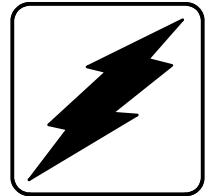


Service Parts

Industrial Generator Sets



Models:

135-200ROZJ

John Deere 6081 Engine

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



KOHLER[®]
POWER SYSTEMS

Specification Series 189

TP-5828 12/00e

Table of Contents

Subject	Page
Introduction	1
Numbering System Significance	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	12
Group 109: Skid and Plant Mounting	14
Group 119: Recommended Spare Parts	16
Group 201: Generator and Mounting	18
Group 301: Controller and Mounting	26
Group 701: Literature	30
Kit List	31
Manual Controller Kits	32
Manual Controller Assemblies	33
Cooling System Kits	34
Glossary of Abbreviations	A-1
Common Hardware Application Guidelines	A-3
General Torque Specifications	A-4
Common Hardware Identification	A-5
Common Hardware List	A-6

Introduction

This manual lists service replacement parts for 135–200 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.

xin:004:002

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.

xin:004:003

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>Recommended Spare Parts</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>
Group No.	101	104	105	107	109	119	201	301	701
Spec No.	VARIATION NUMBER								

135ROZJ									
189721	13	15	45	44	20	18	71	†	18
189722	13	15	45	44	20	18	72	†	18
189724	*	*	45	44	*	19	*	†	18
189725	13	15	46	44	20	18	71	†	18
189727	*	*	46	44	*	19	*	†	18
189733	*	*	59	44	*	19	*	†	18
189734	*	*	60	44	*	19	*	†	18
135ROZJA									
189723	13	16	47	44	21	22	77	55	28
189736	13	16	47	44	40	22	107	55	28
189737	13	15	108	52	50	—	148	81	42
150ROZJ									
189828	13	17	48	44	20	18	71	†	18
189829	13	17	48	44	20	18	72	†	18
189830	13	18	50	44	21	22	75	†	18
189831	13	18	50	44	21	22	76	†	18
189833	*	*	48	44	*	19	*	†	18
189834	*	*	50	44	*	19	*	†	18
189835	13	17	49	44	20	18	71	†	18
189837	13	18	51	44	21	22	75	†	18
189839	*	*	49	44	*	19	*	†	18
189840	*	*	51	44	*	23	*	†	18
189843	*	*	61	44	*	19	*	†	18
189844	*	*	62	44	*	19	*	†	18
189845	*	*	63	44	*	19	*	†	18
189846	*	*	64	44	*	23	*	†	18
189849	13	18	50	44	40	22	105	†	64
189850	13	18	50	44	40	22	106	†	64
189852	*	*	50	44	*	19	*	†	64
189853	13	18	51	44	40	22	105	†	64
189854	*	*	51	44	*	23	*	†	64
189855	*	*	63	44	*	19	*	†	64
189856	*	*	64	44	*	23	*	†	64
150ROZJA									
189832	13	18	50	44	21	22	78	56	28
189851	13	18	50	44	40	22	108	56	28
189857	13	17	109	52	50	—	149	82	68

x.in:004:007a

Specification Number Index

Group Title	Air Intake	Cooling System	Engine	Nameplates and Decals	Skid and Plant Mounting	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature
	101	104	105	107	109	119	201	301	701
Group No.	101	104	105	107	109	119	201	301	701
Spec No.	VARIATION NUMBER								

180ROZJ									
189939	13	19	52	44	21	20	73	†	18
189940	13	19	52	44	21	20	74	†	18
189941	13	19	52	44	21	20	75	†	18
189942	13	19	52	44	21	20	76	†	18
189944	*	*	52	44	*	21	*	†	18
189945	13	19	53	44	21	20	73	†	18
189947	13	19	53	44	21	20	75	†	18
189949	*	*	53	44	*	21	*	†	18
189950	*	*	65	44	*	21	*	†	18
189951	*	*	66	44	*	21	*	†	18
189955	13	19	52	44	40	20	103	†	65
189956	13	19	52	44	40	20	104	†	65
189957	13	19	52	44	40	20	105	†	65
189958	13	19	52	44	40	20	106	†	65
189960	*	*	52	44	*	21	*	†	65
189961	13	19	53	44	40	20	103	†	65
189962	13	19	53	44	40	20	105	†	65
189963	*	*	53	44	*	21	*	†	65
189964	*	*	65	44	*	21	*	†	65
189965	*	*	66	44	*	21	*	†	65
180ROZJA									
189943	13	19	52	44	22	20	79	56	28
189959	13	19	52	44	41	20	109	56	28
189970	13	40	110	52	50	—	150	82	69
200ROZJ									
189980	*	*	115	44	*	—	*	†	87
189982	*	*	123	GR2	*	—	*	†	87

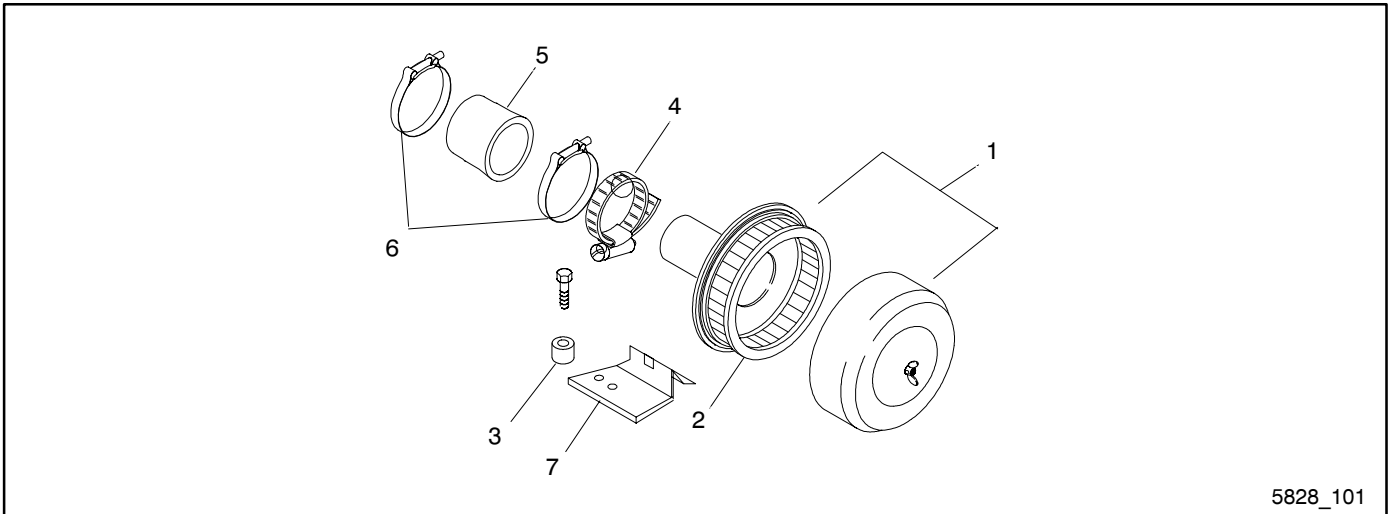
* Configured group. Refer to the generator set nameplate for the module number.
Turn to the respective group on the following pages for parts breakdowns.

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

— Not applicable.

x.in:004:007a

Group 101: Air Intake

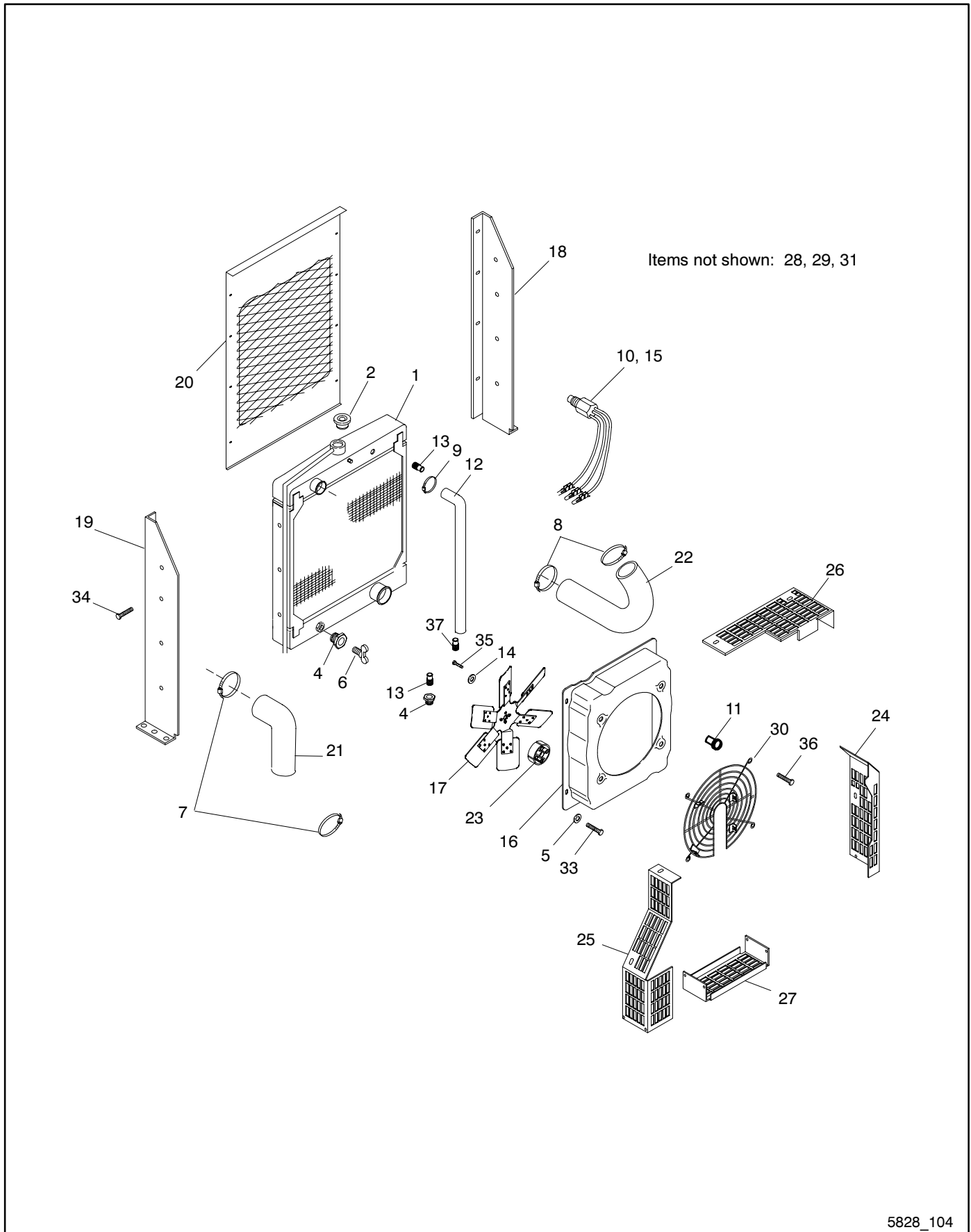


5828_101

Item	Part Number	Description	Quantity				
			Variation/Kit Number				
			13	336684	336808	336686	GM11459-MA1
1	A-273700	Air cleaner assembly	1	1			
1	254004	Air cleaner assembly			1	1	
1	343219	Air cleaner, industrial					1
2	253108	Element, air filter	1	1			
2	254477	Element, air filter			1	1	
3	X-400-132	Spacer	2	2			
3	X-400-210	Spacer					2
4	X-426-5	Clamp, hose	1	1			
5	X-6350-1	Hose	1	1			
5	336227	Hose, intake			1		
5	336226	Hose, intake				1	
5	343429	Hose, hump, straight, 5 in. OD					1
5	GM11458	Hose, reducer insert					1
6	274545	Clamp, hose	2	2			
6	272960	Clamp, hose (air cleaner end)			1	1	
6	324555	Clamp, hose (turbo end)			1	1	
6	254013	Clamp, hose 6.25/6.56 in.					1
6	291562	Clamp, hose 5.25/5.56 in.					1
7	336611	Bracket, air cleaner	1	1			
7	336224	Bracket, air cleaner			1		
7	274665	Bracket, air cleaner				1	
7	GM11452	Bracket, air cleaner					1
7	GM11970	Shield, heat (not shown)					1
8	254012	Band, mounting (not shown)			2	2	
8	343218	Band, mounting (not shown)					1
9	X-101-13	Nut, lock (not shown)			4	4	4
10	254010	Cap, rain (not shown)			1	1	

Notes

Group 104: Cooling System



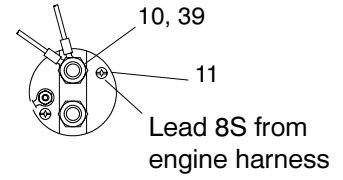
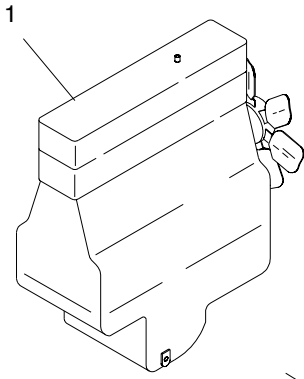
5828_104

Group 104: Cooling System

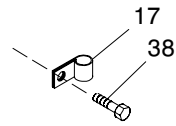
Item	Part Number	Description	Quantity												
			Variation/Kit Number												
			15	16	17	18	19	40	336683	336804	336805	336815	GM11460-MA1		
1	A-336663	Radiator assembly	1	1	1	1				1	1	1			
1	A-336856	Radiator assembly											1		
1	GM10988	Radiator assembly					1	1							1
2	352327	Cap, radiator	1	1	1	1			1	1	1				
2	347715	Cap, radiator					1	1				1			1
4	X-202-47	Bushing, reducer	1	2	1	2	2	1	1	1	1	2	2		2
5	X-25-75	Washer, plain	4	4	4	4			4	4	4				
5	X-25-73	Washer, plain						8	8			8			8
6	X-256-3	Valve, drain, 1/4	1	1	1	1	1	1	1	1	1	1	1		1
7	X-426-2	Clamp, hose, 1 7/8-3 5/32	2	2	2	2	2	2	2	2	2	2	2		2
8	X-426-6	Clamp, hose, 1-9/16 x 2	2	2	2	2	2	2	2	2	2	2	2		2
9	X-426-9	Clamp, hose	2	2	2	2	2	2	2	2	2	2	2		2
10	X-6003-8	Conduit, convoluted	1	1	1	1	1	1	1	1	1	1	1		1
11	X-6365-1	Insert, threaded	4	4	4	4	4	6	4	4	4	4	4		6
12	X-6359-1	Hose, coolant	1	1	1	1	1		1	1	1	1	1		1
13	X-652-3	Fitting, hose	2	2	2	2	2	2	2	2	2	2	2		2
14	X-801-3	Washer, hardened	6	6	6	6	6	6	6	6	6	6	6		6
15	365289	Sensor, low fluid	1	1	1	1	1	1	1	1	1	1	1		1
16	276400	Shroud, fan	1	1	1	1			1	1	1				
16	222953	Shroud, fan					1	1				1			1
17	324319	Fan, blower	1	1	1	1			1	1	1				
17	273437	Fan, pusher					1	1				1			1
18	327380	Support, radiator (right)	1		1				1	1					
18	336078	Support, radiator (right)		1		1	1	1			1	1			1
18	360186	Support, radiator (right)						1							
19	327381	Support, radiator (left)	1		1				1	1					
19	336079	Support, radiator (left)		1		1	1	1			1	1			1
19	360187	Support, radiator (left)						1							
20	327379	Guard, radiator	1		1				1	1					
20	336086	Guard, radiator					1	1				1			1
20	336080	Guard, radiator		1		1					1				
20	360188	Guard, radiator						1							
21	336664	Hose, upper radiator	1		1		1	1	1	1	1	1	1		1
21	336877	Hose, upper radiator		1		1									
22	336878	Hose, lower radiator	1	1	1	1	1	1	1	1	1	1	1		1
23	336668	Spacer, fan	1		1				1	1					
23	336879	Spacer, fan		1		1	1	1			1	1			1
24	336669	Guard, belt (RS)	1		1				1	1					
24	336881	Guard, belt (RS)		1		1	1	1			1	1			1
25	336670	Guard, belt (LS)	1						1						
25	336882	Guard, belt (LS)		1											
25	336784	Guard, belt (LS)			1						1				
25	336883	Guard, belt (LS)				1	1	1			1	1			1
26	336671	Guard, belt (top)	1		1				1	1			1		1
26	336884	Guard, belt (top)		1		1	1	1			1	1			1
27	336672	Guard, belt (bottom)	1		1				1	1					
27	336885	Guard, belt (bottom)		1		1	1	1			1	1			1
	336781	Guard, belt (bottom front, not shown)	1	1	1	1	1	1	1	1	1	1	1		1
28	336783	Bracket, mounting (top, not shown)	1	1	1	1	1	1	1	1	1	1	1		1
29		Guard, wire fan	1	1	1	1	1	1	1	1	1	1	1		1
30	336887	Guard, wire fan	1	1	1	1	1	1	1	1	1	1	1		1
30	336888	Guard, wire fan					1	1					1		1
	352181	Bracket (left mounting, not shown)	1	1	1	1	1	1	1	1	1	1	1		1
31		Screw, HC	4	4	4	4	4	4	4	4	4	4	4		4
33	X-125-3	Screw, HC	4	4	4	4	4	4	4	4	4	4	4		4
34	X-125-23	Screw, HC	8	8	8	8	8	8	8	8	8	8	8		8
35	X-6238-18	Screw, HC	6	6	6	6	6	6	6	6	6	6	6		6
36	X-125-31	Screw, HC	4	4	4	4	4	4	4	4	4	4	4		4
37	X-582-32	Connector, hose							1	1	1	1	1		1

