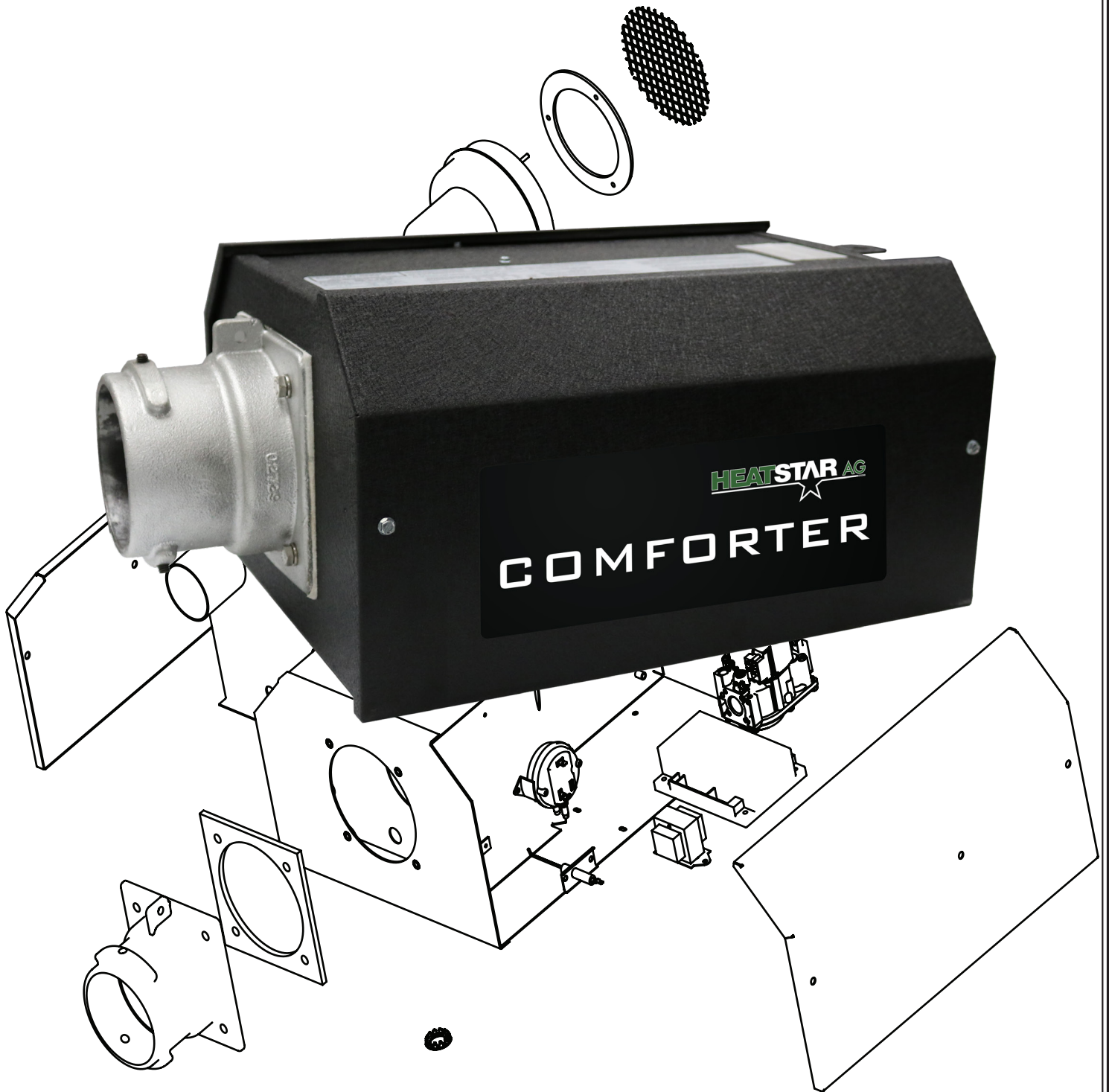
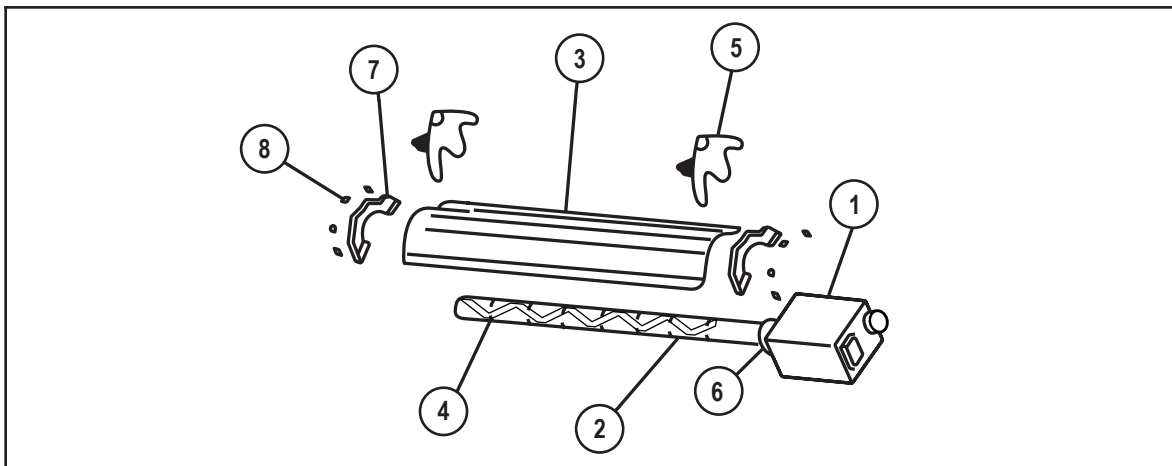


# COMFORTER

## Parts & Service Manual

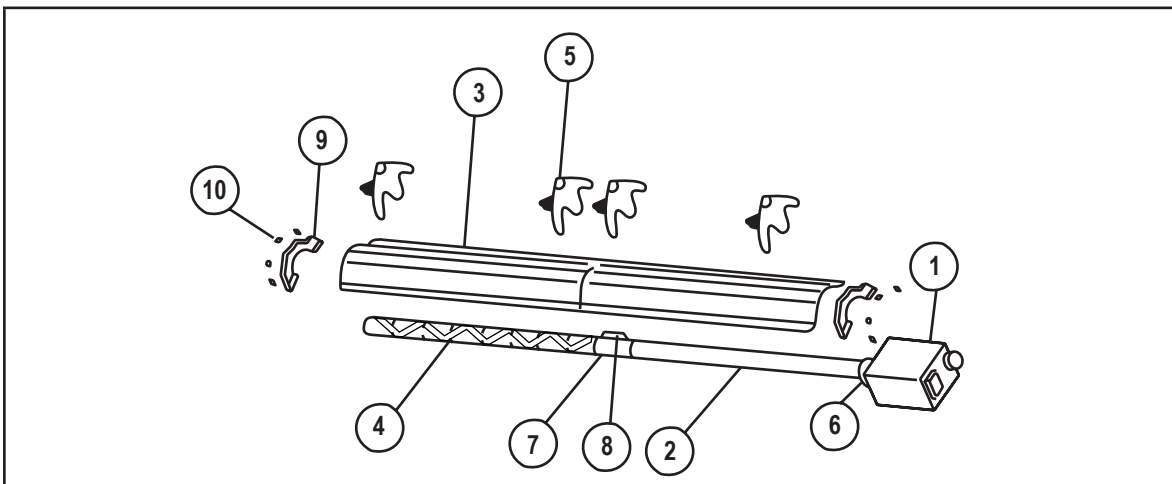


## Parts List for Heatstar AG Tube Heaters



### COMFORTER-40

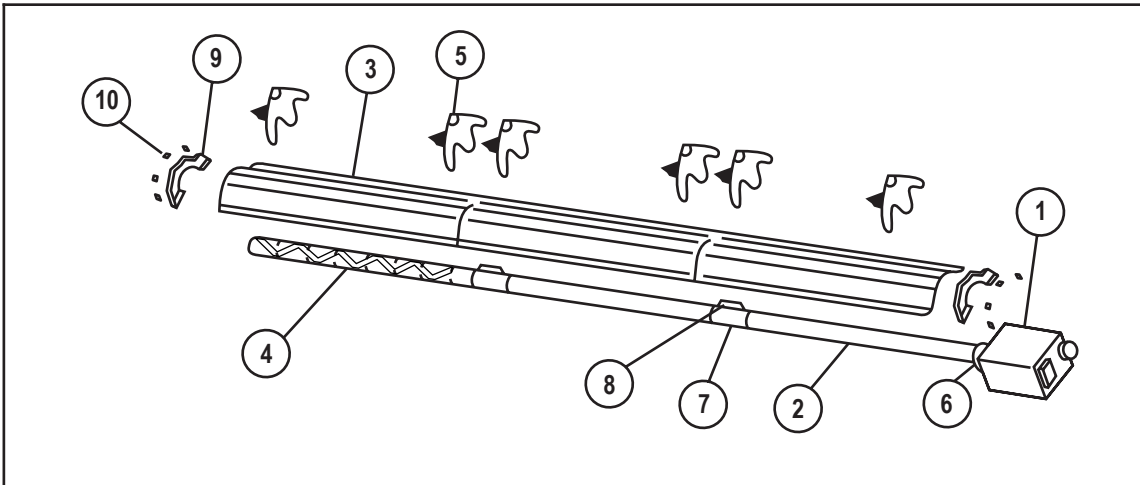
Item	Stock #	Description	QTY	Item	Stock#	Description	QTY
1	F102594AG	HSAG-40 NG / BRN & Cont Box	1	4	03445	Turbulator Baffle 9'	1
1	F102595AG	HSAG-40 LP / BRN & Cont Box	1	5	14585P	Hanger	4
2	F106408AG	Tube Set- 10'	1	6	02753	Front Flange	1
	06413	Alumn. Tube H.E. 4" O.D. X 10'	2	7	00419	Reflector End Cap	2
3	00418A	Reflector	2	8	09369	Spring Clips	8



### COMFORTER-60

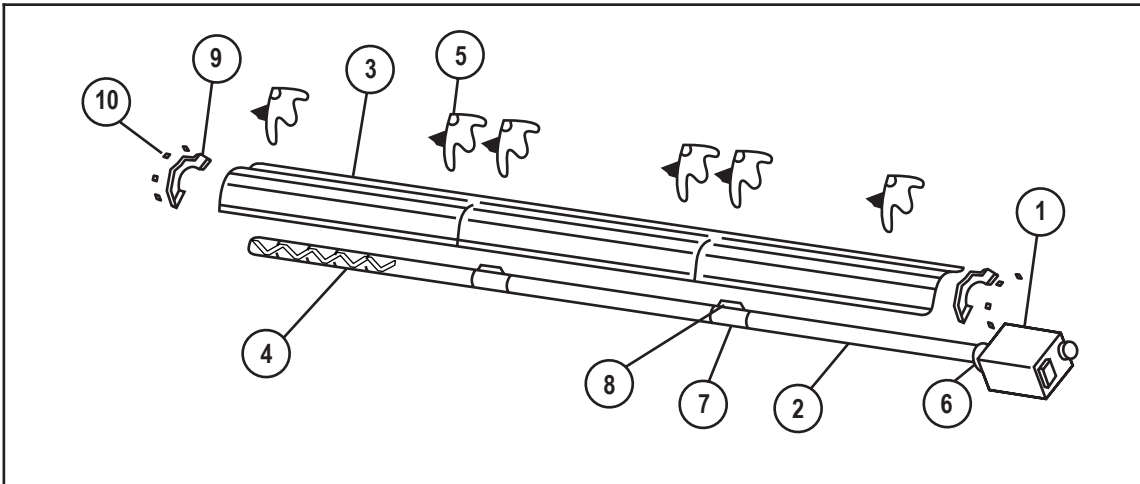
### COMFORTER-80 (20' Tube Set)

