

Service Parts

Residential/Commercial Generator Sets



Model:

38RCL
48RCL
48RCLA
60RCL

See Group 701: Literature, inside this manual for
part number of the engine parts catalog

KOHLER®
Power Systems _____

9001
KOHLER
POWER SYSTEMS
NATIONALLY REGISTERED

TP-6812 7/16e

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Introduction

This manual lists service replacement parts Kohler Power Systems generator sets. See front cover for list of models.

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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

	Variation	
	Model/Specification number	
	38RCL	
Group Description	GM84992-GA1	GM84992-GA2
Group 101: Air Intake	GM84995-GR1	GM84995-GR1
Group 104: Cooling System	GM85088-GR1	GM92075-GR3
Group 105: Engine	GM84993-GR1	GM84993-GR1
Group 107: Nameplate and Decals	GM78523-GR1	GM78523-GR1
Group 109: Skid and Plant Mounting	GM84994-GR1	GM84994-GR1
Group 201: Alternator and Mounting	*	*
Group 301: Control and Harness	GM78527-GR1	GM91287-GR5
Circuit Breaker and Mounting	*	*
Sound Shield Enclosure	*	*
Group 701: Literature	701-184-487	701-184-487

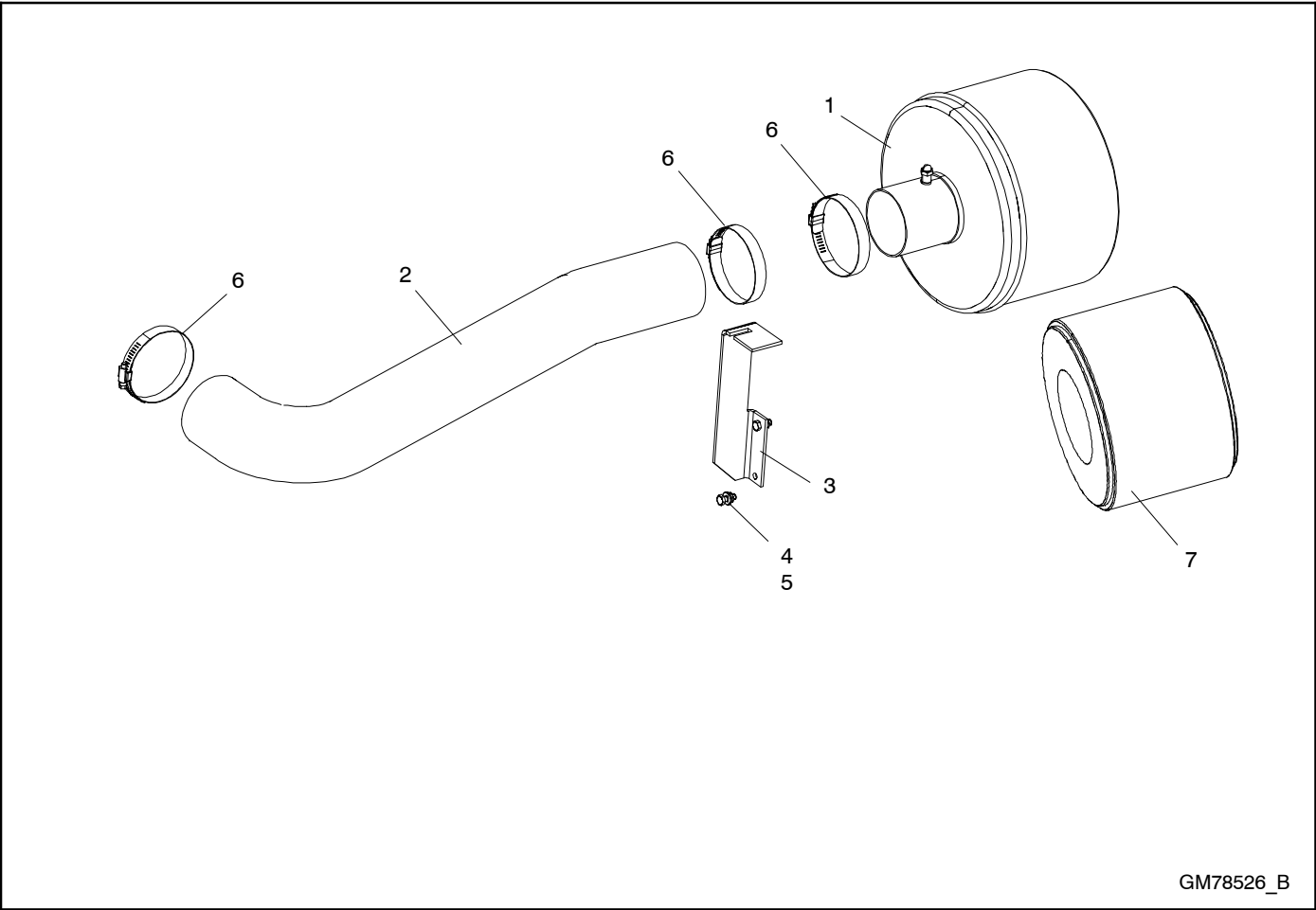
	Variation			
	Model/Specification number			
	48RCL			48RCLA
Group Description	GM78521-GA1	GM78521-GA2	GM78521-GA4	GM78521-GA5
Group 101: Air Intake	GM78526-GR1	GM78526-GR1	GM78526-GR1	GM88993-GR2
Group 104: Cooling System	GM83070-GR1	GM85088-GR1	GM92075-GR3	GM92075-GR3
Group 105: Engine	GM78522-GR1	GM78522-GR1	GM78522-GR1	GM101027-GR1
Group 107: Nameplate and Decals	GM78523-GR1	GM78523-GR1	GM78523-GR1	GM78523-GR1
Group 109: Skid and Plant Mounting	GM78525-GR1	GM78525-GR1	GM91038-GR2	GM91038-GR2
Group 201: Alternator and Mounting	*	*	*	*
Group 301: Control and Harness	GM78527-GR1	GM78527-GR1	GM91287-GR5	GM91287-GR5
Circuit Breaker and Mounting	*	*	*	*
Sound Shield Enclosure	*	*	*	*
Group 701: Literature	701-184-470	701-184-470	701-184-470	701-184-532

	Variation	
	Model/Specification number	
	60RCL	
Group Description	GM88861-GA1	GM88861-GA2
Group 101: Air Intake	GM88993-GR1	GM88993-GR2
Group 104: Cooling System	GM85088-GR1	GM92075-GR3
Group 105: Engine	GM88555-GR1	GM88555-GR1
Group 107: Nameplate and Decals	GM78523-GR1	GM78523-GR1
Group 109: Skid and Plant Mounting	GM78525-GR1	GM91038-GR2
Group 201: Alternator and Mounting	*	*
Group 301: Control and Harness	GM78527-GR1	GM91287-GR5
Circuit Breaker and Mounting	*	*
Sound Shield Enclosure	*	*
Group 701: Literature	701-184-516	701-184-516

* Configured group. Refer to the generator set nameplate for the module number.
Turn to the respective group on the following pages for parts breakdowns.

Group 101: Air Intake

GM78526-GR1

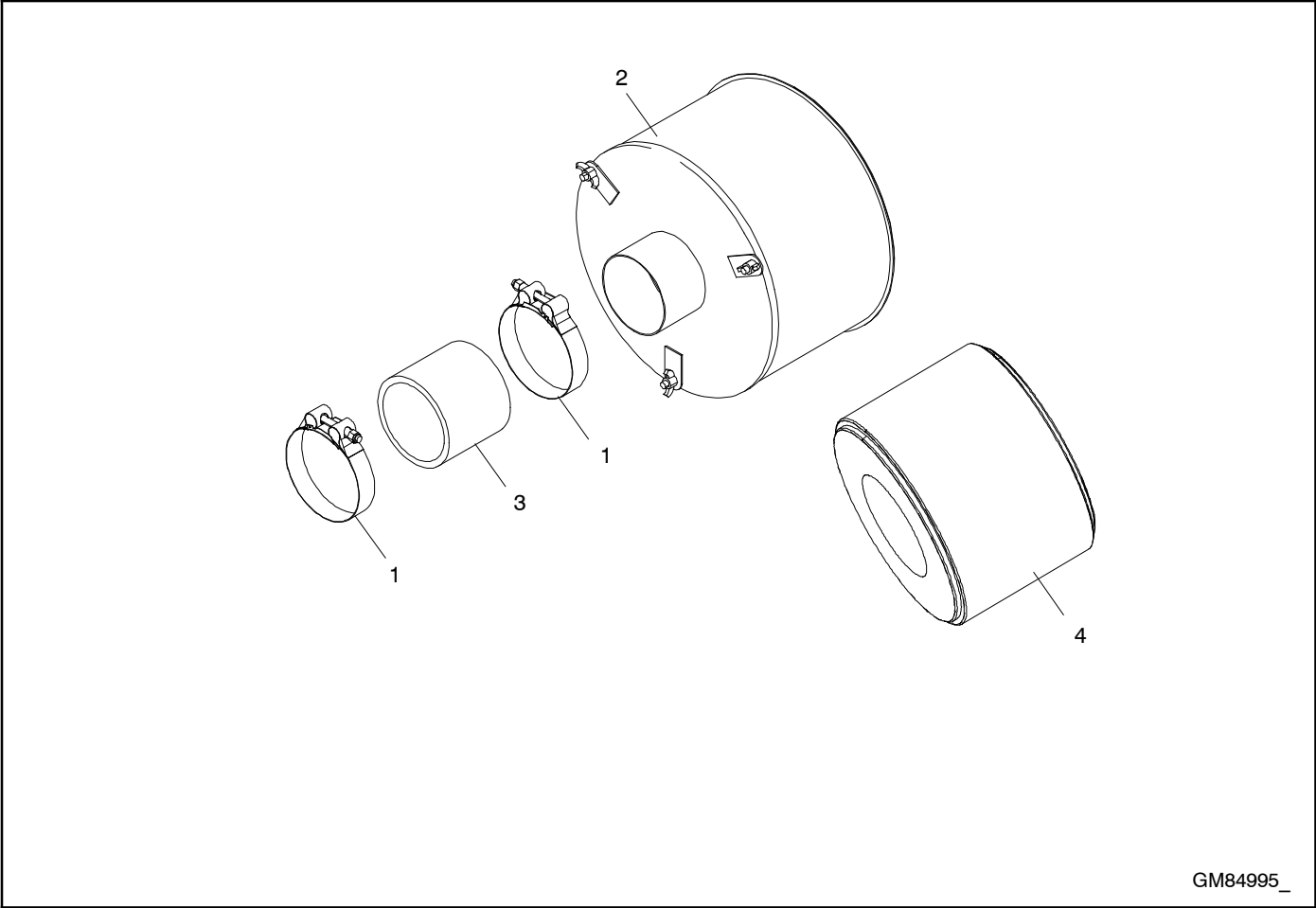


GM78526_B

Item	Part Number	Description	Quantity
			ModuleNumber -GR1
1	A-273699	Air Cleaner Assembly	1
2	GM82861	Hose, Intake	1
3	GM82862	Bracket, Air Cleaner	1
4	M6923-06-80	Nut, Hex 6mm	2
5	M933-06016-60	Screw, hex cap, M6x16mm, js500 full thrd	2
6	X-426-5	Clamp, hose, 3.56/4.5 in.	3
7	253107	Element, Air Cleaner	1

Group 101: Air Intake

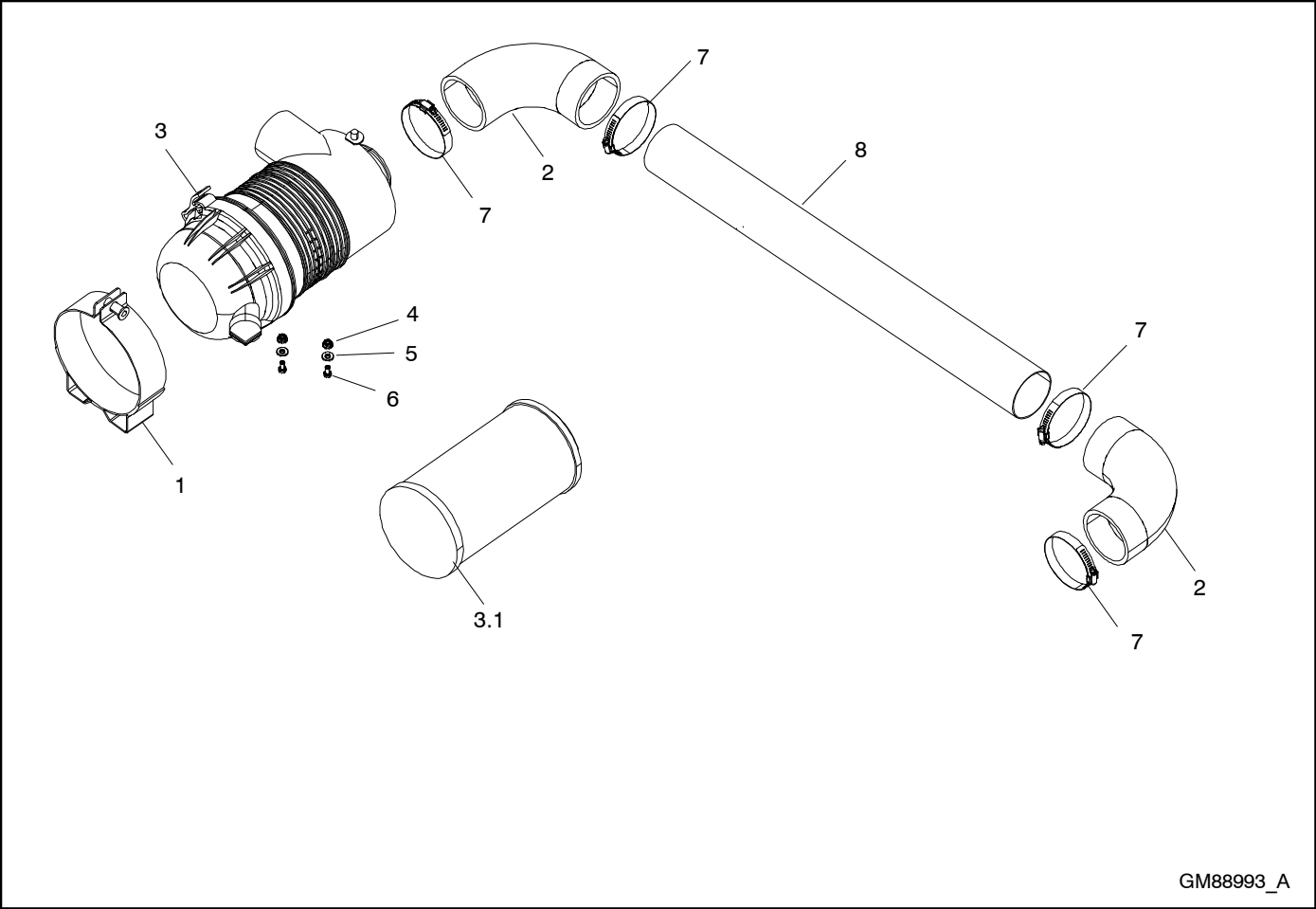
GM84995-GR1



Item	Part Number	Description	Quantity
			ModuleNumber -GR1
1	291542	Clamp, hose, 3.25/3.56 in.	2
2	A-253104	Air cleaner assembly	1
3	X-6014-137	Hose, Radiator Wire Insert, 3" ID	1
4	253107	Element, Air Cleaner	1

Group 101: Air Intake, continued

GM88993-GR1

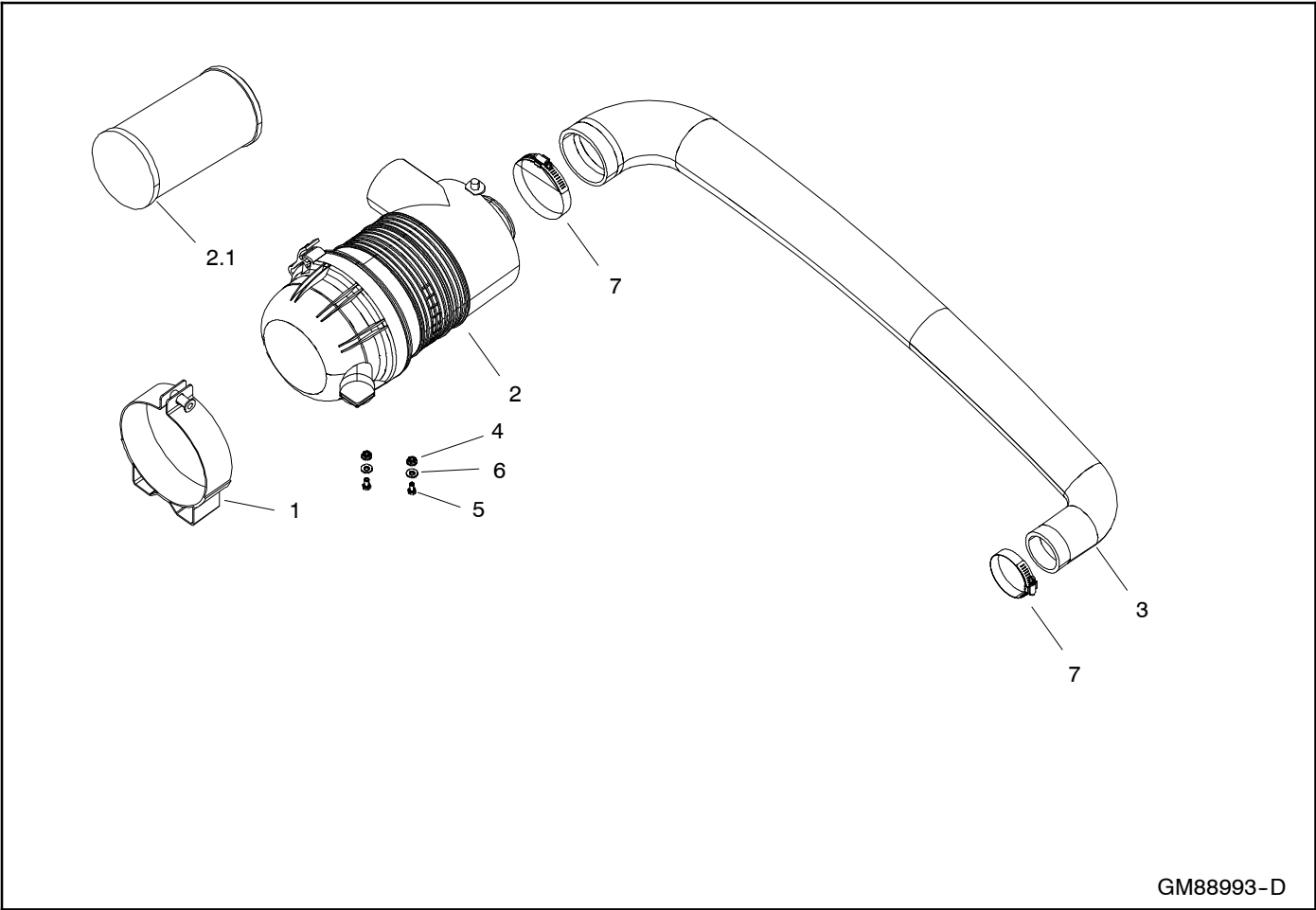


GM88993_A

Item	Part Number	Description	Quantity
			ModuleNumber -GR1
1	GM14200	Mount, Air Cleaner (6.76"ID)	1
2	GM89895	Hose, 90 Deg. Elbow	2
3	GM90280	Air Cleaner Assy.	1
3.1	GM90281	Element, Air Cleaner	1
4	M6923-06-80	Nut, Hex 6MM	2
5	M933-06012-60	Screw	2
6	X-25-40	Washer, Plain, .281 ID X .625 in. OD	2
7	X-426-5	Clamp, Hose, 3.56/4.5 IN.	4
8	X-522-129	Tube, Steel	1

Group 101: Air Intake, continued

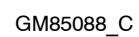
GM88993-GR2



GM88993-D

Item	Part Number	Description	Quantity
			ModuleNumber GM88993-GR2
1	GM14200	Mount, Air Cleaner (6.76"ID)	1
2	GM90280	Air Cleaner Assy	1
2.1	GM90281	Element, Air Cleaner	1
3	GM96301	Hose, Air Intake	1
4	M6923-08-80	Nut, Hex 8MM	2
5	M933-08016-60	Screw	2
6	X-25-40	Washer, Plain, .281 ID X .625 in. OD	2
7	X-426-5	Clamp, Hose, 3.56/4.5 IN.	2

GM85088-GR1



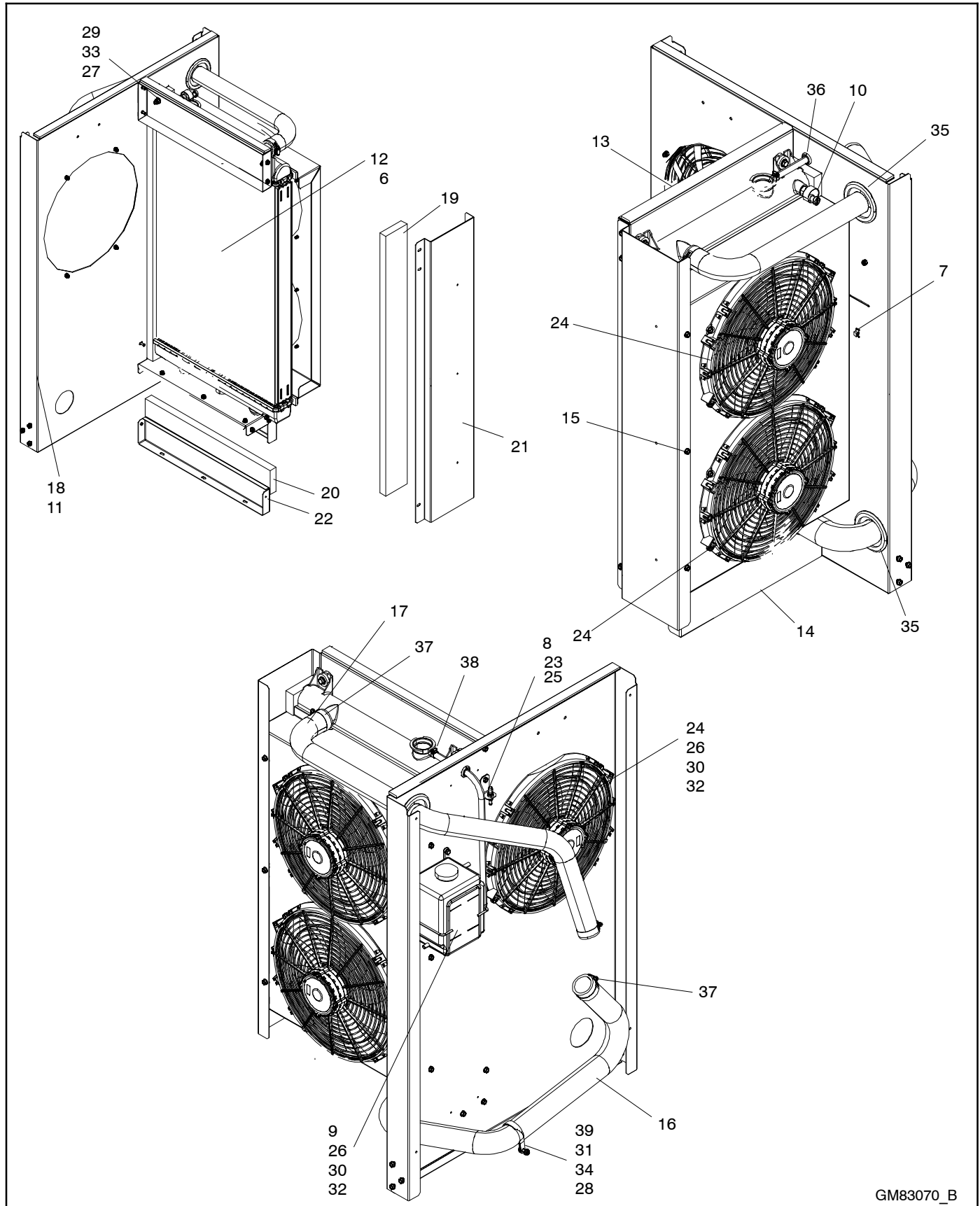
Group 104: Cooling System

GM85088-GR1

Item	Part Number	Description	Quantity
			ModuleNumber -GR1
4	X-6047-31	Channel, U	1
5	X-386-142	Line, Flex Fuel	1
6	278788	Valve, drain (3/8"nptf)	1
7	361567	Base, tie wrap snapin	2
8	GM28823	Sensor, Temperature	1
9	GM47692	Bottle, Overflow	1
10	GM66270	Sensor, Low Coolant Level	1
11	GM78761-1	Screw, Sheetmetal	35
12	GM79552	Radiator	1
12.1	GM88429	Radiator Cap	1
13	GM82973	Mount, Radiator Upper	1
14	GM82979-1	Insulation, Acoustic	2
15	GM82979-2	Insulation, Acoustic	1
16	GM83755	Shroud, Radiator Front	1
17	GM83762	Bracket, Lower Radiator	1
18	GM83899	Bracket, Temperature Sender	1
19	GM83900	Fan Assembly	3
20	GM84247	Nut, 1/8-27 NPT	1
21	GM85090	Bulkhead	1
22	GM91554	Shroud, Radiator	1
23	GM85092	Hose, Upper Radiator	1
24	GM85093	Hose, Lower Radiator	1
26	GM85643	Mount, Radiator Lower	1
27	M125A-06-80	Washer, Plain	6
28	M125A-08-80	Washer, Plain 8.4 ID x 16.0 OD	4
30	M931-08040-60	Screw, hex cap	2
31	M933-06020-60	Screw, hex cap	6
33	M982-06-80	Nut, hex elastic stop, 6MM	6
34	M982-08-80	Nut, hex elastic stop, 8MM	2
36	X-284-31	Grommet, round	2
37	X-284-7	Grommet, round	1
38	X-426-16	Clamp, hose, 1.81/2.75 in.	4
39	X-426-9	Clamp, hose, .25/.70 in.	2
40	X-672-18	Clamp, insulated, 2.12 in. (not shown)	

