

Service Parts

DETROIT DIESEL



Industrial Generator Sets

Models:

1350-2000DSEB

2500/2800DSE

See Group 701: Literature, inside this manual for
part numbers of engine and accessory parts catalogs

See MP-6009 Parts Catalog Industrial Controllers
for controller parts



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Introduction

This manual lists service replacement parts for 1350-2000DSEB and 2500/2800DSE generator sets.

Information in this publication represents data available at the time of print. The manufacturer of DDC/MTU Power Generation products reserves the right to change this publication and the products represented without notice and without any obligation or liability whatsoever.

This manual includes the following main sections:

Table of Contents. Lists the sections of the manual.

Introduction (and other information sections). Contains introductory material about part numbers, illustrations, and hardware.

Specification Number Index. Lists the generator set specs and groups.

Group Parts Lists. List the part numbers of parts in the groups.

Kit Sections. List modules and accessories and their parts.

Appendices. Include Abbreviations, Common Hardware Application Guidelines, General Torque Specifications, Common Hardware Identification, and Common Hardware List.

Numbering System Significance

This manual uses the following numbering systems:

Specification Number. The product identification number located on the generator set nameplate. Spec numbers break down into groups.

Group Number. A unique number representing a parts group needed to assemble a generator set function. For example, Group 101 is the Air Intake group.

Variation or Module Number. A group might have several variations. Each variation performs the same function with different parts lists. For example, a 50 Hz generator alternator and a 60 Hz generator alternator both perform the same function; however, with different parts. Each difference requires a group variation or module number.

Part Number. The part number identifies an individual assembly, subassembly, component, or accessory kit.

Illustrations

Illustrations (or exploded-view drawings) best representing the widest range of variations accompany most groups in this manual. Illustrations do not depict all details and may not show all parts. Do not use illustrations for assembly or disassembly instructions.

How to Find Part Numbers

Use the following steps to locate a service replacement part.

1. Locate the generator set nameplate to **identify the generator set spec number**.
2. Locate a second generator set nameplate listing accessories to **identify installed modules**. On some models the accessory nameplate is mounted inside the generator junction box.
3. **Turn to the Specification Number Index.** The first column lists the generator set spec numbers. The headings identify the groups of parts that make up the generator set.
4. **Identify the group** most likely to include the service part number.
5. **Find the group variation number** at the intersection of the spec number row and the group column. Note the variation number.
6. **Page forward to locate the group** identified in step 4 or find the appropriate page in the Table of Contents.
7. **Find the part on the illustration** and note the item number of the part or **find the part description in the parts list**.
8. Select **the part number that corresponds to your group variation**. The first column lists the illustration item number. Find the variation identified in the Specification Number Index or the module number found on the generator set nameplate in the appropriate column on the right side of the parts list table. Find the quantity used at the intersection of the item number row and the variation column. A blank space at the intersection means the variation/module does not use that part number.

Hardware References

Many common hardware items do not appear in parts manuals or will appear as common hardware entries. A common hardware entry lists the size of the hardware. For example, an item that appears as "Hardware, 3/8-16" in the text means that the piece is 3/8-16 size. Obtain common hardware locally or, if contacting the factory, use the Common Hardware List in the appendix to identify the common hardware part number and specifications. See Common Hardware Application Guidelines in the appendix for mating hardware instructions.

Some hardware items require a specific size or some other characteristic. In that case, use the part number listed in the text.

When replacing hardware, do not substitute inferior grade hardware. Replacement hardware grade should be equal to or better than the grade of the manufacturer's original hardware. Use the Common Hardware List in the appendix to identify the common hardware hardness.

Specification Number Index

Group Title	Air Intake	Cooling System	Engine	Nameplates and Decals	Skid and Plant Mounting	Generator and Mounting	Controller and Mounting	Literature
Group No.	101	104	105	107	109	201	301	701
Spec No.	Variation Number							

Model								
1350DSEB								
GM24213-GA1S	*	*	1	GR1	*	*	†	179
GM24213-GA3S	*	*	2	GR1	*	*	†	179
GM34995-GA1S	*	*	13	GR1	*	*	†	179
GM34995-GA2S	*	*	14	GR1	*	*	†	179
GM34995-GA5S	*	*	21	GR1	*	*	†	179
GM34995-GA6S	*	*	22	GR1	*	*	†	179
1500DSEB								
GM24213-GA4S	*	*	3	GR1	*	*	†	181
GM24213-GA6S	*	*	4	GR1	*	*	†	181
GM34995-GA3S	*	*	15	GR1	*	*	†	181
GM34995-GA4S	*	*	16	GR1	*	*	†	181
GM34995-GA7S	*	*	23	GR1	*	*	†	181
GM34995-GA8S	*	*	24	GR1	*	*	†	181
1820DSEB								
GM24214-GA1S	*	*	6	GR1	*	*	†	183
GM24214-GA2S	*	*	5	GR1	*	*	†	183
GM34996-GA1S	*	*	17	GR1	*	*	†	183
GM34996-GA2S	*	*	18	GR1	*	*	†	183
GM34996-GA5S	*	*	25	GR1	*	*	†	183
GM34996-GA6S	*	*	26	GR1	*	*	†	183
2000DSEB								
GM24214-GA3S	*	*	8	GR1	*	*	†	185
GM24214-GA4S	*	*	7	GR1	*	*	†	185
GM34996-GA3S	*	*	19	GR1	*	*	†	185
GM34996-GA4S	*	*	20	GR1	*	*	†	185
GM34996-GA7S	*	*	27	GR1	*	*	†	185
GM34996-GA8S	*	*	28	GR1	*	*	†	185
2500DSEB								
GM29817-GA1S	*	*	9	GR3	*	*	†	192
GM29817-GA3S	*	*	11	GR3	*	*	†	192
2800DSEB								
GM29817-GA2S	*	*	10	GR3	*	*	†	194
GM29817-GA4S	*	*	12	GR3	*	*	†	194

- * Configured group. Refer to the generator set nameplate for the module number.
Turn to the respective group on the following pages for parts breakdowns.
- † Configured group. Refer to the generator set nameplate for the module number.
See MP-6009 P/C Controllers for controller parts lists.

This technical drawing is an exploded view of a mechanical assembly, likely a pump or filter unit. The components are numbered 1 through 31. The diagram is divided into two main sections: 'Right Side' and 'Left Side'.

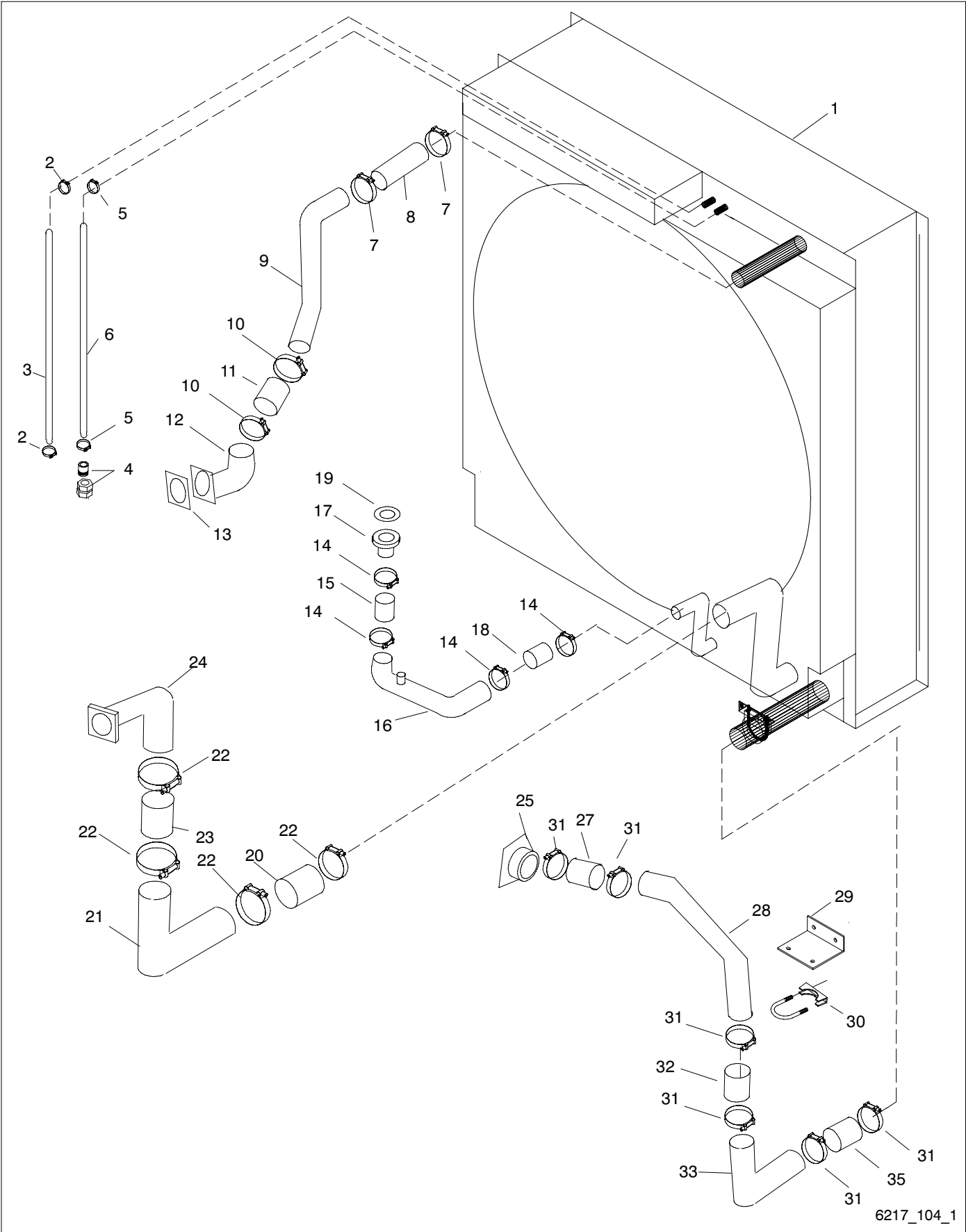
- Right Side Components:**
 - Part 1: A large cylindrical housing.
 - Part 2: A small O-ring.
 - Part 3: Two mounting brackets.
 - Part 4: A long, rectangular base plate with internal structural ribs.
 - Part 5: A top cap or cover.
 - Part 6: A central cylindrical component.
 - Part 7: A mesh filter element.
 - Part 8: Two O-rings.
 - Part 9: A small O-ring.
 - Part 10: Two O-rings.
 - Part 11: A small O-ring.
 - Part 12: A small O-ring.
 - Part 13: A small O-ring.
 - Part 14: A 90-degree elbow fitting.
 - Part 15: A small cylindrical component.
 - Part 16: A small O-ring.
 - Part 17: A small cylindrical component.
 - Part 18: A small cylindrical component.
 - Part 19: A mesh filter element.
 - Part 20: A small cylindrical component.
 - Part 21: A small cylindrical component.
 - Part 22: A small O-ring.
 - Part 23: A small cylindrical component.
 - Part 24: A small O-ring.
 - Part 25: A small O-ring.
 - Part 26: A small O-ring.
 - Part 27: A small O-ring.
 - Part 28: A small O-ring.
 - Part 29: A small O-ring.
 - Part 30: A small O-ring.
 - Part 31: A small O-ring.
- Left Side Components:**
 - Part 18: A small cylindrical component.
 - Part 19: A mesh filter element.
 - Part 20: A small cylindrical component.
 - Part 21: A small cylindrical component.
 - Part 22: A small O-ring.
 - Part 23: A small cylindrical component.
 - Part 24: A small O-ring.
 - Part 25: A small O-ring.
 - Part 26: A small O-ring.
 - Part 27: A small O-ring.
 - Part 28: A small O-ring.
 - Part 29: A small O-ring.
 - Part 30: A small O-ring.
 - Part 31: A small O-ring.

The diagram illustrates the assembly sequence and the relative positions of the various parts, including the main housing, filter elements, O-rings, and mounting brackets.

Group 101: Air Intake

Item	Part Number	Description	Quantity				
			Module				
			GM24329-MA1	GM28368-MA1	GM28513-MA1	GM29822-MA1	GM41986-MA1
1	GM28399	Air cleaner assembly	4				
1	GM30077	Air cleaner assembly				2	2
2	GM30578	Clamp, hose	4				
2	GM30078	Clamp, hose				4	4
3	291666	Mount, air cleaner, 16.00 in. ID			8		
3	279715	Mount, air cleaner, 18.00 in. ID		8			
5	272674	Cap, rain			4		
5	279722	Cap, rain		4			
6	A-279713	Air cleaner assembly (DDC), RS			2		
6	A-279714	Air cleaner assembly (DDC), RS		2			
7	279736	Element, air cleaner			2		
7	279737	Element, air cleaner, secondary			2		
7	279738	Element, air cleaner		2			
7	279739	Element, air cleaner, inner		2			
8	280998	Clamp, hose, 7.5/7.81 in.			4		
8	279743	Clamp, hose, 8.38/8.69 in.		4			
9	279718	Insert, hose reducer, 7 to 6 in.			4		
10	279720	Hose, hump reducer, 8 to 7 in.			4		
10	GM23518	Hose, hump, 8.00 in. ID		4			
11	279743	Clamp, hose, 8.38/8.69 in.		4	4		
12	GM28532	Tube, elbow			2		
12	GM28303	Tube, elbow		2			
13	279717	Clamp, hose, 8.63/8.94 in.		8	8		
14	GM23519	Hose, 90° elbow, 8.00 ID		4	4		
15	X-522-106	Tube, steel		4	4		
16	279743	Clamp, hose, 8.38/8.69 in.		8	8		
17	GM28302	Hose, straight air, 8.00 in. ID		4	4		
18	A-279713	Air cleaner assembly, LS			2		
18	A-279714	Air cleaner assembly, LS		2			
19	279736	Element, air cleaner			2		
19	279737	Element, air cleaner, secondary			2		
19	279738	Element, air cleaner		2			
19	279739	Element, air cleaner, inner		2			
20	X-522-109	Tube, steel			2		
20	X-522-108	Tube, steel		2	2		
21	347957	Hose, 45° elbow, 8.00 in. ID			2		
22	279717	Clamp, hose, 8.63/8.94 in.		4	4		
23	X-522-107	Tube, steel		2	2		
24	GM28298	Bracket, heavy duty air cleaner, RH		1	1		
25	GM28296	Support, air cleaner heavy duty		1	1		
26	GM23511	Support, air cleaner heavy duty		1	1		
27	GM23511	Support, air cleaner heavy duty		1	1		
28	GM28301	Bracket, air cleaner heavy duty		1	1		
29	GM28300	Support, air cleaner heavy duty		1	1		
30	GM28297	Support, air cleaner heavy duty		1	1		
31	GM28299	Bracket, heavy duty air cleaner, LH		1	1		

Group 104: Cooling System



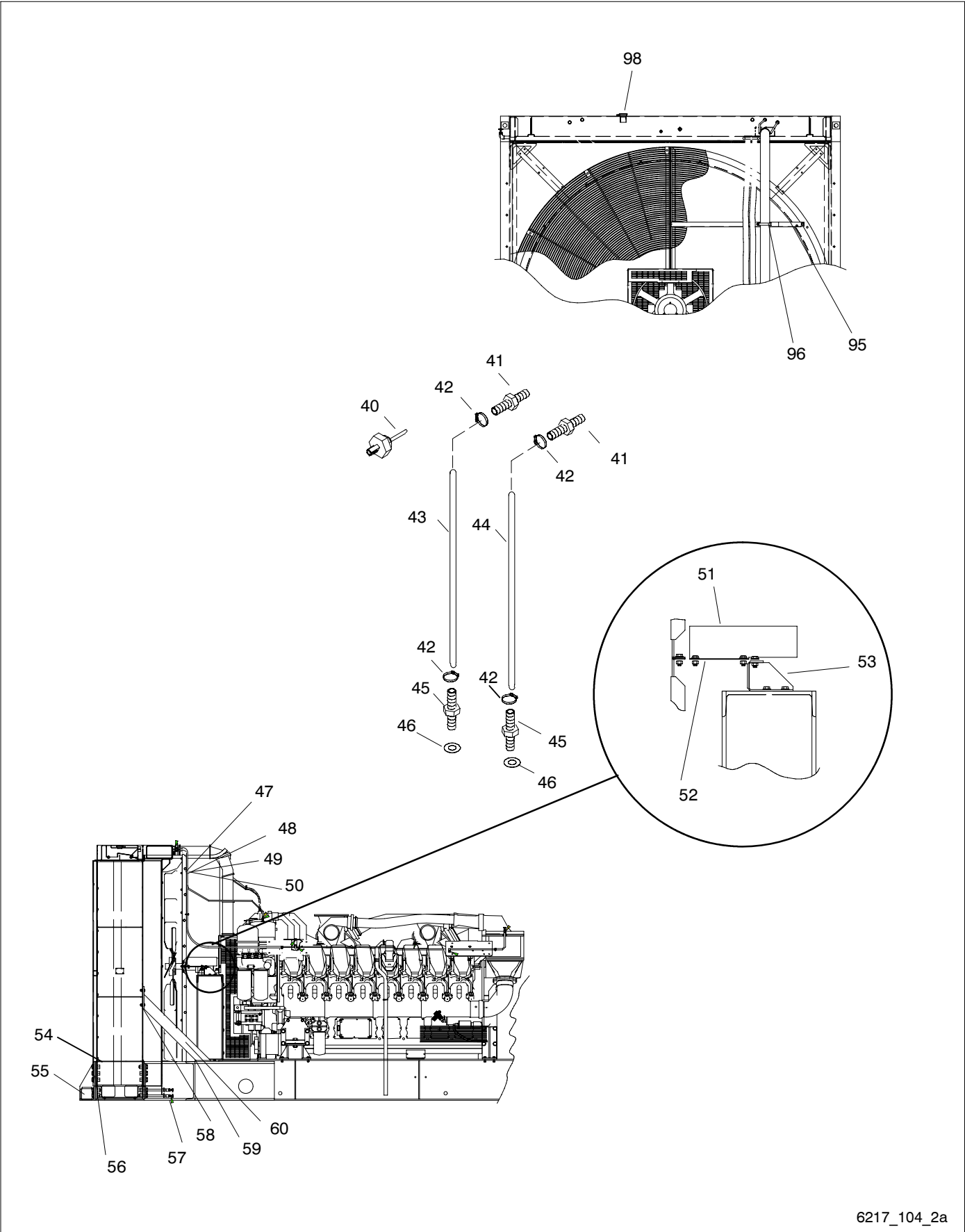
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Group 104: Cooling System