Group 105: Engine

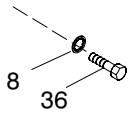
Variations 45-53



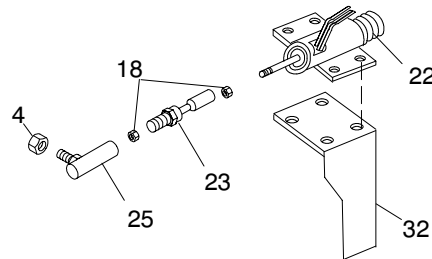
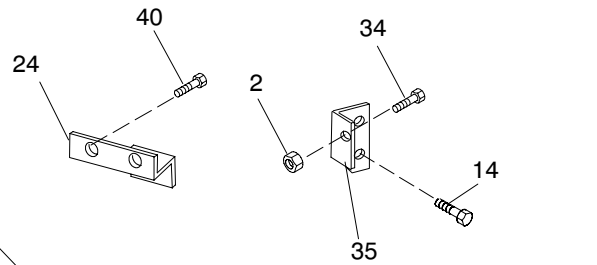
End View of Starter Solenoid



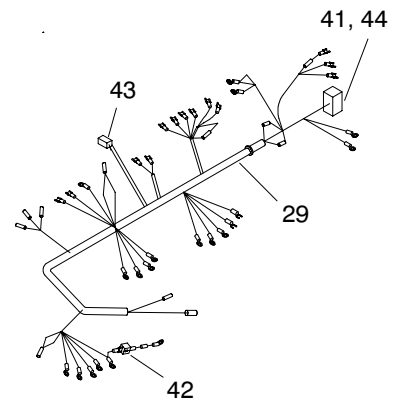
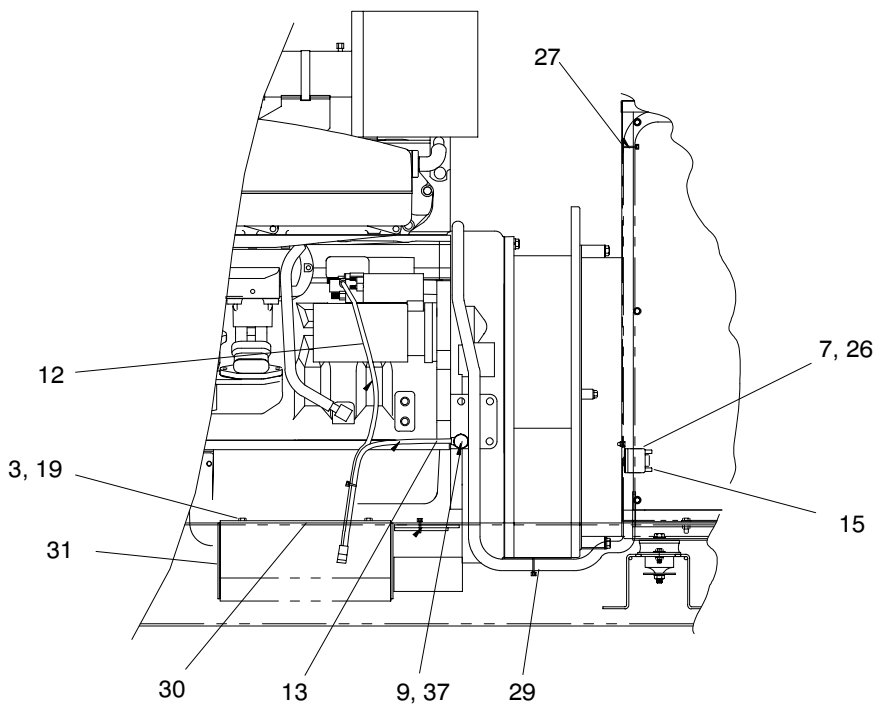
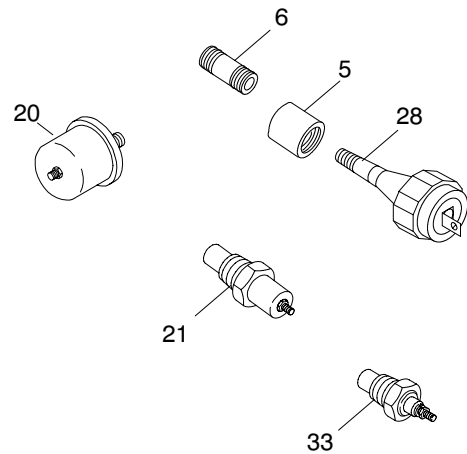
Breather Hose Mounting



Ground Leads
(near fuel filter)



Item 16 not shown.

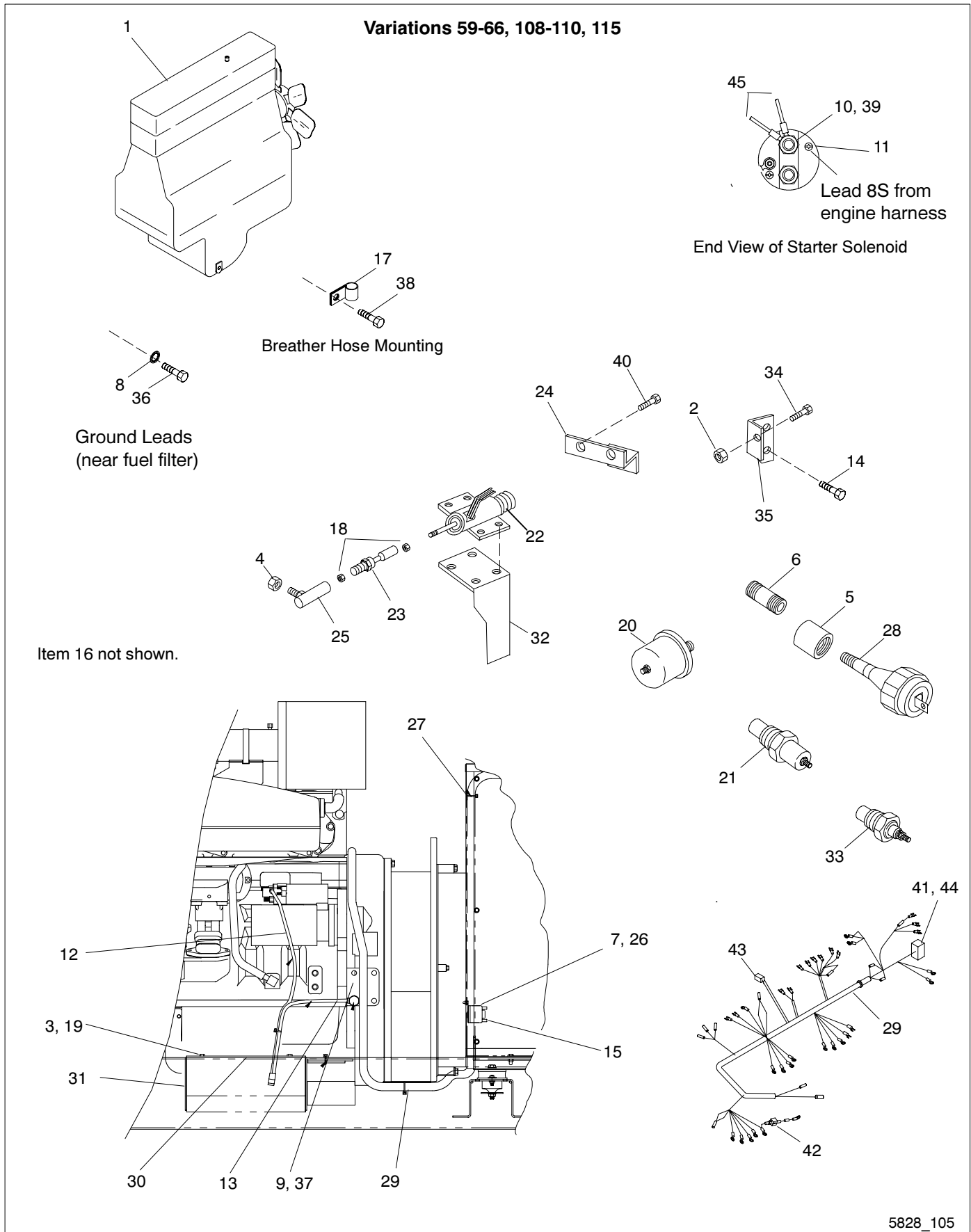


5828_105

Group 105: Engine

Item	Part Number	Description	Quantity									
			Variation Number									
			45	46	47	48	49	50	51	52	53	
1	A-336644	Engine assembly (6081TF)	1									
1	A-336787	Engine assembly (6081TF)		1								
1	A-336790	Engine assembly (6081TF)			1							
1	A-336645	Engine assembly (6081AF)				1						
1	A-336788	Engine assembly (6081AF)					1					
1	A-336791	Engine assembly (6081AF)						1				
1	A-336792	Engine assembly (6081AF)							1			
1	A-336646	Engine assembly (6081AF)								1		
1	A-336789	Engine assembly (6081AF)									1	
2	X-101-16	Nut, elastic stop, 5/16-18	1	1	1	1	1	1	1	1	1	1
3	X-101-4	Nut	2	2	2	2	2	2	2	2	2	2
4	X-101-7	Nut, lock	1	1	1	1	1	1	1	1	1	1
5	X-216-24	Coupling, pipe, 1/8 x 1 3/16	1	1	1	1	1	1	1	1	1	1
6	X-217-6	Nipple, pipe, 1/8 x 3/4	1	1	1	1	1	1	1	1	1	1
7	X-22-12	Washer, shakeproof	2	2	2	2	2	2	2	2	2	2
8	X-22-15	Washer, lock			1			1	1	1	1	1
8	X-22-26	Washer, lock, 1/2	2	2		2	2					
9	X-22-30	Washer, shakeproof			1			1	1	1	1	1
10	X-22-4	Washer, lock, shakeproof	1	1	1	1	1	1	1	1	1	1
11	X-22-9	Washer, lock, no. 10	1	1	1	1	1	1	1	1	1	1
12	X-545-12	Cable, battery, 36 in.	1	1	1	1	1	1	1	1	1	1
13	X-545-60	Cable, battery	1	1		1	1					
13	X-545-122	Cable, battery			1			1	1	1	1	1
14	X-6049-2	Screw, HC, M6 x 1 x 16	2	2	2	2	2	2	2	2	2	2
15	X-6214-2	Cap, plastic	1	1	1	1	1	1	1	1	1	1
16	X-672-3	Clamp, insulating (not shown)				1						1
17	X-672-32	Clamp, insulated	1	1	1	1	1	1	1	1	1	1
18	X-81-9	Nut, hex	2	2	2	2	2	2	2	2	2	2
19	254674	Bolt, angle	2	2	2	2	2	2	2	2	2	2
20	343473	Sender, oil pressure	1	1	1	1	1	1	1	1	1	1
21	268298	Sender, water temperature	1	1	1	1	1	1	1	1	1	1
22	273716	Solenoid, fuel shutoff	1	1	1	1	1	1	1	1	1	1
23	273731	Joint, ball	1	1	1	1	1	1	1	1	1	1
24	275546	Bracket, throttle	1	1	1							
24	336779	Bracket, throttle				1	1	1	1	1	1	1
25	276570	Joint, ball	1	1	1	1	1	1	1	1	1	1
26	291891	Solenoid, starter	1	1	1	1	1	1	1	1	1	1
27	298776	Base, tie wrap	1	1	1	1	1	1	1	1	1	1
28	328309	Switch assembly, oil pressure	1	1	1	1	1	1	1	1	1	1
29	336609	Harness, wiring	1	1		1	1					
29	336610	Harness, wiring			1			1	1	1	1	1
30	336673	Clamp, battery	1	1		1	1	1	1	1	1	1
31	352401	Rack, battery	1	1	1	1	1	1	1	1	1	1
32	336776	Bracket, solenoid mounting	1	1	1							
32	336777	Bracket, solenoid mounting				1	1	1	1	1	1	1
33	336923	Switch, high temperature shutdown	1	1	1	1	1	1	1	1	1	1
34	336851	Screw, special				1	1	1	1	1	1	1
35	336780	Bracket, throttle				1	1	1	1	1	1	1
36	X-6024-2	Screw, HC									1	1
37	X-6021-3	Screw, HC									1	1
38	X-6238-10	Screw, HC									1	1
39	X-6351-4	Nut, hex, M12 x 1.75									1	1
40	X-125-3	Screw, HC									1	1
41	295145	Connector, 24-position	1	1	1	1	1	1	1	1	1	1
42	233959	Diode, 6 A, 100 V	1	1	1	1	1	1	1	1	1	1
43	254986	Plug	1	1	1	1	1	1	1	1	1	1
44	292800	Connector, cable	1	1	1	1	1	1	1	1	1	1