Group 104: Cooling System, continued

GM83070-GR1



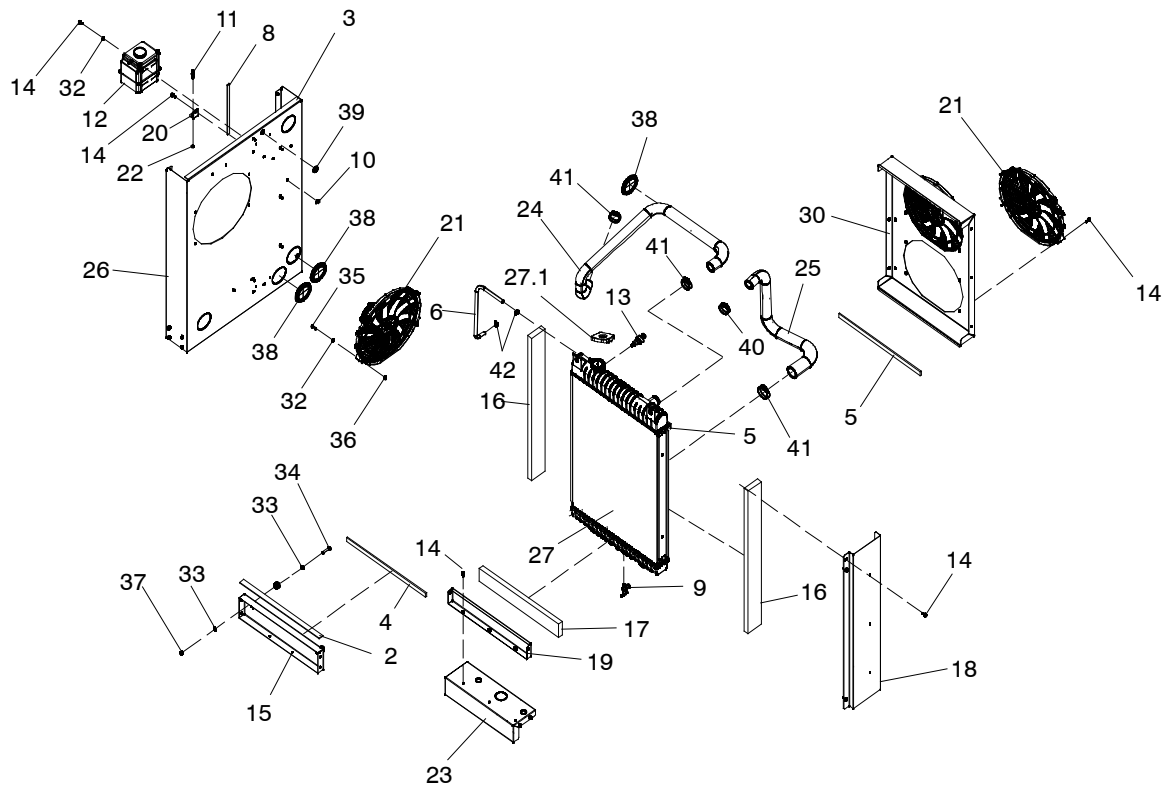
GM83070_B

Group 104: Cooling System, continued

GM83070-GR1			
Item	Part Number	Description	Quantity
			ModuleNumber -GR1
6	278788	Valve, drain (3/8"nptf)	1
7	361567	Base, tie wrap snapin	2
8	GM28823	Sensor, Temperature	1
9	GM47692	Bottle, Overflow	1
10	GM66270	Sensor, Low Coolant Level	1
11	GM78761-1	Screw, Sheetmetal	33
12	GM79552	Radiator	1
12.1	GM88429	Radiator Cap	1
13	GM82973	Mount, Radiator Upper	1
14	GM82974	Mount, Radiator Lower	1
15	GM82975	Shroud, Radiator	1
16	GM85093	Hose, Lower Radiator	1
17	GM85092	Hose, Upper Radiator	1
18	GM82978	Bulkhead	1
19	GM82979-1	Insulation, Acoustic	2
20	GM82979-2	Insulation, Acoustic	1
21	GM83755	Shroud, Radiator Front	1
22	GM83762	Bracket, Lower Radiator	1
23	GM83899	Bracket, Temperature Sender	1
24	GM83900	Fan Assembly	3
25	GM84274	Nut, 1/8 NPT	1
26	M125A-06-80	Washer, Plain	6
27	M125A-08-80	Washer, Plain 8.4 ID x 16.0 OD	4
28	M6923-06-80	Nut, Hex 6mm	1
29	M931-08040-60	Screw, hex cap	2
30	M933-06020-60	Screw, hex cap	6
31	M933-06025-60	Screw, hex cap	1
32	M982-06-80	Nut, hex elastic stop, 6MM	6
33	M982-08-80	Nut, hex elastic stop, 8MM	2
34	X-25-33	Washer, plain, .312 ID x .625 in. OD	1
35	X-284-31	Grommet, round	2
36	X-284-7	Grommet, round	1
37	X-426-16	Clamp, hose, 1.81/2.75 in.	4
38	X-426-9	Clamp, hose, .25/.70 in.	2
39	X-672-18	Clamp, insulated, 2.12 in.	1

Group 104: Cooling System, continued

GM92075-GR3



GM92075-C

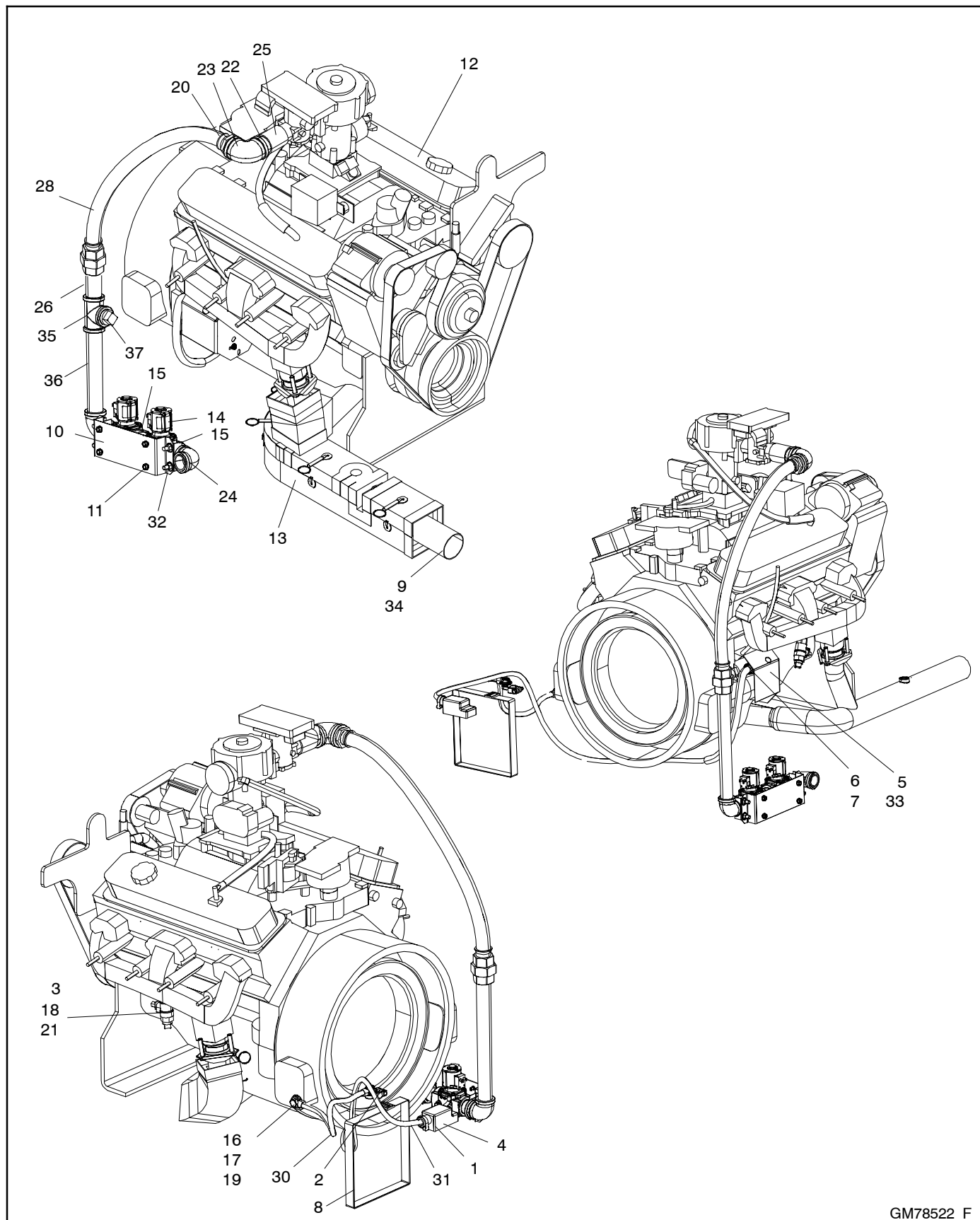
Group 104: Cooling System, continued

GM92075-GR3

Item	Part Number	Description	Quantity
2	19000 08075	Foam, gasket seal (3/4" tape)	1
3	19000 08075	Foam, gasket seal (3/4" tape)	1
4	19010 08118	Neoprene, closed cell (1"W x 1/4"T)	1
5	19010 08118	Neoprene, closed cell (1"W x 1/4"T)	2
6	X-386-142	Line, Flex Fuel	1
8	X-6047-31	Channel, U	1
9	278788	Valve, drain (3/8"nptf)	1
10	361567	Base, tie wrap snapin	2
11	GM28823	Sensor, Temperature	1
12	GM47692	Bottle, Overflow	1
13	GM66270	Sensor, Low Coolant Level	1
14	GM78761-1	Screw, Sheetmetal	37
15	GM82973	Mount, Radiator Upper	1
16	GM82979-1	Insulation, Acoustic	2
17	GM82979-2	Insulation, Acoustic	1
18	GM83755	Shroud, Radiator Front	1
19	GM83762	Bracket, Lower Radiator	1
20	GM83899	Bracket, Temperature Sender	1
21	GM83900	Fan Assembly	3
22	GM84247	Nut, 1/8-27 NPT	1
23	GM85643	Mount, Radiator Lower	1
24	GM85092	Hose, Upper Radiator	1
25	GM85093	Hose, Lower Radiator	1
26	GM91063	Panel, Bulkhead	1
27	GM79552	Radiator	1
27.1	GM88429	Radiator Cap	1
30	GM91554	Shroud, Radiator	1
32	M125A-06-80	Washer, Plain	6
33	M125A-08-80	Washer, Plain 8.4 ID x 16.0 OD	4
34	M931-08040-60	Screw, Hex Cap	2
35	M933-06020-60	Screw, Hex Cap	4
36	M982-06-80	Nut, hex elastic stop, 6MM	4
37	M982-08-80	Nut, hex elastic stop, 8MM	2
38	X-284-31	Grommet, round	3
39	X-284-7	Grommet, round	1
40	X-426-16	Clamp, hose, 1.81/2.75 in.	1
41	X-426-16	Clamp, hose, 1.81/2.75 in.	3
42	X-426-9	Clamp, hose, .25/.70 in.	2
43	X-301-49	Plug, Button (not shown)	2
45	X-672-35	Clamp, insulated, 2.12 in. (not shown)	2

Group 105: Engine

GM78522



GM78522_F

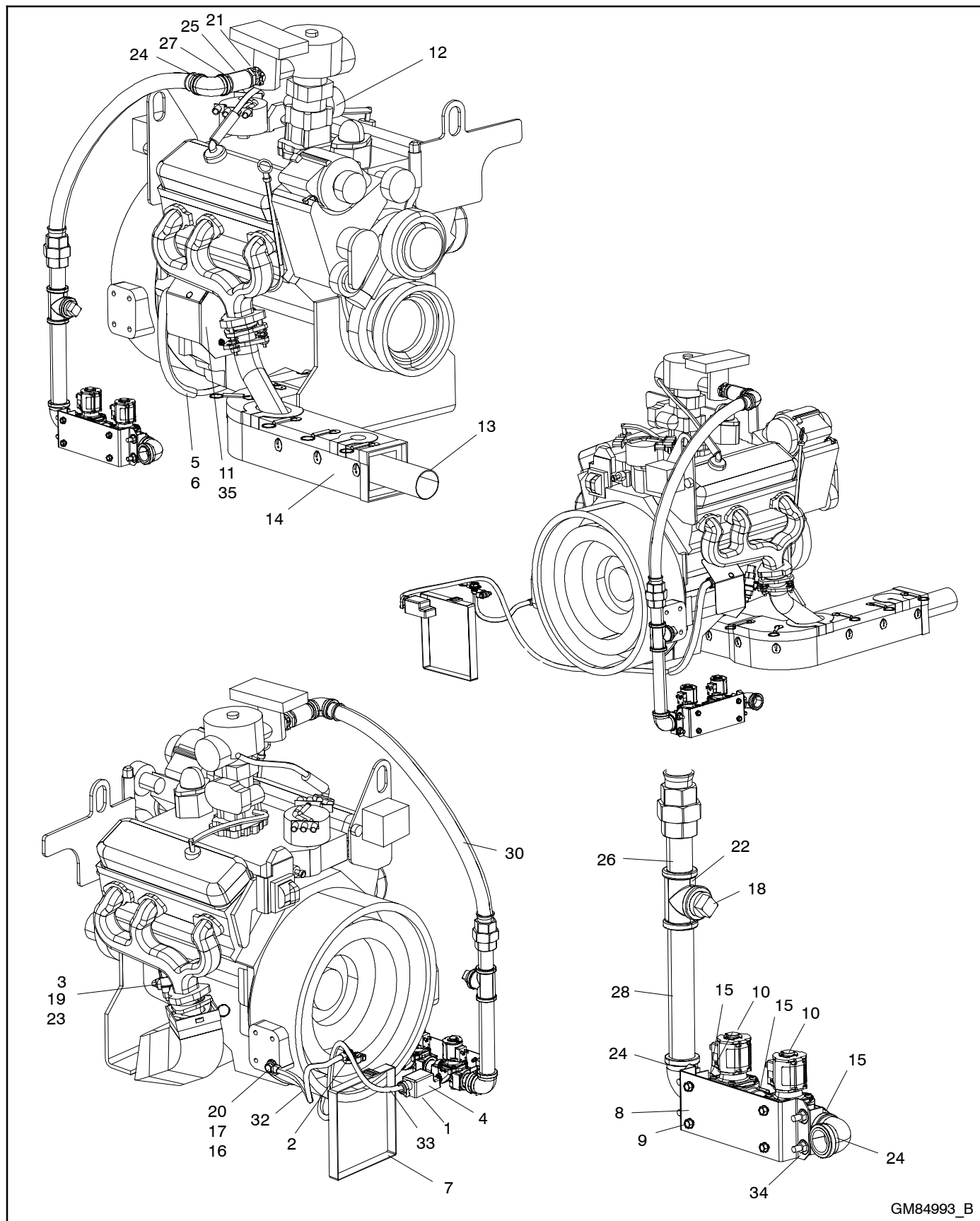
Group 105: Engine

GM78522-GR1, GR2

Item	Part Number	Description	Quantity	
			ModuleNumber	
			-GR1	-GR2
1	345039	Terminal, battery	1	1
2	345056	Terminal, battery	1	1
3	GM19670	Valve, Shutoff (1/2-14npt)	2	2
4	GM20745	Boot, Battery Lug	1	1
5	GM84667	Shield, Heat	1	1
6	GM21335	Shield, heat (20mm id x 412mm length)	1	1
7	GM22350	Boot, Starter Terminal	1	1
8	GM61432	Strap, Poly Battery	1	1
9	GM78383	Pipe, Exhaust	1	1
10	GM78545	Bracket, Fuel Solenoid	1	1
11	GM78761-1	Screw, Sheetmetal	4	4
12	GM79399	Engine Assy., GM 5.0L Emissions	1	
12	GM96447	Engine Assy., GM 5.0L Emissions		1
13	GM79853	Blanket, Exhaust	1	1
14	GM82797	Valve, Shut Off	2	2
15	K-122	Pipe (1"npt x 2.00")	3	3
16	X-22-26	Washer,lock, .521 ID x 1.24 in. OD	2	2
17	X-25-26	Washer, Plain, .531 ID x 1.062 in. OD	2	2
18	X-75-28	Plug, pipe (1/2"nptf)	2	2
19	X-129-15	Bolt, Hex Cap	2	2
20	X-202-32	Bushing, reducing (1 x 1-1/4"npt)	1	1
21	X-209-2	Pipe (1/2"npt x 1.19")	2	2
22	X-210-8	Pipe (1-1/4"npt x 1.63")	1	1
23	X-215-14	Elbow, pipe (90 deg x 1-1/4"npt)	1	1
24	X-215-15	Elbow, pipe (90 deg x 1"npt)	2	2
25	X-216-22	Coupling, pipe (1-1/4"npsc) straight	1	1
26	X-218-22	Pipe, Nipple (1" NPT x 3.00")	1	1
27	X-468-1	Cable Tie	2	2
28	X-504-20	Fuel line, flexible (1.00" ID x 29")	1	1
29	X-519-20	Plug, Cap	1	1
30	X-545-112	Cable, battery (No.2 x 16") black-	1	1
31	X-545-153	Cable, battery (No.2 x 56") RED+	1	1
32	X-722-8	Clamp, muffler, 1.37 in.	2	2
33	X-6210-5	Nut, flange whiz, 10-24	2	2
34	X-6238-1	Bolt, Hex Cap	6	6
35	X-203-2	Tee, pipe (1 x 1 x 1 npt)	1	1
36	X-218-27	Pipe (1"npt x 8.00")	1	1
37	X-75-13	Plug, pipe (1/2"nptf)	1	1

Group 105: Engine, continued

GM84993-GR1



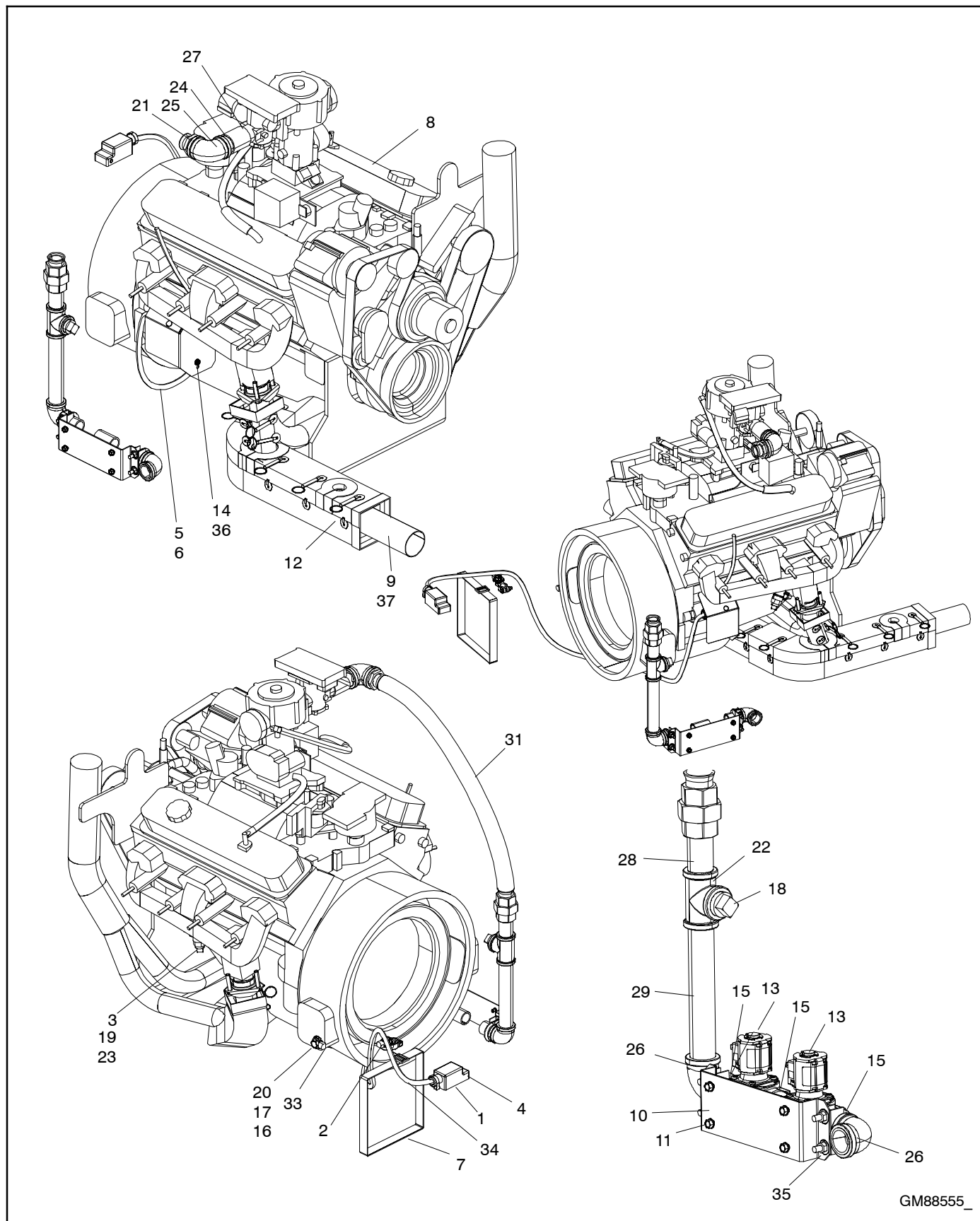
GM84993_B

Group 105: Engine, continued

GM84993-GR1			
Item	Part Number	Description	Quantity
			ModuleNumber -GR1
1	345039	Terminal, battery	1
2	345056	Terminal, battery	1
3	GM19670	Valve, Shutoff (1/2-14npt)	2
4	GM20745	Boot, Battery Lug	1
5	GM21335	Shield, heat (20mm ID x 412mm length)	1
6	GM22350	Boot, Starter Terminal	1
7	GM61432	Strap, Poly Battery	1
8	GM78545	Bracket, Fuel Solenoid	1
9	GM78761-1	Screw, Sheetmetal	4
10	GM82797	Valve, Shut Off	2
11	GM84667	Shield, Heat	1
12	GM85005	Engine Assy GM 4.3L, 12V Nat./LP Gas	1
13	GM85006	Pipe, Exhaust	1
14	GM85107	Blanket, Exhaust	1
15	K-122	Pipe (1" NPT x 2.00")	3
16	X-22-26	Washer, lock, .521 ID x 1.24 in. OD	2
17	X-25-26	Washer, Plain, .531 ID x 1.062 in. OD	2
18	X-75-13	Plug, pipe (1" nptf)	1
19	X-75-28	Plug, pipe (1/2"nptf)	2
20	X-129-15	Bolt, Hex Cap	2
21	X-202-1	Bushing, reducing (3/4 x 1"npt)	1
22	X-203-2	Tee, pipe (1 x 1 x 1 npt)	1
23	X-209-2	Pipe (1/2"npt x 1.19")	2
24	X-215-15	Elbow, pipe (90 deg x 1"npt)	3
25	X-216-12	Coupling, pipe (1"npvc)	1
26	X-218-22	Pipe, Nipple (1" NPT x 3.00")	1
27	X-218-24	Pipe (1"npt x 1.50")	1
28	X-218-27	Pipe (1"npt x 8.00")	1
29	X-468-1	Cable Tie	3
30	X-504-20	Fuel line, flexible (1.00" ID x 29")	1
31	X-519-20	Plug, Cap	1
32	X-545-112	Cable, battery (No.2 x 16") black-	1
33	X-545-153	Cable, battery (No.2 x 56") RED+	1
34	X-722-8	Clamp, muffler	2
35	X-6210-5	Nut, flange whiz, 10-24	2

