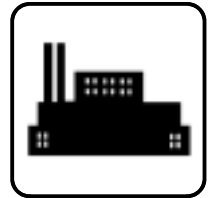


# Service Parts

## Industrial Generator Sets



Models:

**135-275RZD/RFZD**

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-5745 9/01c

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# Introduction

This manual lists service replacement parts for [range] 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.

**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.

xin:004:002

## 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.

xin:004:003:a

## 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.

xin:004:004

## 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.

xin:004:005

## 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.

xin:004:006

# 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>135 kW</b>								
PA-194006	1	1	2	1	1	1	†	1
PA-194007	1	1	2	1	1	5	†	1
PA-194010	*	*	2	GR1	*	*	†	1
PA-194049	5	13	13	1	11	1	†	5
PA-194051	*	*	13	GR1	*	*	†	5
GM16893-GA1	*	*	37	GR1	*	*	†	1
GM16893-GA2	*	*	41	GR1	*	*	†	5
<b>150 kW</b>								
PA-194016	1	1	2	1	1	2	†	23
PA-194017	1	1	2	1	1	6	†	23
PA-194018	2	5	7	1	2	3	†	23
PA-194019	2	5	7	1	2	8	†	23
PA-194020	*	*	2	GR1	*	*	†	23
PA-194032	*	*	7	1	*	*	†	23
PA-194036	2	5	7	1	9	17	†	23
PA-194037	2	5	7	1	9	18	†	23
PA-194038	*	*	7	GR1	*	*	†	23
PA-194055	5	13	13	1	11	2	†	33
PA-194059	*	*	13	GR1	*	*	†	33
GM16894-GA1	*	*	37	GR1	*	*	†	23
GM16894-GA2	*	*	39	GR1	*	*	†	23
GM16894-GA3	*	*	41	GR1	*	*	†	33
<b>180 kW</b>								
PA-194026	2	2	3	1	2	3	†	1
PA-194027	2	2	3	1	2	7	†	1
PA-194028	2	2	3	1	2	4	†	1
PA-194029	2	2	3	1	2	8	†	1
PA-194030	*	*	3	1	*	*	†	1
PA-194044	2	2	3	1	9	15	†	25
PA-194045	2	2	3	1	9	16	†	25
PA-194046	2	2	3	1	9	17	†	25
PA-194047	2	2	3	1	9	18	†	25
PA-194048	*	*	3	GR1	*	*	†	25
PA-194067	4	11	12	1	7	25	†	35
PA-194069	4	11	12	1	7	19	†	35
PA-194071	*	*	12	GR1	*	*	†	35
GM16895-GA1	*	*	38	GR1	*	*	†	25
GM16895-GA2	*	*	40	GR1	*	*	†	35

\* 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	Air Intake	Cooling System	Engine	Nameplates and Decals	Skid and Plant Mounting	Generator and Mounting	Controller and Mounting	Literature
	Group No.	101	104	105	107	109	201	301
Spec No.	Variation Number							
<b>200 kW</b>								
PA-194205	3	7	8	1	5	9	†	3
PA-194206	3	7	8	1	5	10	†	3
PA-194207	3	7	8	1	5	13	†	3
PA-194208	3	7	8	1	5	14	†	3
PA-194209	*	*	8	1	*	*	†	3
PA-194245	4	17	19	1	7	19	†	3
PA-194246	4	17	19	1	7	20	†	3
PA-194247	4	17	19	1	7	23	†	3
PA-194248	4	17	19	1	7	24	†	3
PA-194249	*	*	19	GR1	*	*	†	3
PA-194280	4	17	15	1	7	19	†	3
PA-194282	4	17	15	1	7	23	†	3
PA-194284	*	*	15	GR1	*	*	†	3
GM16896-GA1	*	*	46	GR1	*	*	†	3
GM16896-GA2	*	*	42	GR1	*	*	†	3
<b>230 kW</b>								
PA-194215	3	7	9	1	5	9	†	3
PA-194216	3	7	9	1	5	10	†	3
PA-194217	3	7	9	1	5	13	†	3
PA-194218	3	7	9	1	5	14	†	3
PA-194219	*	*	9	1	*	*	†	3
PA-194255	4	17	20	1	7	19	†	27
PA-194256	4	17	20	1	7	20	†	27
PA-194257	4	17	20	1	7	23	†	27
PA-194258	4	17	20	1	7	24	†	27
PA-194259	*	*	20	GR1	*	*	†	27
PA-194290	4	17	16	1	7	19	†	27
PA-194292	4	17	16	1	7	23	†	27
PA-194294	*	17	16	GR1	*	*	†	27
GM16897-GA1	*	*	47	GR1	*	*	†	27
GM16897-GA2	*	*	43	GR1	*	*	†	27

\* 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>250 kW</b>								
PA-194225	3	7	10	1	5	11	†	3
PA-194226	3	7	10	1	5	12	†	3
PA-194227	3	7	10	1	5	13	†	3
PA-194228	3	7	10	1	5	14	†	3
PA-194229	*	*	10	1	*	*	†	3
PA-194265	4	17	21	1	7	21	†	29
PA-194266	4	17	21	1	7	22	†	29
PA-194267	4	17	21	1	7	23	†	29
PA-194268	4	17	21	1	7	24	†	29
PA-194269	*	*	21	GR1	*	*	†	29
PA-194300	4	17	17	1	7	21	†	29
PA-194302	*	*	17	GR1	*	*	†	29
GM16898-GA1	*	*	48	GR1	*	*	†	29
GM16898-GA2	*	*	44	GR1	*	*	†	29
<b>275 kW</b>								
PA-194235	3	7	11	1	5	11	†	3
PA-194236	3	7	11	1	5	12	†	3
PA-194237	3	7	11	1	5	13	†	3
PA-194238	3	7	11	1	5	14	†	3
PA-194239	*	*	11	1	*	*	†	3
PA-194275	4	17	22	1	7	21	†	31
PA-194276	4	17	22	1	7	22	†	31
PA-194277	4	17	22	1	7	23	†	31
PA-194278	4	17	22	1	7	24	†	31
PA-194279	*	*	22	GR1	*	*	†	31
PA-194306	4	17	18	1	7	23	†	3
PA-194308	*	*	18	GR1	*	*	†	3
GM16899-GA1	*	*	49	GR1	*	*	†	31
GM16899-GA2	*	*	45	GR1	*	*	†	3

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

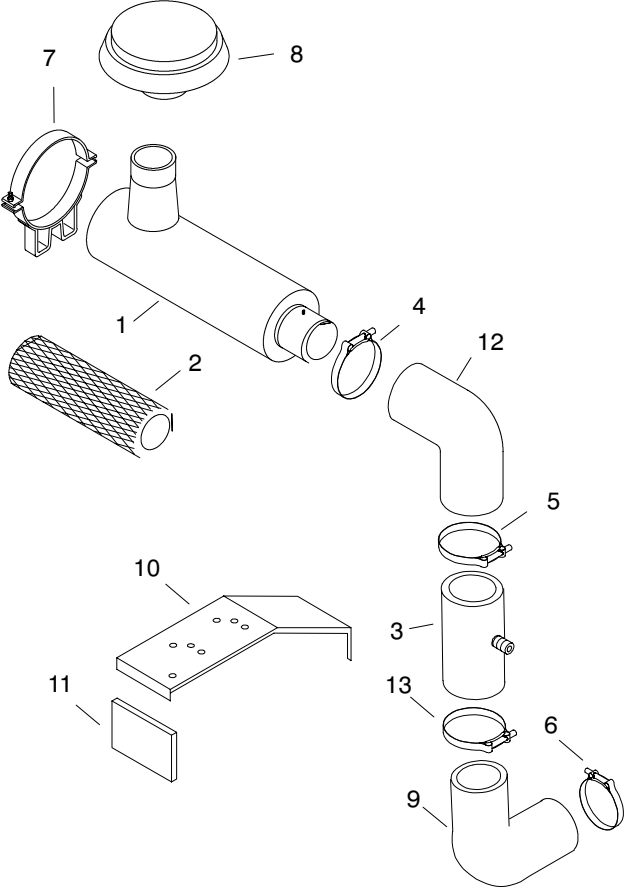
† Configured group. Refer to the generator set nameplate for the module number. See controller parts catalog TP-6009 for controller parts lists.

# Recommended Spare Parts

Item	Part Number	Description	Variation Quantity				
			135 kW	150 kW	150 (IMS)/180 kW	200-275 kW	275 kW 4UA alt.
1	324418	Element, air cleaner	7	7	7		
1	343219	Cleaner, air				8	8
2	X-6014-88	Hose, upper radiator					1
2	324331	Hose, hump				1	
3	343289	Hose, lower radiator				1	1
4	291207	Fuse, 1.5-amp	5	5	5	5	5
5	243273	Fuse, 3-amp	5	5	5	5	5
6	283645	Fuse, 15-amp	5	5	5	5	5
7	A-336415	Board, controller main circuit	1	1	1	1	1
8	A-336432	Board, controller indicator	1	1	1	1	1
9	283420	Bulb, light	5	5	5	5	5
10	B-292902	Board, photo	1	1	1	1	1
11	B-258549	Activator, split	1	1			
11	*	Activator, split			1	1	1
12	C-255670	Regulator, voltage	1	1	1	1	1
13	A-257099	Board, LED	1	1	1	1	1
14	241927	Sensor, speed					1
15	291740	Lamp	5	5	5	5	5
16	343446	Filter, primary fuel				15	
17	343447	Filter, secondary fuel				15	
18	343048	Belt, drive				1	1
19	343445	Filter, oil				15	
19	279260	Filter, oil					10
20	347700	Belt, alternator					1

\* 4U alternator models use part number A-233999, 4UA alternator models use part number A-354299.

