

Fault code	Fault description	Remarks
		• Remedial action
010	Overvoltage cut-out	<p>Overvoltage is continuously applied to control unit for at least 20 seconds à <i>HYDRONIC</i> is not operational</p> <ul style="list-style-type: none"> • Disconnect connector B1/S1, start the vehicle engine and measure the voltage applied to plug B1 between terminal jack 1 (red (rt) 2.5 mm² wire) and terminal jack 2 (brown (br) 2.5 mm² wire). <p>If the voltage is > 15 Volts or > 28 Volts, check the alternator controller or the battery.</p>
011	Undervoltage cut-out	<p>Undervoltage is continuously applied to control unit for at least 20 seconds → <i>HYDRONIC</i> is not operational</p> <ul style="list-style-type: none"> • Disconnect connector B1/S1, switch off the vehicle engine, and measure the voltage applied to plug B1 between terminal jack 1 (red (rt) 2.5 mm² wire) and terminal jack 2 (brown (br) 2.5 mm² wire). <p>If the voltage is < 10 Volts or < 20 Volts, check the fuses, the supply leads, the GND connections and the positive terminal on the battery for voltage drop (corrosion).</p> <ul style="list-style-type: none"> • Is sufficient voltage present during the engine start-up procedure?
012	Overheat (software threshold value)	<p>Temperature at overheat sensor > 125°C</p> <ul style="list-style-type: none"> • Check water circulation system: <ul style="list-style-type: none"> - check all hose connections for leaks - is a restrictor fitted in the water circulation system? - was attention paid to the correct direction of flow during installation of thermostat and check valve? - has the water circulation system been bled carefully? - check water pump for function • Check temperature sensor and overheat sensor and replace if necessary. See page 22 for reference values.
014	Possible overheat detected (difference evaluation)	<p>Difference between temperature values of overheat sensor and temperature sensor > 25K.</p> <p>The prerequisite for this fault code being indicated is that the <i>HYDRONIC</i> is in operation and that the water temperature at the overheat sensor is at least 80°C.</p> <ul style="list-style-type: none"> • Check water circulation system: <ul style="list-style-type: none"> - check all hose connections for leaks - is a restrictor fitted in the water circulation system? - was attention paid to the correct direction of flow during installation of thermostat and check valve? - has the water circulation system been bled carefully? - check water pump for function • Check temperature sensor and overheat sensor and replace if necessary. See page 22 for reference values.
015	Equipment disabled — max. permissible number of 10 possible overheats exceeded	<p>The control unit is interlocked.</p> <ul style="list-style-type: none"> • Release the control unit interlock by erasing the fault memory with the timer module or the diagnostic unit (see pages 8 and 9). • Check the water circulation system: <ul style="list-style-type: none"> - check all hose connections for leaks - is a restrictor fitted in the water circulation system? - was attention paid to the correct direction of flow during installation of thermostat and check valve? - has the water circulation system been bled carefully? - check water pump for function

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017	Overheat detected — EMERGENCY STOP (hardware threshold value)	Temperature at overheat sensor > 130°C <ul style="list-style-type: none"> • Check water circulation system: <ul style="list-style-type: none"> - check all hose connections for leaks - is a restrictor fitted in the water circulation system? - was attention paid to the correct direction of flow during installation of thermostat and check valve? - has the water circulation system been bled carefully? - check water pump for function • Check temperature sensor and overheat sensor and replace if necessary. See page 22 for reference values.
020	Glow plug interruption	<ul style="list-style-type: none"> • Carry out a functional check on the glow plug as fitted. For this purpose, unclip the 1.5² white (ws) wire from terminal jack 9 and the 1.5² brown (br) wire out of terminal jack 12 of the 14-pin plug.
021	Short-circuit, overload or ground fault at glow plug output	Apply a voltage of 8 Volts or 18 Volts ± 0.1 Volts to the glow plug and measure the current intensity after 25 seconds. The glow plug is OK if the following values are measured. If this is not the case, replace the glow plug. <ul style="list-style-type: none"> 8 Volt glow plug — current intensity = 8.5A ^{+1A} _{-1.5A} 18 Volt glow plug — current intensity = 4.5A ± 1.5A <ul style="list-style-type: none"> • If the glow plug is OK, check the cable harness from the glow plug for damage and continuity. • If fault code 021 is displayed, also check glow plug for assembly of the connection piece and the corrugated washer. Check cable harness for short circuit.
030	Speed of combustion air blower motor outside permissible range	Blower wheel or combustion air blower motor blocked (frozen up, soiled, sluggish, cable harness rubbing against end of shaft, etc.) <ul style="list-style-type: none"> • Clear blockage • Measure speed of combustion air blower motor using max. 8.2 Volts + 0.2 Volts or 15 Volts + 0.2 Volts. For this purpose, unclip the 0.75² brown (br) wire from terminal jack 14 and the 0.75² black (bk) wire out of terminal jack 13 of the 14-pin plug. Attach a marking on the end of the combustion air blower motor shaft and measure the speed with a contactless tachometer (see page 21). If measured speed < 10,000 rpm, replace the combustion air blower. If measured speed > 10,000 rpm, replace the control unit.
031	Open circuit in combustion air blower motor	<ul style="list-style-type: none"> • Check to see if the combustion air blower motor wiring is laid properly or damaged. • Measure speed of combustion air blower motor using max. 8.2 Volts + 0.2 Volts or 15 Volts + 0.2 Volts. For this purpose, unclip the 0.75² brown (br) wire from terminal jack 14 and the 0.75² black (bk) wire out of terminal jack 13 of the 14-pin plug. Attach a marking on the end of the combustion air blower motor shaft and measure the speed with a contactless tachometer (see page 21). If measured speed < 10,000 rpm, replace the combustion air blower. If measured speed > 10,000 rpm, replace the control unit.