Group 105: Engine, continued

GM88555-GR1



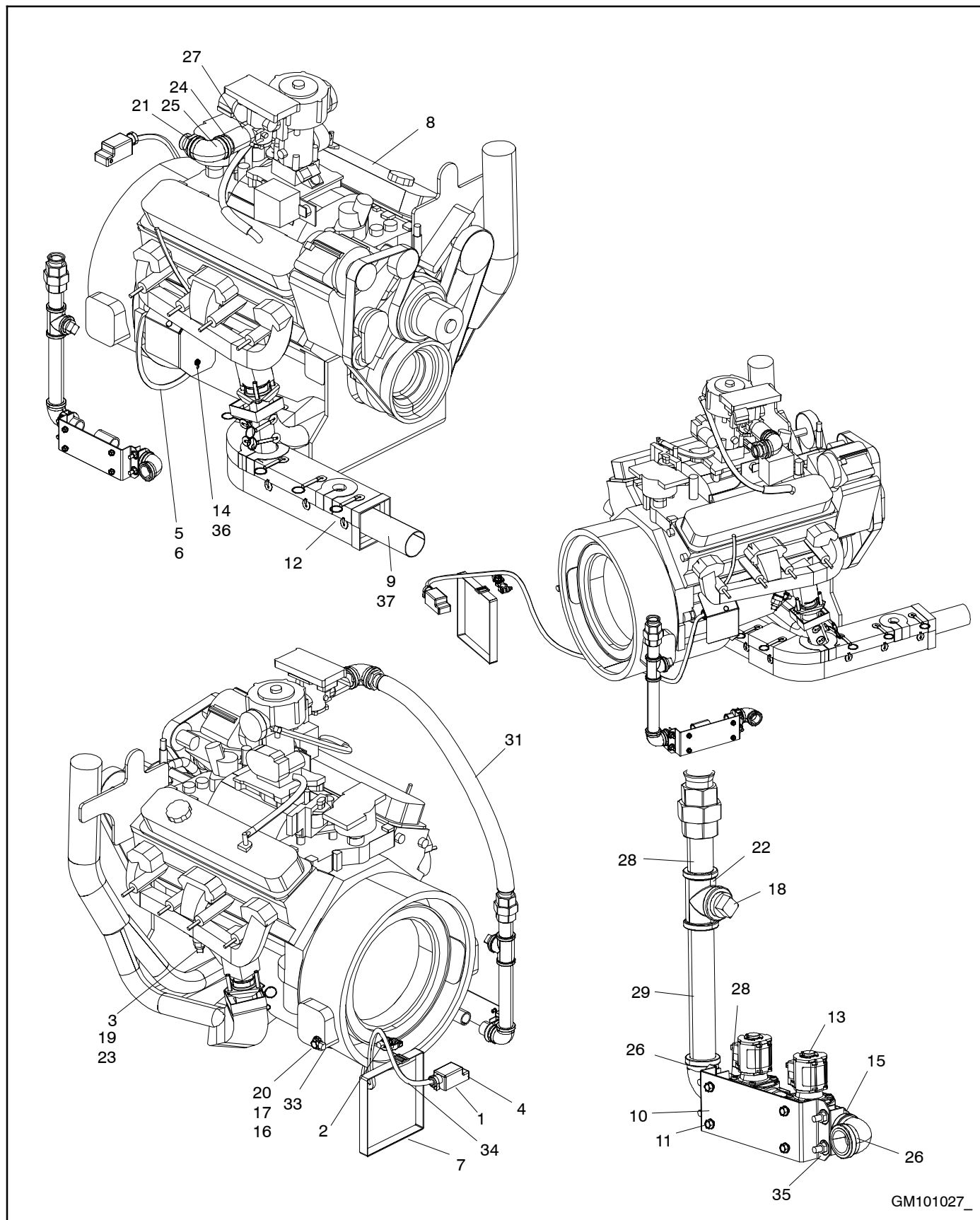
GM88555_

Group 105: Engine, continued

GM88555-GR1			
Item	Part Number	Description	Quantity
			ModuleNumber -GR1
3	GM19670	Valve, Shutoff (1/2-14npt)	2
5	GM21335	Shield, heat (20mm id x 412mm length)	1
7	GM61432	Strap, Poly Battery	1
8	GM88518	Engine Assy, GM, 5.7L 60RCL, 60Hz, 12V	1
9	GM78383	Pipe, Exhaust	1
10	GM78545	Bracket, Fuel Solenoid	1
11	GM78761-1	Screw, Sheetmetal	4
12	GM79853	Blanket, Exhaust	1
13	GM82797	Valve, Shut Off	2
14	GM84667	Shield, Heat	1
15	K-122	Pipe (1"npt x 2.00")	3
16	X-22-26	Washer,lock.521 IDx1.24 in.OD	1
17	X-25-26	Washer, Plain	1
18	X-75-13	Plug, pipe (1" nptf)	1
19	X-75-28	Plug, pipe (1/2"nptf)	2
20	X-129-15	Bolt, Hex Cap (NRP)	1
21	X-202-32	Bushing, reducing (1 x 1-1/4"npt)	1
22	X-203-2	Tee, pipe (1 x 1 x 1 npt)	1
23	X-209-2	Pipe (1/2"npt x 1.19")	2
24	X-210-28	Pipe (1-1/4"npt x 1.63")	1
25	X-215-14	Elbow, pipe (90 deg x 1-1/4"npt)	1
26	X-215-15	Elbow, pipe (90 deg x 1"npt)	2
27	X-216-22	Coupling, pipe (1-1/4"npvc) straight	1
28	X-218-22	Pipe, Nipple (1" NPT x 3.00")	1
29	X-218-27	Pipe (1"npt x 8.00")	1
30	X-468-1	Cable Tie	2
31	X-504-20	Fuel line, flexible (1.00" id * 29")	1
32	X-519-20	Plug, Cap	1
33	X-545-267	Cable, Battery	1
34	X-545-268	Cable, Battery	1
35	X-722-8	Clamp, muffler, 1.37 in.	2
36	X-6210-5	Nut, flange whiz, 10-24	2
37	X-6238-1	Bolt, Hex Cap (nrc)	6

Group 105: Engine, continued

GM101027-GR1



GM101027_

Group 105: Engine, continued

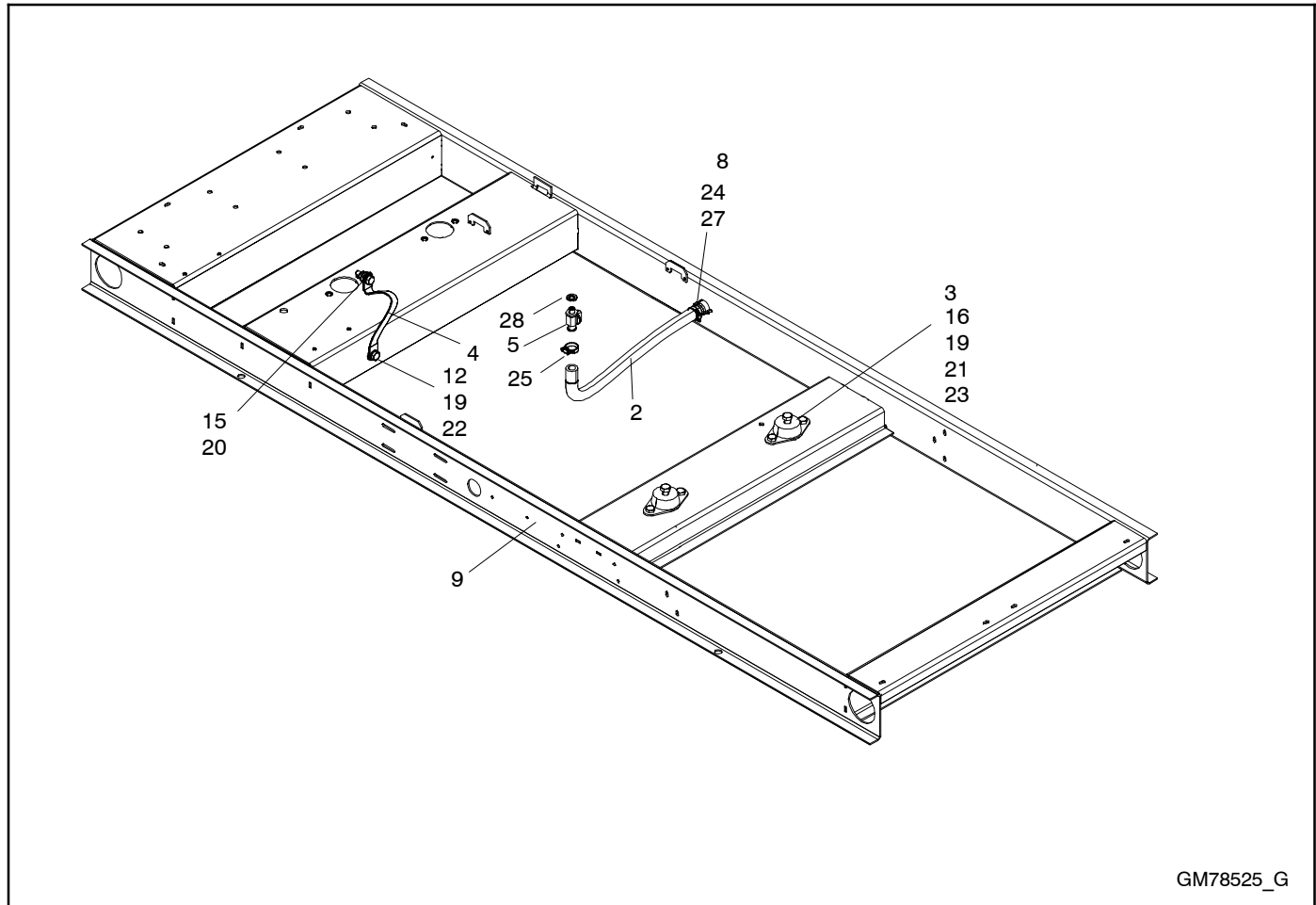
GM101027-GR1			
Item	Part Number	Description	Quantity
			ModuleNumber -GR1
3	GM19670	Valve, Shutoff (1/2-14npt)	2
5	GM21335	Shield, heat (20mm id x 412mm length)	1
7	GM61432	Strap, Poly Battery	1
8	GM88518	Engine Assy, GM, 5.7L 60RCL, 60Hz, 12V	1
9	GM78383	Pipe, Exhaust	1
10	GM78545	Bracket, Fuel Solenoid	1
11	GM78761-1	Screw, Sheetmetal	4
12	GM79853	Blanket, Exhaust	1
13	GM96976	Valve, Dual Solenoid	1
14	GM84667	Shield, Heat	1
15	K-122	Pipe (1"npt x 2.00")	1
16	X-22-26	Washer,lock.521 IDx1.24 in.OD	1
17	X-25-26	Washer, Plain	1
18	X-75-13	Plug, pipe (1" nptf)	1
19	X-75-28	Plug, pipe (1/2"nptf)	2
20	X-129-15	Bolt, Hex Cap (NRP)	1
21	X-202-32	Bushing, reducing (1 x 1-1/4"npt)	1
22	X-203-2	Tee, pipe (1 x 1 x 1 npt)	1
23	X-209-2	Pipe (1/2"npt x 1.19")	2
24	X-210-28	Pipe (1-1/4"npt x 1.63")	1
25	X-215-14	Elbow, pipe (90 deg x 1-1/4"npt)	1
26	X-215-15	Elbow, pipe (90 deg x 1"npt)	2
27	X-216-22	Coupling, pipe (1-1/4"npvc) straight	1
28	X-218-22	Pipe, Nipple (1" NPT x 3.00")	2
29	X-218-27	Pipe (1"npt x 8.00")	1
31	X-504-20	Fuel line, flexible (1.00" id * 29")	1
32	X-519-20	Plug, Cap	1
33	X-545-267	Cable, Battery	1
34	X-545-268	Cable, Battery	1
35	X-722-8	Clamp, muffler, 1.37 in.	2
36	X-6210-5	Nut, flange whiz, 10-24	2
37	X-6238-1	Bolt, Hex Cap (nrc)	6

Group 107: Nameplate and Decals

GM78523-GR1 Not illustrated			
Item	Part Number	Description	Quantity
			ModuleNumber -GR1
1	239789	Decal, notice, neutral bonded to frame	1
2	249808	Decal, warning rotating parts	2
3	249809	Decal, Caution Hot Engine	5
4	249810	Decal, warning hot coolant	1
5	257438	Decal, danger moving rotor	1
6	257441	Decal, warning lifting eye	1
7	258815	Decal, warning voltage backfeed	1
8	273780	Decal, warning explosion	1
9	294520	Decal, danger, high voltage	3
10	GM15299	Decal, Rainproof Enclosure	1
11	GM20577	Decal, Fuel Type	1
12	X-6275-3	Logo, Kohler	3
13	GM81760	Decal, Kohler -RDC2/DC2/VSC	1
14	GM15301	Decal, Power Breaker	1

Group 109: Skid and Mounting

GM78525-GR1

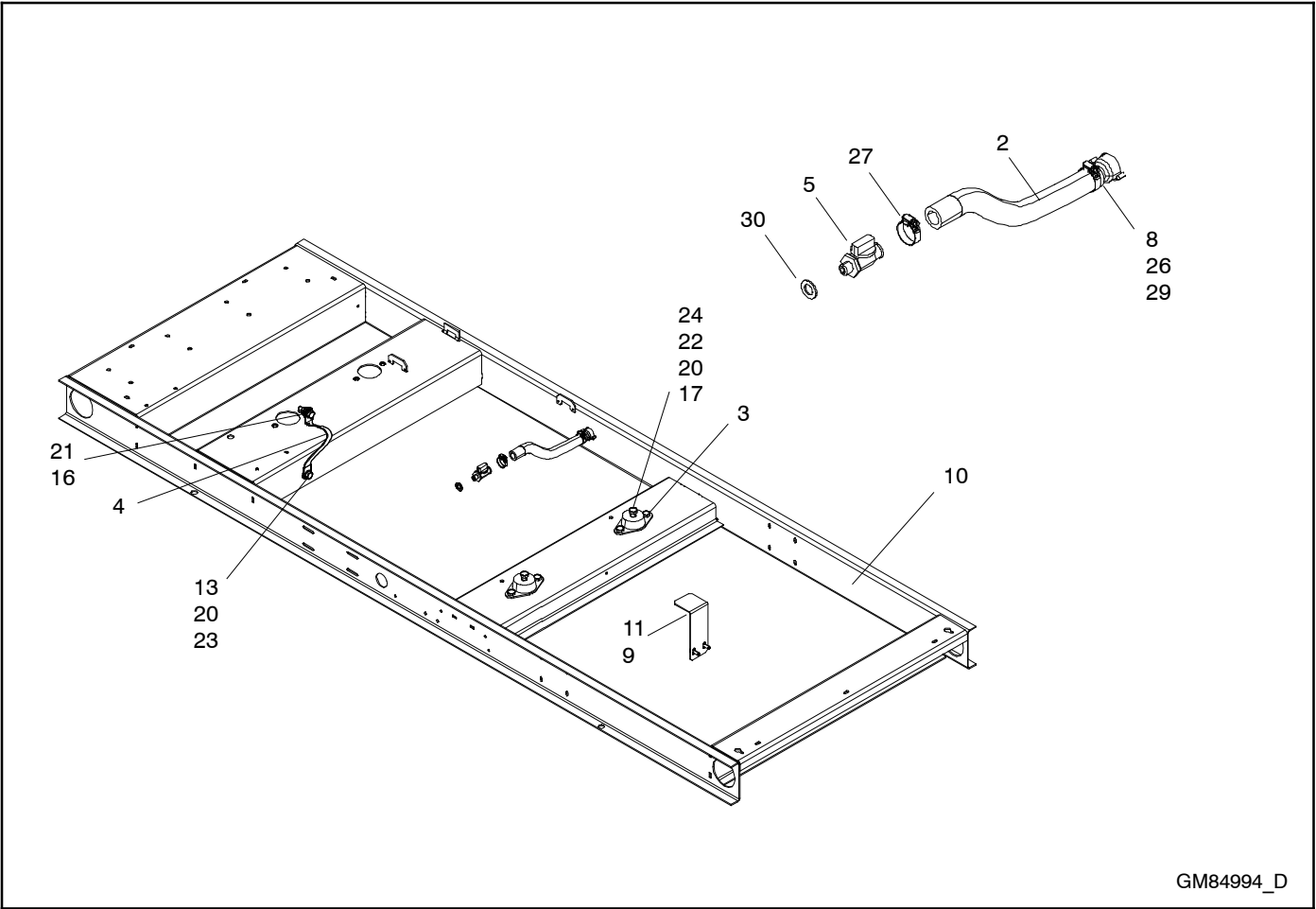


GM78525_G

Item	Part Number	Description	Quantity
			ModuleNumber -GR1
2	X-577-28	Hose, rubber, straight, .62 in. ID	1
3	276476	Vibromount	2
4	290418	Strap, ground (11 in.)	1
5	GM19299	Valve, oil drain (M12 x 1.75)	1
8	GM59015	Fitting, Bulkhead Drain	1
9	GM77957	Skid	1
12	M125A-10-80	Washer, Plain 10.5 ID x 20.0 OD	2
15	M6923-10-80	Nut, Hex 10mm	1
16	M931-12065-60	Screw, Hex Cap	2
19	M933-10020-60	Screw, hex cap	5
20	M933-10035-60	Screw, hex cap	1
21	M982-12-80	Nut, hex elastic stop	2
22	X-22-15	Washer,lock, .456 ID x 1.058 in. OD	2
23	X-25-140	Washer, plain, .531 ID x 2in. OD	2
24	X-75-58	Plug, Pipe	1
25	X-426-10	Clamp, hose, .5/1 in.	2
27	X-781-22	Rivet, Pop	2
28	X-6278-9	Washer, nylon, .48 ID x .825 in. OD	1

Group 109: Skid and Mounting

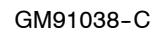
GM84994-GR1



GM84994_D

Item	Part Number	Description	Quantity
			ModuleNumber -GR1
2	X-577-28	Hose, rubber, straight, .62 in. ID	1
3	276476	Vibromount	2
4	290418	Strap, ground (11 in.)	1
5	GM19299	Valve, oil drain (M12 x 1.75)	1
8	GM59015	Fitting, Bulkhead Drain	1
9	GM78761-1	Screw, Sheetmetal	1
10	GM85007	Skid	1
11	GM85102	Bracket, Support	1
13	M125A-10-80	Washer, Plain 8.4 ID x 16.0 OD	2
16	M6923-10-80	Nut, Hex 10mm	1
17	M931-12065-60	Screw, hex cap	2
20	M933-10020-60	Screw, hex cap	5
21	M933-10035-60	Screw, hex cap	1
22	M982-12-80	Nut, hex elastic stop, 12MM	2
23	X-22-15	Washer, lock, .456 ID x 1.058 in. OD	2
24	X-25-140	Washer, plain, .531 ID x 2in. OD	2
26	X-75-58	Plug, Pipe	1
27	X-426-10	Clamp, hose, .5/1 in.	2
29	X-781-22	Rivet, Pop	2
30	X-6278-9	Washer, nylon, .48 ID x .825 in. OD	1

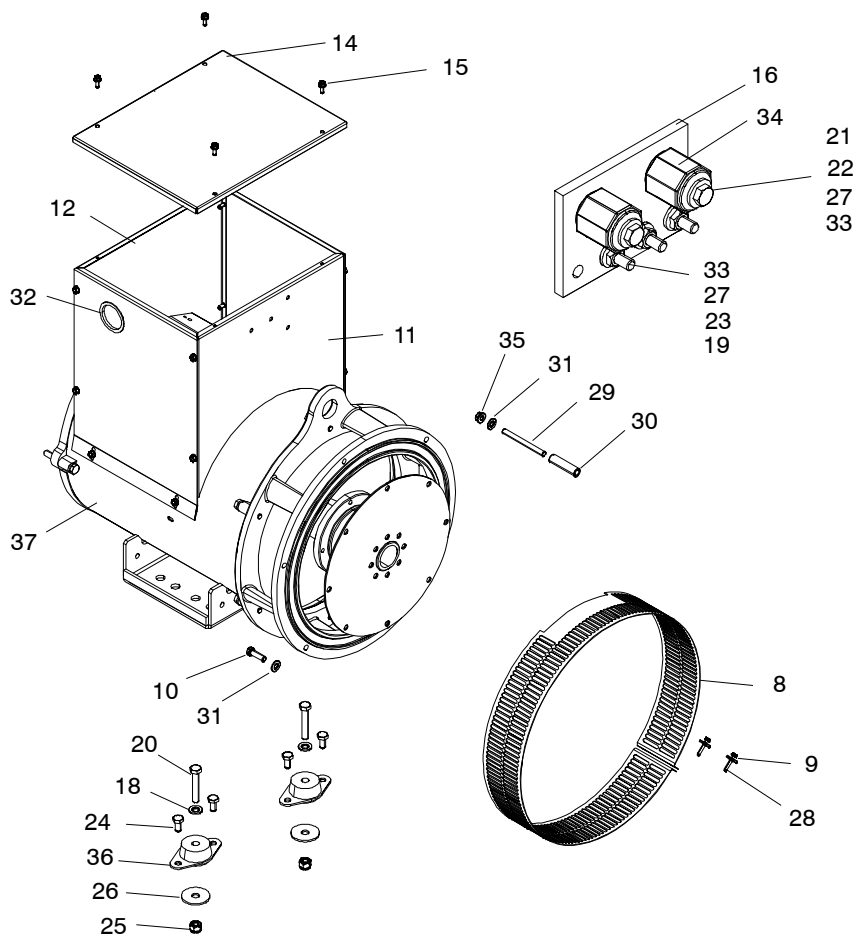
GM91038-GR2

26

Notes

Group 201: Alternator and Mounting

GM78543-MA1



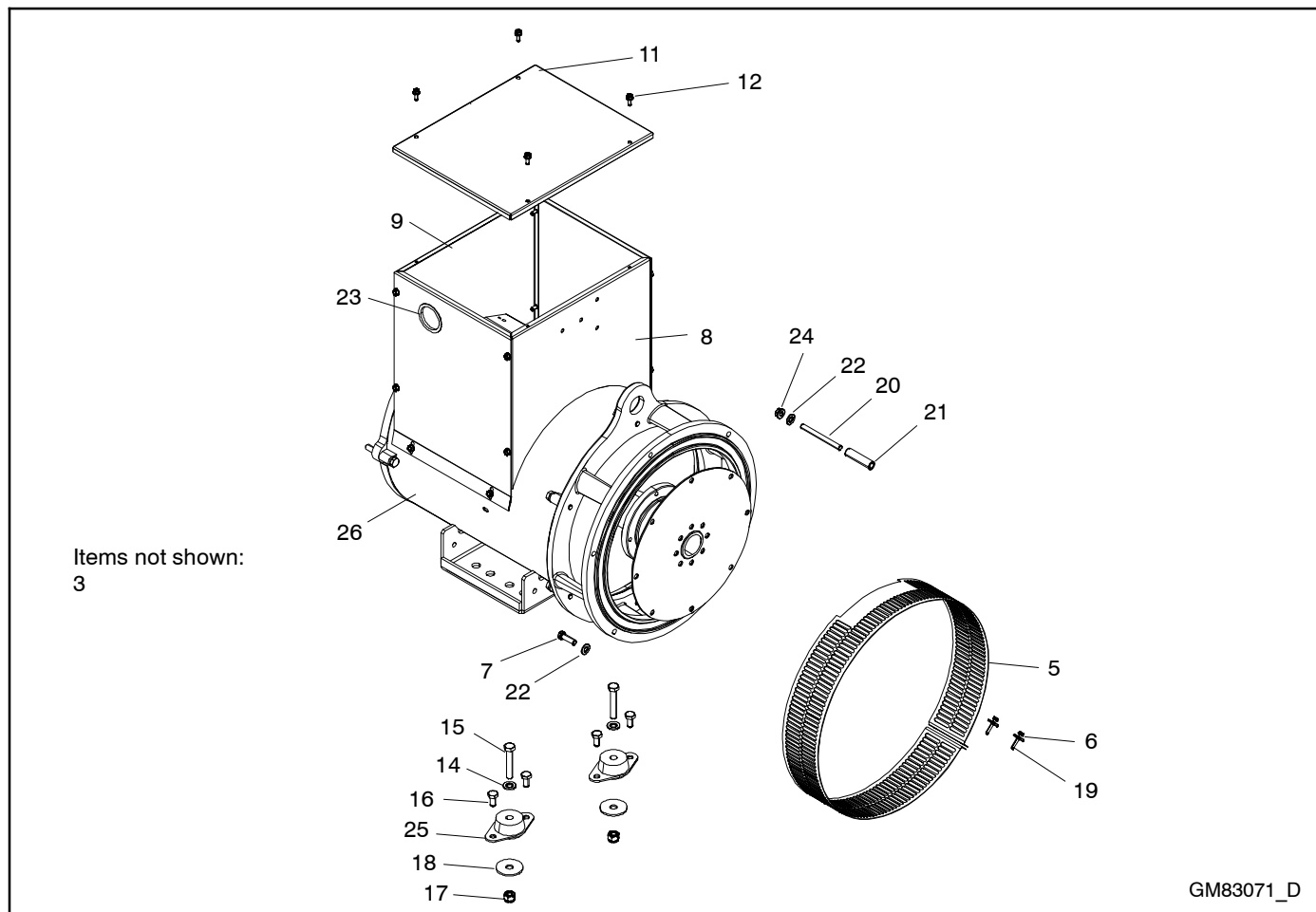
Group 201: Alternator and Mounting

GM78543-MA1			
Item	Part Number	Description	Quantity
			ModuleNumber -MA1
4	X-750-18	Marker, wire	2
5	GM81106	Lead	1
7	229883	Decal, 12 Wire Reconnection	1
8	257046	Guard, generator fan	1
9	257442	Clip, speed	2
10	270956	Bolt, Hex Cap	6
11	GM85522	Panel, Front & Side J-box	1
12	GM85523	Panel, Back & Side J-box	1
14	GM88576	Cover, J-box	1
15	GM78761-1	Screw, Sheetmetal	12
16	GM80901	Bus, Neutral	1
18	M125A-12-80	Washer, Plain	2
19	M6923-06-80	Nut, Hex 6mm	3
20	M931-12065-60	Screw, Hex Cap	2
21	M933-06010-60	Screw, hex cap	2
22	M933-06016-60	Screw, hex cap, M6x16mm, js500 full thrd	2
23	M933-06025-60	Screw, hex cap	3
24	M933-10020-60	Screw, hex cap	4
25	M982-12-80	Nut, hex elastic stop	2
26	X-25-140	Washer, plain, .531 ID x 2in. OD	2
27	X-25-20	Washer, Flat, .312 ID x .75 OD	7
28	X-67-125	Screw, hex washer, thread-forming	2
29	X-352-63	Stud, 3/8-16 x 4 in.	8
30	X-400-132	Spacer, .406 ID x .625 OD x 2.531 in.	8
31	X-801-3	Washer, hardened, .406 ID x .812 in. OD	14
32	X-6033-5	Grommet, U-channel	1
33	X-6086-24	Washer, Spring	5
34	X-6128-35	Insulator, Standoff	2
35	X-6210-9	Nut, flange spiralock, 3/8-16	8
36	324073	Vibromount	2
37	GC70113-20	Alternator Assy, 4P7BX (SAE 10", #3)	1

See page 44 for alternator parts list.

