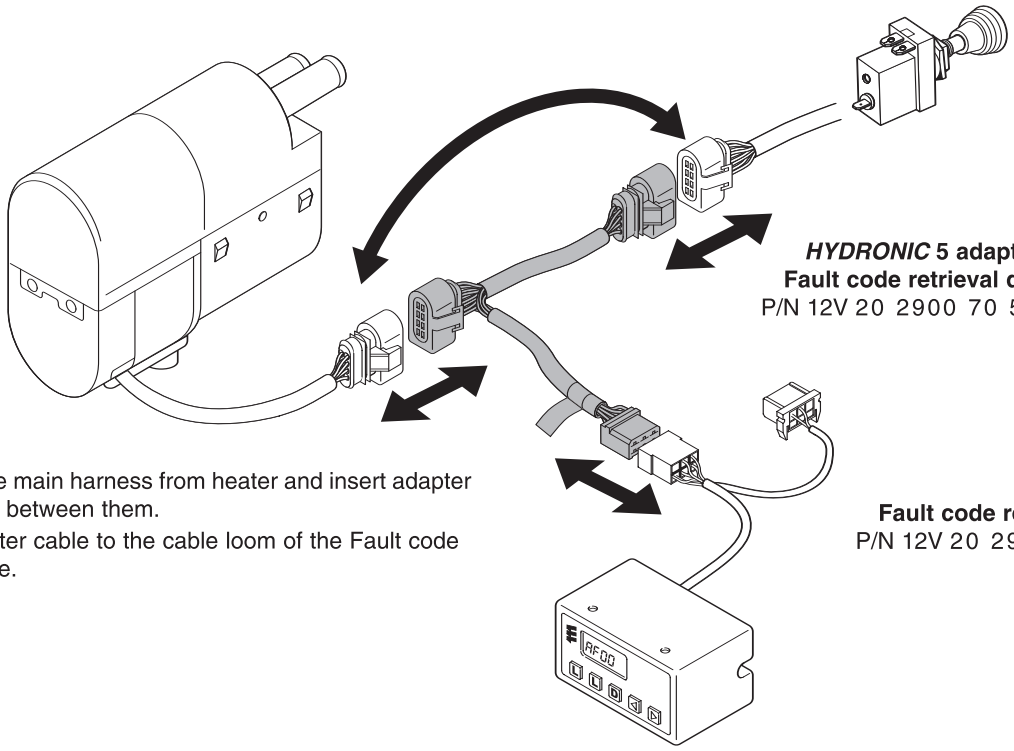


***HYDRONIC* 5 adapter for**
Fault code retrieval device
P/N 12V 20 2900 70 50 28

Fault code retrieval device
P/N 12V 20 2900 70 50 20

Hook Up

- Disconnect the main harness from heater and insert adapter cable harness between them.
- Connect adapter cable to the cable loom of the Fault code retrieval device.

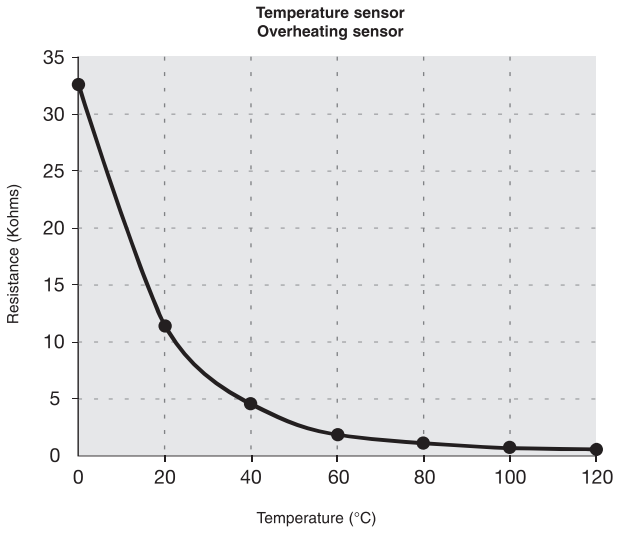
Test Values

Resistance

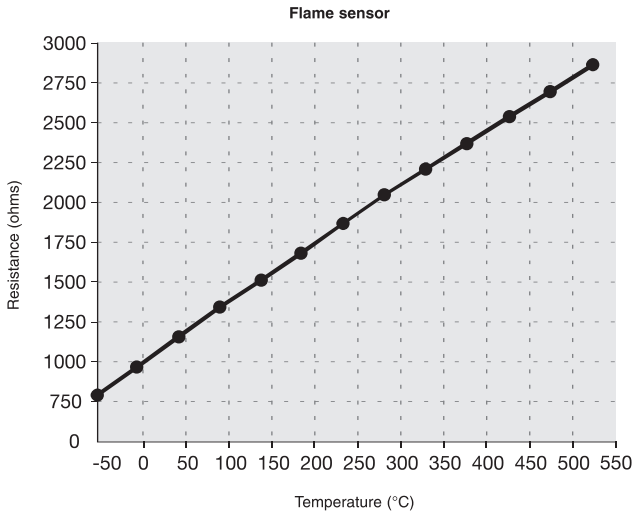
Metering pump	approx. 10 Ω for 12 volt heater; approximately 36 Ω for 24 volt heater
Glow Pin	approx. 0.9 Ω

Checking the sensors

To check the sensors, measure the resistance at current temperature, see following diagrams:



