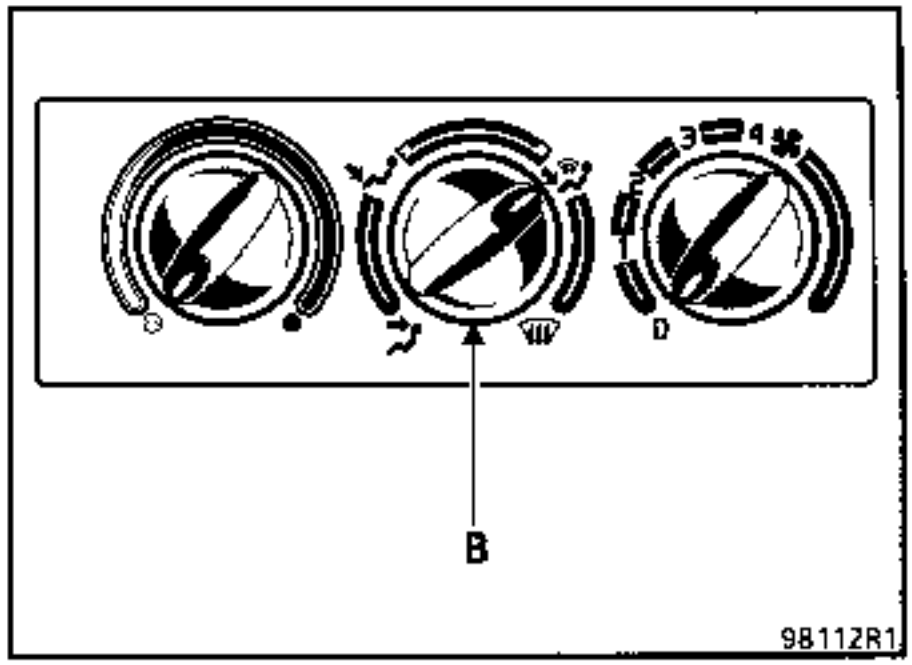


This controls the air mixing flap (1).



The fan unit does not have a water control valve and is permanently fed. Flap (1) is used for fresh air heating.

AIR DISTRIBUTION KNOB (B)



POSITION

The flow of air is only directed to the central vents (a) and side vents (c) (see "General" page).

POSITION

The flow of air is directed to the central vents (a), side vents (c), front footwells (d) and rear footwells (e) (see "General" page).

In all cases (a) and (c) are operational.

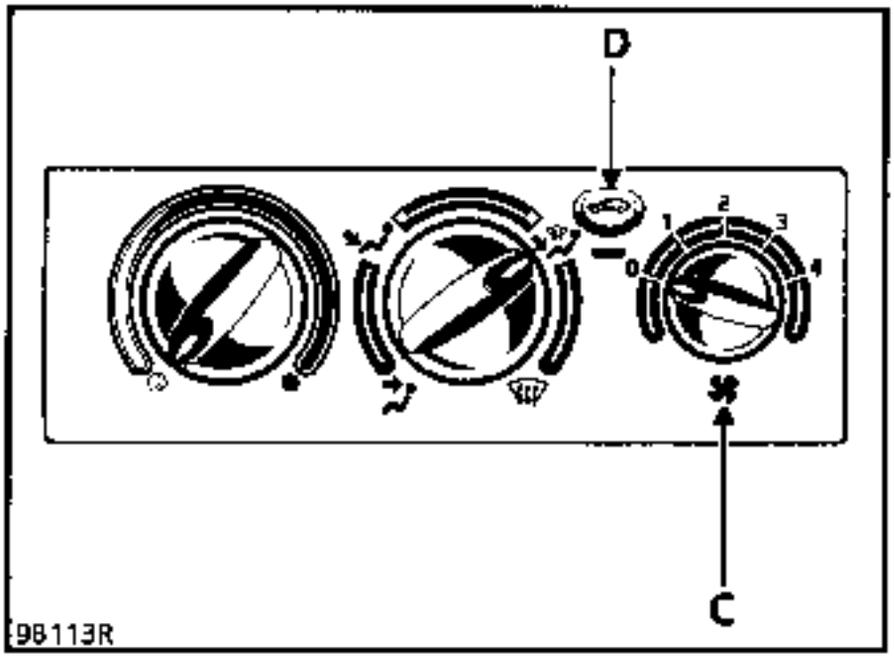
POSITION

The flow of air is directed to the demisting - de-icing outlets (b) and (f) and to the front footwells (d) and rear footwells (e) (see "General" page).

POSITION

The flow of air is directed just to the demisting - de-icing outlets (b) and (f) (see "General" page).

Air flow knob (C).



Ventilation is by blown air . The air flow is controlled by the position of the knob (C).

Air recycling control  (D). In this position, the external air inlet flap is closed and the recycling flap is open. The flow of air in the passenger compartment is determined by the position of knob (C).

Using this control permits improved air conditioning efficiency under certain circumstances (demisting, excessive heat), or for conventional ventilation, when driving through an exhaust gas polluted area for example.

- Air distribution fault (cable controlled flaps) — Chart 1
- Air flow fault — Chart 2
- Lack of heating efficiency — Chart 3
- No heating — Chart 4
- Too much heating — Chart 5
- Insufficient heat to the rear seats — Chart 6
- Lack of demisting - de-icing efficiency — Chart 7
- Lack of ventilation efficiency — Chart 8

THE PASSENGER COMPARTMENT VENTILATION FAN DOES NOT OPERATE — Chart 9

PASSENGER COMPARTMENT FAULTS

- Controls stiff — Chart 10

THE RECYCLING FLAP DOES NOT OPERATE — Chart 11

Chart 1 — AIR DISTRIBUTION FAULT

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly. Cable controlled flaps.

Set the fan to maximum, the temperature control to maximum hot or maximum cold, then move the air distribution control and check the selection agrees with the air blown out. Is this correct?

yes → The air distribution is correct. Explain the operation of the system to the customer if necessary.

no

Chart 1A

Visually check on the right hand side of the air distribution unit that moving the knob actually moves the gears and the lever (black gears). Is there movement?

yes → Check the adjustment of the air distribution flap control cable.

Note : adjust on the right hand side of the air distribution unit.

If there is a ventilation fault, check the ventilation ducts, the vents, the seals on the front door ducts. Repair if necessary. Does the fault persist?

yes

Remove the air distribution unit and check the air distribution flaps. Repair or replace the unit.

no

Check the connection of the cable to the air distribution unit and the control panel and also check the condition of the cable and its mountings. Is this correct?

no → Replace the control cable or repair the cable connection (clip) or replace the faulty component (control panel or air distribution unit).

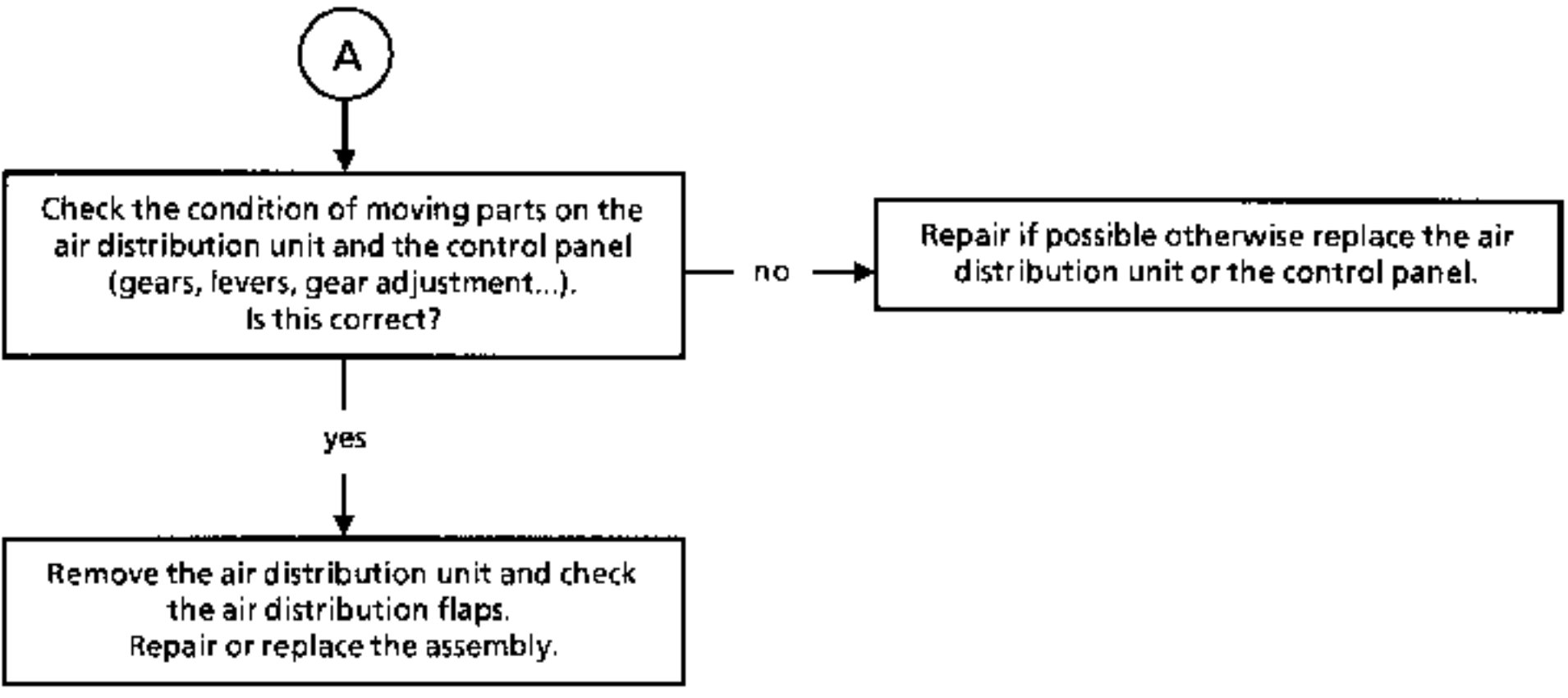
yes

A

AFTER REPAIR Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

S64640.1

Chart 1 CONT	



AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

564640.1

Chart 2 — AIR FLOW FAULT

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly.

Does the passenger compartment fan operate?
- no → See Chart 9
- yes ↓

Check the air inlet circuit, scuttle panel grille, particle filter, rain guard. Is this correct?
- no → Repair or clean or replace the particle filter.
- yes ↓

Check the air extraction circuit is not blocked. Repair if necessary. Does the fault persist?
- no → End of fault finding
- yes ↓

Is there a fault with air distribution in the passenger compartment?
- yes → See Chart 1
- no ↓

Remove the heater radiator. It is blocked - clean or replace the heater radiator (only for vehicles which have been driven without a particle filter).

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

Chart 3 — LACK OF HEATING EFFICIENCY

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly (see Driver's Handbook)

Carry out a road test to confirm the customer complaint.
Is the test satisfactory?

yes → Advise the customer how to get the best from the heating system (eg. : do not set the fan to maximum when starting the engine from cold, rather, increase it progressively).

no

Visually check that moving the control causes the mixing flap to move.
Does the flap move?

no → See Chart 1A (in Chart 1).

yes

Visually check that the flap moves as far as it should.
Does it move correctly?

no → Adjust the control cable (cable operating the black gears on the right hand side of the air distribution unit).

yes

Check:
- the cooling circuit (correctly filled and bled),
- the condition of the circuit (pipes, connections, conformity of the circuit...).

Repair if necessary.
Does the fault persist?

no → End of fault finding

yes

A

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

S64640.1

Chart 3 CONT

A

Engine cold, remove the engine thermostat and check it has not stuck in the open position. Is it correct?

no → Replace the thermostat

yes

Check there is no unwanted cold air entering the passenger compartment (seals, cable guides...). Repair if necessary. Does the fault persist?

no → End of fault finding

yes

Check the air inlets (particle filter) and outlets. If inlets or outlets are partially blocked, the flow of heating air in the passenger compartment is reduced. Repair if necessary. Does the fault persist?

no → End of fault finding

yes

Remove the heater radiator. Is it blocked? Clean or replace the heater radiator (only for vehicles which have been driven without a particle filter).

AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

564640.1

Chart 4 — NO HEATING

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly.

Is there an air flow fault?
- yes → See Chart 2
- no ↓

Check the cooling circuit level.
Note : If the level is too low the circuit may de-prime when driving under low load conditions and at idle speed.
Repair if necessary.
Does the fault persist?
- no → End of fault finding
- yes ↓

Visually check that moving the control causes the mixing flap to move.
Does the flap move?
- no → See Chart 1A in Chart 1
- yes ↓

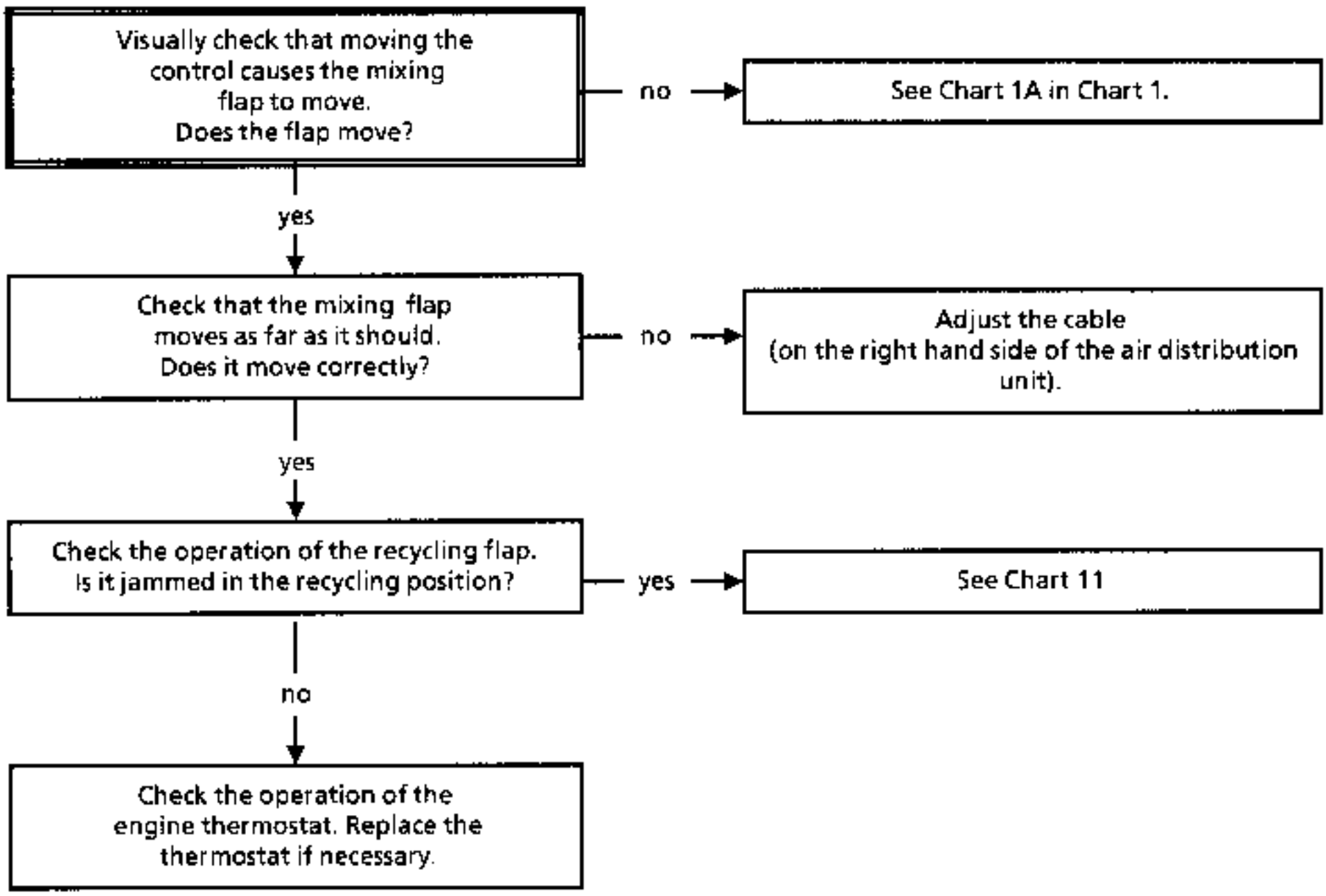
Check the cooling circuit.
Note : Fitting an oil, water or air cooler which is not approved by the Technical Department and is incorrectly connected could reduce or even prevent the flow of water in the heating radiator.
Repair the cooling circuit if necessary.
Does the fault persist?
- no → End of fault finding
- yes ↓

Remove the heating radiator. Is it blocked?
Clean or replace the heating radiator (only for vehicles which have been driven without a particle filter).

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

Chart 5 — TOO MUCH HEATING

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly.



AFTER REPAIR Check all components which have been disconnected are correctly reconnected.

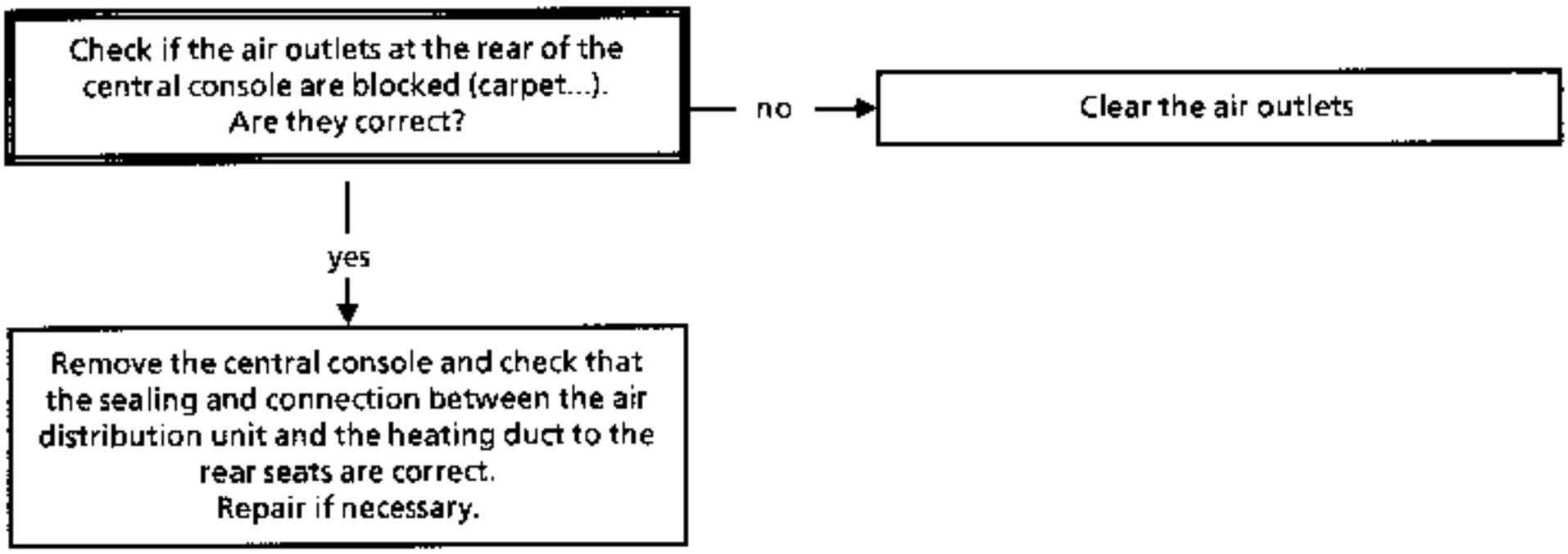
Check the system operates correctly.

S64640.1

Chart 6 — INSUFFICIENT HEAT TO THE REAR SEATS

NOTE

Before any operation is carried out, ensure the customer is using the heating system correctly.



AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

Chart 7 — LACK OF DEMISTING - DE-ICING EFFICIENCY

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly. Also check the windows are clean inside (a greasy window reduces de-icing efficiency).

Check the air extraction outlets are not blocked . Repair if necessary.
Does the fault persist?

- no → End of fault finding
- yes ↓

Ensure there are no leaks into the passenger compartment which increases humidity greatly and reduces de-icing efficiency.
Note : If there is a leak, after driving and then leaving the vehicle for several hours, a film of water should be noticed on the inside of the windows.
Locate the leak and repair.
Does the fault persist?

- no → End of fault finding
- yes ↓

Is there an air distribution fault?

- yes → See Chart 1
- no ↓

Is there an air flow fault?

- yes → See Chart 2
- no ↓

Is there a heating efficiency fault?

- yes → See Chart 3
- no ↓

Check the recycling flap is not jammed in the recycling position (see Chart 11). Repair if necessary.

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

S64640.1

Chart 8 — LACK OF VENTILATION EFFICIENCY

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly

Is there an air flow fault?
- yes → See Chart 2.
- no ↓

Is there an air distribution fault?
- yes → See Chart 1.
- no ↓

Check that the mixing flap moves as far as it should (grey gears on the right hand side of the air distribution unit).
Is this correct?
- no → Adjust the cable (on the right hand side of the air distribution unit).
- yes ↓

Check that the temperature of the air at the vents when driving (56 mph, 90 km/h) is not more than 2°C higher than the external air temperature.
Test conditions:
- mixing flap set to maximum cold,
- air distribution: vents,
- passenger compartment fan on minimum,
- temperature measured at central vents.

Is this correct?
- no → Check:
  - the seal between the heating casing and the engine compartment,
  - bonnet plugs.

  Look for anything which could cause the air to be heated.
- yes ↓

STOP
(Report the fault to your local After Sales Head Office Technical Services Department).

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

Chart 9 — THE PASSENGER COMPARTMENT VENTILATION FAN DOES NOT OPERATE

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly

Check the fan fuses.
Are they correct?

no → A

yes ↓

Disconnect the input connector to the resistance unit and check, ignition on:

Passenger fan speed setting
- 1 → + 12 V on C1
- 2 → + 12 V on C4
- 3 → + 12 V on A1 and A2
- 4 → + 12 V on C3 and A3

Is this correct?

no → Check the insulation and continuity of the wiring. Repair if necessary.
Does the fault persist?

yes ↓

Ignition on, check for 12 V on tracks A4-A3-B1 on the control panel.
Repair if necessary.
Does the fault persist?

yes ↓

Replace the control panel.

yes ↓

Reconnect the input connector and disconnect the output connector from the resistance unit.
Test on the resistance unit output.
Ignition on, check with the control knob set to positions 1-2-3-4 in turn, for a voltage on the resistance unit output.
Is this correct?

yes ↓

no → B

Remove the intermediate unit.
Ignition on, check with the control knob on position 4, for 12 V on the fan connector.
Is this correct?

no → Replace the wire from the resistance unit.

yes ↓

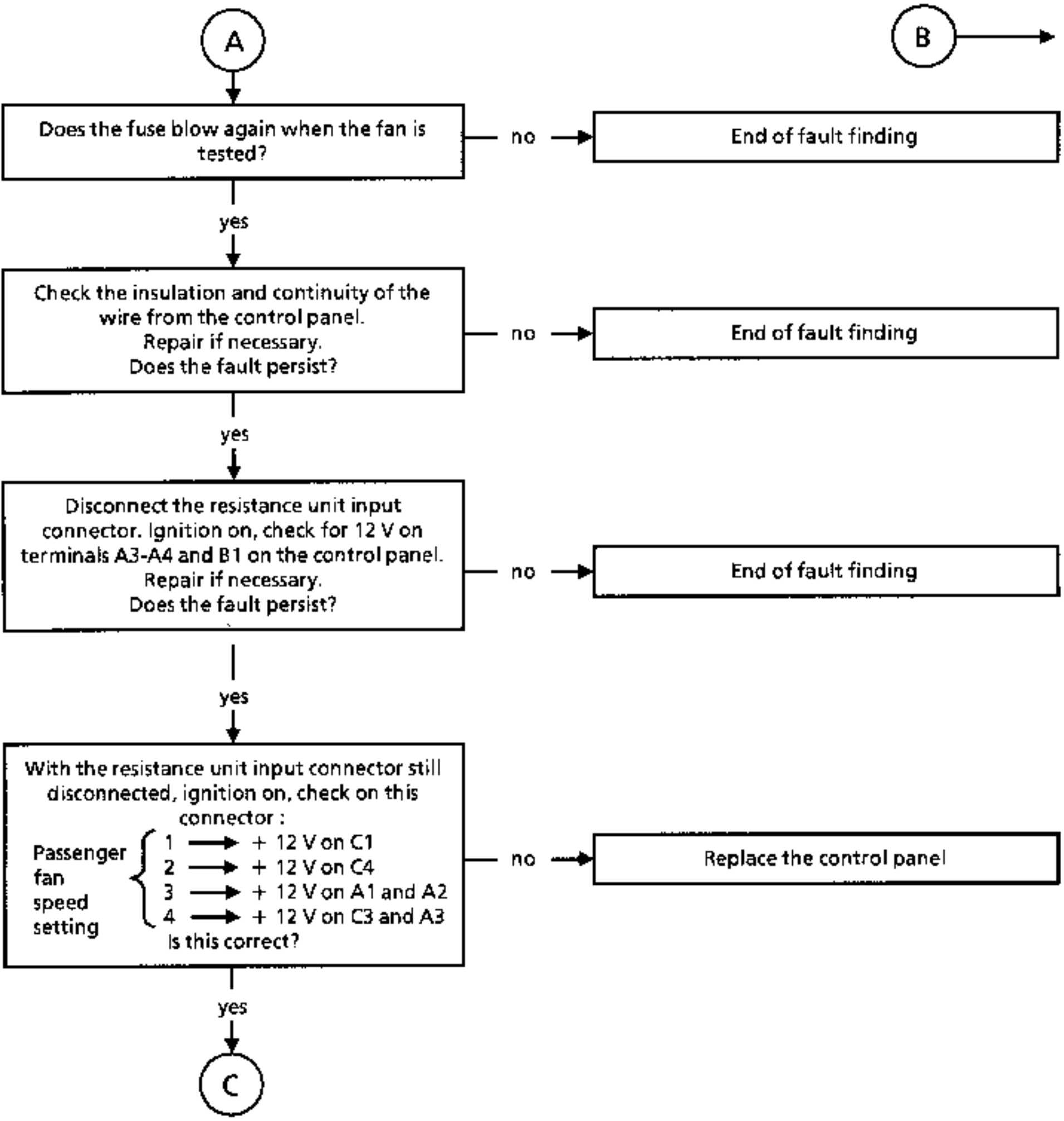
Check if the fan is jammed.
Repair or replace the fan unit.

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

S64640.1

Chart 9 CONT 1



AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

S64640.1

Chart 9 CONT 2

C

Disconnect the connectors from the resistance unit.
Check, on the resistance unit, the continuity between:

input	A3	output	2	resistance = 0
	C3		2	resistance ≠ 0
	C1		2	resistance ≠ 0
	C4		2	resistance ≠ 0
	A2		2	resistance ≠ 0
	A1		2	resistance ≠ 0
	B4		1	resistance = 0
	B3		1	resistance = 0

Replace the resistance unit if necessary.

Disconnect the resistance unit output connector and supply :
2 + 12 V
1 earth
Does the fan operate?

yes → Reconnect the connectors and test.
Does the fuse blow?

yes → Replace the fan unit.

no

Check the insulation and continuity of the wire to the fan unit.
Repair if necessary.
Does the fault persist?

no → End of fault finding

yes

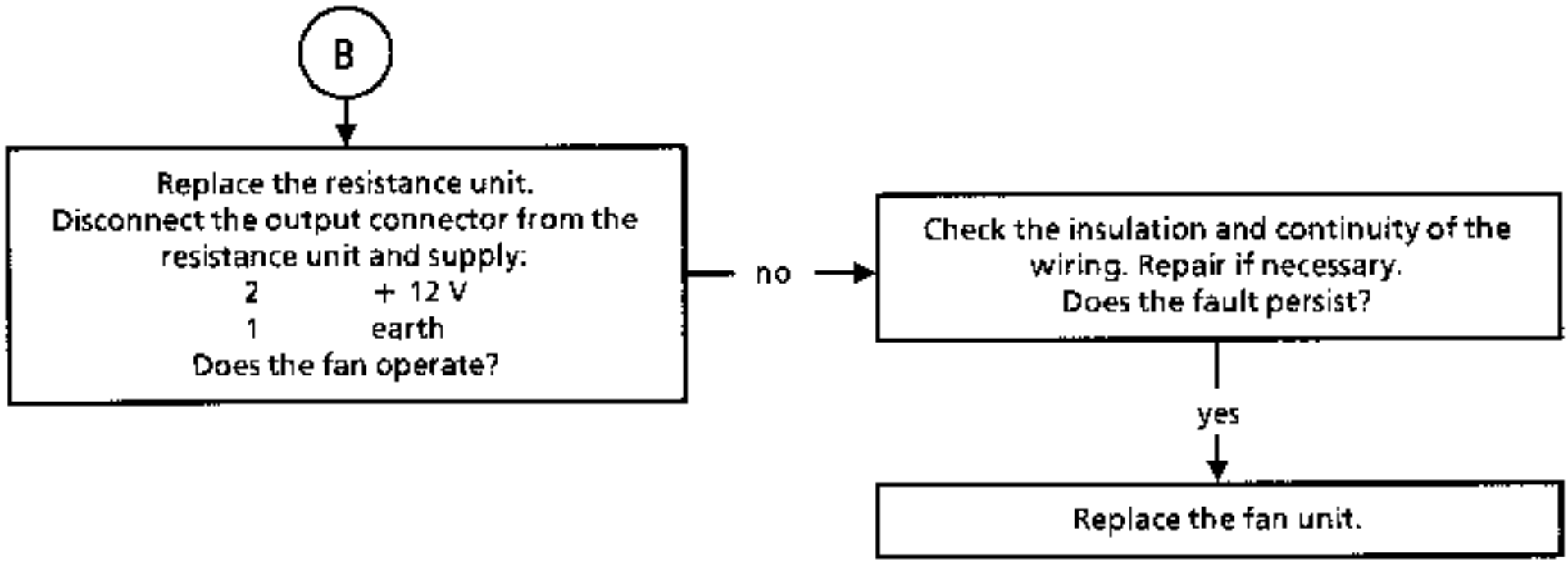
Replace the fan unit.

B →

AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

S64640.1

Chart 9 CONT 3



AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

S64640.1

Chart 10 — CONTROLS STIFF
Passenger compartment faults

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly

Check the routing of the control cable, remove any restrictions:
- kinking,
- cable restricted by plastic clips.

Replace the cable if necessary.
Does the fault persist?

no → End of fault finding

yes ↓

Release the cable from the side of the assembly and check the stiffness of each component by hand - control knob and flap control on the air distribution unit (air mixing or distribution).
Is this correct?

no → Replace the control panel or repair the moving parts of the flap or replace the air distribution unit.

yes ↓

Replace the flap control cable.

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

S64640.1

CHART 11 — THE RECYCLING FLAP DOES NOT OPERATE

NOTE Before any operation is carried out, ensure the customer is using the heating system correctly

Check the fuses.
Repair if necessary.
Is this correct?

yes ↓

Ignition on, check on the recycling motor connector
(near to wiper motor) :
– air recycling requested:
A1 + 12 V
A3 earth
B3 0 V
– air recycling not requested:
A1 + 12 V
A3 earth
B3 + 12 V
Is this correct?

no → Check the insulation and the continuity of the line. Repair if necessary.
Does the fault persist?

yes ↓

Replace the control panel

yes ↓

Remove the intermediate unit, check on the recycling motor connector
(near to recycling motor), ignition on:
– air recycling requested:
A1 + 12 V
A3 earth
B1 + 12 V
B3 0 V
– air recycling not requested:
A1 + 12 V
A3 earth
B1 + 12 V
B3 + 12 V
Is this correct?

no → Repair the wiring

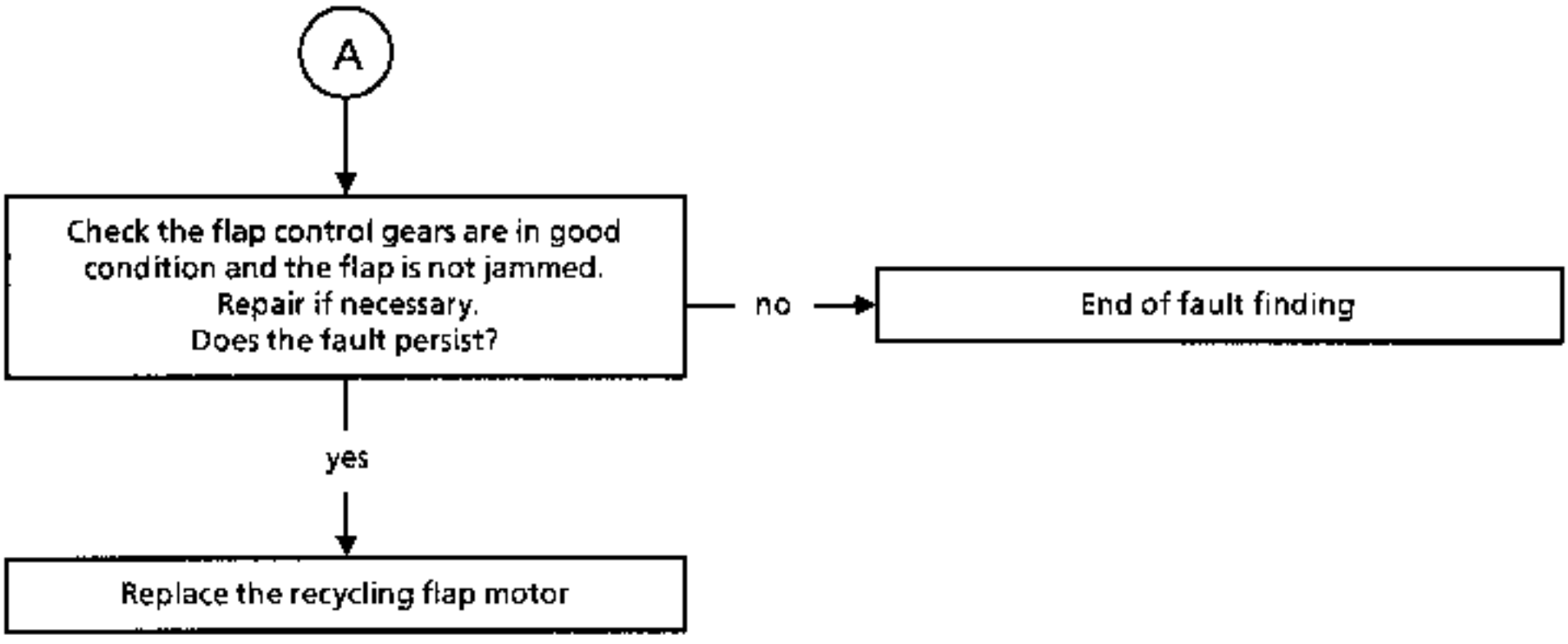
yes ↓

(A)

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

564640.1

CHART 11 CONT



AFTER REPAIR

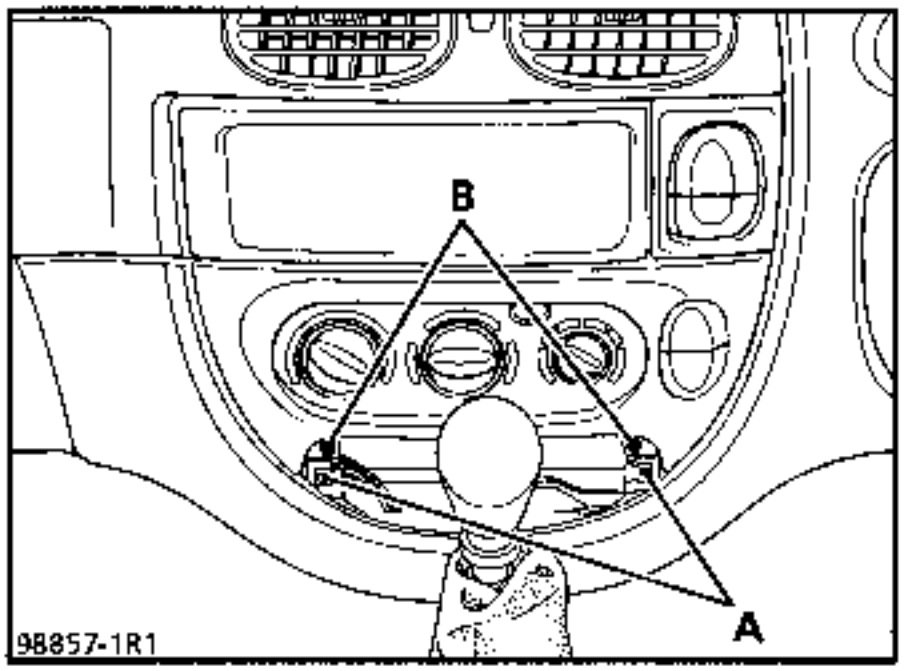
Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

REMOVAL

Remove the ashtray.

Remove the ashtray mounting bolts (A).

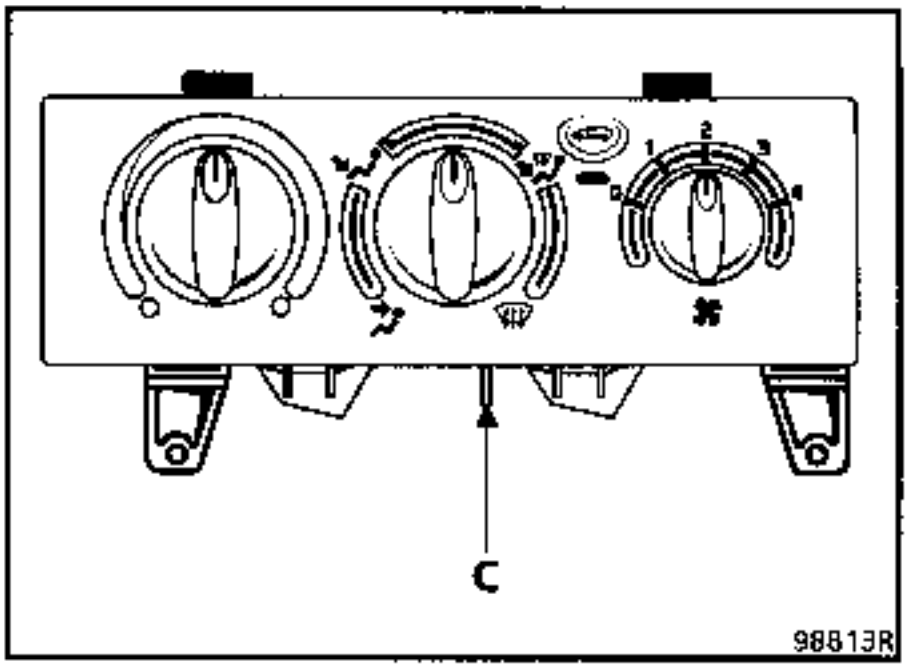
Remove the ashtray mounting.



