ELSTON

Propane Heaters

Owner's Manual for Roll-on Cargo Heaters (118-T, X-700, X-900)

Another Quality Product of:

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Revision E
Updated 2016

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Revision E

Valid for models 118T, X-700, and X-900 produced after January 2016

Safety Information

The heater you have purchased was designed, first of all, to be safe. However, since this heater burns propane, safety precautions are necessary for the safe and reliable operation of this product. For your safety, please take the time to read the appropriate sections of this manual before installing, servicing, or operating the heater.

⚠ WARNING Use only propane vapor for fuel. Use of a different fuel or liquid withdrawal cylinder risks fire or explosion.

Do Not Bypass or Remove Safety Equipment

Although we understand temporary measures must sometimes be made to save a load, bypassing any safety device may result in fire or explosion. For your safety, do not temporarily bypass any safety equipment, and if you do, please fix these temporary measures as quickly as possible.

Use only exact parts or manufacturer approved replacements for repair

For proper function and safety, critical parts such as hoses, regulators, guards, and controls, must match the existing part.

⚠ CAUTION Internal metal surfaces can hold significant heater after unit is shut off – Do not service heater until unit has cooled for at least 10 minutes.

NOTICE Use only in accordance with local regulations. Current regulations in your area may require that the installer of this heater or, more likely, that person servicing the propane fuel system meet certain requirements. If you are unsure what is required, please refer to the current regulations in your area or speak with the authority having jurisdiction before beginning installation.

⚠ WARNING During operation, this heater produces carbon monoxide, a chemical known to the state of California to cause birth defects and/or other reproductive harm.

As always, apply common sense and beware the perils of ignorance. If you are not sure it is safe or do not have enough knowledge to know if it is safe, then do not do it.

Introduction to Heater

The open flame heater you have purchased is a thermostatically controlled propane heater designed for heating cargo. The heater maintains the temperature of your cargo by switching between two levels of heat output: a standing pilot and the full 18000 BTU/hr. heat output.

Your heater is one of three models, either the 118T, the X-700 or the X-900. All models share the same basic heater but differ in the number and size of the propane fuel tanks they can carry. The 118T has no storage for propane bottles. We suggest using an X-1025 (External Single Bottle Carrier), X-1050 (External Dual Bottle Carrier), or a Series 32 Bulk Tank (100 to 200 # propane capacity) for propane supply with the 118T. The X-700 stores a single 20lb propane bottle in the base while the X-900 stores two 20 or 30lb propane bottles in the base.

Specifications – 118T

Dimensions	16 in wide x 51.5 in tall x 6.5 in deep
Weight	72 lbs
Rating	18,000 BTU
Tank Storage	None
Fuel Requirement	propane vapor (LP gas)
Fuel Consumption	0.7 lbs/hr max
Range of Thermostat	50-90°F

Specifications - X-700

Dimensions	17 in wide x 76 in tall x 17 in deep
Weight (w/o propane tank)	155 lbs
Rating	18,000 BTU
Tank Storage	1 20lb vapor withdrawal propane tank
Fuel Requirement	propane vapor (LP gas)
Fuel Consumption	0.7 lbs/hr max
Hours of Operation with full tank	24 hours (minimum)
Range of Thermostat	50-90°F

Specifications - X-900

Dimensions	26 in wide x 80 in tall x 17 in deep
Weight (w/o propane tanks)	216 lbs
Rating	18,000 BTU
Tank Storage	2 20lb or 30lb vapor withdrawal propane tanks
Fuel Requirement	propane vapor (LP gas)
Hours of Operation with full tank	48 hours (minimum)
Fuel Consumption	0.7 lbs/hr max
Range of Thermostat	50-90°F

The controls for the heater are located in the upper portion of the heater. The controls for the heater can be accessed by opening the small door on the side of the heater. When you look inside you should see something similar to Figure 1.

Figure 1 : Operating Controls

When you look inside the base of the X-900 heater you will see the major components shown in Figure 2 below. The X-700 has very similar components except it lacks the tank selection and pressure indicator and the tank clamp is a different design.

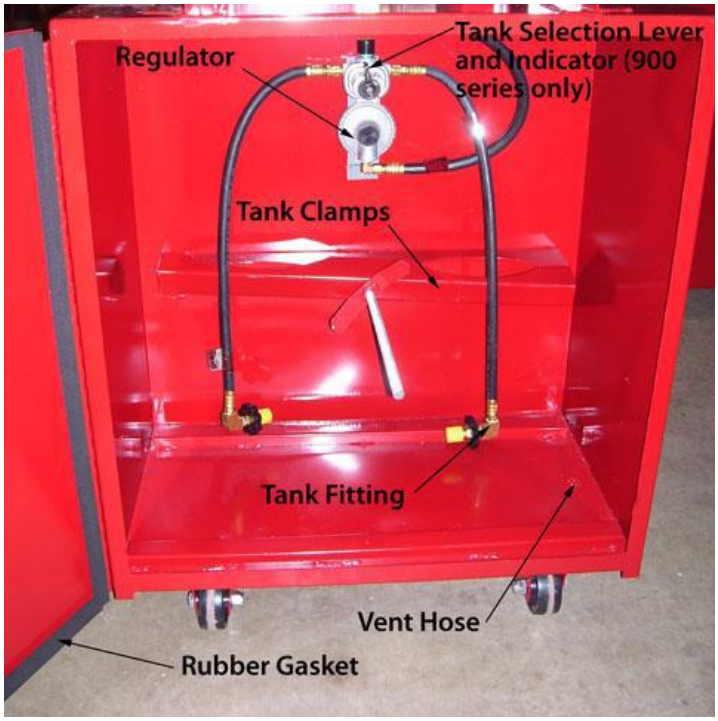


Figure 2 : X-900 Base

Operating Instructions

Please read the important safety information on page ii if you haven't already done so.

This guide assumes the heater has already been installed. For installation instruction please go to chapter 5 (page 15).

2.1 Operating Precautions

This heater is designed to provide freeze protection of cargo in trailers and truck bodies. It should not be used for heating building, buses, or recreational vehicles. Since this heater operates unattended for significant periods of time, it is very important that it is mounted and maintained properly. When this is done, it will provide you with many years of trouble-free operation.

⚠ WARNING

To prevent explosions and comply with federal regulations, do not use this heater when transporting Class 1 (explosive), Division 2.1 (flammable gases), and Class 3 (flammable liquid) materials. If you wish to transport this heater while carrying these materials, the propane tanks must be removed.

⚠ WARNING

Small amounts of carbon monoxide are produced by this heater during normal operation. A small vent is required to reduce buildup of carbon monoxide and replace oxygen used during combustion. Without a vent, carbon monoxide could build up to dangerous levels. Symptoms of carbon monoxide include headache, dizziness, burning eyes and nose, nausea, and dry mouth or sore throat. If you experience these symptoms, immediately seek fresh air and seek medical attention. Ventilate the trailer to reduce the carbon monoxide to safe levels before reentering.

⚠ WARNING

Never enter the cargo area after the door has been recently opened while operating a device like a phone, cigarette, or forklift that could be a source of ignition. The heater has a vent and excess flow valve(s) to prevent the buildup of dangerous levels of propane in the event of a leak. However, it is possible if the heater is damaged or improperly installed for propane to build up. You may not detect the odorant in the propane soon enough to extinguish the source of ignition and prevent it from igniting the mixture.

If you smell propane or suspect flammable vapor may be present (from a spilled flammable liquid, etc.) when entering the trailer, take immediate action. Follow your company's procedure if one is established. Otherwise:

- Do not do anything that could ignite the mixture including operating an electrical switch, disconnecting an extension cord, or using cell phone. Do not light matches or any other source of flame.
- Get everyone away from the area immediately.
- Call your fuel supplier and/or the fire department
- Do not reenter the area until the trailer has been aired out and declared safe.

- Have a properly trained service person repair any leaks and bring the heater back into service.

Propane has a chemical added to give it a distinctive odor. If you are not familiar with that odor, please contact your local LP supplier. They can provide you with a scratch and sniff pamphlet. Use extra caution if you smoke or strong odors are present as this can make the odor difficult to notice. Like most other odors, extended exposure can reduce your sensitivity to the smell. Since LP gas is heavier than air, please remember that the odor will be stronger at lower levels.

2.2 Normal Operation

These instructions are for the day to day use of the heater. A shortened version of these instructions can be found on the side of the heater.

2.2.1 Heater Component Break-down

NOTICE It is recommended that the following information should be read prior to the installation or repair of Elston Cargo Heaters.

All open-flame propane cargo heaters require the following basic parts:

1. Bottle connector (POL fitting)

   An excess flow valve is located in the POL fitting which connects the bottle to the high pressure rubber hose. The purpose of this valve is to close off the gas at the bottle in case of a high pressure line breakage. As this valve operates on pressure differences, it could close when full bottles are being installed. In other words, when the bottle is opened, gas rushes through the valve to equalize the pressure in the line and in doing so, closes the valve. The result is that the pilot light can be lit but when the main valve is turned on, the pilot light goes out. The reason is that there is only enough gas coming through the closed excess flow valve to allow only the pilot light to burn. The object is to equalize the pressure between the bottle and the regulator.

2. Pressure regulator (11” W.C.)

   The job of the gas regulator is to drop the pressure of the gas (28 PSI at 0 ºF – 120 PSI at 70 ºF) down to 11 inches water column (6 oz.). All regulators supplied by Elston are preset at this pressure. If heaters only (118T) are purchased for installation on a truck of trailer which already has a propane system, a regulator with an 11 inch water column pressure must be installed between the present regulator and the Elston heater. The 11 inch W.C. is a standard pressure setting. These regulators are readily available.

