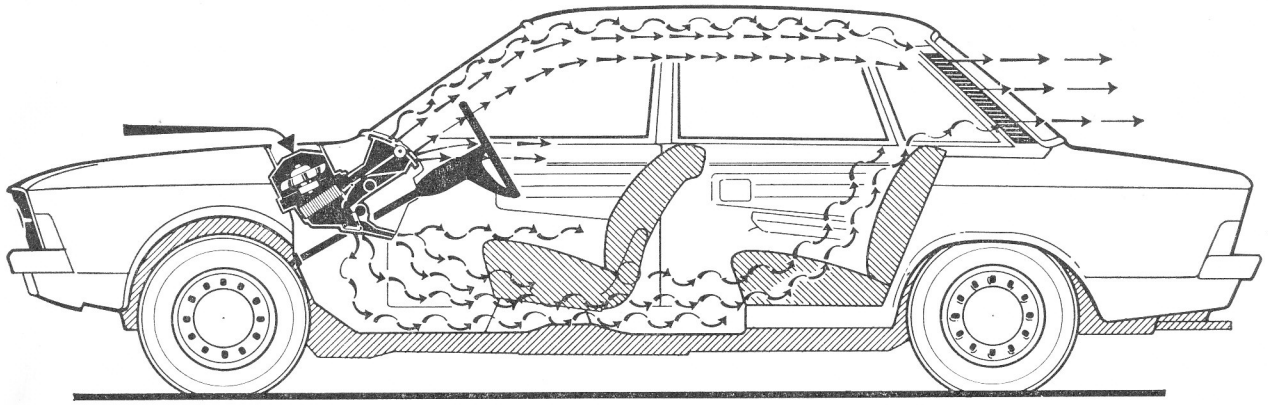
Description

The combined fresh air ventilating and heating system is installed in the engine compartment immediately in front of the instrument panel. A three speed electrical blower and a heat exchanger connected to the engine cooling system are housed in an air control box with flaps. The air enters via an intake duct with a water separator and passes through the control box into the vehicle interior. Extractor slots in the rear roof pillars ensure that there is a continuous flow of cool or warm fresh air.



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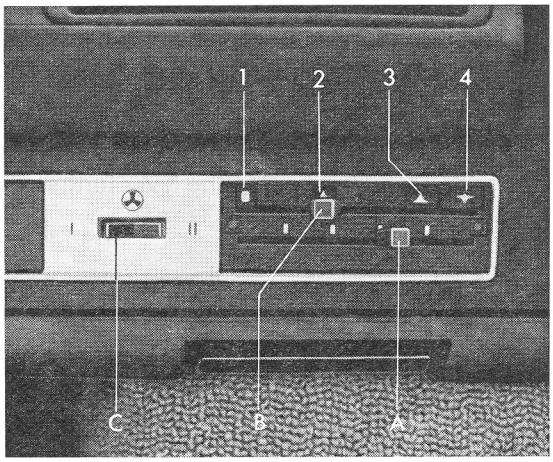
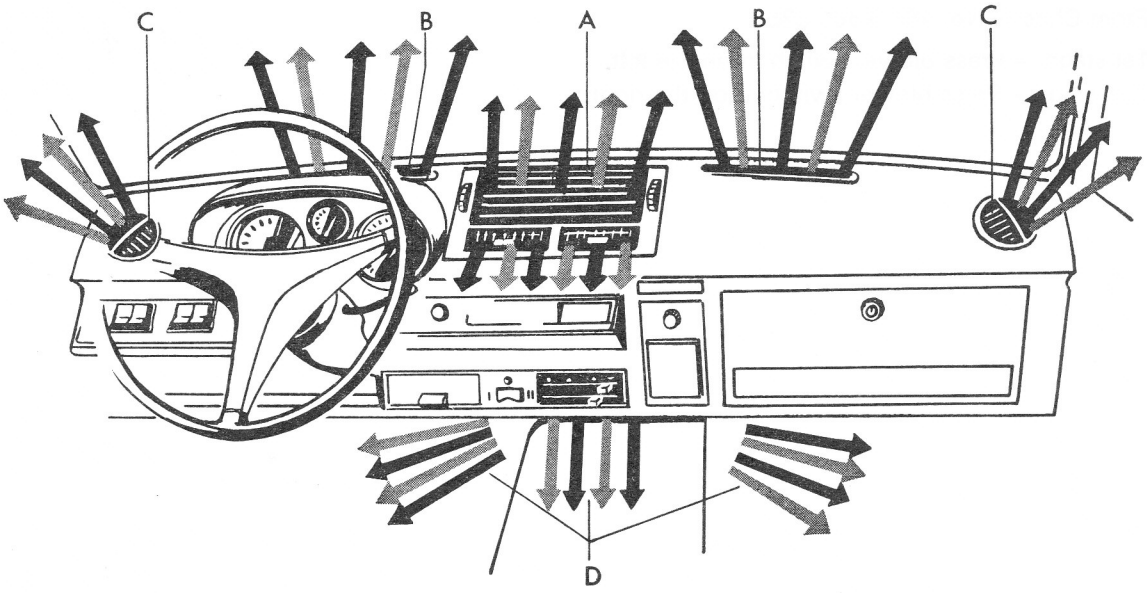
Operation