Remove the two mounting bolts securing the control panel to the dashboard (B).

Remove the assembly by pulling from the bottom.

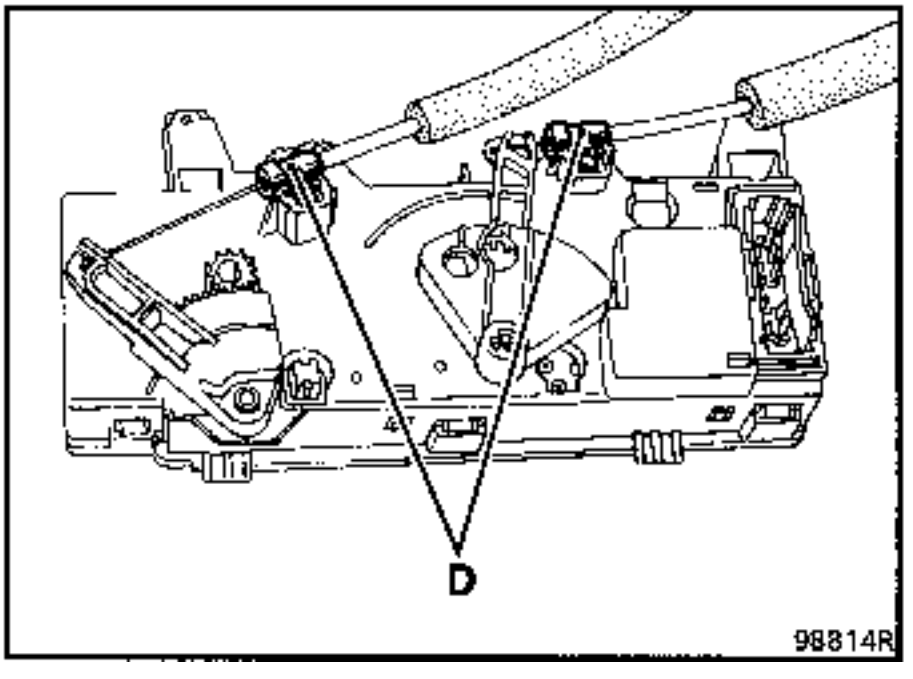
Remove the control unit by releasing the lower clips (C).



Remove the connections from the air flow knob.

Remove the cable retaining stops (D) by pressing on the tabs using a screwdriver.

Turn the assembly over.



REMOVAL

The control cables may be removed without removing the dashboard.

Remove:
- the ashtray,
- the control unit (see page 61-23),
- the heated screen switch.

At the lower right hand side of the passenger compartment.

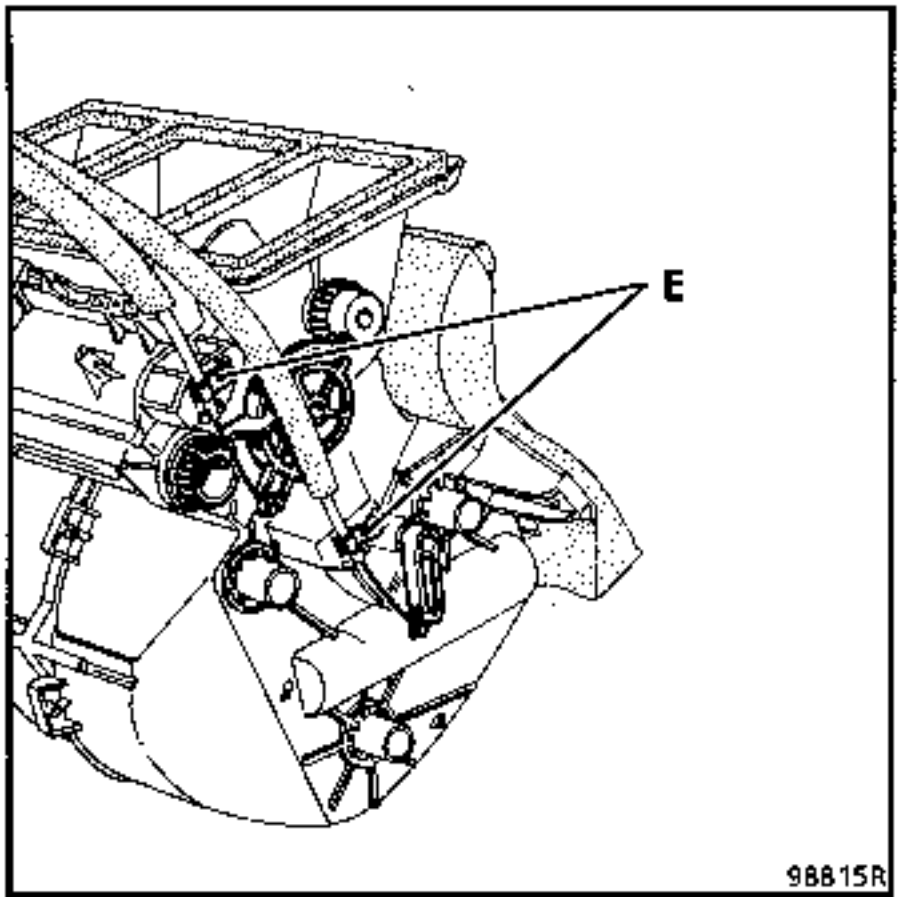
Mark the position of the cable sleeves in relation to the clips.

Remove:

the retaining clip (E) :

- the hot/cold flap control cable (red cable),
- and the air distribution cable (blue cable).

This operation is carried out by gaining access through the control panel opening.



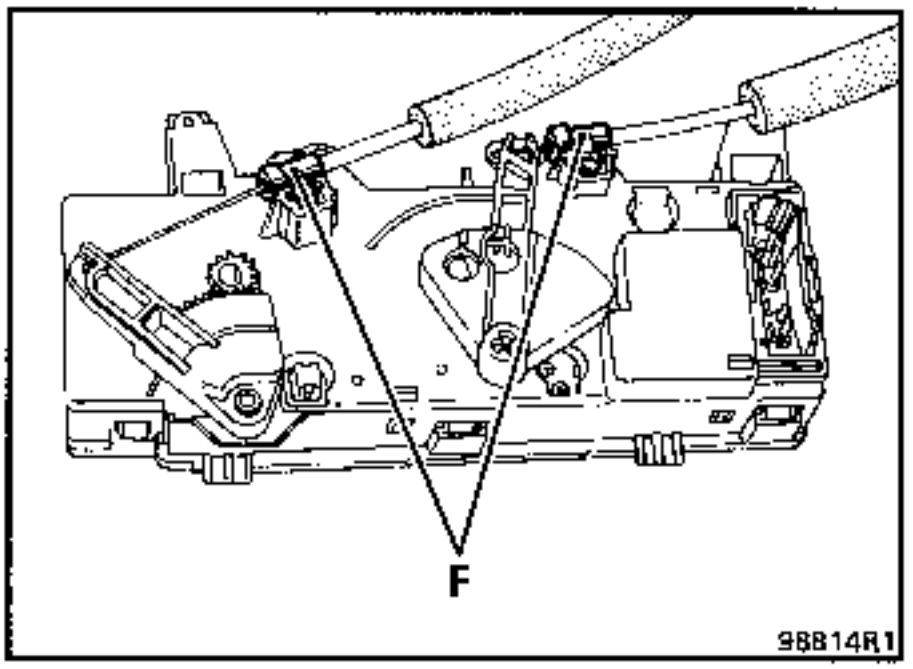
REFITTING

Feed the cables through the control panel opening.

First fit the blue air distribution cable then the red hot/cold flap cable.

Once the cables are in position, push the flap controls back to prevent the cables from coming out of position.

Fit the clips (F) to the control unit.



Fit the complete control panel without screwing it into position.

At the lower right hand side:

- position the cables in relation to the reference marks,
- set the air distribution control to position and the heating control to the maximum cold position (blue spot),
- clip the cable sleeves in accordance with the reference marks.

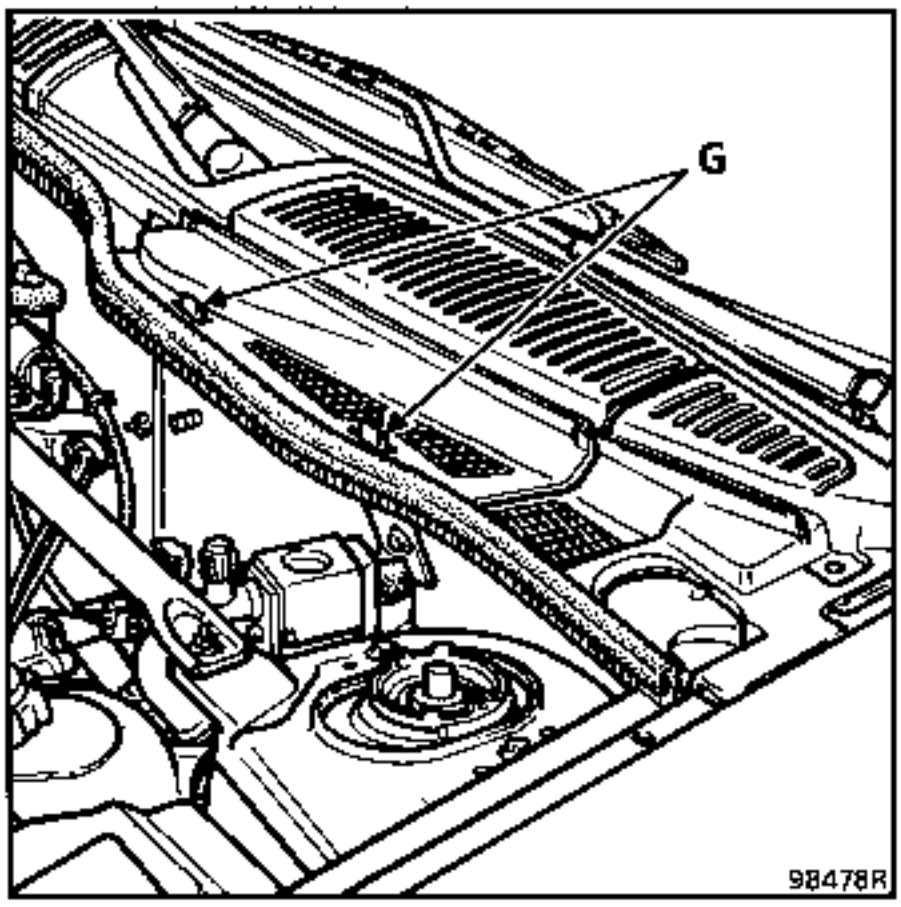
REPLACEMENT

Refer to the vehicle's Warranty and Servicing booklet.

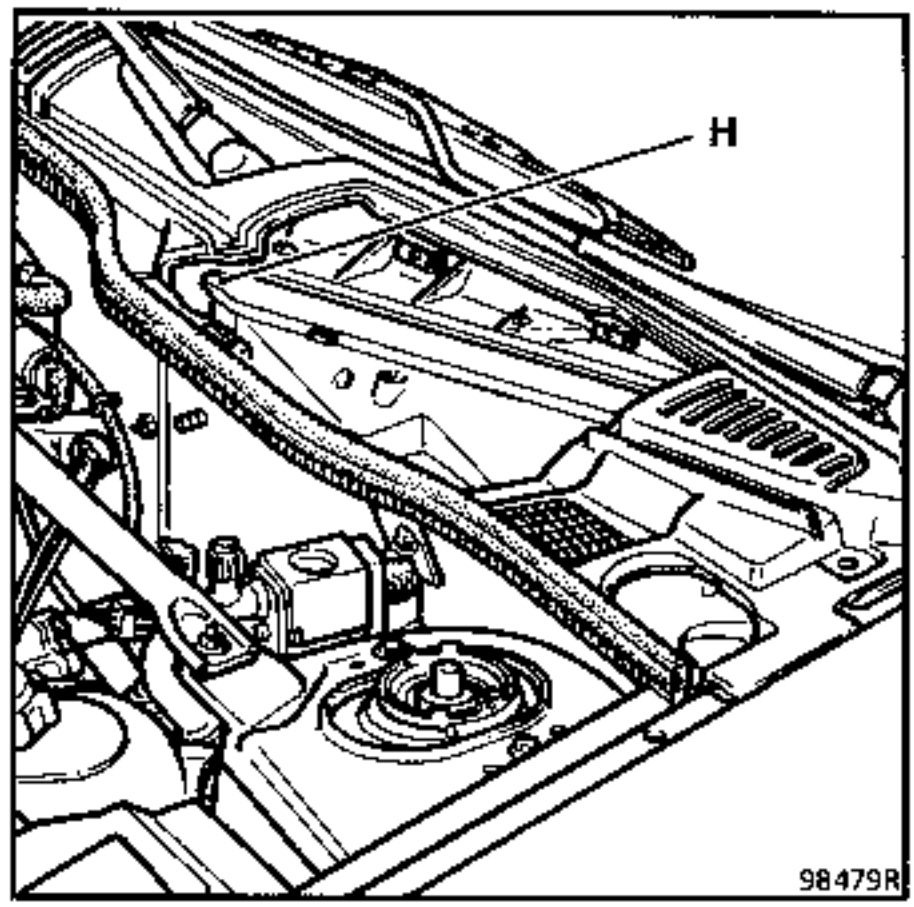
REMOVAL

Open the bonnet.

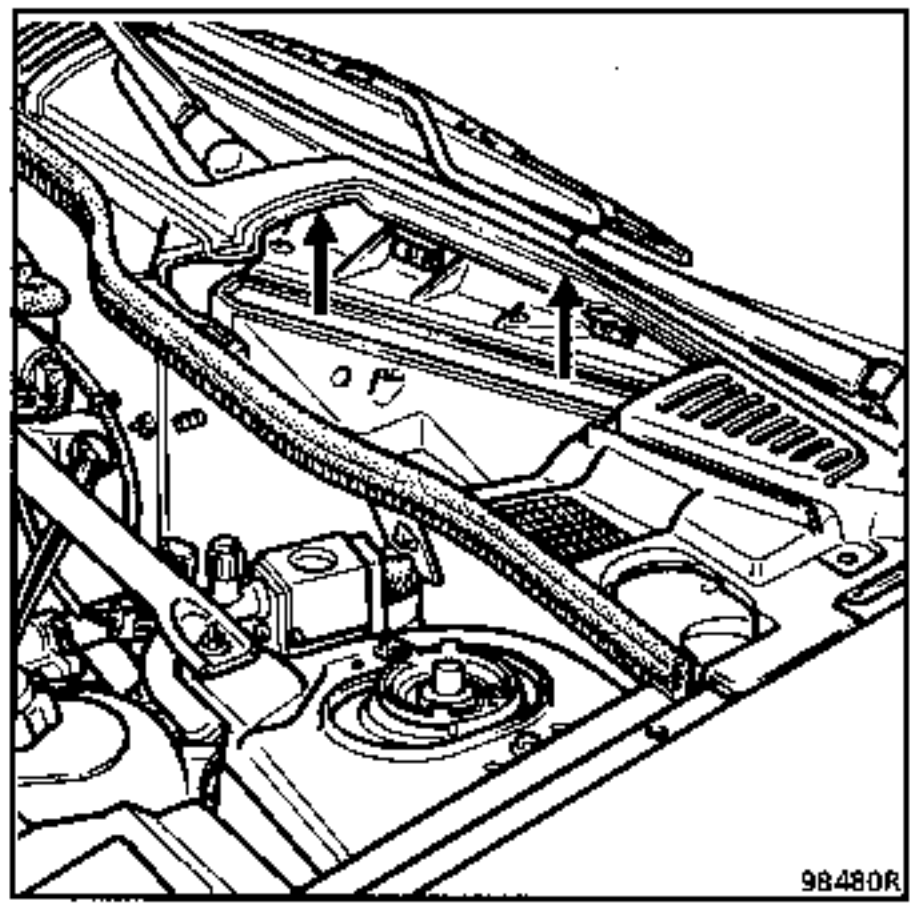
Remove the air inlet grille by releasing the two clips (G).



Remove the cover by lifting at the end (H).



Remove the particle filter by pulling on the foam seal.



REFITTING

Ensure the cover is correctly clipped into position.

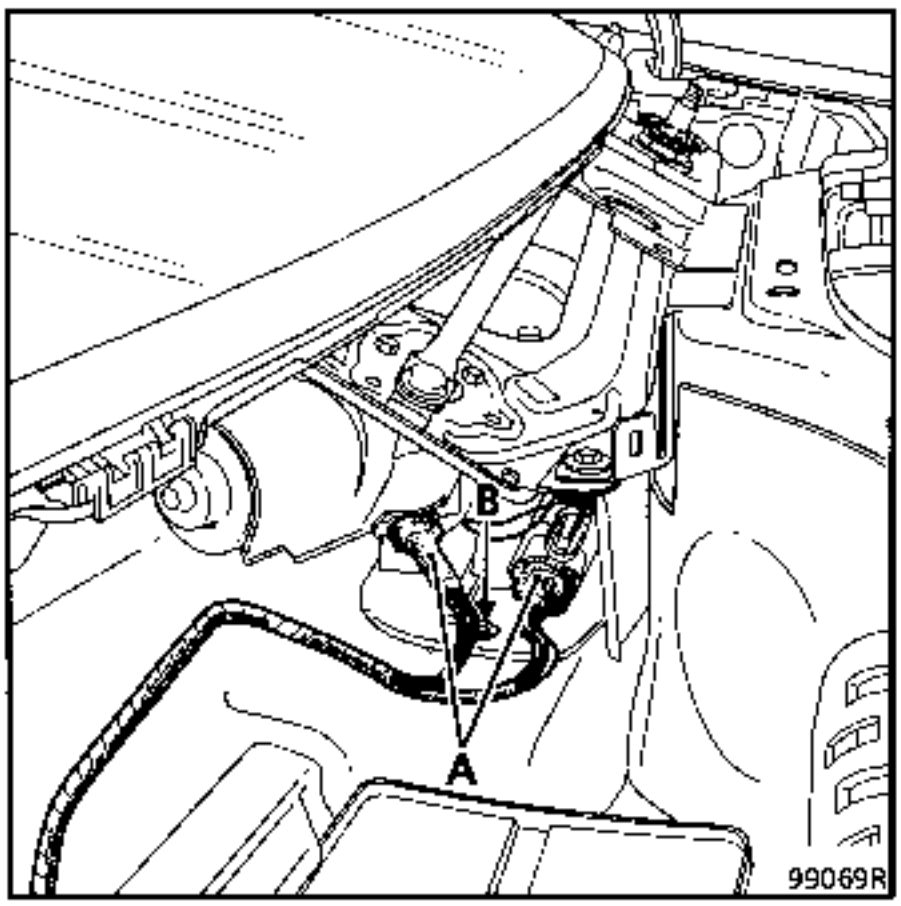
BASIC VENTILATION VERSION

REMOVAL

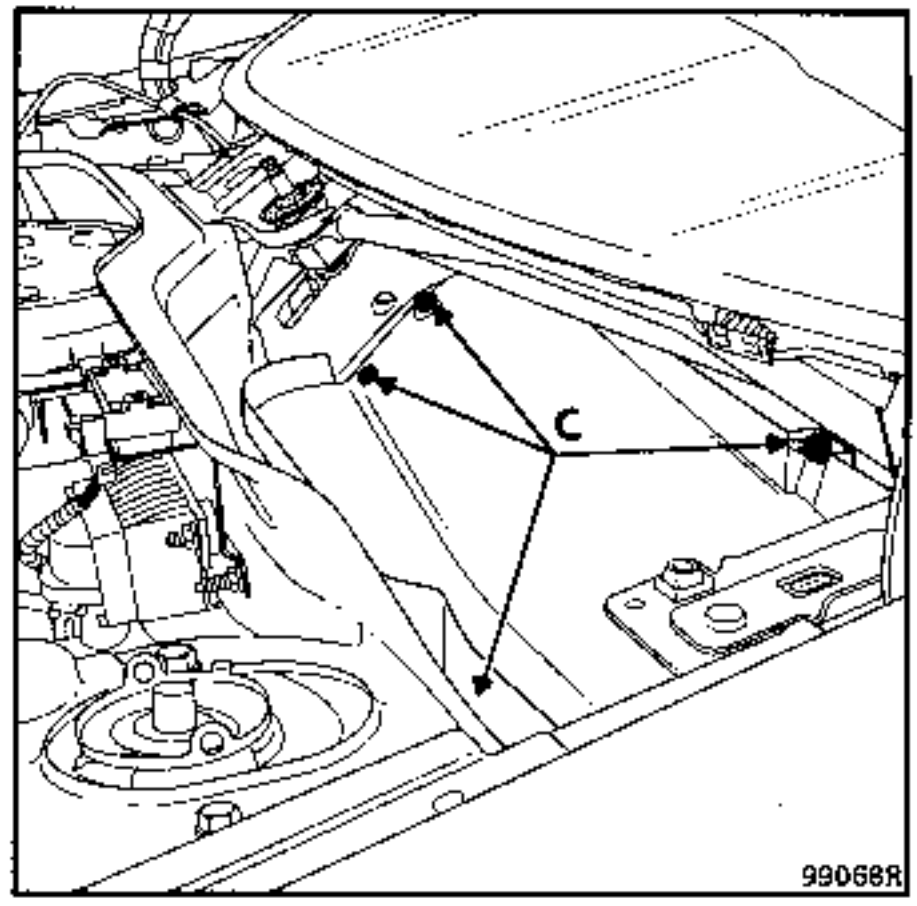
The fan is removed after having removed the upper scuttle panel seal, the external air inlet grille and the windscreen wiper arms.

Disconnect the battery.

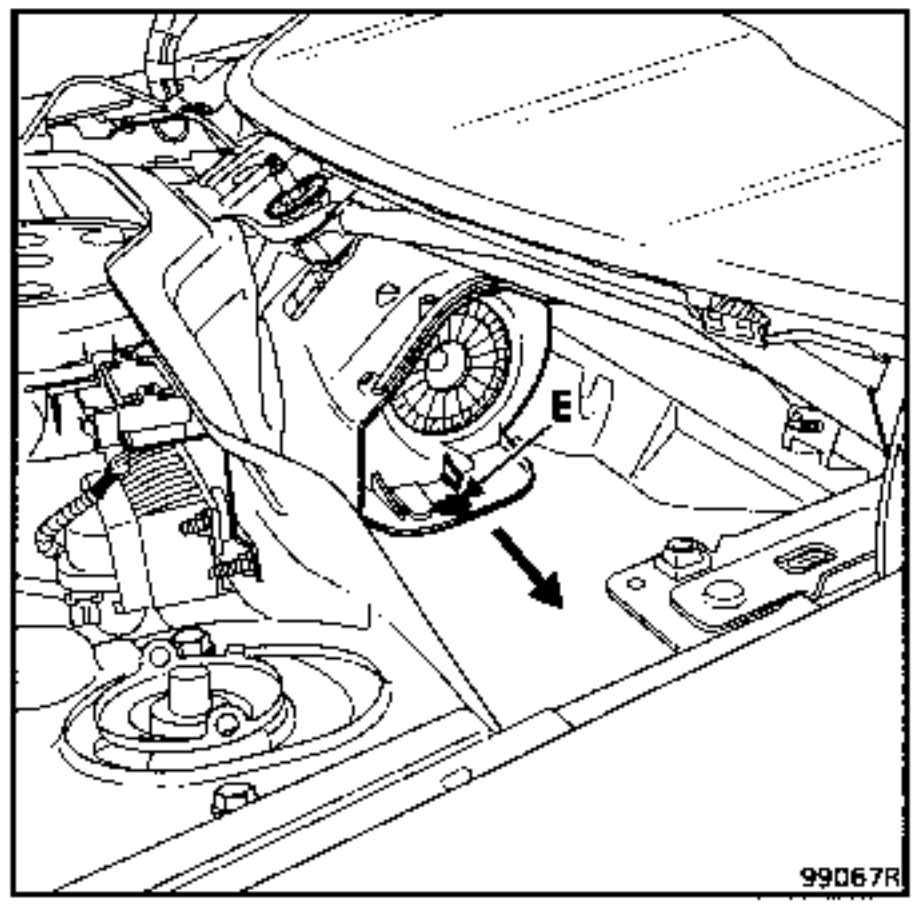
Remove the feed connectors (A) and the mounting bolt (B).



Remove the rain guard, mountings (C).



Remove the mounting bolt (E).



Remove the fan unit as shown in the diagram.

REFITTING

Check the condition of the seal.

Refitting is the reverse of removal.

AIR RECYCLING VERSION

REMOVAL

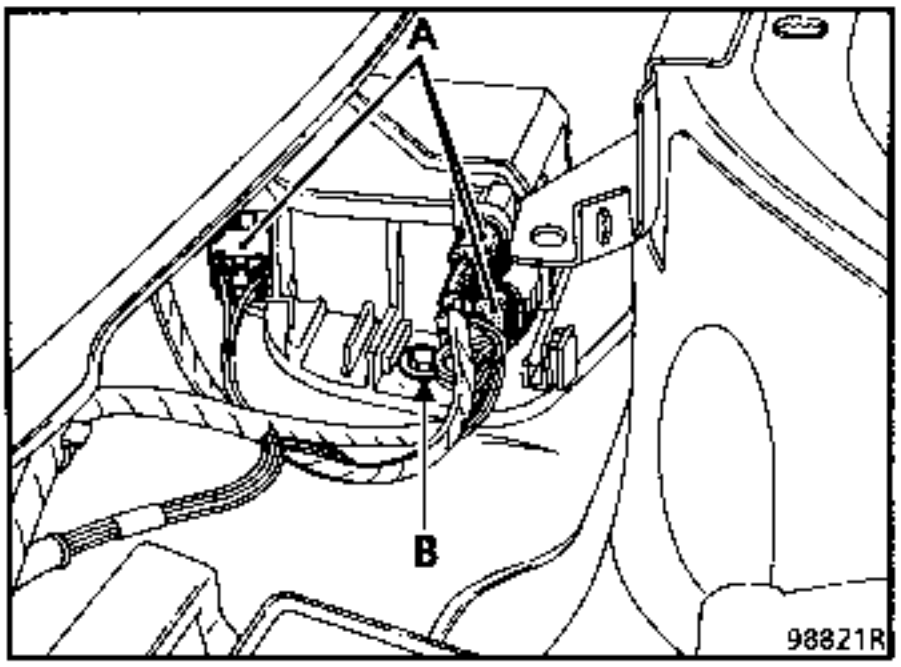
The fan is removed after having removed the upper scuttle panel seal, the external air inlet grille and the windscreen wiper arms.

Disconnect the battery.

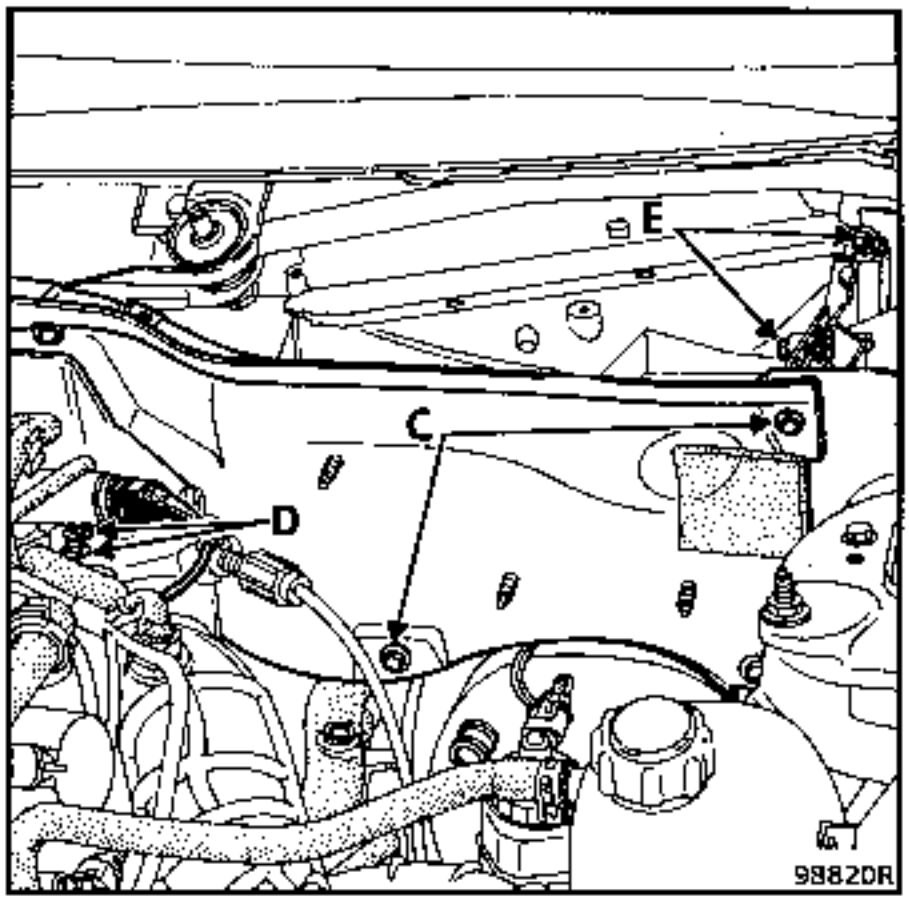
Remove the battery on versions with an F8Q engine and air conditioning versions.

Remove the feed connectors (A) and the mounting bolt (B).

Lift the nose of the intermediate unit to release the seal from the plate.



Remove:
- the acoustic tie rod between the shock absorber turrets.
- the ignition power module,
- the four bolts mounting the heat shield on the bulkhead end,
- the five bolts (C) of the scuttle panel chamber. The bolt located behind the heat shield should be removed first.



SPECIAL NOTES

E7J engine

Remove the air filter.
Protect the inlet opening.
Release the air filter from the top of the engine.

K7M engine

Remove the throttle body, 4 bolts + connections.
Remove the air filter from its position.
Release the throttle body from the top of the engine.

F3R engine

Remove the accelerator cable mounting, 2 bolts + switches (D).

F8Q engine

Remove the mounting bracket for the breather pipe.

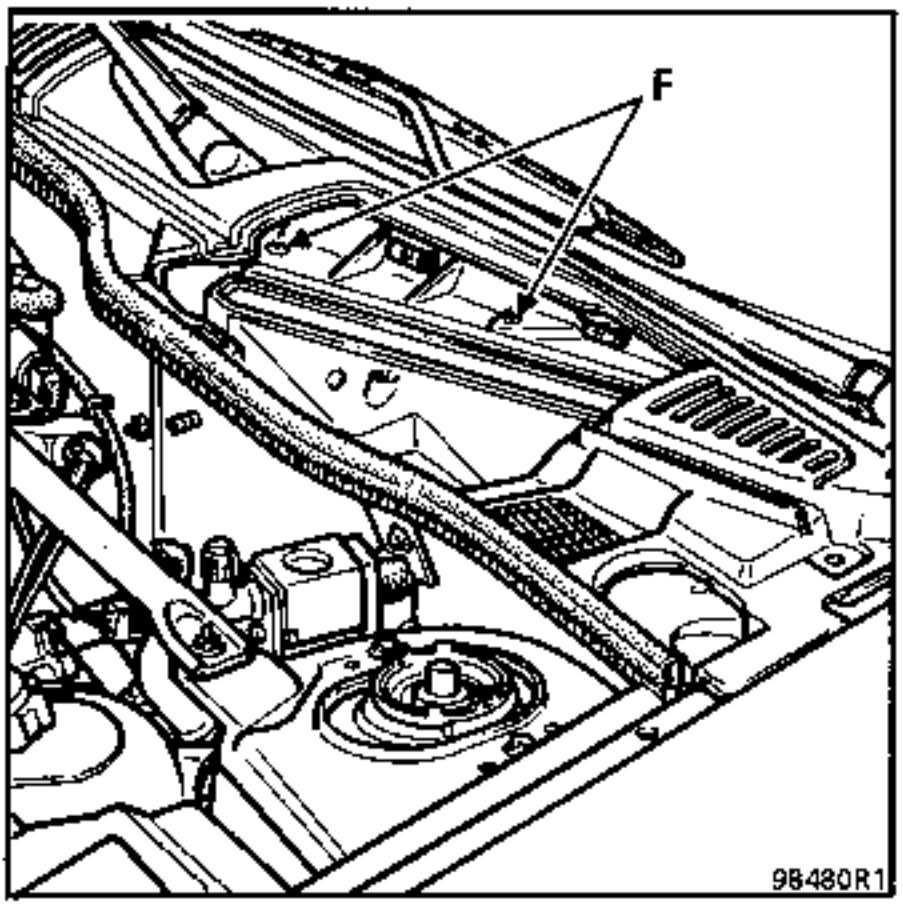
Remove the mounting plate for the preheating unit.

Unclip the solenoid valve connectors.

Remove the solenoid valve pipe.

ALL TYPES

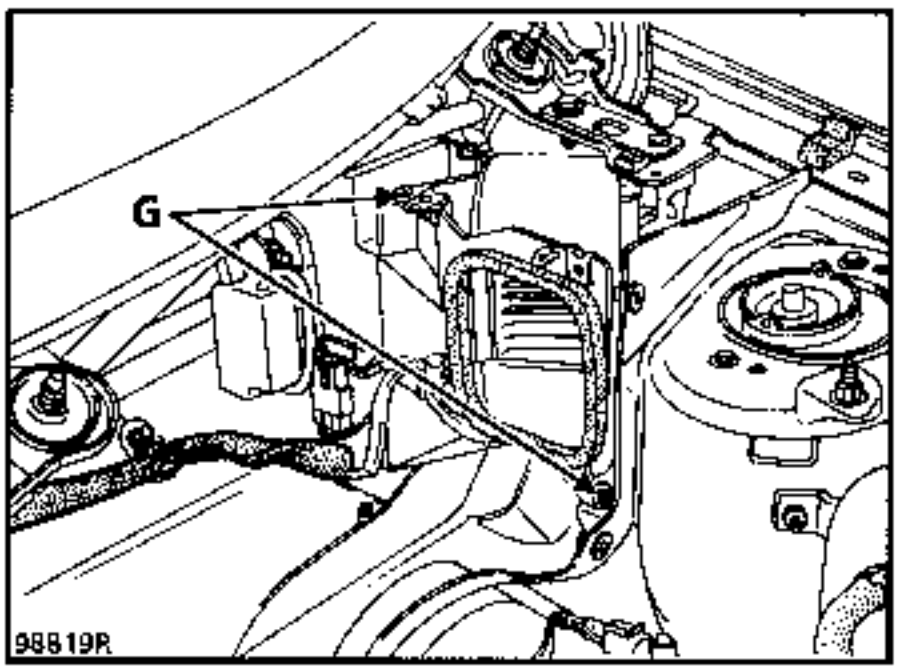
Remove the rain guard from the intermediate unit, 2 bolts (F).



Remove the bolts from the intermediate unit assembly, 2 bolts (E).

Remove the intermediate unit after releasing the two fan assembly centring dowels.

Remove the fan mountings (bolts (G)).

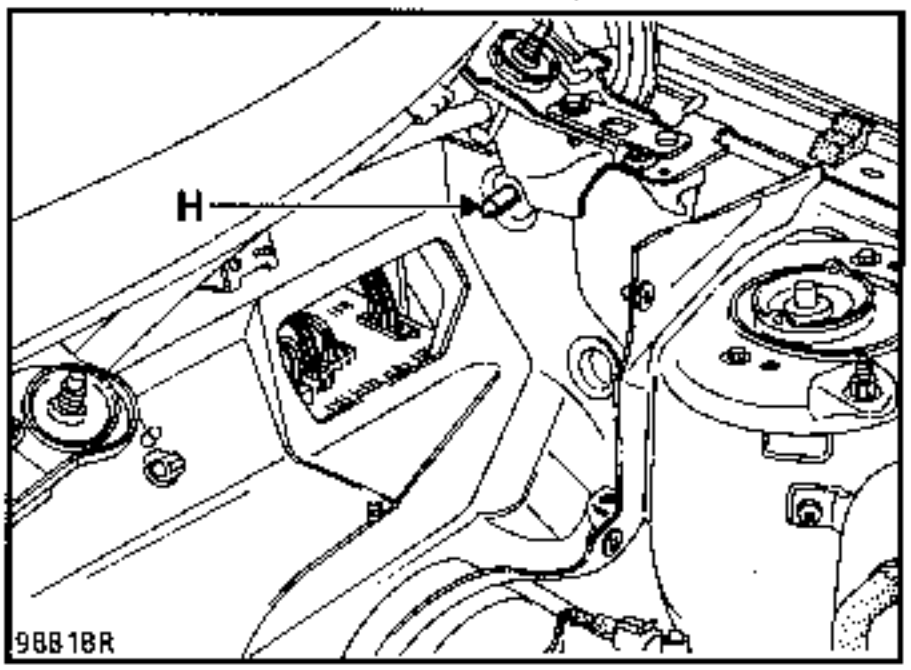


Release the fan assembly cable.

REFITTING

Check the position of the seals.

Position the fan assembly on centring dowel (H) then tighten the 2 bolts (G).



FAN ASSEMBLY

REMOVAL

Set the system to the external air position.

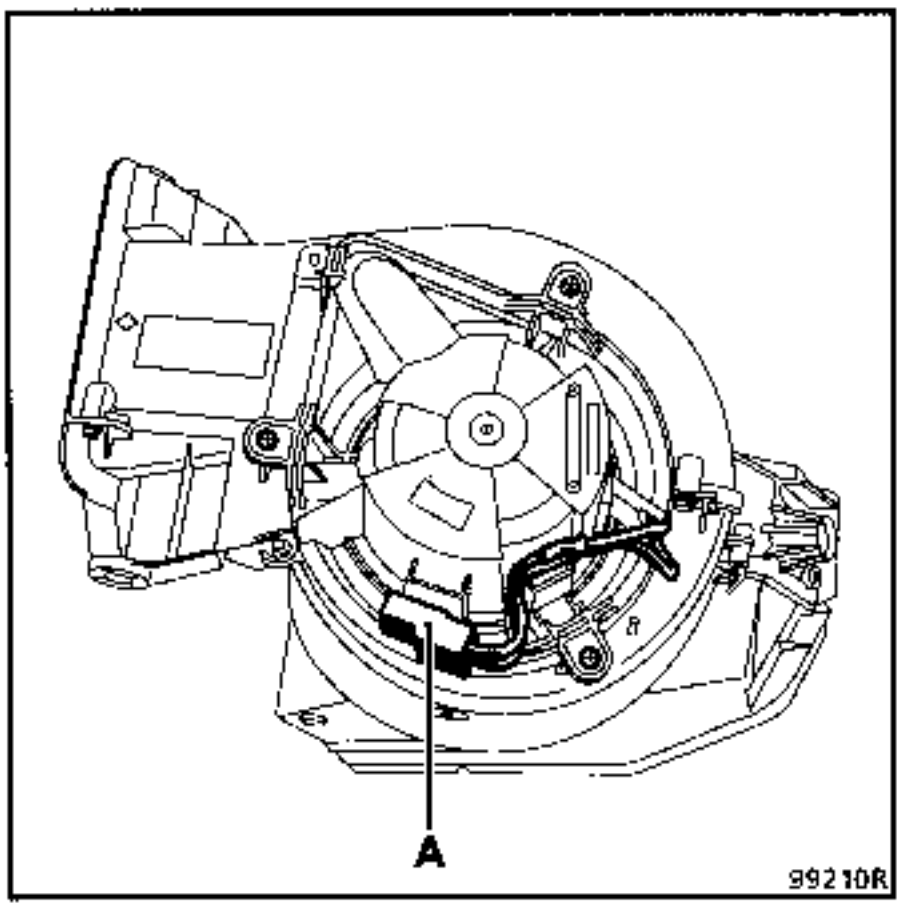
The fan assembly is removed after removing:
- the upper scuttle panel seal,
- the external air inlet grille and the windscreen wiper arms.

