RE-VERBER-RAY
DETROIT RADIANT PRODUCTS COMPANY

DTHS SERIES
VENTED RADIANT TUBE HEATER
OPERATION, INSTALLATION
MAINTENANCE AND PARTS
MANUAL

WARNING

Read instructions carefully before attempting to install, operate or service the Detroit Radiant Products Heater. Failure to comply with instructions could result in personal injury, death, and/or property damage. Retain instructions for future reference.

Form # STIOM-106
5M 1087

Description

The Detroit Radiant Products' vented or unvented radiant tube heaters become high efficient generators of infra-red radiation by heating a black coated aluminized steel tube.

The principle of operation is to propel pressurized hot gases through a special 4-inch diameter tube, 20, 40 or 60 feet in length. As the tube gets hot, it radiates heat which is directed to the floor in a soft uniform pattern, by an aluminum reflector.

The radiant tube principle of simulating the direct rays of the sun result in substantial fuel savings of up to 50%. Radiant heat energy is directed downward heating the occupants, floor, and objects in the building without wasting energy heating the surrounding air. Heating of the surroundings does occur by convection air currents given off by the warmed objects.

Approval Standards and Certifications

These units come with the following approvals and certifications:

— American National Standards (ANSI 83.6b 1985)
— Occupational Safety & Health Act (OSHA) compliance
— American Gas Association (A.G.A.) design certification

Installation Codes

Installation must be in accordance with all local codes, as well as the National Electrical Code (NEC) and the National Fire Protection Association Inc. (NFPA).

In public garages, the heaters must be installed in accordance with NFPA 88B-most current edition. Repair garage heaters shall not be installed less than eight feet from the floor.

In aircraft hangars, the heater must be installed in accordance with NFPA No. 409 standards — most current edition. In aircraft hangars, the heaters must be installed at least ten feet above the upper surface of the wings or engine enclosures of the highest aircraft which may be stored in the hangar. In areas adjoining the aircraft storage, the heaters must not be installed less than eight feet above the floor. Also the heaters must be located in a way that prevents damage from sections of the aircraft, crane, scaffolding or other movable objects.

The installation must conform with local building codes, or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1-most current edition.

The installation must also conform with the National Electrical Code (NEC) latest edition and must be electrically grounded when an external electrical source is utilized.

MOUNTING THE HEATER

NOTE: WHILE HEATER IS ON THE GROUND, CONNECT 120V TO HEATER AND CHECK GLO-BAR OPERATION.

1. HEATER COMES EQUIPPED WITH THE NECESSARY HANGERS FOR HEATER HANGING. THE DTHS20 HAS THREE (3), DTHS40 HAS FIVE (5), AND THE DTHS60 HAS SEVEN (7).
2. Number 3 double loop chain is recommended for heater hanging. Turnbuckles in combination with chains are recommended to assure heater leveling. When using a turnbuckle use a locking nut and/or safety chain loop. (See Figure A.) If rods or other rigid means are used, provide sufficient lengths or swing joints to allow for heater expansion.
3. Mount hangers on approximately 10′ centers. Slide tube through hanger with weld seam downward and fasten with tube clamps. Tighten approximately 50-70 ft.-lbs. Tube with baffle must be installed farthest from the burner. Baffle should be in vertical position. (See Figure B.)
4. Mount heaters in conformity with standard approvals referenced on page 1 of this manual.
5. Chains must be perpendicular to the heater.
6. Heater must be independently supported and not rely on the gas or electrical line for any of its support.
7. Mount heater so burner sight glass is visible from the floor.
8. Make sure that the first 10′ tube on DTHS 125 and 150 models is Titanium Alloy Aluminized Steel.

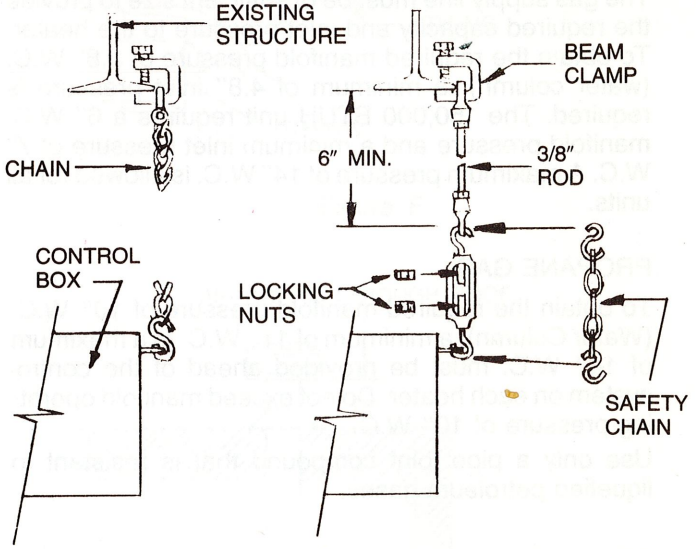


Figure A

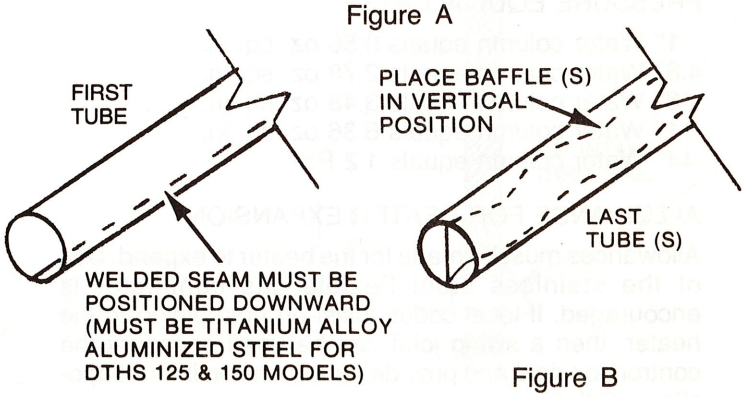


Figure B

Gas Supply

CORRECT INLET PRESSURES ARE VITAL TO EFFICIENT OPERATION OF HEATERS. REFER TO AGA RATING PLATE AND IF NECESSARY CONSULT GAS COMPANY.

If all or a portion of the gas supply line consists of used pipe, it must be cleaned and then inspected to determine its equivalency to new pipe. Excessive torque on manifold may misalign orifice. Always use two (2) wrenches when mating pipe connections.

Never use a match or lighted flame to test for gas leaks, use soap and water solution to check for leaks. If any portion of the gas supply line is located in an area that could cause an abnormal amount of condensate to occur in the pipe, a sediment trap should be installed. (See Figure C.)

Test all main supply lines at 1.5 times working pressure. **(Isolate heater gas valve and supplied gas cock during test.)**

A typical gas supply line connection is illustrated in Figure C. This method will decrease the possibility of any loose scale or dirt in the supply line entering the heater's control system and cause a malfunction.

Provide a 1/8″ NPT plugged tapping accessible for test gauge connection immediately upstream of gas connection to heater.

NATURAL GAS

The gas supply line must be of sufficient size to provide the required capacity and inlet pressure to the heater. To obtain the required manifold pressure of 3.8″ W.C. (water column), a minimum of 4.8″ inlet pressure is required. The 150,000 BTUH unit requires a 6″ W.C. manifold pressure and a minimum inlet pressure of 7″ W.C. A maximum pressure of 14″ W.C. is allowed for all units.

PROPANE GAS

To obtain the required manifold pressure of 10″ W.C. (Water Column), a minimum of 11″ W.C. to a maximum of 14″ W.C. must be provided ahead of the control system on each heater. Do not exceed manifold operating pressure of 10″ W.C. .

Use only a pipe joint compound that is resistant to liquefied petroleum gases.

PRESSURE EQUIVALENTS

1″ Water column equals 0.58 oz. sq. in.
4.8″ Water column equals 2.78 oz. sq. in.
6″ Water column equals 3.48 oz. sq. in.
11″ Water column equals 6.36 oz. sq. in.
14″ Water column equals 1/2 PSI

ALLOWANCE FOR HEATER EXPANSION

Allowances must be made for the heater to expand. Use of the stainless steel flexible gas connector is encouraged. If local codes insist on rigid piping to the heater, then a swing joint can be used or mount the control box rigid and provide for expansion in the opposite direction.

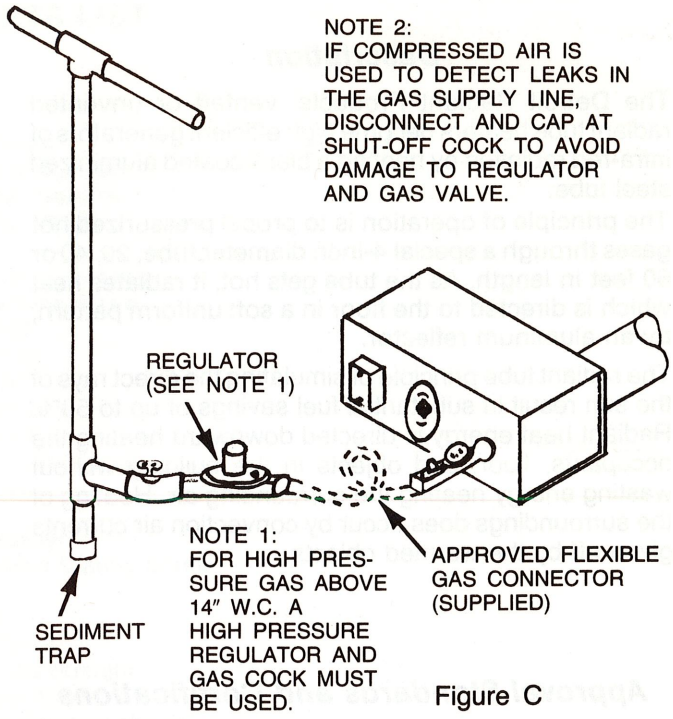


Figure C

REFLECTOR ASSEMBLY

Option A Using Wire Hanger

1. Slide reflector through wire hangers and overlap 4″ for support. (See Figure D.)
2. **DO NOT** sheet metal screw reflectors together.
3. Install reflector center support DTH-RCS as shown only on the 1st 10 ft. after the burner.

