PLEASE KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE

PROFLAME

TROUBLESHOOTING MANUAL

Proflame Valve System
For authorized gas technicians use only

Fr Version Française: www.enviro.com/fr.html

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Introduction

Use of This Guide

This guide provides an overview of the S.I.T. Proflame System with details of the function of each component, as well as a troubleshooting steps to a handful of possible problem scenarios. The purpose of this guide is to provide a tool to help educate and aid in the proper diagnosis of problems within the system to allow for the accurate replacement of components.

This manual is broken into three sections:

1. **Introduction** - An overview of the system, its components, and their functions.
2. **Troubleshooting** - Detailed steps to help diagnose the root cause of the issue within the system based on the observed problems. Refer to the Table of Contents for a list of the possible observed problems and where to find them in the manual.
3. **Testing** - Step-by-step instructions to test the performance of different components within the system. Based on the circumstance, different tests will be recommended within the Troubleshooting sections to diagnose the problem.

WARNING

This guide is for use by qualified service technicians only. Do not attempt to service appliances which you are not qualified to service. Service attempted by unqualified persons could result in the risk of bodily injury and property damage.

Communicating with the Owner

Prior to performing any troubleshooting steps within this guide, ask the owner a few simple questions to help diagnose the issue:

- What are the symptoms?
- When does the problem occur?
- How long has the appliance been installed?
- Model Number
- Serial Number
- Operating Gas (LP or NG)

The answers to these questions will help determine which scenario applies and what troubleshooting steps should be performed.

Valve Diagram

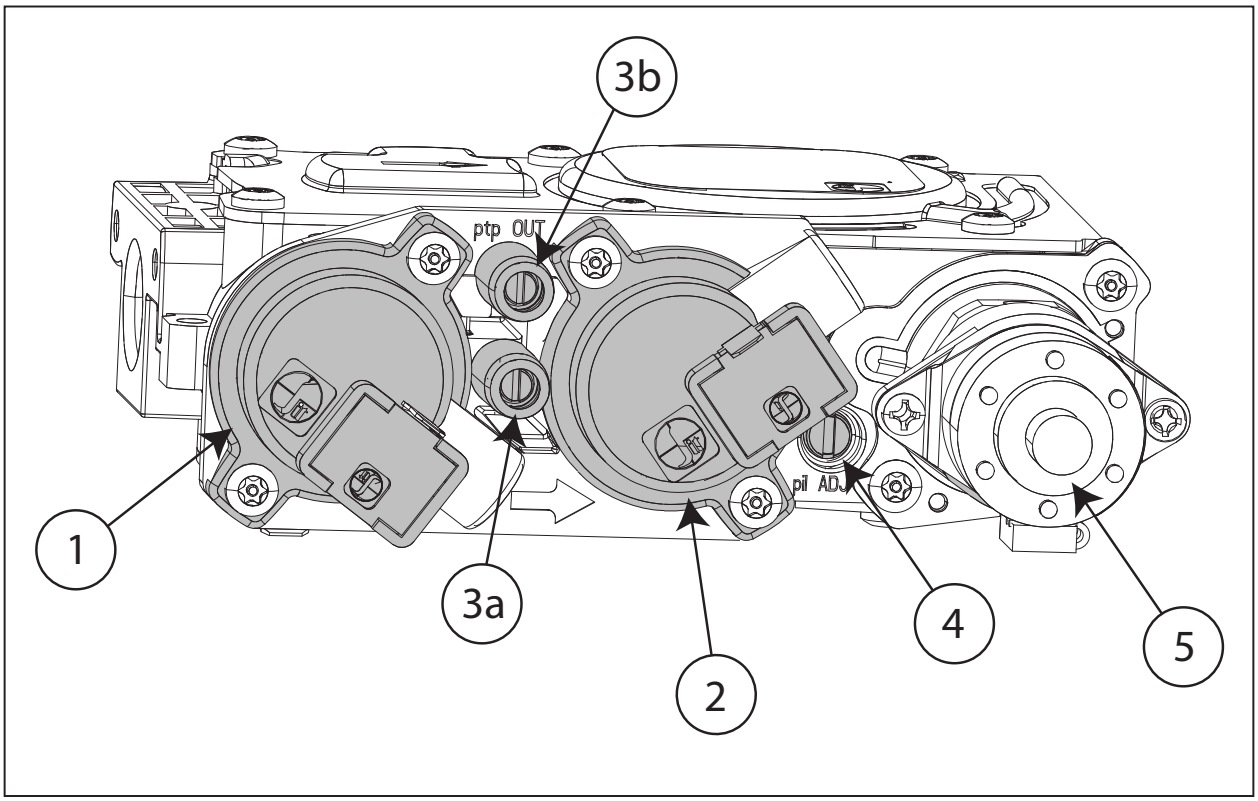

Figure 1: Proflame Valve Diagram

1. EV1 orange (Pilot Solenoid): Opens to release gas to the pilot. The IFC will send a pulse of 4-6 DCV for approx. 2 seconds, then will drop to 0.5-1 DCV (see Test 4 on page 24). EV1 orange Solenoid has a resistance of 340 Ohms (see Test 3 on page 23).
2. EV2 green (Main Burner Solenoid): If there is pilot rectification, valve opens to release gas to the burner. The IFC will send a pulse of 4-6 DCV for approx. 2 seconds, then will drop to 0.5-1 DCV (See Test 6 on page 25). EV2 green Solenoid has a resistance of 340 Ohms (See Test 5 on page 24).
3. Gas Pressure: Crucial for the Proper Functioning of an IPI Pilot Assembly. Always check input pressure with all gas appliances in the house ON (Full Load Check).
   - **a.** Inlet Pressure Test Point - Measures the line pressure of gas entering the valve.
     - **i.** NG 5.0" WC to 7.0" WC
     - **ii.** LP 11.0" WC to 13" WC
   - **b.** Outlet (Manifold) Pressure Test Point: This test point measures the gas pressure from the valve to burner orifices. EV2 must be energized/burner on.
4. Pilot Adjustment Screw: This is set by the manufacturer – do not adjust unless explicitly stated to.
5. Stepper Motor: Used to modulate the flame. The valve will function without the stepper motor, however, the flame height will not modulate. See Test 9 on page 26.

