

A. Test program and remedies (USA starting model year 1977)

Note

The test program should be performed in the event of unknown causes of a defect, uncertain customer complaints, following repairs to make sure of all functions. The tests include the cooperation of individual components, if a test step is to be repeated, set to previous test step first and wait for 1 minute. If a defect is indicated within a test step, complete the following remedies first prior to continuing the test.

1 Run engine at idle (operating temperature). Voltmeter switch in position „blower-volts“.

Note: The values and operating positions shown in bold print represent in each case the end condition of the test steps.

Test position		Results									
Push-button switch	Test step	„ON/OFF“ Switch of refrigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V - 0.5 V	Change from stage to stage after approx.s	Blower stages	Refrigerant compressor
OFF	1	ON	PARK	open	closed	closed	closed	0		0	off

Remedies following indication of defect

1 Test vacuum system according to function diagram (function diagram 1.83-604).

2 Test black vacuum line from connection (3) push-button switch to regulating valve connection (1) or vent line (39) for passage. Possibly not vented via push-button switch connection (3).

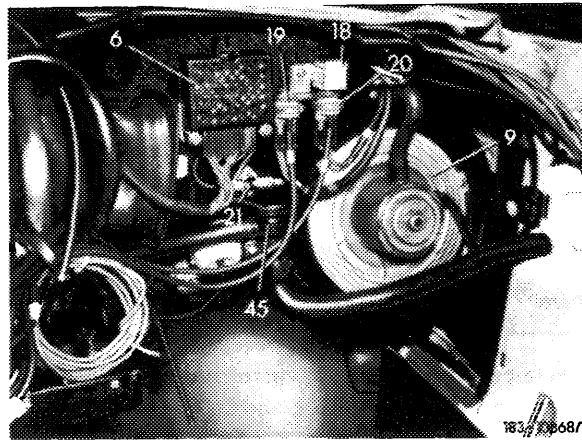
3 Test vacuum circuit I, II, VI (83-620 and 624).

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

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

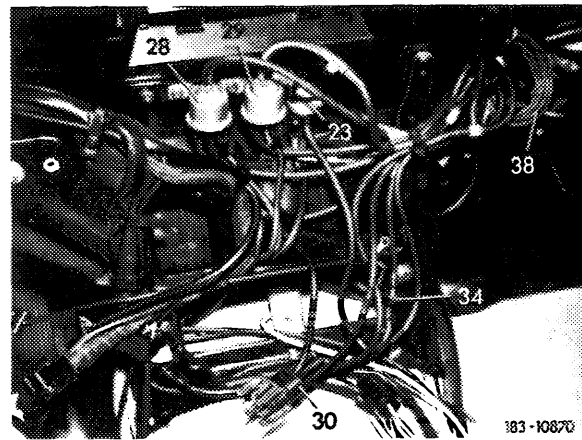
Layout of blower with amplifier

- 6 Amplifier
- 9 Blower
- 18 Double contact relay
- 19 Vacuum switch (main switch, green)
- 20 Vacuum switch (refrigerant compressor, yellow)
- 21 Temperature switch for heating water pump
- 45 Air jet nozzle



Layout of switchover valves with vacuum switch

- 23 Vacuum switch for refrigerant compressor only at „BI-LEVEL“
- 28 Switchover valve
- 29 Switchover valve
- 30 Vacuum lines
- 34 Check valve
- 38 Specified leak point



Test position		Results									
Push-button switch	Test step	„ON/OFF“ Switch of refrigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V – 0.5 V	Change from stage to stage after approx.s	Blower stages	Refrigerant compressor
AUTO-LO	2	ON	PARK	open	closed	closed	100	5.0		2 LO	on
	3	ON	AC	open	closed	closed	100	6.0	10	3 LO	on
				open	closed	closed	100	6.5	6	4 LO	
				open	closed	closed	20	7.0	5	5 LO	

