



REZNOR LDAP Downflow Unit Heaters Instruction Manual

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REZNOR[®]

Revision: LDAP-RPL (04-22) 271892-A
Supersedes: LDAP-RPL (01-22) 271892-A



**REPLACEMENT PARTS FOR DOWNFLOW UNIT HEATERS
MODEL LDAP**

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REFERENCES

Table 1. Related Technical Manuals Available from Factory Distributor

Type	Form	PN*
Installation/operation/maintenance	LDAP-IOM	207733
Gas conversion kit installation	LDAP-GC	208881
Heat exchanger gasket kit installation	LDAP-HX	209212
High-elevation pressure switch replacement instructions	LDAP-DJ20	208081
Vertical louver kit installation	LDAP-CD32	208898
Downturn nozzle kit installation	LDAP-CD57,58,59	208899
Relay kits for multiple heater control	LDAP-CL31,32	1041278

*Also available at www.reznorhvac.com.

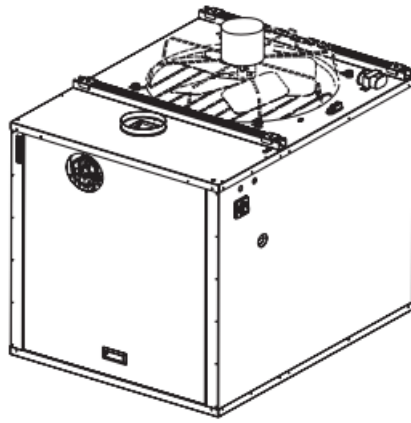
WARRANTY

The heater has a 1-year limited warranty. Contact your Distributor for details.

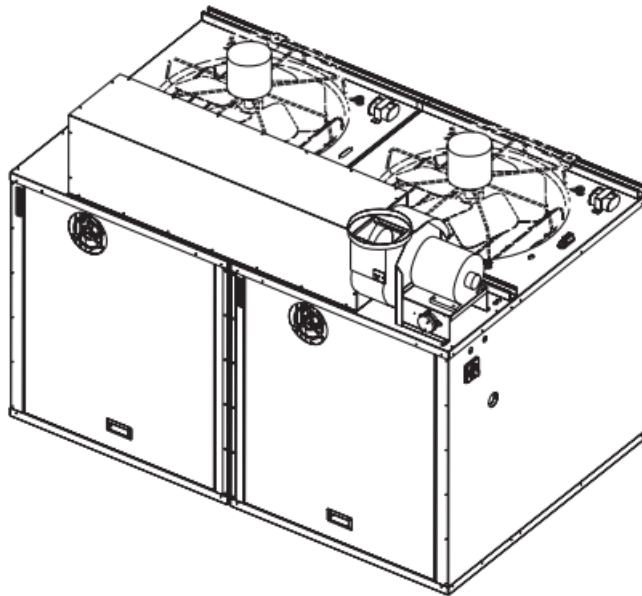
CABINET CONFIGURATIONS

These indirect-fired, indoor, downflow packaged heaters are available in three different configurations, as shown in Figure 1.

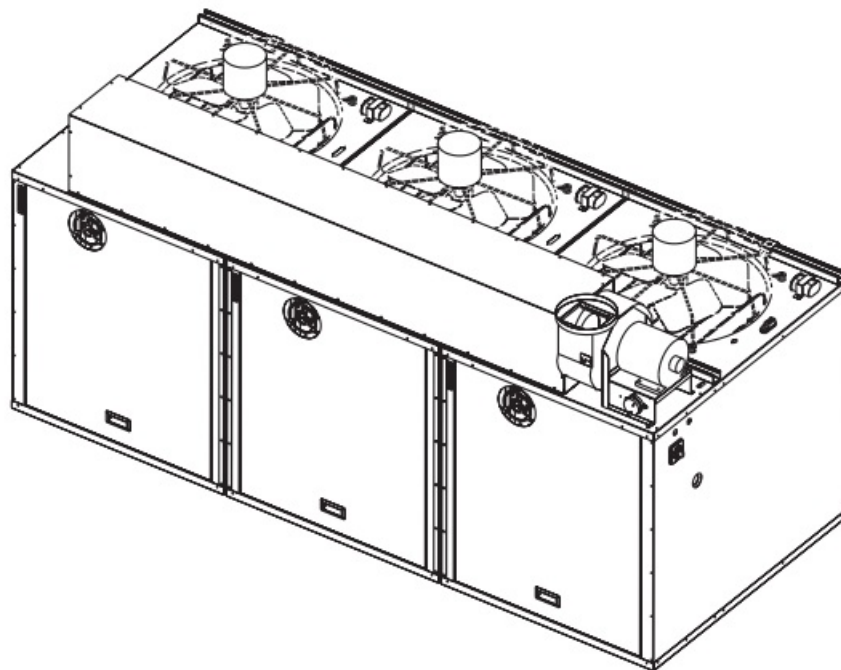
UNIT SIZE 400



ONE DOWNFLOW HEATER
UNIT SIZE 800



ONE HEATER WITH TWO DOWNFLOW HEAT SECTIONS
UNIT SIZE 1200



ONE HEATER WITH THREE DOWNFLOW HEAT SECTIONS

Figure 1. Cabinet Configurations

SERIAL NUMBER

NOTE: The serial number is located on the unit's rating plate.