# Group 101: Air Intake



# Group 101: Air Intake

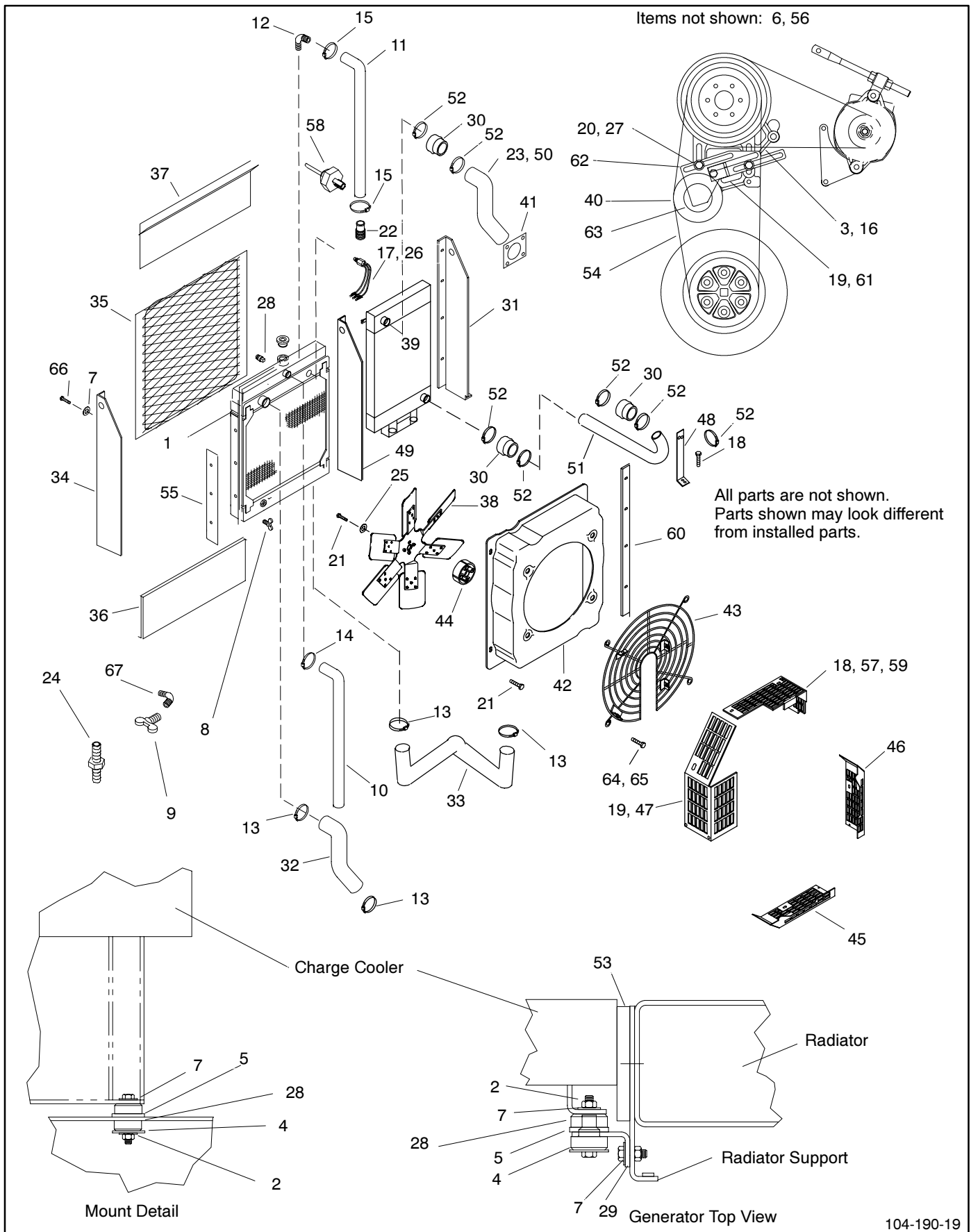
Item	Part No.	Description	Variation/Module Number										
			Quantity										
			1	2	3	4	5	343153	343154	343244	343380		
1	A-324204	Air cleaner	1	1									
1	254004	Air cleaner						1	1				
1	343219	Air cleaner, industrial			1	1	1						
1	A-343258	Air cleaner									1	1	
2	324418	Element, air cleaner	1	1									
2	254477	Element, air cleaner, heavy-duty						1	1				
2	343259	Element, air cleaner, heavy-duty									1	1	
3	X-522-82	Tube, steel	1	1									
3	X-522-58	Tube, steel						1	1				
3	274623	Assembly, tube			1		1						
3	279754	Assembly, tube				1							
3	343261	Tube, air restriction									1	1	
3	X-268-7	Cap, pipe (not shown)			1	1	1						
4	254013	Clamp, hose			1	1	1	1	1	1			
4	254344	Clamp, hose	1	1									
4	291504	Clamp, hose									1	1	
5	254013	Clamp, hose	1	1	1	1	1	1	1	1			
5	291504	Clamp, hose									1	1	
6	291504	Clamp, hose	1	1	1	1	1	1	1	1	1	1	1
7	324362	Mount, air cleaner	2	2									
7	254012	Band, mounting						2	2				
7	343218	Clamp			1	1	1				2	2	
8	324364	Cap, rain	1	1									
8	324365	Cap, rain						1	1				
8	254010	Cap, rain									1	1	
9	343042	Hose, elbow	1	1	1	1	1						
9	291502	Hose, elbow									1	1	
10	343143	Bracket, air cleaner	1	1									
10	343170	Bracket, air cleaner						1	1				
10	343241	Bracket, air cleaner mounting			1	1	1						
10	343243	Bracket, air cleaner mounting									1	1	
10	X-6052-7	Screw, hex head machine			1	1	1				2	2	
11	343171	Bracket, air cleaner	1										1
11	343172	Bracket, air cleaner		1							1		
11	343173	Bracket, air cleaner						1					
11	343174	Bracket, air cleaner							1				
11	343242	Bracket, air cleaner support			1	1							
11	343368	Bracket, mounting					1						
12	343217	Hose, 90 degree elbow	1	1									
12	272627	Hose, 90 degree elbow			1	1	1	1	1	1	1		
13	254013	Clamp, hose	1	1	1	1	1	1	1	1			
13	291504	Clamp, hose									1	1	

## Modular Spec Cross-Reference Table

Some modular generator specs listed in the specification number index require an air cleaner kit. Refer to the generator set nameplate to identify the air cleaner kit number installed on your generator set. Use the following table to identify the equivalent variation number. The kit's parts list matches the parts list for the equivalent variation number.

Air Intake Kit	Equivalent Variation Number
343059	1
343060	2
343247	3
343346	4
343356	5

