

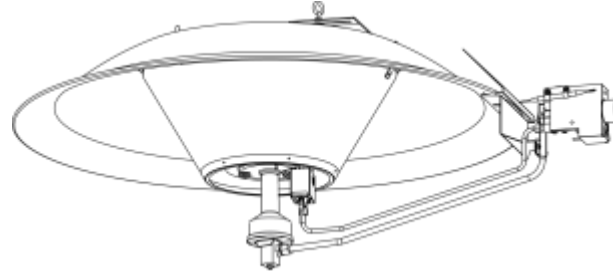
SPACE-RAY®
RADIANT GAS BROODERS



RADIANT GAS BROODER

MODELS: SRB40CR - (2A, 3, 9) with PILOT IGNITION

INSTALLATION AND OPERATION INSTRUCTIONS



OWNER/INSTALLER: For your safety this manual must be carefully read before installing, operating or servicing this brooder. This brooder is intended for use with either Natural Gas or Propane Gas. It must be installed by a qualified service person or a licensed contractor in accordance with state and local codes. In the absence of these codes, the installation must conform to the National Fuel Gas Code ANSI Z223.1 (latest edition) also known as NFPA54 or the CAN/CGA-B149.1/2 Installation Code in Canada.

▲WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury, property damage or death. Refer to this manual. For assistance or additional information, consult a qualified installer, service agency or the gas supplier.

INSPECT all combustion air openings into the building and, if necessary, clear as they become blocked by litter, dust, feathers or other matter.

INSPECT and clean the brooder filters on a regular basis to allow proper brooder operation.

FOR YOUR SAFETY: EXHAUST FANS **MUST** be operating on an appropriate cycle when brooders are operating to avoid a high concentration of carbon monoxide. When used without fresh air, this brooder may give off carbon monoxide, an odorless and poisonous gas. **CARBON MONOXIDE POISONING MAY LEAD TO DEATH.** Early signs of carbon monoxide poisoning resemble the flu with headaches, dizziness and nausea. If you experience these signs, **GET FRESH AIR IMMEDIATELY!** Have the brooders serviced as soon as possible and check the ventilation in the house.

These brooders are designed for agricultural applications and may operate with the use of either Natural Gas or Liquid Propane (LP) Gas. Check the brooder's nameplate to determine the correct gas type before proceeding with installation.

IF YOU SMELL GAS:

- ! **DO NOT** try to light any appliance.
- ! **DO NOT** touch any electrical switch; do not use any telephone in your building.
- ! **IMMEDIATELY** call your gas supplier from a neighbor's telephone. Follow the gas supplier's instructions. If you cannot reach your gas supplier, call the fire department.

FOR YOUR SAFETY

DO NOT store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

**SAVE THIS MANUAL
FOR FUTURE REFERENCE.**

Scan warranty QR code on the right to register your product.



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1. GENERAL INFORMATION

This brooder is a self-contained infrared radiant brooder for agricultural locations where flammable gases or vapors are not generally present.

Installation of the brooders must be in accordance with all applicable codes shown in the instructions and/or the local codes and authorities having jurisdiction. In the absence of local codes, the brooder must be installed in accordance to the National Fuel Gas Code ANSI Z223.1/NFPA54 in the U.S. or the CAN/CGA-B149.1/2 Installation Code in Canada. Clearances to combustibles as outlined in the manual should always be observed.

Inspect all openings and filters regularly and clean as necessary. This is necessary because litter, dust feathers and other matter can become airborne and clog openings and filters and adversely affect brooder operation and performance.

Every brooder should be located with respect to building construction and other equipment so as to permit access to the brooders. Each installer shall use skillful and reliable installation practices when locating the brooders and must give consideration to service accessibility.

This brooder is for **INDOOR INSTALLATION ONLY** and is used in an **UNVENTED** mode. The term *Unvented* actually means *Indirect Vented*. While the products of combustion are expelled into the building, national codes require ventilation in the building to dilute these products of combustion. This ventilation must be provided by gravity or mechanical means. Ventilation requirements are addressed further in these instructions.

This heater complies with **IAS U.S. No. 8-94 (Draft No. 2)** and **CAN-1-2-20-M85**.

Copies of the National Fuel Gas Code (ANSI Z223.1-latest edition) are available from the CSA at 8501 E. Pleasant Valley Rd., Cleveland, OH 44131 or 55 Scarsdale Road, Don Mills, Ontario M3B 2R3. All NFPA codes are available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.



WARNING:

This product can expose you to chemicals including ceramic fibers, which are known to the State of California to cause cancer, and carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.p65warnings.ca.gov.

2. BROODER SPECIFICATIONS

INPUT RATING	<i>Propane Gas:</i>	40,000 Btu/hr (11.72 Kw)
	<i>Natural Gas:</i>	40,000 Btu/hr (11.72 Kw)
	<i>Propane/Butane Mix Gas</i>	40,000 Btu/hr (11.72 Kw)
GAS SUPPLY PRESSURE	<i>Propane Gas:</i>	11" – 14" W.C. (27.4 - 34.8 mbar)
	<i>Natural Gas:</i>	5" – 14" W.C. (12.4 - 34.8 mbar)
	<i>Propane/Butane Mix Gas</i>	11" – 14" W.C. (27.4 - 34.8 mbar)
MANIFOLD PRESSURE	<i>Propane Gas:</i>	10" W.C. (24.9 mbar)
	<i>Natural Gas:</i>	4" W.C. (10.0 mbar)
	<i>Propane/Butane Mix Gas</i>	10" W.C. (24.9 mbar)
ORIFICE SIZE	<i>Propane Gas:</i>	1.9mm (.0748")
	<i>Natural Gas:</i>	#33 (.1130")
	<i>Propane/Butane Mix Gas</i>	#50 (.0700")
MOUNTING HEIGHT		60" - 72" (1520mm - 1830mm)
BROODER SPACING		25' - 40' (7.6m - 12.2m)
BROODER SIZE	<i>Canopy Diameter:</i>	35" (890mm)
	<i>Brooder Height:</i>	18" (460mm)
WEIGHT*		27 lbs (12 kg)
VENTILATION REQUIRED	<i>Per Brooder:</i>	160 CFM (272 m ³ /hr)
GAS CONSUMPTION	<i>Propane Gas:</i>	0.43 GPH (1.63 L/hr)
	<i>Natural Gas:</i>	0.40 Therm (42.2 MJ/Hr)
	<i>Propane/Butane Mix Gas</i>	0.43 GPH (1.63 L/Hr)
ELECTRICAL SUPPLY		24 VAC, 1 Ph, 60Hz, 0.5A

*with Galvanized Canopy

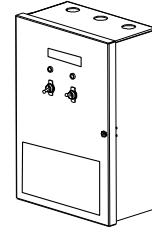
3. BROODER CONTROL OPTIONS

- Control No. 2A** - For single or multi-zone installations using central or multiple thermostats. This 24-volt, AC, zone-type control also can operate on DC voltage as a back up. The gas valve includes a built-in regulator. A 24-volt power supply is required. Brooder can be operated by a 24-volt thermostat, computer or an environmental controller. 100% gas safety shut-off valve.
- Control No. 3** - A modulating type HI/LO control with integral thermostat. No electrical supply is needed. Upon call for heat, the valve will open from pilot to low fire (approximately 25,000 Btu/hr) and modulate between low and high fire (40,000 Btu/hr) as necessary to maintain desired temperature setting. As the thermostat is being satisfied, the valve will modulate down to low fire and then drop to pilot upon being satisfied. 100% gas safety shut-off valve.
- Control No. 9** - An individual, non-electric, fully automatic ON/OFF control with integral thermostat which operates on millivolts generated by the pilot. No electrical supply is needed. Integral thermostat features a wide temperature range for easy adjustment. 100% gas safety shut-off valve.

3a. BROODER ACCESSORIES

A) Zone Control Panel Model ZCP22, Part #43619050

This is a power supply control which utilizes a 375VA transformer to provide the required 24VAC for single or multiple groups (zones) of **No. 2** brooders. Refer to electrical section of manual for allowable heater quantities per transformer.



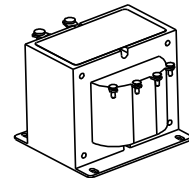
Zone Control Power Supply
(with 375VA Transformer)

Use power inverter kit #43619070 for battery back-up.

B) Power Inverter Kit (for battery back-up), Part #43619070 (Not Shown)

This provides temporary 120VAC to the brooder zone control (power supply) panel during power outages. The kit includes a battery trickle charger, changeover relay and power inverter to convert 12 volt DC into 120 volt AC.

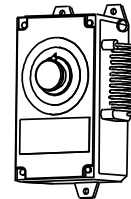
C) Transformer Replacement - 375VA 120/240VAC - 24VAC, Part #30222070



Transformer
120/240 - 24VAC
375VA

D) Thermostat - Environmental (EW-4-20), Part #30525010

Ratings: SPDT 120/240VAC, 16A Full Load
Temperature range: -40 Deg. F to 104 Deg. F +/- 2.5 Deg. F
Differential
Housing: Watertight ABS plastic meets NEMA 4x and NEC
Article 547-4 requirements for use in harsh environments.
Adjustable dial allows thermostat to be recalibrated.



Environmental
Thermostat

E) Hose Kits – No. 3 & 9 Controls:

Part No. 30522060 - 6FT Hose with 3/8" swivel female flare fittings and 6" spring. **Ball valve not included.**

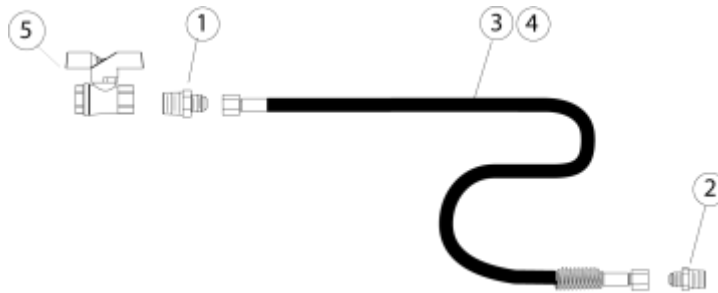
Part No. 30522100 - 10FT Hose with 3/8" swivel female flare fittings and 6" spring. **Ball valve not included.**

Part No. 30522069 - 6FT Hose with 3/8" swivel female flare fittings and 6" spring. **Includes ball valve.**

Part No. 30522109 - 10FT Hose with 3/8" swivel female flare fittings and 6" spring. **Includes ball valve.**

Kit Components:

Item Number	Part Number	Description	Qty
1	30241000	MALE FTG 45 FLARE 3/8 TUBE x 1/2 MPT (for gas shut-off valve)	1
2	30241010	MALE FTG 45 FLARE 3/8 TUBE x 3/8 MPT (for main gas valve)	1
3	30523060	HOSE, 3/8 ID x 6FT with 3/8" F SWIVEL FITTINGS and 6" Spring	1
4	30523100	HOSE, 3/8 ID x 10 FT with 3/8" F SWIVEL FITTINGS and 6" Spring	1
5	30285000	Manual Gas Shut-Off Ball Valve 1/2 FPT	1



F) Hose Kits – No. 2 Controls:

Part No. 30522061 - 6FT Hose with 3/8" swivel female flare fittings and 6" spring. **Ball valve not included.**

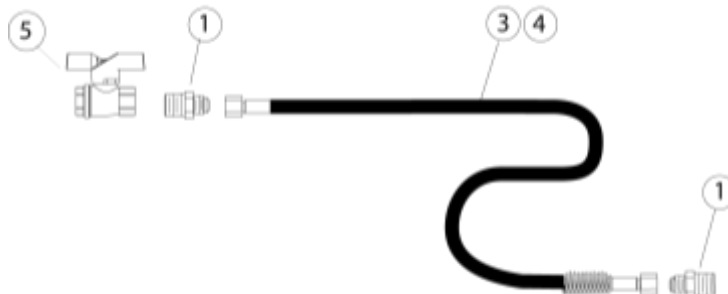
Part No. 30522101 - 10FT Hose with 3/8" swivel female flare fittings and 6" spring. **Ball valve not included.**

