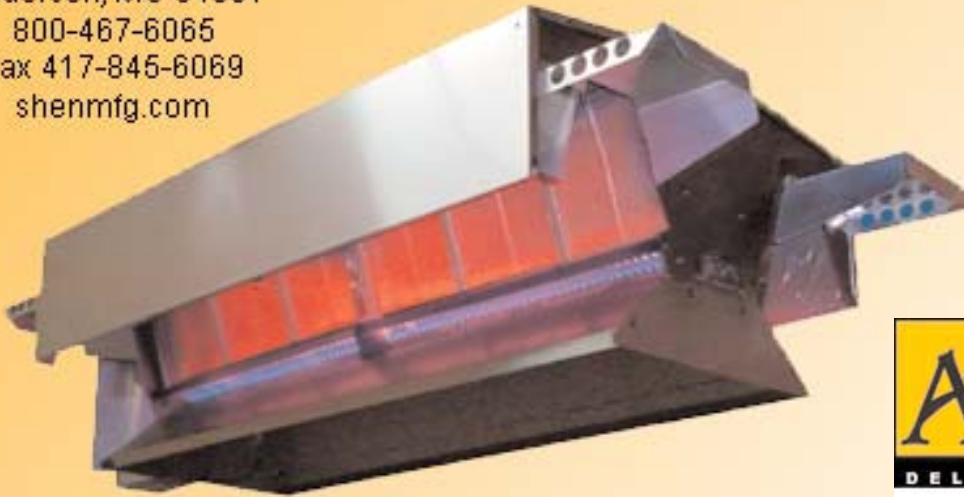




Shenandoah

Owner/Operator Manual

720 Industrial Park Road
Anderson, MO 64831
800-467-6065
Fax 417-845-6069
shenmfg.com



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. Ouvrez 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.

Note: The original, authoritative version of this manual is the English version produced by CTB, Inc. or any of its subsidiaries or divisions, (hereafter collectively referred to as "CTB"). Subsequent changes to any manual made by any third party have not been reviewed nor authenticated by CTB. Such changes may include, but are not limited to, translation into languages other than English, and additions to or deletions from the original content. CTB disclaims responsibility for any and all damages, injuries, warranty claims and/or any other claims associated with such changes, inasmuch as such changes result in content that is different from the authoritative CTB-published English version of the manual. For current product installation and operation information, please contact the customer service and/or technical service departments of the appropriate CTB subsidiary or division. Should you observe any questionable content in any manual, please notify CTB immediately in writing to: CTB Legal Department, P.O. Box 2000, Milford, IN 46542-2000 USA.



WARNING !

SERIOUS PERSONAL INJURY 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 BLESSURE PERSONNEL SERIEUX DE L'USAGE DE CET APPAREIL DE CHAUFFAGE DANS UN CONSTRUISANT UNVENTILATED OU DANS L'HUMAIN SECTEURS VIVANTS

EL USO DE ESTE CALENTADOR EN UN EDIFICIO SIN VENTILACIÓN O EN ÁREAS HABITADAS POR SERES HUMANOS PUEDE OCASIONAR LESIONES

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.

Ne pas utiliser l'appareil de chauffage pour chauffer humain habiter les secteurs. L'usage voulu de l'appareil de chauffage sera obligé à fournir la chaleur pour les bâtiments de volaille et cochon. La ventilation suffisante doit être fournie.

No use el calentador para calentar áreas habitadas por seres humanos. Este calentador debe usarse para proveer calor en galpones avícolas y porcinos. Se debe proveer una ventilación adecuada.

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.

Utiliser seulement le type de gaz étant fourni à l'unité comme marqué dessus (le Propane ou le Gaz Naturel). Ne pas fonctionner avec le carburant déplacé. L'air de ventilation et l'air de combustion ne doivent pas être encombrés.

Use sólo el tipo de gas que se está suministrando a la unidad y que aparece marcado en ella (propano o gas natural). No haga funcionar la unidad con el combustible incorrecto. El aire de ventilación y el aire de combustión no se deben obstruir.

Test all pipe and pipe joints for leaks by a suitable means (Example: soap and water solution or a pressure check). Do not use open flame to test for gas leaks. Do not operate the heater until this test has been performed.

Essayer tous joints de tuyau et tuyau pour les fuites par un moyens convenables Pas l'usage ouvre la flamme pour essayer pour les fuites de gaz. (l'Exemple : la solution de savon et eau ou un contrôle de pression). Ne pas fonctionner l'appareil de chauffage jusqu'à ce que ce test a été préformé.

Utilice un medio adecuado para probar la tubería y todas las juntas de la tubería y determinar que no tengan fugas (por ejemplo: una solución jabonosa o un chequeo de la presión). No utilice una llama abierta para hacer pruebas de fuga de gas. No haga funcionar el calentador hasta haber realizado esta prueba.

Do not move, handle, repair, or adjust height of the heater while in operation or when still hot. Do not bypass any safety devices.

Pas le mouvement, la poignée, la réparation, ou ajuster la hauteur de l'appareil de chauffage pendant que dans l'opération ou quand calme chaud. Ne pas sauter d'appareils de sûreté.

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.

Avant que chaque usage, une inspection visuelle de l'appareil de chauffage est essentielle pour assurer le chauffage sûr et satisfaisant. Remplacer ou réparer des composants le défectueux avant de fonctionner appareil de chauffage. L'échec pour ainsi faire annulera la garantie et pourrait avoir pour résultat les dommages de blessure ou propriété.

The installation of these appliances is to be in accordance with CAN/CGA-B149., B149.2 and National Fuel Gas Code, ANSI 2223.1/NFPA 54 installation codes for gas burning appliances and equipment and/or local codes.

L'installation de ces appareils sera obligé à être conformément à CAN/CGA-B149.1, B149.2 et Code de Gaz de Carburant National, ANSI 2223.1/NFPA 54 codes d'installation pour le gaz appareils ardents et et/ou d'équipement codes locaux.

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

L'AVERTISSEMENT : l'installation Déplacée, l'ajustement, le changement, le service ou l'entretien peuvent causer les dommages de propriété, la blessure ou la mort. Lire l'installation, fonctionnant et les instructions d'entretien à fond avant d'installer ou entretenir cet équipement.

THESE INSTRUCTIONS SHOULD BE LEFT WITH THE APPLIANCE AND THE USER TO RETAIN FOR FUTURE REFERENCE.

READ THESE INSTRUCTIONS THOROUGHLY BEFORE INSTALLING OR SERVICING THIS EQUIPMENT.



WARNING Failure to follow the WARNINGS in this manual could result in serious personal injury or significant property damage.



DO NOT ALLOW POWER CORDS AND/OR GAS SUPPLY HOSES TO REST ON THE CANOPY, HANGING BRACKETS OR OTHER HOT SURFACES OF THE UNIT.

Ne pas permettre tuyaux à la provision de gaz de et/ou de cordes de pouvoir pour se reposer sur le baldaquin, pendant des crochets ou les autres surfaces chaudes de l'unité.

No permita cuerdas de poder y/o mangas de suministro de gas para descansar en el dosel, colgando paréntesis u otras superficies calientes de la unidad.

⚠️ DSI UNITS MUST BE PROPERLY GROUNDED. DO NOT ALTER ELECTRICAL CORD.

LES UNITES DE DSI DOIVENT ETRE CONVENABLEMENT FONDE. Ne PAS CHANGER LA CORDE ELECTRIQUE.

Las UNIDADES de DSI se DEBEN PONER EN TIERRA APROPIADAMENTE. No ALTERE CUERDA ELECTRICA.

⚠️ Plug in the three-prong power cord to a correctly grounded three-prong electrical outlet.

Brancher sur le cordon d'alimentation de trois-broche à un a fondé correctement la trois-broche sortie électrique.

Conecte la cuerda de tres polos del poder a un molió correctamente salida eléctrica de tres polos.

⚠️ The installation of this appliance must in all cases conform with local and national building codes or in the absence of local codes with the current National Fuel Gas Code ANSI Z223.1/NFPA 54, or the Natural Gas and Propane Installation Codes, CSA B149.1 and B149.2.

L'installation de cet appareil doit dans tous cas conforme avec les codes de bâtiment locaux et nationaux ou en l'absence de codes locaux avec le Carburant le Gaz le Code ANSI Z223.1/NFPA National actuel 54, ou le Gaz Naturels et le Codes d'Installation de Propane, CSA B149.1, B149.2

La instalación de este aparato debe en todos casos se conforma con códigos locales y nacionales de edificio o en ausencia de códigos locales con el Código Nacional actual de Gas de Combustible ANSI Z223.1/NFPA 54, o el Gas natural y Códigos de Instalación de Propano, CSA B149.1, B149.2

⚠️ Heaters must be electrically grounded in accordance with the National Electrical Code, ANSI\NFPA 70 or the current Canadian Electrical Code, CSA C22.1. Polarity of Line voltage and neutral wires must be maintained. The total load of all heaters in a circuit must be considered for overload control of that circuit.

Les appareils de chauffage doivent être électriquement fondé conformément au Code Electrique National, ANSI\NFPA 70 ou le Code Electrique, canadien et actuel, CSA C22.1. La polarité de tension de Ligne et de fils neutres doit être maintenue. Le chargement total de tous appareils de chauffage dans un circuit doit être considéré pour le contrôle de surcharge de ce circuit.