Group 105: Engine, continued



Group 105: Engine, continued

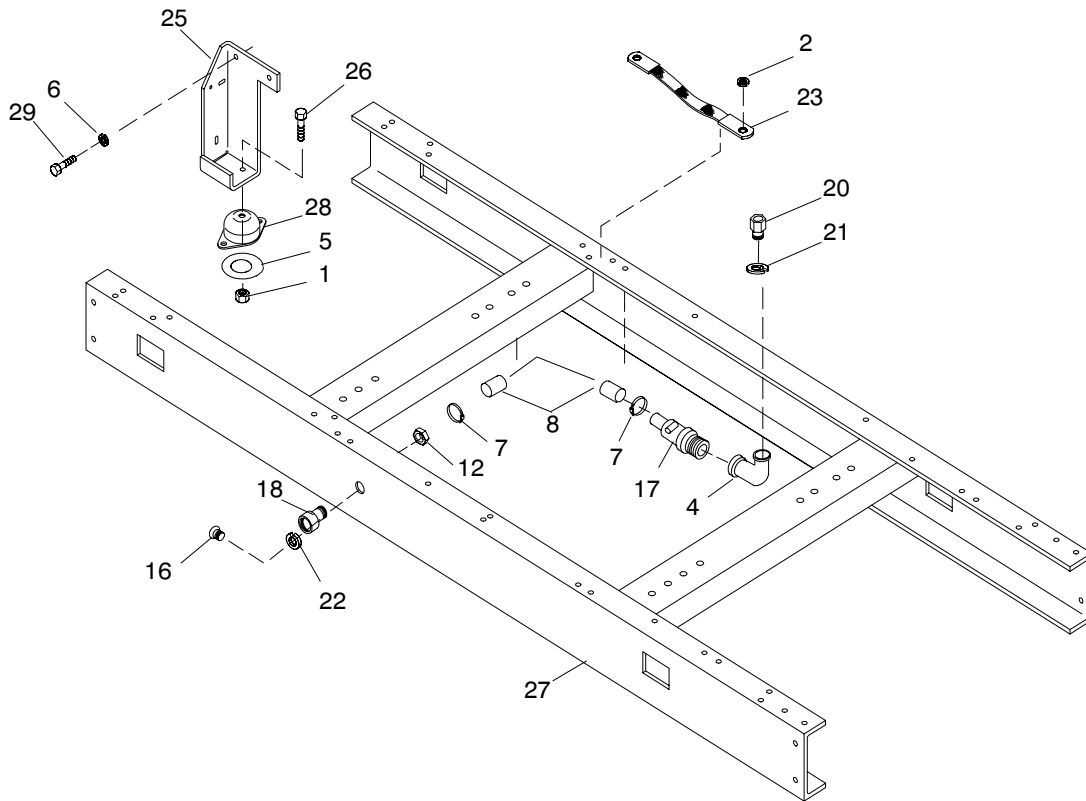
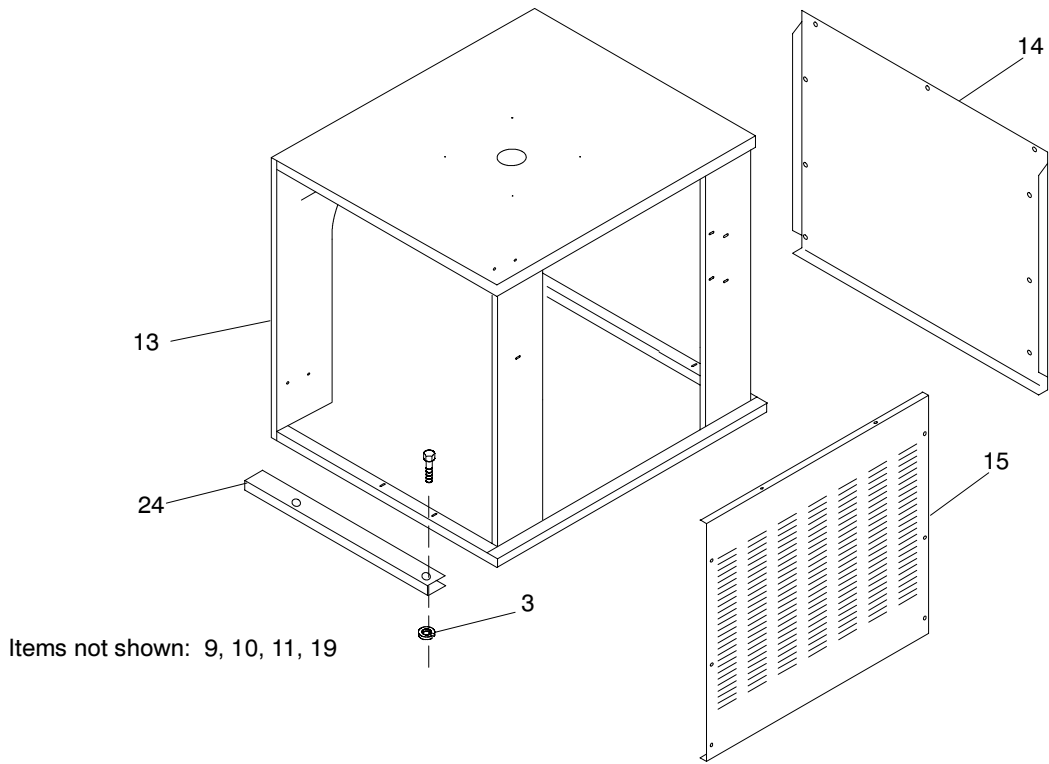
Item	Part Number	Description	Quantity															
			Variation Number															
			59	60	61	62	63	64	65	66	108	109	110	115	123			
1	A-336897	Engine assembly (6081TF)	1															
1	A-336901	Engine assembly (6081TF)		1														
1	A-336898	Engine assembly (6081AF)			1													
1	A-336902	Engine assembly (6081AF)				1												
1	A-336899	Engine assembly (6081AF)					1											
1	A-336903	Engine assembly (6081AF)							1									
1	A-336900	Engine assembly (6081AF)								1								
1	A-336904	Engine assembly (6081AF)									1							
1	A-336644	Engine assembly (6081TF)										1						
1	A-336645	Engine assembly (6081AF)											1					
1	A-336646	Engine assembly (6081AF)												1				
1	GM10961	Engine assembly (6081AF)														1		
1	GM15318	Engine assembly (6081AF)															1	1
2	X-101-16	Nut, elastic stop, 5/16-18			1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	X-101-4	Nut	3	3	3	3	3	3	3	3	2	2	2	2	3	3		
4	X-101-7	Nut, lock	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	X-216-24	Coupling, pipe, 1/8 x 1 3/16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	X-217-6	Nipple, pipe, 1/8 x 3/4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	X-22-12	Washer, shakeproof	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	X-22-15	Washer, lock						1	1	1	1	1	1	1	1	1	1	1
8	X-22-26	Washer, lock, 1/2	2	2	2	2						2	2	2				
9	X-22-30	Washer, shakeproof					2	2	2	2	2			1	1	1	1	1
10	X-22-4	Washer, lock, shakeproof	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	X-22-9	Washer, lock, no. 10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	X-545-12	Cable, battery, 36 in.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	X-545-60	Cable, battery	1	1	1	1						1	1					
13	X-545-122	Cable, battery					1	1	1	1	1	1	1	1	1	1	1	1
14	X-6049-2	Screw, HC, M6 x 1 x 16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	X-6214-2	Cap, plastic	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	X-672-3	Clamp, insulating (not shown)																
17	X-672-32	Clamp, insulated	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18	X-81-9	Nut, hex	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	274200	Bolt, angle			1	1	1	1	1	1	1					1	1	1
19	254674	Bolt, angle	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	343473	Sender, oil pressure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	268298	Sender, water temperature	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
22	227262	Solenoid, fuel shutoff	1	1	1	1	1	1	1	1	1	1	1			1	1	1
22	273716	Solenoid, fuel shutoff										1	1	1				
23	273731	Joint, ball	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	275546	Bracket, throttle	1	1								1						
24	336779	Bracket, throttle			1	1	1	1	1	1	1			1	1	1	1	1
26	280133	Cable, jumper			1	1	1	1	1	1	1					1	1	1
25	276570	Joint, ball	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
26	268371	Solenoid, starter	1	1	1	1	1	1	1	1	1					1	1	1
26	291891	Solenoid, starter										1	1	1	1	1	1	1
27	298776	Base, tie wrap	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	328309	Switch assembly, oil pressure	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29	336609	Harness, wiring	1	1	1													
29	336610	Harness, wiring					1	1	1	1	1	1	1	1	1	1	1	1
29	X-284-23	Grommet (not shown)										1	1	1				
29	X-672-13	Clamp, insulating (not shown)										1	1	1				
30	336198	Clamp, battery	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30	336673	Clamp, battery										1	1	1				
31	354402	Rack, battery			1	1	1	1	1	1	1					1	1	1
31	354401	Rack, battery										1	1	1				
31	336073	Rack, battery															1	1
32	336776	Bracket, solenoid mounting	1	1								1	1	1	1	1	1	1
32	336777	Bracket, solenoid mounting			1	1	1	1	1	1	1	1	1	1	1	1	1	1
33	336923	Switch, high temperature shutdown	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
34	336851	Screw, special			1	1	1	1	1	1	1			1	1	1	1	1
35	336780	Bracket, throttle			1	1	1	1	1	1	1			1	1	1	1	1
36	X-6024-2	Screw, HC										1	1	1	1	1	1	1
37	X-6021-3	Screw, HC										1	1	1	1	1	1	1
38	X-6238-10	Screw, HC										1	1	1	1	1	1	1
39	X-6351-4	Nut, hex, M12 x 1.75										1	1	1	1	1	1	1
40	X-125-3	Screw, HC										1	1	1	1	1	1	1
41	295145	Connector, 24-position	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
42	233959	Diode, 6 A, 100 V	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
43	254986	Plug	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
44	292800	Connector, cable	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
45	GM11941	Harness, J.D. 24 V starter	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Group 107: Nameplate and Decals

Item	Part Number	Description	Quantity		
			Variation Number		
			44	52	GR2
1	X-6275-3	Logo, Kohler	2	1	
2	224233	Decal, 1-800 number	1	1	1
3	238402	Decal, positive terminal	1	1	1
4	249808	Decal, warning rotating parts	1	1	1
5	249809	Decal, warning hot engine	1	1	1
6	257437	Decal, warning unbalanced weight	1		
7	257438	Decal, warning haz. volt/moving rotor	3	2	3
8	257441	Decal, warning unbalanced weight	2		1
9	258815	Decal, warning backfeed	1		1
10	259365	Decal, backfeed	1		
11	273780	Decal, warning	1	1	1
12	327004	Nameplate	1	1	1
13	X-6348-4	Decal, Kohler Power System		1	
14	GM13228	Decal, warning lifting support		1	
15	360387	Decal, warning generator connection		1	
15	GM13776	Decal, generator connection			1
16	249810	Decal, warning hot coolant	1		1
17	GM13227	Decal, warning fan force		1	

Notes

Group 109: Skid and Plant Mounting



5613109A

HF-255000

Group 109: Skid and Plant Mounting

Item	Part Number	Description	Quantity						
			Variation/Kit Number						
			20	21	22	40	41	50	MA1
1	X-101-15	Nut, elastic stop, 5/8-11	2	2	2	2	2	2	2
2	X-22-16	Washer, lock, 5/16	4	4	4	4	4	4	4
3	X-22-14	Washer, 3/8		4	4	4	4		4
4	X-211-1	Elbow, street, 1/2	1	1	1	1	1	1	1
5	X-25-112	Washer, plain	2	2	2	2	2	2	2
6	X-22-30	Washer, 5/8	1	1	1	1	1	1	1
7	X-426-3	Clamp, hose		2	2	2	2		2
7	X-426-10	Clamp, hose	2					2	
8	X-577-28	Hose, 0.625 in. x 17 in.	1					1	
8	X-577-24	Hose, 0.625 in. x 21 in.		1		1			1
8	X-577-18	Hose, 0.625 in. x 25 in.			1		1		
9	X-6232-3	Decal, stripes (not shown)		1		1			1
10	X-6232-5	Decal, stripe (not shown)	3						
10	X-6232-6	Decal, stripe (not shown)		1	3	1	3		1
11	X-6246-1	Decal, Kohler Power System (not shown)	2	2	2	2	2		2
12	X-80-1	Nut, hex	1	1	1	1	1	1	1
13	222825	Box, junction	1						
13	222844	Box, junction		1	1	1	1		1
14	222835	Cover, side	2						
14	336001	Cover, side		2	2	2	2		2
15	222838	Cover, rear	1						
15	336004	Cover, rear		1	1	1	1		1
16	241062	Plug, drain	1	1	1	1	1	1	1
17	272701	Valve, oil drain	1	1	1	1	1	1	1
18	273729	Adapter, hose	1	1	1	1	1	1	1
19	273739	Decal, fast response (not shown)	1						
19	273740	Decal, fast response (not shown)		2		2			2
20	273857	Adapter, oil drain	1	1	1	1	1	1	1
21	273918	O-ring	1	1	1	1	1	1	1
22	276552	Washer, nylon	1	1	1	1	1	1	1
23	290418	Strap, ground	1	1	1	1	1	1	1
24	336085	Bracket, junction box		2	2	2	2		2
25	336666	Bracket, engine mounting	2					2	
25	336811	Bracket, engine mounting		2	2	2	2		2
26	X-6021-12	Screw, HC	2	2	2	2	2	2	2
27	336667	Skid	1					1	
27	336810	Skid		1		1			
27	336895	Skid			1		1		1
27	360184	Skid						1	
28	336813	Vibromount	2	2	2	2	2	2	2
29	X-6021-6	Screw, HC	8	8	8	8	8	8	8

Modular Spec Cross-Reference Table

Some modular generator specs listed in the specification number index require a skid and mounting kit. Refer to the generator set nameplate to identify the skid and mounting 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.