Disconnect the battery.

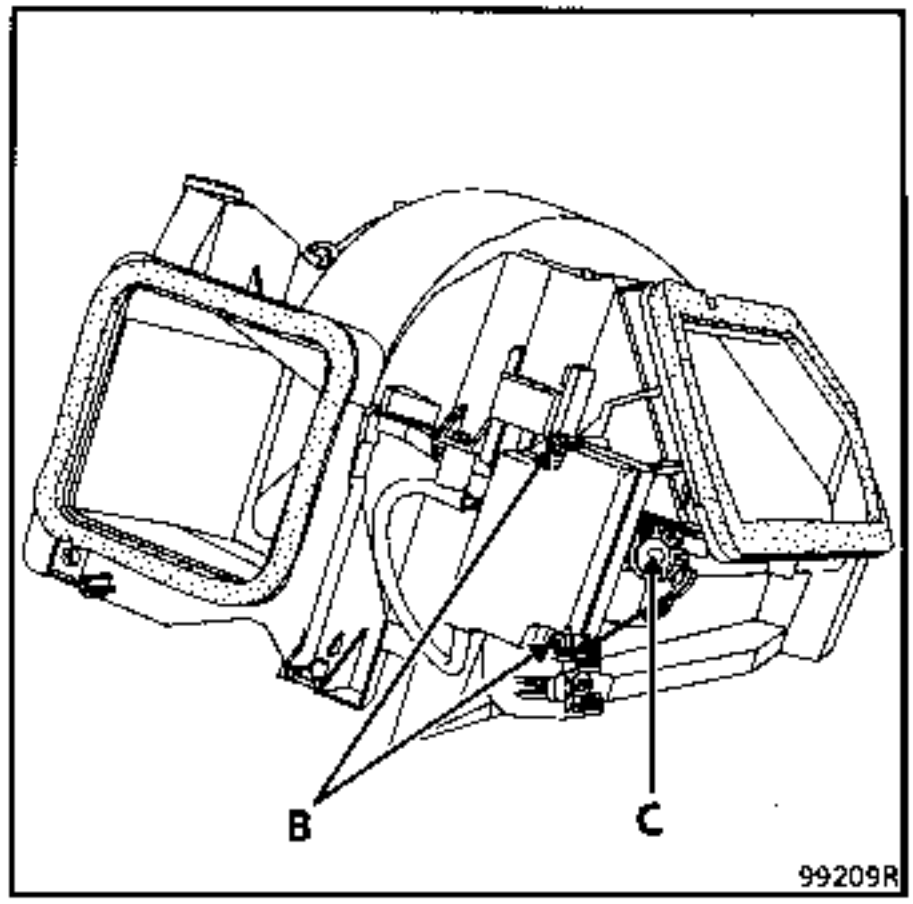
Remove the intermediate unit.

Release the fan assembly.

Disconnect the feed connector (A).



Remove the micromotor, 2 bolts (B).



REFITTING

Set the flap to the external air position.

Engage the motor gear and the flap gear to block the flap in position.

Tighten the 2 bolts (B) and reconnect the connector (A).

Check the condition of the seal.

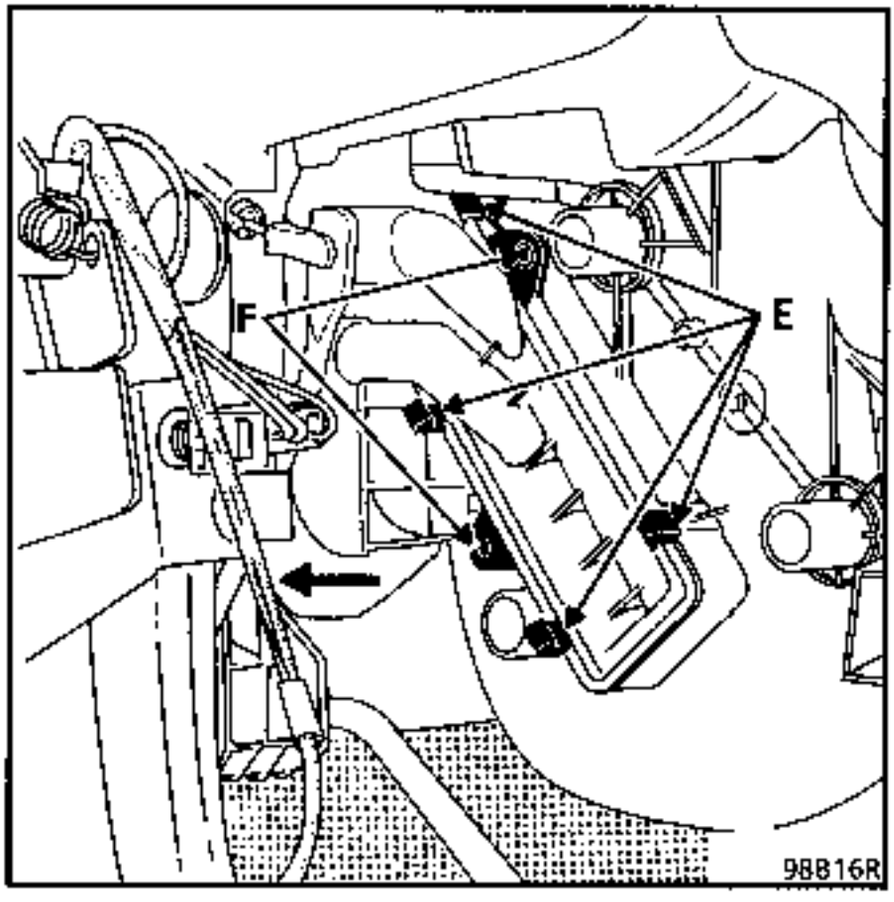
IMPORTANT : check the system operates correctly by ensuring that lug (C) on the gear on the flap is correctly positioned in the opening on the motor gear.

REMOVAL

The heater radiator is removed after removing the air distribution unit.

Separate the 4 retaining clips (E) and extract the radiator by pulling it in the direction shown.

To facilitate removal, hold the radiator and push on the distribution unit to begin with.

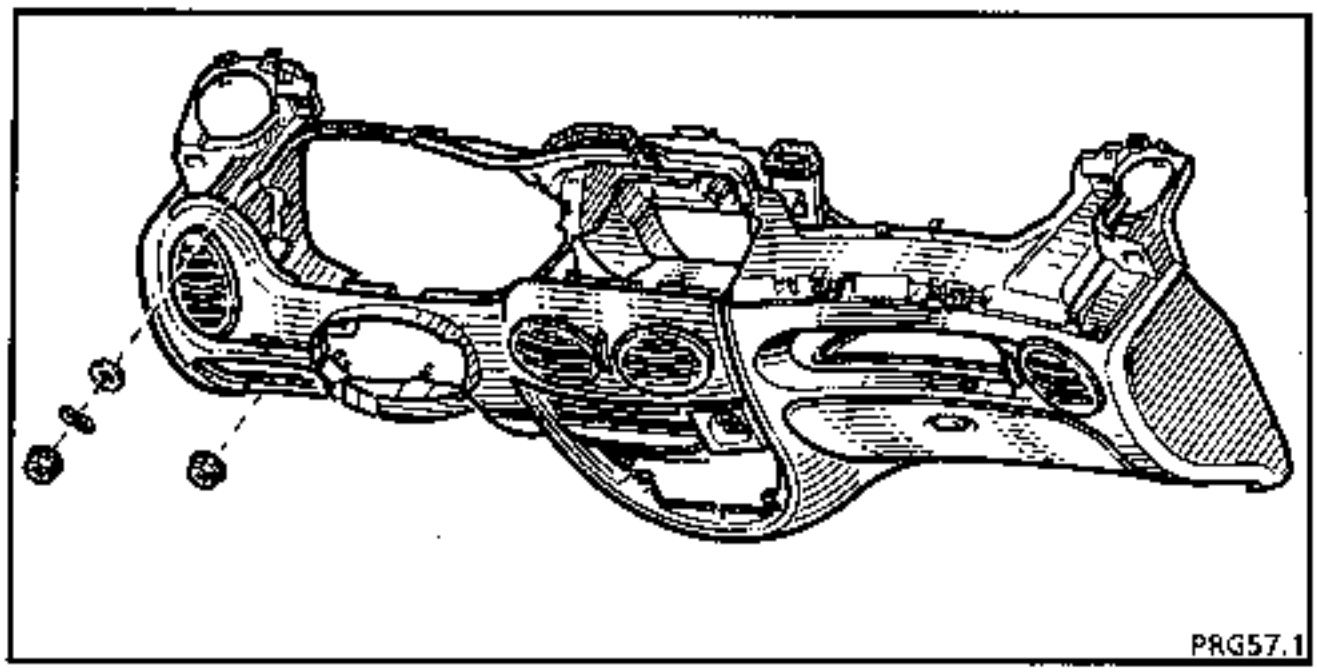


NOTE : take care not to damage the radiator fins.

REFITTING

Ensure the 4 clips are correctly connected.

Fit the 2 mounting bolts (F) to the body of the fan unit if the clips have broken.



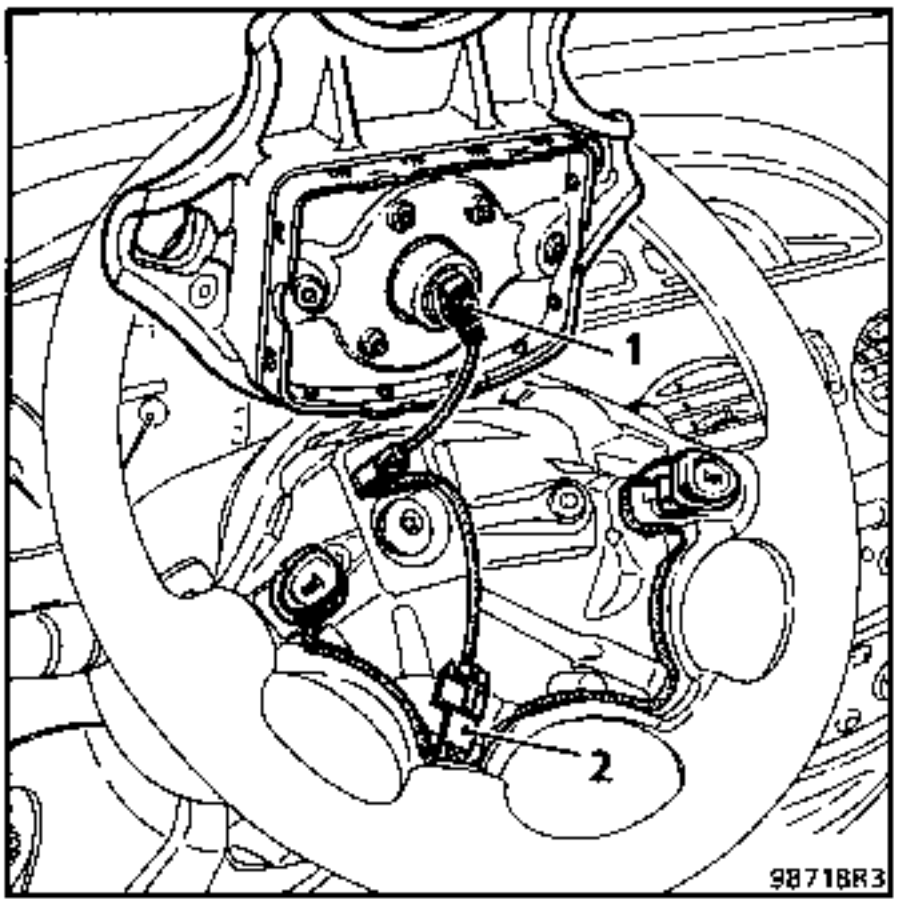
The dashboard must be removed to remove the distribution unit.

REMOVAL OF THE STEERING WHEEL WITH AIRBAG

Disconnect the battery.

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

Disconnect the horn connector (2).

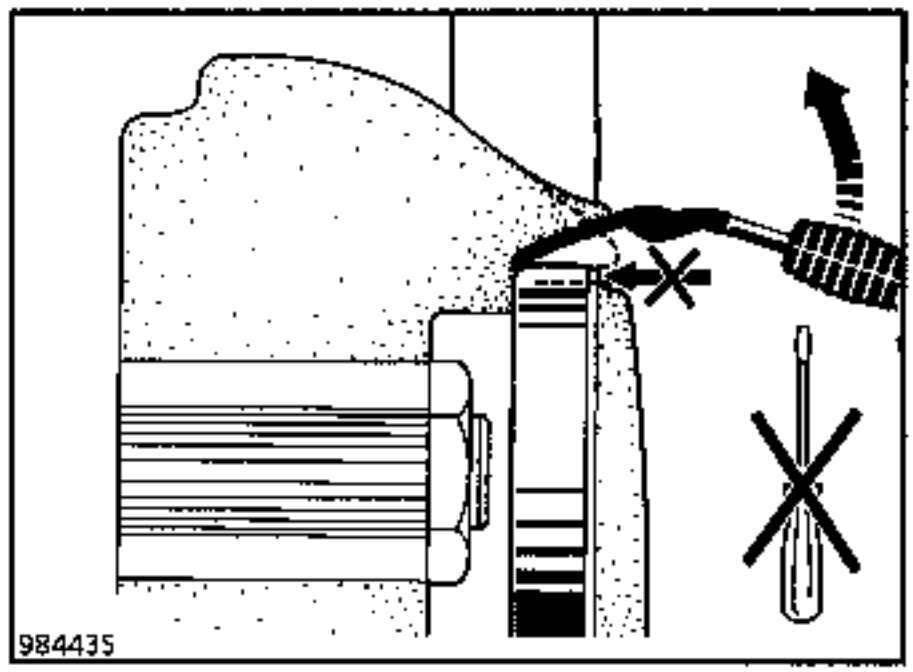


Immobilise the rotary switch under the steering wheel using adhesive tape.

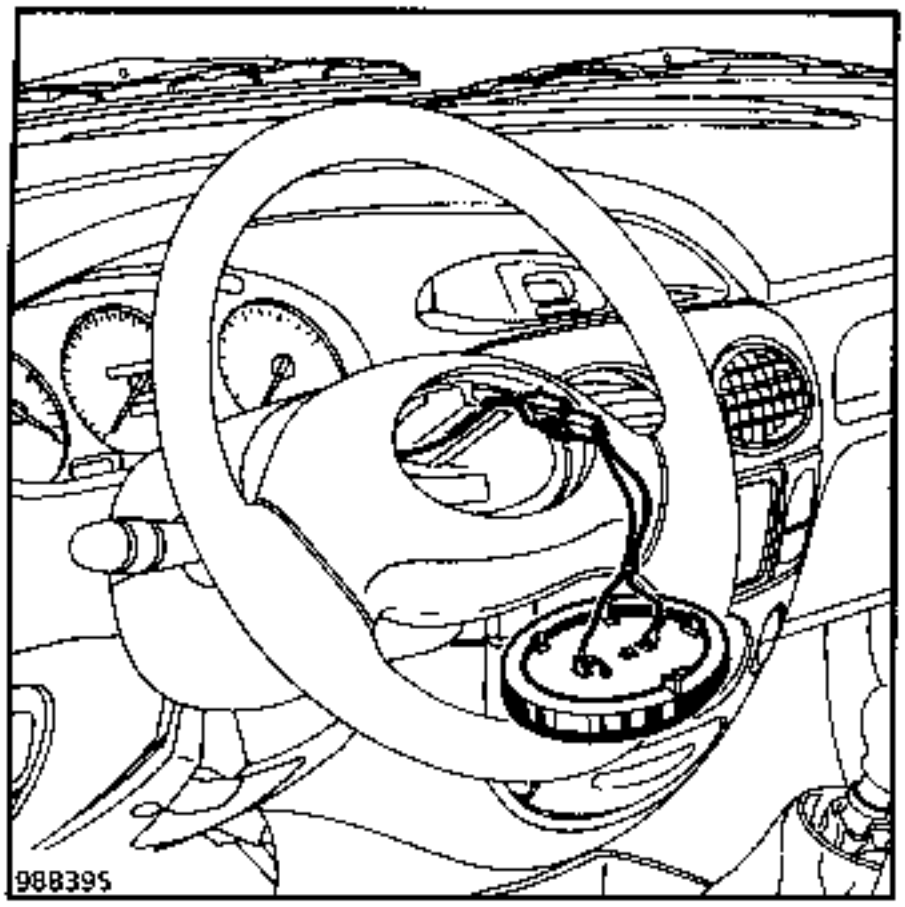
Remove:
- the rotary switch connectors (airbag and cruise control, if fitted),
- the steering wheel bolt (renew it),
- the steering wheel, after noting its position in relation to the steering column for refitting.

IMPORTANT: keep the airbag pyrotechnic systems and the pretensioners away from all heat sources and flames: risk of triggering.

REMOVING THE STEERING WHEEL (WITHOUT AIRBAG)



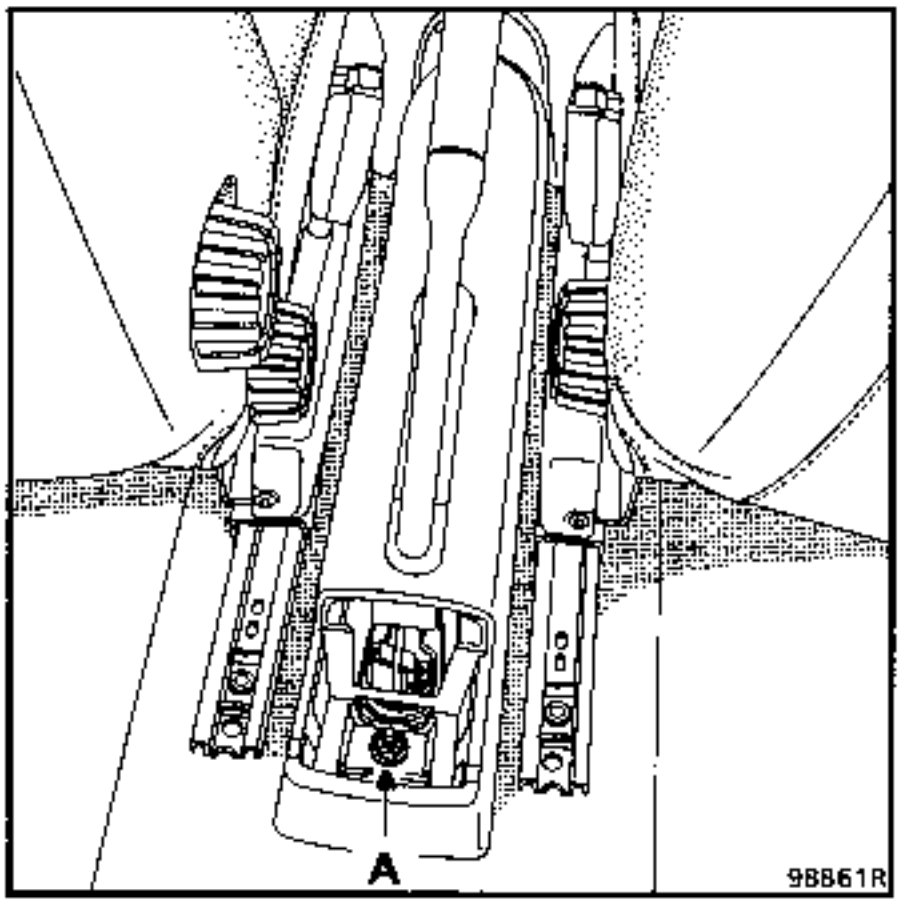
Remove the horn from the steering wheel using tool **FACOM D115**.



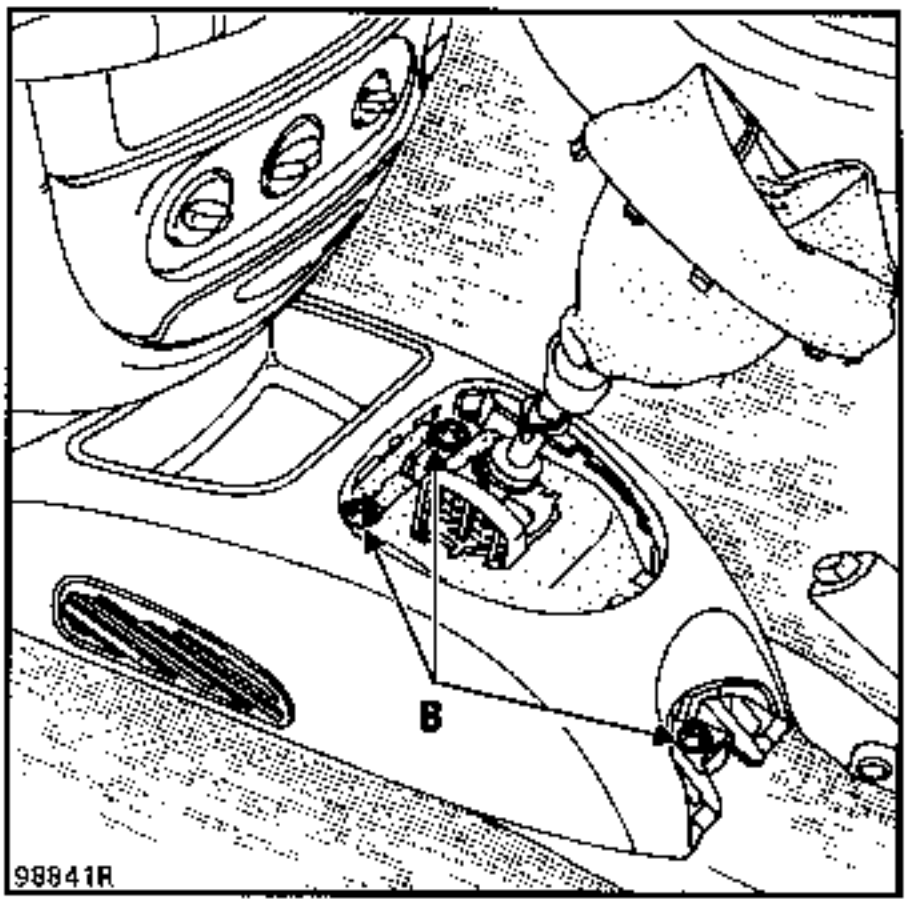
Disconnect the horn assembly and remove it.

Remove the steering wheel nut.

REMOVING THE CONSOLE

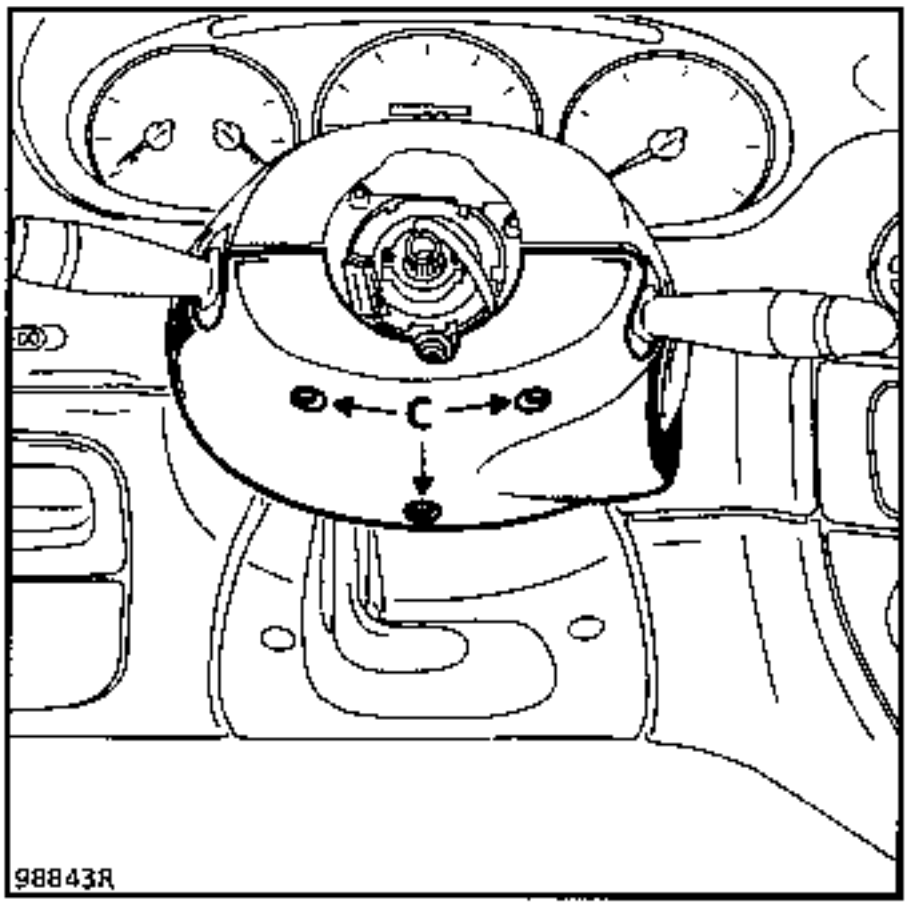


Remove:
- the rear ashtray,
- the nut (A).

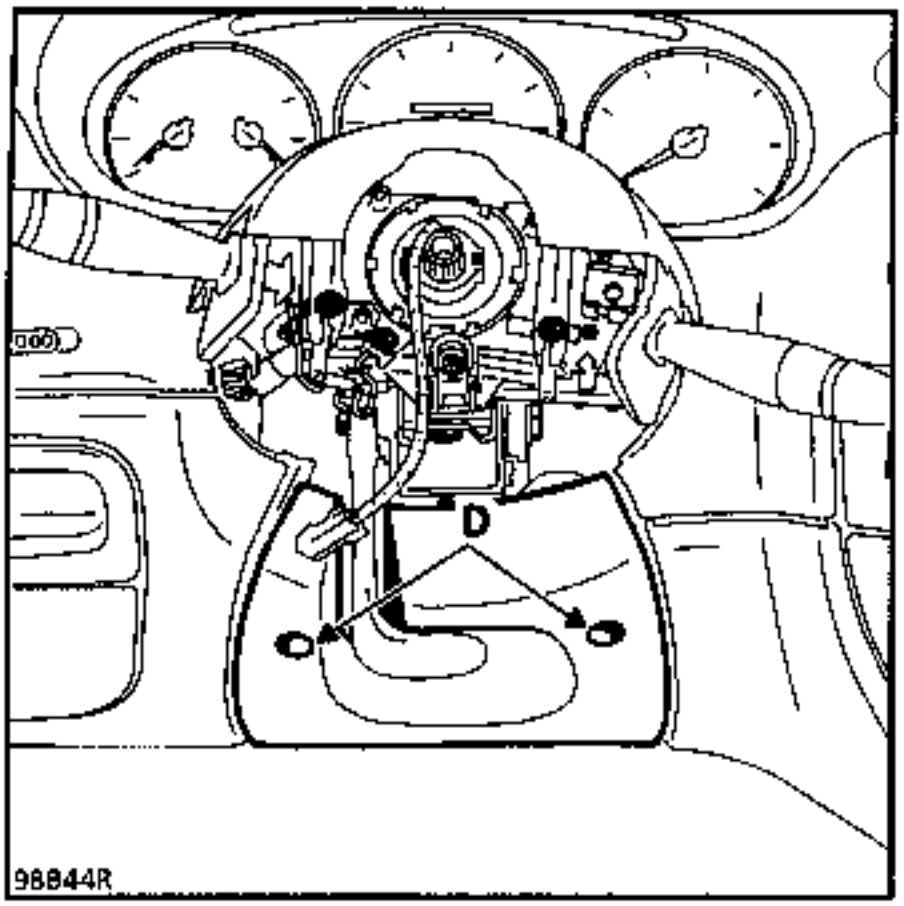


Unclip the gear lever gaiter.

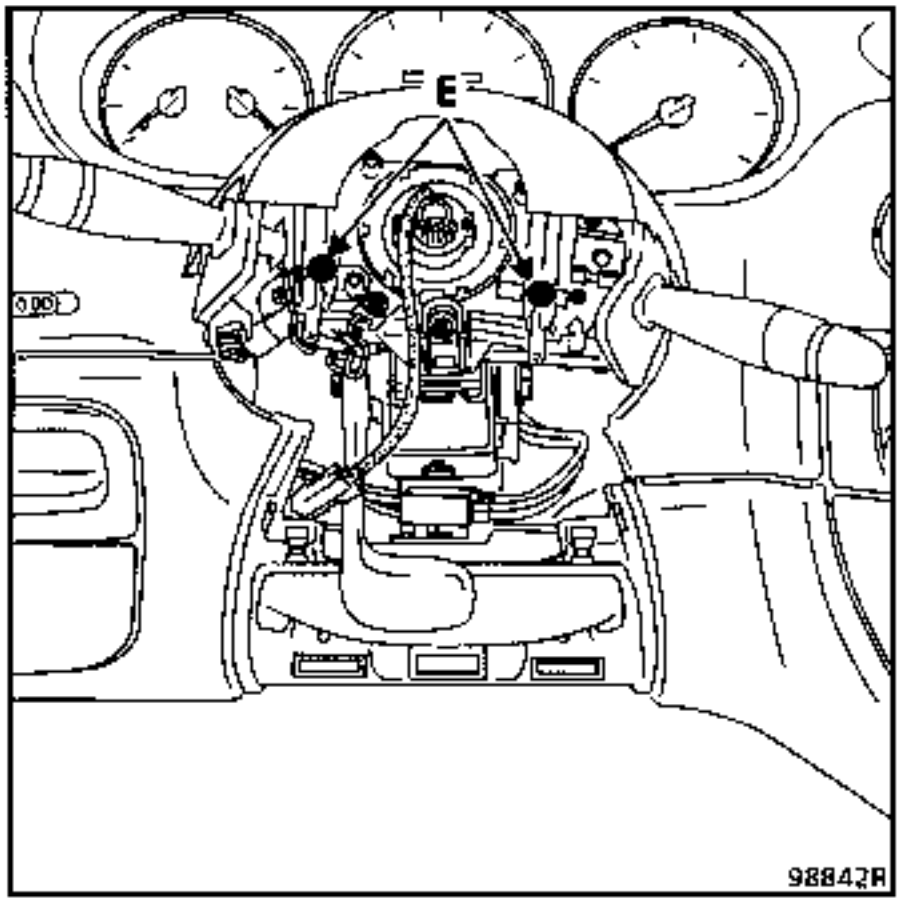
Remove the three bolts (B).



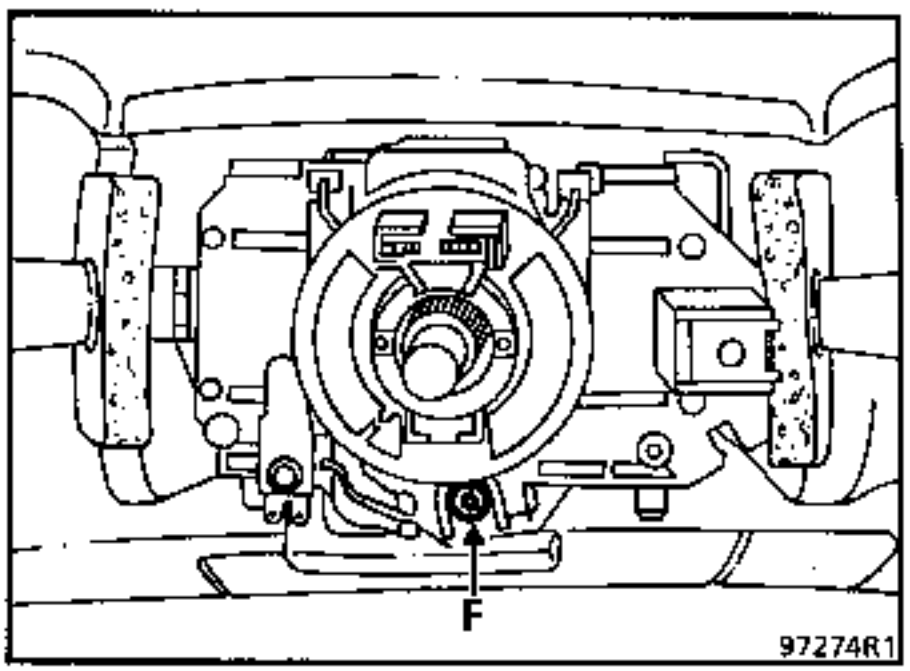
Remove the half-cowling under the steering wheel by the three bolts (C).



Remove the lower steering wheel cover, 2 bolts (D).



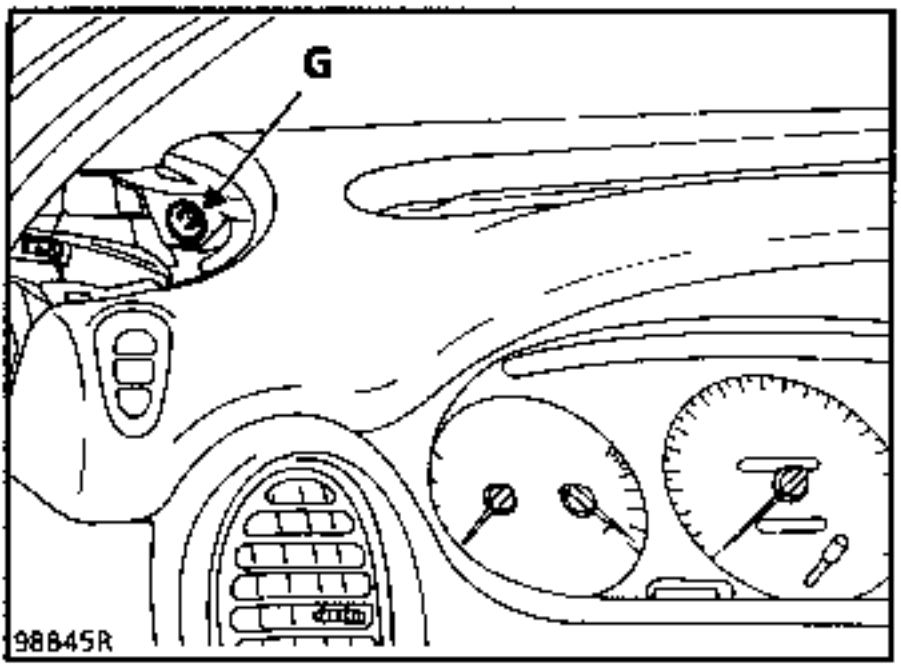
Remove the upper half-cowling, 2 bolts (E).



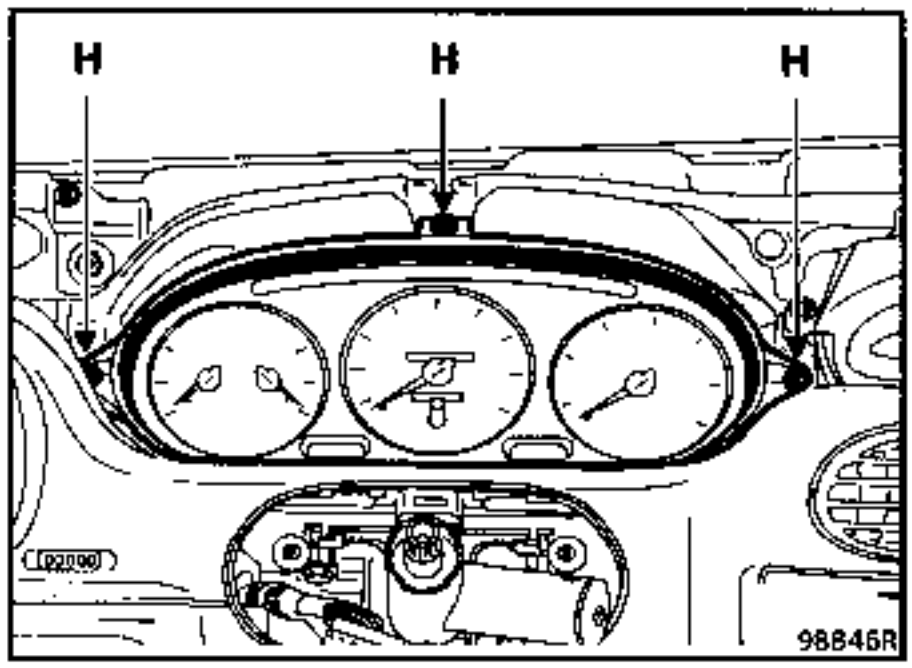
Slacken bolt (F) so that the control stalk assembly can be removed.

Disconnect the connectors.