Decode serial numbers as follows:

All models before JUN 2015:

Serial number sample: BDF 79 X7 N 00000

Elements key number: 1 | 2 | 3 | 4 | 5

Key:

1 = Date code (refer to Table 2)

2 = Ignition system type

3 = Gas valve type

4 = Gas type (N = natural, L = propane)

5 = Consecutive number

All models after MAY 2015:

Serial number sample: BOG 3062 00000

Elements key number: 1 | 2 | 3

Key:

1 = Date code (refer to Table 2)

2 = Plant of manufacture (3060 = Mercer, 3062 = Monterrey)

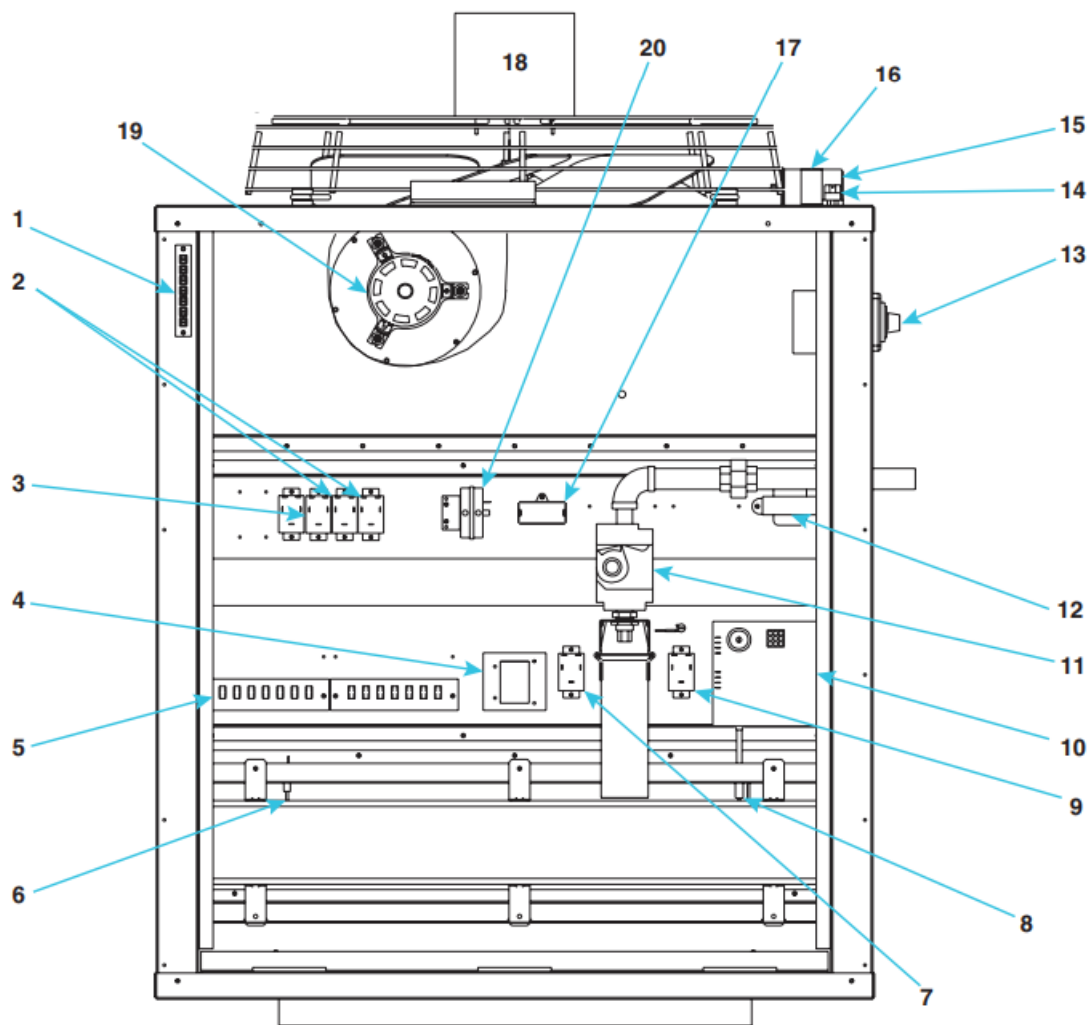
3 = Consecutive number

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

Year	Month											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
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	BEH	BFI	BFJ	BFK	BFL
2007	BGA	BGB	BGC	BGD	BGE	BGF	BGG	BGH	BGI	BGJ	BGK	BGL
2008	BHA	BHB	BHC	BFID	BHE	BHF	BHG	BHH	BHI	BHJ	BHK	Bill
2009	BIA	BIB	BIC	BID	BIE	BIF	BIG	BIH	BII	BIJ	BIK	BIL
2010	BJA	BJB	BJC	BJD	BJE	BJF	BJG	BJH	BJI	BJJ	BJK	BJL
2011	KA	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	BOA	BOB	BOC	BOD	BOE	BOF	BOG	BOH	BOI	BOJ	BOK	BOL
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	BIB	BTC	BTD	BTE	BTf	BTG	BTH	BTI	BTJ	BTk	BTL
2021	BUA	BUB	BUC	BUD	BUE	BUF	BUG	BUH	BUI	BUJ	BUK	BUL

2022	BVA	BVB	BVC	BVD	BVE	BVF	BVG	BVH	BVI	BVJ	BVK	BVL
2023	BWA	BWB	BWC	BWD	BWE	BWF	BWG	BWH	BWI	BWJ	BWK	BWL
2024	BXA	BXB	BXC	BXD	BXE	BXF	BXG	BXH	BXI	BXJ	BXK	BXL
2025	BYA	BYB	BYC	BYD	BYE	BYF	BYG	BYH	BYI	BYJ	BYK	BYL
2026	BZA	BZB	BZC	BZD	BZE	BZF	BZG	BZH	BZI	BZJ	BZK	BZL
2027	CAA	CAB	CAC	CAD	CAE	CAF	CAG	CAH	CAI	CAJ	CAK	CAL
2028	CBA	CBB	CBC	CBD	CBE	CBF	CBG	CBH	CBI	CBJ	CBK	CBL
2029	CCA	CCB	CCC	CCD	CCE	CCF	CCG	CCH	CCI	CCJ	CCK	CCL
2030	CDA	COB	CDC	COD	CDE	CDF	CDG	CON	CDI	CDJ	CDK	CDL
2031	CEA	CEB	CEC	CED	CEE	CEF	CEG	CEH	CEI	CEJ	CEK	CEL
2032	CFA	CFB	CFC	CFD	CFE	CFF	CFG	CFH	CFI	CFJ	CFK	CFL
2033	CGA	CGB	CGC	CGD	CGE	CGF	CGG	CGH	CGI	CGJ	CGK	CGL
2034	CHA	CHB	CHC	CHD	CHE	CHF	CHG	CHH	CHI	CHJ	CHK	CHL
2035	CIA	CIB	CIC	CID	CIE	CIF	CIG	CIH	CII	CIJ	CIK	CIL