3. Automatic Changeover Regulator (when two bottles are used)

   On dual bottle systems, such as the X-900 and X-1050, Elston installs a two-stage, automatic change over regulator. Its purpose is to redirect LP gas vapor flow from an empty designated service cylinder to a reserve cylinder without interruption of service. It features a green indicator dome which changes to red when the service cylinder needs to be refilled. On top of this regulator, there is a handle with an arrow imprinted on it. If both bottles are full, gas will be drawn for the bottle that the arrow is pointing to. When this bottle is empty, a red indicator can be seen showing that the first bottle is empty. To replace the empty bottle, first turn the handle to the bottle which has gas in it. The indicator will turn from red to green. Remove the empty bottle and replace with a full one. The indicator will stay green until the bottle-in-use is empty then turn red.

4. Main Burner

   The open-flame main burner is a custom-cast piece of iron that has custom slots cut into it to generate the main burner flame. Due to this design, the slots and propane input area need to be serviced every three years to clean out contaminants and build ups.

5. Pilot light

   The purpose of the pilot light is to stay continuously lit to heat the thermocouple and supply an ignition source for propane exiting the main burner. The open flame pilot light burns at about 2900 ^{o}F.

6. Thermocouple

   The thermocouple Elston uses on the open-flame heater is a standard design. When the pilot light is applied to the thermocouple, the thermocouple will generate 25 – 30 millivolts to open an electromagnetic valve in RobertsShaw control to allow propane to flow through to the main burner when the control asks for propane supply.

7. Control

   The RobertShaw control used in all Elston open-flame heaters is a standard design. It is a hydraulic-snap action control with a liquid-filled capillary tube that monitors the local air temperature. Once the liquid-filled capillary tube senses a temperature below the temperature setting on the control, the control opens a valve to supply propane to the main burner to heat the local area to raise the local temperature above the current temperature setting on the control.

8. Spark ignitor

   The spark ignitor is of a piezo ignition form in which a small, spring loaded hammer activates a piezoelectric material which creates an electrical current when stressed by the hammer. This current is then transferred to the pilot light for ignition of propane gas via an electrically insulated cable.

2.2.2 Lighting the Heater

1) Check fuel system and turn on propane
Check that the propane tank(s) are not empty and are securely mounted in the base of the heater. Check that the gas lines and fittings between the propane tank(s) and the heater are tight and undamaged. Turn on the valve on the propane tank(s).

⚠ CAUTION If you smell propane, immediately discontinue operation of the heater until the source of the leak has been found and fixed.

2) Set the main control dial to PILOT

3) **Light the pilot light**
Push down the main control dial (currently in the pilot position) to start the flow of propane to the pilot light. Push the red button on the spark igniter in once a second until the pilot light ignites. If the pilot light does not ignite within 15 seconds, release the main control dial to stop the flow of gas.

4) Wait for the thermocouple to warm up.
Wait approximately 30 seconds for the thermocouple to reach full temperature before releasing the main control dial.

5) Turn the main control to ON

6) Set the heater to the desired temperature.
Set the heater to the desired temperature (HI is approximately 90 while LO is approximately 50).

2.2.3 Mounting the Heater

⚠ WARNING Failure to mount the heater correctly can cause injury or fire. Always mount the heater securely, install the vent tube, and allow access to the controls in both the top and bottom of the heater.

The heater must be mounted securely to the trailer so that it can remain in place both during normal operation and during accidents such as trailer tip-overs and roll-overs. You have three options for mounting the trailer:

Wall Brackets

All heaters can mounted to Elston-supplied wall mounted brackets.

- To attach the 118T heater to these brackets, locate the wall in which the heater is to be installed. Install lower bracket of 118T in the desired location as shown in Figure 9. Slide 118T heater into lower bracket. Install upper bracket. After that, slide the heater left or right as necessary so that you can slide the bracket with the wing nuts at the top of the heater into the bracket on the wall. Once that bracket is in position, tighten the wing nuts to finish securing the heater to the wall.
- To attach the X-700 or X-900 heater to these brackets, first roll the heater up to the wall brackets so that the bottom bracket on the heater lines up with the bottom bracket on the wall. Next slide back the heater until the bottom lip on the heater bracket is inside the pocket on the bracket on the wall. Install lower bracket of X-700/X-900 in the desired location as shown in Figure 9. Install upper bracket. After that, slide the heater left or right as necessary so that you can slide the bracket with the wing nuts at the top of the heater into the bracket on the wall. Once that bracket is in position, tighten the wing nuts to finish securing the heater to the wall.

Adjustable Mount

As an optional accessory, Elston offer an adjustable mount that allows you to secure the X-700 or X-900 heater without a pre-installed mounting bracket. To secure the heater with the adjustable mount, roll the heater against the wall in the area that is marked for the heater (There should be a small hole in the floor there for the vent pipe.) Once the heater is in place, turn the handle on the front to raise the upper pad until it presses against the ceiling firmly. When the heater is secured, pulling on the handles firmly will not dislodge the heater.

Customer Solutions

Your organization may have other approved methods for securing the heater. Please check with the person responsible for this within your company. Whatever setup you use, you must not obstruct the inlet or outlets of the heater shell or use materials, such as most types of nylon strapping, against the shell of the heater that are degraded by repeated exposure to temperatures up to 250F.

Once the heater is secured to the wall, install the tube on the right side of the base of the heater into the provided hole in the floor. This tube must be installed as it is a safety device that prevents a leak in the fittings in the base of the heater from causing a dangerous gas build up in the cargo area.

2.2.4 Shutting Down the Heater

1) Turn the main control dial to OFF.
2) Close valves on the propane bottle(s)
3) Allow heater to cool for 5 minutes before moving or attempting to relight.

2.3 Lighting the Heater when it has set awhile

Please follow these instructions when lighting the heater for the first time this heating season or when the heater hasn't been run for a few months as the heater may be slightly more difficult to light than normal. Operation of the heater is the same as above in section 2.2 except for the lighting instructions.

1) Inspect the heater for damage and debris

Check the propane system for damage including cracked hoses, worn O-rings in the pilot light valve and tank fittings, and damaged tubing and replace any damaged components. Check inside the heater for debris especially around the pilot light and burner and remove all debris present.

2) Check fuel system and turn on propane

Check that the propane tank(s) are not empty and are securely mounted in the base of the heater. Check that the fittings between the propane tank(s) and the heater are tight and undamaged. Turn on the valve on the propane tank(s).

⚠ CAUTION If you smell propane, immediately discontinue operation of the heater until the source of the leak has been found and fixed.

3) Set the thermostat to the maximum value and main control dial to PILOT

If the temperature is above 60 degrees, you may not be able to turn the thermostat high enough for the heater to start in the next step. If you wish to continue start the heater you will need to chill the thermostat probe (we recommend an ice cube) or move the heater to a cooler area.

4) Light the pilot light

Push down the main control dial (currently in the pilot position) to start the flow of propane to the pilot light. Push the red button on the spark igniter in once a second until the pilot light ignites. If the pilot light does not ignite within 15 seconds, release the main control dial to stop the flow of gas.

5) Wait for the thermocouple to warm up.

Wait approximately 30 seconds for the thermocouple to reach full temperature before releasing the main control dial.

6) Turn the main control to ON

Turn the main control to ON. The burner should light within a couple of seconds.

7) Set the heater to the desired temperature and secure into the trailer.

Set the heater to the desired temperature (HI is approximately 90 while LO is approximately 50). Secure the heater into the trailer and place the vent tube through the hole in the floor.

Service Instructions

3.1 Every Time You Walk By the Heater

- Check the exterior of the heater and the exterior gas lines for damage
- Check that the doors on the base of the heater and the side of the heater are closed
- Check that the heater is not smoking or producing soot (if it is refer to the section on troubleshooting)

3.2 Every Time the Trailer is Loaded and Unloaded

- Check the exterior of the heater for damage and the openings of the heater for obstructions.
- Check that the heater is securely attached to the wall of the trailer and the vent tube is installed through a hole in the floor.

3.3 Annually Before the Start of the Winter Season

- Carefully inspect the propane tank, regulator, and fuel lines. Replace any damaged or deteriorated hoses, worn O-rings, and tighten any loose fittings. Check the propane system for leaks
- Replace any labels that are missing or can no longer be read.
- Check inside the heater for debris especially around the burner and remove all debris present.
- Start up and run the heater to check that everything is in working order.

Troubleshooting

If this guide does not fix your problem, please contact the company where you purchased the heater. If you are unable to contact them or you need additional help, please contact Elston Manufacturing at 605-336-7716 or toll-free at 1-800-845-1385.

For your safety, the propane should always be turned off when troubleshooting this product except when required to test the function of the heater.

What is wrong with the heater?

A. Pilot light doesn't light

B. Pilot light does not remain on after releasing the main control dial

C. Main burner does not ignite or ignites slowly

D. Main burner flame is out of adjustment

Problem A: Pilot Light Doesn't Light

A

Cause: Propane tank is empty

Makes sure the propane tank is not empty. If you have an X-900, check that the tank selection lever is pointing toward a non-empty tank. When the lever is pointing toward a tank and the valve for that tank is on, you should see green in the window on the regulator when the selected tank contains propane.

Cause: Excess flow valve was triggered

If the valve on the tank is opened quickly, the initial pulse of gas into the gas lines for the heater may trigger the excess flow valve built into the heater. Close the tank valve(s) and slowly open them to reset the excess flow valve.

Cause: Problem with push button sparker

Check that the wire on the back of the push button sparker is attached and the spark is jumping to the galvanized channel on the top of the pilot light assembly. If the spark is not jumping to this location, check the wire for damage. If the wire is undamaged, the push button spark will need to be replaced.

