


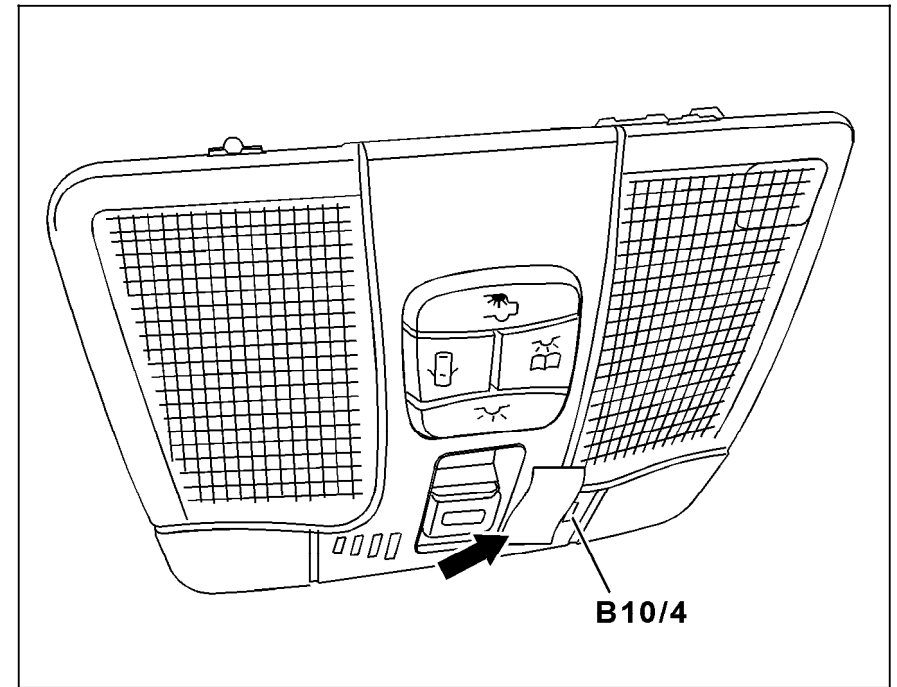
3.10 Model 208 as of M.Y. 1998

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Diagnosis – Function Test

Preparation for Test

1. Review 11, 12, 13, 14, 15, 21, 22, 31, 32, 41,
2. Check condition of fuses F1-20, F1-25, F1-26, F1-38,
3. Check in-car temperature sensor aspirator blower by placing a small piece of paper (arrow) approximately 1" square over in-car temperature sensor (B10/4) vent grille with ignition **ON** and with soft top closed (model 208.465 only). If there is sufficient ventilation the paper will remain on the vent grille, if not check aspirator blower for voltage supply and function.
The after-run time for the blower motor is greater than six seconds.
4. Run engine at closed throttle and operating temperature (approx. 80 °C engine coolant temperature) during entire test (ensure that the gear selector lever is in "P" and that the parking brake is engaged).
5. Manually open the center and side air outlets.
6. Ensure that the  button is not depressed.








P83.30-0706-35

Figure 1



B10/4 In-car temperature sensor

Diagnosis – Function Test

Test step/Test sequence	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 1.0 Defrost	Press  Temperature selection at random setting	Blower runs with increased speed. Air venting from defroster outlets. A/C compressor engaged. Maximum heat output, 100% fresh air	23 ⇒ 1.0, 2.0, 3.0, 6.0, 8.0, 10.0, 14.0, 15.0, 17.0, 18.0, 19.0
⇒ 2.0 Ventilation in cooling mode	Press  Temperature selection “LU” Soft top closed (model 208.465 only)	Blower runs with increased speed. Air venting from center and side outlets. A/C compressor engaged, no heat output. Coolant circulation pump (M13) does not run.	23 ⇒ 4.0, 5.0, 6.0, 8.0, 14.0, 17.0, 18.0, 19.0 32 ⇒ 1.0, 2.0
⇒ 3.0 Normal setting in regulating mode	Press  Temperature selection set at present in-car temperature.	Blower speed decreases. Air venting from defroster outlets, leak air from footwell outlets. A/C compressor engaged. Tempered air venting. Duovalve cycles and coolant circulation pump (M13) runs.	23 ⇒ 9.0, 10.0, 11.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0 32 ⇒ 1.0, 2.0
⇒ 4.0 Economy not in heating mode	Temperature selection “LU” Press  Press 	Air venting from dash outlets (ambient temperature) A/C compressor OFF.	23 ⇒ 13.0, 16.0, 17.0, 18.0, 19.0, 32 ⇒ 1.0, 2.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Function Test

Test step/Test sequence	Test condition	Nominal value	Possible cause/Remedy ¹⁾
⇒ 5.0 Economy in heating mode	Temperature selection "H" Press EC	Air venting from footwell and side outlets left/right. Leak air from defroster outlets. Maximum heat output. Coolant circulation pump (M13) runs.	23 ⇒ 13.0, 14.0, 15.0, 17.0, 18.0, 19.0, 32 ⇒ 1.0, 2.0
⇒ 6.0 Recirculation air	Press 	 button illuminates.	32 ⇒ 1.0, 2.0
⇒ 7.0 Residual engine heat utilization	Ignition: OFF Press REST Selected temperature > 79 °F (25 °C)	Heated air from footwell and side outlets, leak air from defroster outlets. Blower runs at low speed. Coolant circulation pump (M13) runs.	23 ⇒ 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 32 ⇒ 1.0, 2.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Reading Actual Values (via A/C Pushbutton Control Module [N22])

i

1. The display window will show values as per each test step in the Reading Actual Values table.
2. The temperature control is maintained during the duration of the test.

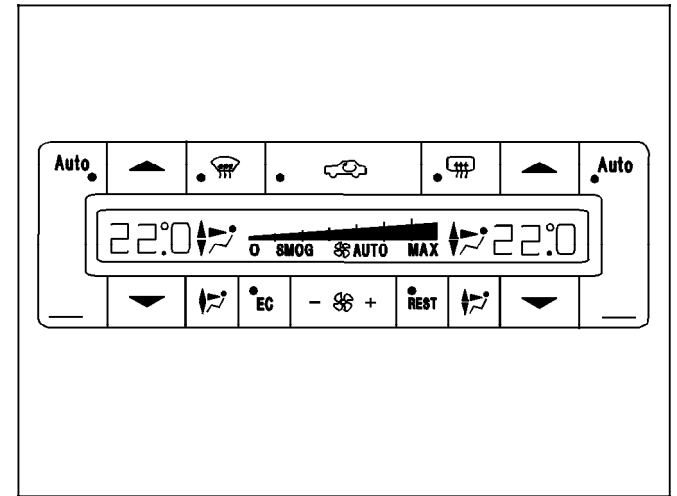


Figure 1

P83.40-0410-01

Diagnosis – Reading Actual Values (via A/C Pushbutton Control Module [N22])



Preparation for Test

1. Review 11, 12, 13, 14, 15, 21, 22, 31, 32, 41,
2. Ignition: **ON**
3. Set temperature selection to 72 °F on both sides.
4. Press **REST** for more than 6 seconds.
5. The left side of the display window will display the number "1" and the in-car temperature (e.g. 72 °F) will appear on the right display.
6. By pressing the left **AUTO** button, the next highest test step is displayed (see table).
7. Press **REST** to end test program.




The display will show "-40" if there is a short or open circuit, negative sensor values will be shown on the left display as "-".

Diagnosis – Reading Actual Values (via A/C Pushbutton Control Module [N22])

Display code in N22 window 	Possible cause	Test step/Remedy ¹⁾
01 01	In-car temperature sensor (B10/4)  Model 208.465: With the soft top down, the power soft top control module (N52) will override B10/4	23 ⇒ 4.0
02 02	Outside temperature indicator temperature sensor (B14)	23 ⇒ 11.0
03 03	Heater core temperature sensor (B10/1) (left)	23 ⇒ 7.0
04 04	Heater core temperature sensor (B10/1) (right)	23 ⇒ 8.0
05 06	Evaporator temperature sensor (B10/6)	23 ⇒ 5.0
06 05	ECT sensor (DFI, IFI) (B11/4)	23 ⇒ 11.0
07 07	Refrigerant pressure in bar, e.g. 05 °C corresponds to 6.4 bar	23 ⇒ 9.0
08 08	Refrigerant temperature sensor (B12/1), e.g. 73 °C corresponds to 73.4 °F	23 ⇒ 6.0
09 -	Menu for activations	-
10 13	Blower control voltage, e.g. 08 °C (min) - 50 °C (max) corresponds to 0.8 - 6.0 volts	23 ⇒ 17.0
20 -	Control current for auxiliary fan e.g. 7 corresponds to 7 mA	23 ⇒ 13.0
21 12	Engine speed, e.g. 99 . . 99 (x 100) corresponds to 9900 rpm	23 ⇒ 11.0
22 11	Vehicle speed, example: 155 (km/h)	23 ⇒ 11.0
23 14	Terminal 58d e.g. 99 corresponds to 99 % battery voltage	23 ⇒ 11.0

1) Observe Preparation for Test, see 22.

Diagnosis – Reading Actual Values (via A/C Pushbutton Control Module [N22])

Display code in N22 window 	Possible cause	Test step/Remedy ¹⁾
24 ³⁾	Battery voltage e.g. 12.8 V	-
40 ³⁾	Software status e.g. 4	-
41 ³⁾	Hardware status e.g. 3	-
42 ²⁾	Version code 1. number code e.g. 128	-
43 ²⁾	Version code 2. number code e.g. 136	-

- 1) Observe Preparation for Test.
- 2) Version code menu.
- 3) Control module identification.

Diagnosis – Individual Flap Test (via A/C Pushbutton Control Module [N22])

Notes:

1. The display window in the A/C pushbutton control module (N22) will show the test step. Pressing the various buttons will activate the individual vacuum actuators (refer to test table). The LED on the depressed button lights up.
2. The temperature control is maintained during the duration of the test.

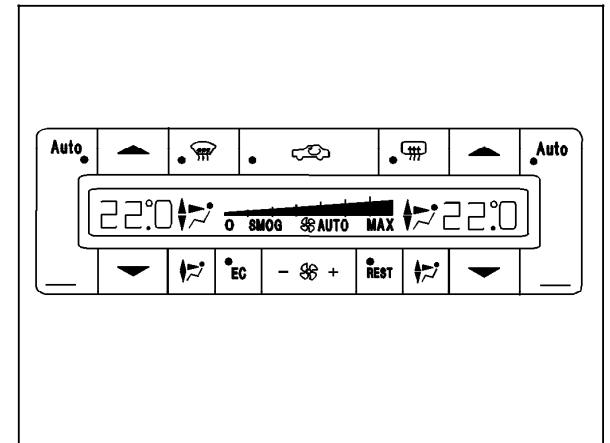



Figure 1

P83.40-0410-01

Diagnosis – Individual Flap Test (via A/C Pushbutton Control Module [N22])

Preparation for Test

1. Engine: **At Idle**
2. Press left and right **AUTO** buttons.
3. Set temperature selector to 72 °F.
4. Manually open the side and middle air vents.
5. Press **REST** and  for > 5 secs.
6. The left display will show "L0" and the right display will show "L0".
7. By pressing **AUTO** on the left side, the next highest test step is activated. To switch from "L0" to "H1" press **AUTO** on the right side (see table).
8. Press **REST** to end test program.

Note:

Two stage vacuum actuators function at full stroke (100%) only, if the long stroke (80%) and the short stroke (20%) are pressed.

Pressing the short stroke (20%) by itself does not change the flap position.

The blower motor will be powered with 6V during the individual flap test.

Diagnosis – Individual Flap Test (via A/C Pushbutton Control Module [N22])

Left display (DTC)	Activated flap ³⁾	Test condition	Right display	Nominal value/Air output	Test step/Remedy ¹⁾
0	All	Press right AUTO	LO HI	No flaps are activated (closed). All flaps opened (activated).	32
1	Diverter flap ¹⁾	Press right AUTO	LO HI	Center outlet closed. Center outlet opened, cold air.	32
2	Diverter flap ¹⁾	Press right AUTO	LO HI	Center outlet closed. Center outlet opened, cold air.	32
3	Left blend air flap ¹⁾	Press right AUTO	LO HI	Left center outlet closed. Left center outlet, warm air.	32
4	Right blend air flap ¹⁾	Press right AUTO	LO HI	Right center outlet, closed. Right center outlet, warm air.	32
5	Left defroster flap long stroke ²⁾	Press right AUTO	LO HI	Side defroster leak air. Side defroster maximum air.	32

1) The left and right defroster outlets will also be activated (long and short stroke).

