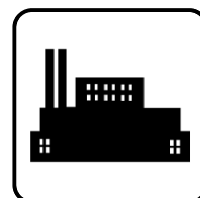


Service Parts

Industrial Generator Sets



Models:

350-500REOZJ
350-500REOZJB

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

KOHLER®
Power Systems _____

9001
KOHLER
POWER SYSTEMS
NATIONALLY REGISTERED

TP-6785 2/14c

Common Replacement Parts

Figure 1 identifies common replacement parts for your generator set. Refer to the groups on the following pages and the engine parts manual listed in Group 701: Literature for a complete list of maintenance and service parts.

Engine Description	Engine Part Number	Fan Belt	Oil Filter	Fuel Filter	Fuel Filter (primary)
350/400REOZJ/B 6135HF485/ 6135HFG84	GM76154/ GM88213	GM80275, GM80277	GM80434	GM80469	GM80460
500REOZJ/B 6135HFG75	GM76155	GM80275, GM80277	GM80434	GM80469	GM80460

Figure 1 Common Replacement Parts

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Introduction

This manual lists service replacement parts for generator set models as listed on the front cover.

Information in this publication represents data available at the time of print. Kohler Co. 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. Specification 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.

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

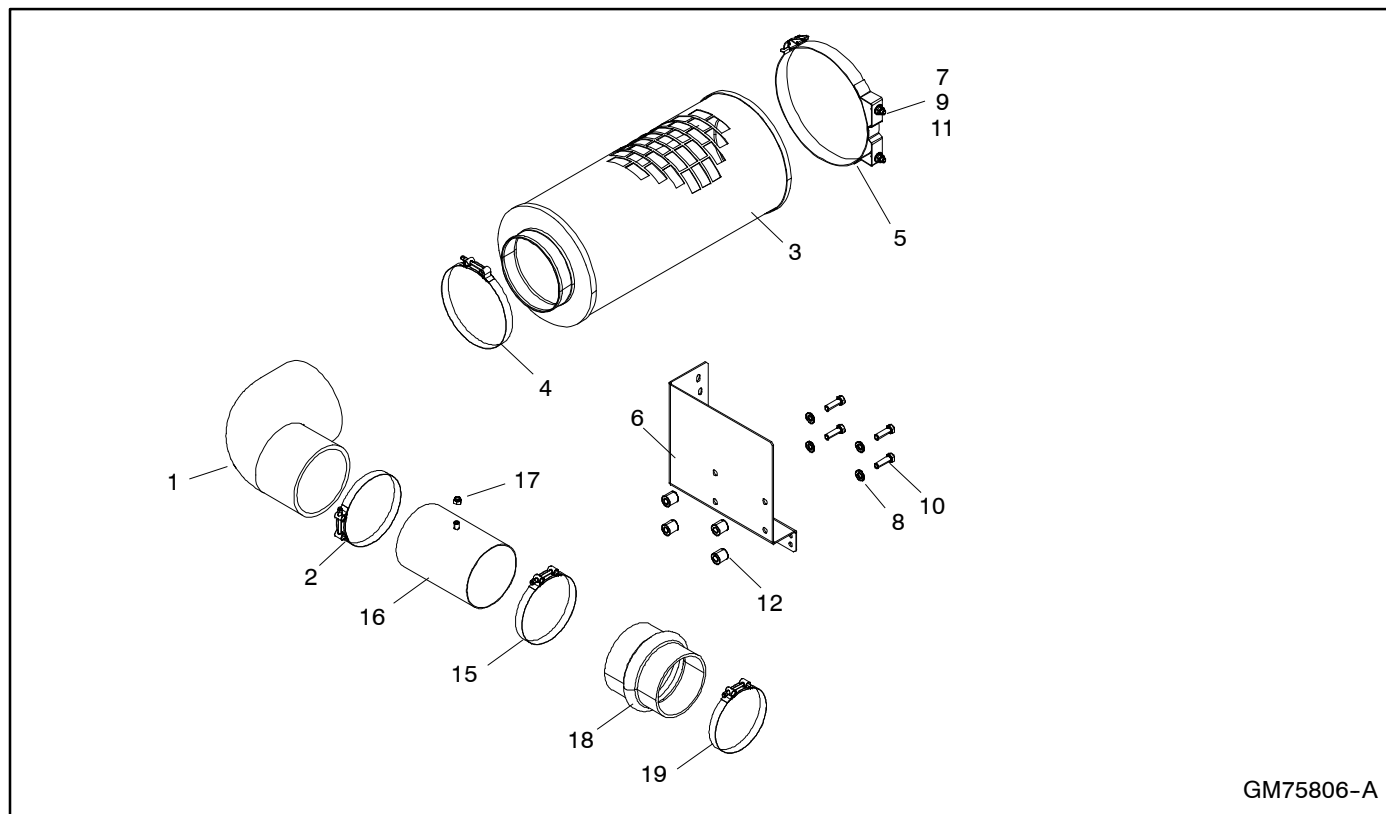
Group Title	Air Intake	Cooling System	Engine	Nameplates and Decals	Skid and Plant Mounting	Generator and Mounting	Controller and Mounting	Literature
Group No.	101	104	105	107	109	201	301	701
Spec No.	Variation Number							
350REOZJ								
GM76156-GA1	*	*	1	GR1	*	*	†	452
350REOZJB								
GM85455-GA1	*	*	1	GR1	*	*	†	495
GM85455-GA4	*	*	3	GR1	*	*	†	495
400REOZJ								
GM76156-GA2	*	*	1	GR1	*	*	†	453
400REOZJB								
GM85455-GA2	*	*	1	GR1	*	*	†	496
GM85455-GA5	*	*	3	GR1	*	*	†	496
500REOZJ								
GM76157-GA2	*	*	2	GR1	*	*	†	480
500REOZJB								
GM85455-GA3	*	*	2	GR1	*	*	†	497

* 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 Group 701: Literature for list of controller parts manuals.

Air Intake

Standard Duty



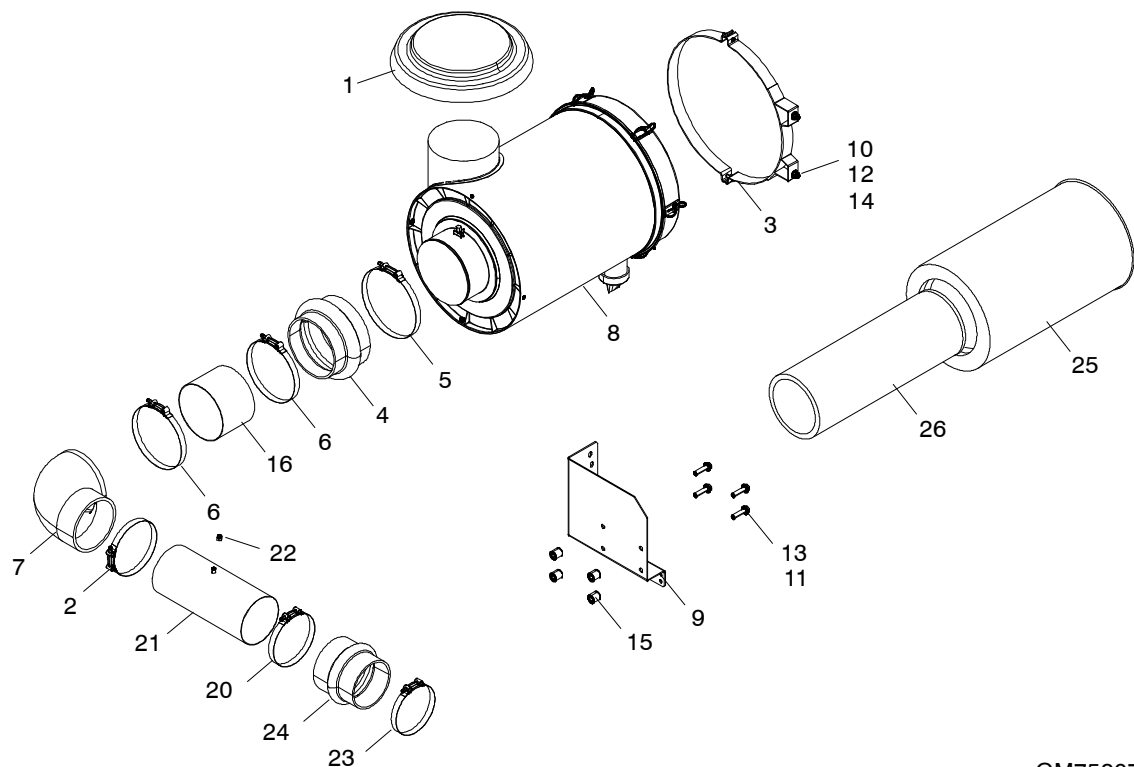
GM75806-A

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity	
			Module Number	
			GM75806-MA1	GM75806-MA2
1	272663	Hose, 90 deg. reducer (7.00 - 6.00" ID)	1	1
2	272960	Clamp, hose, 6.56/6.87 in.	2	2
3	272982	Element, Air Indust	1	1
4	280998	Clamp, hose, 7.5/7.81 in.	1	1
5	343530	Clamp, air cleaner (11.00" ID)	1	1
6	GM77329	Bracket, Air Cleaner, 4M	1	1
7	M125A-10-80	Washer, Plain, 10.5 ID x 20.0 OD	2	2
8	M125A-12-80	Washer, Plain	4	4
9	M6923-10-80	Nut, Hex 10mm	2	2
10	M933-12040-60	Screw, Hex Cap	4	4
11	M933-10025-60	Screw, hex cap, fully thrd M10 x 25mm	2	2
12	X-400-230	Spacer, .531 ID x 1 OD x 1 in.	4	4
15	272960	Clamp, hose, 6.56/6.87 in.	1	
15	254013	Clamp, hose, 6.25/6.56 in.		1
16	274623	Tube assembly	1	
16	279754	Tube assembly		1
17	X-268-7	Cap, pipe (1/8" npt)	1	1
18	274221	Hose, hump reducer (6.00 to 5.50" ID)		1
19	291504	Clamp, hose, 5.81/6.12 in.		1

Air Intake

Heavy Duty

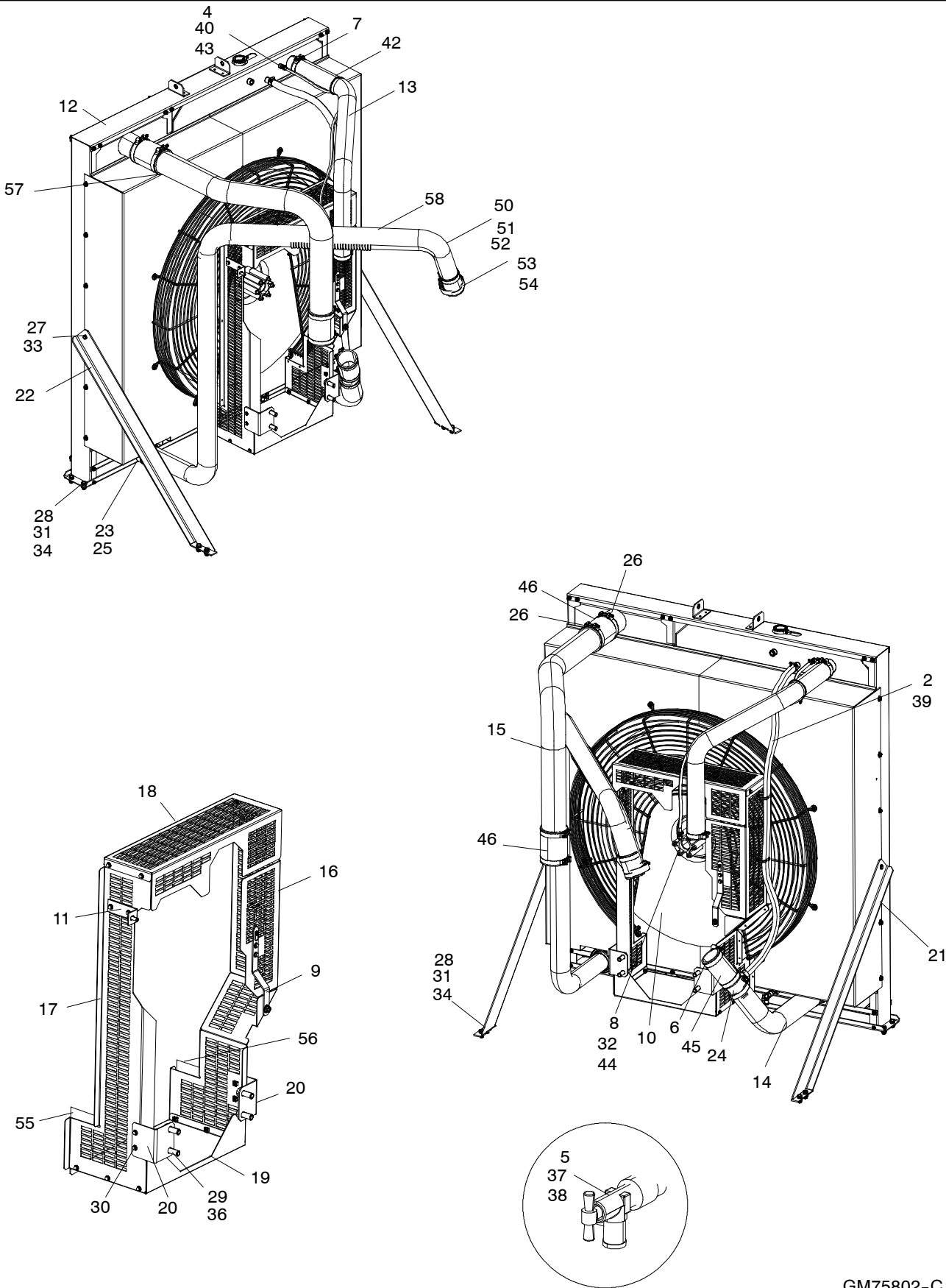


GM75807-A

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity	
			Module Number	
			GM75807-MA1	GM75807-MA2
1	272675	Cap, rain	1	1
2	272960	Clamp, hose, 6.56/6.87 in.	1	1
3	279715	Mount, Air Cleaner/Exhaust (18.00" ID)	1	1
4	279720	Hose, hump reducer (8.00 to 7.00" ID)	1	1
5	279743	Clamp, hose, 8.38/8.69 in.	1	1
6	280998	Clamp, hose, 7.5/7.81 in.	2	2
7	GM23198	Hose, 90 Deg. Reducer (7.00" to 6.00")	1	1
8	GM69932	Cleaner Ass'y, Air	1	1
9	GM77329	Bracket, Air Cleaner, 4M	1	1
10	M125A-10-80	Washer, Plain, 10.5 ID x 20.0 OD	2	2
11	M125A-12-80	Washer, Plain	4	4
12	M6923-10-80	Nut, Hex 10mm	2	2
13	M931-12050-60	Screw, Hex Cap	4	4
14	M933-10025-60	Screw, hex cap, fully thrd M10 x 25mm	2	2
15	X-400-230	Spacer, .531 ID x 1 OD x 1 in.	4	4
16	X-522-66	Tube, steel	1	1
20	272960	Clamp, hose, 6.56/6.87 in.	1	
20	254013	Clamp, hose, 6.25/6.56 in.		1
21	361278	Tube assembly	1	
21	347959	Tube assembly		1
22	X-268-7	Cap, pipe (1/8"npt)	1	1
23	291504	Clamp, hose, 5.81/6.12 in.		1
24	274221	Hose, hump reducer (6.00 to 5.50" ID)		1
25	GM69997	Element, Primary (Outer)	1	1
26	GM69998	Element, Secondary (Inner)	1	1

