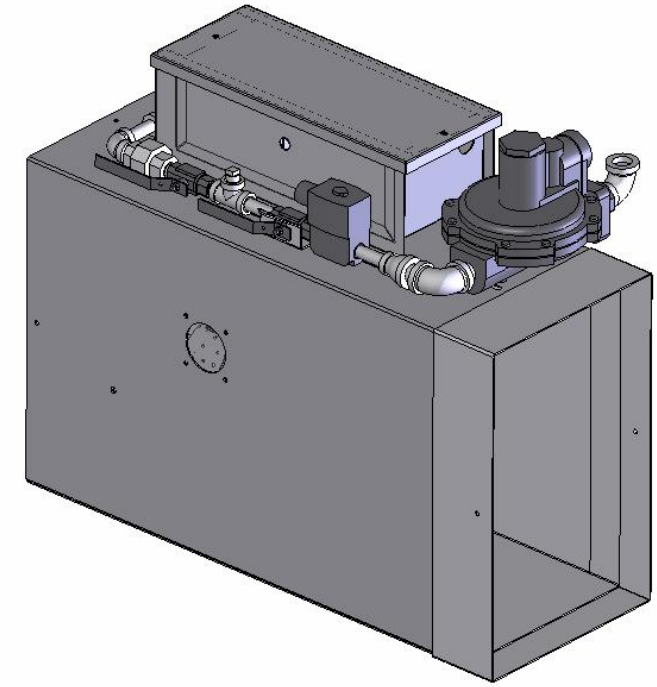
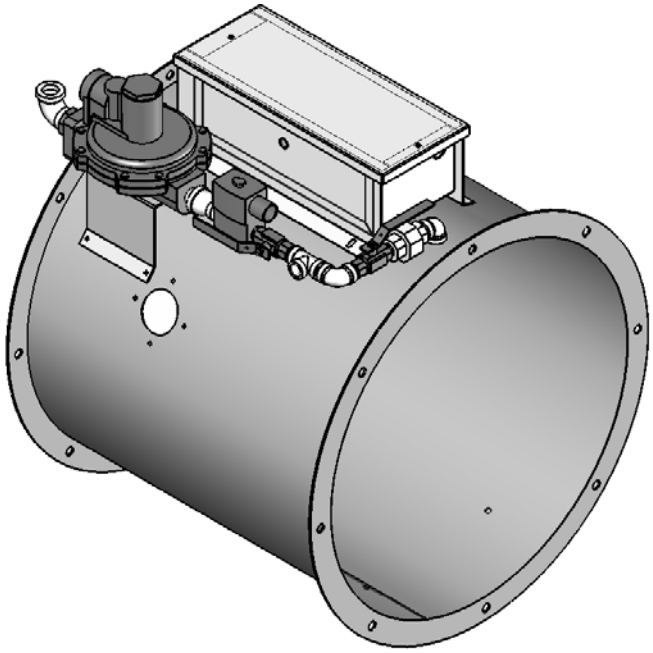
Grain Guard

PROPANE AND NATURAL GAS SUPPLEMENTAL HEATER OPERATOR AND PARTS MANUAL

GC 914-60, GG 914-100, GG 18-60, GG 24-100





Part #: GNA 1411 R0
Date: 1/31/07

Edwards subscribes to the general standards specified by ASAE and Canadians Standards Association. For this reason, we strongly recommend that all personnel associated with this equipment be trained in the correct operational and safety procedures required for this product. Edwards also recommends that periodic reviews be standard practice. For your convenience, we include the sign-off sheet so you can record your periodic reviews.

Date	Employee Signature	Employer Signature

General Heater Specifications:

Design tested to CAN/CGA-3.8 Standard for gas-fired equipment for drying farm crops.

Gases: Natural or Vaporized Propane Gas

Electrical Rating: 115 volts, 60 Hz, 1 Ph, less than 3 Amps

Input Rating:	Model#	Capacity
	GG 914-60	60,000 Btu/hr
	GG 914-100	100,000 Btu/hr
	GG 18-60	60,000 Btu/hr
	GG 24-100	100,000 But/hr

Gas Supply:	Inlet Pressure		Manifold Pressure	
Gas	Max.	Min.	60,000 Btu	100,000 Btu
Natural Gas	100 PSI	2 PSI	8.4" W.C.	20.0" W.C.
Propane Gas	Bottle Pressure		4.0" W.C.	8.5" W.C.

W.C. = inches of water column (27"W.C.=1 psi)

1 PH = single phase power

This Page Intentionally Left Blank

BE ALERT

Watch for this symbol. It identifies potential hazards to health or personal safety. It points out safety precautions. It means:

ATTENTION — be alert. Your safety is involved.

Table of Contents

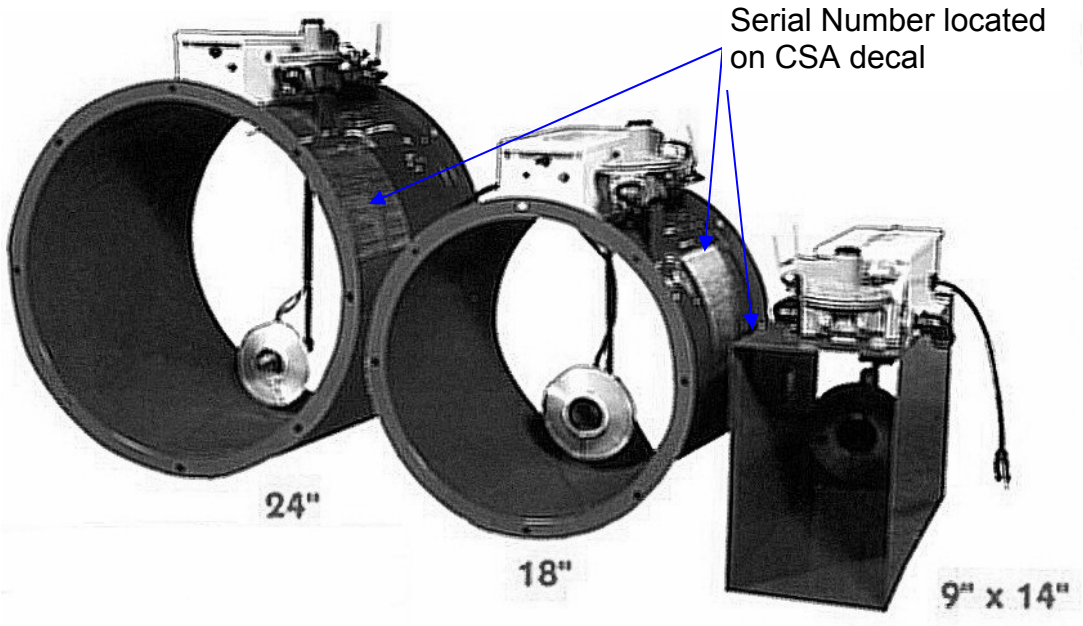
Edward's provides this manual "as is". While every precaution has been taken to have a complete manual, Edward's assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained within this manual. Edward's reserves the right to revise it's products at any time. This publication describes the product at the time of publication. Illustrations in this manual are subject to change.

1. Introduction

Thank you for purchasing a Grain Guard Propane & Natural Gas Heater. The Propane & Natural Gas Heater is an excellent addition to any bin. Using your heater with a Grain Guard Fan will allow you to harvest in damp conditions, maintain stored grain in peak condition, and prevent mould growth and insect infestation. With proper care, your heater will provide you with many years of trouble-free aeration and natural-air drying.

Safe, efficient and trouble free operation of your heater requires that you and anyone else who will be involved with this equipment, read and understand all safety instructions and procedures contained within this manual. A sign-off form is provided on the inside front cover for your convenience.

Keep this manual handy for frequent reference and to review with new personnel. Call your local distributor or dealer if you need assistance, information or additional copies of the manual.



