

SURE FLAME

Operation and Maintenance Manual Manuel d'installation et d'entretien

Model No. IX800

Indirect Construction Heater
Radiateur de construction indirecte
800,000 Btu/h



⚠ WARNING

Read and follow all installation, and operating instructions before first use of this product

⚠ AVERTISSEMENT

Lisez et suivez toutes les installation et les instructions de fonctionnement avant la première utilisation de ce produit

**Retain these instructions for future reference
Veuillez garder ce manuel comme référence ultérieure**

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P/N 974-4135
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GENERAL HAZARD WARNING

Failure to comply with the precautions and instructions provided with this heater, can result in death, serious bodily injury and property loss or damage from hazards of fire, explosion, burn, asphyxiation, carbon monoxide poisoning, and/or electrical shock.

Only persons who can understand and follow the instructions should use or service this heater.

If you need assistance or heater information such as an instruction manual, labels, etc. Contact the manufacturer.



WARNING

Fire, burn, inhalation, and explosion hazard. Keep solid combustibles, such as building materials, paper or cardboard, a safe distance away from the heater as recommended by the instructions. Never use the heater in spaces which do or may contain volatile or airborne combustibles, or products such as gasoline, solvents, paint thinner, dust particles or unknown chemicals.



WARNING

Not for home or recreational vehicle use.



MISES EN GARDE GÉNÉRALES

Le non-respect des mises en garde et des instructions fournies avec ce radiateur peut entraîner la mort, de graves blessures et des pertes matérielles ou des dommages à la propriété résultant d'un incendie, d'une explosion, de brûlures, d'asphyxie, d'empoisonnement au monoxyde de carbone et/ou d'un choc électrique.

Seules les personnes aptes à comprendre et à suivre les instructions devraient se servir de ce radiateur ou le réparer.

Si vous avez besoin d'aide ou d'informations concernant ce radiateur, soit une notice d'instructions, une étiquette, etc., prière de communiquer avec le fabricant.



AVERTISSEMENT

Risque d'incendie, de brûlures, d'inhalation et d'explosion. Garder les combustibles solides, tels les matériaux de construction, le papier et le carton, à bonne distance de ce radiateur, comme il est recommandé dans les instructions. Ne jamais utiliser cet appareil dans des endroits qui contiennent ou pourraient contenir des combustibles volatiles ou en suspension dans l'air tels l'essence, les solvants, les diluants pour peinture, les particules de poussières ou des produits chimiques inconnus.



AVERTISSEMENT

Ne pas utiliser dans une maison ou un véhicule de camping.

Read this Warning First

This heater is designed and approved for use as a construction heater under ANSI Z83.7/ CSA 2.14. The primary purpose of construction heaters is to provide temporary heating of buildings under construction, alteration, or repair and to provide temporary emergency heat. Properly used, the heater provides safe economical heating. Since the products of combustion are released, it is imperative that the flue stack is extended outside of the enclosed area when the heater is positioned indoors.

This heater is not designed as an Unvented Gas Fired Room Heater under ANSI-Z21.11.2 and should not be used in the home. ANSI A119.2(NFPA 501C) Recreational Vehicle Standard prohibits the installation or storage of LP-Gas containers even temporarily inside any recreational vehicle. The standard also prohibits the use of Unvented Heaters in such vehicles.

Installation must comply with local codes, or in the absence of local codes, with the *National Fuel Gas Code ANSI Z223.1/NFPA 54* and the *Standard for the Storage and Handling of Liquefied Petroleum Gases ANSI/NFPA 58*.

Gas inspection authorities in Canada require that the installation and maintenance of heaters and accessories be accomplished by qualified gas fitters.

Installation must comply with local codes, and with the Natural Gas and Propane Installation Code CSA-B149.1.

We cannot anticipate every use which may be made for our heaters.

CHECK WITH YOUR LOCAL FIRE SAFETY AUTHORITY IF YOU HAVE QUESTIONS ABOUT LOCAL REGULATIONS.

Other standards govern the use of fuel gases and heat producing products in specific applications. Your local authority can advise you about these

Lire cet avertissement en premier

Le radiateur est conçu et approuvé aux fins d'utilisation comme radiateur de construction en conformité avec la norme ANSI Z83.7/CSA 2.14. La fonction principale des radiateurs de construction est de fournir un chauffage temporaire des bâtiments en construction, modification ou restauration, et de fournir de la chaleur en cas d'urgence. Correctement utilisé, le chauffage fournit de la chaleur de façon sûre et économique. Étant donné que les produits de combustion sont rejetés, il est impératif que le conduit d'évacuation mène à l'extérieur de l'espace clos lorsque le radiateur se trouve à l'intérieur.

Ce radiateur n'est pas conçu comme chauffage au gaz sans ventilation pour pièce d'habitation selon la norme ANSI-Z21.11.2 et ne doit pas être utilisé à domicile. La norme ANSI A119.2 (NFPA 501C) concernant les véhicules de loisirs interdit l'installation ou l'entreposage de bouteilles de gaz LP/propane, même temporairement, à l'intérieur des véhicules de loisirs. La norme interdit également l'utilisation de chauffage sans ventilation dans de tels véhicules.

L'installation doit être conforme aux codes locaux, ou en l'absence des codes locaux, au *National Fuel Gas Code ANSI Z223.1/NFPA 54* et le *Standard*

for the Storage and Handling of Liquefied Petroleum Gases ANSI/NFPA 58.

Au Canada, toutes les autorités d'inspection des appareils à gaz exigent que l'installation des appareils de chauffage et de leurs accessoires soit effectuée par des gaziers qualifiés.

L'installation doit être conforme au code CSA B149.1 code d'installation du gaz naturel et du propane.

Nous ne pouvons pas anticiper chaque utilisation qui pourrait être faite de nos radiateurs.

VÉRIFIEZ AUPRÈS DE VOTRE AUTORITÉ LOCALE EN PRÉVENTION DES INCENDIES SI VOUS AVEZ DES QUESTIONS SUR LES RÉGLEMENTATIONS LOCALES.

D'autres normes régissent l'utilisation des carburants gazeux et des produits générateurs de chaleur dans des applications spécifiques. Votre autorité locale peut vous en informer.

WARNING

Air Quality Hazard

- Do not use this heater for heating human living quarters.
Use of direct-fired heaters in the construction environment can result in exposure to levels of CO, CO₂, and NO₂ considered to be hazardous to health and potentially life threatening.
- Do not use in unventilated areas.
- Know the signs of CO and CO₂ poisoning.
 - Headaches, stinging eyes
 - Dizziness, disorientation
 - Difficulty breathing, feels of being suffocated
- Proper ventilation air exchange (OSHA 29 CFR 1926.57)to support combustion and maintain acceptable air quality shall be provided in accordance with OSHA 29 CFR Part 1926.154, ANSI A10.10 Safety Requirements for Temporary and Portable Space Heating Devices and Equipment used in the Construction Industry or the Natural Gas and Propane Installation Codes CSA B149.1.
 - Periodically monitor levels of CO, CO₂ and NO₂ existing at the construction site - at the minimum at the start of the shift and after 4 hours
 - Provide ventilation air exchange, either natural or mechanical, as required to maintain acceptable indoor air quality

USA 8-Hr Time weighted average
(OSHA 29 CFR 1926.55 App A)

CO 50 ppm
CO₂ 5000 ppm
NO₂

USA - Ceiling Limit (Short Term
Exposure Limit = 15 minutes)

CO
CO₂

NO₂ 5 ppm

Canada 8-hr time weighted average
WorkSafe BC OHS Guidelines Part 5.1
and Ontario Workplaces Reg 833

25 ppm
5000 ppm
3 ppm (Reg 833)

Canada STEL (15 minutes Reg 833/1
hour WSBC) WorkSafe BC OHS
Guidelines Part 5.1 and Ontario
Workplaces Reg 833

100 ppm
15000 ppm(WSBC)
30000 ppm(Reg 833)
1.0 ppm(WorkSafeBC)
5.0 ppm (Reg 833)

- Ensure that the flow of combustion and ventilation air exchange cannot become obstructed.
- As the building 'tightens up'during the construction phases ventilation may need to be increased.

AVERTISSEMENT

Danger lié à la qualité de l'air

- Ne pas utiliser cet appareil pour chauffer des logements humains.
- L'utilisation d'appareils à chauffage direct dans un environnement de construction peut entraîner l'exposition à des niveaux de CO, de CO₂, et de NO₂ considérés nocifs pour la santé et potentiellement mortels.
- Ne pas utiliser dans les zones non ventilées.
- Apprendre à reconnaître les signes d'intoxication au CO, et CO₂.
 - Maux de tête, yeux qui piquent.
 - Vertiges, désorientation.
 - Difficulté à respirer, sensation d'étouffement.
- Afin de soutenir la combustion et de maintenir une qualité d'air acceptable, un échangeur d'air de ventilation approprié (OSHA 29 CFR 1926.57) doit être fourni conformément à la provision OSHA 29 CFR partie 1926.154, de l'Administration de la sécurité et de l'hygiène du travail des États-Unis (OSHA), à la norme ANSI A10.10, Exigences relatives aux appareils et appareils de chauffage des locaux temporaires et portatifs utilisés dans l'industrie de la construction de l'Association américaine de normalisation ou aux codes d'installation du gaz naturel et du propane CSA B149.1 de l'Association canadienne de normalisation.
 - Surveiller périodiquement les niveaux de CO, de CO₂ et de NO₂ sur le chantier de construction, au moins au début du quart de travail et après 4 heures.
 - Le cas échéant, assurer un échange d'air de ventilation, naturel ou mécanique, afin de maintenir une qualité d'air intérieur acceptable.

É.-U. 8 heures. Moyenne pondérée dans le temps Canada 8 heures Moyenne pondérée dans le temps

(OSHA 29 CFR 1926.55 App A)

Directives sur la santé et la sécurité au travail de WorkSafe BC, section 5.1 et la Réglementation 833 de l'Ontario relative aux lieux de travail

CO	50 ppm	25 ppm
CO ₂	5 000 ppm	5 000 ppm
NO ₂		3 ppm (Rég. 833)

É.-U.– Hauteur limite du plafond

Canada STEL (15 minutes Rég. 833/1 h (Limite d'exposition à court terme = 15 minutes) WSBC) Directives sur la santé et la sécurité au travail de WorkSafe BC, section 5.1 et Réglementation sur les lieux de travail de l'Ontario, 833

CO		100 ppm
CO ₂		15 000 ppm (WSBC)
		30 000 ppm (Rég. 833)
NO ₂	5 ppm	1,0 ppm (WorkSafeBC)
		5,0 ppm (Rég. 833)

- Assurez-vous que le débit d'échange d'air de combustion et de ventilation ne peut pas être obstrué.
- La ventilation peut devoir être augmentée au fur et à mesure que le bâtiment se « resserre » pendant les phases de construction.

