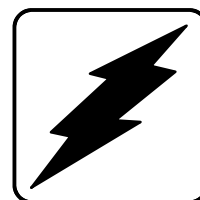


# Service Parts

## Industrial Generator Sets



Models:

**200-300ROZD**

See Group 701, Literature for  
Engine and Accessory Parts Catalogs

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

**ISO 9001**  
**KOHLER**  
GENERATORS  
INTERNATIONALLY REGISTERED  
U.S.A. Plant ISO Registered

Specification Series 132

TP-5354 10/97

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## Introduction

This manual contains a list of generator and some engine service replacement parts for Kohler industrial generator sets. Refer to the Specification Number Index for models and specifications covered.

This manual includes the following main sections:

- *Table of Contents*: Lists the sections of this catalog.
- *Introduction (and other information sections)*: Contains introductory material followed by sections on specification numbers, part numbers, and hardware.
- *Index*: Indexes generator set specifications and their groups.
- *Group Parts Lists*: Lists part numbers of parts in the groups.
- *Kit List and kit sections*: Lists controller and cooling system kits (by model) and their parts. See Parts Catalog TP-5707 for parts lists of optional accessory kits installed on the generator set.
- *Appendices*: Includes Glossary of Abbreviations, Common Hardware Application Guidelines, Common Hardware Identification, General Torque Specifications, and Common Hardware List.

## Number Significance

This catalog uses a variety of numbering systems. A description of these follows:

- *Specification Number*: The generator specification number (spec number) is six digits with a PA-, PB-, or PE-prefix (Specification Number Index does not show prefixes). The first three digits designate generator size and engine model (specification series). The remaining digits are in sequence and identify a particular spec in a series. Spec numbers break down into groups.
- *Group Number*: A group consists of parts needed to perform one or more related functions. For example, the 101 group is the generator set Air Intake group.
- *Variation Number*: A group might have several variations. Parts comprising each variation perform the same function, but parts lists vary. For example, a 50 Hz generator alternator and 60 Hz generator alternator both perform the same function. However, they are constructed of different parts. Each of these differences necessitates the assignment of a group variation number.
- *Part Number*: The part number identifies an individual assembly, subassembly, component, or accessory kit.

## How to Find Part Numbers

**FOLLOW THESE STEPS** to identify a part:

**STEP 1:** Turn to the Specification Number Index. The first column lists generator set specification numbers grouped by model. The headings across the top identify the groups

of parts that make up the generator set. The intersection of the specification number and the group numbers is the variation number corresponding to the components of that specification number. Note the variation number.

**STEP 2:** Find the page number of the group in the Table of Contents and turn to that page or page forward until you find the group. Variation numbers in the column heading of the group page correspond to variations found in the Specification Number Index. Find the description of the part you need in the description column. The intersection of the description row with the variation column identifies the quantity of that part used in that group. Find the part number to order to the left of the description in the part number column.

## Hardware Grades

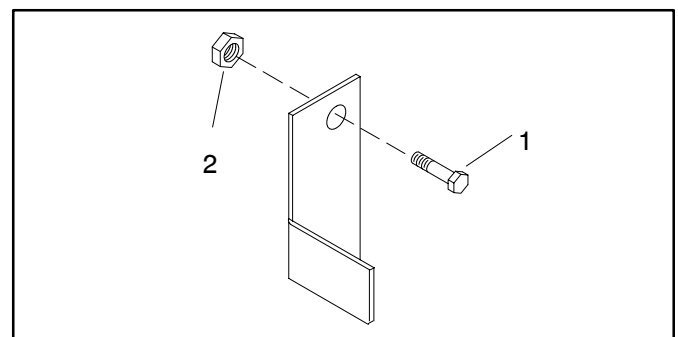
**When replacing hardware do not substitute inferior grade hardware.** All hex. head screws are hardness grade 5, except where noted. Socket head screws are similar to grade 8. All replacement hardware should be at least equal to original manufacturer's hardware quality. Refer to Common Hardware Application Guidelines and Common Hardware Identification in the back of the manual.

## Hardware References

Many common hardware items will appear in parts catalogs as common hardware entries or hardware references. A common hardware entry refers to the size of common hardware to apply in accordance with hardware guidelines. For example, an item may appear as "3/8-16 hardware" in the text. It indicates that the piece is 3/8-16 size. See Common Hardware Application Guidelines.

*A hardware reference has the abbreviation "ref." in the part's description.* Hardware references specify common hardware items; however, size or some other characteristic requires specification in that application. For example, item 1 in Figure 1 below might appear in the text as follows:

Screw, 3/8-16 x 1, ref. X-6021-1



**Figure 1. Hardware References**

## Specification Number Index

GROUP TITLE & NUMBER	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
200ROZD													
132401	1	1	16	5	4	1	5	1	1	16	13	1	
132402	1	15	16	8	4	1	5	1	1	25	14	1	
132403	1	15	16	5	4	1	5	1	1	18	13	1	
132404	1	15	16	5	4	1	5	1	1	16	@	1	
132405	1	15	16	8	4	1	5	1	1	25	@	1	
132406	1	15	16	5	4	1	5	1	1	18	@	1	
132407	1	15	16	5	4	1	5	1	1	16	13	1	
132408	1	@	16	16	4	1	11	1	2	57	@	1	
132409	1	@	16	17	4	1	11	1	2	59	@	1	
132410	1	@	16	17	4	1	11	1	2	59	@	1	
132411	1	15	16	16	4	1	11	1	1	57	13	1	
132417	1	15	47	16	4	1	11	12	1	135	42	1	
132418	1	@	47	16	4	1	11	12	2	135	@	1	
132419	1	15	47	16	4	1	11	12	1	136	42	1	
132420	1	@	47	16	4	1	11	12	2	136	@	1	
132421	1	15	47	16	4	1	11	12	1	137	63	1	
132422	1	@	47	16	4	1	11	12	2	137	@	1	
132455	29	15	58	61	E58	42	E58	E58	1	262	70	1	
132456	29	15	58	61	E58	42	E58	E58	1	263	70	1	
132457	29	15	58	61	E58	42	E58	E58	1	264	73	1	
132458	29	15	58	61	E58	42	E58	E58	1	265	73	1	
132459	@	@	58	61	E58	@	E58	E58	2	@	@	1	

@ Desired air intake, cooling, skid, generator, and controller kit chosen from price list. Determine kit number from generator nameplate and see Group parts sections for parts list.

— Group not used on generator set spec.

# Specification Number Index

GROUP TITLE & NUMBER	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
<b>230ROZD</b>													
132433	27	32	55	53	9	41	11	16	—	135	43	14	
132434	27	@	55	53	9	41	11	16	—	135	@	14	
132435	27	@	55	53	9	41	11	16	—	136	@	14	
132436	27	@	55	53	9	41	11	16	—	137	@	14	
132437	27	32	55	53	9	41	11	16	—	136	43	14	
132438	27	32	55	53	9	41	11	16	—	137	64	14	
132460	30	32	59	61	E59	43	E59	E59	3	262	72	14	
132461	30	32	59	61	E59	43	E59	E59	3	263	72	14	
132462	30	32	59	61	E59	43	E59	E59	3	264	73	14	
132463	30	32	59	61	E59	43	E59	E59	3	265	73	14	
132466	@	@	59	61	E59	@	E59	E59	3	265	@	14	
132501	2	2	17	5	5	2	6	2	3	16	15	14	
132502	2	2	17	8	5	2	6	2	3	25	19	14	
132503	12	2	17	5	5	2	6	2	3	18	15	14	
132504	12	2	17	5	5	2	6	2	3	16	@	14	
132505	12	2	17	8	5	2	6	2	3	25	@	14	
132506	12	2	17	5	5	2	6	2	3	18	@	14	
132507	12	2	17	5	5	2	6	2	3	16	15	14	
132508	12	2	17	5	5	2	6	2	3	25	19	14	
132509	12	@	17	16	9	2	11	2	4	57	@	14	
132510	12	@	17	16	9	2	11	2	4	58	@	14	
132511	12	@	17	17	9	2	11	2	4	59	@	14	
132512	12	2	17	16	9	2	11	2	3	57	15	14	
132513	12	2	48	53	9	2	11	13	3	135	43	14	
132514	12	@	48	53	9	2	11	13	4	135	@	14	
132515	12	2	48	53	9	2	11	13	3	136	43	14	
132516	12	@	48	53	9	2	11	13	4	136	@	14	
132517	12	2	48	53	9	2	11	13	3	137	64	14	
132518	12	@	48	57	9	2	11	13	4	137	@	14	

@ Desired air intake, cooling, skid, generator, and controller kit chosen from price list. Determine kit number from generator nameplate and see Group parts sections for parts list.  
 — Group not used on generator set spec.

## Specification Number Index

GROUP TITLE & NUMBER	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
250ROZD													
132439	27	32	56	54	9	41	11	16	—	138	43	2	
132440	27	@	56	54	9	41	11	16	—	138	@	2	
132441	27	@	56	54	9	41	11	16	—	136	@	2	
132442	27	@	56	54	9	41	11	16	—	140	@	2	
132443	27	32	56	54	9	41	11	16	—	136	43	2	
132444	27	32	56	54	9	41	11	16	—	140	64	2	
132467	30	32	60	61	E60	43	E60	E60	5	266	137	2	
132468	30	32	60	61	E60	43	E60	E60	5	263	137	2	
132470	30	32	60	61	E60	43	E60	E60	5	267	73	2	
132471	30	32	60	61	E60	43	E60	E60	5	265	73	2	
132473	@	@	60	61	E60	@	E60	E60	6	@	@	2	
132601	2	5	18	5	5	2	6	2	5	17	15	2	
132602	12	5	18	8	5	2	6	2	5	26	19	2	
132603	12	5	18	5	5	2	6	2	5	18	15	2	
132604	12	5	18	5	5	2	6	2	5	17	@	2	
132605	12	5	18	8	5	2	6	2	5	26	@	2	
132606	12	5	18	5	5	2	6	2	5	18	@	2	
132607	12	5	18	5	5	2	6	2	5	17	15	2	
132608	12	@	18	16	9	2	11	2	6	60	@	2	
132609	12	@	18	16	9	2	11	2	6	58	@	2	
132610	12	@	18	17	9	2	11	2	6	62	@	2	
132611	12	5	18	16	9	2	11	2	5	60	15	2	
132612	12	5	49	54	9	2	11	13	5	138	43	2	
132613	12	@	49	54	9	2	11	13	6	138	@	2	
132614	12	5	49	54	9	2	11	13	5	136	43	2	
132615	12	@	49	54	9	2	11	13	6	136	@	2	
132616	12	5	49	54	9	2	11	13	5	140	64	2	
132617	12	@	49	58	9	2	11	13	6	140	@	2	
132618	12	@	49	54	9	41	11	13	6	139	@	2	
132619	12	32	49	54	9	41	11	13	5	139	43	2	

@ Desired air intake, cooling, skid, generator, and controller kit chosen from price list. Determine kit number from generator nameplate and see Group parts sections for parts list.

— Group not used on generator set spec.

# Specification Number Index

GROUP TITLE & NUMBER	<i>Air Intake</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>Oil Pressure Switches</i>	<i>Skid and Plant Mounting</i>	<i>Water Temperature Switches</i>	<i>Starter</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	108	109	110	112	119	201	301	701
SPEC NO.	VARIATION NUMBER											
<b>275ROZD</b>												
132445	28	33	57	55	9	41	11	16	—	139	137	15
132446	28	@	57	55	9	41	11	16	—	139	@	15
132447	28	@	57	55	9	41	11	16	—	136	@	15
132448	28	@	57	55	9	41	11	16	—	142	@	15
132449	28	33	57	55	9	41	11	16	—	136	137	15
132450	28	33	57	55	9	41	11	16	—	142	64	15
132472	31	33	61	61	E61	43	E61	E61	5	267	73	2
132474	31	33	61	61	E61	43	E61	E61	5	266	137	15
132475	@	@	61	61	E61	@	E61	E61	6	@	@	15
132650	9	5	19	5	5	2	6	2	5	34	15	15
132651	13	5	19	8	5	2	6	2	5	41	19	15
132652	13	5	19	5	5	2	6	2	5	18	15	15
132653	13	5	19	5	5	2	6	2	5	34	@	15
132654	13	5	19	8	5	2	6	2	5	41	@	15
132655	13	5	19	5	5	2	6	2	5	18	@	15
132656	13	5	19	5	5	2	11	2	5	34	15	15
132657	13	@	19	16	9	2	11	2	6	61	@	15
132658	13	@	19	16	9	2	11	2	6	58	@	15
132659	13	@	19	17	9	2	11	2	6	64	@	15
132660	13	5	19	16	9	2	11	2	5	61	15	15
132661	13	5	50	55	9	2	11	13	5	139	43	15
132662	13	@	50	55	9	2	11	13	6	139	@	15
132663	13	5	50	55	9	2	11	13	5	136	43	15
132664	13	@	50	55	9	2	11	13	6	136	@	15
132665	13	5	50	55	9	2	11	13	5	142	64	15
132666	13	@	50	59	9	2	11	13	6	142	@	15

@ Desired air intake, cooling, skid, generator, and controller kit chosen from price list. Determine kit number from generator nameplate and see Group parts sections for parts list.  
 — Group not used on generator set spec.

## Specification Number Index

GROUP TITLE & NUMBER	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
300ROZD													
132451	28	33	57	56	9	41	11	16	—	136	44	15	
132452	28	@	57	56	9	41	11	16	—	136	@	15	
132453	28	@	57	56	9	41	11	16	—	141	@	15	
132454	28	33	57	56	9	41	11	16	—	141	68	15	
132476	31	33	61	61	E61	43	E61	E61	@	263	137	15	
132477	31	33	61	61	E61	43	E61	E61	@	265	73	15	
132478	@	@	61	61	E61	@	E61	E61	@	@	@	15	
132701	9	5	19	5	5	2	6	2	5	18	16	16	
132702	13	5	19	8	5	2	6	2	5	27	20	16	
132703	13	5	19	5	5	2	6	2	5	18	@	16	
132704	13	5	19	8	5	2	6	2	5	27	@	16	
132705	13	5	19	5	5	2	6	2	5	18	16	16	
132706	13	@	19	16	9	2	11	2	6	58	@	15	
132707	13	@	19	17	9	2	11	2	6	63	@	15	
132708	13	5	19	16	9	2	11	2	5	58	16	15	
132709	13	5	50	56	9	2	11	13	5	136	44	15	
132710	13	@	50	56	9	2	11	13	6	136	@	15	
132713	13	5	50	56	9	2	11	13	5	141	68	15	
132714	13	@	50	60	9	2	11	13	6	141	@	15	

@ Desired air intake, cooling, skid, generator, and controller kit chosen from price list. Determine kit number from generator nameplate and see Group parts sections for parts list.

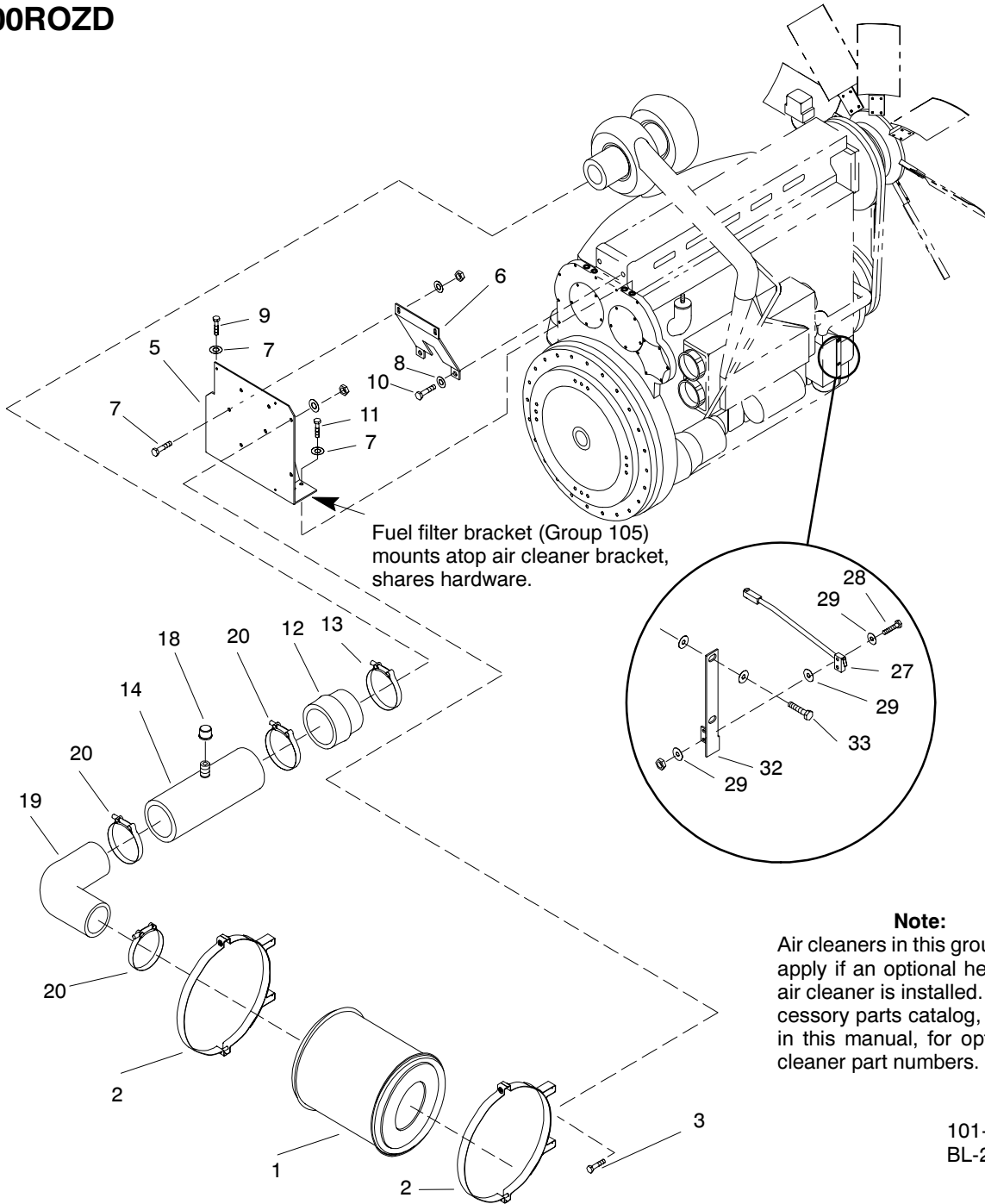
— Group not used on generator set spec.

# Specification Number Index

## Notes

# Group 101: Air Intake

200ROZD



101-70-1  
BL-272000

Item	Qty.	Description Variation	Part No.
------	------	--------------------------	----------

1	1	Cleaner, air	
		1	A-291512
1	1	Element, air cleaner (for A-291512) (not shown)	
		1	292922

Item	Qty.	Description Variation	Part No.
------	------	--------------------------	----------

1	1	Cleaner, air	
		2, 9	A-272626
1	1	Cleaner, air	
		12, 13, 27, 28, 29	272981
1	1	Cap, rain (not shown)	
		2, 9	272674

## Group 101: Air Intake, Continued

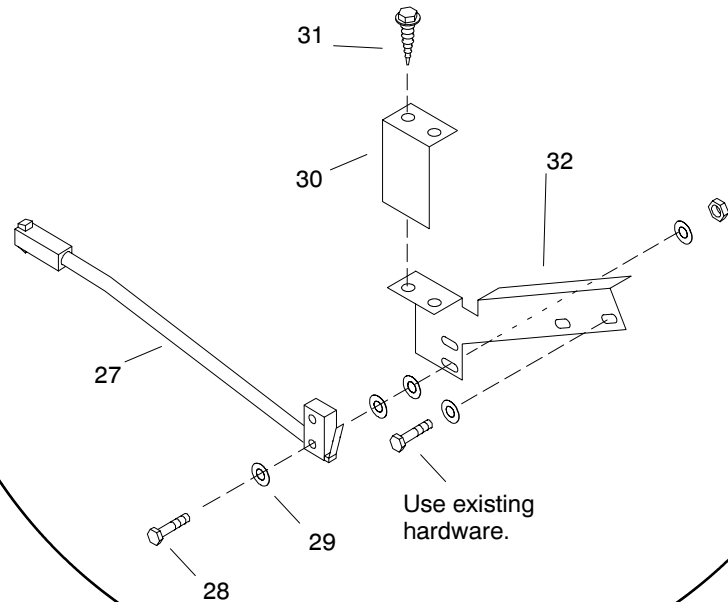
Item	Qty.	Description Variation	Part No.	Item	Qty.	Description Variation	Part No.
2	2	Bracket, air cleaner mtg. 1	291501	19	1	Elbow, 90° 1	291502
	2	Mount, air cleaner, 14" 2, 9	254012		1	Elbow, 90° (filter side) 2, 9, 12, 13, 27, 28	272663
	2	Clamp, air cleaner, 6 13/16" min rad. 12, 13, 27, 28	272983		1	Elbow, 90° 29	291567
	2	Mount, air cleaner 29	274242	20	3	Clamp, hose (band), 6" 1	291504
3	4	Hardware, 3/8-16 1, 29	#		2	Clamp, hose (band), 6" 29	291504
4		Hardware, 7/16-14 2, 9	#		1	Clamp	280998
5	1	Bracket, air cleaner mtg. (L-shaped) 1	272642	21	1	Clamp, hose, 6 1/2" min. i.d. 12, 13, 27, 28	272960
	2	Bracket, air cleaner mtg. 2, 9	272625		1	Clamp, hose (band), 6 1/2" 2, 9	254013
	2	Bracket, air cleaner mtg. 12, 13, 27, 28	274595	22	1	Clamp, 7 11/16" min. dia. 12, 13, 27, 28	279482
	2	Bracket, cross (on 272625) 2, 9 (early)	272665		1	Clamp, hose, 7 1/2" min. i.d. 2, 9	280998
6	1	Bracket, air cleaner mtg. (angled) 1	272640	23	1	Elbow, 90° (engine side) 2, 9, 12, 13, 27, 28	272627
7		Hardware, 3/8-16 1	#	24	1	Deflector, heat 2, 9	272809
8		Hardware, 7/16-14 2, 9, 12, 13, 27, 28	#		1	Deflector, heat 12, 13, 27, 28	274588
9	2	Screw, ref., 3/8-16 x 3/4 1	X-6238-10	25	2	Mount, air cleaner, 6 1/2" 2, 9, 12, 13, 27, 28	258279
10	2	Screw, ref., 7/16-14 x 1 1/2 1	X-6024-3	26		Hardware, 3/8-16 2, 9, 12, 13, 27, 28	#
11	2	Screw, ref., 3/8-16 x 1 1/4 1	X-6238-4	27	1	Limit switch assy. 1, 2, 9, 12, 13, 27, 28	272790
	4	Screw, ref., 7/16-14 x 1 2, 9, 12, 13, 27, 28	X-6024-2	28	2	Screw, ref., 6-32 x 3/4 1, 2, 9, 12, 13, 27, 28 (up to 6/91)	X-49-6
12	1	Hose, hump 1, 29	272641		2	Screw, ref., 6-32 x 7/8 12, 13, 27, 28 (as of 6/91)	X-49-3
	1	Hose, hump 2, 12, 27	272628	29		Hardware, 6-32 1, 2, 9, 12, 13, 27, 28	#
	1	Hose, hump 9, 13, 28	274221	30	1	Guard, limit switch 12, 13, 27, 28 (up to 6/91)	279563
13	1	Clamp, hose (band), 5 1/2" 1, 2, 12, 27	291562		1	Guard, limit switch 12, 13, 27, 28 (as of 6/91)	279562
	1	Clamp, hose (band), 6" 13, 28	291504	31	2	Screw, drill, 5/32 x 9/16 12, 13, 27, 28 (as of 8/91)	X-794-2
	1	Clamp, hose 29	254344	32	1	Bracket, limit switch mtg. 2, 9 (early)	274244
14	1	Tube assembly 1, 29	274620		1	Bracket, limit switch mtg. 2 (early)	272769
15	1	Tubing, steel. 6 x 4" 2, 9	X-522-58		1	Bracket, limit switch mtg. 2, 9 (later)	274589
	1	Tubing, steel, 6 x 5 3/4" 12, 13, 27, 28	X-522-60		1	Bracket, limit switch mtg. 1	272927
16	3	Clamp, hose (band), 6 1/2" 2, 9, 12, 13, 27, 28	254013		1	Bracket, limit switch mtg. 12, 13, 27, 28	279740
17	1	Tubing assy., 6 x 5 3/4" 2, 9, 12, 13, 27, 28	274623	33		Hardware, 7/16 1	#
18	1	Cap, pipe 2, 9, 12, 13, 27, 28, 29	X-268-7				

# Common Hardware; Procure Locally

# Group 101: Air Intake, Continued

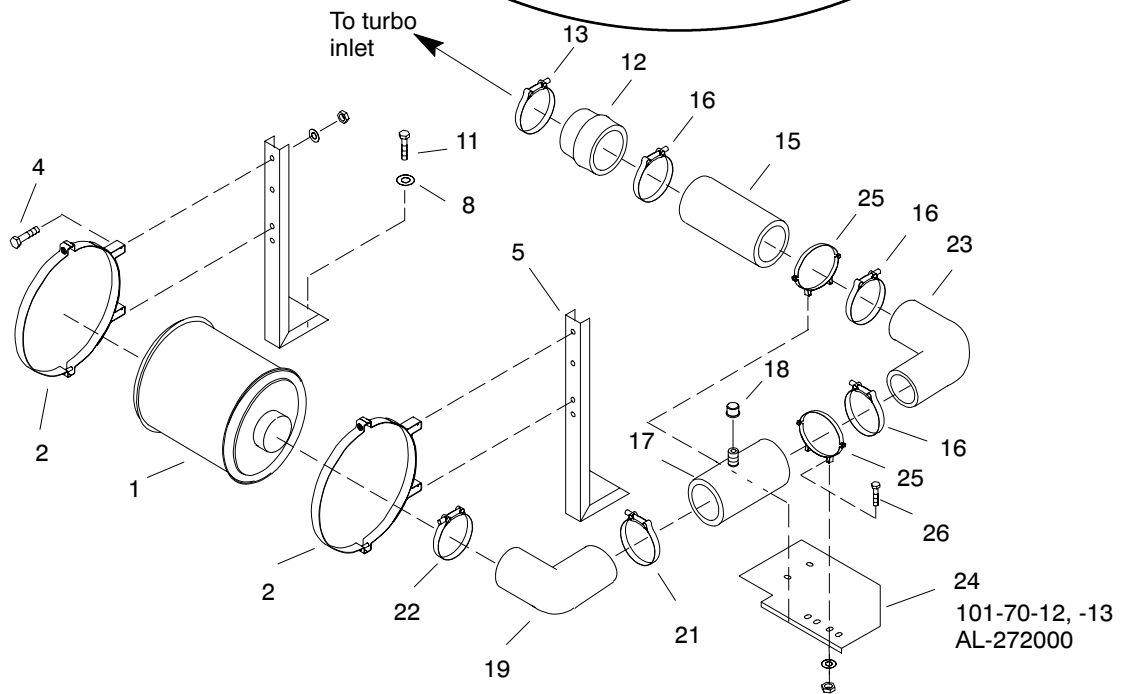
230-300ROZD

## Limit Switch Assembly



**Note:**

Air cleaners in this group do not apply if an optional heavy-duty air cleaner is installed. See accessory parts catalog, or kit list in this manual, for optional air cleaner part numbers.



