

Instruction Manual



Made to Work. Built to Last. SM P.O. Box 2000 State Road 15 North Milford, IN. 46542-2000 U.S.A. 219-658-4101 Fax 877-730-8825 www.ctbinc.com







Made in the U.S.A.

FOR YOUR SAFETY

If you smell gas:

- 1. Open Windows
- 2. Don't touch electrical switches
- 3. Extinguish any open flame
- 4. Immediately call your gas supplier

FOR YOUR SAFETY

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

POUR VOTRE SURETE

Si vous sentez une odeur de gaz:

- 1. Ouverz les fenêtres
- 2. Ne touchez pas aux de commutateurs électriques
- 3. Eteindre n'importe quelle ouverture flambe
- 4. Immédiatement appeler votre fournisseur de gaz

POUR VOTRE SURETE

Pas l'essence de magasin ou usage ou les autres vapeurs et les liquides inflammables à proximité de cet ou l'autre appareil.

May 2004 10900000

DANGER!



SICKNESS AND/OR DEATH MAY RESULT FROM USE OF THIS HEATER IN AN UNVENTILATED BUILDING OR IN HUMAN LIVING AREAS.

LE RESULTAT DE MAI DE MORT DE ET/OU DE MALADIE DE L'USAGE DE CET APPAREIL DE CHAUFFAGE DANS UN CONSTRUISANT UNVENTILATED OU DANS L'HUMAIN SECTEURS VIVANTES.

EL USO DE ESTA CALENTADORA EN UN UNVENTILATED CONSTRUYENDO O EN HUMANO

AREAS PUEDE RESULIAR EN ENFERMEDAD Y/O MUERTE
⚠ Do not use the heater to heat human living areas.
The intended use of the heater is to provide warmth for poultry and hog buildings. Adequate ventilation must be provided.
The installation of the heater must comply with all applicable state, local, and/or national codes in accordance with CAN/CGA - B149.1 or .2 installation codes.
① Use only the type of gas being supplied to the unit as marked on it (Propane or Natural Gas). Do not operate with improper fuel.
⚠ Ventilation air and combustion air must not be obstructed.
Do not operate the heater in the presence of combustible vapors, liquids, or gases. Failure to heed this warning could result in an explosion and/or fire.
Test all pipe and pipe joints for leaks by a suitable means (Example: soap and water solution or a pressure check). Do not operate the heater until this test has been preformed.
⚠ Do not move, handle, repair, or adjust height of the heater while in operation or when still hot.
⚠ Do not bypass any safety devices.
Before each use, a visual inspection of the heater is essential to insure safe and satisfactory heating. Replace or repair defective components before operating heater. Failure to do so will void warranty and could result in injury or property damage.
The installation of these appliances is to be in accordance with CAN/CGA-B149.1 and National Fuel Gas Code, ANSI 2223.1/NFPA 54 installation codes for gas burning appliances and equipment and/or local codes.

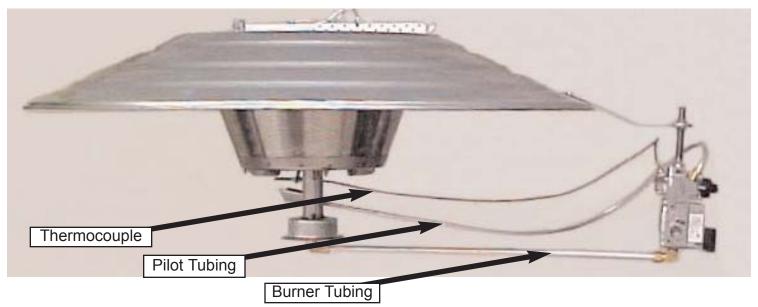
⚠ WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

LARGE INFRARED BROODER - PARTS LIST & ASSEMBLY INSTRUCTIONS

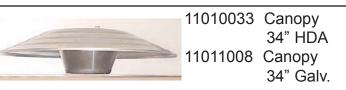














11000030 Cone Insulation Infrared 42



31000015 Large Infrared Emitter Asm.



31031061 Burner Asm. LP 31131061 Burner Asm. NAT



16-101443 Nut: Hex 10-24 18.8 SS ★



16-1111 DISC: AIR PORT HYBRID



13005190 NUT 10-24 WING



16-101069 ELL: BRASS 3/8 COMP X 1/8 MPT



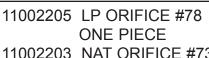
11010215 LP ORIFICE #48 11010210 NAT ORIFICE #37 H42



21007088 PILOT BRKT SQ PILOT



28024042 PILOT BODY FINISHED



*



11002203 NAT ORIFICE #73 ONE PIECE

* - THESE PARTS ARE INCLUDED IN THE PARTS BAGS.

TOOLS REQUIRED FOR ASSEMBLING BROODER:

Phillips Screwdriver,

Open End Wrenches (3/8, 5/8, 7/16, 9/16, 1/2, 11/16 & 3/4) Nut driver 5/16

Pliers and an adjustable wrench





BURNER TUBING



31008020 for DSI

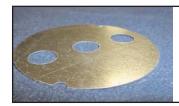


31008042 for valve models



31044002 - PILOT ASM INFRARED LP CGA

31034002 - PILOT ASM INFRARED NAT CGA



16-1102 - DISC: AIR PORT NAT.