Integrated Fireplace Control (IFC) Diagram

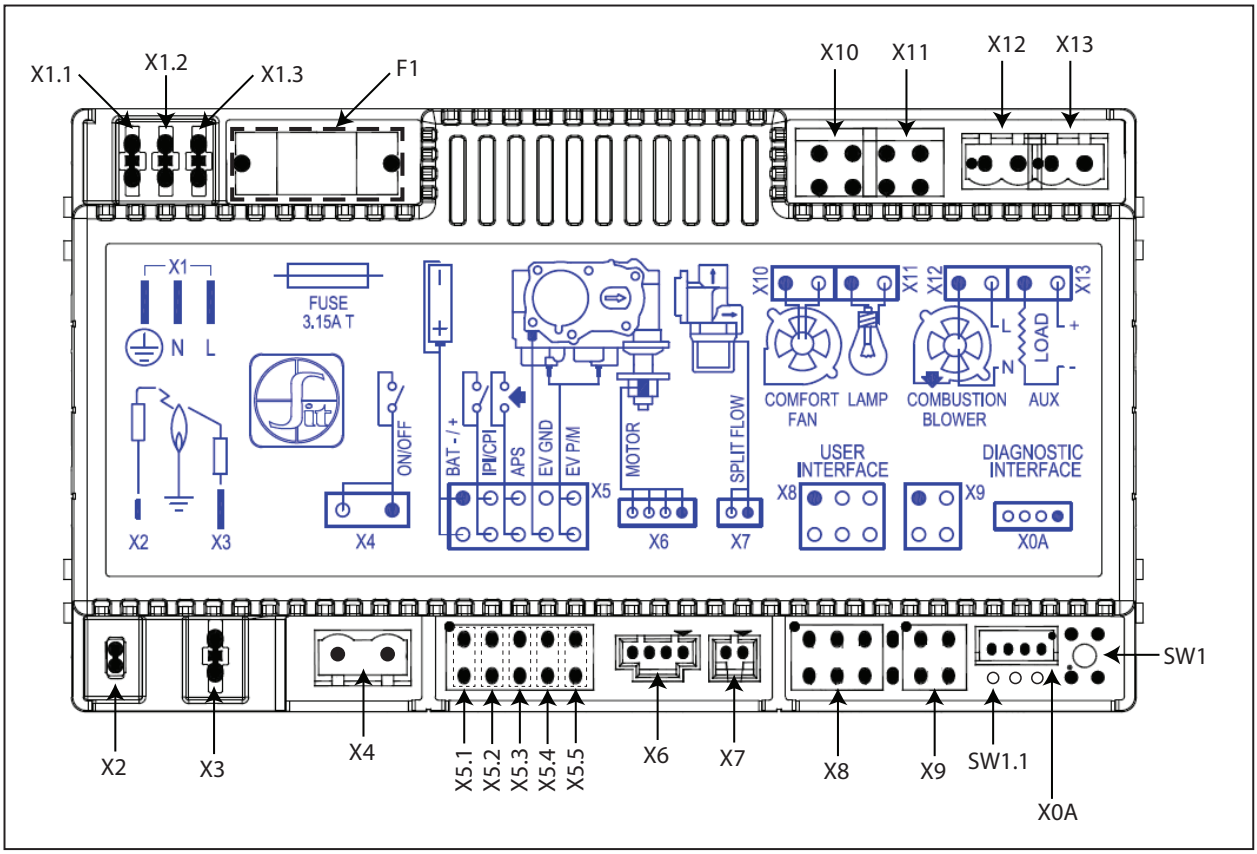

Figure 2: Integrated Fireplace Control (IFC) Diagram

X1.1 – Ground

X1.2 – Neutral

X1.3 – POWER

X2 – Ignitor

X3 – Flame sensor

X4 – Main burner ON/OFF switch (2-pin green block)

X5 – 10-pin harness

- **X5.1** – Battery Pack
- **X5.2** – IPI/CPI blue loop wire
- **X5.3** – Air Pressure Switch (APS) (Power vent)
- **X5.4** – EV Ground
- **X5.5** – EV P/M

X6 – Stepper motor (4-pin harness)

X7 – Split flow (2-pin harness)

X8 – Optional User Interface
Used for IFC Reset Button Extension

X9 – Optional RF/IR Adapter
(Unused by Enviro)

X0A – Optional Diagnostic Interface
Used for optional Wifi dongle (Urbana)