Cooling System



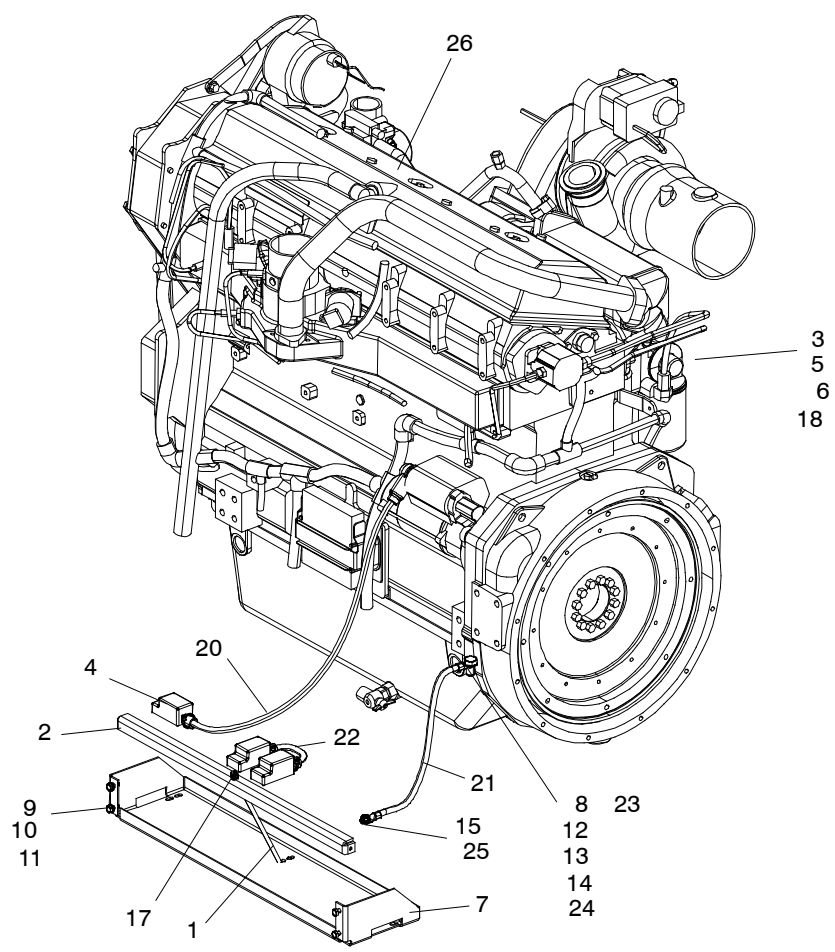
GM75802-C

Cooling System

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity			
			Module			
			GM75802-MA1	GM75802-MA2	GM84898-MA1	GM84898-MA2
2	X-356-33	Hose, radiator, straight, 1 in. ID	1	1	1	1
4	X-6359-6	Hose, rubber, straight, .25 in. ID	1	1	1	1
5	278788	Valve, drain (3/8"nptf)	1	1	1	1
6	291542	Clamp, hose, 3.25/3.56 in.	4	4	4	4
7	336228	Clamp, hose, 2.63/2.94 in.	2	2	2	2
8	336668	Spacer, fan, 4 in.	1	1	1	1
9	365237	Bracket, support	1	1	1	1
10	GM21337	Fan	1	1	1	1
11	GM64267	Bracket, Belt Guard	1	1	1	1
12	GM75788	Radiator/CAC Assy, 50C	1	1		
12	GM84821	Radiator Assembly			1	1
13	GM77292	Hose, Radiator (Upper)	1	1		
13	GM84897	Hose, Radiator (Upper)			1	1
14	GM77293	Hose, Radiator (Lower)	1	1	1	1
15	GM77294	Tube, Intake	1	1		
15	GM84895	Tube, Intake			1	1
16	GM77297	Guard, Belt (RH)	1	1	1	1
17	GM77298	Guard, Belt (LH)	1	1	1	1
18	GM77299	Guard, Belt (Top)	1	1	1	1
19	GM77300	Guard, Belt (Bottom)	1	1	1	1
20	GM77301	Bracket, Belt Guard Mtg.	2	2	2	2
21	GM77303	Support, Radiator (RH)	1	1	1	1
22	GM77304	Support, Radiator (LH)	1	1	1	1
23	GM77635	Gasket, CAC Graphite	1	1	1	1
24	GM77637	Connector, Hose	1	1	1	1
25	GM77638	Clamp, Exhaust (5.25 In.)	1	1	1	1
26	GM78800	Clamp, Hose	4	4	4	4
27	M125A-08-80	Washer, Plain, 8.4 ID x 16.0 OD	2	2	2	2
28	M125A-10-80	Washer, Plain, 10.5 ID x 20.0 OD	9	9	9	9
29	M125A-16-80	Washer, Plain	4	4	4	4
30	M6921-06016-60	Screw, Hex Flange M6x16mm fly thrd js500	18	18	20	20
31	M6923-10-80	Nut, Hex 10mm	9	9	9	9
32	M931-10120-82	Screw, Hex Cap	6	6	6	6
33	M933-08020-60	Screw, Hex Cap	2	2	2	2
34	M933-10025-60	Screw, hex cap,fully thrd M10 x 25mm	8	8	8	8
35	M933-10030-60	Screw, Hex Cap	1	1	1	1
36	M933-16040-60	Screw, Hex Cap	4	4	4	4
37	X-220-6	Pipe (1/4"npt x 1.50")	1	1	1	1
38	X-250-2	Coupling, reducer (3/8" x 1/4"npt)	1	1	1	1
39	X-426-12	Clamp, hose, .69/1.25 in.	2	2	2	2
40	X-426-9	Clamp, hose, .25/.70 in.	2	2	2	2
43	X-652-3	Connector, hose	2	2	2	2
44	X-801-3	Washer,hardened, .406 ID x .812 in.OD	6	6	6	6
45	X-6014-53	Hose, Radiator Wire Inset 3.00 ID	1	1	1	1
46	X-6014-91	Hose, Radiator Wire Inset 4.00 ID	2	2	2	2
50	GM77295	Tube, Turbo CAC	1			
50	GM78799	Tube, Turbo CAC		1		
50	GM84896	Tube, Turbo CAC			1	
50	GM85634	Tube, Turbo CAC				1
51	GM77635	Gasket, CAC Graphite	1			1
52	GM77638	Clamp, Exhaust (5.25 In.)	1			1
53	343175	Clamp, hose, 3.06/3.38 in.		2	2	
54	GM85118	Hose, Charged Air Cooler		1	1	
55	GM80658	Bracket, Belt Guard (LH)	1	1	1	1
56	GM80659	Bracket, Belt Guard (RH)	1	1	1	1
57	GM84769	Bracket, Tube CAC (not shown)	1	1	1	1
57	289372	Clamp, muffler, 4.12 in. (not shown)	1	1	1	1
58	286283	Clamp, muffler, 3.12 in. (not shown)	1	1	1	1
58	GM84770	Bracket, CAC Tube (not shown)	1	1	1	1

Engine



GM75801-C

Engine

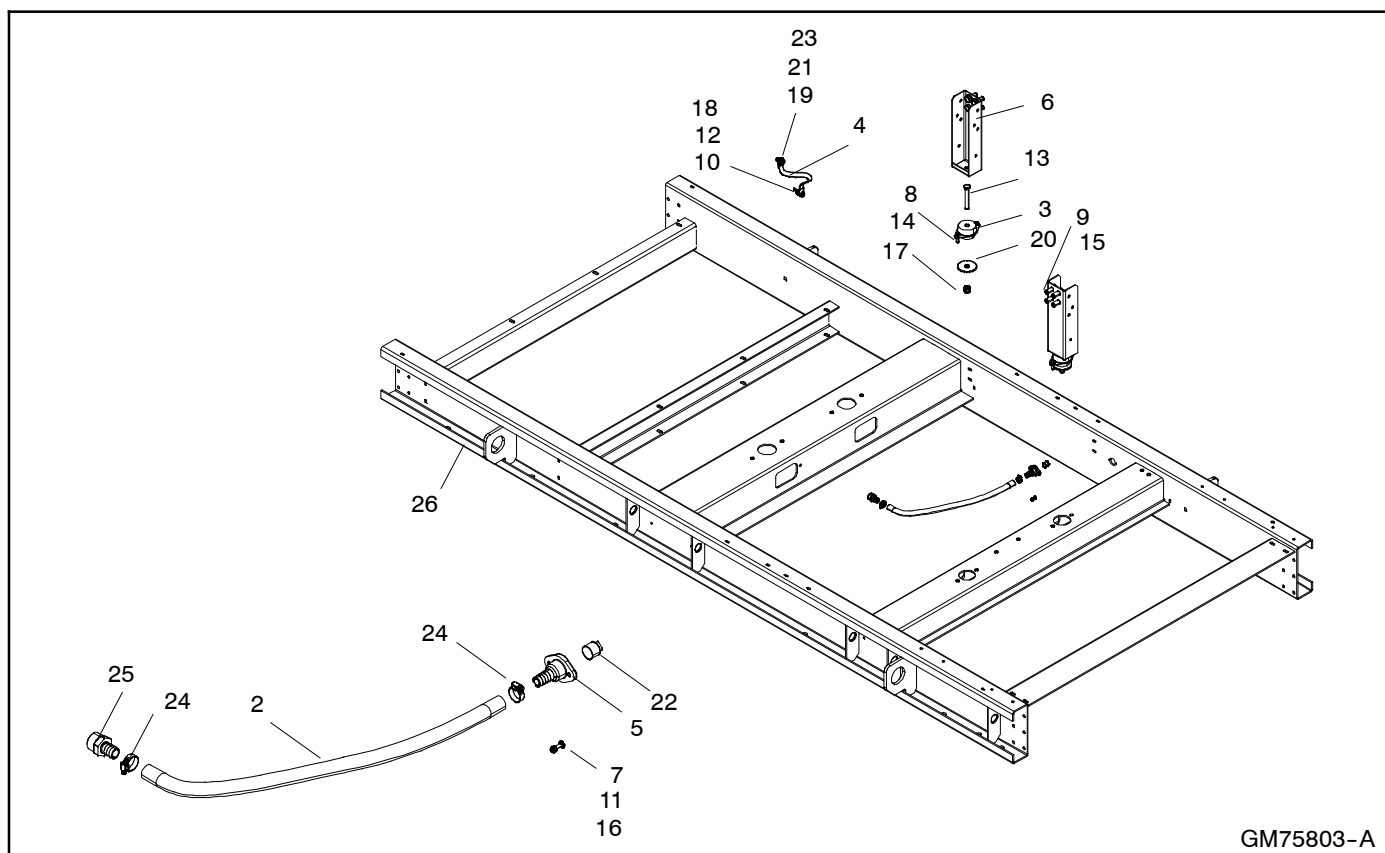
Item	Part Number	Description	Quantity		
			Variation Number		
			1	2	3
1	GM13268	Bolt, Angle (NRP)	1	1	1
2	343221	Clamp, battery	1	1	1
3	GM11694	O-ring, ISO 6149 (15.3mm ID)	1	1	1
4	GM20745	Boot, Battery Lug	1	1	1
5	GM22991	Bushing, Adapter	1	1	1
6	GM39538	Fitting, Fuel	1	1	1
7	GM63164	Rack, Battery	1	1	1
8	GM74535	Terminal, Ground	1	1	1
9	M125A-08-80	Washer, Plain, 8.4 ID x 16.0 OD	5	5	5
10	M6923-08-80	Nut, Hex 8mm	4	4	4
11	M933-08020-60	Screw, Hex Cap	4	4	4
12	M933-12040-60	Screw, Hex Cap	1	1	1
13	M934-12-60	Nut, Hex 12mm	1	1	1
14	X-25-26	Washer, Plain, .531 IDx1.062 in.OD	2	2	2
15	X-25-37	Washer, plain, .406 ID x.812 in. OD	4	4	4
17	M982-08-80	Nut, hex elastic stop, 8MM	1	1	1
18	X-211-1	Elbow, Street(90 deg x 1/2"nptf)	1	1	1
19	X-468-2	Cable Tie	3	3	3
20	X-545-129	Cable, battery (No.0 x 30") red+	1	1	1
21	X-545-167	Cable, Battery	1	1	1
22	X-545-73	Cable, battery (No.0 x 8") black	1	1	1
23	X-6021-3	Screw, hex head machine	1	1	1
24	X-6086-5	Washer, spring, .515 ID x 1.06 in.OD	1	1	1
25	X-6210-9	Nut, flange spiralock, 3/8-16	4	4	4
26	GM76154	Engine, JD6135HFG485, 350/400kW 60Hz,24V	1		
26	GM76155	Engine, JD6135HFG75, 450/500kW 60Hz,24V		1	
26	GM88213	Engine, 24V 6135HFG84			1

Nameplate and Decals

Nameplate and Decals are not illustrated.