Las calentadoras basado en eléctricamente la conformidad con el Código Eléctrico Nacional, ANSI\NFPA 70 o el Código Eléctrico, canadiense y actual, CSA C22.1. La polaridad del voltaje de la Línea y alambres neutrales se debe mantener. La carga total de todas calentadoras en un circuito se debe considerar para el control de sobrecarga de ese circuito.

**⚠️ THE STATE OF CALIFORNIA REQUIRES THE FOLLOWING WARNING:
WARNING**

Combustion by-products produced when using this product contain carbon monoxide, a chemical known to the State of California to cause cancer and birth defects (or other reproductive harm).

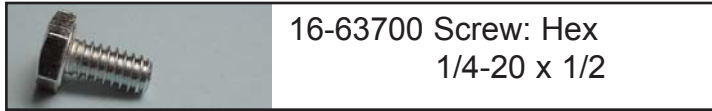
**⚠️ CAUTION
THIS APPLIANCE IS HOT DURING NORMAL OPERATION. AVOID PHYSICAL CONTACT.
CET APPAREIL A CHAUD PENDANT L'OPERATION NORMALE. EVITER LE CONTACT PHYSIQUE.
ESTE APARATO TIENE CALOR DURANTE la OPERACION NORMAL. EVITE el CONTACTO FISICO.**

**⚠️ DANGER
DO NOT ATTEMPT TO CLEAN THE HEATER WHILE IT IS OPERATING OR WHILE IT IS STILL HOT.
Ne PAS TENTER DE NETTOYER L'APPAREIL DE CHAUFFAGE PENDANT QU'IL FONCTIONNE OU PENDANT QUE C'EST TOUJOURS CHAUD.
No PROCURE LIMPIAR LA CALENTADORA MIENTRAS OPERA O MIENTRAS ESTA TODAVIA CALIENTE.**



16500075
PARTS BAG
SMALL INFRARED

This parts bag contains the following parts:



16-63700 Screw: Hex
1/4-20 x 1/2



28024042 PILOT BODY
FINISHED



11000187 1/4-20 Nut



11004900 S-Hook Large



16-11176 LOCKNUT: HEX STEEL



21000493
BROODER
LEGS SMALL
INFRARED



16-10335 Washer: 3/8 X 11/4



18000021 Nut 10-24 Star Kep



16-104093 Brkt: Universal
Brooder Control



21014002
Front "T" Hanger



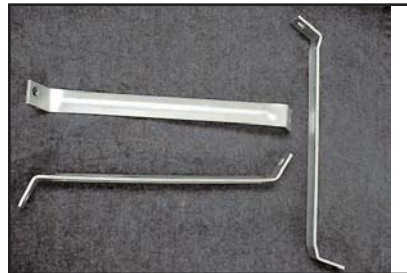
18003945 Screw 10-24 X 3/8"



21004002
Back "T" Hanger



11000338 1/4-20 Washer Lock Split



16-100680
BRKT: SB GALV
REFL PAN



11000118 COMP SLEEVE 1/4



11000191 COMP NUT 1/4

The DSI parts bag contains the following parts:

16500076 PARTS BAG SMALL INFRARED DSI
11000028 BOLT 1/4-20 X 5/8 GRD 5
11000118 COMP SLEEVE 1/4
11000187 NUT 1/4 - 20 FINISH
11000191 COMP NUT 1/4
11000338 WASHER 1/4 LOCK SPLIT
11004900 HOOK S LARGE
18000021 NUT 10-24 STAR KEP


18003945 SCREW 10-24 X 3/8
13005213 WIRE TIES 5 1/2
21004002 HANGER-T BACK LEG
21014002 HANGER-T FRONT LEG
21000493 BROODER LEGS SMALL INFR
16-100680 BRKT: SB GALV REFL PAN




11000028 BOLT 1/4-20 X 5/8 GRD 5



13005213 WIRE TIES 5 1/2




16-1111 DISC: AIR PORT




11002205 ORIFICE
LP #78 ONE PIECE


11002203 ORIFICE
NAT #73 ONE PIECE



21000624 ELBOW BRASS
1/4MCT X 1/8MPT



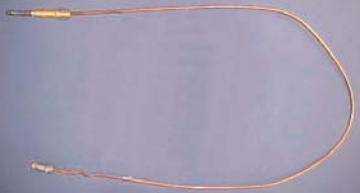
16-100500
BRNR ASM WELDED
SMALL




16-11152
Radiant: Brdr. Fiber




16-100682
GLO HSG
ASM: SB BRDR




11000663 THERMOCOUPLE: 30"
16-11154 THERMOCOUPLE: 24"




16-85050120 TUBE: ALUM 1/4 X .032 X 20-1/4
16-85050300 TUBE: ALUM 1/4 X .032 X 19-1/2
16-85050160 TUBE: ALUM 1/4 X .032 X 22-1/2



21227088
PILOT BRKT/"L"TAB BENT




11010225 ORIFICE #54 LP
11010215 ORIFICE #48 NAT



11010033 Canopy 34" Alum
11011008 Canopy 34" Galv.



11014053 CANOPY 46" ALUM
11011009 CANOPY 46" GALV



FOR DSI UNITS

21002400 SHIELD: CONTROL HEAT WD

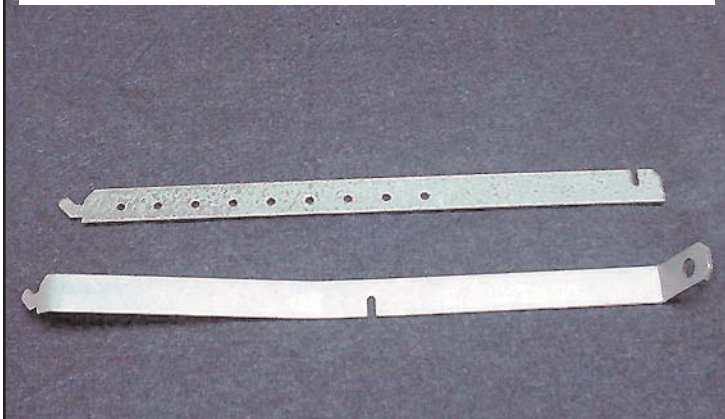
ASSEMBLY INSTRUCTIONS

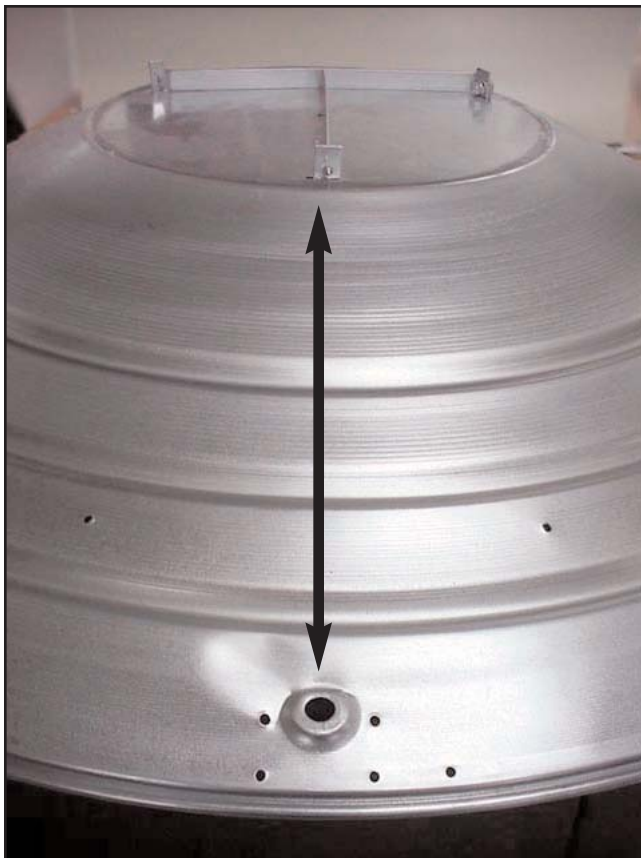


STEP 1 : Insert Reflector Pan Mount Bracket through slots in canopy as shown.

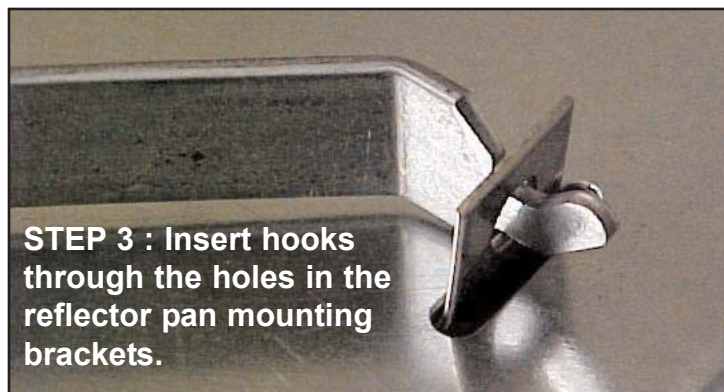
STEP 2 : Assemble T-Hanger.

