Revision: P-COND (10-18) PN268631R7

Supersedes: P-COND (02-18) PN268631R6

REPLACEMENT PARTS FOR CONDENSING UNIT

MODEL MASA

TABLE OF CONTENTS

IMPORTANT

1. Always include complete model and serial number so that any specification change can be considered for parts replacement. It can save time and expense.
2. In keeping with our policy of continuous product improvement, we reserve the right to alter any information shown here. Specifications are subject to change without notice.
3. We reserve the right to substitute functional replacements.
4. Order by Part Number (PN) not by option designation.

RATING PLATE

SAMPLE RATING PLATE AND KEY

MERCER, PA. USA 16137
MADE IN USA
FOR INDUSTRIAL/COMMERCIAL USE ONLY
FOR OUTDOOR USE
MODEL [A] [B] [C] BTU
SERIAL NO. [ ]
[D] VOLTS +/- 10% [D] PH [D] HZ
MINIMUM CIRCUIT AMPACITY (MCA) [F] AMPS
MAXIMUM FUSE SIZE/*CIRCUIT BREAKER (MOP) [G] AMPS
SHORT-CIRCUIT CURRENT: 5,000 RMS SYMMETRICAL, [D] V MAXIMUM

	QTY	FLA (EACH)	HP (EACH)
CONDENSER FAN MOTOR (S)	[T]	[U]	[Z]
	QTY	RLA (EA)	LRA (EA)
COMPRESSOR A (1st STAGE)	[H]	[I]	[J]
COMPRESSOR B (2nd STAGE)	[K]	[L]	[M]

MINIMUM R-410A DESIGN PRESSURE IS 45 PSI
MAXIMUM R-410A DESIGN PRESSURE IS 600 PSI
WIRE DIAGRAM [AA]
*HACR TYPE REQUIRED PER NEC

A = Model MASA 060, 090, 120, 150, 180, 240
B = Manufacturing Date
C = BTU
D = Volts (208/230, 480, 575), 3 Phase, 60 Hz
F = Minimum Circuit Ampacity
G = Maximum Fuse Amps
H = 1 Circuit A Compressor
I = Circuit A Compressor Rated Load (Amps)
J = Circuit A Compressor Locked Rotor (Amps)
K = 1 Circuit B Compressor
L = Circuit B Compressor Rated Load Amps
M = Circuit B Compressor Locked Rotor Amps
T = Condenser Fan Quantity (1 or 2)
U = Condenser Fan Load (Amps)
Z = Condenser Fan Motor HP (.75)
AA = Wiring Diagram No.

SERIAL NUMBERS

SERIAL NUMBER DECODING

The serial number consists of an alpha date code, a numeric date code, and a consecutive number.

ALL Models *Before* June 2015

- Serial No. Sample: BGJ 4007 05394
- Element Key No. 1 I 2 I 3
- Key: 1 = Date of manufacture (refer to **Table 1**)
  2 = 40th week of the year 2007
  3 = Consecutive number

ALL Models *After* June 2015

- Serial No. Sample: BOF 3060 000000
- Element Key No.: 1 I 2 I 3
- Key: 1 = Date of manufacture (refer to **Table 1**)
  2 = Plant of manufacture
  (3060 = Mercer; 3062 = Monterrey)
  3 = Consecutive number

Table 1. Serial Number Date Codes (Month and Year)

Year	Month											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
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	BII	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	BTD	BTE	BTF	BTG	BTH	BTI	BTJ	BTK	BTL

CONTROL COMPARTMENT ELECTRICAL COMPONENTS

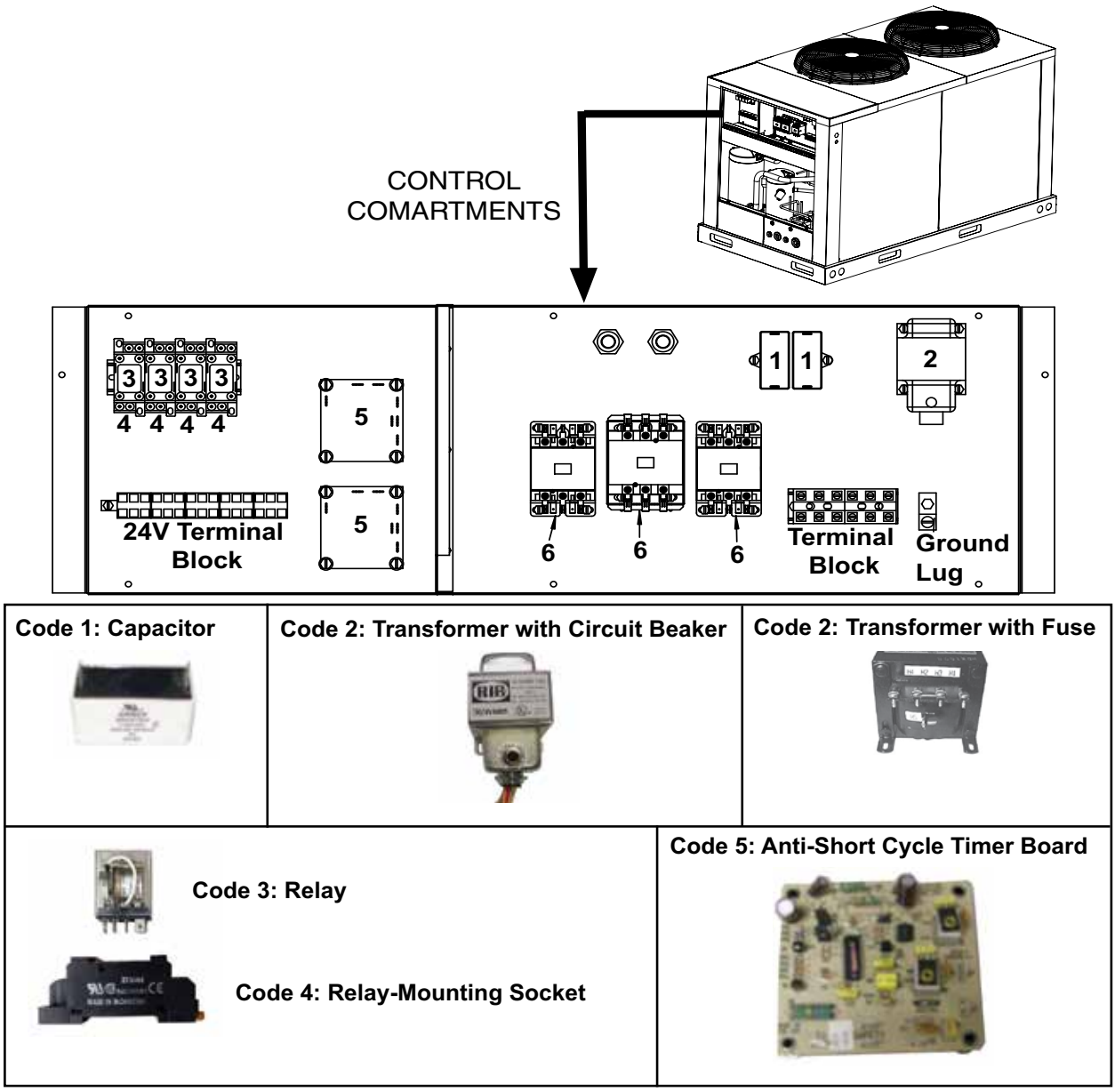
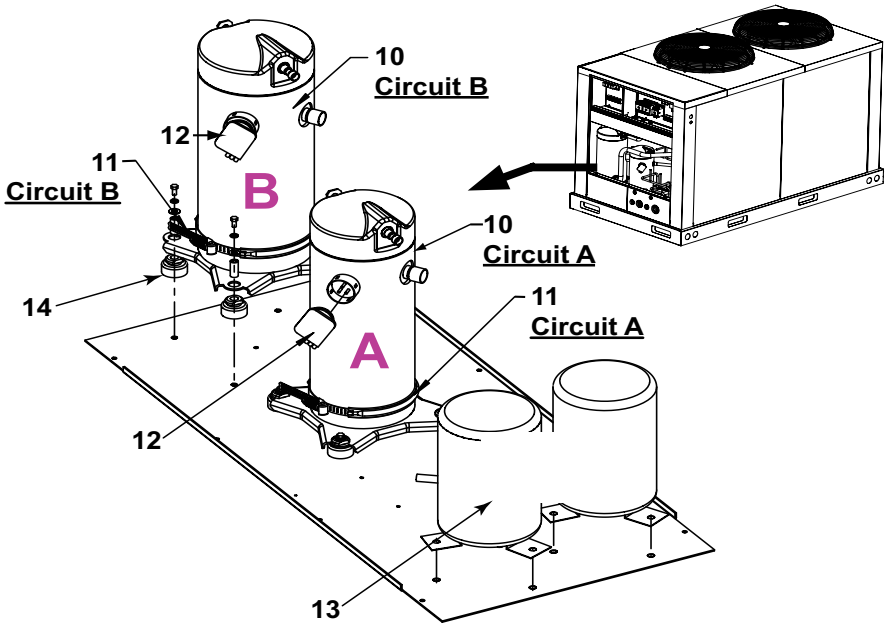