2) The right defroster outlet will also be activated (long and short stroke).

3) The left defroster outlet will also be activated (long and short stroke).

Diagnosis – Individual Flap Test (via A/C Pushbutton Control Module [N22])

Diagnostic Trouble Code (DTC)	Activated flap ³⁾	Test condition	Right display	Nominal value/Air output	Test step/Remedy ¹⁾
B	Left defroster flap long and short stroke ²⁾	Pushbutton right AUTO	LO	Left defroster outlet closed.	32
			HI	Left defroster outlet opened.	
7	Right defroster flap, long stroke ³⁾	Pushbutton right AUTO	LO	Right defroster flap open, leak air.	32
			HI	Right defroster flap opened.	
8	Right defroster flap, long and short stroke ³⁾	Pushbutton right AUTO	LO	Right defroster flap closed.	32
			HI	Right defroster flap opened.	
9	Main air flap long stroke ⁴⁾	Pushbutton right AUTO	LO	Fresh air flow.	32
			HI	Recirculated air 80%.	
10	Main air flap long and short stroke ⁴⁾	Pushbutton right AUTO	LO	Fresh air flow.	32
			HI	Recirculated air 100%.	
11	Left footwell air flap long stroke ¹⁾	Pushbutton right AUTO	LO	Left footwell air flap closed	32
			HI	Left footwell air flap opened, leak air.	

- 1) The left and right defroster outlets will also be activated (long and short stroke).
- 2) The right defroster outlet will also be activated (long and short stroke).
- 3) The left defroster flap will also be activated (long and short stroke).
- 4) The left and right blend air flaps will also be activated.

Diagnosis – Individual Flap Test (via A/C Pushbutton Control Module [N22])

Diagnostic Trouble Code (DTC)	Activated flap ³⁾	Test condition	Right display	Nominal value/Air output	Test step/Remedy ¹⁾
12	Left footwell flap, long and short stroke ¹⁾	Pushbutton right AUTO	LO	Left footwell flap, leak air.	32
			HI	Left footwell flap, opened.	
13	Right footwell flap, long stroke ¹⁾	Pushbutton right AUTO	LO	Right footwell flap, closed.	32
			HI	Right footwell flap opened, leak air	
14	Right footwell flap, long and short stroke ¹⁾	Pushbutton right AUTO	LO	Right footwell flap, leak air.	32
			HI	Right footwell flap, opened.	
15	All flaps	Pushbutton right AUTO	LO	No flaps are activated (closed).	32
			HI	All flaps are activated (opened).	

¹⁾ The left and right defroster outlets will also be activated (long and short stroke).

³⁾ The left defroster flap will also be activated (long and short stroke).

Version Coding

Programming

1. Turn ignition **ON**.
2. Display reads: Left "HI"; right: "LO".
3. Turn ignition **OFF**.
4. Press **REST** and at the same time turn ignition: **ON**.
P1" flashes in left side of display window (value 1), right side of display window: (e.g.) "128".
5. Press the right temperature selector (blue = <; red = >).
6. To enter value 1, Press **EC** > 1sec.
7. To access value 2, press **EC**
8. P2" flashes in left side of display window (value 1), right side of display window: (e.g.) "136".
9. Press the right temperature selector (blue = <; red = >).
10. To enter value 2, Press **EC** > 1sec.
11. Turn ignition **OFF**: A/C (i.e. A/C pushbutton control module [N22]) returns to normal operation.
12. Reset right and left temperature selectors to normal settings.

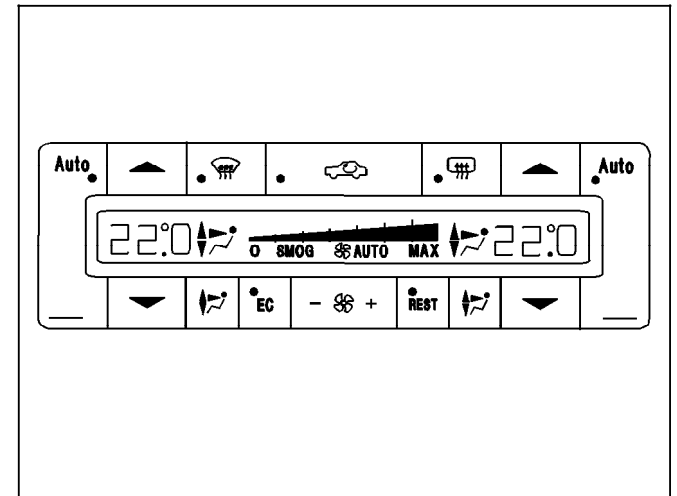




Figure 1

P83.40-0410-01



Version Coding

Model 208 Coupé only

1. Numerical Value  ¹⁾	Preliminary setting
128	with serial interface K1
+ 8	with serial interface K2
+ 32	Vehicle with electric cooling fan
2. Numerical Value  ¹⁾	Versions
+ 8	Blower "bar graph" activated
+ 16	Refrigerant fill level check switched off
+ 128	SMOG text in display turned off

¹⁾ Version coding menu.

Model 208 Cabriolet only

1. Numerical Value  ¹⁾	Preliminary setting
128	with serial interface K1
+ 8	with serial interface K2
+ 16	Cabriolet Coding
+ 32	Vehicle with electric cooling fan
2. Numerical Value  ¹⁾	Versions
+ 6	Cabriolet control module
+ 8	Blower "bar graph" activated
+ 16	Refrigerant fill level check switched off
+ 128	SMOG text in display turned off

¹⁾ Version coding menu.

Diagnosis – Diagnostic Trouble Code (DTC) Memory



- The A/C pushbutton control module (N22) has DTC memory and data output. The diagnostic trouble codes and data are displayed via the temperature display window. The stored DTC's will remain in memory even with the vehicle battery disconnected.
- The DTC memory differentiates between current and intermittent faults.
- Numerous DTC's can also be read with the Hand-Held Tester (HHT).

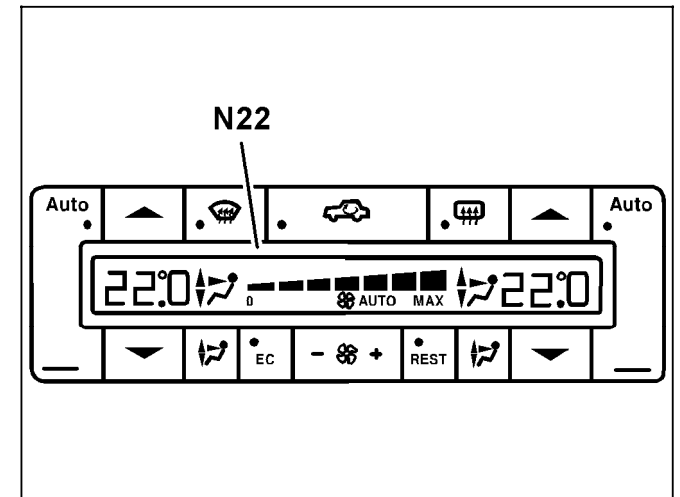




Figure 1

P83.40-2110-01

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Preparations for DTC Readout

1. Review 11, 12, 13, 14, 15, 21, 22, 31, 32, 41,
2. Ignition: **ON**
3. Temperature selector: left: "HI"; right: "LO"
4. Ignition: **OFF**
5. Ignition: **ON**
6. Within 20 seconds press **REST** and **EC** simultaneously for more than 5 seconds.
7. The LED in  flashes and the display shows "di R".
8. Press **AUTO** repeatedly until all DTC's are displayed. Record each DTC as it is displayed.
9. Each fault (short circuit, open circuit) is assigned a DTC. Thus in the left display: "E1" appears, and the right display indicates the DTC. The current faults (refer to table) are displayed first, next, the intermittent failures (e.g. 45 °5) are displayed in the display window next to the  symbol. By pressing the right **AUTO** the next DTC is displayed.

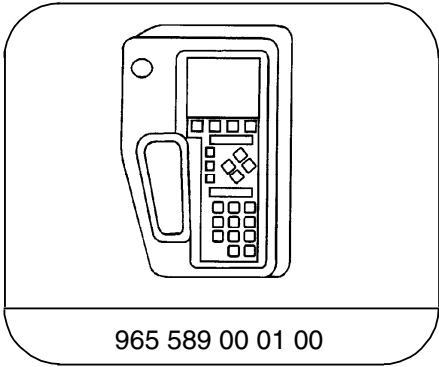
10. To erase: Can only be performed after all faults have been readout. Press left **AUTO** and right **AUTO** buttons simultaneously for more than 2 seconds and the display shows:
left: "d" and right: "FF".
To cancel erase: By pressing the left **AUTO** button, the current faults will appear again.
11. Select a base temperature setting.
12. Turn ignition **OFF**, to end test.



Due to instrument cluster (IC) series interface, DTC's may be stored in IC memory, therefore readout and erase DTC's from IC memory.

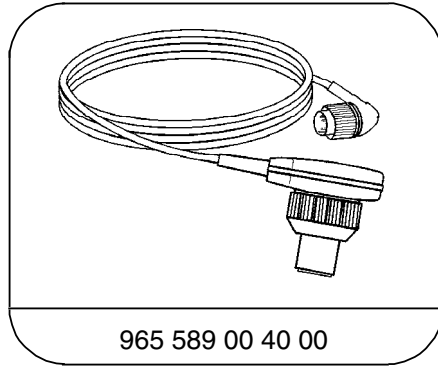
Diagnosis – Diagnostic Trouble Code (DTC) Memory

Special Tools



965 589 00 01 00















Hand-Held-Tester



965 589 00 40 00


Test cable

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)	Possible cause	Test step/Remedy ¹⁾
N22 		
-	No malfunction in system	–
B1226 	In-car temperature sensor (B10/4)  Model 208.465: With the soft top down, the power soft top control module (N52) will override B10/4 and in this case, the DTC B1226 will not be stored in memory.	23⇒ 4.0
B1227 	Outside temperature indicator temperature sensor (B14)	23⇒ 11.0
B1228 	Heater core temperature sensor (B10/1) (left)	23⇒ 7.0
B1229 	Heater core temperature sensor (B10/1) (right)	23⇒ 7.0
B1230 	Evaporator temperature sensor (B10/6)	23⇒ 5.0
B1231 	ECT sensor (B11/4)	23⇒ 11.0
B1232 	Refrigerant pressure sensor (B12)	23⇒ 9.0
B1233 	Refrigerant temperature sensor (B12/1)	23⇒ 6.0
B1241 	Refrigerant fill level	23⇒ 9.0, 6.0
B1416 	Coolant circulation pump (M13)	23⇒ 15.0
B1417 	Left-side water valve (Y21y1)	23⇒ 16.0
B1418 	Right-side water valve (Y21y2)	23⇒ 16.0

¹⁾ Observe Preparation for Test, see 22.

Diagnosis – Diagnostic Trouble Code (DTC) Memory

Diagnostic trouble code (DTC)	Possible cause	Test step/Remedy ¹⁾
N22 		
B1419 021	Electromagnetic clutch (A9k1)	23⇒ 18.0
B1420 022	Idle speed increase	-
B1421 023	AIR control module (N65/1)	23⇒ 12.0
B1422 024	Serial interface K1	23⇒ 11.0, 21 (CAN)
B1423 025	Switchover flap (Y11)	23⇒ 19.0
B1432 028	Non-USA Test Step	-
B1459 029	Serial interface K2	23⇒ 12.0, 21 (CAN)

1) Observe Preparation for Test, see 22.

