This is a service guide designed by SHERWOOD INDUSTRIES LTD. We hope this manual will assist you to identify and correct operational concerns you might experience in all ENVIROGAS appliances. This service guide is designed for TRAINED SERVICE TECHNICIANS AND INSTALLERS. This guide is NOT to be used by the homeowner. If after reading this guide and following our recommendations and the problem still exists, please do-not hesitate to call our technical department.

Technical Division
SHERWOOD INDUSTRIES LTD.

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SUGGESTED TOOLS LIST FOR SERVICING

GAS LEAK DETECTOR
MANOMETER
MULTIMETER
CORDLESS DRILL
WIRE STRIPPER/CRIMPER
WRENCHES, STANDARD AND METRIC
SCREWDRIVERS (TORX T20)
METAL SNIPS
JUMPER WIRES
NUMBERED DRILLS ((DMS))
1. PILOT WILL NOT LIGHT NO SPARK

A) IGNITION SYSTEM

Make sure that wires are not broken, frayed and that all connections are tight at both the piezo ignitor and electrode.

Replace with only manufacturers parts

Make sure that ceramic on the electrode is not broken. Carefully try to spin the porcelain.

IF IT DOES, replace electrode.

Make sure a 1/8” (3.175mm) gap is maintained between electrode and pilot hood. SEE PAGE 2 FIGURE 1.

Replace electrode.

Make sure the piezo ignitor is not loose.

Retighten hex nut on back of the ignitor and make sure bracket is secure on the valve.

Make sure piezo ignitor is working properly. Place a screwdriver next to ignitor, and press ignitor. If it sparks, OK.

IF IT FAILS, replace piezo ignitor.
A 1/8" Gap must be maintained between the pilot hood and the electrode. If a 1/8" gap is not maintained the spark will not jump to the pilot hood.

SOME DETAILS HAVE BEEN OMITTED FOR CLARITY

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The pilot flame should be totally engulfing the Thermocouple for proper output. For best results, the pilot flame should also be totally hitting the Thermopile.
B) PIEZO IGNITOR OK BUT PILOT WILL STILL NOT LIGHT

Make sure all gas lines have been connected with no leaks.

Correct if necessary, test for gas leaks in an approved manner.

Make sure that the gas is “ON” (NG) Natural gas and (LP) Propane tanks are full.

Correct if necessary.

Make sure the appliance service valve is in the “ON” position.
SEE PAGE 4 FIGURE 3.

Turn service valve to the “ON” position.

Test to make sure there is no air in the gas line.
SEE PAGE 4 FIGURE 3.

Use a match to see if air or gas comes from the pilot assembly.

Make sure that the valve has not reset itself.
(All valves have an interlock safety device.)

Wait 60 seconds for the safety to reset itself.

Make sure pilot injector is not clogged.

Clean the pilot injector if necessary.
**PILOT ASSEMBLY S.I.T NOVA 820 SERIES**

**To remove pilot injector:**

Remove the two screws that hold the pilot assembly to the burner control assembly.

Lift the assembly straight up being careful not to damage any components.

Using a 10 mm wrench undo the securing nut on pilot tubing and pull tubing down to access injector. Being careful not to damage the ceramic spark electrode.

Replace the injector and reinstall the pilot tubing, always to perform a gas leak test before lighting the pilot assembly.

The number on the side of the injector will determine the size. This number is in millimeters.

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**EXPLODED VIEW S.I.T PILOT ASSEMBLY**

To remove pilot injector:

Remove the two screws that hold the pilot assembly to the burner control assembly.

Lift the assembly straight up being careful not to damage any components.

Using a 10 mm wrench undo the securing nut on pilot tubing and pull tubing down to access injector. Being careful not to damage the ceramic spark electrode.

Replace the injector and reinstall the pilot tubing, always to perform a gas leak test before lighting the pilot assembly.