Insert the slot in the middle of the BACK T-HANGER into the slot in the end of the FRONT T-HANGER.

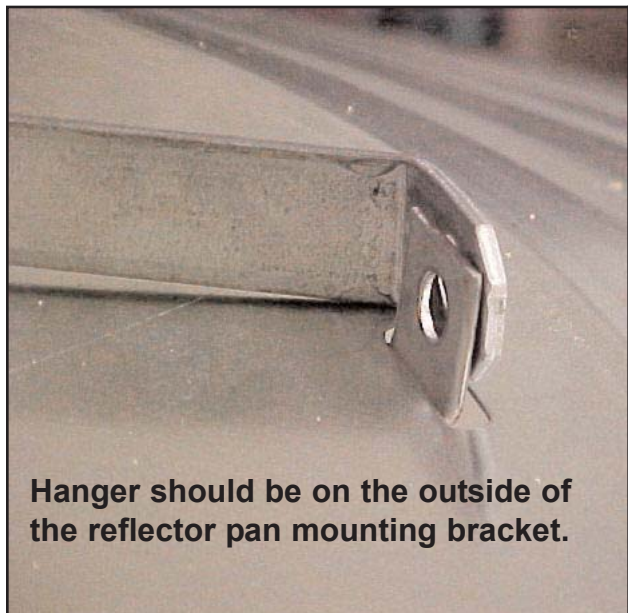




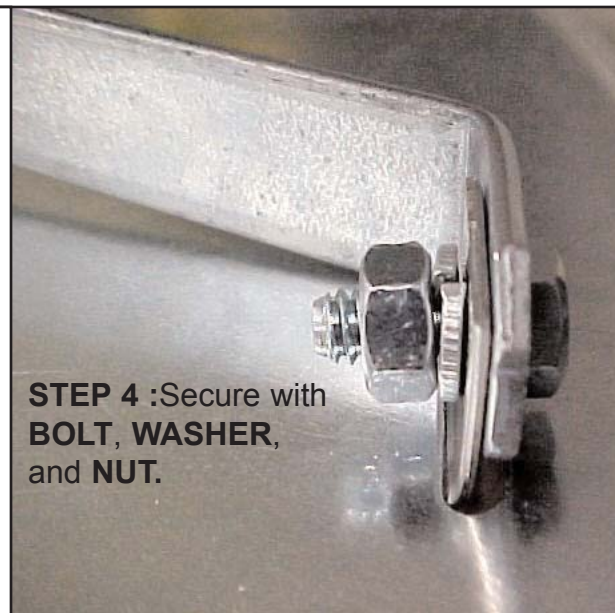
Hook on front hanger **MUST** point toward the control mount hole(s).



STEP 3 : Insert hooks through the holes in the reflector pan mounting brackets.



Hanger should be on the outside of the reflector pan mounting bracket.



STEP 4 : Secure with **BOLT, WASHER,** and **NUT.**



STEP 5 : With canopy upside down, lay radiant in center of mounting brackets.



STEP 6 : Attach reflector pan and insert 10-24 x $\frac{1}{2}$ screw into set of 3 holes closest to glow housing perforation. Attach 10-24 nut and tighten.



STEP 7 : Align outer holes on reflector pan to holes on the reflector pan mounting brackets which have been attached to the canopy. Attach Burner Bracket to the Reflector Pan by inserting a $\frac{1}{4}$ -20 x $\frac{1}{2}$ screw through the Burner Bracket, Reflector Pan and Reflector Pan Mounting Bracket. Secure with a $\frac{1}{4}$ -20 nut.



STEP 8 : Attach Burner to Burner Brackets.

Pilot Orifice MUST face toward the Control Assembly !

Secure burner to brackets with 1/4-20 bolts and nuts.

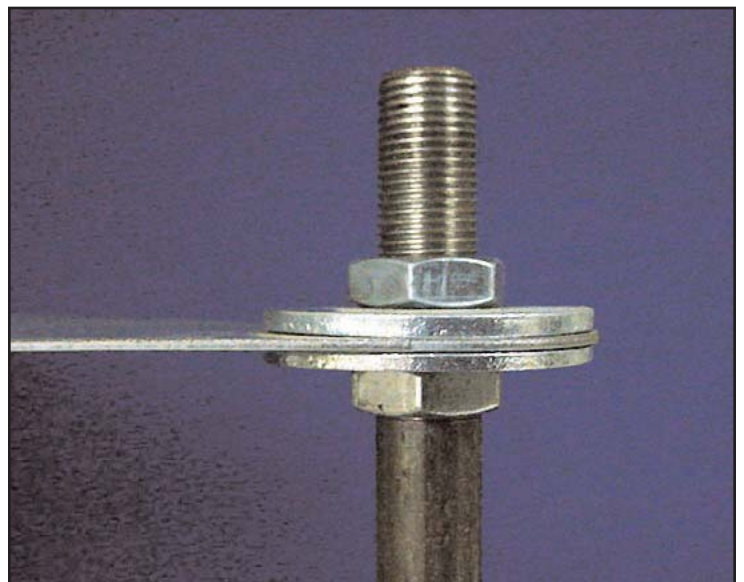


FOR ASSEMBLY INSTRUCTIONS FOR DSI UNITS, SEE PAGE 16.

STEP 9 : Attach **BRACKET** to top of **CANOPY** with two **10-24 SCREWS** and **NUTS**

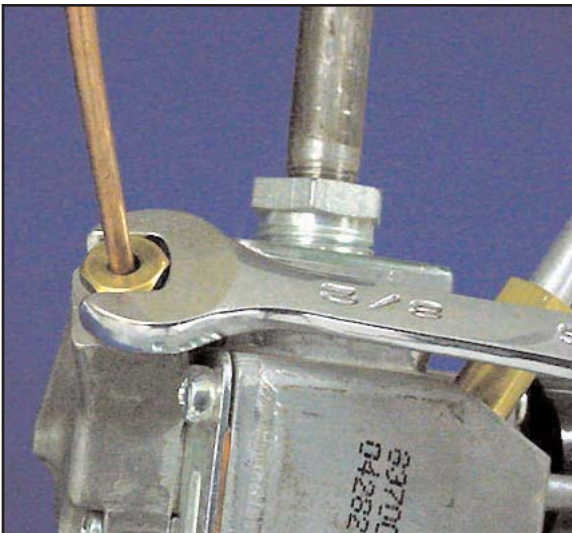
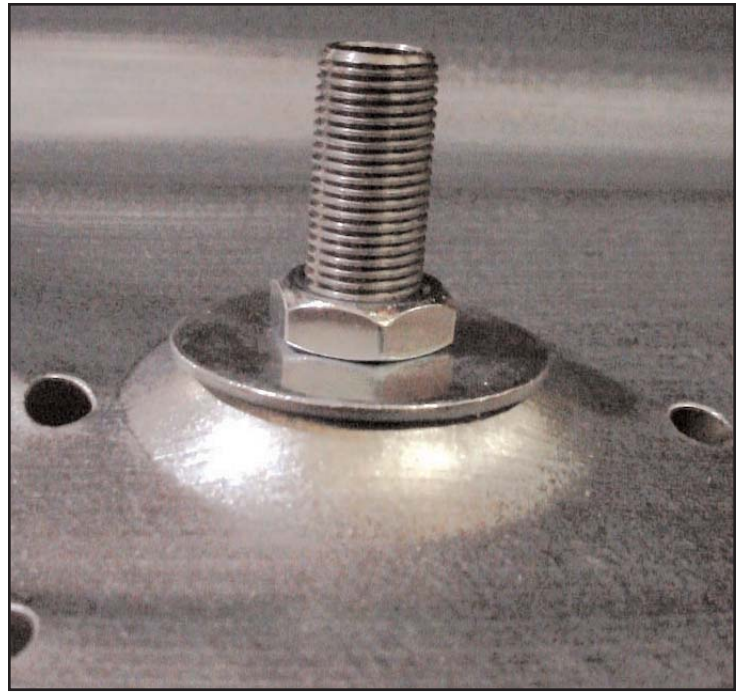


STEP 10 : Place one 3/8 x 11/4 **WASHER** on the inlet pipe on top of the lock nut. Insert the pipe through the hole in the rounded end of the **CONTROL BRACKET**. Secure with one washer and lock nut.



FOR LARGE CANOPY:

Place one **WASHER** on the inlet pipe of the valve on top of the the nut. Insert the pipe into the larger hole in the canopy from the underside. Secure with a **WASHER** and **NUT** on the **top** side of the canopy.

