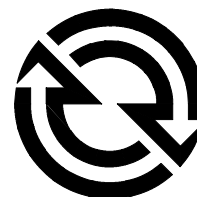


Service Parts

SPECTRUM®

DETROIT DIESEL



Generator Sets

Models:

450–800DS

See Group 701, Literature,
for Engine and Accessory
Parts Catalogs



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Introduction

This manual contains a list of generator and some engine service replacement parts for Spectrum 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:** List part numbers of parts in the groups.
- **Kit List and Kit Sections:** List controller and cooling system kits (by model) and their parts. See Parts Catalog MP-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 the 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:

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

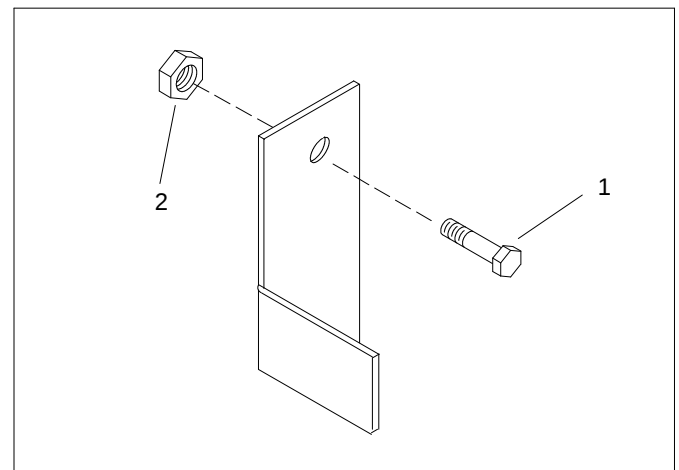


Figure 1. Hardware References

Specification Number Index

GROUP TITLE and 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>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>		
GROUP NO.	101	104	105	107	108	109	110	112	201	301	701		
SPEC NO.	VARIATION NUMBER												

450DS													
191032	16	21	39	32	10	25	10	4	123	36	39		
191033	16	*	39	32	10	25	10	4	123	†	39		
191034	16	*	39	32	10	25	10	4	124	†	39		
191036	16	*	39	32	10	25	10	4	125	†	39		
191037	16	*	39	32	10	25	10	4	88	†	39		
191126	21	26	43	32	13	31	9	4	123	36	39		
191127	21	*	43	32	13	31	9	4	123	†	39		
191128	21	*	43	32	13	31	9	4	124	†	39		
191129	21	*	43	32	13	31	9	4	125	†	39		
191130	21	*	43	32	13	31	9	4	88	†	39		
191165	21	26	43	32	13	31	9	4	256	51	48		
191166	21	*	43	32	13	31	9	4	256	†	48		
191167	21	*	43	32	13	31	9	4	257	†	48		
191168	21	*	43	32	13	31	9	4	258	†	48		
191169	21	*	43	32	13	31	9	4	259	†	48		
191294	34	53	64	68	E64	48	E64	E64	305	93	48		
191295	34	53	64	68	E64	48	E64	E64	306	93	48		
191296	34	53	64	68	E64	48	E64	E64	307	93	48		
191297	34	53	64	68	E64	48	E64	E64	308	94	48		
191298	34	53	64	68	E64	48	E64	E64	309	95	48		
191299	34	53	64	68	E64	48	E64	E64	310	94	48		
191300	34	53	64	68	E64	48	E64	E64	311	95	48		
191301	*	*	64	68	E64	*	E64	E64	*	†	48		

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

† Determine kit number from generator nameplate and see Controller Kits in kits section for parts list.

Specification Number Index

GROUP TITLE and NUMBER													
	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Generator and Mounting	Controller and Mounting	Literature		
GROUP NO.	101	104	105	107	108	109	110	112	201	301	701		
SPEC NO.	VARIATION NUMBER												

500DS													
191038	11	22	31	21	10	10	9	4	85	36	40		
191039	11	22	31	21	10	10	11	4	86	36	40		
191040	11	*	31	21	10	10	9	4	85	†	40		
191041	11	*	31	21	10	10	9	4	86	†	40		
191042	11	*	31	21	10	10	9	4	89	†	40		
191043	11	*	31	21	10	10	9	4	87	†	40		
191044	11	*	31	21	10	10	11	4	90	†	40		
191170	11	22	31	21	10	10	9	4	260	51	49		
191171	11	22	31	21	10	10	11	4	239	51	49		
191172	11	*	31	21	10	10	9	4	260	†	49		
191173	11	*	31	21	10	10	9	4	239	†	49		
191174	11	*	31	21	10	10	9	4	261	†	49		
191175	11	*	31	21	10	10	9	4	227	†	49		
191176	11	*	31	21	10	10	11	4	228	†	49		
191302	35	57	65	68	E65	49	E65	E65	312	93	49		
191303	35	57	65	68	E65	49	E65	E65	313	93	49		
191304	35	57	65	68	E65	49	E65	E65	314	93	49		
191305	35	57	65	68	E65	49	E65	E65	315	94	49		
191306	35	57	65	68	E65	49	E65	E65	316	95	49		
191307	35	57	65	68	E65	49	E65	E65	317	94	49		
191308	35	57	65	68	E65	50	E65	E65	318	95	49		
191309	*	*	65	68	E65	*	E65	E65	*	†	49		

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

† Determine kit number from generator nameplate and see Controller Kits in kits section for parts list.

Specification Number Index

GROUP TITLE and NUMBER													
	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Generator and Mounting	Controller and Mounting	Literature		
GROUP NO.	101	104	105	107	108	109	110	112	201	301	701		
SPEC NO.	VARIATION NUMBER												

600DS													
191045	5	6	23	33	10	10	11	4	89	37	57		
191046	5	6	23	33	10	10	11	4	91	37	57		
191047	5	*	23	33	10	10	11	4	89	†	57		
191048	5	*	23	33	10	10	11	4	91	†	57		
191049	5	*	23	33	10	11	11	4	92	†	57		
191050	5	*	23	33	10	10	11	4	93	†	57		
191051	5	*	23	33	10	11	11	4	94	†	57		
191177	5	6	23	33	10	10	11	4	261	52	64		
191178	5	6	23	33	10	10	11	4	229	52	64		
191179	5	*	23	33	10	10	11	4	261	†	64		
191180	5	*	23	33	10	10	11	4	229	†	64		
191181	5	*	23	33	10	11	11	4	230	†	64		
191182	5	*	23	33	10	10	11	4	231	†	64		
191183	5	*	23	33	10	11	11	4	232	†	64		
191310	36	51	66	68	E66	49	E66	E66	313	96	64		
191311	36	51	66	68	E66	49	E66	E66	314	96	64		
191312	36	51	66	68	E66	50	E66	E66	319	96	64		
191313	36	51	66	68	E66	49	E66	E66	317	97	64		
191314	36	51	66	68	E66	50	E66	E66	318	98	64		
191315	36	51	66	68	E66	50	E66	E66	320	97	64		
191317	*	*	66	68	E66	*	E66	E66	*	†	64		

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

† Determine kit number from generator nameplate and see Controller Kits in kits section for parts list.

Specification Number Index

GROUP TITLE and NUMBER	Air Intake Cooling System Engine Nameplates and Decals Oil Pressure Switches Skid and Plant Mounting Water Temperature Switches Starter Generator and Mounting Controller and Mounting Literature													
	GROUP NO.	101	104	105	107	108	109	110	112	201	301	701		
SPEC NO.	VARIATION NUMBER													

750DS													
191052	18	23	40	22	10	29	11	9	95	37	58		
191053	18	23	40	22	10	29	11	9	96	37	58		
191054	18	—	40	22	10	29	11	9	95	†	58		
191055	18	*	40	22	10	29	11	9	96	†	58		
191056	18	*	40	22	10	29	11	9	97	†	58		
191057	18	*	40	22	10	29	11	9	98	†	58		
191058	18	*	40	22	10	29	11	9	99	†	58		
191184	18	23	40	22	10	29	11	9	233	52	65		
191185	18	23	40	22	10	29	11	9	234	52	65		
191186	18	*	40	22	10	29	11	9	233	†	65		
191187	18	*	40	22	10	29	11	9	234	†	65		
191188	18	*	40	22	10	29	11	9	235	†	65		
191189	18	*	40	22	10	29	11	9	236	†	65		
191190	18	*	40	22	10	29	11	9	237	†	65		
191333	45	37	68	72	E68	58	E68	E68	319	96	81		
191334	45	37	68	72	E68	58	E68	E68	341	96	81		
191335	45	37	68	72	E68	58	E68	E68	343	96	81		
191336	45	37	68	72	E68	58	E68	E68	320	97	81		
191337	45	37	68	72	E68	58	E68	E68	321	98	81		
191338	45	37	68	72	E68	58	E68	E68	345	97	81		
191339	*	*	68	72	E68	*	E68	E68	*	†	81		
191451	68	56	101	72	E101	73	E101	E101	319	96	81		
191452	68	56	101	72	E101	73	E101	E101	341	96	81		
191453	68	56	101	72	E101	73	E101	E101	343	96	81		
191454	68	56	101	72	E101	73	E101	E101	321	98	81		
191455	68	56	101	72	E101	73	E101	E101	320	97	81		
191456	68	56	101	72	E101	73	E101	E101	345	97	81		
191457	*	*	101	72	E101	*	E101	E101	*	†	81		

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

† Determine kit number from generator nameplate and see Controller Kits in kits section for parts list.

Specification Number Index

GROUP TITLE and NUMBER													
	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Generator and Mounting	Controller and Mounting	Literature		
GROUP NO.	101	104	105	107	108	109	110	112	201	301	701		
SPEC NO.	VARIATION NUMBER												

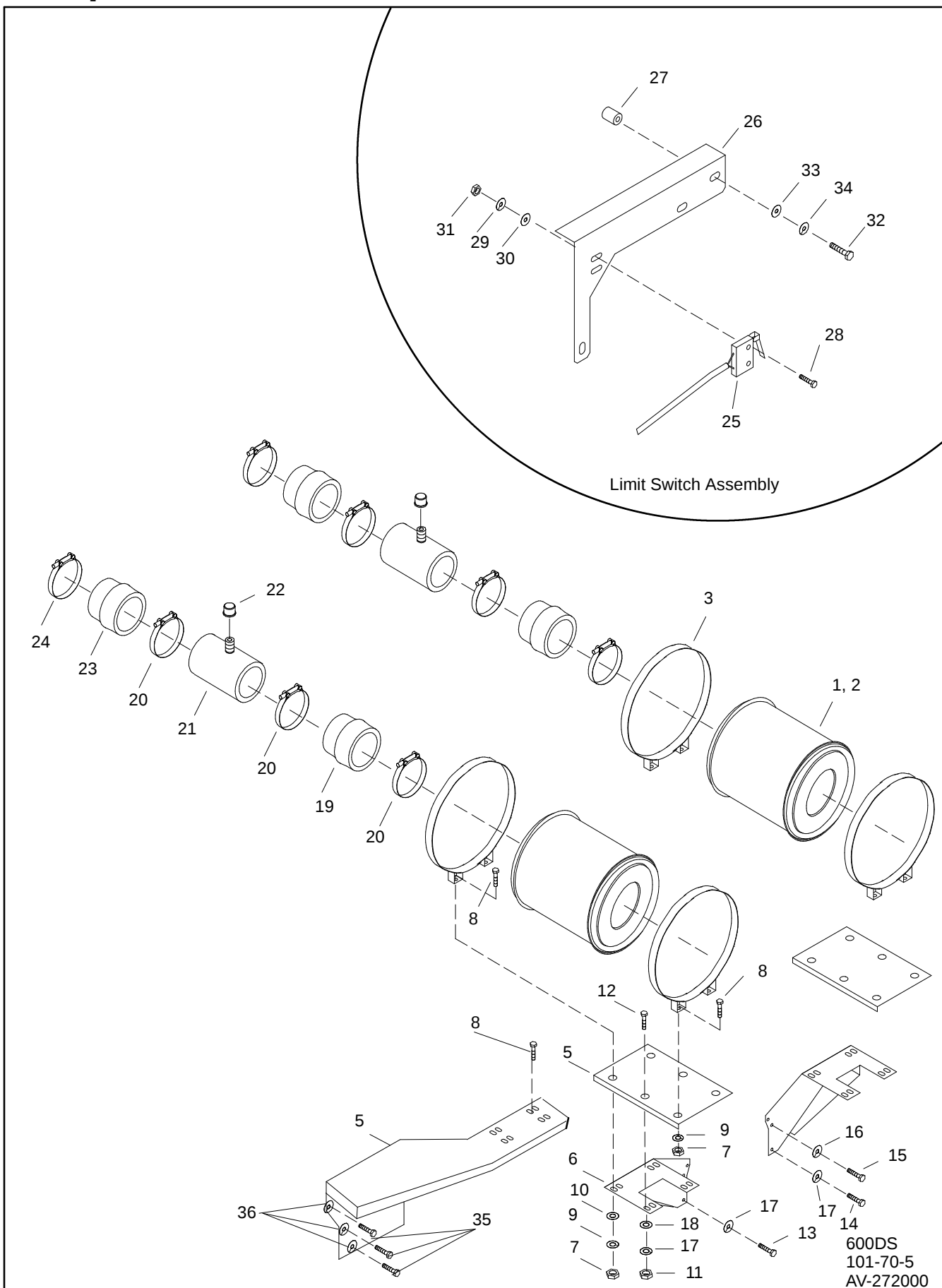
800DS													
191059	18	23	40	34	10	29	11	9	96	37	58		
191060	18	23	40	34	10	29	11	9	97	37	58		
191061	18	*	40	34	10	29	11	9	96	†	58		
191062	18	*	40	34	10	29	11	9	97	†	58		
191063	18	*	40	34	10	29	11	9	126	†	58		
191064	18	*	40	34	10	29	11	9	98	†	58		
191065	18	*	40	34	10	29	11	9	99	†	58		
191191	18	23	40	34	10	29	11	9	234	52	65		
191192	18	23	40	34	10	29	11	9	235	52	65		
191193	18	*	40	34	10	29	11	9	234	†	65		
191194	18	*	40	34	10	29	11	9	235	†	65		
191195	18	*	40	34	10	29	11	9	238	†	65		
191196	18	*	40	34	10	29	11	9	236	†	65		
191197	18	*	40	34	10	29	11	9	237	†	65		
191391	63	58	89	72	E89	74	E89	E89	341	96	65		
191392	63	58	89	72	E89	74	E89	E89	343	96	65		
191393	63	58	89	72	E89	74	E89	E89	350	150	65		
191394	63	58	89	72	E89	74	E89	E89	345	97	65		
191395	63	58	89	72	E89	74	E89	E89	321	121	65		
191396	*	*	89	72	E89	*	E89	E89	*	†	65		
191340	46	38	69	72	E69	59	E69	E69	341	96	65		
191341	46	38	69	72	E69	59	E69	E69	343	96	65		
191342	46	38	69	72	E69	59	E69	E69	350	150	65		
191343	46	38	69	72	E69	59	E69	E69	345	97	65		
191344	46	38	69	72	E69	59	E69	E69	321	121	65		
191345	*	*	69	72	E69	*	E69	E69	*	†	65		

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

† Determine kit number from generator nameplate and see Controller Kits in kits section for parts list.

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Group 101: Air Intake



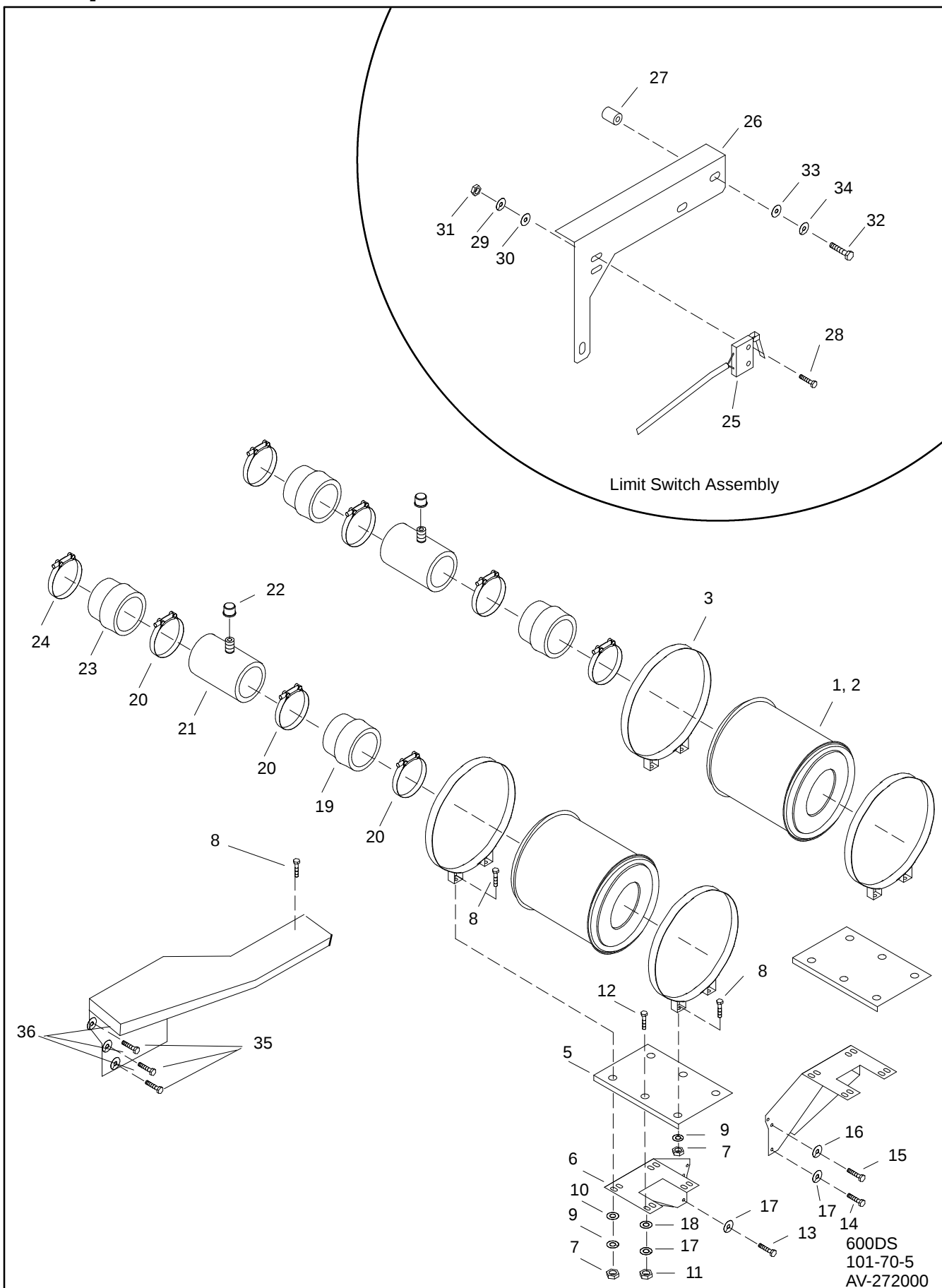
Group 101: Air Intake, continued

Item	Part Number	Description	Quantity													
			Variation Number													
			5	6	11	16	18	21	34	35	36	45	46	63	68	
1	272981	Air Cleaner	2		2	2		2	2	2	2					
1	A-291664	Air Cleaner		2			2						2			
1	354842	Air Cleaner												2		
1	274821	Air Cleaner										2			2	
1	291665	Air Cleaner														
1	A-279714	Air Cleaner, Heavy-Duty														
1	279722	Rain Cap, Air Cleaner														
2	N/A	Element Not Sold Separately	2		2	2		2	2	2	2	2		2	2	
2	274683	Air Cleaner Element		2			2						2			
2	279738	Air Cleaner Element, Heavy-Duty														
2	279739	Air Cleaner Element, Heavy-Duty														
3	272983	Clamp, Hose (band w.mtg. 13 39/64)	2		2	4		4	2	2	2			2		
3	291666	Mount, Air Cleaner, 16"		4			4						4			
3	280998	Clamp								2	2	2			2	
3	279715	Bracket, Air Cleaner														
4	291665	Cap, Inlet (not shown)		4			4									
5	274310	Support Plate, Air Cleaner														
5	279721	Bracket, Air Cleaner														
5	354470	Bracket, Air Cleaner	1		1					1	1			1		
5	354471	Bracket, Air Cleaner	1		1					1	1			1		
6	279901	Bracket, Right Air Cleaner				1		1								
6	274286	Bracket, Left Air Cleaner		1			1									
6	274285	Bracket, Right Air Cleaner		1			1						1			
6	279902	Bracket, Left Air Cleaner				1		1								
6	354584	Bracket, Left Air Cleaner							1							
6	354585	Bracket, Right Air Cleaner							1							
7	*	Nut, 3/8-16		8			8									
8	X-6238-11	Screw, 3/8-16 x 1		8			8									
8	X-6238-4	Screw, 3/8-16														
8	*	Screw, 3/8-16								4	4		4			
9	*	Washer, Split Lock, 3/8		4			4									
10	X-25-37	Washer, 15/32 x 13/16		4			4									
11	*	Nut, 3/8-16														
12	X-6238-11	Screw, 3/8-16 x 1														
13	X-6238-22	Screw, 3/8-24 x 4	1	1			1						1	1		
14	X-6238-13	Screw, Ref.	1	1			1			1	1		1	1		
14	N/A	Use Existing Engine Hardware				1		1								
15	N/A	Use Existing Engine Hardware	2	4			4									
15	X-6238-22	Screw, Ref.										3		2	3	
15	X-6024-5	Screw, Ref.				4										
16	*	7/16-14 Hardware				4										
16	*	3/8 Hardware	2									3		2	3	
17	*	Washer, Split Lock, 3/8	1			4	4	4						1		
17	X-25-93	Washer, Plain	1		1					1	1	1	1	1	2	
18	X-25-37	Washer, 15/32 x 13/16		4			4									
18	X-25-1	Washer, Plain														
19	291679	Hose, Hump, 7.0 ID x 6.0-7.0 L		2	2	2	2	2					2			
19	279720	Hose, Hump														
19	354441	Hose, Hump			1				1	2						
19	354447	Hose, Hump	2													
20	280998	Clamp, Hose (band), 7 7/8	2	6	2	6	6	6	2	2	2	2	6	2	2	
20	279717	Clamp, Hose														
20	254344	Clamp, Hose			2				2	2						
20	291504	Clamp, Hose									2	2			2	
21	274624	Tube Assembly, 7 OD x 11 L														
21	274619	Tube Assembly, 7 OD x 14.5 L		2			2						2			
21	274664	Tube Assembly, 7 OD x 5 L				2		2								
22	X-268-7	Cap, Pipe, 1/8 NPT		2		2	2	2						2		
23	291560	Hose, Hump, 5.5/7.0 ID x 6.0-7.4 L		2			2							2		
23	274430	Hose, Hump, 5.0/7.0 ID x 7.0 L				2		2								
24	291504	Clamp, Hose (band), 6	2	2			2						2	2		
24	254344	Clamp, Hose (band), 5 1/2				2		2		2	2					
25	272790	Switch Assembly, Limit	1	1	1	1	1	1								
26	274312	Bracket, Switch Mounting	1	1	1		1									
26	279945	Bracket, Switch Mounting				1										
27	265861	Spacer, 0.281 x 0.500 x 0.37	2	2	2		2									
28	X-49-6	Screw, 6-32 x 3/4	2	2	2	2	2									

* Common hardware; procure locally

† Heavy-duty air cleaner kit

Group 101: Air Intake, continued



Group 101: Air Intake, continued

Item	Part Number	Description	Quantity													
			Variation Number													
			5	6	11	16	18	21	34	35	36	45	46	63	68	354049†
29	*	Washer, Split Lock, 6	2	2	2	2	2									
30	X-25-9	Washer, Plain, 5/32 x 3/8 x 3/64	2	2	2	2	2									
31	*	Nut, 6-32	2	2	2	2	2									
32	X-465-7	Screw, 1/4-20 x 1	3	3	3		3									
32	N/A	Use Existing Engine Hardware				3										
33	X-25-40	Washer, 9/32 x 5/8	3	3	3		3									
34	*	Washer, Split Lock, 1/4	3	3	3		3									
35	*	Washer, 3/8								6	6			6		
36	X-6238-22	Screw, 3/8-24 x 4								6	6			6		

* Common hardware; procure locally

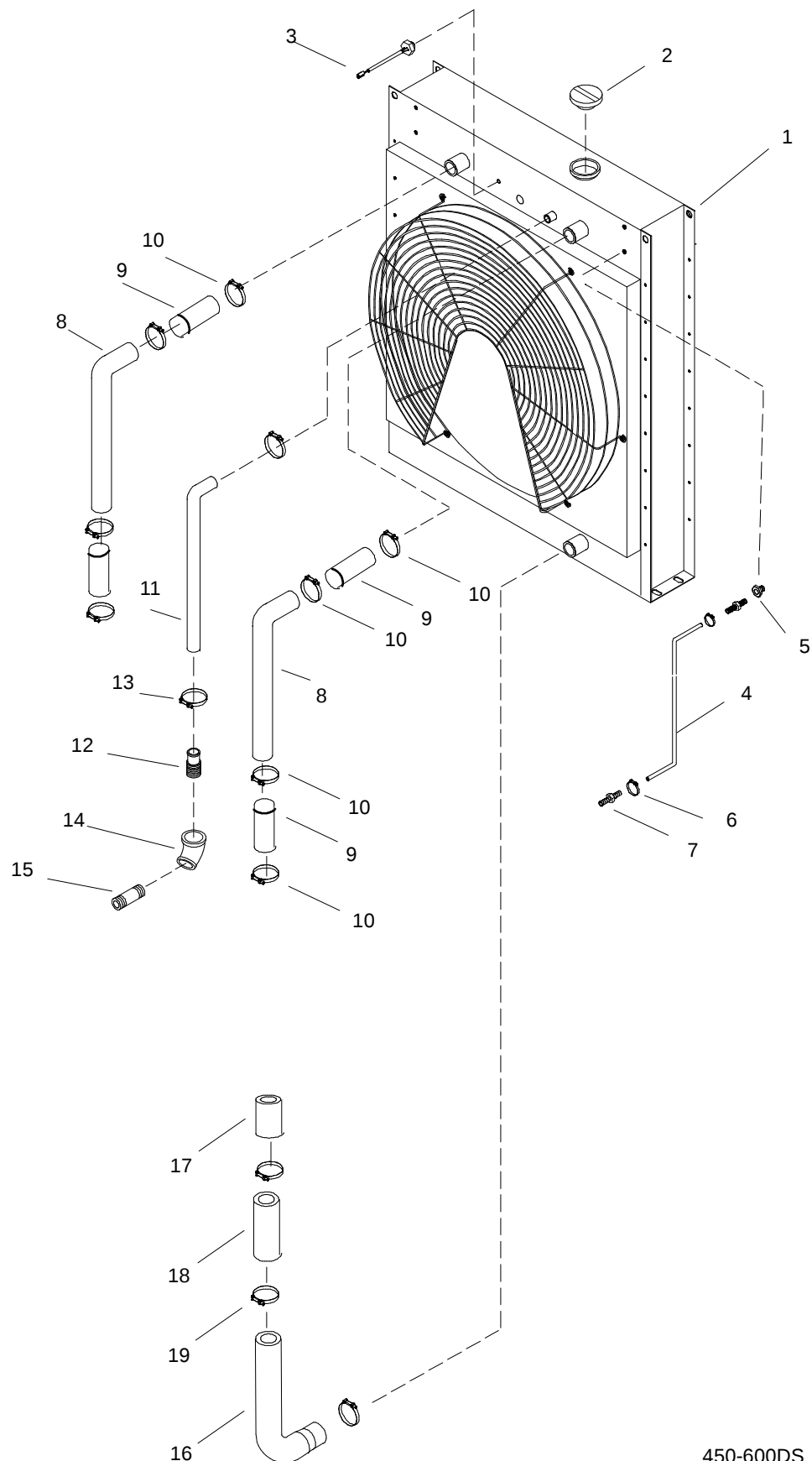
† Heavy-duty air cleaner kit

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 kit number installed on the generator set. Use the following table to identify the corresponding variation number. The kit's parts list matches the parts list for the corresponding variation number.