Group 201: Alternator and Mounting, continued

GM83071-MA1



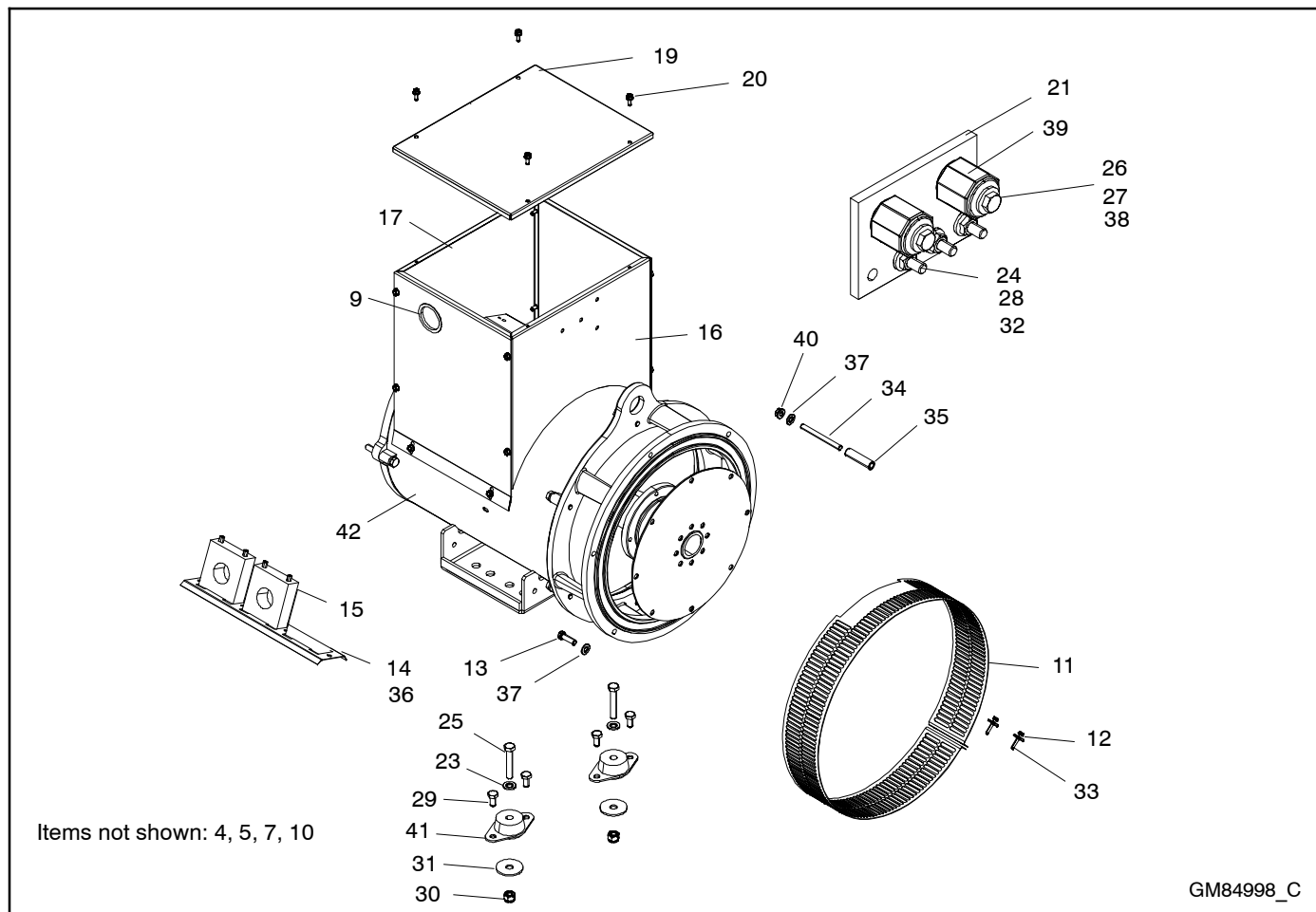
Group 201: Alternator and Mounting, continued

GM83071-MA1			
Item	Part Number	Description	Quantity
			ModuleNumber -MA1
3	X-750-18	Marker, wire	1
5	257046	Guard, generator fan	1
6	257442	Clip, speed	2
7	270956	Bolt, Hex Cap	6
8	GM85522	Panel, Front & Side J-box	1
9	GM85523	Panel, Back & Side J-box	1
11	GM85576	Cover, J-box	1
12	GM78761-1	Screw, Sheetmetal	12
14	M125A-12-80	Washer, Plain	2
15	M931-12065-60	Screw, Hex Cap	2
16	M933-10020-60	Screw, hex cap	4
17	M982-12-80	Nut, hex elastic stop	2
18	X-25-140	Washer, plain, .531 ID x 2in. OD	2
19	X-67-125	Screw, hex washer, thread-forming	2
20	X-352-63	Stud, 3/8-16 x 4 in.	8
21	X-400-132	Spacer, .406 ID x .625 OD x 2.531 in.	8
22	X-801-3	Washer, hardened, .406 ID x .812 in. OD	14
23	X-6033-5	Grommet, U-channel	1
24	X-6210-9	Nut, flange spiralock, 3/8-16	8
25	324073	Vibromount	2
26	GC70113-24	Alternator Assy, 4Q7BX (SAE 10", #3)	1

See page 44 for alternator parts list.

Group 201: Alternator and Mounting, continued

GM84998-MA1



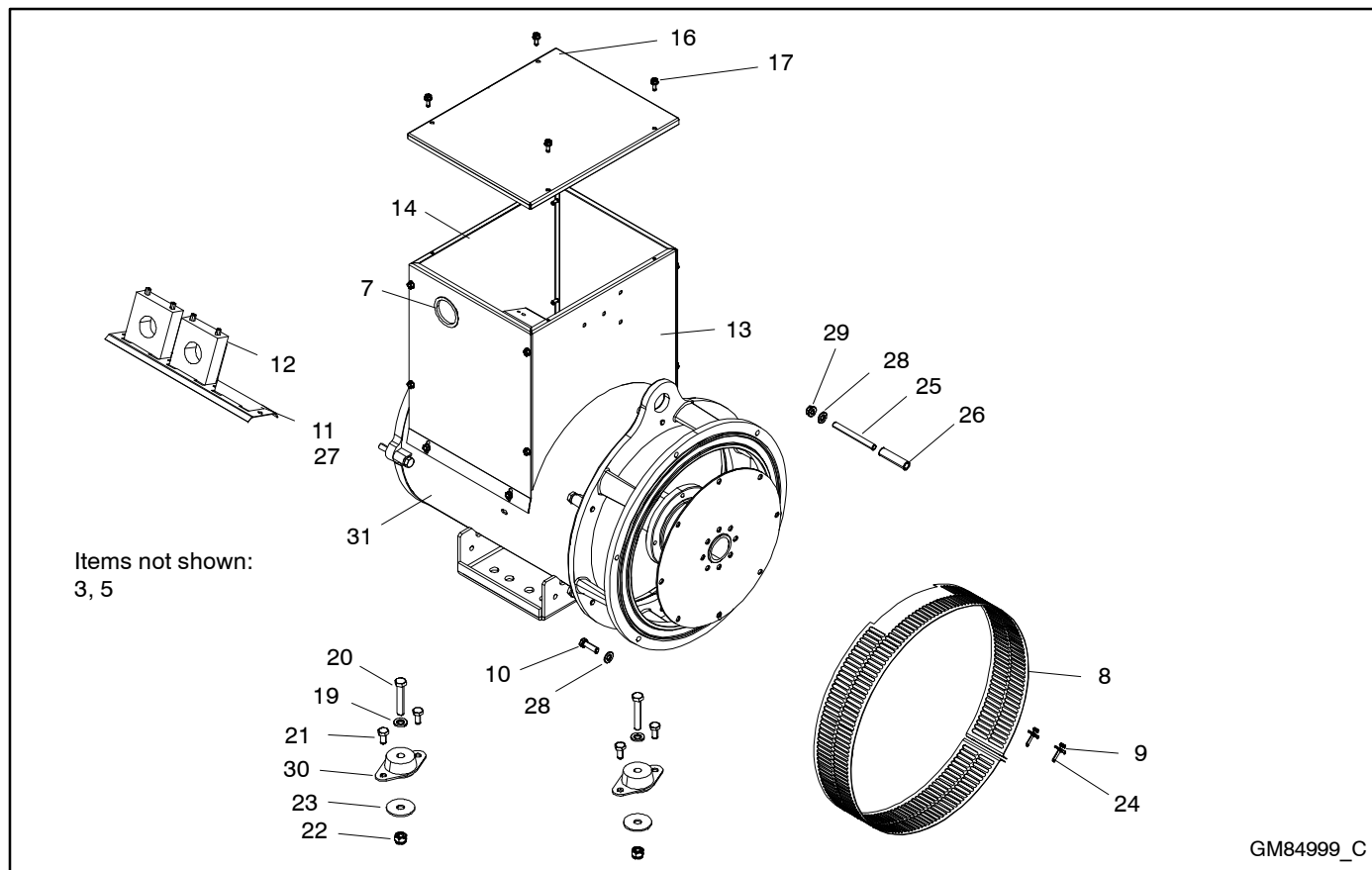
Group 201: Alternator and Mounting, continued

GM84998-MA1			
Item	Part Number	Description	Quantity
			ModuleNumber -MA1
4	X-750-18	Marker, wire	2
5	GM81106	Lead	1
7	GM85198	Harness, Wiring Current Transformer	1
9	X-6033-5	Grommet, U-Channel	1
10	229883	Decal, 12 Wire Reconnection	1
11	257046	Guard, generator fan	1
12	257442	Clip, speed	2
13	270956	Bolt, Hex Cap	6
14	276417	Bracket, CT mounting	1
15	GM16252	Transformer, Current 200A:3 VAC	2
16	GM85522	Panel, Front & Side J-box	1
17	GM85523	Panel, Back & Side J-box	1
19	GM85576	Cover, J-box	1
20	GM78761-1	Screw, Sheetmetal	12
21	GM80901	Bus, Neutral	1
23	M125A-12-80	Washer, Plain	2
24	M6923-06-80	Nut, Hex 6mm	3
25	M931-12065-60	Screw, Hex Cap	2
26	M933-06010-60	Screw, hex cap	2
27	M933-06016-60	Screw, hex cap, M6x16mm, js500 full thrd	2
28	M933-06025-60	Screw, hex cap	3
29	M933-10020-60	Screw, hex cap	4
30	M982-12-80	Nut, hex elastic stop	2
31	X-25-140	Washer, plain, .531 ID x 2 in. OD	2
32	X-25-40	Washer, plain, .281 ID x .625 in.OD	7
33	X-67-125	Screw, hex washer, thread-forming	2
34	X-352-63	Stud, 3/8-16 x 4 in.	8
35	X-400-132	Spacer, .406 ID x .625 OD x 2.531 in.	8
36	X-794-1	Screw, hex wshr hd, drill 1/4-14 x 5/8	4
37	X-801-3	Washer, hardened, .406 ID x .812 in. OD	14
38	X-6086-24	Washer, Spring	5
39	X-6128-35	Insulator, Standoff	2
40	X-6210-9	Nut, flange spiralock, 3/8-16	8
41	324073	Vibromount	2
42	GCC-257719	Alternator Assembly	1

See page 46 for alternator parts list.

Group 201: Alternator and Mounting, continued

GM84999-MA1



GM84999_C

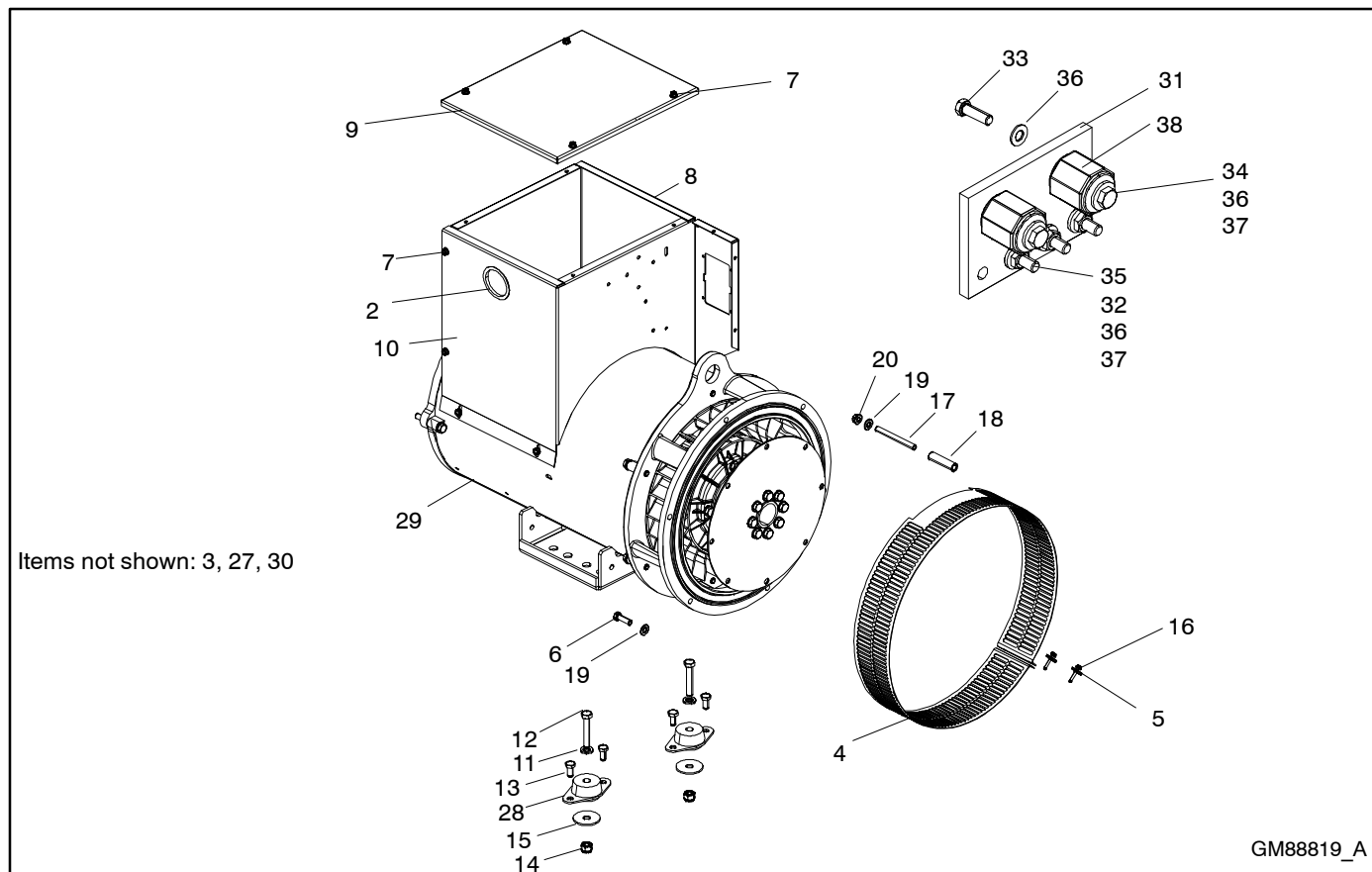
Group 201: Alternator and Mounting, continued

GM84999-MA1			
Item	Part Number	Description	Quantity
			ModuleNumber -MA1
3	X-750-18	Marker, wire	2
5	GM85198	Harness, Wiring Current Transformer	1
7	X-6033-5	Grommet, U-channel	1
8	257046	Guard, generator fan	1
9	257442	Clip, speed	2
10	270956	Bolt, Hex Cap	6
11	276417	Bracket, CT mounting	1
12	GM16252	Transformer, Current 200A:3 VAC	2
13	GM85522	Panel, Front & Side J-box	1
14	GM85523	Panel, Back & Side J-box	1
16	GM85576	Cover, J-box	1
17	GM78761-1	Screw, Sheetmetal	12
19	M125A-12-80	Washer, Plain	2
20	M931-12065-60	Screw, hex cap	2
21	M933-10020-60	Screw, hex cap	4
22	M982-12-80	Nut, hex elastic stop, 12MM	2
23	X-25-140	Washer, plain, .531 ID x 2 in. OD	2
24	X-67-125	Screw, hex washer, thread-forming	2
25	X-352-63	Stud, 3/8-16 x 4 in.	8
26	X-400-132	Spacer, .406 ID x .625 OD x 2.531 in.	8
27	X-794-1	Screw, hex wshr hd, drill 1/4-14 x 5/8	4
28	X-801-3	Washer, hardened, .406 ID x .812 in. OD	14
29	X-6210-9	Nut, flange spiralock, 3/8-16	8
30	324073	Vibromount	2
31	GCB-360736	Alternator Assembly	1

See page 46 for alternator parts list.

Group 201: Alternator and Mounting, continued

GM88819-MA1



Group 201: Alternator and Mounting, continued

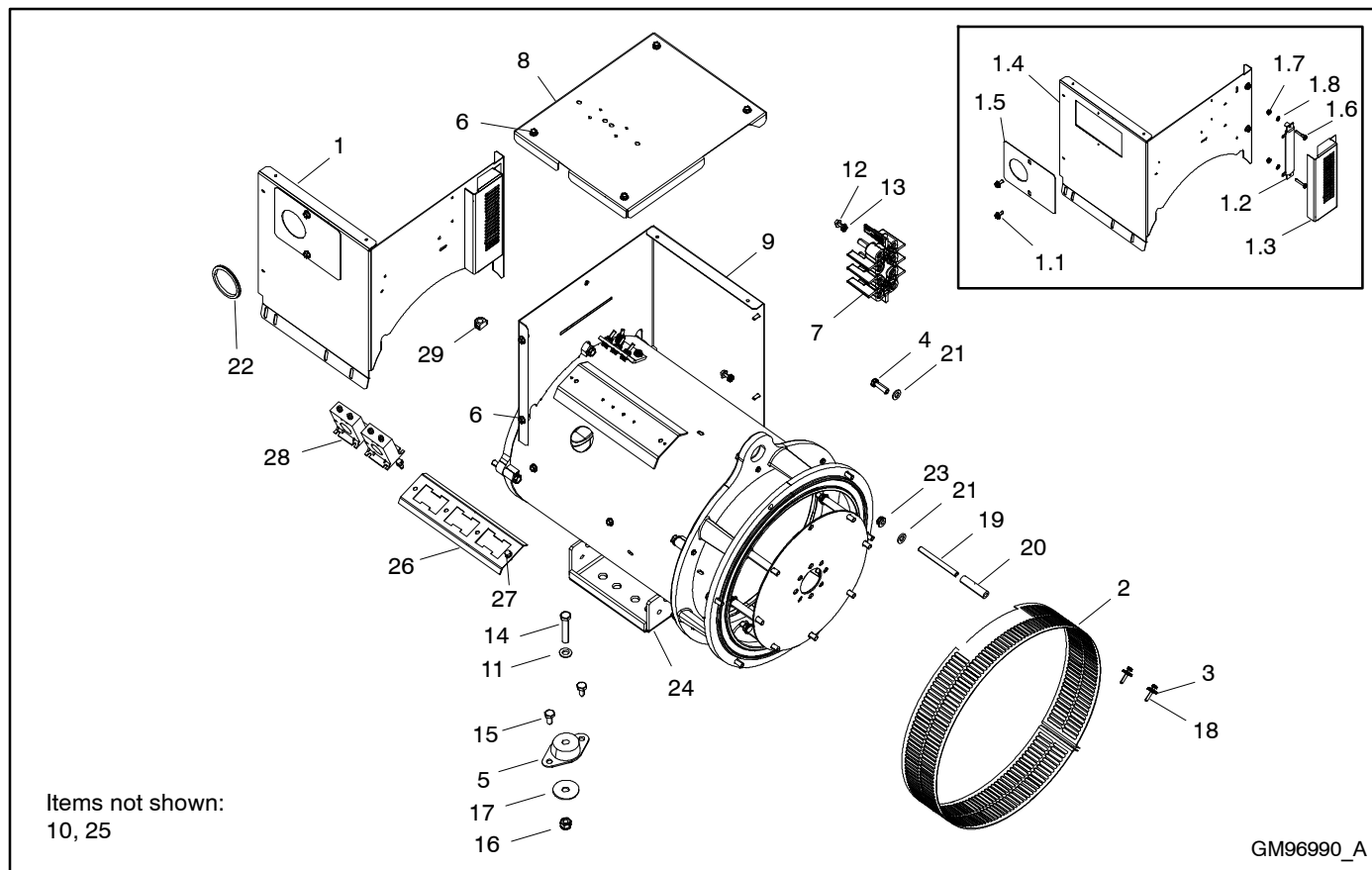
GM88819-

Item	Part Number	Description	Quantity	
			ModuleNumber	
			-MA1	-MA2
2	X-6033-5	Grommet, u-channel	1	1
3	X-750-18	Marker, wire	2	2
4	257046	Guard, Generator Fan	1	1
5	257442	Clip, speed	2	2
6	270956	Bolt, Hex Cap	6	6
7	GM78761-1	Screw, Sheetmetal	12	12
8	GM85523	Panel, back & side J-box	1	1
9	GM85576	Cover, J-box	1	1
10	GM88986	Panel, Front & Side J-Box	1	1
11	M125A-12-80	Washer, Plain	2	2
12	M931-12065-60	Screw, Hex Cap	2	2
13	M933-10020-60	Screw, Hex Cap	4	4
14	M982-12-80	Nut, hex elastic stop	2	2
15	X-25-140	Washer,plain,.531 IDx2in.OD	2	2
16	X-67-125	Screw, hex washer, thread-forming	2	2
17	X-352-63	Stud, 3/8-16 x 4 in.	8	8
18	X-400-132	Spacer,.406 ID x .625 OD x 2.531 in.	8	8
19	X-801-3	Washer,hardened,.406 ID x .812 in.OD	14	14
20	X-6210-9	Nut, flange spiralock, 3/8-16	8	8
27	GM81106	Lead	1	
28	324073	Vibromount	2	2
29	GC70113-32	Alternator Assy, 4P10X (SAE 10", #3)	1	
29	GC70113-38	Alternator Assy, 4Q10X (SAE 10", #3)		1
30	229883	Decal, 12 Wire Reconnection	1	
31	GM80901	Bus, Neutral	1	
32	M6923-06-80	Nut, Hex 6mm	3	
33	M933-06010-60	Screw, hex cap	2	
34	M933-06016-60	Screw, hex cap, M6x16mm, js500 full thrd	2	
35	M933-06025-60	Screw, Hex Cap (Expense)	3	
36	X-25-40	Washer, plain, .281 ID x .625 in.OD	7	
37	X-6086-24	Washer, Spring	5	
38	X-6128-35	Insulator, Standoff	2	

See page 44 for alternator parts list.

Group 201: Alternator and Mounting, continued

GM96990



Group 201: Alternator and Mounting, continued

GM96990-

Item	Part No.	Description	Qty.
1	GM96989	Subassy, Saddle Box	1
1.1	GM78761-1	Screw, Sheetmetal	4
1.2	GM83895	Resistor	1
1.3	GM92902	Guard, Resistor	1
1.4	GM96986	Panel, Side	1
1.5	GM96987	Panel, Harness	1
1.6	M7985A-05030-20	Screw, Pan Head Machine	2
1.7	M934-05-50	Nut, Hex 5mm (NRP)	2
1.8	X-22-11	Lock .262 ID x .469 OD (KM)	2
2	257046	Guard, Generator Fan	1
3	257442	Clip, speed	2
4	270956	Bolt, Hex Cap	6
5	324073	Vibromount	2
6	GM78761-1	Screw, Sheetmetal	10
7	GM90316	Terminal Block	1
8	GM96342	Cover, Saddle Box	1
9	GM96988	Panel, Side	1
10	229883	Decal, 12 Wire Reconnection (not shown)	1
11	M125A-12-80	Washer, Plain	2
12	M6921-06020-SS	Screw, Hex Flange (M6-1.0 x 20mm)	2
13	M6923-06-80	Nut, Hex 6mm	2
14	M931-12065-60	Screw, Hex Cap	2
15	M933-10020-60	Screw, Hex Cap	4
16	M982-12-80	Nut, hex elastic stop	2
17	X-25-140	Washer, plain, .531 IDx2in.OD	2
18	X-67-125	Screw, hex washer, thread-forming	2
19	X-352-63	Stud, 3/8-16 x 4 in.	8
20	X-400-132	Spacer, .406 ID x .625 OD x 2.531 in.	8
21	X-801-3	Washer, hardened, .406 ID x .812 in.OD	14
22	X-6033-5	Grommet, u-channel	1
23	X-6210-9	Nut, Flange Spiralock, 3/8-16	8
24	See chart	Alternator Assembly	1
25	GM85198	Harness, Wiring Current Transformer (not shown)	1
26	276417	Bracket, CT mounting	1
27	X-794-1	Screw, hex wshr hd, drill 1/4-14 x 5/8	4
28	GM16252	Transformer, Current 200A:3 VAC	2
29	See chart	Grommet, u-shaped	1

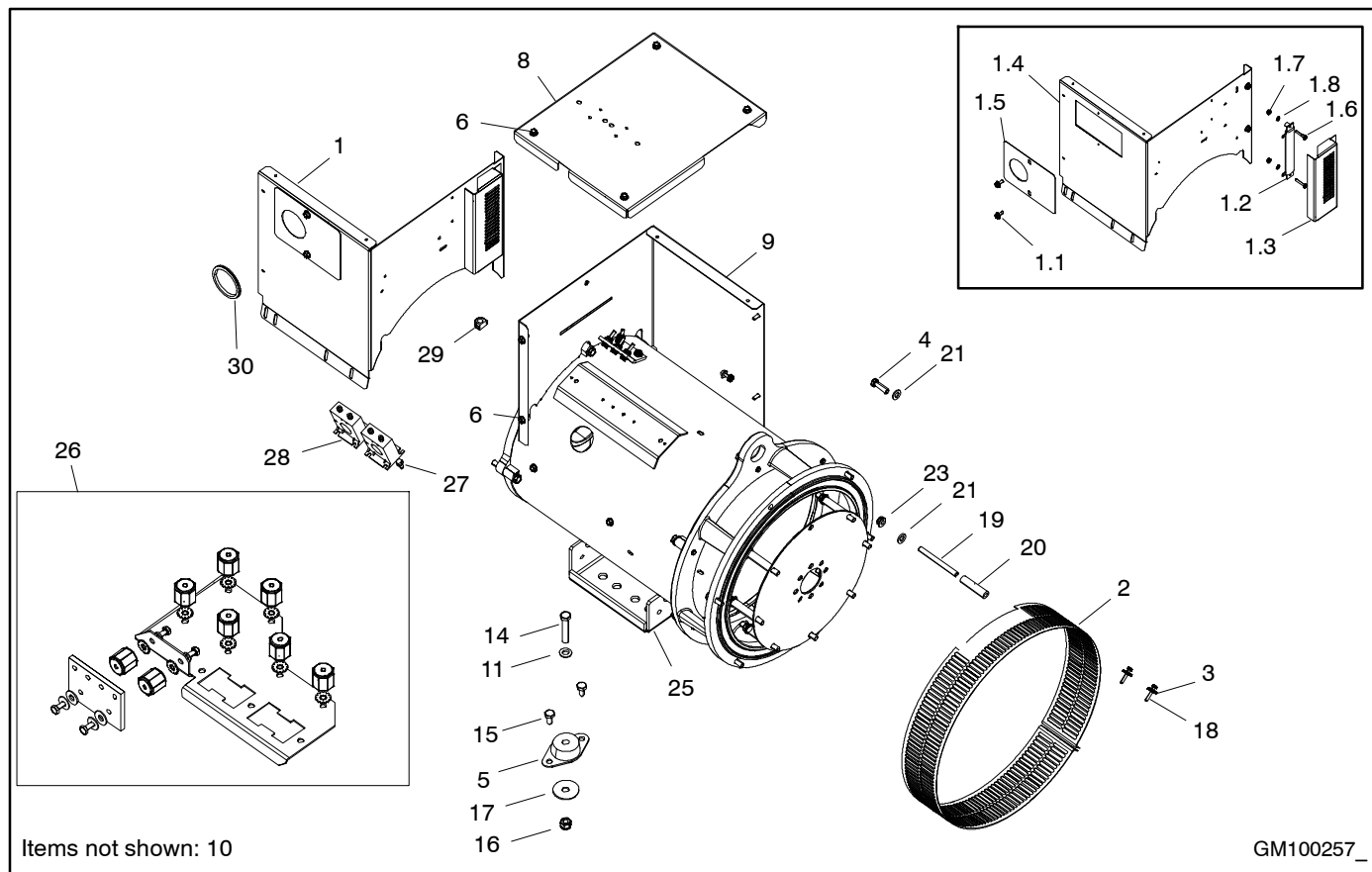
Use this table to identify part numbers of items 1, 3-5.

