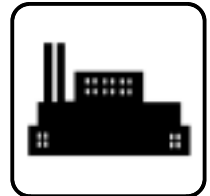


# Service Parts

## Industrial Generator Sets



Models:

**30-125RZG**

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

See TP-6009 Parts Catalog Industrial Controller for controller parts

**ISO 9001**  
**KOHLER**  
GENERATORS  
INTERNATIONALLY REGISTERED

**KOHLER**<sup>®</sup>  
POWER SYSTEMS

TP-6102 8/01c

# Table of Contents

Introduction .....	1
Numbering System Significance .....	1
Illustrations .....	1
How to Find Part Numbers .....	1
Hardware References .....	1
Specification Number Index .....	2
Group 101: Air Intake .....	4
Group 104: Cooling System .....	6
Group 105: Engine .....	8
Group 107: Nameplate and Decals .....	13
Group 109: Skid and Plant Mounting .....	14
Group 201: Generator and Mounting .....	16
Control and Harness .....	22
Group 701: Literature .....	24
Kit List .....	25
Cooling System Kits .....	26
Fuel System Kits .....	28
Appendix A Abbreviations .....	A-1
Appendix B Common Hardware Application Guidelines .....	A-3
Appendix C General Torque Specifications .....	A-4
Appendix D Common Hardware Identification .....	A-5
Appendix E Common Hardware List .....	A-6

# Introduction

This manual lists service replacement parts for 30–125 kW generator sets.

At the time of print this manual applied to the generator set specification (spec) numbers listed in the Specification Number Index. On occasion this manual may apply to specs not listed in the Specification Number Index.

Information in this publication represents data available at the time of print. Kohler Co. reserves the right to change this publication and the products represented without notice and without any obligation or liability whatsoever.

This manual includes the following main sections:

**Table of Contents.** Lists the sections of the manual.

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

**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.

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## Numbering System Significance

This manual uses the following numbering systems:

**Specification Number.** A six-digit number with a PA-prefix. The Specification Number Index does not show the prefix. Spec numbers break down into groups.

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

**Variation or Module Number.** A group might have several variations. Each variation performs the same function with different parts lists. For example, a 50 Hz generator alternator and 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.

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## Illustrations

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

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## 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.

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## 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.

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# Specification Number Index

Group Title	<i>Air Intake</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>Skid and Plant Mounting</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>
Group No.	101	104	105	107	109	201	301	701
Spec No.	Variation Number							
<b>30RZG</b>								
GM13685-GA1	*	*	1	1	*	*	†	96
GM13685-GA4	*	*	2	1	*	*	†	96
GM13685-GA7	*	*	3	1	*	*	†	96
GM13685-GA10	*	*	7	1	*	*	†	96
<b>35RZG</b>								
GM13685-GA2	*	*	1	1	*	*	†	98
GM13685-GA5	*	*	2	1	*	*	†	98
GM13685-GA8	*	*	3	1	*	*	†	98
GM13685-GA11	*	*	7	1	*	*	†	98
<b>45RZG</b>								
GM13685-GA3	*	*	1	1	*	*	†	100
GM13685-GA6	*	*	2	1	*	*	†	100
GM13685-GA9	*	*	3	1	*	*	†	100
GM13685-GA12	*	*	7	1	*	*	†	100
<b>50RZG</b>								
GM13686-GA1	*	*	4	1	*	*	†	92
GM13686-GA3	*	*	5	1	*	*	†	92
GM13686-GA5	*	*	6	1	*	*	†	92
GM13686-GA7	*	*	8	1	*	*	†	92
<b>60RZG</b>								
GM13686-GA2	*	*	4	1	*	*	†	94
GM13686-GA4	*	*	5	1	*	*	†	94
GM13686-GA6	*	*	6	1	*	*	†	94
GM13686-GA8	*	*	8	1	*	*	†	94

- \* Configured group. Refer to the generator set nameplate for the module number.  
Turn to the respective group on the following pages for parts breakdowns.
- † Configured group. Refer to the generator set nameplate for the module number.  
See controller parts catalog TP-6009 for controller parts lists.

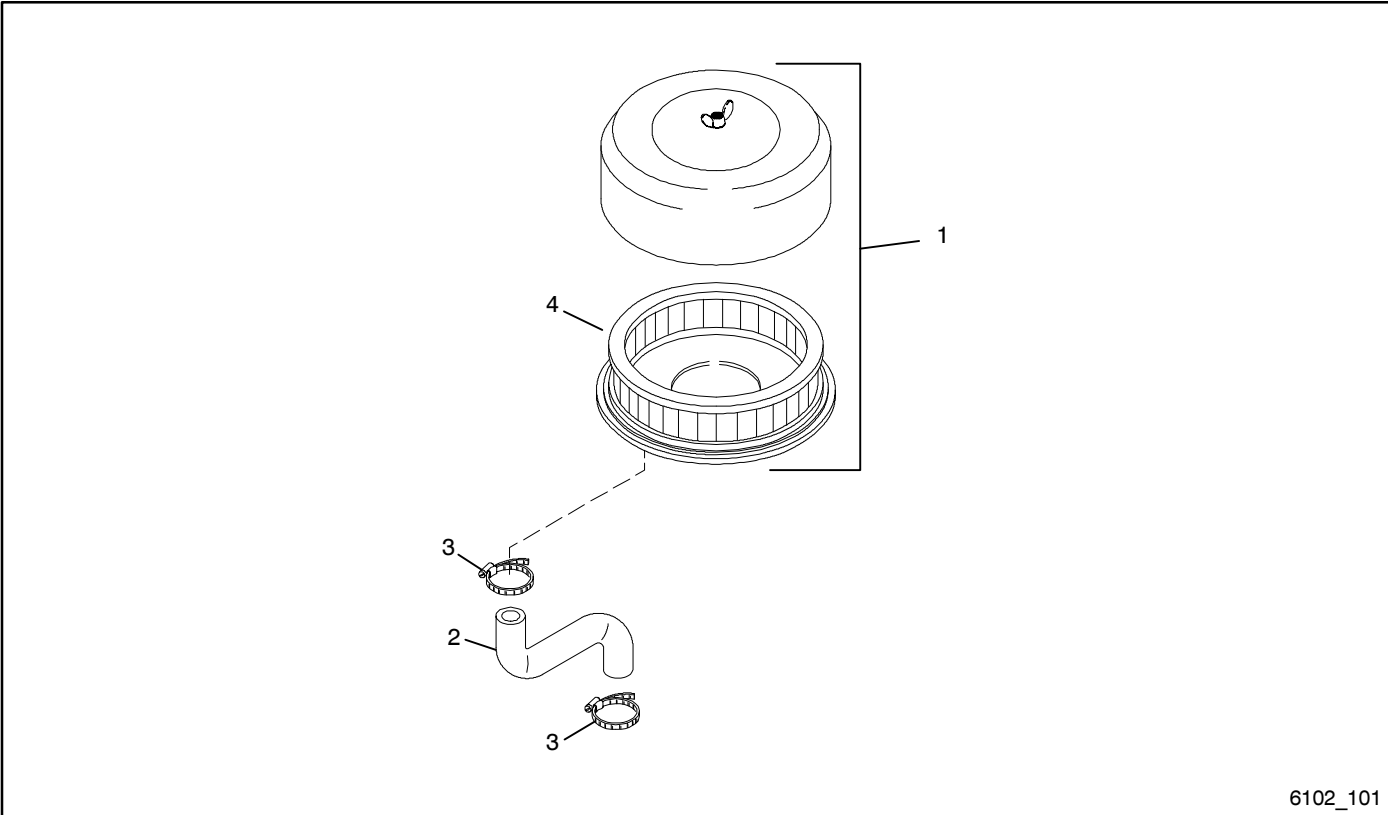
# Specification Number Index

Group Title								
	<i>Air Intake</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>Skid and Plant Mounting</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>
Group No.	101	104	105	107	109	201	301	701
Spec No.	Variation Number							
<b>80RZG</b>								
GM13934-GA1	*	*	9	2	*	*	†	102
GM13934-GA2	*	*	10	2	*	*	†	102
GM13934-GA3	*	*	12	2	*	*	†	102
GM13934-GA4	*	*	11	2	*	*	†	102
<b>100RZG</b>								
GM13934-GA5	*	*	9	2	*	*	†	104
GM13934-GA6	*	*	10	2	*	*	†	104
GM13934-GA7	*	*	13	2	*	*	†	104
GM13934-GA8	*	*	11	2	*	*	†	104
<b>125RZG</b>								
GM20568-GA1	*	*	14	2	*	*	†	130
GM20568-GA2	*	*	15	2	*	*	†	130

- \* Configured group. Refer to the generator set nameplate for the module number. Turn to the respective group on the following pages for parts breakdowns.
- † Configured group. Refer to the generator set nameplate for the module number. See controller parts catalog TP-6009 for controller parts lists.

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# Group 101: Air Intake

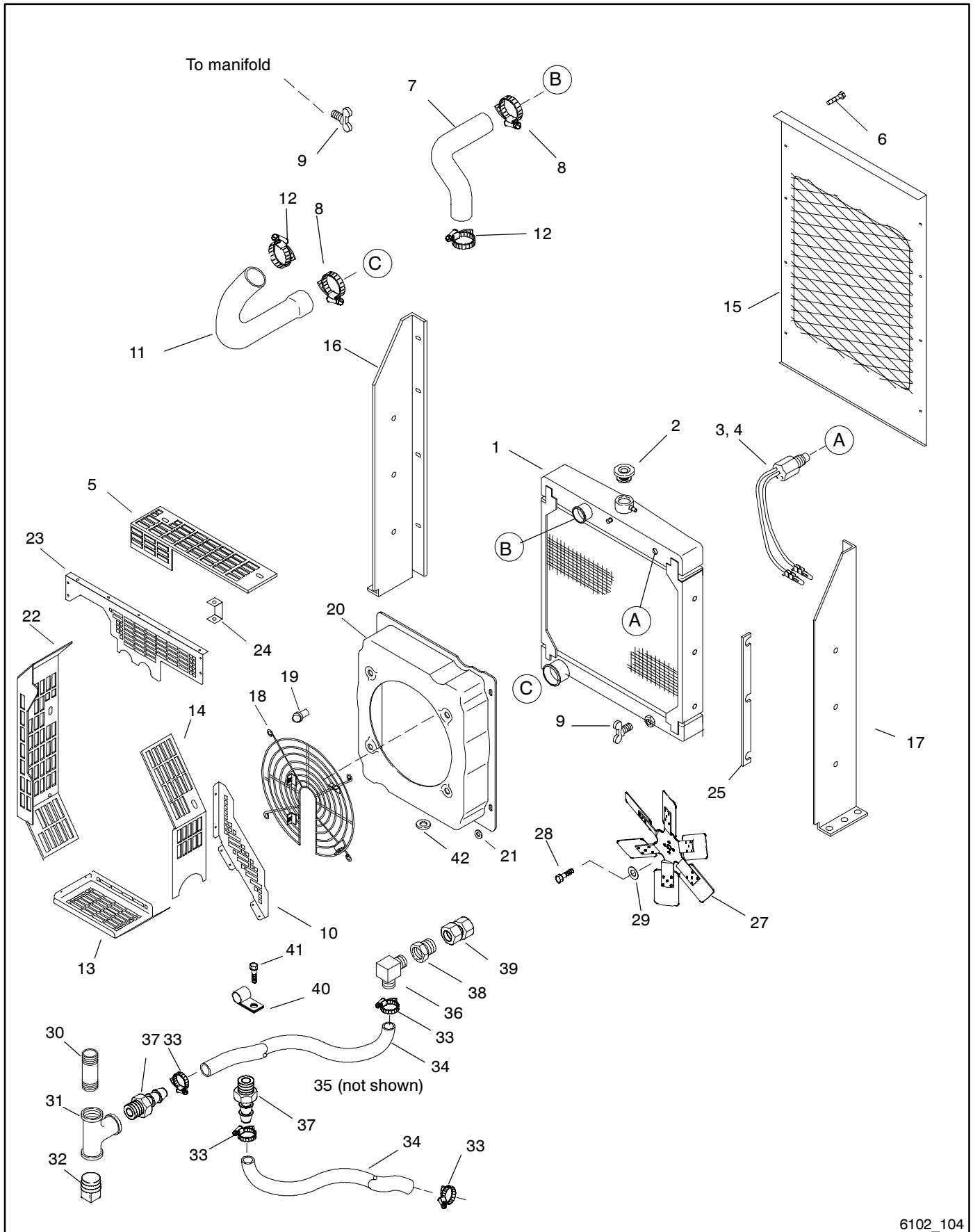


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# Group 101: Air Intake

Item	Part Number	Description	Quantity					
			Module Number					
			GM13687-MA1	GM13687-MA2	GM13687-MA3	GM13687-MA4	GM13687-MA5	
1	A-326051	Air cleaner		1	1			1
1	A-326315	Air cleaner	1					
1	GM14303	Air cleaner				1		
1	GM21040	Air cleaner						1
2	GM13761	Hose, molded breather, 13 mm ID	1	1			1	
2	GM17414	Hose, molded breather, 9.5 mm ID			1			
3	X-426-10	Clamp, hose, 0.5/1.0 in.	2	2	1		2	
3	X-426-9	Clamp, hose, 0.25/.70 in.			1			1
4	326099	Element, air cleaner		1	1		1	
4	258423	Element, air cleaner	1					