Air Cleaner Kit	Equivalent Variation Number
347399	46
347359	34
347369	35
347378	36
347860	45
354846	63
354940	68

Group 104: Cooling System



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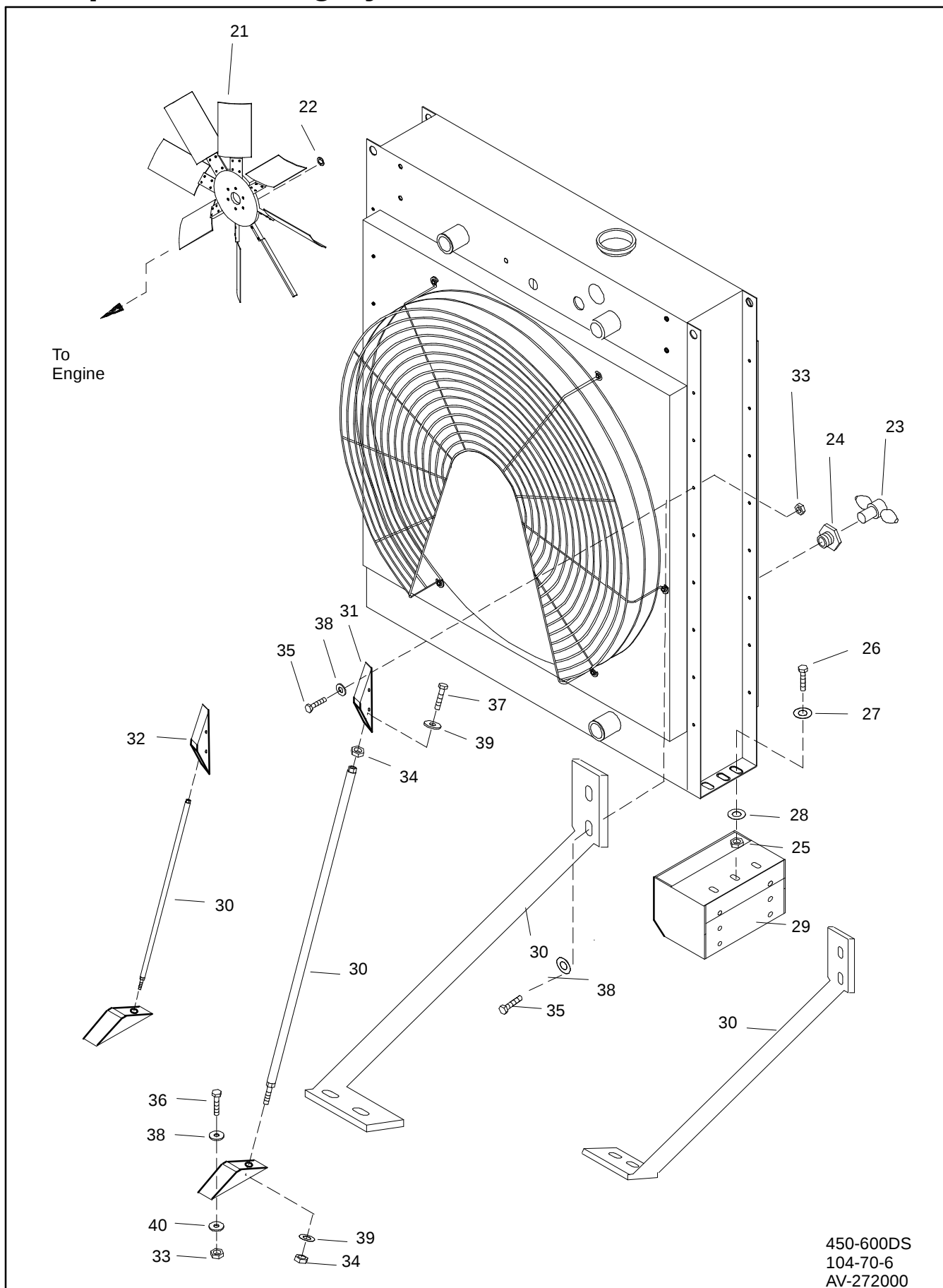
Group 104: Cooling System, continued

Item	Part Number	Description	Quantity													
			Variation Number													
			6	13	17	21	22	23	26	37	38	51	53	56	57	58
1	A-272949	Radiator Assembly	1													
1	A-274309	Radiator Assembly		1												
1	A-272858	Radiator Assembly			1											
1	A-279649	Radiator Assembly				1			1							
1	A-279999	Radiator Assembly					1									
1	A-299893	Radiator Assembly						1			1					
1	A-347826	Radiator Assembly												1		
1	A-354539	Radiator Assembly								1			1		1	
1	A-354540	Radiator Assembly										1				
1	A-354840	Radiator Assembly														1
2	224357	Cap, Radiator	1	1	1											
2	224364	Cap, Radiator				1	1		1							
2	347715	Cap, Radiator										1	1	1	1	1
3	273469	Coolant Level Sensor (before serial number 363369)	1	1	1	1	1	1	1	1	1					
3	254832	Coolant Level Sensor (serial numbers 363369 and after)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	X-6003-8	Conduit (for exposed wires, not shown)	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	X-202-28	Bushing, Reducer, 3/8	1			1			1			1	1	1	1	1
4	X-651-11	Line, 3/8 ID (vent)										1	1	1	1	1
4	X-651-12	Line, 3/8 ID x 54		1	1			1		1	1			1		1
5	X-202-12	Bushing, Reducer, 1/4 F x 1/2 M		1	1											
6	X-426-9	Clamp, Hose, 5/8	2	2	2	2	2	2	2	2	2	2	2	2	2	2
6	X-426-8	Clamp, Hose, 0.81-1.75 ID														
7	X-652-1	Fitting, Hose, 3/8 x 1/4 NPT	2		2	2	2	2	2	2	2	2	2	2	2	2
8	272972	Tube, Upper Radiator	2				2					2			2	
8	274401	Tube, Upper Radiator		2	2			2		2	2			2		2
8	279943	Tube, Upper Radiator				2			2							
8	354586	Tube, Upper Radiator											2			
9	X-6014-53	Hose, 3 ID	4				4									
9	X-507-6	Hose, Radiator, 3 ID x 7	4		4		4			4	4	4		4	4	4
9	X-6014-69	Hose, Radiator, 2.5 ID x 6 L				4										
9	X-507-6	Hose, Radiator, 3 ID x 7		2				2								
9	X-507-6	Hose, Radiator, 3 ID x .58 (upper)											2			
9	X-507-5	Hose, 3 ID x 13		2												
9	X-424-10	Hose, 2.5 ID x .5 (lower)											2			
10	291542	Clamp, Hose (band), 3 1/2	8	8	8		8	8		8	8	8	4	8	8	8
10	275527	Clamp, 2.81 -3.12 ID				8			8				4			
11	X-6014-30	Hose, Radiator Bypass, 1 1/4 ID x 54	1				1									
11	X-6014-52	Hose, Radiator Bypass, 1 1/4 ID x 76			1			1	1	1	1			1		1
11	X-6014-33	Hose, 1 1/2 ID x 76		1												
11	X-272-29	Hose 1/8 ID x 66 ?										1			1	
11	X-272-9	Hose 1/8 ID x 66											1			
11	X-6014-66	Hose, 1 1/4 ID x 62.5				1										
12	272930	Adapter, Hose, 1 NPT x 1 1/4	1		1	1	1	1	1	1	1	1	1	1	1	1
12	X-751-4	Adapter, Hose, 1 1/2 NPT x 1 1/2		1												
12	X-202-11	Bushing, Reducer, 1F x 1 1/2 M		1												
13	X-426-8	Clamp, Hose, 1 3/4	2	2	2											

Serial Number– Contingent Cooling System Parts

Part Description	Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and After
Coolant Level Sensor	273404	254832
Bushing Reducer, 3/8 x 1/2 NPT	Not Used	X-202-28
Conduit ,Plastic	X-6003-8	X-6003-8
Connector, Pin Housing	239411	Not Used
Pin	239516	Not Used
Terminal 1/4 (female)	Not Used	X-431-25
Terminal 1/4 (male)	Not Used	X-431-29
Sensor, Low Coolant	273520	347270

Group 104: Cooling System, continued

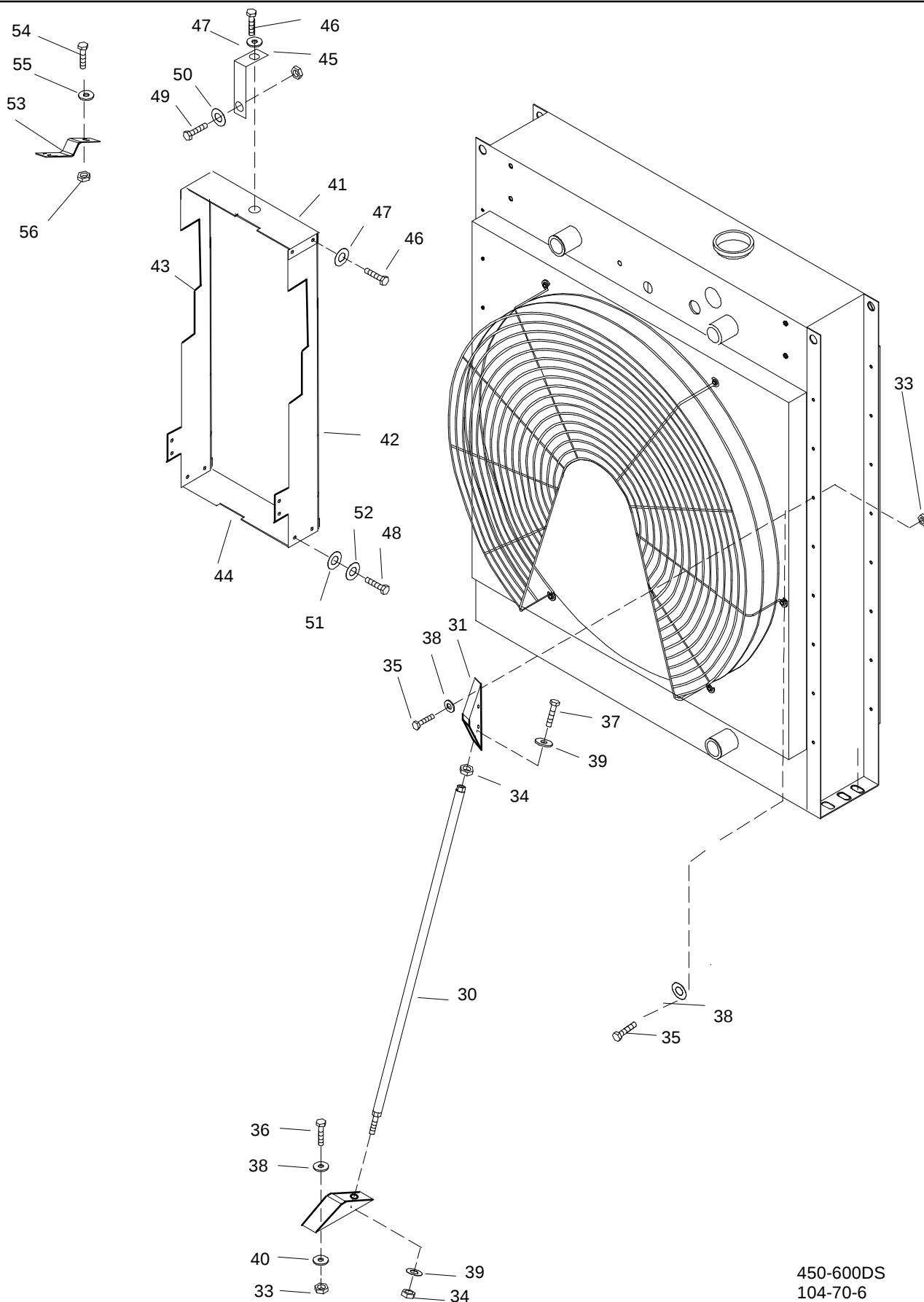


Group 104: Cooling System, continued

Item	Part Number	Description	Quantity													
			Variation Number													
			6	13	17	21	22	23	26	37	38	51	53	56	57	58
13	X-216-21	Coupling, Pipe 1 1/2 NPSC		1												
13	279669	Clamp, Hose, 1.50-1.81 ID				2	2	2	2	2	2	2	2	2	2	2
14	X-215-15	Elbow, Pipe, 90° 1 NPT	1	1	1	1	1	1		1	1	1		1	1	1
14	X-225-9	Elbow, Pipe, 45° 1 NPT							1				1			
15	X-274-10	Elbow, 45° (not shown)				1		1	1				1			
15	X-218-22	Nipple, Pipe, 1 NPTF x 3	1		1	1	1	1	1	1	1					
15	X-218-24	Nipple, Pipe, 1 x 1 1/2		1												
16	272988	Hose, Lower Radiator	1				1			1						
16	274402	Hose, Lower Radiator		1								1			1	
16	354684	Hose, Lower Radiator												1	1	
16	272971	Hose, Lower Radiator			1			1			1					1
16	354841	Hose, Lower Radiator											1			
16	354699	Hose, Lower Radiator							1							
16	X-6014-70	Hose, Lower Radiator				1										
17	X-6014-31	Hose, Lower Radiator, 4 ID x 6		1	1			1		1	1					
17	X-6014-91	Hose, Lower Radiator, 4 ID x 6	1				1									
18	272989	Tube, Lower Radiator	1				1			1						
18	272973	Tube, Lower Radiator		1	1			1			1					
18	279942	Tube, Lower Radiator				1			1							
19	274545	Clamp, Hose (band), 4 1/2		4	4			4		4	4	2	1	2	2	2
19	343287	Clamp, Hose (band),	2				2									
19	291537	Clamp, 3.75-4.06 ID				4		4					1			
21	274757	Fan Assembly	1				1						1		1	
21	A-274321	Fan Assembly		1												
21	A-274715	Fan Assembly			1											
21	279863	Fan Assembly				1			1							
21	299892	Fan Assembly						1			1					1
21	279752	Fan Assembly								1		1				
21	347839	Fan Assembly												1		
21	274322	Spacer, Fan (not shown)		1	1											
21	X-129-47	Screw, grade 8 (not shown), 1/2-13 x 2		6	6			6				6	6	6	6	6
21	X-129-53	Screw, H.C. (not shown)								6	6	6	6	6	6	6
22	290945	Washer, Hardened, 17/32 x 1 1/16 x 1/16	6	6	6		6	6		6	6	6	6	6	6	6
22	X-801-3	Washer, Hardened, 13/32 x 13/16 x 5/64		3	3			3								
22	X-801-5	Washer, Hardened, 0.656 ID x 1.06 OD				6			6							
23	X-256-1	Valve, Drain, 3/8 NPT	1	1	1		1	1		1	1	1	1	1	1	1
23	X-256-5	Valve, Drain, 1/2 NPTF				1			1							
24	X-202-28	Bushing, Reducer, 3/8 F x 1/2 M	1	1	1		1	1		1	1	1	1	1	1	1
25	*	Nut, 5/8-11	6	6	6			6		6	6	6	6	6	6	6
26	X-6021-1	Screw, 5/8-11 x 1 3/4	6	6	6			6								
26	*	Bolt, 5/8-11								6	6	6	6	6	6	6
27	X-24-1	Washer, Split lock, 5/8	6	6												
27	X-24-2	Washer, Split lock, 5/8			6			6								
28	X-25-15	Washer, Plain, 21/32 x 15/16 x 3/32		6	6	6										
28	X-801-9	Washer, Hardened	6				6	6	6	6	6	6	6	6	6	6
29	354527	Support, Radiator										2	2			
29	354528	Support, Radiator												2		
30	279541	Brace, Radiator	2			2	2		2							
30	274257	Brace, Radiator		2				2								
30	279540	Brace, Radiator			2											
30	354663	Radiator Support, RH									1					1
30	354530	Radiator Support, RH								1						
30	354532	Radiator Support, RH										1	1		1	
30	354664	Radiator Support, LH									1					1
30	354531	Radiator Support, LH								1						
30	354533	Radiator Support, LH										1	1		1	
31	279544	Bracket, RH Radiator	2			2	2		2							
31	274259	Support, RH Radiator		2												
31	279542	Bracket, RH Radiator			2			2								
32	279545	Bracket, LH Radiator	2			2	2		2							
32	274260	Support, LH Radiator		2												
32	279543	Bracket, RH Radiator			2			2								
33	X-85-3	Nut, 5/8-11	8	8	8		8		8							
33	*	Nut, 5/8-11											8	4		4
34	X-88-12	Nut, hex, 3/4-10	4		4		4	4								
35	X-6021-2	Screw, 5/8-11 x 1 1/2	4	4	4		4	4								
36	X-6021-5	Screw, 5/8-11 x 2 1/4	4	4			4	4								
36	*	5/8-11 Hardware								8	8			4		4

* Common Hardware; Procure Locally

Group 104: Cooling System, continued



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Group 104: Cooling System, continued

Item	Part Number	Description	Quantity														
			Variation Number														
			6	13	17	21	22	23	26	37	38	51	53	56	57	58	
37	X-6239-2	Screw, Hardened, 3/4-10 x 1 1/2	2														
37	X-6239-3	Screw, Hardened, 3/4-10 x 1			2		2										
38	X-24-1	Washer, Split Lock, 5/8	8	8	8		8										
38	X-801-9	Washer, Hardened								8	8	8	4	4	8	8	
39	X-26-10	Washer, Lock, 3/4	2		2		2										
40	X-6011-3	Washer, Beveled, 11/16 ID	4	4	4	4	4	4	4	4	4					4	
41	274594	Guard, Belt (top)	1				1										
41	279965	Guard, Belt (top)				1			1								
41	354707	Guard, Belt (top)										1					
41	354538	Guard, Belt (top)										1			1		
42	274428	Guard, Belt RH	1				1										
42	274562	Guard, Belt RH		1	1			1									
42	279966	Guard, Belt RH				1			1								
42	354115	Guard, Belt RH								1	1			1		1	
42	354708	Guard, Belt RH											1				
42	354536	Guard, Belt RH										1			1		
43	274429	Guard, Belt LH	1				1										
43	274563	Guard, Belt LH		1	1			1									
43	279967	Guard, Belt LH (use existing hardware)				1			1								
43	354114	Guard, Belt LH								1	1			1		1	
43	354537	Guard, Belt LH										1			1		
43	354709	Guard, Belt LH											1				
44	274801	Guard, Belt (bottom)	1	1	1			1			1			1		1	
44	347828	Guard, Belt (bottom)								1							
44	354710	Guard, Belt (bottom)											1				
45	279595	Bracket, Top Belt Guard Mounting	1				1					1			1		
45	279968	Bracket, Top Belt Guard Mounting											1				
45	274716	Bracket, Guard Support (Top Right)		1	1		5	1		1	1			1		1	
46	X-465-6	Screw, 1/4-20 x 1/2	5														
46	X-81-1	Nut, 1/4-20		1	1			1									
46	X-82-2	Nut, 5/16-18		2	2			2									
46	X-465-2	Screw, 1/4-20 x 5/8		7	7			7									
46	X-125-3	Screw, 5/16-18 x 3/4		2	2			2									
46	*	1/4-20 Hardware								1	1	1	2	1	1		
46	*	5/16-18 Hardware								2	2						
47	X-20-1	Washer, Split Lock, 1/4	5	7	7		5	7									
47	*	1/4-20 Hardware								1	1						
47	*	5/16-18 Hardware								2	2						
48	X-6244-1	Screw, 9/16-12 x 1	2	3	3		2	3				2			2		
48	*	1/4-20 Hardware								6	6		1	1		6	
48	*	1/4-20 Hardware								6	6						
49	X-6238-11	Screw, Ref., 3/8-16 x 1	1	1	1		1	1					1				
49	*	Screw, 1/4-20				1			1							6	
49	*	Engine Lifting Eye Hardware															
50	X-22-1	Washer, Split Lock, 3/8	1	1	1		1	1		1	1						
50	*	Engine Lifting Eye Hardware								1	1						
51	X-25-15	Washer, Plain, 21/32 x 15/16 x 3/32	2	3	3		2		3								
52	X-24-1	Washer, Split Lock, 5/8	2	3	3		2		3								
52	*	Washer, 5/8										1			1		
52	*	1/4-20 Hardware											2				
53	279970	Support, Belt Guard											1				
54	X-6238-11	Screw, h.c. 3/8-16 x 1											2				
55	*	Washer, 3/8											2				
56	*	Hardware, 1/4-20											1				