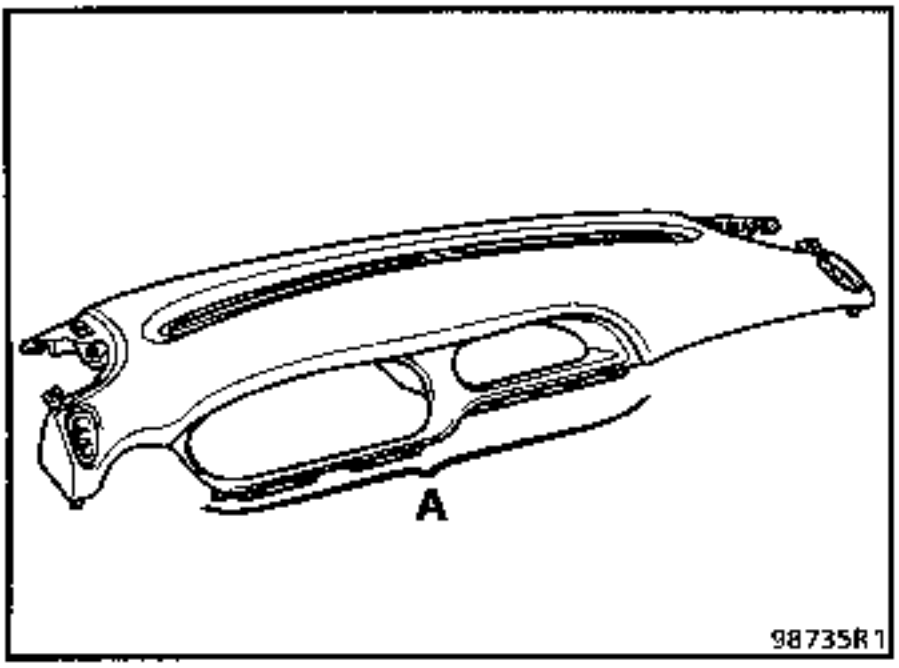
REMOVING THE UPPER PART OF THE DASHBOARD



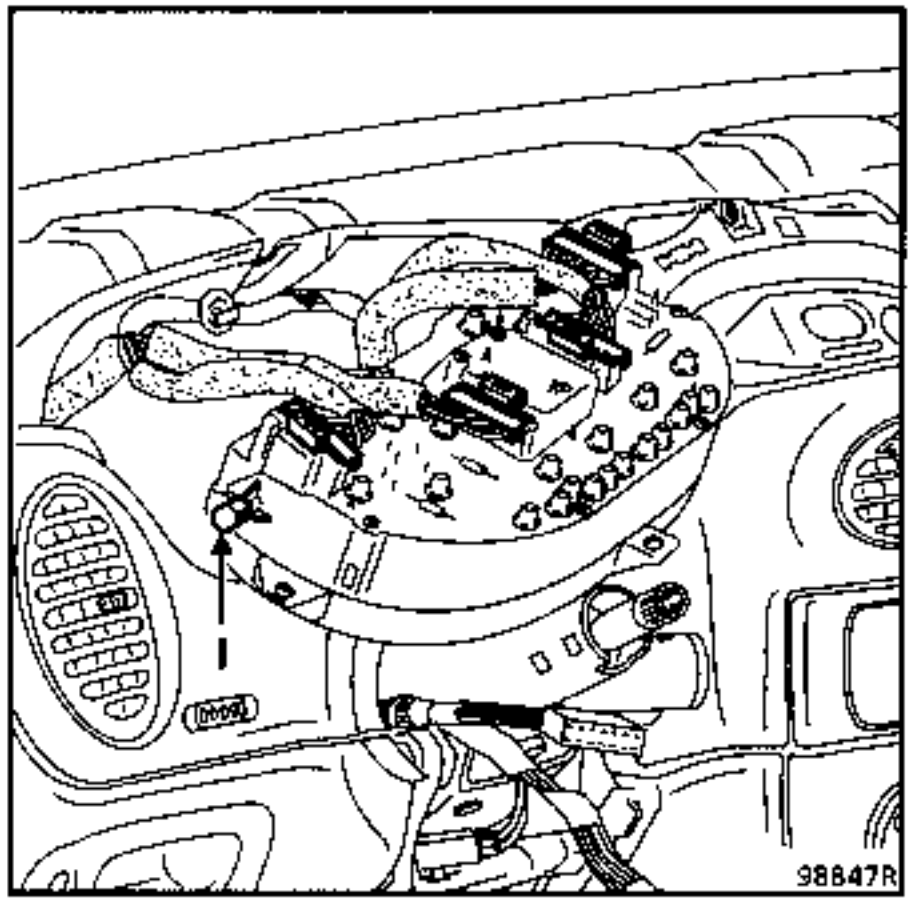
Remove the loudspeaker grilles, then the upper mounting bolts (G).



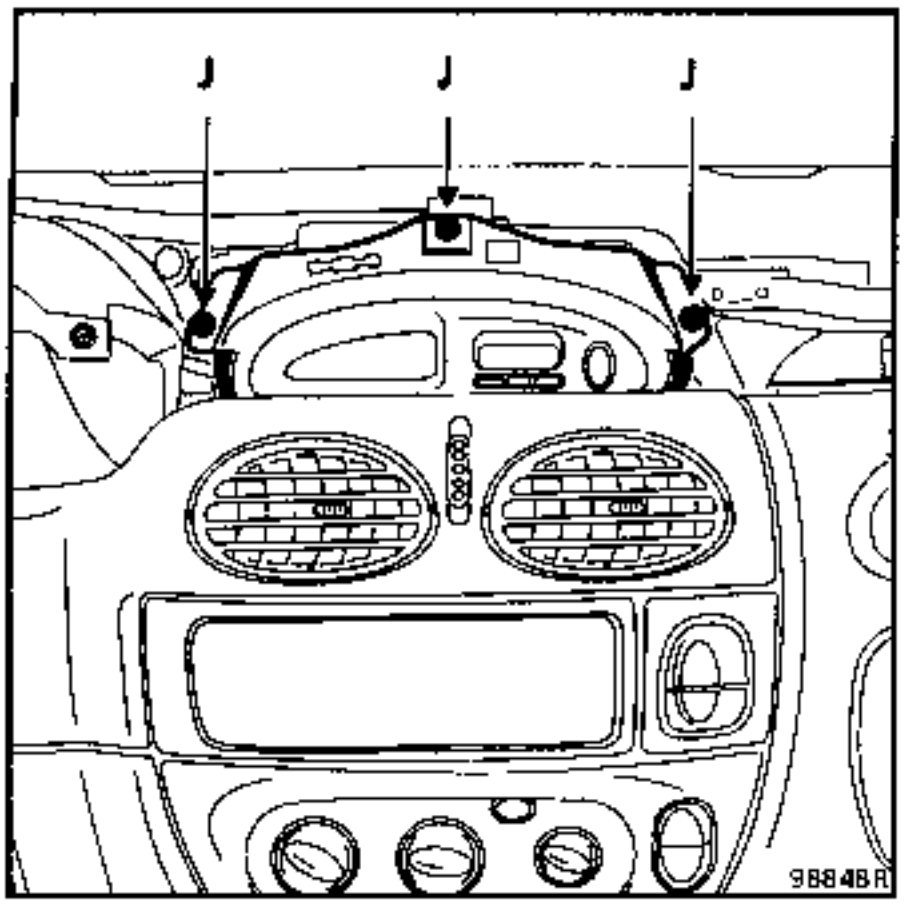
Remove the instrument panel, three bolts (H).



Unclip part (A), lifting by hand, then pull the assembly towards you.

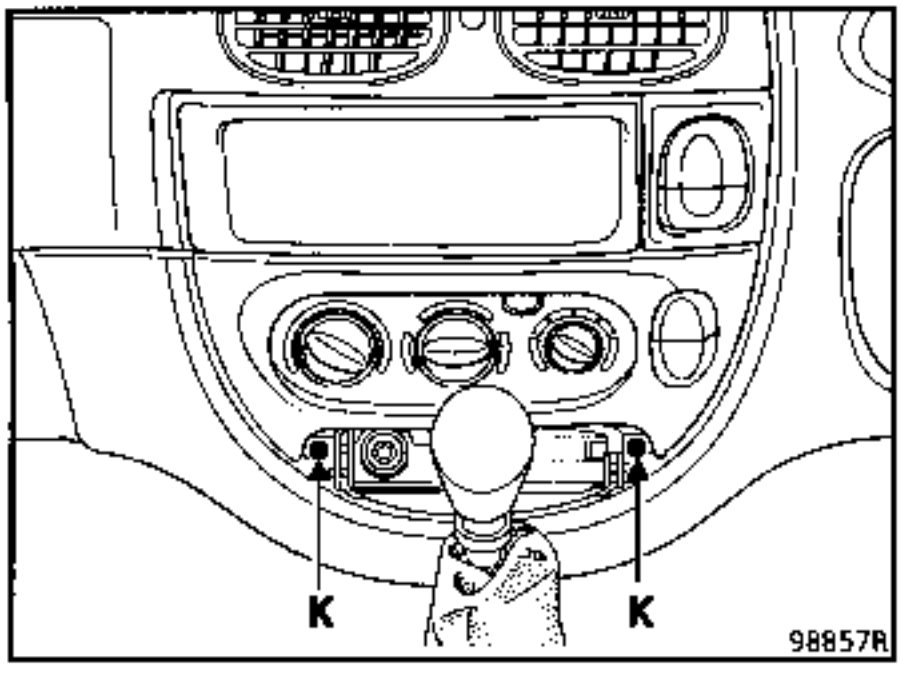


Disconnect the instrument panel. Take care to retain and reposition the small rubber pieces (I).

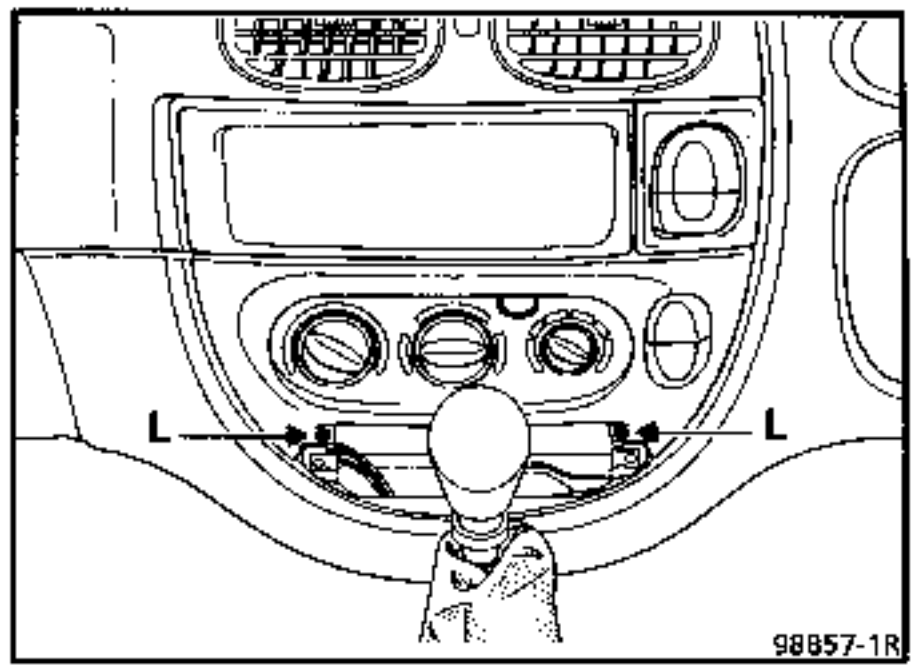


Remove the clock, three bolts (J).

Disconnect the connectors.

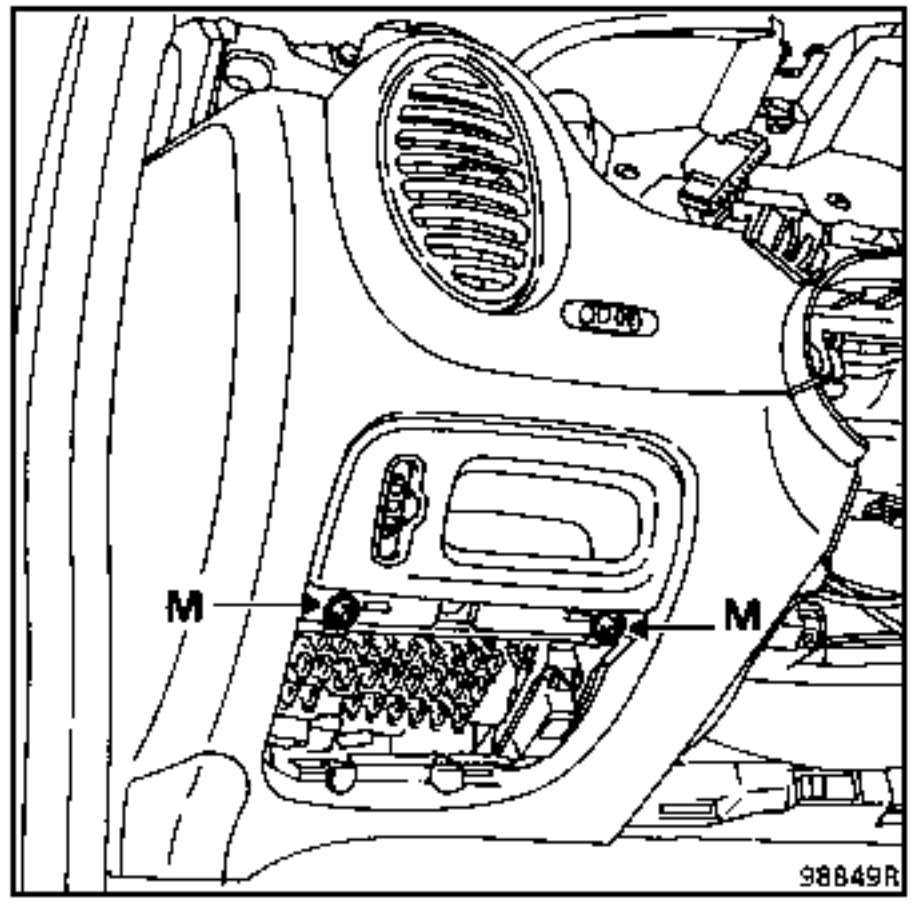


Remove the ashtray mounting, 2 bolts (K).



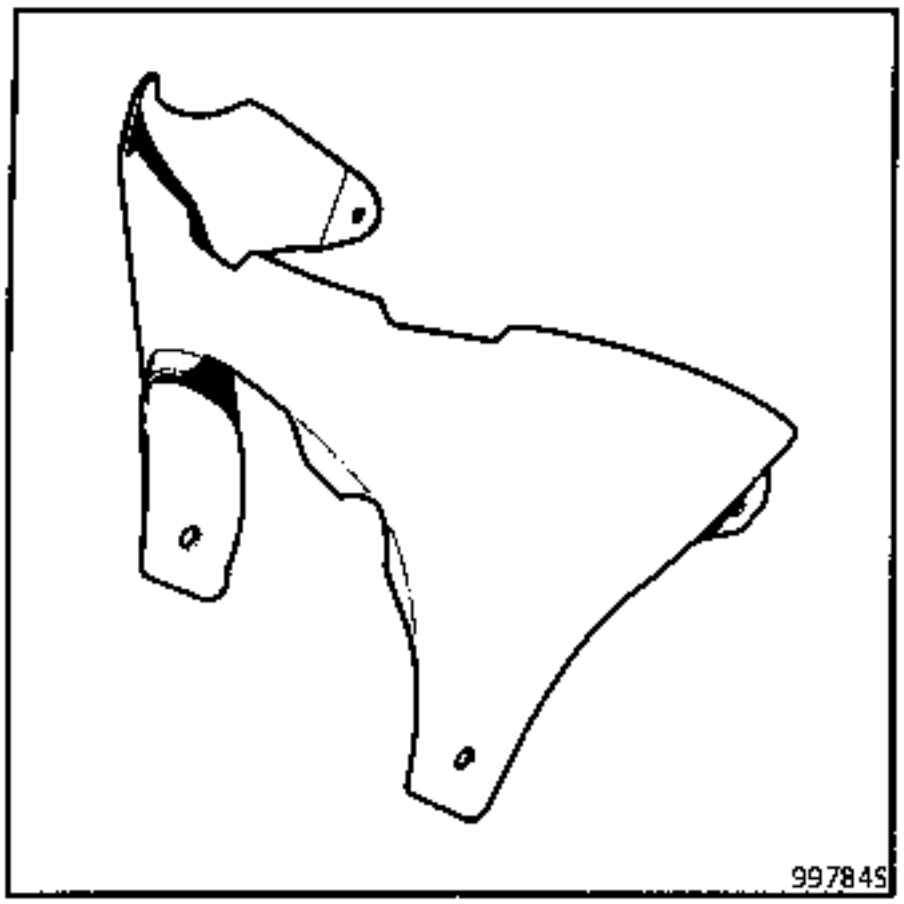
Remove the front of the heating control panel, 2 bolts (L).

Disconnect the control connectors.

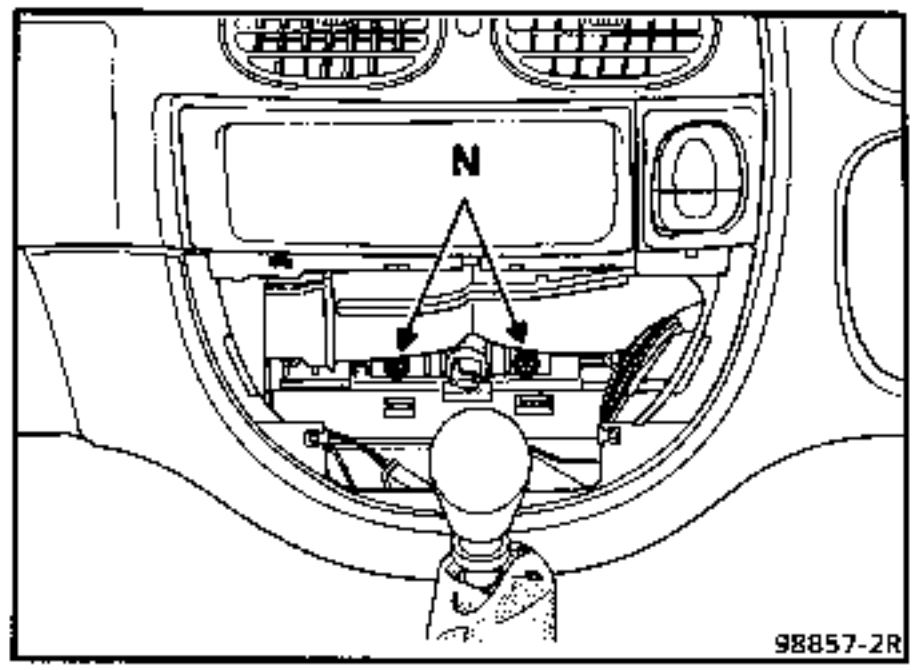


Remove the headlight adjustment unit mounting, two bolts (M).

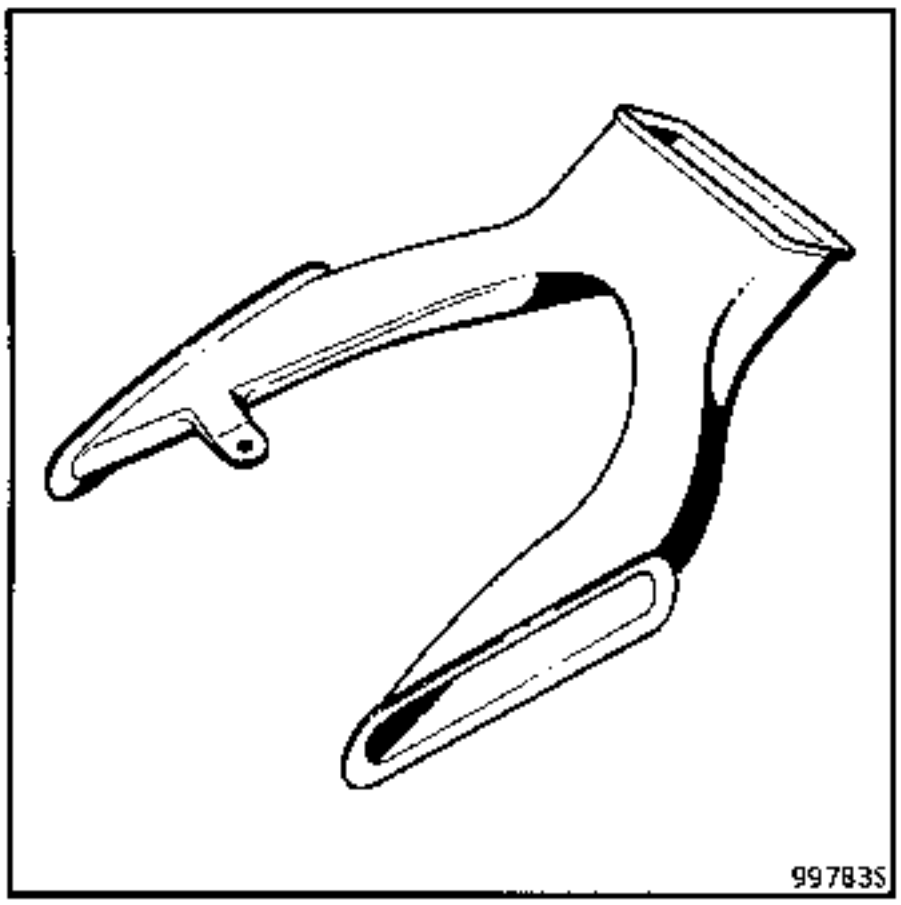
Disconnect the connector.



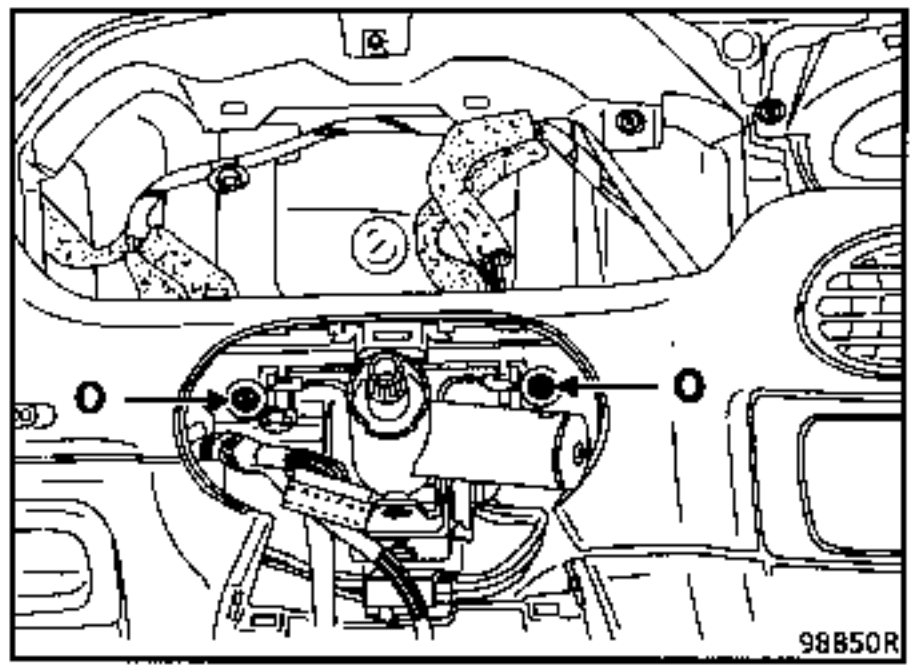
Remove the inner cover of the console, four clips.



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

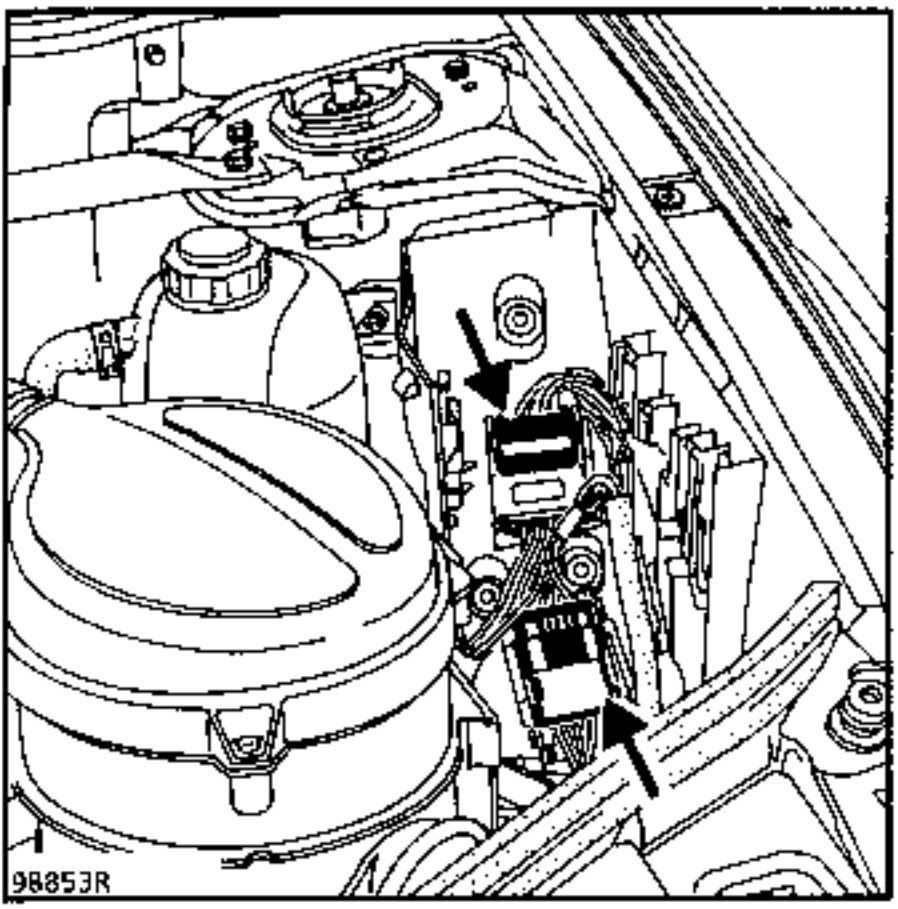


Remove the heating duct.



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

In the engine compartment.



On the left hand side:

Disconnect the engine wiring connectors.

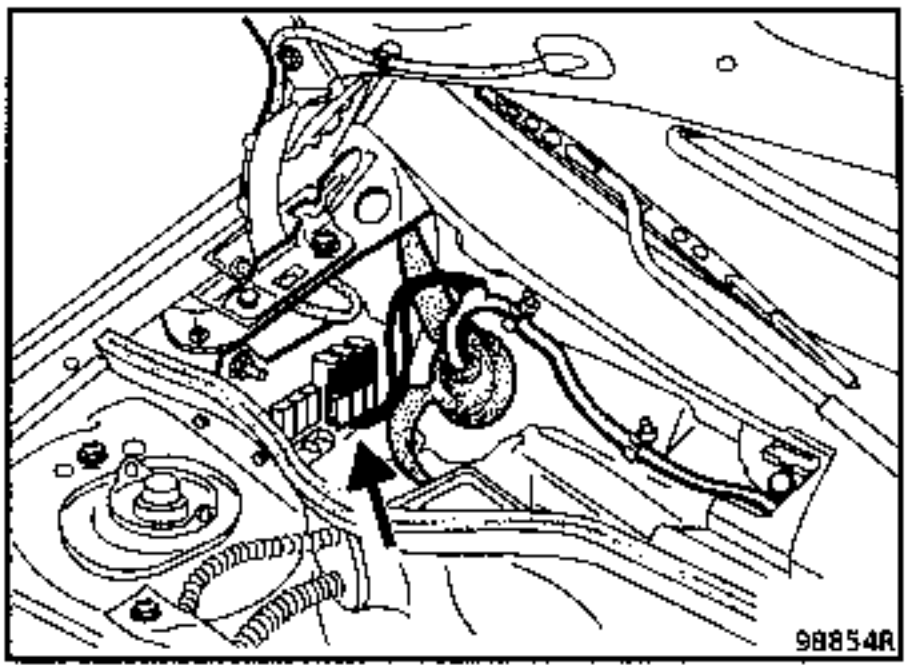
Remove the front left hand mudguard (see 56 F).

Unclip the wiring mounting clips.

Disconnect the wing mounted indicator repeater.

Thread the wiring through to the passenger compartment.

In the scuttle panel.

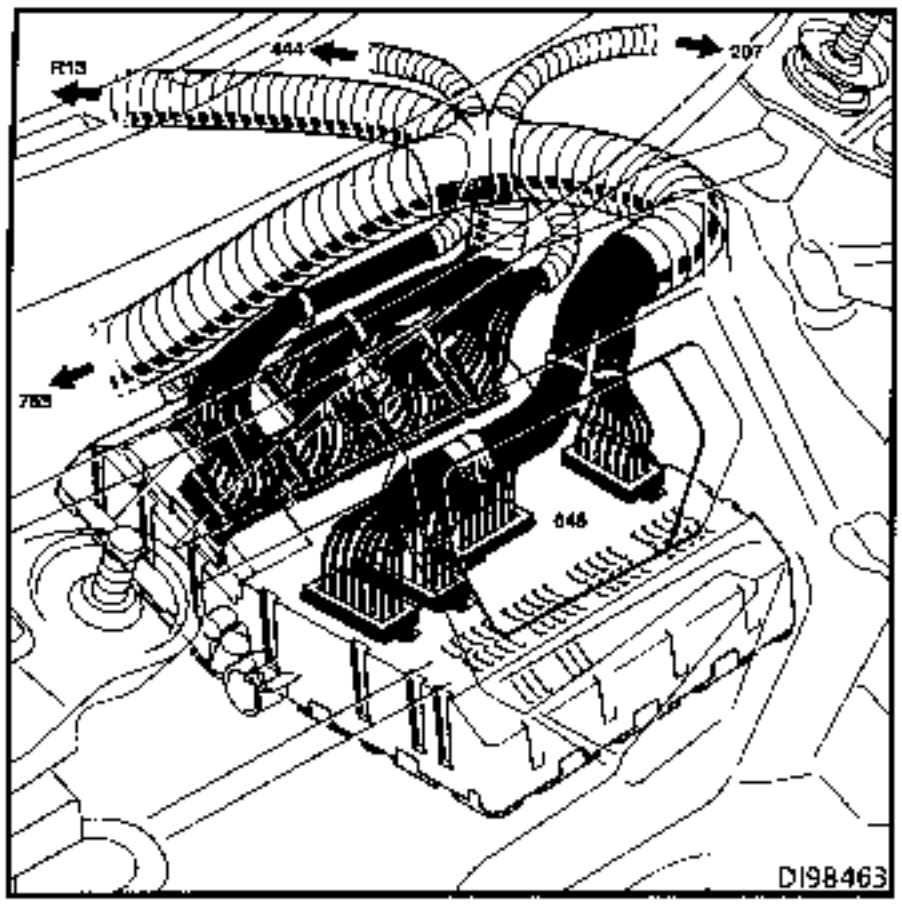


Remove:
- the right hand scuttle panel grille (see 55 G),
- the battery.

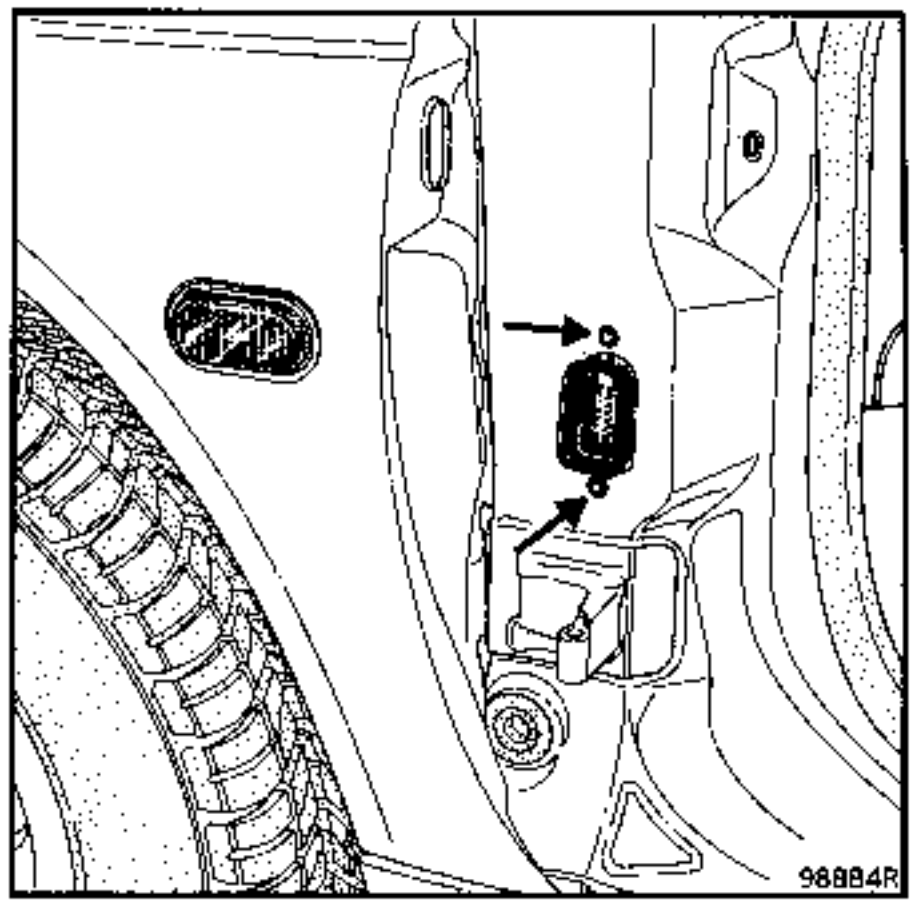
Disconnect the fuse mountings.

Disconnect the connections for the windscreen wiper motor and the fan motor.

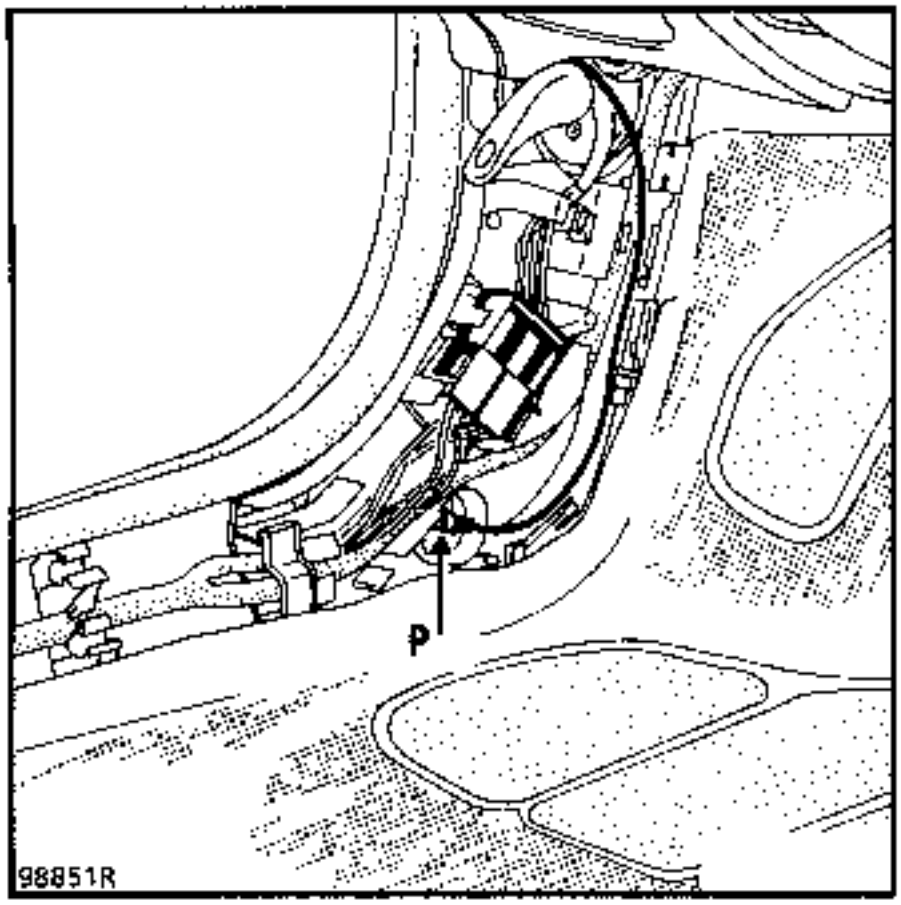
Thread the wiring through to the passenger compartment.



Disconnect the connectors under the fuse box, then the ignition switch connector. Remove the steering column.

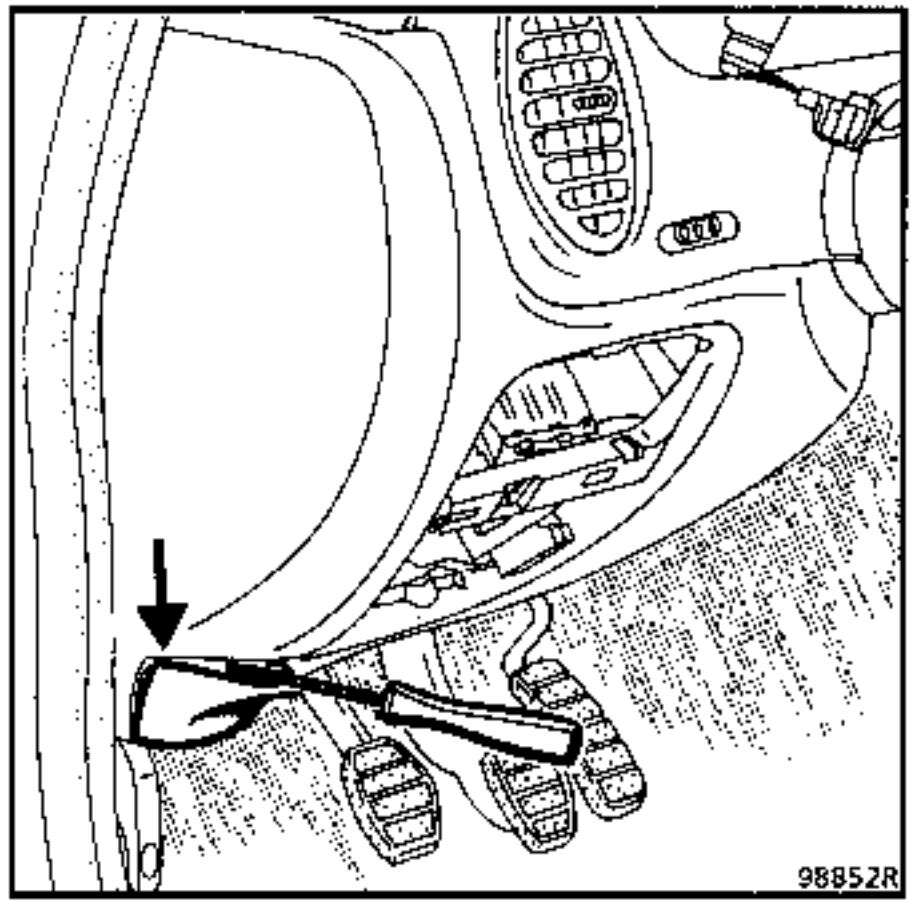


Remove the two bolts for the front door wiring connectors and thread the wiring through to the passenger compartment.