Item	Part Number	Description	Quantity													
			Module													
			GM26291-MA1	GM26291-MA2	GM26291-MA3	GM28327-MA1	GM28327-MA2	GM28327-MA3	GM28427-MA1	GM28427-MA2	GM28438-MA1	GM28477-MA1	GM28477-MA2	GM29820-MA1	GM29820-MA2	
1	GM25490	Radiator assembly				1	1	1				1	1			
1	GM25489	Radiator assembly	1	1	1											
1	GM28418	Radiator assembly							1	1						
1	GM28643	Radiator assembly									1			1	1	
2	X-426-4	Clamp, hose, 1.31/2.25 in.	2	2	2	2	2	2	2	2		2	2	2	2	
2	X-426-8	Clamp, hose, .81/1.75 in.									2					
3	X-6014-4	Hose, radiator wire insert				1	1	1								
3	X-6014-13	Hose, radiator wire insert	1	1	1				1	1	1			1	1	
3	X-6014-115	Hose, radiator wire insert										1	1			
4	GM29562	Connector, swivel	1	1	1	1	1	1	1	1	1	1	1	1	1	
4	272930	Connector, hose	1	1	1	1	1	1	1	1	1	1	1	1	1	
5	X-426-4	Clamp, hose, 1.31/2.25 in.	2	2	2	2	2	2	2	2	2		2	2	2	
5	X-426-8	Clamp, hose, .81/1.75 in.									2					
6	X-6014-52	Hose, radiator				1	1	1								
6	X-6014-4	Hose, radiator	1	1	1				1	1						
6	X-6014-13	Hose, radiator									1			1	1	
6	X-6014-115	Hose, radiator wire insert										1	1			
7	291542	Clamp, hose, 3.25/3.56 in.	2	2	2	2	2	2	2	2	2	2	2	2	2	
8	X-507-7	Hose, radiator, straight, 3 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	
9	GM28489	Tube, intercooler return, 3.00 in. OD											1	1		
9	GM28492	Tube, intercooler return, 3.00 in. OD				1	1	1								
9	GM28414	Tube, intercooler return, 3.00 in. OD	1	1	1				1	1						
9	GM28639	Tube, intercooler return									1					
9	GM30011	Tube, intercooler return												1	1	
10	291542	Clamp, hose, 3.25/3.56 in.	2	2	2	2	2	2	2	2	2	2	2	2	2	
11	X-507-7	Hose, radiator, straight, 3 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	
12	GM19356	Flange, water connection, outlet														
12	GM21307	Flange, water connection, outlet	1	1	1				1	1	1					
12	GM30012	Flange, water connection, outlet												1	1	
13	GM16101	Gasket, water	1	1	1	1	1	1	1	1	1	1	1			
14	291542	Clamp, hose, 3.25/3.56 in.	4	4	4	4	4	4	4	4	4	4	4	4	4	
15	X-507-7	Hose, radiator, straight, 3 in. ID	1	1	1						1					
15	X-507-10	Hose, radiator, straight, 3 in. ID							1	1						
15	X-6014-53	Hose, radiator, straight, 3 in. ID				1	1	1				1	1	1	1	
16	GM28480	Tube, intercooler inlet, 3.00 in. OD										1	1			
16	GM26157	Tube, intercooler inlet, 3.00 in. OD	1	1	1	1	1	1	1	1	1					
16	GM30015	Tube, intercooler inlet												1	1	
17	GM19355	Flange, water connection, inlet	1	1	1	1	1	1	1	1	1	1	1			
17	GM30014	Flange, water connection, inlet												1	1	
18	X-6014-110	Hose				1	1	1	1	1	1	1		1	1	
18	X-6014-53	Hose, radiator, straight, 3 in. ID	1	1	1							1	1			
19	GM19378	Gasket, water inlet	1	1	1	1	1	1	1	1	1	1	1			
20	X-6350-2	Hose, radiator, straight, 4 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	
21	GM28488	Tube, lower radiator, 4.00 in. OD											1	1		
21	GM26155	Tube, lower radiator, 4.00 in. OD	1	1	1	1	1	1	1	1	1			1	1	
22	274545	Clamp, hose, 4.31/4.62 in.	4	4	4	4	4	4	4	4	4	4	4	4	4	
23	X-6350-2	Hose, radiator, straight, 4 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	
24	GM26156	Flange, upper water connector, 4.00 in.	1	1	1	1	1	1	1	1	1	1	1			
24	GM30013	Flange, upper water connector												1	1	
25	361363	Flange, water connection	1	1	1	1	1	1	1	1	1	1	1	1	1	
27	X-6014-91	Hose, radiator, straight, 4 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	
28	GM28481	Tube, lower radiator, 4.00 in. OD											1	1		
28	GM28400	Tube, lower radiator, 4.00 in. OD	1	1	1	1	1	1	1	1						
28	GM28638	Tube, lower radiator									1					
28	GM30016	Tube, lower radiator												1	1	
29	GM13725	Bracket, charge cooler tube support									1					
29	GM28474	Bracket, lower radiator tube	1	1	1	1	1	1	1	1						
29	GM28592	Bracket, lower radiator tube														
30	289372	Clamp, muffler, 4.12 in.	1	1	1	1	1	1	1	1	1	1	1	1	1	
30	X-6011-4	Washer, beveled, .44 ID x 1.25 in. OD									2					
31	274545	Clamp, hose, 4.31/4.62 in.	6	6	6	6	6	6	6	6	6	6	6	6	6	
32	X-6014-31	Hose, straight coolant, 4.00 in. ID				1	1	1	1	1		1	1			
32	X-6014-91	Hose, straight coolant, 4.00 in. ID	1	1	1						1			1	1	
33	GM21159	Tube, lower radiator, 4.00 in. OD	1	1	1	1	1	1	1	1	1	1	1			
21	GM30018	Tube, lower radiator												1	1	
35	X-6014-91	Hose, radiator, straight, 4 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	

Parts list continues on next page

Group 104: Cooling System, continued



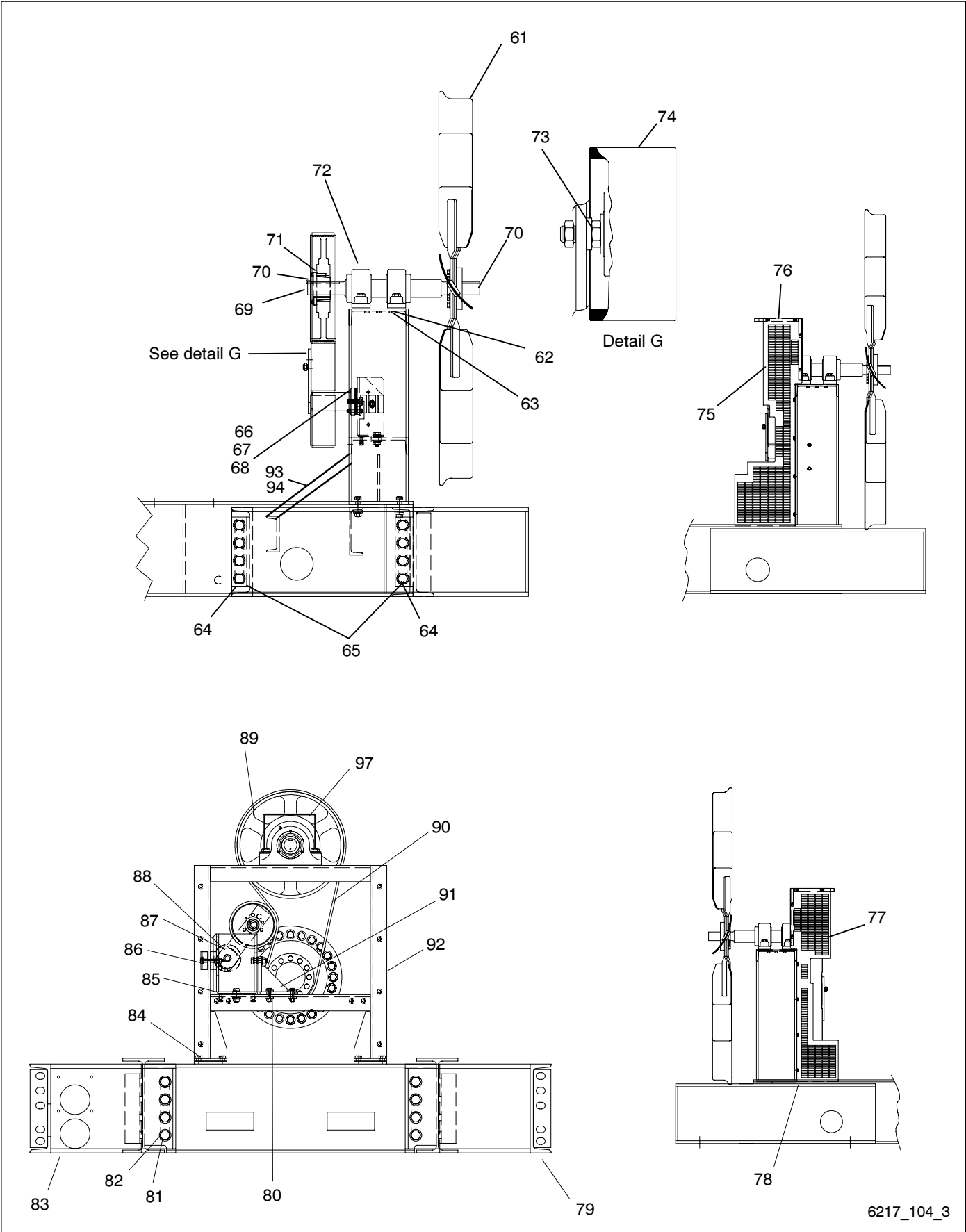
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Group 104: Cooling System, continued

Item	Part Number	Description	Quantity Module												
			GM26291-MA1	GM26291-MA2	GM26291-MA3	GM28327-MA1	GM28327-MA2	GM28327-MA3	GM28427-MA1	GM28427-MA2	GM28438-MA1	GM28477-MA1	GM28477-MA2	GM29820-MA1	GM29820-MA2
40	—	Sensor, low fluid (see engine parts catalog)	1	1	1	1	1	1	1	1	1	1	1	1	1
41	X-582-25	Connector, hose + vibra seal	2	2	2	2	2	2	2	2	2	2	2	3	3
42	X-426-9	Clamp, hose, .25/.70 in.	4	4	4	4	4	4	4	4	4	4	4	6	6
43	X-6359-9	Hose, oil proof	1	1	1				1	1					
43	X-6359-3	Hose, oil proof									1				
43	X-6359-7	Hose, oil proof				1	1	1						2	2
43	X-6359-6	Hose, rubber, straight, 0.25 in. ID										1	1	1	1
44	X-6359-9	Hose, oil proof	1	1	1				1	1					
44	X-6359-3	Hose, oil proof									1				
44	X-6359-7	Hose, oil proof				1	1	1							
44	X-6359-6	Hose, rubber, straight, 0.25 in. ID										1	1	1	1
45	X-582-25	Connector, hose + vibra seal	2	2	2	2	2	2	2	2	2	2	2	3	3
45	352360	Adapter, bushing, M18 (not shown)	2	2	2	2	2	2	2	2	2	2	2	2	2
45	326471	Adapter, bushing, M14 (not shown)												1	1
46	X-6278-7	Washer, nylon, .75 ID x 1.063 in. OD	2	2	2	2	2	2	2	2	2	2	2	2	2
46	276317	Washer, nylon, .578 ID x 1.067 in. OD												1	1
47	347434	Shroud									1			1	1
47	354195	Shroud, venturi fan				2	2	2	2	2					
47	361210	Shroud, venturi fan										2	2		
47	GM21309	Guard, wire fan, lower	1	1	1										
47	GM28939	Shroud, venturi fan										1	1		
47	GM28940	Shroud, venturi fan				1	1	1	1	1					
48	347435	Guard, fan									4			4	4
48	354959	Guard, flat fan				4	4	4	4	4					
48	361216	Guard, flat fan										4	4		
48	GM21308	Guard, wire fan, upper	1	1	1										
49	X-801-6	Washer, hardened,.469 ID x .922 in. OD				12	12	12	12	12	12	12	12	12	12
49	X-25-75	Washer, plain, .344 ID x .875 in. OD	8	8	8										
50	GM17890	Plate, support				12	12	12	12	12		12	12		
50	GM22400	Plate, support									12			12	12
51	GM19605	Guard, shaft	1	1	1	1	1	1				1	1		
51	GM30737	Guard, shaft							1	1					
51	GM26235	Guard, shaft									1			1	1
52	365645	Support, fan guard	2	2	2	2	2	2	2	2		2	2		
52	347825	Support, fan guard									2			2	2
53	365644	Support, fan guard	2	2	2	2	2	2	2	2		2	2		
53	347825	Support, fan guard									2			2	2
54	361588	Frame, radiator										1	1		
54	354999	Bracket, radiator mounting	2	2	2	2	2	2	2	2					
54	GM26236	Bracket, radiator mounting									2			2	2
55	361046	Guard, radiator				1	1	1							
55	GM22413	Guard, radiator	1	1	1				1	1					
55	347419	Guard, radiator									1			1	1
56	X-801-10	Washer, hardened, 1.062 ID x 2 in. OD	22	22	22	22	22	22	22	22	20	22	22	20	20
56	347478	Shim, 19 gauge									4			4	4
57	X-256-1	Valve, drain, 3/8 in. NPT	2	2	2	2	2	2	2	2		2	2		
57	278788	Valve, drain, 3/8 in. NPT												2	2
58	X-801-9	Washer, hardened, .688 ID x 1.373 in. OD	8	8	8	8	8	8	8	8	8	8	8	8	8
59	X-6011-3	Washer, beveled, .68 ID x 1.5 in. OD	4	4	4	4	4	4	4	4	4	4	4	4	4
60	354969	Brace, radiator	2	2	2	2	2	2	2	2		2	2		
60	347436	Brace, radiator									2			2	2
61	328246	Fan, pusher, 64 in.				1	1	1	1	1					
61	GM18401	Fan (91")									1				1
61	GM19513	Fan, pusher	1	1	1										
61	GM19514	Fan, pusher, 64 in.										1	1		
61	GM30567	Fan												1	

Parts list continues on next page

Group 104: Cooling System, continued

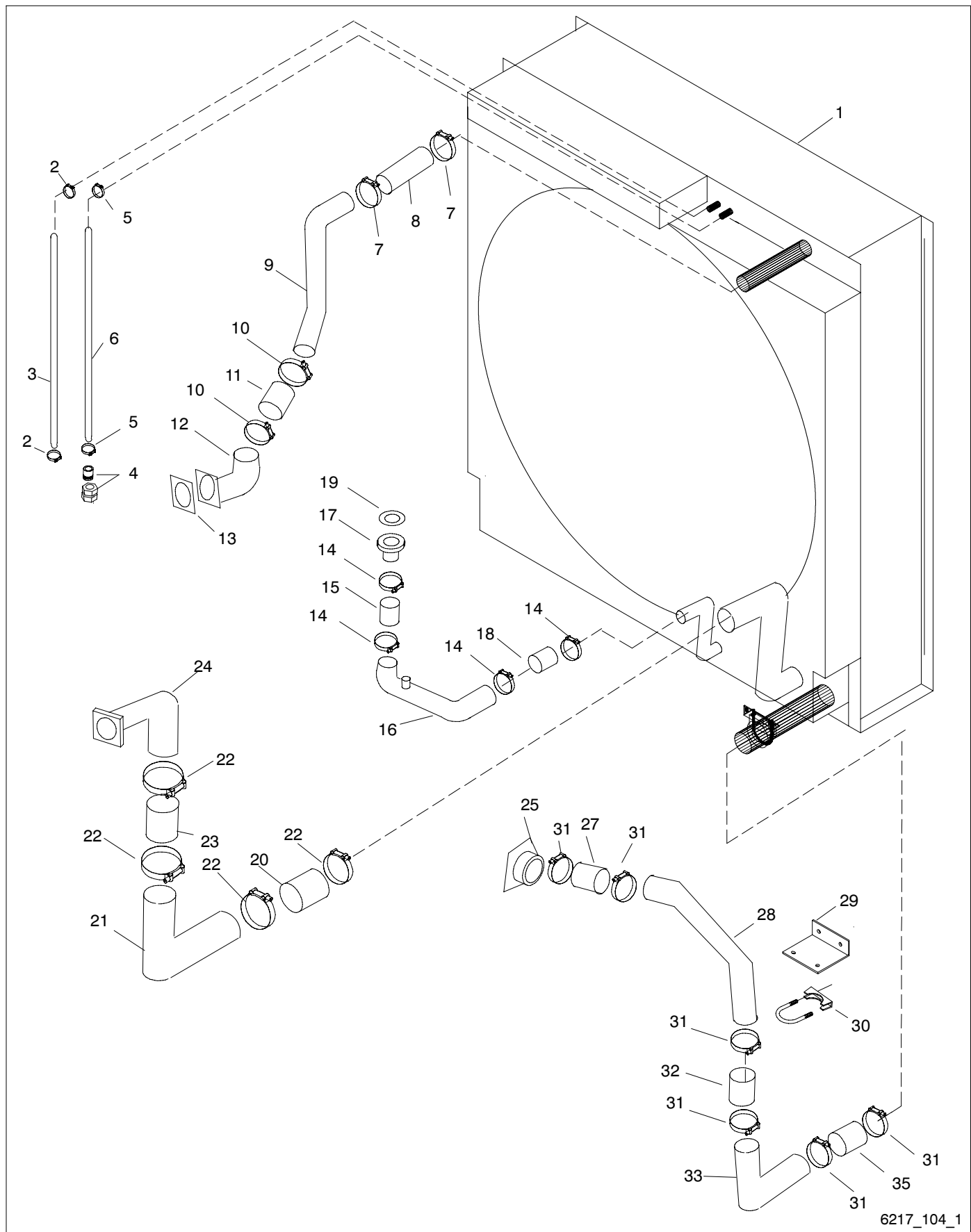


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Group 104: Cooling System, continued

Item	Part Number	Description	Quantity												
			Module												
			GM26291-MA1	GM26291-MA2	GM26291-MA3	GM28327-MA1	GM28327-MA2	GM28327-MA3	GM28427-MA1	GM28427-MA2	GM28438-MA1	GM28477-MA1	GM28477-MA2	GM29820-MA1	GM29820-MA2
62	X-801-8	Washer, hardened, .812 ID x 2 in. OD	8	8	8	8	8	8	8	8	8	8	8	8	8
63	M934-20-80	Nut, hex	4	4	4	4	4	4	4	4	4	4	4	4	4
64	X-801-10	Washer, hardened, 1.062 ID x 2 in. OD	16	16	16	16	16	16	16	16	16	16	16	16	16
65	GM20151	Plate, bolting	4	4	4	4	4	4	4	4	4	4	4	6	6
66	GM28243	Shim, 110 mm OD x 16 gauge stainless	8	8	8	8	8	8	8	8	8	8	8	8	8
67	GM28244	Shim, 110 mm OD x 22 gauge stainless	2	2	2	2	2	2	2	2	2	2	2	2	2
68	GM28245	Shim, 110 mm OD x 28 gauge stainless	2	2	2	2	2	2	2	2	2	2	2	2	2
69	GM19587	Shaft, fan	1	1	1	1	1	1	1	1		1	1		
69	347431	Shaft									1			1	1
70	328256	Key	2	2	2	1	1	1	1	1		1	1		
70	X-286-22	Key, square									1			1	1
71	274905	Bushing, pulley, 3.998 in. NPT	1	1	1	1	1	1	1	1		1	1		
71	GM26225	Bushing, pulley									1			1	1
72	347430	Block, pillow	2	2	2	2	2	2	2	2	2	2	2	2	2
72	GM30510	Shim, fan and support (not shown)	2	2	2	2	2	2	2	2	2	2	2	2	2
73	X-25-29	Washer, plain, .812 ID x 1.469 in. OD	3	3	3	3	3	3	3	3	3	3	3	3	3
74	GM19453	Pulley, Idler	1	1	1	1	1	1	1	1	1	1	1	1	1
75	GM28415	Guard, belt, RS	1	1	1	1	1	1	1	1		1	1		
75	GM28845	Guard, belt, RS									1			1	1
75	GM30031	Guard, belt, RS													
76	GM28417	Guard, belt, top				1	1	1	1	1		1	1		
76	GM35029	Guard, belt, top	1	1	1										
76	GM28846	Guard, belt, top									1				
76	GM30033	Guard, belt, top												1	1
77	GM28416	Guard, belt, LS	1	1	1	1	1	1	1	1		1	1		
77	GM28844	Guard, belt, LS									1				
77	GM30032	Guard, belt, LS												1	1
78	GM28472	Guard, belt, bottom	1	1	1	1	1	1	1	1		1	1		
78	GM39673	Guard, belt, bottom									1			1	1
79	365495	Frame, radiator				1	1	1	1	1		1	1		
79	GM21191	Frame, radiator	1	1	1										
79	GM26226	Frame, radiator									1				
79	GM29913	Frame, radiator												1	1
80	X-801-15	Washer, hardened	6	6	6	6	6	6	6	6	6	6	6	6	6
81	X-801-10	Washer, hardened, 1.062 ID x 2 in. OD	10	10	10	10	10	10	10	10	8	10	10	8	8
82	GM20151	Plate, bolting	2	2	2	2	2	2	2	2	2	2	2		
83	GM21196	Frame, radiator, RS				1	1	1	1	1		1	1		
83	GM21197	Frame, radiator, RS	1	1	1										
83	GM26227	Frame, radiator, RS									1				
83	GM29912	Frame, radiator, RS												1	1
84	X-6011-3	Washer, beveled, .68 ID x 1.5 in. OD	8	8	8	8	8	8	8	8	8	8	8	4	4
85	GM26338	Plate, mounting, idler	1	1	1	1		1	1	1	1	1		1	1
85	GM28531	Plate, mounting, idler					1						1		
86	GM26579	Shaft, pivot	1	1	1	1	1	1	1	1	1	1	1	1	1
86	M982-12-80	Nut, hex elastic stop (not shown)	1	1	1	1	1	1	1	1	1	1	1	1	1
87	X-801-11	Washer, hardened, .406 ID x 1.375 in.	1	1	1	1	1	1	1	1	1	1	1	1	1
88	GM19558	Tensioner, belt	1	1	1	1	1	1	1	1	1	1	1	1	1
89	274906	Pulley									1			1	
89	354984	Pulley, fan	1		1	1		1	1			1			1
89	354986	Pulley, fan		1			1			1			1		
90	GM21395	Belt, fan	1		1	1		1	1			1			
90	GM21396	Belt, fan		1			1			1			1		
90	GM26234	Belt, poly V, 118 in., 20 ribs									1				
90	GM30036	Belt, poly V												1	
90	GM30566	Belt, poly V													1
91	GM26339	Bracket, adjusting (idler mounting plate)	1	1	1	1	1	1	1	1	1	1	1	1	1
92	GM19533	Frame, fan support	1	1	1	1	1	1	1	1		1	1		
92	GM20589	Frame, fan support									1				
92	GM29985	Frame, fan support												1	1
93	GM19563	Brace, fan assembly									2			2	2
94	X-6011-4	Washer, beveled, .44 ID x 1.25 in. OD									4			4	4
95	GM28640	Brace, radiator tube									1			1	1
96	274824	Clamp, hose, 3.68/4 in.									1			1	1
97	347712	Guard, shaft									1			1	1
98	GM25490	Cap, radiator	1	1	1	1	1	1	1	1	1	1	1	1	1