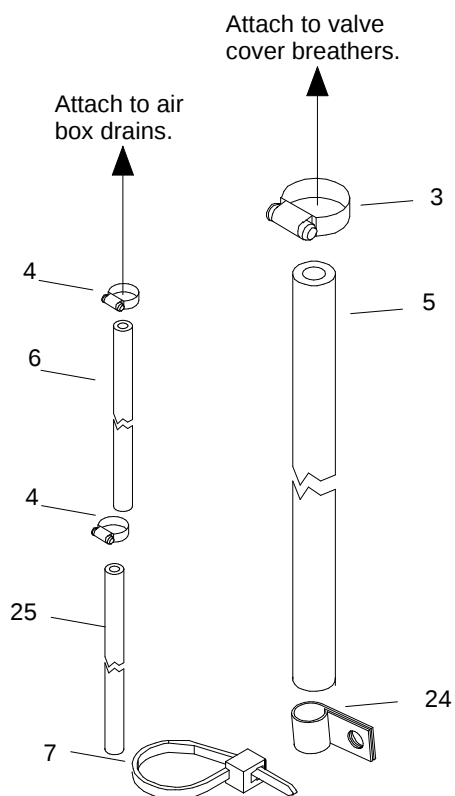
* Common Hardware; Procure Locally

Modular Spec Cross-Reference Table

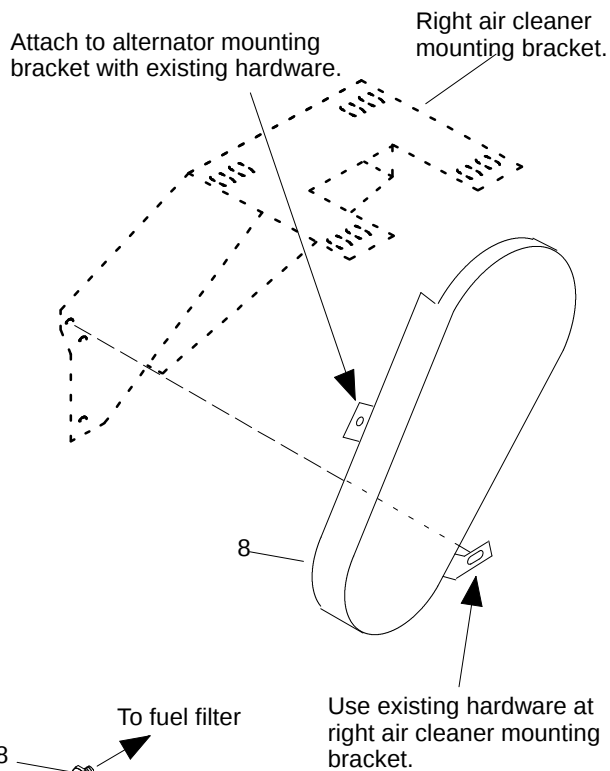
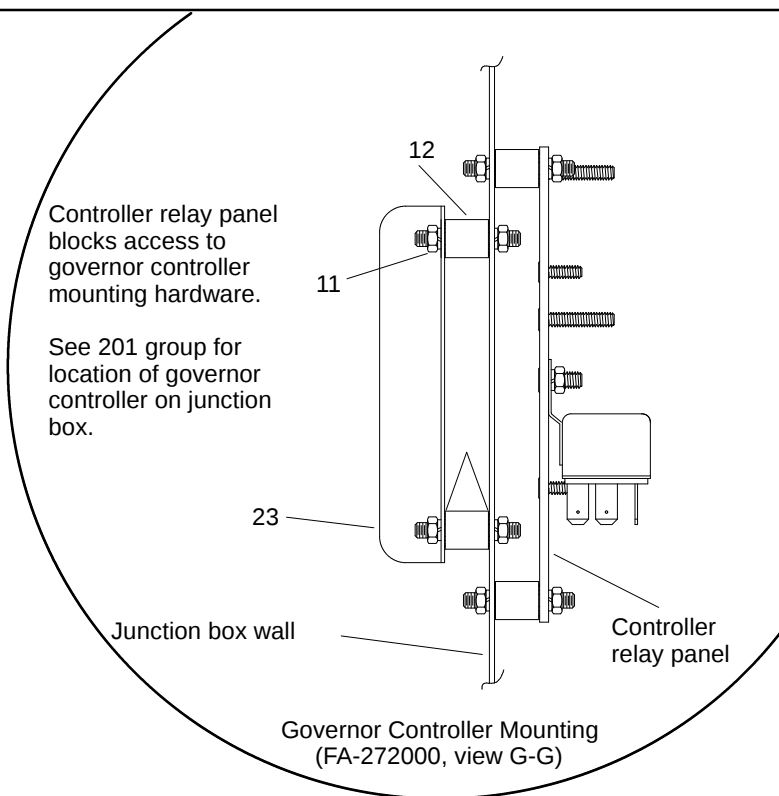
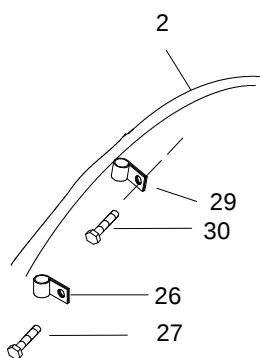
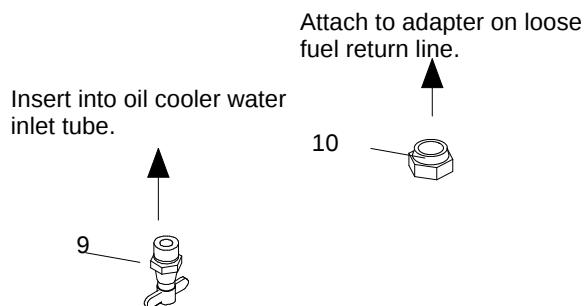
Some modular generator specs listed in the specification number index require a cooling system kit. Refer to the generator set nameplate to identify the kit number installed on your generator set. Use the following table to identify the corresponding variation number. The kit's parts list matches the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

Cooling System Kit	Equivalent Variation Number
347861	37
354108	38
354559	57
354560	51
354608	53
354672	56
354844	58

Group 105: Engine



Cable ties secure valve cover breather hoses and air box drain lines together at their ends.



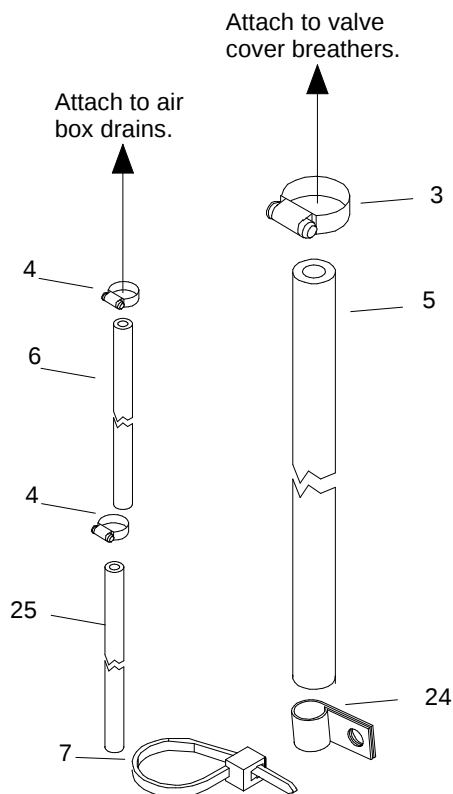
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Group 105: Engine, continued

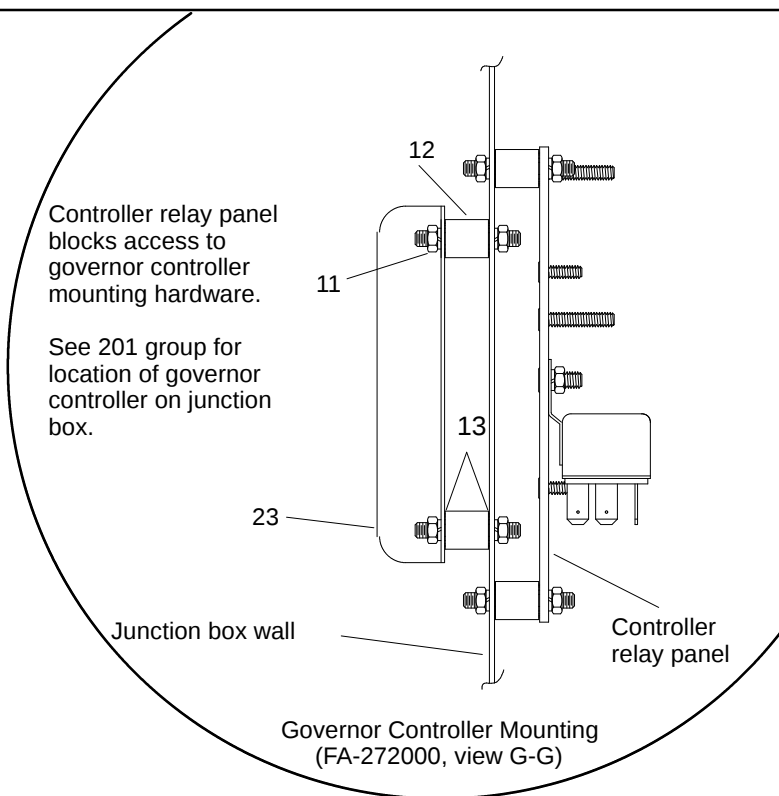
Item	Part Number	Description	Quantity						
			Variation Number						
			23	24	30	31	39	40	43
1	A-347100	Engine Assembly (12V-92TA)	1						
1	A-272751	Engine Assembly (16V-92TA)		1		1			
1	A-347099	Engine Assembly (12V-92TA)				1			
1	A-279546	Engine Assembly (12V-71TA)					1		
1	A-274272	Engine Assembly			1				
1	A-347098	Engine Assembly							1
1	A-347856	Engine Assembly (16V-92TA)							
1	A-347101	Engine Assembly (16V-92TA)						1	
2	See Chart Page 21	Harness, Engine Wiring	1	1	1	1	1	1	1
2	233959	Diode, 6 Amp. 100 volt	4	4	4	4	4	4	4
2	292370	Connector, 2 Position	1	1	1	1	1	1	1
2	292800	Connector, Cable	1	1	1	1	1	1	1
2	295145	Connector, 24 Position	1	1	1	1	1	1	1
2	292838	Pin, Female Gold-Plated (as required)	AR	AR	AR	AR	AR	AR	AR
2	292879	Terminal	4	4	4	4	4	4	4
3	X-426-8	Clamp, Hose, 1 3/4	4	4	4	4	2	4	2
4	X-426-9	Clamp, Hose, 5/8	4	4	4	4	4	4	4
5	X-6260-2	Hose, 1.25 ID x 30 L			4				
5	X-6260-7	Hose, 1.25 ID x 32 L		4					
5	X-6260-8	Hose, 1.25 ID x 59 L					2		2
5	X-6260-5	Hose, 1.25 ID L	4			4		4	
6	X-651-27	Hose, 0.375 ID x 20 L	4		4	4	4		4
6	X-432-12	Line, Fuel (not shown)					2		
6	X-651-19	Hose, 0.375 ID x 25 L		4				4	
7	X-468-4	Tie, Cable 14"	4	4	4	4	2	4	2
8	274444	Guard, Belt	1	1	1	1		1	
9	X-256-3	Valve, Drain 1/4 NPT	1	1	1	1	1	1	1
10	X-268-3	Cap, Pipe	1	1	1	1	1	1	1
10	X-268-9	Cap, Pipe							
10	X-514-4	Fitting (not shown)							
11	*	Hardware, 8-32	4	4	4	4		4	
12	282829	Mount, Vibro	4	4	4	4	4	4	4
13	X-22-20	Washer, Shakeproof, 8	8	8	8	8	8	8	8
14	274227	Bracket, Fuel Filter (not shown)					1		1
15	279676	Fitting, Fuel 3/8-18 UNS-2B F x 3/8					1		1
16	*	Hardware, 3/8-16 (not shown)					2		2
17	287363	Strap, Ground (at starter solenoid)			1		1		1
18	X-75-10	Plug, Pipe, 3/8 (not shown)					1		1
19	X-75-28	Plug, Pipe, 1/2 (not shown)					3		3
20	328215	Fuel Filter, Primary	1	1	1	1	1	1	1
21	328216	Fuel Filter, Secondary	1	1	1	1	1	1	1
22	279260	Oil Filter	1	1	1	1	1	1	1
23	347840	Controller, Governor	1		1			1	1
24	X-67-18	Clamp, Insulated							
25	X-432-12	Line, Fuel							
26	X-672-3	Clamp, Insulated							
27	X-6238-10	Screw, Expense							
28	X-202-28	Bushing, Reducer							
29	X-672-13	Clamp, Insulated							
30	X-50-15	Screw							
30	*	Washer, 3/8							
31	X-6024-2	Screw (not shown)							
32	X-22-26	Washer, Lock 1/2 (not shown)							
33	*	Washer, 7/16 (not shown)							
34	X-22-16	Washer, 5/16 (not shown)							
35	*	Hardware, 1/4-20 (not shown)							

* Common hardware; procure locally

Group 105: Engine, continued

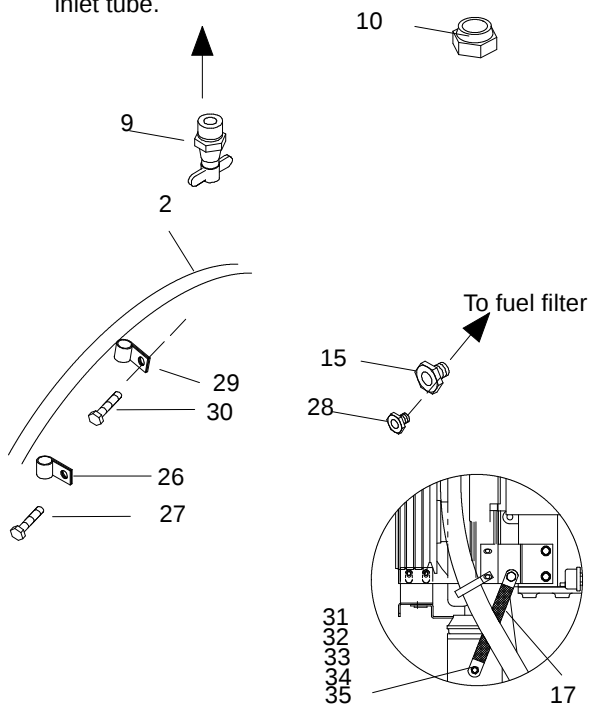


Cable ties secure valve cover breather hoses and air box drain lines together at their ends.



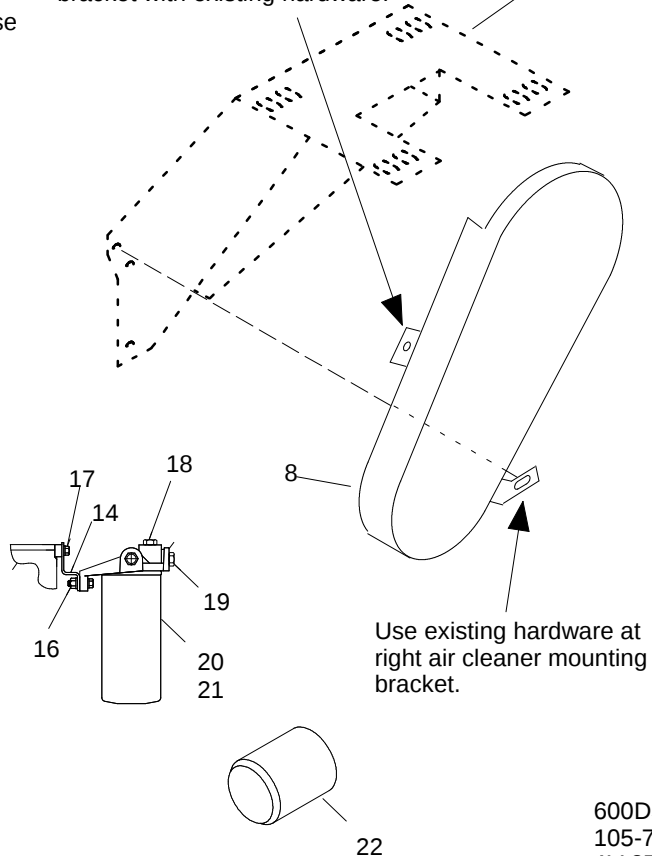
Attach to adapter on loose fuel return line.

Insert into oil cooler water inlet tube.



Attach to alternator mounting bracket with existing hardware.

Right air cleaner mounting bracket.



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AV-272000

Group 105: Engine, continued

Item	Part Number	Description	Quantity						
			Variation Number						
			64	65	66	68	69	89	101
1	A-354619	Engine Assembly	1						
1	A-347099	Engine Assembly		1					
1	A347100	Engine Assembly			1				
1	A-347856	Engine Assembly (16V-92TA)				1			1
1	A-347101	Engine Assembly (16V-92TA)					1	1	
2	See Chart Below	Harness, Engine Wiring	1	1	1	1	1	1	1
2	233959	Diode, 6 Amp, 100 Volt	4	3	3	4	4	4	4
2	292370	Connector, 2 Position				1	1	1	1
2	292800	Connector, Cable	1	1	1	1	1	1	1
2	295145	Connector, 24 Position	1	1	1	1	1	1	1
2	292838	Pin, Female Gold-Plated (as required)	AR	AR	AR	AR	AR	AR	AR
2	292879	Terminal	3	3	3	4	4	4	4
3	X-426-8	Clamp, Hose, 1 3/4	2	4	4	4	4	4	4
4	X-426-9	Clamp, Hose, 5/8	4	4	4	4	4	4	4
5	X-6260-8	Hose, 1.25 ID L	2						
5	X-6260-5	Hose, 1.25 ID L		4	4	4	4	4	4
6	X-651-27	Hose, 0.375 ID x 20 L	2	4	4				
6	X-651-19	Hose, 0.375 ID x 25 L				4	4	4	4
7	X-468-4	Tie, Cable, 14"	2	4	4	4	4	4	4
8	274444	Guard, Belt		1	1	1	1	1	1
9	X-256-3	Valve, Drain, 1/4 NPT	1	1	1		1	1	1
10	X-268-9	Cap, Pipe	1	1	1	1	1	1	1
10	X-514-4	Fitting (not shown)	1	1	1	1	1	1	1
11	*	Hardware, 8-32	8	1	1	4	4	8	8
12	282829	Mount, Vibro	4	4	4	4	4	4	4
13	X-22-20	Washer, Shakeproof, 8	8			8	8	8	
14	274227	Bracket, Fuel Filter	1						
15	279676	Fitting, Fuel, 3/8-18 UNS-2B F x 3/8	1						
16	*	Hardware, 3/8-16	2						
17	287363	Strap, Ground (at starter solenoid)	1	1	1			2	2
17	X-22-14	Washer, Lock		2	2			2	2
17	X-6238-11	Bolt, Hex Cap		1	1			2	2
17	X-6042-2	Bolt, Hex Cap	1						
18	X-75-10	Plug, Pipe, 3/8	1						
19	X-75-28	Plug, Pipe, 1/2	3						
20	328215	Fuel Filter, Primary	1	1	1	1	1	1	1
21	328216	Fuel Filter, Secondary	1	1	1	1	1	1	1
22	279260	Oil Filter	1	1	1	1	1	1	1
23	347840	Controller, Governor	1	1	1	1	1	1	1
24	X-672-18	Clamp, Insulated	2						
25	X-432-12	Line, Fuel	1						
26	X-672-3	Clamp, Insulated	1						
26	X-268-9	Clamp, Insulated						1	
27	X-6238-10	Screw, 3/8-16 x 3/4	1					1	
28	X-202-28	Bushing, Reducer	1						
29	X-672-13	Clamp, Insulated	1	1	1	1	1	1	
30	X-50-15	Screw, #10-24 x 1/2		1	1	1	1		
30	X-6238-10	Screw, 3/8-16 x 3/4	1						
30	*	Washer, 3/8	1						
31	X-6024-2	Screw, 7/16-14 x 1	1						
32	X-22-26	Washer, Lock 1/2	1						
33	*	Washer, 7/16	1						
34	X-22-16	Washer, 5/16	1						
35	*	Hardware, 1/4-20	1						

* Common hardware; procure locally

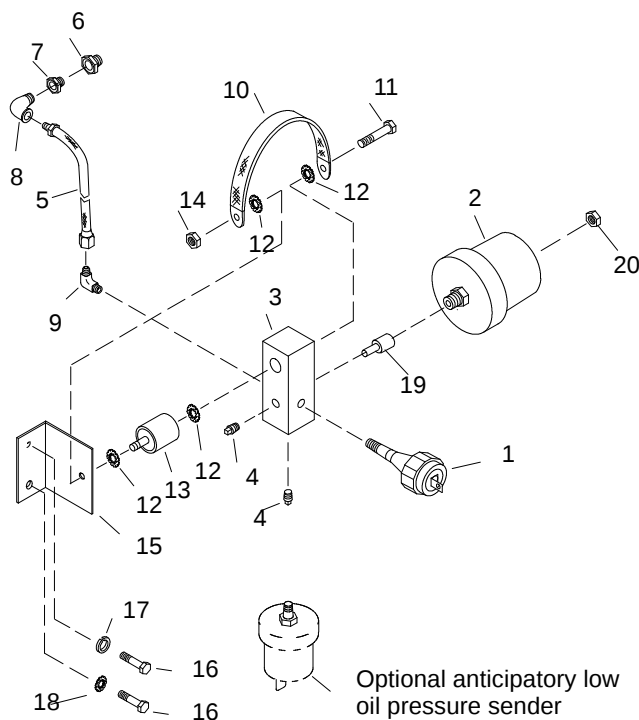
Serial Number-Contingent Engine Parts

Variations	Wiring Harness Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and After
23, 30, 31	347163	347358
24, 40	347162	347303
39, 43	279263	347357
68, 69, 89, 101	NA	347303
64	NA	347357
65, 66	NA	347358

Group 107: Nameplates and Decals

Item	Part Number	Description	Quantity							
			Variation/Kit Number							
			21	22	32	33	34	68	72	
1	238402	Decal, Positive Terminal	1	1	1	1	1	1	2	
2	249809	Decal, Warning (hot engine)	1	1	1	1	1	1	1	
3	X-6301-3	Decal, Spectrum (radiator)	1	1	1	1	1	1	1	
4	X-6301-4	Decal, Spectrum	1		1	1		1		
4	X-6301-5	Decal, Spectrum		1			1		1	
5	X-6302-1	Decal, 3.14 Diameter Torque Symbol	1	1	1	1	1	1	1	
6	X-6302-2	Decal, 5.25 Diameter Torque Symbol	1	1	1	1	1	1	1	
7	257438	Decal, Danger: Haz. Volt./Moving Rotor	1	1	1	1	1	1	1	
8	279598	Tag, Caution: Manually Operate Air Dampers	1	1	1	1	1			
9	279564	Tag, Caution: Do Not Stand on Connecting Rods	1	1	1	1	1			
10	X-6299-19	Decal, kW	1							
10	X-6299-21	Decal, kW		1						
10	X-6299-18	Decal, kW			1					
10	X-6299-20	Decal, kW				1				
10	X-6299-22	Decal, kW					1			
11	255882	Decal: Transfer Switch Connection	1	1	1	1	1	1	1	
12	274323	Decal, Warning: Rotating Parts	1	1	1	1	1	1	1	
13	347166	Decal, CSA	1	1	1	1	1	1	1	
14	249810	Decal, Warning: Hot Coolant						1		
15	255798	Tag, Instruction						1		
16	293990	Decal, Caution: Lifting Support						1		

Group 108: Oil Pressure Switches



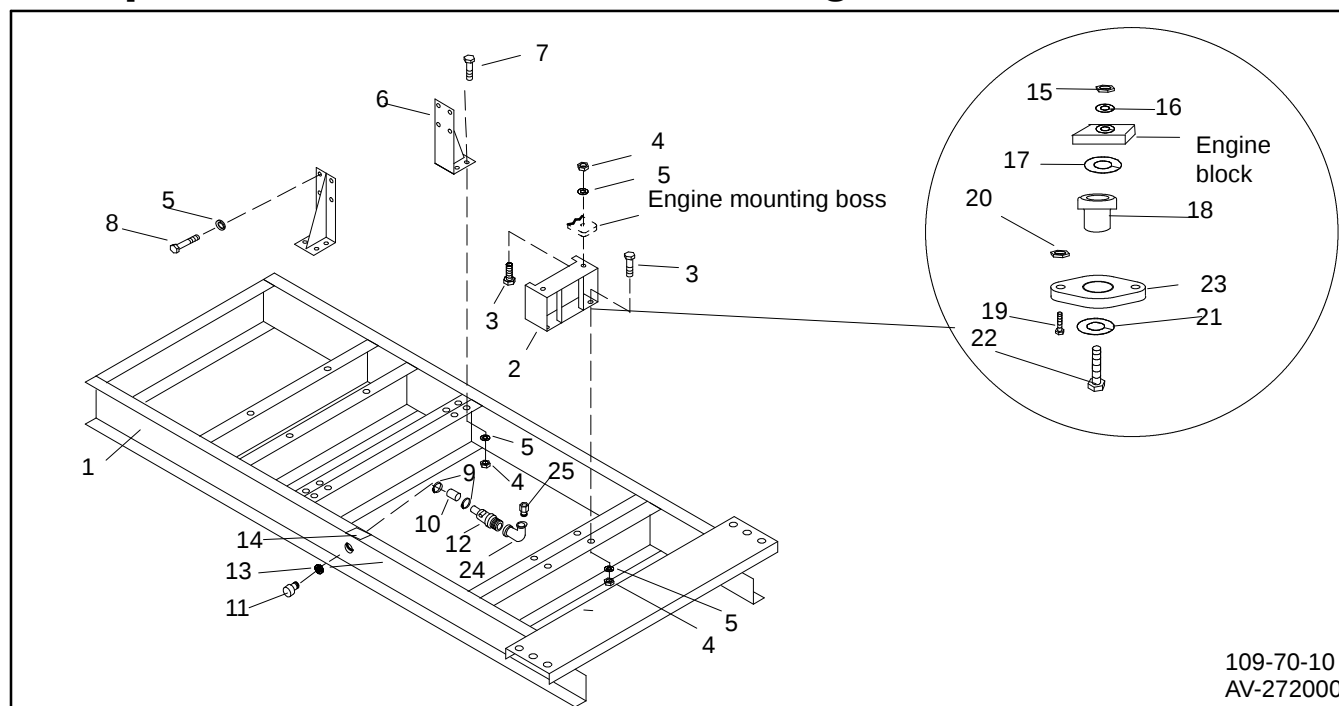
Optional anticipatory low
oil pressure sender