Module No.	Model	Part Number	
		Item 24, Alternator	Item 29, Grommet
GM96990-MA1	60RCL	GC70113-32	-
GM96990-MA2	60RCL, 1Ph	GC70113-38	-
GM96990-MA3	48RCL	GC70113-20	-
GM96990-MA4	48RCL, 1Ph	GC70113-24	-
GM96990-MA5	4P7BX	GC70113-20	-
GM96990-MA6	4Q7BX	GC70113-24	-
GM96990-MA7	38RCL, 1Ph	GCB-360736	257069
GM96990-MA8	38RCL,	GCC-257719	257069

See page 44 for alternator parts list.

Group 201: Alternator and Mounting, continued

GM100257



Group 201: Alternator and Mounting, continued

GM100257-

Item	Part No.	Description	Qty.
1	GM96989	Subassy, Saddle Box	1
1.1	GM78761-1	Screw, Sheetmetal	4
1.2	GM83895	Resistor	1
1.3	GM92902	Guard, Resistor	1
1.4	GM96986	Panel, Side	1
1.5	GM96987	Panel, Harness	1
1.6	M7985A-05030-20	Screw, Pan Head Machine	2
1.7	M934-05-50	Nut, Hex 5mm (NRP)	2
1.8	X-22-11	Lock .262 ID x .469 OD (KM)	2
2	257046	Guard, Generator Fan	1
3	257442	Clip, speed	2
4	270956	Bolt, Hex Cap	6
5	324073	Vibromount	2
6	GM78761-1	Screw, Sheetmetal	12
8	GM96342	Cover, Saddle Box	1
9	GM96988	Panel, Side	1
10	229883	Decal, 12 Wire Reconnection (not shown)	1
11	M125A-12-80	Washer, Plain	2
14	M931-12065-60	Screw, Hex Cap	2
15	M933-10020-60	Screw, Hex Cap	4
16	M982-12-80	Nut, hex elastic stop	2
17	X-25-140	Washer,plain,.531 IDx2in.OD	2
18	X-67-125	Screw, hex washer, thread-forming	2
19	X-352-63	Stud, 3/8-16 x 4 in.	8
20	X-400-132	Spacer,.406 ID x .625 OD x 2.531 in.	8
21	X-801-3	Washer,hardened,.406 ID x .812 in.OD	14
22	X-6033-5	Grommet, u-channel	1
23	X-6210-9	Nut, Flange Spiralock, 3/8-16	8
25	See chart	Alternator Assembly	1
26	See chart	Bracket Assy, CT mounting	1
27	X-794-1	Screw, hex wshr hd, drill 1/4-14 x 5/8	4
28	GM16252	Transformer, Current 200A:3 VAC	2
29	GM85198	Harness, Wiring Current Transformer (not shown)	1
30	See chart	Grommet, u-shaped	1

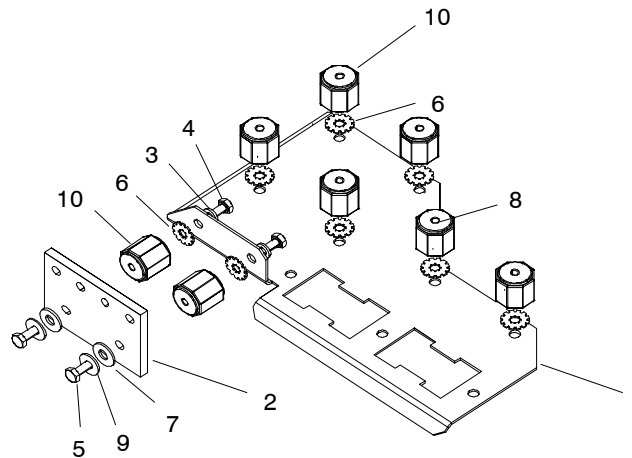
Use this table to identify part numbers of items 1, 3-5.

Module No.	Model	Part Number		
		Item 25, Alternator	Item 26, CT Bracket	Item 30, Grommet
GM100257-MA1	4P10X	GC70113-32	GM100253	-
GM100257-MA2	4Q10X	GC70113-38	GM100254	-
GM100257-MA3	4P7BX	GC70113-20	GM100253	-
GM100257-MA4	4Q7BX	GC70113-24	GM100254	-
GM100257-MA5	4P7BX	GC70113-20	GM100253	-
GM100257-MA6	4Q7BX	GC70113-24	GM100254	-
GM100257-MA7	4Q5	GCB-360736	GM100254	257069
GM100257-MA8	4P5	GCC-257719	GM100255	257069

See page 44 for alternator parts list.

Group 201: Alternator and Mounting, continued

CT Mounting Bracket Assy.



GM100253_

GM100253

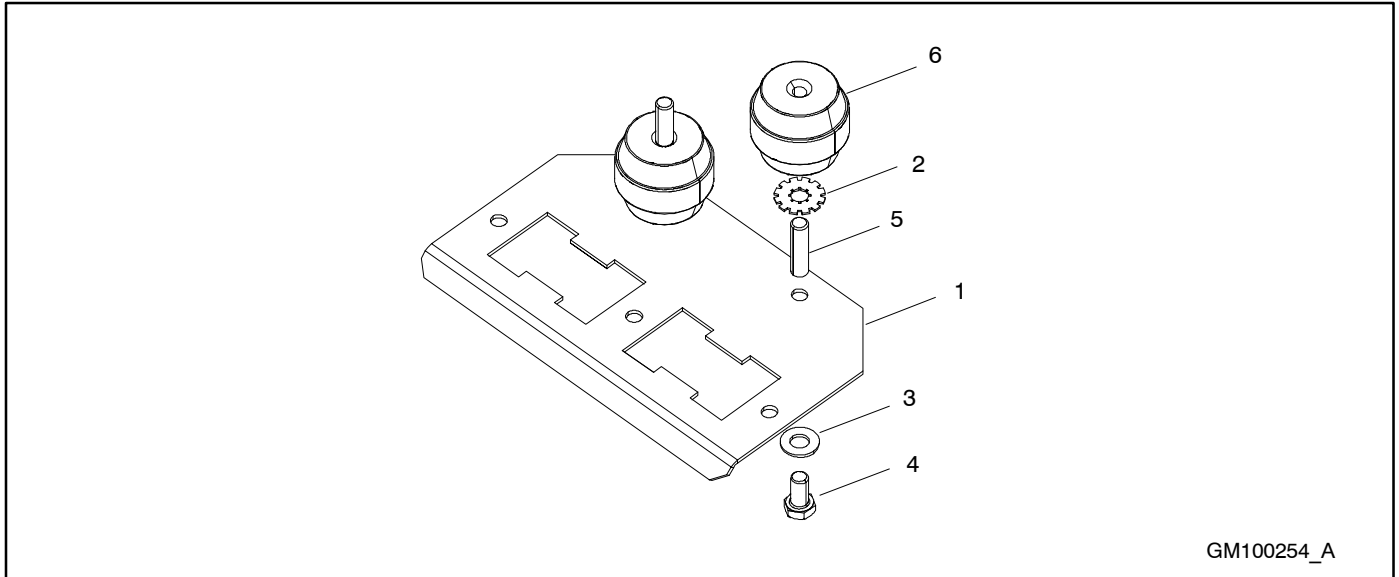
Item	Part No.	Description	Qty.
1	GM100179	Bracket, CT Mounting	1
2	GM80901	Bus, Neutral	1
3	M125A-06-80	Washer, Plain	8
4	M933-06012-60	Screw	8
5	M933-06016-60	Screw, hex cap, M6x16mm	2
6	X-22-12	Washer, lock.262 IDx.743 in.OD	8
7	X-25-20	Washer, Flat .312 ID x.75 OD	2
8	X-6054-23	Stud (Metric)	6
9	X-6086-24	Washer, Spring	2
10	X-6128-35	Insulator , Standoff	8

GM100255

Item	Part No.	Description	Qty.
1	GM100180	Bracket, CT Mounting	1
2	GM80901	Bus, Neutral	1
3	M125A-06-80	Washer, Plain	8
4	M933-06012-60	Screw	8
5	M933-06016-60	Screw, hex cap, M6x16mm	2
6	X-22-12	Washer, lock.262 IDx.743 in.OD	8
7	X-25-20	Washer, Flat .312 ID x.75 OD	2
8	X-6054-23	Stud (Metric)	6
9	X-6086-24	Washer, Spring	2
10	X-6128-35	Insulator , Standoff	8

Group 201: Alternator and Mounting, continued

CT Mounting Bracket Assy.

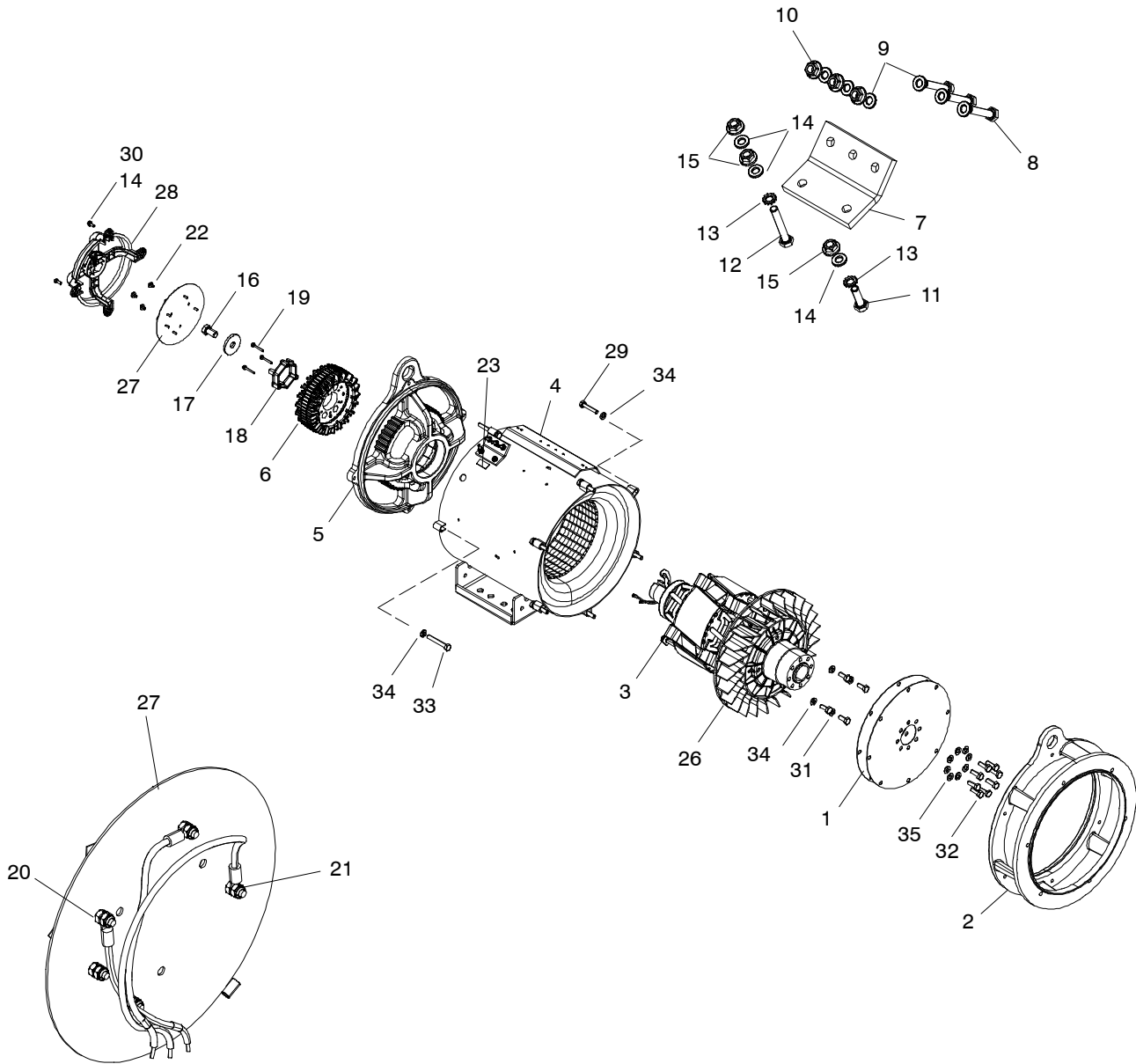


GM100254

Item	Part No.	Description	Qty.
1	GM100275	Bracket, CT Mounting	1
2	X-22-16	Washer, lock.326 IDx.883 in.OD	2
3	X-25-85	Washer, plain, .344 ID x .687 in.OD	2
4	X-125-23	Bolt, Hex Cap	2
5	X-352-37	Stud, 5/16-18 x 1.03 in.	2
6	X-6128-34	Insulator, Standoff	2

Group 201: Alternator and Mounting, continued

4P_X/4Q_X Alternators GC70113-



GC70113

Group 201: Alternator and Mounting, continued

4P_X/4Q_X Alternators GC70113-

Item	Part No.	Description	Qty.
1	See chart	Disc, Drive	2
2	See chart	Adapter, Generator	1
3	See chart	Rotor Assembly	1
4	See chart	Stator Assembly	1
5	See chart	Bracket Assembly, End	1
6	See chart	Exciter Armature, SCR	1
7	See chart	Bus, Ground	1
8	See chart	Screw, Hex Cap	3
9	See chart	Washer, Plain	6
10	See chart	Nut, Hex	3
11	M933-06020-60	Screw, hex cap	1
12	M933-06040-60	Screw, hex cap	1
13	M6797A-06-SS	Washer, Internal & External Tooth	2
14	M125A-06-80	Washer, Plain	7
15	M6923-06-80	Nut, Hex 6mm	3
16	M933-16030-82	Screw, hex cap	1
17	GM70070	Washer, FRX Exciter Mtg	1
18	GM70076	Spacer, FRX Activator	1
19	M7500D-05035-85	Screw, Metric Thread Forming	3
20	M934-04-SS	Nut, Hex (Stainless Steel)	5
21	M985-04-SS	Nut, Hex Elastic Stop	5
22	X-6071-8	Screw, Thread Forming	3
23	344295	Decal, equipment grd	1
26	347697	Fan, Alternator	1
27	GM72391	PCB ASSY, World Alternator Activator	1
28	GM74218	Holder Assy, LED Optic Board	1
29	M931-10050-60	Screw, hex cap	6
30	M933-06016-60	Screw, hex cap, M6x16mm, js500 full thrd	4
31	M933-10025-60	Screw, hex cap, fully thrd M10 x 25mm	4
32	M933-10030-82	Screw, hex cap	8
33	M933-10070-60	Screw, Hex Cap	4
34	X-25-93	Washer, plain .406ID x .75in. OD	14
35	X-801-3	Washer, hardened, .406 ID x .812 in. OD	8

Alternator Part Number and Mount Type

Use this table to identify part numbers of items 1-5.

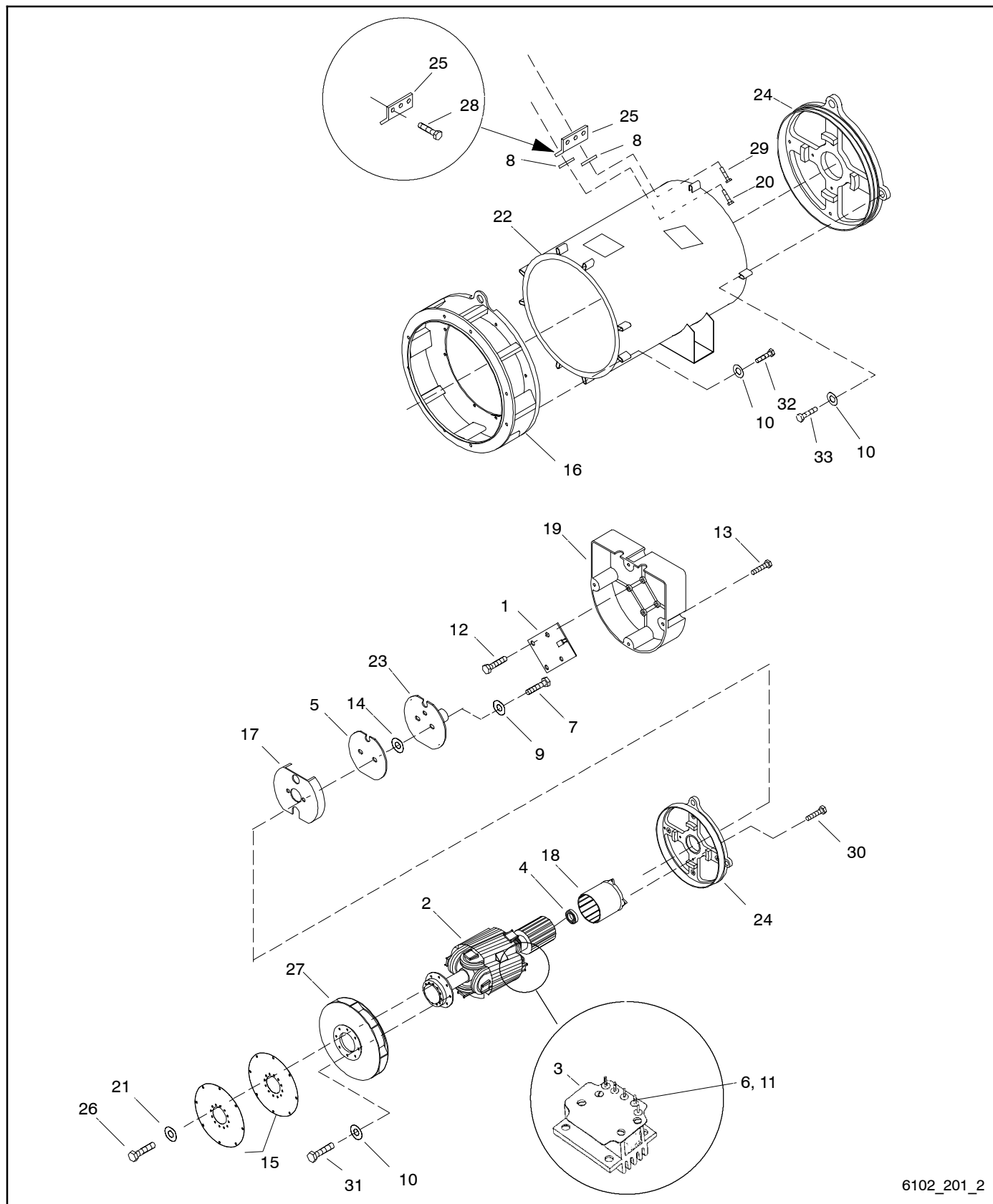
Alternator No.	Assembly				
	Item 1, Drive Disc	Item 2, Adapter	Item 3, Rotor Assy.	Item 4, Stator Assy.	Item 5, End Bracket
GC70113-20	257015	GM32006	GC70100-4	GC70110-4	GM70080-2
GC70113-24	257015	GM32006	GC70100-4	GC70112-4	GM70080-2
GC70113-30	257015	GM32006	GC70100-5	GC70112-5	GM70080-2
GC70113-31	257015	GM32007	GC70100-6	GC70110-6	GM70080-2
GC70113-32	257015	GM32006	GC70100-6	GC70110-6	GM70080-2
GC70113-38	257015	GM32006	GC70100-6	GC70112-6	GM70080-2

Use this table to identify part numbers of items 6-10.

Alternator No.	Assembly				
	Item 6, Exciter	Item 7, Ground Bus	Item 8, Screws	Item 9, Washers	Item 10, Nuts
GC70113-20	GC70064-2	257986	M933-06030-60	M125A-06-80	M6923-06-80
GC70113-24	GC70064-2	257985	M933-08030-60	M125A-08-80	M6923-08-80
GC70113-30	GC70064-2	257985	M933-08030-60	M125A-08-80	M6923-08-80
GC70113-31	GC70064-2	257986	M933-06030-60	M125A-06-80	M6923-06-80
GC70113-32	GC70064-2	257986	M933-06030-60	M125A-06-80	M6923-06-80
GC70113-38	GC70064-2	257985	M933-08030-60	M125A-08-80	M6923-08-80

Group 201: Alternator and Mounting, continued

4P5/4Q5 Alternators



6102_201_2

Group 201: Alternator and Mounting, continued

4P5/4Q5 Alternators

Item	Part No.	Description	Qty.
1	B-257099	PCB Assembly Alternator Optic	1
2	See chart	Rotor assembly	1
3	B-258545	Heatsink	1
4	X-758-2	Bearing, ball	1
5	GM34505	PCB assembly, photo receiver	1
6	X-101-24	Nut, hex elastic stop, 6-32	5
7	X-117-5	Screw, hex head machine	2
8	X-22-44	Washer, lock, 0.262 ID x 0.743 in. OD	2
9	X-22-9	Washer, lock, 0.20 ID x 0.373 in. OD	2
10	X-25-93	Washer, plain, 0.406 ID x 0.75 in. OD	14
11	X-283-7	Terminal, ring, male, 22-16 AWG	4
12	X-6071-1	Screw, Phillips pan head	4
13	X-67-133	Screw, hex washer, thread-forming	3
14	243321	Washer, insulating, 0.195 ID x 0.5 in.	2
15	257015	Lamination, armature drive	2
16	257018	Adapter, generator	1
17	257077	Actuator, magnetic cup	1
18	See chart	Exciter field assembly	1
19	257258	Cover, FR LED circuit board	1
20	X-791-5	Screw, hex head machine	1
21	X-801-3	Washer, hardened, 0.406 ID x 0.812 in.	8
22	See chart	Stator assembly	1
23	257850	Insulator	1
24	257984	End bracket	1
25	257985	Lead connector	1
26	270956	Bolt, Hex Cap	8
27	347697	Fan, alternator	1
28	X-125-24	Bolt, Hex Cap	3
29	X-456-16	Bolt, Hex Cap	1
30	X-125-34	Bolt, Hex Cap	4
31	X-6238-11	Bolt, Hex Cap (3/8-16 x 1") Gr5	4
32	X-6238-6	Bolt, Hex Cap (3/8-16 x 2") Gr5	6
33	273736	Screw, hex head machine, special thread	4

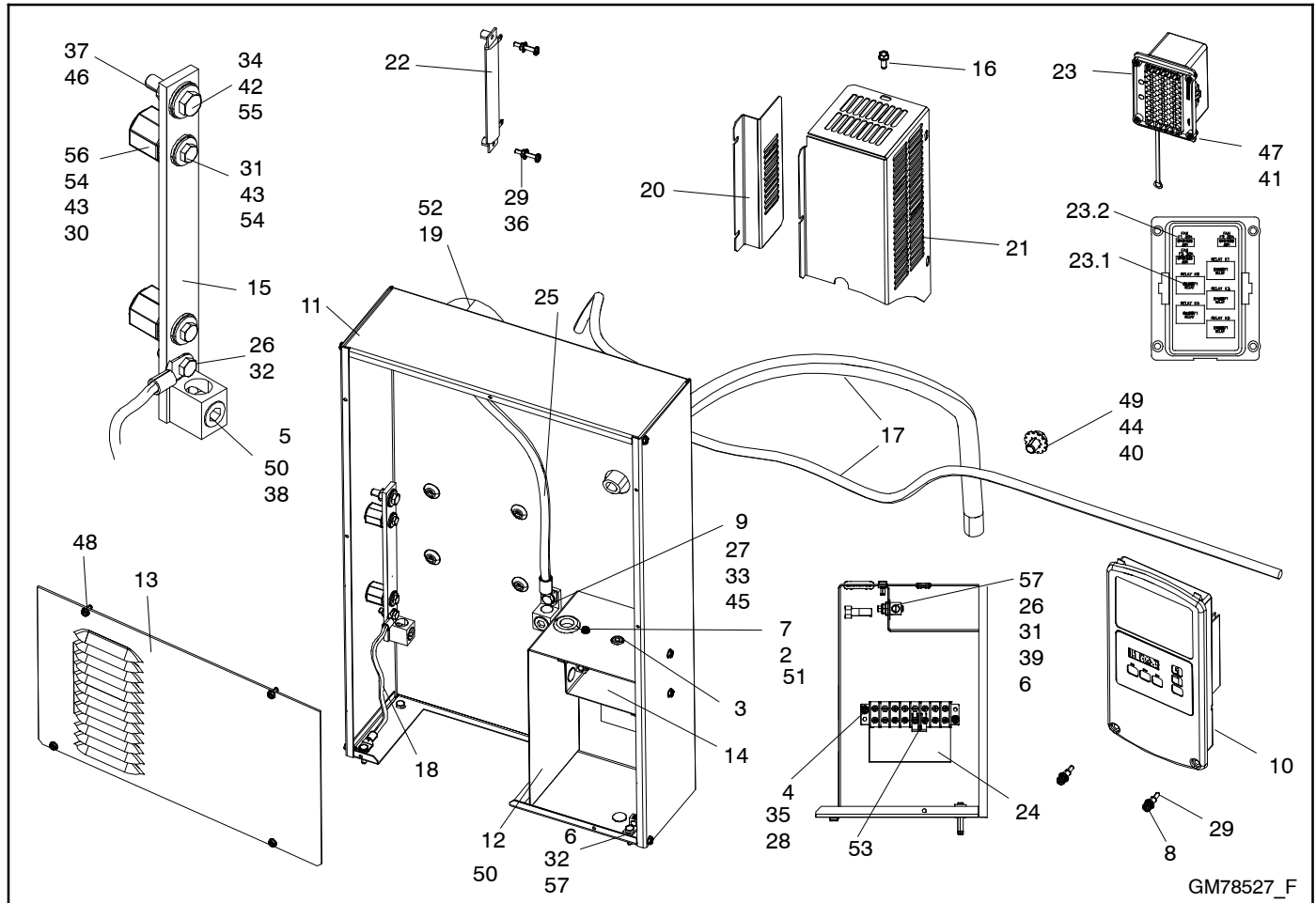
Alternator Part Number and Mount Type

Use this table to identify the module number's alternator, rotor, and stator part numbers.