A – Heat control lever
B – Main lever
C – Switch for blower



Fresh air ventilation:

Main lever B in position 1:

Fresh air ventilation out of action. Fresh air only enters if the adjusting discs for the grille over the center outlet (A) are turned downwards when the vehicle is moving.

Main lever B in position 2:

Air is directed from the defroster vents (B) to the windshield when the center outlet grille is closed.

Main lever B in position 3:

Air flows from the side outlets (C) to the side windows as well as from the defroster vents.

Main lever B in position 4:

In this position the footwell outlets (D) are also opened and fresh air comes from all the outlets.

Heating:

Move heater lever (A) to the right. The amount of heat is increased by moving the lever further to the right.
The air distribution is controlled with the main lever (see fresh air ventilation).

Blower

Up to Chassis No. 481 2 561 834

1st stage – Move main lever to the right.
2nd stage – Move main lever to the right and press blower switch in on the left.
3rd stage – Move main lever to the right and press blower switch in on the right.

From Chassis No. 481 2 561 835

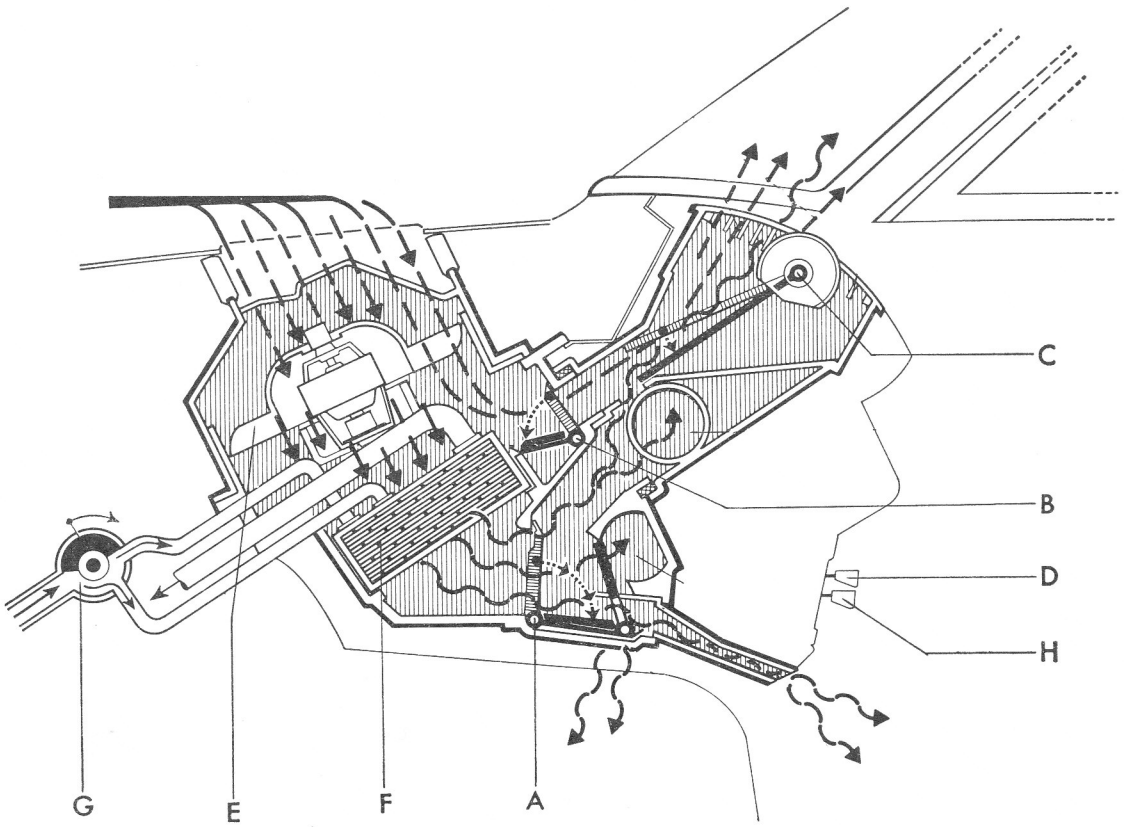
1st stage – Press blower switch in on the left.
2nd stage – Press blower switch in on the right.