450-800DS
108-70-6
EW-272000

Item	Part Number	Description	Quantity									
			Variation Number									
			6	10	13	E64	E65	E66	E68	E69	E89	E101
1	328309	Switch, Oil Pressure	1	1	1	1	1	1	1	1	1	1
2	264390	Sender, Oil Pressure	1	1	1	1	1	1	1	1	1	1
3	267548	Block, Oil Gauge	1	1	1	1	1	1	1	1	1	1
4	X-75-4	Plug, Pipe (brass), 1/8	2	2	2							
4	X-75-1	Plug, Pipe (steel), 1/8	2	2	2	1	2	2	2	2	2	1
5	239728	Line, Flex Fuel, 7/16-20 F x 1/8 NPTF M x 8 L	1	1	1	1	1	1	1	1	1	1
6	153659	Bushing, Reducer, 1/2 F x 3/4 M										
6	X-202-56	Bushing, Reducer, 1/8 F x 3/4 M	1	1	1	1	1	1	1	1	1	1
7	X-202-29	Bushing, Reducer, 1/8 F x 1/2 M										
8	X-211-10	Elbow, Street, 1/8 NPTF	1									
8	X-555-2	Elbow, Street, 1/8 PTF				1	1	1			1	1
9	X-447-10	Elbow, 90°, 7/16-20 x 1/8 NPT	1	1	1	1	1	1	1	1	1	1
10	223033	Strap, Ground, 3/8 x 5	1	1	1	1	1	1	1	1	1	1
11	X-465-8	Screw, 1/4-20 x 1 1/4	1	1	1	1	1	1	1	1	1	1
12	X-22-12	Washer, Int./Ext. Tooth Lock, 1/4	4	4	4	4	4	4	4	4	4	4
13	259632	Bumper	1	1	1	1	1	1	1	1	1	1
14	*	Nut, 1/4-20	1	1	1	1	1	1	1	1	1	1
15	274299	Bracket, Sender	1	1	1	1	1	1	1	1	1	1
16	X-6238-11	Screw, 3/8-16 x 1	2	2	2	2	2	2	2	2	2	1
17	*	Washer, Split Lock, 3/8	1	1	1	2	1	1	1	1	1	1
18	X-22-14	Washer, Int./Ext. Tooth Lock, 3/8	1	1	1	2	2	2	1	1	4	4
19	267429	Adapter, Restricted Pipe		1	1	1	1	1	1	1	1	1
20	*	Nut, 10-32				2	2	2			2	2

* Common Hardware; Procure Locally

Group 109: Skid and Plant Mounting



Item	Part Number	Description	Quantity													
			Variation Number													
			10	11	20	25	27	29	31	48	49	50	58	59	73	74
1	279522	Skid	1													
1	279523	Skid		1												
1	279472	Skid			1											
1	279867	Skid				1										
1	279985	Skid					1	1								
1	299941	Skid							1							
1	354599	Skid								1						
1	354534	Skid									1					
1	354535	Skid										1				
1	347827	Skid											1			
1	354170	Skid												1		
1	354808	Skid													1	
1	354843	Skid														1
2	328235	Support, Front Engine	1	1		1	1									
2	279473	Support, Front Engine			1											
2	279866	Support, Front Engine				1										
2	299935	Support, Front Engine							1							
2	328235	Support, Front Engine											1	1		1
2	354521	Support, Front Engine									1	1	1		1	
2	354589	Support, Front Engine								1						
2	X-25-30	Washer, Plain (not shown)							4							
2	274266	Mount, Vibro (not shown)							2							
2	286020	Damper, Vibration (not shown)							2							
3	X-6021-5	Screw, 5/8-11 x 2 1/4	4	4			4	4								
3	X-6021-6	Screw, 5/8-11 x 2 1/2	2	2	6		2	2								
3	*	Hardware, 5/8-11				4				4	6	6	6	6	6	6
4	X-85-3	Nut, 5/8-11	1	1	1		1	1								
5	X-24-1	Washer, Split Lock, 5/8	2	2	2		2	2								
5	X-801-5	Washer, Hardened						4							4	4
6	272864	Support, Rear Engine	4	4	4		2	2								
6	274316	Support, Rear Engine			2											
7	273049	Screw, 5/8-11 x 2	8	8			8	8								
8	X-6021-2	Screw, 5/8-11 x 1 1/2	8	8	8		8	8								
9	X-426-10	Clamp, Hose											2	2	2	2
9	X-426-3	Clamp, Hose									2	2				
10	X-577-35	Hose, Oil Drain							1	1			1	1	1	1
10	X-577-44	Hose, Oil Drain														
10	X-577-36	Hose, Oil Drain									1	1				
11	241062	Plug, Drain								1	1	1	1	1	1	1
12	272701	Valve, Oil Drain								1	1	1	1	1	1	1

* Common Hardware; Procure Locally

Group 109: Skid and Plant Mounting, continued

Item	Part Number	Description	Quantity													
			Variation Number													
			10	11	20	25	27	29	31	48	49	50	58	59	73	74
13	276552	Washer, Nylon								1	1	1	1	1	1	1
14	280562	Decal, Oil Drain									1	1	1	1		
15	X-101-15	Nut, Elastic Stop, 5/8								2						
16	X-801-5	Washer, Hardened, 13/20 ID 1 OD								2						
17	X-25-148	Washer, Plain, .64 ID 3.5 OD								2						
18	354261	Mount, Vibration								2						
19	X-129-21	Bolt, h.c. 1/2-13 x 2								4						
20	*	Nut, 1/2-13								4						
21	X-25-149	Washer, Plain .64 ID 2.5 OD								2						
22	X-6021-11	Screw, h.c. 5/8-11 x 4.5								2						
23	354718	Plate, Generator Mounting								1	1	1				
24	X-211-1	Elbow, Street								1	1	1				
25	X-202-41	Bushing, Reducer								1	1	1				

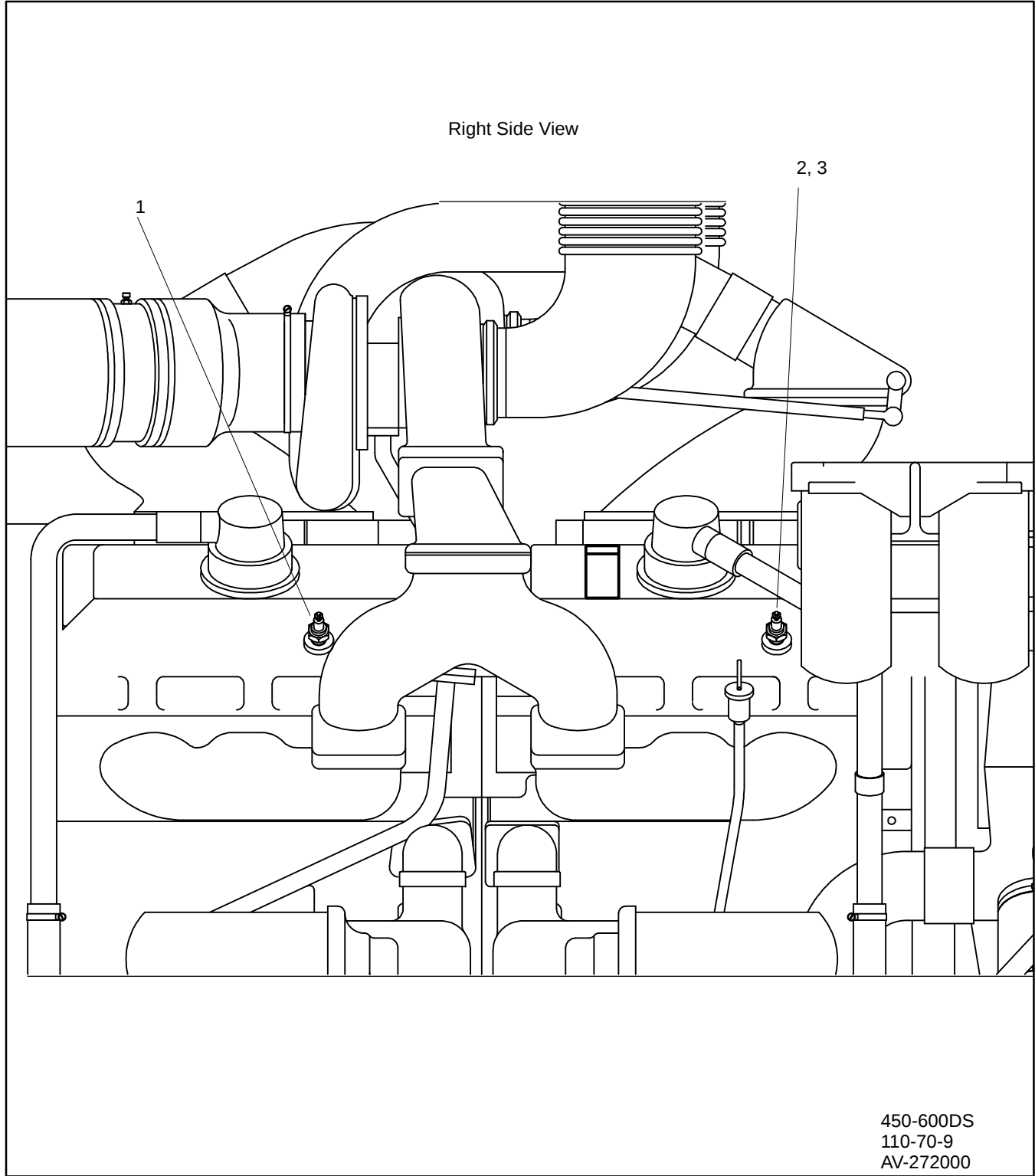
* Common Hardware; Procure Locally

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 kit number installed on your generator set. Use the following table to identify the equivalent variation number. The kit's parts list matches the parts list for the equivalent variation number.

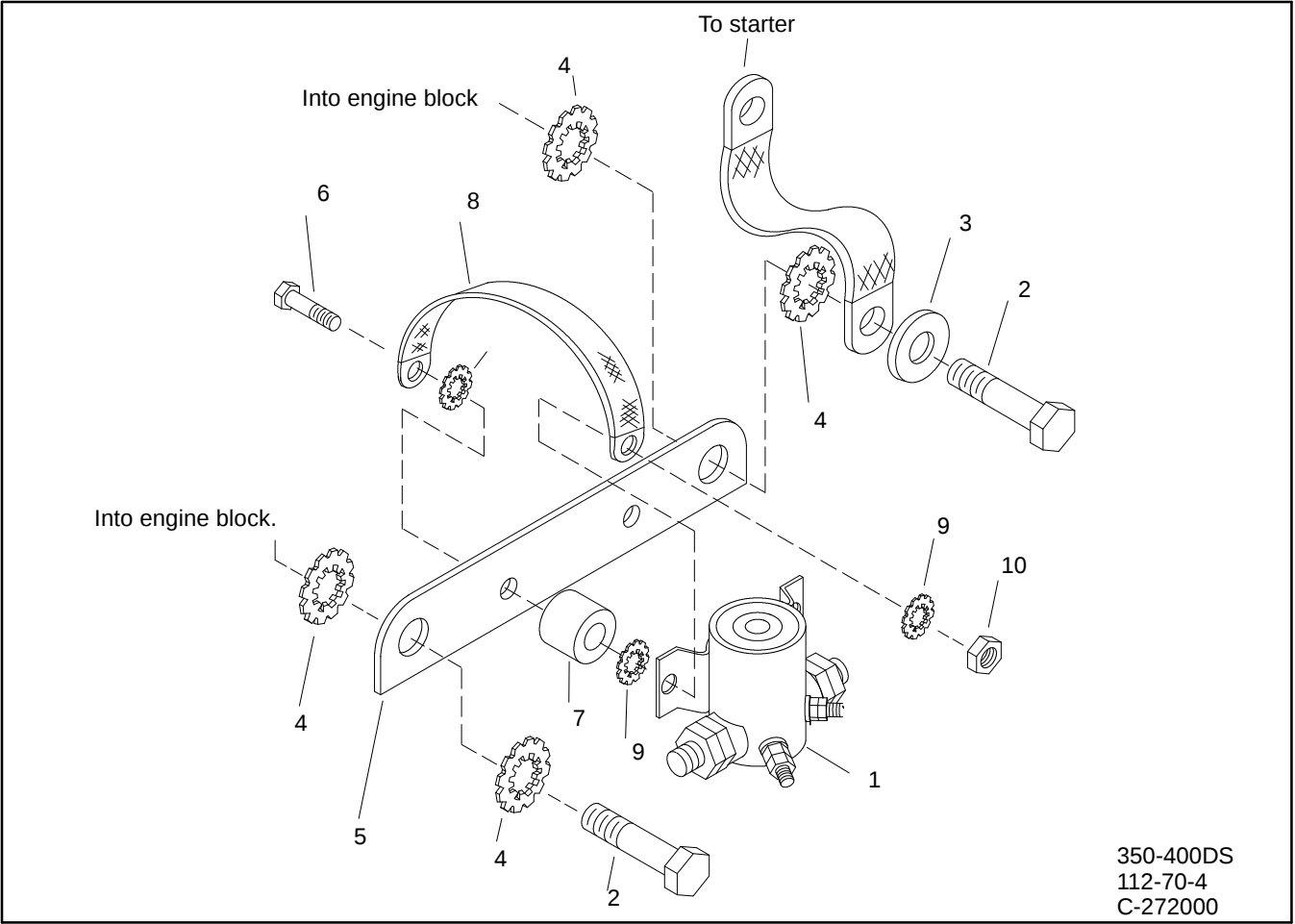
Skid Kit	Equivalent Variation Number
347368	48
347370	49
347400	59
347380	50
347862	59
354673	56
354845	74

Group 110: Water Temperature Switches



Item	Part Number	Description	Quantity										
			Variation/Kit Number										
			9	10	11	12	E64	E65	E66	E68	E69	E89	E101
1	268298	Sender, Water Temperature	1	1	1	1	1	1	1	1	1	1	1
2	241481	Switch, Water Temperature Shutdown	1	1	1	1	1	1	1	1	1	1	1
3	153659	Bushing, Reducer, 1/2 F x 3/4 M		1		1	1						

Group 112: Starter



Item	Part Number	Description	Quantity									
			Variation/Kit Number									
			4	5	9	E64	E65	E66	E68	E69	E89	E101
1	272713	Solenoid, Cranking	1	2	2	1	1	1	2	2	2	2
2	X-6238-11	Screw, 3/8-16 x 1	4	6	6	2	2	2	2	2	4	4
3	X-25-37	Washer, Plain, 13/32 x 13/16	1	4	4							
3	*	Washer, 3/8				1	1	1			2	2
4	X-22-14	Washer, Int./Ext. Tooth Lock, 3/8	4	10	10	4	2	2	10	10	4	4
5	272762	Bracket, C-Relay	1	2	2	1	1	1	2	2	2	2
6	X-465-6	Screw, 1/4-20 x 1/2	2	4	4	2	1	1	2	2	2	2
7	259632	Bumper	2	4	4	2	2	2	4	4	4	4
8	223033	Strap, Ground, 5"	1	2	2	1	1	1			2	2
8	287363	Strap, Ground, 8"	1	2	2				2	2		
9	X-22-12	Washer, Int./Ext. Tooth Lock, 1/4	5	8	8	8	8	8	8	8	8	8
10	*	Nut, 1/4-20	2	4	4	2	2	2	4	4	4	4

* Common Hardware; Procure Locally

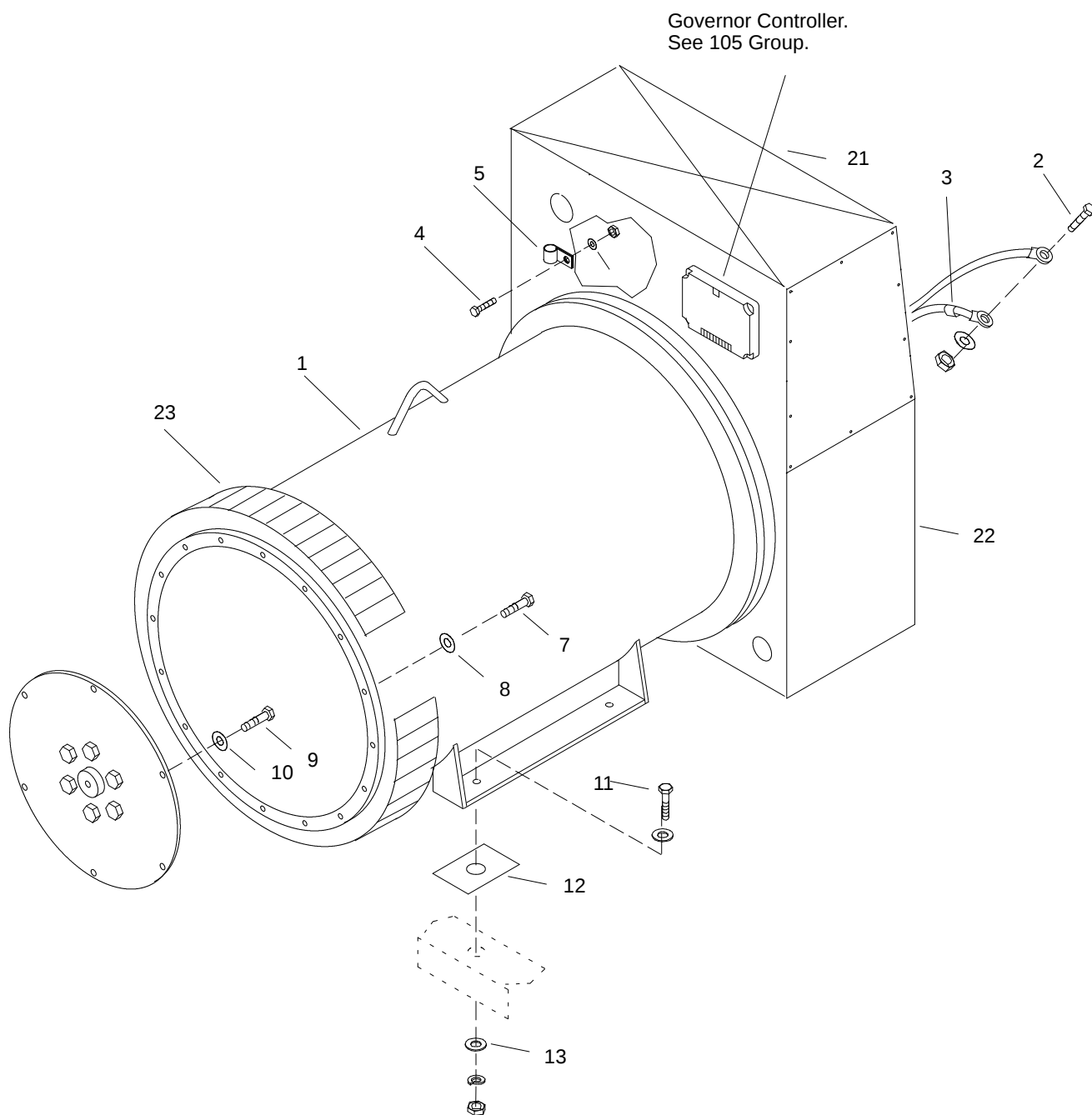
Recommended Spare Parts

Part Description	Model/Spec				
	450DS spec 191165	500DS spec 191170	600DS spec 191177	750DS spec 191333	800DS spec 191340
Fuse, 1.5 Amp	291207	291207	291207	291207	291207
Fuse, 3 Amp	243273	243273	243273	243273	243273
Fuse, 15 Amp	283645	283645	283645	283645	283645
Voltage Regulator	328725	328725	328725	328725	328725
Main Circuit Board	A-336415	A-336415	A-336415	A-336415	A-336415
Indicator Board	A-336432	A-336432	A-336432	A-336432	A-336432
Speed Sensor	291288	291288	291288	291288	291288
Bulb	283420	283420	283420	283420	283420
Lamp	291740	291740	291740	291740	291740
Upper Radiator Hose	X-6014-69	X-6014-53	X-6014-53	X-507-6	X-507-6
Lower Radiator Hose	X-6017-70	272988	272988	272988	272971
Belt Set		347702			
Thermostat	328585	328585	328585	328585	328585
Thermostat Seal	328586	328586	328586	328586	328586
Thermostat Gasket	328587	328587	328587	347335	347335
Air Cleaner	272981	272981	272981	274821	274683
Primary Fuel Filter	328215	328215	328215	328215	328215
Secondary Fuel Filter	328216	328216	328216	328216	328216
Oil Filter	279260	279260	279260	279260	279260

Maintenance Kit 328746 includes 272981 (2), 279260 (2), 328215, and 328216.

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Group 201: Generator and Mounting



500DS
201-70-85
FA-272000

Group 201: Generator and Mounting, continued

Item	Part Number	Description	Quantity											
			Variation/Kit Number											
			49	85	86	87	88	89	89	90	91	92	92	93
1	A-292473	Alternator Assembly†	1											
1	B-292439	Alternator Assembly†		1										
1	B-292440	Alternator Assembly†			1									
1	B-292472	Alternator Assembly†				1								
1	A-279976	Alternator Assembly†					1							
1	B-292441	Alternator Assembly†						1						
1	B-279587	Alternator Assembly†							1					
1	B-292442	Alternator Assembly†								1				
1	B-292443	Alternator Assembly†									1			
1	B-279909	Alternator Assembly†										1		
1	A-279977	Alternator Assembly†											1	
1	B-292444	Alternator Assembly†												1
2	*	Hardware, 3/8-16	2	2	2	2	2	2	2	2	2	2	2	2
3	X-750-14	Marker, L1 Lead	1	1	1	1	1	1	1	1	1	1	1	1
3	X-750-15	Marker, L2 Lead	1	1	1	1	1	1	1	1	1	1	1	1
3	X-750-16	Marker, L3 Lead	1	1	1	1	1	1	1	1	1	1	1	1
4	X-50-15	Screw, r.h.m. 10-24	1	1	1	1	1	1	1	1	1	1	1	1
5	X-672-13	Clamp, Insulated, 7/8	1	1	1	1	1	1	1	1	1	1	1	1
6	*	Hardware, 10-24	1	1	1	1	1	1	1	1	1	1	1	1
7	X-129-20	Screw, ref. 1/2-13 x 1 3/4	16	16	16	16	16	16	16	16	16	16	16	16
8	290945	Washer, Hardened, 17/32 x 1 1/16	16	16	16	16	16	16	16	16	16	16	16	16
9	X-6021-13	Screw, ref. 5/8-11 x 1 3/4	6	6	6	6	6	6	6	6	6	6	6	6
10	X-801-5	Washer, Hard., 21/32 x 1 1/16 x 3/32	6	6	6	6	6	6	6	6	6	6	6	6
11	*	Hardware, 3/4-10	4	4	4	4	4	4	4	4	4	4	4	4
12	290743	Shim, 16 ga.	6	6	6	6	6	6	6	6	6	6	6	6
12	290744	Shim, 7 ga.	12	12	12	12	12	12	12	12	12	12	12	12
12	291191	Shim, 0.010	4	4	4	4	4	4	4	4	4	4	4	4
13	X-801-8	Washer, Hardened	4	4	4	4	4	4	4	4	4	4	4	4
14	279864	Mount, Vibration (not shown)					2							
15	X-400-182	Spacer, 0.656 ID x 3.94 L (not shown)					2							
16	*	Hardware, 5/8-11 (not shown)					2							
17	279865	Support, Generator (not shown)					1							
18	274314	Support, Generator (not shown)												
19	*	Hardware, 3/4-10 (not shown)												
20	X-6217-10	Screw, Hex Flange (not shown)												
21	328897	Cover, Top Back												
22	328900	Cover, Louvered												
23	328890	Screen												

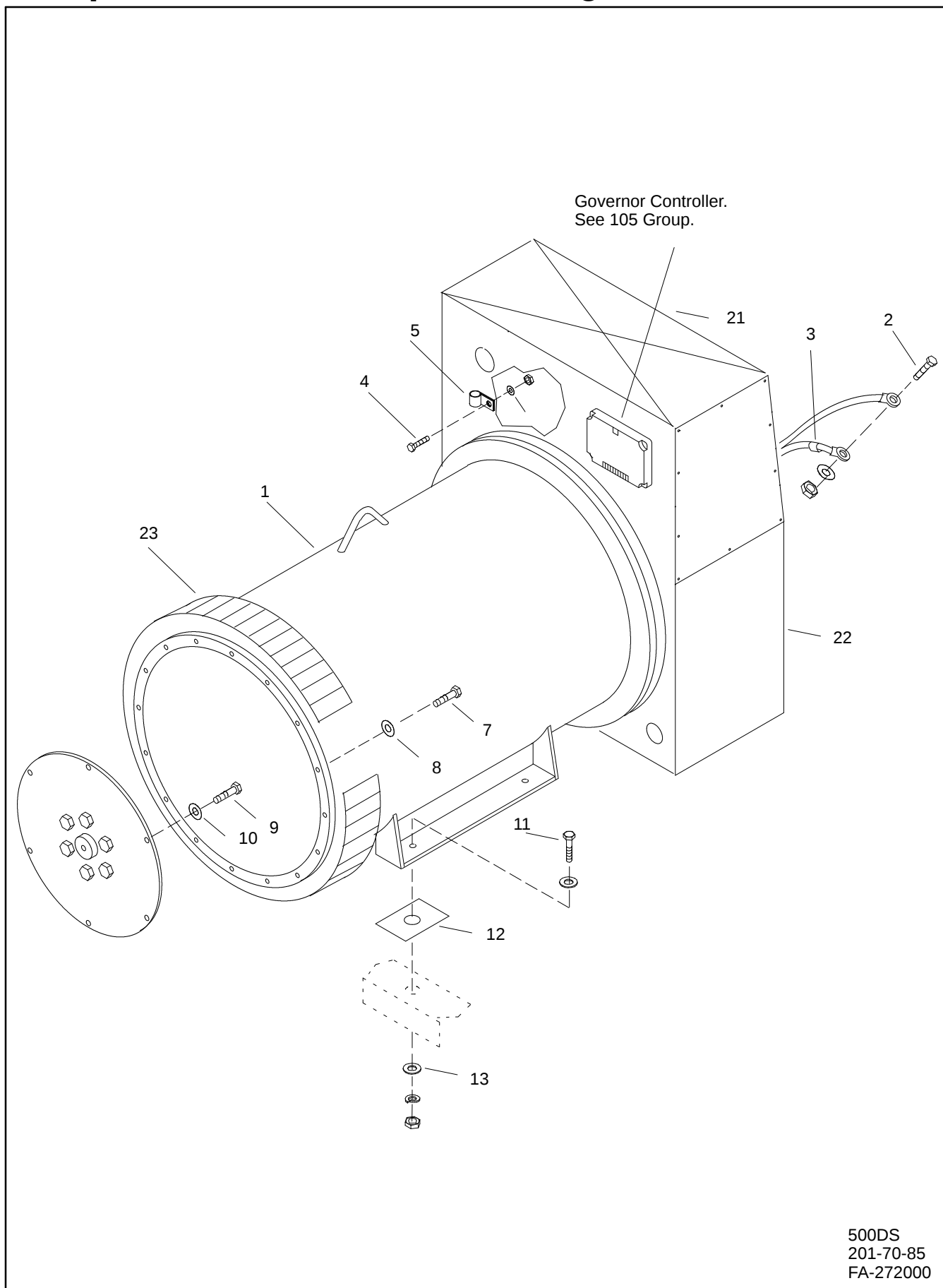
* Common hardware; procure locally

Alternator Assembly Components

† Alternator assembly includes the parts listed in the table below. Parts are not shown on the illustration.