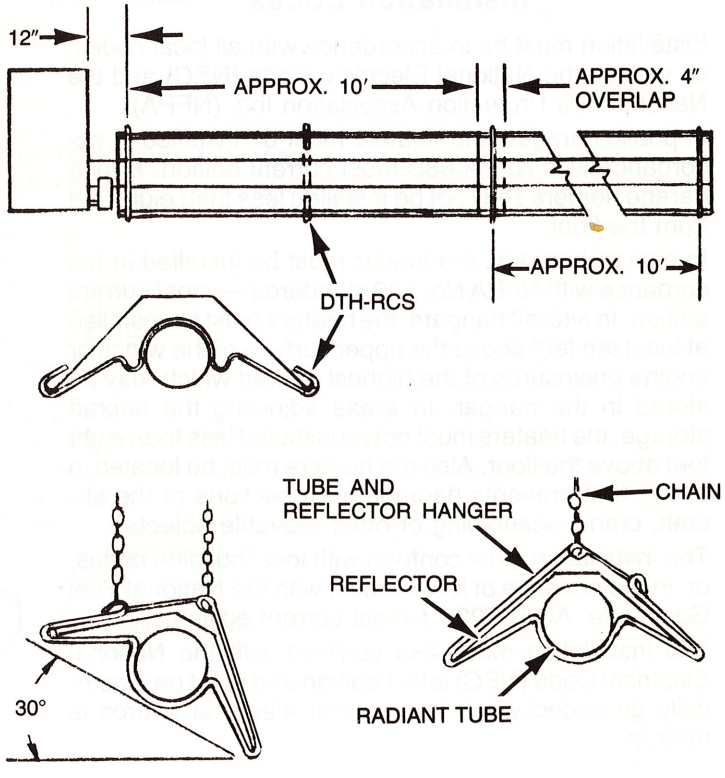


Figure D

Option B Using Clamps

1. Assemble bolt with washers and clamps to the reflector, slide clamps in slot towards center of reflector. (See Figure D.) This will allow radiant tube to expand at a rate greater than the reflector.
2. Attach reflector with clamp attachment to the heater tube.
3. Install shorter reflector 2″ away from radiant sensor box. (See Figure E.)

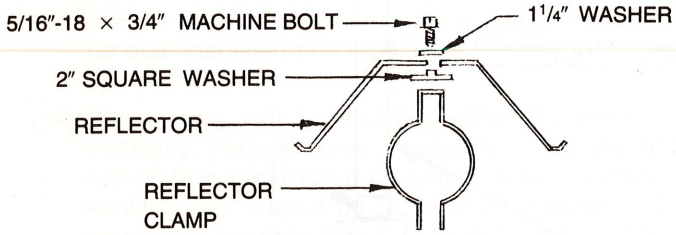


Figure D

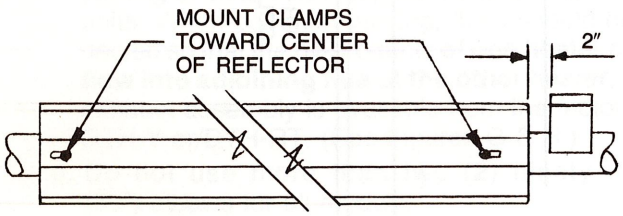


Figure E

UNVENTED OPERATION.

The DTHS model units are approved for unvented operation when equipped with a factory supplied end cap/diffuser, Part No. DTH-WVE, see page 7. This allows the products of combustion from the units to discharge into the space being heated. Ventilation of the space is required to sufficiently dilute those products of combustion. For proper ventilation, it is recommended that a positive air displacement of at least 3.8 CFM per 1000 BTUH of natural gas input be provided. If propane is used, 4.5 CFM per 1000 BTUH of gas is recommended. This air displacement may be accomplished by either gravity or mechanical means. Provisions must be made to provide sufficient fresh air intake area and exhaust air outlet area to accomplish the displacement. Local codes may require mechanical exhaust system to be interlocked with the electrical supply line to the heaters enabling both to function simultaneously.

COMBUSTION AIR

1. Combustion air intake is a factory pre-set air orifice.
2. If indoor combustion air is to be supplied for a tightly closed room, one square inch of free air opening should be provided for each 5,000 BTUH of heater input.
3. If the building has a negative pressure or if contaminants such as solvents, foreign particles, or corrosive vapors are in the air, then outside combustion air must be directly supplied to the heater. Outside combustion air may be provided by an accessory 4″ air duct and directly attached over the air orifice. 4″ air intake collar is available from the factory, P/N DTH-AIC. (See Figure F.)
4. For limitations of length and size see illustration page 4.
5. Hazardous locations: (**This is not an explosion-proof heater**) Where there is the possibility of exposure to flammable vapors, consult the local fire marshal, the fire insurance carrier or other authorities for approval of the proposed installation.

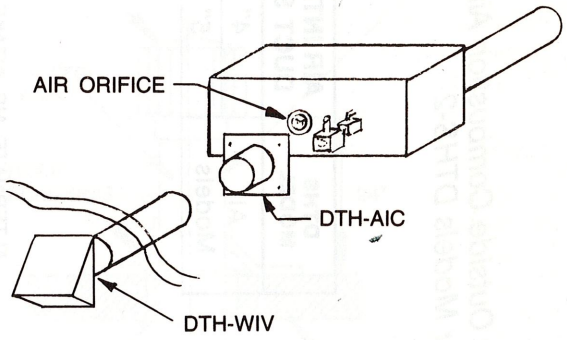
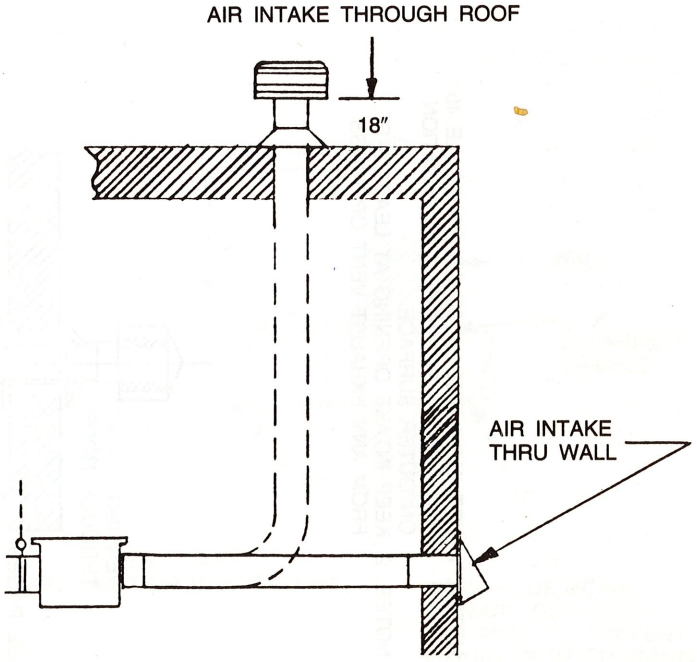


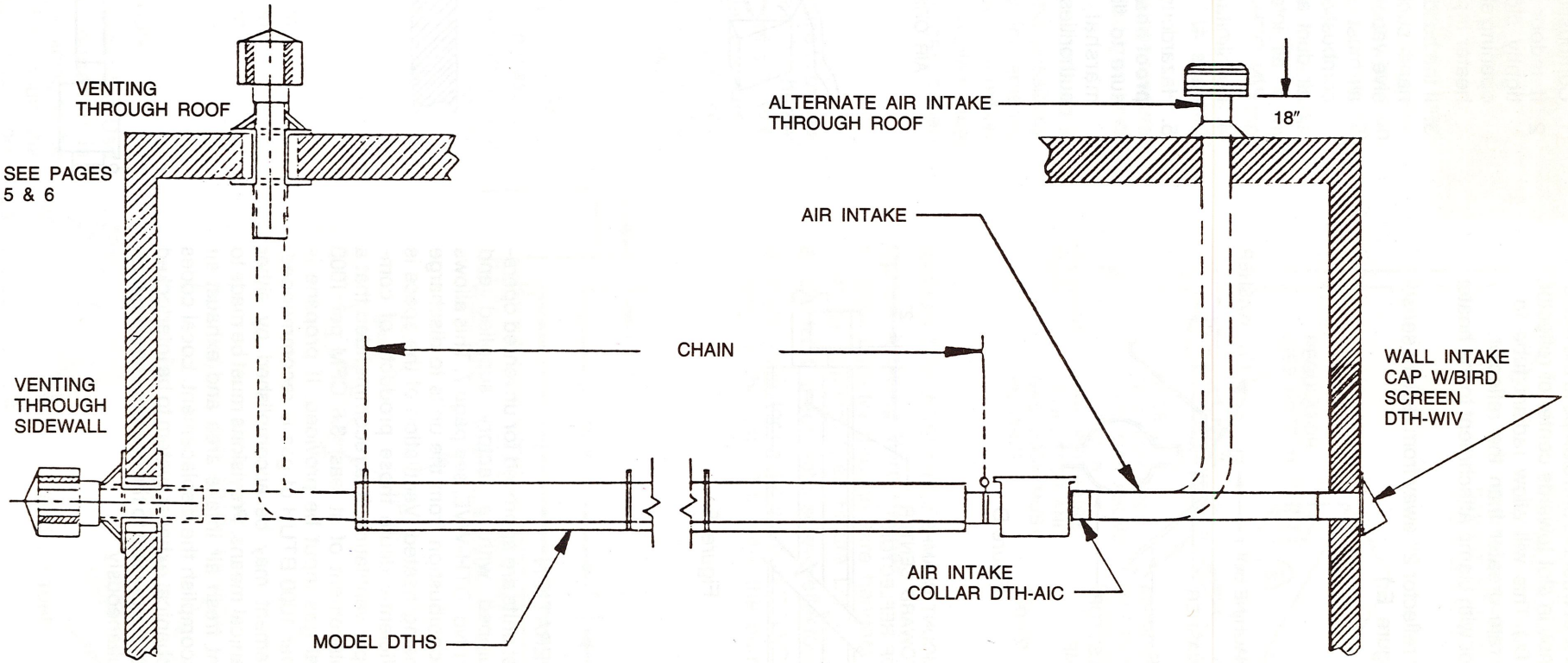
Figure F



Detail for Outside Combustion Air for Models DTHS-2

NOTES: 1. USE INSULATED DUCT OR SCHEDULE 40 PVC PIPE TO PREVENT CONDENSATION ON OUTER SURFACE.
NOTES: 2. KEEP INTAKE OPENING AT LEAST 3 FT. FROM ANY EXHAUST VENT OPENINGS.