Working principles:

1 – Ventilation:

When the vehicle is moving, air is forced from the dust and exhaust gas free zone in front of the windshield, through the intake duct with water trap into the air control box. According to the position of the flaps (A, B and C) which are operated by the main lever (D), the air is directed to the various outlets. The air flows through the body and passes out at the rear via the extractor slots in the rear roof pillars.

A three-speed or two-speed electric blower can be used to increase the flow of air, particularly when driving slowly.



A – Lower flap
B – Upper flap
C – Flap for central outlet
D – Main lever
E – Electric blower
F – Heat exchanger
G – Thermostat
H – Heating lever

Heating

In the control box below the blower is a heat exchanger (F) which is connected to the by-pass cooling water circuit of the engine. When the lever (H) is moved, the thermostat opens and directs warm water from the engine cooling system into the heat exchanger. In order to ensure that the temperature on the left and right outlet sides is the same, the heat exchanger has an inlet connection on each side. The heat of the water flowing through the heat exchanger is transferred by the fins to the fresh air passing through the heat exchanger. The water then flows back to the waterpump via the return line.

The temperature of the warm air is governed by the temperature of the water in the cooling system, the amount of water passing through the heat exchanger, the air temperature and the amount of air passing the heat exchanger.

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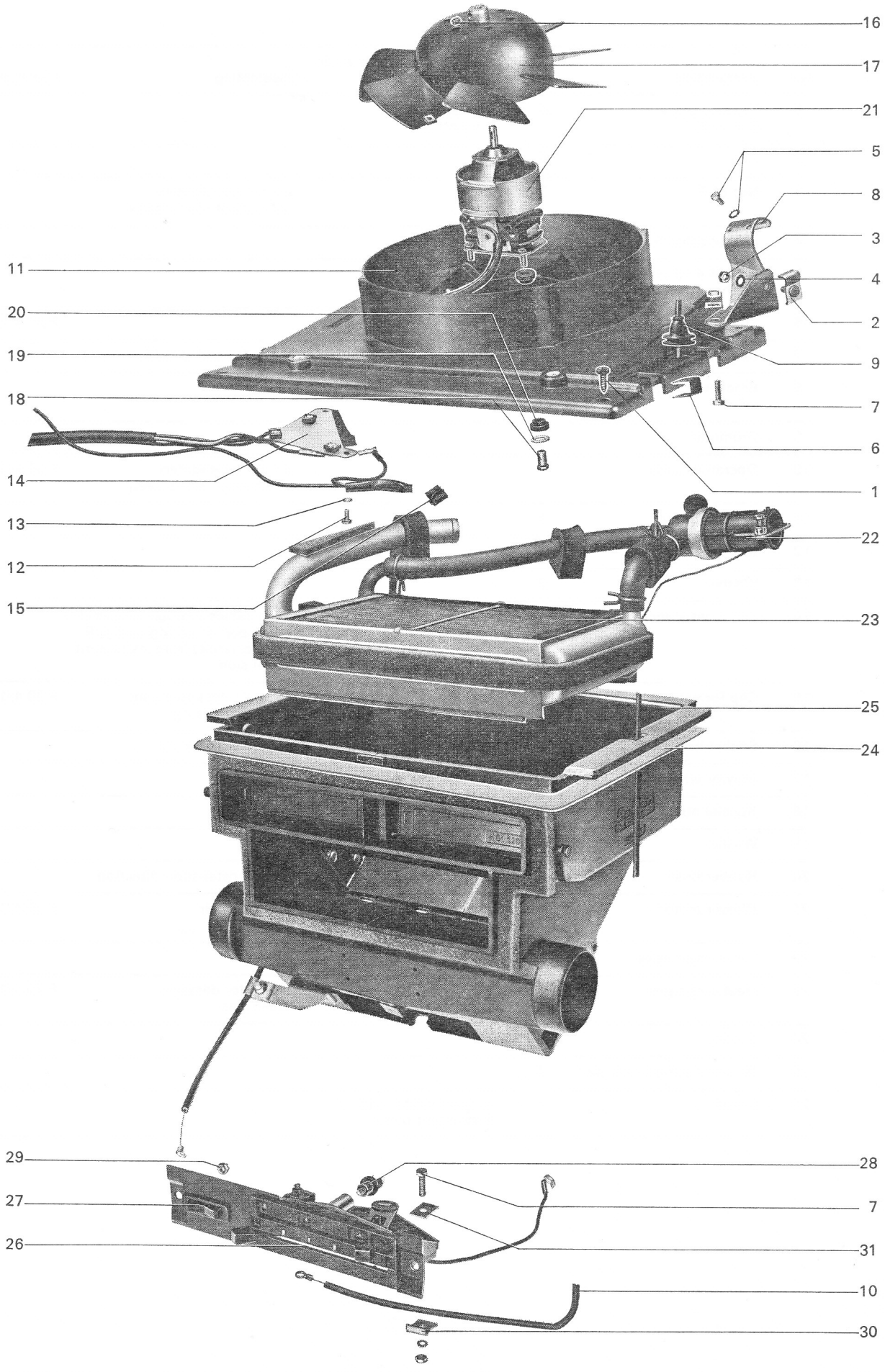