Part No. 30522068 - 6FT Hose with 3/8" swivel female flare fittings and 6" spring. **Includes ball valve.**

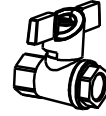
Part No. 30522108 - 10FT Hose with 3/8" swivel female flare fittings and 6" spring. **Includes ball valve.**

Kit Components:

Item Number	Part Number	Description	Qty
1	30241010	MALE FTG 45 FLARE 3/8 TUBE x 1/2 MPT (for gas shut-off and main gas valve)	2
2	n/a	n/a	-
3	30523060	HOSE, 3/8 ID x 6FT with 3/8" F SWIVEL FITTINGS and 6" Spring	1
4	30523100	HOSE, 3/8 ID x 10 FT with 3/8" F SWIVEL FITTINGS and 6" Spring	1
5	30285000	Manual Gas Shut-Off Ball Valve 1/2 FPT	1

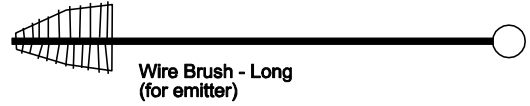


G) Manual Gas Shut-Off Ball Valve - 1/2"NPT, Part #30285000

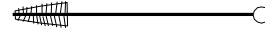


Manual Gas Shut-Off Valve

G) Wire Brush - Long, Part #43295020
Wire Brush - Short, Part #43295010



Wire Brush - Long
(for emitter)



Wire Brush - Short
(for burner & pilot)

4. BROODER ASSEMBLY

1. Make sure that all components are present before assembling the brooder:

<u>Qty.</u>	<u>Description</u>	<u>Qty.</u>	<u>Description</u>
(1)	Control Arm	(1)	Emitter Assembly
(1)	Combustion Air Ring (Natural Gas)	(1)	Low Profile Hanging Bracket (includes eyebolt)
(1)	Canopy	(1)	Fastener Kit
(1)	Burner Base		
(1)	Manifold Support Bracket & Clamp		

The Fastener Kit contains all the nuts, screws and washers required for brooder assembly. You will need the following tools for brooder assembly:

Nut Driver - Size 7/16"
Nut Driver - Size 3/8"
Screw Driver - Phillips
Crescent Wrench (2 each)

2. Place the Low Profile Hanging Bracket onto the Canopy as shown. Secure the bracket to the center of the Canopy with a 1/4-20 screw, nut and washer from the Fastener Kit. Assemble the eyebolt to the hanging bracket with nuts and washers. Align the hanging bracket with the two (2) holes located at the edge of the Canopy. See Figure 1.
3. Position the Emitter Assembly on a table with the mounting studs facing upwards.
4. Place the Canopy over the Emitter Assembly so that the mounting studs pass through the three (3) holes in the Canopy and the hole in the hanging bracket. Secure the Canopy and the hanging bracket to the mounting studs using nuts and flat washers as shown. See Figure 1.

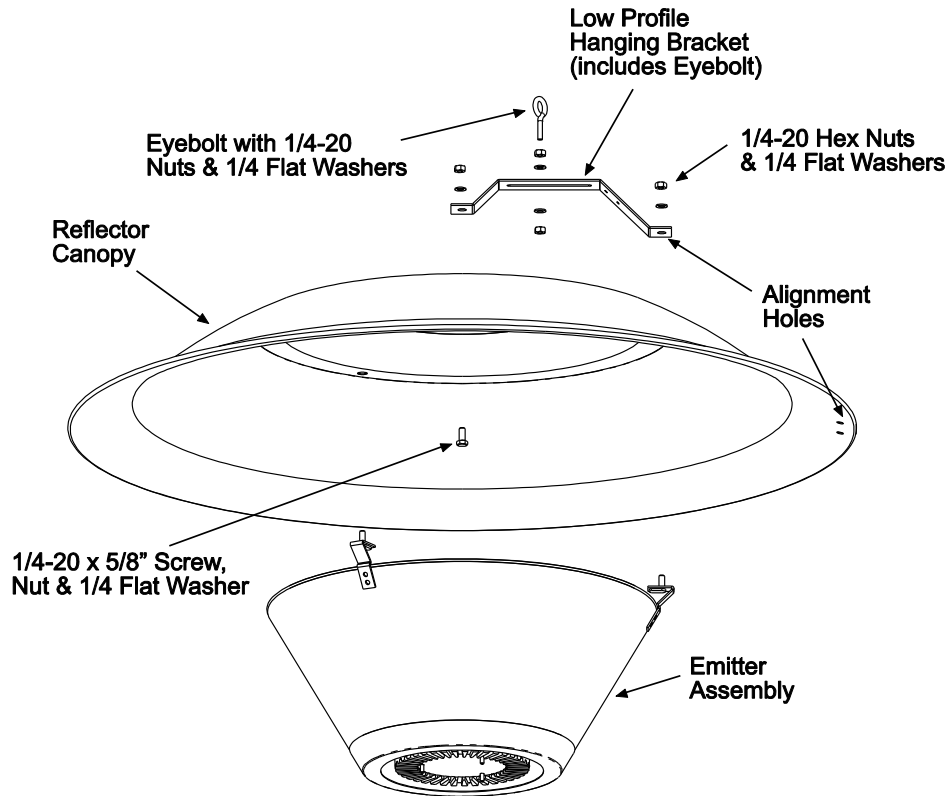


FIGURE 1

- Flip the Emitter/Canopy Assembly over. Secure the Burner Base to the Burner Cap (which is attached to the Emitter Assembly) and secure it in place using three (3) #10-24 hex locknuts from the Fastener Kit. **NOTE: Make sure that the two (2) holes located on the Burner Base are facing the two (2) holes in the edge of the Canopy.** See Figure 2.

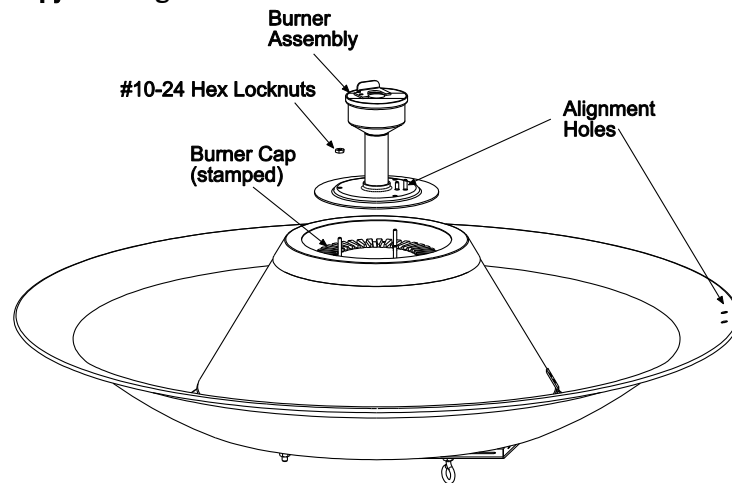


FIGURE 2

- Attach the Label Holder Plate and Manifold Support Bracket Assembly to the rim of the canopy using two (2) 1/4-20 hex nuts, washers, stand-off plate and U-bolt from the Fastener Kit. See Figure 3. **NOTE: DO NOT COMPLETELY TIGHTEN FASTENERS AT THIS STAGE YET.**
- Attach the Control Arm Assembly to the Manifold Support Bracket Assembly as shown in Figure 3 using the V-clamp and one (1) #10-24 screw. Insert the tab portion of the V-clamp into the Manifold Support Bracket Assembly. Secure the V-clamp using the #10-24 screw.

NOTE: Adjust the Control Arm so that the V-clamp is butt against the tube fitting located at the bottom of the gas valve. Tighten the screw.

- Adjust the Control Arm so that the Orifice Fitting aligns with its connection point of the main burner.

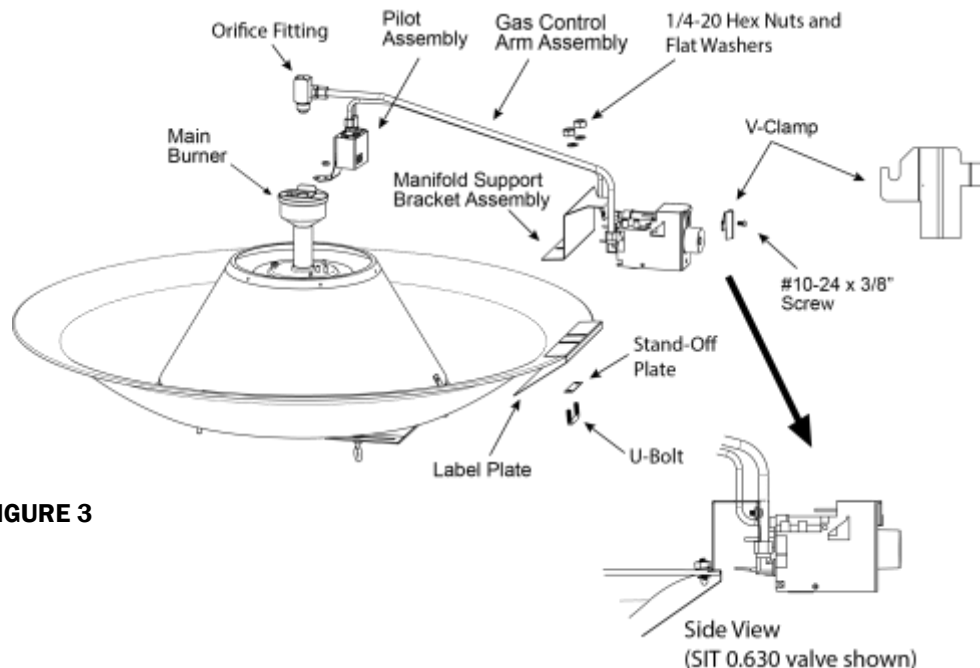


FIGURE 3

9. Insert the Orifice Fitting into the burner base as shown in Figure 3a. Rotate the swivel clamp until it locks into the groove of the orifice fitting.
10. Tighten the screws and nuts holding the Manifold Support Bracket Assembly installed earlier above in Figure 3.
11. Attach the pilot holder bracket to the Burner Base using one (1) #10-24 hex locknut from the Fastener Kit.

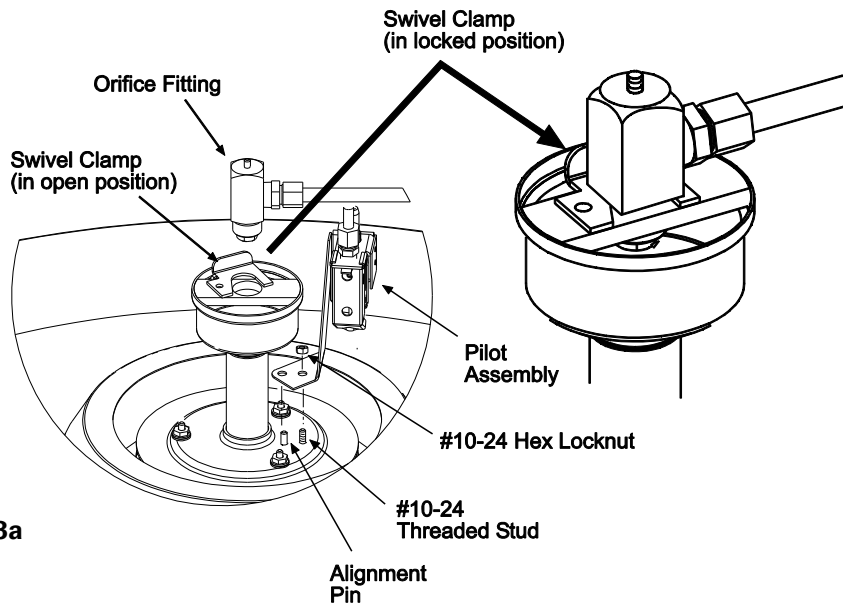


FIGURE 3a

Combustion air ring for Natural gas not shown.

