

Installation, Operation and Service Instructions

INFRARED PATIO HEATER



SERIES GA301

Models U, T, H (24 VAC)
Models M, MP (pilot)

evenGLO™
RADIANT PATIO HEATER



⚠ DANGER

If you smell gas:

1. Shut off gas to heater.
2. Extinguish any open flame.

If odor continues, keep away from the heater and immediately call your gas supplier or fire department.

⚠ DANGER

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other heater.

A propane Cylinder not connected for use shall not be stored in the vicinity of this or any other heater.

⚠ WARNING

Improper installation, adjustment, alteration, service, or maintenance can cause injury, death or property damage. Read the installation, operation, and maintenance instructions thoroughly before installing or servicing this equipment.

⚠ WARNING

FOR OUTDOOR USE ONLY

The evenGLO® heater has been approved for indoor use in non-residential applications for natural gas units ONLY!


IMPORTANT

Please retain these instructions for future reference. The installer must leave these instructions with the owner. Only those who are certified to do so should perform service on these heaters.

CALIFORNIA PROPOSITION 65

This heater, its related accessories and by-product of operation, contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

⚠ DANGER CARBON MONOXIDE HAZARD



This heater can produce carbon monoxide which has no odor. Using it in an enclosed space can kill you. Never use this heater in an enclosed space such as a camper, tent or home.

CAUTION - MAINTENANCE INSTRUCTION

1. Keep the heater area clear and free from combustible materials, gasoline and other flammable vapors and liquids.
2. Do not obstruct the flow of combustion and ventilation air.
3. Visually check burner flames.
4. Clean the heater, including special surfaces, with recommended cleaning agents, if necessary.

Check the maintenance section in this manual for additional instructions.

CAUTION - INSTALLATION

This heater shall be used only in a well-ventilated space and shall not be used in a building, garage or any other enclosed area.

The heater may be installed with shelter no more inclusive than:

1. With walls on all sides, but with no overhead cover.
2. Within a partial enclosure which includes an overhead cover and no more than two side walls. These side walls may be parallel, as in a breezeway, or at right angles to each other.
3. Within a partial enclosure which includes an overhead cover and three side walls, as long as 30 percent or more of the horizontal periphery of the enclosure is permanently open.

SAFETY REQUIREMENTS

- Never locate the heater directly below electrical lines, gas lines or sprinkler systems.
- Do not locate heater too close to vinyl or plastic wall coverings. These materials may discolour or soften well before they reach combustible limits.
- The heater requires a minimum clearance from combustible materials. See the Clearance to Combustible Materials section for specific requirements.
- Always allow room for maintenance purposes.
- The heater aspirates air for combustion. Do not locate heater where there are severe draft conditions or airflow restrictions to the burner.

SAFETY REQUIREMENTS

- At all times, maintain clearance to combustible materials as further specified in this manual. Failure to do so can result in serious fire hazard.
- Never operate heaters in atmosphere containing flammable vapours or combustible dusts.
- This heater is equipped with an electronic and automatic ignition device. Do not attempt to light the burner by hand. Failure to comply can result in a serious fire and personal injury hazard.
- Certain materials, when stored under this heater are subjected to radiant heat can soften, distort or otherwise be damaged, special care should be taken of plastic materials
- Heater surfaces, other than the obvious flame and emitter surfaces, attain elevated temperatures during operation. Do not touch the heater head during operation. Everyone should be alerted to this hazard to avoid burning.
- Children should be strictly supervised when in the area of this heating heater. Playing or running around the structure should be strictly forbidden.
- Clothing or other flammable materials should not be hung on or near this heater.
- Any guard or other protective device removed for servicing the heater must be replaced prior to operating the heater.
- Installation and repair should be done by a qualified service person. The heater should be inspected before use and at least annually by a qualified service person.

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INTRODUCTION

IR Energy is a company in the infrared heating industry founded on the principles of product quality and customer commitment.

Quality commitments are evidenced by superior design, a regard for design detail and an upgrade of materials wherever justifiable.

Customer commitment is apparent through our ready responses to market demands and a never-ending training and service support program for and through our distributor network.

IR Energy offers 25 years of experience in specialty infrared equipment design. **Series GA301** models are infrared patio heaters that are easy to install and maintain, which were engineered with significant input from our customers. They are designed to provide economical operation and trouble-free service for years to come.

Important

These instructions, the layout drawing, local codes and ordinances, and applicable standards such as apply to gas piping and electrical wiring comprise the basic information needed to complete the installation and must be thoroughly understood along with general building codes before proceeding.

Only personnel who have been trained and understand all applicable codes should undertake the installation. IR Representatives are Factory Certified in the service and application of this equipment and can be called upon for helpful suggestions about installation.

Installation Codes

Installations must comply with local building codes, or in their absence, the latest edition of the national regulations and procedures as listed below.

General Installation and Gas Codes

Heaters must be installed only for use with the type of gas appearing on the rating plate, and the installation must conform to the National Fuel Gas Code, ANSI Z223.1/NFPA 54 in the USA and CSA B149.1 and B149.2 Installation Codes in Canada.

This heater is approved for outdoor installation only. Even-GLO has been approved for indoor use in non-residential applications for Natural Gas ONLY, see Ventilation section. Not for use in residential dwellings, refer to Rating plate.

Gas Supply Lines

Gas supply pipe sizing must be in accordance with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 in the USA and CSA B149.1 and B149.2 Installation Codes in Canada.

A 1/8" NPT plugged tap must be installed in the gas line connection immediately upstream of the burner farthest from the gas supply meter to allow checking of system gas pressure.

Electrical

All heaters must be electrically grounded in accordance with the National Electric Code, ANSI/NFPA 70 in the USA, and the Canadian Electric Code, CSA C22.1 in Canada, and must comply with all local requirements.

GENERAL SPECIFICATIONS

GA301-U, GA301-T, GA301-H

Gas Supply

Inlet Pressure

	Natural Gas	Propane
Minimum	6.5" W.C.	11.0" W.C.
Maximum	14.0" W.C.	14.0" W.C.

Manifold Pressure

	Natural Gas	Propane
High Fire	5.5" W.C.	9.8" W.C.
Low Fire	4.0" W.C.	7.0" W.C.

Inlet Connection

Natural Gas	Propane
½" Male Quick Connect	3/8" Male Quick Connect

Electrical Supply

24 VAC, 0.8 A

Heater Specifications

Input

	Natural Gas	Propane
High Rate	53,000 BTU/h	47,000 BTU/h
Low Rate	46,000 BTU/h	40,000 BTU/h

GA301-M, GA301-MP

Gas Supply

Inlet Pressure

	Natural Gas	Propane
Minimum	6.5" W.C.	11.0" W.C.
Maximum	14.0" W.C.	14.0" W.C.

Manifold Pressure

	Natural Gas	Propane
High Fire	5.5" W.C.	9.8" W.C.

Inlet Connection

Natural Gas	Propane
½" Male Quick Connect	3/8" Male Quick Connect

Heater Specifications

Input

	Natural Gas	Propane
High Rate	53,000 BTU/h	46,000 BTU/h

High Altitude Installation

When installing this heater over 4500 ft. above sea level in Canada, the heater must be properly de-rated and installed according to local codes. In the absence of local codes, the heater must be de-rated in accordance with the most recent CSA -B149 code. In the United States for installations over 2000ft above sea level the heater must be installed in accordance with the Current National Fuel Gas Code, ANSI Z223.1/NFPA 54 (the heater shall be de-rated 4 percent for each 1000 ft of elevation above sea level). High altitude conversion kits are available, contact manufacturer for more details.

DIMENSIONAL CHART

GA301-U, GA301-T, GA301-M

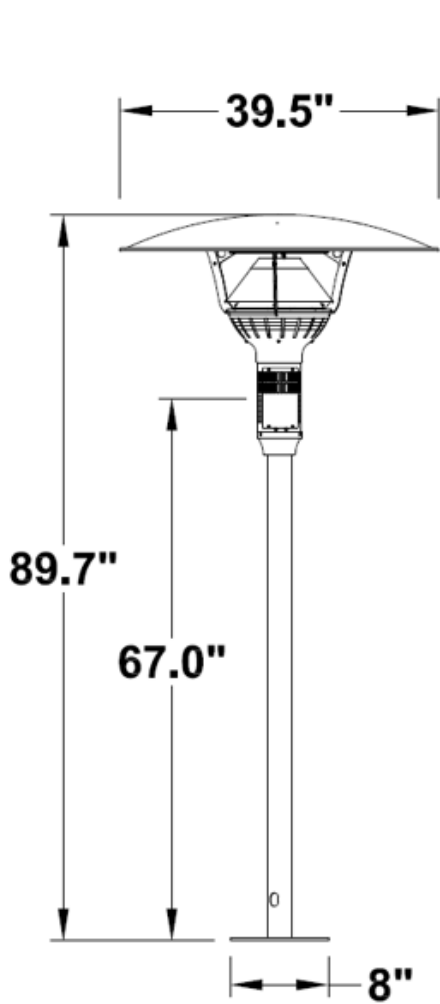


Figure 1: GA301-U, GA301-M

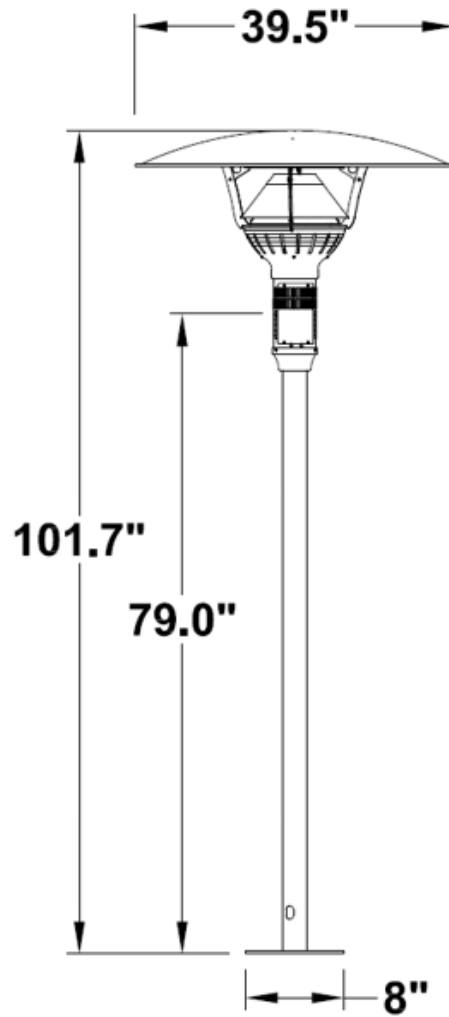


Figure 2: GA301-T

Pole Hole Configuration GA301-U, GA301-T, GA301-M

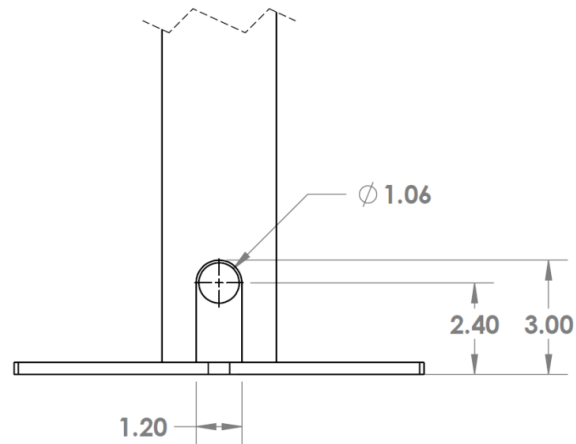


Figure 3: Pole Hole Configuration (Mounted Heaters)