Model Number: _____

Serial Number: _____

(found on CSA decal)

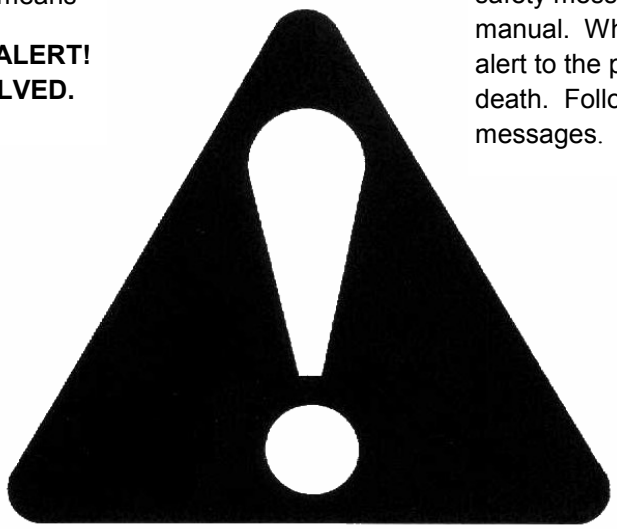
Date Purchased: _____

Dealer Name: _____

2. Safety First

This Safety Alert symbol means

ATTENTION, BECOME ALERT!
YOUR SAFETY IS INVOLVED.



The Safety Alert symbol identifies important safety messages on the machine and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety messages.

Why is SAFETY important to you?

3 Big Reasons: **Accidents Disable and Kill**

Accidents Cost

Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING, CAUTION,** and **NOTICE** with the safety messages. The appropriate signal word for each message has been selected using the following guidelines:

DANGER - Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING - Indicates an imminently hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION - Indicates an imminently hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE - Indicates a potential for unit malfunction if proper operation and/or maintenance is not done. It may also be used to alert against an improper practice.

SAFETY

YOU are responsible for the **SAFE** operation and maintenance of your equipment. **YOU** must ensure that you and anyone else who is going to work around the equipment be familiar with all procedures and related **SAFETY** information contained in this manual.

Remember, YOU are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program.

Machine owners must give instructions to employees before allowing them to operate the machine.

The most important safety device on this equipment is a **SAFE** operator. It is the operator's responsibility to read and understand **ALL** Safety instructions in the manual and to follow them. All accidents can be avoided.

A person who has not read and understood all safety instructions is not qualified to operate the equipment. An untrained operator exposes himself and bystanders to possible serious injury or death.

Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment. Any modification to the equipment voids the warranty.

Use this equipment for intended purposes only.

Think SAFETY! Work SAFELY!

2.1 GENERAL SAFETY

1. Read and understand all safety instructions and all safety decals.

2. Only trained competent persons shall operate the equipment. An untrained operator is not qualified to operate the equipment.
3. Have a first-aid kit available for use should the need arise, and know how to use it!

4. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.

5. Do not allow children, spectators or bystanders within the area.
6. Wear appropriate protective gear. This list includes, but is not limited to:
   - A hard hat
   - Protective shoes with slip resistant soles
   - Protective goggles
   - Hearing protection

7. Before servicing, adjusting, repairing or unplugging, turn off and lock out power and wait for all moving parts to stop.
8. Turn off gas supply to the unit at the source.
9. Review safety related items with all personnel who will be operating or maintaining the equipment.

2.2 INSTALLATION SAFETY

1. Read and understand all safety instructions and all safety decals before starting
2. Follow good shop practices:
   - Use properly sized tools, stands, jacks and hoists at all times
   - Be sure electrical outlets and tools are properly grounded
   - Use adequate light for the job at hand
   - Use 2 men to handle the heavy bulky components
   - Keep the assembly area neat and clean to prevent slipping or tripping

2.3 OPERATIONAL SAFETY

1. Read and understand all safety instructions and all safety decals before using.
2. Do not operate heater with natural gas if valve is set on propane setting.
3. Use vaporized propane only.
4. Do not tamper with or otherwise try to adjust pressure regulator.

2.4 STORAGE SAFETY

1. Store the unit in a dry, clean area away from human activity.
2. Do not permit children to play on or around the stored machine.

2.5 MAINTENANCE SAFETY

1. Read and understand all safety instructions and all safety decals before working with, maintaining, or operating the equipment.
2. Turn off and lock out power and shut off gas at source before servicing, adjusting or repairing.
3. Follow good shop practices:
   - Keep service area clean & dry
   - Be sure electrical outlets and tools are properly grounded.
   - Use adequate light for the job at hand.
4. Keep hands, legs, feet, hair, jewelry and clothing away from all moving and/or rotating parts.
5. Clear the area of all bystanders, **especially children**, when carrying out any maintenance.
6. Before resuming work, install and secure all guards. Keep guards in good working order.
7. Keep safety decals clean. Replace decals that are damaged or not clearly visible.
8. Inspect all parts. Ensure parts are in good condition and installed properly.

NOTICE

If safety decals have been damaged, removed, become illegible or parts were replaced without decals, new decals must be applied. New safety decals are available from your distributor, dealer or factory.

This Page Intentionally Left Blank

2.6 SAFETY DECAL LOCATIONS

See Figure 2.1 & 2.2 for Safety Decal locations on next page.

2.6.1 GENERAL INFORMATION

1. Keep safety decals clean and legible at all times.
2. Replace safety decals that are missing or have become illegible.
3. Replaced parts that displayed a safety decal should also display the current decal.
4. Safety decals are available from your distributor, dealer or factory.

2.6.2 DECAL INSTALLATION:

1. Be sure that the installation area is clean and dry.
2. Decide on the exact position before you remove the backing paper.
3. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
4. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
5. Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.6.3 DECAL LOCATIONS

The types of safety decals and locations on the equipment are shown in the following illustrations. Good safety requires that you familiarize yourself with the various safety decals, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