The water and air temperatures as well as the amount of air flowing can vary considerably under different driving conditions. In order to keep the temperature of the air leaving the outlets fairly constant despite this, the amount of water flowing through the heat exchanger is altered automatically. This is done with a sensor which is located directly in the air stream under the heat exchanger. The alcohol filled sensor is connected to the thermostat valve and the changes in volume operate the valve via a piston.

The water flow quantity is then increased or reduced according to the temperature which has been pre-set with the heater lever.

Instructions on the maintenance of the cooling water system are given in the M section of the manual.



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No.	Designation	Qty.	Note when disassembling	Note when assembling	See page
1	Tapping screw B 6.3×32	4	take air intake duct off first		
2	Clip	1			
3	Nut M 5	3		do not overtighten, cable must move freely	
4	Lock washer 5.3	3			
5	Bolt M 4×8 with lock washer 4.3	1			
6	Spring clip	6	pry off		F 20.4/1–3
7	Bolt M 5×20	3		the bolt head is held in casing	
8	Bracket for thermostat valve	1			
9	Grommet	1			
10	Operating cable	1		do not overtighten, cable must move freely	F 20.4/1–4
11	Blower casing	1			
12	Bolt M 4×8	2			
13	Washer	2			
14	Series resistance		cables are riveted on	Pass cables through grommet in lower part of casing and pull them carefully from instrument panel side	
15	Clip for cables	1		secure cables to a vane in blower casing	F 20.4/1–4
16	Socket hd. screw	1	use 2 mm Allen key	secure with loctite	
17	Blower wheel	1	is balanced, do not take weights off		
18	Special nut	3			
19	Washer	3			
20	Rubber bush	6		watch installation direction	
21	Blower motor	1	check brushes and commulator	do not repair	F 20.4/1–1
22	Thermostat valve	1		adjust	
23	Heat exchanger	1		check for damage, clean fins	F 20.4/1–1
24	Gasket	1			
25	Blower casing lower part	1			
26	Levers	1	remove center part of instrument panel		