GA301-H

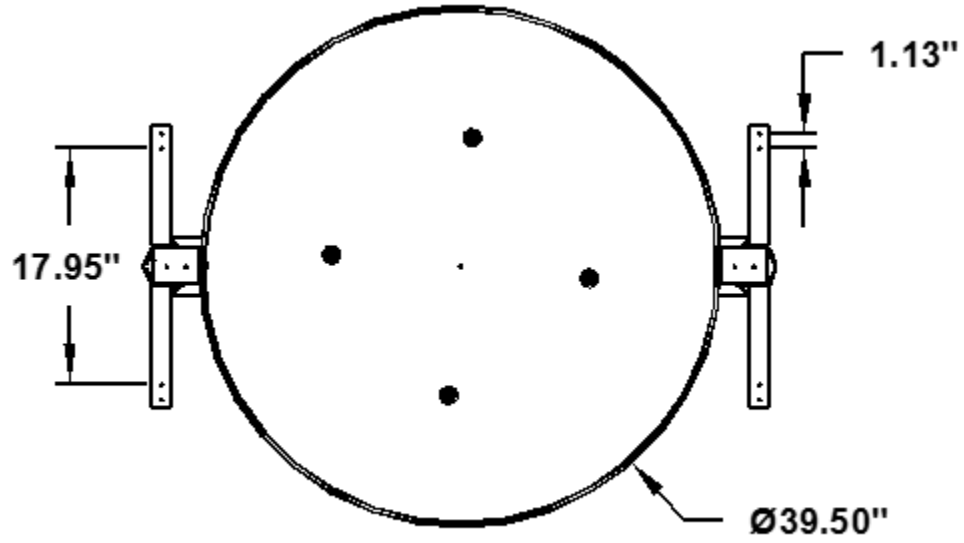


Figure 4: GA301-H Top Dimensions

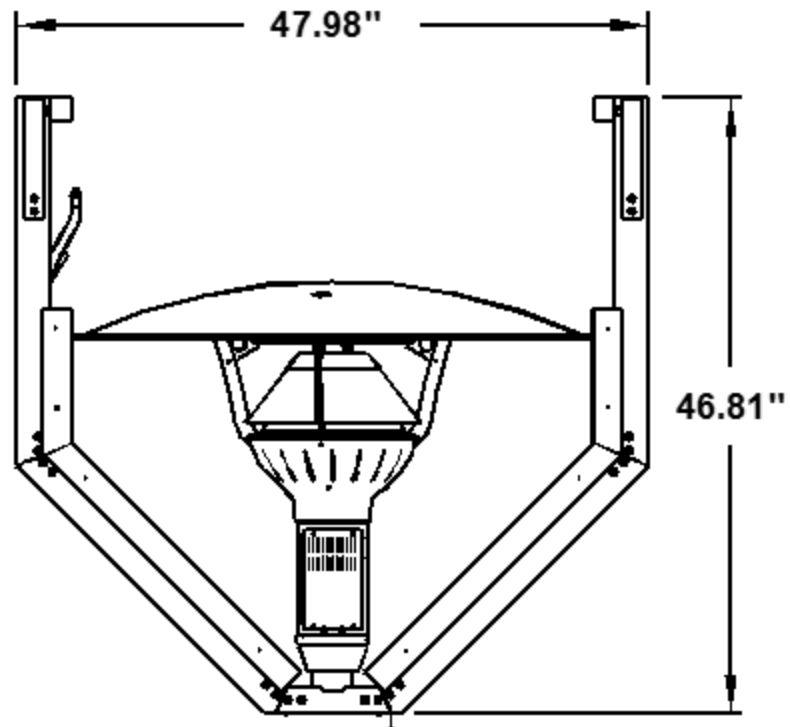


Figure 5: GA301-H Side Dimensions

GA301-MP

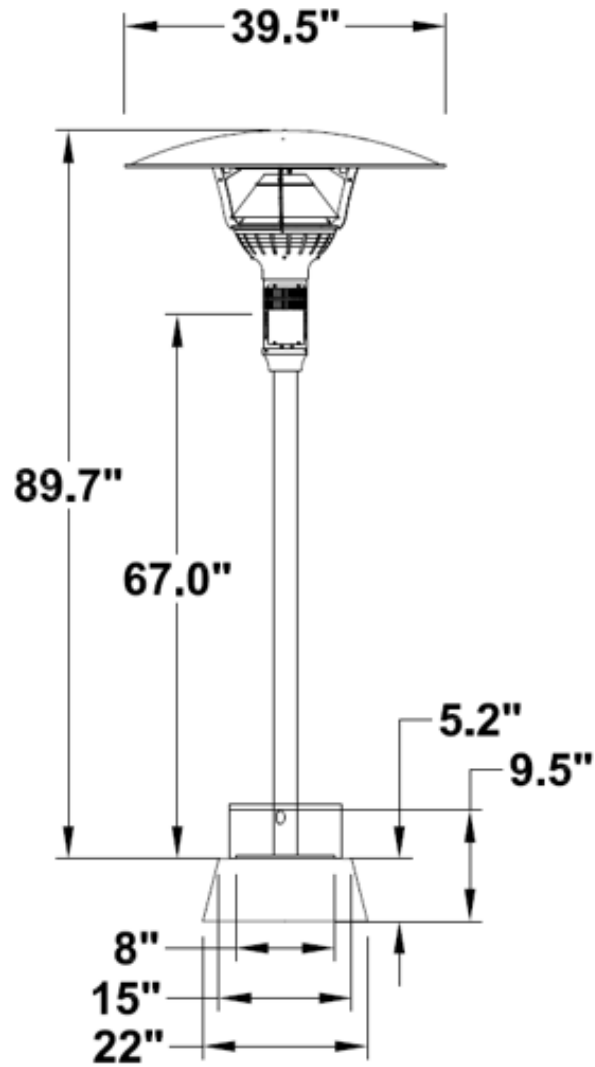


Figure 6: GA301-MP

COMPONENTS

GA301-U, GA301-T, GA301-M



Heater Heat
with Gas
Hose
QTY (1)

Fixed
Mounting
Pole
QTY (1)



Top
Reflector
QTY (1)

GA301-H



Heater Base
QTY (1)

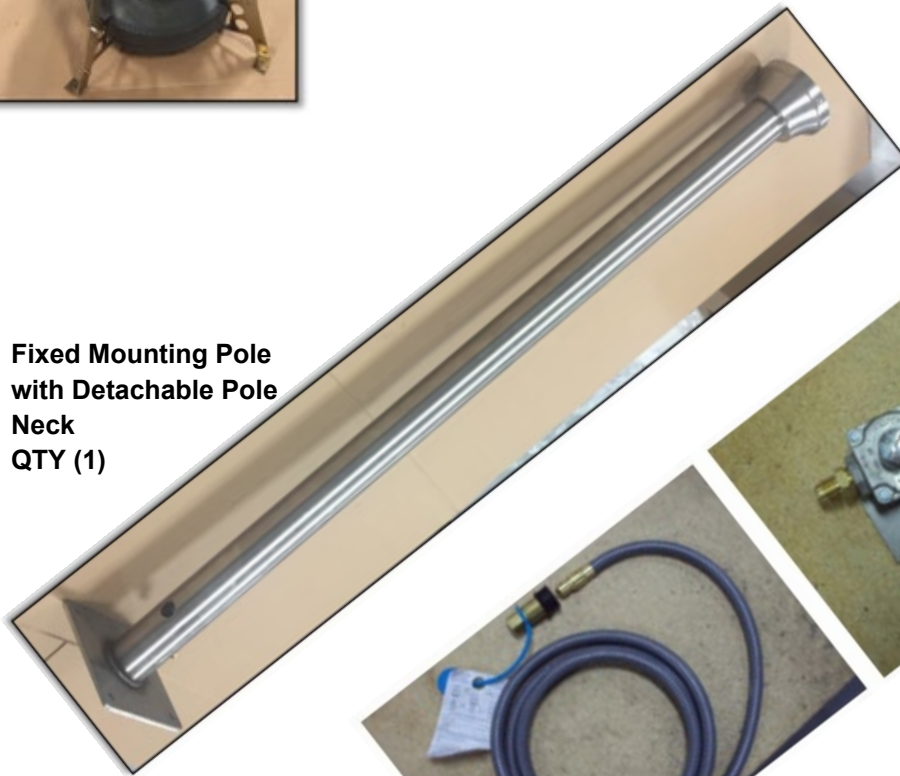
GA301-MP



**Heater Head with Gas Hose
QTY (1)**



**Top Reflector
QTY (1)**

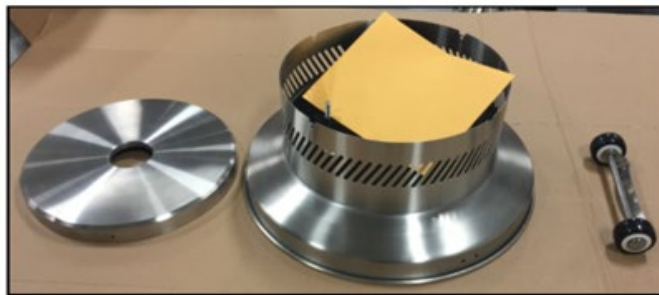


**Fixed Mounting Pole with Detachable Pole Neck
QTY (1)**



**Supply Hose with Quick Disconnect
QTY (1)**

**1/2" QD Socket Regulator with Mounting Plate and Nipple
QTY (1)**



**Bottom Base with Top Cover and Wheel Kit
QTY (1)**

Hardware Kits

Model GA301-U, GA301-T:

- EH001: Top Reflector to Support Arms
 - EH027: 1/4"-20 x 1/2" S.S Carriage Bolt (x4),
 - CH143: 1/4" S.S Flat Washer (x4),
 - EH028 1/4"-20 S.S Acorn Nut (x4)

- EH021: Pole Package
 - EG011: 3/8" x 3/8" FPT x FJIC Swivel Adapter (x1)
 - EG013: 3/8" x 90° Bulkhead Elbow (x1)
 - EG073: Washer S/S (x1)

Model GA301-H:

- EH001: Top Reflector to Support Arms
 - EH027: 1/4"-20 x 1/2" S.S Carriage Bolt (x4),
 - CH143: 1/4" S.S Flat Washer (x4),
 - EH028 1/4"-20 S.S Acorn Nut (x4)

- EH022: Hanging Package
 - CH115: 5/16" – 8 S/S Nut (x17)
 - CH116: 5/16" S/S Lock Washer (x17)
 - CH140: 8 – 32 S/S Nut (x4)
 - CH148: 5/16" – 18 x 3/4" S/S Button Socket Bolt (x48)
 - CH157: #8 – 32 x 3/8" S/S Screw (x4)
 - EG012: 3/8" x 3/8" MJIC x MPT 90° Elbow (x1)
 - EH013: #8-18x1/2" S/S Screw (x21)
 - ES121: Middle Mounting Support S/S (x2)
 - ES122: Gusset Plate S/S (x8)
 - ES123: Reflector Stabilizer Bracket S/S (x2)

Model GA301-M:

- EH001: Top Reflector to Support Arms
 - EH027: 1/4"-20 x 1/2" S.S Carriage Bolt (x4),
 - CH143: 1/4" S.S Flat Washer (x4),
 - EH028 1/4"-20 S.S Acorn Nut (x4)
- EH085: Heater Head to Pole Neck
 - EH041: #10 – 24 S/S Button Socket Cap Screw (x4)
 - EH063: 1/8" Allen Key (x1)
- EH087: Pole Neck to Pole
 - EH070: 5/16" – 18 x 1/2" 18 – 8 S/S Button Socket Cap Screw (x)
 - EH081: 5/16" S/S Internal Lock Washer (x4)
 - EH072: 5/16" – 18 Brass Nylon Insert Lock Nut (x4)
 - EH088: 5/16" Allen Key (x1)

Model GA301-MP:

- EH001: Top Reflector to Support Arms
 - EH027: 1/4"-20 x 1/2" S.S Carriage Bolt (x4),
 - CH143: 1/4" S.S Flat Washer (x4),
 - EH028 1/4"-20 S.S Acorn Nut (x4)
- EH084: Housing Top Cover to Base Housing
 - EH042: 8 – 32 x 3/8" 18 – 8 S/S Button Socket Cap Screw (x4)
 - EH062: 3/32" Allen Key (x1)
- EH085: Heater Head to Pole Neck
 - EH041: #10 – 24 S/S Button Socket Cap Screw (x4)
 - EH063: 1/8" Allen Key (x1)
- EH086: Pole Flange to Bottom Base
 - EH057: 3/8" – 16 S/S Nylon Insert Screw Lock Nut (x4)
 - EH056: 8/8" S/S Flat Washer (x4)
- EH087: Pole Neck to Pole
 - EH070: 5/16" – 18 x 1/2" 18 – 8 S/S Button Socket Cap Screw (x)
 - EH081: 5/16" S/S Internal Lock Washer (x4)
 - EH072: 5/16" – 18 Brass Nylon Insert Lock Nut (x4)
 - EH088: 5/16" Allen Key (x1)

Hose Kits (Model GA301-MP):

- EG065: 12' Hose Kit
 - EG052: NG Regulator (x1)
 - EG059: 1/2" Brass Socket (x1)
 - EG061: 1/2" Brass Close Nipple (x1)
 - ES216: Regulator Mounting Bracket (x1)
 - CH122: 8-32 x 3/8" S/S Screw (x2)
 - EG062: 1/2:" x 12' Supply Hose (x1)
- EG066: 15' Hose Kit
 - EG052: NG Regulator (x1)
 - EG059: 1/2" Brass Socket (x1)
 - EG061: 1/2" Brass Close Nipple (x1)
 - ES216: Regulator Mounting Bracket (x1)
 - CH122: 8-32 x 3/8" S/S Screw (x2)
 - EG058: 1/2" x 15' Supply Hose (x1)

CLEARANCE TO COMBUSTIBLE MATERIALS

The following clearance data is based on a maximum limit of 90°F (50°C) plus ambient temperature. Note with an ambient temperature of 70°F the surface temperatures at the clearance distances listed below could reach 160°F. Care should be taken with placement of plastic or vinyl in the proximity of the heater as they tend to distort and soften at these temperatures.

Combustible materials are considered to be wood, compressed paper, plant fibres, plastic, Plexiglas or other materials capable of being ignited and burned. Such materials shall be considered combustible even through flame-proofed, fire-retardant treated or plastered.

Additional clearance may be required for glass, painted surfaces and other materials which may be damaged by radiant or convection heat.

NOTE: Some materials deteriorate or soften at sustained temperatures below 160°F.
Consult material manufacturer for recommendations

The Installer is responsible to ensure that building materials with a low heat tolerance which may degrade at higher temperatures are protected to prevent degradation.

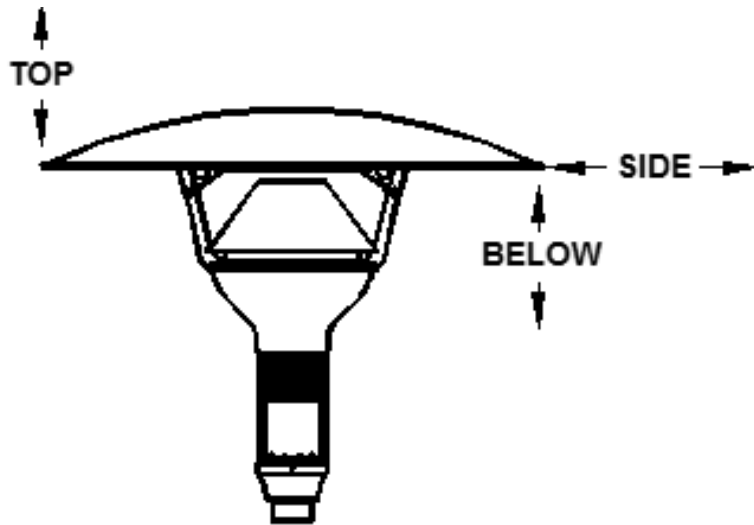


Figure 7: Clearance Dimensions

	TOP	SIDE	BELOW
ALL MODELS	18"	22"	33"

LOCATION PLANNING

WARNING

This heater is **NOT** approved for any indoor Residential application.
If in doubt of your application consult with your local fire marshal or gas authority having jurisdiction.

A Residential Dwelling is a housekeeping unit used or intended to be used as a domicile by one or more persons, containing cooking, eating, living, sleeping, and/or sanitary facilities. A Residential Dwelling does not include an attached and detached garage, workshop or outdoors.

Safety Requirements

1. Never locate the heater directly below electrical lines, gas lines or sprinkler systems.

NOTE: Sprinkler head heat fuse link performance may alter with age.

2. Do not locate heater too close to vinyl or plastic wall coverings. These materials may discolour or soften well before they reach combustible limits.
3. The heater requires a minimum clearance from of combustible materials. See the Specifications / Details
4. Clearance to Combustible Materials information found in the Specifications / Details section.
5. Always allow room for removal of the Top Reflector and Burner head for maintenance purposes.
6. The heater aspirates (needs) air for combustion. Do not locate heater where there are severe draft conditions or airflow restrictions to the Burner head of the heater.

Layout Considerations

One Even-GLO heater, at high fire and in windless conditions, has a comfort radius of about twelve feet (24 ft. circle).

A series of heaters providing area heat should be placed about **14-20 feet apart**.

Wind protection has an important influence on the body's ability to retain radiant heat. Use natural or newly built wind barriers where possible, such as existing buildings, shrubbery or tree lines and fences.

Outdoor Installations

The Heater may be installed with shelter no more inclusive than:

1. With walls on all sides, but with no overhead cover.
2. Within a partial enclosure which includes an overhead cover and no more than two side walls. These side walls may be parallel, as in a breezeway, or at right angles to each other.
3. Within a partial enclosure, which includes an overhead cover and three side walls, as long as 30 percent, or more, of the horizontal periphery of the enclosure is permanently open.

A patio that has been almost entirely closed in with a roof and windbreak walls or a tent may be considered an indoor location in some code authorities. Refer to the Natural Fuel Gas Code, ANSI Z.223.1 (NFPA 54) in the US and CSA B149.1 and B149.2 Installation Codes in Canada.

Indoor Installations (Natural Gas models only)

The Even-GLO heater has been approved for indoor use in non-residential applications (Natural Gas Models ONLY).

Venting of the flue gases is accomplished by means of an interlocked fan. Refer to the Natural Fuel Gas Code, ANSI Z.223.1 (NFPA 54) in the US and CSA B149.1 and B149.2 Installation Codes in Canada.

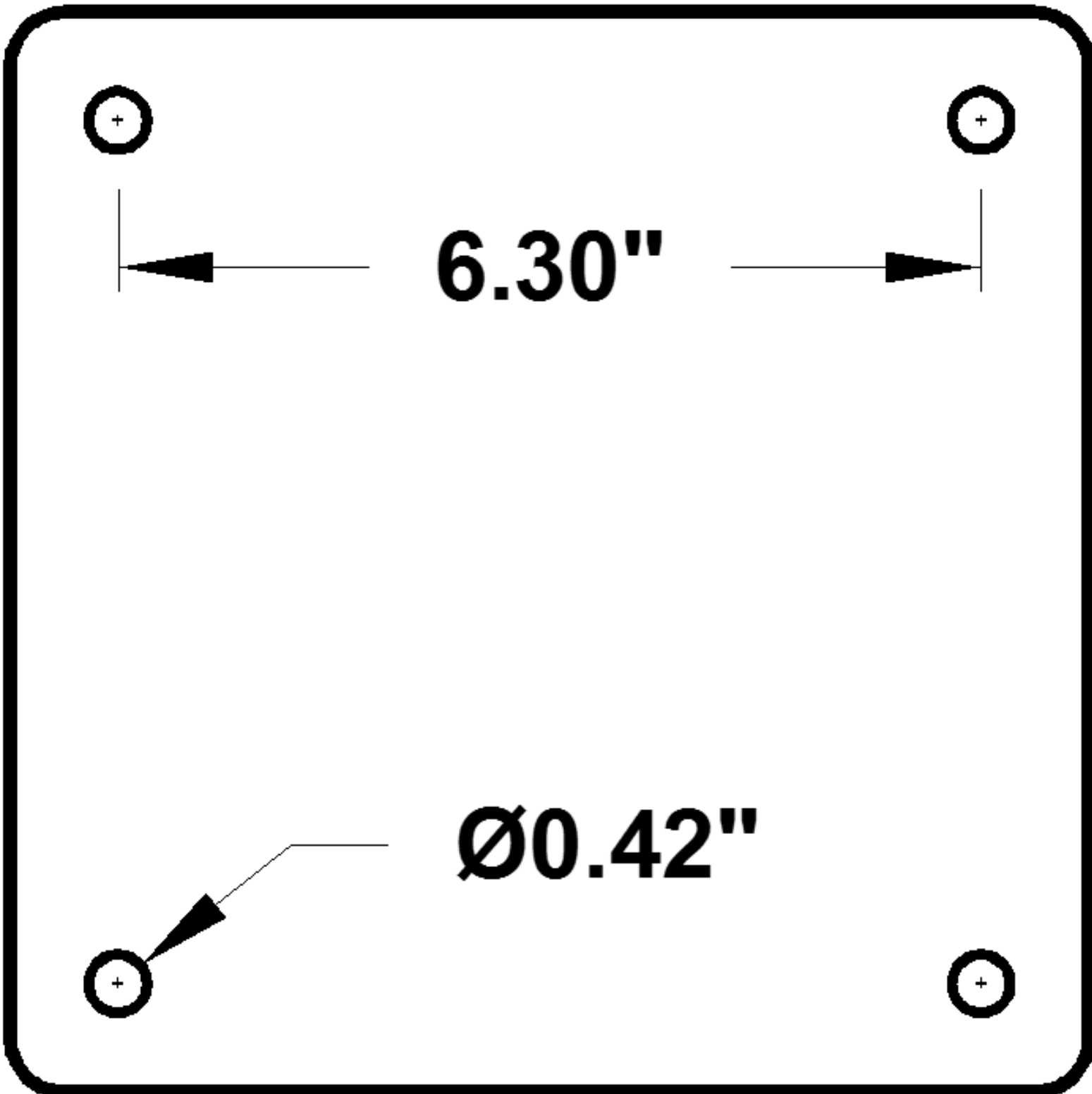
Requirements for combustion air supply and dilution air vary by jurisdiction, building type and specific installation details. **See local codes for guidance.**

In general, where heaters are installed without direct outside combustion air, fresh air ventilation must be provided to building space (3 cfm per 1000 BTU/Hr in Canada, 4 cfm per 1000 BTU/Hr in the USA). **Verify applicable local codes in the USA as requirements change by jurisdiction.**

Installation Instructions

Floor Mount Models (GA301-U, GA301-T, GA301-M)

Mounting Plate Hole Pattern
(Full size)



1. Mount pole base onto a concrete floor or cast concrete with a minimum below grade depth of 12" and having a 12" diameter. If forming concrete, cast in place appropriate passage for gas and control wires. Use minimum 3/8" x 5" 90° lag bolts or equivalent to mount heater base to the concrete base. The pole base could also be mounted on wood decks with 3/8" bolts and lock washers on the underside of the deck. Periodically check for tightness when mounted to a wood deck.