Item	Qty.	Description Variation	Part No.
1	1	Cleaner, air	
		1	A-291512
1	1	Element, air cleaner (for A-291512) (not shown)	
		1	292922
1	1	Cleaner, air	
		2, 9	A-272626
1	1	Cleaner, air	
		12, 13, 27, 28, 30, 31	272981

Item	Qty.	Description Variation	Part No.
2	2	Bracket, air cleaner mtg.	
		1	291501
2	2	Mount, air cleaner, 14"	
		2, 9	254012
2	2	Clamp, air cleaner, 6 13/16" min rad.	
		12, 13, 27, 28, 30, 31	272983

## Group 101: Air Intake, Continued

Item	Qty.	Description Variation	Part No.
3		Hardware, 3/8-16 1	#
4		Hardware, 7/16-14 2, 9, 30, 31	#
5	1	Bracket, air cleaner mtg. (L-shaped) 1	272642
	2	Bracket, air cleaner mtg. 2, 9	272625
	2	Bracket, air cleaner mtg. 12, 13, 27, 28, 30, 31	274595
	2	Bracket, cross (on 272625) 2, 9 (early)	272665
6	1	Bracket, air cleaner mtg. (angled) 1	272640
7		Hardware, 3/8-16 1	#
8		Hardware, 7/16-14 2, 9, 12, 13, 27, 28, 30, 31	#
9	2	Screw, ref., 3/8-16 x 3/4 1	X-6238-10
10	2	Screw, ref., 7/16-14 x 1 1/2 1	X-6024-3
11	2	Screw, ref., 3/8-16 x 1 1/4 1	X-6238-4
	4	Screw, ref., 7/16-14 x 1 2, 9, 12, 13, 27, 28, 30, 31	X-6024-2
12	1	Hose, hump 1	272641
	1	Hose, hump 2, 12, 30	272628
	1	Hose, hump 9, 13, 31	274221
13	1	Clamp, hose (band), 5 1/2" 1, 2, 12, 30	254344
	1	Clamp, hose (band), 6" 9, 13, 31	291504
14	1	Tube assembly 1	274620
15	1	Tubing, steel, 6 x 4" 2, 9	X-522-58
	1	Tubing, steel, 6 x 5 3/4" 12, 13, 27, 28, 30, 31	X-522-60
16	3	Clamp, hose (band), 6 1/2" 2, 9, 12, 13, 27, 28, 30, 31	254013
17	1	Tubing assy., 6 x 5 3/4" 2, 9, 12, 13, 27, 28, 30, 31	274623
18	1	Cap, pipe 2, 9, 12, 13, 27, 28, 30, 31	X-268-7
19	1	Elbow, 90° 1	291502
	1	Elbow, 90° (filter side) 2, 9, 12, 13, 27, 28, 30, 31	272663
20	3	Clamp, hose (band), 6" 1	291504
21	1	Clamp, hose, 6 1/2" min. i.d. 12, 13, 27, 28, 30, 31	272960
	1	Clamp, hose (band), 6 1/2" 2, 9	254013

Item	Qty.	Description Variation	Part No.
22	1	Clamp, 7 11/16" min. dia. 12, 13, 27, 28, 30, 31	279482
	1	Clamp, hose, 7 1/2" min. i.d. 2, 9	280998
23	1	Elbow, 90° (engine side) 2, 9, 12, 13, 27, 28, 30, 31	272627
24	1	Deflector, heat 2, 9	272809
	1	Deflector, heat 12, 13, 27, 28, 30, 31	274588
25	2	Mount, air cleaner, 6 1/2" 2, 9, 12, 13, 27, 28, 30, 31	258279
26		Hardware, 3/8-16 2, 9, 12, 13, 27, 28, 30, 31	#
27	1	Limit switch assy. 1, 2, 9, 12, 13, 27, 28	272790
28	2	Screw, ref., 6-32 x 3/4 1, 2, 9, 12, 13, 27, 28 (up to 6/91)	X-49-6
	2	Screw, ref., 6-32 x 7/8 12, 13, 27, 28 (as of 6/91)	X-49-3
29		Hardware, 6-32 1, 2, 9, 12, 13, 27, 28	#
30	1	Guard, limit switch 12, 13, 27, 28 (as of 6/91)	279563
	1	Guard, limit switch 12, 13, 27, 28 (as of 6/91)	279562
31	2	Screw, drill, 5/32 x 9/16 12, 13, 27, 28 (as of 8/91)	X-794-2
32	1	Bracket, limit switch mtg. 2, 9 (early)	274244
	1	Bracket, limit switch mtg. 2 (early)	272769
	1	Bracket, limit switch mtg. 2, 9 (later)	274589
	1	Bracket, limit switch mtg. 1	272927
	1	Bracket, limit switch mtg. 12, 13, 27, 28	279740
33		Hardware, 7/16 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. The parts list of the kit is identical to a variation shown in this group. Use the following table to identify the equivalent variation number. See kit part list section for heavy-duty air cleaner kits.

Air Intake Kit	Equivalent Variation Number
347307	29
347308	30
347309	31

# Common Hardware; Procure Locally



# Group 104: Cooling System, Continued

Item	Qty.	Description Variation	Part No.
1	1	Radiator assembly	
		1	A-272723
		2	A-272616
		5	A-279675
		15	A-328687
		32	A-328712
		33	A-328711
	1	Cap	
		2, 15	224358
		5	224357
	1	Glass, radiator sight	
		2, 5	274831
2	1	Sensor, coolant level	
		1, 2, 5, 15, 32, 33	See chart below
	1	Conduit (not shown)	
		all	X-6003-8
3	1	Line, 1/4" i.d. x 23 1/2" (vent)	
		1, 15	X-651-21
	2	Line, flex vent, 1/4 x 30"	
		2, 5	X-386-75
	1	Line, vent	
		2, 5	X-651-33
	1	Line, vent	
		33, 34	X-651-5
4	4	Fitting, hose, 1/4 x 1/4" NPT	
		2, 5	X-652-3
	2	Fitting, hose	
		1, 2, 5, 15, 32, 33	X-652-1
5	1	Cross, pipe, 1/2" NPT	
		15	X-207-7
6	1	Nipple, pipe, 1/2 x 1 3/16"	
		1, 15	X-209-2
7	2	Clamp, hose, 5/8"	
		1, 15, 32, 33	X-426-9
	4	Clamp, hose, 5/8"	
		2, 5	X-426-9
8	2	Elbow, street, 1/2" NPT	
		2, 5	X-211-1
9	2	Bushing, reducer, 1/4" F x 1/2" M	
		1, 15	X-202-12
	4	Bushing, reducer, 1/4" F x 1/2" M	
		2, 5	X-202-12
10	1	Plug, pipe, 1/2" NPT	
		1, 15	X-75-28
11	1	Tie, cable, 21"	
		1, 15	X-468-7
	1	Tie, cable, 14"	
		2, 5	X-468-4
12	2	Hose, radiator (upper)	
		2, 5	X-613-7
	1	Hose, radiator (upper)	
		15	274514
		1	272645
		32, 33 (right)	328889
		32, 33 (left)	328890

Item	Qty.	Description Variation	Part No.
13	2	Clamp, hose, 3"	
		1, 15	250081
	4	Clamp, hose	
		2, 5	328800
	4	Clamp, hose	
		32, 33	X-426-2
14	1	Hose, rubber bypass, 1" i.d. x 50"	
		1, 15	X-356-32
	1	Hose, bypass, 1 1/4" i.d. x 54"	
		2, 5	X-6014-30
	1	Hose, bypass	
		32, 33	X-356-34
15	2	Clamp, hose, 1 1/2"	
		1, 15	X-426-15
	2	Clamp, hose, 1 3/4"	
		2, 5, 33, 34	X-426-8
16	1	Hose, lower, 2 1/4" i.d. x 5"	
		1, 15	X-281-1
17	1	Hose, lower, 2 1/4" i.d. x 3"	
		1, 15	X-281-8
	1	Hose, lower radiator	
		32, 33	328387
18	1	Tube, water inlet	
		1, 15	272852
19	4	Clamp, hose, 1 7/8"	
		1, 15	X-426-2
	2	Clamp, hose, 3 3/4" min. dia.	
		2, 5, 32, 33	X-426-1
20	1	Fan (early)	
		2, 5, 15	274755
	1	Fan (105° at B)	
		2, 5, 15	299963
	1	Belts, fan (2-belt set) (not shown)	
		16	279974
	1	Belts, fan (3-belt set) (not shown)	
		17-19	279975
21	6	Screw, hex cap, 5/16-18 x 3"	
		5	X-125-37
22	6	Washer, hardened, 21/64 x 23/32 x 1/8"	
		1, 2, 5, 15, 32, 33	X-801-4

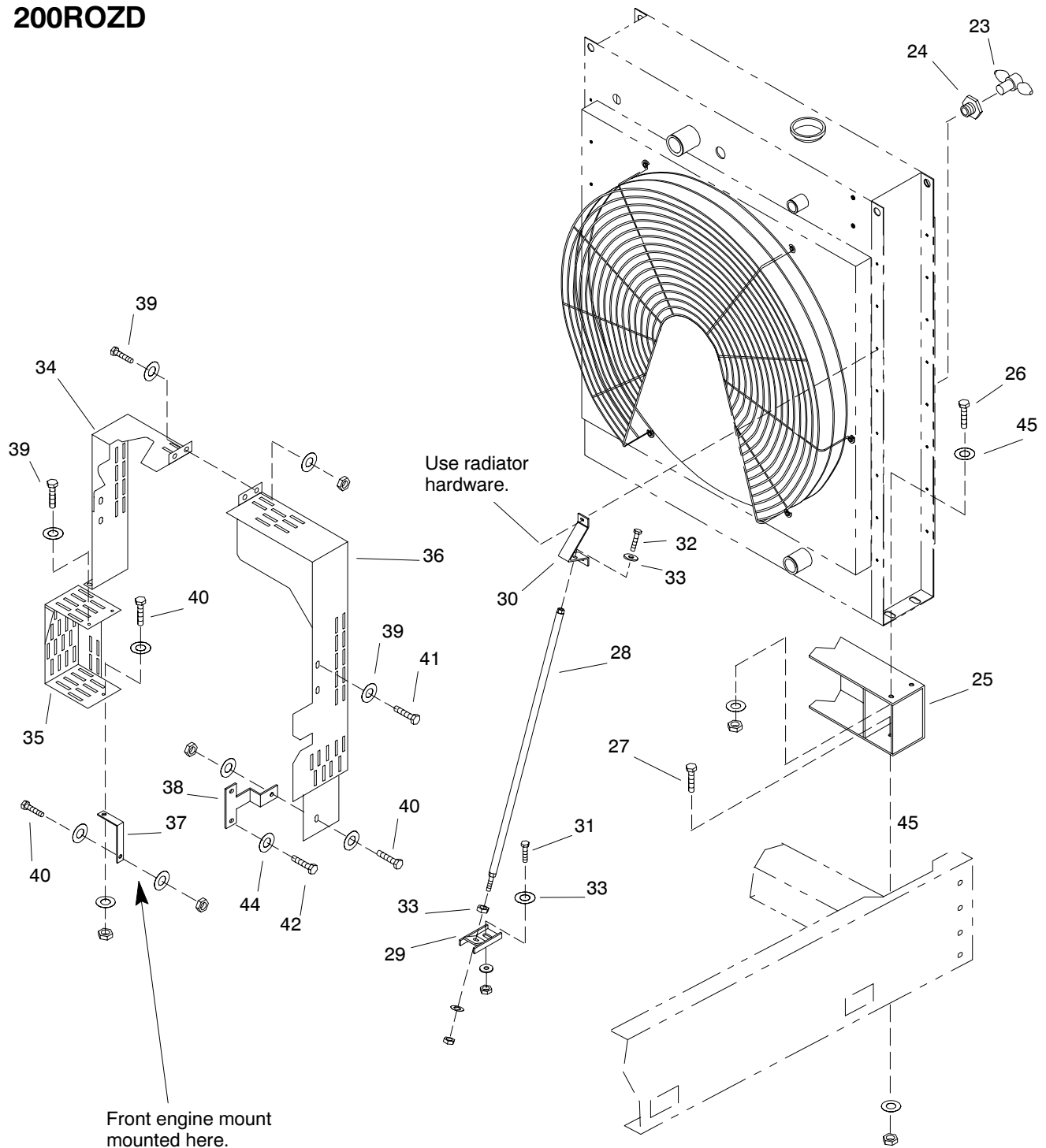
### Serial Number-Contingent Parts

Part Description	Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and after
Coolant Level Sensor	273469	254832
Bushing Reducer, 3/8 x 1/2 NPT	Not Used	X-202-28

# Common Hardware; Procure Locally

# Group 104: Cooling System, Continued

200ROZD



104-70-15  
BL-272000

## Group 104: Cooling System, Continued

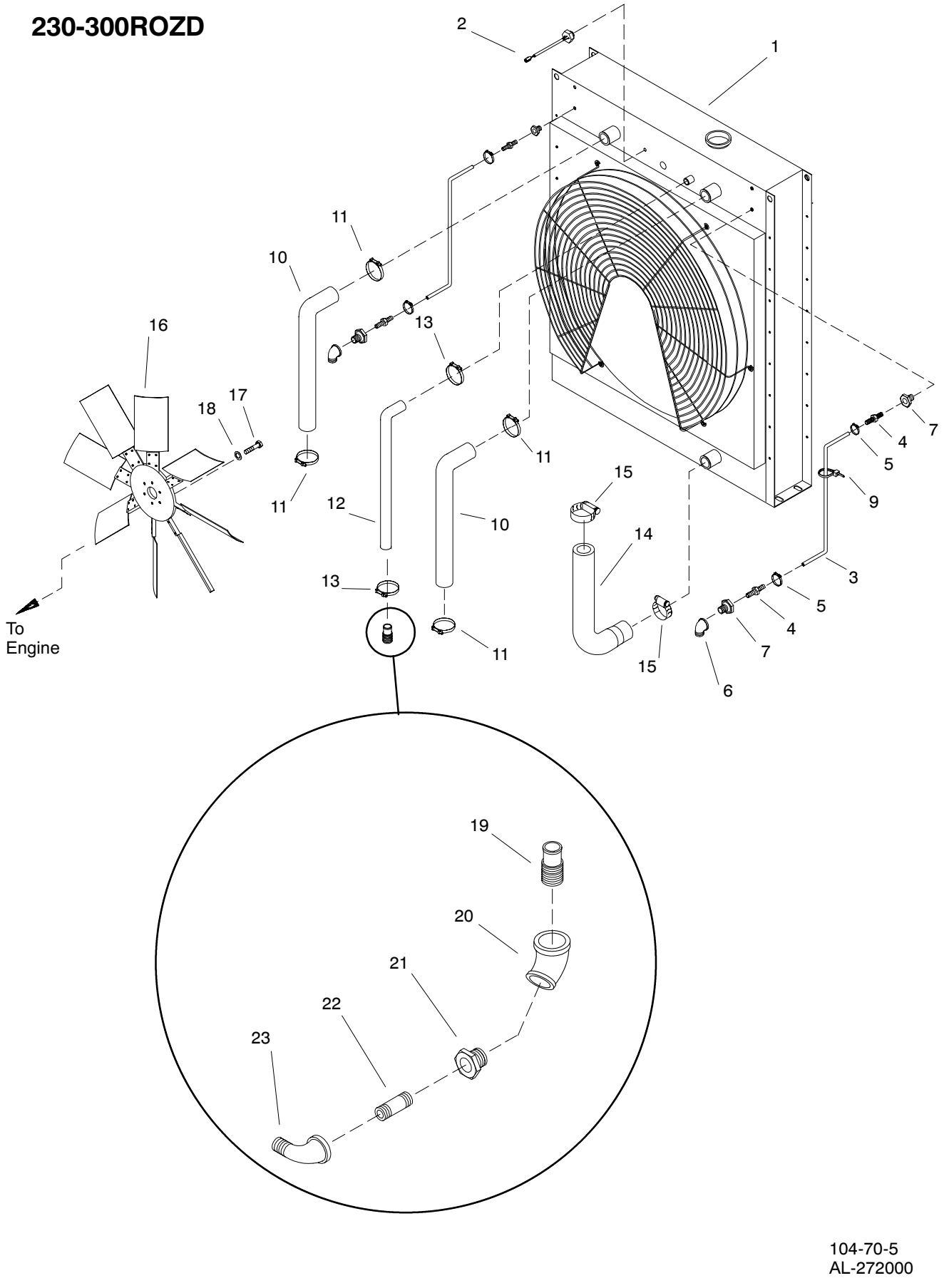
Item	Qty.	Description Variation	Part No.
23	1	Valve, drain, 3/8" NPT 1, 2, 5, 15, 32, 33	X-256-1
24	1	Bushing, reducer, 3/8" F x 1/2" M 1, 2, 5, 15, 32, 33	X-202-28
25		Support, radiator (base mount) 1, 2	272617
	2	Support, radiator side 32, 33	328594
26		Hardware, 5/8-11 2, 5, 15	#
27		Hardware, 3/4-10 2, 15	#
28	2	Brace, radiator 1, 15	274230
	2	Brace, radiator 2	272662
	2	Brace, radiator 5	299889
	1	Brace, radiator (right) 32, 33	328384
	1	Brace, radiator (left) 32, 33	347708
29	2	Bracket, radiator brace (lower) 1, 2, 15	272682
	2	Bracket, radiator brace (lower) 5	299881
30	2	Bracket, radiator brace (upper) 1, 2, 15	272631
	2	Bracket, radiator brace (upper) 5	299880
31	2	Screw, ref., 1/2-13 x 1 1/4" 1, 15	X-129-18
32	2	Screw, ref., 1/2-13 x 3/4" 1, 15	X-129-15
	4	Screw, ref., 1/2-13 x 1" 2, 5	X-129-17

Item	Qty.	Description Variation	Part No.
33		Hardware, 1/2-13 1, 2, 5, 15	#
34	1	Guard, fan (upper left) 1	272647
	1	Guard, fan (upper left) 15	274515
35	1	Guard, fan (lower left) 1	274382
	1	Guard, fan (lower left) 15	274517
36	1	Guard, fan (right) 1	272648
	1	Guard, fan (right) 15	274516
37	1	Bracket, fan guard (lower left) 1	274383
	1	Bracket, fan guard (lower left) 15	274383
38	1	Bracket, fan guard (lower right) 1	272649
	1	Bracket, fan guard (lower right) 15	274520
39		Hardware, 1/4-20 1, 15	#
40		Hardware, 5/16-18 1, 15	#
41	4	Screw, ref., 3/8-16 x 5/8" 1, 15	X-6238-2
42	2	Screw, ref., 7/16-14 x 3/4" 1, 15	X-6024-5
43		Hardware, 3/8 1, 15	#
44		Hardware, 7/16 1, 15	#
45	4	Washer, hardened 2, 5, 15, 32, 33	X-809-9

# Common Hardware; Procure Locally

# Group 104: Cooling System, Continued

230-300ROZD



104-70-5  
AL-272000

# Group 104: Cooling System, Continued

Item	Qty.	Description Variation	Part No.
1	1	Radiator assembly	
		1	A-272723
		2	A-272616
		5	A-279675
		15	A-328687
		32	A-328712
		33	A-328711
	1	Cap	
		2, 15	224358
		5	224357
	1	Glass, radiator sight	
		1, 2, 5	274831
2	1	Sensor, coolant level	
		1, 2, 5, 15, 32, 33	See chart below
	1	Conduit (not shown)	
		all	X-6003-8
3	1	Line, (vent), 1/4" i.d. x 23 1/2"	
		1, 15	X-386-48
	2	Line, flex fuel (vent), 1/4 x 30"	
		2, 5	X-386-75
	1	Line, vent	
		2, 5	X-651-33
	1	Line, vent	
		32, 33	X-651-5
4	4	Fitting, hose, 1/4 x 1/4" NPT	
		2, 5	X-652-3
	2	Fitting, hose	
		1, 15, 32, 33	X-651-1
5	2	Clamp, hose, 5/8"	
		1, 2, 5, 15, 32, 33	X-426-9
6	2	Elbow, street, 1/2" NPT	
		2, 5	X-211-1
7	2	Bushing, reducer, 1/4" F x 1/2"	
		1, 2, 5, 15	X-202-12
8	1	Plug, pipe, 1/2" NPT	
		1, 15	X-75-28
9	1	Tie, cable, 21"	
		1, 15	X-468-7
	1	Tie, cable, 14"	
		2, 5	X-468-4
10	2	Hose, radiator (upper)	
		2, 5	X-613-7
	1	15	274514
	1	32, 33 (right)	328889
	1	32, 33 (left)	328890
	1	1	272645
11	2	Clamp, hose, 3"	
		1, 15	250081
	4	Clamp, hose, 2 3/64" min. dia.	
		2, 5	279604
	4	Clamp, hose	
		32, 33	X-426-2
12	1	Hose, rubber, bypass, 1" i.d. x 50"	
		1, 15	X-356-32
	1	Hose, bypass,	

Item	Qty.	Description Variation	Part No.
		1 1/4" i.d. x 54"	
		2, 5	X-6014-30
	1	Hose, bypass	
		32, 33	X-356-34
13	2	Clamp, hose, 1 1/2"	
		1, 15	X-426-15
	2	Clamp, hose, 1 3/4"	
		2, 5, 32, 33	X-426-8
14	1	Hose, lower radiator	
		2	272620
		5	274245
		32, 33	328387
15	2	Clamp, hose, 3 3/4" min. dia.	
		2, 5, 32, 33	X-426-1
16	1	Fan	
		2, 5, 15, 32, 33	299963
17	6	Screw, hex cap, 5/16-18 x 3"	
		5	X-125-37
18	6	Washer, hardened, 21/64 x 23/32 x 1/8"	
		1, 2, 5, 15, 32, 33	X-801-4
19	1	Adapter, hose, 1 1/4" ID, 1" NPT	
		2, 5	272930
20	1	Elbow, 45°, 1" NPT	
		2, 5	X-255-9
21	1	Bushing, reducer, 3/4" F x 1" M	
		2, 5	X-202-1
22	1	Nipple, pipe, 3/4" NPT x 2"	
		2, 5	X-206-2
	1	Connector, hose	
		32, 33	X-582-16
23	1	Elbow, 90°, 3/4" NPT	
		2, 5, 32, 33	SA-472

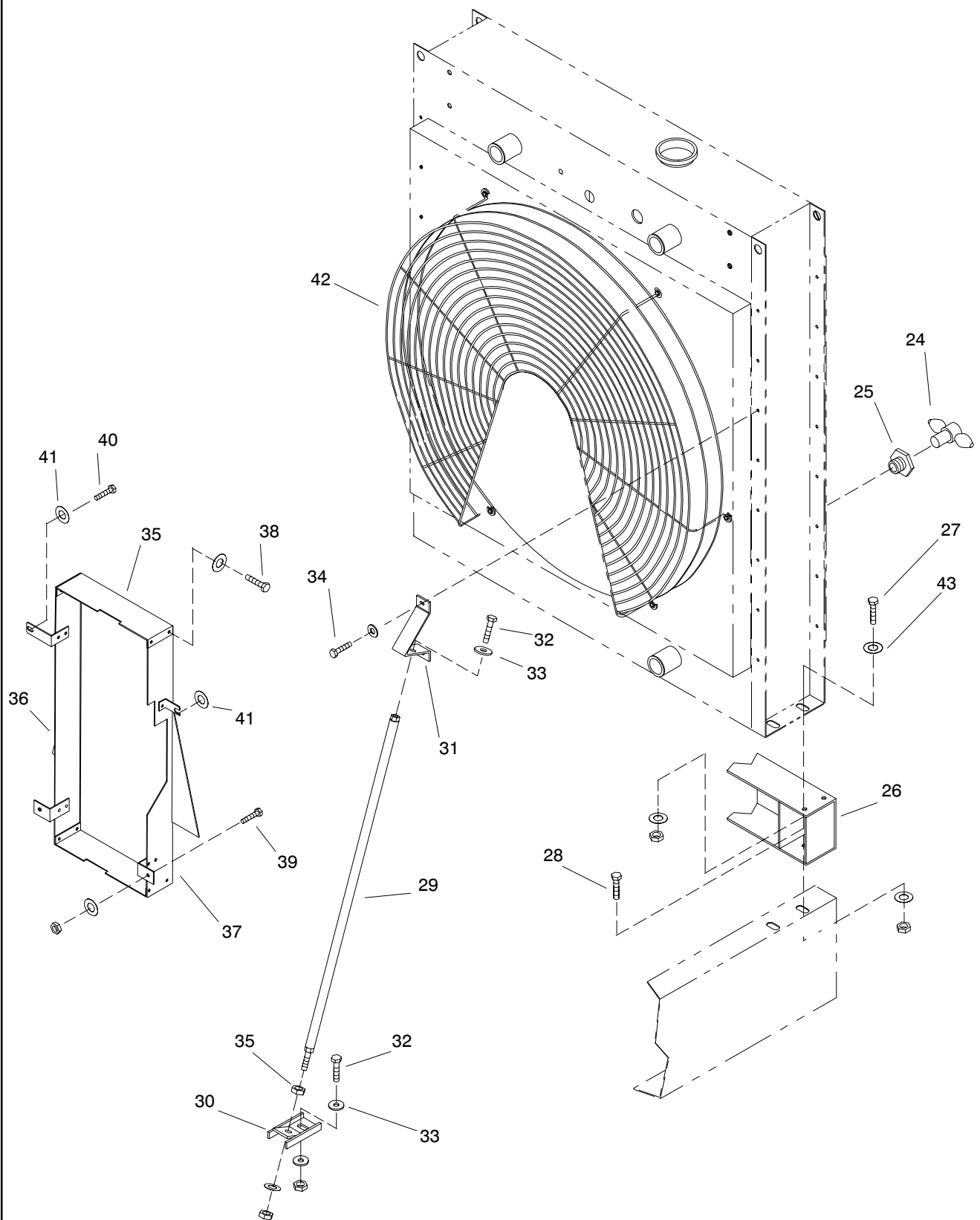
### Serial Number-Contingent Parts

Part Description	Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and after
Coolant Level Sensor	273469	254832
Bushing Reducer, 3/8 x 1/2 NPT	Not Used	X-202-28