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SPECIFICATIONS

Model No. IX800

Capacity / Capacité:	800,000 Btu/h (235 kW)
Gas/Gaz:	Natural or Propane
Inlet Pressure* / Pression d'arrivée*:	Max 14" WC (3.45 kPa) Min 9" WC (2.24 kPa)
Manifold Pressure / Pression du distributeur	Natural Gas 4.5" WC (1.12 kPa) Propane 2.5" WC (0.62 kPa)
Orifice Size / Calibre de l'injecteur:	0.581"
Electrical Rating / Puissance Electrique:	208/230 Volts, 27.0/24.4A, 3Ph, 60Hz 208/230 Volts, 43.6/39.4A, 1Ph, 60Hz
Minimum Temperature / température minimale:	-40°C (-40°F)
Duct Diameter / diamètre du conduit:	20" or 2 x 16"
Maximum Duct Length:	100' (30.5 m)
Venting	Category I
Fuel Consumption / consommation de carburant	Natural Gas 800 ft³/hr Propane 318 ft³/hr
Certification	ANSI Z83.7, CSA 2.14

* Minimum inlet pressure is for purpose of input adjustment.

* La pression minimum d'arrivée est en vue de l'ajustement de l'alimentation.

Max. Manifold Pressure Altitude Correction Table

Altitude	Natural Gas	Propane
0' - 2000'	4.5" (1120 Pa)	2.5" (622 Pa)
2500'	4.2" (1045 Pa)	2.4" (597 Pa)
3000'	4.1" (1020 Pa)	2.3" (572 Pa)
3500'	4" (995 Pa)	2.2" (547 Pa)
4000'	3.9" (970 Pa)	2.15" (535 Pa)
4500'	3.8" (946 Pa)	2.1" (523 Pa)

Installation

The Sure Flame Model IX800 is an indirect-fired gas heater intended to be used primarily for the temporary heating of buildings under construction, alteration or repair. Since the products of combustion are released, it is imperative that the flue stack is extended outside of the enclosed area when the heater is positioned indoors. The flow of supply air and exhaust gasses must not be obstructed in any manner.

The equipment shall be installed in accordance with the National Fuel Code, ANSI 223.1/NFPA 54, and/or the Natural Gas and Propane Installation Code CSA B149.1, and applicable local regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

The heater shall be used in a horizontal position on a firm, non-combustible surface.

The electrical grounding of the appliance shall be in compliance with National Electrical Code, ANSI/NFPA 70, or the CSA C22.1, Canadian Electrical Code, Part I

Warning: The installation and maintenance of the heater must be accomplished by a qualified service person. The heater should be inspected before each use and at least annually.

Warning: Do not use this heater in a space where gasoline or other liquids with flammable vapours are stored or used.

Installation

Le modèle Sure Flame IX est un radiateur au gaz à combustion indirecte prévu pour être utilisé principalement pour réchauffer temporairement un bâtiment en cours de construction, modification ou restauration. Étant donné que les produits de combustion sont rejetés, il est impératif que le conduit d'évacuation mène à l'extérieur de l'espace clos lorsque le radiateur se trouve à l'intérieur. L'écoulement d'air d'admission et des gaz de combustion ne doit en aucune façon être obstrué.

L'équipement doit être installé conformément à la National Fuel Code, ANSI 223.1/NFPA 54, et/ou la code d'installation du gaz naturel et du propane CSA B149.1, et aux règlements locaux applicables, qui devraient être respectés dans tous les cas. Les autorités compétentes devraient être consultées avant de procéder à l'installation.

Le radiateur devrait être utilisé horizontalement sur une surface non combustible ferme.

La mise électrique à la terre de l'appareil se fera conformément au National Electrical Code, ANSI/NFPA 70, ou le CSA C22.1, Code canadien de l'électricité, 1re partie.

Avertissement : Installation et maintenance du radiateur doivent être effectuées par un agent de service qualifié. Le radiateur doit être inspecté avant chaque utilisation, et au moins une fois par an.

Avertissement : Ne pas utiliser le radiateur dans un endroit où on entrepose ou utilise de l'essence ou d'autres liquides émanant des vapeurs inflammables.

Clearances

Clearance required for combustibles:

Outlet:	10 ft	(3 m)
Sides:	2 ft	(0.6 m)
Top:	3 ft	(0.9 m)
Flue:	18"	(45 cm)
Floor:	Noncombustible	

Minimum clearance required to LP Gas containers:

Outlet:	20 ft (6.1 m)
Top & Sides:	10 ft (3.0 m)

Position heater properly on a horizontal surface before use.

The hose assembly shall be protected from traffic, building materials and contact with hot surfaces both during use and while in storage. For use with or without ductwork. Only ductwork supplied by the manufacturer shall be used with this heater. For either indoor or outdoor use. Adequate ventilation must be provided. This heater is for operation at a temperature rise from 72°C to 120°C (130°F to 215°F).

All gas inspection authorities in Canada require that the installation and maintenance of heaters and accessories shall be accomplished by qualified gas fitters.

Installation must comply with the Natural Gas and Propane Installation Code, CSA B149.1.

Ducting

The IX800 can be ducted on both the inlet and outlet. The inlet duct can be up to 50' of smooth 16" metal duct. The heater requires some fresh air when recirculating. Do not block the inlet louvers. The outlet duct shall be of a material able to withstand temperatures of up to 300°F. Total outlet duct length may be up to 300' of straight, smooth, 20" metal duct. Recommended maximum length of 20" flexible duct is 200'. Use of smaller ducts or bends in the ducts will reduce the allowable length and may result in cycling of the burner. After setting up the ductwork, confirm that the heater will run for at least 20 minutes without the burner cycling. If it cycles, reduce the duct restrictions so that the heater can run without cycling.

Dégagements

Espace dégagé requis pour les combustibles:

Sortie:	10 pi (3m)
Cotes:	2 pi (0.6 m)
Combustion:	18 po (45 cm)
Dessus:	0.9 m
Plancher:	Noncombustible

Espace minimum requis pour les contenants de Gaz PL

Sortie:	20 pi (6.1 m)
Dessus et Cotes:	10 pi (3.0 m)

Placez le radiateur de façon appropriée, sur une surface horizontale, avant de l'utiliser.

L'ensemble de flexibles devra être protégé de la circulation, des matériaux de construction et du contact avec des surfaces chaudes durant l'utilisation et durant l'entreposage. Pour utilisation avec ou sans réseau de gaines. Seulement réseau de gaines fourni par le fabricant sera utilisé avec cet radiateur. Pour utilisation à l'intérieur ou à l'extérieur. La ventilation doit être adéquate. Cet aérotherme fonctionne à une élévation de température de 72°C à 140°C (130°F à 215°F)

Au Canada, toutes les autorités d'inspection des appareils à gaz exigent que l'installation des appareils de chauffage et de leurs accessoires soit effectuée par des gaziers qualifiés.

L'installation doit être conforme au code CSA B149.1 code d'installation du gaz naturel et du propane.

Conduits

Le radiateur IX800 peut être canalisé à l'orifice d'entrée et de sortie. La canalisation d'entrée peut atteindre jusqu'à 50 pieds de conduits en métal lisse de 16 po. Le chauffage a besoin d'un peu d'air frais lors de la recirculation. Ne pas bloquer les grilles d'entrée d'air. La canalisation de sortie sera fabriquée d'un matériau pouvant résister à des températures allant jusqu'à 300 °F. La longueur totale de la canalisation de sortie peut atteindre jusqu'à 300 pieds de conduits en métal lisse droits de 20 po. La longueur maximale recommandée d'un conduit flexible de 20" est de 200'. L'utilisation, de plus petites conduites ou de coudes dans la canalisation réduira la longueur permise et peut entraîner des fluctuations du brûleur. Après avoir installé les conduits, confirmez que le chauffage fonctionnera pendant au moins 20 minutes sans que le brûleur n'effectue de cycle. Si le brûleur effectue de cycle, réduisez les restrictions des conduits afin que le chauffage puisse fonctionner sans cycle.

Venting

This equipment requires Category I venting to the exterior. The vent connector should be designed for a negative pressure and be constructed of materials having corrosion resistance and durability to heat at least equivalent to that of No. 24 GSG galvanized steel.

Venting must comply with the Natural Gas and Propane Installation Code CSA B149.1, as well as other local regulations that may apply.

Flue Diameter	10"***	8"****
Min. vertical height	4'	4'
Max. lateral length*	15'	0'
Max. # of added elbows**	2	0

*Lateral lengths must have a minimum 10% rise.

** A minimum vertical length of 2' is required before the first elbow and after the last elbow.

*** Adapter needed to go from 8" to 10"

**** Current Flue

Consult the manufacturer for additional venting options.

Rated flue gas temperature 446°F (230°C)

Rated vent pressure - Negative
Category I

Gas Connections

Ensure the correct regulator is used to supply the heater with maximum inlet pressure of 1/2 psi (3.45 kPa). Excessive pressure will damage components and void the warranty.

Visually inspect the fuel supply hose assembly. Ensure that it is protected from traffic, building materials, and contact with hot surfaces. Replace if there is evidence of excessive wear or abrasion.

After installation, check for gas leaks by applying a soapy solution at each piping and hose assembly connection.

Ventilation

Cet équipement exige une ventilation vers l'extérieur de Catégorie I. Le raccord d'évent devrait être conçu pour une pression négative et construit de matériaux ayant une résistance à la corrosion et une durabilité à la chaleur équivalant au moins à l'acier galvanisé no 24 GSG.

La ventilation doit se conformer à la Norme concernant les Installations au gaz naturel et au propane CSA B149.1, ainsi qu'aux autres règlements locaux qui peuvent s'appliquer.

Conduit d'évacuation	10 po	8 po
Hauteur min. verticale	4 pi	4 pi
Longueur max. latérale*	15 pi	0 pi
Nombre max. de coudes**	2	0

*Les longueurs latérales doivent avoir une inclinaison d'au moins 10 %.

**Une longueur verticale d'au moins 2 pieds est requise avant le premier coude et après le dernier coude.

Consulter le fabricant pour des options de ventilation supplémentaires.

Température nominale du gaz de combustion
446°F (230°C)

Pression nominale de l'évent - Négative
Catégorie I

Raccords au gaz

S'assurer que le régulateur approprié est utilisé pour fournir la pression d'admission maximale de 1/2 psi au radiateur. Une pression excessive endommagera les pièces et annulera la garantie.

Inspecter visuellement l'ensemble du tuyau d'alimentation. S'assurer qu'il est protégé de la circulation, des matériaux de construction et du contact avec des surfaces chaudes. Le remplacer, s'il y a des signes d'usure ou d'abrasion excessive.

Après l'installation, vérifier s'il ya des fuites de gaz en appliquant une solution savonneuse à chaque raccord de la canalisation.