For 110S Snap Models

Burner Tubing - 16000001 TUBE ALUM 3/8 X .035 X 20 1/2 Pilot Tubing - 21260326 TUBE ALUM 1/4 X .032 x 32

For 7000 valve Zone Models

Burner Tubing -16000001 TUBE ALUM 3/8 X .035 X 20 1/2 Pilot Tubing - 21260326 TUBE ALUM 1/4 X .032 x 32

For DSI Models

Burner Tubing - 16000003 TUBE ALUM 3/8 X .035 X 32

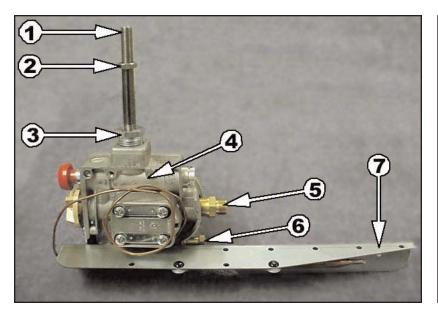


11000663 Thermocouple: 30" used with 7000 valve 16-11154 Thermocouple: 24" used with 110 S valve



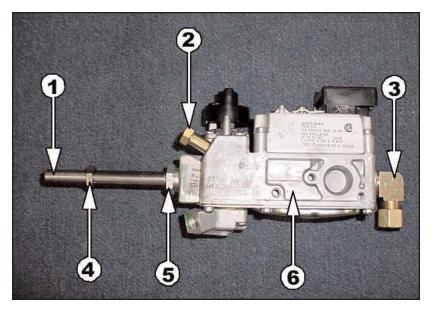
CGA ONLY

16500082 - Tube Protector IND & ZONE 16500083 - Tubing Protector LG INF DSI



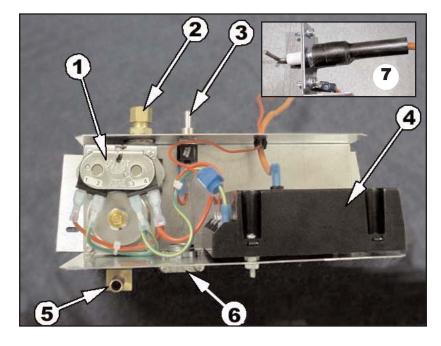
16-104441P - SG RS CTRL ASM

- 1 16000000 1/8 x3-1/2 Galv. Pipe
- 2 16-11176 Locknut Hex Steel
- 3 16-11188 1/2 x 1/8 Galv. Bushing
- 4 11003981 Bare 110S Valve
- 5 11000643 3/8 x 3/8 Brass Conn
- 6 11003995 Comp Nut & Sleeve 1/4"
- 7 16-104219 Universal Brooder Shield



16-104443P - SG RZ CTRL ASM

- 1 16000000 1/8 x3-1/2 Galv. Pipe
- 2 11003995 Comp Nut & Sleeve 1/4"
- 3 16-10052950 ELL: BRASS 3/8MPT X 3/8COMP
- 4 16-11176 Locknut Hex Steel
- 5 16-11194 Bushing: GALV STDHEX 1/2X1/8
- 6 11004081 Bare Valve 7000 ELC

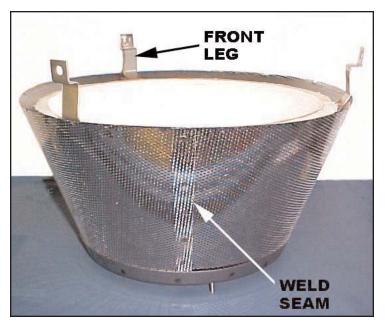


31003025 - DSI CTRL ASM

- 1 11001238 Valve WR 25M For DSI
- 2 11000643 Conn Brass 3/8 mpt x 3/8
- 3 13005282 Switch Toggle SP/ST
- 4 16-101068 Board: CTRL IGN DSI
- 5 11003838 Elbow Brass 3/8mpt x3/8h
- 6 13005072 Wire Strain Relief
- 7 16-101197 Ignitor DSI Single



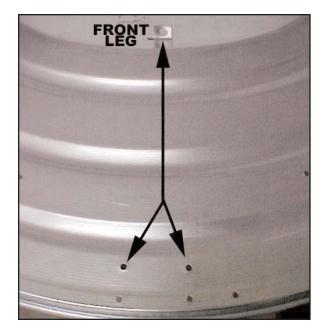


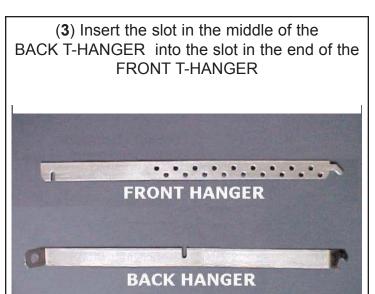




(2) Place the **CANOPY** over the Emitter legs with the two holes in the outer edge of the canopy aligned with the front leg.

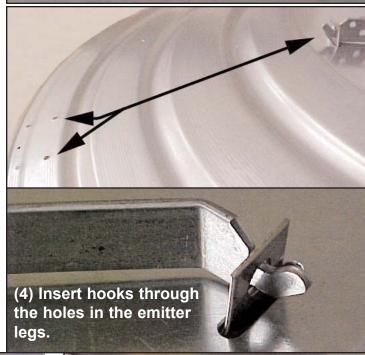






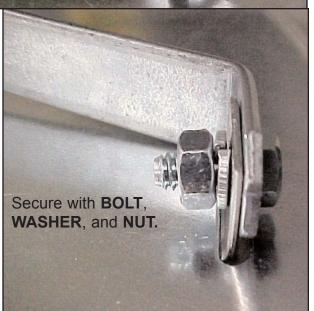












(5) Place **BURNER** on **EMITTER**, pem studs through the holes in burner legs.







PILOT INLET MUST FACE TOWARD THE HOLES IN THE CANOPY.