Group 104: Cooling System, continued



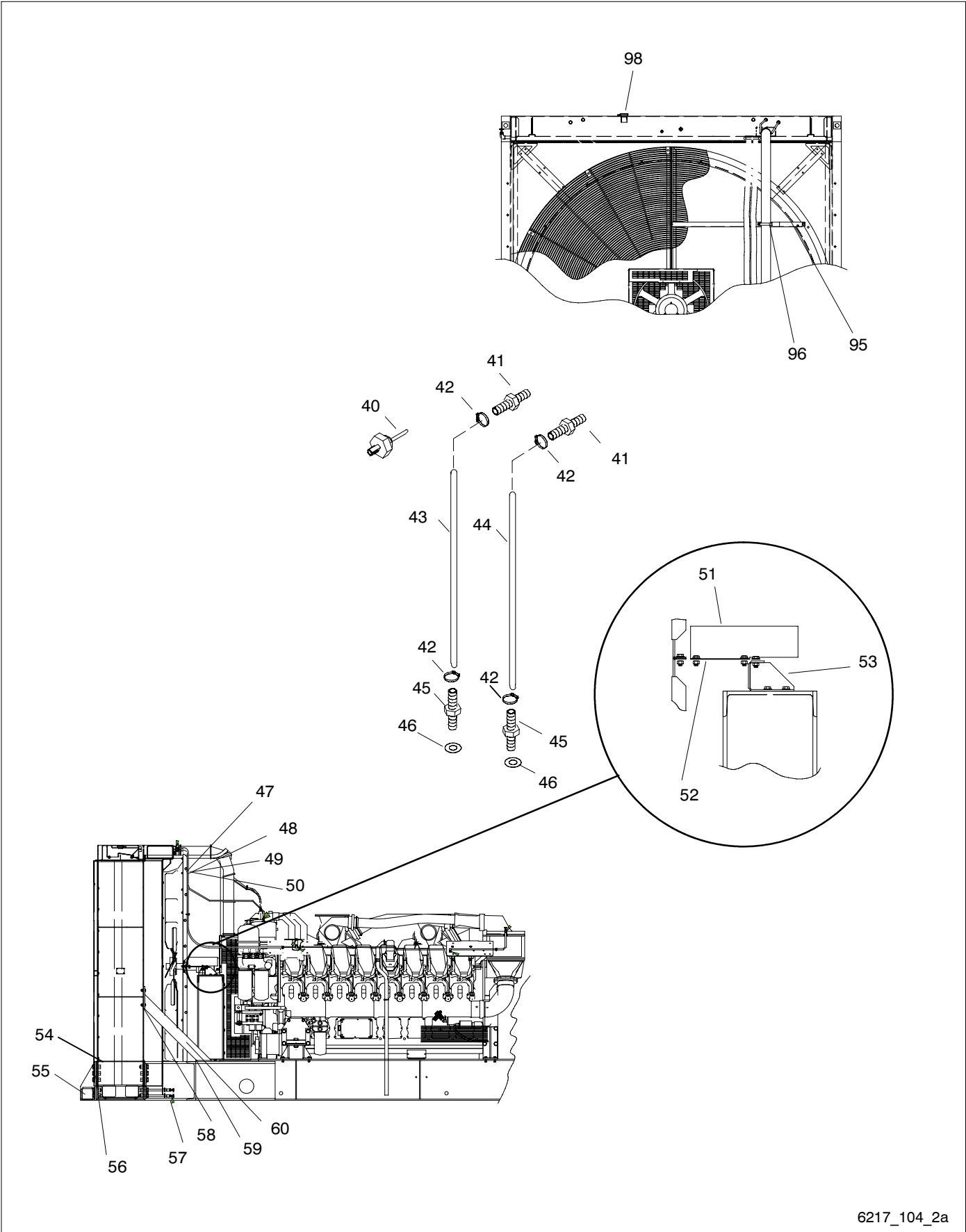
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Group 104: Cooling System, continued

Item	Part Number	Description	Quantity																	
			Module																	
			GM35027-MA1	GM35027-MA2	GM35181-MA1	GM35181-MA2	GM35181-MA3	GM35181-MA4	GM35181-MA5	GM35181-MA6	GM35183-MA1	GM35183-MA2	GM35183-MA3	GM35183-MA4	GM35186-MA1	GM35186-MA2	GM35186-MA3	GM35186-MA4	GM35292-MA1	GM35292-MA2
1	GM25490	Radiator assembly	1	1	1	1	1	1	1	1					1	1	1	1		
1	GM25489	Radiator assembly													1	1	1	1		
1	GM28418	Radiator assembly									1	1	1	1						
1	GM28643	Radiator assembly																	1	1
2	X-426-4	Clamp, hose, 1.31/2.25 in.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
2	X-426-8	Clamp, hose, .81/1.75 in.																	2	2
3	X-6014-4	Hose, radiator wire insert			1	1	1	1	1	1										
3	X-6014-13	Hose, radiator wire insert									1	1	1	1	1	1	1	1	1	1
3	X-6014-115	Hose, radiator wire insert	1	1																
4	GM29562	Connector, swivel	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	272930	Connector, hose	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	X-426-4	Clamp, hose, 1.31/2.25 in.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
5	X-426-8	Clamp, hose, .81/1.75 in.																	2	2
6	X-6014-52	Hose, radiator			1	1	1	1	1	1										
6	X-6014-4	Hose, radiator									1	1	1	1	1	1	1	1		
6	X-6014-13	Hose, radiator																	1	1
6	X-6014-115	Hose, radiator wire insert	1	1																
7	291542	Clamp, hose, 3.25/3.56 in.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	X-507-7	Hose, radiator, straight, 3 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	GM28489	Tube, intercooler return, 3.00 in. OD	1	1																
9	GM28492	Tube, intercooler return, 3.00 in. OD			1	1	1	1	1	1										
9	GM28414	Tube, intercooler return, 3.00 in. OD									1	1	1	1	1	1	1	1		
9	GM28639	Tube, intercooler return																	1	1
9	GM30011	Tube, intercooler return																		
10	291542	Clamp, hose, 3.25/3.56 in.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	X-507-7	Hose, radiator, straight, 3 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	GM19356	Flange, water connection, outlet	1	1	1	1	1	1	1	1										
12	GM21307	Flange, water connection, outlet									1	1	1	1	1	1	1	1	1	1
12	GM30012	Flange, water connection, outlet																		
13	GM16101	Gasket, water	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	291542	Clamp, hose, 3.25/3.56 in.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
15	X-507-7	Hose, radiator, straight, 3 in. ID													1	1	1	1	1	1
15	X-507-10	Hose, radiator, straight, 3 in. ID									1	1	1	1						
15	X-6014-53	Hose, radiator, straight, 3 in. ID	1	1	1	1	1	1	1	1										
16	GM28480	Tube, intercooler inlet, 3.00 in. OD	1	1																
16	GM26157	Tube, intercooler inlet, 3.00 in. OD			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	GM30015	Tube, intercooler inlet																		
17	GM19355	Flange, water connection, inlet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	GM30014	Flange, water connection, inlet																		
18	X-6014-110	Hose			1	1	1	1	1	1	1	1	1	1					1	1
18	X-6014-53	Hose, radiator, straight, 3 in. ID	1	1											1	1	1	1		
19	GM19378	Gasket, water inlet	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	X-6350-2	Hose, radiator, straight, 4 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	GM28488	Tube, lower radiator, 4.00 in. OD	1	1																
21	GM26155	Tube, lower radiator, 4.00 in. OD			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	GM30018	Tube, lower radiator																		
22	274545	Clamp, hose, 4.31/4.62 in.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
23	X-6350-2	Hose, radiator, straight, 4 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	GM26156	Flange, upper water connector, 4.00 in.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	GM30013	Flange, upper water connector																		
25	361363	Flange, water connection	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	X-6014-91	Hose, radiator, straight, 4 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	GM28481	Tube, lower radiator, 4.00 in. OD	1	1																
28	GM28400	Tube, lower radiator, 4.00 in. OD			1	1	1	1	1	1	1	1	1	1	1	1	1	1		
28	GM28638	Tube, lower radiator																	1	1
28	GM30016	Tube, lower radiator																		
29	GM13725	Bracket, charge cooler tube support																	1	1
29	GM28474	Bracket, lower radiator tube			1	1	1	1	1	1	1	1	1	1	1	1	1	1		
29	GM28592	Bracket, lower radiator tube	1	1																
30	289372	Clamp, muffler, 4.12 in.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30	X-6011-4	Washer, beveled, .44 ID x 1.25 in. OD																	2	2
31	274545	Clamp, hose, 4.31/4.62 in.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
32	X-6014-31	Hose, straight coolant, 4.00 in. ID	1	1	1	1	1	1	1	1	1	1	1	1						
32	X-6014-91	Hose, straight coolant, 4.00 in. ID													1	1	1	1	1	1
33	GM21159	Tube, lower radiator, 4.00 in. OD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35	X-6014-91	Hose, radiator, straight, 4 in. ID	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Parts list continues on next page

Group 104: Cooling System, continued



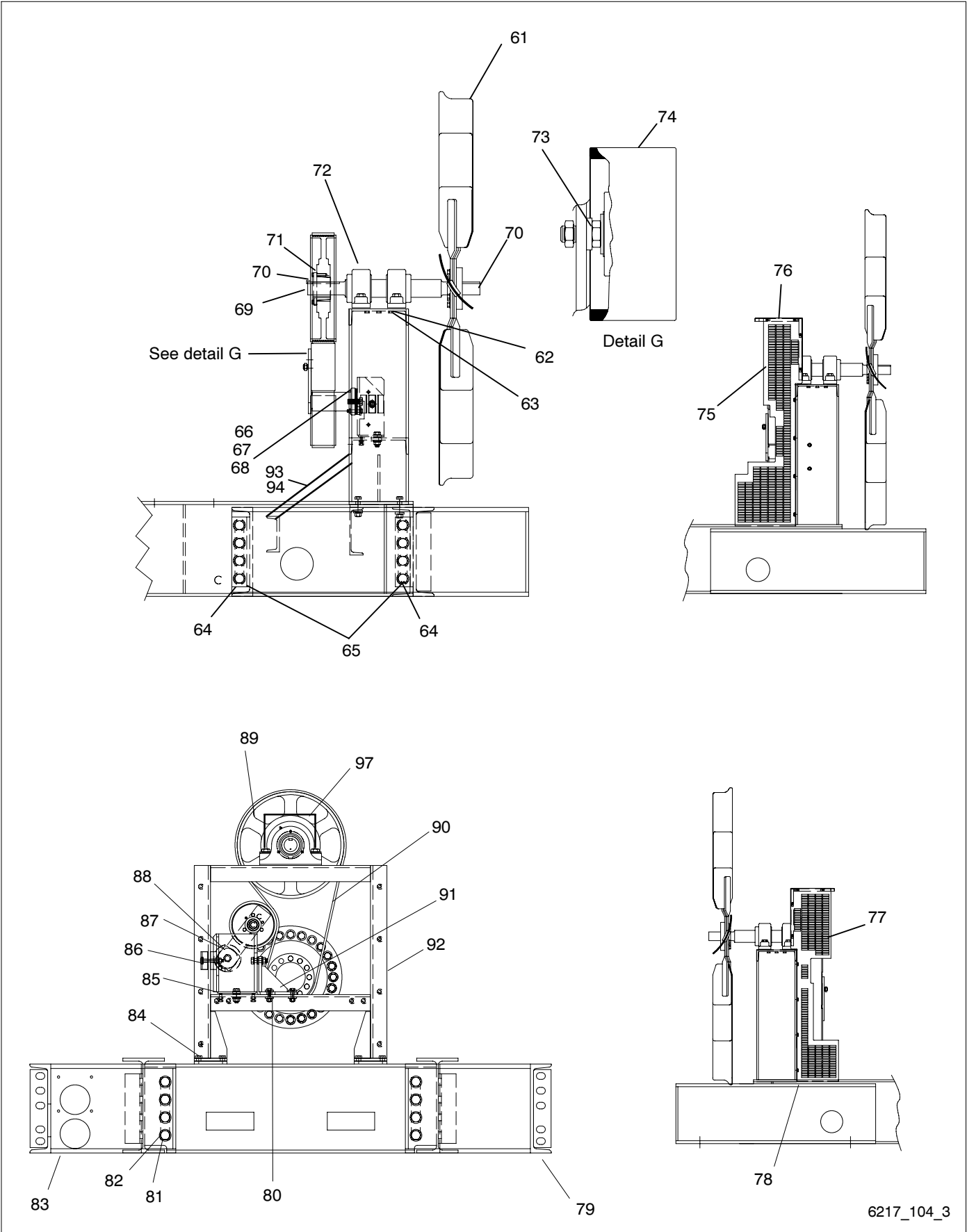
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Group 104: Cooling System, continued

Item	Part Number	Description	Quantity																	
			Module																	
			GM35027-MA1	GM35027-MA2	GM35181-MA1	GM35181-MA2	GM35181-MA3	GM35181-MA4	GM35181-MA5	GM35181-MA6	GM35183-MA1	GM35183-MA2	GM35183-MA3	GM35183-MA4	GM35186-MA1	GM35186-MA2	GM35186-MA3	GM35186-MA4	GM35292-MA1	GM35292-MA2
40	—	Sensor, low fluid (see eng. parts catalog)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
41	X-582-25	Connector, hose + vibra seal	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
42	X-426-9	Clamp, hose, .25/.70 in.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
43	X-6359-9	Hose, oil proof																		
43	X-6359-3	Hose, oil proof																		
43	X-6359-7	Hose, oil proof																		
43	X-6359-6	Hose, rubber, straight, 0.25 in. ID	1	1		1	1	1	1	1	1								1	1
44	X-6359-9	Hose, oil proof																		
44	X-6359-3	Hose, oil proof																	1	1
44	X-6359-7	Hose, oil proof				1	1	1	1	1	1									
44	X-6359-6	Hose, rubber, straight, 0.25 in. ID	1	1																
45	X-582-25	Connector, hose + vibra seal	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
45	352360	Adapter, bushing, M18 (not shown)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
45	326471	Adapter, bushing, M14 (not shown)																		
46	X-6278-7	Washer, nylon, .75 ID x 1.063 in. OD	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
46	276317	Washer, nylon, .578 ID x 1.067 in. OD																		
47	347434	Shroud																	1	1
47	354195	Shroud, venturi fan				2	2	2	2	2	2	2	2	2						
47	361210	Shroud, venturi fan	2	2																
47	GM21309	Guard, wire fan, lower													1	1	1	1		
47	GM28939	Shroud, venturi fan	1	1																
47	GM28940	Shroud, venturi fan				1	1	1	1	1	1	1	1	1						
48	347435	Guard, fan																	4	4
48	354959	Guard, flat fan				4	4	4	4	4	4	4	4	4						
48	361216	Guard, flat fan	4	4																
48	GM21308	Guard, wire fan, upper													1	1	1	1		
49	X-801-6	Washer,hardened,.469 ID x .922 in. OD	12	12	12	12	12	12	12	12	12	12	12	12					12	12
49	X-25-75	Washer, plain, .344 ID x .875 in. OD													8	8	8	8		
50	GM17890	Plate, support	12	12	12	12	12	12	12	12	12	12	12	12						
50	GM22400	Plate, support																	12	12
51	GM19605	Guard, shaft	1	1	1	1	1	1	1	1					1	1	1	1		
51	GM30737	Guard, shaft									1	1	1	1						
51	GM26235	Guard, shaft																	1	1
52	365645	Support, fan guard	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
52	347825	Support, fan guard																	2	2
53	365644	Support, fan guard	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
53	347825	Support, fan guard																	2	2
54	361588	Frame, radiator	1	1																
54	354999	Bracket, radiator mounting				2	2	2	2	2	2	2	2	2	2	2	2	2		
54	GM26236	Bracket, radiator mounting																	2	2
55	361046	Guard, radiator				1	1	1	1	1	1									
55	GM22413	Guard, radiator										1	1	1	1	1	1	1		
55	347419	Guard, radiator																	1	1
56	X-801-10	Washer, hardened, 1.062 ID x 2 in. OD	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	20	20
56	347478	Shim, 19 gauge																	4	4
57	X-256-1	Valve, drain, 3/8 in. NPT	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
57	278788	Valve, drain, 3/8 in. NPT																	2	2
58	X-801-9	Washer, hardened, .688 ID x 1.373 in. OD	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
59	X-6011-3	Washer, beveled, .68 ID x 1.5 in. OD	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
60	354969	Brace, radiator	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
60	347436	Brace, radiator																	2	2
61	328246	Fan, pusher, 64 in.				1	1	1	1	1	1	1	1							
61	GM18401	Fan (91")																	1	1
61	GM19513	Fan, pusher													1	1	1	1		
61	GM19514	Fan, pusher, 64 in.	1	1																
61	GM30567	Fan																		