Electrical Test Program – Component Locations

Component locations in Passenger Compartment

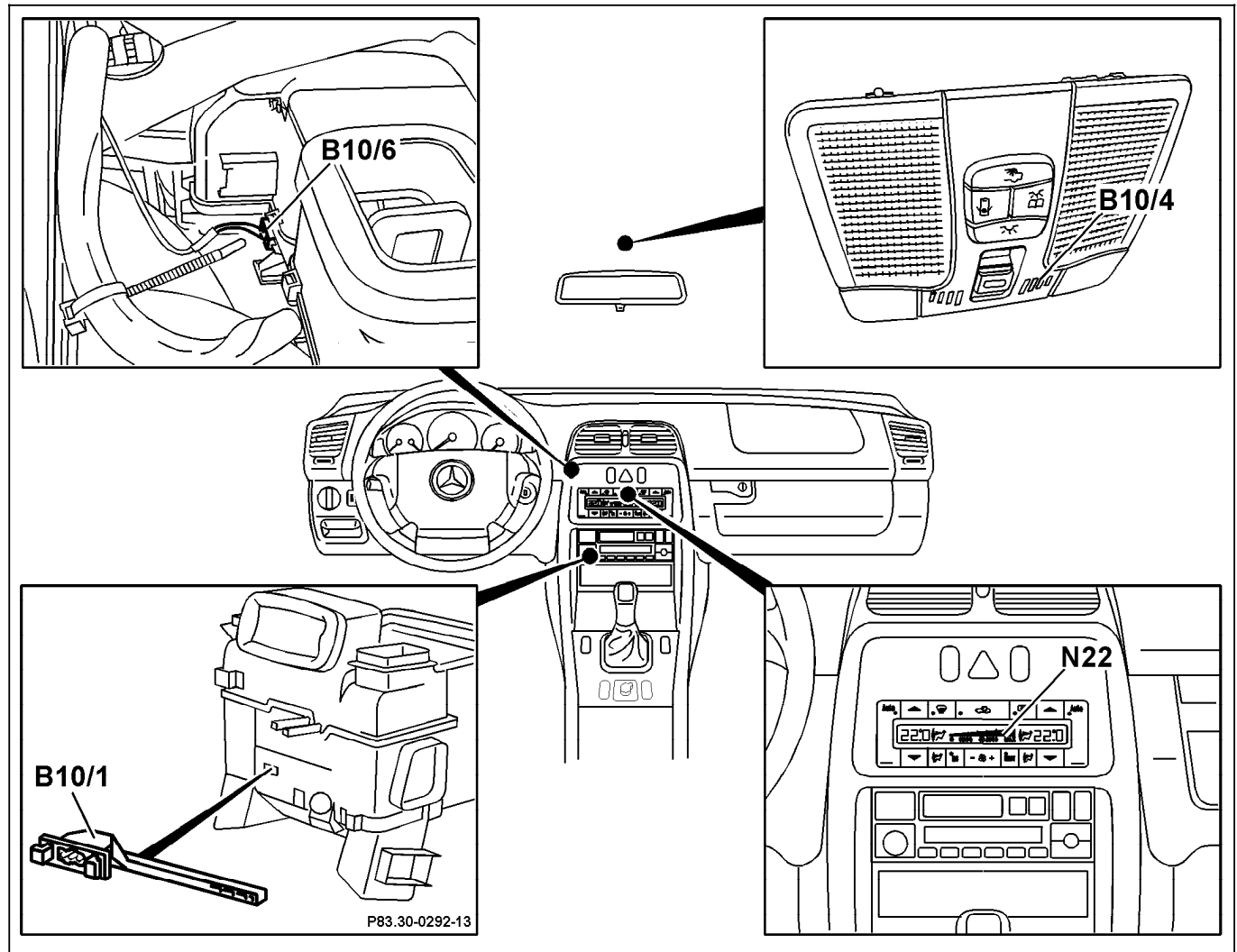


Figure 1

- B10/1 Heater core temperature sensor
- B10/4 In-car temperature sensor
- B10/6 Evaporator temperature sensor
- N22 A/C pushbutton control module

P83.40-0415-06

Electrical Test Program – Component Locations

Component locations in Engine Compartment

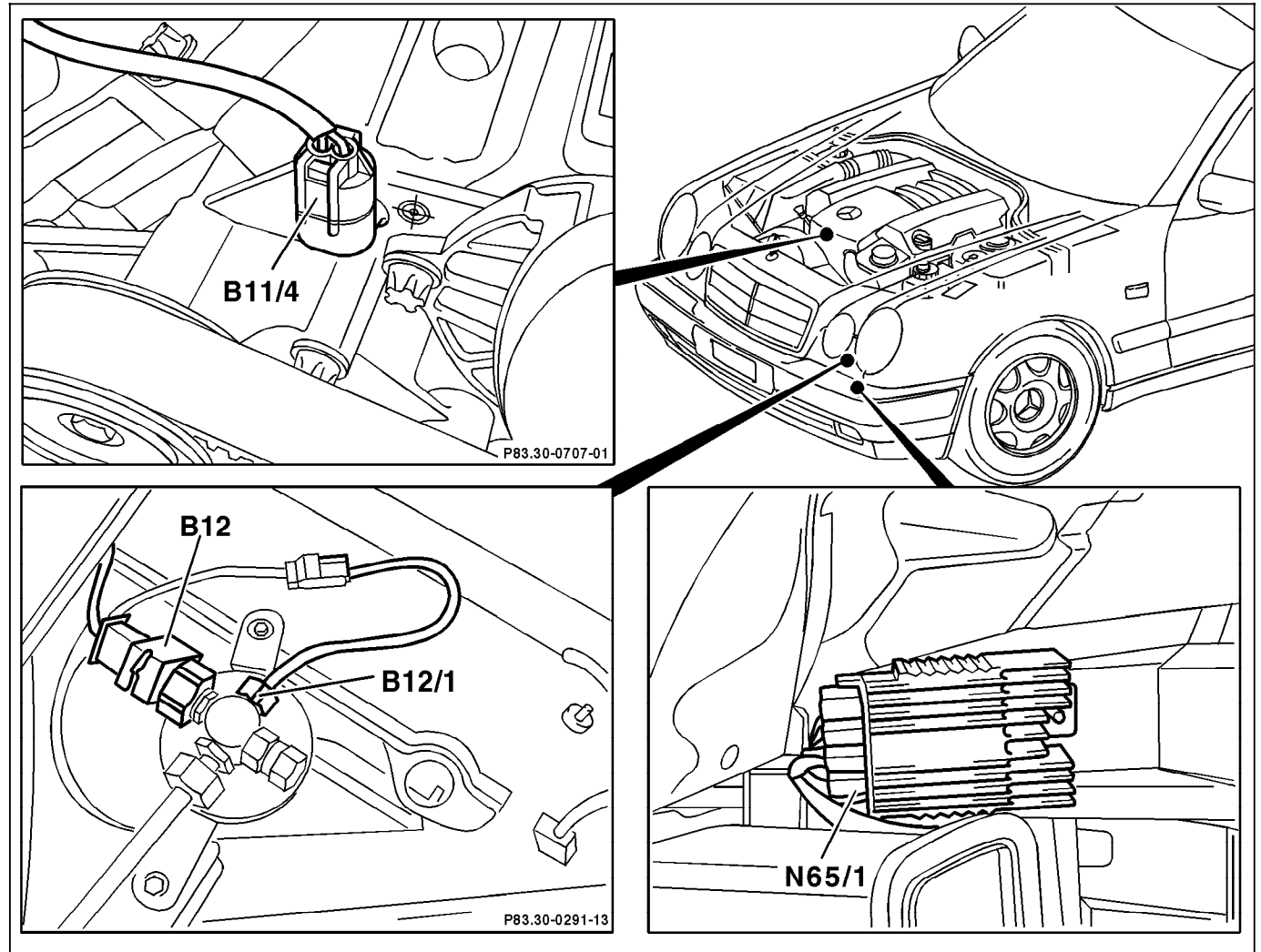
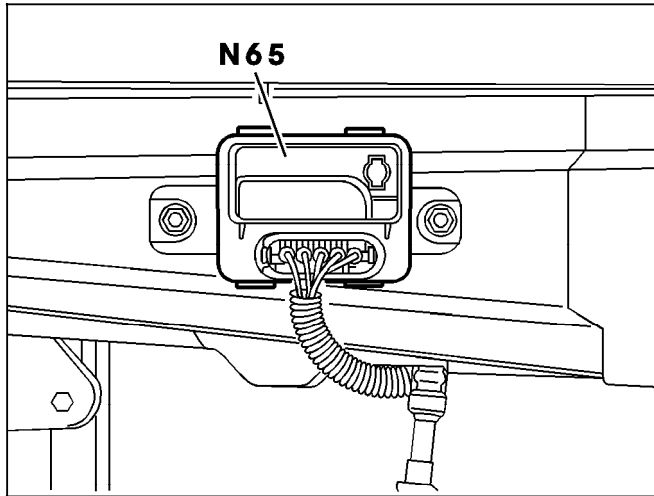


Figure 2

- B11/4 ECT sensor (DFI, IFI)
- B12 Refrigerant pressure sensor
- B12/1 Refrigerant temperature sensor
- N65/1 AIR control module

P83.40-0413-06

Electrical Test Program – Component Locations



N65/1 AIR control module

Figure 3

P83.40-0312-01

N76 Engine/climate control electrical cooling fan control module

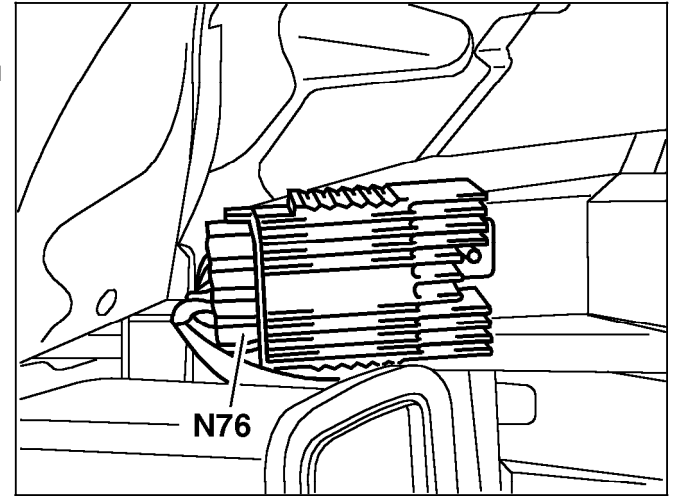


Figure 4

P83.30-0857-01

Electrical Test Program – Component Locations

Location of Power Soft Control Module (N52) (Model 208.465 only)

A7/5	RB hydraulic unit (power soft top)
A7/5k1	Hydraulic unit relay
A7/5m1	Hydraulic unit motor
N52	Power soft top control module
Y56/2	Power top valve block (7 connections)
a	Valve for manual unlock of power soft top compartment cover