# Common Hardware; Procure Locally

# Group 104: Cooling System, Continued

230-300ROZD



104-70-5  
AL-272000

## Group 104: Cooling System, Continued

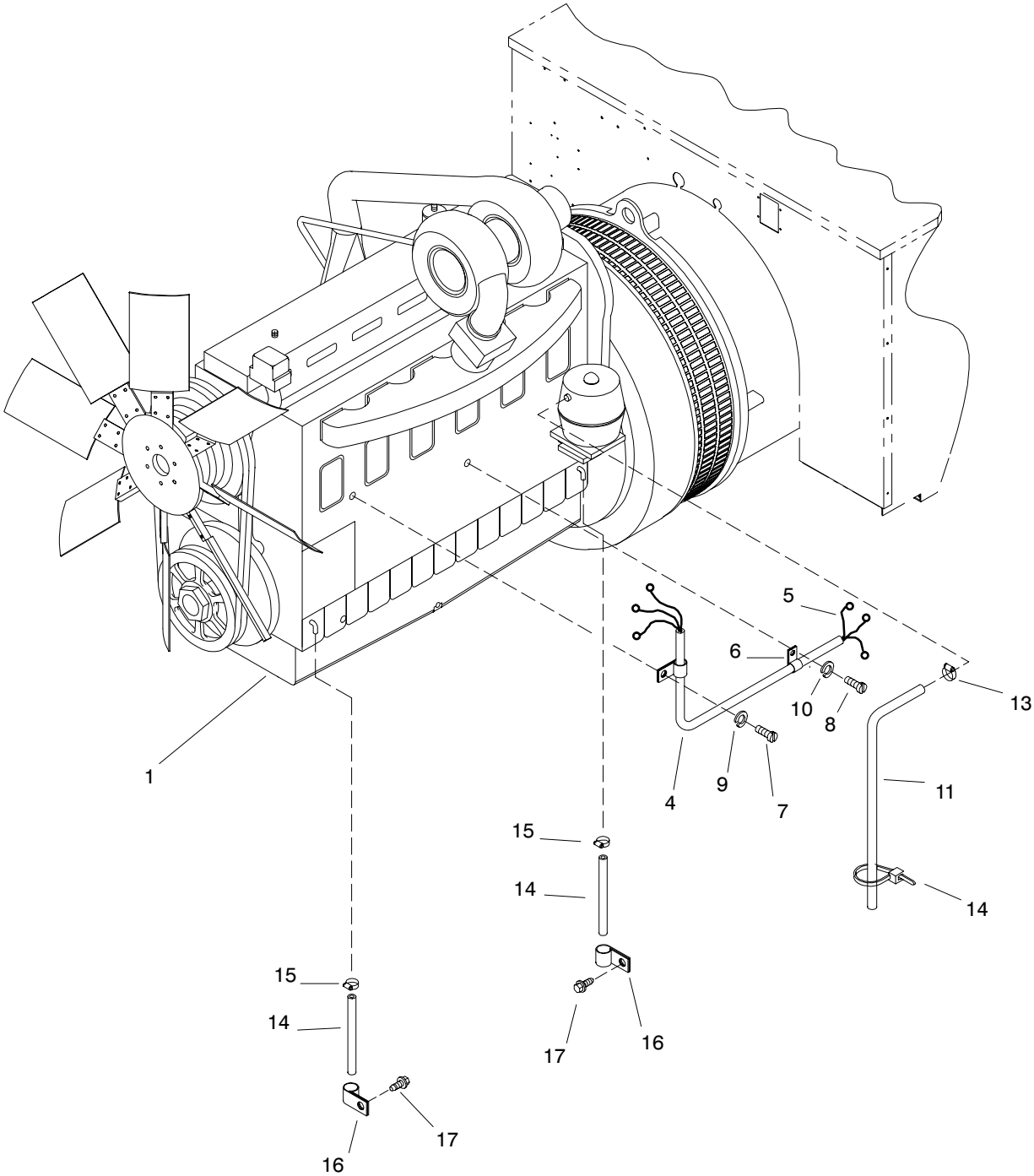
Item	Qty.	Description Variation	Part No.
24	1	Valve, drain, 3/8" NPT 1, 2, 5, 15, 32, 33	X-256-1
25	1	Bushing, reducer, 3/8" F x 1/2" M 1, 2, 5, 15	X-202-28
26	1	Support, radiator, (base mount) 15	274513
	1	Support, radiator, (base mount) 1, 2	272617
	1	Side Support, radiator 32, 33	328594
27		Hardware, 5/8-11 2, 5, 15	#
28		Hardware, 3/4-10 2, 15	#
29	2	Brace, radiator 1, 15	274230
	2	Brace, radiator 2	272662
	2	Brace, radiator 5	299889
	1	Brace, radiator (right) 32, 33	328384
	1	Brace, radiator (left) 32, 33	347708
30	2	Bracket, radiator brace (lower) 1, 2, 15	272682
	2	Bracket, radiator brace (lower) 5	299881
31	2	Bracket, radiator brace (upper) 1, 2, 15	272631
	2	Bracket, radiator brace (upper) 5	299880

Item	Qty.	Description Variation	Part No.
32	4	Screw, ref., 1/2-13 x 1" 2, 5	X-129-17
33		Hardware, 1/2-13 1, 2, 5, 15	#
34	4	Screw, ref., 1/4-20 x 1" (use with existing hardware) 2, 5	X-465-7
35	1	Guard, fan (top) 2, 5, 32, 33	272717
36	1	Guard, fan (left) 2, 5, 32, 33	272740
37	1	Guard, fan (right) 2, 5, 32, 33	272741
38		Hardware, 1/4-20 1, 2, 5, 15, 32, 33	#
39		Hardware, 5/16-18 1, 2, 5, 15, 32, 33	#
40	1	Screw, ref., 3/8-16 x 5 1/2" 2, 5, 32, 33	X-6238-18
41		Hardware, 3/8 1, 2, 5, 15, 32, 33	#
42	1	Guard, wire fan 32, 33	328592
	1	Shroud, fan (not shown) 32, 33	328595
	1	Guard, radiator (not shown) 32, 33	328593
43	4	Washer, hardened 32, 33	X-801-9
44	2	Clamp, Insulating (not shown) 32, 33	X-672-7
45	2	Radiator, Spacer (not shown) 32, 33	347449

# Common Hardware; Procure Locally

# Group 105: Engine

200-300ROZD



105-70-16  
BL-272000

## Group 105: Engine, Continued

Item	Qty.	Description Variation	Part No.
1	1	Engine assembly 16, 47	A-272650
	1	Engine assembly 17, 48	A-272677
	1	Engine assembly 18, 49	A-272612
	1	Engine assembly 19, 50	A-272613
	1	Engine assembly 58	A-347902
	1	Engine assembly 55, 59	A-347093
	1	Engine assembly 56, 60	A-347094
	1	Engine assembly 57, 61	A-347095
2	4	Screw, ref., 10-24 x 1/2" 16-19, 47-50	X-50-15
3		Hardware, 10-24 16-19, 47-50	#
4	1	Conduit, plastic 17-19, 48, 50	X-6003-19
5	1	Harness, engine wiring all	See table below
		Harnesses include the following: (not shown)	
	4	Diode, 6 amp., 100 volt	233959
	1	Connector, 4-position	239408
	1	Connector, 2-position	292370
	1	Connector, cable	292800
	1	Connector, 24-position	295145
13		Pin, female gold plated	292838
	4	Terminal	292879
6	2	Clamp, insulating 16, 47, 58	X-672-3
7	1	Screw, ref., 3/8-16 x 3/4" 16, 47, 58	X-6238-10
8	1	Screw, ref., 7/16-14 x 3/4" 16, 47	X-6024-5
	1	Screw, ref., 3/8-16 x 3/4" 58	X-6238-10
9	1	Hardware, 3/8 16, 47, 58	#
10	1	Hardware, 7/16 16, 47, 58	#
11	1	Hose, 1 1/4" i.d. 16	X-6260-6

Item	Qty.	Description Variation	Part No.
	1	Hose, 1 1/4" i.d. 47, 58	X-6260-5
12	2	Clamp, hose, 1 3/4" 16-19, 48-50, 58	X-426-8
13	2	Tie, cable, 14" 17-19, 48-50	X-468-4
14	2	Hose, rubber, 3/8 x 18" 16, 47, 58	X-651-3
	2	Hose, 3/8 i.d. x 28" 17-19, 48-50	X-651-28
	2	Line, fuel (copper), 3/8" OD x 2" 17-19, 48-50	X-432-12
	1	Hose, rubber, 3/8" OD x 2" 59-61	X-651-28
	2	Line, fuel (copper), 3/8" OD x 2" 59-61	X-432-12
15	2	Clamp, hose, 5/8" 16, 47, 58	X-426-9
	4	Clamp, hose, 5/8" 17-19, 48-50, 59-61	X-426-9
16	2	Clamp, insulated, 7/16" i.d. 16, 47	X-672-7
17	2	Screw, drill, 1/4-14 x 3/4" 16, 47	X-794-1

### Serial Number-Contingent Wiring Harnesses

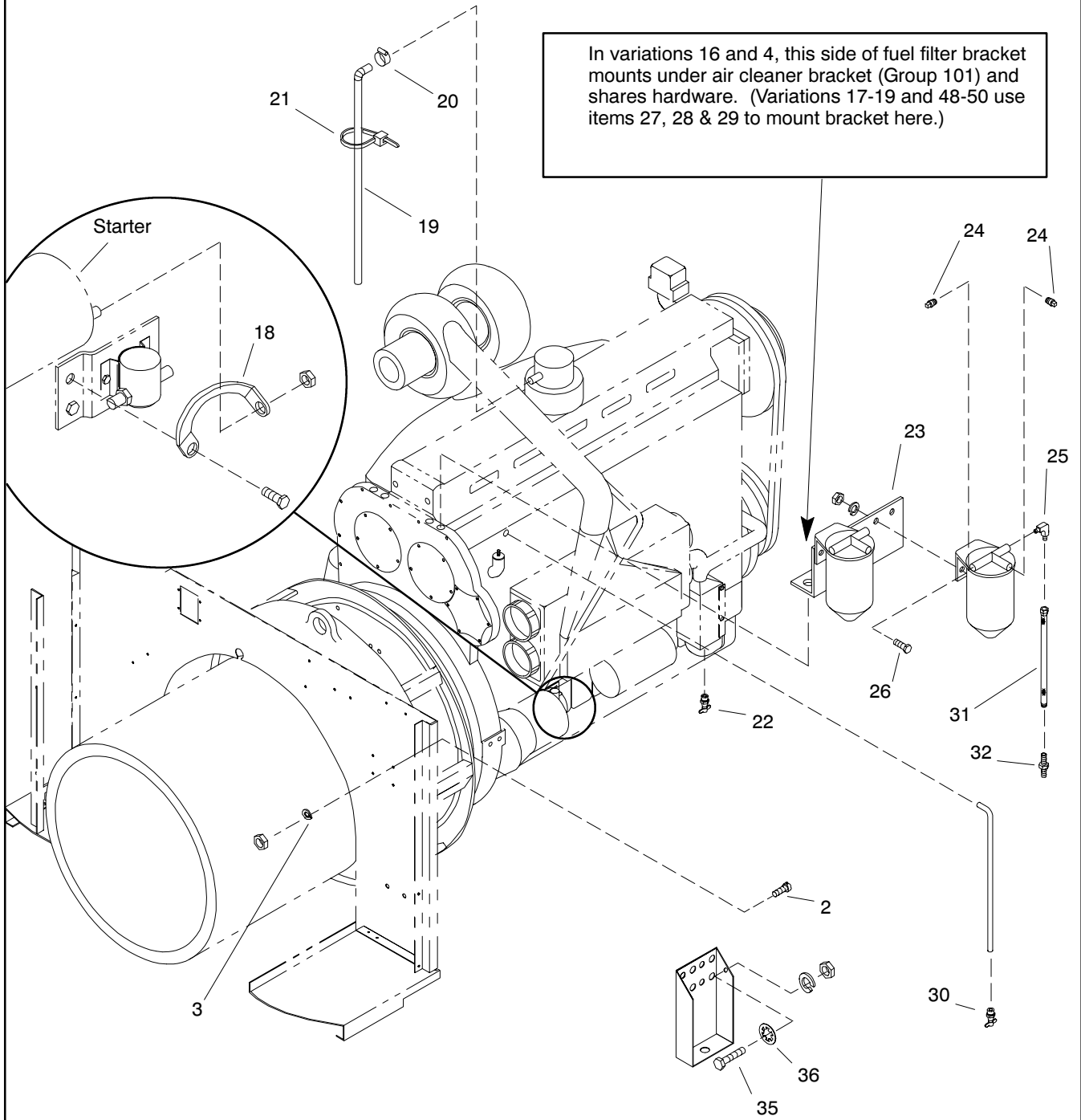
Variation Number	Wiring Harness Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and after
16	272651	272651
17-19	272755	272755
47	328045	347221
48-50	328046	347222
55-57	328046	347298
58	N/A	347297
59-61	N/A	347298

N/A = Not Applicable

# Common Hardware; Procure Locally

# Group 105: Engine, Continued

## 200-300ROZD



105-70-16  
BL-272000

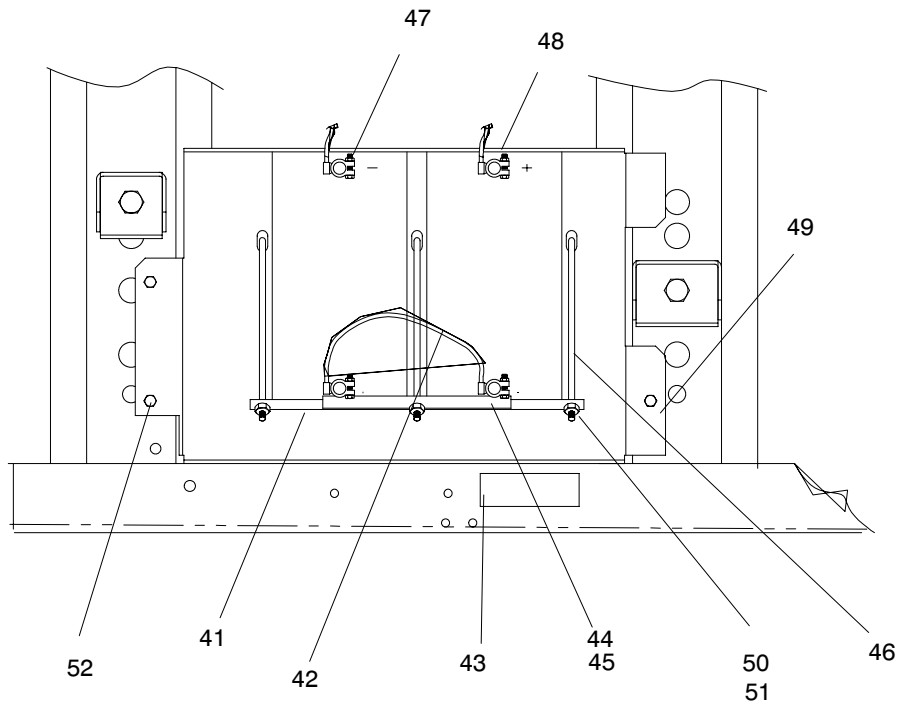
## Group 105: Engine, Continued

Item	Qty.	Description Variation	Part No.	Item	Qty.	Description Variation	Part No.
18	1	Strap, ground 16-19, 47-50, 55-61	287363	30	1	Cap, inverted flare 16, 47, 58-61	274975
19	1	Hose, 1 1/4" i.d. 16, 47, 58	X-6260-8	1	1	Cap, pipe 17-19, 48-50, 55-57	X-268-3
	2	Hose, 1 1/4 i.d. x 32" 17-19	X-6260-7	1	1	Plug, Pipe 59-61	X-75-51
	1	Hose, 1 1/4 i.d. 48-50, 55-57, 59-61	X-6260-5	31	1	Line, flex. fuel 16, 47, 58-61	274632
20	2	Clamp, hose, 1 3/4" 16-19, 47-50, 55-58	X-426-8	32	1	Connector, 1/2-union, 7/8-14, 3/8 thd. 16, 47, 58-61	X-296-8
	1	Clamp, hose, 1 3/4" 59-61	X-426-8	33	1	Element, primary fuel filter (not shown) 16-19, 47-50, 55-61	279262
21	2	Tie, cable, 14" 17-19, 48-50, 55-57	X-468-4	34	1	Element, secondary fuel filter (not shown) 16-19, 47-50, 55-61	279261
	1	Tie, cable, 14" 59-61	X-468-4	35		Hardware, 3/8-16 16, 47	
22	1	Valve, drain, 1/4" NPT 16-19, 47-50, 55-61	X-256-3	36	1	Washer, int. ext. tooth, ref., 3/8" 16, 47	X-22-14
23	1	Bracket, fuel filter 16, 47, 58	274525	37	1	Element, oil filter (not shown) 16-19, 47-50, 55-61	279260
	1	Bracket, fuel filter 17-19, 48-50, 55-57, 59-61	274227	38	1	Element, water separation (not shown) 16-19, 47-50, 55-61	279973
24	2	Plug, pipe, 3/8" NPT 16, 47, 58-61	X-75-10			Water separation element is offered only for units with engineered special water separation accessory.	
	3	Plug, pipe, 3/8" NPT 17-19, 48-50, 55-57	X-75-10	39	1	Belts, fan (2-belt set) (not shown) 16, 47	279974
25	1	Elbow, 7/8-14, 3/8" thread; 5/8" OD 16, 47, 58	X-447-14		1	Belts, fan (3-belt set) (not shown) 17-19, 48-50, 55-61	279975
26		Hardware, 3/8-16 16-19, 47-50, 55-61	#	40	1	Controller, governor (See Group 201)	
27	2	Screw, ref., 5/16-18 x 5 1/2" 17-19, 48-50, 55-57	X-125-35				
	1	Screw, ref., 5/16-18 x 5 1/2" 59-61	X-125-35				
28		Hardware, 5/16 17-19, 48-50, 55-57, 59-61	#				
29	2	Spacer, 11/32 x 3/4 x 3/8" 17-19, 48-50, 55-57, 59-61	X-400-41				

# Common Hardware; Procure Locally

# Group 105: Engine, Continued

200-300 ROZD



105-70-16  
MF-272000

## Group 105: Engine, Continued

Item	Qty.	Description Variation	Part No.
41	1	Channel, U 61	X-6047-1
42	1	Cable, battery 58	280133
	1	Cable, battery 59-61	X-545-71
43	1	Decal, warning 58-61	273780
44	1	Clamp, battery 58	272715
	1	Clamp, battery 59-61	354157
45	1	Insulator 58	274398
	1	Insulator 59-61	354164
46	1	Bolt, angle 58	254674
	1	Bolt, angle 58	286316

Item	Qty.	Description Variation	Part No.
	1	Bolt, angle 59-60	288446
47	1	Cable, battery 58-61	X-545-60
48	1	Cable, battery 58-61	X-545-24
49	1	Rack, battery 58	354352
	1	Rack, battery 59-61	354182
50	3	5/16 Hardware 58	#
	3	1/4 Hardware 59-60	#
51	3	Nut 58-61	X-101-4
52	3	Screw, drill hex. 59-61	X-794-1

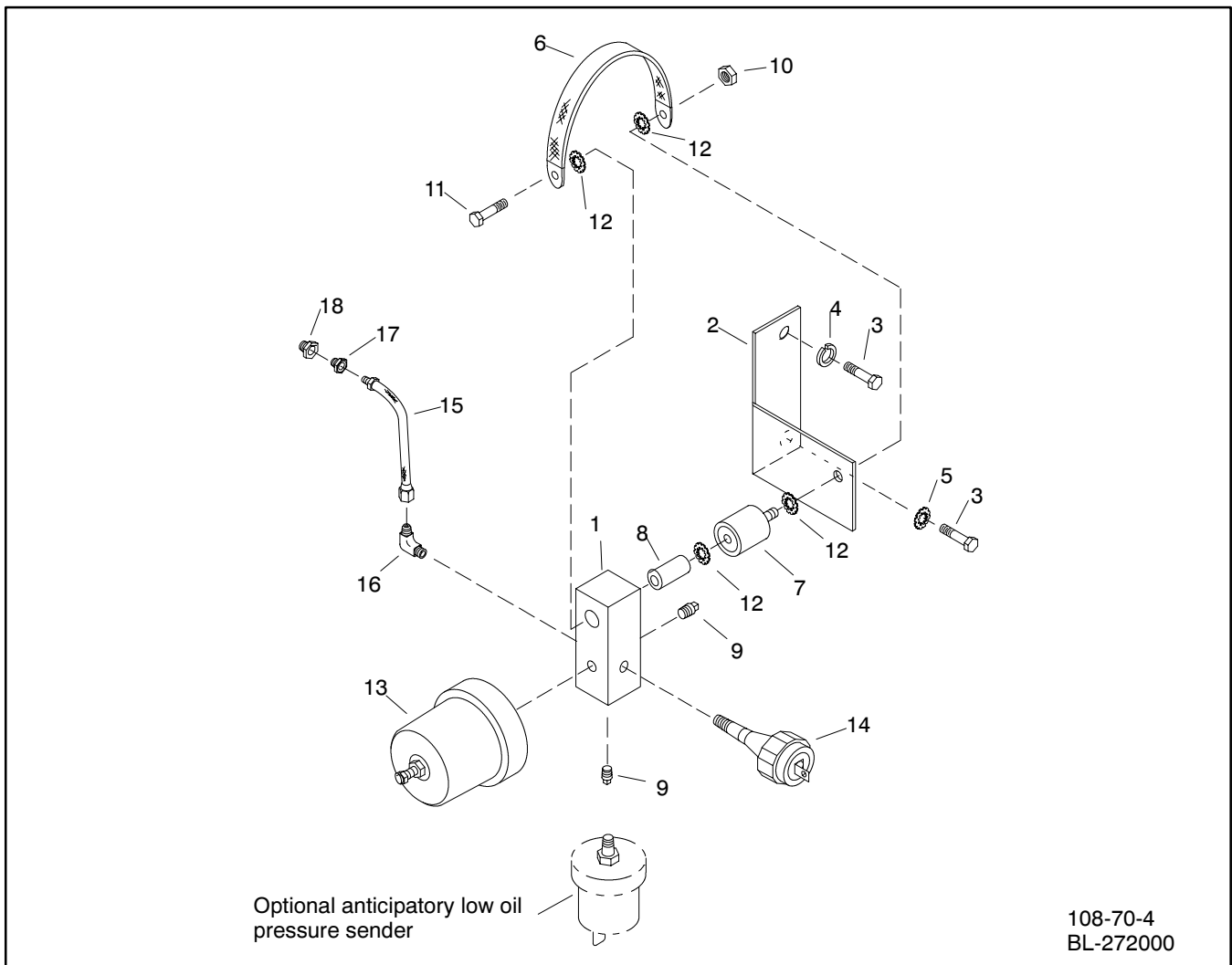
# Common Hardware; Procure Locally

## Group 107: Nameplate and Decals

Item	Qty.	Description Variation	Part No.
1	1	Logo, Kohler, 14 x 3.2" 5, 8	X-6229-3
	1	Logo, Kohler 16, 17, 53-60	X-6275-3
	1	Logo, Kohler 61	X-6276-8
2	2	Decal, stripes, 33" long 5, 8, 16, 17, 53-60	X-6232-2
3	1	Decal, stripes, 50" long 5, 8, 16, 17, 53-60	X-6232-3
4	2	Decal, Kohler Power Systems, 26.7 x 2" 5, 8, 16, 17, 53-60	X-6246-2
5	4	Rivet, steel pop, 1/8" dia. x 3/16" 5, 16	X-781-1
	8	Rivet, steel pop, 1/8" dia. x 3/16" 8, 17	X-781-1
6	1	Decal, positive terminal 5, 16, 53-56, 61	238402
7	1	Decal, warning (rotating parts) 5, 16, 53-56	249808
8	1	Decal, warning (hot engine) 5, 16, 53-56, 61	249809
9	1	Decal, warning (backfeed) 5	249815
10	1	Decal, generator connections 5, 8, 16, 53-56, 61	259365
11	2	Decal, Fast-Response® all	273739
12	1	Decal, equipment ground 5, 8, 17	290435

Item	Qty.	Description Variation	Part No.
13	3	Decal, warning (hazardous voltage/moving parts) 5 (up to 8/91)	290733
	3	Decal, danger (hazardous voltage/moving rotor) 5 (as of 8/91), 16, 61	257438
	2	Decal, warning (hazardous voltage/moving parts) 8 (up to 8/91)	290733
	2	Decal, danger (hazardous voltage/moving rotor) 8 (as of 8/91), 17, 53-60	257438
14	1	Decal, (For standby service...) 8, 17	255882
15	1	Nameplate, electr. equip. (rating) 8	259954
16	1	Decal, 1-800 number 16, 17, 53-60, 61	224234
17	1	Decal, warning (hazardous voltage) 16, 53-56, 61	258815
18	1	Decal, warning (w/ factory connection-600V units) 17, 57-60, 61	279958
19	1	Decal, warning unbalanced weight (sling method) 16, 53-56, 61	257437
20	2	Decal, kW 53, 57 (230) 54, 58 (250) 55, 59 (275) 56, 60 (300)	X-6347-14 X-6347-15 X-6347-16 X-6347-17
21	1	Decal, warning, unbalanced weight 61	257441
22	1	Decal, warning , rotating parts 61	274323
23	1	Nameplate 61	327004
24	2	Decal, Rating 61	X-6347-CST

# Group 108: Oil Pressure Switches



Item	Qty.	Description Variation	Part No.
1	1	Block, oil gauge 4, 5, 9, E58-E61	267548
2	1	Bracket, sender mtg. 4, E58	274980
	1	Bracket, sender mtg. 5, 9, E59-E61	274299
3	2	Screw, ref., 3/8-16 x 1" 4, 5, 9, E58-E61	X-6238-11
4		Hardware, 3/8 4, 5, 9, E58-E61	#
	4	Washer, shakeproof, 3/8 E58	X-22-14
5	1	Washer, shakeproof, 3/8 4, 5, 9, E59-E61	X-22-14
	1	Hardware, 3/8-16 E58	#
6	1	Strap, ground, 3/8 x 5 4, 5, 9, E58-E61	223033
7	1	Bumper 4, 5, 9, E58-E61	259632
8	1	Spacer, 9/32 x 1/2 x 3/4 4, 5	X-400-174
9	2	Plug, pipe (brass), 1/8 NPTF 4, 5, 9, E58-E61	X-75-1

Item	Qty.	Description Variation	Part No.
10		Hardware, 1/4-20 4, 5, 9, E58-E61	#
11	1	Screw, ref., 1/4-20 x 1 1/4" 4, 5, 9, E58-E61	X-465-8
12	4	Washer, shakeproof, 1/4 4, 5, 9, E58-E61	X-22-12
13	1	Sender, oil pressure 4, 5, 9, E58-E61	264390
14	1	Switch, oil pressure 4, 5, 9, E58-E61	328309
15	1	Line, flex 4, E58	280905
	1	Line, flex 5, 9, E59-E61	265462
16	1	Elbow, 90°, 7/16-20 x 1/8 NPT 4, 5, 9, E59-E61	X-447-10
17	1	Bushing, 1/8 F x 1/2 M 5, 9	X-202-29
	1	Bushing, Reducer E59-E61	X-202-56
18	1	Bushing, reducer, 1/2 F x 3/4 M 5, 9	153659