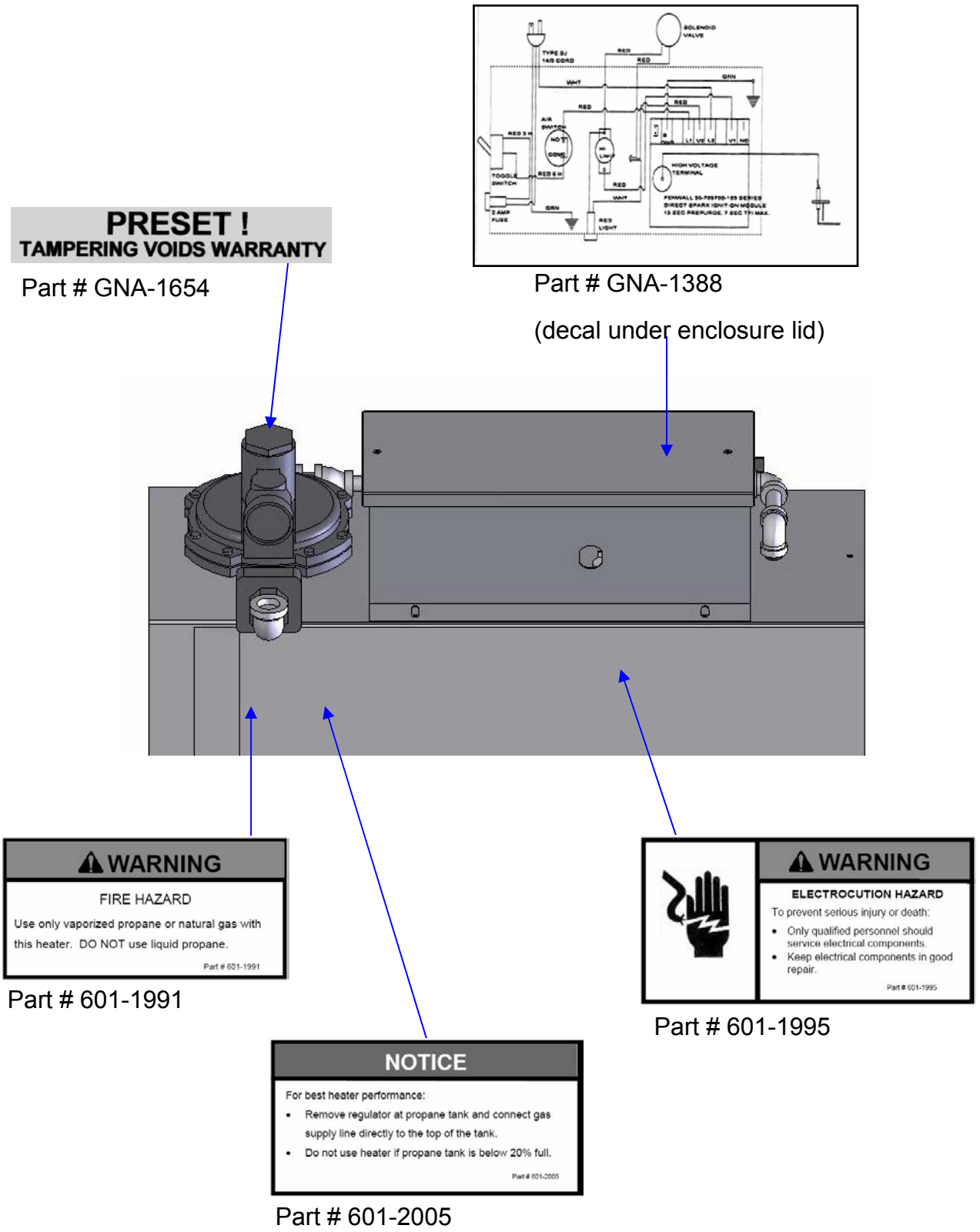


Figure 2.1—Safety Decal Locations

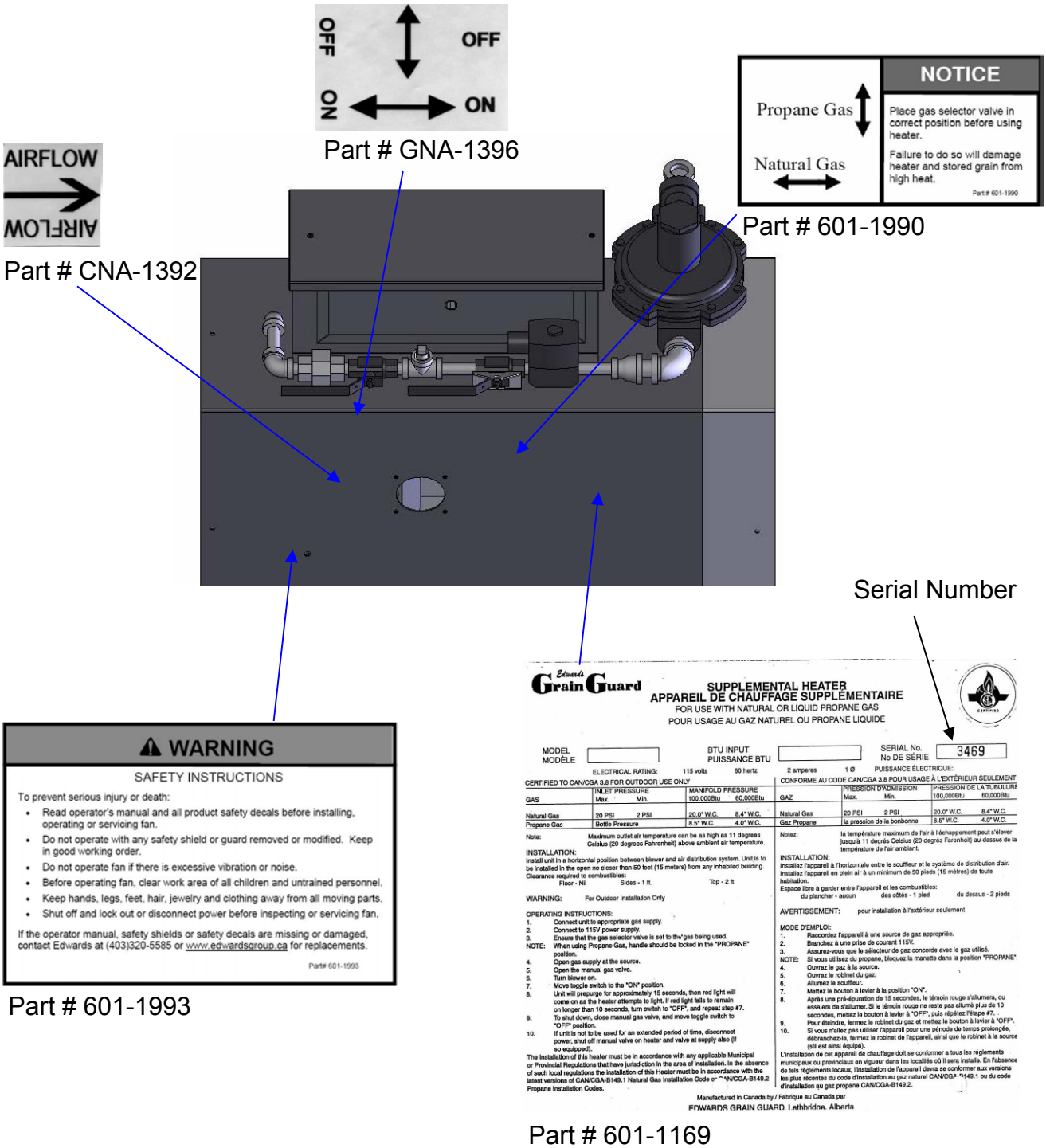
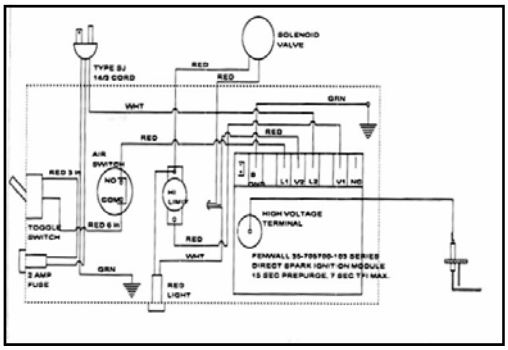


Figure 2.2—Safety Decal Locations

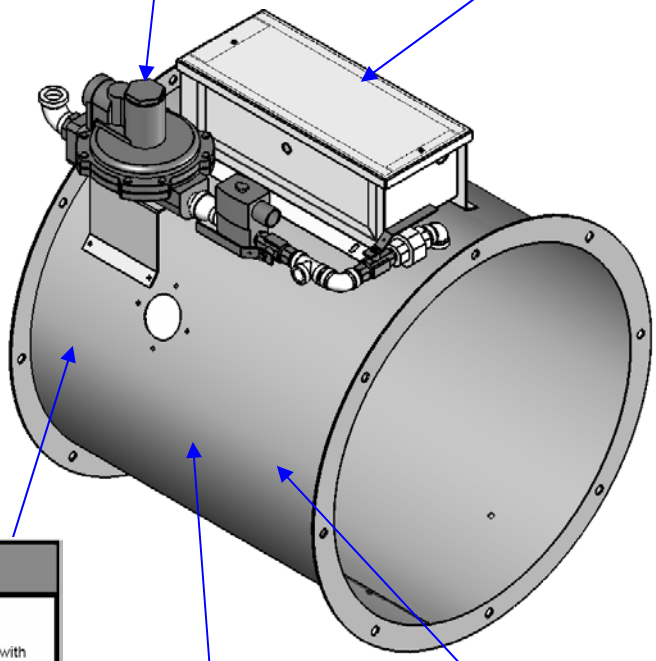


Part # GNA-1388

(decal under enclosure lid)

PRESET !
TAMPERING VOIDS WARRANTY

Part # GNA-1654



⚠ WARNING

FIRE HAZARD

Use only vaporized propane or natural gas with this heater. DO NOT use liquid propane.