No.	Designation	Qty.	Note when disassembling	assembling	See page
27	Switch for blower	1	remove trim plate and fuse holder		
28	Holder and bulb 1.2 W	1	remove radio insert		
29	Nut	2			
30	Clip	1			
31	Plate				

Removing and installing blower motor

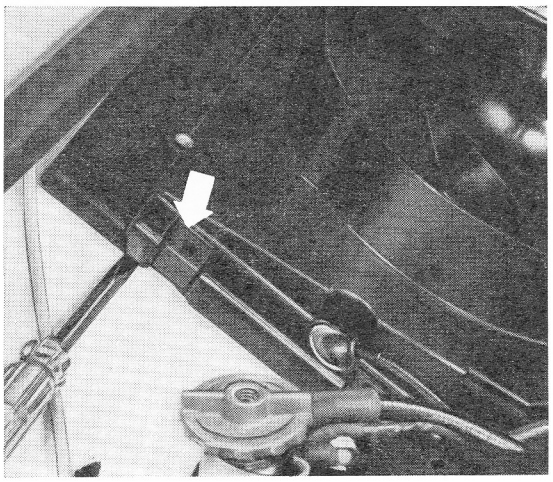
Removing

1 – Disconnect battery ground cable and take air intake duct off.

2 – Disconnect supply cable from terminal 15 (fuse 6) and cables from blower switch.

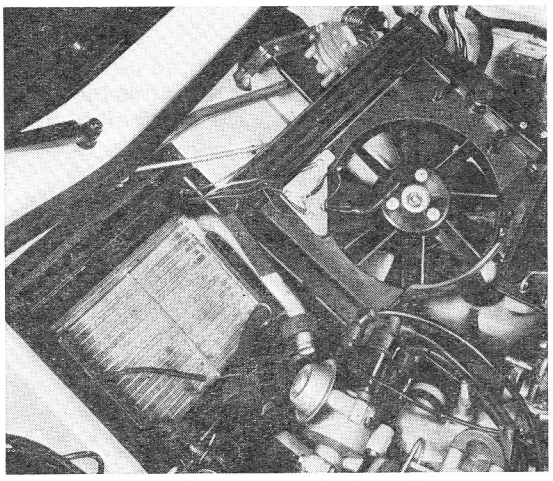
3 – Disconnect operating cable at thermostat valve.

4 – Pry off five clips (item 6) securing blower casing to lower part of casing.



5 – Lift blower casing carefully and pull the cables to the motor through the grommet in lower part of casing slightly.

6 – Remove blower motor (see F 20.4/1–1).



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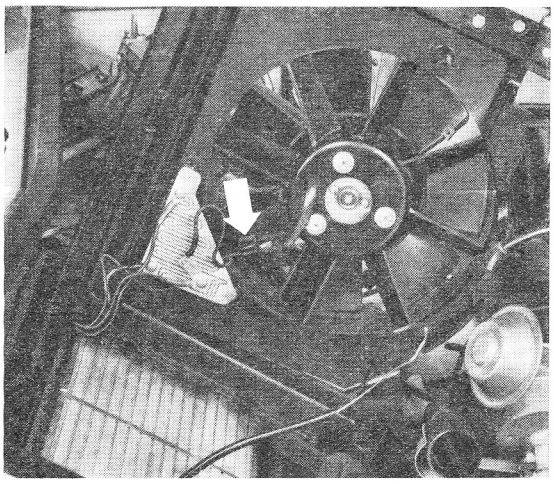


Installing

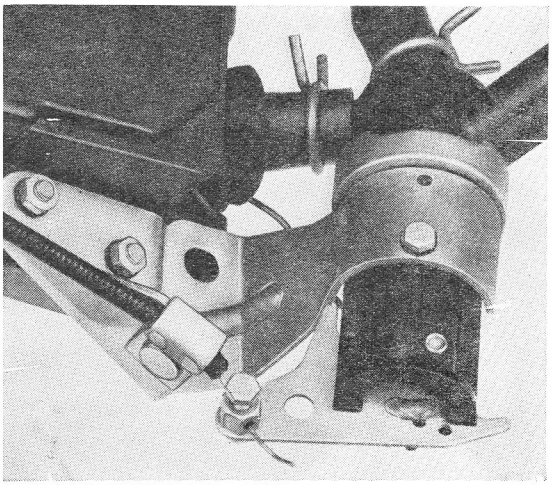
up to Chassis No. 481 2561 834

1 – Install motor. Watch location of rubber bushes (20).