# Common Hardware; Procure Locally



## Group 109: Skid and Plant Mounting

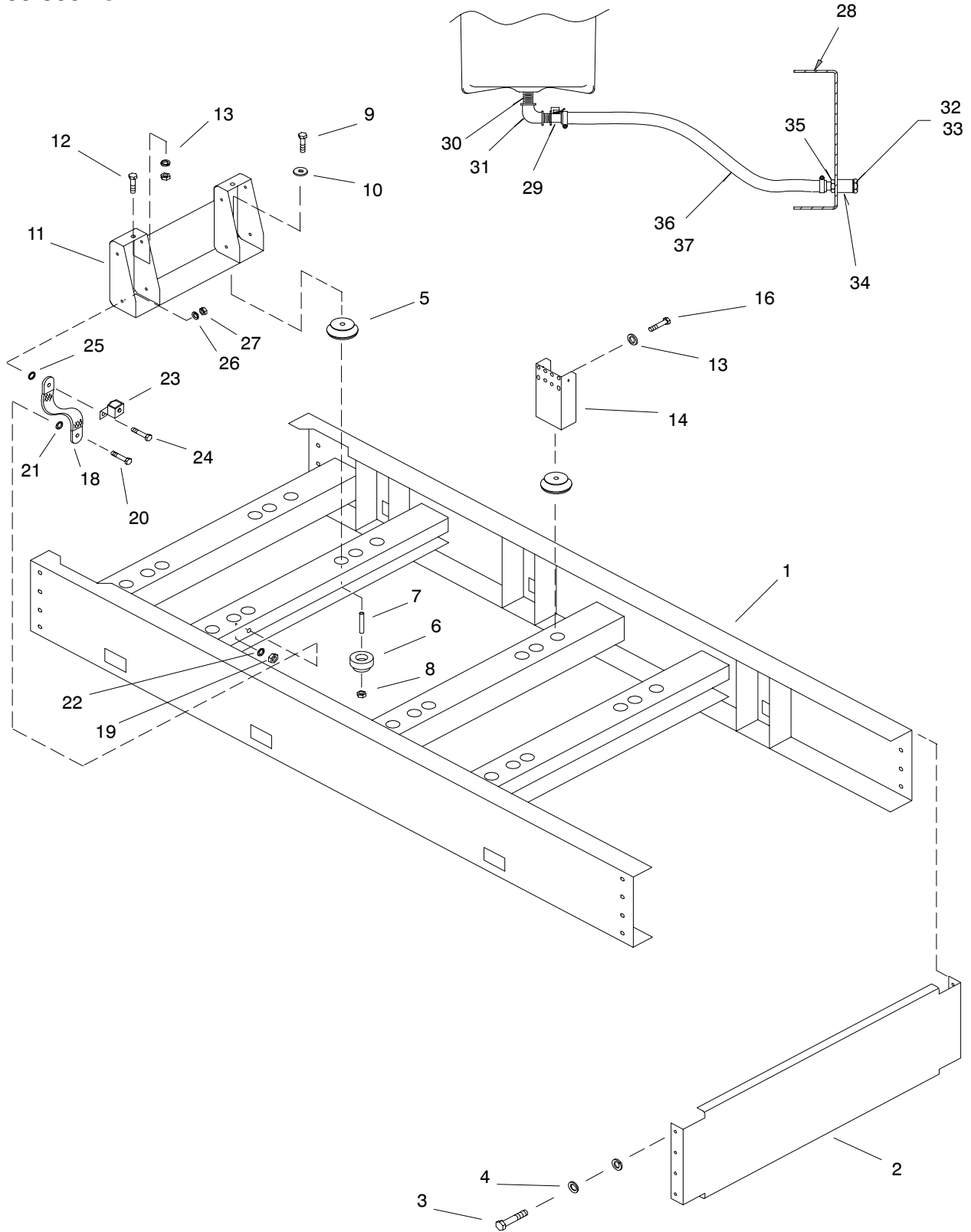
Item	Qty.	Description Variation	Part No.
1	1	Skid 1, 42	299827
		2	279488
		41, 43	328597
2	1	Crossmember, skid end 1, 2, 41, 42, 43	274441
3	8	Screw, ref., 3/8-16 x 1" 1, 2	X-6238-11
		Hardware, 3/8-16 42, 43	#
4		Hardware, 3/8 1, 2, 42, 43	#
5	6	Mount, vibro (white, engine) 1, 42, 43	274266
	4	Mount, vibro (white, engine) 2, 41	274266
	2	Mount, vibro (orange, generator) 2, 41	274267
6	6	Damper, vibration 1 25/32" 1 (early)	286019
	6	Damper, vibration 1" 1 (later), 2, 41, 42, 43	286020
7	6	Spacer, (engine), 2 11/16" 1, 2, 41, 42, 43	X-400-168
8	6	Nut, 1/2-13 nylon lock 1, 2, 41, 42, 43	X-101-23
9	6	Screw, ref., 1/2-13 x 4" 1, 2, 41, 42	X-129-29
		Hardware, 1/2-13 43	#
10	6	Washer, plain, 9/16 x 1 1/4 x 5/32 1, 2, 41, 42, 43	X-25-30
11	1	Support, front engine 1, 42	272654
	2	Support, front engine 2, 41, 43	272618
12	2	Screw, ref., 1/2-13 x 2 3/4" 1	X-129-24
	8	Screw, ref., 7/16-14 x 1" 2, 41, 43	X-6024-2
	8	Hardware, 1/2-13 42	#
13		Hardware, 1/2-13 1, 42	#
		Hardware, 5/8 washer 43	#
14	2	Support, rear engine mtg 1, 42	272653
	2	Support, rear engine mtg 2, 41, 43	272619
15		Hardware, 7/16 2, 41	#
16	8	Screw, ref., 1/2-13 x 1" 1, 42	X-129-17
	8	Screw, socket head, ref., 5/8-11 x 1 1/4" 2, 41, 43	X-55-25
17		Hardware, 5/8 2, 41	#

Item	Qty.	Description Variation	Part No.
18	1	Strap, ground 1 (left front), 2 (right front) 42, 43	290418
19	1	Nut, 5/16-18 1	X-82-2
	2	Nut, 5/16-18 2, 41	X-82-2
		Hardware, 1/4-20 42	
		Hardware, 5/16-18 43	#
20	1	Screw, 5/16-18 x 3/4 1	X-125-3
	2	Screw, 5/16-18 x 1 2, 41	X-125-5
		Hardware, 1/4-20 screw 42	#
		Hardware, 5/16-18 bolt 43	#
21	1	Washer, shakeproof, 5/16 1, 43	X-22-16
	4	Washer, shakeproof, 5/16 2, 41	X-22-16
		1/4-20 hdw 42	
22	1	Washer, split lock, 5/16 1	X-21-1
	1	Washer, shakeproof 42	X-22-12
	1	Washer, shakeproof, 5/16 43	X-22-16
23	1	Terminal, gnd (cable connect.) 1	X-377-12
24	1	Screw, 1/4-20 x 3/4 1	X-465-16
		Hardware, 5/16-18 43	
25	1	Washer, shakeproof, 1/4 1	X-22-12
	1	Washer, shakeproof, 5/16 42, 43	X-22-16
26	1	Washer, split lock, 1/4 1	X-20-16
	1	Washer, shakeproof 42, 43	X-22-16
27	1	Nut, 1/4-20 1	X-81-1
		Hardware, 5/16 42, 43	#
28	1	Decal, Oil Drain 42, 43	280562
29	1	Valve, Oil Drain 42, 43	272701
30	1	Nipple, Pipe 43	X-209-5
31	1	Elbow, Pipe 43	X-215-1
32	1	Washer, Nylon 42, 43	276552

# Common Hardware; Procure Locally

# Group 109: Skid and Plant Mounting

200-300ROZD



109-70-1  
BL-272000

# Group 109: Skid and Plant Mounting

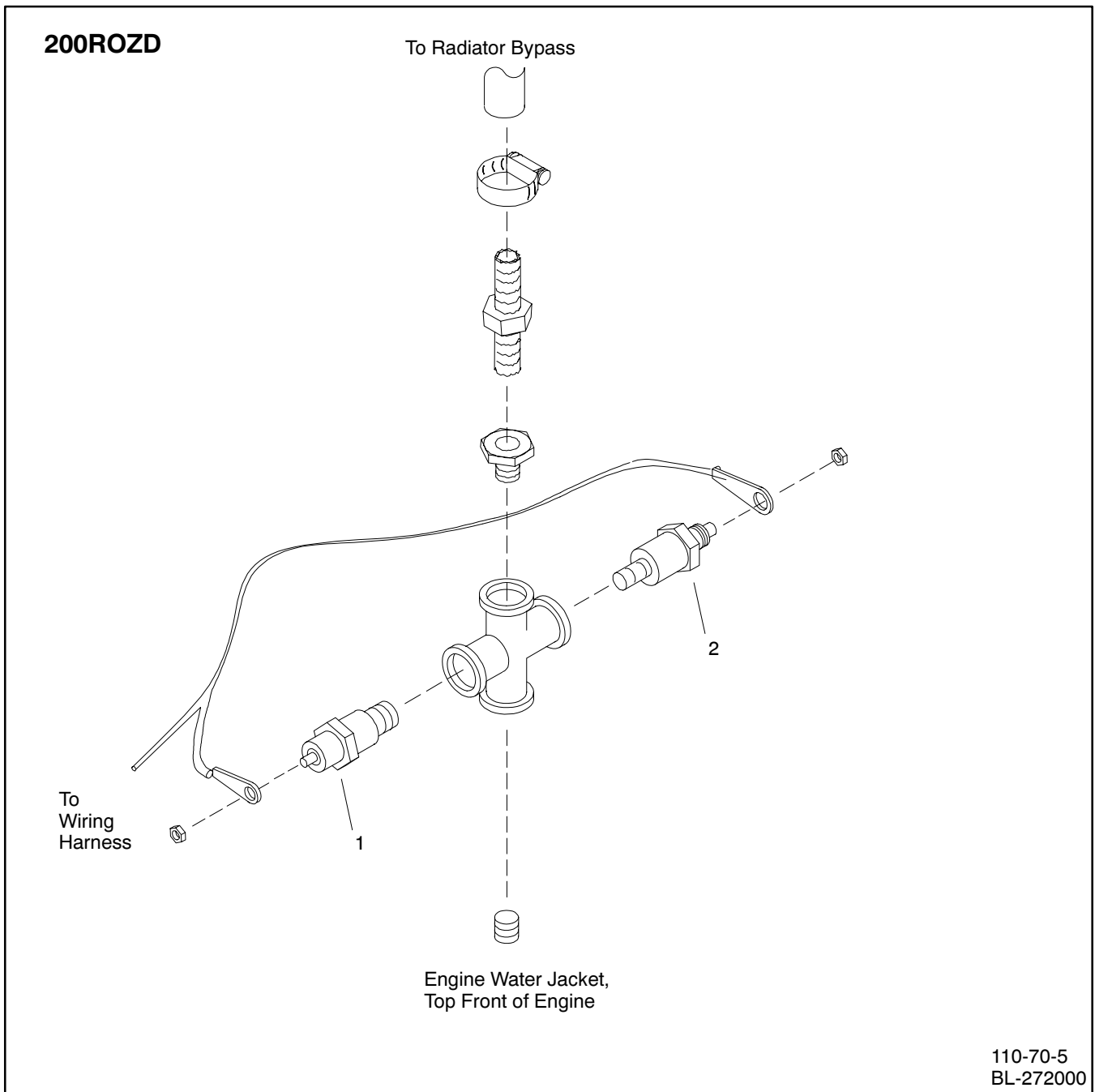
Item	Qty.	Description Variation	Part No.
33	1	Plug, Drain 42, 43	241062
34	1	Adapter, Hose 42, 43	273729
35	1	Nut, Hex 42, 43	X-80-1
36	2	Clamp, Hose 42, 43	X-426-10
37	1	Hose 42, 43	X-577-18

## Modular Spec Cross-Reference Table

Some modular generator specs listed in the specification number index require a skid kit. Refer to the generator set nameplate to identify the skid kit number installed on your generator set. The parts list of the kit is identical to a variation shown in this group. Use the following table to identify the equivalent variation number.

Skid Kit	Equivalent Variation Number
347310	42
347311	43

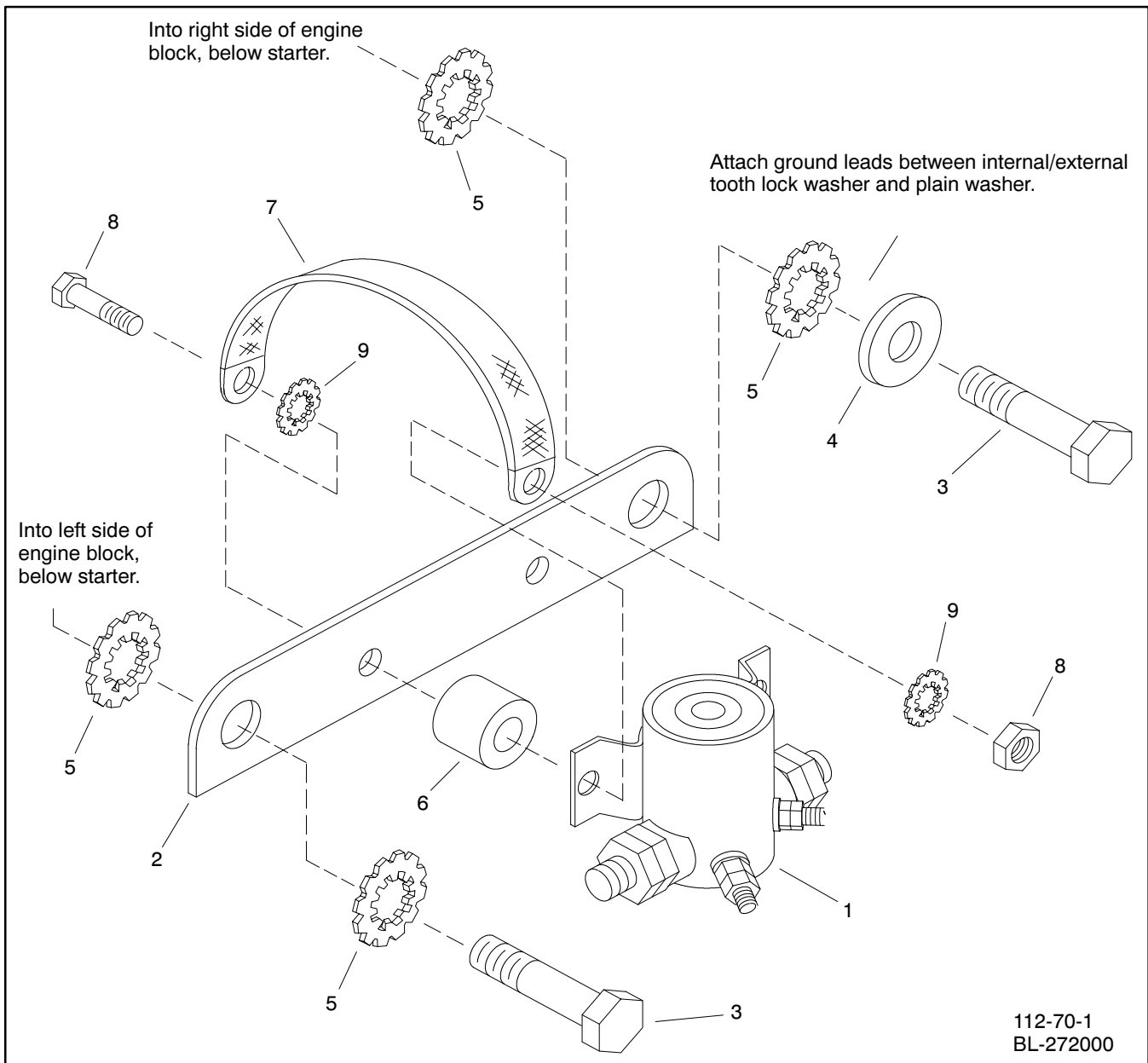
# Group 110: Water Temperature Switches



Item	Qty.	Description Variation	Part No.
1	1	Switch, water temp. shutdown 5, 6, 11, E58-E61	241481

Item	Qty.	Description Variation	Part No.
2	1	Sender, water temperature 5, 6, 11, E58-E61	268298

# Group 112: Starter



112-70-1  
BL-272000

Item	Qty.	Description Variation	Part No.	Item	Qty.	Description Variation	Part No.
1	1	Solenoid, cranking 1, 2, 12, 13, 16, E58-E61	272713	6	2	Bumper 1, 2	259632
2	1	Bracket, C-relay 1, 2		7	1	Strap, 5" ground 1, 2	223033
3	2	Screw, ref., 3/8-16 x 1" 1, 2	#	8		Hardware, 1/4-20 1, 2, 12, 13, 16, E58	#
4	2	Washer, 13/32 x 13/16" 1	X-25-37	9	5	Washer, int./ext. tooth lock, 1/4" 1, 2	X-22-12
		1	X-25-37	2		Washer, int./ext. tooth lock, 12, 13, 16, E58-E61	X-22-12
5	4	Washer, int./ext. tooth lock, 3/8" 1, 2	X-22-14				

# Common Hardware; Procure Locally

# Group 119: Recommended Spare Parts

Item	Qty.	Description Variation	Part No.
1	5	Fuse, 1.56 amp 1, 3, 5	291207
2	5	Fuse, 3 amp 1, 3, 5	243273
3	5	Fuse, 15 amp 1, 3, 5	283645
4	1	Main Circuit Board 1, 3, 5	See Table Below
5	1	Photo Board 1, 2, 3, 4, 5, 6	B-292902
6	1	Split Activator 1, 2, 3, 4, 5, 6	A-233999
7	1	LED Board 1, 2, 3, 4, 5, 6	A-257099
8	1	Voltage Regulator 1, 2, 3, 4, 5, 6	C-255670
9	1	Indicator Board 1, 3, 5	See Table Below
10	1	Speed Sensor 1, 3, 5	241927
11	5	Bulb 1, 3, 5	283420
12	1	Upper Radiator Hose 1, 2	274514
	1	Upper Radiator Hose 3, 4, 5, 6	X-613-7
13	1	Lower Radiator Hose 1, 2	X-281-1
	1	Lower Radiator Hose 1, 2	X-281-8
	1	Lower Radiator Hose 3, 4	272620
	1	Lower Radiator Hose 5, 6	274245
14	1	Bypass Hose 1, 2	X-356-32
	1	Bypass Hose 3, 4, 5, 6	X-6014-30
	1	Bypass Hose 1, 2	X-356-48
	1	Bypass Hose 3, 4, 5, 6	X-386-35
15	2	Thermostat	

Item	Qty.	Description Variation	Part No.
		3, 4, 5, 6	328585
16	2	Thermostat Seal 3, 4, 5, 6	328586
17	2	Thermostat Gasket 3, 4, 5, 6	328587
18	1	Fan Belt Set 1, 2	279974
	1	Fan Belt Set (3 piece) 3, 5	347700
	1	Fan Belt Set 4, 6	279975
19	7	Air Filter 1, 2	292922
	7	Air Cleaner 3, 4, 5, 6	272981
20	7	Primary Fuel Filter 1, 2, 3, 4, 5, 6	279262
21	7	Secondary Fuel Filter 1, 2, 3, 4, 5, 6	279261
22	14	Oil Filter 1, 2, 3, 4, 5, 6	279260

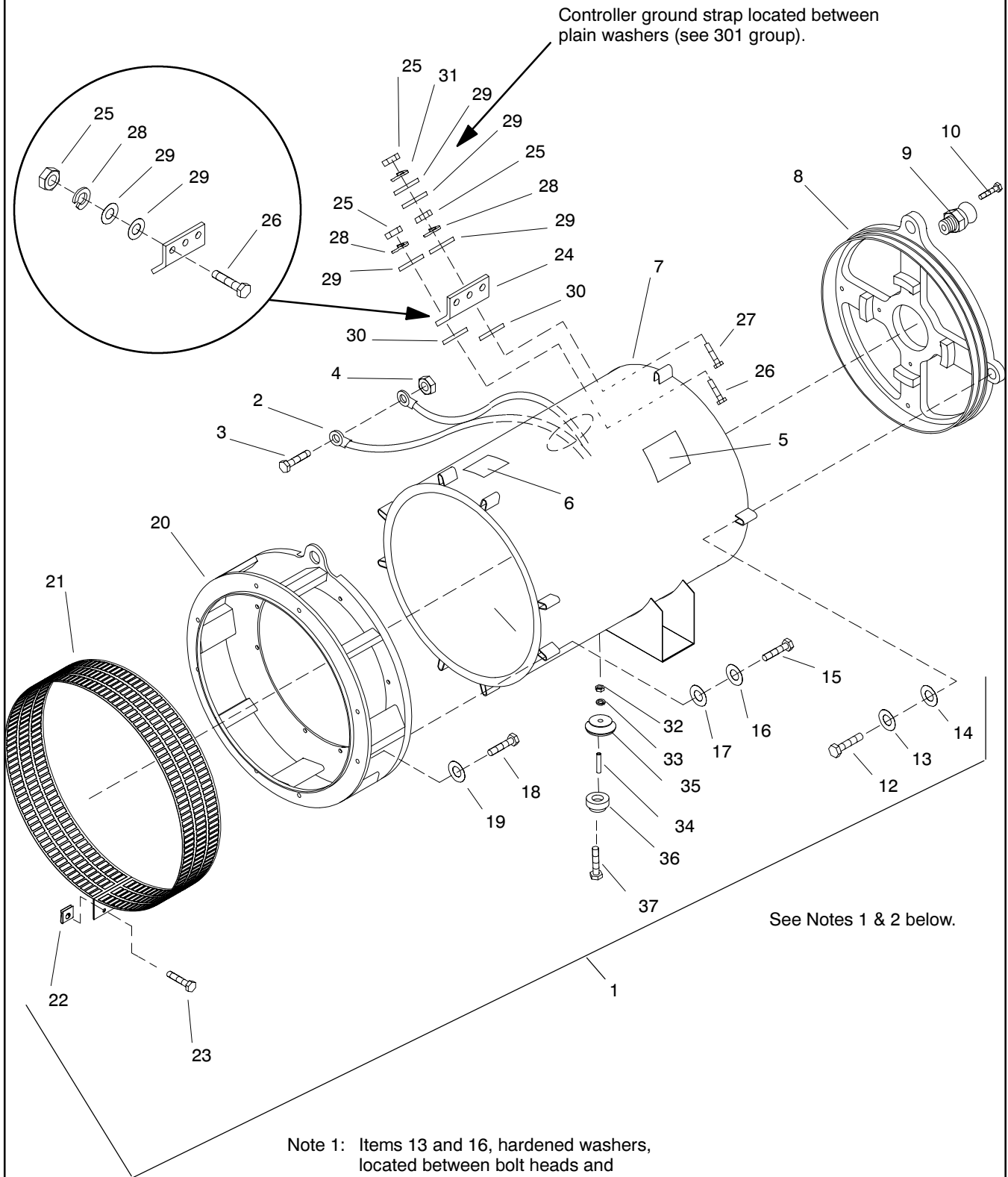
## Serial Number-Contingent Spare Parts

Part Description	Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and after
Main Circuit Board	G-292806	A-336415
Indicator Board	B-292357	A-336432

# Notes

# Group 201: Generator and Mounting

## 200-300ROZD



Note 1: Items 13 and 16, hardened washers, located between bolt heads and items 14 and 17, washers.

Note 2: Items 14 and 17 are tooled to avoid breakage.

201-70-57  
D-272000  
Alt. assy. A-257965

# Group 201: Generator and Mounting, Continued

Item	Qty.	Description Variation	Part No.
1	1	Alternator assembly	
		16 .....	B-257326
		17 .....	B-257328
		18 .....	B-257786
		25 .....	B-257786
		26 .....	A-257343
		27 .....	B-257793
		34 .....	A-257339
		41 .....	A-257343
		57, 135 .....	A-257965
		58, 136 .....	A-257968
		59, 137 .....	A-257970
		60, 138 .....	A-257966
		61, 139 .....	A-257967
		62, 140 .....	A-257971
		63, 141 .....	A-257973
		64, 142 .....	A-257972
		262 .....	A-347209
		263 .....	A-347211
		264 .....	A-347213
		265 .....	A-347215
		266 .....	A-347210
		267 .....	A-347214
2	1	Marker, L1 lead	
		16-18, 25, 27, 34, 41, 57-61, 63, 64, 135-139, 141, 142, 262-267	X-750-14
	1	Marker, L2 lead	
		16-18, 25, 27, 34, 41, 57-61, 63, 64, 135-139, 141, 142, 262-267	X-750-15
	1	Marker, L3 lead	
		16-18, 25, 27, 34, 41, 57-61, 63, 64, 135-139, 141, 142, 262-267	X-750-16
3	3	Screw, 3/8-16 x 1 1/4	
		16, 34, 57-61, 63, 64, 135-139, 141, 142	X-6238-4
	3	Hardware, 3/8	
		262-267	#
4	3	Nut, 3/8-16	
		17, 18, 25-27, 41, 58-60, 62-64, 136-138, 140-142	X-83-2
	3	Hardware, 3/8	
		262-267	#
5	1	Decal, warning (unbalanced weight)	
		all	257441
6	1	Decal, warning (unbalanced weight)	
		all	257437
7	1	Stator assembly	
		16, 57, 135 .....	257574
		17, 34, 60, 61, 138, 139 .....	257575
		18, 58, 136 .....	257789
		25, 59, 137 .....	257778
		26, 41, 62, 64, 140, 142 .....	257779
		27, 63, 141 .....	257792
		262 .....	347197
		263, 265 .....	347199
		264 .....	347203
		266 .....	347198
		267 .....	347204

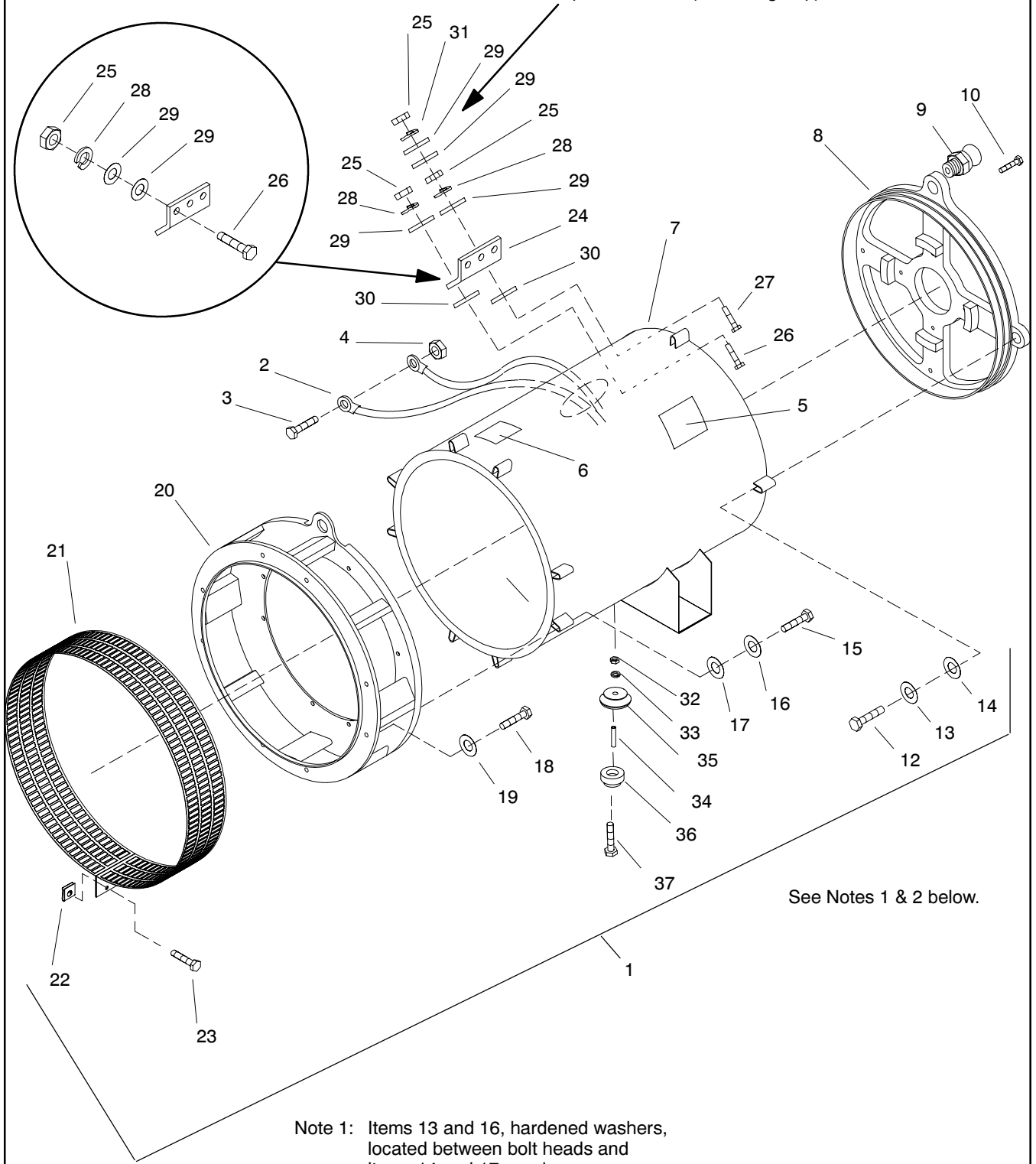
Item	Qty.	Description Variation	Part No.
8	1	Bracket, end	
		all except 262-267	257982
	1	Bracket, end	
		262-267	347236
9	1	Fitting, Grease	
		262-267	347119
10	1	Screw	
		262-267	X-465-25
11	1	Guard, gen., CSA and 600V	
		(covers end bracket)	
		25-27, 41	273735
	1	Guard, gen., CSA and 600V	
		(covers end bracket)	
		59, 62-64, 137, 140-142	274598
12	4	Screw, 1/2-13 x 3 1/4	
		all	X-129-46
	4	Screw, 3/8-16 x 4	
		(CSA and 600V only)	
		25-27, 41, 59, 62-64, 137, 140-142	273738
		On CSA models, item 12 extends through item 8, and then lock washer and 1/2-13 nut fit on exposed threads of item 12.	
	4	Screw	
		262-267	X-129-25
13	4	Washer, hardened, 17/32 x 1 1/16	
		all	290945
14	4	Washer, 9/16 x 1 1/4 x 5/32	
		all	257951
	4	Washer, int. tooth lock, 1/2	
		(CSA and 600V only) (not shown)	
		25-27, 34, 41, 59, 62-64, 37, 140-142	X-22-4
	4	Nut, 1/2-13 (CSA and 600V only)	
		(not shown)	
		25-27, 41, 62-64, 37, 140-142	X-89-8
15	8	Screw, 1/2-13 x 3 1/4	
		all except 262-267	X-129-46
		Screw	
		262-267	X-129-25
16	8	Washer, hardened,	
		17/32 x 1 1/16 x 3/32	
		all	290945
17	8	Washer, 9/16 x 1 1/4 x 5/32	
		all	257951

# Common Hardware; Procure Locally

# Group 201: Generator and Mounting, Continued

200-300ROZD

Controller ground strap located between plain washers (see 301 group).