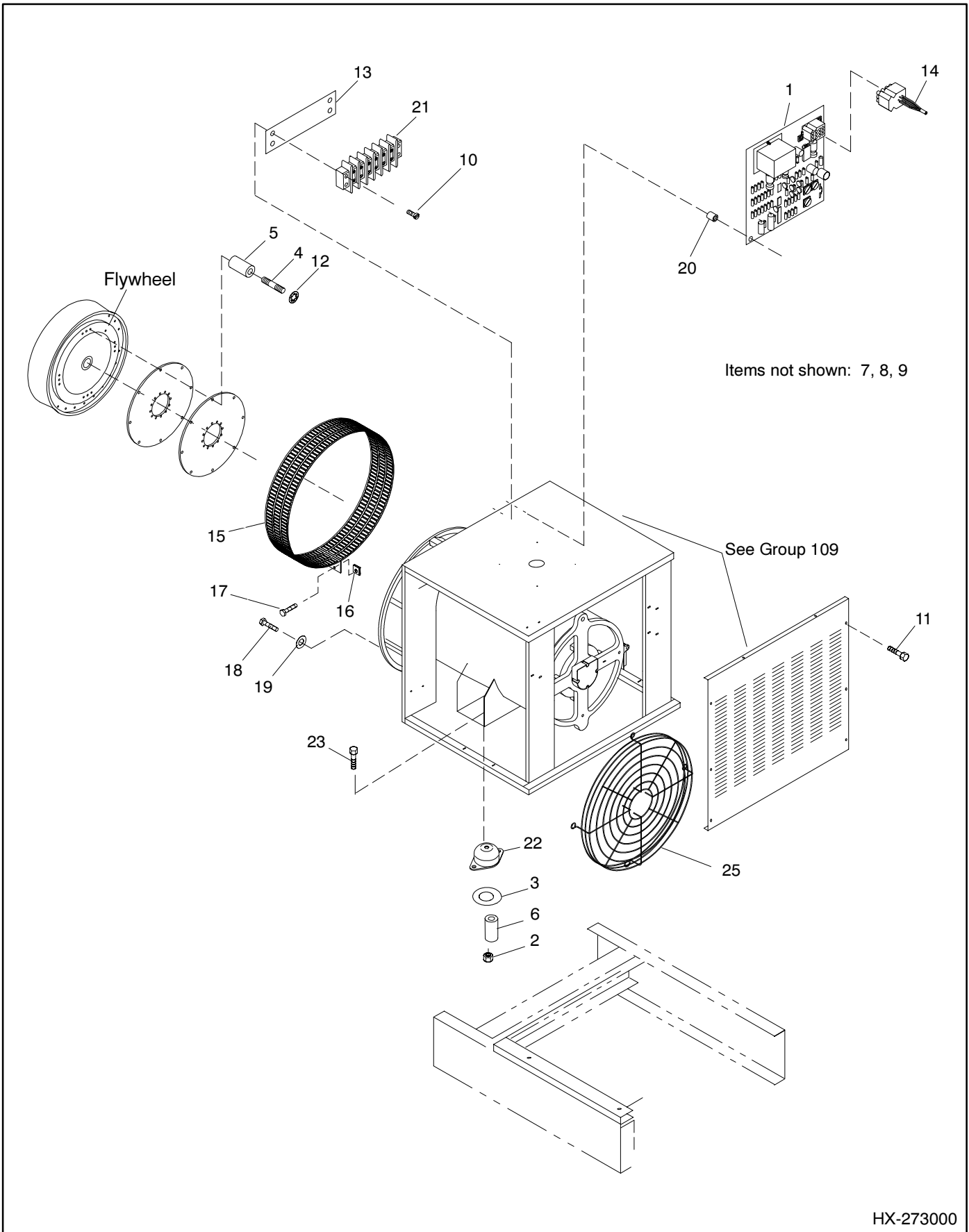
Skid and Mounting Kit Number	Equivalent Variation Number
336685	20
336816	21
352410	40
GM11478-MA1	MA1

Group 119: Recommended Spare Parts

Item	Part Number	Description	Quantity					
			Variation Number					
			18	19	20	21	22	23
1	A-257099	LED circuit board	1	1	1	1	1	1
2	A-336415	Main controller board	1		1		1	
3	A-336432	Controller indicator board	1		1		1	
4	B-258549	Split activator	1	1				1
4	A-233999	Split activator			1	1	1	
5	B-292902	Photo board	1	1	1	1	1	1
6	C-255670	Voltage regulator	1	1	1	1	1	1
7	223673	Filter, oil	10	10	10	10	10	10
8	223676	Thermostat	1	1	1	1	1	1
9	223762	Gasket	1	1	1	1	1	1
10	223953	Filter, fuel	4	4	4	4	4	4
11	223965	Fuel injection nozzle	6	6	6		6	6
12	241927	Sensor kit	1		1		1	
13	243273	Fuse, 3 A	5		5		5	
14	253108	Element, air cleaner	4		5		5	
15	255126	Lamp	5		5		5	
16	283645	Fuse, 15 A	5		5		5	
17	291207	Fuse, 1.5 A	5		5		5	
18	336664	Hose, upper radiator	1		1			
18	336877	Hose, upper radiator					1	
19	336665	Hose, lower radiator	1					
19	336878	Hose, lower radiator			1		1	

Notes

Group 201: Generator and Mounting

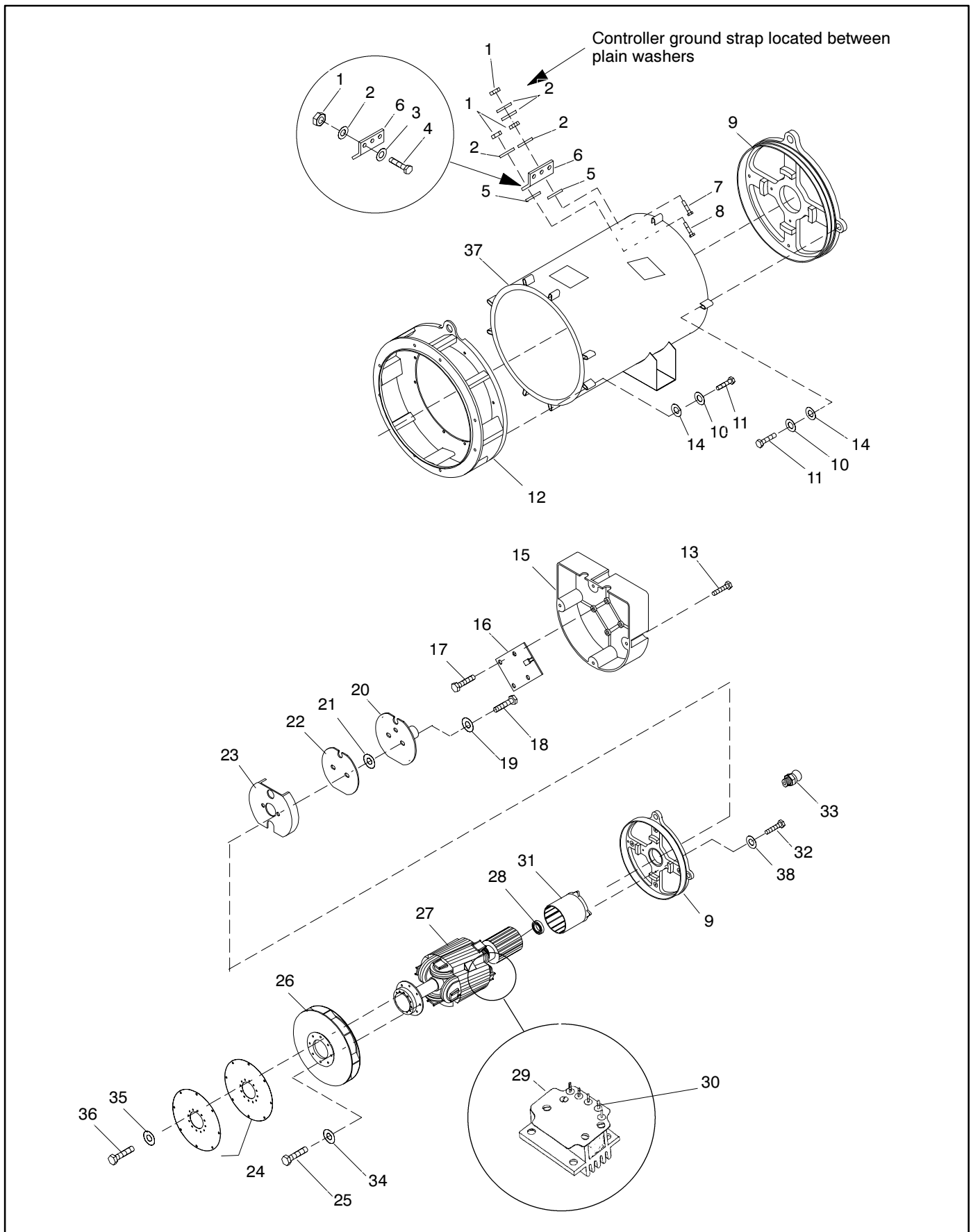


HX-273000

Group 201: Generator and Mounting

Item	Part Number	Description	Quantity																	
			Variation Number																	
			71	72	73	74	75	76	77	78	79	103	104	105	106	107	108	109	MA1	MA2
1	C-255670	PCB, voltage regulator	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
1	A-354653	PCB, voltage regulator																		
2	X-101-23	Nut, elastic stop, 1/2-13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
2	X-101-15	Nut, elastic stop																		
3	X-22-14	Washer, shakeproof	2																	
3	X-25-103	Washer, .531 x 2.75 x .125	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
3	X-25-147	Washer									2									
4	X-352-63	Stud	8	8																
4	X-129-54	Screw			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
5	X-400-132	Spacer	8	8																
6	X-400-197	Spacer	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6	X-400-220	Spacer									2									
6	X-400-182	Spacer																2	2	
7	X-750-14	Tag lead-L1 (not shown)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
8	X-750-15	Tag lead-L2 (not shown)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
9	X-750-16	Tag lead-L3 (not shown)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
10	X-51-11	Screw, RHM, 8-32 x 3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
11	X-6216-1	Screw	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
12	X-801-3	Washer, hardened	8	8																
12	290945	Washer, hardened			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
13	255080	Marker, strip	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
14	255481	Harness, wiring	1	1																
14	354118	Harness, wiring			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
15	257179	Guard, generator fan	1	1																
15	257582	Guard, generator fan			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
15	347268	Guard, generator fan																		
16	257442	Clip, speed	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
17	X-67-125	Screw, self-tapping	2	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
18	270158	Screw, hardened	6	6																
18	X-6024-3	Screw			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
19	X-801-3	Washer, hardened	6	6																
19	X-801-6	Washer, hardened			8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
20	360459	Standoff, circuit board	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
21	295314	Block, terminal	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
22	324392	Vibromount	2	2																
22	324393	Vibromount			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
22	279864	Vibromount									2							2	2	
23	X-129-30	Screw	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
23	#	Hardware, 5/8-11																2	2	
24	A-276684	Alternator assembly	1																	
24	A-276685	Alternator assembly		1																
24	A-257964	Alternator assembly			1				1											
24	A-257969	Alternator assembly				1				1										
24	A-257965	Alternator assembly					1													
24	A-257970	Alternator assembly						1												
24	A-257968	Alternator assembly								1										
24	A-347208	Alternator assembly									1									
24	A-347212	Alternator assembly										1								
24	A-347209	Alternator assembly											1							
24	A-347213	Alternator assembly												1						
24	A-361033	Alternator assembly													1					
24	A-361034	Alternator assembly														1				
24	A-361036	Alternator assembly															1			
24	A-347211	Alternator assembly																1		
24	A-347215	Alternator assembly																	1	
25	274598	Guard, generator											1							

Group 201: Generator and Mounting, continued

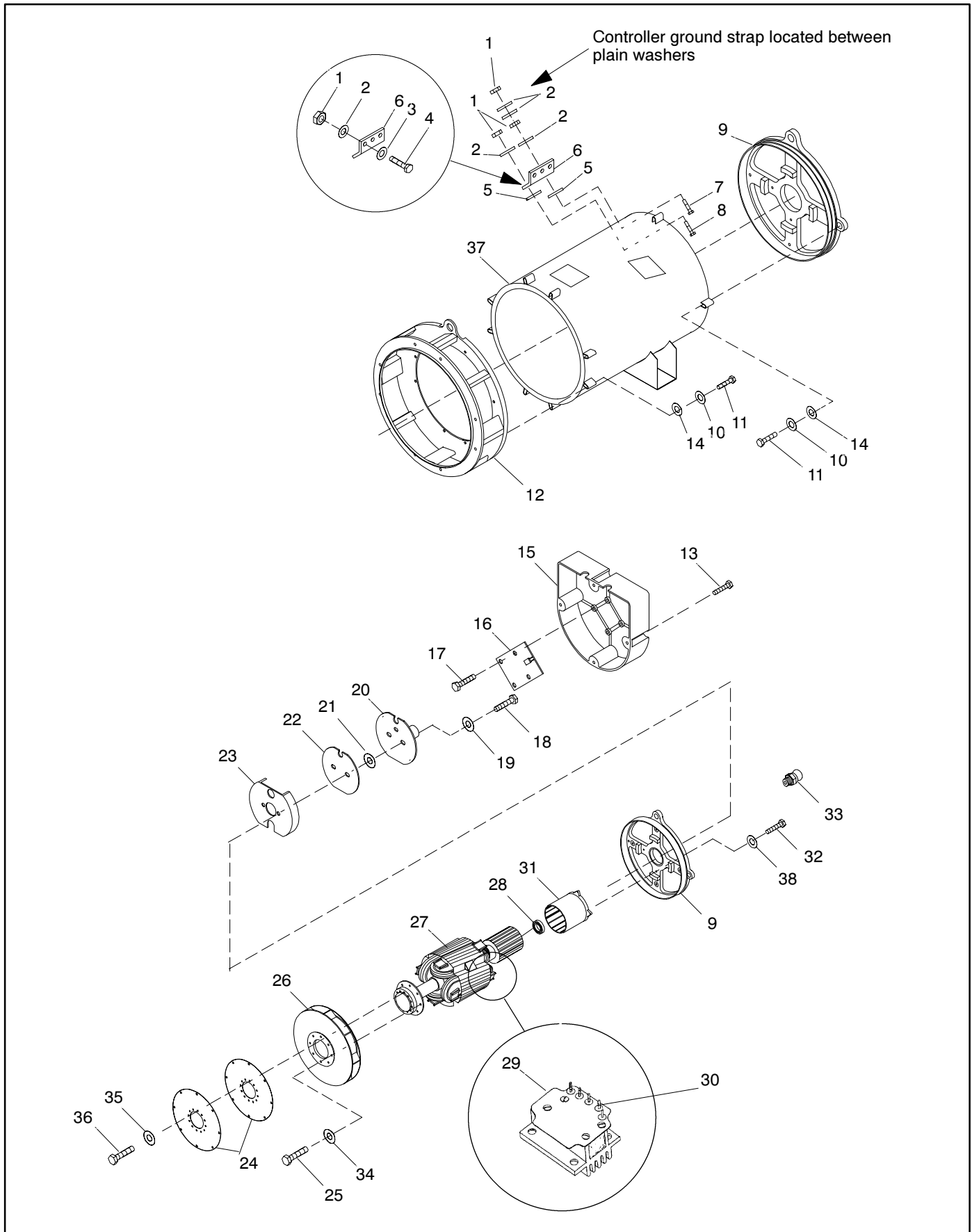


Group 201: Generator and Mounting, continued

Item	Part Number	Description	Quantity																	
			Variation Number																	
			71	72	73	74	75	76	77	78	79	103	104	105	106	107	108	109	MA1	MA2
1	#	Nut, 5/16-18	6	6			6			6										
1	#	Nut, 3/8-16			6	6			6	6								6		
2	X-6086-17	Washer, spring	5	5			5			5								6		
2	X-6086-15	Washer, spring			6	6			6	6										
2	X-25-139	Washer, plain	5	5			5			5										
3	X-25-138	Washer, plain																		
4	X-125-24	Screw	3	3			3			3										
4	X-6238-5	Screw			3	3			3	3								3		
5	X-22-45	Washer, lock, 5/16	2	2			2			2								3		
5	X-22-46	Washer, lock			2	2			2	2								2		
6	257985	Connector, lead	1	1			1			1										
6	257978	Connector, lead			1	1			1	1								1		
6	257979	Connector, lead								1								1		
7	X-791-7	Screw	1	1			1			1										
7	X-791-6	Screw			1	1			1	1								1		
8	X-125-5	Screw	1	1			1			1										
8	X-6238-11	Screw			1	1			1	1								1		
9	257983	End bracket	1	1			1			1										
9	257982	End bracket			1	1			1	1								1		
9	347236	End bracket								1	1							1		
10	X-25-93	Washer, plain	4	4			4			4										
10	290945	Washer, hardened			4	4			4	4								4		
11	X-6238-9	Screw	4				4			4										
11	273737	Screw		4			4			4								4		
11	X-129-25	Screw			12	12			12	12								12		
11	273738	Screw				4			4									4		
11	X-6238-6	Screw	1	1			1			1										
11	X-6238-9	Screw	5	5			5			5										
12	257175	Adapter, generator	1	1			1			1										
12	257579	Adapter, generator			1	1			1	1										
12	347240	Adapter, generator								1	1							1		
13	X-67-133	Screw, self tapping	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
14	257951	Washer, special			12	12			12	12								12		
15	257258	Cover, circuit board	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
16	A-257099	LED board	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
	X-6071-1	Screw, thread forming, no. 10	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
18	X-117-5	Screw, HH, 10-24 x 5	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	X-22-9	Washer, lock, no. 10, int. tooth	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
19																				
20	257850	Insulator	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
21	243321	Washer, insulating	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
22	B-292902	Photo board	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
23	257077	Actuator, magnetic	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
24	257103	Disc, armature drive	3	3			3			3										
24	257581	Disc, armature drive			4	4			4	4								4		
25	X-6238-11	Screw	4	4	8	8	4	8	8	4	8	8	8	8	8	8	8	8		
26	257173	Fan, generator	1	1			1			1										
26	257855	Fan, generator			1	1			1	1								1		
27	A-276666	Rotor assembly	1	1																
27	A-257959	Rotor assembly			1	1			1											
27	A-257960	Rotor assembly					1		1											
27	A-257962	Rotor assembly								1										
27	A-347186	Rotor assembly									1	1								
27	A-347187	Rotor assembly											1	1						
27	A-347189	Rotor assembly														1	1	1		
28	X-758-6	Ball bearing	1	1																
28	X-758-9	Ball bearing			1	1	1	1	1	1	1	1	1	1	1	1	1	1		
29	B-258549	Split activator	1	1																
29	A-233999	Split activator			1	1	1	1	1	1										
29	A-354299	Split activator									1	1						1		
30	X-283-7	Terminal, ring, no. 6	4	4			4			4										

Common hardware; procure locally.