X10 – Variable speed comfort fan

X11 – Variable Light

X12 – Fixed Speed Fan

X13 – AUX Load

SW1 – IFC Reset Button

SW1.1 – Error Code LED

F1 – 3.15 Amp 5mm x 20mm Fuse

Integrated Fireplace Control (IFC) Wiring Diagram

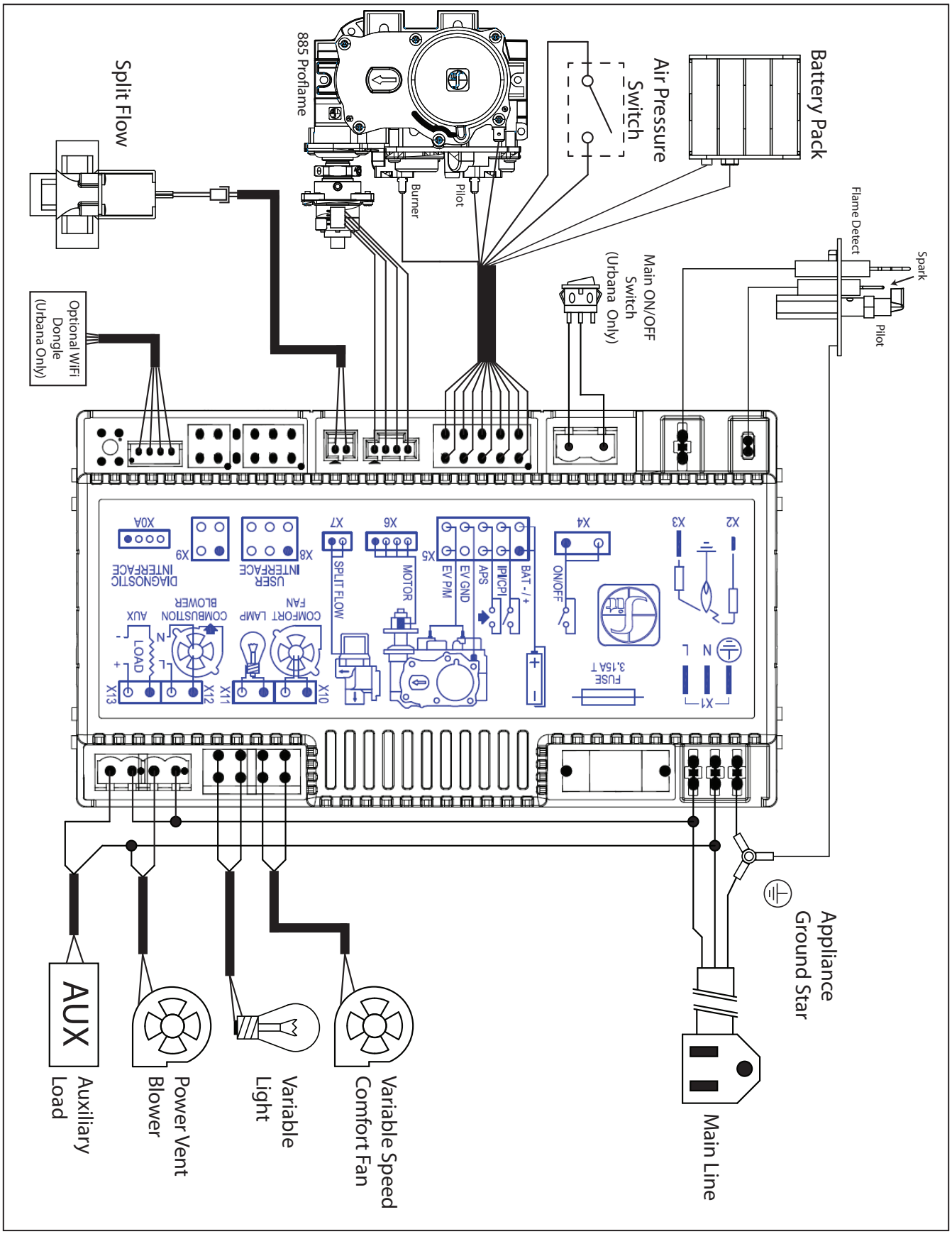

Figure 3: Integrated Fireplace Control (IFC) Wiring Diagram

Pilot Assembly Diagram

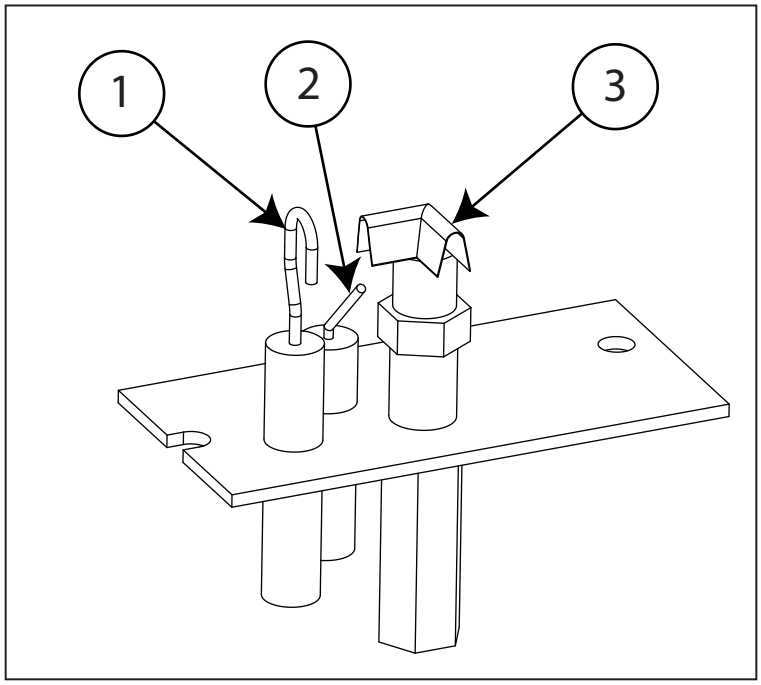

Figure 4: Pilot Assembly Diagram

1. Flame Sensor: Rectifies the pilot is lit and carries the voltage to the IFC module to stop sparking and allow main burner to open. Without rectification, ignitor will still spark and burner will not turn on.

2. Ignitor: Provides spark to the pilot hood.

3. Pilot Hood: Splits the flame into two for burner and flame sensor.

Initial Setup

Initializing the System for the first time

***Note:** These step should be performed prior to connecting the unit to AC Power (with the exception of Urbana products).

1. Install four AA batteries into the battery holder attached to the IFC. The IFC will "beep" three (3) times to indicate that it is ready to synchronize with a transmitter.
2. Install three AAA batteries in the back of the remote control. Be careful not to press any buttons while inserting the batteries.
3. (Urbana Units Only) Connect AC Power (120 volts, 60 Hz) to fireplace.
4. Press the "ON" button on the tramitter. The IFC will "beep four (4) times to indicate the transmitters command has been accepted. The system is now initialized.

To pair the remote to the IFC

1. Press the SW1 button on the IFC (see Figure 2). It will beep three (3) times and illuminate the amber LED to indicate that the IFC is ready to synchronize with a remote control.
   ***NOTE**: Some units have a separately located reset button for convenience. Refer to the units Owner's Manual for more information.
2. Within 10 seconds, push the ON button on the remote. The control module will beep four (4) times to indicate the remote is paired with the IFC.

Transmitter

The Proflame 2 Transmitter is a black remote control with a blue backlit lcd display. It uses a streamline design with a simple button layout and informative lcd readout (Figure 5). The Transmitter is powered by three (3) AAA type batteries. A Mode Key is provided to Index between the features and a Thermostat Key is used to turn on/off or index through Thermostat functions (Figure 5 & Figure 6).

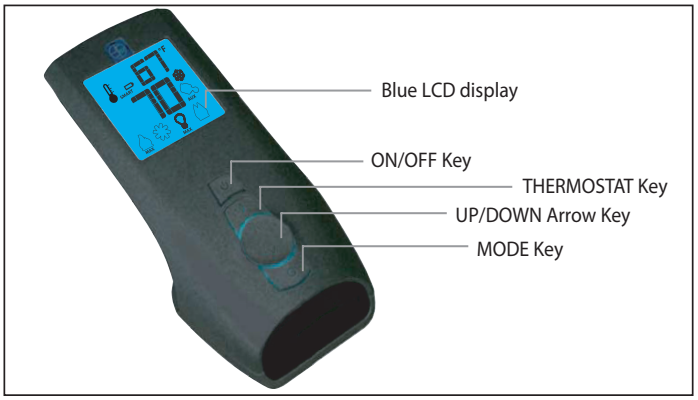

Figure 5: Proflame 2 Transmitter

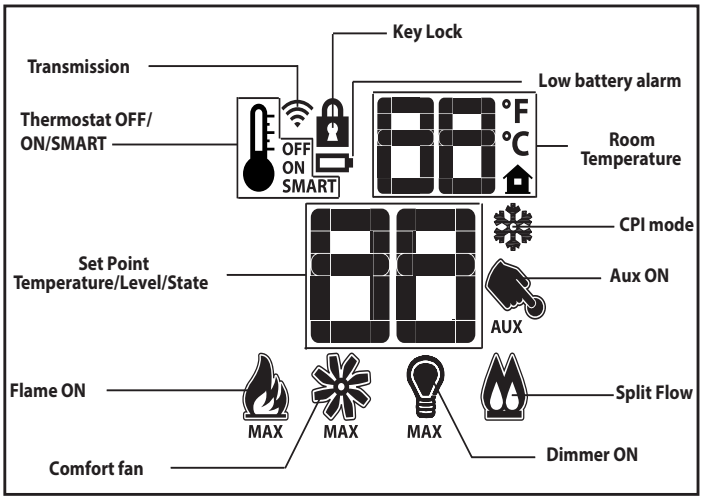

Figure 6: Proflame 2 Transmitter LCD Screen

To simplify the remote, functions that are not needed can be removed from view. To remove or add functions to the remote:

1. Remove one battery
2. Hold POWER and MODE buttons while battery is re-installed
3. Continue to hold POWER button while releasing MODE button
4. Continue to hold POWER, tap MODE to cycle through functions
5. Continue to hold POWER, tap UP to SET or DOWN to CLR function
   (SET = function available, CLR = function is cleared and unavailable)
6. Release POWER to end setup

Example – Split flow is only used in a few of our units. To remove the remote's split flow control:

1. Remove one battery
2. Hold POWER and MODE buttons while battery is re-installed
3. Continue to hold POWER button while releasing MODE button
4. Continue to hold POWER, tap MODE button until the Split flow icon is shown.
5. Continue to hold POWER, tap UP = CLR tap DOWN = SET
6. Release POWER to end setup

To remove or add Thermometer/Smart mode from the remote:

1. Remove one battery
2. Hold Thermometer button
3. Continue to hold Thermometer button and replace battery

Remote will display CLR = thermo/smart functions unavailable

To re-engage THERMO/SMART mode repeat the actions. Remote will display SET = thermo/smart functions available.

Ignition and Reset Information

Ignition Sequence:

- Starting from OFF, press the remote power button. Approximately four seconds later the igniter will spark at the pilot hood. It will spark for 60 seconds.
- If there is no flame ignition, or the flame is not recognized by the IFC (rectification) during the first try for ignition, the igniter will pause sparking for approximately 35 seconds.
- After the pause, it will begin sparking again. This second attempt will spark for another 60 seconds.
- If there is no positive rectification after the second sequence the IFC module will go into Lock Out: the LED Indicator Light at SW1.1 will blink three times in intervals until the system is reset. Reset by cycling power to the unit by turning the remote off, waiting a few seconds, then turning it back on.

Error Codes

When the backup battery is below 4V, the Red LED Indicator at SW1.1 (see Figure 2 or Figure 7) will pulse with a single blink. The IFC will beep twice when it receives a command from the remote control. Replace Batteries.

Pilot Flame Error: Lack of pilot flame and no spark indicates trouble with the flame sensor system. This causes the Red LED Indicator at SW1.1 to pulse steadily with two blinks. This would indicate a grounding issue.

Lockout: When the system fails to ignite after 2 attempts, the Red LED Indicator at SW1.1 will pulse steadily with three blinks.