12. Flip the brooder over to its original position and place the Pilot Shield (perforated) onto the Pilot Assembly.
13. **NATURAL GAS MODELS ONLY** – Attach the Combustion Air Ring to the Gas Control Arm orifice fitting as shown in Figure 3b, using one (1) 1/4-20 hex nut from the Fastener Kit.

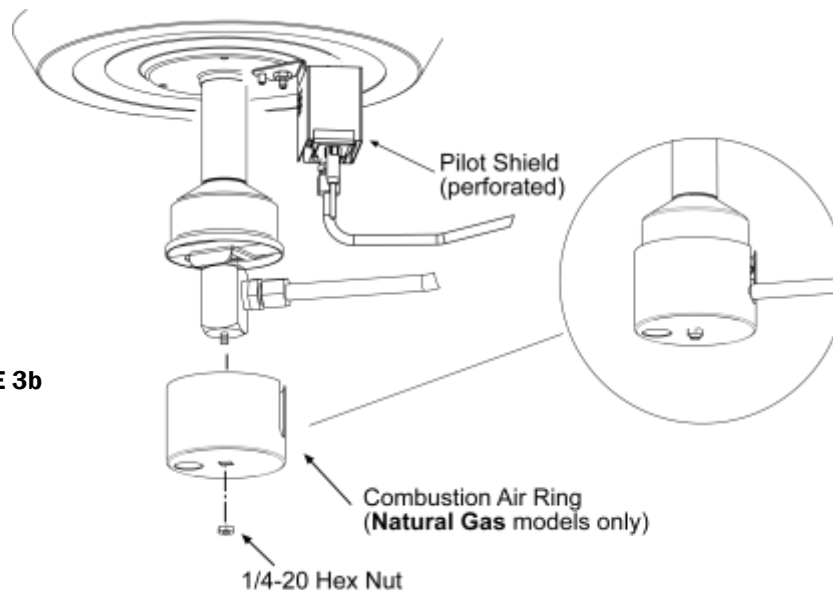
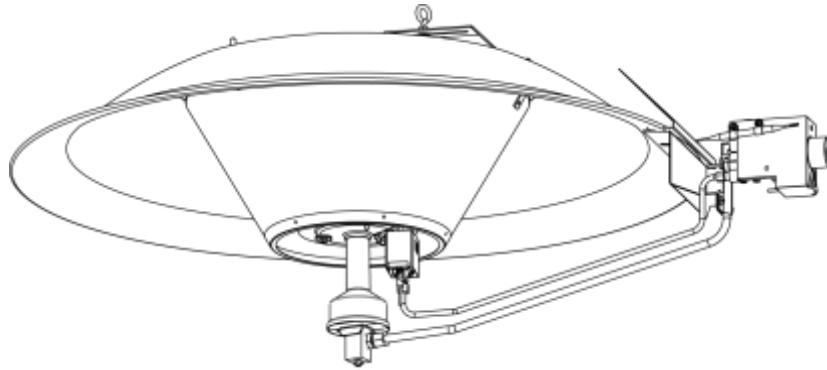


FIGURE 3b

▲WARNING: ONCE THE BROODER IS ASSEMBLED AND BEFORE IT IS FIRST FIRED, YOU MUST CHECK FOR GAS LEAKS! USE A SOAP AND WATER SOLUTION AND APPLY AT ORIFICE FITTING, PILOT ASSEMBLY, AND FIELD CONNECTION AT THE GAS VALVE.



**COMPLETE ASSEMBLY
FIGURE 4**

5. MINIMUM CLEARANCES TO COMBUSTIBLES

Minimum clearances to combustible materials shall be measured from the outer surface of the canopy as shown in the following table:

MINIMUM CLEARANCES TO COMBUSTIBLES		
SIDES:	BELOW:	ABOVE:
36" (915 mm)	48" (1220 mm)	18" (460 mm)

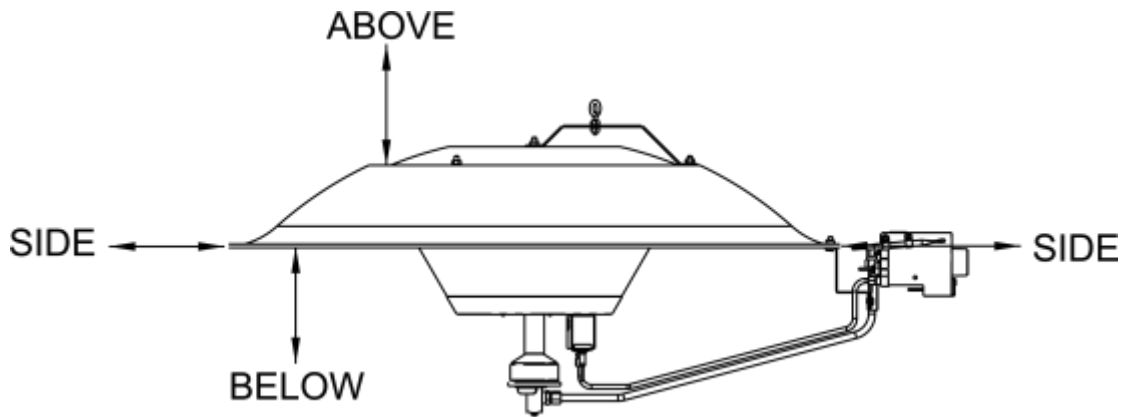


FIGURE 5

6. BROODER INSTALLATION

1. Locate brooders approximately 25' to 40' (8m to 12m) apart, in a row, as needed for bird comfort and building heat loss. If more than one row is desired, stagger rows for best heat distribution.

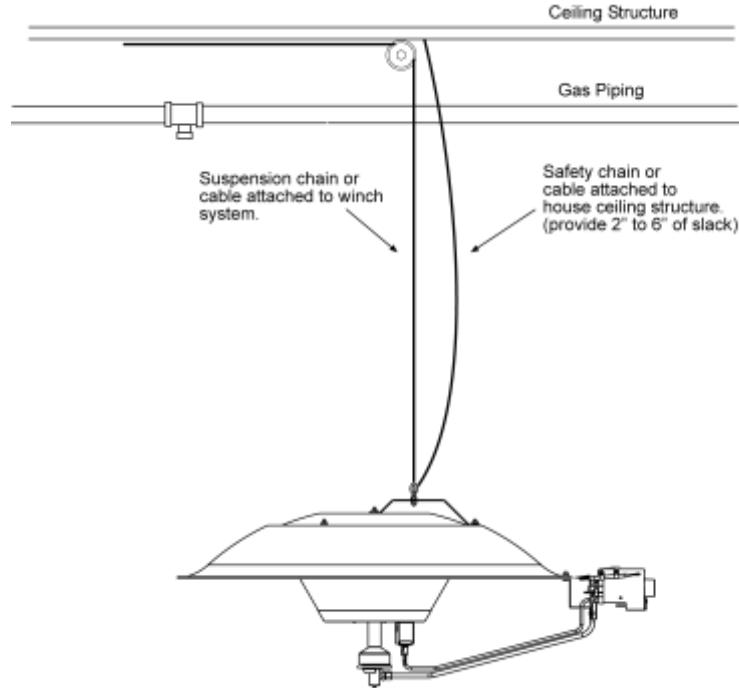



FIGURE 5a

2. Suspend the brooder at the desired height above the floor (litter) level, normally 60" to 72" (1520mm to 1830mm). For brooders connected to a winch (to allow for adjustment of brooder height), connect each brooder using a chain or cable suitable for the weight of each brooder. **DO NOT USE ROPE.** Size the winch and cable so that it is capable of handling the total weight of all brooders and gas piping involved. **NOTE: Connect a safety chain to each brooder and anchor it to the house structure above each brooder to prevent it from falling onto the litter if the cable/chain breaks or the winch fails. THE GAS HOSE SHOULD NEVER BE USED AS A SAFETY CHAIN!**
3. Connect the gas line and electrical supply (if required) to each brooder as outlined in Sections 7 and 8.

NOTE: After connection of the gas line, make sure that the brooder is suspended with the control side approximately $\frac{1}{2}$ " (13mm) below the other side of the brooder to prevent hot products of combustion from damaging the gas control valve.

⚠ WARNING	
	<p style="text-align: center;">FIRE HAZARD</p> <p>A safety chain must be connected from the hanging bracket to a fixed part of the building structure directly above the brooder.</p> <p>The safety chain will prevent the brooder from falling to the floor in the event that the main suspension system fails.</p> <p>Failure to follow these instructions may result in death, serious injury or property damage.</p>

7. GAS CONNECTIONS

1. Gas piping for the house must be sized to be capable of satisfying the entire demands of the house should all equipment be operating at the same time. Please use Table 1 (taken from the National Fuel Gas Code) for the sizing of piping for the house. An example using this table is shown.
2. Connect to the supply tank or manifold in accordance with the latest edition of the National Fuel Gas Code (ANSI Z223.1) and/or local codes. Authorities having jurisdiction should be consulted before the installation is made. Refer to the latest edition of CAN/CGA B.149-1/2 Installation Codes for Gas Burning Appliances and Equipment in Canada.
3. Pipe joint compounds must be resistant to the action of liquefied petroleum (LP) gases.
4. Gas connections to individual brooders shall be made using flexible gas connectors, or they can utilize rubber hosing suitable for LP gas usage (to allow movement of the brooders for cleaning, etc.). Check with the authorities having jurisdiction and/or local codes prior to choosing an individual gas connection method.
5. Connection to a new installation with **accessory** hose and fittings is shown below:

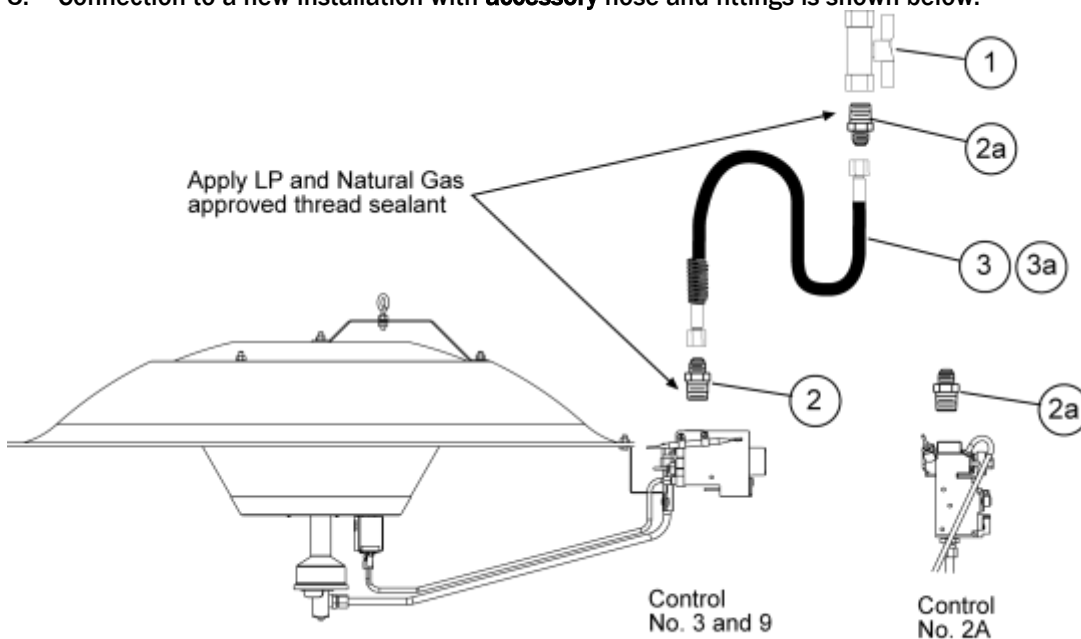


FIGURE 5b

⚠ WARNING		
		FIRE HAZARD
		<p>Tighten flexible gas hose and components securely.</p> <p>Flexible gas hoses must be installed without any twists or kinks in them. DO NOT allow the hose to touch any portion of the brooder canopy during operation.</p> <p>Failure to do so may result in death, serious injury or property damage.</p>

Item Number	Part Number	Description
1	30285000	VALVE,MANUAL BALL 1/2"
2	30241000	MALE FTG 45FLARE 3/8TUBEx3/8MPT
2a	30241010	MALE FTG 45FLARE 3/8TUBEx1/2MPT
3	30523060	HOSE,3/8IDx6FT with 3/8"F SWIVEL FITTINGS
3a	30523100	HOSE,3/8IDx10FT with 3/8"F SWIVEL FITTINGS

Make sure connection is secure before turning on the gas. See section 7a for procedures to test for gas leaks before putting the brooders into operation.