# Group 104: Cooling System

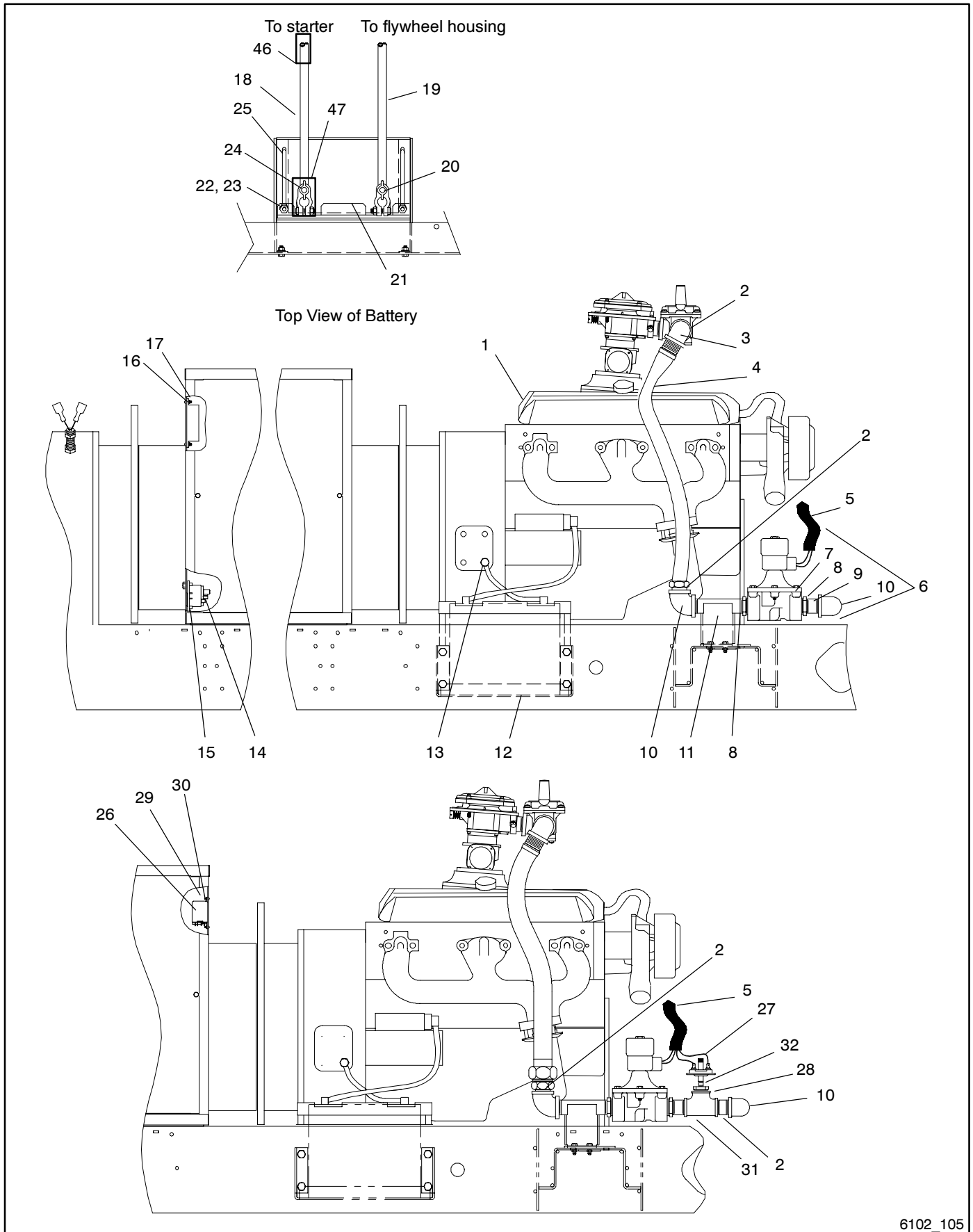


6102\_104

## Group 104: Cooling System

Item	Part Number	Description	Quantity				
			Module Number				
			GM14190-MA1	GM14190-MA2	GM13688-MA1	GM13936-MA1	GM20570-MA1
1	GM14096	Radiator assembly			1		
1	GM14095	Radiator assembly	1	1			
1	A-336663	Radiator assembly				1	
1	GM20718	Radiator assembly					1
1	X-75-2	Plug, pipe, 1/4 NPT (not shown)				1	1
2	224358	Cap, radiator, 7 psi	1	1	1		
2	352327	Cap, radiator				1	
3	365289	Sensor, low fluid	1	1	1	1	1
4	X-6003-8	Conduit, convoluted	1	1	1	1	1
5	GM15347	Guard, belt top	1	1	1		
5	GM16075	Guard, belt top				1	1
6	X-794-1	Screw, HH seal washer, drill	10	10	10	10	
7	GM13524	Hose, radiator, upper	1	1	1		
7	GM13925	Hose, radiator, upper				1	1
8	X-426-6	Clamp, hose, 1.56/2.5 in.	2	2	2	2	2
9	X-256-3	Valve, drain, 1/4 in. NPT	2	2	2	1	1
9	X-202-47	Bushing reducing, 1/4 x 1/2 in. NPT (not shown)				1	1
9	X-75-28	Plug, pipe 1/2 NPT (not shown)				3	
10	GM15349	Guard, belt back	1	1	1		
10	GM16080	Guard, belt back				1	1
11	GM14098	Hose, radiator lower	1	1	1		
11	GM13884	Hose, radiator lower				1	1
12	X-426-4	Clamp, hose, 1.31/2.25 in.	2	2	2		
12	X-426-2	Clamp, hose, 2.31/3.25 in.				1	1
12	250081	Clamp, hose, 2.06/3 in.				1	1
13	GM15348	Guard, belt, bottom	1	1	1		
13	GM16079	Guard, belt, bottom				1	1
14	GM15345	Guard, belt, RS	1	1	1		
14	GM16081	Guard, belt, RS				1	1
15	GM14100	Guard, radiator	1	1	1		1
15	GM13843	Guard, radiator				1	
16	GM14006	Support, radiator, LS		1			
16	GM17067	Support, radiator, LS	1	1	1	1	1
17	GM17066	Support, radiator, RS	1	1	1	1	1
18	352378	Guard, wire	1	1	1		
18	GM16662	Guard, wire				1	1
19	X-6365-1	Insert, threaded, 5/16-18 in.	4	4	4	4	4
20	324076	Shroud, fan	1	1	1		
20	276400	Shroud, fan				1	
20	GM20717	Shroud, fan					1
21	X-25-73	Washer, plain, .266 IDx1 OD	4	4	4		
21	X-25-75	Washer, plain, .344 IDx.875 OD				4	4
22	GM15346	Guard, belt, LS	1	1	1		
22	GM16077	Guard, belt, LS				1	1
23	GM15350	Guard, belt upper back	1	1	1		
23	GM16639	Guard, belt upper back				1	1
23	GM16633	Guard, belt upper back, LS (LP liquid fuel only)	1	1	1		
23	GM16783	Guard, belt upper back, RS (LP liquid fuel only)	1	1	1		
23	GM1040-2	Insert, threaded, 6 mm (not shown)	1	1	1		
24	352384	Bracket, belt guard	2	2	2		
24	GM16078	Bracket, belt guard, bottom				2	2
25	324229	Spacer, radiator			2		
26	X-75-54	Plug, pipe brass (not shown)	3	3	3		3
27	GM16769	Fan, pusher	1		1		
27	GM13526	Fan, pusher		1			
27	GM16770	Fan, pusher				1	1
27	M933-08030-82	Screw, hex cap	4	4	4	4	4
29	M125A-08-80	Washer, plain	4	4	4		4
30	X-209-21	Pipe, 1/2 NPT x 4.5 in.					1
31	X-203-13	Tee, pipe, 1/2 x 1/2 x 1/2 NPT					1
32	X-75-28	Plug, pipe brass					1
33	X-426-10	Clamp, hose, 0.5/1.0 in.					4
34	X-6242-13	Line, flexible					2
35	GM10669	Shield, heat					2
36	X-391-21	Connector, 90 deg., 1/2 ID hose					2
37	X-582-5	Connector, hose + vibra seal					2
38	X-202-41	Bushing, reducing, 1/2x3/4 NPT					2
39	361598	Connector, swivel nut					2
40	X-672-13	Clamp, insulated					2
41	X-794-1	Screw, hex washer head					1
42	243488	Grommet, round					2

# Group 105: Engine

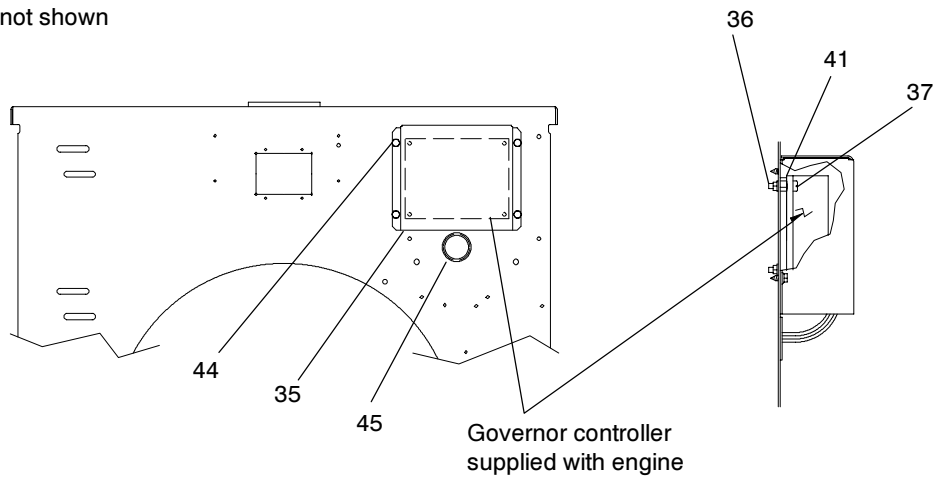


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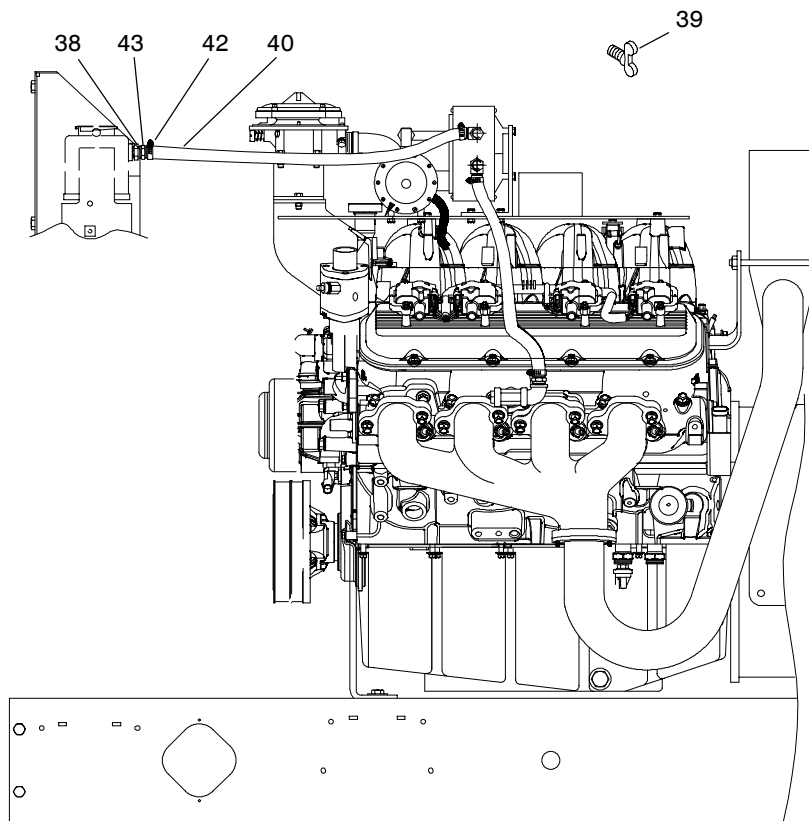