ELECTRICAL COMPONENTS



VENTER ASSEMBLY (UNIT SIZES 800 AND 1200)

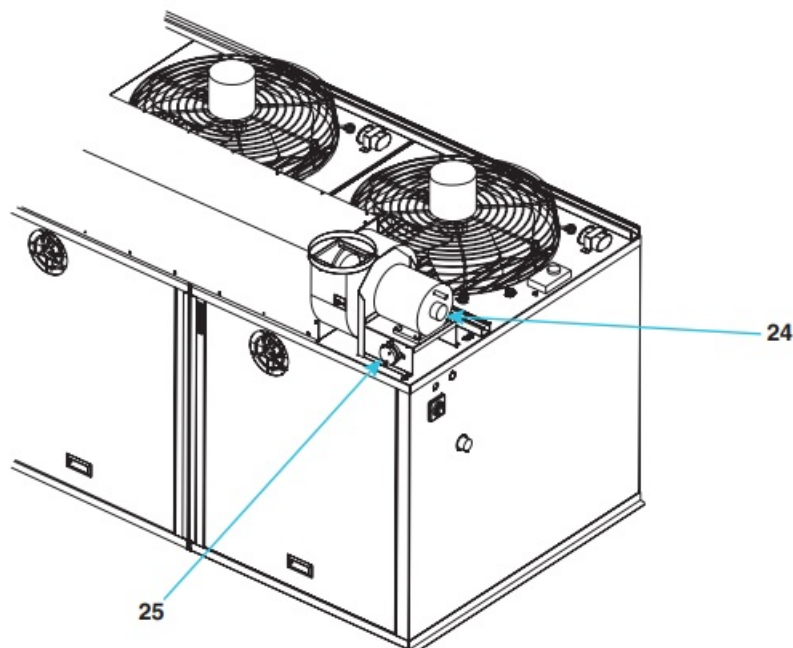


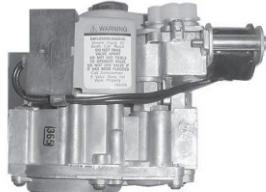
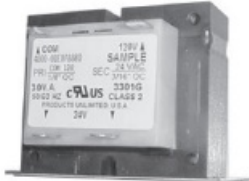
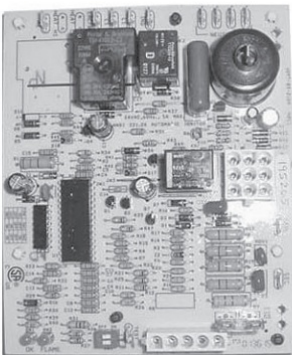
Figure 2. Electrical Components (Refer to Table 3)

Table 3. Electrical Components				
Item No.	Component	Description	Unit Size	
			400/800/1200	
			PN (Quantity)*	
1	Terminal board	24V. 7-pole	164545	
2	Destratification relay SPST	24V coil, with base (PN 211415). units manufactured after AUG 2011	211411	
		24V coil. units manufactured before SEP 2011	98118	
2A	Relay replacement kit	Destratification relay, replaces PN 98118	983527	
3	Vent permissive relay. SPST	(AK2), with base (PN 211415) units manufactured after AUG 2011	—	211413
		230V (AK3), with base (PN 711415), units manufactured after AUG 2011		211414
		Units manufactured before SEP 2011	130821	
3A	Relay replacement kit	Vent permissive relay replaces PN 130821	263529	
4	Limit control	240T, silver dot	202048	
5	Terminal strip	7-pole	164544 (2)1 164544 (5)1 164544 (7)	
6	Sensor	Flame	195292	
7	Heat permissive relay. SPST	24V coil . with base (PN 711415), units manufactured after AUG 2011	711411	

		24V coil, units manufactured before SEP 2011	98118	
7A	Relay replacement kit	Heat permissive relay, replaces PN 98118	263527	
8	Ignitor		175272	
9	Fan permissive relay SPDT	208V (AK2). with base (PN 211415), units manufactured after AUG 2011	—	211413
		230V (AK3) with base (PN 211415) units manufactured after AUG 2011		711414
		Units manufactured before SEP 2011	157808	
9A	Relay replacement kit	Fan permissive relay, replaces PN 157808	263529	
10	DSI control board	Circuit board	195265	
10A	Fuse	DSI control board	201685	
11	Gas valve	Single-stage. natural gas. serial No. code Y3 or Z8	196981	
		Two-stage. natural gas. serial No code Y9 or 5A	197067	
		Single-stage. propane. serial No code Y5 or 1A	196983	
		Two-stage, propane. serial No code Y7 or 3A	197065	
12	Transformer	208/240V, 40VA	19453Q	
13	Disconnect switch	40A	207948 1 207948 (1)	
14	High limit control	Manual reset, 150', white dot	112753	
15	Control	Destratification fan, adjustable	207929 1 707929 (1)	
16	Capacitor	Fan motor, 20pF C 370VAC	207582	
16A	Boot	Capacitor (Syntex *M-78)	103182	
17	Capacitor	Venter motor	195641	
18	Fan motor	208230V. 1-HP 3-speed (AOS #F48U34A13)	707734	
19	Venter motor	208240V. heat section	196830	
20	Pressure switch	Heat section, yellow label, <6000-foot elevation	197028	
	Pressure switch	Heat section. light blue label. :.16000-foot elevation	197029	
21	Wiring harness (not shown)	5-circuit	208043	
22		9-circuit	208224	
23	Wire (not shown)	Ignitor	708231	
24	Venter motor	Flue collection (AOS *C199)	—	16074

25	Pressure switch	Flue collection box	—	205445
*Quantity is one (1) for unit size 400. two (2) for unit size 800. or three (3) for unit size 1200 unless otherwise indicated.				
**May also use field-supplied fuse, type ATC or ATO 3, color violet.				