Item	Stock #	Description	QTY	Item	Stock#	Description	QTY
1	F102650AG	HSAG-60 NG / BRN & Cont Box	1	1	F102652AG	HSAG-80 LP / BRN CONT Box	1
	F102651AG	HSAG-60 LP / BRN & Cont Box	1		F102653AG	HSAG-80 NG / BRN CONT Box	1
2	F106404AG	HSAG-60, / Tube Set- 20'	1	2	F106404AG	HSAG-80, / Tube Set- 20'	1
	06413	Alumn. Tube H.E. 4" O.D. X 10'	1		06413	Alumn. Tube H.E. 4" O.D. X 10'	1
	06416	Steel Tube H.E. 4" O.D. X 10'	1		06416	Steel Tube H.E. 4" O.D. X 10'	1
3	00418A	Reflector	2	3	00418A	Reflector	2
4	03445	Turbulator Baffle 10'	1	4	03445	Turbulator Baffle 10'	1
5	14585P	Hanger	4	5	14585P	Hanger	4
6	02753	Front Flange	1	6	02753	Front Flange	1
7	14612	Tube Coupling	1	7	14612	Tube Coupling	1
8	14616	Key for Tube Coupling	1	8	14616	Key for Tube Coupling	1
9	00419	Reflector End Cap	2	9	00419	Reflector End Cap	2
10	09369	Spring Clips	8	10	09369	Spring Clips	8



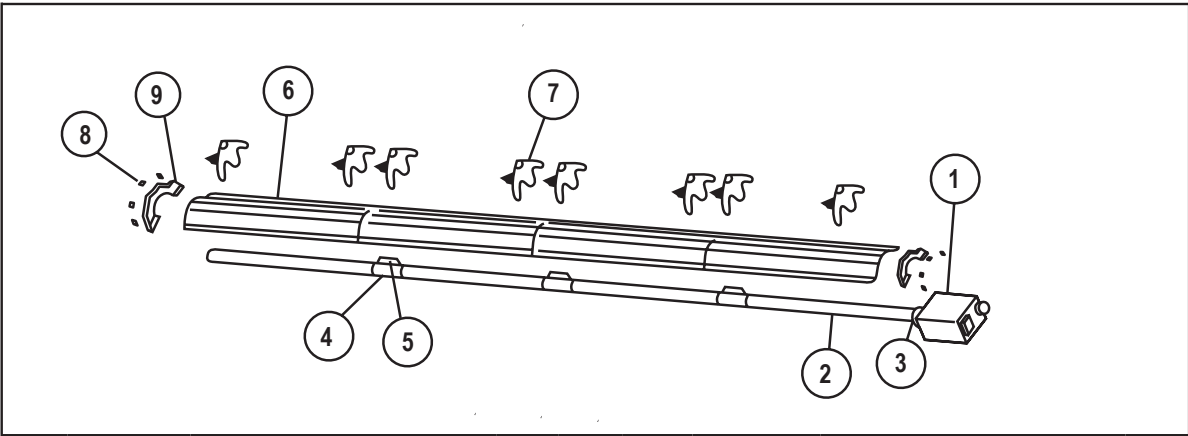
### COMFORTER-80 (30' Tube Set)

Item	Stock #	Description	QTY	Item	Stock#	Description	QTY
1	F102652AG	HSAG-80 NG / BRN & Cont Box	1	5	14585P	Hanger	6
	F102653AG	HSAG-80 LP / BRN & Cont Box	1	6	02753	Front Flange	1
2	F106405AG	HSAG-80, / Tube Set- 30'	1	7	14612	Tube Coupling	2
	06413	Alumn. Tube H.E. 4" O.D. X 10'	1	8	14616	Key for Tube Coupling	2
	06416	Steel Tube H.E. 4" O.D. X 10'	2	9	00419	Reflector End Cap	2
3	00418A	Reflector	3	10	09369	Spring Clips	8
4	03445	Turbulator Baffle 10'	1				

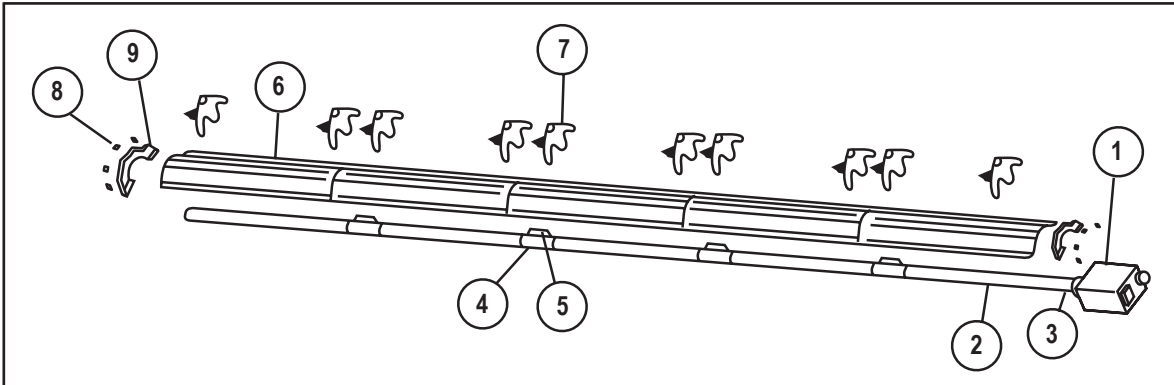


### COMFORTER-100 (30' Tube Set)

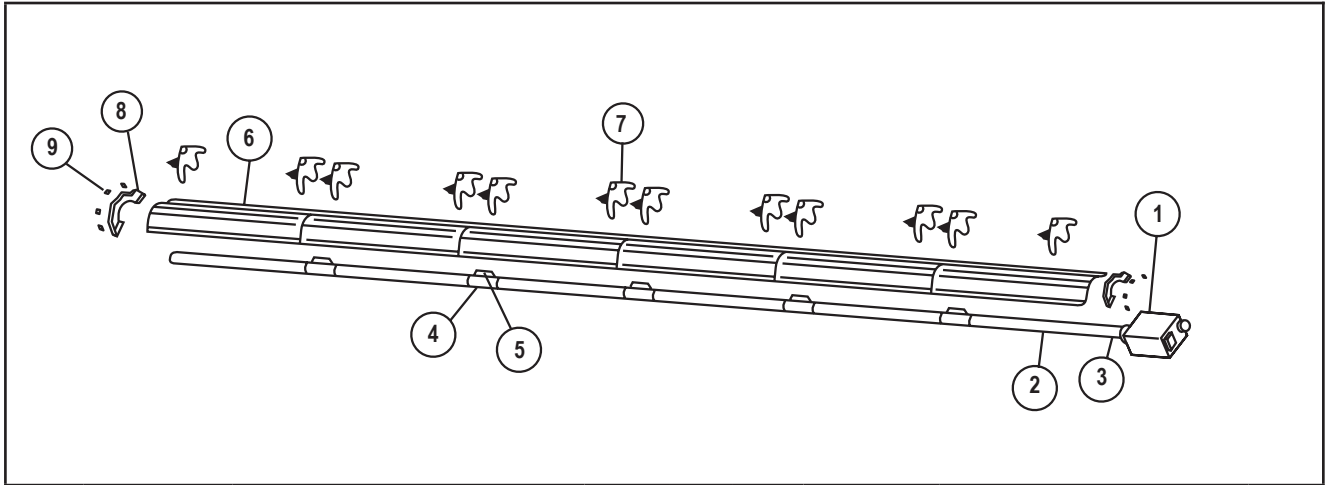
Item	Stock #	Description	QTY	Item	Stock#	Description	QTY
1	F102654AG	HSAG-100 NG / BRN & Cont Box	1	5	14585P	Hanger	4
	F102655AG	HSAG-100 LP / BRN & Cont Box	1	6	02753	Front Flange	1
2	F106401AG	HSAG-100, / Tube Set- 30'	1	7	14612	Tube Coupling	2
	06413	Alumn. Tube H.E. 4" O.D. X 10'	1	8	14616	Key for Tube Coupling	2
	06416	Steel Tube H.E. 4" O.D. X 10'	2	9	00419	Reflector End Cap	2
3	00418A	Reflector	3	10	09369	Spring Clips	8
4	03447	Turbulator Baffle 5'	1				



COMFORTER-100 (40' Tube Set)				COMFORTER-125 (40' Tube Set)			
Item	Stock #	Description	QTY	Item	Stock#	Description	QTY
1	F102654AG	HSAG-100 NG / BRN & Cont Box	1	1	F102656AG	HSAG-125 NG / BRN & Cont Box	1
	F102655AG	HSAG-100 LP / BRN & Cont Box	1		F102657AG	HSAG-125 LP / BRN & Cont Box	1
2	F106406AG	HSAG-100, / Tube Set- 40'	1	2	F106406AG	HSAG-125, / Tube Set- 40'	1
	06413	Alumn. Tube H.E. 4" O.D. X 10'	1		06413	Alumn. Tube H.E. 4" O.D. X 10'	1
	06416	Steel Tube H.E. 4" O.D. X 10'	3		06416	Steel Tube H.E. 4" O.D. X 10'	3
6	02753	Front Flange	1	3	02753	Front Flange	1
4	14612	Tube Coupling	1	4	14612	Tube Coupling	1
5	14616	Key for Tube Coupling	1	5	14616	Key for Tube Coupling	1
6	00418A	Reflector	4	6	00418A	Reflector	4
7	14585P	Hanger	8	7	14585P	Hanger	8
8	00419	Reflector End Cap	2	8	00419	Reflector End Cap	2
9	09369	Spring Clips	8	9	09369	Spring Clips	8