Item	Part Number	Description	Quantity
			Var. Number GR1
1	226917	Decal, Negative Battery Conn	1
2	238402	Decal, Caution Positive Term.Only	1
3	249808	Decal, Warning Rotating Parts	1
4	249809	Decal, Caution Hot Engine	2
5	249810	Decal, Warning Hot Coolant	1
6	273780	Decal, Warning Explosion	1
7	343165	Decal, Caution-Not A Step	1
8	345211	Decal, Ground	1
9	364116	Decal, Caution Welding Disconnect	2
10	GM15300	Decal, Exhaust Piping	1
11	GM19296	Decal, Fuel Type	1
12	GM20171	Decal, Warning Fan	1
13	GM78897	Decal, Lift Warning	1
14	224233	Decal, 1-800 Number	1
15	255882	Decal, Caution Stdby Svc Connect	2
16	257438	Decal, Danger Moving Rotor	2
17	258815	Decal, Warning Voltage Backfeed	2
18	294520	Decal, Danger, High Voltage	2
19	345211	Decal, Ground	1
20	GM39683	Tag, Hang Lug Selection	1
21	GM49352	Tag, Hang	1
22	GM60531	Decal, Control Height	1
23	GM79042	Decal, Phasing A-B-C	2
24	GM79043	Decal, Phasing C-B-A	2
25	X-6232-6	Decal, Stripe	2
26	X-6246-1	Decal, Kohler Power System	2

Skid and Plant Mounting

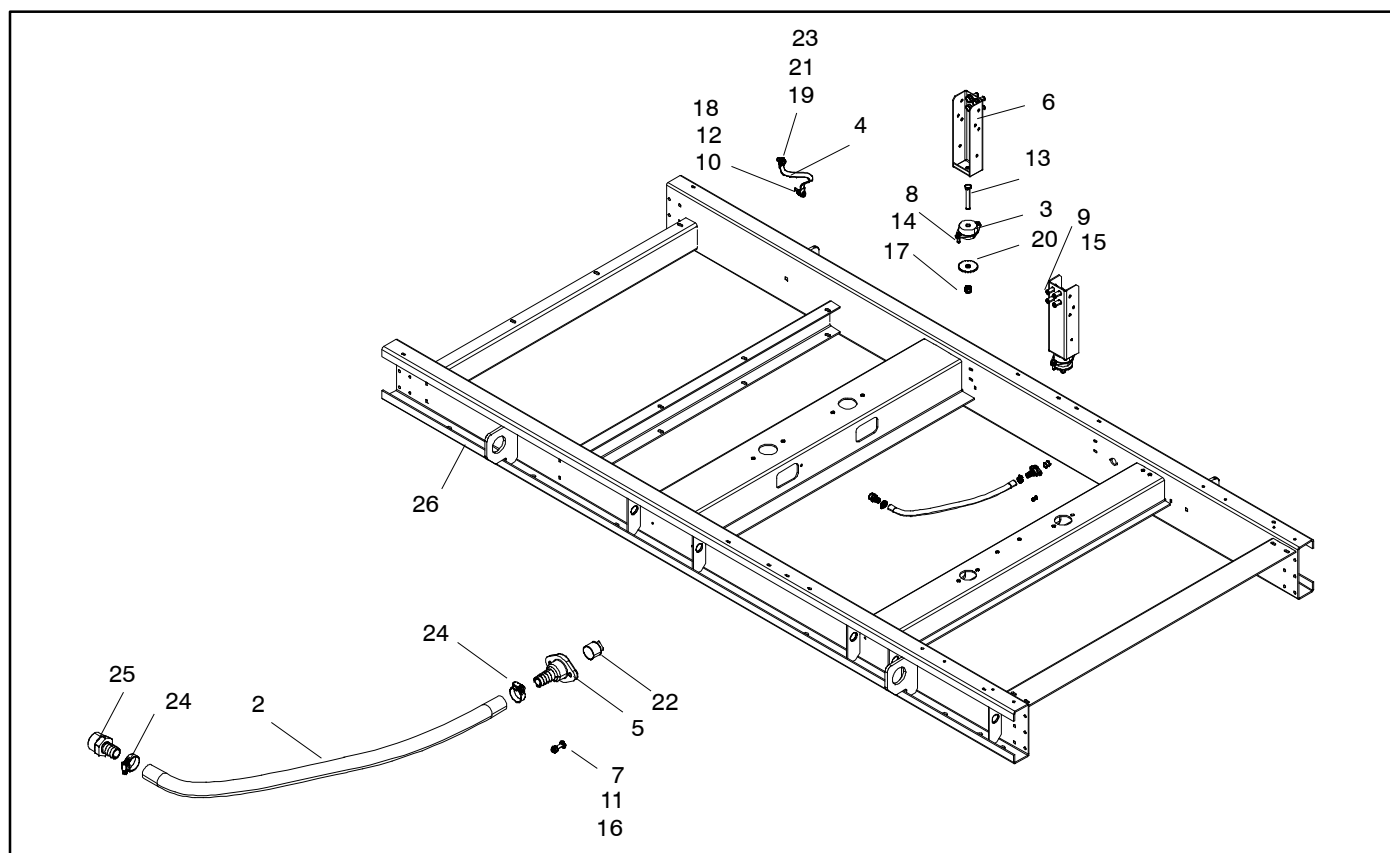


GM75803-A

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity			
			Module			
			GM75803-MA1	GM75803-MA2	GM85632-MA1	GM85632-MA2
2	X-577-35	Hose, rubber, straight, .62 in. ID	1	1	1	1
3	336024	Vibromount	2	2	2	2
4	GM21085	Strap, ground (16 in.)	1	1	1	1
5	GM59015	Fitting, Bulkhead Drain	1	1	1	1
6	GM64142	Bracket, Engine Mounting	2	2	2	2
7	M125A-05-80	Washer, Plain	2	2	2	2
8	M125A-10-80	Washer, Plain, 10.5 ID x 20.0 OD	6	6	6	6
9	M125A-16-80	Washer, Plain	8	8	10	10
10	M6923-10-80	Nut, Hex 10mm	1	1	1	1
11	M7985A-05020-20	Screw, Pan Head Machine	2	2	2	2
12	M931-10045-60	Screw, Hex Cap	1	1	1	1
13	M931-16100-60	Screw, Hex Cap	2	2		
13	M931-16120-82	Screw, Hex Cap			2	2
14	M933-10030-60	Screw, Hex Cap	4	4	4	4
15	M933-16040-60	Screw, Hex Cap	8	8	8	8
16	M934-05-50	Nut, Hex 5mm	2	2	2	2
17	M982-16-80	Nut, hex elastic stop	2	2	2	2
18	X-22-15	Washer,lock, .456 ID x 1.058 in.OD	2	2	2	2
19	X-22-26	Washer,lock, .521 ID x 1.24 in. OD	1	1	1	1
20	X-25-112	Washer, plain	2	2	2	2
21	X-25-26	Washer, Plain, .531 IDx1.062 in.OD	1	1	1	1
22	X-75-58	Plug, Pipe	1	1	1	1
23	X-129-17	Bolt, Hex Cap (1/2-13 x 1") Gr5	1	1	1	1
24	X-426-10	Clamp, hose, .5/1 in.	2	2	2	2
25	X-582-3	Connector, hose + Vibra Seal	1	1	1	1
26	GM78894	Skid, 4M	1			
26	GM78895	Skid, 5M		1		
26	GM84830	Skid, 4M			1	
26	GM84831	Skid, 5M				1

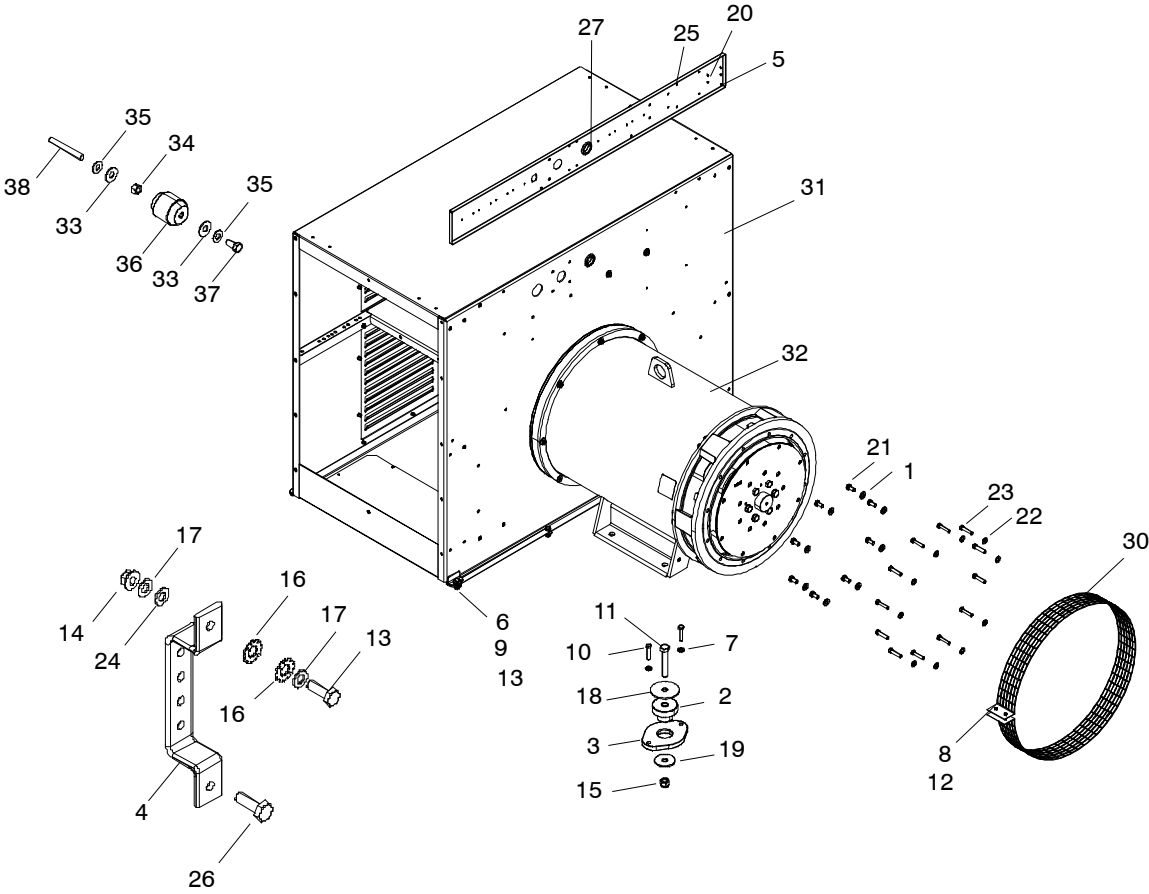
Skid and Plant Mounting



Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity Module			
			GM84173-MA1	GM84173-MA2	GM84829-MA1	GM84829-MA2
2	X-577-35	Hose, rubber, straight, .62 in. ID	1	1	1	1
3	GM86134	Engine Mount, Seismic	2	2		
3	GM84169	Engine Mount, Seismic			2	2
4	GM21085	Strap, ground (16 in.)	1	1	1	1
5	GM59015	Fitting, Bulkhead Drain	1	1	1	1
6	GM84174	Bracket, Engine Mounting Seismic	2	2	2	2
7	M125A-05-80	Washer, Plain	2	2	2	2
8	M125A-10-80	Washer, Plain, 10.5 ID x 20.0 OD	6	6	2	2
9	M125A-16-80	Washer, Plain	8	8	10	10
10	M6923-10-80	Nut, Hex 10mm	1	1	1	1
11	M7985A-05020-20	Screw, Pan Head Machine	2	2	2	2
12	M931-10045-60	Screw, Hex Cap	1	1	1	1
13	M931-16120-82	Screw, Hex Cap	2	2	2	2
14	M933-10030-60	Screw, Hex Cap	4	4	4	4
15	M933-16040-60	Screw, Hex Cap	8	8	8	8
16	M934-05-50	Nut, Hex 5mm	2	2	2	2
17	M982-16-80	Nut, hex elastic stop	2	2	2	2
18	X-22-15	Washer,lock, .456 ID x 1.058 in.OD	2	2	2	2
19	X-22-26	Washer,lock, .521 ID x 1.24 in. OD	1	1	1	1
20	X-25-112	Washer, plain	2	2	2	2
21	X-25-26	Washer, Plain, .531 IDx1.062 in.OD	1	1	1	1
22	X-75-58	Plug, Pipe	1	1	1	1
23	X-129-17	Bolt, Hex Cap (1/2-13 x 1") Gr5	1	1	1	1
24	X-426-10	Clamp, hose, .5/1 in.	2	2	2	2
25	X-582-3	Connector, hose + Vibra Seal	1	1	1	1
26	GM78894	Skid, 4M	1			
26	GM78895	Skid, 5M		1		
26	GM84830	Skid, 4M			1	
26	GM84831	Skid, 5M				1

