

# Service Manual

Section 8 (87)

## Repairs and maintenance

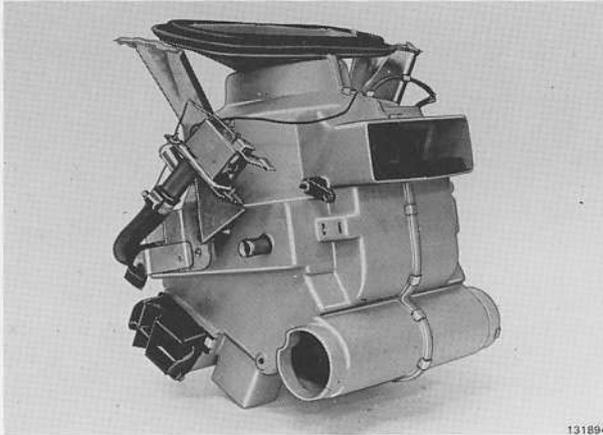
Climate unit  
(Heater unit)

240, 260  
1975-

# VOLVO

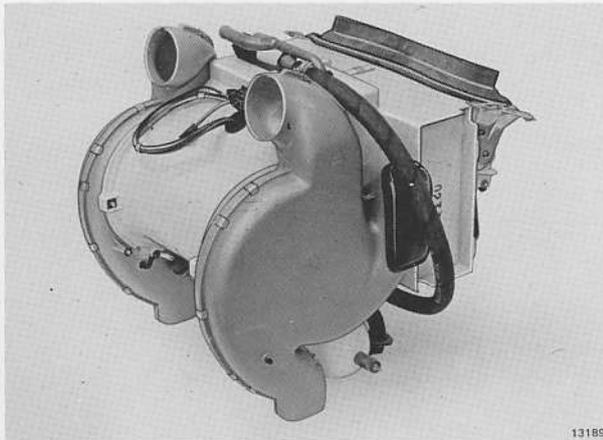
# Heater unit

This manual deals with the repair and maintenance of the standard and combined (CU) heating systems.



131894

**Standard system (except USA-Canada)**



131895

**Combined unit (CU) (USA-Canada)**

TP 30282/2  
4500.12.83  
UK/USA  
Printed in USA

# Contents

## Group 87 Climate unit (Heater unit)

	Operation	Page
<b>Standard unit</b>		
Control panel and/or cable, replacement .....	A1-A10	2
Fan motor switch, replacement .....	B1-B2	3
Heater, removal .....	C1-C24	4
Heater, installation .....	D1-D23	9
Heat exchanger and/or fan motor, replacement (removed heater)	E1-E9	14
Heater control valve, replacement .....	F1-F20	16
<b>Combined unit (CU) USA-Canada</b>		
Heater control and/or control cable, replacement .....	G1-G7	21
Control panel and/or fan motor switch, replacement .....	H1-H7	22
Shutter actuator for rear floor vent, replacement .....	I1-I6	23
REC-shutter, replacement .....	J1-J2	24
Heater, removal .....	K1-K26	25
installation .....	L1-L21	30
Heat exchanger, replacement (removed heater) .....	M1-M16	35
Fan motor, replacement .....	N1-N36	38
Heater control valve, replacement .....	O1-O6	45
<b>Air distribution 1975-1980</b> .....	P1-P13	46
<b>1981-</b> .....	R1-R17	49

## Charts

- A. Heater controls, standard unit
- B. Heater controls, CU
- C. Standard heater unit
- D. Heater housing, standard unit
- E. Combined heater unit, CU
- F. Heater housing, CU
- G. Hole template, standard unit
- H. Conversion table - metric/USA standard

**Index page 53**

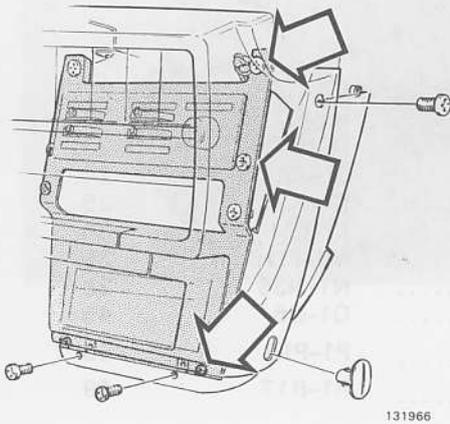
This manual deals with heater units only. Air conditioning is dealt with in another manual.

Volvos are sold in versions adapted for different markets. These adaptations depend on many factors including legal, taxation and market requirements.

This manual may therefore show illustrations and text which do not apply to cars in your country.

# Standard unit (except USA-Canada)

## A. Control panel and/or cable, replacement



### Disconnect

- the ground lead from battery

### Remove:

- side panels and sound proofing on both sides
- radio (if installed).

A2

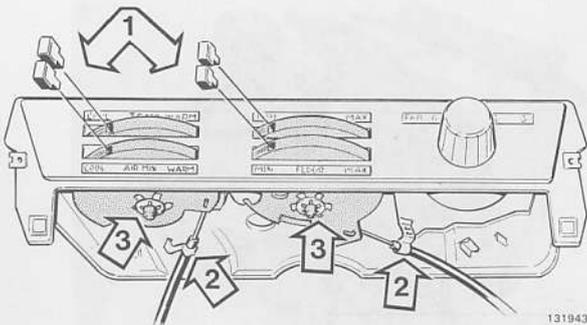
Remove the centre control panel and front panel on central console

A3

Remove the screws securing the control panel mounting

Pull the mounting forward somewhat.

A4



### Remove:

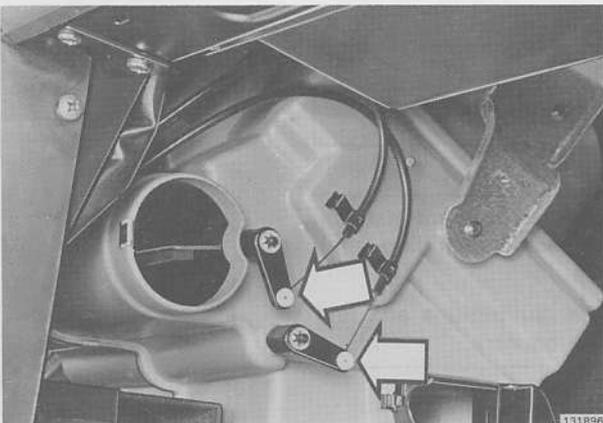
- knob (1) on the control where the cable is to be replaced
- cable sheath clip (2)
- locking washer (3)

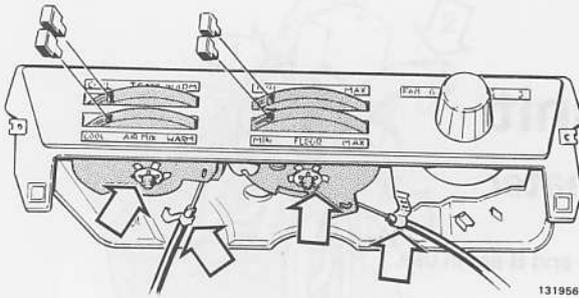
A5

Slacken the disc and unhook the cable

A6

Disconnect the control cable from the shutter





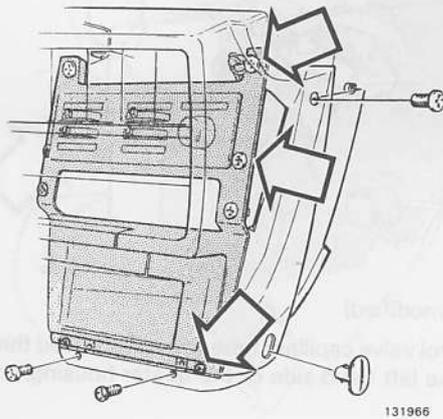
**Install:**

- cable and disc
- washer
- cable sheath clip
- control knob
- control cable to shutter

A7

**Adjust the control cable**

A8



**Install:**

- control mounting
- front panel for central console and control panel
- radio (if installed)
- side panels and soundproofing on both sides.

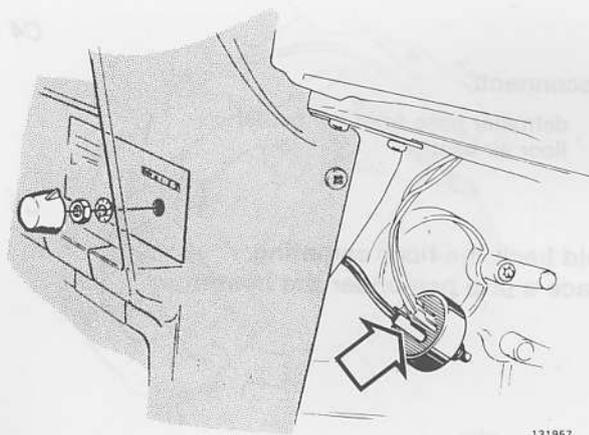
A9

**Reconnect the battery ground lead**

A10

## Standard unit

### B. Fan motor switch, replacement



**Remove:**

- soundproofing and side panels on right hand side.
- control knob and nut. Mark up the cables and disconnect the switch.

B1

**Install:**

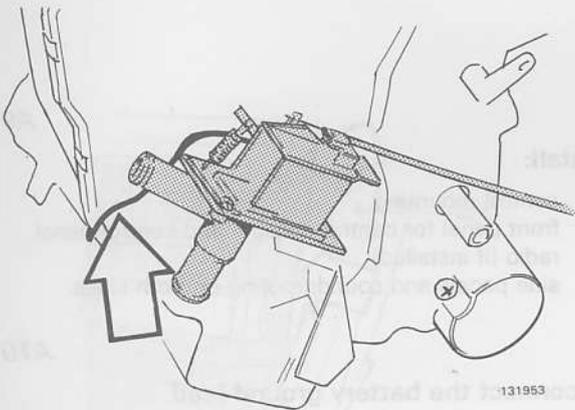
- cable and switch
- side panels and soundproofing

B2

## Standard unit

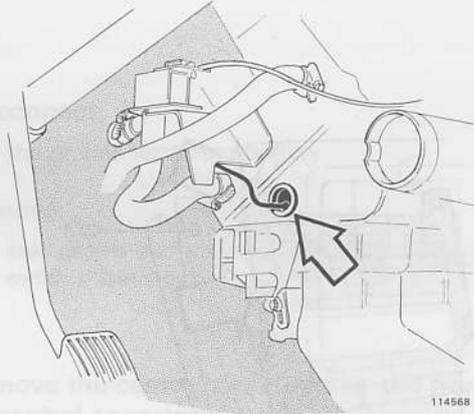
### C. Removal of heater

Note: Two different installations, type A and B are in use, see below.



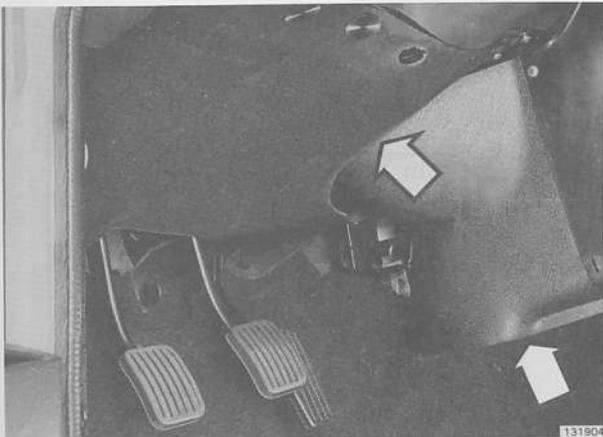
Type A

The heater control valve capillary tube is inserted between both parts of the heater housing, and is connected to the heat exchanger by clips.



Type B (modified)

The control valve capillary tube can be removed through a hole in the left hand side of the heater housing.



**Disconnect the battery ground lead**

C1

**Move the heater controls to closed position**

C2

*Left hand side*

**Remove the side panel and soundproofing**

C3

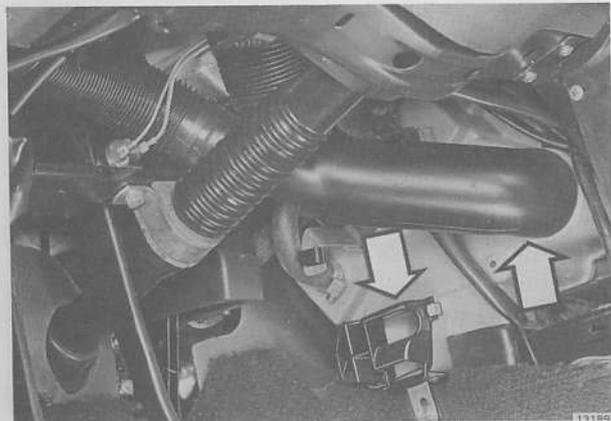
**Disconnect:**

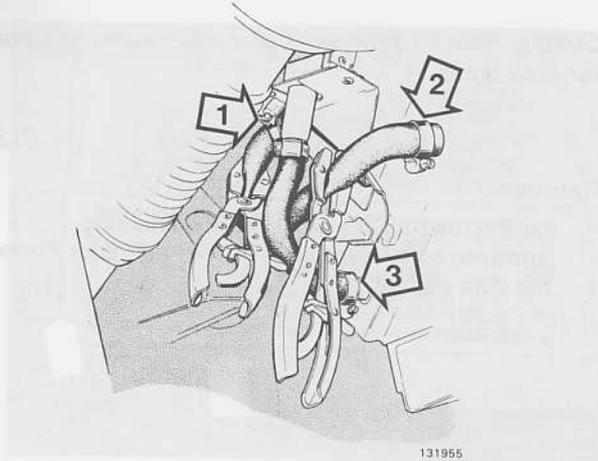
- defroster hose from the heater
- floor air vent.

C4

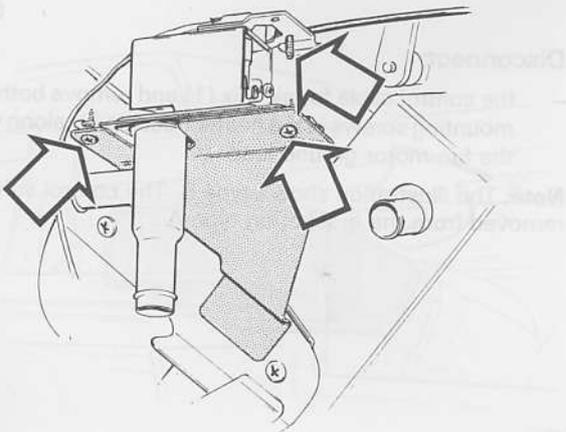
**Fold back the floor carpeting.  
Place a drip pan under the heater**

C5

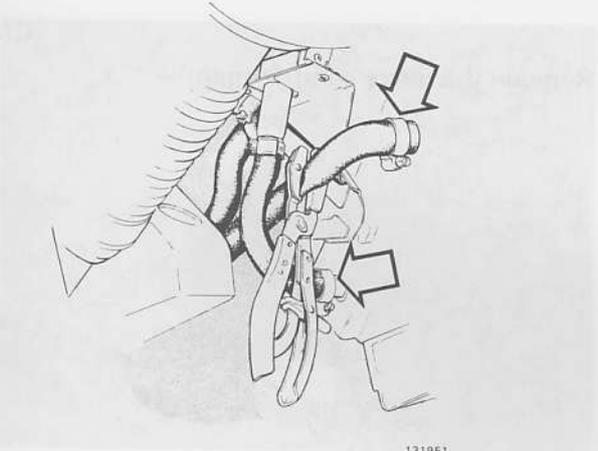




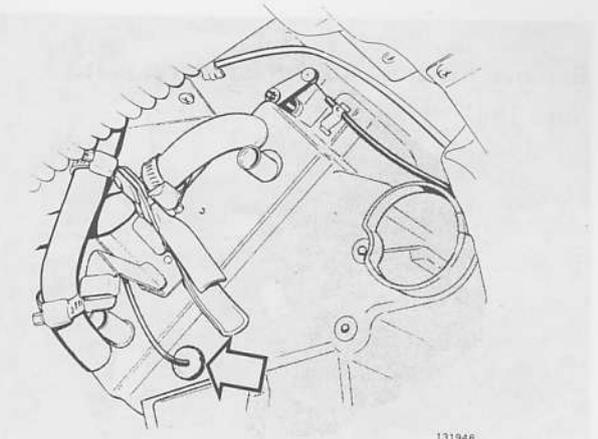
131955



131954



131951



131946

Type A

C6

Attach two hose pliers:

- one to the control valve inlet hose (1)
- the other to the heat exchanger input hose (2).

C7

Disconnect the hoses 1 and 2 as indicated

C8

Disconnect and remove hose 3

C9

Remove the control valve from the bracket

Disconnect the control cable from the control valve.  
Continued at C13.

Type B

C10

Attach a pair of hose pliers to the heat exchanger inlet hose

C11

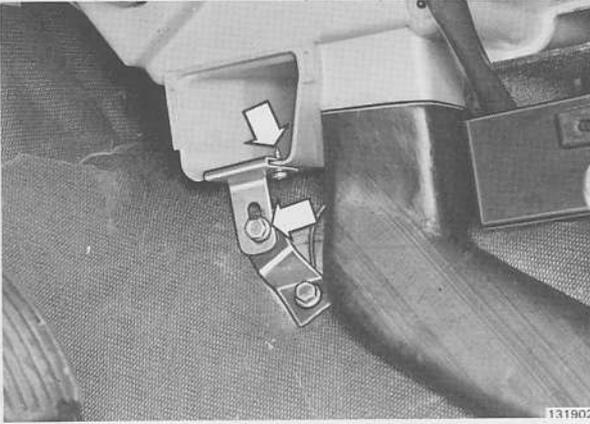
Disconnect the hoses as indicated

C12

Remove the heater control valve capillary tube from the heater housing. Carefully pull outwards.

Do not remove the control valve from the bracket.

Removal of heater

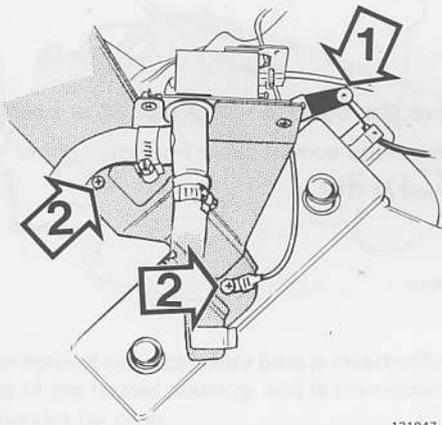


Starting from C13 the work procedures are the same for both types.

C13

Remove:

- both screws for the heater lower mounting
- attaching screw for the air duct to rear floor. Lower the duct slightly.

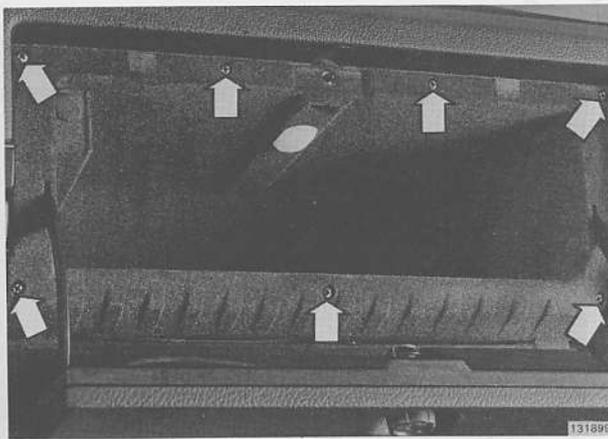


C14

Disconnect:

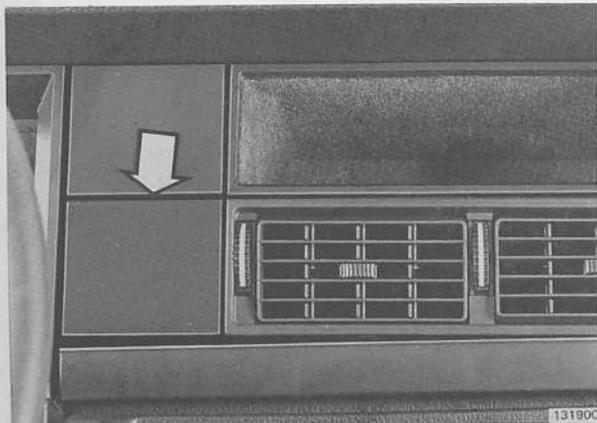
- the control cable for air-mix (1) and remove both the mounting screws in the heater housing (2) along with the fan motor ground lead.

Note: The illustration shows type B. The control valve is removed from the bracket on type A.



C15

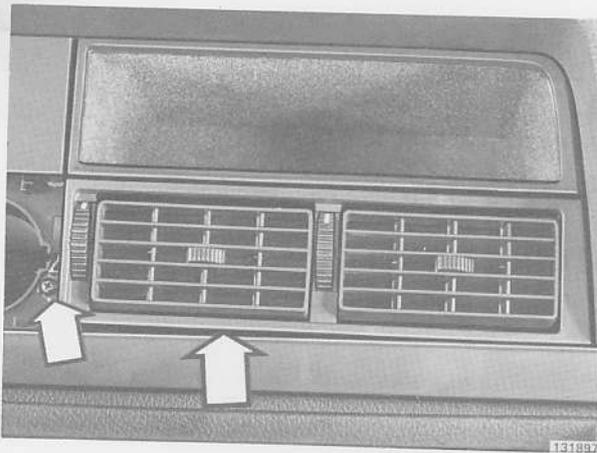
Remove the glove compartment



C16

Remove the extra instrument cover plate

Note: 1981-models only.

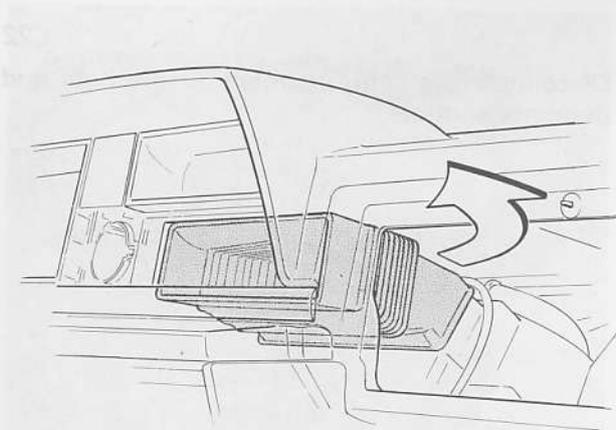


C17

**Remove:**

- the frame around the centre air vents
- the air vents. They are secured by a screw.

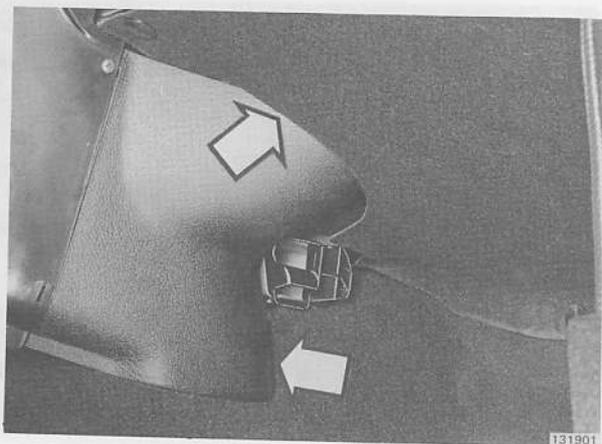
**Note:** A 1981 model is shown in the illustration. The air vents are secured by two screws in 1975-1980 models. The screws are located under the vents.



C18

**Remove the air duct connecting the heater to the air vents**

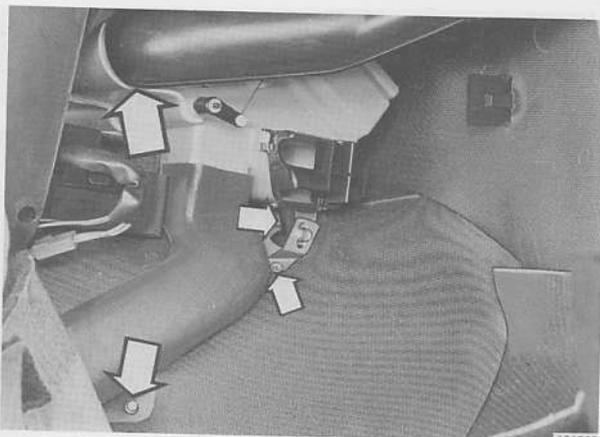
**Note:** A 1981 model is shown in the illustration.



*Right-hand side*

C19

**Remove the sound insulation and side panel  
Fold back the carpeting**

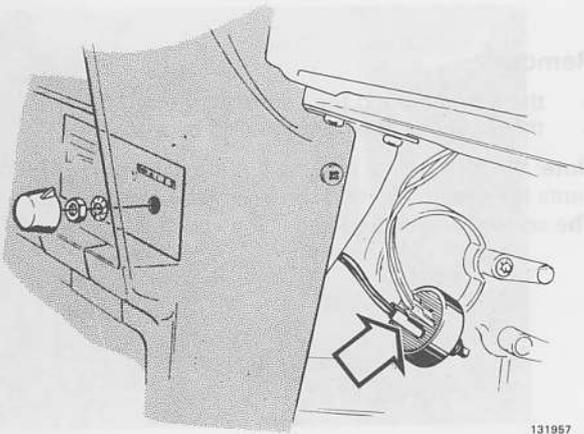


C20

**Remove:**

- the defroster hose from the heater
- the attaching screws for the rear floor air duct. Lower it slightly
- the screw for the lower mounting on floor
- the heat exchanger drain hose.

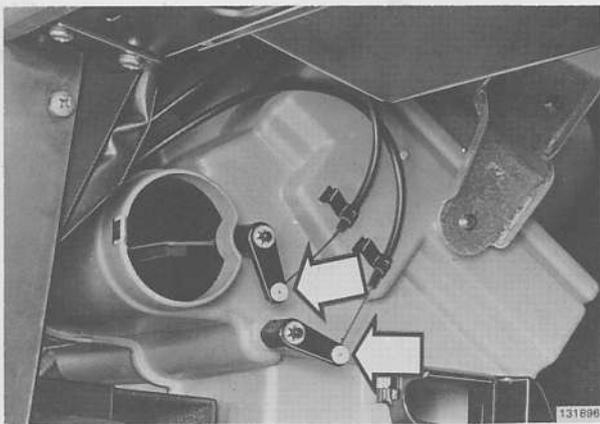
Removal of heater



**Disconnect:**

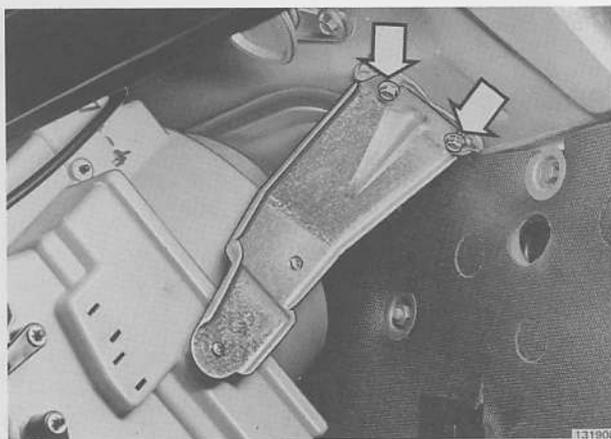
- fan motor switch from panel
- positive lead from the switch

C21



**Disconnect the control cables for the floor and defroster shutters**

C22



**Remove both the screws in the firewall for the upper mounting. Then remove the heater and mounting as one unit.**

C23

**Remove the heater via right-hand side**

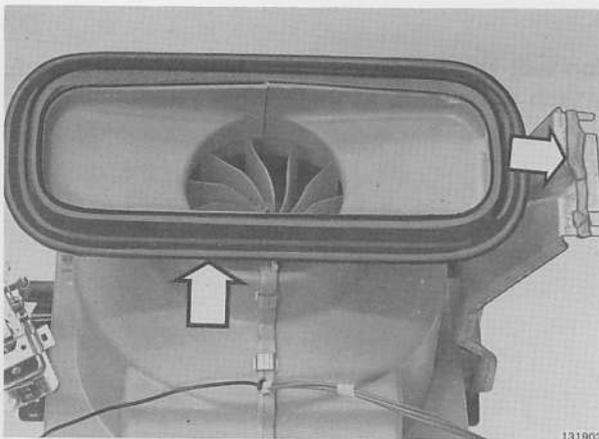
For type **A**: the control valve and capillary tube are attached to the heater.

For type **B**: the control valve is mounted on the bracket.