Cause: Pilot light orifices are plugged

The gas for the pilot light travels through 1 set of orifices which can block the flow of gas. The set of orifice in the pilot light assembly are as shown in Figure 3. Use orifice broach to clean orifices. It is also possible that some debris, such as a spider web, is in the channel in top of the pilot light assembly and blocking the flow of gas toward the spark.

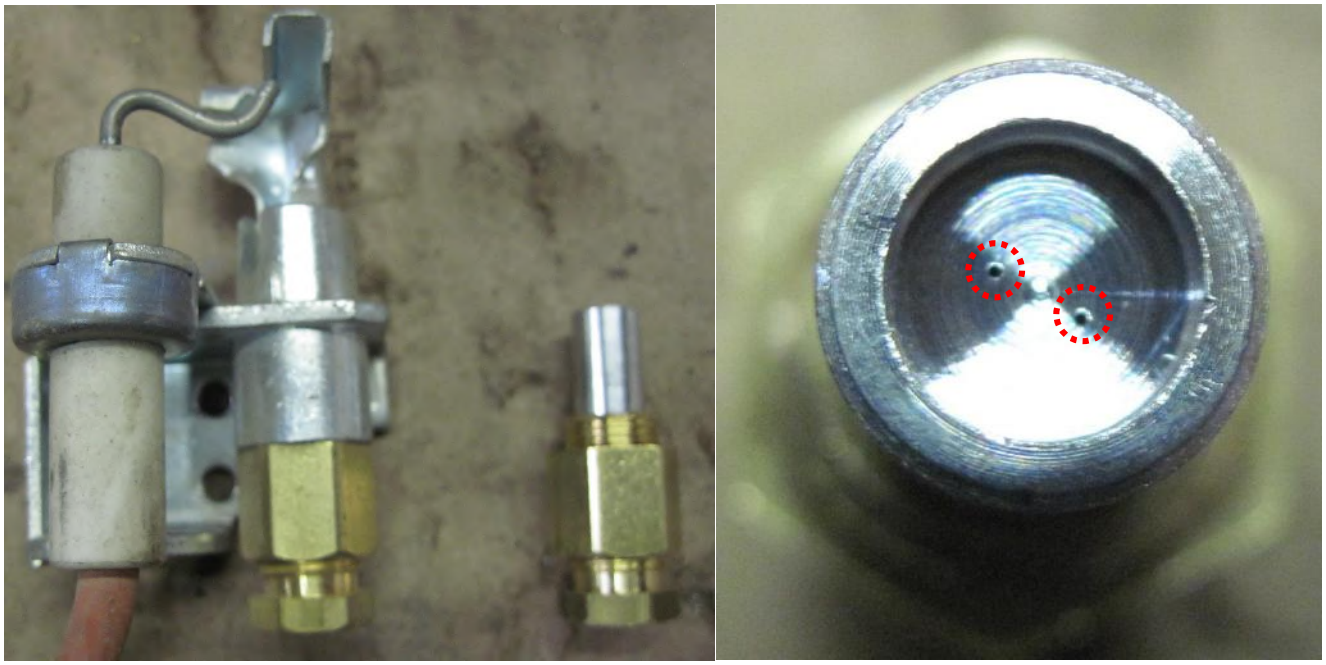


Figure 3: Pilot Light Orifice Mounted in Pilot Light Assembly (Left) Orifices, quantity 2, within Pilot Light (Right)

Problem B: Pilot Light Does Not Remain On After Releasing the Main Control Dial

Cause: Main control dial was not held down long enough

The main control dial must be held down for 30 seconds to ensure the thermocouple is hot enough to allow propane to flow through the control.

Cause: Pilot light is too small

If the pilot light is not touching the thermocouple the thermocouple may not get hot enough. This typically happens for one of three reasons:

1. The gas flow to the heater is restricted

   Check that the selection lever on the regulator in the X-900 is pointing toward a full tank and tank valve is open at least a full turn.

2. The tank is nearly empty
3. The excess flow valve was triggered

   If the valve on the tank is opened quickly, the initial pulse of gas into the gas lines for the heater may trigger the excess flow valve built into the heater. Close the tank valve(s) and slowly open them to reset the excess flow valve.

4. Pilot light orifices is partially blocked

   The gas for the pilot light travels through a pair of small orifices as it enters the pilot light assembly. Check that these orifices are not partially blocked. Use orifice broach to clean. It is also possible that some debris, such as a spider web or dead bug, is in the channel in the pilot light and blocking the flow of gas toward the thermocouple. See Problem A for details.

Cause: The thermocouple has failed

If none of the above recommendations help, the thermocouple has failed and needs to be replaced.

C

Problem C: Main Burner does not ignite or ignites slowly

Cause: The pilot light is too small

Refer to the tips in problem B above for recommendations.

Cause: Gas supply problems

If the gas supply to the heater is partially restricted, the heater will only be able to get enough propane for the pilot light. Check that the selection lever is pointing toward a full tank and tank valve is open at least a full turn. If you have the tools, check that the heater is receiving 11" water column of propane vapor throughout the lighting process.

The gas for the main burner travels through an orifice which can block the flow of gas if deposits restrict or eliminate gas flow. This orifice, which can be seen in Figure 4, is mounted in the brass orifice holder, Part # H10-48, mounted into the orifice holder bracket, Part # H10-44A. Use orifice broach to clean orifice as shown in Figure 4.

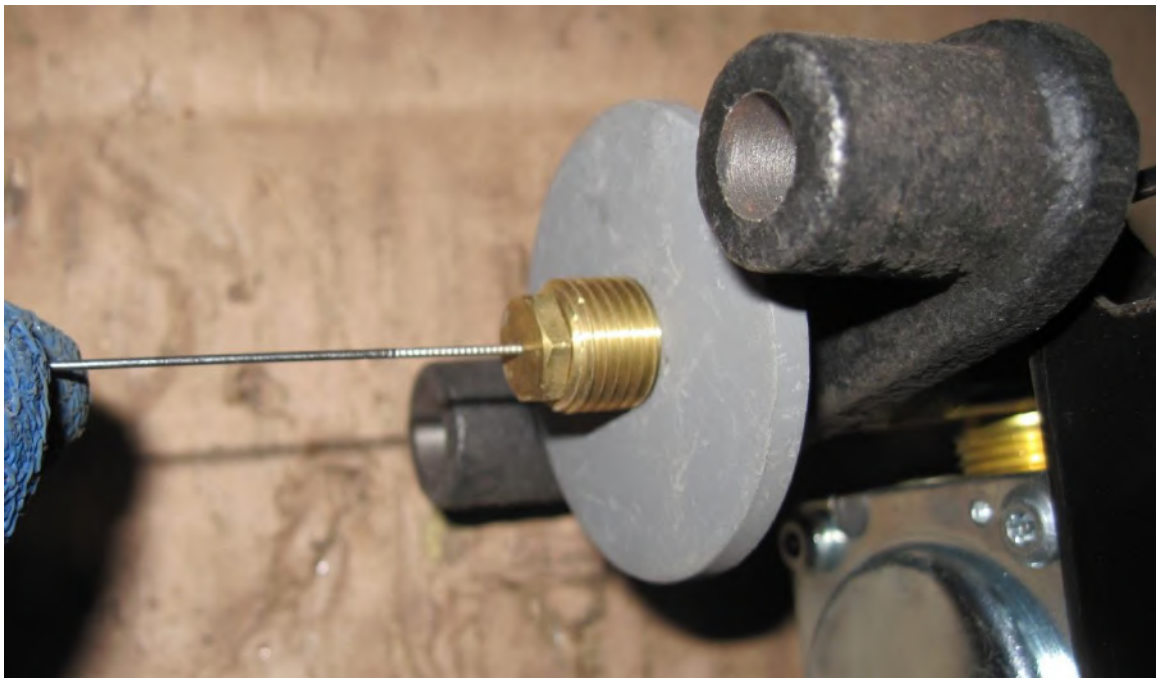


Figure 4: Cleaning orifice, for main burner, mounted in orifice holder

Cause: Burner is extremely dirty

If some of the slots on the burner are plugged then gas flow will not be uniform enough to generate a stable, easy to light flame. The smooth side of a hacksaw blade works well for removing stubborn dirt and deposits. Be careful not to widen the slots as excessively wide slots cause the position of the flames to become unstable and requires replacement of the burner. The cleaning action can be seen in **Figure 5**.