# Group 104: Cooling System

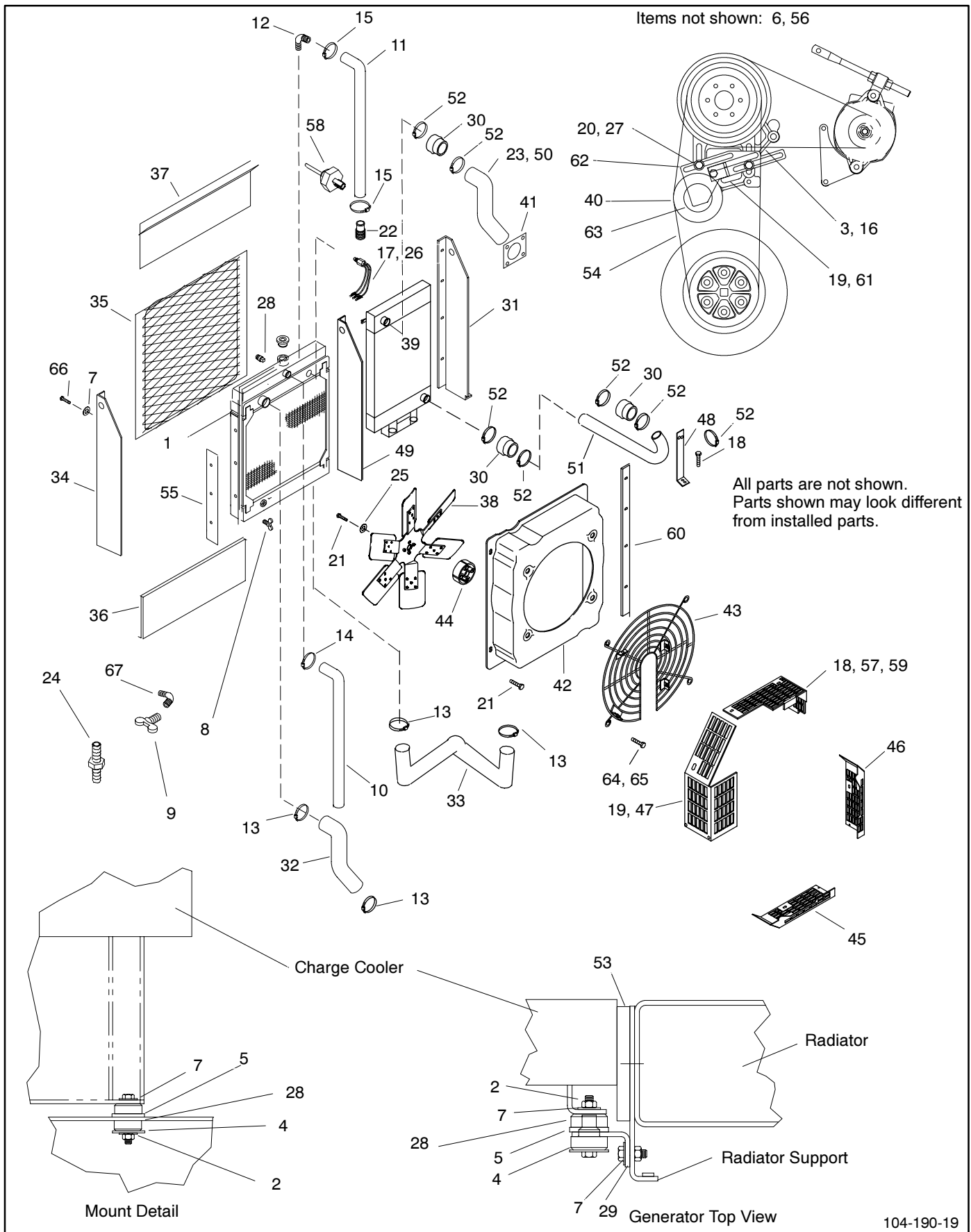


# Group 104: Cooling System

Item	Part Number	Description	Variation Number						
			Quantity						
			1	2	5	7	11	13	17
1	A-343033	Radiator assembly	1		1				
1	A-343001	Radiator assembly		1			1	1	
1	A-343177	Radiator assembly				1			1
2	X-101-16	Nut, elastic stop, 5/16-18	4	4	4	4	4	4	4
3	X-25-44	Washer, plain	1	1	1	1	1	1	1
4	X-25-143	Washer, plain	4	4	4	4	4	4	4
5	X-25-144	Washer, plain	4	4	4	4	4	4	4
6	X-25-30	Washer, plain	2	2	2	2	2	2	2
7	X-25-75	Washer, plain .344 x .875 x .125	14	14	14	10	14	14	10
8	X-256-3	Valve, drain, 1/4	3	3	3	3	3	3	3
9	X-256-5	Valve, drain	1	1	1	1	1	1	1
10	X-356-33	Hose, vent, 6.17 ft.	1	1	1				
10	X-356-35	Hose, vent, 7.5 ft.				1	1	1	1
11	X-386-102	Hose, radiator overflow, 5.5 ft.	1	1	1	1	1	1	1
12	X-391-20	Connector, hose elbow	1	1	1	1	1	1	1
13	X-426-2	Clamp, hose, 3.25-2.31	4	4	4	2	2	2	2
13	275527	Clamp, hose, 2.81/3.12 in.				2	2	2	2
14	X-426-8	Clamp, hose, 1.75-.81	2	2	2	2	2	2	2
15	X-426-9	Clamp, hose, .70-.25	2	2	2	2	2	2	2
16	X-55-44	Screw, HC	1	1	1		1	1	
16	X-55-46	Screw, HC				1			1
17	X-6003-120	Conduit, convoluted	1	1	1	1	1	1	1
18	X-6050-3	Screw, HHC	3	3	3	1	3	1	1
18	X-6050-8	Screw, HHC				2		2	2
19	X-6052-1	Screw, HHC	3	3	3	1	1	1	1
20	X-6052-15	Screw, HHC	2	2	2	2	2	2	2
21	X-6238-36	Screw, HC	12	12	12	6	12	6	6
21	X-125-5	Screw, HC				6		6	6
22	X-652-3	Fitting, hose	1	1	1	1	1	1	1
23	X-672-19	Clamp, insulated	1	1	1	1	1	1	1
24	X-751-1	Adapter, hose, 1 x 1	1	1	1	1	1	1	1
25	X-801-3	Washer, hardened	6	6	6	6	6	6	6
26	365289	Sensor, low water level	1	1	1	1	1	1	1
27	257951	Washer, special	2	2	2	2	2	2	2
28	324433	Vibromount	4	4	4	4	4	4	4
29	324451	Bracket, charge cooler	2	2	2	2	2	2	2
30	326331	Hose, hump	2	2	2	1	2	2	1
30	324473	Hose, hump				2			2
31	343005	Support, charge cooler	1	1	1	1		1	1
31	343324	Support, charge cooler					1		1
31	343182	Support, charge cooler							
32	343006	Hose, upper radiator	1	1	1	1		1	1
32	X-6014-88	Hose, upper radiator				1	1	1	1
33	343007	Hose, lower radiator	1	1	1		1	1	
33	343289	Hose, lower radiator				1			1
34	343013	Support, radiator, left	1	1	1	1		1	1
34	343326	Support, radiator, left					1		
34	343184	Support, radiator, left				1			1
35	343014	Guard, radiator	1	1	1		1		
35	343186	Guard, radiator				1			1
36	343022	Guard, radiator, bottom	1					1	
36	343023	Guard, radiator, bottom		1	1		1		
36	343215	Guard, radiator, bottom				1			1
37	343026	Guard, radiator, top	1			1		1	1
37	343066	Guard, radiator, top		1	1				
37	343327	Guard, radiator, top					1		
37	343214	Guard, radiator, top				1			1
38	343027	Fan, pusher	1		1				
38	343011	Fan, pusher		1			1	1	
38	343180	Fan, pusher				1			1

Parts list continues

# Group 104: Cooling System, continued



## Group 104: Cooling System, continued

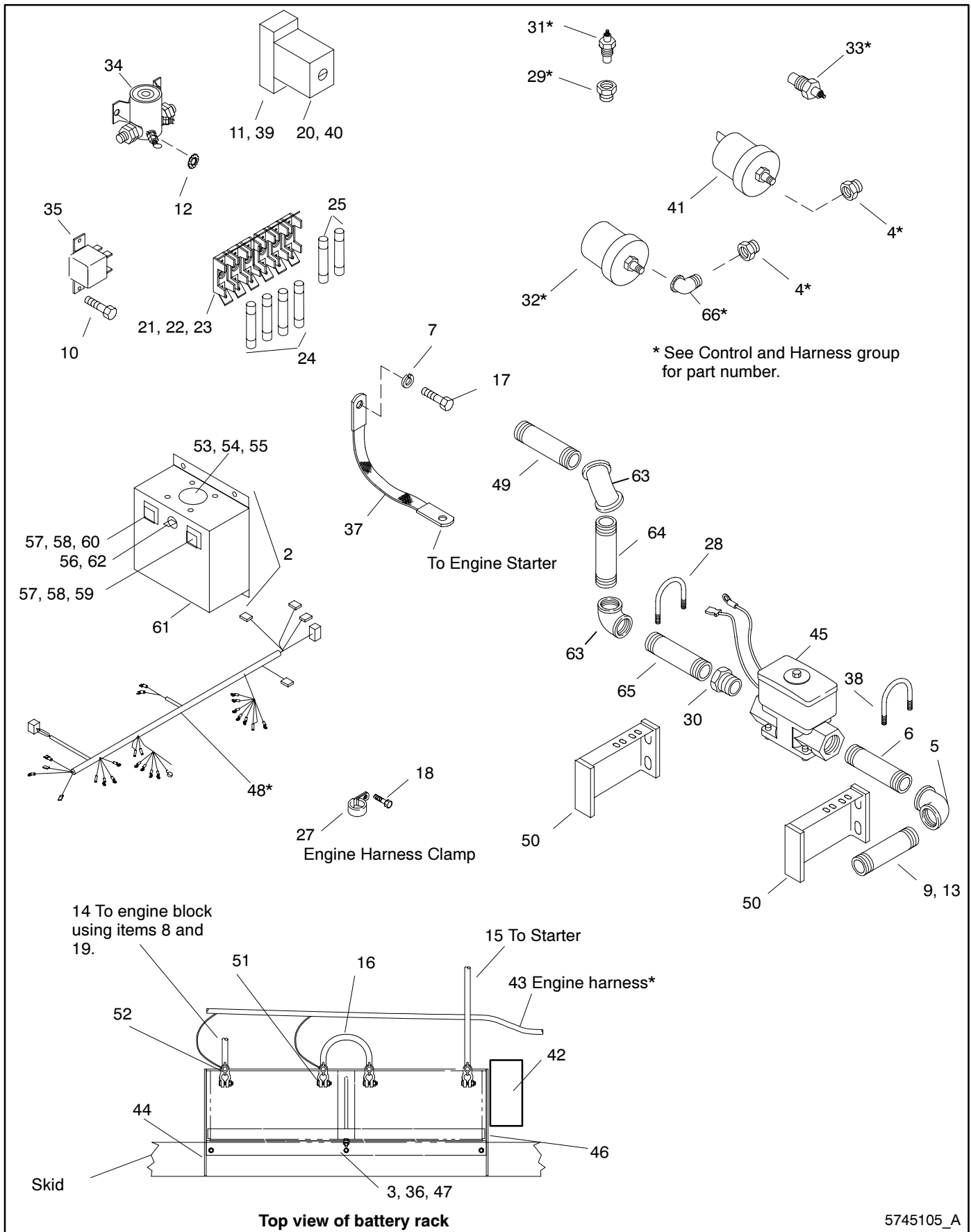
Item	Part Number	Description	Variation Number						
			1	2	5	7	11	13	17
39	343035	Cooler, air charge	1		1				
39	343002	Cooler, charge air		1			1	1	
39	343178	Cooler, charge air				1			1
40	343621	Pulley, idler	1	1	1	1	1	1	1
41	343053	Gasket, intake	1	1	1	1	1	1	1
42	343054	Shroud, fan	1		1				
42	343003	Shroud, fan		1			1	1	
42	343176	Shroud, fan				1			
42	GM20771	Shroud, fan							1
43	343062	Guard, wire fan	1		1				
43	343004	Guard, wire fan		1			1	1	
43	343185	Guard, wire fan				1			1
44	343067	Spacer, fan	1	1	1	1	1	1	1
45	343097	Guard, bottom belt	1	1	1	1	1	1	1
46	343101	Guard, right hand belt	1	1	1	1	1	1	1
47	343122	Guard, left hand belt	1	1	1				
47	343262	Guard, left hand belt				1	1	1	1
47	343263	Bracket, mounting (not shown)				1	1	1	1
48	343136	Bracket, mounting	1	1	1	1	1	1	1
49	343162	Support, radiator	1			1		1	1
49	343012	Support, radiator, right		1	1				
49	343325	Support, radiator, right					1		
49	343183	Support, radiator, right				1			1
50	343166	Tube, upper charge cooler	1	1	1		1	1	
50	343189	Tube, upper charge cooler				1			1
51	343167	Tube, lower charge cooler	1	1	1				
51	343328	Tube, lower charge cooler					1	1	
51	343337	Tube, lower charge cooler				1			1
51	GM14114	Support, charge cooler tube (not shown)							1
51	GM14115	Tube, lower charge cooler							1
52	343175	Clamp, hose	4	4	4		4	4	
52	274824	Clamp, hose				2			2
52	291590	Clamp, hose				2			5
53	343193	Insulation, foam	1	1	1	1	1	1	1
54	343667	Belt, V	3	3	3				
54	343623	Belt, V				3	3	3	3
55	343288	Spacer, radiator	2	2	2	2	2	2	2
56	343290	Bracket, mounting, intake (not shown)	1	1	1	1	1	1	1
57	343291	Guard, belt, top right	1	1	1	1	1	1	1
58	354113	Sensor, liquid level	1	1	1	1	1	1	1
59	343301	Bracket, mounting	1	1	1	1	1	1	1
60	343422	Bracket, fan shroud	2		2				
60	343423	Bracket, fan shroud		2			2	2	
60	343424	Bracket, fan shroud				2			2
61	343619	Bracket, pulley tensioner	1	1	1	1	1	1	1
62	343620	Bracket, pulley tensioner	1	1	1	1	1	1	1
63	343622	Bushing, idler	1	1	1	1	1	1	1
64	X-125-5	Screw, HC	6	6	6	6	6	6	6
65	X-6365-1	Insert, threaded	6	6	6	6	6	6	6
66	X-125-24	Screw, HC	8	8	8	8	8	8	8
67	X-555-1	Fitting, elbow, 1/4 x 1/4 in.				1		1	1

### Modular Spec Cross-Reference Table

Some modular generator specs listed in the specification number index require a cooling system kit. Refer to the generator set nameplate to identify the cooling kit number installed on your generator set. Use the following table to identify the equivalent variation number. The kit's parts list matches the parts list for the equivalent variation number.

