Webasto
Trouble Shooting Flow Chart
For Heaters With The
Electronic Control Board
1. Turn the Burner Control Switch ON.

Using a Jumper Wire, jumper the Diesel (I) and the Diesel (O) Terminals together, on the JP2 plug on the Electronic Controller. If the Diesel burner Status Light Illuminates Green the problem is in the motor Home. Either a loose wire, bad switch, etc. If the Diesel Burner Status Light Does not illuminate on the Electronic Controller, ensure that the JP2 plug is securely plugged in. If it is then the Electronic Controller will need to be replaced.

NOTE: It is possible for the Plug to be defective. It is recommended to remove the Plug and check the pins on the electronic controller for power using a digital volt meter.

1. Does the Interlock Switch Have Continuity.
2. Check DC power supply at the Electronic Controller.
3. Verify DC power at the Diesel Switch (0) terminal on the JP2 Plug on the electronic Controller.

Is the indicator light illuminated?

Yes

Is the Diesel Burner Status Light on the Electronic Controller Illuminated Green?

No

Is the Diesel Burner’s Motor Operating?

No

Yes

Is the Heating Status Light Illuminated Green?

No

Yes

Is the Heater up to operating Temperature? (I.E. above 155 °F.)

No

The Heater is Functioning Properly.

Yes

1. Remove the Aqua-Hot’s Access Cover
2. Remove the “Thermostat Access Panel”
3. Check the Diesel Burner’s “VDC High-Limit Thermostat” for continuity

NOTE: This thermostat protects against overheating temperatures.

1. Remove the Aqua-Hot’s Access Cover
2. Remove the “Thermostat Access Panel”
3. Check the Diesel Burner’s “VDC High-Limit Thermostat” for continuity

NOTE: The indicator light will illuminate for only 30 seconds if the motor fuse is blown (open circuit)

1. Locate the JP8 Power Terminal (also labeled B4 in), on the bottom of the Electronic Controller. Using a Digital Volt Meter, verify that 12 VDC + is present on the JP8 terminal. If 12VDC + is not present either the metal jumper between terminals B4 in and +12V is not secure, or there is a fuse blown in the Motor Home.
2. Remove the Aqua-Hot’s Access cover.
3. Check the Motor’s in-line fuse for continuity. Replace if necessary.

NOTE: The Indicator light will illuminate for only 30 seconds if the motor fuse is blown (open circuit)

4. Attempt heater restart

1. Does the Interlock Switch Have Continuity.
2. Check DC power supply at the Electronic Controller.
3. Verify DC power at the Diesel Switch (0) terminal on the JP2 Plug on the electronic Controller.

Is the indicator light illuminated?

No

Yes

Is the Diesel Burner Status Light on the Electronic Controller Illuminated Green?

No

Yes

Is the Diesel Burner’s Motor Operating?

No

Yes

Is the Heating Status Light Illuminated Green?

No

Yes

Is the Heater up to operating Temperature? (I.E. above 155 °F.)

No

The Heater is Functioning Properly.

Yes

1. Remove the Aqua-Hot’s Access Cover
2. Remove the “Thermostat Access Panel”
3. Check the Diesel Burner’s “VDC High-Limit Thermostat” for continuity

NOTE: This thermostat protects against overheating temperatures.

1. Locate the JP8 Power Terminal (also labeled B4 in), on the bottom of the Electronic Controller. Using a Digital Volt Meter, verify that 12 VDC + is present on the JP8 terminal. If 12VDC + is not present either the metal jumper between terminals B4 in and +12V is not secure, or there is a fuse blown in the Motor Home.
2. Remove the Aqua-Hot’s Access cover.
3. Check the Motor’s in-line fuse for continuity. Replace if necessary.

NOTE: The Indicator light will illuminate for only 30 seconds if the motor fuse is blown (open circuit)

4. Attempt heater restart
Is there continuity across the thermostat?

NO

1. Reset the Thermostat, by pushing on the reset button in between the two wires.

NOTE: Aqua Hot operating temperature must be below 215 °F when checking the “High Limit Thermostat” for continuity, or attempting a reset

2. If the Thermostat cannot be reset, it will need to be replaced.

3. Attempt Heater Restart

Is there continuity across the thermostat?

NO

1. Replace Thermostat.

NOTE: Aqua-Hot operating temperature must be below 155ºF when checking the “VDC Control Thermostat” for continuity.