See Notes 1 & 2 below.

Note 1: Items 13 and 16, hardened washers, located between bolt heads and items 14 and 17, washers.

Note 2: Items 14 and 17 are tooled to avoid breakage.

201-70-57  
D-272000  
Alt. assy. A-257965

## Group 201: Generator and Mounting, Continued

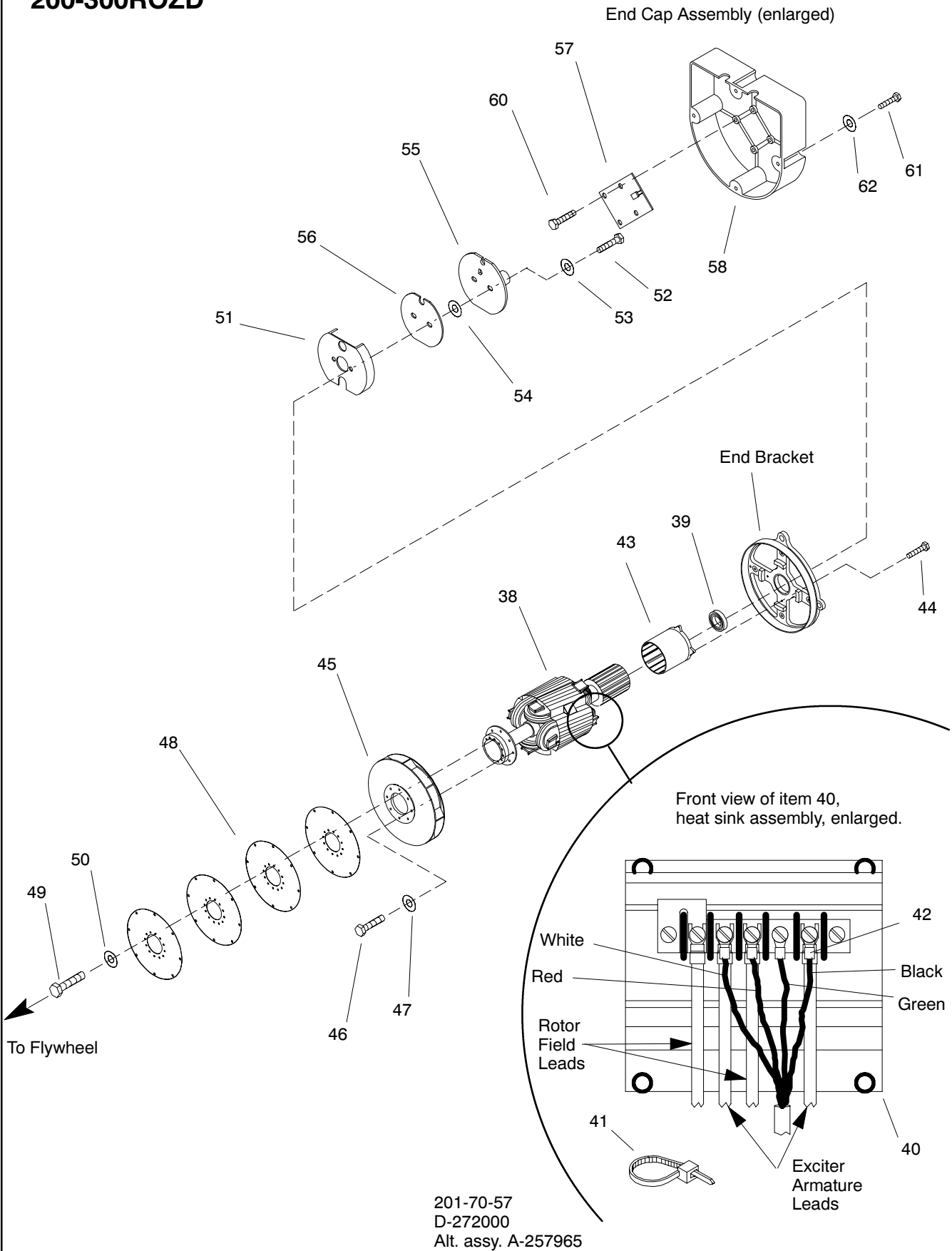
Item	Qty.	Description Variation	Part No.
18	8	Screw, 7/16-14 x 1 1/2 all except 262-267	X-6024-3
19	8	Washer, hardened, 15/32 x 59/64 all except 262-267	X-801-6
20	1	Adapter, generator all except 262-267	257579
	1	Adapter, generator 262-267	347240
21	2	Guard, generator fan (5-7/8 wide) all except 262-267	257582
	2	Guard, generator fan 262-267	347268
22	4	J-Clip, speed, 10-24 all	257442
23	4	Screw, 10-24 x 3/4 all	X-67-125
24	1	Plate, ground lug all except 18	257978
	1	Plate, ground lug 18	257979
25	6	Nut, 3/8-16 all except 18, 262-267	X-83-2
	9	Nut, 3/8-16 18	X-83-2
	2	Nut, 3/8-16 hardware 262-267	#
26	4	Screw, 3/8-16 x 1 1/4, all except 18, 262-267	X-6238-4
	7	Screw, 3/8-16 x 1 1/4, 18	X-6238-4
	1	Screw 262-267	X-6238-11
	3	Screw 262-267	X-6238-5

Item	Qty.	Description Variation	Part No.
27	1	Screw, 3/8-16 x 1 3/4 all except 18, 262-267	X-6238-1
	1	Screw 262-267	X-791-6
28	5	Washer, split lock, 3/8 all except 18, 262-267	X-22-1
	8	Washer, split lock, 3/8 18	X-22-1
	3	Washer, spring 262-267	X-6086-15
29	10	Washer, plain, 7/16 x 1 x 5/64 all except 18, 262-267	X-25-1
16	16	Washer, plain, 7/16 x 1 x 5/64 18	X-25-1
12	12	Washer, plain 262-267	X-25-138
30	2	Washer, int./ext. tooth lock, 3/8 all except 262-267	X-22-14
	2	Washer, lock 262-267	X-22-46
31	1	Washer, int. lock, 3/8 all except 262-267	X-22-10
	1	Washer, spring 262-267	X-6086-15
32	2	Nut, Hex Stop 262-267	X-101-23
33	2	Washer, Plain 262-267	X-25-30
34	2	Spacer 262-267	X-400-168
35	2	Mount, vibro 262-267	274267
36	2	Damper, Vibration 262-267	286020
37	2	1/2-13 Bolt 262-267	#

# Common Hardware; Procure Locally

# Group 201: Generator and Mounting, Continued

200-300ROZD



## Group 201: Generator and Mounting, Continued

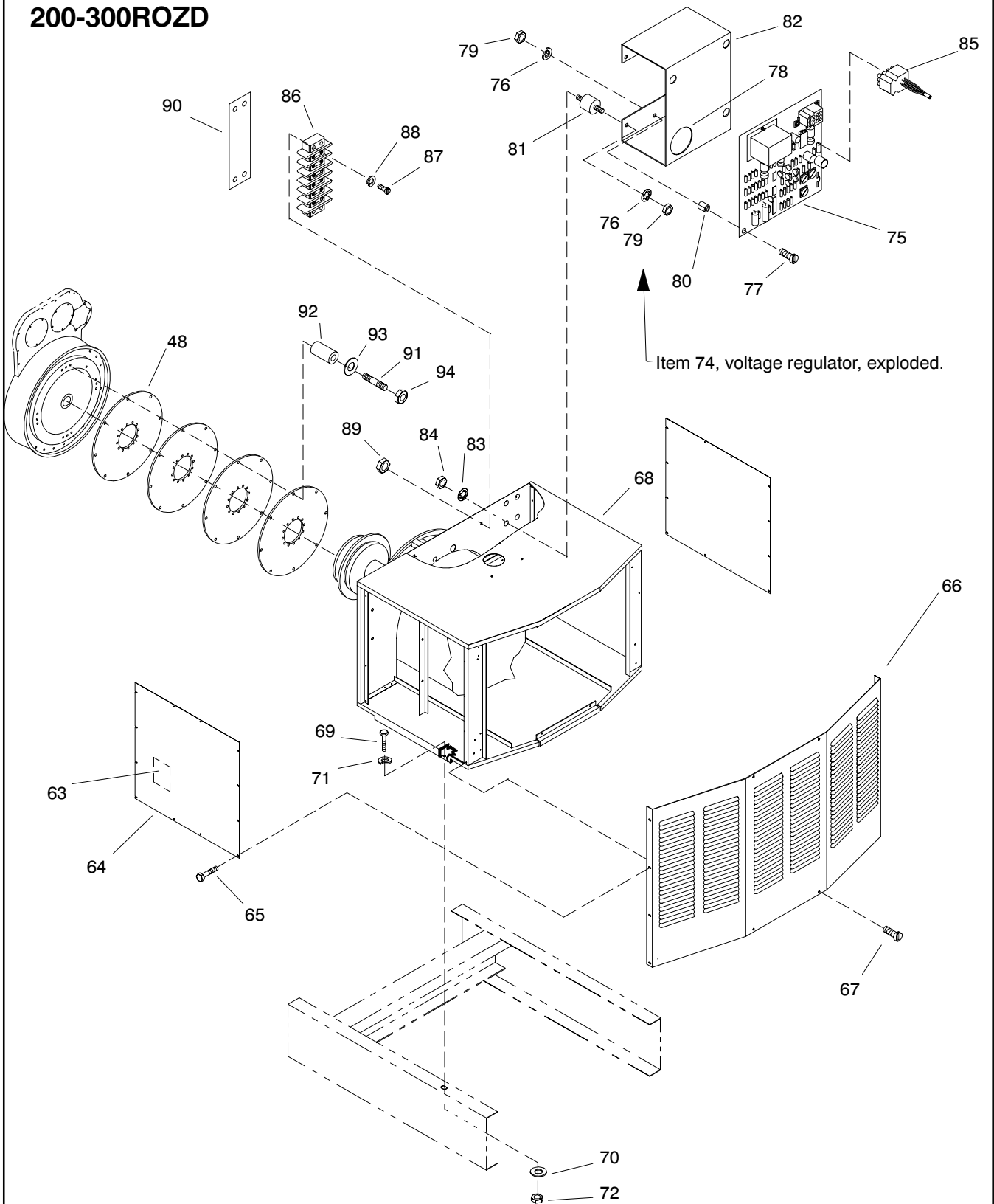
Item	Qty.	Description Variation	Part No.
38	1	Rotor assembly	
		16, 25 .....	A-257838
		17 .....	A-257839
		18, 27 .....	A-257840
		26, 34, 41 .....	A-257528
		58, 63, 136, 141 .....	A-257962
		57, 59, 135, 137 .....	A-257960
		60, 62, 138, 140 .....	A-257961
		61, 64, 139, 142 .....	A-257974
		263, 265 .....	A-347189
		262, 264 .....	A-347187
		266, 267 .....	A-347188
39	1	Bearing, ball (rotor end) all	X-758-9
40	1	Sink assy., heat (split activator) all except 262-267	A-258939
	1	Sink assy., heat 262-267	A-354299
41	1	Tie, cable all except 262-267	X-468-7
42	4	Terminal, push-on, 1/4 ins. F 16-18, 25-27, 34, 41, 57, 58, 60, 61, 63, 64, 135, 136, 138, 139, 141, 142	X-431-25
	4	Terminal, spade, 6 59, 62, 137, 140	X-285-1
43	1	Exciter assembly, field 57-64, 135-142	257963
	1	Exciter assembly, field 262-267	347707
44	4	Screw, 3/8-16 x 1 3/4 all except 262-267	X-6238-1
	4	Screw 262-267	X-6238-17
45	1	Fan, generator all	257855
46	8	Screw, 3/8-16 x 1 all	X-6238-11
47	8	Washer, plain, 13/32 x 3/4 x 1/8 all	X-25-93

Item	Qty.	Description Variation	Part No.
48	4	Disc, armature drive all	257581
	49	12 Screw, 3/8-16 x 1 1/2, Gr. 8 all	270158
50	12	Washer, hardened, 13/32 x 13/16 x 3/64 all	X-801-3
51	1	Actuator, magnetic all	257077
52	2	Screw, 10-24 x 5/8 all	X-117-5
53	2	Washer, int. tooth lock, 10 16-18, 25, 27, 57-64, 137-142, 262-267	243321
54	2	Washer, insulated, 7/32 x 1/2 x 1/16 all	X-22-9
55	1	Board assy., circuit (photo trans.) all	B-292902
56	1	Insulator all except 262-267	257850
	1	Insulator 262-267	257258
57	1	Board assembly, circuit (LED) all	A-257099
58	1	Cover, circuit board all	257258
59	1	Conduit, plastic (not shown) 59, 62, 137, 140	X-6003-17
60	4	Screw, 10 x 3/8 sheet metal all	X-6071-1
61	4	Screw, 10-24 x 5/8 all except 262-267	X-117-5
	4	Screw, self-tapping 262-267	X-67-133
62	4	Washer, int. tooth lock, 10 16-18, 25, 27, 57-64, 135-142	X-22-9

# Common Hardware; Procure Locally

# Group 201: Generator and Mounting, Continued

200-300ROZD



201-70-57  
D-272000  
Alt. assy. A-257965

## Group 201: Generator and Mounting, Continued

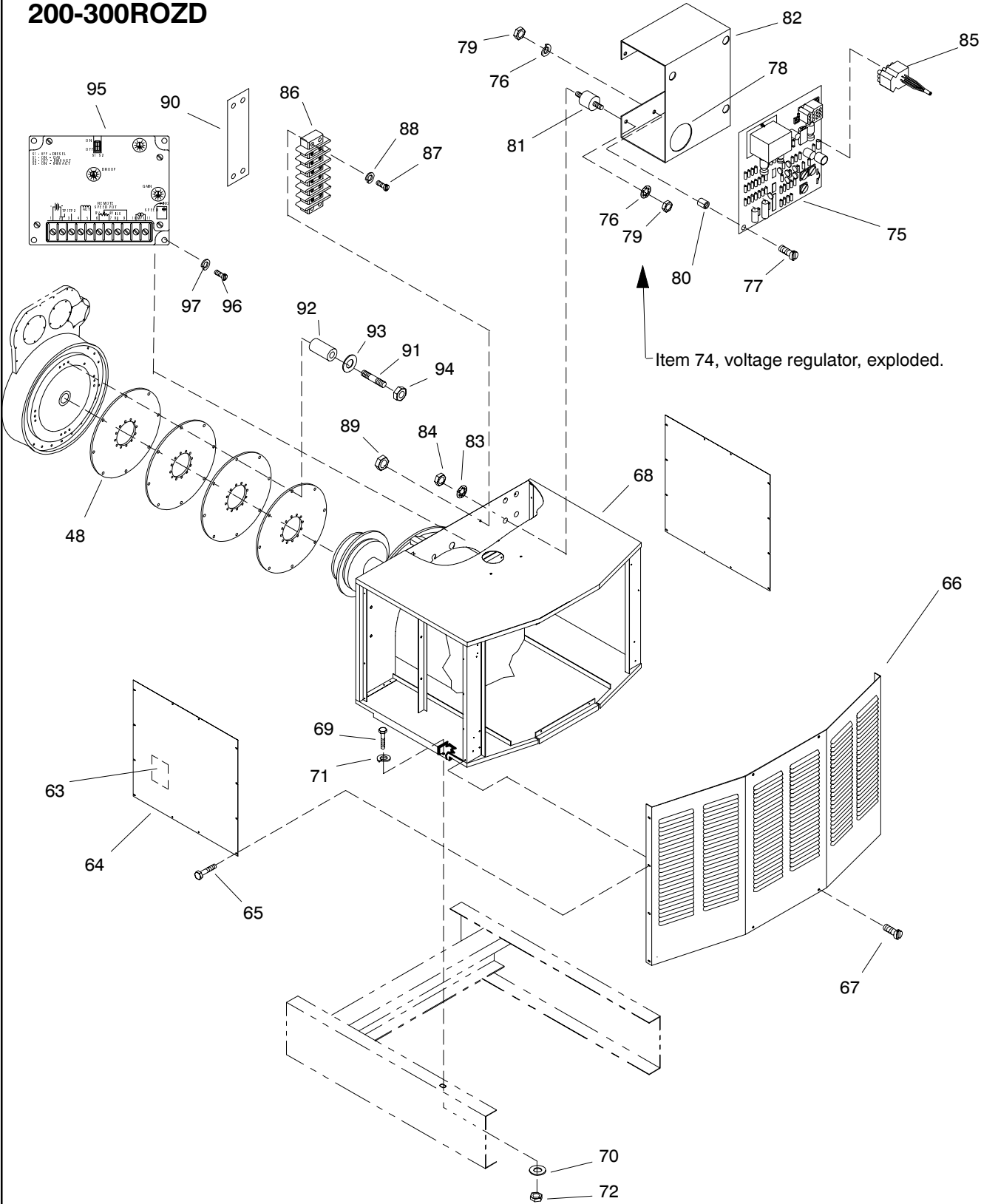
Item	Qty.	Description Variation	Part No.
63	1	Decal, warning (haz. volt./moving parts) all	257438
64	2	Cover, side 16-18, 25-27, 34, 41, 57-64	272689
	2	Cover, side 135-142, 262-267	336001
65	16	Screw, 10-24 x 1/2 all	X-6216-1
66	1	Cover, rear 16-18, 25-27, 34, 41, 57-64	272688
	1	Cover, rear 135-142, 262-267	336005
67	4	Screw, 10-24 x 1/2 all	X-6216-1
68	1	Box, junction 16-18, 25-27, 34, 41, 57-64	272680
	1	Box, junction 135-142, 262-267	336021
	1	Bracket, junction box (not shown) 135-142, 262-267	336085
69	6	Screw, 3/8-16 x 1 all except 262-267	X-6238-11
	8	Screw, 3/8-16 x 1 hardware 262-267	#
70	5	Washer, split lock, 3/8 all except 262-267	X-22-1
	8	Washer, 3/8 hardware 262-267	#
71	5	Washer, 13/32 x 13/16 all except 262-267	X-25-37
	8	Washer, 3/8 hardware 262-267	#
72	6	Nut, 3/8-16 17	X-83-2
73	2	Washer, int./ext. tooth lock, 3/8 (not shown) all	X-22-14
74	1	Regulator assembly, voltage (includes items 75-82) 16-18, 25-27, 34, 41, 57-64	B-292789
75	1	Board assy., circuit (voltage reg.) all	C-255670
76	8	Washer, ext. tooth lock, #8 16-18, 25-27, 34, 41	X-22-20
	4	Washer, ext. tooth lock, #8 135-142, 262-267	X-22-20

Item	Qty.	Description Variation	Part No.
	4	Washer, lock #8 135-142, 262-267	X-22-7
77	5	Screw, 8-32 x 3/4 16-18, 25-27, 34, 41	X-51-11
78	1	Bushing, plastic hose, 1 1/2 16-18, 25-27, 34, 41	X-634-16
79	8	Nut, 8-32 16-18, 25-27, 34, 41, 135-142, 262-267	X-72-4
80	5	Bushing, insulating 1/4 x 3/8 x 7/16 16-18, 25-27, 34, 41	239513
81	3	Mount, vibro 16-18, 25-27, 34, 41 (up to 11/89), 135-142	282829
	3	Mount, vibro 16-18, 25-27, 34, 41 (as of 11/89)	259919
	4	Mount, vibro 262-267	282829
82	1	Bracket, regulator 16-18, 25-27, 34, 41	282832
83	3	Washer, split lock, 8 all except 262-267	X-18-2
84	3	Nut, 8-32 16-18, 25-27, 34, 41	X-72-4
85	1	Harness, wiring all except 135-142, 262-267	255481
	1	Harness, wiring 135-142, 262-267	354118
86	1	Block, terminal (6-terminal) all	295314
87	2	Screw, 8-32 x 3/4 all	X-51-11
88	2	Washer, split lock, 8 all except 262-267	X-18-2
89	2	Nut, 8-32 16-18, 25-27, 34, 41	X-72-4
	2	Nut, 8-32, hardware 262-267	#
90	1	Marker, strip all	255080
91	8	Stud (alt. mounting), 1/2-13 x 3 16-18, 25-27, 34, 41	X-352-71
	8	Screw, H.C. 1/2-13 x 1/4 (not shown) 57-64, 135-142, 262-267	X-129-54

# Common Hardware; Procure Locally

# Group 201: Generator and Mounting, Continued

200-300ROZD



Item 74, voltage regulator, exploded.

201-70-57  
 D-272000  
 Alt. assy. A-257965

# Group 201: Generator and Mounting, Continued

Item	Qty.	Description Variation	Part No.
92	8	Spacer, 17/32 x 1 x 3/4 16-18, 25-27, 34, 41	X-400-161
93	8	Washer, hardened, 17/32 x 1 1/16 all	290945
94	8	Nut, 1/2-13 16-18, 25-27, 34, 41	X-89-17
95	1	Controller, Governor 262-267	347841
96	4	Screw, 10-24 x 1/2 262-267	X-50-15
97	4	10-24 Nut 262-267	#

## Modular Spec Cross-Reference Table

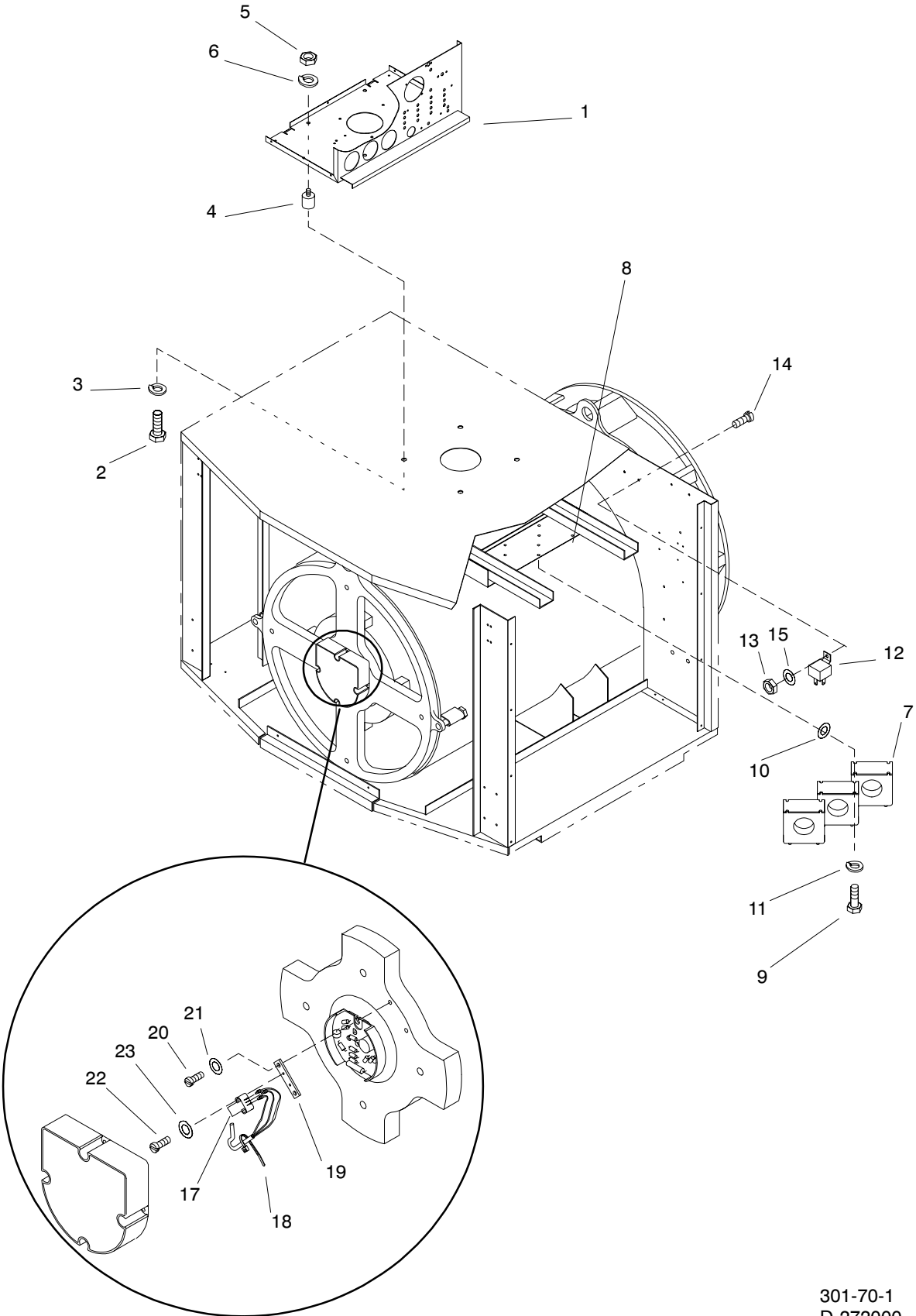
Some modular generator specs listed in the specification number index require an alternator kit. Refer to the generator set nameplate to identify the alternator kit number installed on your generator set. The parts list of the kit is identical to a variation shown in this group. Use the following table to identify the equivalent variation number.