C24

## Standard unit

### D. Installation of heater



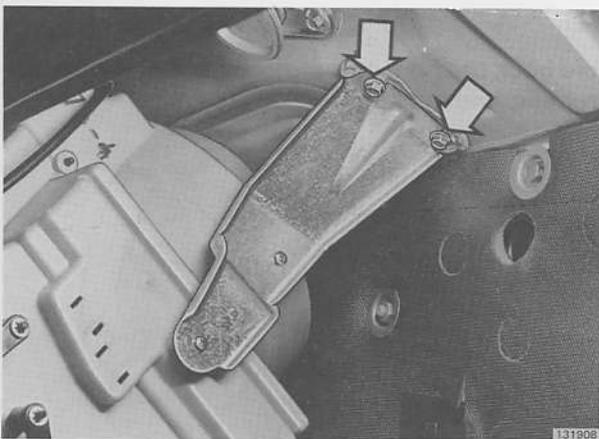
Check before installing the heater that the air inlet seal is intact and correctly installed

D1

Smear sealing cement around the screw holes in the right-hand mounting

**NOTE:** Make sure when installing the heater that the air intake seal is not displaced.

**Note:** A type A installation is shown where the control valve and heater are removed and installed as one unit.



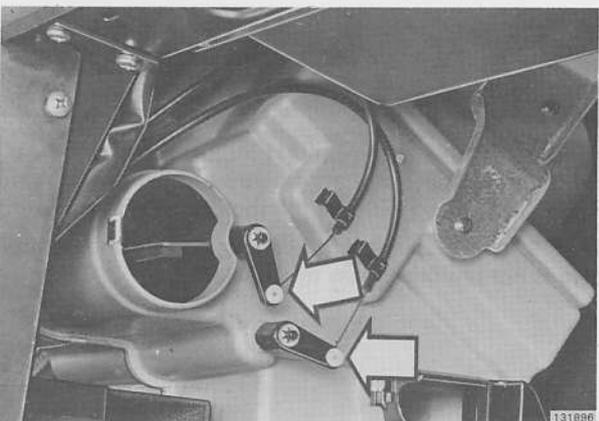
Right-hand side

D2

Install the heater from the right-hand side

D3

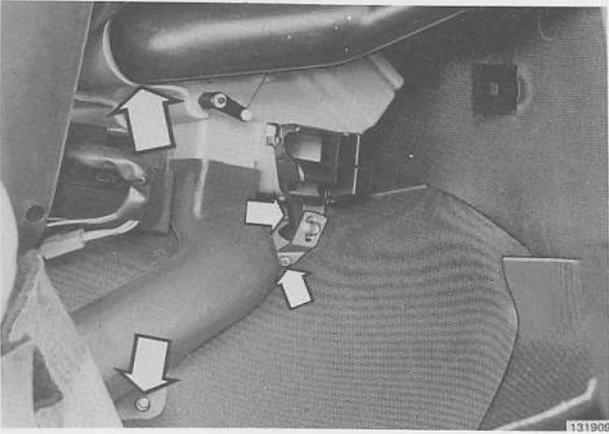
Install both upper mounting screws to the fire-wall



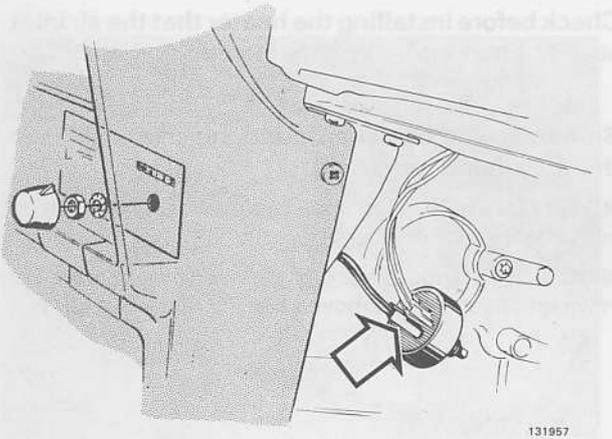
D4

Connect the cables for the floor and defroster shutters. Adjust the shutters.

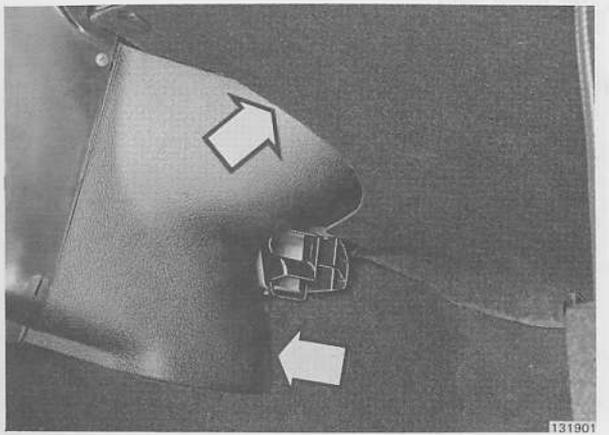
Installation of heater



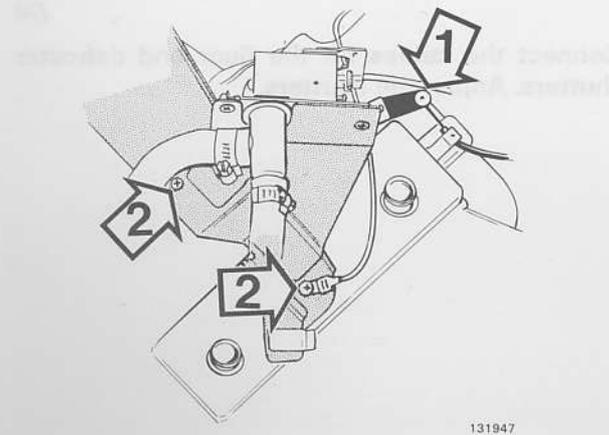
**D5**  
Align the heat exchanger drain hose in the footwell



**D6**  
**Install:**  
- heater lower mounting  
- air duct for rear floor  
- defroster hose.



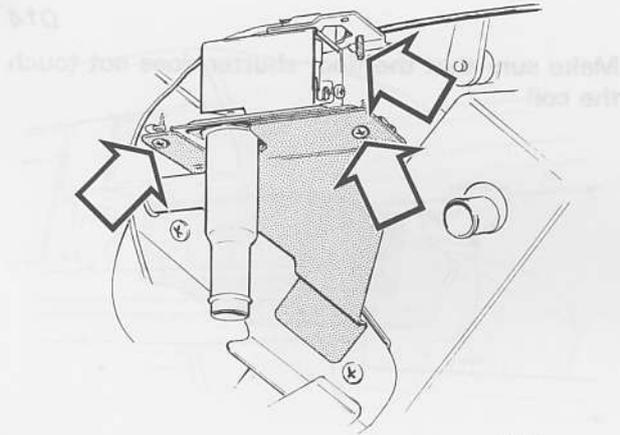
**D7**  
Connect the heater positive lead to the switch. Attach the switch to the control panel



**D8**  
Fold back the floor carpeting. Reinstall the sound-proofing and side panel

*Left-hand side*

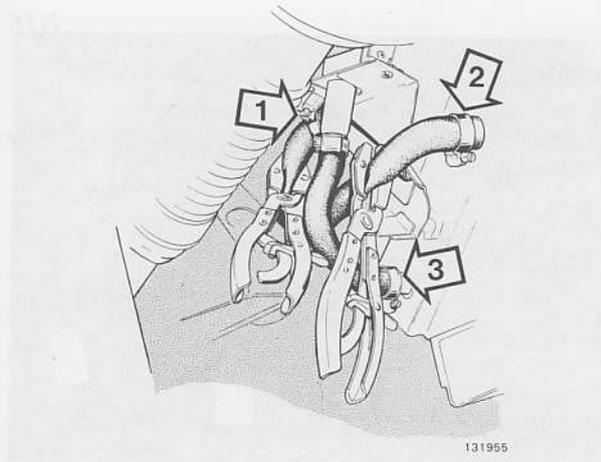
**D9**  
**Install:**  
- control cable for air-mix (1). Adjust the cable.  
- both the upper mounting screws in the heater housing (2) along with the fan motor ground lead.  
**Note:** A type B installation is shown where the control valve is not removed from the bracket.



Type A

D10

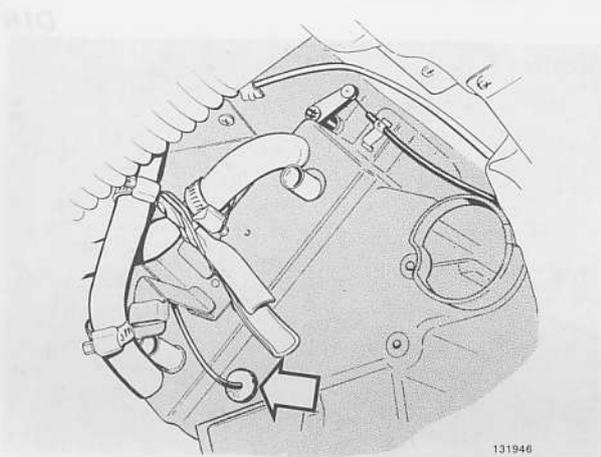
Connect the control cable to the heater control valve. Adjust the operation. Mount the valve on the bracket



D11

Connect hoses 1, 2 and 3. Remove the hose pliers

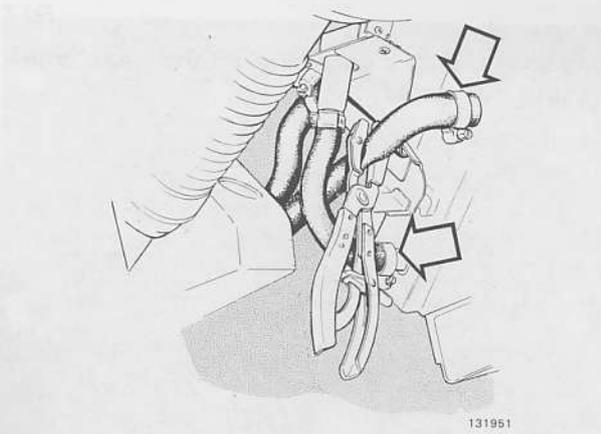
Continued at D15.



Type B

D12

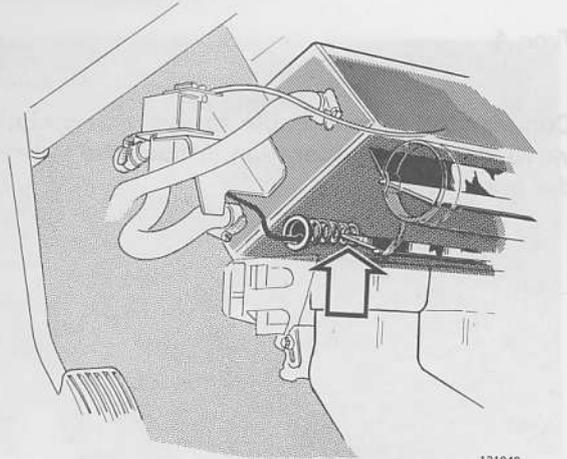
Insert the control valve capillary tube through the hole in the heater housing. Secure the coil with a rubber plug



D13

Connect the hoses to the heat exchanger. Remove the hose pliers

Installation of heater

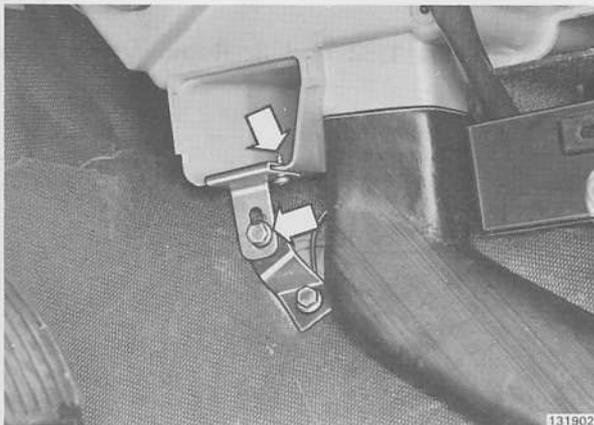


D14

Make sure that the floor shutter does not touch the coil

Install:

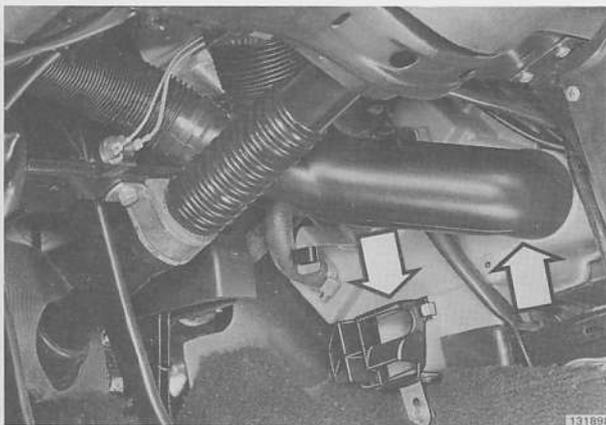
- heater lower mounting
- air duct for rear floor
- defroster hose



D15

Install:

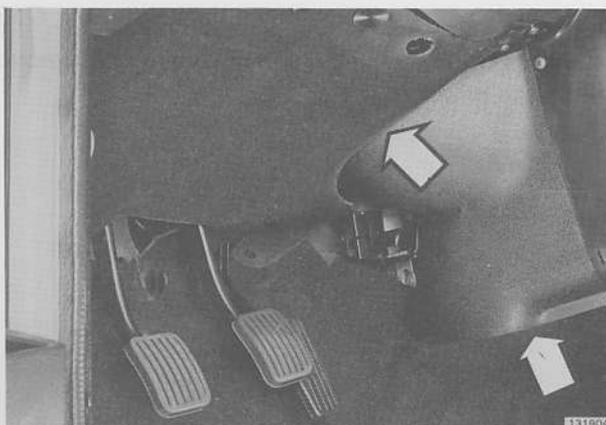
- both screws for the heater mounting
- the attaching screw for the air duct to the rear floor.



D16

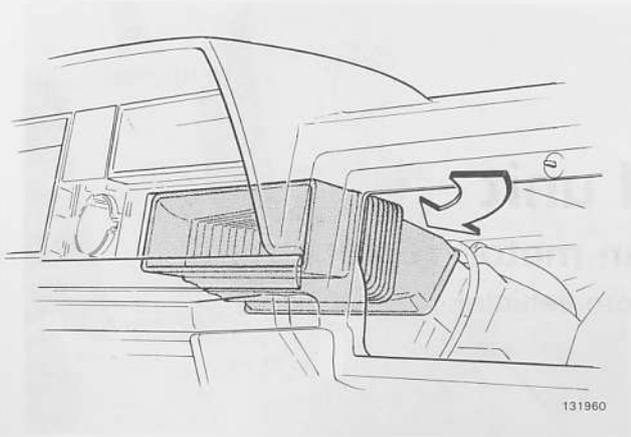
Install:

- the air vent for the front floor
- the defroster hose.



D17

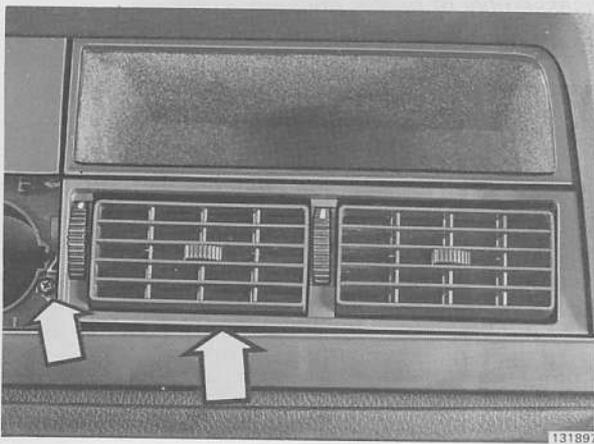
Fold back the floor carpeting. Fit the soundproofing and side panel



Assembly of heater housing

D18

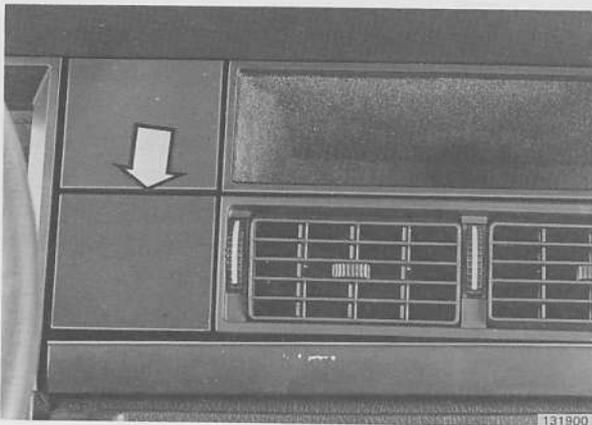
Install the air ducts between the heater and air vents



D19

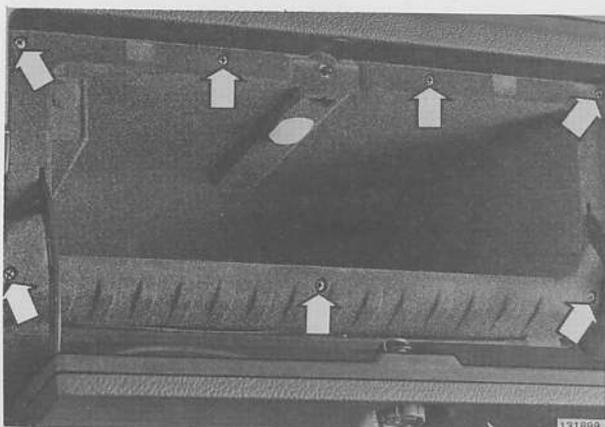
Install:

- the air vents
- the frame around the air vents.



D20

Install the extra instrument cover plate



D21

Install the glove compartment

D22

Reconnect the battery ground lead

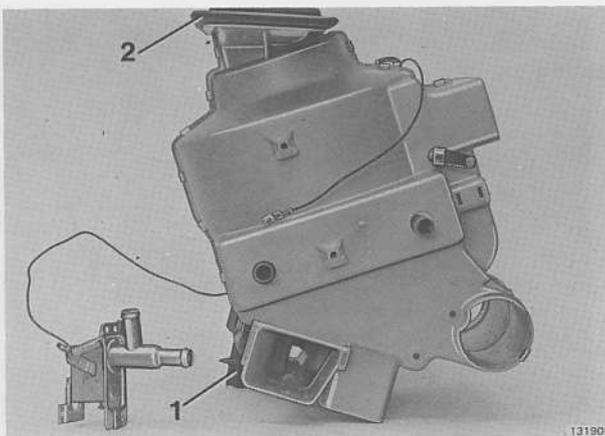
D23

Check the coolant level and top-up if necessary

## Standard unit

### E. Heat exchanger and/or fan motor, replacement

(Heater removed from vehicle)



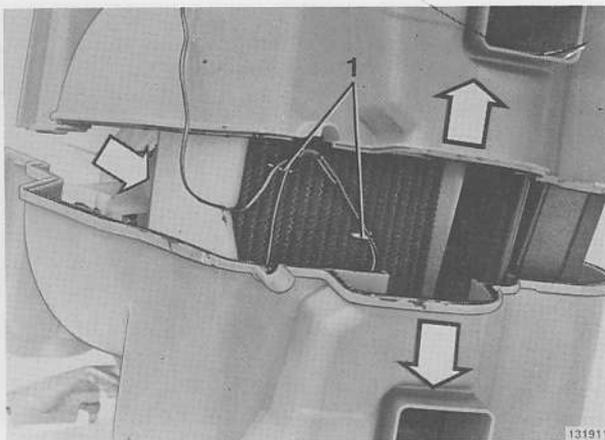
#### Disassembly of heater housing

E1

#### Disconnect:

- the heat exchanger drain hose (1)
- the air intake seal (2)
- all clips holding the heater housing halves together.

**Note:** The illustration shows a type A installation. On type B versions the control valve remains attached to the bracket.



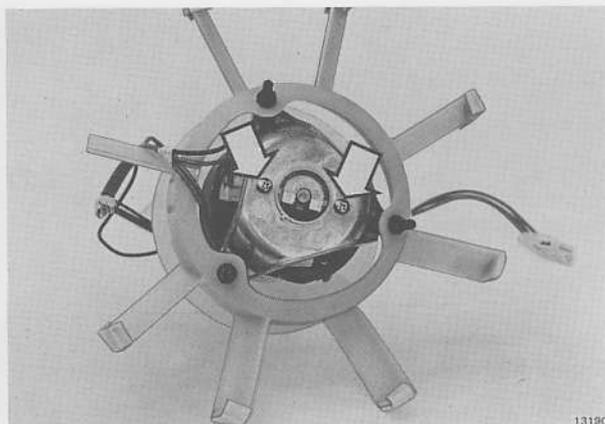
E2

#### Separate the halves of the heater housing

Remove the clips securing the control valve capillary tube to the heat exchanger (1).

Lift up the heat exchanger. Transfer the seal if the heat exchanger is to be replaced.

**Note:** The illustration shows a type A installation. For type B versions the control valve capillary tube is already removed.



E3

#### If replacement of fan motor is necessary:

- remove the two screws which secure the fan motor and lift out the motor.

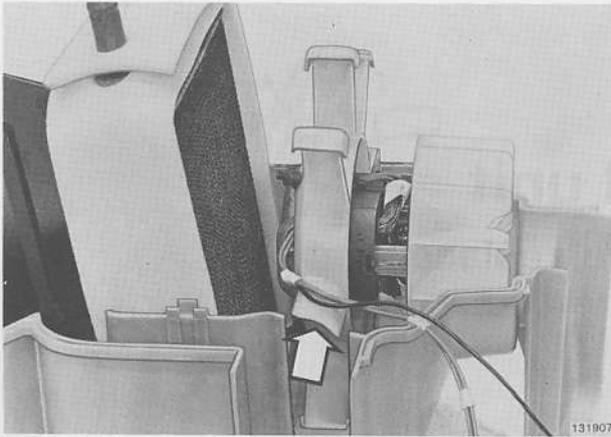
E4

#### Transfer the fan wheel to the new motor

E5

#### Attach the fan motor to bracket

Heat exchanger and/or fan motor, replacement



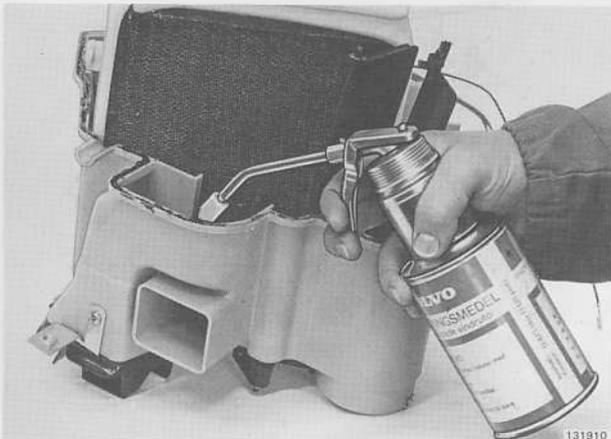
Assembly of heater housing

E6

Install:

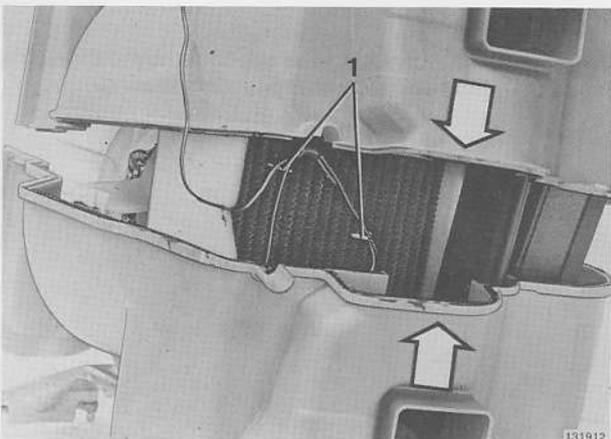
- the heat exchanger
- the fan motor.

**Note:** On assembly make sure that the fan motor holder is located correctly in the heater housing.



E7

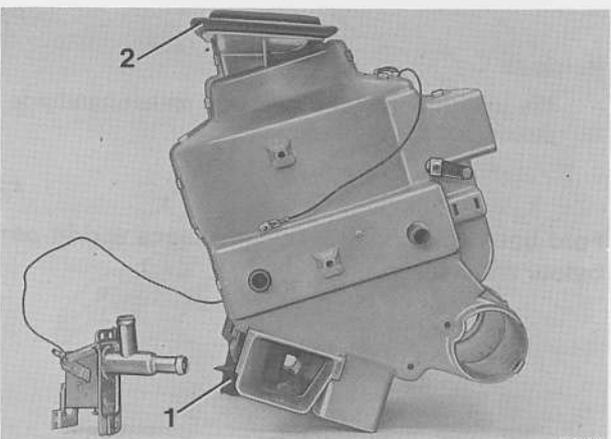
Smear the bottom edge of the heater housing halves with Volvo sealant Part No. 686 275-9.



E8

Install:

- the heater control valve capillary tube and clips (1) to the heat exchanger. Press together the heater housing halves.
- all clips for the heater housing halves



E9

Connect:

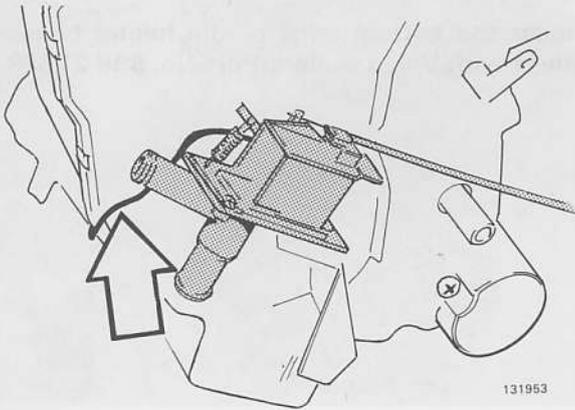
- the heat exchanger drain hose (1)
- the air intake seal (2)

**Note:** On assembly of the heater housing, modifications can be made so that it is possible to remove and install the control valve capillary tube directly through the left-hand side of the heater housing. See operations F9-F20 for further information.

## Standard unit

### F. Heater control valve, replacement

**Note:** Two different installations, type A and B are in use, see below.

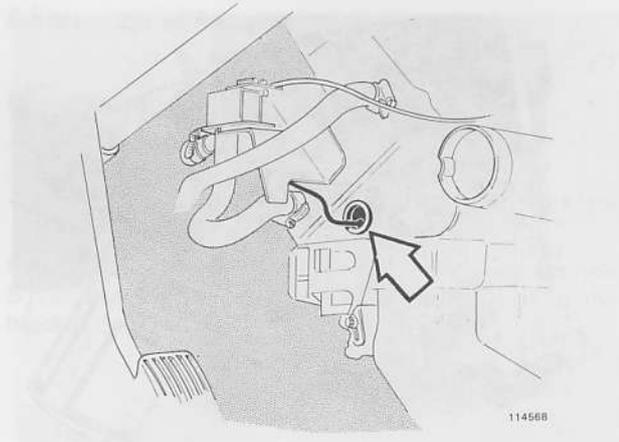


#### Type A

The heater control valve capillary tube is inserted between both parts of the heater housing and is connected to the heat exchanger by clips.

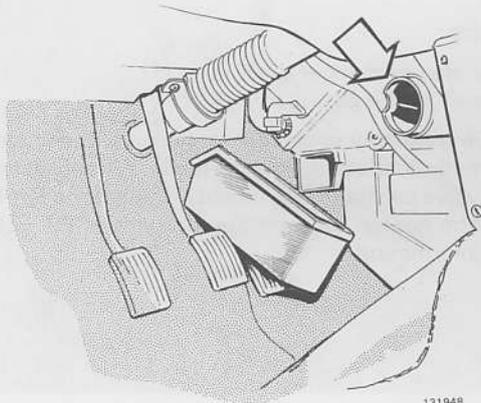
On replacement of the control valve, modifications should be made to convert the installation to type B.

For details see operation F9 onwards.



#### Type B (modified)

The control valve capillary tube can be removed through a hole in the left hand side of the heater housing.