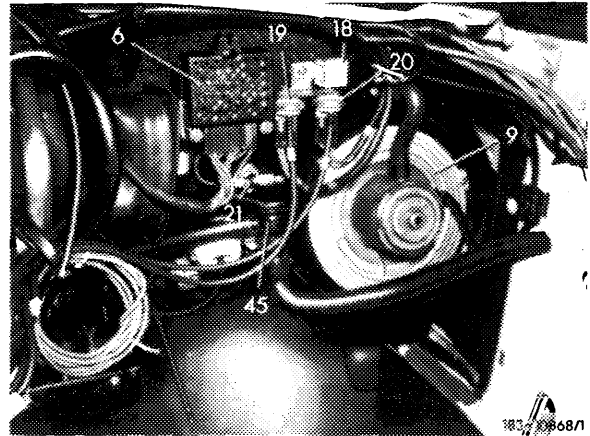
Remedy following indication of defect

1 Test vacuum system according to function diagram (function diagram 2 and 3, 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 (wiring diagram 2 and 3, 83–605).

4 Test vacuum switch (19) for passage.



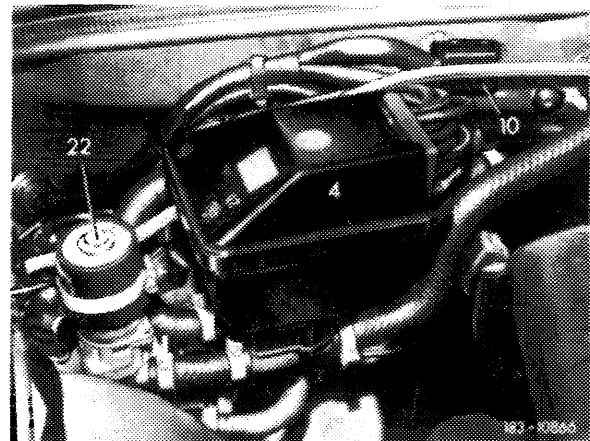
Layout of blower with amplifier

- 6 Amplifier
- 9 Blower
- 18 Double contact relay
- 19 Vacuum switch (main switch, green)
- 20 Vacuum switch (refrigerant compressor, yellow)
- 21 Temperature switch for heating water pump
- 45 Air jet nozzle

5 Perform amplifier test (83–606).

6 Test feed back potentiometer in regulating valve (83–610).

7 Connect new regulating valve (4) for tryout.



Test position		Results									
Push button switch	Test step	„ON/OFF“ switch of refrigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V – 0.5 V	Change from stage to stage after approx. s	Blower stages	Refrigerant compressor
AUTO-LO	4	OFF	AC	open	open	closed	100	7.0		5 LO	off

Remedy following indication of defect

1 Test vacuum system according to function diagram (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 (wiring diagram 4,83–605).

Test position		Resulte										
Push button switch	Test step	„ON/OFF“ switch of re-frigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V - 0.5 V	Change from stage to stage after approx.s	Blower stages	Refrigerant compressor	
AUTO-LO	5 Cooling	ON	HEAT	open	closed	closed	20	7.0		5 LO	on	
				open	closed	closed	100	6.5	8	4 LO		
				open	closed	closed	100	6.0	4	3 LO		
				open	closed	closed	100	5.0	4	2 LO		
				open	closed	closed	100	4.5	4	1 LO		
	Mode change				closed	open	closed*	100	4.5			1 LO
					closed	open	closed*	100	5.0	10		2 LO
					closed	open	closed*	100	6.0	4		3 LO
					closed	open	closed*	100	6.5	5		4 LO
					closed	open	closed*	100	6.5	5		4 LO
Heating				closed	open	closed*	100	4.5		1 LO		
				closed	open	closed*	100	5.0	10	2 LO		
				closed	open	closed*	100	6.0	4	3 LO		
				closed	open	closed*	100	6.5	5	4 LO		
				closed	open	closed*	100	6.5	5	4 LO		