Alternator and Mounting



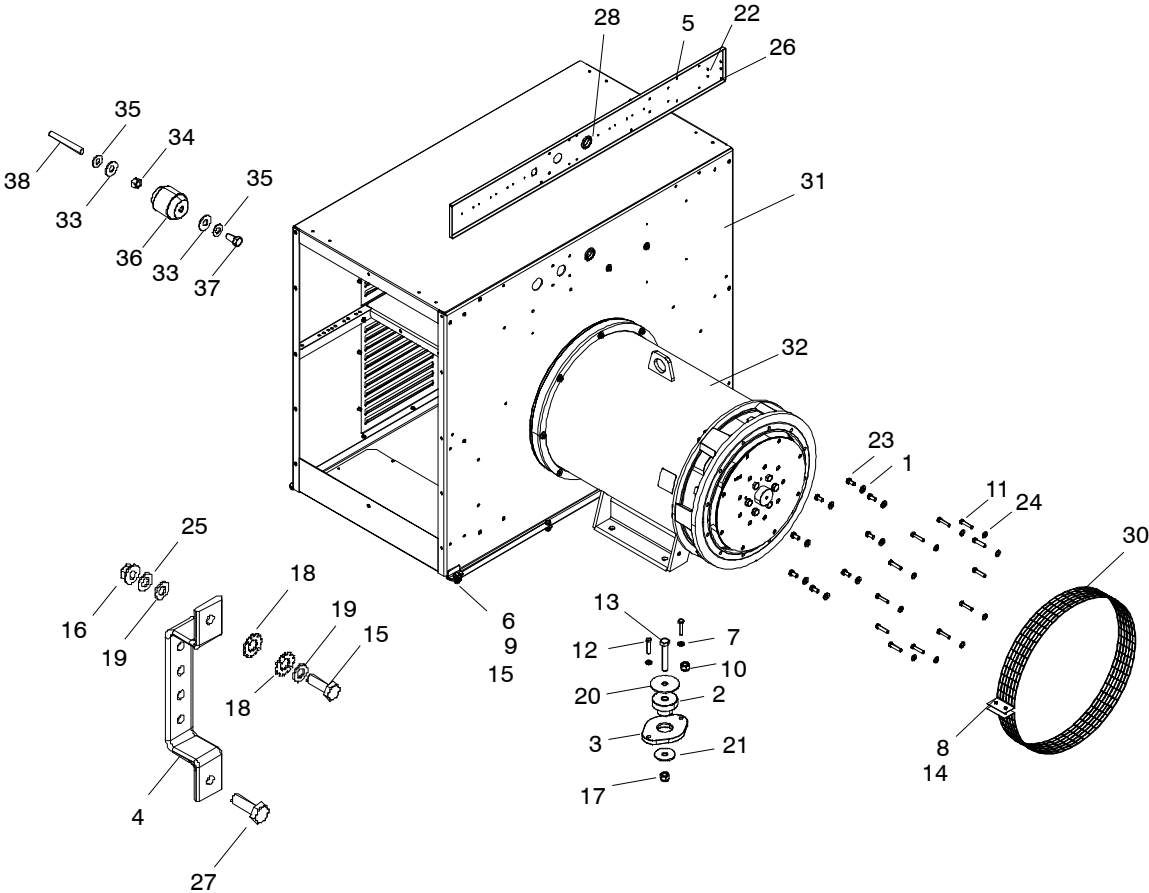
GM75808-B

Alternator and Mounting

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity					
			Module					
			GM75808-MA1	GM75808-MA2	GM75808-MA3	GM75808-MA4	GM75808-MA5	GM75808-MA6
1	290945	Washer, hardened, .531 IDx1.06 in.OD	8	8	8	8	8	8
2	354634	Vibromount	2	2	2	2	2	2
3	354717	Plate, generator mounting	2	2	2	2	2	2
4	361271	Bus, ground	1	1	1	1	1	1
5	GM75910	Panel, Component Mtg.	1	1	1	1	1	1
6	M125A-10-80	Washer, Plain	7	7	7	7	7	7
7	M125A-12-80	Washer, Plain	4	4	4	4	4	4
8	M6923-06-80	Nut, Hex 6mm	2	2	2	2	2	2
9	M6923-10-80	Nut, Hex	8	8	8	8	8	8
10	M931-12055-60	Screw, Hex Cap	4	4	4	4	4	4
11	M931-20120-60	Screw, Hex Head	2	2	2	2	2	2
12	M933-06050-60	Screw, Hex Cap	2	2	2	2	2	2
13	M933-10035-60	Screw, Hex Cap	9	9	9	9	9	9
14	M934-10-60	Nut, hex 10mm	3	3	3	3	3	3
15	M982-20-80	Nut, hex elastic stop	2	2	2	2	2	2
16	X-22-14	Washer, lock, .391 ID x .975 in. OD	7	7	7	7	7	7
17	X-25-118	Washer, plain, .406 ID x 1 in. OD	5	5	5	5	5	5
18	X-25-150	Washer, plain, .8 ID x 4.25 in. OD	2	2	2	2	2	2
19	X-25-151	Washer, plain, .8 ID x 3 in. OD	2	2	2	2	2	2
20	X-67-59	Screw, hex washer, thread-forming	4	4	4	4	4	4
21	X-129-59	Bolt, Hex Cap	8	8	8	8	8	8
22	X-801-6	Washer,hardened, .469 ID x .922 in. OD	12	12	12	12	12	12
23	X-6024-16	Bolt, Hex Cap	12	12	12	12	12	12
24	X-6086-6	Washer,spring, .39 ID x .81 in. OD	2	2	2	2	2	2
25	X-6210-2	Nut, flange spirallock, 1/4-20	8	8	8	8	8	8
26	M931-10045-60	Screw, Hex Cap	1	1	1	1	1	1
27	X-284-25	Grommet	1	1	1	1	1	1
30	328902	Screen	1			1		1
30	328903	Screen		1			1	
31	GM75930-1	Junction Box Assembly 4M (See page 24)	1			1		1
31	GM75930-2	Junction Box Assembly 5M (See page 24)		1			1	
32	GM77505-2	Alternator Assy, 4M4021, Reconn, SAE14	1					
32	GM77506-2	Alternator Assy, 5M4027, Reconn, SAE14		1				
32	GM77506-3	Alternator Assy, 5M4028, Reconn, SAE14			1			
32	GM77505-4	Alternator Assy, 4M4266, 600V, SAE14				1		
32	GM77506-11	Alternator Assy, 5M4272, 600V, SAE14					1	
32	GM77505-1	Alternator Assy, 4M4019, Reconn, SAE14						1
33	X-25-118	Washer, plain, .406 ID x 1 in. OD	6	6	6			6
34	X-83-7	Nut, hex, 3/8-16, zinc	3	3	3			3
35	X-6086-6	Washer,spring, .39 ID x .81 in. OD	6	6	6			6
36	X-6128-29	Standoff insulator, 3/8-16 x 2 in.	3	3	3			3
37	X-6238-10	Bolt, Hex Cap	3	3	3			3
38	X-6274-7	Stud	3	3	3			3

Alternator and Mounting, continued



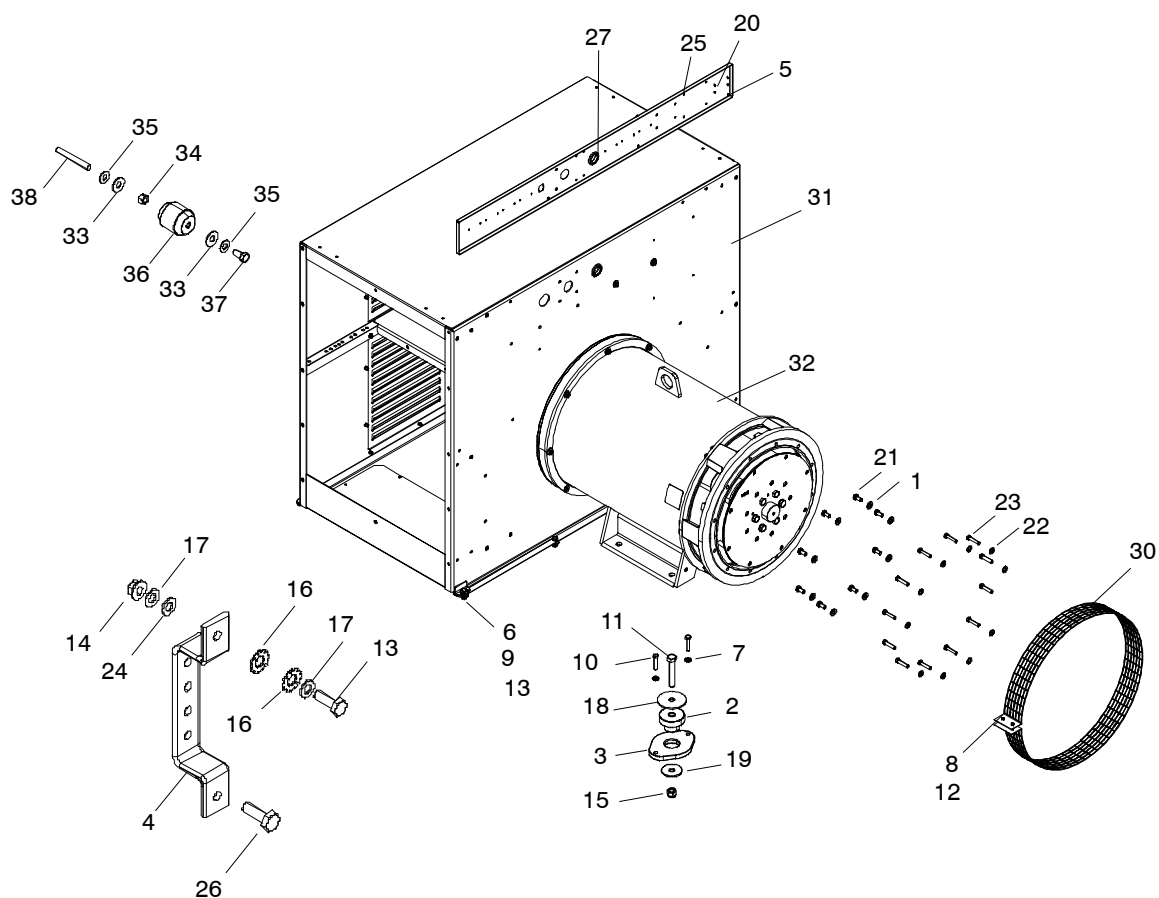
GM78808-B

Alternator and Mounting, continued

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity							
			Module							
			GM78808-MA1	GM78808-MA2	GM78808-MA3	GM78808-MA4	GM78808-MA5	GM78808-MA6	GM78808-MA7	GM78808-MA8
1	290945	Washer, hardened, .531 IDx1.06 in.OD	8	8	8	8	8	8	8	8
2	354634	Vibromount	2	2	2	2	2	2	2	2
3	354717	Plate, generator mounting	2	2	2	2	2	2	2	2
4	361271	Bus, ground	1	1	1	1	1	1	1	1
5	GM75910	Panel, Component Mtg.	1	1	1	1	1	1	1	1
6	M125A-10-80	Washer, Plain	7	7	7	7	7	7	7	7
7	M125A-12-80	Washer, Plain	4	4	4	4	4	4	4	4
8	M6923-06-80	Nut, Hex 6mm	2	2	2	2	2	2	2	2
9	M6923-10-80	Nut, Hex	8	8	8	8	8	8	8	8
10	M6923-12-80	Nut, Hex	4	4	4	4	4	4	4	4
11	X-6024-17	Bolt, Hex Cap	12	12	12	12	12	12	12	12
12	M931-12055-60	Screw, Hex Cap	4	4	4	4	4	4	4	4
13	M931-20120-60	Screw, Hex Head	2	2	2	2	2	2	2	2
14	M933-06050-60	Screw, Hex Cap	2	2	2	2	2	2	2	2
15	M933-10035-60	Screw, Hex Cap	9	9	9	9	9	9	9	9
16	M934-10-60	Nut, hex 10mm	3	3	3	3	3	3	3	3
17	M982-20-80	Nut, hex elastic stop	2	2	2	2	2	2	2	2
18	X-22-14	Washer, lock, .391 ID x .975 in. OD	7	7	7	7	7	7	7	7
19	X-25-118	Washer, plain, .406 ID x 1 in. OD	5	5	5	5	5	5	5	5
20	X-25-150	Washer, plain, .8 ID x 4.25 in. OD	2	2	2	2	2	2	2	2
21	X-25-151	Washer, plain, .8 ID x 3 in. OD	2	2	2	2	2	2	2	2
22	X-67-59	Screw, hex washer, thread-forming	4	4	4	4	4	4	4	4
23	X-129-59	Bolt, Hex Cap	8	8	8	8	8	8	8	8
24	X-801-6	Washer,hardened,.469 ID x .922 in.OD	12	12	12	12	12	12	12	12
25	X-6086-6	Washer,spring,.39 ID x .81 in. OD	2	2	2	2	2	2	2	2
26	X-6210-2	Nut, flange spiralock, 1/4-20	8	8	8	8	8	8	8	8
27	M931-10045-60	Screw, Hex Cap	1	1	1	1	1	1	1	1
28	X-284-25	Grommet	1	1	1	1	1	1	1	1
30	328903	Screen	1	1	1	1	1			
30	328902	Screen						1	1	1
31	GM75930-2	Junction Box Assembly 5M (See page 24)	1	1	1	1	1			
31	GM75930-1	Junction Box Assembly 4M (See page 24)						1	1	1
32	GM77506-1	Alternator Assy, 5M4024, Reconn, SAE14	1							
32	GM77506-2	Alternator Assy, 5M4027, Reconn, SAE14		1						
32	GM77506-3	Alternator Assy, 5M4028, Reconn, SAE14			1					
32	GM77506-10	Alternator Assy, 5M4270, 600V, SAE14				1				
32	GM77506-11	Alternator Assy, 5M4272, 600V, SAE14					1			
32	GM77505-2	Alternator Assy, 4M4021								
32	GM77505-4	Alternator Assy, 4M4266								
32	GM77505-1	Alternator Assy, 4M4019								
33	X-25-118	Washer, plain, .406 ID x 1 in. OD	6	6	6	6		6		6
34	X-83-7	Nut, hex, 3/8-16, zinc	3	3	3	3		3		3
35	X-6086-6	Washer,spring,.39 ID x .81 in. OD	6	6	6	6		6		6
36	X-6128-29	Standoff insulator, 3/8-16 x 2 in.	3	3	3	3		3		3
37	X-6238-10	Bolt, Hex Cap	3	3	3	3		3		3
38	X-6274-7	Stud	3	3	3	3		3		3