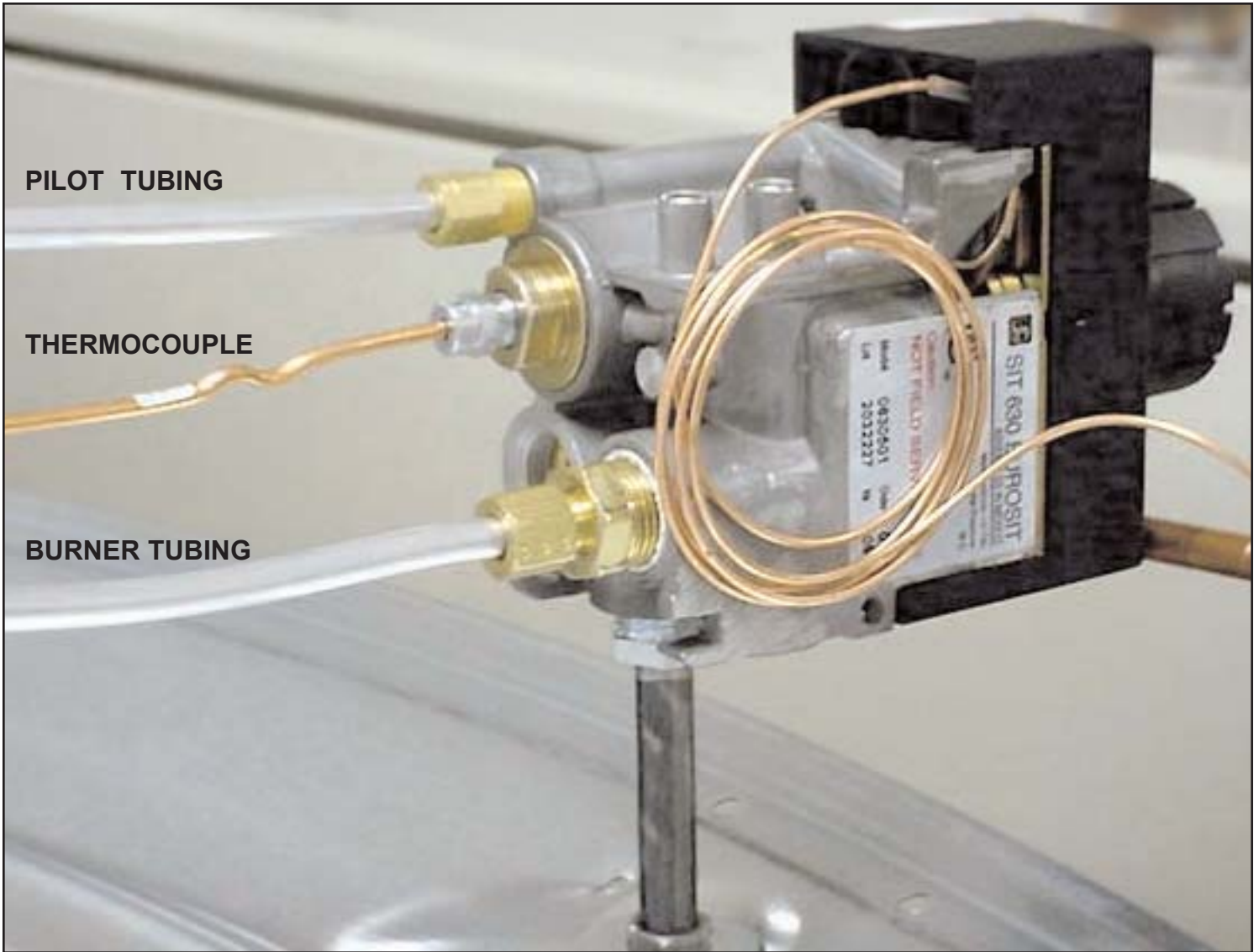


STEP 11 : Attach Thermocouple to burner as shown. Insert other end of thermocouple in control. **Finger tighten** plus 1/4 turn with wrench. **DO NOT OVERTIGHTEN !**

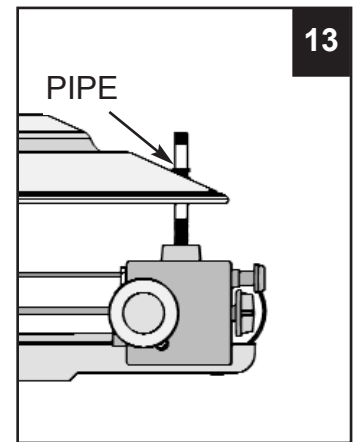




STEP 12 : Insert one end of pilot tubing into orifice on burner pan. Insert other end in control assembly. Use two wrenches to tighten comp nut to avoid damaging tubing.



13. 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 pipe on the control using hose clamps (not provided). Check all connections for leaks before lighting brooder. - See lighting instructions



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

LP GAS:

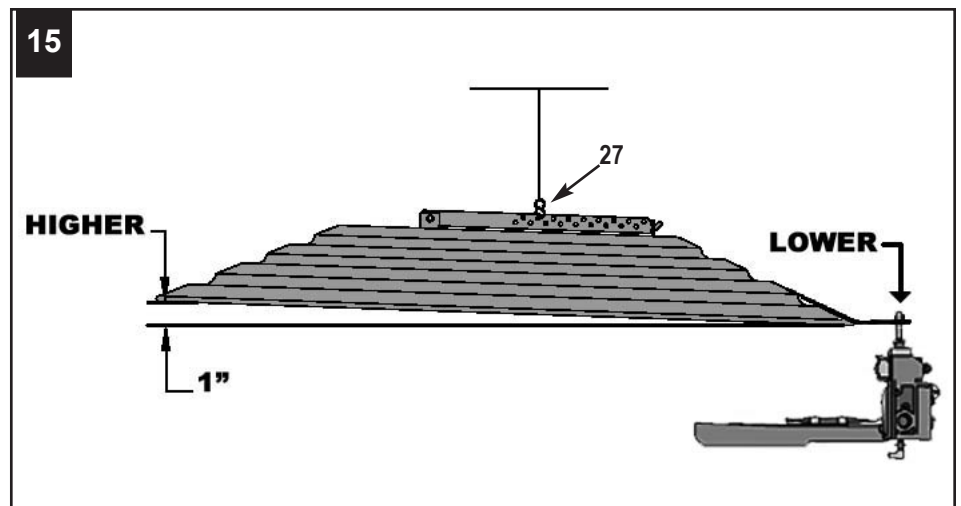
FIRST - go to the furthest stove from the regulator and connect the pressure gauge to the Press Tap on the gas valve. Light only the stove you are testing or if you have a zone system light all the stoves in the zone. Set the pressure at a maximum of 11 ¼" WC.

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 same procedure as LP gas above, except the pressure should not exceed 7 ¼" W.C. with only one stove or zone operating. The pressure should not drop below 6 ½" W.C. with all stoves running.

15. Suspend the brooder: To level the heater, simply support the heater underneath and then move the **S-HOOK (27)** forward or backward. After it is level clamp both ends of the s-hook shut. The brooder should hang with the control assembly tilted slightly downward. Normally the brooder is attached to a winch cable used for raising and lowering.



In addition, we require that a safety cable or chain (not supplied with unit) be attached to the brooder to prevent the brooder from falling to the litter if the winching cable should happen to break.

GENERAL INFORMATION

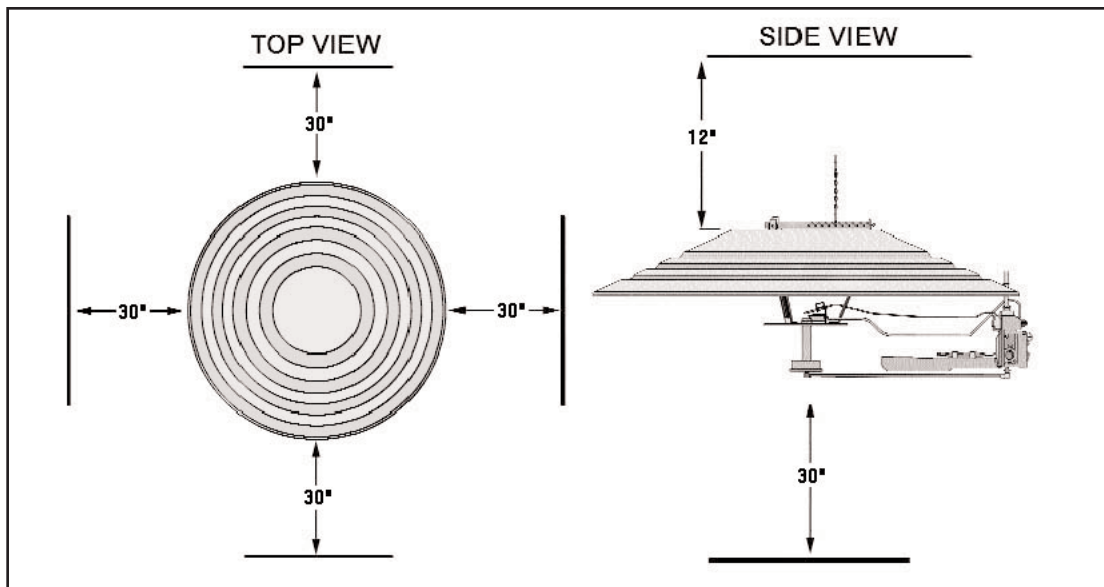
The heater must be located so there is a minimum clearance of 12" above the heater and 30" from the side. Any combustible material must not be adjacent to the heater.

The heater should be hung with a min. of 30" from bottom of the heater to the floor.

Installer MUST comply with all local, state, and federal gas codes for your area.

! **During and after winching, make certain that ALL gas supply hoses and power supply cords are NOT resting on the unit, nor are within 12" of the brooder.**

Failure to follow these instructions could result in serious personal injury or property loss.