Cooling System Kit	Equivalent Variation Number
328038	1
328039	2
328186	5
354432	11
354497	13
354436	17

# Group 105: Engine



# Group 105: Engine

Item	Part Number	Description	Qty.
1	See Chart	Engine assembly (not shown)	1
2	A-343090	Box assembly (items 54-62)	1
3	X-101-4	Nut, hex elastic stop 5/16-24	1
4	*	Bushing, reducer, 1/8, brass	2
5	X-215-6	Elbow, pipe (90 deg x 2" NPT)	1
6	X-219-6	Nipple, pipe, 2x 4	1
7	X-22-16	Washer, lock, 5/16 (135-180 kW, 60 Hz)	3
7	X-22-16	Washer, lock, 5/16 (135-180 kW, 50 Hz, 200-275 kW)	2
7	X-22-14	Washer, lock (135-180 kW, 50 Hz, 200-275 kW)	1
8	X-22-26	Washer, lock, 1/2	1
9	X-396-18	Pipe (135-180 kW, 60 Hz)	1
9	X-396-20	Pipe (135-180 kW, 50 Hz, 200-275 kW)	1
10	X-49-26	Screw, slot, 6-32	2
11	X-49-36	Screw, RHM	2
12	X-22-12	Washer, lock	2
13	X-519-19	Plug, cap	1
14	X-545-112	Cable, battery black (-)	1
15	X-545-117	Cable, battery red (+) (135-180 kW, 60 Hz)	1
15	X-545-129	Cable, battery red (+) (200-275 kW)	1
16	X-545-73	Cable, battery, black	1
17	M933-08025-60	Screw, HHC (135-180 kW, 60 Hz)	1
17	M933-10020-60	Screw, HHC (135-180 kW, 50 Hz, 200-275 kW)	1
18	M933-10025-60	Screw, HHC (135-180 kW, 60 Hz)	1
18	M933-08016-60	Screw, HHC (135-180 kW, 50 Hz, 200-275 kW)	1
19	M933-12020-60	Screw, HHC	1
20	X-6124-1	Strap, holddown	1
21	343690	Holder, fuse	1
22	GM14266	Strip, marker	1
23	361567	Base, tie wrap snapin	1
24	283646	Fuse, 15 amp, F1-F4	4
25	239298	Fuse, 5 amp, F5, F6	2
27	X-672-31	Clamp, insulated (135-180 kW, 60 Hz)	1
27	X-672-4	Clamp, insulated (135-180 kW, 50 Hz, 200-275 kW)	1
28	X-722-5	Clamp, U	1
29	*	Bushing, reducing, 3/4 x 1/2	1
30	160212	Bushing, reducer	1
31	*	Switch, high temperature shutdown	1
32	*	Sender, oil pressure	1
33	*	Sender, water temperature	1
34	268371	Relay	1
35	GM10347	Relay assembly	1
36	286316	Bolt, angle	1
37	287363	Strap, ground (135-180 kW, 60 Hz)	1
37	266581	Strap, ground	1
38	288827	Clamp, muffler	1
39	295034	Socket, relay	1
40	295263	Relay	1
41	*	Switch assembly, pressure	1
42	343028	Battery, equalizer	1
43	*	Harness, engine	1
44	343775	Rack, battery (135-180 kW, 60 Hz)	1
44	343220	Rack, battery	1
45	343055	Solenoid	1
46	343061	Bracket, mounting	1
47	343089	Clamp, battery (135-180 kW, 60 Hz)	1
47	343221	Clamp, battery	1
48	*	Harness, wiring engine control	1

Item	Part Number	Description	Qty.
49	343195	Pipe (135-180 kW, 60 Hz)	1
49	343285	Pipe	1
50	343196	Bracket, support (135-180 kW, 60 Hz)	2
50	343196	Bracket, support (135-180 kW, 50 Hz, 200-275 kW)	1
50	343213	Bracket, mounting (180 kW, 50 Hz, 200-275 kW)	1
50	343376	Bracket, mounting (135/150 kW, 50 Hz)	1
51	345039	Terminal, battery, positive	2
52	345056	Terminal, battery, negative	2
53	X-6214-6	Cap, plastic	1
54	X-49-41	Screw, pan head	4
55	X-74-6	Nut, hex	4
56	151511	Ring, lock switch	1
57	264513	Lamp	2
58	295325	Socket, lamp	2
59	295328	Lens	1
60	298010	Lens, lamp	1
61	343086	Box, silkscreened	1
62	354151	Switch, toggle, 2-pole	1
63	151771	Fitting, elbow, 90 degree (135-180 kW, 50 Hz, 200-275 kW)	2
64	X-205-15	Pipe, 1-1/2 NPT (180 kW 50 Hz, 200-275 kW)	1
64	155029-1	Pipe, 1-1/2 x 6 (135/150, 50 Hz)	1
65	151803	Nipple, pipe, 1 1/2 x 2 1/2 in.	1
66	*	Fitting, 45 degree street elbow	1

# Common hardware. Procure locally.

\* See Control and Harness group for part number.

## Engine Part Number

Use this table to identify the generator set's engine part number.

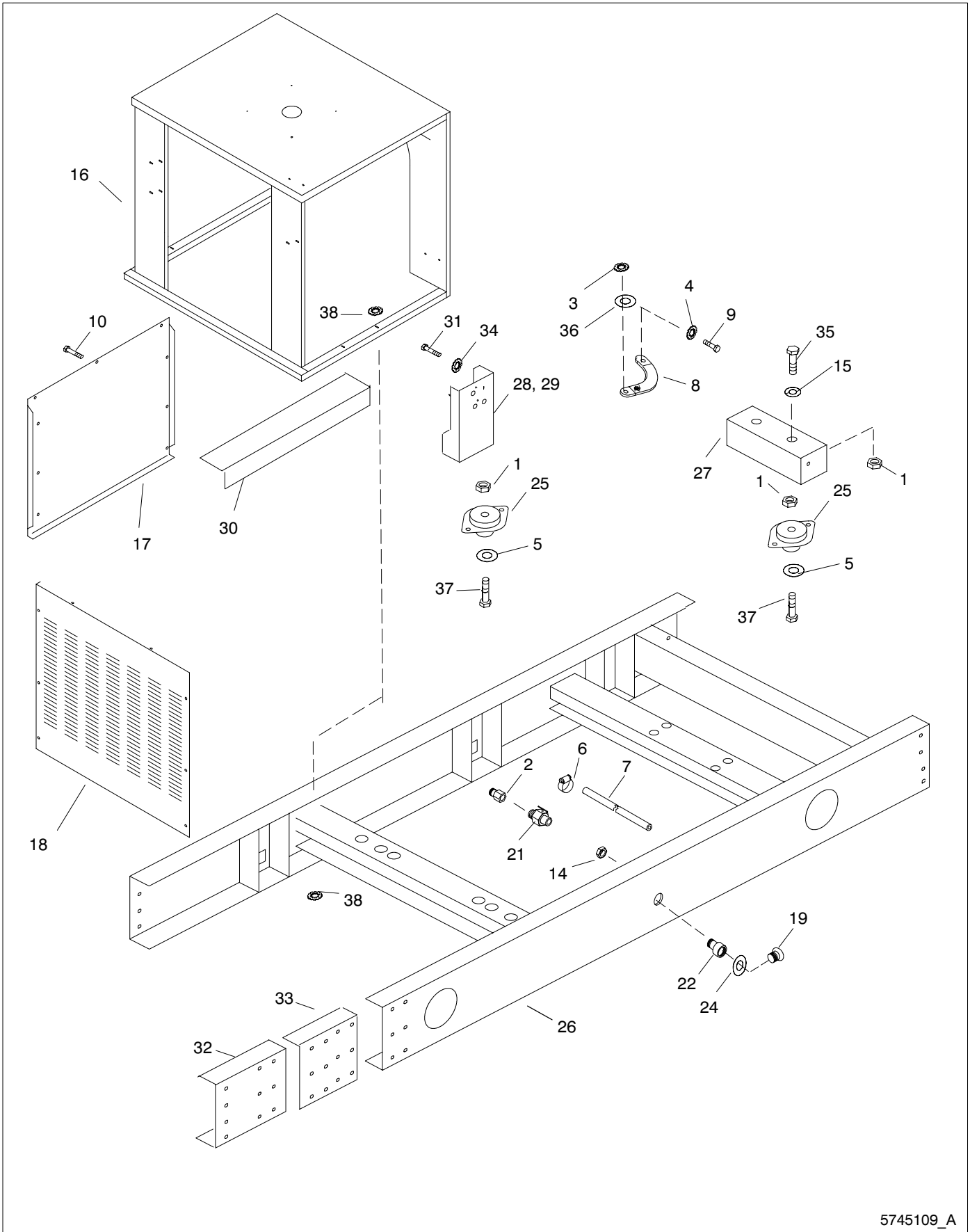
Variation No.	Item 1, Engine Assembly
2	A-343044
3	A-343019
7	A-343044
8	A-343333
9	A-343334
10	A-343335
11	A-343336
12	A-343339
13	A-343338
15	A-343340
16	A-343341
17	A-343342
18	A-343343
19	A-343333
20	A-343334
21	A-343335
22	A-343336
37	A-343044
38	A-343019
39	A-343044
40	A-343339
41	A-343338
42	A-343340
43	A-343341
44	A-343342
45	A-343343
46	A-343333
47	A-343334
48	A-343335
49	A-343336

# Notes

## Group 107: Nameplate and Decals

Item	Part Number	Description	Variation	
			Quantity	
			1	GR1
1	224233	Decal, 1-800 number	1	1
2	238402	Decal, caution positive terminal only	1	1
3	249808	Decal, warning rotating parts	1	1
4	249809	Decal, caution hot engine	1	1
5	249810	Decal, warning hot coolant	1	1
6	257438	Decal, warning moving parts	3	3
7	257441	Decal, warning lifting eye	1	1
8	258815	Decal, warning voltage backfeed	1	1
9	259365	Decal, generator connections	1	
10	273780	Decal, warning explosion	1	1
11	327004	Nameplate	1	
12	343165	Decal, caution—not a step	1	1
13	364116	Decal, caution welding disconnect	2	2
14	GM14023	Tag, hang caution ECM damage		1
15	273739	Decal, Fast Response		2
16	GM13776	Decal, FRII reconnection		1
17	X-6232-3	Decal, stripes	1	1
18	X-6232-6	Decal, stripe	2	2
19	X-6246-1	Decal, Kohler Power System	2	2