ELECTRICAL COMPONENTS—CONTINUED

Item 1: Terminal Board 	Item 5: Terminal Strip 	Item 11: Gas Valve  Single-Stage  Two-Stage	
Items 2, 3, 7, and 9: Relay and Base 	Item 6: Flame Sensor 		
Item 4: Limit Control 	Item 8: Ignitor 	Item 12: Transformer 	Item 13: Disconnect Switch 
Item 11: DSI Control Board 	Item 15: Fan Control 	Item 14: High Limit Control 	Item 17: Venter Motor Capacitor 

Item 20: Pressure Switch, Heat Section

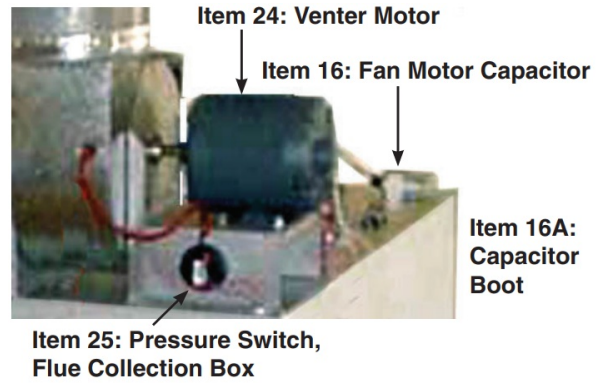


Figure 3. Individual Electrical Components (Refer to Table 3)

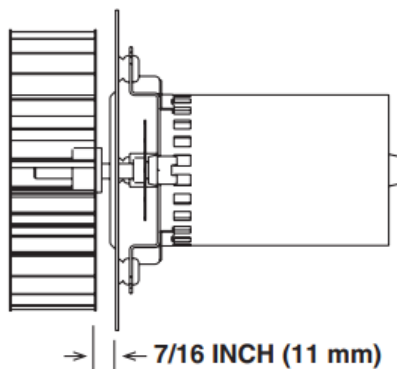
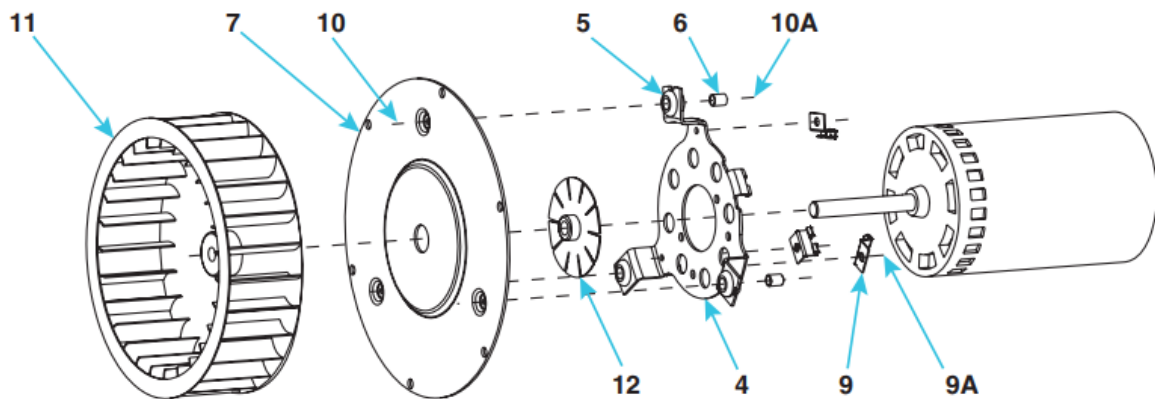
VENTER COMPONENTS

NOTES:

For the flue collection box section venter motor and wheel assembly:

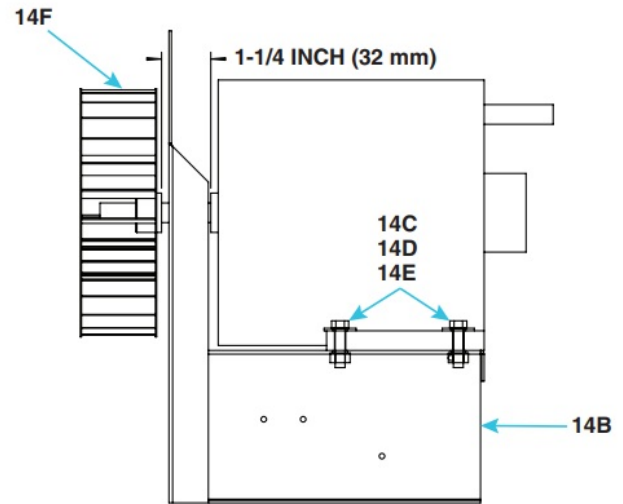
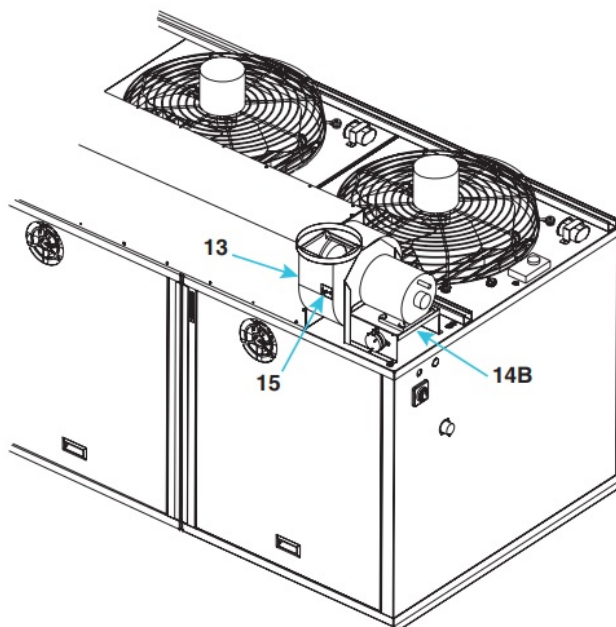
- Do not use the key provided with the motor.
- Locate the setscrew on the wheel approximately 180° from the keyway in the motor. Torque the setscrew to 125 (±5) inch-pounds.

