



# AURORA - RADIANT BROODER

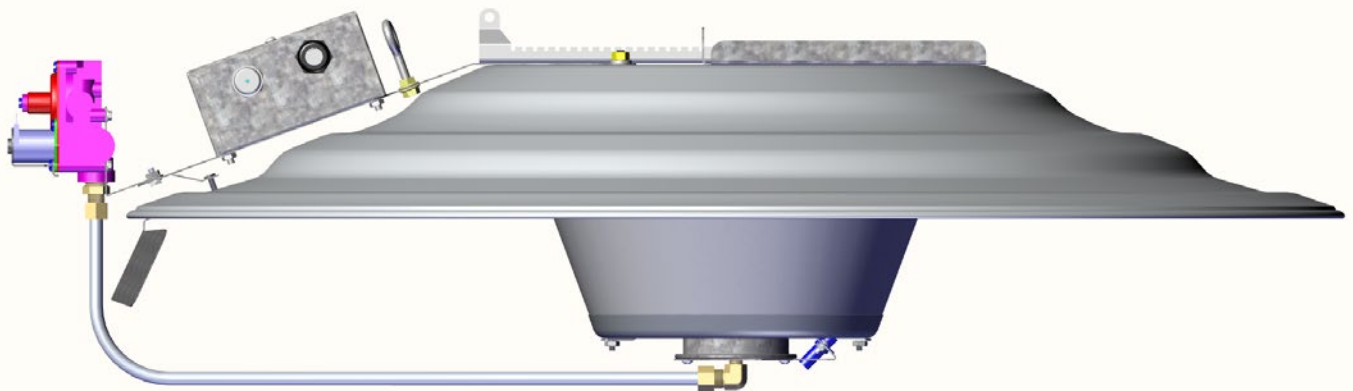
## Installation and Operating Instructions

470821, 470822, 470823, 470824

470826, 470827, 470828, 470829

470847, 470848, 470849, 470850

470851, 470852, 470853, 470854



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## VAL PRODUCTS, INC. WARRANTIES

### MANUFACTURED PRODUCTS STANDARD WARRANTY:

Val Products, Inc. (Valco) warrants that Valco-manufactured products (other than the products subject to an extended warranty set forth below) will be free of defects in material and workmanship, when used in a usual and customary fashion, for a period of one (1) year from the date of original purchase from an authorized Valco distributor or three (3) years from the date of original purchase from Valco, whichever period expires first. If Valco is notified that such a defect exists within that time and, upon inspection, agrees that the product is defective, Valco will, at its option, (a) repair or replace (EXW Valco's plant) the defective product, or (b) refund to the original purchaser (Valco's distributor) the original purchase price paid for the defective product less any installation, shipping, or other charges associated with the original purchase. All defective products must be returned to a Valco designated location for evaluation. Valco's determination as to whether the product is defective is final. See the General Conditions and Limitations.

<b>Product</b>	<b><u>Extended<sup>1</sup> Warranty Coverage Period</u></b>	<b><u>Limited<sup>2</sup> Warranty Coverage Period</u></b>	<b><u>Total Warranty Coverage Period (Extended + Limited)</u></b>
VR & VBL series drinkers	5 years	5 years	10 years
VQ, VA & VBR series drinkers	2 years	3 years	5 years
Roll-formed Tube	3 years	7 years	10 years
Coreless auger <sup>3</sup>	3 years	7 years	10 years
FUZE <sup>®</sup> feed pans	2 years	3 years	5 years
Fiberglass fan housings	Lifetime <sup>4</sup>	na	Lifetime <sup>4</sup>
Aluminum fan blades	Lifetime <sup>4</sup>	na	Lifetime <sup>4</sup>
Z-Fan <sup>™</sup> housings <sup>5</sup>	7 years	na	7 years

### **Explanations/Conditions of above listed footnotes for VAL-CO warranties:**

1. Extended Warranty Coverage: Valco warrants products subject to an extended warranty (above) will be free of defects in material and workmanship, when used in a usual and customary fashion, for the period of time as stated from the date of original purchase by an authorized Valco distributor. If Valco is notified that such a defect exists within that time and, upon inspection, agrees that the product is defective, Valco will, at its option, (a) repair or replace (EXW Valco's plant) the defective product, or (b) refund to the original purchaser the original purchase price paid for the defective product less any installation, shipping, or other charges associated with the original purchase. All defective products must be returned to a Valco designated location for evaluation. Valco's determination as to whether the product is defective is final. See the General Conditions and Limitations.
2. Limited warranty coverage products will be provided at a charge rate of 50% off the Valco list price at the time the warranty claim is made known to the company in writing and is subject to Valco's standard warranty policy conditions and limitations.
3. Coreless Auger warranty is voided if conveying materials with greater than 18% moisture content.
4. Lifetime warranty for fiberglass fan housings and cast aluminum blades is limited to products that prove to be defective in workmanship or material and become unusable over the life of the structure where the product was originally installed, provided that the product has remained undisturbed in its original installation location, and will be repaired or replaced, at Valco's option, at no charge (excluding labor of removal and installation and shipping), EXW Valco's plant.
5. Z-Fan housings are warranted for 7 years against rust through when employed in poultry housing ventilation applications only. Fan components excluding housing are covered by Valco's standard warranty.



## VAL PRODUCTS, INC. WARRANTIES - continued

### General Conditions and Limitations

1. The Product must be installed and operated in accordance with instructions published by Valco or the warranty will be void.
2. Warranty will be void if all components of the product or system are not original equipment supplied by the manufacturer.
3. Products not manufactured by Valco and supplied by outside manufacturers (such as, but not limited to, certain electrical motors, certain controls, gas valves, etc.) are warranted separately by the respective manufacturer and only to the extent of the manufacturer's warranty.
4. Valco feed bins are designed to be used with free-flowing agricultural feed materials with a density proximate to 40 pounds (18.15 kilograms) per cubic foot (.03 cubic meter). Soybean meal, meat scraps and other materials, both agricultural and industrial, are not free flowing and may significantly exceed recommended material density. Feed bin structural failure from their use will void this warranty.
5. Valco does not warrant against feed bin structural failure, or bin unloading components such as flexible auger transitions and boots that arises due to the addition of aftermarket devices attached to, or installed within or attached to the feed bin structure for the purpose of enhancing feed material flow and/or the elimination of feed bridging issues.
6. Warranty applies only to products used in applications as originally intended by Valco – other applications in industry or commerce are not covered by the Warranty. Valco products are expressly not designed or authorized for use in any applications where intended to sustain or support human life or any other application where the failure of the product could result in personal injury or death.
7. Malfunctions resulting from misuse, abuse, mismanagement, negligence, alteration, accident, lack of proper maintenance, lightning strikes, electrical power surges, or electrical power interruption shall not be considered defects under the Warranty. Corrosion, material deterioration and/or equipment malfunction caused by or consistent with the excessive additions of chemicals, minerals, sediments or other foreign elements with the product shall not be considered defects under the Warranty.
8. VALCO WILL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE FOR ANY KIND OF SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR CONTINGENT DAMAGES INCLUDING, BUT NOT LIMITED TO, LOST OR DAMAGED PRODUCT, GOODS OR LIVESTOCK, COSTS OF TRANSPORTATION, LOST SALES, LOST ORDERS, LOST INCOME, INCREASED OVERHEAD, LABOR AND INCIDENTAL COSTS AND OPERATIONAL INEFFICIENCIES. IN NO EVENT SHALL THE WARRANTY LIABILITY EXCEED THE INVOICED PRICE OF THE PRODUCT TO THE ORIGINAL PURCHASER.
9. THE WARRANTIES SET FORTH ABOVE CONSTITUTE VALCO'S ENTIRE AND SOLE WARRANTY. VALCO EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES AS TO THE MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR USE, DESCRIPTION OF QUALITY OF THE PRODUCT FURNISHED, AND ANY OTHER WARRANTY ARISING BY OPERATION OF LAW, CUSTOM OR USAGE.
10. Valco denies any authorization of any distributor, dealer, agent, or employee to modify, extend, or otherwise alter the conditions of any warranty in addition to, or in lieu of, those conditions and terms expressly stated above. Any exceptions not noted in the body of the Warranty must be authorized in writing by an officer of Valco. Valco reserves the right to change or delete models, or change specifications at any time without notice or obligation to improve previous products.

Effective April 1, 2020



## Brooder Description



**BEFORE STARTING ASSEMBLY, CHECK WITH ENCLOSED PARTS LIST FOR A COMPLETE LISTING OF PARTS AND EXPLODED DRAWING OF UNIT BE SURE TO READ ALL INSTRUCTIONS AND WARNINGS CAREFULLY. SAVE THIS MANUAL AND PARTS LISTS FOR FUTURE REFERENCE.**

BROODER DESCRIPTIONS				
Brooder Type	Aurora Radiant Low Profile Brooder	Aurora Radiant Low Profile Brooder	Aurora Radiant Low Profile Brooder	Aurora Radiant Low Profile Brooder
Type of Control	Direct Spark High Pressure	Snap Action Low Pressure	Zone Low Pressure	Direct Spark Low Pressure
Type of Pilot	-	Horizontal Pilot	Horizontal Pilot	-
Gas Type	LP & NAT	LP & NAT	LP & NAT	LP & NAT
BTU Output	40,000 BTU	40,000 BTU	40,000 BTU	40,000 BTU
Canopy Size	34" (86cm)	34" (86cm)	34" (86cm)	34" (86cm)
Electrical Supply	24 VAC 60 Hz	24 VAC 50/60 Hz	24 VAC 50/60 Hz	24 VAC 50/60 Hz
Inlet Pressure	5 PSI	MAX 14" W.C. (LP) MAX 7" W.C. (NAT)	MAX 14" W.C. (LP) MAX 7" W.C. (NAT)	MAX 14" W.C. (LP) MAX 7" W.C. (NAT)
Manifold Pressure	5 PSI	11" W.C. (LP) 7" W.C. (NAT)	11" W.C. (LP) 7" W.C. (NAT)	11" W.C. (LP) 4" W.C. (NAT)

## Radiant Glo Brooder (Infrared) Specifications

**CAPACITY: 40,000 BTU/Hr 10,100 k/cal**  
**DIMENSIONS: WIDTH: 34" - 86 cm**  
**HEIGHT: 11" - 28 cm**



CONTROL OPTIONS		
Direct Spark	Robertshaw 7000 ELC	S.I.T. Snap Action or
Use less fuel with no burning pilots. Avoid unnecessary heat when you don't need it. A low voltage electrical source instead of burning pilots reduces maintenance	May be used when controlling multiple brooders in specific zones.	S.I.T. combines a snap-action thermostat with 100% safety cut-off valve.

**Features:**

The Radiant Glo Brooder uses infrared heating technology to quickly and efficiently warm the floor and chicks rather than wasting heat on the air that rises above the brooding area.

**Many option combinations:**

- 34" (86 cm) Canopy
- BTU/Hr 40,000 (10,100 k/cal)
- Liquid Propane (LP) or Natural Gas
- Low Pressure or High Pressure
- Ignition options include the pilot and pilot-free direct spark
- Control methods – individual, zone,
- (2) individual brooder control options – snap action, direct spark zone.

**Innovative:**

- Fewer brooders, more efficient heat per brooder – Glow Radiant infrared brooders warm chicks and floor without wasting energy on air.
- Easy, trouble-free assembly and cleaning  
Factory-assembled burners provide quick installation.
- Even heat – unique leveler brackets quickly adjust canopy in two directions – side-to-side and front-to-back.
- Durability – specialized steel components promote heat efficiency and prevent corrosion



## Symbols

Below are symbols used throughout the manual to draw your attention to either important information or notes on assembly instructions to aid you in the assembly process or to warn you of safety precautions that need to be taken. The safety warnings are included as a guide to help and encourage the safe operation of your equipment. However; it is your responsibility to evaluate the hazards of each operation and implement the safest method of protecting yourself and your facility as owner and/or operator.



= NOTE - take notice this may help you!



= IMPORTANT INFORMATION - be sure to read!



= CHECK - the details of all requirements, processes or procedures of instructions listed.



= WARNING - The safety alert symbol is always used on warning signs that involve your safety. Anytime you see this symbol heed the warning it identifies. This symbol may be used alone or in conjunction with other symbols.

*This manual is offered in color on our website @val-co.com.*

## Tools Required

- Tape Measure
- Level
- Cordless Power Drill/Screw Driver
- Open end wrenches or adjustable wrench





## Warnings

### ***ATTENTION !***



Please read all of these instructions before assembling your Gas Brooder. These assemblies must be installed in accordance with all Federal, State and Local Codes. Consult a Local contractor for more details.



### ***SAFETY ALERT !***



**LEAK TESTING MUST BE PERFORMED ON ALL GAS TRAIN CONNECTIONS UPON INSTALLATION AND AFTER EVERY SERVICE.**



### ***SAFETY ALERT !***



**Exhaust Fans MUST BE OPERATING PROPERLY when heating the building to avoid carbon monoxide buildup.**



### ***SAFETY ALERT !***



**DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS OR LIQUIDS IN THE VICINITY OF GAS BROODERS.**



### **IF YOU SMELL GAS ...**



- 1. OPEN WINDOWS AND DOORS**
- 2. DO NOT TOUCH ELECTRICAL SWITCHES**
- 3. EXTINGUISH ANY OPEN FLAMES**
- 4. CALL YOUR GAS SUPPLIER**



## Connecting Gas Supply



### WARNING!

**Improper installation of Gas Supply can result in serious personal or property damage. DO NOT PROCEED without following ALL Federal, State and Local Installation Codes. ALL GAS TRAIN CONNECTIONS MUST BE LEAK TESTED AFTER INSTALLATION AND AFTER EACH SERVICE.**

### GAS PRESSURE

Accurate regulation of gas pressure is important for proper and efficient operation. The main line pressure regulator should be set at 11 inches of water column (6.4 oz per sq. inch or 27.4 mbar) for propane gas and 7 inches of water column (4 oz per sq. inch or 17.4 mbar) for natural gas. Gas pressure should be checked at the end of each line while brooders are operating. Low pressure will cause carbon deposits and weak pilot flame. High pressure can cause a blow torch flame that will light past your burner tube and burn very inefficiently. Consult the LP Handbook.

**USE ONLY QUALIFIED INSTALLERS FOR ALL GAS LINE INSTALLATIONS !**

Selecting the correct size of gas supply line is very important for the efficiency of your brooder operation. Pipe size is dependent upon the length of run and the flow rate required by your brooder. The chart below is based on propane pressure of 11" W.C. and shows maximum pipe capacity in 1,000 BTU/hr for propane by pipe diameter and length and includes allowances for fittings. Consult your local pipe supplier before purchasing your pipe.

LENGTH (FEET)	TUBING SIZE						NOMINAL PIPE SIZE, SCHEDULE 40						
	3/8"	1/2"	5/8"	3/4"	7/8"	1-1/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
10	39	92	189	329	501	935	291	608	1,150	2,350	3,520	6,790	10,800
20	28	62	131	215	346	630	200	418	787	1,620	2,420	4,660	7,430
30	21	50	107	181	277	500	160	336	632	1,300	1,940	3,750	5,970
40	19	41	90	145	233	427	137	287	541	1,110	1,660	3,210	5,110
50	18	37	79	131	198	375	122	255	480	985	1,480	2,840	4,530
60	16	35	72	121	187	340	110	231	434	892	1,340	2,570	4,100
80	13	29	62	104	155	289	101	212	400	821	1,230	2,370	3,770
100	11	26	55	90	138	255	94	197	372	763	1,140	2,200	3,510
125	10	24	48	81	122	224	89	185	349	716	1,070	2,070	3,290
150	9	21	43	72	108	203	84	175	330	677	1,010	1,950	3,110
200	8	19	39	66	100	187	67	140	265	543	814	1,570	2,500
250	6	17	36	60	93	172	62	129	243	500	749	1,440	2,300



## Connecting Gas Supply - continued

The chart below are based on undiluted propane gas pressure at 1.50 specific gravity and show maximum pipe capacity in 1,000 BTU/hr by pipe diameter and length and include allowances for fittings. Consult your local pipe supplier before purchasing your pipe.

Capacity of Schedule 40 Steel Pipe, 2 PSIG Inlet Pressure, 1.0 PSI Pressure Drop (Standard Cubic Feet per Hour)									
Length of Pipe (ft.)	Nom. Size (In.)								
	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
10	2,680	5,590	10,500	21,600	32,000	62,400	99,500	176,000	359,000
20	1,840	3,850	7,240	14,900	22,300	42,900	68,400	121,000	247,000
30	1,480	3,090	5,820	11,900	17,900	34,500	54,900	97,100	198,000
40	1,260	2,640	4,980	10,200	15,300	29,500	47,000	83,100	170,000
50	1,120	2,340	4,410	9,060	13,600	26,100	41,700	73,700	150,000
60	1,010	2,120	4,000	8,210	12,300	23,700	37,700	66,700	136,000
70	934	1,950	3,680	7,550	11,300	21,800	34,700	61,400	125,000
80	869	1,820	3,420	7,020	10,500	20,300	32,300	57,100	116,000
90	815	1,700	3,210	6,590	9,880	19,000	30,300	53,600	109,000
100	770	1,610	3,030	6,230	9,330	18,000	28,600	50,600	103,000
125	682	1,430	2,690	5,520	8,270	15,900	25,400	44,900	91,500
150	618	1,290	2,440	5,000	7,490	14,400	23,000	40,700	82,900
175	569	1,190	2,240	4,600	6,890	13,300	21,200	37,400	76,300
200	529	1,110	2,080	4,280	6,410	12,300	19,700	34,800	71,000
250	469	981	1,850	3,790	5,680	10,900	17,400	30,800	62,900
300	425	889	1,670	3,440	5,150	9,920	15,800	27,900	57,000
350	391	817	1,540	3,160	4,740	9,120	14,500	25,700	52,400
400	364	760	1,430	2,940	4,410	8,490	13,500	23,900	48,800
450	341	714	1,340	2,760	4,130	7,960	12,700	22,400	45,800
500	322	674	1,270	2,610	3,910	7,520	12,000	21,200	43,200
550	306	640	1,210	2,480	3,710	7,140	11,400	20,100	41,100
600	292	611	1,150	2,360	3,540	6,820	10,900	19,200	39,200



All gas piping charts shown on pages 10 through 12 are referenced from NFPA® 54.

## Connecting Gas Supply - continued

The charts below are based on natural gas pressure at 0.6 specific gravity and show maximum pipe capacity in 1,000 BTU/hr by pipe diameter and length and include allowances for fittings. Consult your local pipe supplier before purchasing your pipe.

Capacity of Schedule 40 Steel Pipe, Inlet Pressure: 0.5 PSIG or Less, Pressure Drop: 0.3 Inches Water Column (W.C.) (Standard Cubic Feet per Hour)														
Nom. Size (In.)	Equivalent Length of Pipe (ft.)													
	10	20	30	40	50	60	70	80	90	100	125	150	175	200
1/4	32	22	18	15	14	12	11	11	10	9	8	7	7	6
3/8	71	49	39	34	30	27	25	23	22	21	18	17	15	14
1/2	131	90	72	62	55	50	46	42	40	38	33	30	28	26
3/4	273	188	151	129	114	104	95	89	83	79	70	63	58	54
1	514	353	284	243	215	195	179	167	157	148	131	119	109	102
1-1/4	1,060	726	583	499	442	400	368	343	322	304	269	244	224	209
1-1/2	1,580	1,090	873	747	662	600	552	514	482	455	403	366	336	313
2	3,050	2,090	1,680	1,440	1,280	1,160	1,060	989	928	877	777	704	648	602
2-1/2	4,860	3,340	2,680	2,290	2,030	1,840	1,690	1,690	1,480	1,400	1,240	1,120	1,030	960
3	8,580	5,900	4,740	4,050	3,590	3,260	3,000	2,790	2,610	2,470	2,190	1,980	1,820	1,700
4	17,500	12,000	9,660	8,270	7,330	6,640	6,110	5,680	5,330	5,040	4,460	4,050	3,720	3,460

Capacity of Schedule 40 Steel Pipe, 5 PSIG Inlet Pressure 0.5 PSI - 3.5 PSI Pressure Drop (Standard Cubic Feet per Hour)									
Length of Pipe (ft.)	Nom. Size (In.)								
	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	4
10	3,190	6,430	11,800	24,200	36,200	69,700	111,000	196,000	401,000
20	2,250	4,550	8,320	17,100	25,600	49,300	78,600	139,000	283,000
30	1,840	3,720	6,790	14,000	20,900	40,300	64,200	113,000	231,000
40	1,590	3,220	5,880	12,100	18,100	34,900	55,600	98,200	200,000
50	1,430	2,880	5,260	10,800	16,200	31,200	49,700	87,900	179,000
60	1,300	2,630	4,800	9,860	14,800	28,500	45,400	80,200	164,000
70	1,200	2,430	4,450	9,130	13,700	26,400	42,000	74,300	151,000
80	1,150	2,330	4,260	8,540	12,800	24,700	39,300	69,500	142,000
90	1,060	2,150	3,920	8,050	12,100	23,200	37,000	65,500	134,000
100	979	1,980	3,620	7,430	11,100	21,400	34,200	60,400	123,000
125	876	1,770	3,240	6,640	9,950	19,200	30,600	54,000	110,000
150	786	1,590	2,910	5,960	8,940	17,200	27,400	48,500	98,900
175	728	1,470	2,690	5,520	8,270	15,900	25,400	44,900	91,600
200	673	1,360	2,490	5,100	7,650	14,700	23,500	41,500	84,700



## Canopy Assembly

1. Attach threaded stud in 470516 Hanger Base to canopy with 614045 Washer and 011115 Nut, note orientation in Figure 1 and hardware orientation in Figure 2.

Figure 1

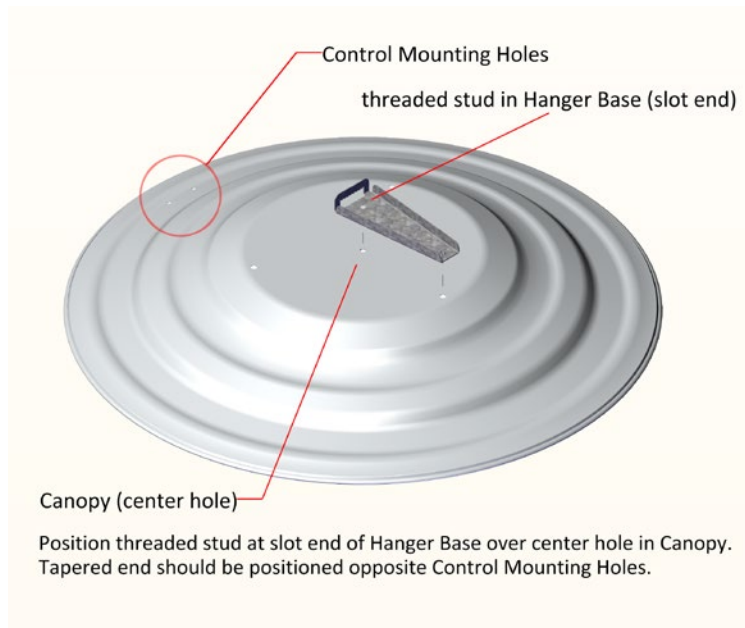
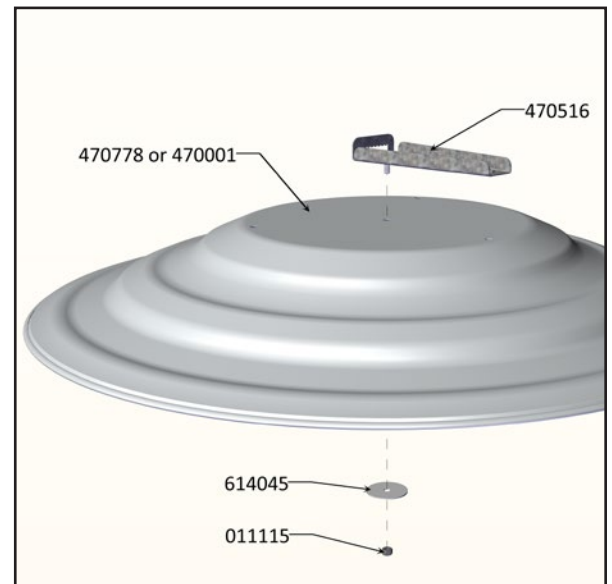
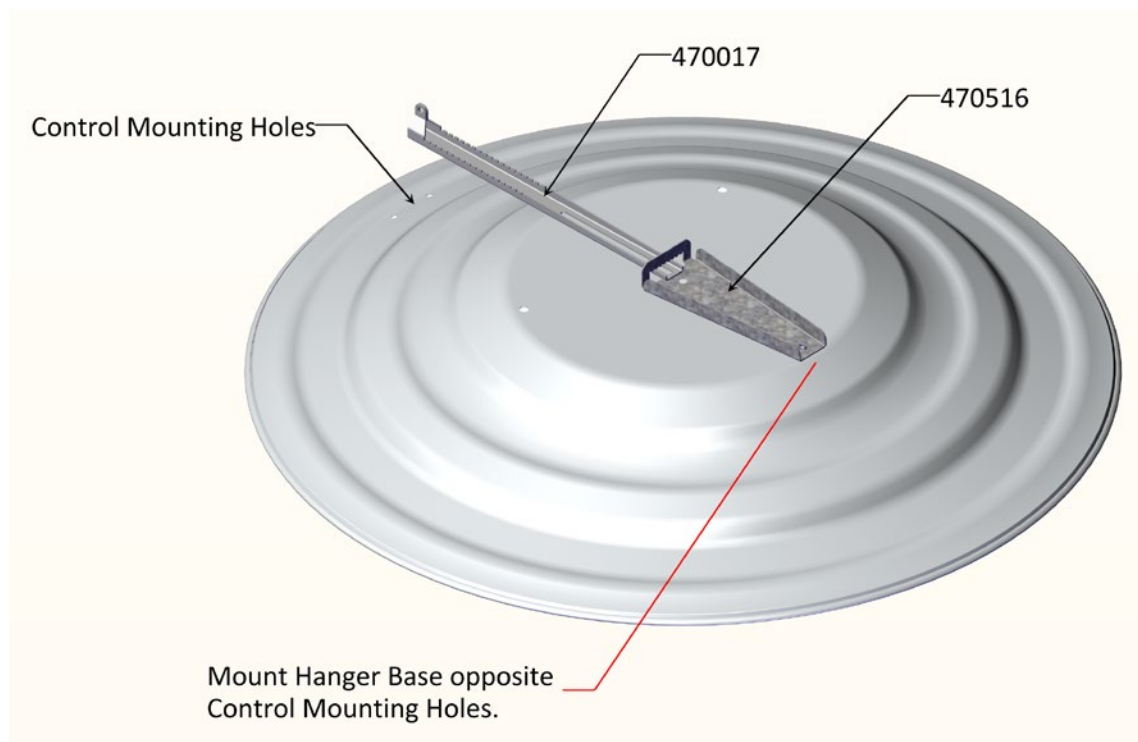


Figure 2



2. Slide 470017 Hanger Bracket thru 470516 Hanger Base as shown in Figure 3.

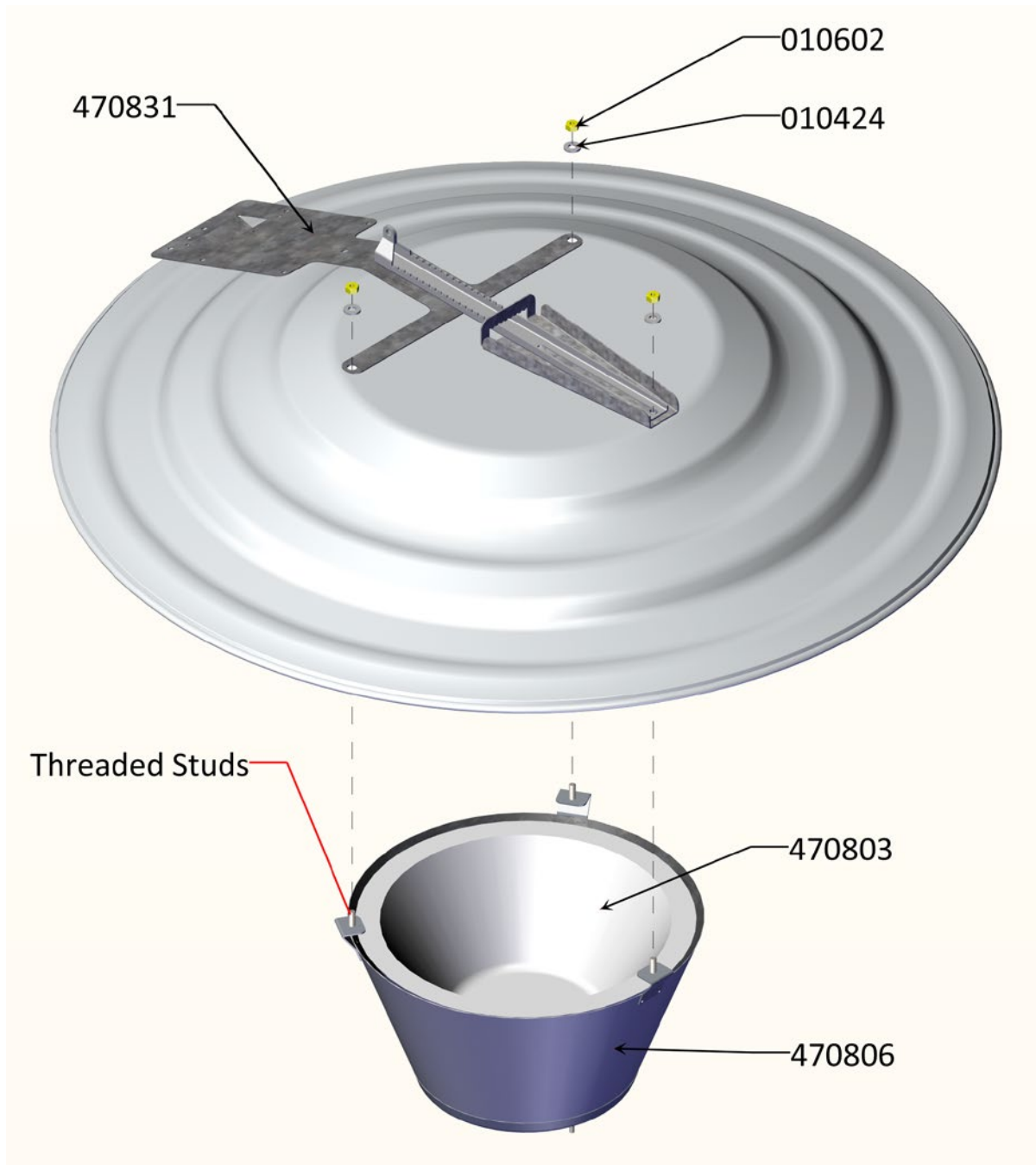
Figure 3



## Canopy Assembly - continued

3. Align 470831 Mounting Bracket to Canopy with threaded studs inserted through control mounting holes in Canopy, as shown in Figure 4.
4. Attach (1) 010602 Nut and (1) 010424 Washer to each of (3) threaded studs in 470806 Hanger Base, after 470803 Insulator has been inserted into 470806 Hanger Base, as shown in Figure 4.

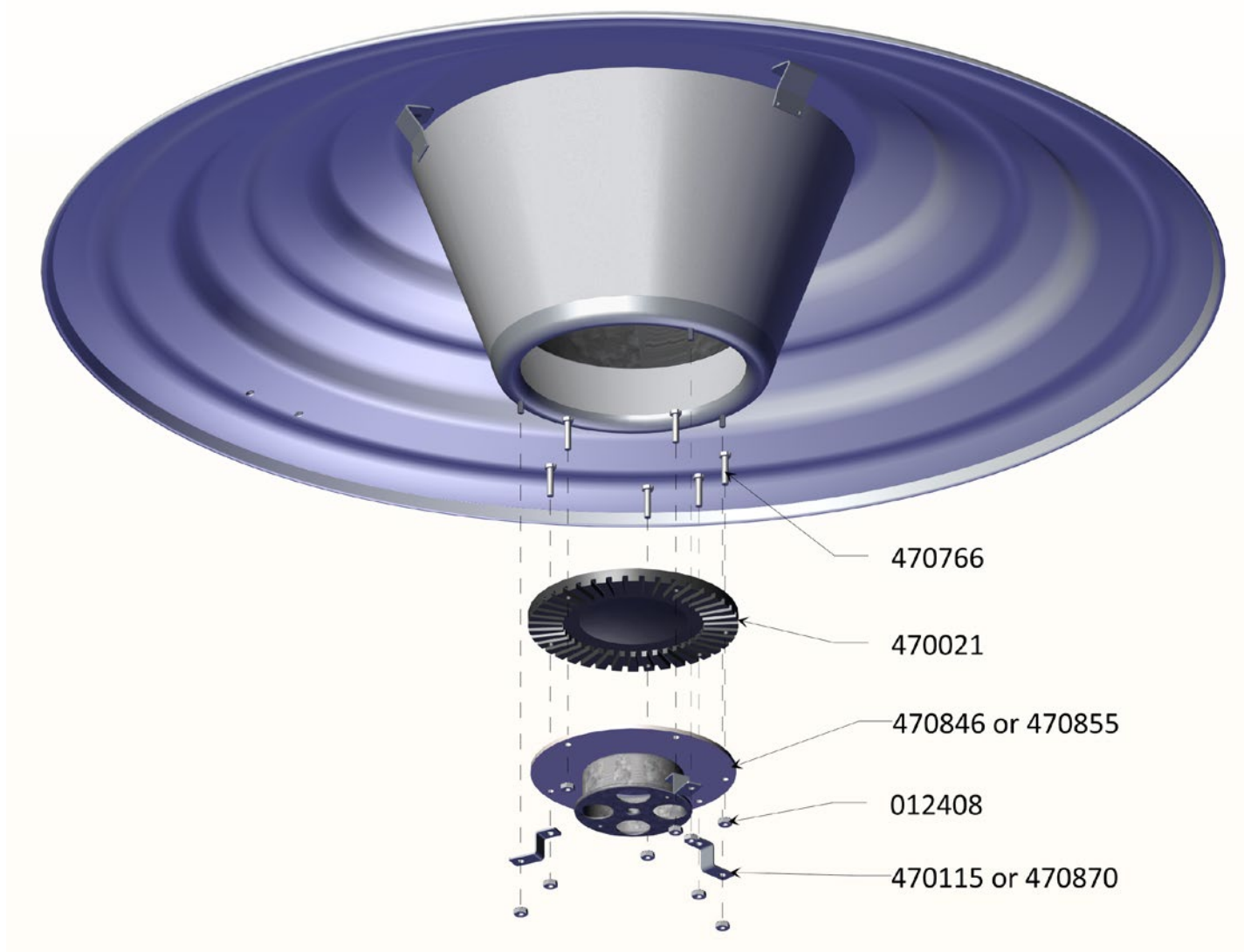
Figure 4



## Burner Assembly / Radiant Assembly

5. Pre-assemble Burner Cup and Venturi Assembly using (5) 470766 Bolts and (5) 012408 Nuts to (3) 470115 Brackets in Pilot Units or (6) 470766 Bolts and (6) 012408 Nuts to (3) 470115 Brackets in DSI units, as shown in Figure 5.
6. Rotate Glow Housing assembly so that the burner orifice at the bottom of the Venturi assembly is pointing toward the control mounting holes. Position Venturi assembly under glow housing so 470115 brackets fit on threaded studs in glow housing. Secure with remaining 012408 Nuts.

Figure 5



*Pages to follow are broken down by model for the Control and Gas Line assemblies.*

***(Direct Spark instructions begin from this point on page 18.)***



*For proper burning, be sure center of RADIANT is directly above center of burner tube before tightening bolts.*

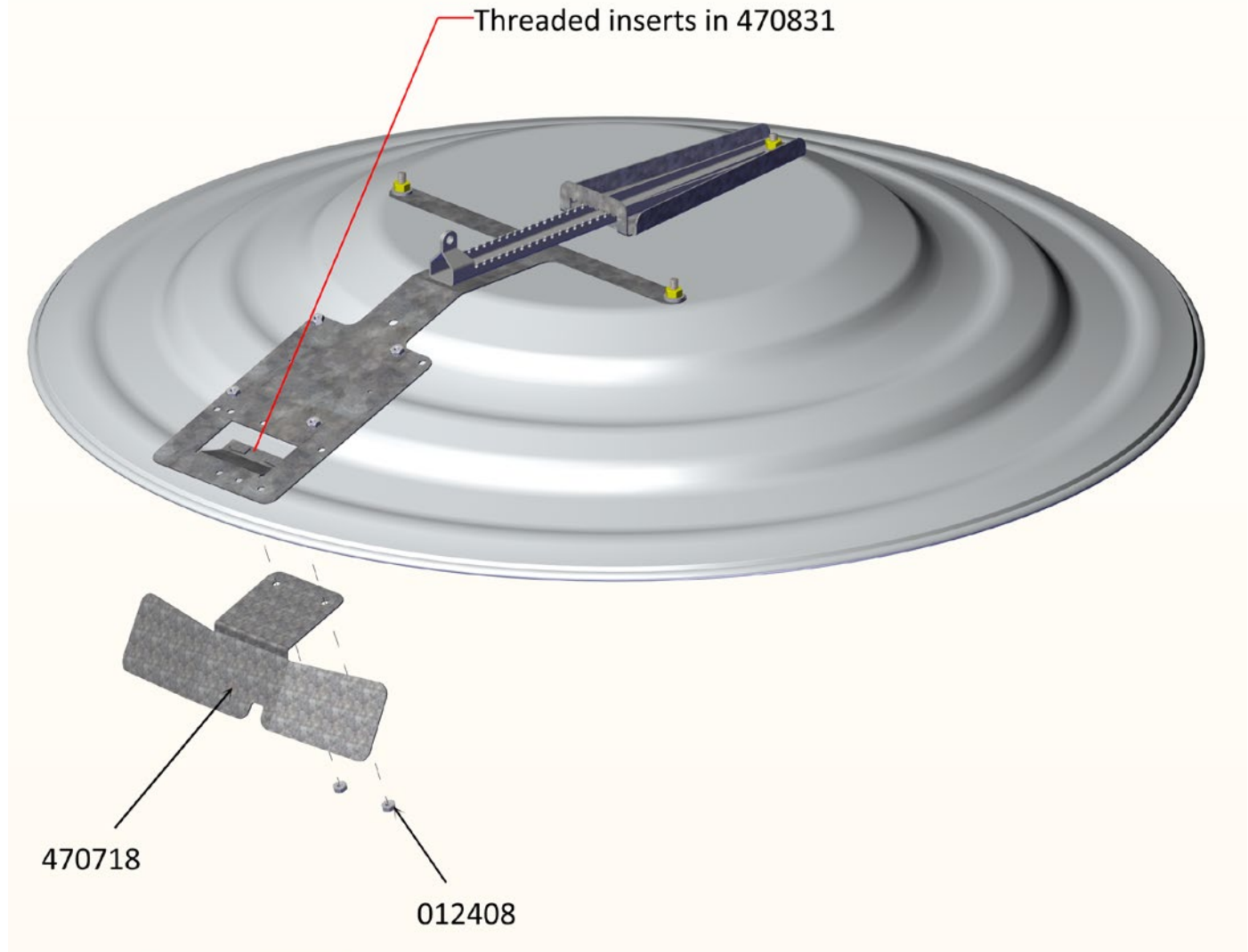


## Heat Shield Assembly

7. Attach the 470718 Heat Shield to the Canopy, inserting the threaded studs through the Control mounting holes and secure with [2] 012408 Hex Nuts as shown in Figure 6 below.

*(The Control and Fittings are shipped pre-assembled.)*

Figure 6

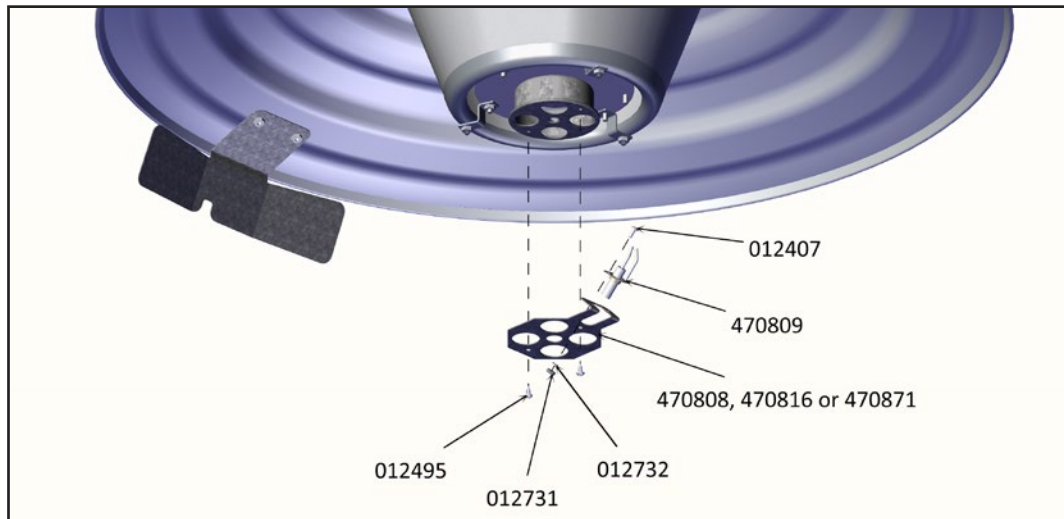




## Direct Spark and Gas Line Connection

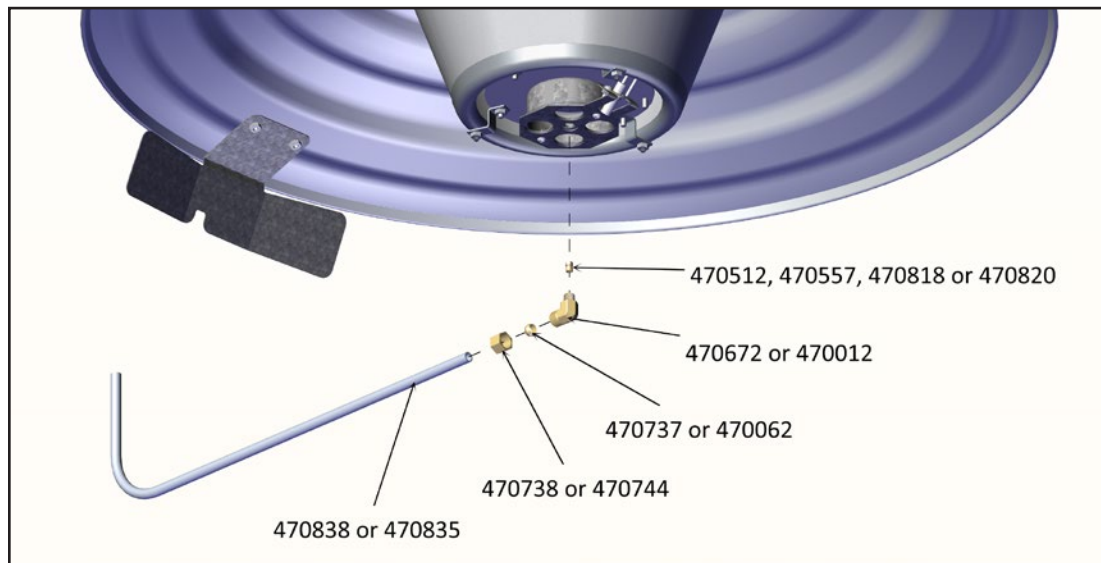
- 8a. Attach the 470809 Igniter to the 470816 (or 470808, or 470871) Bracket using one 012407 Screw, 012732 Washer and 012731 Nut, as shown in Figure 7.
- 9a. Secure assembled Bracket to Venturi assembly with [2] 012495 Screws, as shown in Figure 7.

Figure 7



- 10a. Attach the Burner Orifice (470512, 470557, 470818 or 470820) to the 470672 (or 470012) Brass Fitting.
- 11a. Insert the 470838 (or 470835) Burner Tube into 470672 (or 470012) Brass Fitting and secure using a 470737 (or 470062) Brass Ferrule and 470738 (or 470744) Brass Compression Nut, as shown in Figure 8. The gas line may be connected at any time.

Figure 8



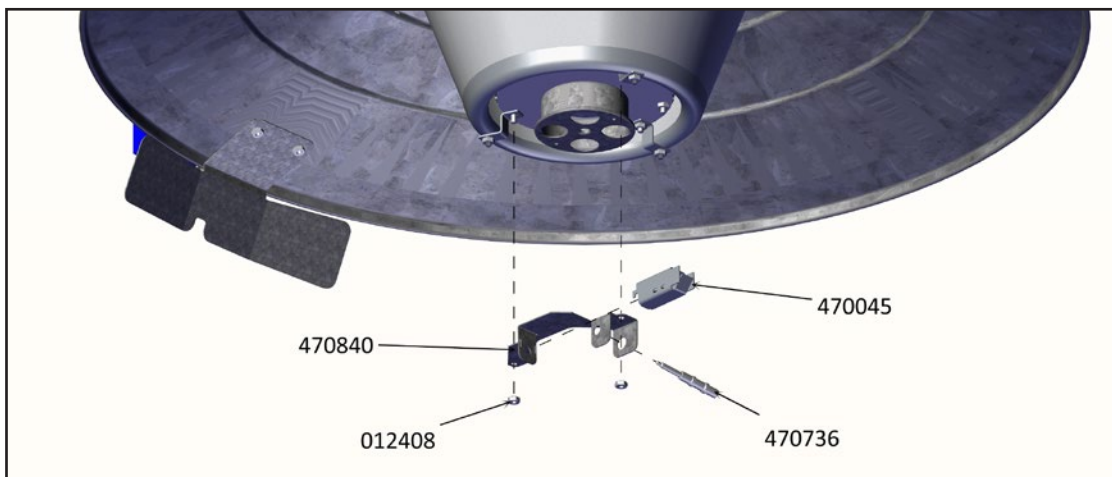
**BE SURE TO FOLLOW FEDERAL, STATE AND LOCAL INSTALLATION CODES. GAS CONNECTIONS MUST BE MADE BY A QUALIFIED INSTALLER AND CHECKED WITH A SOAPY SOLUTION FOR LEAKS BEFORE OPERATING. DO NOT OVERTIGHTEN FITTINGS!**

## Gas Pilot Control and Gas Line Connection - continued

8b. Attach Pilot Mount to the Bolts holding the Venturi assembly using [2] 012408 Nuts, as shown in Figure 7b.

9b. Attach the 470736 Thermocoupler and 470045 Pilot Shield to the 470840 Pilot Mount, as shown in Figure 7b.

**Figure 7b**



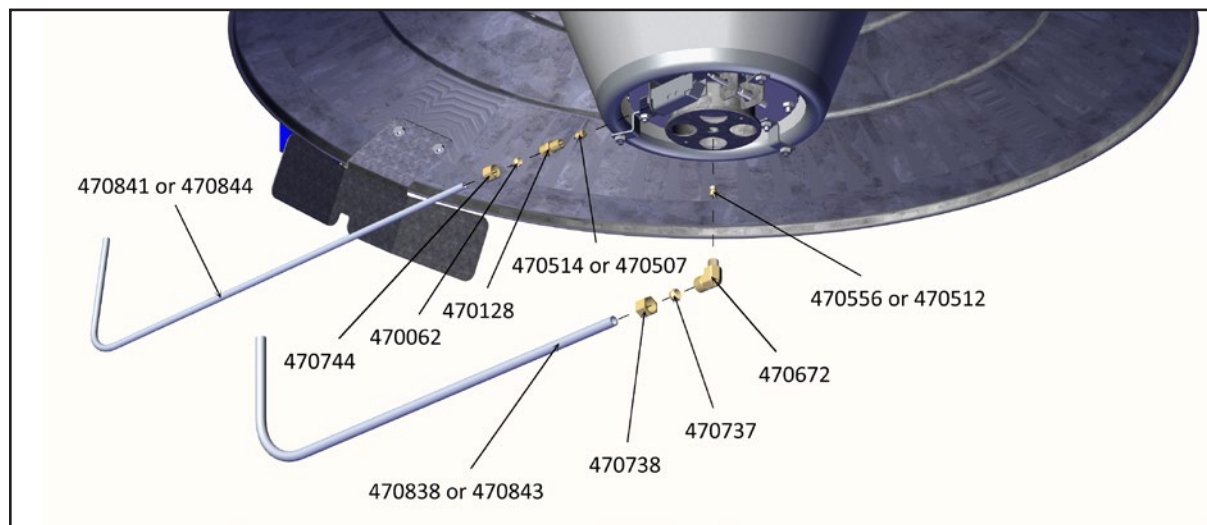
10b. Attach the 470556 (or 470512) Burner Orifice to the 470672 Brass Fitting.

11b. Insert the 470838 (or 470843) Burner Tube into 470672 Brass Fitting and secure using a 470737 Brass Ferrule and 470738 Brass Compression Nut, as shown in Figure 8b. The gas line may be connected at any time.

12b. Attach the 470514 (or 470507) Pilot Orifice to the 470128 Brass Fitting.

13b. Insert the 470841 (or 470844) Burner Tube into 470128 Brass Fitting and secure using a 470062 Brass Ferrule and 470744 Brass Compression Nut, as shown in Figure 8b. The gas line may be connected at any time.

**Figure 8b**



**BE SURE TO FOLLOW FEDERAL, STATE AND LOCAL INSTALLATION CODES. GAS CONNECTIONS MUST BE MADE BY A QUALIFIED INSTALLER AND CHECKED WITH A SOAPY SOLUTION FOR LEAKS BEFORE OPERATING. DO NOT OVERTIGHTEN FITTINGS!**

## Direct spark Ignition Control

1. Assemble the Canopy and Radiant assemblies first, as shown on pages 12 to 15, then continue control and gas line assemblies as follows.

***The Control and Fittings are shipped pre-assembled.***

2. Attach the control / mount assembly to the Canopy and Heat Shield as shown in Figure 9 using 011122 Bolts, 012498 Lock Washers, and 012497 Nuts as shown in Figure 9. *Note orientation.*
3. For access to the Circuit Board, remove the 470811 Electric (Control) Box Cover by removing (2) 012495 Sheet Metal Screws from the top of the cover, as shown in Figure 9.

Figure 9

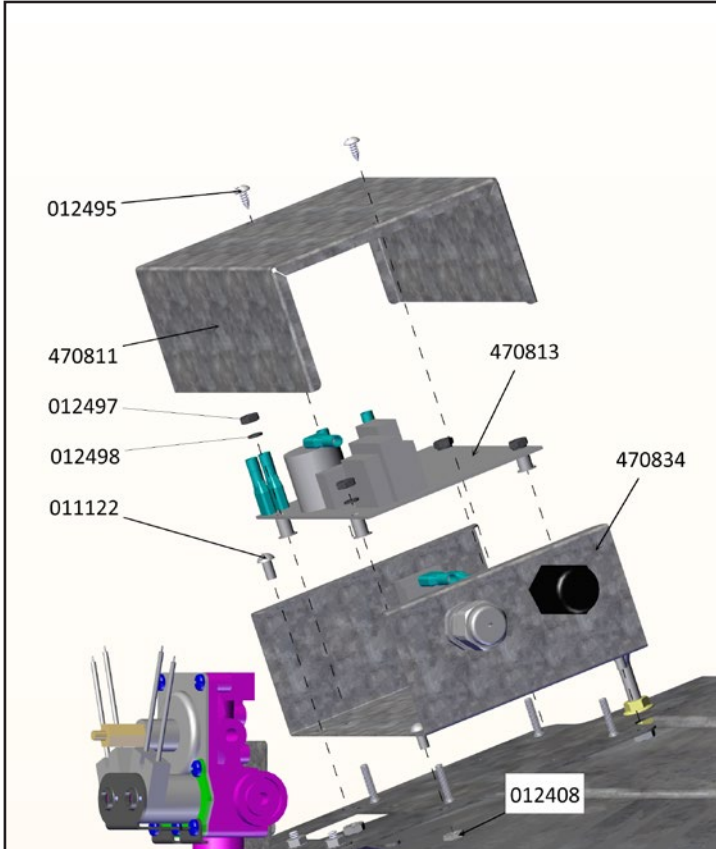
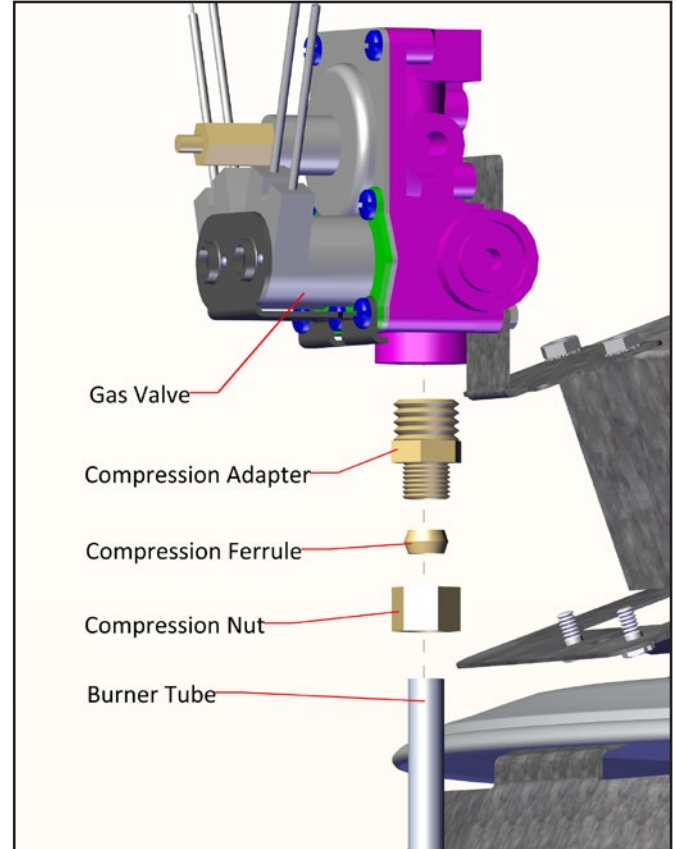


Figure 10



## Direct spark Ignition Control and Gas Line Connection

4. Insert the Burner Tube into the Compression Adapter at the bottom of the Control securing with a Compression Ferrule and Compression Nut as shown in Figure 10. Secure Gas Valve to Bracket and Canopy using hardware detailed on pages 30 to 39. *(Part numbers are found on pages 30 to 39.)*
5. Connect the other end of the Burner Tube to the Burner Orifice at the bottom of the Venturi Burner Assembly, as shown in Figure 11, using hardware detailed on pages 16 to 17. *(Part numbers are found on pages 16 to 17.)*
6. Attach the Gas Line to the Inlet Fitting. ***Gas Line(s) to brooder(s) may be hooked up now or after you have suspended the brooders.***

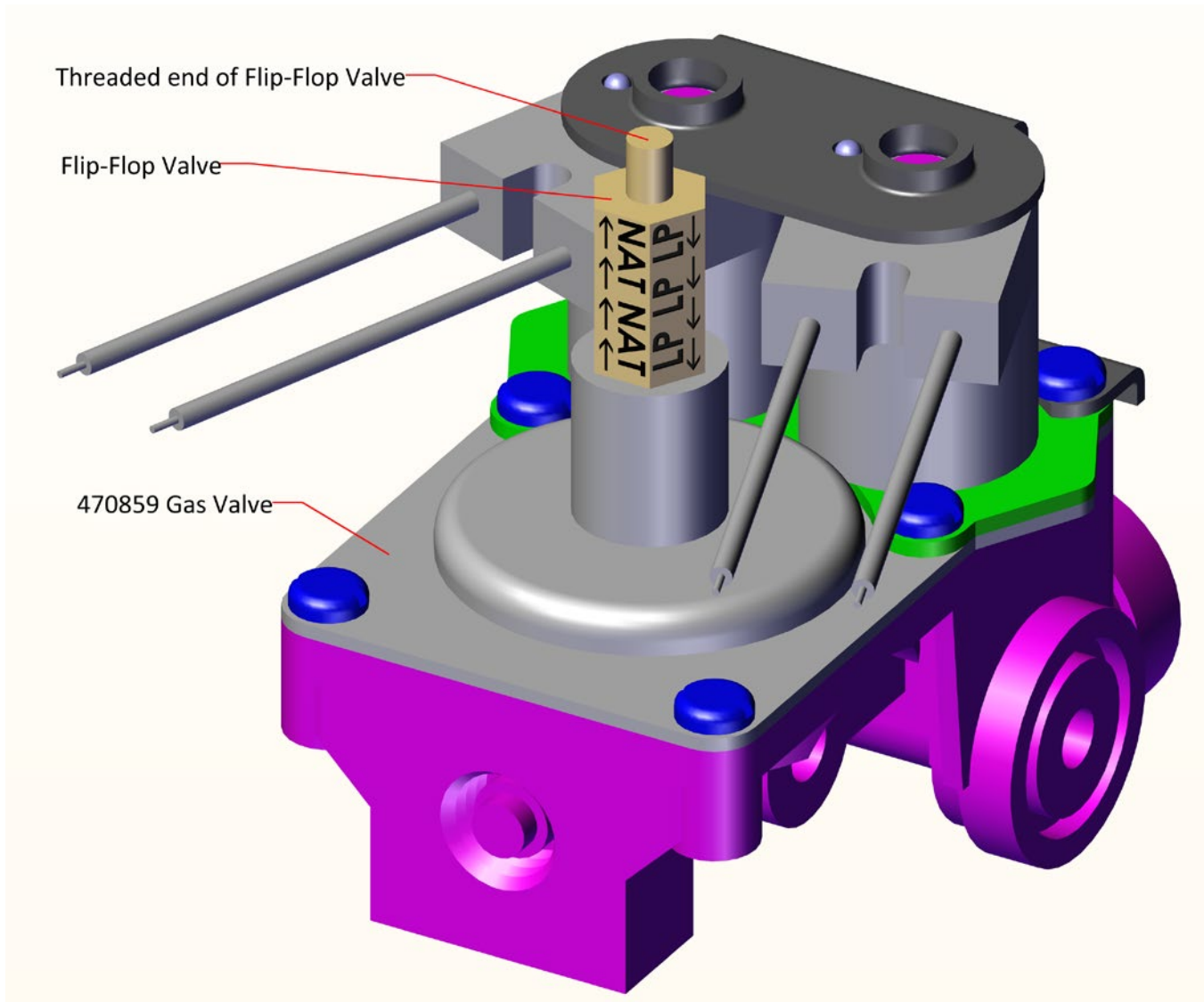


**DO NOT OVERTIGHTEN FITTINGS!**

## 470859 Gas Conversion

1. The 470859 Gas Valve can run Liquid Propane or Natural Gas. The Gas Valve comes equipped with a brass fitting called a Flip-Flop Valve that enables the unit to run either fuel. The Flip-Flop Valve is stamped with alternating text indicating which direction it is to be installed, depending on the fuel being used. The fitting has threads on both ends, enabling it to be “flip-flopped” for install.
2. To install, thread the Flip-Flop Valve into the body of the 470859 Gas Valve. The arrows indicate which fuel source the Valve is intended to run, with the arrows pointing towards the body of the valve. In Figure 10b (shown below), the Gas Valve is set-up to run on LP (Liquid Propane). If NAT (Natural Gas) was desired, the Flip-Flop Valve would need to be “flip-flopped” and installed in the opposite direction. (*Note the direction of the arrows.*)

Figure 10b



**DO NOT OVERTIGHTEN FITTINGS!**



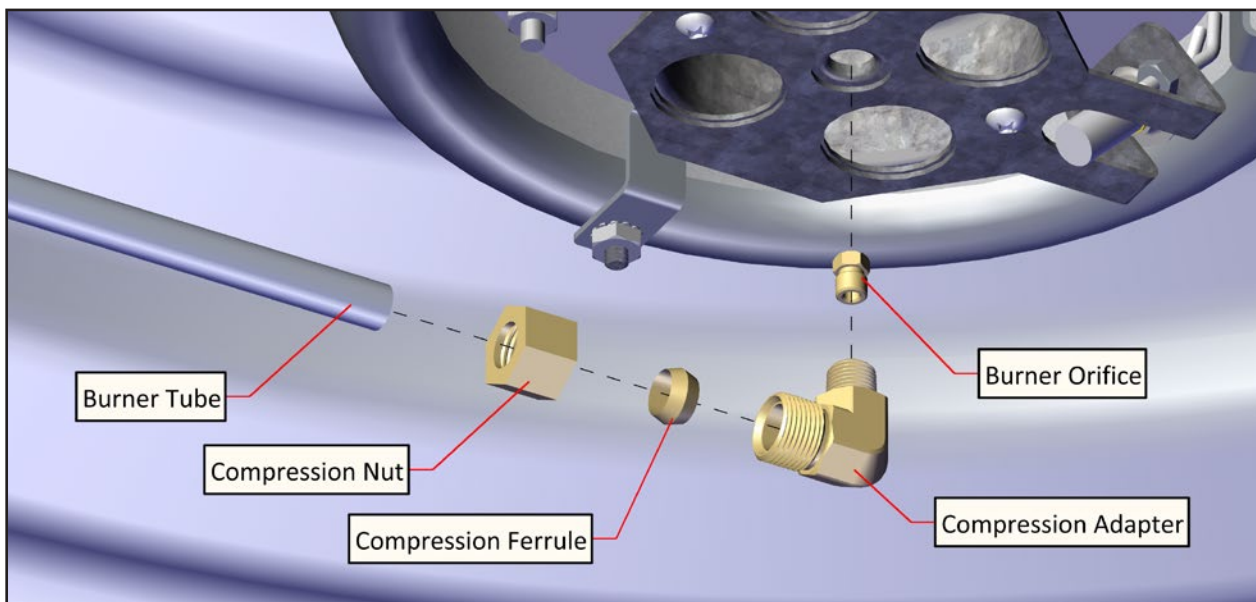
## Zone Control Valve Control and Gas Line Connection

1. Assemble the Canopy and Radiant assemblies first, as shown on page 12 to 15, then continue control and gas line assemblies as follows.

***The Control and Fittings are shipped pre-assembled.***

2. Insert the Burner Tube into the Compression Adapter at the bottom of the Control securing with a Compression Ferrule and Compression Nut as shown in Figure 10. Secure Gas Valve to Bracket and Canopy using hardware detailed on pages 30 to 39. (Part numbers are found on pages 30 to 39.)

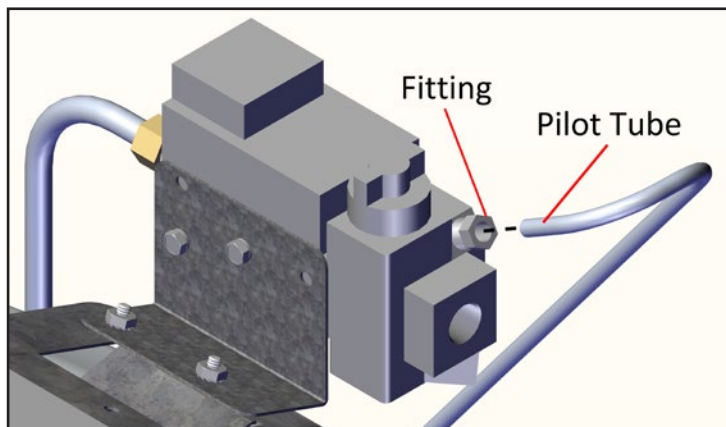
**Figure 11**



**Be sure to apply proper amount of pipe dope to Gas Nipple threads before securing gas line.**

3. Connect the other end of the Burner Tube to the Burner Orifice at the bottom of the Venturi Burner Assembly, as shown in Figure 11, using hardware detailed on pages 16 to 17. (Part numbers are found on pages 16 to 17.)
4. Attach the Gas Line to the Inlet Fitting. ***Gas Line(s) to brooder(s) may be hooked up now or after you have suspended the brooders.***

**Figure 12**



***Be sure the tube is all the way into fitting before tightening, as shown in Figure 12. While turning, the fitting will suddenly become loose due to the compression ring on the fitting snapping loose. Continue to tighten for approximately 1-1/2 turns.***



**DO NOT OVERTIGHTEN FITTINGS!**

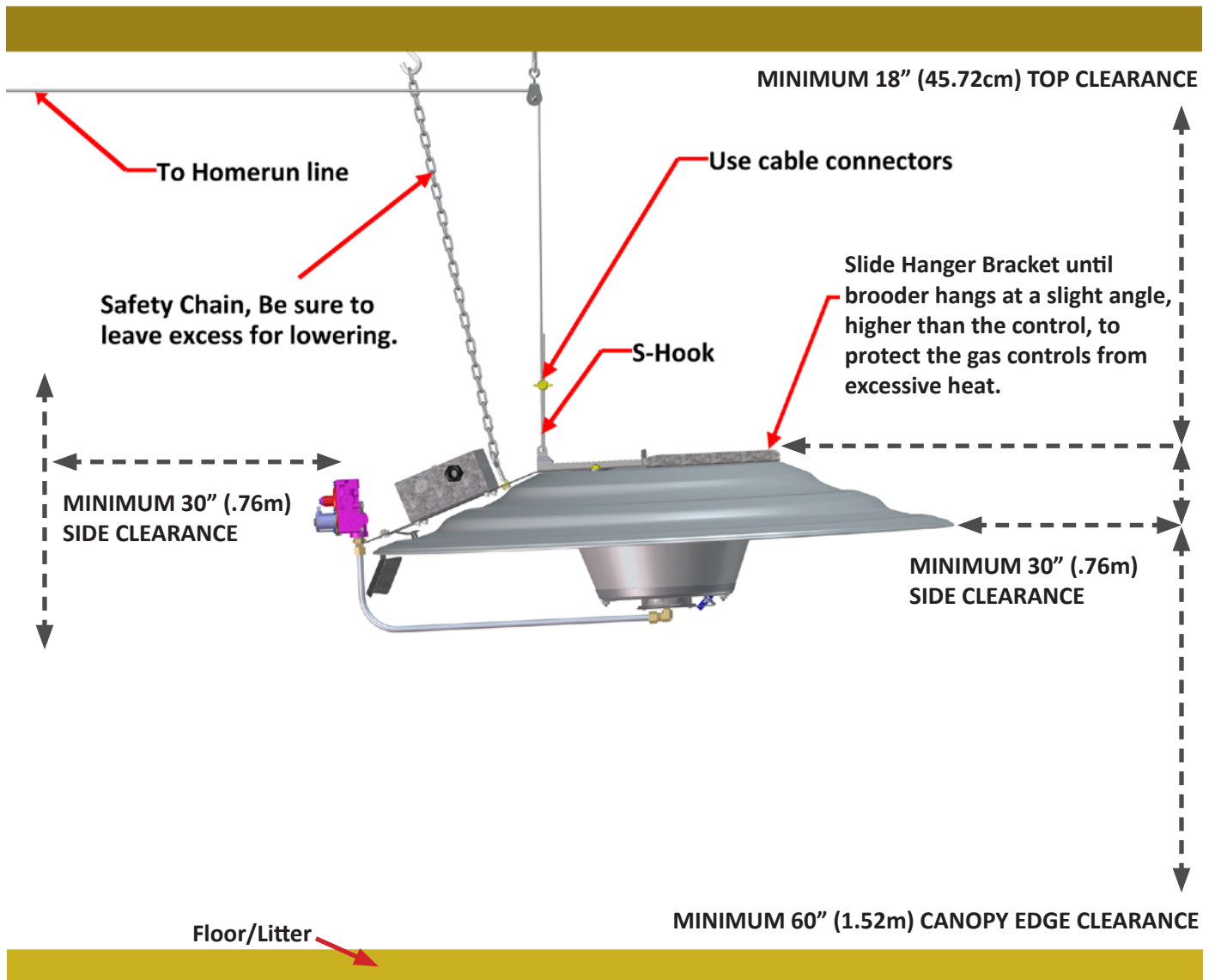
## Cable / Safety Chain Attachment and Suspension

Room temperature is controlled by a combination of thermostat settings and height of brooder. The higher the brooder the higher the thermostat setting. When hanging several brooders in series with winch be sure to check weight limits of winch and cable. Safety chain **MUST** be used on each unit to prevent heated unit from falling to floor litter in case winch cable breaks.



Brooders should be suspended with noncombustible cable. Safety chain **MUST** be used on each unit to prevent heated unit from falling to floor litter in case winch cable breaks.

Figure 13

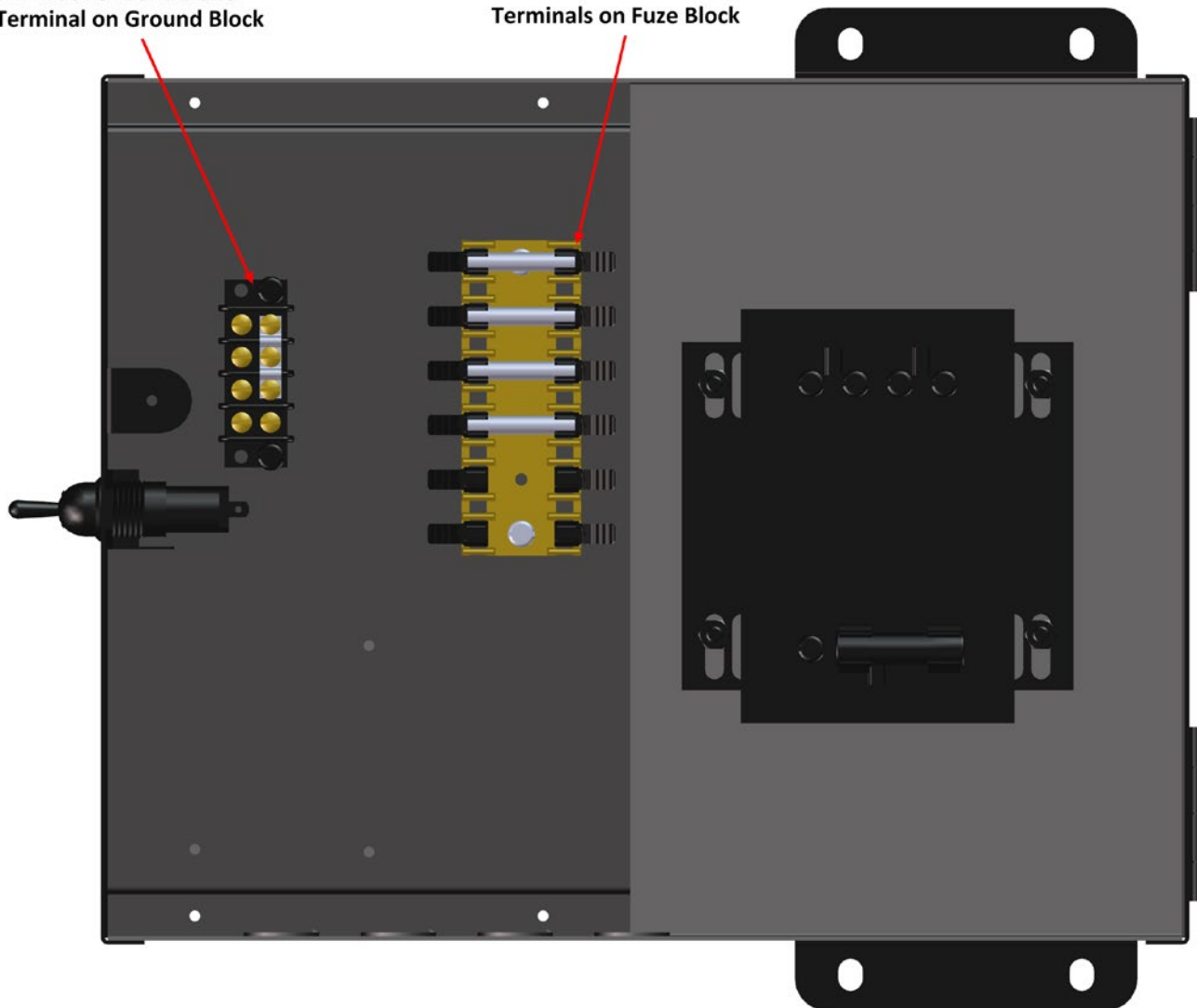


Proper height and clearance for your brooders is very important. Starting heights should be between 60" to 72" above litter. Required minimum clearances for safe operation are shown in Figure 13.

## 470650 Zone Control Units

Connect 14-2 WHITE wire  
from Brooder Controls to  
a Terminal on Ground Block

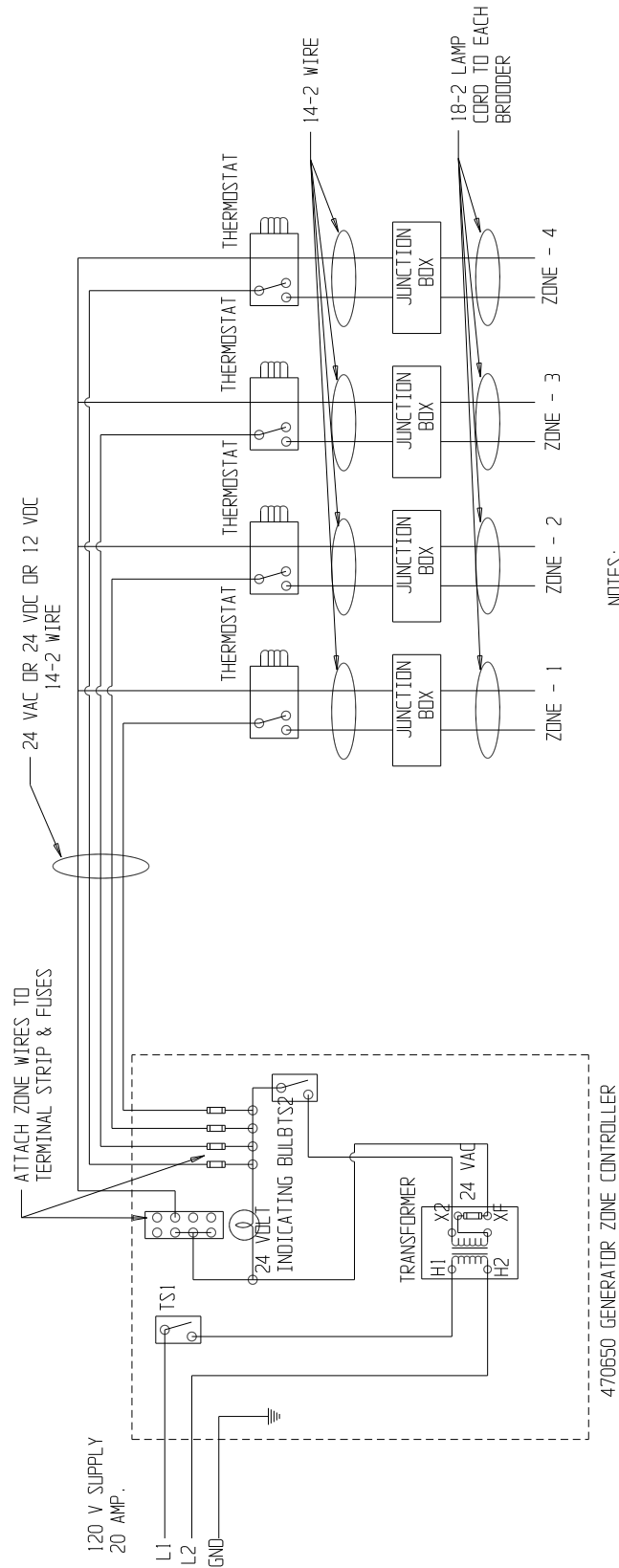
Connect 14-2 BLACK wires  
from Load on Thermostat to  
Terminals on Fuze Block



### WARNING!

ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED ELECTRICIAN. Incorrect wiring can cause serious personal injury or equipment damage.

# 470650 Zone Controller Wiring Diagram - GENERATOR



## NOTES:

1. THERMOSTAT REQUIRED FOR EACH ZONE
  2. 470650 CONTROL OPERATES UP TO 30 PILOT MODEL ZONE BROODERS OR UP TO 25 DIRECT SPARK IGNITION (DSI) ZONE BROODERS
- NOTE: SEE INSTRUCTION MANUAL FOR ZONE BROODER WIRING INFORMATION



## Control Valve Operating Instructions (7000RZ and S.I.T. Controls)



### WARNING



1. Shut off gas and electricity before starting installation or service. Turn back on to test or operate.
2. Installation and servicing of gas appliances and controls must only be performed by qualified personnel. After installation or servicing; test manual valve, operating valve, pressure regulation (if so equipped), and automatic safety shut off valve for proper operation.
3. When lighting the pilot, the fail safe safety device must be functionally tested to prove its operation in the event the main control valve malfunctions.
4. A drip leg should be provided in the supply line to the control.
5. Leak test with soap solution after installation or servicing with main burner on. Coat pipe and tubing joints, gas-ket etc. with soap solution. **Bubbles indicate leaks.**
6. **DO NOT** use this control if it has been exposed to water corrosion through immersion, dripping, etc. It may be damaged and must be replaced.
7. **DO NOT** insert any object other than suitable pipe or tubing in the inlet or outlet of this control. Internal damage may occur and result in a hazardous condition.
8. **DO NOT** connect appliance before pressure testing gas piping. Damage to gas valve may result.
9. **DO NOT** grip control body with pipe wrench or vise. Damage may result causing gas leakage. Use inlet or outlet bosses, or special body wrench.
10. **DO NOT** use Gas Cock Dial to adjust gas flow. Turn dial to full "ON".
11. **DO NOT** short gas valve terminals. This will damage wall thermostat and void warranty.
12. Dials must only be operated by hand. **DO NOT** use pliers, wrenches or other tools to turn dials.
13. In changing from natural to L.P. gas, or vice versa, regulator assembly (if so equipped), burner and pilot orifices must be changed.
14. When using L.P. gas caution must be taken to ensure that no raw gas is present in the surrounding area before attempting to put appliances into operation, or when relighting pilot.
15. In case of failure of gas valve to shut off. **DO NOT** shut off electrical power; **TURN OFF GAS SUPPLY** allowing fan (if so equipped) to continue running until heating unit has cooled.
16. Keep all combustible materials away from gas appliances. **DO NOT** allow lint or dust to collect in burner area.



#### WARNING!

**ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED ELECTRICIAN. ALL LOCAL, STATE AND FEDERAL INSTALLATION CODES MUST BE FOLLOWED.**

## Control Valve Operating Instructions (7000RZ and S.I.T. Controls) - continued

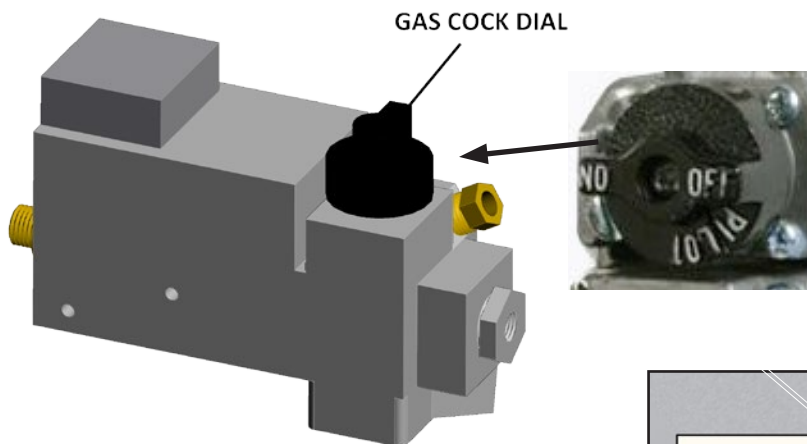
### TO START OPERATION

1. Set the room thermostat to the lowest temperature setting, or "OFF". (when using 7000RZ Zone Valve only)
2. Partially depress and turn control Gas Cock Dial to "OFF" position.
3. Wait five minutes to allow gas which may have accumulated in the main burner compartment to escape.
4. Turn Gas Cock Dial to "PILOT" position.
5. Depress Gas Cock Dial and light Pilot. Hold in depressed position for about 1/2 minute.
6. Release Dial and turn to full "ON" (for the 7000RZ valve) and turn to desired setting (for the S.I.T. Gas Valve).
7. Reset room Thermostat. (when using 7000RZ Zone Valve only)



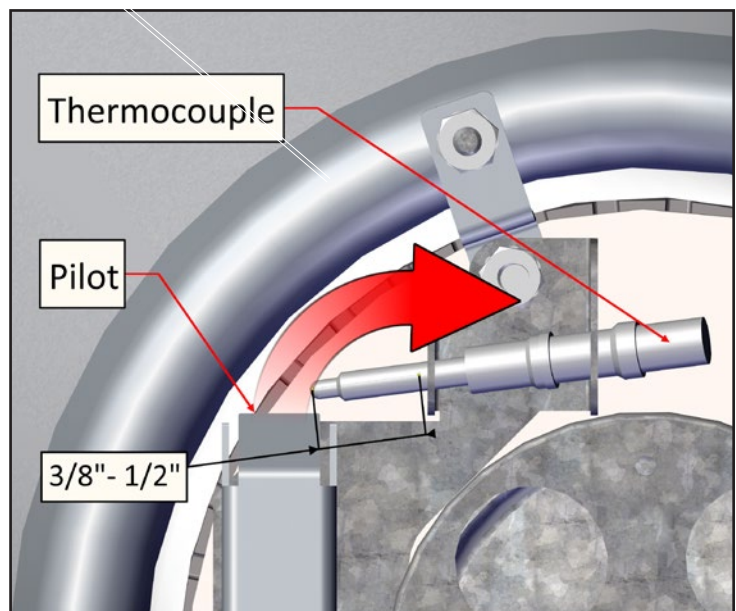
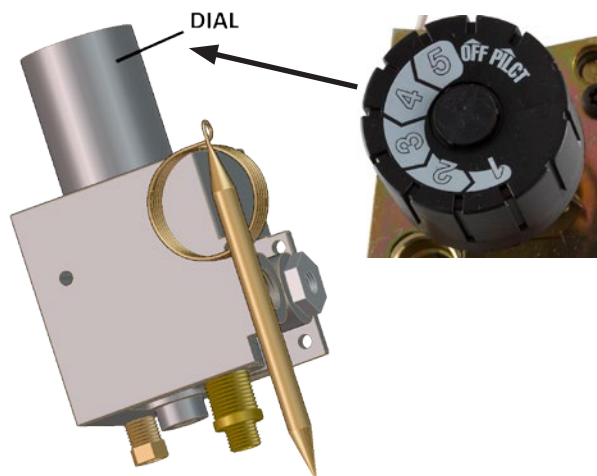
Sufficient time must be allowed for a proper size pilot flame to heat the thermocouple and hold the safety magnet in a locked-up position. Also time must be allowed for air to escape from the lines during the first operation.

### 7000RZ Zone Control Valve (470043)

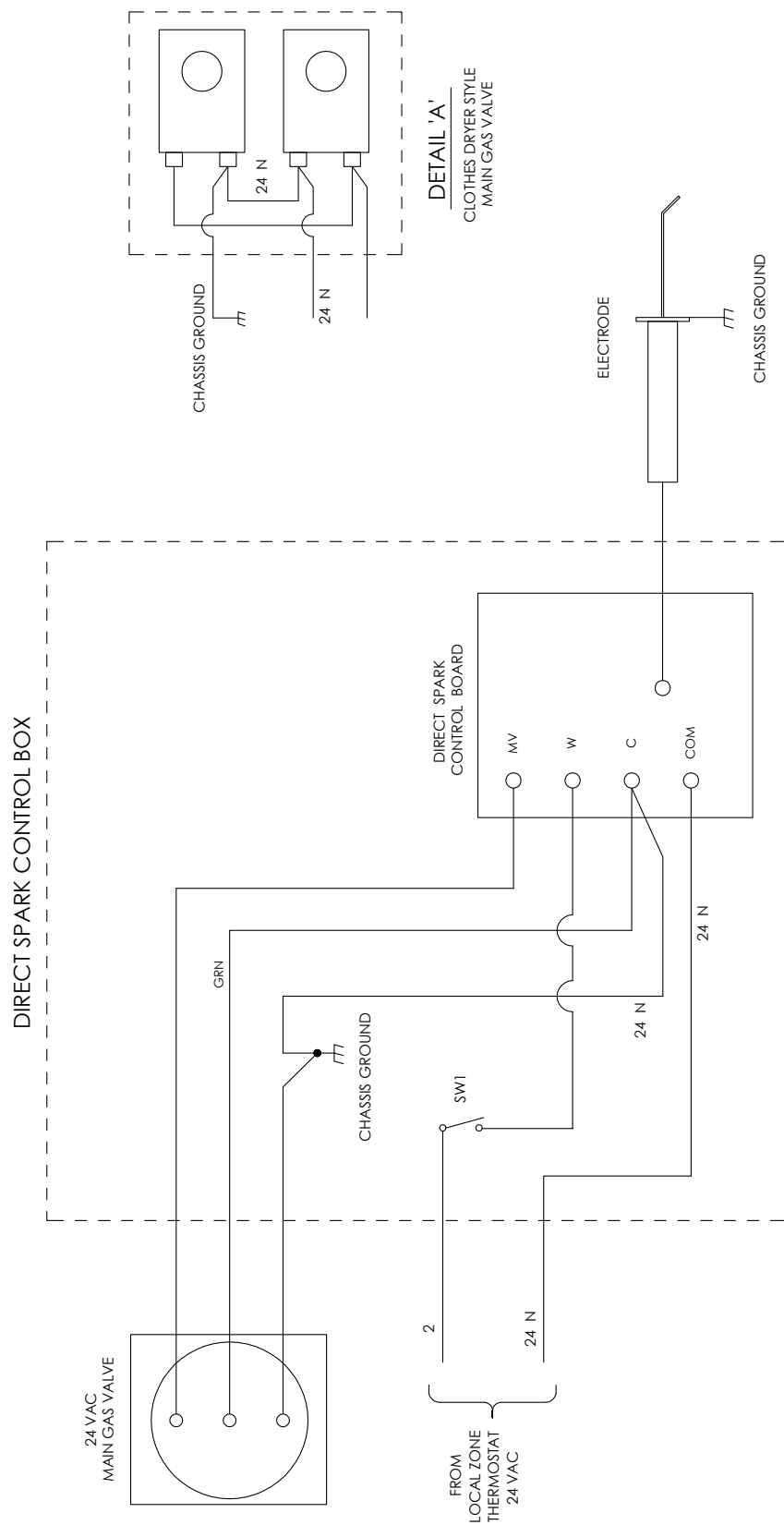


Refer to Installation  
Instructions shipped with  
control

### S.I.T. Snap Control Valve (470185)



# Direct Spark Control Wiring



## NOTES:

1. IT IS IMPORTANT TO REMEMBER THAT 2 MUST BE THE SWITCHED LEAD FROM THE THERMOSTAT ( OR COMPUTER CONTROLLER )
2. ELECTRODE CHASSIS GROUND IS ACHIEVED THROUGH THE ASSEMBLY OF THE BROODER. example : ELECTRODE IS BOLTED TO THE BURNER DISC, ETC.
3. WIRING SHOWN FOR ASCO STYLE MAIN GAS VALVE. SEE DETAIL 'A'

**WARNING!**  
ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED ELECTRICIAN. Incorrect wiring can cause serious personal injury or equipment damage.



## Gas Pilot Troubleshooting Guide

PROBLEM	SOLUTION
Pilot will not light	Gas line obstructed or turned off
	Pilot orifice blocked or obstructed. Clean out orifice as instructed.
Pilot will not stay lit	Be sure thermocouple is positioned with 3/8" of tip in flame
	Check that thermocouple is not connected too tight or too loose to controller. Should be finger tight plus 1/4 turn max.
	Be sure pilot shield is seated in bracket to properly deflect flame toward thermocouple
	If pilot goes out when burner starts, check that you have proper gas pressure.
Burner will not light	Bad control valve
	Burner orifice blocked or obstructed. Clean out orifice as instructed.
	Gas line obstructed or turned off
For Zone controlled systems; perform the following additional checks when burner will not light	Check unit is getting power
	Check transformer is functioning properly 120V in and 24Vout. Minimum of 20V required for gas control valve
	Check that sensing device is functioning properly
	If current at valve is correct, valve/solenoid may be stuck. Tap valve lightly to unstick
	Valve/solenoid may be bad. Disconnecting and connecting the wire at valve terminal should produce small spark and clicking sound. You can also check solenoid coil for continuity with Ohm meter.
	If unit has battery backup, check that relay is working properly. Relay should click when AC power is turned off.
Burner will not stay lit	Be sure pilot shield is seated in bracket to properly deflect flame toward thermocouple
	Check for excessive air movement around brooder
	Check for low gas pressure

## Direct Spark Troubleshooting Guide

PROBLEM	SOLUTION
Brooder does not light	Use torch to light brooder. If it lights then electrode is in wrong position or not sparking properly
Brooder fires but then goes out	Improper grounding. Check chasis ground wire and connection. Be sure polarity is correct. Refer to wiring diagram
Brooder fires with a puff after a short delay	Electrode out of position. Check that it is not shorting on metal parts. The spark must be at the end of electrode and in front of burner parts.
Brooder will spark but will not light	Check output of DSI board to valve (26VAC). Check status of valve. Is solenoid working? Check for continuity. Check position of spark in gas flow and that spark gap is 7/64"
Brooder will not spark	Solenoid may be stuck. Tap top to unstuck. Check that coil/solenoid continuity is not open. Check wire connections and grounds.
Brooders from different zone fires unnecessarily when adjacent zone fires	Wiring is incorrect. LV1 and LV2 may be interchanged. See wiring diagram. Check DSI board. The switched thermostat/computer contact must feed terminal TH

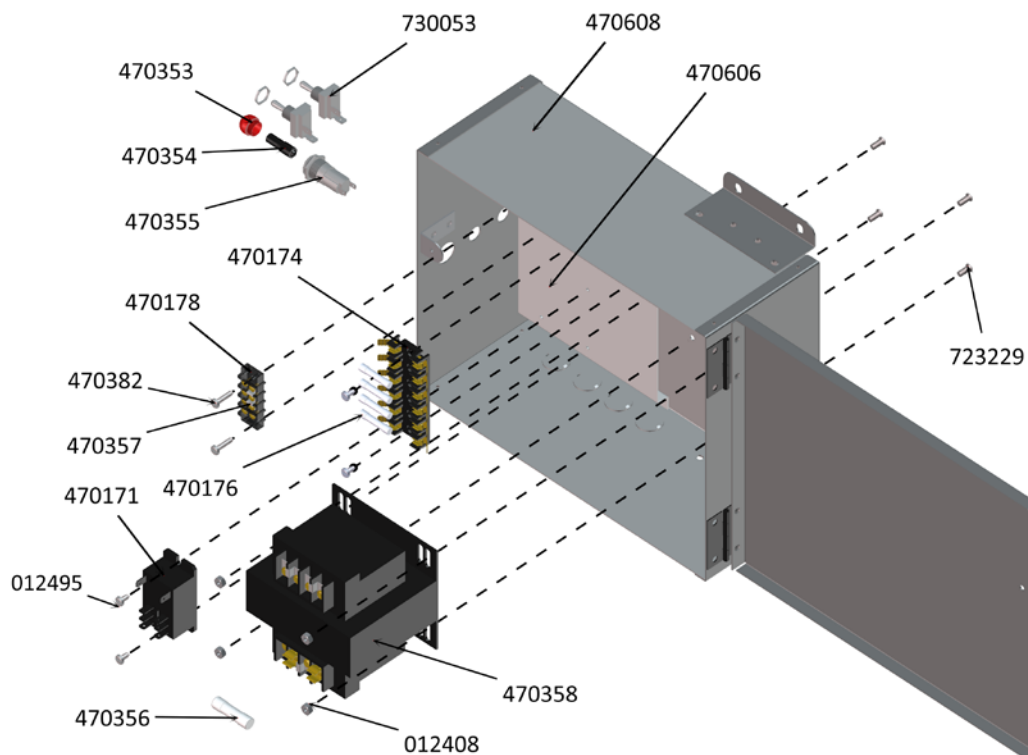
Normally the pilot and burner will produce a clean blue flame. If the flame is orange-blue, there is too much dust in the air but does not necessarily indicate poor performance. A white-blue flame indicates poor performance, and the burners will need attention. White flames cause carbon to form on the reflector and if allowed to accumulate can fall off and cause a fire. It is important to keep your equipment as clean as possible.

Cleaning instructions are as follows:

- 1) Blow off dust from burner assembly, control unit and brooder with each new brood of birds.
- 2) Clean Pilot orifice. Loosen screw and remove pilot shield and expose orifice. Carefully clean Orifice with brush and proper size orifice drill listed below. *(The Orifice does not need to be removed to clean but if you do remove the Orifice you must be sure the Orifice is seated properly.)*
- 3) Clean Burner orifice. Unscrew burner tube from adapter. Unscrew adapter from venturi. Use same method to clean the Burner Orifice as the Pilot Orifice described above. Clean the inside of burner tube with 1" pipe brush and blow clean.

GAS TYPE	INLET PRESSURE	BURNER ORIFICE	PILOT ORIFICE
LOW PRESSURE LP GAS	Max 14" W.C.	#49	#78
LOW PRESSURE NATURAL	Max 7" W.C.	#37	#74
LOW PRESSURE NATURAL DSI	Max 7" W.C.	#31	-
HIGH PRESSURE LP GAS	5 PSI	.0385"	-
HIGH PRESSURE NATURAL	5 PSI	#56	-
Orifice sizes correspond to drill sizes required for cleaning			

## 470650 Zone Control Unit - GENERATOR



PART #	DESCRIPTION	QTY
<b>470650 ZONE CONTROL UNIT - GENERATOR</b>		
012408	#10-24 HEX KEP LOCKNUT	4
012495	#8 X 3/8" ROUND HEAD PHILLIPS SHEET METAL SCREW	4
410635	#8 X 5/8" SHEET METAL SCREW	2
450460	ORANGE WIRE NUT <i>(not shown)</i>	1
450462	FORK TERMINAL, 14-16 AWG #10 STUD BLUE VINYL <i>(not shown)</i>	6
450497	3/16" FEMALE QUICK CONNECT <i>(not shown)</i>	2
470176	5 AMP TIME DELAY BUSS FUSE	4
470178	4 POLE TERMINAL STRIP	1
470353	LED LENS	1
470354	LED LIGHT	1
470355	LED LIGHT BASE	1
470356	15AMP TIME DELAY FUSE	1
470357	3/8" SPREAD TERMINAL STRIP JUMPER	2
470358	CONTROL TRANSFORMER	1
470608	ZONE CTRL HOUSING ASSY	1
730053	GAYNOR TOGGLE SWITCH	2
730244	#16-14 X 1/4" EXPANDED BARREL FEMALE SPADE CONNECTOR <i>(not shown)</i>	7
730248	14/16GA. QUICK CONNECT <i>(not shown)</i>	4
SPE-000-1039	WIRE, 14AWG, STRANDED, BLACK <i>(not shown)</i>	5.5 ft
SPE-000-1040	14GA. WHITE STANDARD WIRE <i>(not shown)</i>	1.5 ft

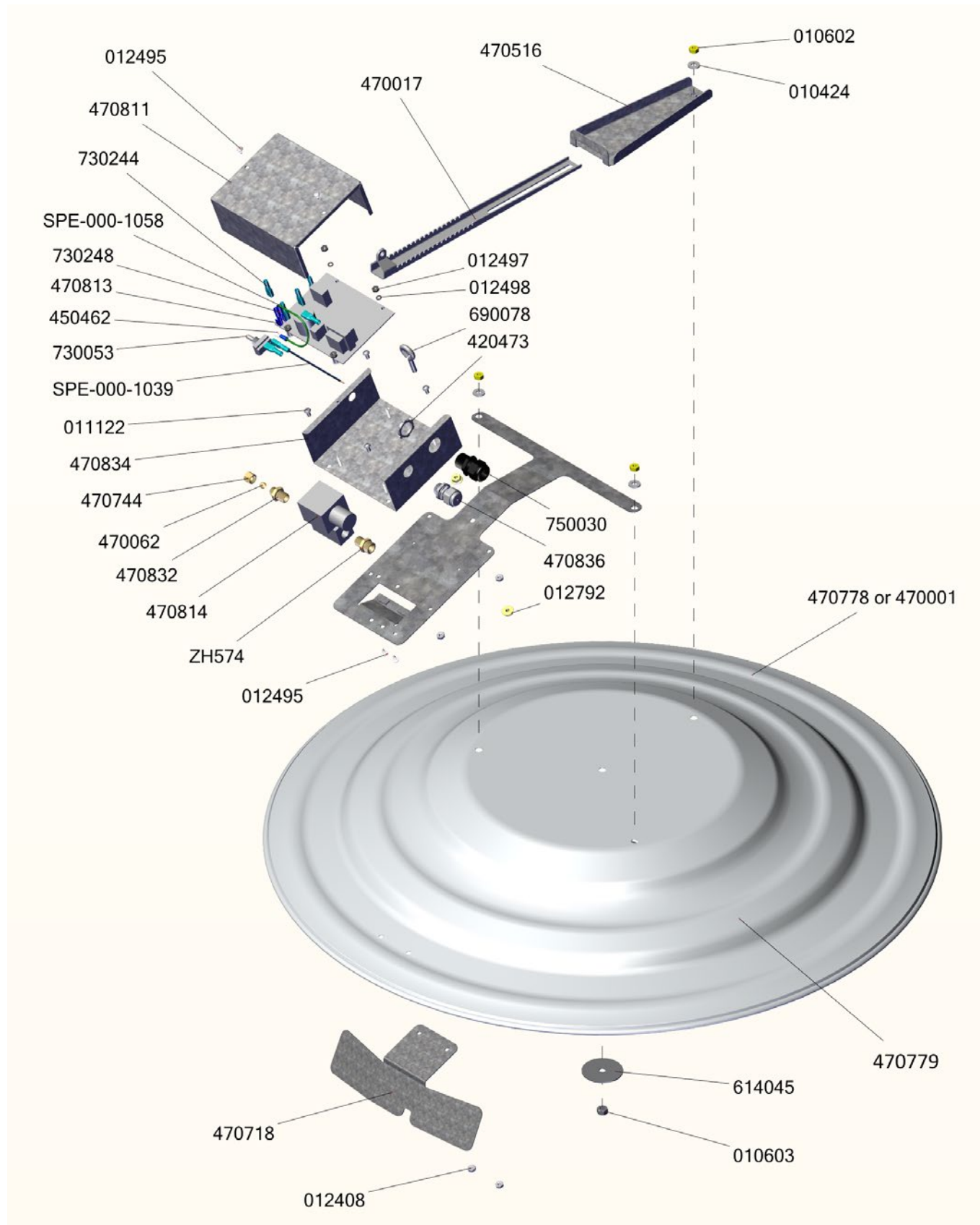
## 470821, 470822, 470847 & 470848 Assembly - Parts List

PART #	DESCRIPTION	QTY.	PART #	DESCRIPTION	QTY
<b>470821, 470822, 470847 &amp; 470848 ASSEMBLY</b>			<b>470821, 470822, 470847 &amp; 470848 ASSEMBLY</b>		
010424	WASHER, FLAT, 1/4" SAE ZP	3	614045	WASHER, 2.125 OD X .344 ID X 16 GA.	1
010602	NUT, HEX 1/4"-20 A FINISHED ZP	3	690078	SCREW, EYE BOLT, 1/4-20 X 2", ZP	1
010603	NUT, HEX 5/16"-18 A FINISHED ZP	1	730053	GAYNOR TOGGLE SWITCH	1
011122	#10-24 X 3/8" ROUND HEAD SCREW	4	730244	#16-14 x 1/4" EXPANDED BARREL	7
012407	#6-32 X 3/8" TRUSS HEAD BOLT	1	730248	14/16 GA. QUICK CONNECT	2
012408	NUT, KEP 10-24 ZP	15	750030	CORDGRIP, 1/2" NPT STRAIGHT	1
012495	#8 X 3/8" ROUND HEAD PHILLIPS	6	SPE-000-1039	WIRE, 14AWG, STRANDED, BLACK	0.33
012497	#8-32 HEX NUT	4	SPE-000-1058	#16 WIRE - GREEN	0.33
012498	#8 LOCKWASHER	4	ZH574	HOSE ADPTR, 3/8 MNPT X 9/16 LH	1
012731	#6-32 MACHINE NUT	1	<b>Parts Specific to model: 470821</b>		
012732	#6 LOCKWASHER	1	470778	CANOPY, ALUMINUM, 3'	1
012792	1/4-20 HEX FLANGE NUT	2	470818	ORIFICE, NAT, 40K BTU, 5PSI	1
420473	1/2" CONDUIT NUT	1	470855	VENTURI CUP ASSEMBLY, BROODER	1
450462	FORK TERMINAL, 14-16 AWG	1	470870	BRACKET, GLOW HOUSING	3
470012	1/8NPT-1/4 COMPRESSION ELBOW -	1	470871	IGNITER BRACKET, BROODER	1
470017	HANGER BRACKET	1	<b>Parts Specific to model: 470822</b>		
470021	BURNER PLATE CASTING	1	470115	BRACKET, GLOW HOUSING	3
470062	1/4" BRASS COMP FERRULE	2	470778	CANOPY, ALUMINUM, 3'	1
470516	HANGE BASE ASSEMBLY	1	470808	IGNITER BRACKET, BROODER	1
470718	DIRECT SPARK HEAT SHIELD	1	470820	ORIFICE, LP, 40K BTU, 5PSI	1
470744	1/4" BRASS COMPRESSION NUT	2	470846	VENTURI CUP ASSEMBLY, BROODER	1
470766	#10-24 X 1/2" UNSLOTTED HEX	6	<b>Parts Specific to model: 470847</b>		
470803	INSULATOR, FIBER, CONICAL, .50"	1	470001	CANOPY - 3' GALV	1
470806	EMITTER ASSEMBLY, BROODER	1	470818	ORIFICE, NAT, 40K BTU, 5PSI	1
470809	IGNITER, BROODER, LOW PROFILE	1	470855	VENTURI CUP ASSEMBLY, BROODER	1
470811	CONTROL COVER, SPARK	1	470870	BRACKET, GLOW HOUSING	3
470813	IGNITION CONTROL, 24VAC	1	470871	IGNITER BRACKET, BROODER	1
470814	GAS VALVE, 0-5 PSI, 24VAC	1	<b>Parts Specific to model: 470848</b>		
470831	MOUNT BRACKET, GAS VALVE	1	470001	CANOPY - 3' GALV	1
470832	COMP ADPTR, 1/4 PIPE X 1/4 MNPT	1	470115	BRACKET, GLOW HOUSING	3
470834	CONTROL BASE, SPARK	1	470808	IGNITER BRACKET, BROODER	1
470835	BURNER TUBE, BROODER, RADIANT	1	470820	ORIFICE, LP, 40K BTU, 5PSI	1
470836	STRAIN RELIEF, PLASTIC	1	470846	VENTURI CUP ASSEMBLY, BROODER	1



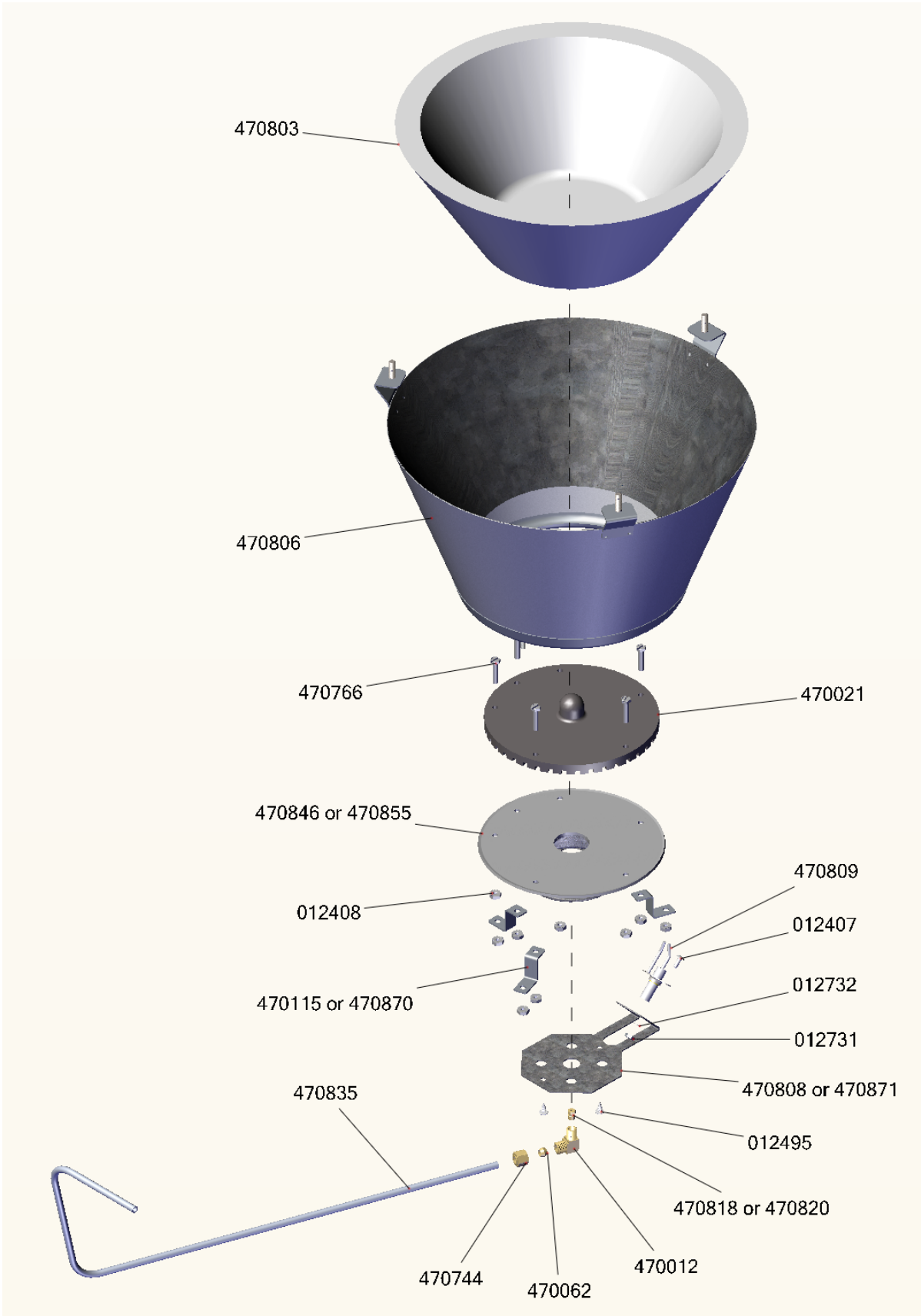


## 470821, 470822, 470847 & 470848 Assembly - Top Exploded





**470821, 470822, 470847 & 470848 Assembly - Bottom Exploded**



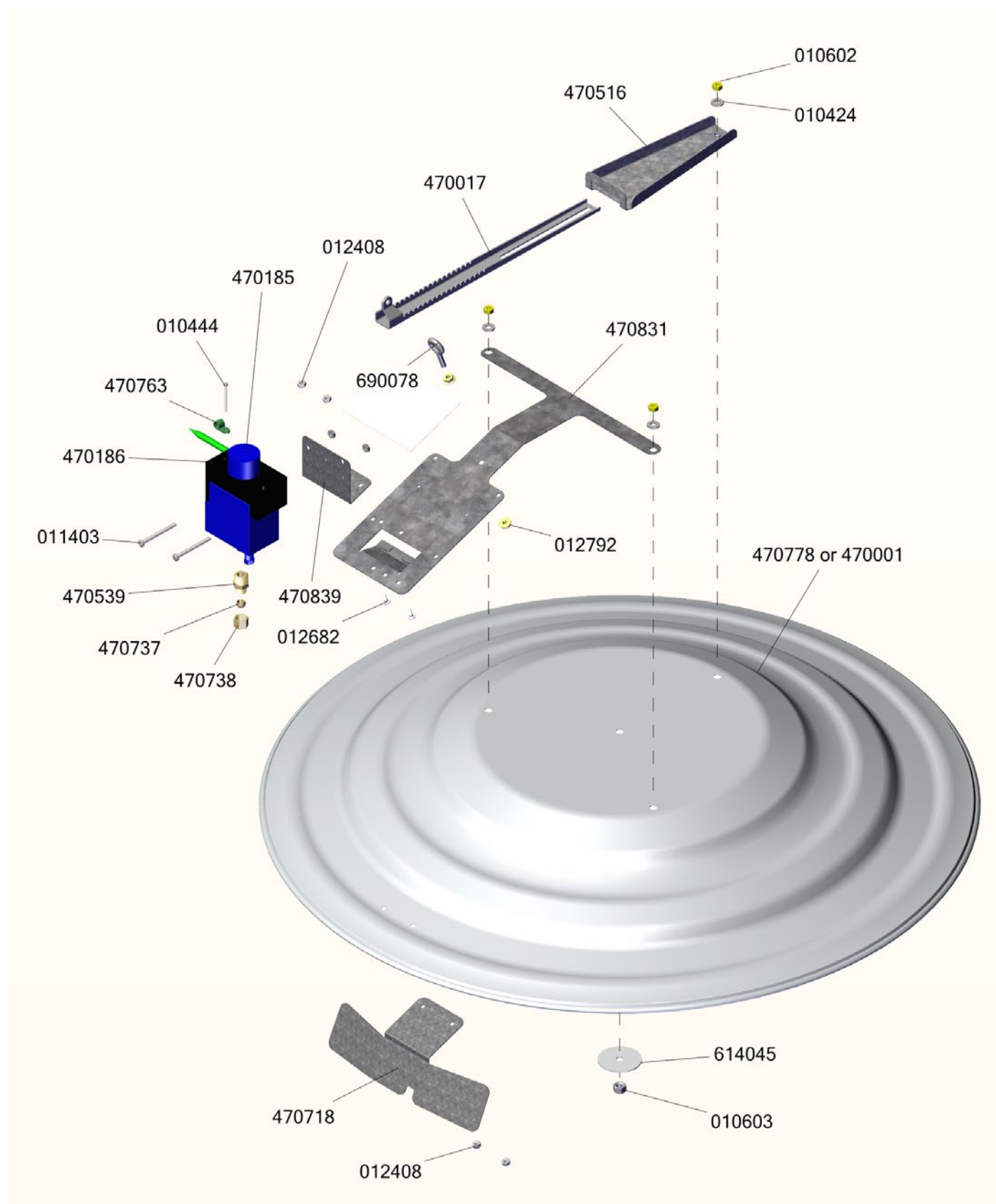
## 470823, 470824, 470849 & 470850 Assembly - Parts List

PART #	DESCRIPTION	QTY
<b>470823, 470824, 470849 &amp; 470850 ASSEMBLY</b>		
010424	WASHER, FLAT, 1/4" SAE ZP	3
010444	SCREW, M3-0.5 X 40MM, PAN HEAD	1
010602	NUT, HEX 1/4"-20 A FINISHED ZP	3
010603	NUT, HEX 5/16"-18 A FINISHED ZP	1
011403	SCREW, #10-24 X 2-1/4", PAN HEAD	2
012408	NUT, KEP 10-24 ZP	14
012682	SCREW, #10-24 X 3/8" SLTD HEX	2
012792	1/4-20 HEX FLANGE NUT	2
470017	HANGER BRACKET	1
470021	BURNER PLATE CASTING	1
470045	PILOT SHIELD, HORIZONTAL	1
470062	1/4" BRASS COMP FERRULE	1
470115	BRACKET, GLOW HOUSING, SS	3
470128	1/8MNPT X 1/4" COMP. MALE	1
470185	SIT SNAP ACTION CONTROL	1
470186	SIT CONTROL COVER	1
470516	HANGE BASE ASSEMBLY	1
470539	3/8" X 3/8" PIPE ADAPTER BODY	1
470672	1/8 NPT W/3/8 COMP. ELBOW	1
470718	DIRECT SPARK HEAT SHIELD	1
470736	36" THERMOCOUPLER	1
470737	3/8" BRASS COMP. FERRULE	2
470738	3/8" BRASS COMPRESSION NUT	2
470744	1/4" BRASS COMPRESSION NUT	1
470763	NYLON BULB STRAP	1
470766	#10-24 X 1/2" UNSLOTTED HEX	5

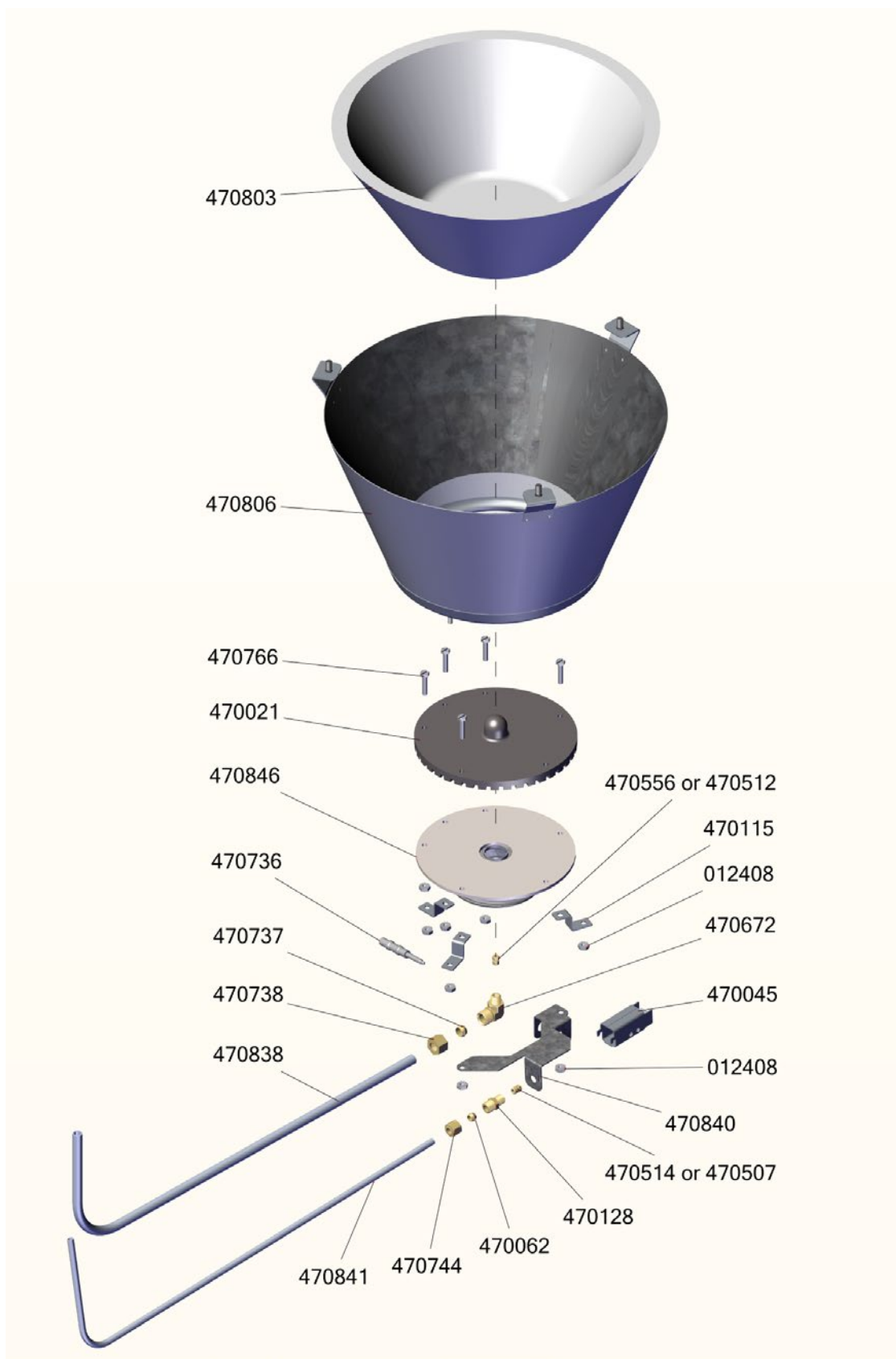
PART #	DESCRIPTION	QTY
<b>470823, 470824, 470849 &amp; 470850 ASSEMBLY</b>		
470803	INSULATOR, FIBER, CONICAL, .50"	1
470806	EMITTER ASSEMBLY, BROODER	1
470831	MOUNT BRACKET, GAS VALVE	1
470838	BURNER TUBE, BROODER, RADIANT	1
470839	BRACKET, GAS VALVE, BROODER	1
470840	PILOT MOUNT, BROODER, RADIANT	1
470841	PILOT TUBE, BROODER, RADIANT	1
470846	VENTURI CUP ASSEMBLY, BROODER	1
470857	ID DECAL, BROODER, RADIANT	1
614045	WASHER, 2.125 OD X .344 ID X 16 GA.	1
690078	SCREW, EYE BOLT, 1/4-20 X 2", ZP	1
<b>Parts Specific to model: 470823</b>		
470778	CANOPY, ALUMINUM, 3'	1
470514	#74 NATURAL PILOT ORIFICE	1
470556	ORIFICE, NAT, 40K BTU, 11" W.C.	1
<b>Parts Specific to model: 470824</b>		
470778	CANOPY, ALUMINUM, 3'	1
470507	#78 LP PILOT ORIFICE	1
470512	ORIFICE, LP, 40K BTU, 7" W.C.	1
<b>Parts Specific to model: 470849</b>		
470001	CANOPY - 3' GALV	1
470514	#74 NATURAL PILOT ORIFICE	1
470556	ORIFICE, NAT, 40K BTU, 11" W.C.	1
<b>Parts Specific to model: 470850</b>		
470001	CANOPY - 3' GALV	1
470507	#78 LP PILOT ORIFICE	1
470512	ORIFICE, LP, 40K BTU, 7" W.C.	1



## 470823, 470824, 470849 & 470850 Assembly - Top Exploded



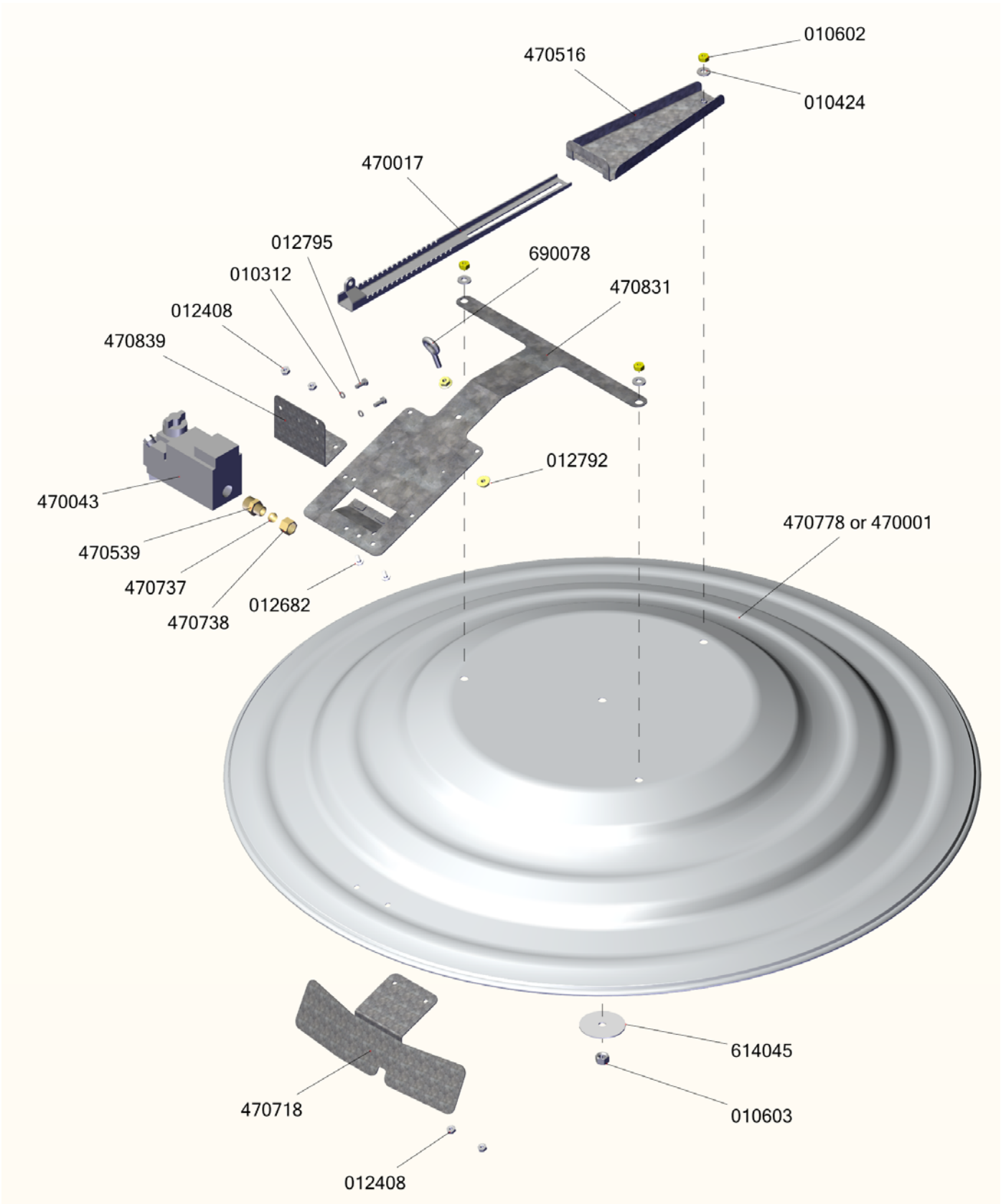
## 470823, 470824, 470849 & 470850 Assembly - Bottom Exploded



## 470826, 470827, 470851 & 470852 Assembly - Parts List

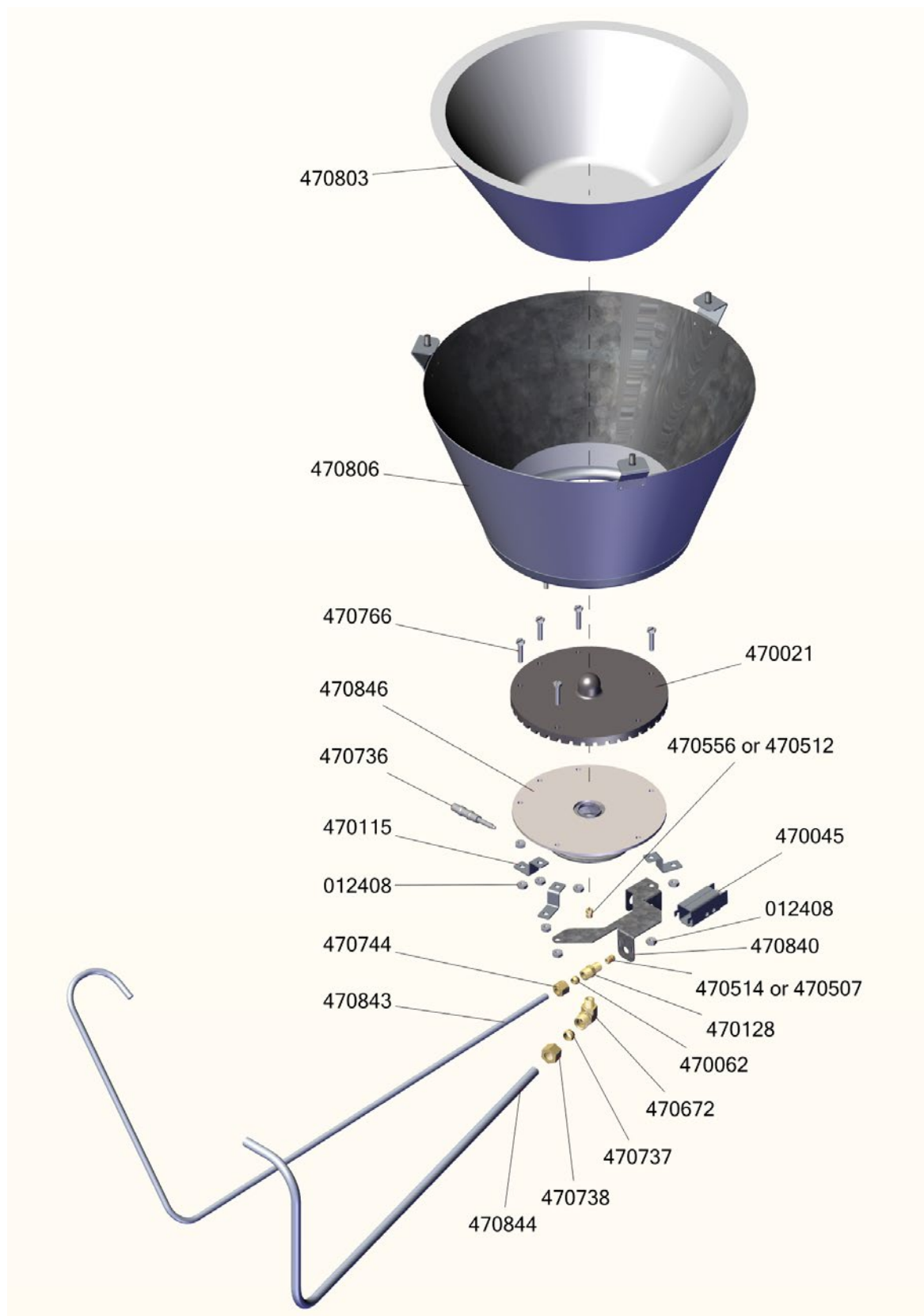
PART #	DESCRIPTION	QTY	PART #	DESCRIPTION	QTY
<b>470826, 470827, 470851 &amp; 470852 ASSEMBLY</b>			<b>470826, 470827, 470851 &amp; 470852 ASSEMBLY</b>		
010312	#10 MEDIUM SPLIT LOCKWASHER	2	470803	INSULATOR, FIBER, CONICAL, .50"	1
010424	WASHER, FLAT, 1/4" SAE ZP	3	470806	EMITTER ASSEMBLY, BROODER	1
010602	NUT, HEX 1/4"-20 A FINISHED ZP	3	470831	MOUNT BRACKET, GAS VALVE	1
010603	NUT, HEX 5/16"-18 A FINISHED ZP	1	470839	BRACKET, GAS VALVE, BROODER	1
012408	NUT, KEP 10-24 ZP	12	470840	PILOT MOUNT, BROODER, RADIANT	1
012682	SCREW, #10-24 X 3/8" SLTD HEX	2	470843	PILOT TUBE, BROODER, RADIANT	1
012792	1/4-20 HEX FLANGE NUT	2	470844	BURNER TUBE, BROODER, RADIANT	1
012795	#10-24 X 1/2" UNSLOTTED HEX	2	470846	VENTURI CUP ASSEMBLY, BROODER	1
470017	HANGER BRACKET	1	614045	WASHER, 2.125 OD X .344 ID X 16 GA.	1
470021	BURNER PLATE CASTING	1	690078	SCREW, EYE BOLT, 1/4-20 X 2", ZP	1
470043	ROBERTSHAW ZONE CONTROLLER	1	<b>Parts Specific to model: 470826</b>		
470045	PILOT SHIELD, HORIZONTAL	1	470778	CANOPY, ALUMINUM, 3'	1
470062	1/4" BRASS COMP FERRULE	1	470514	#74 NATURAL PILOT ORIFICE	1
470115	BRACKET, GLOW HOUSING, SS	3	470556	ORIFICE, NAT, 40K BTU, 11" W.C.	1
470128	1/8MNPT X 1/4" COMP. MALE	1	<b>Parts Specific to model: 470827</b>		
470508	#39 NATURAL BURNER ORIFICE	1	470778	CANOPY, ALUMINUM, 3'	1
470516	HANGE BASE ASSEMBLY	1	470507	#78 LP PILOT ORIFICE	1
470539	3/8" X 3/8" PIPE ADAPTER BODY	1	470512	ORIFICE, LP, 40K BTU, 7" W.C.	1
470672	1/8 NPT W/3/8 COMP. ELBOW	1	<b>Parts Specific to model: 470851</b>		
470718	DIRECT SPARK HEAT SHIELD	1	470001	CANOPY - 3' GALV	1
470736	36" THERMOCOUPLER	1	470514	#74 NATURAL PILOT ORIFICE	1
470737	3/8" BRASS COMP. FERRULE	2	470556	ORIFICE, NAT, 40K BTU, 11" W.C.	1
470738	3/8" BRASS COMPRESSION NUT	2	<b>Parts Specific to model: 470852</b>		
470744	1/4" BRASS COMPRESSION NUT	1	470001	CANOPY - 3' GALV	1
470766	#10-24 X 1/2" UNSLOTTED HEX	5	470507	#78 LP PILOT ORIFICE	1
470778	CANOPY, ALUMINUM, 3'	1	470512	ORIFICE, LP, 40K BTU, 7" W.C.	1

470826, 470827, 470851 & 470852 Assembly - Top Exploded





## 470826, 470827, 470851 & 470852 Assembly - Bottom Exploded

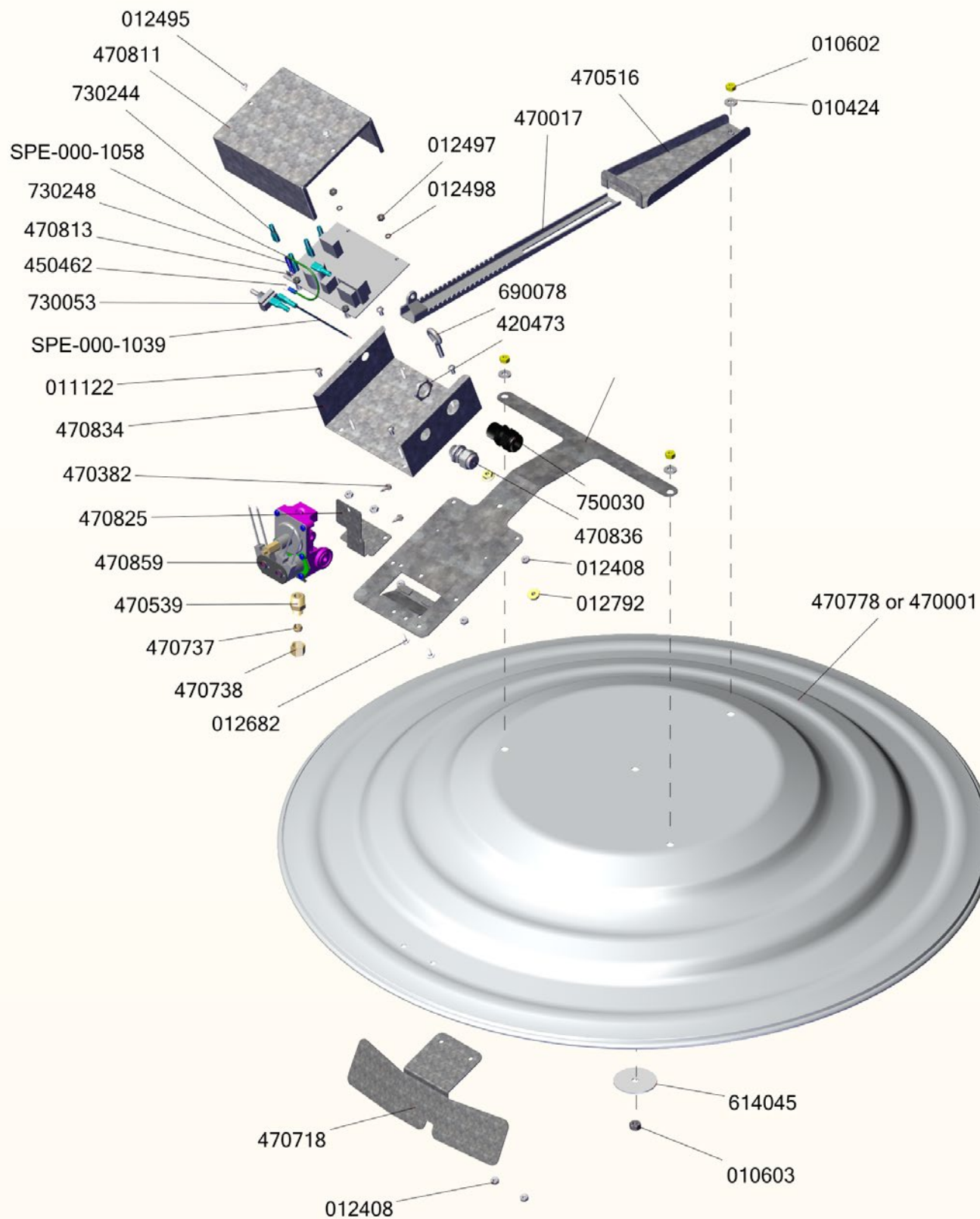


## 470828, 470829, 470853 & 470854 Assembly - Parts List

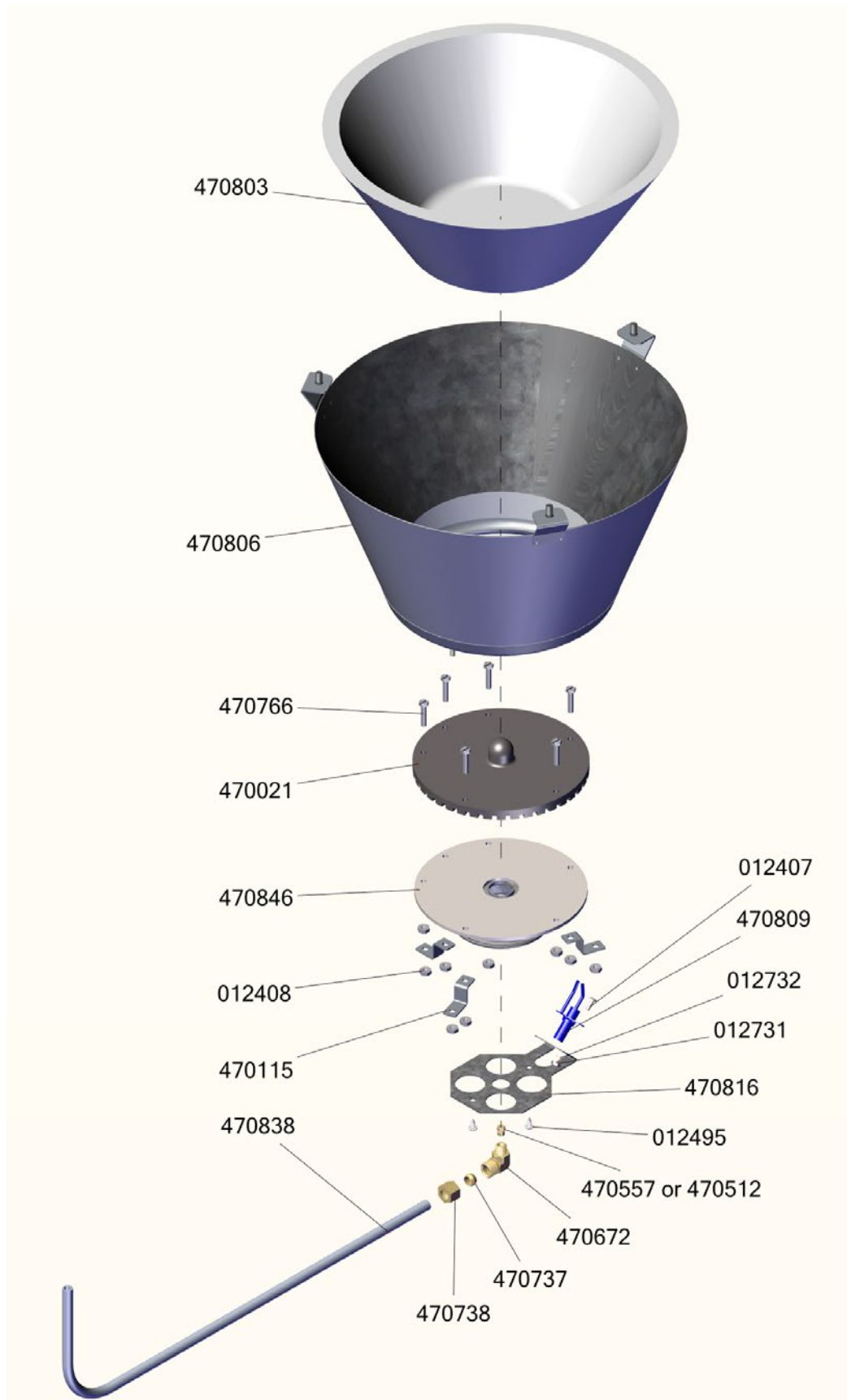
PART #	DESCRIPTION	QTY	PART #	DESCRIPTION	QTY
<b>470828, 470829, 470853 &amp; 470854 ASSEMBLY</b>			<b>470828, 470829, 470853 &amp; 470854 ASSEMBLY</b>		
010424	WASHER, FLAT, 1/4" SAE ZP	3	470813	IGNITION CONTROL, 24VAC	1
010602	NUT, HEX 1/4"-20 A FINISHED ZP	3	470816	IGNITER BRACKET, BROODER	1
010603	NUT, HEX 5/16"-18 A FINISHED ZP	1	470825	BRACKET, GAS VALVE, BROODER	1
011122	#10-24 X 3/8" ROUND HEAD SCREW	4	470831	MOUNT BRACKET, GAS VALVE	1
012407	#6-32 X 3/8" TRUSS HEAD BOLT	1	470834	CONTROL BASE, SPARK	1
012495	#8 X 3/8" ROUND HEAD PHILLIPS	4	470836	STRAIN RELIEF, PLASTIC	1
012497	#8-32 HEX NUT	4	470838	BURNER TUBE, BROODER, RADIANT	1
012498	#8 LOCKWASHER	4	470846	VENTURI CUP ASSEMBLY, BROODER	1
012682	SCREW, #10-24 X 3/8" SLTD HEX	2	470859	GAS VALVE, 14"W.C.MAX, 24VAC	1
012731	#6-32 MACHINE NUT	1	614045	WASHER, 2.125 OD X .344 ID X 16 GA.	1
012732	#6 LOCKWASHER	1	690078	SCREW, EYE BOLT, 1/4-20 X 2", ZP	1
012792	1/4-20 HEX FLANGE NUT	2	730053	GAYNOR TOGGLE SWITCH	1
450462	FORK TERMINAL, 14-16 AWG	1	730244	#16-14 x 1/4" EXPANDED BARREL	7
470017	HANGER BRACKET	1	730248	14/16 GA. QUICK CONNECT	1
470021	BURNER PLATE CASTING	1	750030	CORDGRIP, 1/2" NPT STRAIGHT	1
470115	BRACKET, GLOW HOUSING, SS	3	SPE-000-1039	WIRE, 14AWG, STRANDED, BLACK	0.33
470382	#8 X 1/2" SELF-DRILLING SCREW	2	SPE-000-1058	#16 WIRE - GREEN	0.33
420473	1/2" CONDUIT NUT	1	<b>Parts Specific to model: 470828</b>		
470516	HANGE BASE ASSEMBLY	1	470778	CANOPY, ALUMINUM, 3'	1
470539	3/8" X 3/8" PIPE ADAPTER BODY	1	470557	ORIFICE, NAT, 40K BTU, 4" W.C.	1
470672	1/8 NPT W/3/8 COMP. ELBOW	1	<b>Parts Specific to model: 470829</b>		
470718	DIRECT SPARK HEAT SHIELD	1	470778	CANOPY, ALUMINUM, 3'	1
470737	3/8" BRASS COMP. FERRULE	2	470512	ORIFICE, LP, 40K BTU, 7" W.C.	1
470738	3/8" BRASS COMPRESSION NUT	2	<b>Parts Specific to model: 470853</b>		
470766	#10-24 X 1/2" UNSLOTTED HEX	6	470001	CANOPY - 3' GALV	1
470803	INSULATOR, FIBER, CONICAL, .50"	1	470557	ORIFICE, NAT, 40K BTU, 4" W.C.	1
470806	EMITTER ASSEMBLY, BROODER	1	<b>Parts Specific to model: 470854</b>		
470809	IGNITER, BROODER, LOW PROFILE	1	470001	CANOPY - 3' GALV	1
470811	CONTROL COVER, SPARK	1	470512	ORIFICE, LP, 40K BTU, 7" W.C.	1



## 470828, 470829, 470853 & 470854 Assembly - Top Exploded



## 470828, 470829, 470853 & 470854 Assembly - Bottom Exploded



# Customer Service

My dealer's name:

\_\_\_\_\_

How to contact my dealer:

Street / PO Box \_\_\_\_\_

City \_\_\_\_\_

State / Province \_\_\_\_\_

Zip / Postal \_\_\_\_\_

Phone \_\_\_\_\_

Fax \_\_\_\_\_

E-mail \_\_\_\_\_



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