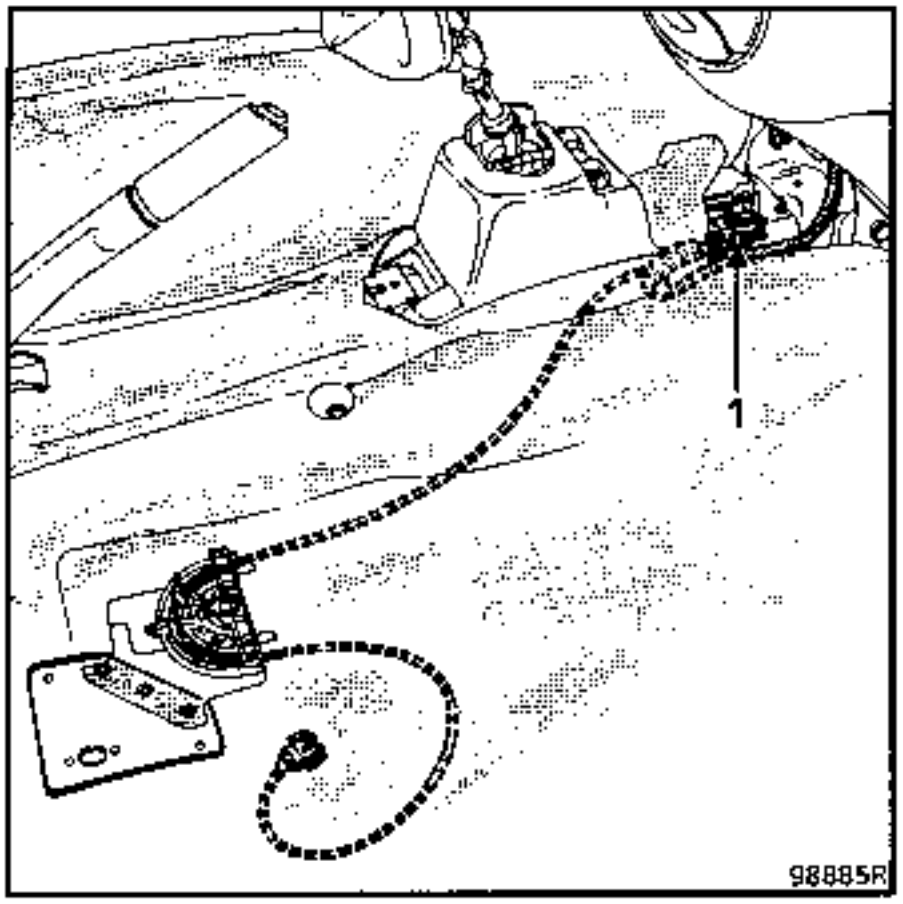
Remove the trim from the inner sills and the right and left hand windscreen pillars (see 71 B and 71 E).

Disconnect the wiring and remove bolts (P) from the earth wires.



Remove the two lower blanking plugs.

Remove the front seats.

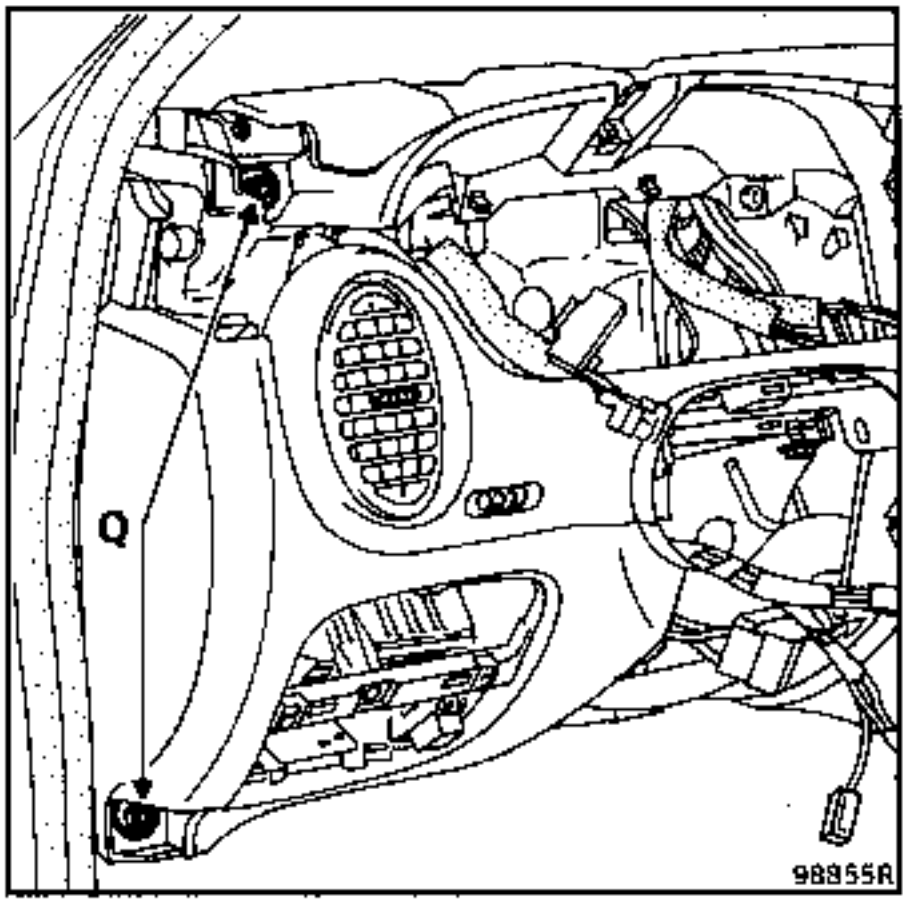


Disconnect the seat belt pretensioner wiring harness.

Release the wiring.

Disconnect the connector (1) for the airbag computer.

Remove the trim from the windscreen pillars.



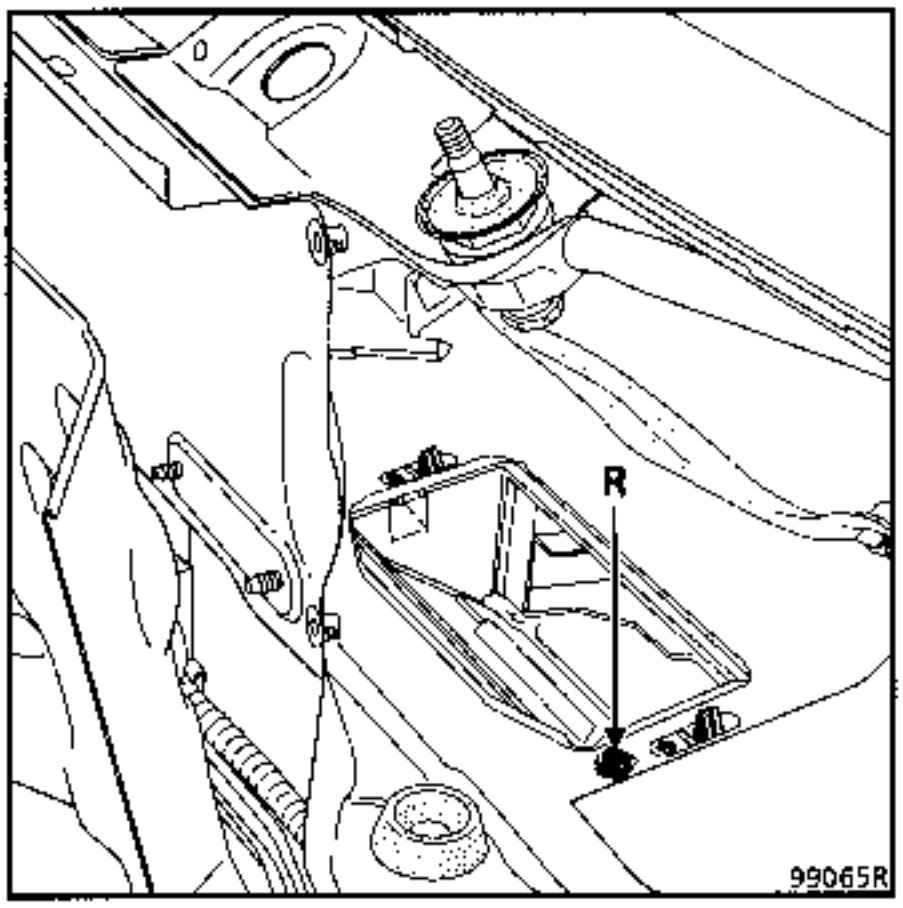
Remove the four dashboard mounting nuts (Q).

Remove the dashboard with care (two people required).

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

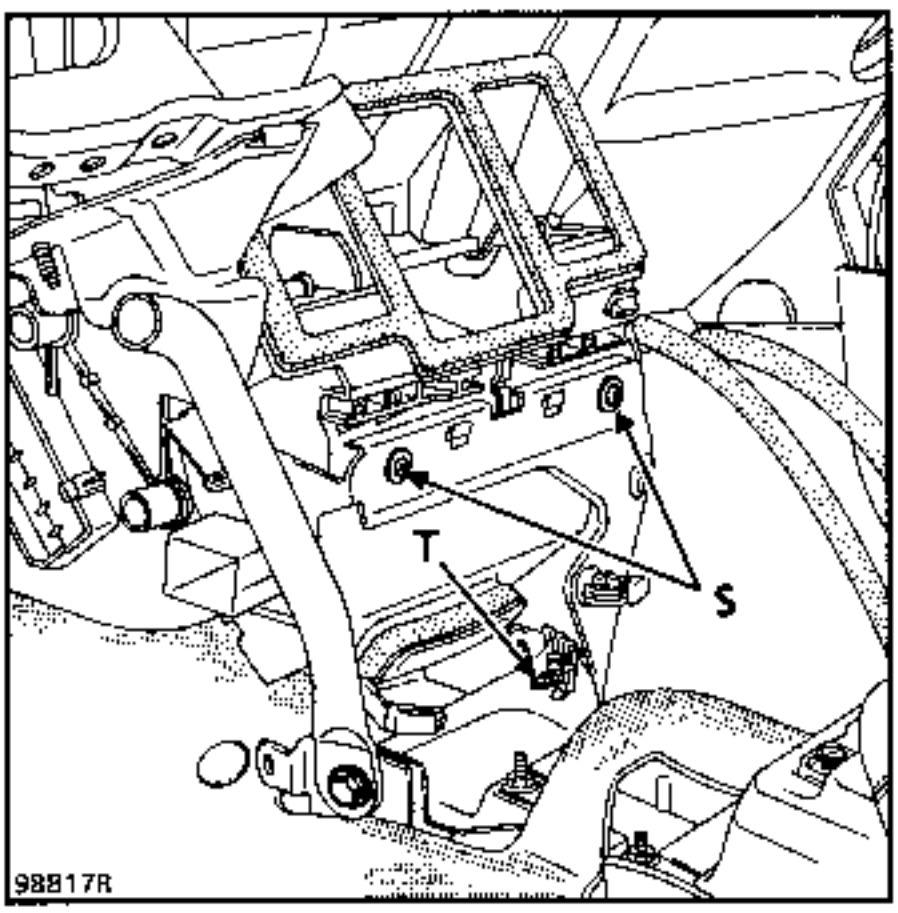
Remove the upper scuttle panel seal and the external air inlet grilles.

Remove:
- the fan assembly (see page 61-8),
- the distribution unit mounting bolt (R).



In the passenger compartment

Remove:
- the 2 distribution unit mounting bolts (S),
- the bracket retaining bolt (T).



Remove the heater radiator (see page 61-30).

REFITTING

Refit:
- first of all, bolt (R) ,
- the distribution unit in the passenger compartment.

When refitting the following must be observed:

- the correct routing for all wiring
- adequate spacing to allow the dashboard to be correctly positioned.

Refitting the steering wheel with airbag

Ensure the rotary switch under the steering wheel is correctly positioned.

If this switch is suspected to be incorrectly positioned, the method described in section 88 of the "AIRBAG" Workshop Repair Manual must be followed.

Renew the steering wheel nut after each removal (pre-bonded nut) (on vehicle with an airbag).

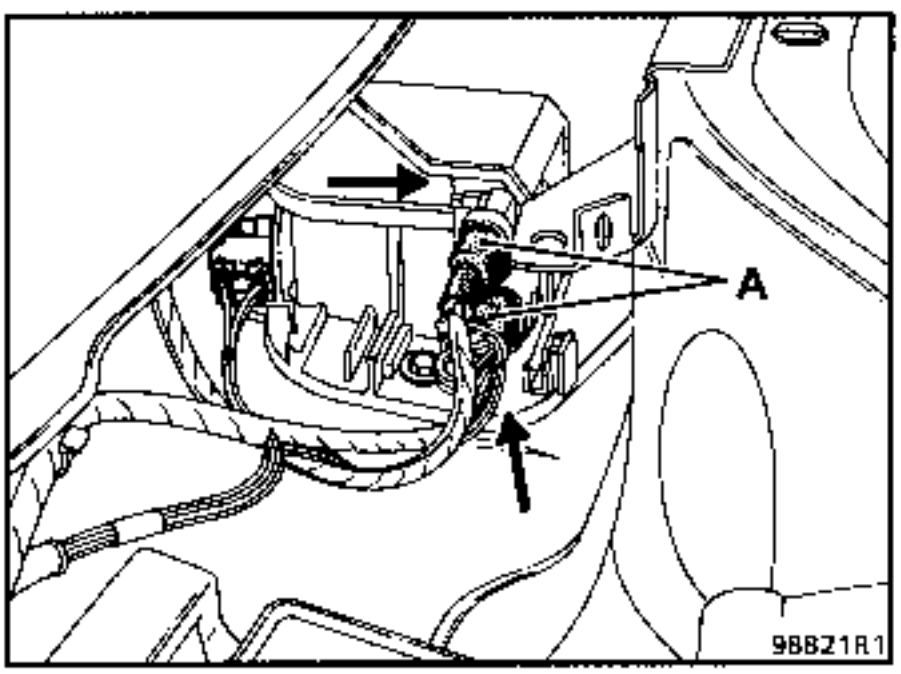
IMPORTANT : as a safety precaution, before reconnecting the airbag, check the status of the system using the tool **XR BAG (Elé. 1288)** (see section 88 of the "AIRBAG" Workshop Repair Manual).

Refit the fan assembly.

REMOVAL

The scuttle panel upper seal and the external air inlet grille must be removed to reach the resistance unit.

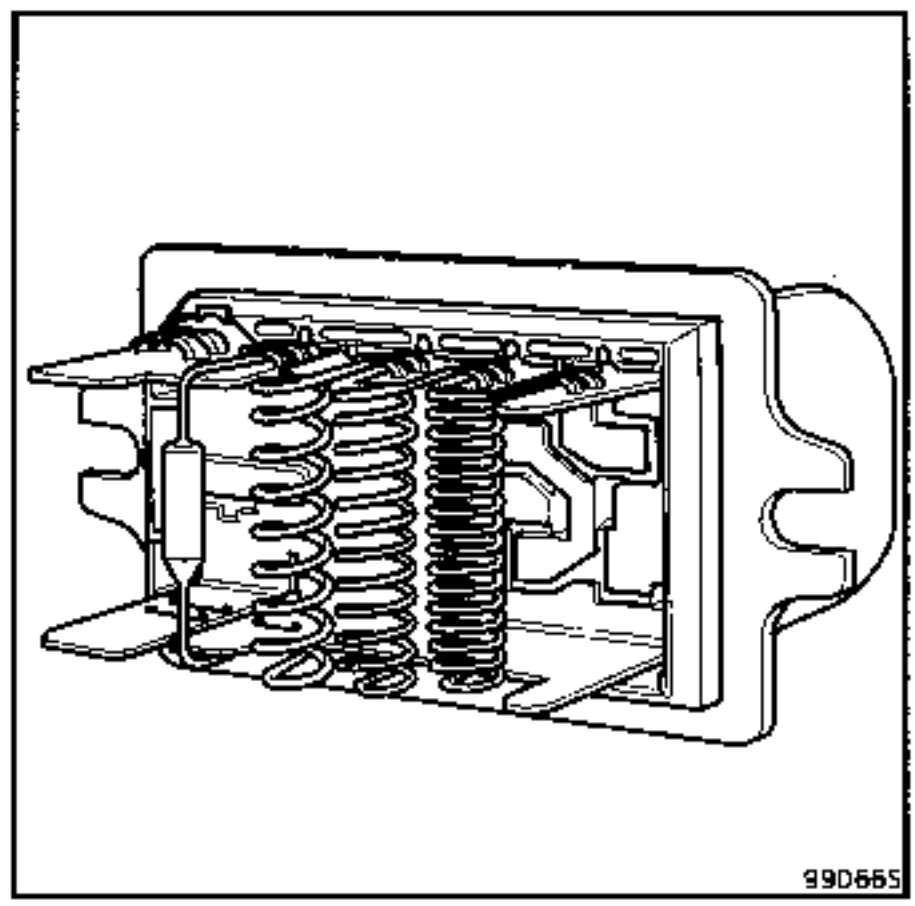
Disconnect connectors (A) and remove the two mounting bolts.

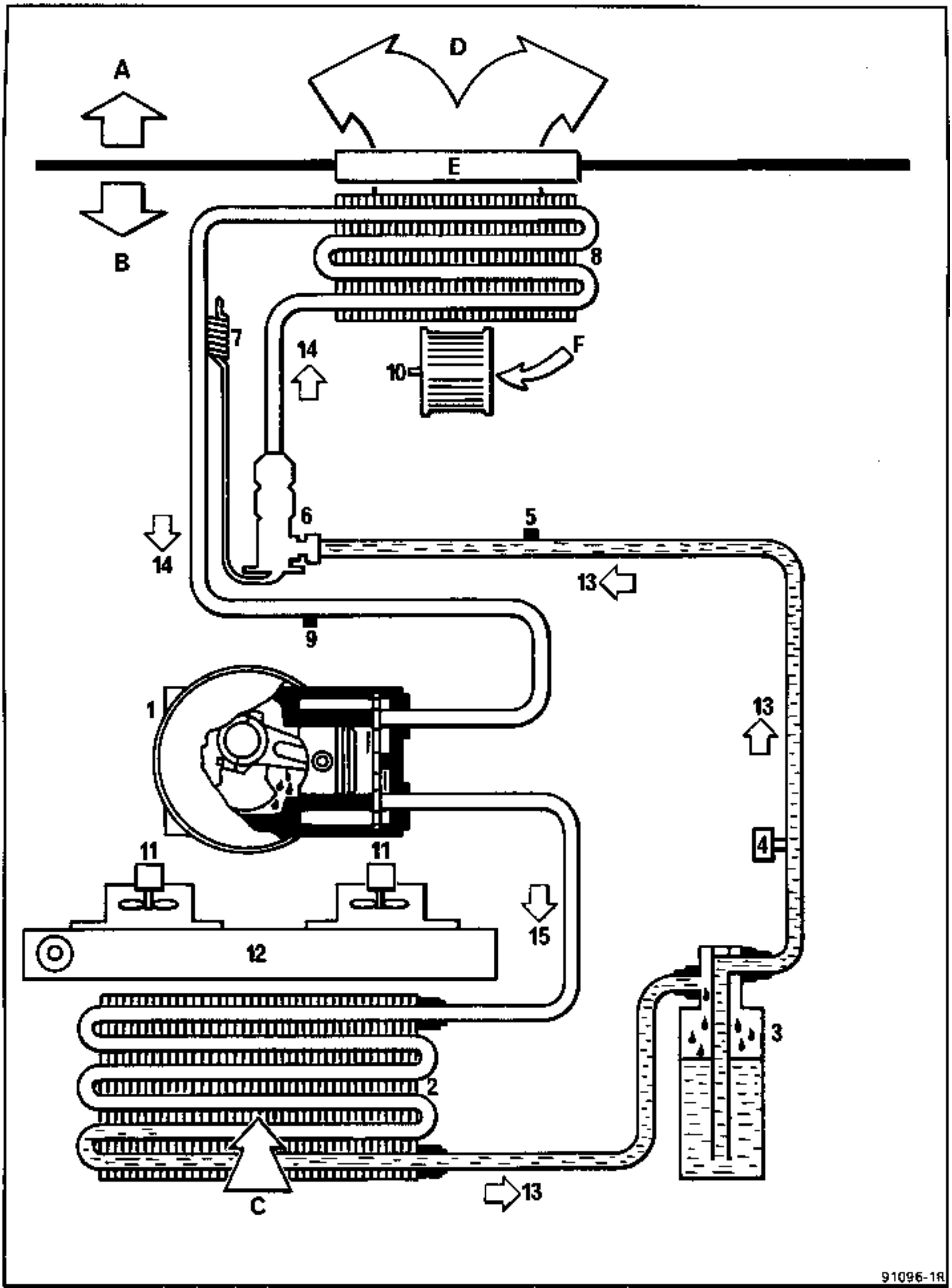


Remove the resistance unit.

NOTE : if the resistances are removed after being damaged, check that the fan rotates freely, otherwise replace it.

There are no special notes for refitting.




A
B
C
D
E
F
1
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6
7
8
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12
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14
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91096-1R

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

1 Compressor
2 Condenser
3 Dehydrating bottle
4 Trifunction pressostat
5 High pressure bleed
6 Expansion valve
7 Expansion valve thermostatic regulation
8 Evaporator
9 Low pressure bleed
10 Ventilation fan
11 Cooling fan
12 Engine radiator
13 High pressure liquid
14 Low pressure vapour
15 High pressure vapour

Consumables:

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

- Refrigerant fluid
  R134a
  750 g

INFORMATION CONCERNING REFRIGERANT FLUID R134a

Due to concerns about **protecting the environment**, the authorities now impose the use of **refrigerant fluid R134a** in air conditioning systems.

The presence of chlorine in refrigerant fluid R12 means that it is no longer able to be used since it damages the ozone layer.

The use of the new product has led to design changes in the various components in the air conditioning system.

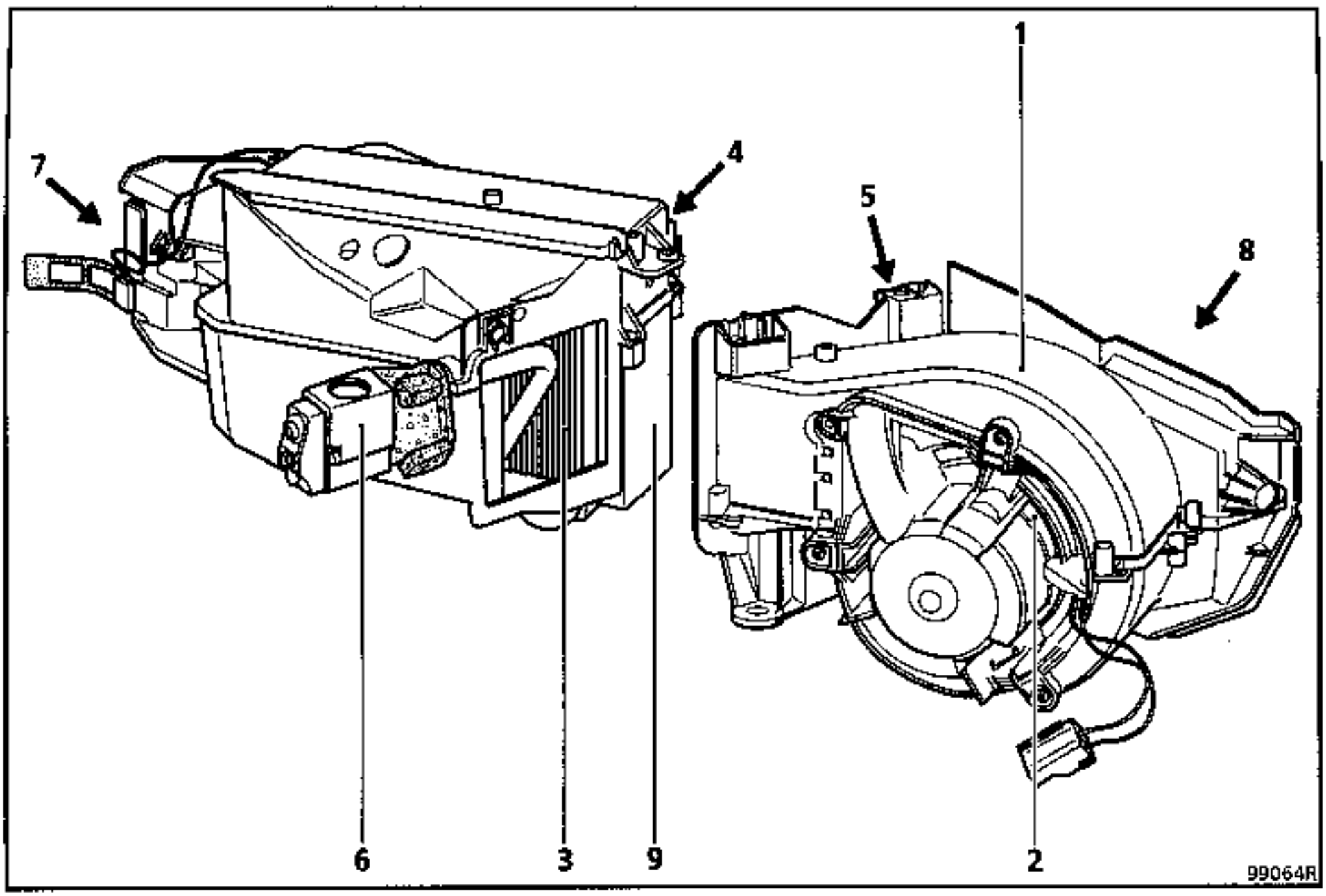
A label in the engine compartment shows the specification of the refrigerant fluid.

Section "Air conditioning - new refrigerant R134a" gives more details on this development.

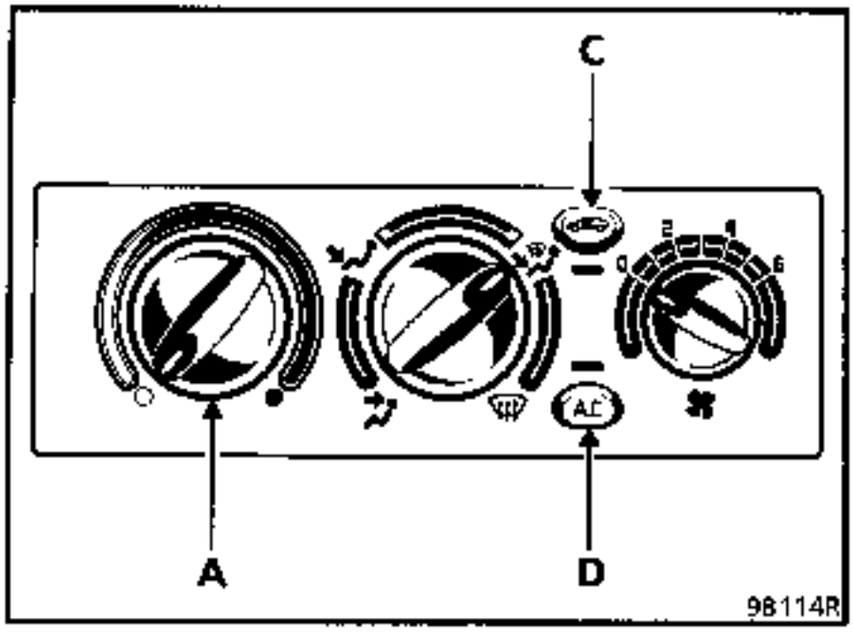
The most important recommendation is for the use of **SANDEN SP 10** oil for the variable displacement compressor and the fitting of the pipes in the circuit.

IMPORTANT: if P.A.G. SP 10 oil is spilt on plastic parts or paintwork, wipe it off immediately using an absorbent cloth.

NOTE : in the circuits for R134a, the oil forms an emulsion with the refrigerant fluid, giving the mixture a "milky" appearance which no longer allows fault finding using the inspection window.



1 Ventilation fan unit
2 Ventilation fan
3 Particle filter
4 Evaporator temperature sensor
5 Recycling motor
6 Expansion valve
7 Component unit
8 Recycling flap
9 Evaporator unit



TEMPERATURE CONTROL KNOB (A)

This control has the same function as described in the heating section, as long as the air conditioning control **(D)** is turned off.

When the air conditioning control **(D)** is **ON** the air is first cooled then dried by the evaporator, then a greater or lesser amount is warmed by passing through the heater radiator depending on the position of knob (A).

IN THE RECYCLING POSITION : air is not taken from outside the vehicle but is taken continuously from inside the passenger compartment. It therefore has the minimum possible temperature.

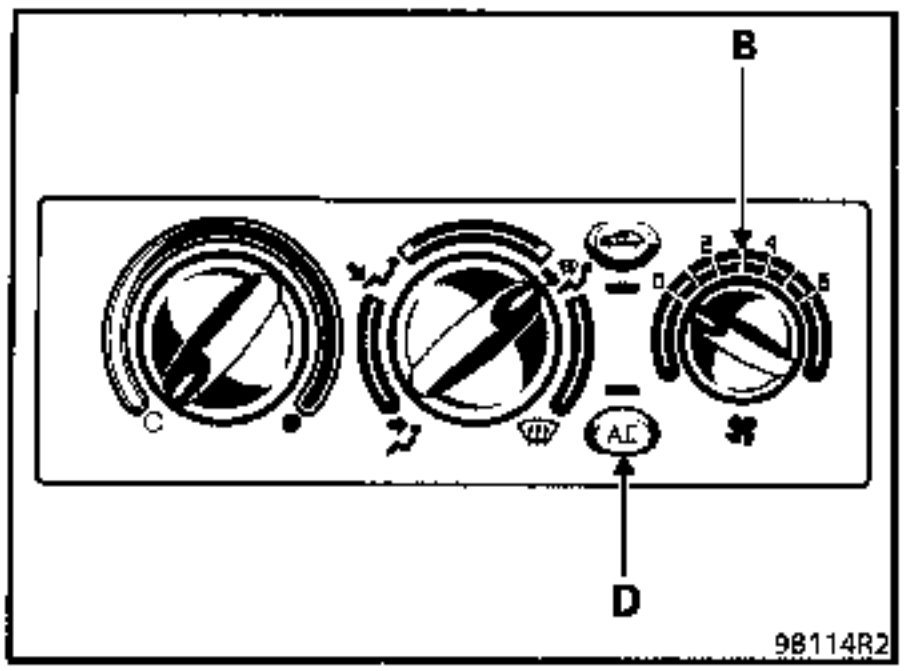
Moving knob (A) to the right allows the temperature of the air to be adjusted .

AIR FLOW KNOB (C)

This control has the same function as described in the heating section.

6 positions are used to adjust the speed of the fan, in contrast to 4 for the heating version.

Recycling is only active when button (C) is depressed.



AIR CONDITIONING CONTROL KNOB (D)

This control turns the air conditioning system on and off.

Its use permits:
- the temperature of the air inside the passenger compartment to be lowered,
- the humidity of the air blown into the passenger compartment to be decreased (assists demisting).

DEACTIVATED : the air conditioning system is not operational, the system has the same functions as a vehicle without air conditioning.

ACTIVATED : the air conditioning system is operational. This is the normal position of use. Air is taken from outside the vehicle and is constantly renewed.

RECYCLING POSITION : the air conditioning system is operational. Air is taken from inside the passenger compartment and is recycled with no external air being admitted.

This position allows the temperature in the passenger compartment to be lowered quickly and isolates the passenger compartment from the external atmosphere (driving in polluted areas).

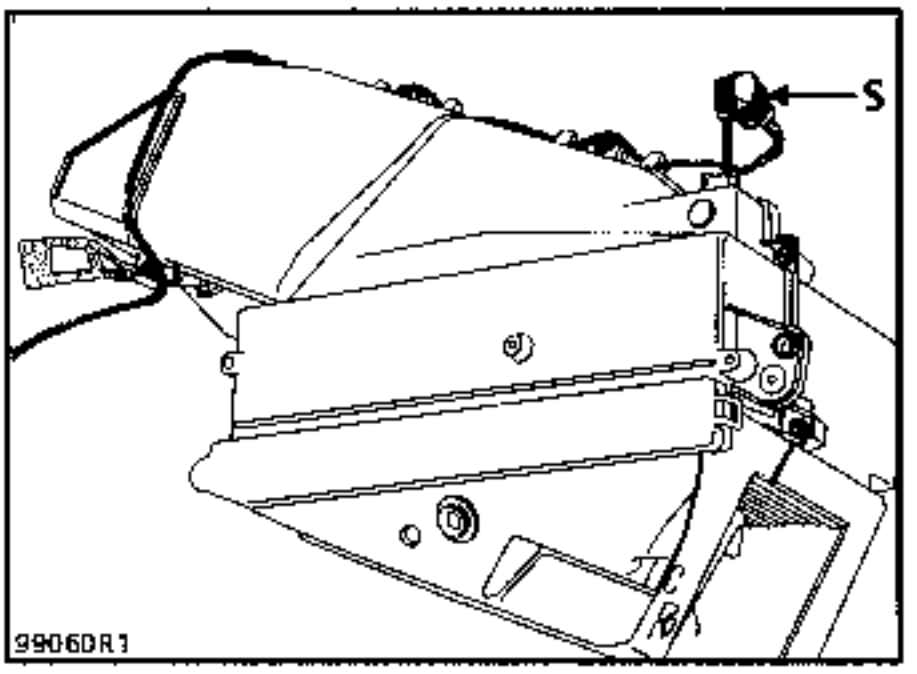
Prolonged use of this position may cause slight misting of the windows due to the air in the passenger compartment becoming stale (smokers).

It is therefore preferable to turn the recycling mode off as soon as the polluted area is left or the required temperature is reached.

NOTE : The air conditioning control will only start the system if the air flow control (B) is set to a position other than 0.

SPECIAL SYSTEM FEATURES

The temperature of the air leaving the evaporator is not adjustable. The temperature sensor (S) has an additional "safety" function to prevent the evaporator from icing up.



Moving control knob (A) which operates the mixing flap ensures the required air temperature is obtained.

- Air distribution fault (cable controlled flaps) — Chart 1
- Air flow fault — Chart 2
- Lack of heating efficiency — Chart 3
- No heating — Chart 4
- Too much heating — Chart 5
- Insufficient heat to the rear seats — Chart 6
- Lack of demisting - de-icing efficiency — Chart 7
- Lack of ventilation efficiency — Chart 8

THE PASSENGER COMPARTMENT VENTILATION FAN DOES NOT OPERATE — Chart 9

PASSENGER COMPARTMENT FAULTS

- Controls stiff — Chart 10

THE RECYCLING FLAP DOES NOT OPERATE — Chart 11

AIR CONDITIONING FAULTS

- No cold air — Chart 12
- Too much cold air — Chart 13
- Lack of efficiency — Chart 14

THE COOLING FANS DO NOT OPERATE

- General fan fault — Chart 15
- Slow speed fan fault — Chart 16

Chart 1 — AIR DISTRIBUTION FAULT

NOTE

Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Cable controlled flaps. Non-regulated air conditioning.

Set the fan to maximum, the temperature control to maximum hot or maximum cold, then move the air distribution control and check the selection agrees with the air blown out.
Is this correct?

yes → The air distribution is correct.
Explain the operation of the system to the customer if necessary.

no

Chart 1A

Visually check on the right hand side of the air distribution unit that moving the knob actually moves the gears and the lever (black gears).
Is there movement?

yes → Check the adjustment of the air distribution flap control cable.

Note : adjust on the right hand side of the air distribution unit.

If there is a ventilation fault, check the ventilation ducts, the vents, the seals on the front door ducts.
Repair if necessary.
Does the fault persist?

Remove the air distribution unit and check the air distribution flaps.
Repair or replace the unit.

no

Check the connection of the cable to the air distribution unit and the control panel and also check the condition of the cable and its mountings. Is this correct?

no → Replace the control cable or repair the cable connection (clip) or replace the faulty component (control panel or air distribution unit).

yes

A

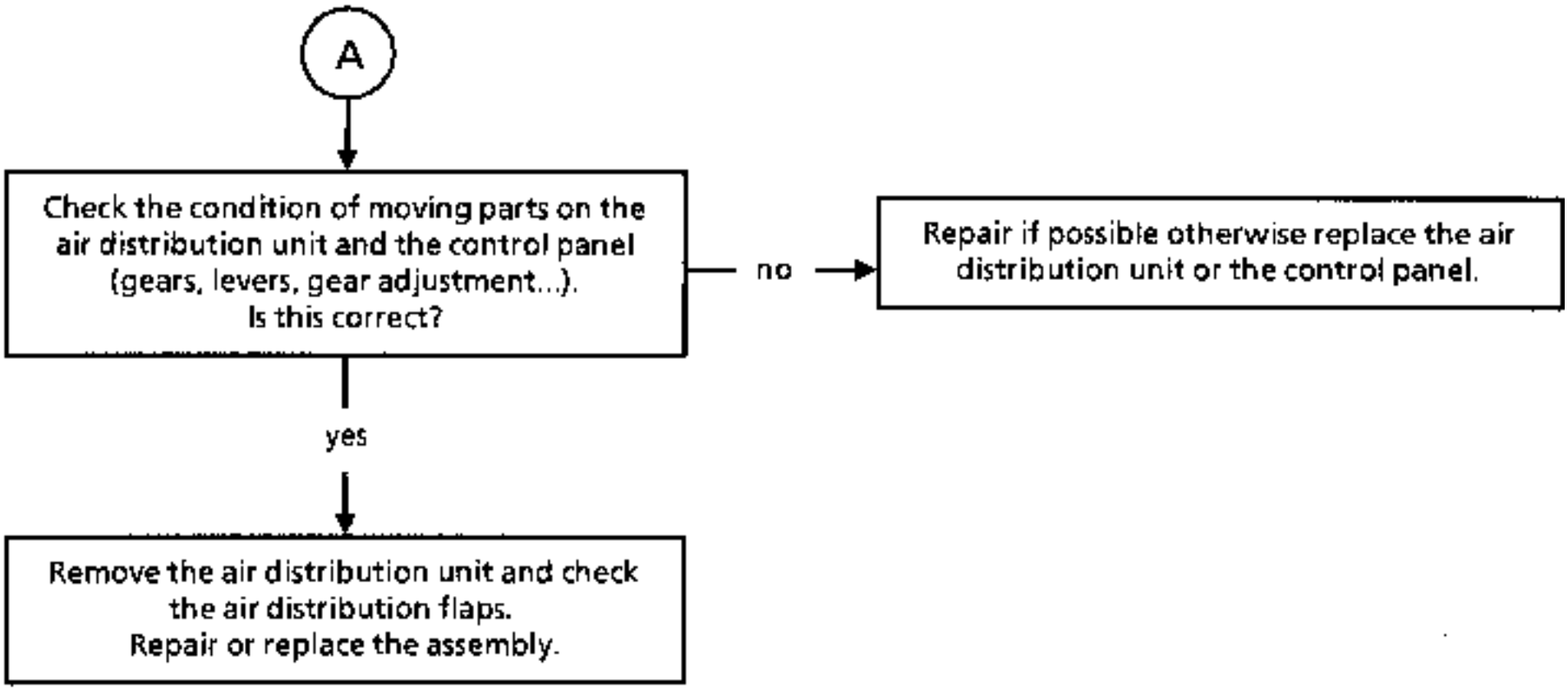
AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

e64640.1

Chart 1 CONT



AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

Chart 2 — AIR FLOW FAULT

NOTE

Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Non-regulated air conditioning.