Parts list continues on next page

Group 104: Cooling System, continued

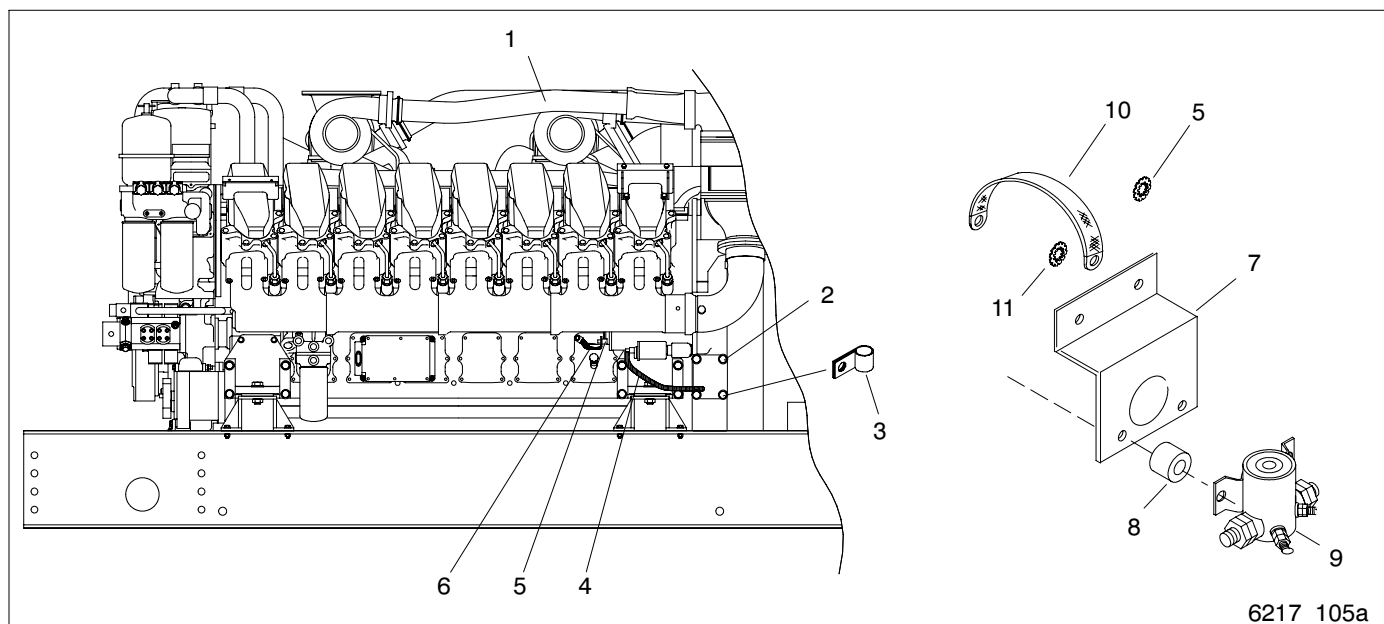


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Group 104: Cooling System, continued

Item	Part Number	Description	Quantity																	
			Module																	
			GM35027-MA1	GM35027-MA2	GM35181-MA1	GM35181-MA2	GM35181-MA3	GM35181-MA4	GM35181-MA5	GM35181-MA6	GM35183-MA1	GM35183-MA2	GM35183-MA3	GM35183-MA4	GM35186-MA1	GM35186-MA2	GM35186-MA3	GM35186-MA4	GM35292-MA1	GM35292-MA2
62	X-801-8	Washer, hardened, .812 ID x 2 in. OD	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
63	M934-20-80	Nut, hex	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
64	X-801-10	Washer, hardened, 1.062 ID x 2 in. OD	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
65	GM20151	Plate, bolting	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
66	GM28243	Shim, 110 mm OD x 16 gauge stainless	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
67	GM28244	Shim, 110 mm OD x 22 gauge stainless	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
68	GM28245	Shim, 110 mm OD x 28 gauge stainless	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
69	GM19587	Shaft, fan	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
69	347431	Shaft																1	1	
70	328256	Key	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2			
70	X-286-22	Key, square																1	1	
71	274905	Bushing, pulley, 3.998 in. NPT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
71	GM26225	Bushing, pulley																1	1	
72	347430	Block, pillow	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
72	GM30510	Shim, fan and support (not shown)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
73	X-25-29	Washer, plain, .812 ID x 1.469 in. OD	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
74	GM19453	Pulley, Idler	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
75	GM28415	Guard, belt, RS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
75	GM35291	Guard, belt, RS																1	1	
76	GM35029	Guard, belt, top	1		1	1	1				1	1		1	1					
76	GM38394	Guard, belt, top		1				1	1	1			1	1		1	1			
76	GM35256	Guard, belt, top																1		
76	GM38395	Guard, belt, top																	1	
77	GM28416	Guard, belt, LS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
77	GM28844	Guard, belt, LS																1	1	
77	GM30032	Guard, belt, LS																		
78	GM28472	Guard, belt, bottom	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
78	GM39673	Guard, belt, bottom																1	1	
79	365495	Frame, radiator	1	1	1	1	1	1	1	1	1	1	1							
79	GM21191	Frame, radiator												1	1	1	1			
79	GM26226	Frame, radiator																1	1	
79	GM29913	Frame, radiator																		
80	X-801-15	Washer, hardened	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
81	X-801-10	Washer, hardened, 1.062 ID x 2 in. OD	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	8	8	
82	GM20151	Plate, bolting	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
83	GM21196	Frame, radiator, RS	1	1	1	1	1	1	1	1	1	1	1	1						
83	GM21197	Frame, radiator, RS												1	1	1	1			
83	GM26227	Frame, radiator, RS																1	1	
83	GM29912	Frame, radiator, RS																		
84	X-6011-3	Washer, beveled, .68 ID x 1.5 in. OD	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
85	GM26338	Plate, mounting, idler	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	
85	GM28531	Plate, mounting, idler				1				1										
86	GM26579	Shaft, pivot	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
86	M982-12-80	Nut, hex elastic stop (not shown)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
87	X-801-11	Washer, hardened, .406 ID x 1.375 in.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
88	GM19558	Tensioner, belt	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
89	274906	Pulley																1	1	
89	354984	Pulley, fan	1	1	1		1	1		1	1		1			1				
89	354986	Pulley, fan				1			1			1		1	1		1			
90	GM21395	Belt, fan	1	1	1		1	1		1	1		1		1		1			
90	GM21396	Belt, fan				1			1			1		1	1		1			
90	GM26234	Belt, poly V, 118 in., 20 ribs																		

Group 105: Engine



Item	Part Number	Description	Qty.
1	See Chart	Engine assembly	1
2	GM28395	Plate, closing	2
3	X-672-6	Clamp, insulated, 1.38 in.	2
4	X-545-138	Cable, battery, 108 in. red	1
4	X-545-145	Cable, battery, 62 in. red (2500/2800 kW)	1
5	X-22-14	Washer, lock, 391 ID x .975 in. OD	8
6	287363	Strap, ground, 8 in., LS	1
6	X-6046-5	Strap, ground, 14 in., RS	1
7	361103	Bracket, relay mounting	2
8	259632	Bumper	4
9	272713	Solenoid	2
10	223033	Strap, ground, 5 in.	2
11	X-22-12	Washer, lock, .262 ID x 743 in. OD	8

Engine Assembly Part Numbers

Variation Number	Item 1, Engine Assembly	Description
1	GM24216	1350, 60 Hz
2	GM24217	1350, 50 Hz
3	GM24218	1500, 60 Hz
4	GM24219	1500, 50 Hz
5	GM24220	1820, 60 Hz
6	GM24221	1820, 50 Hz
7	GM23728	2000, 60 Hz
8	GM24222	2000, 50 Hz
9	GM30063	2500, 60 Hz
10	GM28944	2800, 60 Hz
11	GM30440	2500, 50 Hz
12	GM28441	2800, 50 Hz
13	GM34981	1350, 60 Hz
14	GM34982	1350, 50 Hz
15	GM34983	1500, 60 Hz
16	GM34984	1500, 50 Hz
17	GM34985	1820, 60 Hz
18	GM34986	1820, 50 Hz
19	GM34987	2000, 60 Hz
20	GM34988	2000, 50 Hz
21	GM38377	1350, 60 Hz
22	GM38378	1350, 50 Hz
23	GM38379	1500, 60 Hz
24	GM38380	1500, 50 Hz
25	GM38381	1820, 60 Hz
26	GM38382	1820, 50 Hz
27	GM38383	2000, 60 Hz
28	GM38384	2000, 50 Hz

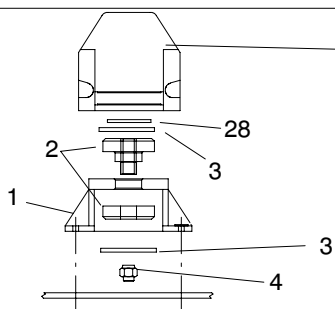
Routine Engine Service Parts

Item	Part Number	Description	Quantity (used on engine)
1	GM30210	Filter, fuel	2
2	GM30211	Filter, oil	4
3	GM24553	Belt, alternator	1
4	GM30213	Thermostat, engine	4
5	GM30214	O-ring, engine thermostat	4
5	GM30215	O-ring, engine thermostat	1
5	GM30216	O-ring, engine thermostat	1
6	GM30212	Thermostat, charge air	2
7	328586	Seal, charge air thermostat	2

Group 107: Nameplates and Decals

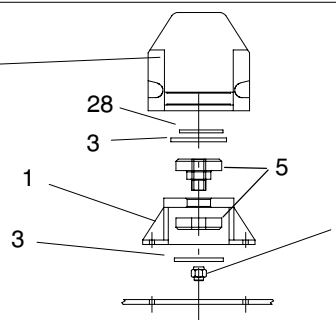
Item	Part Number	Description	Quantity	Quantity
			Variation/Module GM14289-GR1S	Variation/Module GM14289-GR3S
1	GM23477-6	Decal, DDC/MTU logo	1	
1	GM23477-5	Decal, DDC/MTU logo		1
2	238402	Decal, caution positive term. only	2	2
3	249809	Decal, caution hot engine	2	2
4	249810	Decal, warning hot coolant	1	1
5	255882	Decal, caution standby SVC connect	1	1
6	257438	Decal, danger moving rotor	1	1
7	279748	Decal, caution	1	1
8	324069	Nameplate	1	
9	343165	Decal, caution—not a step	1	1
10	347166	Decal, electrical equipment	1	
11	249808	Decal, warning rotating parts	1	1
12	364116	Decal, caution welding disconnect	2	2
14	294520	Decal, danger	1	1
15	GM13228	Decal, warning lifting support	1	1
16	GM13227	Decal, warning fan force	1	1
17	GM15300	Decal, exhaust piping	1	1
18	GM19296	Decal, fuel type	1	1
19	GM38600	Tag, hang caution fuel inlet and supply connection	1	

Group 109: Skid and Plant Mounting

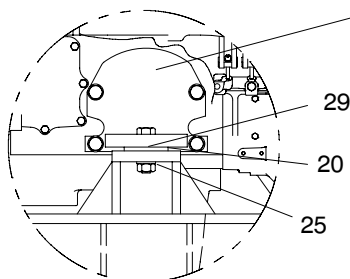


Rear isolation mount

Bracket and hardware supplied with engine. See engine parts catalog for part number.

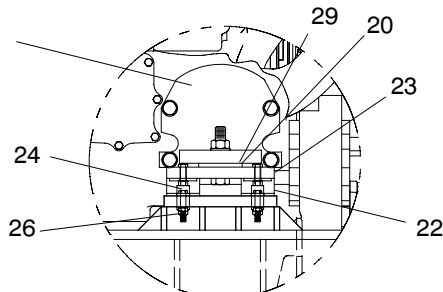


Front isolation mount

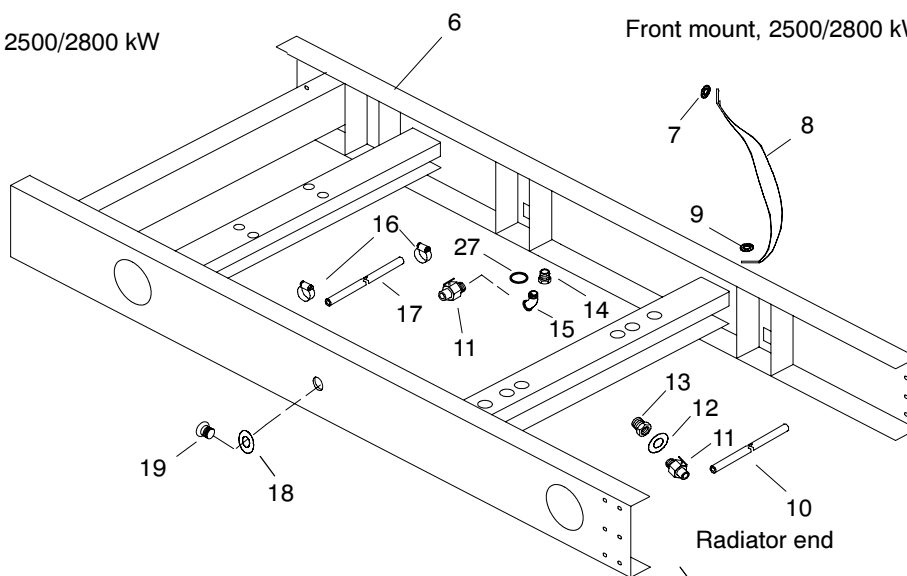


Rear mount, 2500/2800 kW

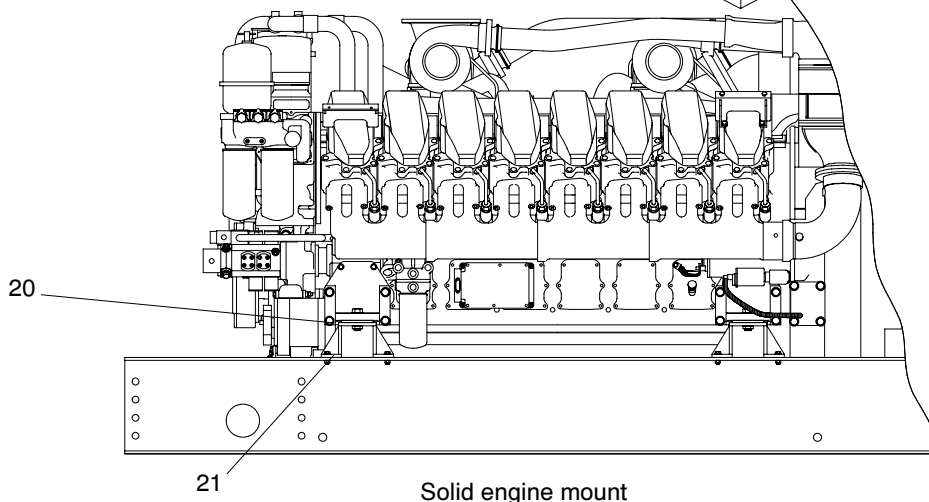
Bracket and hardware supplied with engine. See engine parts catalog for part number.



Front mount, 2500/2800 kW



Radiator end



Solid engine mount

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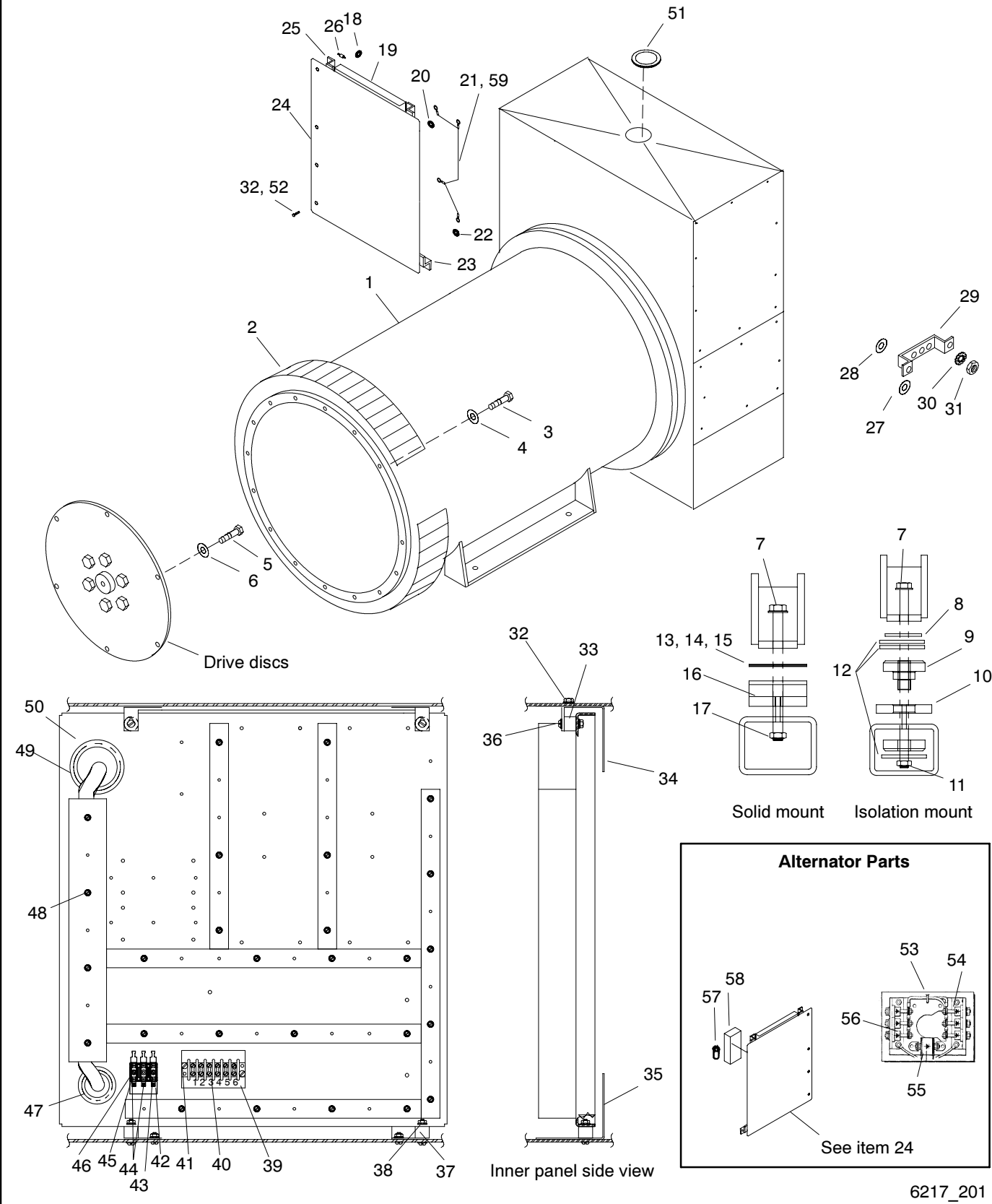
Group 109: Skid and Plant Mounting

Item	Part Number	Description	Quantity Module								
			GM28377-MA1	GM28377-MA2	GM28377-MA3	GM26292-MA1	GM26292-MA2	GM26292-MA3	GM29821-MA1	GM29821-MA2	GM29821-MA3
1	361024	Mount, engine	4	4	4						
2	361053	Vibromount	2	2	2						
3	X-25-152	Washer, plain, 1.06 ID x 5.25 in. OD	8	8	8						
4	M934-24-80	Nut, hex				4	4	4			
4	M982-24-60	Nut, hex	4	4	4						
5	361179	Vibromount	2	2	2						
6	GM28337	Skid	1			1					
6	GM28376	Skid		1			1				
6	GM28372	Skid			1			1			
6	GM29808	Skid							1		
6	GM29809	Skid								1	
6	GM30654	Skid									1
7	X-22-26	Washer, lock, .521 ID x 1.24 in. OD	1	1	1	1	1	1			
8	GM21085	Strap, ground, 16 in.	2	2	2	2	2	2			
9	X-22-15	Washer, lock, .456 ID x 1.058 in. OD	2	2	2	2	2	2			
10	X-577-28	Hose, rubber, straight, .62 in. ID	1	1	1	1	1	1	1	1	1
11	272701	Valve, oil drain	2	2	2	2	2	2	2	2	2
12	X-6427-3	Washer, copper, 1.067 ID x 2.00 in. OD	1	1	1	1	1	1	1	1	1
13	361358	Adapter, bushing	1	1	1	1	1	1	1	1	1
14	GM28443	Adapter, bushing	1	1	1	1	1	1	1	1	1
15	X-211-1	Elbow, street, 90° x 1/2 in. NPTF	1	1	1	1	1	1	1	1	1
16	X-426-10	Clamp, hose, .5/1 in.	4	4	4	4	4	4	4	4	4
17	X-577-34	Hose, rubber, straight, .62 in. ID	1	1	1	1	1	1	1	1	1
19	X-75-28	Plug, pipe, 1/2 in. NPTF	2	2	2	2	2	2	2	2	2
19	X-582-1	Connector, hose	2	2	2	2	2	2	2	2	2
20	X-25-165	Washer, plain				4	4	4	4	4	4
21	361037	Mount, engine				4	4	4			
22	GM29297	Mount, isolation							4	4	4
23	GM29832	Plate, mounting							2	2	2
24	X-400-256	Spacer							4	4	4
25	X-801-10	Washer, hardened, 1.062 ID x 2 in. OD							2	2	2
26	X-801-15	Washer, hardened							8	8	8
27	GM24573	O-ring, 26.7 mm ID	1	1	1	1	1	1	1	1	1
28	GM32569	Washer, plain	4	4	4						
29	GM30701	Shim							12	12	12