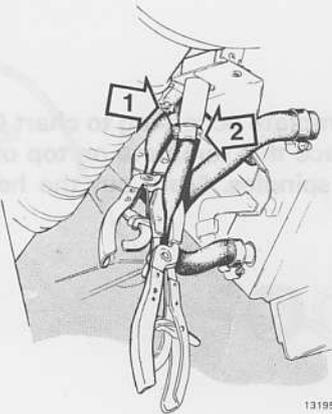
F1

#### Remove:

- the soundproofing and sidepanel on left-hand side
- disconnect the defroster hose

F2

Fold back the floor carpet and place a drip pan below the heater



Type A

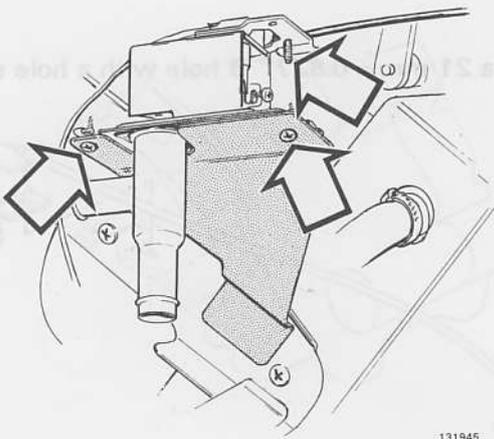
F3

**Attach two hose pliers**

- one pair to the control valve inlet hose (1)
- the other to the control valve outlet hose (2)

F4

**Disconnect the hoses indicated**



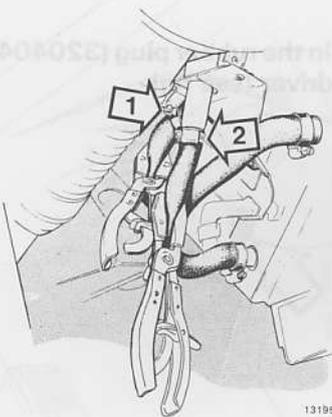
F5

**Remove the control valve from the bracket**

Cut off the capillary tube behind the heater and leave the rest on the heater.

Remove the control valve mounting screws and disconnect the control cables.

*For modification continue from F9.*



Type B (modified)

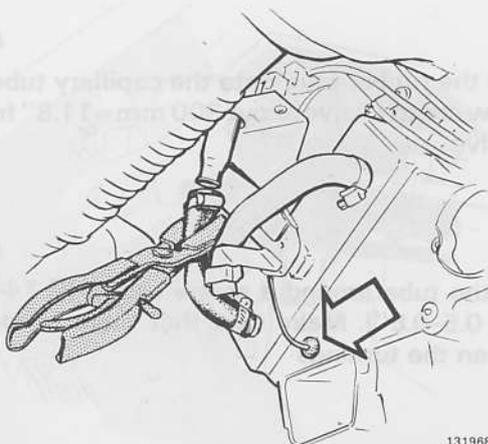
F6

**Attach two hose pliers:**

- one pair on the control valve inlet hose (1)
- the other on the control valve outlet hose (2)

F7

**Disconnect the hoses indicated**



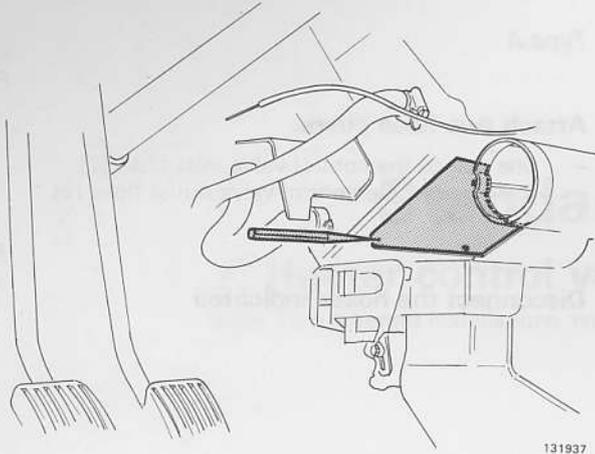
F8

**Remove the control valve from the bracket**

Carefully pull out the capillary tube and rubber plug from the housing.

Remove the control valve and disconnect the control cable.

*Continue from F12.*

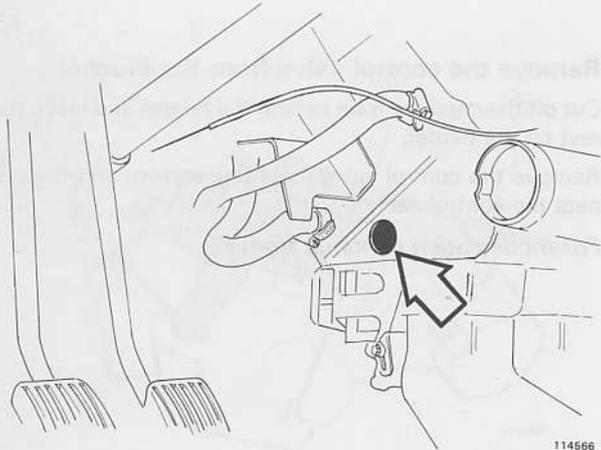


131937

*Modification*

F9

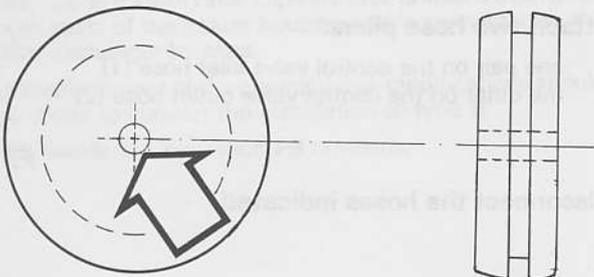
Cut out a template according to chart G. (back of manual). Place this template on top of holes for the shutter spindles. Mark out the hole for the rubber plug.



114566

F10

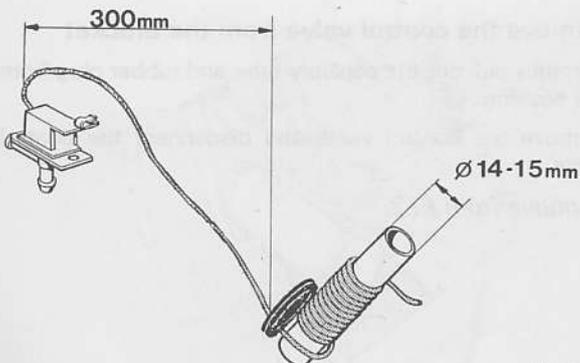
Cut a 21 mm = 0.827"  $\varnothing$  hole with a hole saw



114562

F11

Make a hole in the rubber plug (320404-7) with a small screwdriver (see fig).



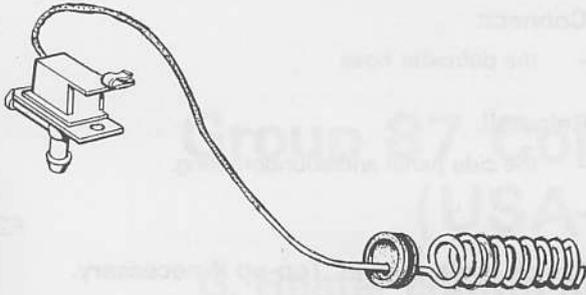
114563

F12

Install the rubber plug onto the capillary tube of the new control valve about 300 mm = 11.8" from the valve

F13

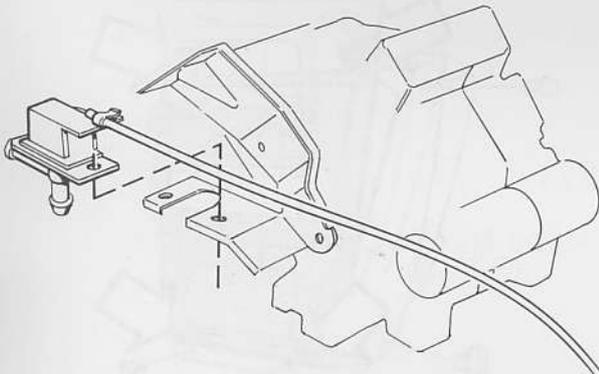
Wind the tube around a screw or rod ( $\varnothing$  14-15 mm = 0.5-0.6"). Make sure that there is space between the turnings



114564

Bend the tube as illustrated

F14



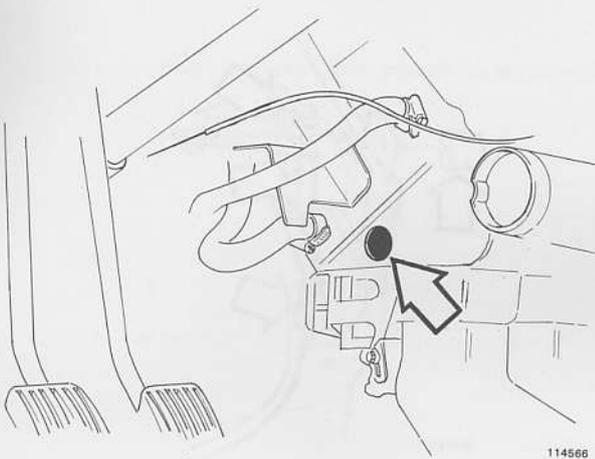
114567

*Installation*

Disconnect the battery ground lead

F15

Connect the control cable and transfer the clip from the old to the new control valve. Adjust the cable.



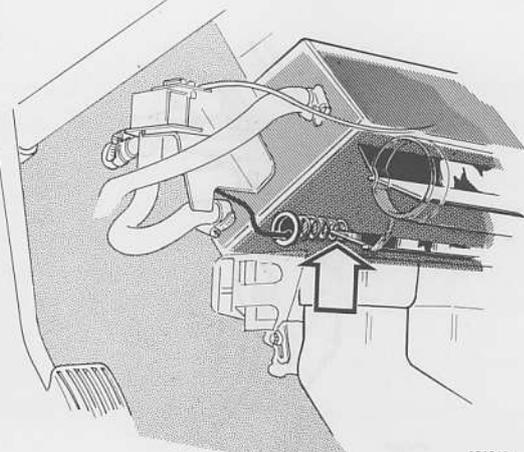
114566

F16

Insert the capillary tube through the drilled hole in the side of the heater. Secure it with the rubber plug

F17

Connect the water hoses. Remove the hose pliers

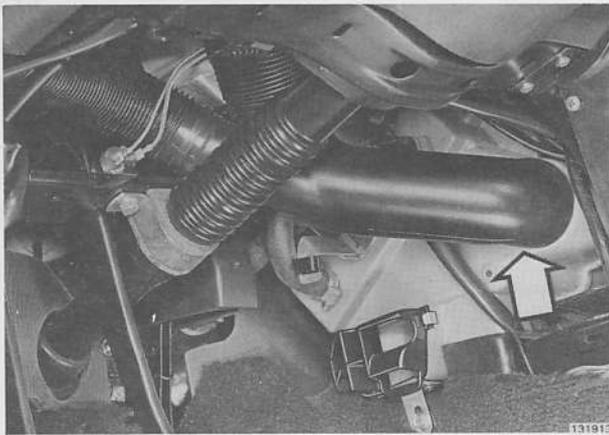


131949

F18

Make sure that the floor shutter does not rub against the capillary tube

Heater control valve, replacement



Modification

F19

**Connect:**

- the defroster hose

**Reinstall:**

- the side panel and soundproofing.

F20

**Check coolant level. Top-up if necessary.**

F18  
Connect the control cable and against the clip from the clip to the flow control valve. Adjust the cable.



F18  
Insert the capillary tube through the drilled hole in the side of the heater. Secure it with the rubber plug.



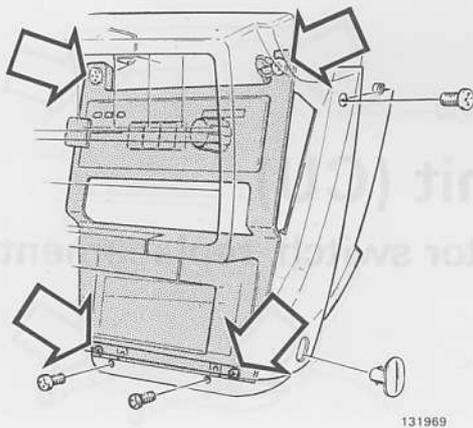
F17  
Connect the water hoses. Remove the hose pliers.



F18  
Make sure that the floor shutter does not rub against the capillary tube.

# Group 87 Combined unit (CU) (USA-Canada)

## G. Heater control and/or cable, replacement



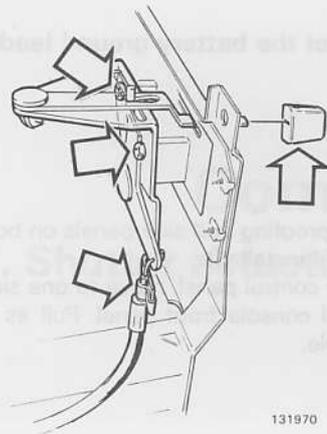
**Disconnect the battery ground lead**

G1

**Remove:**

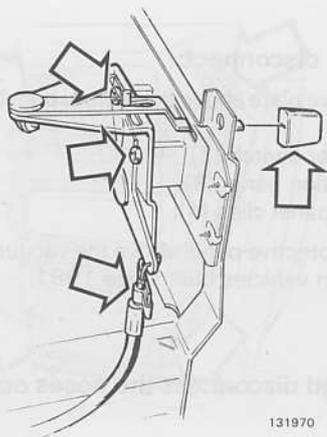
- soundproofing and side panels on both sides
- radio (if installed)
- centre control panel, move to one side
- central console, front side. Pull as far forward as possible.

G2



**Remove the lever knob and disconnect the cable from the lever and control valve**

G3



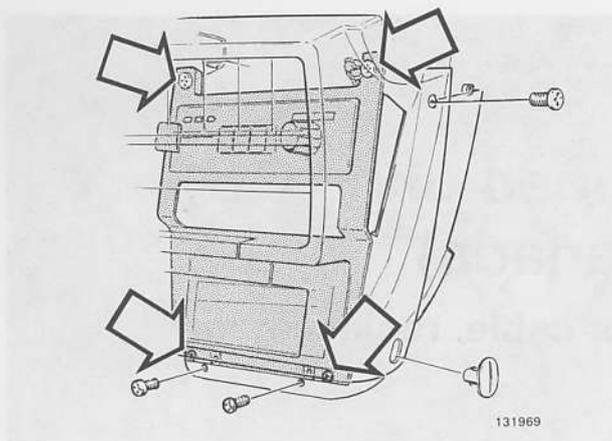
**Connect the cable and reinstall the lever knob**

G4

**Adjust the operation**

G5

Control panel and/or fan motor switch, replacement



G6

**Reinstall:**

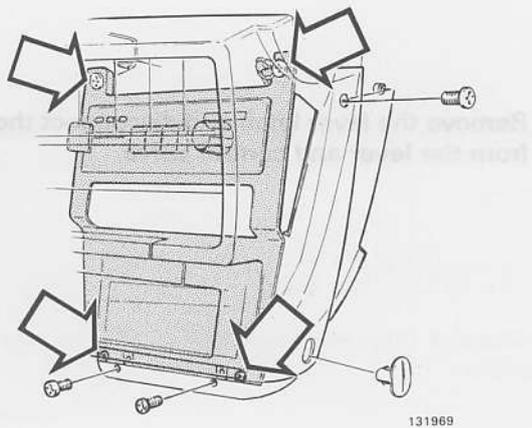
- central console front panel
- centre control panel
- radio (if installed)
- side panels and soundproofing on both sides.

G7

**Reconnect the battery ground lead.**

## Combined unit (CU)

### H. Control panel and/or fan motor switch, replacement



H1

**Disconnect the battery ground lead**

H2

**Remove:**

- soundproofing and side panels on both sides
- radio (if installed)
- centre control panel, move to one side
- central console front panel. Pull as far forward as possible.

H3

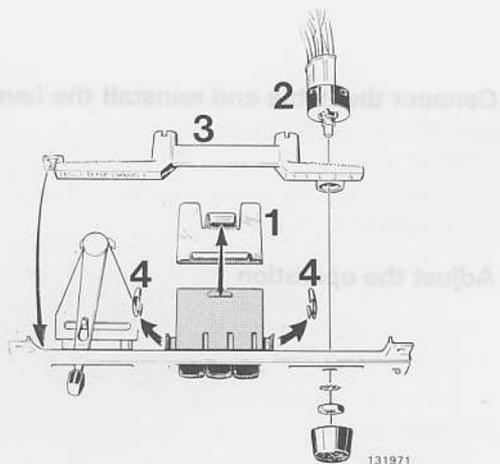
**Remove or disconnect:**

- protective plate above the control panel vacuum hose (1)
- fan motor switch (2)
- illumination panel (3)
- control panel clips (4).

**Note:** The protective panel above the vacuum hoses is not removable on vehicles built since 1981.

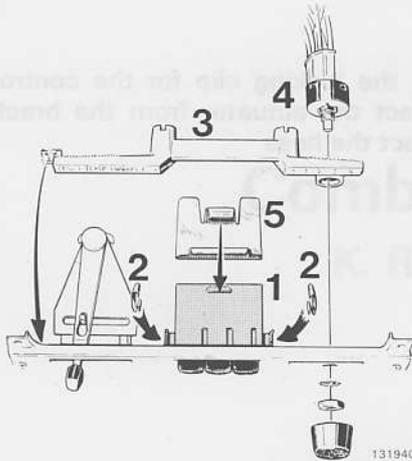
H4

**Mark up and disconnect the hoses on the control panel**



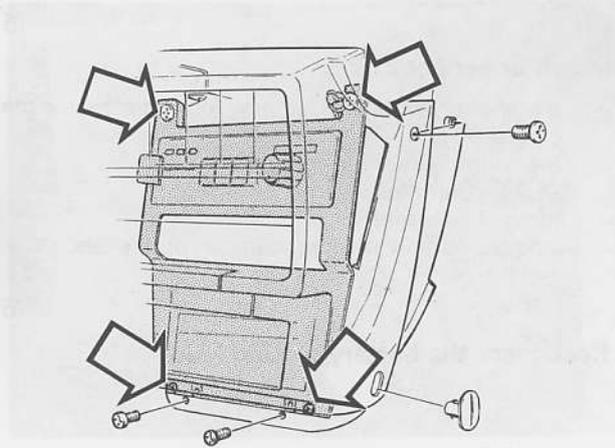
Shutter actuator for rear floor vent, replacement

H5



**Connect:**

- the vacuum hoses to the control panel
- panel (1) and clips (2)
- illumination panel (3)
- fan motor switch (4)
- protective panel above the vacuum hoses (5).



H6

**Install:**

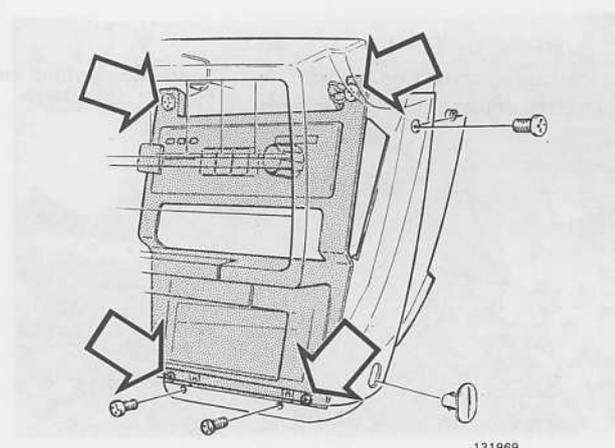
- central console front panel
- centre control panel
- radio (if installed)
- side panels and soundproofing on both sides.

H7

**Reconnect battery ground cable.**

## Combined unit (CU)

### I. Shutter actuator for rear floor vent, replacement



I1

**Disconnect the battery ground lead**

I2

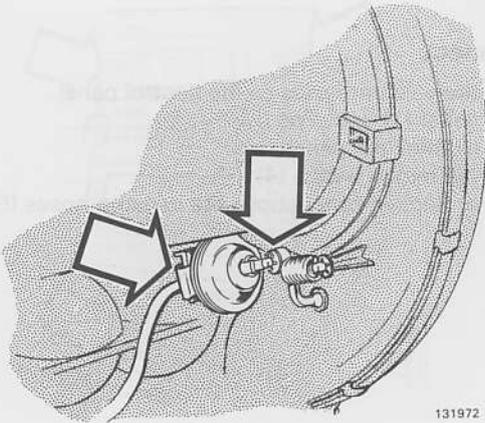
**Remove:**

- soundproofing and side panels on both sides
- radio (if installed)

I3

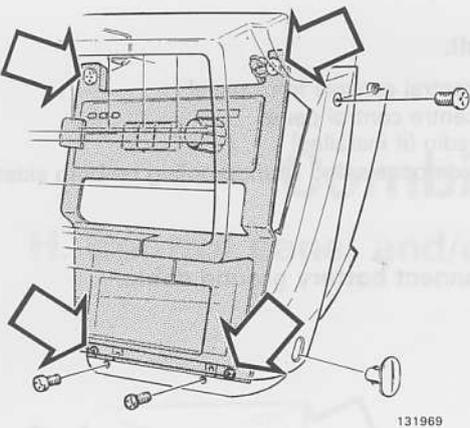
**Free the centre control panel and front panel of central console**

Pull it as far forward as possible to free it from the radio compartment. It may be necessary to detach the radio compartment.



14

Remove the locking clip for the control valve. Disconnect the actuator from the bracket and disconnect the hose



15

**Install or connect:**

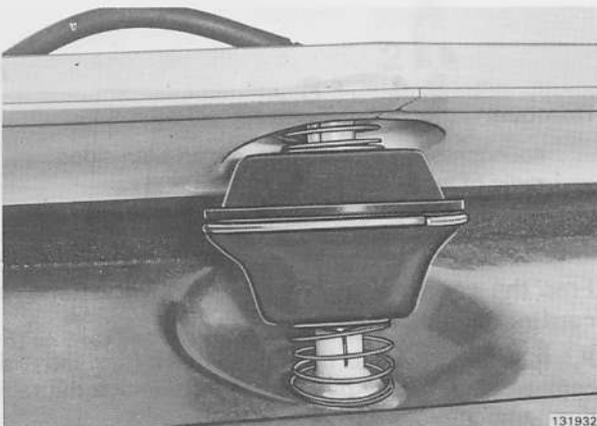
- the shutter actuator. Use new locking clips for the control lever
- the central console front panel
- centre control panel
- radio (if installed)
- side panels and soundproofing on both sides.

16

Reconnect the battery ground lead

## Combined unit (CU)

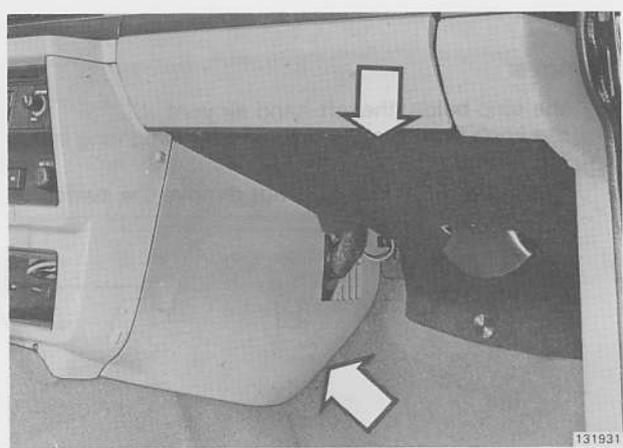
### J. REC-shutter actuator, replacement



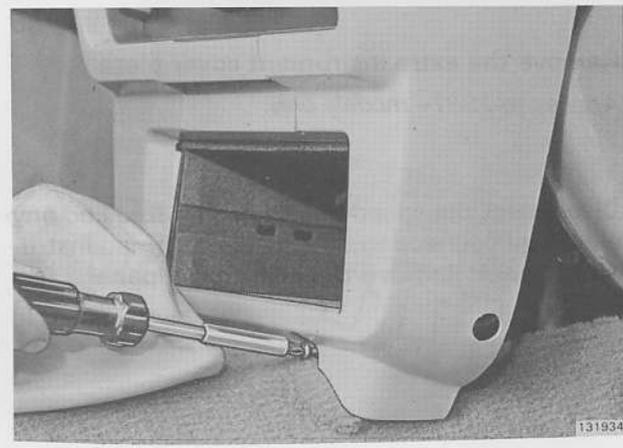
The heater must be removed from the vehicle before the shutter actuator can be removed.

# Combined unit (CU)

## K. Removal of heater



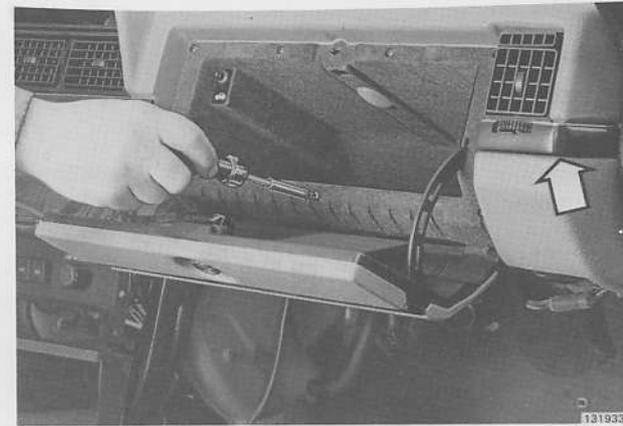
**K1**  
Disconnect the battery ground lead



**K2**  
Move heater controls to closed position

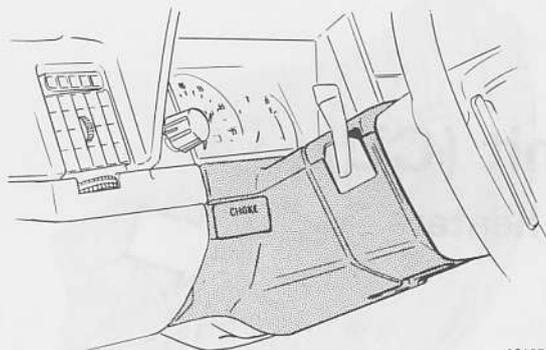
**K3**  
Remove soundproofing and side panels on both sides

**K4**  
Remove:  
- radio (if installed)  
- centre control panel. Disconnect any cables and move the panel to one side.  
**Note:** If the vehicle has an air conditioning system, take care to avoid damage to the heater capillary tube (heat sensor).



**K5**  
Remove:  
- the glove compartment  
- the strip below the right-hand air vent. Carefully pry off with a screwdriver.

Removal of heater

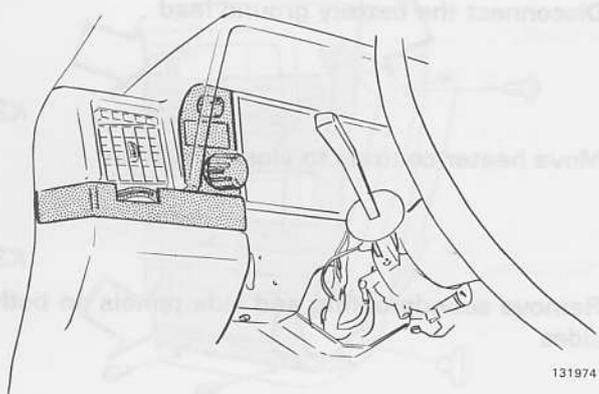


131976

**Remove the steering wheel casings and disconnect the choke control (coverplate).**

**Note:** For vehicles with the CI (fuel injection) system, remove the coverplate for the choke.

K6

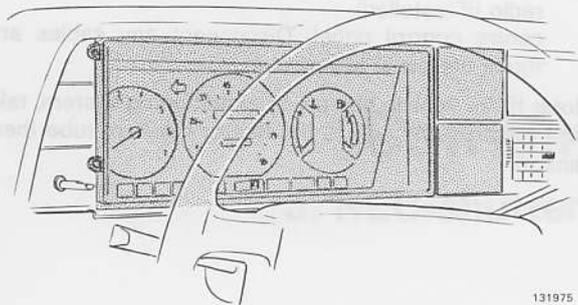


131974

**Remove:**

- the strip below the left-hand air vent
- the knob for adjusting the instrument lighting intensity
- the light switch knob. Do not remove the switch.

K7



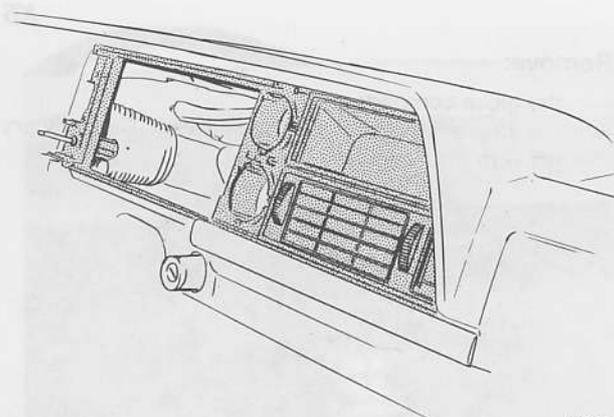
131975

**Remove the extra instrument cover plate**  
*Applies to 1981- models only.*

K8

**Disconnect the speedometer drive cable and any electrical connections from the combined instrument panel. Remove the instrument panel**

K9



131973

**Remove:**

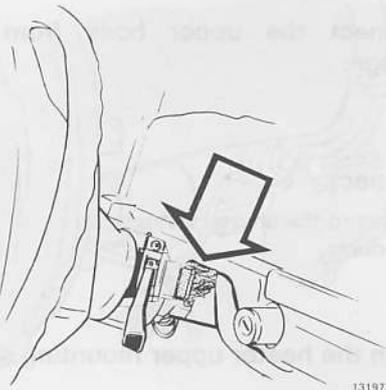
- the storage compartment
- the centre air vents
- the instrument panel frame.