HEAT SECTION VENTER MOTOR AND WHEEL ASSEMBLY



ASSEMBLED MOTOR AND WHEEL

FLUE COLLECTION BOX SECTION VENTER MOTOR AND WHEEL ASSEMBLY



ASSEMBLED MOTOR AND WHEEL

Figure 4. Venter Components (Refer to Table 4)

VENTER COMPONENTS—CONTINUED

Table 4. Venter Components					
Item No.	Component	Description	Unit Size		
			400	800	1200
			PN (Quantity)*		
Heat Section					
1	Housing (not shown)	Venter	209205		
1A	Gasket (not shown)	Venter housing	196013		
2	Pressure tap (not shown)	Static	116043 (2)	116043 (4)	116043 (6)
3	Venter motor	208/240V (see Figure 2)	236163		
4	Mounting bracket**	Venter	195072		
5	Isolator	Venter	194534 (3)	194534 (6)	194534 (9)
6	Isolator bushing	Venter	194803 (3)	194803 (6)	194803 (9)
7	Plate	Venter motor	194910		
8	Gasket	Venter motor plate	201472		
9	Clip**	Venter motor	194805 (3)	194805 (6)	194805 (9)
9A	Venter motor clip screw**	Slotted, #8-32 × 1/2	92851 (3)	194806 (6)	194806 (9)
10	Venter motor plate screw	#10-24 × 3/4	202949 (3)	202949 (6)	202949 (9)
10 A	Hex nut	#10-24	111377 (3)	111377 (6)	111377 (9)
11	Wheel	Venter	195666		
12	Fan	Cooling	196035		

Flue Collection Box Section				
13	Housing	Venter	—	151343 (1)
13 A	Gasket	Venter (not shown)		149857 (1)
14	Motor and wheel assembly	Venter		1024267 (1)
14 A	Motor	Venter (see Figure 2 and Figure 3)		16074 (1)
14 B	Base assembly	Venter motor		207837 (1)
14 C	Capscrew	Hex head, 1/4-20 × 3/4		16246 (4)
14 D	Washer	Plain, 3/8-inch SAE		6593 (4)
14 E	Hex nut	1/4-20, with toothed washer		10650 (4)
14F	Wheel	Venter		8735 (1)
15	Probe assembly	Flow-sensing		151559 (1)
16	Tube, silicone rubber	13 inches long (not shown)		174399 (1)
*Quantity is one (1) for unit size 400, two (2) for unit size 800, or three (3) for unit size 1200 unless otherwise indicated.				
**Used on units manufactured <i>before</i> MAR 2015.				

FAN COMPONENTS

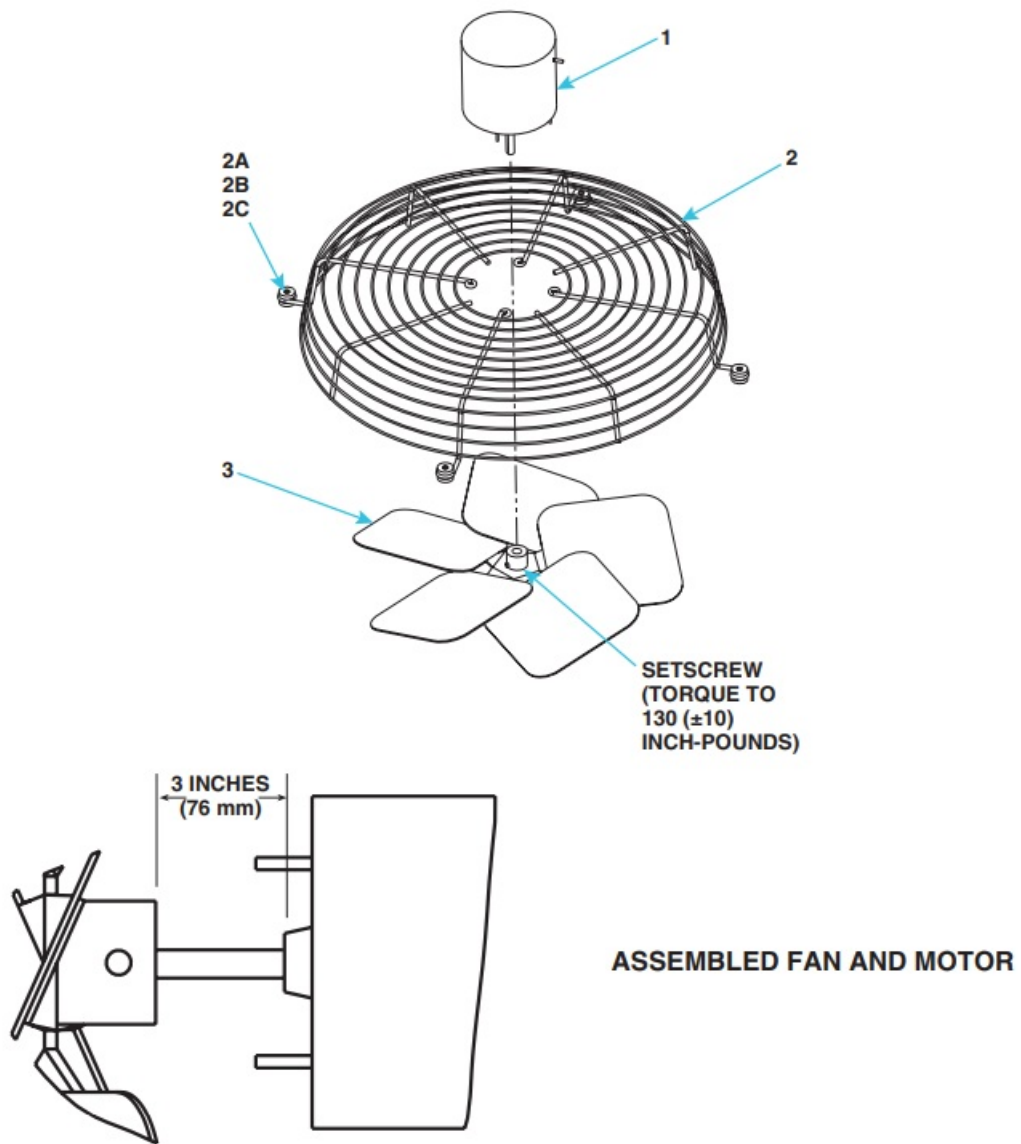


Figure 5. Fan Components (Refer to Table 5)

Table 5. Fan Components					
Item No.	Component	Description	Unit Size		
			400	800	1200
			PN (Quantity)*		
1	Fan motor	208/230V, 1-HP, 3-speed (A.O. Smith #F48U34A13)	207734		
2	Guard	Fan	170086		
2A	Screw	Fan guard	96452 (4)	96452 (8)	96452 (12)
2B	Isolator	Fan guard, with washer	96451 (4)	96451 (8)	96451 (12)
2C	Tinnerman nut	Fan guard	54633 (4)	54633 (8)	54633 (12)
2D	Nut	Motor to fan guard	216942 (4)	216942 (8)	216942 (12)
2E	Flat washer	Motor to fan guard	204323 (8)	204323 (16)	204323 (24)
3	Blade	Fan	207729		
*Quantity is one (1) for unit size 400, two (2) for unit size 800, or three (3) for unit size 1200 unless otherwise indicated.					