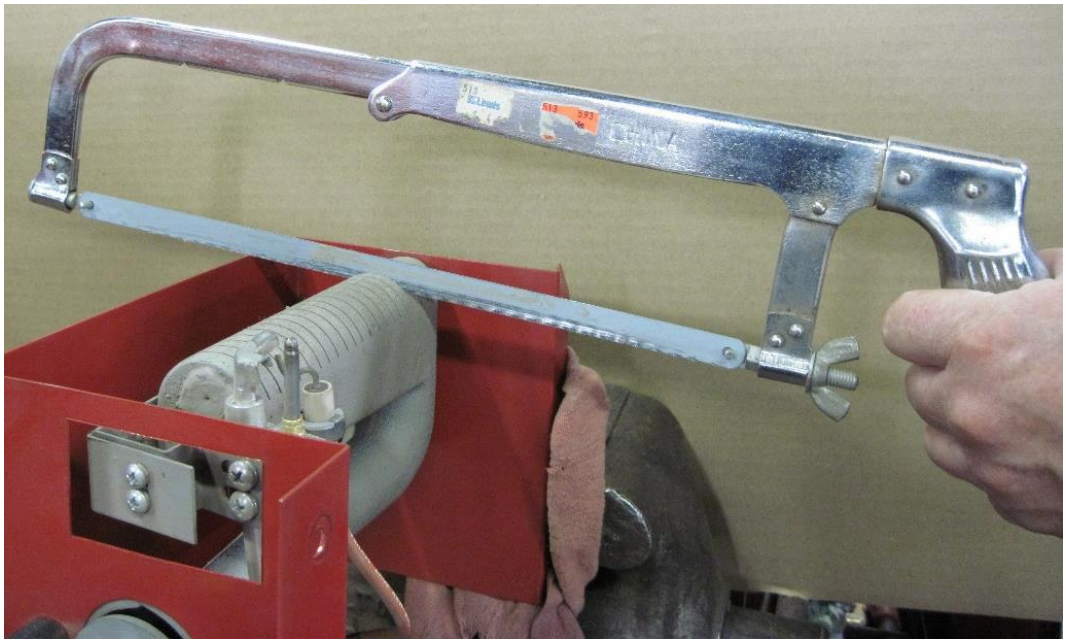


Figure 5 : Servicing burner slots with hacksaw blade

D Problem D: Main burner flame is out of adjustment

The flame from the burner should be mostly blue with, at most, small areas of yellow that come and go, as pictured in Figure 6.

Figure 6 : Correctly Adjusted Burner Flame

Cause: The gas / air mixture entering the burner is incorrect

If the gas and air mixture entering the burner is incorrect than the flame will either have primarily yellow tips (see Figure 8) or it will lift off the burner.

Figure 7 : Adjusting the Locknut Holding Air Adjustment Disc in Place

To adjust the fuel air mix, loosen the nut holding the air adjustment disc as shown in Figure 7. If the flame has yellow tips (as in Figure 8), rotate the disk away from the burner to let in more air. If the flame is not touching the burner, rotate the disk toward the burner to let in less air. There is a range of distance between the extremes mentioned above where the good flame like that shown in Figure 6 results. Try to adjust the disk into the middle of that range to allow for the variations as the heater is operated under the normal range of conditions. Once you have adjusted the burner so that the flame appears, as it does in Figure 6, the nut should be tightened against the air adjustment disc to hold it in place. If it is not possible to get a good flame, burner may need to be cleaned or the gas metering orifice in the brass fitting holding the air adjustment disc may be plugged.

Figure 8 : Burner with Insufficient Air

Cause: Some slots in the burner are partially or completely blocked

If some of the slots on the burner are plugged, gas flow will not be uniform enough for a stable, easy to light flame. The smooth side of a hacksaw blade works well for removing stubborn dirt and contaminants. Be careful not to widen the slots as excessively wide slots cause the position of the flames to become unstable and requires replacement of the burner. See **Figure 5** for a visualization.

Installation

⚠ WARNING Improper installation of this heater creates a substantial safety hazard including the risk of property damage, fire, death.

NOTICE Compliance with local regulation is the responsibility of the installer. Current regulations in your area may require that the installer of this heater or, more likely, that the installer of the propane system fueling this heater meet certain requirements and/or that the completed installation be inspected. If you are unsure what is required, please refer to the current regulations in your area or speak with the authority having jurisdiction before beginning installation.

5.1 Overview

These purpose of these instructions is to aid you in installing a fully functional heater that is safe and secure under both normal conditions and, as much as possible, during an accident. However these instructions are not a substitute for personal knowledge and experience with installing propane and/or electrical systems. Please do not install these areas of the heater unless you have personal knowledge and experience in these areas.

These instructions were written with the latest standards for the US in mind and are intended to guide you in an installation that meets these standards. At the time of writing, the latest standard was the 2014 edition of NFPA 58, the Liquefied Petroleum Gas Code and part 393.77 of the Federal Motor Carrier Safety Administration rules. However, if the regulations that apply in your area conflict with these installation instructions the regulations should always be followed instead.

Setup for these heaters is simple as they are designed to roll on and off cargo trailers and van bodies to provide heat as needed but does require some setup work on the trailers you plan to use the heater in. The exact setup depends on if you are using the standard mounting brackets or the optional adjustable mount.

5.2 Unpacking the Heater and Gathering Supplies

Parts Needed for Installation shipped with Heater:

- Heater
- Lower wall mount bracket
- Upper wall mount bracket
- Post -installation checklist

Additional parts required:

- (6) ½” diameter grade 5 bolts 1 to 1 ½ inches longer than the thickness of the front wall of the trailer with 12 flat washers, 6 lock washers and 6 nuts to match
- Additional lower and upper wall brackets (optional)
- Tape or paint for marking out the boundaries of the heater to ensure space remains for heater after cargo is loaded (recommended)

5.3 Mounting

⚠ WARNING Failure to mount the brackets for the heater securely or drill the hole for the vent tube will cause serious safety hazards when the heater is operated.

Every trailer or truck body where you plan to use the heater will need to be prepared for use.

The primary consideration for the placement of the heater is a position against a wall of the trailer that can easily be left open for the heater after cargo is loaded.

Setup for Standard Mounting Brackets

Install the lower bracket on the wall with the base of the bracket against the floor for the X-700 and X-900 as shown in Figure 9. Install the lower bracket 12” above the bottom of the floor for the 118T as shown in Figure 9. Attach the bracket to supports in the wall for maximum strength in a position where the hole for the vent tube will not have to be drilled through one of the supports for the trailer floor.

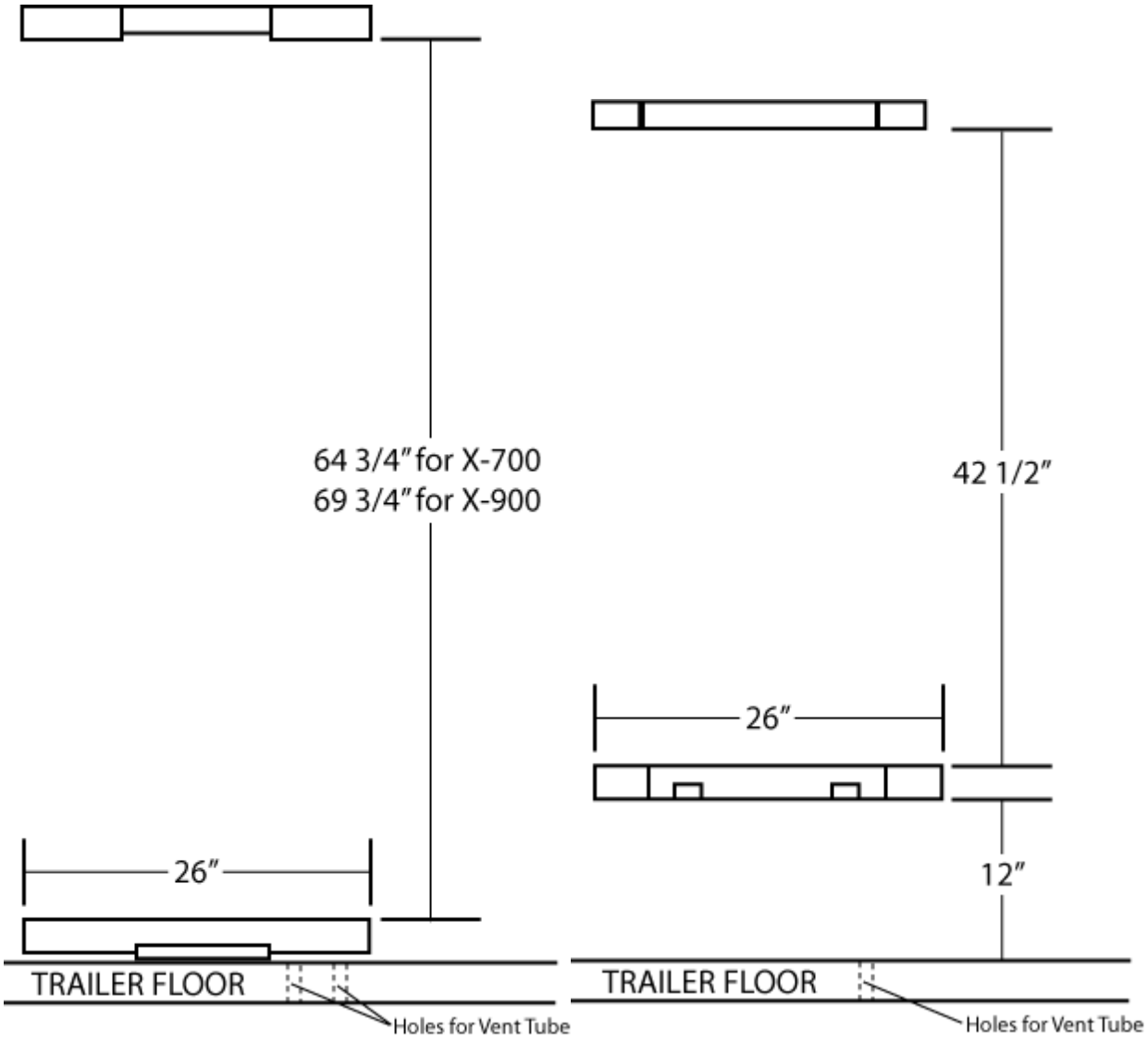


Figure 9 : Location of Wall Brackets for X-700 and X-900 (Left) Location of Wall Brackets for 118T (Right)

Install the upper bracket centered above the lower bracket at the location shown in Figure 9 for your model. It should be as firmly attached as the last bracket.

Next drill the 7/8” hole for the vent tube for your X-700/X-900 in the location shown in Figure 10. If you have an 118T, drill the 7/8” hole for the propane supply line hole in the location shown in Figure 11. With the 118T installation, you may need to install the H10-77 grommet into 7/8” hole for line protection against vibration and damage.