Kit	Equivalent Variation Number
347313	263
347314	264
347315	265
347316	266
347317	267

# Common Hardware; Procure Locally

# Group 301: Controller and Mounting

200-300ROZD



301-70-1  
D-272000  
B-292819

## Group 301: Controller and Mounting, Continued

Item	Qty.	Description Variation	Part No.
1	1	Controller assembly all Includes items 4-6, 24-83	See table below
2	4	Screw, 5/16-18 x 3 1/2 all	X-125-23
3	4	Washer, int./ext. tooth lock, 5/16 all	X-22-16
4	4	Bumper, rubber all	292834
5	4	Nut, 5/16-18 all	#
6	4	Washer, 5/16 split lock all	#
7	3	Transformer, current 13, 19, 42, 70	272691
	3	Transformer, current 14, 68	272690
	3	Transformer, current 15, 20, 43, 72	273258
	3	Transformer, current 16, 44	272678
	3	Transformer, current 63	279272
	3	Transformer, current 64, 73	279273
	3	Transformer, current 137	343297
8	1	Bracket, transformer mounting 42-44, 63, 64, 68, 70, 72, 73, 137	325382
	4	Screw, drill (not shown) (mounts bracket to stator) 42-44, 63, 64, 68, 70, 72, 73, 137	X-794-1
9	12	Screw, 10-24 x 5/8 all (up to 5/91)	X-50-8
	12	Screw, 10-24 x 5/8 all (as of 5/91)	X-117-5
10	12	Washer, plain, 15/64 x 1/2 x 3/64 all	X-25-36
11	12	Washer, split lock, 10 all	X-19-1
12	1	Relay all (Two Relays used with optional air box shutdown)	272684
13	2	Nut, 10-24 all	#
14	2	Screw, 10-24 x 5/8 all	X-117-5
15	2	Washer, split lock, 10 all except 70, 72, 73, 137	X-19-1

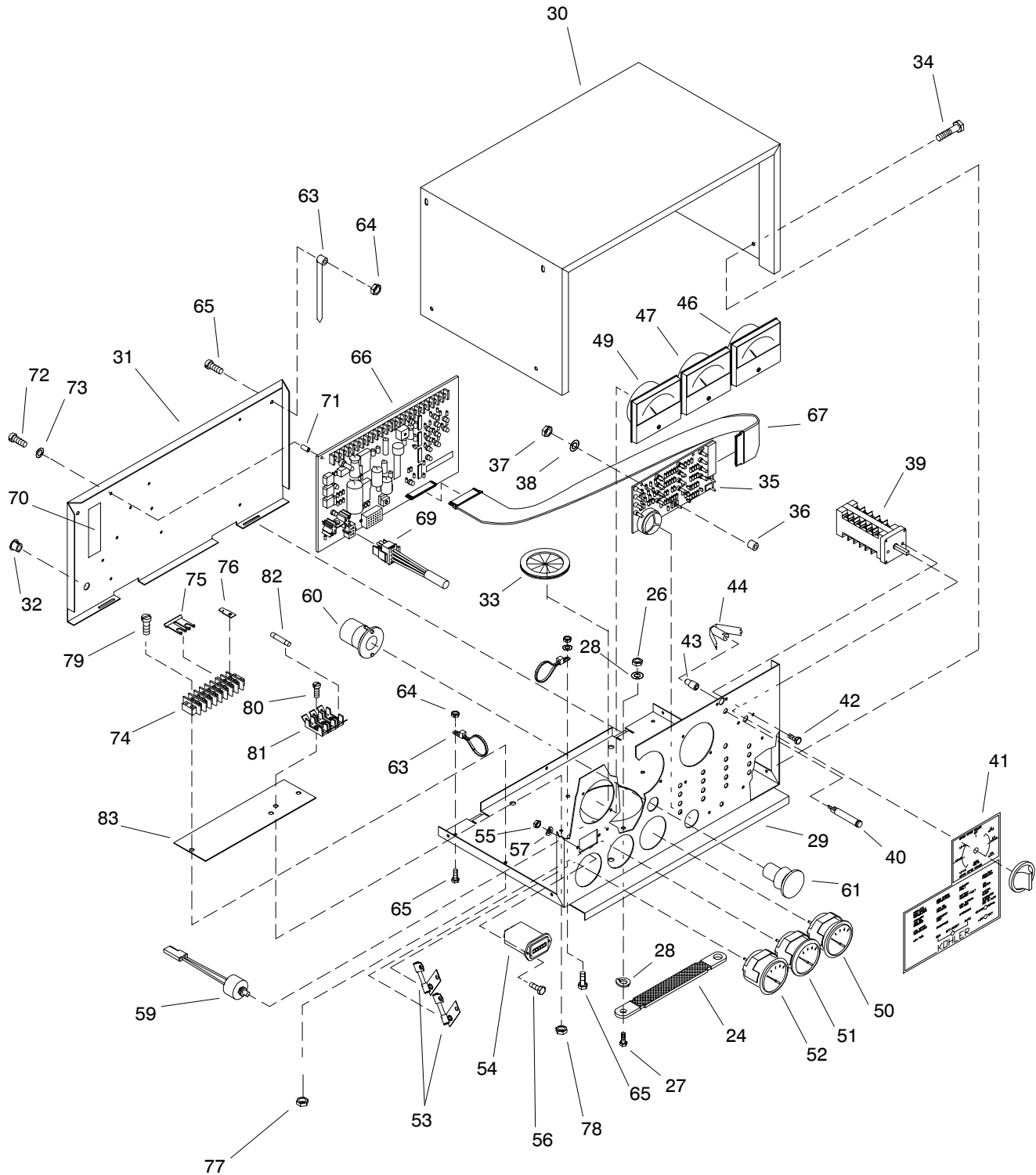
Item	Qty.	Description Variation	Part No.
16	1	Harness, wiring (CT) (not shown) all except 70, 72, 73, 137	255040
	1	Harness, wiring (CT) (not shown) 70, 72, 73, 137	354119
17	1	Sensor, speed all	241623
18	1	Tie, cable 15, 16, 19, 20	X-468-2
	1	Clamp, insulator (not shown) 42-44, 63, 64, 68, 70, 72, 73, 137	X-672-15
19	1	Bracket, sensor mounting all	257070
20	2	Screw, 10-24 x 5/8 all	X-117-5
21	2	Washer, split lock, 10 all except 70, 72, 73, 137	X-19-1
	2	Washer, split lock, 10 70, 72, 73, 137	X-22-9
22	2	Screw, 4-40 x 7/8 all	X-49-35
23	2	Washer, int. tooth lock, 4 all	X-22-24

### Serial Number-Contingent Controller Assemblies

Variation	Controller Assembly Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and after
13	B-292850	B-292850
14	B-292934	B-292934
15	B-292851	B-292851
16	B-292999	B-292999
19	B-292935	B-292935
20	B-292367	B-292367
42	B-292850	A-328929
43	B-292851	A-328931
44	B-292999	A-328940
63	B-292934	A-328930
64	B-292935	A-328932
68	A-292367	A-328941
70	-	A-328929
72	-	A-328931
73	-	A-328932
137	-	A-354228

# Group 301: Controller and Mounting, Continued

200-300ROZD



Note 1: Item 24, ground strap, attaches to ground lug assembly (see 201 group).

Note 2: Resistors (item 53) mount on back of water temp. gauge and oil press. gauge (items 51 & 52).

301-70-1  
D-272000  
B-292819

## Group 301: Controller and Mounting, Continued

Item	Qty.	Description Variation	Part No.
24	1	Strap, ground all	X-6046-2
25	1	Sleeving (not shown) all	X-696-5
26	2	Nut, 10-24 all,	X-6234-6
27	1	Screw, 10-24 x 1 all	X-50-70
28	2	Washer, int./ext. tooth lock, #10 all	X-22-50
29	1	Box, controller all	292375
30	1	Cover, controller all	292818
31	1	Plate, hinge all	292908
32	1	Plug, plastic button, 7/16 all	X-301-34
33	1	Grommet, 3 x 3 1/2 x 5/64 all	X-284-31
34	9	Screw, 10-24 x 1/2 all	X-6216-1
35	1	Indicator Board all	See chart below
36	4	Spacer, nylon, 8 hole x 1/2" all	X-712-9
37	4	Nut, 8-32 all	X-72-4
38	4	Washer, split lock, 8 all except 137	X-18-2
	4	Washer 137X-22-7	
39	1	Switch, selector all	292374
40	2	Lamp, neon 120 Volt all	291740
41	1	Nameplate all	292383
42	2	Screw, drill, 8-18 all (up to 2/91)	X-794-2
43	2	Screw all (as of 2/91)	X-67-127
44	2	Bulb, (lamp) no. 313 all	283420
45	2	Socket, lamp all	284990
46	1	AC Ammeter 14, 63	282806
	1	AC Ammeter 13, 19, 42, 64, 70, 73	282808
	1	AC Ammeter 15, 20, 43, 68, 72	282809
	1	AC Ammeter 16, 44	282810
		AC Ammeter 137	343298
47	1	AC Voltmeter 14, 19, 20, 63, 64, 68, 73	282817
	1	AC Voltmeter 13, 15, 16, 42, 43, 44, 70, 72, 137	282816
48	1	Resistor Assy., A.C. voltmeter 14, 19, 63, 64, 73	292352

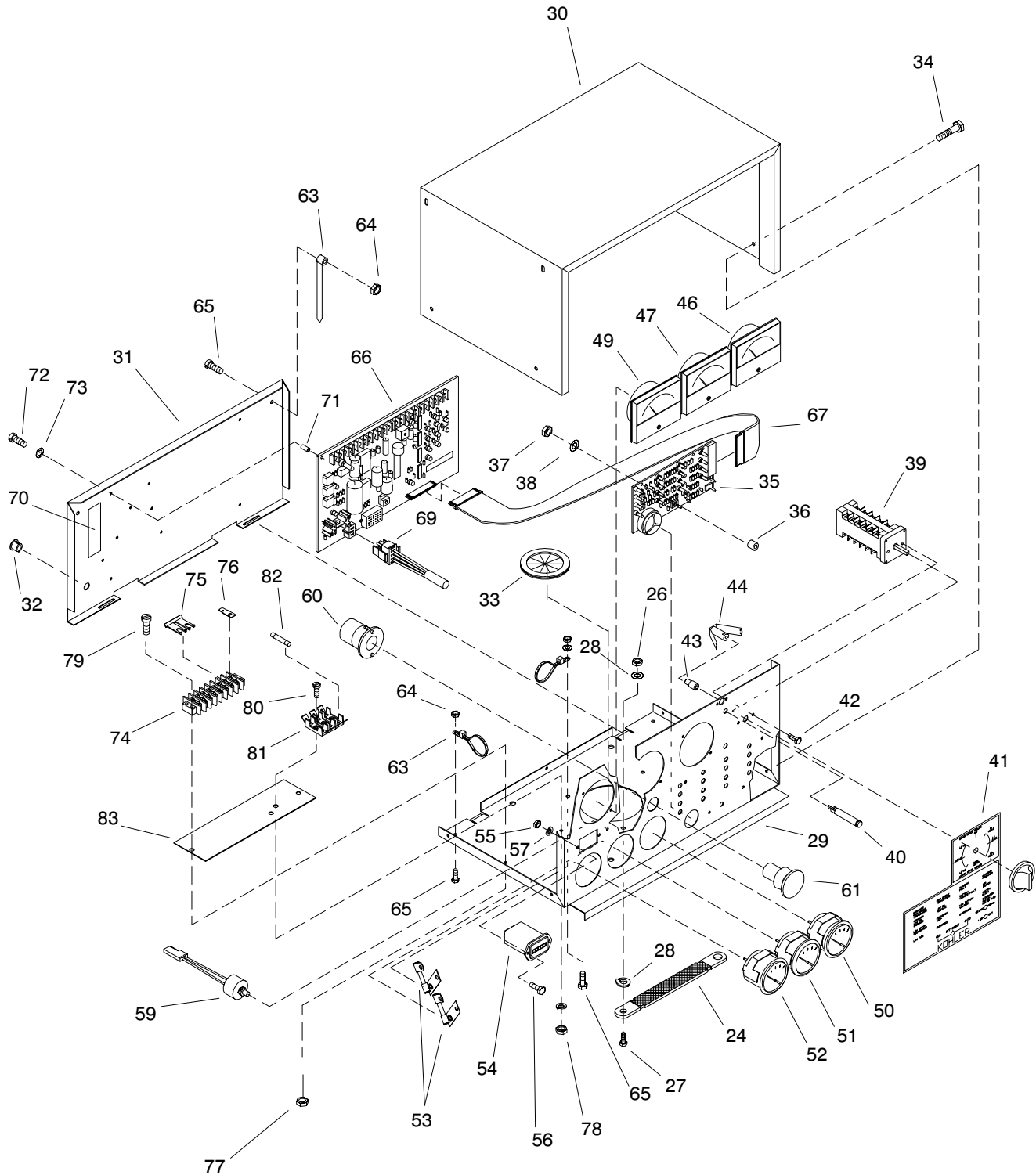
Item	Qty.	Description Variation	Part No.
49	1	Meter, frequency all	282818
50	1	DC Voltmeter all	255224
51	1	Gauge, water temperature all	282898
52	1	Gauge, oil pressure all	282897
53	2	Resistor, 24 Volt all	268297
54	1	Meter, hour all	238736
55	2	Nut, 6-32 all	X-71-2
56	2	Screw, 6-32 x 1/2 all	X-49-39
57	2	Washer, int. tooth lock, 6 all	X-22-6
58	1	Decal, voltage adjustment all	292361
59	1	Potentiometer Assembly all	A-255041
60	1	Switch, emergency stop (see item 61) all	292364
61	1	Pushbutton, not sold apart from item 60 all	
62	1	Decal, emergency stop 13, 14, 16, 42, 44, 63, 70	292467
63	4	Tie, cable all	X-468-3
64	6	Nut, 10-24, hardware all	#
65	4	Screw, 10-24 x 3/4 all	X-50-3
66	1	Board assembly, circuit (main) all	See chart below
67	1	Controller Ribbon Cable all	See chart below
68	4	Terminal, spade, 6 (not shown) all	X-285-9

### Serial Number-Contingent Controller Parts

Part Description	Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and after
Main Circuit Board	G-292806	A-336415
Indicator Board	B-292357	A-336432
Controller Ribbon Cable	292836	336428

# Group 301: Controller and Mounting, Continued

200-300ROZD



Note 1: Item 24, ground strap, attaches to ground lug assembly (see 201 group).

Note 2: Resistors (item 53) mount on back of water temp. gauge and oil press. gauge (items 51 & 52).

301-70-1  
D-272000  
B-292819

## Group 301: Controller and Mounting, Continued

Item	Qty.	Description Variation	Part No.
69	1	Connector, plug all	241617
70	1	Decal, fuse rating all	292347
71	9	Spacer, circuit board all	287948
72	18	Screw, 6-32 x 1/4 all	X-49-25
73	9	Washer, #6, hardware all	#
74	1	Block, terminal (8-terminal) all	246115
75	1	Jumper (2-terminal) all	X-6048-2
76	1	Terminal, push-on, 1/4 all	238898

Item	Qty.	Description Variation	Part No.
77	2	Nut, #8-32 hardware all	#
78	2	Nut, 6-32 all	X-71-2
79	2	Screw, 8-32 x 5/8 all	X-51-53
80	2	Screw, 6-32 x 3/8 all	X-49-2
81	1	Holder, fuse all	292821
82	3	Fuse, 1.5 amp. all	291207
83	1	Marker, terminal strip all	292823

## Group 701: Literature

Item	Qty.	Description Variation	Part No.
1	1	Installation Manual 1, 2, 14-16	TP-5700
2	1	Operation Manual, generator set 200-300ROZD 2, 14-16	TP-5750
	1	Operation Manual, DDC engine Series engine 2, 14-16	TP-5611
	1	Operation Manual, DDC 53/71 Series engine 1	TP-5380
3	11	Service Manual, generator 1, 2, 14-16	TP-5353
	1	Service Manual, DDC 71 Series engine 1	TP-5391
	1	Service Manual, DDC 92 Series 1, 2, 14-16	TP-5382

Item	Qty.	Description Variation	Part No.
4	11	Parts Catalog, 200-300ROZD 1, 2, 14-16	TP-5354
5		Barber-Colman governor 1, 2, 14-16	TP-5226
6	11	Parts Catalog, DDC Engine, 200 kW 1	TP-5677
		Parts Catalog, DDC Engine, 230 kW 14	TP-5635
		Parts Catalog, DDC Engine, 250 kW 2	TP-5636
		Parts Catalog, DDC Engine, 275/300 kW 15, 16	TP-5637
		Parts Catalog, Accessories all	TP-5707
7	1	Wiring Diagrams, 200-300ROZD 1, 2, 14, 15	TP-5721

## Paint and Miscellaneous Parts

Generator Paint (Spray Can) Cream Beige	221323
Generator Paint (Gallon Can) Cream Beige	221322

	200ROZD	230ROZD	250ROZD	275ROZD	300ROZD
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## Controllers, optional (Group 301)

### 6- or 7-Light

Standard meterbox	274405	274411	354321 274411 *	354321 274411 *	354321 274417 *
Standard meterbox, 600V	276866 276863 *	276866	276866	276866	276866 276869 *
Oversized meterbox	274406	274412	354332 274412 *	354332 274412 *	354332 274418 *
Oversized meterbox, 600V	276867 276864 *	276867	276867	276867	276867 276870*

### 16-Light

Standard meterbox	274676	274677	354319 274677 *	354319 274677 *	354319 274678 *
Standard meterbox, 600V	276872 276871 *	276872	276872	276872	276872 276873 *
Oversized meterbox	274403	274409	354320 274409 *	354320 274409 *	354320 274415 *
Oversized meterbox, 600V	276865 276862 *	276865	276865	276865	276865 276868 *
Engine gauge box for paralleling (switchgear)	273939 for all models				
Meterbox relocation kit	PAB-258849 for all models				

### Decision Maker 340

Standard	347913	347914	347914	347914	347915
600V	347916	347917	347917	347917	347918

## Cooling Systems, optional (Group 104)

Cooling, city water-cooled	274749	274774	274774	274774	274774
Cooling, radiator	274750	328719 274752 *	328719 274739 *	328720 274739 *	328720 274739 *
Cooling, radiator high ambient	274803 274748	328720 274739 *	274804 274775	274804 274775	274804 274775
Cooling, remote radiator set-up		274775			
Duct flange, radiator (housed)	272722 for all models				
Duct flange, radiator (unhoused)	272739	272739	272838	272838	272838
Duct flange, radiator high ambient (housed)	279615	272722	279625	279625	279625
Duct flange, radiator high ambient (unhoused)	279612	328715 272838 *	328715 279624 *	328715 279624 *	328715 279624 *
Heater, block 110 to 120V	279922	279924	279924	279924	279924
Heater, block 190 to 240V	279922	279924	279924	279924	279924
Heater, block 380 to 480V	279923	279925	279925	279925	279925

## Air Cleaners, optional (Group 101)

Heavy duty	354324	354351	354351	354354	354387
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## Optional Accessories

See Parts Catalog TP-5707 for parts lists of optional accessories.

- \* Obsolete kit
- N/A Not applicable

# 6- and 7-Light Controller Kits

6- and 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
Qty.	Description	Common	Kit Numbers/Unique Parts					
			274405	274406	274411	274412	274417	274418
1	Controller assembly*		A-292453	A-273797	A-292455	A-273799	A-292461	A-273805
1	Controller assembly*		A-347002**	A-347036**	A-347004**	A-347038**	A-347013**	A-347047**
4	Screw, H.C. 10-24 x 5/8	X-117-55						
1	Clamp, insulator	X-672-15						
1	Harness, wiring		255040	255040	354119	354119	354119	354119
2	Relay	272684						
3	Transformer, current		272691	272691	273258	273258	273258	273258
1	Bracket, CT mounting	325382						
1	Sensor, speed	241623						
1	Bracket, sensor mounting	257070						

6- and 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
Qty.	Description	Common	Kit Numbers/Unique Parts					
			276863	276864	276866	276867	276869	276870
1	Controller assembly*		A-292454	A-273798	A-292456	A-273800	A-292462	A-273806
1	Controller assembly*		A-347003**	A-347037**	A-347005**	A-347039**	A-347014**	A-347048**
1	Screw, HC 10-24 x 5/8	X-117-5						
1	Clamp, insulator	X-672-15						
1	Harness, wiring	354119						
2	Relay	272684						
3	Transformer, current		279272	279272	279273	279273	272690	272690
1	Bracket, CT mounting	325382						
1	Sensor, speed	241623						
1	Bracket, sensor mounting	257070						

6- and 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
Qty.	Description	Common	Kit Numbers/Unique Parts					
			354321					
			A-354229					
4	Screw, hex hd	X-117-5						
4	Washer, lock 5/16	X-22-16						
2	Washer, lock #4		X-22-24					
2	Screw	X-49-35						
1	Clamp, insulator	X-672-15						
4	Screw, drill hex.	X-794-1						
1	Sensor, ferromagnetic	241623						
1	Bracket, sensor mounting	257070						
1	Relay	272684						
1	Bracket, CT mounting	325382						
3	Transformer, current	343297						
1	Harness, wiring	354119						

\* See controller assembly section for parts list.

\*\* This controller assembly (7-light) used in kit is effective with generator set serial numbers greater than or equal to 363369.

# 6-Light Controller Assemblies

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts					
			A-273797	A-273798	A-273799	A-273800	A-273805	A-273806
1	Potentiometer assembly	A-255041						
1	6-Light circuit board	B-292381						
1	Main circuit board	G-292806						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
8	Washer, plain 17/64 x 1	X-25-73						
1	Grommet	X-284-31						
4	Terminal	X-285-9						
1	Plug, button	X-301-34						
4	Tie, cable, nylon	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, 6-32 x 1/2	X-49-39						
4	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m. 8-32 x 5/8	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
12	Screw, hex head	X-6216-1						
2	Nut, hex	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
1	Tab, ident	201620-86						
1	Meter, hour	238736						
1	Terminal	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
1	Voltmeter	255224						
4	Bumper	255443						
1	Voltmeter, AC		282816	282817	282816	282817	282816	282817
2	Resistor, 24 volt	268297						
1	Plate, hinge	273785						
1	Box, controller	273813						
1	Meter, frequency	282818						
1	Cover, controller	273838						
1	Ammeter, AC		282808	282806	282809	282808	282810	282809
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
3	Bulb	283420						
3	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal	292361						
1	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Nameplate	292385						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Harness, cable	292836						

N/A Not Applicable

# 6-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts					
			A-292453	A-292454	A-292455	A-292456	A-292461	A-292462
1	Potentiometer assembly	A-255041						
1	6-light circuit board	B-292381						
1	Main circuit board	G-292806						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet	X-284-31						
4	Terminal	X-285-9						
1	Plug, button	X-301-34						
5	Tie, cable nylon	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, 6-32 x 1/2	X-49-39						
4	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m. 8-32 x 5/8	X-51-53						
2	Plug, cap	X-519-2						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
12	Screw, hex. head	X-6216-1						
2	Nut, hex.	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
1	Tab, ident	201620-86						
1	Meter, hour	238736						
1	Terminal	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
1	Voltmeter	255224						
2	Resistor, 24 Volt	268297						
1	Ammeter, AC		282808	282806	282809	282808	282810	282809
1	Voltmeter, AC		282816	282817	282816	282817	282816	282817
1	Meter, frequency	282818						
2	Bulb	283420						
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
2	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal	292361						
1	Switch, selector	292374						
1	Switch, pushbutton	292364						
1	Box, controller	292375						
1	Cover, controller	292818						
1	Decal, emergency stop	292467						
1	Marker, strip	292823						
1	Nameplate	292385						
1	Holder, fuse	292821						
1	Bumper	292834						
1	Harness, cable	292836						
1	Plate, hinge	292908						

N/A Not Applicable

# 7-Light Controller Assemblies

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts					
			A-347002	A-347003	A-347004	A-347005	A-347013	A-347014
1	Potentiometer assembly	A-255041						
1	Indicator circuit board	A-336430						
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet	X-284-31						
1	Plug, button	X-301-34						
4	Terminal	X-285-9						
5	Tie, cable	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, 6-32 x 1/2	X-49-39						
4	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m. 8-32 x 5/8	X-51-53						
2	Plug, cap	X-519-1						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
12	Screw, hex. head	X-6216-1						
2	Nut, hex.	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
4	Tab, indent.	201620-86						
1	Meter, hour	238736						
1	Terminal	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
1	Voltmeter	255224						
2	Resistor, 24 volt	268297						
1	Voltmeter, AC		282816	282817	282816	282817	282816	282817
1	Meter, frequency	282818						
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
1	Ammeter, AC		282808	282806	282809	282808	282810	282809
2	Bulb	283420						
3	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal	292361						
1	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Box, controller	292375						
1	Decal, emergency stop	292467						
1	Cover, controller	292818						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Plate, hinge	292908						
1	Nameplate	328910						
1	Harness, cable	336428						

N/A Not Applicable

# 7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts					
			A-347036	A-347037	A-347038	A-347039	A-347047	A-347048
1	Potentiometer assembly	A-255041						
1	Indicator circuit board	A-336430						
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
8	Washer, plain 17/64 x 1	X-25-73						
1	Grommet	X-284-31						
4	Terminal	X-285-9						
1	Plug, button	X-301-34						
5	Tie, cable	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, 6-32 x 1/2	X-49-39						
4	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m. 8-32 x 5/8	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
12	Screw, hex. head	X-6216-1						
2	Nut, hex.	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
4	Tab, indent.	201620-86						
1	Meter, hour	238736						
1	Terminal	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
1	Voltmeter	255224						
2	Resistor, 24 volt	268297						
4	Bumper	255443						
1	Plate, hinge	273785						
1	Box, controller	273813						
1	Ammeter, AC	273838	282808	282806	282809	282808	282810	282809
1	Cover controller							
1	Voltmeter, AC		282816	282817	282816	282817	282816	282817
1	Meter, frequency	282818						
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
3	Bulb	283420						
3	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal	292361						
1	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Nameplate	328910						
1	Harness, cable	336428						

N/A Not Applicable

## 7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-354229				
1	Potentiometer assembly	A-255041					
1	Indicator circuit board	A-336430					
1	Main circuit board	A-336415					
1	Washer, shakeproof ET	X-22-20					
2	Washer, lock	X-22-50					
4	Washer, lock #6	X-22-6					
3	Washer, lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, button	X-301-34					
4	Terminal	X-285-9					
5	Tie, cable	X-468-3					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, 6-32 x 1/2	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, pan head machine	X-50-70					
2	Screw, r.h.m. 8-32 x 5/8	X-51-53					
2	Plug, cap	X-519-1					
1	Strap, ground	X-6046-2					
1	Jumper, 2-terminal	X-6048-2					
12	Screw, hex. head	X-6216-1					
2	Nut, hex.	X-6234-6					
2	Screw, thread forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
4	Tab, indent.	201620-86					
1	Meter, hour	238736					
1	Terminal	238898					
1	Connector, plug 6-position	241617					
1	Block, terminal	246115					
1	Voltmeter	255224					
2	Resistor, 24 volt	268297	282816				
1	Voltmeter, AC						
1	Meter, frequency	282818					
1	Gauge, oil pressure	282897					
1	Gauge, water temp.	282898	343298				
1	Ammeter, AC						
2	Bulb	283420					
3	Socket, lamp	284990					
9	Spacer, circuit board	287948					
3	Fuse, 1.5 amp	291207					
2	Lamp	291740					
1	Decal	292347					
1	Resistor		N/A				
1	Decal	292361					
1	Switch, pushbutton	292364					
1	Switch, selector	292374					
1	Box, controller	292375					
1	Decal, emergency stop	292467					
1	Cover, controller	292818					
1	Holder, fuse	292821					
1	Marker, strip	292823					
4	Bumper	292834					
1	Plate, hinge	292908					
1	Nameplate	328910					
1	Harness, cable	336428					

N/A Not Applicable

# 16-Light Controller Kits

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS								
Qty.	Description	Common	Kit Numbers/Unique Parts					
			274403	274409	274415	274676	274677	274678
1	Controller assembly*		A-273825	A-273827	A-273833	B-292850	B-292851	B-292999
1	Controller assembly*		A-328964**	A-328966**	A-328975**	A-328929**	A-328931**	A-328940**
1	Screw, H.C. 10-24 x 5/8	X-117-55						
1	Clamp, insulator	X-672-15						
1	Harness, wiring	354119						
2	Relay	272684						
3	Transformer, current		272691	273258	272678	272691	273258	272678
1	Bracket, C.T. mounting	325382						
1	Sensor, speed	241623						
1	Bracket, sensor mounting	257070						

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
Qty.	Description	Common	Kit Numbers/Unique Parts					
			276862	276865	276868	276871	276872	276873
1	Controller assembly*		A-273826	A-273825	A-273834	B-292934	B-292935	A-292367
1	Controller assembly*		A-328965**	A-328967**	A-328967**	A-328930**	A-328932**	A-328941**
1	Screw, H.C. 10-24 x 5/8	X-117-5						
1	Clamp, insulator	X-672-15						
1	Harness, wiring	354119						
2	Relay	272684						
3	Transformer, current		279272	279273	272690	279272	279273	272690
1	Bracket, C.T. mounting	325382						
1	Sensor, speed	241623						
1	Bracket, sensor mounting	257070						

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
Qty.	Description	Common	Kit Numbers/Unique Parts					
			354319	354320				
1	Controller assembly		A-354228	A-354230				
4	Screw, hex hd.	X-117-5						
4	Washer, lock 5/16	X-22-16						
12	Washer, lock #4			X-22-24				
2	Washer, lock #4		X-22-24					
2	Screw	X-49-35						
1	Clamp, insulator	X-672-15						
4	Screw, drill hex.	X-794-1						
1	Sensor, ferromagnetic	241623						
1	Bracket, sensor mounting	257070						
1	Relay	272684						
1	Bracket, C.T. mounting	325382						
3	Transformer, current	343297						
1	Harness, wiring	354119						

\* See Controller Assembly section for parts list.