Figure 1. Electrical Components in Control Compartments (Refer to Table 2)

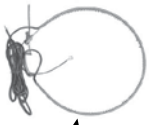
Table 2. Electrical Components in Control Compartments

Code	Part	Description	PN
1	Capacitor	7.5 µF, 460/3/60 and 575/3/60	207447
		10 µF, 208-230/3/60	207448
2	Transformer with circuit breaker	75 VA, 208–230/3/60 (with option AK20)	208989
		75 VA, 460/3/60 (with option AK7)	
	Transformer with fuse	200VA, 575/3/60 (with option AK8)	39095 (transformer)/201773 (fuse)
3	Relay	LY2	211411
4	Relay-mounting socket		211415
5	Anti-short cycle timer	Compressor protect board	216385
6	Contactor	3-pole, 25-amp	216386
		3-pole, 40-amp	216387
		3-pole, 50-amp	216388
		3-pole, 75-amp	222674

COMPRESSOR SECTION COMPONENTS



Code 10: R410A Scroll Compressors



Code 11: Crankcase Heater (Belly-Band Type)

Code 14: Compressor-Mounting Kit

Code 12: Compressor Plug

Code 15: High-Pressure Switch

Code 16: Low-Pressure Switch

Code 17: Hot Gas Bypass Valve

Figure 2. Compressor Section Components (Refer to Table 3, Table 4, and Table 5)

Table 3. Compressors and Crankcase Heaters

MASA Model	Nominal Tonnage	Option (Voltage/PH/Hz)	Circuit	Nominal Tonnage by Circuit	Code 10: Compressor		Code 11: Crankcase Heater (Refer to Table 4)		
					Model*	PN	Watts	Diameter (Inches (mm))	PN
060	5	AK20 (200–230/3/60)	A	2	ZP20K5E	216671[a]	40	5.5 (140)	216434
			B	3	ZP39K5E	216678	40	6.6 (168)	216394
		AK7 (480/3/60)	A	2	ZP20K5E	216672[b]	40	5.5 (140)	216436
			B	3	ZP39K5E	216679	40	6.6 (168)	216396
		AK8 (575/3/60)	A	2	ZP20K5E	261238	40	5.5 (140)	216437
			B	3	ZP39K5E	261239	40	6.6 (168)	216397
090	8	AK20 (200–230/3/60)	A	2	ZP29K5E	216674	40	5.5 (140)	216434
			B	5	ZP57K3E	216686	70	7.4 (188)	216398
		AK7 (480/3/60)	A	2	ZP29K5E	216675	40	5.5 (140)	216436
			B	5	ZP57K3E	216687	70	7.4 (188)	216400
		AK8 (575/3/60)	A	3	ZP29K5E	234055[c]	40	5.5 (140)	216437
			B	5	ZP57K3E	216688	70	7.4 (188)	216401
120	10	AK20 (200–230/3/60)	A	3	ZP39K5E	216678	40	6.6 (168)	216394
			B	7	ZP83KCE	216689	70	7.4 (188)	216398
		AK7 (480/3/60)	A	3	ZP39K5E	216679	40	6.6 (168)	216396
			B	7	ZP83KCE	216690	70	7.4 (188)	216400
		AK8 (575/3/60)	A	3	ZP39K5E	261239[d]	40	6.6 (168)	216397
			B	7	ZP83KCE	216691	70	7.4 (188)	216401
150	13	AK20 (200–230/3/60)	A	4	ZP54K5E	235008[e]	40	6.6 (168)	216394
			B	8	ZP103KCE	216692	90	9.17 (233)	216402
		AK7 (480/3/60)	A	4	ZP54K5E	235012[f]	40	6.6 (168)	216396
			B	8	ZP103KCE	216693	90	9.17 (233)	216404
		AK8 (575/3/60)	A	4	ZP54K5E	235016[g]	40	6.6 (168)	216397
			B	8	ZP103KCE	216694	90	9.17 (233)	216405
180	15	AK20 (200–230/3/60)	A	5	ZP57K3E	216686	70	7.4 (188)	216398
			B	10	ZP120KCE	216695	90	9.17 (233)	216402
		AK7 (480/3/60)	A	5	ZP57K3E	216687	70	7.4 (188)	216400
			B	10	ZP120KCE	216696	90	9.17 (233)	216404
		AK8 (575/3/60)	A	5	ZP57K3E	216688	70	7.4 (188)	216401
			B	10	ZP120KCE	216697	90	9.17 (233)	216405
240	20	AK20 (200–230/3/60)	A	7	ZP83KCE	216689	70	7.4 (188)	216398
			B	13	ZP154KCE	220260	90	9.17 (233)	216402
		AK7 (480/3/60)	A	7	ZP83KCE	216690	70	7.4 (188)	216400
			B	13	ZP154KCE	220261	90	9.17 (233)	216404
		AK8 (575/3/60)	A	7	ZP83KCE	216691	70	7.4 (188)	216401
			B	13	ZP154KCE	220262	90	9.17 (233)	216405