INSTALLATION USING A PROPANE SUPPLY TANK

- 1 When installing the heater for use with propane gas, set the gas selector valve to “Propane” and lock in position.
- 2 Arrange the propane supply system to provide for vapour withdrawal from the operating container. Supplying liquid propane to the heater is dangerous and will damage the components. Another regulator must be installed on the heater to reduce the pressure from this regulator to a maximum inlet pressure of 1/2 psi (3.45 kPa).
- 3 Ensure that for the surrounding temperature the size and capacity of the propane supply container is adequate to provide the rated Btu/h input to the heater.
- 4 Turn off the propane supply valve at the container when the heater is not in use.
- 5 The installation must conform with local codes, or in the absence of local codes, with the *Standard for the Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58* or the *Natural Gas and Propane Installation Code CSA-B149.1*.
- 6 When the heater is to be stored indoors the propane container must be disconnected from the heater and the container moved away and stored in accordance with the above national standards.

INSTALLATION FOR NATURAL GAS APPLICATIONS

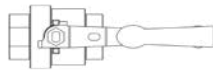
- 1 When installing the heater for use with natural gas, set the gas selector valve to the “Natural” position.
- 2 A regulator must be installed on the heater to ensure that the pressure to the heater does not exceed 1/2 psi inlet pressure.
- 3 The installation of this heater to a natural gas supply must conform with all applicable local codes, or in the absence of local codes, with the *National Fuel Gas Code ANSI Z223.1/NFPA 54* or the *Natural Gas and Propane Installation Code CSA-B149.1*.

Operating Instructions

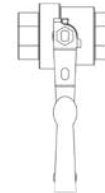
Start

1. Set GAS SELECTOR VALVE to gas being used (dual-fuel models).
NOTE: When using Propane Gas the Selector valve must be locked in position.

NATURAL GAS



PROPANE



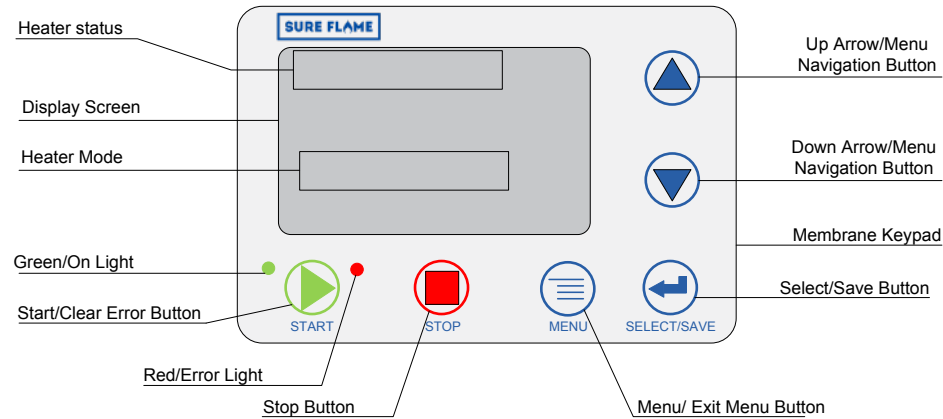
2. Ensure the firing valve (manual valve nearest the burner) is in the "ON" position.
3. Connect power. Use appropriate power supply as indicated by the ELECTRICAL RATING information.
4. Open gas supply.
5. Select desired heat mode (see above).
6. Press the START button.
7. The status will change to "Ignition." Burner fan will start up and heater will attempt to ignite.
8. After flame is established, the status will change to "ON" with one or two flame symbols depending on whether the heater is in high or low fire (2 for high or 1 for low).

Stop

1. Press the STOP button.
2. Status will change to "OFF."
3. Heater will go through shutdown phase. Burner will be in post purge for approximately 20 seconds. Main fan will shut down when heater has cooled down enough.

Warning: Do not stop the heater by turning off the main electrical switch. Heat accumulated in the heater can damage burner or safety equipment.

Keypad and Display



When heater is first plugged in and the power selector switched on, the screen first displays the logo “SURE FLAME,” then displays the heater model and software version currently installed, and finally the Status/Mode/Run page.

Status

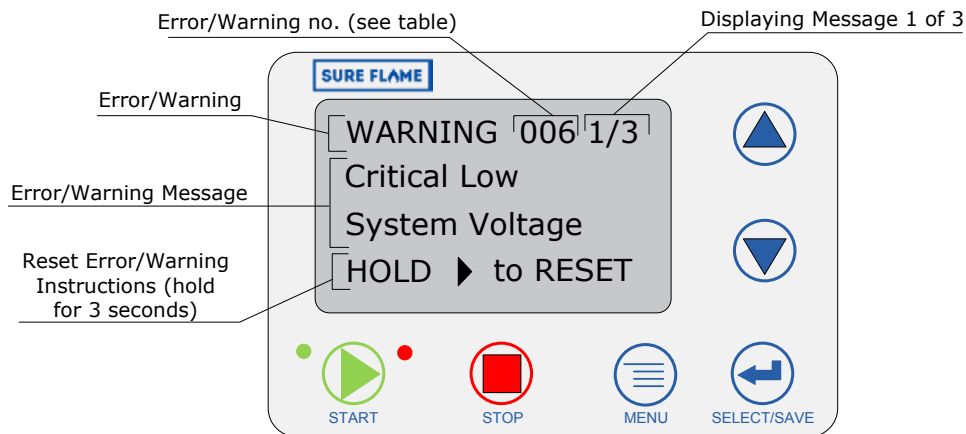
Status	Description
OFF	The heater goes to “OFF” when it is powered off. The heater also goes to “OFF” when STOP button is pressed. Heater does not start on its own when power is provided to unit.
Standby	When the start button is pressed and the heater is set to work with thermostat but there is no call for heat the heater will be in “Standby”. The modes that require a thermostat are “HI/LO/OFF, HI/OFF, & LO/OFF”.
Ignition	This status will always show when burner is firing up after a call for heat through thermostat or “CONST HI”, “CONST LO” modes and “HI/LO.”
ON	Burner is on and flame has been established.

Errors

Occasionally errors and warnings may be displayed on the screen. If more than one error is triggered the arrow keys can be used to scroll between the errors and warnings. The top right displays the current and total number of errors with the most recent being shown first. To reset the errors and warnings hold down the start button for 3 seconds. If the errors and warnings do not reset then the underlying problem must be addressed first. The error or warning can then be successfully reset.

When errors are triggered the error is displayed, the heater will shut down and the red light on the keypad will be turned on. When a warning is triggered it will display the message but it will not impede the function of the heater.

Warning /Error Message Example:



Menu

To access the menu press the MENU button and scroll using the arrow keys. Press SELECT/SAVE to select an option. Press MENU to back out of the menu.

Menu Item	Description
Heat Mode	Allows the switching between different heat modes and fan only mode.
Statistics	In this section the software version, heater serial number, voltage, flame rod signal, burner and blower hours of function can be viewed.
Error log	The past 50 errors are saved here and can be viewed.
Settings	Date and time can be set and viewed here. Language can be set here.

Heat Modes

To access heat modes, press the MENU button and scroll using the arrow keys to Heat Mode and press SELECT/SAVE.

Heater Mode	Description
Heater Mode	Heater switches between high fire, low fire and off based on thermostat.
HI/OFF*	Heater runs between high fire and off based on thermostat. No low fire.
CNST ON/HI	Heater runs on high fire all the time and disregards thermostat. No jumper is required.
Fan Only	Circulation fan runs continuously. No heat.

*With a jumper instead of thermostat the heater runs constantly on high.

**With a jumper instead of thermostat the heater runs constantly on low.

Statistics

To access Statistics press the MENU button and scroll using the arrow keys to Statistics and press SELECT/SAVE.

Page	Description	
1	PCB voltage in	PCB system voltage
2	PCB system voltage	Circulation blower hours
3	PCB software version	Heater Serial Number

Error Log

To access the Error Log press the MENU button and scroll using the arrow keys to Error Log and press SELECT/SAVE.

Scroll up and down using the arrow keys to view the error history from most recent to oldest.

To clear the error log press and hold the SELECT/SAVE till the first line of the Error Log reads "End of Error Log".

Settings

To access Settings, press the MENU button and scroll using the arrow keys to Settings and press SELECT/SAVE.

Setting	Description
Units	Choice between metric and imperial units (not applicable to this heater).
Date/Time	Set date and time here.
Language	Set Language here.

Set Date/Time

Access the settings menu. Scroll using the arrow keys to "Date/Time" and press the SELECT/SAVE. To set the date or time hold the SELECT/SAVE until the month starts blinks. To move from month to day or year press SELECT/SAVE until you reach the desired position. Use the arrow keys to set the new value. Press SELECT/SAVE to move to the next value to be changed. To save changes press and hold SELECT/SAVE until the seconds start counting up again.

Set Language

Access the settings menu. Scroll using the arrow keys to "Language" and press the SELECT/SAVE.

Scroll up and down using the arrow keys to the desired language setting and press SELECT/SAVE to set the new language. An asterisk * should appear next to the selected language. Press MENU button twice to return to status page.

LPG - PROPANE FUEL VAPORIZATION RATE

The following chart shows the amount of BTU's that various sizes of tanks will produce on the average at specific temperatures and regular atmospheric conditions.

Tank Size Gallons (Pounds)	Maximum intermittent withdrawal rate (BTU/hr) without tank frosting* if lowest outdoor temperature (average for 24 hours) reaches.							
	+40 F.	+30 F.	+20 F.	+10 F.	0 F.	-10 F.	-20 F.	-30 F.
150 (600)	214,900	187,900	161,800	148,000	134,700	132,400	108,800	107,100
250 (1000)	288,100	251,800	216,800	198,400	180,600	177,400	145,800	143,500
500 (2000)	478,800	418,600	360,400	329,700	300,100	294,800	242,300	238,600
1000 (4000)	852,800	745,600	641,900	587,200	534,500	525,400	431,600	425,000

* Frosting on the outside of the tank acts as an insulator, reducing the vaporization rate.

MAXIMUM BTU CONTENT (PROPANE)

The following table shows the maximum BTU's that a cylinder contains.

CYLINDER SIZE	BTU CONTENT
100 pound	2,159,100
250 gallon USA	22,922,500
500 gallon USA	45,845,000
1000 gallon USA	91,690,000

CAUTION: In extremely cold weather it is impossible to completely empty a propane cylinder.

PRESSURE & FLOW EQUIVALENTS

1 Std. Atmosphere =	14.73 lb./sq. in. =	1.014 bar
1" Water Column (W.C.) =	0.58 oz./sq. in. =	2.49 millibar
11" Water Column =	0.4 lb./sq. in. =	27.39 millibar
1 lb./sq. in. (psig) =	27.71" W.C. =	0.0689 bar
1" Mercury =	0.49 psig =	33.86 millibar
1 Std. Cubic Ft./Hr. =	2,500 BTU/Hr. =	0.02832 cu. m/hr.
1 BTU/Hr. =	0.2931 Watts	

Maintenance

Warning: Disconnect gas and electrical supplies before servicing.

