# 4 Troubleshooting

| Error code Display | Fault description | Explanations • Remedies |
|---|---|---|
| 010 | Overvoltage – shutdown | Overvoltage at controller min. 20 seconds without interruption --> *HYDRONIC* does not function.<br>• Disconnect connection B1/S1, start vehicle engine, measure voltage in connector B1 between chamber 1 (cable $2.5^2$ red) and chamber 2 (cable $2.5^2$ brown). If the voltage > 15 / 32 volt, then check the dynamo regulator or battery. |
| 011 | Undervoltage – shutdown | Undervoltage at controller min. 20 seconds without interruption --> *HYDRONIC* does not function.<br>• Disconnect connection B1/S1, vehicle engine is off, measure voltage in connector B1 between chamber 1 (cable $2.5^2$ red) and chamber 2 (cable $2.5^2$ brown). If voltage < 10 / 20 volt, then check fuses, supply lines, ground connections and plus points on battery for loss of voltage (corrosion). |
| 012 | Overheating (software – threshold value) | Temperature at overheating sensor > 125°C.<br>• Check water circuit;<br>– Check all hoses for any leaks<br>– Is there a throttle in the water circuit?<br>– Has the direction of flow been observed when installing thermostat and non-return valve?<br>– Is the water circuit properly vented?<br>– Check functions of water pump<br>• Check temperature sensor and overheating sensor, replace if necessary – control values see page 36. |
| 014 | Possible overheating detected (differential evaluation) | Difference in temperature values of overheating sensor and temperature sensor > 25 K.<br>Prerequisite for this error code is that *HYDRONIC* is operating and the water temperature at the overheating sensor has reached min. 80°C.<br>• Check water circuit:<br>– Check all hoses for any leaks<br>– Is there a throttle in the water circuit?<br>– Has the direction of flow been observed when installing thermostat and non-return valve?<br>– Is the water circuit properly vented?<br>– Check functions of water pump<br>• Check temperature sensor and overheating sensor, replace if necessary – control values see page 36. |
| 015 | Operation lock – heater has overheated more than 10 times | Controller is locked<br>• Unlock controller by deleting fault memory (see page 17 to 20).<br>• Check water circuit<br>– Check all hoses for any leaks<br>– Is there a throttle in the water circuit?<br>– Has the direction of flow been observed when installing thermostat and non-return valve?<br>– Is the water circuit properly vented?<br>– Check functions of water pump. |

# 4 Troubleshooting

| Error code Display | Fault description | Explanations • Remedies |
|---|---|---|
| 017 | Overheating detected – EMERGENCY OFF (hardware limit value) | Temperature at overheating sensor > 130°C.<br>• Check water circuit:<br>– Check all hoses for any leaks.<br>– Is there a throttle in the water circuit?<br>– Has the direction of flow been observed when installing thermostat and non-return valve?<br>– Is the water circuit properly vented?<br>– Check functions of water pump.<br>• Check temperature sensor and overheating sensor, replace if necessary – control values see page 36. |
| 020<br>021 | Glow plug – interruption<br><br>Glow plug output: short circuit, overload or accidental ground<br><br>**Caution**<br>In *HYDRONIC* 12 volt, perform the function test with max. 8 volt. In *HYDRONIC* 24 volt, perform the function test with max. 18 volt. Glow plug destroyed if voltage values exceeded.<br>➔ Ensure mains adapter is short-circuit proof. | • Perform function test of glow plug in installed condition. To do so, unclip cable 1.5² white from chamber 9 of the 14-pole connector and cable 1.5² brown from chamber 12. Apply voltage of 8 / 18 V ± 0.1 V to the glow plug and measure current after 25 sec. The glow plug is OK with the following values; if the values differ, replace the glow plug. Glow plug 8 volt – current = 8.5 $A^{+1A}_{-1,5A}$<br>• If glow plus is OK, check glow plug lead for any signs of damage, check for current passage. |
| 030 | Speed of combustion fan motor outside tolerance range.<br><br>**Caution**<br>In *HYDRONIC* 12 volt, perform the function test with max. 8.2 volt + 0.2 volt.<br>In *HYDRONIC* 24 volt, perform the function test with max. 15 volt + 0.2 volt.<br>Check that plus an minus leads are connected correctly.<br>➔ Ensure mains adapter is short-circuit proof. | Fan impeller of combustion air fan motor blocked (frozen, dirty, stiff, lead chafes at end of shaft …).<br>• Remove blockage.<br>• Measure speed of combustion air fan motor with max. 8.2 / 15 volt + 0.2 volt. To do so, unclip cable 0.75² brown from chamber 14 of 14-pole connector and cable 0.75² black from chamber 13.<br>Affix a marking tothe shaft end of the combustion air fan motor and measure the speed with a contact-free speed counter (see page 33).<br>If the measured speed < 1000 rpm, then replace the combustion air fan.<br>If the measured speed > 1000 rpm, then replace the controller. |
| 031 | Combustion air motor – interruption<br><br>**Caution**<br>In *HYDRONIC* 12 volt, perform the function test with max. 8.2 volt + 0.2 volt.<br>In *HYDRONIC* 24 volt, perform the function test with max. 15 volt + 0.2 volt.<br>Check that plus an minus leads are connected correctly.<br>➔ Ensure mains adapter is short-circuit proof. | • Check that the cable harness of the combustion air fan motor is properly routed and check for any signs of damage.<br>• Measure speed of combustion air fan motor with max. 8.2 / 15 volt + 0.2 volt. To do so, unclip cable 0.75² brown from chamber 14 of 14-pole connector and cable 0.75² black from chamber 13.<br>Affix a marking tothe shaft end of the combustion air fan motor and measure the speed with a contact-free speed counter (see page 33).<br>If the measured speed < 1000 rpm, then replace the combustion air fan.<br>If the measured speed > 1000 rpm, then replace the controller. |

