Note

If there is no clear cut complaint and possible cause, it is recommended to complete the quick test without tester first. The test is performed at workshop temperature.

During all tests the vehicle engine should be running (except test step 1) at idle. The jets for lateral venting should be opened, the doors and windows closed. Note that the operating period of the regulating valve from max. cold to max. warm amounts to approx. 1 minute.

Test programm

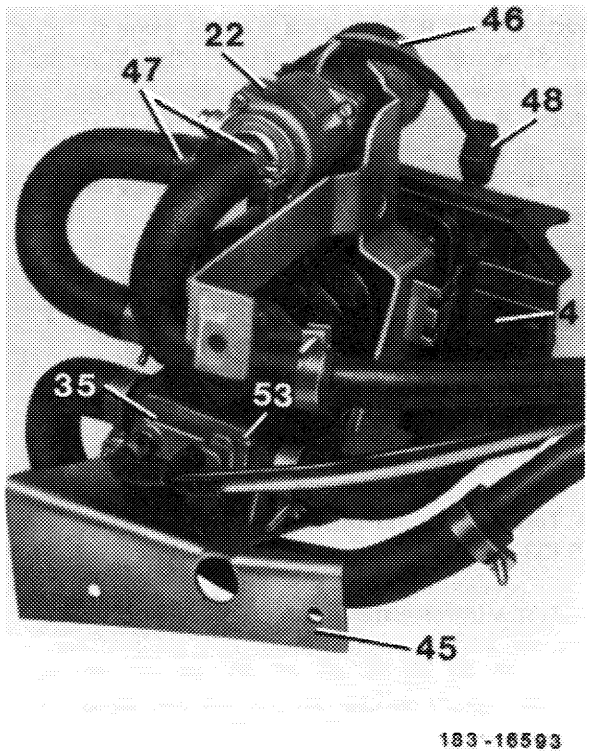
Test step 1

Check temperature switch (35) in regulating valve (cold engine lock) for function.

1 Switch on ignition, but do not yet start engine.

2 Actuate pushbutton switch in the following sequence, while paying attention to respective function of blower.

Pushbutton switch	Blower
1. "DEF"	should start
2. "OFF"	off
3. "AUTO-HI"	off
4. "AUTO-HI" and start engine	should start not before approx. 40 °C (104 °F) coolant temperature

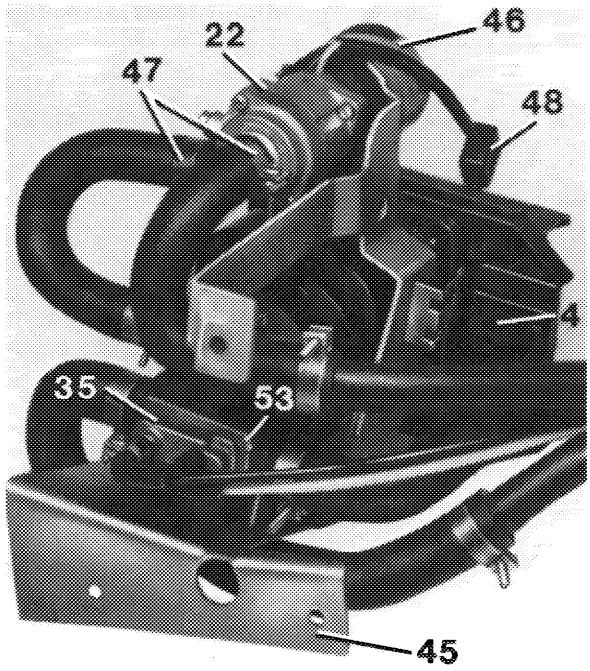


183-18593

Remedy following indication of defect

1 Check vacuum system according to function diagram 2 (83–604).

2 Pull black vacuum line from temperature switch (35) and check for vacuum. If there is no vacuum, test vacuum circuit I, II, III, IV and VI (refer to job no. 83–620, 622 and 624).