BROODER LIGHTING INSTRUCTIONS

- 1. NEW INSTALLATIONS** - test pipe system for leaks, purge all gas lines of dirt and moisture before connecting brooders. Turn ALL gas cocks to each brooder to the "closed" position. Open tank (LP) or meter valve (Nat.).

GAS PRESSURE - This brooder/heater is designed for 11 inches WC (Water Column) for LP Gas and 7 inches WC for Natural Gas. Conversion from one gas to another requires that both pilot and burner orifices be changed!

2. LIGHTING PILOT:

INDIVIDUAL & 24 VOLT ZONE CONTROLS - Turn thermostat to lowest setting. Turn the gas cock on the gas supply line to the "OPEN" position. Turn the "on-off" knob on the control valve to the "PILOT" position. Depress reset button and light pilot. Continue to hold down reset button 30 to 45 seconds or until pilot continues to burn when button is released.

MANIFOLD ZONE CONTROL - Turn Zone thermostat to lowest setting. Turn gas supply cock to the "OPEN" position. Depress button on the Safety Shut Off Valve and light pilot; continue to hold 30-45 seconds to activate the Safety Valve, this will enable you to light the Main Burner later.

NOTE: The thermocouple is installed directly in the pilot flame. The top ½ inch of the thermocouple tip gets cherry red. Normal output from this thermocouple is 15-20 millivolts. When installing brooders in a heavy draft area, be sure that the flame is blown toward the thermocouple tip.

- 3. LIGHTING MAIN BURNER** - After pilot is burning, rotate the "on-off" knob on the control valve mounted on the brooder to the "ON" position. NEXT: .

- A. INDIVIDUAL CONTROL** - When ready to ignite main burner, rotate the thermostat knob counterclockwise until main burner lights. To check burner for proper ignition, cycle the thermostat up and down several times, the main burner should light instantly. Set thermostat at desired heat setting.

- B. 24 VOLT ZONE CONTROL** - When ready to ignite main burners, rotate the zone thermostat knob to higher temperature setting until the main burners on the brooders within the Zone light.

Cycle the zone thermostat up and down several times, the main burners should light instantly. Set thermostat at desired heat setting. If main burner does not ignite, check wiring connections.

- C. MANIFOLD ZONE CONTROL** - When ready to ignite main burners, turn each gas cock to the main burner to the "OPEN" position.

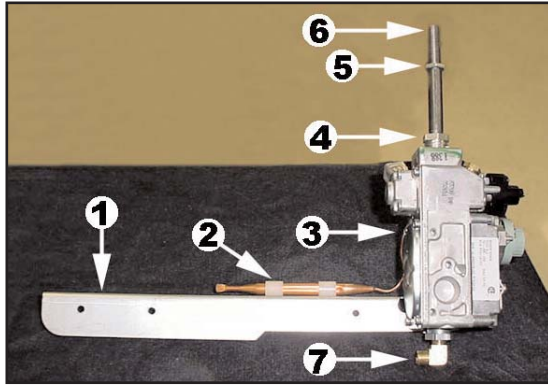
NOTE: If temperature in the house is below lowest setting on the zone thermostat the main burner may light). After all gas cocks are in the "OPEN" position rotate zone thermostat to higher temperature setting until all Main Burners within the zone light. Set to desired heat setting.

- 4. BETWEEN BROODS** - Turn pilot "ON/OFF" knob to the "OFF" POSITION. Then, turn gas off at Tank or Meter if desired. This will facilitate start up for the next flock.

INDIVIDUAL THERMOSTAT

(STANDARD)

16500164



1	SHIELD: UNIVERSAL BRDR	16-104219
2	CLAMP WIRE NYLON	11000033
3	VALVE 7000 SLC	16000106
4	BUSHING: GALV STDHEX 3/8X1/8	16-11194
5	LOCKNUT: HEX STEEL	16-11176
6	NIPPLE: GALV 1/8 X 3-1/2 SPEC	16000000
7	ELBOW BRASS 1/4M COMP	11000624
	RIVET: NYLON PUSH-IN RIV	16000036

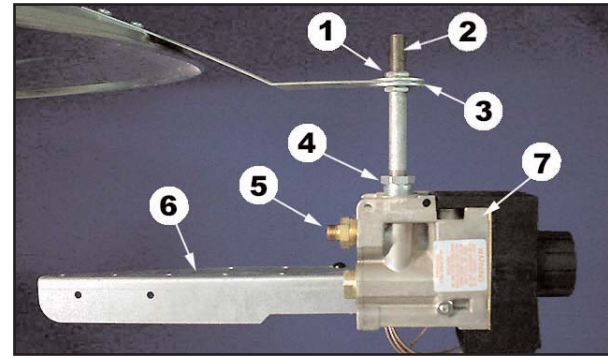
16-85050130
16-85050540

BRNR TUBE: ALUM 1/4 X .032 X 21
PLT TUBE: ALUM 1/4 X .032 X 28 1/2

INDIVIDUAL THERMOSTAT

MODULATING

16-104438



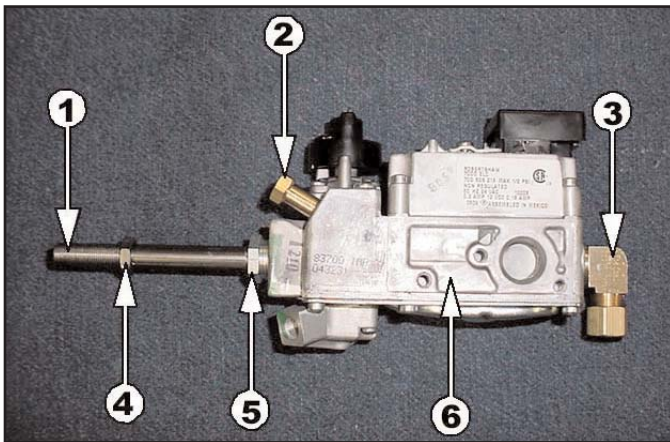
1	LOCKNUT: HEX STEEL	16-11176
2	NIPPLE: GALV 1/8 X 3-1/2 SPEC	16000000
3	WASHER: 3/8 X 11/4 FENDER	16-10335
4	BUSHING: GALV STDHEX 3/8X1/8	16-11194
5	CONN 3/8MPT X 1/4MCT	18000037
6	SHIELD: UNIVERSAL BRDR	16-104219
7	CTRL: SIT EUROSIT VALV	16-10436350
	RIVET: NYLON PUSH-IN RIV	16000036

16-85050130
16-85050120

BRNR TUBE: ALUM 1/4 X .032 X 21
PLT TUBE: ALUM 1/4 X .032 X 20 1/4

24 VOLT ZONE

16-104440



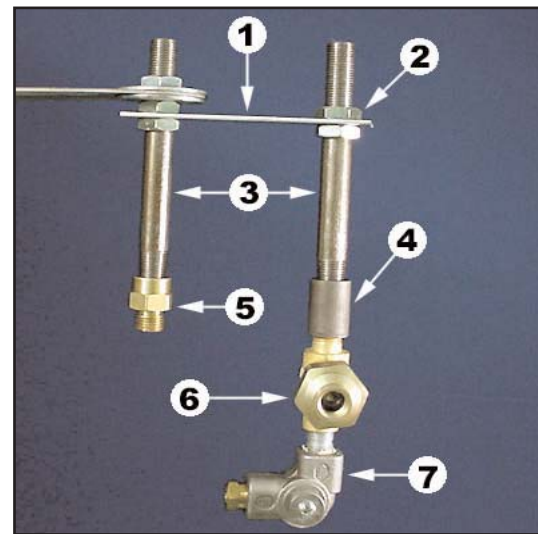
1	NIPPLE: GALV 1/8 X 3-1/2 SPEC	16000000
2	Comp Nut & Sleeve 1/4"	11003995
3	ELBOW BRASS 1/4M COMP	11000624
4	LOCKNUT: HEX STEEL	16-11176
5	BUSHING: GALV STDHEX 3/8X1/8	16-11194
6	VALVE 7000 ELC (BARE)	11004081