Part Description	Part Number
Exciter Rectifier Assembly (includes diodes and surge suppressor)	347071
Diode, Standard Polarity	279772
Diode, Reversing Polarity	279774
Surge Suppressor	279776
Capacitor	347160
Fuse, 5 Amp	279778
Fuse Cap	279779

Group 201: Generator and Mounting, continued



500DS
201-70-85
FA-272000

Group 201: Generator and Mounting, continued

Item	Part Number	Description	Quantity											
			Variation/Kit Number											
			94	95	96	97	98	99	100	101	102	103	104	123
1	A-279977	Alternator Assembly†	1											
1	B-292443	Alternator Assembly†		1										
1	B-292444	Alternator Assembly†			1					1				
1	B-279959	Alternator Assembly†				1					1			
1	A-279981	Alternator Assembly†					1					1		
1	A-279978	Alternator Assembly†							1				1	
1	B-279960	Alternator Assembly†									1			
1	B-292439	Alternator Assembly†												1
2	*	Hardware, 3/8-16	2	2	2	2	2	2	2	2	2	2	2	2
3	X-750-14	Marker, L1 Lead	1	1	1	1	1	1	1	1	1	1	1	1
3	X-750-15	Marker, L2 Lead	1	1	1	1	1	1	1	1	1	1	1	1
3	X-750-16	Marker, L3 lead	1	1	1	1	1	1	1	1	1	1	1	1
4	X-50-15	Screw, r.h.m., 10-24	1	1	1	1	1	1	1	1	1	1	1	1
5	X-672-13	Clamp, Insulated, 7/8	1	1	1	2	1	1	1	1	1	1	1	1
6	*	Hardware, 10-24	1	1	1	1	1	1	1	1	1	1	1	1
7	X-129-20	Screw, ref., 1/2-13 x 1 3/4	16	16	16	16	16	16	16	16	16	16	16	16
8	290945	Washer, Hardened, 17/32 x 1 1/16	16	16	16	16	16	16	16	16	16	16	16	16
9	X-6021-13	Screw, ref., 5/8-11 x 1 3/4	6	6	6	6	6	6	6	6	6	6	6	6
10	X-801-5	Washer, Hard., 21/32 x 1 1/16 x 3/32	6	6	6	6	6	6	6	6	6	6	6	6
11	*	Hardware, 3/4-10	4	4	4	4	4	4	4	4	4	4	4	4
12	290743	Shim, 16 ga.	6	6	6	6	6	6	6	6	6	6	6	6
12	290744	Shim, 7 ga.	12	12	12	12	12	12	12	12	12	12	12	12
12	291191	Shim, 0.010	4	4	4	4	4	4	4	4	4	4	4	4
13	X-801-8	Washer, Hardened	4	4	4	4	4	4	4	4	4	4	4	4
14	279864	Mount, Vibration (not shown)												2
15	X-400-182	Spacer, 0.656 ID x 3.94 L (not shown)												
16	*	Hardware, 5/8-11 (not shown)												2
17	279865	Support, Generator (not shown)												1
18	274314	Support, Generator (not shown)												
19	*	Hardware, 3/4-10 (not shown)												
20	X-6217-10	Screw, Hex Flange (not shown)												
21	328897	Cover, Top Back												
22	328900	Cover, Louvered												
23	328890	Screen												

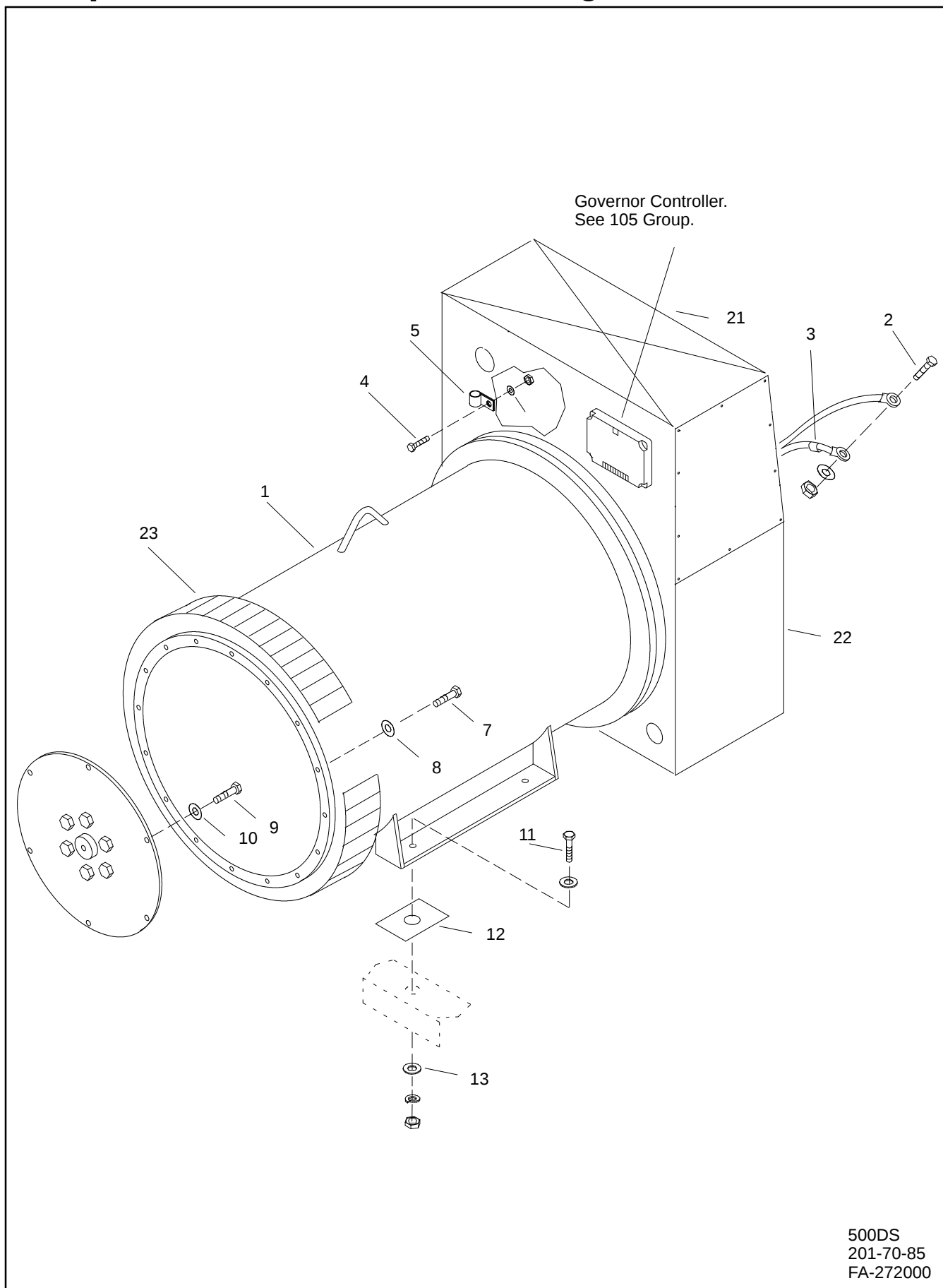
* Common hardware; procure locally

Alternator Assembly Components

† Alternator assembly includes the parts listed in the table below. Parts are not shown on the illustration.

Part Description	Part Number
Exciter Rectifier Assembly (includes diodes and surge suppressor)	347071
Diode, Standard Polarity	279772
Diode, Reversing Polarity	279774
Surge Suppressor	279776
Capacitor	347160
Fuse, 5 Amp	279778
Fuse Cap	279779

Group 201: Generator and Mounting, continued



Group 201: Generator and Mounting, continued

Item	Part Number	Description	Quantity											
			Variation/Kit Number											
			124	125	126	184	185	186	187	188	189	190	191	192
1	B-292440	Alternator Assembly†	1											
1	B-292472	Alternator Assembly†		1										
1	B-279960	Alternator Assembly†			1									
1	A-328100	Alternator Assembly†				1				1				
1	A-328102	Alternator Assembly†					1				1			
1	A-328128	Alternator Assembly†						1					1	
1	A-328118	Alternator Assembly†							1					
1	A-328103	Alternator Assembly†										1		
1	A-328119	Alternator Assembly†												1
2	*	Hardware, 3/8-16	2	2	2	2	2	2	2	2	2	2	2	2
3	X-750-14	Marker, L1 Lead	1	1	1	1	1	1	1	1	1	1	1	1
3	X-750-15	Marker, L2 Lead	1	1	1	1	1	1	1	1	1	1	1	1
3	X-750-16	Marker, L3 Lead	1	1	1	1	1	1	1	1	1	1	1	1
4	X-50-15	Screw, r.h.m. 10-24	1	1	1	1	1	1	1	1	1	1	1	1
5	X-672-13	Clamp, Insulated, 7/8	1	1	1	2	1	1	1	1	1	1	1	1
6	*	Hardware, 10-24	1	1	1	1	1	1	1	1	1	1	1	1
7	X-129-20	Screw, ref., 1/2-13 x 1 3/4	16	16	16	16	16	16	16	16	16	16	16	16
8	290945	Washer, Hardened, 17/32 x 1 1/16	16	16	16	16	16	16	16	16	16	16	16	16
9	X-6021-13	Screw, ref., 5/8-11 x 1 3/4	6	6	6									
9	X-6021-14	Screw, ref., 5/8-11 x 1 3/4				6	6	6	6	6	6	6	6	6
10	X-801-5	Washer, Hard., 21/32 x 1 1/16 x 3/32	6	6	6	6	6	6	6	6	6	6	6	6
11	*	Hardware, 3/4-10	4	4	4	4	4	4	4	4	4	4	4	4
12	290743	Shim, 16 ga.	6	6	6	6	6	6	6	6	6	6	6	6
12	290744	Shim, 7 ga.	12	12	12	12	12	12	12	12	12	12	12	12
12	291191	Shim, 0.010	4	4	4	4	4	4	4	4	4	4	4	4
13	X-801-8	Washer, Hardened	4	4	4	4	4	4	4	4	4	4	4	4
14	279864	Mount, Vibration (not shown)	2	2		2	2	2	2					
15	X-400-182	Spacer, 0.656 ID x 3.94 L (not shown)	2	2		2	2	2	2					
16	*	Hardware, 5/8-11 (not shown)	2	2		2	2	2	2					
17	279865	Support, Generator (not shown)	1	1		1	1	1	1					
18	274314	Support, Generator (not shown)												
19	*	Hardware, 3/4-10 (not shown)												
20	X-6217-10	Screw, Hex Flange (not shown)				13	13	13	13	13	13	13	13	13
21	328897	Cover, Top Back				1	1	1	1	1	1	1	1	1
22	328900	Cover, Louvered				1	1	1	1	1	1	1	1	1
23	328903	Screen				1	1	1	1	1	1	1	1	1

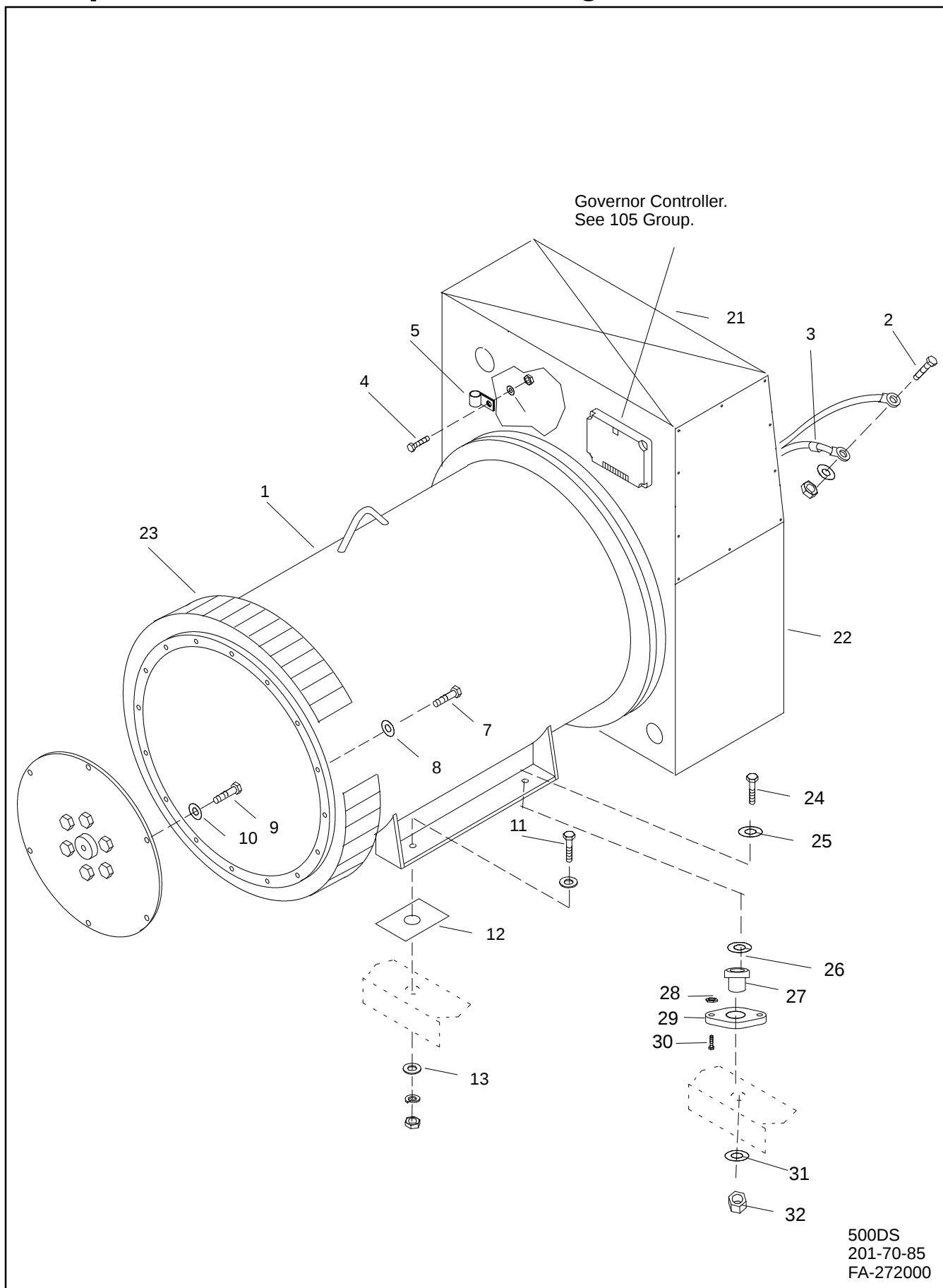
* Common hardware; procure locally

Alternator Assembly Components

† Alternator assembly includes the parts listed in the table below. Parts are not shown on the illustration.

Part Description	Part Number
Exciter Rectifier Assembly (includes diodes and surge suppressor)	347071
Diode, Standard Polarity	279772
Diode, Reversing Polarity	279774
Surge Suppressor	279776
Capacitor	347160
Fuse, 5 Amp	279778
Fuse Cap	279779

Group 201: Generator and Mounting, continued



Group 201: Generator and Mounting, continued

Item	Part Number	Description	Quantity									
			Variation/Kit Number									
			193	194	195	196	197	198	199	200	201	202
1	A-328104	Alternator Assembly†	1									
1	A-328105	Alternator Assembly†		1			1					
1	A-328129	Alternator Assembly†			1							
1	A-328120	Alternator Assembly†				1						
1	A-328106	Alternator Assembly†						1				
1	A-328107	Alternator Assembly†							1			
1	A-328131	Alternator Assembly†								1		
1	A-328121	Alternator Assembly†									1	
1	A-328108	Alternator Assembly†										1
2	*	Hardware, 3/8-16	2	2	2	2	2	2	2	2	2	2
3	X-750-14	Marker, L1 Lead	1	1	1	1	1	1	1	1	1	1
3	X-750-15	Marker, L2 Lead	1	1	1	1	1	1	1	1	1	1
3	X-750-16	Marker, L3 Lead	1	1	1	1	1	1	1	1	1	1
4	X-50-15	Screw, r.h.m. 10-24	1	1	1	1	1		1	1	1	1
5	X-672-13	Clamp, Insulated 7/8	1	1	1	2	1		1	1	1	1
6	*	Hardware, 10-24	1	1	1	1	1	1	1	1	1	1
7	X-129-20	Screw, ref., 1/2-13 x 1 3/4	16	16	16	16	16	16	16	16	16	16
8	290945	Washer, Hardened, 17/32 x 1 1/16	16	16	16	16	16	16	16	16	16	16
9	X-6021-14	Screw, ref., 5/8-11 x 1 3/4	6	6	6	6	6	6	6	6	6	6
10	X-801-5	Washer, Hard., 21/32 x 1 1/16 x 3/32	6	6	6	6	6	6	6	6	6	6
11	*	Hardware, 3/4-10	4	4	4	4	4	4	4	4	4	4
12	290743	Shim, 16 ga.	6	6	6	6	6	6	6	6	6	6
12	290744	Shim, 7 ga.	12	12	12	12	12	12	12	12	12	12
12	291191	Shim, 0.010	4	4	4	4	4	4	4	4	4	4
13	X-801-8	Washer, Hardened	4	4	4	4	4	4	4	4	4	4
14	279864	Mount, Vibration (not shown)										
15	X-400-182	Spacer, 0.656 ID x 3.94 L (not shown)										
16	*	Hardware, 5/8-11 (not shown)										
17	279865	Support, Generator (not shown)										
18	274314	Support, Generator (not shown)										
19	*	Hardware, 3/4-10 (not shown)										
20	X-6217-10	Screw, Hex., Flange (not shown)	13	13	13	13	13	13	13	13	13	13
21	328897	Cover, Top Back	1	1	1	1	1	1	1	1	1	1
22	328900	Cover, Louvered	1	1	1	1	1	1	1	1	1	1
23	328903	Screen	1	1	1	1	1	1	1	1	1	1

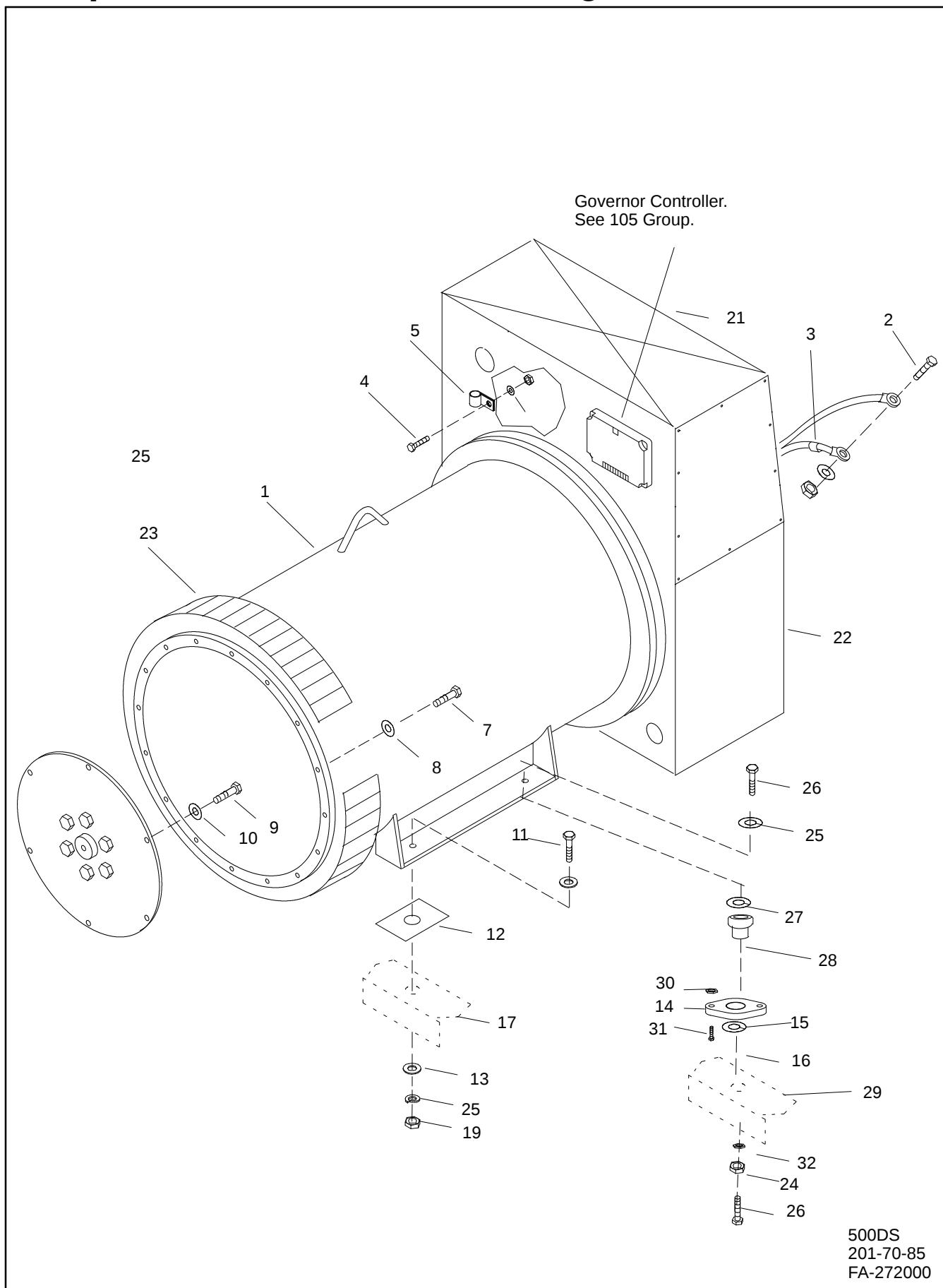
* Common hardware; procure locally

Alternator Assembly Components

† Alternator assembly includes the parts listed in the table below. Parts are not shown on the illustration.