Part # 601-1991

Part # 601-1991

NOTICE

For best heater performance:

- Remove regulator at propane tank and connect gas supply line directly to the top of the tank.
- Do not use heater if propane tank is below 20% full.

Part # 601-2005

Part # 601-2005

⚠ WARNING

ELECTROCUTION HAZARD

To prevent serious injury or death:

- Only qualified personnel should service electrical components.
- Keep electrical components in good repair.

Part # 601-1995

Part # 601-1995

Figure 2.3—Safety Decal Locations

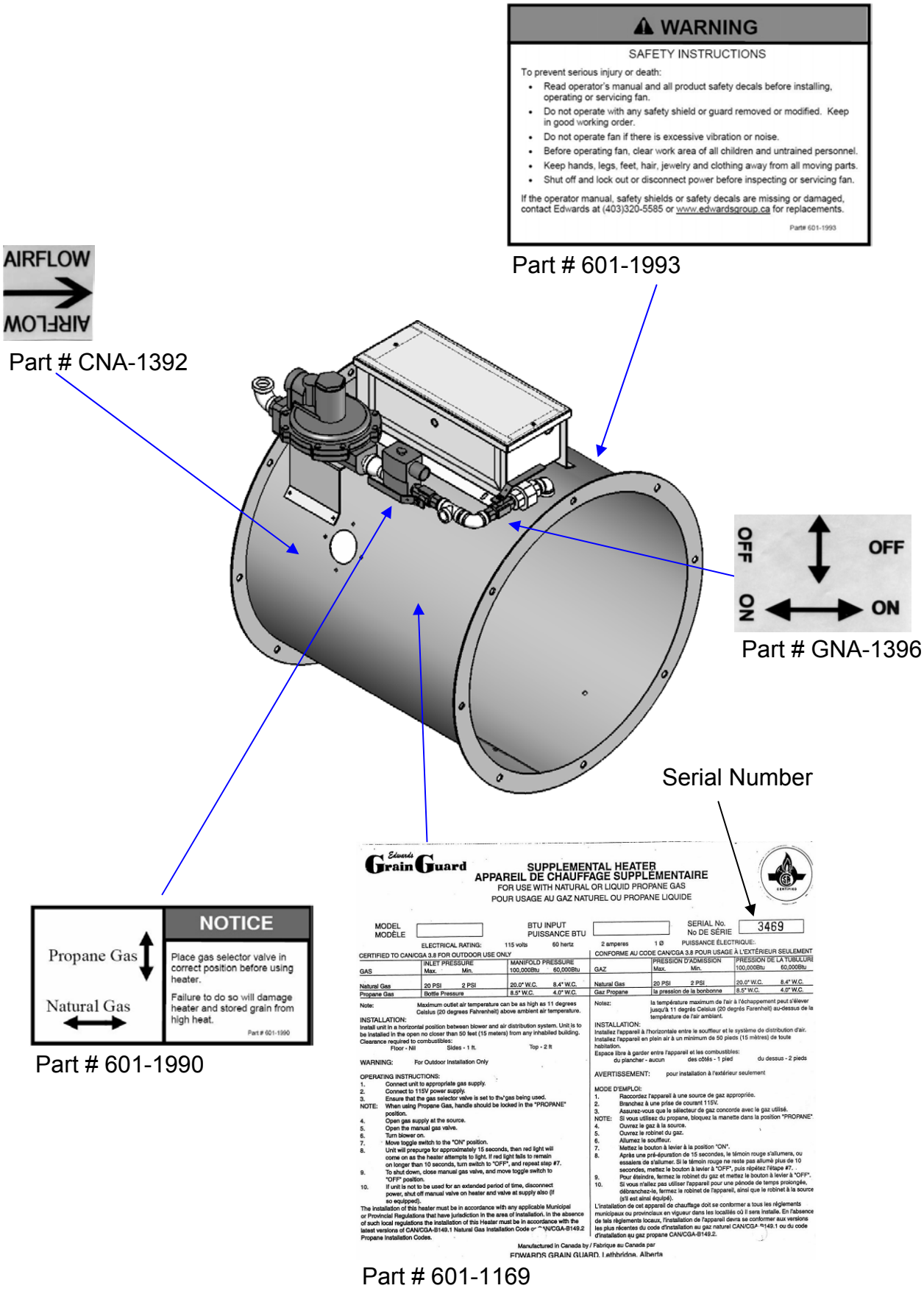


Figure 2.4—Safety Decal Locations

3. Installation

The Grain Guard Supplemental Heater is designed solely for use as a low temperature heater for the drying of farm crops. Alteration or use of this heater for any other application will void warranty.

The installation and operation of this heater shall be in accordance with the current INSTALLATION CODES FOR GAS BURNING APPLIANCES AND EQUIPMENT, CAN1-B149.1 and B149.2, or applicable Provincial Regulations which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

3.1 LOCATION

- Flat Bottom Bins: ensure the heater is level with the fan and that both are adequately supported.
- Hopper Bottom Bins: ensure that there is adequate support for both the heater and the fan.
- The heater must be installed on a non-combustible level surface.
- The heater must be located as close to the bin as possible (leave adequate room for routine servicing and inspection).
- Provide adequate drainage to protect the heater from water damage.
- Ensure that the aeration fan has adequate capacity for the heater and grain bin size. The fan should be 1hp for every 1000 bushels.
  - 60,000 btu heater = 3 hp fan only
  - 100,000 btu heater = 5-7hp fan only
- Heater and fan should be positioned opposite of the unload auger. If there are multiple fans and heaters being used, they should be opposite of the unload auger and no further than 90 degrees apart.

Important: Ensure the heater is mounted such that the control box is positioned towards the top.

3.2 INSTALLATION

1. Install the heater in a horizontal position between the outlet of the aeration fan and the inlet of the air distribution system of the grain bin. For the 9" x 14" rectangular heaters, slip the collared end over the aeration inlet on the bin, and fasten units together by inserting metal screws through the holes provided in the collar of the heater. Next slip the aeration fan into the inlet end of the heater as far as possible and secure them together by the use of metal screws through the holes provided in the heater shell. For the 18" and 24" round heaters simply bolt unit to the flanged inlet of the bin inlet port using 3/8" bolts and locknuts**. Make sure that the unit is installed with the burner end closest to the aeration fan.**
2. Ensure that the unit is installed in such a manner that the bottom of the fan's air intake is at least 12" above the ground to prevent the drawing of any debris into the fan and heater.
3. Connect heater to the appropriate gas

IMPORTANT

The installation and maintenance of this heater must be accomplished only by a person who has carefully read and understands the instructions contained in this manual.

This person should be certified to work with electrical and gas equipment.

supply, ensure that the gas pressure at the inlet of the heater is within the specified range. The heater will not run on gas that is supplied under 2 psi. The recommended hose size for connection to a propane cylinder is a 1/4" gas hose assembly and for natural gas a 3/8" gas hose assembly.

4. Visually inspect the hose assembly and ensure that it is protected from traffic. If it is evident that there is excessive abrasion or wear, or if the hose is cut, it must be replaced.

5. Ensure that there is no LP-gas container (liquid propane) closer than 6 feet from the heater and allow for the following clearances to any other combustible materials:

   Floor: Nil Sides: 1 foot
   Top: 2 foot

6. After installation, open the gas supply to the heater and check all hose connections for gas leaks by applying a mild soap and water solution to the connections. When completed turn off gas supply.

7. Connect the heater to an adequate 115 volt electrical supply as specified on the rating plate. For protection against shock hazard the supply cord must be plugged directly into a three wire properly grounded extension cord (if required). This cord in turn is to be plugged into a properly grounded three prong receptacle. The extension cord should be minimum 14-2 and properly grounded.