Does the passenger compartment fan operate?
- no → See Chart 9
- yes ↓

Check the air inlet circuit, scuttle panel grille, particle filter, rain guard. Is this correct?
- no → Repair or clean or replace the particle filter.
- yes ↓

Check the air extraction circuit is not blocked. Repair if necessary. Does the fault persist?
- no → End of fault finding
- yes ↓

Is there a fault with air distribution in the passenger compartment?
- yes → See Chart 1
- no ↓

Remove the heater radiator. Is it blocked? Clean or replace the heater radiator (only for vehicles which have been driven without a particle filter).

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

Chart 3 — LACK OF HEATING EFFICIENCY

NOTE Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Non-regulated air conditioning.

Carry out a road test to confirm the customer complaint.
Is the test satisfactory?

yes → Advise the customer how to get the best from the heating system (eg. : do not set the fan to maximum when starting the engine from cold, rather, increase it progressively).

no ↓

Visually check that moving the control causes the mixing flap to move.
Does the flap move?

no → See Chart 1A (in Chart 1).

yes ↓

Visually check that the flap moves as far as it should.
Does it move correctly?

no → Adjust the control cable (cable operating the black gears on the right hand side of the air distribution unit).

yes ↓

Check:
- the cooling system (correctly filled and bled),
- the condition of the system (pipes, connections, conformity of the circuit...).

Repair if necessary.
Does the fault persist?

no → End of fault finding.

yes ↓

(A)

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

e64640.1

Chart 3 CONT

A

Engine cold, remove the engine thermostat and check it has not stuck in the open position. Is it correct?

no → Replace the thermostat

yes

Check there is no unwanted cold air entering the passenger compartment (seals, cable guides...). Repair if necessary. Does the fault persist?

no → End of fault finding

yes

Check the air inlets (particle filter) and outlets. If inlets or outlets are partially blocked, the flow of heating air in the passenger compartment is reduced. Repair if necessary. Does the fault persist?

no → End of fault finding

yes

Remove the heater radiator. Is it blocked? Clean or replace the heater radiator (only for vehicles which have been driven without a particle filter).

AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

Chart 4 — NO HEATING

NOTE Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Non-regulated air conditioning.

Is there an air flow fault? — yes → See Chart 2

no ↓

Check the cooling system level.
Note : if the level is too low the circuit may de-prime when driving under low load conditions and at idle speed.
Repair if necessary.
Does the fault persist? — no → End of fault finding

yes ↓

Visually check that moving the control causes the mixing flap to move.
Does the flap move? — no → See Chart 1A in Chart 1

yes ↓

Check the cooling system
Note : fitting an oil, water or air cooler which is not approved by the Technical Department and is incorrectly connected could reduce or even prevent the flow of water in the heater radiator.
Repair the cooling system if necessary.
Does the fault persist? — no → End of fault finding

yes ↓

Remove the heater radiator. Is it blocked?
Clean or replace the heater radiator (only for vehicles which have been driven without a particle filter).

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

Chart 5	TOO MUCH HEATING

NOTE	Before any operation is carried out, ensure the customer is using the air conditioning system correctly Non-regulated air conditioning.

Visually check that moving the control causes the mixing flap to move.
Does the flap move?

— no → See Chart 1A in Chart 1.

yes ↓

Check that the mixing flap moves as far as it should.
Does it move correctly?

— no → Adjust the cable (on the right hand side of the air distribution unit).

yes ↓

Check the operation of the recycling flap.
It is jammed in the recycling position?

— yes → See Chart 11

no ↓

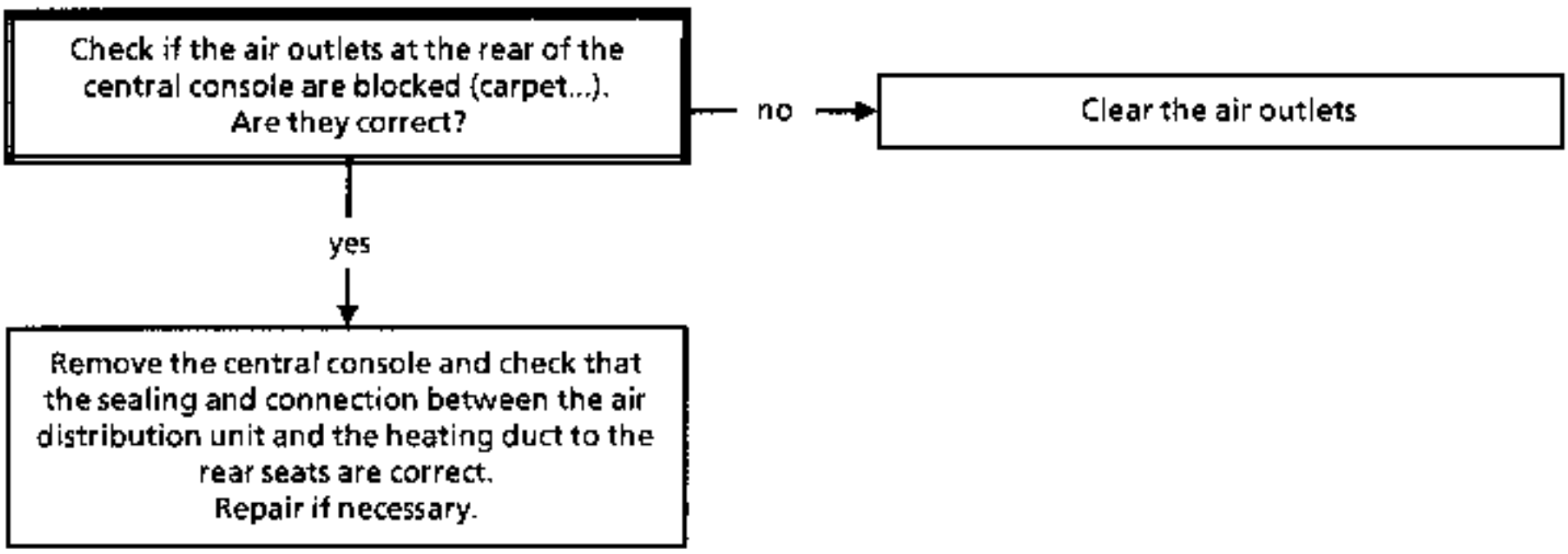
Check the operation of the engine thermostat. Replace the thermostat if necessary.

AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

Chart 6 — INSUFFICIENT HEAT TO THE REAR SEATS

NOTE

Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Non-regulated air conditioning.



AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

Chart 7 — LACK OF DEMISTING - DE-ICING EFFICIENCY

NOTE Before any operation is carried out, ensure the customer is using the system correctly. Also check the windows are clean inside (a greasy window reduces de-icing efficiency). Non-regulated air conditioning.

Check the air extraction outlets are not blocked . Repair if necessary.
Does the fault persist?

- no → End of fault finding
- yes ↓

Ensure there are no leaks into the passenger compartment which increases humidity greatly and reduces de-icing efficiency.
Note : if there is a leak, after driving and then leaving the vehicle for several hours, a film of water should be noticed on the inside of the windows.
Locate the leak and repair.
Does the fault persist?

- no → End of fault finding
- yes ↓

Is there an air distribution fault?

- yes → See Chart 1
- no ↓

Is there an air flow fault?

- yes → See Chart 2
- no ↓

Is there a heating efficiency fault?

- yes → See Chart 3
- no ↓

Check the recycling flap is not jammed in the recycling position (see Chart 11). Repair if necessary.

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

e64640.1

Chart 8 — LACK OF VENTILATION EFFICIENCY

NOTE Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Non-regulated air conditioning.

Is there an air flow fault? — yes → See Chart 2.

no ↓

Is there an air distribution fault? — yes → See Chart 1.

no ↓

Check that the mixing flap moves as far as it should (grey gears on the right hand side of the air distribution unit).
Is this correct? — no → Adjust the cable (on the right hand side of the air distribution unit).

yes ↓

Check that the temperature of the air at the vents when driving (56 mph, 90 km/h) is not more than 2°C higher than the external air temperature.
Test conditions:
- mixing flap set to maximum cold,
- air distribution: vents,
- passenger compartment fan on minimum,
- temperature measured at central vents.

Is this correct? — no → Check:
- the seal between the heating casing and the engine compartment,
- bonnet plugs.

Look for anything which could cause the air to be heated.

yes ↓

STOP
(Report the fault to ITG).

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

Chart 9 — THE PASSENGER COMPARTMENT VENTILATION FAN DOES NOT OPERATE

NOTE

Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Non-regulated air conditioning.

Check the **40 A** and **20 A** fan feed fuses which are located in the passenger compartment connection unit.
Are they correct?

- no → Replace the fuse
- yes ↓

Ignition on, check on the air conditioning control panel connector (do not disconnect) for :

+ 12 V → A3
+ 12 V → A4
+ 12 V → B2
earth → B7

Repair if necessary.
Does the fault persist?

- no → End of fault finding.
- yes ↓

Under the same conditions, check the voltage between A5 and A7.

12 V → fan position 0, decreases regularly
0 V → fan position 6
Is this correct?

- no → Replace the control panel
- yes ↓

Check the information is arriving at terminals A1 and B4 of the power module connector (in the evaporator unit).
Is this correct?

- no → Repair the wiring
- yes ↓

(A)

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

e64640.1

Chart 9 CONT 1

A

Ignition on, check on the air conditioning control panel connector for:
+12 V → B9
+12 V → B8 fan position 6
Is this correct?

no → Replace the control panel

yes

Check on the power module connector (in the evaporator unit) for :
+12 V → 82
Is this correct?

no → Repair the wiring

yes

Check on the fan assembly relay (grey unit next to evaporator unit) for:
+12 V → track 30
earth → track 85
+12 V → track 86 fan position 6
Is this correct?

no → Repair the wiring

yes

Check on this relay, fan position 6, for +12 V on track 87.
Is this correct?

no → Replace the relay

yes

Remove the evaporator unit and supply the fan assembly with 0 V and +12 V.
Does the fan assembly operate?

no → Replace the fan assembly

yes

A

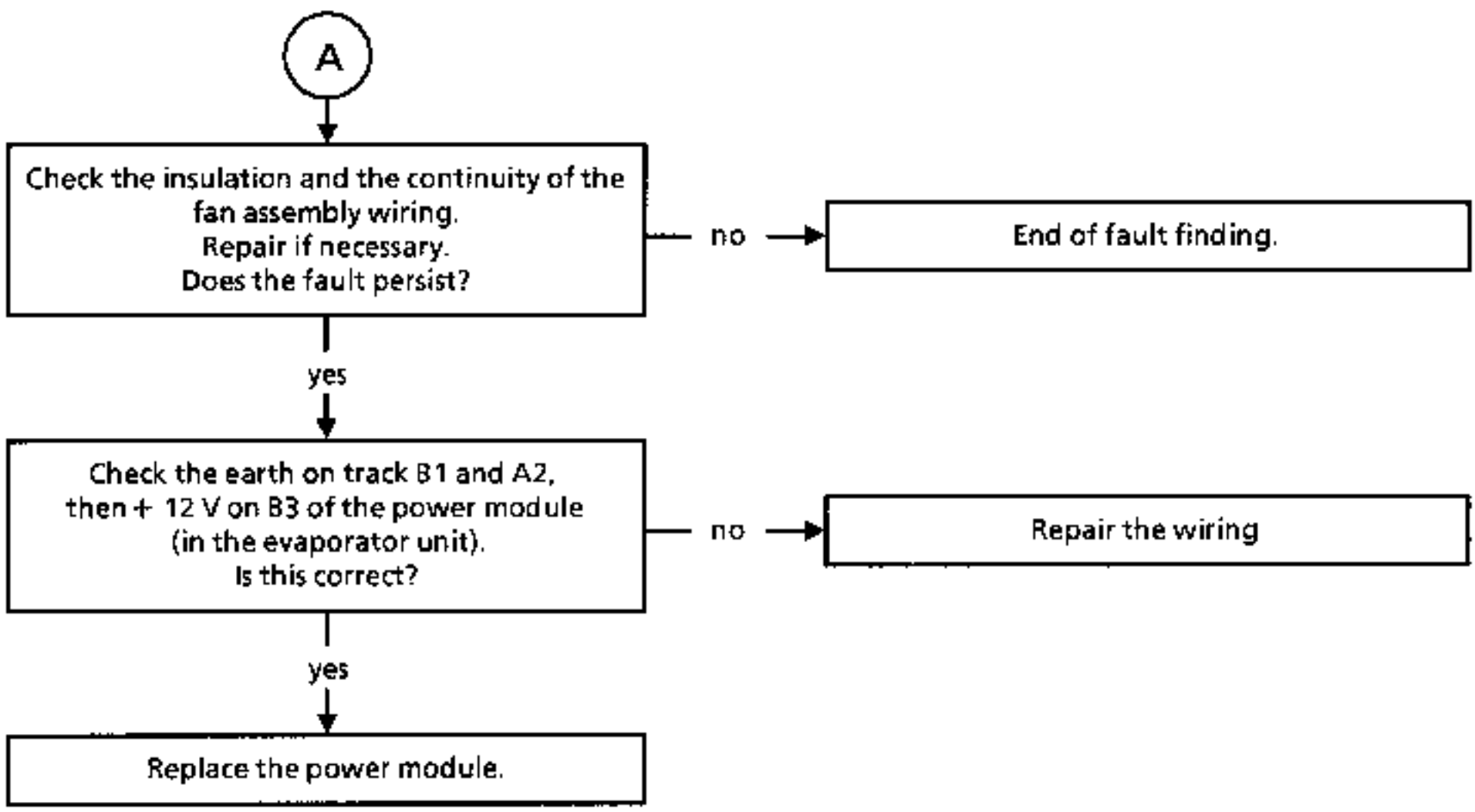
AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

e64640.1

Chart 9 CONT 2



AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

Chart 10	CONTROLS STIFF Passenger compartment faults
NOTE	Before any operation is carried out, ensure the customer is using the air conditioning system correctly Non-regulated air conditioning.

Check the routing of the control cable, remove any restrictions:
- kinking,
- cable restricted by plastic clips.

Replace the cable if necessary.
Does the fault persist?

no → End of fault finding.

yes ↓

Release the cable from the side of the assembly and check the stiffness of each component by hand - control knob and flap control on the air distribution unit (air mixing or distribution).
Is this correct?

no → Replace the control panel or repair the moving parts of the flap or replace the air distribution unit.

yes ↓

Replace the flap control cable.

AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

Chart 11 — THE RECYCLING FLAP DOES NOT OPERATE

NOTE

Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Non-regulated air conditioning.

Check the fuses.
Repair if necessary.
If the fault persists

Ignition on, check on the recycling motor connector
(near to wiper motor) :
– air recycling requested:
A1 + 12 V
A3 earth
B3 0 V
– air recycling not requested:
A1 + 12 V
A3 earth
B3 + 12 V
Is this correct?

no → Check the insulation and the continuity of the line. Repair if necessary.
If the fault persists

→ Replace the control panel

yes

Remove the intermediate unit, check on the recycling motor connector
(near to recycling motor), ignition on:
– air recycling requested:
A1 + 12 V
A3 earth
B1 + 12 V
B3 0 V
– air recycling not requested:
A1 + 12 V
A3 earth
B1 + 12 V
B3 + 12 V
Is this correct?

no → Repair the wiring

yes

(A)

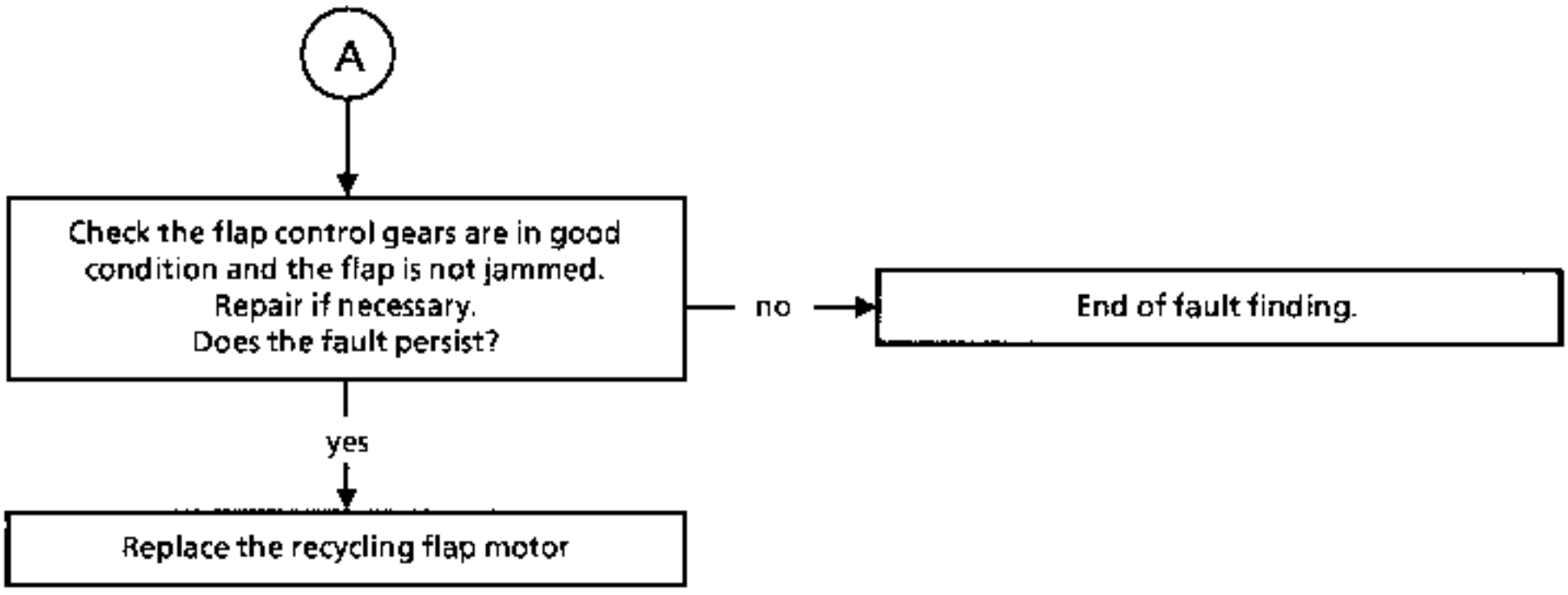
AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

e64640.1

Chart 11 CONT



AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

Chart 12 — AIR CONDITIONING FAULTS
No cold air

NOTE

Non-regulated air conditioning.
The passenger compartment fan operates.

Does the compressor clutch operate?
- no → A
- yes ↓

Visually check that moving the heating control causes the mixing flap to move.
Does the flap move?
- no → See Chart 1.
- yes ↓

Visually check on the distribution unit that the mixing flap moves as far as it should.
Adjust if necessary.
Does the fault persist?
- no → End of fault finding.
- yes ↓

Connect the pressure gauges (high and low pressure) and check the pressures at idle speed with the air conditioning running, fan on maximum recycling.
If low pressure = high pressure
the expansion valve is fully open or
low pressure ≤ 0
the expansion valve is closed
If one of these two results is obtained, replace the expansion valve and replace the refrigerant fluid.
Note: Do not use the inspection window since with refrigerant 134A, bubbles will always be seen, especially for temperatures > 30°C.
After repair, does the fault persist?
- no → End of fault finding.
- yes ↓

Replace the compressor

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

e64640.1

Chart 12 CONT

A

Check the fuses in the passenger compartment connection unit, replace them if necessary. Does the fault persist?

no → End of fault finding.

yes

Run the engine at idle speed.
Air conditioning on, fan at maximum recycling, check the **+ 12 volts** feed to the compressor
Is there **+ 12 volts** ?

no → See Chart 12 A.

yes

Check the resistance of the compressor clutch
(**R = 3.2 ± 0.5 ohms**)
and the compressor earth.
Replace the compressor clutch if necessary.

AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

Chart 12A — AIR CONDITIONING FAULTS
No cold air

NOTE

Non-regulated air conditioning.
The passenger compartment fan operates.

Engine idling, air conditioning running, fan on position 6.
Check on the air conditioning control panel.
B4 → + 12 V (air conditioning running)
Is there + 12 V ?

no →

Check for:
- + 12 V Acc on A3 and A4
- earth on A1 and B7

Repair the lines if necessary.
If the fault persists

→ Replace the control panel

yes ↓

Under the same test conditions, check on the air conditioning control panel:
B5 → 0 V (injection authorised)
B6 → + 12 V (automatic transmission authorised if present)
Is the required information present?

no →

Check the faulty line (insulation and continuity). See prevention programming.
Refer to fault finding for the component at fault (injection, automatic transmission).

yes ↓

Engine idling.
Air conditioning running,
fan on maximum recycling.
Check on track A6 of the control panel connector (connected) for + **12 volts.**
Is there + **12 volts** ?

no → See Chart 12 B.

yes ↓

Check for + **12 volts** on track A1 of the trifunction pressostat connector.
Is there + **12 volts** ?

yes → (A)

no ↓

Repair the wiring between tracks:
- A1 pressostat → B1 connector for connection 164.
- B1 connector for connection 164 → B7 control panel black connector.

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

e64640.1

Chart 12A CONT

A

Shunt the trifunction pressostat between tracks A1 and C1 and check the compressor operates.
Does the compressor clutch engage?

no → Check the wiring between track C1 on the pressostat and the compressor connector.

yes

Press on a filling valve to check there is refrigerant in the circuit.
Note : Engine stationary and cold, the pressure gauges should show between **5** and **7 bars** high and low pressure for a workshop temperature of **20/25°C.**
Is this correct?

no → Replace the refrigerant fluid.

yes

Replace the trifunction pressostat

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

Chart 12B	AIR CONDITIONING FAULTS No cold air

NOTE	Before any operation is carried out, ensure the customer is using the air conditioning system correctly Non-regulated air conditioning.

Check the evaporator sensor.
Is this correct?

no → Replace the evaporator sensor

yes

Check the wiring continuity between tracks:

Black sensor connector	1 →	A9	Control panel connector
	2 →	B7 and earth	

Repair if necessary.
Does the fault persist?

no → End of fault finding.

yes

Check the control panel feeds.

Control panel connector	A3 →	+ 12 V Acc
	A4 →	+ 12 V Acc
	B7 →	earth

Repair if necessary.
Does the fault persist?

no → End of fault finding.

yes

Replace the control panel

AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

e64640.1

Chart 13 — AIR CONDITIONING FAULTS
Too much cold air

NOTE Before any operation is carried out, ensure the customer is using the air conditioning system correctly
Non-regulated air conditioning.

Does the compressor operate?
- no → A
- yes ↓

Is the fan still running? (normal if high pressure ≥ **19 bars ± 1.5** or engine coolant temperature ≥ **92°C**)
- yes → Connect the pressure gauges and measure the pressostat pressure values (411). High pressure **14 / 19 bars ± 1.5.** Replace the pressostat if necessary.
- no ↓

Check the resistance of the evaporator sensor.
Note : If the sensor is below the minimum tolerance, the compressor will operate very late.
Replace the sensor if necessary.
Does the fault persist?
- no → End of fault finding.
- yes ↓

Check the recycling flap is not jammed in the recycling position.
Move the recycling flap control knob and check to see the flap moves.
Does the flap move?
- no → Chart 11 - the recycling flap does not operate.
- yes ↓

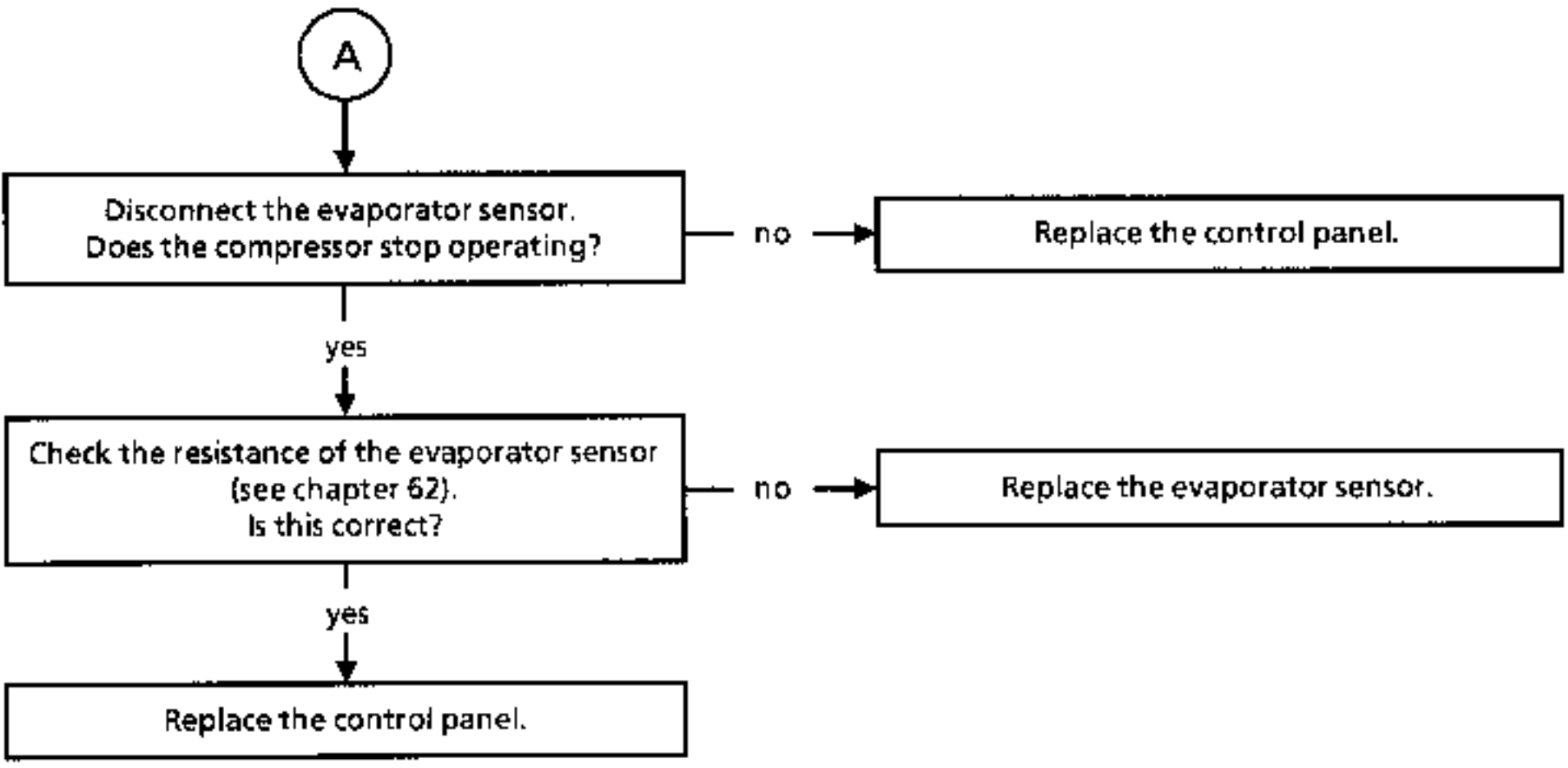
Check that the mixing flap moves when the heating knob is moved.
Does the flap move?
- no → Chart 1 - air distribution fault.
- yes ↓

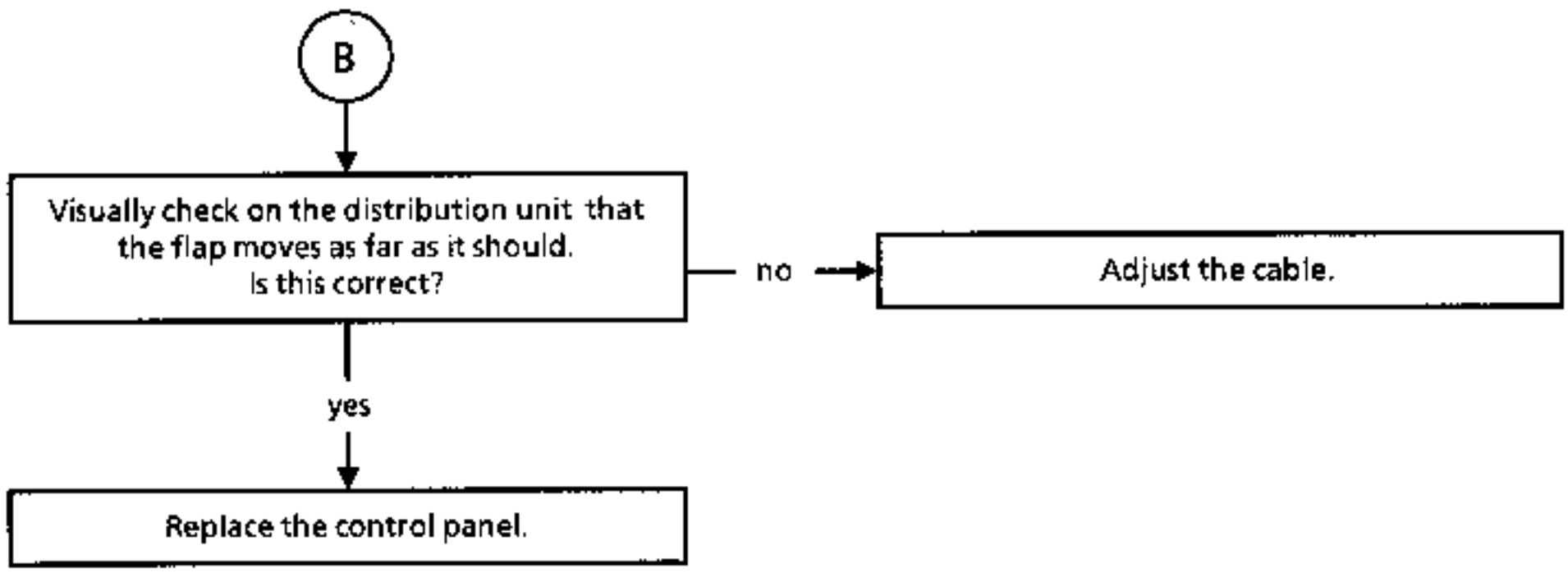
B

AFTER REPAIR Check all components which have been disconnected are correctly reconnected.
Check the system operates correctly.

e64640.1

Chart 13 CONT





AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

e64640.1

Chart 14 — AIR CONDITIONING FAULT
Lack of efficiency

NOTE

Before any operation is carried out, ensure the customer is using the air conditioning system correctly.
Non-regulated air conditioning.

Air conditioning running, fan on maximum recycling, engine idling.
Does the compressor operate?
- no → See Chart 14A.
- yes ↓

Check the tension of the compressor belt, the clutch clearance and its condition (slip may be a possible cause of the fault). Retension the belt or replace the compressor clutch.
Does the fault persist?
- no → End of fault finding.
- yes ↓

Check the resistance of the evaporator sensor 408 (*). Replace the sensor if necessary.
Does the fault persist?
- no → End of fault finding.
- yes ↓

Ensure the recycling flap is in the recycling position when the air conditioning is operating in recycling mode. Is this correct?
- no → The recycling flap does not operate Chart 11.
- yes ↓

Check the mixing flap moves as far as it should. Adjust the cable if necessary.
Does the fault persist?
- no → End of fault finding.
- yes ↓

Is there an air flow fault?
- no → A
- yes ↓

See Chart 2 air flow fault or passenger compartment fan fault Chart 9.

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

e64640.1

Chart 14 CONT

A

Connect the pressure gauges and check the high and low pressures. Vehicle stationary, engine idling, air conditioning on maximum.
If high pressure > **25 bars**, there is:
- too much refrigerant in the circuit,
- or the fan assembly is not operating correctly,
- or the engine is overheating,
- or the condenser is contaminated.

In these specific cases the compressor is operating via the high pressure pressostat.
Is the high pressure < **25 bars** ?

yes →

On the high pressure gauge, check the pressostat pressure settings for controlling the operation of the fan assembly.
Pressure **14/19 bars ± 1.5**.
Note : If the setting is too high, the fan assembly will operate and turn off too late, reducing the efficiency of the air conditioning system.
Replace the pressostat if necessary.
If the fault persists

It is possible that humidity in the circuit has formed a plug of ice in the expansion valve or the expansion valve is faulty. Replace the dehydrating bottle and the expansion valve and replace the refrigerant fluid.

no

Check the condenser wiring. Clean or replace the condenser. If the fault persists

Check the operation of the cooling fan at high speed (passenger compartment fan and air conditioning on maximum).
- operating if high pressure ≥ **19 bars ± 1.5**
- not operating if high pressure ≤ **14 bars ± 1.5**

Operating for an engine coolant temperature ≥ **92°C**.
Is the operation of the fan normal?

no → See Chart 15 - the cooling fan does not operate.

yes

Replace the refrigerant (1).
An excess of refrigerant could be the cause of the fault.

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

Chart 14A — AIR CONDITIONING FAULT
Lack of efficiency

NOTE

Before any operation is carried out, ensure the customer is using the air conditioning system correctly.
Non-regulated air conditioning.

Air conditioning and fan on maximum, engine idling.
Does the compressor operate?

yes → See Chart 14.

no ↓

Check the operation of the cooling fan at high speed (passenger compartment fan and air conditioning on maximum).
- operating if high pressure ≥ **19 bars ± 1.5**
- not operating if high pressure ≤ **14 bars ± 1.5**

Operating for an engine coolant temperature ≥ **92°C**.
Is the operation of the fan normal?

no → If the pressure settings for the pressostat to control the fan assembly are too high, the fan assembly will operate and turn off too late, reducing the efficiency of the air conditioning system.
In this case replace the pressostat.

yes ↓

Windows and doors closed, vehicle out of the sun, temperature ≤ **25°C**, engine idling, air flow knob set to maximum recycling and air conditioning operating, measure the temperature of the air at the central ventilator and check if the compressor operates for a temperature < **4°C**.
Is this correct?

no → Check the resistance of the evaporator sensor.
Replace the sensor if necessary.
If the fault persists

↓

Replace the control panel

yes ↓

(A)

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

Chart 14A CONT

A

Under the same test conditions:
Check the pressures:
- If low pressure > **4 bars** or high pressure = low pressure, the expansion valve is fully open
- If low pressure ≤ **0 bar**, the expansion valve is closed.

Do you read these values?

yes → Replace the expansion valve and replace the refrigerant.

no

Replace the refrigerant.
Note : Do not use the inspection window since with refrigerant 134A, bubbles will always be seen, especially for temperatures > 30°C.
After repair, does the fault persist?

no → End of fault finding.

yes

Important:
If various operations have been carried out on the refrigerant circuit where oil has been added, there may be too much oil in the circuit. If this is the case, remove the compressor and check its oil level (see method in MR Air Conditioning R134A), drain the oil in the pipes and condenser, replace the dehydrating bottle and replace the refrigerant.
Does the fault persist?

no → End of fault finding.

yes

Replace the air conditioning compressor.

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

Chart 15 — THE COOLING FAN DOES NOT OPERATE CORRECTLY
General fan fault

NOTE

Non-regulated air conditioning.
The compressor operates.

Check the fuses:
-in the passenger compartment connection unit,
- in the engine connection unit.
Is this correct?

no → Repair

yes ↓

Engine idling, air conditioning running (high pressure > **19 bars** ± **1.5**), does the cooling fan operate at slow speed?

no → See Chart 16 (slow speed fan fault).

yes ↓

Shunt tracks A and B on the trifunction pressostat.
Does the fan operate at high speed?

yes → Reconnect the pressostat, then connect the high and low pressure gauges to the air conditioning circuit.
Air conditioning and passenger compartment fan on maximum, check the pressostat setting for operation of the cooling fan.
- High pressure ≥ **19 bars** ± **1.5** fans operating at high speed
- High pressure ≤ **14 bars** ± **1.5** fans operating at slow speed

Note : Fans also operate for a coolant temperature ≥ **92°C** (slow speed).
Run the engine at 2000 rpm.
Is the pressure > **19 bars** ± **1.5** ?

no ↓

If the high pressure is low and does not reach the pressostat setting value, replace the refrigerant.

yes ↓

Replace the pressostat.

no ↓

A

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

e64640.1

Chart 15 CONT

A

Is there + 12 V on track A of the trifunction pressostat.

no → Repair the wiring

yes

Ignition on, shunt still in position between A and B on the trifunction pressostat, check on the relay for:

+ 12 V → A1
+ 12 V → A3
earth → A2

Is this correct?

no → Repair the wiring

yes

Under the same conditions, check for + 12 V on track A5 of this relay.
Is there + 12 V on track A5 ?

no → Replace the relay

yes

Repair the wiring to the fan assembly.

AFTER REPAIR	Check all components which have been disconnected are correctly reconnected. Check the system operates correctly.

Chart 16 — THE COOLING FAN DOES NOT OPERATE CORRECTLY
Slow speed fan fault

NOTE

Non-regulated air conditioning.
The compressor operates.

Ignition on, air conditioning running, check for:
+12 V → B1
+12 V → B3
earth → B2
on the relay.
Is this correct?

no → Repair the wiring

yes ↓

Check for + 12 V on track B5 of this relay.
Is there + 12 V ?

no → Replace the relay

yes ↓

Check the resistance of the fan assembly resistor.
Is it correct?

no → Replace the resistance

yes ↓

Check for + 12 V on track 1 of this resistor.
Is this correct?

no → Repair the wiring

yes ↓

On the fan assembly, check for :
≃ +9 V → 1
earth → 2
Is this correct?

no → Repair the wiring

yes ↓

Replace the fan assembly.

AFTER REPAIR

Check all components which have been disconnected are correctly reconnected.

Check the system operates correctly.