Part Description	Part Number
Exciter Rectifier Assembly (includes diodes and surge suppressor)	347071
Diode, Standard Polarity	279772
Diode, Reversing Polarity	279774
Surge Suppressor	279776
Capacitor	347160
Fuse, 5 Amp	279778
Fuse Cap	279779

Group 201: Generator and Mounting, continued



Group 201: Generator and Mounting, continued

Item	Part Number	Description	Quantity										
			Variation/Kit Number										
			305	306	307	308	309	310	311	312	313	314	315
1	A-328100	Alternator Assembly†	1										
1	A-328128	Alternator Assembly†				1	1						1
1	A-328118	Alternator Assembly†											
1	A-328129	Alternator Assembly†						1					
1	A-328119	Alternator Assembly†							1				
1	A-328102	Alternator Assembly†		1						1			
1	A-328103	Alternator Assembly†			1						1		
1	A-328104	Alternator Assembly†										1	
1	A-328105	Alternator Assembly†											
2	*	Hardware, 3/8-16	4	4	4	4	4	4	4	4	4	4	4
3	X-750-14	Marker, L1 Lead	1	1	1	1	1	1	1	1	1	1	1
3	X-750-15	Marker, L2 Lead	1	1	1	1	1	1	1	1	1	1	1
3	X-750-16	Marker, L3 Lead	1	1	1	1	1	1	1	1	1	1	1
4	X-50-15	Screw, r.h.m. 10-24											
5	X-672-13	Clamp, Insulated, 7/8											
6	*	Hardware, 10-24											
7	X-129-20	Screw, ref., 1/2-13 x 1 3/4	16	16	16	16	16	16	16	16	16	16	16
8	290945	Washer, Hardened, 17/32 x 1 1/16	16	16	16	16	16	16	16	16	16	16	16
9	X-6021-14	Screw, ref.	6	6	6	6	6	6	6	6	6	6	6
10	X-801-5	Washer, Hard., 21/32 x 1 1/16 x 3/32	6	6	6	6	6	6	6	6	6	6	6
11	*	Hardware, 3/4-10								4	4	4	4
12	290743	Shim, 16 ga.								2	2	2	2
12	291191	Shim, 0.010								4	4	4	4
13	X-801-8	Washer, Hardened											
14	279864	Mount, Vibration (not shown)											
15	X-400-182	Spacer, 0.656 ID x 3.94 L (not shown)											
16	*	Hardware, 5/8-11 (not shown)											
17	279865	Support, Generator (not shown)											
18	274314	Support, Generator (not shown)											
19	*	Hardware, 3/4-10 (not shown)											
20	X-6217-10	Screw, Hex Flange (not shown)	13	13	13	13	13	13	13	13	13	13	13
21	328897	Cover, Top Back	1	1	1	1	1	1	1	1	1	1	1
22	328900	Cover, Louvered	1	1	1	1	1	1	1	1	1	1	1
23	328903	Screen	1	1	1	1	1	1	1	1	1	1	1
24	X-6239-10	Bolt, h.c. 3/4-10 x 4.5	4	4	4	4	4	4	4	4			
25	X-801-8	Washer, Hardened .406 ID .812 OD	4	4	4	4	4	4	4	4			
26	X-25-150	Washer, Plain .80 ID 4.24 OD	4	4	4	4	4	4	4	4			
27	354622	Mount, Vibration	4	4	4	4	4	4	4	4			
28	*	Nut, 1/2-13	8	8	8	8	8	8	8	8			
29	354717	Plate, Generator Mounting	4	4	4	4	4	4	4	4			
30	X-129-21	Bolt, h.c. 1/2-13 x 2	8	8	8	8	8	8	8	8			
31	X-25-151	Washer, Plain, .80 ID 3.0 OD	4	4	4	4	4	4	4	4			
32	X-101-26	Nut, Elastic Stop, 3/4-10	4	4	4	4	4	4	4	4			

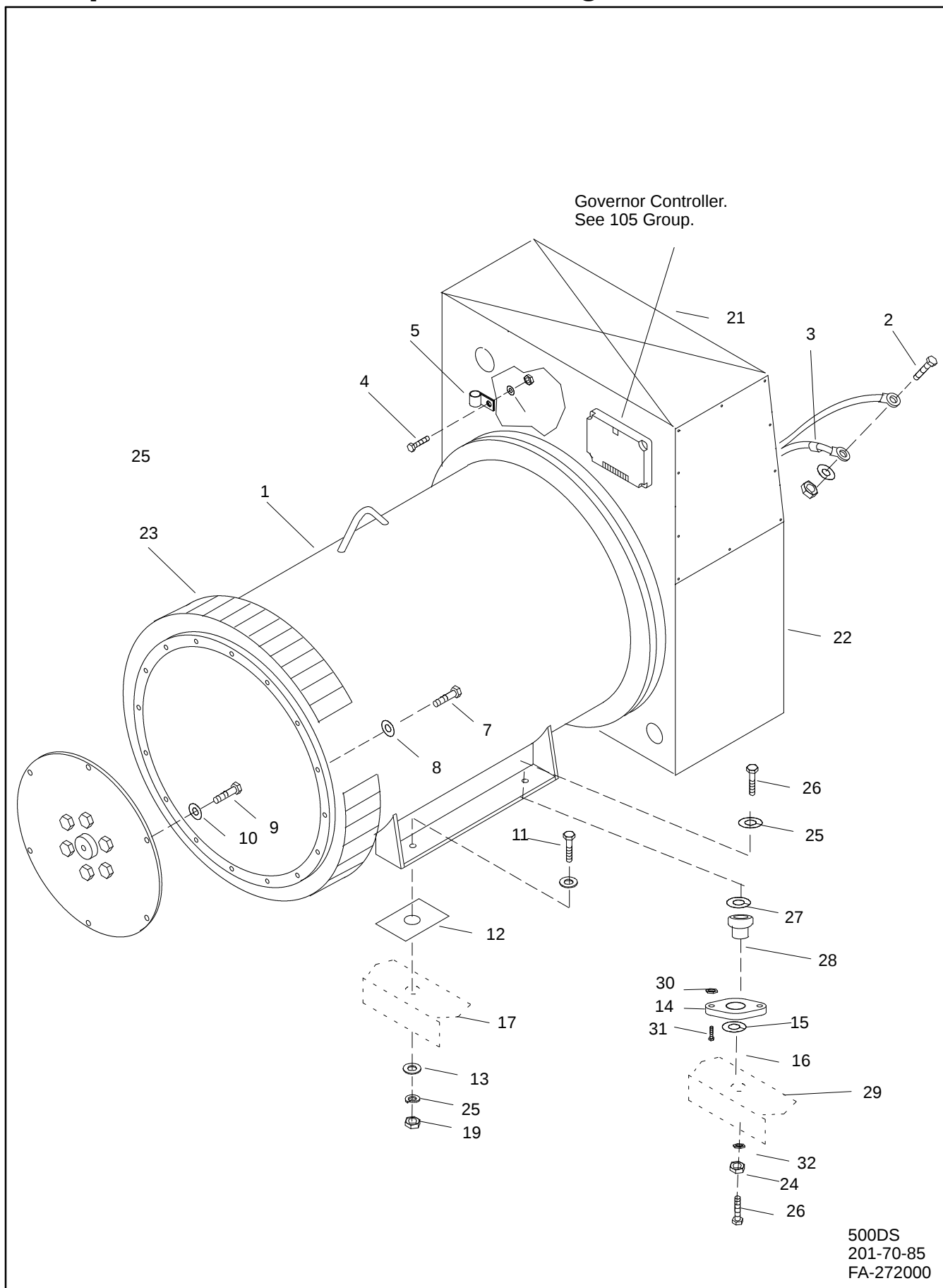
* Common hardware; procure locally

Alternator Assembly Components

† Alternator assembly includes the parts listed in the table below. Parts are not shown on the illustration.

Part Description	Part Number
Exciter Rectifier Assembly (includes diodes and surge suppressor)	347071
Diode, Standard Polarity	279772
Diode, Reversing Polarity	279774
Surge Suppressor	279776
Capacitor	347160
Fuse, 5 Amp	279778
Fuse Cap	279779

Group 201: Generator and Mounting, continued



Group 201: Generator and Mounting, continued

Item	Part Number	Description	Quantity									
			Variation/Kit Number									
			316	317	318	319	320	321	341	343	345	350
1	A-328119	Alternator Assembly†	1									
1	A-328129	Alternator Assembly†		1								
1	A-328120	Alternator Assembly†			1							
1	A-328105	Alternator Assembly†				1						
1	A-328130	Alternator Assembly†					1					
1	A-328121	Alternator Assembly†						1				
1	A-328106	Alternator Assembly†							1			
1	A-328107	Alternator Assembly†								1		
1	A-328131	Alternator Assembly†									1	
1	A-328108	Alternator Assembly†										1
2	*	Hardware, 3/8-16	4	4	4	2	2	2	2	2	2	2
3	X-750-14	Marker, L1 lead	1	1	1	1	1	1	1	1	1	1
3	X-750-15	Marker, L2 lead	1	1	1	1	1	1	1	1	1	1
3	X-750-16	Marker, L3 lead	1	1	1	1	1	1	1	1	1	1
4	X-50-15	Screw, r.h.m., 10-24				1	1	1		1		1
5	X-672-13	Clamp, Insulated, 7/8				1	1	1		1		1
6	*	Hardware, 10-24				1	1	1	1	1	1	1
7	X-129-20	Screw, ref., 1/2-13 x 1 3/4	16	16	16	16	16	16	16	16	16	16
8	290945	Washer, Hardened, 17/32 x 1 1/16	16	16	16	16	16	16	16	16	16	16
9	X-6021-14	Screw, ref.	6	6	6	6	6	6	6	6	6	6
10	X-801-5	Washer, Hard., 21/32 x 1 1/16 x 3/32	6	6	6	6	6	6	6	6	6	6
11	*	Hardware, 3/4-10	4	4	4	4	4	4	4	4	4	4
12	290743	Shim, 16 ga.	2	2	2	2	2	2	2	2	2	2
12	291191	Shim, 0.010	4	4	4	4	4	4	4	4	4	4
13	X-801-8	Washer, Hardened	4	4	4	4	4	4	4	4	4	4
14	279864	Mount, Vibration (not shown)										
15	X-400-182	Spacer, 0.656 ID x 3.94 L (not shown)										
16	*	Hardware, 5/8-11 (not shown)										
17	279865	Support, Generator (not shown)										
18	274314	Support, Generator (not shown)										
19	*	Hardware, 3/4-10 (not shown)										
20	X-6217-10	Screw, Hex Flange (not shown)	13	13	13	13	13	13	13	13	13	13
21	328897	Cover, Top Back	1	1	1	1	1	1	1	1	1	1
22	328900	Cover, Louvered	1	1	1	1	1	1	1	1	1	1
23	328903	Screen	1	1	1	1	1	1	1	1	1	1
24	X-6239-10	Bolt, h.c. 3/4-10 x 4.5										
25	X-801-8	Washer, Hardened, .406 ID .812 OD										
26	X-25-150	Washer, Plain, .80 ID 4.25 OD										
27	354622	Mount, Vibration										
28	*	Nut, 1/2-13										
29	354717	Plate, Generator Mounting										
30	X-129-21	Bolt, h.c. 1/2-13 x 2										
31	X-25-151	Washer, Plain, .80 ID 3.0 OD										
32	X-101-26	Nut, Elastic Stop, 3/4-10										

* Common hardware; procure locally

Alternator Assembly Components

† Alternator assembly includes the parts listed in the table below. Parts are not shown on the illustration.

Part Description	Part Number
Exciter Rectifier Assembly (includes diodes and surge suppressor)	347071
Diode, Standard Polarity	279772
Diode, Reversing Polarity	279774
Surge Suppressor	279776
Capacitor	347160
Fuse, 5 Amp	279778
Fuse Cap	279779

Group 201: Generator and Mounting, continued

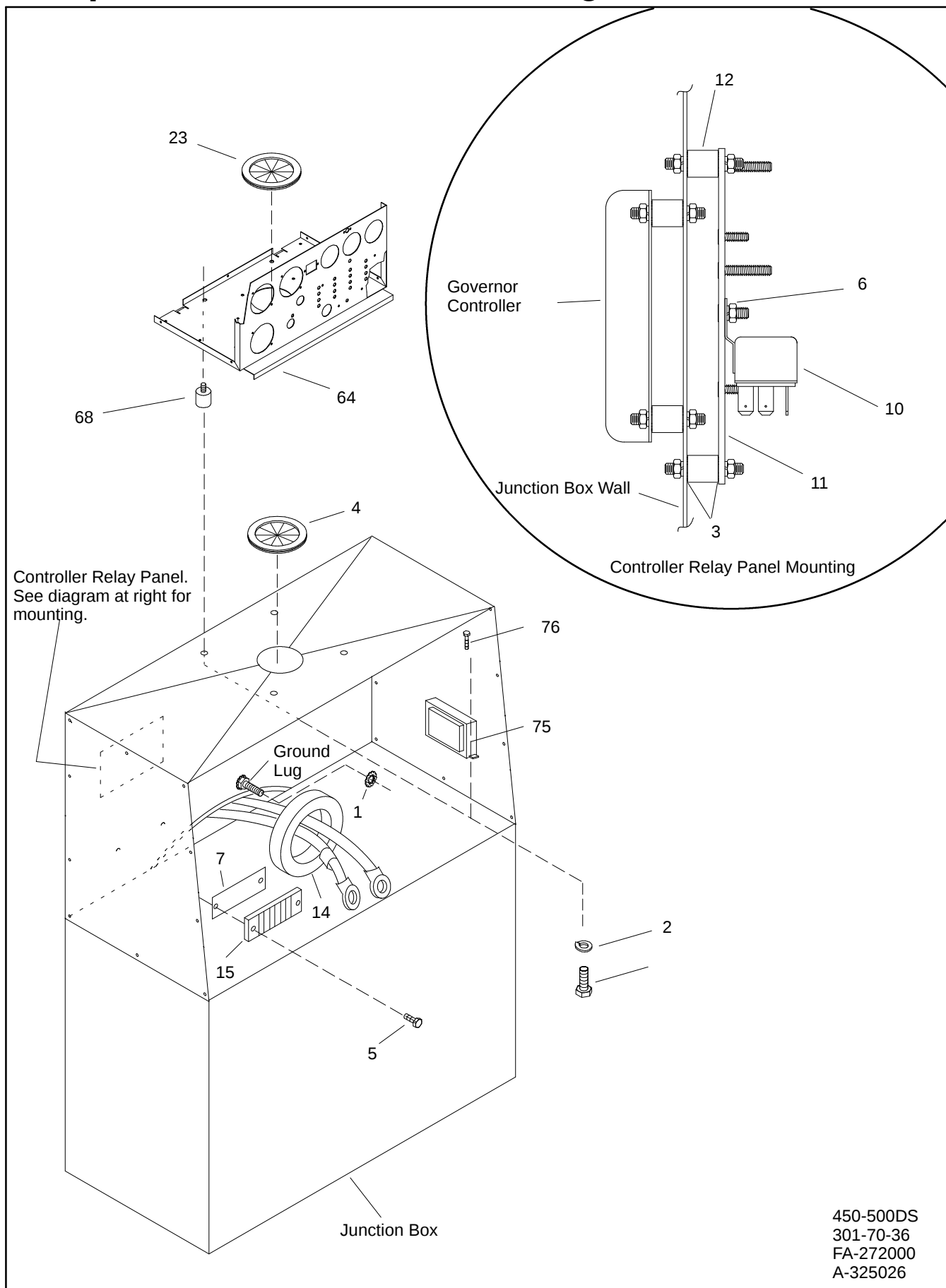
Modular Spec Cross-Reference Table

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

Alternator Kit	Equivalent Variation Number
325459 (5M4024)	305
325460 (5M4027)	306
325461 (5M4028)	307
325462 (5M4270)	308
325463 (5M4160)	309
325464 (5M4272)	310
325465 (5M4162)	311
325466 (5M4164)	318
325505 (5M4027)	312
325506 (5M4028)	313
325522 (5M4030)	314
325523 (5M4270)	315
325539 (5M4160)	316
325540 (5M4272)	317
325874 (5M4034)	340
325875 (5M4036)	342
325876 (5M4038)	349
325877 (5M4278)	344
347668 (5M4032)	319
347669 (5M4276)	320
347670 (5M4166)	304

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Group 301: Controller and Mounting



Group 301: Controller and Mounting, continued

Item	Part Number	Description	Quantity											
			Variation/Kit Number											
			36	37	51	52	93	94	95	96	97	98	121	150
1	X-22-14	Washer, Shakeproof 3/8	1	1	1	1	1	1	1	1	1	1	1	1
2	X-22-16	Washer, Lock 5/16	4	4	4	4	4	4	4	4	4	4	4	4
3	X-22-20	Washer, Ext. Tooth Lock 8	8	8	8	8	8	8	8	8	8	8	8	8
4	X-284-25	Grommet	1	1	1	1	1	1	1	1	1	1	1	1
5	X-51-11	Screw, 8/32 x 3/4	2	2	2	2	2	2	2	2	2	2	2	2
6	X-6210-1	Nut, Whiz Lock	1	1	1	1				1	1	1	1	
6	*	Nut, #10-32					1	1	1					1
7	255080	Marker, Strip	1	1	1	1	1	1	1	1	1	1	1	1
8	258453	Harness, Wiring CT	1	1	1	1	1	1	1	1	1	1	1	1
9	258455	Harness, Wiring AC	1	1	1	1	1			1				1
9	274964	Harness, Wiring AC						1	1		1	1	1	
10	272684	Relay	2	2	2	2	1	1	1	2	2	2	2	1
11	274796	Panel, Relay	1	1	1	1	1	1	1	1	1	1	1	1
12	282829	Mount, Vibro	4	4	4	4	4	4	4	4	4	4	4	4
13	291288	Pickup, Speed (not shown)	1	1	1	1	1	1	1	1	1	1	1	1
14	291546	Transformer, Current							3		3			
14	291547	Transformer, Current												
14	291548	Transformer, Current	3		3	3	3					3	3	3
14	297675	Transformer, Current		3		3				3				
14	248877	Transformer, Current						3						
14	345689	Transformer, Current												
15	295314	Block, Terminal	1	1	1	1	1	1	1	1	1	1	1	1

* Common hardware; procure locally

Serial Number-Contingent Controller Parts

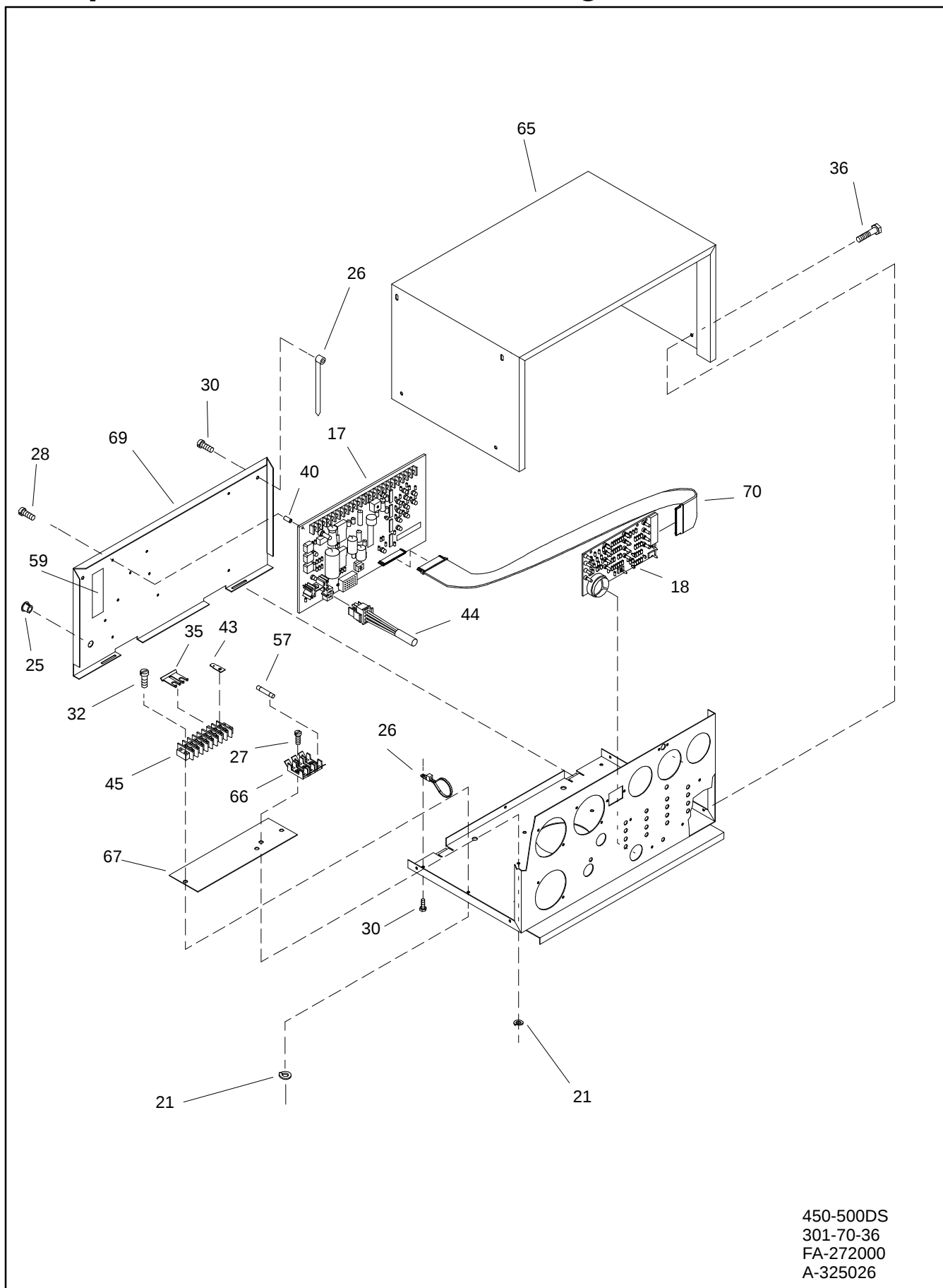
Part Description	Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and After
Main Circuit Board	G-292806	A-336415
Indicator Board	B-292357	A-336432
Controller Ribbon Cable	292836	336428

Serial Number-Contingent Controller Assemblies

Variations	Controller Assembly Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and After
36, 51	A-325026	A-325730
37, 52	A-325028	A-325732
93, 95	N/A	A-325730
94	N/A	A-325731
96, 98, 150	N/A	A-325732
97	N/A	A-325733
121	N/A	A-325734

N/A Not Applicable

Group 301: Controller and Mounting, continued



450-500DS
301-70-36
FA-272000
A-325026

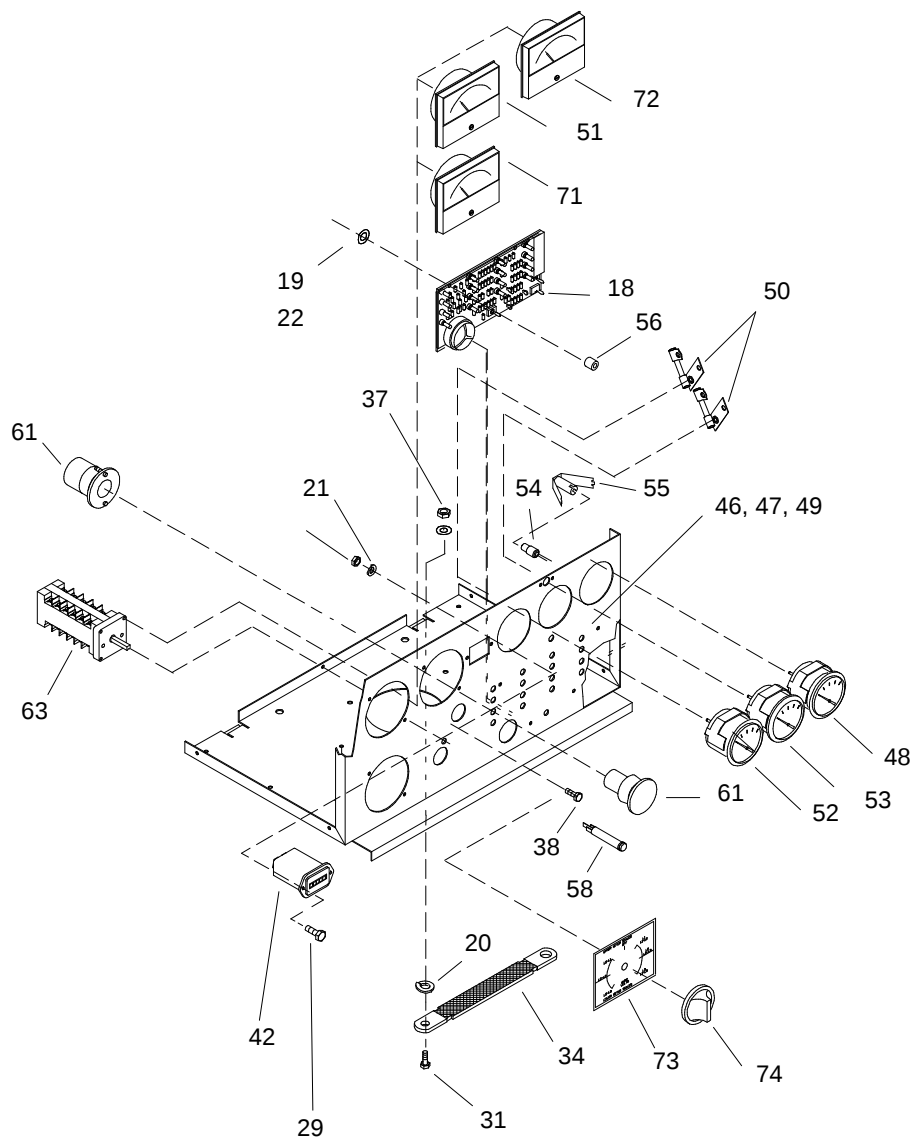
Group 301: Controller and Mounting, continued