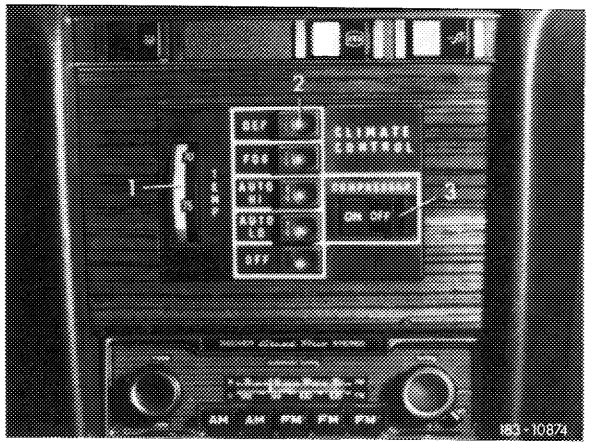


183-16593

Test step 2

Push "DEF" button and run engine up to operating temperature. Then run engine again at approx. 2500/min.

System moves to full heating capacity. Warm air flows out of defroster jets and out of jets for lateral ventilation. Blower runs at max. stage, legroom flaps are closed. Refrigerant compressor should run along (except at evaporator temperatures below 2 °C (36 °F). "ON/OFF" switch has no influence on refrigerant compressor.



183-10874

Remedy following indication of defect

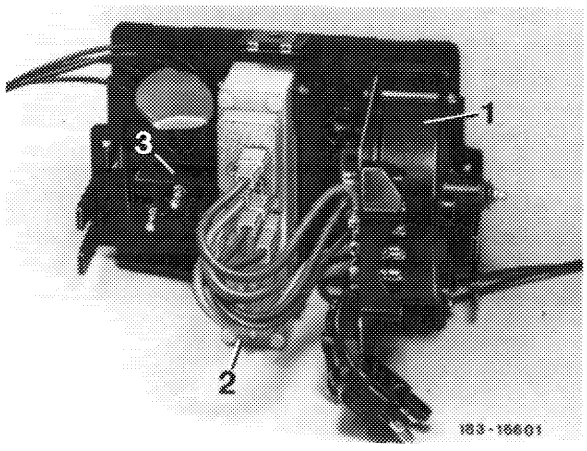
1 Test vacuum system according to function diagram 10 (83–604).

2 Test vacuum circuit III and IV (83–622).

3 Test electrical system according to wiring diagram 10 (83–605).

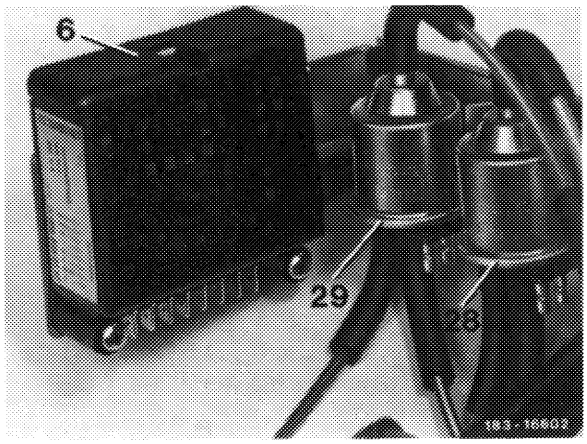
4 Test with voltmeter whether at terminal 8 of plug connection (5) for tester at least 11 V are available.