2 – Secure cables on one of the vanes in the casing with a clip (arrow).

3 – Place blower casing on lower part carefully. Ensure that the seals on the heat exchanger pipes seal the blower casing and lower part properly. The cables for the motor should be pulled carefully from the instrument panel side when installing the motor.

4 – Secure blower casing and lower part with the clips and attach casing to body with four screws.



5 – Secure operating cable for thermostat valve with the clip (2) and ensure that cable moves freely.

Caution

Do not overtighten the clip as this may pinch the cable.

Push lower control lever fully to the left.

6 – Push lever on thermostat valve to the left as well and secure cable with screw. Bend end of cable round.

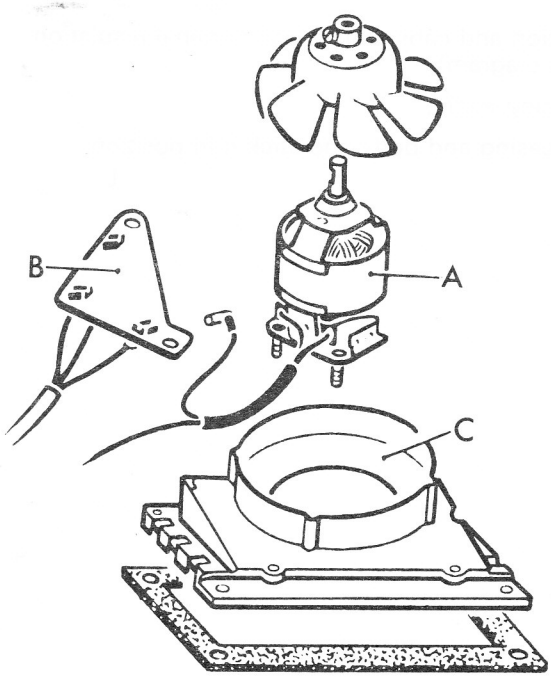
7 – Install air intake duct and connect battery ground cable.

Note:

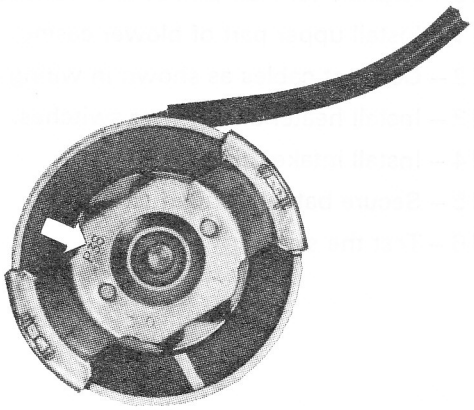
To improve heater output, a more powerful blower motor was installed in all K 70 vehicles for Model Year 1972. In future only this motor will be supplied as a replacement part. When this motor is installed in vehicles built before August 1971 the heater system must be converted as described on page F 20.4/1–5.

The differences in the parts used before and after August 1971 are as follows:

Designation	Assembly	
	old version	new version
A – Blower motor	Number * 795 or P 29, 3 stage	Number * 720 or P 38, 2 stage
B – Series resistance	Part No. 481 965 527	Part No. 481 965 527 A
C – Blower casing, upper part	8 deflector vanes	4 deflector vanes



* The number is on the bearing plate (see arrow).



Installing the more powerful blower motor in earlier heater system

1 – Disconnect battery ground strap.

2 – Take upper part of blower casing off and detach series resistance. Then remove motor.

3 – Install new motor in casing upper part using securing parts from old motor.

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4 – Remove glove box and radio.

5 – Detach heater switch, remove blower motor switch and pull cables off.

6 – Cut off the brown cable from heater switch to center contact on motor switch where it is riveted to the heater switch.

7 – Pull the second brown cable off the moving contact.

Note:

The **heater switch** is no longer used to switch on the blower motor.

8 – Alter the cables on the series resistance:
Crimp cable with brown-black terminal insulation and cable with black terminal insulation together in an insulated connector (see wiring diagram).