Item	Part Number	Description	Quantity											
			Variation/Kit Number											
			36	37	51	52	93	94	95	96	97	98	121	150
16	See Page 45	Controller Assembly	1	1	1	1	1	1	1	1	1	1	1	1
17	See Page 45	Circuit Board, Main†	1	1	1	1	1	1	1	1	1	1	1	1
18	See Page 45	Circuit Board, Indicator†	1	1	1	1	1	1	1	1	1	1	1	1
19	X-22-20	Washer, Shakeproof†	1	1	1	1	1		1	1	1	1	1	1
19	*	Washer, #6†					1							
20	X-22-50	Washer, Lock†	2	2	2	2	2	2	2	2	2	2	2	2
21	X-22-6	Washer, Lock #6†	4	4	4	4	4	2	4	4	4	4	4	4
22	X-22-7	Washer, Lock #8†	3	3	3	3	3	3	3	3	3	3	3	3
23	X-284-31	Grommet†	1	1	1	1	1	1	1	1	1	1	1	1
24	X-301-29	Plug, Button†	1	1	1	1	1	1	1	1	1	1	1	1
25	X-301-34	Plug, Button†	1	1	1	1	1	1	1	1	1	1	1	1
26	X-468-3	Tie, Cable Nylon†	1	1	1	1	1	5	1	1	1	1	1	1
27	X-49-2	Screw, r.h.m. 6-32 x 3†	2	2	2	2	2	2	2	2	2	2	2	2
28	X-49-25	Screw, r.h.m. 6-32 x 1†	18	18	18	18	18	18	18	18	18	18	18	18
29	X-49-39	Screw, Pan Head 6-32 x .50†	2	2	2	2	2	2	2	2	2	2	2	2
30	X-50-3	Screw, r.h.m. 10-24 x .75†	5	5	5	5	5	5	5	5	5	5	5	5
31	X-50-70	Screw, r.h.m. 10-24 x 1†	1	1	1	1	1	1	1	1	1	1	1	1
32	X-51-53	Screw, r.h.m. 8-32 x .625†	2	2	2	2	2	2	2	2	2	2	2	2
33	X-519-1	Plug, Cap 1/8 Inch†	2	2	2	2	2	2	2	2	2	2	2	2
34	X-6046-2	Strap, Ground†	1	1	1	1	1	1	1	1	1	1	1	1
35	X-6048-2	Jumper, Terminal Block†	2	2	2	2	2	2	2	2	2	2	2	2
36	X-6216-1	Screw, Hex Crimp†	10	10	10	10	10	10	10	10	10	10	10	10
37	X-6234-6	Nut, Hex†	2	2	2	2	2	2	2	2	2	2	2	2
38	X-67-127	Screw, Thread Forming†	2	2	2	2	2	2	2	2	2	2	2	2
39	X-696-5	Sleeve†	1	1	1	1	1	1	1	1	1	1	1	1
40	X-712-9	Spacer†	4	4	4	4	4	4	4	4	4	4	4	4
41	201620-86	Tab, Identification†	1	1	1	1	1	1	1	1	1	1	1	1
42	238736	Meter, Hour†	1	1	1	1	1	1	1	1	1	1	1	1
43	238898	Terminal†	1	1	1	1	1	1	1	1	1	1	1	1
44	241617	Connector, 6 Position†	1	1	1	1	1	1	1	1	1	1	1	1
45	246115	Block, Terminal†	1	1	1	1	1	1	1	1	1	1	1	1
46	253241	Lens, Red†	12	12	12	12	12	12	12	12	12	12	12	12
47	253242	Lens, Green†	1	1	1	1	1	1	1	1	1	1	1	1

* Common hardware; procure locally

† Controller assembly component

Group 301: Controller and Mounting, continued



450-500DS
301-70-36
FA-272000
A-325026

Group 301: Controller and Mounting, continued

Item	Part Number	Description	Quantity											
			Variation/Kit Number											
			36	37	51	52	93	94	95	96	97	98	121	150
48	255224	Voltmeter†	1	1	1	1	1	1	1	1	1	1	1	1
49	255931	Lens, Yellow†	3	3	3	3	3	3	3	3	3	3	3	3
50	268297	Resistor, 24 Volt†	2	2	2	2	2	2	2	2	2	2	2	2
51	282815	Voltmeter, AC†	1	1	1	1	1	1	1	1	1	1	1	1
52	282897	Gauge, Oil Pressure†	1	1	1	1	1	1	1	1	1	1	1	1
53	282898	Gauge, Water Temperature†	1	1	1	1	1	1	1	1	1	1	1	1
54	283420	Bulb†	2	2	2	2	2	2	2	2	2	2	2	2
55	284990	Socket, Lamp†	2	2	2	2	2	2	2	2	2	2	2	2
56	287948	Spacer, Circuit Board†	9	9	9	9	9	9	9	9	9	9	9	9
57	291207	Fuse, 1.5 Amp†	3	3	3	3	3	3	3	3	3	3	3	3
58	291740	Lamp†	2	2	2	2	2	2	2	2	2	2	2	2
59	292347	Decal†	1	1	1	1	1	1	1	1	1	1	1	1
60	292361	Decal†	1	1	1	1	1	1	1	1	1	1	1	1
61	292364	Switch, Pushbutton†	1	1	1	1	1	1	1	1	1	1	1	1
62	292467	Decal, Emergency Stop†	1	1	1	1	1	1	1	1	1	1	1	1
63	292374	Switch, Selector†	1	1	1	1	1	1	1	1	1	1	1	1
64	325073	Box, Controller†	1	1	1	1	1		1	1	1	1	1	1
64	350174	Box, Controller†						1						
65	325003	Cover, Controller†	1	1	1	1	1	1	1	1	1	1	1	1
66	292821	Holder, Fuse†	1	1	1	1	1	1	1	1	1	1	1	1
67	292823	Marker, Strip†	1	1	1	1	1	1	1	1	1	1	1	1
68	292834	Bumper†	4	4	4	4	4	4	4	4	4	4	4	4
69	292908	Plate, Hinged Back†	1	1	1	1	1	1	1	1	1	1	1	1
70	See Page 45	Cable Assembly†	1	1	1	1	1	1	1	1	1	1	1	1
71	295069	Meter, Frequency†	1	1	1	1	1	1	1	1	1	1	1	1
72	282958	Ammeter, AC†	1		1		1		1		1			
72	282959	Ammeter, AC†		1		1				1		1		1
72	282957	Ammeter, AC†						1					1	
73	325072	Decal, Selector Switch†	1	1	1	1	1	1	1	1	1	1	1	1
74	296291	Knob†	1	1	1	1	1	1	1	1	1	1	1	1
75	258990	Transformer						3			3			
75	276578	Transformer							3			3	3	3
76	X-794-2	Screw, Drill						6	6		6	6	6	6

* Common hardware; procure locally

† Controller assembly component

Group 701: Literature

Item	Part Number	Description	Quantity								
			Variation/Kit Number								
			29	31	44	45	52	53	66	67	82
1	TP-5700	Installation Manual	1	1	1	1	1	1	1	1	1
2	TP-5611	Operation Manual, DDC 71, 92, 149 Series Engine	1	1	1	1	1	1	1	1	1
3	TP-5750	Operation Manual, Generator Set	1	1	1	1	1	1	1	1	1
4	TP-5578	Operation Manual, MagnaMax Alternator	1	1	1	1	1	1	1	1	1
5	TP-5278	Operation Manual, PM100 Voltage Regulator	1	1			1	1			
5	TP-5579	Operation Manual, Digital Voltage Regulator			1	1			1	1	1
6	TP-5615	Service Manual, DDC 12V-71 Series Engine	1		1						
6	TP-5382	Service Manual, DDC 92 Series Engine		1		1	1	1	1	1	1
7	TP-5311	Service Manual, Generator Set	1	1			1	1			
7	TP-5583	Service Manual, Generator Set			1	1			1	1	1
8	TP-5576	Parts Catalog, DDC 12V71 Series Engine	1		1						
8	TP-5640	Parts Catalog, DDC 92 Series Engine (500 kW)		1		1					
8	TP-5641	Parts Catalog, DDC 92 Series Engine (600 kW)					1			1	
8	TP-5642	Parts Catalog, DDC 92 Series Engine (750/800 kW)						1	1		
8	TP-5840	Parts Catalog, DDC 92 Series Engine (750 kW)									1
9	TP-5601	Parts Catalog, 450-800 kW Generator Set	1	1	1	1	1	1	1	1	1
10	TP-5707	Parts Catalog, Accessories	1	1	1	1	1	1	1	1	1
11	TP-5722	Wiring Diagram Manual			1	1			1	1	1

Kit List

Modular generator sets listed in the Specification Number Index require a controller and cooling kit. Refer to the generator set nameplate or the list below to identify the kit

number installed on your generator set. See Figure 2 for an example of a generator set nameplate. See the following sections for parts list of the kit.

	450DS	500DS	600DS	750DS	800DS
CONTROLLER KITS					
6- and 7-Light					
Standard Meterbox	325258	325258	325270	325270	325270
Standard Meterbox	325423	325423	325428	325428	N/A
Standard Meterbox (5M4034, 5M4036)	N/A	N/A	N/A	N/A	325428
Standard Meterbox (5M4038)	N/A	N/A	N/A	N/A	325452
Standard Meterbox, 380V	325262	325262	325274	325274	325274
Standard Meterbox, 380V	325440	325440	325444	325444	325444
Standard Meterbox, 380V					354140
Standard Meterbox, 600V	325266	325266	325278	325278	325278
Standard Meterbox, 600V	325432	325432	325436	325436	325436
Oversized Meterbox	325260	325260	325272	325272	325272
Oversized Meterbox	325425	325425	325430	325430	N/A
Oversized Meterbox (5M4034, 5M4036)	N/A	N/A	N/A	N/A	325430
Oversized Meterbox (5M4038)	N/A	N/A	N/A	N/A	325454
Oversized Meterbox, 380V	325264	325264	325276	325276	325276
Oversized Meterbox, 380V	325442	325442	325446	325446	325446
Oversized Meterbox, 380V					325142
Oversized Meterbox, 600V	325268	325268	325280	325280	325280
Oversized Meterbox, 600V	325434	325434	325438	325438	325438
16-Light					
Standard Meterbox	325249	325249	325261	325261	325261
Standard Meterbox	325422	325422	325427	325427	N/A
Standard Meterbox (5M4034, 5M4036)	N/A	N/A	N/A	N/A	325427
Standard Meterbox (5M4038)	N/A	N/A	N/A	N/A	325451
Standard Meterbox, 380V	325259	325259	325271	325271	325271
Standard Meterbox, 380V	325439	325439	325443	325443	325443
Standard Meterbox, 380V					354139
Standard Meterbox, 600V	325251	325251	325263	325263	325263
Standard Meterbox, 600V	325431	325431	325435	325435	325435
Oversized Meterbox	325253	325253	325265	325265	325265
Oversized Meterbox	325424	325424	325429	325429	N/A
Oversized Meterbox, (5M4034, 5M4036)	N/A	N/A	N/A	N/A	325429
Oversized Meterbox, (5M4038)	N/A	N/A	N/A	N/A	325453
Oversized Meterbox, 380V	325257	325257	325229	325229	325229
Oversized Meterbox, 380V	325441	325441	325445	325445	325445
Oversized Meterbox, 380V					325141
Oversized Meterbox, 600V	325255	325255	325267	325267	325267
Oversized Meterbox, 600V	325433	325433	325437	325437	325437
Engine Gauge Box for Paralleling	325273	325273	325273	325273	325273
Engine Gauge Box for Paralleling	325426	325426	325426	325426	325426
Engine Gauge Box for Paralleling, 600V	325219	325219	325219	325219	325219
Manual Paralleling Controllers, 24 vdc					
208 vac	325656	325656	325668	325668	325668
240 vac	325657	325657	325669	325669	325669
380/416 vac (5M4034, 5M4036)	325659	325659	325671	325671	N/A
380/416 vac (5M4038)	N/A	N/A	N/A	N/A	325671
380/416 vac	N/A	N/A	N/A	N/A	325686
380 vac	350209	350209	350210	350210	350210
480 vac	325660	325660	325672	325672	N/A
480 vac (5M4034, 5M4036)	N/A	N/A	N/A	N/A	325672
480 vac (5M4038)	N/A	N/A	N/A	N/A	325687
600 vac	325661	325661	325673	325673	325673
Digital Controllers, 24 vdc					
Standard voltage	350074	350074	350075	350075	N/A
Standard voltage (5M4034, 5M4036)	N/A	N/A	N/A	N/A	350075
Standard voltage (5M4038)	N/A	N/A	N/A	N/A	350081
380 vac	350078	350078	350079	350079	350079
600 vac	350076	350076	350077	350077	350077

N/A Not Applicable

Kit List, continued

	450DS	500DS	600DS	750DS	800DS
COOLING SYSTEM KITS					
Block Heater (single), 190-208-210/240-380/480V	354720	354720	354720	354720	354720
Block Heater, 190-208-210/240-380/480V	279928	279928	279928	279929	279929
Block Heater (dual), 190-208-210/240-380/480V	354705	354685	354685	354685	354685
Duct Flange, Radiator, 40° C Ambient	272965	272965	272965	347865	272963
Duct Flange, Radiator, 40° C Ambient	N/A	N/A	N/A	272963	274233
Duct Flange, Radiator, 40° C Ambient	N/A	N/A	N/A	N/A	347865
Duct Flange, Radiator, 50° C Ambient	279764	279764	279764	N/A	N/A
Duct Flange, Radiator, 50° C Ambient	N/A	347865	N/A	N/A	N/A
Radiator, 40° C Ambient	279860	279487	274934	347861	354108
Radiator, 40° C Ambient	N/A	N/A	N/A	299894	299894
Radiator, 40° C Ambient	N/A	N/A	N/A	274935	274936
Radiator, 40° C Ambient	354608	354559	354560	354672	354844
Radiator, 50° C Ambient	279486	279753	279753	N/A	N/A
Radiator, 50° C Ambient	354609	354558	N/A	N/A	N/A
City Water Cooling	279296	354568	354568	347877	347877
Remote Radiator Setup, Dry Manifold	328001	279855	279855	279854	N/A
Remote Radiator Setup, Dry Manifold	279295	N/A	N/A	347878	N/A
Remote Radiator Setup, Dry Manifold	354615	354567	354567	347877	347878
Remote Radiator Setup, 5M4032 or 5M4164	N/A	N/A	328651	347878	347878

AIR CLEANER KITS

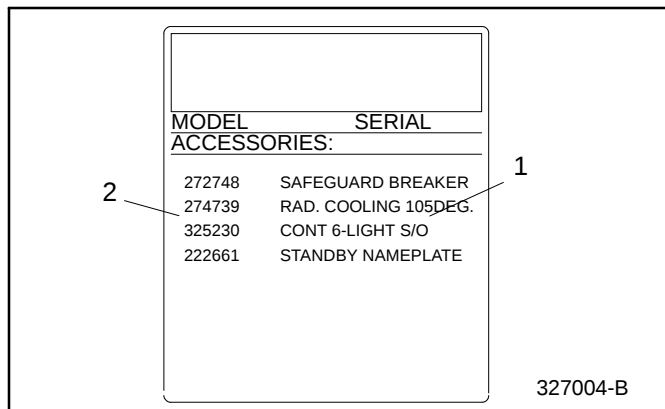
Heavy-Duty	354588	354566	354561	354049	354049
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OPTIONAL KITS

Paint and Miscellaneous Parts

Generator Paint, Spectrum Grey (Spray Can)	221331
Generator Paint, Spectrum Grey (Gallon Can)	221332

N/A Not Applicable



1. Kit Description
2. Factory-installed Kit Number

Figure 2. Generator Accessory Nameplate

See Parts Catalog MP-5707 for parts lists of optional kits (kits other than controllers and cooling).

6- and 7-Light Controller Kits

6- and 7-light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			325258 325423	325260 328425	325262 325440	325266 325432	325268 325434
1	Controller Assembly*	X-284-25 255080 258453 272684	A-325058	A-325127	A-325058	A-325059	A-325128
1	Controller Assembly*		A-325799†	A-325834†	A-325799†	A-325800†	A-325835†
1	Grommet						
1	Marker, Strip						
1	Harness, Wiring						
2	Relay						
1	Panel, Relay	274796					
1	Harness, Wiring		258455	258455	274964	274964	274964
4	Mount, Vibro	282829					
3	Transformer		N/A	N/A	276578	258990	258990
1	Speed Pickup	291288					
3	Transformer, Current		291548		291546	248877	
1	Block, Terminal	295314					

6- and 7-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			325270 325428	325272 325430	325274 325444	325276 325446	325278 325436
1	Controller Assembly*	X-284-25 255080 258453 272684	A-325060	A-325129	A-325060	A-325129	A-325061
1	Controller Assembly*		A-325801†	A-325836†	A-325801†	A-325846†	A-325802†
1	Grommet						
1	Marker, Strip						
1	Harness, Wiring						
2	Relay						
1	Panel, Relay	274796					
1	Harness, Wiring		258455	258455	274964	274964	274964
4	Mount, Vibro	282829					
3	Transformer		N/A	N/A	276578	276578	258990
1	Speed Pickup	291288					
3	Transformer, Current		297675	297675	291547	291547	291546
1	Block, Terminal	295314					

6- and 7-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			325280 325438				
1	Controller Assembly*	X-284-25 255080 258453 272684	A-325130				
1	Controller Assembly*		A-325837†				
1	Grommet						
1	Marker, Strip						
1	Harness, Wiring						
2	Relay						
1	Panel, Relay	274796					
1	Harness, Wiring		274964				
4	Mount, Vibro	282829					
3	Transformer		258990				
1	Speed Pickup	291288					
3	Transformer, Current		291548				
1	Block, Terminal	295314					

* See Controller Assembly section beginning on page 55 for parts list.

† This controller assembly used in kit effective with generator set serial number greater than or equal to 363369.

6- and 7-Light Controller Kits, continued

6- and 7-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			325142				
1	Controller Assembly*		A-325782				
2	Screw, h.c.	X-117-5					
4	Washer, Lock 5/16	X-22-16					
2	Washer, Lock #4	X-22-24					
2	Washer, Lock #10	X-22-9					
2	Screw, rdh 4-40 x 7	X-49-35					
1	Clamp, Insulator	X-672-15					
4	Screw, Drill h.c.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer	259360					
1	Bracket, C.T. Mounting	276417					

6- and 7-light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			325264	325425	325442	325452	325454
1	Controller Assembly*		A-325127	A-325834	A-325834	A-325803	A-325838
1	Washer, Lock 3/8	X-22-14					
4	Washer, Lock	X-22-16					
8	Washer, Lock	X-22-20					
1	Grommet	X-284-25					
2	Screw, r.h.m.	X-51-11					
6	Srew, Drill	X-794-2					
1	Marker, Strip	255080					
1	Harness, Wiring	258453					
2	Relay	272684					
1	Panel, Relay	274796					
1	Harness, Wiring		274964	258455	274964	274964	274964
4	Vibromount	282829			276578	287684	287684
3	Transformer		276578				
1	Speed Pickup	291288					
3	Transformer, Current		295146	291548	291546	291548	291548
1	Block, Terminal	295314			258453		
1	Harness, Wiring						

6- and 7-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			354140				
1	Controller Assembly*		A-325803				
1	Washer, Lock 3/8	X-22-14					
4	Washer, Lock	X-22-16					
8	Washer, Lock	X-22-20					
1	Grommet	X-284-25					
2	Screw, r.h.m.	X-51-11					
6	Srew, Drill	X-794-2					
1	Marker, Strip	255080					
1	Harness, Wiring	258453					
2	Relay	272684					
1	Panel, Relay	274796					
1	Harness, wiring		274964				
4	Vibromount	282829					
3	Transformer		276578				
1	Speed Pickup	291288					
3	Transformer, Current		291548				
1	Block, Terminal	295314					

* See Controller Assembly section beginning on page 55 for parts list.

6-Light Controller Assemblies

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts				
			A-325058	A-325059	A-325060	A-325061	
1	6-Light Circuit Board	B-292381					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	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					
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					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Hex	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					
6	Lens, Red	253241					
1	Voltmeter	255224					
2	Lamp, Meter Scale	253332					
2	Bulb	283430					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282814	282814	282815	282815	
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282958	282957	282959	282958	
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	292352	292352	292352	
1	Decal	292361					
1	Switch, Selector		292374	292374	292374	292374	
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	292836					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325074					
1	Resistor, 24 Volt	268297					
1	Switch, Pushbutton	292364					
1	Decal, Emergency Stop	292467					

6-Light Controller Assemblies, continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts				
			A-325127	A-325128	A-325129	A-325130	
1	6-Light Circuit Board	B-292381					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	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					
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					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex Crimptite	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					
6	Lens, Red	253241					
1	Voltmeter	255224					
2	Lamp, Meter Scale	253332					
2	Bulb	283420					
4	Bumper	255443					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282814	282815	282814	282815	
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282958	282957	282959	282958	
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	
1	Decal	292361					
1	Switch, Selector		292374	292374	292374	292374	
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	292836					
1	Meter, Frequency	295069					
1	Cover, Controller	325007					
1	Decal, Selector Switch		325072	325072	325072	325072	
1	Box, Silkscreened Controller	325076					
1	Resistor, 24 Volt	268297					
1	Switch, pushbutton	292364					
1	Decal, Emergency Stop	292467					

N/A Not Applicable

7-Light Controller Assemblies

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325782	A-325799	A-325800	A-325801	A-325802
1	Indicator Circuit Board	A-336430	A-255041				
1	Main Circuit Board	A-336415					
1	Potentiometer Assembly						
1	Washer, Shakeproof	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					
1	Terminal		X-431-42				
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, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3	X-519-1				
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
2	Plug, Cap, 1/8						
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Hex	X-6216-1					
2	Nut, Hex	X-6234-6					
2	Screw, Thread-forming	X-67-127					
1	Sleeve	X-696-5					
2	Nut, Hex 6-32 zinc		X-71-2				
4	Spacer	X-712-9	X-72-4				
2	Nut, Hex 6-32 zinc						
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
6	Lens, Red	253241					
1	Voltmeter		253329	255224	255224	255224	255224
2	Lamp, Meter Scale		255126	253332	253332	253332	253332
2	Bulb			283430	283430	283430	283430
1	Decal		292361				
1	Plate, Hinge	292908					
1	Voltmeter, AC		282814	282814	282815	282814	282815
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295337	282958	282957	282959	282958
2	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
1	Switch, Selector		292373	292374	292374	292374	292374
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch			325072	325072	325072	325072
1	Box, Silkscreened Controller	325945					
1	Resistor, 24 Volt			268297	268297	268297	268297
1	Switch, Pushbutton			292364	292364	292364	292364
1	Decal, Emergency Stop			292467	292467	292467	292467
2	Lamp		291740				
1	Decal		292361				
1	Plate, Hinge		292908				

N/A Not Applicable

7-Light Controller Assemblies, continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325803	A-325834	A-325835	A-325836	A-325837
1	Indicator Circuit Board	A-336430					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	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					
1	Terminal		X-431-42				
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, 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, Phil Hex Crimptite	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 8-32		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					
6	Lens, Red	253241					
1	Voltmeter	255224					
2	Lamp, Meter Scale		291740	253332	253332	253332	253332
3	Bulb	283420					
4	Bumper		292834	255443	255443	255443	255443
1	Plate, Hinge		292908	273785	273785	273785	273785
1	Voltmeter, AC		282814	282814	282815	282814	282815
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature		282898	328072	328072	328072	328072
1	Ammeter		282960	282958	282957	282959	282958
3	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		268297				
1	Resistor		292352	N/A	292352	N/A	292352
1	Switch, Selector		292374	292374	292374	292374	292374
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Plate, Hinge		292908				
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller		325003	325007	325007	325007	325007
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller		325945	325943	325943	325943	325943
1	Resistor, 24 Volt	268297					
1	Switch, Pushbutton	292364					
1	Decal, Emergency Stop	292467					

N/A Not Applicable

7-Light Controller Assemblies, continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325838				
1	Indicator Circuit Board	A-336430					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	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					
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, 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					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex Crimptite	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					
6	Lens, Red	253241					
1	Voltmeter	255224					
1	Bumper	255443					
1	Resistor	268297					
1	Plate, Hinge		273785				
1	Voltmeter, AC		282814				
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature		282898				
1	Ammeter		282960				
3	Bulb	283420					
3	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
2	Lamp, Meter Scale		291740				
1	Decal	292347					
1	Resistor		292352				
1	Switch, Pushbutton	292364					
1	Switch, Selector		292374				
1	Decal, Emergency Stop	292467					
1	Holder, Fuse	292821					
1	Marker, Strip	292834					
4	Bumper		292834				
1	Meter, Frequency	295069					
1	Cover, Controller		325007				
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller		325943				
1	Harness, Cable	336428					

16-Light Controller Kits

16-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Number/Unique Parts				
			325141	325229			
1	Controller Assembly		A-325712	A-325735			
2	Screw, h.c. 10-24	X-117-5					
4	Washer, Lock 5/16	X-22-16					
2	Washer, Lock #4	X-22-24					
2	Washer, Lock #10		X-22-9				
2	Screw, Slotted 4-40	X-49-35					
1	Clamp, Insulator	X-672-15					
4	Screw, Drill Hex	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring		255040	354119			
1	Bracket, Sensor Mounting	257070					
3	Transformer		259360	272678			
1	Bracket, C.T. Mounting		276417	3523823			
2	Relay			272684			

16-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Number/Unique Parts				
			325445	325451	325453		
1	Controller Assembly		A-325766	A-325734	A-325768		
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. 8-32	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					
3	Transformer		276578	287684	287684		
4	Mount, Vibro	282829					
1	Pick-up, Speed	291288					
3	Transformer, Current		291547	291548	291548		
1	Block, Terminal	295314					

16-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Number/Unique Parts				
			325249 325422	325251 325431	325253 325424	325255 325433	325257 325441
1	Controller Assembly*		A-325026	A-325027	A-325098	A-325096	A-325095
1	Controller Assembly*		A-325730 †	A-325731 †	A-325764 †	A-325765 †	A-325764 †
1	Grommet	X-284-25					
1	Marker, Strip	255080					
1	Harness, Wiring	258453					
2	Relay	272684					
1	Panel, Relay	274796					
1	Harness, Wiring		258455	274964	274955	258464	274964
4	Mount, Vibro	259919					
3	Transformer		N/A	287684	N/A	258990	276578
1	Speed Pickup	291288					
3	Transformer, Current		291547	248877	291547	248877	291546
1	Block, Terminal	295314					

* See Controller Assembly section beginning on page 62 for parts list.

† This controller assembly used in kit effective with generator set serial number greater than or equal to 363369.

