



Fig. 1 Installation position of components

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| <ul style="list-style-type: none"> 1 Heater/air conditioning controls 2 Blower control 3 Air distribution switch 4 LCD display on passenger side 5 Temperature control switch on passenger side 6 Temperature control switch on driver's side 7 Recirculated air switch 8 Inside temperature sensor | <ul style="list-style-type: none"> 9 Air conditioning switch (ACS) 10 Sun load sensor (SLD) 11 Automatic temperature control module(ATC) 12 Discharge temperature sensor (DCT), mounted in the heater housing 13 Heater blower control module (HBC), mounted on the evaporator housing 14 Outside temperature sensor (OST), mounted on the evaporator housing |
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System Description

In addition to the manual air conditioning components that remain unchanged, the ATC air conditioning system also has a separate control module. This control module processes signals from various sensors

that have also been fitted additionally. With the help of the recorded data it is able to automatically control the compressor and the blower in order to maintain a steady inside temperature.

Self Diagnosis

The automatic temperature control module carries out a self diagnosis of all connected sensors and control elements in approximately four second cycles. The system registers any faults found during this process. If the same fault occurs in eight consecutive test cycles then the fault is recognised as permanent and stored in memory after "KEY OFF". An intermittent fault is also recognised and stored under a special code (see Fault Code List).

A permanent fault entry which is recognised after "KEY ON" is indicated for about three seconds by a flashing "88" (up to build month 12.95) on the passenger side of the display unit. The module operates with a substitute value until the fault has been corrected. An intermittent fault is only cleared from memory if it is not recognised for 80 cycles. The unit can be set to diagnostic mode when the blower control is on "OFF" by simultaneously pressing the "Recirculated Air" and "A/C" buttons for about 10 seconds.

Fault Memory – Display and Update

1. Run the engine.
2. Simultaneously press the buttons for "Recirculated Air" and "A/C" for about 10 seconds while the blower control is on "OFF".
3. The contents of the fault memory are then displayed, "00" for no faults or for example "07" for a fault code. While the fault is being processed data is constantly extracted from the sensors and the operation of the actuators is checked.
4. Individual fault codes can be displayed by pressing the passenger side temperature control switch. The selected fault code is then displayed constantly.
5. For diagnosis of the speedometer signal refer to the Vehicle Systems Test Manual "Electrical Systems II".

The following distinction is made between permanent and intermittent faults:

1. Permanent Faults

The fault code is displayed constantly. The display remains up until the fault is rectified, either by renewal of parts or through other means.

If the module recognises that the fault has been rectified, then depending on the number of faults either a "0" or "00" is displayed.

2. Intermittent Faults

Intermittent faults are caused by for example a loose connection or a broken wire and do not occur all the time. This type of fault is displayed constantly until tests (checking the wires, plugs etc.) can reveal the actual location of the fault. When the fault display mode is exited the intermittent fault memory is automatically cleared.

Exit Fault Processing Mode/Clear Fault Memory

Simultaneously press the buttons for "Recirculated Air" and "A/C" for about 10 seconds while the blower control is on "OFF". The fault memory is cleared and the system undergoes an initialisation process. The initialisation process resets the system to a defined starting point (actuators are set to end positions etc.), which is necessary for the system to operate correctly.

Fault code list – Electronically controlled air conditioning system				
Fault code	Sensor / actuator	Cause of fault	Sub-stitute value	Action
01	Automatic Temperature Control (ATC)	a) Value measured by inside temperature sensor too small b) Value measured by inside temperature sensor too large	+24°C	Replace the heater/air conditioning controls as described in Operation No. 34 300 0 in the Service Microfiche.
02		c) Blower switch or air distribution switch defective		
03	Outside temperature sensor (OST)	a) Value measured by sensor too small b) Value measured by sensor too large	+10°C	Carry out electrical checks (subsection 3.2, E1.a).
05	Discharge temperature sensor, left-hand side (DCT-LH)	a) Value measured by sensor too small b) Value measured by sensor too large	+30°C	Carry out electrical checks (subsection 3.2, E1.a).
06	Discharge temperature sensor, right-hand side (DCT-RH)	a) Value measured by sensor too small b) Value measured by sensor too large	+30°C	Carry out electrical checks (subsection 3.2, E1.a).
07	Heater blower motor (HBM)	Heater blower control module (HBC) defective or not connected		Carry out electrical checks (subsection 3.2, E1.b).
08	Battery voltage (at BATT POS terminal)	a) Reading too small b) Reading too large		See Vehicle System Test Manual under “Starting and Charging Systems”.
09	Air temperature door motor, left-hand side (ATD-LH)	a) Open or short circuit to ground b) short circuit to POS c) Control motor defective		Carry out electrical checks (subsection 3.2, E1.c).
10	Air temperature door motor, right-hand side (ATD-RH)	a) Open or short circuit to ground b) short circuit to POS c) Control motor defective		Carry out electrical checks (subsection 3.2, E1.d).
11	Air distribution door motor (ADD)	a) Open or short circuit to ground b) short circuit to POS c) Control motor defective		Carry out electrical checks (subsection 3.2, E1.e).

Programming the Control Unit

In order to ensure that the control unit is calibrated properly after either the control unit or the module have been exchanged, the potentiometers need to be adjusted. For correct calibration turn both switches as far left as possible. If the registered values are outside a certain tolerance (incorrect switch setting) fixed internal values are used, as a result of which the system may not operate correctly. The left-hand end positions are stored in memory and used as a point of reference to determine intermediate positions.

Procedure

1. Run the engine.
2. Turn the blower switch and the air distribution switch as far left as they will go.
3. Simultaneously press the buttons for “Recirculated Air” and “A/C” for about 10 seconds until the code”00” appears on the passenger side LCD.
4. Select code “50” using the passenger side temperature control switch.
5. Press the “Recirculated Air” button until the code “00” appears.
6. Simultaneously press the buttons for “Recirculated Air” and “A/C” for about 10 seconds until the code”00” appears on the passenger side LCD. After this step the initialisation process is complete and the adjustment is finished.