(6) Secure **BURNER** to **EMITTER** with **NUTS**.

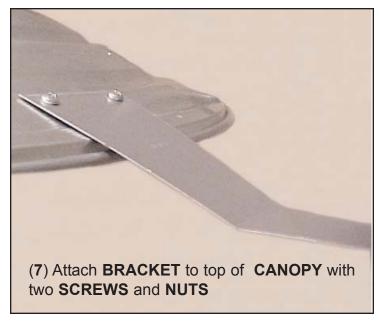


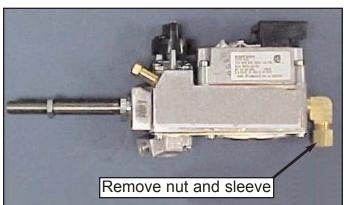
THIS PAGE FOR ZONE CONTROL

FOR INDIVIDUAL CONTROL, SEE PAGE 12

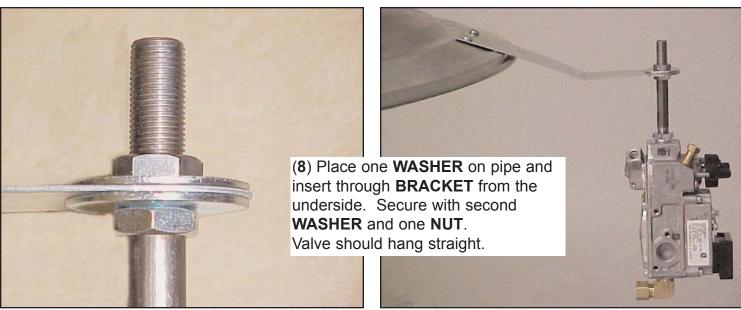
FOR DSI CONTROL, SEE PAGE 16



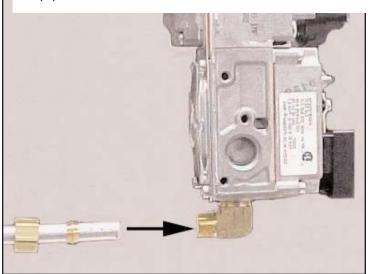


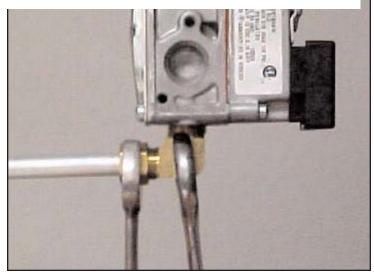




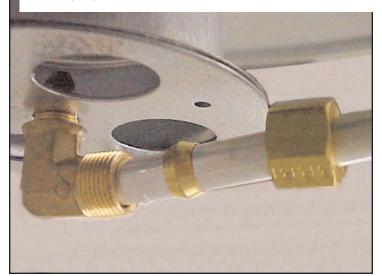


(9) Attach **BURNER TUBING** to control valve using two wrenches to prevent damaging tubing.



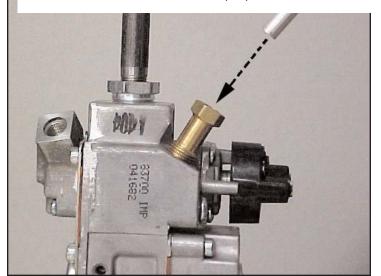


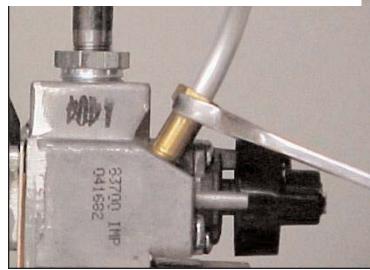
(10) Attach BURNER TUBING to burner. Use two wrenches to avoid damage to burner.

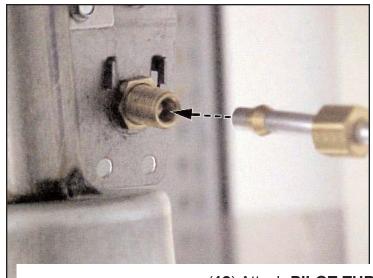


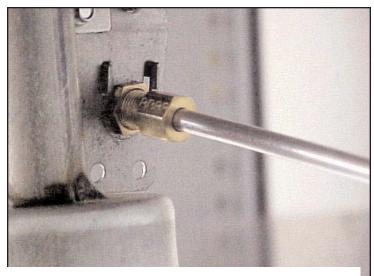


(11) Attach PILOT TUBING to control valve.







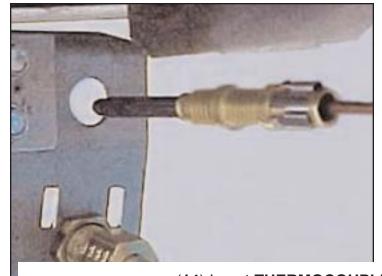


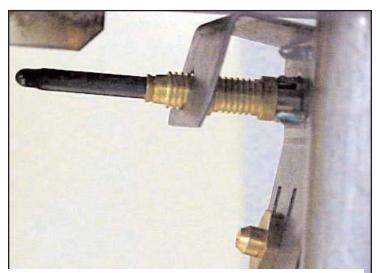
(12) Attach PILOT TUBING to PILOT ORIFICE.



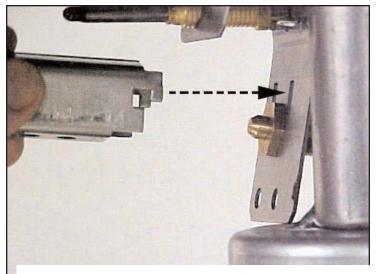


(13) Attach THERMOCOUPLE to CONTROL VALVE. Finger tight plus 1/4 turn to avoid damaging ceramic.