Group 201: Generator and Mounting, continued



Group 201: Generator and Mounting, continued

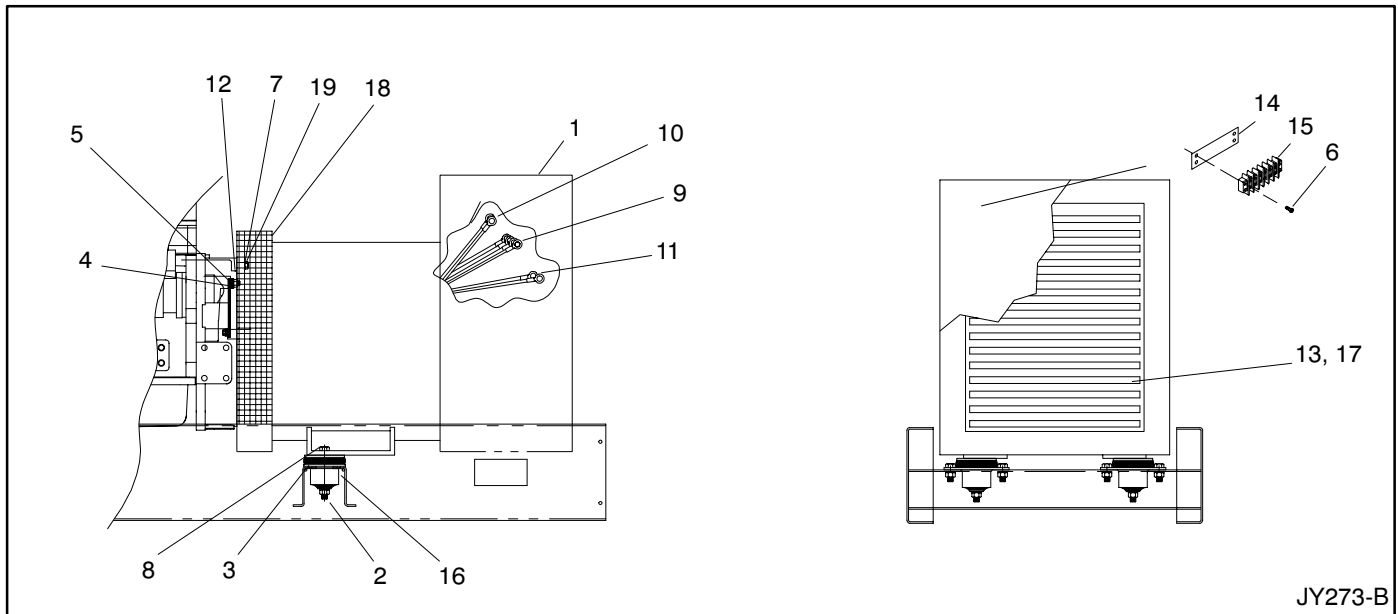
Item	Part Number	Description	Quantity																	
			Variation Number																	
			71	72	73	74	75	76	77	78	79	103	104	105	106	107	108	109	MA1	MA2
30	X-431-25	Terminal			4	4		4	4		4	4	4	4	4	4	4	4	4	4
	X-101-24	Nut, elastic stop, 1/2-13	5	5			5			5										
31	276657	Field exciter assembly	1	1			1			1										
31	257963	Field exciter assembly			1	1		1	1		1									
31	347707	Field exciter assembly										1	1	1	1	1	1	1	1	1
32	X-6238-1	Screw	4	4	4	4	4	4	4	4		4	4	4	4	4	4	4	4	4
32	X-125-32	Screw									4									
33	347119	Fitting, grease										1	1	1	1	1	1	1	1	1
34	X-25-93	Washer, plain	10	10	8	8	10	8	8	10	8	8	8	8	8	8	8	8	8	8
34	290945	Washer, hardened			8	8		8	8		8	8	8	8	8	8	8	8	8	8
35	X-801-3	Washer, hardened	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
36	270956	Screw, hex head	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
37	257689	Stator assembly	1																	
37	257692	Stator assembly		1																
37	257573	Stator assembly			1				1											
37	257777	Stator assembly				1														
37	257574	Stator assembly					1			1										
37	257778	Stator assembly						1												
37	257789	Stator assembly									1									
37	347202	Stator assembly											1							
37	347197	Stator assembly												1			1			
37	347203	Stator assembly													1					
37	347196	Stator assembly										1				1				
37	347199	Stator assembly																1	1	
37	347205	Stator assembly																		1
38	X-801-3	Washer, hardened										1	1	1	1	1	1	1	1	1

Modular Spec Cross-Reference Table

Some modular generator specs listed in the specification number index require an alternator kit. Refer to the generator set nameplate to identify the alternator 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.

Alternator Kit Number	Equivalent Variation Number
336817	71
336818	72
336819	73
336820	74
336821	75
336822	76
352387	105
352388	106
352386	104
352385	103
GM11892-MA1	MA1
GM11892-MA2	MA2

Group 201: Generator and Mounting, continued

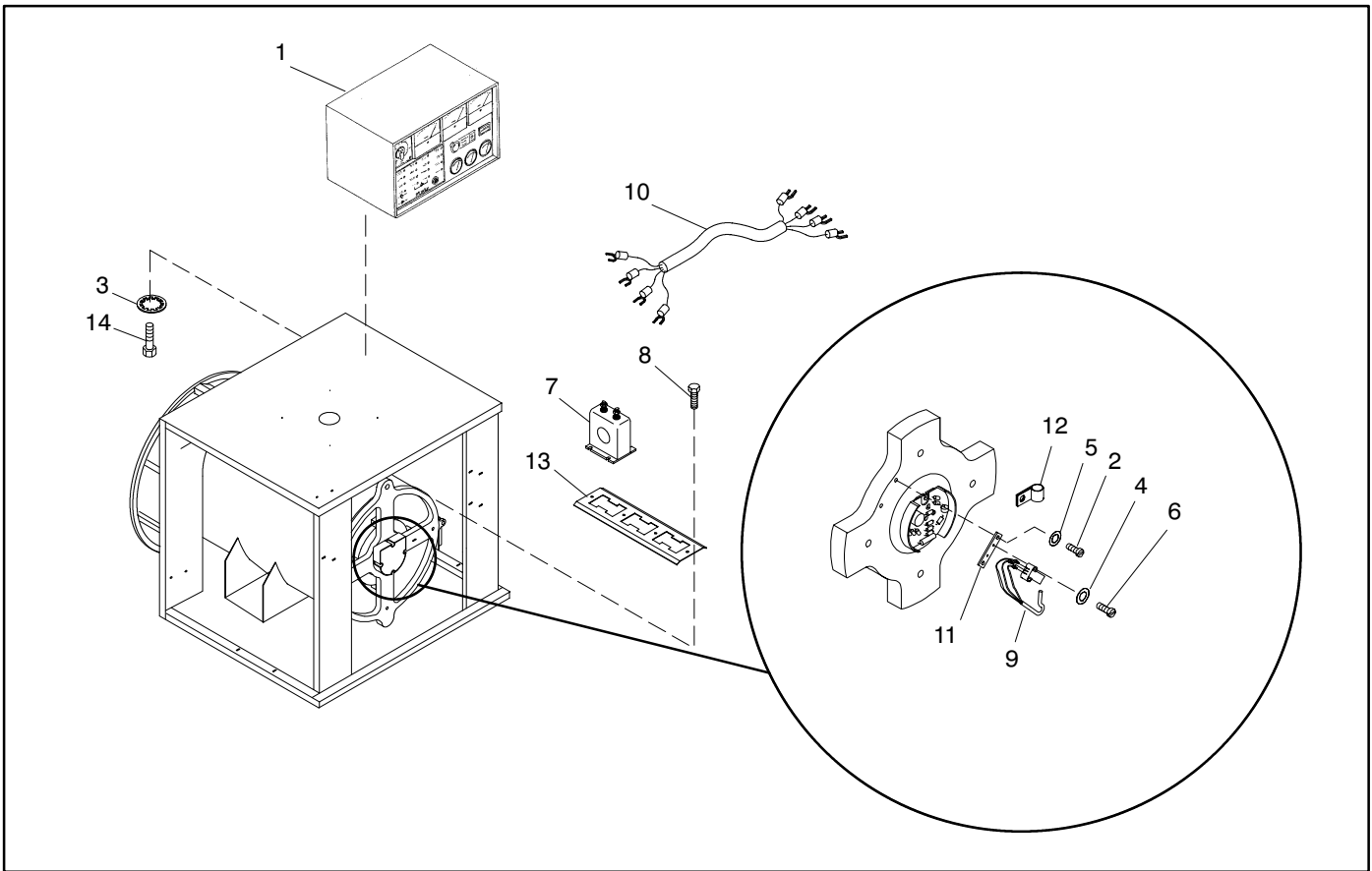


JY273-B

Item	Part Number	Description	Quantity		
			148	149	150
1	A-360193	Alternator assembly, Marathon	1		
1	A-360194	Alternator assembly, Marathon		1	
1	A-360195	Alternator assembly, Marathon			1
2	X-101-26	Nut, elastic stop	2	2	
3	X-25-151	Washer, plain	2	2	
4	X-352-93	Stud	8	8	
4	X-129-54	Screw, HC, 1/2-13 x 1 1/4			8
5	X-400-75	Spacer	6	6	
6	X-51-11	Screw, RHM, 8-32 x 3/4 in.	2	2	
7	X-6238-27	Screw, HC	12	12	
7	X-6024-3	Screw, HC			12
8	X-6239-9	Screw, HC	2	2	
9	X-750-13	Marker, wire tab no. L0	1	1	
10	X-750-14	Marker, wire tab no. L1	1	1	
11	X-750-15	Marker, wire tab no. L2	1	1	
12	X-801-3	Washer, hardened	8	8	
12	290945	Washer, hardened			8
13	X-6217-10	Screw, hex flange	8	8	
14	255080	Marker, strip	1	1	
15	295314	Block, terminal	1	1	
16	324392	Vibromount	2	2	
17	328899	Cover, louvered	1	1	
18	328902	Screen	1	1	
19	X-801-3	Washer, hardened	12	12	
19	X-801-6	Washer, hardened			12

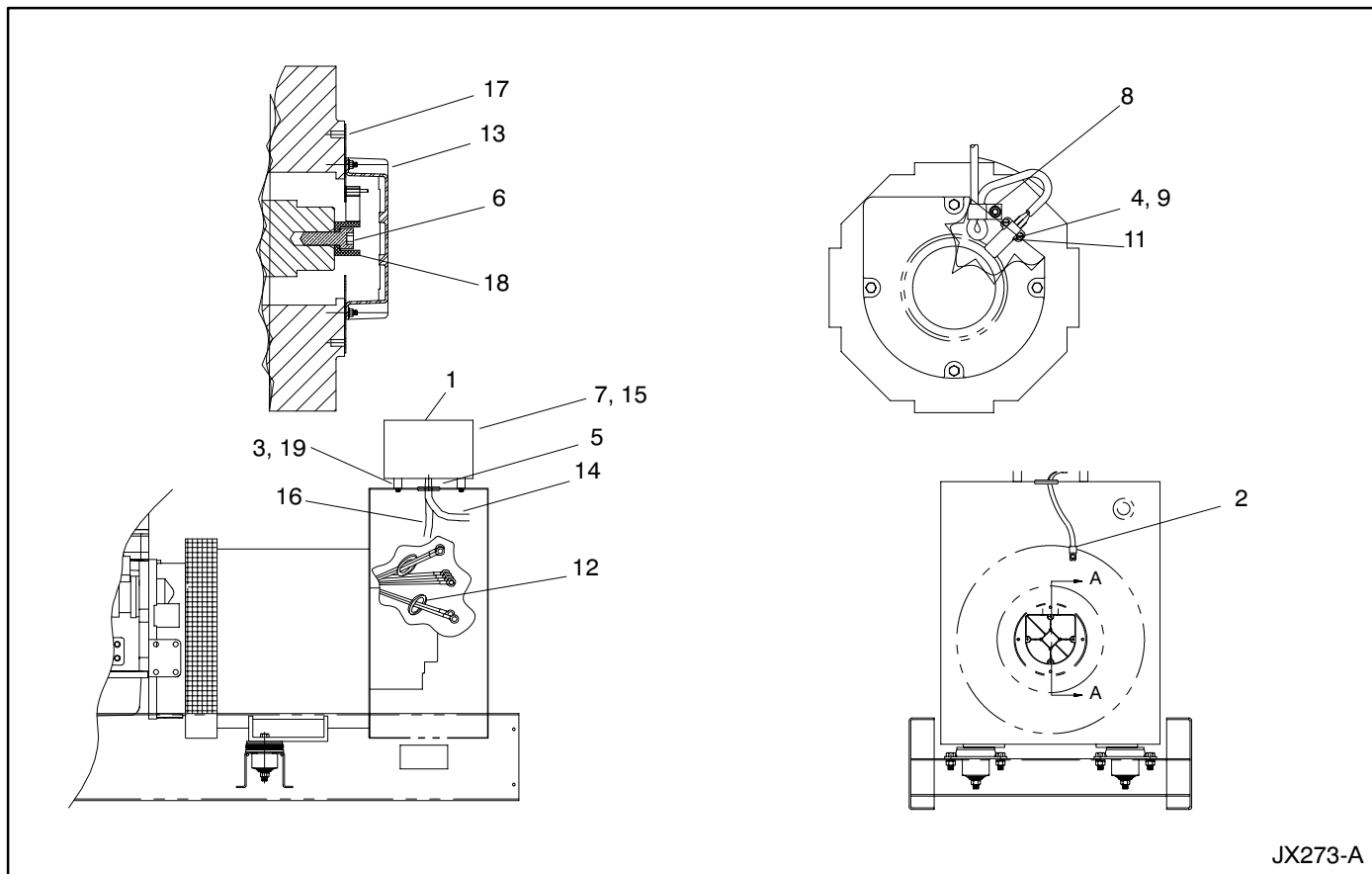
Notes

Group 301: Controller and Mounting



Item	Part Number	Description	Quantity		
			54	55	56
1	A-336628	Controller assembly	1		
1	A-336625	Controller assembly		1	
1	A-336626	Controller assembly			1
2	X-117-5	Screw, hex head, 10-24 x 5/8	2	2	2
3	X-22-16	Washer, lock, 5/16, int./ext. tooth	4	4	4
4	X-22-24	Washer, lock, no. 4, int. tooth	2	2	2
5	X-22-9	Washer, lock, no. 10, int. tooth	2	2	2
6	X-49-35	Screw, round head slotted	2	2	2
7	273257	Transformer	2		
7	253610	Transformer		2	
7	272691	Transformer			2
8	X-794-1	Screw, drill hex	4	4	4
9	241623	Sensor, ferromagnetic	1	1	1
10	255040	Harness, FRII CT wiring	1	1	1
11	257070	Bracket, sensor mounting	1	1	1
12	X-672-15	Clamp, insulator	3	3	3
13	299966	Bracket, CT mounting	1	1	
13	325382	Bracket, CT mounting			1
14	X-125-23	Screw, HC	4	4	4
15	X-6276-9	Logo, Kohler (not shown)	1	1	1