DTHS MODEL	AIR INTAKE DUCT SIZE	MAXIMUM INTAKE LENGTH
All Models	4"	20'
	5"	30'



FLUE VENTING

1. Check all codes prior to installing any flue stacks. Local codes may vary. In absence of local codes see national fuel code ANSIZ223.1 (latest edtion).
2. Heater exhaust end will receive a four inch (4") diameter stack.
3. Stacks may consist of a ten foot (10') section of radiant tubing if desired. A minimum of 26 GA galvanized steel pipe is required. Total stack length from the heater to the exit should not exceed thirty five feet (35') on the DTHS 20 models, twenty feet (20') on the DTHS 40 and DTHS 60 models. Total stack length for DTHS 40-125 and DTHS 40-150 models is forty feet (40'). The portion of the stack that passes through combustible material of the building wall or roof must be dual insulated flue pipe. (See illustration on page 6).
4. Stacks may exit the building either horizontally or vertically. Vertical venting exiting the roof should be two (2) feet above the eave of the roof. For horizontal venting, flue should be 2" from the sidewall. Care should be exercised to assure that vent opening is beyond any combustible overhang. (See illustration page 6.)
5. A common flue of 6" diameter may be used for double venting of units. Allow one thermostat to control both units. When common venting, flues should be connected so that the by-products **of one heater cannot flow into adjoining flue of the other heater.** A dual exhaust assembly is available from the factory; P/N DTH-Y or/DTH-RT. (See Figures G & H.)
6. Do not use more than two (2) ninety degree (90°) elbows for all models.
7. Breidert, or Mastervent, vent cap should be used.
8. All pipes must be sealed to prevent leakage of flue gas into building. Aluminum or Teflon tape suitable for 250°F is recommended.
9. Single wall vent pipe exposed to cold air must be insulated to prevent condensation.

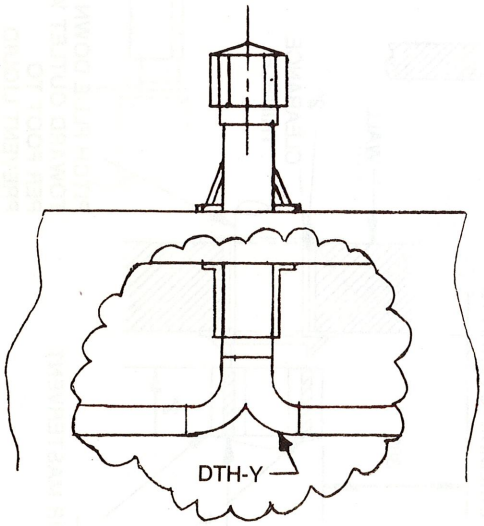


Figure G

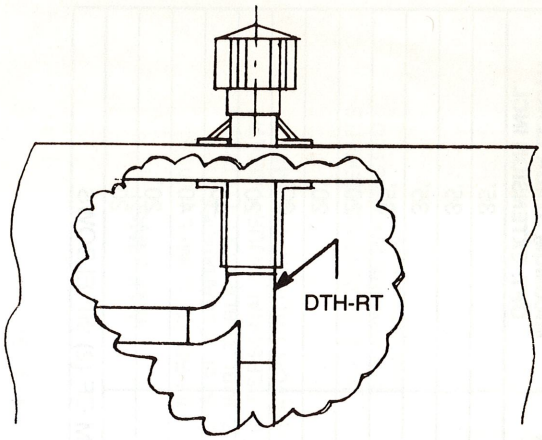
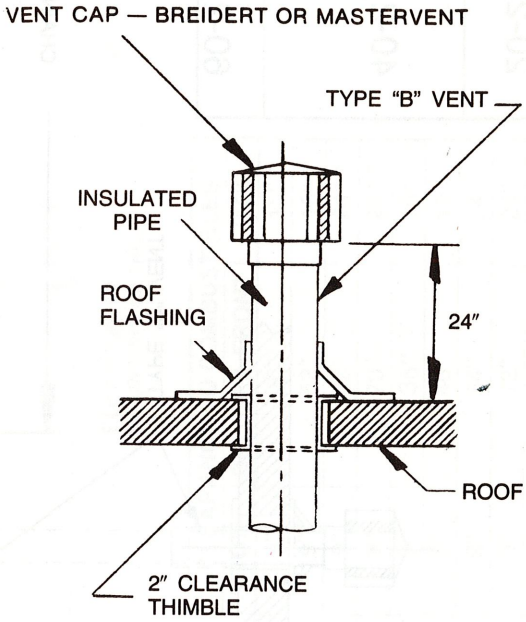
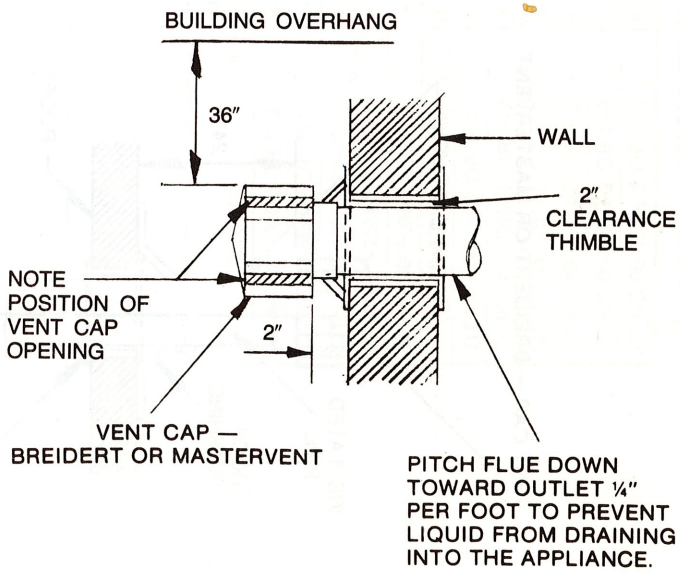