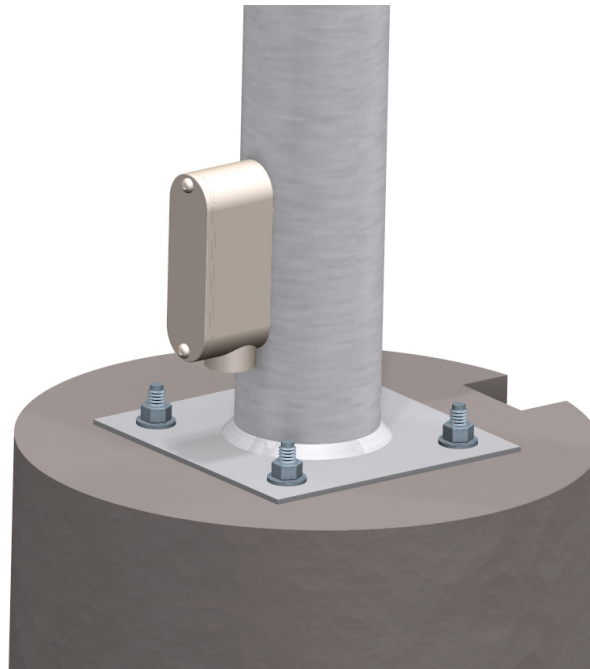


Figure 8: Pole Base Placement

2. Arrange the burner head such that the wires and gas hose are arranged as illustrated. Feed a pull wire through the pole to assist in pulling the three power wires into the pole and through the junction box. Firmly tape the pull wire to the power wires. Lower the assembly into place while pulling the wires. Two people may be necessary for this operation.

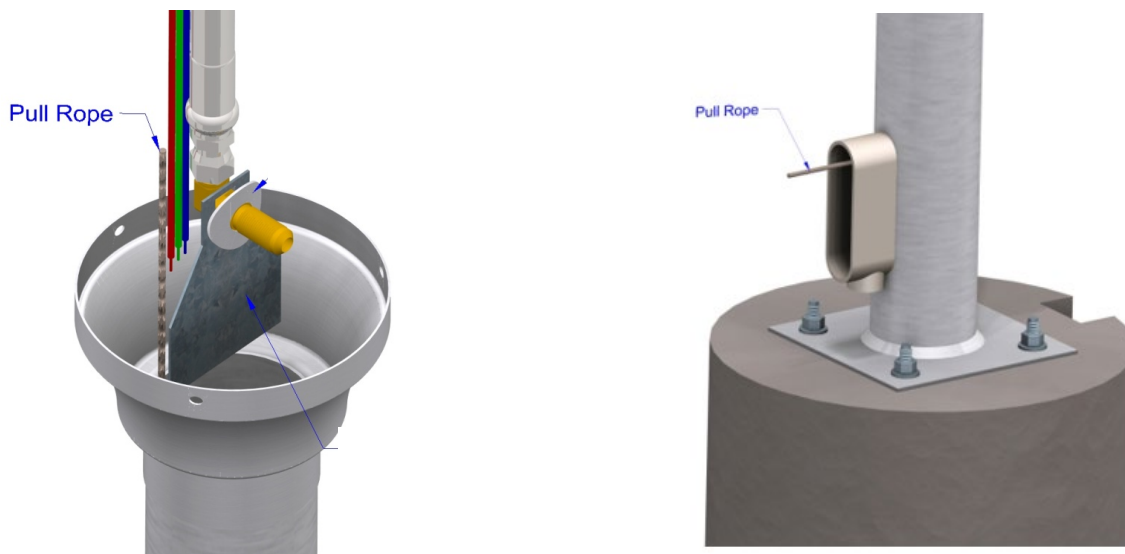


Figure 9: Wire and Hose Assembly

- Secure burner head to pole with four #10 screws provided.



Figure 10: Burner Head Installation

- Push the gas connection into the slot by slightly pushing on the gas line through the electrical box. The gas fitting should be positioned as illustrated below.

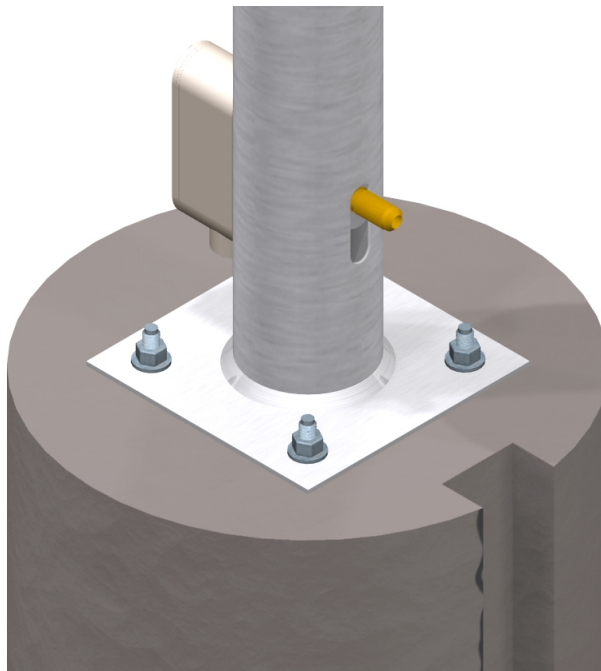


Figure 11: Gas Connection Position

5. Place gas connection cover onto the fitting and install the nut to fasten the cover assuring the nut is properly seated. See below.

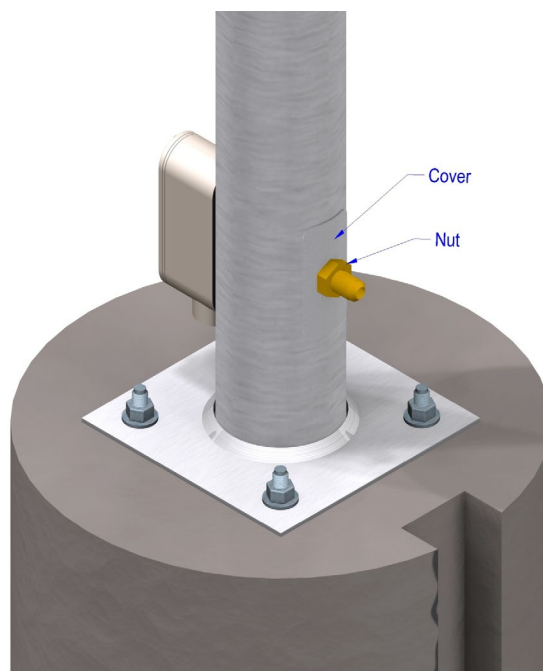


Figure 12: Gas Connection

6. Install reflector using the four carriage bolts, nuts and washers provided.



Figure 13: Reflector Installation

Hanging Model (GA301-H)

1. Disconnect gas hose from reducing coupling. Connect flared elbow to reducing couple and align elbow to point at a right angle to the heater door opening.



Figure 14: Gas Hose Connections

2. After inserting the heater assembly into the frame base, connect the swivel fitting on the opposite end of the gas hose to the flared elbow. See Figure 15. **Note: All gas connections must be done according to local and national codes. Also, all new connections must be leak tested.**

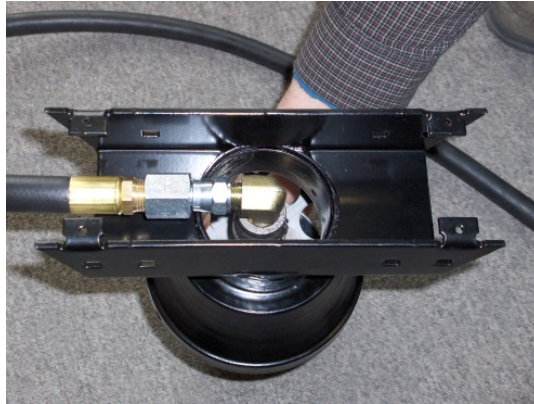


Figure 15: Insert Heater Assembly into Frame Base

3. Assemble 4 gusset plates to the base as illustrated. Use 5/16" carriage bolts with washers and nuts.



Figure 16: Gusset Plate Assembly

4. Assemble angular arms to the base.

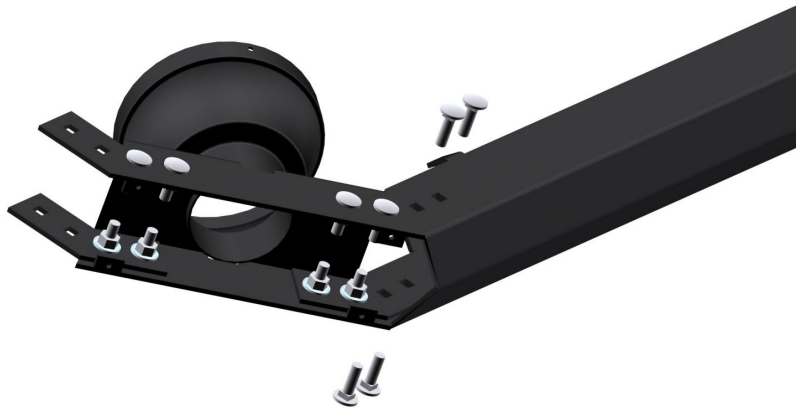


Figure 17: Angular Arm Assembly

5. Assemble vertical arm to angular arm using two gusset plates and 5/16" carriage bolts with nuts and washers. Repeat this for the other side.



Figure 18: Vertical Arm Assembly

6. Install mounting brackets on both sides with the supplied hardware.

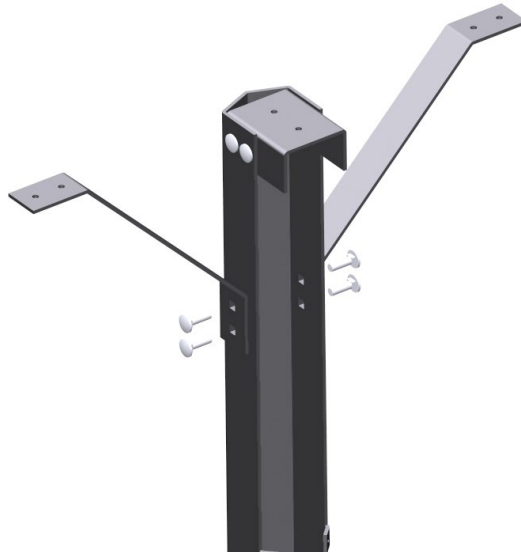


Figure 19: Install Mounting Brackets

7. Mount the heater base assembly to the ceiling in the desired location keeping in mind clearance to combustibles. Use a minimum of 6 #14x1.5" wood screws to mount heater.
Caution: To prevent possible head injury provide pedestrian protection if the lowest point of the heater is less than 7 feet in height. The heater must have a minimum clearance of 6 feet below.

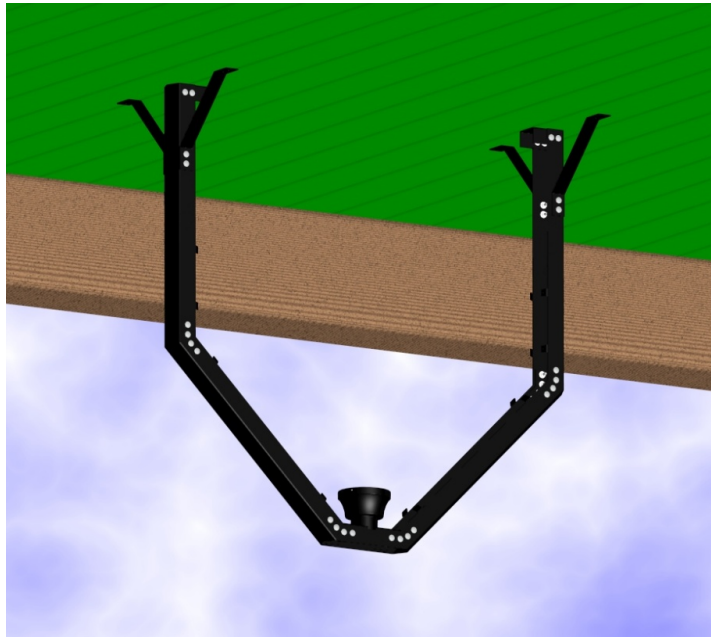


Figure 20: Mount Heater Base

8. Install the heater assembly into the base assembly, feeding the gas line and wires through the bottom. Use 4 #8-32 type F screws to secure the heater head to the base.