Assembly			
Alternator	Item 2, Rotor	Item 22, Stator	Item 18, Exciter Field
GCC-257719	GCA-258979	GC257766	GC257080
GCB-360736	GCA-258979	GC360748	GC257080

Group 301: Control and Harness

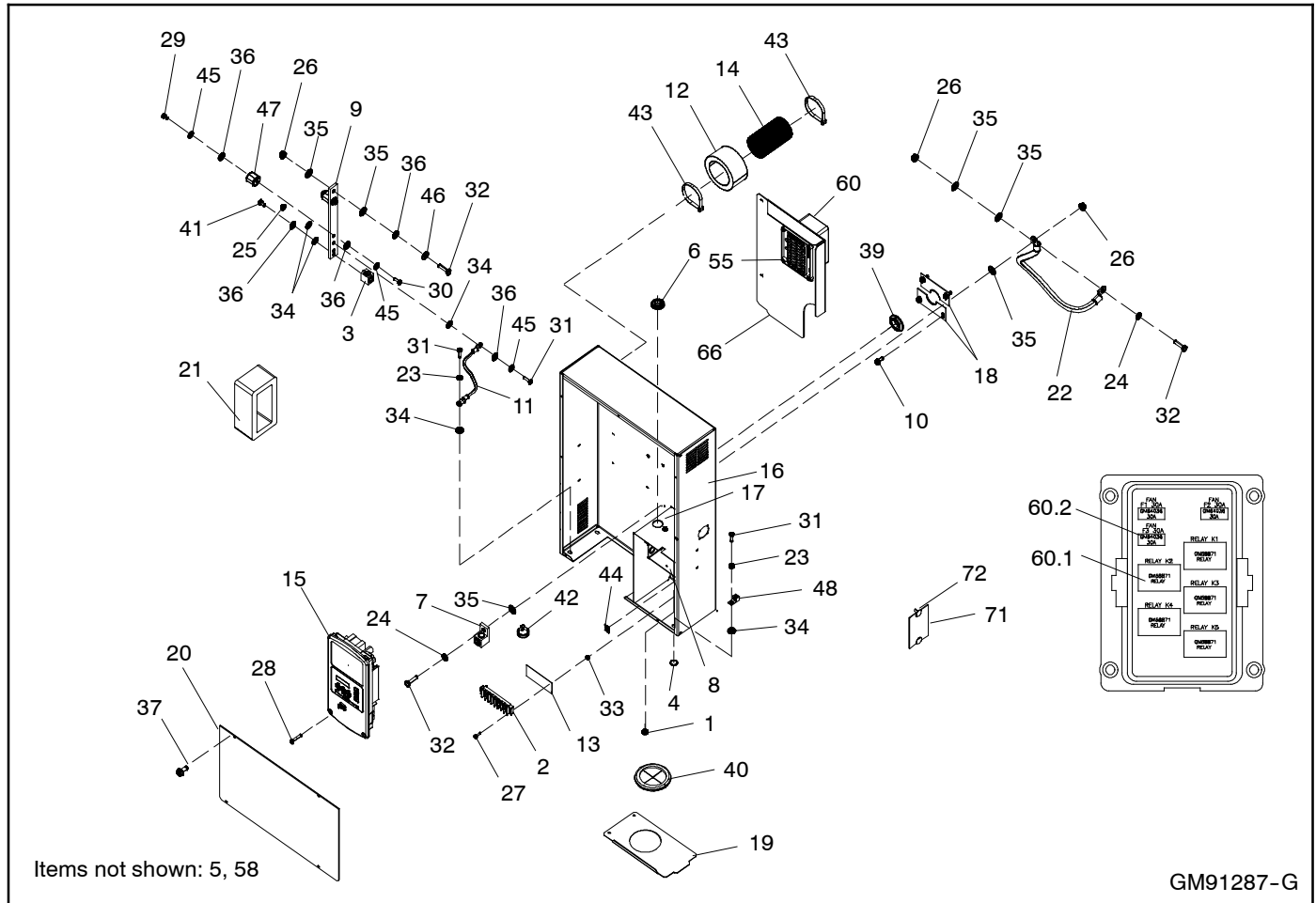
GM78527-



Group 301: Control and Harness

Item	Part Number	Description	GM78527-
			Quantity ModuleNumber -GR1
2	357477	Cable, Patch, 3 Ft. RJ-45	1
3	200705	Grommet, round	1
4	246115	Terminal block	1
5	297712	Lug, terminal	1
6	345211	Decal, ground	3
7	D-1128	Grommet, round	1
8	GM11040-6	Insert, Threaded, M5-0.8	2
9	GM28413	Lug, Terminal	1
10	GM92089	Service Controller, RDC2	1
11	GM78530	Box, Junction	1
12	GM78533	Divider, Junction Box	1
13	GM78534	Plate, Access	1
14	GM78536	Divider, Junction Box	1
15	GM78547	Bus, Neutral	1
16	GM78761-1	Screw	6
17	GM79870	Harness, Engine 48 kW Light Commercial	1
18	GM82875	Lead	1
19	GM82972	Insulation, Acoustic Foam 2"	1
20	GM83893	Cover, Resistor	1
21	GM85577	Cover, Fuse Box	1
22	GM83895	Resistor	1
23	GM83896	Harness, Electric Fans 48RCL	1
23.1	GM58871	Relay	5
23.2	GM64036	Fuse, 30A, 32V. (12V)	3
24	GM84245	Decal	1
25	LK-0624-3636	Lead	1
26	M6923-06-80	Nut, Hex 6mm	2
27	M6923-08-80	Nut, Hex 8mm	1
28	M7985A-04016-20	Screw, Pan Head Machine	2
29	M7985A-05030-20	Screw, Pan Head Machine	4
30	M933-06010-60	Screw, hex cap	2
31	M933-06016-60	Screw, hex cap, M6x16mm, js500 full thrd	3
32	M933-06020-60	Screw, hex cap	5
33	M933-08020-60	Screw, hex cap	1
34	M933-08030-60	Screw, hex cap	1
35	M934-04-50	Nut, Hex 4mm	2
36	M934-05-50	Nut, Hex 5mm	2
37	M934-08-60	Nut, Hex	1
38	X-22-11	Washer, Lock, .262 ID x .469 OD	3
39	X-22-12	Washer, lock, .262 ID x .743 in. OD	2
40	X-22-26	Washer, lock, .521 ID x 1.24 in. OD	1
41	X-22-9	Washer, lock, .20 ID x.373 in. OD	4
42	X-25-18	Washer, Flat, .391 ID x.875 in. OD	1
43	X-25-20	Washer, Flat, .312 ID x.75 OD	5
44	X-25-26	Washer, Plain, .531 ID x 1.062 in. OD	1
45	X-25-40	Washer, plain, .281 ID x .625 in. OD	1
46	X-25-85	Washer, plain, .344 ID x .687 in. OD	1
47	X-50-1	Screw, Machine	4
48	X-67-156	Screw, Tapping	12
49	X-129-15	Bolt, Hex Cap	1
50	X-465-6	Bolt, Hex Cap (1/4-20 x 1/2") Gr5	1
51	X-468-1	Cable Tie	1
52	GM85171-1	Conduit, Convoluted	1
52	X-6033-5	Grommet, U-channel	1
53	X-6048-2	Jumper, term block 2 pos	1
54	X-6086-24	Washer, Spring	5
55	X-6086-25	Washer, Spring	1
56	X-6128-35	Insulator, Standoff	2
57	X-6207-1	Lug, terminal, aluminum	2
58	GM94607	Decal, Warning (not shown)	2

GM91287-GR5



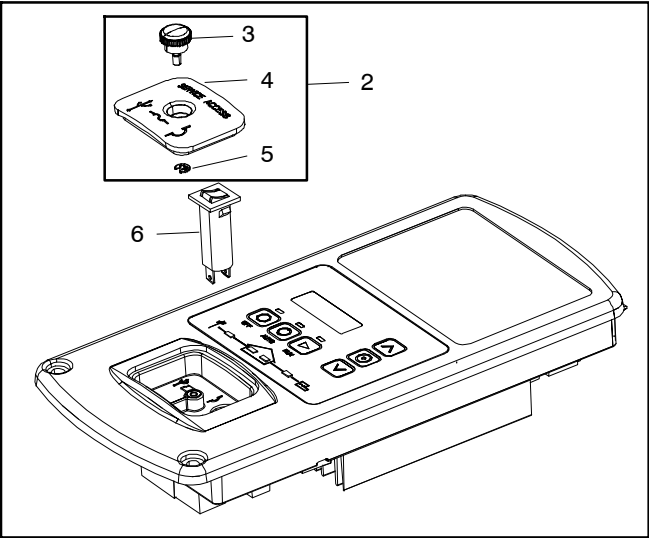
Group 301: Control and Harness, continued

GM91287-GR5

Item	Part Number	Description	Quantity
1	200705	Grommet, round	1
2	246115	Terminal block	1
3	297712	Lug, terminal	1
4	345211	Decal, ground	3
5	357477	Cable, Patch, 3 Ft. RJ-45	1
6	D-1128	Grommet, round	1
7	GM28413	Lug, Terminal	1
8	GM78536	Divider, Junction Box	1
9	GM78547	Bus, Neutral	1
10	GM78761-1	Screw, Sheetmetal	4
11	GM82875	Lead	1
12	GM82972	Insulation, Acoustic Foam 2"	1
13	GM84245	Decal, Terminal Block	1
13	GM94607	Decal, Warning (not shown)	1
14	GM85171-1	Conduit, Convoluted	1
15	GM92089	Service Controller, RDC2	1
16	GM91133	Box, Junction	1
17	GM91306	Divider, Junction Box	1
18	GM93075	Plate, Harness	2
19	GM93731	Plate, Conduit Cover	1
20	GM93736	Plate, Access	1
21	GM93741	Insulation, Acoustic Foam 2"	1
22	LK-0618-3637	Lead	1
23	M125A-06-80	Washer, Plain	3
24	M125A-08-80	Washer, Plain 8.4 ID x 16.0 OD	2
25	M6923-06-80	Nut, Hex 6mm	2
26	M6923-08-80	Nut, Hex 8mm	3
27	M7985A-04016-20	Screw, Pan Head Machine	2
28	M7985A-05030-20	Screw, Pan Head Machine	2
29	M933-06010-60	Screw, Hex Cap	2
30	M933-06016-60	Screw, Hex Cap	2
31	M933-06020-60	Screw, Hex Cap	4
32	M933-08030-60	Screw, Hex Cap	3
33	M934-04-50	Nut, Hex 4mm	2
34	X-22-12	Washer, lock.262 IDx.743 in.OD	7
35	X-22-16	Washer, lock.326 IDx.883 in.OD	6
36	X-25-20	Washer, Flat .312 ID x.75 OD	5
37	X-6216-1	Screw, Phillips hex crimpite	12
39	X-284-3	Grommet, round	1
40	X-284-31	Grommet, round	1
41	X-465-2	Bolt, Hex Cap	1
42	X-468-1	Cable Tie	1
43	X-468-4	Cable Tie	2
44	X-6048-2	Jumper, term block 2 pos	1
45	X-6086-24	Washer, Spring	5
46	X-6086-25	Washer, Spring	1
47	X-6128-35	Insulator , Standoff	2
48	X-6207-1	Lug, terminal, aluminum	2
55	X-50-1	Screw, Machine	4
	GM97332	Subassy, Bus Bar (includes items 3, 9, 11, 25,30,31,34,36, 41, 45, 47)	
58	GM79870	Harness, Engine	1
60	GM83896	Harness, Electric Fans 48RCL	1
60.1	GM58871	Relay	5
60.2	GM64036	Fuse, 30A. 32V. (12V)	3
66	GM97485	Bracket, Fuse Box	1
71	GM69919	Cover, Air Inlet	1
72	X-6340-2	Clip, Panel Fastener	1

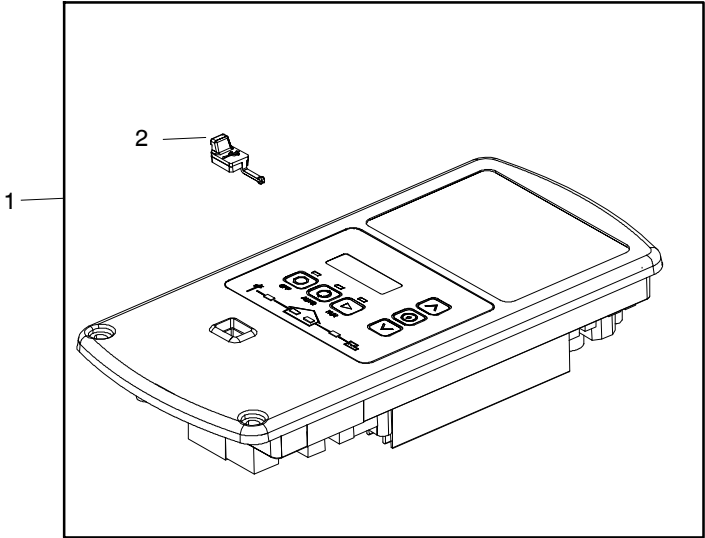
Group 301: Control and Harness, continued

Original Green Board Controller (no longer available)



Item	Part Number	Description	Qty.
2	GM71174	Fuse Cover Assy	1
3	GM63652	Screw, Thumb	1
4	GM62862	Cover, Fuse	1
5	X-269-51	Ring, Retaining	1
6	GM63134	Breaker, Circuit (20A.)	1

Service Controller GM92089

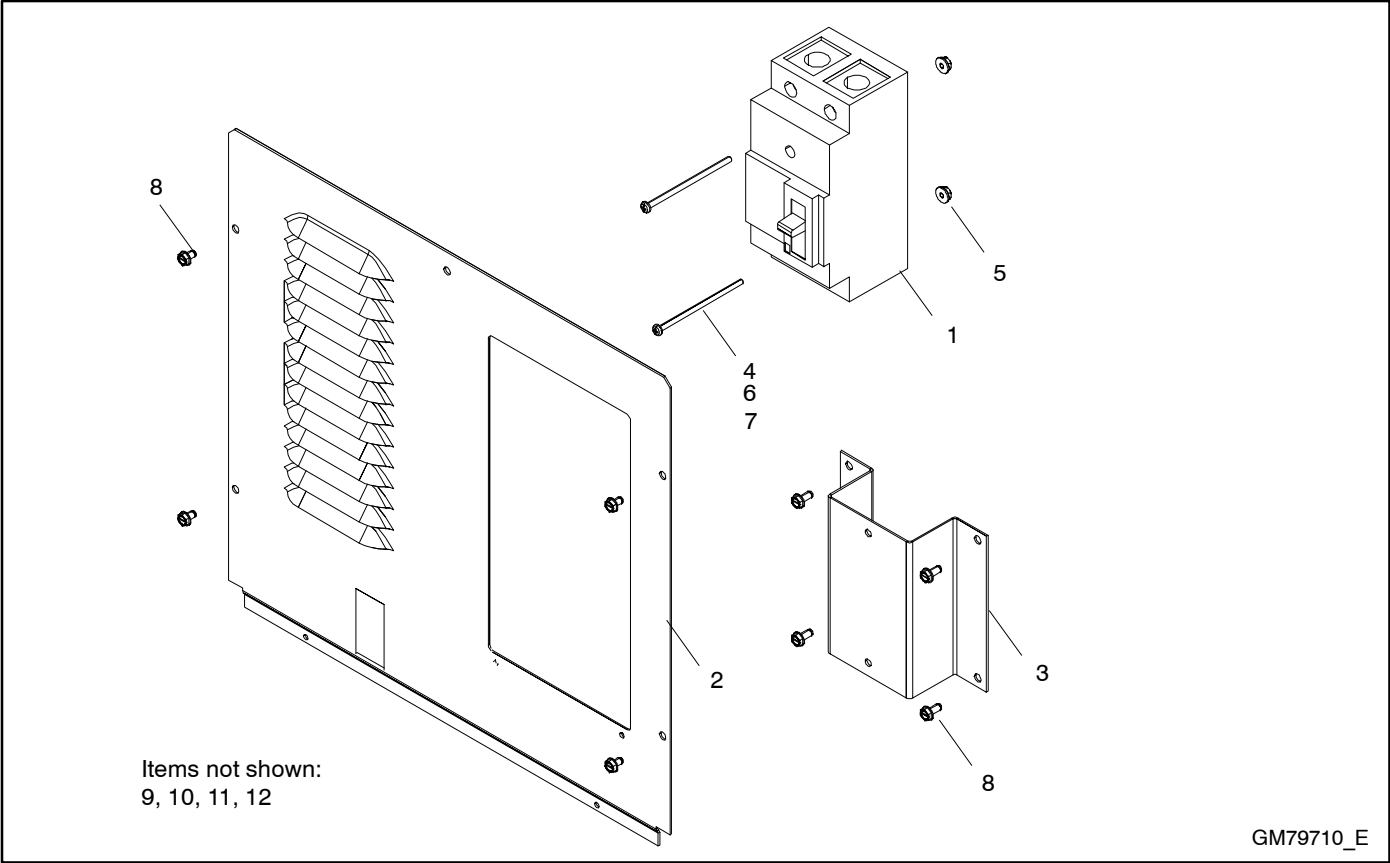


Item	Part Number	Description	Qty.
1	GM92089	Service Controller, RDC2	1
2	GM89865	Plug, USB	1

Notes

Circuit Breaker and Mounting

GM79709-, GM79710-



Circuit Breaker and Mounting

GM79709-

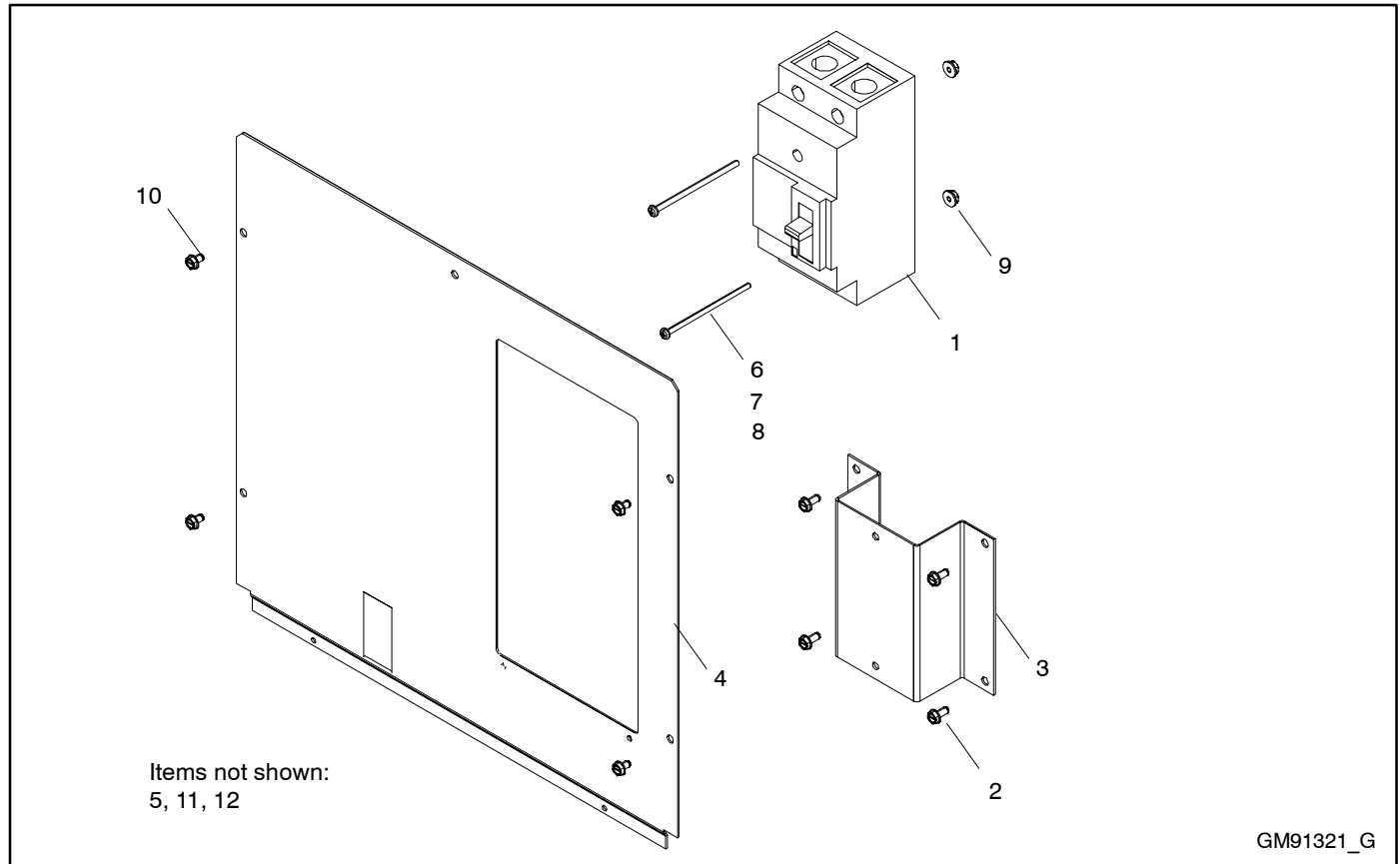
Item	Part Number	Description	Quantity						
			ModuleNumber						
			-MA1	-MA2	-MA3	-MA4	-MA5	-MA6	-MA7
1	GM47476-6	Breaker, Circuit 175A. 3P.	1						
1	GM47475-48	Breaker, Circuit 150A		1					
1	GM47475-39	Breaker, Circuit 80A			1				
1	GM47475-46	Breaker, Circuit 125A				1			
1	GM47475-35	Breaker, Circuit 60A					1		
1	GM47476-8	Breaker, Circuit 200A						1	
1	GM47475-43	Breaker, Circuit 100A							1
2	GM79792	Cover, Junction Box	1	1	1	1	1	1	1
3	GM78549	Bracket, Circuit Breaker	1	1	1	1	1	1	1
4	M7985A-04080-20	Screw, Pan Head Machine	2	2	2	2	2	2	2
5	M934-04-50	Nut, Hex 4mm	2	2	2	2	2	2	2
6	X-22-20	Washer, lock, .172 ID x .373 in. OD	2	2	2	2	2	2	2
7	X-25-45	Washer, plain, .203 ID x .75 in. OD	2	2	2	2	2	2	2
8	X-67-156	Screw, Tapping	9	9	9	9	9	9	9
9	X-750-14	Marker, Wire	2	2	2	2	2	2	2
10	X-750-15	Marker, Wire	2	2	2	2	2	2	2
11	X-750-16	Marker, Wire	2	2	2	2	2	2	2
12	GM86006	Lead, Circuit Breaker	3					3	
12	GM86005	Lead, Circuit Breaker		3					
12	GM86004	Lead, Circuit Breaker			3	3	3		3

GM79710-

Item	Part Number	Description	Quantity		
			ModuleNumber		
			-MA1	-MA2	-MA3
1	GM62495-6	Breaker, Circuit 200A (QBL)	1		
1	GM62495-3	Breaker, 175A, QBL Frame 2-Pole		1	
1	GM90342	Breaker, Circuit			1
2	GM78532	Cover, Junction Box	1	1	
2	GM90406	Cover, Junction Box			1
3	GM79499	Bracket, Circuit Breaker	1	1	
3	GM90405	Bracket, Circuit Breaker			1
4	M7985A-04080-20	Screw, Pan Head Machine	1	1	1
4	M7985A-04100-20	Screw, Pan Head Machine	1	1	1
5	M934-04-50	Nut, Hex 4mm	2	2	2
6	X-22-20	Washer, lock, .172 ID x .373 in. OD	2	2	2
7	X-25-45	Washer, plain, .203 ID x .75 in. OD	2	2	2
8	X-67-156	Screw, Tapping	9	9	9
9	X-750-14	Marker, Wire	2	2	2
10	X-750-15	Marker, Wire	2	2	2
12	GM82942	Lead	2		
12	GM81107	Lead		2	
12	GM82942	Lead			2