*The model No. of the replacement R410A scroll compressor must be identical to the one removed or to the replacement listed—including the “E” (ZP39KxExxx), which indicates POE compressor oil.

[a]Replaces model ZP20K3E (same PN), which has a 6.6-inch (168-mm) diameter. Replacement requires a 200/230V crankcase heater (PN 216434) with a 5.5-inch (140mm) diameter.

[b]Replaces model ZP20K3E (same PN), which has a 6.6-inch (168-mm) diameter. Replacement requires a 480V crankcase heater (PN 216436) with a 5.5-inch (140-mm) diameter.

[c]Replaces model ZP29K3E (PN 216676, could also be labeled ZP32K3E, ZP32K5E, or ZP29K5E), which has a 6.6-inch (168-mm) diameter. Replacement requires a 575V crankcase heater (PN 216437) with a 5.5-inch (140-mm) diameter.

[d]Replaces model ZP41K3E (PN 216680), which has a 6.6-inch (168-mm) diameter and requires the same crankcase heater as the replacement compressor.

[e]Replaces model ZP54K3E (PN 216682), which has a 7.4-inch (188-mm) diameter. Replacement requires a 200/230V crankcase heater (PN 216394) with a 6.6-inch (168-mm) diameter.

[f]Replaces model ZP54K3E (PN 216683), which has a 7.4-inch (188-mm) diameter. Replacement requires a 480V crankcase heater (PN 216396) with a 6.6-inch (168-mm) diameter.

[g]Replaces model ZP54K3E (PN 216684), which has a 7.4-inch (188-mm) diameter. Replacement requires a 575V crankcase heater (PN 216397) with a 6.6-inch (168-mm) diameter.

COMPRESSOR SECTION COMPONENTS—CONTINUED

Table 4. Crankcase Heater Specifications

Option	AK20				AK7				AK8			
Voltage/PH/Hz	208/230/3/60				480/3/60				575/3/60			
PN	216394	216434	216398	216402	216396	216436	216400	216404	216437	216397	216401	216405
Watts	40		70	90	40		70	90	40		70	90
Diameter (inches)*	6.6	5.5	7.4	9.17	6.6	5.5	7.4	9.17	5.5	6.6	7.4	9.17

*The heater element straps around the bottom of the compressor so the diameter must match.

Table 5. Compressor Plug and Mounting Kit, Receiver, Pressure Switches, and Hot Gas Bypass Valve

Code	Part	Description	MASA Model		
			060–120	150 & 180	240
			PN (Quantity)		
12	Compressor plug	5-foot leads, 10-gauge wires	205630 (2)		—
		5-foot leads, 6-gauge wires	—		223028 (2)
13	Receiver	Liquid refrigerant	220480 (2)		
14	Compressor-mounting kit	Grommets	205825 (2)		
15	High-pressure switch	Model IMPS-072-600R, located in discharge line	216379 (2)		
16	Low-pressure switch	Model ILPS-072-025E050E, located in suction line	216380 (2)		
17	Hot gas bypass valve	3/8-inch, circuit A (with option CUG2)	220518 (1)		
		3/8-inch, circuits A & B (with option CUG3)	220518 (2)	220518 (1)	
		1/2-inch, circuits A & B (with option CUG3)	—	220517 (1)	

CONDENSER FAN AND MOTOR

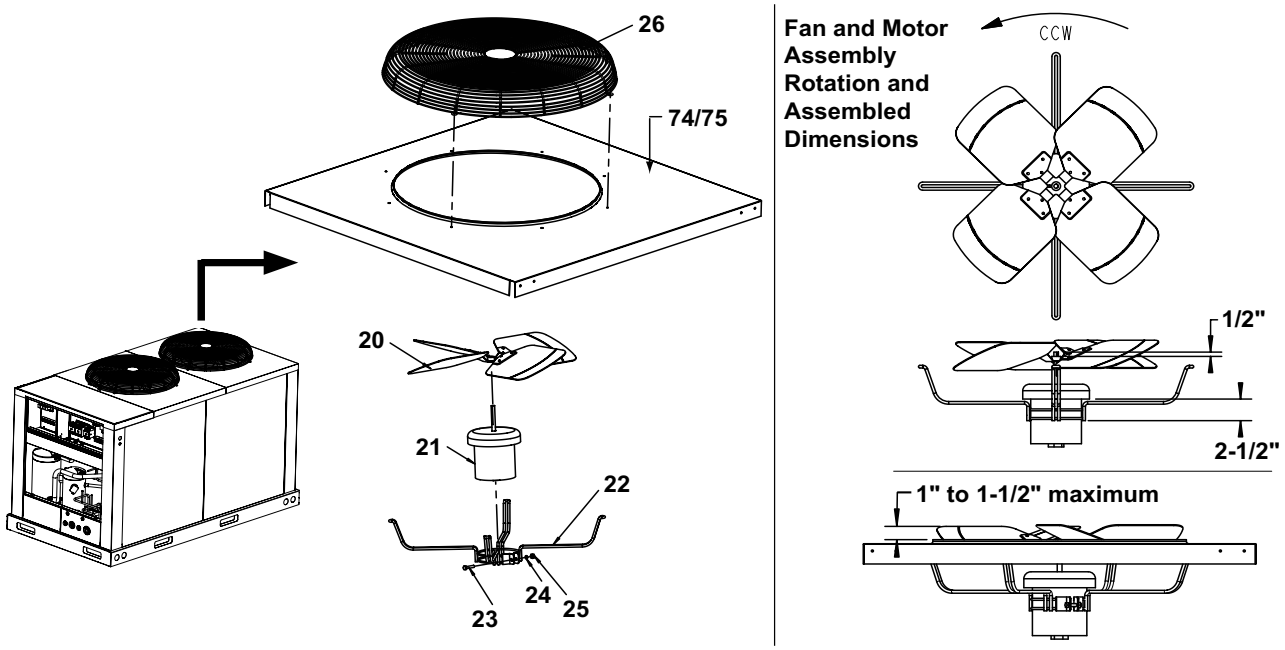


Figure 3. Condenser Fan and Motor Assembly (Refer to Table 6)

