OPERATING INSTRUCTIONS AND OWNER'S MANUAL

Model #

JET20
JET25

READ INSTRUCTIONS CAREFULLY: Read and follow all instructions. Place instructions in a safe place for future reference. Do not allow anyone who has not read these instructions to assemble, light, adjust or operate the heater.

HEATSTAR JET SERIES

Poultry Confinement Buildings
Agricultural Buildings

LANGUAGES INCLUDED
•ENGLISH

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.

— WHAT TO DO IF YOU SMELL GAS

- Open Windows
- **DO NOT** try to light any appliance.
- **DO NOT** use electrical switches.
- **DO NOT** touch any electrical switch; do not use any phone in your building.
- Immediately call your local gas supplier; follow the gas supplier's instructions. (Installation and service must be performed by a qualified installer, service agency or the gas supplier.)
- If you cannot reach your gas supplier, call the Fire Department.

FOR YOUR SAFETY:

- **This heater is intended to be used as a direct gas fired radiant heater for the heating of poultry confinement buildings. If you are considering using this product for any application other than its intended use, then please contact Heatstar, Inc**
- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WARNING: If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

WARNING:

⚠ YOUR SAFETY IS IMPORTANT TO YOU AND TO OTHERS, SO PLEASE READ THESE INSTRUCTIONS BEFORE YOU OPERATE THIS HEATER.

GENERAL HAZARD WARNING:

⚠ FAILURE TO COMPLY WITH THE PRECAUTIONS AND INSTRUCTIONS PROVIDED WITH THIS HEATER CAN RESULT IN DEATH, SERIOUS BODILY INJURY AND PROPERTY LOSS OR DAMAGE FROM HAZARDS OF FIRE, EXPLOSION, BURN, ASPHYXIATION, CARBON MONOXIDE POISONING, AND/OR ELECTRICAL SHOCK.

⚠ ONLY PERSONS WHO CAN UNDERSTAND AND FOLLOW THE INSTRUCTIONS SHOULD USE OR SERVICE THIS HEATER.

⚠ IF YOU NEED ASSISTANCE OR HEATER INFORMATION SUCH AS AN INSTRUCTIONS MANUAL, LABELS, ETC., CONTACT THE MANUFACTURER.

WARNING:

⚠ FIRE, BURN, INHALATION, AND EXPLOSION HAZARD. KEEP SOLID COMBUSTIBLES SUCH AS BUILDING MATERIALS, PAPER OR CARDBOARD A SAFE DISTANCE AWAY FROM THE HEATER AS RECOMMENDED BY THE INSTRUCTIONS. NEVER USE THE HEATER IN SPACES WHICH DO OR MAY CONTAIN VOLATILE OR AIRBORNE COMBUSTIBLES, OR PRODUCTS SUCH AS GASOLINE, SOLVENTS, PAINT THINNER, DUST PARTICLES OR UNKNOWN CHEMICALS.

WARNING:

⚠ **The State of California requires the following 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).

CONTENTS

SECTION 1:Introduction

HEATSTAR AG models are low-cost, field assembled infrared heaters that are easy to install and require only minimal maintenance. They are designed to provide years of economical operation and trouble-free service.

Checking Shipment

Check the shipment against the Bill of Lading for shortages. Also, check for external damage to cartons. Note any shortages, and/or external damage to cartons on the Bill of Lading in the presence of the delivery trucker. The delivery trucker should acknowledge any shortages or damage by initializing this "noted" Bill of Lading. Immediately report any claims for damaged material, or shortages that were not evident at the time of shipment, to the carrier and your Heatstar, Inc Factory Representative.

Installer Responsibility

All heaters and associated gas piping should be installed in accordance with applicable specifications and this installation made only by firms (or individuals) well qualified in this type of work. Consult local building inspectors, Fire Marshals or your local Heatstar, Inc Factory Representative for guidance.

HEATSTAR AG heaters are installed on the basis of information given in a layout drawing, which together with the cited codes and regulations, comprise the basic information needed to complete the installation. The installer must furnish all needed material that is not furnished as standard equipment, and it is his responsibility to see that such materials, as well as the installation methods he uses result in a job that is workmanlike and in compliance with all applicable codes.

Heatstar, Inc Factory Representatives have had training and experience in the application of this equipment and can be called on for suggestions about installation which can save material and cost.

SECTION 2: Planning

The following codes and instructions should be followed when planning the installation of this HEATSTAR AG heater. In addition to these instructions, the warnings must be carefully adhered to since improper installation may lead to property damage, injury, or death.

National Standards and Applicable Codes

Gas Codes:

- The type of gas appearing on the nameplate must be the type of gas used. Installation must comply with local codes and recommendations of the local gas company, and the National Fuel Gas Code, ANSI Z223.1 – latest revision, (same as NFPA Bulletin 54) (the Natural Gas and Propane Installation Code, CSA B149.1)Canada only.
- Clearance between the heater and its vent and adjacent combustible material (which is part of the building or its contents) shall be maintained to conform with the Standard for Installation of Gas Appliances and Gas Piping, NFPA-54 / ANSI Z223.1 – latest revision, National Fuel Gas Code (the Natural Gas and Propane Installation Code, CSA B149.1) Canada only.

Hazardous Locations:

Where there is the possibility of exposure to combustible airborne material or vapor, consult the local Fire Marshal, the fire insurance carrier or other authorities for approval of the proposed installation.

Critical Considerations

This HEATSTAR AG is a suspended heater. Therefore, its stability, flexibility, and safety are very important. Before starting installation, be sure the system can meet the following requirements.

- Maintain specified clearances to combustibles, and safe distance from the heat-sensitive material, equipment and work stations.
- The stated clearances to combustibles represent a surface temperature of 90 F (30 C) above room temperature. Building materials with low heat tolerance (such as plastic, vinyl siding, canvas, etc.) may be subject to degradation at lower temperatures. It is the installers responsibility to assure that adjacent materials are protected from degradation.
- Provide access to burners for servicing, preferable on both sides, above and behind the burner for removal.
- Always observe minimum clearances to combustibles located on page 4.
- Plan location supports (see Figure 2A-B starting on page 6).
- The installation must conform with local building codes or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1/NFPA 54 (the Natural Gas and Propane Installation Code, CSA B149.1) Canada only.
- If an external electrical source is utilized, the heater, when installed, must be electrically grounded in accordance with the National Electical Code, ANSI/ NFPA 70 or current Canadian Electrical Code, CSA C22.1.

Installation Procedure

Take maximum advantage of the building upper structure, beams, joists, purlins, etc., from which to suspend the heater. There is no unique sequence for installation of the tubing. On-site observation will usually reveal a logical sequence. Begin the installation at the most critical dimension. Reflectors and tubing can be installed as you move along. Carefully adjust system pitch at each position to level the heater. Pitch down one-half inch in 20 feet (away from burner).

DON'T Pressure test the gas line using high pressure (greater than ½ PSIG) without closing the high-pressure shutoff cocks. Failure to do so will result in damage to the burners.

DO Familiarize yourself with local and national codes.

Develop a planned procedure which will conserve material and labor on the job.

Check to see that all material and equipment is on the job before starting installation.

Allow for thermal expansion of the tubes.

Install the gas connector only as shown in instructions (see Figure 14 & 15 on page 10).

Have slip joints where required between reflectors to keep them from buckling or coming apart.

Provide 1 sq. inch of free air opening to each 1,000 BTU/hr. of heater input (but not less than 100 sq. inches) in enclosed spaces. One opening should be within 12 inches of the top and one within 12 inches of the bottom of the enclosure.