- Suspend the gas hose line to the ceiling structure using safety cable. This will reduce the potential that the hose can touch the canopy when the brooder is lowered or raised.

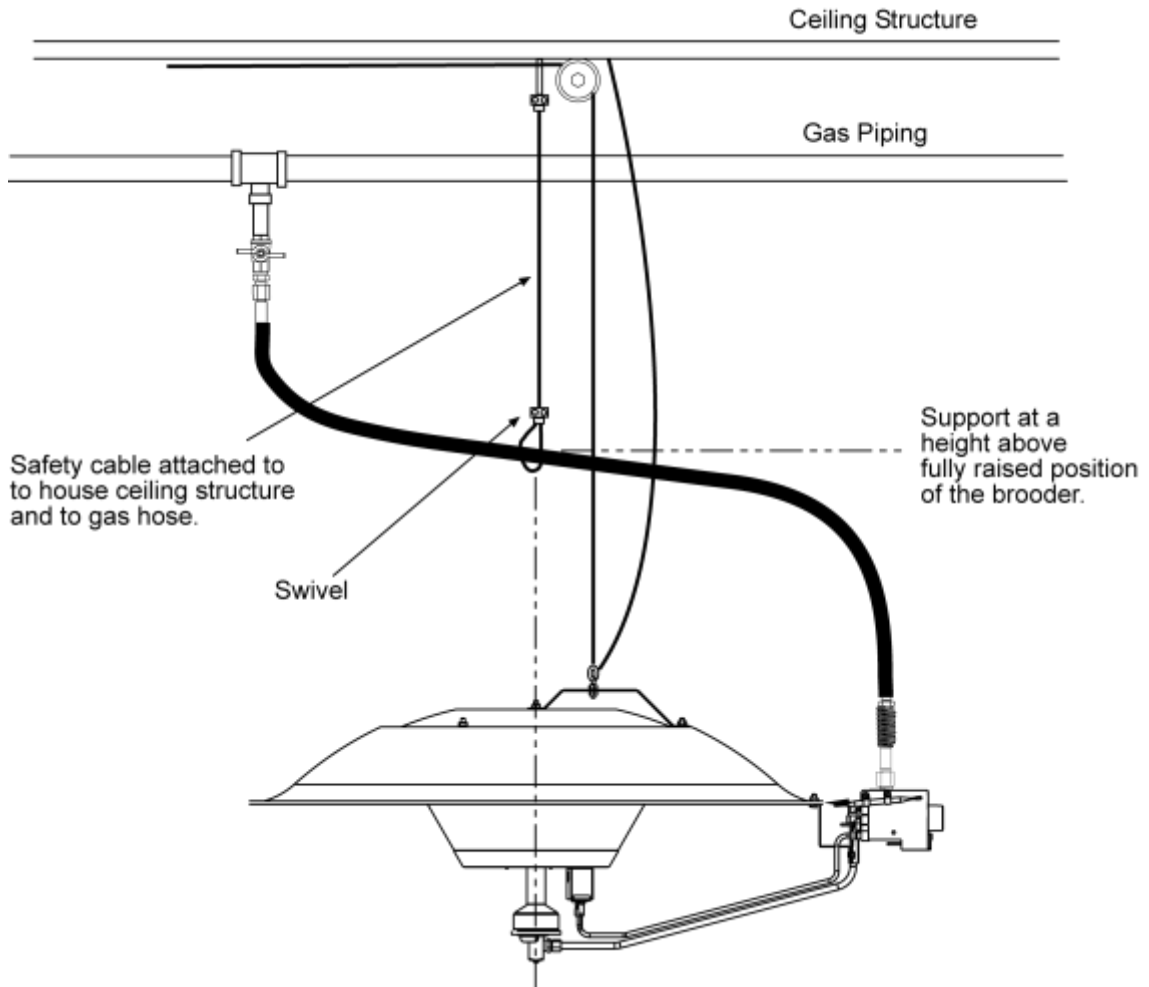
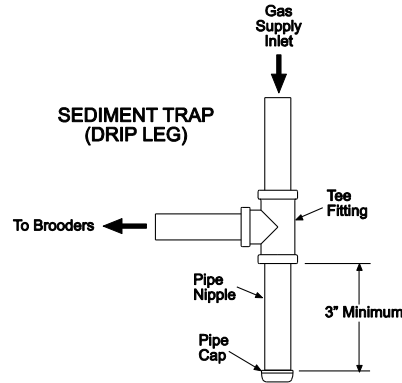


FIGURE 5c

- It is strongly recommended that a field installed manual shut-off valve be installed in the gas piping to each brooder. This will allow service of individual brooders without having to shut down the entire gas supply system. When installing the gas line, it is recommended to connect a sediment trap (shown below) in the gas line at a point before the gas line enters the house. This trap or “drip leg” acts to trap impurities and water that can condense out of the gas. It helps to keep impurities from entering the appliance and causing potential damage to gas valves, etc. Periodically remove the cap from the drip leg and drain any accumulation of dirt and/or water.

FIGURE 5d



- After all gas connections and adjustments are made, check all gas connections for leaks (not just the gas connections at the brooders) using a heavy soap suds solution or by using one of the methods listed in Appendix D of the National Fuel Gas Code. **▲WARNING: DO NOT USE AN OPEN FLAME OF ANY KIND TO TEST FOR LEAKS!**
- It is recommended that a pressure gauge be installed at the end of the gas piping run to allow you to check the gas supply pressure in the system. This needs to be capable of accurately measuring in units of inches of water column or mbar.

7a. INSTRUCTIONS FOR TESTING FOR GAS LEAKS AND PROPER GAS PRESSURE

▲WARNING: DO NOT OMIT THESE TESTS!

TESTING THE INSTALLATION FOR GAS LEAKS:

- Inspect all connections and appliance valves to be sure connections are wrench-tight and that all appliance valves are closed, including the pilot valves.
- Connect a low-pressure test set to the low pressure piping system just upstream of the appliance regulators and control. **NOTE:** A dry gauge manometer is available as an accessory (Part No. 43649000).
- Fully open the LP gas container valve slowly to pressurize the piping system. Once the system is pressurized and stabilized, close the container valve tightly.
- Observe the indicated pressure on the low-pressure test set gauge. This reading should be approximately equivalent to the set delivery pressure of the final stage regulator. Now, slowly open one burner valve or pilot valve on the appliance to vent off just enough gas to reduce the pressure on the test gauge by 1" water column, then close the burner or pilot valve.

If the pressure remains unchanged on the gauge for at least 10 minutes, the system can be assumed leak-tight. If a drop in pressure does occur, it indicates a leak in the system.

If the pressure drop occurs, check the joints, connectors, and other possible points of leakage with an approved, high quality leak detection solution. **NEVER USE A MATCH OR OPEN FLAME TO CHECK FOR LEAKS.** Once a leak has been located and repaired, repeat Steps 3 and 4 above.

If there is an increase in pressure, it indicates that the LP gas container valve is not shut off tightly. Shut off the valve tightly and repeat Step 4 above.

NOTE: Do not expose final stage piping to excessive heat or direct sunshine during the leak test. Pressure build-up in the line due to heat may compensate for pressure loss due to leaks. This will prevent the gauge reading from indicating system leaks.

▲WARNING: Gas Pressure Testing is to be performed only by qualified personnel.

CHECK GAS INLET (SUPPLY) PRESSURE:

1. Be sure the valve is in the "OFF" position before removing the pressure tap plug at the valve. Connect a low-pressure test set (water manometer or dry gauge) to the 1/8" NPT Inlet Pressure Tap connection. (Refer to Figures 6 and 6a for each control valve type.) Turn the valve to the "ON" position. **DO NOT EXCEED THE PRESSURES SHOWN IN THE GAS PRESSURE TABLE.**
2. Turn the valve back to the "OFF" position before removing the test set and replacing the plug. Repeat the gas leak test at the plug.

FIGURE 6

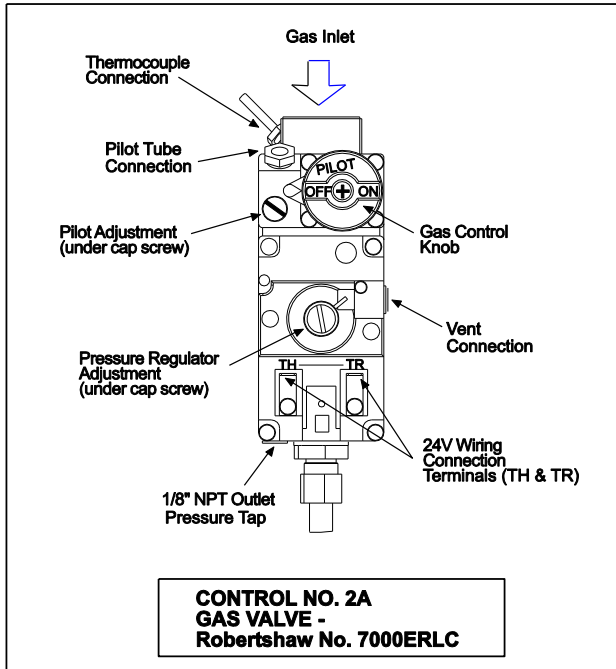
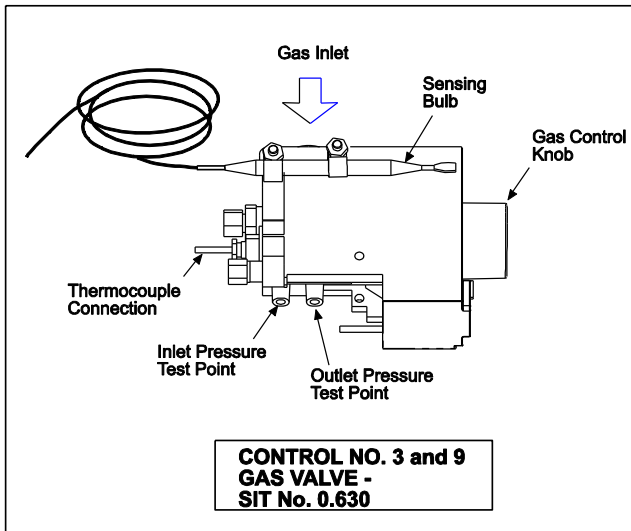


FIGURE 6a



CHECK GAS OUTLET (MANIFOLD) PRESSURE:

1. Be sure that the valve is in the “OFF” position before removing the pressure tap plug at the valve. With the main burner operating, check the manifold pressure using a lower-pressure test set connected to the 1/8” NPT Outlet Pressure Tap. (Refer to Figures 6 and 6a for each control valve type.) Control no. 2A has combination valves with built-in appliance regulators. These regulators are factory set and should not require adjustment. They should provide the correct manifold pressure at the varying supply pressures noted in the Gas Pressure Table below. **DO NOT EXCEED THE PRESSURES SHOWN IN THE GAS PRESSURE TABLE.**
2. If manifold gas pressure adjustment is required, remove the cover screw. (See Figure 6 for valve drawing.) Using a small screwdriver, turn the adjusting screw clockwise \curvearrowright to increase or counter clockwise \curvearrowleft to decrease the gas pressure to the burner.
3. Turn the valve back to the “OFF” position before removing the manometer and replacing the plug. Repeat the gas leak test at the plug.