Circuit Breaker and Mounting, continued

GM91321-



Circuit Breaker and Mounting, continued

GM91321-

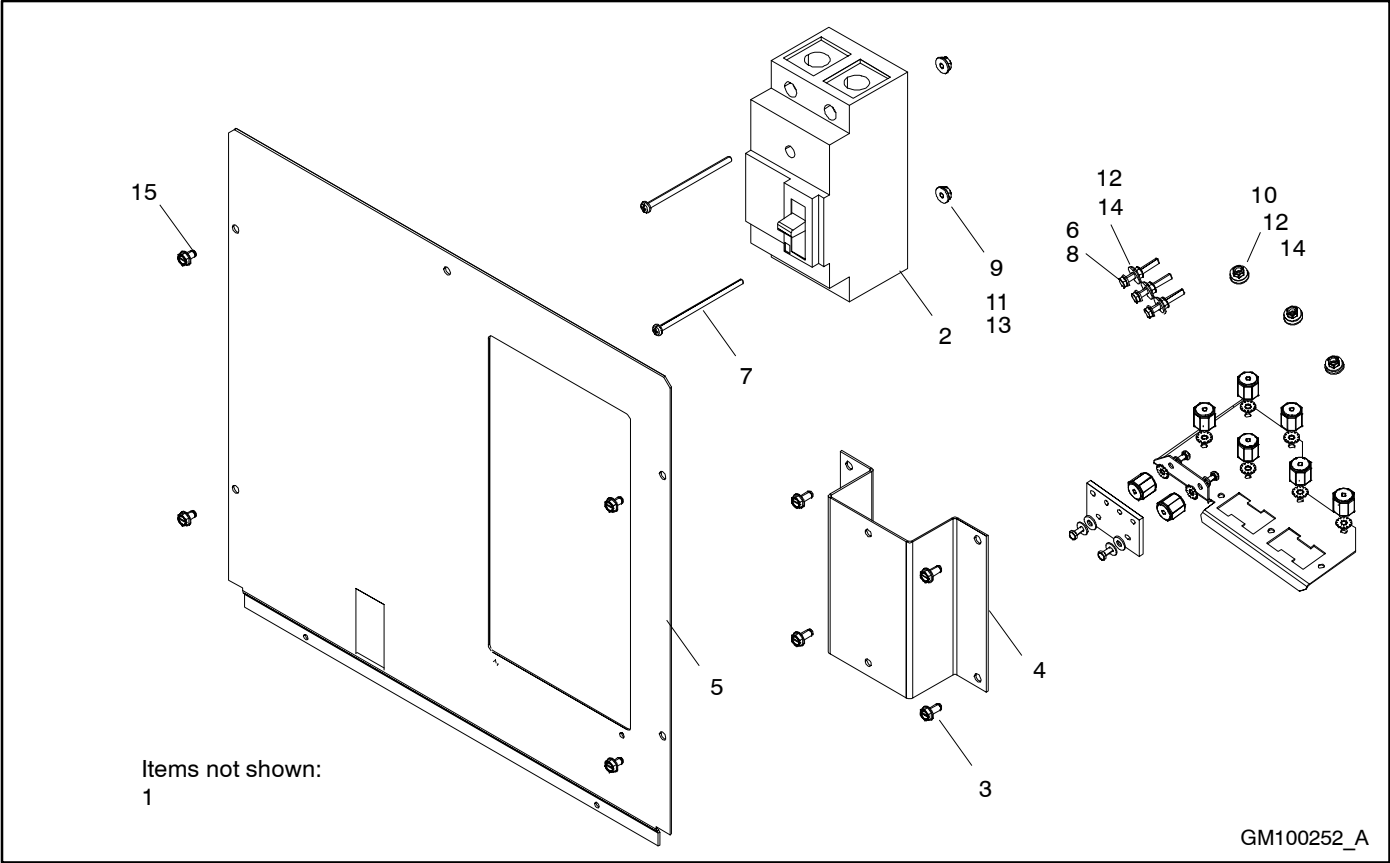
Item	Part No.	Description	Qty.
1	See chart	Breaker, Circuit	1
2	GM78761-1	Screw, Sheetmetal	4
3	See chart	Bracket, Circuit Breaker	1
4	See chart	Cover, Junction Box	1
5	See chart	Harness, Circuit Breaker	1
6	M7985A-04080-20	Screw, Pan Head Machine	2
7	X-25-45	Washer, plain, .203 ID x .75 in. OD	2
8	X-22-20	Washer, lock, .172 ID x .373 in. OD	2
9	M934-04-50	Nut, Hex 4mm	2
10	X-6216-1	Screw, Phillips hex crimpite	5
11	M6923-10-80	Nut, Hex 10mm	
12	M127B-10-80	Washer, Lock	

Use this table to identify part numbers of items 1, 3-5.

Module No.	Model	Assembly			
		Item 1, Circuit Breaker	Item 3, Bracket	Item 4, Cover	Item 5, Harness
GM91321-MA11	200A, 2P	GM62495-6	GM93646	GM99080	GM93661
GM91321-MA12	175A, 3P	GM47476-1	GM91322	GM99079	GM93662
GM91321-MA13	150A, 3P	GM47475-8	GM91322	GM99079	GM93663
GM91321-MA14	70A, 3P	GM47475-3	GM91322	GM99079	GM93482
GM91321-MA15	80A, 3P	GM47475-4	GM91322	GM99079	GM93482
GM91321-MA16	125A, 3P	GM47475-7	GM91322	GM99079	GM97557
GM91321-MA17	100A, 3P, 240V	GM96421	GM93427	GM99077	GM97557
GM91321-MA18	50A, 3P	GM47475-14	GM91322	GM99079	GM93483
GM91321-MA19	60A, 3P	GM47475-2	GM91322	GM99079	GM93483
GM91321-MA20	150A, 2P	GM62495-1	GM93646	GM99080	GM93485
GM91321-MA21	175A, 2P	GM62495-3	GM93646	GM99080	GM93485
GM91321-MA22	100A, 3P	GM47475-6	GM91322	GM99079	GM97557
GM91321-MA23	250A, 2P	GM90342	GM97258	GM99081	GM97548
GM91321-MA24	200A, 3P	GM97558	GM97258	GM99082	GM97547
GM91321-MA25	225A, 3P	GM97559	GM97258	GM99082	GM97547

Circuit Breaker and Mounting, continued

GM100252-



Circuit Breaker and Mounting, continued

GM100252-

Item	Part No.	Description	Qty.
1	See chart	Harness, Circuit Breaker	1
2	See chart	Breaker, Circuit	1
3	GM78761-1	Screw, Sheetmetal	4
4	See chart	Bracket, Circuit Breaker	1
5	See chart	Cover, Junction Box	1
6	M125A-06-80	Washer, Plain	3
7	M7985A-04080-20	Screw, Pan Head Machine	2
8	See chart	Screw, hex cap	-
9	M934-04-50	Nut, Hex 4mm	2
10	See chart	Nut, Hex	-
11	X-22-20	Washer, lock, .172 ID x .373 in.OD	2
12	See chart	Washer, Flat	-
13	X-25-45	Washer,plain, .203 ID x .75 in. OD	2
14	See chart	Washer, Spring	-
15	X-6216-1	Screw, Phillips hex crimpbite	5

Use this table to identify part numbers of items 1,2, 4, 5.

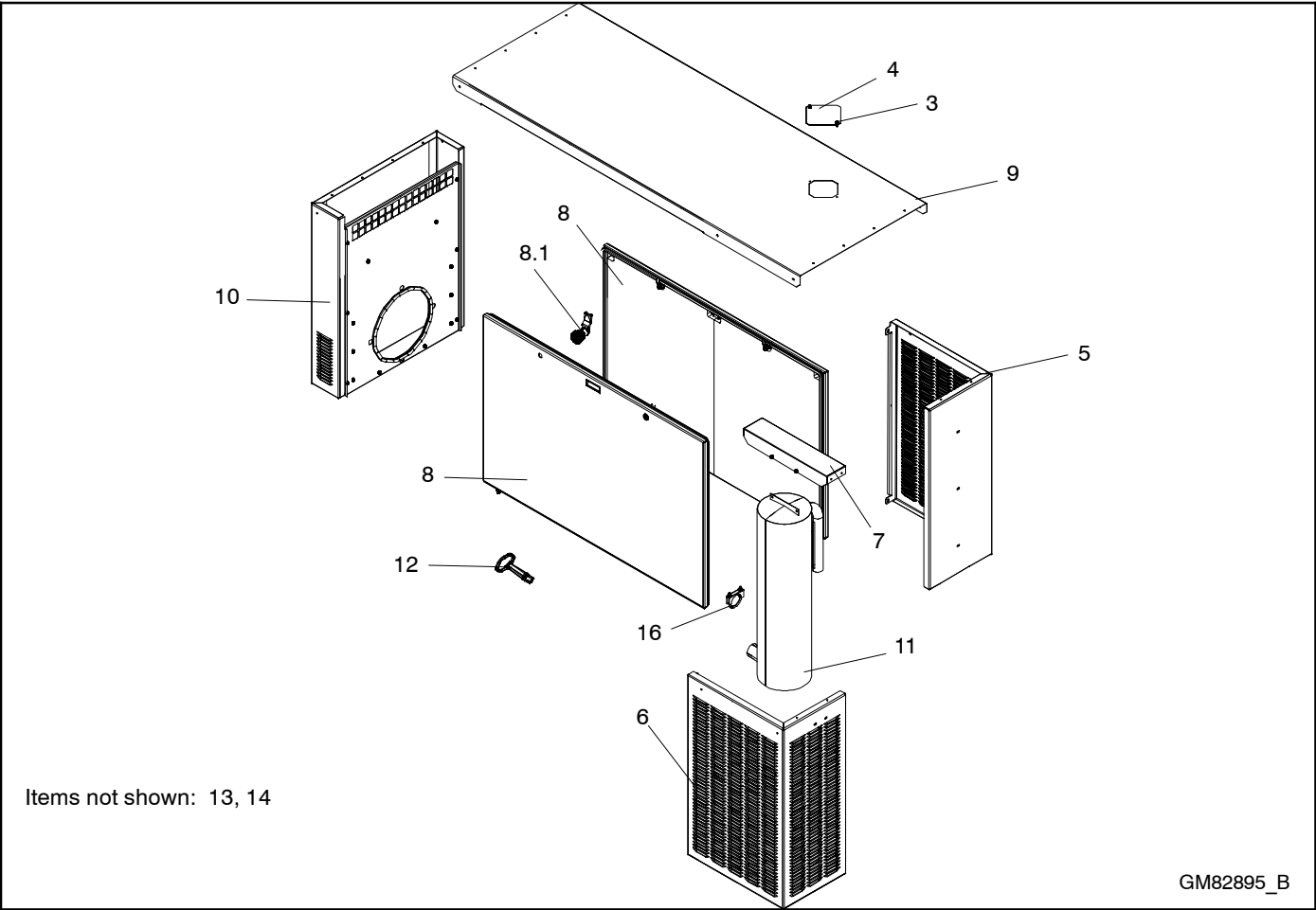
Module No.	Model	Assembly			
		Item 1, Harness	Item 2, Circuit Breaker	Item 4, Bracket	Item 5, Cover
GM100252-MA1	200A, 2P	GM100245	GM62495-6	GM93646	GM99080
GM100252-MA2	175A, 3P	GM100246	GM47476-1	GM91322	GM99079
GM100252-MA3	150A, 3P	GM100247	GM47475-8	GM91322	GM99079
GM100252-MA4	80A, 3P	GM100242	GM47475-4	GM91322	GM99079
GM100252-MA5	125A, 3P	GM100251	GM47475-7	GM91322	GM99079
GM100252-MA6	60A, 3P	GM100243	GM47475-2	GM91322	GM99079
GM100252-MA7	175A, 2P	GM100244	GM62495-3	GM93646	GM99080
GM100252-MA8	100A, 3P	GM100251	GM47475-43	GM91322	GM99079
GM100252-MA9	250A, 2P	GM100250	GM90342	GM97258	GM99081
GM100252-MA10	200A, 3P	GM100249	GM97558	GM97258	GM99082
GM100252-MA11	225A, 3P	GM100249	GM97559	GM97258	GM99082

Use this table to identify quantity of items 10,12,14.

Module No.	Model	Quantity			
		Item 8, Screw	Item 10, Nut	Item 12, Washer	Item 14, Washer
GM100252-MA1	200A, 2P	-	X-82-6 (2)	X-25-75 (2)	X-6086-25 (2)
GM100252-MA2	175A, 3P	M933-06040-60 (3)	M934-06-60 (6)	X-25-20 (6)	X-6086-24 (6)
GM100252-MA3	150A, 3P	M933-06040-60 (3)	M934-06-60 (6)	X-25-20 (6)	X-6086-24 (6)
GM100252-MA4	80A, 3P	M933-06040-60 (1)	M934-06-60 (7)	X-25-20 (7)	X-6086-24 (7)
GM100252-MA5	125A, 3P	M933-06040-60 (3)	M934-06-60 (6)	X-25-20 (6)	X-6086-24 (6)
GM100252-MA6	60A, 3P	M933-06040-60 (1)	M934-06-60 (7)	X-25-20 (7)	X-6086-24 (7)
GM100252-MA7	175A, 2P	-	M934-06-60 (2)	X-25-20 (2)	X-6086-24 (2)
GM100252-MA8	100A, 3P	M933-06040-60 (1)	M934-06-60 (7)	X-25-20 (7)	X-6086-24 (7)
GM100252-MA9	250A, 2P	-	X-82-6 (2)	X-25-75 (2)	X-6086-25 (2)
GM100252-MA10	200A, 3P	M933-06040-60 (1)	M934-06-60 (7)	X-25-20 (7)	X-6086-24 (7)
GM100252-MA11	225A, 3P	M933-06040-60 (3)	M934-06-60 (6)	X-25-20 (6)	X-6086-24 (6)

Sound Shield Enclosure

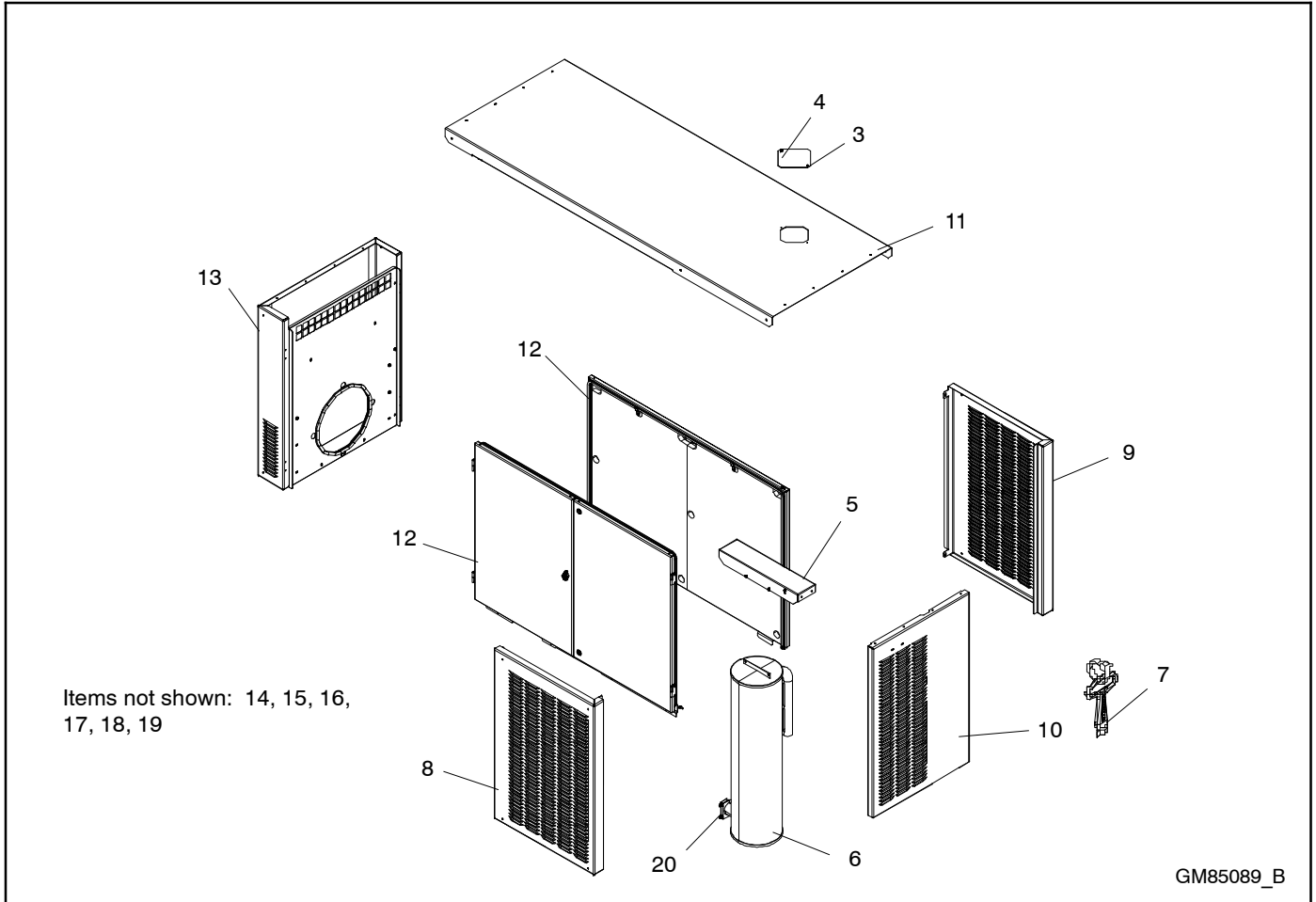
GM82895-MA1



Item	Part Number	Description	Quantity
			ModuleNumber -MA1
3	GM78761-1	Screw, Sheetmetal	41
4	GM81601	Cover, Radiator Fill	1
5	GM82845	Panel, Enclosure Front	1
6	GM82846	Panel, Enclosure Front	1
7	GM82880	Bracket, Exhaust Mounting	1
8	GM82896	Door Sub Assy, Enclosure	2
8.1	GM78669	Latch, Compression	2
9	GM82897	Roof Sub Assy, Enclosure	1
10	GM82898	End Panel Sub Assy, Enclosure (Rear)	1
11	GM88560	Silencer	1
12	GM82922	Tool, Latch Opening	2
13	LK-1036-1515	Lead	2
14	X-22-16	Washer, lock, .326 ID x .883 in. OD	4
16	X-722-2	Clamp, muffler, 2.62 in.	1

Sound Shield Enclosure

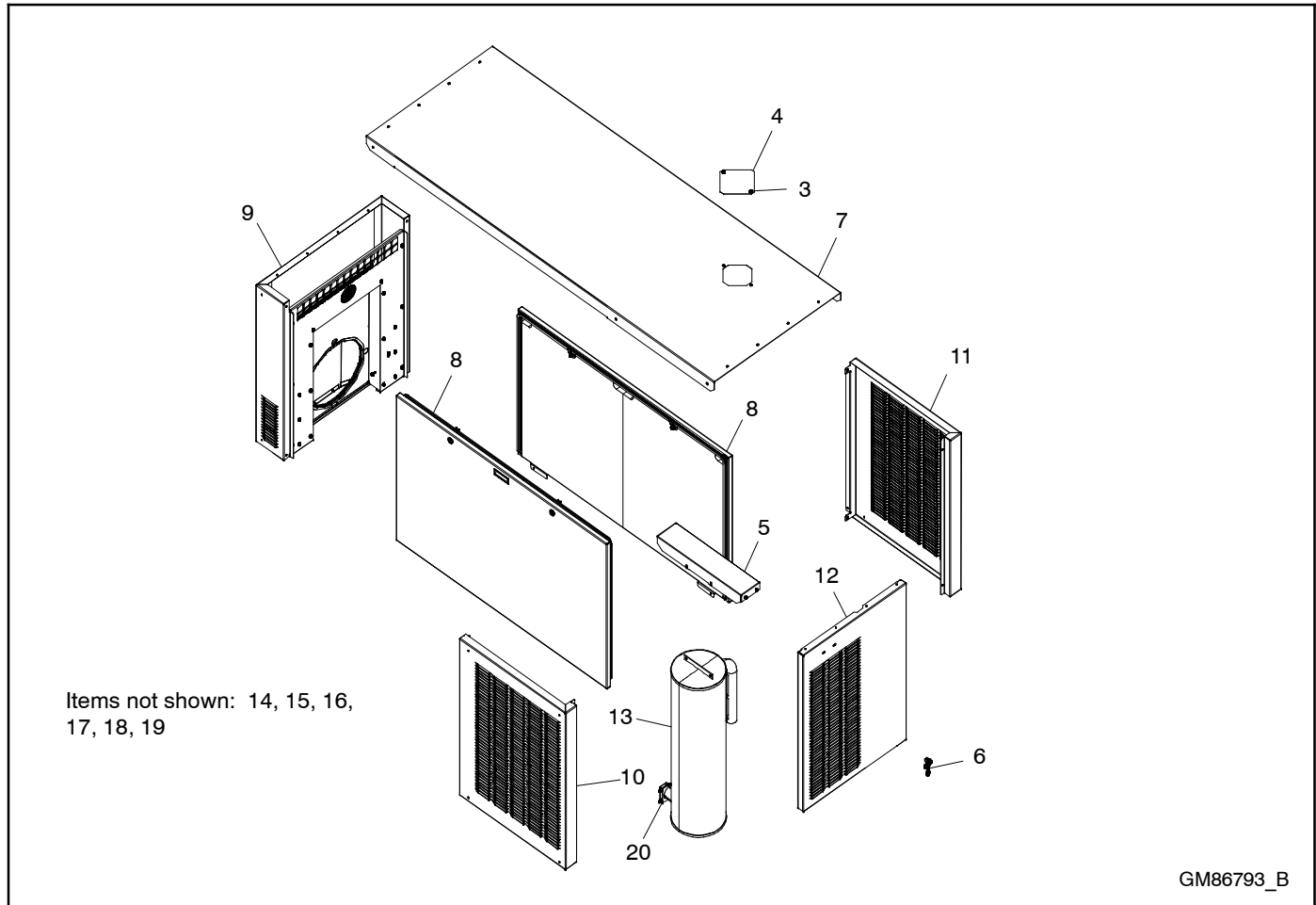
GM85089-MA1



Item	Part Number	Description	Quantity
			ModuleNumber -MA1
2	25493 00006	Seal, Push-On Trim	25.25
3	GM78761-1	Screw, Sheetmetal	37
4	GM81601	Cover, Radiator Fill	1
5	GM82880	Bracket, Exhaust Mounting	1
6	GM88560	Silencer	1
7	GM82922	Latch, Opening Tool	2
8	GM85075	Panel, Enclosure Front (RH)	1
9	GM85077	Panel, Enclosure Front (LH)	1
10	GM85079	Panel, Front Enclosure	1
11	GM85138	Roof Sub Assy, Enclosure	1
12	GM85141	Access Panel Sub Assy, Enclosure (L)	2
13	GM85182	End Panel Sub Assy, Enclosure (Rear)	1
14	LK-1036-1515	Lead	2
15	M125A-08-80	Washer, Plain 8.4 ID x 16.0 OD	2
16	M933-08020-60	Screw, hex cap	2
17	M982-08-80	Nut, hex elastic stop, 8MM	2
18	X-22-16	Washer, lock, .326 ID x .883 in. OD	8
19	X-468-1	Cable Tie	3
20	X-722-2	Clamp, muffler, 2.62 in.	1