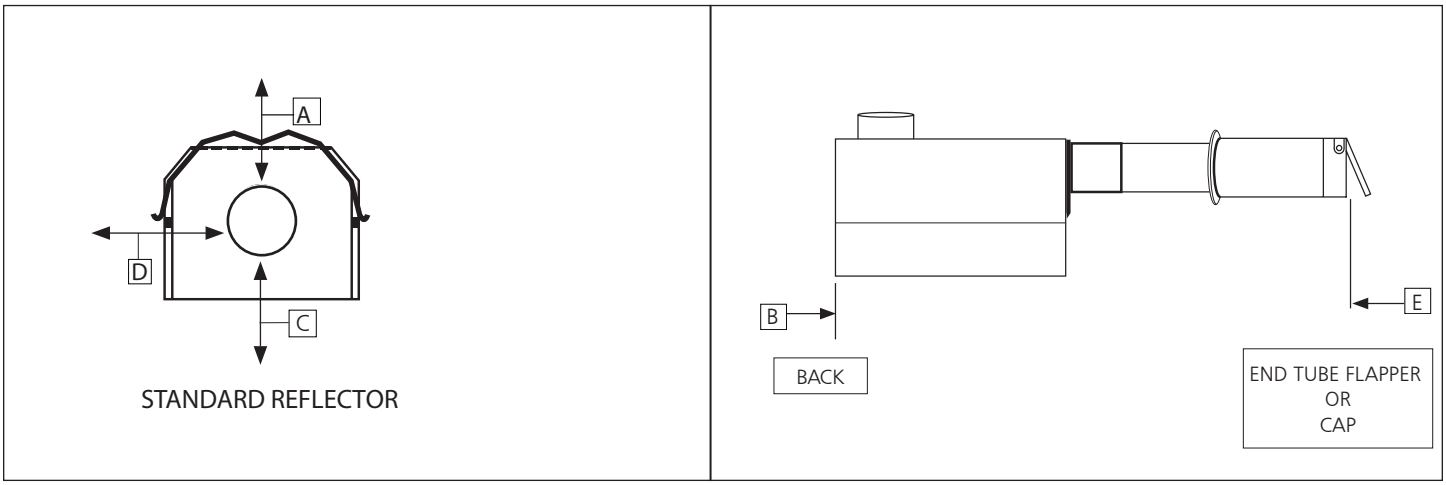
Clearances To Combustibles

TABLE 1: Minimum Clearances to Combustibles (Use Figure 1 as Guide)

Reflector Type	Position	HSJET20	HSJET25
Standard Reflector (Horizontal)	A	12″	12″
	B	36″	36″
	C	55″	74″
	D	36″	36″
	E	72"	72"

Clearances To Combustibles

Figure 1: (Refer to TABLE 1)



WARNING:

⚠ FIRE OR EXPLOSION HAZARD

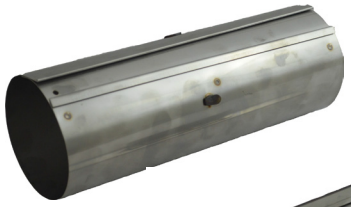
CAN CAUSE PROPERTY DAMAGE, SEVERE INJURY OR DEATH.

In all situations, clearances to combustibles must be maintained. Failure to observe clearances to combustibles may result in property damage, severe injury, or death.

Caution should be used when running the system near combustible materials such as wood, paper, rubber, etc. Consideration should be given to partitions, storage racks, hoists, building construction, etc.

TABLE 1 gives minimum acceptable clearances to combustibles.

SECTION 3: Installation & Assembly

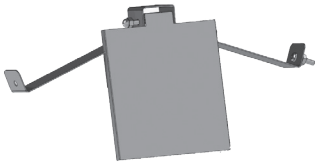


TUBE COUPLING(14612)
USED ON JET25

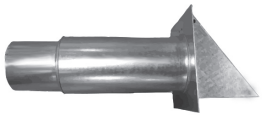
KEY FOR TUBE COUPLING
(14616)*USED ON JET25*

BURNER BOX

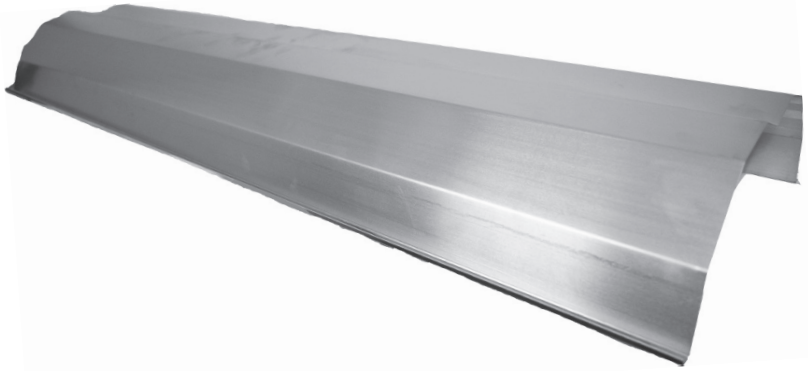
TUBE HANGER
-3" Tube=14572
-3.5" Tube=14573
-4" Tube=14585P



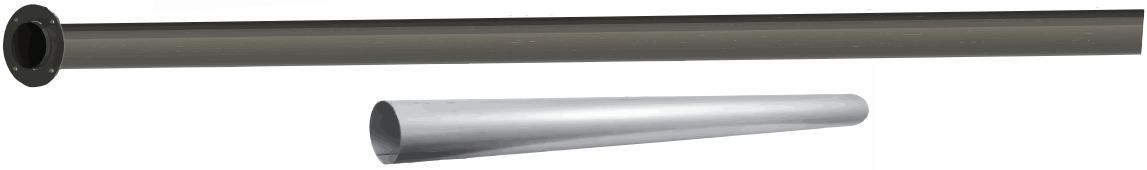
FLAPPER (14579)



VENT CAP (19041)
VENT ADAPTER (14582)



REFLECTOR
- 5'=00417A *JET25 ONLY*
- 10'=00418A



HEAT EXCHANGER TUBE

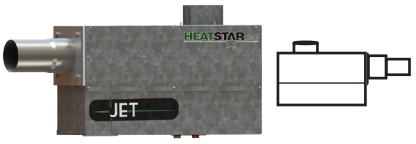
JET20
- 10'-3" OD Aluminized (06454)
- 10'-3.5 OD Steel (06456)

JET25
- 10'-3.5" OD Aluminized (06455)
- 10'-4" OD Steel (06456)
- 5'-4" OD SteeL (06416)*NO FLANGE*

JET20-TURBULATOR BAFFLE 7' (03444)
JET25-TURBULATOR BAFFLE 10' (03445)

Figure 2: Heatstar JET AG Overview

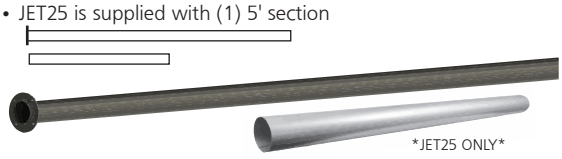
Assemble the heater components as shown in Figures 2A, 2B. Optional reflector configurations are shown in Install appropriated suspension hardware, beam clamps, chain or rod at predetermined locations. Adjustment of chain length will provide uniform pitch.



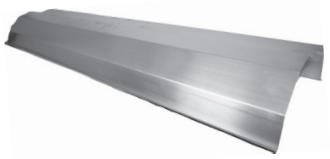
Burner Housing
Must always be installed horizontally.

ALUMINIZED (ONLY first 10 ft.) and STEEL

Heat Exchange Tubes
Supplied with 10 ft. lengths
- JET25 is supplied with (1) 5' section

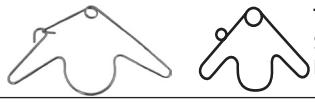


10' 2-1/2"

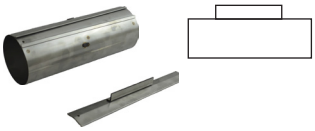


Reflectors
Alternate overlap as shown on overview. Length of reflector and amount of overlap is indicated.

Turbulator Assembly
Heatstar, Inc normally ships Heatstar AG heaters with turbulators assembled into appropriate tubes.



Tube and Reflector Hanger
Suspend system from these hangers. Minimum two (2) required per tube.



Tube Coupling Assembly
Coupling should be oriented with slide bar on top.
(Only used on JET25)

Assembly Overview

20 ft. Exchanger length. 21 ft. - 4 in. Total Heater length. Five suspension points as indicated.