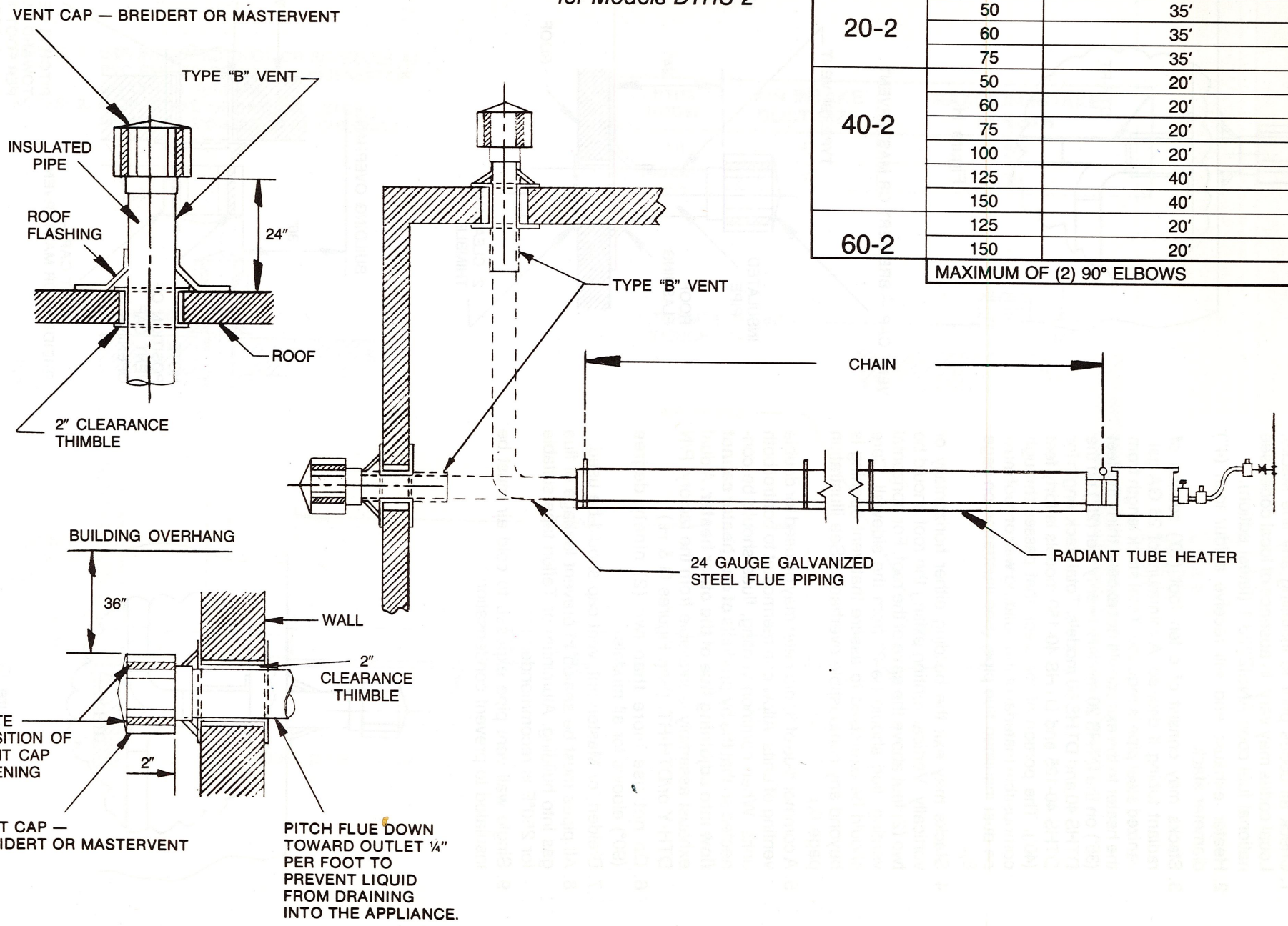
Figure H



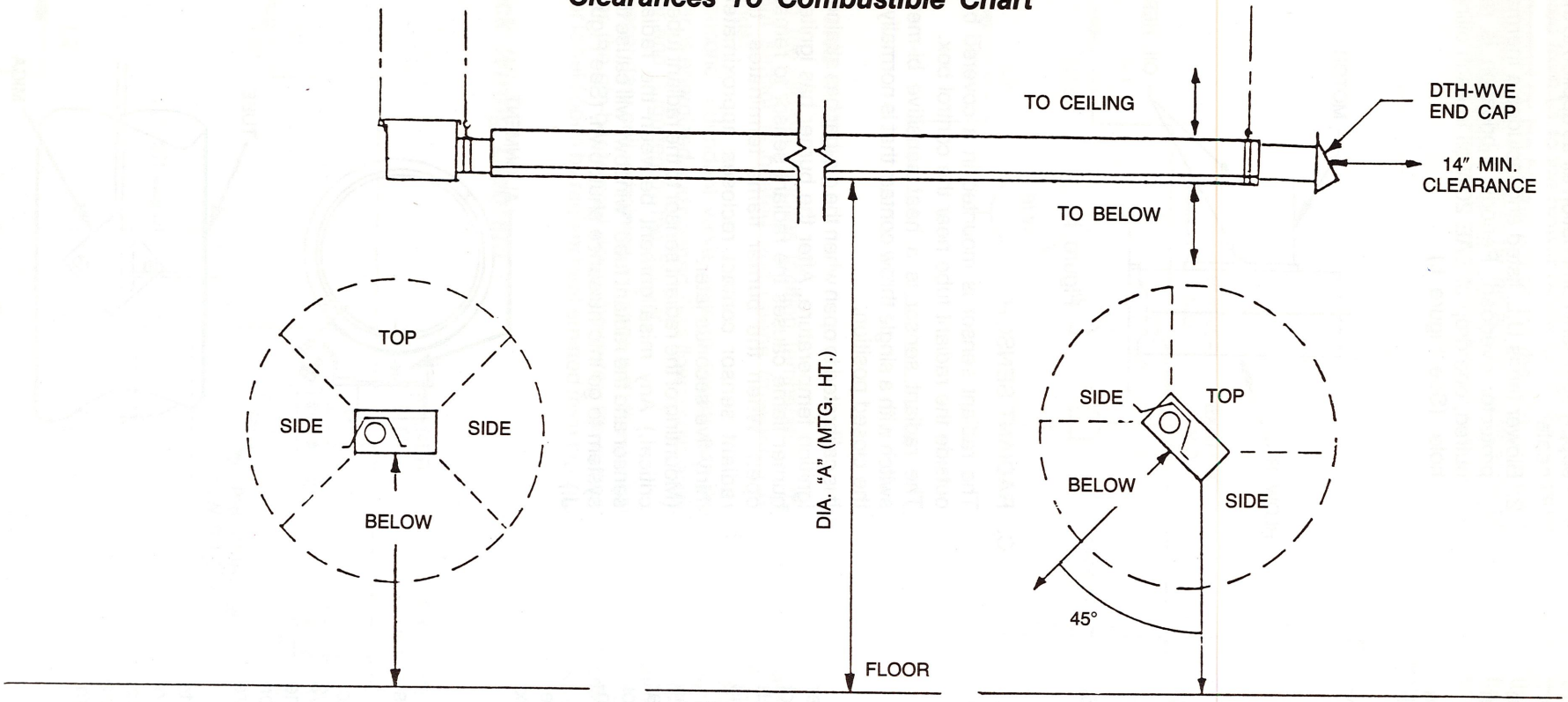


Detail for Flue Venting for Models DTHS-2

DTHS MODEL	MBTUH INPUT	MAXIMUM STACK LENGTH OPT. EXTENSION INCL.
20-2	40	35′
	50	35′
	60	35′
	75	35′
40-2	50	20′
	60	20′
	75	20′
	100	20′
	125	40′
	150	40′
60-2	125	20′
	150	20′
MAXIMUM OF (2) 90° ELBOWS		



Clearances To Combustible Chart



ELEVATION OF MOUNTING DETAIL

45° MOUNTING WITH EXHAUST SIDE UP.

MODEL	DIM A TYP. MTG. HT.	CLEARANCE TO COMBUSTIBLES		
		TOP	BELOW & FRONT	SIDE
DTHS 20-40N-2 OR P-2	9-15 FT.	9"	40"	15" *
DTHS 20-50N-2 OR P-2	10-16 FT.	9"	52"	15" *
DTHS 20-60N-2 OR P-2	11-18 FT.	9"	62"	24" *
DTHS 20-75N-2 OR P-2	13-20 FT.	9"	70"	24" *
DTHS 40-50N-2 OR P-2	9-16 FT.	9"	36"	10"
DTHS 40-60N-2 OR P-2	10-18 FT.	9"	40"	10"
DTHS 40-75N-2 OR P-2	11-20 FT.	9"	54"	24"
DTHS 40-100N-2 OR P-2	13-25 FT.	9"	72"	24"
DTHS 40-125N-2 OR P-2	15-30 FT.	18"	74"	30"
DTHS 40-150N-2 OR P-2	15-35 FT.	18"	74"	30"
DTHS 60-125N-2 OR P-2	15-30 FT.	18"	74"	30"
DTHS 60-150N-2 OR P-2	15-35 FT.	18"	74"	30"

* Clearances for these models when mounted at 45° is 12".

WARNING!

FAILURE TO COMPLY WITH STATED CLEARANCES TO COMBUSTIBLES COULD RESULT IN PERSONAL INJURY, DEATH AND/OR PROPERTY DAMAGE.

NOTE: MOUNTING HEIGHTS SHOWN ARE SUGGESTED HEIGHTS ONLY.

ELECTRICAL

1. Heaters operate on 120 volts 60 Hz. Ignition current requires 4.8 amps. Running current requires 1.1 amps.
2. Heater must be grounded in accordance with the National Electrical Code NFPA 70.1984 when an external source is utilized.
3. It is recommended that the thermostat be installed on the hot side of a fused supply line and have a sufficient ampere rating for the heater(s) it will control.
4. Wiring must not be run above or below the heater nor exposed to the radiant output.
5. Observe electrical polarity.

LIGHTING INSTRUCTIONS

1. Purge main gas supply line.
2. Rotate heater's manual gas valve knob to "ON" position.
3. Close electrical circuit.
4. If heater fails to light, turn off gas and wait five (5) minutes before repeating the above.

TO SHUT DOWN

1. Rotate heater's manual gas valve to "OFF" position.
2. Open electrical circuit.

Operation

A. BURNER ASSEMBLY

1. Upon the thermostat calling for heat, the burner blower will operate and pressurize the control box and burner chamber. The pressure switch will make, and the glo-bar will energize. This purge cycle will take approximately 35 seconds.
2. The radiant sensor's contacts will open, the glo-bar will de-energize and residual glo-bar energy will ignite burner gas. The radiant sensor will then sense main burner ignition and continue to operate.
3. When the thermostat is satisfied, the motor de-energizes, valve closes and system waits next cycle of operation.

C. PRESSURE SWITCHES

1. Mounted adjacent to the blower are two (2) pressure switches.
2. The combustion chamber pressure switch is factory pre-set to assure that a minimum of 2/3 normal rate of combustion air is passed into the combustion chamber. Any air flow restriction less than 2/3 normal rate will cause the pressure switch to shut down the entire system.
3. The exhaust pressure switch is factory pre-set to assure that a minimum of 1/2 normal rate of exhaust air is being passed. Any air flow restriction of less than 1/2 normal rate will cause the pressure switch to shut down the entire system. Pressure switches are factory set and locked.

NOTE: Do not adjust any pressure switch.

B. BLOWER FAN

1. Blower fan mounted in the control box is rated to supply sufficient combustion air as applied to the heater.
2. Blower fan is U.L. listed and includes a thermal protector overload. Periodic lubrication is required, one drop of SAE 20W oil in each oiling hole. (See Figure I.)

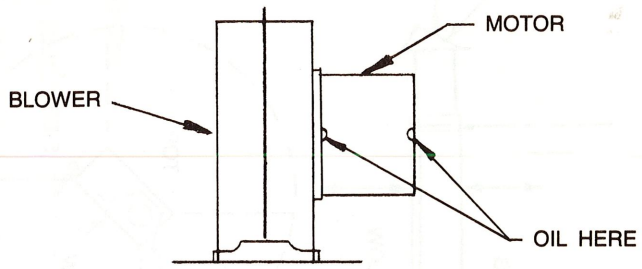


Figure I

C. RADIANT SENSOR

The radiant sensor is mounted in a covered box outside the radiant tube near the control box.

The radiant sensor is a heat sensitive bi-metal switch with a single throw contact that is normally in the closed position.

It is calibrated to open when the glo-bar has attained ignition temperature. After the burner has ignited, burner flame causes the radiant sensor to remain open. When the burner flame terminates, the radiant sensor contact recloses approximately thirty-five seconds later.