9 – Install series resistance in the upper part of casing again.

10 – Replace torn-off part of seal between blower casing and body and stick it in position.

11 – Install upper part of blower casing.

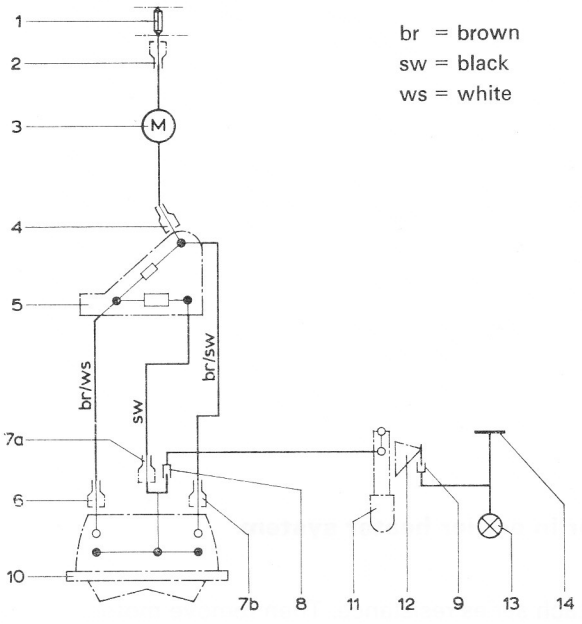
12 – Connect cables as shown in wiring diagram.

13 – Install heater and blower switches.

14 – Install intake duct.

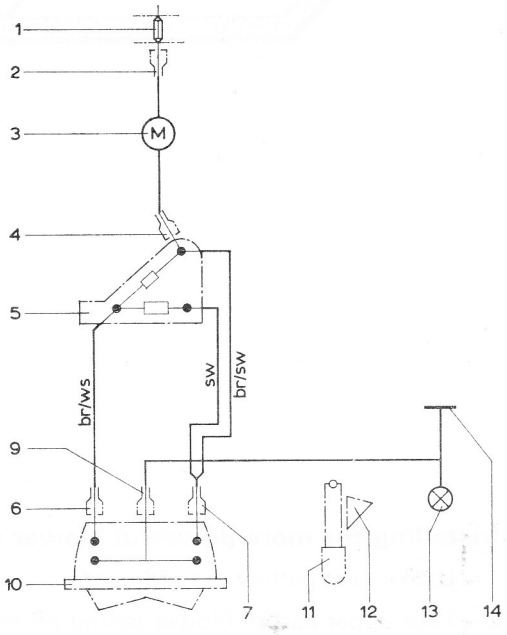
15 – Secure battery ground strap.

16 – Test the system.



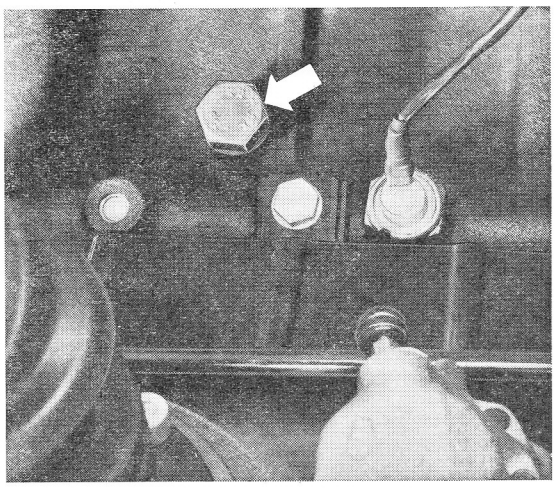
br = brown
sw = black
ws = white

Wiring diagram before conversion



Wiring diagram after conversion

1 – Fuse box (25 A fuse)
2 – Terminal with red insulation
3 – Blower motor
4 – Terminal with black insulation
5 – Series resistance
6 – Terminal with brown-white insulation
7a – Terminal with black insulation
7b – Terminal with brown-black insulation
7 – Cables 7a and 7b in one terminal
8 – Ground cable from motor to heater switch
9 – Cable from lamp for heater switch
10 – Blower motor switch
11 – Heater switch
12 – Moving contact on heater switch
13 – Lamp for heater switch
14 – Vehicle ground



Removing and installing heat exchanger

1 – Disconnect battery ground cable and drain coolant.