Cycle power to the IFC to clear Lockout

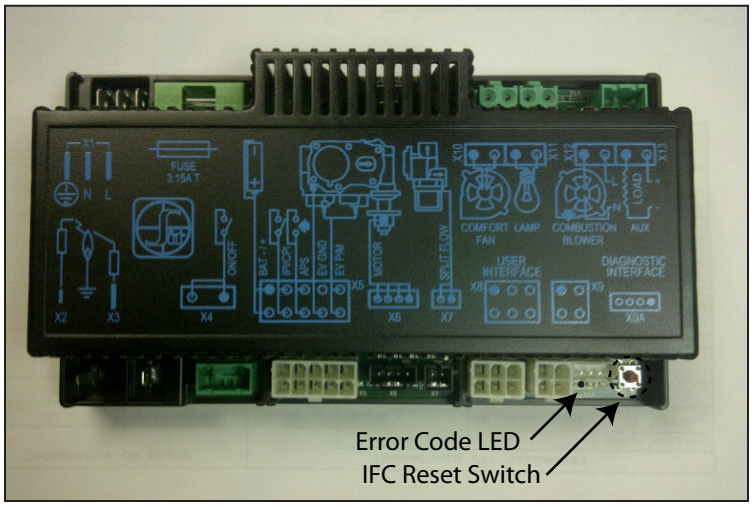

Figure 7: IFC Error Codes

Turn the system off by pressing the remote power button. After approximately 2 seconds press it again.

To reset the IFC with flame modulation buttons - In manual mode, use the down arrow to lower the flame all the way to OFF. Wait 2 seconds and then use the up arrow to turn the flame back on.

The IFC can be reset to run manually.

1. Remove the jumper at IFC X4 and replace it with an on/off switch.
2. To add a switch to control IPI/CPI mode: clip the blue loop wire that comes out of the harness at X5. Wire in a switch. This switch, when closed, enables CPI mode. When open, it enables IPI mode.
3. Press SW1 button (see Figure 2) until you hear three beeps.
4. Within 10 seconds press SW1 again and you will hear three beeps
5. The main burner can now be controlled by the switch at IFC X4. Main burner will be on HIGH. All other functions (fan, lights, flame modulation) are disabled. The IFC can no longer see the remote.
6. The unit can be re-paired to a remote at any time (see page 9).

If you are without a remote and wish to test the unit:

1. Press SW1 until you hear three beeps.
2. Within 10 seconds press SW1 again and you will hear three beeps. The unit is now in CPI mode and the burner will turn on.
3. To turn off the burner, remove the green block at IFC X4.
4. To turn off the pilot, remove power from the unit.

Troubleshooting

The following section contains detailed steps that can be taken to help diagnose the problems that may arise with the Proflame 2 system. It is important to follow the guide carefully, performing the steps relavent to the respective issue.

Normal Sounds During Operation

Table 1: Normal Sounds During Operation

Component	Sounds & Reason
Fire Box	Creaking when heating up or cooling down.
Burner	Light pop or poof when turned off; this is more common with LP units.
Temperature Sensor	Clinking when it senses to turn the blower on or off.
Pilot Flame	Quiet whisper while the pilot flame is on.
Blower / Fan	Air movement that increases and decreases with the speed of the blower
Gas Control Valve	Dull click when turning on or off, this is the valve opening and closing.

The Pilot Does Not Light

Is there a spark at the pilot hood?

NO - There is no spark at the pilot hood

Can an ignition spark be heard?

NO - There is no sparking sound

1. Is the remote paired with the IFC? When buttons are pressed on the remote, does the IFC beep?
2. Is the system in lockout? If the ignition sequence has failed twice, the unit will go into lockout. See the error code section on page 11.
3. Verify the power supply. See TEST 1 on page 22.
4. Check that wires are properly connected to the IFC.
5. Make sure system is properly grounded. See TEST 13 on page 27.
6. Is the spark electrode fully seated into IFC X2? If not, reconnect and test.
7. If spark electrode is fully seated, Test the IFC X2 spark terminal. See TEST 2 on page 23.

YES - There is a sparking sound

The spark electrode will make a snapping noise and spark at the pilot hood once a second for 60 seconds during ignition. If you can hear a sparking sound, but it isn't visible at the pilot hood – there is a broken electrical connection somewhere between X2 and the Spark electrode, perhaps a frayed wire is shorting out.

1. Check the wire from IFC X2 to the spark electrode – run your fingers along the wire to feel for breaks. If damaged, replace electrode.
2. Check the spark electrode's ceramic insulator for damage. If damaged, replace electrode.
3. Check electrode position – Electrode should be 1/8" from pilot hood.
4. Ensure the pilot assembly is solidly grounded.

YES - There is a spark at the pilot hood, but the pilot doesn't light

1. Confirm gas supply is on, gas is bled to valve.
2. Confirm IFC is wired correctly (see Figure 2 on page 6).
   a. Check ground connections. Confirm ground wire (yellow with a green line) from IFC X5 (part of 10 wire harness), to valve body is connected. See TEST 13 on page 27.
   b. Confirm orange wire from IFC X5 to valve EV1 orange terminal is connected (see Figure 2 on page 6).
3. Inspect Pilot Assembly
   a. Inspect pilot tube for damage
   b. Inspect pilot hood for blockage or obstruction
   c. Clean any corrosion on pilot assembly for proper grounding. Check pilot hood for continuity. See TEST 10 on page 26.
4. Verify incoming gas pressure. See TEST 8 on page 25.
5. Test valve EV1 orange solenoid. See TEST 3 on page 23.
6. Test IFC output to valve EV1 orange. See TEST 4 on page 24.

The Pilot Lights, But The Ignitor Continues to Spark

1. Is the flame sensor fully surrounded by flame and glowing red?
   a. If the pilot flame shrinks away once the main burner lights, check minimum pressure available to valve. See TEST 8 on page 25.
   b. If the pilot flame is weak, remove pilot orifice and clean it.
2. Confirm flame sensor rod is connected to IFC X3 (see Figure 2 on page 6).
3. Check ground connections. Check ground wire from the IFC to wire harness X5 is connected. See TEST 13 on page 27.
4. Check that the flame rod sensor and pilot hood are clean. Do not use anything more abrasive than a piece of paper to clean.
5. Check that the porcelain is not cracked on flame sensor
6. Test flame sensor for continuity. See TEST 7 on page 25.

The Pilot Looks Blue/Lifting Off Sensor

1. Verify proper pilot orifice for gas type
2. Has the unit been properly converted to LP or NG? Check the label on the stepper motor to verify fuel type.
3. See Venting Related Issues on page 20.

Troubleshooting

Burner Lights When Only Pilot Should Light

1. Ensure all electrical connections are secure and IFC is wired correctly. See Figure 2 on page 6.
2. Verify proper voltage at EV2 green. See TEST 6 on page 25.

Pilot Won't Hold Flame

1. Proflame 2 IFC's are equipped with a 7 day shut-down timer. In CPI mode, the pilot will shut down after 7 days of non-activity. The IFC also has a 24 hour safety system which shuts down and restarts the unit once every (approximate) 24 hours.
2. Is the flame sensor fully surrounded by flame and glowing red?
   a. Ensure proper gas pressure. See TEST 8 on page 25.
   b. Check that turbulence isn't moving pilot flame off flame sensor. If turbulence is affecting pilot flame, see venting related issues on page 20.
3. Check Pilot Assembly:
   a. Check sensor isn't touching pilot hood.
   b. Inspect wiring for damage – run fingers along wire, feeling for breaks.
   c. Check sensor hook and pilot hood for corrosion, film or debris.
   d. Check that media isn't blocking pilot. No media can be in contact with the flame sensor or you will have a 2 flash code (see "Error Codes" on page 11).
   e. Check that the pilot assembly is grounded. See TEST 10 on page 26.
4. Test Flame Sensor (see TEST 7 on page 25). If flame sensor fails, **REPLACE FLAME SENSOR**.
5. Check voltage at EV1 orange (pilot valve connection, see Figure 2 on page 6). See TEST 4 on page 24.
   a. If no voltage present when calling for pilot – **REPLACE IFC**.
   b. If voltage is present, **REPLACE GAS VALVE** (valve not opening).