Group 201: Generator and Mounting

1250-2000 kW

Items not shown: 52, 59



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Group 201: Generator and Mounting

Item	Part Number	Description	Qty.	Item	Part Number	Description	Qty.
1	See chart	Alternator assembly	1	30	X-22-14	Washer, lock, int./ext. tooth, 3/8 in.	4
2	328904	Screen	1	31	X-83-7	Nut, hex	2
3	M931-12050-82	Screw, hex head cap	16	32	X-6217-10	Screw, hex flange machine	16
4	290945	Washer, hardened	16	33	229353	Mount, controller	2
5	M931-16100-82	Screw, hex cap	12	34	365476	Bracket, inner panel	3
6	X-801-5	Washer, hardened	12	35	361478	Retainer, inner panel	2
7	M931-24160-60	Screw, hex cap, solid mount	4	36	X-22-12	Washer, lock, .262 ID x .743 in. OD	4
7	M931-24200-60	Screw, hex cap, isolation mount	4	37	229353	Mount, controller	2
7	X-801-10	Washer, hardened, 1.062 ID x 2 in.	4	38	X-22-12	Washer, lock, .262 ID x .743 in. OD	4
8	GM32569	Washer, plain special	4	39	299090	Marker, strip	1
9	361054	Vibromount	4	40	295314	Block, terminal	2
10	361039	Plate, generator mounting	4	41	X-49-6	Screw, pan head machine	2
11	M982-24-60	Nut, hex, elastic stop	4	42	GM28584	Marker, strip	1
12	X-25-152	Washer, plain	12	43	239298	Fuse, 5 A, 250 V	1
13	290743	Shim	4	44	292937	Fuse, 20 A, 250 V	1
14	290744	Shim	4	45	292821	Holder, fuse	1
15	291191	Shim	4	46	X-49-26	Screw, pan head machine	2
16	361061	Plate, generator mounting	4	47	X-634-16	Bushing, nylon, 1.312 in. ID	1
17	M934-24-80	Nut, hex	4	48	X-67-43	Screw, hex slotted	27
18	X-22-18	Washer, lock	12	49	X-634-23	Bushing, nylon, 1.968 in.	1
19	GM13563	Panel, inner door	1	50	361186	Panel, J-box inner	1
20	X-22-12	Washer, lock, .262 ID x .743 in. OD	2	51	X-634-23	Bushing, nylon, 1.968 in.	1
21	GM21264	Harness, ground	1	52	295009	Retainer (not shown)	10
22	X-22-13	Washer, lock	1	53	347070	Exciter rectifier assembly	1
23	GM13561	Bracket, door panel mounting, bottom	1	54	279773	Diode, standard polarity	1
24	GM28581	Door, junction box	1	55	279777	Surge suppressor	1
25	GM13562	Bracket, door panel mounting, top	2	56	279775	Diode, reversing polarity	1
26	282829	Vibromount	6	57	347160	Capacitor	1
27	X-25-118	Washer, plain	4	58	GM24876	Regulator, voltage DVR2000	1
28	X-6086-6	Washer, spring	2	59	361567	Base, tie wrap (not shown)	2
29	361271	Bus, ground	1				

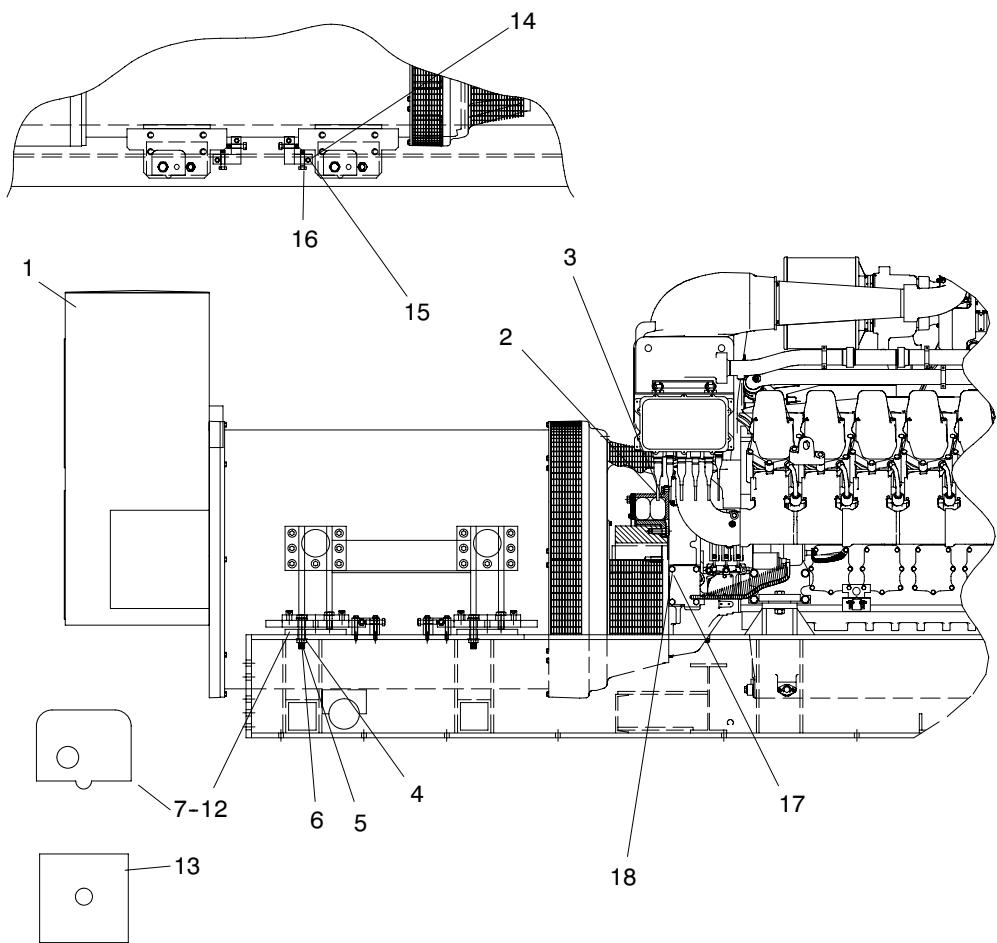
Alternator Part Number and Mount Type

Use this table to identify the kit/module number's alternator part number (item 1) and mount type.

Model	Alternator Description	Kit/Module Number	Alternator Part Number	Mount Type
1350, 50/60 Hz	7M4046	GM28379-MA1	A-361003	Isolation
1350, 50/60 Hz	7M4046	GM28379-MA2	A-361003	Solid
1350, 50/60 Hz	7M4048	GM28379-MA3	B-361004	Isolation
1350, 50/60 Hz	7M4048	GM28379-MA4	B-361004	Solid
1350/1500, 50/60 Hz	7M4050	GM28379-MA5	B-361005	Isolation
1350/1500, 50/60 Hz	7M4050	GM28379-MA6	B-361005	Solid
1350/1500, 50/60 Hz; 1820, 50 Hz	7M4052	GM28379-MA7	B-361006	Isolation
1350/1500/1820, 50/60 Hz	7M4052	GM28379-MA8	B-361006	Solid
1820/2000 50 Hz	7M4054	GM28379-MA9	F-361007	Isolation
1820/2000 50/60 Hz	7M4054	GM28379-MA10	F-361007	Solid
1820/2000 50 Hz	7M4058	GM28379-MA11	F-361008	Isolation
1820/2000 50/60 Hz	7M4058	GM28379-MA12	F-361008	Solid
1350, 60 Hz	7M4172	GM28379-MA13	B-361009	Isolation
1350, 60 Hz	7M4172	GM28379-MA14	B-361009	Solid
1350/1500, 60 Hz	7M4174	GM28379-MA15	B-361010	Isolation
1350/1500, 60 Hz	7M4174	GM28379-MA16	B-361010	Solid
1500, 60 Hz	7M4176	GM28379-MA17	F-361011	Isolation
1500/1820/2000, 60 Hz	7M4176	GM28379-MA18	F-361011	Solid
1350, 60 Hz	7M4288	GM28379-MA19	B-361012	Isolation
1350, 60 Hz	7M4288	GM28379-MA20	B-361012	Solid
1500, 60 Hz	7M4290	GM28379-MA21	B-361013	Isolation
1500, 60 Hz	7M4290	GM28379-MA22	B-361013	Solid
1820/2000, 60 Hz	7M4292	GM28379-MA24	F-361014	Solid
1350, 50/60 Hz	7M4366	GM28379-MA25	B-361015	Isolation
1350, 50/60 Hz	7M4366	GM28379-MA26	B-361015	Solid
1350/1500, 50/60 Hz	7M4368	GM28379-MA27	F-361016	Isolation
1350/1500, 50/60 Hz	7M4368	GM28379-MA28	F-361016	Solid
1500, 50/60 Hz; 1820, 50 Hz	7M4370	GM28379-MA29	F-361017	Isolation
1500/1820, 50/60 Hz	7M4370	GM28379-MA30	F-361017	Solid
1820/2000, 50 Hz	7M4374	GM28379-MA31	F-361018	Isolation
1820/2000, 50/60 Hz	7M4374	GM28379-MA32	F-361018	Solid
1820/2000, 50 Hz	7M4056	GM28379-MA33	GM41659	Isolation
1820/2000, 50/60 Hz	7M4056	GM28379-MA34	GM41659	Solid

Group 201: Generator and Mounting, continued

2500/2800 kW



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Group 201: Generator and Mounting, continued

Item	Part Number	Description	Qty.
1	See chart	Alternator assembly	1
2	M931-16100-82	Screw, hex cap	12
3	X-801-5	Washer, hardened, .656 ID x 1.06 in. OD	12
4	X-6361-2	Screw, hex cap	4
5	X-801-12	Washer, hardened, 1.156 ID x 2.25 in. OD	8
6	X-80-9	Nut, hex, 1 1/8-7	4
7	GM29907-1	Shim, thickness = .002	8
8	GM29907-2	Shim, thickness = .005	8
9	GM29907-3	Shim, thickness = .010	4
10	GM29907-4	Shim, thickness = .030	8
11	GM29907-5	Shim, thickness = .050	4
12	GM29907-6	Shim, thickness = .125	8
13	GM29908	Shim	8
14	273738	Screw, head head machine, special thread	8
15	354204	Block, adjusting	4
16	279493	Screw, hex head machine, special thread	8
17	M931-12060-82	Screw, hex cap	16
18	290945	Washer, hardened, .531 ID x 1.06 in. OD	16

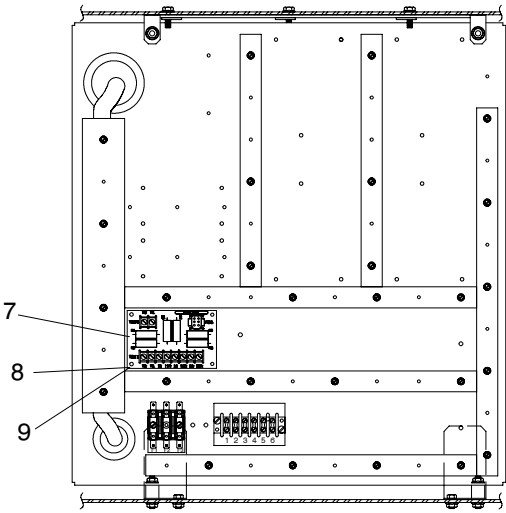
Alternator Part Number

Use this table to identify the module number's alternator part number (item 1).

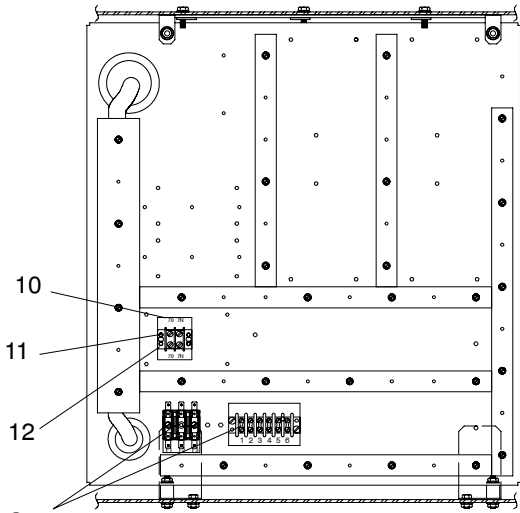
Module Number	Alternator Description (Frame/Volt)	Alternator Part Number
GM29819-MA1	1020/480	GM29833-1
GM29819-MA2	1020/600	GM29833-2
GM29819-MA3	1020/4160	GM29833-3
GM29819-MA4	1030/12.47, 13.20, 13.80 K	GM29833-4
GM29819-MA5	1020/480, 380 50 Hz	GM29833-5
GM29819-MA6	1020/600	GM29833-6
GM29819-MA7	1020/4160, 3300 50 Hz	GM29833-7
GM29819-MA8	1030/12.47, 13.20, 13.80 K	GM29833-8
GM29819-MA9	1030/480, 380 50 Hz	GM29833-9
GM29819-MA10	1030/600	GM29833-10
GM29819-MA11	1030/4160, 3300	GM29833-11
GM29819-MA12	1050/12.47, 13.20, 13.80 K	GM29833-12
GM29819-MA13	1040/380	GM29833-13
GM29819-MA15	1030/3300	GM29833-15
GM29819-MA16	1040/6600	GM29833-16
GM29819-MA17	1030/6600	GM29833-17
GM29819-MA18	1040/6600	GM29833-18
GM29819-MA19	1030/11000	GM29833-19
GM29819-MA20	1040/11000	GM29833-20
GM40046-MA1	1020/480	GM40045-1
GM40046-MA2	1020/600	GM40045-2
GM40046-MA3	1020/4160	GM40045-3
GM40046-MA4	1030/12.47, 13.20, 13.80 K	GM40045-4
GM40046-MA5	1020/480, 380 50 Hz	GM40045-5
GM40046-MA6	1020/600	GM40045-6
GM40046-MA7	1020/4160, 3300 50 Hz	GM40045-7
GM40046-MA8	1030/12.47, 13.20, 13.80 K	GM40045-8
GM40046-MA9	1030/480, 380 50 Hz	GM40045-9
GM40046-MA10	1030/600	GM40045-10
GM40046-MA11	1030/4160	GM40045-11
GM40046-MA12	1050/12.47, 13.20, 13.80 K	GM40045-12
GM40046-MA13	1040/380	GM40045-13
GM40046-MA14	1020/3300	GM40045-14
GM40046-MA15	1040/6600	GM40045-15
GM40046-MA16	1030/6600	GM40045-16
GM40046-MA17	1040/11000	GM40045-17
GM40046-MA18	1030/11000	GM40045-18
GM40046-MA19	1040/11000	GM40045-19

Control and Harness

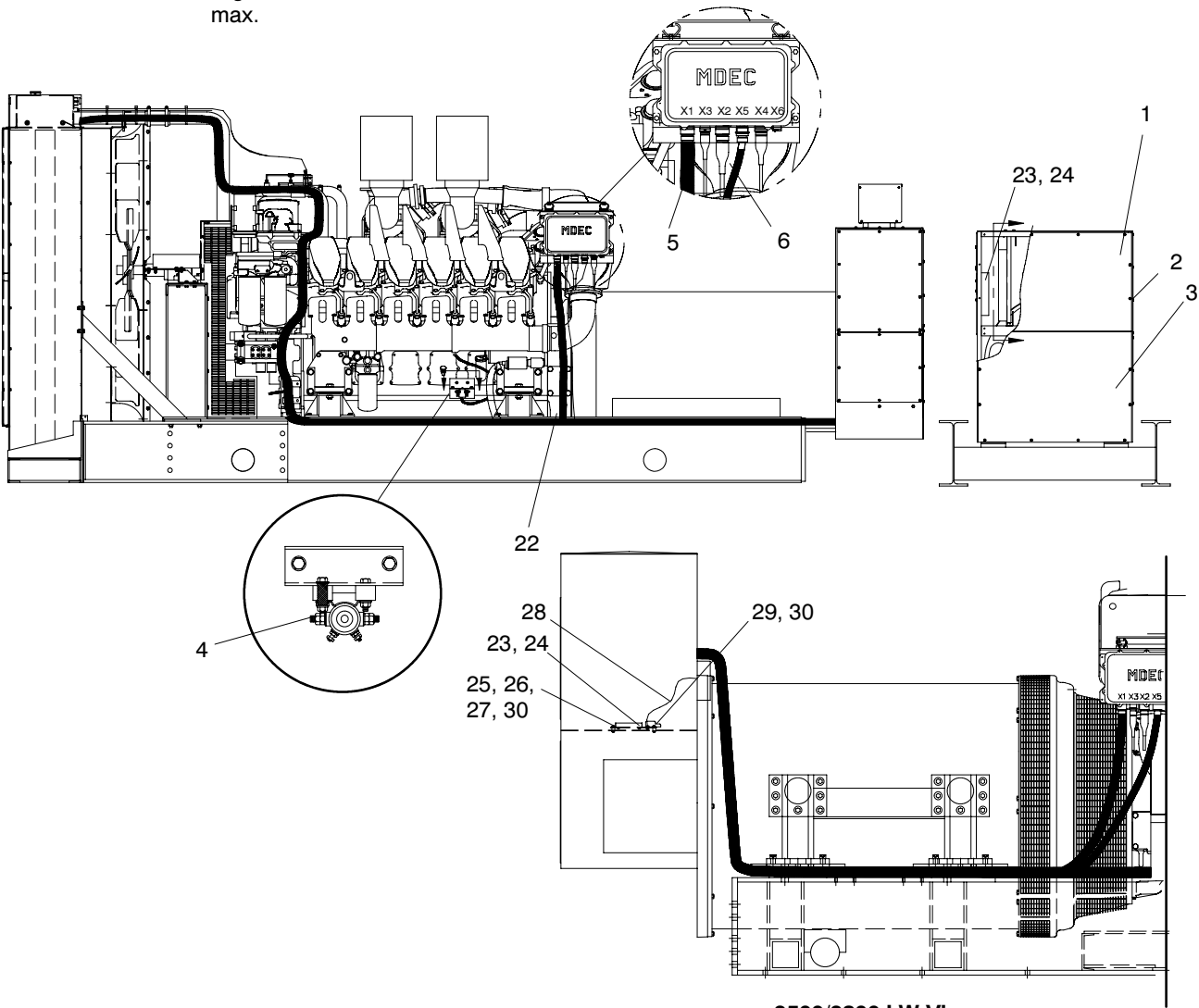
Items not shown: 13-21



Digital 550, 600 volt max.