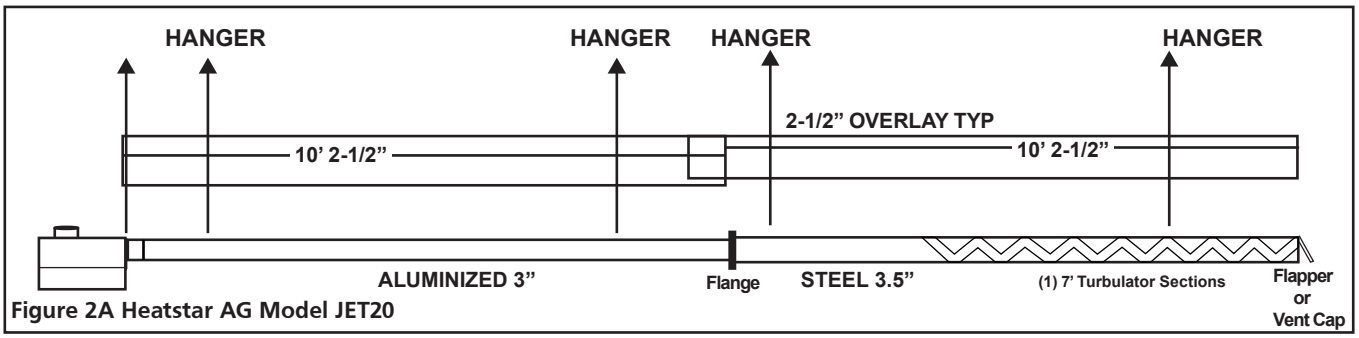


Figure 2A Heatstar AG Model JET20

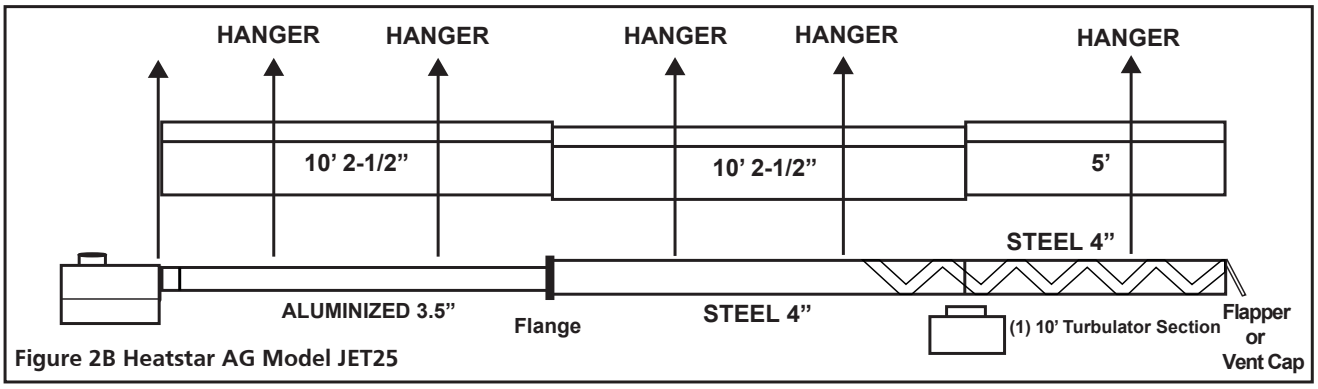


Figure 2B Heatstar AG Model JET25

Assembly Overview

25 ft. Exchanger length. 26 ft. - 4 in. Total Heater length. Six suspension points as indicated

FLANGE AND COUPLING ASSEMBLY

Align the gasket bolt holes between the aluminized tube flange holes and the steel tube flange bolt holes. The aluminized tube will slide into the steel tube, once the flanges and gasket are aligned use the 4 bolts and tighten together with the attached 4 nuts.

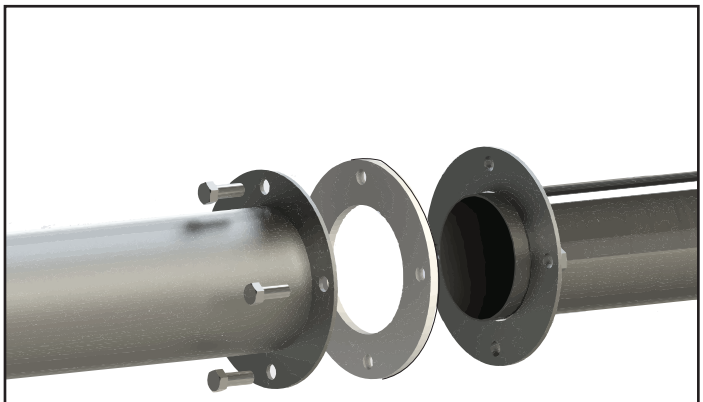


FIGURE 3: Installation of FLANGE

Couplings: Only used for final 5' section on JET25 unit.

Tube and tube fittings are connected by wrap-around couplings which clamp by means of a tapered, hammer-driven lock member. The starting ends of the coupling and lock member are identified by 1/4" holes which are put together when starting assembly. Be sure the tube ends are in line and tube ends butt against stop pin(s) inside coupling. The slide bar is to be hammer-driven to a point of securing the coupling firmly to the tubes. Over-driving will result in distortion of the coupling or slide bar lip to a point decreasing the holding the capability of the coupling. (See Figure 4)

FIGURE 4:

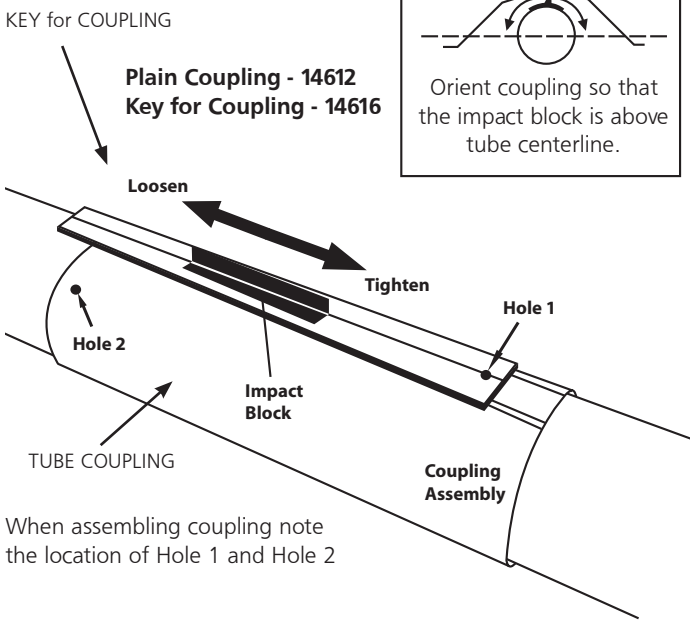
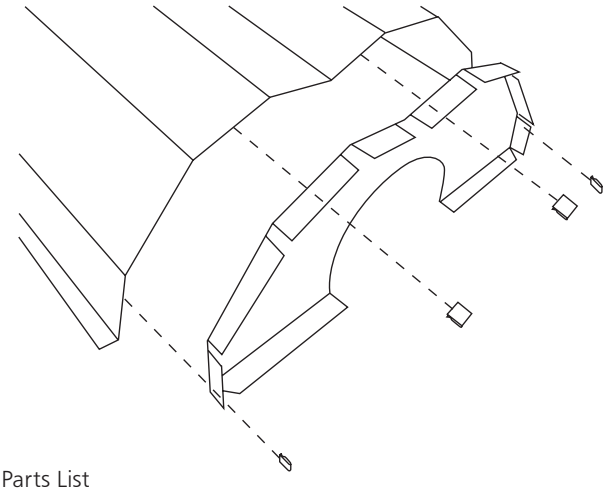


FIGURE 5: Reflector End Cap



Parts List

1. 00419 Reflector End Cap (Qty 1)
2. 09369 Spring Clip (Qty 4)