If the above steps have been followed, and tests to the IFC and Valve have proved them to be in working order, what remain are venting related issues. See the Venting Related Issues setion on page 20.

Pilot Holds Flame But Main Burner Will Not Ignite

The main burner will not light until a pilot flame is detected. The pilot flame is detected by the flame sensor – which must glow red. The IFC sends VAC to the sensor if a good flame is present. The current will rectify to VDC across the flame to the pilot hood. The IFC will detect this in the grounding as proof of fire. This process, rectification, must be completed before the valve will open the main burner solenoid.

1. Check that remote is in manual mode (thermostat mode 'OFF' displayed next to thermometer icon on remote screen. See Figure 6 on page 9).
2. Check IFC is wired correctly (see Figure 2 on page 6), check all electrical connections, check for damaged wiring.
3. Check IFC X4 (See Figure 2 on page 6). X4 circuit turns on/off main burner.
   a. If there is a jumper at X4, remove jumper wire from the green block and clean wire ends. Re-install jumper wire into green block. Re-install green block into IFC X4.
   This block and jumper wire can get dirty, or have a loose connection worsened by heat. Perhaps the connection is ok when the unit is cold, but loses connection when the unit is hot, turning off the main burner when the unit heats up.

b. If there is no jumper at X4, and there is a circuit, check the continuity of the X4 circuit.

4. Check that the pilot hood is directing the flame properly to ignite the burner.

5. Verify that the pilot igniter is not still sparking. If it is go back to 'Pilot lights, but ignitor is still sparking'

6. Verify valve inlet and outlet pressures. See TEST 8 on page 25.

7. Check continuity of the main burner coil (EV2 green, Figure 2 on page 6). See TEST 5 on page 24. If there is no continuity, **REPLACE VALVE**.

8. Check voltage at the main burner connection (EV2 green, see Figure 2 on page 6). See TEST 6 on page 25.

a. If voltage is present, **REPLACE GAS VALVE** (not opening).

b. If voltage is not present, **REPLACE IFC**.

Main Burner Ignites But Won't Hold Flame

1. Proflame 2 IFC's are equipped with a 7 day shut-down timer. In CPI mode, the unit will shut down after 7 days of non-activity. The IFC also has a 24 hour safety system, which shuts down and restarts the unit once every (approximate) 24 hours.

2. Verify the Remote is in manual mode (remote displays OFF by thermostat icon, see Figure 6 on page 9).

3. Confirm the IFC is wired correctly

a. Check wiring attached properly to the IFC. (See Figure 2 on page 6).

b. Check for damaged wiring – run fingers along wires, feeling for breaks or frayed wires.

4. Check IFC X4 (see Figure 2 on page 6). X4 circuit turns on/off main burner.

a. If there is a jumper at X4, remove jumper wire from the green block and clean wire ends. Re-install jumper wire into green block. Re-install green block into IFC X4.
This block and jumper wire can get dirty, or have a loose connection worsened by heat. Perhaps the connection is ok when the unit is cold, but loses connection when the unit is hot, turning off the main burner when the unit heats up.

b. If there is no jumper at X4, and there is a circuit, check the continuity of the X4 circuit.

5. Verify pilot rectification. See TEST 7 on page 25.

6. Ensure correct input and output gas pressures. See TEST 8 on page 25.

7. Check for voltage at main burner connection (EV2 green, see Figure 2 on page 6). See TEST 6 on page 25.

a. If voltage is present when main burner drops out, **REPLACE GAS VALVE**.

b. If no voltage, **REPLACE IFC**.

8. See venting related issues on page 20.

Troubleshooting

Pilot / Main Burner Struggles to Establish Draft in Cold Fireplace

Cold air is heavy. Cold units often have difficulty establishing draft.

1. Use CPI – In Continuous Pilot mode (Standing Pilot) the pilot burns constantly, keeping the firebox and vent warm and the draft moving. The Proflame 2 IFC's have a 7 day timer, which shuts down the pilot after 7 days with no command.
2. In the case of a 'dead-cold' unit, cycle the unit to establish a flame. If the air is too cold in the unit to establish a pilot, consider opening the glass to assist airflow to get the pilot started.
   You may need to restart a the unit a couple of times to establish enough draft. Running the main burner down to low flame when first starting may also help.

Main Burner Remains On, Burner Flame Won't Modulate

NOTE: Thermostat in SMART mode will not allow manual modulation of flame height

1. Ensure correct input and output gas pressures. See Test 8 on page 25.
2. Inspect main burner orifice for blockages / check for correct orifice size.
3. Check that stepper motor wires are attached at X6 (see Figure 2 on page 6). Run fingers along wires from stepper motor to IFC to check for damaged wires.
4. Check continuity of stepper motor. See Test 9 on page 26.

Fan Won't Turn On

NOTE: Not all units are equipped with fans.

1. Turn remote to Manual (Remote displays 'OFF' beside thermometer icon). In thermometer and smart mode there is a 5 minute fan start-up delay – and a 12 minute fan shut-off delay after unit is powered down.
2. Remove batteries from battery back-up and try turning on the burner. If the unit won't start, verify VAC power at the IFC. See Test 1A on page 22.
3. Test for AC line voltage at IFC X10 (see Figure 2 on page 6). See TEST 11 on page 26.
4. Check the fuse on the IFC for continuity. If no continuity, replace with 3.15amp 5mm x 20mm fuse. Some units will also have a separate fuse for the fan. Refer to the Owner's Manual.
5. Check that electrical connections are secure / check wiring.
6. Unplug the fan from IFC, attach external 120V supply.
   a. If fan works **REPLACE IFC MODULE**.
   b. If fan does not work, **REPLACE FAN**.

Lights Won't Turn On

NOTE: Not all units are equipped with lights.

1. Check that the remote is calling for the lights on, both by turning on the lightbulb icon and turning on the aux icon (finger pushing the button icon). Some lights are controlled by aux.
2. Remove batteries from IFC battery back-up and try turning on the burner. If the unit won't start, verify VAC power at the IFC. See TEST 1A on page 22.
3. Inspect light bulbs and fixtures for damage.

4. Check the fuse on the IFC for continuity. If no continuity, replace with 3.15amp 5mm x 20mm fuse. Some units will also have a separate fuse for the lights. Refer to the Owner's Manual.
5. Inspect wiring and check ground connection to the IFC. See TEST 13 on page 27.
6. Check voltage on the IFC module at X11 and X13 (see Figure 2 on page 6). See TEST 11 on page 26.
   a. If no voltage, **REPLACE IFC**.
   b. If voltage is present, **REPLACE LIGHT ASSEMBLY**.

Flame is Lifting

NOTE: The following section assumes the pilot and main burner are working but there are issues with the quality of the burn.

Flame is lifting due to turbulence*. Flame looks erratic and is flickering.*
- Verify by opening the glass and observing if the symptom goes away.

1. Too much primary air. Decrease by closing the venturi adjusvter. See venturi adjustment on page 19.
2. Is the correct exhaust restrictor setting being used? See exhaust restrictor settings section on page 19.
3. Ensure correct input and output gas pressures. See TEST 8 on page 25.
4. See venting related issues on page 20.

Flame is lifting due to ghosting*. Flame slowly starves for oxygen.*
- Verify by opening the glass and observing if the symptom goes away.