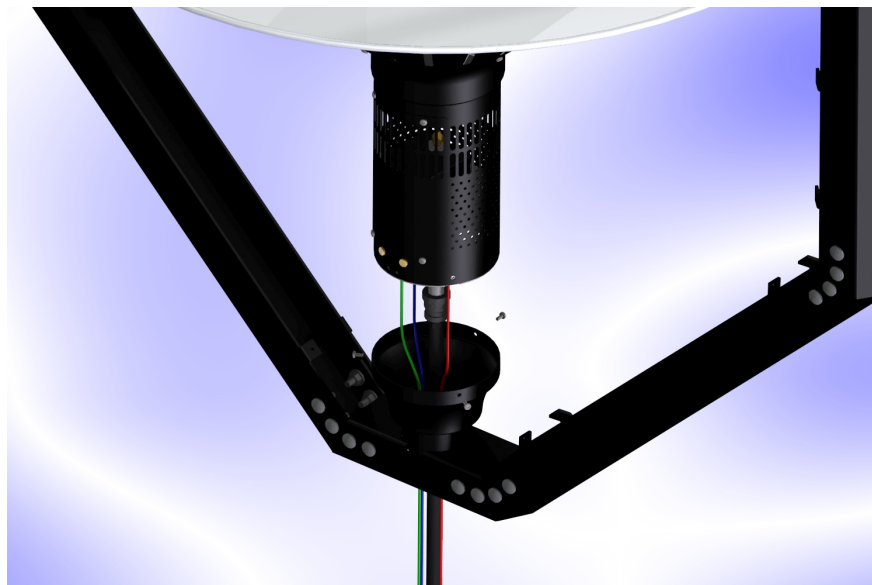


Figure 21: Install Heater Assembly into Base

9. Feed the gas line and control wires through either side of the assembly.



Figure 22: Feed Gas Lines / Wires Through Assembly

10. Install the heat shields as illustrated using the #8-32 type F screws supplied.



Figure 23: Install Heat Shields

11. Install the bottom cover to complete the assembly using 4 #8-32 type F screws supplied.

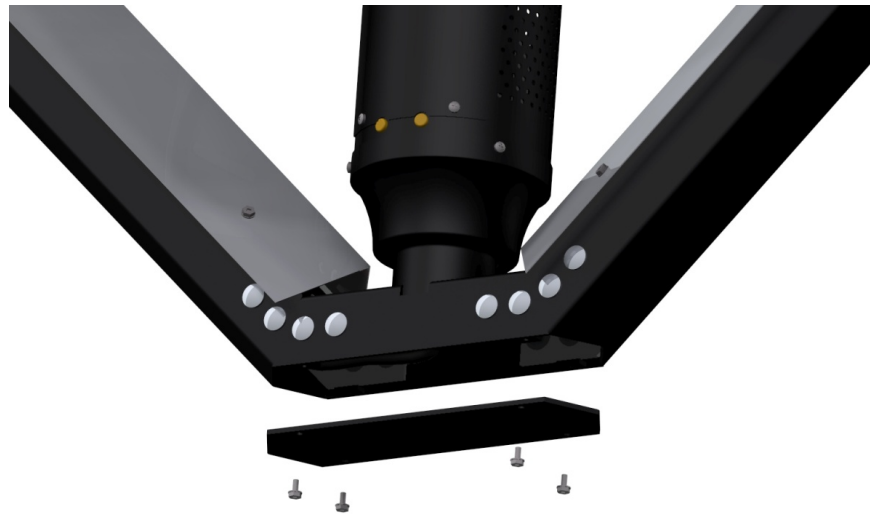


Figure 24: Install Bottom Cover

12. Install the reflector brackets to the frame in an upright position. Attach the reflector to the reflector support brackets using screws supplied.

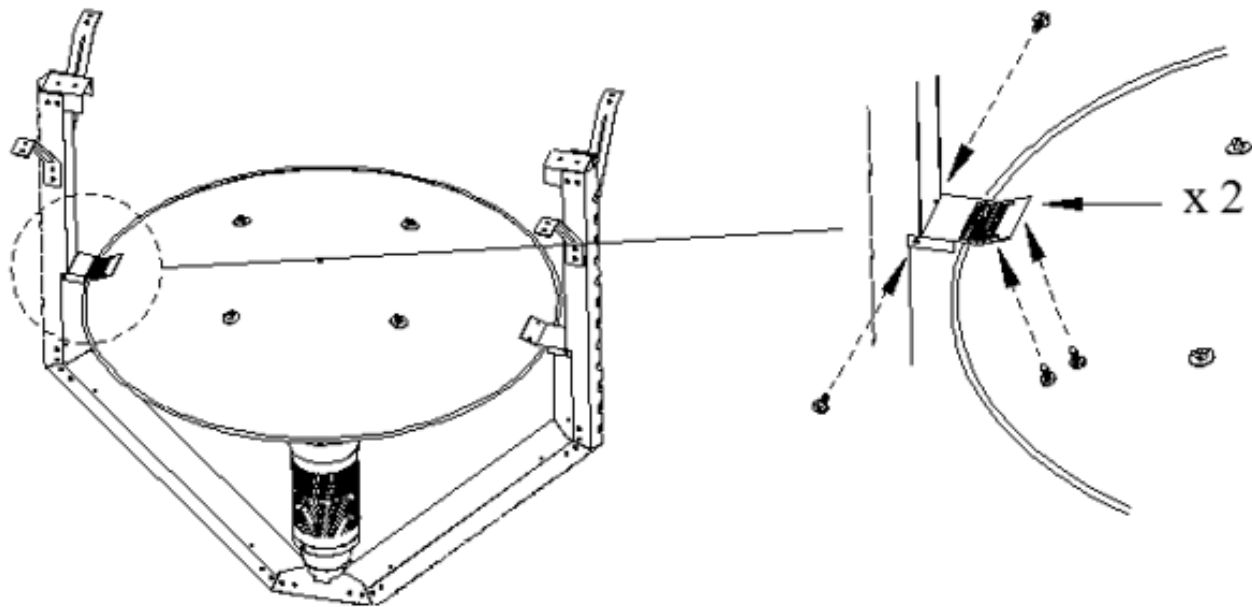


Figure 25: Install Reflector Brackets

Portable Model (GA301-MP)

1. Secure the wheels to the bottom base:
 - a. Flip over base. Line up holes and press carriage bolt through the wheel bracket and the bottom base. Place the lock washer over the threads of the carriage bolt and hand tighten the nut.



Figure 26: Attach Wheels to Base

- b. Tighten the nut with a wrench while making sure the carriage bolt is properly secured and not spinning.



Figure 27: Tighten Wheels

2. Secure the pole and regulator bracket to the bottom base:
 - a. Flip base right side up, **remove portable base housing** and place pole on the 4 threads of the elevator bolts.

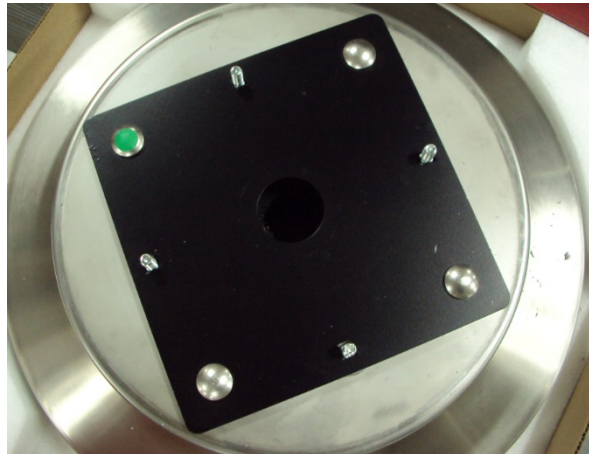


Figure 28: Remove Portable Base Housing

- b. Line up pole flange indicator dot with the bottom base indicator dot. Slide bottom housing into place as shown below.

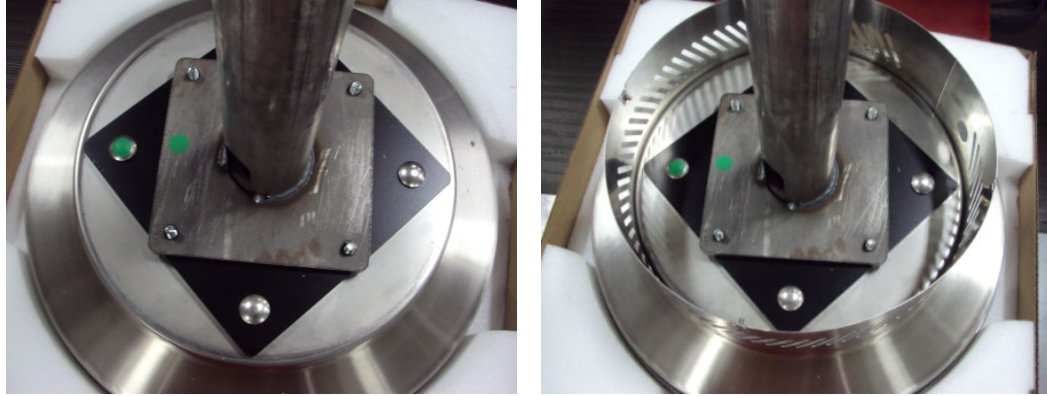


Figure 29: Line Up Pole and Slide Bottom Housing into Place

- c. Unplug the quick disconnecter from the one side of the supply hose and feed the hose through the inside of the bottom housing until it reaches the other end of the hose. Plug the quick disconnecter back into the outer side of the hose once done.

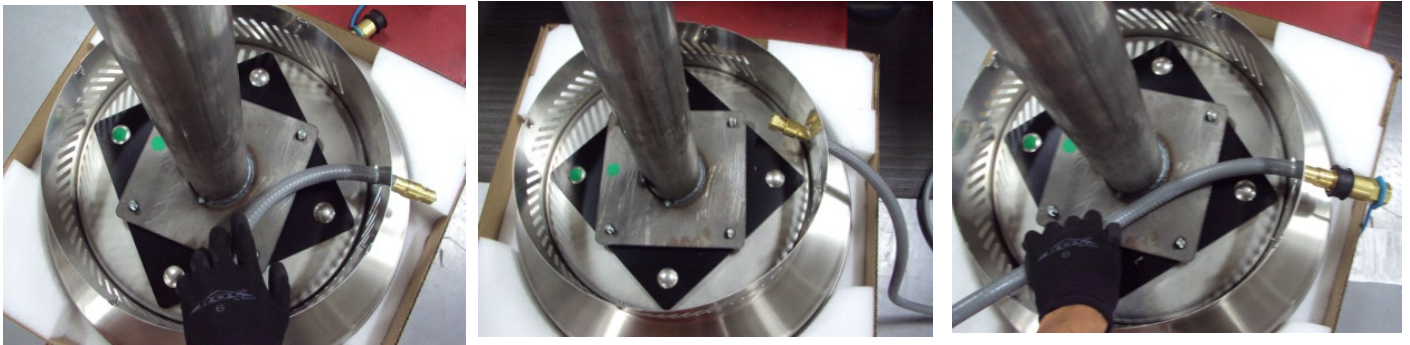


Figure 30: Feed Hose Through Bottom Housing

- d. Connect the supply hose with the regulator and mounting plate. Position and secure mounting plate to the pole flange using 2 nuts with a 9/16" socket to tighten.