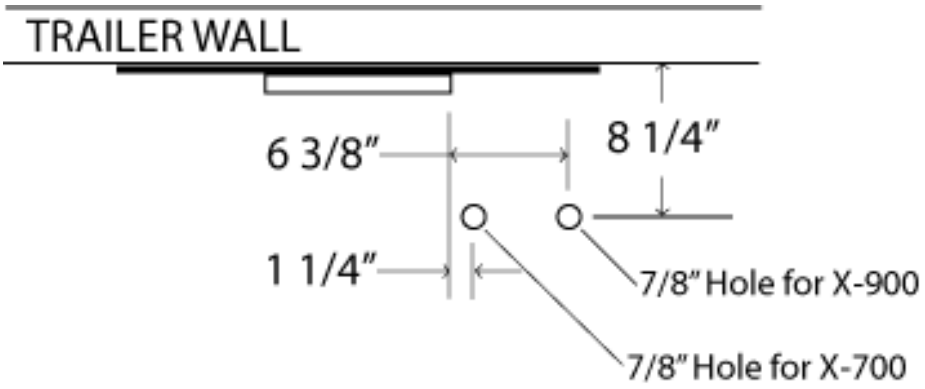


Figure 10 : Location of Vent Tube Hole for X-700 and X-900

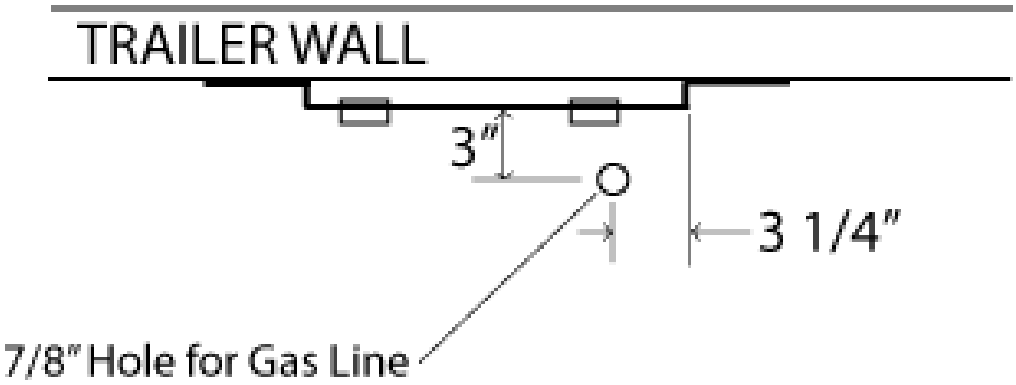


Figure 11 : Propane Supply Line Hole Location for 118T

Once both brackets are installed and the hole is drilled, check that the heater fits on the brackets and vent tube fits in the hole.

Setup for Adjustable Mount

Drill the 7/8” hole for the vent tube for your model in the location shown in Figure 10. Since no bottom bracket is necessary for an adjustable mount, the hole just needs to be 8 1/4” away from the wall.

Other Details

It is recommended that you mark the outline for the heater with paint or tape or similar to prevent cargo from accidentally being placed where the heater will be mounted. See Figure 12 for details.

5.4 Final details

It is recommended that you mark the outline for the heater with paint or tape or similar to prevent cargo from accidentally being placed where the heater will be mounted or where it would prevent access to the heater controls. Figure 12 shows the suggested reserved area for the heater that allows approximately 12” for access for the controls and adequate space to open the door in the base to access the tank shutoff values and allow removal and replacement of the tanks.

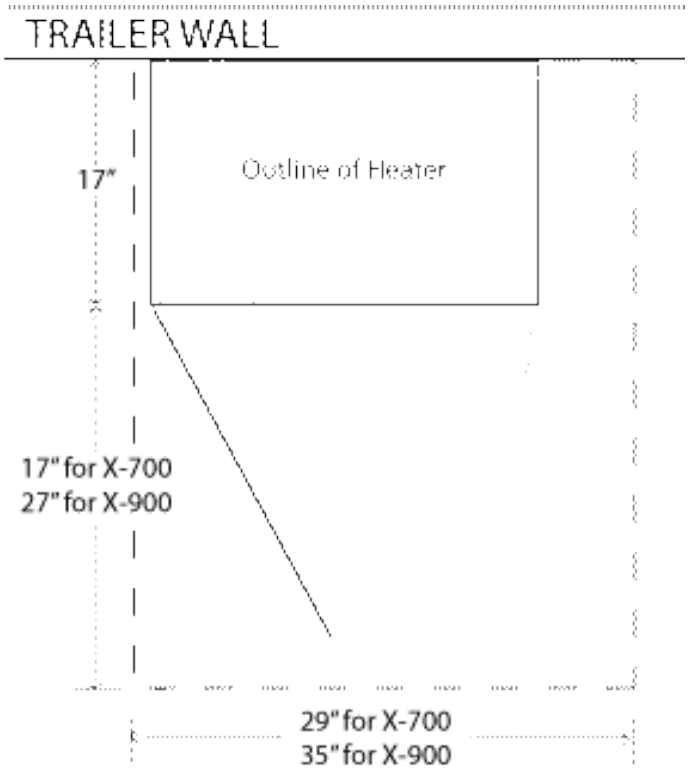


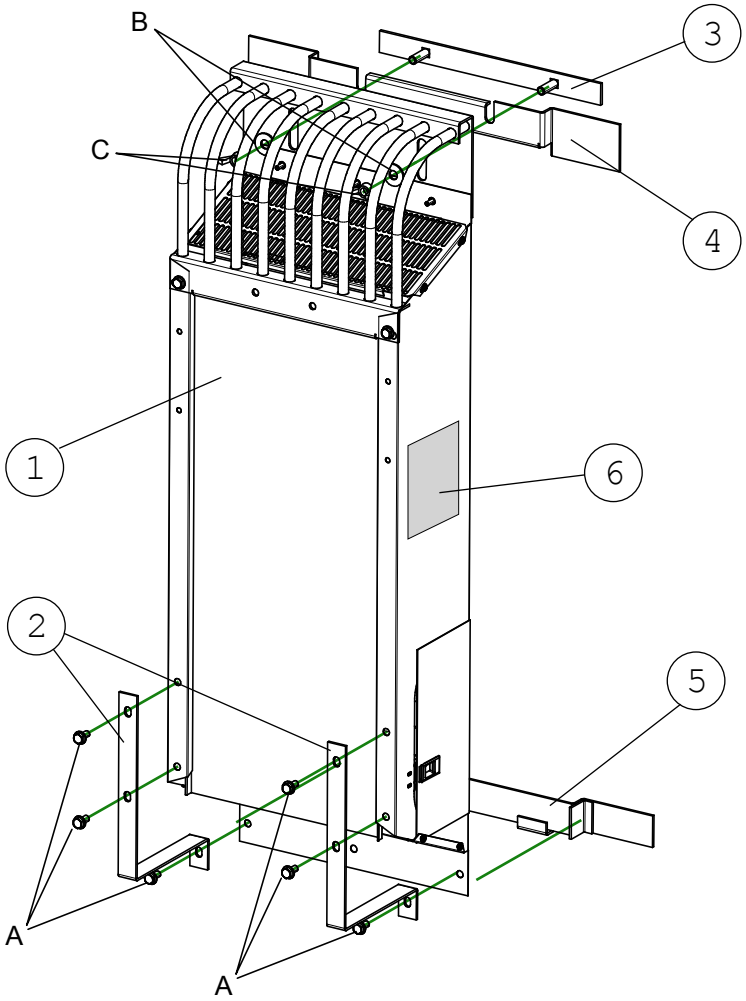
Figure 12 : Suggested Reserved Area for Heater

It is also recommended that an X-850 ventilator be mounted on the trailer for proper ventilation. When the ventilator is mounted towards the floor of the trailer, it will force out the cold, stagnant air at the bottom of the trailer, resulting in better air circulation and temperature distribution within the trailer.

Give the installation one final check using the post-installation checklist to make sure nothing has been forgotten or improperly completed. If everything looks good, the heater is ready to be test fired. For instructions on firing up the heater for the first time, please consult the quick start guide.