Group 301: Controller and Mounting

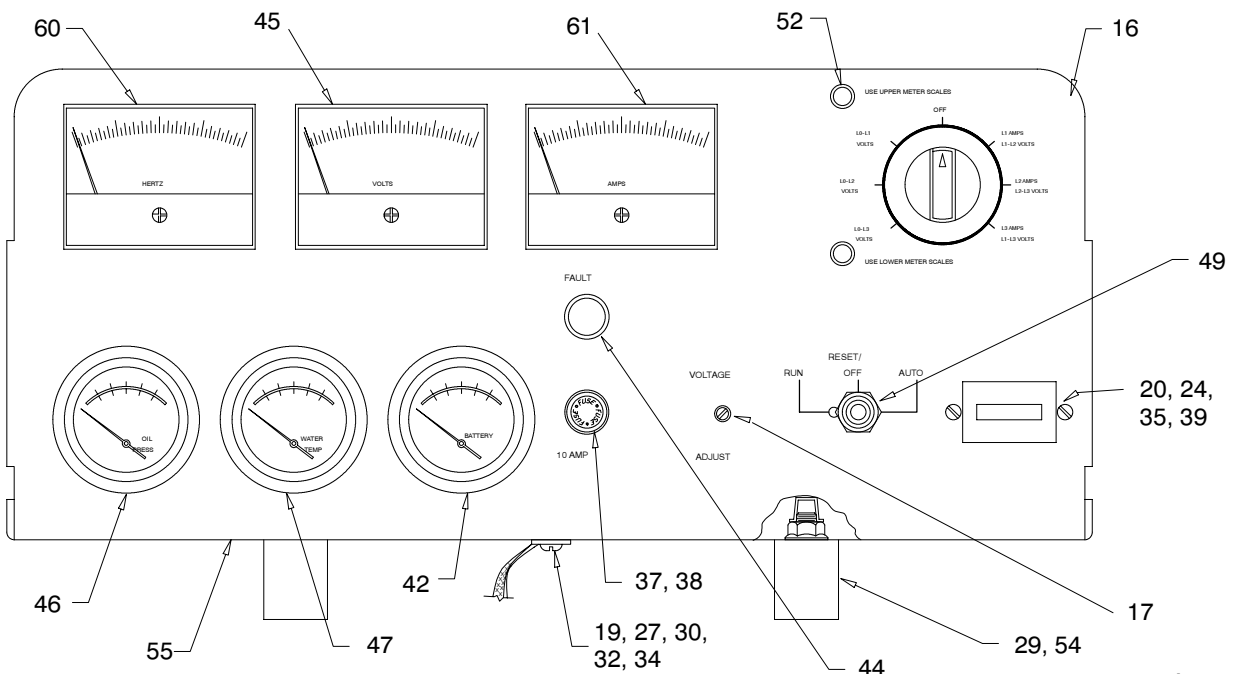
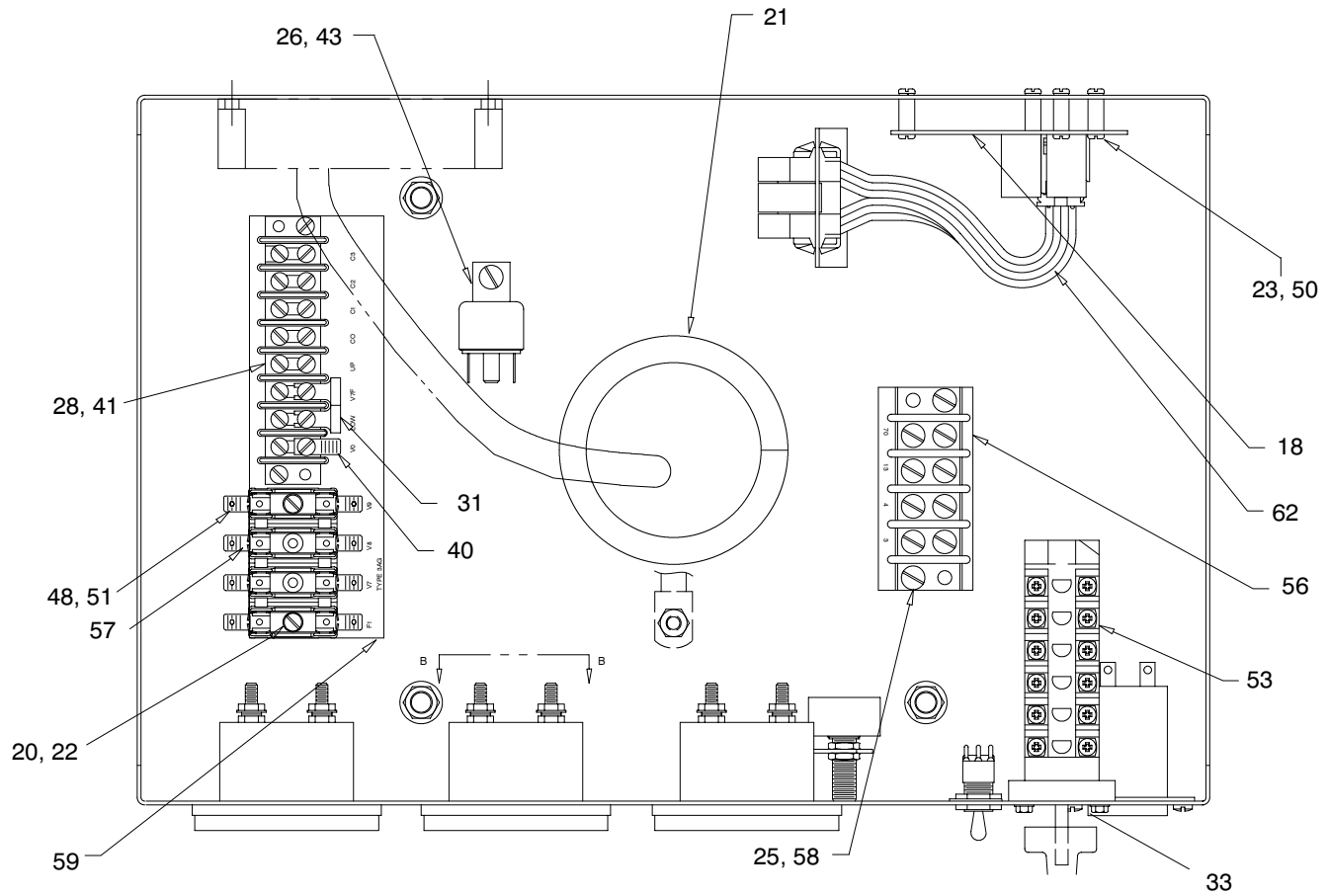


JX273-A

Item	Part Number	Description	Quantity	
			81	82
1	A-336625	Controller assembly	1	
1	A-336626	Controller assembly		1
2	X-22-14	Washer, lock, 3/8, int./ext. tooth	1	1
3	X-22-16	Washer, lock, 5/16, int./ext. tooth	4	4
4	X-22-24	Washer, lock, no. 4, int. tooth	2	2
5	X-284-25	Grommet	1	1
6	X-55-35	Screw, 1/2-13 x 1 1/4	1	1
7	X-6216-1	Screw, PHC	4	4
8	X-672-15	Clamp, insulator	1	1
9	X-74-6	Nut, hex	2	2
10	X-6276-9	Logo, Kohler	1	1
11	241623	Sensor, ferromagnetic	1	1
12	248876	Transformer	1	
12	248878	Transformer		1
13	257258	Cover, FR LED PCB	1	1
14	258453	Harness, wiring	1	1
15	336602	Cover, controller	1	1
16	360189	Harness, regulator	1	1
17	360191	Plate	1	1
18	360192	Actuator, magnetic	1	1
19	X-125-23	Screw, HC	1	1

Group 301: Controller and Mounting, continued

Variations 55, 56, 81, and 82 Only



A336625

Group 301: Controller and Mounting, continued

Item	Part Number	Description	Quantity		
			Variation Number		
			54	55	56
16	336602	Cover, controller	1	1	1
17	A-255041	Potentiometer assembly	1	1	1
18	F-254717	Circuit board	1	1	1
19	X-22-50	Washer, lock	2	2	2
20	X-22-6	Washer, lock, no. 6	4	4	4
21	X-284-31	Grommet	1	1	1
22	X-49-2	Screw, RHM, 6-32 x .375	2	2	2
23	X-49-25	Screw, PHM, 6-32 x .25	10	10	10
24	X-49-39	Screw, pan head	2	2	2
25	X-50-3	Screw, RHM	4	4	4
26	X-50-13	Screw, RHM, 10-24 x 3/8	1	1	1
27	X-50-70	Screw, RHM	1	1	1
28	X-51-53	Screw, RHM	2	2	2
29	X-519-1	Plug, cap, 1/8 in.	4	4	4
30	X-6046-2	Strap, ground	1	1	1
31	X-6048-2	Jumper, terminal block	1	1	1
32	X-6234-6	Nut, hex	2	2	2
33	X-67-127	Screw, thread forming	2	2	2
34	X-696-5	Sleeve	1	1	1
35	X-71-2	Nut, hex	2	2	2
36	201620-152	Tab, identification (not shown)	1	1	1
37	223316	Fuse, 10 A	1	1	1
38	238426	Holder, fuse	1	1	1
39	238736	Meter, hour	1	1	1
40	238898	Terminal	4	4	4
41	246115	Block, terminal	1	1	1
42	253329	Voltmeter	1	1	1
43	259391	Relay	1	1	1
44	269373	Lamp	1	1	1
45	282814	Voltmeter	1	1	1
46	282897	Gauge, oil pressure	1	1	1
47	282898	Gauge, water temperature	1	1	1
48	283645	Fuse, 15 A	1	1	1
49	287812	Switch, toggle	1	1	1
50	287948	Spacer, circuit board	5	5	5
51	291207	Fuse, 1.5 A	2	2	2
52	291740	Lamp	2	2	2
53	292374	Switch, selector	1	1	1
54	292834	Bumper	4	4	4
55	336603	Box, controller	1	1	1
56	336605	Strip, marker	1	1	1
57	336635	Holder, fuse	1	1	1
58	292940	Strip, terminal	1	1	1
59	336636	Marker, strip	1	1	1
60	295069	Meter, frequency	1	1	1
61	282955	Ammeter, AC	1		
61	295340	Ammeter, AC			1
61	295339	Ammeter, AC		1	
62	336637	Wiring harness	1	1	1

Group 701: Literature

Item	Part Number	Description	Quantity						
			Variation Number						
			18	28	64	65	68	69	87
1	TP-5353	Service Manual, Generator Set	1	1	1	1	1	1	1
2	TP-5826	Parts Catalog, John Deere Engine	1	1	1	1	1	1	1
3	TP-5828	Parts Catalog, 135-180ROZJ Generator Set	1	1	1	1	1	1	1
4	TP-5700	Standby Installation Manual	1	1	1	1	1	1	1
5	TP-6116	Parts Catalog, Accessories 20-200 kW diesel	1	1	1	1	1	1	1
6	TP-5718	Wiring Diagrams, 20-200ROZJ/REOZJ/ROZJA	1	1	1	1	1	1	1
7	TP-5750	Operation Manual, 20-2000 kW Generator	1	1	1	1	1	1	1
7	TP-5829	Operation Manual, DEC340 Controller	1	1	1	1	1	1	1
8	TP-5824	Operation Manual, Deere 6081 Engine	1	1	1	1	1	1	1
9	TP-5825	Service Manual, John Deere 6081 Engine	1	1	1	1	1	1	1
10	TP-5767	Operation Manual, ROZJA DEC-1		1			1	1	1
11	TP-5888	Operation Manual, MagnaPlus					1	1	1
12	TP-5889	Operation Manual, Engine Service Schedule			1	1	1	1	1
13	TP-6009	Parts Catalog, Controllers	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
Decision-Maker™ 1 Controllers				
See Parts Catalog TP-6009 for controller parts lists.				
Manual Controllers				
Standard meterbox	327072	327072	327057	NA
Standard meterbox, 600 V	327062	327052	327077	NA
7-light,16-light Decision-Maker™ 3+, and Decision-Maker™ 340 Controllers				
See Parts Catalog TP-6009 for 7-light, 16-Light, and Decision-Maker™ 340 controller parts lists.				
Cooling Systems				
Cooling, city water 12 V	336681	336912/913	336913	336913
Cooling, city water 24 V	360390	360391/392	360392	360392
Cooling, radiator (See Group 104: Cooling System for parts list.)				
Cooling, remote radiator	326682	336911	336911	336911
Duct flange, radiator	326214	326214	222997	222997
Heater, block 110/120 V, 1800 W	336918	336918/920	336920	336920
Heater, block 190/240 V, 2000 W	336919	336919/921	336921	336921
Optional Kits				
See Parts Catalog TP-6116 for parts lists.				
Paint and Miscellaneous Parts				
Paint, Kohler Cream Beige	All models use 221338 Spray Can, 221337 Gallon			

x.in:004:008:a

Manual Controller Kits

Manual Controller Kit Parts							
Qty.	Description	Common	Kit Number/Unique Parts				
			327037	327042	327047	327052	327057
1	Controller assembly*		A-273384	A-273383	A-273385	A-273387	A-273390
4	Washer, lock, 5/16	X-22-16					
1	Terminal	X-283-8					
1	Conduit, convoluted					X-6003-17	
1	Screw, drill hex	X-794-1					
1	Harness, wiring	255040					
3	Transformer, current		259359	255860	253503	259414	272691
1	Bracket, CT mounting		276417	276417	276417	276417	325382

Manual Controller Kit Parts							
Qty.	Description	Common	Kit Number/Unique Parts				
			327062	327067	327072	327077	
1	Controller assembly*		A-273386	A-273392	A-273389	A-273391	
4	Washer, lock, 5/16	X-22-16					
1	Terminal	X-283-8					
1	Conduit, convoluted		X-6003-17				X-6006-17
1	Screw, drill hex	X-794-1					
1	Harness, wiring	255040					
3	Transformer, current		259360	273257	253610	279272	
1	Bracket, CT mounting		276417	299966	299966	325382	

* See Controller Assembly section for parts list.