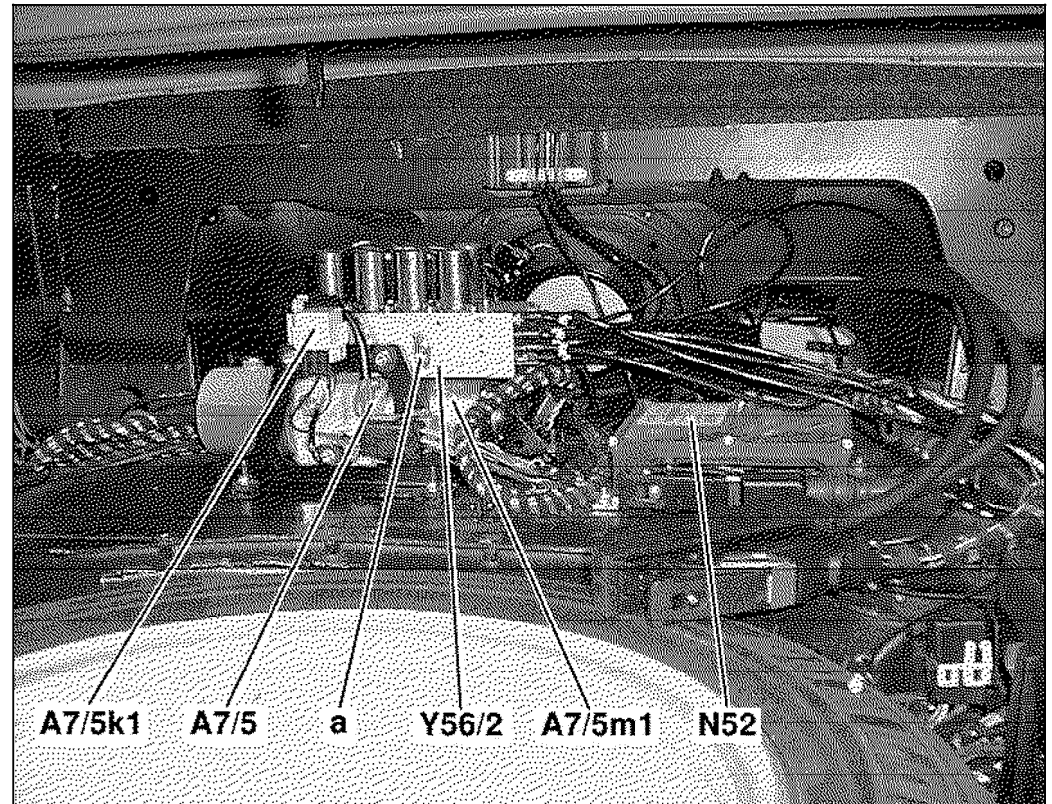


Figure 5

P77.37-2007-11

Electrical Test Program – Connection of Components

Model 208
Engine 112, 113

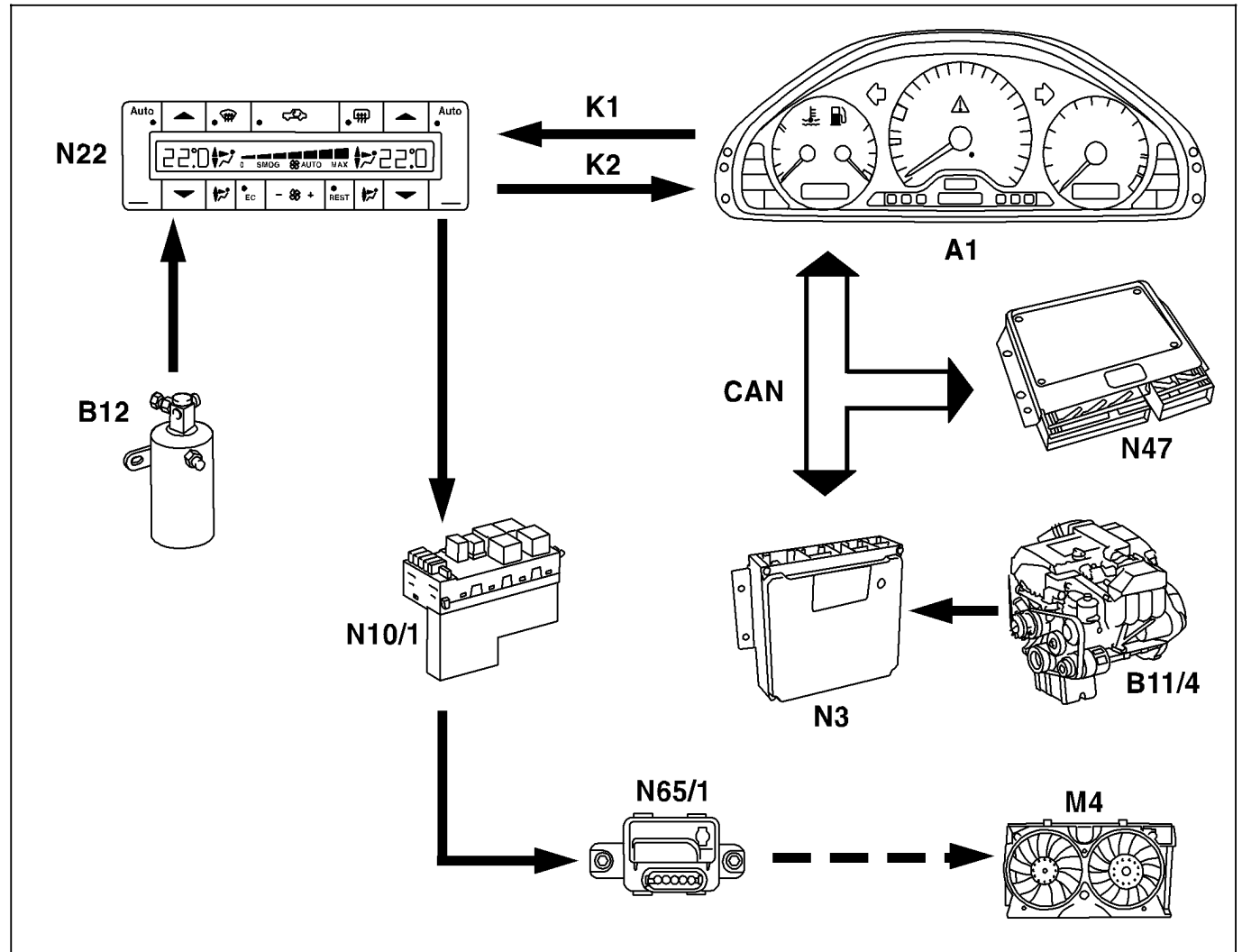


Figure 1

- A1 Instruments cluster
- B11/4 ECT sensor (DFI, IFI)
- B12 Refrigerant pressure sensor
- M4 Auxiliary fan
- N3 CFI control module
- N10/1 Signal pick-up and activation module (SAM) left front
- N22 A/C pushbutton control module (Automatic A/C)
- N47 Traction systems control module
- B10/4 In-car temperature sensor
- B10/6 Evaporator temperature sensor
- N22 A/C pushbutton control module
- N65/1 AIR control module

P83.40-2089-06

Electrical Test Program – Connection of Components

Connection of Components for
Temperature Regulation
Model 208 shown

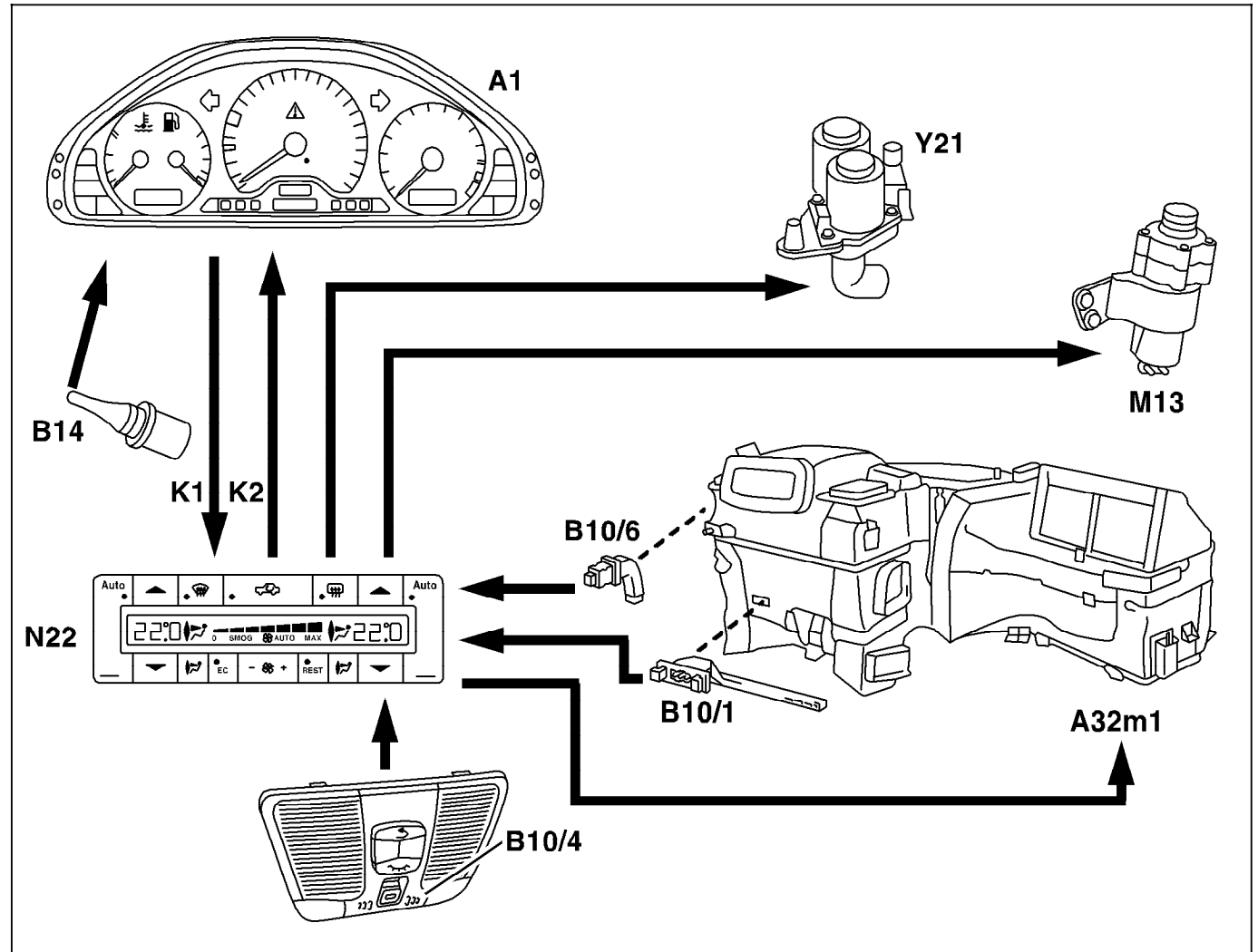


Figure 2

- A1 Instrument cluster
- A32m1 Blower motor
- B10/1 Heater core temperature sensor
- B10/4 In-cat temperature sensor
- B10/6 Evaporator temperature sensor
- B14 Outside temperature indicator temperature sensor
- M13 Coolant circulation pump
- N19 A/C pushbutton control module
- Y21 Duovalve

P83.40-2078-06

Electrical Test Program – Preparation for Test

1. Review 11, 12, 13, 14, 15, 20, 21, 22, 31, 32, 41,
2. Connect HHT, see section 0,
3. Remove A/C pushbutton control module (N22), see AR83.40-P-6350C

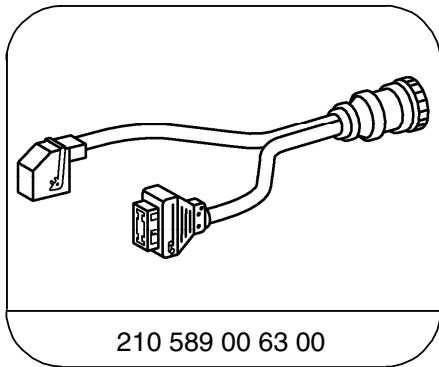
Electrical wiring diagrams:

Electrical Troubleshooting Manual, Model 202/208, Vol. 2, Group 83



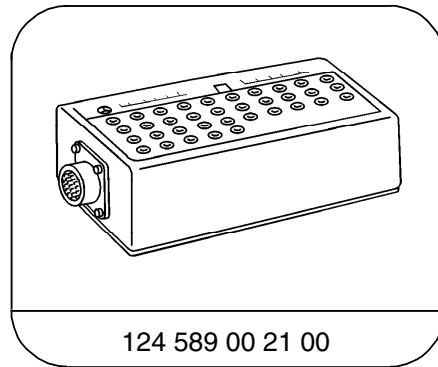
Upon completion of test, erase DTC memory from A/C pushbutton control module (see 15).