# Group 105: Engine, continued

Items 33 and 34 not shown



Opposite side



## Group 105: Engine, continued

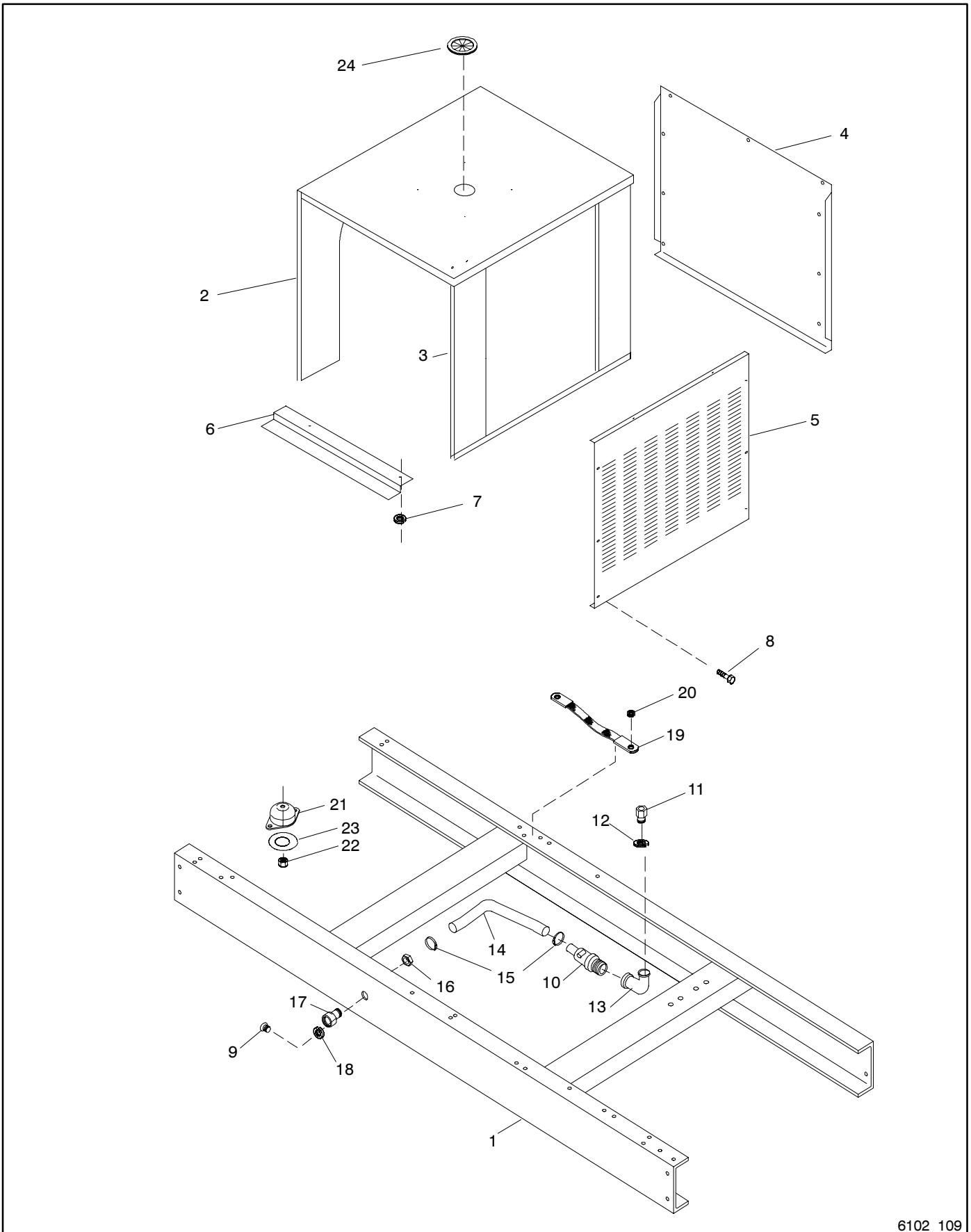
Item	Part Number	Description	Quantity														
			Variation Number														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
33	358224	Plug, water, exhaust outlet tube (not shown)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
34	358306	Gasket, exhaust outlet tube (not shown)	1	1	1	1	1	1	1	1	1	1	1	1	1		
35	GM17618	Cover, governor control															
36	M125-05-80	Washer, plain										4	4				
37	M7985A-05025-20	Screw, pan head machine										4	4				
38	X-202-12	Bushing, reducing, 1 x 1/2 NPT										1	1				
39	X-256-5	Valve, drain, 1/2 NPT								1	1	1	1	1	1		
40	X-312-5	Hose, molded, .62 in. ID										1	1				
41	X-400-145	Spacer, .209 ID x .375 OD x .234 in.										4	4				
42	X-426-3	Clamp, hose, .56/1.06 in.										2	2				
43	X-582-1	Connector, hose + vibra seal										1	1				
44	X-6216-1	Screw, Phillips hex crimpite										4	4				
45	X-634-16	Bushing, 1.312 x 1.50 in. NPT										1	1				
45	X-301-45	Plug, button												1	1		
46	GM20743	Boot, starter terminal	1	1	1	1	1	1	1	1	1	1	1	1	1		
47	GM20745	Boot, battery lug	1	1	1	1	1	1	1	1	1	1	1	1	1		

# Notes

## Group 107: Nameplate and Decals

Item	Part Number	Description	Quantity	
			Variation Number	
			1	2
1	238402	Decal, caution positive terminal only	1	1
2	249808	Decal, warning rotating parts	1	1
3	249809	Decal, caution hot engine	2	2
4	249810	Decal, warning hot coolant	1	1
5	273780	Decal, warning explosion	1	1
6	GM15300	Decal, exhaust piping	1	1
7	224233	Decal, 1-800 number	1	1
8	257438	Decal, danger moving rotor	3	3
9	257441	Decal, warning lifting eye	1	1
10	258815	Decal, warning voltage backfeed	1	1
11	273739	Decal, Fast Response	2	2
12	327004	Nameplate, model/ratings, Kohler	1	1
13	GM13776	Decal, FRII reconnection	1	1
14	X-6232-6	Decal, stripe	3	3
15	X-6246-6	Decal, Kohler Power System	2	
15	X-6246-1	Decal, Kohler Power System	2	
16	GM20173	Decal, fuel type, natural gas	1	1
16	GM20174	Decal, fuel type, LPG vapor withdrawal	1	1
16	GM20175	Decal, fuel type, LPG liquid withdrawal	1	1

# Group 109: Skid and Plant Mounting



6102\_109

# Group 109: Skid and Plant Mounting

Item	Part Number	Description	Quantity											
			Module Key											
			A	B	C	C2	D	D2	E	F	G	H	I	J
1	GM14092	Skid	1											
1	GM14093	Skid		1										
1	GM14091	Skid			1									
1	GM17185	Skid, 34 in.				1							1	
1	GM17065	Skid, 34 in.					1				1			
1	GM17203	Skid, 34 in.						1				1		
1	GM16715	Skid							1					
1	GM17278	Skid, 34 in.								1				1
2	GM14076	Panel, junction box, front	1		1	1		1						
2	GM17623	Panel, junction box, front									1			1
2	GM17417	Panel, junction box, front										1	1	
2	364036	Box, junction		1			1		1	1				
3	GM14077	Panel, junction box, rear	1			1		1						
3	GM17624	Panel, junction box, rear									1			1
3	GM17418	Panel, junction box, rear			1							1	1	
4	222835	Cover, side		2			2		2	2				
4	GM17640	Cover, side									2			2
4	GM14078	Cover, side										2	2	
5	GM14079	Cover, rear	1		1	1		1						
5	364037	Cover, rear					1		1	1				
5	GM17625	Cover, rear									1			1
5	GM17419	Cover, rear										1	1	
6	GM14080	Support, junction box	2		2									
6	GM14196	Support, junction box		2					2					
7	X-22-16	Washer, lock, .326 ID x .883 in. OD	6		2	2		4			4	4	4	4
7	X-22-15	Washer, lock, .456 ID x 1.058 in. OD		4			2		4	4				
8	X-6216-1	Screw, Phillips hex crimpite	12	12	12	12	12	12	12	12	12	12	12	12
9	241062	Plug, drain	1	1	1	1	1	1	1	1	1	1	1	1
10	272701	Valve, oil drain	1	1			1	1			1	1		
10	GM19299	Valve, oil drain			1	1			1	1			1	1
10	365498	O-ring, ISO 6149, 9.3mm ID (not shown)							1	1				1
11	326815	Adapter, bushing	1	1	1		1	1			1	1		
12	X-6278-9	Washer, nylon, .48 ID x .825 in. OD	1	1	1	1	1	1			1	1	1	
13	X-211-1	Fitting, elbow, 1/2 in., street	1	1			1	1			1	1		
14	X-577-28	Hose, rubber, straight, .62 in. ID		1										
14	X-577-47	Hose, rubber, straight, .62 in. ID			1	1							1	
14	X-577-5	Hose, rubber, straight, .62 in. ID, 1.17 ft.					1	1	1	1	1	1		1
14	GM17809	Shield, heat (not shown)								1				1
15	X-426-10	Clamp, hose, 5/1 in.	2	2	2	2	2	2	2	2	2	2	2	2
16	X-80-1	Nut, hex jam, 1 1/4 in.	1	1	1	1	1	1	1	1	1	1	1	1
17	273729	Adapter, hose	1	1	1	1	1	1	1	1	1	1	1	1
18	276552	Washer, nylon, .878 ID x 1.132 in. OD	1	1	1	1	1	1	1	1	1	1	1	1
19	290418	Strap, ground	1	1	1	1	1	1	2	1	1	1	1	2
20	X-22-15	Washer, lock, .456 ID x 1.058 in. OD	3	3	3	3	3	3	3	3	3	3	3	3
21	324073	Vibromount	2	2			2	2	2	2	2	2	2	2
21	276476	Vibromount			2	2							2	
22	M982-12-80	Nut, hex elastic stop	2	2	2	2	2	2	2	2	2	2	2	2
23	X-25-140	Washer, plain, .531 ID x 2 in. OD	2	2	2	2	2	2	2	2	2	2	2	2
24	X-284-31	Grommet, round			1	1							1	

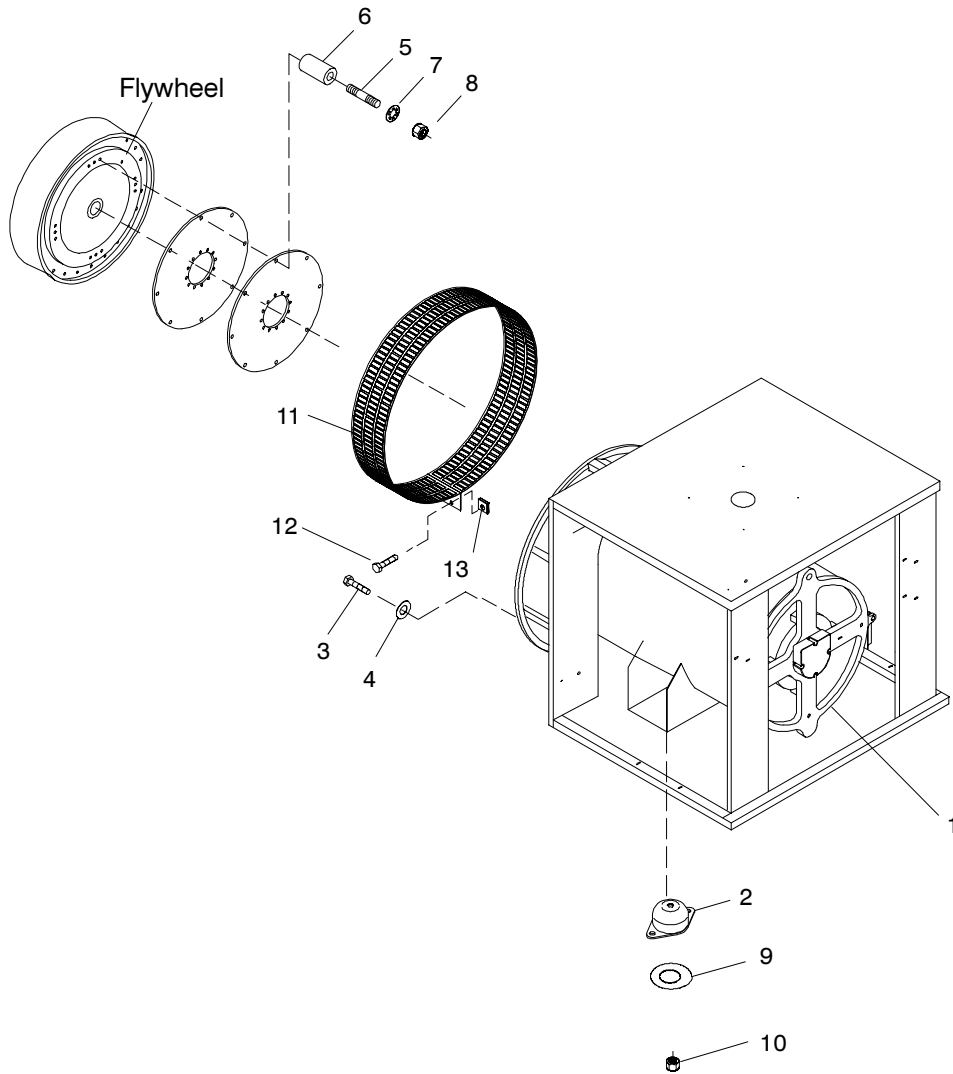
### Module Number to Key Cross-Reference

Use the alternator module number from the generator set nameplate to determine the key.

Module Number	Key
GM13702-MA1	A
GM13702-MA2	B
GM14189-MA1	C
GM17205-MA1	C2
GM17064-MA1	D
GM17064-MA2	D2
GM13937-MA1	E
GM17277-MA1	F
GM17673-MA1	G
GM17673-MA2	H
GM17674-MA1	I
GM17675-MA1	J

# Group 201: Generator and Mounting

Items 14-16 not shown.