(Mounting of the radiant sensor to the radiant tube is critical.) Any misalignment between the radiant sensor and the radiant tube "window" will cause the system to go into nuisance shutdown. (See Figure J.)

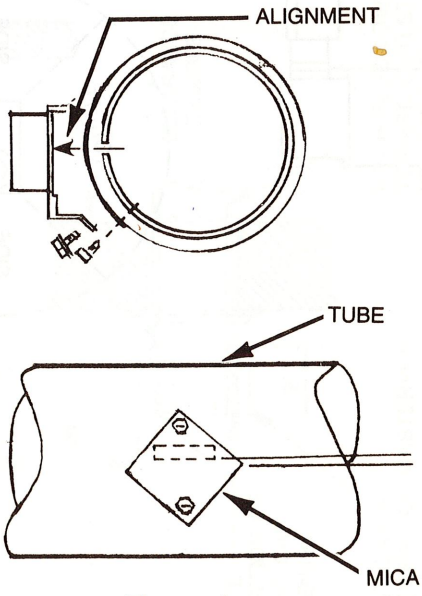
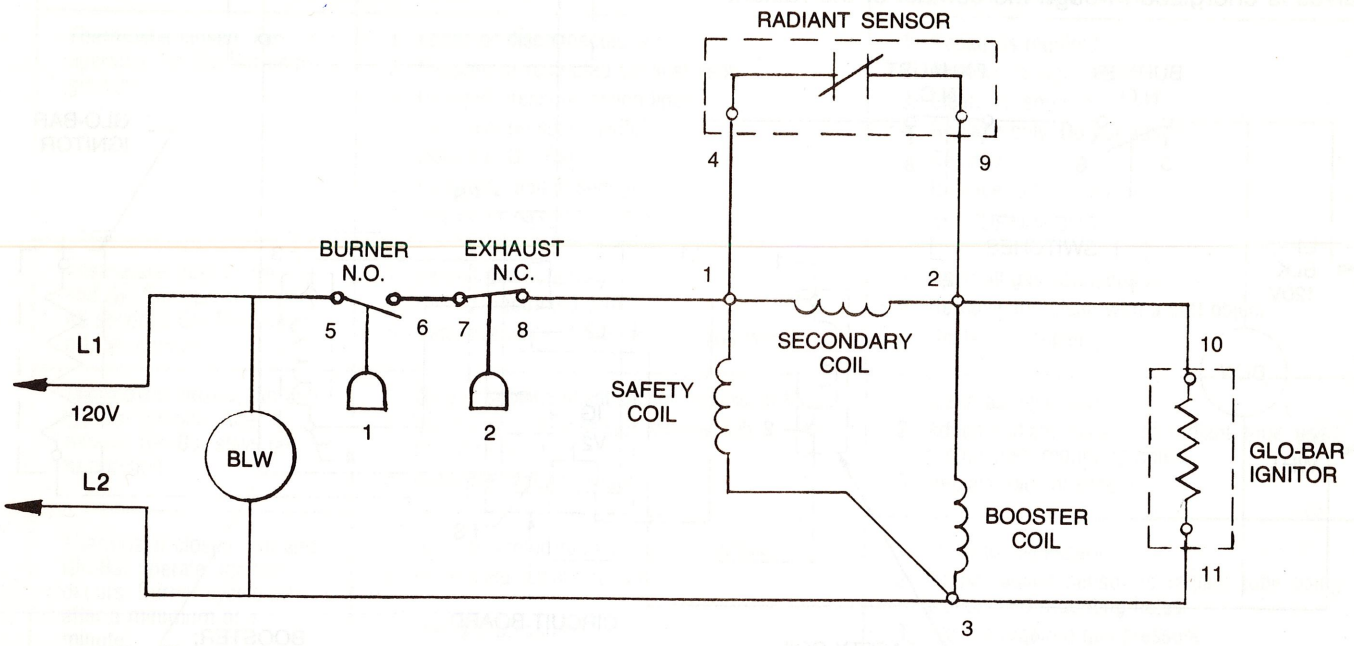


Figure J

Wiring Diagrams for Models DTHS 20 and 40, 40,000 BTU through 100,000 BTU

STARTING CIRCUIT

When voltage is applied to L1 and L2 a circuit is completed from L1 to the blower motor to L2. Air pressure generated by the blower will cause the normally open pressure switch 1 to close by this action. Another circuit is completed from L1 to the radiant sensor and glo-bar back to L2. Simultaneously, the safety and booster coils of the first of two redundant valves are energized through the contact of the radiant sensor. This causes the valve to open and the glo-bar to heat up. No gas flows, however, until the second redundant valve is energized and opened.



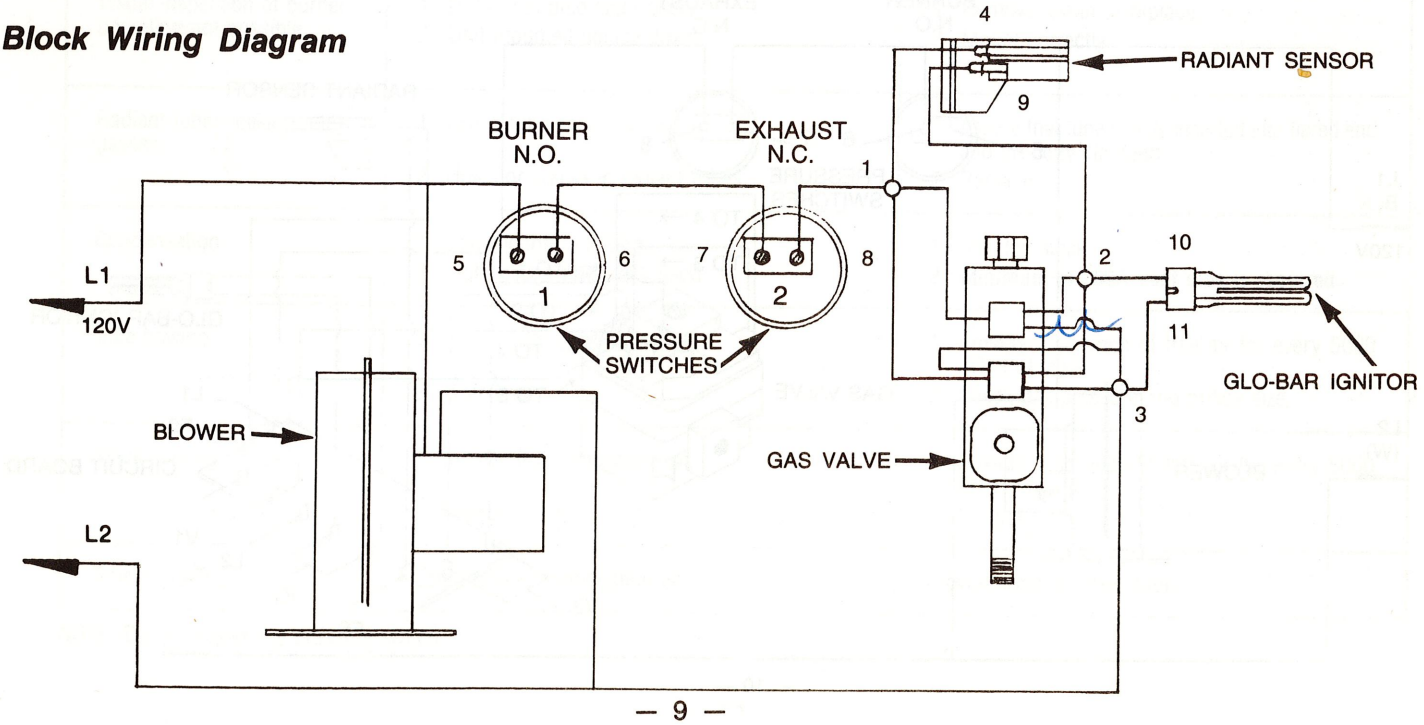
RUNNING CIRCUIT

When the glo-bar reaches ignition temperature, the radiant sensor is heated and opens (maximum 60 seconds).

The second redundant valve, now in series with the glo-bar, is energized and opened. Gas flow results at the burner and is ignited by the glo-bar.