# Group 109: Skid and Plant Mounting

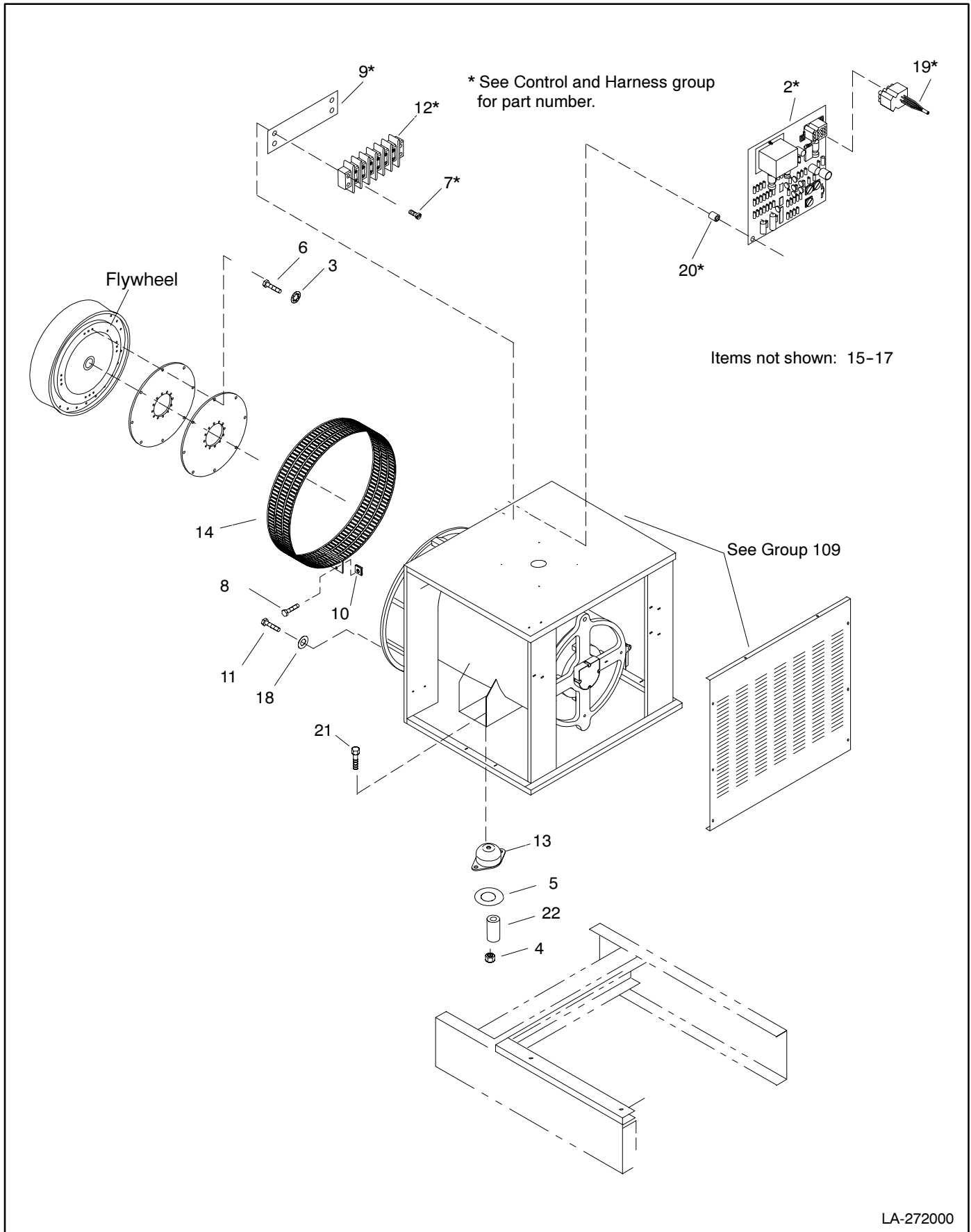


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# Group 109: Skid and Plant Mounting

Item	Part Number	Description	Variation/Module Number											
			Quantity											
			1	2	5	7	9	11	328660	328661	354434	354435	354496	
1	X-101-15	Nut, elastic stop, 5/8-11	6	6	6	6	6	6	6	6	6	6	6	6
2	X-202-41	Bushing, reducer	1	1	1	1	1	1	1	1	1	1	1	1
2	X-211-1	Fitting, elbow, street, 1/2 in.			1	1				1			1	1
3	X-22-16	Washer, lock, 5/16	1	1	1	1	1	1	1	1	1	1	1	1
4	X-22-26	Washer, lock, 1/2	1	1	1	1	1	1	1	1	1	1	1	1
5	X-25-112	Washer, plain, .688 x 3.00 x .190	4	4	4	4	4	4	4	4	4	4	4	4
6	X-426-10	Clamp, hose	2	2	2	2	2	2	2	2	2	2	2	2
7	X-577-48	Hose, oil proof	1	1				1		1		1		1
7	X-577-27	Hose, oil proof			1	1			1				1	1
8	X-6046-5	Strap, ground	1	1	1	1	1	1	1	1	1	1	1	1
9	X-6052-1	Screw, HHC	1	1	1	1	1	1	1	1	1	1	1	1
10	X-6216-1	Screw, Phillips head	12	12	12	12	12	12	12	12	12	12	12	12
14	X-80-1	Nut, hex	1	1	1	1	1	1	1	1	1	1	1	1
15	X-801-9	Washer, hardened	9	2	2	2	2	2	9	2	2	2	2	2
16	222825	Box, junction	1						1					1
16	336021	Box, junction		1	1	1	1			1		1		
17	222835	Cover, side	2					2	2					2
17	336001	Cover, side		2	2	2	2			2		2		
18	222838	Cover, rear	1					1	1					1
18	336005	Cover, rear		1	1	1	1			1		1		
19	241062	Plug, drain	1					1	1			1		1
21	272701	Valve, oil drain	1	1	1	1	1	1	1	1	1	1	1	1
22	273729	Adapter, hose	1	1	1	1	1	1	1	1	1	1	1	1
23	273739	Decal	2	2	2	2	2	2	2	2	2	2	2	2
24	276552	Washer, nylon	1	1	1	1	1	1	1	1	1	1	1	1
25	336024	Vibromount	4	4	4	4	4	4	4	4	4	4	4	4
26	343029	Skid	1						1					
26	343102	Skid			1	1			1				1	
26	343008	Skid		1				1				1		
26	343375	Skid						1						1
27	343032	Support, engine, front	1	1	1	1	1	1	1	1	1	1	1	1
28	343083	Support, rear engine	1	1				1	1	1	1	1	1	1
28	343103	Bracket, engine mounting			2	2		2		11		2		2
29	343084	Support, rear engine	1	1				1	1	1	1	1		
30	336085	Bracket, junction box		2	2	2	2			2		2		
31	X-6021-2	Screw, hex head machine	8	8				8	8	8	8	8		
31	X-55-25	Screw, hex socket head machine			8	8		8	8		8	8		8
32	343105	Extension, skid			2	2						2		
33	343107	Bracket, connection			2	2						2		
34	X-22-30	Washer, lock, .652 ID x 1.058 in. OD			8	8			8		8	8		
35	273049	Screw, hex head machine	2	2	2	2	2	2	2	2	2	2	2	2
36	X-25-85	Washer, plain, .344 ID x .687 OD	1	1	1	1	1	1	1	1	1	1	1	1
37	X-6021-12	Screw, hex head machine	2	2	2	2	2	2	2	2	2	2	2	2
38	X-22-14	Washer, lock, .391 ID x .975 in. OD	2	2	2	2	2	2	2	2	2	2	2	2

# Group 201: Generator and Mounting



# Group 201: Generator and Mounting

Item	Part Number	Description	Qty.
1	See chart	Alternator assembly	1
2	*	Board, voltage regulator circuit	1
3	X-801-6	Washer, hardened	6
4	X-101-15	Nut, elastic stop 5/8-11 (4S, 4U 60 Hz)	2
4	X-101-23	Nut, elastic stop 1/2-13 (4U alt.)	2
5	X-25-112	Washer, plain (4S alt.)	2
5	X-25-103	Washer, plain (4U/4UA alt.)	2
6	X-129-54	Screw, HC, 1/2-13 x 1 1/4	8
7	*	Screw, RHM, 8-32 x 3/4	2
8	X-67-125	Screw, self tapping	2/4
9	*	Marker, strip	1
10	257442	Clip, speed	2/4
11	X-6024-14	Screw, hex head (4S alt., 50 Hz)	6
11	X-6024-15	Screw, hex head (4S alt., 60 Hz)	6
12	*	Block, terminal	1
13	336024	Vibromount (4S alt., 4U 60 Hz)	2
13	324392	Vibromount (4U alt.)	2
14	257193	Guard, generator fan (4S alt.)	1
14	347268	Guard, generator fan (4U alt.)	2
15	X-750-14	Marker, wire tab no. 1	1
16	X-750-15	Marker, wire tab no. 2	1
17	X-750-16	Marker, wire tab no. 3	1
18	290945	Washer, hardened	8
19	*	Harness, wiring	1
20	*	Standoff, circuit board	4
21	X-6021-12	Screw, hex head (4S alt., 4U 60 Hz)	2
21	X-129-30	Screw, hex head (4U alt.)	2
22	X-400-197	Spacer	2