See Group 201 for part number. Digital 550, medium voltage

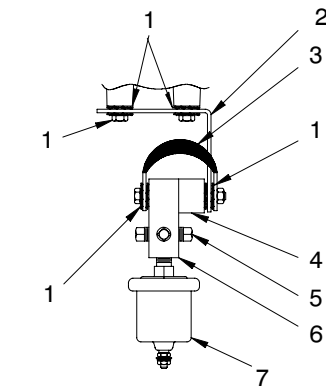
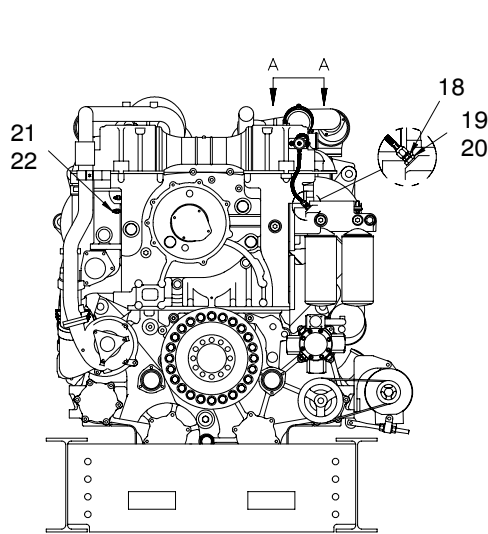


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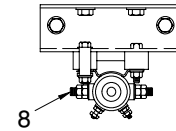
Control and Harness

Item	Part Number	Description	Quantity Module						
			GM28440-MA1	GM28440-MA2	GM28440-MA3	GM28440-MA4	GM29824-MA1	GM29824-MA2	GM29824-MA3
1	361184	Panel, junction box, front	1	1	1	1			
1	GM30076	Cover, louvered					1	1	
2	X-6217-10	Screw, hex flange machine	24	24	24	24			
3	328901	Cover, louvered	1	1	1	1			
3	GM30076	Cover, louvered					1	1	
4	238915	Boot	4	4	4	4	4	4	4
5	GM28373	Harness, engine, DDC Series 4000 (includes 13-20)	1	1	1	1			
5	GM30070	Harness, engine, DDC Series 4000 (includes 13-20)					1	1	1
6	GM28567	Wiring harness, engine power, DDC (includes item 21)	1	1	1	1			
6	GM30071	Wiring harness, engine power, DDC (includes item 21)					1	1	1
7	GM13980	PCB assembly CT burden resistor	1	1			1		
8	X-70-12	Nut, hex machine screw, 8-32	4	4			4		
9	X-712-9	Spacer, .25 OD, .5 in.	4	4			4		
10	X-405-2	Terminal block			1	1			
11	254127	Marker, strip			2	2			
12	X-49-6	Screw, cross recess pan head machine			2	2			
13	233959	Diode, 6 A (not shown)	6	6	6	6	6	6	6
14	292800	Connector, cable (not shown)	1	1	1	1	1	1	1
15	295145	Connector, 24-position (not shown)	1	1	1	1	1	1	1
16	GM11496	Connector, plug, 3-position (not shown)	1	1	1	1	1	1	1
17	GM28375	Connector, 55-pin (not shown)	1	1	1	1	1	1	1
18	GM28574	Connector, 4-pin (not shown)	1	1	1	1	1	1	1
19	GM28623	Connector, weathertight (not shown)	2	2	2	2	2	2	2
20	GM28873	Connector, 4-pin (not shown)	1	1	1	1	1	1	1
21	GM28568	Connector, 5-pin (not shown)	1	1	1	1	1	1	1
22	X-672-20	Clamp, insulated, 1.25 in.	1	1	1	1			
23	GM11718	PCB assy., Marathon excitation interface	1	1	1	1	1	1	1
24	M965A-06012-20	Screw, pan head machine	4	4	4	4	4	4	4
25	GM31141	Plate, mounting					1	1	1
26	259919	Vibromount					4	4	4
27	X-22-18	Washer, lock, 0172 ID x .595 OD					8	8	8
28	GM30874	Harness, extension					1	1	1
29	X-51-4	Screw, pan head 8-32 x 7/8 (capacitor supplied with alternator)					4	4	4
30	X-6210-4	Nut, flange whiz, 8-32					12	12	12

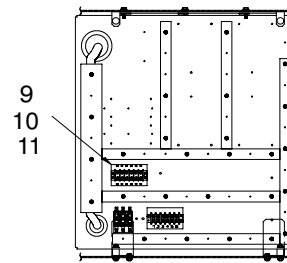
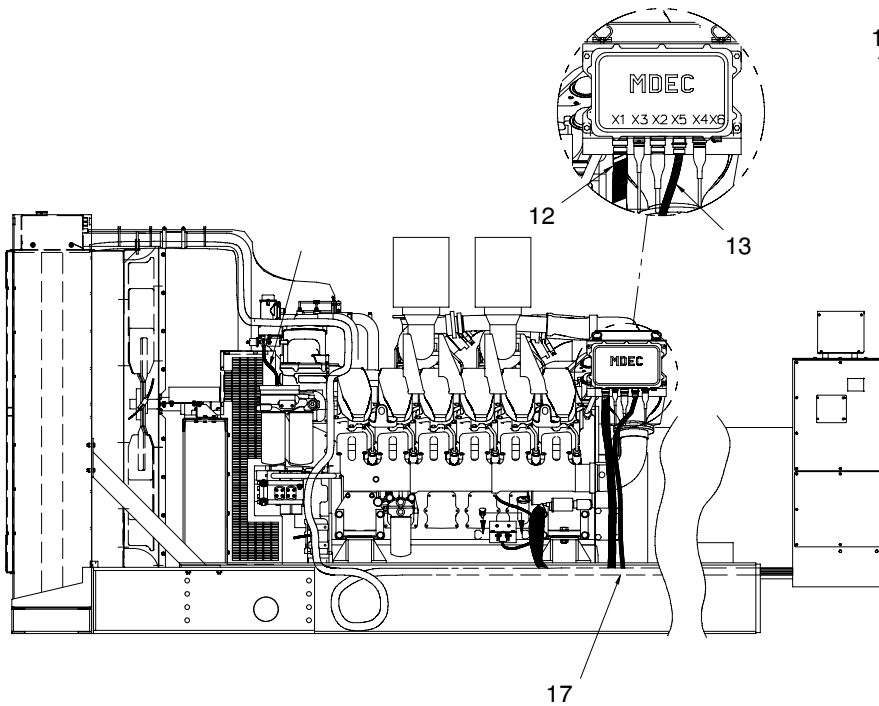
Control and Harness, continued



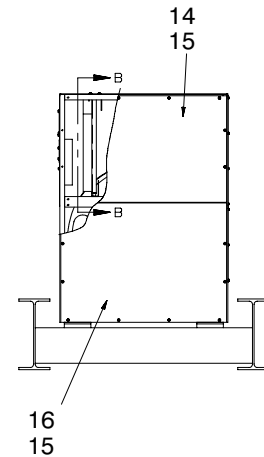
VIEW A-A
ENLARGED FOR CLARITY



VIEW C-C
STARTER RELAY MOUNTING
NOTE: 2 REQUIRED, 1 EACH SIDE OF ENGINE



VIEW B-B



6217_301_2

Control and Harness, continued

Item	Part Number	Description	Quantity
			Module GM35383-MA1S
1	X-22-12	Washer, lock.262 ID x .743 in. OD	8
2	GM36223	Bracket, sender	1
3	223033	Strap, ground, 5 in.	1
4	259632	Bumper	1
5	X-75-4	Plug, pipe, 1/8 in. NPTF	3
6	267548	Block, oil gauge	1
7	365624	Sender, oil pressure	1
8	238915	Boot	4
9	295314	Terminal block	1
10	255080	Marker, strip	1
11	X-49-6	Screw, pan head 6-32 x 3/4	2
12	GM35946	Harness, engine Series 4000	1
13	GM28567	Harness, engine power	1
14	361184	Panel, J-box front	1
15	X-6217-10	Screw, hex flange machine	1
16	328901	Cover, louvered	1
17	X-672-20	Clamp, insulated, 1.25 in.	1
18	X-296-21	Fitting, half union	1
19	GM22991	Bushing, adapter	1
20	GM11694	O-ring, ISO 6149, 15.3mm ID	1
21	GM10166	Sender, temperature	1
22	365499	O-ring, ISO 6149, 11.3mm ID	1

Group 701: Literature

Item	Part Number	Description	Quantity Variation					
			179	181	183	185	192	194
1	MP-5374	Warranty, 1-year limited, Industrial	1	1	1	1	1	1
2	TP-5578	O/I/S/M Marathon Alternator MmaxDVR	1	1	1	1	1	1
3	MP-5583	S/M Pilot-Excited PM Alternator, 350-2800 kW	1	1	1	1	1	1
4	MP-5700	I/M Industrial	1	1	1	1	1	1
5	MP-6009	P/C Controller, Industrial	1	1	1	1	1	1
6	MP-6117	P/C Accessories, 230-2000 kW, Industrial	1	1	1	1	1	1
7	MP-6140	O/I/M Controller Setup and Application, Decision-Maker 550	1	1	1	1	1	1
8	MP-6200	O/M Decision-Maker 550, Version 2.10	1	1	1	1	1	1
9	MP-6216	W/D 1350-2000DSEB, Industrial	1	1	1	1	1	1
10	MP-6217	P/C 1350-2000DSEB & 2500/2800DSE, Industrial	1	1	1	1	1	1
11	TP-6235	P/C 1350-1500 kW DDC engine	1	1				
11	TP-6236	P/C 1820-2000 kW DDC engine			1	1		
11	TP-6243	P/C 2500 kW DDC engine					1	
11	TP-6244	P/C 2800 kW DDC engine						1
12	TP-6237	O/M MTU/DDC 12/16V	1	1	1	1		
12	TP-6248	O/M 20V DDC 2500-2800 KW					1	1
13	TP-6238	S/M MTU/DDC 12V	1	1	1	1		
13	TP-6249	S/M 20V DDC 2500-2800 KW					1	1
14	TP-6199	O/I/S/M Marathon DVR2000E	1	1	1	1		
15	MP-6161	O/M Microprocessor+ w/Comm, Basic Controller	1	1	1	1	1	1
16	MP-6356	S/M Controllers, 20-2800 kW	1	1	1	1	1	1
17	SB-566	Dual Bearing Alternator Install, 2000-2800 kW					1	1

Kit List

This section lists the part numbers of modules/kits not listed in the Group Parts Lists. Refer to the generator set nameplate or the list below to identify the module/kit number installed on your generator set. See the sections following this page for the parts list of the module/kit.

	1350/1500 kW	1820/2000 kW	2500/2800 kW
Controllers			
See Parts Catalog MP-6009 for parts lists.			
Cooling Systems			
Unit-mounted radiator (See Group 104 for parts lists)			
City water, heat exchanger	ES	ES	ES
Remote radiator set-up	GM28439-MA1	GM28439-MA1	GM30227-MA1
Remote radiator flex kit	PA-361327	PA-361327	PA-361327
Block heater, 240 V, 1 phase (with isolation valves)	GM19408-KP1	GM19408-KP6	GM30883-KP1
Block heater, 480 V, 1 phase	GM19408-KP2	GM19408-KP7	GM30883-KP2
Block heater, 240 V, 3 phase	GM19408-KP3	GM19408-KP8	GM30883-KP3
Block heater, 380 V, 3 phase	GM19408-KP4	GM19408-KP9	GM30883-KP4
Block heater, 480 V, 3 phase	GM19408-KP5	GM19408-KP10	GM30883-KP5
Block heater, 208 V, 1 phase	GM19408-KP16	GM19408-KP17	GM30883-KP6
Optional Kits			
See Parts Catalog MP-6117 for parts lists.			
Paint and Miscellaneous Parts			
Paint, Gray	All models use 221331 Spray Can, 221332 Gallon, GM19491 Touch-Up		

Cooling System Kits

Qty.	Description	Part No.
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Flex Kit, Remote Radiator

2	Adapter, flexible radiator, neoprene	354044
2	Adapter, flexible radiator, neoprene	354281
64	Screw, hex head machine	X-6021-1
64	Nut, hex, 5/8-11, zinc	X-85-3

Remote Radiator Setup

1	Clamp, muffler, 4.12 in.	289372
1	Tube, water inlet, 4.00 in. OD, steel	361299
1	Tube, water outlet, 4.00 in. OD	361300
1	Tube, intercooler inlet, 2.50 in. OD	GM16095
1	Tube, intercooler return, 2.50 in. OD	GM16096
1	Gasket, water	GM16101
1	Gasket, intercooler inlet	GM16102
1	Guard, top and front pulley	GM28554
1	Guard, pulley, LS	GM28555
1	Guard, pulley, RS	GM28556
1	Bracket, lower radiator tube	GM28626
2	Washer, beveled, .68 ID x 1.5 in. OD	X-6011-3
4	Washer, beveled, .44 ID x 1.25 in. OD	X-6011-4
2	Spacer, .406 ID x 1.25 OD x .5 in.	X-400-227

PA-361327

GM28439-MA1

Qty.	Description	Part No.
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Remote Radiator Setup

1	Clamp, muffler, 4.12 in.	289372
1	Flange, water conn., upper	GM30228
1	Tube, water inlet	GM30229
1	Tube, intercooler outlet	GM30230
1	Tube, intercooler inlet	GM30231
1	Guard, top and front pulley	GM30235
1	Guard, pulley, LS	GM30234
1	Guard, pulley, RS	GM30233
1	Bracket, lower radiator tube	GM30232
4	Washer, beveled, .44 ID x 1.25 in. OD	X-6011-4

GM30227-MA1

Block Heater Kits

Kits: GM19408-KP1-GM19408-KP5

Qty.	Description	Common Parts	Unique Parts				
			GM19408-KP1	GM19408-KP2	GM19408-KP3	GM19408-KP4	GM19408-KP5
1	Heater, block		361246	361247	361248	361249	361240
1	Block heater service element		GM29666	GM29667	GM29668	GM29669	GM29665
1	Hose, coolant	X-6367-5					
1	Tag, hang	279047					
1	Tag, instruction	299896					
4	Vibromount, controller	328645					
1	Fitting, swivel, 37°	361596					
1	Fitting, elbow, 90°	361597					
1	Connector, swivel nut	361598					
2	Valve, shutoff, 3/4-14 NPT	GM19666					
1	Bracket, block heater	GM30921					
1	Bracket, block heater	GM30922					
1	Bushing, reduc, 1/2 x 3/4 in. NPT	X-202-41					
1	Tee, pipe, 1 x 1 x 1 NPT	X-203-2					
1	Pipe, 3/4 in. NPT x 2.50 in.	X-206-4					
1	Pipe, 3/4 in. NPT x 1.38 in.	X-206-9					
1	Pipe, 1/2 in. NPT x 1.50 in. brass	X-209-1					
1	Elbow, street, 90° x 3/4 in. NPTF	X-211-5					
1	Elbow, pipe, 90° x 3/4 in. NPT	X-215-2					
1	Pipe, 1 in. NPT x 1.50 in.	X-218-24					
8	Washer, lock, .3261D x .883 in. OD	X-22-16					
1	Elbow, street, 45° x 3/4 in. NPT	X-274-2					
1	Fitting, half union	X-296-17					
4	Stud, 5/16-18 x 1.5 in.	X-352-65					
4	Clamp, hose, .69/1.25 in.	X-426-12					
2	Connector, hose + vibra seal	X-582-15					
2	Connector, hose + vibra seal	X-582-8					
1	Hose, Coolant 35 in.	X-6367-11					
1	Plug, pipe, 1 in. NPTF	X-75-13					

Cooling System Kits

Block Heater Kits, continued

Kits: GM19408-KP6-GM19408-KP10

Qty.	Description	Common Parts	Unique Parts				
			GM19408-KP6	GM19408-KP7	GM19408-KP8	GM19408-KP9	GM19408-KP10
1	Heater, block		361246	361247	361248	361249	361240
1	Block heater service element		GM29666	GM29667	GM29668	GM29669	GM29665
1	Hose, coolant	X-6367-7					
1	Tag, hang	279047					
1	Tag, instruction	299896					
4	Vibromount, controller	328645					
1	Fitting, swivel, 37°	361596					
1	Fitting, elbow, 90°	361597					
1	Connector, swivel nut	361598					
2	Valve, shutoff, 3/4-14 NPT	GM19666					
1	Bracket, block heater	GM30921					
1	Bracket, block heater	GM30922					
1	Bushing, reducing, 1/2 x 3/4 in. NPT	X-202-41					
1	Tee, pipe, 1 x 1 x 1 NPT	X-203-2					
1	Pipe, 3/4 in. NPT x 2.50 in.	X-206-4					
1	Pipe, 3/4 in. NPT x 1.38 in.	X-206-9					
1	Pipe, 1/2 in. NPT x 1.50 in. brass	X-209-1					
1	Elbow, street, 90° x 3/4 in. NPTF	X-211-5					
1	Elbow, pipe, 90° x 3/4 in. NPT	X-215-2					
1	Pipe, 1 in. NPT x 1.50 in.	X-218-24					
8	Washer, lock, .326 ID x .883 in. OD	X-22-16					
1	Elbow, street, 45° x 3/4 in. NPT	X-274-2					
1	Fitting, half union	X-296-17					
4	Stud, 5/16-18 x 1.5 in.	X-352-65					
4	Clamp, hose, .69/1.25 in.	X-426-12					
2	Connector, hose + vibra seal	X-582-15					
2	Connector, hose + vibra seal	X-582-8					
1	Hose, coolant, 35 in.	X-6367-11					
1	Plug, pipe, 1 in. NPTF	X-75-13					

Cooling System Kits

Block Heater Kits, continued

Kits: GM19408-KP16, GM19408-KP17

Qty.	Description	Common Parts	Unique Parts	
			GM19408-KP16	GM19408-KP17
1	Heater, block		GM42088	GM42088
1	Block heater service element		GM42089	GM42089
1	Hose, coolant		X-6367-5	X-6367-7
1	Tag, hang	279047		
1	Tag, instruction	299896		
4	Vibromount, controller	328645		
1	Fitting, swivel, 37°	361596		
1	Fitting, elbow, 90°	361597		
1	Connector, swivel nut	361598		
2	Valve, shutoff, 3/4-14 NPT	GM19666		
1	Bracket, block heater	GM30921		
1	Bracket, block heater	GM30922		
1	Bushing, reducing, 1/2 x 3/4 in. NPT	X-202-41		
1	Tee, pipe, 1 x 1 x 1 NPT	X-203-2		
1	Pipe, 3/4 in. NPT x 2.50 in.	X-206-4		
1	Pipe, 3/4 in. NPT x 1.38 in.	X-206-9		
1	Pipe, 1/2 in. NPT x 1.50 in. brass	X-209-1		
1	Elbow, street, 90° x 3/4 in. NPTF	X-211-5		
1	Elbow, pipe, 90° x 3/4 in. NPT	X-215-2		
1	Pipe, 1 in. NPT x 1.50 in.	X-218-24		
8	Washer, lock, .326 ID x .883 in. OD	X-22-16		
1	Elbow, street, 45° x 3/4 in. NPT	X-274-2		
1	Fitting, half union	X-296-17		
4	Stud, 5/16-18 x 1.5 in.	X-352-65		
4	Clamp, hose, .69/1.25 in.	X-426-12		
2	Connector, hose + vibra seal	X-582-15		
2	Connector, hose + vibra seal	X-582-8		
1	Hose, coolant, 35 in.	X-6367-11		
1	Plug, pipe, 1 in. NPTF	X-75-13		

Cooling System Kits

Block Heater Kits, continued

Kits: GM30883-KP1-GM30883-KP5

Qty.	Description	Common Parts	Unique Parts		
			GM30883-KP1	GM30883-KP2	GM30883-KP3
1	Heater, block		GM30237	GM30238	GM30239
1	Block heater service element		GM30490	GM30491	GM30492
1	Tag, hang	279047			
1	Tag, instruction	299896			
4	Vibromount, controller	328645			
1	Connector, swivel nut	361598			
2	Valve, shutoff, 3/4-14 NPT	GM19666			
1	Bracket, block heater	GM30921			
1	Bracket, block heater	GM30922			
1	Tee, pipe, 1 x 1 x 1 NPT	X-203-2			
2	Pipe, 3/4 in. NPT x 6 in.	X-206-15			
2	Pipe, 3/4 in. NPT x 1.38 in.	X-206-9			
1	Elbow, street, 90° x 3/4 in. NPTF	X-211-5			
1	Elbow, pipe, 90° x 3/4 in. NPT	X-215-2			
1	Pipe, 1 in. NPT x 1.50 in.	X-218-24			
8	Washer, lock, .326 ID x .883 in. OD	X-22-16			
1	Elbow, street, 45° x 1 in. NPT	X-274-10			
1	Elbow, street, 45° x 3/4 in. NPT	X-274-2			
1	Fitting, half union	X-296-17			
4	Stud, 5/16-18 x 1.5 in.	X-352-65			
4	Clamp, hose, .69/1.25 in.	X-426-12			
2	Connector, hose + vibra seal	X-582-15			
2	Connector, hose + vibra seal	X-582-8			
1	Hose, coolant 56 in.	X-6367-5			
1	Hose, coolant 65 in.	X-6367-9			
1	Plug, pipe, 1 in. NPTF	X-75-13			

Kits: GM30883-KP1-GM30883-KP5

Qty.	Description	Common Parts	Unique Parts		
			GM30883-KP4	GM30883-KP5	GM30883-KP6
1	Heater, block		GM30240	GM30236	GM42088
1	Block heater service element		GM30493	GM30489	GM42089
1	Tag, hang	279047			
1	Tag, instruction	299896			
4	Vibromount, controller	328645			
1	Connector, swivel nut	361598			
2	Valve, shutoff, 3/4-14 NPT	GM19666			
1	Bracket, block heater	GM30921			
1	Bracket, block heater	GM30922			
1	Tee, pipe, 1 x 1 x 1 NPT	X-203-2			
2	Pipe, 3/4 in. NPT x 6 in.	X-206-15			
2	Pipe, 3/4 in. NPT x 1.38 in.	X-206-9			
1	Elbow, street, 90° x 3/4 in. NPTF	X-211-5			
1	Elbow, pipe, 90° x 3/4 in. NPT	X-215-2			
1	Pipe, 1 in. NPT x 1.50 in.	X-218-24			
8	Washer, lock, .326 ID x .883 in. OD	X-22-16			
1	Elbow, street, 45° x 1 in. NPT	X-274-10			
1	Elbow, street, 45° x 3/4 in. NPT	X-274-2			
1	Fitting, half union	X-296-17			
4	Stud, 5/16-18 x 1.5 in.	X-352-65			
4	Clamp, hose, .69/1.25 in.	X-426-12			
2	Connector, hose + vibra seal	X-582-15			
2	Connector, hose + vibra seal	X-582-8			
1	Hose, coolant, 56 in.	X-6367-5			
1	Hose, coolant, 65 in.	X-6367-9			
1	Plug, pipe, 1 in. NPTF	X-75-13			

Notes

Appendix A Abbreviations

The following list contains abbreviations that may appear in this publication.