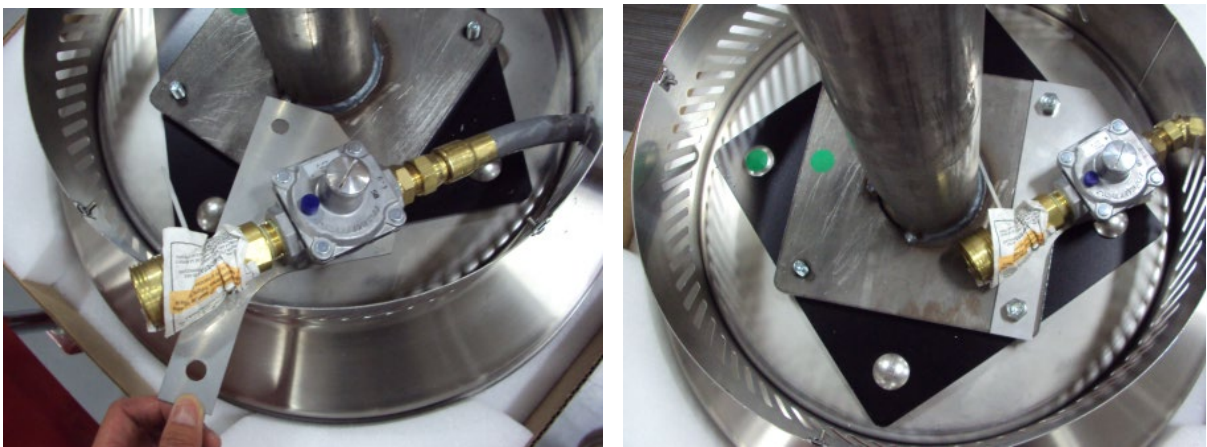


Figure 31: Connect Regulator and Mounting Plate

3. Secure pole neck to pole:

- a. Slide the rest of the bottom housing assembly down the pole.



Figure 32: Slide Housing Assembly Down Pole

- b. Place the pole neck in the pole, line up the 4 holes. Place the button socket cap screws into the holes and place the internal stainless-steel lock washer over the threads inside the pole and hand tighten the nylon insert brass nuts as shown below.

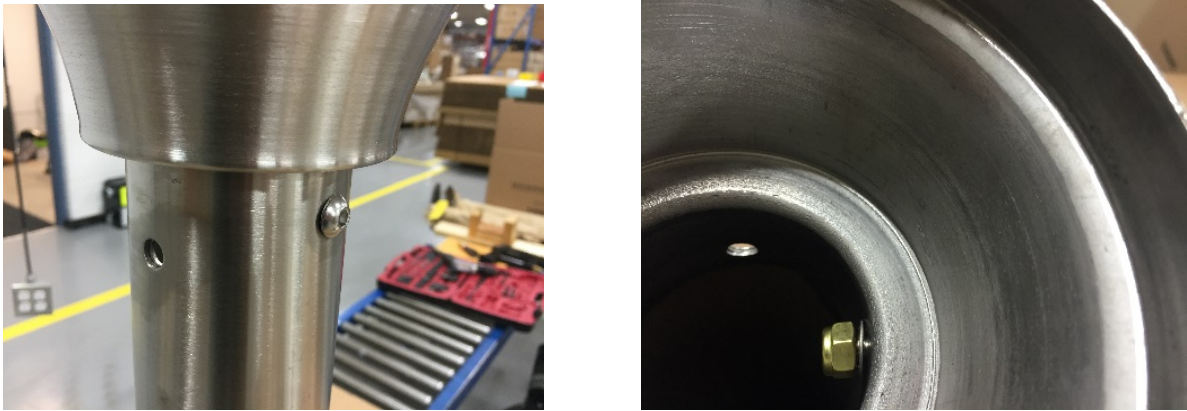


Figure 33: Install Pole Neck

- c. Tighten the nuts with a wrench. Make sure the button socket cap screw is properly secured and not spinning.



Figure 34: Tighten Pole Neck

4. Secure heater head to pole neck:

- a. Place heater head onto pole neck and line up the holes.

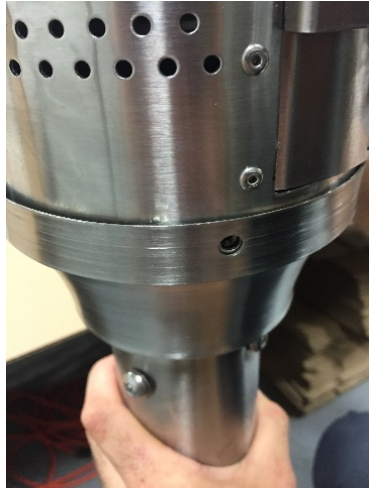


Figure 35: Install Heater Head

- b. Hand tighten the 4 button socket cap screws into the weld nuts on heater head. Tighten with the allen key provided.



Figure 36: Hand Tighten Heater Head

5. Secure top reflector to heater head:
 - a. Peel plastic off the 39" top reflector.



Figure 37: Reflector

- b. Place top reflector onto heater head and line up the 4 arms of heater head. Place stainless-steel carriage bolts through the arms and top reflector.



Figure 38: Place Reflector onto Heater Head

- c. Place stainless-steel flat washers over threads of carriage bolts and tighten the stainless-steel acorn nuts,



Figure 39: Install Reflector

6. To move / position the heater, ensure that the wheels are properly connected to the bottom base. **Move the heater by handling ONLY the pole.** It may take two people to manoeuvre the heater safely, depending on the size / strength of the person(s). Tip the heater backwards toward the wheels until the base no longer touches the ground. Wheel the heater to the desired location and return base to the ground. Ensure the heater is stable and located on level ground.

Note: If the heater is going to be operated at new location the “**Startup Procedure**” must be completed.

General Requirements

- The gas meter and service must be sufficiently large to supply gas to the connected building gas load including the heating equipment and any other gas fired equipment.
- Additionally, the gas distribution piping must be designed according to local and national ordinances.
- Generally (low pressure) systems designed with a maximum $\frac{1}{2}$ " W.C. total pressure drop meet this requirement.
- Gas supply pipe sizing must be in accordance with the National Fuel Gas Code, ANSI Z223.1 (NFPA 54) in the USA and CSA B149.1 and B149.2 Installation Codes in Canada.
- Before connecting burners to the gas supply system, verify that high pressure testing of the system has been completed. Failure to do so may expose the burner components to damaging high pressure, requiring replacement of key components.