# Group 201: Generator and Mounting

Item	Part Number	Description	Qty.
1	See chart	Alternator assembly	1
2	324074	Vibromount, 4P7, 4P8, 4P10 alternator	2
2	324073	Vibromount, 4P5, 4Q5 alternator	2
2	324075	Vibromount, 4S7, 4V7 alternator	2
2	324391	Vibromount, 4S7*, 4S9, 4V9 alternator	2
2	336024	Vibromount, 4S13, 4V11 alternator	2
3	270956	Screw, 3/8-16 x 1 1/4, 4P, 4Q alternator	6
3	270158	Bolt, hex cap, 4S, 4V alternator	6
4	X-801-3	Washer, hardened, .406 ID x .812 OD	6
5	X-352-63	Stud, 3/8-16 x 4 in.	8
6	X-400-132	Spacer, .406 ID x .625 OD x 2.531 in.	8
7	X-801-3	Washer, hardened, .406 ID x .812 OD	8
8	X-6210-9	Nut, flange spiralock, 3/8-16	8
9	X-25-140	Washer, plain, .531 ID x 2 in. OD	2
9	X-25-112†	Washer, plain	2
10	M982-12-80	Nut, hex elastic stop	2
10	M982-16-80†	Nut, hex elastic stop	2
11	257046	Guard, generator fan	1
11	257179	Guard, generator fan, 4S and 4 alternator	1
12	X-67-125	Screw, hex washer, thread-forming	2
13	257442	Clip, speed	2
14	X-750-14	Marker, wire L1 (not shown)	1
15	X-750-15	Marker, wire L2 (not shown)	1
16	X-750-16	Marker, wire L3 (not shown)	1

Alternator assembly includes items 1-32 on following page.

† Select this part number for modules using SAE 11 1/2 in. flywheel.

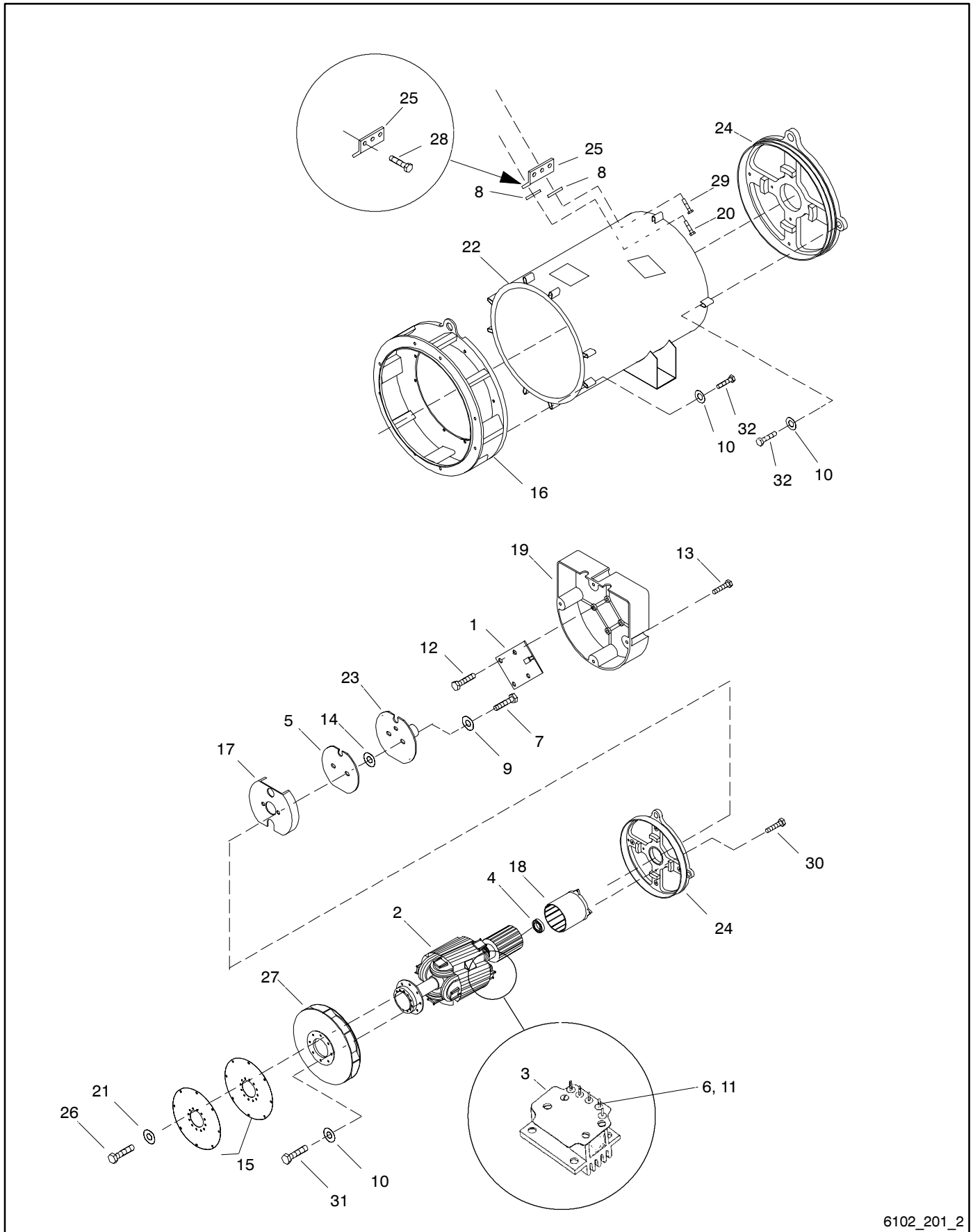
## Alternator Part Number and Mount Type

Use this table to identify the module number's alternator part number.

Module No.	Alternator Description	Item 1, Alternator Assembly
GM13729-MA1	4P5	B-257719
GM13729-MA2	4P5, 600 V	B-257726
GM13729-MA3	4P5B	GM13676
GM13729-MA4	4P5B, 600 V	GM13677
GM13729-MA5	4P7B	GM13678
GM13729-MA6	4P7B, 600 V	GM13679
GM13729-MA7	4P8	B-257721
GM13729-MA8	4P8, 600 V	B-257728
GM13729-MA9	4P10	B-257739
GM13729-MA10	4P10, 600 V	B-257729
GM13729-MA11	4Q5	A-360736
GM13729-MA12	4Q10	A-360739
GM13730-MA1	4S7	A-276669
GM13730-MA2	4S7, 600 V	A-276672
GM13730-MA3*	4S7	A-276686
GM13730-MA4*	4S7, 600 V	A-276688
GM13730-MA5	4S9	A-276687
GM13730-MA6	4S9, 600 V	A-276689
GM13730-MA7	4S13	A-276684
GM13730-MA8	4S13, 600 V	A-276685
GM13730-MA9	4V7	A-360741
GM13730-MA10	4V9	A-360405
GM13730-MA11	4V11	A-360379
GM17701-MA1	4P5	C-257719
GM17701-MA2	4P5, 600 V	C-257726
GM17701-MA3	4P5B	GM16880
GM17701-MA4	4P5B, 600 V	GM16881
GM17701-MA5	4P7B	GM16882
GM17701-MA6	4P7B, 600 V	GM16883
GM17701-MA7	4P8	C-257721
GM17701-MA8	4P8, 600 V	C-257728
GM17701-MA9	4P10	C-257739
GM17701-MA10	4P10, 600 V	C-257729
GM17701-MA11	4Q5	B-360736
GM17701-MA12	4Q10	B-360739
GM17672-MA1	4S7	GM17563-1
GM17672-MA2	4S7, 600 V	GM17563-4
GM17672-MA3*	4S7	GM17563-13
GM17672-MA4*	4S7, 600 V	GM17563-15
GM17672-MA5	4S9	GM17563-14
GM17672-MA6	4S9, 600 V	GM17563-16
GM17672-MA7	4S13	GM17563-11
GM17672-MA8	4S13, 600 V	GM17563-12
GM17672-MA9	4V7	GM17563-26
GM17672-MA10	4V9	GM17563-24
GM17672-MA11	4V11	GM17563-23
GM17672-MA12	4S11	GM17563-21

\* Modules use SAE 11 1/2 in. flywheel.

# Group 201: Generator and Mounting, continued



6102\_201\_2

## Group 201: Generator and Mounting, continued

Item	Part No.	Description	Qty.
1	A-257099	PCB assembly, LED, FR11	1
2	See chart on next page	Rotor assembly	1
3	B-258545	Heatsink, 4P and 4Q alternators	1
3	B-258549	Heatsink, 4S and 4 V alternators	1
4	X-758-2	Bearing, ball, 4P and 4Q alternators	1
4	X-758-6	Bearing, ball, 4S and 4 V alternators	1
5	A-360418	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, .262 ID x .743 in. OD, 4P and 4Q alternators	2
8	X-22-45	Washer, lock, .338 ID x .884 in. OD, 4S and 4 V alternators	2
9	X-22-9	Washer, lock, .20 ID x .373 in. OD	2
10	X-25-93	Washer, plain, .406 ID x .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, .195 ID x .5 in.	2
15	257015	Lamination, armature drive, 4P and 4Q alternators	2
15	257103	Lamination, armature drive, 4S and 4V SAE 11 1/2 flywheel	2
15	257102	Lamination, armature drive, 4S and 4V SAE 10 in. flywheel	2
16	257018	Adapter, generator, 4P and 4Q alternators	1
16	257175	Adapter, generator, 4S and 4 V alternators	1
17	257077	Actuator, magnetic cup	1
18	257080	Exciter field assembly, 30/35 kW	1
18	257081	Exciter field assembly, 45-60 kw	1
18	276657	Exciter field assembly, 80-150 kw	1
19	257258	Cover, FR LED circuit board	1
20	X-791-5	Screw, hex head machine, 4P and 4Q alternators	1
20	X-791-7	Screw, hex head machine, 4S and 4 V alternators	1
21	X-801-3	Washer, hardened, .406 ID x .812 in.	8
21	X-801-3	Washer, hardened, .406 ID x .812 in.	12
22	See chart on next page	Stator assembly	1
23	257850	Insulator	1
24	257984	End bracket, 4P and 4Q alternators	1
24	257983	End bracket, 4S and 4V alternators	1
25	257986	Lead connector, 4P and 4Q alternators	1
25	257985	Lead connector, 4S and 4V alternators	1
25	257978	Lead connector, 4S and 4V alternators, 1 phase	1
26	270956	Screw, cylinder head, 3/8-16 x1 1/4, 4P and 4Q alternators	8
26	270956	Screw, cylinder head, 3/8-16 x1 1/4, 4S and 4V alternators	12
27	347697	Fan, alternator, 4P and 4Q alternators	1
27	257173	Fan, alternator, 4S and 4V alternators	1
28	X-125-24	Screw, HC, 4S and 4V alternators	3
28	X-6238-5	Screw, HC, 4S and 4V alternators, 1-phase	3
28	X-465-8	Screw, HC, 4P and 4Q alternators	3
29	X-456-16	Screw, HC, 4S and 4V alternators	1
29	X-125-31	Screw, HC, 4P and 4Q alternators	1
30	X-125-34	Screw, HC	4
31	X-6238-11	Screw, HC	4
32	X-6238-6	Screw, HC, 4P and 4Q alternators	10
32	X-6238-6	Screw, HC, 4S and 4V alternators	1
32	X-6238-9	Screw, HC, 4S and 4V alternators	9

## Alternator Part Number and Mount Type

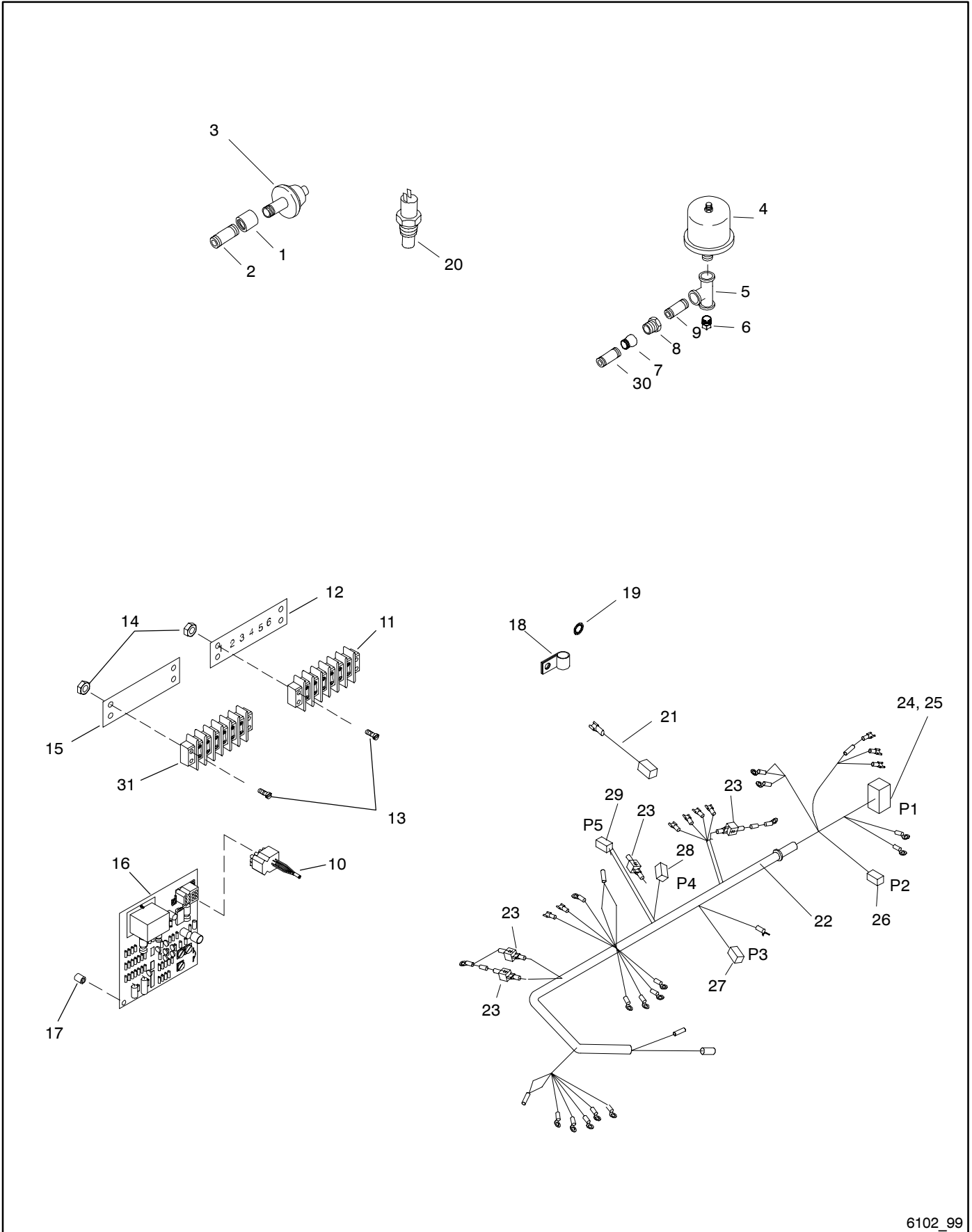
Use this table to identify the kit/module number's alternator, rotor, and stator part numbers.