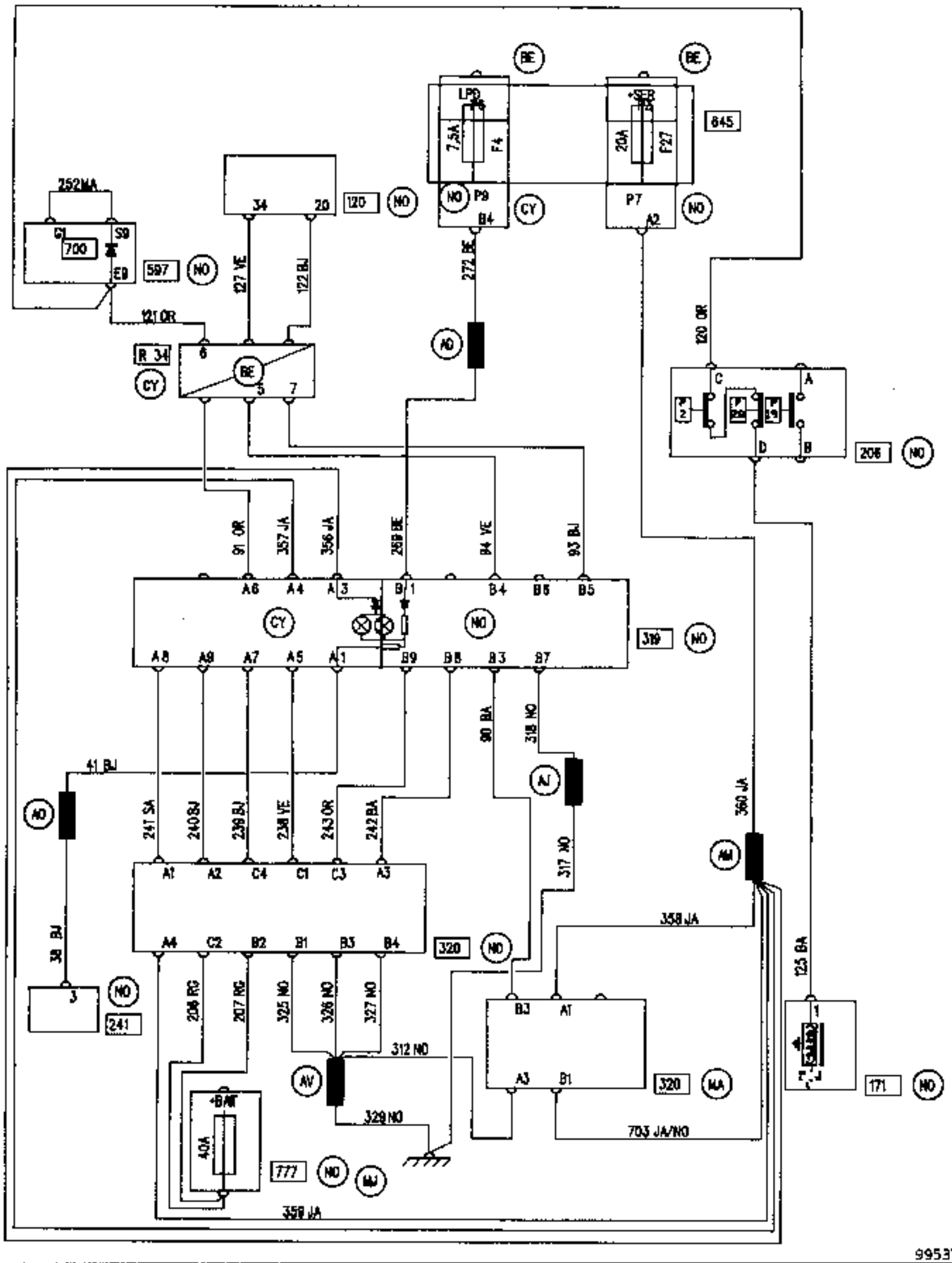
e64640.1

119 - Automatic transmission computer
120 - Injection computer
171 - Air conditioning clutch
206 - Air conditioning trifunction pressostat
241 - Lighting rheostat or shunt
319 - Air conditioning control panel
320 - Basic fan assembly / air conditioning
597 - Engine fuse box
645 - Passenger compartment connection unit
700 - Fan assembly slow speed relay for percolation
777 - Power feed fuse board (near battery)

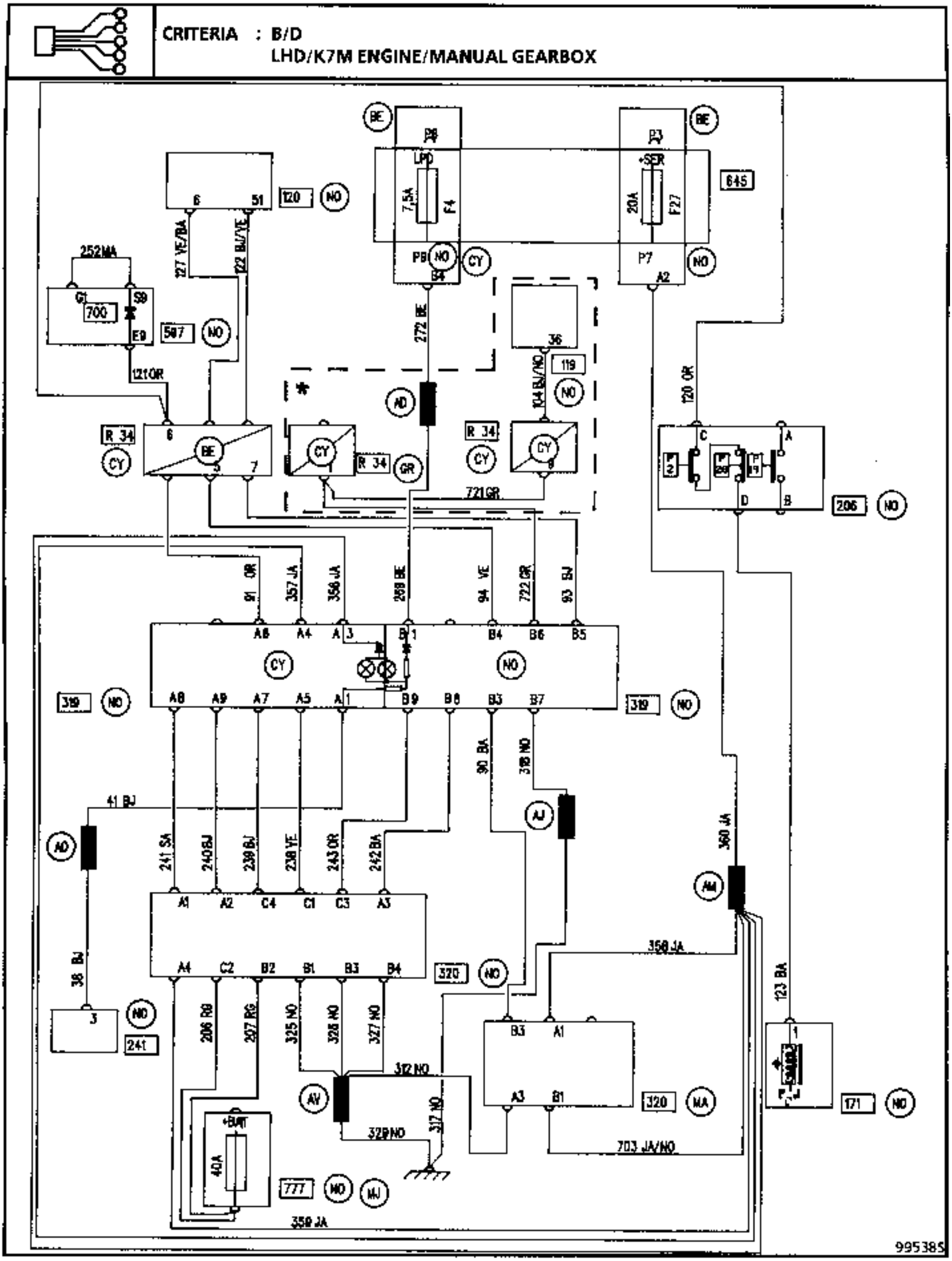
MA - Front right hand electrical earth
MH - Engine electrical earth
MJ - Front right hand pillar electrical earth

R34 - Engine / dashboard

CRITERIA : B/D
LHD/E7J ENGINE/MANUAL GEARBOX

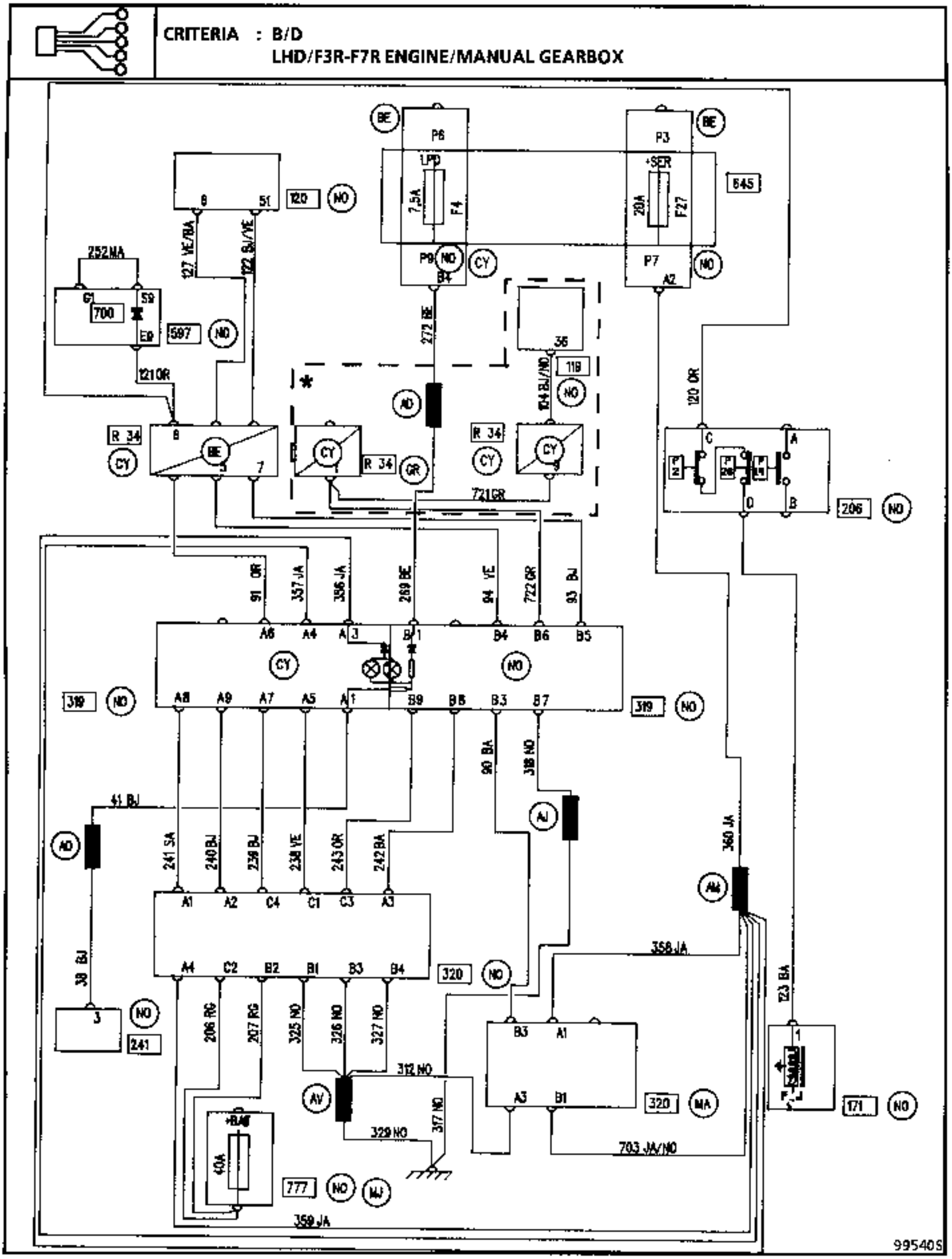


CRITERIA : B/D
LHD/K7M ENGINE/MANUAL GEARBOX



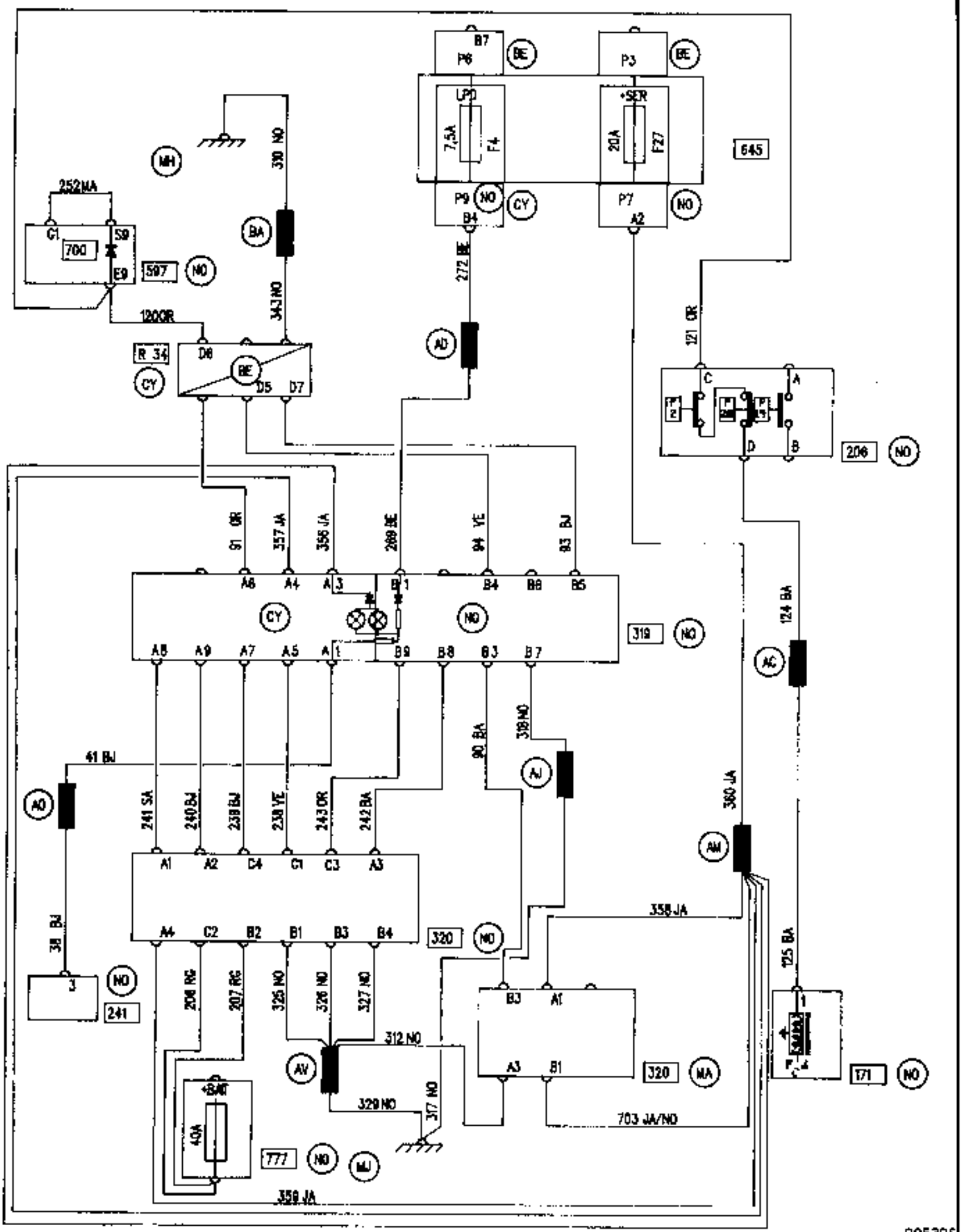
* part of diagram for K7M engine/automatic transmission

CRITERIA : B/D
LHD/F3R-F7R ENGINE/MANUAL GEARBOX



* part of diagram for F3R engine/automatic transmission

CRITERIA : B/D
LHD/F8Q ENGINE/MANUAL GEARBOX

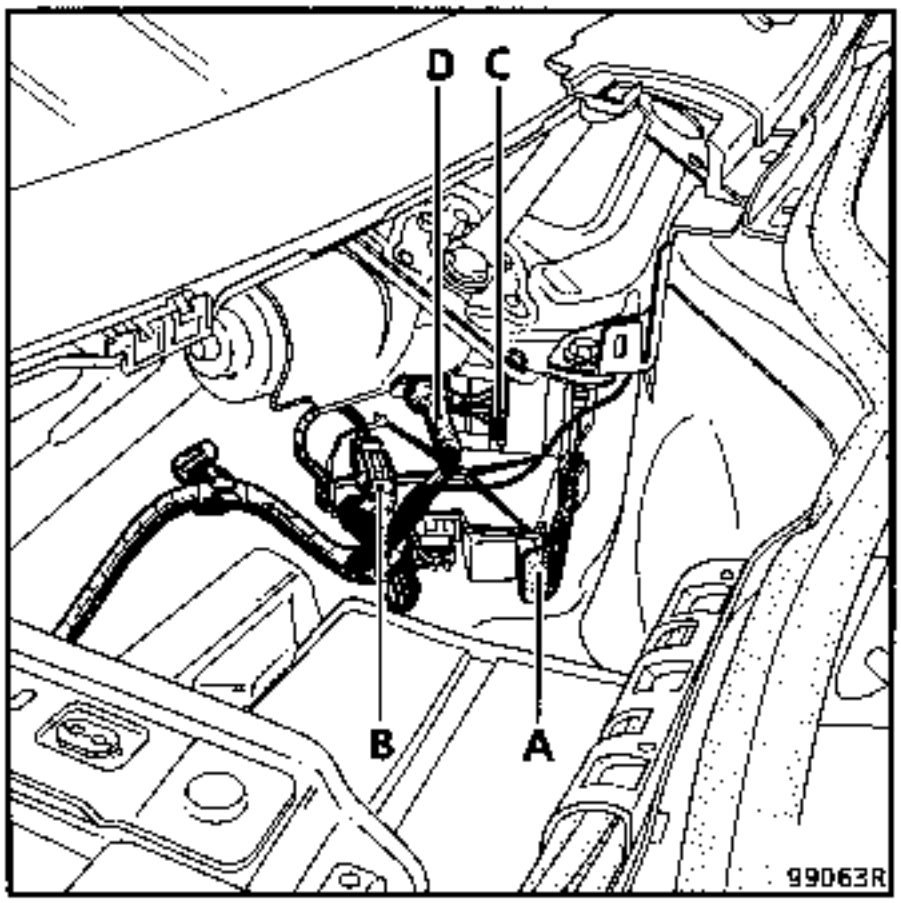


REMOVAL

Remove:
- the windscreen wiper arms,
- the air inlet grille,
- the battery.

Remove the retaining strap (A).

Free the wire from its clips.



Disconnect:
- the connector for the evaporator sensor(B),
- the connector for the power transistor (C),
- the connector for the wiper motor (D).

Tilt the component unit towards the bulkhead.

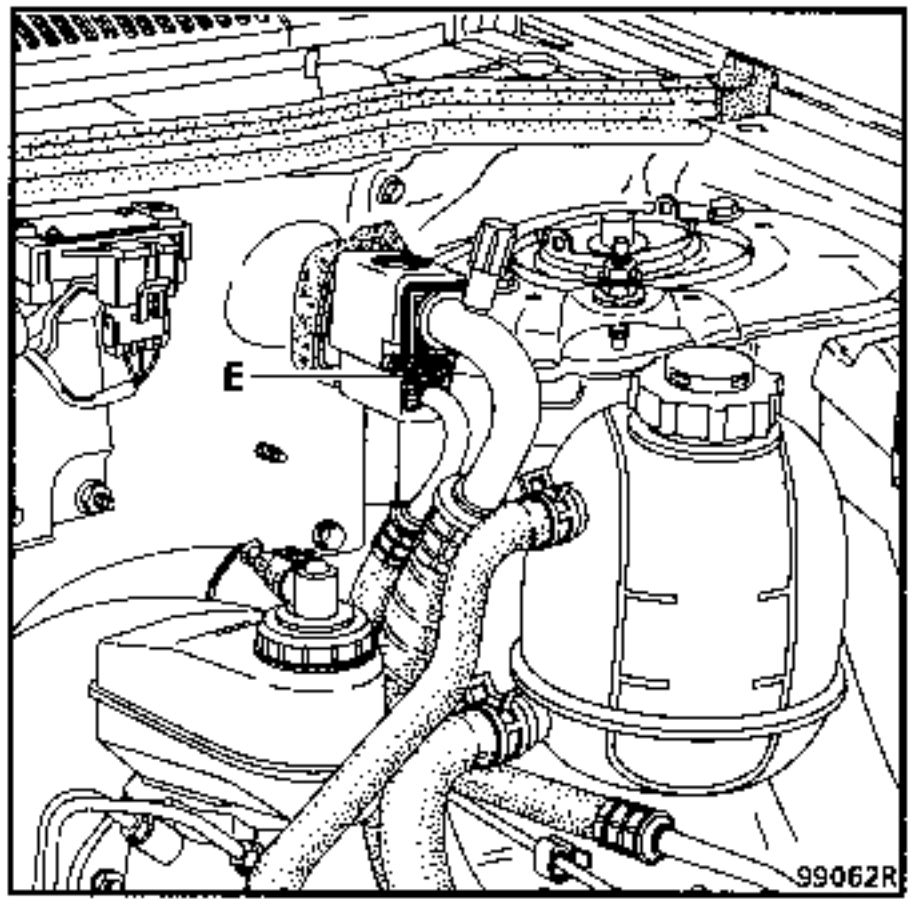
Remove the mounting bolt.

Lift the nose of the intermediate unit to release the seal from the plate.

Drain the refrigerant circuit of R134a using the filling station (see method in the "Air conditioning" Workshop Repair Manual).

Remove the acoustic tie rod between the shock absorber turrets.

Disconnect the connecting pipes for R134a from the expansion valve (bolt E : **0.8 daN.m**).



Fit plugs to the pipes and the expansion valve.

Follow the method for removing the fan in the conventional manner (see section 61).

REFITTING

There are no special notes for refitting.

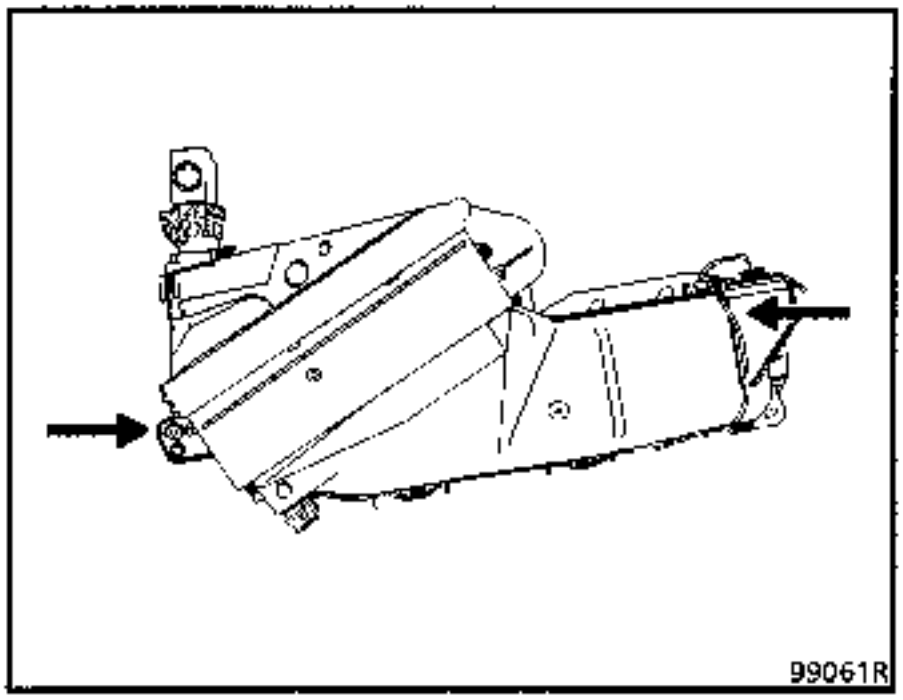
Apply a vacuum, then fill the circuit with refrigerant R134a using the filling station (see method in the "Air conditioning" Workshop Repair Manual).

IMPORTANT
Check all the seals are in good condition.
Lubricate the seals with P.A.G. SP 10 (2 g per union).

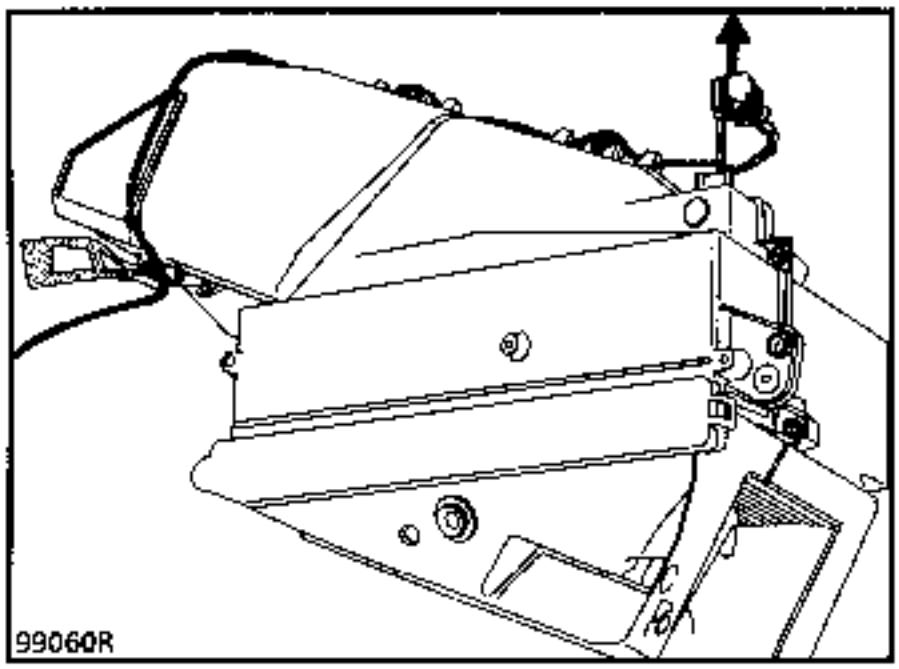
REMOVAL

The evaporator may only be replaced after removing the fan assembly (see method on page 62-44).

Remove the 10 mounting bolts from the half housings.



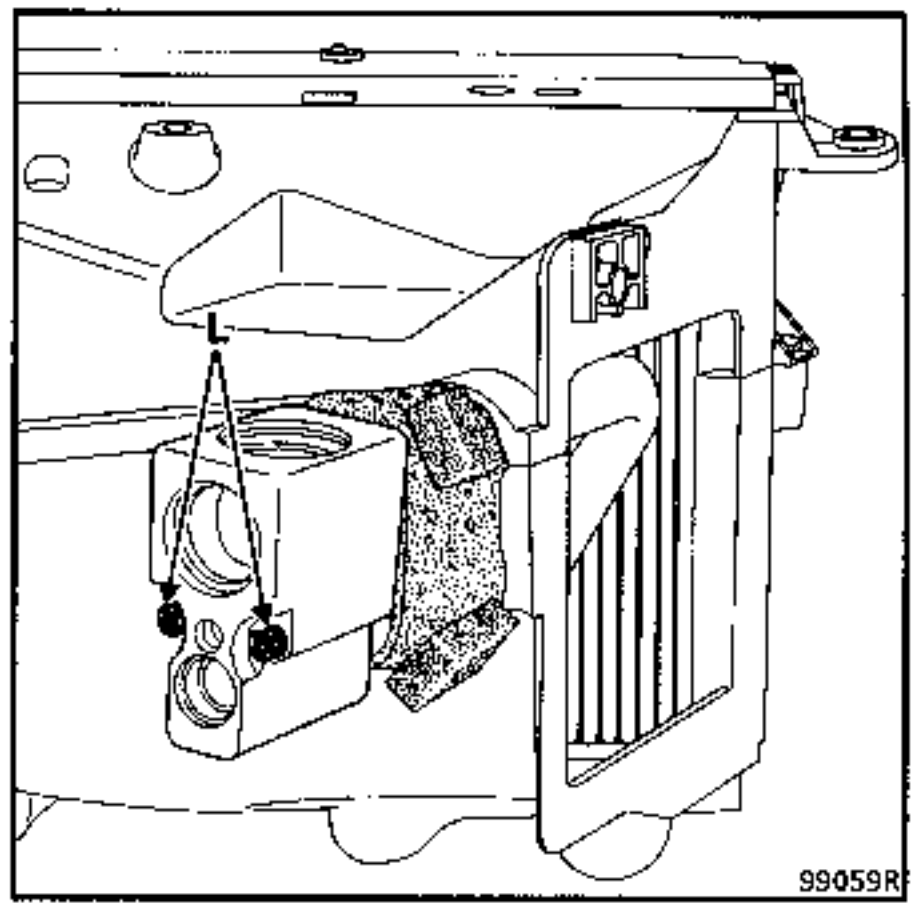
Extract the evaporator sensor.



Sensor values:

Temperature (°)	Resistance Ω
4	13302
20	6222
25	4981

Remove the expansion valve (bolt L).



Extract the evaporator.

REFITTING

Ensure the wiring tubes do not touch (risk of noise).

Refitting is the reverse of removal.

Tighten the bolts securing the union between the expansion valve and the evaporator to a torque of **0.6 daN.m** (ensure the seals are in good condition).

Apply a vacuum, then fill the circuit with refrigerant R134a using the filling station (see method in the "Air conditioning" Workshop Repair Manual).

IMPORTANT
When replacing an evaporator, add 30 ml of P.A.G. SP 10 oil to the compressor.

REPLACEMENT

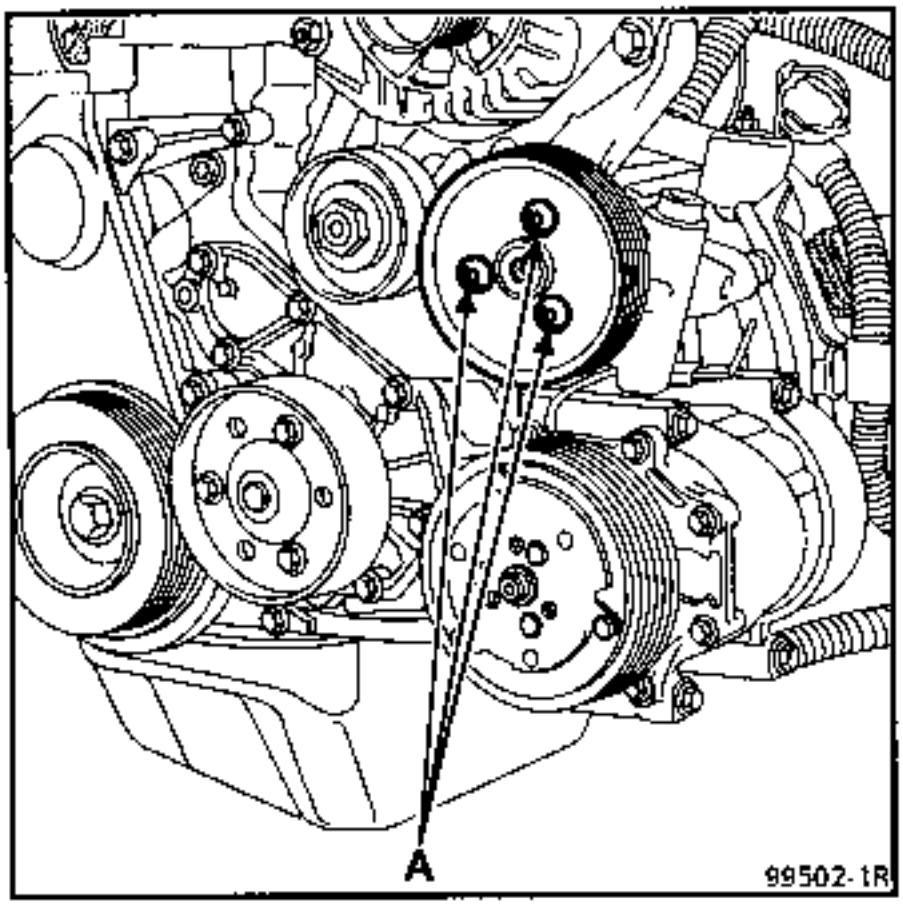
NOTE

E ENGINE
There are no special notes for replacing the compressor. Follow the method given below.

Drain the circuit of refrigerant R134a (see method in the "Air conditioning" Workshop Repair Manual).

Disconnect the battery.

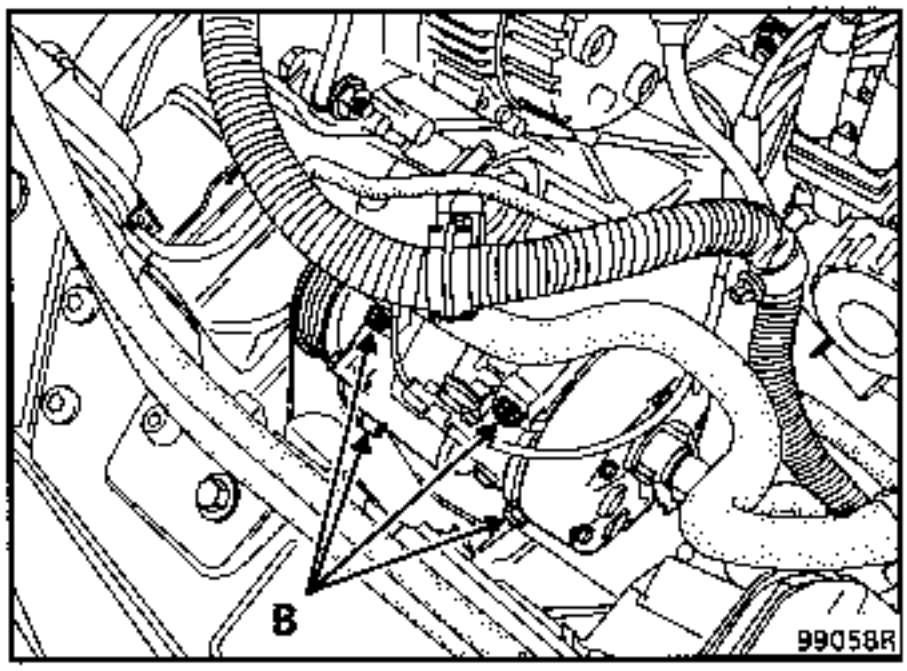
Remove:
- the injection computer,
- the belt (see section 11),
- the power assisted steering pump pulley , 3 bolts (A).



Unclip the power assisted steering fluid reservoir.

Remove the retaining bolt for the R134a pipes.

Remove the 4 compressor mounting bolts (B).



REFITTING

If a new compressor is fitted, it is supplied filled with oil.

Before refitting, fit the lower 2 mounting bolts to the compressor.

Position the compressor correctly (filling plug and connector at the top).

Tighten the 4 bolts (B).

Tighten the retaining bolts for the R134a pipes on the compressor to a torque of **3 daN.m**.

Apply a vacuum, then fill the circuit with refrigerant R134a using the filling station (see method in the "Air conditioning" Workshop Repair Manual).

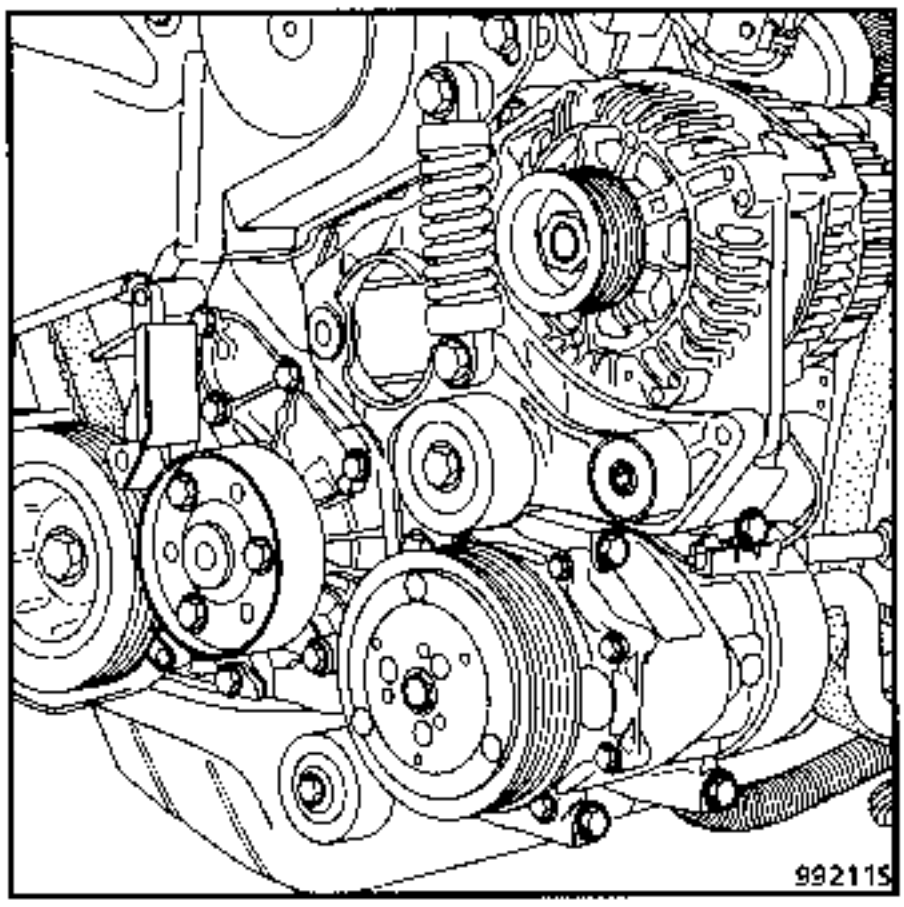
IMPORTANT
When replacing a compressor, it is important to ensure the correct oil level (see page 62-48).

REMOVAL

Drain the circuit of refrigerant R134a (see method in the "Air conditioning" Workshop Repair Manual).

Disconnect the battery.

Remove:
- the cooling assembly (see method in chapter 19),
- the alternator (see section 16),
- the retaining bolt for the R134a pipes.
- the 4 compressor mounting bolts.



REFITTING

Refitting is the reverse of removal.

Tighten the retaining bolt for the R134a pipes on the compressor to a torque of **3 daN.m**.

Fill the refrigerant R134a circuit using the filling station.

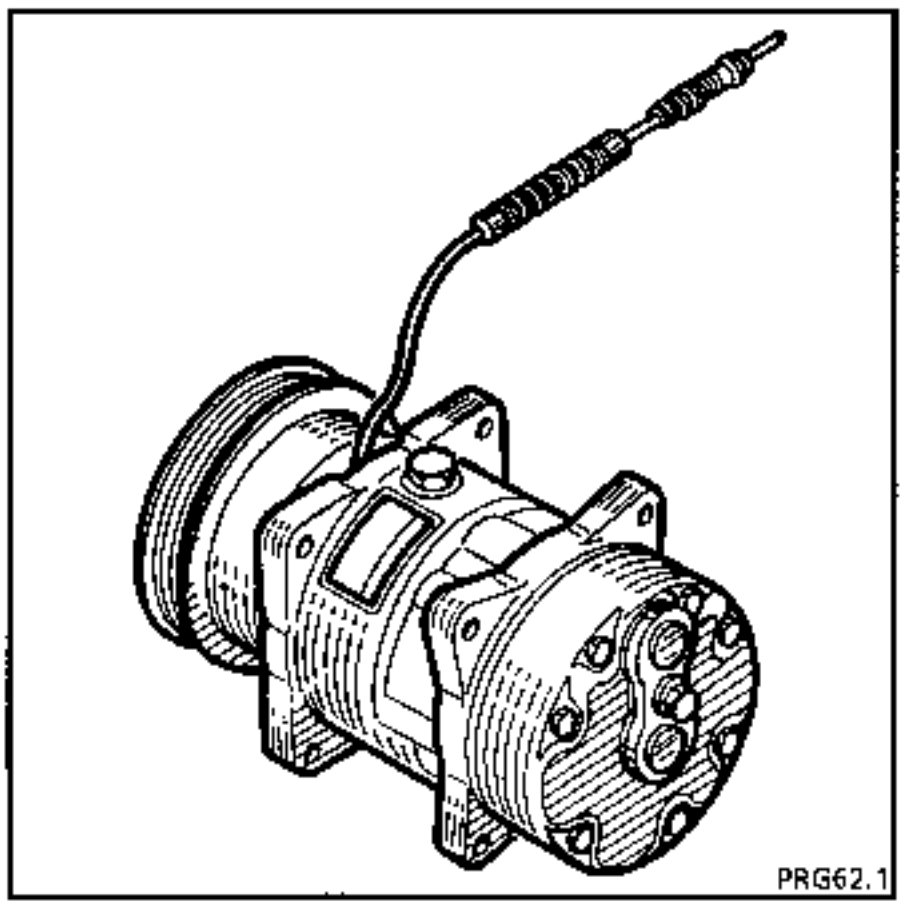
IMPORTANT
When replacing a compressor, it is important to ensure the correct oil level (see page 62-48).