WARNING

This unit if for outdoor installation only.

WARNING

On stationary propane tanks, the gas supply line must be connected to the top outlet in order for it to deliver vaporized propane. DO NOT connect gas supply line to the bottom of the tank as this will supply liquid propane which cannot be used in this heater.

WARNING

When connecting unit for use with propane gas, arrange the cylinders in such a manner that they remain upright and there is no chance of tip over. Should the cylinder(s) tip over it will be supplying propane to the heater in the liquid state. Should liquid propane be supplied to the heater it may result in serious personal injury and property damage and will void the warranty of the heater.

4. Operation

4.1 SAFETY

1. Read and understand all safety instructions and all safety decals before using machine.
2. Clear the area of all bystanders, especially children, before starting.
3. Do not operate machine with guards removed or modified. Keep in good working order.
4. Do not operate heater with propane if valve is set on natural gas setting. Ensure gas selector valve is set to appropriate position.

IMPORTANT

Before operating heater, ensure that the inlet of the aeration fan is not obstructed or restricted in any way.

WARNING

The area around the heater should be kept clear and free from combustible materials and other flammable liquids.

WARNING

All electrical connections and wiring must be in accordance with all applicable local codes and standards.

4.2 OWNER / OPERATOR RESPONSIBILITY

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the unit. In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern and prudence of personnel involved in the operation, transport, maintenance and storage of equipment.

Follow all Safety Instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the work site. Untrained operators are not qualified to operate the unit.

Many features incorporated into this unit are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the unit safely and how to set it to provide maximum efficiency. By following the operating instructions in conjunction with a good maintenance program, your equipment purchase will provide many years of trouble-free service.

4.3 OPERATING INSTRUCTIONS

1. Open all roof vents and ensure that they are not obstructed. Note: if there is a chance of the roof vents freezing, do not operate heater.
2. Connect unit to appropriate gas supply (i.e. propane or natural gas).
3. Connect unit to 115 volt power supply.
4. Set the Gas Selector Valve to the gas being used (see **Figure 4.1**). This conversion should be done before the aeration fan is started.
5. Open gas supply at the source (propane cylinder valve or natural gas supply line valve).
6. Open Gas Shut Off Valve on heater (see **Figure 4.1**).
7. Turn aeration fan on.
8. Move toggle switch to ON position.
9. Unit will pre-purge for 15 seconds, then red light will come on as the heater attempts to light. If red light fails to remain on longer than 10 seconds, turn switch to OFF position, and repeat step #7 through #9.
10. To shut down, close Gas Shut Off Valve and move toggle switch to the OFF position.
11. If unit is not to be used for an extended period of time, disconnect power, shut off Gas Shut Off Valve on heater and gas supply valve.

Note: If heater fails to light and/or function properly see Troubleshooting Section for more details.

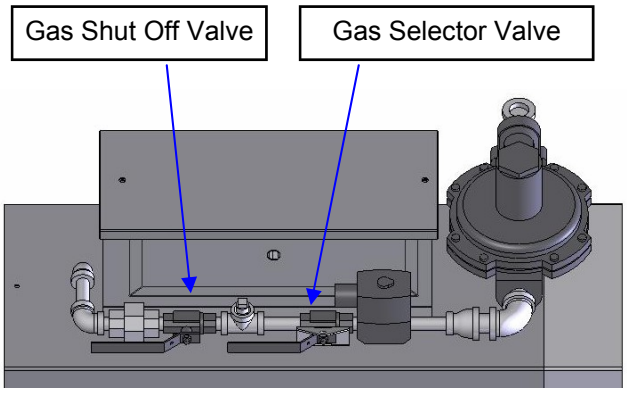


Figure 4.1– Gas Valving

WARNING

When using propane, Gas Selector Valve must be at the PROPANE position. Failure to heed could cause serious injury or death.

WARNING

When heater is not in use shut off gas valve on heater and at gas source.

4.4 START-UP & BREAK-IN

Although there are no operational restrictions on the unit when used for the first time, it is recommended that the following items be checked:

Before starting:

- Read the aeration fan Operator's Manual.
- During the first few minutes of operation, ensure that the unit is running properly.

After operating for 5 and 10 hours:

- Check that all guards are installed and are working properly.
- Check safety decals. Install new ones if required.

4.5 SHUT DOWN

1. Close propane/natural gas valve at tank/ hydrant.
2. Allow heater to run until the flame burns out. This purges the gas out of the heater plumbing.
3. Close gas valve on heater.
4. Turn off and unplug heater.
5. Allow aeration fan to operate for at least two minutes too cool heater down then shut off fan.

4.6 FLAME INSPECTION

1. This heater uses a flame generation system that must be functioning correctly in order for the heater to produce the specified BTU's.
2. The flame can be inspected through the viewing window on the side of the heater (see **Figure 4.2**). The flame should appear as a blue flame with orange tips that is approximately 2 to 2-1/2" long.
3. If the flame appears all blue in color and is short, then the airflow is too high. You can either fill the bin more to increase the static pressure (lower air flow) or use a smaller aeration fan with less air flow.
4. If the flame appears yellowish in colour and is long, then the airflow is too low. You can remove grain from the bin to increase air flow or use a larger size fan. Ensure that there aren't any restrictions in gas flow or that the valves are set correctly.

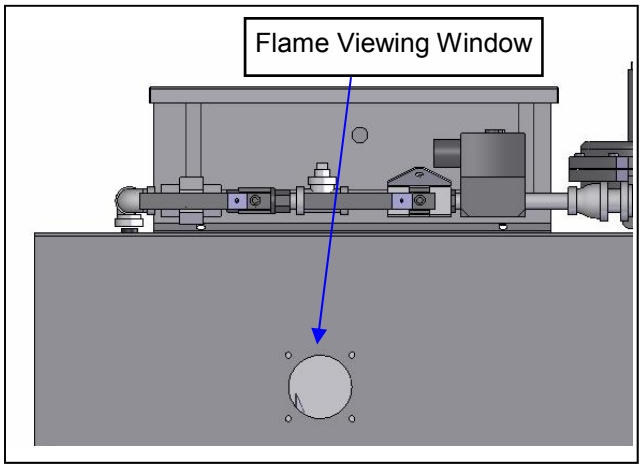


Fig 4.2– Flame Viewing Window

5. Maintenance

Before performing any maintenance on this unit, lock out electrical power source and shut off gas valves on heater and tank.

5.1 YEARLY MAINTENANCE

The following maintenance should be performed before the heater is used at the beginning of each season.

1. Burner should be checked to ensure that it is not plugged with foreign material. Remove material and use a small wire brush or acetylene tip cleaners to clean the ports in the burner housing.
2. Examine electrode gap and ensure it is 3/16". Adjust if necessary. Replace electrode if corroded.
3. Check all plumbing joints for leaks. Use a mixture of water and mild soap and spray on the joints. If bubbling occurs, a leak exists and the fitting needs to be tightened or replaced.
4. Check all wires and connections. Replace if required.

5.2 STORAGE

1. If unit is to be stored outside, the heater should be covered with a tarp or other protective cover. Ensure that unit is disconnected from the electrical power source and gas supply.
2. If unit to be stored inside, ensure that the heater is placed in a dry location and away from anything that may damage the unit.

5.3 ELECTRICAL MAINTENANCE

All electrical components are contained within the electrical box on the top of the heater (see **Figure 5.1**).

The electrical components should not require any maintenance.