Table 6. Condenser Fan and Motor Assembly Parts List

Code		MASA Model	060 & 090			120, 150, 180, & 240		
		Option	AK20	AK7	AK8	AK20	AK7	AK8
		Voltage/PH/Hz	208/230/3/60	480/3/60	575/3/60	208/230/3/60	480/3/60	575/3/60
	Part/Description		PN (Quantity)					
20	Blade, fan, 26-inch, 21-degree		216381			216381 (2)		
21	Motor, fan, 3/4-HP		205628		1012078	205628 (2)		1012078 (2)
22	Support, motor		157107			157107 (2)		
23	Bolt, hex-head		16248			16248 (2)		
24	Lockwasher		1333			1333 (2)		
25	Nut		1035			1035 (2)		
26	Guard, fan		217135			217135 (2)		

CONDENSER COILS

NOTE: Coils are aluminum Micro-Channel and require aluminum to copper brazing.

Table 7. Condenser Coils

Code	Part	Description	MASA Model			
			060 & 090	120 & 150	180	240
			PN (Size)			
Condenser Coils Used *Before* OCT 2008						
30	Condenser coil	Lower section	217166 (34 × 35)	217168 (34 × 60)	217170 (38 × 84)	220948 (30 × 84)
31		Upper section	217167 (21 × 35)	217169 (20 × 60)	217171 (19 × 84)	220949 (20 × 84)
Condenser Coils Used *After* SEP 2008 (Serial No. Code BHJ)*						
30**	Condenser coil	Lower section	255510 (34 × 35)	255511 (34 × 60)	255513 (30 × 84)	
31**		Upper section	255509 (21 × 35)	255508 (20 × 60)	255512 (20 × 84)	

*Refer to **Serial Numbers** to decode the serial number.

**The PNs listed are not a direct replacement for previously-used coils. Before ordering, check with your distributor or the factory on availability or on an alternate replacement.

LIQUID LINE FILTER DRIER

Table 8. Liquid Line Filter Drier Specifications

Code	Part	MASA Model	Nominal Tonnage	Refrigerant Circuit		Model	PN	Connection Size (Inches)
				Circuit	Tonnage			
40	R410A Liquid Line Filter Driers*	060	5	A	2	C-084-S	177378	1/2
				B	3	C-164-S	177379	1/2
		090	8	A	3	C-084-S	177378	1/2
				B	5	C-164-S	216408	1/2
		120	10	A	3	C-164-S	177379	1/2
				B	7	C-304-S	216408	1/2
		150	13	A	4	C-164-S	177379	1/2
				B	8	C-304-S	216408	1/2
		180	15	A	5	C-164-S	216408	1/2
				B	10	C-414-S	216409	1/2
		240	20	A	7	C-304-S	216408	1/2
				B	13	C-415-S	216410	5/8

*Shipped loose in the condenser section of the original MASA unit shipment.

CONDENSER COIL GUARD (OPTION AZ12)

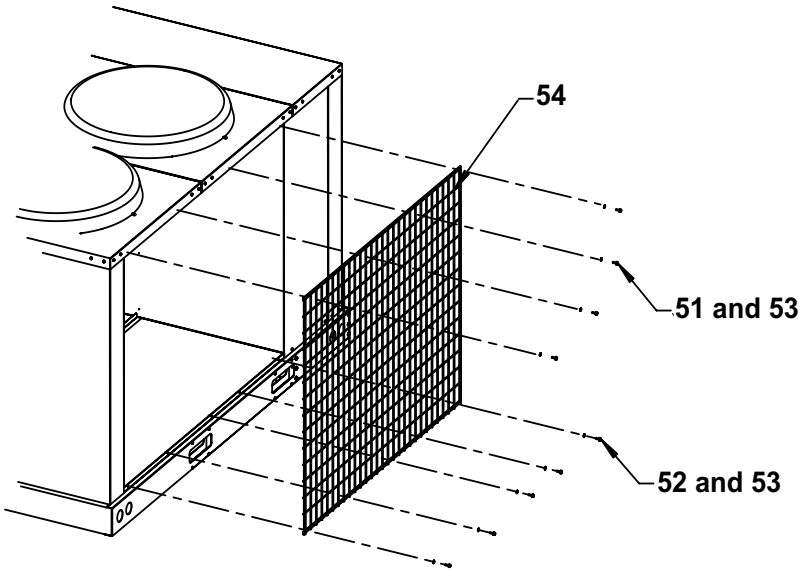


Figure 4. Condenser Coil Guard Assembly (Refer to Table 9)

CONDENSER COIL GUARD (OPTION AZ12)—CONTINUED

Table 9. Condenser Coil Guard Assembly Parts List					
Code	Part	Description	MASA Model		
			060 & 090	120 & 150	180 & 240
			PN (Quantity)		
50	Condenser coil guard assembly	Option AZ12	220607	220608	220609
51	Screw	Hex, #10-16 x 3/4, Tek (Zinc Pl)	51356 (3)	51356 (4)	
52	Screw	Hex, 3/4, type Ab	99542 (3)	99542 (5)	
53	Flat Washer	#10-3/16	113807 (6)	113807 (9)	
54	Coil guard		220285	220284	220283

CABINET PARTS

NOTE: If cabinet parts not shown are required, contact your distributor or the factory service department.