2 – Remove screw holding the thermostat valve to bracket (arrow) and disconnect operating cable.

3 – Remove blower casing complete with motor (see Removing and installing blower motor, F 20.4/1–3).

4 – Disconnect pipes from thermostat and heat exchanger.

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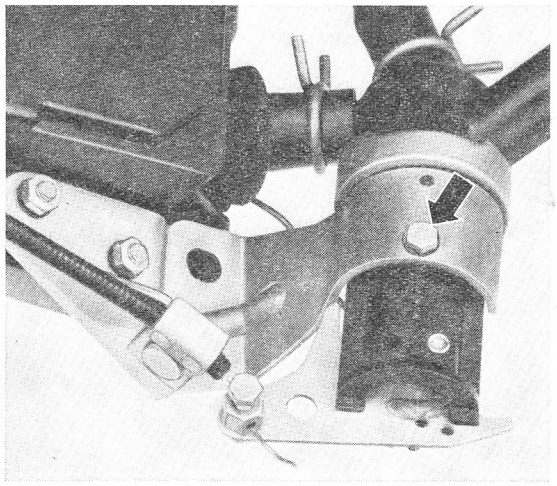


5 – Lift heat exchanger out (see F 20.4/1–1).

Installing

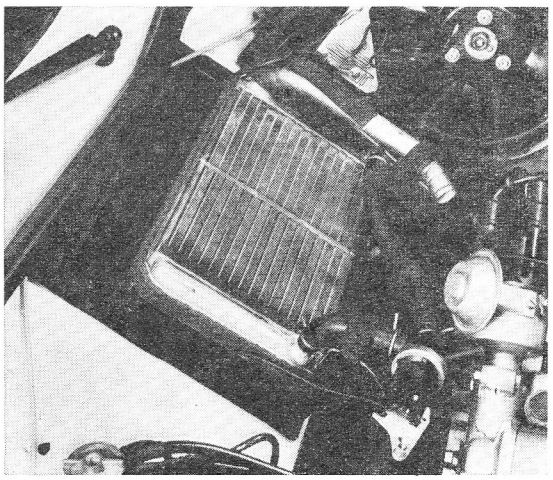
1 – Place heat exchanger in lower part of casing complete with thermostat valve. Ensure that seals are located properly.

2 – Place top part of casing on lower part carefully so that the seals on the pipes seal properly.

Pull motor cables back carefully from the instrument panel side.

Note:

When installing lower part ensure that gaskets between casing and body seal properly.



3 – Secure thermostat to bracket.

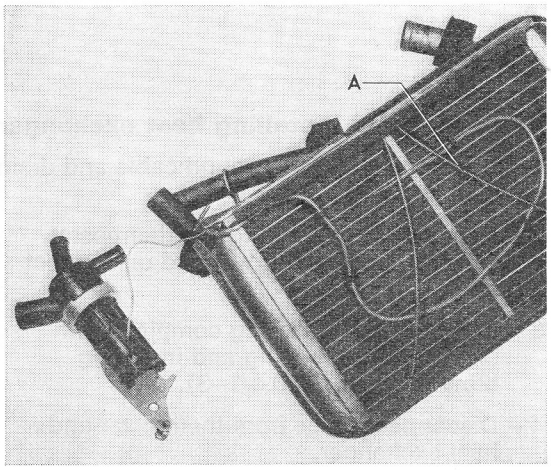
4 – Install operating cable for thermostat valve (see Removing and installing blower motor).

5 – Connect pipes to thermostat valve and to heat exchanger and secure them with clips.

6 – Install air intake duct.

7 – Fill system with coolant (see M 4.2/3–1).

8 – Connect battery ground cable.



Removing and installing thermostat valve

1 – Remove heat exchanger.

2 – Take hoses off thermostat valve.

3 – Take spring off underside of heat exchanger and remove thermostat valve complete with temperature sensor.

Installing

1 – Lay temperature sensor on heat exchanger as shown and secure it with the spring (A).

2 – Connect long hose to center connection on thermostat valve and short hose to the inner connection. Install heat exchanger.