GAS PRESSURE TABLE					
BROODER MODEL		GAS TYPE	MANIFOLD PRESSURE	SUPPLY PRESSURE	
				<i>Minimum</i> ♦	<i>Maximum</i>
SRB40CR-N	Control 2A	Natural Gas	4” WC (10.0 mbar)	5” WC (12.4 mbar)	14” WC (34.9 mbar)
	Controls 3, 9	Natural Gas	4” WC (10.0 mbar)	4.5” WC (11.4 mbar)	5.5” WC (14.0 mbar)
SRB40CR-L		Propane Gas	10” WC (24.9 mbar)	11” WC (27.4 mbar)	14” WC (34.9 mbar)
SRB40CR-B		Propane/Butane Mix Gas	10” WC (24.9 mbar)	11” WC (27.4 mbar)	14” WC (34.9 mbar)

♦ Minimum permissible gas supply pressure for the purpose of input adjustment.

PRESSURE READING NOTES — CONTROLS 3 AND 9 ONLY:

1. **INLET PRESSURE** can be checked by turning the captured screw (see Figure 6a) counter clockwise \curvearrowleft 2 or 3 turns and then placing the tubing from the gauge over the test point.
2. **OUTLET PRESSURE** can be checked in the same manner as described above by using the captured screw.

▲WARNING: After taking pressure readings, be sure to turn captured screws clockwise \curvearrowright firmly to reseal. Do not over torque. The appliance regulator is not adjustable.

REGULATOR LOCK-UP AND LEAKAGE:

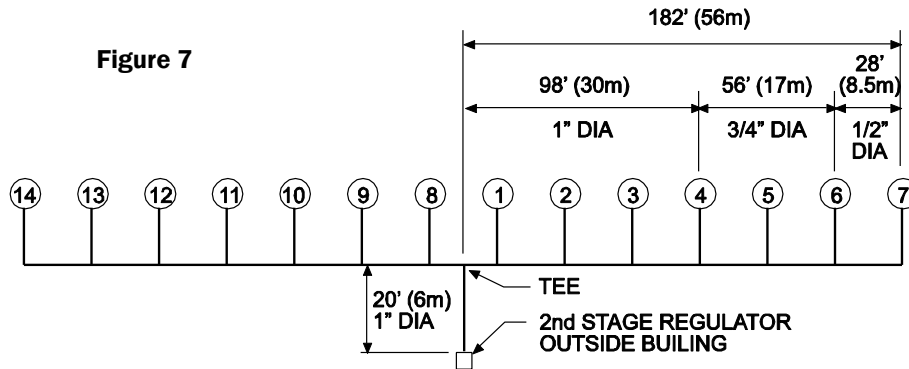
After the leak testing and delivery pressure tests have proven satisfactory, the regulator lock-up and leakage test may be performed. The lock-up pressure of the final stage regulator should be slightly higher than, but not more than, 120% of the set delivery pressure. For example, on a delivery pressure setting of 12” water column, the maximum allowable lock-up pressure is 14.4” water column.

To perform the lock-up and leakage test, follow these steps:

1. With the LP tank valve fully open, shut off all appliance valves so there is no demand for gas. This includes shutting off all pilots.
2. A slight rise in pressure will occur under these conditions. This rise should be no more than 120% of the delivery pressure. This is the lock up pressure. **NOTE:** A quick rise in pressure above the allowable lock-up point could indicate undersized piping, a worn seat disc or foreign material in the seating area. **This condition must be corrected before putting the system in service.**
3. Continue the test for five minutes or more. If a creeping rise in pressure is noticed, the final stage regulator seat is not closing off properly. The regulator must be replaced or repaired, and the system retested, before putting the system in service.

7b. GAS PIPE SIZING EXAMPLE

House Size: 40' x 400'
 Brooder Quantity: 14
 Individual Brooder Capacity: 40,000 Btu/hr
 Second Stage Regulator Pressure: 14" W.C.
 Operating Pressure: 11"W.C., LP gas with all brooders operating



STEP 1. Gas should be run at high pressure from the LP tank to the second stage regulator at the house. Using the above house configuration example, calculate the gas pipe sizing. First, calculate the total distance from the second stage regulator to the furthest brooder. In Figure 9 above, that distance equals 202' (20' + 182'). Using Table 1, look up the row for 200' and select the smallest pipe size that has the capacity for the flow of the end brooder (40,000). The smallest pipe size is 1/2" with a capacity of up to 58,000 Btu/hr over 200'.

STEP 2. Calculate the distance from the second furthest brooder to the secondary regulator. In the example, that distance equals 174'. Using Table 1, look up the row for 174'. As 174' is not listed, you will use the next distance up, in this case, 200'. Then select the smallest pipe size that has the capacity for the flow of both the furthest (#7) and second furthest (#6) brooders, which combines to 80,000 Btu/hr. The smallest pipe size is 3/4" with a capacity of up to 120,000 Btu/hr over 200'. Repeat this process for each brooder until you reach the Tee. Table 2 shows the completed example.

STEP 3. At the Tee, calculate the total distance to the secondary regulator. In this example, that equals 20'. Using Table 1, look up the row for 20' and select the smallest pipe size that has the capacity for the flow of all the brooders connected to the pipe system (560,000). The smallest pipe size is 1" with a capacity of up to 788,000 Btu/hr over 20'.

TABLE 1. — LP Gas Pipe Sizing Between Single or Second Stage Regulator and Brooders Per ANSI Z223.1 National Fuel Gas Code-1992

	Tubing Size, O.D. Type L						Nominal Pipe Size, I.D. Schedule 40							
	3/8"	1/2"	5/8"	3/4"	7/8"	1-1/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	3"	4"
10 Ft.	39	92	199	329	501	935	291	608	1,146	2,353	3,525	6,789	19,130	39,018
20 Ft.	26	62	131	216	346	630	200	418	788	1,617	2,423	4,666	13,148	26,817
30 Ft.	21	50	107	181	277	500	161	336	632	1,299	1,946	3,747	10,558	21,535
40 Ft.	19	41	90	145	233	427	137	287	541	1,111	1,665	3,207	9,036	18,431
50 Ft.	18	37	79	131	198	376	122	255	480	985	1,476	2,842	8,009	16,335
60 Ft.	16	35	72	121	187	340	110	231	435	892	1,337	2,575	7,256	14,801
80 Ft.	13	29	62	104	155	289	94	198	372	764	1,144	2,204	6,211	12,668
100 Ft.	11	26	55	90	138	255	84	175	330	677	1,014	1,954	5,504	11,227

continued, next page

(Table 1, continued)

	Tubing Size, O.D. Type L						Nominal Pipe Size, I.D. Schedule 40							
	3/8"	1/2"	5/8"	3/4"	7/8"	1-1/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	3"	4"
125 Ft.	10	24	48	81	122	224	74	155	292	600	899	1,731	4,878	9,950
150 Ft.	9	21	43	72	109	202	67	141	265	544	815	1,569	4,420	9,016
200 Ft.	8	19	39	66	100	187	58	120	227	465	697	1,343	3,783	7,716
250 Ft.	8	17	36	60	93	172	51	107	201	412	618	1,190	3,353	6,839
300 Ft.	—	—	—	—	—	—	46	97	182	374	560	1,078	3,038	6,196
350 Ft.	—	—	—	—	—	—	43	89	167	344	515	992	2,795	5,701
400 Ft.	—	—	—	—	—	—	40	83	156	320	479	923	2,600	5,303

Maximum propane capacities listed are based on 1/2" W.C. pressure drop at 11" W.C. setting - Capacities in 1,000 BTU/hr.

TABLE 2.

Brooder #	Distance from Regulator (ft.)	Flow Capacity Required (Btu/hr)	Distance Used from Table (ft.)	Smallest Pipe Size and Capacity From Table
7 and 14	202	40,000	200	1/2" – 58,000
6 and 13	174	80,000	200	3/4" – 120,000
5 and 12	146	120,000	150	3/4" – 141,000
4 and 11	118	160,000	125	1" – 292,000
3 and 10	90	200,000	100	1" – 330,000
2 and 9	62	240,000	60 ^{Note 1}	1" – 435,000
1 and 8	34	280,000	40	1" – 541,000 ^{Note 2}

Note 1: The distance used is rounded down to 60.

Note 2: The actual smallest pipe size for the required capacity is 3/4" from the table. However, the gas pipe size from brooders 3 and 4 to the regulator must be 1" diameter and therefore a smaller diameter pipe cannot be used. If 3/4" pipe was used from the Tee to brooder 1, the pressure drop in the rest of the system would exceed the design pressure drop of 1/2"W.C.

8. ELECTRICAL CONNECTIONS

- All electrical wiring shall conform to the latest edition of the National Electrical Code (ANSI/ NFPA No. 70), or the code legally authorized in the locality where the installation is made.
- The electrical system must be electrically grounded in accordance with the National Electrical Code (ANSI/ NFPA No. 70-latest edition) or the Canadian Electrical Code (C22.1 Part 1-latest edition) as appropriate.
- The brooders with the **no. 3** and **no. 9** control options do not require any electrical supply because they generate their own electricity and operate thermostatically off this power.
- Each brooder with the **no. 2A** control option requires a 24 volt-power supply via a 24 volt transformer. The 24 volt transformer **MUST** be large enough to operate the number of brooders connected to it (see table below). This is calculated as follows:

Note: The 24 volt common terminal must be grounded.

No. of Brooders x 12.0VA x 1.25 Safety Factor = Transformer Size

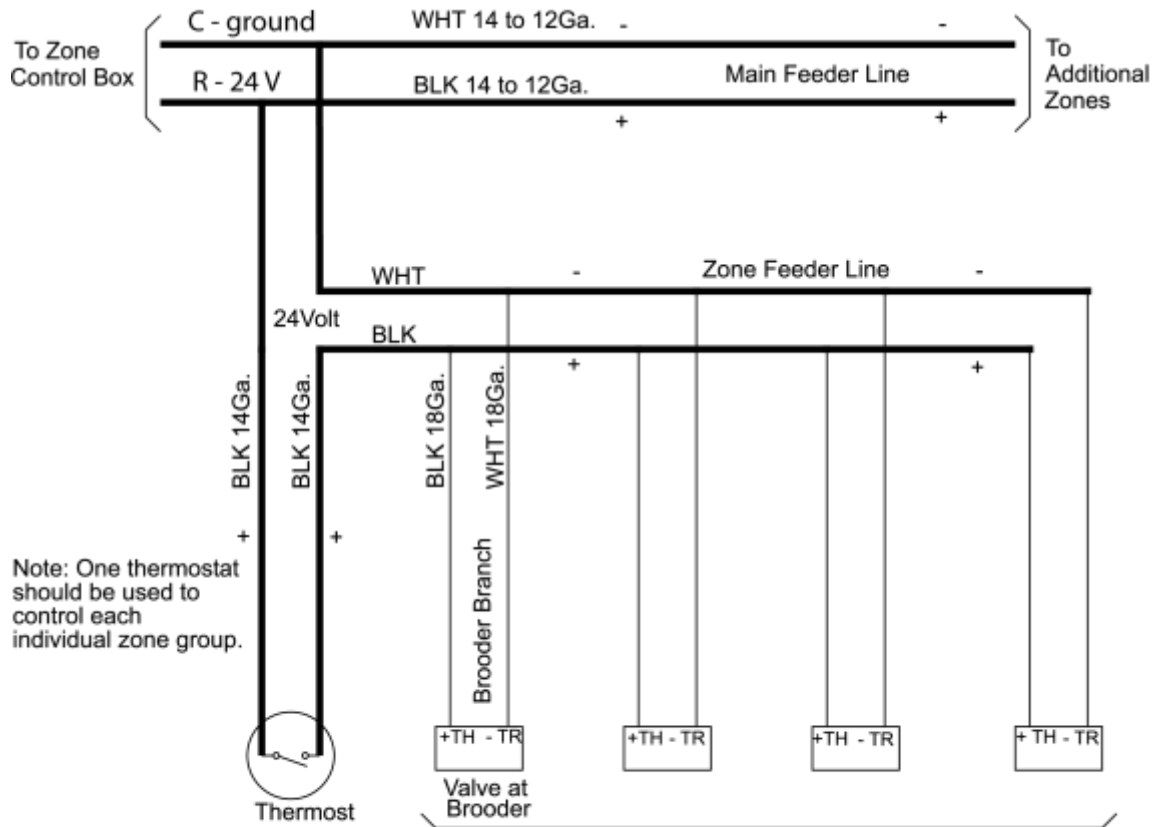
No. Brooders	Minimum Transformer VA
14	210
15	225
16	240
17	255
18	270
19	285
20	300
21	315
22	330
23	345
24	360
25	375

An optional Zone Control Power Supply Panel is available as an accessory (Part #43619050) to provide the required 24VAC for each **no. no. 2A** brooder. The Zone Control comes equipped with a 375VA transformer.