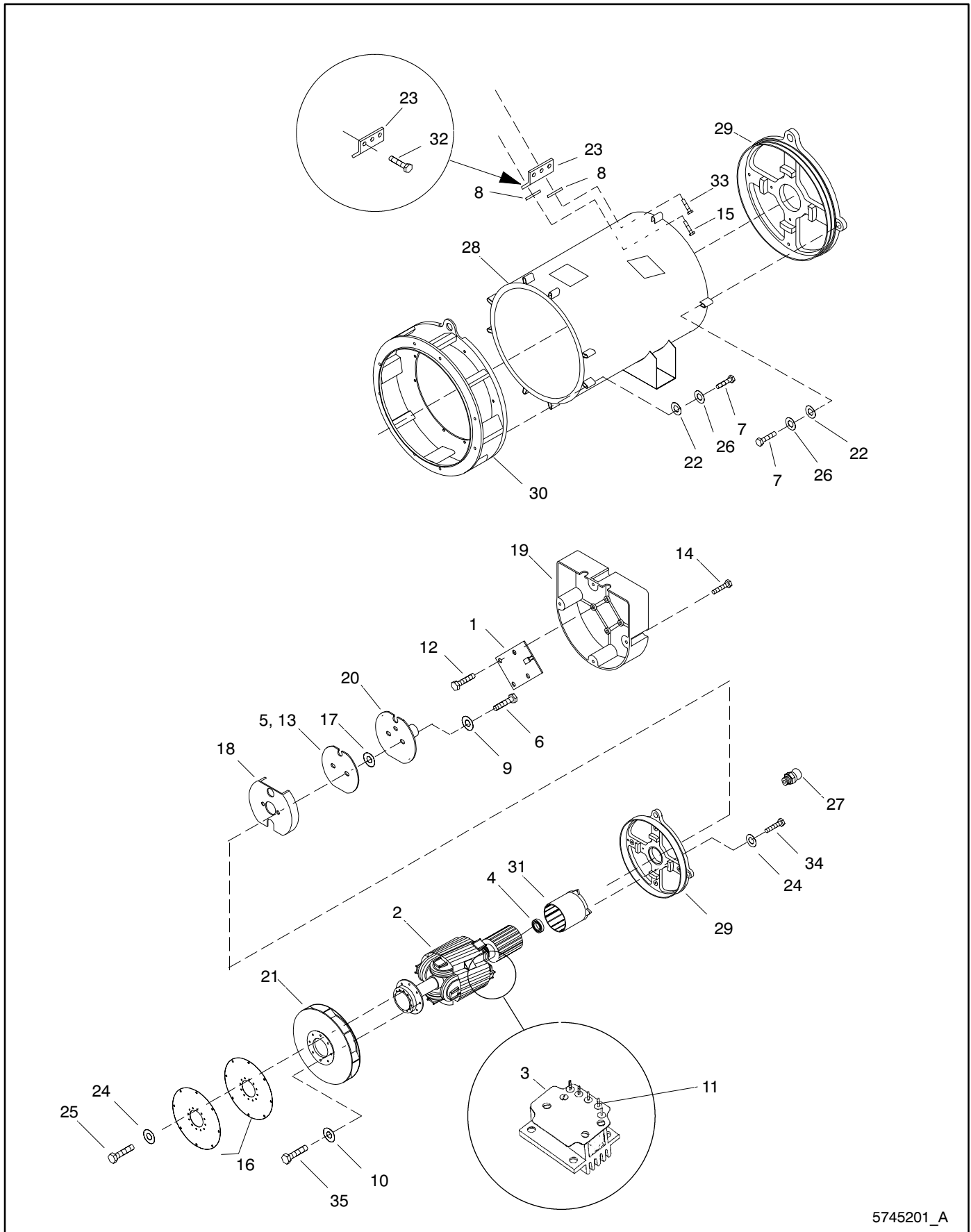
\* See Control and Harness group for part number.

## Alternator Part Number and Mount Type

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

Module/Kit No.	Variation No.	Alternator Description	Item 1, Alternator Assembly
343112	1	4S11	A-343034
343113	2	4S13	A-276680
343114	3	4U7	A-343200
343115	4	4S13, 600 V	A-343202
343116	5	4S11, 600 V	A-343045
343117	6	4S13, 600 V	A-343020
343118	7	4U7, 600 V	A-343201
343119	8	4U9, 600 V	A-343203
343251	9	4U9	A-343202
343252	10	4U9, 600 V	A-343203
343253	11	4U10S	A-343204
343254	12	4U10S, 600 V	A-343205
343255	13	4U13	A-343206
343256	14	4U13, 600 V	A-343207
343313	15	4UA7	A-347121
343314	16	4UA7, 600 V	A-347122
343315	?17	4UA9	A-347123
343316	18	4UA9, 600 V	A-347124
343305	19	4UA9	A-347123
343306	20	4UA9, 600 V	A-347124
343307	21	4UA10	A-347125
343308	22	4UA10, 600 V	A-347126
343309	23	4UA13	A-347127
343310	24	4UA13, 600 V	A-347128
343361	25	4UA7	A-347121
GM18094-MA1	-	4S11	B-343034
GM18094-MA2	-	4S11	B-343034
GM18094-MA3	-	4S11, 600 V	B-343045
GM18094-MA4	-	4S13	B-276680
GM18094-MA5	-	4S13	B-276680
GM18094-MA6	-	4S13, 600 V	B-343020
GM18398-MA1	-	4UA7	B-347121
GM18398-MA2	-	4UA7	B-347121
GM18398-MA3	-	4UA7, 600 V	B-347122
GM18398-MA4	-	4UA9	B-347123
GM18398-MA5	-	4UA9	B-347123
GM18398-MA6	-	4UA9, 600 V	B-347124
GM18398-MA7	-	4UA9, 600 V	B-347124
GM18398-MA8	-	4UA10	B-347125
GM18398-MA9	-	4UA10, 600 V	B-347126
GM18398-MA10	-	4UA13	B-347127
GM18398-MA11	-	4UA13, 600 V	B-347128

# Group 201: Generator and Mounting, continued



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## Group 201: Generator and Mounting, continued

Item	Part Number	Description	Qty.
1	A-257099	LED board	1
2	See chart on page 23	Assembly, rotor	1
3	A-354299	Activator, split (4UA alt.)	1
3	A-233999	Activator, split (4U alt.)	1
3	B-258549	Activator, split (4S alt.)	1
4	X-758-6	Bearing, ball (4S alt.)	1
4	X-758-9	Bearing, ball (4U alt.)	1
5	A-360418	Board, photo	1
6	X-117-5	Screw, hex head, 10-24 x 5	2
7	X-6238-6	Screw, 3/8-16 x 2.00 (4S alt.)	1
7	X-6238-9	Screw, 3/8-16 x 3.00 (4S alt.)	9
7	X-129-49	Screw, 1/2-13 x 3.00 gr. 8 (4UA alt.)	12
7	X-129-25	Screw, hex head (4U alt.)	12
8	X-22-45	Washer, lock 5/16 (4S alt.)	2
8	X-22-46	Washer, lock (4U alt.)	2
9	X-22-9	Washer, lock, #10 int. tooth	2
10	X-25-93	Washer, plain, .406 x .750 x .125 (4S alt.)	4
10	X-25-93	Washer, plain, .406 x .750 x .125 (4U alt.)	8
11	X-283-7	Terminal, ring, #6 (4S alt.)	4
11	X-431-25	Terminal (4U alt.)	4
12	X-6071-1	Screw, thread forming, #10	4
13	X-6093-8	Sleeve	1
14	X-67-133	Screw, self tapping, 10-24 x .375	4
15	X-791-7	Screw, hex head (4S alt.)	1
15	X-791-6	Screw, hex head (4U alt.)	1
16	257104	Disc, armature drive (4S alt.)	3
16	257581	Disc, armature drive (4U alt.)	4
17	243321	Washer, insulating	2
18	257077	Actuator, magnetic	1
19	257258	Cover, circuit board	1
20	257850	Insulator	1
21	257173	Fan, generator (4S alt.)	1
21	GM17179	Fan, generator (4U alt.)	1
22	257951	Washer, special	12
23	257985	Connector, lead (4S alt.)	1
23	257978	Connector, lead (4S alt. 1-ph., 4U alt.)	1
23	257979	Connector, lead (4UA13 alt.)	1
24	X-801-3	Washer, hardened	12
25	270956	Screw, hexagon head	12
26	290945	Washer, hardened (4U alt.)	12
26	X-25-93	Washer (4S alt.)	10
27	347119	Fitting, grease	1
28	See chart on page 23	Stator assembly	1
29	257983	Bracket, end (4S alt.)	1
29	257982	Bracket, end (4U alt.)	1
29	347236	Bracket, end (4UA alt.)	1
30	257192	Adapter, generator (4S alt.)	1
30	257579	Adapter, generator (4U alt.)	1
30	347236	Adapter, generator (4UA alt.)	1
31	276657	Field exciter assembly (4S alt.)	1
31	257963	Field exciter assembly (4U alt.)	1
31	347707	Field exciter assembly (4U alt.)	1
32	X-125-24	Screw, hex head (4S alt.)	3
32	X-6238-5	Screw, hex head (4S alt. 1-ph., 4U alt.)	3
32	X-6238-5	Screw, hex head (4U13 alt.)	6
33	X-6238-11	Screw, hex head (4U alt.)	1
33	X-125-31	Screw, hex head (4S alt.)	1
34	X-6238-1	Screw, hex head (4UA alt.)	4
34	X-125-34	Screw, hex head (4S alt.)	4
34	X-6237-7	Screw, hex head (4U alt.)	4
35	X-6238-11	Screw, hex head (4S alt.)	8
35	X-6238-11	Screw, hex head (4U alt.)	4

