

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 the 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 refrigerant compressor	Mode switch	Center jet	Leg-room flap	Defroster jet flaps	Fresh air-recirculating air flap (fresh air data in %)	Voltmeter 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

Remedy following indication of defect

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

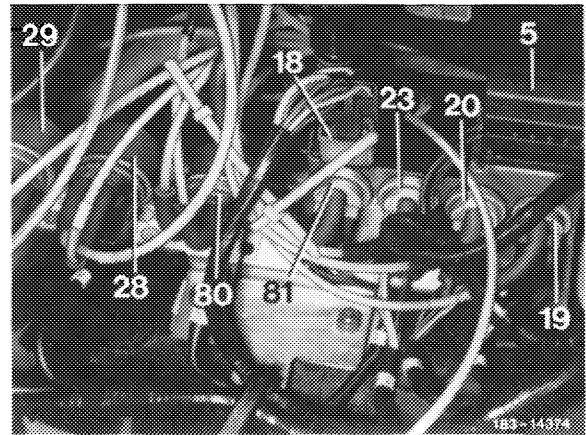
- 2 Test black vacuum line from connection (3) pushbutton switch to regulating valve connection (1) or vent line (39) for passage. Possibly not vented via pushbutton switch connection (3).

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

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

5 Pull plugs from vacuum 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 position		Results									
Push-button switch	Test step	"ON/OFF" switch refrigerant compressor	Mode switch	Center jet	Leg-room flap	De-froster jet 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-	2	ON	PARK	open	closed	closed	100	5.0		2 LO	on
LO	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

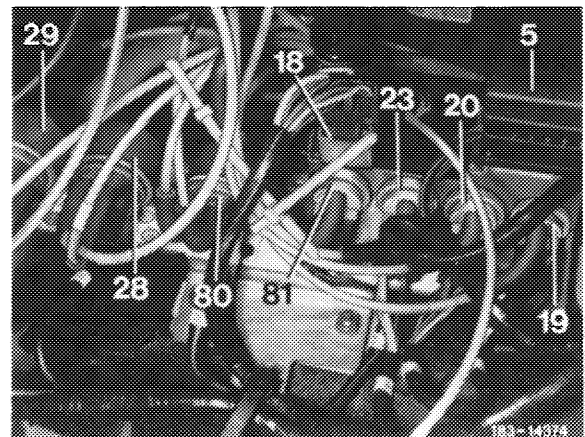
1 Test vacuum system according to function daigram 2 and 3 (83–604).

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

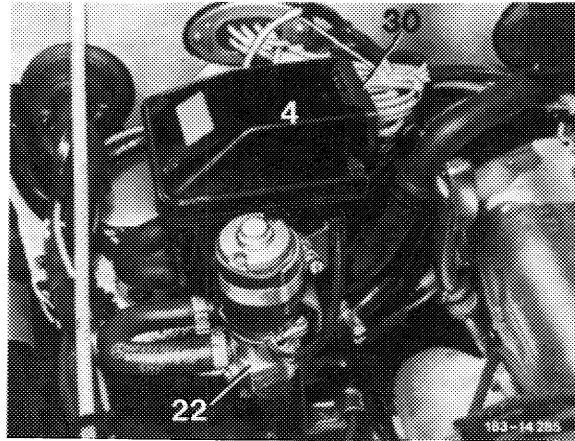
3 Test electrical system according to wiring diagram 2 and 3 (83–605).

4 Test vacuum switch (19) for 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)



- 5 Perform amplifier test (83–606).
- 6 Check feedback potentiometer in regulating valve (83–610).
- 7 Connect new regulating valve (4) for tryout.



4 Regulating valve
22 Heating water pump
30 Vacuum lines

Test position		Results									
Push-button switch	Test step	"ON/OFF" switch refrigerant compressor	Mode switch	Center jet	Leg-room flap	De-froster jet 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

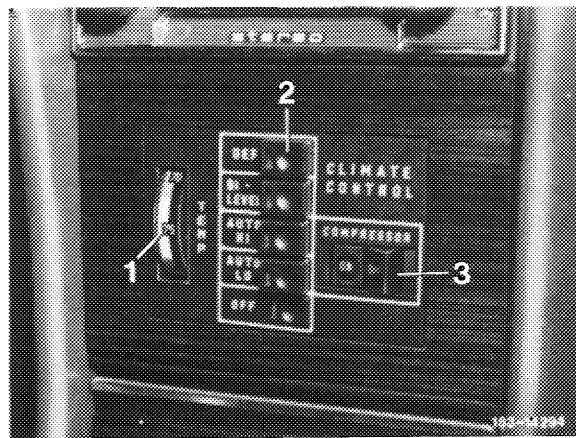
- 1 Test vacuum system according to function diagram 4 (83–604).
- 2 Test vacuum circuit I, II, III, IV, V and VI (83–620, 622 and 624).
- 3 Test electrical system according to wiring diagram 4 (83–605).