Heater should be inspected before each use and at least annually by a qualified service person.

Weekly:

Gas Hose	Check for cracks and damaged connectors
Air flow	Remove any obstructions to air flow
Bearings	Lubricate bearings according to details below

Monthly:

Cords and Connectors	Check for cracks, exposed wires, and dirt in electrical connectors
Physical Integrity	Check for damage to body, louvers, and inlet screens that may obstruct air flow and impact combustion quality
Belts	Replace belt if cracked or worn according to details below. Ensure belt tensioner is in place and tensioner roller is running smoothly.

Start of Season:

Combustion Chamber	Remove burner assembly Clean inside of combustion chamber with a wire brush. Vacuum all ash and soot from combustion chamber. Inspect combustion chamber for any damage. Do not use a heater that has a hole in the combustion chamber.
Burner	Remove burner from burner assembly Clean flame rod and igniter with solvent or emery cloth. Inspect for cracked ceramic. Ensure they are properly centered in the burner openings. Inspect wires for cracks or evidence of overheating Ensure burner head screws are tight. Ensure openings in orifice plate (located inside the burner pipe) are not blocked. Ensure gasket and door seal are in place and not damaged.
Electrical components	Check all wiring for loose, cracked, or overheated wires and connectors. Replace if necessary. Ensure ground wires are properly connected. Ensure control box seal is in place and not damaged. Wipe dirt from motors. Motors have sealed bearings and do not require lubrication.
VFD	If heater has not been used in more than a year, connect power, turn power switch to the appropriate power source and let the heater sit for one hour for each year since the heater was last used. This will reform the capacitors and extend the life of the VFD.
Valve Train	Verify that manifold pressure matches the specification label. Adjust regulator pressure if necessary. Inspect strainer and clean if necessary. Using soapy water or gas leak detector, check all gas connections for leaks.
Impellers	Remove any dirt build-up on both burner and blower impellers. Inspect impellers for loose or damaged fins. Run heater and check for vibration. Replace impellers that are damaged or causing vibration.
Body	Ensure all panels and shields are in place and that fasteners are tight.

Entretien

Avertissement : Débrancher les alimentations en gaz et en électricité avant d'effectuer l'entretien.

Le chauffage doit être inspecté avant chaque utilisation et au moins une fois par an par un technicien qualifié.

Toutes les semaines :

Tuyaux de gaz	Vérifier s'il y a des fissures et des raccords endommagés
Débit d'air	Retirer les obstructions à la circulation de l'air

Tous les mois :

Cordons et connecteurs	Vérifier s'il y a des fissures, des câbles à découvert et de la saleté dans les connecteurs électriques
Intégrité physique	Vérifier s'il y a des dommages au corps, aux louveres et grilles d'entrée qui peuvent entraver la circulation de l'air et avoir une incidence sur la qualité de la combustion
Courroie	Remplacer la courroie si elle est fendue ou usée. S'assurer que le tendeur de courroie est en place et que le rouleau tendeur fonctionne en douceur.

Fin de la saison :

Chambre de combustion	Retirer l'ensemble de brûleur. Nettoyer l'intérieur de la chambre de combustion à l'aide d'une brosse métallique. Enlever toute les cendres et la suie de la chambre de combustion à l'aide d'un aspirateur. Vérifier s'il y a des dommages à la chambre de combustion. Ne pas utiliser un radiateur ayant un trou dans la chambre de combustion.
Brûleur	Retirer le brûleur de l'ensemble de brûleur. Nettoyer l'électrode de détection de flamme et l'allumeur avec un solvant ou une toile d'émeri. Vérifier s'il y a des fissures dans la céramique. S'assurer qu'ils sont bien centrés dans l'ouverture du brûleur. Vérifier s'il y a des fissures ou des signes d'excès de chaleur dans les câbles. S'assurer que les vis de la tête de brûleur sont serrées. S'assurer que les ouvertures de la plaque à orifice (située à l'intérieur du tuyau du brûleur) ne sont pas bloquées. S'assurer que le joint d'étanchéité et le joint d'étanchéité de la porte sont en place et ne sont pas endommagés.
Éléments électriques	Vérifier s'il y a des câbles et des connecteurs desserrés, fissurés ou ayant des signes d'excès de chaleur. Les remplacer, au besoin. S'assurer que les fils de mise à la terre sont bien raccordés. S'assurer que le joint d'étanchéité de la boîte des commandes est en place et n'est pas endommagé. Essuyer la saleté des moteurs. Les moteurs ont des coussinets scellés. Ils n'exigent pas de lubrification.
VFD	Si le chauffage n'a pas été utilisé depuis plus d'un an, branchez l'alimentation électrique, tournez l'interrupteur sur la source d'alimentation appropriée et laissez le chauffage pendant une heure pour chaque année écoulée depuis la dernière utilisation. Cela permettra de reformer les condensateurs et de prolonger la durée de vie du VFD.
Organes de distribution	Vérifier que la pression de la rampe à gaz correspond à celle inscrite sur l'étiquette de spécifications. Régler la pression du régulateur, au besoin. Inspecter la crépine et la nettoyer, au besoin. À l'aide d'eau savonneuse ou d'un détecteur de fuite de gaz, vérifier s'il y a des fuites au niveau des raccords au gaz.
Rouets centrifuges	Enlever l'accumulation de saleté sur le brûleur et les rouets centrifuges du ventilateur. Vérifier si les pales des rouets centrifuges sont desserrées ou endommagées. Faire fonctionner le radiateur et vérifier s'il y a des vibrations. Remplacer les rouets centrifuges qui sont endommagés ou qui causent des vibrations.
Corps	S'assurer que tous les panneaux et tous les écrans sont en place et que les attaches sont bien serrées.

Lubricating Bearings:

Warning: Disconnect power before servicing bearings.

The main blower has two bearings. They need to be periodically lubricated according to the schedule below. Some situations may require a change in lubricating periods as dictated by experience. Generally, a lower quantity of grease at frequent intervals is more effective than a greater quantity at extended lubrication intervals. Select a grease that is compatible with a lithium or lithium complex grease.

Recommended Lubrication Schedule

	Lubrication Interval in Weeks
Hours Run Per Day	Main Blower (2.7 gram per bearing)
8	5
16	2
24	1

Storage: If equipment will be idle for some time, before shutting down, add compatible grease to the bearing until grease purges from the seals. This will ensure protection of the bearing, particularly when exposed to severe environmental conditions. After storage period, add fresh grease to the bearings before starting.

Replacing Belts:

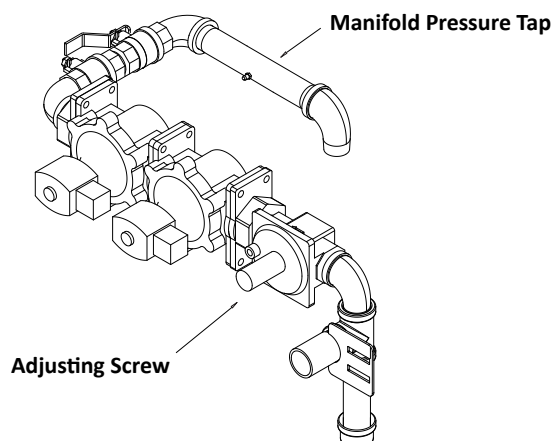
Warning: Disconnect power before servicing belts.

The main blower uses a single belt transmission. Ensure that the blower belt tensioner is in place and set at the 25° mark on the body of the tensioner arm. Ensure that the tensioner roller is running smoothly. Replace if worn.

Adjusting Manifold Pressure:

Connect manometer to the port on the outlet flange of the second stage regulator. While heater is operating, verify that the inlet pressure is between 9" WC and 14" WC (2.24 kPa and 3.45 kPa). Connect manometer to manifold pressure tap on burner gas supply line. Ensure that the gas selector valve is set to the proper fuel. While the heater is operating, check the manifold pressure. If the manifold pressure differs from specifications, re-adjust.

The adjusting screw is located on top of the appliance regulator. Remove the manometer and securely tighten the manifold pressure tap.



Troubleshooting

The troubleshooting section has been divided in to five tables. Choose the appropriate table from the list below:

Chart A – Burner blower does not start. Flame does not start.

Chart B – Burner blower does start. Flame starts then goes out after a few seconds.

Chart C – Burner blower does start. Flame does not start.

Chart D – Burner blower does start. Flame does start, but fails during operation.

Chart E – Burner blower starts, flame starts, but main blower does not.

Chart F – Other problems.

Heater Troubleshooting

A-Burner blower does not start. Flame does not start

Green Light	Red Light	Error Code	Symptoms	Possible Problems
OFF	OFF	Display off	NO PCB LED lights (3 solid & 1 flashing). No power on secondary side of step down transformers (check for 110V on JP25 Molex connector labelled PWR-IN and check for 24 V between JP5 and JP6 flag connectors Labelled SYS 24 VAC HOT on PC board).	No electrical supply.
				Main power switch off.
				Transformer failure.
				Fuses (2 Amp and 5 Amp) are blown.
				High voltage - wrong power source.
				Wrong transformer wiring.
OFF	OFF	None	Heater will not start. No green light. Secondary side of step down transformers has 120VAC and 24VAC. PCB LED lights on.	Keypad failure.
OFF	OFF	None	Display does not show "Status" screen. PCB LED lights on.	PCB failure.
				Software corrupted.
OFF	OFF	None	Cooling blower and/or burner blower turn on right away and don't stop after power is switched on without pressing START.	PCB hardware failure.
OFF	ON	153	Fenwal LED solid light.	Fenwal internal logic error.
OFF	ON	150	Heater does not start after pressing START. Fenwal LED flashes once.	Burner motor failure.
				PCB hardware failure.
				Burner fan failure or foreign object in fan mechanism.
OFF	ON	151 or 152	Heater does not start after pressing START. Fenwal LED may flash once.	Air switch contacts welded.
				Air switch failure.
				Air switch set too low (air switch setting is 1.2" w.c.).
OFF	ON	154 or 160	Heater does start. Fenwal LED flashes twice. Flame may be present.	Both solenoid valves fail to close.
				Flame not extinguished.

Green Light	Red Light	Error Code	Symptoms	Possible Problems
ON	OFF	None	No reaction from heater. LED screen displays "Status: Ready". Jumper not plugged in for "HI-OFF".	No call for heat from thermostat.
				Defective thermostat.
ON	OFF	None	LED screen displays "Status: Ready".	Preheat RTD out of calibration.
				Preheater defective.
				Control box open in cold weather.
				Preheat RTD in wrong position.
OFF	ON	217, 218, 219, 223, 224, 225	Heater does not start. No Fenwal LED lights.	Side RTD or control box RTD disconnected or defective.
				Side RTD or control box RTD shorted out.
				Wrong RTD type plugged into RTD 0 or RTD 2 input on PCB.
OFF	OFF	Warning 005	Heater does not start.	Low supply voltage.
				Transformer(s) wired for incorrect voltage. (Low)
OFF	OFF	Warning 004	Heater does not start.	High supply voltage.
				Transformer(s) wired for incorrect voltage. (High)
OFF	ON	153	Heater does not start. Fenwal LED flashes once.	Flame controller defective.
				Wire disconnected from IND terminal on Fenwal.
OFF	ON	128	Heater does not start. VFD displays "E...." errors relating to overload. (ex: E.OC1, E.THT, etc..)	Circulation motor or VFD defective.
OFF	ON	147	Heater does not start and will not reset.	Heater on unstable/inclined platform.
				Heater fell over on its side. PCB failure.