Alternator and Mounting, continued



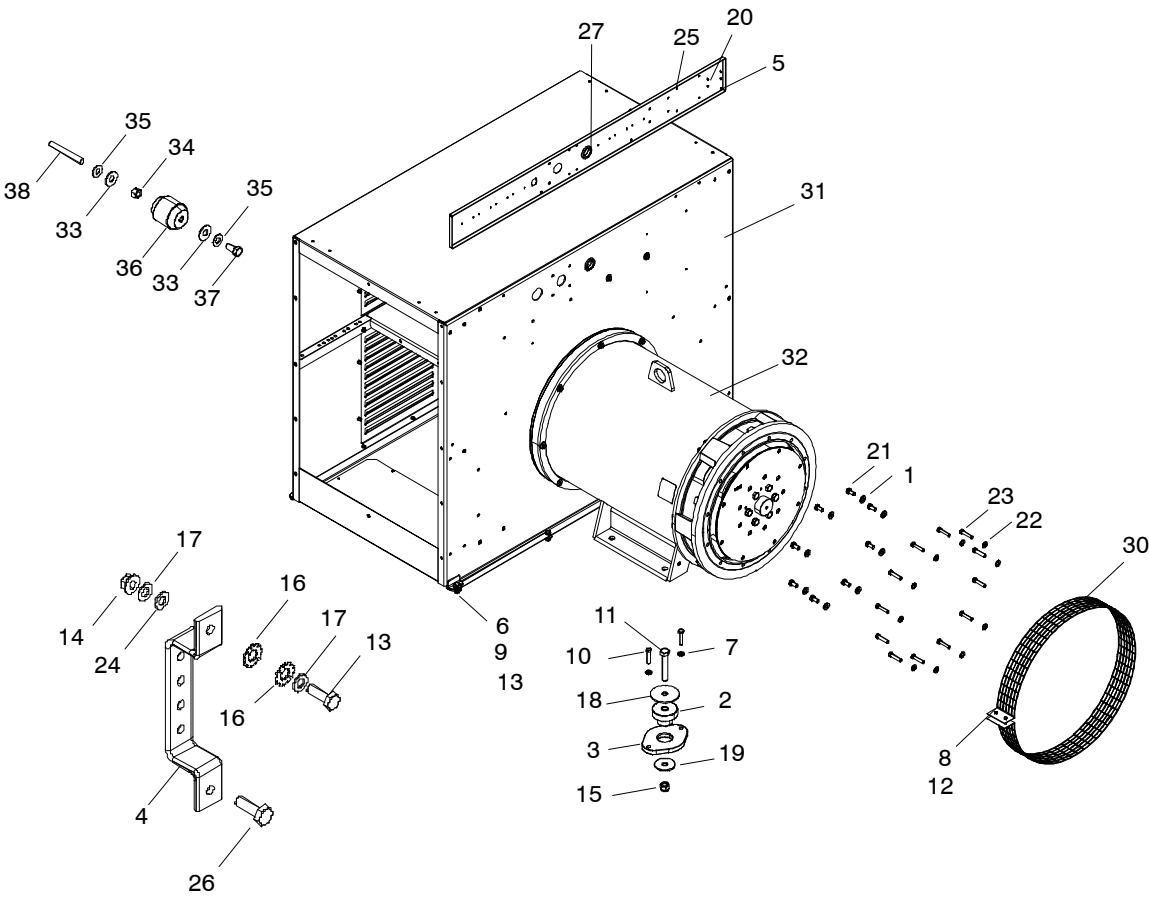
GM75808-B

Alternator and Mounting, continued

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity							
			Module							
			GM84175-MA1	GM84175-MA2	GM84175-MA3	GM84175-MA4	GM84175-MA5	GM84175-MA6	GM84175-MA7	GM84175-MA8
1	290945	Washer, hardened, .531 IDx1.06 in.OD	8	8	8	8	8	8	8	8
2	GM84170	Alternator Mount, Seismic	2	2	2	2	2	2	2	2
3	GM84170	Alternator Mount, Seismic	2	2	2	2	2	2	2	2
4	361271	Bus, ground	1	1	1	1	1	1	1	1
5	GM75910	Panel, Component Mtg.	1	1	1	1	1	1	1	1
6	M125A-10-80	Washer, Plain	7	7	7	7	7	7	7	7
7	M125A-12-80	Washer, Plain	4	4	4	4	4	4	4	4
8	M6923-06-80	Nut, Hex 6mm	2	2	2	2	2	2	2	2
9	M6923-10-80	Nut, Hex	8	8	8	8	8	8	8	8
10	M931-12055-60	Screw, Hex Cap	4	4	4	4	4	4	4	4
11	M931-20140-60	Screw, Hex Head	2	2	2	2	2	2	2	2
12	M933-06050-60	Screw, Hex Cap	2	2	2	2	2	2	2	2
13	M933-10035-60	Screw, Hex Cap	9	9	9	9	9	9	9	9
14	M934-10-60	Nut, hex 10mm	3	3	3	3	3	3	3	3
15	M982-20-80	Nut, hex elastic stop	2	2	2	2	2	2	2	2
16	X-22-14	Washer, lock, .391 ID x .975 in. OD	7	7	7	7	7	7	7	7
17	X-25-118	Washer, plain, .406 ID x 1 in. OD	5	5	5	5	5	5	5	5
18	X-25-150	Washer, plain, .8 ID x 4.25 in. OD	2	2	2	2	2	2	2	2
20	X-67-59	Screw, hex washer, thread-forming	4	4	4	4	4	4	4	4
21	X-129-59	Bolt, Hex Cap	8	8	8	8	8	8	8	8
22	X-801-6	Washer, hardened, .469 ID x .922 in. OD	12	12	12	12	12	12	12	12
23	X-6024-17	Bolt, Hex Cap	12	12	12	12	12	12	12	12
24	X-6086-6	Washer, spring, .39 ID x .81 in. OD	2	2	2	2	2	2	2	2
25	X-6210-2	Nut, flange spiralock, 1/4-20	8	8	8	8	8	8	8	8
26	M931-10045-60	Screw, Hex Cap	1	1	1	1	1	1	1	1
27	X-284-25	Grommet	1	1	1	1	1	1	1	1
30	328902	Screen						1	1	1
30	328903	Screen	1	1	1	1	1			
31	GM75930-1	Junction Box Assembly 4M (See page 24)						1	1	1
31	GM75930-2	Junction Box Assembly 5M (See page 24)	1	1	1	1	1			
32	GM77506-1	Alternator Assy, 5M4024	1							
32	GM77506-2	Alternator Assy, 5M4027, Reconn, SAE14		1						
32	GM77506-3	Alternator Assy, 5M4028, Reconn, SAE14			1					
32	GM77506-10	Alternator Assy, 5M4270, 600V, SAE14				1				
32	GM77506-11	Alternator Assy, 5M4272, 600V, SAE14					1			
32	GM77505-2	Alternator Assy, 4M4021, Reconn, SAE14						1		
32	GM77505-4	Alternator Assy, 4M4266, 600V, SAE14							1	
32	GM77505-1	Alternator Assy, 4M4019, Reconn, SAE14								1
33	X-25-118	Washer, plain, .406 ID x 1 in. OD	6	6	6	6		6		6
34	X-83-7	Nut, hex, 3/8-16, zinc	3	3	3	3		3		3
35	X-6086-6	Washer, spring, .39 ID x .81 in. OD	6	6	6	6		6		6
36	X-6128-29	Standoff insulator, 3/8-16 x 2 in.	3	3	3	3		3		3
37	X-6238-10	Bolt, Hex Cap	3	3	3	3		3		3
38	X-6274-7	Stud	3	3	3	3		3		3

Alternator and Mounting, continued



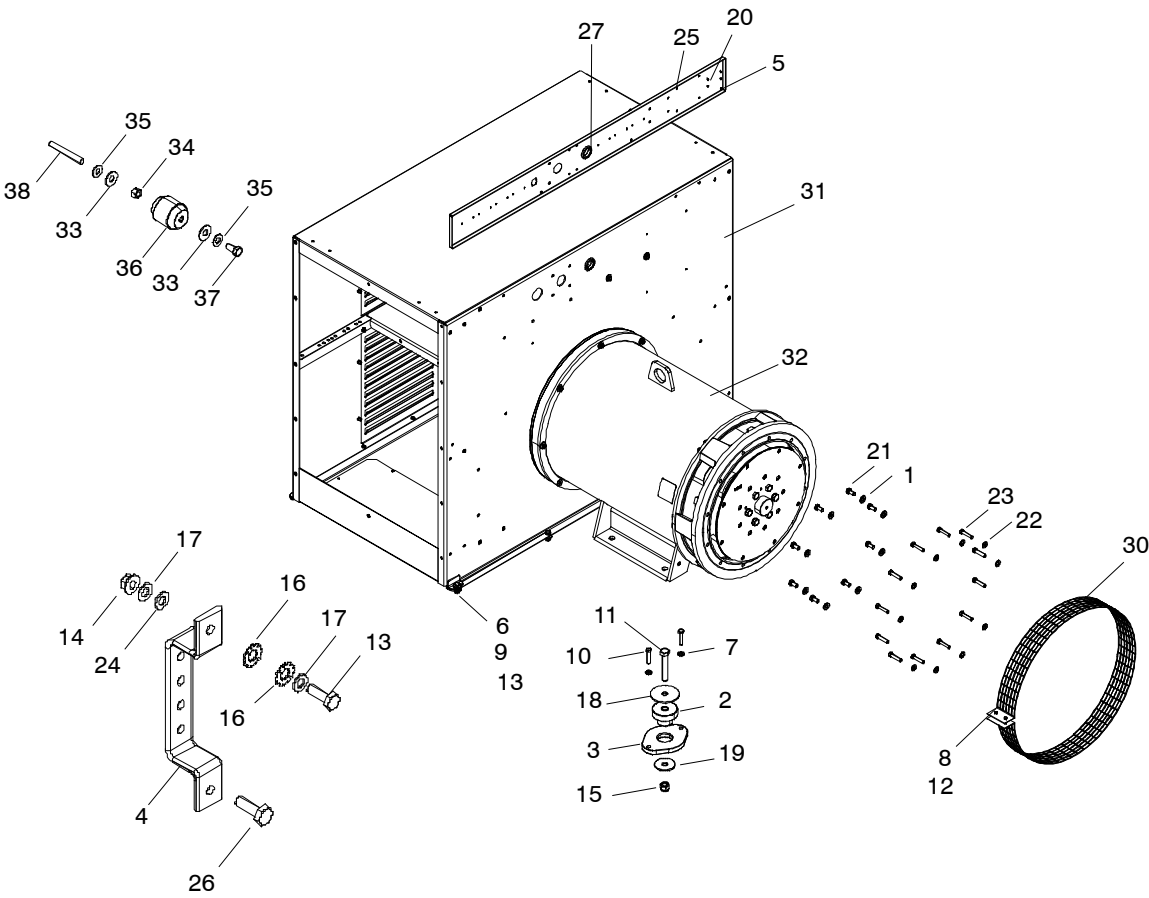
GM75808-B

Alternator and Mounting, continued

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity							
			Module							
			GM84918-MA1	GM84918-MA2	GM84918-MA3	GM84918-MA4	GM84918-MA5	GM84918-MA6	GM84918-MA7	GM84918-MA8
1	290945	Washer, hardened, .531 IDx1.06 in.OD	8	8	8	8	8	8	8	8
2	GM84170	Alternator Mount, Seismic	2	2	2	2	2	2	2	2
3	GM84170	Alternator Mount, Seismic	2	2	2	2	2	2	2	2
4	361271	Bus, ground	1	1	1	1	1	1	1	1
5	GM84527	Panel, Component Mtg.	1	1	1	1	1	1	1	1
6	M125A-10-80	Washer, Plain	7	7	7	7	7	7	7	7
7	M125A-12-80	Washer, Plain	4	4	4	4	4	4	4	4
8	M6923-06-80	Nut, Hex 6mm	2	2	2	2	2	2	2	2
9	M6923-10-80	Nut, Hex	8	8	8	8	8	8	8	8
10	M931-12055-60	Screw, Hex Cap	4	4	4	4	4	4	4	4
11	M931-20140-60	Screw, Hex Head	2	2	2	2	2	2	2	2
12	M933-06050-60	Screw, Hex Cap	2	2	2	2	2	2	2	2
13	M933-10035-60	Screw, Hex Cap	9	9	9	9	9	9	9	9
14	M934-10-60	Nut, hex 10mm	3	3	3	3	3	3	3	3
15	M982-20-80	Nut, hex elastic stop	2	2	2	2	2	2	2	2
16	X-22-14	Washer, lock, .391 ID x .975 in. OD	7	7	7	7	7	7	7	7
17	X-25-118	Washer, plain, .406 ID x 1 in. OD	5	5	5	5	5	5	5	5
18	X-25-150	Washer, plain, .8 ID x 4.25 in. OD	2	2	2	2	2	2	2	2
20	X-67-59	Screw, hex washer, thread-forming	4	4	4	4	4	4	4	4
21	X-129-59	Bolt, Hex Cap	8	8	8	8	8	8	8	8
22	X-801-6	Washer,hardened, .469 ID x .922 in. OD	12	12	12	12	12	12	12	12
23	X-6024-17	Bolt, Hex Cap	12	12	12	12	12	12	12	12
24	X-6086-6	Washer,spring, .39 ID x .81 in. OD	2	2	2	2	2	2	2	2
25	X-6210-2	Nut, flange spiralock, 1/4-20	8	8	8	8	8	8	8	8
26	M931-10045-60	Screw, Hex Cap	1	1	1	1	1	1	1	1
27	X-284-25	Grommet	1	1	1	1	1	1	1	1
30	328902	Screen						1	1	1
30	328903	Screen	1	1	1	1	1			
31	GM85248-1	Junction Box Assembly 4M (See page 25)						1	1	1
31	GM85248-2	Junction Box Assembly 5M (See page 25)	1	1	1	1	1			
32	GM77506-1	Alternator Assy, 5M4024	1							
32	GM77506-2	Alternator Assy, 5M4027, Reconn, SAE14		1						
32	GM77506-3	Alternator Assy, 5M4028, Reconn, SAE14			1					
32	GM77506-10	Alternator Assy, 5M4270, 600V, SAE14				1				
32	GM77506-11	Alternator Assy, 5M4272, 600V, SAE14					1			
32	GM77505-2	Alternator Assy, 4M4021, Reconn, SAE14						1		
32	GM77505-4	Alternator Assy, 4M4266, 600V, SAE14							1	
32	GM77505-1	Alternator Assy, 4M4019, Reconn, SAE14								1
33	X-25-118	Washer, plain, .406 ID x 1 in. OD	6	6	6	6		6		6
34	X-83-7	Nut, hex, 3/8-16, zinc	3	3	3	3		3		3
35	X-6086-6	Washer,spring, .39 ID x .81 in. OD	6	6	6	6		6		6
36	X-6128-29	Standoff insulator, 3/8-16 x 2 in.	3	3	3	3		3		3
37	X-6238-10	Bolt, Hex Cap	3	3	3	3		3		3
38	X-6274-7	Stud	3	3	3	3		3		3