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032	Short circuit, overload or ground fault of combustion air blower motor	<p>Blower wheel or combustion air blower motor blocked (frozen up, soiled, sluggish, cable harness rubbing against end of shaft, etc.)</p> <ul style="list-style-type: none"> • Clear blockage • Before proceeding with the functional check on the combustion air blower motor, perform a resistance measurement. If measured resistance is $< 2 \text{ k}\Omega$, then a ground fault has occurred — replace the combustion air blower. If measured resistance is $> 2 \text{ k}\Omega$, then a ground fault can be ruled out — measure the speed of the combustion air blower. • Measure speed of combustion air blower motor using max. 8.2 Volts + 0.2 Volts or 15 Volts + 0.2 Volts. For this purpose, unclip the 0.75² brown (br) wire from terminal jack 14 and the 0.75² black (bk) wire out of terminal jack 13 of the 14-pin plug. Attach a marking on the end of the combustion air blower motor shaft and measure the speed with a contactless tachometer (see page 21). If measured speed $< 10,000 \text{ rpm}$, replace the combustion air blower. If measured speed $> 10,000 \text{ rpm}$, replace the control unit.
038	Open circuit in vehicle blower relay control	<ul style="list-style-type: none"> • Check electrical lead routed to relay. Rectify open circuit. Replace relay if necessary.
039	Short circuit, overload or ground fault in vehicle blower relay control	<ul style="list-style-type: none"> • Disconnect relay. If fault code 038 is displayed, then the relay is defective — replace relay.
041	Open circuit in water pump	<ul style="list-style-type: none"> • Check supply lead to water pump for continuity. For this purpose, unclip the 0.5² brown (br) wire from terminal jack 10 and the 0.5² violet (vi) wire out of terminal jack 11 of the 14-pin plug. Rectify open circuit. Replace relay if necessary.
042	Short circuit, overload or ground fault in water pump	<ul style="list-style-type: none"> • Disconnect connector in the "water pump" line. If fault code 041 is displayed, then the water pump is defective — replace water pump.
047	Short circuit, overload or ground fault in metering pump	<ul style="list-style-type: none"> • Disconnect connector in the "metering pump" line. If fault code 048 is displayed, then the metering pump is defective — replace metering pump.
048	Open circuit in metering pump	<ul style="list-style-type: none"> • Check cable harness of metering pump for continuity. Clear open circuit. Replace metering pump if necessary.
050	Equipment has been disabled due to too many failed starts (10 start attempts plus repeat start-up for each start attempt)	<p>Max. permissible number of safety time counters exceeded; the control unit is interlocked.</p> <ul style="list-style-type: none"> • Release the control unit interlock by erasing the fault memory with the timer module or diagnostic unit. • Check fuel quantity and fuel supply (see page 26).
051	Time overshoot — cold air blowing	<p>At start-up, the flame sensor indicates a temperature of $> 70^\circ\text{C}$ for longer than 240 sec.</p> <ul style="list-style-type: none"> • Check exhaust gas and combustion air piping. • Check flame sensor — see page 20 for reference values.