B-Burner blower does start. Flame starts then goes out after a few seconds

Green Light	Red Light	Error Code	Symptoms	Possible Problems
OFF	ON	Display off	Fenwal LED flashes 3 times.	Flame Rod failure.
				Improper Grounding.
				Back pressure in exhaust system.
				Manifold pressure too high or too low.

C-Burner blower does start. Flame does not start

Green Light	Red Light	Error Code	Symptoms	Possible Problems
OFF	ON	150	Fenwal LED flashes once.	No air pressure indication .
				Air tube leaking or disconnected.
				Air switch adjusted too high.
				Air tubes plugged in wrong position (“-“ instead of “+”).
				Air switch defective (NO contacts stay open when burner blower is working).
OFF	ON	161	Fenwal LED flashes 3 times.	Inlet pressure too high (over 1/2 psi) regulator damaged.
				Solenoid valve damaged or valve electric circuit defective.
				Gas pressure too low.
				Manual cut off valve closed.
				Interruption in flame continuity.
				Strainer plugged or dirty.
OFF	OFF	161, 155	Fenwal LED flashes 3 times.	Output limit switch failure.
OFF	ON	161, 157	Fenwal LED flashes 3 times.	Hi limit switch failure.
OFF	ON	161	Fenwal LED flashes 3 times. No spark is visible or audible.	Ignition transformer failure.
				Igniter shorted to ground.
				Cracked igniter ceramic insulation.

D-Burner blower does start. Flame does start, but fails during operation.

Green Light	Red Light	Error Code	Symptoms	Possible Problems
OFF	ON	153	“Critical Low Voltage” or similar may show in error history.	Too much load on power supply.
				Low Voltage.
				Long power lines or low gauge power lines.
OFF	ON	128	Burner fan does go through post purge. VFD displays “E....” errors relating to overload. (ex: E.OC1, E.THT, etc..).	Damaged circulation fan bearings.
				Circulation fan shroud or cover missing.
				Belt tensioned too tight on circulation fan.
OFF	OFF	None	Scrambled or no display on screen. Heater fails to stay lit. Excessive motor noise.	Poor quality power.
				Dirty generator power.
OFF	ON	161	Fenwal LED flashes 3 times. Noisy burner operation. Irregular flame. Heater turns off.	Burner orifices plugged or dirty.
				Burner misaligned or damaged.
OFF	ON	161	Fenwal LED flashes 3 times. Heater starts ok but fails in function	Propane tank too small - not able to vaporize fast enough; tank freezes up.
				Too small of a hose, too long of a hose, blocked hose; Too low of an inlet pressure.
OFF	ON	161	Fenwal LED flashes 3 times. Yellow flame and rumbling burner operation. POSSIBLE EXPLOSION	Liquid propane entering heater.
				Damaged regulator.
				Damaged solenoid valve.
OFF	ON	161	Fenwal LED flashes 3 times. Combustion unstable, burner fails to stay lit, and low outlet air temperature .	Changeover valve set to propane when connected to natural gas.
OFF	ON	161	Fenwal LED flashes 3 times. Combustion unstable, rumbling noises, burner fails to stay lit, and high outlet temperature	Changeover valve set to natural gas when connected to propane.

Green Light	Red Light	Error Code	Symptoms	Possible Problems
OFF	ON	156	Burner doesn't cycle. Heater runs through one cycle and then turns off.	Heater output limit switch opens.
				Heater output limit switch failure – too sensitive.
OFF	ON	158	Burner will fail to stay lit at start up or soon after with no/or very short exhaust pipe.	Hi limit switch failure – too sensitive.
				Circulation fan seized or has broken belt.
OFF	ON	161	Fenwal LED flashes 3 times.	Interruption in gas delivery.
				Clogged filter or strainer.
				Defective safety solenoid valves.
				Gas regulator vent is plugged.
				Flame rod.
OFF	ON	147	Burner fan undergoes a short post purge then stops.	Heater is tilted too much/unstable.
				Heater flat on its side.
				PCB failure.

E-Burner blower starts, flame starts, but main blower does not.

Green Light	Red Light	Error Code	Symptoms	Possible Problems
OFF	ON	158	Heater goes through one heat cycle then shuts down.	VFD failure.
				PCB failure.
				Circulation fan motor failure.
				Broken belt.
				Circulation fan failure.

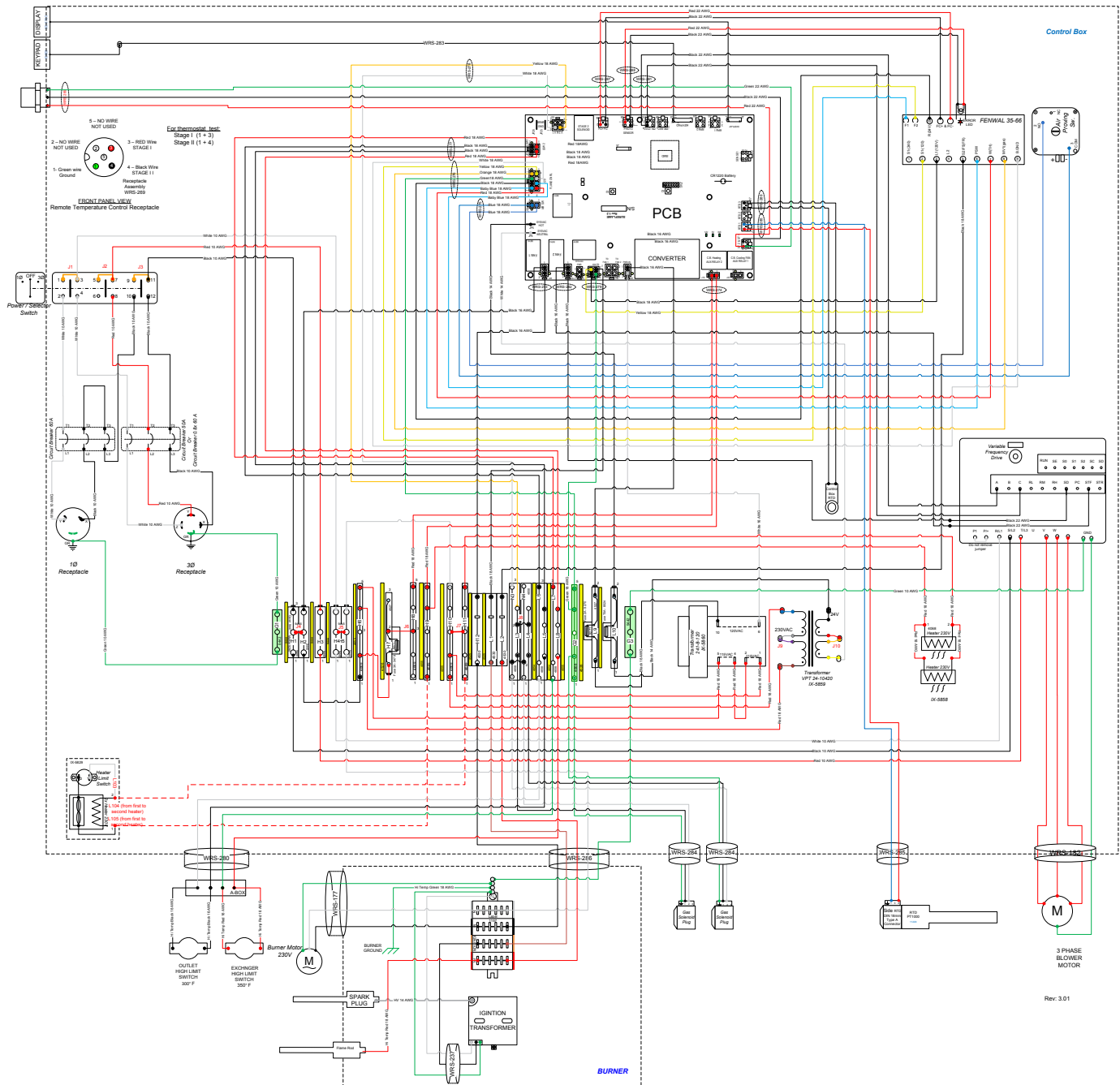
*The situations listed above are ambient temperature and setup dependant.