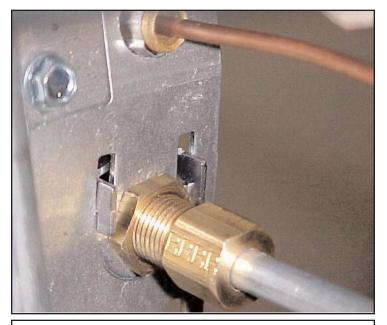


(14) Insert THERMOCOUPLE into the PILOT BRACKET.





(15) Attach PILOT SHIELD to PILOT BRACKET.



Lock shield into place by pressing down on shield, hooks on shield will slide down past the opening in the pilot bracket.

Suspend the heater. To level the unit, support the heater underneath and then move the s-hook forward or backward. We recommend that the valve side of the canopy be slightly lower (1"-2") to insure that the gas valve does not overheat. After it is level, clamp both ends of the s-hook shut. Normally the heater is attached to a winch cable used for lowering and raising.

In addition we strongly recommend that a safety cable or chain be attached to prevent the heater from falling to the litter if the cable should break.

The heater must be located so that there is a minimum clearance of 14" above the heater and 36" from the sides. Any combustible material must not be adjacent to the heater. The heater should be hung with a minimum clearance of 60" from the edge of the canopy or 48" from the bottom of the pan to the floor. Be sure to comply with all local, state and federal gas codes for your area.

GAS PRESSURE should be CHECKED and ADJUSTED to recommended settings.

- 1. Connect the gas hose to the unit using hose clamps. (not provided)
- Turn on gas supply to the unit and check all fittings and connections for leaks with a gas sensing meter or soap solution. Burner connections can only be checked with the burner burning.

LP GAS

- 1. Go to the stove furthest from the regulator and connect the pressure gauge to the Press Tap on the gas valve. Light only the stove you are testing or if you have a zone system, light all the stoves in the zone. Set the pressure at a maximum of 11 1/4" WC.
- 2. Light all stoves in the house and check the pressure again, the pressure should not drop below 10 1/2" WC. If the pressure does fall below that, then the gas distribution system is inadequately designed. The problem may be a regulator or pipe sizing, etc.

NATURAL GAS

Use the same procedure as for LP GAS except the pressure should not exceed 7 1/4" WC with only one stove or zone operating. The pressure should not fall below 6 1/2" WC with all stoves running.

Lighting Instructions

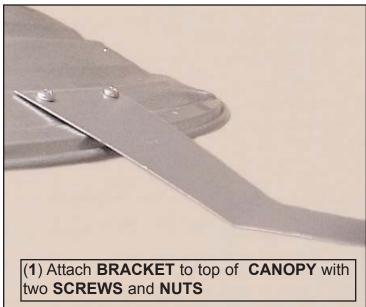
- 1. Turn gas dial to "OFF" and connect main gas supply to supply pipe.
- 2. Turn gas to "PILOT".
- Depress and hold "RESET" button and light the pilot. Allow pilot to burn for 45 seconds before releasing.
- 4. Turn gas dial to "ON" and turn the temperature dial to desired setting.

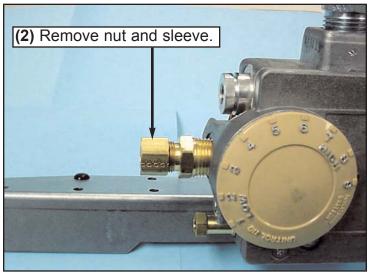
TO SHUT OFF HEATER

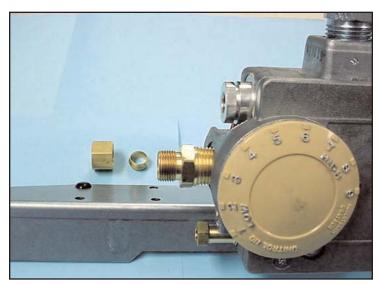
Turn the gas dial to "OFF and turn the temperature dial to "1" or lowest setting.

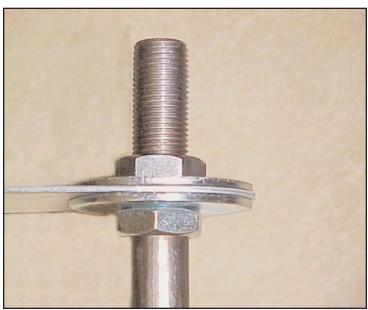
110S CONTROL INSTRUCTIONS



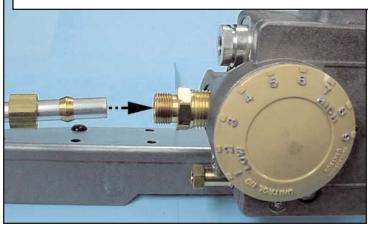




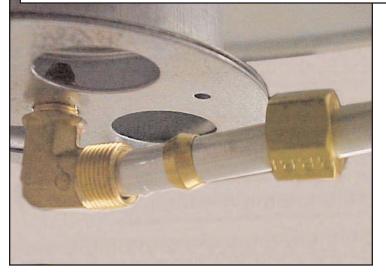




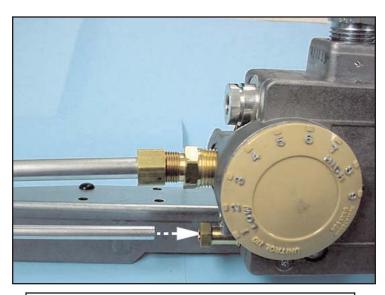




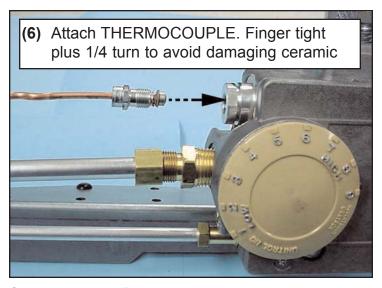
(4) Attach BURNER TUBING to burner. Use two wrenches to avoid damage to burner.