A, amp	ampere	cfm	cubic feet per minute	ext.	external
ABDC	after bottom dead center	CG	center of gravity	F	Fahrenheit, female
AC	alternating current	CID	cubic inch displacement	fglass.	fiberglass
A/D	analog to digital	CL	centerline	FHM	flat head machine (screw)
ADC	analog to digital converter	cm	centimeter	fl. oz.	fluid ounce
adj.	adjust, adjustment	CMOS	complementary metal oxide substrate (semiconductor)	flex.	flexible
ADV	advertising dimensional drawing	cogen.	cogeneration	freq.	frequency
AHWT	anticipatory high water temperature	com	communications (port)	FS	full scale
AISI	American Iron and Steel Institute	coml	commercial	ft.	foot, feet
ALOP	anticipatory low oil pressure	Coml/Rec	Commercial/Recreational	ft. lb.	foot pounds (torque)
alt.	alternator	conn.	connection	ft./min.	feet per minute
Al	aluminum	cont.	continued	g	gram
ANSI	American National Standards Institute (formerly American Standards Association, ASA)	CPVC	chlorinated polyvinyl chloride	ga.	gauge (meters, wire size)
AO	anticipatory only	crit.	critical	gal.	gallon
API	American Petroleum Institute	CRT	cathode ray tube	gen.	generator
approx.	approximate, approximately	CSA	Canadian Standards Association	genset	generator set
AR	as required, as requested	CT	current transformer	GFI	ground fault interrupter
AS	as supplied, as stated, as suggested	Cu	copper	GND, ⊕	ground
ASE	American Society of Engineers	cu. in.	cubic inch	gov.	governor
ASME	American Society of Mechanical Engineers	cw.	clockwise	gph	gallons per hour
assy.	assembly	CWC	city water-cooled	gpm	gallons per minute
ASTM	American Society for Testing Materials	cyl.	cylinder	gr.	grade, gross
ATDC	after top dead center	D/A	digital to analog	GRD	equipment ground
ATS	automatic transfer switch	DAC	digital to analog converter	gr. wt.	gross weight
auto.	automatic	dB	decibel	H x W x D	height by width by depth
aux.	auxiliary	dBA	decibel (A weighted)	HC	hex cap
A/V	audiovisual	DC	direct current	HCHT	high cylinder head temperature
avg.	average	DCR	direct current resistance	HD	heavy duty
AVR	automatic voltage regulator	deg., °	degree	HET	high exhaust temperature, high engine temperature
AWG	American Wire Gauge	dept.	department	hex	hexagon
AWM	appliance wiring material	dia.	diameter	Hg	mercury (element)
bat.	battery	DI/EO	dual inlet/end outlet	HH	hex head
BBDC	before bottom dead center	DIN	Deutsches Institut für Normung e. V. (also Deutsche Industrie Normenausschuss)	HHC	hex head cap
BC	battery charger, battery charging	DIP	dual inline package	HP	horsepower
BCA	battery charging alternator	DPDT	double-pole, double-throw	hr.	hour
BCI	Battery Council International	DPST	double-pole, single-throw	HS	heat shrink
BDC	before dead center	DS	disconnect switch	hsg.	housing
BHP	brake horsepower	DVR	digital voltage regulator	HVAC	heating, ventilation, and air conditioning
blk.	black (paint color), block (engine)	E, emer.	emergency (power source)	HWT	high water temperature
blk. htr.	block heater	EDI	electronic data interchange	Hz	hertz (cycles per second)
BMEP	brake mean effective pressure	EFR	emergency frequency relay	IC	integrated circuit
bps	bits per second	e.g.	for example (<i>exempli gratia</i>)	ID	inside diameter, identification
br.	brass	EG	electronic governor	IEC	International Electrotechnical Commission
BTDC	before top dead center	EGSA	Electrical Generating Systems Association	IEEE	Institute of Electrical and Electronics Engineers
Btu	British thermal unit	EIA	Electronic Industries Association	IMS	improved motor starting
Btu/min.	British thermal units per minute	EI/EO	end inlet/end outlet	in.	inch
C	Celsius, centigrade	EMI	electromagnetic interference	in. H ₂ O	inches of water
cal.	calorie	emiss.	emission	in. Hg	inches of mercury
CARB	California Air Resources Board	eng.	engine	in. lb.	inch pounds
CB	circuit breaker	EPA	Environmental Protection Agency	Inc.	incorporated
cc	cubic centimeter	EPS	emergency power system	ind.	industrial
CCA	cold cranking amps	ER	emergency relay	int.	internal
ccw.	counterclockwise	ES	engineering special, engineered special	int./ext.	internal/external
CEC	Canadian Electrical Code	ESD	electrostatic discharge	I/O	input/output
cert.	certificate, certification, certified	est.	estimated	IP	iron pipe
cfh	cubic feet per hour	E-Stop	emergency stop	ISO	International Organization for Standardization
		etc.	et cetera (and so forth)	J	joule
		exh.	exhaust	JIS	Japanese Industry Standard
				k	kilo (1000)
				K	kelvin

kA	kiloampere	MTBO	mean time between overhauls	rly.	relay
KB	kilobyte (2 ¹⁰ bytes)	mtg.	mounting	rms	root mean square
kg	kilogram	MW	megawatt	rnd.	round
kg/cm ²	kilograms per square centimeter	mW	milliwatt	ROM	read only memory
kgm	kilogram-meter	μF	microfarad	rot.	rotate, rotating
kg/m ³	kilograms per cubic meter	N, norm.	normal (power source)	rpm	revolutions per minute
kHz	kilohertz	NA	not available, not applicable	RS	right side
kJ	kilojoule	nat. gas	natural gas	RTV	room temperature vulcanization
km	kilometer	NBS	National Bureau of Standards	SAE	Society of Automotive Engineers
kOhm, kΩ	kilo-ohm	NC	normally closed	scfm	standard cubic feet per minute
kPa	kilopascal	NEC	National Electrical Code	SCR	silicon controlled rectifier
kph	kilometers per hour	NEMA	National Electrical Manufacturers Association	s, sec.	second
kV	kilovolt	NFPA	National Fire Protection Association	SI	<i>Système international d'unités</i> , International System of Units
kVA	kilovolt ampere	Nm	newton meter	SI/EO	side in/end out
kVAR	kilovolt ampere reactive	NO	normally open	sil.	silencer
kW	kilowatt	no., nos.	number, numbers	SN	serial number
kWh	kilowatt-hour	NPS	National Pipe, Straight	SPDT	single-pole, double-throw
kWm	kilowatt mechanical	NPSC	National Pipe, Straight-coupling	SPST	single-pole, single-throw
L	liter	NPT	National Standard taper pipe thread per general use	spec, specs	specification(s)
LAN	local area network	NPTF	National Pipe, Taper-Fine	sq.	square
L x W x H	length by width by height	NR	not required, normal relay	sq. cm	square centimeter
lb.	pound, pounds	ns	nanosecond	sq. in.	square inch
lbm/ft ³	pounds mass per cubic feet	OC	overcrank	SS	stainless steel
LCB	line circuit breaker	OD	outside diameter	std.	standard
LCD	liquid crystal display	OEM	original equipment manufacturer	stl.	steel
ld. shd.	load shed	OF	overfrequency	tach.	tachometer
LED	light emitting diode	opt.	option, optional	TD	time delay
Lph	liters per hour	OS	oversize, overspeed	TDC	top dead center
Lpm	liters per minute	OSHA	Occupational Safety and Health Administration	TDEC	time delay engine cooldown
LOP	low oil pressure	OV	overvoltage	TDEN	time delay emergency to normal
LP	liquefied petroleum	oz.	ounce	TDES	time delay engine start
LPG	liquefied petroleum gas	p., pp.	page, pages	TDNE	time delay normal to emergency
LS	left side	PC	personal computer	TDOE	time delay off to emergency
L _{wa}	sound power level, A weighted	PCB	printed circuit board	TDON	time delay off to normal
LWL	low water level	pF	picofarad	temp.	temperature
LWT	low water temperature	PF	power factor	term.	terminal
m	meter, milli (1/1000)	ph., ∅	phase	TIF	telephone influence factor
M	mega (10 ⁶ when used with SI units), male	PHC	Phillips head crimplite (screw)	TIR	total indicator reading
m ³	cubic meter	PHH	Phillips hex head (screw)	tol.	tolerance
m ³ /min.	cubic meters per minute	PHM	pan head machine (screw)	turbo.	turbocharger
mA	milliampere	PLC	programmable logic control	typ.	typical (same in multiple locations)
man.	manual	PMG	permanent-magnet generator	UF	underfrequency
max.	maximum	pot	potentiometer, potential	UHF	ultrahigh frequency
MB	megabyte (2 ²⁰ bytes)	ppm	parts per million	UL	Underwriter's Laboratories, Inc.
MCM	one thousand circular mils	PROM	programmable read-only memory	UNC	unified coarse thread (was NC)
MCCB	molded-case circuit breaker	psi	pounds per square inch	UNF	unified fine thread (was NF)
meggar	megohmmeter	pt.	pint	univ.	universal
MHz	megahertz	PTC	positive temperature coefficient	US	undersize, underspeed
mi.	mile	PTO	power takeoff	UV	ultraviolet, undervoltage
mil	one one-thousandth of an inch	PVC	polyvinyl chloride	V	volt
min.	minimum, minute	qt.	quart, quarts	VAC	volts alternating current
misc.	miscellaneous	qty.	quantity	VAR	voltampere reactive
MJ	megajoule	R	replacement (emergency) power source	VDC	volts direct current
mJ	millijoule	rad.	radiator, radius	VFD	vacuum fluorescent display
mm	millimeter	RAM	random access memory	VGA	video graphics adapter
mOhm, mΩ	milliohm	RDO	relay driver output	VHF	very high frequency
MOhm, MΩ	megohm	ref.	reference	W	watt
MOV	metal oxide varistor	rem.	remote	WCR	withstand and closing rating
MPa	megapascal	Res/Coml	Residential/Commercial	w/	with
mpg	miles per gallon	RFI	radio frequency interference	w/o	without
mph	miles per hour	RH	round head	wt.	weight
MS	military standard	RHM	round head machine (screw)	xfrm	transformer
m/sec.	meters per second				
MTBF	mean time between failure				

Appendix B Common Hardware Application Guidelines

Use the information below and on the following pages to identify proper fastening techniques when no specific reference for reassembly is made.

Bolt/Screw Length: When bolt/screw length is not given, use Figure 1 as a guide. As a general rule, a minimum length of one thread beyond the nut and a maximum length of 1/2 the bolt/screw diameter beyond the nut is the preferred method.

Washers and Nuts: Use split lock washers as a bolt locking device where specified. Use SAE flat washers with whiz nuts, spirallock nuts, or standard nuts and preloading (torque) of the bolt in all other applications. See Appendix C, General Torque Specifications, and other torque specifications in the service literature.

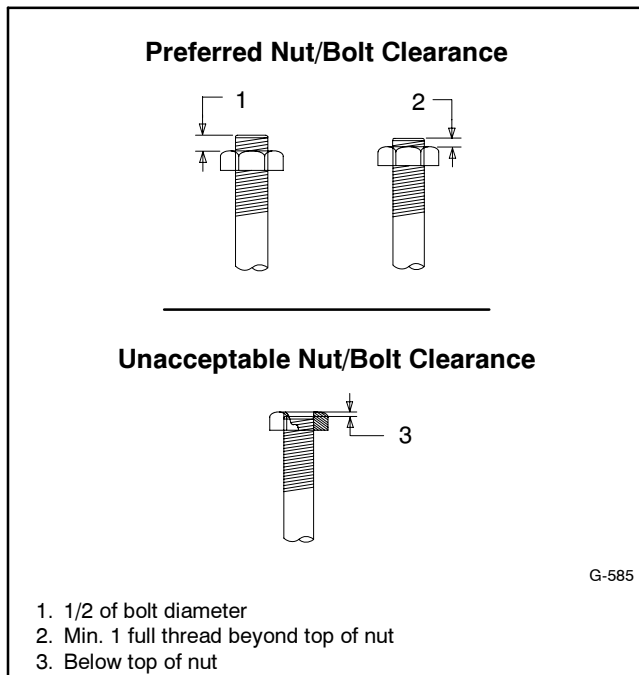


Figure 1 Acceptable Bolt Lengths

Steps for common hardware application:

1. Determine entry hole type: round or slotted.
2. Determine exit hole type: fixed female thread (weld nut), round, or slotted.

For round and slotted exit holes, determine if hardware is greater than 1/2 inch in diameter, or 1/2 inch in diameter or less. Hardware that is *greater than 1/2 inch* in diameter takes a standard nut and SAE washer. Hardware *1/2 inch or less* in diameter can take a properly torqued whiz nut or spirallock nut. See Figure 2.

3. Follow these SAE washer rules after determining exit hole type:
 - a. Always use a washer between hardware and a slot.
 - b. Always use a washer under a nut (see 2 above for exception).
 - c. Use a washer under a bolt when the female thread is fixed (weld nut).
4. Refer to Figure 2, which depicts the preceding hardware configuration possibilities.

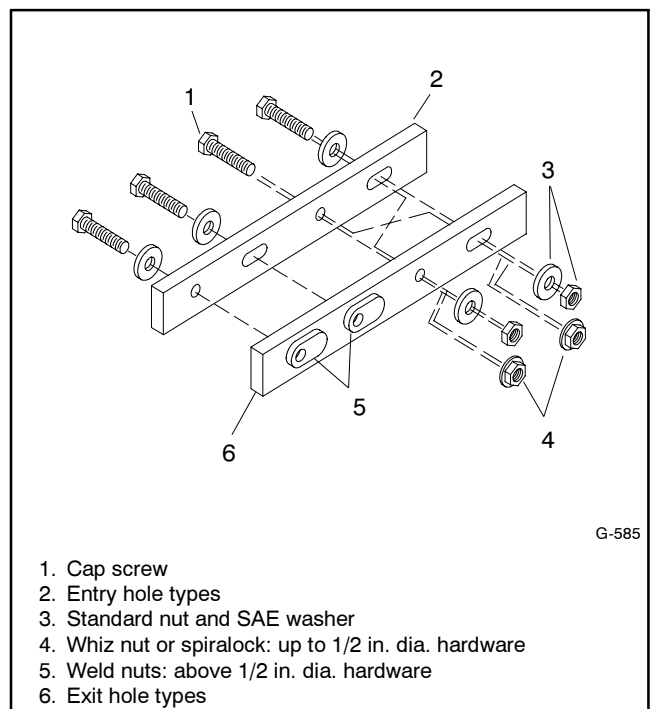


Figure 2 Acceptable Hardware Combinations

Appendix C General Torque Specifications

American Standard Fasteners Torque Specifications					
Size	Torque Measurement	Assembled into Cast Iron or Steel			Assembled into Aluminum Grade 2 or 5
		Grade 2	Grade 5	Grade 8	
8-32	Nm (in. lb.)	1.8 (16)	2.3 (20)	—	See Note 3
10-24	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	
10-32	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	
1/4-20	Nm (in. lb.)	6.8 (60)	10.8 (96)	14.9 (132)	
1/4-28	Nm (in. lb.)	8.1 (72)	12.2 (108)	16.3 (144)	
5/16-18	Nm (in. lb.)	13.6 (120)	21.7 (192)	29.8 (264)	
5/16-24	Nm (in. lb.)	14.9 (132)	23.1 (204)	32.5 (288)	
3/8-16	Nm (ft. lb.)	24.0 (18)	38.0 (28)	53.0 (39)	
3/8-24	Nm (ft. lb.)	27.0 (20)	42.0 (31)	60.0 (44)	
7/16-14	Nm (ft. lb.)	39.0 (29)	60.0 (44)	85.0 (63)	
7/16-20	Nm (ft. lb.)	43.0 (32)	68.0 (50)	95.0 (70)	
1/2-13	Nm (ft. lb.)	60.0 (44)	92.0 (68)	130.0 (96)	
1/2-20	Nm (ft. lb.)	66.0 (49)	103.0 (76)	146.0 (108)	
9/16-12	Nm (ft. lb.)	81.0 (60)	133.0 (98)	187.0 (138)	
9/16-18	Nm (ft. lb.)	91.0 (67)	148.0 (109)	209.0 (154)	
5/8-11	Nm (ft. lb.)	113.0 (83)	183.0 (135)	259.0 (191)	
5/8-18	Nm (ft. lb.)	128.0 (94)	208.0 (153)	293.0 (216)	
3/4-10	Nm (ft. lb.)	199.0 (147)	325.0 (240)	458.0 (338)	
3/4-16	Nm (ft. lb.)	222.0 (164)	363.0 (268)	513.0 (378)	
1-8	Nm (ft. lb.)	259.0 (191)	721.0 (532)	1109.0 (818)	
1-12	Nm (ft. lb.)	283.0 (209)	789.0 (582)	1214.0 (895)	

Metric Fasteners Torque Specifications, Measured in Nm (ft. lb.)				
Size (mm)	Assembled into Cast Iron or Steel			Assembled into Aluminum Grade 5.8 or 8.8
	Grade 5.8	Grade 8.8	Grade 10.9	
M6 x 1.00	6.2 (4.6)	9.5 (7)	13.6 (10)	See Note 3
M8 x 1.25	15.0 (11)	23.0 (17)	33.0 (24)	
M8 x 1.00	16.0 (11)	24.0 (18)	34.0 (25)	
M10 x 1.50	30.0 (22)	45.0 (34)	65.0 (48)	
M10 x 1.25	31.0 (23)	47.0 (35)	68.0 (50)	
M12 x 1.75	53.0 (39)	80.0 (59)	115.0 (85)	
M12 x 1.50	56.0 (41)	85.0 (63)	122.0 (90)	
M14 x 2.00	83.0 (61)	126.0 (93)	180.0 (133)	
M14 x 1.50	87.0 (64)	133.0 (98)	190.0 (140)	
M16 x 2.00	127.0 (94)	194.0 (143)	278.0 (205)	
M16 x 1.50	132.0 (97)	201.0 (148)	287.0 (212)	
M18 x 2.50	179.0 (132)	273.0 (201)	390.0 (288)	
M18 x 1.50	189.0 (140)	289.0 (213)	413.0 (305)	

Notes:

1. The torque values above are general guidelines. Always use the torque values specified in the service manuals and/or assembly drawings when they differ from the above torque values.
2. The torque values above are based on new plated threads. Increase torque values by 15% if non-plated threads are used.
3. Hardware threaded into aluminum must have either two diameters of thread engagement or a 30% or more reduction in the torque to prevent stripped threads.
4. Torque values are calculated as equivalent stress loading on American hardware with an approximate preload of 90% of the yield strength and a friction coefficient of 0.125.