Manual Controller Assemblies

Qty.	Description	Common Parts	Manual Controller Assembly Number/Unique Parts					
			A-273386	A-273387	A-273389	A-273390	A-273391	A-273392
1	Potentiometer assembly	A-255041						
1	Overspeed circuit board	A-249812						
1	Main circuit board	F-239563						
1	Washer, shakeproof, no. 10	X-22-13						
4	Washer, lock, #6	X-22-6						
1	Grommet	X-284-31						
1	Plug, button	X-301-34						
2	Terminal	X-431-25						
2	Terminal	X-431-29						
2	Screw, RHM, 6-32 x 3/8	X-49-2						
18	Screw, RHM, 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
4	Screw, RHM, 10-24 x 3/4	X-50-3						
1	Screw, RHM, 10-24 x 1	X-50-7						
2	Screw, RHM, 8-32 x 3/8	X-51-12						
2	Screw, RHM	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper	X-6048-2						
10	Screw, PHC	X-6216-1						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
1	Tab, identification	201620-86						
1	Fuse, 10 amp	223316						
1	Holder, fuse	238426						
1	Meter, hour	238736						
1	Terminal	238898						
1	Block, terminal	246115						
1	Switch, rocker	249406						
1	Voltmeter	253329						
1	Lamp	269373						
2	Lamp	255126						
2	Lamp	291740						
1	Plate, hinge	273376						
1	Harness, controller	274710						
1	Voltmeter, AC		282816	282817	282816	282816	282817	282816
1	Gauge, oil pressure	282897						
1	Gauge, water temperature	282898						
1	Ammeter, AC		282805	282805	282807	282808	282806	282806
2	Socket, lamp	284990						
8	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
1	Decal	292347						
1	Resistor		292352	292352			292352	
1	Decal	292361						
1	Switch, selector		292374	292374	292373	292373	292374	292373
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Meter, frequency	282818						
1	Transformer, controller	295281						
1	Cover, controller	292818						
1	Nameplate		273374	273374	273373	273373	273374	273373
1	Box, controller	273375						

Cooling System Kits

Qty.	Description	Kit/Part No.
Cooling, City Water 336681		
2	Bushing, reducer	X-202-40
2	Bushing, reducer	X-202-41
1	Nipple, pipe, 3/8 x 1 1/2	X-204-8
2	Nipple, 1/2 x 1 3/16 pipe	X-209-2
2	Elbow, street, 1/2	X-211-1
1	Elbow, street, 2 1/2	X-211-9
3	Elbow, pipe, 2	X-215-6
1	Coupling, pipe, 3/8 x 1 3/16	X-216-23
2	Nipple, pipe, 2 x 2 1/2	X-219-8
1	Nipple, pipe, 2 x 2	X-219-9
2	Valve, 3/8 drain	X-256-1
1	Valve, drain	X-256-6
1	Clamp, 1/2, hose	X-309-14
1	Valve, solenoid	X-350-7
1	Line, 5/16 x 36 in., flex. fuel	X-386-36
2	Clamp, hose	X-426-2
1	Adapter, hose	X-570-1
1	Hose, radiator	X-6014-10
1	Hose, radiator	X-6014-79
3	Nipple, combination	X-6268-2
2	Clamp, insulating	X-672-10
4	Clamp, hose	249887
1	Cap, pressure (7 psi)	258037
1	Tank, expansion	274645
1	Regulator, water	290176
1	Exchanger, heat	324309
2	Bracket, heat exchanger	324700
2	Support, surge tank	324714
1	Bracket, mounting	324715
2	Bracket, support	326291
1	Hose, upper	336680
1	Bracket, mounting	336793
1	Guard, belt (right)	336794
1	Guard, belt (left)	336795
1	Guard, belt (top)	336797
1	Guard, belt (bottom)	336798
1	Guard, belt (front)	336799
1	Bracket	352181

Qty.	Description	Kit/Part No.
Cooling, City Water 336912		
2	Bushing, reducer	X-202-40
2	Bushing, reducer	X-202-41
1	Nipple, pipe, 3/8 x 1 1/2	X-204-8
2	Nipple, 1/2 x 1 3/16 pipe	X-209-2
2	Elbow, street, 1/2	X-211-1
1	Elbow, street, 2 1/2	X-211-9
3	Elbow, pipe, 2	X-215-6
1	Coupling, pipe, 3/8 x 1 3/16	X-216-23
2	Nipple, pipe, 2 x 2 1/2	X-219-8
1	Nipple, pipe, 2 x 2	X-219-9
2	Valve, 3/8, drain	X-256-1
1	Valve, drain	X-256-5
1	Clamp, 1/2, hose	X-309-14
1	Valve, solenoid	X-350-7
1	Line, 5/16 x 36 in., flex. fuel	X-386-36
2	Clamp, hose	X-426-2
1	Adapter, hose	X-570-1
1	Hose, radiator	X-6014-10
1	Hose, radiator	X-6014-79
3	Nipple, combination	X-6268-2
2	Clamp, insulating	X-672-10
4	Clamp, hose	249887
1	Cap, pressure (7 psi)	258037
1	Tank, expansion	274645
1	Regulator, water	290176
1	Exchanger, heat	324309
2	Bracket, heat exchanger	324700
2	Support, surge tank	324714
1	Bracket, mounting	324715
2	Bracket, support	326291
1	Hose, upper	336680
1	Bracket, mounting	336783
1	Guard, belt (right)	336794
1	Guard, belt (left)	336796
1	Guard, belt (top)	336797
1	Guard, belt (bottom)	336798
1	Guard, belt (front)	336799
1	Bracket	352181

Cooling System Kits

Qty.	Description	Kit/Part No.
Cooling, City Water		
		336913
1	Elbow, street, 1 1/2	A-27
1	Elbow	SA-472
1	Bushing, reducer	X-202-28
1	Bushing, reducer	X-202-40
1	Nipple, pipe, 3/8 x 1 1/2	X-204-8
1	Elbow, street, 2 1/2	X-211-9
3	Elbow, pipe, 2	X-215-6
1	Coupling, pipe, 3/8 x 1 3/16	X-216-23
2	Nipple, pipe, 2 x 2 1/2	X-219-8
1	Nipple, pipe, 2 x 2	X-219-9
2	Valve, 3/8, drain	X-256-1
1	Valve, drain	X-256-5
1	Clamp, 1/2, hose	X-309-14
1	Valve, solenoid	X-350-8
1	Line, 5/16 x 36 in., flex. fuel	X-386-36
2	Clamp, hose	X-426-2
1	Adapter, hose	X-570-1
1	Hose, radiator	X-6014-79
3	Nipple, combination	X-6268-2
2	Clamp, insulating	X-672-10
1	Nipple, pipe, 1 1/2	155040
4	Clamp, hose	249887
1	Sensor, low fluid	254832
1	Cap, pressure (7 psi)	258037
1	Tank, expansion	274645
1	Regulator, water	289477
1	Exchanger, heat	324309
1	Bracket, mounting	324715
2	Bracket, support	326291
1	Hose, upper	336680
1	Bracket, mounting	336783
1	Guard, belt (right)	336794
1	Guard, belt (left)	336796
1	Guard, belt (top)	336797
1	Guard, belt (bottom)	336798
1	Guard, belt (front)	336799
2	Support, surge tank	336916
1	Bracket	352181

Qty.	Description	Kit/Part No.
Cooling, City Water		
		360390
2	Bushing, reducer	X-202-40
2	Bushing, reducer	X-202-41
1	Nipple, pipe, 3/8 x 1 1/2	X-204-8
2	Nipple, 1/2 x 1 3/16, pipe	X-209-2
2	Elbow, street, 1/2	X-211-1
1	Elbow, street, 2 1/2	X-211-9
3	Elbow, pipe, 2	X-215-6
1	Coupling, pipe, 3/8 x 1 3/16	X-216-23
2	Nipple, pipe, 2 x 2 1/2	X-219-8
1	Nipple, pipe, 2 x 2	X-219-9
2	Valve, 3/8, drain	X-256-1
1	Valve, drain	X-256-5
1	Clamp, 1/2, hose	X-309-14
1	Valve, solenoid	X-350-10
1	Line, 5/16 x 36 in., flex. fuel	X-386-36
2	Clamp, hose	X-426-2
1	Adapter, hose	X-570-1
1	Hose, radiator	X-6014-10
1	Hose, radiator	X-6014-79
3	Nipple, combination	X-6268-2
2	Clamp, insulating	X-672-10
4	Clamp, hose	249887
1	Cap, pressure (7 psi)	258037
1	Tank, expansion	274645
1	Regulator, water	290176
1	Exchanger, heat	324309
2	Bracket, heat exchanger	324700
2	Support, surge tank	324714
1	Bracket, mounting	324715
2	Bracket, support	326291
1	Hose, upper	336680
1	Bracket, mounting	336793
1	Guard, belt (right)	336794
1	Guard, belt (left)	336795
1	Guard, belt (top)	336797
1	Guard, belt (bottom)	336798
1	Guard, belt (front)	336799
1	Bracket	352181

Cooling System Kits, continued

Qty.	Description	Kit/Part No.
Cooling, City Water 360391		
2	Bushing, reducer	X-202-40
2	Bushing, reducer	X-202-41
1	Nipple, pipe, 3/8 x 1 1/2	X-204-8
2	Nipple, 1/2 x 1 3/16, pipe	X-209-2
2	Elbow, street, 1/2	X-211-1
1	Elbow, street, 2 1/2	X-211-9
3	Elbow, pipe, 2	X-215-6
1	Coupling, pipe, 3/8 x 1 3/16	X-216-23
2	Nipple, pipe, 2 x 2 1/2	X-219-8
1	Nipple, pipe, 2 x 2	X-219-9
2	Valve, 3/8, drain	X-256-1
1	Valve, drain	X-256-5
1	Clamp, 1/2, hose	X-309-14
1	Valve, solenoid	X-350-10
1	Line, 5/16 x 36 in., flex. fuel	X-386-36
2	Clamp, hose	X-426-2
1	Adapter, hose	X-570-1
1	Hose, radiator	X-6014-10
1	Hose, radiator	X-6014-79
3	Nipple, combination	X-6268-2
2	Clamp, insulating	X-672-10
4	Clamp, hose	249887
1	Cap, pressure (7 psi)	258037
1	Tank, expansion	274645
1	Regulator, water	290176
1	Exchanger, heat	324309
2	Bracket, heat exchanger	324700
2	Support, surge tank	324714
1	Bracket, mounting	324715
2	Bracket, support	326291
1	Hose, upper	336680
1	Bracket, mounting	336783
1	Guard, belt (right)	336794
1	Guard, belt (left)	336796
1	Guard, belt (top)	336797
1	Guard, belt (bottom)	336798
1	Guard, belt (front)	336799
1	Bracket	352181

Qty.	Description	Kit/Part No.
Cooling, City Water 360392		
1	Elbow, street, 1 1/2	A-27
1	Elbow	SA-472
1	Bushing, reducer	X-202-28
1	Bushing, reducer	X-202-40
1	Nipple, pipe, 3/8 x 1 1/2	X-204-8
1	Elbow, street, 2 1/2	X-211-9
3	Elbow, pipe, 2	X-215-6
1	Coupling, pipe, 3/8 x 1 3/16	X-216-23
2	Nipple, pipe, 2 x 2 1/2	X-219-8
1	Nipple, pipe, 2 x 2	X-219-9
2	Valve, 3/8, drain	X-256-1
1	Valve, drain	X-256-5
1	Clamp, 1/2, hose	X-309-14
1	Valve, solenoid	X-350-11
1	Line, 5/16 x 36 in., flex. fuel	X-386-36
2	Clamp, hose	X-426-2
1	Adapter, hose	X-570-1
1	Hose, radiator	X-6014-79
3	Nipple, combination	X-6268-2
2	Clamp, insulating	X-672-10
1	Nipple, pipe, 1 1/2	155040
4	Clamp, hose	249887
1	Sensor, low fluid	254832
1	Cap, pressure (7 psi)	258037
1	Tank, expansion	274645
1	Regulator, water	289477
1	Exchanger, heat	324309
1	Bracket, mounting	324715
2	Bracket, support	326291
1	Hose, upper	336680
1	Bracket, mounting	336783
1	Guard, belt (right)	336794
1	Guard, belt (left)	336796
1	Guard, belt (top)	336797
1	Guard, belt (bottom)	336798
1	Guard, belt (front)	336799
2	Support, surge tank	336916
1	Bracket	352181

Qty.	Description	Kit/Part No.
Cooling, Remote Radiator 336682		
1	Valve, drain	X-256-5
2	Clamp, hose	X-426-2
2	Clamp, hose	250081
1	Hose, upper radiator	336664
1	Hose, lower radiator	336665
1	Bracket, mounting	336783
1	Guard, belt (right)	336794
1	Guard, belt (left)	336796
1	Guard, belt (top)	336797
1	Guard, belt (bottom)	336798
1	Guard, belt (front)	336799
1	Bracket	352181

Cooling System Kits, continued

Qty.	Description	Kit/Part No.	Qty.	Description	Kit/Part No.
Cooling, Remote Radiator			336911		
1	Valve, drain	X-256-5	1	Elbow, 3/4, NPTF	SA-472
2	Clamp, hose	X-426-2	1	Elbow, street, 1/2	X-211-1
2	Clamp, hose	250081	2	Hose	X-312-36
1	Hose, upper radiator	336664	4	Clamp, hose, 1 in.	X-426-10
1	Hose, lower radiator	336665	1	Connector, hose	X-582-1
1	Bracket, mounting	336783	1	Connector, hose	X-582-3
1	Guard, belt (right)	336794	1	Bushing, reducer	153659
1	Guard, belt (left)	336796	1	Adapter	273692
1	Guard, belt (top)	336797	1	O-ring	273693
1	Guard, belt (bottom)	336798	1	Tag, hang	279047
1	Guard, belt (front)	336799	1	Bracket, block heater mounting	326219
1	Bracket	352181	1	Heater, block	326235
Heater, Block, 110/120 VAC (1800 W)			336918		
1	Elbow, 3/4, NPTF	SA-472	2	Frame, air duct	324518
1	Elbow, street, 1/2	X-211-1	2	Frame, air duct	324519
1	Hose, 5/8 I.D. x 36	X-312-13	Radiator Duct Flange		
1	Hose, .62 I.D.	X-312-47	336919		
4	Clamp, hose, 1 in.	X-426-10	2	Frame, air duct	326212
1	Connector, hose	X-582-1	2	Frame, air duct	326213
1	Connector, hose	X-582-3	Radiator Duct Flange		
1	Bushing, reducer	153659	326214		
1	Adapter	273692	326212		
1	O-ring	273693	326213		
1	Tag, hang	279047			
1	Bracket, block heater mounting	326219			
1	Heater, block	326234			
Heater, Block, 190/240 VAC (2000 W)			336919		
1	Elbow, 3/4, NPTF	SA-472			
1	Elbow, street, 1/2	X-211-1			
1	Hose, 5/8 I.D. x 36	X-312-13			
1	Hose, .62 I.D.	X-312-47			
4	Clamp, hose, 1 in.	X-426-10			
1	Connector, hose	X-582-1			
1	Connector, hose	X-582-3			
1	Bushing, reducer	153659			
1	Adapter	273692			
1	O-ring	273693			
1	Tag, hang	279047			
1	Bracket, block heater mounting	326219			
1	Heater, block	326235			
Heater, Block, 110/120 VAC (1800 W)			336920		
1	Elbow, 3/4, NPTF	SA-472			
1	Elbow, street, 1/2	X-211-1			
2	Hose	X-312-36			
4	Clamp, hose, 1 in.	X-426-10			
1	Connector, hose	X-582-1			
1	Connector, hose	X-582-3			
1	Bushing, reducer	153659			
1	Adapter	273692			
1	O-ring	273693			
1	Tag, hang	279047			
1	Bracket, block heater mounting	326219			
1	Heater, block	326234			