# 4 Troubleshooting

| Error code Display | Fault description | Explanations • Remedies |
|---|---|---|
| 032 | Combustion air motor – short circuit, overload or accidental ground<br><br>**Caution**<br>In *HYDRONIC* 12 volt, perform the function test with max. 8.2 volt + 0.2 volt.<br>In *HYDRONIC* 24 volt, perform the function test with max. 15 volt + 0.2 volt.<br>Check that plus an minus leads are connected correctly.<br>➔ Ensure mains adapter is short-circuit proof. | Fan impeller of combustion air fan motor blocked (frozen, dirty, stiff, lead chafes at end of shaft …).<br>• Remove blockage.<br>• Before checking the functions of the combustion air fan motor, perform a resistance measurement between housing and lead.<br>If the measured resistance < 2 kΩ, then there is accidental ground. Replace the combustion air fan. If the measured value is > 2 kΩ, then measure the speed of the combustion air fan motor.<br>• Measure speed of combustion air fan motor with max. 8.2/ 15 volt + 0.2 volt. To do so, unclip cable $0.75^2$ brown from chamber 14 of 14-pole connector and cable $0.75^2$ black from chamber 13.<br>Affix a marking to the shaft end of the combustion air fan motor and measure the speed with a contact-free speed counter (see page 33).<br>If the measured speed < 1000 rpm, then replace the combustion air fan.<br>If the measured speed > 1000 rpm, then replace the controller. |
| 038 | Relay trigger of vehicle fan – interruption<br>**Please note**<br>This fault code is not displayed by all types of heaters. | • Check electric lead to relay, rectify interruption, replace relay if necessary. |
| 039 | Relay trigger of vehicle fan – short circuit, overload or accidental ground | • Pull relay off; if error code 038 is then shown, the relay is defect – replace relay. |
| 041 | Water pump – interruption | • Check lead to water pump for current passage. To do so, unclip cable $0.5^2$ brown from chamber 10 of 14-pole connector and cable $0.5^2$ from cable 11.<br>Rectify interruption, replace water pump if necessary. |
| 042 | Water pump – short circuit, overload or accidental ground | • Disconnect connection in water pump cable harness.<br>If error code 041 is then shown, the water pump is defect – replace water pump. |
| 047 | Dosing pump – short circuit, overload or accidental ground | • Disconnect connection in dosing pump cable harness.<br>If error code 048 is then shown, the dosing pump is defect – replace dosing pump. |
| 048 | Dosing pump – interruption | • Check dosing pump cable harness for current passage.<br>Rectify interruption, replace dosing pump if necessary. |
| 050 | Operation lock because of too many failed starting attempts (10 starting attempts, also start repetition for every starting attempt) | Too many starting attempts, controller locked.<br>• Unlock controller by deleting fault memory (see page 17 to 20).<br>• Check fuel quantity and fuel supply, see page 37. |