K10

Left-hand side

K11

Unplug the windscreen/windshield wiper connectors

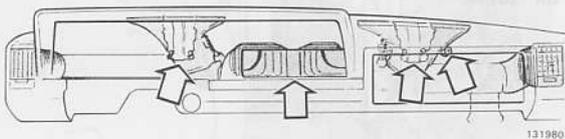


131977

K12

Disconnect:

- the air duct between the heater and centre air vents
- the lead to the glove compartment light
- the rubber straps for the defroster vents.

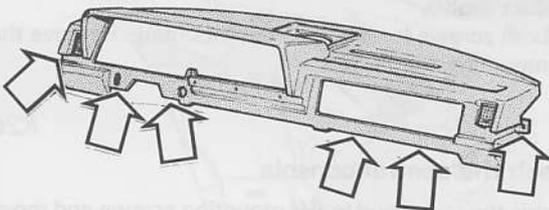


131980

K13

Remove the dashboard

Applies to 1981- models only.

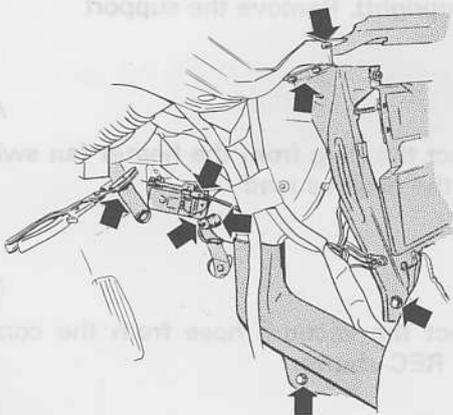


131978

K14

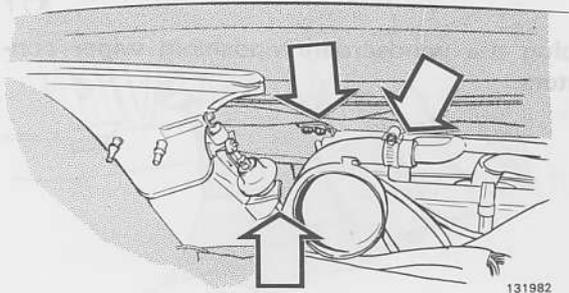
Remove or disconnect:

- attachment screws for rear floor air duct. Lower the duct slightly
- lower heater mounting
- hose to vacuum tank
- cable to control valve
- upper and lower screws for central console
- screws on the centre support
- fan motor ground lead
- inlet hose to control valve. Use hose pliers to clamp the hose.



131979

Removal of heater



K15

**Disconnect the upper hose from the heat exchanger**

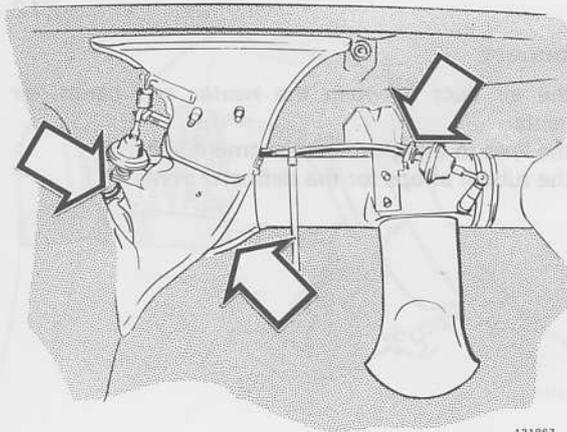
K16

**Disconnect:**

- hoses to the shutter actuators
- air ducts.

K17

**Slacken the heater upper mounting screws**

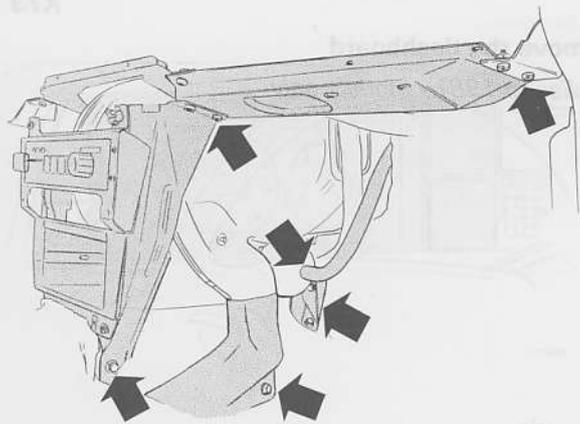


*Right-hand side*

K18

**Disconnect:**

- hoses to shutter actuators
- air ducts.



K19

**Remove or disconnect**

- the hose from the vacuum tank
- the screws securing the rear floor duct. Lower the duct slightly
- both screws for heater lower mounting. Remove the mounting.

K20

**Detach the central console**

Remove the upper and lower mounting screws and move the console to one side.

K21

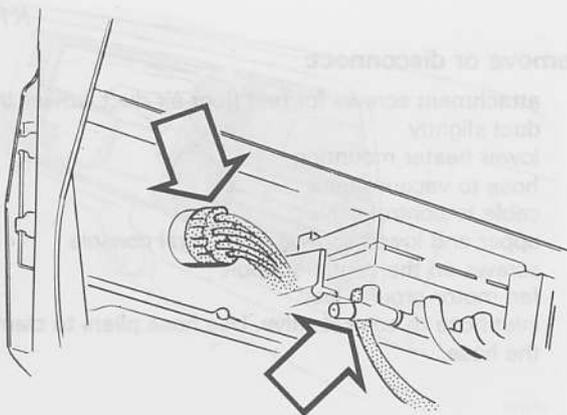
**Remove the mounting screws for the right-hand support (upright). Remove the support**

K22

**Disconnect the plug from the heater fan switch and also the positive lead**

K23

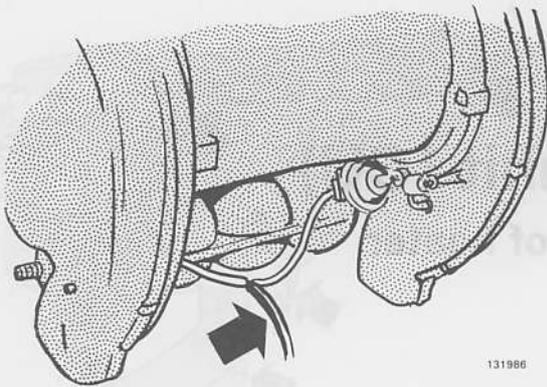
**Disconnect the vacuum hose from the control panel for REC-shutter**



Removal of heater

K24

Disconnect the input vacuum hose from the T-connection to the floor shutter actuators.



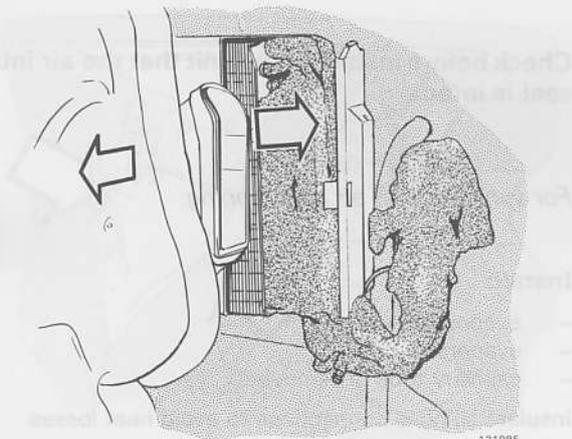
131986

For vehicles with AC continue as follows:

K25

Remove the evaporator cover clips  
Move the cover to one side and free the evaporator slightly

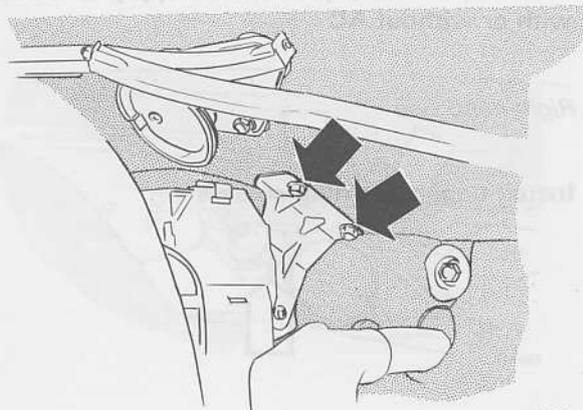
Note: Take care not to damage the heat sensor (capillary tube) when freeing the evaporator. It may be necessary to disconnect it from the evaporator.



131985

K26

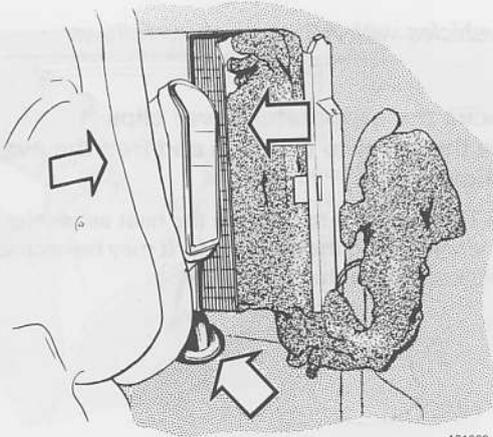
Remove the upper mounting screws and lift out heater + evaporator as one unit



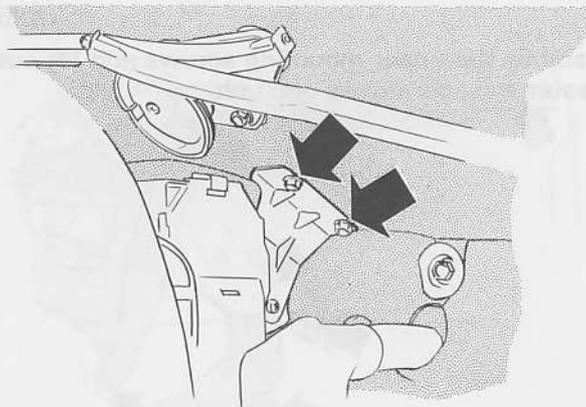
131984

## Combined unit (CU)

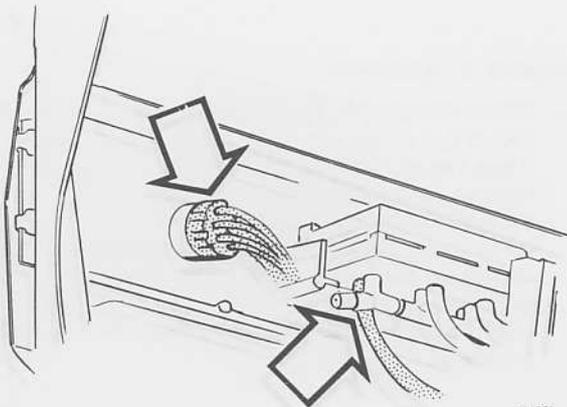
### L. Installation of heater



131989



131984



131981

L1

**Check before installing the unit that the air intake seal is intact**

*For vehicles with air conditioning:*

L2

**Install:**

- evaporator + heater
- evaporator cover
- capillary tube (if removed)

Insulate all hose connections to avoid heat losses.

**From L3 all work procedures apply to vehicles with or without AC**

*Right-hand side*

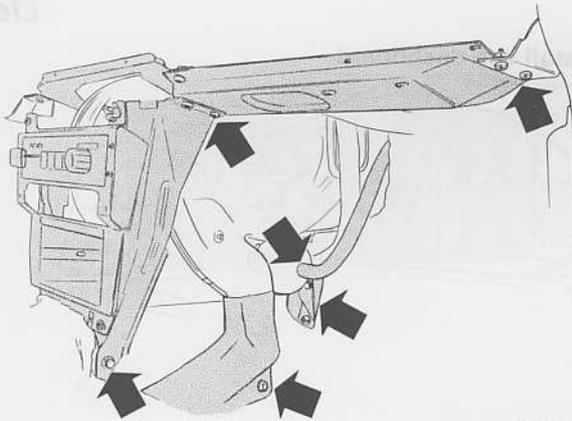
L3

**Install upper retaining screws**

L4

**Connect:**

- vacuum hose to control panel for REC shutter and fit the cover above the hoses
- the plugs for the fan motor switch
- the fan motor positive lead.

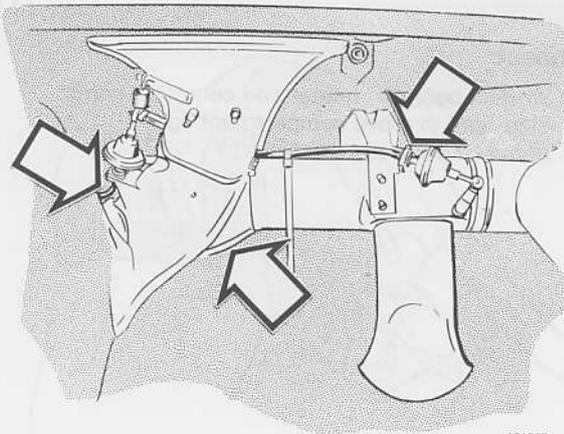


131983

**Install:**

- hose to vacuum tank
- heater lower mounting
- air duct to rear floor
- upper support (upright)
- central console.

L5

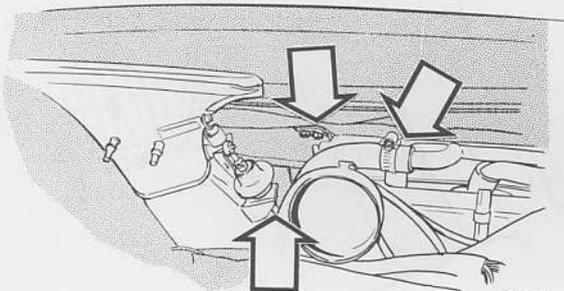


131867

**Connect:**

- air ducts
- hoses to shutter actuators.

L6



131982

**Left-hand side**

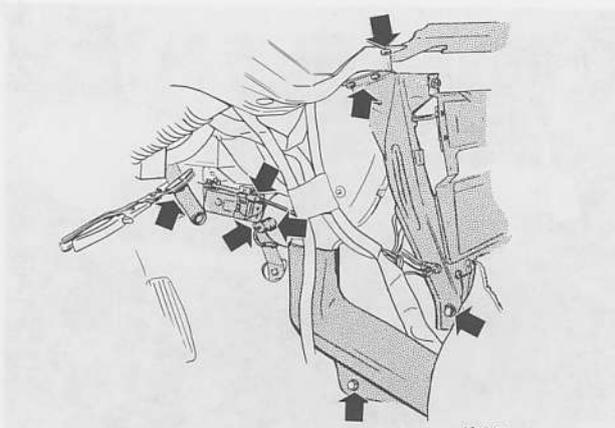
**Tighten the heater upper mounting screws**

**Connect:**

- upper water hose to the heat exchanger
- air ducts
- hoses to the shutter actuators.

L7

L8

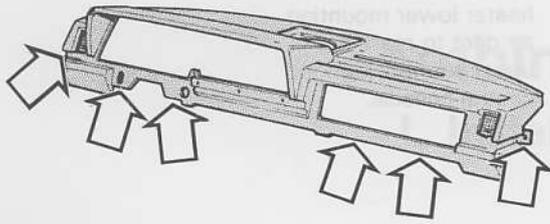


131979

**Install or connect:**

- lower heater mounting
- hose to the control valve. Remove the pliers
- cable to the control valve. Adjust the cable
- hose to the vacuum tank
- air duct to the rear seat
- upper and lower screws to the central console
- screws to the centre support (upright)
- fan motor ground lead.

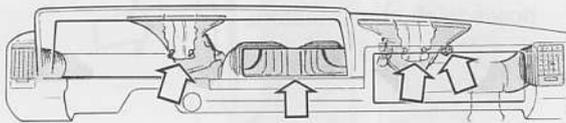
L9



131978

**Install the dashboard**

L10



131980

**Connect:**

- air duct between heater and centre air vents
- elec. lead to glove compartment light
- defroster vent grommets.

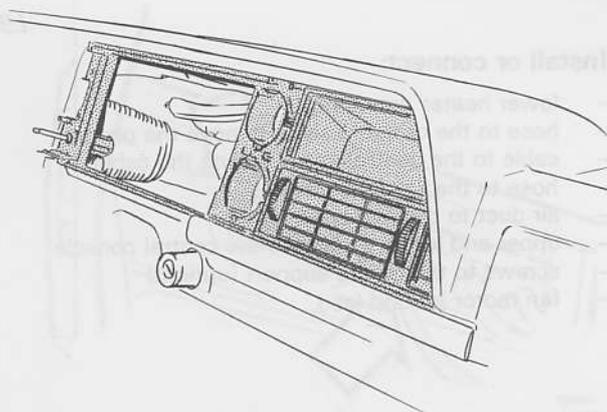
L11



131977

**Reconnect windscreen/windshield wiper plugs**

L12

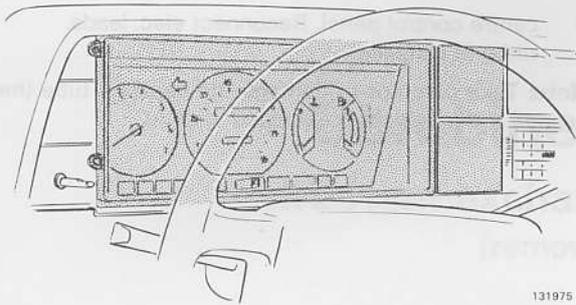


131973

**Install:**

- instrument panel frame
- centre air vents
- storage compartment.

L13

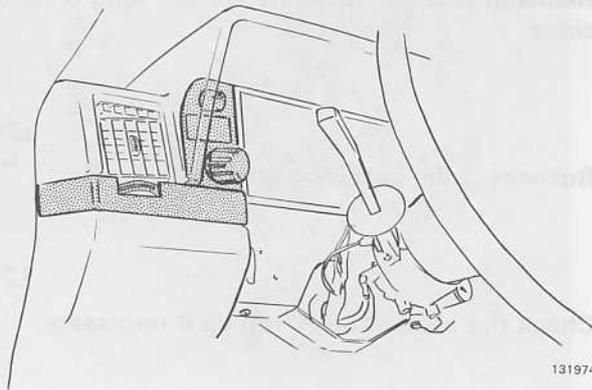


131975

L14

**Install:**

- combined instrument panel and reconnect the speedometer drive cable and elec. leads
- cover panel for extra instruments.

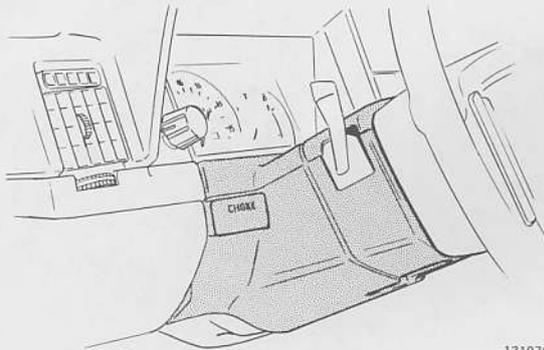


131974

L15

**Install:**

- light switch knob
- control knob for instrument lighting intensity
- strip below outer left-hand air vent.



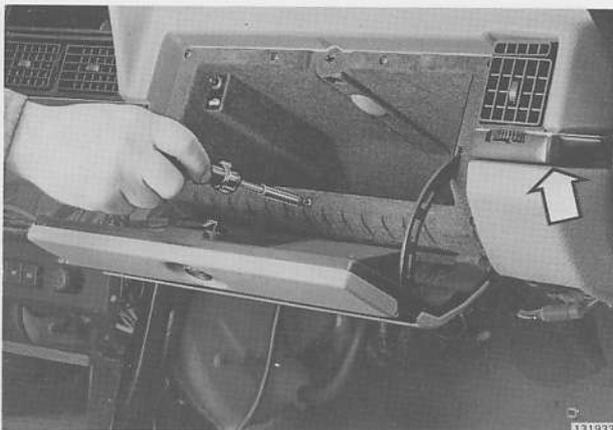
131976

L16

**Install:**

- steering column casings
- choke control if installed

**Note:** For CI (fuel injection) engines refit the cover plate for choke.



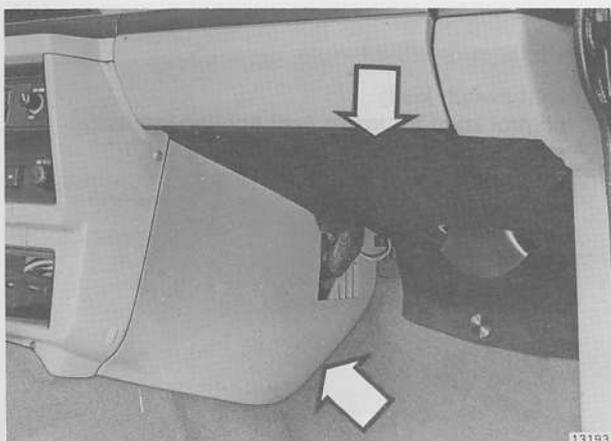
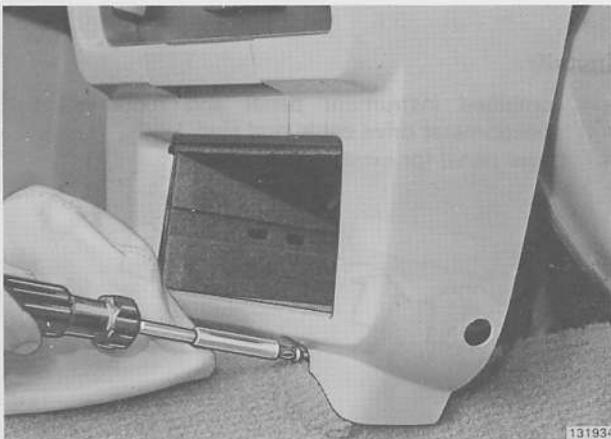
131933

L17

**Install:**

- strip below the outer right-hand vent
- glove compartment.

Installation of heater



L18

**Install:**

- centre control panel. Reconnect elec. leads.
- radio (if installed).

**Note:** Take care not to damage the capillary tube (heat sensor) if the vehicle is equipped with AC.

L19

**Reinstall side panels and soundproofing on both sides**

L20

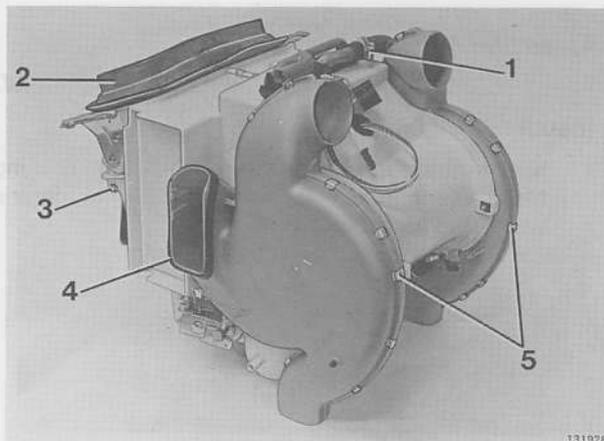
**Reconnect the battery ground lead**

L21

**Check the coolant level, top up if necessary.**

# Combined unit (CU)

## M. Heat exchanger, replacement (removed heater)

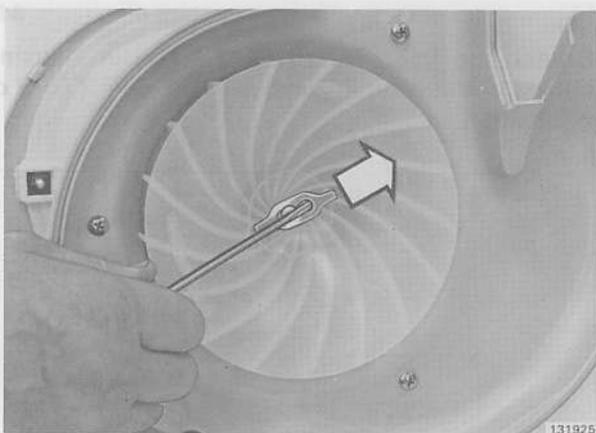


Disassembly of heater housing

M1

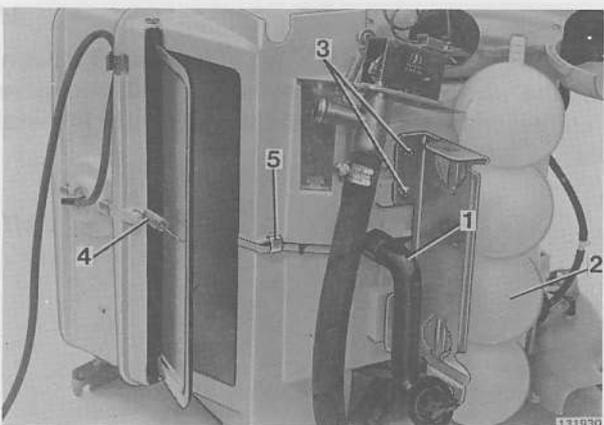
**Remove or disconnect:**

- upper hose to the heat exchanger (1)
- the air inlet rubber seal (2)
- the REC-shutter clips, left-hand-side (3)
- the rubber seals for both defroster vents (4)
- all clips for both the outer fan casings (5). Remove the casings.



M2

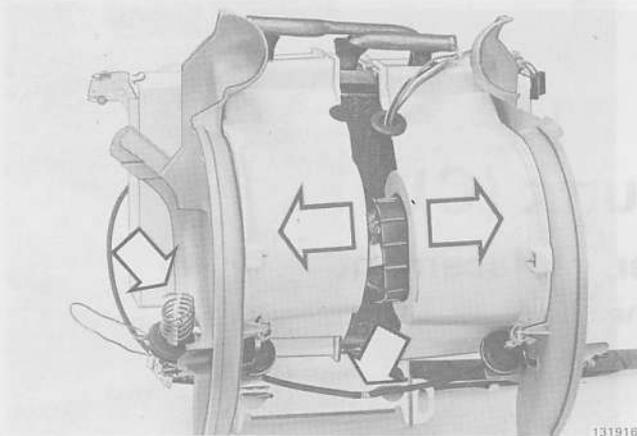
Remove the fan wheel locking clips on both sides



M3

**Remove:**

- the heater core drain hose (1)
- vacuum tank (2)
- retaining screws for vacuum tank bracket on left-hand-side (3)
- REC-shutter spring (4)
- all heater housing clips (5).



**Remove or disconnect:**

- retaining screws for fan motor
- heater control valve capillary tube from attachment
- the shutter actuators rubber hose from the T-joint.

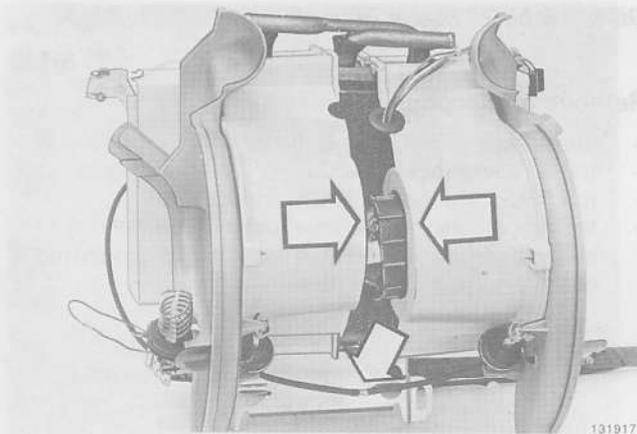
M4

**Pull apart the heater housing**

M5

**Remove the heater core and fan motor**

M6



**Assembly of heater housing**

M7

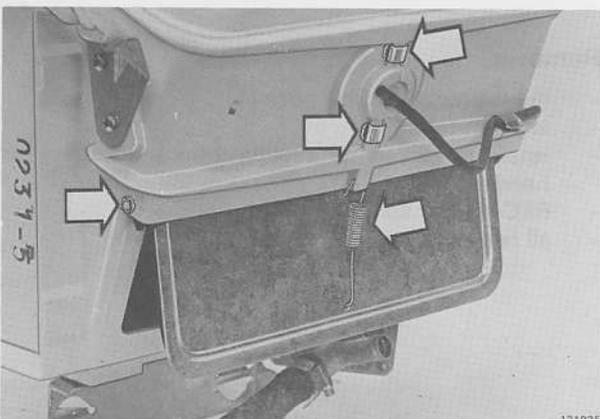
**Install:**

- heat exchanger and fan motor to heater housing. Make sure that the plastic cover for the fan motor is positioned correctly
- the shutter actuator hose to the T-joint.