\*\* This controller assembly is used in kit effective with generator set serial numbers greater than or equal to 363369.

# 16-Light Controller Kits

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Numbers/Unique Parts				
			354332				
1	Controller assembly		A-347509				
1	Washer, lock 3/8		X-22-14				
4	Washer, lock 5/16		X-22-16				
8	Washer, lock #8		X-22-20				
1	Grommet		X-284-25				
2	Screw, r.h.m.		X-51-11				
6	Screw, drill		X-794-2				
1	Marker, strip		255080				
1	Harness, wiring		258453				
2	Relay		272684				
1	Panel, relay		274796				
1	Harness, wiring		274964				
4	Mount, vibro		282829				
3	Transformer		287684				
1	Pick-up, speed		291288				
1	Block, terminal		295314				
3	Transformer, current		297676				

\* See Controller Assembly section for parts list.

\*\* This controller assembly is used in kit effective with generator set serial numbers greater than or equal to 363369.

# 16-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-273825	A-273826	A-273827	A-273828	A-273833	A-273834
1	Potentiometer assembly	A-255041						
1	16-Light circuit board	B-292357						
1	Main circuit board	G-292806						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet	X-284-31						
4	Terminal	X-285-9						
1	Plug, button	X-301-34						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
5	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m.	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper	X-6048-2						
12	Screw, hex. head	X-6216-1						
2	Nut, hex.	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
2	Resistor, 24 Volt	268297						
1	Meter, hour	238736						
1	Terminal	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
4	Bumper	255443						
1	Voltmeter	255224						
2	Lamp	291740						
3	Bulb	283420						
1	Plate, hinge	273785						
1	Voltmeter, AC		282816	282817	282816	282817	282816	282817
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
1	Ammeter, AC		282808	282806	282809	282808	282810	282809
3	Socket, lamp	284990						
8	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal	292361						
1	Switch, selector	292374						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Harness, cable	292836						
1	Meter, frequency	282818						
1	Cover, controller	273838						
1	Nameplate	292383						
1	Box, controller	273813						
1	Switch, pushbutton	292364						
1	Decal, emergency stop	292467						

N/A Not Applicable

# 16-Light Controller Assemblies

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-292367	B-292850	B-292850	B-292934	B-292935	B-292999
1	Potentiometer assembly	A-255041						
1	16-Light circuit board	B-292357						
1	Main circuit board	G-292806						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet	X-284-31						
4	Terminal	X-285-9						
1	Plug, button	X-301-34						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
5	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m.	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper	X-6048-2						
12	Screw, hex. head	X-6216-1						
2	Nut, hex.	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
2	Resistor, 24 volt	268297						
1	Meter, hour	238736						
1	Terminal	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
4	Bumper	255443						
1	Voltmeter	255224						
2	Lamp	291740						
2	Bulb	283420						
1	Plate, hinge	292908						
1	Voltmeter, AC		282817	282816	282816	282817	282817	282816
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
1	Ammeter, AC		282809	282808	282809	282806	282808	282810
2	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
1	Decal	292347						
1	Resistor		292352	N/A	N/A	292352	292352	N/A
1	Decal	292361						
1	Switch, selector	292374						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Harness, cable	292836						
1	Meter, frequency	282818						
1	Cover, controller	292818						
1	Nameplate	292383						
1	Box, controller	292375						
1	Switch, pushbutton	292364						
1	Decal, emergency stop	292467						
1	Plug, cap 1/8 inch	X-519-1						

N/A Not Applicable

# 16-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-328929	A-328930	A-328931	A-328932	A-328940	A-328941
1	Potentiometer assembly	A-255041						
1	16-light circuit board	A-336432						
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet	X-284-31						
1	Plug, button	X-301-29						
1	Plug, button	X-301-34						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
5	Tie, cable	X-468-3						
4	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m.	X-51-53						
2	Plug, cap	X-519-1						
1	Strap, ground	X-6046-2						
1	Jumper	X-6048-2						
12	Screw, hex. head	X-6216-1						
2	Nut, hex.	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
1	Tab, ident.	201620-86						
1	Meter, hour	238736						
1	Terminal	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
1	Voltmeter	255224						
2	Lamp	291740						
3	Bulb	283420						
1	Plate, hinge	292908						
1	Voltmeter, AC		282816	282817	282816	282817	282816	282817
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
1	Ammeter, AC		282809	282806	282809	282808	282810	282809
3	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal, emergency stop	292467						
1	Switch, selector	292374						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Harness, cable	336428						
1	Meter, frequency	282818						
1	Cover, controller	292818						
1	Nameplate	292383						
1	Box, controller	292375						
1	Switch, pushbutton	292364						
2	Resistor, 24 volt	268297						
1	Nameplate	354386						
1	Decal	292361						
1	Assembly, cable	336428						
5	Tie, cable	X-468-3						
2	Plug, cap	X-519-1						
2	Nut, hex	X-71-2						
4	Nut, hex	X-72-4						
1	Decal	292361						

N/A Not Applicable

# 16-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-328964	A-328965	A-328966	A-328967	A-328975	A-328976
1	Potentiometer assembly	A-255041						
1	16-Light circuit board	A-336432						
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
8	Washer, plain	X-25-73						
1	Grommet	X-284-31						
1	Plug, button	X-301-34						
4	Tie cable	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
5	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m.	X-51-53						
2	Plug, cap	X-519-1						
1	Strap, ground	X-6046-2						
1	Jumper	X-6048-2						
10	Screw, hex. head	X-6216-1						
2	Nut, hex.	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
2	Nut, hex	X-71-2						
4	Spacer	X-712-9						
4	Nut, hex	X-72-4						
1	Tab, ident.	201620-86						
1	Meter, hour	238736						
1	Terminal	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
1	Voltmeter	255224						
4	Bumper	255443						
2	Resistor, 24 volt	268297						
1	Plate, hinge	273785						
1	Box, controller	273813						
1	Cover, controller	273838						
1	Voltmeter, AC		282816	282817	282816	282817	282816	282817
1	Meter, frequency	282818						
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
1	Ammeter, AC		282808	282806	282809	282808	282810	282809
3	Bulb	283420						
3	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal	292361						
1	Switch, selector	292374						
1	Switch, pushbutton	292364						
1	Nameplate	292383						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Harness, cable	336428						

N/A Not Applicable

# 16-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts						
			A-354228	A-354230					
1	Potentiometer assembly	A-255041							
1	16-Light circuit board	A-336432							
1	Main circuit board	A-336415							
1	Washer, shakeproof ET	X-22-20							
2	Washer, lock	X-22-50							
4	Washer, lock #6	X-22-6							
3	Washer, lock #8	X-22-7							
8	Washer, plain		N/A	X-25-73					
1	Grommet	X-284-31							
1	Plug, button	X-301-34							
5	Tie cable	X-468-3							
2	Screw, r.h.m. 6-32 x 3/8	X-49-2							
18	Screw, r.h.m. 6-32 x 1/4	X-49-25							
2	Screw, pan head	X-49-39							
4	Screw, r.h.m. 10-24 x 3/4	X-50-3							
1	Screw, pan head machine	X-50-70							
2	Screw, r.h.m.	X-51-53							
2	Plug, cap	X-519-1							
1	Strap, ground	X-6046-2							
1	Jumper	X-6048-2							
12	Screw, hex. head	X-6216-1							
2	Nut, hex	X-6234-6							
2	Screw, thread forming	X-67-127							
1	Sleeve	X-696-5							
2	Nut, hex	X-71-2							
4	Spacer	X-712-9							
4	Nut, hex	X-72-4							
1	Tab, ident.	201620-86							
1	Meter, hour	238736							
1	Terminal	238898							
1	Connector, plug 6-position	241617							
1	Block, terminal	246115							
1	Voltmeter	255224							
4	Bumper		N/A	255443					
2	Resistor, 24 volt	268297							
1	Plate, hinge		292908	273785					
1	Box, controller		292375	273813					
1	Cover, controller		292818	273838					
1	Voltmeter, AC	282816							
1	Meter, frequency	282818							
1	Gauge, oil pressure	282897							
1	Gauge, water temp.	282898							
1	Ammeter, AC	343298							
3	Bulb	283420							
3	Socket, lamp	284990							
9	Spacer, circuit board	287948							
3	Fuse, 1.5 amp	291207							
2	Lamp	291740							
1	Decal	292347							
1	Decal	292361							
1	Switch, selector	292374							
1	Switch, pushbutton	292364							
1	Nameplate		292383	354386					
1	Decal, emergency stop	292467							
1	Holder, fuse	292821							
1	Marker, strip	292823							
1	Bumper	292834							
1	Harness, cable	336428							

N/A Not Applicable

# Decision Maker 340 Controller

Qty.	Description	Common Parts	Decision Maker 340 Controller Kit Number/Unique Parts					
			347913	347914	347915	347916	347917	347918
1	Controller Assembly	A-354146						
4	Screw, hex	X-117-5						
4	Washer, lock	X-22-16						
2	Washer, lock	X-22-24						
2	Screw, rdh sltd	X-49-35						
1	Clamp, insulator	X-672-15						
4	Screw, drill	X-794-1						
1	Sensor, ferromagnetic	241623						
1	Bracket, sensor mounting	257070						
1	Relay	272684						
3	Transformer, current		272690	273258	272678	279272	279273	272690
1	Bracket, CT mounting	325382						
1	Harness, wiring	354119						

Decision Maker 340 Controller Assembly		
Qty.	Description	A-354146
1	Potentiometer, voltage adjustment	A-328774
1	Knob, potentiometer	X-6136-39
1	Switch, emergency stop	292364
1	Switch, selector	347969
3	Fuse, 1.5A 250V	291207
2	Lamp, Panel	283420
4	Bumper	292834
1	Holder, fuse	292821

# Controller Kits

Qty.	Description	Kit/Part No.
<b>Meterbox for Switchgear Kit</b>		
		<b>273939</b>
2	Screw, 5/16-18 x 5/8	X-117-5
4	Screw, 5/16-18 x 3-1/2	X-125-23
2	Washer, split lock, 8	X-18-2
2	Washer, split lock, 10	X-19-1
4	Washer, int./ext. tooth lock, 5/16	X-22-16
12	Screw, 8-32 x 3/4	X-51-11
3	Screw, 3/8-16 x 1 1/4	X-6238-4
2	Nut, 10-24	X-70-2
2	Nut, 8-32	X-72-4
3	Nut, 3/8-16	X-83-2
2	Relay	272684
1	Switch assembly, limit	263438
1	Controller assembly (includes the following items)	A-273762
1	Potentiometer assembly	A-255041
2	Washer, split lock, 10	X-19-1
4	Washer, split lock, 1/4	X-20-1
4	Washer, split lock, 5/16	X-21-1
2	Washer, int./ext. tooth lock, 10	X-22-13
14	Washer, int. tooth lock, 6	X-22-6
1	Grommet, 3 x 3 1/2	X-284-31
1	Tie, cable	X-468-
12	Screw, pan head, 6-32 x 9/32	X-49-15
2	Screw, pan head, 6-32 x 1/2	X-49-39
2	Screw, pan head, 10-24 x 3/4	X-50-3
1	Screw, pan head, 10-24 x 1	X-50-7
1	Strap, ground	X-6046-2
1	Switch, speed	X-6122-1
9	Screw, 10-24 x 1/2	X-6216-1
1	Sleeving	X-695-5
2	Nut, 10-24	X-70-2
2	Nut, 10-32	X-70-3
14	Nut, 6-32	X-71-2
4	Screw, slotted round head, 1/4-20 x 1/2	X-73-1
4	Nut, 1/4-20	X-81-1
4	Nut, 5/16-18	X-82-2
1	Meter, hour	238736
2	Nut, 10-24	X-70-2
2	Nut, 10-32	X-70-3
14	Nut, 6-32	X-71-2
1	Voltmeter	255224
2	Nut, 10-24	X-70-2
2	Nut, 10-32	X-70-3
14	Nut, 6-32	X-71-2
1	Box, controller	263153
1	Panel	263154
2	Resistor, 24 Volt	268297
1	Harness, wiring (24-pin)	273764
6	Strip, marker	273781
1	Harness, wiring (black, red, white, green)	273983
1	Harness, wiring (red, black, shielded)	273984
1	Gauge, oil pressure	282897
1	Gauge, water temperature	282898
6	Strip, terminal (9-terminal)	283060
2	Nut, 10-24	X-70-2
2	Nut, 10-32	X-70-3
14	Nut, 6-32	X-71-2
2	Bulb, No. 313	283420
2	Socket, lamp	283990
1	Switch, pushbutton	292364
1	Decal, emergency stop	292467
1	Cover, controller	292818
4	Bumper	292834

Qty.	Description	Kit/Part No.
<b>Meterbox Relocation Kit</b>		
		<b>PAB-258849</b>
1	Box assembly, connection	B-258849
6	Washer, split lock, 8	X-18-2
1	Tie, cable	X-468-7
2	Screw, 8-32 x 3/4	X-51-11
2	Screw, 8-32 x 3/8	X-51-12
4	Screw, 8-32 x 5/8	X-51-9
6	Nut, 8-32	X-72-4
4	Terminal, 1/4 M push-on	238898
1	Block, terminal (2-terminal)	243845
1	Block, terminal (8-terminal)	246115
1	Harness, wiring	258277
1	Box, remote connection	258845
1	Bracket, mounting	258846
1	Strip, marker (5, 7C)	258848
1	Strip, marker (V7, V8)	282824



# Cooling System Kits, continued

Qty.	Description	Kit/Part No.
<b>Cooling, Radiator 274739</b>		
	See Group 104, Variation 5 For Parts List	
<b>Cooling, Radiator 274750</b>		
	See Group 104, Variation 15 For Parts List	
<b>Cooling, Radiator 274752</b>		
	See Group 104, Variation 2 For Parts List	
<b>Cooling, Radiator 328719</b>		
	See group 104, variation 32 For Parts List	
<b>Cooling, Radiator 274803</b>		
1	Radiator assembly	A-279606
2	Bushing, reducer, 1/4 F x 1/2 M	X-202-12
1	Bushing, reducer, 3/8 F x 1/2 M	X-202-28
1	Tee, Pipe, 1/2 NPT	X-203-13
1	Cross, Pipe, 1/2	X-207-7
1	Nipple, 1/2 NPT x 1 3/16"	X-209-2
2	Washer, plain	X-25-30
1	Valve, drain, 3/8 NPT	X-256-1
1	Hose, 2 1/4 i.d. x 5"	X-281-1
1	Hose, 2 1/4 i.d. x 3"	X-281-8
1	Hose, rubber, 1 i.d. x 50"	X-356-32
2	Clamp, hose, 1 1/2"	X-426-15
4	Clamp, hose, 1 7/8"	X-426-2
2	Clamp, hose, 5/8"	X-426-9
1	Tie, cable, 21"	X-468-7
1	Conduit, convoluted	X-6003-8
1	Hose, 3/4 x 30"	X-651-5
2	Fitting, hose	X-652-1
1	Plug, pipe, 1/2 NPT	X-75-28
6	Washer, hardened, 21/64 x 23/32 x 1/8	X-801-4
4	Washer, hardened	X-801-9
2	Clamp, hose, 3"	250081
1	Sensor, low fluid	254832
2	Bracket, radiator support	272631
2	Bracket, radiator	272682
1	Tube, water inlet	272852
2	Brace, radiator	274230
1	Bracket, left vibro mount	274383
1	Guard, upper l.h.	274515
1	Guard, r.h.	274516
1	Guard	274517
1	Bracket, right vibro mount	274520
1	Fan	279607
1	Hose, radiator	279618

Qty.	Description	Kit/Part No.
<b>Cooling, Radiator 274804</b>		
1	Radiator assembly	A-279619
1	Elbow	SA-472
6	Screw, hex cap	X-125-37
1	Bushing, reducer 3/4 x 1	X-202-1
2	Bushing, reducer 3/8	X-202-28
1	Nipple, pipe 3/4 x 2	X-206-2
1	Elbow, 45° 1 in.	X-225-9
1	Valve, drain 3/8	X-256-1
2	Clamp, hose 2-17/32	X-426-1
2	Clamp, hose	X-426-9
1	Tie, cable	X-468-4
1	Conduit, convoluted	X-6003-8
1	Hose, radiator	X-6014-30
2	Hose, radiator	X-6014-48
1	Hose	X-651-33
2	Fitting, hose	X-652-1
2	Clamp, insulated	X-672-7
6	Washer, hardened	X-801-4
4	Washer, hardened	X-801-9
1	Sensor, low fluid	254832
1	Guard, belt	272717
1	Guard, belt	272740
1	Guard, belt	272741
1	Adapter, hose	272930
1	Fan	279620
1	Hose, rad terminal	279621
2	Clamp, hose	279669
2	Bracket, radiator supp	299880
2	Bracket, radiator supp	299881
2	Brace, radiator	299889
4	Clamp, hose	328800

# Cooling System Kits, continued

Qty.	Description	Kit/Part No.
<b>Cooling, Radiator 328720</b>		
1	Radiator assembly	A-328711
1	Elbow, 90° 3/4 NPT	SA-472
6	Screw, hex cap	X-125-37
1	Bushing, reducer, 3/8 F x 1/2 M	X-202-28
1	Valve, drain, 3/8 NPT	X-256-1
1	Hose	X-356-34
2	Clamp, hose, 2 17/32"	X-426-1
2	Clamp, hose	X-426-2
2	Clamp, hose, 1 15/16"	X-426-8
2	Clamp, hose, 5/8"	X-426-9
1	Tie, cable	X-468-4
2	Connector, hose	X-582-16
1	Conduit, convoluted	X-6003-8
1	Hose, rubber, 3/8 x 30"	X-651-5
2	Fitting, hose,	X-652-1
6	Washer, hardened, 21/64 x 23/32 x 1/8	X-801-4
4	Washer, hardened	X-801-9
1	Sensor, low fluid	254832
1	Guard, belt	272717
1	Guard, belt (l.h.)	272740
1	Guard, belt (r.h.)	272741
1	Fan	299963
1	Brace, radiator	328384
1	Hose, lower radiator	328387
1	Guard, wire fan	328592
1	Guard, radiator	328593
2	Support, radiator	328594
1	Shroud, fan	328595
1	Hose, upper radiator	328889
1	Hose, upper radiator	328890
2	Spacer, radiator	347449
1	Bracket, radiator	347708
<b>Cooling, Remote Radiator 274775</b>		
1	Bushing, reducer, 1/4 F	X-202-12
1	Valve, drain, 1/4	X-256-3
2	Clamp, hose, 2 17/32	X-426-1
2	Hose, 2 1/2 i.d. x 28"	X-613-7
12	Screw, drill, 1/4-14 x 3/4	X-794-1
1	Adapter, hose	272930
1	Guard, belt (front)	274769
1	Guard, belt (top)	274770
1	Guard, belt (l.h.)	274771
1	Guard, belt (r.h.)	274772
1	Hose, lower radiator	328387
4	Clamp, hose	328800
<b>Cooling, Remote Radiator 274748</b>		
2	Bushing, reducer	X-202-12
1	Cross, pipe, 1/2	X-207-7
1	Nipple, 1/2 x 1 3/16	X-209-2
8	Washer, plain	X-25-1
1	Hose, 2 1/4 i.d. x 5"	X-281-1
1	Hose, 2 1/4 i.d. x 3"	X-281-8
6	Clamp, hose, 1 7/8	X-426-2
8	Clamp, hose	X-426-10
1	Hose, rubber, 3/8 x 6"	X-651-22
9	Fitting, hose	X-652-1
8	Screw, drill, 1/4-14 x 3/4	X-794-1
1	Hose, upper radiator	274514
1	Guard, belt (r.h.)	274968
1	Guard, belt (l.h.)	274969
1	Guard, belt (Front)	274970
2	Connector, hose	299910

Qty.	Description	Kit/Part No.
<b>Duct Flange, Radiator 272722</b>		
2	Screw, Phillips crimp	X-6216-1
8	Rivet, alumin./steel pop, 3/16 x 1/4	X-781-10
2	Frame, air duct	272721
2	Frame, air duct	272847
<b>Duct Flange, Radiator 272739</b>		
8	Rivet, alumin./steel pop, 3/16 x 1/4	X-781-10
2	Frame, air duct	272737
2	Frame, air duct	272738
<b>Duct Flange, Radiator 272838</b>		
8	Rivet, alumin./steel pop, 3/16 x 1/4	X-781-10
2	Frame, air duct	272836
2	Frame, air duct	272837
<b>Duct Flange, Radiator 279612</b>		
8	Rivet, alumin./steel pop, 3/16 x 1/4	X-781-10
2	Frame, air duct	272837
2	Frame, air duct	279614
<b>Duct Flange, Radiator 279615</b>		
14	Screw, Phil hex	X-6216-1
8	Rivet, alumin./steel pop, 3/16 x 1/4	X-781-10
2	Frame, air duct	279616
2	Frame, air duct	279617
<b>Duct Flange, Radiator 279624</b>		
14	Spacer	X-400-190
8	Rivet, 3/16 x 1/4 Alumin./Steel Pop	X-781-10
2	Frame, air duct	279614
2	Frame, air duct	279623
<b>Duct Flange, Radiator 279625</b>		
2	Screw, Phillips crimp	X-6216-1
8	Rivet, alumin./steel pop, 3/16 x 1/4	X-781-10
2	Frame, air duct	272721
2	Frame, air duct	279622
<b>Duct Flange, Radiator 328715</b>		
8	Rivet, pop	X-781-10
2	Frame, air duct	328713
2	Frame, air duct	328714

# Cooling System Kits, continued

Qty.	Description	Kit/Part No.
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<b>Heater, Block</b>		<b>279922</b>
1	Elbow, street, 3/4 NPT	SA-472
1	Tee, pipe, 1/2	X-203-13
1	Pipe	X-209-19
10	Washer, shakeproof	X-22-12
1	Valve, drain	X-256-5
1	Elbow	X-274-2
4	Clamp, hose, 1 1/4"	X-426-12
1	Connector, hose, 3/4 i.d. x 1/2 NPT	X-582-7
1	Connector, hose, 3/4 i.d. x 1/2 NPT	X-582-8
1	Hose, 3/4 i.d. x 12"	X-691-14
1	Hose, 3/4 i.d. x 9"	X-691-24
1	Plug, pipe, 1/8	X-75-1
5	Screw, drill hex.	X-794-1
4	Screw, hex	X-97-13
1	Bushing, reducer, 1/2 F x 3/4 M	153659
1	Strap, ground 3/8 x 5	223033
4	Bumper	259632
1	Holder, in-line fuse	269216
1	Flange	274386
1	Gasket, water outlet	274393
1	Bracket, mounting	274986
1	Heater, block	279814
1	Thermostat, block heater	279921
1	Fuse, 20A 250V .25 x 1.25	292937
4	Gasket, washer	297001
1	Box, block heater	354315
1	Cover, block heater	354317
1	Gasket, control box	354318
1	Decal, warning	354325
1	Label, wiring diagram	354327

<b>Heater, Block</b>		<b>279923</b>
1	Elbow, street, 3/4 NPT	SA-472
1	Tee, pipe, 1/2 NPT	X-203-13
1	Pipe	X-209-19
10	Washer, shakeproof	X-22-12
1	Valve, drain	X-256-5
1	Elbow	X-274-15
4	Clamp, hose, 1 1/4" Max.	X-426-12
1	Screw	X-51-15
1	Connector, hose, 3/4 i.d. x 1/2 NPT	X-582-7
1	Connector, hose, 3/4 i.d. x 1/2 NPT	X-582-8
1	Block, fuse	X-6129-8
1	Fuse	X-6135-6
1	Nut	X-6210-4
1	Hose	X-691-14
1	Hose	X-691-24
1	Plug, pipe, 1/8	X-75-1
5	Screw, drill hex.	X-794-1
1	Bushing, reducer, 1/2 F x 3/4 M	153659
1	Strap, ground 3/8 x 5	223033
4	Bumper	259632
1	Flange	274386
1	Gasket, water outlet	274393
1	Bracket, mounting	274986
1	Tag, instruction	279280
1	Heater, block	279815
1	Thermostat, block heater	279921
4	Gasket, washer	297001
1	Box, block heater cont	354316
1	Cover, block heater	354317
1	Gasket, control box	354318
1	Decal, warning	354326
1	Label, wiring diagram	354328