5 Test diode in 6-point coupling of pushbutton switch harness (2).



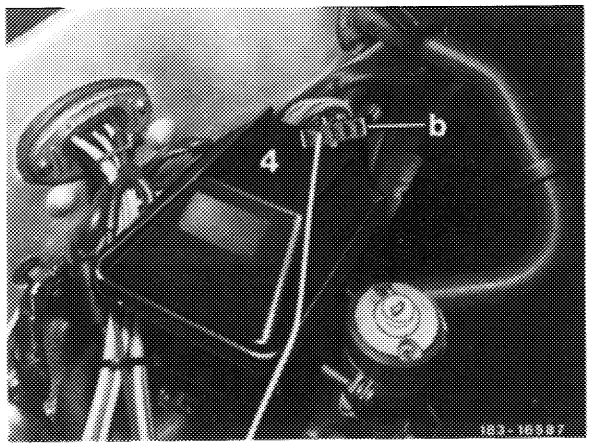
183-16601

6 Connect new amplifier (6) for tryout.



6 Amplifier

7 Exchange regulating valve (4).



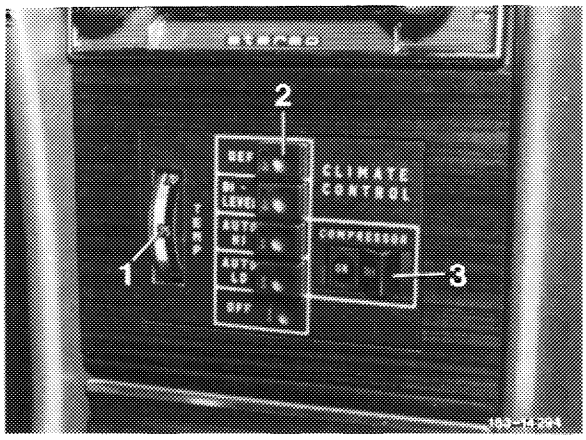
b 5-point plug connection front
4 Regulating valve

Test step 3

Push "BI-LEVEL" button and set temperature dial to 65 °F.

Blower switches back by one to two steps compared with "DEF".

All the air enters legroom via defroster jets, via jets of lateral ventilation and in addition at center jets during "cooling".



The outlet temperature is controlled in dependence of in-car temperature, i.e. in this case following a previous "DEF" test the outlet temperatures should be clearly lower than during "DEF" test. The refrigerant compressor runs along except at evaporator temperatures below 2 °C (36 °F), independent of the position of the "ON/OFF" switch of refrigerant compressor.

Remedy following indication of defect

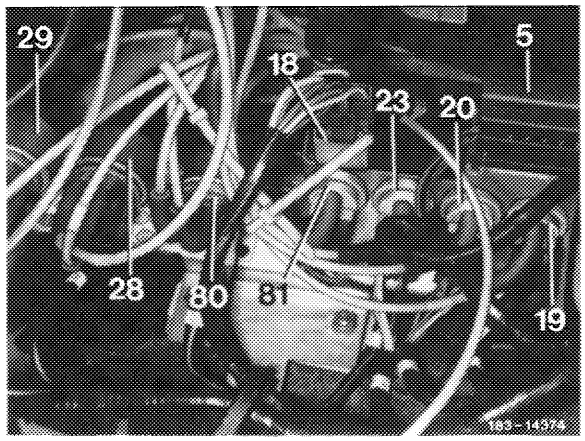
1 Test vacuum system according to function diagram 6 and 7 (83–604).

2 Test switch (23) for refrigerant compressor for leaks and electrical passage.

3 Test vacuum circuit III and IV (83–622).

4 Test electrical system according to wiring diagram (wiring diagram 7, 8 and 8 a, 83–605).

5 Check refrigerant charge on sightglass of receiver dehydrator.

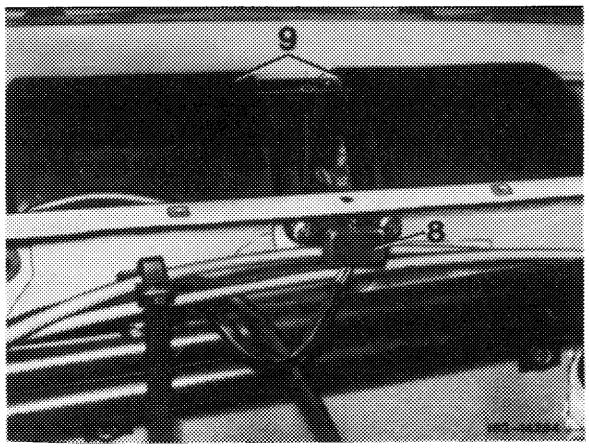


5 10-point plug connection for tester
18 Double contact relay
19 Vacuum switch (main switch, green)
20 Vacuum switch (refrigerant compressor, yellow)
23 Vacuum switch for refrigerant compressor (only at "BI-LEVEL")
28 Switchover valve legroom flap
29 Switchover valve fresh air flap
80 Switchover valve "BI-LEVEL" (at "DEF")
81 Vacuum switch (at "BI-LEVEL" only)

Test step 4

Push "AUTO-HI" button and move "ON/OFF" switch of refrigerant compressor into position "ON". Pull off 2-point plug on ambient temperature sensor (8).

