



Oil Miser 148, BS-36UFF - 25 Second Warning Lamp

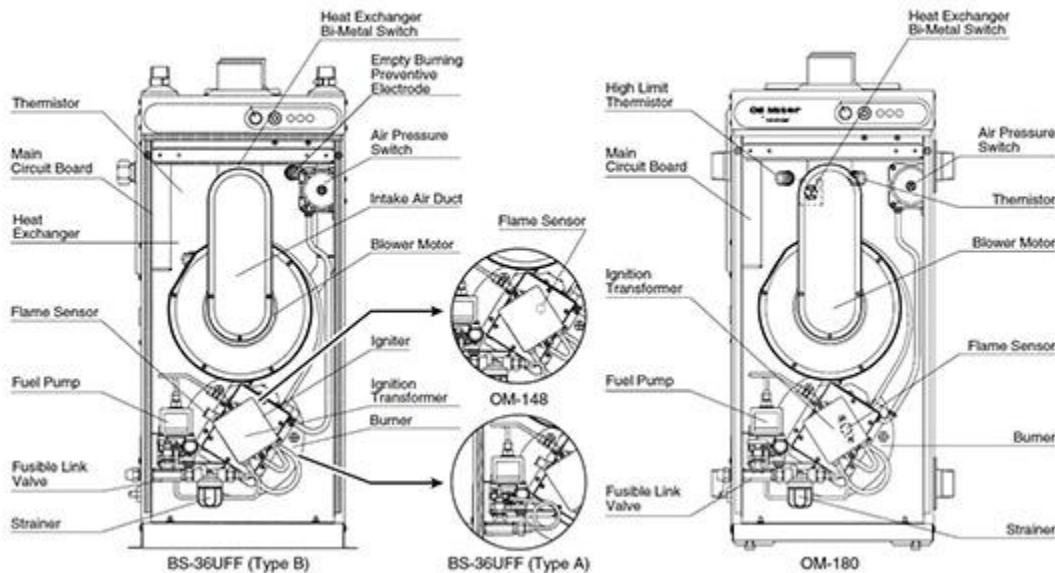
WARNING

Rural Energy Enterprises, Inc. does not accept liability for the improper use of this information. Installation, service, and maintenance of heating equipment should be performed by a qualified technician. Improper installation, adjustment, alteration, service, or maintenance can cause property damage, personal injury, or loss of life.

Problem: heater shuts down and yellow warning lamp lights approximately 10 to 30 seconds after red burner lamp lights.

Most of warning light problems can be resolved by performing routine maintenance. See technical documents "How to Clean the Heat Exchanger," "Burner Service-Setting Electrodes," and "Setting Fuel Pump Pressure."

CONSTRUCTION



When trouble shooting the 25 second warning light, observe the following conditions: Is there a sound of combustion (hot exhaust pipe) when the red burner light comes on? Does the fuel pump vibrate quietly, loudly or not at all?

Generally, five conditions will cause a 25 second warning light:

1. **No sound of combustion (cold exhaust pipe) when the burner lamp lights and fuel pump vibrate loudly.**

Cause:

- No fuel to fuel pump.

2. **No sound of combustion (cold exhaust pipe) when the burner lamp lights and fuel pump does not vibrate.**

Causes:

- High limit bi-metal switch open (connector BS(P) on MCB) - manually reset
- Air pressure switch open or connecting hose crimped (pg.16). There should be a wire on the two outside spades: common (lowest spade) and a N/O. No wire on middle connection.
- Temperature fuse open. Connector TF(Q) should have continuity. If not, replace.
- Fuel pump failure (~ 68 ohms).
- Main circuit board failure (There should be less than 90 VAC at connector FP(F) when burner lamp lights). Note: See #4, test procedure for operating system with flame sensor exposed to light. This will allow more time for taking the voltage test.

3. **No sound of combustion (cold exhaust pipe) when the burner lamp lights and fuel pump vibrates quietly.**

Causes:

- Main circuit board failure (There should be less than 90 VAC at connector FP(F) when burner lamp lights). Note: See #4, test procedure for operating system with flame sensor exposed to light. This will allow more time for taking the voltage test.

- Plugged fuel nozzle.
- Ignition transformer failure
- Electrodes dirty, burned or out of adjustment
- Incorrect fuel pump pressure
- Fuel pump failure.
- Air intake pipe blocked.
- Combustion blower failure. Connector BL(G) on MCB should have 120VAC going to blower motor. If not, faulty MCB or transformer. If proper voltage is present but blower fan is not spinning, faulty blower motor or the wrong screws were used (too long) to attach the hotdog-shaped air intake duct cover between the air intake and the blower assembly (screw impinging upon fan blade).

4. Sound of combustion (hot exhaust pipe) when burner lamp lights and fuel pump vibrates quietly.

Causes:

- Flame sensor is not detecting light - clean and test resistance at plug FD(D) on MCB (dark \geq 100k ohms, in light \leq 30k ohms)
- Fuel nozzle plugged
- Burner top is covered with soot
- Heat exchanger plugged with soot
- Fuel pump pressure is incorrect

Test Procedure:

Flame sensor

- Test flame sensor for correct resistance at plug FD(D) on MCB (dark \geq 100k ohms, in light \leq 30k ohms) OR
- Remove flame sensor and cover light receiving surface.

- Start combustion sequence. When burner lamp lights and there is sound of combustion (hot exhaust pipe), expose the flame sensor to light. The water should reach set point and system should post-purge.
- When combustion sound stops, cover the flame sensor or the warning lamp will light after the approx. 60-second post-purge.

Air Pressure Switch

- Check connectors on air pressure switch. There should be a wire on the two outside spades: common (lowest spade) and a N/O. No wire on middle connection. OR
- Jumper the two wires on the air pressure switch.

5. Intermittent lockout - heater generally functions but occasionally is found with warning lamp on; technician cannot reproduce problem.

- Fuel line restriction (plugged filter, bent fuel line, ice plug, etc.)
- Leak in fuel line fitting(s) (test by wiping every fitting with a dry paper towel, wait 30 minutes, wipe fittings again with a clean paper towel... if you have any oil on the paper towel, you have found the leak.)
- Hole in flue's inner wall
- Exhaust gases are being pulled into the fresh air pipe
- Flame sensor - clean and test resistance at plug FD(D) (dark $\geq 100k$ ohms, in light $\leq 30k$ ohms)
- Fuel pump pressure out of adjustment
- Electrodes out of adjustment