FIGURE 6: Tube and Reflector Hanger

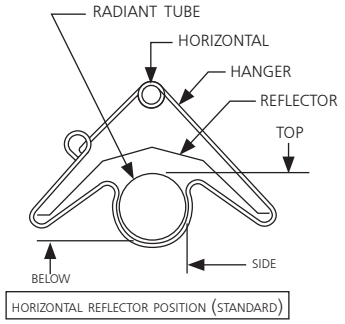
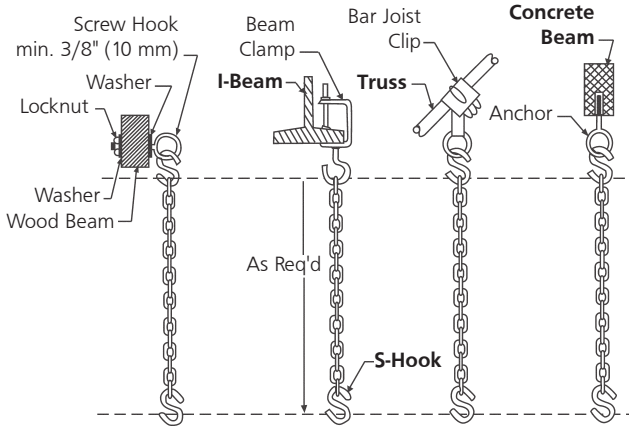


FIGURE 7: Typical Suspension Details



Chain kit - Stk. #17370

One chain kit will suspend one 10 ft. section of tube and one 10 ft. section of reflector.

FLAPPER, VENT CAP, CLAMP INSTALLATION

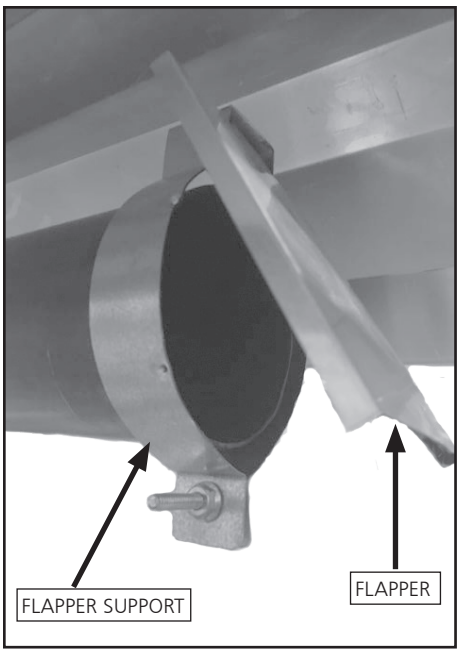


FIGURE 8

FLAPPER INSTALLATION (Shown in FIGURE 8)

1. Bend flapper support around the end of tube as seen above.
2. End of tube should butt up against punches in flapper.
3. Flapper support fastened to end of tube using supplied screw and nut
4. Flapper must swing open and close freely.

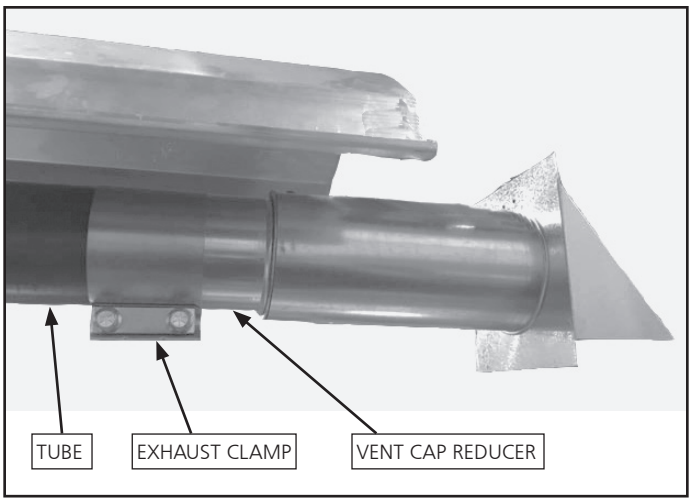


FIGURE 9

Vent Cap Jet 20 Installation (Shown in FIGURE 9)

1. Vent cap reducer slides over 3.5" tube.
2. Exhaust clamp used to cover half of tube and half of vent adapter.
3. Exhaust clamp fastened tight with 9/16" wrench.

Vent Cap Jet 25 Installation

1. Vent Cap butts up against 4" tube.
2. Exhaust clamp used to cover half of tube and half of 4" vent cap.
3. Exhaust clamp fastened with Phillips screwdriver.

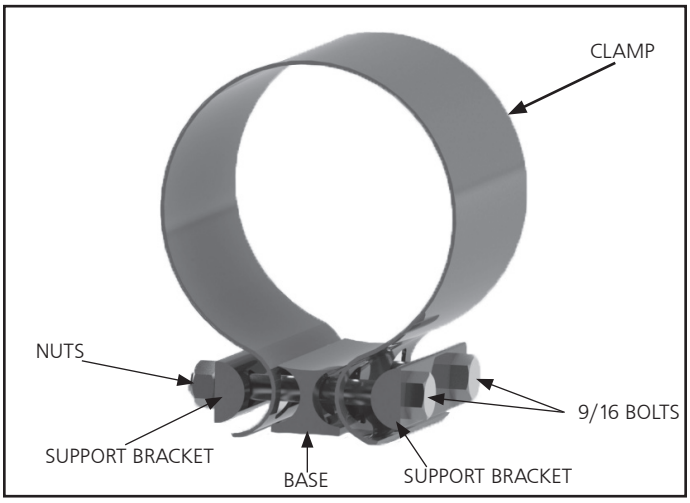


FIGURE 10

CLAMP ASSEMBLY (Shown in FIGURE 14)

1. Make sure to have all hardware parts for assembly: (1 Base, 2 Support Bracket, 2 Bolts(9/16") and 2 nuts)
2. NOTE: The curved side of the Base should be facing up and flat side is on the bottom.
3. Align the Support Bracket so the curved side is facing inwards toward the clamp with the hole opening then slide the (9/16") Bolt through to attach the other Support Bracket, use the nut to tighten. Repeat for other bolt and nut.

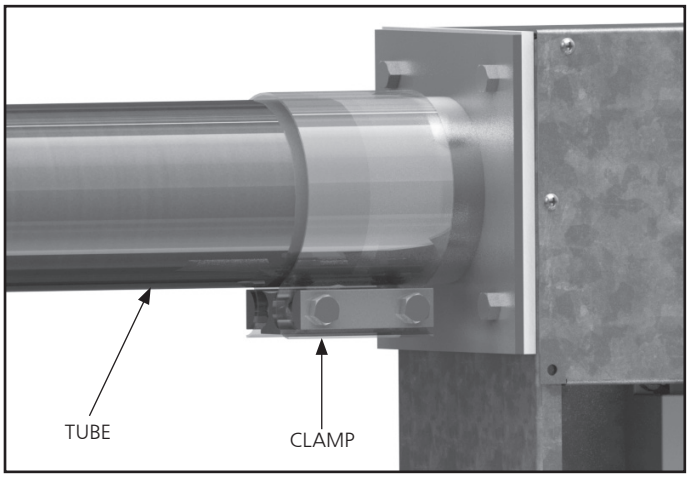


FIGURE 11

ATTACH TUBE TO BURNER BOX (Shown in FIGURE 15)

1. Slide Tube over until flush with burner box flange. NOTE assembled clamp should be loosely fitting on burner box flange.
2. Align the Clamp so each bolt and nut are on either side of the seam in which the tube and burner box flange meet.
3. Tighten the Clamp using a 9/16" wrench.

SECTION 4

Engineering Specifications

A. Burner & Burner Controls

1. Burners shall be capable of firing with one of the fuel options as specified on the rating tag: Natural Gas or LP.
2. Burners shall be supplied to fire at any one of the input rates as specified.