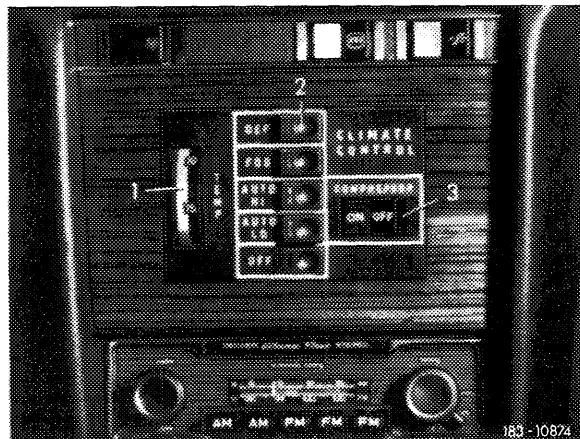
* position „closed“ includes a certain share of leak air

Remedy following indication of defect

- 1 Test vacuum system according to function diagram (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 (wiring diagram 5.83-605).
- 4 System remains in cooling position, test diode in 6-point coupling from harness of pushbutton switch (2).
- 5 Perform amplifier test (83-606).
- 6 Connect new regulating valve (4) for tryout.

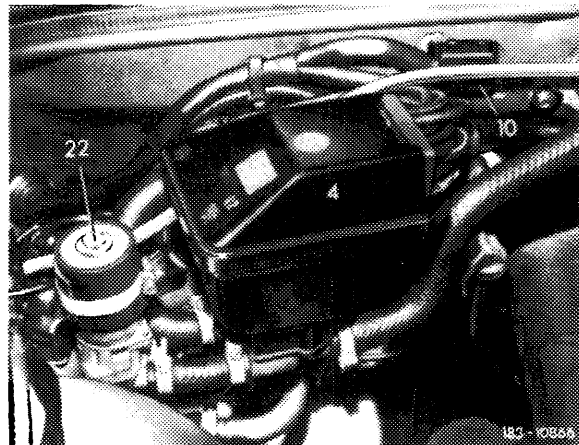
Layout of control unit

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



Layout of regulating valve with heating water pump

- 4 Regulating valve
- 10 Preresistance for blower
- 22 Heating water pump



Test position		Results									
Push-button switch	Test step	„ON/OFF“ switch of refrigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V – 0.5 V	Change from stage to stage after approx. s	Blower stages	Refrigerant compressor
AUTO-HI	6 Heating Mode change	ON	AC	closed	open	closed*	100	9.5	15	2 HI	on
				closed	open	closed*	100	8.0		1 HI	
	Cooling	open	closed	closed	100	8.0	1 HI				
				open	closed	closed	100	9.5	43	2 HI	
				open	closed	closed	20	10.5	7	3 HI	

* position „closed“ includes a certain share of leak air

1) Blower speed in stages „HI“, „BI-LEVEL“ and „DEF“ are clearly higher than in stages „LO“.

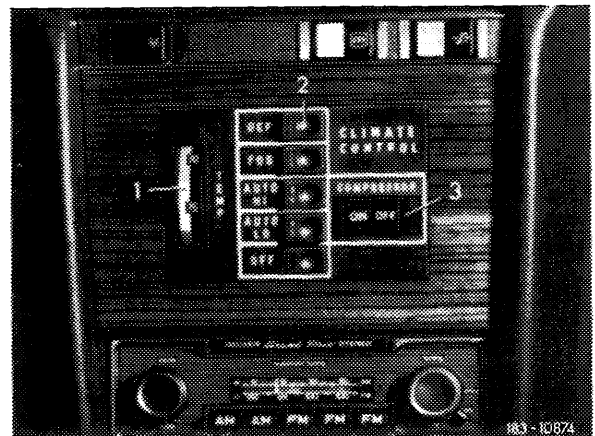
Remedy following indication of defect

- 1 Test vacuum system according to function diagram (function diagram 3,83–604).
- 2 Test vacuum circuit II, III and VI (83–620, 622 and 624).
- 3 Test electrical system according to wiring diagram (wiring diagram 6,83–605).
- 4 Test pushbutton switch (83–621).

Test position		Results									
Push-button	Test step	„ON/OFF“ switch of refrigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V – 0.5 V	Change from stage to stage after approx. s	Blower stages	Refrigerant compressor
BI-LEVEL	7	ON	AC	open	open	open	20	9.5		2 HI	on

Remedy following indication of defect

- 1 Test vacuum system according to function diagram (function diagram 6,83–604)
- 2 Test vacuum circuit III (83–622).
- 3 Test electrical system according to wiring diagram (wiring diagram 7,83–605).
- 4 Test pushbutton switch (2) (83–621).



