

**Air Heaters**

**Fault Codes / Troubleshooting**

**Air Top Evo 40**

Air Top Evo 40 B (Petrol)

Air Top Evo 40 D (Diesel)

## 5 Troubleshooting

### 5.1 General information

If a malfunction occurs, a flashing code is displayed on the operating indicator or a fault code F .. on the combination timer.

In addition, the heater can be checked using a personal computer (see Webasto PC Thermo Test PC Diagnosis operating manual).

#### IMPORTANT

Troubleshooting work demands precise knowledge of the structure and theory of operation of the various components and must be carried out by trained personnel only. The functional relationships are described in Chapter 2 and 3.

#### IMPORTANT

The troubleshooting guide is restricted to the localisation of defective components.

The following fault causes should always be checked or a fault should be excluded for the following reasons:

- Corrosion on connector
- Loose connection on connector
- Poor crimp contacts on plugs
- Corrosion on lines and fuses
- Corrosion on battery terminals

If you wish to check individual components, the electrical plug connectors on the control unit must be disconnected.

Conduct a function test in the vehicle after rectifying each fault.

A direct operation of the individual components (with voltage) is not permitted.

### 5.2 General error symptoms

The following table (Fig. 501) lists possible fault symptoms.

Error symptom	Possible cause	Remedy
Heater cuts out automatically	No combustion after starting and restarting Operating display flashes	Switch heater off and then on again
	Flame extinguishes during operation Operating display flashes	Switch heater off and then on again
	Heater overheated Operating display flashes	Check the hot air guide for free passage, allow the heater to cool down, then briefly switch the heater off and then on again
	Vehicle voltage too low Operating display flashes	Charge battery Switch heater off and then on again
Heater emits black smoke	Combustion air and/or exhaust system blocked	Check that the combustion air and exhaust systems are clear

Fig. 501 General error symptoms

### 5.3 Error symptoms during function

The following table (Fig. 502) lists the possible error symptoms in the order in which they may occur during operation.

In the event of a fault, the error is to be located using this table and rectified. It is important that the error symptom is correctly identified.

If the error symptom is not included in this table or if the fault is not found under the specific error symptom heading, in an emergency you can contact our technicians on our service hotline.

#### NOTE

Every fault is indicated by the flashing LED on the control element after the slow down time has finished. If the other components are OK, a defective control unit may be the cause of all the faults.

There are states which are equivalent to faults.

Error symptom	Occurrence	Possible causes
No start and no illumination of the LED on the control element	immediate	Incorrect cabling, defective fuse
No start but LED is lit	immediate	The unit immediately goes into a control break when switched on; the control break speed is 0 rpm when an external temperature sensor is used.

Fig. 502 Error symptoms during function



Fault code	Fault (group)	Additional information during PC diagnostic	Troubleshooting
F 05	Not available		
F 06	Not available		
F 07	Fuel pump defective	<b>88</b> Open circuit in fuel pump <b>08</b> Short circuit in fuel pump	Check electrical wiring and fuel pump and replace if necessary
F 08	Open circuit/short circuit/ overloading/blockage in drive motor	<b>09</b> Short circuit in drive motor <b>89</b> Open circuit in drive motor <b>15</b> Blocking guard in drive motor <b>95</b> Overload protection in drive motor	Eliminate cause of blockage/sluggishness Check magnets of heating air fan and replace drive unit (drive motor with combustion and heating air fan) if necessary
F 09	Glow plug defective	<b>19</b> Short circuit in glow plug <b>99</b> Open circuit in glow plug	Check glow plug and replace if necessary.
F 10	Overheating	<b>06</b> Heater overheated - blow-out temperature sensor <b>5B</b> Heater overheated - PCBs - temperature sensor <b>17</b> Temperature gradient exceeded - blow-out temperature sensor <b>5C</b> Temperature gradient exceeded - PCBs - temperature sensor	Find and eliminate cause of overheating in hot air guide.  Possible causes: Pressure loss too high, line kinked, air outlet closed, soiling of blow-out temperature sensor
F 11	Not available		
F 12	Not available		
F 13	Not available		
F 14	Blow-out temperature sensor defective	<b>1B</b> Short circuit in blow-out temperature sensor <b>AB</b> Open circuit in blow-out temperature sensor	Check blow-out temperature sensor and replace if necessary.
F 15	Not available		
F 16	Exhaust temperature exceeded	<b>4F</b> Upper limit of exhaust temperature exceeded	Check free through-flow of combustion air and exhaust system, check CO <sub>2</sub> setting, clean soot from heat exchanger if necessary
F 17	Exhaust gas temperature sensor defective	<b>1A</b> Short circuit to ground in exhaust temperature sensor <b>9A</b> Open circuit in exhaust temperature sensor	Replace exhaust temperature sensor
F 18	Setpoint generator defective	<b>9B</b> Open circuit or short circuit to +Ub in setpoint generator	Check wiring and replace control element if necessary
F 19	Plausibility of sensors incorrect	<b>93</b> Plausibility check not passed	Check exhaust temperature sensor/blow-out temperature sensor for plausibility and replace defective sensor

Fig. 503 Faults and error remedies (Page 2 of 2)

### **5.5 Maintenance display in control element**

The maintenance signal is displayed when an operating period of more than 3,000 operating hours has been reached or the heater is in a restricted operating mode.

In case of restricted operation, either the automatic altitude adjustment or the external room temperature sensor (optional) may be defective. The heater can continue to be operated, however with a considerable reduction in comfort in some cases.

The heater should be inspected by trained professionals as soon as possible.

The maintenance signal is displayed with equipment with a rotary selector or an Air Top Evo Multi Control (MC04) by means of flashing of the operating indicator for 60 seconds each time the heater is started. Flashing signal 1 second on, 1 second off.

With equipment with combination timer, "--" appears on the display.