HEAT EXCHANGER COMPONENTS

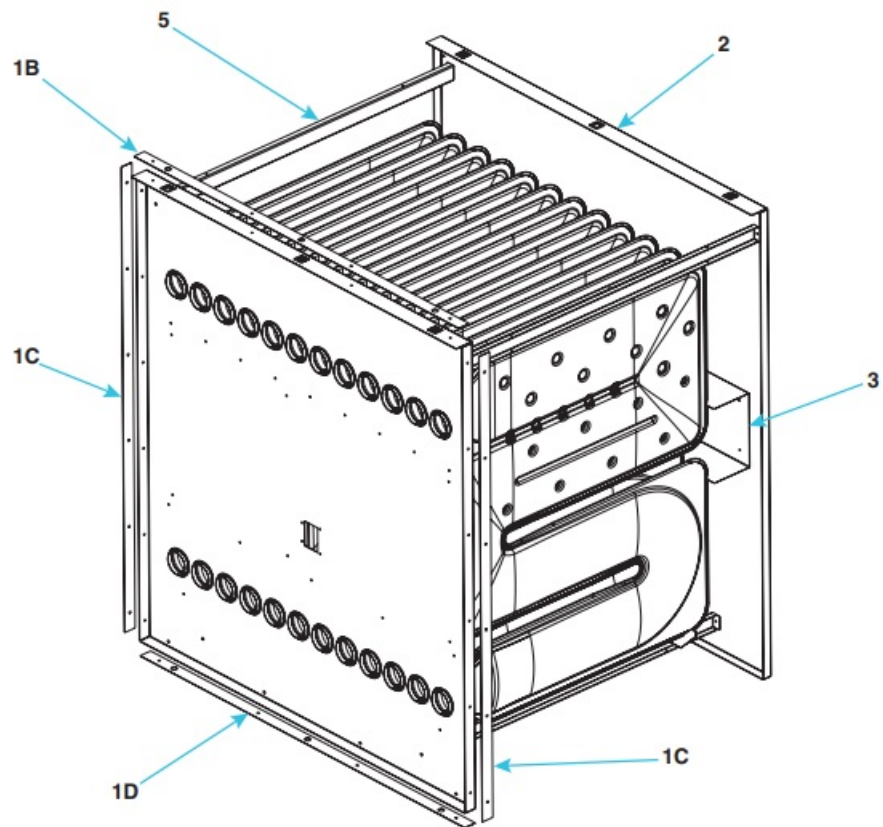


Figure 6. Replacement Heat Exchanger (Refer to Table 6)

Table 6. Heat Exchanger Components

Item No.	Component	Description	Unit Size		
			400	800	1200
			PN (Quantity)*		
1	Heat exchanger assembly**	With gasket kit, aluminized steel	209209		
		With gasket kit, 409 stainless steel	209210		
1A	Gasket kit	Heat exchanger assembly (field-installed)	209211		
1B	Header panel gasket	Top	207727		
1C		Side	207728 (2)	207728 (4)	207728 (6)
1D		Bottom	207727		
2	Panel	Rear	207553	207553	207553
3	Heat exchanger support	Middle	207554	207554	207554
4		Bottom (not shown)	207555	207555	207555
5	Channel	Tube support	207552 (4)	207552 (8)	207552 (12)

*Quantity is one (1) for unit size 400, two (2) for unit size 800, or three (3) for unit size 1200 unless otherwise indicated.

BURNER ASSEMBLY COMPONENTS

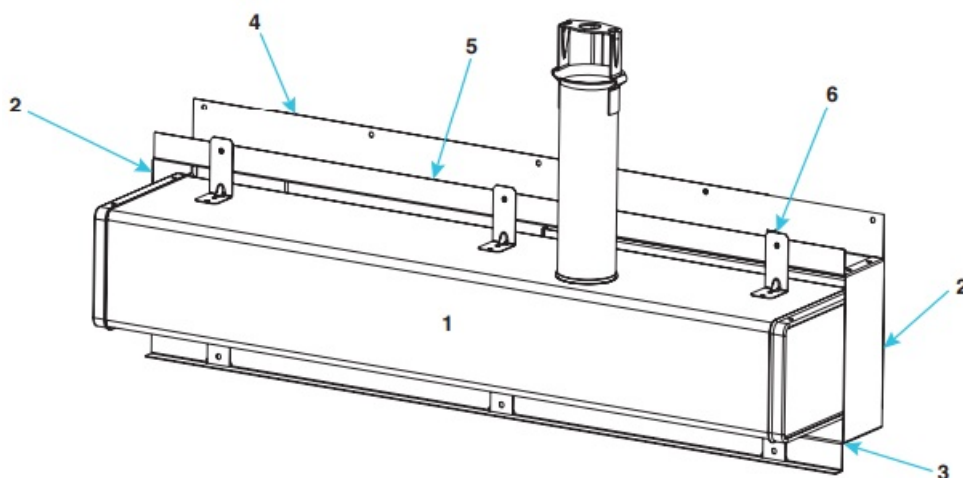


Figure 7. Burner Assembly (Refer to Table 7)