The number on the side of the injector will determine the size. This number is in millimeters.
TESTING INLET AND OUTLET GAS PRESSURES

DIAL (GAUGE) MANOMETER

UNDO SET SCREW WITH A SMALL FLAT SCREWDRIVER, YOU DO NOT HAVE TO REMOVE THE SCREW.
TURN THE SCREW (2) TWO Turns DO NOT REMOVE THE SCREW

INLET PRESSURE TAP

OUTLET PRESSURE TAP

TUBE MANOMETER

3.5" wc BELOW 0
3.5" wc ABOVE 0
INLET GAS PRESSURE
7" wc (NG) NATURAL GAS

NO PRESSURE

1.75" wc BELOW 0
1.75" wc ABOVE 0
OUTLET GAS PRESSURE
3.5 " wc (NG) NATURAL GAS

USE DISTILLED WATER ONLY

SUPPLY PRESSURES

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<th>PROPAINE GAS</th>
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<td>33% TURN DOWN</td>
<td>MAX SUPPLY PRESSURE 7&quot; wc</td>
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<td>MIN SUPPLY PRESSURE 4.5&quot; wc</td>
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CHECKING THERMOPILE FOR PROPER VOLTAGE
Place the leads of the multimeter on the TP/TH and TP terminals on the valve as shown.
With the switch in the “ON” position, the readings should be approximately 190mV DC (this an average reading) or greater for proper Thermopile operation.
The main burners may not come ON if the readings are less than 145mV DC.
If a thermostat has been installed. Place the ON/OFF/THERMO switch in the THERMO position; place the leads of the multimeter on the TP/TH and TH terminals on the valve or on the connections at the thermostat.
MV reading should be higher than 190 mV DC for proper valve operation.
THESE READINGS SHOULD BE CONSTANT WITH NO FLUCTUATION.

CHECKING THERMOCOUPLE FOR PROPER VOLTAGE
Place one lead from the multimeter on the thermocouple lead, and the other lead from the multimeter on the back of the valve where the blue wire is soldered to the valve. These readings should be between 8 and 16mV DC. If these readings are 2 to 6 mV DC, the Thermocouple should be replaced.

When using a S.I.T EUROSIT 630 SERIES gas valve, place one lead from the multimeter on the thermocouple lead and the other lead into the adapter located on the back of the valve, there are two blue wire a inserted into this adapter.
2) PILOT WILL NOT STAY LIT

Make sure the gas pressure is correct for type of fuel you are using. SEE PAGE 5 FIGURE 7.

Use a manometer on the inlet side of the valve to measure gas pressure. Adjust inlet pressure or contact your gas supplier.

Make sure pilot flame is engulfing the top 3/8” of the thermocouple. SEE PAGE 2 FIGURE 2.

Thermocouple should be the same height as the pilot hood.

Make sure the gas pressure is correct for type of fuel you are using.

Adjust pilot as required.

Make sure thermocouple connections on valve are tight. DO NOT OVER TIGHTEN!!!

Check for clogged pilot injector.

Make sure thermocouple connections on valve are tight. DO NOT OVER TIGHTEN!!!

Thermocouple connections should be hand tight plus 1/4 turn.

Clean thermocouple ends with Emery cloth or an abrasive sponge. DO NOT USE A METAL FILE. Replace if damaged.

Make sure the thermocouple line has no kinks and is clean on both ends. Also check the thermocouple for damage.

Make sure pilot flame is engulfing the top 3/8” of the thermocouple. SEE PAGE 2 FIGURE 2.

Clean thermocouple ends with Emery cloth or an abrasive sponge. DO NOT USE A METAL FILE. Replace if damaged.

Make sure the thermocouple has proper voltage (DC VOLTAGE).

Using a multimeter, insert adapter between valve and thermocouple, if the readings are less than 2 TO 6 mV DC, replace thermocouple. SEE PAGE 6 FIGURE 8.
S.I.T EUROSI T MODULATING 630 SERIES

Pilot Adjust Screw

Manifold Pressure tap

Inlet Pressure Tap

Gas Control Knob

S.I.T NOVA 820 SERIES

Pilot adjustment

Main gas control valve must be in the "ON" position

Hi-low flame adjustment

FIG: 6
3) MAIN BURNERS WILL NOT LIGHT

Make sure gas valve knob is in the “ON” position. SEE PAGE 8 FIGURE 6.

Correct if necessary. Turn valve to the “ON” position.

Make sure that the “ON-OFF THERMO” switch is in the “ON” position.

Turn switch “ON”.

Make sure that the thermostat is “NOT” in the lowest position.

Turn thermostat “UP”.

Make sure that all control wires are not damaged, broken or frayed and that all wire connections are tight.