M8

**Smear the lower edge of the heater housing halves with sealant. Volvo part no. 686 275-9 or equivalent.**



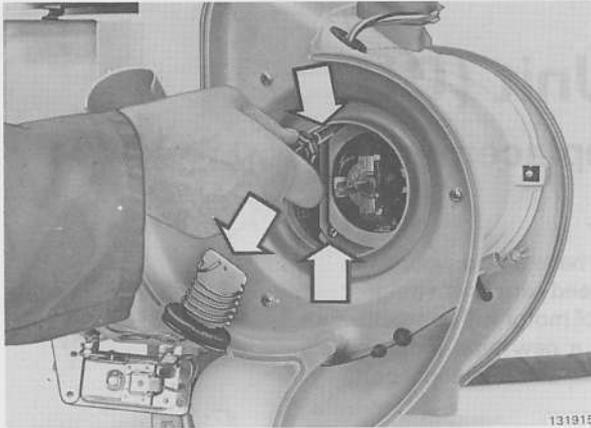
M9

**Insert the REC-shutter shaft in the heater housing at the same time as both heater housing halves are assembled and the shutter actuator is installed.**

M10

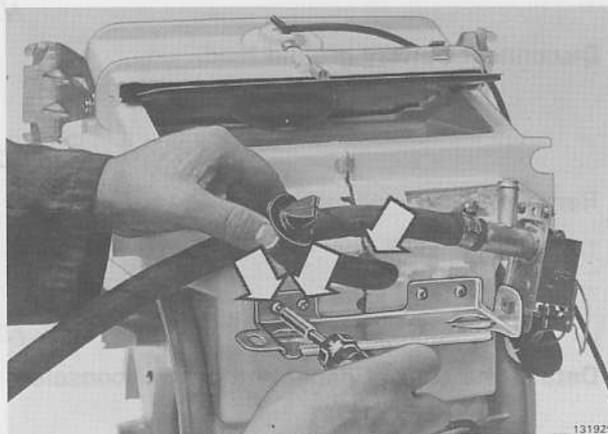
**Install or connect:**

- REC-shutter clip
- return spring
- all heater housing clips
- vacuum hose to REC-shutter actuator.



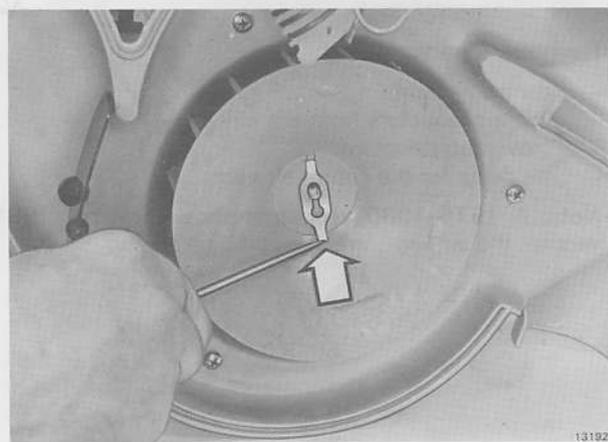
**Tighten the fan motor screws**

M11



**Attach the heater control valve capillary tube to the mounting**

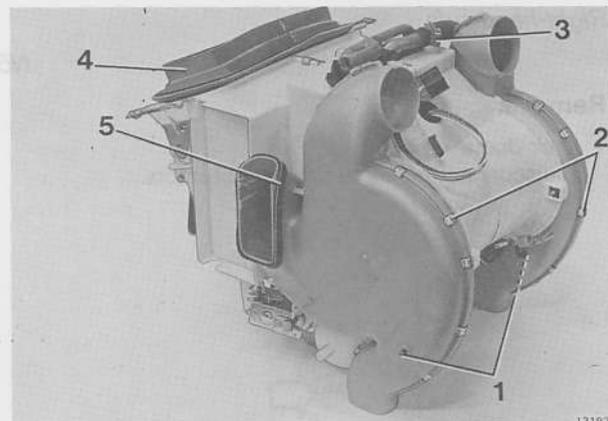
M12



**Install:**

- retaining screws for the vacuum tank bracket and vacuum tank
- heater core drain hose.

M13



**Attach both fan wheels and secure with clips**

M14

**Install the outer fan casings**

Check that the shafts (1) are located correctly.

M15

**Now install the following parts:**

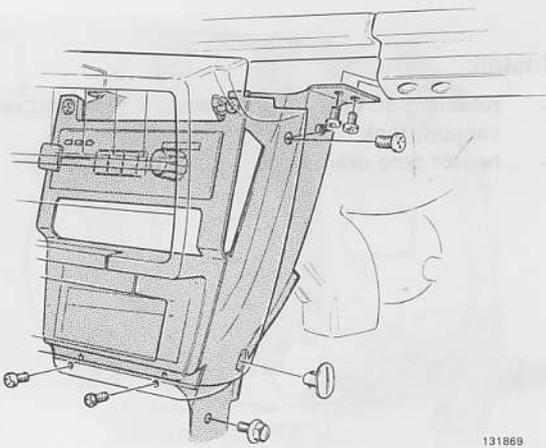
- all fan casing clips (2)
- upper water hose to heater core (3)
- air intake rubber seal (4)
- rubber seals for defroster hoses inlet, both sides (5).

M16

# Combined Unit (CU)

## N. Fan motor, replacement

Vehicles built during 1975–1980 have a field wound fan motor. 1981–vehicles have a 4-speed permanent magnet motor. In the future only this type of motor will be stocked as a spare part. When installing a new type motor on 1975–1980 vehicles modifications and additional parts are required to obtain correct fit.



N1

Disconnect battery ground lead.

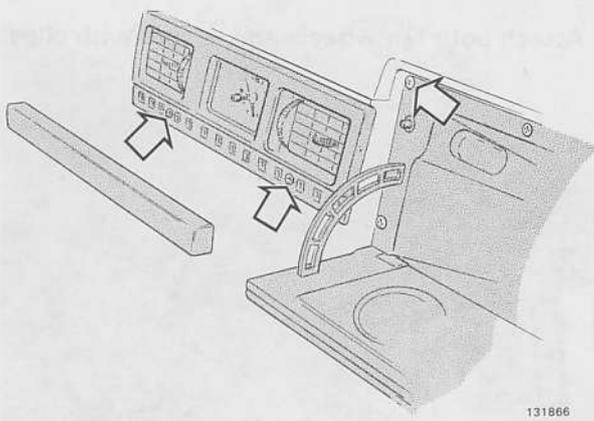
N2

Remove:

- sound insulation and side panels on both sides
- radio (if installed).

N3

Detach the control panel and central console

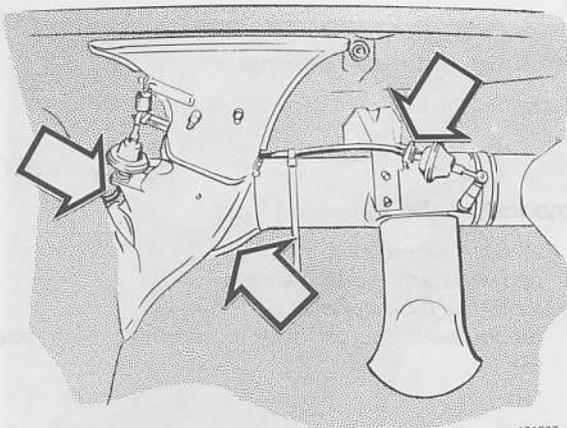


N4

Remove or disconnect:

- centre air vents
- cable connectors from the clock
- glove compartment
- air ducts for the centre air vents.

**Note:** A 1975–1980 version is shown. On the 1981 version, the air vents are secured by a screw.

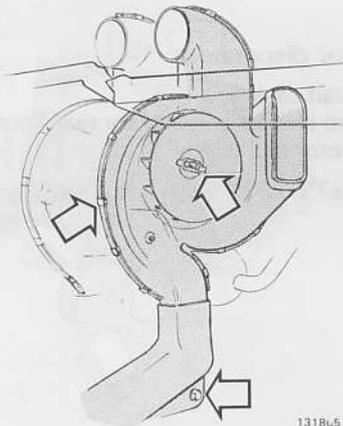


*Right-hand-side*

N5

Remove:

- air ducts
- disconnect hoses to shutter actuators.



Fold back the floor carpet

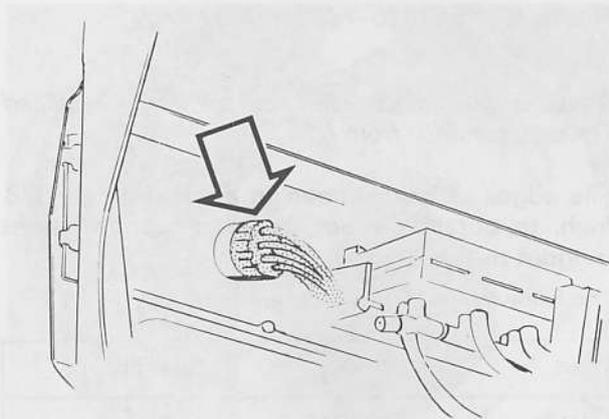
N6

**Remove:**

- screw for the rear floor air duct. Move the duct to one side slightly
- outer fan casing
- fan wheel.

**Note:** It may be necessary to remove the support under the glove compartment to remove the fan casing.

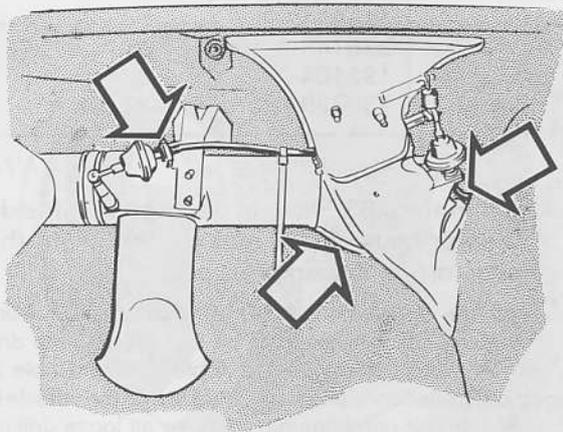
N7



**Disconnect:**

- fan motor switch from central console
- elec. leads from the switch.

N8

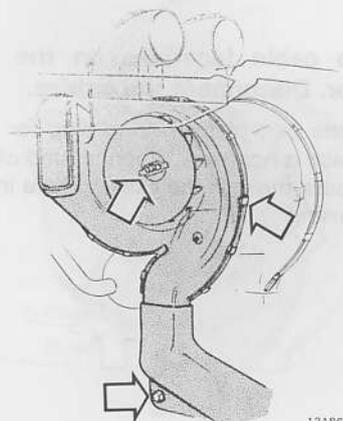


Left-hand side

**Disconnect:**

- air ducts
- hoses to shutter actuators.

N9



Fold back the floor carpet

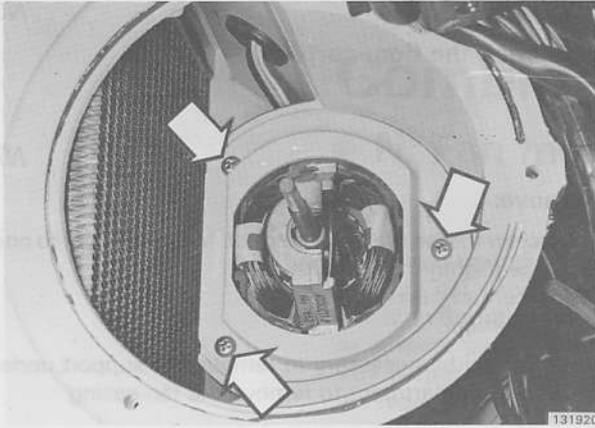
N10

**Remove:**

- screw for rear floor air duct. Move the duct to one side slightly
- outer fan casing
- fan wheel

N11

Fan motor, replacement

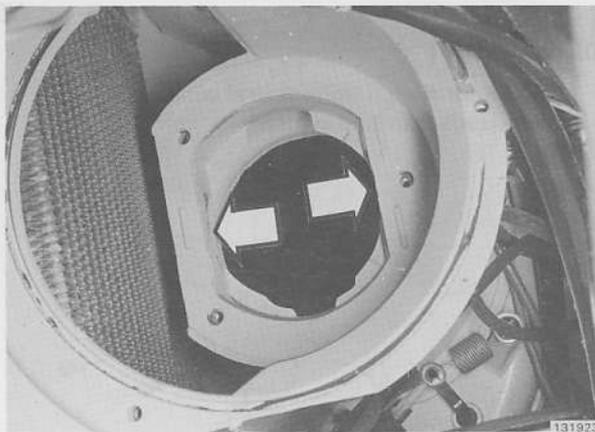


N12

**Remove or disconnect:**

- inner fan casing
- hose to shutter actuator for rear floor
- fan motor and ground lead.

**Note:** A 1975–1980 version is shown.



*Modification of 1975–1980 models*

N13

*(Vehicles built since 1981 or previously modified vehicles, continue from N15.)*

**File edges of heater housing approximately 1/8 inch, to obtain correct fit for new permanent magnet motor**

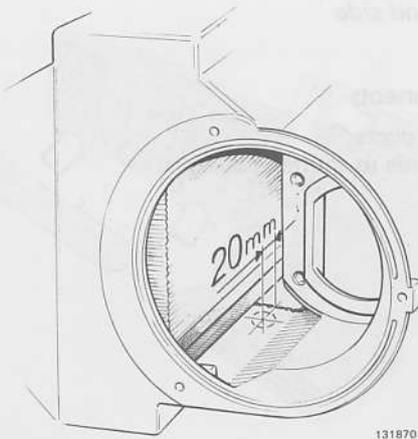
The following additional parts are necessary:

Part	Number	Quantity
Motor	1307845-6	1
Resistor	1307846-4	1
Switch	1259912-2	1
Screw	955145-8	3
Washer	192404-2	2
Plastic Bush	1307391-1	3

N14

**Drill a 16 mm = 0.63" hole in the bottom left side of the heater housing, 20 mm = 0.79" from the outer edge of the housing.**

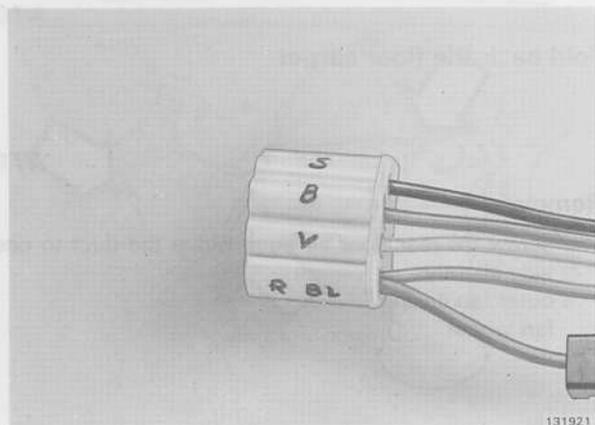
Drill from the inside with a 90° drill adapter or from underneath by using a long drill bit and holding the drill against the transmission tunnel. A clean, round hole is needed otherwise condensation could leak if the vehicle is equipped with air conditioning. Remove all loose drilling debris.



N15

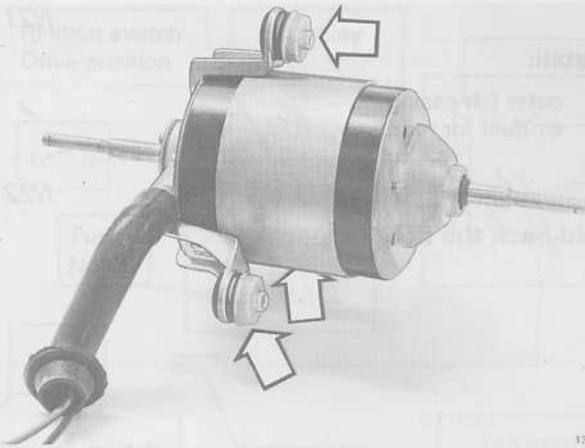
**Mark up cable locations on the new switch connector. Disconnect the cables.**

There is one part of the wiring plug for the heater fan switch which is not used. When ground off, the complete plug will pass through the existing hole in the top of the heater housing.



N16

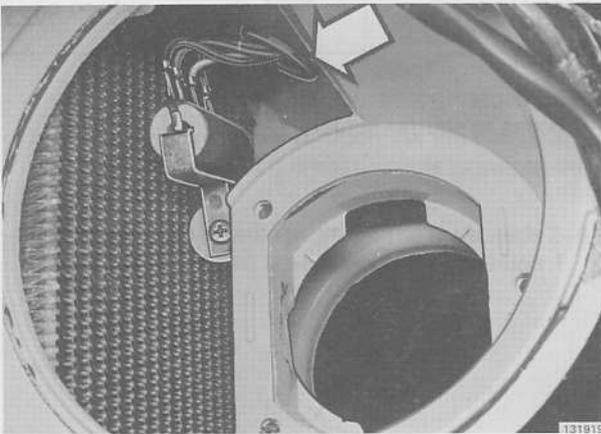
Install plastic bushings as illustrated. If not installed the fan wheels may contact the casings.



131918

N17

Pass the cables for the resistor through the upper hole in the heater housing. Fit the rubber grommet



131819

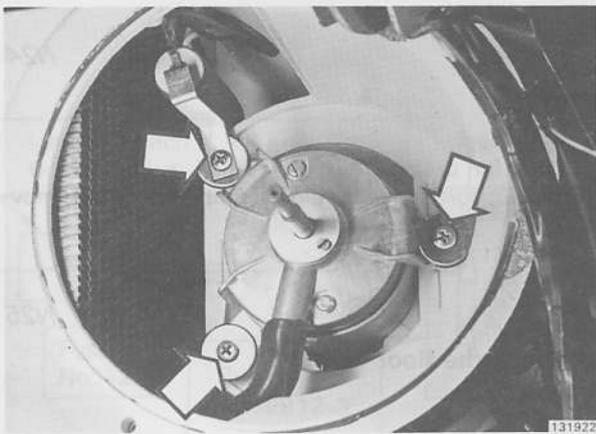
N18

**Install the motor**

Use the screws and washers in the installation kit.

Insert the cables and casing through the drilled hole in the bottom of the heater housing.

**Note:** Take care not to crease or restrict the cable casing, since air for fan motor ventilation flows along it.



131922

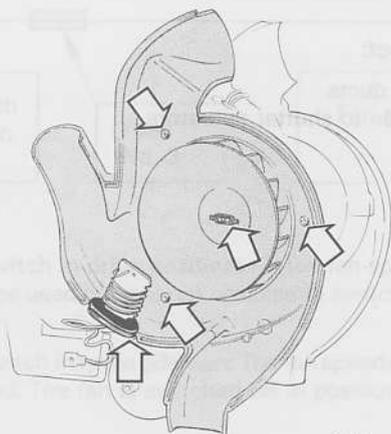
N19

**Install:**

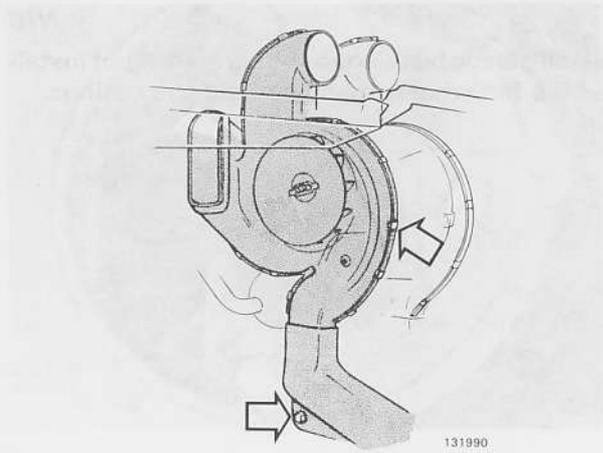
- inner fan casing
- control valve capillary tube in inner fan casing
- fan wheel.

N20

Connect hose to rear floor shutter actuator



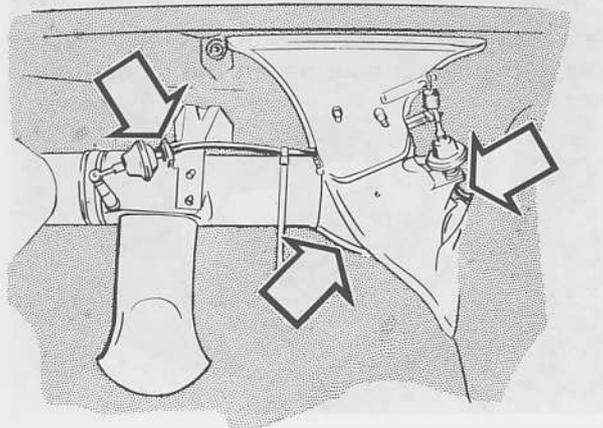
131871



**Install:**

- outer fan casing
- air duct for rear floor.

N21



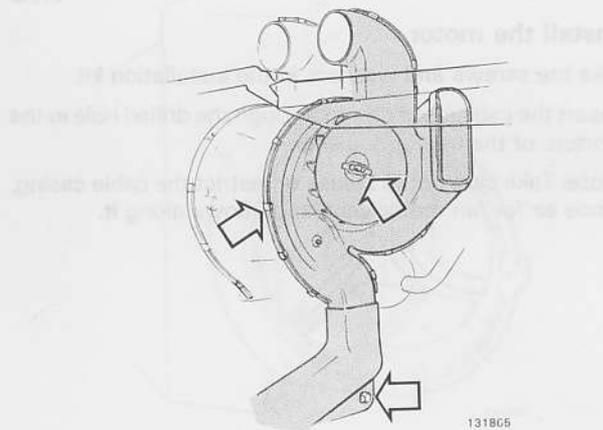
**Connect:**

- air ducts
- hoses to shutter actuators.

N22

**Fold back the floor carpet**

N23

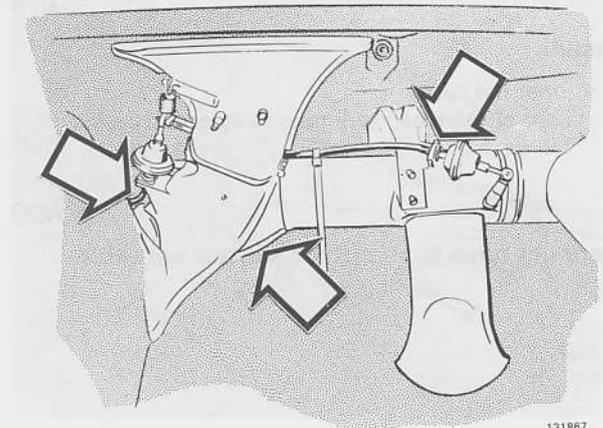


**Install:**

- fan wheel
- outer fan casing
- the support under the glove compartment (if removed)
- air duct for rear floor.

*Right-hand side*

N24



**Connect:**

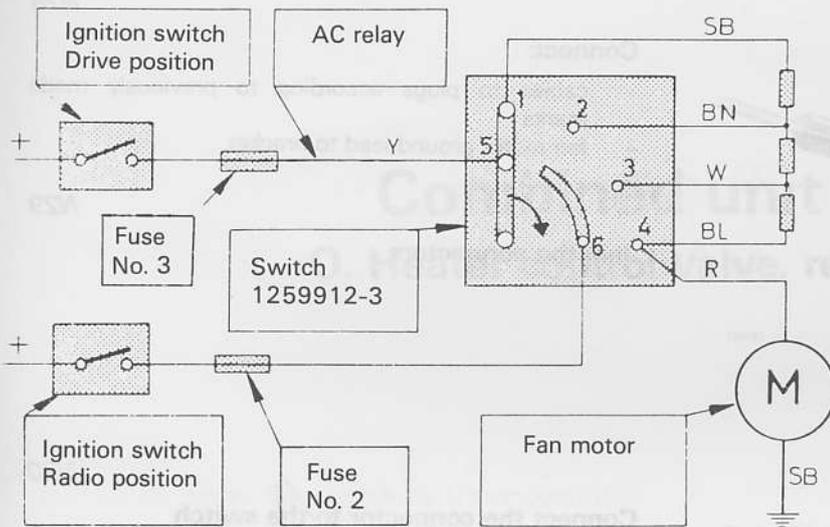
- air ducts
- hose to shutter actuators.

N25

**Fold back the floor carpet**

N26

N27



**Connecting the fan motor**

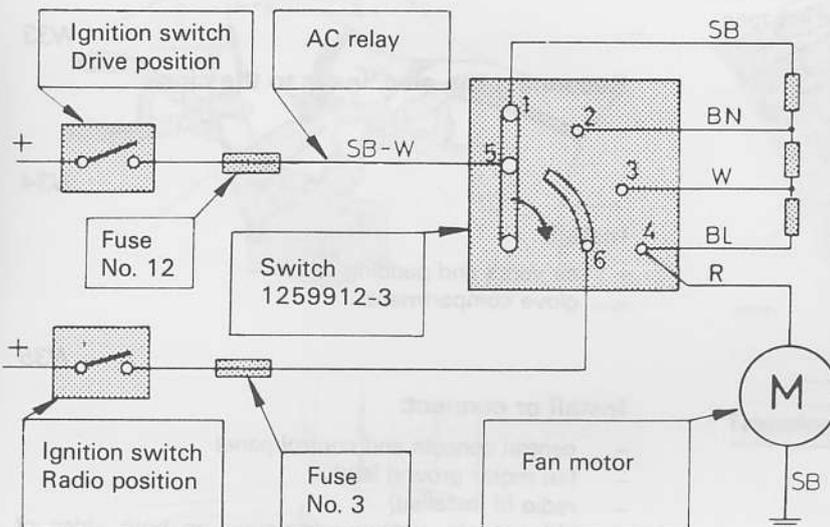
**Vehicles built up to and including 1978:**

Move the existing yellow cable from fuse 2 to fuse 3 and connect it to terminal 5 on the switch connector.

Use a new cable and connect it from fuse 2 to terminal 6 on the connector. Connect the AC relay on the cable between fuse 3 and terminal 5 on the switch connector. Use a Scotch-lock type of plug.

1. **Ignition switch in drive position:** All the fan speeds (1-4) can be used but it is not possible to switch the fan off.
2. **Ignition switch in radio position:** The fan speeds 2-4 can be used. The fan is switched off in position 1.

131938



**Vehicles built 1979-1980**

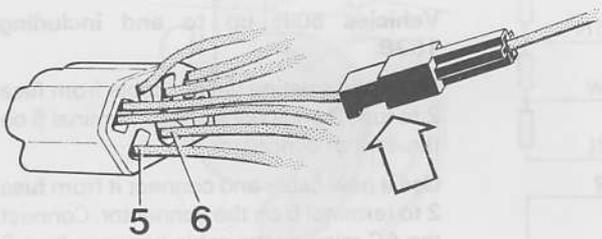
Move the existing black/white cable from fuse 3 to fuse 12 and connect it to terminal 5 on the switch connector.

**Note:** It may be necessary to extend this cable. Use a new cable and connect it from fuse 3 to terminal 6 on the connector.

Connect the AC relay on the cable between fuse 12 and terminal 5 on the switch connector. Use a Scotch-lock type of plug.

1. **Ignition switch in drive position:** All the fan speeds (1-4) can be used but it is not possible to switch the fan off.
2. **Ignition switch in radio position:** The fan speeds 2-4 can be used. The fan is switched off in position 1.

131939



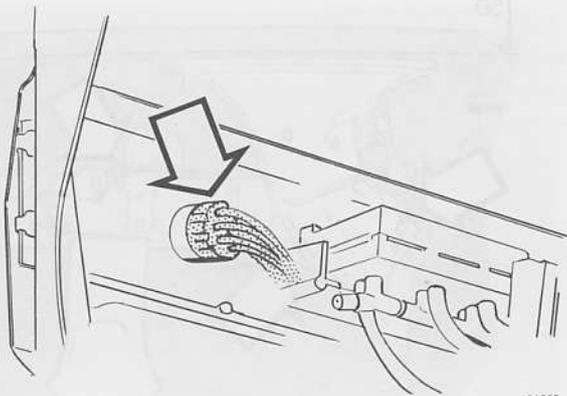
**Connect:**

- cables to plugs according to previously made marks
- fan motor ground lead to bracket.

N28

**Join the connectors**

N29



**Connect the connector to the switch**

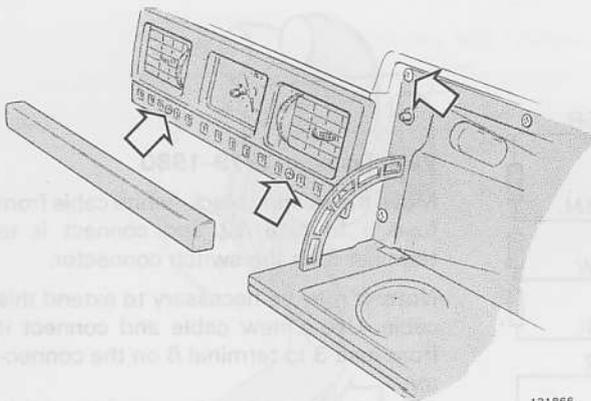
N30

**Fit:**

- the switch to the central console
- the switch knob.