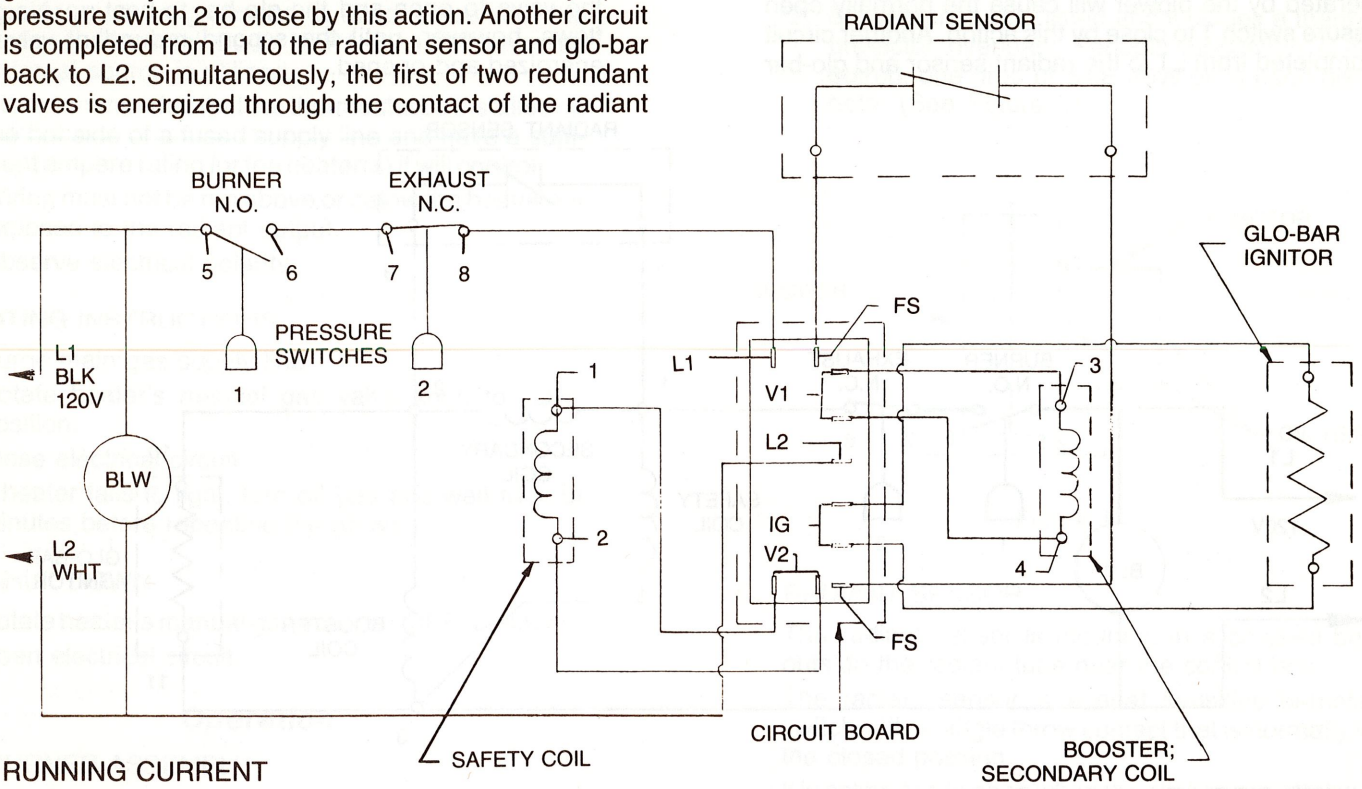
The secondary coil remaining in series with the glo-bar causes the glo-bar to cool down, however, the radiant sensor is held open by radiant heat emitted from the gas flame. The booster coil of the first valve becomes placed in series with the secondary coil and very low current results in the coil. The safety coil is only sufficient to hold the first valve open. If a momentary power failure occurs, the first valve will shut down the gas supply to the burner and when power is restored, the safety coil alone is not sufficient to pull the valve open. Therefore, the radiant sensor cools down and the contacts close and recycle occurs (maximum 60 seconds).

Block Wiring Diagram



STARTING CIRCUIT

When voltage is applied to L1 and L2 a circuit is completed from L1 to the blower motor to L2. Air pressure generated by the blower will cause the normally open pressure switch 2 to close by this action. Another circuit is completed from L1 to the radiant sensor and glo-bar back to L2. Simultaneously, the first of two redundant valves is energized through the contact of the radiant sensor. This causes the valve to open and the glo-bar to heat up. No gas flows, however, until the second redundant valve is energized and opened.



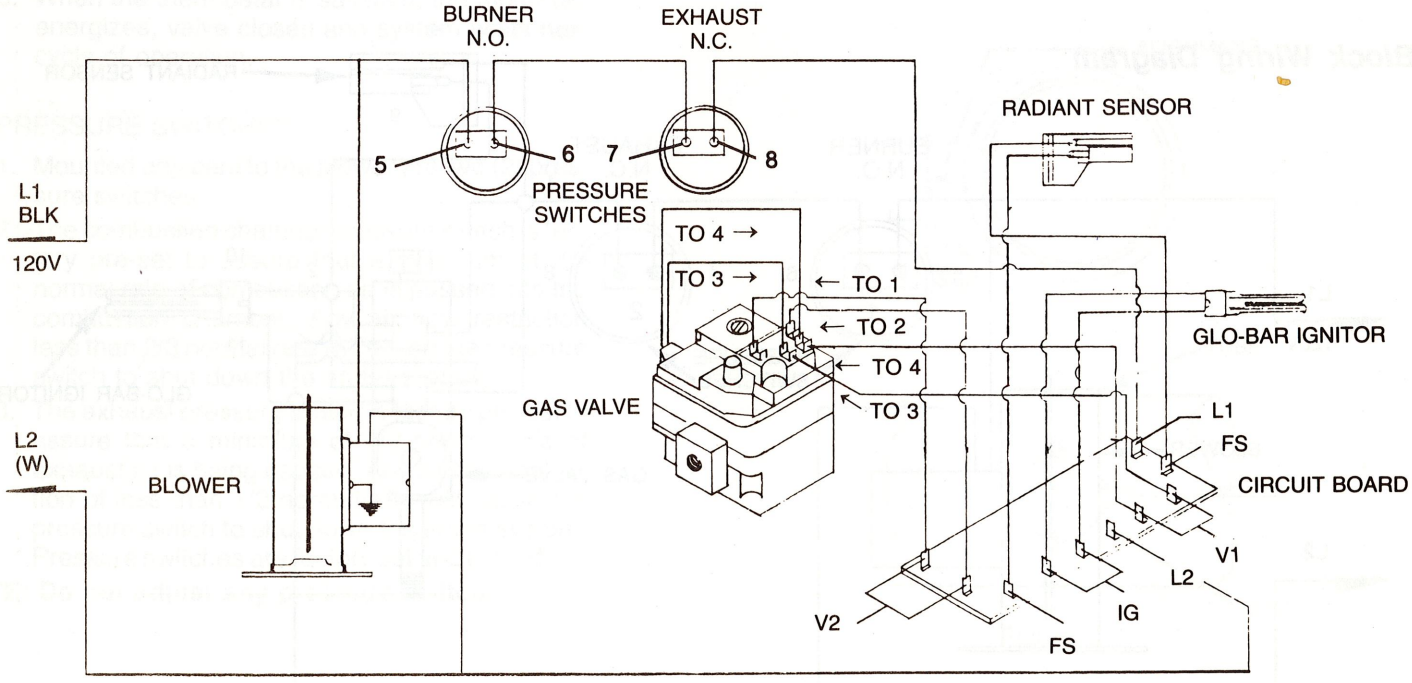
RUNNING CURRENT

When the glo-bar reaches ignition temperature, the radiant sensor is heated and opens (maximum 60 seconds).

The second redundant valve, now in series with the glo-bar, is energized and opened. Gas flow results at the burner and is ignited by the glo-bar.

The secondary coil remaining in series with the glo-bar causes the glo-bar to cool down. However, the radiant sensor is held open by radiant heat emitted from the gas flame.

The coil of the first valve becomes placed in series with the resistor in the circuit board and very low current results in the coil. The low current is sufficient to hold the first valve open. If a momentary power failure occurs, the first valve will shut down gas supply to the burner. When power is restored the first coil will not have sufficient current to pull the valve open. Therefore, the radiant sensor cools down and the contacts close and recycling occurs (maximum 60 seconds).