Electrical Wiring

Internal Wiring GA301-U, GA301-T, GA301-H

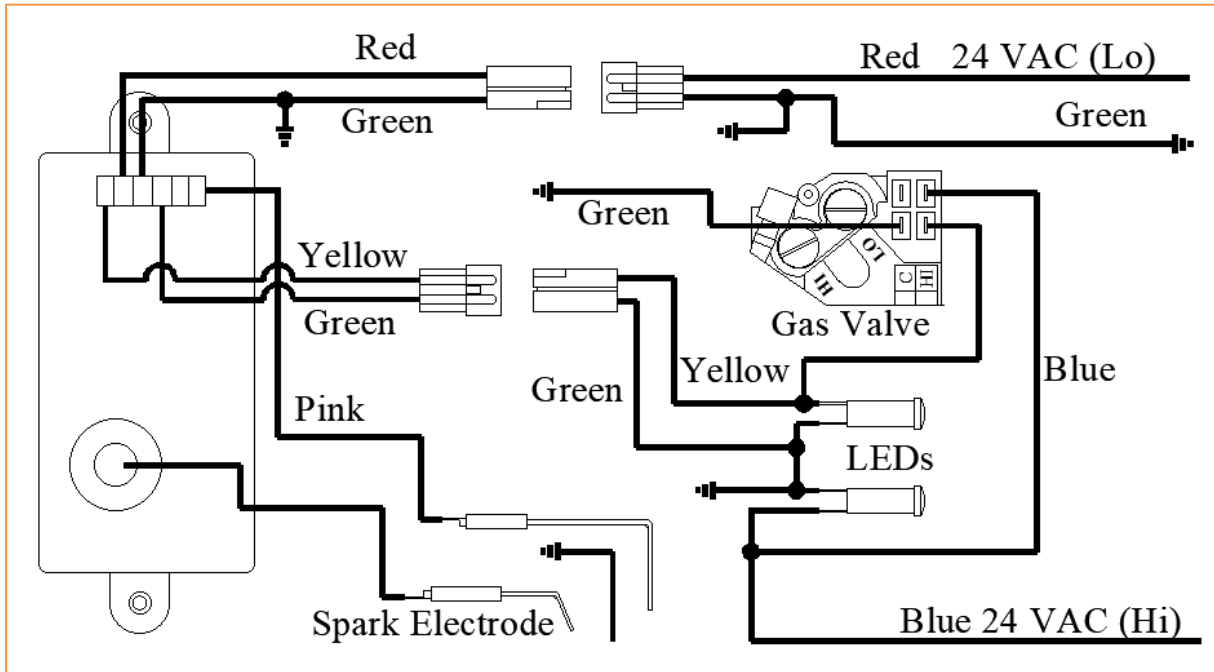


Figure 40: GA301-U, GA301-T, GA301-H Wiring Diagram

Internal Wiring GA301-M, GA301-MP

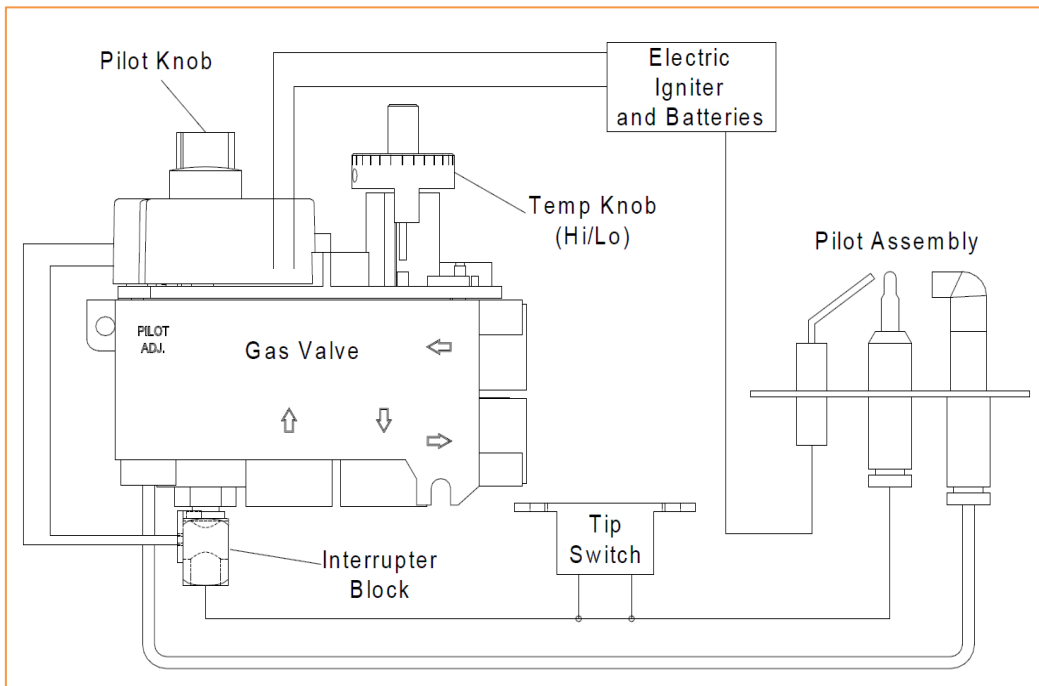


Figure 41: GA301-M, GA301-MP Wiring Diagram

External Wiring Options GA301-U, GA301-T, GA301-H

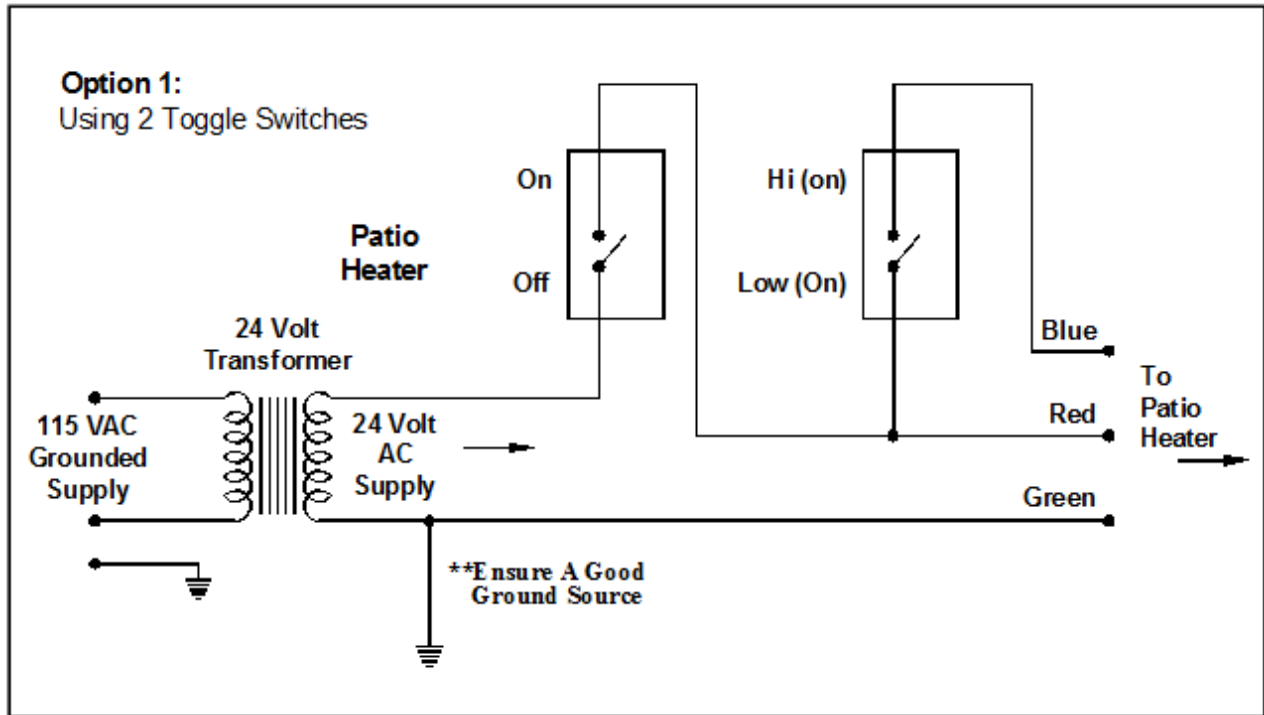


Figure 42: Wiring with Toggle Switches

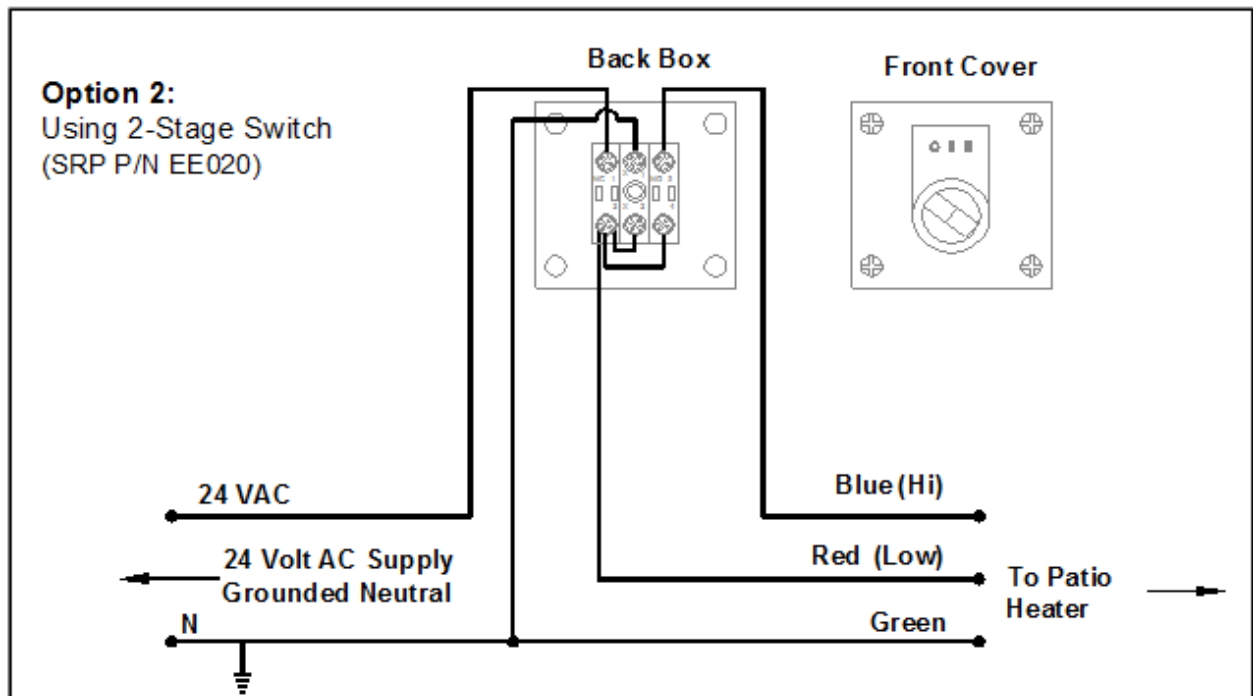


Figure 43: Wiring with 2-Stage Switch

Startup & Shutdown Instructions

GA301-U, GA301-T, GA301-H

Startup

1. Open manual gas supply valve (ensure the gas supply lines have been purged).
2. Turn on switch to energize electric supply.
3. The electronic control module will time out in 45 seconds
4. The gas valve will open, and ignition will commence and continue for 15 seconds.
5. If flame starts and is detected, flame will continue until turned off
6. If flame does not start, the gas valve will close after 15 seconds. A wait period commences and lasts for 30 seconds and a second trial for combustion commences. The electronic control will attempt three trials for ignition before locking out for one hour, at which time it will automatically try again.

Shutdown

1. Turn off power to electronic control.
2. For longer periods of shutdown, also close manual gas supply valve.

GA301-M, GA301-MP

Startup

1. Open manual gas supply valve (ensure the gas supply lines have been purged).
2. Push and turn the ignition knob counter-clockwise from the OFF position to the PILOT position (lightning symbol).
3. To start the gas flow and sparking, push the knob inwards. Keep pressing until the pilot is lit and stays lit (for approximately 30-45 seconds to heat up the thermocouple) and then release the pressure from the knob. If you have warmed up the thermocouple enough, when you release the pressure from the ignition knob the main burner will automatically light. If it does not, try igniting the pilot again, but waiting a longer interval before releasing the knob.

Note: When using the heater with a fresh fuel supply, pilot may take some time to light because the light needs to purge all the air out of the line first.

Adjusting Temperature

Adjust the heat output by rotating the Temperature Control Knob counter-clockwise to increase the output, clockwise to lower the output.

Shutdown

1. Turn the ignition knob clockwise into the OFF position to turn off the gas flow and extinguish the burner flame.
2. For longer periods of shutdown, also close manual gas supply valve.

Maintenance & Troubleshooting

Maintenance

CAUTION

- Always follow all Caution and General Safety rules before / during use.
- Before performing ANY service to the heater, shut off the gas supply and electrical supply
- If any maintenance issues are found place the heater OUT OF SERVICE until it has been repaired by a certified service person. Use only manufacturer recommended replacement parts.

For best performance, certain minimal maintenance procedures should be performed before each heating season:

- Before performing any service or maintenance, shut off gas and electrical supply
- Check condition of burner, especially the integrity of the flame screen
- Inspect condition of spark and sense electrode
- Check for cracks in ceramic insulators or excessive corrosion
- Inspect condition of high-tension lead to spark rod.
- Inspect gas supply assembly and all connections for damage, excessive abrasion, wear, and gas leaks
- Clean the heater with non-combustible and non-corrosive cleaning agents, ensure control compartment, burners, and circulating air passageways are kept clean of dust, insects, cobwebs, and other debris
- Visually check the burner flame pattern during use, a proper flame should resemble Figure 44, if at any time flames extend beyond the emitter surface (see Figure 45) or black soot is found on the inside of the reflector TURN OFF the heater immediately and place OUT OF SERVICE until repairs are made.

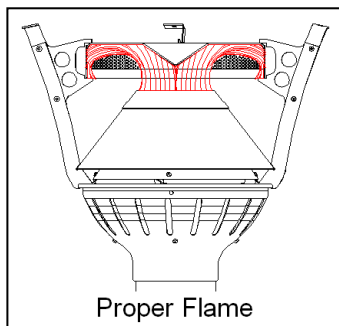


Figure 44: Proper Flame Pattern

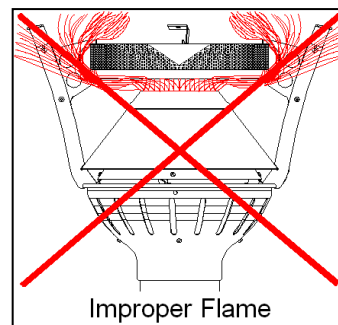


Figure 45: Improper Flame Pattern

Care and Cleaning

Cleaning Stainless Steel Patio Heaters

Stainless steel is protected from corrosion by a thin layer of chromium oxide. This happens when oxygen from the atmosphere (air) combines with the chromium in the stainless steel to form this layer of chromium oxide. This passive film or layer protects the stainless steel from further corrosion.

Stainless steel is easily cleaned by many different methods.

General Rules for Cleaning Stainless Steel:

1. Handle stainless steel with clean gloves or cloths to guard against fingerprints.
2. Avoid the use of oily rags or greasy cloths when wiping the surface.
3. Where possible, after cleaning, thoroughly rinse with water.
4. Cleaning with detergents containing chloride must be AVOIDED.
5. Rubbing or wiping should be in the direction of the polish lines NOT against them.
6. DO NOT use solvents in closed spaces or while the heater is running or smoking.

Methods to Clean Surface Contamination

Dirt

Dirt and soil can consist of accumulated dust and a variety of contaminants that come from many sources, ranging from the wind to everyday use. Some may be easily removed, while others may require specific cleaners.

- Frequently, warm water with or without a gentle detergent is sufficient.
- Next in order, mild non-scratching abrasive powders such as typical household cleaners. These can be used with warm water, bristle brushes, sponges, or clean cloths. DO NOT USE ordinary carbon steel brushes or steel wool.
- Next in order, for more aggressive cleaning, a small amount of vinegar can be added to the scouring powder.

Cleaning should always be followed by rinsing with CLEAN HOT WATER and drying with clean towels.

Fingerprints and Stains

Fingerprints and mild stains resulting from normal use are the most common surface contaminants. These do not affect the corrosion resistance and are easy to remove.

- Can be removed using a Glass Cleaner.
- Or gentle rubbing with a paste of Soda Ash (sodium carbonate) and water applied with a soft cloth.

Cleaning should always be followed by rinsing with CLEAN HOT WATER and drying with clean towels.

Oil and Grease

Oil and grease may carry grit, dust and sand which produce surface soiling, so periodic removal is necessary.

- Can be removed using soap or detergent and water or a combination of detergent and water plus a solvent. Non-halogenated solvents, such as Acetone, Methyl Alcohol, and Ethyl Alcohol work well. The preferred solvent is one that does not contain Chlorine.

Cleaning should always be followed by rinsing with CLEAN HOT WATER and drying with clean towels.

Preventative Care and Maintenance

EH105 – Custom Dome Cover – A custom protective cover designed to increase the life of your EvenGlo. Item is not included with purchase, please contact your Representative for further details.