   HSJET20 80,000 BTU/Hr.
   HSJET25 100,000 BTU/Hr.
3. Burner shall be equipped with a direct spark ignition control system with 100% shut-off ignition device. Power supplied to each heater shall be 120V, 60Hz, single phase. Burners shall be rated for 1.0 Amp (run) and 5.0 Amp (start.)
4. Burner shall be equipped with thermal overload motor protection and a combustion air proving safety pressure switch.
5. When specified, in contaminated environments, the burner shall be capable of supplying outside air to each burner for the support of combustion.
6. All burners shall be pre-wired with a grounded electrical cord and plug.
7. At customer's choice, burners may be controlled with either an optional line voltage thermostat or by optional low voltage thermostats with an appropriate low voltage transformer relay.
8. Gas supply to the burners shall conform to the following:

Gas pressure at MANIFOLD:

Natural Gas: 3.5" W.C.

LP Gas: 10.5" W.C.

1/2" NPT Gas Connector Size

Gas INLET pressure:

Natural Gas: 4.6" W.C. Min
14.0" W.C. Max

LP Gas: 11.0" W.C. Min
14.0" W.C. Max

1/2" NPT Gas Connector Size

B. Heat Exchanger

1. Radiant tubing shall be :
   - JET20 shipped with 3" diameter aluminized steel tube and 3.5" diameter hot rolled steel tube.
   - JET25 shipped with 3.5" diameter aluminized steel tube and 4" daimeter hot rolled steel tube.
2. Reflector to be of aluminum material and designed to direct all radiant output below horizontal center line of radiant tube.

Electrical Rating: (All Models)

120V - 60Hz

1.0 AMP (Run) 5.0 AMP (Start)

Dimensions:

Flue Connection Size.....3.5"(JET20) or 4"(JET25)

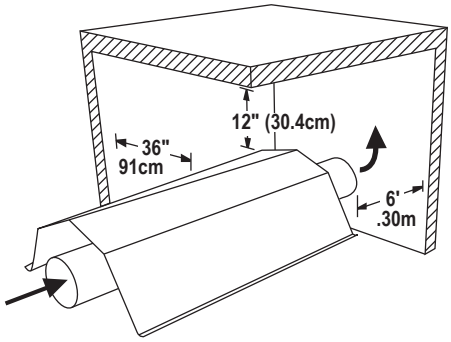
Outside Air Connection Size.....4"

SECTION 5

VENTING

1. Ventilation equal to 4 CFM per 1,000 BTU/HR firing rate must be provided in unvented heater installations
2. For dimensions A "unvented" refer to (Figure 1- Minimum Clearances to Combustibles.)

FIGURE 12: Unvented Operation (Not to Scale)



Outside Combustion Air Supply

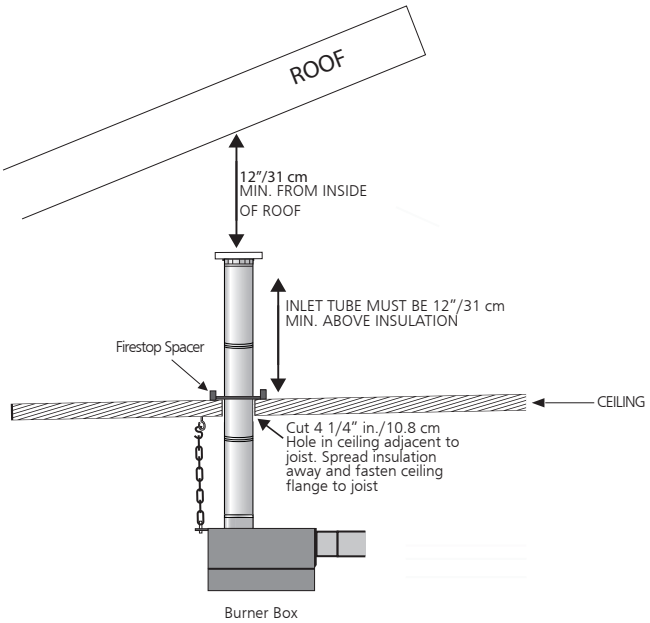
The Heatstar AG heater is approved for installation with an outside air supply system. Some compounds such as halogenated hydrocarbons or other corrosive chemicals in the air can be drawn into the equipment and cause an accelerated rate of corrosion of some of the heater components. The use of such chemical compounds near the enclosure should be avoided.

IMPORTANT: If the building has a slight negative pressure or contaminants are present in the air, an outside combustion air supply to the heaters is strongly recommended.

⚠WARNING

Failure to provide a fresh air inlet in poultry farms can lead to:
- Sooting causing damage
- High carbon monoxide levels, causing serious injury or death to livestock and humans

FIGURE 13: Drawing Inlet Air From Attic



SECTION 6
Gas Piping

Read applicable warnings on page 1 & 2 before proceeding with Gas Pipe installation. Improper installation may result in property damage, severe injury, or death.

Meter and service must be large enough to handle all the burners being installed plus any other connected load. The gas line which feeds the system must be large enough to supply the required gas with a maximum pressure drop of 1/2" water column. Local gas supplier will usually help in planning the correct gas piping size.

A 1/2" pipe at each burner location must be located and oriented as shown in (Figure 14) . To check system pressure, put a plugged 1/8" NPT tap in the gas line at the connection to the burner farthest from the supply. Before connecting the burners to the supply system, verify that all high pressure testing of the gas piping has been completed. Do not high pressure test the gas piping with the burners connected.

Follow these instructions to ensure a professional gas supply installation:

- Support all gas piping with suitable pipe hanging materials.
- Use wrought iron or wrought steel pipe and malleable iron fitting. All pipe fittings should be new and free from defects.
- Use L.P. gas-resistant joint compound on all pipe threads.
- Check the pipe and tubing ends for leaks before placing heating equipment into service. When checking for gas leaks, use soap and water solution: **NEVER USE AN OPEN FLAME.**

Install the flex gas connector as shown. The flex gas connector accommodates expansion of the heating system and allows for easy installation and service of the burner.

FIGURE 14: Incorrect Gas Line Connection with Stainless Steel Flex Gas Connector

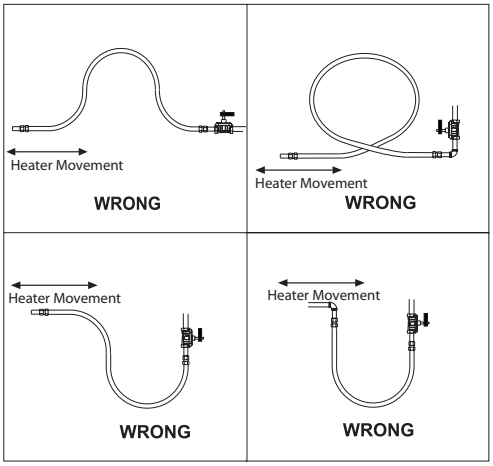


FIGURE 14

FIGURE 15: Gas Line Connection with Stainless Steel Flex Gas Connector

Shut-Off Valve must be parallel to burner gas inlet. The 2" displacement shown is for the cold condition. This displacement may reduce when the system is fired.

