HYDRONIC D5WS

Fault Codes and Remedies

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EN

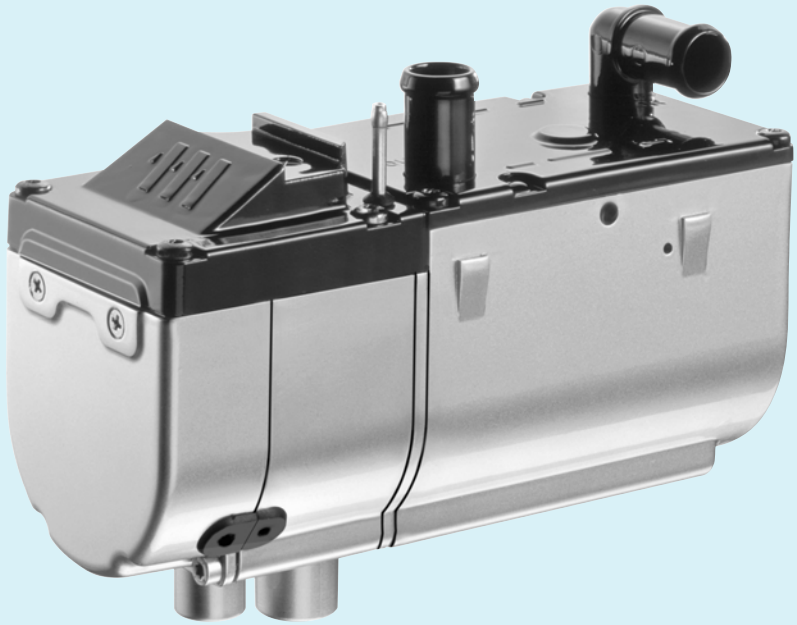
The troubleshooting and repair instructions are valid for the following engine-independent water heaters:

Heaters for petrol

	Order No.
B 4 W S FL – 12 volt	20 1852 01 00 00
B 5 W S – 12 volt	20 1819 01 00 00

Heaters for diesel

	Order No.
D 4 W S FL – 12 volt	25 2355 01 00 00
D 5 W S – 12 volt	25 2217 01 00 00
D 5 W S – 24 volt	25 2218 05 00 00



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4 Troubleshooting

Error code Display	Fault description	Explanations • Remedies
010	Overvoltage – shutdown	Overvoltage at controller min. 20 seconds without interruption --> *HYDRONIC* does not function. • 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. • 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. • Check water circuit; – Check all hoses for any leaks – Is there a throttle in the water circuit? – Has the direction of flow been observed when installing thermostat and non-return valve? – Is the water circuit properly vented? – Check functions of water pump • 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. Prerequisite for this error code is that *HYDRONIC* is operating and the water temperature at the overheating sensor has reached min. 80°C. • Check water circuit: – Check all hoses for any leaks – Is there a throttle in the water circuit? – Has the direction of flow been observed when installing thermostat and non-return valve? – Is the water circuit properly vented? – Check functions of water pump • 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 • Unlock controller by deleting fault memory (see page 17 to 20). • Check water circuit – Check all hoses for any leaks – Is there a throttle in the water circuit? – Has the direction of flow been observed when installing thermostat and non-return valve? – Is the water circuit properly vented? – Check functions of water pump.

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Error code Display	Fault description	Explanations • Remedies
017	Overheating detected – EMERGENCY OFF (hardware limit value)	Temperature at overheating sensor > 130°C. • Check water circuit: – Check all hoses for any leaks. – Is there a throttle in the water circuit? – Has the direction of flow been observed when installing thermostat and non-return valve? – Is the water circuit properly vented? – Check functions of water pump. • Check temperature sensor and overheating sensor, replace if necessary – control values see page 36.
020 021	Glow plug – interruption Glow plug output: short circuit, overload or accidental ground **Caution** 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. ➔ 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 $^{+1A}_{-1,5A}$ • 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. **Caution** In *HYDRONIC* 12 volt, perform the function test with max. 8.2 volt + 0.2 volt. In *HYDRONIC* 24 volt, perform the function test with max. 15 volt + 0.2 volt. Check that plus an minus leads are connected correctly. ➔ Ensure mains adapter is short-circuit proof.	Fan impeller of combustion air fan motor blocked (frozen, dirty, stiff, lead chafes at end of shaft …). • Remove blockage. • 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. 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). If the measured speed < 10000 rpm, then replace the combustion air fan. If the measured speed > 10000 rpm, then replace the controller.
031	Combustion air motor – interruption **Caution** In *HYDRONIC* 12 volt, perform the function test with max. 8.2 volt + 0.2 volt. In *HYDRONIC* 24 volt, perform the function test with max. 15 volt + 0.2 volt. Check that plus an minus leads are connected correctly. ➔ 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. • 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. 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). If the measured speed < 10000 rpm, then replace the combustion air fan. If the measured speed > 10000 rpm, then replace the controller.