2. Attempt Heater Restart

Is the fuel flow consistent without air bubbles?

NO


2. Check the Aqua-Hot’s “Fuel Filter” for clogging. Replace if necessary.


4. Attempt heater restart.

1. Check the Diesel Burner’s “VDC Control Thermostat” for continuity.

Yes

1. Turn the Control Switch Off.

2. Remove the fuel-line from the Aqua-Hot’s “Diesel Fuel Return” and place a short piece of fuel line in its place.

3. Put the opposite end of the fuel line in a container.

4. Place the probes of a DC Multi meter into plug locations, B-1(+) and B-2(-), of the Diesel Burner’s “Control Unit”. Also, measure the voltage across B-2 (-) and B-4 (+)

5. Turn the Control Switch ON.

6. Observe the fuel flow. Flow should be consistent without air bubbles.

1. Check the Electronic Controller for loose or damaged wires.

2. Inspect the Aqua Hot’s “Fuel Filter” for clogging. Replace if necessary.


4. Attempt heater restart.

1. Using a digital volt meter, Check both the C7 (I) and the C1(O) Terminals for 12 VDC, on the JP4 plug, on the Electronic Controller. If either wire does not have 12 VDC the Electronic Controller will need to be replaced.

NOTE: The only time both the C7 and the C1 wires will have 12VDC is when both the Diesel Burner Status Light and the Heating Status Lights are illuminated on the Electronic Controller.

6. The motor may either be bad, or have a flat spot. Hot wire the motor by locating the C-plug and put power to the C-5 pin, and a ground to the C-2. If the motor does not run the motor is bad.

Note: Test the motor several times to find a flat spot. Apply power and take it away to test.

1. Check the Electronic Controller for loose or damaged wires.

2. Inspect the Aqua Hot’s wire Harness for loose or damaged wires.

3. If nothing is found with the wiring, the Electronic Controller will Need to be replaced.
1. Check the voltage level of the DC-multi meter.

NOTE: Voltage level should be within 0.5 volts of the system’s DC battery voltage.

Does the DC multi-meter indicate acceptable system voltage?

Yes

1. Turn the Control Switch OFF.
3. Detach the “Diesel-Burner Head” from the Aqua Hot.
4. Disconnect one of the wires from the “Fuel Solenoid Valve”

NOTE: Do not remove or cut any of the external wires attached to the “Diesel Burner Head”.

1. Inspect the “Flame Detection Photocell” for dust and/or sooty carbon deposits. Clean if necessary.
2. Completely cover the “Flame Detection Photocell” with a shop rag.
3. Turn the Control Switch ON. After approx. 20 seconds of operation a bright blue arc (spark) should appear across the “Ignition Electrodes”.

1. Do not attempt to restart the Aqua Hot when the “Diesel Burner Head” is detached. An open flame can result and cause serious personal injury.
2. To prevent a fire hazard, be sure to disconnect one of the “Fuel Solenoid Valve” wires.
Does a spark appear across the Ignition Electrodes?

Yes

Remove shop rag from the “Flame Detection Photocell”, exposing it to a light source. The spark should disappear.

NO

Does a spark disappear after the Photocell is exposed to

Yes

1. Replace the “Flame Detection Photocell”.
2. Reconnect “Fuel Solenoid Valve”.
3. Reattach “Diesel Burner Head” and attempt heater restart.

Cover “Flame Detection Photocell” again with a shop rag. The spark should reappear and continue for approx. 15 seconds and then switch off.

NO

Within 15 seconds, after turning ON the Control Switch, disconnect one of the two wires from the “Flame Detection Photocell”. A spark should now appear across the “Ignition Electrodes”.

Does a spark appear across the Ignition Electrodes?

Yes

1. Turn the Control Switch OFF.
2. Check “Flame Detection Photocell” for proper operation by: Removing both wires from the Photocell and covering with a shop rag. When dark, Photocell wire leads should read 300,000 ohms, or greater, of electrical resistance. Remove shop rag and expose to light; electrical resistance should be 200 ohms or less.

NO

1. Replace the “Control Unit”.
2. Reconnect “Flame Detection Photocell” wires and “Fuel Solenoid Valve” wire.
3. Reattach “Diesel Burner Head” and attempt heater restart.

Yes

Does the Photocell operate properly?

NO

1. Replace “Control Unit”.
3. Reattach “Diesel Burner Head” and attempt heater restart.

Yes

Does the Ignition Coil operate properly?