Notes

Appendix A Abbreviations

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

A, amp	ampere	CG	center of gravity	F	Fahrenheit, female
ABDC	after bottom dead center	CID	cubic inch displacement	fglass.	fiberglass
AC	alternating current	CL	centerline	FHM	flat head machine (screw)
A/D	analog to digital	cm	centimeter	fl. oz.	fluid ounce
ADC	analog to digital converter	cmm	cubic meters per minute	flex.	flexible
adj.	adjust, adjustment	CMOS	complementary metal oxide substrate (semiconductor)	freq.	frequency
ADV	advertising dimensional drawing	cogen.	cogeneration	FS	full scale
AHWT	anticipatory high water temperature	COM	communications (port)	ft.	foot, feet
AISI	American Iron and Steel Institute	conn.	connection	ft. lbs.	foot pounds (torque)
ALOP	anticipatory low oil pressure	cont.	continued	ft./min.	feet per minute
alt.	alternator	CPVC	chlorinated polyvinyl chloride	g	gram
Al	aluminum	crit.	critical	ga.	gauge (meters, wire size)
ANSI	American National Standards Institute (formerly American Standards Association, ASA)	CRT	cathode ray tube	gal.	gallon
AO	anticipatory only	CSA	Canadian Standards Association	gen.	generator
API	American Petroleum Institute	CT	current transformer	genset	generator set
approx.	approximate, approximately	Cu	copper	GFI	ground fault interrupter
AR	as required, as requested	cu. in.	cubic inch	gnd.	ground
AS	as supplied, as stated, as suggested	cw.	clockwise	gov.	governor
ASE	American Society of Engineers	CWC	city water-cooled	gph	gallons per hour
ASME	American Society of Mechanical Engineers	cyl.	cylinder	gpm	gallons per minute
assy.	assembly	D/A	digital to analog	gr.	grade, gross
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	audio/visual	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 für 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 ₂ 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)
				K	kelvin
				kA	kiloampere
				KB	kilobyte (2 ¹⁰ bytes)
				kg	kilogram

kg/cm ²	kilograms per square centimeter	mW	milliwatt	rnd.	round
kgm	kilogram-meter	μF	microfarad	ROM	read only memory
kg/m ³	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>Systeme 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	ns	nanosecond	sq. cm	square centimeter
lbm/ft ³	pounds mass per cubic feet	O/C	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	O/F	overfrequency	stl.	steel
LED	light emitting diode	opt.	option, optional	tach.	tachometer
Lph	liters per hour	O/S	oversize, overspeed	TD	time delay
Lpm	liters per minute	OSHA	Occupational Safety and Health Administration	TDC	top dead center
LOP	low oil pressure	O/V	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	PA	packed accessory	TDNE	time delay normal to emergency
L _{wa}	sound power level, A weighted	PC	personal computer	TDOE	time delay off to emergency
LWL	low water level	PCB	printed circuit board	TDON	time delay off to normal
LWT	low water temperature	pF	picofarad	temp.	temperature
m	meter, milli (1/1000)	PF	power factor	term.	terminal
M	mega (10 ⁶ when used with SI units), male	ph.	phase	TIF	telephone influence factor
m ³	cubic meter	PHC	Phillips head crimplite (screw)	TIR	total indicator reading
m ³ /min.	cubic meters per minute	PHH	Phillips hex head (screw)	tol.	tolerance
mA	milliampere	PHM	pan head machine (screw)	turbo.	turbocharger
man.	manual	PLC	programmable logic control	typ.	typical (same in multiple locations)
max.	maximum	PMG	permanent magnet generator	U/F	underfrequency
MB	megabyte (2 ²⁰ bytes)	pot	potentiometer, potential	UHF	ultrahigh frequency
MCM	one thousand circular mils	ppm	parts per million	UL	Underwriter's Laboratories, Inc.
meggar	megohmmeter	PROM	programmable read only memory	UNC	unified coarse thread (was NC)
MHz	megahertz	psi	pounds per square inch	UNF	unified fine thread (was NF)
mi.	mile	pt.	pint	univ.	universal
mil	one one-thousandth of an inch	PTC	positive temperature coefficient	U/S	undersize, underspeed
min.	minimum, minute	PTO	power takeoff	UV	ultraviolet
misc.	miscellaneous	PVC	polyvinyl chloride	U/V	undervoltage
MJ	megajoule	qt.	quart	V	volt
mJ	millijoule	qty.	quantity	VAC	volts alternating current
mm	millimeter	R	replacement (emergency) power source	VAR	voltampere reactive
mOhm, mΩ	milliohm	rad.	radiator, radius	VDC	volts direct current
MOhm, MΩ	megohm	RAM	random access memory	VFD	vacuum fluorescent display
MOV	metal oxide varistor	RDO	relay driver output	VGA	video graphics adapter
MPa	megapascal	ref.	reference	VHF	very high frequency
mpg	miles per gallon	rem.	remote	W	watt
mph	miles per hour	RFI	radio frequency interference	WCR	withstand and closing rating
MS	military standard	RH	round head	w/	with
m/sec.	meters per second	RHM	round head machine (screw)	w/o	without
MTBF	mean time between failure	rly.	relay	wt.	weight
MTBO	mean time between overhauls	rms	root mean square	xfrm	transformer
mtg.	mounting				
MW	megawatt				

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.

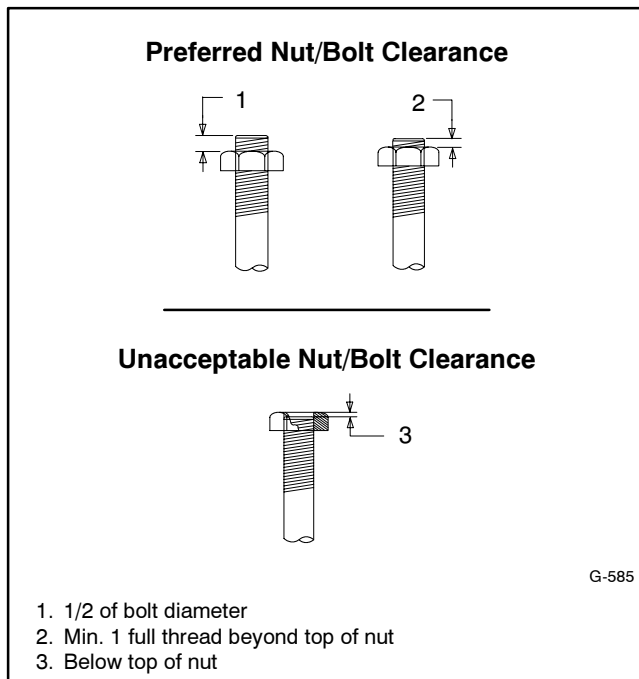


Figure 1 Acceptable Bolt Lengths

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.

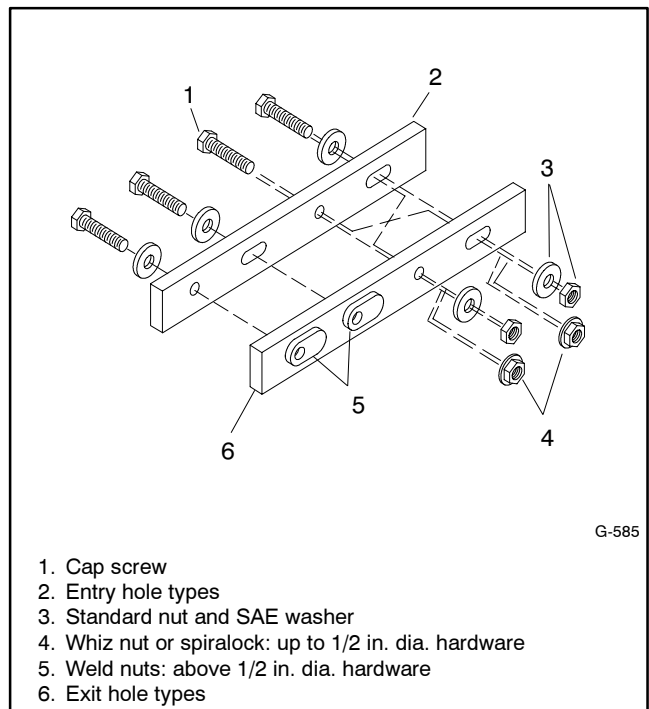


Figure 2 Acceptable Hardware Combinations

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	

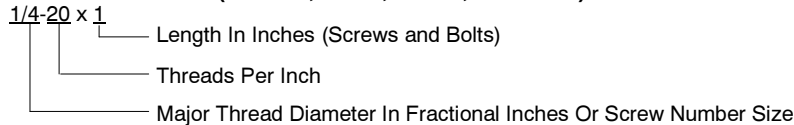
Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9 (Hex Socket Head)	
Metric	
Number stamped on hardware; 5.8 shown	

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

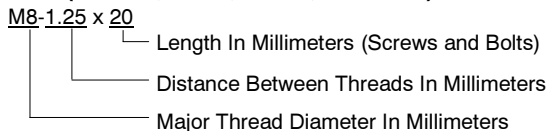
Phillips® screw is a registered trademark of Phillips Screw Company.

Sample Dimensions

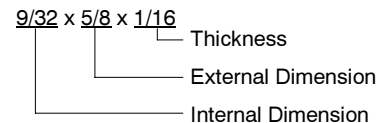
American Standard (Screws, Bolts, Studs, and Nuts)



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

Metric

Hex head bolts are hardness grade 8.8 unless noted.

Part No.	Dimensions	Part No.	Dimensions	Part No.	Dimensions	Type		
Hex Head Bolts (partial thread)			Hex Head Bolts (full thread)			Hex Nuts		
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	M933-05050-60	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		
M931-06075-60	M6-1.00 x 75	M933-06016-60	M6-1.00 x 16	M6923-06-80	M6-1.00	Spiralock		
M931-06090-60	M6-1.00 x 90	M933-06020-60	M6-1.00 x 20	M934-06-64	M6-1.00	Std. (green)		
M931-08035-60	M8-1.25 x 35	M933-06025-60	M6-1.00 x 25	M982-06-80	M6-1.00	Elastic Stop		
M931-08040-60	M8-1.25 x 40	M933-06040-60	M6-1.00 x 40	M6923-08-80	M8-1.25	Spiralock		
M931-08040-82	M8-1.25 x 40*	M933-06050-60	M6-1.00 x 50	M934-08-60	M8-1.25	Standard		
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	M6923-10-80	M10-1.50	Spiralock		
M931-08055-82	M8-1.25 x 55*	M933-08025-60	M8-1.25 x 25	M982-10-80	M10-1.50	Elastic Stop		
M931-08060-60	M8-1.25 x 60	M933-08030-60	M8-1.25 x 30	M6923-12-80	M12-1.75	Spiralock		
M931-08070-60	M8-1.25 x 70	M933-10012-60	M10-1.50 x 12	M982-12-80	M12-1.75	Elastic Stop		
M931-08070-82	M8-1.25 x 70*	M961-10020-60	M10-1.25 x 20	M982-14-80	M14-2.00	Elastic Stop		
M931-08075-60	M8-1.25 x 75	M933-10020-60	M10-1.50 x 20	M6923-16-80	M16-2.00	Spiralock		
M931-08080-60	M8-1.25 x 80	M933-10025-60	M10-1.50 x 25	M982-16-80	M16-2.00	Elastic Stop		
M931-08090-60	M8-1.25 x 90	M933-10030-60	M10-1.50 x 30	M982-18-80	M18-2.50	Elastic Stop		
M931-08095-60	M8-1.25 x 95	M933-10030-82	M10-1.50 x 30*	M934-20-80	M20-2.50	Standard		
M931-08100-60	M8-1.25 x 100	M961-10035-60	M10-1.25 x 35	M982-20-80	M20-2.50	Elastic Stop		
M931-10040-60	M10-1.50 x 40	M933-10035-60	M10-1.50 x 35	M934-22-80	M22-2.50	Standard		
M931-10045-60	M10-1.50 x 45	M933-12016-60	M12-1.75 x 16	M982-22-80	M22-2.50	Elastic Stop		
M931-10050-60	M10-1.50 x 50	M933-12020-60	M12-1.75 x 20	M934-24-80	M24-3.00	Standard		
M931-10055-60	M10-1.50 x 55	M933-12025-60	M12-1.75 x 25	M982-24-80	M24-3.00	Elastic Stop		
M931-10060-60	M10-1.50 x 60	M933-12025-82	M12-1.75 x 25*	Washers				
M931-10065-60	M10-1.50 x 65	M933-12025-82	M12-1.75 x 25*	Part No.	ID	OD	Bolt/ Thick. Screw	
M931-10070-60	M10-1.50 x 70	M933-12030-60	M12-1.75 x 30	M125A-03-80	3.2	7.0	0.5 M3	
M931-10080-60	M10-1.50 x 80	M933-12040-60	M12-1.75 x 40	M125A-04-80	4.3	9.0	0.8 M4	
M931-10090-60	M10-1.50 x 90	M933-12040-82	M12-1.75 x 40*	M125A-05-80	5.3	10.0	1.0 M5	
M931-10100-60	M10-1.50 x 100	M961-14025-60	M14-1.50 x 25	M125A-06-80	6.4	12.0	1.6 M6	
M931-12045-60	M12-1.75 x 45	M933-14025-60	M14-2.00 x 25	M125A-08-80	8.4	16.0	1.6 M8	
M931-12050-60	M12-1.75 x 50	M961-16025-60	M16-1.50 x 25	M125A-10-80	10.5	20.0	2.0 M10	
M931-12055-60	M12-1.75 x 55	M933-16025-60	M16-2.00 x 25	M125A-12-80	13.0	24.0	2.5 M12	
M931-12060-60	M12-1.75 x 60	M933-16030-82	M16-2.00 x 30*	M125A-14-80	15.0	28.0	2.5 M14	
M931-12065-60	M12-1.75 x 65	M933-16035-60	M16-2.00 x 35	M125A-16-80	17.0	30.0	3.0 M16	
M931-12080-60	M12-1.75 x 80	M933-16040-60	M16-2.00 x 40	M125A-18-80	19.0	34.0	3.0 M18	
M931-12090-60	M12-1.75 x 90	M933-16050-60	M16-2.00 x 50	M125A-20-80	21.0	37.0	3.0 M20	
M931-12100-60	M12-1.75 x 100	M933-16050-82	M16-2.00 x 50*	M125A-24-80	25.0	44.0	4.0 M24	
M931-12110-60	M12-1.75 x 110	M933-16060-60	M16-2.00 x 60	Pan Head Machine Screws				
M931-16090-60	M16-2.00 x 90	M933-18050-60	M18-2.50 x 50	M7985A-03010-20	M3-0.50 x 10			
M931-20065-60	M20-2.50 x 65	M933-18060-60	M18-2.50 x 60	M7985A-03012-20	M3-0.50 x 12			
M931-20120-60	M20-2.50 x 120	Flat Head Machine Screws						
M931-20160-60	M20-2.50 x 160	M7985A-04020-20	M4-0.70 x 20	M965A-05016-20	M5-0.80 x 16			
M931-22090-60	M22-2.50 x 90	M7985A-05010-20	M5-0.80 x 10					
M931-22120-60	M22-2.50 x 120	M7985A-05012-20	M5-0.80 x 12					
M931-22160-60	M22-2.50 x 160							
M931-24090-60	M24-3.00 x 90							
M931-24120-60	M24-3.00 x 120							
M931-24160-60	M24-3.00 x 160							

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

TP-5828 12/00e

© Kohler Co., 2000. All rights reserved.

KOHLER[®] POWER SYSTEMS

KOHLER CO. Kohler, Wisconsin 53044
Phone 920-565-3381, Web site www.kohlergenerators.com
Fax 920-459-1646 (U.S.A. Sales), Fax 920-459-1614 (International)
For the nearest sales and service outlet in U.S.A. and Canada
Phone 1-800-544-2444

Kohler[®] Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65)264-6422, Fax (65)264-6455