(5) Attach PILOT TUBING.



Suspend the heater. To level the unit, support the heater underneath and then move the s-hook forward or backward. We recommend that the valve side of the canopy be slightly lower (1"-2") to insure that the gas valve does not overheat. After it is level, clamp both ends of the s-hook shut. Normally the heater is attached to a winch cable used for lowering and raising.

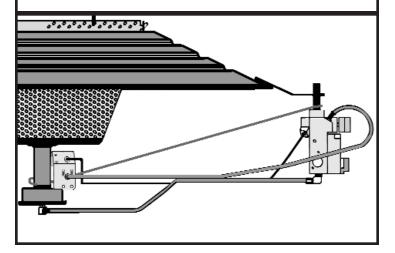
In addition we strongly recommend that a safety cable or chain be attached to prevent the heater from falling to the litter if the cable should break.

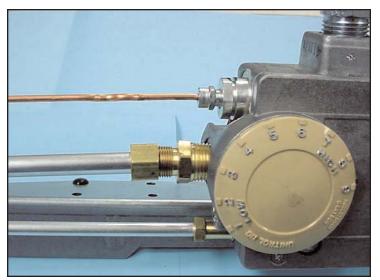
The heater must be located so that there is a minimum clearance of 14" above the heater and 36" from the sides. Any combustible material must not be adjacent to the heater. The heater should be hung with a minimum clearance of 60" from the edge of the canopy or 48" from the bottom of the pan to the floor. Be sure to comply with all local, state and federal gas codes for your area.

FOR CGA ONLY:

Individual and Zone Brooders

Attach tubing protector by hooking the narrow loop end around the pipe nipple on the valve and snapping the wide loop end around the burner, between the burner pan and the air intake cup.





GAS PRESSURE should be CHECKED and ADJUSTED to recommended settings.

- 1. Connect the gas hose to the unit using hose clamps. (not provided)
- Turn on gas supply to the unit and check all fittings and connections for leaks with a gas sensing meter or soap solution. Burner connections can only be checked with the burner burning.

LP GAS

- 1. Go to the stove furthest from the regulator and connect the pressure gauge to the Press Tap on the gas valve. Light only the stove you are testing or if you have a zone system, light all the stoves in the zone. Set the pressure at a maximum of 11 1/4" WC.
- 2. Light all stoves in the house and check the pressure again, the pressure should not drop below 10 1/2" WC. If the pressure does fall below that, then the gas distribution system is inadequately designed. The problem may be a regulator or pipe sizing, etc.

NATURAL GAS

Use the same procedure as for LP GAS except the pressure should not exceed 7 1/4" WC with only one stove or zone operating. The pressure should not fall below 6 1/2" WC with all stoves running.

Lighting Instructions

- 1. Turn gas dial to "OFF" and connect main gas supply to supply pipe.
- 2. Turn gas to "PILOT".
- 3. Depress and hold "RESET" button and light the pilot. Allow pilot to burn for 45 seconds before releasing.
- 4. Turn gas dial to "ON" and turn the temperature dial to desired setting.

TO SHUT OFF HEATER

Turn the gas dial to "OFF and turn the temperature dial to "1" or lowest setting.

24 VOLT ZONE BROODERS/HEATERS

- Mount "Auto-Switch-Over" (A.S.O.) Power supply in convenient location near electrical panel and WITHIN 3
 FEET OF OUTLET. Outlet should be separately fused -- 15 AMP.
- Mount junction box over each thermostat location selected.
- Run 14-2 romex from connections on A.S.O. to nearest junction box and continue on to other junction boxes (if used).
- 4. Run 14-2 romex over each line of brooders to be hooked up to Zone Control. Line should be run adjacent the gas line. If more than one thermostat (zones) is to be used -black wire should be cut between zones.
- **5**. Choose either 5a or 5b for connecting your thermostat to the power pack.
 - **a**. Cut outer insulation ONLY on romex over each brooder to expose black and white wires. DO NOT CUT OR STRIP WIRES. Bare ground wire is not used. Using "T" tap connectors, connect wire from brooder valve (24V) to romex -- white to white; black to black. Note -- cut off excess wire from valve. Tape wire to gas hose and romex to make a neat installation.
 - **b**. With one wire nut connect black from feed (A.S.O.), black to next junction box (if used), and black from thermostat. With another wire nut connect white from feed (A.S.O.), white to next junction box (if used), and white from line over brooders. Finally connect white from thermostat to black from line over brooders
- **6**. Light brooder in usual manner and set ZONE thermostat for desired temperature.
- 7. Check for any voltage drops to brooder.

LIGHTING INSTRUCTIONS

- 1. Turn gas dial to "OFF" position and connect main gas supply to supply pipe.
- 2. Turn gas to "pilot" position.
- 3. Depress and hold "reset" button and light the pilot. Allow pilot to burn "45" seconds before releasing
- **4**. Turn gas dial to "ON" and turn the temperature dial to desired position.