# 4 Troubleshooting

| Error code Display | Fault description | Explanations • Remedies |
|---|---|---|
| 051 | Time exceeded – blowing cold | At start, flame sensor reports temperature > 70°C for longer than 240°C.<br>• Check exhaust and combustion air guidance.<br>• Check flame sensor – control values see page 32. |
| 052 | Safety time exceeded | • Check exhaust and combustion air guidance.<br>• Check fuel quantity and fuel supply, see page 37.<br>• Clean or replace filter in dosing pump connection. |
| 053<br>056 | Flame aborted from control stage “large”<br>Flame aborted from control stage “small” | **Warning**<br>After flame aborted from control stage “large” or “small” and after starting attempt within allowed number, *HYDRONIC* proceeds with a new start, where applicable with subsequent start repeat.<br>If the new start or start repeat is successful, the error code is deleted.<br>**Error** (because no more starting attempts allowed)<br>• Check exhaust and combustion air guidance.<br>• Check fuel quantity and fuel supply, see page 37.<br>• Check flame sensor, see error code 064 and 065. |
| 060 | Temperature sensor – interruption<br>**Please note**<br>The test with a bridge in the 14-pole connector can only be performed if *HYDRONIC* is still installed in the vehicle or if a test facility is available. | • Remove controller and check connection lead of temperature sensor for any signs of damage. If the lead is OK, then short the temperature sensor: route the cable in the 14-pole connector from chamber 3 to chamber 4.<br>Switch *HYDRONIC* on:<br>– If error code 061 appears, then remove and check temperature sensor, see page 36.<br>– If error code 060 still appears, then check and if necessary replace controller. |
| 061 | Temperature sensor – short-circuit, overload or accidental ground<br>**Please note**<br>The test with a bridge in the 14-pole connector can only be performed if *HYDRONIC* is still installed in the vehicle or if a test facility is available. | • Remove controller and check connection lead of temperature sensor for any signs of damage. If the lead is OK, then remove the 14-pole connector from controller, unclip cable $0.5^2$ blue from chamber 3 and cable $0.5^2$ blue from chamber 4.<br>Connect 14-pole connector to controller and switch *HYDRONIC* on.<br>– If error code 061 appears, then remove and check temperature sensor, see page 36.<br>– If error code 061 appears, then check and if necessary replace controller. |
| 064 | Flame sensor – interruption<br>**Please note**<br>The test with a bridge in the 14-pole connector can only be performed if *HYDRONIC* is still installed in the vehicle or if a test facility is available. | • Remove controller and check connection lead of flame sensor for any signs of damage. If the lead is OK, then short the flame sensor: route the cable in the 14-pole connector from chamber 1 to chamber 2.<br>Switch *HYDRONIC* on:<br>– If error code 065 appears, then remove and check flame sensor, see page 34.<br>– If error code 064 still appears, then check and if necessary replace controller. |

# 4 Troubleshooting

| Error code Display | Fault description | Explanations • Remedies |
|---|---|---|
| 065 | Flame sensor – short-circuit, overload or accidental ground<br><br>**Please note**<br>The test with a bridge in the 14-pole connector can only be performed if *HYDRONIC* is still installed in the vehicle or if a test facility is available. | • Remove controller and check connection lead of flame sensor for any signs of damage. If the lead is OK, then remove the 14-pole connector from controller, unclip cable $0.5^2$ blue from chamber 1 and cable $0.5^2$ brown from chamber 2.<br>Connect 14-pole connector to controller and switch *HYDRONIC* on.<br>– If error code 064 appears, then remove and check flame sensor, see page 32.<br>– If error code 065 appears, then check and if necessary replace controller. |
| 071 | Overheating sensor – interruption<br><br>**Please note**<br>The test with a bridge in the 14-pole connector can only be performed if *HYDRONIC* is still installed in the vehicle or if a test facility is available. | • Remove controller and check connection lead of overheating sensor for any signs of damage. If the lead is OK, then short the overheating sensor: route the cable in the 14-pole connector from chamber 5 to chamber 6.<br>Switch *HYDRONIC* on:<br>– If error code 072 appears, then remove and check overheating sensor, see page 36.<br>– If error code 071 still appears, then check and if necessary replace controller. |
| 072 | Overheating sensor – short-circuit, overload or accidental ground<br><br>**Please note**<br>The test with a bridge in the 14-pole connector can only be performed if *HYDRONIC* is still installed in the vehicle or if a test facility is available. | • Remove controller and check connection lead of overheating sensor for any signs of damage. If the lead is OK, then remove the 14-pole connector from controller, unclip cable $0.5^2$ red from chamber 5 and cable $0.5^2$ red from chamber 6.<br>Connect 14-pole connector to controller and switch *HYDRONIC* on.<br>– If error code 071appears, then remove and check overheating sensor, see page 36.<br>– If error code 072appears, then check and if necessary replace controller. |
| 090<br>092–103 | Controller defect | Replace controller. |
| 091 | External interference voltage | Error in controller from interference voltage from vehicle network, possible causes:<br>poor batteries, poor battery chargers, other interference sources; eliminate interference voltages. |

**Faults not shown by the diagnosis system**

| Fault description | Explanations • Remedies |
|---|---|
| *HYDRONIC* won't start | After switching *HYDRONIC* on, the water pump and vehicle fan start immediately.<br>• Remove and check temperature sensor, see page 36.<br><br>After switching *HYDRONIC* on, the vehicle fan starts, function "pre-venting" is activated.<br>• Changeover venting to heating at "heating / venting" changeover switch. |