NO

1. Replace “Ignition Coil”.
3. Reattach “Diesel Burner Head” and attempt heater restart.

Does the Photocell operate properly?

Yes

1. Replace “Control Unit”.
3. Reattach “Diesel Burner Head” and attempt heater restart.
Does the spark reappear?

1. Turn the Control Switch OFF.
2. Reconnect “Fuel Solenoid Valve” wire.
3. Remove both ignition wires from the “Ignition Electrodes” or connect a jumper wire across the Electrodes.

**DANGER!** To prevent a HIGH VOLTAGE shock and or a fire hazard, be sure to remove both “Ignition Electrodes” (tape the ends and separate the wires) or connect a jumper wire across the Electrodes.

4. Turn the Control Switch ON. After approx 20 seconds the “Fuel Solenoid Valve” should receive power from the “Control Unit”. A fine mist of fuel should appear from the “Fuel Nozzle”.

Does the Solenoid Valve operate properly (click)?

1. Replace “Fuel Solenoid Valve”.
2. Retest fuel flow (without Fuel Nozzle).
3. Install “Fuel Nozzle”.
4. Retest Fuel Nozzle spray pattern (fine mist of fuel present?).
5. Reconnect Ignition wires to “Ignition Electrodes” or remove jumper wire.
6. Reattach “Diesel Burner Head” and attempt heater restart.

Does a mist of fuel (Cone-Shaped) present?

Yes

1. Turn the Control Switch Off.
2. Reconnect ignition wires to “Ignition Electrodes” or remove jumper wire.
3. Reattach “Diesel Burner Head” and attempt heater restart.

NO

1. Replace “Fuel Solenoid Valve”.
2. Retest fuel flow (without Fuel Nozzle).
3. Install “Fuel Nozzle”.
4. Retest Fuel Nozzle spray pattern (fine mist of fuel present?).
5. Reconnect Ignition wires to “Ignition Electrodes” or remove jumper wire.
6. Reattach “Diesel Burner Head” and attempt heater restart.

NO

1. Turn the Control Switch OFF.
2. Check “Fuel Solenoid Valve” for proper operation by: Removing both wires from the Solenoid Valve and applying VDC Power (+) and ground (-) to the Solenoid Valve electrical terminals. “Fuel Solenoid Valve” should click when VDC power is applied.

NO

Does fuel flow freely from the port?

1. Turn the Control Switch Off.
2. Remove “Fuel Nozzle”.
3. Turn the Control Switch ON. After approx. 20 seconds fuel should flow freely from the fuel nozzle port.

Yes

1. Turn the Control Switch OFF.
2. Reconnect “Fuel Solenoid Valve” wire.
3. Remove both ignition wires from the “Ignition Electrodes” or connect a jumper wire across the Electrodes.
1. Check “Fuel Solenoid Valve” wires for continuity. Replace wires if necessary.
2. Replace “Control Unit” if wires indicate continuity.
3. Retest fuel flow (without Fuel Nozzle)
4. Install “Fuel Nozzle”.
5. Retest Fuel Nozzle spray pattern (fine mist of fuel present?).
6. Reattach “Diesel Burner Head” and attempt heater restart.

1. Turn the Control Switch OFF.
2. Replace “Fuel Nozzle”.
3. Retest Fuel Nozzle spray pattern (fine mist of fuel present?).
4. Reconnect ignition wires to “Ignition Electrodes” or remove jumper wires.
5. Reattach “Diesel Burner Head” and attempt heater restart.

NOTE: If an improper fuel spray is still observed (a normal spray pattern should be observed as a coned-shaped mist) the Diesel Burner’s “Fuel Pump” should be calibrated for the proper fuel pressure setting.

End of Troubleshooting Flow Chart.
For additional troubleshooting information please contact:
Aqua Hot Heating System’s Service Department at 303-659-8221
Mon-Fri
7:00 a.m. - 4:00 p.m.
This manual has been provided courtesy of My RV Works, Inc.

www.myrvworks.com

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Over the years of running a mobile RV repair service, having a dedicated place to access service manuals for all the different appliances and components found on RVs was something that I always had a desire to create.

I hope this resource makes your RV repairs easier, as it has mine, but please be careful and follow proper safety practices when attempting to repair your own RV.

If in doubt, please consult with a professional RV technician!

DARREN KOEPP - OWNER, MY RV WORKS, INC.

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