Alternator and Mounting, continued



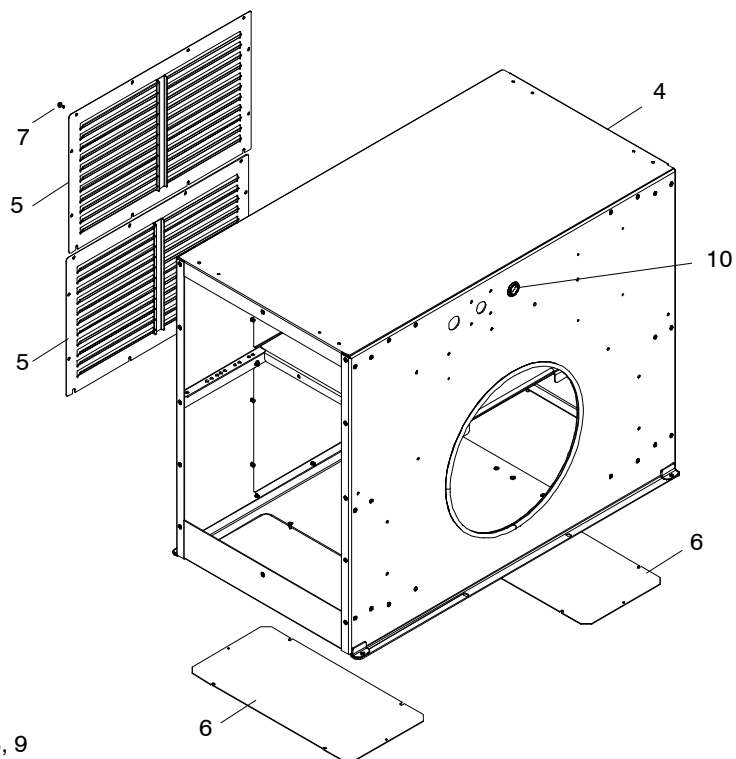
GM75808-B

Alternator and Mounting, continued

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity							
			Module							
			GM85633-MA1	GM85633-MA2	GM85633-MA3	GM85633-MA4	GM85633-MA5	GM85633-MA6	GM85633-MA7	GM85633-MA8
1	290945	Washer, hardened, .531 IDx1.06 in.OD	8	8	8	8	8	8	8	8
2	354634	Vibromount	2	2	2	2	2	2	2	2
3	354717	Plate, generator mounting	2	2	2	2	2	2	2	2
4	361271	Bus, ground	1	1	1	1	1	1	1	1
5	GM84527	Panel, Component Mtg.	1	1	1	1	1	1	1	1
6	M125A-10-80	Washer, Plain	7	7	7	7	7	7	7	7
7	M125A-12-80	Washer, Plain	4	4	4	4	4	4	4	4
8	M6923-06-80	Nut, Hex 6mm	2	2	2	2	2	2	2	2
9	M6923-10-80	Nut, Hex	8	8	8	8	8	8	8	8
10	M931-12055-60	Screw, Hex Cap	4	4	4	4	4	4	4	4
11	M931-20140-60	Screw, Hex Head	2	2	2	2	2	2	2	2
12	M933-06050-60	Screw, Hex Cap	2	2	2	2	2	2	2	2
13	M933-10035-60	Screw, Hex Cap	9	9	9	9	9	9	9	9
14	M934-10-60	Nut, hex 10mm	3	3	3	3	3	3	3	3
15	M982-20-80	Nut, hex elastic stop	2	2	2	2	2	2	2	2
16	X-22-14	Washer, lock, .391 ID x .975 in. OD	7	7	7	7	7	7	7	7
17	X-25-118	Washer, plain, .406 ID x 1 in. OD	5	5	5	5	5	5	5	5
18	X-25-150	Washer, plain, .8 ID x 4.25 in. OD	2	2	2	2	2	2	2	2
19	X-25-151	Washer, plain, .8 ID x 3 in. OD	2	2	2	2	2	2	2	2
20	X-67-59	Screw, hex washer, thread-forming	4	4	4	4	4	4	4	4
21	X-129-59	Bolt, Hex Cap	8	8	8	8	8	8	8	8
22	X-801-3	Washer,hardened,.406 ID x .812 in.OD	12	12	12	12	12	12	12	12
23	M931-10040-82	Bolt, Hex Cap	12	12	12	12	12	12	12	12
24	X-6086-6	Washer,spring, .39 ID x .81 in. OD	2	2	2	2	2	2	2	2
25	X-6210-2	Nut, flange spirallock, 1/4-20	8	8	8	8	8	8	8	8
26	M931-10045-60	Screw, Hex Cap	1	1	1	1	1	1	1	1
27	X-284-25	Grommet	1	1	1	1	1	1	1	1
30	328902	Screen						1	1	1
30	328903	Screen	1	1	1	1	1			
31	GM85248-1	Junction Box Assembly 4M (See page 25)						1	1	1
31	GM85248-2	Junction Box Assembly 5M (See page 25)	1	1	1	1	1			
32	GM77505-2	Alternator Assy, 4M4021, Reconn, SAE14						1		
32	GM77506-1	Alternator Assy, 5M4024	1							
32	GM77506-2	Alternator Assy, 5M4027, Reconn, SAE14		1						
32	GM77506-3	Alternator Assy, 5M4028, Reconn, SAE14			1					
32	GM77505-4	Alternator Assy, 4M4266, 600V, SAE14							1	
32	GM77506-10	Alternator Assy, 5M4270				1				
32	GM77506-11	Alternator Assy, 5M4272, 600V, SAE14					1			
32	GM77505-1	Alternator Assy, 4M4019, Reconn, SAE14								1
33	X-25-118	Washer, plain, .406 ID x 1 in. OD	6	6	6	6		6		6
34	X-83-7	Nut, hex, 3/8-16, zinc	3	3	3	3		3		3
35	X-6086-6	Washer,spring, .39 ID x .81 in. OD	6	6	6	6		6		6
36	X-6128-29	Standoff insulator, 3/8-16 x 2 in.	3	3	3	3		3		3
37	X-6238-10	Bolt, Hex Cap	3	3	3	3		3		3
38	X-6274-7	Stud	3	3	3	3		3		3

Alternator and Mounting, continued

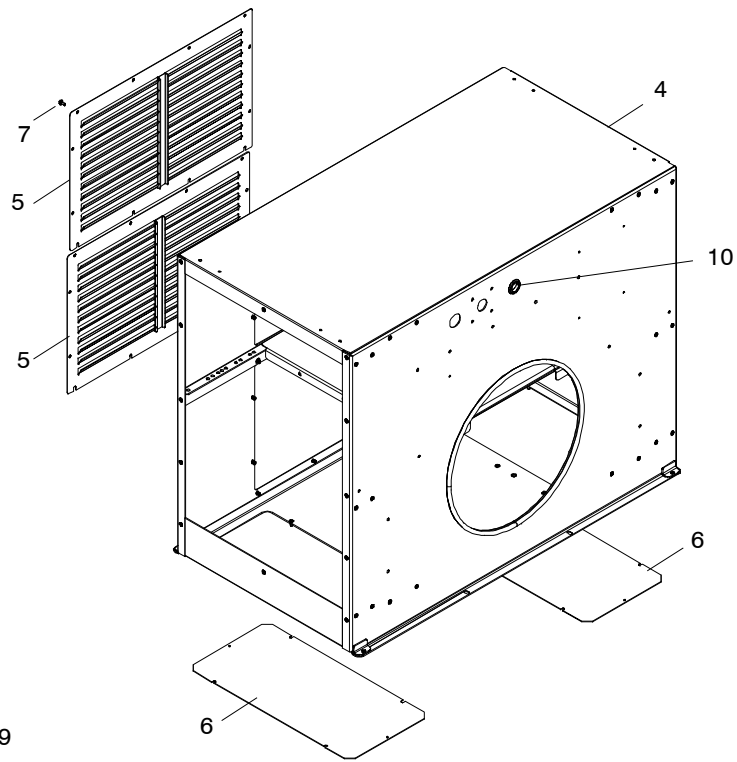


Items not shown: 3, 8, 9

GM75930-B

Item	Part Number	Description	Quantity		
			Module Number		
			GM75930-1	GM75930-2	GM75930-3
3	GM11040-7	Insert, Threaded (M6 x 1.0 Hex)	76	76	76
4	GM75889	Box, Junction (4M)	1		
4	GM75890	Box, Junction (5M)		1	
4	GM75891	Box, Junction (7M)			1
5	GM75892	Panel, J-Box (Louvered)	2	2	2
6	GM75895	Panel, J-Box (Cable Entry)	2	2	2
7	M6921-06016-60	Screw, Hex Flange M6x16mm fly thrd js500	32	32	32
8	X-284-2	Grommet, round	1	1	1
9	361567	Base, tie wrap snapin	5	5	5
10	X-284-25	Grommet, round	1	1	1

Alternator and Mounting, continued

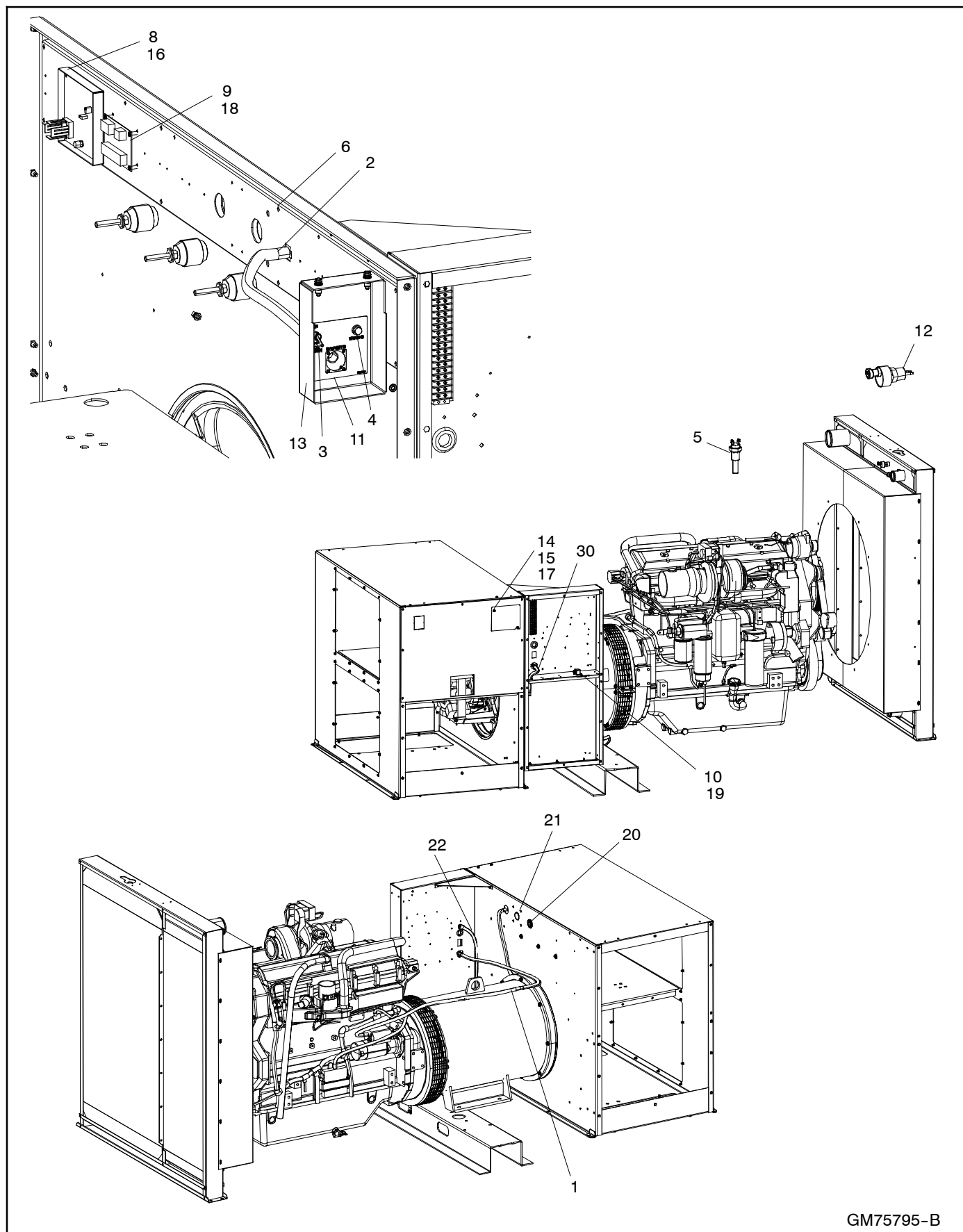


Items not shown: 8, 9

GM85248-A

Item	Part Number	Description	Quantity	
			Module Number	
			GM85248-1	GM85248-2
4	GM84524	Box, Junction (4M)	1	
4	GM84525	Box, Junction (5M)		1
5	GM75892	Panel, J-Box (Louvered)	2	2
6	GM75895	Panel, J-Box (Cable Entry)	2	2
7	GM78761-1	Screw, Sheetmetal	32	32
8	X-284-2	Grommet, round	1	1
9	361567	Base, tie wrap snapin	5	5
10	X-284-25	Grommet, round	1	1