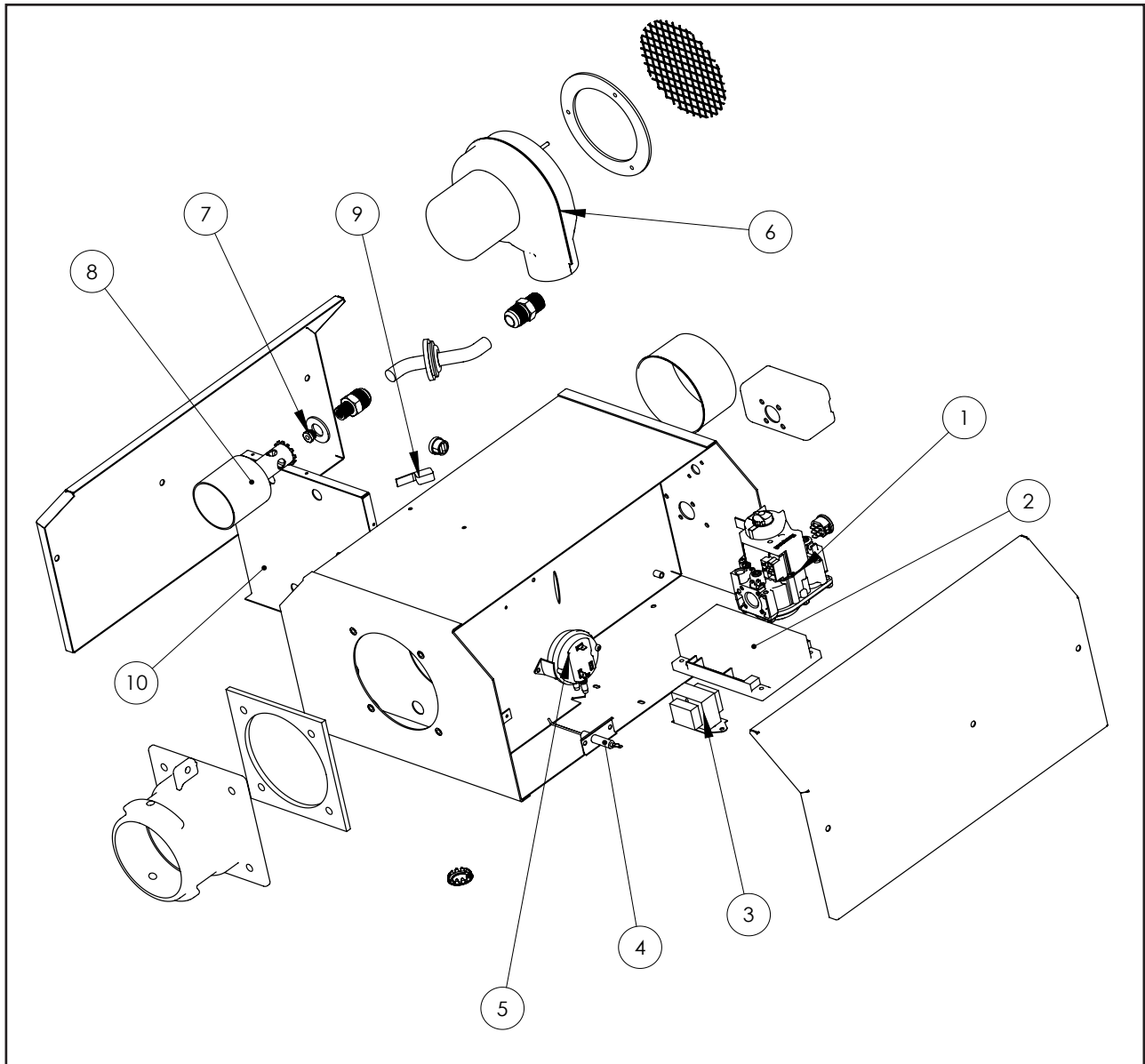
COMFORTER-125 / COMFORTER-150 / COMFORTER-175 (50' Tube Set)							
Item	Stock #	Description	QTY	Item	Stock#	Description	QTY
1	F102656AG	HSAG-125 NG / BRN & Cont Box	1		06416	Steel Tube H.E. 4" O.D. X 10'	4
1	F102657AG	HSAG-125 LP / BRN & Cont Box	1	3	02753	Front Casting	1
1	F102658AG	HSAG-150 NG / BRN & Cont Box	1	4	14612	Tube Flange	2
1	F102659AG	HSAG-150 LP / BRN & Cont Box	1	5	14616	Key for Tube Coupling	2
1	F102660AG	HSAG-175 NG / BRN & Cont Box	1	6	00418A	Reflector	5
1	F102661AG	HSAG-175 LP / BRN & Cont Box	1	7	14585	Hanger	10
2	F106407AG	Tube Set- 50'	1	8	00419	Reflector End Cap	2
	06413	Alumn. Tube H.E. 4" O.D. X 10'	1	9	09369	Spring Clips	8



COMFORTER-150 (60' Tube Set)				COMFORTER-175 (60' Tube Set)			
Item	Stock #	Description	QTY	Item	Stock#	Description	QTY
1	F102658AG	HSAG-150 NG / BRN & Cont Box	1	1	F102660AG	HSAG-175 NG / BRN & Cont Box	1
1	F102659AG	HSAG-150 LP / BRN & Cont Box	1	1	F102661AG	HSAG-175 LP / BRN & Cont Box	1
2	F106403AG	Tube Set- 60'	1	2	F106403AG	Tube Set- 60'	1
	06413	Alumn. Tube H.E. 4" O.D. X 10'	1		06413	Alumn. Tube H.E. 4" O.D. X 10'	1
	06416	Steel Tube H.E. 4" O.D. X 10'	5		06416	Steel Tube H.E. 4" O.D. X 10'	5
3	02753	Front Flange	1	3	02753	Front Flange	1
4	14612	Tube Coupling	5	4	14612	Tube Coupling	5
5	14616	Key for Tube Coupling	5	5	14616	Key for Tube Coupling	5
6	00418A	Reflector	6	6	00418A	Reflector	6
7	14585P	Hanger	12	7	14585P	Hanger	12
8	00419	Reflector End Cap	2	8	00419	Reflector End Cap	2
9	09369	Spring Clips	8	9	09369	Spring Clips	8

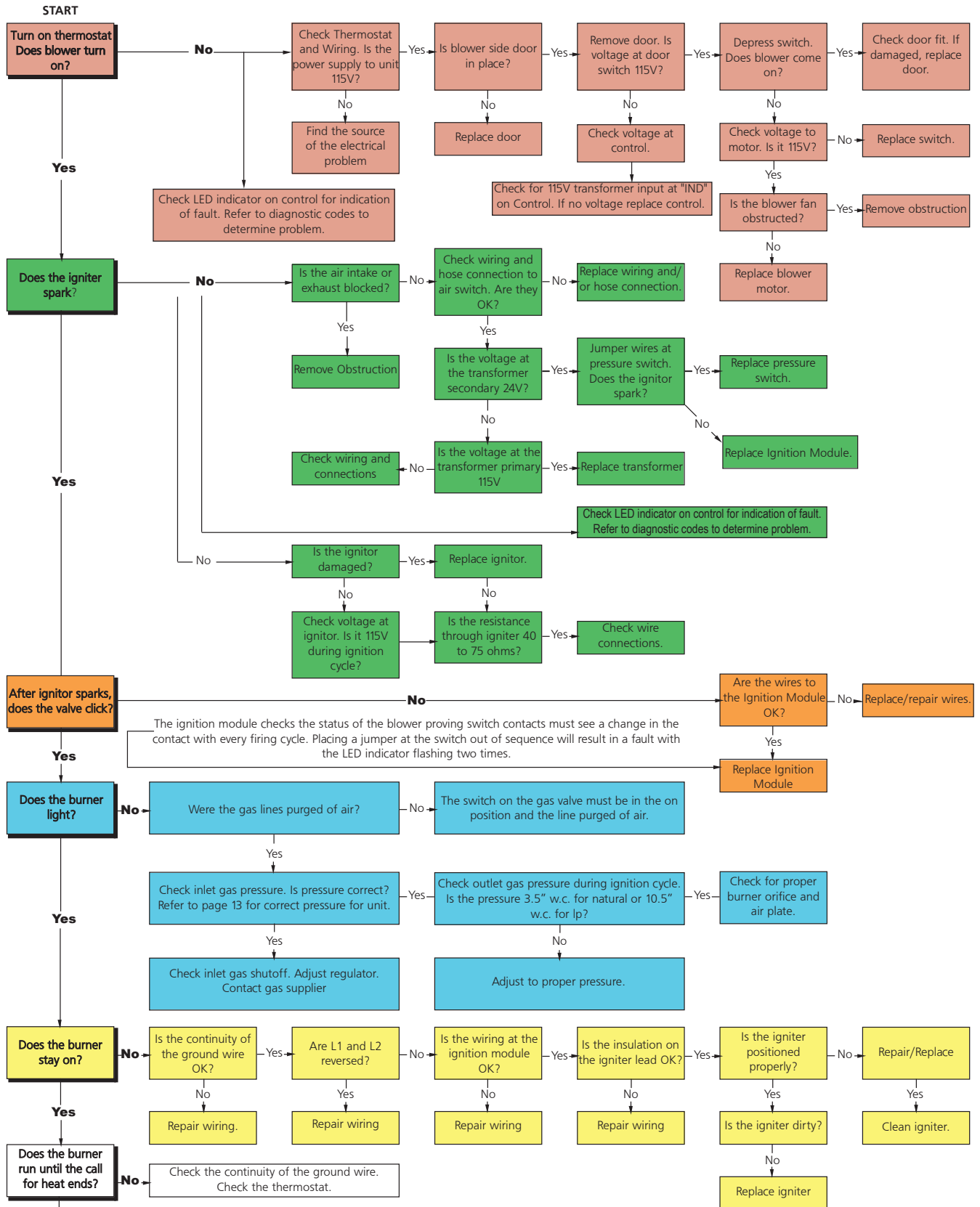
## ACCESSORY PARTS LIST

Stock Number	Description	CONVERSION KITS				
10371	Thermostat 24 volt	<b>HSAG-60</b>	11732	LP TO NG	11733	NG TO LP
10392	Thermostat 110 Volt	<b>HSAG-80</b>	11734	LP TO NG	11735	NG TO LP
17370	Chain Kit	<b>HSAG-100</b>	11736	LP TO NG	11737	NG TO LP
F106414	180 U-Tube Accessory Kit	<b>HSAG-125</b>	11738	LP TO NG	11739	NG TO LP
F106415	90 Elbow Accessory Kit	<b>HSAG-150</b>	11740	LP TO NG	11741	NG TO LP
19021	Vent Adaptor	<b>HSAG-175</b>	11730	LP TO NG	11731	NG TO LP
06430	Vent Cap					
00438	Side Reflector kit					
01376	Deflector kit (5')					
19031	Turnbuckle 5/16"-18"					
19061	Installation Kit					
<b>Installation kit includes:</b>						
Sealant, Tee, 24" Supply Line, Cap, Nipple Fitting						



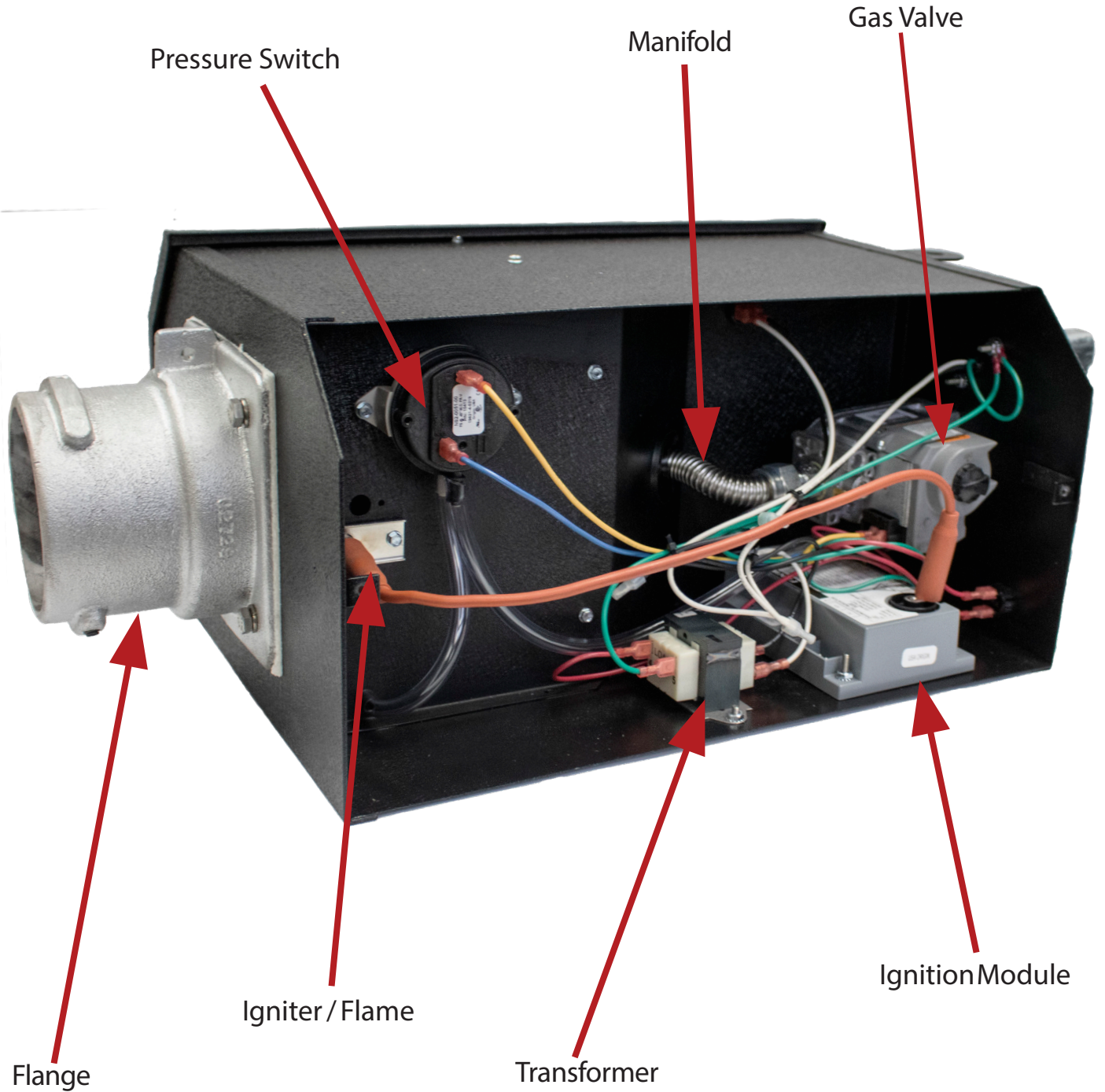
ITEM#	EGI #	DESCRIPTION	QTY	7B	05749	40K LP ORIFICE	1	7M	05799	175 NG ORIFICE	1
1A	00055	GAS VALVE - NATURAL GAS	1	7C	05726	60K NG ORIFICE	1	7N	05725	175 LP ORIFICE	1
1B	00056	GAS VALVE - PROPANE	1	7D	05744	60K LP ORIFICE	1	8	02371	BURNER CUP	1
2	02970	IGNITION MODULE	1	7E	05718	80K NG ORIFICE	1	9	10391A	DOOR SWITCH	1
3	08364A	TRANSFORMER	1	7F	05737	80K LP ORIFICE	1	10A	05510XL	40K AIR PLATE	1
4	02895	IGNITER	1	7G	05712	100K NG ORIFICE	1	10B	05505XL	60K AIR PLATE	1
5A	02836	40K PRESSURE SWITCH	1	7H	05733	100K LP ORIFICE	1	10C	05502XL	80K AIR PLATE	1
5B	10413A	60K-125K PRESSURE SWITCH	1	7I	05703	125K NG ORIFICE	1	10D	05501XL	100K AIR PLATE	1
5C	10414A	150K-175K PRESSURE SWITCH	1	7J	05730	125K LP ORIFICE	1	10E	05500XL	125K AIR PLATE	1
6	07376	BLOWER MOTOR	1	7K	05796	150 NG ORIFICE	1	10F	05503XL	150K AIR PLATE	1
7A	05794	40K NG ORIFICE	1	7L	05728	150 LP ORIFICE	1	10G	05508XL	175K AIR PLATE	1

# Troubleshooting Chart



If a problem still exists, contact Heatstar, Inc Technical Products  
Customer Service 1-855-579-9757

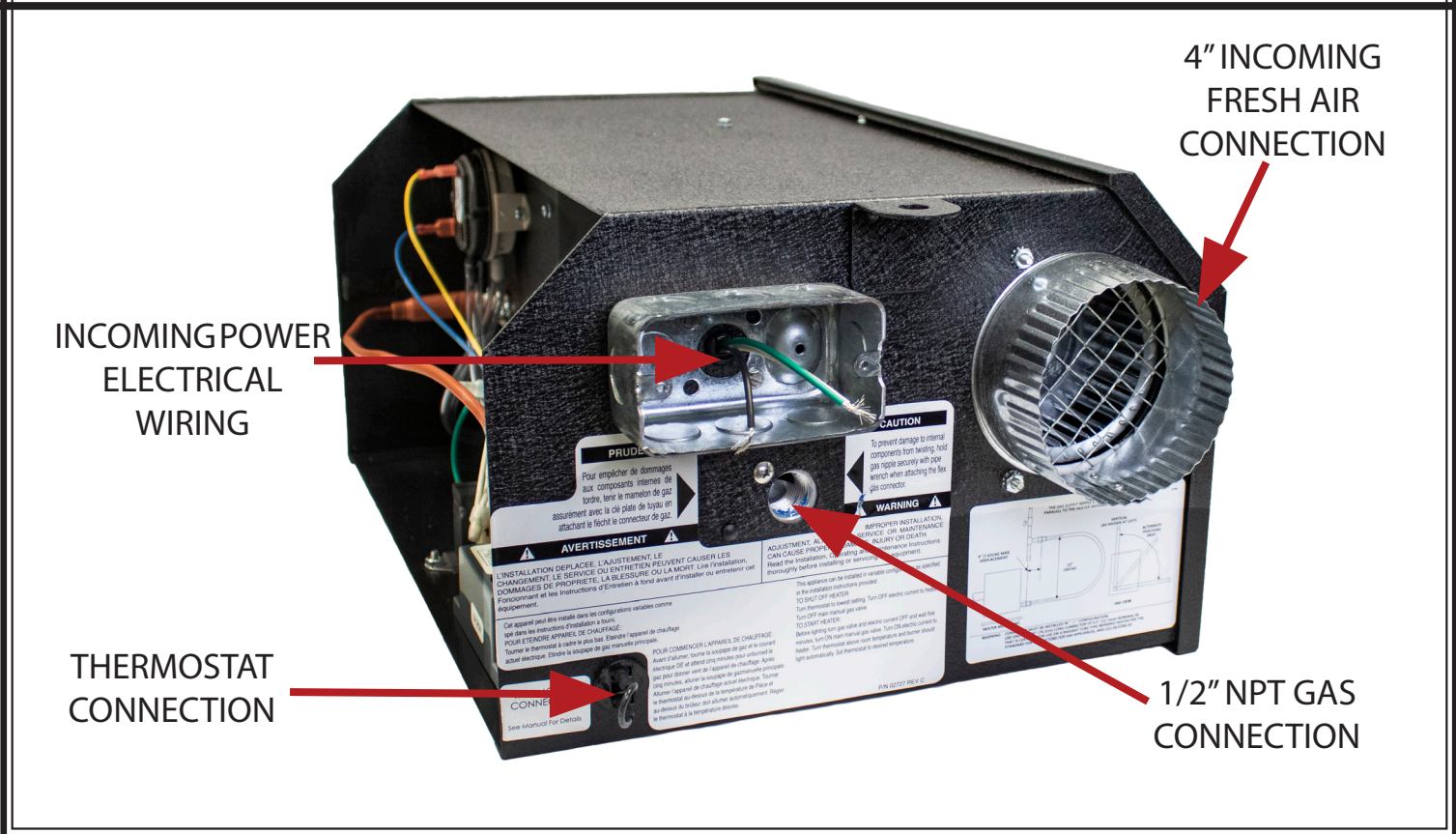
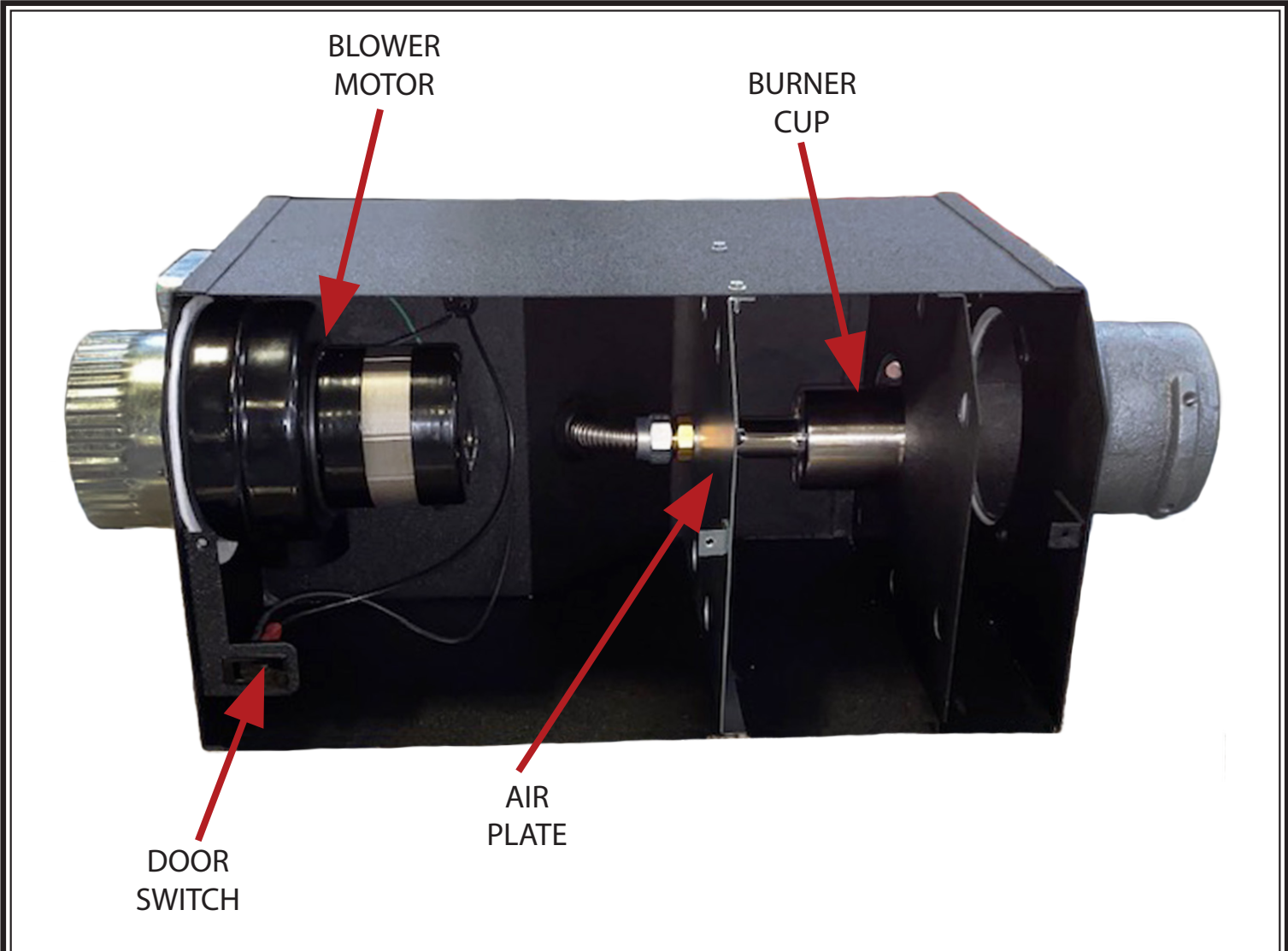
# Burner Box



<p>Electrical 120 volt-60 Hz Starting Current 5.0 amps Running current 1.0 amps</p>	<p>Combustion Chamber/ Heat Exchanger 4" Aluminized 16 Ga.(1st 10')- 4"HRS 16 Ga.</p>	<p>Gas Connection 1/2" NPT</p>
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\*Burner Box: Powder Coating\*





# Diagnostic Indicator

During a fault condition the LED will flash on 1/4 second and off for 1/4 second as needed to indicate the fault code. The code will repeat every 3 seconds. Removing power from the control will clear the fault code and repeat ignition sequence. If the LED flashes the fault code again proceed with diagnostic procedures.

## LED (ON-INTERNAL CONTROL FAILURE)

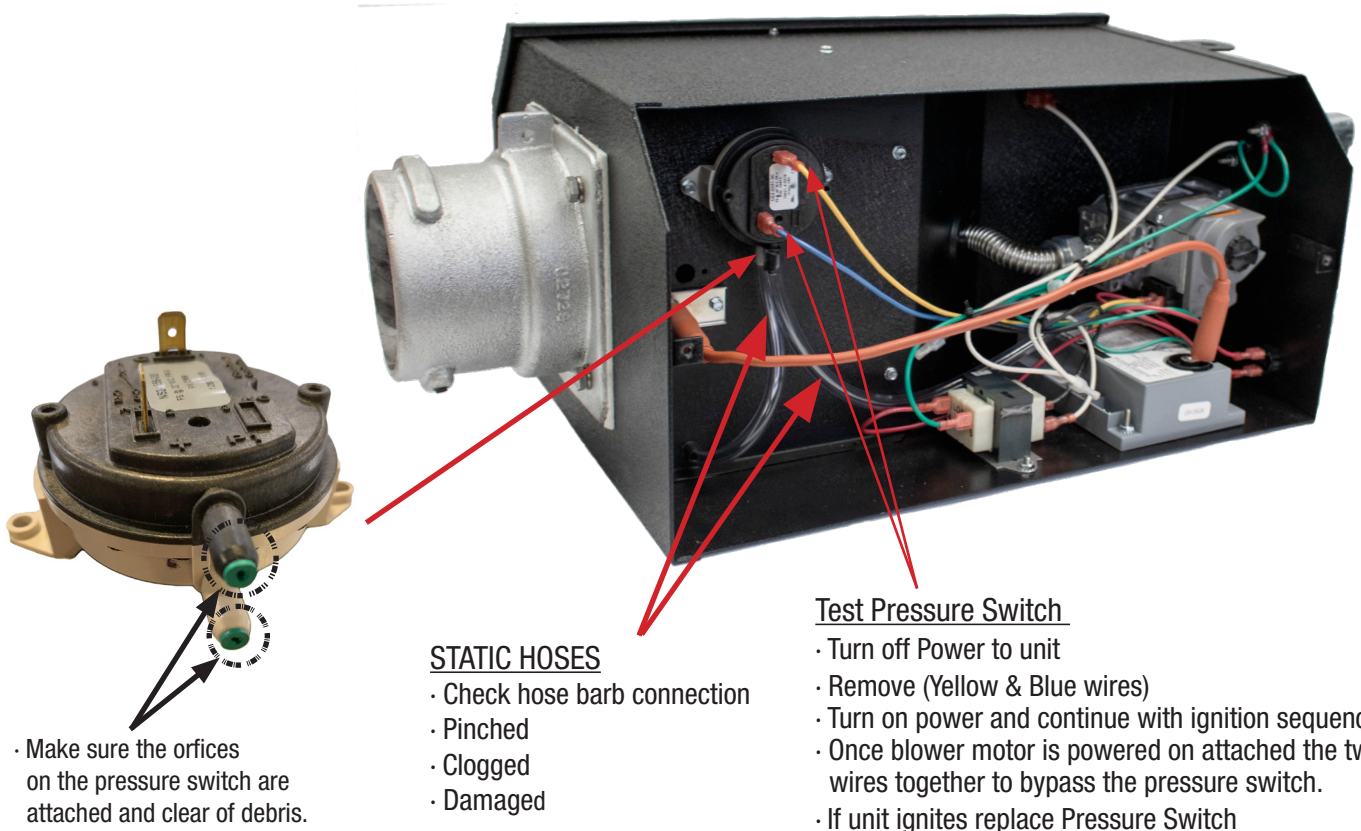
If the control detects a software or hardware error, all outputs are turned off and the LED display is steady ON condition. If this condition persists after an attempt to restart, then the control module must be replaced.

## LED (1 FLASH-AIRFLOW FAULT )

- Check the air intake going into the ceiling does not have any obstruction.

### Motor Locked

- Obstruction inside motor



## LED (2 FLASH-FLAME CALL FOR HEAT)

- Should the main burner fail to light or the flame is not detected during ignition sequence the gas valve is de-energized and flame sense circuit will detect it and turn off blower following the optional post purge period.
- Check electrode position (Refer to Burner Assembly/Electrode on the following page)
- Check green ground wire on gas valve

# Diagnostic Indicator

## LED (3 FLASH-IGNITION LOCKOUT)

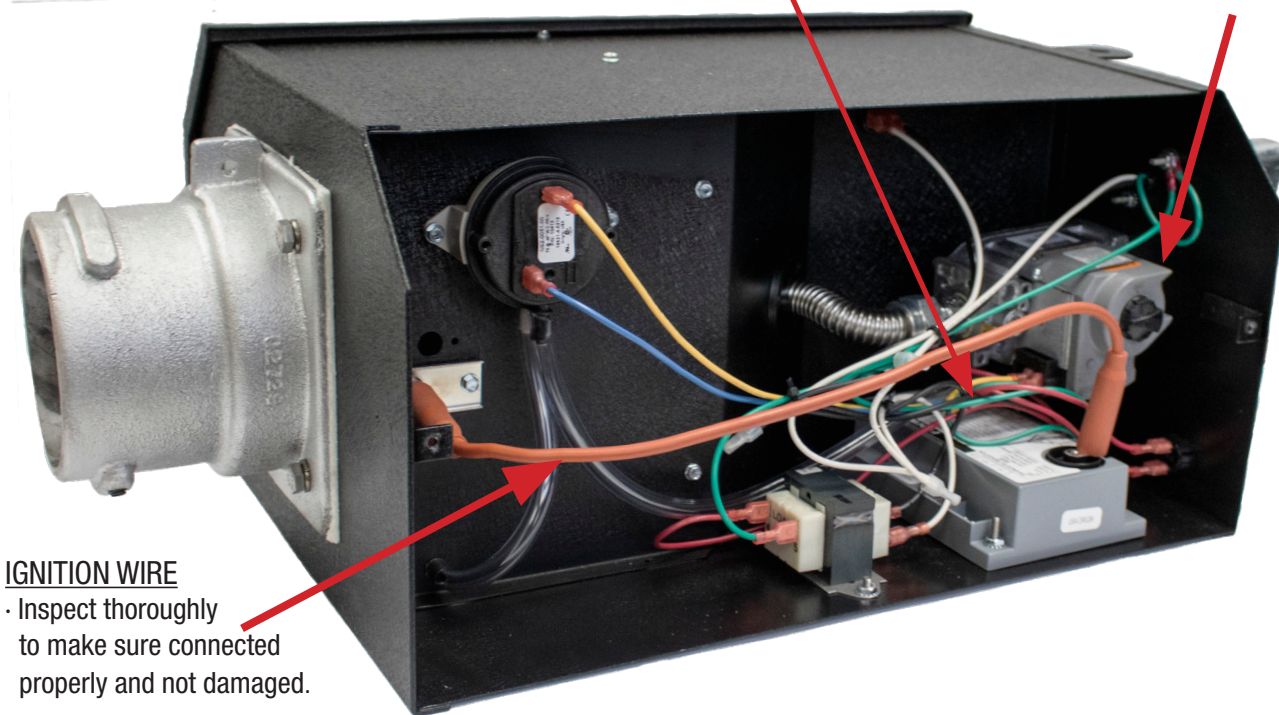
The Ignition Module does not sense a flame during the ignition period.

- Check the ground/polarity of incoming wiring

### IGNITION MODULE (BOARD)

- Inspect wire connections are tightly connected not loose and check with with wire diagram on door panel wired correctly.

### BAD GAS VALVE- (Replace)



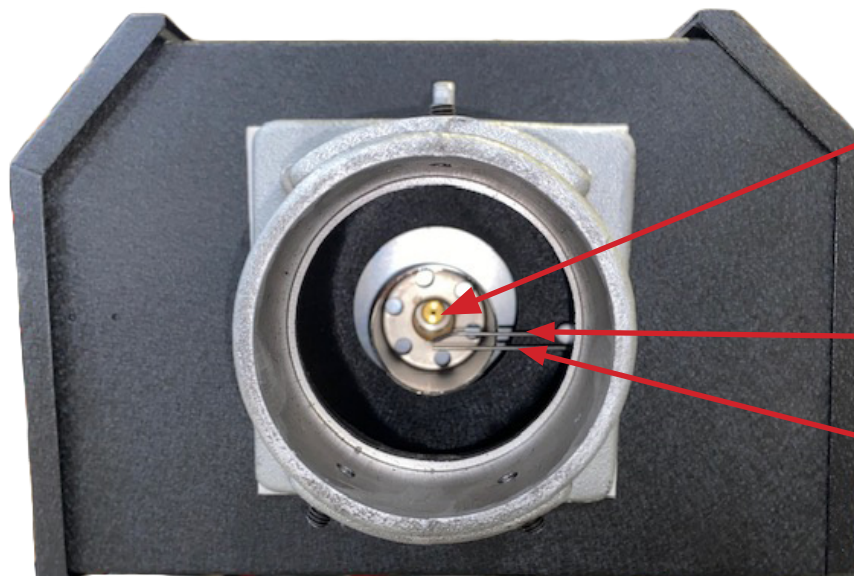
### IGNITION WIRE

- Inspect thoroughly to make sure connected properly and not damaged.

### Burner Assembly / Electrode

#### CLOGGED BURNER ORIFICE

- Use compress air to blowout orifice and make sure burner orifice does not have any debris.



### IGNITOR NOT ARCING

- Inspect Ignitor to make sure wire probes are 1/8" apart.
  - If too close together may create too small of a spark to ignite.
  - If too far may create an weak arc not strong enough to ignite.
- Clean Wire igniter probes with steel wool

# Common Install Miscues



•AIR INTAKE Blocked from vertical installation into area in which insulation or debris clogs the air intake.

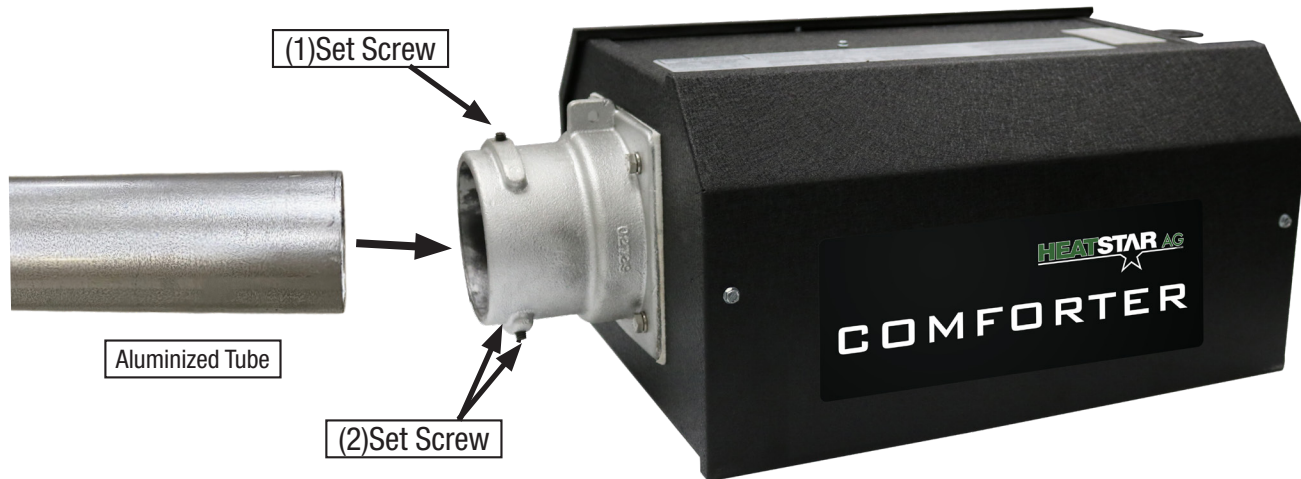
- No Gas-Incorrect regulated pressure
- Unit operates on low pressure:  
NG: 4.6"WC -14.0" WC  
LP: 11"WC-14" W.C.
- Clogged gas line debris

• *Do not puncture a hole in the Air Intake if water has gathered to drain the water, which would void the warranty on unit. Remove the the air intake to drain the water*

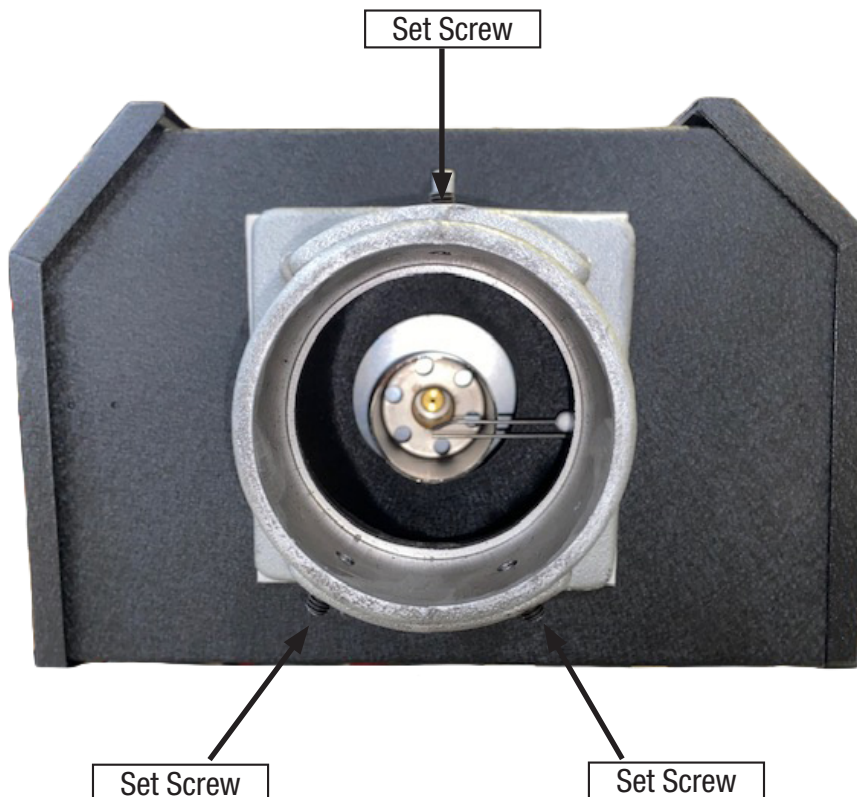
# Tube Connection

\*Temperature above the tubes can reach 112°-118°

## (1st Tube)



Slide Aluminized tube into flange on the burner box then tighten the (3) set screws.



# Tube Set

**Coupler(14612)**



**Key (14616)**



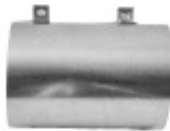
**10' Long Aluminion Tube 4" Dia. 06413**