# Notes

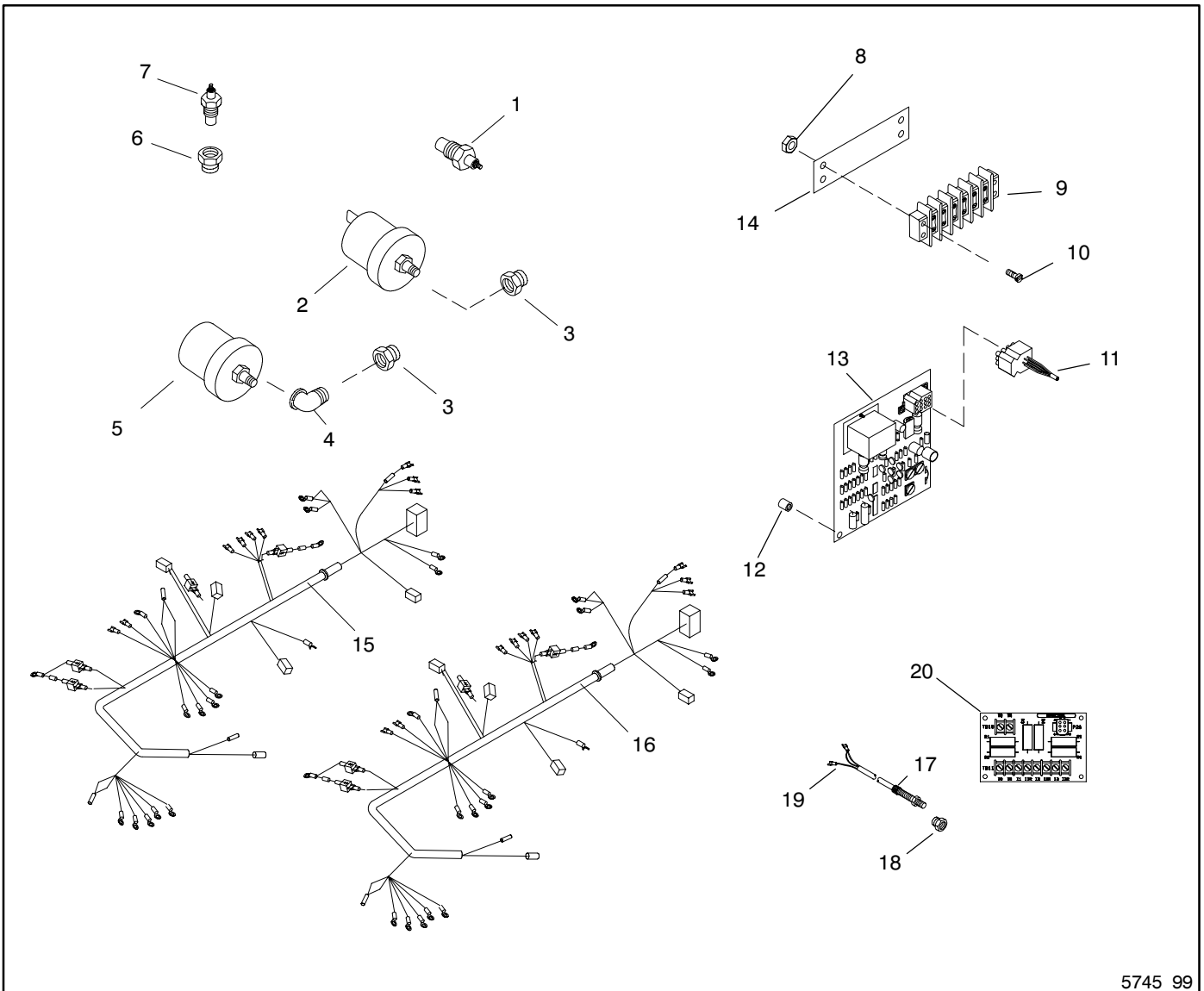
# Group 201: Generator and Mounting, continued

## Alternator Part Number and Mount Type

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

Module/Kit No.	Variation No.	Alternator Description	Alternator Assembly	Item 2, Rotor Assembly	Item 28, Stator Assembly
343112	1	4S11	A-343034	A-343091	343092
343113	2	4S13	A-276680	A-276668	257689
343114	3	4U7	A-343200	A-257959	257573
343115	4	4S13, 600 V	A-343202	A-257960	257574
343116	5	4S11, 600 V	A-343045	A-343091	343094
343117	6	4S13, 600 V	A-343020	A-276668	257692
343118	7	4U7, 600 V	A-343201	A-257959	257777
343119	8	4U9, 600 V	A-343203	A-257960	257778
343251	9	4U9	A-343202	A-257960	257574
343252	10	4U9, 600 V	A-343203	A-257960	257778
343253	11	4U10S	A-343204	A-257974	257575
343254	12	4U10S, 600 V	A-343205	A-257974	257779
343255	13	4U13	A-343206	A-257962	257789
343256	14	4U13, 600 V	A-343207	A-257962	257792
343313	15	4UA7	A-347121	A-347186	347196
343314	16	4UA7, 600 V	A-347122	A-347186	347202
343315	17	4UA9	A-347123	A-347187	347197
343316	18	4UA9, 600 V	A-347124	A-347187	347203
343305	19	4UA9	A-347123	A-347187	347197
343306	20	4UA9, 600 V	A-347124	A-347187	347203
343307	21	4UA10	A-347125	A-347188	347198
343308	22	4UA10, 600 V	A-347126	A-347188	347204
343309	23	4UA13	A-347127	A-347189	347199
343310	24	4UA13, 600 V	A-347128	A-347189	347205
343361	25	4UA7	A-347121	A-347186	347196
GM18094-MA1	-	4S11	B-343034	A-343091	343092
GM18094-MA2	-	4S11	B-343034	A-343091	343092
GM18094-MA3	-	4S11, 600 V	B-343045	A-343091	343094
GM18094-MA4	-	4S13	B-276680	A-276668	257689
GM18094-MA5	-	4S13	B-276680	A-276668	257689
GM18094-MA6	-	4S13, 600 V	B-343020	A-276668	257692
GM18398-MA1	-	4UA7	B-347121	A-347186	347196
GM18398-MA2	-	4UA7	B-347121	A-347186	347196
GM18398-MA3	-	4UA7, 600 V	B-347122	A-347186	347202
GM18398-MA4	-	4UA9	B-347123	A-347187	347197
GM18398-MA5	-	4UA9	B-347123	A-347187	347197
GM18398-MA6	-	4UA9, 600 V	B-347124	A-347187	347203
GM18398-MA7	-	4UA9, 600 V	B-347124	A-347187	347203
GM18398-MA8	-	4UA10	B-347125	A-347188	347198
GM18398-MA9	-	4UA10, 600 V	B-347126	A-347188	347204
GM18398-MA10	-	4UA13	B-347127	A-347189	347199
GM18398-MA11	-	4UA13, 600 V	B-347128	A-347189	347205

# Control and Harness



5745 99

# Control and Harness

Cross-reference the module number of your control and harness and engine group variation to the letter key in the Model Number to Key Cross-Reference table below. Refer to the key column in the following table.

Item	Part Number	Description	A	B	C	D	E	F	G	H	I	J	K	L
1	241481	Switch, high temperature shutdown	1	1	1	1	1			1	1			
1	GM16787	Switch, water temperature						1	1			1	1	1
2	328309	Switch assembly, pressure	1	1	1	1	1			1	1			
2	GM16788	Switch assembly, pressure						1	1			1	1	1
3	X-202-27	Bushing, reducer	1	1	1	1	1	1	1	1	1	1	1	1
4	267428	Fitting, 45 degree street elbow	1	1	1	1	1	1	1	1	1	1	1	1
5	343473	Sender, oil pressure	1	1	1	1	1	1	1	1	1	1	1	1
6	153659	Bushing, reducing, 3/4 x 1/2	1	1	1	1	1	1	1	1	1	1	1	1
7	268298	Sender, water temperature	1	1	1	1	1			1	1			
8	M934-04-50	Nut, hex, 4mm	2	2	2	2	2	2	2	2	2	2	2	2
9	295314	Block, terminal	1	1	1	1	1							
9	X-405-2	Block, terminal						1	1	1	1	1	1	
10	M7985A-04020-20	Screw, RHM, 8-32 x 3/4	2	2	2	2	2	2	2	2	2	2	2	2
11	255481	Harness, wiring	1	1	1	1	1							
11	354118	Harness, wiring			1						1	1		
12	360459	Standoff, circuit board	5	5	5	5	5	5	5	5	5	5	5	5
13	C-255670	Circuit board, voltage regulator	1	1	1	1	1							
13	A-354653	Circuit board, voltage regulator (1%)			1						1	1		
14	255080	Marker, strip	1	1	1	1	1							
14	254127	Marker, strip						1	1			1	1	
15	343030	Harness, engine	1							1				
15	343211	Harness, engine		1		1								
15	343110	Harness, engine			1		1				1			
15	GM17726	Harness, engine						1						
15	GM17727	Harness, engine							1			1		
15	GM17728	Harness, engine											1	1
16	343125	Harness, power	1											
16	343210	Harness, power		1										
16	343266	Harness, power			1									
16	GM14222	Harness, power				1		1						
16	GM14224	Harness, power					1		1		1		1	1
16	GM14223	Harness, power								1		1	1	1
17	226529	Sensor, magnetic						1	1			1	1	1
18	GM19354	Bushing, adaptor						1	1			1	1	1
19	324617	Wiring harness, pickup						1	1			1	1	1
20	GM13980	PCB assembly, CT burden resistor												1
20	282829	Vibromount												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	Engine Group Variation No.	Kit Number	Controllers
A	2, 3	-	All
B	7	-	All
C	9-22	-	All
D	37	GM17876-MA1	Engine Gauge Box and 16-Light
E	41	GM17876-MA2	Engine Gauge Box and 16-Light
F	37	GM19349-MA1	Decision-Maker 550
G	41	GM19349-MA2	Decision-Maker 550
H	38-40	GM18095-MA1	Engine Gauge Box and 16-Light
I	38-40, 42-49	GM18095-MA2	Engine Gauge Box and 16-Light
J	38-40	GM19350-MA1	Decision-Maker 550
K	38-40	GM19350-MA2	Decision-Maker 550
L	42-49	GM19350-MA3	Decision-Maker 550

# Group 701: Literature

Item	Part Number	Description	Variation									
			Quantity									
			1	3	5	23	25	27	29	31	33	35
1	TP-5353	Service Manual, Generator	1	1	1	1	1	1	1	1	1	1
2	TP-5700	Standby Installation Manual	1	1	1	1	1	1	1	1	1	1
2	TP-5700-CS	Standby Installation Manual, Chinese Simplified	1	1	1	1	1	1	1	1	1	1
2	TP-5700-CT	Standby Installation Manual, Chinese Traditional	1	1	1	1	1	1	1	1	1	1
2	TP-5700-F	Standby Installation Manual, French	1	1	1	1	1	1	1	1	1	1
2	TP-5700-G	Standby Installation Manual, German	1	1	1	1	1	1	1	1	1	1
2	TP-5700-S	Standby Installation Manual, Spanish	1	1	1	1	1	1	1	1	1	1
3	TP-5720	Wiring Diagram Manual, 135-275RZD	1	1	1	1	1	1	1	1	1	1
4	TP-5745	Parts Catalog, 135-275RZD	1	1	1	1	1	1	1	1	1	1
4	TP-5708	Parts Catalog, 17-100RZ/135-275RZD, Accessories	1	1	1	1	1	1	1	1	1	1
4	TP-6009	Parts Catalog, Controllers, Industrial	1	1	1	1	1	1	1	1	1	1
5	TP-5750	Operation Manual, 20-2000 kW	1	1	1	1	1	1	1	1	1	1
5	TP-5750-F	Operation Manual, 20-2000 kW, French	1	1	1	1	1	1	1	1	1	1
5	TP-5750-G	Operation Manual, 20-2000 kW, German	1	1	1	1	1	1	1	1	1	1
5	TP-5750-S	Operation Manual, 20-2000 kW, Spanish	1	1	1	1	1	1	1	1	1	1
6	TP-5829	Operation Manual, Decision-Maker 340 Controller	1	1	1	1	1	1	1	1	1	1
6	TP-6083	Operation Manual, Decision-Maker 550 Controller	1	1	1	1	1	1	1	1	1	1
6	TP-5830	Operation Manual, 135-275 DDC Series 50/60 Engine	1	1	1	1	1	1	1	1	1	1
7	TP-5831	Service Manual, DDC Series 50 Engine	1			1	1					
7	TP-5843	Service Manual, DDC Series 60 Engine		1	1			1	1	1	1	1
8	TP-5832	Parts Catalog, DDC Series 50 Engine	1			1	1					
8	TP-5844	Parts Catalog, DDC Series 60 Engine		1	1			1	1	1	1	1
9	TP-5852	Installation Manual, DDC 50/60 Series	1	1	1	1	1	1	1	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.