1. Is the correct exhaust restrictor setting being used? See exhaust restrictor settings section on page 19.
2. Ensure correct input and output gas pressures. See TEST 8 on page 25.
3. Trouble establishing draft – use CPI mode.
4. See venting related issues on page 20.

Sooting

NOTE: The following section assumes the pilot and main burner are working but there are issues with the quality of the burn.

1. Not enough primary air – open venturi. See Venturi adjustment on page 19.
2. Improper exhaust restrictor setting. See exhaust restrictor settings section on page 19.
3. Incorrect media placement. See improper media placement section on page 19.
4. Inspect burner for damage.
5. Incorrect gas pressure. See TEST 8 on page 25.
6. See venting related issues on page 20.

Troubleshooting

Hard Start / Delayed Ignition

The terms hard start and delayed ignition are often interchanged. By "hard start" we mean a delay of a few seconds between the time that the main valve opens and ignition of the main burner. A Hard Start causes a flash that is startling, but not dangerous.

If the delay between the valve opening and main burner ignition is longer, perhaps 20 seconds or more, the resulting "delayed ignition" causes a contained explosion that forces the pressure relief system open.

A UNIT THAT HAS EXPERIENCED A DELAYED IGNITION MUST BE CHECKED THOROUGHLY:

1. Check media – has the media been moved by the delayed ignition?
2. Check the pressure relief system.
   - **a.** If the front door acts as pressure relief.
     - **i.** Check that the springs are tight.
     - **ii.** Check that the gasket tape around the door is intact.
     - **iii.** Inspect the glass for any breaks.
   - **b.** If the unit has pressure relief doors on the roof of the firebox.
     - **i.** Check that the gasket is intact.
     - **ii.** Check that the hardware holding the relief door is working properly – does the relief door sit straight and close tight?
   - **c.** Replace gaskets or parts as necessary.

Do not operate the unit until the pressure relief system has been repaired.

Causes of Hard Starts / Delayed Ignition

Check the pilot flame – is it strong? If the pilot is weak, even if there is pilot rectification, the incoming gas can miss the pilot flame and fill the firebox. The firebox fills with gas, eventually coming in contact with the pilot, causing a flash in the firebox as the excess gas ignites. This is especially true for LP, which is heavier than NG and drifts downward.

1. Pilot is weak
   - **a.** check pilot orifice for blockage, clean if dirty [how to clean]
   - **b.** check for proper pilot orifice
   - **c.** Check media placement isn't impinging on pilot hood or flame.
2. Pilot is strong
   - **a.** Check that the 'main burner starter channels' are clear
   - **b.** Check the main burner
     - **i.** Are the ports clear? Is media blocking the ports?
     - **ii.** Is excess paint blocking the holes in the burner? If yes, clean the ports using a like sized tool such as a drill bit.
       ***NOTE: DO NOT make the holes bigger.**
   - **c.** See venting related issues on page 20.

Troubleshooting

Venturi Adjustment

The venturi allows the amount of air coming into the fireplace to be adjusted in order to accommodate different climates and venting arrangements. Adjusting the venturi will depend on the unit. Refer to the Owner's Manual for your specific unit for the location of the venturi and how to adjust it.

1. Start the pilot and then the burner.
2. Make sure the pilot flame is burning normally and none of the burner ports are plugged. Let the fireplace burn for roughly fifteen (15) minutes and then examine the flames.
   a. The ideal flame will be blue at the base and light orange above. The flames should be of medium height. If the flames look like this, no venturi adjustment is needed.
   b. If the flames are fairly short and mostly blue, the fireplace is getting too much air. Therefore, the air shutter should be closed slightly until the correct flames are achieved.
   c. Flames that are very orange, with tall dark stringy tips are not getting enough air. Open the venturi until the flames clean up.

   ***NOTE**: Some units use exhaust restrictors that can be adjusted as well to assist in proper setup.

Exhaust Restrictor Settings

Each unit has particular exhaust restrictor settings that are described in the manual. A chart is supplied that gives the approximate restrictor setting according to the length of venting. Make changes in restriction only after it has been run for about 20 minutes – A cold unit runs very different from a hot unit.

In general, if your flame is low, flickery, and (more blue) it has too much air - increase the restrictor one size, decreasing the airflow.

If your flame is tall, thin, lazy, "searching for air" then decrease the restrictor one size, increasing the airflow.

Improper Media Placement

Every unit requires proper media set-up. Each unit is different, consult the manual.

1. Only use media supplied by Enviro. Using other media voids warranty.
2. Vermiculite / glass / gravel / must not be piled thick. Use one layer of media, spread consistently over the floor of the firebox.
3. Pay attention to pilot areas. Verify that media isn't touching any part of the pilot assembly – including the pilot hood and the flame sensor or ignitor. The pilot relies on Direct Current Voltage to rectify, and this current can be disrupted if any part of the pilot is touching a log or other media.
4. Keep the media from interfering with the pilot flame – make sure there is no media piled in the pilot area.

Venting Related Issues

Direct Venting

Direct Vent (DV) systems are sealed, and use outside air for combustion.

- Inspect the venting and ensure the type used is specified in the manual.
- Has the venting been installed correctly?
- Is the venting height within specifications?
- Have vent joints been properly sealed?
- Inspect the termination and ensure it is approved.
- Does the termination match the venting pipe? Mixing brands can lead to improper connections/leaks/airflow.

Improperly vented units can exhibit unexpected symptoms. Sometimes these symptoms will appear to be an electrical or gas supply problem, when they are actually caused by inappropriate airflow in the firebox.

Ghosting

Ghosting is caused by inadequate air flow, starving the pilot and main burner for air, which makes it difficult to establish a flame. Severe starvation will lead to an inability to light the pilot. Common with cold units.

1. Try cracking the glass, does the ghosting cease? If it does, check the vent for blockage.
2. If unit is co-linear vented, try un-attaching the intake liner (only remove as a temporary test, never leave a unit with an unattached intake liner) to establish whether there is a problem with the intake.
3. Is the correct exhaust restrictor being used? The manual describes which restrictor to use, variable depending on the length of the vent.
4. Has the venting been installed correctly?
5. Inspect the termination cap for obstruction.

Flame Turbulance

Flame turbulence is due to wind within the firebox causing an inability to rectify the pilot flame or the inability for the main burner to light.

1. Has firebox been set up according to the manual? Is media properly installed?
2. Has the correct restrictor been installed?
3. Is the type and length of venting approved for the unit?
4. Has a high wind termination cap been installed?

If the above has been verified, question whether the issue is environmental – does the problem exist on windy days? Is the house on a cliff, or at the edge of a lake, or another possibly windy location? Even if the termination is protected from wind on the leeward side of the house, the negative pressure created from a strong wind can affect a fireplace.

Possible Solutions:

- High wind term cap
- Wind guard over term cap

Flexible Co-Axial Venting

Ensure spacers have been used in all bends – one spacer at the beginning of the bend – one in the middle of the bend, and one at the end. This is to ensure that the correct amount of space between the hot interior exhaust pipe and the cooler exterior intake pipe is maintained. If the spacers aren't used correctly, airflow can be severely affected.

Co-Linear Venting

Two separate flexible aluminum chimney liners secured with venting screws and approved sealant. Exhaust and intake run parallel to each other. Intake and exhaust liners must be the approved size and run continuous from the unit to an approved termination cap. Ensure the liners haven't been crossed (ie. intake liner attached to exhaust, exhaust liner attached to intake). Venting must always trend upwards, including Horizontal runs which must incline slightly upward. If liners are loose and have large sags, pull them tight to keep the run as straight as possible

B-Vent

Unlike a DV system, B-vent is not sealed; it draws room air directly into the combustion chamber. Because the unit is using room air, it cannot be installed into any sealed construction (most new homes are sealed). Unit must be vertically terminated, situated at the top of the roof in order to establish the proper draw. B-vent is not allowed in many jurisdictions.