TURN OFF THE GAS

1. Turn gas dial to the "OFF" position and turn the temperature dial to "1" or low position.

MAINTENANCE

Proper care and maintenance of your brooder cannot be over emphasized!!

A POORLY MAINTAINED HEATER WILL:

- Raise Operating Costs- due to poor combustion.
- Lower Air Quality
- Cause Inconsistent Temperatures
- Decrease the Life of the Heater

MAINTENANCE PROGRAM

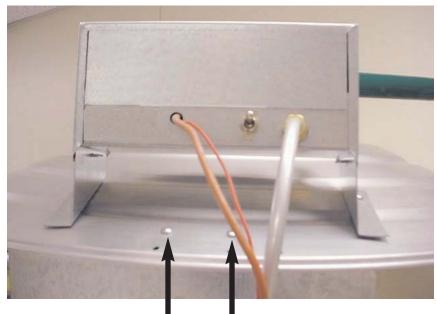
- ◆ Daily: Check burner, it should be burning clear and blue; if not, clean as required or check gas pressure. Note: ¾" yellow tip is a common characteristic of the flame on this brooder.
- ◆ Clean brooder/heater after each flock
 - ✓ Inspect for any orifice blockage caused by spider webs in the pilot or burner assemblies.
 - ✓ **DANGER!** Never spray penetrating oil (WD-40) on the control valve. This will cause the loss of high temperature valve grease and cause the valve to leak.
 - Clean dust and dirt from pilot and burner ports with compressed air. If an air compressor is not available turn the brooder/heater to a vertical position and tap on the side of the pilot & burner brackets with a screwdriver, pliers, or any other suitable object, to knock the dust from the unit.
 - If houses are washed down, care should be taken to prevent moisture from accumulating on control valve, pilot and burner assemblies. Before washing, cover the valve with plastic, after wash downs we recommend that you light the brooders/heaters to dry up any excess moisture.
 - For proper combustion it is important that the small holes in the Emitter be clean and unobstructed. The Emitter can be cleaned by inserting a long brass bristle brush between the outer and inner cones.
 - ✓ Clean air intakes with a small brush
 - Extreme care must be taken not to enlarge or distort the pilot and burner orifices.
- ◆ If brooder/heater is disconnected from the gas line, use tape to seal the open connections. This will keep moisture, dust, and insects out and prevent future problems.

DSI CONTROL INSTRUCTIONS

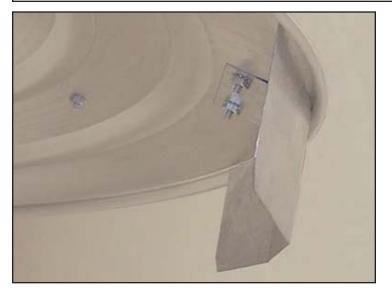
(1) Attach DSI control to **TOP** side of canopy using screw and star washers. On/Off switch <u>must</u> face to the outer edge of the canopy.





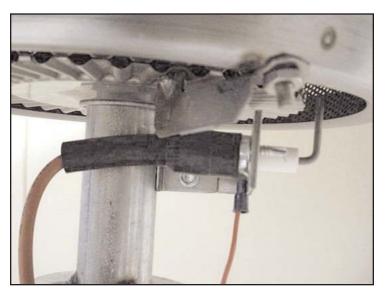


(2) Attach heat shield to the <u>UNDERSIDE</u> of the canopy using hardware supplied, in the holes shown.





(3) Secure ignitor bracket to burner as shown using tek screws.





Ignitor bracket should be installed so that ignitor is in front of a gas port.



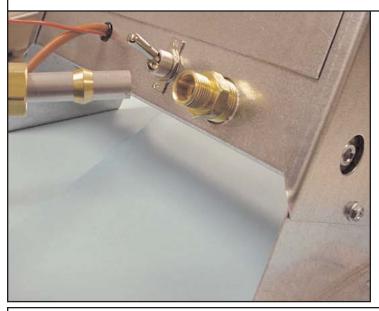
(4) Remove brass nut and sleeve.





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(5) Insert tubing into brass fitting.





(5) Hand form tubing to connect to burner. To avoid damaging burner, use two wrenches to tighten brass fitting. Secure wires to tubing using wire ties.

DO NOT CLOSE TIES TOO TIGHTLY ON WIRES.





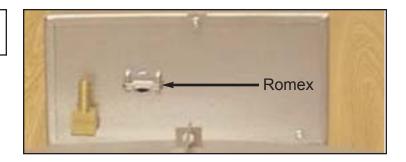
FOR CGA ONLY:

Attach tubing protector by hooking looped end around burner base and inserting other end through hole in heat shield.

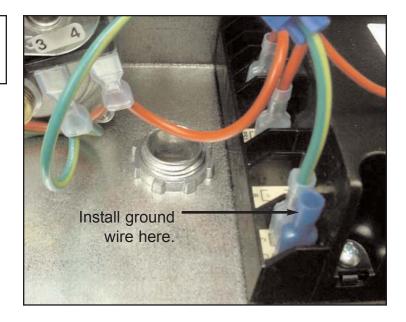
Page 20

TO CONNECT POWER TO THE DSI UNIT:

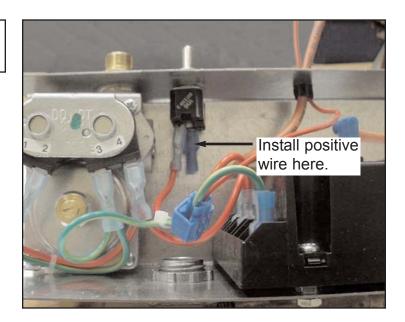
Insert wire through the romex connector located on the back of the assembly.