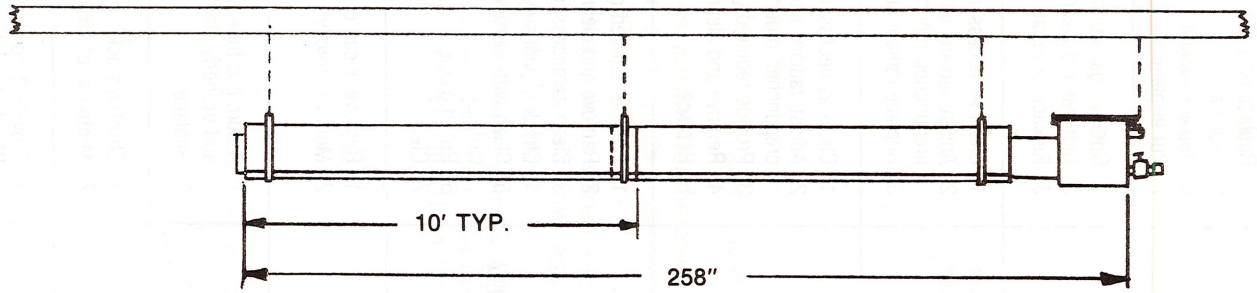


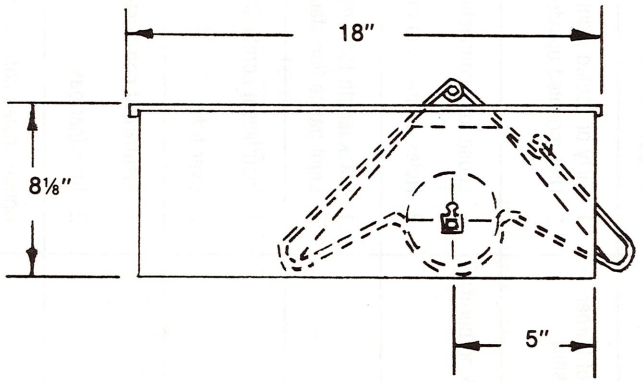
Trouble Shooting Chart

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Thermostat closed but nothing happens.	1. Blown fuse. 2. Defective thermostat. 3. Loose or disconnected wire. 4. Defective Fan.	1. Replace. 2. Replace. 3. Repair as required. 4. Lubricate, repair or replace.
Thermostat closed. Fan operates. No Glo-Bar energization.	1. Loose or disconnected wire. 2. Plugged or restricted exhaust vent. 3. Plugged pressure switch lines. 4. Defective pressure switches. 5. Defective Glo-Bar. 6. Defective radiant sensor. 7. Box lid or gasket not in place.	1. Repair as required. 2. Remove foreign matter. 3. Clean as required. 4. Replace only. Do not adjust. 5. Replace. 6. Replace radiant sensor. 7. Put in place.
Thermostat closed. Fan and Glo-Bar operate. After 45 seconds Glo-Bar shuts off. Nc ignition.	1. Closed gas supply. 2. Dirty or restricted orifice. 3. Defective valve, disconnected valve wire.	1. Open all gas connections. 2. Remove and clean with a soft object. 3. Replace or repair.
Thermostat closed, fan and Glo-Bar operate. After 1 minute, Glo-Bar stays on. No ignition.	1. Dirty or sooted radiant sensor window, or Mica. 2. Misaligned radiant sensor window, fails to "see" Glo-Bar operation. 3. Defective radiant sensor.	1. Clean as necessary. 2. Adjust radiant sensor to radiant tube using prepunched mounting holes. 3. Replace radiant sensor.
Thermostat closed, fan and Glo-Bar operate. Ignition occurs. Burner cycles off after a minimum of 1 minute.	1. Dirty or sooted radiant sensor window. 2. Misaligned radiant sensor. 3. Low gas pressure. 4. Dirty or restricted orifice. 5. Defective radiant sensor.	1. Clean as necessary. 2. Adjust radiant sensor to radiant tube using prepunched mounting holes. 3. Provide required gas pressure. 4. Remove and clean with a soft object. 5. Replace.
Loss of heater efficiency.	1. Low gas pressure. 2. Dirty or restricted orifice. 3. Foreign matter inside burner assembly. 4. Unit cycles on and off. 5. Reflector is sooted and lost its reflective ability. 6. Reflector not in place. 7. Clogged fan blower.	1. Provide required gas pressure. 2. Remove and clean with a soft object. 3. Clean as necessary. 4. Check previous symptom. 5. Clean with aluminum cleaner and soft wiping cloth. 6. Put in place. 7. Clean.
Visual inspection of burner operation not possible.	1. Dirty or sooted sight glass. 2. Unit mounted upside down.	1. Remove, clean or replace. 2. Mount correctly.
Radiant tubes leaking burnt gasses.	1. Loose tube connections 2. Holes or cracks in radiant tubes.	1. Assure that tube is fully inserted into flared end and properly clamped. 2. Replace.
Condensation.	1. Stack length too long. 2. Light gauge flue stack used.	1. Shorten stack. 2. **Minimum of 26GA vent pipe is required.**
Tube bowing.	1. Insufficient combustion air. 2. Over fired.	1. Provide 1 sq. inch of free air for every 5000 BTUH of input. 2. Check gas pressure and orifice size.
Stack sooting.	1. Insufficient combustion air. 2. Improper gas.	1. Provide 1 sq. inch of free air for every 5000 BTUH of input. 2. Correct.
Tube corroding.	Contaminated combustion air.	Provide fresh air inlet duct.

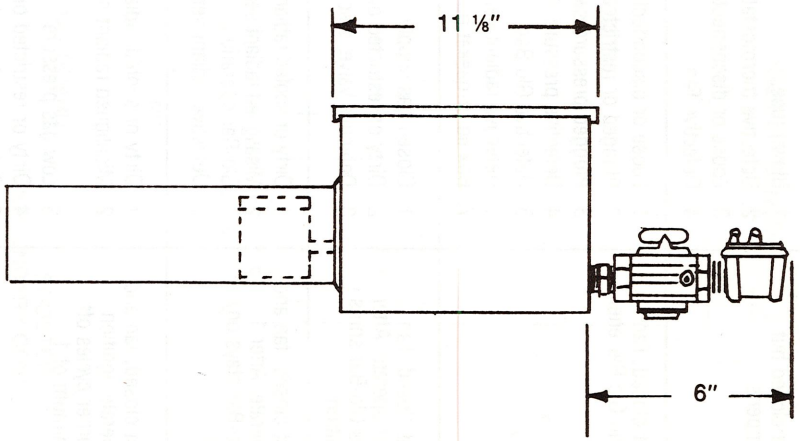
NOTE: Do not adjust any pressure switch.

SPECIFICATIONS FOR MODEL DTHS20 INFRARED TUBE HEATER



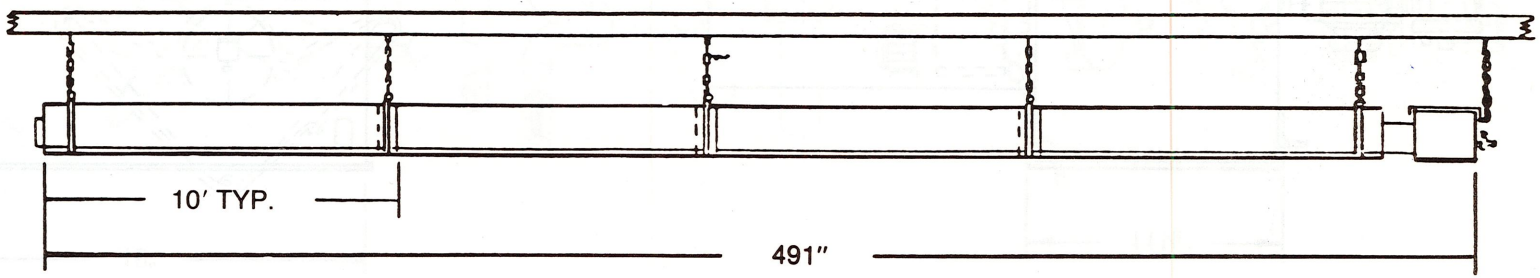


END VIEW

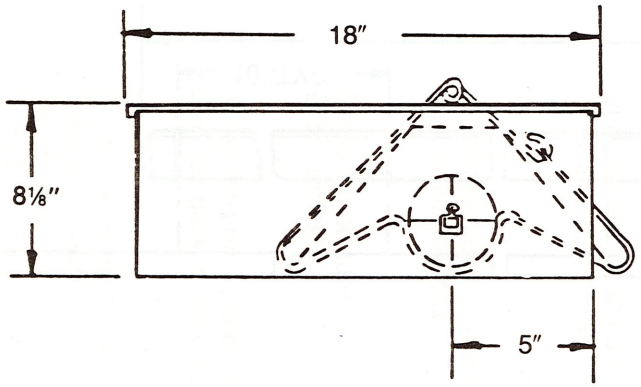


EXPLODED SIDE VIEW

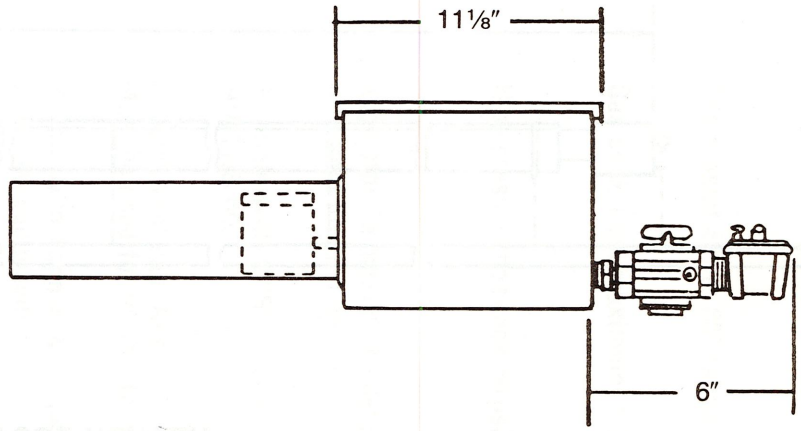
SPECIFICATION FOR MODEL DTHS40 INFRARED TUBE HEATER



SIDE VIEW

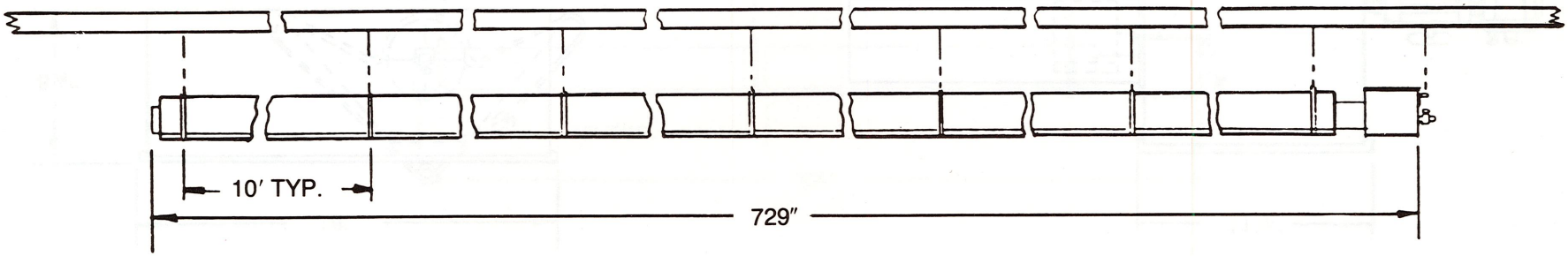


END VIEW

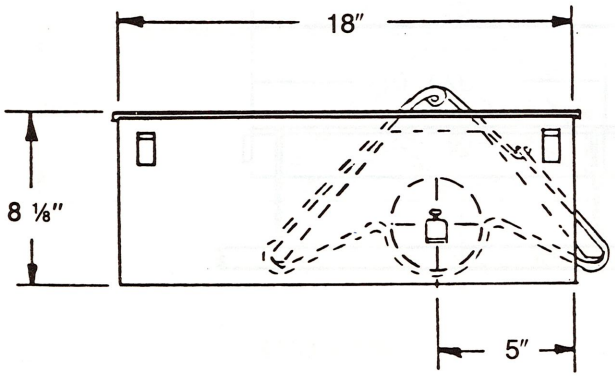


EXPLODED SIDE VIEW

SPECIFICATION FOR MODEL DTHS60 INFRARED TUBE HEATER



SIDE VIEW



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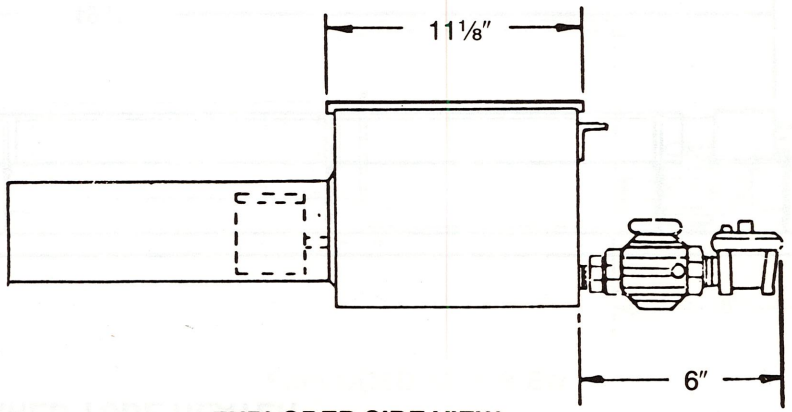
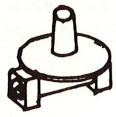
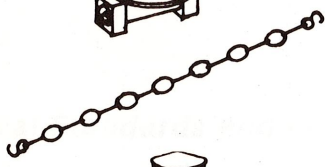
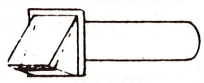
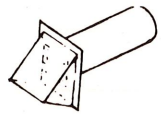
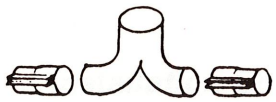
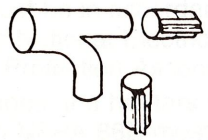
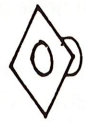
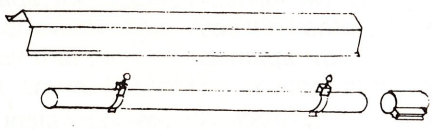
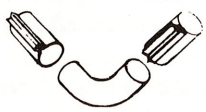