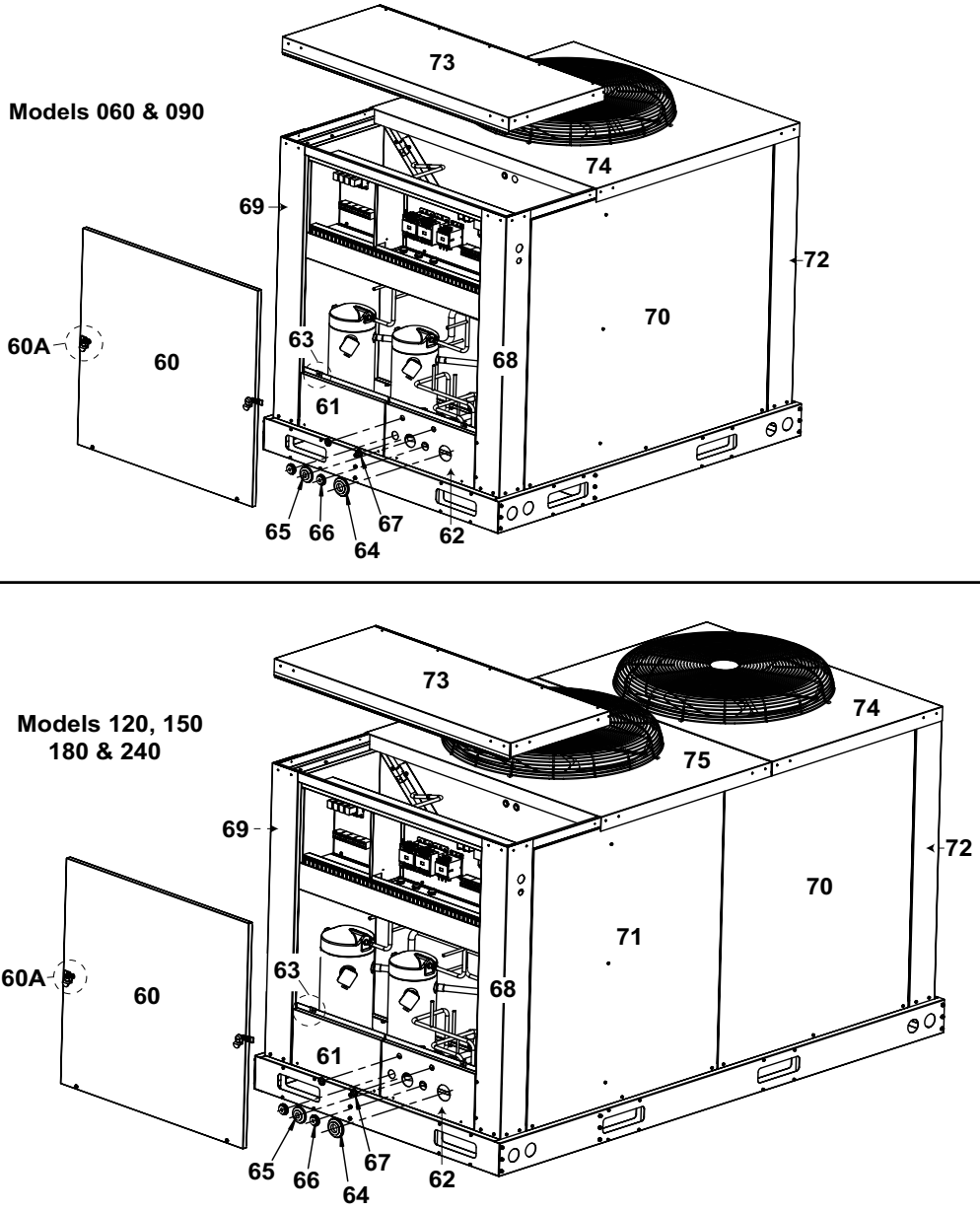


Figure 5. Cabinet Parts (Refer to Table 10)

Table 10. Cabinet Parts List				
Code	Part/Description	MASA Model		
		060 & 090	120 & 150	180 & 240
		PN (Quantity)		
60	Access panel assembly	217182		
60A	Latch, access panel (Southco #E5-2-005-071)	223351 (2)		
	Tab, pull	204470 (2)		
61	Service panel, left compressor compartment	217161		
62	Service panel, right compressor compartment	217160		
63	Nut, clip-on, for service panels	221262 (2)		
64	Grommet, 1-3/8"	19816		
65	Grommet, 7/8"	107607		
66	Grommet, 1/2"	111067 (2)		
67	Grommet, SR, 3/4"	220545 (2)		
68	Corner post, compressor end, right	217172		
69	Corner post, compressor end, left	216718		
70	Side panel, solid	217175	217120	216723
71			217121	216731
72	End panel, solid (includes corners)	217147		
73	Control compartment, top	216422		
74	Condenser section, top (see Figure 3 and Figure 5)	217115	217114	217113
75			217174	217173
76	Paint, cabinet touchup, 11-ounce spray can (not shown)	201805		