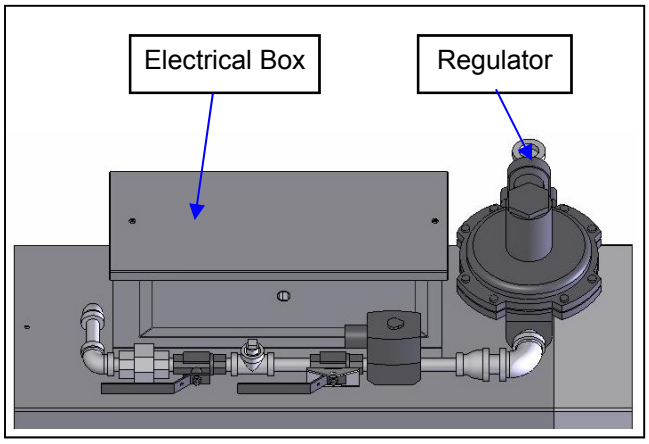


Fig 5.1– Pressure Regulator and Electrical Box

WARNING

When servicing gas components, keep sparks or other ignition sources away from the area.

WARNING

Ensure power is shut off and locked out and gas is shut off at the source before servicing heater.

5.4 PRESSURE REGULATOR MAINTENANCE

This heater contains a pressure regulator that is located on top of the unit (see **Figure 5.1**). This regulator is preset at the factory and does not require any adjustment of any kind.

Ensure vent screen is clear at all times.

NOTE: any tampering with the regulator voids the warranty.

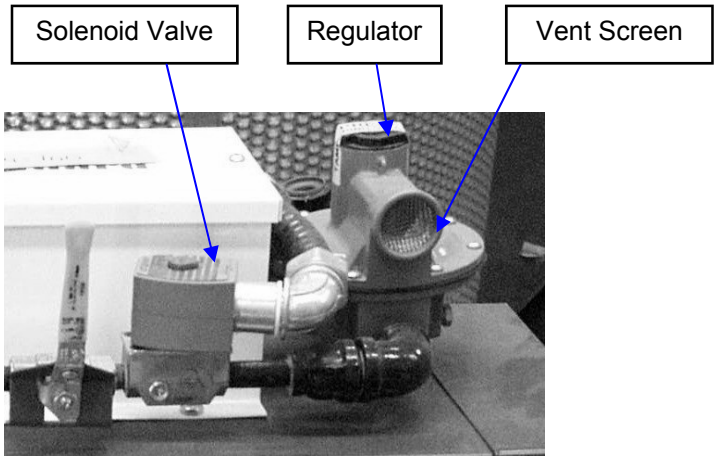


Fig 5.2– Solenoid Valve Location

5.5 SOLENOID VALVE MAINTENANCE

Solenoid valve does not require any maintenance.

IMPORTANT

For proper heater operation, ensure no foreign material enters gas stream.

6. Trouble Shooting

6.1 GENERAL TROUBLE-SHOOTING

1. Move toggle switch to ON position.
2. After 15 second delay (pre-purge), the red light on the side of the control box should come on, the solenoid valve should click open, the igniter inside the burner should spark, and the unit should light within eight seconds. If unit does not light within 8 seconds unit will lock out and will need to be reset. To reset, move toggle switch to the OFF position.

6.2 HEATER DIAGNOSTIC

Note: see Appendix 7.1 & 7.2 for parts and electrical diagram details

1. Check 2 amp fuse and replace if necessary.
2. Check for voltage across the toggle switch. If there isn't voltage present, replace the switch.

   Check for voltage across the airswitch. If there is no voltage, then the switch is not closing. This may be caused by a defective switch, or by not enough static pressure in the bin. Replace airswitch if defective, if not, bin needs to be filled with more grain.

   Note: Heater needs a minimum of 1" static pressure to function.
4. Check for power on L1, there should be voltage present here but not on V1. If 15 seconds after toggle switch is turned or if spark does not come on, or solenoid valve does not click loudly then the circuit board is defective and needs replacing.
5. Check for voltage across the red light. If voltage is present then light is defective and needs replacing.
6. Check the hi limit switch. If there is power on the side with the two wires but no power on the single wire side then limit switch is open. This means switch is either defective or has overheated and tripped out. Let aeration fan run for 2 minutes to cool unit off. If there is still no power present on other side replace limit switch.
7. Check voltage going to the solenoid valve. If there is power going to the valve but it is not snapping open, then valve is defective and needs to be replaced. If valve is opening and spark is present, then there is a problem with the gas supply. Check to see if the gas shut off valves are all open or if hose is pinched off.

1. IF HEATER DOES NOT START

Note: see Appendix for parts and electrical diagram details

Cause	Solution
Burnt out fuse	Replace with 2 amp fuse.
No grain or not enough in bin	Add more grain to bin and ensure that aeration duct is covered by at least 3 feet of grain.
Defective switch	Test for 120V across switch leads.
Defective air switch	Test for 120V downstream side. If there is no voltage replace airswitch.
Defective DSI Module	Test for 120V at terminal L1 on direct spark ignition (DSI) module. If voltage is present there, and if there is no spark, or power at terminal V1 module is defective.

2. RED LIGHT COMES ON BUT NO FLAME

Note: see Appendix for parts and electrical diagram details

Cause	Solution
No spark	Check for spark during ignition cycle by sliding ignition wire terminal off the coil tower on the DSI module and holding it 3/16 inch from coil terminal, if no spark arcs across gap, DSI is faulty and should be replaced.
Faulty solenoid	Check for 120V between terminals V1 &V2 on DSI module, if present replace solenoid.
Gas supply insufficient	Ensure there is no regulator on the propane supply tank, and that gas is being drawn off the top of the tank. Ensure that with Natural Gas the supply pressure to the heater is over 2 psi, minimum size of gas supply hose/pipe should be 3/8”. Check for frost on any fittings if any of these conditions exist then correct. Check for gas supply by removing 1/8” pipe plug from gas valve train, there should be a steady flow of gas when heater is trying to light. Otherwise, check for gas flow at upstream fittings and correct.

Incorrect air supply	Block off air intake 30% to 50% and try to light, if heater lights then the airflow is too high. Correct by putting more grain in the bin or using a smaller fan.

3. HEATER LIGHTS, BUT STOPS IN LESS THAN 8 SECONDS

Note: See Appendix for parts and electrical diagram details.

Cause	**Solution**
Too much air	Observe color and size of flame while flame is on, if flame is very blue and burning inside the burner body, restrict airflow 50%. If flame gets longer and more orange, then put more grain in the bin or use a smaller fan.
Not enough air	Observe color and size of flame while flame is on, if flame is very yellowish and burning outside the burner body, then use a larger fan or remove some grain from the bin.
Gas supply insufficient	Ensure there is no regulator on the propane supply tank, and that gas is being drawn off the top of the tank. Ensure that with Natural Gas the supply pressure to the heater is over 2 psi, minimum size of gas supply hose/pipe should be 3/8”. Check for frost on any fittings if any of these conditions exist then correct. Check for gas supply by removing 1/8” pipe plug from gas valve train, there should be a steady flow of gas when heater is trying to light. Otherwise, check for gas flow at upstream fittings and correct.

4. HEATER LIGHTS & RUNS 8 SECONDS

Note: See Appendix for parts and electrical diagram details.

Cause	**Solution**
Reversed polarity	The DSI module is polarity sensitive, should this situation exist, then the incoming power cord wires need to be switched. Switch the wires on the extension cord or at the receptacle.