Test position		Results										
Push-button switch	Test step	"ON/OFF" switch refrigerant compressor	Mode switch	Center jet	Leg-room flap	De-froster jet 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											
	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 portion of leak air

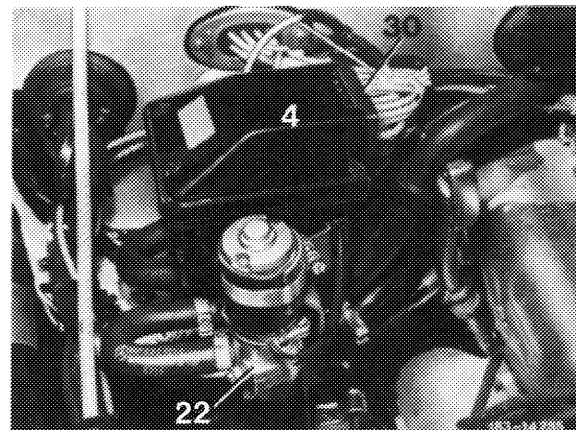
Remedy following indication of defect

- 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 System remains in cooling position, test diode in line assembly for 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
- 22 Heating water pump
- 30 Vacuum lines

Test position		Results											
Push-button switch	Test step	"ON/OFF" switch refrigerant compressor	Mode switch	Center jet	Leg-room flap	De-froster jet 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	closed	open	open	closed*	100	9.5	15	2 HI	on
				closed	open	open	closed*	100	8.0	1 HI			
	open			open	closed	closed	100	8.0	1 HI				
	7 Cooling			open	open	closed	closed	100	9.5	43	2 HI		
				open	closed	closed	closed	20	10.5	7	3 HI		

* position "closed" includes a certain portion of leak air

1) Blower speed in stages "HI" "BI-LEVEL" and "DEF" is noticeably higher than in stages "LO".

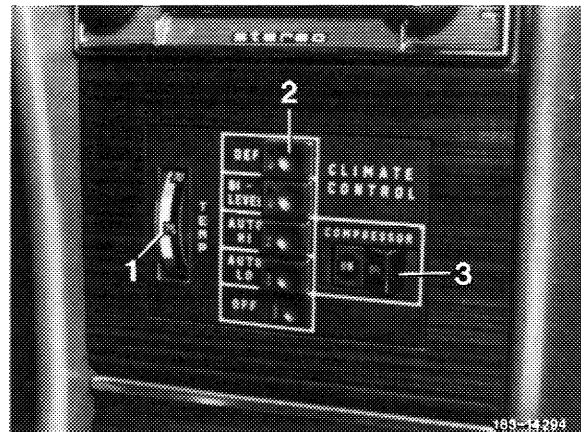
Remedy following indication of defect

- 1 Test vacuum system according to 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 6 (83-605).
- 4 Test pushbutton switch (83-621).

Test position		Results									
Push-button switch	Test step	"ON/OFF" switch refrigerant compressor	Mode switch	Center jet	Leg-room flap	De-froster jet 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

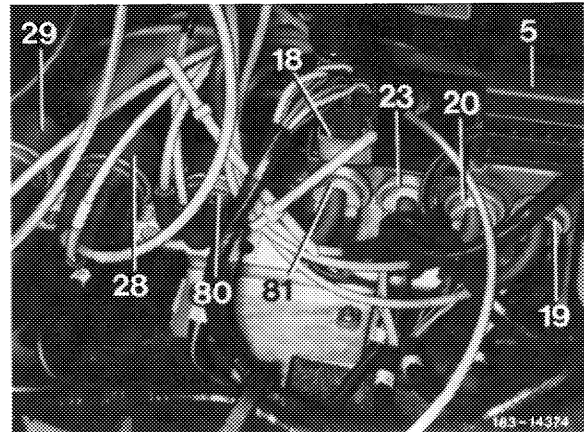
- 1 Test vacuum system according to function diagram 6 (83-604).
- 2 Test vacuum circuit III (83-622).
- 3 Test electrical system according to wiring diagram 7 (83-605).
- 4 Test pushbutton switch (2) (83-621).



Test position		Results									
Push-button switch	Test step	"ON/OFF" switch refrigerant compressor	Mode switch	Center jet	Leg-room flap	De-froster jet 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 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 8 and 8 a (83-605).
- 5 Test vacuum switch (23).



Test position		Results									
Push-button switch	Test step	"ON/OFF" switch refrigerant compressor	Mode switch	Center jet	Leg-room flap	De-froster jet 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	on
				open	open	open	20	8.5	8		
				open	open	open	100	9.5			
				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 9 (83-604).
- 2 Test vacuum circuit III and IV (83-622).
- 3 Test electrical system according to wiring diagram 9 (83-605). Regulating valve moves from cooling to heating.

Test position		Results									
Push-button switch	Test step	"ON/OFF" switch refrigerant compressor	Mode switch	Center jet	Leg-room flap	De-froster jet 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 10 (83-604).
- 2 Test vacuum circuit III and IV (83-622).
- 3 Test electrical system according to 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.