RAWAL VALVE OPTIONS

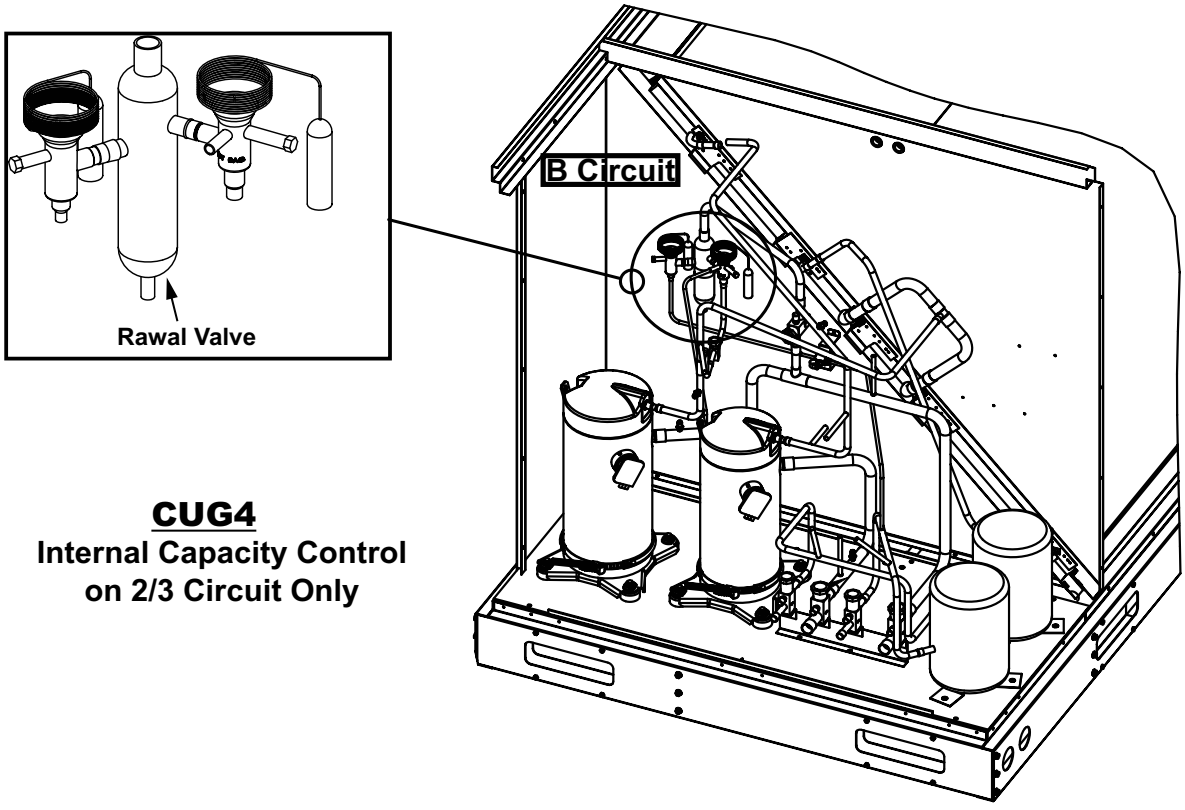


Figure 6. Rawal Valve Option CUG4 (Refer to Table 11)

RAWAL VALVE OPTIONS—CONTINUED

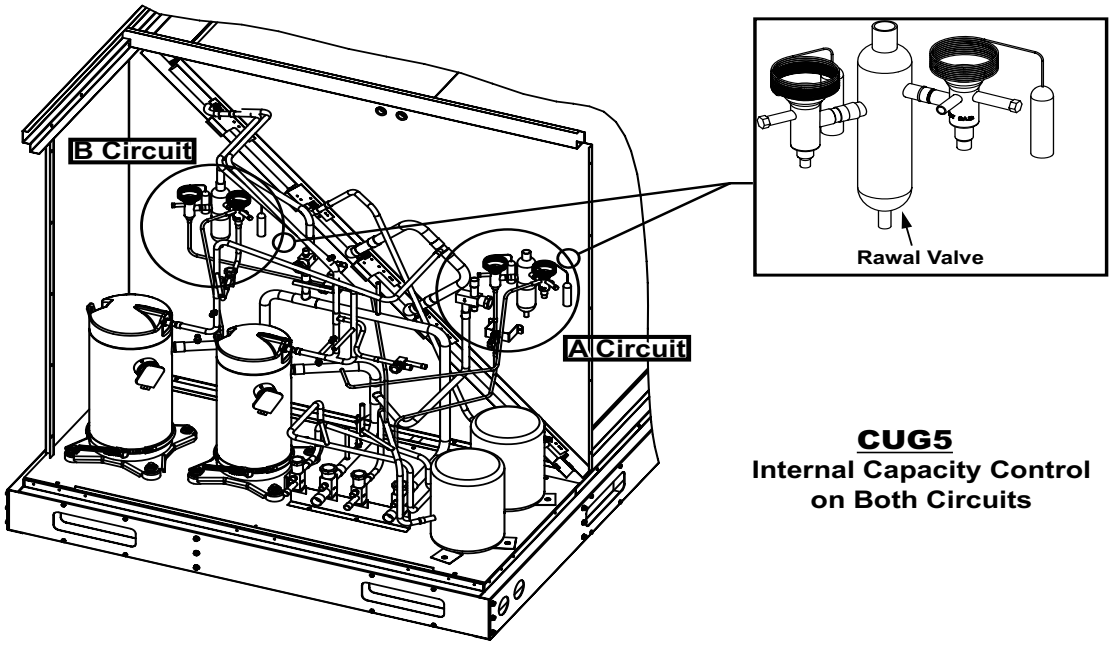


Figure 7. Rawal Valve Option CUG5 (Refer to Table 11)

Table 11. Rawal Valve Options

Rawal Valve Option	MASA Model										
	060	090		120		150		180		240	
	B Circuit	A Circuit	B Circuit	A Circuit	B Circuit	A Circuit	B Circuit	A Circuit	B Circuit	A Circuit	B Circuit
	PN										
CUG4	261613	—	259506	—	259507	—	259507	—	263944	—	263944
CUG5	—	259506	261613	259507	261613	259506	259507	259506	263944	259506	263944

SHUTOFF VALVES

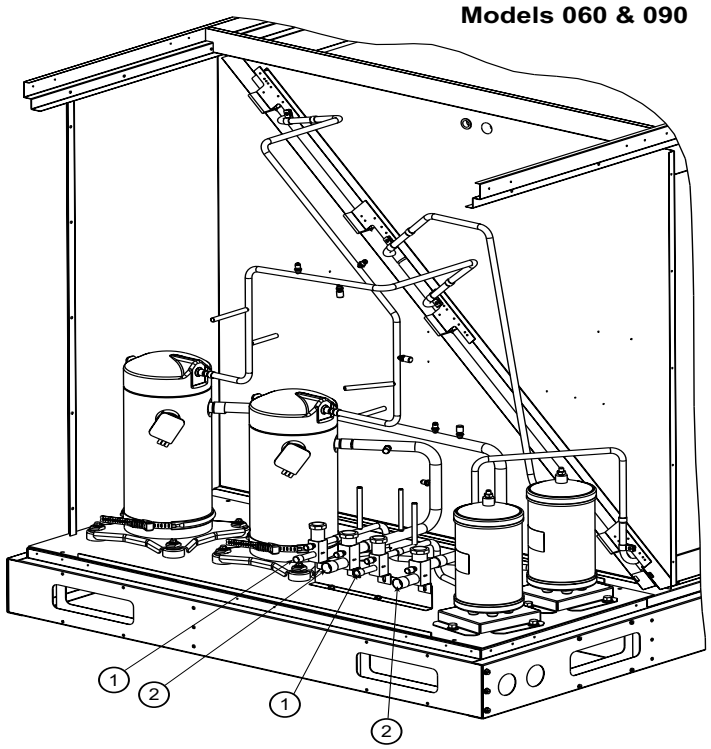


Figure 8. Shutoff Valves—Models 060 and 090 (Refer to Table 12)