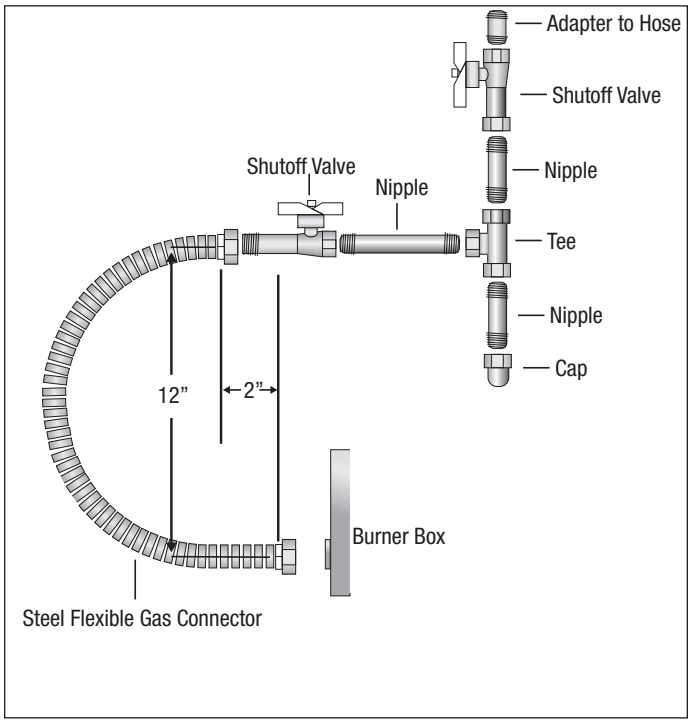


FIGURE 15

SECTION 7

Wiring

Heaters are normally controlled by thermostats. Line voltage thermostats are wired directly (see Figure 16), 24V thermostats are wired directly using the terminals on burner box(see Figure 18). Heaters must be grounded in accordance with the National Electric Code ANSI/NFPA-70 or current Canadian Electrical Code, CSA C22.1. Heaters may also be controlled with a manual line voltage switch or timer switch in place of the thermostat.

FIGURE 16: Line Voltage Thermostat Wiring

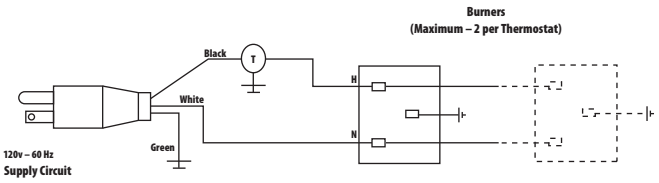


FIGURE 17: Low Voltage Thermostat Wiring

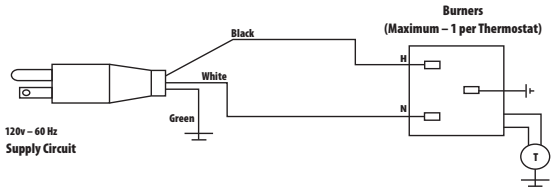
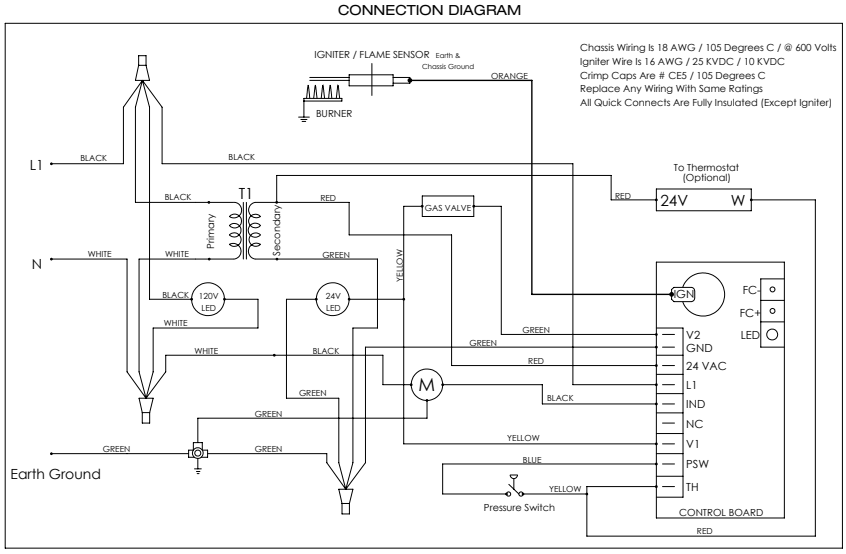
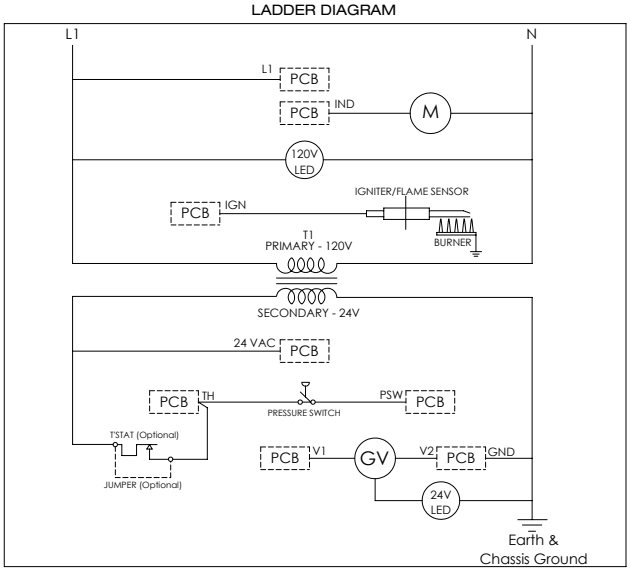


FIGURE 18: Heatstar JET SERIES Burner Internal Wiring

- If any of the original wire as supplied with the appliance must be replaced, it must be replace with wiring material having a temperature rating of at least 105 C and 600 volts.
- Each burner must be electrically grounded in accordance with the National Electric Code ANSI/NFPA -70 or current Canadian Electrical Code, CSA C22.1.





SECTION 8

Operation & Maintenance

Sequence of Operation

1. Turn the thermostat up. When the thermostat calls for heat, blower motor will energize.
2. When the motor approaches nominal running RPM, the air proving switch closes and activates the ignition module.
3. Once the igniter sparks, the gas valve is energized.
4. If a flame is detected, the gas valve remains open. When the call for heat is satisfied, and the system control mechanism de-energizes the burner line voltage supply, the gas valves are turned off.
5. If no flame is detected, the gas valve is closed, and a purge period begins. After the purge, the module acts to power the igniter for a second warm-up period, and a second trial for ignition period. If flame is still not established, a third and final purge, warm-up, and trial cycle begins. After three trials, the module will lockout until reset. Reset is accomplished by removing power from the module for at least five (5) seconds (thermostat cycle required.)
6. If flame is established and lost on the first or second trial, the gas valve is turned off, a purge, warm-up, and trial for ignition will occur on a three-trial module, only three trials for ignition are allowed per thermostat cycle.

Maintenance

For best performance, the following maintenance procedures should be performed before each heating season:

1. Be sure gas and electrical supply to heater are off before performing any service or maintenance.
2. Check condition of blower scroll and motor. Dirt and dust may be blown out with compressed air, or a vacuum cleaner may be used. When using compressed air do not exceed 30 psi.
3. Check condition of burner. Carefully remove any dust or debris from inside the burner box or venturi.
4. Inspect the igniter. Replace igniter if there is excessive carbon residue, erosion, breakage or other defects.
5. Check the inside of the firing tube with a flashlight. If carbon or scale are present, scrape out the deposits with a wire brush or rod, or metal plate attached to a wooden pole.
   - Tubes and reflectors can be power washed but ***DO NOT*** power wash the burner head.
6. Check the flapper or vent cap for soot or dirt. After cleaning as necessary, re-attach the flapper to the heater.
7. Outside surfaces of heater may be cleaned by wiping with a damp cloth.
8. A qualified service agency should be contacted for service other than routine maintenance.
9. Check vent flapper or vent cap and fresh air inlet to see that they have not been blocked during the non-heating season. If either pipe is restricted, the air switch won't close, resulting in a no-heat situation.

Troubleshooting

CAUTION: Before opening the Heatstar AG burner door for any type of service, be sure the gas supply has been shut off at the heater and the electrical cord from the burner box has been unplugged.