NOTE: If you plan to use the Zone Control with its DC back-up power supply capabilities, special attention must be given to individual brooder wiring because the DC electrical power is polarity sensitive. All brooders must be connected the same way (i.e., the same power leg must be connected to the same terminal on every brooder). While this will not affect brooder operation on 24VAC, brooders that are not hooked up in this manner will not work properly on DC power. Refer to Figure 8 for a typical wiring schematic. These **no. 2A** control brooders must be supplied with a thermostat for temperature control (either with or without the Zone Control Panel).

5. A Thermostat (available as an accessory, Part #30525010, or an environmental controller, etc.) is also required for each brooder or group of brooders as shown in the schematic. The schematic (Figure 8) shows a group of four (4) brooders controlled by one (1) thermostat. Additional zone groups having more or less brooders can be added. These should be wired the same as shown in the schematic. Contact the factory for pricing and availability for the Zone Control and Thermostat.

SCHEMATIC Figure 8



Note: One thermostat should be used to control each individual zone group.

This schematic represents a group of four (4) brooders controlled by one (1) thermostat. Additional zones should be wired per this schematic to maintain correct polarity for DC operation.

9. LIGHTING AND SHUTDOWN INSTRUCTIONS

◆ NO. 2A CONTROL (#7000ERLC VALVE)

1. Turn gas control knob counterclockwise ⤴ to “PILOT”.
2. Push and hold down the black knob on the 2A controls while you light the pilot. Immediately light the pilot with a match. Continue to hold the control/reset button down for about one (1) minute after the pilot is lit. If it goes out, wait five (5) minutes before trying to relight the pilot. **NOTE: If the reset button (2 controls) does not pop up when released, stop and immediately call your service technician or gas supplier.**
3. If the pilot will not stay lit after several tries, turn the gas control knob clockwise ⤵ to “OFF” and call your service technician or gas supplier.
4. When the pilot flame remains lit, turn the gas control knob counterclockwise ⤴ to “ON”.
5. Turn on electrical power supply to the brooder.
6. Adjust the wall-mounted thermostat to change the temperature setting. Adjust as desired for bird comfort.
7. **NOTE:** To turn off the main burner only, turn the gas control knob clockwise ⤵ to “PILOT”. For complete shutdown, turn the gas control knob clockwise ⤵ to “OFF”.

◆ NO. 3 AND NO. 9 CONTROLS (#0.630.501 and #0.630.566 VALVES)

1. Turn the gas cock dial on the control valve to the “PILOT” position. Depress the dial and apply lighted taper to the pilot burner.
2. Hold the dial in for one (1) minute after the pilot is lit. Release the dial. If pilot flame fails to establish, repeat the procedure.
3. If pilot flame fails to establish after a second attempt, refer to the fault-finding chart.
4. When the pilot flame is established, turn the gas cock dial to the “ON” position and set the thermostat to call for heat. The main burner will ignite.
5. Adjust the remote thermostat to change the temperature setting. Adjust as desired for bird comfort.



NOTE: TO TURN OFF THE MAIN BURNER only, turn the gas cock dial to the “PILOT” position. FOR COMPLETE SHUTDOWN of main burner and pilot, press in the gas cock dial and turn to the “OFF” position.

6. If the brooder is to be taken down for inspection or maintenance, turn the ON/OFF ball valve on the connecting kit hose to the “OFF” position and disconnect the hose from the control valve inlet.

APPROXIMATE TEMPERATURE VERSUS CONTROL KNOB POSITION

Thermostat Range	CONTROL KNOB POSITION						
	1	2	3	4	5	6	7
°C	21°	26°	30°	33°	39°	43°	47°
°F	70°	79°	86°	91°	102°	109°	117°

10. VENTILATION

 WARNING	
	<p>Minimum ventilation required is 160 CFM per brooder. Lower ventilation rates may result in poor gas/air mixture causing high carbon monoxide levels and distortion to the emitter assembly. The minimum ventilation is also required when pre-heating any building even without any birds present.</p> <p>Failure to follow these guide lines may result in death, serious injury, property damage or illness from Carbon Monoxide poisoning.</p>

FOR YOUR SAFETY: Exhaust fans must be operating on an appropriate cycle when heating the building to avoid high concentrations of carbon monoxide and water vapor.



The temptation, particularly during the winter months, is to close up the poultry house to conserve heat and save money. This must be resisted, particularly during the heating up period prior to the arrival of the stock, because the lack of ventilation can restrict the required amount of combustion air for the brooders causing them to burn improperly and produce levels of carbon monoxide which could be harmful to people and the stock.

▲WARNING: Carbon Monoxide is an odorless and poisonous gas. Extended exposure to carbon monoxide may lead to death. Early signs of carbon monoxide poisoning resemble the flu, including headaches, dizziness and/or nausea. If you experience these signs, **GET FRESH AIR IMMEDIATELY.** Have the brooders serviced as soon as possible and check the ventilation in the house.

The National Fuel Gas Code requires a minimum of 4 CFM per 1000 Btu/hr of brooder input for ventilation. This requirement means that a total of 160 CFM is required per brooder. Ventilation requirements may vary depending on other equipment that may be located in the building requiring ventilation. All ventilation requirements should be addressed before sizing the necessary gravity or mechanical means to accomplish this ventilation.

While ventilation is necessary for proper brooder operation and proper growing conditions for the stock, excessive ventilation can result in high fuel consumption. Adjust the ventilation as necessary for optimum performance of the brooders and growing conditions for the stock.

11. CLEANING AND ANNUAL MAINTENANCE

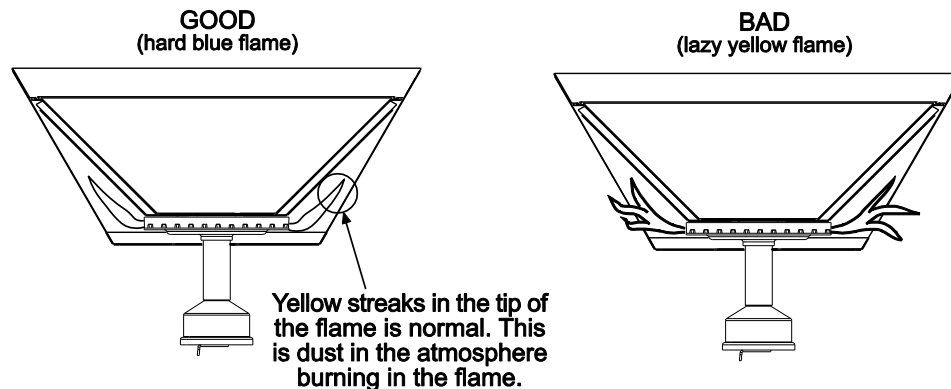
⚠ WARNING		
		ELECTRIC SHOCK & EXPLOSION HAZARD Disconnect electrical power and gas supply before servicing. Failure to do so may result in death or serious injury.

To keep your brooder in good operating condition, we recommend that after each crop you blow any dust and dirt from the brooder with compressed air. If at anytime you notice a lazy yellow flame as shown below then the brooder needs to be cleaned:

CAUTION:

TURN THE GAS AND ELECTRIC (IF EQUIPPED) SUPPLIES OFF AND ALLOW THE BROODER TO COOL DOWN BEFORE ATTEMPTING ANY MAINTENANCE.

FIGURE 9



Inspect the flame characteristics by running the brooder with the Mechanical Ventilation OFF and Natural Ventilation by opening the doors at the end of the house. This will result in a flame that is more stable to observe.

If at anytime 25% or more of the flame turns yellow or on an annual basis, we recommend that the burner and orifices be disassembled and cleaned. Built up deposits in the burner will not be effectively cleaned with compressed air.

1. Release the main burner orifice fitting from the burner by turning the swivel clamp. **CAUTION:** In order to prevent damage to the control arm tubing, first place your hand under the fitting and allow the control to lower gently under its own weight.
2. Unscrew the main burner orifice from the orifice fitting and clean the orifice hole with a drill bit the same size as the orifice or by soaking the orifice in acetone liquid cleaner. Dry the orifice by blowing compressed air through it. **NOTE:** Care must be taken not to ream the orifice hole to a larger diameter as this will result in over firing the burner and potentially causing damage to the emitter.

- Apply pipe thread sealant Part No. 05001010 PIPETITE-STIK #11175 (resistant to LP Gas) to the threads of the orifice and replace it into the orifice fitting. Avoid over tightening the orifice as this will make future removal very difficult.

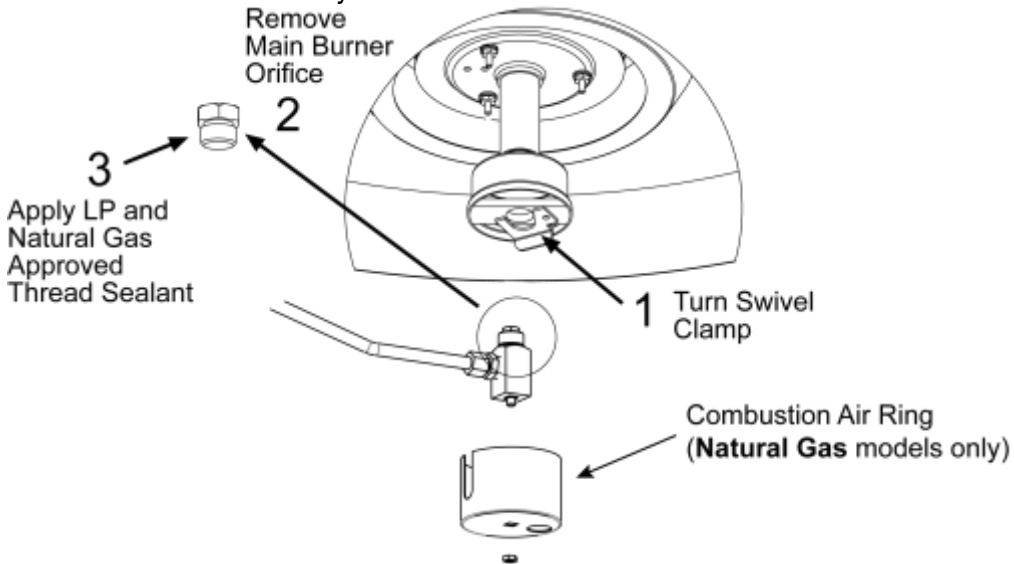


FIGURE 10

- Before removing the burner base it is advisable to make sure you have spare spacer screws and nuts available Part No. 40219520 (#10-24 MALE x MALE THREADED HEX - SS) and Part No. 02167029 (#10-24 HEX LOCKNUT - SS). The spacer screws and nuts used to secure the burner are stainless steel and may gall and therefore shear off during disassembly. See Figures 12 and 13 below for spacer screw replacement.
- Remove the main burner. Clean around the burner cap ports and upper burner surfaces with a small bristle brush (available as an accessory, Part No. 43295010) or other small wire brush. After cleaning the burner ports, use the same brush to clean inside the burner base and venturi. Compressed air can be blown onto the burner ports and through the burner venturi to remove any remaining dust.