Connect the ground wire to the first terminal on the control board using the pre-installed empty blue connector.



Connect the positive wire to the empty blue connector pre-installed on the toggle switch.



SUSPENDING THE HEATER.

To level the heater, simply support the heater underneath and then move the s-hook forward or backward. We recommend that the valve side of the canopy be slightly lower (1 to 2 inches) to insure that the gas valve assembly does not over heat. After it is level, clamp both ends of the s-hook shut. Normally the heater is attached to a winch cable used for raising and lowering.

In addition, we strongly recommend that a safety cable or chain be attached to the heater to prevent the heater from falling to the litter if the cable should happen to break.

The heater must be located so that there is a minimum clearance of 14" above the heater and 36" from the sides. Any combustible material must not be adjacent to the heater. The heater should be hung with a minimum clearance of 60" from the edge of the canopy or 48" from the bottom of the pan to the floor. Be sure to comply with all local, state and federal gas codes for your area.

CONNECTING THE GAS HOSE TO THE UNIT.

Attach the hose (use only a CGA approved gas hose assembly in accordance with CAN/CGA - B149.1 and B149.2) from the gas supply to the hose barb on the control using hose clamps (not provided). Check all connections for leaks before lighting brooder. Turn on gas supply to the unit and check all fittings and connections for leaks with a Gas Sensing Meter and /or soap solution.

Note: The burner connections can only be checked with the burner burning.

GAS PRESSURE - should be CHECKED AND ADJUSTED to recommended settings.

LP GAS:

FIRST - go to the furthest stove from the regulator and connect the pressure gauge to the Press Tap on the gas valve. Light only the stove you are testing or if you have a zone system light all the stoves in the zone. Set the pressure at a maximum of 11 ¼" WC.

SECOND - light all stoves in the house and check the pressure again. The pressure should not drop below 10 ½" WC. If the pressure does fall below 10 ½" WC, then the gas distribution system is inadequately designed. The problem may be a regulator, pipe sizing, etc.

NATURAL GAS:

Use the same procedure as for LP Gas above, except the pressure should not exceed 7 $\frac{1}{4}$ " WC with only one stove or zone operating. The pressure should not fall below 6 $\frac{1}{2}$ " WC with all stoves running.