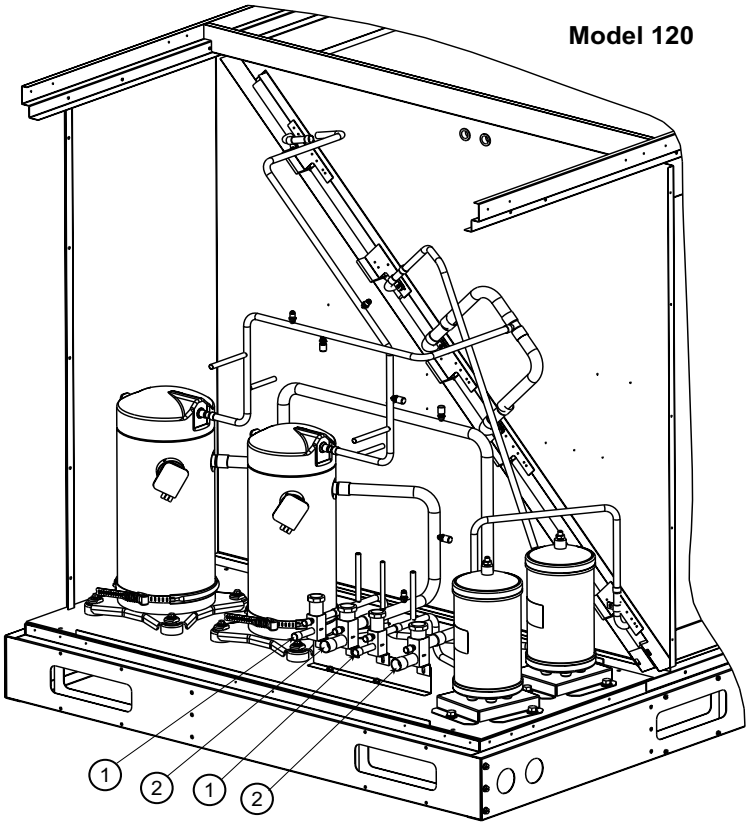


Figure 9. Shutoff Valves—Model 120 (Refer to Table 12)

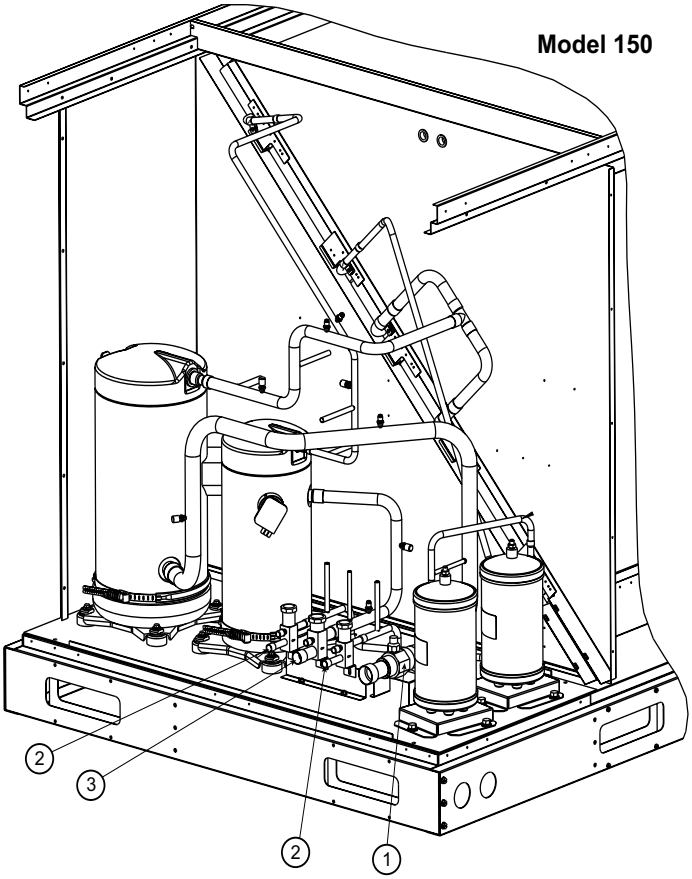


Figure 10. Shutoff Valves—Model 150 (Refer to Table 12)

