







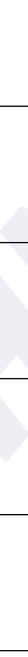



## Function and fault test

Function and fault test	Remedy	Fault signal / flashing code
<b>Fault code</b> <b>Fault description</b>		
000 No fault		
001 Advance warning – overvoltage	Check to see if voltage between 13 and 14 of control unit (external plug) is greater than 15 V or 30 V	
002 Advance warning – undervoltage	Check to see if voltage between 13 and 14 of control unit (external plug) is less than 10 V or 20 V	
009 TRS 003 cutout	Switch heater off and on again (TRS case due to D+ or HA/NA must be cancelled)	
010 Overvoltage cutout	Check to see if voltage between 13 and 14 of control unit (external plug) is greater than 15 V or 30 V	
011 Undervoltage cutout	Check to see if voltage between 13 and 14 of control unit (external plug) is less than 10 V or 20 V	
012 Overheat	Overtemperature sensor signals temperature of greater than 115 °C. Impedance at overtemperature sensor < 400 ohms. Ventilate heater (water level too low). Open the heater slide valve. Check water throughflow and sensor. Check the impedance at the control unit (internal plug). For this purpose, dismantle the control unit, disconnect the internal plug from the control unit and measure the impedance between 5 and 8. Overtemperature sensor values: 150 kohms at – 25 °C 10 kohms at + 25 °C	
013 Excess temperature at flame sensor	Flame sensor signals temperature of greater than 700 °C. Impedance at flame sensor > 3400 ohms. Check the impedance at the control unit (internal plug). For this purpose, dismantle the control unit, disconnect the internal plug from the control unit and measure the impedance between 10 and 12. Flame sensor values: 900 ohms at – 25 °C 1100 ohms at + 25 °C	
014 Difference between overheat and water temperature too large	Temperature difference between measurements of overtemperature sensors is greater than 70 K. Ventilate heater (water level too low). Open the heater slide valve and check water throughflow. Check the overtemperature sensor. Check the impedance between 5 and 8 at the control unit (internal plug). Overtemperature sensor values: 150 kohms at – 25 °C / 10 kohms at + 25 °C	
015 Too many overheats	The control unit is interlocked after three successive overheats (error codes 012, 013 and 014). Eliminate the cause of the overheat. Unlocking by deleting the error memory with diagnosis unit/PC or plus signal for 0.5 to 5 sec. on connection 7 (0.5 v) on the control unit (ext. plug) with heater switched on.	

8 Sec.

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## Function and fault test

## Fault code

## Fault description

## Remedy

Function and fault test	Remedy	Fault signal / flashing code
020 Glow plug interruption	Check glow plug (nominal value: approx. 2 ohms), replace it if necessary. Check terminal 4 (1.5 white) on the control unit (internal plug) leading to glow plug to terminal 3 (1.5 brown) for continuity/short-circuit. If O.K. → replace control unit.	
021 Short-circuit at glow plug		
033 Burner motor or speed controller defective, speed deviation	Speed deviation for longer than 60 seconds. Nominal values: 7300 rpm (POWER), 5700 rpm (HIGH), 3600 rpm (MEDIUM), 2000 rpm (LOW). <ul style="list-style-type: none"> <li>Check burner motor: apply supply voltage to motor. Connect + to 1.5 black and - to 1.5 orange. Motor does not turn → replace burner motor with integrated sensor.</li> <li>Check sensor supply. Switch on heater and measure voltage between output 13 (0.25 red) and 14 (0.25 green) at the control unit (internal plug). Nominal value: 8 V. If deviation → replace control unit.</li> <li>Check sensor: Measure voltage between terminal 15 (0.25 violet) and 14 (0.25 green) with an analog voltmeter when the blower is running. Nominal value: 4 V (+/- 0.3 V) average value (8 V square-wave signal). If deviation → replace motor with integrated sensor. If sensor signal is O.K., then the speed controller is defective. → Change control unit.</li> </ul>	
037 Water pump is not working	Check water pump (driven externally)	
042 Short-circuit at water pump output	Test connection 6 (0.5 swrt) on the control unit (int. plug) for short circuit. Test water pumps and cables	
043 Short-circuit at external components	Check terminal 2 (1 green) of control unit (external plug) for short-circuit. Check connected components (max. current 6 A), replace them if necessary.	
047 Short-circuit of metering pump	Check terminal 1 (1 blue) of control unit (external plug) and leads up to metering pump for short-circuit/interruption. Check the metering pump. Nominal value: approx. 20 ohms. Replace if necessary.	
048 Metering pump interruption		
050 Too many failed starts	The control unit is interlocked after it has been switched on 10 times in succession (= 20 failed starts) without flame detection (fault code 052). Check the fuel supply, glow plug, exhaust piping, combustion air piping and flame sensor. Unlocking by deleting the error memory with diagnosis unit/PC or plus signal for 0.5 to 5 sec. on connection 7 (0.5 v) on the control unit (ext. plug) with heater switched on.	
051 Flame message is displayed when heater is switched on	Flame sensor signals a temperature of greater than 80 °C despite 4 minutes of cooling with cold air. Impedance at flame sensor > 1300 ohm. If no combustion takes place → check the flame sensor, replace it if necessary. Flame sensor values: 900 ohms at - 25 °C 1100 ohms at + 25 °C	



**Faults which are not displayed:**

Faults	Cause	Remedy
Combustion generates soot	Combustion air pipe/ exhaust pipe clogged Metering pump conveying too much Combustion air blower speed too low Deposits inside heat exchanger	Clear obstruction Measure fuel quantity Measure CO <sub>2</sub> content. If $\geq 13\%$ in „High“ setting, replace blower. Remove heat exchanger and clean
No hot air in interior	Heater lever closed Vehicle blower not switched on Vehicle blower relay defective Vehicle blower fuse blown	Open heater lever Switch on vehicle blower Replace relay Renew fuse