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Error code Display	Fault description	Explanations • Remedies
032	Combustion air motor – short circuit, overload or accidental ground **Caution** In *HYDRONIC* 12 volt, perform the function test with max. 8.2 volt + 0.2 volt. In *HYDRONIC* 24 volt, perform the function test with max. 15 volt + 0.2 volt. Check that plus an minus leads are connected correctly. ➔ Ensure mains adapter is short-circuit proof.	Fan impeller of combustion air fan motor blocked (frozen, dirty, stiff, lead chafes at end of shaft …). • Remove blockage. • Before checking the functions of the combustion air fan motor, perform a resistance measurement between housing and lead. 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. • 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. 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). If the measured speed < 10000 rpm, then replace the combustion air fan. If the measured speed > 10000 rpm, then replace the controller.
038	Relay trigger of vehicle fan – interruption **Please note** 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 0.5² brown from chamber 10 of 14-pole connector and cable 0.5² from cable 11. Rectify interruption, replace water pump if necessary.
042	Water pump – short circuit, overload or accidental ground	• Disconnect connection in water pump cable harness. 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. 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. 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. • Unlock controller by deleting fault memory (see page 17 to 20). • Check fuel quantity and fuel supply, see page 37.

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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. • Check exhaust and combustion air guidance. • Check flame sensor – control values see page 32.
052	Safety time exceeded	• Check exhaust and combustion air guidance. • Check fuel quantity and fuel supply, see page 37. • Clean or replace filter in dosing pump connection.
053 056	Flame aborted from control stage “large” Flame aborted from control stage “small”	**Warning** 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. If the new start or start repeat is successful, the error code is deleted. **Error** (because no more starting attempts allowed) • Check exhaust and combustion air guidance. • Check fuel quantity and fuel supply, see page 37. • Check flame sensor, see error code 064 and 065.
060	Temperature sensor – interruption **Please note** 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. Switch *HYDRONIC* on: – If error code 061 appears, then remove and check temperature sensor, see page 36. – If error code 060 still appears, then check and if necessary replace controller.
061	Temperature sensor – short-circuit, overload or accidental ground **Please note** 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. Connect 14-pole connector to controller and switch *HYDRONIC* on. – If error code 061 appears, then remove and check temperature sensor, see page 36. – If error code 061 appears, then check and if necessary replace controller.
064	Flame sensor – interruption **Please note** 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. Switch *HYDRONIC* on: – If error code 065 appears, then remove and check flame sensor, see page 34. – If error code 064 still appears, then check and if necessary replace controller.

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Error code Display	Fault description	Explanations • Remedies
065	Flame sensor – short-circuit, overload or accidental ground **Please note** 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. Connect 14-pole connector to controller and switch *HYDRONIC* on. – If error code 064 appears, then remove and check flame sensor, see page 32. – If error code 065 appears, then check and if necessary replace controller.
071	Overheating sensor – interruption **Please note** 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. Switch *HYDRONIC* on: – If error code 072 appears, then remove and check overheating sensor, see page 36. – If error code 071 still appears, then check and if necessary replace controller.
072	Overheating sensor – short-circuit, overload or accidental ground **Please note** 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. Connect 14-pole connector to controller and switch *HYDRONIC* on. – If error code 071appears, then remove and check overheating sensor, see page 36. – If error code 072appears, then check and if necessary replace controller.
090 092–103	Controller defect	Replace controller.
091	External interference voltage	Error in controller from interference voltage from vehicle network, possible causes: 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. • Remove and check temperature sensor, see page 36. After switching *HYDRONIC* on, the vehicle fan starts, function "pre-venting" is activated. • Changeover venting to heating at "heating / venting" changeover switch.