Special Tools



210 589 00 63 00

29-pin test cable



124 589 00 21 00

35-pin socket box

Test equipment; See MBUSA Standard Service Equipment Program

Description	Brand, model, etc.
Digital multimeter	Fluke models 23, 77 III, 83, 85, 87

Electrical Test Program - Preparation for Test

Connection Diagram – Socket Box

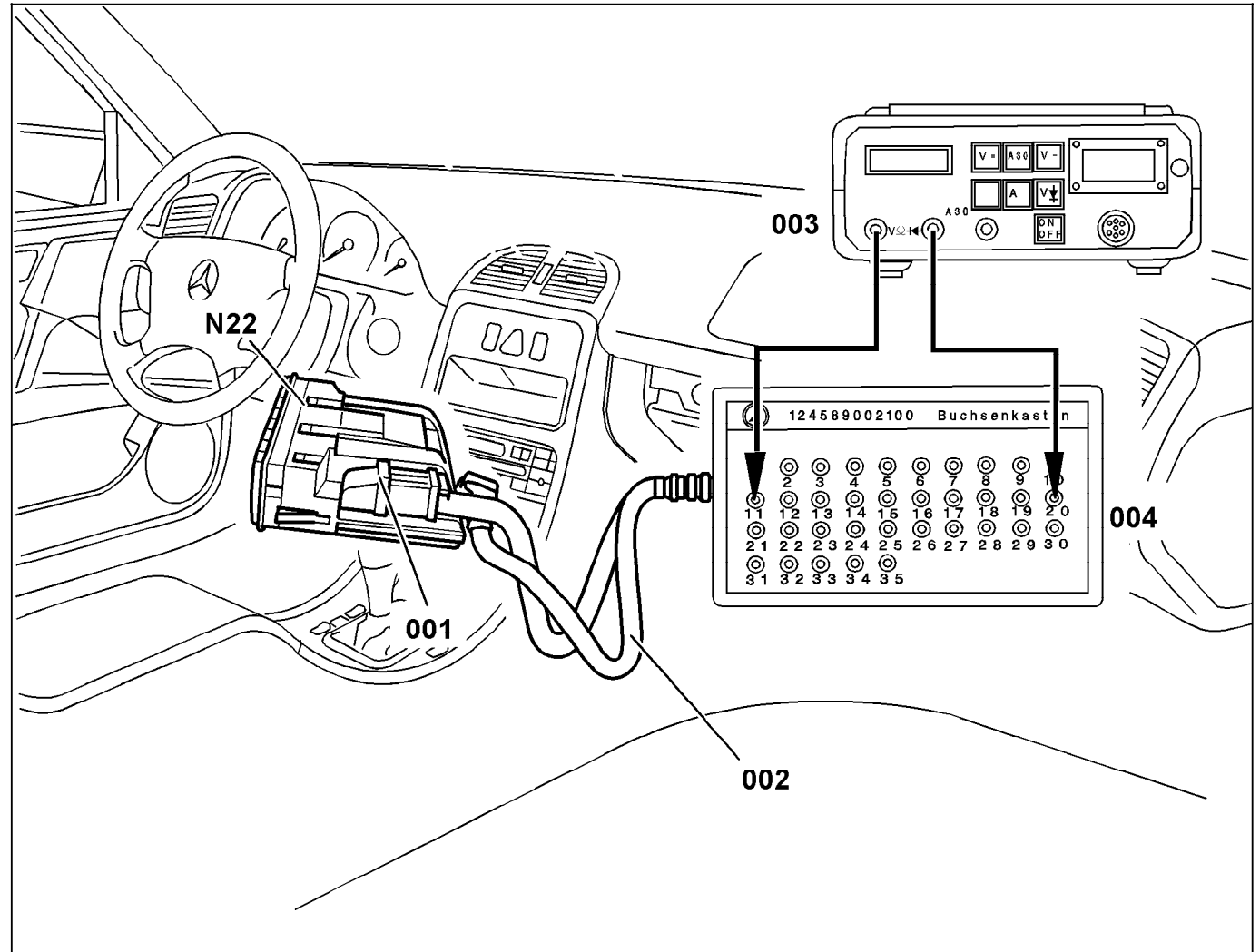


Figure 1


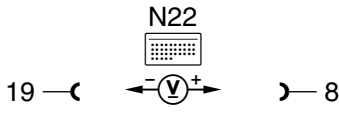

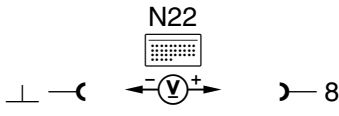

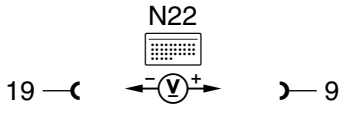

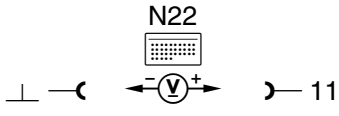

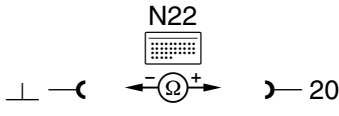


- 001 Right connector, A/C pushbutton control module
- 002 Test cable
- 003 Multimeter
- 004 Socket box
- N22 A/C pushbutton control module

P83.40-0414-06


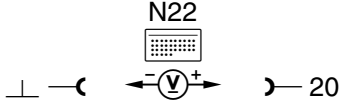
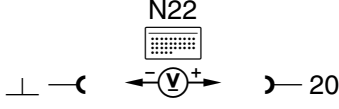
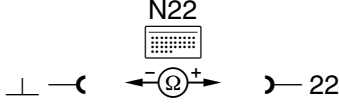


3.10 Air Conditioning (A/C)

Model 208 as of M.Y. 1998






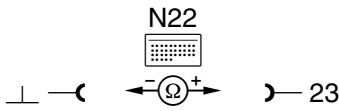





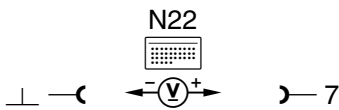

Electrical Test Program – Test

		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0		A/C pushbutton control module (N22) Voltage supply Circuit 30		 on right connector.	11 – 14 V	Wiring, ⇒ 1.1, Circuit 31
1.1		Circuit 30		 on right connector.	11 – 14 V	Wiring, Circuit 31
2.0		Voltage supply Circuit 15		 on right connector. Ignition: ON	11 – 14 V	Wiring.
3.0		Voltage supply Circuit 15x		 on left connector. Ignition: ON	11 – 14 V	Wiring.
4.0	B1226	In-car temperature sensor (B10/4) with aspirator Resistance		Ignition: OFF Soft top completely closed (Model 208.465)  on left connector (210 589 00 63 00). Disconnect N22 from  .	°C ≈ kΩ 10 ≈ 19.0 – 21.0 20 ≈ 11.9 – 13.0 30 ≈ 7.7 – 8.4 45 ≈ 4.2 – 4.6	Wiring, B10/4 Model 208.465: ⇒ 4.1


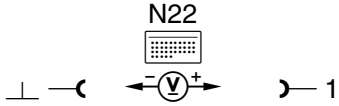

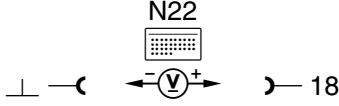

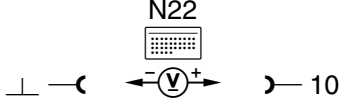

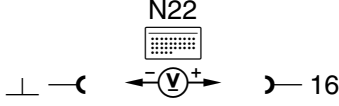


Electrical Test Program – Test

		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
4.1		Voltage supply from connected A/C pushbutton control module (N22) to RB control module (power soft top) (N52) Model 208.465 only		N22 connected. Soft top completely closed . Ignition: ON	Approx. 2.7 V	N22, N52, Readout actual values using HHT, If values are OK: ⇒ 4.2
4.2		Bridge B10/4 with soft top open Model 208.465 only		N22 connected. Soft top completely opened . Ignition: ON	Approx. 0.0 V	N52, Readout actual values using HHT.
5.0	B1230	Evaporator temperature sensor (B10/6) Resistance		Ignition: OFF  on left connector (202 589 15 63 00). Disconnect N22 from  .	$^{\circ}\text{C} \hat{=} \text{k}\Omega$ 10 $\hat{=} 5.2 - 5.8$ 20 $\hat{=} 3.2 - 3.6$ 30 $\hat{=} 2.0 - 2.3$ 45 $\hat{=} 1.1 - 1.25$	Wiring, B10/6


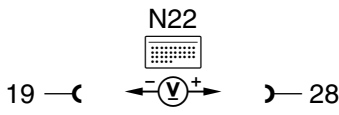

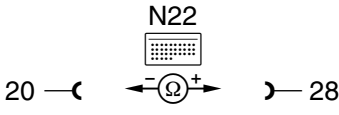


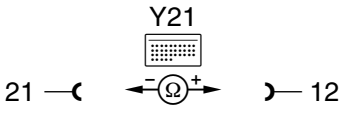

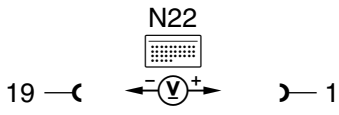


Electrical Test Program – Test

 		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
6.0	B1233	Refrigerant temperature sensor (B12/1) Resistance		Ignition: OFF  on left connector (202 589 15 63 00). Disconnect N22 from  .	$^{\circ}\text{C} \hat{=} \text{k} \Omega$ 20 $\hat{=} < 13$ 40 $\hat{=} < 5.5$ 50 $\hat{=} < 3.7$ 60 $\hat{=} < 2.5$ 70 $\hat{=} < 1.8$	Wiring, B12/1
7.0	B1228	Heater core temperature sensor (B10/1), left Resistance		Ignition: OFF  on left connector (202 589 15 63 00). Disconnect N22 from  .	$^{\circ}\text{C} \hat{=} \text{k} \Omega$ 10 $\hat{=} 19.0 - 21.2$ 20 $\hat{=} 11.9 - 13.2$ 30 $\hat{=} 7.7 - 8.4$ 45 $\hat{=} 4.2 - 4.6$	Wiring, B10/1
8.0	B1228	Heater core temperature sensor (B10/1), right Resistance		Ignition: OFF  on left connector (202 589 15 63 00). Disconnect N22 from  .	$^{\circ}\text{C} \hat{=} \text{k} \Omega$ 10 $\hat{=} 19.0 - 21.2$ 20 $\hat{=} 11.9 - 13.2$ 30 $\hat{=} 7.7 - 8.4$ 45 $\hat{=} 4.2 - 4.6$	Wiring, B10/1
9.0	B1232	Refrigerant pressure sensor (B12) Voltage supply		 on left connector (202 589 15 63 00). Ignition: ON	4.75 – 5.25 V	Wiring, B12, N22


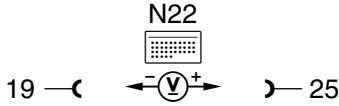



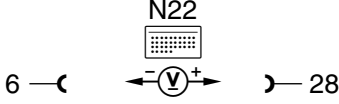

Electrical Test Program – Test

		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
10.0		Diagnostic output Voltage		 on left connector (202 589 15 63 00). Ignition: ON	11 – 14 V	Wiring, N22
11.0	B1422	Serial Interface (K1) Voltage		 on left connector (202 589 15 63 00). Ignition: ON	6 – 8 V	Wiring.
12.0	B1459	Serial Interface (K2) Voltage		 on right connector (202 589 15 63 00). Ignition: ON	> 0.3 V ~	Wiring.
13.0	B1421	With Auxiliary fan (M4) only Activation Voltage		 on right connector (210 589 00 63 00). Ignition: ON Press both AUTO buttons > 10 secs. End test: Press AUTO and  > 10 secs.	> 2 V Auxiliary fans (M4) run or Engine/climate control electric cooling fan runs.	Wiring, N22, N65/1

Electrical Test Program – Test

		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
14.0		A/C Pushbutton control module (N22), 12 V output Voltage		Ignition: ON  on right connector (210 589 00 63 00).	11 - 14 V	Wiring, N22
15.0	B1416	Coolant circulation pump (M13) Resistance		 on right connector (210 589 00 63 00). Ignition: OFF Disconnect N22 from  .	3 - 7 Ω	Wiring, M13
16.0	B1417 B1418	Duovalve (Y21) Resistance		Ignition: OFF Disconnect N22 from  . (210 589 00 63 00).	30 - 40 Ω	Wiring, Y21
17.0		Blower regulator (A32n1) Activation Voltage		 on right connector (210 589 00 63 00). Ignition: ON 	MIN > 0.9 V MA > 5.0 V	Wiring, A32

Electrical Test Program – Test

		Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
18.0	B1419	A/C compressor (A9) Activation Voltage		 on right connector (210 589 00 63 00). Engine: At Idle A/C compressor:  A/C compressor: 	< 1 V 11 – 14 V	Wiring, N22
19.0	B1423	Switch over block (Y11), (15 connections) Voltage		 on right connector (210 589 00 63 00). Ignition: ON	> 2 V	Wiring, Y11