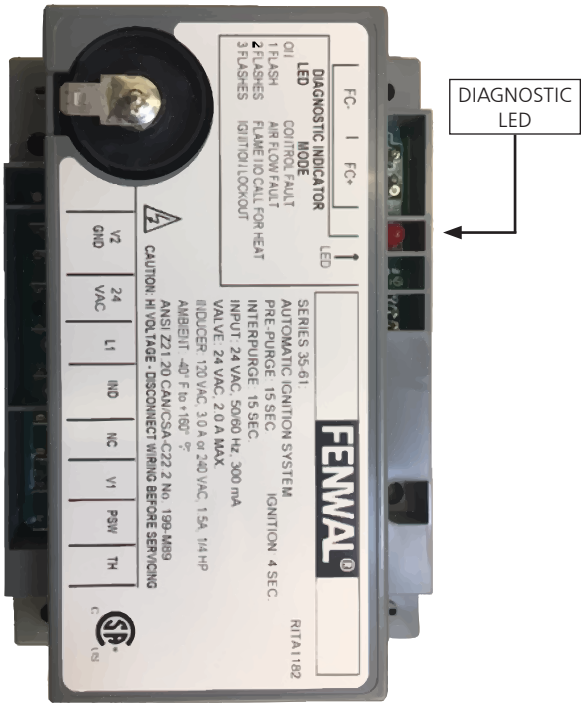


FIGURE 19

DIANGNOSTIC INDICATOR FLASHES:

The LED will flash on for 1/4 second, then off for 1/4 second during a fault condition. The pause between fault codes is 3 seconds.

Steady ON Control Fault
(1)FLASHES - Air Flow Fault
(2)FLASHES - Flame no call for heat
(3)FLASHES - Ignition lockout

STEADY ON:
Internal control Failure.

AIR FLOW FAULT:
Combustion air flow is continually monitored during an ignition sequence by the air flow switch (PSW). If during the initial call for heat the pressure contacts are in the closed position for 30 seconds without an output to the Combustion Blower, an air flow fault will be declared and the control will remain in this mode with the combustion blower off.

FLAME FAULT:
If at any time the main valve fails to close completely and maintains a flame, the full time flame sense circuit will detect it and energize the combustion blower. Should the main valve later close completely removing the flame signal, the combustion blower will power off following the optional post purge period.

IGNITION LOCKOUT:
Should the main burner fail to light, or flame is not detected during the trial for ignition period, the control will go into lockout. The valve will be turned off immediately, and the combustion blower will be turned off following the optional post purge period.

Blower Motor Fails to Run:

1. Is the thermostat calling for heat? Is there 120V at the motor terminals?
2. Check blower for obstructions. Replace blower if necessary.

1. Check igniter for damage or excess carbon. Replace if necessary.
2. Check for obstructions to the air inlet and outlet.
3. Check wiring and hose connections to the air switch. Replace if necessary.
4. Check voltages at transformer primary and secondary. Replace transformer or module if necessary.

Valve Does Not Come On: Gas pressure downstream of gas control can be measured by using a manometer and connecting to pressure tap on valve.

1. Check to see if gas valve switch heater is ON.
2. Supply gas pressure can be checked at 1/8" NPT pressure tap on heater external manual valve.
3. Check to see if gas control is opening: no manifold pressure indicates valve is closed.

If the valve is closed, either the gas valve or the ignition module is faulty.

WARNING: Do not disconnect ground leads inside heater. Do not interchange grounded and ungrounded leads on transformer or ignition module.

Burner Does Not Light:

1. Check to see if gas lines were properly purged of air.
2. Check inlet and outlet gas pressure during ignition period.

- Natural inlet pressure should be 4.6"
- Natural manifold pressure should be 3.5"
- LP inlet pressure should be 11.0"
- LP manifold pressure should be 10.5"

3. Check for proper orifice. (Drill size are the last two numbers on the EGI# parts list on page 15.)

Burner Does Not Stay Lit:

1. Check ground wire continuity.
2. Check burner internal wiring for reversed leads.
3. Check insulation on the igniter leads.
4. Replace module if necessary.

ACCESSORY PARTS

STOCK NUMBER DESCRIPTION:

10371..... Thermostat 24 volt

10392..... Thermostat 110 Volt

17370..... Chain Kit

F111756..... Air Intake Kit

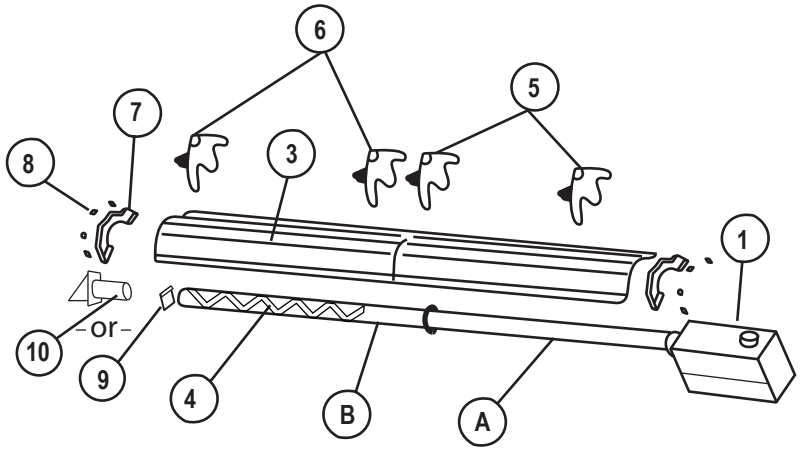
Air Intake Kit includes:
Mini-vent cap, vertical support pipe, 6' of flex vent and two-4" worm gear clamps

CONVERSION KITS

Model	STOCK NUMBER	DESCRIPTION	STOCK NUMBER	DESCRIPTION
JET20	11773	LP TO NG	11772	NG TO LP
JET25	11775	LP TO NG	11774	NG TO LP

Parts List for Heatstar JET Tube Heaters

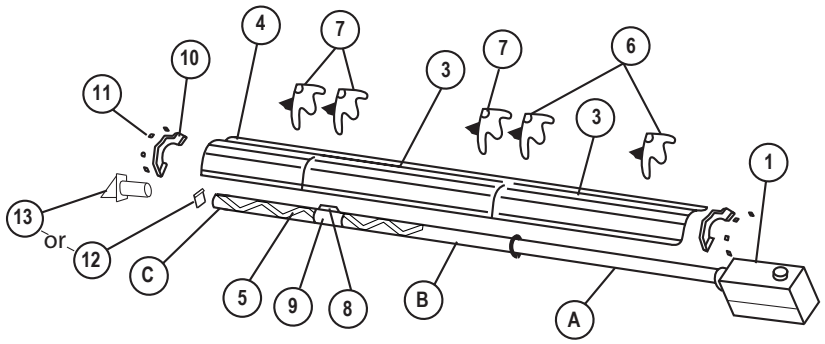
HSJET20



Item	Stock #	Description	QTY
1	F102080	JET20 NG / BRN & Cont Box	1
	F102085	JET20 LP / BRN & Cont Box	1
2	F106020	JET20 / Tube Set- 20'	1
A	06454	Alum. Tube H.E. 3" O.D. X 10'	1
B	06457	Steel Tube H.E. 3.5" O.D. X 10'	1
3	00418A	Reflector 10'	2
4	034444	Turbulator Baffle 7'	1