16-85050130
16-85050540

BRNR TUBE: ALUM 1/4 X .032 X 21
PLT TUBE: ALUM 1/4 X .032 X 28 1/2

TWO PIPE SUPPLY

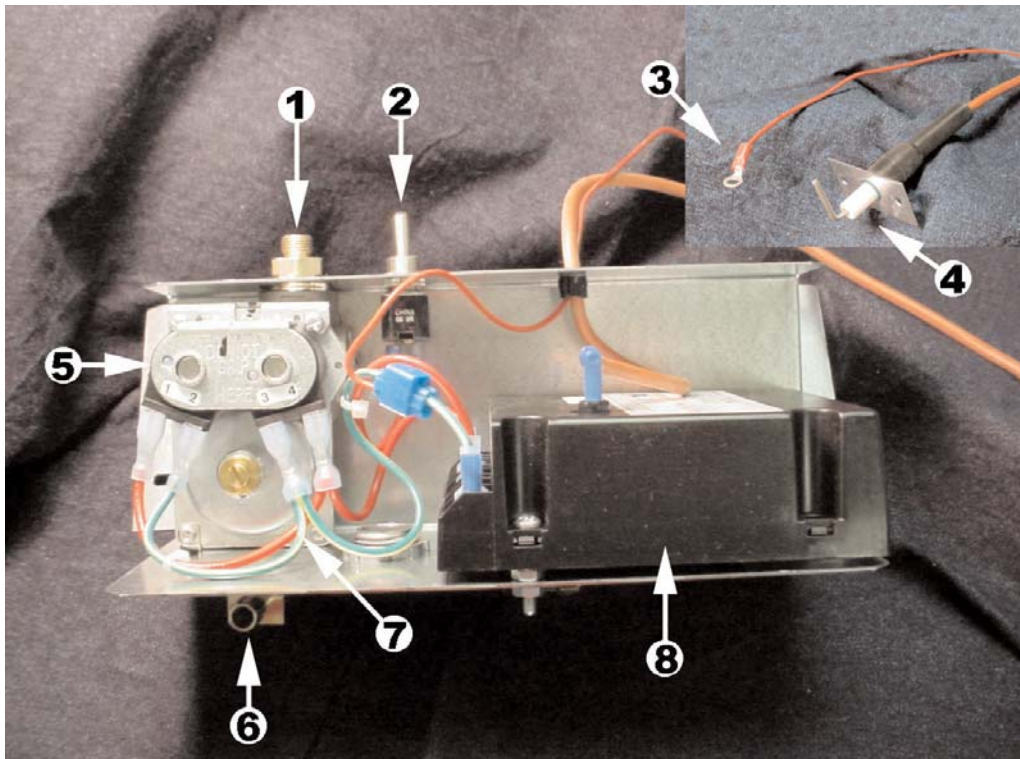
31005223



1	BRKT TWO PIPE SUPPLY	21007000
2	LOCKNUT: HEX STEEL	16-11176
3	NIPPLE: GALV 1/8 X 3-1/2 SPEC	16000000
4	COUPLING 1/8" NPT BLK	11001506
5	CONN STRT 1/4 X 1/8	11003986
6	VALVE S.I.T SSO	11005223
7	GRAY ELBOW GAS VALV	11000331

16000002

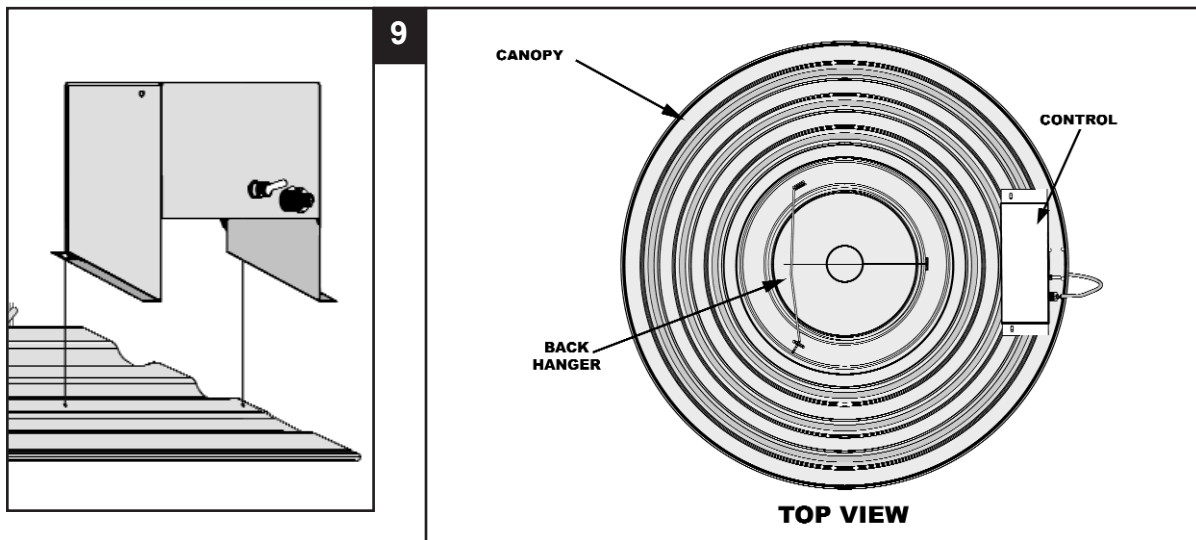
TUBE ALUM 1/4 X .032 X 24 1/2



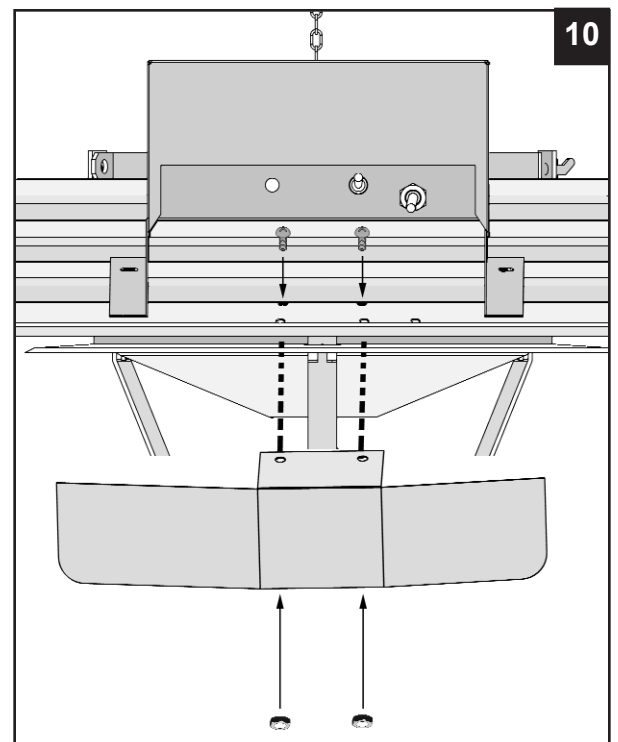
1	18000037	CONN 3/8MPT X 1/4MCT
2	13005282	SWITCH TOGGLE SINGLE POLE
3	15100720	TERMINAL RING 14RB-10
4	16-101197	IGNITOR: DSI GB/SB SNGL
5	11001238	VALVE WR 25M
6	11003838	ELBOW BRASS 3/8MPTX3/8H
7	11003030	WIRE HARNESS SB DSI CNT
8	16-101068	BOARD: CTRL IGN DSI BRD

DSI ASSEMBLY INSTRUCTIONS CONTINUED FROM PAGE 9

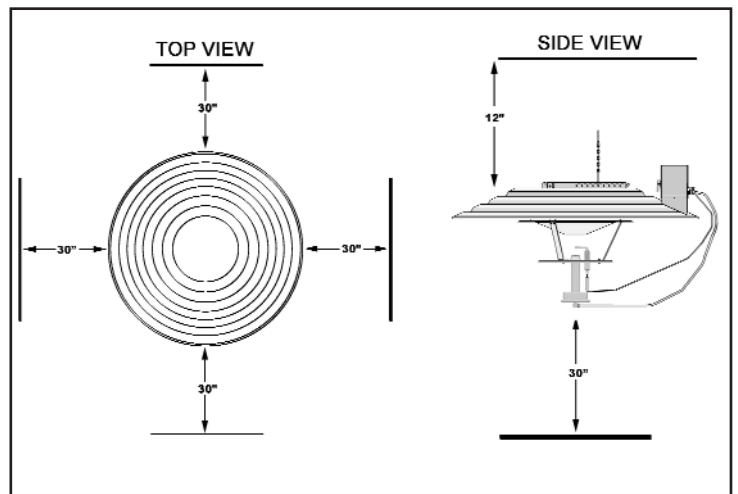
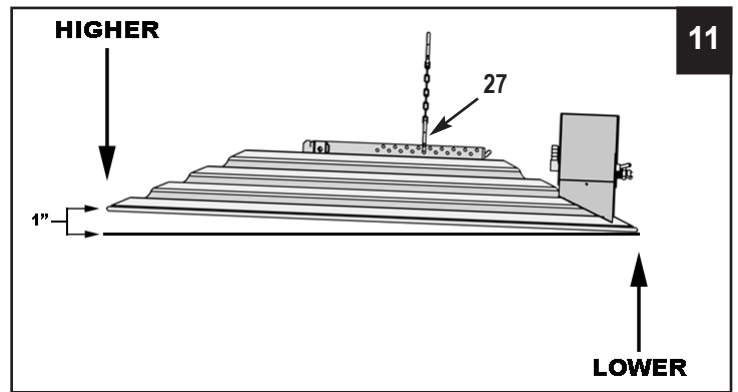
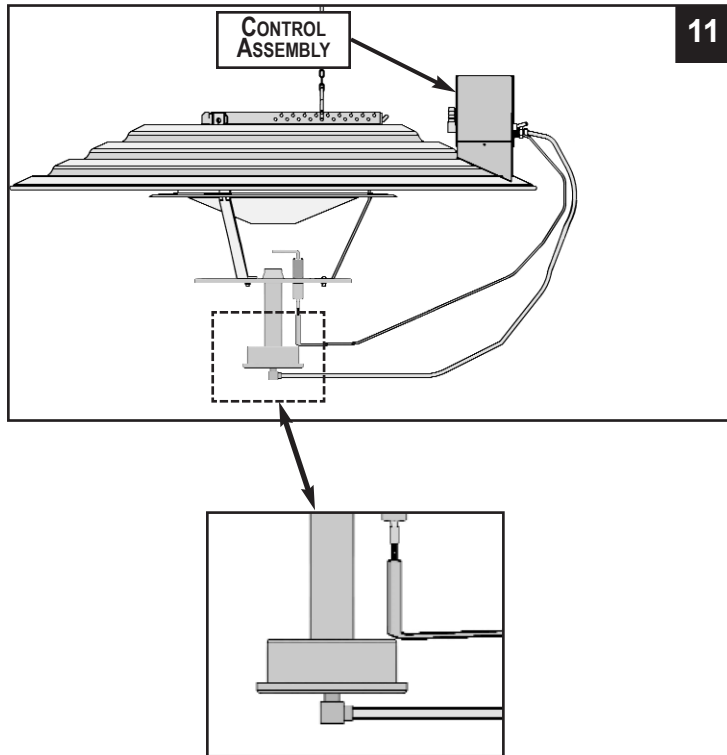
9. Attach the control box assembly to the top side of the canopy. The on/off switch must face the outer rim of the canopy. Align the two holes in the assembly with the holes in the canopy. Use two of the 3/8" long screws and nuts with star washers to fasten the control assembly to the canopy.