Module No.	Alternator Description	Alternator Assembly	Item 2, Rotor Assembly	Item 22, Stator Assembly
GM13729-MA1	4P5	B-257719	A-258979	257766
GM13729-MA2	4P5, 600 V	B-257726	A-258979	257771
GM13729-MA3	4P5B	GM13676	A-326938	360501
GM13729-MA4	4P5B, 600 V	GM13677	A-326938	GM13681
GM13729-MA5	4P7B	GM13678	A-336564	326728
GM13729-MA6	4P7B, 600 V	GM13679	A-336564	GM13682
GM13729-MA7	4P8	B-257721	A-258977	257768
GM13729-MA8	4P8, 600 V	B-257728	A-258977	257773
GM13729-MA9	4P10	B-257739	A-258975	257769
GM13729-MA10	4P10, 600 V	B-257729	A-258975	257774
GM13729-MA11	4Q5	A-360736	A-258979	360748
GM13729-MA12	4Q10	A-360739	A-258975	360751
GM13730-MA1	4S7	A-276669	A-276656	257692
GM13730-MA2	4S7, 600 V	A-276672	A-276659	257690
GM13730-MA3*	4S7	A-276686	A-276664	257687
GM13730-MA4*	4S7, 600 V	A-276688	A-276664	257690
GM13730-MA5	4S9	A-276687	A-276665	257688
GM13730-MA6	4S9, 600 V	A-276689	A-276665	257691
GM13730-MA7	4S13	A-276684	A-276666	257689
GM13730-MA8	4S13, 600 V	A-276685	A-276666	257692
GM13730-MA9	4V7	A-360741	A-276659	360752
GM13730-MA10	4V9	A-360405	A-276665	360410
GM13730-MA11	4V11	A-360379	A-343443	360380
GM17701-MA1	4P5	C-257719	A-258979	257766
GM17701-MA2	4P5, 600 V	C-257726	A-258979	257771
GM17701-MA3	4P5B	GM16880	A-326938	360501
GM17701-MA4	4P5B, 600 V	GM16881	A-326938	GM13681
GM17701-MA5	4P7B	GM16882	A-336564	326728
GM17701-MA6	4P7B, 600 V	GM16883	A-336564	GM13682
GM17701-MA7	4P8	C-257721	A-258977	257768
GM17701-MA8	4P8, 600 V	C-257728	A-258977	257773
GM17701-MA9	4P10	C-257739	A-258975	257769
GM17701-MA10	4P10, 600 V	C-257729	A-258975	257774
GM17701-MA11	4Q5	B-360736	A-258979	360748
GM17701-MA12	4Q10	B-360739	A-258975	360751
GM17672-MA1	4S7	GM17563-1	A-276659	GM17559-1
GM17672-MA2	4S7, 600 V	GM17563-4	A-276659	GM17561-1
GM17672-MA3*	4S7	GM17563-13	A-276664	GM17559-1
GM17672-MA4*	4S7, 600 V	GM17563-15	A-276664	GM17561-1
GM17672-MA5	4S9	GM17563-14	A-276665	GM17559-2
GM17672-MA6	4S9, 600 V	GM17563-16	A-276665	GM17561-2
GM17672-MA7	4S13	GM17563-11	A-276666	GM17559-3
GM17672-MA8	4S13, 600 V	GM17563-12	A-276666	GM17561-3
GM17672-MA9	4V7	GM17563-26	A-276659	GM17562-3
GM17672-MA10	4V9	GM17563-24	A-276665	GM17562-2
GM17672-MA11	4V11	GM17563-23	A-343443	GM17562-1
GM17672-MA12	4S11	GM17563-21	A-343443	GM17559-4

\* Modules use SAE 11 1/2 in. flywheel.

# Notes

# Control and Harness



6102\_99

# Control and Harness

Item	Part Number	Description	Quantity										
			Module Key										
			A	B	C	D	E	F	G	H	I	J	K
1	X-216-24	Coupling, pipe, 1/8 x 1 3/16 in.	1		1								
1	X-202-29	Bushing, reducing, 1/8 x 1/2 in. NPT					1	1	1	1		1	1
2	X-217-7	Pipe, 1/8 x 1 in.	1		1								
2	289055	Pipe, 1/8 x 1.5 in.									1		
2	X-215-19	Elbow, pipe, 90 deg. x 1/8 in. NPT									1	1	
3	328309	Switch assembly, pressure	1	1	1	1	1	1	1	1			
3	GM16788	Sensor, pressure, 1/8-27 NPT									1	1	1
4	343473	Sender, oil pressure	1	1			1		1				
5	X-203-10	Tee, pipe, 1/8 x 1/8 x 1/8 NPT	1	1			1		1				
6	X-75-4	Plug, pipe, 1/8	1	1			1						
7	X-225-17	Elbow, pipe, 45 deg. x 1/4 in. NPT	1	1									
7	225127	Adapter, bushing					1					1	
7	GM16112	O-ring, ISO 6149, 13.3mm ID (not shown)					1					1	
8	X-202-27	Bushing, reducing, 1/8 x 1/4 in. NPT	1	1								1	
8	D-228	Bushing, reducing, 1/8 x 3/8 in. NPT					1					1	1
9	X-217-6	Nipple, pipe, 1/8 x 3/4 in.	1	1									
10	354118	Harness, wiring, CT harness	1	1	1	1	1	1	1	1			
11	295314	Block, terminal	1	1	1	1	1	1	1	1	1	1	1
12	299090	Marker, strip	1	1	1	1	1	1	1	1	1	1	1
13	M7985A-04020-20	Screw, pan head machine	4	4	4	4	4	4	4	4	4	4	4
14	M934-04-50	Nut, hex, 4 mm	4	4	4	4	4	4	4	4	4	4	4
15	255080	Marker, strip	1	1	1	1	1	1	1	1			
15	254127	Marker, strip									1	1	1
16	C-255670	PCB assembly, FRII voltage/Hz regulator	1	1	1	1	1	1	1	1			
17	360459	Standoff, circuit board	4	4	4	4	4	4	4	4			
18	X-672-3	Clamp, insulating	2	2	2	2	1	1	1	1	2	2	2
18	X-672-36	Clamp (not shown)					2	2	1	1		1	1
19	X-22-26	Washer, lock, .521 ID x 1.24 in. OD	1	1	1	1	1	1	1	1	1	1	1
20	GM10626	Switch, sensor	1	1			1		1				
20	336923	Switch, sensor			1	1		1		1			
20	GM16787	Sensor, temperature, 1/2-14 NPT									1	1	1
21	GM13701	Connector, weathertight, 2-position	1	1	1	1					1		
22	GM13693	Harness, engine, 30-60 kW (incl items 23-29)	1	1	1	1							
22	GM14101	Harness, engine, 80-100 kW (incl items 23-29)					1	1					
22	GM20720	Harness, engine, 80-125 kW (incl items 23-29)							1	1			
22	GM16876	Harness, engine, 30-60 kW									1		
22	GM16877	Harness, engine, 80-100 kW										1	
22	GM20721	Harness, engine, 80-125 kW											1
23	233959	Diode, 6 A	4	4	4	4	4	4					
24	292800	Connector, cable	1	1	1	1	1	1					
25	295145	Connector, 24-position	1	1	1	1	1	1					
26	GM13271	Connector, plug, 12-pin	1	1	1	1	1	1					
27	GM13694	Connector, weathertight, 4-position	1	1	1	1							
28	343126	Connector, weathertight	1	1	1	1	1	1					
29	GM13697	Connector, weathertight, 2-position	1	1	1	1	1	1					
30	X-220-6	Pipe, 1/4 NPT x 1.50 in.	1	1									
30	289055	Pipe, 1/8 in. NPT x 1.50 in.					1	1	1	1		1	1
31	295314	Block, terminal	1	1	1	1	1	1	1	1			
31	X-405-2	Block, terminal									1	1	1

## Module Number to Key Cross-Reference

Use the module number of your control and harness from the generator set nameplate or engine group variation from the Specification Number Index to determine the key.

Key	Kit Number	kW	Controllers
A	GM13075-MA1	30-45	16-Light and Decision-Maker 1
B	GM13075-MA2	50/60	16-Light and Decision-Maker 1
C	GM13075-MA3	30-45	Decision-Maker 1 without meters/gauges
D	GM13075-MA4	50/60	Decision-Maker 1 without meters/gauges
E	GM13938-MA1	80/100	16-Light and Decision-Maker 1
F	GM13938-MA2	80/100	Decision-Maker 1 without meters/gauges
G	GM20571-MA1	125	16-Light and Decision-Maker 1
H	GM20571-MA2	125	Decision-Maker 1 without meters/gauges
I	GM17654-MA1	30-60	Decision-Maker 550
J	GM17655-MA1	80/100	Decision-Maker 550
K	GM20706-MA1	100/125	Decision-Maker 550

# Group 701: Literature

Item	Part Number	Description	Quantity							
			Variation Number							
			92	94	96	98	100	102	104	130
1	TP-5353	S/M FR11 20-300 kW, Industrial	1	1	1	1	1	1	1	1
2	TP-5374	Warranty, 1 Yr. Ltd.	1	1	1	1	1	1	1	1
3	TP-5700	I/M Industrial	1	1	1	1	1	1	1	1
4	TP-5700-CS	I/M Industrial, Chinese Simplified	1	1	1	1	1	1	1	1
5	TP-5700-CT	I/M Industrial, Chinese Traditional	1	1	1	1	1	1	1	1
6	TP-5700-F	I/M Industrial, French	1	1	1	1	1	1	1	1
7	TP-5700-G	I/M Industrial, German	1	1	1	1	1	1	1	1
8	TP-5700-S	I/M Industrial, Spanish	1	1	1	1	1	1	1	1
9	TP-5708	P/C 17-100RZ/135-275RZD, Industrial	1	1	1	1	1	1	1	1
10	TP-5750	O/M 20-2000 kW	1	1	1	1	1	1	1	1
11	TP-5750-F	O/M 20-2000 kW, French	1	1	1	1	1	1	1	1
12	TP-5750-S	O/M 20-2000 kW, Spanish	1	1	1	1	1	1	1	1
13	TP-6083	O/M Decision Maker 550 Controller	1	1	1	1	1	1	1	1
14	TP-6009	P/C Controllers, Industrial	1	1	1	1	1	1	1	1
15	TP-6098	W/D 30-100RZG GM	1	1	1	1	1	1	1	1
16	TP-6101	O/M GM 4.3L, 5.7L, 8.1L, Natural Gas	1	1	1	1	1	1	1	1
17	TP-6102	P/C 30-100RZG	1	1	1	1	1	1	1	1
18	TP-6104	S/M GM 5.7L, Natural Gas	1	1						
18	TP-6103	S/M GM 4.3L, Natural Gas			1	1	1			
18	TP-6105	S/M GM 8.1L, Natural Gas						1	1	1
19	TP-6107	P/C GM 5.7L, Natural Gas	1	1						
19	TP-6106	P/C GM 4.3L, Natural Gas			1	1	1			
19	TP-6108	P/C GM 8.1L, Natural Gas						1	1	1