Replace damaged wires as necessary. Gently squeeze connectors with a pair of pliers and reinstall wires.

Make sure that the thermopile connections are tight on the valve.

Tighten the two screws on valve if necessary “TP/TP-TH” terminals on valve.

Make sure millivolt readings from thermopile are within manufactures specifications. MAKE SURE MILLIVOLT READINGS ARE CONSTANT. SEE PAGE 6 FIGURE 8.

Place leads of multimeter on the “TP/TH-TP” terminals on gas valve. If the readings are less than 145mV DC, replace thermopile.

Continued on next page.
Check spill switch operation on B-vented models only SEE PAGE 10 FIGURE 9.

Bypass spill switch with a jumper wire as shown. If the unit starts, replace the spill switch. DO NOT LEAVE BYPASSED IN.

Check the “ON-OFF” switch and thermostat for proper operation.

Use a jumper wire. If the unit starts, replace switch if necessary.

Make sure that the main burner orifices are not clogged or damaged.

Remove the top tray. Remove orifice and clean. Replace if damaged.

Spill Switch
Located in the dilution air outlet
At the base of the draft hood

1/4” spade connector

Disconnect the two 1/4” spade connectors from the spill switch. Place a jumper wire between the two blue wires and then turn the unit back “ON”.

DO NOT LEAVE THE SPILL SWITCH DISCONNECTED
Replace spill switch if necessary.

FIG: 9
4) MAIN BURNERS WILL NOT STAY LIT

- Make sure pilot flame engulfs the thermopile and does "NOT" have a yellow luminous flame. **SEE PAGE 4 FIGURE 4.**
- Adjust pilot if necessary.
- Check outlet gas pressure.
- Check for clogged pilot injector or blocked air inlet.
- Using a multimeter check thermopile. If not constant replace thermopile.
- Make sure millivolt readings from thermopile are constant.
- Correct if necessary.
- Correct if necessary.
- Make sure all wiring is not damaged or broken and all connections are tight.
- By pas spill switch. If unit starts, replace spill switch.
- B-VENTED MODELS
  - Check spill switch.
  - Check to make sure the vent is drafting properly.
  - Check for spillage. **SEE PAGE 12.**
  - Correct if necessary.
- Make sure all venting meets manufacturers specifications as well as local gas and building code requirements.
- Correct if necessary.
- Check chimney for blockage or restriction.
- Correct if necessary.
EXHAUST GASES SPILLAGE TEST

This is an illustration showing how to test for spillage of a B-Vented gas Fireplace. Some details have been omitted for clarity.

FREESTANDING B-VENTED MODELS ONLY

Place a match behind the dilution air outlet located on the back of the stove

If the match flame gets pulled into the dilution air outlet there is no spillage

If the match flame gets blown away from the dilution air outlet, the chimney is NOT venting

B-VENTED FIREPLACE INSERT MODELS ONLY

If the match gets pulled into the tube NO spillage

If the match gets blown away from the tube, the chimney is NOT venting
SAMPLE DIRECT VENT CHIMNEY INSTALLATIONS
ALL MODELS

THROUGH ROOF INSTALLATIONS

THOUGH WALL INSTALLATION

SPECIAL NOTE: Please see owners and operators manuals for clearance to combustibles, as well as venting restrictions for the particular model that you might be using.
SAMPLE B-VENTED CHIMNEY INSTALLATIONS
ALL MODELS