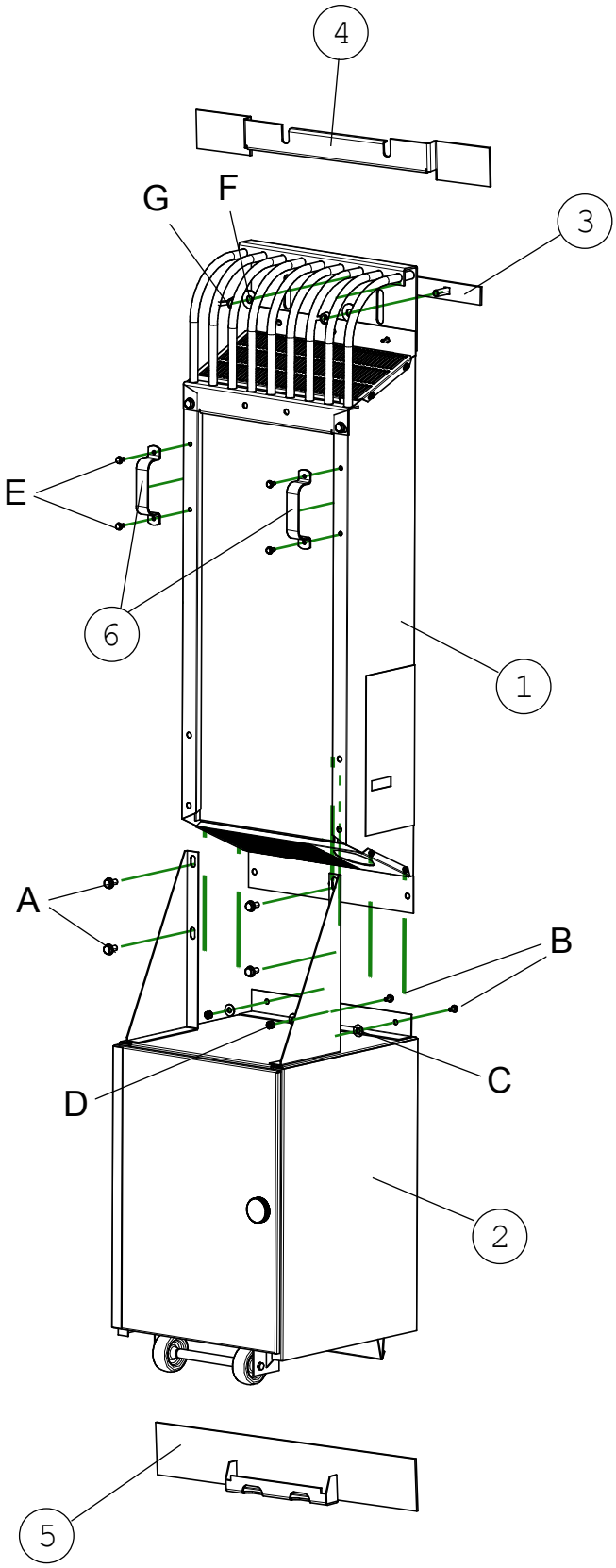
The installation is now complete and the heater can be placed in service.

Parts List



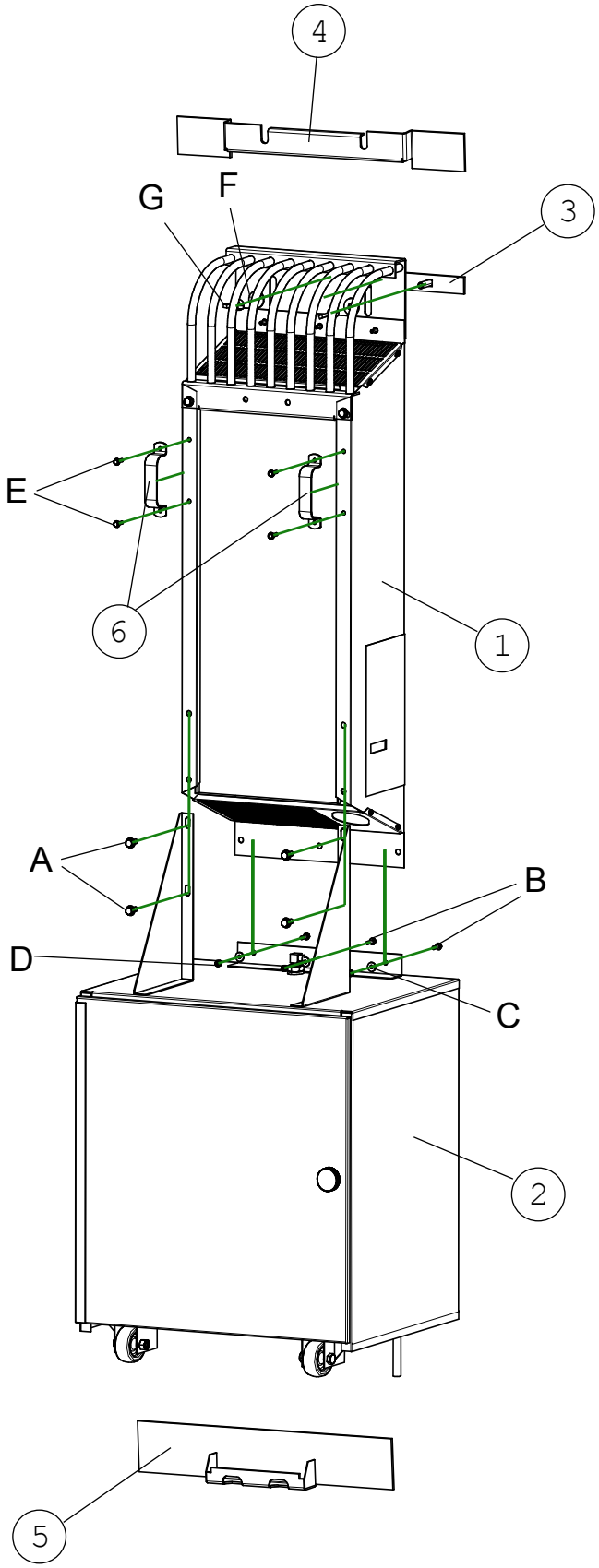
Label	Name	Part #
1	Open Flame Heater - Basic (see page A7)	H700/900-XH
2	Dog Legs	H10-107
3	Heater to Wall Bracket	H10-104
4	Upper Wall Bracket	H10-105
5	Lower Wall Bracket	H500-17
6	Decal - LP Use Instructions	HD-08
	Owners Manual	HD-32

Label	Name	Quan.
A	3/4” 3/8”-16 Flanged Hex Head Bolt	6
B	1/2” Washer	2
C	1/2” Wing Nut	2



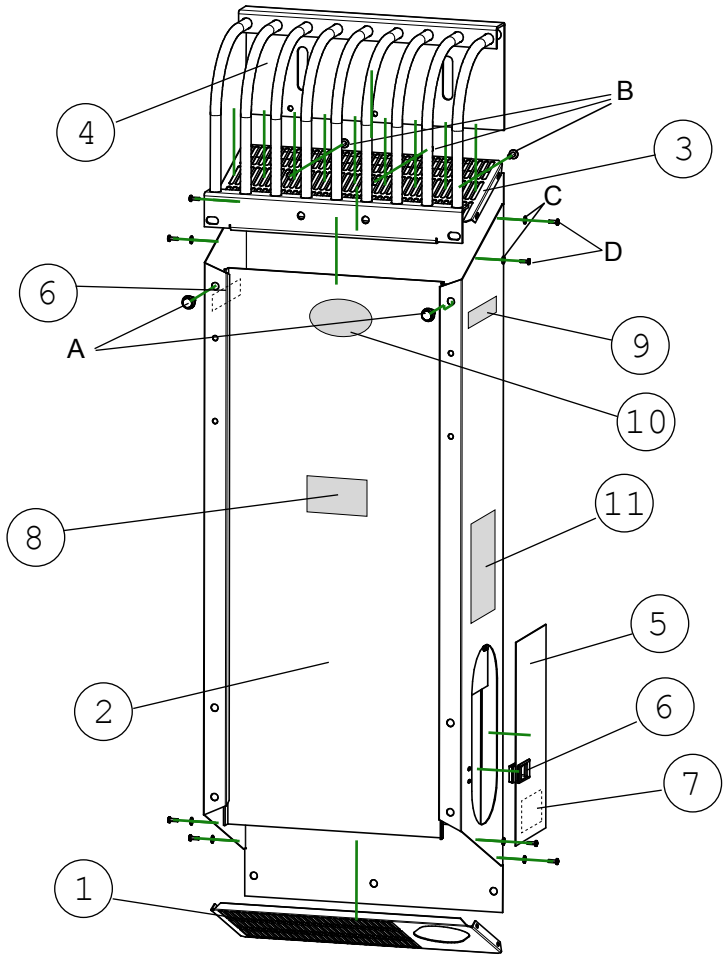
Label	Name	Part #
1	Open Flame Heater - Basic (see page A7)	H700/900-XH
2	700 Series Bottle Carrier (see page A13)	H700-BC
3	Heater to Wall Bracket	H10-104
4	Upper Wall Bracket	H10-105
5	Lower Wall Bracket	H10-135
6	Handles	H10-470
	Owners Manual	HD-34

Label	Name	Quan.
A	3/4” 3/8”-16 Flanged Hex Head Bolt	4
B	5/8” 5/16“-18 Flanged Hex Head Bolt	3
C	5/16” Flat Washer	3
D	5/16”-18 Hex Nut	3
E	1/2” 1/4”-20 Flanged Hex Head Bolt	4
F	1/2” Washer	2
G	1/2” Wing Nut	2