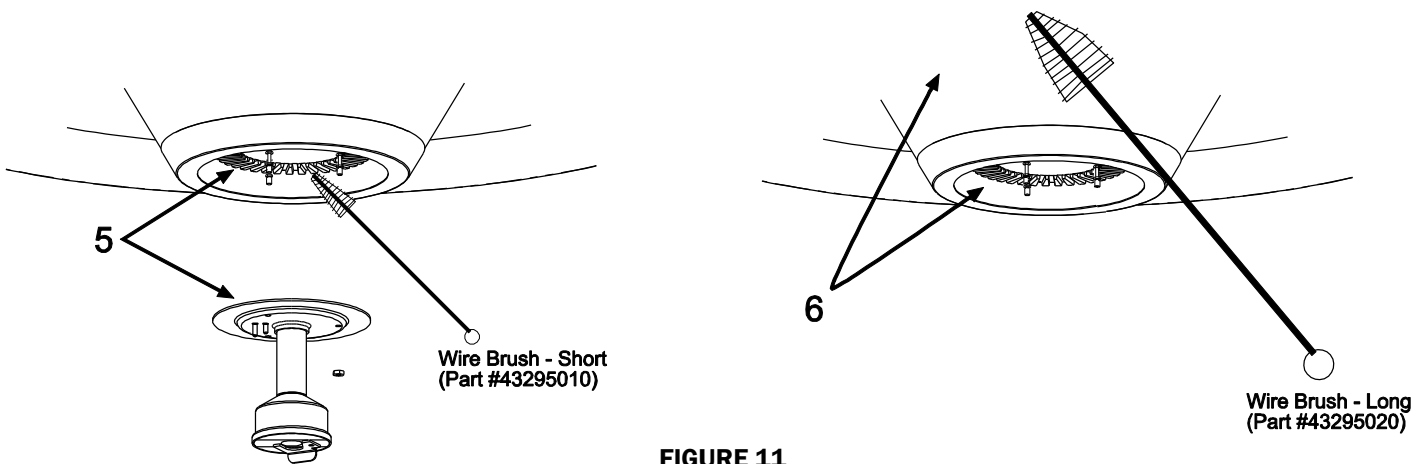


FIGURE 11

- Clean both the inside and outside surfaces of the perforated emitter assembly with a large bristle brush (available as an accessory, Part No. 43295020) or other large bristle type brush; then use compressed air to remove any burnt dust or dirt particles from the emitter.

7. Blow all dirt and dust off the canopy with compressed air.
8. Care should be taken when reassembling the burner base to avoid distorting the burner by over tightening the securing nuts. See Figure 12 below. If any spacer screws sheared during the removal process they must be replaced. The hex locknuts holding the spacer screws are accessible from inside the emitter assembly, see the Figure 13 below.

FIGURE 12

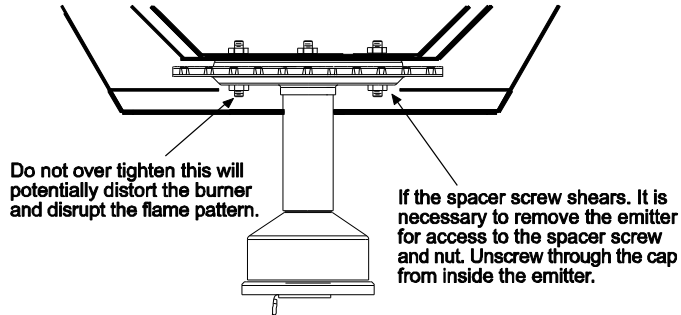
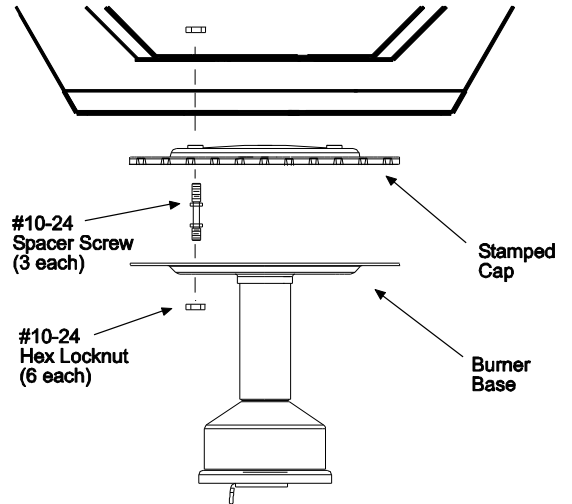


FIGURE 13



9. Remove the pilot burner orifice and clean the orifice hole with a drill bit the same size as the orifice or by soaking the orifice in acetone liquid cleaner. Dry the orifice by blowing compressed air through it. **NOTE:** Care must be taken not to ream the orifice hole to a larger diameter as this will result in over firing the burner and potentially causing damage to the emitter.

Access to the pilot burner can be made by first sliding the windshield off the pilot assembly. Next, remove the outer pilot housing from the pilot assembly by pulling the tab with a pair of pliers. After cleaning, reassemble the pilot assembly in reverse order. **NOTE:** Make sure that the outer pilot housing snaps into place with the inner pilot housing.

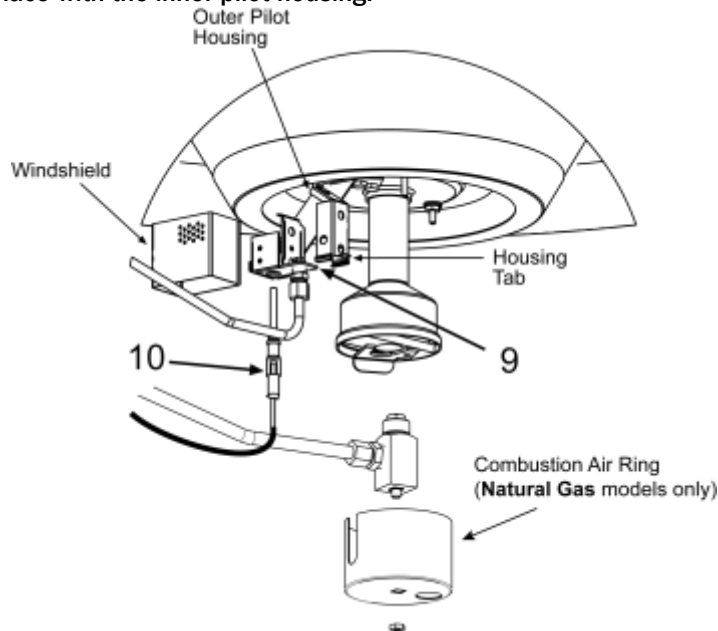


FIGURE 14

Note: Combustion air ring shown for Natural gas models only.

10. Remove and clean the thermocouple when necessary using acetone liquid cleaner.

NOTE: After reassembly of all components, check the gas connections at the burner and the gas valve for leaks. Use a heavy soapsuds solution. **DO NOT** use an open flame to check for gas leaks

NOTE: After reassembly of all components, check the gas connections at the burner and the gas valve for leaks. Use a heavy soapsuds solution. **DO NOT** use an open flame to check for gas leaks

12. TROUBLESHOOTING

TROUBLE	POSSIBLE CAUSE	SOLUTIONS
<i>Pilot will not stay lit when lighting the pilot...</i>	<ul style="list-style-type: none"> ◆ There is air in the gas line. ◆ The pilot orifice is clogged. ◆ The thermocouple is defective. ◆ The pilot safety valve is defective. 	<ul style="list-style-type: none"> ◆ Bleed the air out or continue to ignite the brooder until all the air is purged. ◆ Remove and clean the orifice as necessary. ◆ Replace the thermocouple. ◆ Replace the gas valve.
<i>Brooder shuts off on pilot safety (i.e. pilot goes out)...</i>	<ul style="list-style-type: none"> ◆ The pilot orifice is clogged. ◆ The supply pressure is insufficient. ◆ The thermocouple is defective. ◆ The pilot safety valve is defective. 	<ul style="list-style-type: none"> ◆ Remove and clean the orifice as necessary. ◆ Check the manifold gas pressure and adjust as necessary. ◆ Replace the thermocouple. ◆ Replace the gas valve.
<i>Brooder is not glowing red...</i>	<ul style="list-style-type: none"> ◆ The supply gas pressure is too low. ◆ The gas piping size is incorrect. ◆ The orifice is clogged. ◆ The orifice size is incorrect. 	<ul style="list-style-type: none"> ◆ Check the manifold gas pressure and adjust as necessary. ◆ If you are not sure of the performance, use the NFPA 54 gas pipe sizing table in this manual. ◆ Remove and clean the orifice as necessary. ◆ See the instructions for correct orifice size and replace if necessary.
<i>Brooder will not attain the desired temperature...</i>	<ul style="list-style-type: none"> ◆ There is insufficient heat in the building for heat loss (i.e., not enough brooders). ◆ The thermostat sensing bulb is incorrectly placed. ◆ The thermostat is out of calibration. 	<ul style="list-style-type: none"> ◆ Conduct a heat loss and add brooders or other source of heat as necessary. ◆ Reposition the sensing bulb as necessary for proper operation. NOTE: The sensing bulb should be shielded from direct radiation to prevent short cycling of the brooder. ◆ Recalibrate (if possible) or replace.
<i>Flames flaring up, outside of emitter surface...</i>	<ul style="list-style-type: none"> ◆ The gas pressure is too high. ◆ The orifice size is incorrect. ◆ The type of gas supplied to the brooder is incorrect. ◆ There is insufficient combustion air. 	<ul style="list-style-type: none"> ◆ Check the manifold gas pressure and adjust if necessary. ◆ See instructions for correct orifice size and replace if necessary. ◆ Check the nameplate to identify the correct type of gas the brooder is equipped to operate using. ◆ Clean the inside of the burner with a wire brush and blow out with compressed air.