SHUTOFF VALVES—CONTINUED

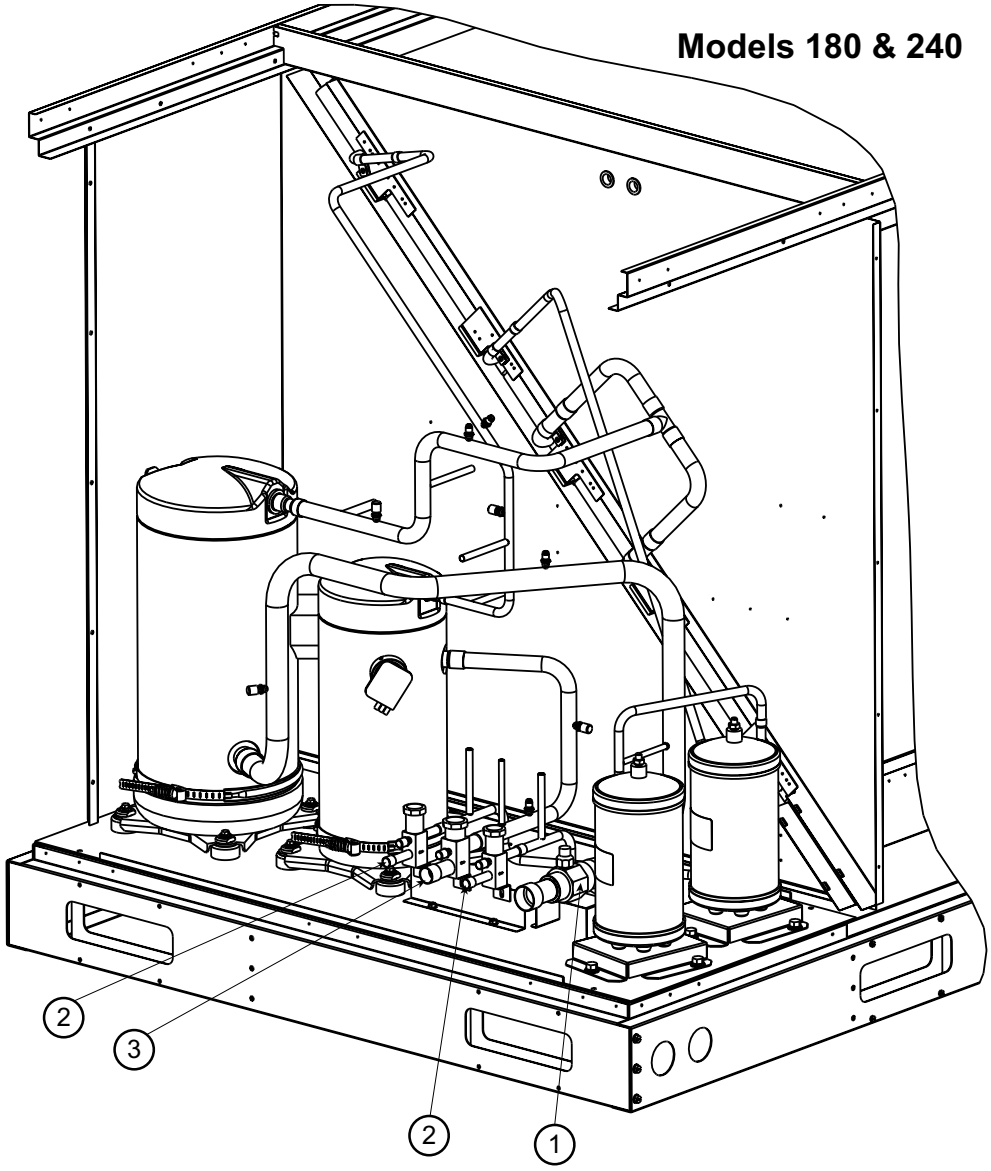


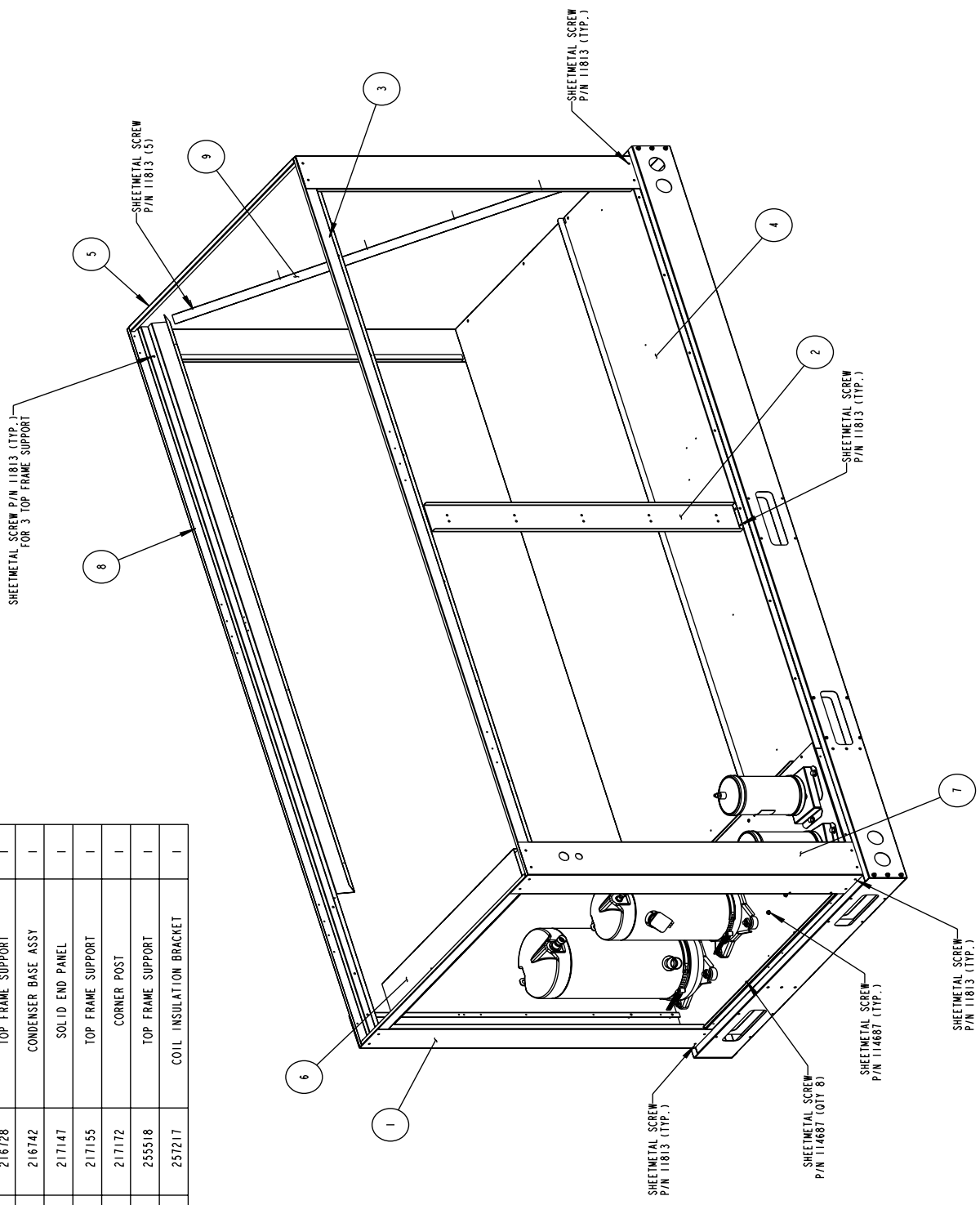
Figure 11. Shutoff Valves—Models 180 and 240 (Refer to Table 12)

Table 12. Shutoff Valves

MASA Model	Item No.	PN	Shutoff Valve Size (Inches)	Quantity
060, 090, & 120	1	216749	1/2	2
	2	216751	7/8	2
150, 180, & 240	1	216703*	1-3/8	1
	2	216749	1/2	2
	3	216751	7/8	1

*This shutoff valve is a Parker ball valve.

CHASSIS PARTS



ITEM NUMBER	PART NUMBER	DESCRIPTION	NUMBER REQUIRED
1	216718	CORNER POST	1
2	216724	WALL SUPPORT	1
3	216728	TOP FRAME SUPPORT	1
4	216742	CONDENSER BASE ASSY	1
5	217147	SOLID END PANEL	1
6	217155	TOP FRAME SUPPORT	1
7	217172	CORNER POST	1
8	255518	TOP FRAME SUPPORT	1
9	257217	COIL INSULATION BRACKET	1

Figure 12. Chassis Parts

REFERENCES

Related Technical Manuals Available from Factory Distributor		
Type	**Form**	**PN**
Installation	I-COND	220746
If Installed with Air Handler Option		
Installation	I-PDH,SDH,PEH,SHH,PXH	235998
	I-RDH,REH,RXH,RHH	215210
	I-CAUA-CC	166152
Operation	O-PREEVA	234661
Replacement Parts	P-PREEVA	263985