	135 kW	150 kW	180 kW	200 kW	230 kW	250 kW	275 kW
<b>Controllers</b>							
See Parts Catalog TP-6009 for parts lists.							
<b>Cooling Systems</b>							
Heater, Block							
100-120/190-240 V, 50 Hz	343264	343264	343264	343264	343264	343264	343264
100-120/190-240 V, 60 Hz	343098	343098	343098	343264	343264	343264	343264
380/480 V, 50 Hz	343265	343265	343265	343265	343265	343265	343265
380/480 V, 60 Hz	343099	343099	343099	343265	343265	343265	343265
Duct Flange, Radiator	343158	343158	343158	343265	343265	343265	343265
<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	Kit/Part No.
<b>Heater, Block, 110-120/190-240 V</b>		
		<b>343098</b>
1	Pipe	A-107
4	Nut, elastic stop	X-101-8
1	Tee, pipe, 1/2	X-203-13
1	Nipple, pipe, 1/2 x 1 1	X-209-5
1	Elbow, pipe, 3/4	X-215-2
4	Clamp, hose, 1.25 in.	X-426-12
1	Connector, hose	X-582-7
1	Connector, hose	X-582-8
1	Strap, ground	X-6046-1
1	Hose, .75 x 52 in.	X-691-23
1	Hose	X-691-37
1	Strap, ground	223033
4	Bumper	259632
1	Bracket, support	274431
1	Tag, hang	279047
1	Tag, instruction	279280
1	Heater, block (includes item marked *)	279814
1	*Element, replacement	GM19501
4	Gasket	297001
1	Box, block heater control	354315
1	Cover, block heater control	354317
1	Gasket, control box	354318
1	Decal, warning	354325
1	Label, warning diagram	354327
1	Plug, freeze	324094
1	Bracket, block heater	343100
1	Thermostat, block heater	343222

<b>Heater, Block 380/480 V</b>		
		<b>343099</b>
1	Pipe	A-107
4	Nut, elastic stop	X-101-8
1	Tee, pipe, 1/2	X-203-13
1	Nipple, pipe, 1/2 x 1 1	X-209-5
1	Elbow, pipe, 3/4	X-215-2
4	Clamp, hose, 1.25 in.	X-426-12
1	Connector, hose	X-582-7
1	Connector, hose	X-582-8
1	Strap, ground	X-6046-1
1	Hose, .75 x 52 in.	X-691-23
1	Hose	X-691-37
1	Strap, ground	223033
4	Bumper	259632
1	Bracket, support	274431
1	Tag, hang	279047
1	Tag, instruction	279280
1	Heater, block (includes item marked *)	279815
1	*Element, replacement	GM19502
4	Gasket	297001
1	Box, block heater control	354316
1	Cover, block heater control	354317
1	Gasket, control box	354318
1	Decal, warning	354325
1	Label, warning diagram	354328
1	Plug, freeze	324094
1	Bracket, block heater	343100
1	Thermostat, block heater	343222

Qty.	Description	Kit/Part No.
<b>Heater, Block, 110-120/190-240 V</b>		
		<b>343264</b>
1	Pipe	A-107
4	Nut, elastic stop	X-101-8
1	Tee, pipe, 1/2	X-203-13
1	Nipple, pipe, 1/2 x 1 1	X-209-5
1	Elbow, pipe, 3/4	X-215-2
4	Clamp, hose, 1.25 in.	X-426-12
1	Connector, hose	X-582-7
1	Connector, hose	X-582-8
1	Strap, ground	X-6046-1
1	Hose, .75 x 9 ft.	X-691-19
1	Hose	X-691-37
1	Strap, ground	223033
4	Bumper	259632
1	Bracket, support	274431
1	Tag, hang	279047
1	Tag, instruction	279280
1	Heater, block (includes item marked *)	279814
1	*Element, replacement	GM19501
4	Gasket	297001
1	Box, block heater control	354315
1	Cover, block heater control	354317
1	Gasket, control box	354318
1	Decal, warning	354325
1	Label, warning diagram	354327
1	Plug, freeze	324094
1	Bracket, block heater	343100
1	Thermostat, block heater	343222

<b>Heater, Block, 380/480 V</b>		
		<b>343265</b>
1	Pipe	A-107
4	Nut, elastic stop	X-101-8
1	Tee, pipe, 1/2	X-203-13
1	Nipple, pipe, 1/2 x 1 1	X-209-5
1	Elbow, pipe, 3/4	X-215-2
4	Clamp, hose, 1.25 in.	X-426-12
1	Connector, hose	X-582-7
1	Connector, hose	X-582-8
1	Strap, ground	X-6046-1
1	Hose, .75 x 9 ft.	X-691-19
1	Hose	X-691-37
1	Strap, ground	223033
4	Bumper	259632
1	Bracket, support	274431
1	Tag, hang	279047
1	Tag, instruction	279280
1	Heater, block (includes item marked *)	279815
1	*Element, replacement	GM19502
4	Gasket	297001
1	Box, block heater control	354316
1	Cover, block heater control	354317
1	Gasket, control box	354318
1	Decal, warning	354325
1	Label, warning diagram	354328
1	Plug, freeze	324094
1	Bracket, block heater	343100
1	Thermostat, block heater	343222

<b>Radiator Duct Flange</b>		
		<b>343158</b>
2	Frame, air duct	343156
2	Frame, air duct	343157

<b>Radiator Duct Flange</b>		
		<b>343264</b>
2	Frame, air duct, top/bottom	343271
2	Frame, air duct, sides	343272

# 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				

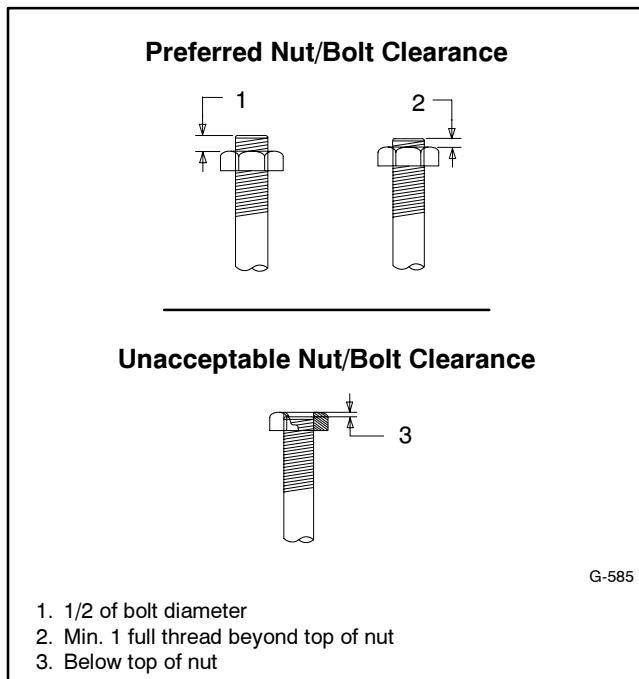
# Appendix B Common Hardware Application Guidelines

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.



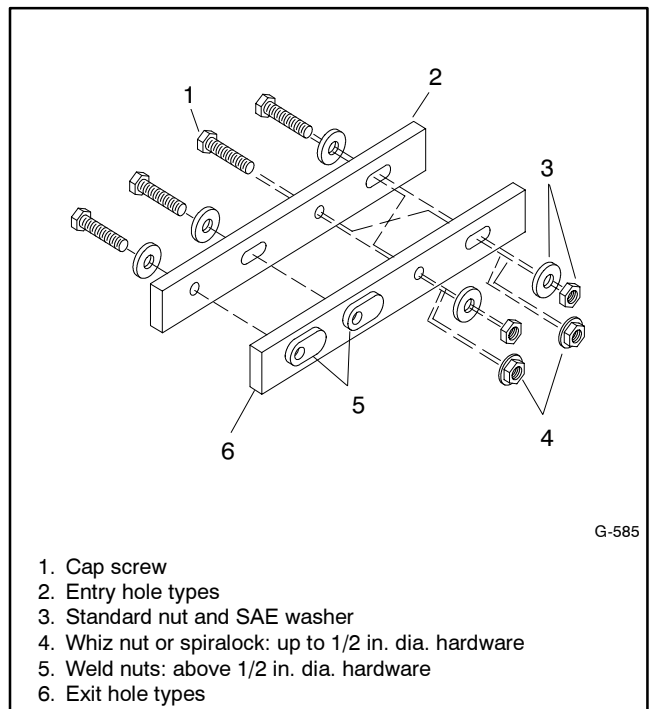
**Figure 1** Acceptable Bolt Lengths

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	

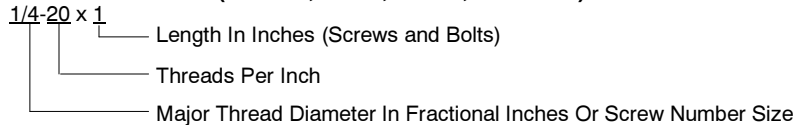
Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9 (Hex Socket Head)	
Metric	
Number stamped on hardware; 5.8 shown	

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

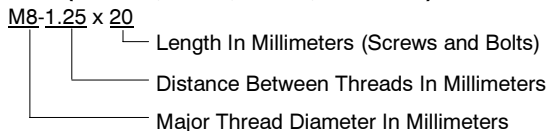
Phillips® screw is a registered trademark of Phillips Screw Company.

## Sample Dimensions

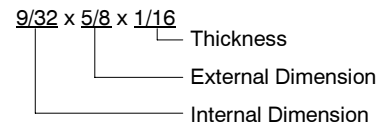
### American Standard (Screws, Bolts, Studs, and Nuts)



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

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

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





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