Appendix D Common Hardware Identification

Screw/Bolts/Studs	
Head Styles	
Hex Head or Machine Head	
Hex Head or Machine Head with Washer	
Flat Head (FHM)	
Round Head (RHM)	
Pan Head	
Hex Socket Head Cap or Allen™ Head Cap	
Hex Socket Head or Allen™ Head Shoulder Bolt	
Sheet Metal Screw	
Stud	
Drive Styles	
Hex	
Hex and Slotted	
Phillips®	
Slotted	
Hex Socket	

Nuts	
Nut Styles	
Hex Head	
Lock or Elastic	
Square	
Cap or Acorn	
Wing	
Washers	
Washer Styles	
Plain	
Split Lock or Spring	
Spring or Wave	
External Tooth Lock	
Internal Tooth Lock	
Internal-External Tooth Lock	

Hardness Grades	
American Standard	
Grade 2	 
Grade 5	 
Grade 8	
Grade 8/9 (Hex Socket Head)	
Metric	
Number stamped on hardware; 5.8 shown	

Allen™ head screw is a trademark of Holo-Krome Co.

Phillips® screw is a registered trademark of Phillips Screw Company.

Sample Dimensions

American Standard (Screws, Bolts, Studs, and Nuts)

1/4-20 x 1
 — Length In Inches (Screws and Bolts)
 — Threads Per Inch
 — Major Thread Diameter In Fractional Inches Or Screw Number Size

Metric (Screws, Bolts, Studs, and Nuts)

M8-1.25 x 20
 — Length In Millimeters (Screws and Bolts)
 — Distance Between Threads In Millimeters
 — Major Thread Diameter In Millimeters

Plain Washers

9/32 x 5/8 x 1/16
 — Thickness
 — External Dimension
 — Internal Dimension

Lock Washers

5/8
 — Internal Dimension

Appendix E Common Hardware List

The Common Hardware List lists part numbers and dimensions for common hardware items.

American Standard

Part No. Dimensions Hex Head Bolts (Grade 5)

X-465-17	1/4-20 x .38
X-465-6	1/4-20 x .50
X-465-2	1/4-20 x .62
X-465-16	1/4-20 x .75
X-465-18	1/4-20 x .88
X-465-7	1/4-20 x 1.00
X-465-8	1/4-20 x 1.25
X-465-9	1/4-20 x 1.50
X-465-10	1/4-20 x 1.75
X-465-11	1/4-20 x 2.00
X-465-12	1/4-20 x 2.25
X-465-14	1/4-20 x 2.75
X-465-21	1/4-20 x 5.00
X-465-25	1/4-28 x .38
X-465-20	1/4-28 x 1.00
X-125-33	5/16-18 x .50
X-125-23	5/16-18 x .62
X-125-3	5/16-18 x .75
X-125-31	5/16-18 x .88
X-125-5	5/16-18 x 1.00
X-125-24	5/16-18 x 1.25
X-125-34	5/16-18 x 1.50
X-125-25	5/16-18 x 1.75
X-125-26	5/16-18 x 2.00
230578	5/16-18 x 2.25
X-125-29	5/16-18 x 2.50
X-125-27	5/16-18 x 2.75
X-125-28	5/16-18 x 3.00
X-125-22	5/16-18 x 4.50
X-125-32	5/16-18 x 5.00
X-125-35	5/16-18 x 5.50
X-125-36	5/16-18 x 6.00
X-125-40	5/16-18 x 6.50
X-125-43	5/16-24 x 1.75
X-125-44	5/16-24 x 2.50
X-125-30	5/16-24 x .75
X-125-39	5/16-24 x 2.00
X-125-38	5/16-24 x 2.75
X-6238-2	3/8-16 x .62
X-6238-10	3/8-16 x .75
X-6238-3	3/8-16 x .88
X-6238-11	3/8-16 x 1.00
X-6238-4	3/8-16 x 1.25
X-6238-5	3/8-16 x 1.50
X-6238-1	3/8-16 x 1.75
X-6238-6	3/8-16 x 2.00
X-6238-17	3/8-16 x 2.25
X-6238-7	3/8-16 x 2.50
X-6238-8	3/8-16 x 2.75
X-6238-9	3/8-16 x 3.00
X-6238-19	3/8-16 x 3.25
X-6238-12	3/8-16 x 3.50
X-6238-20	3/8-16 x 3.75
X-6238-13	3/8-16 x 4.50
X-6238-18	3/8-16 x 5.50
X-6238-25	3/8-16 x 6.50

Part No. Dimensions Hex Head Bolts, cont.

X-6238-14	3/8-24 x .75
X-6238-16	3/8-24 x 1.25
X-6238-21	3/8-24 x 4.00
X-6238-22	3/8-24 x 4.50
X-6024-5	7/16-14 x .75
X-6024-2	7/16-14 x 1.00
X-6024-8	7/16-14 x 1.25
X-6024-3	7/16-14 x 1.50
X-6024-4	7/16-14 x 2.00
X-6024-11	7/16-14 x 2.75
X-6024-12	7/16-14 x 6.50
X-129-15	1/2-13 x .75
X-129-17	1/2-13 x 1.00
X-129-18	1/2-13 x 1.25
X-129-19	1/2-13 x 1.50
X-129-20	1/2-13 x 1.75
X-129-21	1/2-13 x 2.00
X-129-22	1/2-13 x 2.25
X-129-23	1/2-13 x 2.50
X-129-24	1/2-13 x 2.75
X-129-25	1/2-13 x 3.00
X-129-27	1/2-13 x 3.50
X-129-29	1/2-13 x 4.00
X-129-30	1/2-13 x 4.50
X-463-9	1/2-13 x 5.50
X-129-44	1/2-13 x 6.00
X-129-51	1/2-20 x .75
X-129-45	1/2-20 x 1.25
X-129-52	1/2-20 x 1.50
X-6021-3	5/8-11 x 1.00
X-6021-4	5/8-11 x 1.25
X-6021-2	5/8-11 x 1.50
X-6021-1	5/8-11 x 1.75
273049	5/8-11 x 2.00
X-6021-5	5/8-11 x 2.25
X-6021-6	5/8-11 x 2.50
X-6021-7	5/8-11 x 2.75
X-6021-12	5/8-11 x 3.75
X-6021-11	5/8-11 x 4.50
X-6021-10	5/8-11 x 6.00
X-6021-9	5/8-18 x 2.50
X-6239-1	3/4-10 x 1.00
X-6239-8	3/4-10 x 1.25
X-6239-2	3/4-10 x 1.50
X-6239-3	3/4-10 x 2.00
X-6239-4	3/4-10 x 2.50
X-6239-5	3/4-10 x 3.00
X-6239-6	3/4-10 x 3.50
X-792-1	1-8 x 2.25
X-792-5	1-8 x 3.00
X-792-8	1-8 x 5.00

Part No. Dimensions Type

Hex Nuts

X-6009-1	1-8	Standard
X-6210-3	6-32	Whiz
X-6210-4	8-32	Whiz
X-6210-5	10-24	Whiz
X-6210-1	10-32	Whiz
X-6210-2	1/4-20	Spiralock
X-6210-6	1/4-28	Spiralock
X-6210-7	5/16-18	Spiralock
X-6210-8	5/16-24	Spiralock
X-6210-9	3/8-16	Spiralock
X-6210-10	3/8-24	Spiralock
X-6210-11	7/16-14	Spiralock
X-6210-12	1/2-13	Spiralock
X-6210-15	7/16-20	Spiralock
X-6210-14	1/2-20	Spiralock
X-85-3	5/8-11	Standard
X-88-12	3/4-10	Standard
X-89-2	1/2-20	Standard

Washers

Part No.	ID	OD	Thick.	Bolt/ Screw
X-25-46	.125	.250	.022	#4
X-25-9	.156	.375	.049	#6
X-25-48	.188	.438	.049	#8
X-25-36	.219	.500	.049	#10
X-25-40	.281	.625	.065	1/4
X-25-85	.344	.687	.065	5/16
X-25-37	.406	.812	.065	3/8
X-25-34	.469	.922	.065	7/16
X-25-26	.531	1.062	.095	1/2
X-25-15	.656	1.312	.095	5/8
X-25-29	.812	1.469	.134	3/4
X-25-127	1.062	2.000	.134	1

Metric

Hex head bolts are hardness grade 8.8 unless noted.

Part No. Dimensions Hex Head Bolts (Partial Thread)

M931-05055-60	M5-0.80 x 55
M931-06040-60	M6-1.00 x 40
M931-06055-60	M6-1.00 x 55
M931-06060-60	M6-1.00 x 60
M931-06060-SS	M6-1.00 x 60
M931-06070-60	M6-1.00 x 70
M931-06070-SS	M6-1.00 x 70
M931-06075-60	M6-1.00 x 75
M931-06090-60	M6-1.00 x 90
M931-06145-60	M6-1.00 x 145
M931-06150-60	M6-1.00 x 150
M931-08035-60	M8-1.25 x 35
M931-08040-60	M8-1.25 x 40
M931-08045-60	M8-1.25 x 45
M931-08050-60	M8-1.25 x 50
M931-08055-60	M8-1.25 x 55
M931-08055-82	M8-1.25 x 55*
M931-08060-60	M8-1.25 x 60
M931-08070-60	M8-1.25 x 70
M931-08070-82	M8-1.25 x 70*
M931-08075-60	M8-1.25 x 75
M931-08080-60	M8-1.25 x 80
M931-08090-60	M8-1.25 x 90
M931-08095-60	M8-1.25 x 95
M931-08100-60	M8-1.25 x 100
M931-08110-60	M8-1.25 x 110
M931-08120-60	M8-1.25 x 120
M931-08130-60	M8-1.25 x 130
M931-08140-60	M8-1.25 x 140
M931-08150-60	M8-1.25 x 150
M931-08200-60	M8-1.25 x 200
M931-10040-82	M10-1.25 x 40*
M931-10040-60	M10-1.50 x 40
M931-10045-60	M10-1.50 x 45
M931-10050-60	M10-1.50 x 50
M931-10050-82	M10-1.25 x 50*
M931-10055-60	M10-1.50 x 55
M931-10060-60	M10-1.50 x 60
M931-10065-60	M10-1.50 x 65
M931-10070-60	M10-1.50 x 70
M931-10080-60	M10-1.50 x 80
M931-10080-82	M10-1.25 x 80*
M931-10090-60	M10-1.50 x 90
M931-10090-82	M10-1.50 x 90*
M931-10100-60	M10-1.50 x 100
M931-10110-60	M10-1.50 x 110
M931-10120-60	M10-1.50 x 120
M931-10130-60	M10-1.50 x 130
M931-10140-60	M10-1.50 x 140
M931-10180-60	M10-1.50 x 180
M931-10235-60	M10-1.50 x 235
M931-10260-60	M10-1.50 x 260
M960-10330-60	M10-1.25 x 330
M931-12045-60	M12-1.75 x 45
M960-12050-60	M12-1.25 x 50
M960-12050-82	M12-1.25 x 50*
M931-12050-60	M12-1.75 x 50
M931-12050-82	M12-1.75 x 50*
M931-12055-60	M12-1.75 x 55
M931-12060-60	M12-1.75 x 60
M931-12060-82	M12-1.75 x 60*
M931-12065-60	M12-1.75 x 65
M931-12075-60	M12-1.75 x 75
M931-12080-60	M12-1.75 x 80
M931-12090-60	M12-1.75 x 90
M931-12100-60	M12-1.75 x 100
M931-12110-60	M12-1.75 x 110

Part No. Dimensions Hex Head Bolts (Partial Thread), continued

M960-16090-60	M16-1.50 x 90
M931-16090-60	M16-2.00 x 90
M931-16100-60	M16-2.00 x 100
M931-16100-82	M16-2.00 x 100*
M931-16120-60	M16-2.00 x 120
M931-16150-60	M16-2.00 x 150
M931-20065-60	M20-2.50 x 65
M931-20090-60	M20-2.50 x 90
M931-20100-60	M20-2.50 x 100
M931-20120-60	M20-2.50 x 120
M931-20140-60	M20-2.50 x 140
M931-20160-60	M20-2.50 x 160
M931-22090-60	M22-2.50 x 90
M931-22120-60	M22-2.50 x 120
M931-22160-60	M22-2.50 x 160
M931-24090-60	M24-3.00 x 90
M931-24120-60	M24-3.00 x 120
M931-24160-60	M24-3.00 x 160
M931-24200-60	M24-3.00 x 200

Hex Head Bolts (Full Thread)

M933-04006-60	M4-0.70 x 6
M933-05030-60	M5-0.80 x 30
M933-05035-60	M5-0.80 x 35
M933-05050-60	M5-0.80 x 50
M933-06010-60	M6-1.00 x 10
M933-06012-60	M6-1.00 x 12
M933-06014-60	M6-1.00 x 14
M933-06016-60	M6-1.00 x 16
M933-06020-60	M6-1.00 x 20
M933-06025-60	M6-1.00 x 25
M933-06030-60	M6-1.00 x 30
M933-06040-60	M6-1.00 x 40
M933-06050-60	M6-1.00 x 50
M933-07025-60	M7-1.00 x 25
M933-08010-60	M8-1.25 x 10
M933-08012-60	M8-1.25 x 12
M933-08016-60	M8-1.25 x 16
M933-08020-60	M8-1.25 x 20
M933-08025-60	M8-1.25 x 25
M933-08030-60	M8-1.25 x 30
M933-08030-82	M8-1.25 x 30*
M933-10012-60	M10-1.50 x 12
M961-10020-60	M10-1.25 x 20
M933-10020-60	M10-1.50 x 20
M933-10025-60	M10-1.50 x 25
M961-10025-60	M10-1.25 x 25
M933-10025-82	M10-1.50 x 25*
M961-10030-60	M10-1.25 x 30
M933-10030-60	M10-1.50 x 30
M933-10030-82	M10-1.50 x 30*
M961-10035-60	M10-1.25 x 35
M933-10035-60	M10-1.50 x 35
M933-10035-82	M10-1.50 x 35*
M961-10040-60	M10-1.25 x 40

Part No. Dimensions Hex Head Bolts (Full Thread), continued

M933-12016-60	M12-1.75 x 16
M933-12020-60	M12-1.75 x 20
M961-12020-60F	M12-1.50 x 20
M933-12025-60	M12-1.75 x 25
M933-12025-82	M12-1.75 x 25*
M961-12030-60	M12-1.25 x 30
M933-12030-82	M12-1.75 x 30*
M961-12030-82F	M12-1.50 x 30*
M933-12030-60	M12-1.75 x 30
M933-12035-60	M12-1.75 x 35
M961-12040-82	M12-1.25 x 40*
M933-12040-60	M12-1.75 x 40
M933-12040-82	M12-1.75 x 40*
M961-14025-60	M14-1.50 x 25
M933-14025-60	M14-2.00 x 25
M961-14050-82	M14-1.50 x 50*
M961-16025-60	M16-1.50 x 25
M933-16025-60	M16-2.00 x 25
M961-16030-82	M16-1.50 x 30*
M933-16030-82	M16-2.00 x 30*
M933-16035-60	M16-2.00 x 35
M961-16040-60	M16-1.50 x 40
M933-16040-60	M16-2.00 x 40
M961-16045-82	M16-1.50 x 45*
M933-16045-82	M16-2.00 x 45*
M933-16050-60	M16-2.00 x 50
M933-16050-82	M16-2.00 x 50*
M933-16060-60	M16-2.00 x 60
M933-16070-60	M16-2.00 x 70
M933-18035-60	M18-2.50 x 35
M933-18050-60	M18-2.50 x 50
M933-18060-60	M18-2.50 x 60
M933-20050-60	M20-2.50 x 50
M933-20055-60	M20-2.50 x 55
M933-24060-60	M24-3.00 x 60
M933-24065-60	M24-3.00 x 65
M933-24070-60	M24-3.00 x 70

Pan Head Machine Screws

M7985A-03010-20	M3-0.50 x 10
M7985A-03012-20	M3-0.50 x 12
M7985A-04010-20	M4-0.70 x 10
M7985A-04016-20	M4-0.70 x 16
M7985A-04020-20	M4-0.70 x 20
M7985A-04050-20	M4-0.70 x 50
M7985A-04100-20	M4-0.70 x 100
M7985A-05010-20	M5-0.80 x 10
M7985A-05012-20	M5-0.80 x 12
M7985A-05016-20	M5-0.80 x 16
M7985A-05020-20	M5-0.80 x 20
M7985A-05025-20	M5-0.80 x 25
M7985A-05030-20	M5-0.80 x 30
M7985A-05080-20	M5-0.80 x 80
M7985A-05100-20	M5-0.80 x 100
M7985A-06100-20	M6-1.00 x 100

Flat Head Machine Screws

M965A-04012-SS	M4-0.70 x 12
M965A-05012-SS	M5-0.80 x 12
M965A-05016-20	M5-0.80 x 16
M965A-06012-20	M6-1.00 x 12

* This metric hex bolt's hardness is grade 10.9.

Metric, continued

Part No.	Dimensions	Type
Hex Nuts		
M934-03-50	M3-0.50	Standard
M934-04-50	M4-0.70	Standard
M934-04-B	M4-0.70	Brass
M934-05-50	M5-0.80	Standard
M934-06-60	M6-1.00	Standard
M934-06-64	M6-1.00	Std. (green)
M6923-06-80	M6-1.00	Spiralock
M982-06-80	M6-1.00	Elastic Stop
M934-08-60	M8-1.25	Standard
M6923-08-80	M8-1.25	Spiralock
M982-08-80	M8-1.25	Elastic Stop
M934-10-60	M10-1.50	Standard
M934-10-60F	M10-1.25	Standard
M6923-10-80	M10-1.50	Spiralock
M6923-10-62	M10-1.50	Spiralock†
M982-10-80	M10-1.50	Elastic Stop
M934-12-60	M12-1.75	Standard
M934-12-60F	M12-1.25	Standard
M6923-12-80	M12-1.75	Spiralock
M982-12-80	M12-1.75	Elastic Stop
M982-14-60	M14-2.00	Elastic Stop
M6923-16-80	M16-2.00	Spiralock
M982-16-80	M16-2.00	Elastic Stop
M934-18-80	M18-2.5	Standard
M982-18-60	M18-2.50	Elastic Stop
M934-20-80	M20-2.50	Standard
M982-20-80	M20-2.50	Elastic Stop
M934-22-60	M22-2.50	Standard
M934-24-80	M24-3.00	Standard
M982-24-60	M24-3.00	Elastic Stop
M934-30-80	M30-3.50	Standard

Washers

Part No.	ID	OD	Thick.	Bolt/ Screw
M125A-03-80	3.2	7.0	0.5	M3
M125A-04-80	4.3	9.0	0.8	M4
M125A-05-80	5.3	10.0	1.0	M5
M125A-06-80	6.4	12.0	1.6	M6
M125A-08-80	8.4	16.0	1.6	M8
M125A-10-80	10.5	20.0	2.0	M10
M125A-12-80	13.0	24.0	2.5	M12
M125A-14-80	15.0	28.0	2.5	M14
M125A-16-80	17.0	30.0	3.0	M16
M125A-18-80	19.0	34.0	3.0	M18
M125A-20-80	21.0	37.0	3.0	M20
M125A-24-80	25.0	44.0	4.0	M24

† This metric hex nut's hardness is grade 8.

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Notes



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