Pneumatic Test Program – Component Locations

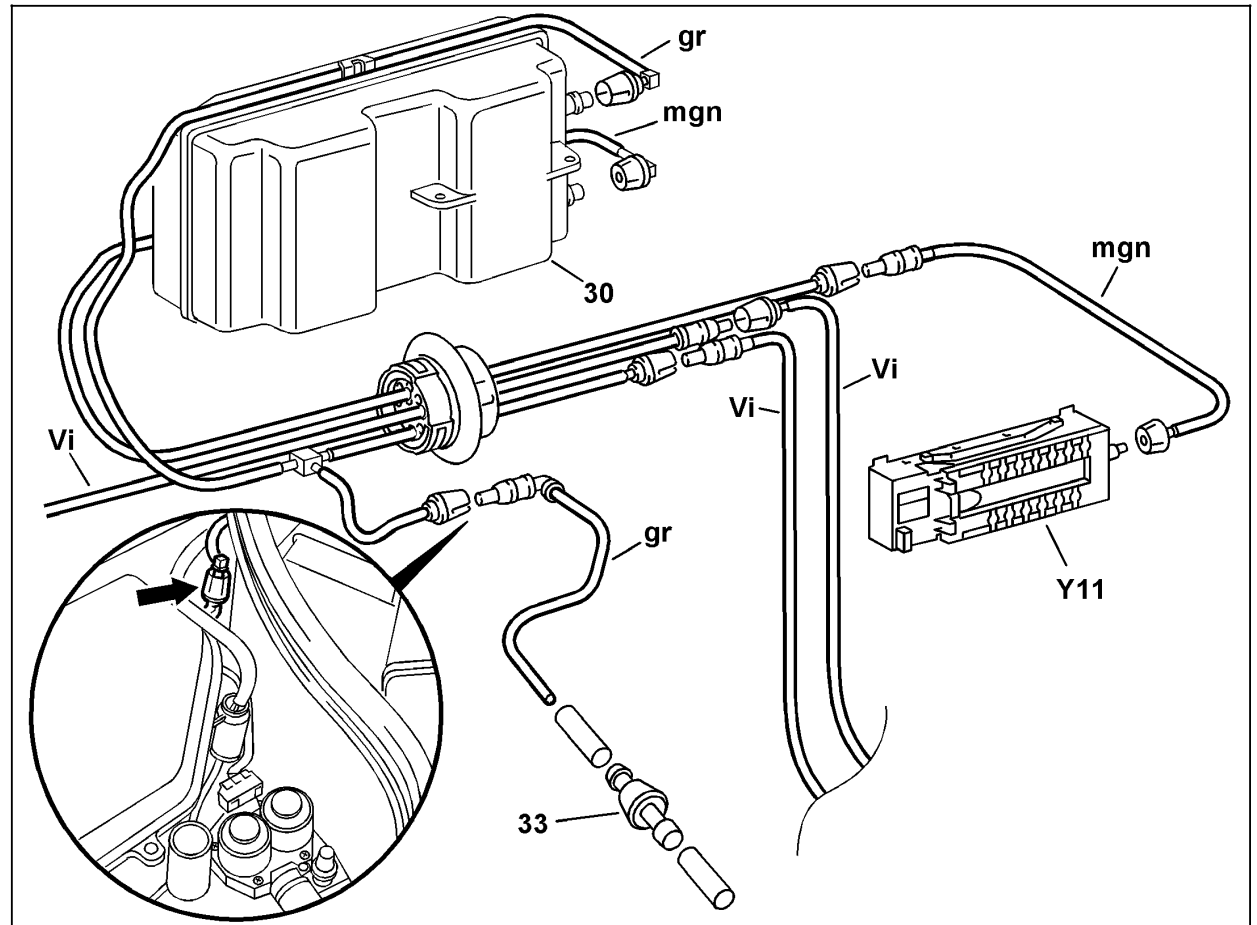


Figure 1

- 30 Vacuum reservoir
- 33 Check valve
- Y11 Switchover valve (15 connections)

- gr Gray
- mgn Medium green
- vi Violet

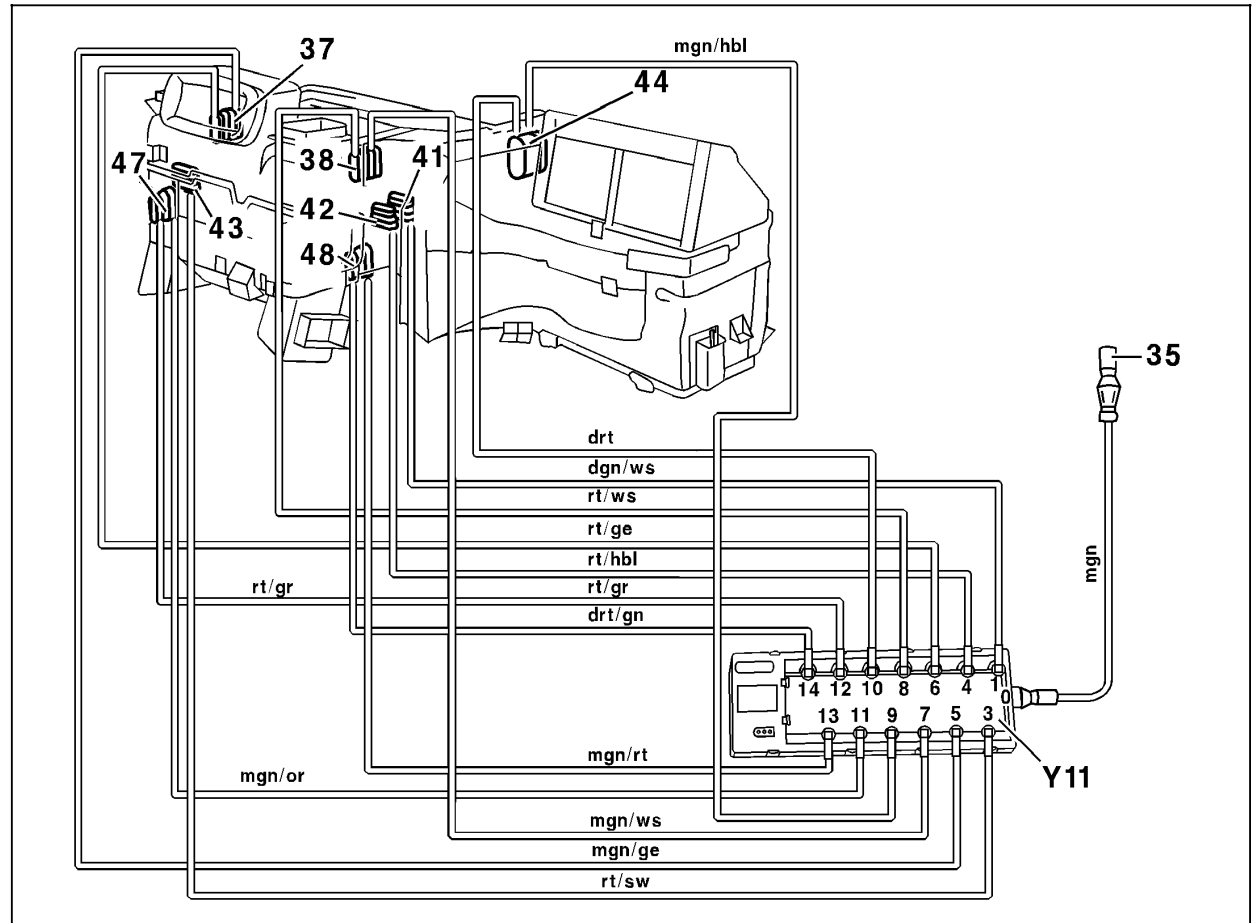
P83.40-0425-06

Pneumatic Test Program – Component Locations

Figure 2

- 35 Connector (passenger compartment)
- 37 Left defroster flap vacuum actuator
- 38 Right defroster flap vacuum actuator
- 41 Diverter flap vacuum actuator
- 42 Right center tempering flap vacuum actuator
- 43 Left center tempering flap vacuum actuator
- 44 Fresh/recirculating air flap vacuum actuator
- 47 Left foot well flap vacuum actuator
- 48 Right foot well flap vacuum actuator
- Y11 Switchover valve block (15 connections)

- HBL Light blue
- drt Dark red
- ge Yellow
- mgn Medium green
- rt Red
- ws White
- dgn Dark green



P83.40-0408-06

Pneumatic Test Program - Preparation for Test

Preparation for Test

1. Disconnect all vacuum lines at vacuum distributor block.
2. Check gray vacuum line to intake manifold for leaks.

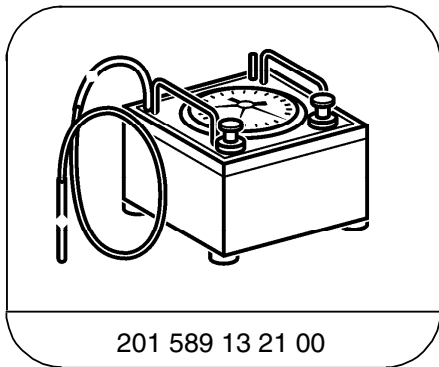


Permissible leakage of the elements with vacuum lines at 400 mbar vacuum per minute is 30 mbar.

Test equipment; See MBUSA Standard Service Equipment Program

Description	Brand, model, etc.
Connector	124 805 04 44

Special Tools



201 589 13 21 00

Tester

Pneumatic Test Program – Test

A. Vacuum Distributor Block, Vacuum Reservoir, Switchover Valve Block (Y11) Test

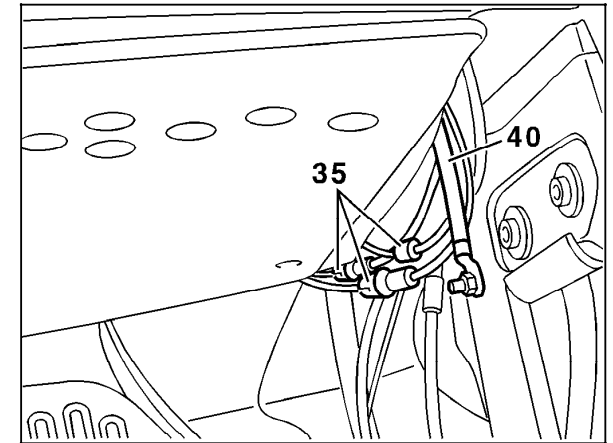
⇒	Test scope	Test connection	Test condition	Nominal value	Possible cause/Remedy
1.0	Vacuum line to intake manifold	Vacuum tester to medium green line on switchover valve (Y11). Apply plug to gray line on intake manifold.	Be aware of check valve in vacuum line. Evacuate system with 300 mbar vacuum.	30 mbar pressure increase in 1 minute.	Vacuum lines.
2.0	Vacuum reservoir	Connect vacuum tester after connector (35) (passenger compartment).	Evacuate system with 300 mbar vacuum.	30 mbar pressure increase in 1 minute.	Vacuum lines, Vacuum reservoir.

Pneumatic Test Program – Test

Preparation for Test

B. Vacuum system

1. Ignition: **ON**
2. Press **REST** and **☺** buttons >5 seconds.
3. Medium green line (connection “5”) on vacuum tester.
4. **☺** blower runs with increased speed.