System should run up to full heating capacity. Warm air will flow out of the legroom openings and out of jets for lateral ventilation. The center jets and the flaps for the defroster jets are closed. When attaining full heating capacity the blower runs in 2nd stage "HI".



8 Ambient temperature sensor 9 Blower

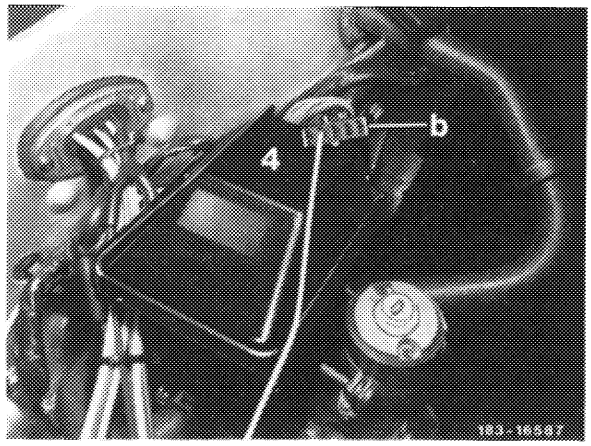
Remedy following indication of defect

1 Test vacuum system according to function diagram 5 (83–604).

2 Test vacuum circuit I, II, III, IV and V (83–620, 622 and 624).

3 Test electrical system according to wiring diagram 16 (83–605).

4 Connect regulating valve (4) for tryout.



4 Regulating valve
b 5-point plug connection front

Test step 5

For visual checkup of main air flap right, remove and install glove box (68–140). The main air flaps can also be checked from outside through the air inlet grille. Reattach 2-point plug to ambient temperature sensor and set temperature dial to 65 °F (up to stop).

The system is now running at "cooling" with the blower speed switched down in steps until the mode change is attained. The center jets will be opened and the legroom flaps will slowly close.
The air outlet temperatures will drop and the blower will again be switched up in steps. With a previously well heated vehicle interior, > 30 °C (86 °F) the system should move to recirculated air mode.

Remedies following indication of defect

1 Test vacuum system according to function diagram 3 (83–604).

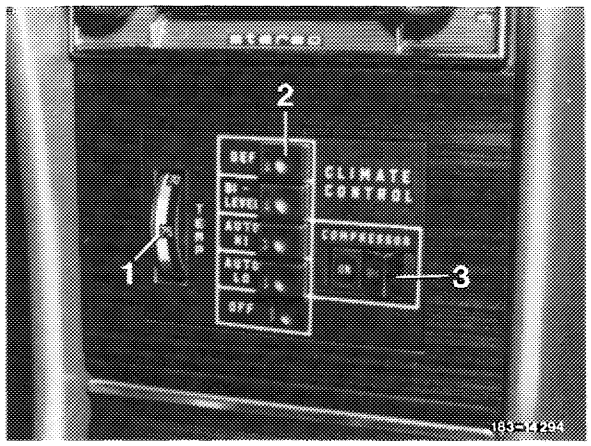
2 Test vacuum circuit I, II, III and VI (83–620 and 622).

3 Test electrical system according to wiring diagram 6 (83–605).

Test step 6

Move "ON/OFF" switch (3) of refrigerant compressor in position "OFF".

The legroom flaps will be opened and the fresh air-recirculating air flap moves into position 100 % fresh air.