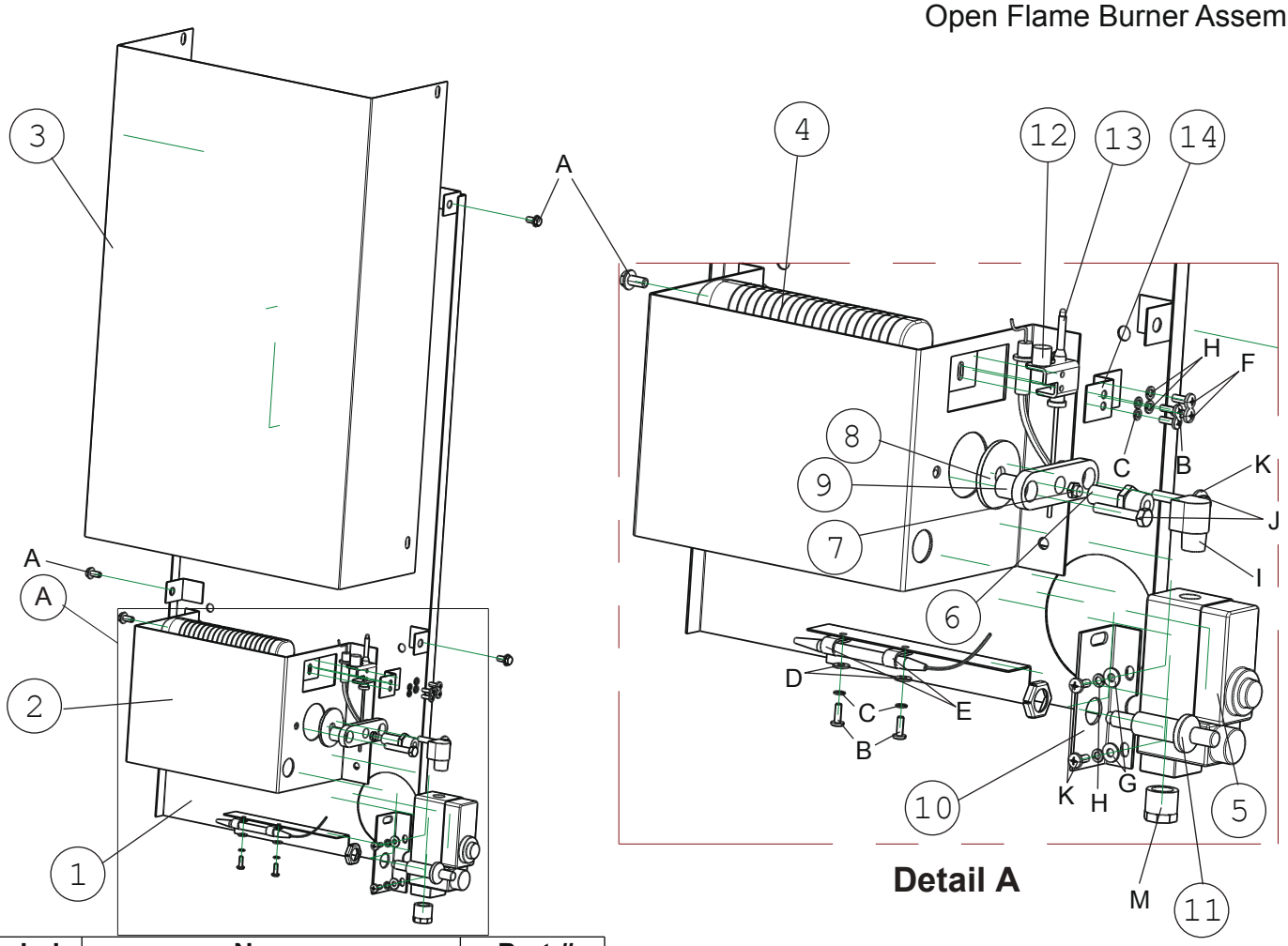
Label	Name	Part #
1	Open Flame Heater - Basic (see page A7)	H700/900-XH
2	900 Series Bottle Carrier (see page A14)	H900-BC
3	Heater to Wall Bracket	H10-104
4	Upper Wall Bracket	H10-105
5	Lower Wall Bracket	H10-135
6	Handles	H10-470
	Owners Manual	HD-34

Label	Name	Quan.
A	3/4” 3/8”-16 Flanged Hex Head Bolt	4
B	5/8” 5/16“-18 Flanged Hex Head Bolt	3
C	5/16” Flat Washer	3
D	5/16”-18 Hex Nut	3
E	1/2” 1/4”-20 Flanged Hex Head Bolt	4
F	1/2” Washer	2
G	1/2” Wing Nut	2



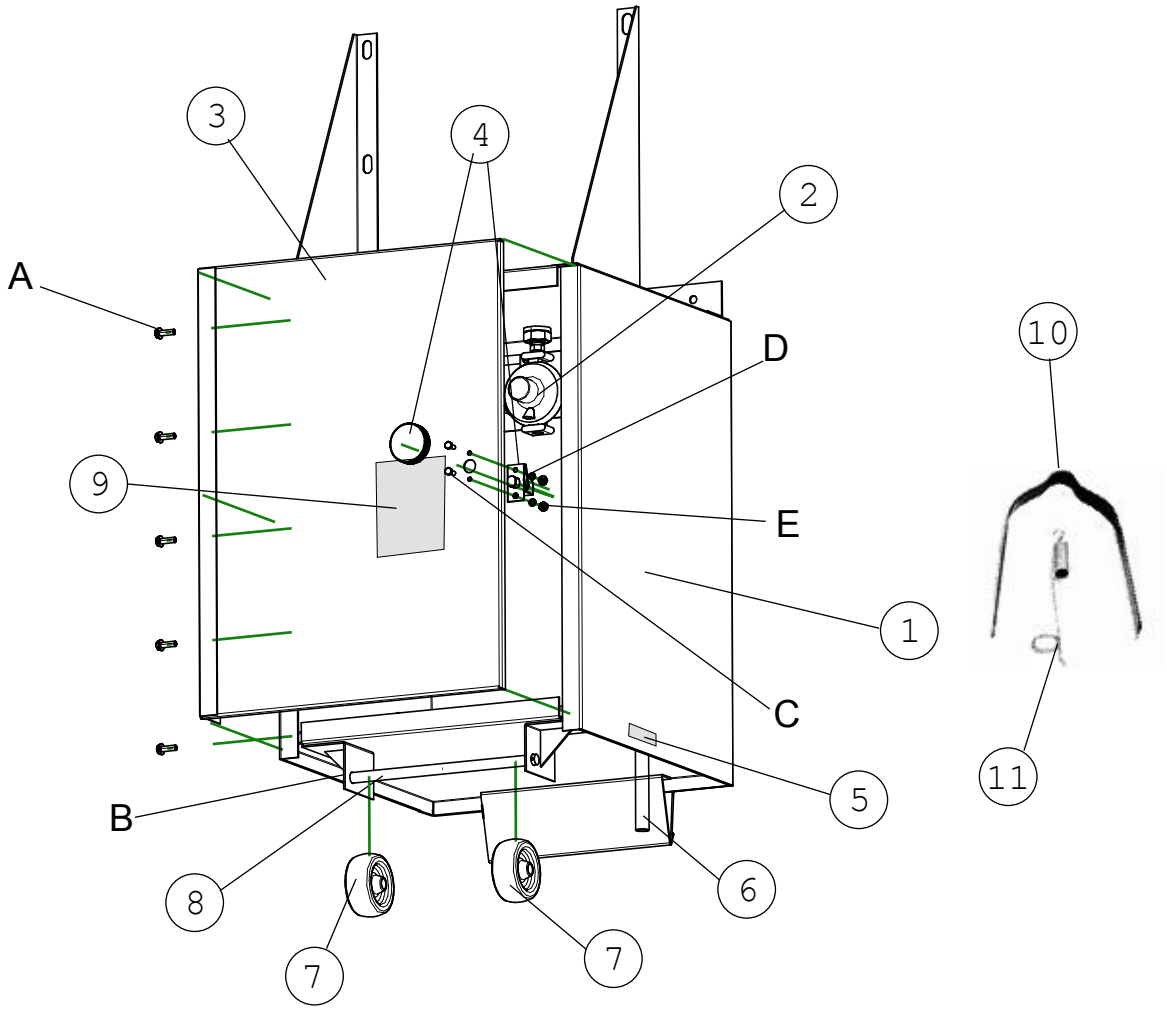
Label	Name	Part #
	Burner Assembly (Hidden Inside 2 - See page A8)	H700/900-B
1	Lower Screen	H10-758
2	Heater Shell	H10-755
3	Upper Screen	H10-757
4	Top Guard	H10-756
5	Door w/Hinge	H10-111
6	Door Latch	H10-110A
7	Service Decal (inside of door)	HD-09
8	Decal - “Must be Vented”	HD-19
9	Decal - “Do Not Load Above”	HD-02
10	Product of Elston Decal	SD-02
11	Decal - Lighting Instr.	HD-10

Label	Name	Quan.
A	3/4” 3/8”-16 Flanged Hex Head Bolt	2
B	3/4” 1/4“-20 Flanged Hex Head Bolt	3
C	#8 Sheet Metal Screw	8
D	#8 Washer	8