Table 7. Burner Assembly Components

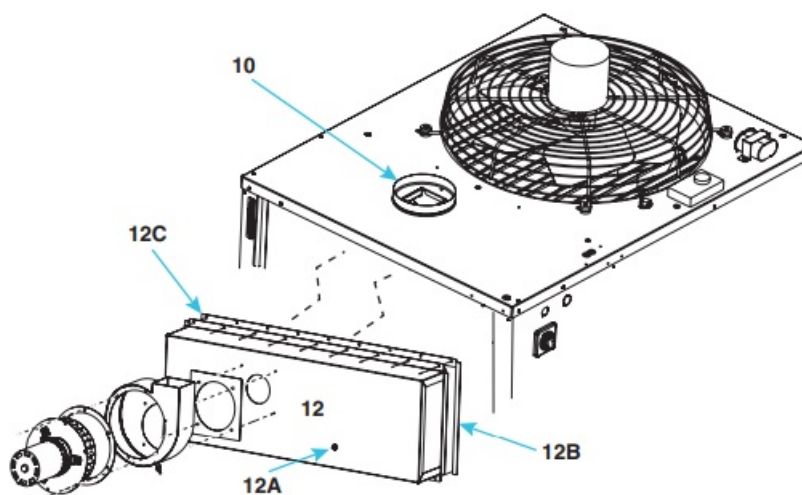
Item No.	Component	Description	Unit Size		
			400	800	1200
			PN (Quantity)*		
1	Burner assembly	Includes venturi tubes	195243		
2	Burner shield	Side	195500 (2)		
3		Bottom	195521		
4		Top	195511		
5	Sight-hole cover	Burner shield	10756		
6	Support	Burner	196598 (6)	196598 (12)	196598 (18)
7	Burner orifice (not shown)	9.6 mm, natural gas	196897		
		5.8 mm, propane	196905		
8	Orifice adapter (not shown)	3/4 × 3/8 bushing	194809		
8A	Orifice adapter nut (not shown)	1/2-inch	165702		

*Quantity is one (1) for unit size 400, two (2) for unit size 800, or three (3) for unit size 1200 unless otherwise indicated.

CABINET COMPONENTS

NOTE: Refer to the CABINET CONFIGURATIONS section.

UNIT SIZE 400



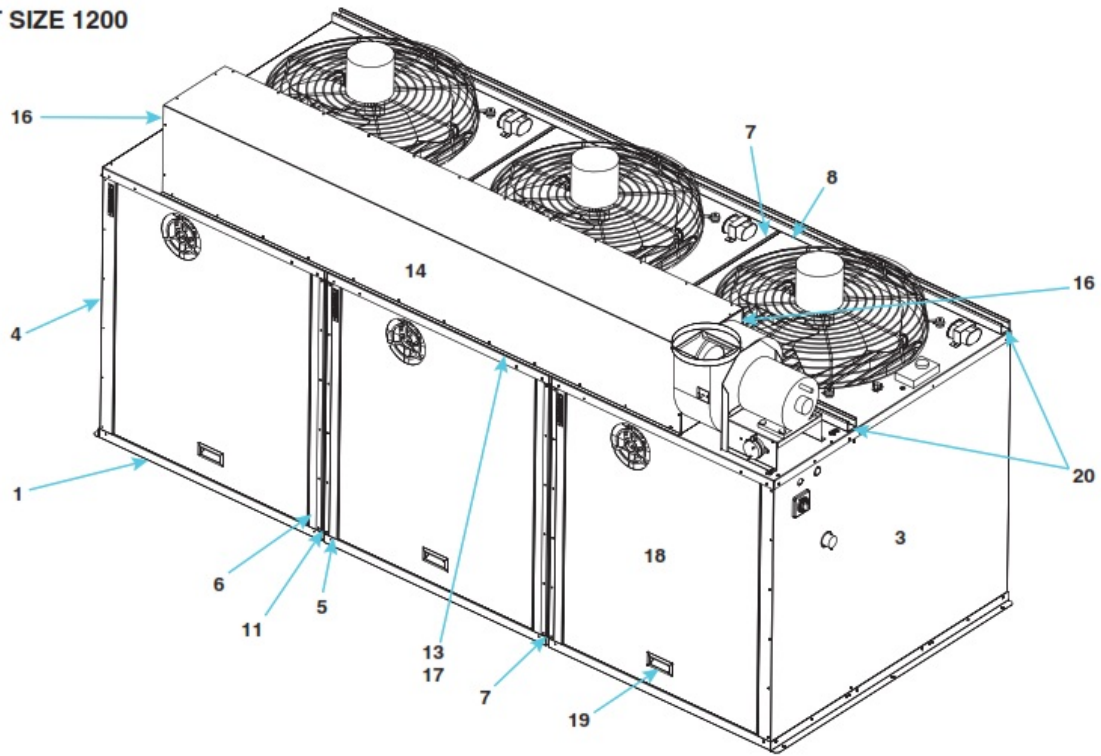
UNIT SIZE 1200


Figure 8. Cabinet Components (Refer to Table 8)

Table 8. Cabinet Components					
Item No.	Component	Description	Unit Size		
			400	800	1200
			PN (Quantity)*		
1	Panel assembly	Bottom	207677	207677	207677
2	Air baffle	Side, interior (not shown)	207610 (2)	207610 (4)	207610 (6)
3	Side panel	Right	207558	207558	207558
4		Left	207559	207559	207559
5	Intermediate panel	Left	—	208026 (1)	208026 (2)
6		Right	—	208027 (1)	208027 (2)
7	Splice plate	Top and bottom	—	207566	207566 (4)
8	Fan panel	Top	207564	207564 (1)	207564 (1)
				208044 (1)	208044 (2)
9	Plug	Hole	16452	—	
10	Outlet collar	6-inch	195662	—	
11	Splice plate	Assembly	—	207731	207731 (4)
12	Flue wrapper assembly	Heat section	207561	207561	207561