N31

*Now test the operation of the fan motor*



**Connect the air ducts for the centre air vents.**

N32

**Reconnect the elec. leads to the clock**

N33

**Install:**

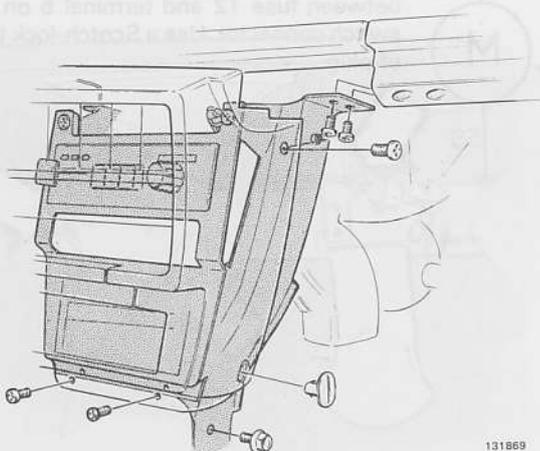
- air vents and padding
- glove compartment.

N34

**Install or connect:**

- central console and control panel
- fan motor ground lead
- radio (if installed)
- side panels and soundproofing on both sides of central console.

N35

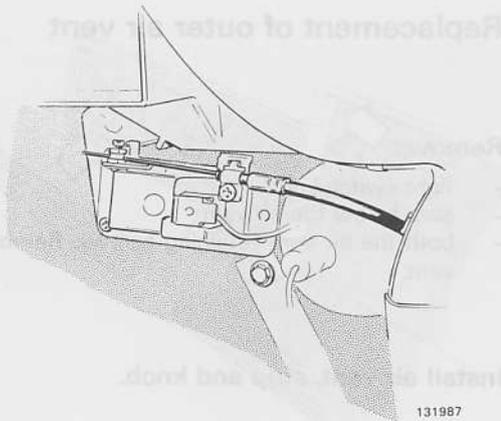


**Reconnect the battery ground lead.**

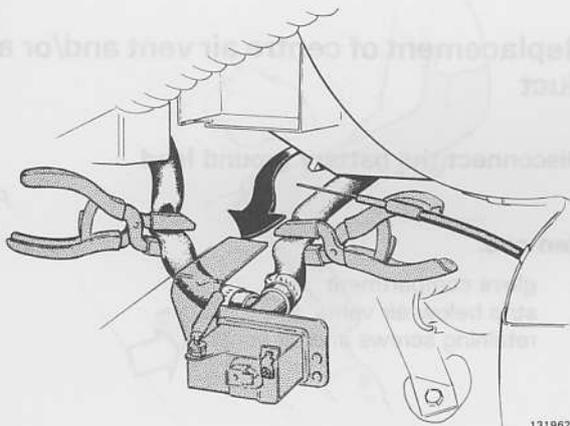
N36

## Combined unit (CU)

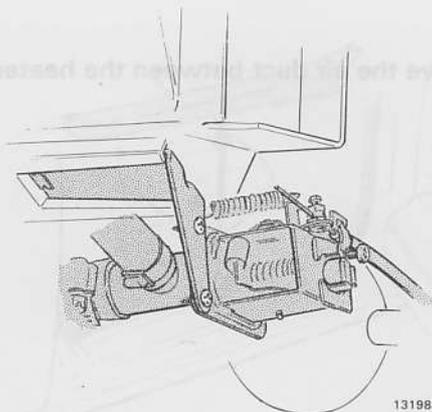
### O. Heater control valve, replacement



131987



131962



131988

01

Remove the soundproofing and side panels on left-hand side of central console

02

Disconnect the control cable from the control valve.

03

Pull out the control valve from the mounting

Attach hose pliers to the inlet and outlet hoses. Disconnect the hoses.

04

Transfer the bracket to the new control valve

05

Connect the hoses. Detach the hose pliers

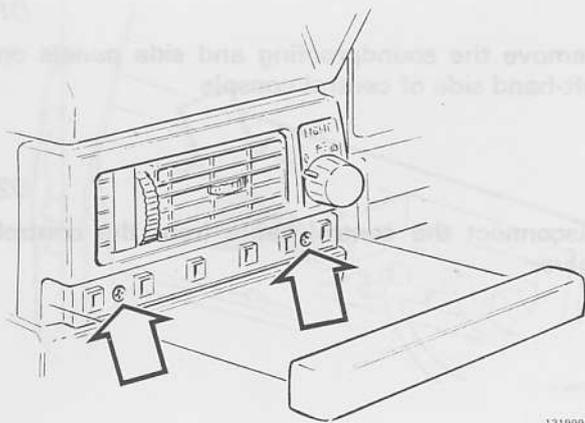
06

Install or connect:

- the control valve
- the control cable. Adjust the cable
- soundproofing and side panels.

# Air distribution

P. 1975-1980



## Replacement of outer air vent

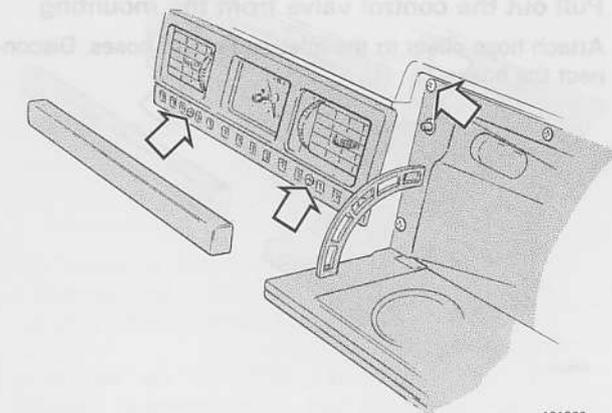
P1

### Remove:

- light switch knob
- strip below the air vent
- both the air vent retaining screws. Remove the air vent.

P2

Install air vent, strip and knob.



## Replacement of centre air vent and/or air duct

### Disconnect the battery ground lead

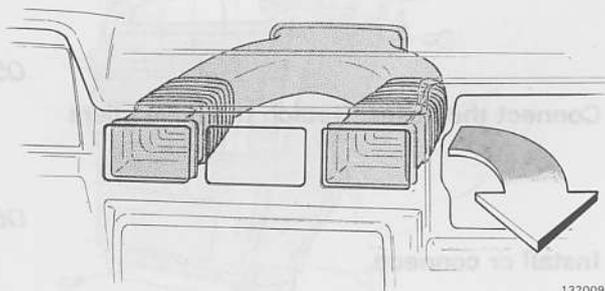
P3

### Remove:

- glove compartment
- strip below air vents
- retaining screws and air vents.

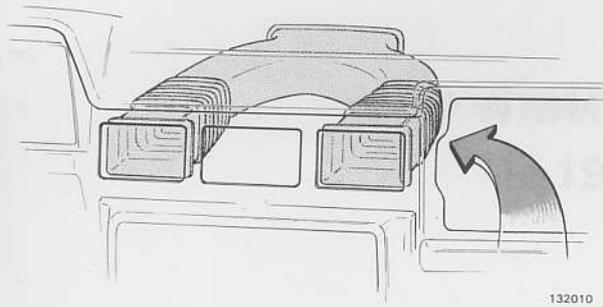
P4

Remove the air duct between the heater and air vents.



P5

**Install the air duct**



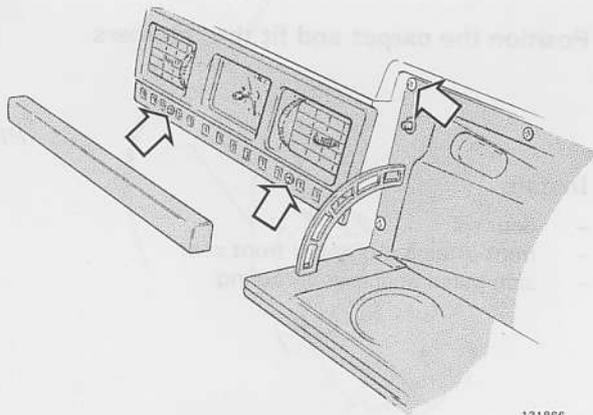
132010

P6

**Install:**

- air vents
- strip below air vents
- glove compartment

Reconnect the battery ground lead.



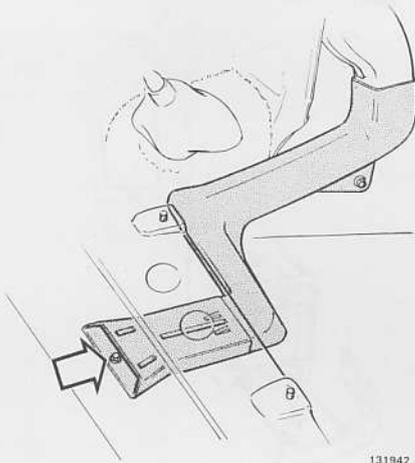
131866

**Rear floor air duct, replacement**

*Push seat as far forward as possible*

P7

**Unscrew the retaining screws on the rear duct and remove the duct**



131942

P8

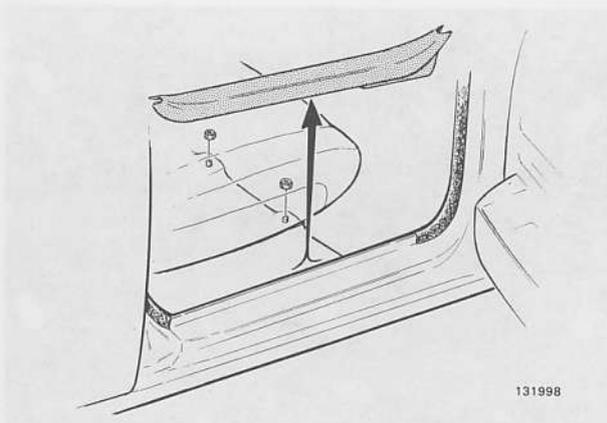
**Install the new duct**

*Move the front seat back to its rearmost position*

P9

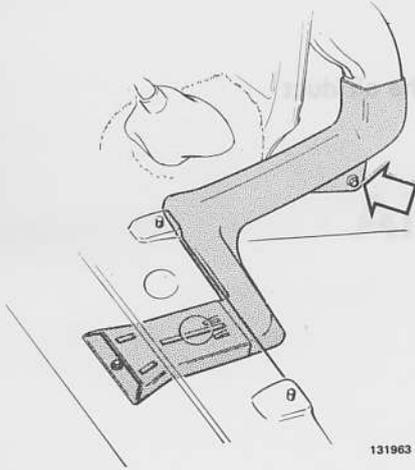
**Remove:**

- soundproofing and side panel
- front retaining nuts for front seat. Lift the seat backwards slightly
- door sill
- floor carpet retainers. Move carpet to one side.



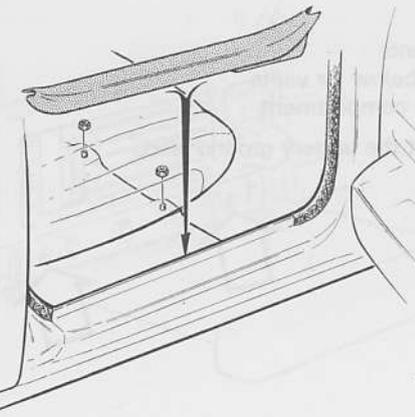
131998

Air duct to rear floor, replacement



Remove the front air duct

P10



Install the new duct

P11

Position the carpet and fit the retainers

P12

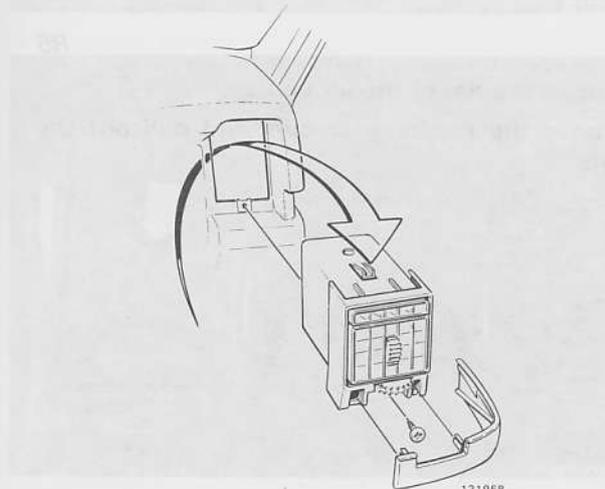
Install:

- door sill
- front retaining nuts for front seat
- side panel and soundproofing.

P13

## Air distribution

R. 1981-



131958

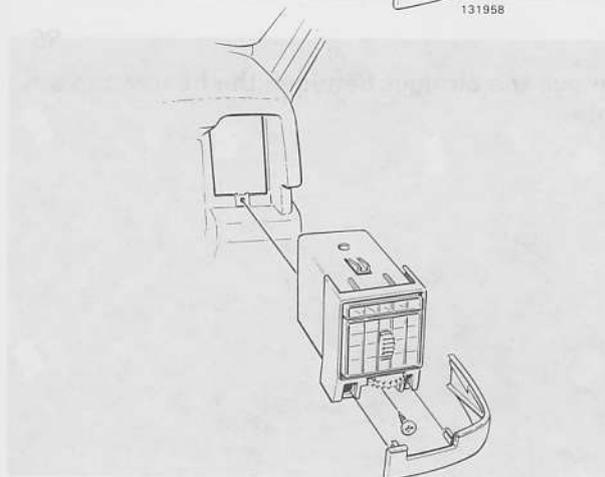
### Outer air vent, replacement

R1

**Remove the strip under the vent**

Carefully pry off with a screwdriver.

**Remove the retaining screw and push down the clip on top of the vent. Remove the vent**

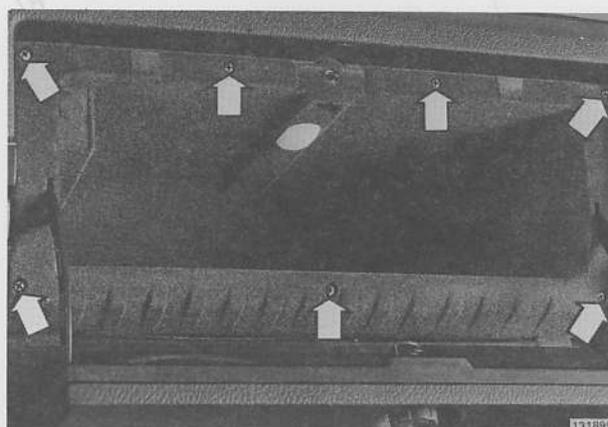


131959

R2

**Press in the new vent and tighten the screw**

Refit the strip under the vent.



131899

### Centre air vent and/or duct, replacement

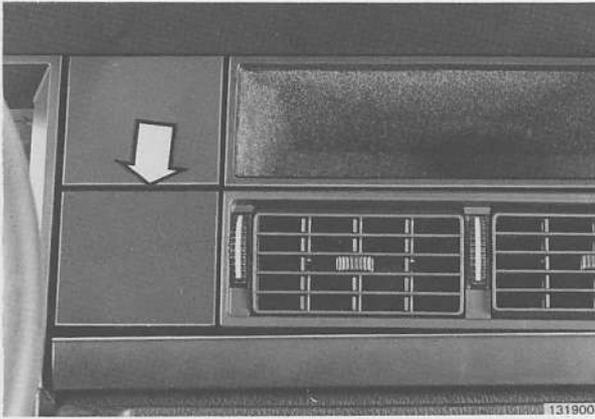
R3

**Disconnect the battery ground lead**

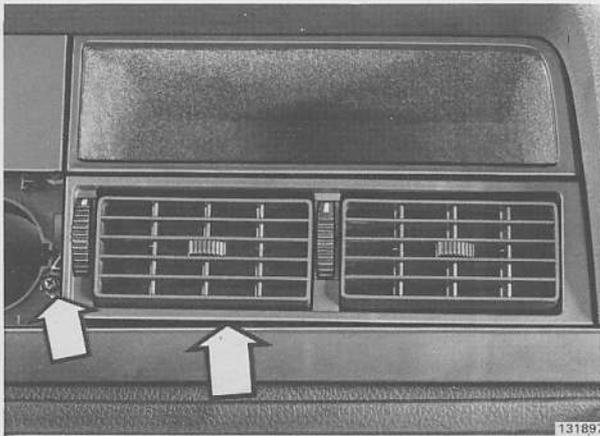
**Remove the glove compartment**

R12

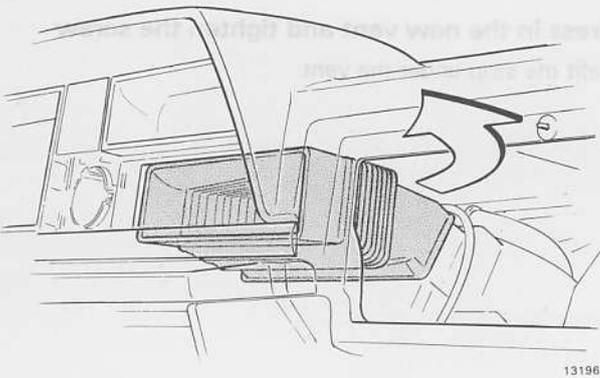
Outer and/or centre air vents, replacement



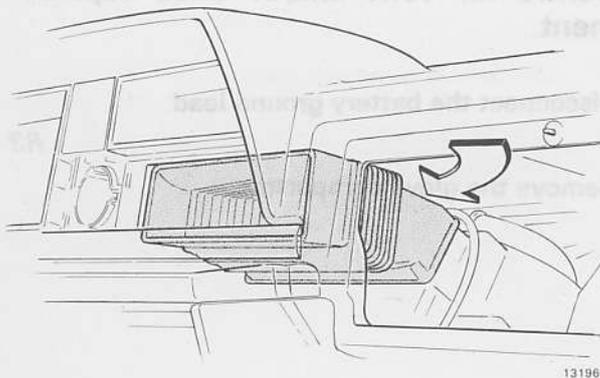
**R4**  
Remove the extra instrument cover panel



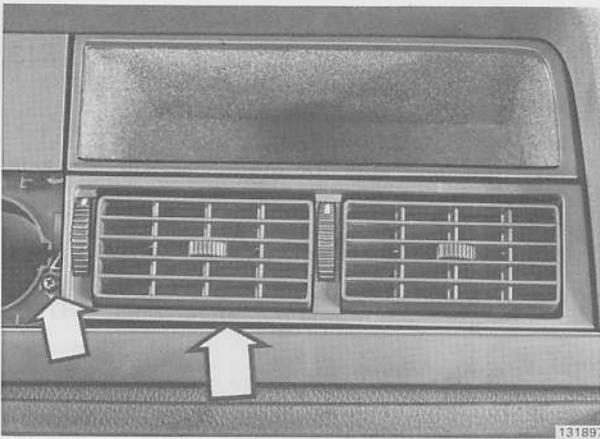
**R5**  
Remove the rim of the air vents  
Remove the retaining screws and pull out the vents



**R6**  
Remove the air duct between the heater and air vents



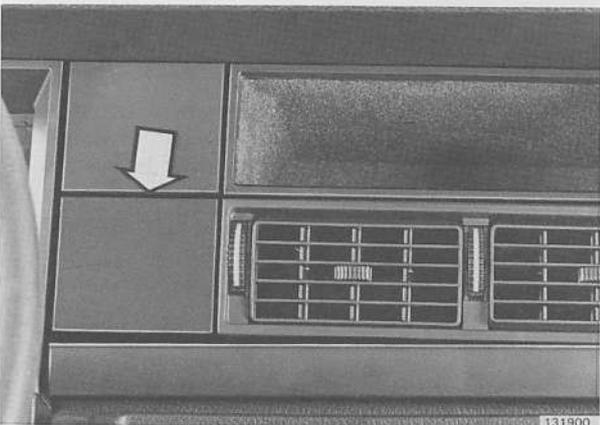
**R7**  
Install the air duct



131897

**Install the air vents and rim**

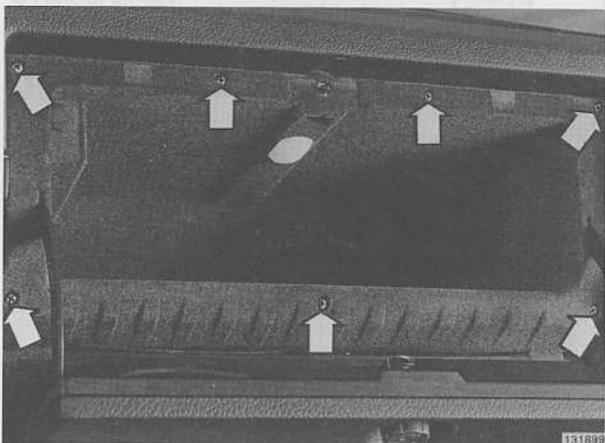
R8



131900

**Install extra instrument cover**

R9

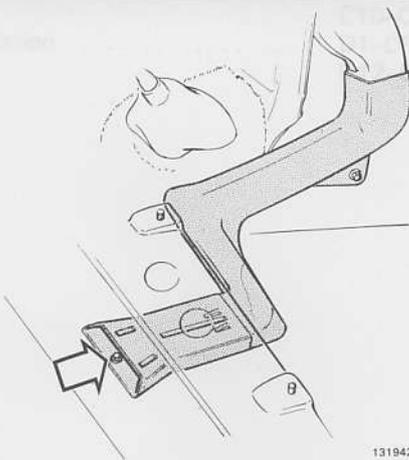


131899

**Reinstall the glove compartment**

R10

**Reconnect the battery ground lead**



131942

**Rear floor air duct, replacement**

*Push the front seat as far forward as possible*

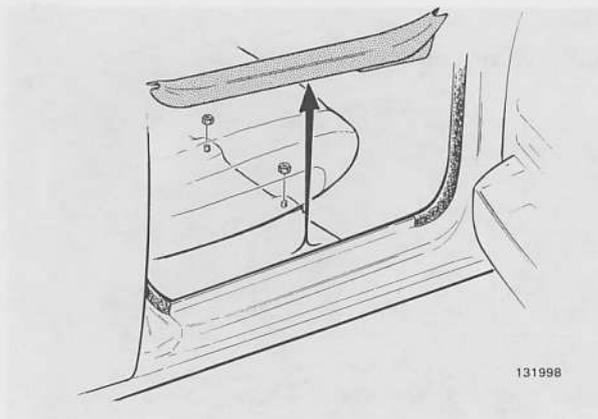
R11

**Remove the retaining screws at the rear of the duct and remove the duct**

R12

**Install the new duct**

Rear floor air duct, replacement

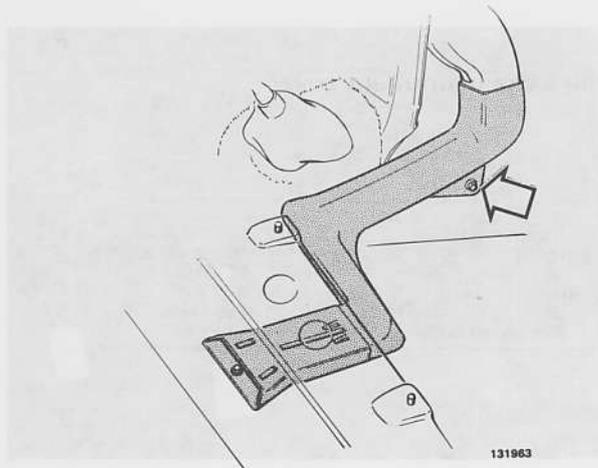


Push the front seat as far to the rear as possible

R13

**Remove:**

- soundproofing and side panel
- front retaining nuts for front seat. Lift the seat backwards slightly.
- door sill
- floor carpet retainers. Fold back the carpet.



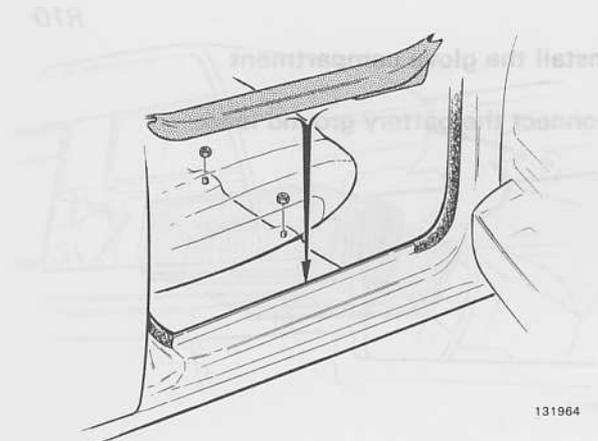
**Remove the front air duct**

Remove the screw.

R14

R15

**Install the new duct**



**Position the carpet and fit the retainers**

R16

R17

**Install:**

- door sill
- front retaining nuts for front seat
- side panel and soundproofing.