# Kit List

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

	30-60 kW	80-100 kW	125 kW
<b>Controllers</b>			
See Parts Catalog TP-6009 for parts lists.			
<b>Cooling Systems</b>			
Heater, block			
110-120 V	GM13734-KA1	GM14102-KA1	GM14102-KA1
190-240 V	GM13734-KA2	GM14102-KA2	GM14102-KA2
Remote radiator	GM17000-MA1	GM18494-MA1	GM20866-MA1
City water cooling	GM17017-MA1	GM18495-MA1	-
Duct flange, radiator	GM13896-KA1	GM13896-KA1	GM13896-KA1
<b>Fuel Systems</b>			
Fuel lines, flexible	GM13706-KP1	GM13706-KP1	GM13706-KP1
Fuel lines, flexible, dual fuel	GM14272-KP1	GM14272-KP1	GM14272-KP1
<b>Optional Kits</b>			
See Parts Catalog TP-5708 for parts lists.			
<b>Paint and Miscellaneous Parts</b>			
Paint, Kohler Cream Beige	All models use 221338 spray can, 221337 gallon, GM19489 touch-up		

# Cooling System Kits

Qty.	Description	Part No.
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## Block Heater, 110-120 V

1	Bracket, block heater mounting	326219
1	Heater, block	326228
1	Nipple, pipe, 1/2 x 1 1/2 in.	X-209-1
1	Fitting, elbow, 45 deg.	X-225-7
1	Hose, molded, .62 in. ID	X-312-16
1	Hose, molded, .62 in. ID	X-312-35
4	Clamp, hose, .5/1 in.	X-426-10
2	Coupling, hose	X-582-1
1	Shield, heat	GM17809

## Block Heater, 190-240 V

1	Bracket, block heater mounting	326219
1	Heater, block	326229
1	Nipple, pipe, 1/2 x 1 1/2 in.	X-209-1
1	Fitting, elbow, 45 deg.	X-225-7
1	Hose, molded, .62 in. ID	X-312-16
1	Hose, molded, .62 in. ID	X-312-35
4	Clamp, hose, .5/1 in.	X-426-10
2	Coupling, hose	X-582-1
1	Shield, heat	GM17809

## Block Heater, 190-240 V

1	Bracket, block heater mounting	326219
1	Heater, block	326228
1	Shield, heat	GM10669
1	Tee, pipe, 1/2 x 1/2 x 1/2 NPT	X-203-13
1	Pipe, 1/2 in. NPT x 1.19 in.	X-209-2
1	Pipe, 1/2 in. NPT x 12 in.	X-209-26
1	Pipe, 1/2 in. NPT x 1.50 in.	X-209-5
1	Elbow, pipe, 90 deg. x 1/2 in. NPT	X-216-20
1	Coupling, pipe	X-216-20
1	Hose, molded, .62 in. ID	X-312-17
1	Hose, molded, .62 in. ID	X-312-51
4	Clamp, hose, .69/1.25 in.	X-426-12
2	Coupling, hose	X-582-1
1	Clamp, insulated, .88 in.	X-672-28

## Block Heater, 190-240 V

1	Bracket, block heater mounting	326219
1	Heater, block	326229
1	Shield, heat	GM10669
1	Tee, pipe, 1/2 x 1/2 x 1/2 NPT	X-203-13
1	Pipe, 1/2 in. NPT x 1.19 in.	X-209-2
1	Pipe, 1/2 in. NPT x 12 in.	X-209-26
1	Pipe, 1/2 in. NPT x 1.50 in.	X-209-5
1	Elbow, pipe, 90 deg. x 1/2 in. NPT	X-216-20
1	Coupling, pipe	X-216-20
1	Hose, molded, .62 in. ID	X-312-46
1	Hose, molded, .62 in. ID	X-312-51
4	Clamp, hose, .69/1.25 in.	X-426-12
2	Coupling, hose	X-582-1
1	Clamp, insulated, .88 in.	X-672-28

## Duct Flange, Radiator

2	Frame, air duct	GM13897
2	Frame, air duct	GM13898
8	Rivet, pop, .187 in.	X-781-19
4	Screw, hex seal washer head, drill	X-794-4

## GM13734-KA1

## GM13734-KA2

## GM14102-KA1

## GM14102-KA2

## GM13896-KA1

Qty.	Description	Part No.
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## City Water Cooling (CWC)

1	Elbow, street (90 deg. x 1" NPT)	151385
2	Elbow, pipe, 90 deg. x 1-1/2 in. NPT	151771
1	Pipe, 1 1/2 in. NPT x 2.50 in.	151803
4	Clamp, hose, 1.75/2 in.	249888
1	Cap, pressure	258037
1	Heat exchanger	326160
3	Pipe, 1 1/2 in. NPT x 6.00 in.	155029-1
4	Elbow, street, 90 deg. x 1-1/2 in. NPT	A-27
2	Insert, threaded, metric, 6mm	GM11040-2
2	Clamp, hose	GM11993
1	Guard, belt, RS	GM15345
1	Guard, belt, LS	GM15346
1	Guard, belt, top	GM15347
1	Guard, belt, bottom	GM15348
1	Guard, belt, back	GM15349
1	Guard, belt upper back	GM15350
2	Bracket, remote radiator and CWC	GM16996
1	Bracket, remote radiator and CWC	GM16997
1	Bracket, remote radiator and CWC	GM16998
1	Guard, remote radiator and CWC	GM16999
1	Tank, expansion	GM17014
2	Bracket, tank support	GM17015
1	Valve, thermostatic	GM17016
2	Pipe, 1 in. NPT x 2.00 in.	K-122
1	Bushing, reducing (3/4 x 1 in. NPT)	X-202-1
1	Pipe (3/8" NPT x 2.00")	X-204-6
1	Pipe, 1 1/2 in. NPT x 3.25 in.	X-205-11
1	Pipe, 3/4 in. NPT x 1.38 in.	X-206-9
1	Elbow, street, 90 deg. x 1/2 in. NPT	X-211-1
1	Elbow, pipe, 90 deg. x 1 in. NPT	X-215-15
1	Coupling, pipe (3/8")	X-216-23
3	Elbow, pipe, 45 deg. x 1-1/2 in. NPT	X-225-3
2	Valve, drain, 3/8 in. NPT	X-256-1
1	Valve, drain, 1/4 in. NPT	X-256-3
1	Hose, radiator	X-304-19
1	Clamp, spring hose, .462/.545 in.	X-309-14
1	Valve, solenoid	X-350-8
1	Fuel line, flexible	X-386-36
4	Spacer, .406 ID x .75 OD x 1.05 in.	X-400-200
3	Adapter	X-570-17
1	Adapter	X-570-8
1	Hose, radiator wire insert	X-6014-21
1	Hose, radiator, straight, 1.5 in. ID	X-6014-59
3	Plug, pipe, 1/2 in. NPT, brass	X-75-54

## GM17017-MA1

# Cooling System Kits

Qty.	Description	Part No.
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## City Water Cooling

2	Elbow, street, 90 deg. x 1 in. NPT	151385
1	Elbow, pipe, 90 deg. x 1 1/2 in. NPT	151771
1	Pipe, 1 1/2 in. NPT x 2.50 in.	151803
2	Bushing, reducing, 1 1/2 x 2 in. NPT	160212
2	Clamp, hose, 1.75/2 in.	249888
1	Cap, pressure	258037
2	Clamp, hose, 2.13/2.44 in.	276319
1	Heat exchanger	324309
1	Elbow, street, 90 deg. x 1-1/2 in. NPT	A-27
5	Insert, threaded, metric, 6mm	GM11040-2
1	Guard, belt, top	GM16075
1	Guard, belt, LS	GM16077
2	Bracket, belt guard	GM16078
1	Guard, belt, bottom	GM16079
1	Guard, belt, back	GM16080
1	Guard, belt, RS	GM16081
1	Guard, belt, front	GM16639
1	Tank, expansion	GM17014
1	Valve, thermostatic	GM17016
1	Guard, front, CWC	GM18493
2	Support, tank	GM19384
1	Support, tank	GM19385
1	Brace, tank	GM19386
1	Bushing, reducing, 3/4 x 1 in. NPT	X-202-1
2	Bushing, reducing, 1 x 1 1/2 in. NPT	X-202-11
1	Pipe, 3/8 in. NPT x 1.50 in.	X-204-8
1	Pipe, 3/4 in. NPT x 1.38 in.	X-206-9
2	Elbow, pipe, 90 deg. x 2 in. NPT	X-215-6
1	Coupling, pipe, 3/8 in.	X-216-23
1	Pipe, 1 in. NPT x 1.50 in.	X-218-24
2	Pipe, 2 in. NPT x 2.00 in.	X-219-9
2	Valve, drain, 3/8 in. NPT	X-256-1
1	Clamp, spring hose, .462/.545 in.	X-309-14
1	Valve, solenoid	X-350-8
1	Fuel line, flexible	X-386-36
2	Spacer, .344 ID x .75 OD x .438 in.	X-400-36
2	Clamp, hose, 1.56/2.5 in.	X-426-6
3	Adapter	X-570-17
1	Adapter	X-570-8
1	Hose, radiator wire insert, 1.75 ID	X-6014-108
1	Hose, radiator, straight, 1.5 in. ID	X-6014-59
3	Plug, pipe, 1/2 in. NPT	X-75-28
1	Elbow, molded hose, 1.50 in. ID	X-757-13

## GM18495-MA1

Qty.	Description	Part No.
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## Remote Radiator Cooling

2	Insert, threaded, metric, 6mm	GM11040-2
1	Hose, upper radiator, 38mm ID	GM13524
1	Hose, lower radiator, 44mm ID	GM14098
1	Guard, belt, RS	GM15345
1	Guard, belt, LS	GM15346
1	Guard, belt, top	GM15347
1	Guard, belt, bottom	GM15348
1	Guard, belt, back	GM15349
1	Guard, belt upper back	GM15350
2	Bracket, remote radiator and CWC	GM16996
1	Bracket, remote radiator and CWC	GM16997
1	Bracket, remote radiator and CWC	GM16998
1	Guard, remote radiator & CWC	GM16999
1	Valve, drain, 1/4 in. NPT	X-256-3
2	Clamp, hose, 1.31/2.25 in.	X-426-4
2	Clamp, hose, 1.56/2.5 in.	X-426-6
3	Plug, pipe, brass, 1/2 in. NPT	X-75-54

## GM17000-MA1

## Remote Radiator Cooling

1	Clamp, hose, 2.06/3 in.	250081
5	Insert, threaded, metric, 6mm	GM11040-2
1	Hose, lower radiator, 45.4mm ID	GM13884
1	Hose, upper radiator, 38.1mm ID	GM13925
1	Guard, belt, top	GM16075
1	Guard, belt, LS	GM16077
2	Bracket, belt guard	GM16078
1	Guard, belt, bottom	GM16079
1	Guard, belt, back	GM16080
1	Guard, belt RS	GM16081
1	Guard, belt, front	GM16639
1	Guard, front, CWC	GM18493
1	Clamp, hose, 2.31/3.25 in.	X-426-2
2	Clamp, hose, 1.56/2.5 in.	X-426-6
3	Plug, pipe, 1/2 in. NPT	X-75-28

## GM18494-MA1

## Remote Radiator Cooling

1	Clamp, hose, 2.06/3 in.	250081
2	Shield, heat	GM10669
5	Insert, threaded, metric, 6mm	GM11040-2
1	Hose, lower radiator, 45.4mm ID	GM13884
1	Hose, upper radiator, 38.1mm ID	GM13925
1	Guard, belt, top	GM16075
1	Guard, belt, LS	GM16077
2	Bracket, belt guard	GM16078
1	Guard, belt, bottom	GM16079
1	Guard, belt, back	GM16080
1	Guard, belt RS	GM16081
1	Guard, belt, front	GM16639
1	Support, radiator (LS)	GM17067
1	Guard, front, CWC	GM18493
1	Cross pipe (1/2" NPT)	X-207-7
1	Pipe (1/2" NPT x 9.50")	X-209-17
4	Clamp, hose, .5/1 in.	X-426-10
1	Clamp, hose, 2.31/3.25 in.	X-426-2
2	Clamp, hose, 1.56/2.5 in.	X-426-6
2	Connector, hose	X-582-5
1	Conduit, convoluted	X-6003-8
1	Line, flex fuel	X-6242-13
2	Clamp, insulated, .88 in.	X-672-13
1	Plug, pipe, 1/4 in. NPT	X-75-2
5	Plug, pipe, 1/2 in. NPT	X-75-28
2	Screw, hex washer head, drill	X-794-1

## GM20866-MA1

# Fuel System Kits

Qty.	Description	Part No.
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## Fuel Lines, Flexible