12A	Pressure tap	Static, in flue wrapper	116043	116043	116043
12B	Side gasket	Heat section flue wrapper	170037 (2)	170037 (4)	170037 (6)
12C	Top/bottom gasket	Heat section flue wrapper	170039 (2)	170039 (4)	170039 (6)
13	System flue collection box	Bottom and rear	—	207568 (1)	207569 (1)
14		Top and front	—	207570 (1)	207571 (1)
15		End	—	207579 (1)	
16		Exhauster end	—	207580 (1)	207581 (1)
17	Gasket	Fan panel/flue collection box	—	207732	207732
18	Door	Access	207572	207572	207572
19	Handle	Door	196881	196881 (1)	196881 (1)
20	Strut	Top of unit	207573 (2)	207574	207575 (2)
21	Louver		195578 (7)	195578 (14)	195578 (21)
22	Hardware package	Hanger/louver, shipped with heater	208347	208834 (1)	208835 (1)
22A	Compression spring	For louvers	195046 (7)	195046 (14)	195046 (21)
22B	Spring nut	A-100-1/2, regular, for hanging heater	158598 (4)		
22C	Fitting	AB-288-1/2, U-shape, for hanging heater	207874 (4)		
22D	Lockwasher	1/2-inch, for hanging heater	45549 (4)		
22E	Hex nut	1/2-13, for hanging heater	45550 (4)		
23	Vent cap (not shown)	6-inch (option CC1)	111850	—	
		8-inch (option CC1)	—	147149 (1)	
24	Touch-up paint (not shown)	11-oz spray can, white	201805		
*Quantity is one (1) for unit size 400, two (2) for unit size 800, or three (3) for unit size 1200 unless otherwise indicated.					

ACCESSORIES/OPTIONS

Manual Shutoff Valve (Option CE1)



Table 9. Shutoff Valve Components			
Component	Description	Unit Size	
		400	800, 1200
		PN	
Shutoff valve assembly	Includes ball valve and union	208103	208104
Ball valve	1-inch	159725	—
	1-1/4-inch	—	159729
Union	1-inch	1141	—
	1-1/4-inch	—	5976

Figure 9. Manual Shutoff Valve Assembly (Refer to Table 9)

Gas Conversion Kits

NOTE: Refer to the gas conversion kit installation manual listed in Table 1 for kit components and installation instructions.

Table 10. Gas Conversion Kits							
Gas Valve							
Single-Stage						Two-Stage	
Converting to:							
Propane			Natural Gas			Propane	Natural Ga s
Unit Size							
400	800	1200	400	800	1200	400	
Kit PN							
208877	208894	208895	208878	208896	208897	208879	208880

Vertical Louver Kits (Option CD32)

NOTES:

- The wider side of the louver blade must always be facing out of the heater.
- Refer to the vertical louver kit installation manual listed in Table 1 for kit components and installation instructions.

Table 11. Vertical Louver Kits		
Unit Size		
400	800	1200
Kit PN		
208091	208884	208885

Downturn Nozzle Kits (Options CD57, CD58, and CD59)

NOTES:

- Option CD57 provides 30-degree air deflection.
- Option CD58 provides 60-degree air deflection.
- Option CD59, which includes four-way louvers, provides 30-degree air deflection that may vary with louver adjustment.

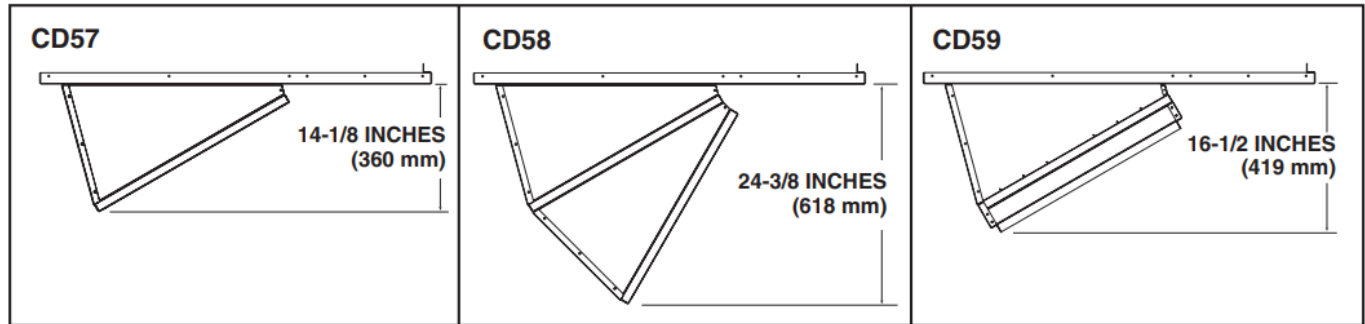


Figure 10. Downturn Nozzle Assemblies (Refer to Table 12)

Table 12. Downturn Nozzle Kits								
Unit Size								
400			800			1200		
Option								
CD57	CD58	CD59	CD57	CD58	CD59	CD57	CD58	CD59
Kit PN								
208094	208097	208100	208886	208888	208890	208887	208889	208891

Hanger Kit (Option CK10)



Figure 11. Hanger Kit (See Table 13)

Table 13. Hanger Kit Components		
Component	Description	PN (Quantity)
Kit package	Swivel hanger kit for 1-inch pipe (option CK10)	207938 (1)
Hanger connector	Swivel assembly	207939 (4)
Lockwasher		45549 (4)

Thermostats (Options CL1 and CL22)



OPTION CL1



OPTION CL22

Figure 12. Thermostats (Refer to Table 14)

Table 14. Thermostats and Thermostat Accessories			
Option	Component	Description	PN
CL1	Single-stage thermostat	24V, 50–90°F, with fan switch	255350
	Locking cover	Option CM1	257464
CL22	Two-stage thermostat	24V, digital, with fan switch	220630
	Locking cover	Option CM1B	257463

Relay Kits (Options CL31 and CL32)

NOTES:

- There are two relay kit options, one for controlling two heaters (option CL31) and one for controlling up to five heaters (option CL32).
- For unit size 400, up to six heaters can be connected. For unit size 800, three, and for unit size 1200, two.
- The relay kit may be installed on the control heater and on up to five additional heaters.
- Refer to the relay kit installation manual listed in Table 1 for kit components and installation instructions.

Table 15. Relay Kits	
Option	
CL31*	CL32**
Kit PN	
1041280	1041286
*Includes components for one control unit and one additional unit.	
**Includes components for each additional (four maximum) non-control unit.	

Specifications and illustrations subject to change without notice or incurring obligations.

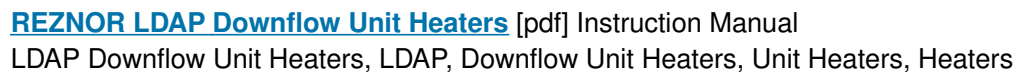
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