Control and Harness



GM75795-B

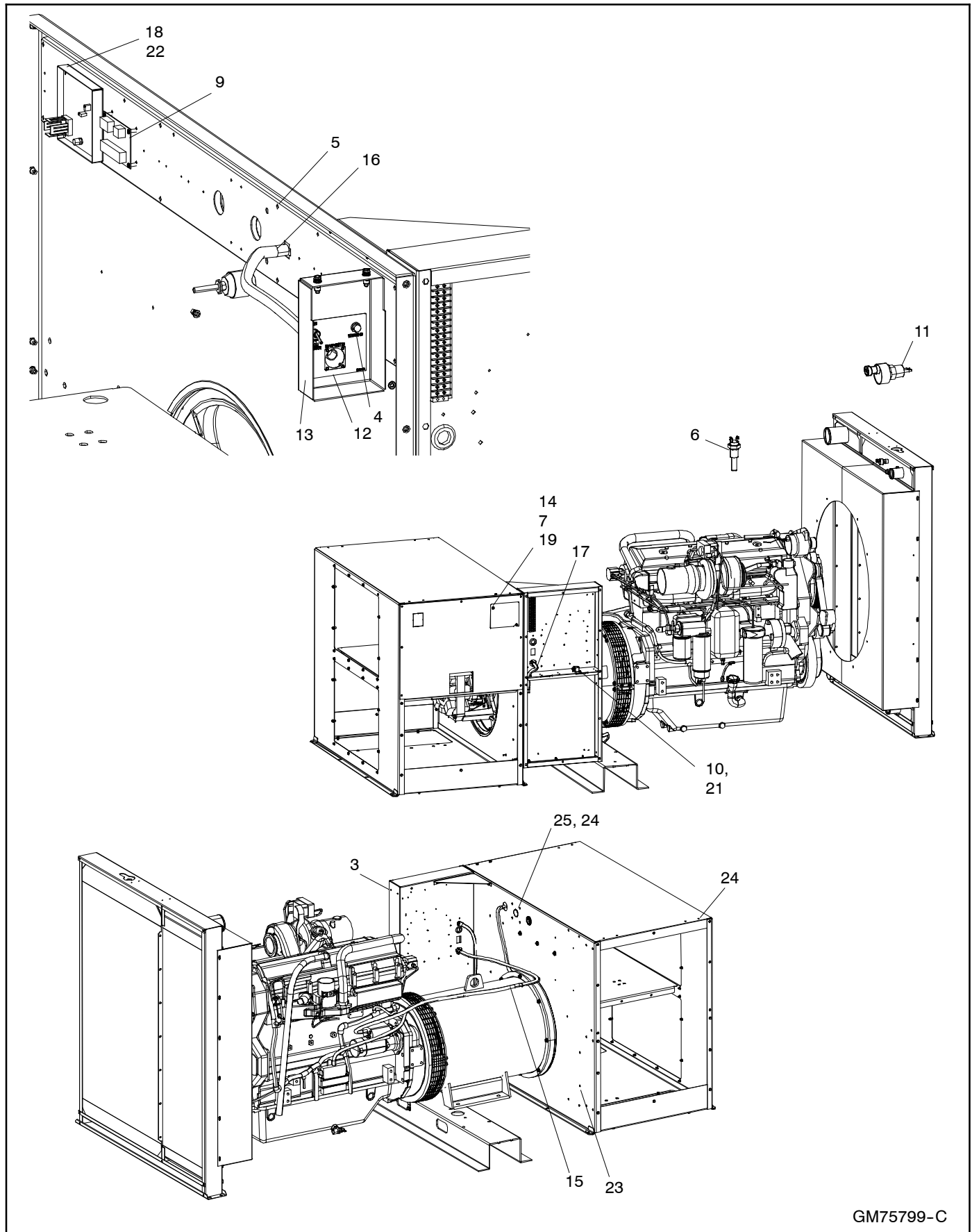
Control and Harness

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity		
			Module Number		
			GM75795-MA1	GM75795-MA2	GM85393-MA1
1	GM77970	Harness, Engine 350-500 kW JD Tier III	1	1	1
2	GM77977	Harness, Diagnostic 350-500 kW JD	1	1	1
3	295030	Switch, toggle, 1 pole	1	1	1
	324861	Plug, Black Plastic	12	12	12
4	343684	Lamp assy 28VDC yel/amb led	1	1	1
5	GM51705	Switch, low water temp	1	1	1
6	361567	Base, tie wrap snapin	5	5	5
8	GM79677	PCB assy Marathon excitation interface	1	1	1
9	GM13980	PCB Assy CT Burden Resistor	1	1	1
10	GM49747	Relay, 24V DC	1	1	1
11	GM62565	Decal, Diagnostic	1	1	1
12	GM66270	Sensor, Low Coolant Level	1	1	1
13	GM77904	Bracket, Mtg (Diagnostic)	1	1	1
14	GM77909	Cover, Diagnostic	1	1	1
15	M6921-06016-60	Screw	10	10	10
17	GM11040-7	Insert, Threaded (M6 x 1.0 Hex)	4	4	4
18	M7985A-04010-20	Screw, Pan Head Machine	4	4	4
19	X-67-155	Screw, Tapping	1	1	1
20	X-67-156	Screw, Tapping	4	4	4
21	X-301-34	Plug, Button	7	7	7
22	X-301-47	Plug, Button	10	10	10
23	X-301-48	Plug, Button	1	1	1
30	GM77981	Harness, Control Box 350-500 kW JD	1		
30	GM77976	Harness, Control Box 350-500 kW JD		1	
30	GM85395	Harness, Control Box 350-500 kW JD			1

Control and Harness, continued

Decision-Maker 3000 Controller



GM75799-C

Control and Harness, continued

Find the installed module number on the generator set nameplate.

Item	Part Number	Description	Quantity
			Module Number GM75799-MA1
1	GM77978	Harness, A/C Control Box	1
3	324861	Plug, black plastic	12
4	343684	Lamp assy 28VDC yel/amb led	1
5	361567	Base, tie wrap snapin	5
6	GM39458	Sender, Temperature	1
7	GM11040-7	Insert, Threaded (M6 x 1.0 Hex)	4
9	GM13980	PCB Assy CT Burden Resistor	1
10	GM49747	Relay, 24V DC	1
11	GM66270	Sensor, Low Coolant Level	1
12	GM69565	Decal, Diagnostic	1
13	GM77903	Bracket, Mtg (Diagnostic)	1
14	GM77909	Cover, Diagnostic	1
15	GM77970	Harness, Engine 350-500 kW JD Tier III	1
16	GM77977	Harness, Diagnostic 350-500 kW JD	1
17	GM77979	Harness, Control Box 350-500 kW JD	1
18	GM79677	PCB assy Marathon excitation interface	1
19	M6921-06016-60	Screw, Hex Flange M6x16mm fly thrd js500	10
20	M7985A-04010-20	Screw, Pan Head Machine	4
21	X-67-155	Screw, Tapping	1
22	X-67-156	Screw, Tapping	4
23	X-301-34	Plug, Button	7
24	X-301-47	Plug, Button	10
25	X-301-48	Plug, Button	1

Literature

Item	Part Number	Description	Quantity					
			Variation Number					
			452	453	480	495	496	497
1	TP-5374	Warranty 1-Year Limited, Industrial	1	1	1	1	1	1
2	TP-5700	I/M 20-3250kW, Industrial	1	1	1	1	1	1
3	TP-6140	O/I/M Cntrlr Setup & Appl, DecMaker550	1	1	1	1	1	1
3	TP-6200	O/M 20-3250 kW, DecMaker550, Ver 2.10+	1	1	1	1	1	1
3	TP-6694	O/M DEC3000 Controller	1	1	1	1	1	1
3	TP-6747	O/I/M DPS System Installation and Setup	1	1	1	1	1	1
3	TP-6750	O/M DEC 6000 Controller	1	1	1	1	1	1
4	TP-6373	S/M Pilot-Excited PM Altnrtr, 350-3250kW	1	1	1	1	1	1
4	TP-6356	S/M Controllers, 20-3250 kW, Ind.	1	1	1	1	1	1
5	TP-6785	P/C 350/400REOZJ, Ind	1	1	1	1	1	1
5	TP-6746	P/C DPS System	1	1	1	1	1	1
5	TP-6780	P/C DEC 550 Controller (J-Box Panel Mt)	1	1	1	1	1	1
5	TP-6781	P/C DEC 3000 Controller	1	1	1	1	1	1
6	TP-6797	W/D 350-500REOZJ, Industrial	1	1	1	1	1	1
7	TP-6787	O/M John Deere 6135HF485 Engine	1	1	1	1	1	1
8	TP-6371	S/M JD Alt & Starting Motors, (CTM77)	1	1	1	1	1	1
8	TP-6788	S/M John Deere 6135HF485 Engine	1	1	1	1	1	1
8	TP-6789	S/M John Deere 6135HF485 Engine Electronic Fuel System	1	1	1	1	1	1
9	TP-6786	P/C John Deere 6135HF485 Engine	1	1	1	1	1	1
10	TP-5578	O/I/S/M Marathon Altnrtr MmaxDVR (GPN008)	1	1	1	1	1	1

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.

	350/400 kW	500 kW
Controllers		
See Group 701: Literature for list of controller parts manuals.		
Cooling Systems		
Heater, block		
90–120 V	GM75809-KA1	GM75809-KA1
190–208 V	GM75809-KA2	GM75809-KA2
210–240 V	GM75809-KA3	GM75809-KA3
380–480 V	GM75809-KA4	GM75809-KA4
Duct flange, radiator	GM75810-KA1	GM75810-KA1
	GM85627-KA1	GM85627-KA1
Remote Radiator Setup	GM78803-MA1	GM78803-MA2

Cooling System Kits

Qty.	Description	Part No.
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Block Heater, 2500W, 90/120V, 1Ph		GM75809-KA1
1	Heater, Block	GM76113
1	Block Heater Service Element 120V/2500W	GM29477
1	Tag, hang	279047
2	Valve, Shutoff (3/4-14npt)	GM19666
1	Tag, Hang	GM39752
1	Bracket, Block Heater	GM51263
2	Washer, Plain, 8.4 ID x 16.0 OD	M125A-08-80
2	Washer, Plain, 10.5 ID x 20.0 OD	M125A-10-80
4	Nut, Hex 6mm	M6923-06-80
1	Nut, Hex 8mm	M6923-08-80
4	Screw, Hex Cap	M933-06025-60
1	Screw, Hex Cap	M933-08025-60
2	Screw, hex cap,fully thrd M10 x 25mm	M933-10025-60
3	Pipe, Nipple (3/4" npt x 1.38")	X-206-9
1	Pipe (3/4"npt x 3.50")	X-206-6
4	Washer, Plain	M125A-06-80
4	Clamp, hose, .69/1.25 in.	X-426-12
2	Connector, hose + Vibra Seal	X-582-8
1	Hose, Coolant 44"	X-6367-1
1	Clamp, insulated, 1.25 in.	X-672-20
1	Hose, Coolant 65"	X-6367-9
2	Elbow, pipe (90 deg x 3/4"npt)	X-215-2

Block Heater, 2500W, 190/208V, 1 Ph		GM75809-KA2
1	Heater, Block	GM76114
1	Block Heater Service Element 208V/2500W	GM29478
1	Tag, hang	279047
2	Valve, Shutoff (3/4-14npt)	GM19666
1	Tag, Hang	GM39752
1	Bracket, Block Heater	GM51263
2	Washer, Plain, 8.4 ID x 16.0 OD	M125A-08-80
2	Washer, Plain, 10.5 ID x 20.0 OD	M125A-10-80
4	Nut, Hex 6mm	M6923-06-80
1	Nut, Hex 8mm	M6923-08-80
4	Screw, Hex Cap	M933-06025-60
1	Screw, Hex Cap	M933-08025-60
2	Screw, hex cap,fully thrd M10 x 25mm	M933-10025-60
3	Pipe, Nipple (3/4" npt x 1.38")	X-206-9
1	Pipe (3/4"npt x 3.50")	X-206-6
4	Washer, Plain	M125A-06-80
4	Clamp, hose, .69/1.25 in.	X-426-12
2	Connector, hose + Vibra Seal	X-582-8
1	Hose, Coolant 44"	X-6367-1
1	Clamp, insulated, 1.25 in.	X-672-20
1	Hose, Coolant 65"	X-6367-9
2	Elbow, pipe (90 deg x 3/4"npt)	X-215-2

Qty.	Description	Part No.
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Block Heater, 2500W, 210/240V, 1Ph		GM75809-KA3
1	Heater, Block	GM76115
1	Block Heater Service Element 240V/2500W	GM29474
1	Tag, hang	279047
2	Valve, Shutoff (3/4-14npt)	GM19666
1	Tag, Hang	GM39752
1	Bracket, Block Heater	GM51263
2	Washer, Plain, 8.4 ID x 16.0 OD	M125A-08-80
2	Washer, Plain, 10.5 ID x 20.0 OD	M125A-10-80
4	Nut, Hex 6mm	M6923-06-80
1	Nut, Hex 8mm	M6923-08-80
4	Screw, Hex Cap	M933-06025-60
1	Screw, Hex Cap	M933-08025-60
2	Screw, hex cap,fully thrd M10 x 25mm	M933-10025-60
3	Pipe, Nipple (3/4" npt x 1.38")	X-206-9
1	Pipe (3/4"npt x 3.50")	X-206-6
4	Washer, Plain	M125A-06-80
4	Clamp, hose, .69/1.25 in.	X-426-12
2	Connector, hose + Vibra Seal	X-582-8
1	Hose, Coolant 44"	X-6367-1
1	Clamp, insulated, 1.25 in.	X-672-20
1	Hose, Coolant 65"	X-6367-9
2	Elbow, pipe (90 deg x 3/4"npt)	X-215-2