Layout of control unit

1 Temperature dial
2 Pushbutton switch
3 "ON/OFF" switch of refrigerant compressor

Remedy following indication of defect

1 Test vacuum system according to function diagram 4 (83–604).

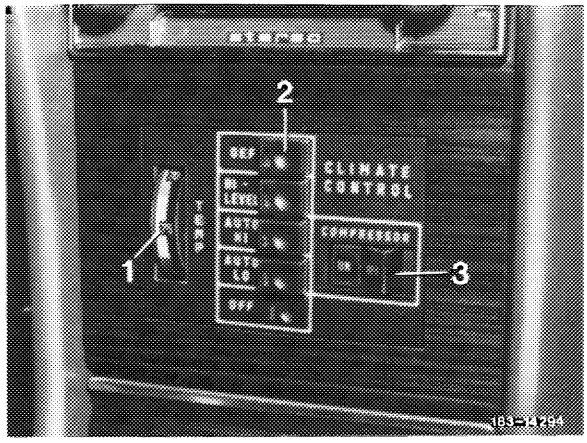
2 Test vacuum circuit I, II, III, IV, V and VI (83–620, 622 and 624).

3 Test electrical system according to wiring diagram 4 (83–605).

Test step 7

Move "ON/OFF" switch (3) of refrigerant compressor into position "ON".

Legroom flaps are again closed.



Layout of control unit

1 Temperature dial
2 Pushbutton switch
3 "ON/OFF" switch of refrigerant compressor

Remedy following indication of defect

1 Test vacuum system according to function diagram 3 (83–604).

2 Test vacuum circuit I, II, III and VI (83–620, 622 and 624).

Test step 8

Push "AUTO-LO" button, set refrigerant compressor switch to position "ON" and temperature dial to 65 °F.

Blower speed will clearly drop when switching to "LO" in relation to former "HI".

Remedy following indication of defect

1 Test vacuum system according to function diagram 2 and 3 (83–604).

2 Test vacuum circuit I, II, III, IV and VI (83–620, 622 and 624).

3 Test electrical system according to wiring diagram 2 (83–605).

Test step 9

Set temperature dial to 85 °F (pushbutton at "AUTO-LO").

Air outlet temperatures are increasing, blower speed is reduced in steps. When the mode change is attained (approx. 1 minute, closing of center jets and simultaneous opening of legroom flaps) the blower will again be switched up in steps depending on ambient temperature conditions.

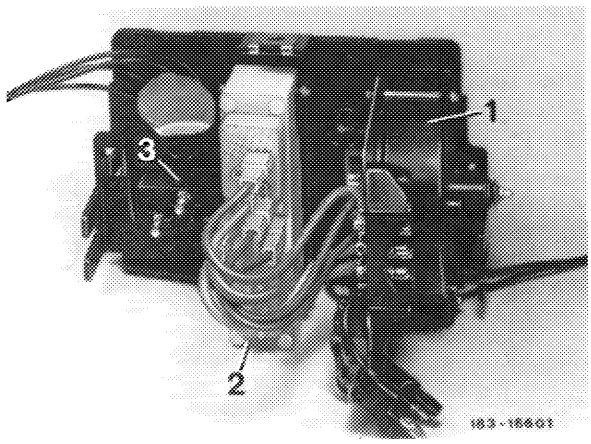
Remedy following indication of defect

1 Test vacuum system according to function diagram 5 (83–604).

2 Test vacuum circuit I, II, III, IV and V (83–620, 622 and 624).

3 Test electrical system according to wiring diagram 5 (83–605).

4 If the system remains in "cooling" position, test diode in harness for pushbutton switch (2). Connect new amplifier or new regulating valve for tryout.