F-Other problems

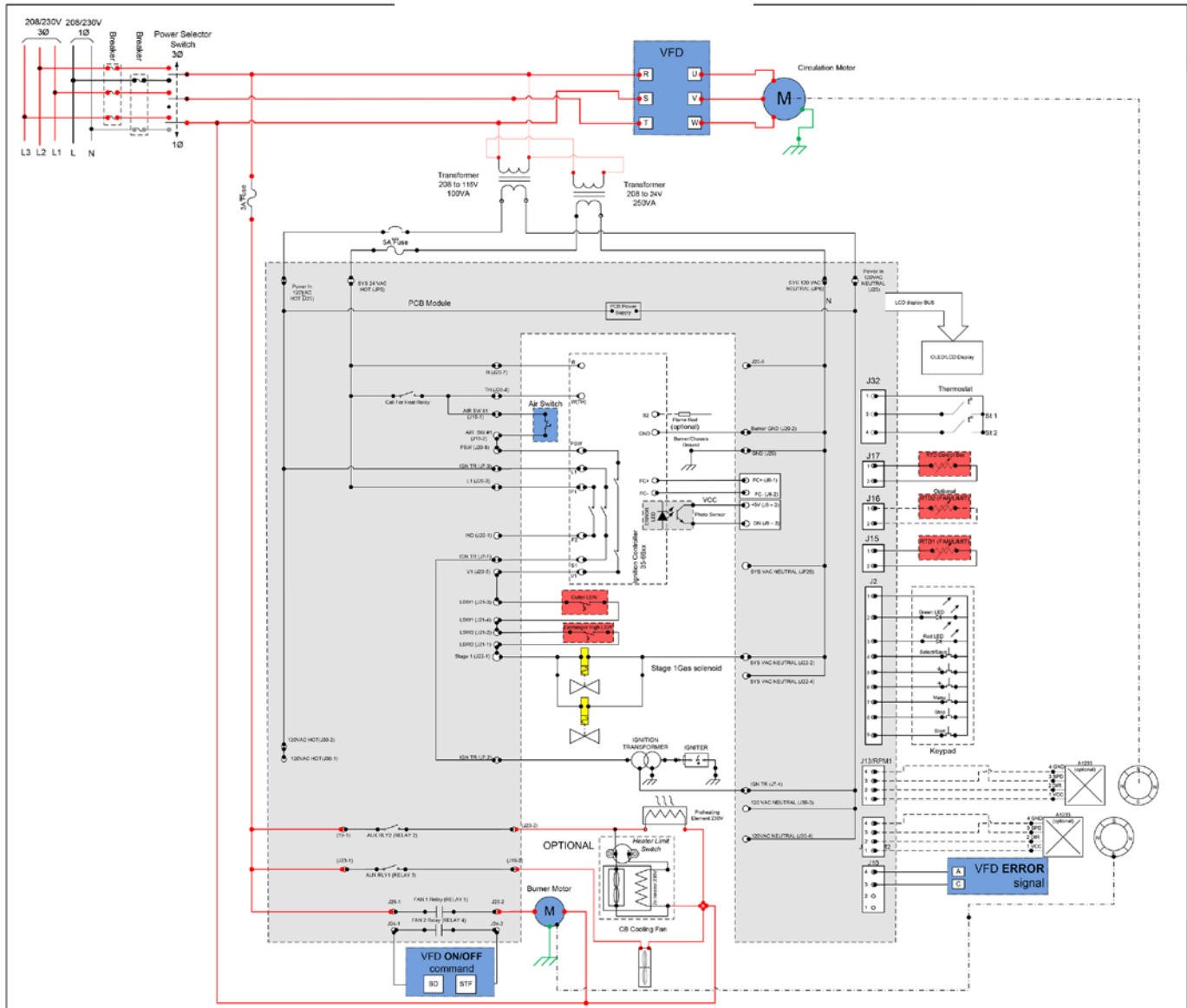
Green Light	Red Light	Error Code	Symptoms	Possible Problems
ON	OFF	N/A	Main blower and/or burner blower spin in reverse. Low volume air coming	Wrong Phase (3 PH - reversed phase). Incorrect wiring on motor.
ON	OFF	N/A	Low temperature output. High CO. Combustion unstable, rumbling burner operation and/or burner turns off moments later.	Changeover valve set to propane when connected to natural gas (if applicable).
OFF	OFF	N/A	High temperature output. High CO. Burner cycles. Yellow flame.	Changeover valve set to natural gas when connected to propane. (if applicable)
OFF	OFF	N/A	Heater will not turn off by pressing the stop button.	Stop switch (red) fails to close.
OFF	ON	N/A	Main blower works for a long time after the burner is turned off or never stops. Blowing cold air.	RTD out of calibration. PCB failure. Intake temperature is too high for OFF set point.
OFF	ON	N/A	Main blower starts too soon and blows cold air for a long time at start up.	RTD sensor out of calibration.
OFF	ON	N/A	The burner cycles often. Average output temperature lowered.	RTD sensor out of calibration. Mechanical damage to heat exchanger.
OFF	ON	N/A	Noisy burner fan operation. Yellow flame and high CO generation.	Burner blower housing damaged. Wrong motor installed (incorrect RPM).
ON	OFF	N/A	Noisy fan operation. High vibration. Structural damage to fan and/or bearing.	Damaged or unbalanced impeller.
ON	OFF	N/A	Burner cycles more often.	Inlet duct too long. Outlet duct too long.
ON	OFF	N/A	Noisy operation. Heater body vibration.	Heater not positioned on a level surface.
ON	OFF	159	Static charge. Static shocks. Fenwal LED flashes 3 times.	Improper grounding.

Green Light	Red Light	Error Code	Symptoms	Possible Problems
ON	OFF	N/A	Heater works all the time (doesn't react to adjusted temperature on the thermostat) – stops if thermostat is disconnected when set to work with "HI/OFF".	Thermostat failure.
ON	OFF	N/A	Heater works all the time.	Constant Hi mode.
ON	OFF	N/A	Cooling fan blowing cold air all the time.	Fan only mode.
ON	OFF	N/A	Heater operates on 1 phase or 3 phase only.	Power switch locked in position.
ON	OFF	N/A	Main blower fan starts then shortly after the supply panel breaker trips.	L1 3 phase missing.
				L1 fuse blown.
				L1 power selector switch failure.

IX800 Wiring Diagram

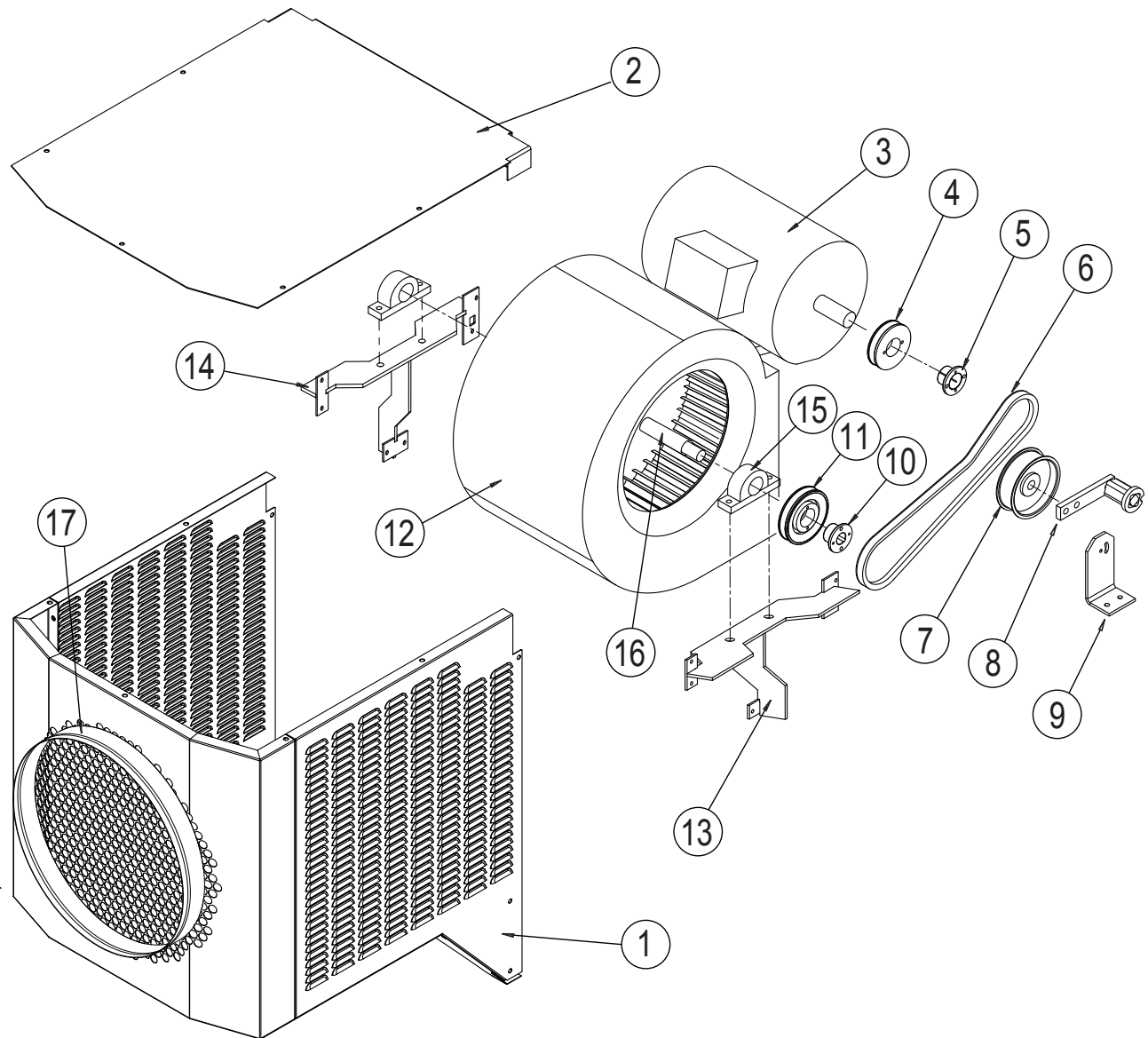


IX800 Ladder Diagram



Parts Breakdown

Main Blower



Ref #	Part #	Description	Qty
1	IX-5794	Blower Shroud	1
2	IX-5259	Shroud Top Cover	1
3	9552	Motor 7.5 HP	1
4	11897	Motor Sheave	1
5	11899	Bushing Split Taper	1
6	11896	Belt	1
7	IX-5872	Idler Roller	1
8	11991	Belt Tensioner	1
9	IX-6235	Belt Tensioner Bracket	1

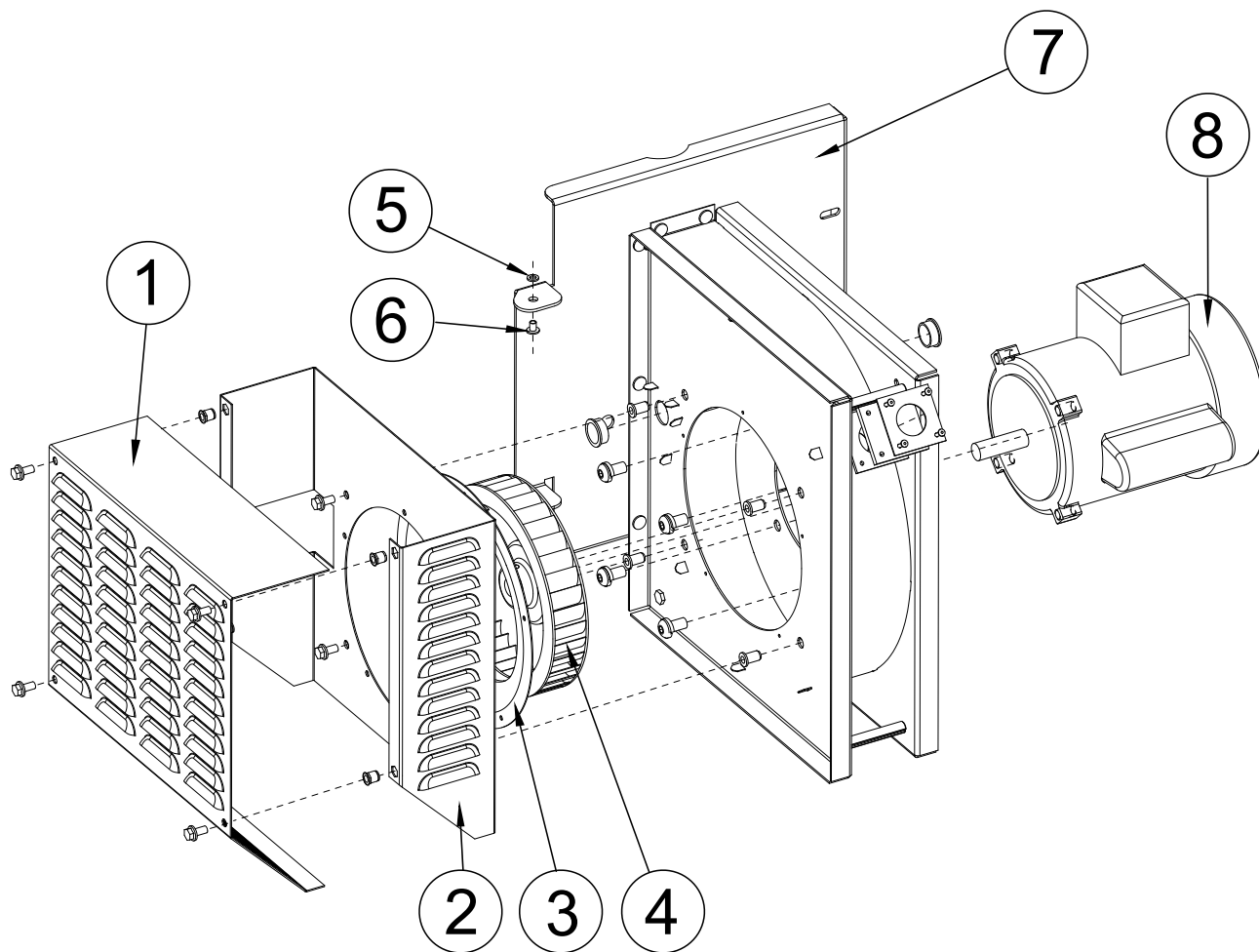
Ref #	Part #	Description	Qty
10	11900	Split Taper Bushing	1
11	11898	Blower Sheave	1
12	1046	Blower	1
13	IX-5593L	Left Bearing Bracket	1
14	IX-5593R	Right Bearing Bracket	1
15	3501	Bearing	2
16	IX-5494	Blower Shaft	1
17	IX-5447	20" Inlet Ring	1

