



Installation and Operation Instructions for **MAGNATHERM[®]**

with Laars Linc[®]

Modulating Boiler with VARI-PRIME[®]

Model MGH1600
1,600 MBTU/h

Model MGH2000
1,999 MBTU/h

Model MGH2500
2,499 MBTU/h

Model MGH3000
3,000 MBTU/h

Model MGH3500
3,500 MBTU/h

Model MGH4000
4,000 MBTU/h

Modulating Water Heater

Model MGV1600
1,600 MBTU/h

Model MGV2000
1,999 MBTU/h

Model MGV2500
2,499 MBTU/h

Model MGV3000
3,000 MBTU/h

Model MGV3500
3,500 MBTU/h

Model MGV4000
4,000 MBTU/h

FOR YOUR SAFETY: This product must be installed and serviced by a professional service technician, qualified in hot water boiler and heater installation and maintenance. Improper installation and/or operation could create carbon monoxide gas in flue gases which could cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

⚠ WARNING

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

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other unit.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any unit.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a nearby phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency, or gas supplier.

⚠ AVERTISSEMENT

Assurez-vous de bien suivre les instructions données dans cette notice pour réduire au minimum le risque d'incendie ou d'explosion ou pour éviter tout dommage matériel, toute blessure ou la mort.

Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de tout autre appareil.

QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:

- Ne pas tenter d'allumer d'appareils.
- Ne touchez à aucun interrupteur. Ne pas vous servir des téléphones dans le bâtiment où vous êtes.
- Appelez immédiatement votre fournisseur de gaz depuis un voisin. Suivez les instructions du fournisseur.
- Si vous ne pouvez rejoindre le fournisseur de gaz, appelez le service des incendies.

L'installation et l'entretien doivent être assurés par un installateur ou un service d'entretien qualifié ou par le fournisseur de gaz.

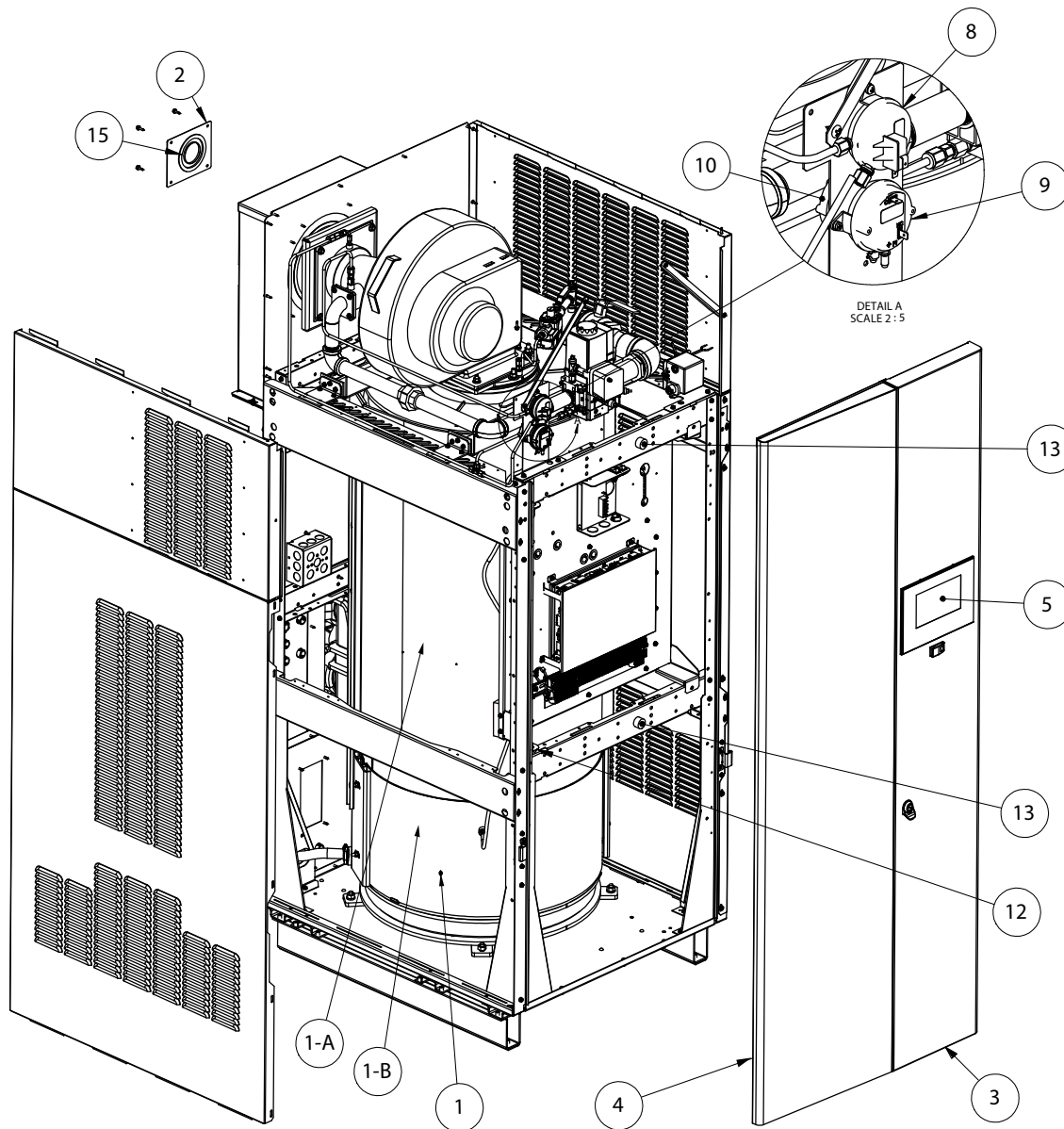
SECTION 13 Replacement Parts

Use only genuine Manufacturer's replacement parts.

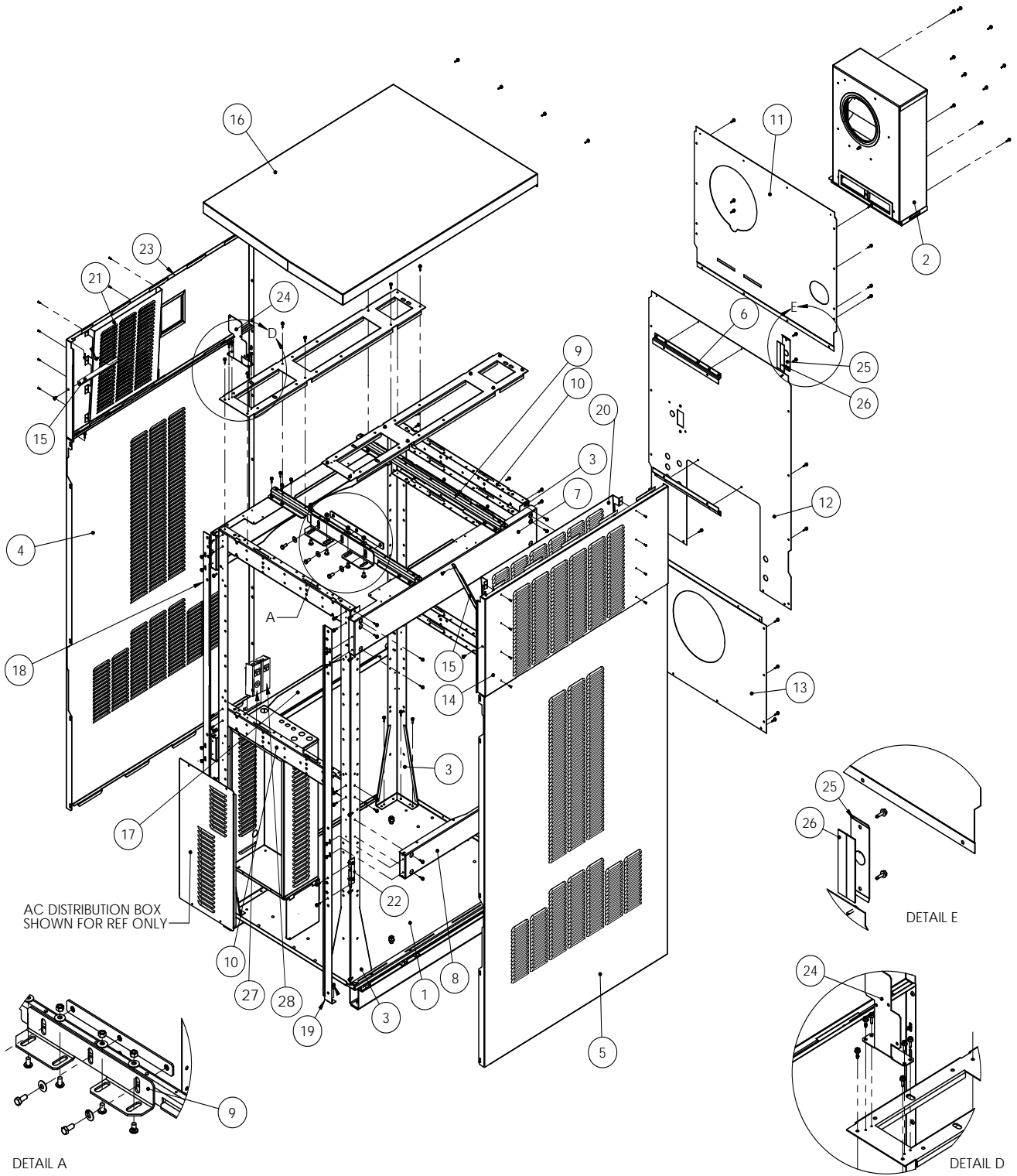
13.A General Information

To order or purchase parts, contact your nearest manufacturers dealer or distributor. (See the back cover of this manual for the manufacturers website).

13.B Component Illustrations, Parts Lists, and Part Numbers



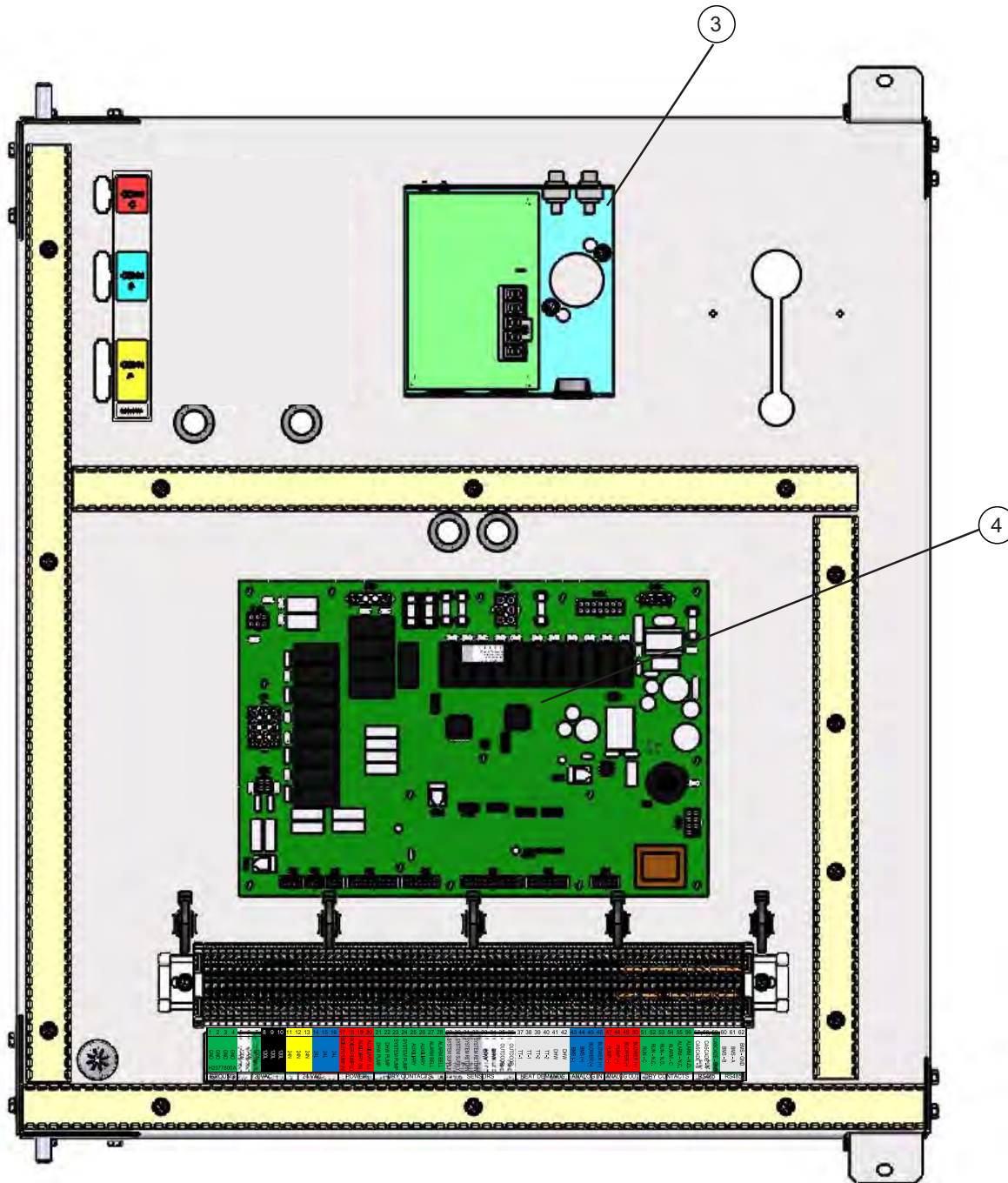
Final Assembly



Frame and Jacket Assembly

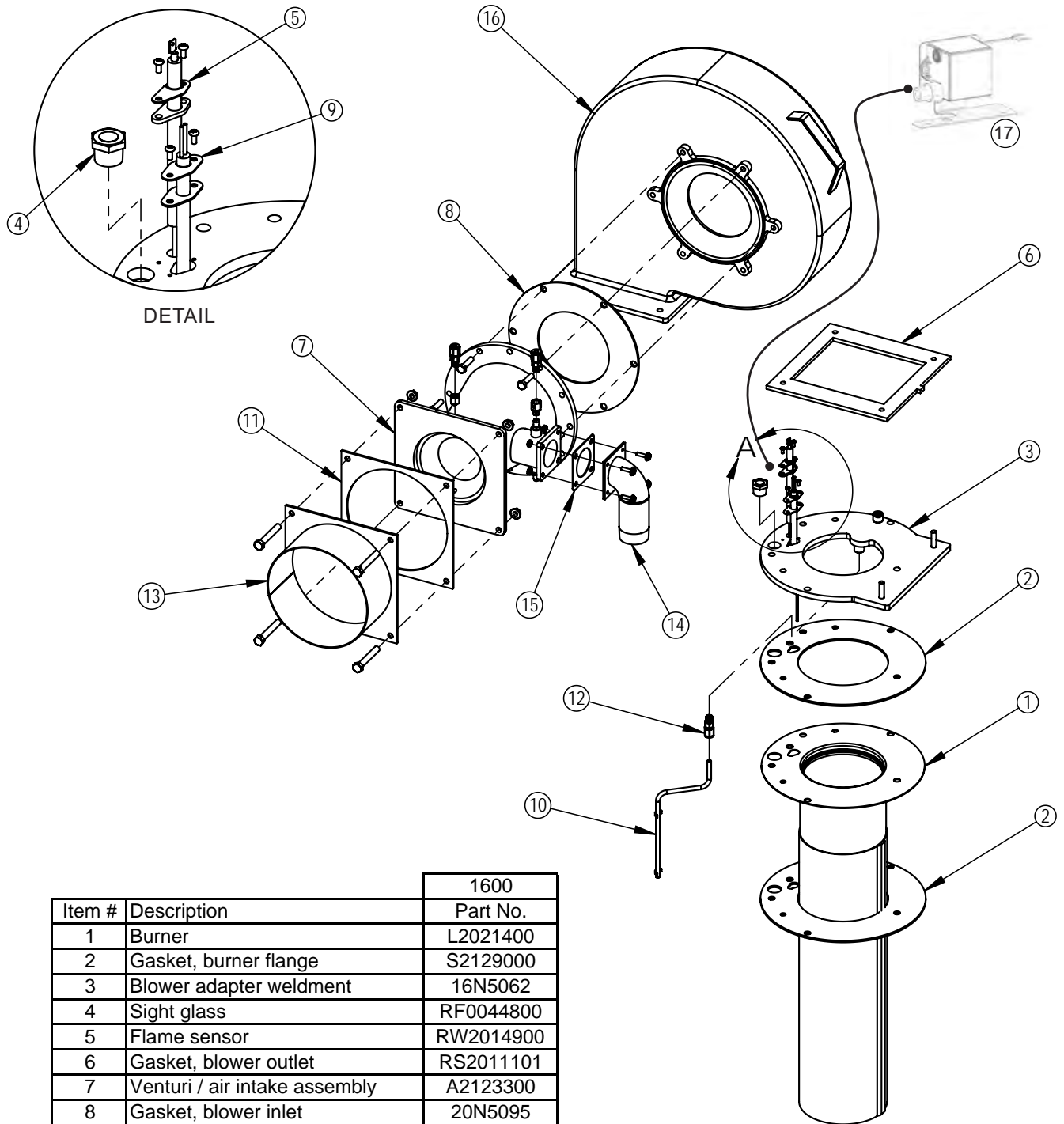
Item #	Description	1600	2000	2500	3000	3500	4000
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1	Base assembly	16N1000	20N1000	30N1000	30N1000	40N1000	40N1000
2	Filter	A2121700	A2121700	A2121700	A2121700	A2121700	A2121700
	Filter assembly (incl. filter)	16N2600	20N2600	20N2600	30N2600	35N2600	40N2600
3	Stanchion	20N3010	20N3010	30N3001	30N3001	40N3001	40N3001
4	Panel, left bottom	20N3002	20N3002	30N3002	30N3002	40N3002	40N3002
5	Panel, right bottom	20N3004	20N3004	30N3004	30N3004	40N3004	40N3004
6	Extension brace, rear	30N3007	30N3007	30N3007	30N3007	30N3007	30N3007
7	Brace, upper side	20N3008	20N3008	30N3008	30N3008	40N3008	40N3008
8	Brace, lower right side	20N3047	20N3047	30N3011	30N3011	40N3047	40N3047
9	Frame mounting bracket	20N3005	20N3005	30N3012	30N3012	40N3005	40N3005
10	Brace	20N3013	20N3013	30N3013	30N3013	40N3013	40N3013
11	Panel, upper rear	20N3019	20N3019	30N3019	30N3019	40N3019	40N3019
12	Panel, center rear	20N3020	20N3020	30N3020	30N3020	40N3020	40N3020
13	Panel, lower rear	16N3021	20N3021	25N3021	30N23021	40N3021	40N3021
14	Panel, right	20N3036	20N3036	30N3036	30N3036	40N3036	40N3036
15	Strut, upper panel support	30N3043	30N3043	30N3043	30N3043	30N3043	30N3043
16	Panel, top	16N3045	16N3045	30N3045	30N3045	40N3045	40N3045
17	Bracket, lower left side	20N3047	20N3047	30N3049	30N3049	40N3047	40N3047
18	Hinge mounting bracket, left	20N3163	20N3163	30N3050	30N3050	40N3163	40N3163
19	Hinge mounting bracket, right	20N3164	20N3164	30N3051	30N3051	40N3164	40N3164
20	Panel, right, rain splatter	30N3053	30N3053	30N3053	30N3053	40N3050	40N3050
21	Panel, left, rain splatter	30N3054	30N3054	30N3054	30N3054	40N3050	40N3050
22	Bracket, hinge brace	30N3055	30N3055	30N3055	30N3055	30N3055	30N3055
23	Panel, top left	20N3035	20N3035	30N3057	30N3057	40N3035	40N3035
24	Bracket, pressure switch	20N3054	20N3054	20N3054	20N3054	20N3054	20N3054
25	Cover, field connections	17J3025	17J3025	17J3025	17J3025	17J3025	17J3025
26	Gasket, .75" x .06" x 2 feet	R2077402	R2077402	R2077402	R2077402	R2077402	R2077402
27	Manual reset high limit (opt.)	E2217800	E2217800	E2217800	E2217800	E2217800	E2217800
28	Auto reset high limit (opt.)	RE2217700	RE2217700	RE2217700	RE2217700	RE2217700	RE2217700

13.B.2 Frame and Jacket Assembly, Part Numbers



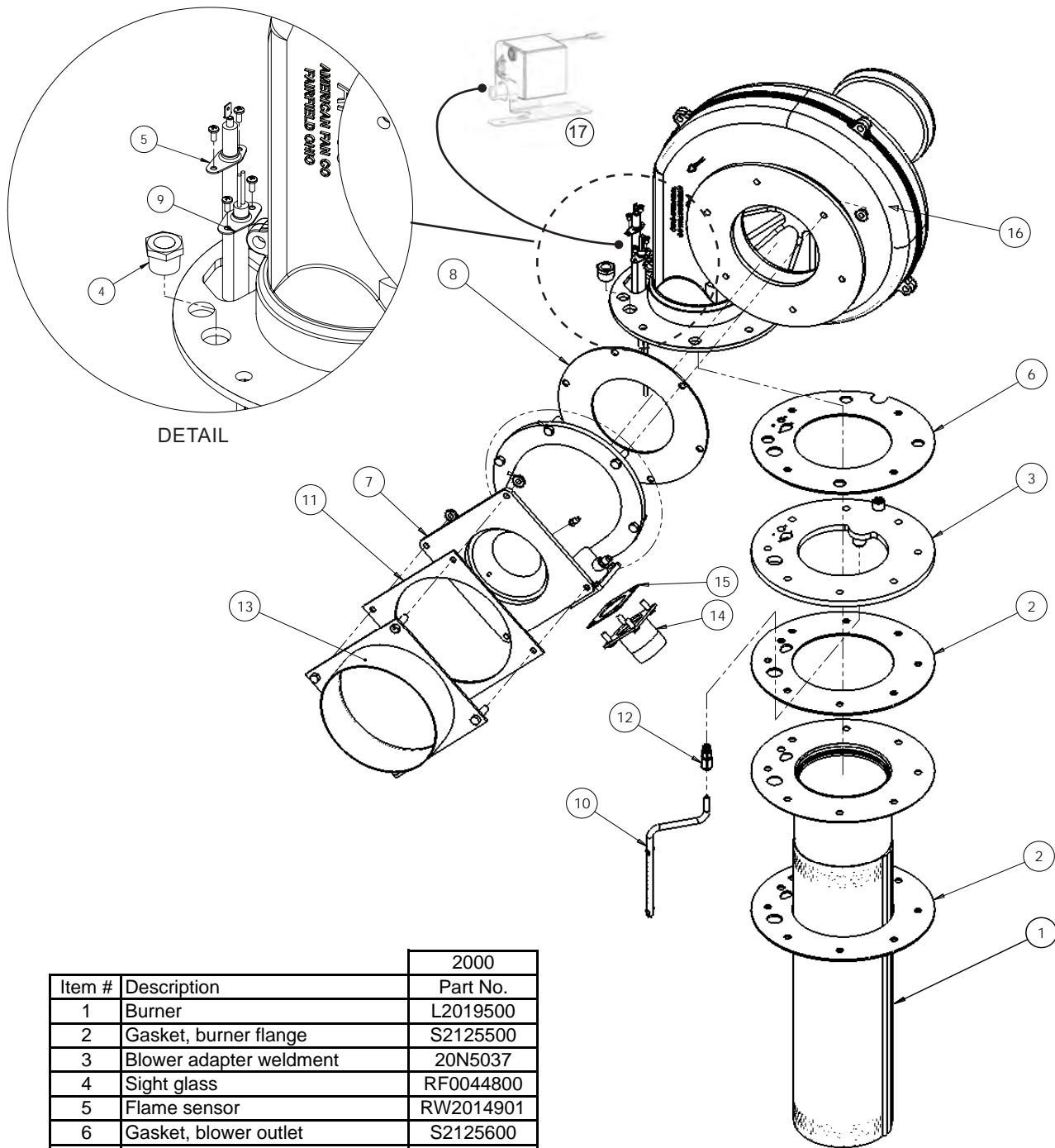
Item #	Description	1600 Part No.	2000 Part No.	2500 Part No.	3000 Part No.	3500 Part No.	4000 Part No.
3	Low water cutoff	RE2075100	RE2075100	RE2075100	RE2075100	RE2075100	RE2075100
4	Control board & standoffs	R2082400	R2082400	R2082400	R2082400	R2082400	R2082400

13.B.3 Control Panel, Part Numbers



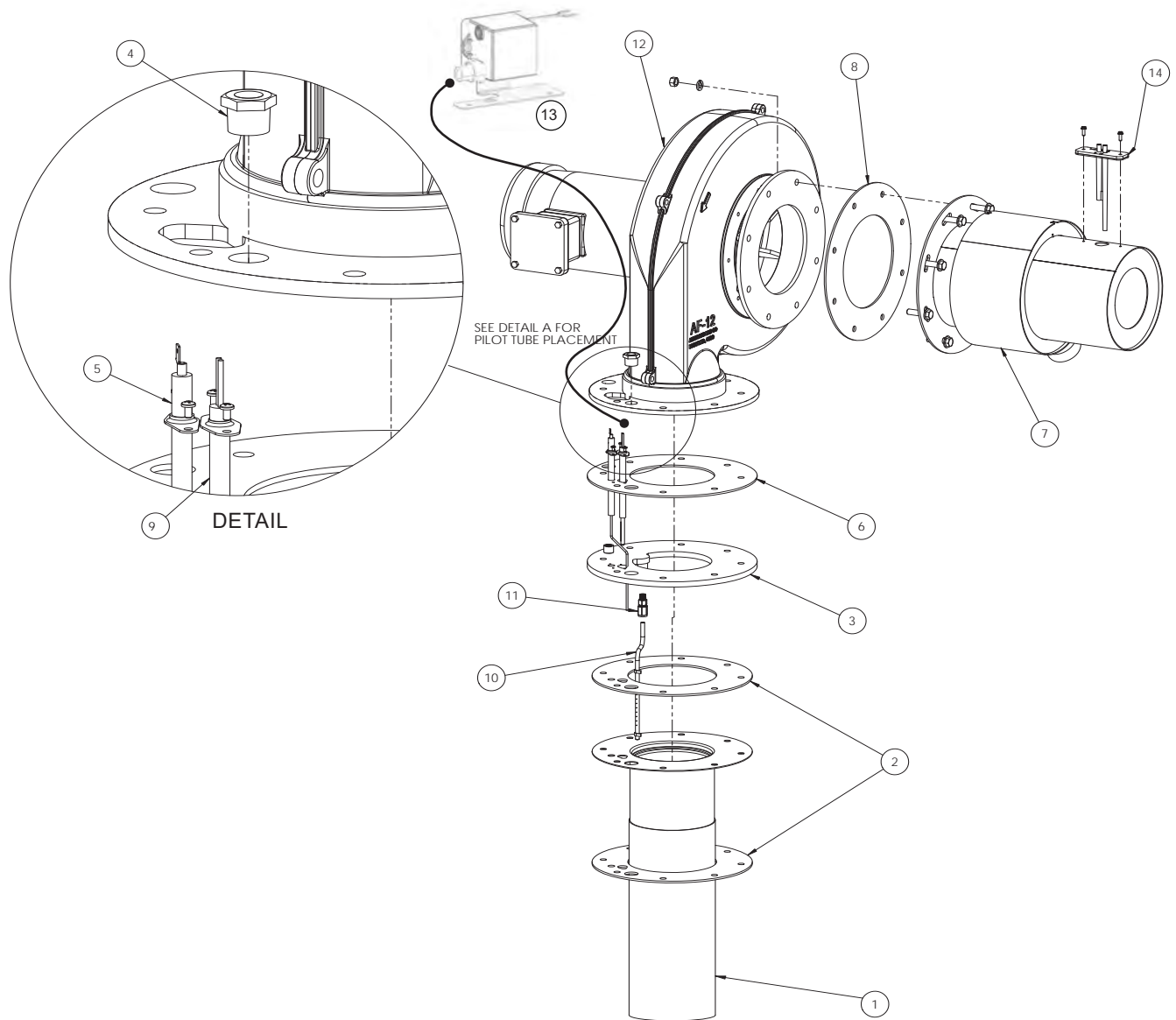
Item #	Description	1600 Part No.
1	Burner	L2021400
2	Gasket, burner flange	S2129000
3	Blower adapter weldment	16N5062
4	Sight glass	RF0044800
5	Flame sensor	RW2014900
6	Gasket, blower outlet	RS2011101
7	Venturi / air intake assembly	A2123300
8	Gasket, blower inlet	20N5095
9	Ignitor	RW2014101
10	Pilot tube weldment	R2076304
11	Gasket, filter box flange	20N5094
12	Adapter, 1/8"NPT x 1/4" tube	P2097800
13	Pipe & flange, blower	16N5092
14	Pipe & flange, gas intake	16N5074
15	Gasket, venturi / valve, cork	RS2104900
16	Blower	RA2132701
17	Spark generator	20N3060

13.B.4 Air / Gas System, Part Numbers (Model 1600)



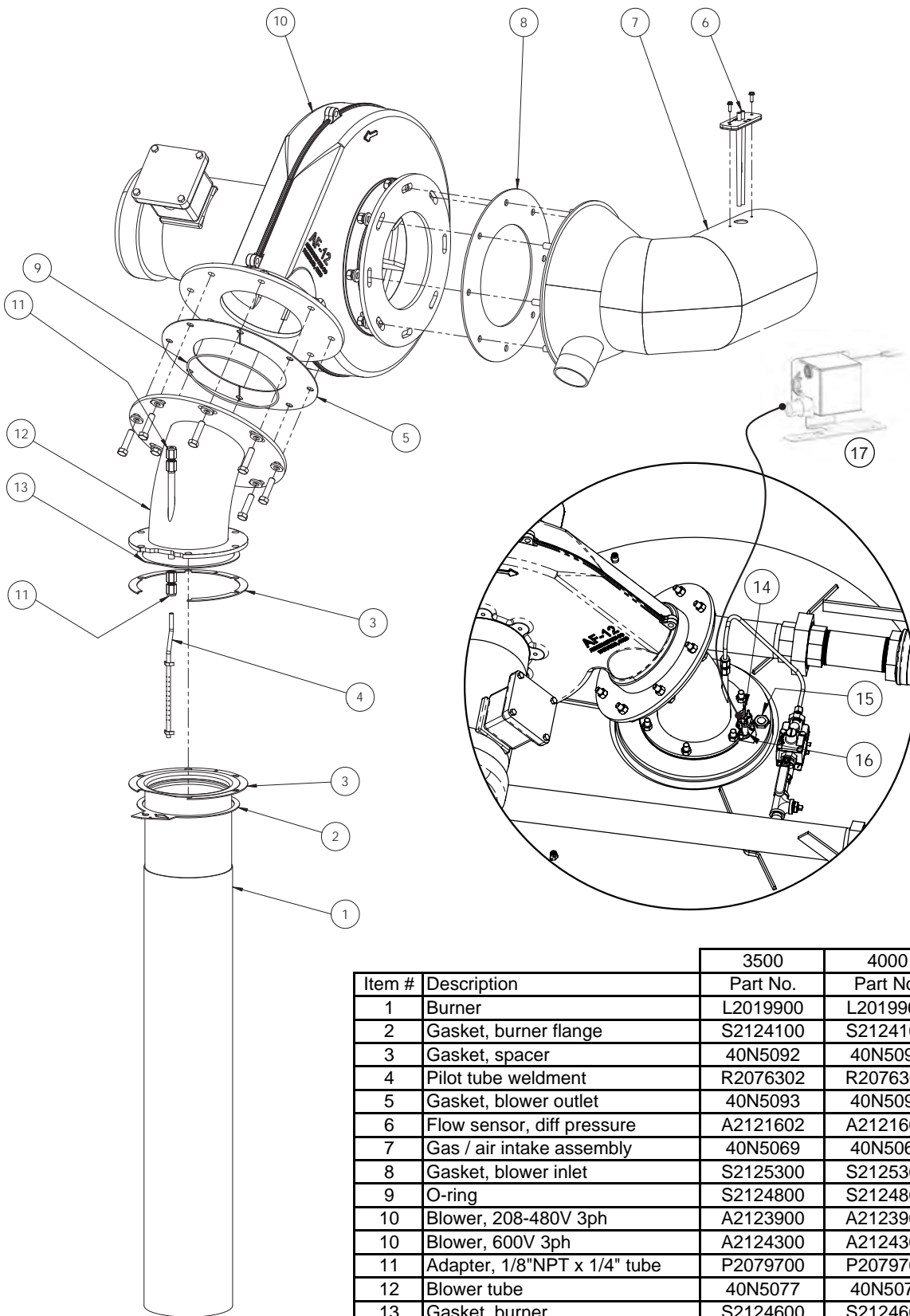
Item #	Description	2000 Part No.
1	Burner	L2019500
2	Gasket, burner flange	S2125500
3	Blower adapter weldment	20N5037
4	Sight glass	RF0044800
5	Flame sensor	RW2014901
6	Gasket, blower outlet	S2125600
7	Venturi / air intake assembly	A2123300
8	Gasket, blower inlet	20N5095
9	Ignitor	RW2014101
10	Pilot tube weldment	R2076303
11	Gasket, filter box flange	20N5094
12	Adapter, 1/8"NPT x 1/4" tube	P2097800
13	Pipe & flange, blower	20N5092
14	Pipe & flange, gas intake	20N5090
15	Gasket, venturi / valve, cork	RS2104900
16	Blower, 110-240V 1ph	A2123800
16	Blower, 208-460V 3ph	A2123800
16	Blower, 575-600V 3ph	A2124200
17	Spark generator	20N3060

13.B.5 Air / Gas System, Part Numbers (Model 2000)



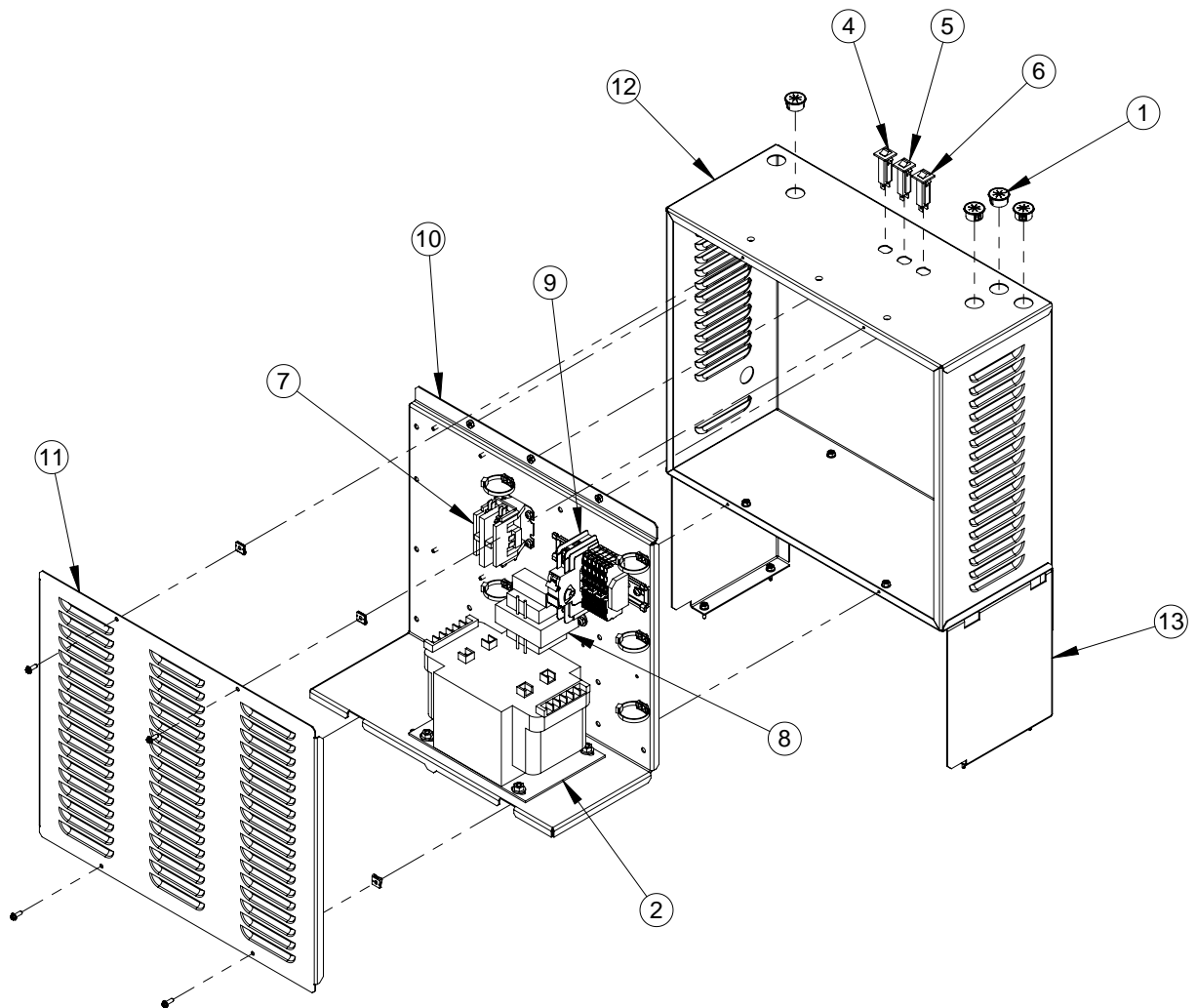
Item #	Description	2500	3000
		Part No.	Part No.
1	Burner	L2020600	L2020600
2	Gasket, burner flange	S2125100	S2125100
3	Blower adapter weldment	30N5037	30N5037
4	Sight glass	RF0044800	RF0044800
5	Flame sensor	RW2014901	RW2014901
6	Gasket, blower outlet	S2125200	S2125200
7	Venturi / air intake assembly	30N5092	30N5092
8	Gasket, blower inlet	S2125300	S2125300
9	Ignitor	RW2014101	RW2014101
10	Pilot tube weldment	R2076301	R2076301
11	Adapter, 1/8"NPT x 1/4" tube	P2097800	P2097800
12	Blower, 208-480V 3ph	A2123700	A2123700
12	Blower, 600V 3ph	A2124100	A2124100
13	Spark generator	20N3060	30N3060
14	Flow sensor, diff pressure	A2121601	A2121601

13.B.6 Air / Gas System, Part Numbers (Models 2500 & 3000)



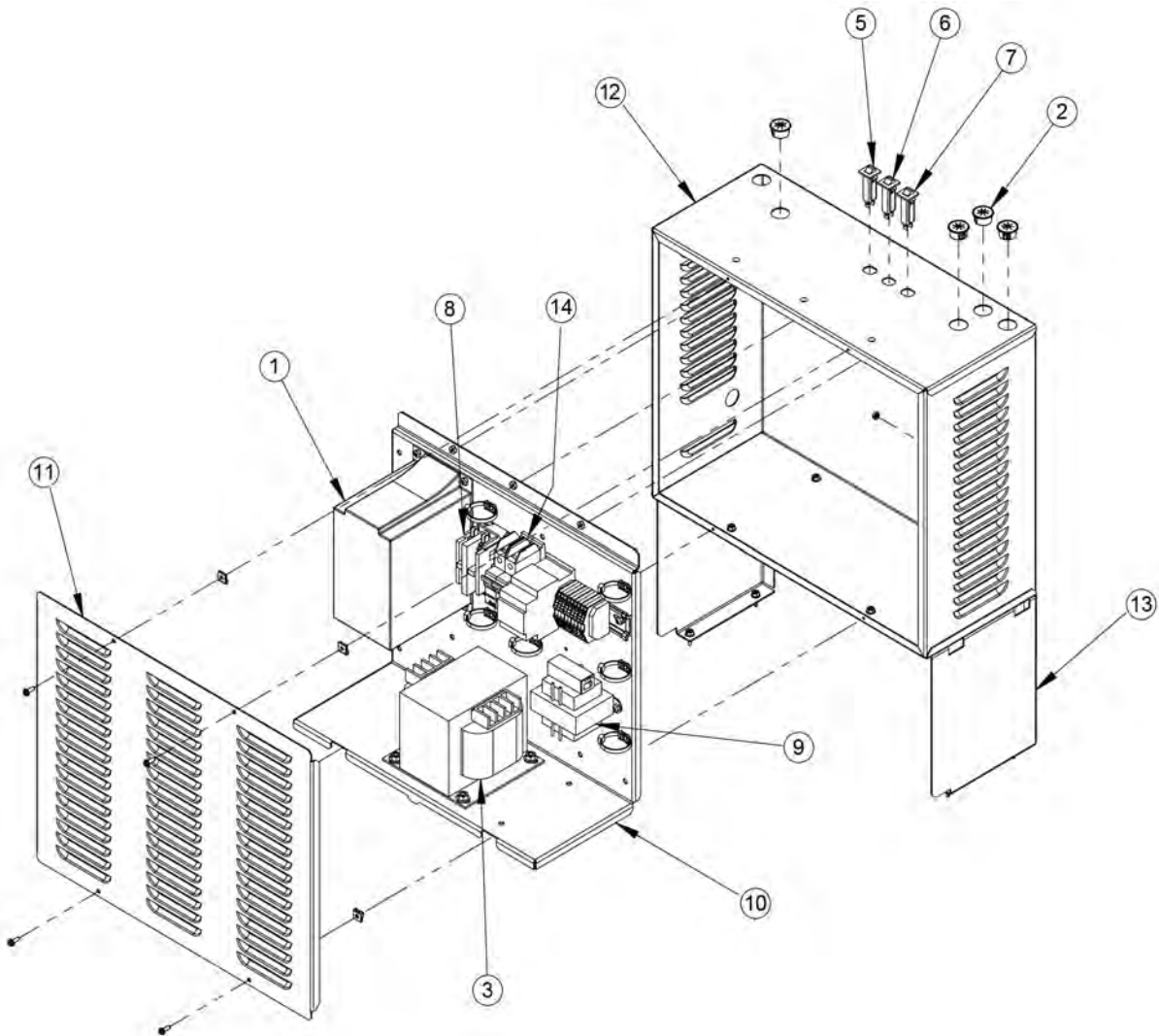
Item #	Description	3500	4000
		Part No.	Part No.
1	Burner	L2019900	L2019900
2	Gasket, burner flange	S2124100	S2124100
3	Gasket, spacer	40N5092	40N5092
4	Pilot tube weldment	R2076302	R2076302
5	Gasket, blower outlet	40N5093	40N5093
6	Flow sensor, diff pressure	A2121602	A2121600
7	Gas / air intake assembly	40N5069	40N5069
8	Gasket, blower inlet	S2125300	S2125300
9	O-ring	S2124800	S2124800
10	Blower, 208-480V 3ph	A2123900	A2123900
10	Blower, 600V 3ph	A2124300	A2124300
11	Adapter, 1/8"NPT x 1/4" tube	P2079700	P2079700
12	Blower tube	40N5077	40N5077
13	Gasket, burner	S2124600	S2124600
14	Ignitor	RW2014101	RW2014101
15	Sight glass	RF0044800	RF0044800
16	Flame sensor	RW2014901	RW2014901
17	Spark generator	40N3060	40N3060

**13.B.7 Air / Gas System, Part Numbers
(Models 3500 and 4000)**



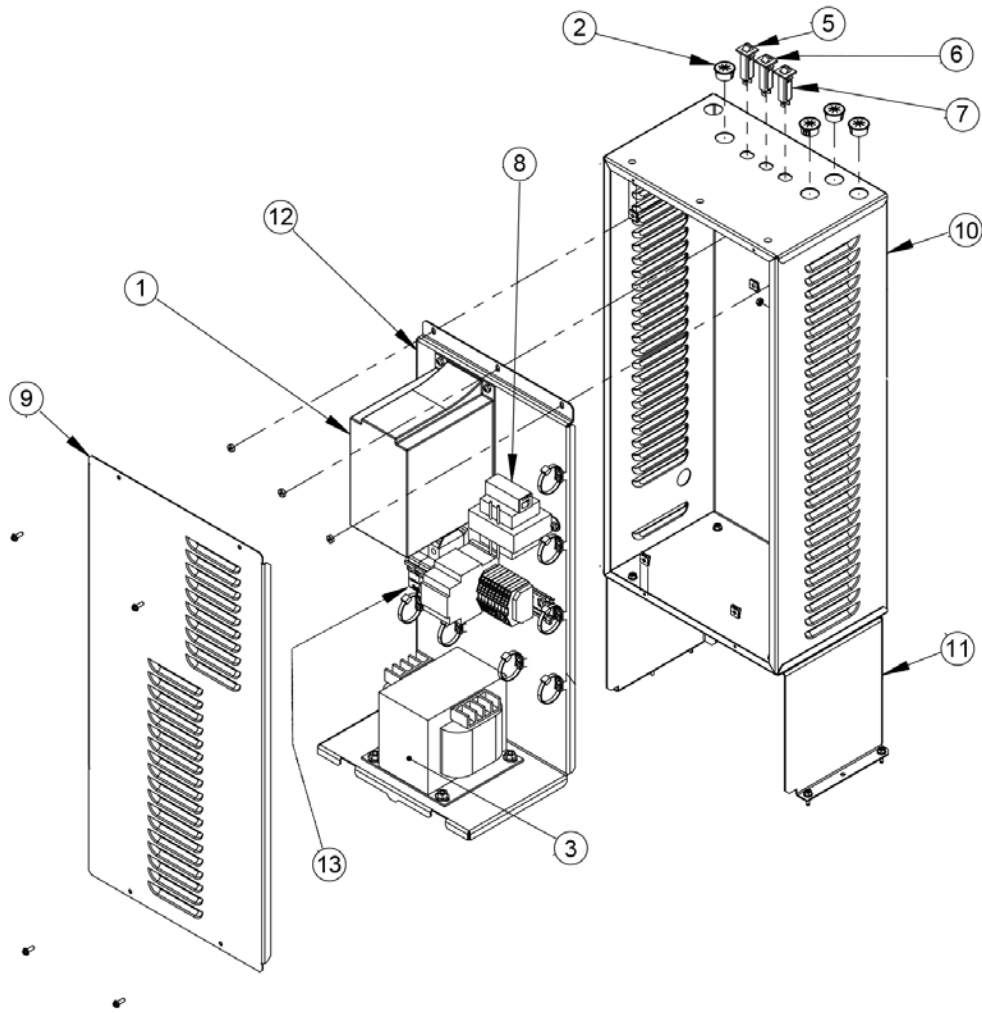
Item #	Description	1600		
		120V 1PH	208V 1PH	220/240V 1PH
Item #	Description	Part No.	Part No.	Part No.
1	Bushing, nylon	S0064900	S0064900	S0064900
2	Transformer	E2359300	E2355500	E2355900
4	Circuit breaker, 2A	E2335100	E2335100	E2335100
5	Circuit breaker, 10A	E2372700	E2372700	E2372700
6	Circuit breaker, 3A	E2311800	E2311800	E2311800
7	Relay, 115V, DPST	E2311100	E2311100	E2311100
8	Transformer 120/24V	R2082500	R2082500	R2082500
9	Circuit Breaker	E2368300	E2359700	E2359700
10	Panel, AC distribution box	20N7319	20N7317	20N7317
11	Cover, box, power input	20N7313	20N7313	20N7313
12	Box, power input	20N7312	20N7312	20N7312
13	Support, power input box	20N7311	20N7311	20N7311
-	Wire harness assembly, circuit breakers to transformer (not shown)	16N7401	16N7403	16N7402

13.B.8 AC Distribution Box, Part Numbers (Model 1600)



		2000					
		120V 1PH	208 1PH	220/240V 1PH	208V 3PH	480V 3PH	600V 3PH
Item #	Description	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
1	VFD with program	XN716001	XN716001	XN716001	XN716002	XN716003	XN716004
2	Bushing, nylon	S0064900	S0064900	S0064900	S0064900	S0064900	S0064900
3	Transformer	E2359300	E2359300	E2355900	E2355500	E2352600	E2352600
5	Circuit breaker, 2A	E2335100	E2335100	E2335100	E2335100	E2335100	E2335100
6	Circuit breaker, 10A	E2372700	E2372700	E2372700	E2372700	E2372700	E2372700
7	Circuit breaker, 3A	E2311800	E2311800	E2311800	E2311800	E2311800	E2311800
8	Relay, 115V, DPST	E2311100	E2311100	E2311100	N/A	N/A	N/A
9	Transformer 120/24V	RE2370700	RE2370700	RE2370700	RE2370700	RE2370700	RE2370700
10	Panel, AC distribution box	20N7316	20N7317	20N7317	20N7318	20N7318	20N7318
11	Cover, box, power input	20N7313	20N7313	20N7313	20N7313	20N7313	20N7313
12	Box, power input	20N7312	20N7312	20N7312	20N7312	20N7312	20N7312
13	Support, power input box	20N7311	20N7311	20N7311	20N7311	20N7311	20N7311
14	Circuit Breaker	E2368300	E2359700	E2359700	E2355600	E2355100	E2360100
-	Wire harness assembly, circuit breakers to transformer (not shown)	20N740001	20N740006	20N740002	20N740003	20N740004	20N740005

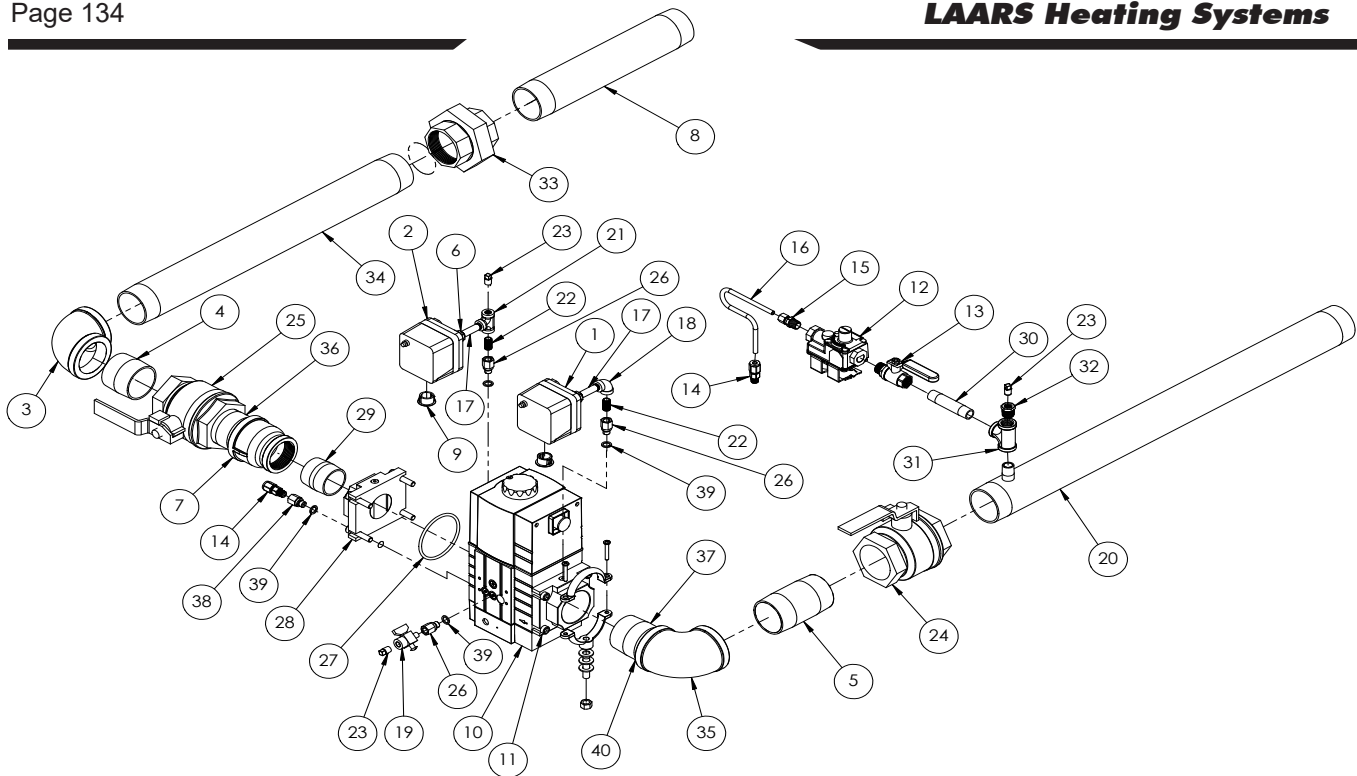
13.B.9 AC Distribution Box, Part Numbers (Model 2000)



Item #	Description	2500	3000	3500	4000
		Part No.	Part No.	Part No.	Part No.
1	VFD with program, 208V 3PH	XN715008	XN715005	XN715011	XN715005
	VFD with program, 480V 3PH	XN715009	XN715006	XN715012	XN715006
	VFD with program, 600V 3PH	XN715010	XN715007	XN715013	XN715007

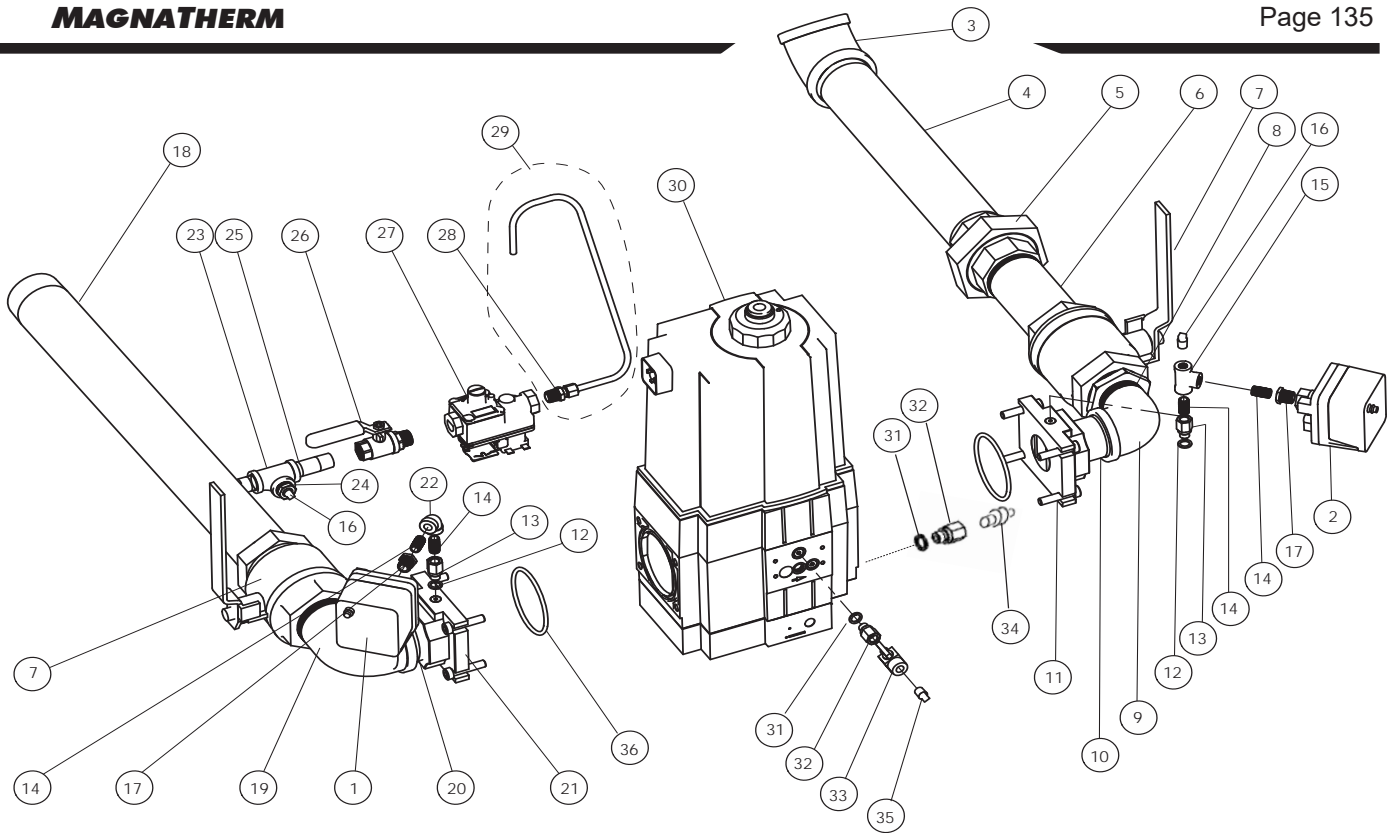
		2500 & 3000			3500 & 4000		
		208V 3PH	480V 3PH	600V 3PH	208V 3PH	480V 3PH	600V 3PH
		Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
2	Bushing, nylon	S0064900	S0064900	S0064900	S0064900	S0064900	S0064900
3	Transformer	E2355500	E2352600	E2352600	E2355500	E2352600	E2352600
5	Circuit breaker, 2A	E2335100	E2335100	E2335100	E2335100	E2335100	E2335100
6	Circuit breaker, 10A	E2372700	E2372700	E2372700	E2372700	E2372700	E2372700
7	Circuit breaker, 3A	E2311800	E2311800	E2311800	E2311800	E2311800	E2311800
8	Transformer 120/24V	RE2370700	RE2370700	RE2370700	RE2370700	RE2370700	RE2370700
9	Cover, box, power input	30N3028	30N3028	30N3028	30N3028	30N3028	30N3028
10	Box, power input	30N3024	30N3024	30N3024	30N3024	30N3024	30N3024
11	Support, power input box	30N3023	30N3023	30N3023	30N3023	30N3023	30N3023
12	Panel, AC distribution box	40N7061	40N7061	40N7061	40N7061	40N7061	40N7061
13	Circuit Breaker	E2355600	E2355100	E2360100	E2355600	E2355100	E2360100
-	Wire harness assembly, circuit breakers to transformer (not shown)	30N745001	30N745002	30N745003	40N745001	40N745002	40N745003

13.B.10 AC Distribution Box, Part Numbers (Models 2500 to 4000)



Item #	Description	1600 Part No.	2000 Part No.	2500 Part No.	3000 Part No.
1	Pressure switch, low gas	R2004100	R2004100	R2004100	R2004100
2	Pressure switch, high gas	R2004000	R2004000	R2004000	R2004000
3	Elbow	P0008400	P0008600	P0008600	P0008700
4	Nipple	P0015700	P0019800	P0020300	P0021100
5	Nipple, 2"NPTx4"	P2095800	P2095800	P0022600	P0022600
6	Bushing, reducing, 1/4x1/8	P2032400	P2032400	P2032400	P2032400
7	Adapter, 2"nptx1-1/2"npt	N/A	P0003900	P0003900	P2085700
8	Nipple	P0015700	P2092800	P2096500	P2091600
9	Bushing, nylon	S0064900	S0064900	S0064900	S0064900
10	Gas valve, main	V2023000	V2021200	V2021200	V2021200
11	Flange, gas valve	V2024400	V2021900	V2021900	V2021900
12	Pilot regulator	V2022100	V2022100	V2022100	V2022100
13	Ball valve, 3/8"	V2022200	V2022200	V2022200	V2022200
14	Compression fitting, 1/4" tube	N/A	P2097800	P2097800	P2097800
15	Compression fitting, 1/4" tube	P0004100	P0004100	P0004100	P0004100
16	Pilot tube with fittings	R2082002	R30N6027	R30N6027	R30N6027
17	Nipple, 1/8"x2"	P0011300	P0011300	P0011300	P0011300
18	Elbow, 1/8"	P2008900	P2008900	P2008900	P2008900
19	Valve, Manual 1/8" M x F	W2000300	W2000300	W2000300	W2000300
20	Nipple/tee weldment	30N6031	30N6031	30N6031	30N6031
21	Tee, 1/8"	P0027100	P0027100	P0027100	P0027100
22	Nipple, 1/8"x close	P0011100	P0011100	P0011100	P0011100
23	Plug	70-236	70-236	70-236	70-236
24	Ball valve	R2011600	R2011600	R2003700	R2011600
25	Ball valve	RV2003000	R2003700	R2003700	R2011600
26	Adapter, 1/8FNPTx1/8M	P2089600	P2089600	P2089600	P2089600
27	Gas Valve O-Rings	R2087200	R2087201	R2087201	R2087201
28	Flange, adjustable shutter	V2023200	V2022400	V2022400	V2022000
29	Nipple	P0015700	P0015500	P0015400	P0019100
30	Nipple, 3/8"x3"	P2090500	P2090500	P2090500	P2090500
31	Tee, 3/8x3/8x3/8	P2090600	P2090600	P2090600	P2090600
32	Bushing, reducing, 3/8x1/8	P2090700	P2090700	P2090700	P2090700
33	Union	P0030500	P0030700	N/A	N/A
34	Nipple	P0053400	P2077800	N/A	N/A
35	Elbow	P0008700	P0008700	P0008700	P0008700
36	Nipple	N/A	N/A	N/A	P0021200
37	Nipple	P2095900	P0021200	P0021200	P0021200
38	Nozzle orifice, 0.2mm	P2105100	N/A	N/A	N/A
39	Washer, sealing	S2123500	S2123500	S2123500	S2123500
40	Bushing, hex	P0001400	N/A	N/A	N/A
41	Gas Valve O-Rings	R2087200	R2087201	R2087201	R2087201

13.B.11 Gas Train Assembly, Part Numbers (Models 1600, 2000, 2500 and 3000)



Item #	Description	3500 Part No.	4000 Part No.
1	Pressure switch, low gas	R2004100	R2004100
2	Pressure switch, high gas	R2004000	R2004000
3	Elbow, 45°x2"	P2090900	P2090900
4	Nipple, 2"x14"	P2091000	P2091000
5	Union, 2"	P0030800	P0030800
6	Nipple, 2"x6"	P0021700	P0021700
7	Ball valve	R2011600	R2011600
8	Bushing, 2"x1-1/2"	P0001400	P0001400
9	Elbow, 90°x1-1/2"	P0009600	P0009600
10	Nipple, 1-1/2"x2-1/2"	P2096600	P2045300
11	Flange, adjustable shutter	V2022000	V2022000
12	Washer, sealing	S2123500	S2123500
13	Adapter, 1/8FNPTx1/8M	P2089600	P2089600
14	Nipple, 1/8"x close	P0011100	P0011100
15	Tee, 1/8"	P0027100	P0027100
16	Plug, 1/8"	70-236	70-236
17	Bushing, reducing, 1/8x1/4	P2032400	P2032400
18	Pipe, gas inlet	40N6034	40N6034
19	Elbow, 90°x2"	P2091100	P2091100
20	Nipple, 2"x2"	P0021100	P0021100
21	Flange, 2"	V2021900	V2021900
22	Elbow, 90°x1/8"	P2008900	P2008900
23	Tee, 3/8"	P2090600	P2090600
24	Bushing, reducing, 3/8x1/8	P2090700	P2090700
25	Nipple, 3/8"x2"	P2089000	P2089000
26	Ball valve, 3/8"	V2022200	V2022200
27	Pilot regulator	V2022100	V2022100
28	Compression fitting, 1/4" tube	P0004100	P0004100
29	Pilot tube	40N6025	40N6025
30	Gas valve, main	V2021200	V2022300
31	Washer, sealing	S2123500	S2123500
32	Adapter, 1/8FNPTx1/8M	P2089600	P2089600
33	Valve, manual, 1/8x1/8	W2000300	W2000300
34	Adapter, 1/8NPTMx1/4 tube	P2097800	P2097800
35	Plug, 1/8"	70-236	70-236
36	Gas Valve O-Rings	R2087201	R2087201

13.B.12 Gas Train Assembly, Part Numbers (Models 3500 and 4000)

MagnaTherm Boilers and Water Heaters

All Manuals (Install & Operate, Start Up, and Service Manuals) can be downloaded at

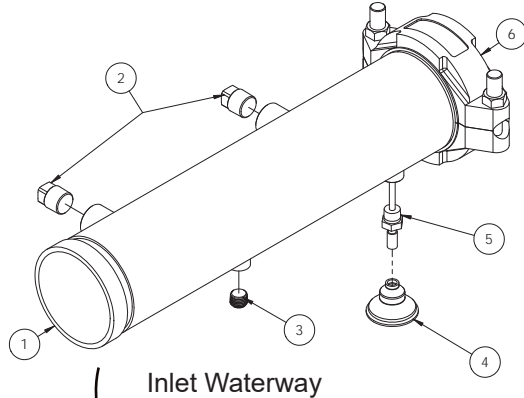


www.laars.com

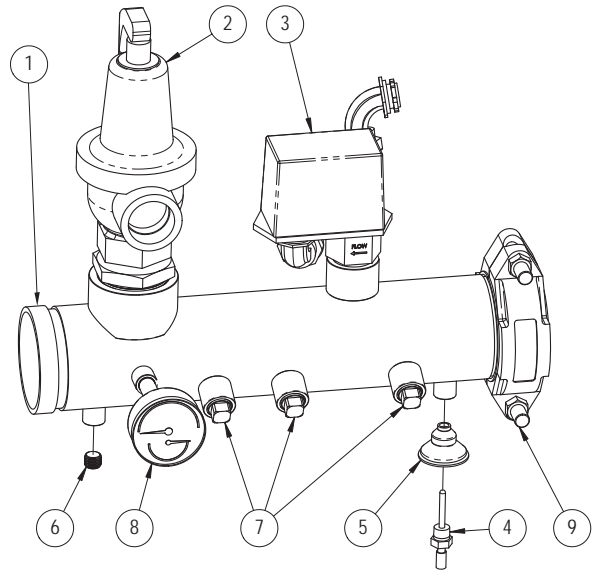
For Laars Product and Service VIDEOS



https://www.youtube.com/user/laarsHeating



Inlet Waterway



Outlet Waterway

ITEM NO.	DESCRIPTION	1600	2000	2500	3000	3500	4000
1	WELDMENT WATERWAY INLET	20N4026	20N4026	20N4026	20N4026	40N4026	40N4026
2	PLUG, SQUARE OR HEX, 1/2" NPT, SS	P2088300	P2088300	P2088300	P2088300	P2088300	P2088300
3	PLUG, PIPE, SS, 1/4" NPT	P2080300	P2080300	P2080300	P2080300	P2080300	P2080300
4	GROMMET, PIPE, MULTI SIZE	S2114000	S2114000	S2114000	S2114000	S2114000	S2114000
5	SENSOR, TEMPERATURE, WATER, 10K	E2395600	E2395600	E2395600	E2395600	E2395600	E2395600
6	COUPLING, VICTAULIC	P2086500	P2086500	P2086500	P2086500	P2086600	P2086600

13.B.13 Inlet Waterway Assemblies, Part Numbers

Item #	Description	1600	2000	2500	3000	3500	4000
1	Pipe, outlet manifold	20N4023	20N4023	20N4023	20N4023	40N4020	40N4020
2	PRV 75# (MGH)	A0002700	A0002700	A0000300	A0000300	A0000703	A0000703
	PRV 125# (MGV)	A0000400	A0000400	A0000200	A0000200	A2124006	A2124006
3	Flow switch	RE0013000	RE0013000	RE0013000	RE0013000	RE0013000	RE0013000
	Flow switch paddle	E2255800	E2255800	E2255800	E2255800	E2255900	E2255900
4	Sensor, water temp	E2395500	E2395500	E2395500	E2395500	E2395500	E2395500
5	Grommet, rubber	S2114000	S2114000	S2114000	S2114000	S2114000	S2114000
6	Plug, 1/4" NPT	P2080300	P2080300	P2080300	P2080300	P2080300	P2080300
7	Plug, 1/2" NPT	P2088300	P2088300	P2088300	P2088300	P2088300	P2088300
8	Gauge, temp & pressure	RA0079000	RA0079000	RA0079000	RA0079000	RA0079000	RA0079000
9	Coupling, rigid, victaulic	P2086500	P2086500	P2086500	P2086500	P2086600	P2086600

13.B.14 Outlet Waterway Assemblies, Part Numbers

Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.



H2388100B



Customer Service and Product Support: 800.900.9276 • Fax 800.559.1583
 Headquarters: 20 Industrial Way, Rochester, NH, USA 03867 • 603.335.6300 • Fax 603.335.3355
 9 Brigden Gate, Halton Hills, Ontario, Canada L7G 0A3 (905) 203-0600 Fax: (905) 636-0666

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