SUBURBAN RV FURNACE

SF-QA / SF-FQA SERIES

SERVICE MANUAL





TROUBLE SHOOTING GUIDE

Suburban AGA Certified RV 12VDC Furnaces with Fan Control Module Boards

			-	
Thermostat closes and supplys 12VDC to furnace blue wire	No→	Check thermostat wire connections, contact points and heat anticipator (if equipped) NO ■	YES→	Clean points, secure loose connections, replace thermostat if anticipator is shorted
YES ♥		Check for 12VDC at furnace blue wire, check the amp draw to the thermostat	YES→	Replace Thermostat
¥		NO ↓ Check for shorts, check components amperage	YES→	Repair or replace connection or parts with higher than normal amp draw.
¥		NO ↓ Check for 12VDC at power terminal on module board	NO→	Check ON/OFF switch on furnace, check for 12VDC at fuse or circuit breaker supplying power to furnace
¥			l	
Blower is operating upon a call for heat		Check for 12VDC on module board red wire leading to motor	NO→	Check that micro switch circuit is open (motor will not run if micro switch is closed prior to a call for heat (stuck in closed position)
Ψ		YES Ψ		YES ↓
YES		Check board and motor ground wires on terminal block	YES→	Replace the module board after bench test confirmation of motor operation by applying 12VDC directly to motor power wire
Ψ			· I	
Motor is operating	No→	Reset thermostat, is motor operating? Check for 12VDC at blue wire on Molex edge connector at module board	NO→	Verify voltage through limit switch and sail switch, if circuit remains open for 30 seconds after a call for heat the module board will go into lockout and shut the motor down . Replace defective part and reset thermostat
YES ↓	ĸ	←YES	l	
After 15 seconds the module board begins a trial for ignition (creates spark and energizes the gas valve)	NO→	Check for 12VDC between the red and yellow wires at the module board	YES→	Check terminal connections at module board, electrode wire and gas valve. Check electrode probe gap to ground, should be 1/8"
Ψ		NO ↓		
•		Check for 12VDC to limit switch and then for 12VDC through limit switch.	NO→	If no 12VDC to limit switch inspect wiring connections, replace limit switch if 12VDC to switch yet no 12VDC through switch.
↓		YES Ψ	· !	
Ψ		Check for 12VDC to sail switch and then through sail switch	NO→	If no power to sail switch check wire connections, replace sail switch if 12VDC to switch yet there is no 12VDC through switch while motor is running.
Spark occurs for approximately seven (7) seconds and main burner ignites	NO→	Is there spark at electrode?	NO→	Replace module board
4		YES ↓ Check for 12VDC at gas valve during trial for ignition	YES→	Measure resistance through each solenoid on gas valve. (30 - 50 Ohms) Replace valve if it doesn't open
		NO ↓		
4		Check for 12VDC to the pressure switch and then through the pressure switch during operation.	NO→	If no 12VDC to pressure switch replace module board,. If no 12VDC through pressure switch inspect for and correct any restrictions in, pressure switch hose, vent tube and combustion air housing, replace pressure switch if defective
4		Did the gas valve open?	NO→	Check gas pressure at the manifold or for restrictions in the burner orifice
•		YES ♥ Check for restrictions on combustion air intake (wasps, insects, etc.)	NO→	Replace the gas valve
		NO ↓	l	
•		Is flame established?	NO→	Check flame impingement at electrode, flame shoule be blue
Ψ			l	YES
Thermostat opens and the module board operates the fan through a cool down cycle	NO→	Replace the module board		Ψ
YES			•	Replace Electrode

SYSTEM OK

ELECTRODE ADJUSTMENT

For consistent ignition of the burner, it is important that the electrode be positioned properly over the top of the burner. The electrode was set at the factory for proper ignition and should not need further adjustment; however, if you should experience inconsistent ignition, reposition electrode as follows:

Equipment needed: flashlight • black felt-tip pen • needle-nose pliers, measuring tape NOTE: Furnace must be removed. (See instructions for removing unit.)

- Remove burner from combustion chamber by removing six (6) screws which attach the burner to the chamber and air baffles (plates).
- 2. Locate the lance in relation to the burner ports for electrode positioning by:
 - a. Shine a flashlight into the burner venturi as illustrated. (Be sure flashlight lens is against the end of the burner.)
 - **b.** Light will reflect off the lance in the venturi of the burner and shine through a portion of the two (2) rolls of burner ports in the top of the burner.
 - c. Using a black felt-tip pen, mark a line along top of burner 4.8mm in back of the lance and parallel with lance. Make an additional mark indicating the center line of the lance. (See illustration.) Both marks will be used later as reference marks; therefore, keep lines thin.

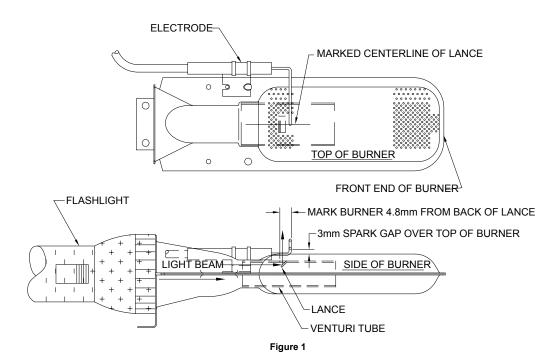
- 3. Reassemble the burner.
- 4. Adjust electrode so the electrode probe is positioned along the marked center line of the burner lance and the tip of the electrode terminates 4.8mm from the back of the lance. (At the line marked in Step 2-c.) (See Figure 1.)
- IMPORTANT: Be sure electrode probe maintains a 3mm spark gap over the burner as illustrated.
- 6. Reinstall the furnace into the cabinet following the instructions in the manual.

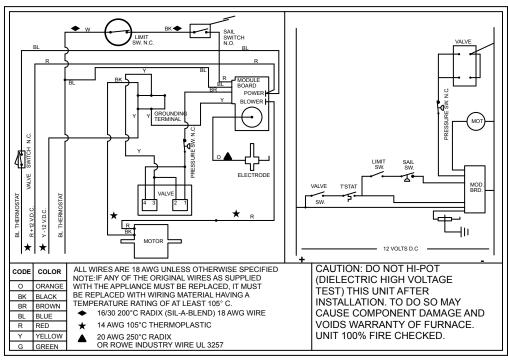
PARTS AND SERVICE

To order parts or obtain service, contact:

Coast to Coast RV Services Pty Ltd. 20 GEORGE YOUNG ST AUBURN NSW 2144 Australia Phone: (02) 9645 7600

Fax: (02) 9645 7688





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