This exploded view diagram illustrates the assembly of a vacuum furnace. The components are numbered as follows:

- 1**: Main furnace chamber body.
- 2**: Heating element assembly (coiled wires).
- 3**: Temperature controller or power supply unit.
- 4**: Large circular flange or door.
- 5**: Long cylindrical component, likely a thermocouple or sensor.
- 6**: U-shaped pipe or manifold.
- 7**: Small cylindrical component, possibly a valve or connector.
- 8**: Circular plate with multiple holes, likely a distribution plate.
- 9**: Flange or gasket for the chamber door.
- 10**, **11**, **12**, **13**: Various curved components, likely seals or gaskets.

Ref #	Part #	Description	Qty	Ref #	Part #	Description	Qty
1	IX-3592	Burner Housing	1	7	IX-3796	Burner Assembly	1
2	9823	Terminal Block	1	8	IX-3157	Burner Head	1
3	8676	Ignition Transformer	1	9	IX-3198	Burner Gasket	1
4	7724	Flexible Seal	3.3'	10	WR8GRR-33	Ground Wire	1
5	1305	Flame Rod	1	11	WR9RDE-26	Flame Rod Wire	1
6	1306	Igniter	1	12	WR9GER-30	Burner Ground Wire	1
				13	WRIBEX-22	Ignition Wire	1

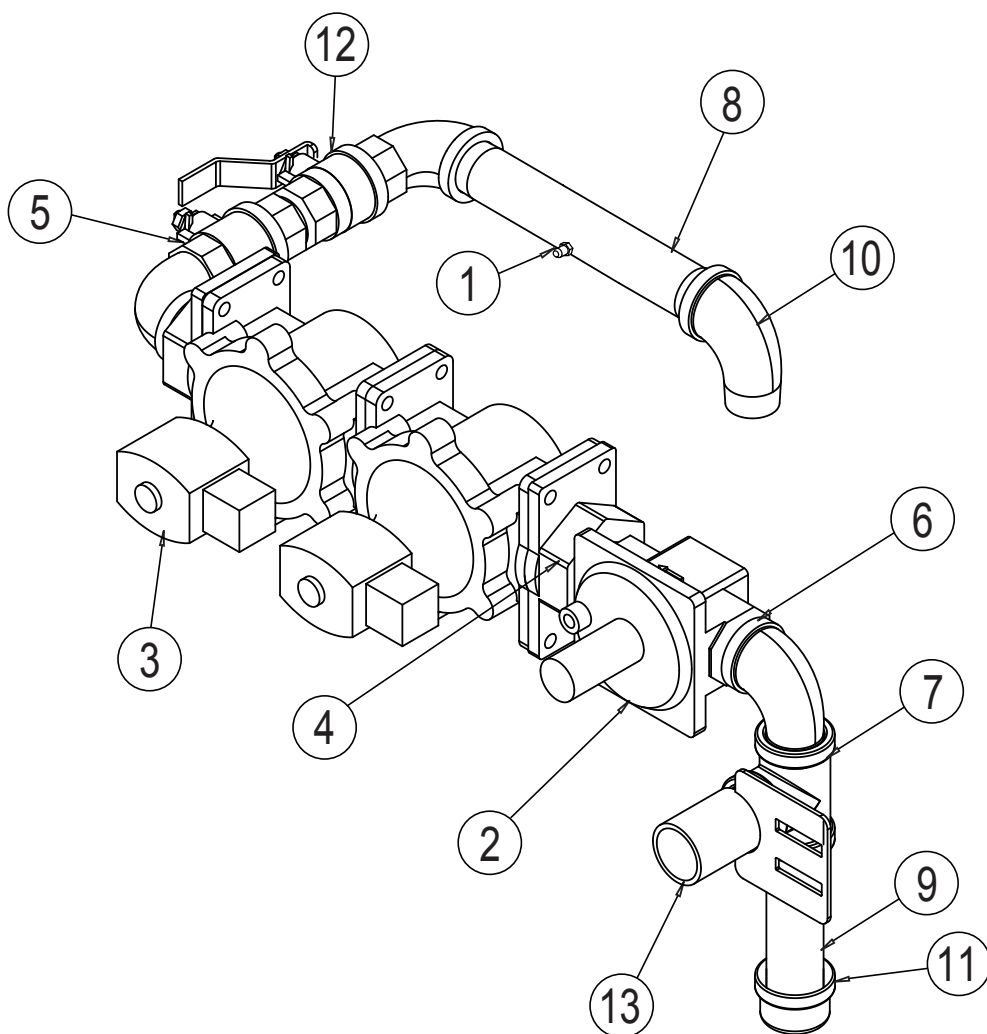
Burner Blower



Ref #	Part #	Description	Qty
1	IX-3324	Rain Hood	1
2	IX-3323	Rain Hood Bracket	1
3	4045	Inlet Cone	1
4	4046	Impeller	1

Ref #	Part #	Description	Qty
5	3821	Nylon Flat Washer	2
6	3837	Nylon Bushing	2
7	IX-3785	Burner Blower Weldment	1
8	4047	½ HP Motor 230V	1

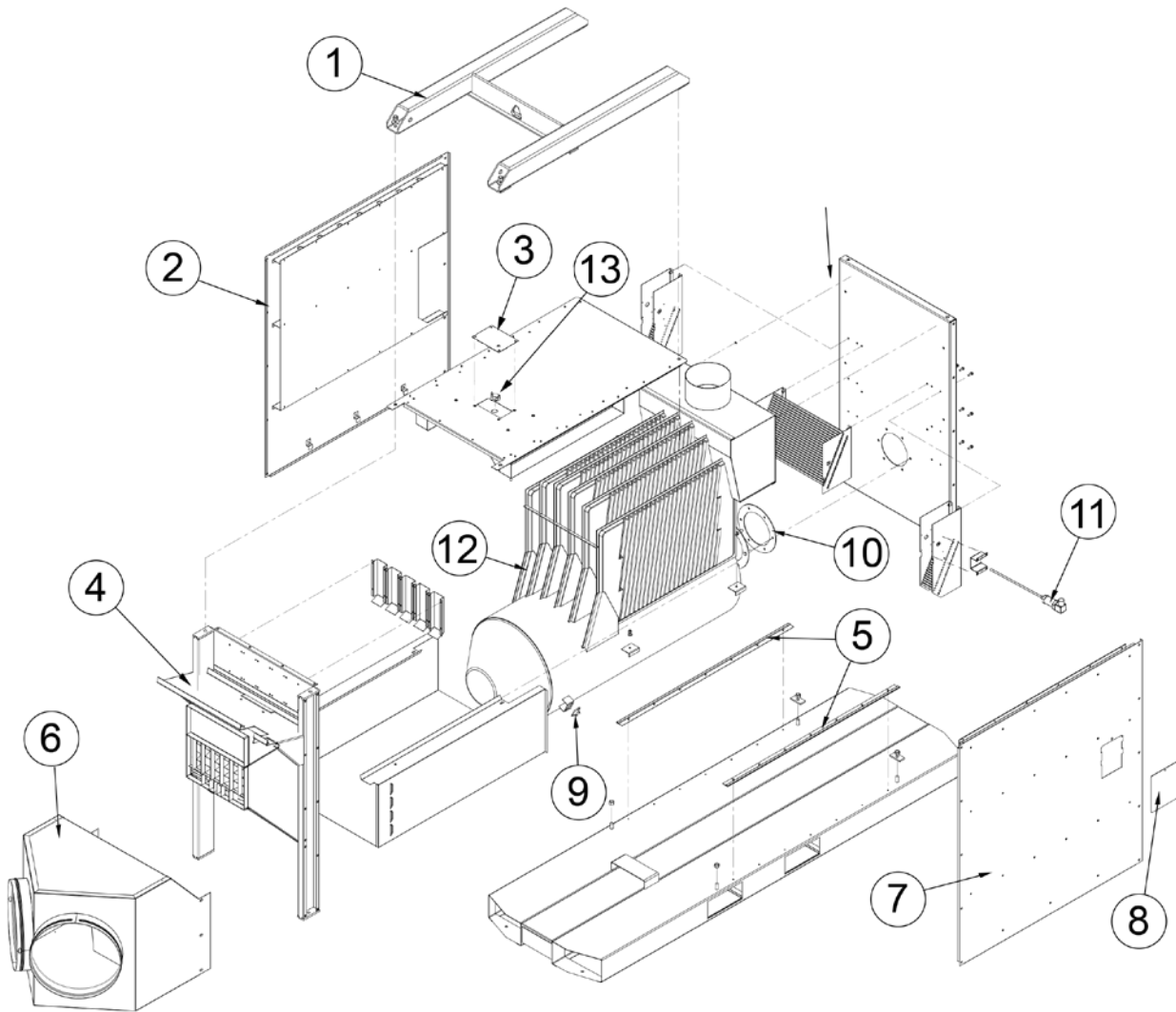
Valve Train



Ref #	Part #	Description	Qty
1	8708	Test Port	1
2	11581	Regulator	1
3	11580	Shut Off Valve	2
4	11582	Flange	1
5	6123	Ball Valve	1
6	3538	Close Nipple	5
7	3942	Black Tee	1
8	IX-3793	Test Port Nipple	1