Gas Supply Related Issues

Verify (drip leg/ sediment trap) installed in supply line prior to the gas valve.

Measure gas pressure on inlet and outlet taps. Refer to TEST 8 on page 25.

Testing

The following section provides various tests to verify the WORKINGNESS? (DIFFERENT WORD) of components within the fireplace. Refer to the previous "TROUBLESHOOTING" section, determine which situation applies to you, then perform any of the tests recommended within that section.

TEST #1 - Verify Power

Check Battery backup power:

1. Check back-up batteries installed with correct polarity
2. Test IFC is receiving power from batteries
   a. Set multimeter to voltage DC / 10 volts or greater –
   b. Test between red and black wires labelled "BAT" on the wire harness at X5 (see Figure 2 on page 6).

4.4 VDC minimum – replace batteries if less than 5 VDC.

TEST #1A - IFC Receiving Power

Test whether the IFC is receiving AC Power

1. Set multimeter to VAC in range of 200V.
2. **CAREFUL – DANGER OF SHOCK.** Test power at X1 - Red probe to N-Neutral terminal, black probe to Live terminal (see Figure 8). Proper reading approximately 120VAC.

If no power available, check power source.

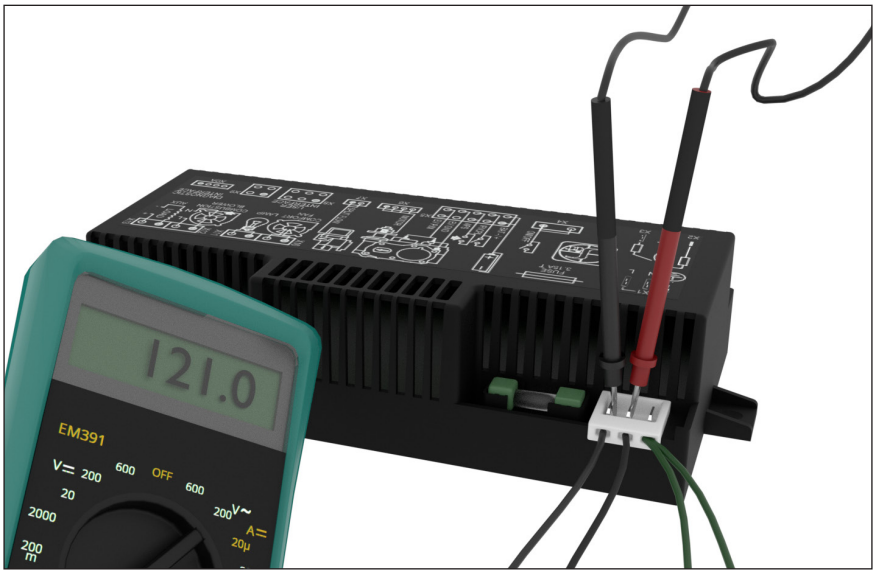

Figure 8: IFC Power Test - Probing Points

TEST #2 - X2 SPARK TERMINAL

1. Remove the spark electrode lead from X2
2. Attach a jumper to X2
3. Hold the other end of the jumper 1/8" away from grounded surface
4. Turn the system on – the jumper should spark to the grounded surface

If power is available to the IFC (see TEST 1A on page 22 to verify) and there is no spark from jumper to ground – **REPLACE THE IFC**.

TEST #3 - VALVE EV1 ORANGE SOLENOID

1. Set multimeter to OHMS in a range of 1k ohms or greater.
2. Disconnect Orange wire from EV1 terminal.
3. Place one probe on the EV1 terminal and the other probe to the valve body (see Figure 9).

Reading should be 340 ohms (+/- 20 ohms).

If open circuit (infinite resistance) **REPLACE VALVE**.

Figure 9: Orange Solenoid - Probing Points

TEST #4 - Output Voltage to Valve EV1 Orange Solenoid

1. Set multimeter to DCV in a range of 10 DCV or greater.
2. Reconnect all wires to the valve.
3. Place one probe on the EV1 terminal, the other to the valve body and turn the unit on (see Figure 10).
4. The IFC will send a pulse of 4-6 DCV for approx. 2 seconds, then will drop to 0.5-2 VDC.
5. If no voltage, check IFC has power (see Test 1/Test 1A).

If IFC has power (Test 1/Test 1A), but not providing voltage to valve, **REPLACE IFC**.
If required fuel pressure (see Test 8) and power are available, **REPLACE VALVE**.

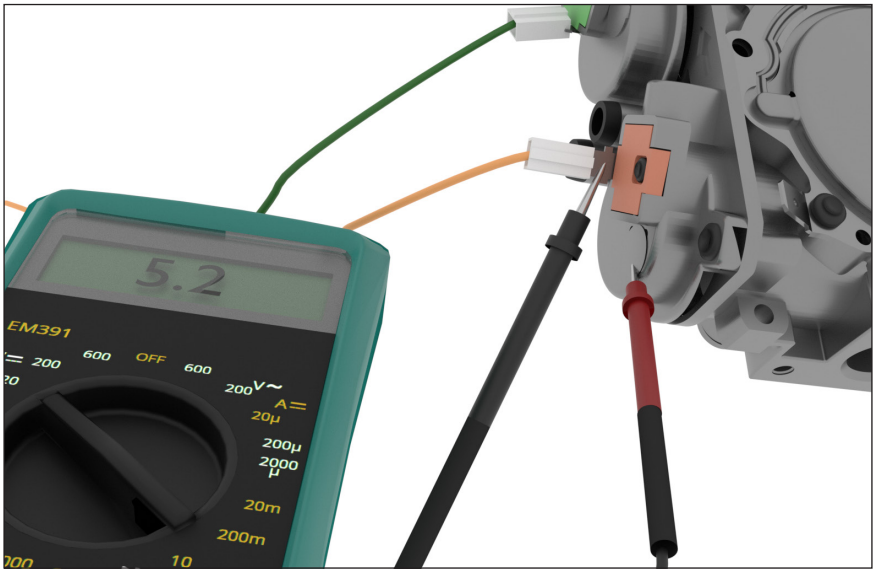

Figure 10: Output Voltage to Orange Solenoid - Probing Points

TEST #5 - Valve EV2 Green Solenoid

1. Set multimeter to OHMS in a range of 1k ohms or greater.
2. Disconnect Green wire from EV2 terminal.
3. Place one probe on the EV2 green terminal and the other probe to the valve body (see Figure 11).

Reading should be 340 ohms (+/- 20 ohms).
If open circuit (infinite resistance), **REPLACE VALVE**.

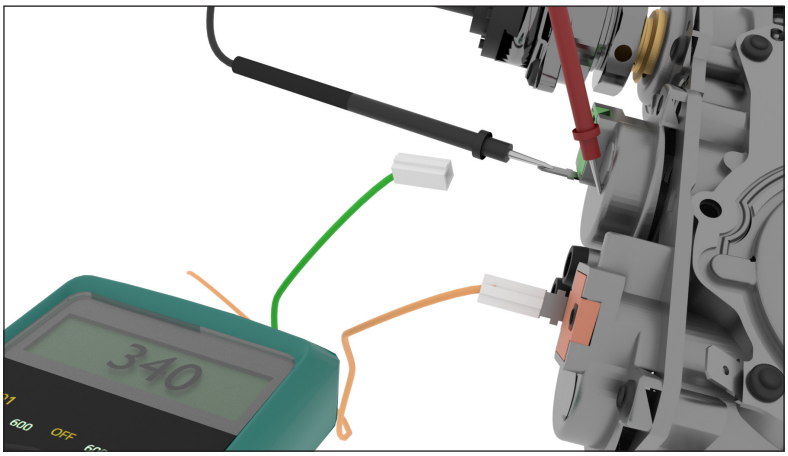

Figure 11: Output Voltage to Green Solenoid - Probing Points

TEST #6 - Output Voltage to Valve EV2 Green Solenoid

1. Set multimeter to DCV in a range of 10 DCV or greater.
2. Reconnect all wires to the valve.
3. Place one probe on the EV2 green terminal, the other to the valve body and turn the unit on.
4. The IFC will send a pulse of 4-6 DCV for approximately 2 seconds, then will drop to 0.5-2 VDC.
5. If no voltage, verify power supply (see Test 1/Test 1A).