Qty.	Description	Kit/Part No.
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<b>Heater, Block</b>		<b>279924</b>
4	Nut, elastic stop	X-101-8
8	Washer, shakeproof	X-22-12
1	Elbow	X-274-2
2	Clamp, hose	X-426-1
4	Clamp, hose	X-426-12
2	Connector, hose	X-582-8
1	Hose	X-691-21
1	Hose, 3/4 i.d. x 39"	X-691-26
2	Screw, drill hex.	X-794-1
1	Bushing, reducer	153659
1	Strap, ground	223033
4	Bumper	259632
1	Holder, in-line fuse	269216
1	Bracket, block heater	274431
1	Tag, hang	279047
1	Tag, instruction	279280
1	Thermostat	279813
1	Heater, block	279814
1	Connector, hose	279857
1	Bracket	279944
1	Fuse	292937
1	Box, block heater	354315
1	Cover, block heater cont	354317
1	Gasket, control box	354318
1	Decal, warning	354325
1	Label, wiring diagram	354327

<b>Heater, Block</b>		<b>279925</b>
4	Nut, elastic stop	X-101-8
8	Washer, shakeproof	X-22-12
1	Elbow	X-274-2
2	Clamp, hose	X-426-1
4	Clamp, hose	X-426-12
1	Screw, r.h.m.	X-51-15
2	Connector, hose	X-582-8
1	Hose	X-691-21
1	Block, fuse	X-6129-8
1	Fuse	X-6135-6
1	Nut (expense), whiz	X-6210-4
1	Hose	X-691-21
1	Hose, 3/4 i.d. x 39"	X-691-26
2	Screw, drill hex.	X-794-1
4	Screw	X-97-13
1	Bushing, reducer	153659
1	Strap, ground	223033
4	Bumper	259632
1	Bracket, block heater	274431
1	Tag, hang	279047
1	Tag, instruction	279280
1	Thermostat	279813
1	Heater, block	279815
1	Connector, hose	279857
1	Box, connection	279874
1	Bracket	279944
1	Box, block heater	354316
1	Cover, block heater	354317
1	Gasket, control box	354318
1	Decal, warning	354326

# Cooling System Kits, continued

Qty.	Description	Kit/Part No.
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<b>Heater, Block</b>		<b>274539</b>
4	Nut, elastic stop, 1/4-20	X-101-8
1	Elbow, pipe	X-274-2
2	Clamp, hose	X-426-1
4	Clamp, hose, 1 1/4	X-426-12
2	Connector, hose, 3/4 i.d. x 3/4 NPT	X-582-8
1	Hose, 3/4 i.d. x 39"	X-691-26
1	Hose, 3/4 i.d. x 52"	X-691-23
1	Heater, block	272948
1	Bracket, block heater	274431
1	Connector, hose	279857

<b>Heater, Block</b>		<b>272846</b>
1	Elbow, street, 3/4 NPT	SA-472
1	Tee, pipe, 1/2 NPT	X-203-13
1	Pipe	X-209-19
1	Valve, drain	X-256-5
1	Elbow	X-274-2
4	Clamp, hose, 1 1/4"	X-426-12
1	Connector, hose, 3/4 i.d. x 1/2 NPT	X-582-7
1	Connector, hose, 3/4 i.d. x 1/2 NPT	X-582-8
2	Hose, 3/4 i.d. x 12"	X-691-14
4	Screw, drill, 1/4-14 x 3/4	X-794-1
1	Bushing, reducer, 1/2 F x 3/4 M	153659
1	Heater, block	272845
1	Flange	274386
1	Gasket, water outlet	274393
1	Bracket, mounting	274986

<b>Heater, Block</b>		<b>274271</b>
1	Elbow, street, 3/4 NPT	SA-472
4	Washer, split lock, 1/4	X-20-1
1	Tee, pipe, 1/2 NPT	X-203-13
1	Nipple, pipe, 1/2 NPT x 3	X-209-11
1	Pipe, 1/2 NPTf x 8"	X-209-17
1	Elbow, street, 1/2 NPT	X-211-1
1	Elbow, pipe, 1/2 NPT	X-215-1
1	Valve, drain	X-256-5
4	Clamp, hose, 1 1/4	X-426-12
4	Screw, 1/4-20 x 7/8	X-465-18
2	Connector, hose, 3/4 i.d. x 1/2 NPT	X-582-7
2	Hose, 3/4 i.d. x 12"	X-691-14
4	Screw, drill, 1/4-14 x 3/4	X-794-1
4	Nut, 1/4-20	X-81-1
1	Bushing, reducer, 1/2 F x 3/4 M	153659
1	Heater, block	272948
1	Flange	274386
1	Gasket, water outlet	274393
1	Bracket, mounting	274986

Qty.	Description	Kit/Part No.
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<b>Heater, Block</b>		<b>274538</b>
4	Nut, elastic stop, 1/4-20	X-101-8
1	Elbow	X-274-2
2	Clamp, hose	X-426-1
4	Clamp, hose, 1 1/4	X-426-12
2	Connector, hose, 3/4 i.d. x 3/4 NPT	X-582-8
1	Hose, 3/4 i.d. x 39"	X-691-26
1	Hose, 3/4 i.d. x 52"	X-691-23
1	Heater, block	272845
1	Bracket, block heater	274431
1	Tag, hang	279047
1	Connector, hose	279857

# Air Cleaner Kits, Heavy Duty

Qty.	Description	Kit/Part No.
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## Air Cleaner, Heavy Duty

		<b>354324</b>
1	Air cleaner assembly	A-279713
1	Element, air cleaner	279736
1	Element, air cleaner	279737
1	Cap, pipe	X-268-7
1	Clamp	254013
1	Clamp, hose	254344
1	Hose	272641
1	Cap, rain	272674
1	Tube assembly	274620
1	Hose, 90° elbow	279741
3	Clamp, hose	291504
2	Bracket, air cleaner	291666
1	Bracket, air cleaner	354347

## Air Cleaner, Heavy Duty

		<b>354351</b>
1	Air cleaner assembly	A-279713
1	Element, air cleaner	279736
1	Element, air cleaner	279737
4	Nut, lock	X-101-13
1	Cap, pipe	X-268-7
1	Tube, steel	X-522-60
3	Clamp	254013
1	Clamp, hose	254344
2	Mount, air cleaner	258279
2	Elbow, 90°	272627
1	Hose, hump	272628
1	Cap, rain	272674
1	Deflector, heat	274588
2	Bracket, air cleaner	274595
2	Bracket, mounting	279723
1	Tube assembly	279754
2	Bracket, air cleaner	291666

Qty.	Description	Kit/Part No.
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## Air Cleaner, Heavy Duty

		<b>354354</b>
1	Air cleaner assembly	A-279713
1	Element, air cleaner	279736
1	Element, air cleaner	279737
4	Nut, lock	X-101-13
1	Tube, steel	X-522-60
3	Clamp	254013
1	Clamp, hose	254344
2	Mount, air cleaner	258279
2	Elbow, 90°	272627
1	Cap, rain	272674
1	Hose, hump	274221
1	Deflector, heat	274588
2	Bracket, air cleaner	274595
2	Bracket, mounting	279723
1	Tube assembly	279754
2	Bracket, air cleaner	291666

## Air Cleaner, Heavy Duty

		<b>354387</b>
1	Air cleaner assembly	A-279714
1	Element, air cleaner	279738
1	Element, air cleaner	279739
2	Cap, pipe	X-268-7
3	Clamp	254013
2	Mount, air cleaner	258279
1	Elbow, 90°	272627
1	Hose, hump	274221
1	Deflector, heat	274588
2	Bracket, air cleaner	274595
1	Clamp, hose	279482
2	Bracket, air cleaner	279715
1	Hose, elbow	279716
1	Clamp, hose	279717
1	Hose, insert	279718
1	Cap, rain	279722
2	Tube assembly	279754
1	Bracket, support	279820
1	Bracket, support	279822
1	Bracket, support	279823
1	Clamp, hose	291504

## Appendix A. Glossary of Abbreviations

Abbreviations are used throughout this manual. Normally in the text they will appear in complete form with the abbreviation following in parenthesis the first time they are used. After that they will appear in the abbreviated form. The commonly used abbreviations are shown below.

AC	alternating current	gph	gallons per hour	N.C.	normally closed
AIISI	American Iron and Steel Institute	gpm	gallons per minute	NEC	National Electrical Code
Amp	ampere	gr.	grade	NEMA	National Electrical Manufacturers Association
Amps	amperes	grd.	ground	NFPA	National Fire Protection Association
ANSI	American National Standard Institute	HCHT	high cylinder head temperature	Nm	Newton meter, Newton meters
API	American Petroleum Institute	HET	high exhaust (or engine) temperature	no., nos	number, numbers
approx.	approximate, approximately	Hg	mercury (element)	NPT	National Standard taper pipe thread per general use
A/R	as required, as requested	H <sub>2</sub> O	water	N/R	not required
A/S	as supplied, as stated, as suggested	HP	horsepower	OC	overcrank
ASA	American Standards Association	hr, hrs	hour	OD	outside diameter
ASME	American Society of Mechanical Engineers	Hz	hertz (cycles per second)	OEM	original equipment manufacturer
assy.	assembly	ID	inside diameter	OS	overspeed, oversize
ASTM	American Society for Testing Materials	IEEE	Institute of Electrical and Electronic Engineers	O/S	oversize
ATDC	after top dead center	in.	inch(es)	OSHA	Occupational Safety and Health Act
aux.	auxiliary	inc.	incorporated	OV	overvoltage
AWG	American Wire Gauge	in. lbs.	inch pounds	oz.	ounce, ounces
AWM	appliance wiring material	int.	internal	PF	power factor
BBDC	before bottom dead center	int.-ext.	internal-external	PMG	permanent magnet generator
BDC	before dead center	ISO	International Standards Organization	pot.	potentiometer
BHP	brake horsepower	J	joule, joules	ppm	parts per million
bmep	brake mean effective pressure	JIS	Japanese Industry Standard	psi	pounds per square inch
Btu	British thermal unit	kg	kilogram, kilograms	pt., pts.	pint, pints
°C	Celsius degree	kg/cm <sup>2</sup>	kilograms per square centimeter	PVC	polyvinyl chloride
cc	cubic centimeter	kgm	kilogram meter(s)	qt., qts.	quart, quarts
CCA	cold cranking Amps.	kJ	kilojoules (btu cal)	qty.	quantity
CEC	Canadian Electrical Code	km	kilometer, kilometers	ref.	reference
cfh	cubic feet per hour	kPa	kiloPascal, kiloPascals	RFI	radio frequency interference
cfm	cubic feet per minute	kph	kilometers per hour	r.h.m.	round-head machine (screw)
CID	cubic inch displacement	kV	kilovolt	rms	root mean square
cm	centimeter, centimeters	kVA	kilovolt amperes	RPM	revolutions per inch
cmm	cubic meters per minute	kW	kilowatt, kilowatts	RTV	room temperature vulcanization
co.	company	kWH	kilowatt hour	SAE	Society of Automotive Engineers
cont'd.	continued	L	liter, liters	SCR	silicon-controlled rectifier
CSA	Canadian Standards Association	LxWxH	length x width x height	sec.	second, seconds
CT	current transformer	LED(s)	light emitting diode	spec.	specs, specification
cu. in.	cubic inch, cubic inches	lb., lbs.	pound, pounds	sq.	square
cyl.	cylinder	L/hr.	liter per hour, liters per hour	sq. cm	square centimeters
dB	decibel	L/min.	liter(s) per minutes	sq. in.	square inch, square inches
dBA	decibels (A weighted)	LOP	low oil pressure	tach	tachometer
DC	direct current	LP	liquefied petroleum	TDC	top dead center
DCR	direct current resistance	m	meter, meters	tech. pub.	technical publications
deg.	degree	m <sup>3</sup>	cubic meter, cubic meters	temp.	temperature
dept.	department	max.	maximum	TIF	telephone influence factor
dia.	diameter	MCM	one thousand circular mils.	TP, TPs	technical publications
e.g.	example given	megger	megohmmeter	turbo	turbocharger
EIA	Electronic Industries Association	MHz	megahertz	UHF	ultrahigh frequency
EMI	electromagnetic interference	mi.	mile, miles	UNC	Unified coarse thread (was NC)
EPA	Environmental Protection Agency	mil	one one-thousandth of an inch	UNF	Unified fine thread (was NF)
etc.	et cetera (and so forth)	min.	minimum	UL	Underwriter's Laboratories, Inc.
ext.	external	mJ	millijoule, millijoules	U/S	undersize
°F	Fahrenheit degree	MJ	mega joule, mega joules	U.S.A.	United States of America
fl. oz.	fluid ounce, fluid ounces	mm	millimeter, millimeters	v	volt, volts
FM	frequency modulation	m <sup>3</sup> /min	cubic meters per minute	vac	volts alternating current
ft.	foot, feet	MPa	megaPascal	vdc	volts direct current
ft. lbs.	foot pound, foot pounds	mW	milliwatt, milliwatts	VHF	very high frequency
ga.	gauge	MW	megawatt, megawatts	W	watt, watts
gal./ gals.	gallon, gallons	N/A	not available or not applicable		
		NBS	National Bureau of Standards		

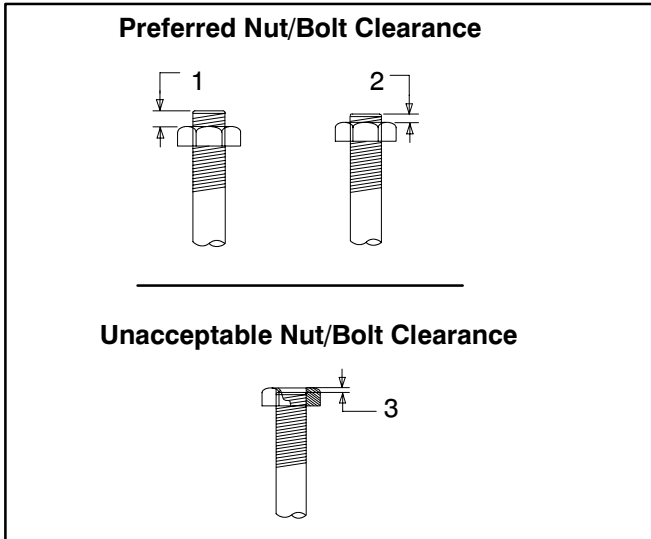
## Appendix B. Common Hardware Application Guidelines

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 NO TAG 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 General Torque Specifications and other torque specifications in the service literature.



1. 1/2 of Bolt Diameter
2. Min. 1 Full Thread Beyond Top of Nut
3. Below Top of Nut

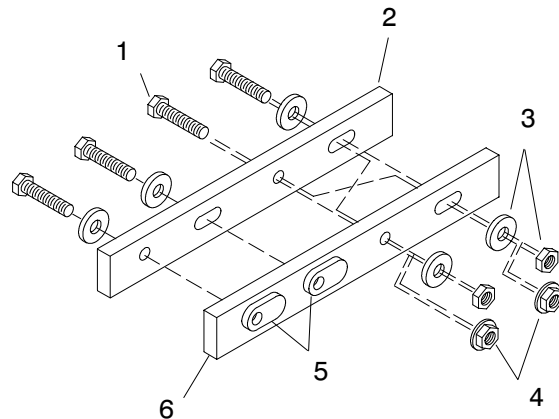
**Figure 2. Acceptable Bolt Lengths**

### 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 the diagram below.

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 the diagram below, which depicts the preceding hardware configuration possibilities.



1. Cap screw
2. Entry hole types
3. Standard nut and SAE washer
4. Whiz nut or spirallock: up to 1/2" dia. hardware
5. Weld nuts: above 1/2" dia. hardware
6. Exit hole types

**Figure 3. Acceptable Hardware Combinations**

## Appendix C. General Torque Specifications

### SAE Fasteners

Use the following specifications for SAE fasteners when no torque values are given elsewhere in this or the service manual for a specified bolt.

The values given are based on new plated threads. Increase values by 20% if nonplated threads are used.

Size	Torque Measurement	Assembled into Cast Iron or Steel			Assembled into Aluminum
		Grade 2	Grade 5	Grade 8	Grade 2 or 5
8-32	in. lbs. (Nm)	16 (1.8)	20 (2.3)	–	16 (1.8)
10-24	in. lbs. (Nm)	26 (2.9)	32 (3.6)	–	26 (2.9)
10-32	in. lbs. (Nm)	26 (2.9)	32 (3.6)	–	26 (2.9)
1/4-20	in. lbs. (Nm)	60 (6.8)	96 (10.8)	132 (14.9)	60 (6.8)
1/4-28	in. lbs. (Nm)	72 (8.1)	108 (12.2)	144 (16.3)	72 (8.1)
5/16-18	in. lbs. (Nm)	120 (13.6)	192 (21.7)	264 (29.8)	120 (13.6)
5/16-24	in. lbs. (Nm)	132 (14.9)	204 (23.1)	288 (32.5)	132 (14.9)
3/8-16	in. lbs. (Nm)	18 (24)	28 (38)	39 (53)	18 (24)
3/8-24	ft. lbs. (Nm)	20 (27)	31 (42)	44 (60)	20 (27)
7/16-14	ft. lbs. (Nm)	29 (39)	44 (60)	63 (85)	
7/16-20	ft. lbs. (Nm)	32 (43)	50 (68)	70 (95)	
1/2-13	ft. lbs. (Nm)	44 (60)	68 (92)	96 (130)	
1/2-20	ft. lbs. (Nm)	49 (66)	76 (103)	108 (146)	
9/16-12	ft. lbs. (Nm)	60 (81)	98 (133)	138 (187)	
9/16-18	ft. lbs. (Nm)	67 (91)	109 (148)	154 (209)	
5/8-11	ft. lbs. (Nm)	83 (113)	135 (183)	191 (259)	
5/8-18	ft. lbs. (Nm)	94 (128)	153 (208)	216 (293)	
3/4-10	ft. lbs. (Nm)	147 (199)	240 (325)	338 (458)	
3/4-16	ft. lbs. (Nm)	164 (222)	268 (363)	378 (513)	
1-8	ft. lbs. (Nm)	191 (259)	532 (721)	818 (1109)	
1-12	ft. lbs. (Nm)	209 (283)	582 (789)	895 (1214)	





















### Metric Fasteners















Use the following specifications for metric fasteners when no torque values are given elsewhere in this manual for a specified bolt. These values are based on new plated threads.

Increase values by 20% if nonplated threads are used. Screws threaded into aluminum must have two diameters of threads engaged and may require 30% or more reduction in the torque.

Size (mm)	Torque ft-lb (Nm)			Fasteners Assembled Into Aluminum
	5.8	6.8	10.9	Aluminum
6 x 1.00	5 (7)	6 (9)	9 (12)	5 (7)
8 x 1.25	14 (19)	14 (20)	20 (37)	14 (19)
8 x 1.00	16 (21)	17 (24)	23 (31)	16 (21)
10 x 1.50	25 (35)	27 (37)	38 (51)	25 (35)
10 x 1.25	29 (39)	34 (46)	45 (61)	29 (39)
12 x 1.75	42 (57)	45 (61)	65 (89)	
12 x 1.50	48 (65)	55 (75)	78 (106)	
14 x 2.00	64 (86)	69 (94)	101 (137)	
14 x 1.50	74 (100)	81 (110)	116 (157)	
16 x 2.00	98 (133)	104 (141)	150 (204)	
16 x 1.50	104 (141)	116 (157)	168 (228)	
18 x 2.50	133 (181)	145 (196)	208 (283)	
18 x 1.50	145 (196)	156 (212)	226 (306)	

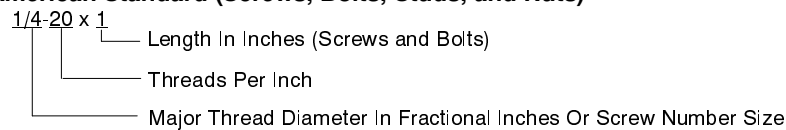
# Appendix D. Common Hardware Identification

<b>Screws/Bolts/Studs Head Styles</b>	
Hex. Head or Machine Head	 
Hex. Head or Machine Head with Washer	
Flat Head (f.h.m.)	
Round Head (r.h.m.)	
Pan Head	
Socket Head Cap or Allen Head Cap	
Socket Head or Allen Head Shoulder Bolt	
Sheet Metal Screw	
Stud	
<b>Drive Styles</b>	
Hex.	
Hex. and Slotted	
Phillips	
Slotted	
Hex. Socket	
<b>Hardness Grade</b>	
<b>American Standard</b>	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9	
<b>Metric</b>	
Number stamped on hardware; 5.8 shown	

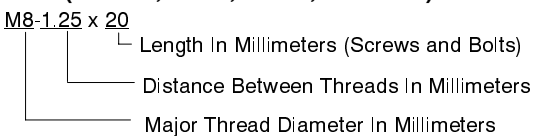
<b>Nuts Nut Styles</b>	
Hex. Head	
Lock Nut or Nylock Nut	
Square Nut	
Cap Nut or Acorn Nut	
Wing Nut	
<b>Nut Hardness Grades</b>	
<b>American Standard</b>	
Grade 2	
Grade 5	
<b>Metric</b>	
Number stamped on hardware	
<b>Washers</b>	
<b>Washer Styles</b>	
Plain	
Split Lock or Spring	
Spring or Wave	
External Tooth Lock	
Internal Tooth Lock	
Internal-External Tooth Lock	

## Sample Dimensions

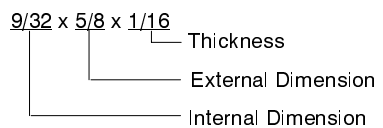
### American Standard (Screws, Bolts, Studs, and Nuts)



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



### Plain Washers



### Lock Washers



## Appendix E. Common Hardware List

The Common Hardware List gives part numbers and dimensions for common hardware items.

### HEX BOLTS (GRADE 5)

Part No.	Dimensions
X-465-17	1/4-20 x .38
X-465-6	1/4-20 x .50
X-465-2	1/4-20 x .62
X-465-16	1/4-20 x .75
X-465-18	1/4-20 x .88
X-465-7	1/4-20 x 1.00
X-465-8	1/4-20 x 1.25
X-465-9	1/4-20 x 1.50
X-465-10	1/4-20 x 1.75
X-465-11	1/4-20 x 2.00
X-465-12	1/4-20 x 2.25
X-465-14	1/4-20 x 2.75
X-465-21	1/4-20 x 5.00
X-465-25	1/4-28 x .38
X-465-20	1/4-28 x 1.00
X-125-33	5/16-18 x .50
X-125-23	5/16-18 x .62
X-125-3	5/16-18 x .75
X-125-31	5/16-18 x .88
X-125-5	5/16-18 x 1.00
X-125-24	5/16-18 x 1.25
X-125-34	5/16-18 x 1.50
X-125-25	5/16-18 x 1.75
X-125-26	5/16-18 x 2.00
230578	5/16-18 x 2.25
X-125-29	5/16-18 x 2.50
X-125-27	5/16-18 x 2.75
X-125-28	5/16-18 x 3.00
X-125-22	5/16-18 x 4.50
X-125-32	5/16-18 x 5.00
X-125-35	5/16-18 x 5.50
X-125-36	5/16-18 x 6.00
X-125-40	5/16-18 x 6.50
X-125-43	5/16-24 x 1.75
X-125-44	5/16-24 x 2.50
X-125-30	5/16-24 x .75
X-125-39	5/16-24 x 2.00
X-125-38	5/16-24 x 2.75
X-6238-2	3/8-16 x .62
X-6238-10	3/8-16 x .75
X-6238-3	3/8-16 x .88
X-6238-11	3/8-16 x 1.00
X-6238-4	3/8-16 x 1.25
X-6238-5	3/8-16 x 1.50
X-6238-1	3/8-16 x 1.75
X-6238-6	3/8-16 x 2.00
X-6238-17	3/8-16 x 2.25
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
X-6024-5	7/16-14 x .75
X-6024-2	7/16-14 x 1.00
X-6024-8	7/16-14 x 1.25
X-6024-3	7/16-14 x 1.50
X-6024-4	7/16-14 x 2.00
X-6024-11	7/16-14 x 2.75
X-6024-12	7/16-14 x 6.50
X-129-15	1/2-13 x .75

### HEX BOLTS (GRADE 5), continued

Part No.	Dimensions
X-129-17	1/2-13 x 1.00
X-129-18	1/2-13 x 1.25
X-129-19	1/2-13 x 1.50
X-129-20	1/2-13 x 1.75
X-129-21	1/2-13 x 2.00
X-129-22	1/2-13 x 2.25
X-129-23	1/2-13 x 2.50
X-129-24	1/2-13 x 2.75
X-129-25	1/2-13 x 3.00
X-129-27	1/2-13 x 3.50
X-129-29	1/2-13 x 4.00
X-129-30	1/2-13 x 4.50
X-463-9	1/2-13 x 5.50
X-129-44	1/2-13 x 6.00
X-129-51	1/2-20 x .75
X-129-45	1/2-20 x 1.25
X-129-52	1/2-20 x 1.50
X-6021-3	5/8-11 x 1.00
X-6021-4	5/8-11 x 1.25
X-6021-2	5/8-11 x 1.50
X-6021-1	5/8-11 x 1.75
273049	5/8-11 x 2.00
X-6021-5	5/8-11 x 2.25
X-6021-6	5/8-11 x 2.50
X-6021-7	5/8-11 x 2.75
X-6021-12	5/8-11 x 3.75
X-6021-11	5/8-11 x 4.50
X-6021-10	5/8-11 x 6.00
X-6021-9	5/8-18 x 2.50
X-6239-1	3/4-10 x 1.00
X-6239-8	3/4-10 x 1.25
X-6239-2	3/4-10 x 1.50
X-6239-3	3/4-10 x 2.00
X-6239-4	3/4-10 x 2.50
X-6239-5	3/4-10 x 3.00
X-6239-6	3/4-10 x 3.50
X-792-1	1-8 x 2.25
X-792-5	1-8 x 3.00
X-792-8	1-8 x 5.00

### NUTS

Part No.	Dimensions	Type
X-6009-1	1-8	Std. Nut
X-6210-3	6-32	Whiz Nut
X-6210-4	8-32	Whiz Nut
X-6210-5	10-24	Whiz Nut
X-6210-1	10-32	Whiz Nut
X-6210-2	1/4-20	Spiralock Nut
X-6210-6	1/4-28	Spiralock Nut
X-6210-7	5/16-18	Spiralock Nut
X-6210-8	5/16-24	Spiralock Nut
X-6210-9	3/8-16	Spiralock Nut
X-6210-10	3/8-24	Spiralock Nut
X-6210-11	7/16-14	Spiralock Nut
X-6210-12	1/2-13	Spiralock Nut
X-6210-15	7/16-20	Spiralock Nut
X-6210-14		Spiralock Nut
X-85-3	5/8-11	Std. Nut
X-88-12	3/4-10	Std. Nut
X-89-2	1/2-20	Std. Nut

### WASHERS

Part No.	ID	OD	Thickness	Bolt/ Screw
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





**TP-5354 10/97**

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KOHLER CO. Kohler, Wisconsin 53044  
Phone 920-565-3381, Web site [www.kohlergenerators.com](http://www.kohlergenerators.com)  
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Kohler<sup>®</sup> Power Systems  
Asia Pacific Headquarters  
7 Jurong Pier Road  
Singapore 619159  
Phone (65)264-6422, Fax (65)264-6455