Ref #	Part #	Description	Qty
9	6661	1" x 5" Black Nipple	1
10	6124	90° Elbow	4
11	3935	Black Cap	1
12	IX-3750	Changeover Valve	1
13	IX-3790	Strainer Assembly	1
	11624	O Ring Kit (not shown)	3
	IX-6206	Valve Train Support Frame (not shown)	1
	IX-6208	Valve Cover (not shown)	1

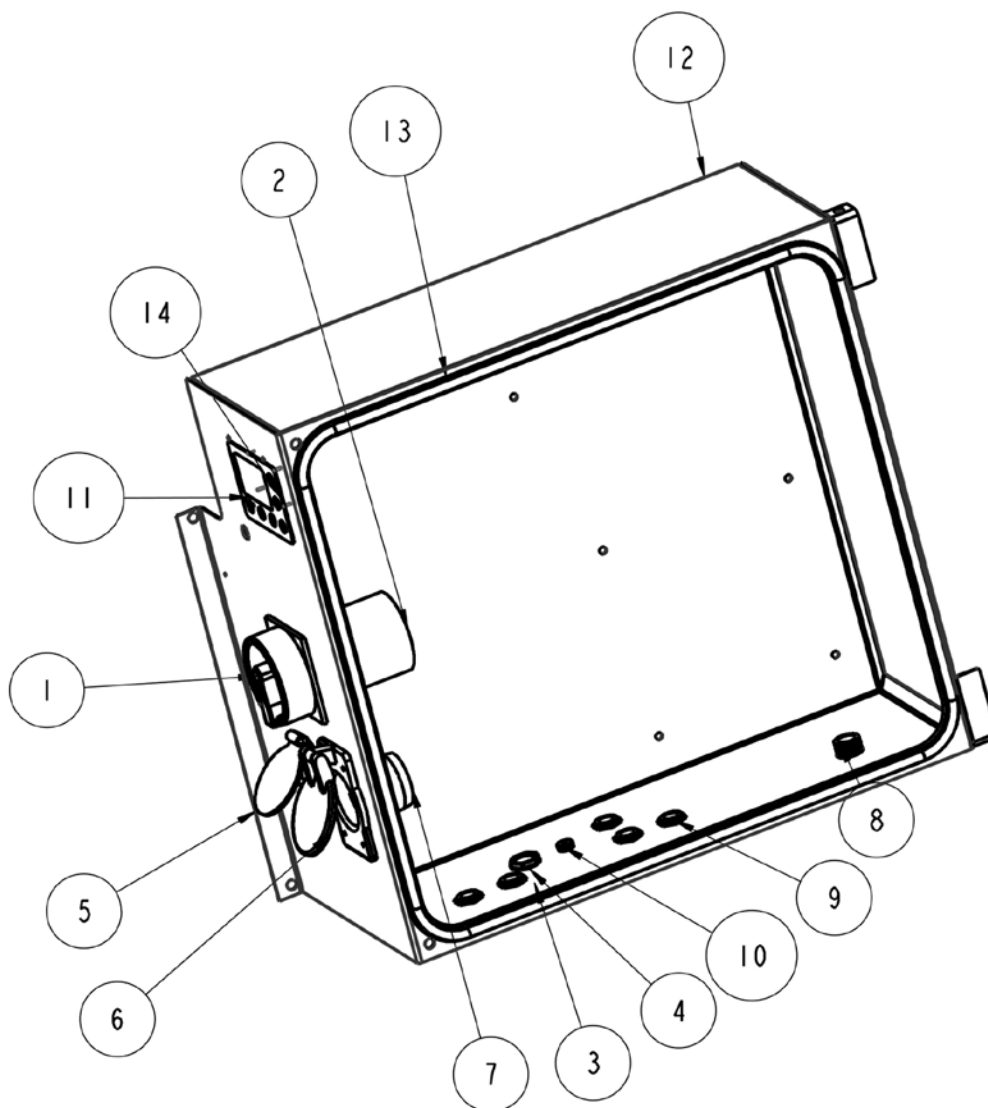
Main Body



Ref #	Part #	Description	Qty
1	IX-5581	Lifting Yoke	1
2	IX-5787R	RH Panel Assembly	1
3	IX-6244	Top RTD Cover	1
4	IX-5577	Motor Frame	1
5	IX-5903	S Lock	2
6	IX-5587	2 x 16" Duct Adapter	1
7	IX-5787L	LH Panel Assembly	1

Ref #	Part #	Description	Qty
8	IX-5594	Side Limit Switch Cover	1
9	10051	Output Limit Switch	1
10	IX-3198	Burner Gasket	1
11	11230	RTD Temperature Sensor	1
12	IX-4703	CC & Exchanger Weldment	1
13	11948	Fan High Limit	1

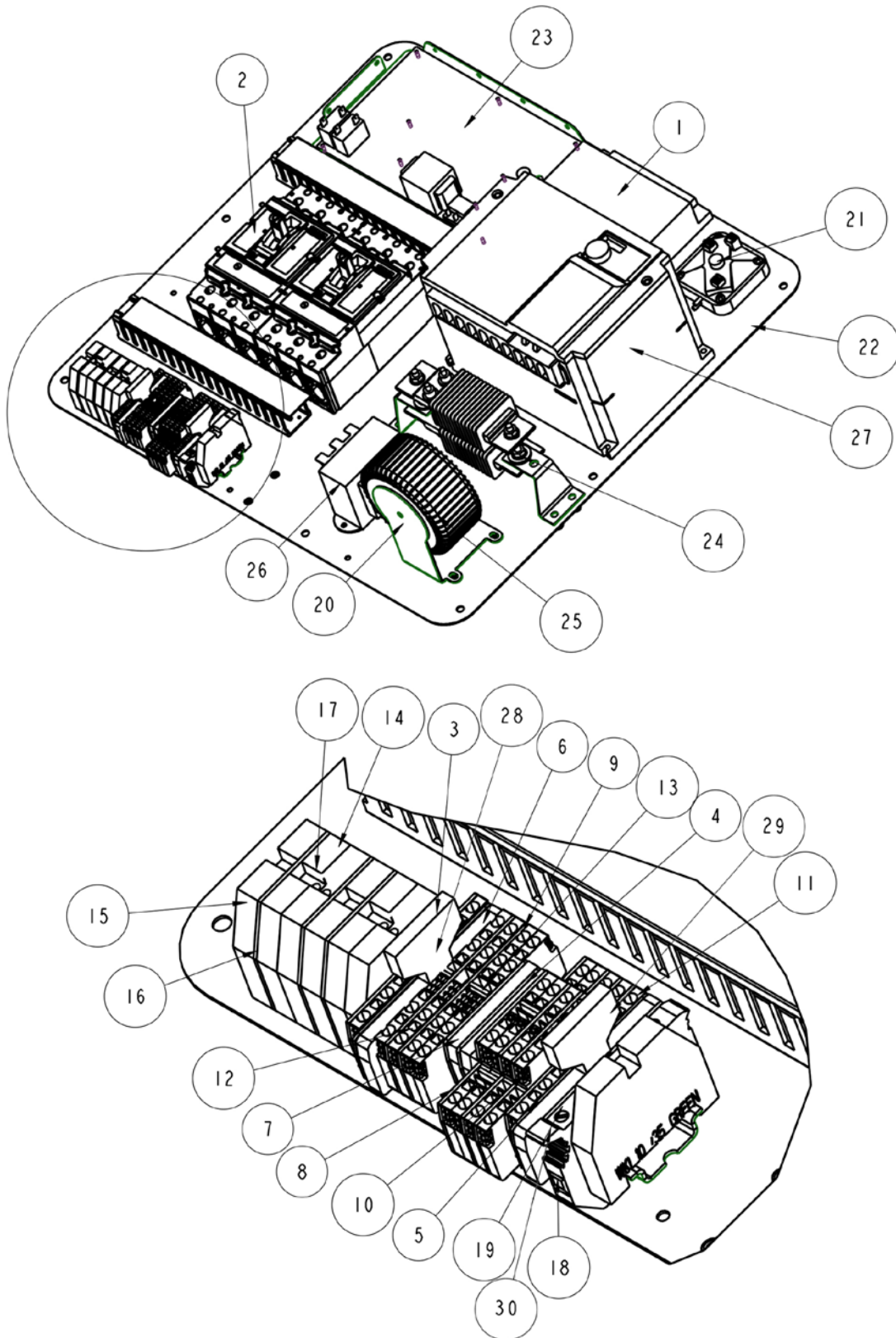
Electrical (High Voltage)



Ref #	Part #	Description	Qty
1	0774	Disconnect Switch	1
2	0833	Disconnect Switch	1
3	1163	Dome Connector	1
4	9871	Dom Connector Nut	1
5	3261	Receptacle 1 PH	1
6	4051	Receptacle Weather Cover	1
7	4052	Receptacle 3 PH	1
8	2495	Strain Relief	1

Ref #	Part #	Description	Qty
9	3983	Dome Connector	1
10	5515	Rubber Grommet	1
11	10993	Keypad	1
12	5636	Control Box Weldment	1
13	6233	Flexible Trim W/ Side Seal	1
14	SE-5725	OLED Module Assembly	1
15	IX-5637	Control Box Door (not shown)	1
16	WRS-269	Thermostat Receptacle (not shown)	1

Electrical (Low Voltage)



Ref #	Part #	Description	Qty	Ref #	Part #	Description	Qty
1	1308	Flame Control	1	17	9445	Term. Blk. Cross Conn.	2
2	11941	Circuit Breaker	2	18	11870	Fuse Block W/ LED	1
3	9271	Fuse Holder	2	19	11871	End Plates EPCS	1
4	4525	End Plate 2P	2	20	IX-5476	Transformer Bracket	1
5	4526	End Plate	2	21	IX-5709	Differential Pressure Switch	1
6	4527	Terminal Block - Fuse	2	22	IX-5854	Chassis Subassembly	1
7	4530	Terminal Block 2P Grey	3	23	IX-5856	PCB Assembly	1
8	4654	End Plate Grey	3	24	IX-5858	Preheat Assembly	1
9	4655	End Plate Green	4	25	IX-5859	24V XFMR Assembly	1
10	4658	Two Tier Terminal Block	4	26	IX-5860	I IOV XFMR Assembly	1
11	4668	Terminal Block 4P Green	1	27	IX-6756	Programmed VFD	1
12	4669	Terminal Block 4P	5	28	3479	3.5 AMP Fuse	1
13	9283	Cross Connector 2 Pole	4	29	9270	2 AMP Fuse	1
14	9440	Term. Blk. WKI 10/U Grey	5	30	8024	5 AMP Fuse	1
15	9442	Term. Blk. WKI 10/35 Green	2	31	WRS-289	Control Box Temp. Sensor (not shown)	1
16	9444	API 10 - 16 Grey	3				