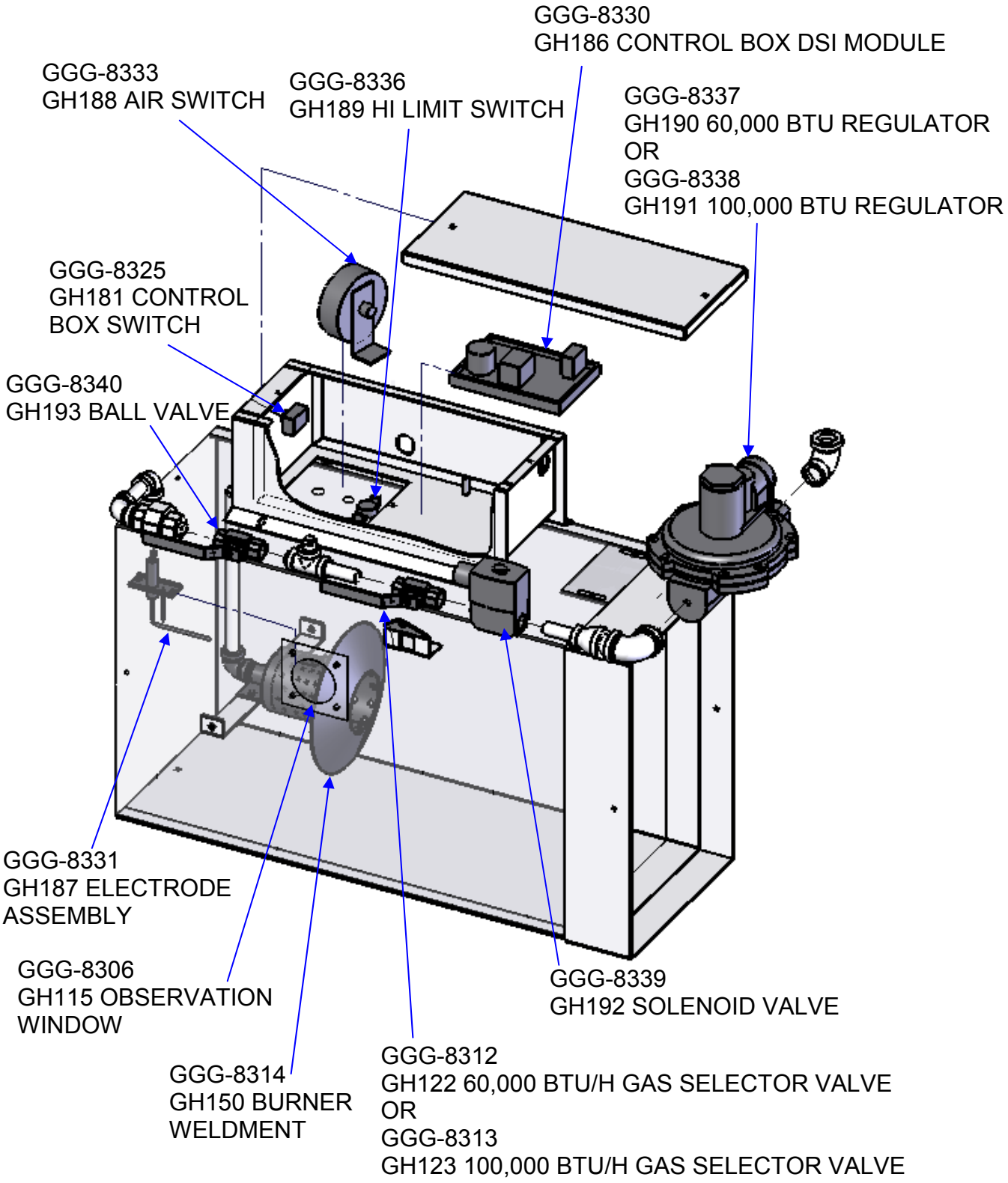
6.7 HEATER RUNS FOR OVER 30 SECONDS AND GOES OUT

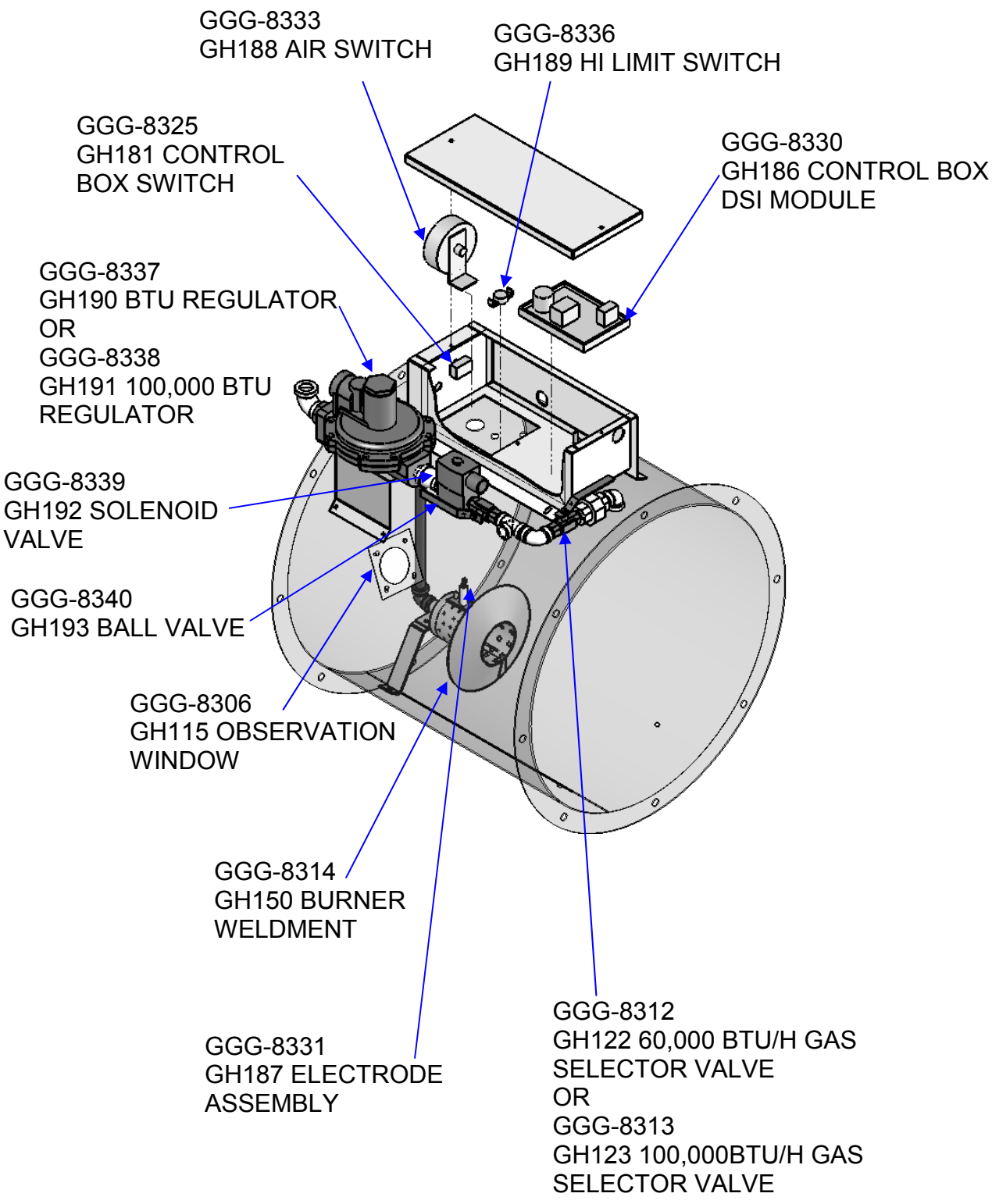
Note: See Appendix for parts and electrical diagram details.

Cause	Solution
Too Much Air	Observe color and size of flame while flame is on, if flame is very blue and burning inside the burner body, restrict airflow 50% and see if flame gets longer and more orange, if this is the case then put more grain in the bin or use smaller fan.
Not Enough Air	Observe color and size of flame while flame is on, if flame is very yellowish and burning outside the burner body, then use a larger fan or remove some grain from the bin.
Poor Ground	Ensure that heater has a good continuity through the ground wire, if not correct.
Gas supply Insufficient	Ensure there is no regulator on the propane supply tank, and that gas is being drawn off the top of the tank. Ensure that with Natural Gas the supply pressure to the heater is over 2 psi, minimum size of gas supply hose/pipe should be 3/8”. Check for frost on any fittings if any of these conditions exist then correct. Check for gas supply by removing 1/8” pipe plug from gas valve train, there should be a steady flow of gas when heater is trying to light. Otherwise, check for gas flow at upstream fittings and correct.