# Index

## Air distribution 1975-1980

### Air vents

vent, removal	P1	45
ventilation	P2	48
vent, removal	P3	48
ventilation	P4	47

Operation Page

## Standard Unit

### Control/Cable

removal	A1-A6	2
installation	A7-A10	3

### Fan motor switch

removal	B1	3
installation	B2	3

### Fan motor (removed unit)

removal	E1-E3	14
fan wheel, transference	E4	14
bracket installation	E5	14
installation	E6-E9	15

### Heat exchanger, (removed unit)

removal	E1-E2	14
installation	E6-E9	15

### Heater control valve, type A

removal	F1-F5	16
modification	F9-F14	18
installation	F18-F20	19

### Heater control valve, type B

removal	F1-F5	16
	F6-F8	17
installation	F15-F20	19

### Heater, type A

removal	C1-C9	4
	C13-C24	6
installation	D1-D11	9
	D14-D23	12

### Heater, type B

removal	C1-C5	4
	C10-C24	5
installation	D1-D9	9
	D12-D23	11

## Combined Unit (CU)

### Control panel

removal	H1-H4	22
installation	H5-H7	23

### Fan motor

removal	N1-N12	38
modification	N13-N14	40
installation	N18-N35	41
connection	N27	43

### Fan motor switch

removal	H1-H4	22
installation	H5-H7	23

### Heater

removal	K1-K26	25
installation	L1-L21	30

### Heater control/Cable

removal	G1-G3	21
installation	G4-G7	21

### Heater control valve

removal	O1-O3	45
installation	O4-O6	45

### Heat exchanger, (removed unit)

removal	M1-M6	35
installation	M7-M16	36

### REC shutter actuator

removal	I1	24
installation	I2	24

### Shutter actuator for rear floor vent

removal	I1-I4	23
installation	I5-I6	24



Operation Page

**Air distribution 1975-1980**

**Air vents**

outer, removal .....	P1	46
installation .....	P2	46
centre, removal .....	P3	46
installation .....	P6	47

**Centre air vent/air duct**

removal .....	P4	46
installation .....	P5	47

**Rear floor air duct**

rear, removal .....	P7	47
installation .....	P8	47
front, removal .....	P9-P10	47
installation .....	P11-P13	48

**Air distribution 1981-**

**Air vents**

outer, removal .....	R1	49
installation .....	R2	49
centre removal .....	R3-R5	49
installation .....	R8-R10	51

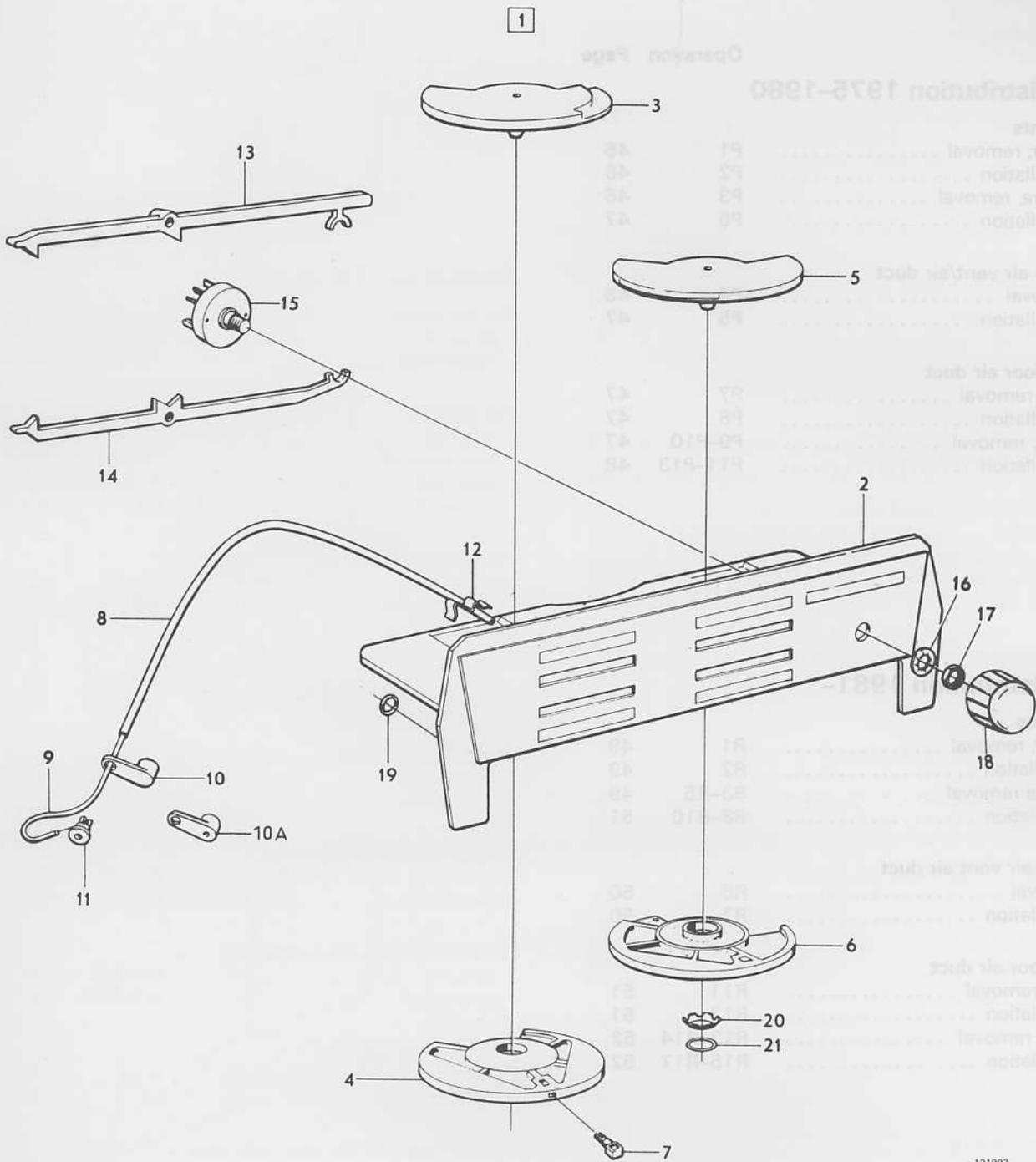
**Centre air vent air duct**

removal .....	R6	50
installation .....	R7	50

**Rear floor air duct**

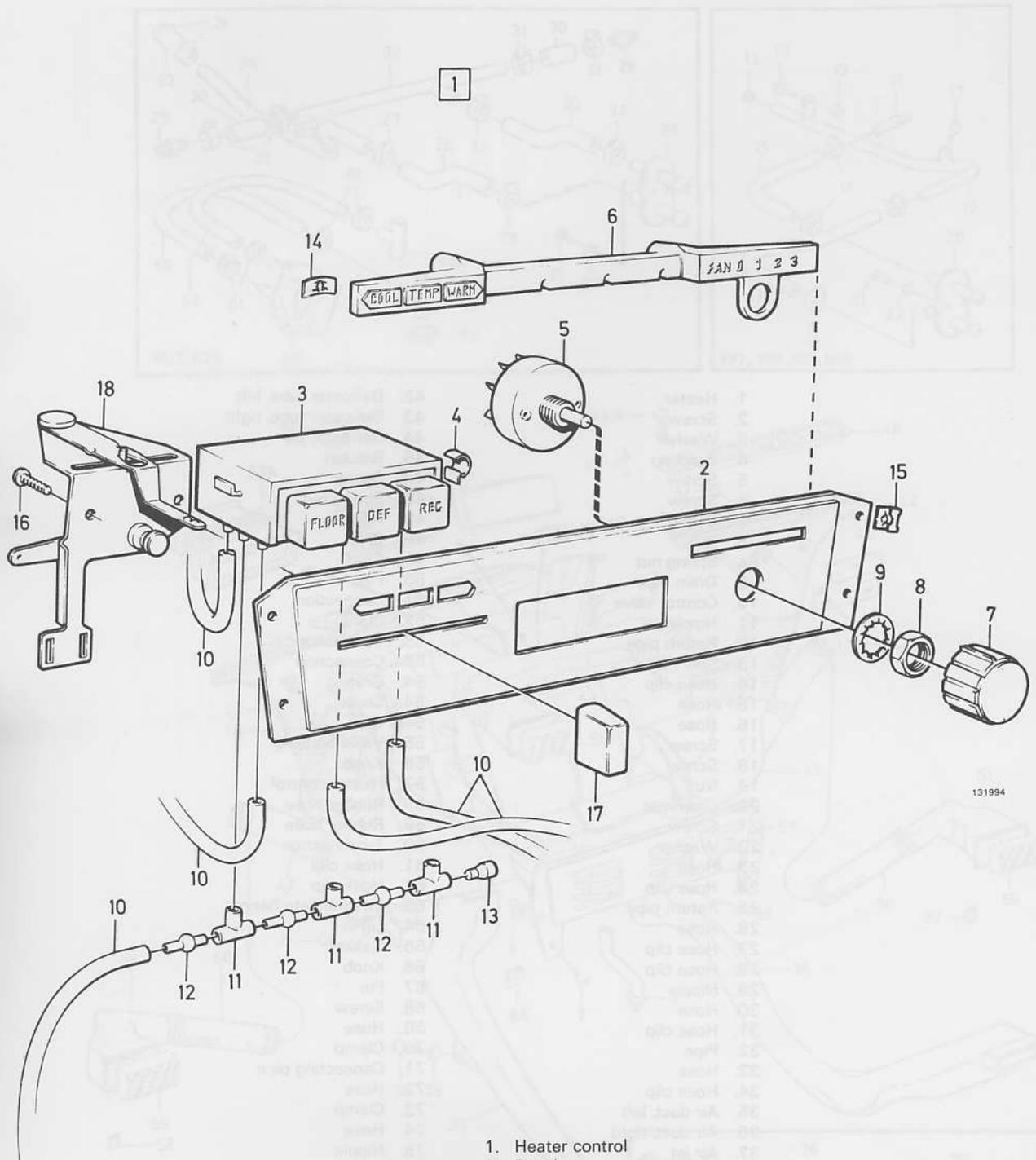
rear, removal .....	R11	51
installation .....	R12	51
front, removal .....	R13-R14	52
installation .....	R15-R17	52





- |                        |                       |
|------------------------|-----------------------|
| 1. Heater control      | 12. Clip              |
| 2. Control panel       | 13. Light distributor |
| 3. TEMP control disc   | 14. Light distributor |
| 4. AIRMIX control disc | 15. Fan switch        |
| 5. DEF control disc    | 16. Washer            |
| 6. FLOOR control disc  | 17. Nut               |
| 7. Knob                | 18. Knob              |
| 8. Sheath              | 19. Washer            |
| 9. Cable               | 20. Spring washer     |
| 10. Crank              | 21. Washer            |
| 11. Cable holder       |                       |

**Chart A. Heater controls, standard unit**



131994

1. Heater control
2. Panel
3. Control
4. Clip
5. Switch
6. Light distributor
7. Knob
8. Nut
9. Washer
10. Hose
11. T-junction
12. Nipple
13. Plug
14. Clip
15. Spring nut
16. Screw
17. Knob
18. Control bracket

**Chart B. Heater controls, CU**



- |                     |                           |
|---------------------|---------------------------|
| 1. Heater           | 42. Defroster tube, left  |
| 2. Screw            | 43. Defroster tube, right |
| 3. Washer           | 44. Defroster jet         |
| 4. Bracket          | 45. Bracket               |
| 5. Screw            | 46. Screw                 |
| 6. Screw            | 47. Spring nut            |
| 7. Screw            | 48. Frame                 |
| 8. Nut              | 49. Clip                  |
| 8a. Spring nut      | 49a. Stud                 |
| 9. Drain pipe       | 50. Pipe                  |
| 10. Control valve   | 51. Connection            |
| 11. Nipple          | 52. Clamp                 |
| 12. Return pipe     | 53. Connection            |
| 13. Seal ring       | 53a. Connection           |
| 14. Hose clip       | 54. Grating               |
| 15. Hose            | 54a. Cover                |
| 16. Hose            | 54b. Clip                 |
| 17. Screw           | 55. Valve housing         |
| 18. Screw           | 56. Knob                  |
| 19. Nut             | 57. Heater control        |
| 20. Grommet         | 58. Rubber hose           |
| 21. Screw           | 59. Rubber hose           |
| 22. Washer          | 60. T-connection          |
| 23. Hose            | 61. Hose clip             |
| 24. Hose clip       | 62. Hose clip             |
| 25. Return pipe     | 63. Intermediate flange   |
| 26. Hose            | 64. Lid                   |
| 27. Hose clip       | 65. Gasket                |
| 28. Hose clip       | 66. Knob                  |
| 29. Nipple          | 67. Pin                   |
| 30. Hose            | 68. Screw                 |
| 31. Hose clip       | 69. Hose                  |
| 32. Pipe            | 70. Clamp                 |
| 33. Hose            | 71. Connecting pipe       |
| 34. Hose clip       | 72. Hose                  |
| 35. Air duct, left  | 73. Clamp                 |
| 36. Air duct, right | 74. Hose                  |
| 37. Air jet         | 75. Nipple                |
| 38. Screw           | 76. O-ring                |
| 39. Washer          | 77. Screw                 |
| 40. Screw           | 78. Spring nut            |
| 41. Washer          |                           |

1. Heater  
 2. Screw  
 3. Washer  
 4. Bracket  
 5. Screw  
 6. Screw  
 7. Screw  
 8. Nut  
 8a. Spring nut  
 9. Drain pipe  
 10. Control valve  
 11. Nipple  
 12. Return pipe  
 13. Seal ring  
 14. Hose clip  
 15. Hose  
 16. Hose  
 17. Screw  
 18. Screw  
 19. Nut  
 20. Grommet  
 21. Screw  
 22. Washer  
 23. Hose  
 24. Hose clip  
 25. Return pipe  
 26. Hose  
 27. Hose clip  
 28. Hose clip  
 29. Nipple  
 30. Hose  
 31. Hose clip  
 32. Pipe  
 33. Hose  
 34. Hose clip  
 35. Air duct, left  
 36. Air duct, right  
 37. Air jet  
 38. Screw  
 39. Washer  
 40. Screw  
 41. Washer

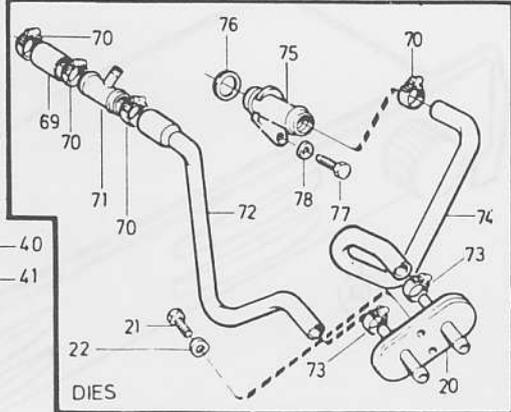
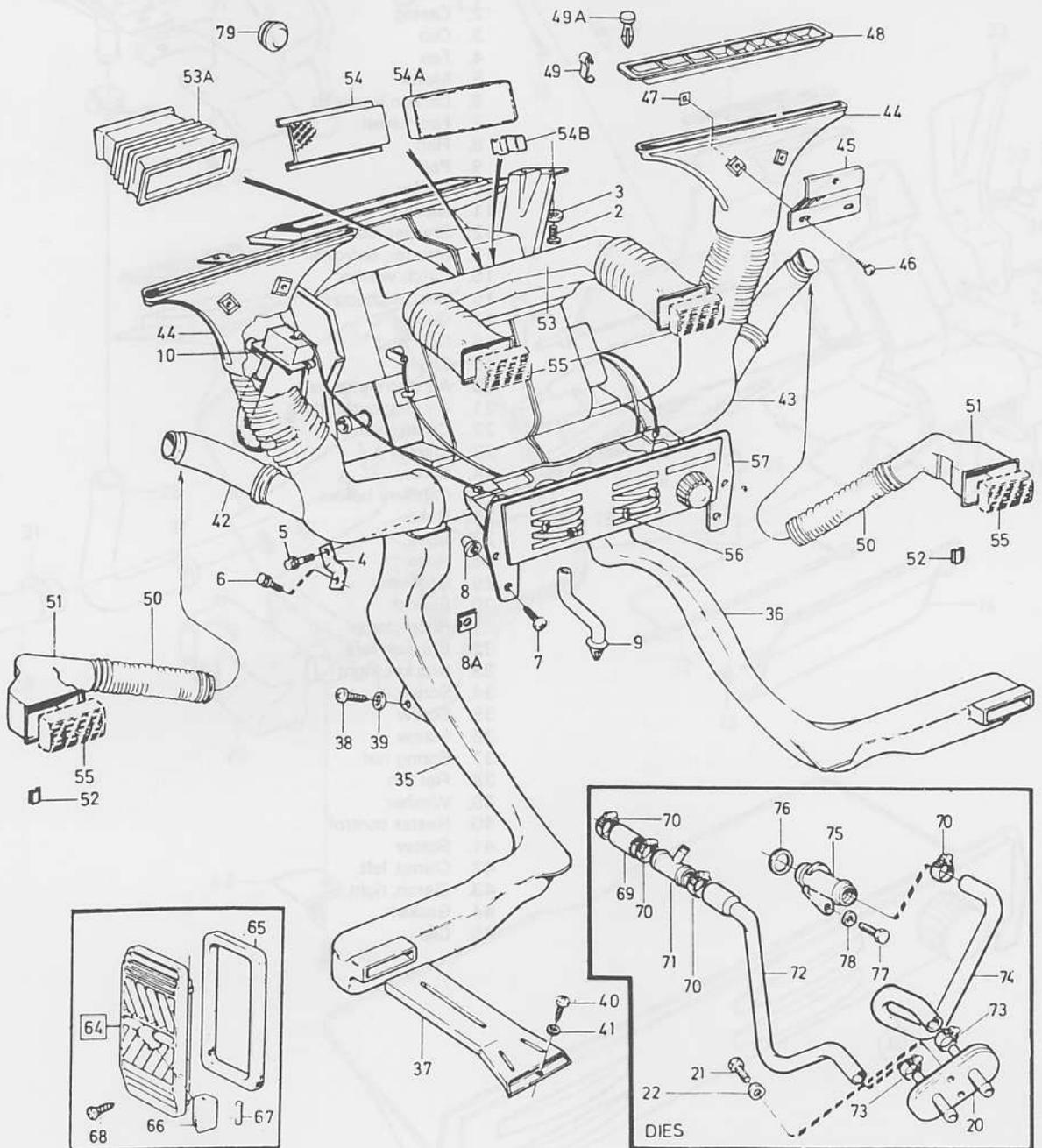
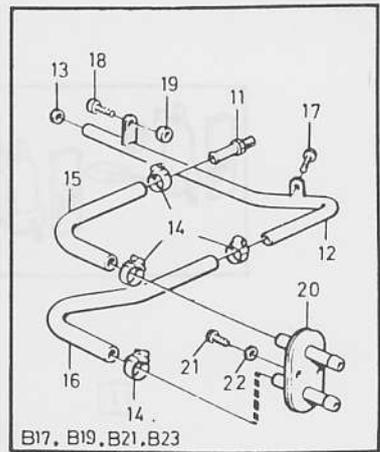
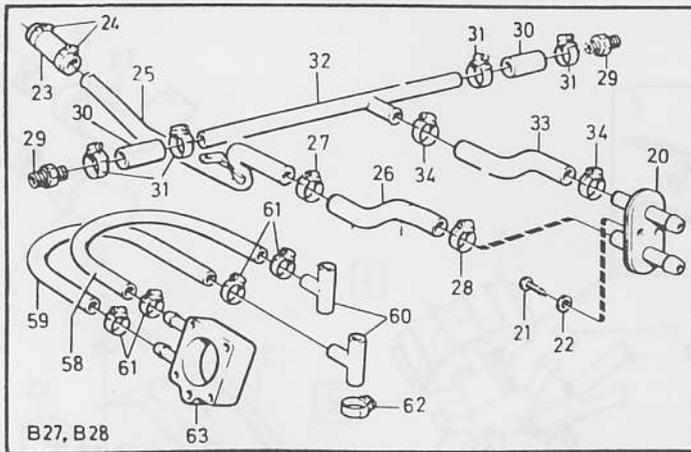


Chart C. Standard heater unit



1. Heater
2. Casing
3. Clip
4. Fan
5. Motor
6. Carbon brush kit
7. Fan wheel
8. Flap
9. Pad
10. Screw
11. Gasket
12. Shutter, floor
13. Shutter, defroster
15. Catch washer
16. Heat exchanger
17. Gasket
18. Seal ring
19. Clip
20. Air distributor, left
21. Air distributor, right
22. Control valve
23. Clamp
24. Screw
25. Capillary holder
26. Hose
27. Hose
28. Hose
29. Grommet
30. Spacer
31. Hose clamp
32. Bracket, left
33. Bracket, right
34. Screw
35. Screw
36. Screw
37. Spring nut
38. Flat pin
39. Washer
40. Heater control
41. Screw
42. Clamp, left
43. Clamp, right
44. Gasket
45. Clip



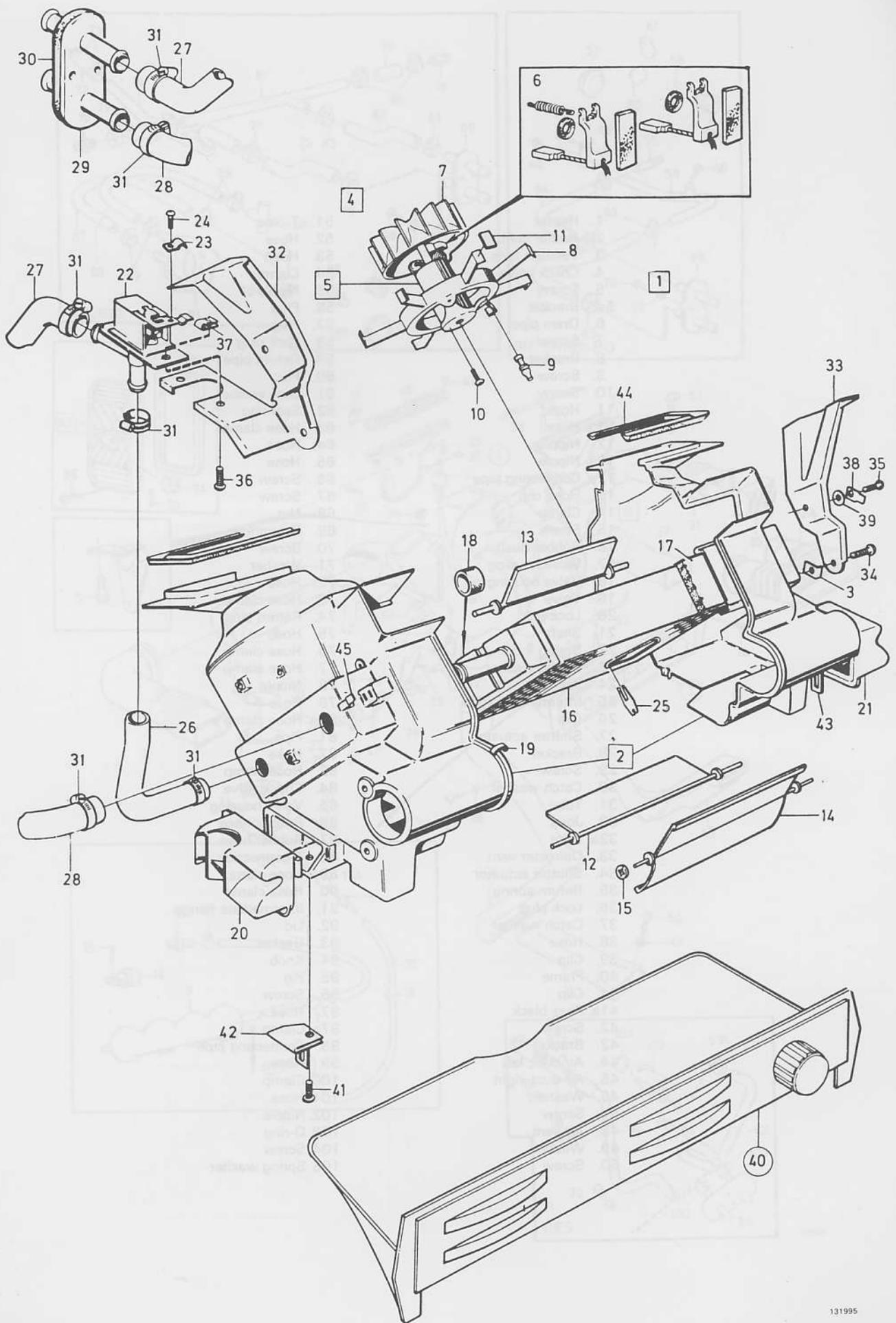
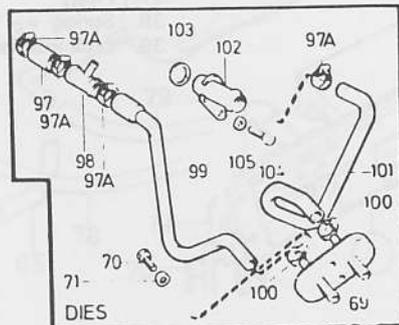
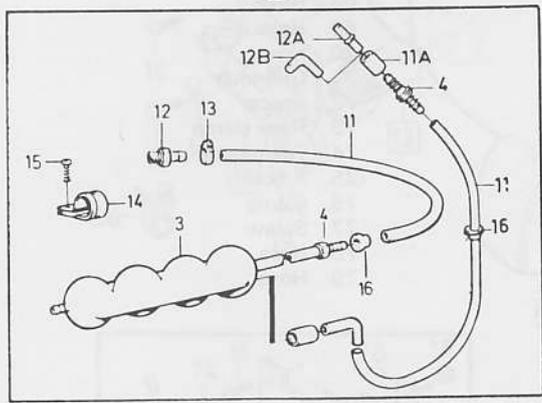
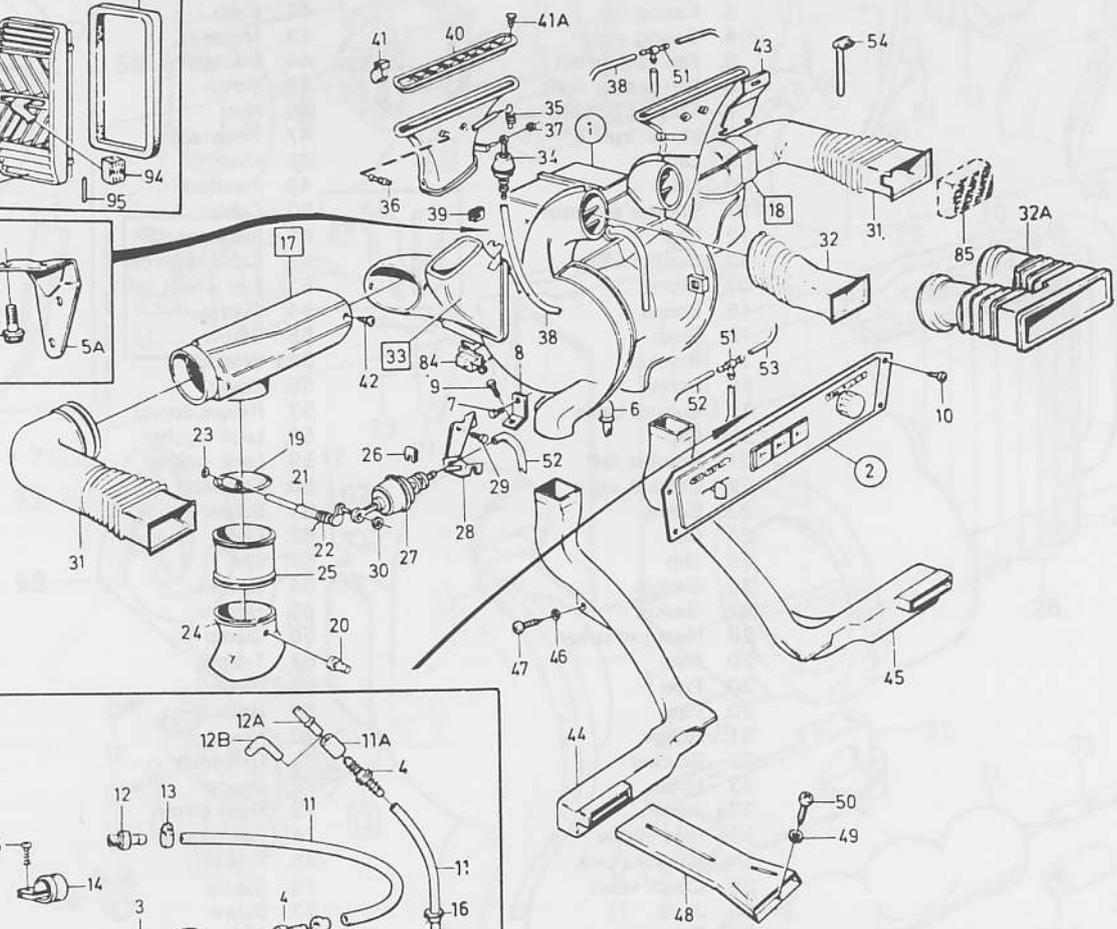
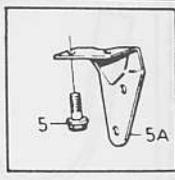
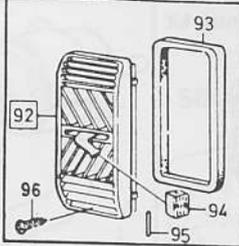
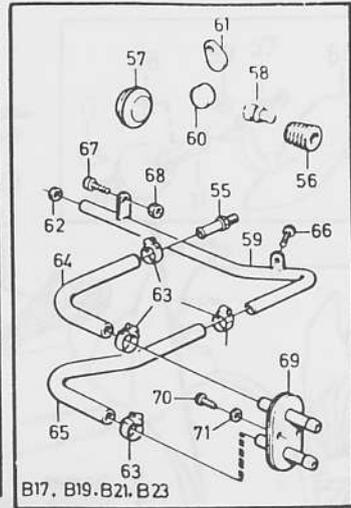
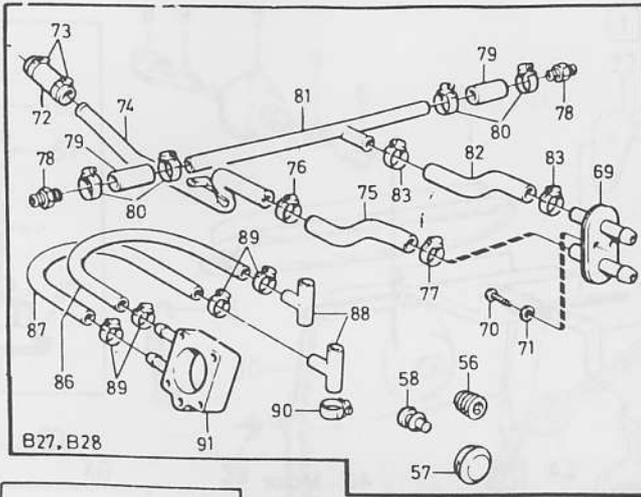