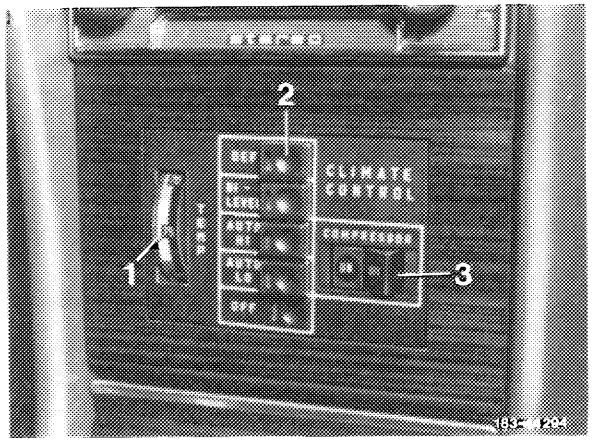


1 Temperature dial and potentiometer
2 Pushbutton switch
3 "ON/OFF" switch of refrigerant compressor

Test step 10

Push "OFF" button.

Blower and refrigerant compressor are switched off after approx. 10 seconds at the latest.



1 Temperature dial
2 Pushbutton switch
3 "ON/OFF" switch of refrigerant compressor

Remedy following indication of defect

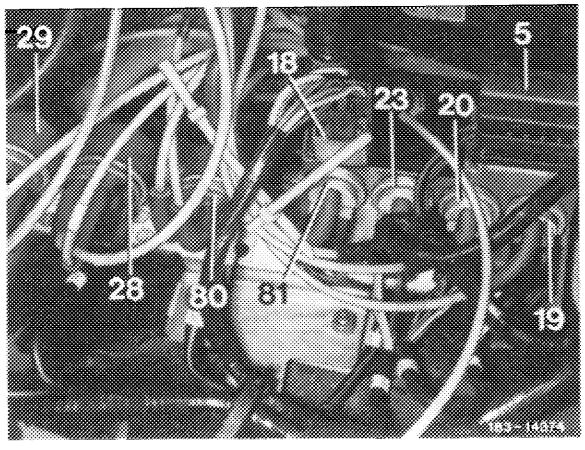
1 Test vacuum system according to function diagram 1 (83–604).

2 Test vacuum circuit I, II and VI (83–620 and 624).

3 Test black vacuum line from connection 3 of push-button switch to connection 1 of regulating valve or vent line (39) for passage. Possibly no ventilation via pushbutton switch connection 3.

4 Test electrical system according to wiring diagram 1 and 1 a (83–605).

5 Pull plugs from switches (19, 20 and 23), test with ohmmeter, no passage.



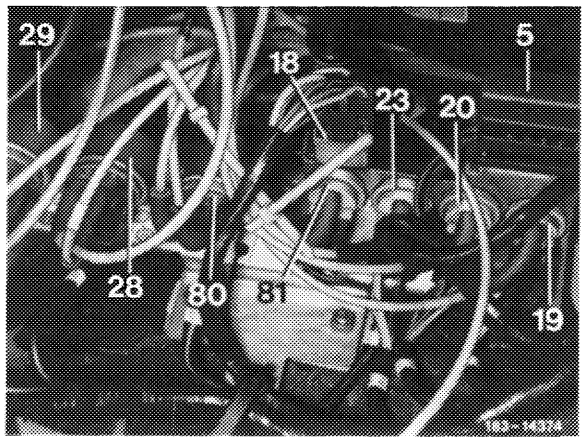
5 10-point plug connection for tester
18 Double contact relay
19 Vacuum switch (main switch, green)
20 Vacuum switch (refrigerant compressor, yellow)
23 Vacuum switch for refrigerant compressor (only at "BI-LEVEL")
28 Switchover valve legroom flap
29 Switchover valve fresh air flap
80 Switchover valve "BI-LEVEL" (at "DEF")
81 Vacuum switch (at "BI-LEVEL" only)

Test step 11

Start engine and accelerate shortly several times (coolant temperature > 40 °C, 104 °F). This will evacuate the vacuum system.

Move automatic climate control to "AUTO-HI", blower should start.

Switch off ignition. After approx. 10 minutes, switch-on ignition again without starting vehicle engine. Blower should start immediately (main switch [19] still activated with a vacuum). If the blower is not starting, a leak in line system is responsible.



Remedy following indication of defect

1 Test vacuum system (83–614 to 628).