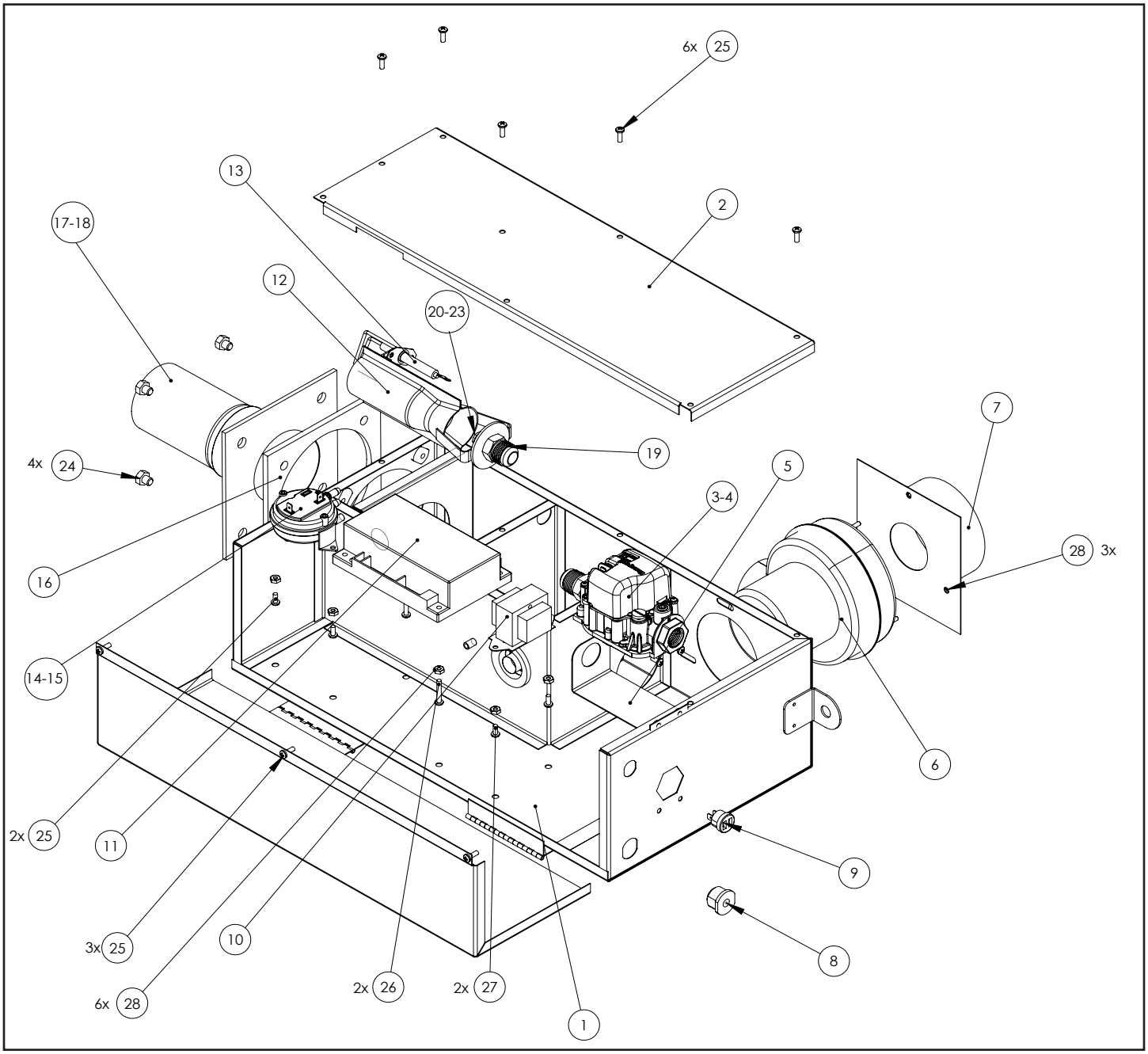
Item	Stock #	Description	QTY
5	14572	Hanger 3"	2
6	14573	Hanger 3.5"	2
7	00419	Reflector End Cap	2
8	09369	Spring Clips	8
9	14579	Flapper	1
10	19041	Ven Cap	1
**	14582	Vent Adapter 3.5"-4"	1

HSJET25



Item	Stock #	Description	QTY
1	F102090	JET25 NG / BRN & Cont Box	1
	F102095	JET25 LP / BRN & Cont Box	1
2	F106025	JET25, / Tube Set- 25'	1
A	06455	Alum. Tube H.E. 3.5" O.D. X 10'	1
B	06456	Steel Tube H.E. 4" O.D. X 10'	1
C	06416	Steel Tube H.E. 4" O.D. X 5' w/o Flange	1
3	00418A	Reflector 10'	2
4	00417A	Reflector 5'	1

Item	Stock #	Description	QTY
5	03445	Turbulator Baffle 10'	1
6	14573	Hanger (3.5")	2
7	14585P	Hanger (4")	3
8	14612	Tube Coupling	1
9	14616	Key for Tube Coupling	1
10	00419	Reflector End Cap	2
11	09369	Spring Clips	8
12	14579	Flapper	1
13	19041	Vent Cap	1



ITEM#	EGI#	DESCRIPTION	QTY
1	02962	ENCLOSURE, AG, TUBE, BOX BURNER	1
2	02963	COVER, AG, TUBE, BOX BURNER	1
3	00042	GAS VALVE NG	1
4	00043	GAS VALVE LP	1
5	02974	GAS VALVE BRACKET	1
6	07376	MOTOR	1
7	02968	VENT ADAPTER	1
NS	02964	POWER CORD	1
8	60889	POWER CORD STRAIN RELIEF	1
9	02721	THERMOSTAT BUSHING	1
10	08364A	TRANSFORMER	1
11	02970	IGNITION MODULE	1
12	02973	BURNER ASSEMBLY	1
13	60729	IGNITER / FLAME SENSE ELECTRODE	1
14	02979	PRESSURE SWITCH - JET20	1

ITEM#	EGI#	DESCRIPTION	QTY
15	10414A	PRESSURE SWITCH - JET25	1
16	12397	BURNER FLANGE GASKET	1
17	02966	BURNER FLANGE 3"- JET20	1
18	02967	BURNER FLANGE 3.5"- JET25	1
NS	02971	FLEX TUBE GAS MANIFOLD	1
19	02720	ORIFICE HOLDER FITTING	1
20	05718	ORIFICE JET20 NG	1
21	05737	ORIFICE JET20LP	1
22	05712	ORIFICE-JET25NG	1
23	05733	ORIFICE - JET25LP	1
24	98012	BOLT 5/16" - 18 X 1"	4
25	98902	SCREW #8-32 X 3/8"	10
26	98907	SCREW #8-32 X 1"	2
27	98901	SCREW #8-32 X 1/4"	4
28	98692	NUT #8-32	9

OPERATING INSTRUCTIONS AND OWNER'S MANUAL

HEATSTAR AG

110V MODELS

JET20
JET25

WARNING:

USE ONLY MANUFACTURER'S REPLACEMENT PARTS. USE OF ANY OTHER PARTS COULD CAUSE INJURY OR DEATH. REPLACEMENT PARTS ARE ONLY AVAILABLE DIRECT FROM THE FACTORY AND MUST BE INSTALLED BY A QUALIFIED SERVICE AGENCY.

FOR INFORMATION REGARDING SERVICE OR PARTS:

Contact your local heating service technician or dealer.

FOR ADDITIONAL INFORMATION:

Please call Toll-Free 866-447-2194—www.heatstarbyenerco.com
Our office hours are 8:00 AM — 5:00 PM, EST, Monday through Friday.
Please have the model number, serial number and date of purchase ready.

LIMITED WARRANTY

The company warrants this product to be free from imperfections in material or workmanship, under normal and proper use in accordance with instructions of The Company, for a period of 1 year on the box and 2 years on the tubes from the date of delivery to the buyers.

The Company, at its option, will repair or replace products returned by the buyer to the factory, transportation prepaid within said warranty period and found by the Company to have imperfections in material or workmanship.

If a part is damaged or missing, call our Customer Service Department at 866-447-2194.

Address any Warranty Claims to the Customer Service Department, Heatstar, Inc, 4560 W. 160TH ST., CLEVELAND, OHIO 44135. Include your name, address and telephone number and include details concerning the claim. Also, supply us with the purchase date and the name and address of the dealer from whom you purchased our product.

The foregoing is the full extent of the responsibility of the Company. There are no other warranties, express or implied. Specifically there is no warranty of fitness for a particular purpose and there is no warranty of merchantability. In no event shall the Company be liable for delay caused by imperfections, for consequential damages, or for any charges of the expense of any nature incurred without its written consent. The cost of repair or replacement shall be the exclusive remedy for any breach of warranty. There is no warranty against infringement of the like and no implied warranty arising from course of dealing or usage of trade. This warranty will not apply to any product which has been repaired or altered outside of the factory in any respect which in our judgment affects its condition or operation.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Heatstar, Inc reserves the right to make changes at any time, without notice or obligation, in colors, specifications, accessories, materials and models.

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