P83.25-0229-01

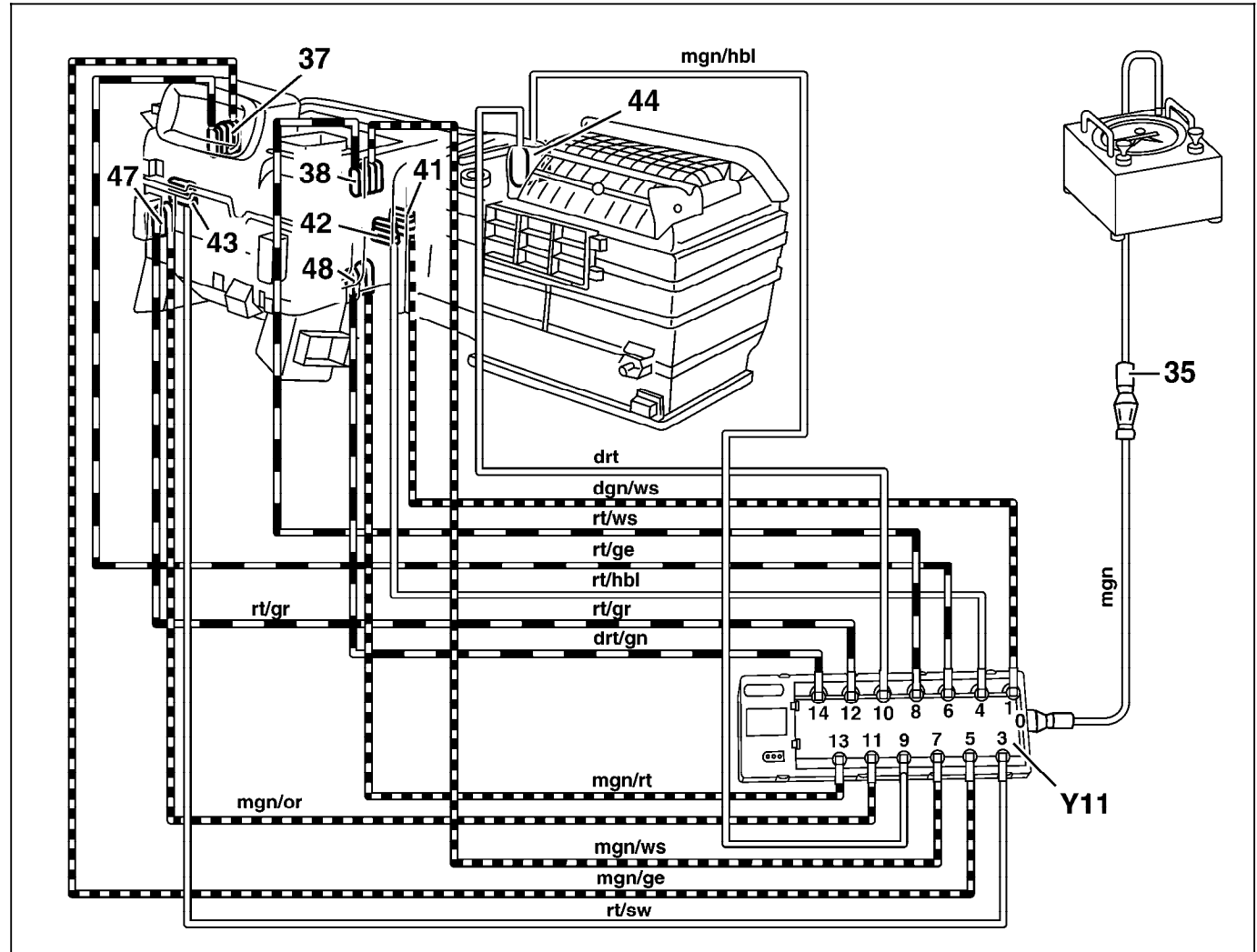
Figure 2

35 Cockpit separation point

Pneumatic Test Program – Test

B. Vacuum system test A

1. Left display \square : vacuum actuators 37, 38, 47 and 48 (medium green and red vacuum lines) with vacuum applied.
2. Left display \uparrow and \downarrow : vacuum actuator 41 (medium green vacuum line) with vacuum applied.
3. If vacuum on gauge drops: remove lines from valve block (Y11) and then individually test lines and vacuum actuators.
4. Replace any defective vacuum actuator(s) or pneumatic line(s).

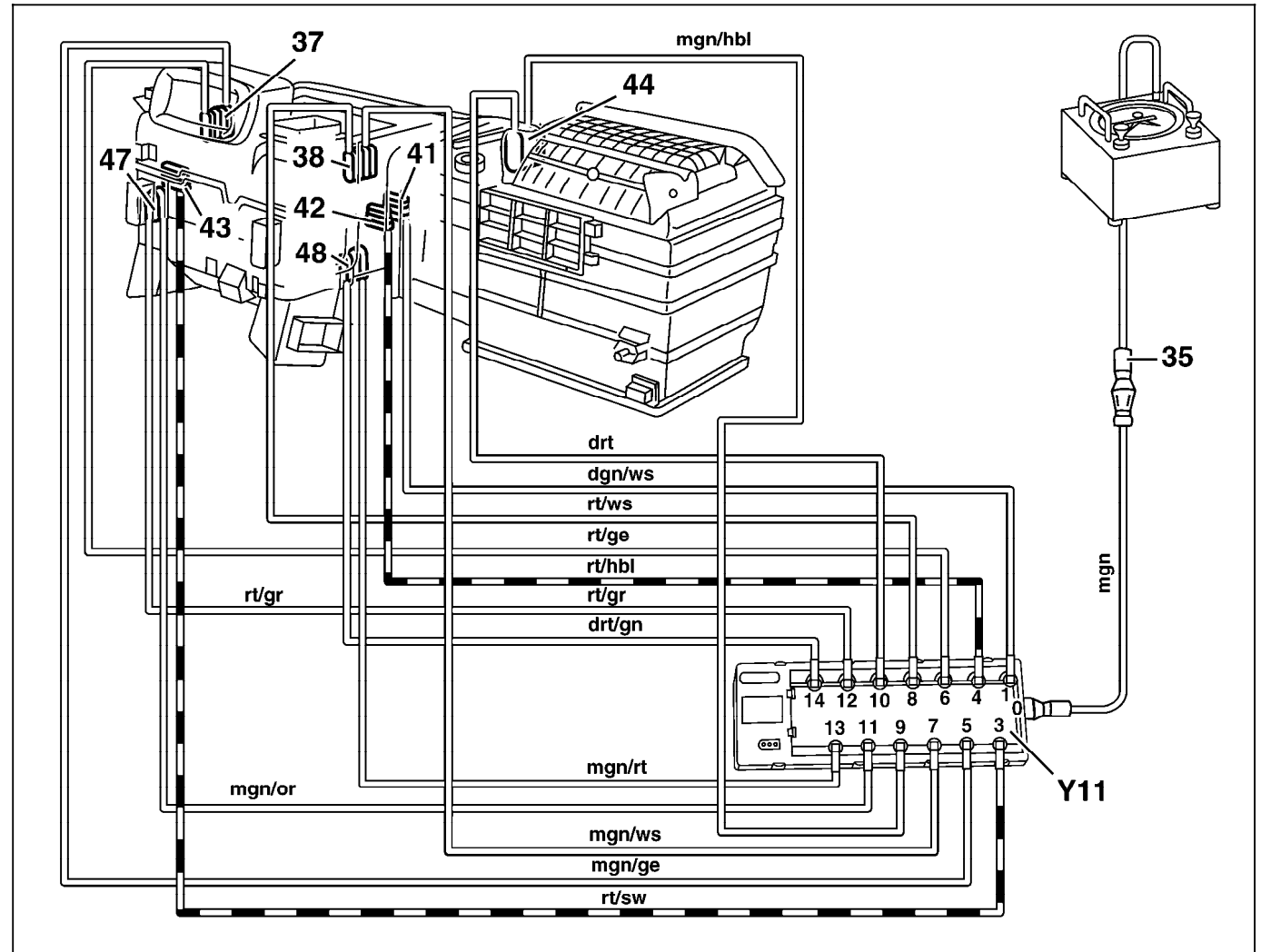


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Pneumatic Test Program – Test

B. Vacuum system test B

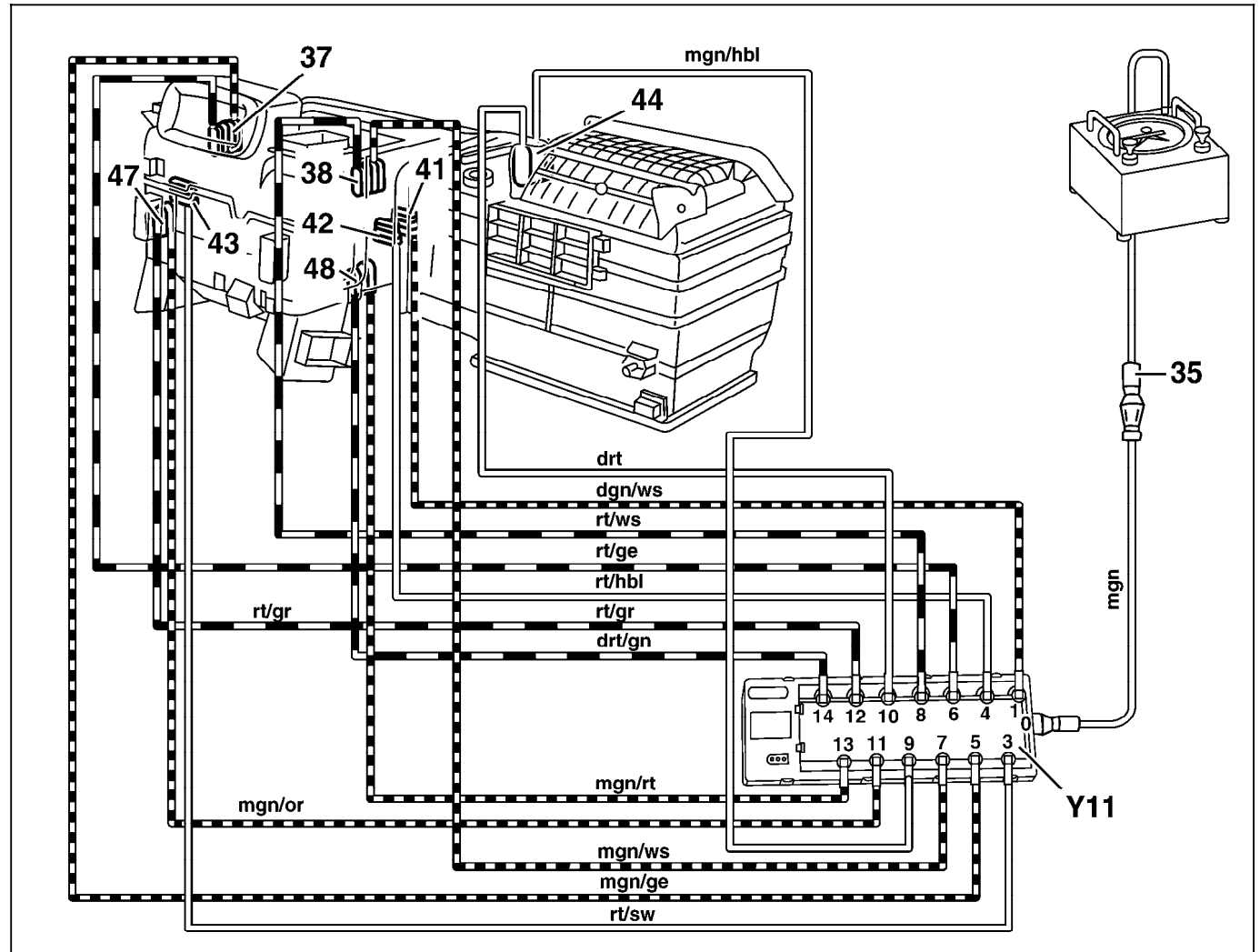
1. Left display 3 and 4: vacuum actuators 42 and 43 (red vacuum line). In addition: vacuum actuators 37 and 38 (see vacuum diagram 1, 32/6).
2. If vacuum on gauge drops: remove lines with support from valve block (Y11) and then individually test lines and vacuum actuators.
3. Replace any defective vacuum actuator(s) or pneumatic line(s).