Sound Shield Enclosure, continued

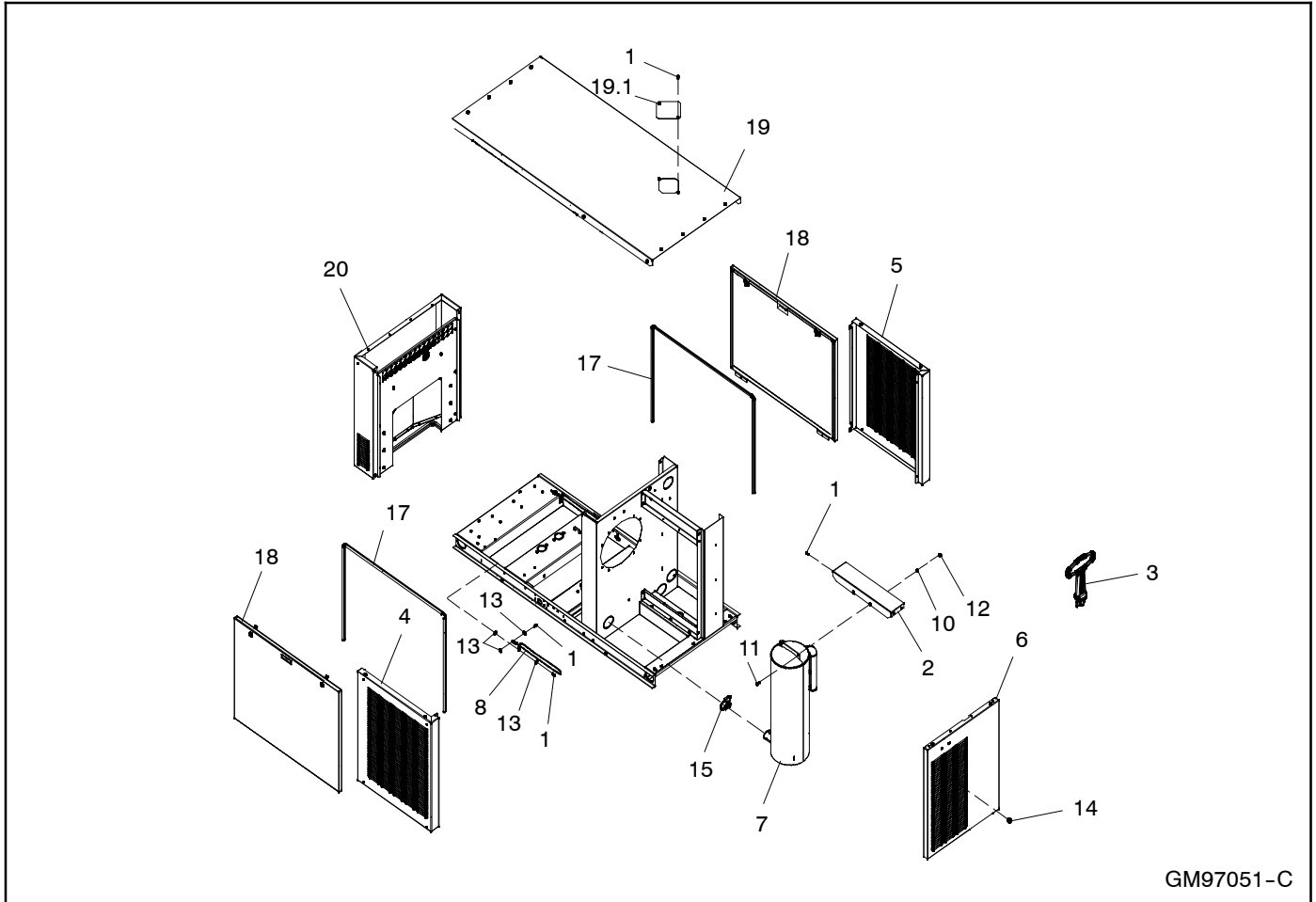
GM86793-



Item	Part Number	Description	Quantity	
			ModuleNumber	
			-MA1	-MA2
3	GM78761-1	Screw, Sheetmetal	37	37
4	GM81601	Cover, Radiator Fill	1	1
5	GM82880	Bracket, Exhaust Mounting	1	1
6	GM82922	Latch, Opening Tool	2	2
7	GM85138	Roof Sub Assy, Enclosure	1	1
8	GM85141	Access Panel Sub Assy, Enclosure (L)	2	2
9	GM86794	Panel, End Sub Assy, Enclosure	1	
9	GM90799	Panel, End Sub Assy, Enclosure		1
10	GM88395	Panel, Enclosure Front (RH)	1	1
11	GM88396	Panel, Enclosure Front (LH)	1	1
12	GM88397	Panel, Front Enclosure	1	1
13	GM88560	Silencer	1	1
14	LK-1036-1515	Lead	2	2
15	M125A-08-80	Washer, Plain 8.4 ID x 16.0 OD	2	2
16	M933-08020-60	Screw, Hex cap	2	2
17	M982-08-80	Nut, hex elastic stop, 8MM	2	2
18	X-22-16	Washer, lock.326 IDx.883 in.OD	8	8
19	X-468-1	Cable Tie	1	1
20	X-722-2	Clamp, muffler, 2.62 in.	1	1

Sound Shield Enclosure, continued

GM97051



GM97051-C

Item	Part Number	Description	Quantity
1	GM78761-1	Screw, Sheetmetal	35
2	GM82880	Bracket, Exhaust Mounting	1
3	GM82922	Tool, Latch Opening	2
4	GM88395	Panel, Enclosure Front (RH)	1
5	GM88396	Panel, Enclosure Front (LH)	1
6	GM88397	Panel, Front Enclosure	1
7	GM88560	Silencer	1
8	LK-1036-1515	Lead	2
9	M125A-06-80	Washer, Plain (not shown)	4
10	M125A-08-80	Washer, Plain 8.4 ID x 16.0 OD	2
11	M933-08020-60	Screw, Hex Cap	2
12	M982-08-80	Nut, hex elastic stop, 8MM	2
13	X-22-12	Washer, lock	4
14	X-468-1	Cable Tie	1
15	X-722-2	Spacer, .312 OD, .56 in.	1
16	25493 00006	Seal, Push-On Trim	2
17	See chart	Panel, Access Assy, Enclosure	2
18	See chart	Panel, End Sub Assy, Enclosure	1
19	See chart	Roof Sub Assy, Enclosure	1
19.1	GM81601	Cover, Radiator Fill	1
20	See chart	Panel, End Sub Assy, Enclosure	1

Use this table to identify part numbers of items 18-20.

Module No.	Part Number			
		Item 18, Panel Assy.	Item 19, Roof Assy.	Item 20, Panel Assy.
GM97051-MA3	38/48RCL/48RCLA	GM85141	GM96246	GM97043-1
GM97051-MA4	60RCL	GM85141	GM96246	GM97043-2

Group 701: Literature

Not illustrated

Item	Part Number	Description	Quantity				
			Variation Number				
			470	487	516	532	537
1	TP-6101	O/M PSI/GM Engines	1	1	1	1	1
2	TP-6104	S/M GM 5.0/5.7L Engine	1		1	1	1
2	TP-6103	S/M GM 4.3L Engine		1			
3	TP-6479	Warranty, 5-Yr., Standby	1	1	1	1	1
4	TP-6724	S/M PSI/GM 1.6-8.1L Emission-Certified	1	1	1	1	1
5	TP-6731	P/C GM 5.0/5.7L 50/60 kW Emissions Eng	1		1	1	1
5	TP-6730	P/C GM 4.3L 40/45 kW Emissions Engine		1			
6	TP-6783	S/M 50-200,Fst Rspnse X (FR-X) Altr, Ind	1		1	1	1
6	TP-6353	S/M Fast-Response II Alternator,20-400kW		1			
7	TP-6809	I/M 38/48/60RCL	1	1	1	1	1
8	TP-6810	O/M 38/48/60RCL	1	1	1	1	1
9	TP-6811	S/M 38/48/60RCL	1	1	1	1	1
10	TP-6812	P/C 38/48/60RCL	1	1	1	1	1

Optional Kits

Qty.	Description	Part No.
Block Heater, 1500W, 120V GM78529-KP1-QS		
1	Heater, block (120V, 1500W)	352945
1	Hose, molded (.62" ID)	276206
1	Tag, hang	279047
1	Shield, heat (32mm id x 152mm length)	GM17809
1	Shield, heat (32mm id x 455mm length)	GM23718
1	Bracket, Block Heater Mtg.	GM78546
4	Washer, Plain	M125A-06-80
6	Nut, Hex 6mm	M6923-06-80
2	Screw, hex cap, M6x16mm, js500 full thrd	M933-06016-60
4	Screw, hex cap	M933-06020-60
1	Hose, .63 ID	X-312-53
1	Connector, 90 deg. (5/8" id hose)	X-391-19
4	Clamp, hose, .69/1.25 in.	X-426-12
1	Connector, Hose 5/8" x 1/2" MIP Brass	X-582-1
1	TT Block Heater Kit	TT-1587
Block Heater, 1500W, 240V GM78529-KP2		
1	Heater, block (240V, 1500W)	352946
1	Hose, molded (.62" ID)	276206
1	Tag, hang	279047
1	Shield, heat (32mm id x 152mm length)	GM17809
1	Shield, heat (32mm id x 455mm length)	GM23718
1	Bracket, Block Heater Mtg.	GM78546
4	Washer, Plain	M125A-06-80
6	Nut, Hex 6mm	M6923-06-80
2	Screw, hex cap, M6x16mm, js500 full thrd	M933-06016-60
4	Screw, hex cap	M933-06020-60
1	Hose, .63 ID	X-312-53
1	Connector, 90 deg. (5/8" id hose)	X-391-19
4	Clamp, hose, .69/1.25 in.	X-426-12
1	Connector, Hose 5/8" x 1/2" MIP Brass	X-582-1
1	TT Block Heater Kit	TT-1587
Block Heater, 1000W, 120V GM84997-KP1-QS		
1	Heater, block (120V, 1000W)	358311
1	Tag, hang	279047
1	Shield, heat (32mm ID x 152mm length)	GM17809
1	Shield, heat (32mm ID x 455mm length)	GM23718
1	Bracket, Block Heater Mtg.	GM78546
4	Washer, Plain	M125A-06-80
6	Nut, Hex 6mm	M6923-06-80
2	Screw, hex cap, M6x16mm, js500 full thrd	M933-06016-60
4	Screw, hex cap	M933-06020-60
1	Hose, .63 ID x 24 in.	X-312-53
1	Hose, .63 ID x 8 in.	X-312-61
1	Connector, 90 deg. (5/8" id hose)	X-391-19
4	Clamp, hose, .69/1.25 in.	X-426-12
1	Connector, Hose 5/8" x 1/2" MIP Brass	X-582-1
1	TT Block Heater Kit	TT-1587
Block Heater, 1000W, 240V GM84997-KP2		
1	Heater, block (240V, 1000W)	358327
1	Tag, hang	279047
1	Shield, heat (32mm ID x 152mm length)	GM17809
1	Shield, heat (32mm ID x 455mm length)	GM23718
1	Bracket, Block Heater Mtg.	GM78546
4	Washer, Plain	M125A-06-80
6	Nut, Hex 6mm	M6923-06-80
2	Screw, hex cap, M6x16mm, js500 full thrd	M933-06016-60
4	Screw, hex cap	M933-06020-60
1	Hose, .63 ID x 24 in.	X-312-53
1	Hose, .63 ID x 8 in.	X-312-61
1	Connector, 90 deg. (5/8" id hose)	X-391-19
4	Clamp, hose, .69/1.25 in.	X-426-12
1	Connector, Hose 5/8" x 1/2" MIP Brass	X-582-1
1	TT Block Heater Kit	TT-1587

Qty.	Description	Part No.
OnCue,RDC2/DC2/VSC Controller GM81385-KA1		
1	OnCue Welcome Letter	G18-246
1	OnCue App Quick Start Guide	G18-247
1	Decal, OnCue Activation Code	GM81386
1	Dwg, OnCue Decal Placement	GM81770
1	Connector, RJ45 Female to RJ45 Female	GM84651
1	O/M User Guide, OnCue Plus	TP-7006
1	I/M Tech Manual OnCue Plus	TP-7007
OnCue Plus,RDC2/DC2/VSC GM81385-KP2-QS		
1	OnCue Welcome Letter	G18-246
1	OnCue App Quick Start Guide	G18-247
1	Decal, OnCue Activation Code	GM81386
1	Dwg, OnCue Decal Placement	GM81770
1	Connector, RJ45 Female to RJ45 Female	GM84651
1	O/M User Guide, OnCue Plus	TP-7006
1	I/M Tech Manual OnCue Plus	TP-7007
OnCue Plus, Wireless, RDC2/DC2/VSC GM81385-KP3-QS		
1	Cable, Patch, 3 Ft. RJ-45	357477
1	OnCue Welcome Letter	G18-246
1	OnCue App Quick Start Guide	G18-247
1	Decal, OnCue Activation Code	GM81386
1	Dwg, OnCue Decal Placement	GM81770
1	Kit, Wireless Router	GM91273
1	Tape, VHB 3/4", 10in Long	GM94015
1	O/M OnCue Software	TP-6928
1	Install Guide WiFi Kit Res/Coml	TT-1618
Battery,1/12V,650CCA,Wet PA-256985		
1	Battery, wet charged (12V, 650 CCA)	256984
Battery,1/12V,650CCA,Wet GM89020-KP1		
1	Battery, wet charged (12V, 650 CCA)	256984
Heater, Battery Wrap GM79481-KP1		
1	Heater, battery wrap	336814
Load Control Module, w/ Harness GM77177-KP1-QS		
1	Load Control Module Assy, w/ Harness	GM77177-1
1	Decal, CSA	297721
1	Decal, equipment grd (NRP)	344295
2	Insert, threaded, #10-24	346258
1	Dimension Print, Load Control Module	ADV-8198
4	Gasket	GM20990
2	Label, Blank	GM24703
1	Decal, 120VAC Only	GM75393
1	Plate, Mounting	GM77176
4	Relay	GM77178
1	Cover w/ Decals, Load Shed	GM77191
1	Enclosure, Load Shed	GM79445
1	Harness, Load Control	GM80092
1	Harness, Relay Control	GM80673
1	Indicator, Load Status	GM80879
1	Decal, Wiring Diagram	GM80950
2	Decal, Warning	GM81264
1	PCB Assy, RDC2 Load Control	GM81372-1
1	Transformer, Current	GM83929
1	Decal, LCM - w/ whip	GM84656-1
1	TT Load Control Module, Res/Comm	TT-1574
1	Terminal block	X-405-2
3	Washer	X-6086-23
3	Lug, terminal, aluminum	X-6207-3

Optional Kits

Qty.	Description	Part No.
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Load Control Module, w/ Terminal Blocks

GM77177-KP2-QS

1	Load Control Module Assy, w/ Term.	GM77177-2
1	Decal, equipment grd (NRP)	344295
2	Insert, threaded, #10-24	346258
1	Dimension Print, Load Control Module	ADV-8198
4	Gasket	GM20990
1	Decal, Nameplate	GM21291
2	Label, Blank	GM24703
1	Decal, 120VAC Only	GM75393
1	Plate, Mounting	GM77176
4	Relay,	GM77178
1	Cover w/ Decals, Load Shed	GM77191
1	Enclosure, Load Shed	GM79445
1	Harness, Relay Control	GM80673
8	Harness, Terminal Block	GM80674
4	Block, Terminal	GM80862
1	Indicator, Load Status	GM80879
1	Marker, Strip	GM80949
1	Decal, Wiring Diagram	GM80950
2	Decal, Warning	GM81264
1	PCB Assy, RDC2 Load Control	GM81372-1
1	Diagram, Wiring Load Control	GM81374
1	Diagram, Schematic Load Control	GM81638
1	Transformer, Current	GM83929
1	TT Load Control Module, Res/Comm	TT-1574
1	Terminal block	X-405-2
3	Washer	X-6086-23
3	Lug, terminal, aluminum	X-6207-3

Load Control Module, w/ Harness, CSA

GM77177-KP3-QS

1	Load Control Module Assy, w/ Harness	GM77177-1
1	Decal, CSA	297721
1	Decal, equipment grd (NRP)	344295
2	Insert, threaded, #10-24	346258
1	Dimension Print, Load Control Module	ADV-8198
4	Gasket	GM20990
2	Label, Blank	GM24703
1	Decal, 120VAC Only	GM75393
1	Plate, Mounting	GM77176
4	Relay	GM77178
1	Cover w/ Decals, Load Shed	GM77191
1	Enclosure, Load Shed	GM79445
1	Harness, Load Control	GM80092
1	Harness, Relay Control	GM80673
1	Indicator, Load Status	GM80879
1	Decal, Wiring Diagram	GM80950
2	Decal, Warning	GM81264
1	PCB Assy, RDC2 Load Control	GM81372-1
1	Transformer, Current	GM83929
1	Decal, LCM - w/ whip	GM84656-1
1	TT Load Control Module, Res/Comm	TT-1574
1	Terminal block	X-405-2
3	Washer	X-6086-23
3	Lug, terminal, aluminum	X-6207-3

Qty.	Description	Part No.
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Load Control Module, w/ Terminal Blocks, CSA

GM77177-KP4-QS

1	Load Control Module Assy, w/ Term.	GM77177-2
1	Decal, CSA	297721
1	Decal, equipment grd (NRP)	344295
2	Insert, threaded, #10-24	346258
1	Dimension Print, Load Control Module	ADV-8198
4	Gasket	GM20990
1	Decal, Nameplate	GM21291
2	Label, Blank	GM24703
1	Decal, 120VAC Only	GM75393
1	Plate, Mounting	GM77176
4	Relay,	GM77178
1	Cover w/ Decals, Load Shed	GM77191
1	Enclosure, Load Shed	GM79445
1	Harness, Relay Control	GM80673
8	Harness, Terminal Block	GM80674
4	Block, Terminal	GM80862
1	Indicator, Load Status	GM80879
1	Marker, Strip	GM80949
1	Decal, Wiring Diagram	GM80950
2	Decal, Warning	GM81264
1	PCB Assy, RDC2 Load Control	GM81372-1
1	Diagram, Wiring Load Control	GM81374
1	Diagram, Schematic Load Control	GM81638
1	Transformer, Current	GM83929
1	TT Load Control Module, Res/Comm	TT-1574
1	Terminal block	X-405-2
3	Washer	X-6086-23
3	Lug, terminal, aluminum	X-6207-3

Power Relay Module

GM92001-KP1-QS

1	Dimension Print, Load Management Module	ADV-8742
1	TT 50 Amp Relay Box for Load Shed,	TT-1646
1	Load Management Module	GM92001-1
1	Enclosure, Base	GM91999
1	Enclosure, Cover	GM92000
1	Relay, Sub Assy	GM92005

Programmable Interface Module (PIM)

GM81529-KP1-QS

1	Dimension Print, Programable Intf Module	ADV-8199
1	Diagram, Wiring PIM	GM84085
1	Diagram, Schematic PIM	GM84086
1	Programmable Interface Module (PIM)	TT-1584
1	PIM, Assy NEMA 3R	GM81529-1
1	Decal, Equipment GRD	344295
2	Gasket	GM20990
1	Hasp, ATS Enclosure	GM65624
1	PCB Assy, RDC2 Programmable Interface	GM81372-2
1	Enclosure, PIM	GM81527
1	Silkscreen, Cover	GM82189
1	Decal, Torque	GM82855
1	Decal, PIM	GM84656-3
1	Lug, terminal, aluminum	X-6207-3

Programmable Interface Module (PIM), CSA

GM81529-KP2-QS

1	Dimension Print, Programable Intf Module	ADV-8199
1	Diagram, Wiring PIM	GM84085
1	Diagram, Schematic PIM	GM84086
1	Programmable Interface Module (PIM)	TT-1584
1	PIM, Assy NEMA 3R CSA	GM81529-2
1	Decal, Equipment GRD	344295
2	Gasket	GM20990
1	Hasp, ATS Enclosure	GM65624
1	PCB Assy, RDC2 Programmable Interface	GM81372-2
1	Enclosure, PIM	GM81527
1	Silkscreen, Cover	GM82189
1	Decal, Torque	GM82855
1	Decal, PIM	GM84656-3
1	Lug, terminal, aluminum	X-6207-3

Optional Kits

Qty.	Description	Part No.
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Maintenance Service Kit

(includes oil, oil filter, air filter, spark plugs, and instructions (TT-1445))

1	Kit, Residential Maint (38RCL)	GM86771-SKP1-QS
1	Kit, Residential Maint (38RCLA & 48RCL)	GM83718-SKP1-QS
1	Kit, Residential Maint (60RCL/48RCLA)	GM89979-SKP1-QS

Fuel Lines, Flexible

GM13706-KP1

1	Pipe (1"npt x 1.50")	X-218-24
1	Fuel line, flexible (1.00" ID x 18")	X-504-21

Fuel Lines, Flexible

GM13706-KA4

1	Pipe (1"npt x 1.50")	X-218-24
1	Fuel line, flexible (1.00" ID x 18")	X-504-21

Notes

Appendix A Abbreviations

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

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

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

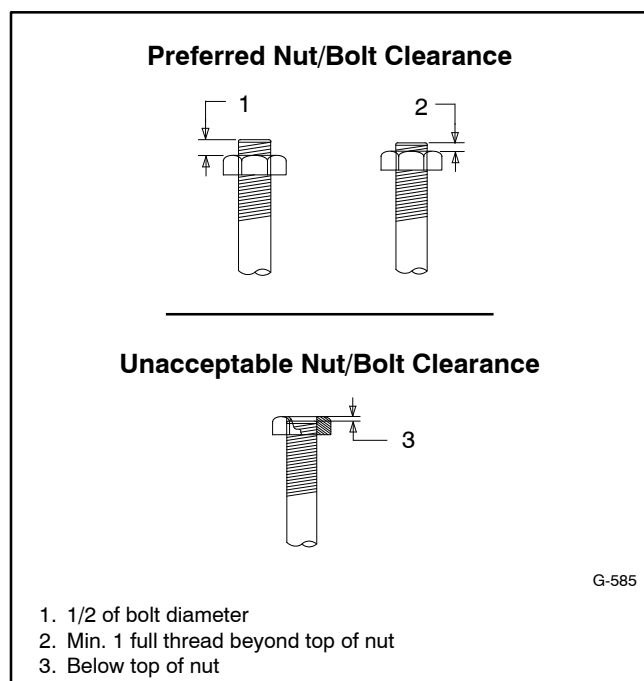


Figure 1 Acceptable Bolt Lengths

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.

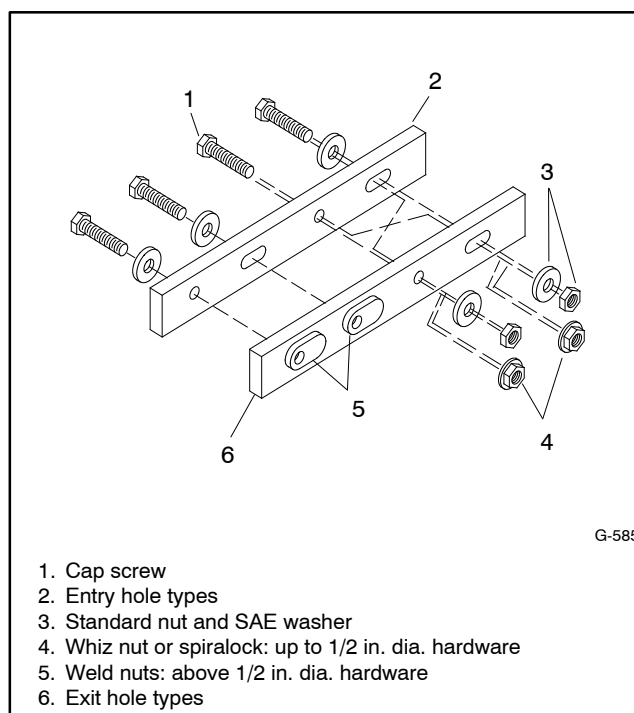


Figure 2 Acceptable Hardware Combinations

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)

$\frac{1}{4}$ -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-465-16	1/4-20 x .75	X-6238-22	3/8-24 x 4.50					
X-465-18	1/4-20 x .88							
X-465-7	1/4-20 x 1.00	X-6024-5	7/16-14 x .75		X-6210-3	6-32	Whiz	
X-465-8	1/4-20 x 1.25	X-6024-2	7/16-14 x 1.00		X-6210-4	8-32	Whiz	
X-465-9	1/4-20 x 1.50	X-6024-8	7/16-14 x 1.25		X-6210-5	10-24	Whiz	
X-465-10	1/4-20 x 1.75	X-6024-3	7/16-14 x 1.50		X-6210-1	10-32	Whiz	
X-465-11	1/4-20 x 2.00	X-6024-4	7/16-14 x 2.00		X-6210-2	1/4-20	Spiralock	
X-465-12	1/4-20 x 2.25	X-6024-11	7/16-14 x 2.75	X-6210-6	1/4-28	Spiralock		
X-465-14	1/4-20 x 2.75	X-6024-12	7/16-14 x 6.50	X-6210-7	5/16-18	Spiralock		
X-465-21	1/4-20 x 5.00			X-6210-8	5/16-24	Spiralock		
X-465-25	1/4-28 x .38	X-129-15	1/2-13 x .75	X-6210-9	3/8-16	Spiralock		
X-465-20	1/4-28 x 1.00	X-129-17	1/2-13 x 1.00	X-6210-10	3/8-24	Spiralock		
		X-129-18	1/2-13 x 1.25	X-6210-11	7/16-14	Spiralock		
		X-129-19	1/2-13 x 1.50	X-6210-12	1/2-13	Spiralock		
X-125-33	5/16-18 x .50	X-129-20	1/2-13 x 1.75	X-6210-15	7/16-20	Spiralock		
X-125-23	5/16-18 x .62	X-129-21	1/2-13 x 2.00	X-6210-14	1/2-20	Spiralock		
X-125-3	5/16-18 x .75	X-129-22	1/2-13 x 2.25					
X-125-31	5/16-18 x .88	X-129-23	1/2-13 x 2.50	X-85-3	5/8-11	Standard		
X-125-5	5/16-18 x 1.00	X-129-24	1/2-13 x 2.75	X-88-12	3/4-10	Standard		
X-125-24	5/16-18 x 1.25	X-129-25	1/2-13 x 3.00	X-89-2	1/2-20	Standard		
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-125-22	5/16-18 x 4.50	X-129-45	1/2-20 x 1.25	X-25-46	.125	.250	.022	#4
X-125-32	5/16-18 x 5.00	X-129-52	1/2-20 x 1.50	X-25-9	.156	.375	.049	#6
X-125-35	5/16-18 x 5.50			X-25-48	.188	.438	.049	#8
X-125-36	5/16-18 x 6.00	X-6021-3	5/8-11 x 1.00	X-25-36	.219	.500	.049	#10
X-125-40	5/16-18 x 6.50	X-6021-4	5/8-11 x 1.25	X-25-40	.281	.625	.065	1/4
		X-6021-2	5/8-11 x 1.50	X-25-85	.344	.687	.065	5/16
X-125-43	5/16-24 x 1.75	X-6021-1	5/8-11 x 1.75	X-25-37	.406	.812	.065	3/8
X-125-44	5/16-24 x 2.50	273049	5/8-11 x 2.00	X-25-34	.469	.922	.065	7/16
X-125-30	5/16-24 x .75	X-6021-5	5/8-11 x 2.25	X-25-26	.531	1.062	.095	1/2
X-125-39	5/16-24 x 2.00	X-6021-6	5/8-11 x 2.50	X-25-15	.656	1.312	.095	5/8
X-125-38	5/16-24 x 2.75	X-6021-7	5/8-11 x 2.75	X-25-29	.812	1.469	.134	3/4
		X-6021-12	5/8-11 x 3.75	X-25-127	1.062	2.000	.134	1
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

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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