### GM13706-KP1

1	Nipple, pipe, 1 x 1 1/2 in.	X-218-24
1	Fuel line, flexible	X-504-21

## Fuel Lines, Flexible (Dual Fuel)

### GM14272-KP1

2	Nipple, pipe, 1 x 1 1/2 in.	X-218-24
2	Fuel line, flexible	X-504-21

# Appendix A Abbreviations

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

A, amp	ampere	CG	center of gravity	fglass.	fiberglass
ABDC	after bottom dead center	CID	cubic inch displacement	FHM	flat head machine (screw)
AC	alternating current	CL	centerline	fl. oz.	fluid ounce
A/D	analog to digital	cm	centimeter	flex.	flexible
ADC	analog to digital converter	CMOS	complementary metal oxide substrate (semiconductor)	freq.	frequency
adj.	adjust, adjustment			FS	full scale
ADV	advertising dimensional drawing	cogen.	cogeneration	ft.	foot, feet
AHWT	anticipatory high water temperature	Com	communications (port)	ft. lbs.	foot pounds (torque)
AISI	American Iron and Steel Institute	conn.	connection	ft./min.	feet per minute
ALOP	anticipatory low oil pressure	cont.	continued	g	gram
alt.	alternator	CPVC	chlorinated polyvinyl chloride	ga.	gauge (meters, wire size)
Al	aluminum	crit.	critical	gal.	gallon
ANSI	American National Standards Institute (formerly American Standards Association, ASA)	CRT	cathode ray tube	gen.	generator
AO	anticipatory only	CSA	Canadian Standards Association	genset	generator set
API	American Petroleum Institute	CT	current transformer	GFI	ground fault interrupter
approx.	approximate, approximately	Cu	copper	GND, ⊕	ground
AR	as required, as requested	cu. in.	cubic inch	gov.	governor
AS	as supplied, as stated, as suggested	cw.	clockwise	gph	gallons per hour
ASE	American Society of Engineers	CWC	city water-cooled	gpm	gallons per minute
ASME	American Society of Mechanical Engineers	cyl.	cylinder	gr.	grade, gross
assy.	assembly	D/A	digital to analog	GRD	equipment ground
ASTM	American Society for Testing Materials	DAC	digital to analog converter	gr. wt.	gross weight
ATDC	after top dead center	dB	decibel	H x W x D	height by width by depth
ATS	automatic transfer switch	dBA	decibel (A weighted)	HC	hex cap
auto.	automatic	DC	direct current	HCHT	high cylinder head temperature
aux.	auxiliary	DCR	direct current resistance	HD	heavy duty
A/V	audiovisual	deg., °	degree	HET	high exhaust temperature
avg.	average	dept.	department	hex	hexagon
AVR	automatic voltage regulator	dia.	diameter	Hg	mercury (element)
AWG	American Wire Gauge	DI/EO	dual inlet/end outlet	HH	hex head
AWM	appliance wiring material	DIN	Deutsches Institut fur Normung e. V. (also Deutsche Industrie Normenausschuss)	HHC	hex head cap
bat.	battery	DIP	dual inline package	HP	horsepower
BBDC	before bottom dead center	DPDT	double-pole, double-throw	hr.	hour
BC	battery charger, battery charging	DPST	double-pole, single-throw	HS	heat shrink
BCA	battery charging alternator	DS	disconnect switch	hsg.	housing
BCI	Battery Council International	DVR	digital voltage regulator	HVAC	heating, ventilation, and air conditioning
BDC	before dead center	E, emer.	emergency (power source)	HWT	high water temperature
BHP	brake horsepower	EDI	electronic data interchange	Hz	hertz (cycles per second)
blk.	black (paint color), block (engine)	EFR	emergency frequency relay	IC	integrated circuit
blk. htr.	block heater	e.g.	for example ( <i>exempli gratia</i> )	ID	inside diameter, identification
BMEP	brake mean effective pressure	EG	electronic governor	IEC	International Electrotechnical Commission
bps	bits per second	EGSA	Electrical Generating Systems Association	IEEE	Institute of Electrical and Electronics Engineers
br.	brass	EIA	Electronic Industries Association	IMS	improved motor starting
BTDC	before top dead center	EI/EO	end inlet/end outlet	in.	inch
Btu	British thermal unit	EMI	electromagnetic interference	in. H <sub>2</sub> O	inches of water
Btu/min.	British thermal units per minute	emiss.	emission	in. Hg	inches of mercury
C	Celsius, centigrade	eng.	engine	in. lbs.	inch pounds
cal.	calorie	EPA	Environmental Protection Agency	Inc.	incorporated
CARB	California Air Resources Board	EPS	emergency power system	ind.	industrial
CB	circuit breaker	ER	emergency relay	int.	internal
cc	cubic centimeter	ES	engineering special, engineered special	int./ext.	internal/external
CCA	cold cranking amps	ESD	electrostatic discharge	I/O	input/output
ccw.	counterclockwise	est.	estimated	IP	iron pipe
CEC	Canadian Electrical Code	E-Stop	emergency stop	ISO	International Organization for Standardization
cfh	cubic feet per hour	etc.	et cetera (and so forth)	J	joule
cfm	cubic feet per minute	exh.	exhaust	JIS	Japanese Industry Standard
		ext.	external	k	kilo (1000)
		F	Fahrenheit, female	K	kelvin
				KA	kiloampere
				KB	kilobyte (2 <sup>10</sup> bytes)

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

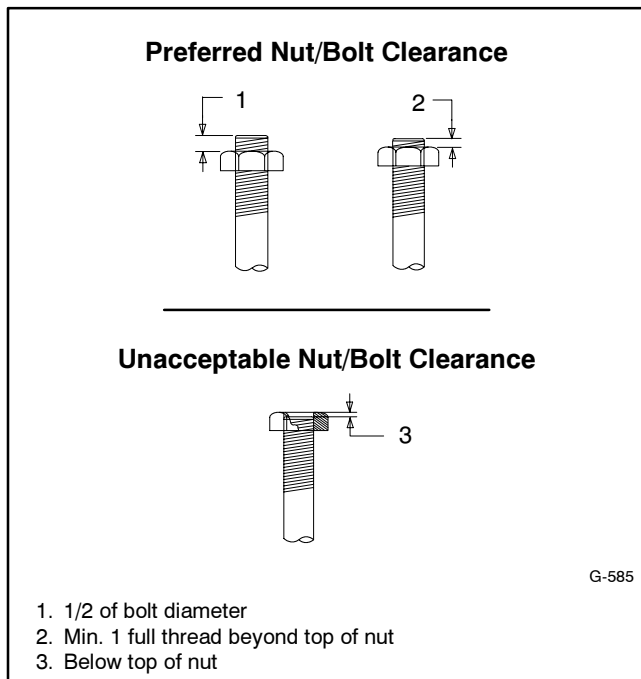
# Appendix B Common Hardware Application Guidelines

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

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

**Washers and Nuts:** Use split lock washers as a bolt locking device where specified. Use SAE flat washers with whiz nuts, spirallock nuts, or standard nuts and preloading (torque) of the bolt in all other applications.

See Appendix C, General Torque Specifications, and other torque specifications in the service literature.



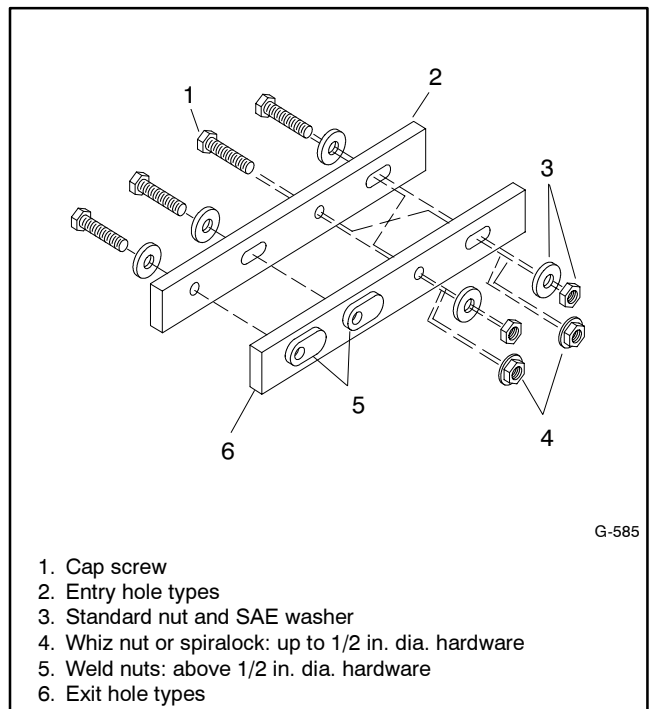
**Figure 1** Acceptable Bolt Lengths

Steps for common hardware application:

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

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

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



**Figure 2** Acceptable Hardware Combinations

# Appendix C General Torque Specifications















Use the following torque specifications when service literature instructions give no specific torque values. The charts list values for new plated, zinc phosphate, or












oiled threads. Increase values by 15% for nonplated threads. All torque values are +0%/-10%.






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)	—	1.8 (16)
10-24	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	2.9 (26)
10-32	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	2.9 (26)
1/4-20	Nm (in. lb.)	6.8 (60)	10.8 (96)	14.9 (132)	6.8 (60)
1/4-28	Nm (in. lb.)	8.1 (72)	12.2 (108)	16.3 (144)	8.1 (72)
5/16-18	Nm (in. lb.)	13.6 (120)	21.7 (192)	29.8 (264)	13.6 (120)
5/16-24	Nm (in. lb.)	14.9 (132)	23.1 (204)	32.5 (288)	14.9 (132)
3/8-16	Nm (ft. lb.)	24.0 (18)	38.0 (28)	53.0 (39)	24.0 (18)
3/8-24	Nm (ft. lb.)	27.0 (20)	42.0 (31)	60.0 (44)	27.0 (20)
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	5.6 (4)	9.9 (7)	14.0 (10)	5.6 (4)	
M8 x 1.25	13.6 (10)	25.0 (18)	35.0 (26)	13.6 (10)	
M8 x 1.00	21.0 (16)	25.0 (18)	35.0 (26)	21.0 (16)	
M10 x 1.50	27.0 (20)	49.0 (35)	68.0 (50)	27.0 (20)	
M10 x 1.25	39.0 (29)	49.0 (35)	68.0 (50)	39.0 (29)	
M12 x 1.75	47.0 (35)	83.0 (61)	117.0 (86)	—	
M12 x 1.50	65.0 (48)	88.0 (65)	125.0 (92)	—	
M14 x 2.00	74.0 (55)	132.0 (97)	185.0 (136)	—	
M14 x 1.50	100.0 (74)	140.0 (103)	192.0 (142)	—	
M16 x 2.00	115.0 (85)	200.0 (148)	285.0 (210)	—	
M16 x 1.50	141.0 (104)	210.0 (155)	295.0 (218)	—	
M18 x 2.50	155.0 (114)	275.0 (203)	390.0 (288)	—	
M18 x 1.50	196.0 (145)	305.0 (225)	425.0 (315)	—	

# 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	

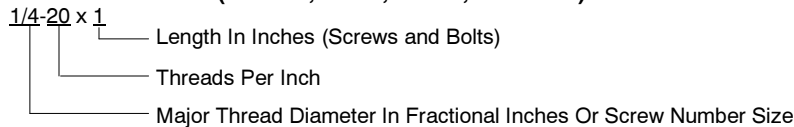
Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9 (Hex Socket Head)	
Metric	
Number stamped on hardware; 5.8 shown	

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

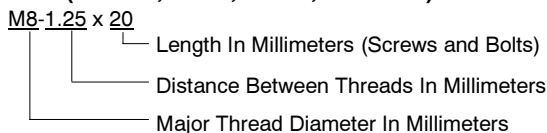
Phillips® screw is a registered trademark of Phillips Screw Company.

## Sample Dimensions

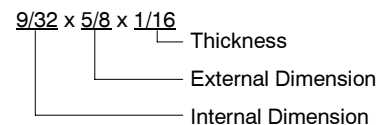
### American Standard (Screws, Bolts, Studs, and Nuts)