Vacuum diagram 2

P83.40-0274-76

Pneumatic Test Program – Test



lbu	Light blue	mgn	Medium green
drd	Dark red	gy	Grey
ye	Yellow	rd	Red
gn	Green	wt	White
		dgn	Dark green

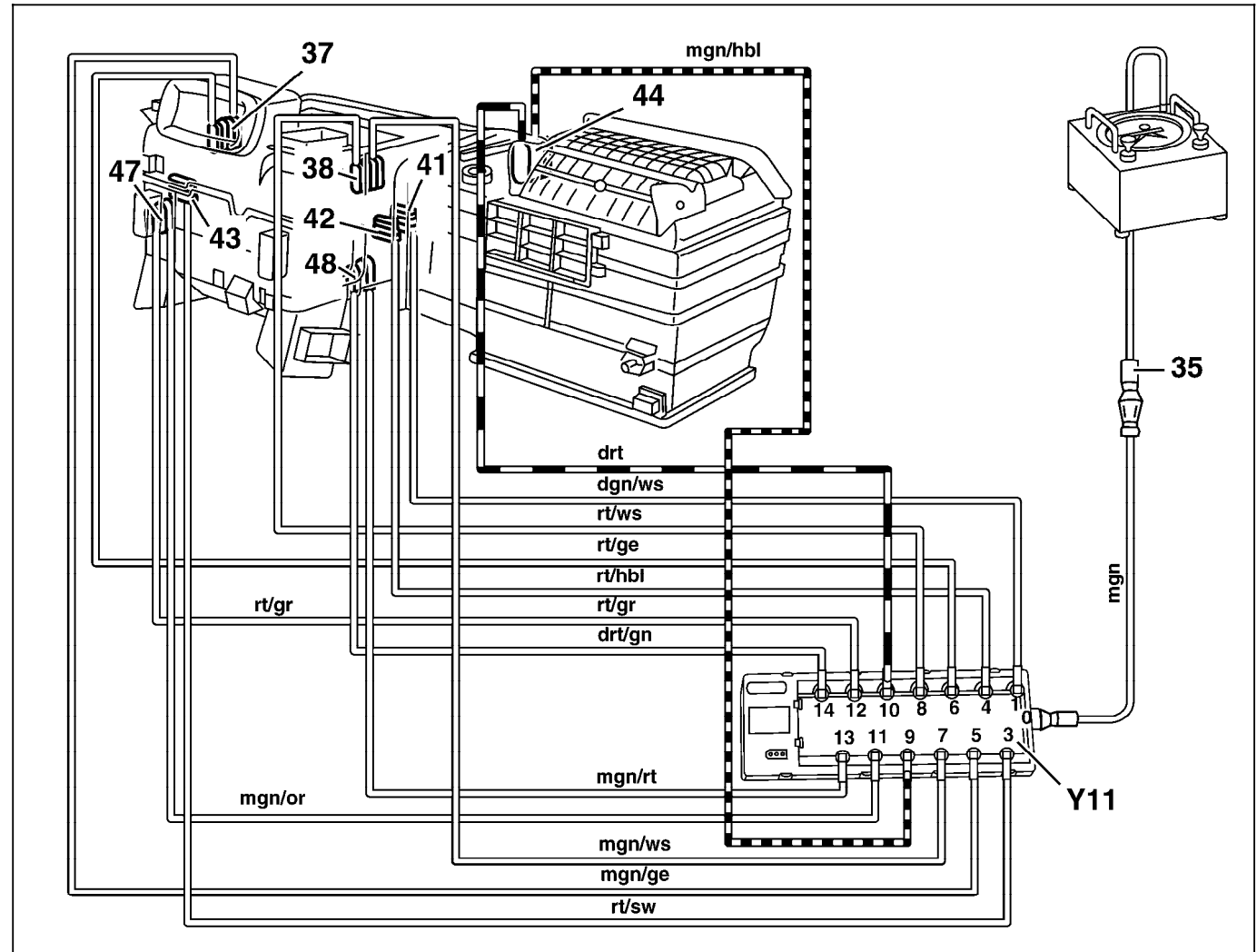
Vacuum diagram 1

P83.40-0273-76

Pneumatic Test Program – Test

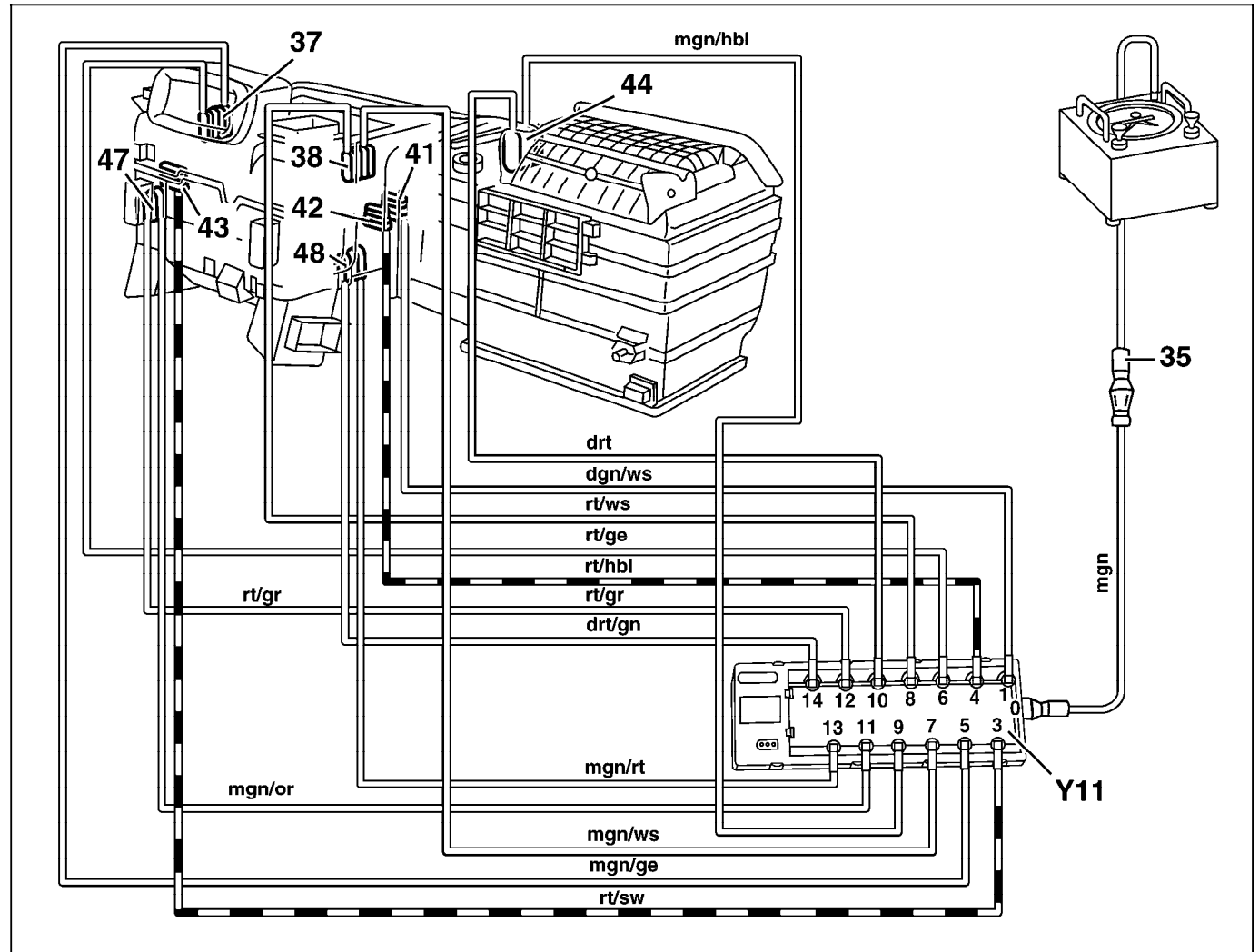
B. Vacuum system test C

1. Left display I and II: vacuum actuators 44 (dark red and medium green vacuum lines). In addition vacuum actuators 42 and 43 (see vacuum diagram 2, 32/8).
2. If vacuum on gauge drops: remove lines from valve block (Y11) and then individually test lines and vacuum actuators.
3. Replace any defective vacuum actuator(s) or pneumatic line(s).



P83.40-0275-76

Pneumatic Test Program – Test



ibu	Light blue	mgn	Medium green
drd	Dark red	gy	Grey
ye	Yellow	rd	Red
gn	Green	wt	White
		dgn	Dark green

Vacuum diagram 2

P83.40-0274-76

Refrigeration System Test Program – Component Locations

Components location for A/C system

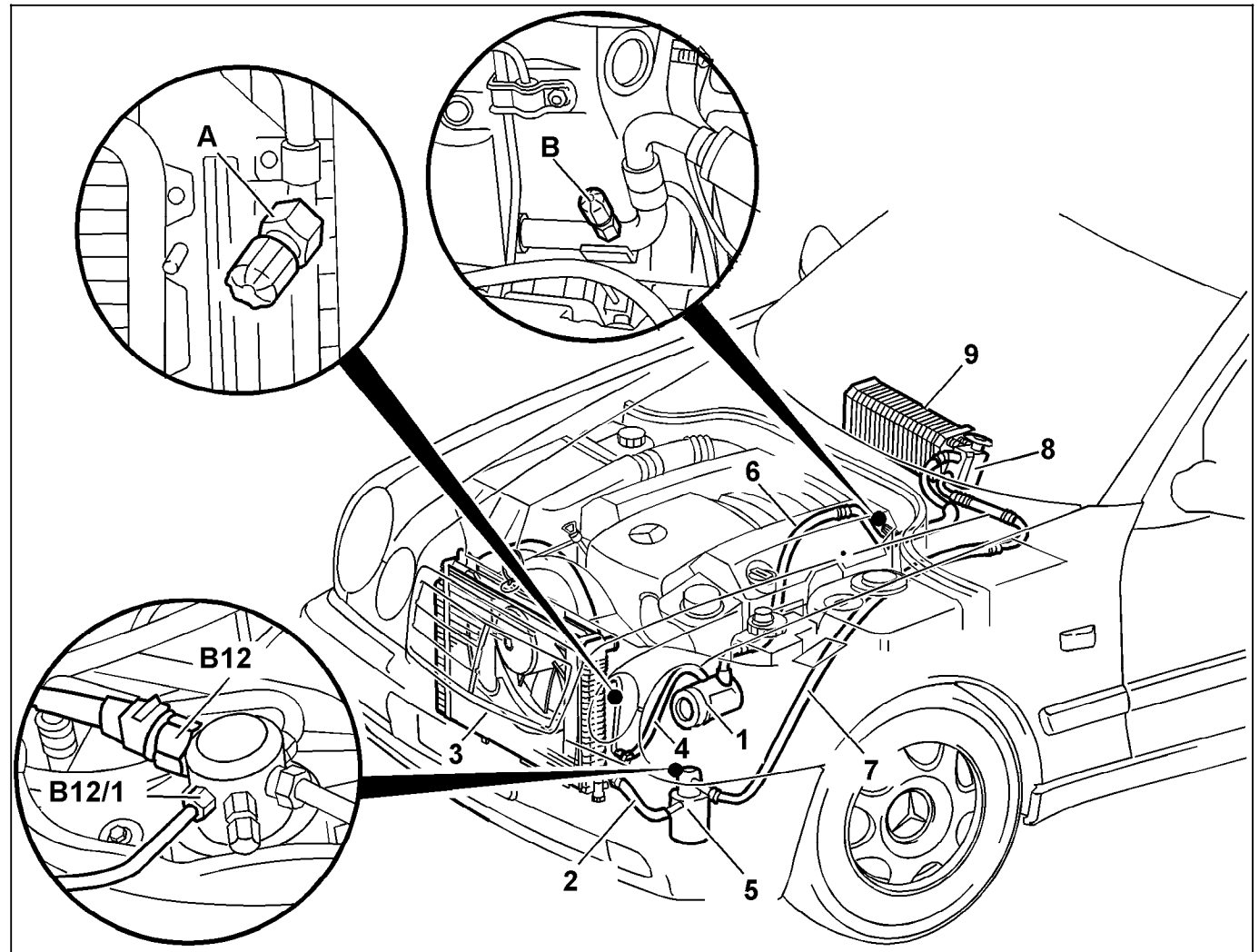


Figure 1

- A High pressure connection
- B Low pressure connection (engine 112)
- B12 Refrigerant pressure sensor
- B12/1 Refrigerant temperature sensor
- 1 A/C compressor
- 2 High pressure line
- 3 Condenser
- 4 Low pressure line
- 5 Receiver/dryer
- 6 Suction line
- 7 Low pressure line to evaporator
- 8 Expansion valve
- 9 Evaporator

P83.40-0416-06