Troubleshooting GA301-U, GA301-T, GA301-H

No Gas Supply at Burner

- Ensure manual shut off valve is in proper position
- Ensure there is pressure and flow at inlet to gas valve
- Ensure gas valve receives 24VAC power from control module during ON cycle
- Ensure the gas valve switch is set to ON position

No Spark

- Ensure control module has 24VAC supply
- Ensure the spark electrode assembly is grounded and there are no cracks in the ceramic insulator

Flame Lights but Will Not Stay Lit

- Ensure there is no overpowering wind
- Ensure the sense electrode is not corroded, is not grounded, and does not have a cracked insulator. The electrode position should be radially across burner face

Troubleshooting GA301-M, GA301-MP

No Gas Supply at Burner

- Ensure manual shut off valve is in proper position
- Ensure there is pressure and flow at inlet to gas valve

No Spark

- Ensure the battery in ignition module is operating
- Ensure spark electrode assembly is grounded and there are no cracks in the ceramic insulator
- Ensure the spark gap between the pilot and spark ignitor is 1/8"-3/16" as per picture below:

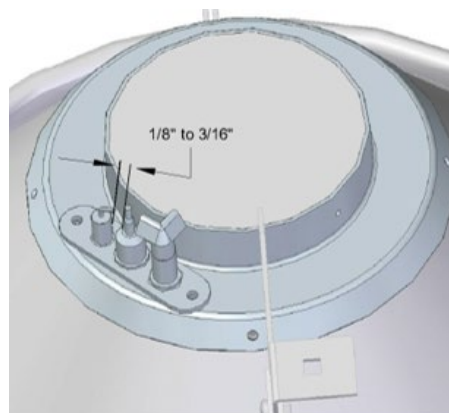


Figure 46: Proper Spark Gap

Flame Lights but Will Not Stay Lit

- Be sure to hold pilot knob in for one minute or longer to allow sensor to get hot
- Ensure there is no overpowering wind
- Ensure sense electrode is not corroded, is not grounded, and does not have a cracked insulator

REPLACEMENT PARTS

GA301-U, GA301-T, GA301-H Replacement Parts

Item	Part No.	Description
1	ES041	Reflector Package
2	EG014	For GA301-U, GA301-H: Gas Hose Assembly 55"
	EG027	For GA301-T: Gas Hose Assembly 67"
3	RP-ES011	Emitter
4	RP-EE002	Flame Sensor
5	RP-EE001	Spark Electrode
6	EE151	Electronic Ignition Module (Channel 2021-142, 6 pin)
	EE030	Electronic Ignition Module Kit (Channel 2021-96, 5 pin)
7	EG002	Orifice for Natural Gas
	EG022	Orifice for Propane
8	RP-EG001	Gas Valve for Natural Gas
	EG023	Gas Valve for Propane
9	EE004	Indicator Light
10	EG008*	Burner Assembly
11	ES114*	For GA301-U: Pole Package Black 63"
	ES131*	For GA301-T: Pole Package Black 75"
	ES081*	For GA301-U: Pole Package S/S 63"
	ES132*	For GA301-T: Pole Package S/S 75"
-	RP-EE005	Ignition Wire (not shown)

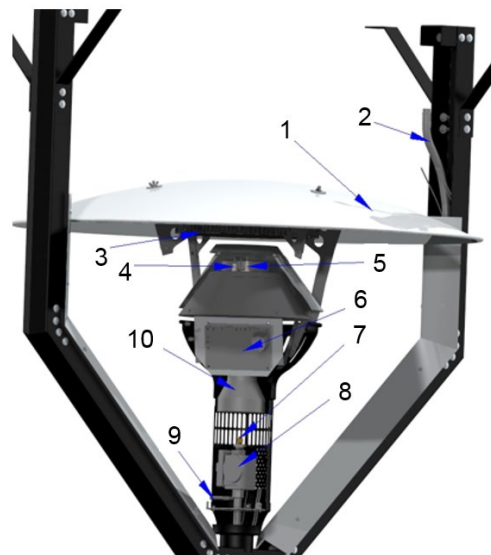
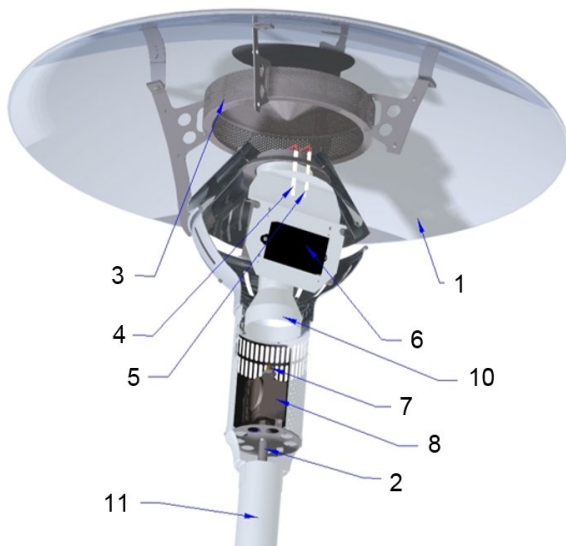
NOTE:

For parts with "*" suffix add S, B, or BR to the end of the part numbers for desired finish.

"S" = Stainless Steel

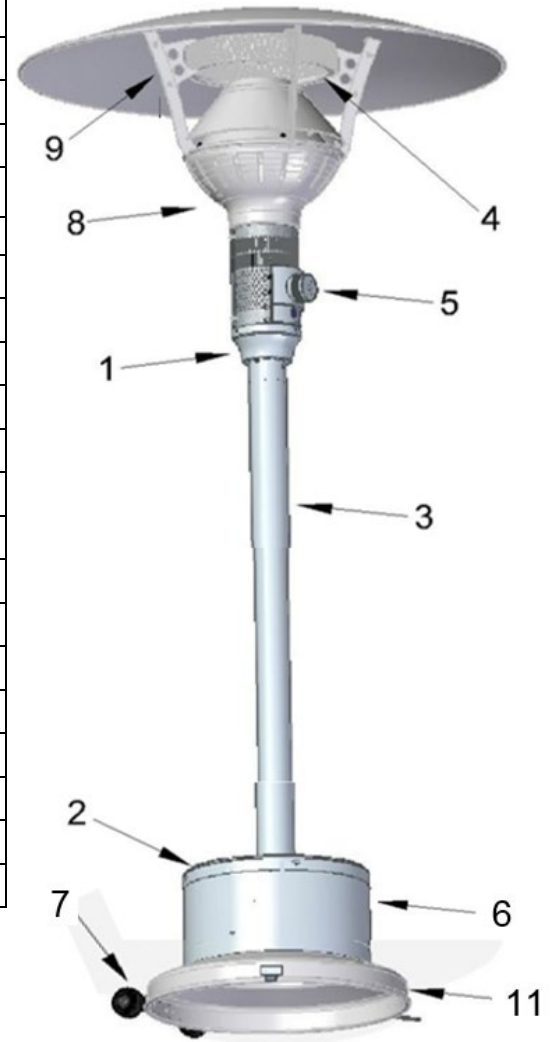
"B" = Black

"BR" = Bronze



GA301-M & GA301-MP Replacement Parts

Item	Part No.	Description
1	RP-ES170*	Pole Neck
2	RP-ES171*	Housing Top Cover
3	RP-ES172*	Pole Assembly
4	RP-ES011	Emitter
5	RP-EH016	Knob
6	ES185*	For GA301-MP: Burner Housing Assembly
7	RP-EH066	For GA301-MP: Wheel Assembly
8	RP-ES161*	For GA301-MP: Main Housing
9	RP-ES119	Arm Assembly w/ Shield Support
10	RP-EE034	For GA301-MP: Tip Switch
11	RP-ES168*	For GA301-MP: Main Base
12	RP-EG037	Gas Valve
13	RP-EE028	Electronic Igniter
14	RP-EE032	Pilot Burner
15	RP-EG038	Current Interrupter
16	KG015	Breakaway Pilot Nut
17	RP-EE038	Thermocouple
18	RP-EG042	Pilot Tube S/S
-	EG065	For GA301-MP: Regulator and 12' Hose Kit (not shown)
-	EG066	For GA301-MP: Regulator and 15' Hose Kit (not shown)

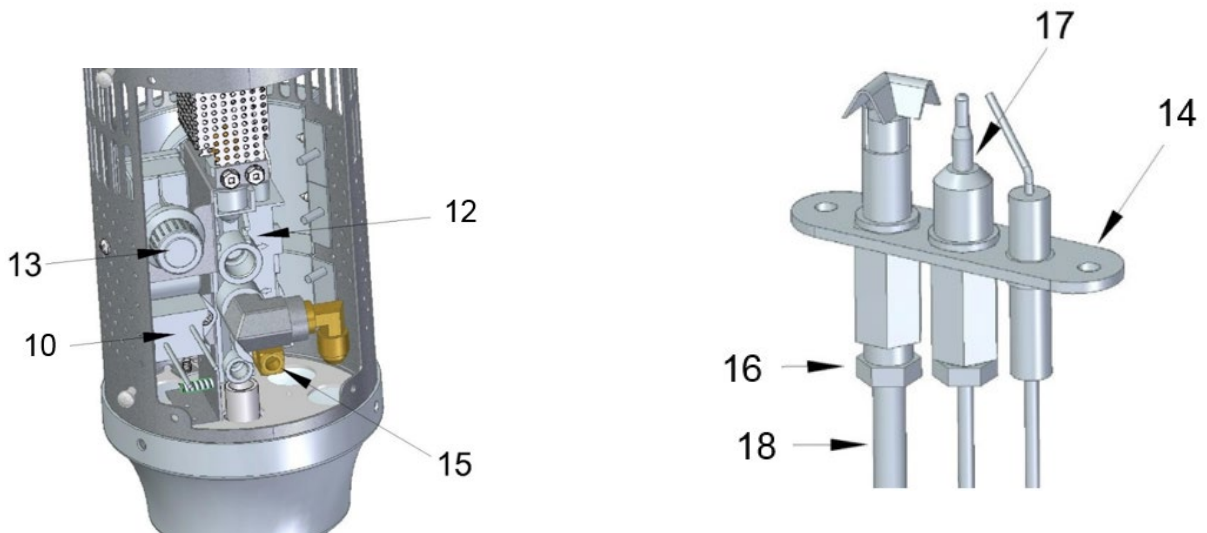


NOTE: For parts with "*" suffix add S, B, or BR to the end of the part numbers for desired finish.

"S" = Stainless Steel

"B" = Black

"BR" = Bronze



**SERIES GA301-U, GA301-T, GA301-H
GA301-M, GA301-MP
evenGLO PATIO HEATER**

WARRANTY

THE MANUFACTURER WARRANTS TO THE ORIGINAL OWNER THAT THE EMITTER OF THE PRODUCT WILL BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF 3 YEARS FROM THE DATE OF PURCHASE. ALL OTHER PARTS OF THE PRODUCT WILL HAVE A WARRANTY PERIOD OF 1 YEAR.

The Manufacturer's obligation under this warranty is limited to repair or replacement; FOB its facility, of the defective part. In the case of replacement parts, the warranty period shall be the longer of the original warranty or a period of 12 months from the date of purchase. In no event shall the Manufacturer be liable for incidental expense or consequential damages of any kind.

This warranty does not cover any shipping, installation or other costs incurred in the repair or replacement of the product. No materials will be accepted for return without authorization.

This warranty will not apply if, in the judgement of the Manufacturer, the equipment has been improperly installed, unreasonably used, damaged, or modified.

THE REMEDIES PROVIDED FOR IN THE ABOVE EXPRESS WARRANTIES ARE THE SOLE AND EXCLUSIVE REMEDIES. NO OTHER EXPRESS OR IMPLIED WARRANTIES ARE MADE INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE.