

REPLACEMENT PARTS FOR USED-OIL-FIRED HEATERS

MODELS RA AND RAD (UNIT SIZES 110, 140, 150, 235, 250, 350, AND 500)
MODEL RV (UNIT SIZES 225 AND 325)

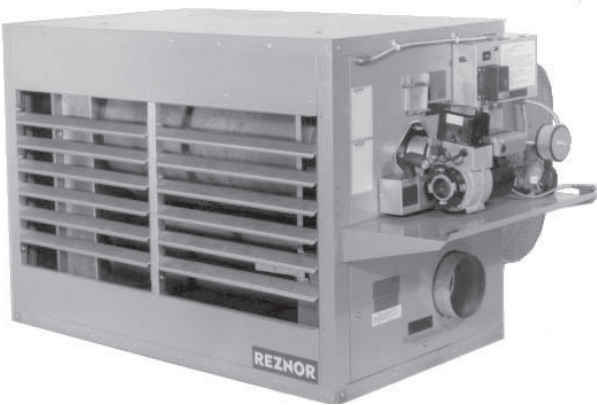


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IMPORTANT

- Always include complete model and serial number so that any specification change can be considered for parts replacement. It can save time and expense.
- In keeping with our policy of continuous product improvement, we reserve the right to alter any information shown here.
- Order by Part Number (PN) not by option designation.

WE RESERVE THE RIGHT TO SUBSTITUTE FUNCTIONAL REPLACEMENTS.

MODEL HISTORY

NOTE: IMPORTANT—Effective 20 JAN 2005, unit size 500 (shown in [Figure 1](#) and listed in [Table 1](#)) was changed from a two-wire (with ground) 240V unit to a three-wire (with ground) 240V unit. The cartridge heaters, air compressor, burner, and hour meter were changed from 240V controls to 115V. Select replacement parts carefully.

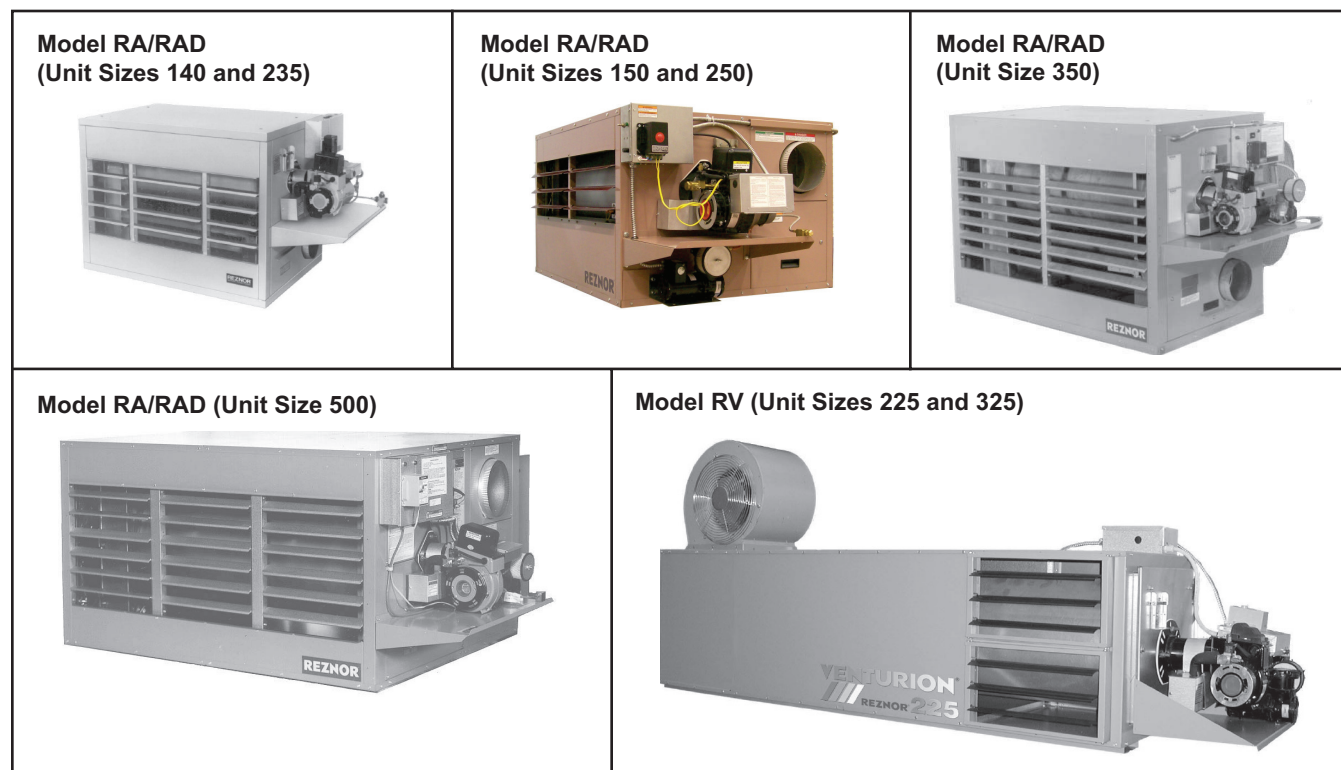


Figure 1. Model RA/RAD/RV Units

Table 1. Model History				
Model	Unit Size	Introduced	Discontinued	Certification
RA, RAD	110	JUN 1990	JUN 1992	UL
	140	1990	MAR 2008	—
	235			
	150	MAR 2008	—	
	250			
	350	DEC 1993		
	500	JUL 1997		
RV	225	NOV 2002	CSA	
	325			

RATING PLATE

REZNOR®
MERCER, PA, U.S.A. 16137
MADE IN MEXICO
MULTI-OIL-FIRED UNIT HEATER

CSA CERTIFIED TO UL STANDARD 296A
 FOR INDUSTRIAL/COMMERCIAL USE ONLY
 FOR USE WITH INTEGRAL GROUP 1 OR 2 PRIMARY SAFETY CONTROLS.
 SUITABLE FOR NO. 2 FUEL AND USED OIL RANGING FROM ATF TO SAE 50.

MODEL [A]
SERIAL NO. ARK350A0000 [B] HP

USE COPPER CONDUCTORS ONLY
 115 VOLTS 1 PH 60 HZ [C] AMPS
 MINIMUM CIRCUIT AMPACITY [D] AMPS
 MAXIMUM UNIT FUSE [E] AMPS
 FOR USE AT [F] FEET
 FIRING RATE [G] G.P.H.
 INPUT [H] BTU/HR
 OUTPUT DEPENDS ON BTU CONTENT OF USED OIL.
 MAXIMUM OVERFIRE PRESSURE [I] IN.W.C.
 EXTERNAL STATIC PRESSURE [J] IN.W.C.
 FLUE OUTLET PRESSURE RANGE (DRAFT) [K] IN.W.C.

THIS UNIT IS FOR INSTALLATION SUSPENDED FROM A CEILING
 WITH CLEARANCES TO COMBUSTIBLES MATERIALS NO LESS THAN...

TOP - [L]" BOTTOM - [N]" SIDES - [P]"
 REAR - [M]" FRONT - [O]" FLUE PIPE - [Q]"

IN CANADA, REFERENCE CSA B139-M91 FOR INSTALLATION IN GARAGES, ETC.
 IN USA, INSTALL UNIT IN ACCORDANCE WITH THE FOLLOWING STANDARDS;
 ANSI/NFPA 409-1990 FOR AIRCRAFT HANGARS
 ANSI/NFPA 88A-1991 FOR PARKING STRUCTURES
 ANSI/NFPA 88B-1991 FOR REPAIR GARAGES
 THIS UNIT [R] WITH AIR DUCTS.
 THIS UNIT IS NOT FOR USE WITH AIR FILTERS.
 REPLACEMENT NOZZLES MUST BE PURCHASED FROM REZNOR

- | | |
|---|--|
| <p>A = Model number</p> <p>B = Horsepower</p> <p>C = Amps</p> <p>D = Minimum circuit ampacity</p> <p>E = Maximum unit fuse</p> <p>F = Altitude range (feet)</p> <p>G = Firing rate (adjusted for altitude)</p> <p>H = Input rate (adjusted for altitude)</p> <p>I = Maximum overfire pressure (IN WC)</p> | <p>J = External static pressure (IN WC)</p> <p>K = Flue outlet pressure range (IN WC)</p> <p>L = Top clearance (inches)</p> <p>M = Rear clearance (inches)</p> <p>N = Bottom clearance (inches)</p> <p>O = Front clearance (inches)</p> <p>P = Side clearance (inches)</p> <p>Q = Flue pipe clearance (inches)</p> <p>R = RAD and RV may be used with discharge duct;
RA may not be used with discharge duct</p> |
|---|--|

SERIAL NUMBER

Serial number format changed in June of 2015. Use the following information to decode system serial numbers:

Decoding a System Serial Number for ALL Models *Before* JUN 2015

Serial No. Sample: ARK 350 A 00000
 Elements of No.: 1 | 2 | 3 | 4

Key:

- 1 = Date of manufacture (refer to [Table 2](#))
- 2 = Size (BTU_h input)
- 3 = A = fan model, D = blower model
- 4 = Consecutive number

Decoding a System Serial Number for ALL Models *After* MAY 2015

Serial No. Sample: BOG 3062 000000
 Elements Key No.: 1 | 2 | 3

Key:

- 1 = Date of manufacture (refer to [Table 2](#))
- 2 = Plant of manufacture (3060 = Mercer, 3062 = Monterrey)
- 3 = Consecutive number

Table 2. Serial Number Date Codes (Month and Year)

Year	Month											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1990	APA	APB	APC	APD	APE	APF	APG	APH	API	APJ	APK	APL
1991	AQA	AQB	AQC	AQD	AQE	AQF	AQG	AQH	AQI	AQJ	AQK	AQL
1992	ARA	ARB	ARC	ARD	ARE	ARF	ARG	ARH	ARI	ARJ	ARK	ARL
1993	ASA	ASB	ASC	ASD	ASE	ASF	ASG	ASH	ASI	ASJ	ASK	ASL
1994	ATA	ATB	ATC	ATD	ATE	ATF	ATG	ATH	ATI	ATJ	ATK	ATL
1995	AUA	AUB	AUC	AUD	AUE	AUF	AUG	AUH	AUI	AUJ	AUK	AUL
1996	AVA	AVB	AVC	AVD	AVE	AVF	AVG	AVH	AVI	AVJ	AVK	AVL
1997	AWA	AWB	AWC	AWD	AWE	AWF	AWG	AWH	AWI	AWJ	AWK	AWL
1998	AXA	AXB	AXC	AXD	AXE	AXF	AXG	AXH	AXI	AXJ	AXK	AXL
1999	AYA	AYB	AYC	AYD	AYE	AYF	AYG	AYH	AYI	AYJ	AYK	AYL
2000	AZA	AZB	AZC	AZD	AZE	AZF	AZG	AZH	AZI	AZJ	AZK	AZL
2001	BAA	BAB	BAC	BAD	BAE	BAF	BAG	BAH	BAI	BAJ	BAK	BAL
2002	BBA	BBB	BBC	BBD	BBE	BBF	BBG	BBH	BBI	BBJ	BBK	BBL
2003	BCA	BCB	BCC	BCD	BCE	BCF	BCG	BCH	BCI	BCJ	BCK	BCL
2004	BDA	BDB	BDC	BDD	BDE	BDF	BDG	BDH	BDI	BDJ	BDK	BDL
2005	BEA	BEB	BEC	BED	BEE	BEF	BEG	BEH	BEI	BEJ	BEK	BEL
2006	BFA	BFB	BFC	BFD	BFE	BFF	BFG	BFH	BFI	BFJ	BFK	BFL
2007	BGA	BGB	BGC	BGD	BGE	BGF	BGG	BGH	BGI	BGJ	BGK	BGL
2008	BHA	BHB	BHC	BHD	BHE	BHF	BHG	BHH	BHI	BHJ	BHK	BHL
2009	BIA	BIB	BIC	BID	BIE	BIF	BIG	BIH	BIJ	BIJ	BIK	BIL
2010	BJA	BJB	BJC	BJD	BJE	BJF	BJG	BJH	BJI	BJJ	BJK	BJL
2011	BKA	BKB	BKC	BKD	BKE	BKF	BKG	BKH	BKI	BKJ	BKK	BKL
2012	BLA	BLB	BLC	BLD	BLE	BLF	BLG	BLH	BLI	BLJ	BLK	BLL
2013	BMA	BMB	BMC	BMD	BME	BMF	BMG	BMH	BMI	BMJ	BMK	BML
2014	BNA	BNB	BNC	BND	BNE	BNF	BNG	BNH	BNI	BNJ	BNK	BNL
2015	BOA	BOB	BOC	BOD	BOE	BOF	BOG	BOH	BOI	BOJ	BOK	BOL
2016	BPA	BPB	BPC	BPD	BPE	BPF	BPG	BPH	BPI	BPJ	BPK	BPL
2017	BQA	BQB	BQC	BQD	BQE	BQF	BQG	BQH	BQI	BQJ	BQK	BQL
2018	BRA	BRB	BRC	BRD	BRE	BRF	BRG	BRH	BRI	BRJ	BRK	BRL
2019	BSA	BSB	BSC	BSD	BSE	BSF	BSG	BSH	BSI	BSJ	BSK	BSL
2020	BTA	BTB	BTC	BSD	BTE	BTG	BTG	BTH	BTI	BTJ	BTK	BTB

OIL PRE-HEATING SYSTEM

NOTES:

- Oil pre-heating system components are shown in [Figure 2](#) and listed in [Table 3](#).
- The oil pre-heating system is located in the box below and behind the burner assembly.
- To remove the heating element (item 9), remove the heater front support and pull the heating element forward.
- The oil is heated as it flows around the cylinder (item 5A).

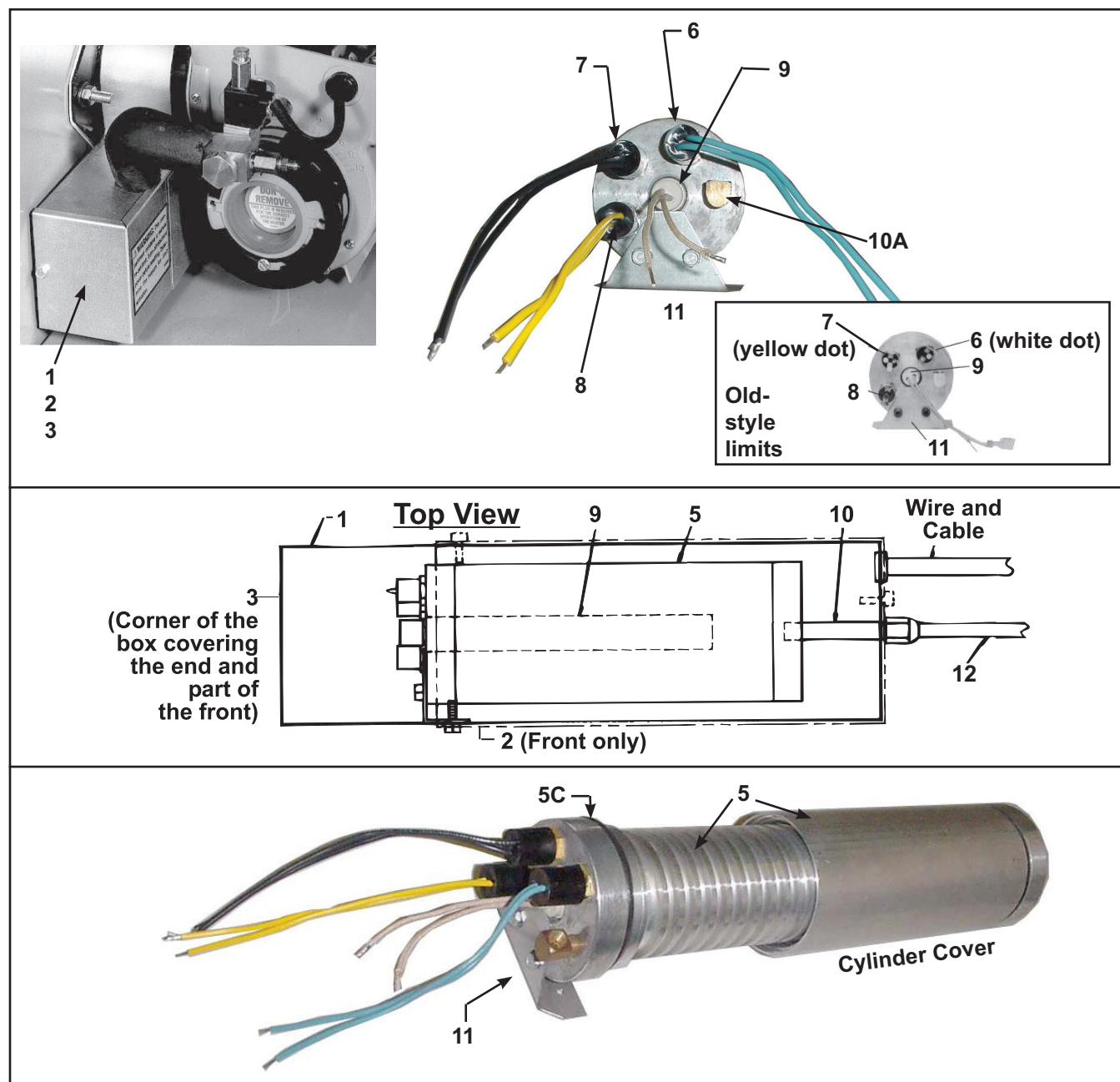


Figure 2. Oil Pre-Heating System Components (Refer to [Table 3](#))

OIL PRE-HEATING SYSTEM—CONTINUED

Item No.	Component	Description	Model			
			RA, RAD		RV	
			Unit Size			
			110, 140, 235, 150, 250	350	500	225, 325
			PN			
1	Box	Fuel heat exchanger	104784			
2	Front	Fuel heat exchanger box	104788			
3	Corner		104789			
4	Band (not shown)	From heat exchanger box around burner tube	179313			
5	Oil heater assembly	Primary	101916			
5A	Cylinder	Two-piece, aluminum	—			
5B	End cap					
5C	Replacement O-ring	For oil heater cylinder	132224			
6	Temperature control	Oil temperature, 170°, Honeywell #2455RPV8755002, white dot (replaces PN 105318)	210761			
7	Temperature limit	Low oil temperature, 155°, Honeywell #2455RPV8755003, yellow dot (replaces PN 105319)	210762			
8		High oil temperature, manual reset, 220°, Honeywell #2455RPV8755001 (replaces PN 105320)	210763			
9	Heating element	Hotwatt #SC75-6, 300-watt	106953	—		106953
		Hotwatt #SC75-6, 650-watt	—	129384	—	
		Hotwatt #SC75-6, 770-watt, 120V (units manufactured <i>after</i> 19 JAN 2005)	—		209190	—
		Hotwatt #SC75-6, 770-watt, 230V (units manufactured <i>before</i> 20 JAN 2005)	—		157048	—
10	Pipe	Copper/brass, 1/8-inch NPT × 2-1/2 inches long	107122			
10A	Elbow	Brass	110291			
11	Support	Heater front	104787			
12	Fuel line	Flexible	107164			

BURNER ASSEMBLY COMPONENTS

NOTES:

- Replacement burners are not available for heaters manufactured *before* JAN 1993 that have a rotary vane compressor.
- Burner assembly components are shown in [Figure 3](#) and listed in [Table 4](#).

Complete replacement burner assemblies are available for the following units that have a piston compressor:

- Model RA/RAD (unit sizes 110 and 140): PN 220311—110 and 140-H (high-altitude) require a nozzle (PN 107310)—effective JUN 2005, 140 burner has a low fire baffle (PN 107028)—if replacing a burner assembly on a unit manufactured *before* JUN 2005, remove the low fire baffle
- Model RA/RAD (unit size 235): PN 123918
- Model RA/RAD (unit size 350): PN 148253

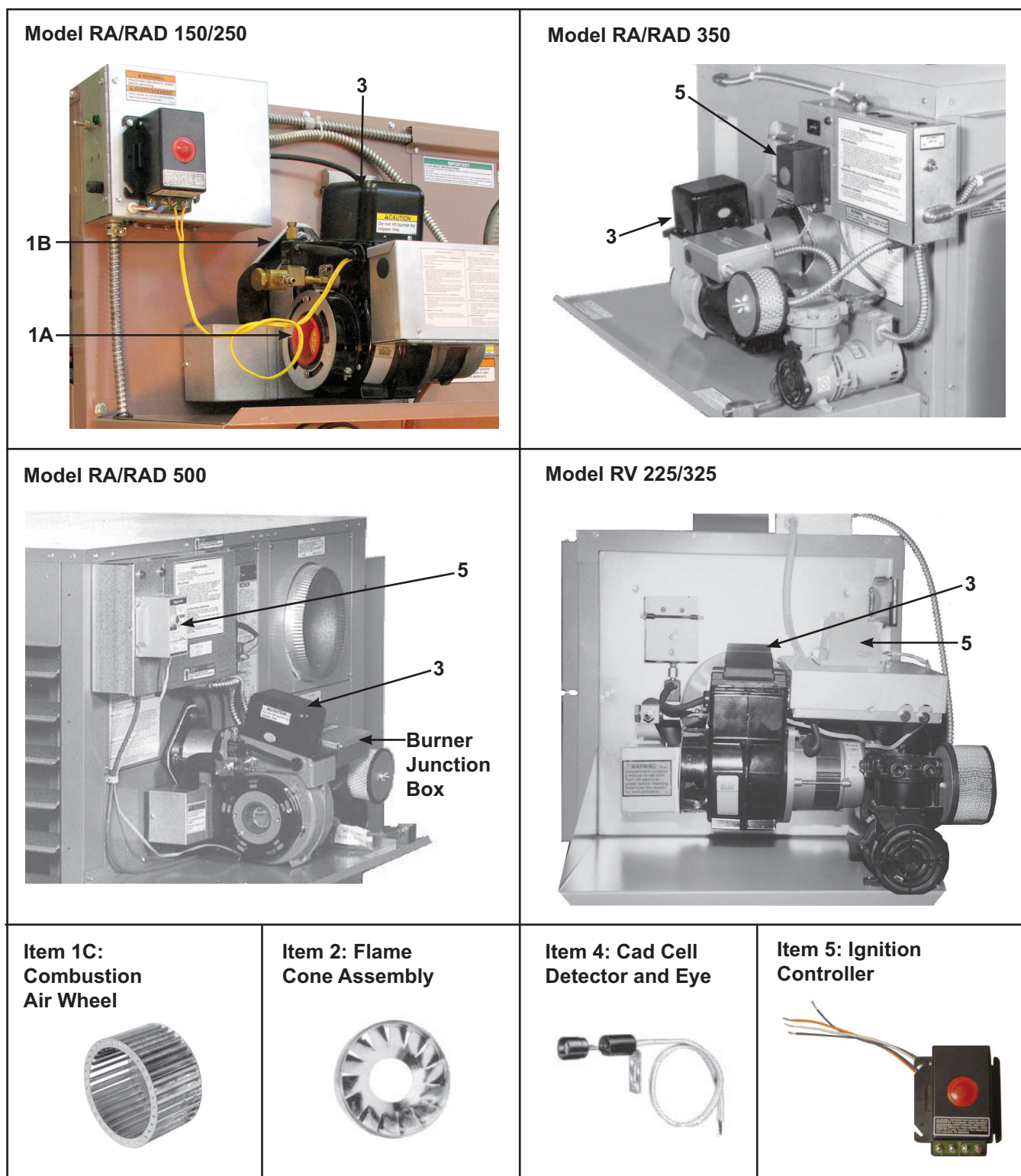


Figure 3. Burner Assemblies/Components (Refer to [Table 4](#))

BURNER ASSEMBLY COMPONENTS—CONTINUED

Table 4. Burner Assembly Components							
Item No.	Component	Description	Model				
			RA, RAD			RV	
			Unit Size				
			110, 140, 150	235, 250	350	500	225, 325
			PN (Quantity)*				
1	Burner housing assembly	Beckett #RZ1401	124981		—	202595	
		Beckett #SF-115V	—		209189	—	
		Beckett #SF-230V			157849		
1A	Hole plug	Burner	111859				
1B	Gasket	Burner assembly, Beckett #31802, between burner assembly and heater panel	103420				
1C	Blower wheel	Combustion air, Beckett #2999	107027		—	107027	
		Combustion air, Beckett #2288U	—		163125	—	
1D	Burner motor	1/7 HP, Beckett #2-456	41598		—	41598	
		115V, Beckett #2364U	—		216341	—	
		230V, Beckett #21173U			163127		
1E	Air guide	Beckett #31231	147096		—	147096	
2	Flame cone	Assembly	104774		131273		
3	Transformer	120V	101332		—	101332	
		115V, Beckett #2289U	—		220627	—	
		230V, Beckett #21176U			220628		
3A	Connector	Electrode/transformer (replaces PN 130347)	137576 (2)				
3AA	Hex nut	#10	26490 (4)				
3B	Gasket		—				
4	Cad cell detector and eye	Honeywell #C554A1794 (replaces PN 101932)	123195				
5	Controller	Ignition, Carlin #42230	208973				
6	Controller replacement kit	Ignition (replaces all controller models)	170188				
*Quantity is one (1) unless otherwise indicated.							
**For units with piston air compressor only.							

BURNER FUEL LINE COMPONENTS

NOTES:

- Burner fuel line components are shown in [Figure 4](#) and listed in [Table 5](#).
- The oil solenoid valve (item 2) is to be piped as follows: port 1 to the secondary strainer assembly (item 1), port 2 to the fuel connection assembly (item 3), and port 3 to the hex head plug (item 2A). Install sleeving (item 2B) around the solenoid valve wires.
- Wrap insulation (item 4A) around the copper tubing assembly (item 4).
- The inlet heater (see [Figure 4](#)), fuel connection nut (item 3A), and chase nipple (item 3B) are located inside the burner housing assembly.
- All connections are to be tight and leak-free.

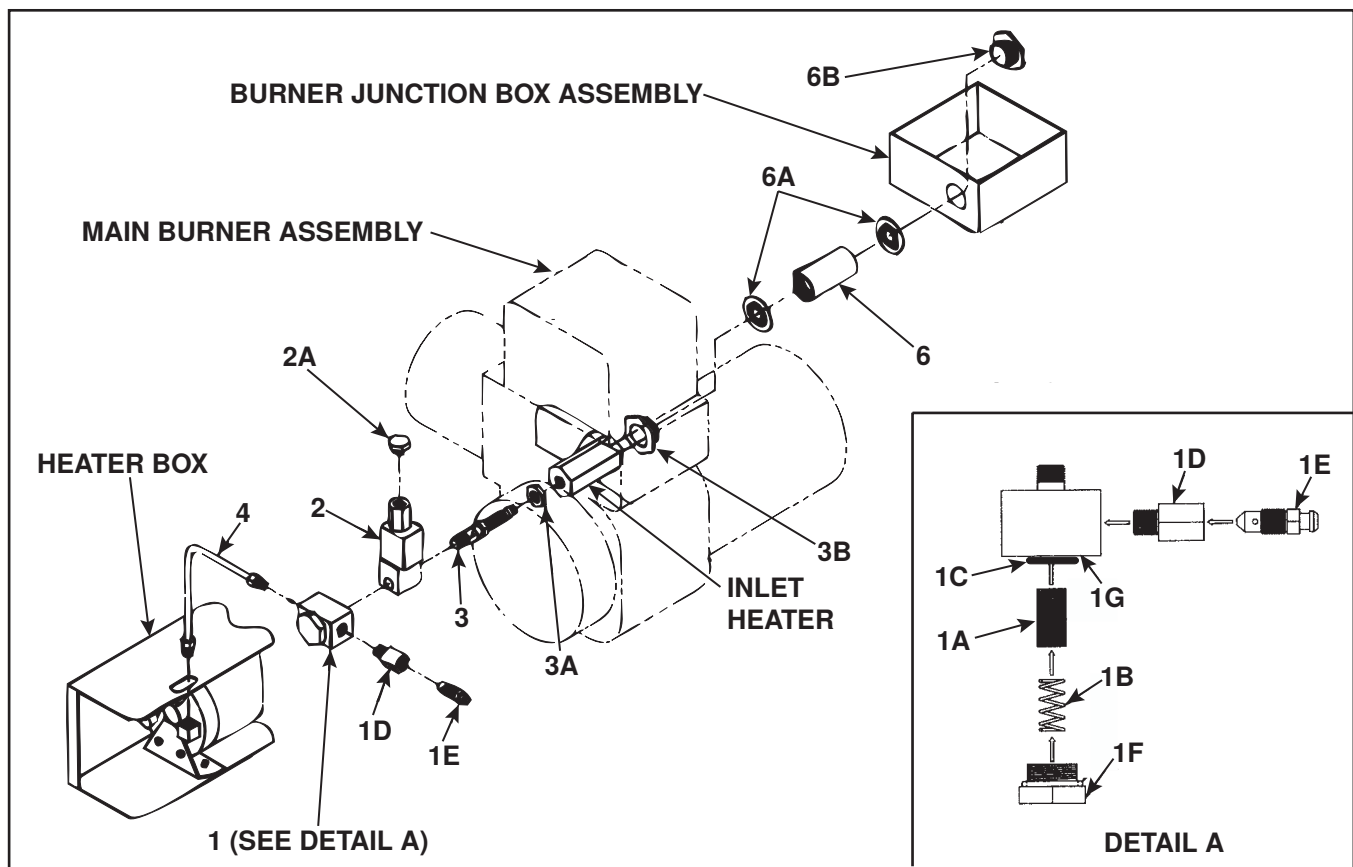


Figure 4. Burner Fuel Line Assembly (Refer to [Table 5](#))

Table 5. Burner Fuel Line Components			
Item No.	Component		PN
1	Secondary strainer	Assembly	110233
1A	Screen	7/16 diameter x 7/8 long	110236
1B	Spring	Associated Spring #CO390-043-0810-M	110235
1C	O-ring	AS 568-113, Viton	110237
1D	Bleeder adapter		113795
1E	Bleeder		113796
1F	Plug		107371
1G	Tee		107341
2	Solenoid valve	Oil, Asco #U8325B7V	110177
2A	Plug	Hex head, 7/8	—
2B	Sleeving	Varglas, #4 x 4 long	107312
3	Fuel connection	Assembly	120288
3A	Nut	Fuel connection	104835
4	Tubing assembly	Copper	110290
4A	Insulation	Foam rubber, 3/8 ID x 1/2 wall x 4-3/4 long (not shown)	107121
5	Fuel line	Flexible	107164
5A	Connection	Fuel inlet	120864
5B	Bracket	Fuel inlet connection (RV models only)	202817
6	Coupling	Conduit	—
6A	Lockwasher	Internal tooth, 7/8	
6B	Nipple	Chase	

NOZZLE/FUEL LINE ASSEMBLY COMPONENTS

NOTES:

- Nozzle/fuel line components are shown in [Figure 5](#) and listed in [Table 6](#).
- Remove the silicone rubber from the inlet heater block (item 6) to free the inlet-watt heater element (item 5). Use silicone rubber to retain the replacement element.
- The nozzle adapter (item 13) also contains a heater element. To replace that element: 1) remove the buss bars, 2) unscrew the inlet heater and slide the black insulation rearward, and 3) loosen the setscrew that retains the static plate and slide rearward to expose the heater element.

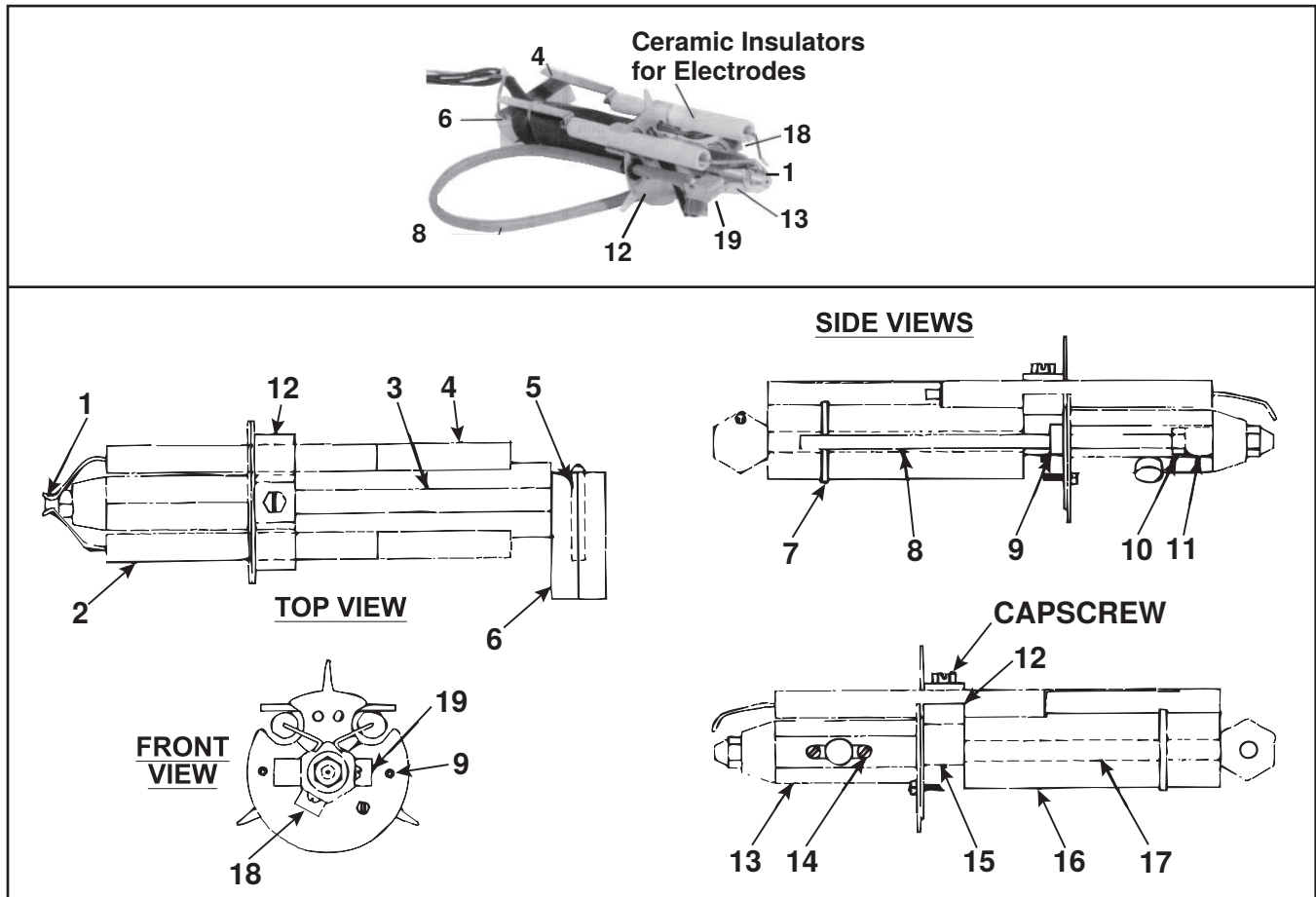


Figure 5. Nozzle/Fuel Line Assembly (Refer to [Table 6](#))

Table 6. Nozzle/Fuel Line Assembly Components

Item No.	Component	Description	Model						
			RA, RAD					RV	
			Unit Size						
			110	140, 150	235, 250	350	500	225	325
			PN (Quantity)*						
—	Assembly	Nozzle/fuel line	107116	107117	107117	130648	157851	207450	107117
1	Nozzle	Delavan, sea level	107310	102997	102997	129382	157041	129382	102997
		Delavan, 3001–7000 feet	—	107310	102997	129382	—	—	—
		Delavan, >7000 feet	—	—	102997	—	—	—	—
1A	O ring	Nozzle , Delavan #31351-3	123399	123399	123399	123399	123399	123399	123399
2	Electrode assembly	Replacement kit, Crown Eng #27195-02 (includes both electrodes)	269820	269820	269820	269820	269820	269820	269820
3	Sleeving	Varglas, #1 × 6 long	90511	90511	90511	90511	90511	90511	90511
4	Buss bar	Crown Eng #271968	107213 (2)					107213 (2)	
5	Inlet heater element	Hotwatt, 115V	106952 (2)				—	106952 (2)	
		Hotwatt, 115V (units manufactured after 19 JAN 2005)	—				106952 (2)	—	
		Hotwatt, 230V (units manufactured before 19 JAN 2005)	—				157049 (2)	—	
6	Heater block	Inlet	120287	120287	120287	120287	120287	120287	120287
7	Cable tie	Ty-Rap®, 6 inches long, T&B #TY-24M	20913	20913	20913	20913	20913	20913	20913
8	Tubing	Silicone rubber, air manifold to nozzle and air manifold to pressure switch	107118 (2)			130673 (2)		107118 (2)	
9	Snap bushing	Heyco #SB-500-6	29871 (2)						
10	Tubing	Barbed fitting, 1/8 IP × 1/4	106396	106396	106396	106396	106396	106396	106396
11	Elbow	Street, 1/8 NPT, brass	110314	110314	110314	110314	110314	110314	110314
12	Static plate	Assembly, with electrode clamps	106176	106176	106176	106176	106176	106176	106176
13	Adapter	Nozzle	104766	104766	104766	104766	104766	104766	104766
14	Machine screw	Sems, 6-32 × 1/4 long	107119 (4)					107119 (4)	
15	Setscrew	1/4-20 × 3/8 long	110942	110942	110942	110942	110942	110942	110942
16	Insulation	Foam rubber, 3/8 ID × 1/2 wall × 4-3/4 long	107121	107121	107121	107121	107121	107121	107121
17	Pipe	1/8 NPT × 6 long, copper/brass	106186	106186	106186	106186	106186	106186	106186
18	Temperature limit	Low oil temperature, 145°, black wires, Honeywell #2455RBV81170362 (replaces PN 124038)	210764	210764	210764	210764	210764	210764	210764
19	Control	Nozzle temperature, 160°, red wires, Honeywell #2455RBV81170363 (replaces PN 124039)	210765	210765	210765	210765	210765	210765	210765

*Quantity is one (1) unless otherwise indicated.

*Quantity is one (1) unless otherwise indicated.

BURNER COMPRESSED AIR SYSTEM COMPONENTS

NOTES:

- Burner compressed air system components are shown in [Figure 6](#) and listed in [Table 7](#).
- Use a non-Teflon based pipe thread compound on all threaded fittings. All connections are to be airtight and leak free.

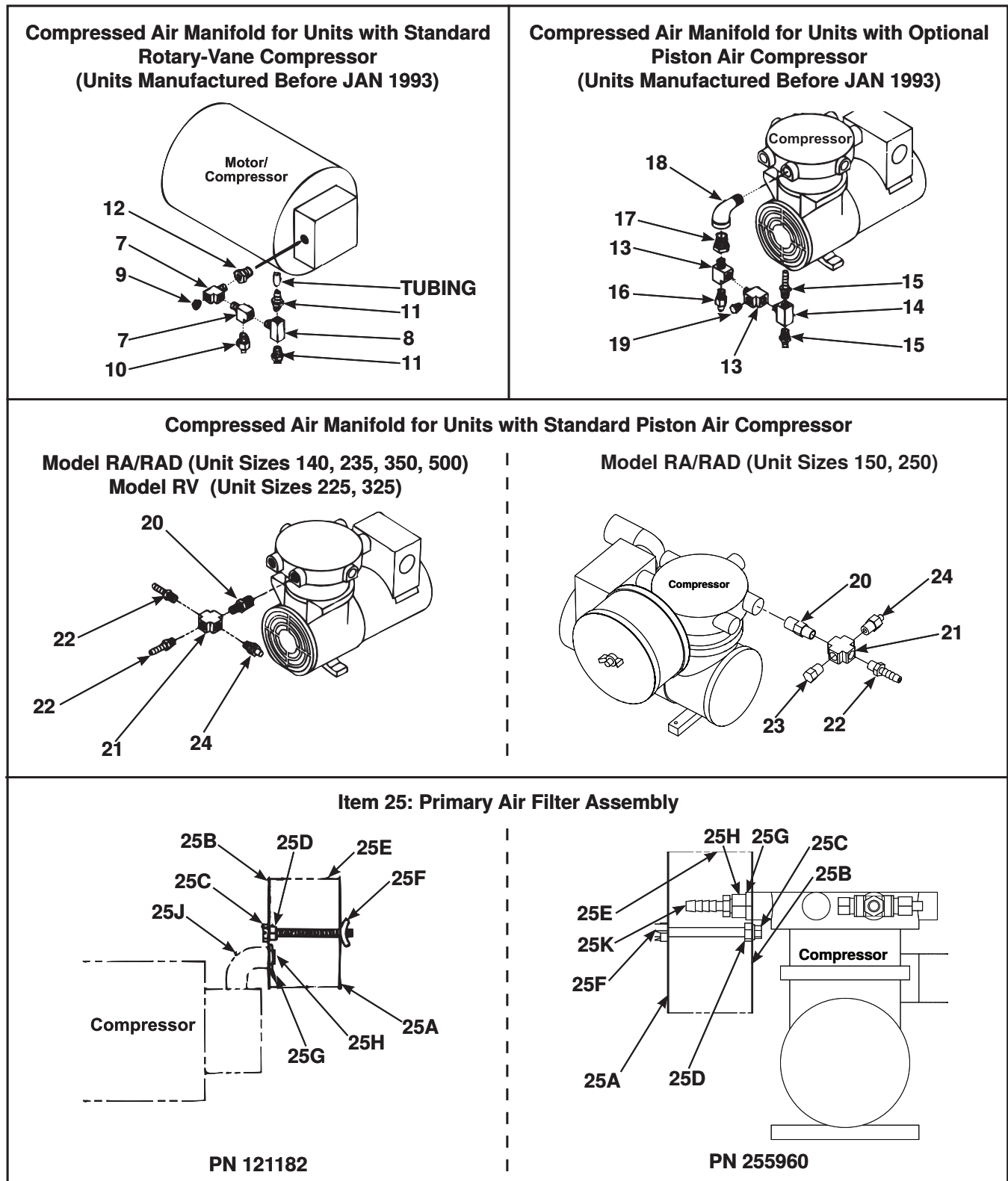


Figure 6. Compressed Air Manifolds and Primary Air Filter Assemblies (Refer to [Table 7](#))

Table 7. Burner Compressed Air System Components—Continued

Item No.	Component	Description	Model								
			RA, RAD						RV		
			Unit Size								
			110	140	235	150	250	350	500	225	325
			PN (Quantity)*								
Compressed Air System											
1	Air compressor	Piston-type, 115V, Gast #86R130-115-N270X	1012072		1012072		—		1012072		
		Piston-type, 115V, Gast #86R130-115-N270X (units manufactured <i>after</i> 19 JAN 2005)	—		—		1012072	—			
2		Replacement piston-type air compressor, 230V (units manufactured <i>before</i> 20 JAN 2005)	—		—		258223	—			
3	Retrofit kit	For compressor (order replacement compressor separately), refer to retrofit kit instructions provided with kit (also found at www.reznorhvac.com)	—	1021115	1021116		1021115		1021116	1021115	
4	Repair kit	For piston compressor, Gast #K401	122876		122876			122876			
5	Capacitor	Air compressor, 115V (units manufactured <i>after</i> 19 JAN 2005)	130390		130390		130390	130390			
		Air compressor, 230V (units manufactured <i>before</i> 20 JAN 2005)	—		—		204267	—			
6	Machine screw	1/4-20 × 8 long, with external tooth washer (secures rotary vane compressor to blower housing)	110984 (2)		110984 (2)		—		—		
Compressed Air Manifold for Units with Standard Rotary-Vane Compressor (Units Manufactured <i>Before</i> JAN 1993)											
7	Tee	Street, 90-degree, 1/8 NPT, brass	96810 (2)		—						
8		Branch, 1/8 NPT, brass	96809								
9	Pipe plug	1/8 NPT, brass	110287								
10	Brass orifice	1.2 mm, 0–3000 feet elevation	63003	—							
		#54, 0–3000 feet elevation	—	11834							
		#56, >3001 feet elevation (unit size 235 only)	—	39658							
11	Barbed fitting	1/8 NPT × 1/4	106396 (2)								
12	Bushing	Hex, 1/4 × 1/8 NPT, black iron	87022								
Compressed Air Manifold for Units with Optional Piston Air Compressor (Units Manufactured <i>Before</i> JAN 1993)											
13	Tee	Street, 90-degree, 1/8 NPT, brass	96810 (2)		—						
14		Branch, 1/8 NPT, brass	96809								
15	Barbed fitting	1/8 NPT × 1/4	106396	—							
16	Air bleed orifice	#68, 0–3000 feet elevation	121359	—							
		#65, 0–3000 feet elevation	—	16588							
		#68, >3000 feet elevation (unit size 235 only)	—	121359							
17	Bushing	Hex, 1/4 × 1/8 NPT, black iron	87022								
18	Elbow	Street, 90-degree, 1/4	107223								
19	Pipe plug	1/8 NPT, brass	110287								

*Quantity is one (1) unless otherwise indicated.

*Quantity is one (1) unless otherwise indicated.

BURNER COMPRESSED AIR SYSTEM COMPONENTS—CONTINUED

Table 7. Burner Compressed Air System Components—Continued											
Item No.	Component	Description	Model								
			RA, RAD							RV	
			Unit Size								
			110	140	235	150	250	350	500	225	325
PN (Quantity)*											
Compressed Air Manifold for Units with Standard Piston Air Compressor											
20	Reducer	Hex nipple	—	126593	126593				126593		
21	Cross			126592	—	126592			126592		
22	Hose barb			106396 (2)	106396		106396 (2)		106396 (2)		
23	Plug			—	110234		—		—		
24	Air bleed orifice	#65, 0–3000 feet elevation		16588	16588		—		16588		
		#68, 0–3000 feet elevation		—		121359	—	—			
		#70, 0–3000 feet elevation				—	132349				
		#68, 3001–7000 feet elevation				—					
		#70, 3001–7000 feet elevation				132349	—				
		#68, >7000 feet elevation				—	121359		—		
25	Air filter	Assembly, primary		121182	255960		121182		121182		
25A	Disk	Outer rear		107217	107217				107217		
25B		Inner front		107218	107218				107218		
25C	Bolt	Hex head 1/4-20 × 3 long		10653	10653				10653		
25D	Hex nut	Keps, 1/4-20		7328	7328				7328		
25E	Air filter	Wix #42374		107216	107216				107216		
25F	Wing nut	1/4-10		107246	107246				107246		
25G	Nut			110628	110628				110628		
25H	Hex bushing	1/4 x 1/8 (units manufactured <i>after</i> APR 1995)		87022	87022				87022		
25J	Elbow	Street, 90-degree, 1/4 (units with rotary-vane compressor only)		107223	—		107223		—		
25K	Barbed fitting	1/8 NPT × 1/4		—	106396		—				

*Quantity is one (1) unless otherwise indicated.

*Quantity is one (1) unless otherwise indicated.

REMOTE PUMP AND SUCTION LINE COMPONENTS

NOTES:

- Remote pump and suction line components are shown in [Figure 7](#) and listed in [Table 8](#).
- Depending on the unit's date of manufacture, its actual appearance may vary from [Figure 7](#).
- Depending on the unit's date of manufacture, the remote pump is either controlled by a gear motor or by a belt-drive motor. On units manufactured *after* 19 JAN 2005, the gear motor (items 14, 15, and 16) has been replaced by a pulley motor using a replacement kit (item 2).
- The vacuum gauge (item 24) must be installed in an upright position.
- The hour meter (item 27) is located on the main electrical box on units manufactured *before* JAN 1996. On units manufactured *after* DEC 1995, the hour meter is located on the remote pump enclosure.

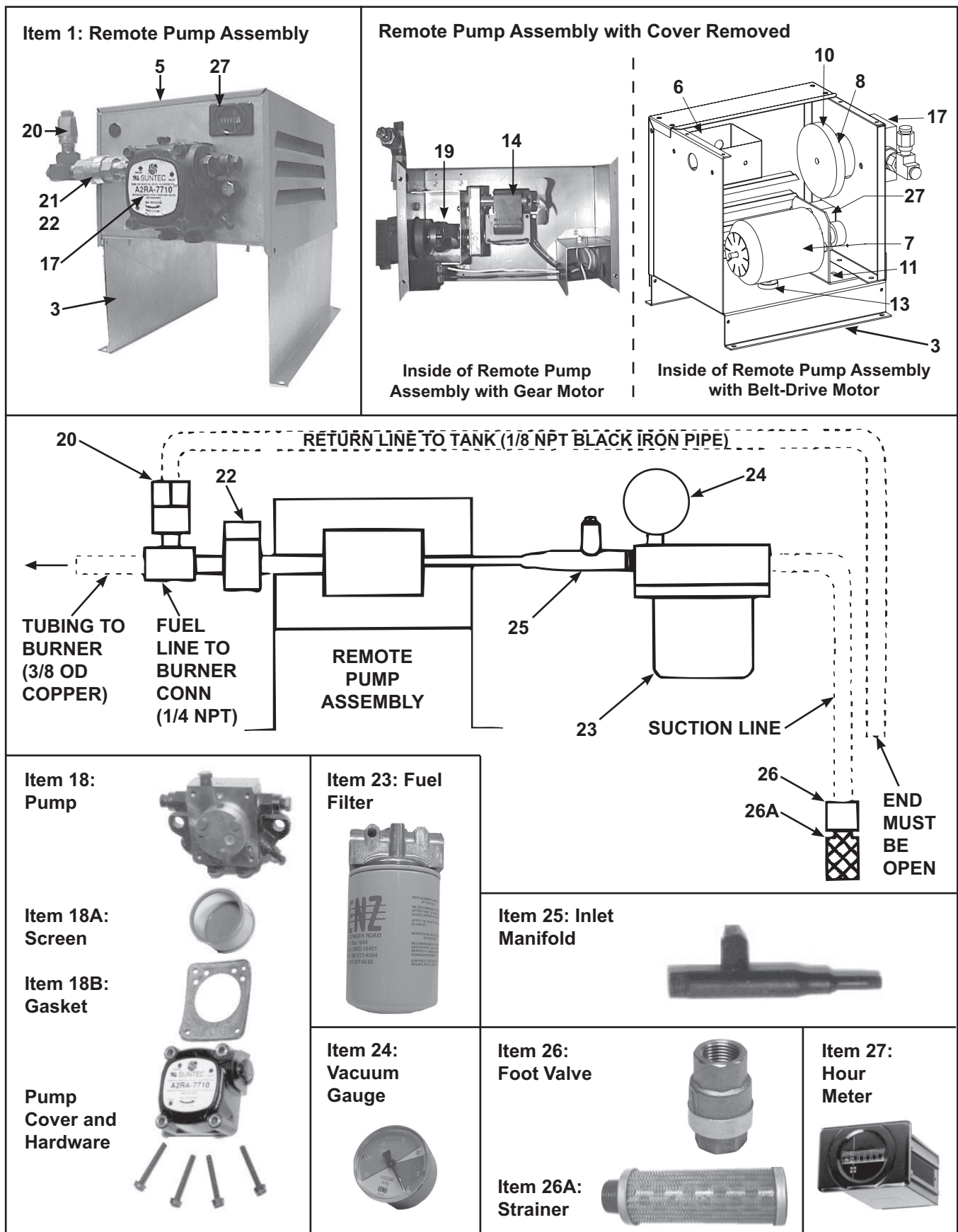


Figure 7. Remote Pump and Suction Line Components (Refer to [Table 8](#))

REMOTE PUMP AND SUCTION LINE COMPONENTS—CONTINUED

Table 8. Remote Pump and Suction Line Components

Table 8. Remote Pump and Suction Line Components												
Item No.	Component	Description	Model									
			RA, RAD								RV	
			Unit Size									
			110	140	150	235	250	350	500	225	325	
			PN									
1	Remote pump assembly with belt-drive motor	0–3000 feet elevation	—	209566	234886	209569	234887	209572	209574	209582	209571	
		3001–7000 feet elevation		209567		209568		209573	—	—		
		>7000 feet elevation		—		209570		—		—		
2	Replacement kit*	0–3000 feet elevation		211056	—	211059	—	211062	211064	211058	211061	
		3001–7000 feet elevation		211057	—	211067	—	211063	—	—		
		>7000 feet elevation		—		211060	—		—			
3	Pump enclosure	Replacement parts for remote pump assembly with belt-driven motor		209198		209198				209198		
4	Fixed cover	Pump		209408		209408				209408		
5	Access cover	Pump		209407		209407				209407		
6	Top divider	Electrical box		209195		209195				209195		
7	Motor	Pump		208473		208473				208473		
7A	Motor sheave	0–3000 feet elevation		209134	209136	209137	234867	209139	209141	209134	209138	
		3001–7000 feet elevation		209135		209134		209140	—	—		
		>7000 feet elevation		—		209136		—		—		
7B	Capacitor	Motor, 4µF		163894		163894				163894		
8	Belt	Motor	209146	209150	209147	209148	209149	209150	209147	209148		
9	Fan	Cooling	131600		131600				131600			
10	Pulley	Pump	209143	234866	209144		209145		209144			
11	Bracket	Belt-drive motor	209196		209196				209196			
12	Bore reducer	For remote pump with belt-driven motor	—		—				209142	—		
13	Bumper	Rubber	217024		217024				217024			
14	Replacement gear motor for remote pump, Grainger	3001–7000 feet elevation	—			—		131640	—	—		
		>7000 feet elevation	—			111854	—		—			
15	Replacement gear motor for remote pump, Merkle-Korff	0–3000 feet elevation	106946	116159	—	106945	—	129381	—	112707	202935	
		3001–7000 feet elevation	—	106946		112707	—			—		
15A	Bearing assembly	Replacement, Merkle-Korff	149173			149173	—	149173	—	149173		
15B	Fan impeller	Replacement, Merkle-Korff, blue	205424			205424	—			205424	—	
16	Replacement gear motor for remote pump, Rex Eng	0–3000 feet elevation	—			—			201950	—		
16A		Gear motor	—			—			157044	—		
16B		Capacitor	—			—			174680	—		
17	Gear motor bracket	0–3000 feet elevation	113440		—	113440	—	113440	157907	113440		
		3001–7000 feet elevation	—	113440				131632	—	—		
		>7000 feet elevation	—					113503	—		—	
18	Oil pump	Suntec #A2RA-7710	107032		107032				107032			
18A	Screen	Oil pump, Suntec #3715747	123450		123450				123450			
18B	Gasket	Oil pump, Suntec #3779801	123451		123451				123451			
19	Flexible coupling	5/16, Beemer #5802 (for pump assembly with gear motor)	112042		112042				112042			
20	Relief valve	In-line, 50 psi, Circle Seal #532B-2MP-50	106947		106947				106947			
21	Solenoid valve	Pump (replaced in JUL 1999 by PN 175263)	110177 (replaces PN 107029)		110177 (replaces PN 107029)				157046	—		
22	Check valve	1/4, Valstop #H141	175263		175263				175263			
22A	Reducer	1/4 to 1/8	126593		126593				126593			
22B	Flat washer	5/16	1087		1087				1087			
22C	Hole plug	9/16	82433		82433				82433			
*Used for changing the remote pump assembly from a gear motor to a belt-drive motor.												

*Used for changing the remote pump assembly from a gear motor to a belt-drive motor.

Table 8. Remote Pump and Suction Line Components—Continued

Item No.	Component	Description	Model								
			RA, RAD							RV	
			Unit Size								
			110	140	150	235	250	350	500	225	325
			PN								
23	Fuel filter	Assembly, Lenz #CP-750-100	96388			96388			96388		
23A	Cartridge	Fuel filter	176535			176535			176535		
23B	O-ring	Fuel filter	102294			102294			102294		
24	Vacuum gauge	NoShok #GV-10 (replaces PN 126595)	135080			135080			135080		
25	Manifold	Inlet	131792			131792			131792		
26	Foot valve	2/3 NPT, Valstop #60020	110320			110320			110320		
26A	Strainer	Foot valve, #2-1/2N 30	136864			136864			136864		
27	Meter**	Hour, 115V, Redington #711-0109	—	119983		119983			—	119983	
		Hour, 115V, Redington #711-0109 (units manufactured after 19 JAN 2005)	—		—			119983	—		
		Hour, 230V (units manufactured before 20 JAN 2005)						157687			

*Used for changing the remote pump assembly from a gear motor to a belt-drive motor.

On units manufactured **after DEC 1995, the hour meter is located on the remote pump enclosure. On units manufactured **before** JAN 1996, the hour meter is located on the main electrical box.

ELECTRICAL BOX ASSEMBLY COMPONENTS

NOTES:

- Electrical box assembly components are shown in [Figure 8](#) and listed in [Table 9](#).
- Depending on the unit's date of manufacture, its actual appearance may vary from [Figure 8](#).
- The unit's wiring diagram is affixed inside the cover (item 1C) of the main electrical box (item 1).

ELECTRICAL BOX ASSEMBLY COMPONENTS—CONTINUED

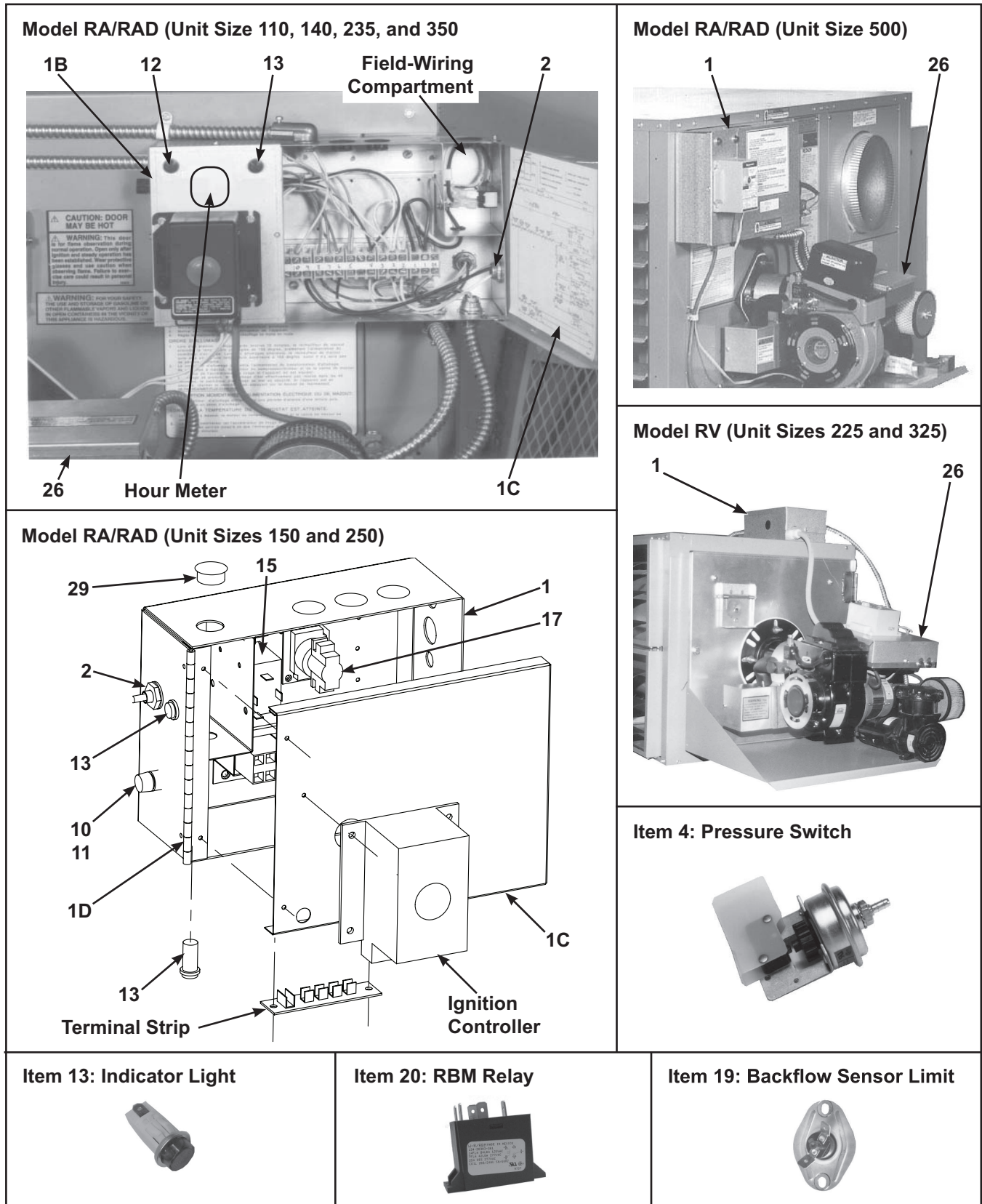


Figure 8. Electrical Box Assemblies and Components (Refer to [Table 9](#))

Table 9. Electrical Box Assembly Components

Item No.	Component	Description	Model						Location		
			RA, RAD				RV				
			Unit Size								
			110	140, 235	150, 250	350	500	225		325	
			PN (Quantity)*								
1	Main electrical box	Control	104776		234909	104776	157137	202601		Varies†	
1A	Gasket**	Electrical control box	—		—		215734		Main electrical box		
1B	Fixed cover	Electrical box	104781		—	104781	157968	—			
1C	Hinged or removable cover	Electrical box	104780		220744	104780	157969	202813			
1D	Hinge	Electrical box cover	—		20965	—		—			
2	Main control disconnect switch	DPST, 20A, 250V (replaces PN 104840)	158203	—		158203	—	158203		—	Main switch box
		DPST, 20A, 240V, Cutler-Hammer #7599K1 (model RA)	—				—	158203	—		
		DPST, 30A, 240V, Bryant #30002 (model RAD)					—	158204			
		DPST, 20A, 240V, Cutler-Hammer #7599K1 (model RA)					—				
3	Main switch box	Control (model RAD)	—		—	158205	—		End of main electrical box		
3A	Cover	Main switch box (model RAD)			—	158206					
4	Pressure switch	Tridelta #FS3440-893			104841	—		—		104842	
		Tridelta #FS3440-894	—	104842							
4A	Dampening orifice	For pressure switch, 0.028-inch, red (units with piston compressor)	121726			121726		121726			
5	Bushing	Open/closed, Heyco #OCB-562	98394			98394		98394		Main electrical box	
6	Cable clamp	1/4-inch, Heyco #3324	52961			52961		52961			
7	Dart fastener	TRW #PC47307EVZ001	101798			101798		101798			
8	Cable tie	Ty-Rap®, 6-inch-long, T&B #TY-24M	20913		20913		—				
			—		—		20913		Burner junction box		
9	Fuse	MDL8 (units with rotary vane compressor)	38636		—	—		—		Main electrical box	
10		10MDA	121355		121355		—				
11	Fuse holder		60241			60241		—		Main electrical box	
			—			—		60241		Burner junction box	
12	Indicator light	Red, Wesco #1050QC1IDI	147346			147346		—		Main electrical box	
		Red, Wesco #1050QC1IDI (units manufactured before APR 2003)	—			—		147346		Burner junction box	
13		Green, Industrial Devices #105QC5	123460			123460		—		Main electrical box	
			—			—		123460		Main electrical box and burner junction box	
14	Ground wire	Assembly	122114			122114		122114		Main electrical box	
15	Post-purge burner relay	SPDT, 120V coil (units manufactured before 20 JAN 2005)	102385			102385	—	102385			
		SPDT, 120V coil (units manufactured after 19 JAN 2005)	—			—	102385	—			
15A	Replacement kit	Post-purge burner relay, SPDT, 230V coil (units manufactured before 20 JAN 2005)				263529					

*Quantity is one (1) unless otherwise indicated.

**Required when replacing time delay relay (item 17, PN 203270) with PN 215773, a gasket (item 1A is required. Loosen the electrical box, install the gasket, and re-attach the box.

†Located on the burner end for RA and RAD models and on top of the heater for RV models.

††Located in the main electrical box for RA and RAD models (unit sizes 110, 140, 235, 350, and 500) and in the burner junction box for RA and RAD models (unit sizes 150 and 250) and for RV models.

ELECTRICAL BOX ASSEMBLY COMPONENTS—CONTINUED

Table 9. Electrical Box Assembly Components —Continued										
Item No.	Component	Description	Model						Location	
			RA, RAD				RV			
			Unit Size							
			110	140, 235	150, 250	350	500	225		325
			PN (Quantity)*							
16	Time delay relay	Fan, TI 60704A (discontinued MAY 1996)	—	141675	—	141675	141675	—		Main electrical box
17		120V coil, 30–90 seconds(units manufactured before APR 2006)†	—					203270	—	
		120V coil, 40–50 seconds (units manufactured after MAR 2006)†	—	215773	—		215773			
		120V coil, on 45 seconds	—			—		221479		
18	Connector receptacle	For backflow sensor	144424			144424		—		Main electrical box
19	Limit	Backflow sensor, 275°F, TOD #36TX46	121275			121275		—		Viewport bracket
			—			—		121275		Burner door
20	RBM relay	Backflow sensor, 120V coil, Products Unltd #9400-04T180	102385			102385		—		Main electrical box
		Backflow sensor, 120V coil, Products Unltd #9400-04T180 (units manufactured before APR 2003)	—			—		102385		
21	Cable assembly	Backflow sensor	144701			144701		—		From main electrical box to sensor on viewport
22	Cable bracket	Backflow sensor	144435			144435		—		Rear of unit
23	Contactora†	25A, 125V coil	—			—	157955	—		Main electrical box
23A	Enclosure	Contactora	—			—		—	93917	
23B	Cover	Contactora enclosure	—			—		—	120302	
24	Terminal block	1-1/4-inch-long	144972			144972		144972		Main electrical box and burner junction box
24A	Marking strip	Terminal block, 1-1/4-inch-long	21831			21831		21831		
25	Wire/cable assembly**		175635	254006	175635	175636 175637	—		From main electrical box to burner junction box	
25A	Disconnect cable	Burner	—			—		208072		202478
25B	Receptacle	Burner disconnect cable	—			—		202479		
26	Junction box	Burner	174713	223127	174713	174713	202082		Burner assembly	
26A	Cover	Burner junction box	174714	223128	174714	174714	202814		Burner junction box	
26B	Bushing	Strain relief, 7/8, Heyco #SR-7W2	16835 (2)		16835 (2)		16835 (2)			
27	Junction box	Blower/fan, 2 × 4, T&B #58361-1/2	17782		17782 (2)	17782	—		Rear of heater	
			—		—		17782			
			17800		17800 (2)	17800	—			
27A	Cover	Blower/fan junction box, Steel City #58C1	—		—		17800		Top of heater	
27B	Bushing	Strain relief, Heyco #SR-6N3-4	100393		100393		—		Blower/fan junction box	
28	Adapter	Heyco #7572	107165		107165		—			
29	Hole plug	7/8, Heyco #DP-875	16452		16452		16452		Varies	
30	Transformer	50VA, Hevi-Duty SMT #T050 (units manufactured before 20 JAN 2005)	—		—	157952	—		Rear of unit	
*Quantity is one (1) unless otherwise indicated.										
†On units manufactured before 20 JAN 2005, used on both RA and RAD model units. On units maufactured after 19 JAN 2005, used on RA models only.										
**Replaces the quick disconnect cable on unit sizes 110 and 140. When replacing the quick connect with item 25, order the junction box (item 26) and cover (item 26A) also.										

LIMIT AND FAN/BLOWER CONTROL COMPONENTS

NOTES:

- Controls and their access locations are listed in [Table 10](#) and shown by model and unit size as follows:
- Individual components are shown in [Figure 9](#).
- Model RA/RAD (Unit Sizes 110, 140, and 235): [Figure 10](#)
- Model RA/RAD (Unit Sizes 150 and 250): [Figure 11](#)
- Model RA/RAD (Unit Size 350): [Figure 12](#)
- Model RA/RAD (Unit Size 500): [Figure 13](#)
- Model RV (Unit Sizes 225 and 325): [Figure 14](#)
- Components are listed in [Table 11](#).

Table 10. Limit and Fan/Blower Control Locations and Access Instructions

Component	Location	Access Instruction	Model (Unit Size)	Figure Reference
Limit and fan/blower control assembly*	Rear of heater	Loosen access panel	RA, RAD (110, 140, 235)	Figure 10
		Control assembly will be visible		
Fan failure limit	Above fan/motor assembly	Remove fan/motor assembly	RA (150)	Figure 11
	Behind fan guard	Remove fan guard	RA (250)	
	Above blower	Remove fan guard	RAD (150, 250)	
High temperature limit control	Behind spring-mounted louver	Remove spring-mounted louver	RA, RAD (350)	Figure 12
Limit and fan/blower controls	Side of turning box end	Remove outer access panel		
Limit control(s)	On exhaust box	Through discharge louvers		
Control assembly mounting plate	Under burner service tray	Remove access panel under burner service tray	RA, RAD (500)	Figure 13
Automatic limit control	Turning box end	Through louvers		
Limit and blower controls	On top of heater	Loosen warning plate	RV (225, 325)	Figure 14

*The complete assembly (mounting plate with three attached controls) must be replaced to ensure future safe operation.

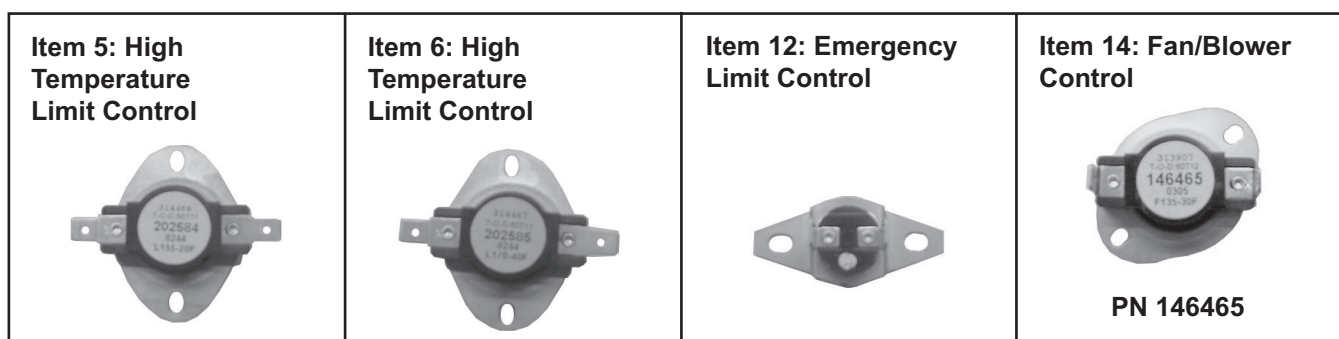


Figure 9. Individual Limit and Fan/Blower Controls (Refer to [Table 11](#))

LIMIT AND FAN/BLOWER CONTROL COMPONENTS—CONTINUED

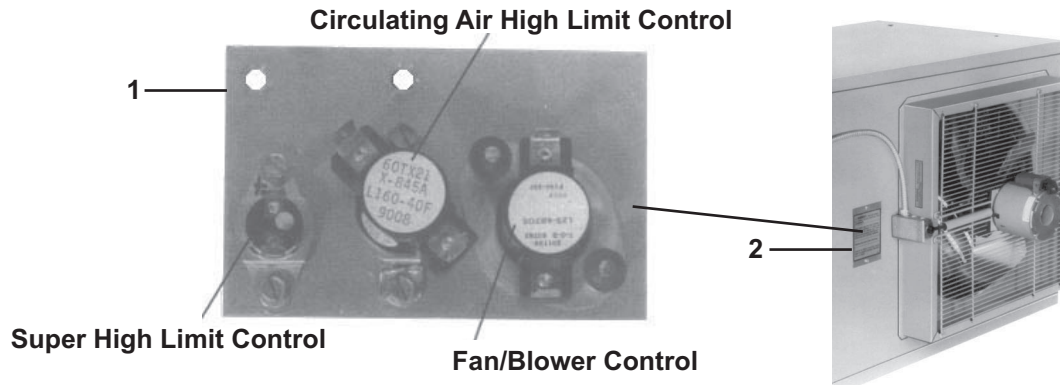


Figure 10. Limit and Fan/Blower Control Components and Access Location—Model RA/RAD, Unit Sizes 110, 140, and 235 (Refer to [Table 10](#) and [Table 11](#))

Fan Failure Limit Location (Model RA150)



Figure 11. Limit and Fan/Blower Control Components and Access Location—Model RA/RAD, Unit Sizes 150 and 250 (Refer to [Table 10](#) and [Table 11](#))



Figure 12. Limit and Fan/Blower Control Components and Access Location—Model RA/RAD, Unit Size 350 (Refer to [Table 10](#) and [Table 11](#))

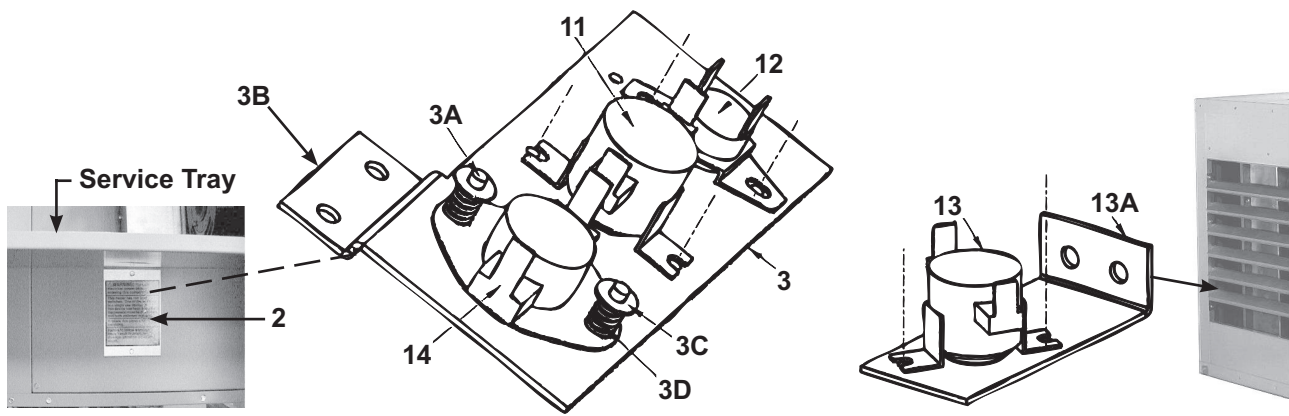


Figure 13. Limit and Fan/Blower Control Components and Access Location—Model RA/RAD, Unit Size 500 (Refer to [Table 10](#) and [Table 11](#))

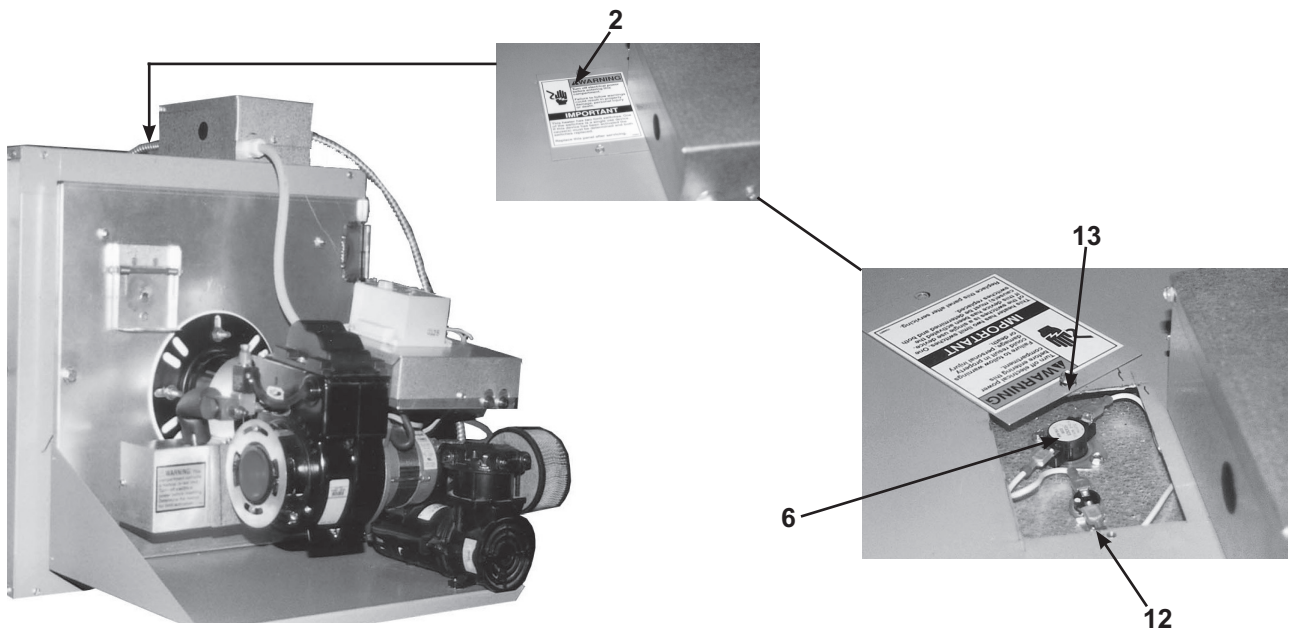


Figure 14. Limit and Fan/Blower Control Components and Access Location—Model RV, Unit Sizes 225 and 325 (Refer to [Table 10](#) and [Table 11](#))

LIMIT AND FAN/BLOWER CONTROL COMPONENTS—CONTINUED

Table 11. Limit and Fan/Blower Control Components									
Item No.	Component	Description	Model						
			RA, RAD		RA	RAD	RA	RAD	RV
			Unit Size						
			110, 140, 235	150	250	350	500	225	325
			PN						
1	Assembly	Limit and fan/blower control*	123973	—	—	—	—	—	
2	Access panel	Limit and fan/blower control	194565	—	—	—	194565	—	
		Warning	—	—	—	—	194565	—	
3	Mounting plate	Control assembly	—	—	—	—	157117	—	
3A	Weld pin		—	—	—	—	63557**	—	
3B	Bracket		—	—	—	—	157106	—	
3C	Clip		—	—	—	—	63559**	—	
3D	Spring		—	—	—	—	63558**	—	
4	Limit control	Fan failure, 150°F	—	100799		—	—	—	
5		High temperature, opens at 155°F, closes at 135°F, yellow label, TOD #60T11	—	202584	—	—	—	202584	—
6		High temperature, opens at 170°F, closes at 130°F, green label, TOD #60T11	—		—	—	—	—	202585
7		High temperature, 180°F	—	211754		—	—	—	
8		120°F, #60TX21	—		45534		—		—
9		210°F, #60TX21	—		45537	—	45537		
10		180°F, #60TX21	—		—	45602	—		
11		230°F, #60TX21	—		—		—	45538	
12		Emergency, 350°F, white dot, TOD #36F26	—		—		106845		106845
13		Automatic, #60TX21, 160°F	—		—		106847		—
13A	Bracket		—		—		157136		
14	Fan/blower control	Opens at 105°F, closes at 135°F, #60T12	—		146465†		—		146465‡
		175°F, #60T12	—		—		157057		—

*Includes fan/blower control, two limit controls, and mounting plate (replaces PN 104837).

**Quantity is two (2).

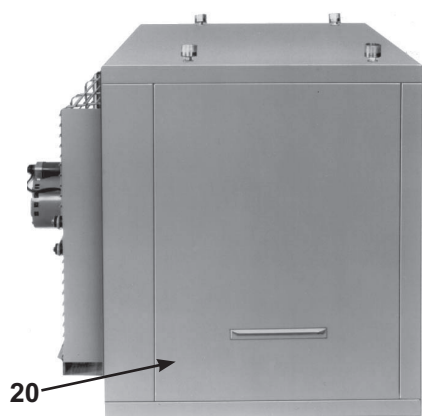
†Replaces PN 123953 on model RA/RAD (unit size 350).

‡Used on units manufactured **before** APR 2006 (approximate date). Check the unit wiring diagram.

CABINET AND FAN ASSEMBLY COMPONENTS

NOTES:

- Cabinet components for models RA and RAD are shown in [Figure 15](#), [Figure 16](#), [Figure 17](#), [Figure 18](#), and [Figure 19](#) and are listed in [Table 12](#).
- Cabinet and fan components for model RA are shown in [Figure 20](#) and are listed in [Table 12](#).
- Cabinet and blower components for model RAD are shown in [Figure 21](#) and [Figure 22](#) and are listed in [Table 14](#).
- Cabinet and blower components for model RV are shown in [Figure 23](#) and [Figure 24](#) and are listed in [Table 15](#).



NOTE: Model RA shown.

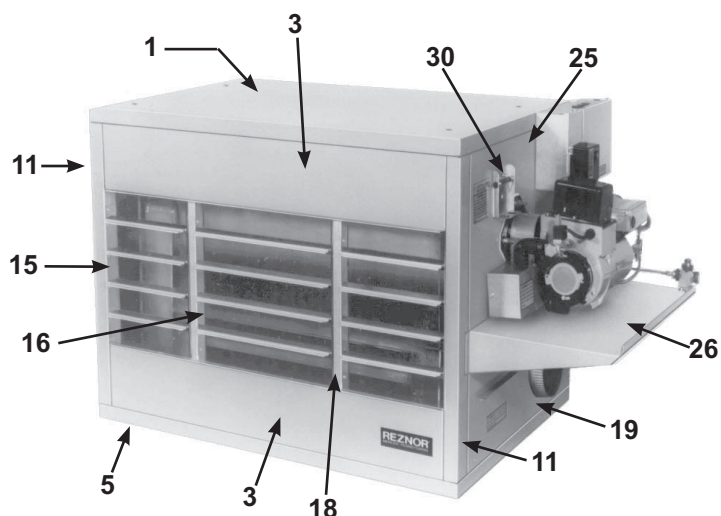
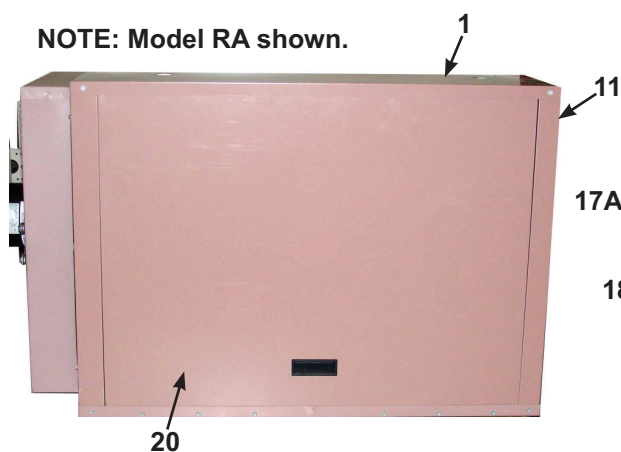


Figure 15. Cabinet Components—Model RA/RAD, Unit Sizes 110, 140, and 235 (Refer to [Table 12](#))



NOTE: Model RA shown.

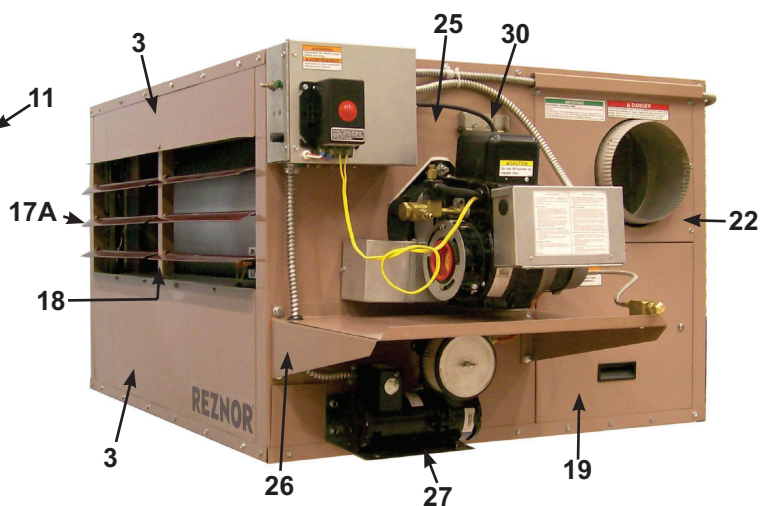


Figure 16. Cabinet Components—Model RA/RAD, Unit Sizes 150 and 250 (Refer to [Table 12](#))



NOTE: Model RAD shown.

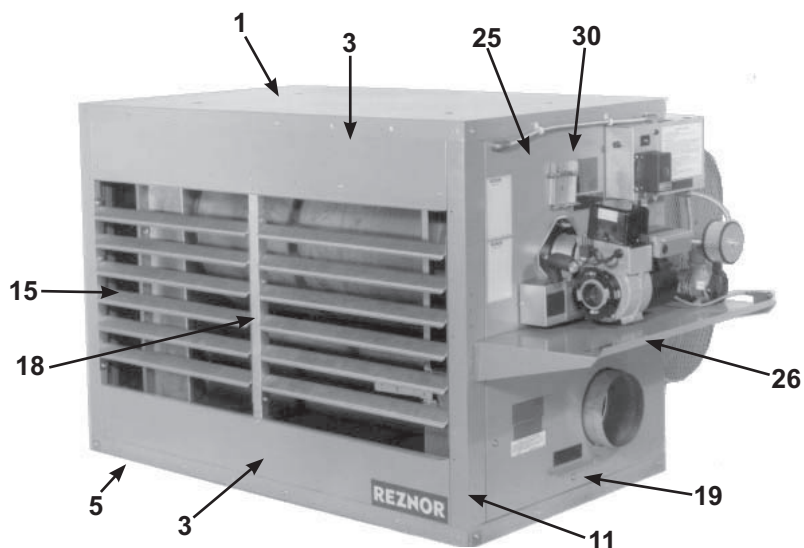


Figure 17. Cabinet Components—Model RA/RAD, Unit Size 350 (Refer to [Table 12](#))

CABINET AND FAN ASSEMBLY COMPONENTS—CONTINUED

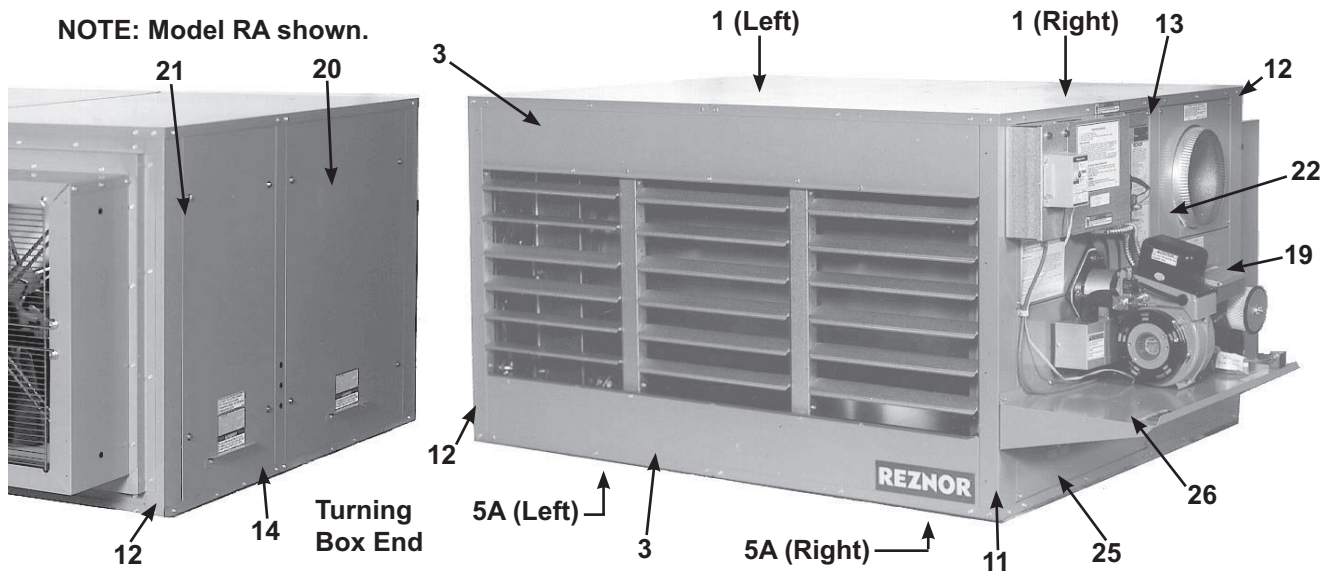


Figure 18. Cabinet Components—Model RA/RAD, Unit Size 500 (Refer to [Table 12](#))

Item 29: Door Latch Kit Assembly sequence Set Screw 1/4" Mounting Hole Door Panel	Item 30: Viewport Cover Assembly with Backflow Sensor Hinge Bracket Backflow Sensor Gasket, P/N 121341 Manual Reset (Backflow Sensor), P/N 121275 Screw, P/N 38529 Plug, P/N 104838 Hinge Pin Cover NOTE: The backflow sensor is used on CSA models manufactured <i>after</i> APR 1996 and on all units manufactured <i>after</i> DEC 2001.
Item 32: Barometric Draft Regulator	Item 33: Vent Cap

Figure 19. Individual Cabinet Components—Model RA/RAD (Refer to [Table 12](#))

Table 12. Cabinet Components for Models RA and RAD

Item No.	Component	Description	Unit Size						
			110	140	150	235	250	350	500
			PN (Quantity)*						
1	Panel	Outer, top, left side	104741	104741	220734	104742	220735	130602	151959
		Outer, top, right side							151960
Inner/insulation retainer, top, burner side (not shown)		104738	104738	220881	104739	220882	130638	151972	
Inner/insulation retainer, top, center (not shown)								151971	
Inner/insulation retainer, top, turning box side (not shown)								151973	
3		Front, top/bottom	104747 (2)	104747 (2)	220739 (2)	104748 (2)	220740 (2)	130623 (2)	151976 (2)
4	Support	Top, front to back (not shown)	—	—	220880 (2)	—	220880 (2)	—	151977 (2)
5	Cabinet bottom assembly		104703	104703	221058	215780	221059	211712	151990
5A	Panel	Outer, bottom, left side	104741	104741	220674	104742	220675	130602	151818
		Outer, bottom, right side							151819
5B	Inner, cabinet bottom/liner		104738	104738	220676	104739	220677	130609	151983
5C	Heat exchanger support (secured to bottom panel using screws) (not shown)	—	104736 (2)	104736 (2)	—	104736 (2)	—	—	—
		Front	—	—	221057	—	221057	—	—
		Rear	—	—	223657	—	223657	—	—
		Left	—	—	—	—	—	130608	—
		Right	—	—	—	—	—	130610	—
		Burner side	—	—	—	—	—	—	157110
		Turning box side	—	—	—	—	—	—	157111
5	Clamp	Heat exchanger (not shown)	—	—	—	—	—	—	151816 (3)
7	Door stop	Secured to bottom panel using screws (not shown)	104753 (2)	104753 (2)	220732 (3)	104753 (2)	220732 (3)	130603 (2)	151964 (2)
8	Air deflector	—	—	—	220741	215691	220742	—	—
Top**		—	—	—	—	—	—	—	151965
Bottom**		—	—	—	—	—	—	—	151966
10	Heat shield	Insulated, for front/back upper casing panel	—	—	—	—	—	130631 (2)	—
11	Corner post	Front	104743 (2)	104743 (2)	220731	104743 (2)	220731	130622 (2)	—
		Right front	—	—	—	—	—	—	155262
12		Left front, left rear and right rear	—	—	—	—	—	—	157119 (3)
13	Center post	Assembly, burner end of heater	—	—	—	—	—	—	157139
14		Turning box end of heater	—	—	—	—	—	—	151967
15	Louver frame	With horizontal louvers	94857 (2)	94857 (2)	—	94851 (2)	—	94867 (2)	94863 (3)
16		Center, with horizontal louvers	—	—	—	104836 (3)	—	—	—
17	Horizontal louver	Spring-mounted, no frame	—	—	234714 (6)	—	221060 (6)	—	—
17A	Spring	Compression, for horizontal louvers	—	—	195046 (6)	—	195046 (6)	—	—
18	Support	Center louver	104758	104758	220728	104759 (2)	220728	130634	151820 (2)
*Quantity is one (1) unless otherwise indicated.									
**Located behind the top and bottom front panels.									

CABINET AND FAN ASSEMBLY COMPONENTS—CONTINUED

Table 12. Cabinet Components for Models RA and RAD—Continued										
Item No.	Component	Description	Unit Size							
			110	140	150	235	250	350	500	
			PN (Quantity)*							
19	Door assembly, includes insulation, latches, and handle	Outer exhaust access, full door on units manufactured before DEC 2004	—	—	—	—	—	130628	—	
		Outer exhaust access, half door on units manufactured after NOV 2003	104754	104754	221052	104754	221052	209770	157124	
20		Outer cabinet combustion chamber access	115155	115155	221053	115155	221053	—	157122	
		Outer cabinet combustion chamber access, for unit with hinged inner door manufactured after MAY 2002	—	—	—	—	—	194926	—	
		Outer cabinet combustion chamber access, for unit with removable inner door manufactured before JUN 2002	—	—	—	—	—	130640	—	
21		Outer cabinet turning box access	—	—	—	—	—	—	157120	
22	Outer flue panel	Assembly, includes insulation	—	—	221133	—	221133	—	157692	
23	Support	Flue panel (not shown)	—	—	—	—	—	—	151962	
24		Burner panel (not shown)	—	—	—	—	—	—	151963 (2)	
25	Burner panel	Assembly, includes insulation	112222	112222	221062	112222	221062	130624	157691	
26	Service tray	Units manufactured before MAY 1995	104757	104757	221056	104757	221056	130627	—	
		Units manufactured after APR 1995	140866	140866		140866		140867	151979	
27	Shelf	Air compressor	—	—	174704	—	174704	—	—	
28	Door latch	Kit, for outer door panels	112974							
29	Door lift	For outer door panels	104751							
30	Viewport cover and bracket assembly	Includes sensor and label (UL label on units manufactured before 2002 and CSA label on units manufactured before MAY 1996)	104768	104768	—	104768	—	—	—	
		Includes sensor	147352	147352	147352	147352	254812	149877	157138	
30A	Tube mounting plate	Viewport, assembly (not shown)	116457							
31B	Tube	Viewport, assembly (not shown)	104761							
30C	Gasket	Viewport tube (not shown)	124063 (2)							
31	Hole plug	Heyco DP-437 2633 (not shown)	141747							
32	Draft regulator	Barometric, 7-inch	37865	—	—	—	—	—	—	
		Barometric, 8-inch	—	37866						—
		Barometric, 10-inch	—	—	—	—	—	—	157623	
33	Vent cap	8-inch	147149	147149	147149	147149	147149	147149	—	
		10-inch	—	—	—	—	—	—	159000	
*Quantity is one (1) unless otherwise indicated.										

*Quantity is one (1) unless otherwise indicated.

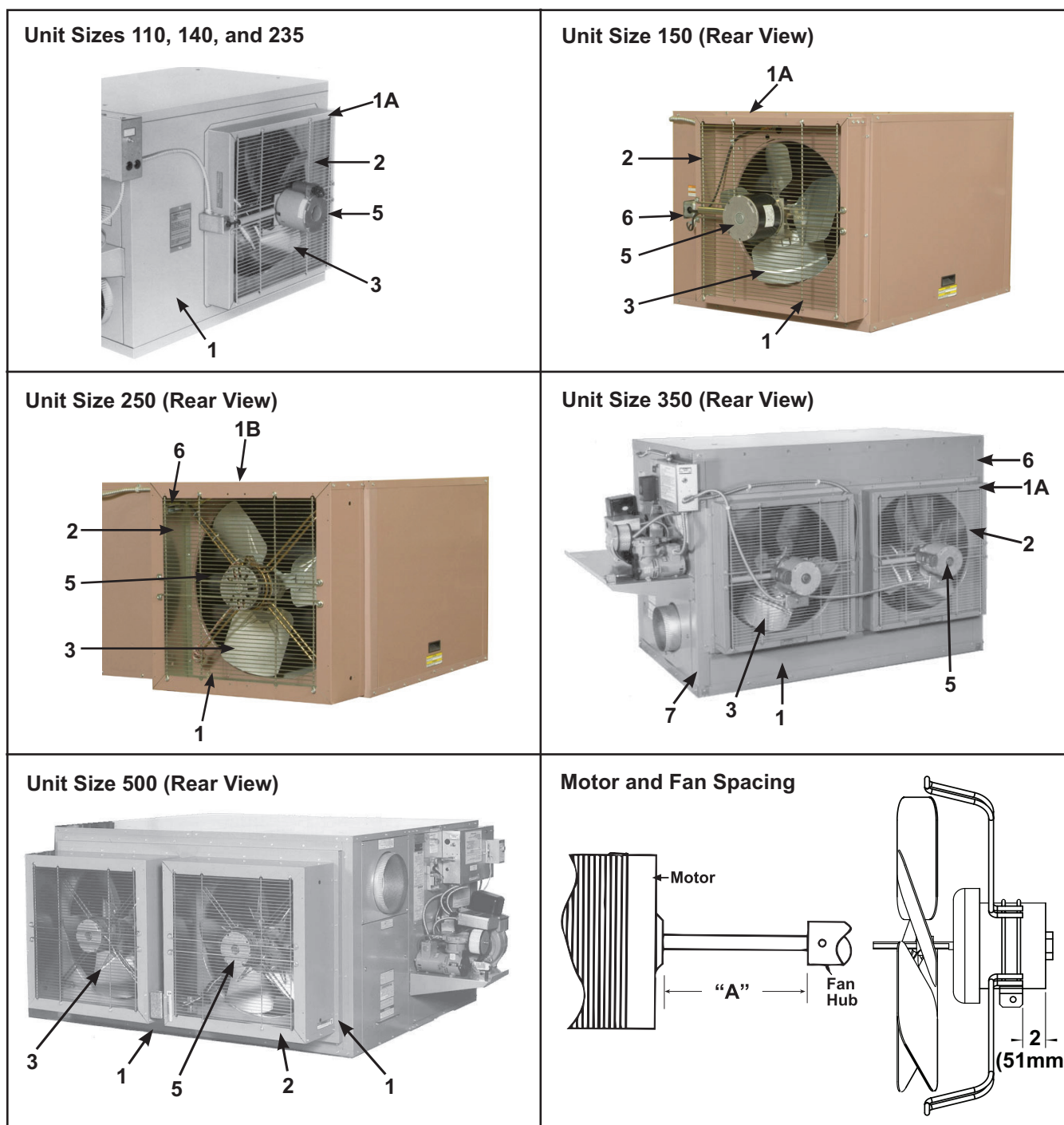


Figure 20. Cabinet and Fan Components—Model RA (Refer to [Table 12](#))

CABINET AND FAN ASSEMBLY COMPONENTS—CONTINUED

Table 13. Cabinet and Fan Components for Model RA								
Item No.	Component	Description	Unit Size					
			110 , 140	150	235	250	350	500
			PN (Quantity)*					
1	Fan panel	Includes corner posts on unit sizes 110, 140, 150, 235, and 250	104744	254864	104745	221064	130635	157845
		Top and bottom	—			—		151975 (2)
1A	Mount assembly	Fan guard	104823			—	130636 (2)	—
1B	Box assembly	Fan guard	—			221054	—	157121 (2)
2	Guard	Fan	104818			156895	104818 (2)	156895 (2)
3	Fan blade	17-1/2-inch, 29-degree, setscrew torque = 80 inch-pounds (±10 inch-pounds), dimension A (fan hub to motor spacing, see Figure 20) = 2-7/8 inches (73 mm), Lau #F07H01729 (replaces PN 3501)	125564	—		—		
		22-inch, 36-degree, setscrew torque = 150 inch-pounds (±15 inch-pounds), dimension A (fan hub to motor spacing, see Figure 20) = 3-1/2 inches (89 mm), Lau #F10 H8.7	—		96383	—	96383 (2)	—
		18-inch, 30-degree, setscrew torque = 130 inch-pounds (±10 inch-pounds), dimension A (fan hub to motor spacing, see Figure 20) = 2-7/8 inches (73 mm), Revcor #T1804-34	—	195680	—	—		
		24-inch, 28-degree, setscrew torque = 130 inch-pounds (±10 inch-pounds), dimension A (fan hub to motor spacing, see Figure 20) = 1-1/2 inches (38 mm), Lau #T1050BG	—			104743R	—	
		24-inch, 34-degree, setscrew torque = 150 inch-pounds (±15 inch-pounds), dimension A (fan hub to motor spacing, see Figure 20) = 2-1/4 inches (58 mm), Lau #61058A	—			—		157058 (2)
4	Support assembly	Fan, Premier #RC52997-AA (not shown)	—			157107 (2)	—	157107 (2)
5	Fan motor	1/8-HP, A.O. Smith #322P986	102380	—		—		
		#F48567A13	—	196824	—	—		
		1/4-HP, #F48Y79A13 (replaces PN 115866)	—		137044**	—		
		1/2-HP, TEFC, #F48S37A13	—			196247***	—	
		1/4-HP, #AE65A13	—			—	137044 (2)	—
		3/4-HP, 230V, A.O. Smith	—			—		157042 (2)
6	Capacitor	Fan motor, 7.5µF	—	195643	—	195643†	—	
		Fan motor, 10µF	—			207448‡	—	
7	Corner post	Rear	—			—	130622 (2)	—
*Quantity is one (1) unless otherwise indicated.								
**Unit size 235 models manufactured before MAR 1992 (serial No. code ARC) were equipped with 1/2-HP motors (PN 102382) that are replaced with PN 137044.								
***Requires a new capacitor when replacing motor. Refer to item 6.								
†Units manufactured before JUL 2019.								
‡Units manufactured beginning JUL 2019.								

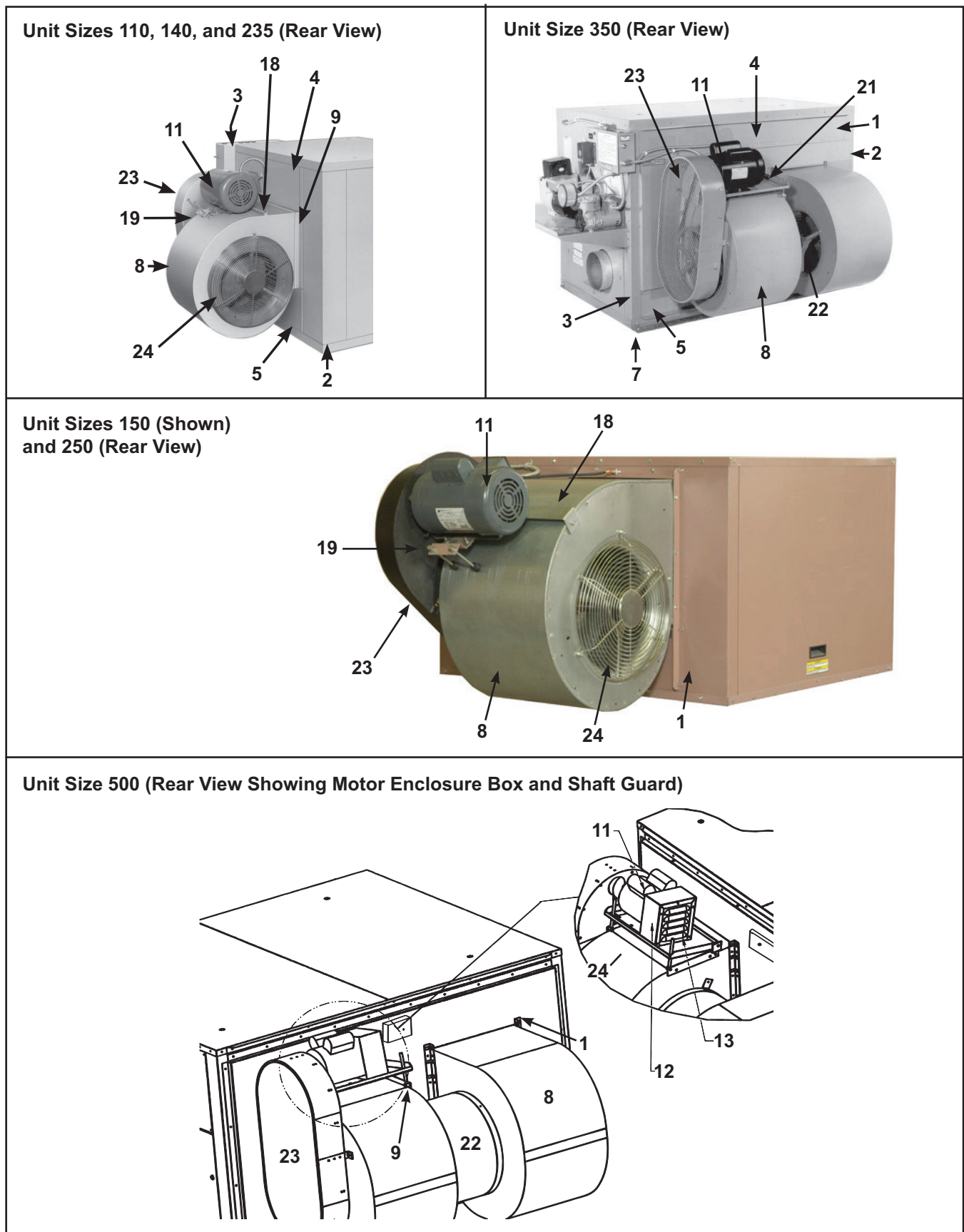


Figure 21. Cabinet and Blower Components—Model RAD (Refer to [Table 14](#))

CABINET AND FAN ASSEMBLY COMPONENTS—CONTINUED

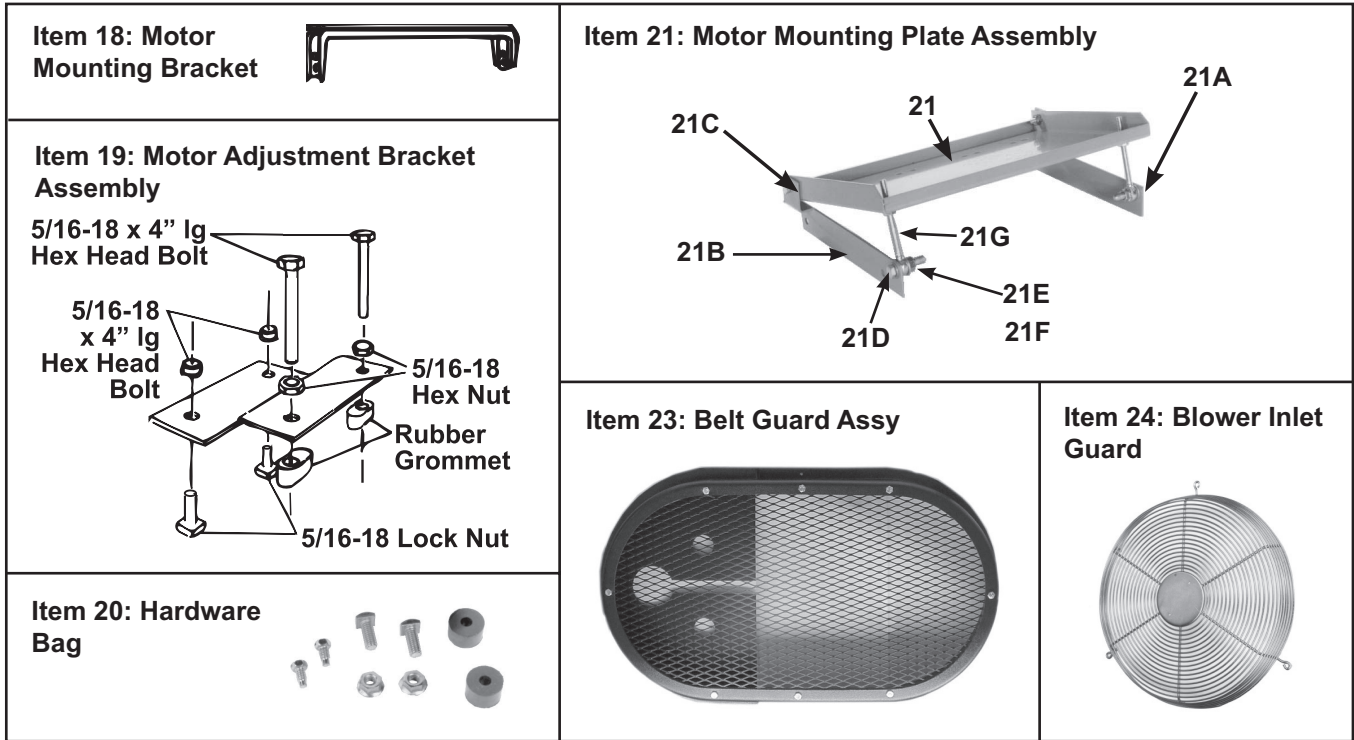


Figure 22. Individual Cabinet and Blower Components—Model RAD (Refer to [Table 14](#))

Table 14. Cabinet and Blower Components for Model RAD								
Item No.	Component	Description	Unit Size					
			110	140	150	235	250	350
			PN (Quantity)*					
1	Blower back panel	Assembly, includes air deflectors	—	235226	—	235227	—	—
		Includes air deflector	—	—	—	—	130681	—
		Panel only	—	—	—	—	—	157125
2	Corner post	Assembly, left rear corner	107166	—	107166	—	130622	157119
3	Blower post	Assembly, right rear corner	107167	—	107168	—	130622	157119
4	Filler panel	Top back	104795	—	104796	—	130623	—
5	Filler panel	Bottom back	104795	—	104797	—	130623	
6	Support angle	Assembly (not shown)	—	—	—	—	130679	(4)
7	Duct flange	Inlet	—	255265 (4)	—	255265 (4)	130689 (2)	158078 (2)
8	Blower, includes blower housing, wheel, and shaft	12 × 9, changed to ball bearing blower on units manufactured <i>after</i> FEB 2003	100981**	—	—	—	—	—
		Lau #A12-9ACD	—	100657**	—	—	—	—
		Lau #A15-11ACD	—	—	107171**	—	—	—
		Lau #A15-11ACD	—	—	—	100658**	—	—
		Lau #A15-11	—	—	—	—	131276	(2)
8A	Blower shaft	43 × 1-3/16	—	—	—	—	130697	—
		46-1/2 × 1-3/16	—	—	—	—	—	196655
8B	Bearing	Blower	—	10437	—	—	14474	(2)
9	Angle	Blower mounting	100889 (2)	100889 (2)	100890 (2)	—	100890	(4)
10	Blower sheave	Browning, AL104 × 1	116402	—	—	—	—	—
		Browning, AL84 × 1	—	116400	—	—	—	—
		Browning, AL94 × 1	—	—	116401	—	—	—
		Browning, AK134 × 1-3/16	—	—	—	—	16158	—
		Browning, AK134H × 1-3/16	—	—	—	—	—	114028

*Quantity is one (1) unless otherwise indicated.

**Unit sizes 110, 140, 150, 235, and 250 include bearings and a motor mounting bracket.

Table 14. Cabinet and Blower Components for Model RAD—Continued

Item No.	Component	Description	Unit Size							
			110	140	150	235	250	350	500	
			PN (Quantity)*							
11	Blower motor, UL listed	1/2-HP, Century #8-159170-01	31273		—			—		
	Blower motor, CSA certified	3/4-HP, Century #8-159626-01	—		115860		—			
		3/4-HP, Century #8-159626-01	—	115860	—	115860	—			
		1/2-HP, TEFC	—		159184	—				
		1-HP, TEFC	—		—		174993			
		1-1/2-HP, Smith #311P402	—		—					94347
	208/230V, Magnetek	—		—			—	111560		
12	Base	Motor end enclosure	—		—			—	158785	
13	Box	Motor end enclosure	—		—			—	158784	
14	Enclosure	Motor contactor	—		—		93917	—	151207	
							93915			
15	Overload	Motor contactor	—		—			—	151194	
16	Contactor	Motor	—		—		157955	—		
		Motor, units manufactured <i>after</i> FEB 2003	—		—			—	151151	
		Motor units manufactured <i>before</i> MAR 2003	—		—			—	151157	
17	Motor sheave	Browning, 1VL40 × 5/8	7962		—	7962	—	7962		
		Browning, 14L40 × 1/2	—		13491	—	13491	—		
18	Bracket	Motor mounting	102533		102533	102534				
19		Assembly, motor adjustment	44411		44411					
20	Hardware bag	Contains hardware and rubber feet	64940		64940					
21	Plate	Assembly, motor mounting	—		—			194120		
21A	Support	Left	—		—			194122		
21B		Right	—		—			194121		
21C	Bolt		—		—			16247		
21D			—		—			16248		
21E	Nut		—		—			6554 (10)		
21F	Washer		—		—			1087 (8)		
21G	Rod Bolt		—		—			12489 (2)		
22	Shaft guard	Assembly	—		—			131142	157842	
22A	Screen	Shaft guard	—		—			131143	157841	
22B	Band	Shaft guard	—		—			131144 (2)		
22C	Angle	Shaft guard mounting	—		—			110773 (3)		
23	Belt guard	Assembly	193795		193795			193798		
24	Guard	Blower inlet	102475							
25	Belt (not shown)	Browning #4L520	6187		—			—		
		Browning #A47	—		50474	—				
		Browning #A53	—		—	16130	—			
		Browning #A52	—		—		50514			
		Browning #A61	—		—					88560
26	Bracket	Bearing, painted	—		—			131277 (2)		
27	Key	1/4 × 1-1/4	—		16099			16099		

*Quantity is one (1) unless otherwise indicated.

CABINET AND FAN ASSEMBLY COMPONENTS—CONTINUED

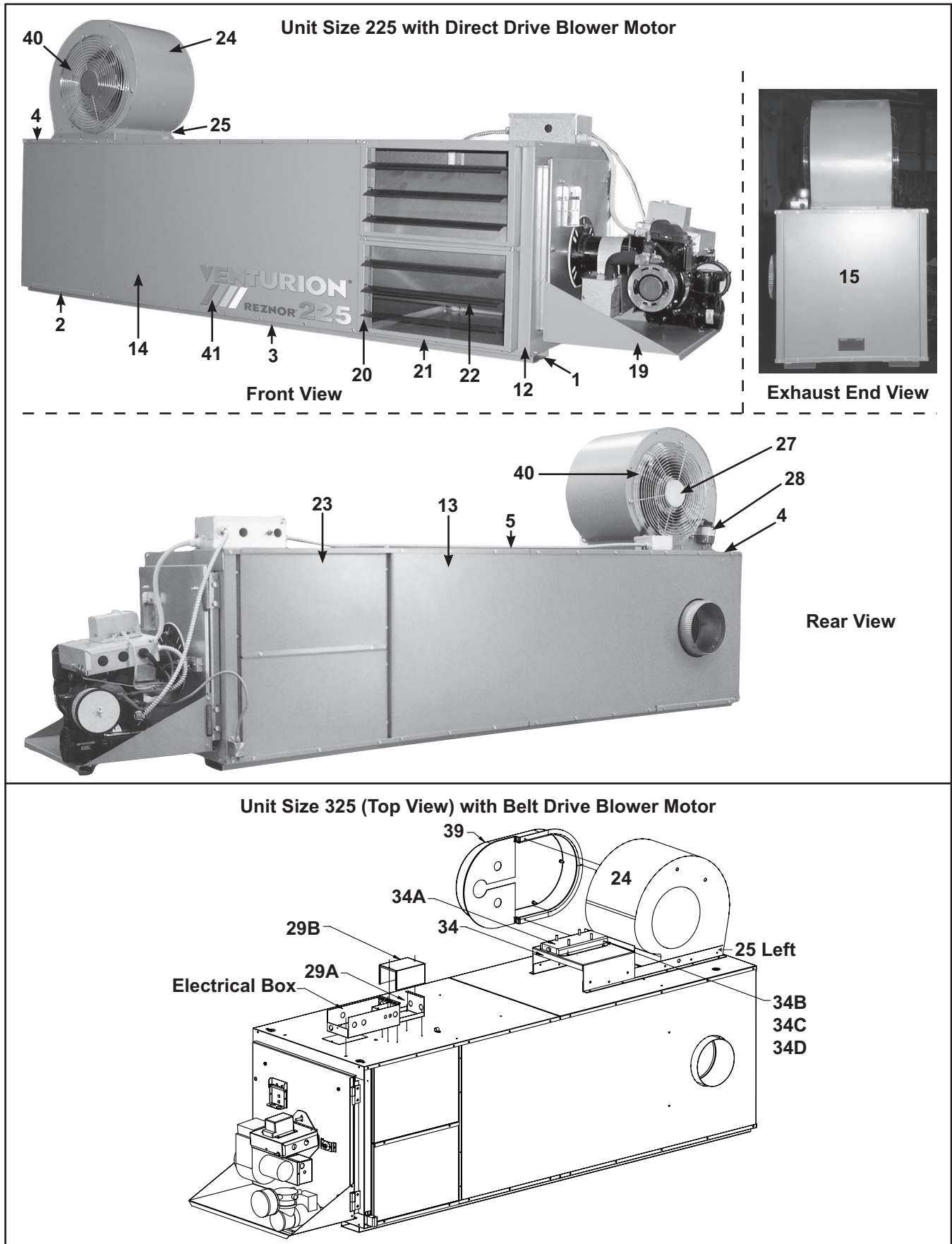


Figure 23. Cabinet and Blower Components—Model RV (Refer to [Table 15](#))



Figure 24. Individual Cabinet and Blower Components—Model RV (Refer to [Table 15](#))

Table 15. Cabinet and Blower Components for Model RV				
Item No.	Component	Description	Unit Size	
			225	325
			PN (Quantity)*	
1	Rail	Bottom	201524 (2)	
2	Panel	Bottom, exhaust end	201823	202064
3		Bottom, burner end	202085	202086
4		Top, exhaust end	201824	202065
5		Top, burner end	202083	202084
6	Heat shield	Bottom	197316	202059
7		Top	201816	202060
8	Door stop		202081	
9	Insulation panel	Bottom	202074	202075
10		Top	202072	202073
11	Insulation	1/2 × 9 × 21 inches	202647	
12	Corner post	Burner end	197315 (2)	201850 (2)
13	Corner post/rear panel	Exhaust end	201821	202063
14	Corner post/front panel	Exhaust end	203322	203323
15	Door assembly	Access, heat exchanger/combustion chamber	202619	202620
16	Handle	Door	155065	
17	Air deflector	Top	—	202621
18		Bottom	202622	
19	Tray	Service	197311	197312
20	Louver frame	Side	201829 (4)	201969 (4)
21		Top and bottom	201825 (4)	
22	Louver		201830 (6)	201830 (8)
22A	Compression spring	One (1) per louver	195046 (6)	195046 (8)
23	Panel	Cover	201827 (2)	202067 (2)
24	Blower, six (6) holes added for mounting screws	12 × 9, direct drive	202821	—
		12 × 9, includes housing, wheel, shaft, and ball bearings	—	202822
24A	Bearing	Replacement	—	10437 (2)
24B	Shaft	Replacement, 1 × 22 inches	—	11303
25	Mount	Blower	202819 (2)	—
		Blower, left angle	—	209577
		Blower, right angle	—	209578
26	Deflector	Blower	203840	203841
27	Motor	1-HP, direct drive motor with capacitor, A.O. Smith #F48S94A13	201810	—
		2-HP, belt-drive motor (replaces PN 105528)	—	202581
28	Capacitor	15 µF, 440V, for direct-drive motor	205150	—
28A	Clamp	Capacitor	204002	
28B	Clamp felt	Capacitor clamp, 12-inch piece cut to size, A.O. Smith #166A729H01	171529	
28C	Boot	Capacitor, Syntex #M-78	103182	
29	Contact	25A, 2-Pole, 120V coil	—	157955
29A	Enclosure	Contact	—	93917
29B	Cover	Contact enclosure	—	120302

*Quantity is one (1) unless otherwise indicated.

CABINET AND FAN ASSEMBLY COMPONENTS—CONTINUED

Table 15. Cabinet and Blower Components for Model RV—Continued				
Item No.	Component	Description	Unit Size	
			225	325
			PN (Quantity)*	
30	Support Arm	Triangle #TR8053B	164325 (3)	—
31	Band	Motor, Triangle #TR4171	51221	
31A	Capscrew	Hex head, 1/4-20 × 1-1/2-inch long	51231	
31B	Nut	Hex, 1/4-20	7328	
32	Restrictor	Inlet	165180	
33	Mounting bracket	Inlet restrictor	165182 (3)	
34	Support	Blower motor plate	—	210147
34A	Motor base	Adjustable	—	208380
34B	Capscrew	Hex head, 5/16 × 3/4-inch long	—	16247 (4)
34C	Flat washer	5/16	—	1087 (4)
34D	Nut	Hex, Keps, 5/16-18	—	6554 (4)
35	Screw	F-point, 1/4-20 × 3/4-inch long	—	114687 (4)
36	Blower pulley	#AK56	—	105482
37	Motor sheave	#1VL40	—	7962
38	Belt	#A36	—	105490
39	Belt guard		—	193797
40	Inlet guard		102475 (2)	102475
41	Label	Venturion® logo	202475	202476
42	Draft regulator	Barometric, 8-inch	37866	
43	Vent cap	8-inch	147149	
		10-inch	—	159000

*Quantity is one (1) unless otherwise indicated.

HEAT EXCHANGER/COMBUSTION CHAMBER ASSEMBLY AND EXHAUST BOX COMPONENTS

NOTES:

- Heat exchanger/combustion chamber assembly and exhaust box components for RA and RAD models—unit sizes 110, 140, and 235—are shown in [Figure 25](#) and listed in [Table 16](#).
- Heat exchanger/combustion chamber assembly and exhaust box components for RA and RAD models—unit sizes 150 and 250—are shown in [Figure 26](#) and listed in [Table 17](#).
- Heat exchanger/combustion chamber assembly and exhaust box components for RA and RAD models—unit size 350—are shown in [Figure 27](#) and listed in [Table 18](#).
- Heat exchanger/combustion chamber assembly and exhaust box components for RA and RAD models—unit size 500—are shown in [Figure 28](#) and listed in [Table 19](#).
- Heat exchanger/combustion chamber assembly and exhaust box components for RV models—unit sizes 225 and 325—are shown in [Figure 29](#) and listed in [Table 20](#).

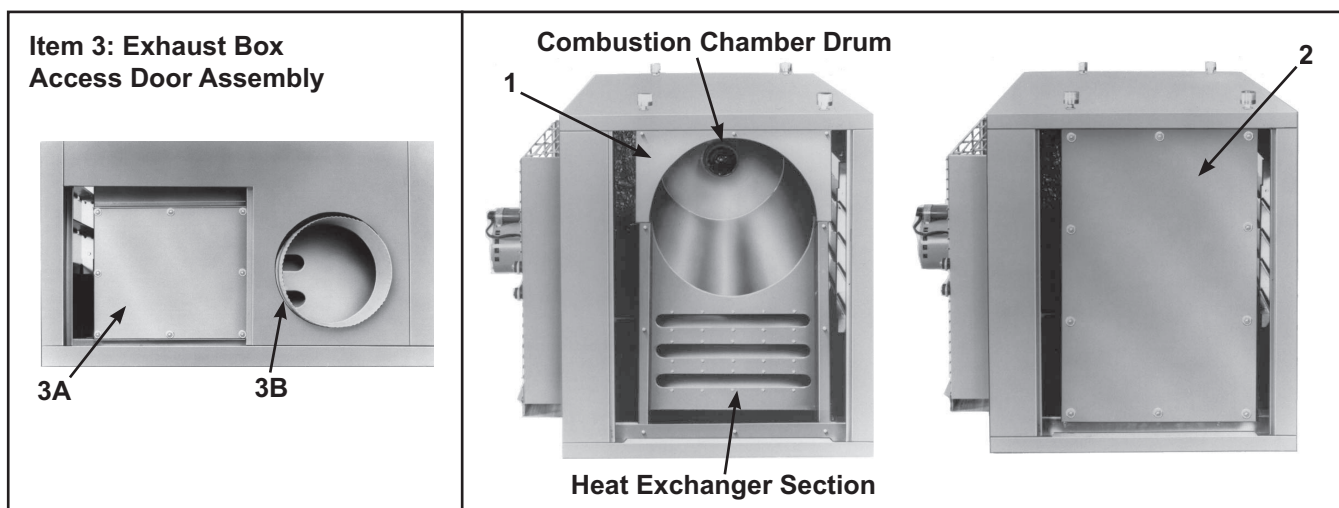


Figure 25. Heat Exchanger/Combustion Chamber and Exhaust Box Assemblies—RA and RAD Models, Unit Sizes 110, 140, and 235 (Refer to Table 16)

Table 16. Heat Exchanger/Combustion Chamber and Exhaust Box Components (RA and RAD Models, Unit Sizes 110, 140, and 235)					
Item No.	Component	Description	Unit Size		
			110	140	235
			PN (Quantity)*		
1	Complete assembly	Heat exchanger/combustion chamber, includes doors and limits	203235	203235	203236
2	Inner access door** (turning box end)	Combustion chamber, large, with insulating board, 6-hole	126013		
		Combustion chamber, large, with insulating board, 10-hole	126014		
2A	Gasket (turning box end)	Inner access door, 6-hole	124064 (2)		
		Inner access door, 10-hole	124065 (2)		
2B	Insulating board	Replaces PN 132911	120057		
2C	Inner access door replacement kit	6-hole, includes door, gasket, hardware, and installation instructions	210930		
		10-hole, includes door, gasket, hardware, and installation instructions	126019		
3	Access door assembly	Exhaust box (below service tray)	126021		
3A	Inner cover	Exhaust box	—		
3AA	Gasket	Inner exhaust box cover	104729	115150	
3B	Exhaust collar	Plate assembly	112224	115151	
			104820	115144	

*Quantity is one (1) unless otherwise indicated.

Door with 10-hole design is used on units manufactured **after DEC 1991. Units manufactured **before** JAN 1992 have combustion chamber inner access doors with a 6-hole design. Determine the door type by counting the number of nuts and bolts securing the door.

HEAT EXCHANGER/COMBUSTION CHAMBER ASSEMBLY AND EXHAUST BOX COMPONENTS—CONTINUED

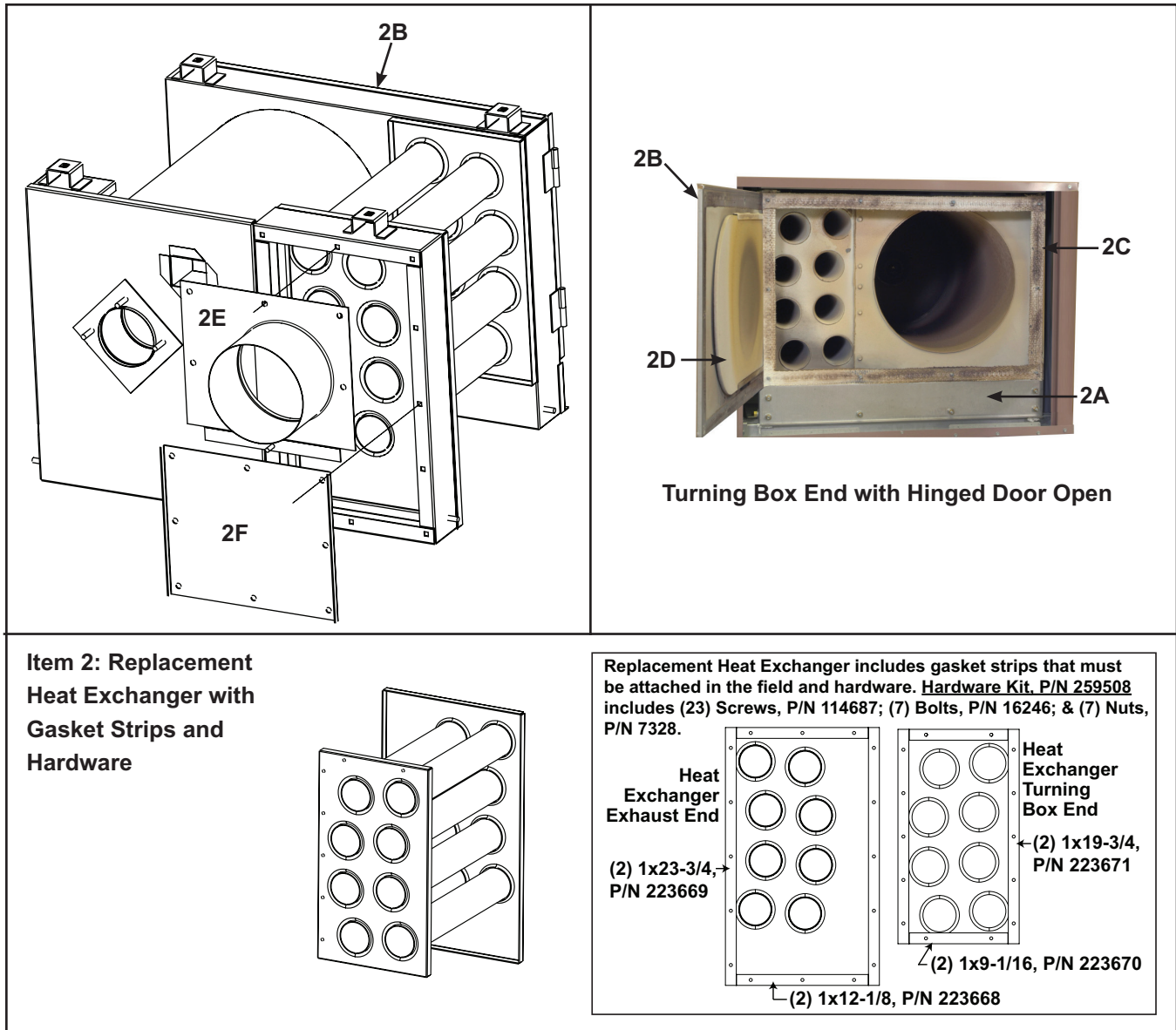


Figure 26. Heat Exchanger/Combustion Chamber and Exhaust Box Assemblies—RA and RAD Models, Unit Sizes 150 and 250 (Refer to [Table 17](#))

Table 17. Heat Exchanger/Combustion Chamber and Exhaust Box Components (RA and RAD Models, Unit Sizes 150 and 250)				
Item No.	Component	Description	Unit Size	
			150	250
			PN	
1	Complete assembly	Heat exchanger/combustion chamber	221049	221050
2	Replacement assembly	Heat exchanger, includes gasket/hardware kit (PN 259508)	255297	255298
2A	Cover (below door)	Turning box	220661	
2B	Door assembly	Turning box	221048	
2C	Gasket	Turning box door, 120 inches	157690	
2D	Replacement liner	Turning box door	210930	
2E	Exhaust collar	Plate assembly	221051	
2F	Cover	Exhaust box	220663	
2G	Gasket	Exhaust box cover, 102 inches	120057	

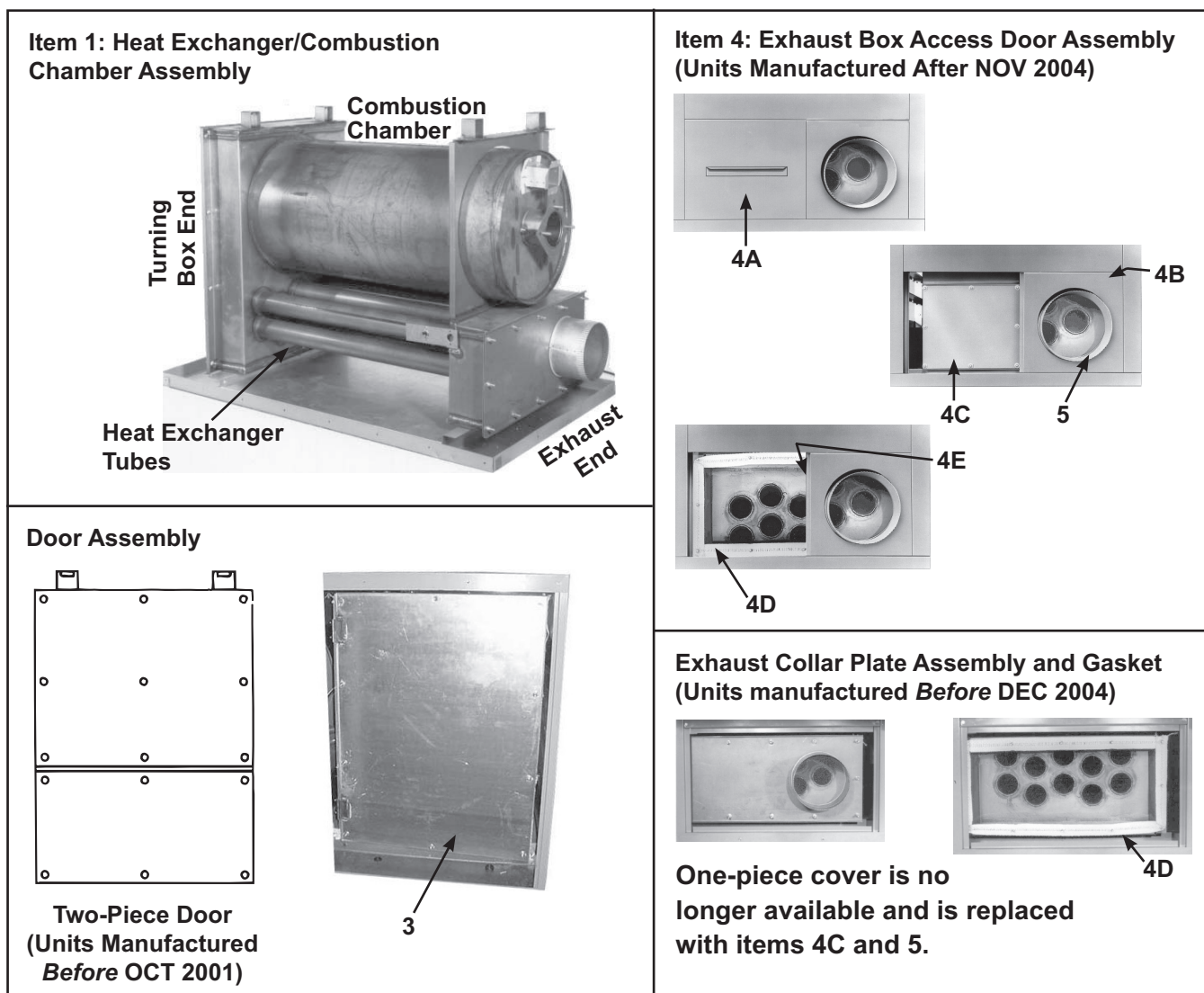


Figure 27. Heat Exchanger/Combustion Chamber and Exhaust Box Assemblies—RA and RAD Models, Unit Size 350 (Refer to Table 18)

Item No.	Component	Description	PN
1	Complete assembly	Heat exchanger/combustion chamber	203237*
			196878**
2	Gasket	Door, woven ceramic, 136 inches	195840
3	Door replacement kit	Replaces two-piece door with hinged one-piece door	196960
3A	Door assembly	Hinged, one-piece, includes hinge half and liner	194927
3B	Liner	Hinged door	210930
4	Access door assembly	Exhaust box (below service tray)	—
4A	Access panel	Exhaust box	209770
4B	Panel assembly	Exhaust	209769
4C	Cover	Exhaust box, two-piece	209433***
4D	Gasket	Exhaust cover, 80 inches	130618
4E	Gasket strip	For vertical divider under two-piece exhaust cover, 11 inches	209772
5	Exhaust collar	Plate assembly	209434***

*Used on units with a one-piece hinged door that were manufactured **after** SEP 2001. The replacement assembly includes a hinged door.

Used on units without a two-piece removable hinged door that were manufactured **before OCT 2001. The replacement assembly includes a hinged door.

***Replaces one-piece cover, which was used on units manufactured **before** DEC 2004 and which is no longer available.

HEAT EXCHANGER/COMBUSTION CHAMBER ASSEMBLY AND EXHAUST BOX COMPONENTS—CONTINUED

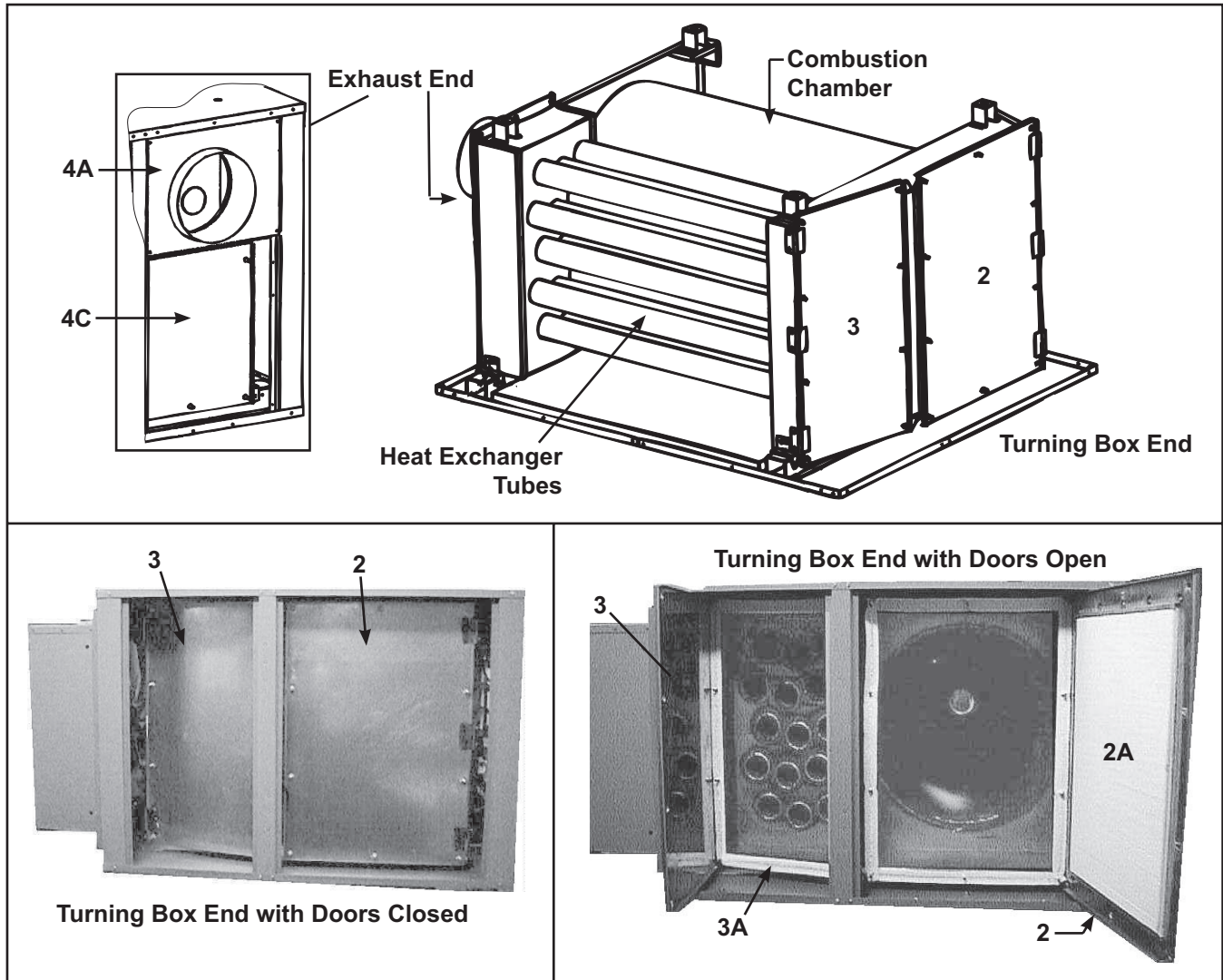


Figure 28. Heat Exchanger/Combustion Chamber and Exhaust Box Assemblies—RA and RAD Models, Unit Size 500 (Refer to [Table 19](#))

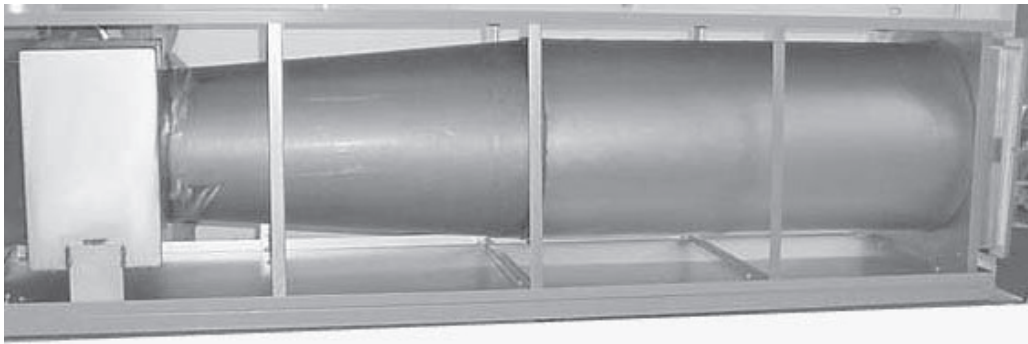
Item No.	Component	Description	PN
1	Complete assembly	Heat exchanger/combustion chamber	203238
2	Inner access door	Combustion chamber, large, includes insulating liner and hinges	157112
2A	Insulating liner	Large inner combustion chamber access door	157056
3	Inner turning box door	Small, includes hinges	157114
3A	Gasket	Turning box door, 222 inches	157689
4	Exhaust Box	Assembly	—
4A	Cover assembly	Exhaust box	157115
4B	Gasket	Exhaust box, 120 inches	157690
4C	Removable panel	Exhaust box	151802

Item 1: Heat Exchanger/Combustion Chamber

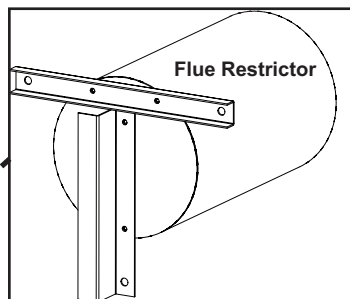
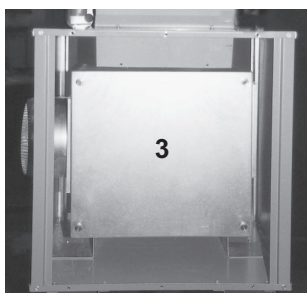
Exhaust End

Side Panels Removed

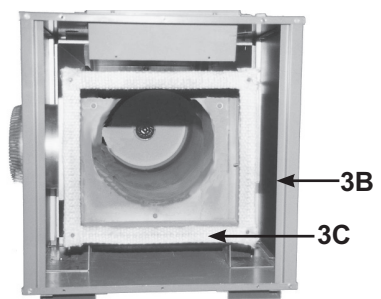
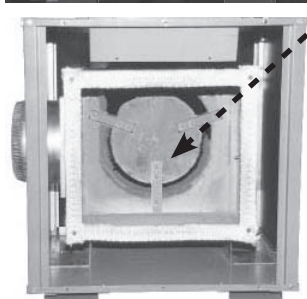
Burner End



Exhaust End Views

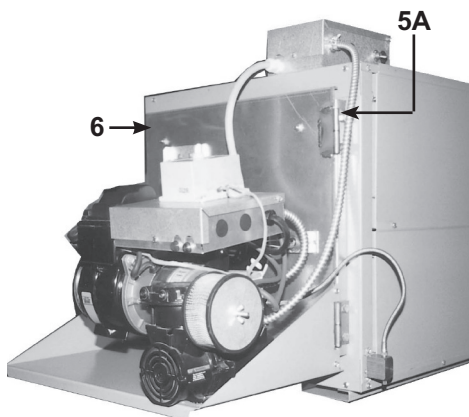


Door Removed Showing
Flue Restrictor

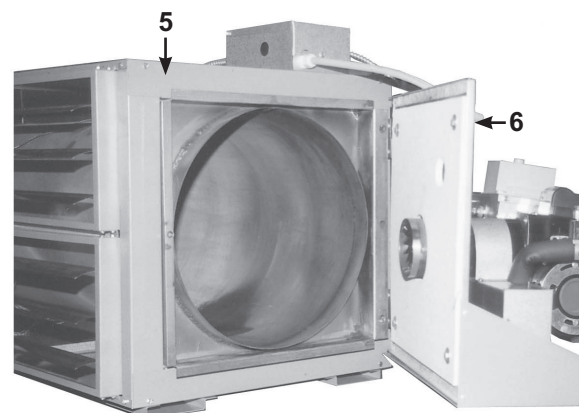


Door Removed and
Flue Restrictor Removed

Burner End Views



Hinged Burner Door Closed



Hinged Burner Door Open

Figure 29. Heat Exchanger/Combustion Chamber Assembly—RV Models (Refer to [Table 20](#))

HEAT EXCHANGER/COMBUSTION CHAMBER ASSEMBLY AND EXHAUST BOX COMPONENTS—CONTINUED

Table 20. Heat Exchanger/Combustion Chamber Components (RV Models)				
Item No.	Component	Description	Unit Size	
			225	325
			PN (Quantity)*	
1	Welded assembly	Combustion chamber/heat exchanger/collection box	210662	210663
2	Flue restrictor	Assembly (extends about 15 inches into drum)	203196	
2A	Bolt	Flue restrictor to heat exchanger, 3/8-16 × 3/4 (brass)	202615	
2B	Flat washer	Flue restrictor to heat exchanger, 3/8	6593	
3	Door assembly	Collection box	203210	203211
3A	Door	Collection box	197299	201966
3B	Gasket	Collection box door, side	201989 (2)	201991 (2)
3C		Collection box door, top/bottom	201990 (2)	201992 (2)
3D	Baffle	Flue	203212	203213
4	Stud	Collection box door	— (5)	
4A	Flat washer	5/16	1087 (5)	
4B	Lockwasher	5/16	1333 (5)	
4C	Hex nut	5/16-18	115143 (5)	
5	Mounting frame assembly	Burner door	202591	202592
5A	Door hinge	Male half	157060 (2)	
5B	Bolt	Door hinge, hex head, 5/16 × 3/4	16247 (4)	16247
5C	Hex nut	Door hinge, Keps, 5/16-18	6554 (4)	6554
5D	Gasket	Burner door frame	202068 (4)	202069 (4)
6	Door assembly**	Burner	202057	202058
6A	Gasket	Burner door	207506	207507
6B	Insulator	Burner door	201981	201982
6C	Screw	Door insulator, 1/4-20 × 7/8	110984 (4)	
6D	Fender washer	Door insulator, 5/16 × 1-1/4	178181 (4)	
6E	Spiral spacer	Door insulator	207518 (4)	
6F	Nut	Door insulator, 1/4-20	7328 (4)	
6G	View port	Assembly	104768	
6H	Backflow sensor assembly	Refer to Table 9 for backflow sensor (PN 121275)	202593	
6I	Bolt	Burner door to door frame, 3/8-16 × 3/4 (brass)	202615 (2)	
6J	Flat washer	Burner door to door frame, 3/8	6593 (2)	
7	Hinge block	Burner door (brass), for units manufactured after APR 2003	205409 (2)	
*Quantity is one (1) unless otherwise indicated.				
**Discontinued in MAY 2003. For units manufactured after APR 2003, contact your Distributor and provide a serial No. when ordering any burner door replacement part(s).				

FUEL TANK AND STAND

NOTES:

- The fuel tank (Reznor model OT-250) may be used with any model or size of heater.
- The optional heater stand package (option ST-1) may be used with the fuel tank for model RA (unit sizes 110, 140, 150, 235, and 250) and RV (unit sizes 235 and 325) units.
- The stand requires field assembly. Follow the instructions included with the option package.
- The assembled stand and fuel tank are shown in [Figure 30](#) and the option ST-1 components are listed in [Table 21](#).



Figure 30. Fuel Tank and Stand Assembly

Table 21. Fuel Tank and Stand Components

Component	Description	PN	Quantity
Fuel tank	Model OT-250, workbench	—	1
Heater stand	ST1 option package	202829	1
ST-1 Option Package Components			
Corner post	1-1/2-inch square tubing, approximately 8 feet long	202826	4
Tube bracket	Assembly, 2-inch square tubing	202828	2
Support angle	Front and rear, 1-1/2 × 1-1/2 × 64	202827	2
Capscrew	Hex head, 1/2-13 × 3/4, corner hardware for RA and RV models	121593	4
Flat washer	1/2, corner hardware for RA and RV models	121595	4
Lockwasher	1/2, corner hardware for RA and RV models	111306	4
Capscrew	Hex head, 1/2-13 × 1-1/2, setscrew hardware for RA and RV models	121596	8
Jam nut	1/2-13, setscrew hardware for RA and RV models	45550	8
Angle stop	1-1/2 × 1-1/2 × 1-1/4, with one (1) 3/8-inch and one (1) 7/32-inch diameter hole, RA models	202825	4
Capscrew	Hex head, 5/16-18 × 3/4, RA models	16247	4
Hex nut	5/16-16, RA models	1035	4
Flat washer	5/16, RA models	27761	4
Lockwasher	5/16, RA models	1333	4
Angle stop	1-1/2 × 1-1/2 × 1-1/4, with two (2) 9/32-inch diameter holes, RV models	202830	4
Screw	F-point, 1/4-20 × 3/4, RV models	114687	8
	F-point, 1/4-20 × 3/4, RA models (unit sizes 150 and 250)		4
Label	Warning	121734	2
Touchup paint	For model OT-250 fuel tank (not included with stand)	135789	AR

VERTICAL LOUVER COMPONENTS

NOTES:

- Vertical louvers are available as option CD1.
- The vertical louver assembly for RA and RAD models—unit sizes 110, 140, and 235—is shown in [Figure 31](#).
- The vertical louver assembly for RA and RAD models—unit sizes 150 and 250—is shown in [Figure 32](#).
- The vertical louver assembly for RA and RAD models—unit size 350—is shown in [Figure 33](#).
- The vertical louver assembly for RV models—unit sizes 225 and 325—is shown in [Figure 34](#).
- Vertical louver components are listed in [Table 22](#).

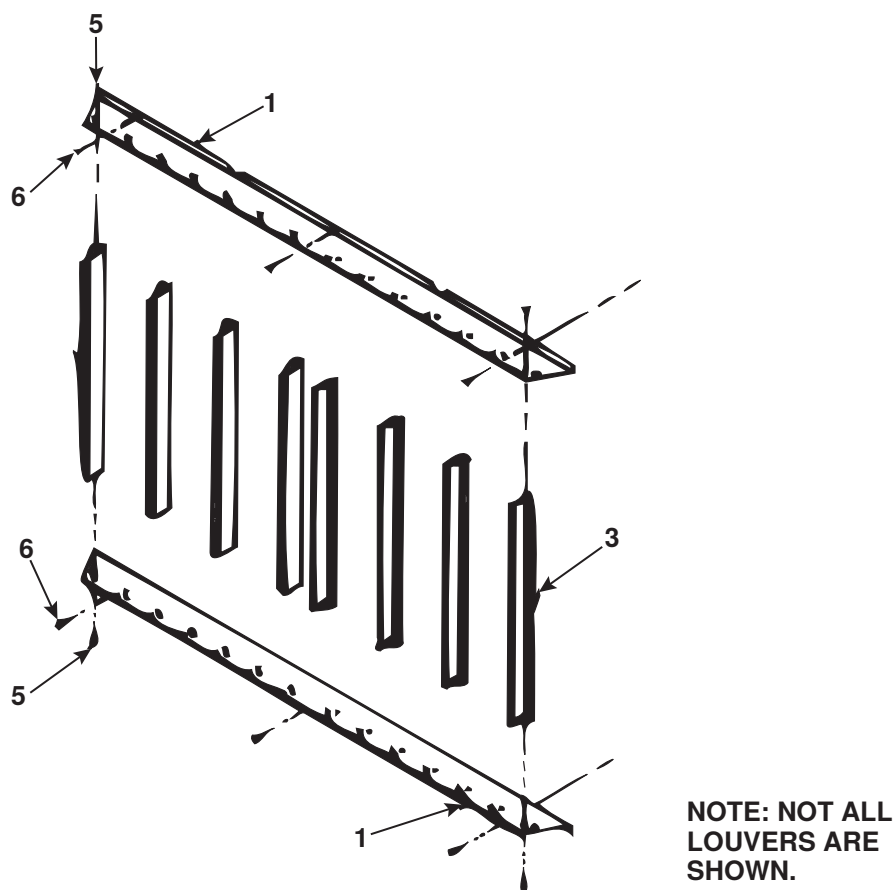


Figure 31. Vertical Louver Assembly—RA and RAD Models, Unit Sizes 110, 140, and 235 (Refer to [Table 22](#))

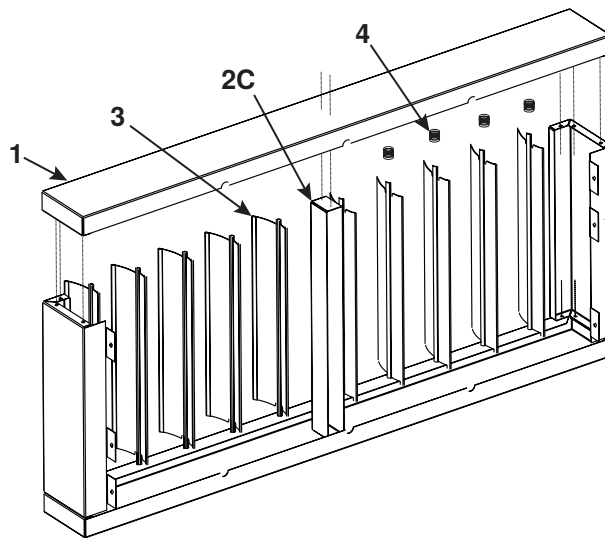


Figure 32. Vertical Louver Assembly—RA and RAD Models, Unit Sizes 150 and 250 (Refer to [Table 22](#))

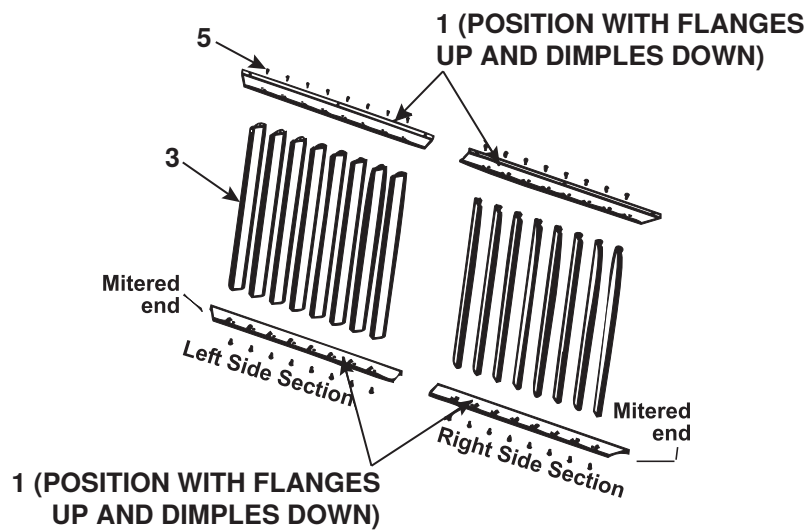


Figure 33. Vertical Louver Assembly—RA and RAD Models, Unit Size 350 (Refer to [Table 22](#))

VERTICAL LOUVER COMPONENTS—CONTINUED

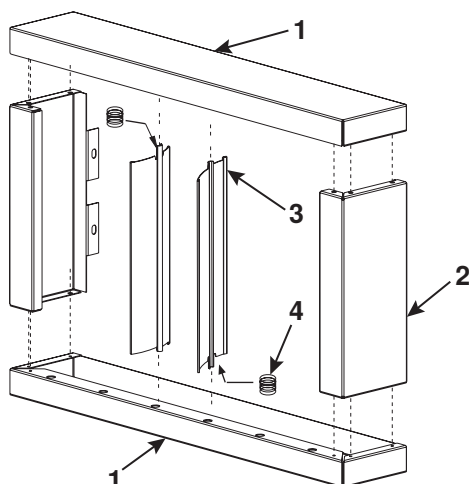


Figure 34. Vertical Louver Assembly—RV Models, Unit Sizes 225 and 325 (Refer to [Table 22](#))

Table 22. Vertical Louver Components									
Item No.	Component	Description	Model						
			RA, RAD					RV	
			Unit Size						
			110, 140	235	350	150	250	225	325
PN (Quantity)*									
—	Option CD1	Package PN	121858	121859	144963	254036	254037	203562	203563
1	Louver frame	Top/bottom	119859 (2)	119860 (2)	—	254032 (2)	(2) 254033	203580 (4)	
2		Side	—	—	—	203578 (2)	(2) 203579	203578 (4)	203579 (4)
2A		Top left bottom	—	—	144432 (2)	—	—	—	—
2B		Top right bottom	—	—	144433 (2)	—	—	—	—
2C		Louver post	—	—	—	254035		—	—
3	Louver		95937 (10)	95937 (14)	95938 (16)	203583 (10)	203583 (14)	203582 (12)	203583 (12)
4	Spring	Compression	—	—	—	195046 (10)	195046 (14)	195046 (12)	
5	Screw	Sheet metal, #10 × 1/2	11813 (20)	11813 (28)	11813 (34)	11813 (22)		—	—
		AB-point, #8-18 × 3/8, slotted indented serrated hex washer head	—	—	—	—	—	195638 (24)	
6		Teks, #10-16 × 1/2	37661 (4)	37661 (6)	37661 (14)	—	—	—	—
*Quantity is one (1) unless otherwise indicated.									

*Quantity is one (1) unless otherwise indicated.

HANGER KITS

NOTES:

- Hanger kits are available as option CD10.
- Model RA and RAD (unit sizes 110, 140, and 235) units manufactured *before* OCT 1994 have 3/8-inch hanger brackets. Order hanger kit PN 98511. Only four (4) of the loose washers and nuts are used.
- Model RA and RAD (unit size 350) units manufactured *before* OCT 1994 have 7/16-inch hanger brackets. A hanger kit is not available for these units.
- All units manufactured *after* SEP 1994 have 1/2-inch hanger brackets. Order hanger kit PN 134477.
- Hanger kit components are shown in [Figure 35](#) and listed in [Table 23](#).



Figure 35. Hanger Kit

Table 23. Hanger Kit Components

Component	Description	1/2-Inch Kit	3/8-Inch Kit
		PN (Quantity)	
Option CD1	Package PN	134477	98511
Swivel connector	Assembly	134476 (4)	17627 (4)
Lockwasher	1/2	111306 (4)	—
	3/8	—	5197 (8)
Hex nut	3/8	—	1438 (8)

MISCELLANEOUS ITEMS

NOTES:

The following miscellaneous items are available:

- Touch-up paint for unit (all models), 12-oz spray can (PN 37919)
- Gasket adhesive for unit (all models), 20-oz spray can (PN 112225)
- Cleaning brush for model RA and RAD (unit sizes 150, 250, 350, and 500) units and all model RV units (PN 134569)
- Cleaning rake for oblong tubes in RA and RAD (unit sizes 110, 140, and 235) units (PN 110565)
- Thermostat, 24V (all models) shown in [Figure 36](#) (PN 255350)



Figure 36. 24V Thermostat