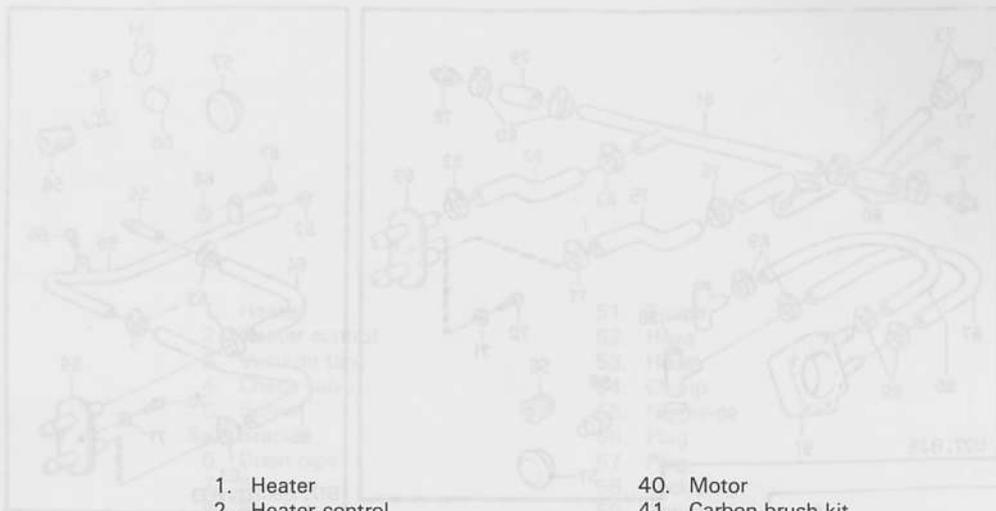
Chart D. Heater housing, standard unit

- 
1. Heater  
 2. Heater control  
 3. Vacuum tank  
 4. Check valve  
 5. Screw  
 5a. Bracket  
 6. Drain pipe  
 7. Screw  
 8. Bracket  
 9. Screw  
 10. Screw  
 11. Hose  
 11a. Hose  
 12. Nipple  
 12a. Nipple  
 12b. Connecting pipe  
 13. Hose clip  
 14. Clamp  
 15. Screw  
 16. Rubber bush  
 17. Valve housing  
 18. Valve housing  
 19. Valve  
 20. Lock plug  
 21. Shaft  
 22. Spring  
 23. Spring washer  
 24. Jet  
 25. Intermediate tube  
 26. Clip  
 27. Shutter actuator  
 28. Bracket  
 29. Screw  
 30. Catch washer  
 31. Tube  
 32. Joint  
 32a. Joint  
 33. Defroster vent  
 34. Shutter actuator  
 35. Return spring  
 36. Lock plug  
 37. Catch washer  
 38. Hose  
 39. Clip  
 40. Frame  
 41. Clip  
 41a. Plug, black  
 42. Screw  
 43. Bracket  
 44. Air duct, left  
 45. Air duct, right  
 46. Washer  
 47. Screw  
 48. Air vent  
 49. Washer  
 50. Screw  
 51. T-pipe  
 52. Hose  
 53. Hose  
 54. Clamp  
 55. Nipple  
 56. Plug  
 57. Plug  
 58. Lock plug  
 59. Return pipe  
 60. Plug  
 61. Lock washer  
 62. Seal ring  
 63. Hose clamp  
 64. Hose  
 65. Hose  
 66. Screw  
 67. Screw  
 68. Nut  
 69. Grommet  
 70. Screw  
 71. Washer  
 72. Hose  
 73. Hose clamp  
 74. Return pipe  
 75. Hose  
 76. Hose clamp  
 77. Hose clamp  
 78. Nipple  
 79. Hose  
 80. Hose clamp  
 81. Pipe  
 82. Hose  
 83. Hose clamp  
 84. Check valve  
 85. Valve housing  
 86. Rubber hose  
 87. Rubber hose  
 88. T-connection  
 89. Hose clamp  
 90. Hose clamp  
 91. Intermediate flange  
 92. Lid  
 93. Gasket  
 94. Knob  
 95. Pin  
 96. Screw  
 97. Hose  
 97a. Clamp  
 98. Connecting pipe  
 99. Hose  
 100. Clamp  
 101. Hose  
 102. Nipple  
 103. O-ring  
 104. Screw  
 105. Spring washer



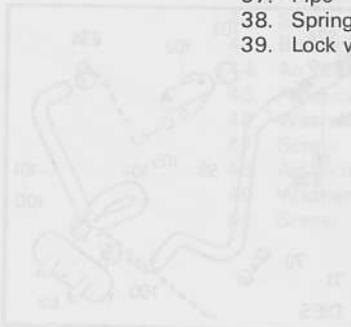
132008

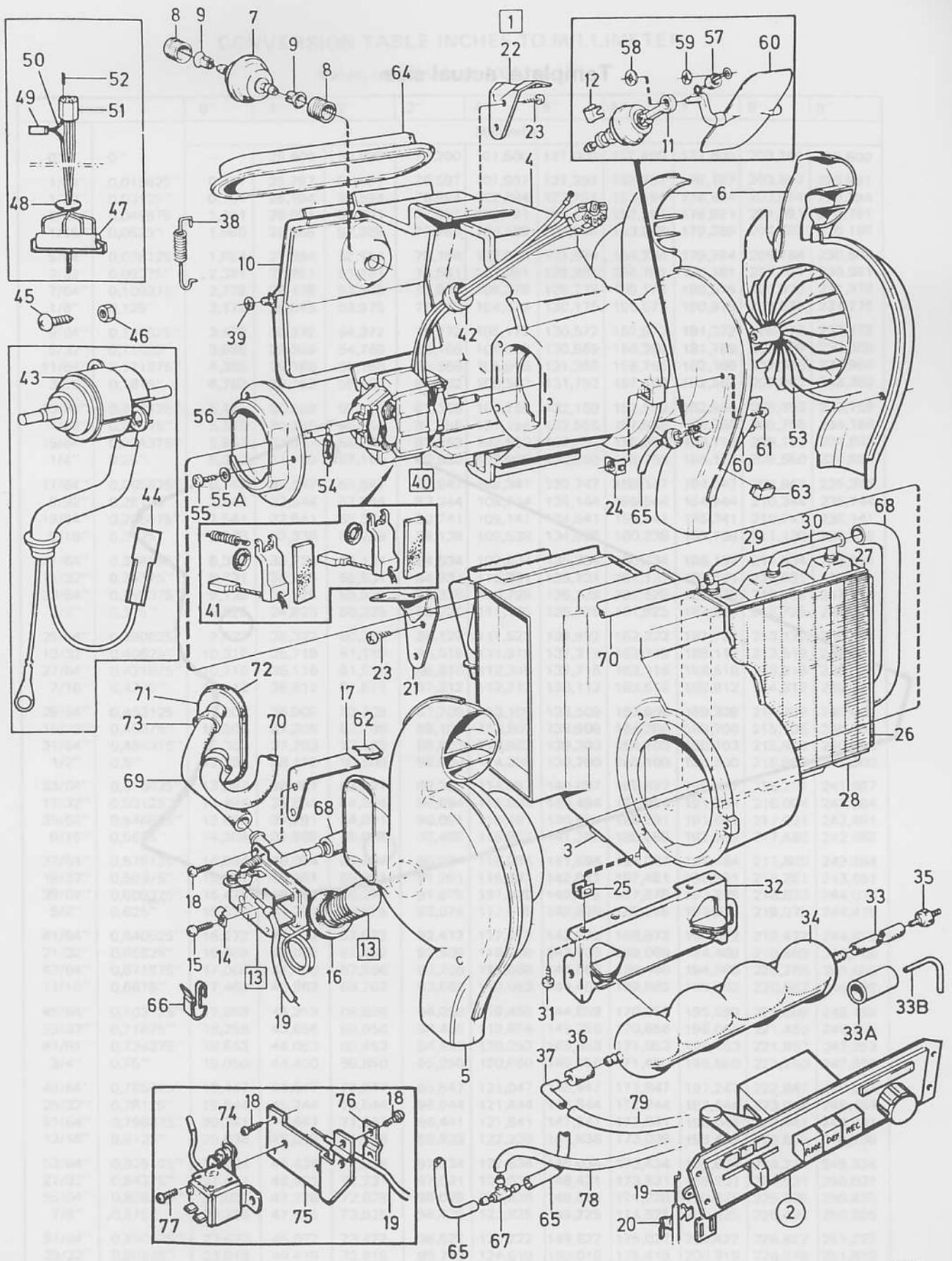
Chart E. Combined heater unit



1. Heater
2. Heater control
3. Casing left
4. Casing, right
5. Fan casing, left
6. Fan casing, right
7. Shutter actuator
8. Thrust spring
9. Link
10. Lid
11. Shutter actuator
12. Clip
13. Control valve
14. Clamp
15. Screw
16. Bush
17. Bracket
18. Screw
19. Control cable
20. Clip
21. Bracket, left
22. Bracket, right
23. Screw
24. Clip
25. Clip
26. Gasket
27. Gasket
28. Heat exchanger
29. Pipe
30. Pipe
30. Pipe
31. Screw
32. Bracket
33. Hose
- 33a. Joint
- 33b. Pipe elbow
34. Vacuum tank
35. Check valve
36. Joint
37. Pipe
38. Spring
39. Lock washer

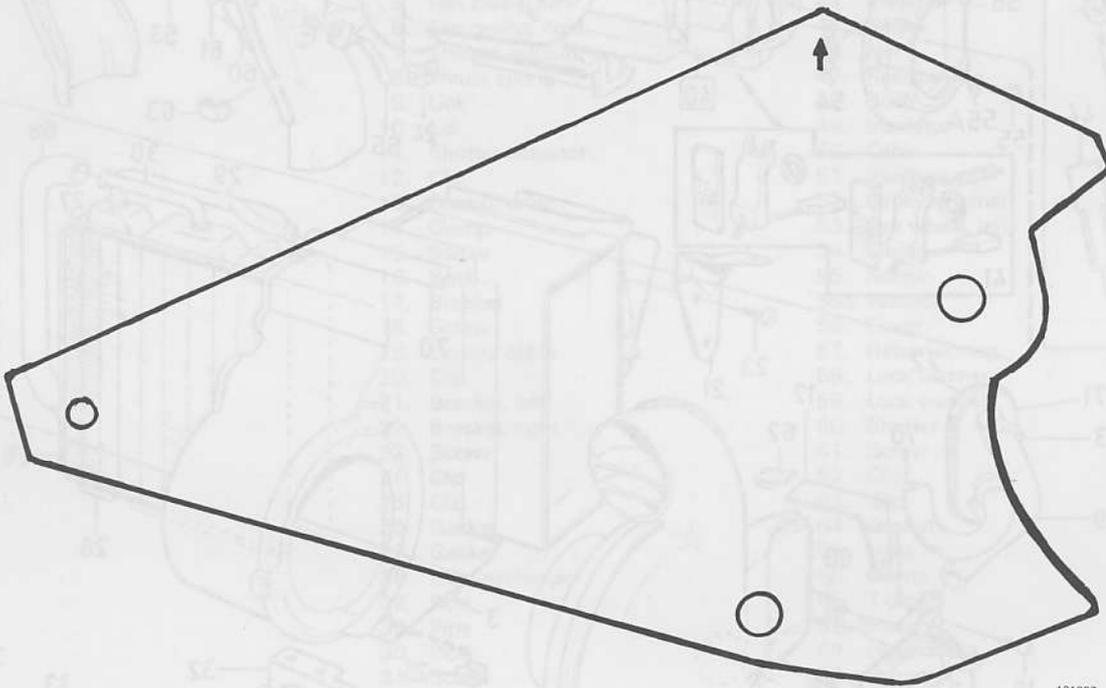
40. Motor
41. Carbon brush kit
42. Bush
43. Motor
44. Insulator
45. Screw
46. Nut
47. Resistance
48. Bush
49. Insulator
50. Cable
51. Insulator
52. Cable terminal
53. Fan wheel, left
54. Clamp
55. Screw
- 55a. Washer
56. Cover
57. Return spring
58. Lock washer
59. Lock washer
60. Shutter
61. Screw
62. Clip
63. Clip
64. Gasket
65. Hose
66. Clamp
67. T-pipe
68. Hose
69. Hose
70. Hose
71. Grommet
72. Spacer
73. Hose clamp
74. Thermostat
75. Bracket
76. Clamp
77. Screw
78. Hose
79. Hose





H. Convair Chart F. Heater housing, CU

Template, actual size



131997

Chart G. Hole template, standard unit

CONVERSION TABLE INCHES TO MILLIMETER

Values rounded from 1/64" to 10"

Inch	0"	1"	2"	3"	4"	5"	6"	7"	8"	9"	
	Millimeter										
0"	0"	—	25,400	50,800	76,200	101,600	127,000	152,400	177,800	203,200	228,600
1/64"	0,015625"	0,397	25,797	51,197	76,597	101,997	127,397	152,797	178,197	203,597	228,997
1/32"	0,03125"	0,794	26,194	51,594	76,994	102,394	127,794	153,194	178,594	203,994	229,394
3/64"	0,046875	1,191	26,591	51,991	77,391	102,791	128,191	153,591	178,991	204,391	229,791
1/16"	0,0625"	1,588	26,988	52,388	77,788	103,188	128,588	153,988	179,388	204,788	230,188
5/64"	0,078125"	1,984	27,384	52,784	78,184	103,584	128,984	154,384	179,784	205,184	230,584
3/32"	0,09375"	2,381	27,781	53,181	78,581	103,981	129,381	154,781	180,181	205,581	230,981
7/64"	0,109375"	2,778	28,178	53,578	78,978	104,378	129,778	155,178	180,578	205,978	231,378
1/8"	0,125"	3,175	28,575	53,975	79,375	104,775	130,175	155,575	180,975	206,375	231,775
9/64"	0,140625"	3,572	28,972	54,372	79,772	105,172	130,572	155,972	181,372	206,772	232,172
5/32"	0,15625"	3,969	29,369	54,769	80,169	105,569	130,969	156,369	181,769	207,169	232,569
11/64"	0,171875"	4,366	29,766	55,166	80,566	105,966	131,366	156,766	182,166	207,566	232,966
3/16"	0,1875"	4,762	30,162	55,562	80,962	106,362	131,762	157,162	182,562	207,962	233,362
13/64"	0,203125"	5,159	30,559	55,959	81,359	106,759	132,159	157,559	182,959	208,359	233,759
7/32"	0,21875"	5,556	30,956	56,356	81,756	107,156	132,556	157,956	183,356	208,756	234,156
15/64"	0,234375"	5,953	31,353	56,753	82,153	107,553	132,953	158,353	183,753	209,153	234,553
1/4"	0,25"	6,350	31,750	57,150	82,550	107,950	133,350	158,750	184,150	209,550	234,950
17/64"	0,265625"	6,747	32,147	57,547	82,947	108,347	133,747	159,147	184,547	209,947	235,347
9/32"	0,28125"	7,144	32,544	57,944	83,344	108,744	134,144	159,544	184,944	210,344	235,744
19/64"	0,296875"	7,541	32,941	58,341	83,741	109,141	134,541	159,941	185,341	210,741	236,141
5/16"	0,3125"	7,938	33,338	58,738	84,138	109,538	134,938	160,338	185,738	211,138	236,538
21/64"	0,328125"	8,334	33,734	59,134	84,534	109,934	135,334	160,734	186,134	211,534	236,934
11/32"	0,34375"	8,731	34,131	59,531	84,931	110,331	135,731	161,131	186,531	211,931	237,331
23/64"	0,359375"	9,128	34,528	59,928	85,328	110,728	136,128	161,528	186,928	212,328	237,728
3/8"	0,375"	9,525	34,925	60,325	85,725	111,125	136,525	161,925	187,325	212,725	238,125
25/64"	0,390625"	9,922	35,322	60,722	86,122	111,522	136,922	162,322	187,722	213,122	238,522
13/32"	0,40625"	10,319	35,719	61,119	86,519	111,919	137,319	162,719	188,119	213,519	238,919
27/64"	0,421875"	10,716	36,116	61,516	86,916	112,316	137,716	163,116	188,516	213,916	239,316
7/16"	0,4375"	11,112	36,512	61,912	87,312	112,712	138,112	163,512	188,912	214,312	239,712
29/64"	0,453125	11,509	36,909	62,309	87,709	113,109	138,509	163,909	189,309	214,709	240,109
15/32"	0,46875"	11,906	37,306	62,706	88,106	113,506	138,906	164,306	189,706	215,106	240,506
31/64"	0,484375"	12,303	37,703	63,103	88,503	113,903	139,303	164,703	190,103	215,503	240,903
1/2"	0,5"	12,700	38,100	63,500	88,900	114,300	139,700	165,100	190,500	215,900	241,300
33/64"	0,515625"	13,097	38,497	63,897	89,297	114,697	140,097	165,497	190,897	216,297	241,697
17/32"	0,53125"	13,494	38,894	64,294	89,694	115,094	140,494	165,894	191,294	216,694	242,094
35/64"	0,546875"	13,891	39,291	64,691	90,091	115,491	140,891	166,291	191,691	217,091	242,491
9/16"	0,5625"	14,288	39,688	65,088	90,488	115,888	141,288	166,688	192,088	217,488	242,888
37/64"	0,578125"	14,684	40,084	65,484	90,884	116,284	141,684	167,084	192,484	217,885	243,284
19/32"	0,59375"	15,081	40,481	65,881	91,281	116,681	142,081	167,481	192,881	218,281	243,681
39/64"	0,609375"	15,478	40,878	66,278	91,678	117,078	142,478	167,878	193,278	218,678	244,078
5/8"	0,625"	15,875	41,275	66,675	92,075	117,475	142,875	168,275	193,675	219,075	244,475
41/64"	0,640625"	16,272	41,672	67,072	92,472	117,872	143,272	168,672	194,072	219,472	244,872
21/32"	0,65625"	16,669	42,069	67,469	92,869	118,269	143,669	169,069	194,469	219,869	245,269
43/64"	0,671875"	17,066	42,466	67,866	93,266	118,666	144,066	169,466	194,866	220,266	245,666
11/16"	0,6875"	17,462	42,862	68,262	93,662	119,062	144,462	169,862	195,262	220,662	246,062
45/64"	0,703125"	17,859	43,259	68,659	94,059	119,459	144,859	170,259	195,659	221,059	246,459
23/32"	0,71875"	18,256	43,656	69,056	94,456	119,856	145,256	170,656	196,056	221,456	246,856
47/64"	0,734375"	18,653	44,053	69,453	94,853	120,253	145,653	171,053	196,453	221,853	247,253
3/4"	0,75"	19,050	44,450	69,850	95,250	120,650	146,050	171,450	196,850	222,250	247,650
49/64"	0,765625"	19,447	44,847	70,247	95,647	121,047	146,447	171,847	197,247	222,647	248,047
25/32"	0,78125"	19,844	45,244	70,644	96,044	121,444	146,844	172,244	197,644	223,044	248,444
51/64"	0,796875"	20,241	45,641	71,041	96,441	121,841	147,241	172,641	198,041	223,441	248,841
13/16"	0,8125"	20,638	46,038	71,438	96,838	122,238	147,638	173,038	198,438	223,838	249,238
53/64"	0,828125"	21,034	46,434	71,834	97,234	122,634	148,034	173,434	198,834	224,234	249,634
27/32"	0,84375"	21,431	46,831	72,231	97,631	123,031	148,431	173,831	199,231	224,631	250,031
55/64"	0,859375"	21,828	47,228	72,628	98,028	123,428	148,828	174,228	199,628	225,028	250,428
7/8"	0,875"	22,225	47,625	73,025	98,425	123,825	149,225	174,625	200,025	225,425	250,825
57/64"	0,890625"	22,622	48,022	73,422	98,822	124,222	149,622	175,022	200,422	225,822	251,222
29/32"	0,90625"	23,019	48,419	73,819	99,219	124,619	150,019	175,419	200,819	226,219	251,619
59/64"	0,921875"	23,416	48,816	74,216	99,616	125,016	150,416	175,816	201,216	226,616	252,016
15/16"	0,9375"	23,812	49,212	74,612	100,012	125,412	150,812	176,212	201,612	227,012	252,412
61/64"	0,953125"	24,209	49,609	75,009	100,409	125,809	151,209	176,609	202,009	227,409	252,809
31/32"	0,96875"	24,605	50,006	75,406	100,806	126,206	151,606	177,006	202,406	227,806	253,206
63/64"	0,984375"	25,003	50,403	75,803	101,203	126,603	152,003	177,403	202,803	228,203	253,603

H. Conversion table

CONVERSION TABLE INCHES TO MILLIMETER

Value in millimeter (mm)

Inches	Millimeter	Inches	Millimeter	Inches	Millimeter	Inches	Millimeter
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.001	0.0254	0.001	0.0254	0.001	0.0254	0.001	0.0254
0.002	0.0508	0.002	0.0508	0.002	0.0508	0.002	0.0508
0.003	0.0762	0.003	0.0762	0.003	0.0762	0.003	0.0762
0.004	0.1016	0.004	0.1016	0.004	0.1016	0.004	0.1016
0.005	0.1270	0.005	0.1270	0.005	0.1270	0.005	0.1270
0.006	0.1524	0.006	0.1524	0.006	0.1524	0.006	0.1524
0.007	0.1778	0.007	0.1778	0.007	0.1778	0.007	0.1778
0.008	0.2032	0.008	0.2032	0.008	0.2032	0.008	0.2032
0.009	0.2286	0.009	0.2286	0.009	0.2286	0.009	0.2286
0.010	0.2540	0.010	0.2540	0.010	0.2540	0.010	0.2540
0.011	0.2794	0.011	0.2794	0.011	0.2794	0.011	0.2794
0.012	0.3048	0.012	0.3048	0.012	0.3048	0.012	0.3048
0.013	0.3302	0.013	0.3302	0.013	0.3302	0.013	0.3302
0.014	0.3556	0.014	0.3556	0.014	0.3556	0.014	0.3556
0.015	0.3810	0.015	0.3810	0.015	0.3810	0.015	0.3810
0.016	0.4064	0.016	0.4064	0.016	0.4064	0.016	0.4064
0.017	0.4318	0.017	0.4318	0.017	0.4318	0.017	0.4318
0.018	0.4572	0.018	0.4572	0.018	0.4572	0.018	0.4572
0.019	0.4826	0.019	0.4826	0.019	0.4826	0.019	0.4826
0.020	0.5080	0.020	0.5080	0.020	0.5080	0.020	0.5080
0.021	0.5334	0.021	0.5334	0.021	0.5334	0.021	0.5334
0.022	0.5588	0.022	0.5588	0.022	0.5588	0.022	0.5588
0.023	0.5842	0.023	0.5842	0.023	0.5842	0.023	0.5842
0.024	0.6096	0.024	0.6096	0.024	0.6096	0.024	0.6096
0.025	0.6350	0.025	0.6350	0.025	0.6350	0.025	0.6350
0.026	0.6604	0.026	0.6604	0.026	0.6604	0.026	0.6604
0.027	0.6858	0.027	0.6858	0.027	0.6858	0.027	0.6858
0.028	0.7112	0.028	0.7112	0.028	0.7112	0.028	0.7112
0.029	0.7366	0.029	0.7366	0.029	0.7366	0.029	0.7366
0.030	0.7620	0.030	0.7620	0.030	0.7620	0.030	0.7620
0.031	0.7874	0.031	0.7874	0.031	0.7874	0.031	0.7874
0.032	0.8128	0.032	0.8128	0.032	0.8128	0.032	0.8128
0.033	0.8382	0.033	0.8382	0.033	0.8382	0.033	0.8382
0.034	0.8636	0.034	0.8636	0.034	0.8636	0.034	0.8636
0.035	0.8890	0.035	0.8890	0.035	0.8890	0.035	0.8890
0.036	0.9144	0.036	0.9144	0.036	0.9144	0.036	0.9144
0.037	0.9398	0.037	0.9398	0.037	0.9398	0.037	0.9398
0.038	0.9652	0.038	0.9652	0.038	0.9652	0.038	0.9652
0.039	0.9906	0.039	0.9906	0.039	0.9906	0.039	0.9906
0.040	1.0160	0.040	1.0160	0.040	1.0160	0.040	1.0160
0.041	1.0414	0.041	1.0414	0.041	1.0414	0.041	1.0414
0.042	1.0668	0.042	1.0668	0.042	1.0668	0.042	1.0668
0.043	1.0922	0.043	1.0922	0.043	1.0922	0.043	1.0922
0.044	1.1176	0.044	1.1176	0.044	1.1176	0.044	1.1176
0.045	1.1430	0.045	1.1430	0.045	1.1430	0.045	1.1430
0.046	1.1684	0.046	1.1684	0.046	1.1684	0.046	1.1684
0.047	1.1938	0.047	1.1938	0.047	1.1938	0.047	1.1938
0.048	1.2192	0.048	1.2192	0.048	1.2192	0.048	1.2192
0.049	1.2446	0.049	1.2446	0.049	1.2446	0.049	1.2446
0.050	1.2700	0.050	1.2700	0.050	1.2700	0.050	1.2700
0.051	1.2954	0.051	1.2954	0.051	1.2954	0.051	1.2954
0.052	1.3208	0.052	1.3208	0.052	1.3208	0.052	1.3208
0.053	1.3462	0.053	1.3462	0.053	1.3462	0.053	1.3462
0.054	1.3716	0.054	1.3716	0.054	1.3716	0.054	1.3716
0.055	1.3970	0.055	1.3970	0.055	1.3970	0.055	1.3970
0.056	1.4224	0.056	1.4224	0.056	1.4224	0.056	1.4224
0.057	1.4478	0.057	1.4478	0.057	1.4478	0.057	1.4478
0.058	1.4732	0.058	1.4732	0.058	1.4732	0.058	1.4732
0.059	1.4986	0.059	1.4986	0.059	1.4986	0.059	1.4986
0.060	1.5240	0.060	1.5240	0.060	1.5240	0.060	1.5240
0.061	1.5494	0.061	1.5494	0.061	1.5494	0.061	1.5494
0.062	1.5748	0.062	1.5748	0.062	1.5748	0.062	1.5748
0.063	1.6002	0.063	1.6002	0.063	1.6002	0.063	1.6002
0.064	1.6256	0.064	1.6256	0.064	1.6256	0.064	1.6256
0.065	1.6510	0.065	1.6510	0.065	1.6510	0.065	1.6510
0.066	1.6764	0.066	1.6764	0.066	1.6764	0.066	1.6764
0.067	1.7018	0.067	1.7018	0.067	1.7018	0.067	1.7018
0.068	1.7272	0.068	1.7272	0.068	1.7272	0.068	1.7272
0.069	1.7526	0.069	1.7526	0.069	1.7526	0.069	1.7526
0.070	1.7780	0.070	1.7780	0.070	1.7780	0.070	1.7780
0.071	1.8034	0.071	1.8034	0.071	1.8034	0.071	1.8034
0.072	1.8288	0.072	1.8288	0.072	1.8288	0.072	1.8288
0.073	1.8542	0.073	1.8542	0.073	1.8542	0.073	1.8542
0.074	1.8796	0.074	1.8796	0.074	1.8796	0.074	1.8796
0.075	1.9050	0.075	1.9050	0.075	1.9050	0.075	1.9050
0.076	1.9304	0.076	1.9304	0.076	1.9304	0.076	1.9304
0.077	1.9558	0.077	1.9558	0.077	1.9558	0.077	1.9558
0.078	1.9812	0.078	1.9812	0.078	1.9812	0.078	1.9812
0.079	2.0066	0.079	2.0066	0.079	2.0066	0.079	2.0066
0.080	2.0320	0.080	2.0320	0.080	2.0320	0.080	2.0320
0.081	2.0574	0.081	2.0574	0.081	2.0574	0.081	2.0574
0.082	2.0828	0.082	2.0828	0.082	2.0828	0.082	2.0828
0.083	2.1082	0.083	2.1082	0.083	2.1082	0.083	2.1082
0.084	2.1336	0.084	2.1336	0.084	2.1336	0.084	2.1336
0.085	2.1590	0.085	2.1590	0.085	2.1590	0.085	2.1590
0.086	2.1844	0.086	2.1844	0.086	2.1844	0.086	2.1844
0.087	2.2098	0.087	2.2098	0.087	2.2098	0.087	2.2098
0.088	2.2352	0.088	2.2352	0.088	2.2352	0.088	2.2352
0.089	2.2606	0.089	2.2606	0.089	2.2606	0.089	2.2606
0.090	2.2860	0.090	2.2860	0.090	2.2860	0.090	2.2860
0.091	2.3114	0.091	2.3114	0.091	2.3114	0.091	2.3114
0.092	2.3368	0.092	2.3368	0.092	2.3368	0.092	2.3368
0.093	2.3622	0.093	2.3622	0.093	2.3622	0.093	2.3622
0.094	2.3876	0.094	2.3876	0.094	2.3876	0.094	2.3876
0.095	2.4130	0.095	2.4130	0.095	2.4130	0.095	2.4130
0.096	2.4384	0.096	2.4384	0.096	2.4384	0.096	2.4384
0.097	2.4638	0.097	2.4638	0.097	2.4638	0.097	2.4638
0.098	2.4892	0.098	2.4892	0.098	2.4892	0.098	2.4892
0.099	2.5146	0.099	2.5146	0.099	2.5146	0.099	2.5146
0.100	2.5400	0.100	2.5400	0.100	2.5400	0.100	2.5400

Chart G. Hole template, sold separately. H. Conversion table, sold separately.



**VOLVO SUPPORTS VOLUNTARY  
MECHANIC CERTIFICATION  
BY THE N.I.A.S.E.**

(U.S.A. only)

***Service literature***

*Your  
most important  
special tool*

# VOLVO

TP 30282/2  
4500.12.83  
UK/USA  
Printed in USA