### Metric (Screws, Bolts, Studs, and Nuts)



### Plain Washers



### Lock Washers



# 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
<b>Hex Head Bolts (Grade 5)</b>		<b>Hex Head Bolts, cont.</b>		<b>Hex Nuts</b>		
X-465-17	1/4-20 x .38	X-6024-5	7/16-14 x .75	X-6009-1	1-8	Standard
X-465-6	1/4-20 x .50	X-6024-2	7/16-14 x 1.00	X-6210-3	6-32	Whiz
X-465-2	1/4-20 x .62	X-6024-8	7/16-14 x 1.25	X-6210-4	8-32	Whiz
X-465-16	1/4-20 x .75	X-6024-3	7/16-14 x 1.50	X-6210-5	10-24	Whiz
X-465-18	1/4-20 x .88	X-6024-4	7/16-14 x 2.00	X-6210-1	10-32	Whiz
X-465-7	1/4-20 x 1.00	X-6024-11	7/16-14 x 2.75	X-6210-2	1/4-20	Spiralock
X-465-8	1/4-20 x 1.25	X-6024-12	7/16-14 x 6.50	X-6210-6	1/4-28	Spiralock
X-465-9	1/4-20 x 1.50	X-129-15	1/2-13 x .75	X-6210-7	5/16-18	Spiralock
X-465-10	1/4-20 x 1.75	X-129-17	1/2-13 x 1.00	X-6210-8	5/16-24	Spiralock
X-465-11	1/4-20 x 2.00	X-129-18	1/2-13 x 1.25	X-6210-9	3/8-16	Spiralock
X-465-12	1/4-20 x 2.25	X-129-19	1/2-13 x 1.50	X-6210-10	3/8-24	Spiralock
X-465-14	1/4-20 x 2.75	X-129-20	1/2-13 x 1.75	X-6210-11	7/16-14	Spiralock
X-465-21	1/4-20 x 5.00	X-129-21	1/2-13 x 2.00	X-6210-12	1/2-13	Spiralock
X-465-25	1/4-28 x .38	X-129-22	1/2-13 x 2.25	X-6210-15	7/16-20	Spiralock
X-465-20	1/4-28 x 1.00	X-129-23	1/2-13 x 2.50	X-6210-14	1/2-20	Spiralock
X-125-33	5/16-18 x .50	X-129-24	1/2-13 x 2.75	X-85-3	5/8-11	Standard
X-125-23	5/16-18 x .62	X-129-25	1/2-13 x 3.00	X-88-12	3/4-10	Standard
X-125-3	5/16-18 x .75	X-129-27	1/2-13 x 3.50	X-89-2	1/2-20	Standard
X-125-31	5/16-18 x .88	X-129-29	1/2-13 x 4.00			
X-125-5	5/16-18 x 1.00	X-129-30	1/2-13 x 4.50			
X-125-24	5/16-18 x 1.25	X-463-9	1/2-13 x 5.50			
X-125-34	5/16-18 x 1.50	X-129-44	1/2-13 x 6.00			
X-125-25	5/16-18 x 1.75	X-129-51	1/2-20 x .75			
X-125-26	5/16-18 x 2.00	X-129-45	1/2-20 x 1.25			
230578	5/16-18 x 2.25	X-129-52	1/2-20 x 1.50			
X-125-29	5/16-18 x 2.50	X-6021-3	5/8-11 x 1.00			
X-125-27	5/16-18 x 2.75	X-6021-4	5/8-11 x 1.25			
X-125-28	5/16-18 x 3.00	X-6021-2	5/8-11 x 1.50			
X-125-22	5/16-18 x 4.50	X-6021-1	5/8-11 x 1.75			
X-125-32	5/16-18 x 5.00	273049	5/8-11 x 2.00			
X-125-35	5/16-18 x 5.50	X-6021-5	5/8-11 x 2.25			
X-125-36	5/16-18 x 6.00	X-6021-6	5/8-11 x 2.50			
X-125-40	5/16-18 x 6.50	X-6021-7	5/8-11 x 2.75			
X-125-43	5/16-24 x 1.75	X-6021-12	5/8-11 x 3.75			
X-125-44	5/16-24 x 2.50	X-6021-11	5/8-11 x 4.50			
X-125-30	5/16-24 x .75	X-6021-10	5/8-11 x 6.00			
X-125-39	5/16-24 x 2.00	X-6021-9	5/8-18 x 2.50			
X-125-38	5/16-24 x 2.75	X-6239-1	3/4-10 x 1.00			
X-6238-2	3/8-16 x .62	X-6239-8	3/4-10 x 1.25			
X-6238-10	3/8-16 x .75	X-6239-2	3/4-10 x 1.50			
X-6238-3	3/8-16 x .88	X-6239-3	3/4-10 x 2.00			
X-6238-11	3/8-16 x 1.00	X-6239-4	3/4-10 x 2.50			
X-6238-4	3/8-16 x 1.25	X-6239-5	3/4-10 x 3.00			
X-6238-5	3/8-16 x 1.50	X-6239-6	3/4-10 x 3.50			
X-6238-1	3/8-16 x 1.75	X-792-1	1-8 x 2.25			
X-6238-6	3/8-16 x 2.00	X-792-5	1-8 x 3.00			
X-6238-17	3/8-16 x 2.25	X-792-8	1-8 x 5.00			
X-6238-7	3/8-16 x 2.50					
X-6238-8	3/8-16 x 2.75					
X-6238-9	3/8-16 x 3.00					
X-6238-19	3/8-16 x 3.25					
X-6238-12	3/8-16 x 3.50					
X-6238-20	3/8-16 x 3.75					
X-6238-13	3/8-16 x 4.50					
X-6238-18	3/8-16 x 5.50					
X-6238-25	3/8-16 x 6.50					
X-6238-14	3/8-24 x .75					
X-6238-16	3/8-24 x 1.25					
X-6238-21	3/8-24 x 4.00					
X-6238-22	3/8-24 x 4.50					

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

## Metric

Hex head bolts are hardness grade 8.8 unless noted.

Part No.	Dimensions	Part No.	Dimensions	Part No.	Dimensions	Type	
<b>Hex Head Bolts (partial thread)</b>			<b>Hex Head Bolts (full thread)</b>			<b>Hex Nuts</b>	
M931-05055-60	M5-0.80 x 55	M933-04006-60	M4-0.70 x 6	M934-03-50	M3-0.50	Standard	
M931-06040-60	M6-1.00 x 40	M933-05035-60	M5-0.80 x 35	M934-035-50	M3.5-0.50	Standard	
M931-06055-60	M6-1.00 x 55	M933-05050-60	M5-0.80 x 50	M934-04-50	M4-0.70	Standard	
M931-06060-60	M6-1.00 x 60	M933-06010-60	M6-1.00 x 10	M934-05-50	M5-0.80	Standard	
M931-06070-60	M6-1.00 x 70	M933-06014-60	M6-1.00 x 14	M982-05-80	M5-0.80	Elastic Stop	
M931-06070-SS	M6-1.00 x 70	M933-06016-60	M6-1.00 x 16	M934-06-60	M6-1.00	Standard	
M931-06075-60	M6-1.00 x 75	M933-06020-60	M6-1.00 x 20	M934-06-64	M6-1.00	Std. (green)	
M931-06090-60	M6-1.00 x 90	M933-06025-60	M6-1.00 x 25	M6923-06-80	M6-1.00	Spirallock	
M931-06150-60	M6-1.00 x 150	M933-06040-60	M6-1.00 x 40	M982-06-80	M6-1.00	Elastic Stop	
M931-08035-60	M8-1.25 x 35	M933-06050-60	M6-1.00 x 50	M934-08-60	M8-1.25	Standard	
M931-08040-60	M8-1.25 x 40	M933-08012-60	M8-1.25 x 12	M6923-08-80	M8-1.25	Spirallock	
M931-08040-82	M8-1.25 x 40*	M933-08016-60	M8-1.25 x 16	M982-08-80	M8-1.25	Elastic Stop	
M931-08045-60	M8-1.25 x 45	M933-08020-60	M8-1.25 x 20	M934-10-60	M10-1.50	Standard	
M931-08050-60	M8-1.25 x 50	M933-08025-60	M8-1.25 x 25	M934-10-60F	M10-1.25	Standard	
M931-08055-60	M8-1.25 x 55	M933-08030-60	M8-1.25 x 30	M6923-10-80	M10-1.50	Spirallock	
M931-08055-82	M8-1.25 x 55*	M933-08030-82	M8-1.25 x 30*	M6923-10-62	M10-1.50	Spirallock†	
M931-08060-60	M8-1.25 x 60	M933-10012-60	M10-1.50 x 12	M982-10-80	M10-1.50	Elastic Stop	
M931-08070-60	M8-1.25 x 70	M961-10020-60	M10-1.25 x 20	M934-12-60	M12-1.75	Standard	
M931-08070-82	M8-1.25 x 70*	M933-10020-60	M10-1.50 x 20	M934-12-60F	M12-1.25	Standard	
M931-08075-60	M8-1.25 x 75	M933-10025-60	M10-1.50 x 25	M6923-12-80	M12-1.75	Spirallock	
M931-08080-60	M8-1.25 x 80	M961-10030-60	M10-1.25 x 30	M982-12-80	M12-1.75	Elastic Stop	
M931-08090-60	M8-1.25 x 90	M933-10030-60	M10-1.50 x 30	M982-14-80	M14-2.00	Elastic Stop	
M931-08095-60	M8-1.25 x 95	M933-10030-82	M10-1.50 x 30*	M6923-16-80	M16-2.00	Spirallock	
M931-08100-60	M8-1.25 x 100	M961-10035-60	M10-1.25 x 35	M982-16-80	M16-2.00	Elastic Stop	
M931-08120-60	M8-1.25 x 120	M933-10035-60	M10-1.50 x 35	M934-18-80	M18-2.5	Standard	
M931-08130-60	M8-1.25 x 130	M933-12016-60	M12-1.75 x 16	M982-18-80	M18-2.50	Elastic Stop	
M931-08140-60	M8-1.25 x 140	M933-12020-60	M12-1.75 x 20	M934-20-80	M20-2.50	Standard	
M931-10040-82	M10-1.25 x 40*	M933-12025-60	M12-1.75 x 25	M982-20-80	M20-2.50	Elastic Stop	
M931-10040-60	M10-1.50 x 40	M933-12025-82	M12-1.75 x 25*	M934-22-60	M22-2.50	Standard	
M931-10045-60	M10-1.50 x 45	M961-12030-60	M12-1.25 x 30	M934-24-80	M24-3.00	Standard	
M931-10050-60	M10-1.50 x 50	M933-12030-60	M12-1.75 x 30	M982-24-80	M24-3.00	Elastic Stop	
M931-10055-60	M10-1.50 x 55	M933-12035-60	M12-1.75 x 35	M934-30-80	M30-3.50	Standard	
M931-10060-60	M10-1.50 x 60	M961-12040-82	M12-1.25 x 40*	<b>Washers</b>			
M931-10065-60	M10-1.50 x 65	M933-12040-60	M12-1.75 x 40	<b>Part No.</b>	<b>ID</b>	<b>OD</b>	<b>Bolt/ Thick. Screw</b>
M931-10070-60	M10-1.50 x 70	M933-12040-82	M12-1.75 x 40*	M125A-03-80	3.2	7.0	0.5 M3
M931-10080-60	M10-1.50 x 80	M961-14025-60	M14-1.50 x 25	M125A-04-80	4.3	9.0	0.8 M4
M931-10090-60	M10-1.50 x 90	M933-14025-60	M14-2.00 x 25	M125A-05-80	5.3	10.0	1.0 M5
M931-10090-82	M10-1.50 x 90*	M961-16025-60	M16-1.50 x 25	M125A-06-80	6.4	12.0	1.6 M6
M931-10100-60	M10-1.50 x 100	M933-16025-60	M16-2.00 x 25	M125A-08-80	8.4	16.0	1.6 M8
M931-10110-60	M10-1.50 x 110	M961-16030-82	M16-1.50 x 30*	M125A-10-80	10.5	20.0	2.0 M10
M931-10120-60	M10-1.50 x 120	M933-16030-82	M16-2.00 x 30*	M125A-12-80	13.0	24.0	2.5 M12
M931-10130-60	M10-1.50 x 130	M933-16035-60	M16-2.00 x 35	M125A-14-80	15.0	28.0	2.5 M14
M931-10140-60	M10-1.50 x 140	M961-16040-60	M16-1.50 x 40	M125A-16-80	17.0	30.0	3.0 M16
M931-10180-60	M10-1.50 x 180	M933-16040-60	M16-2.00 x 40	M125A-18-80	19.0	34.0	3.0 M18
M931-12045-60	M12-1.75 x 45	M933-16050-60	M16-2.00 x 50	M125A-20-80	21.0	37.0	3.0 M20
M960-12050-60	M12-1.25 x 50	M933-16050-82	M16-2.00 x 50*	M125A-24-80	25.0	44.0	4.0 M24
M960-12050-82	M12-1.25 x 50*	M933-16060-60	M16-2.00 x 60				
M931-12050-60	M12-1.75 x 50	M933-18035-60	M18-2.50 x 35				
M931-12055-60	M12-1.75 x 55	M933-18050-60	M18-2.50 x 50				
M931-12060-60	M12-1.75 x 60	M933-18060-60	M18-2.50 x 60				
M931-12065-60	M12-1.75 x 65	M933-20050-60	M20-2.50 x 50				
M931-12075-60	M12-1.75 x 75	M933-20055-60	M20-2.50 x 55				
M931-12080-60	M12-1.75 x 80	<b>Pan Head Machine Screws</b>					
M931-12090-60	M12-1.75 x 90	M7985A-03010-20	M3-0.50 x 10	* This metric hex bolt's hardness is grade 10.9.			
M931-12100-60	M12-1.75 x 100	M7985A-03012-20	M3-0.50 x 12	† This metric hex nut's hardness is grade 8.			
M931-12110-60	M12-1.75 x 110	M7985A-04010-20	M4-0.70 x 10				
M960-16090-60	M16-1.50 x 90	M7985A-04020-20	M4-0.70 x 20				
M931-16090-60	M16-2.00 x 90	M7985A-04100-20	M4-0.70 x 100				
M931-16100-60	M16-2.00 x 100	M7985A-05010-20	M5-0.80 x 10				
M931-20065-60	M20-2.50 x 65	M7985A-05012-20	M5-0.80 x 12				
M931-20120-60	M20-2.50 x 120	M7985A-05016-20	M5-0.80 x 16				
M931-20160-60	M20-2.50 x 160	M7985A-05100-20	M5-0.80 x 100				
M931-22090-60	M22-2.50 x 90	M7985A-06100-20	M6-1.00 x 100				
M931-22120-60	M22-2.50 x 120	<b>Flat Head Machine Screws</b>					
M931-22160-60	M22-2.50 x 160	M965A-04012-SS	M4-0.70 x 12				
M931-24090-60	M24-3.00 x 90	M965A-05012-SS	M5-0.80 x 12				
M931-24120-60	M24-3.00 x 120	M965A-05016-20	M5-0.80 x 16				
M931-24160-60	M24-3.00 x 160						





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