If IFC has power (Test 1/Test 1A), but not providing voltage to valve, **REPLACE IFC**.

If required fuel pressure (see Test 8) and power are available, **REPLACE VALVE** (solenoid not closing).

TEST #7 - Flame Sensor

1. Set multimeter to OHMS at lowest range.
2. Disconnect flame sensor from X3.
3. Place one probe on the pilot end and the other on the now-detached end.

If open circuit or no resistance, **REPLACE FLAME SENSOR**.

If closed circuit showing resistance, **REPLACE IFC**.

TEST #8 - Verify Gas Pressure

1. Use a properly sized flat head screw driver to avoid stripping the brass screws. Loosen only the test port you are currently testing. You only need to back it off a couple of turns. **Do not remove screw**.
2. Use manometer to test incoming pressure.
3. Required pressure listed on Rating Label.
4. Check input pressure with all gas appliances in the house ON (Full Load Check).
5. Check outlet pressure with unit on – calling for heat.
6. Tighten test ports.

TEST #9 - CONTINUITY OF STEPPER MOTOR

1. Set the multimeter to Ohms (Ω).
2. Remove stepper motor connection from IFC X6.
3. Test the orange and yellow wires (see Figure 12).
4. Test the black and brown wires.

Readings should be approximately 26 ohms for each test.

If wrong readings, **REPLACE STEPPER MOTOR**.

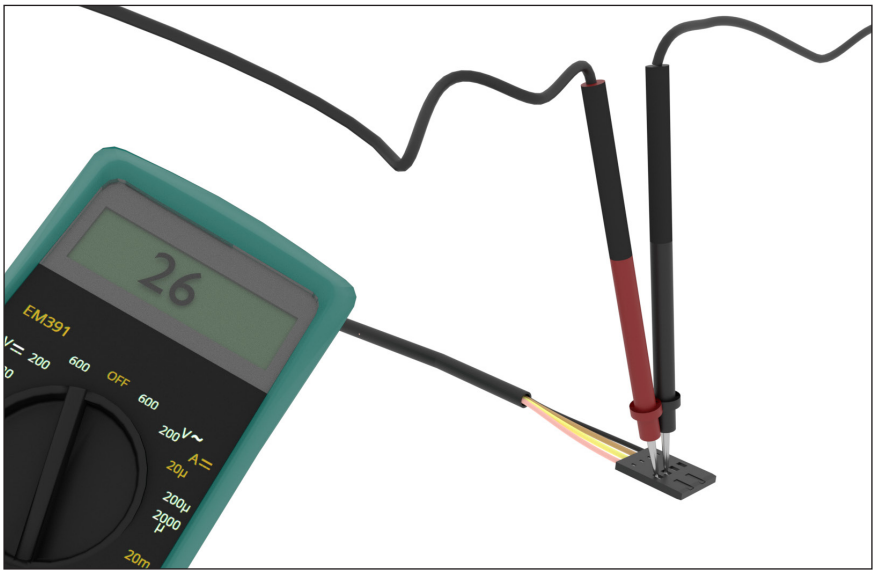

Figure 12: Stepper Motor Continuity - Probing Points

TEST #10 - PILOT HOOD CONTINUITY

1. Set the multimeter to Ohms (Ω).
2. Check that there is continuity from the pilot hood to the fireplace chassis.
   a. Choose a spot near the base of the pilot flame hood. You may need to scrape away some paint for good contact.
   b. Place one probe onto the clean spot on the pilot assembly and the other on the fireplace chassis.

TEST #11 - VOLTAGE CHECK ON FAN/LIGHTS

Set multimeter to 200 VAC.

Fan:

1. Comfort fan is connected to the IFC at X10.

2. **CAREFUL - DANGER OF SHOCK.** Place one probe on red wire, other on the black lead (see Figure 13).

3. Reading should be approximately 120 VAC on HI.

Lights:

1. Lights are connected to the IFC at X11.
2. **CAREFUL DANGER OF SHOCK.** Place probes on two yellow wires (see Figure 14).
3. Reading should be approximately 120 VAC on HI.

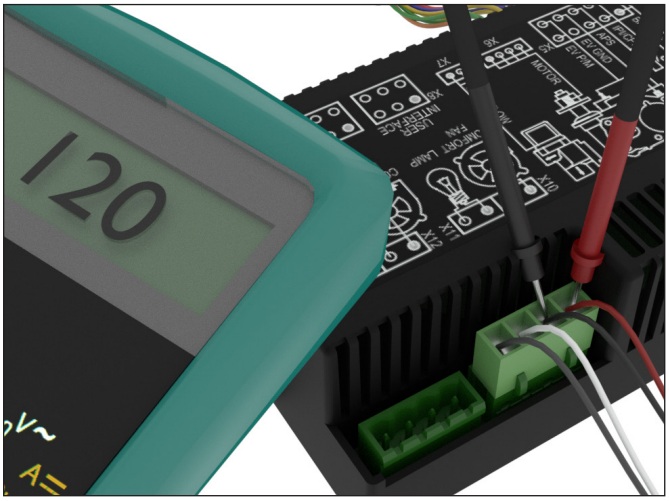

Figure 13: Voltage Test on Fan

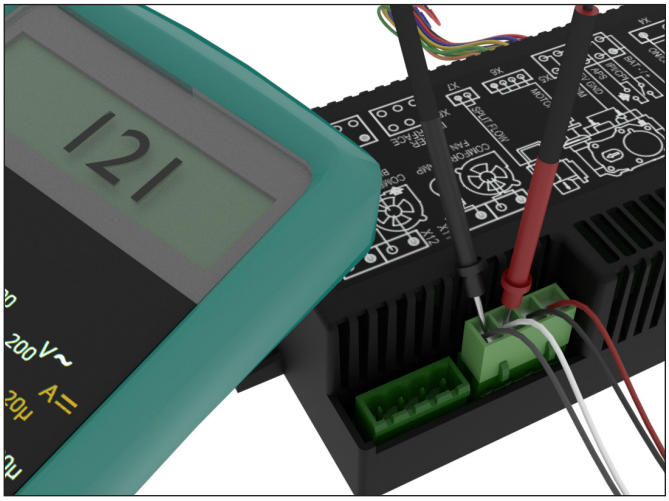

Figure 14: Voltage Test on Lights

***NOTE**: Some models will also use the Aux X13 connection for lights. The X13 is a passive switch and does not supply power. To test the X13 there must be power to the unit and the wires must be installed.

1. Set the multimeter to Ohms (Ω).
2. Check that continuity opens and closes when the remote aux button is pressed.
   - If no wires are installed in the X13 you cannot test it.

TEST #12 - PROPER CONVERSION

Refer to your Owner's Manual for proper conversion instructions for your specific unit.

TEST #13 - VERIFY PROPER GROUNDING OF IFC

1. Set multimeter to Ohms (Ω).
2. Check that there is continuity from the ground to the fireplace chassis. You may need to scrape away some paint for good contact.

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