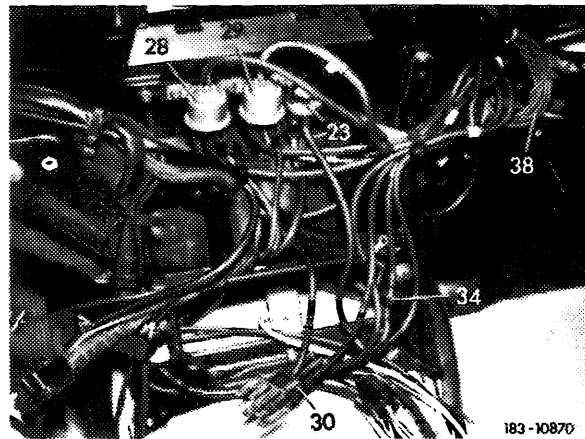
Test position		Results									
Push-button switch	Test step	„ON/OFF“ switch of refrigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V – 0.5 V	Change from stage to stage after approx.s	Blower stages	Refrigerant compressor
BI-LEVEL	8	OFF	AC	open	open	open	100	9.5		2 HI	on

Remedy following indication of defect

- 1 Test vacuum system according to function diagram (function diagram 7,83–604).
- 2 Test vacuum circuit III and IV (83–622).
- 3 Compressor switch (23) activated with a vacuum.
- 4 Test electrical system according to wiring diagram (wiring diagram 8 and 8a, 83–605).
- 5 Test vacuum switch (23).

Layout of switchover valves with vacuum switch

- | | |
|--|-------------------------|
| 23 Vacuum switch for refrigerant compressor only at "BI-LEVEL" | 29 Switchover valve |
| 28 Switchover valve | 30 Vacuum lines |
| | 34 Check valve |
| | 38 Specified leak point |



Test position		Results									
Push-button switch	Test step	„ON/OFF“ switch of refrigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V – 0.5 V	Change from stage to stage after approx.s	Blower stages	Refrigerant compressor
BI-LEVEL	9	ON	HEAT	open	open	open	20	9.5		2 HI	
				open	open	open	100	8.5	8		
				open	open	open	100	9.5		2 HI	on
				closed	open	open	100	8.0	2	1 HI	
				closed	open	open	100	9.5	30	2 HI	

Remedy following indication of defect

- 1 Test vacuum system according to function diagram (function diagram 8,83–604).
- 2 Test vacuum circuit III and IV (83–622).
- 3 Test electrical system according to wiring diagram (wiring diagram 9,83–605). Regulating valve moves from cooling to heating.

Test position		Results									
Push-button switch	Test step	„ON/OFF“ switch of refrigerant compressor	Mode switch	Center nozzle	Leg-room flap	Defroster nozzle flaps	Fresh air-recirculating air flap (fresh air data in %)	Volt meter readout + 1.5 V – 0.5 V	Change from stage to stage after approx.s	Blower stages	Refrigerant compressor
DEF	10	ON	HEAT	closed	closed	open	100	11.0		4 HI	on

Remedy following indication of defect

- 1 Test vacuum system according to function diagram (function diagram 9,83–604).
- 2 Test vacuum circuit III and IV (83–622).
- 3 Test electrical system according to wiring diagram (wiring diagram 10,83–605).

B. Testing of sensor chain and temperature dial with tester

	Ambient temperature sensor	In-car temperature sensor	Temperature dial	Remedies
Pushbutton switch	AUTO-LO	AUTO-LO	AUTO-LO	Following indication of defect and complaints about temperature, test temperature sensor with ohmmeter (83–609 and 610).
Temperature dial	–	–	75 °F	
Mode switch	AC	AC	AC	
Voltmeter switch	Ambient sensor	In-car sensor	Temp control	
Operating condition	Idle	Idle	Idle	
Voltmeter readout	2 to 8 V*	3 to 10 V	3 to 10 V	

* Temperature sensor may be defective even though voltage value is within tolerance.