Block Heater, 2500W, 380/480V, 1Ph		GM75809-KA4
1	Heater, Block	GM76116
1	Block Heater Service Element 480V/2500W	GM29479
1	Tag, hang	279047
2	Valve, Shutoff (3/4-14npt)	GM19666
1	Tag, Hang	GM39752
1	Bracket, Block Heater	GM51263
2	Washer, Plain, 8.4 ID x 16.0 OD	M125A-08-80
2	Washer, Plain, 10.5 ID x 20.0 OD	M125A-10-80
4	Nut, Hex 6mm	M6923-06-80
1	Nut, Hex 8mm	M6923-08-80
4	Screw, Hex Cap	M933-06025-60
1	Screw, Hex Cap	M933-08025-60
2	Screw, hex cap,fully thrd M10 x 25mm	M933-10025-60
3	Pipe, Nipple (3/4" npt x 1.38")	X-206-9
1	Pipe (3/4"npt x 3.50")	X-206-6
4	Washer, Plain	M125A-06-80
4	Clamp, hose, .69/1.25 in.	X-426-12
2	Connector, hose + Vibra Seal	X-582-8
1	Hose, Coolant 44"	X-6367-1
1	Clamp, insulated, 1.25 in.	X-672-20
1	Hose, Coolant 65"	X-6367-9
2	Elbow, pipe (90 deg x 3/4"npt)	X-215-2

Cooling System Kits

Qty.	Description	Part No.
Duct Flange, Radiator		
2	Frame, Air Duct (Vertical)	GM70150
2	Frame, Air Duct (Horizontal)	GM70151
Duct Flange, Radiator		
2	Frame, Air Duct (Vertical)	GM85625
2	Frame, Air Duct (Horizontal)	GM85626

Qty.	Description	Part No.
Remote Radiator Setup		
1	Tube, Turbo CAC	GM77295
1	Gasket, CAC Graphite	GM77635
1	Clamp, Exhaust (5.25 in.)	GM77638
1	Bracket, Support	365237
1	Hose, Radiator (Upper)	GM39269
1	Bracket, Belt Guard	GM64267
1	Hose, Radiator Lower	GM77293
1	Tube, Intake	GM77294
1	Guard, Belt (RH)	GM77297
1	Guard, Belt (LH)	GM77298
1	Guard, Belt (Top)	GM77299
1	Guard, Belt (Bottom)	GM77300
2	Bracket, Belt Guard Mtg	GM77301
2	Clamp, Hose, 4.13/4.44	GM78800
1	Guard, Pulley Cover	GM78805
1	Guard, Belt	GM79503
1	Washer, Plain 10.5 Id X 20.0 OD	M125A-10-80
4	Washer, Plain	M125A-16-80
18	Screw, Hex Flnge M6x16mm Fily Thrd Js500	M6921-06016-60
1	Nut, Hex 10mm	M6923-10-80
16	Screw, Metric Thread Forming 12mm	M7500D-06012-81
1	Screw, Hex Cap, Fully Thrd M10 X 25mm	M933-10025-60
4	Screw, Hex Cap	M933-16040-60
2	Clamp, hose, .69/1.25 in.	X-426-12
1	Hose, Radiator Wire Inset 4.00 ID	X-6014-91
1	Connector, Hose + Vibra Seal 6.4	X-652-3

Remote Radiator Setup			GM78803-MA2
1	Clamp, muffler, 3.12 in.		286283
2	Clamp, Hose, 3.06/3.38 in.		343175
1	Tube, Turbo CAC		GM78799
1	Bracket, CAC Tube		GM84770
1	Hose, Charged Air Cooler		GM85118
1	Bracket, Support		365237
1	Hose, Radiator (Upper)		GM39269
1	Bracket, Belt Guard		GM64267
1	Hose, Radiator Lower		GM77293
1	Tube, Intake		GM77294
1	Guard, Belt (RH)		GM77297
1	Guard, Belt (LH)		GM77298
1	Guard, Belt (Top)		GM77299
1	Guard, Belt (Bottom)		GM77300
2	Bracket, Belt Guard Mtg		GM77301
2	Clamp, Hose, 4.13/4.44		GM78800
1	Guard, Pulley Cover		GM78805
1	Guard, Belt		GM79503
1	Washer, Plain 10.5 Id X 20.0 OD		M125A-10-80
4	Washer, Plain		M125A-16-80
18	Screw, Hex Flnge M6x16mm Fily Thrd Js500	M6921-06016-60	
1	Nut, Hex 10mm	M6923-10-80	
16	Screw, Metric Thread Forming 12mm	M7500D-06012-81	
1	Screw, Hex Cap, Fully Thrd M10 X 25mm	M933-10025-60	
4	Screw, Hex Cap	M933-16040-60	
2	Clamp, hose, .69/1.25 in.	X-426-12	
1	Hose, Radiator Wire Inset 4.00 ID	X-6014-91	
1	Connector, Hose + Vibra Seal 6.4	X-652-3	

Appendix A Abbreviations

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

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

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

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.

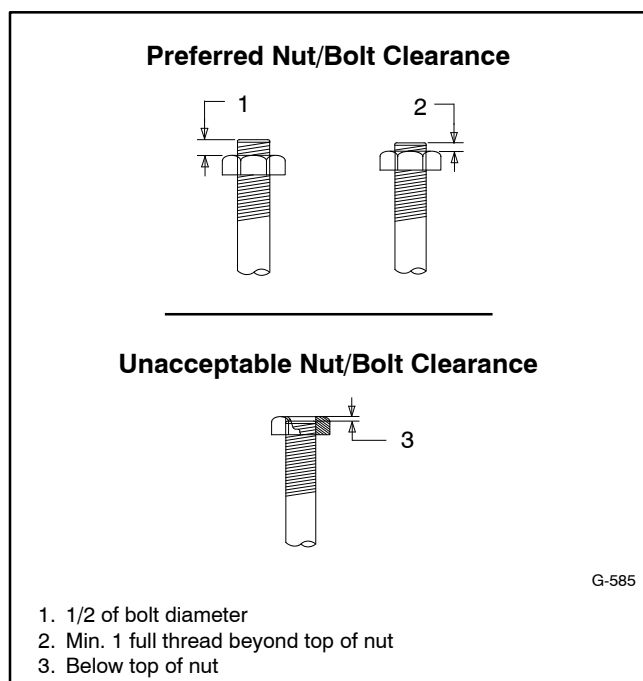


Figure 1 Acceptable Bolt Lengths

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.

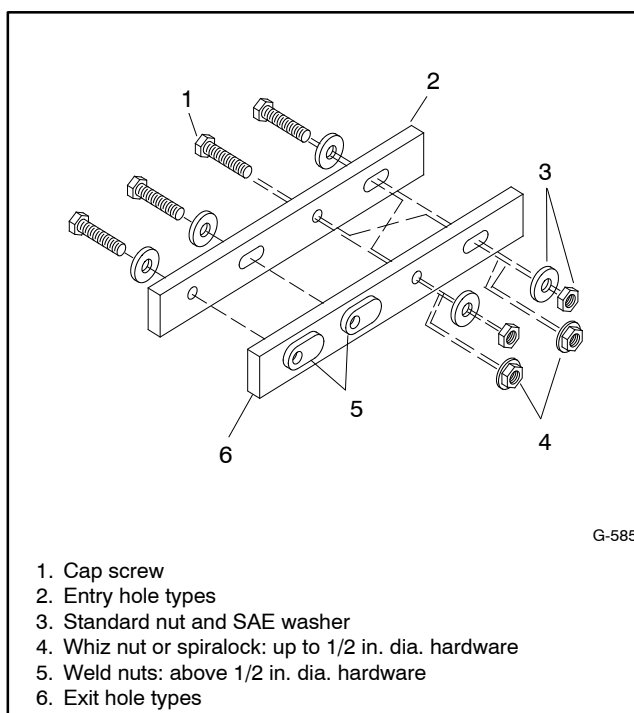


Figure 2 Acceptable Hardware Combinations

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)

$\frac{1}{4}$ -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

$\frac{9}{32}$ x $\frac{5}{8}$ x $\frac{1}{16}$
 Thickness
 External Dimension
 Internal Dimension

Lock Washers

$\frac{5}{8}$
 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	Part No.	Dimensions	Part No.	Dimensions	Type		
Hex Head Bolts (Grade 5)		Hex Head Bolts, cont.		Hex Nuts				
X-465-17	1/4-20 x .38	X-6238-14	3/8-24 x .75	X-6009-1	1-8	Standard		
X-465-6	1/4-20 x .50	X-6238-16	3/8-24 x 1.25					
X-465-2	1/4-20 x .62	X-6238-21	3/8-24 x 4.00	X-6210-3	6-32	Whiz		
X-465-16	1/4-20 x .75	X-6238-22	3/8-24 x 4.50	X-6210-4	8-32	Whiz		
X-465-18	1/4-20 x .88			X-6210-5	10-24	Whiz		
X-465-7	1/4-20 x 1.00	X-6024-5	7/16-14 x .75	X-6210-1	10-32	Whiz		
X-465-8	1/4-20 x 1.25	X-6024-2	7/16-14 x 1.00					
X-465-9	1/4-20 x 1.50	X-6024-8	7/16-14 x 1.25	X-6210-2	1/4-20	Spiralock		
X-465-10	1/4-20 x 1.75	X-6024-3	7/16-14 x 1.50	X-6210-6	1/4-28	Spiralock		
X-465-11	1/4-20 x 2.00	X-6024-4	7/16-14 x 2.00	X-6210-7	5/16-18	Spiralock		
X-465-12	1/4-20 x 2.25	X-6024-11	7/16-14 x 2.75	X-6210-8	5/16-24	Spiralock		
X-465-14	1/4-20 x 2.75	X-6024-12	7/16-14 x 6.50	X-6210-9	3/8-16	Spiralock		
X-465-21	1/4-20 x 5.00	X-129-15	1/2-13 x .75	X-6210-10	3/8-24	Spiralock		
X-465-25	1/4-28 x .38	X-129-17	1/2-13 x 1.00	X-6210-11	7/16-14	Spiralock		
X-465-20	1/4-28 x 1.00	X-129-18	1/2-13 x 1.25	X-6210-12	1/2-13	Spiralock		
		X-129-19	1/2-13 x 1.50	X-6210-15	7/16-20	Spiralock		
X-125-33	5/16-18 x .50	X-129-20	1/2-13 x 1.75	X-6210-14	1/2-20	Spiralock		
X-125-23	5/16-18 x .62	X-129-21	1/2-13 x 2.00					
X-125-3	5/16-18 x .75	X-129-22	1/2-13 x 2.25	X-85-3	5/8-11	Standard		
X-125-31	5/16-18 x .88	X-129-23	1/2-13 x 2.50	X-88-12	3/4-10	Standard		
X-125-5	5/16-18 x 1.00	X-129-24	1/2-13 x 2.75	X-89-2	1/2-20	Standard		
X-125-24	5/16-18 x 1.25	X-129-25	1/2-13 x 3.00					
X-125-34	5/16-18 x 1.50	X-129-27	1/2-13 x 3.50					
X-125-25	5/16-18 x 1.75	X-129-29	1/2-13 x 4.00					
X-125-26	5/16-18 x 2.00	X-129-30	1/2-13 x 4.50					
230578	5/16-18 x 2.25	X-463-9	1/2-13 x 5.50					
X-125-29	5/16-18 x 2.50	X-129-44	1/2-13 x 6.00					
X-125-27	5/16-18 x 2.75							
X-125-28	5/16-18 x 3.00	X-129-51	1/2-20 x .75	X-25-46	.125	.250	.022	#4
X-125-22	5/16-18 x 4.50	X-129-45	1/2-20 x 1.25	X-25-9	.156	.375	.049	#6
X-125-32	5/16-18 x 5.00	X-129-52	1/2-20 x 1.50	X-25-48	.188	.438	.049	#8
X-125-35	5/16-18 x 5.50			X-25-36	.219	.500	.049	#10
X-125-36	5/16-18 x 6.00	X-6021-3	5/8-11 x 1.00	X-25-40	.281	.625	.065	1/4
X-125-40	5/16-18 x 6.50	X-6021-4	5/8-11 x 1.25	X-25-85	.344	.687	.065	5/16
		X-6021-2	5/8-11 x 1.50	X-25-37	.406	.812	.065	3/8
X-125-43	5/16-24 x 1.75	X-6021-1	5/8-11 x 1.75	X-25-34	.469	.922	.065	7/16
X-125-44	5/16-24 x 2.50	273049	5/8-11 x 2.00	X-25-26	.531	1.062	.095	1/2
X-125-30	5/16-24 x .75	X-6021-5	5/8-11 x 2.25	X-25-15	.656	1.312	.095	5/8
X-125-39	5/16-24 x 2.00	X-6021-6	5/8-11 x 2.50	X-25-29	.812	1.469	.134	3/4
X-125-38	5/16-24 x 2.75	X-6021-7	5/8-11 x 2.75	X-25-127	1.062	2.000	.134	1
		X-6021-12	5/8-11 x 3.75					
X-6238-2	3/8-16 x .62	X-6021-11	5/8-11 x 4.50					
X-6238-10	3/8-16 x .75	X-6021-10	5/8-11 x 6.00					
X-6238-3	3/8-16 x .88							
X-6238-11	3/8-16 x 1.00	X-6021-9	5/8-18 x 2.50					
X-6238-4	3/8-16 x 1.25							
X-6238-5	3/8-16 x 1.50	X-6239-1	3/4-10 x 1.00					
X-6238-1	3/8-16 x 1.75	X-6239-8	3/4-10 x 1.25					
X-6238-6	3/8-16 x 2.00	X-6239-2	3/4-10 x 1.50					
X-6238-17	3/8-16 x 2.25	X-6239-3	3/4-10 x 2.00					
X-6238-7	3/8-16 x 2.50	X-6239-4	3/4-10 x 2.50					
X-6238-8	3/8-16 x 2.75	X-6239-5	3/4-10 x 3.00					
X-6238-9	3/8-16 x 3.00	X-6239-6	3/4-10 x 3.50					
X-6238-19	3/8-16 x 3.25							
X-6238-12	3/8-16 x 3.50	X-792-1	1-8 x 2.25					
X-6238-20	3/8-16 x 3.75	X-792-5	1-8 x 3.00					
X-6238-13	3/8-16 x 4.50	X-792-8	1-8 x 5.00					
X-6238-18	3/8-16 x 5.50							
X-6238-25	3/8-16 x 6.50							

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
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Flat Head Machine Screws

M965A-04012-SS	M4-0.70 x 12
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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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