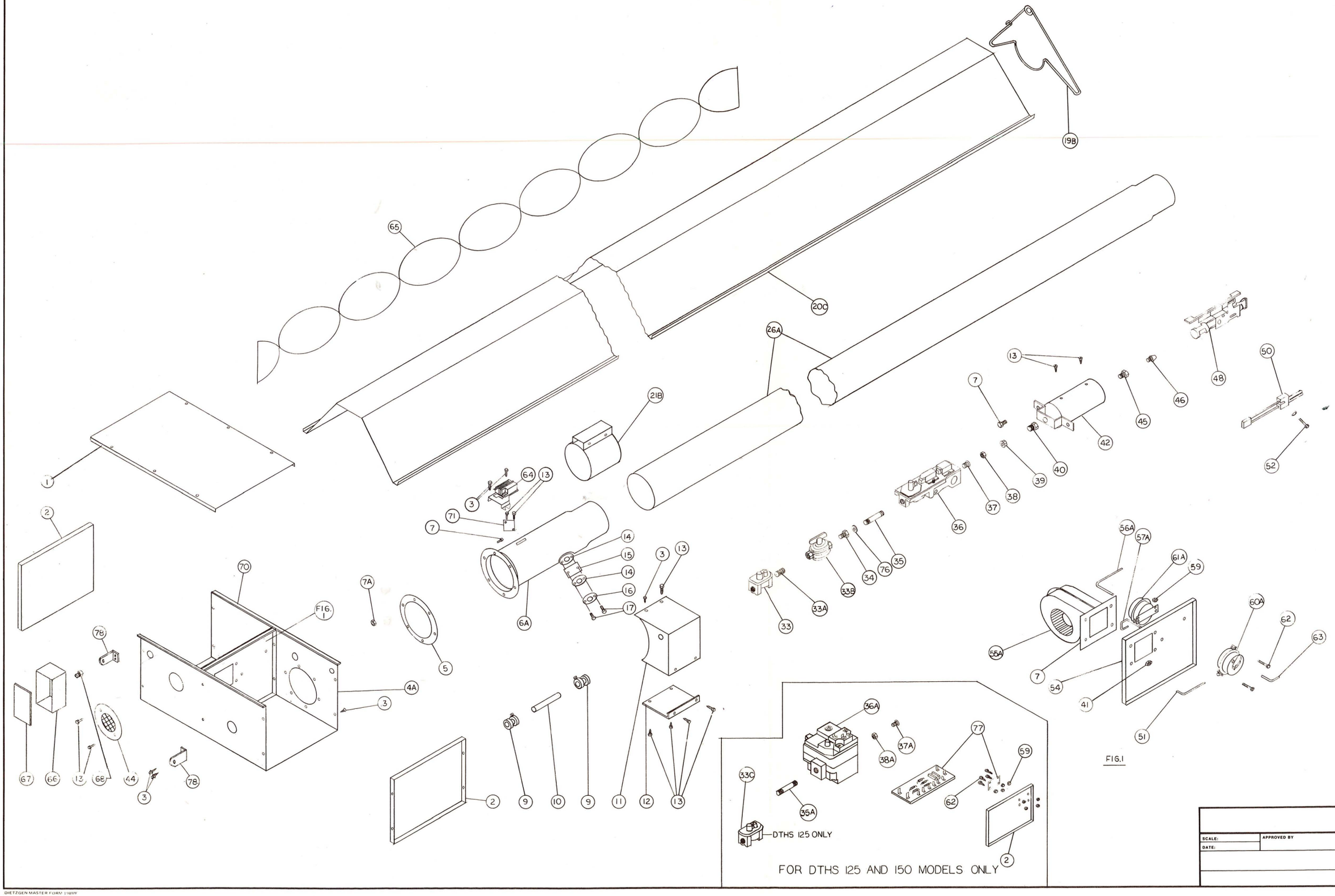
EXPLODED SIDE VIEW

AVAILABLE DTHS ACCESSORIES

	MODEL NUMBER	
	DTH-TD126	Thermostat 40° to 80° range. 25 amps, 120V.
	DTH-GC1	Gas cock 1 psi maximum, 1/2" FPT.
	DTH-GC50	High pressure gas cock. 50 psi maximum, 1/2" FPT.
	DTH-325-3	Regulator, 5# maximum inlet pressure, 1/2" x 1/2", with vent limiting device.
	DTH-CS	5' chain with 2 "S" hooks. 5/DTHS 20, 7/DTHS 40, 9/DTHS 60.
	DTH-4-VC DTH-6-VC	Breidert vent cap. Available in 4" and 6". Must be used for horizontal venting.
	DTH-WVE	4" vent with flapper. Must be used for unvented equipment.
	DTH-WIV	4" wall vent inlet with bird screen.
	DTH-Y	Dual exhaust assembly, "Y" shaped, 16 gauge 4" I.D. x 6" O.D. x 4" I.D. Clamps provided.
	DTH-RT	Dual exhaust assembly, "T" shaped, 16 gauge 4" I.D. x 6" O.D. x 4" I.D. Clamps provided.
	DTH-AIC	4" adapter collar. Attaches outside combustion duct to control box.
	DTH-HGR	Combination tube and reflector hanger for DTHS series.
	DTHS-10EA	10' extension assembly includes 10' tube, reflector and hangars needed for assembly.
	DTH-ES DTH-E	90° elbow assembly 4" x 4". Clamps provided. 4½" Radius 8" Radius
	DTH-45	45° elbow assembly 4" x 4". Clamps provided.

DTHS PARTS LIST

TP 1.	Control Box Cover
TP 2.	Outside Control Box End
TP 3.	# 8 Sheet Metal Screw ¼.
TP 4A.	Control Box for DTHS
TP 5.	Gasket
TP 6A.	16" Burner Tube with flange
TP 7.	¼ - 20 x ½ Machine Screw
TP 7A.	¼" - 20 Hex Nut
TP 9.	Conduit Coupling
TP 10.	Conduit 4" x ½"
TP 11.	Radiant Sensor Box
TP 12.	Radiant Sensor Lid
TP 13.	# 8 x ½ Self Drilling Screw
TP 14.	Sight Glass Gasket
TP 15.	Sight Glass
TP 16.	Sight Glass Washer
TP 17.	¼ - 20 x ½ Thread Cutting Screw
TP 19 B.	Wire Hanger
TP 20C.	Reflector (120")
TP 21B.	Tube Clamp Torca
TP 26A.	10' Exhaust Tube Straight
TP 33.	RV35AL Natural Gas
TP 33 P.	R400 Propane Gas (not shown)
TP 33A.	½" x Close Nipple
TP 33B.	Gas Cock
TP 33C.	RV43 Natural Gas (DTH 125 only)
TP 34.	⅜ x ½ Bushing
TP 35.	Pipe Nipple 2½ x ⅜
TP 35A.	4" x ½" Pipe Nipple (DTH 125/150 only)
TP 36.	⅜ Gas Valve
TP 36A.	½ Gas Valve (DTH 125/150 only)
TP 37.	⅜ Union Fitting
TP 37A.	½ Union (DTH 125/150 only)
TP 38.	Union Nut
TP 39.	½ Union Fitting
TP 40.	½ x ¼ Bushing
TP 42.	Burner Casing
TP 44.	Inlet Air Orifice with Screen
TP 45.	¼ x ⅛ Bushing
TP 46.	Orifice
TP 48.	Main Burner
TP 50.	Glo-Bar Ignitor
TP 51.	Pressure Tube
TP 52.	#6 x ¾" Sheet Metal Screw & Washer
TP 54.	Burner Box Divider
TP 55A.	Fan Blower
TP 56A.	¼ Pressure Tube
TP 57A.	¼ Atmospheric Tube
TP 59.	#8 Hex Nut/Lock Washer
TP 60A.	Exhaust Pressure Switch
TP 61A.	Burner Pressure Switch
TP 62.	#8 x ½ Machine Screw
TP 63.	Pressure Tube
TP 64.	Radiant Sensor
TP 65.	Heat Diffuser (Baffle)
TP 66.	2 x 4 Outlet Box
TP 67.	2 x 4 Outlet Box Cover
TP 68.	Conduit Nipple
TP 70.	Control Box Cover Gasket
TP 71.	Radiant Sensor Mica
TP 76.	Rubber Bushing
TP 77.	Circuit Board (DTH 125/150 only)



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SCALE:	APPROVED BY	DRAWN BY
DATE:		
		DRAWING NUMBER