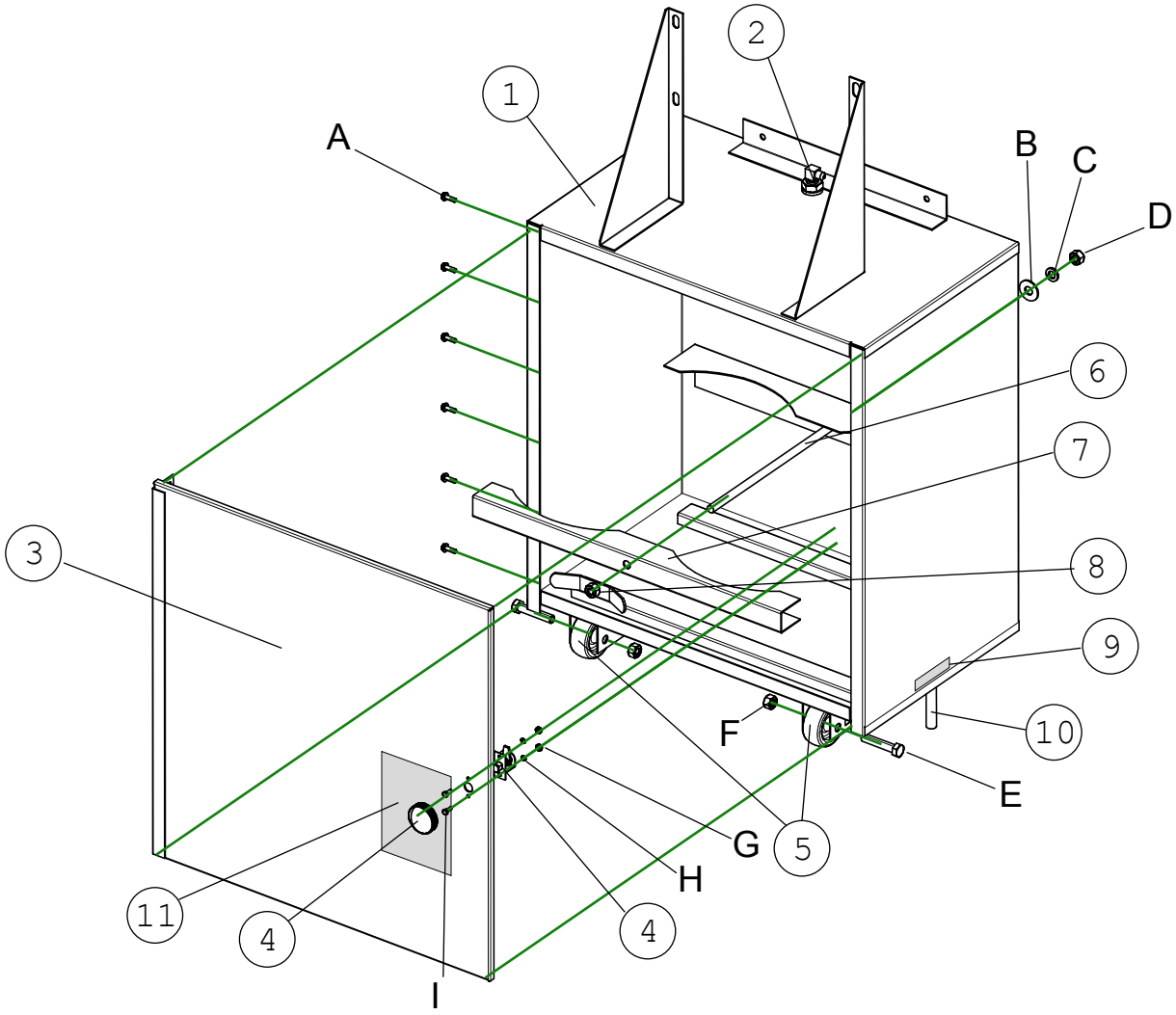
Label	Name	Part #
1	Burner Control Back	H10-720A
2	Burner Mounting Bracket	H10-722
3	Open Flame Heat Shield	H10-718C
4	Burner	H500-10
5	Control	H10-500
6	Orifice Holder	H10-48
7	Orifice	H10-41
8	Air Adjustment Disc	H10-42
9	Orifice Holder Bracket	H10-44A
10	Spark Ignition Bracket	H10-703
11	Ignitor w/ Nut	H100-13
12	Pilot Light with Spark Probe	H10-705
13	Thermocouple	H500-13
14	Pilot Light Mounting Brkt	H10-716
15	LP Gas Hose (not shown)	H10-303
16	1/4” Formed Tubing (5 to 12)	H10-39A
17	Pilot Light Orifice Only (not shown)	H10-696

Label	Name	Quan.
A	1/2” 1/4”-20 Wislock Hex Head Bolt	5
B	1/2” #8-32 Sheet Metal Screw	4
C	#8 Lock Washer	4
D	#8 Washer	2
E	1/4” Plastic Clip	2
F	1/2” #10-24 Sheet Metal Screw	2
G	#10 Washer	2
H	#10 Lock Washer	4
I	⅜” Brass Street Elbow	1
J	1” 1/4”-20 Hex Head Bolt	2
K	1/4” Washer	1
L	1/2” #10-32 Sheet Metal Screw	2
M	Bushing - 1/2 NPT x ⅜ FPT	1



Label	Name	Part #
1	Bottle Carrier Shell	H10-759
2	Regulator Assembly (see page A15)	H700-RA
3	Door - Complete	H10-138
4	Compression Latch	H10-478
5	Decal - “Vent Tube”	HD-18
6	1/2” x 7” Hose	H10-137
7	Wheel	H10-130
8	Axle	H10-128
9	Decal - “Open Bottle Slowly”	HD-35
10	Bottle Hold Down Clip	H10-26
11	Bottle Hold Spring	H10-21

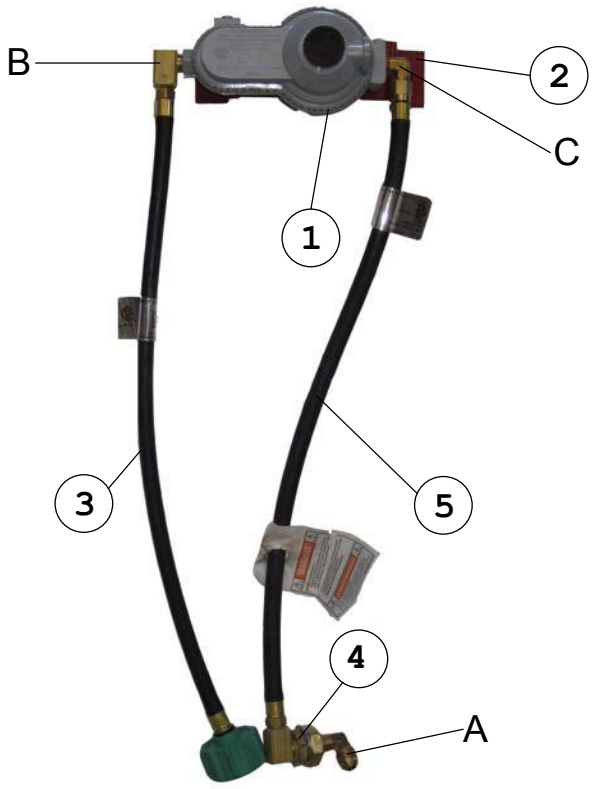
Label	Name	Quan.
A	3/4” 1/4”-20 Flanged Hex Head Bolt	5
B	1/2” Flat Washer and Hair Pin Clip	2
C	1/2” #8-32 Hex Head Machine Screw	2
D	#8 Lock Washer	2
E	#8-32 Hex Nut	2



Label	Name	Part #
1	Dual Bottle Carrier Shell	H10-760
2	Regulator Assembly (see page A15)	H900-RA
3	Door - Complete	H10-566
4	Compression Latch	H10-478
5	Wheel	H10-130
6	Threaded Rod Assembly	H10-820
7	Bottle Hold Down Bracket	H10-817
8	1/2” Butterfly Nut	H10-630
9	Decal - “Vent Tube”	HD-18
10	1/2” x 7” Vent Hose	H10-137
11	Decal - “Open Bottle Slowly”	HD-35

Label	Name	Quan.
A	3/4” 1/4”-20 Flanged Hex Head Bolt	6
B	1/2” Flat Washer	1
C	1/2” Lock Washer	1
D	1/2”-13 Hex Nut	1
E	2 1/2” 1/2”-13 Hex Head Bolt	2
F	1/2”-13 Nylon Lock Nut	2
G	#8-32 Hex Nut	2
H	#8 Lock Nut	2
I	1/2” #8-32 Hex Head Machine Screw	2

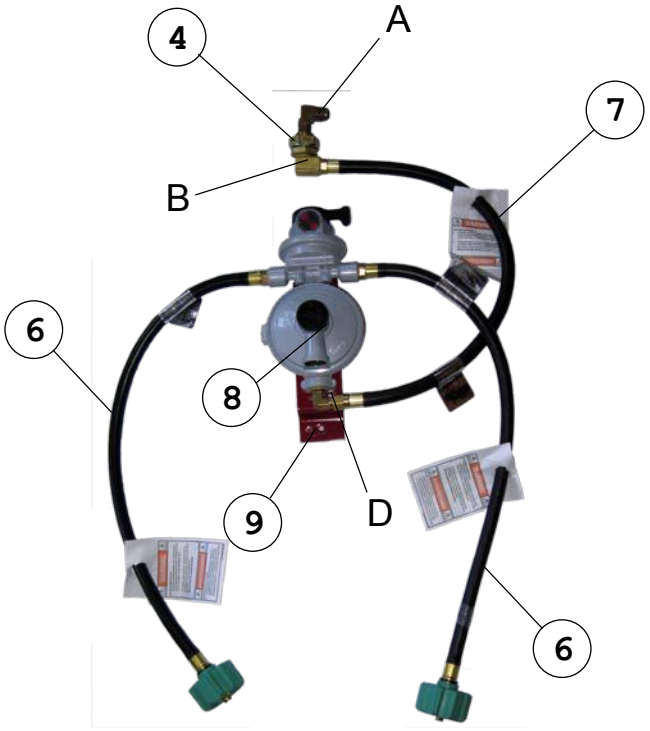
Single Regulator Assembly (H700-RA)



Label	Name	Quan.
A	1/4” Male Elbow w/ 45˚ Flare for 3/8” Tube	1
B	1/4” Street Elbow	1
C	3/8” Male Elbow w/ 45˚ Flare for 1/4” Hose	1

Label	Name	Part #
1	Single Stage Regulator	H10-626
2	Regulator Mounting Brkt	H10-482
3	Tank Fitting w/ Hose - SR	H10-829
4	Bulkhead Fitting	HLC-218
5	Lower Hose Assembly	H10-306

Dual Regulator Assembly (H900-RA)



Label	Name	Quan.
A	1/4” Male Elbow w/ 45˚ Flare for 3/8” Tube	1
B	1/4” Street Elbow	1
D	1/4” Male Elbow w/ 45˚ Flare	1

Label	Name	Part #
4	Bulkhead Fitting	HLC-218
6	Tank Fitting w/ Hose - DR	H10-831
7	Lower Hose Assembly	H10-306
8	Dual Regulator	H10-625A
9	Regulator Mounting Brkt	H10-482

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