R> 2 Ω = open circuit
R< 50 Ω = short circuit



R> 3400 Ω = open circuit
R< 50 Ω = short circuit

Fault Code	Fault Description	Causes / Repair
000	Normal Operation	
010	Overvoltage	Check voltage between terminals 1(red) and 2(brown) at connector (B1). If voltage is > 15 volts then check battery, electrical leads and vehicle charging system.
011	Under voltage shut down	Check voltage between terminals 1(red) and 2(brown) at connector (B1). If voltage is < 10 volts then check battery, electrical leads and vehicle charging system.
012	Overheating	Check for possible causes of overheat (water circuit), Sensor. Check overheat switch resistance values. Temperature at temperature sensor or overheat sensor is greater than 125°C.
014	Possible overheating detected (difference evaluation)	Difference of measured values at temperature sensor >25°C (min. 80°C water temperature and metering pump in operation); Check temperature sensor and overheating sensor, replace if necessary. Check values from previous page.
015 fault coun-	Too many overheats	Remove cause of over heat. Reset control unit using 7 day timer or code retrieval device to unlock control unit. Permanent overheating ter reading exceeded. Heating enable only possible by means of diagnostics system (press both “LL” keys simultaneously).
017	Overheating detected	Temperature at temperature or overheating sensor > 130 °C, emergency OFF if Fault Code 012 or 014 not applicable; check water circuit, check temperature sensor and overheating sensor; replace if necessary. See graph on previous page.
020	Open circuit - glow pin	Check glow pin and electrical leads for continuity, replace if necessary.
021	Short circuit - glow pin	Check glow pin and electrical leads for continuity, replace if necessary.
030	Combustion air blower motor	Blower impeller or electric motor may be jammed (frozen solid, dirty, etc.) Fix jam, replace electric motor if necessary.
031	Combustion air blower motor	Check lead to combustion air motor for continuity, replace motor if necessary.
032 sary.	Combustion air blower motor short-circuit	Check combustion air blower motor (electric motor); replace if neces- Check power supply (chafed, corroded etc.)
038	Vehicle fan relay control break	Check electric lead to relay, fix break, replace relay if necessary For wiring harness (20 2900 70 04 01) without relay, replace harness.
039	Vehicle fan relay control short circuit	Check electric lead to relay, fix break, replace relay if necessary For wiring harness (20 2900 70 04 01) without relay, replace harness.
041	Water pump break	Check supply lead to water pump for continuity, remedy break, replace water pump if necessary.
042 re-	Water pump short-circuit	Check supply lead to water pump for short circuit, check water pump, place water pump if necessary.
047	Short circuit - fuel metering pump	Check for wires for short to fuel metering pump. Test fuel metering pump. Replace if necessary.

Fault Code	Fault Description	Causes / Repair
048 replace	Open circuit - fuel metering pump	Check supply lead to metering pump for continuity, remedy break, if necessary.
050	Too many no start attempts	Safety time counter reading exceeded. Reset control unit using 7 day Timer or fault code retrieval device to unlock control unit.
051	Faulty flame recognition	At start, if flame sensor is a above 70°C > 240 seconds; check exhaust gas and combustion air supply, check flame sensor, replace if necessary. For flame sensor values see graph on previous page.
052	No start safety time exceeded	No flame detected on start attempt. Check fuel delivery and fuel supply, Check exhaust gas and combustion air ducts.
053	Flame cutout in boost mode	Heater has started successfully the flame has extinguished. Check fuel supply. Check combustion air and exhaust flow. Check flame sensor resistance value. Replace flame sensor if necessary.
054	Flame cutout in high mode	Heater has started successfully the flame has extinguished. Check fuel supply. Check combustion air and exhaust flow.
056	Flame cutout in low mode	Check flame sensor resistance value.
060	Open circuit - temperature sensor	Temperature sensor detects a value beyond it's range. Check connections. Check sensor resistance values between 11 and 12 at connector B2 > 2 M (if open circuit).
061	Short circuit - external temperature sensor	Check connections. Check sensor resistance values between 11 and 12 at connector B2 < 50 Ω (if short circuit). Temperature sensor values on previous pages.
064	Open circuit - flame sensor	Sensor is sensing value outside of range. Check connection leads. Resistance values between 1 and 2 at connector B2 > 3040 Ω (if open circuit).
065	Short circuit - flame sensor	Check connection leads. Resistance values between 1 and 2 at connector B2 > 780 Ω (if short circuit). Flame sensor values on page 17.
071	Open circuit - overheat sensor	Check connection leads. Resistance values between 9 and 10 at connector B2 > 2 M Ω (if open circuit).
072	Short circuit - overheat sensor	Check connection leads. Resistance values between 9 and 10 at connector B2 < 50 M Ω (if short circuit).
091	External interference voltage	Error in controller from interference voltage from vehicle network possible causes: poor batteries, poor battery charges, other interference sources; eliminate interference voltages.
090 092 -103	Controller defect	Control unit malfunction due to interference voltage from vehicle electrical system; possible causes low batteries, charges, other sources of interference, eliminate interference voltages. Internal faults detected in microprocessor/memory. Replace control unit. Internal failure. Replace control unit.
Faults not shown by the diagnosis system *HYDRONIC* won't start		After switching *HYDRONIC* on, the water pump and vehicle fan start immediately. · Remove and check temperature sensor. After switching *HYDRONIC* on, the vehicle fan starts, functioning "preventing" is activated. · Changeover venting to heating at "heating/venting changeover switch.