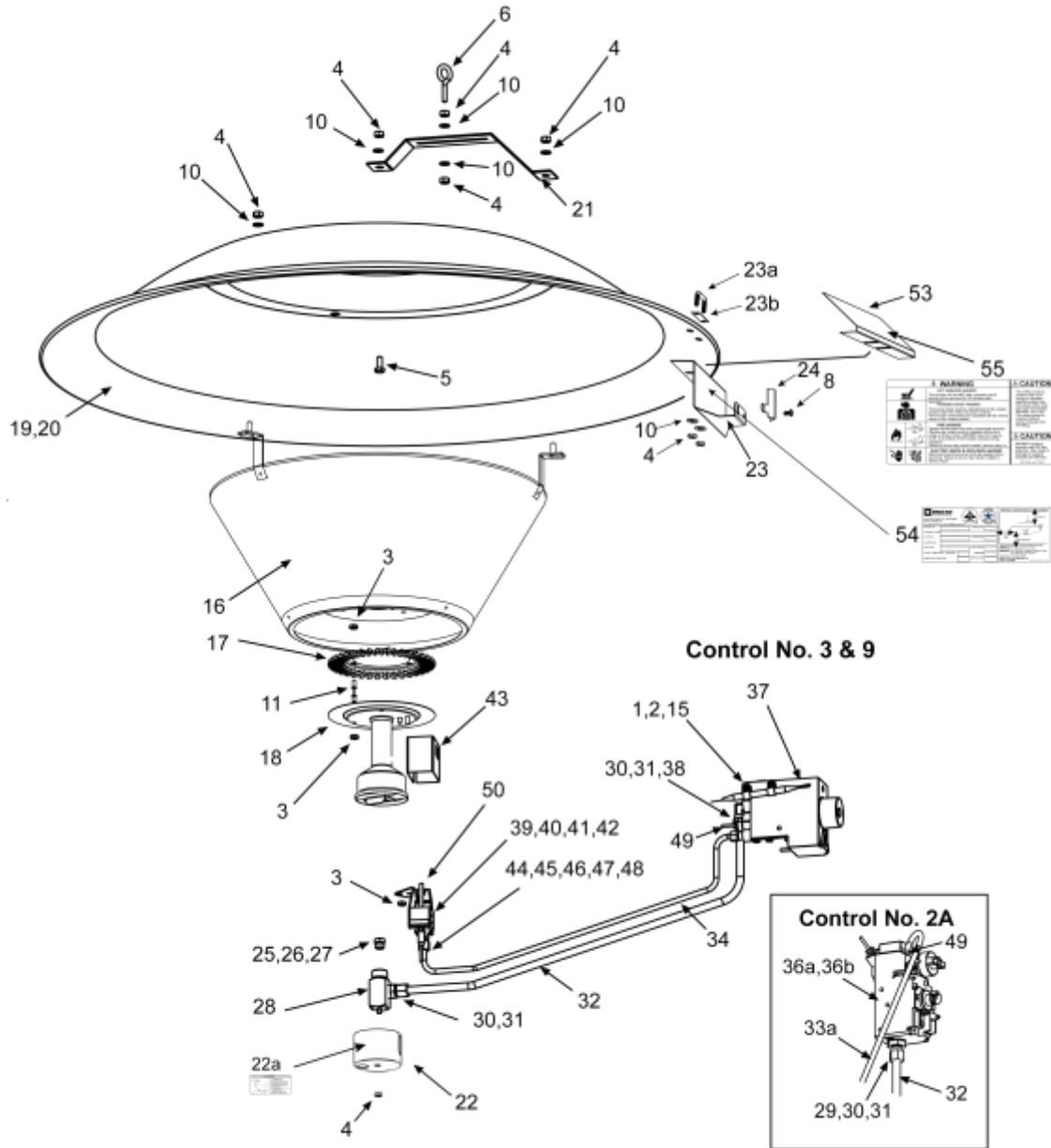
13. REPLACEMENT PARTS GUIDE

Item No.	Part No.	Description	SRB40CR-2A	SRB40CR-3	SRB40CR-9
1	02166070	#8-32 x 1/2" Pan Head Screw	-	2	2
2	02167040	#8-32 Hex Locknut - Keps	-	2	2
3	02167020	#10-24 Hex Locknut - Keps	7	7	7
4	02167019	1/4-20 Hex Locknut - Keps SS	9	9	9
5	02259000	1/4-20 x 5/8" Hex Head Screw SS	3	3	3
6	02309000	1/4-20 x 2" Eyebolt	1	1	1
8	02168050	#10-24 x 3/8" Pan Head Screw SS	2	2	2
10	02129100	1/4" Flat Washer SS	8	8	8
11	40219520	Spacer - #10-24 Male x Male Threaded Hex	3	3	3
15	03577020	Cable Clamp 5/16"ID	-	2	2
16	43525550	Emitter Assembly - Low Profile (less burner cap)	1	1	1
17	44465068	Burner Cap-Stamped (includes spacers & nuts)	1	1	1
18	44464050	Burner Base Assembly (with swivel clamp)	1	1	1
19	43303000	Reflector Canopy - Aluminum	1	1	1
20	43303010	Reflector Canopy - Galvanized	1	1	1
21	43826030	Low Profile Hanging Bracket (includes eyebolt)	1	1	1
22	43316300	Air Combustion Ring (NATURAL GAS MODELS ONLY)	1	1	1
22a	43269139	Label, Combustion Air Ring (NATURAL GAS MODELS ONLY)	1	1	1
23	43536289	Manifold Support Assembly (radiation shield)	1	1	1
23a	42873050	U-Bolt 1/4-20 x 5/8" SS	1	1	1
23b	42873059	Stand-Off Plate	1	1	1
24	43982050	V-Clamp (manifold support)	1	1	1
25	03259840	Main Burner Orifice (1.9mm) - LP Gas	1	1	1
26	03259330	Main Burner Orifice (#33) - Natural Gas	1	1	1
27	03259500	Main Burner Orifice (#50) - LP/Butane Gas	1	1	1
28	43305980	Main Burner Orifice Fitting Sub-Assembly	1	1	1
29	30397000	1/2 MPT x 3/8 Tube Fitting (USA Style)	1	-	-
30	03600020	3/8" Compression Sleeve (USA Style)	1	1	1
31	03601029	3/8" Compression Nut (USA Style) SS	1	1	1
32	43307160	Main Burner Tubing, 3/8"	1	1	1
33					
33a	43307260	Pilot Burner Tubing, 1/4" - RS valve	1	-	-
34	43307190	Pilot Burner Tubing, 1/4" - SIT valve	-	1	1
35					
36					
36a	43648330	Kit, Gas Valve - Robertshaw #7000ERLC - LP Gas	1	-	-
36b	43648340	Kit, Gas Valve - Robertshaw #7000ERLC - Natural Gas	1	-	-
37	30531010	Gas Valve - SIT #0630566 - Natural & LP Gas (with plug)	-	-	1
37a	30531020	Gas Valve - SIT #0630501 - LP Gas (with min. rate screw)	-	1	-
37b	30531030	Gas Valve - SIT #0630501 - Natural (with min. rate screw)	-	1	-
38	03213020	3/8 MPT x 3/8 Tube Fitting Elbow	-	1	1
39	43997050	Pilot Assembly Complete - LP Gas	1	1	1
40	43997060	Pilot Assembly Complete - Natural Gas	1	1	1
41	43997980	Pilot Housing Sub-Assembly	1	1	1
42	43996010	Pilot Housing - Outer	1	1	1
43	44002019	Pilot Windshield - Perforated	1	1	1
44	06589030	Pilot Orifice Holder - 1/8 NPT x 1/4 Tube	1	1	1
45	03260790	Pilot Orifice (#79) - LP Gas	1	1	1
46	03260760	Pilot Orifice (#76) - Natural Gas	1	1	1
47	03600010	1/4" Compression Sleeve (USA style)	1	1	1
48	03601010	1/4" Compression Nut (USA style)	1	1	1
49	03527000	1/4" Break-Away Fitting (gas valve end)	1	1	1

50	30642010	Thermocouple, 36" Snap-In	1	1	1
51	43539118	Installation Manual (not shown)	1	1	1
52	43534150	Kit, Complete Fastener (not shown)	1	1	1
53	43311900	Label Holder Plate	1	1	1
54	43311010	Label, Nameplate/ Rating Plate	1	1	1
55	43311188	Label, Soot/Hot Surface Hazard	1	1	1

Screws, nuts and washers are standard hardware items and can be purchased at any local hardware store.

ALL ILLUSTRATIONS ARE INTENDED TO GIVE THE GENERAL IMPRESSION OF UNITS ONLY. WE RESERVE THE RIGHT TO ALTER ANY SPECIFICATION WITHOUT NOTICE.





GAS-FIRED PRODUCTS LIMITED WARRANTY

LIMITED WARRANTY

Gas-Fired Products, Inc. (GFP), the manufacturer, warrants the original owner of any Space-Ray Poultry Heating Product that it will be free from defects in material or workmanship under normal use and service. The heater(s) shall be installed, used and maintained strictly in accordance with the manufacturer's instructions. The manufacturer's sole obligation under this warranty is limited to furnishing replacement parts, F.O.B. Charlotte, NC, for 12 months from the date of installation, or 18 months from the date of shipment by the manufacturer, whichever period expires first. Labor charges for the removal of defective parts or the installation of replacement parts are not included. Additionally, the manufacturer will at any time during a 36 month period after installation or 42 months from the date of shipment by the manufacturer, whichever period expires first, furnish at no cost to the original owner, replacement parts for the heaters that have the model number prefix: PCA/PCS, PBF, FUS and PCA SS (Defender) tube heaters.

ADDITIONAL WARRANTY ON MODEL SRB40, TRU40 AND LoPro BROODER EMITTERS:

Additionally, the manufacturer will at any time during a 36 month period after installation or 42 months from the date of shipment by the manufacturer, whichever period expires first, furnish at no cost to the original owner, replacement emitter assemblies or heat exchanger tubes which have become inoperative by reason of any defect in our workmanship, materials or construction. The manufacturer will not be responsible for labor charges incurred for removal or installation of emitters. Any transportation charges involved in the return or repair are excluded.

ADDITIONAL WARRANTY ON MODEL PCA, PBF CALORIZED TUBE HEATER HEAT EXCHANGER:

Additionally, the manufacturer will at any time during a 120 month period after installation or 126 months from the date of shipment by the manufacturer, whichever period expires first, furnish at no cost to the original owner, replacement emitter assemblies or heat exchanger tubes which have become inoperative by reason of any defect in our workmanship, materials or construction. The manufacturer will not be responsible for labor charges incurred for removal or installation of emitters. Any transportation charges involved in the return or repair are excluded.

WARNING: Manufacturer's warranty shall not apply and GFP is not responsible for damages caused with regard to: (a) circumstances where gas pressure to each heater is higher than that specified for each heater; (b) circumstances where the type of gas is different than the type of gas noted on the name plate for each heater; (c) water damage to gas controls; (d) circumstances where any acid or acid-based product causes damage to the metal components; or (e) any heater or component part which has been repaired or replaced with other than factory parts, modified in any way, misused or damaged, or which has been used contrary to the manufacturer's written instructions.

LIMITATION OF WARRANTY: THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. WITHOUT LIMITING THE FOREGOING, THE MANUFACTURER EXPRESSLY EXCLUDES ANY AND ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND ANY IMPLIED WARRANTY OF MERCHANTABILITY FOR ITS PRODUCTS.

If any provision of this warranty is found to be void, unenforceable or unconscionable, then that portion is hereby severed and the remainder of this warranty is hereby saved and shall remain in force.

EXCLUSIVE REMEDY: The sole and exclusive remedy under this warranty is the replacement of the defective parts or brooders as hereinabove specified. THE MANUFACTURER DOES HEREBY EXPRESSLY EXCLUDE ANY AND ALL LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES UNDER THIS OR ANY OTHER WARRANTY. Without intending to limit the aforesaid exclusion, THE MANUFACTURER DOES HEREBY EXCLUDE ANY LIABILITY UNDER THIS OR ANY OTHER WARRANTY FOR INJURIES OR COMMERCIAL LOSSES TO PROPERTY THAT RESULT FROM THE OPERATION, PROPER OR IMPROPER, OF ITS PRODUCTS.

ADDITIONAL TERMS: Manufacturer assumes no liability for delay in performing its obligations under this warranty. Manufacturer assumes no liability for failure in performing its obligations there under if failure results directly or indirectly from any cause beyond its control, including but not limited to acts of God, acts of Government, floods, fires, shortages of materials, strikes and other labor difficulties or delays or failures of transportation facilities.

This is a Non-Residential product. Installation and service shall be by a Licensed Contractor and in accordance with National and Local Codes. When presenting warranty claims, proof of date of purchase must be submitted.

No Representative is authorized to assume for the manufacturer, any liability except as set forth above.

For the name of your nearest distributor in case of claim under this warranty, contact: Space-Ray Poultry Heating Products / Gas-Fired Products, Inc. / 305 Doggett St., P.O. Box 36485 / Charlotte, NC 28236 / Phone: (704) 372-3488 / Fax: (704) 332-5843 / email: info@spaceray.com.

FOR YOUR RECORDS:

Space-Ray Brooder Model Number: _____ Date Installed: _____
Serial Numbers: _____

Scan warranty QR code on the right to register your product.



For replacement parts, please contact your local distributor or:

SPACE-RAY
1700 Parker Drive • Charlotte, NC 28208
Phone (704) 372-3488 • Fax (704) 332-5843 • info@spaceray.com