VARIABLE DISPLACEMENT COMPRESSOR SD7V

Drain the circuit of refrigerant R134a (see method in the "Air conditioning" Workshop Repair Manual).

The compressor must be removed.

Unscrew and remove the oil plug.


PRG62.1

Turn the compressor over and allow the oil to drain out (to drain as much oil as possible, turn the compressor by hand).

Top up the compressor oil level by injecting 135 cc of SP 10 (P.A.G. oil).

Refit the oil plug as quickly as possible and leave the air conditioning system hermetically sealed to minimise the absorption of moisture by the oil in the compressor.

Refit the drain plug taking care to ensure the seal and the sealing face are clean (torque tighten to **1.5 daN.m**).

Refit the compressor.

Fill the circuit with R134a using the filling station.

IMPORTANT
If an existing compressor is being replaced by a new compressor, some of the oil from the new compressor must be drained off, to ensure that the amount of oil in the new compressor corresponds to that drained from the old compressor.

Oil drained from new compressor	=	**Oil in new compressor**	–	**Oil remaining in old compressor**

IMPORTANT
The compressor oil level must be topped up if a pipe has burst.

REMOVAL

Put the vehicle on a lift.

Unclip the power assisted steering fluid reservoir.

Drain the refrigerant fluid R134a from the circuit (see method in the "Air conditioning" Workshop Repair Manual).

Remove the dehydrating bottle.

Fit plugs to the openings to prevent the absorption of moisture.

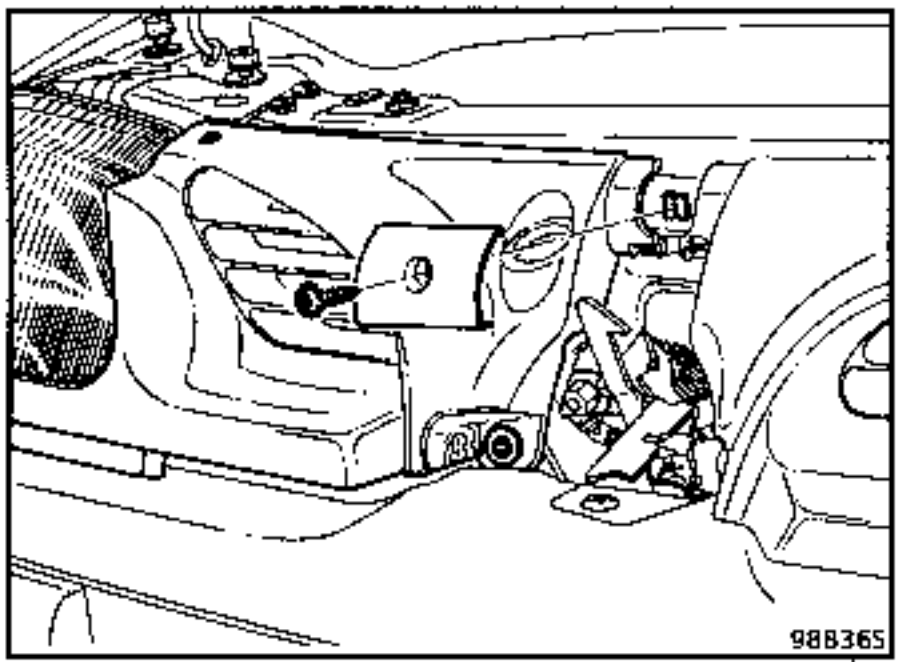
Disconnect:
- the connector for the fan assembly,
- the connector for the thermistor,
- the connector for the trifunction pressostat,
- the connector for the fan assembly relay.

Remove the engine undertray.

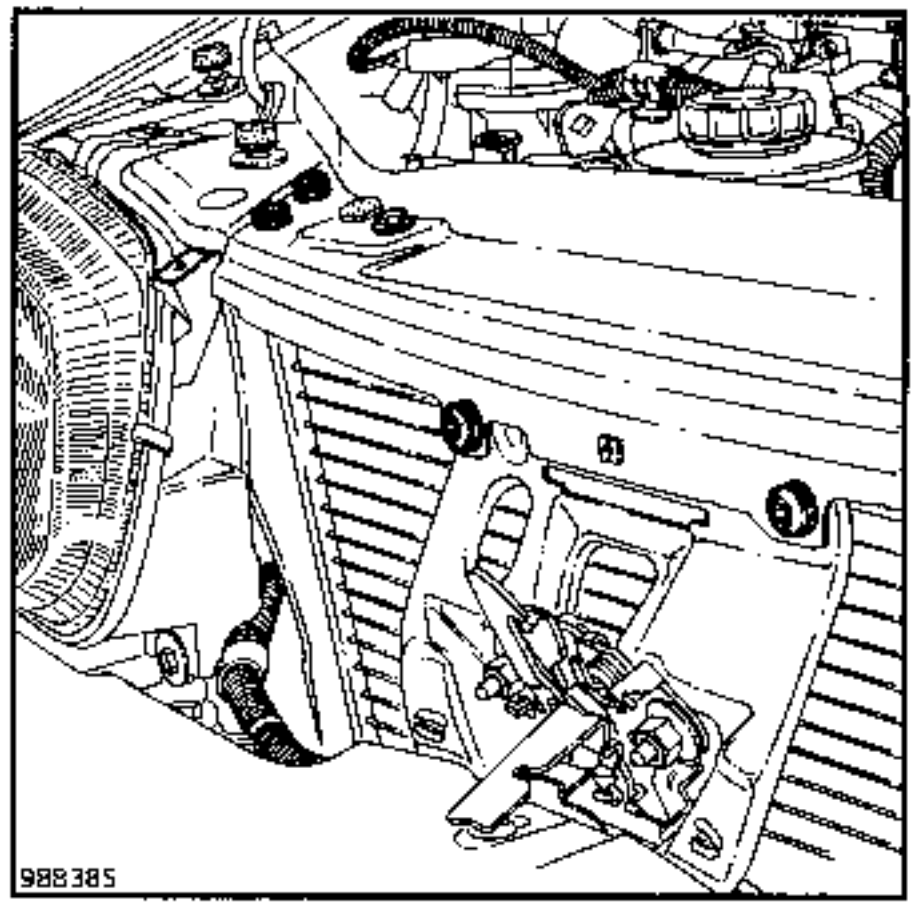
Remove the 2 lower mounting bolts from the fan assembly, then the 2 upper bolts.

Remove the fan assembly with its mounting.

Remove the 2 half-grilles from the radiator grille.



Remove the 6 mounting bolts from the upper cross member.



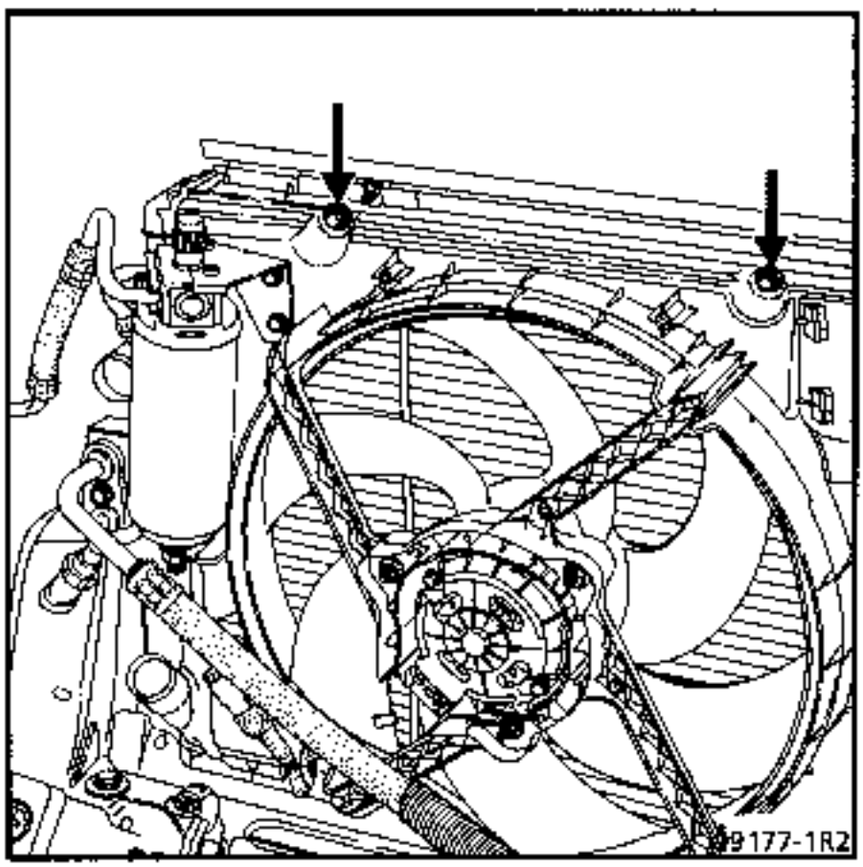
Remove the mounting bolt from the pipes on the condenser.

Fit plugs to the openings to prevent the absorption of moisture.

Lift the cooling assembly and move it as far forward as possible.

Remove the 2 lower mounting bolts using an extension via the bumper.

Remove the 2 upper mounting bolts.



Move the radiator as far back as possible towards the engine.

Release the condenser.

REFITTING

Refitting is the reverse of removal.

Check the condition of the seals.

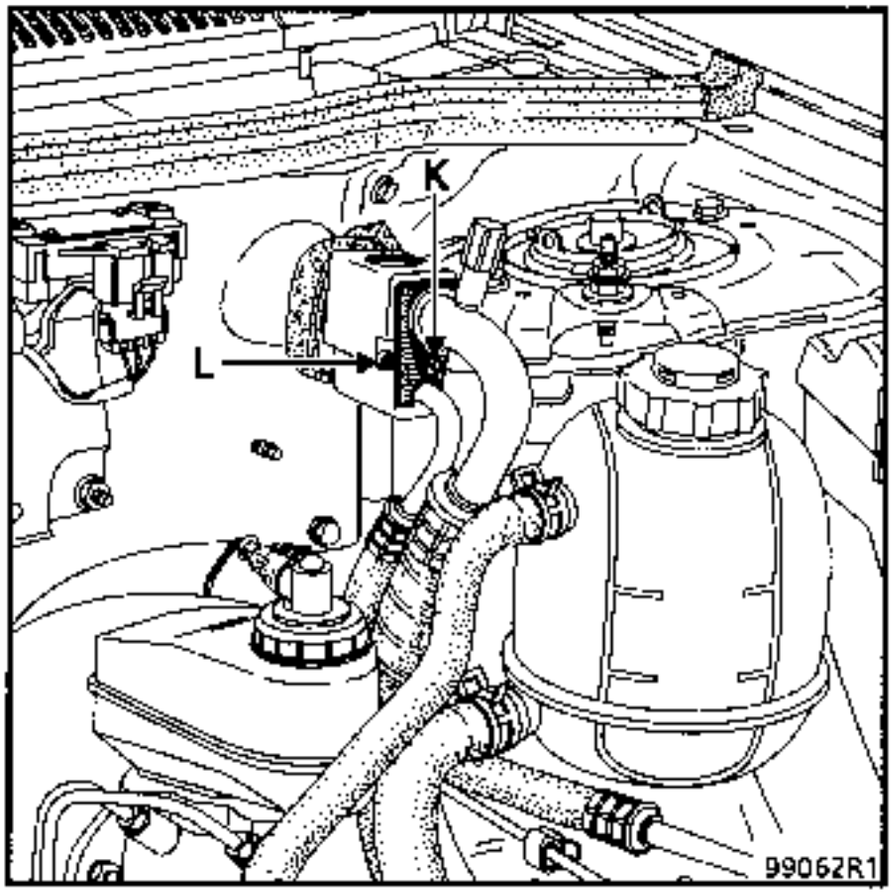
Apply a vacuum, then fill the circuit with refrigerant R134a using the filling station (see method in the "Air conditioning" Workshop Repair Manual).

IMPORTANT
When replacing the condenser, add 30 ml of P.A.G. SP 10 oil to the compressor.

REPLACEMENT

Drain the refrigerant R134a from the circuit (see method in the "Air conditioning" Workshop Repair Manual).

Remove:
- mounting bolt (K) securing the connecting pipes,
- the two bolts (L) mounting the expansion valve on the evaporator.



When refitting, ensure the pipe seals are in good condition.

Tightening torques:
- bolt (K) : **0.8 daN.m**
- bolt (L) : **0.6 daN.m**

Apply a vacuum, then fill the circuit with refrigerant R134a using the filling station (see method in the "Air conditioning" Workshop Repair Manual).

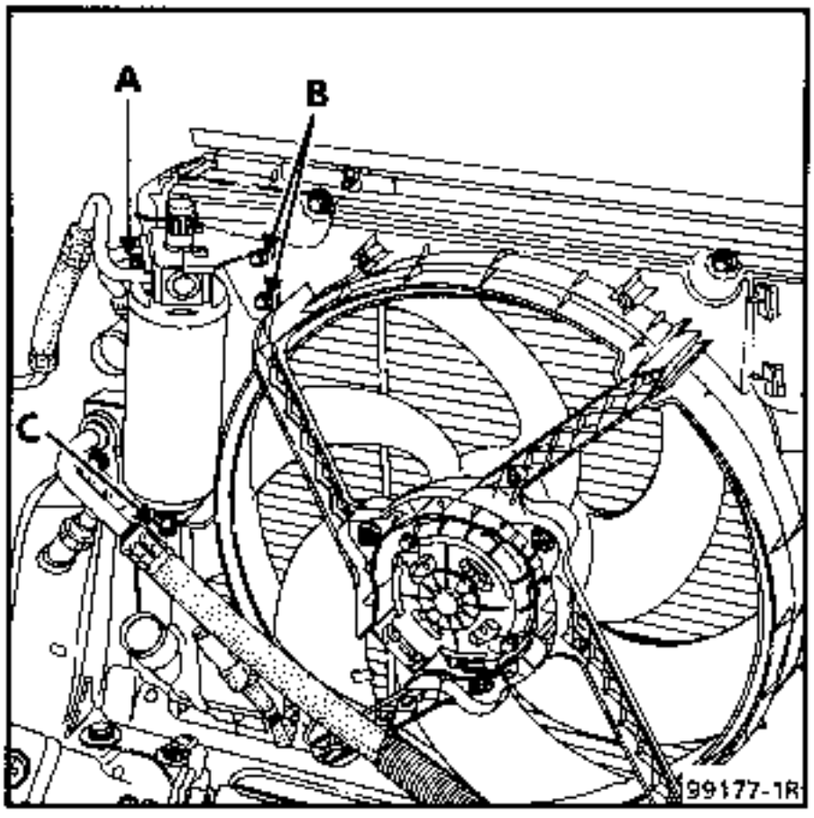
REMOVAL

Drain the refrigerant R134a from the circuit (see method in the "Air conditioning" Workshop Repair Manual).

Remove the bolt mounting the pipes to the dehydrating bottle (A).

Remove nut (C) from under the dehydrating bottle.

Remove the 2 bolts mounting the dehydrating bottle to the cooling assembly (B).



Fit plugs to the openings to prevent the absorption of moisture.

REFITTING

Refitting is the reverse of removal.

Lubricate threads using P.A.G. SP 10 oil and check the condition of the seals.

Apply a vacuum, then fill the circuit with refrigerant R134a using the filling station (see method in the "Air conditioning" Workshop Repair Manual).

When replacing the dehydrating bottle, add 15 ml of P.A.G. SP 10 oil to the compressor.

Disconnect the battery.

Drain the refrigerant R134a from the circuit (see method in the "Air conditioning" Workshop Repair Manual).

LOW PRESSURE PIPE

REMOVAL

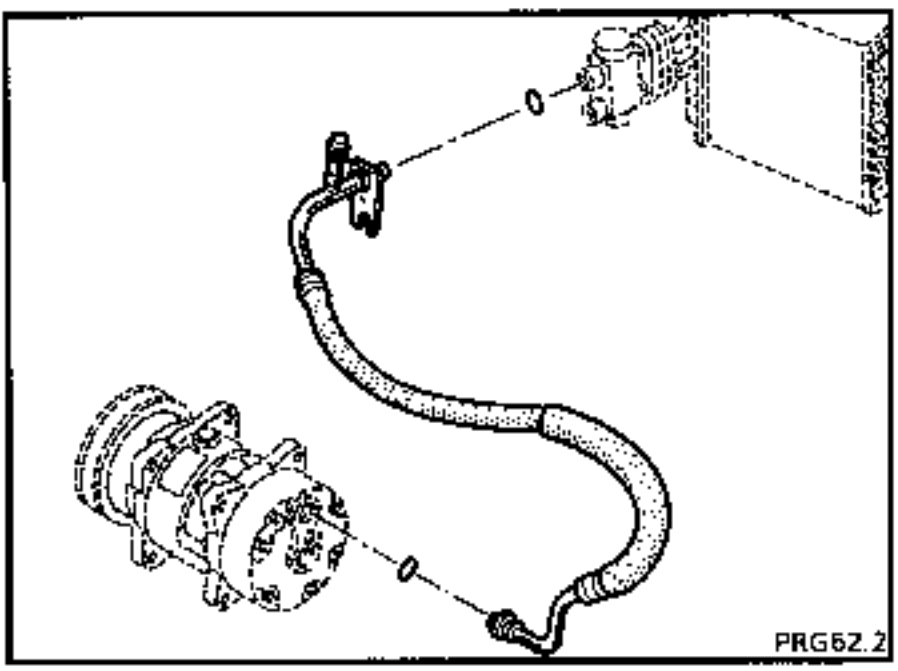
Remove the mounting bolt from the expansion valve.

Fit plugs to the expansion valve and the pipe.

Remove the mounting bolt from the compressor.

Fit plugs in the openings on the compressor and the pipe.

Remove the low pressure pipe.


PRG62.2

REFITTING

Refitting is the reverse of removal.

Check the condition of seals and lubricate with P.A.G. SP 10 oil (2 g approximately).

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

HIGH PRESSURE PIPE BETWEEN COMPRESSOR AND CONDENSER

REMOVAL

Remove the mounting bolt from the compressor.

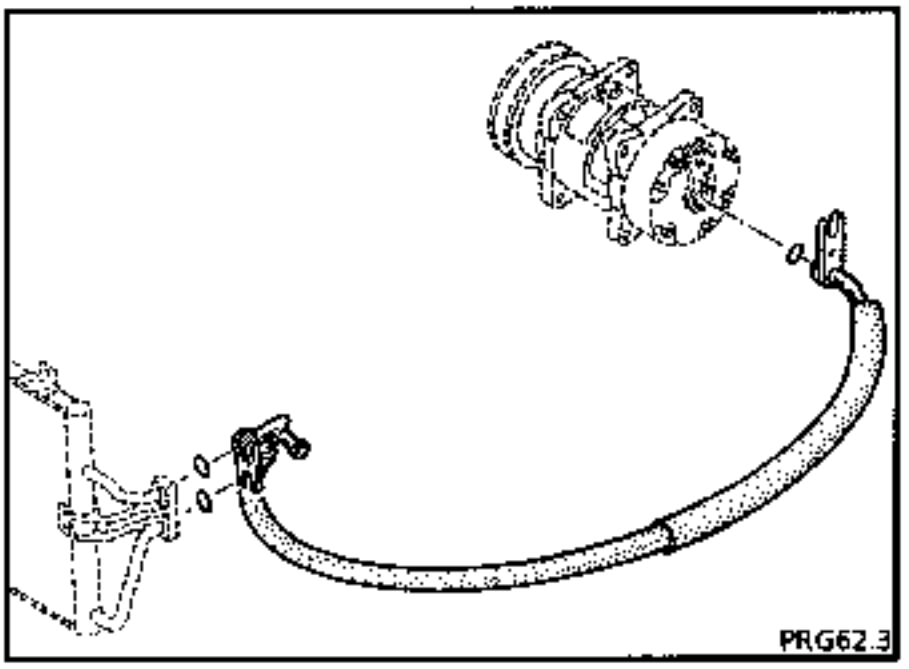
Fit plugs to the compressor and the pipe.

Remove the mounting bolt from the condenser.

Fit the trifunction pressostat.

Remove the pipe.

Fit plugs in the openings.


PRG62.3

REFITTING

Refitting is the reverse of removal.

Check the condition of seals and lubricate with P.A.G. SP 10 oil (2 g approximately).

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

Disconnect the battery.

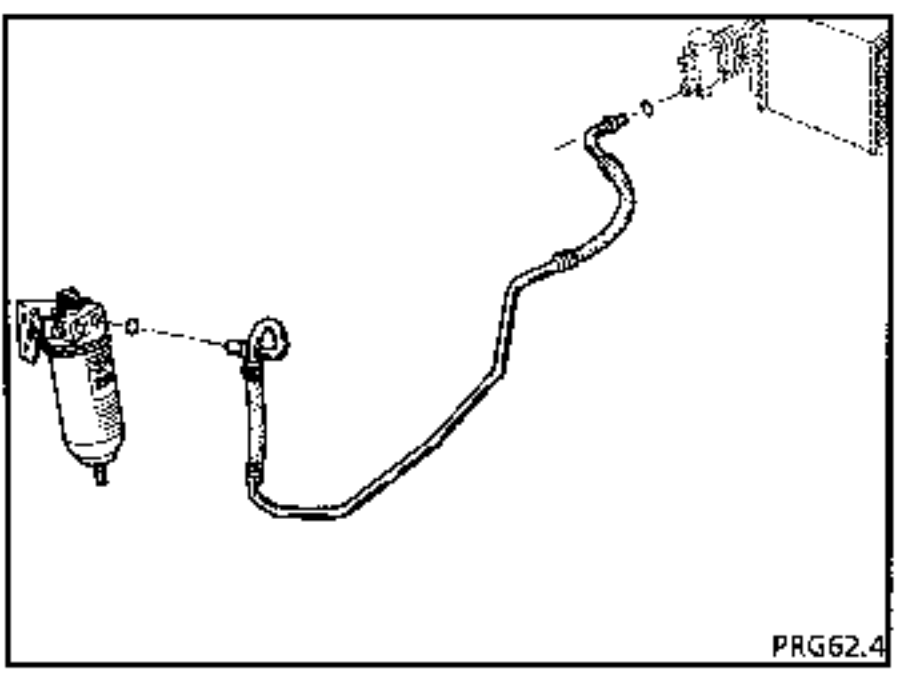
Drain the refrigerant R134a from the circuit (see method in the "Air conditioning" Workshop Repair Manual).

HIGH PRESSURE PIPE BETWEEN THE DEHYDRATING BOTTLE AND EXPANSION VALVE

REMOVAL

Release the pipe from its mountings.

Remove:
- the air filter sleeve,
- the air filter mounting,
- the high pressure pipe.


PRG62.4

REFITTING

Refitting is the reverse of removal.

Check the condition of seals and lubricate with P.A.G. SP 10 oil (2 g approximately).

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

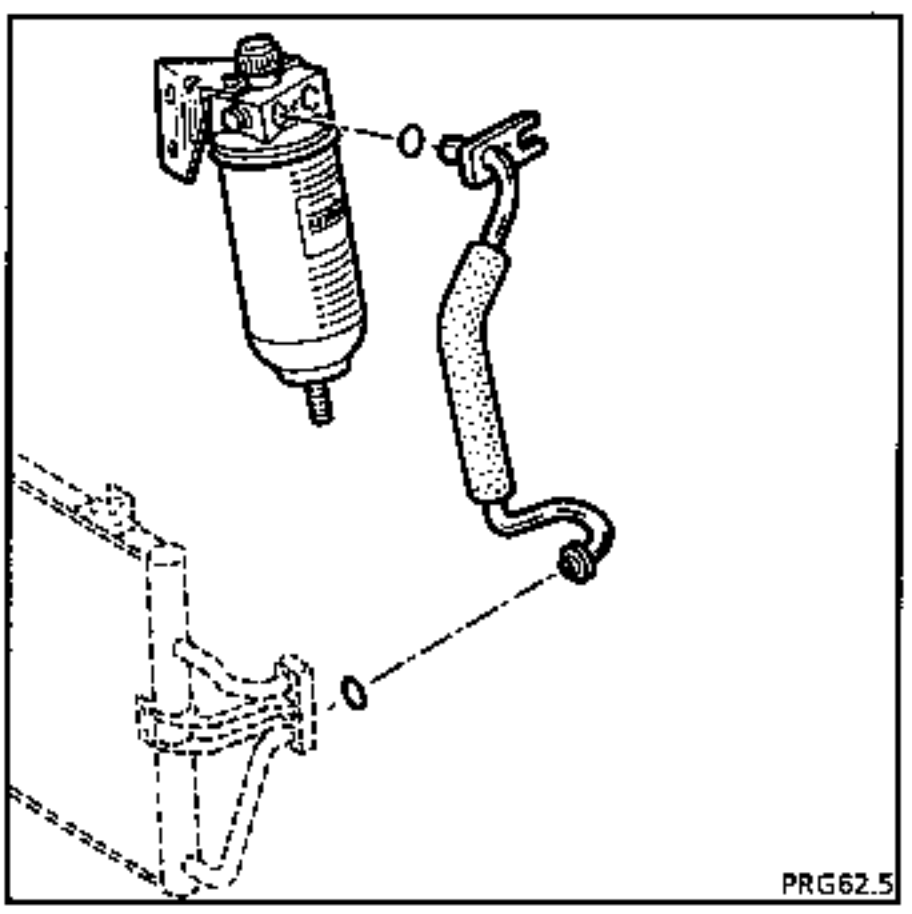
HIGH PRESSURE PIPE BETWEEN THE DEHYDRATING BOTTLE AND CONDENSER

REMOVAL

Remove:
- the mounting bolt on the dehydrating bottle.
- the mounting bolt on the condenser.

Fit plugs to the openings.

Remove the high pressure pipe.


PRG62.5

REFITTING

Refitting is the reverse of removal.

Check the condition of seals and lubricate with P.A.G. SP 10 oil (2 g approximately).

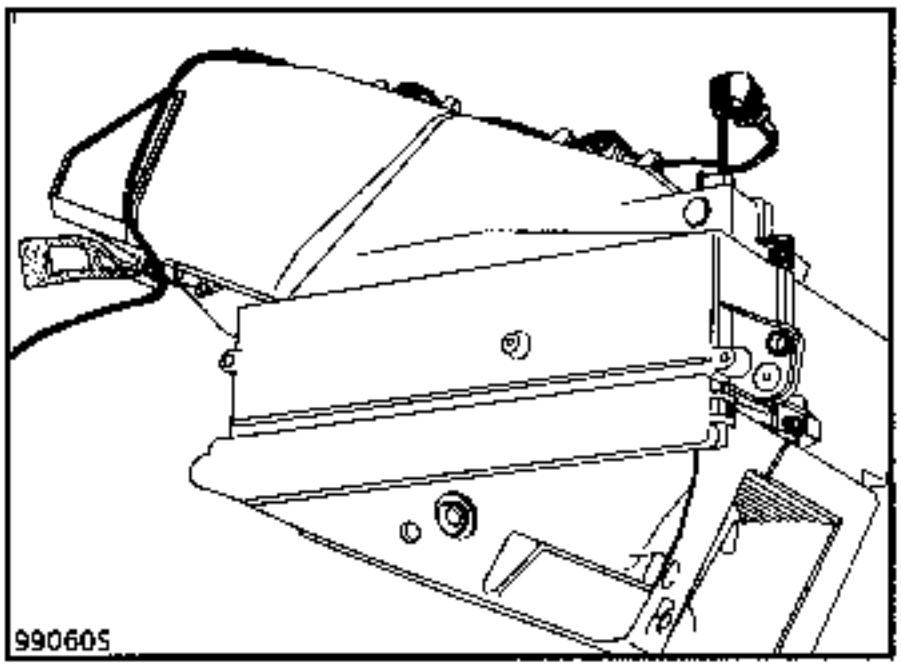
When replacing a pipe, add 10 ml of SP 10 oil or if a pipe bursts (rapid leak), add 100 ml.

EVAPORATOR SENSOR

The temperature sensor is mounted on the body of the air conditioning unit in the scuttle panel.

The sensor can be removed after removing the fan unit (see method on page 62-44).

Release the wiring and remove the evaporator sensor.



REFITTING

Refitting is the reverse of removal.

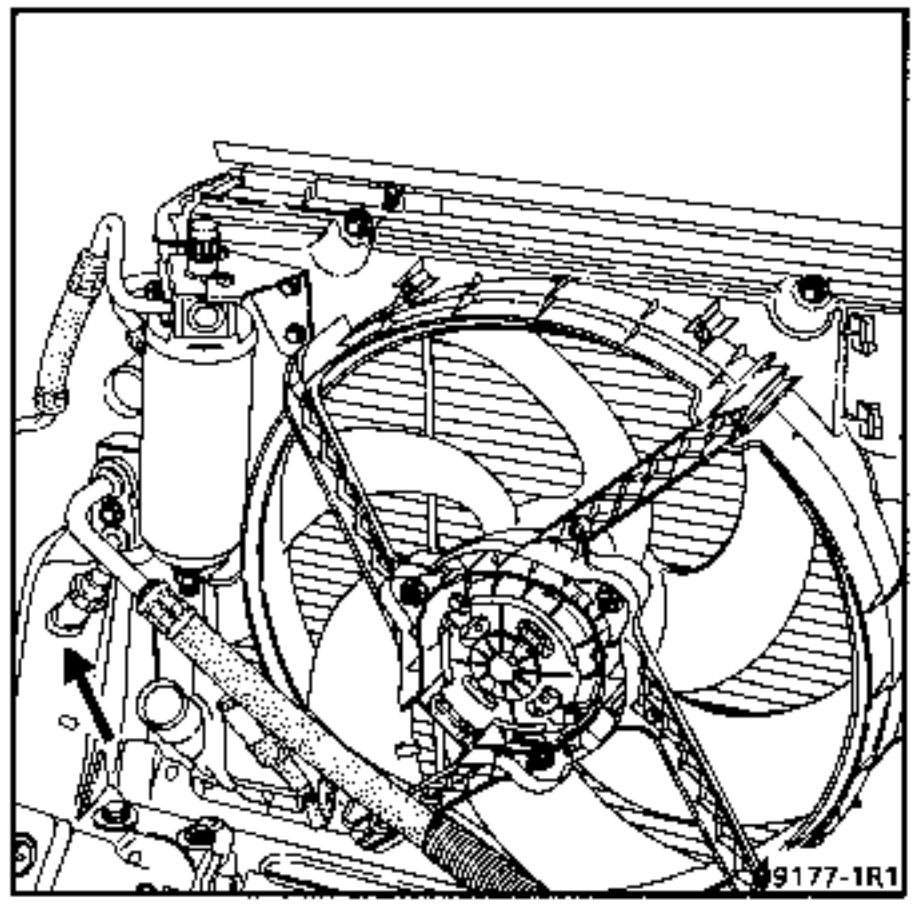
Ensure the mounting hole on the evaporator is correctly positioned before refitting the sensor.

TRIFUNCTION PRESSOSTAT

The trifunction pressostat protecting the refrigerant circuit has three functions:
- low pressure **(2 bars)**,
- high pressure **(27 bars)**,
- engine cooling fan high speed **(19 bars)**.

It is located next to the dehydrating bottle.

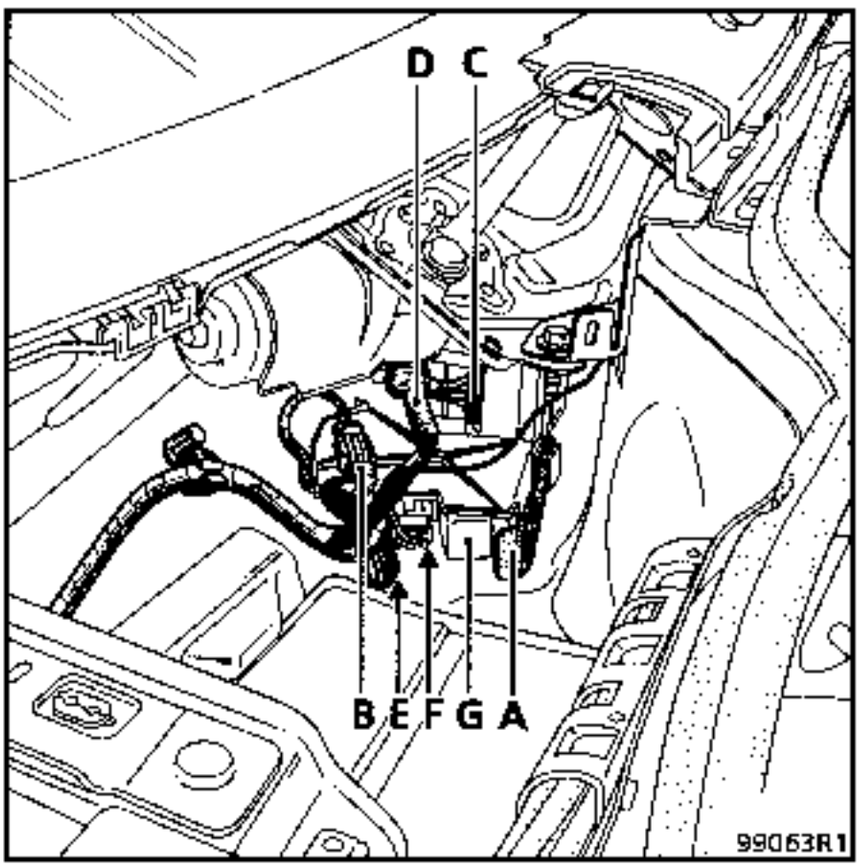
Operations may be carried out on the pressostat without the refrigerant circuit being drained; it is mounted using a "SCHRADER" valve.



Tightening torque : **0.9 daN.m.**

COMPONENT UNIT

This is located in the scuttle panel, mounted by a strap (A) to the air conditioning unit.



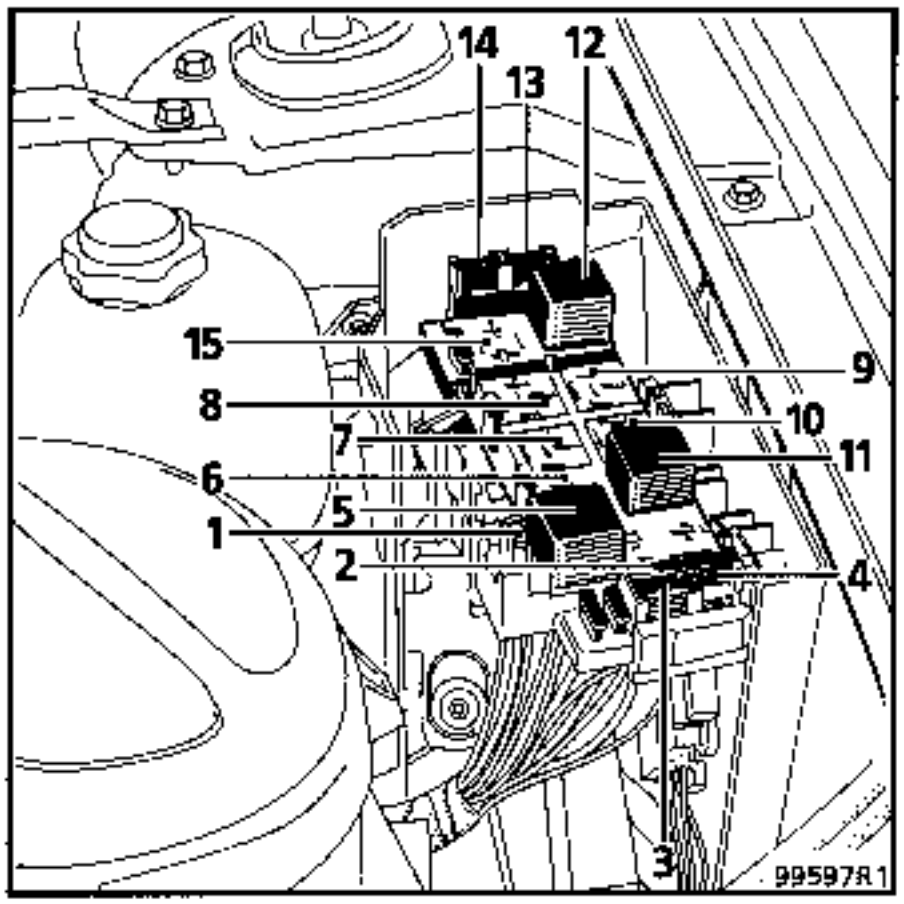
Key to components:
B - Evaporator sensor connector
C - Power module
D - Wiper motor connector
E - Air conditioning intermediate connector
F - Air recycling motor connector
G - Fan assembly relay

Description of the component unit

- 2 track connector for the evaporator sensor.
- 12 track connector for the air conditioning intermediate loom.
- 4 track connector for the air recycling motor.
- Fan relay.

ENGINE CONNECTION UNIT

This is located on the left hand side of the vehicle, near to the coolant reservoir.



1 - Air conditioning diode
2 - Engine functions fuse
3 - Engine functions safety fuse
4 - Air conditioning fan fuse
5 - Relay for pump/injection (petrol) or heating (diesel)
6 - Fan slow speed relay
7 - Antipercolation relay (petrol)
8 - PTC heater relay (petrol E7J)
9 - Altimetric correction (diesel)
10 - Relay not used
11 - Fan high speed relay
12 - Injection locking relay
13 - Reversing light fuse
14 - + after ignition automatic transmission fuse
15 - Not used

RESISTANCE 0.28 Ω

This is mounted on the engine cooling fan mounting.