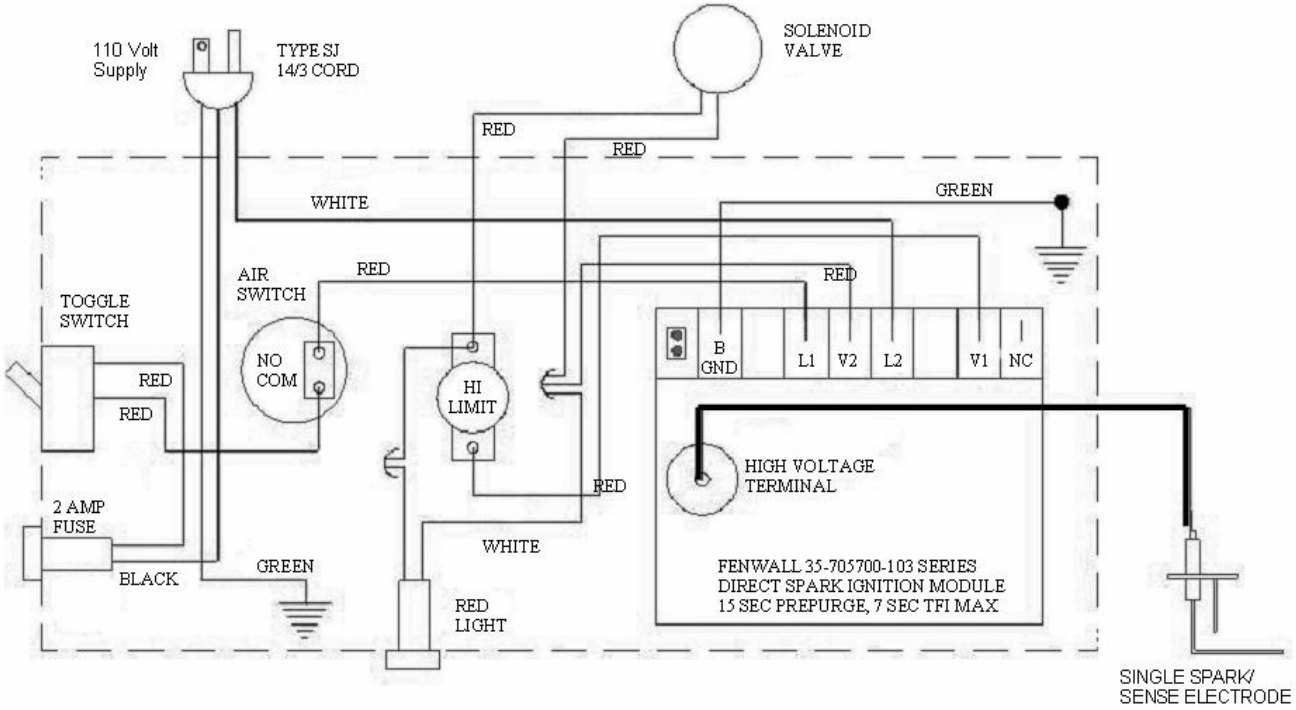
7. Appendix

7.1 HEATER PARTS LIST




GGG-8333
GH188 AIR SWITCH
GGG-8336
GH189 HI LIMIT SWITCH
GGG-8325
GH181 CONTROL
BOX SWITCH
GGG-8330
GH186 CONTROL BOX
DSI MODULE
GGG-8337
GH190 BTU REGULATOR
OR
GGG-8338
GH191 100,000 BTU
REGULATOR
GGG-8339
GH192 SOLENOID
VALVE
GGG-8340
GH193 BALL VALVE
GGG-8306
GH115 OBSERVATION
WINDOW
GGG-8314
GH150 BURNER
WELDMENT
GGG-8331
GH187 ELECTRODE
ASSEMBLY
GGG-8312
GH122 60,000 BTU/H GAS
SELECTOR VALVE
OR
GGG-8313
GH123 100,000BTU/H GAS
SELECTOR VALVE

7.2 ELECTRICAL SCHEMATIC



WARRANTY

Except as expressly provided in this agreement, Edwards Group (hereinafter called the Manufacturer) excludes all express or implied warranties, conditions and obligations of the Manufacturer, whether statutory or otherwise. concerning the quality of the heaters or their fitness for any purpose.

Under no circumstances will the Manufacturer be liable for any kind of special, consequential, indirect, incidental damages resulting from the use of it's products, nor shall the Manufacturer's liability ever exceed the selling price of the product.

Edwards Group warrants their heaters as follows:

1. Goods free from defect:

The unit shall be free from defects in materials and workmanship and shall operate properly in accordance with industry standards when employed in normal usage, provided the heater has been properly install for a period of: one (1) years from the original date of purchase.

2. The warranty does not include:

    a. routine replacements of parts due to normal wear and tear arising from use.

    b. any defect attributable in whole or in part to misuse or improper installation.

    c. any damage or defects attributable to repair of the heater outside the manufacturer's facilities or those of an authorized dealer or the installation of unapproved parts on the heater, in the Manufacturer's judgment to affect it's performance or reliability, or which has been subject to misuse, negligence, or accident.

    d. Any damage attributable to accident or to lightening, power surge, brown-out, leaking, damage or connection to a power source having a greater rating than that specified in the heater specifications.

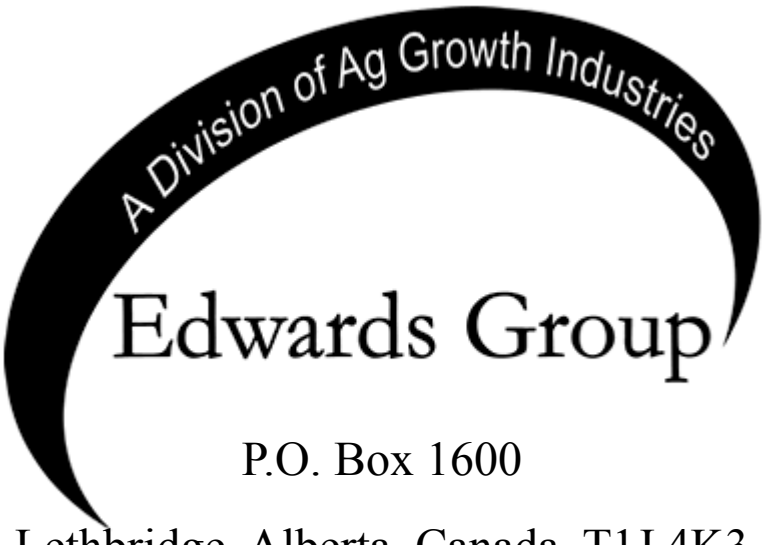
3. Repair or Replacement

Where any part of the heater fails during normal usage, during the warranty period specified, the Manufacturer or authorized dealer of the Manufacturer, shall repair or replace the defective part of the heater with a new or factory reconditioned part, such replacement or repair to be made without charge for parts or labor, F.O.B. the Manufacturer.

4. Warranties shall not apply to any product made by the Manufacturer which has not been operated in accordance with the manufacturer's printed instructions or shall have been operated beyond the rated capacity of the product or a use not intended.

5. The Manufacturer reserves the right to make design or specification changes at any time, without contingent obligation to purchasers of products already sold.

WARRANTY VOID IF NOT REGISTERED



P.O. Box 1600

Lethbridge, Alberta, Canada T1J 4K3

Phone: (403) 320-5585

Fax: (403) 320-5668

Toll Free: (800) 565-2840 (Canada & USA)

Website: www.edwardsgroup.ca

PRINTED IN CANADA