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052	Safety time exceeded	<p>The max. permissible number of start attempts has been used up.</p> <ul style="list-style-type: none"> • Check exhaust gas and combustion air piping. • Check the fuel quantity and fuel supply (see page 26). • In the case of the <i>HYDRONIC</i> B 5 W S, clean, and if necessary replace, the strainer in the connection.
053	Flame loss in "High" setting	<p>Attention!</p> <p>In the event of flame loss in the "High" or "Low" settings and if start attempts are still permitted, the <i>HYDRONIC</i> performs a restart followed by repeat start-up if necessary. If the restart of repeat start-up was successful, the indicated fault code is cleared.</p> <p>Fault (because a new start attempt is no longer permissible)</p> <ul style="list-style-type: none"> • Check exhaust gas and combustion air piping. • Check the fuel quantity and fuel supply (see page 26). • Check flame sensor — see fault codes 064 and 065.
056	Flame loss in "LOW" setting	
060	<p>Open circuit in temperature sensor</p> <p>Please note! The test can only be performed with a jumper strap fitted in the 14-pin plug if the <i>HYDRONIC</i> is still installed in the vehicle or if a test bench is available.</p>	<ul style="list-style-type: none"> • Remove the control unit and check the connecting cable of the temperature sensor from damage. If the cable harness is OK, then short the temperature sensor — route wire in 14-pin plug from terminal jack 3 to terminal jack 4. Switch on the <i>HYDRONIC</i>. - if fault code 061 is displayed, remove and check the temperature sensor (see page 22). - if fault code 060 is displayed, check the control unit and replace if necessary.
061	<p>Short circuit, overload or ground fault in temperature sensor</p> <p>Please note! The test can only be performed with a jumper strap fitted in the 14-pin plug if the <i>HYDRONIC</i> is still installed in the vehicle or if a test bench is available.</p>	<ul style="list-style-type: none"> • Remove the control unit and check the connecting cable of the temperature sensor from damage. If the cable harness is OK, then disconnect the 14-pin plug from the control unit and unclip the 0.5 mm² blue (bl) wire from terminal jack 3 and the 0.5 mm² blue (bl) wire from terminal jack 4. Plug the 14-pin plug into the control unit and switch on the <i>HYDRONIC</i>. - if fault code 060 is displayed, remove and check the temperature sensor (see page 22). - if fault code 061 is displayed, check the control unit and replace if necessary.
064	<p>Open circuit in flame sensor</p> <p>Please note! The test can only be performed with a jumper strap fitted in the 14-pin plug if the <i>HYDRONIC</i> is still installed in the vehicle or if a test bench is available.</p>	<ul style="list-style-type: none"> • Remove the control unit and check the connecting cable of the flame sensor from damage. If the cable harness is OK, then short the flame sensor — route wire in 14-pin plug from terminal jack 1 to terminal jack 2. Switch on the <i>HYDRONIC</i>. - if fault code 065 is displayed, remove and check the flame sensor (see page 20). - if fault code 064 is displayed, check the control unit and replace if necessary.

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065	Short circuit, overload or ground fault in flame sensor Please note! The test can only be performed if the <i>HYDRONIC</i> is still installed in the vehicle or if a test bench is available.	<ul style="list-style-type: none"> Remove the control unit and check the connecting cable of the flame sensor from damage. If the cable harness is OK, then disconnect the 14-pin plug from the control unit and unclip the 0.5 mm² blue (bl) wire from terminal jack 1 and the 0.5 mm² brown (br) wire from terminal jack 2. Plug the 14-pin plug into the control unit and switch on the <i>HYDRONIC</i> <ul style="list-style-type: none"> - if fault code 064 is displayed, remove and check the flame sensor (see page 20). - if fault code 065 is displayed, check the control unit and replace if necessary.
071	Open circuit in overheat sensor Please note! The test can only be performed if the <i>HYDRONIC</i> is still installed in the vehicle or if a test bench is available.	<ul style="list-style-type: none"> Remove the control unit and check the connecting cable of the overheat sensor from damage. If the cable harness is OK, then short the overheat sensor — route wire in 14-pin plug from terminal jack 5 to terminal jack 6. Switch on the <i>HYDRONIC</i>. <ul style="list-style-type: none"> - if fault code 072 is displayed, remove and check the overheat sensor (see page 22). - if fault code 071 is displayed, check the control unit and replace if necessary.
072	Short circuit, overload or ground fault in overheat sensor Please note! The test can only be performed if the <i>HYDRONIC</i> is still installed in the vehicle or if a test bench is available.	<ul style="list-style-type: none"> Remove the control unit and check the connecting cable of the overheat sensor from damage. If the cable harness is OK, then disconnect the 14-pin plug from the control unit and unclip the 0.5 mm² red (rt) wire from terminal jack 5 and the 0.5 mm² red (rt) wire from terminal jack 6. Plug the 14-pin plug into the control unit and switch on the <i>HYDRONIC</i> <ul style="list-style-type: none"> - if fault code 071 is displayed, remove and check the overheat sensor (see page 22). - if fault code 072 is displayed, check the control unit and replace if necessary.
090 / 092 — 103	Control unit defective	Replace control unit
091	External interference voltage	Fault in control unit caused by interference voltages radiating from vehicle electrical system. Possible causes: Poor-quality battery, chargers, other sources of interference —> Eliminate interference voltages.

Faults which the diagnostic system does not indicate

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<i>HYDRONIC</i> does not start	<p>The water pump and the vehicle blower start as soon as the <i>HYDRONIC</i> is switched on.</p> <ul style="list-style-type: none"> Remove temperature sensor and check (see page 22). <p>The vehicle blower starts after the <i>HYDRONIC</i> is switched on — "stationary ventilation" function is activated.</p> <ul style="list-style-type: none"> Set "stationary ventilation" switch to "OFF" position.