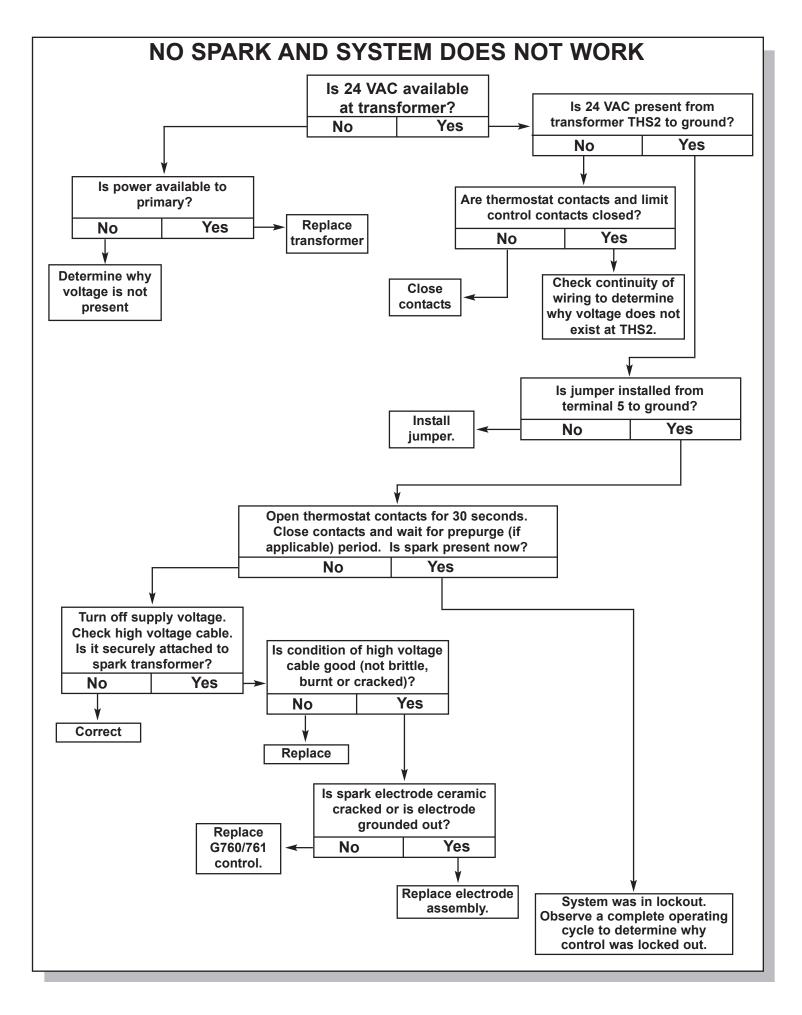
LIGHTING INSTRUCTIONS

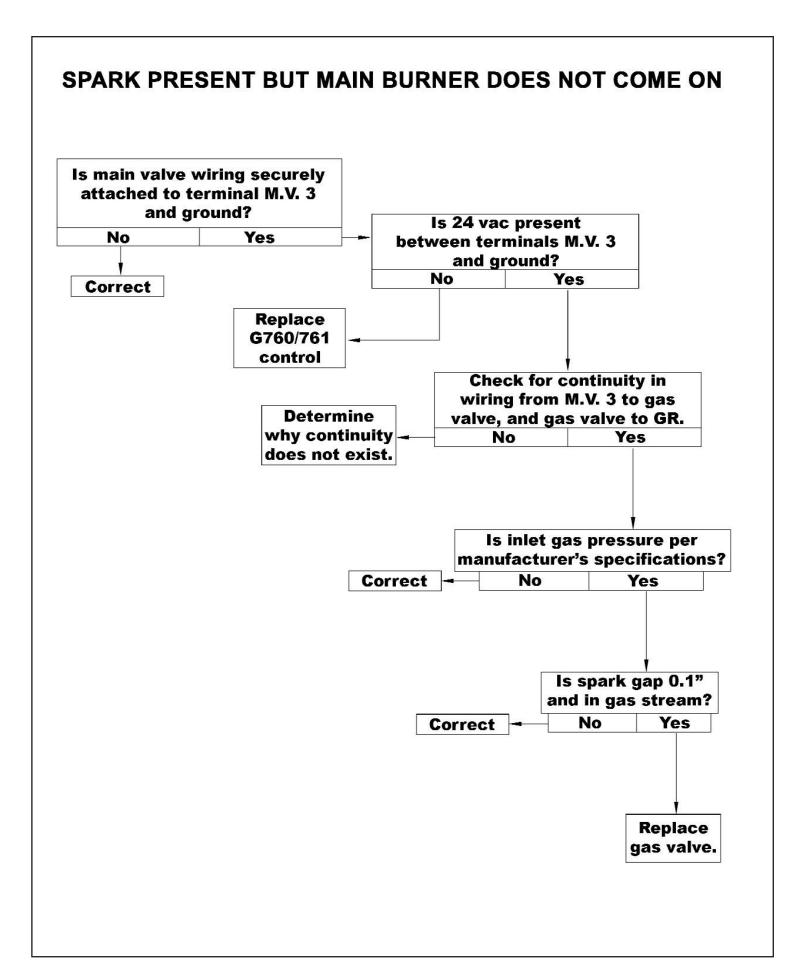
- **1.** Move toggle switch to **"OFF"** position and connect electrical supply to brooder.
- **2.** Move the toggle switch to "**ON**" and turn the thermostat to desired position.

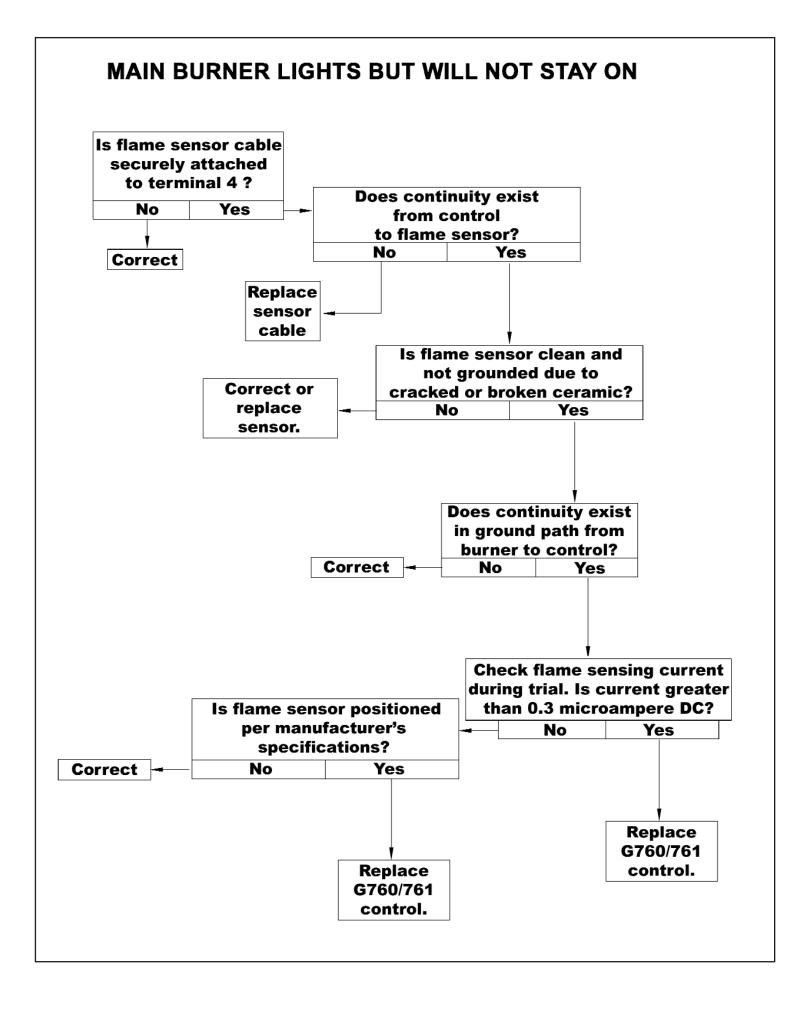
TO TURN UNIT OFF:

- 1. Turn off the gas
- 2. Move toggle switch to the "OFF" position.

24 Volt Wiring Diagram for 120 Volt AC Supply BROODER 0 WHITE WIRE (TH) BLACK WIRE (TR) BROODER 24V AC 24V AC BROODER (NOTE: Use 14-2 Romex wire) Spark Ignition 24V AC 24V AC BACKUP THERMOSTAT TRANSFORMER POWER PACK BROODER 0 BLACK WIRE (TR) WHITE WIRE (TH) (NOTE: Use 14-2 Romex wire) .25 KVA Transformer BROODER 120V AC 40 ZONE brooders up to 18 DSI and CONTROLER 24V AC 24V AC BROODER 0







NOTES

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