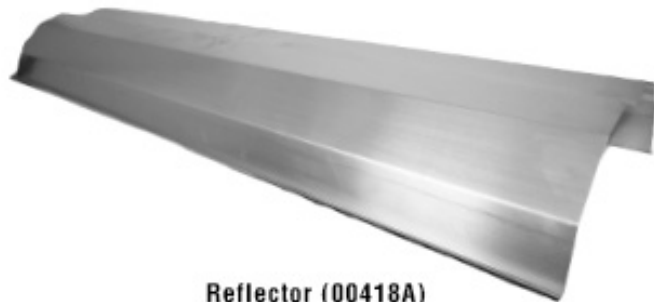
**Tube Hanger (14858P)**



**10' Long Hot Rolled Steel Tube 4" Dia. 06416**



**Vent Adapeter (19021)**



**Reflector (00418A)**



**Reflector End Cap (00419)**



**Vent Cap (19041)**

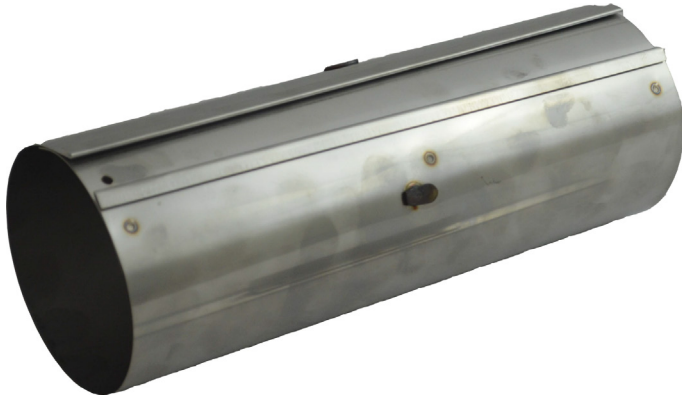


**Baffle (Optional Models)**

03447-5' Long

03445-10' Long

# Coupler & Key



14612-COUPLER



14616-KEY

# Tube Hanger



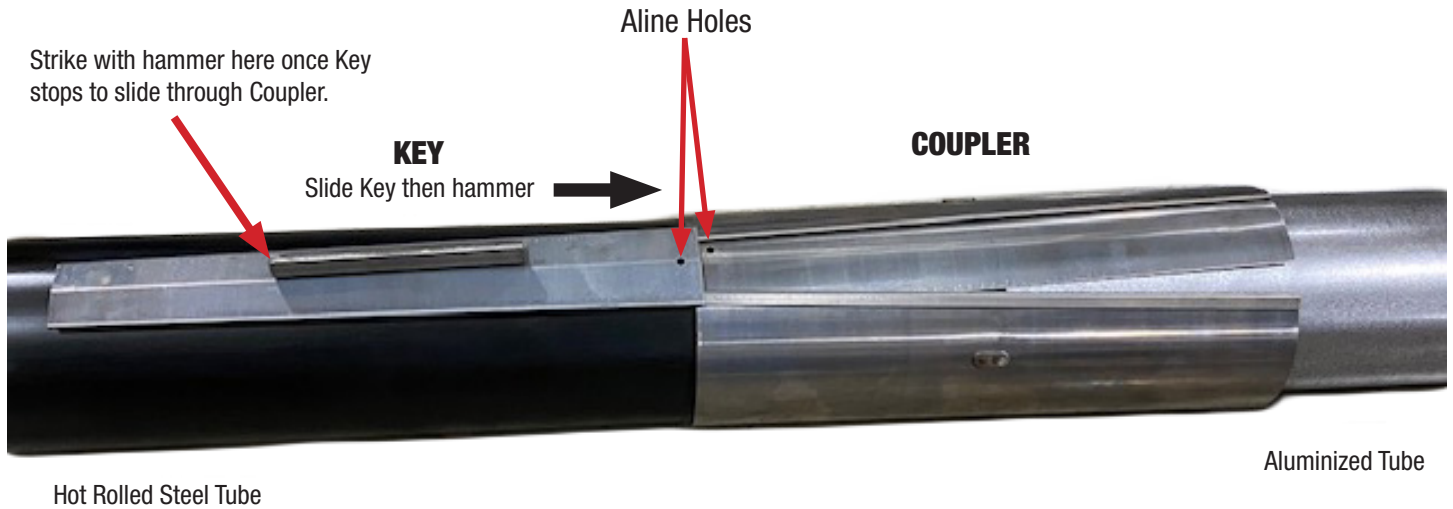
14585P

(2) Chrome plated Hangers for every 10' section of tube

# Tube Connection

## (2nd Tube)

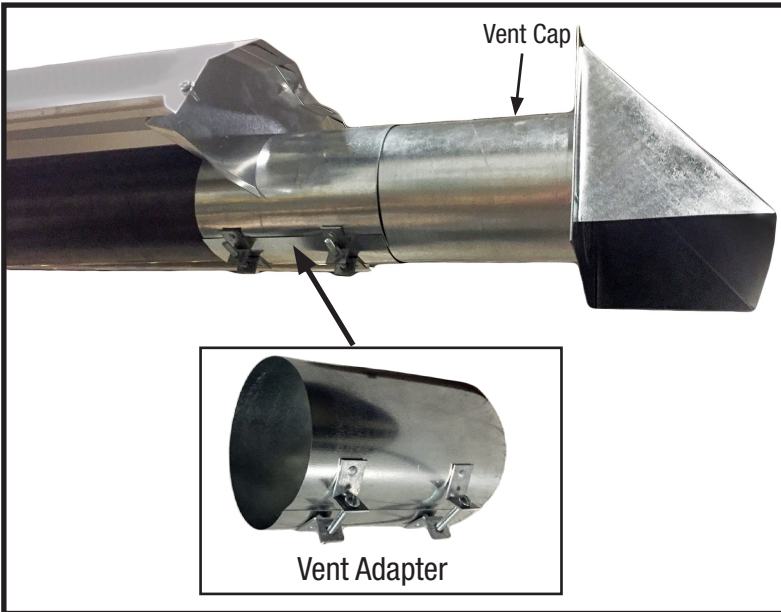
To attached the first aluminized tube section with the Hot Rolled steel tube section use the provided COUPLER & KEY, aline the hole on the KEY with the hole on the COUPLER. Once the holes are alined start by sliding KEY through the COUPLER until the KEY stops sliding then finish with hammering KEY through the COUPLER until tighten.



COUPLER and KEY properly tighten the Aluminized Tube section with the Hot Rolled Steel Tube



# Vent Cap



Attach the Cap to the last tube which is hot rolled steel using the Vent coupler, using the provided screw and nuts. Holding the nut in place then screwing the screw into nut using a flat head screwdriver.

Vent Cap-19041  
VentAdapter-19021

# Transformer

## 08364-Transformer

(Used for JET20 & JET25)

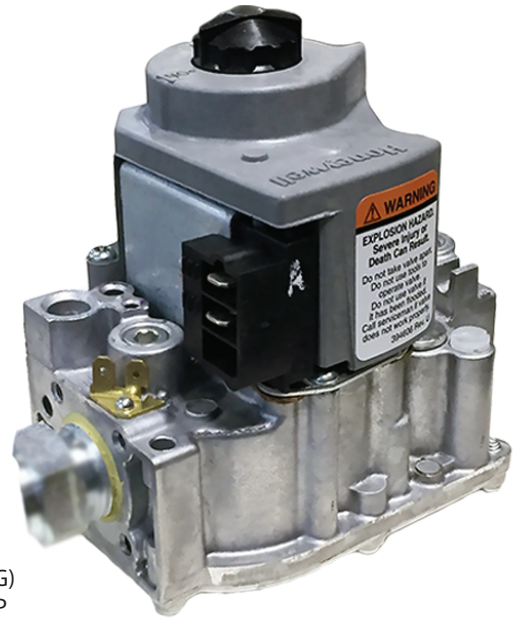


BE110920GEK ID. NO. 0034 G06A  
PRI 120V 60HZ 1-3  
SEC 24V 20VA 4-5  
MADE IN MEXICO 1907 CLASS 2 XFMR  
BASLER ELECTRIC, HIGHAND ILLINOIS

# Gas Valve

00055-(NG) Natural Gas Valve

00056-(LP) Liquid Propane Gas Valve

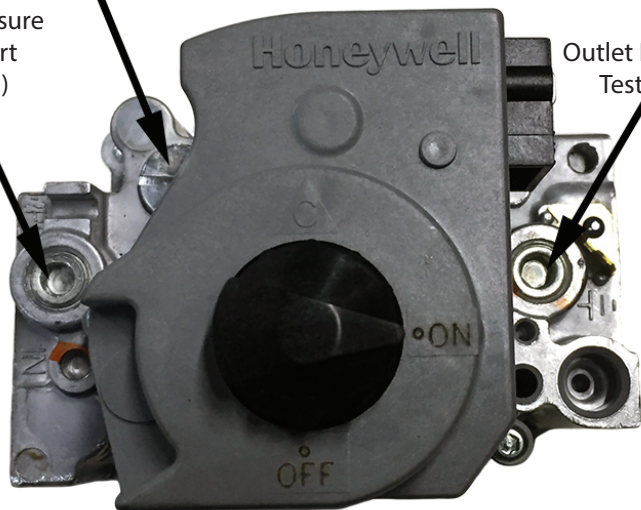


Manifold Pressure Adjustment  
(Silver Cap denotes-NG)  
(Black Cap denotes-LP)



Inlet Pressure Test Port  
(1/2" PSI)

Outlet Pressure Test Port



**TOP VIEW GAS VALVE**

## Gas Valve Sticker Information

VR8205M8854	
REG 3.5 ADJ 3-5 Range	
24V 50/60 HZ TOT Current .5A	
USE CLASS 2 TRANSFORMER	
1913D2C3	60844604 00055

# Orifice & Air Plate

MODEL	ORIFICE (LP)	ORIFICE (NG)
HSAG40	05749 - 40K (BTU)	05794 - 40K (BTU)
HSAG60	05744 - 60K (BTU)	05726 - 60K (BTU)
HSAG80	05737 - 80K (BTU)	05718 - 80K (BTU)
HSAG100	05733 - 100K (BTU)	05712 - 100K (BTU)
HSAG125	05730 - 125K (BTU)	05703 - 125K (BTU)
HSAG150	05728 - 150K (BTU)	05796 - 150K (BTU)
HSAG175	05725 - 175K (BTU)	05799 - 175K (BTU)

*The number stamped on the orifice identifies the orifice size, the Model, fuel type and BTU for the appropriate heater.*

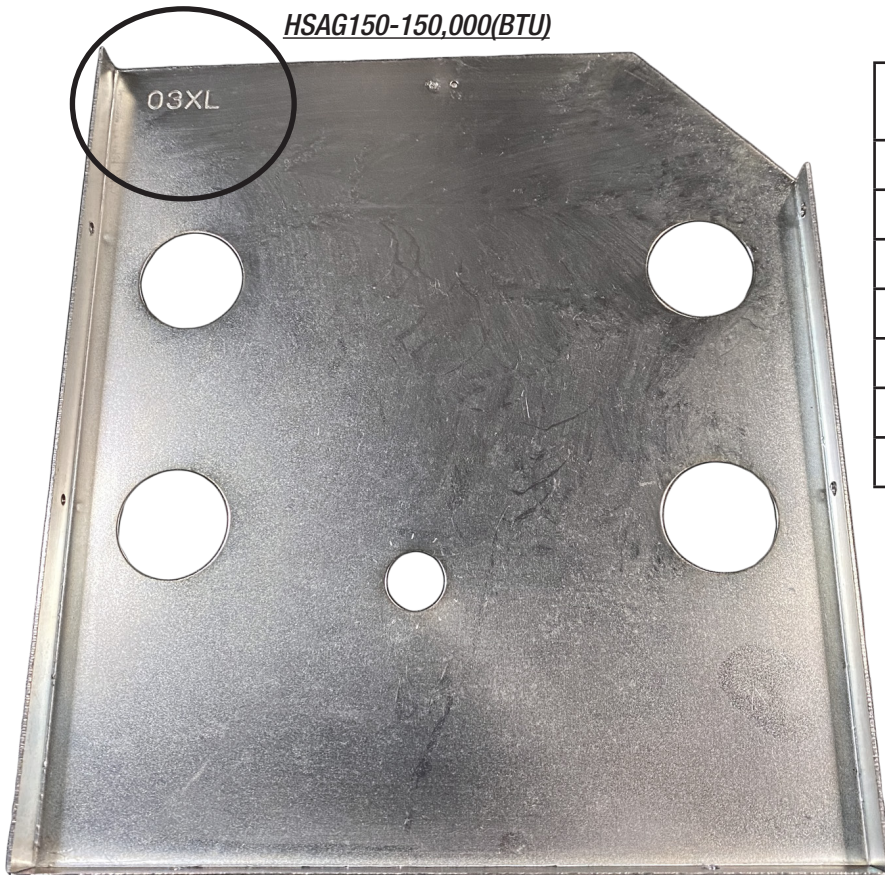


HSAG60 (LP) - 60,000 BTU



HSAG60 (NG) - 60,000 BTU

*HSAG150-150,000(BTU)*



MODEL	AIR PLATE	AIR PLATE STAMPING
HSAG40	05510XL - 40KBTU	10XL
HSAG60	05505XL - 60K (BTU)	5XL
HSAG80	05502XL - 80K(BTU)	2XL
HSAG100	05501XL - 100K (BTU)	01XL
HSAG125	05500XL - 125K (BTU)	00XL
HSAG150	05503XL - 150K (BTU)	03XL
HSAG175	05508XL - 175K (BTU)	08XL

*The number stamped on the Air Plate identifies the Model, and BTU for the appropriate heater.*

# Ignition Module

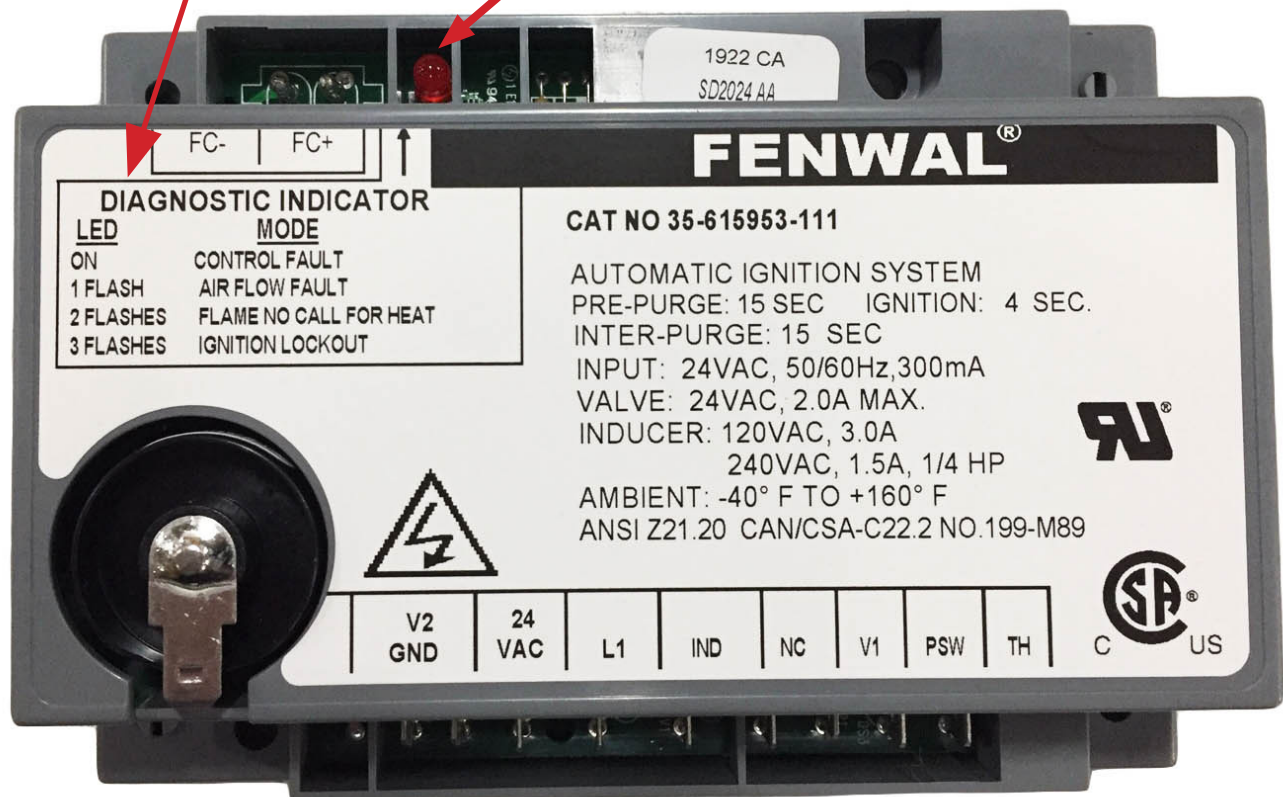
## 02970-Ignition Module (Fenwal)

- 15 sec. pre-purge cycle/15 sec. inter-purge
- 4 sec. Ignition

### Diagnostic Indicator

LED	MODE
ON	Control Fault
1 Flash	Air Flow Fault
2 Flashes	Flame Call For Heat
3 Flashes	Ignition Lockout

### LED(red) Diagnostic Indicator



# Pressure Switch

02836-Pressure Switch (40K BTU)  
.59" Water Column



10413A-Pressure Switch (60-125K BTU)  
.45" Water Column



10414A-Pressure Switch (150-175K BTU)  
.28" Water Column



02933-Clear Tube(5" Long) - 1/4"ID x 3/8"OD



02987-Clear Tube(12" Long) - 1/4"ID x 3/8"OD



# Burner Assembly



02895- Igniter/Flame Sensor

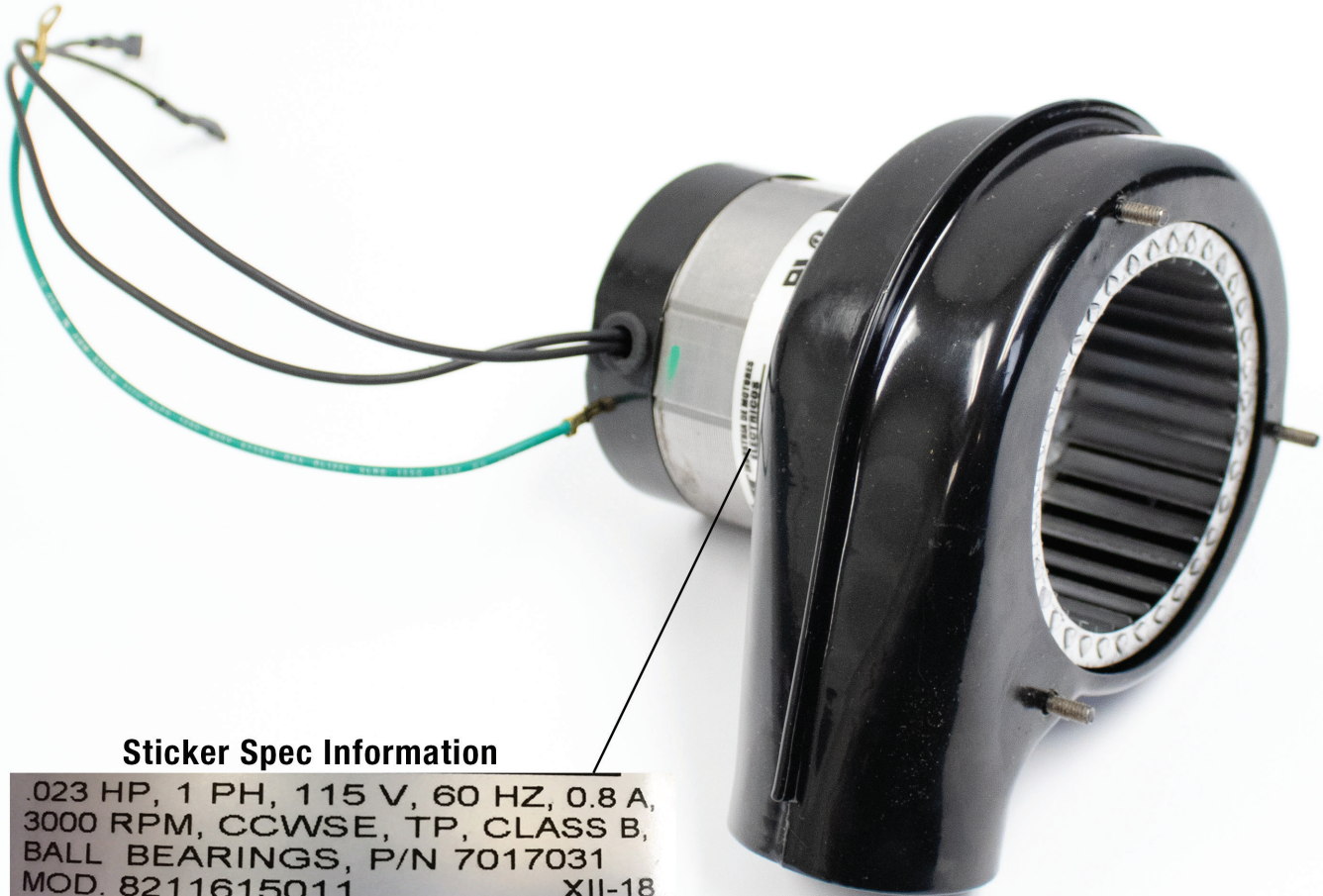


02978-Igniter/FlameSensorWire

# Blower Motor Assembly

07376 - Blower Motor

12395 - Blower Motor Gasket



## Sticker Spec Information

.023 HP, 1 PH, 115 V, 60 HZ, 0.8 A,  
3000 RPM, CCWSE, TP, CLASS B,  
BALL BEARINGS, P/N 7017031  
MOD. 8211615011 XII-18

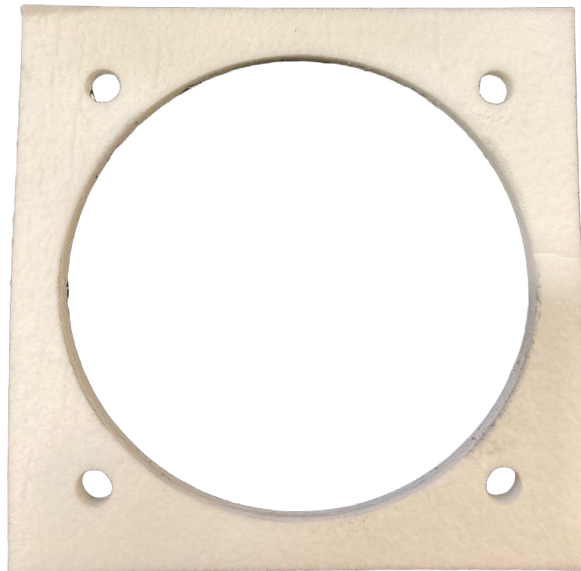
.023 HP, 1PH, 115V, 60HZ, 0.8A,  
3000 RPM, CCWSE, TP, CLASS B,  
BALL BEARINGS, P/N 7017031  
MOD. 8211615011 XII-18

# Burner Flange

02753-Tube Flange



02753-Flange Gasket



(4)- 9/16 bolts to screw into burner box





# Thermostat Terminal

02847 Thermostat Bushing



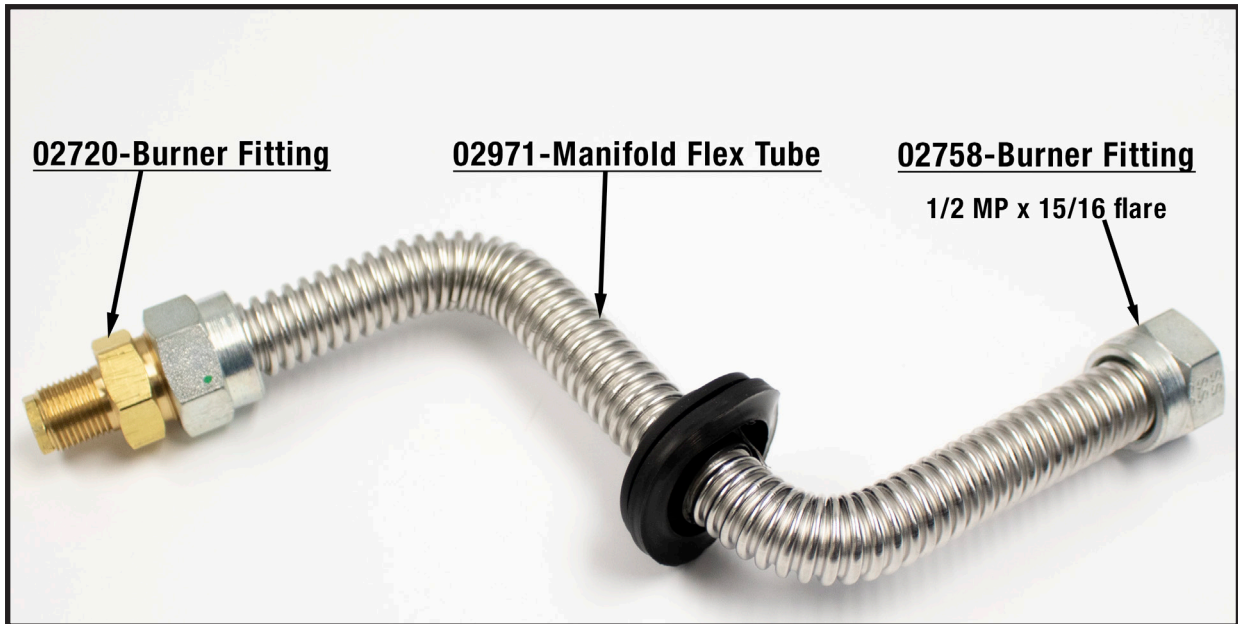
# Blue and Green Lights

08385 - Green Power Light Indicator-120V

08384 - Blue Gas Valve Light Indicator=24V



# Manifold Assembly



# Burner Cup



02371- Burner Cup