THROUGH ROOF INSTALLATION

FREESTANDING MODEL INTO CHIMNEY

MASONARY FIREPLACE INSTALLATION
INSERT MODELS MUST BE FULLY LINED AND SEALED

Sherwood Industries Ltd. ENVIRO PAGE 14
### 5) SOOTING

<table>
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<th>Step</th>
<th>Action</th>
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<tbody>
<tr>
<td>Make sure log placement is in the correct location.</td>
<td>Correct to manufactures specifications.</td>
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<tr>
<td>Make sure there is sufficient air supply.</td>
<td>Correct if necessary.</td>
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<tr>
<td>Check air shutter on the venturi tube for proper primary air adjustment.</td>
<td>Increase primary air.</td>
</tr>
<tr>
<td>Make sure orifice matches that on the rating plate.</td>
<td>Correct if necessary.</td>
</tr>
<tr>
<td>Make sure outlet (manifold) pressure is correct.</td>
<td>Use a manometer to check the gas pressure.</td>
</tr>
<tr>
<td>Make sure the unit has been derated for high altitude applications.</td>
<td>Correct if necessary.</td>
</tr>
<tr>
<td>(if required)</td>
<td></td>
</tr>
<tr>
<td>Check to make sure that the vent is drafting properly.</td>
<td>Correct if necessary.</td>
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</table>
IF THE AIR SHUTTER IS OPENED WIDER, THE FLAME COULD APPEAR ALMOST ALL BLUE WITH FLAME LIFTING BEING THE END RESULT IF OPENED TOO MUCH

WITH THE AIR SHUTTER SET PROPERLY, THE FLAME WILL SIT ON THE BURNER PORT AND THE FLAME PATTERN WILL START AT THE BOTTOM WITH A BLUE FLAME THEN TURNING TO A WHITE ALMOST YELLOW FLAME WITH A SLIGHT ORANGE EDGE

AS THE AIR SHUTTER IS CLOSED, THE FLAME COULD APPEAR TALLER WITH A VERY LAZY BLACK ORANGE TIPPED FLAME PRODUCING CARBON (SOOT)
6) FLAME LIFTING

A) B-VENTED MODELS

Check air shutter on the burner tube (venturi).

Adjust air shutter, by closing shutter. DO NOT GO TOO FAR OR THE UNIT WILL SOOT.

Make sure there are no leaks in the venting system.

Seal venting if necessary.

Improper venting configuration.

Correct if necessary.

Make sure that manifold (outlet). Pressure is correct.

Use a manometer to check gas pressure. SEE PAGE 5 FIGURE 7.
B) DIRECT VENT MODELS

Check air shutter on the burner tube (venturi).

Adjust air shutter. Close until flame sits onto the burner ports.

Make sure there are no leaks in the venting system.

Seal exhaust tube with high temperature silicone. Also make sure that combustion air pipe is sealed.

Make sure the unit is not recirculating flue products.

Check flue for blockage or high wind situations.

Make sure the gas pressure is correct for fuel being used.

Use a manometer to check gas outlet (manifold) pressure. SEE PAGE 5 FIGURE 7.

Make sure the orifice size is the same as the rating plate.

Correct if necessary.

Add a vent restrictor ring. SEE OWNERS MANUAL.

Only if necessary.
Check to make sure that the fan is plugged in.

Make sure the fan control knob is in the “ON” position.

Make sure the two wires are connected to the fan temperature sensor.

Make sure that the two wires are connected to the blower.

Make sure there are no broken, damaged or frayed wires.

Make sure that the fan sensor is secure and that it is not damaged.

Using a supply cord connected to the blower, plug the blower directly into wall outlet.

If the blower does not work, replace the blower.

By pass the fan temperature sensor with a jumper wire.

If the blower works, replace the fan temperature sensor.

By pass the fan controller with a jumper wire.

If the blower does not work, replace the fan controller.

MAKE SURE THAT THE FAN SENSOR IS AT OPERATING TEMPERATURE BEFORE TESTING THE FAN CONTROLLER.
## Orifice Sizing Chart

**NATURAL GAS**

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STEP BY STEP SERVICE INSTRUCTIONS

These appliances do require to be serviced. Our best recommendation is that the appliance be serviced (1) once a year, maybe just before the heating season starts.

Annual service should and inspection should include:

⇒ Open the two side panels or remove the face frame from the appliance. Vacuum all areas around the convection blower making sure there are no obstructions near the convection blower or in the impeller fan blades.
⇒ EG-95 inserts and freestanding fireplaces convection blowers do require lubrication. Use lightweight oil 20 SAE, 3 in 1 oil, or sewing machine oil (2 drops only). Too much oil will contract dust and dirt, which could cause premature breakdown of the convection blower.
⇒ Check all wiring for loose connections and damage to any of the wires.
⇒ Check to make sure that the flue is connected and that the flue is not plugged and that it is free from obstructions.
⇒ Also check to make sure that the fresh air, if installed, is not clogged and that it is free from obstructions.
⇒ Open the glass door by undoing the ½” bolt on the right hand side of the appliance, swing the door all the way open and gently lift the door of the two pins on the left hand side of the appliance.
⇒ Carefully remove the log set from the firebox. **NOTE:** The edges of the logs become brittle with heat over time so they could be damaged when removing the logs. Remove the glowing ember material making sure not to drop any of the ember material, which could drop into air passages or drop on the pilot assembly.
⇒ Inspect the pilot assembly for build up on the Thermocouple and Thermopile; also make sure that the pilot assembly has not been damaged.
⇒ Vacuum all areas inside the firebox in and around the burner tray, control panel and surrounding areas.
⇒ Carefully replace the logs and glowing embers into the firebox making sure that the log and ember material are in the correct location (refer to the owner and operators manual).
⇒ Inspect the door gaskets to make sure that it is not cracked broken or frayed. Place the door assembly back on the two pins on the left side of the appliance, close the door and tighten the ½” bolt on the right hand side, make sure that the gasket is fully sealed (*pay special attention to the corners of the bay window*). Visually check for a small gap, if there is a gap, open the door and fluff the gasket up a little, reinstall the glass and re inspect the gasket to make sure it has sealed.
⇒ Relight the appliance, before you turn the gas control knob to the “ON” position, do a millivolt reading from the thermopile. Turn the gas control knob to the “ON” position, before the main burners are turned “ON” do another millivolt reading at the thermopile to make sure there is no change.
⇒ Turn the switch to the “ON” position; check the millivolt readings at the thermopile make sure that the readings meet manufacturers specifications. Turn the unit “OFF”.
⇒ Install a manometer on the inlet side of the gas valve marked (E), re light the appliance make sure that the inlet pressure meets the manufactures specifications.
⇒ Shut the unit “OFF” once again and do an outlet (manifold) pressure test. Relight the appliance and make sure the outlet (manifold) pressure is within manufactures specifications.
⇒ FINALLY, check to make sure that the unit is venting properly by placing a match in the dilution air outlet or in the draft tube on insert models. If the match is blown out then there is some sort of restriction. Correct if necessary.

CLEANING THE APPLIANCE

Only use a very soft cloth an a non abrasive cleaner, DO NOT use any alcohol’s, mineral spirits, gasoline’s or abrasive cleaners.
⇒ When cleaning the glass there could be some stubborn material left on the glass, DO NOT use a scraper or abrasive cleaning agents on the glass because this could scratch the glass which in turn will make he glass weak at the point of the scratch. There is a glass cleaner that is specially designed for gas fireplaces, which can be purchased at your local dealer.
B-VENTED SYSTEM
A venting system using only approved double wall pipe and approved B-vent components. This system also uses room air for proper venting action through the dilution air inlet mounted on the back of the unit.

CONTINUITY TEST
By using a multimeter set on OHMS, is determined if the circuit is complete, or continuous (no break in the circuit).

DIRECT VENT SYSTEM
A venting system sealed from the structure for both the exhaust gases and fresh air supply.

ELECTRODE (ignition)
Receives spark from the piezo ignitor to light the pilot.

IGNITOR (piezo)
A component used to create an electrical spark to the electrode to light the pilot.

IMPINGEMENT
When flame comes in contact with physical components. Impingement can cause incomplete combustion resulting in carbon monoxide production as well as soot.

MANOMETER
Instrument used to measure gas pressure.

MILLIVOLT
One –one thousands (1/1000) of a volt (.001mV DC)

MULTIMETER
Instrument used to measure Volts. Amps, Ohms, (Volts DC, AC)

ORIFICE
A component that controls gas flow through the burners.

PILOT INJECTOR
A component that directs gas flow through the pilot assembly.

PRESSURE REGULATOR
A device used to maintain downstream gas pressure.

RATING PLATE
A plate in the appliance which shows all certifications and what type of fuel and what the appliance is rated for (example: BTU’s, gas type, serial#, etc.).

SOOTING
Carbon build up produced by incomplete combustion of the fuel being used.

SPILLAGE
When flue products do not properly exit the structure through the venting system.

SPILL SWITCH
A temperature sensitive switch designed to shut the appliance off in the case of improper venting action.

THERMOCOUPLE
A device used to generate power with heat from the pilot, up to 25mV DC.

THERMOPILE
A device used to generate power with heat from the pilot, up to 750mV DC.

VENTURI
Where gas and air are mixed before entering the burner tube.