10. Attach the **HEAT SHIELD** to the underside of the **CANOPY** with two screws and nuts



11. Connect the burner tubing: Hand form the tubing to fit up to the front of the control assembly. Connect the fitting. Secure the ignitor wire to the burner tubing using wire ties. **DO NOT WRAP WIRE AROUND TUBING. DO NOT OVER-TIGHTEN WIRE TIES.**



12. Suspend the brooder: to level the brooder simply support the heater underneath and then move the s-hook forward or backward. After it is level clamp both ends of the s-hook shut. The brooder should hang with the control assembly tilted slightly downward. Normally the brooder is attached to a winch cable used for raising and lowering.

In addition, we require that a safety cable or chain (not supplied with unit) be attached to the brooder to prevent the brooder from falling to the litter if the winching cable should happen to break.

Installer MUST comply with all local, state, and federal gas codes for your area.

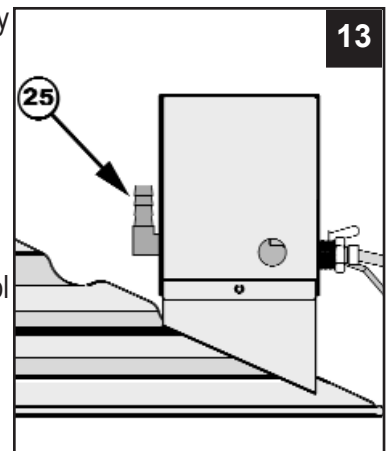


During and after winching, make certain that ALL gas supply hoses and power supply cords are NOT resting on the unit, nor are within 12" of the brooder.

Any combustible material must not be adjacent to the heater. The heater should be hung with a minimum of 30" from bottom of the heater to the floor.

Installer **MUST** comply with all local, state, and federal gas codes for your area.

13. 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 (25)** on the control using hose clamps (not provided). Check all connections for leaks before lighting brooder. - See lighting instructions



Failure to follow these instructions could result in serious personal injury or property loss.

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

LP GAS	11" WC (WATER COLUMN)
NAT. GAS	7" WC (WATER COLUMN)

LP GAS

First: Go to the furthest stove from the regulator and connect the pressure gauge to the Pressure 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 and set the pressure at a maximum of 11 1/4" W.C.

Next: Light all the stoves in the house and check the pressure again. The pressure should not drop below 10 1/2" W.C. If the pressure falls below 10 1/2", then the gas distribution system is inadequately designed. The problem may be in the regulator, pipe sizing, etc.

NATURAL GAS

Use same procedure as LP gas above, except the pressure should not exceed 7 1/4" W.C. with only one stove or zone operating. The pressure should not drop below 6 1/2" W.C. with all stoves running.

14. Transformers - Need to be mounted as close as possible to the zone they are running, 18 (eighteen) is the maximum number of brooders it will hold. The wire required is 14-2 wire.

LIGHTING INSTRUCTIONS

- 1. NEW INSTALLATIONS** - test pipe system for leaks, purge all gas lines of dirt and moisture before connecting brooders. Turn ALL gas cocks to each brooder to the "closed" position. Open tank (LP) or meter valve (Nat.).

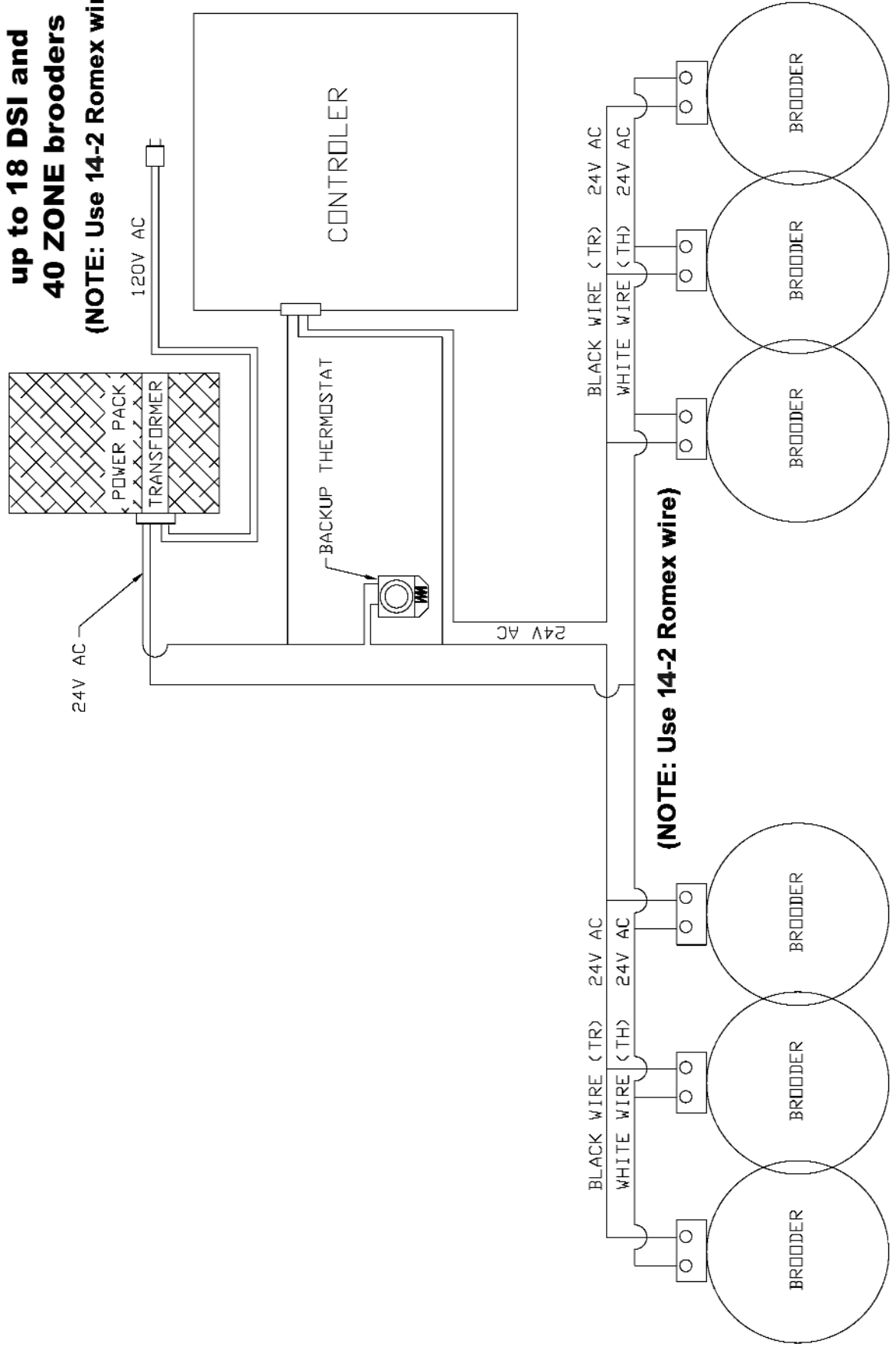
GAS PRESSURE - This brooder/heater is designed for 11 inches WC (Water Column) for LP Gas and 7 inches WC for Natural Gas. Conversion from one gas to another requires that both pilot and burner orifices be changed!

- 2.** Flip switch to the "**ON**" position. Check burner for proper ignition. Set thermostat at desired heat setting.

NOTE: If temperature in the house is below lowest setting on the zone thermostat the main burner may light). After all gas cocks are in the "OPEN" position rotate zone thermostat to higher temperature setting until all Main Burners within the zone light. Set to desired heat setting.

24 Volt Wiring Diagram for 120 Volt AC Supply Spark Ignition

**.25 KVA Transformer
up to 18 DSI and
40 ZONE brooders
(NOTE: Use 14-2 Romex wire)**



WIRING INSTRUCTIONS FOR 24 VOLT ZONE BROODERS/HEATERS

1. Mount "Auto-Switch-Over" (A.S.O.) Power supply in convenient location WITHIN 3 FEET OF OUTLET. Outlet should be separately fused -- 15 AMP.
2. Mount junction box over each thermostat location selected.
3. 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. 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.
6. 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.
7. Connect together in junction box using wire nuts
 - a. Black from feed (A.S.O.)
Black to next junction box (if used)
Black from thermostat
 - b. White from feed (A.S.O.)
White to next junction box (if used)
White from line over brooders
 - c. White from thermostat to black from line over brooders
8. Light brooder in usual manner and set ZONE thermostat for desired temperature.
9. Check for any voltage drops to brooder.

MAINTENANCE PROGRAM

CAUTION



BEFORE PERFORMING ANY MAINTENANCE ON THE BROODER, MAKE CERTAIN THAT ALL POWER AND FUEL HAS BEEN SHUT OFF TO THE UNIT.

- ◆ Clean brooder 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 to a vertical position and tap on the side of the 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, fiber radiant and burner assemblies. After wash downs we recommend that you light the brooders to dry up any excess moisture.
 - ☑ Avoid getting radiant wet. If radiant gets wet, remove it from the brooder and lay it on its side to drain. Do not reinstall or heat radiant until it is dry.
 - ☑ Clean air intakes with a small brush
 - ☑ Extreme care must be taken not to enlarge or distort the burner orifices.
- ◆ Special burner and pilot orifice cleaning kits, which includes the correct size orifice cleaning gauges and brushes, are available for purchase at your local dealer.
- ◆ If brooder 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.

Failure to follow these instructions could result in serious personal injury or property damage

TROUBLESHOOTING TABLE

Problem:

Possible Solution:

Brooder does not light.

Use the torch to try to light brooder. If it lights with the torch and not the spark, then electrode is in wrong position or not sparking properly.

Brooder fires and goes out within a few seconds.

Improper grounding. Check chassis ground wire connection.

Brooder fires with a puff after a few seconds delay.

Electrode out of position, shorting to metalwork.
The spark should be at the tips of electrode and in front of burner ports.

If it still does not light.

Check output of board to valve (voltage). (26 VAC)
Check status of valve. Is solenoid working? (Check for continuity) If solenoid is sticking, tap top with screwdriver.
Check Coil / Solenoid continuity. If not open, then O.K.

Brooders in zone fire when adjacent zone fires, even though one zone is not calling for heat.

Wiring is inconsistent. LV1 and LV2 have been interchanged.
The switched Thermostat/Computer contact **must** feed terminal W on the DSI Board.
(SEE WIRING DIAGRAM ON PAGE 19)

TROUBLESHOOTING THE DSI BOARD.

To maintain correct operation the polarity of W & COM must be maintained.
The DSI Board controls the following parts:

Spark - good or bad

Output to gas control valve.

Flame Sensing

Spark gap = 7/64".

Position sparking at gas flow.

If no spark - check wire condition.

Tight Connections

Wire.

Nuts & Bolts.

Good chassis ground.

Ground between box & burner.

Continuity between box and post or electrode.

Thermostat

Switch W.

DIRECT SPARK IGNITION TROUBLE CODES *

<u>LED Flashing</u>	<u>Possible Cause</u>	<u>Corrective Action</u>
3 Flashes	No ignition, False flame detected or GV output not matching drive.	Check fuel supply, Check ignitor, Check gas valve
4 Flashes	Too many flame losses within one call for heat; Improper flame sensing drive.	Check air flow (flame blown away from ignitor)*

*Must remove cover on Control Box to check trouble codes. Trouble Codes are erased when power is cycled off. Board flashes trouble codes when Brooder is in Lock Out condition

DSI TROUBLE SHOOTING

1. Verify gas pressure. 11" wc for LP, 7" wc for Nat.
2. Be sure wiring is heavy enough, 12-2 or 14-2 on trunk lines, from junction box to heaters can be 18 GA lamp cord or SJ cable.
3. Check for proper voltage. 24 - 27 VAC, no less than 20 VAC, with all brooders on.
4. BE SURE POLARITY IS CORRECT TO ALL BROODERS. (see wiring diagram.)
5. Check for stray voltage, can be present on winch system.
6. Check electrode placement in flame.
 - a. Check for loose electrode in ceramic.
 - b. Check electrode distance to burner tube, 1/8 - 3/16"
7. Check spark - sensor electrode for corrosion, clean with steel wool.
8. Check spark and sensor wire for good insulation, no tickling your hand, also check for continuity & no resistance, stretch wire slightly while checking.
9. If spark is intermittent, clip plastic ties holding wire to tubing, If OK, bad wire.
10. If there is brooder failure, check for blinking light on electronic board to determine what the number of blinks mean.

SPECIFICATIONS

Capacity

31,000 BTU/h
7.8105 Kcal

Gas Pressure Requirements

Liquid Propane (LP) 11" WC or 6.35 oz. or 27.5 mbar
Natural Gas 7" WC or 4.00 oz. or 17.5 mbar

Gas Consumption 31,000 BTU

Liquid Propane (LP) .34 gph / 1.29 L/hour
Natural Gas 29.25 cfh / .83 m3/hour

Brooder Dimensions

Width

small canopy 34" / 86.36 cm
large canopy 46" / 116.84 cm

Height 20 1/2" / 52.07 cm

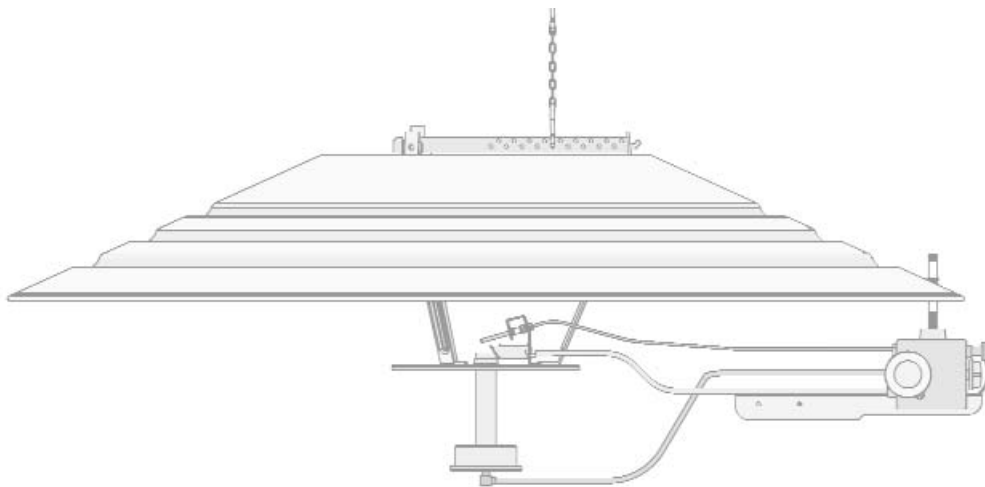
*Weight (Alum., 34" Canopy) 17 lbs. / 7.71 kilograms

Operation Guidelines for Brooding Area

Height (edge of canopy) 36" / 91.4 cm
Space between brooders / side 10-20 ft. / 3-6.1 m
Square feet per brooder 250-600 sq. ft. / 23.2-55.7 sq. m

Minimum clearance to combustibles

Side 36" / 91.4 cm
Top 14" / 35.6 cm
Below 24" / 61 cm



*Will depend on model type.

WARRANTY

Manufacturer warrants each new product manufactured by it to be free from defects in material or workmanship for one (1) year from and after the date of initial installation by or for the original purchaser. If such a defect is found by Manufacturer to exist within the one-year period, the Manufacturer will, at its option, (a) repair or replace such product free of charge, F.O.B. the factory of manufacture, or (b) refund to the original purchaser the original purchase price, in lieu of such repair or replacement. Labor costs associated with the replacement or repair of the product are not covered by the Manufacturer.

Conditions and Limitations

1. The product must be installed by and operated in accordance with the instructions published by the **Manufacturer or Warranty will be void.**
2. Warranty is void if **all components** of the system are not original equipment supplied by the Manufacturer.
3. This product must be purchased from and installed by an authorized distributor or installer or a certified representative thereof **or the Warranty will be void.**
4. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance, or from lightning strikes, electrical power surges or interruption of electricity, shall not be considered defects under the Warranty.
5. This Warranty applies only to systems for the care of poultry and livestock. Other applications in industry, commerce, or residential applications are not covered by this Warranty and are **strictly prohibited.** Any such use **will void the Warranty.**

Manufacturer shall not be liable for any **Consequential or Special Damage** which any purchaser may suffer or claim to suffer as a result of any defect in the product. "**Consequential**" or "**Special Damages**" *as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.*

THIS WARRANTY CONSTITUTES THE MANUFACTURER'S ENTIRE AND SOLE WARRANTY AND THIS MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSES SOLD AND DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

Distributors are not authorized to modify or extend the terms and conditions of this Warranty in any manner or to offer or grant any other warranties for the products in addition to those terms expressly stated above. An officer of the Manufacturer must authorize any exceptions to this Warranty in writing. Manufacturer reserves the right to change models and specifications at any time without notice or obligation to improve previous models.

Effective 01/07

NOTES