16-Light Controller Kits, continued

16-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Number/Unique Parts				
			325259 325439	325261 325427	325263 325435	325265 325429	325267 325437
1	Controller Assembly*		A-325026	A-325028	A-325029	A-325097	A-325098
1	Controller Assembly*		A-325730 †	A-325732 †	A-325733 †	A-325766 †	A-325767 †
1	Grommet	X-284-25					
1	Marker, Strip	255080					
1	Harness, Wiring	258453					
2	Relay	272684					
1	Panel, Relay	274796					
1	Harness, Wiring		274964	258455	274964	258455	274964
4	Mount, Vibro	259919					
3	Transformer		276578	N/A	258990	N/A	258990
1	Speed Pickup	291288					
3	Transformer, Current		291546	297675	291546	297675	291546
1	Block, Terminal	295314					

16-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Number/Unique Parts				
			325269 325416	325271 325443			
1	Controller Assembly*		A-325097	A-325028			
1	Controller Assembly*		A-325766 †	A-325732 †			
1	Grommet	X-284-25					
1	Marker, Strip	255080					
1	Harness, Wiring	258453					
2	Relay	272684					
1	Panel, Relay	274796					
1	Harness, Wiring	274964					
4	Mount, Vibro	259919					
3	Transformer		276578	276578			
1	Speed Pickup	291288					
3	Transformer, Current		291547	291547			
1	Block, Terminal	295314					

16-Light Microprocessor Controller Kit Parts							
Qty.	Description	Common Parts	Kit Number/Unique Parts				
			354139				
1	Controller Assembly*		A-325734				
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. 8-32	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					
3	Transformer		276578				
4	Mount, Vibro	282829					
1	Pick-up, Speed	291288					
3	Transformer, Current		291548				
1	Block, Terminal	295314					

* See Controller Assembly section beginning on page 62 for parts list.

† This controller assembly used in kit effective with generator set serial number greater than or equal to 363369.

N/A Not Applicable

16-Light Controller Assemblies

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-325026	A-325027	A-325028	A-325029		
1	16-Light Circuit Board	B-292357						
1	Main Circuit Board	G-292806						
1	Washer, Shakeproof	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	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						
2	Nut, Hex	X-6234-6						
10	Screw, Phil Hex Crimptite	X-6216-1						
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						
12	Lens, Red	253241						
1	Voltmeter	255224						
2	Lamp, Meter Scale	253332						
2	Bulb	283420						
1	Plate, Hinge	292908						
1	Voltmeter, AC		282814	282814	282814	282815		
1	Gauge, Oil Pressure	282897						
1	Gauge, Water Temperature	282898						
1	Ammeter		282958	282957	282959	282958		
2	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		
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	295069						
1	Cover, Controller	325003						
1	Decal, Selector Switch	325072						
1	Box, Silkscreened Controller	325073						
1	Lens, Green	253242						
3	Lens, Yellow	255931						
1	Switch, Pushbutton	292364						
1	Decal, Emergency Stop	292467						
1	Resistor, 24 Volt	268297						

N/A Not Applicable

16-Light Controller Assemblies, continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts				
			A-325095	A-325096	A-325097	A-325098	
1	16-Light Circuit Board	B-292357					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	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					
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					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex Crimptite	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					
12	Lens, Red	253241					
1	Voltmeter	255224					
2	Lamp, Meter Scale	253332					
3	Bulb	283420					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282814	282815	282815	282815	
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282958	282957	282959	282958	
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	
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	295069					
1	Cover, Controller	325007					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325075					
1	Lens, Green	253242					
3	Lens, Yellow	255931					
1	Switch, Pushbutton	292364					
1	Decal, Emergency Stop	292467					
1	Resistor, 24 Volt	268297					

N/A Not Applicable

16-Light Controller Assemblies, continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-325712	A-325724	A-325734	A-325735	A-325740	A-325742
1	16-Light Circuit Board	A-336432						
1	Main Circuit Board	A-336415						
1	Potentiometer Assembly		A-255041			A-255041		
1	Washer, Shakeproof	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	X-301-29	X-301-29		X-301-29	X-301-29
1	Plug, Button	X-301-34						
1	Terminal					X-431-42		
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			X-519-1		
1	Strap, Ground	X-6046-2						
1	Jumper	X-6048-2						
10	Screw, Phil Hex Crimptite	X-6216-1						
2	Nut, Hex	X-6234-6						
2	Screw, Thread-forming	X-67-127						
1	Sleeve	X-696-5						
2	Nut, Hex, 6-32		X-71-2			X-71-2		
4	Spacer	X-712-9						
2	Nut, Hex, 6-32		X-72-4			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						
12	Lens, Red	253241						
1	Voltmeter		253329	255224	255224	255224	255224	255224
2	Lamp, Meter Scale	253332						
2	Bulb	283420						
1	Plate, Hinge	292908						
1	Voltmeter, AC		282814	282814	282815	282814	282814	282815
1	Gauge, Oil Pressure	282897						
1	Gauge, Water Temperature	282898						
1	Ammeter		295337	282958	282957	282957	282959	282958
2	Lamp		255126			291740		
2	Socket, Lamp		291740	284990	284990	284990	284990	284990
9	Spacer, Circuit Board	287948						
3	Fuse, 1.5 Amp	291207						
1	Decal	292347						
1	Resistor			N/A	292352		N/A	292352
1	Decal	292361						
1	Switch, Selector		292373	292374	292374		292374	292374
1	Holder, Fuse	292821						
1	Marker, Strip	292823						
1	Bumper	292834						
1	Plate, Hinge	292908						
1	Harness, Cable	336428						
1	Meter, Frequency	295069						
1	Cover, Controller	325003						
1	Decal, Selector Switch	325072						
1	Box, Silkscreened Controller		350174	325073	325073	350174	325073	325073
1	Lens, Green	253242						
3	Lens, Yellow	255931						
1	Switch, Pushbutton	292364						
1	Decal, Emergency Stop	292467						
1	Resistor, 24 Volt	268297						
1	Switch, Selector					292374		

N/A Not Applicable

16-Light Controller Assemblies, continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts				
			A-325764	A-325765	A-325766	A-325767	A-325768
1	16-Light Circuit Board	A-336432					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	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					
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					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw	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					
12	Lens, Red	253241					
1	Voltmeter	255224					
2	Lamp, Meter Scale	253332					
1	Bulb	283420					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282814	282815	282815	282815	
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282958	282957	282959	282958	
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	
1	Switch, Selector	292374					
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325007					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325075					
1	Lens, Green	253242					
3	Lens, Yellow	255931					
1	Switch, Pushbutton	292364					
1	Decal, Emergency Stop	292467					
1	Resistor, 24 Volt	268297					

N/A Not Applicable

Manual Paralleling Controller Kits

Manual Paralleling Controller Kit Parts							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			325656	325657	325659	325660	325661
1	Controller Assembly		A-325503	A-325520	A-325554	A-325571	A-352585
4	Screw, h.c. 10-24	X-117-5					
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. 8-32 x 3	X-51-11					
3	Clamp	X-672-10					
3	Screw, Drill Hex	X-794-1					
1	Marker, Strip	255080					
2	Relay	272684					
1	Panel, Relay	274796					
1	Mount, Vibro	282829					
1	Pick-up, Speed	291288					
3	Transformer, Current	291548					
1	Block, Terminal	295314					
1	Harness, Wiring	328776					
1	Module, Single Phase	328784					

Manual Paralleling Controller Kit Parts							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			325668	325669	325671	325672	
1	Controller Assembly		A-325504	A-325521	A-325555	A-325572	
4	Screw, h.c.	X-117-5					
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. 8-32 x 3	X-51-11					
3	Clamp	X-672-10					
3	Screw, Drill Hex	X-794-1					
1	Marker, Strip	255080					
2	Relay	272684					
1	Panel, Relay	274796					
1	Mount, Vibro	282829					
1	Pick-up, Speed	291288					
1	Block, Terminal	295314					
3	Transformer, Current	297675					
1	Harness, Wiring	328776					
1	Module, Single Phase	328784					

Manual Paralleling Controller Kit Parts		
Qty.	Description	325673
1	Controller Assembly	A-325585
8	Screw, h.c.	X-117-5
4	Washer, Lock 5/16	X-22-16
2	Washer, Lock #4	X-22-24
2	Screw, RDH 4-40 x 7	X-49-35
3	Clamp	X-672-10
7	Screw, Drill Hex	X-794-1
1	Sensor, Ferromagnetic	241623
1	Bracket, Sensor Mounting	257070
2	Relay	272684
3	Transformer, Current	291546
1	Bracket, CT Mounting	352382
1	Harness, Wiring	328776
1	Module, Single Phase	328784

Manual Paralleling Controller Kits, continued

Manual Paralleling Controller Kit Parts						
Qty.	Description	Common Parts	Kit Numbers/Unique Parts			
			325686	325687	350209	350210
1 4 1 4 8	Controller Assembly Screw, h.c. Washer, Lock 3/8 Washer, Lock 5/16 Washer, Lock #8	X-117-5 X-22-14 X-22-16 X-22-20	A-325556	A-325573	A-325554	A-325555
1 2 3 3 3	Grommet Screw, r.h.m. 8-32 x 3 Clamp Screw, Drill Hex Screw, Drill	X-284-25 X-51-11 X-794-1	 X-672-10 X-794-2	 X-672-10 X-794-2	 X-672-20	 X-672-20
1 2 1 1 1	Marker, Strip Relay Panel, Relay Mount, Vibro Pick-up, Speed	255080 272684 274796 282829 291288				
1 3 1 1	Block, Terminal Transformer, Current Harness, Wiring Module, Single Phase	295314 328784	 297675 328905	 291548 328905	 291546 328776	 291547 328776

Manual Paralleling Controller Assemblies

Qty.	Description	Common Parts	Manual Paralleling Controller Assembly Number/Unique Parts					
			A-352503	A-325504	A-325520	A-325521	A-325554	A-325555
1	Main Circuit Board	A-336415						
1	16-Light Circuit Board	A-336432						
1	Washer, Shakeproof	X-22-20						
2	Washer, Lock	X-22-50						
2	Washer, Lock #6	X-22-6						
5	Washer, Lock #8	X-22-7						
8	Washer, Lock #10	X-22-9						
1	Washer, Plain	X-25-139						
1	Grommet	X-284-31						
4	Terminal, Push-on				X-431-25	X-431-25	X-431-25	X-431-25
3	Tie, Cable Nylon	X-468-3						
2	Resistor	X-472-6						
6	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-51-11						
2	Screw, r.h.m.	X-51-53						
1	Strap, Ground	X-6046-2						
1	Jumper	X-6048-2						
1	Relay, Reverse Power	X-6115-10						
1	Relay, Synch Check	X-6120-17						
2	Knob, Potentiometer	X-6136-35						
12	Screw, h.c.	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-70-12						
2	Nut, Hex	X-71-2						
4	Spacer	X-712-9						
2	Nut, Hex, 6-32	X-72-4						
1	Ring Lock Switch	151511						
1	Tab, Ident.	201620-86						
3	Diode, 6 amp	233959						
1	Meter, Hour	238736						
1	Terminal	238898						
2	Socket	243645						
2	Bulb	243987						
1	Block, Terminal	246115						
1	Switch, Toggle	249689						
12	Lens, Red	253241						
1	Lens, Green	253242						
1	Voltmeter	255224						
1	Lens, Yellow	255931						
1	Lamp, Meter Scale	264513						
2	Resistor, 24 Volt	268297						
1	Potentiometer	273767						
1	Voltmeter, AC	282814						
1	Gauge, Oil Pressure	282897						
1	Gauge, Water Temperature	282898						
1	Meter, Amps		282958	282959	282958	282959	282958	282959
3	Bulb	283420						
1	Fuse, 15 Amp	283645						
4	Fuse, 1 Amp	284205						
3	Socket, Lamp	284990						
9	Spacer	287948						
3	Fuse, 1.5 amp	291207						
2	Relay	291309						
2	Lamp	291740						
1	Decal	292347						
1	Switch, Pushbutton	292364						
1	Switch, Selector	292374						
1	Decal, Emergency Stop	292467						
2	Holder, Fuse	292821						
2	Socket, Relay	295034						
1	Meter, Frequency	295069						
2	Block, Terminal	295266						
1	Lamp, Socket	295325						
1	Lens	295328						
Parts list continues								

Manual Paralleling Controller Assemblies, continued

Qty.	Description	Common Parts	Manual Paralleling Controller Assembly Number/Unique Parts (Continued)					
			A-325503	A-325504	A-325520	A-325521	A-325554	A-325555
2	Cover, Terminal Strip	295925						
1	Wattmeter		299977	299978	299977	299978	299977	299978
1	Decal, Selector Switch	325072						
1	Cover, Controller	325590						
1	Box, Controller	325611						
1	Harness, Wiring	325615						
1	Panel, Hinge	328491						
1	Transducer, Watt		328506	328507	328520	328521	328548	328549
4	Mount, Controller	328644						
4	Mount, Controller	328645						
4	Transformer				328673	328673	328674	328674
1	Switch, Pushbutton	328773						
1	Switch, Toggle	328789						
1	Cable, Ribbon	336579						
1	Bracket, Transformer Mounting	342176						
1	Strip, Marker	342177						
1	Strip, Marker	342178						
1	Strip, Marker	342179						
4	Clip, Retaining	352911						

Manual Paralleling Controller Assemblies, continued

Qty.	Description	Common Parts	Manual Paralleling Controller Assembly Number/Unique Parts					
			A-325556	A-325571	A-325572	A-325573	A-325585	
1	Main Circuit Board	A-336415						
1	16-Light Circuit Board	A-336432						
1	Washer, Shakeproof	X-22-20						
2	Washer, Lock	X-22-50						
2	Washer, Lock #6	X-22-6						
5	Washer, Lock #8	X-22-7						
8	Washer, Lock #10	X-22-9						
1	Washer, Plain	X-25-139						
1	Grommet	X-284-31						
4	Terminal, Push-on	X-431-25						
3	Tie, Cable Nylon	X-468-3						
2	Resistor	X-472-6						
6	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-51-11						
2	Screw, r.h.m.	X-51-53						
1	Strap, Ground	X-6046-2						
1	Jumper	X-6048-2						
1	Relay, Reverse Power	X-6115-10						
1	Relay, Synch Check	X-6120-17						
2	Knob, Potentiometer	X-6136-35						
12	Screw, h.c.	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-70-12						
2	Nut, Hex	X-71-2						
4	Spacer	X-712-9						
2	Nut, Hex, 6-32	X-72-4						
1	Ring Lock Switch	151511						
1	Tab, Ident.	201620-86						
3	Diode, 6 Amp	233959						
1	Meter, Hour	238736						
1	Terminal	238898						
2	Socket	243645						
2	Bulb	243987						
1	Block, Terminal	246115						
1	Switch, Toggle	249689						
12	Lens, Red	253241						
1	Lens, Green	253242						
1	Voltmeter	255224						
1	Lens, Yellow	255931						
1	Lamp, Meter Scale	264513						
2	Resistor, 24 Volt	268297						
1	Potentiometer	273767						
1	Wattmeter		299979	299977	299978	299979	299977	
1	Ammeter		282960	282958	282959	282960	282957	
1	Voltmeter, AC		282814	282814	282814	282814	282815	
1	Gauge, Oil Pressure	282897						
1	Gauge, Water Temperature	282898						
3	Bulb	283420						
1	Fuse, 15 Amp	283645						
4	Fuse, 1 Amp	284205						
3	Socket, Lamp	284990						
9	Spacer	287948						
3	Fuse, 1.5 Amp	291207						
2	Relay	291309						
2	Lamp	291740						
1	Decal	292347						
1	Resistor						292352	
1	Switch, Pushbutton	292364						
1	Switch, Selector	292374						
1	Decal, Emergency Stop	292467						
2	Holder, Fuse	292821						
2	Socket, Relay	295034						
1	Meter, Frequency	295069						
2	Block, Terminal	295266						
1	Lamp, Socket	295325						
Parts list Continues								

Manual Paralleling Controller Assemblies, continued

Qty.	Description	Common Parts	Manual Paralleling Controller Assembly Number/Unique Parts (continued)					
			A-328556	A-325571	A-325572	A-325573	A-325585	
1	Lens	295328						
2	Cover, Terminal Strip	295925						
1	Decal, Selector Switch	325072						
1	Cover, Controller	325590						
1	Box, Controller	325611						
1	Harness, Wiring	325615						
1	Panel, Hinge	328491						
1	Transducer, Watt		328550	328562	328563	328564	328574	
4	Mount, Controller	328644						
4	Mount, Controller	328645						
4	Transformer		328674	328675	328675	328675	328676	
1	Switch, Pushbutton	328773						
1	Switch, Toggle	328789						
1	Cable, Ribbon	336579						
1	Bracket, Transformer Mounting	342176						
1	Strip, Marker	342177						
1	Strip, Marker	342178						
1	Strip, Marker	342179						
4	Clip, Retaining	352911						

Digital Controller Kits

Digital Controller Kits							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			350074	350075	350076	350077	350078
1	Controller Assembly*	A-350093					
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. 8-32	X-51-11					
6	Screw, Drill				X-794-2	X-794-2	X-794-2
1	Marker, Strip	255080					
3	Transformer				258990	258990	258990
1	Harness, Wiring	258453					
1	Harness, Wiring		258455	258455	274964	274964	274964
1	Relay	272684					
1	Panel, Relay	274796					
4	Mount, Vibro	282829					
1	Pick-up, Speed	291288					
3	Transformer, Current		291548	297675	354689	291546	291546
1	Block, Terminal	295314					

Digital Controller Kits							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			350079	350081			
1	Controller Assembly*	A-350093					
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. 8-32	X-51-11					
6	Screw, Drill		X-794-2	X-794-2			
1	Marker, Strip	255080					
3	Transformer		258990	258990			
1	Harness, Wiring	258453					
1	Harness, Wiring		274964	274964			
1	Relay	272684					
1	Panel, Relay	274796					
4	Mount, Vibro	282829					
1	Pick-up, Speed	291288					
3	Transformer, Current		291547	287684			
1	Block, Terminal	295314					

Digital Controller Assemblies							
Qty.	Description	Common Parts	Kit Numbers/Unique Parts				
			A-350093				
1	Controller Assembly		PA-350160				
1	Plug, Button		X-301-23				
1	Switch, Emergency Stop		292364				
1	Switch, Selector		347969				
2	Lamp, Panel		283420				
4	Bumper		292834				
1	Holder, Fuse		292821				
3	Fuse, 1.5 amp, 250 volt		291207				

* See Controller Assembly table immediately above for parts list.

Meterbox for Paralleling Kits

Meterbox for Paralleling							
Qty.	Description	Common Parts	Kit Number/Unique Parts				
			325219	325273	325426		
1	Controller Assembly*		A-325346	A-325345	A-325345		
1	Switch Assembly, Limit	263438					
2	Relay	272684					
1	Grommet		N/A	X-284-25	X-284-25		
1	Marker, Strip		N/A	255080	255080		
1	Panel, Relay		N/A	274796	274796		
4	Mount, Vibro		N/A	282829	282829		
1	Block, Terminal (6-Terminal)		N/A	295314	295314		
1	Sensor, Low Coolant		N/A	N/A	273521		

Qty.	Description	Common Parts	Controller Assembly Number/ Unique Parts				
			A-325345	A-325346			
1	Potentiometer Assembly		N/A	A-255041			
1	Strap, Ground	X-6046-2					
1	Switch, Speed	X-6122-1					
1	Meter, Hour	238736					
1	Voltmeter	255224					
1	Box, Controller	263153					
1	Panel	263154					
1	Resistor, 24 Volt	268297					
1	Harness, Wiring (24-Pin)	273764					
1	Strip, Marker	273781					
1	Harness, Wiring (4-Lead)	273983					
1	Harness, Wiring (Shielded)	273984					
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
6	Strip, Terminal (9-Terminal)	283060					
3	Bulb	283420					
3	Socket, Lamp	284990					
1	Decal		N/A	292361			
1	Switch, Pushbutton	292364					
1	Decal, Emergency Stop	292467					
1	Cover, Controller	292818					
4	Bumper	292834					

* See Controller Assembly table immediately above for parts list.

N/A Not Applicable

Cooling System Kits

Qty.	Description	Part No.
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Block Heater

279928

10	Washer, Shakeproof, 1/4	X-22-12
1	Elbow, 45°, 3/4	X-274-2
4	Clamp, Hose	X-426-2
3	Tie, Cable	X-468-1
2	Connector, Hose, 3/4 ID 3/4 NPT	X-582-8
1	Hose, 0.75 x 65 L	X-691-19
1	Hose, Oil-Proof, 0.75 ID x 30 L	X-691-28
1	Bushing, Reducing, 1/2 x 3/4	153659
1	Strap, Ground, 3/8 x 5	223033
4	Bumper, 1/4-20	259632
1	Bracket, Block Heater	274977
1	Tag, Hang, Caution Block Heater Damage	279047
1	Tag, Hang, Instruction	279280
1	Thermostat, Block Heater	279813
1	Heater, Block	279816
1	Box, Block Heater Control	279874

Block Heater

279929

1	Washer, Shakeproof, 1/4	X-22-12
1	Elbow, 45°, 3/4	X-274-2
4	Clamp, Hose, 0.69-1.25 ID	X-426-12
3	Tie, Cable	X-468-1
2	Connector, Hose 3/4 ID 3/4 NPT	X-582-8
1	Hose, 0.75 x 65 L	X-691-19
1	Hose, 0.75 x 39	X-691-26
1	Bushing, Reducing, 1/2 x 3/4	153659
1	Strap, Ground, 3/8 x 5	223033
4	Bumper 1/4-20	259632
1	Tag, Hang Caution Block Heater Damage	279047
1	Bracket, Block Heater	279481
1	Thermostat, Block Heater	279813
1	Heater, Block	279816
1	Box, Block Heater Control	279874

Qty.	Description	Part No.
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Block Heater

354685

2	Elbow	SA-472
10	Washer Lock 1/4	X-22-12
8	Clamp, Hose 1.25	X-426-12
1	Screw, r.h.m. 8-32	X-51-15
4	Connector, Hose	X-582-8
1	Block, Fuse	X-6129-8
1	Fuse, 20 Amp	X-6135-32
1	Nut, Whiz	X-6210-4
4	Hose, .75"	X-6367-1
4	Screw, h.c	X-97-13
1	Bushing, Reducing 3/4	153659
1	Strap, Ground 3/8 x 5	223033
4	Bumper	259632
2	Tag, Hang	279047
2	Tag, Instruction	279280
1	Thermostat, Block Heater	279813
2	Heater, Block	279816
4	Gasket, Washer	297001
1	Box, Block Heater Controller	354316
1	Cover, Block Heater	354317
1	Gasket, Control Box	354318
1	Decal, Warning	354326
1	Label, Wiring Diagram	354328
2	Bracket, Block Heater	354687

Block Heater

354705

2	Elbow	SA-472
10	Washer, Lock, 1/4	X-22-12
8	Clamp, Hose, 1.25	X-426-12
1	Screw, r.h.m. 8-32 x 1	X-51-15
4	Connector, Hose	X-582-8
1	Block, Fuse	X-6129-8
1	Fuse, 20 Amp	X-6135-32
1	Nut, Whiz	X-6210-4
3	Hose, .75" X 44"	X-6367-1
1	Hose, .75" X 52"	X-6367-2
4	Screw, h.c.	X-97-13
1	Bushing, Reducing 3/4	153659
1	Strap, Ground, 3/8 x 5	223033
4	Bumper	259632
2	Tag, Hang	279047
2	Tag, Instruction	279280
1	Thermostat	279813
2	Heater, Block	279816
4	Gasket, Washer	297001
1	Box, Block Heater Controller	354316
1	Cover, Block Heater	354317
1	Gasket, Control Box	354318
1	Decal, Warning	354326
1	Label, Wiring Diagram	354328
2	Bracket, Block Heater	354687

Cooling System Kits, continued

Qty.	Description	Part No.
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Block Heater

354720

1	Elbow	SA-472
10	Washer Lock 1/4	X-22-12
4	Clamp, Hose 1.25	X-426-12
3	Tie, Cable	X-468-9
1	Screw, r.h.m. 8-32	X-51-15
2	Connector, Hose	X-582-8
1	Block, Fuse	X-6129-8
1	Fuse, 600v10a	X-6135-6
1	Nut, Whiz 8	X-6210-4
1	Hose, .75"	X-6367-1
1	Hose, Coolant .75"	X-6367-3
4	Screw, h.c.	X-97-13
1	Bushing, Reducing 3/4	153659
1	Strap, Ground 3/8	223033
4	Bumper	259632
1	Tag, Hang	279047
1	Thermostat	279813
1	Heater, Block	279816
4	Gasket, Washer	297001
1	Box, Block Heater Controller	354316
1	Cover, Block Heater Controller	354317
1	Gasket, Control Box	354318
1	Decal, Warning	354326
1	Label, Wiring Diagram	354328
1	Bracket, Block Heater	354687

Radiator Duct Flange

272963

2	Frame, Air Duct	272978
2	Frame, Air Duct	272979

Radiator Duct Flange

272965

2	Frame, Air Duct	272958
2	Frame, Air Duct	272959

Radiator Duct Flange

274233

2	Frame, Air Duct Sides	274303
2	Frame, Air Duct Top/Bottom	274304

Radiator Duct Flange

279764

2	Frame, Air Duct	279762
2	Frame, Air Duct	279763

Radiator Duct Flange

347865

2	Frame, Air Duct	347863
2	Frame, Air Duct	347864

Qty.	Description	Part No.
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Radiator Cooling

274934

1	Radiator Assembly	A-272949
1	Bushing, Reducer, 1/4 F X 1/2 M	X-202-12
1	Bushing, Reducer, 3/8 X 1/2 NPT	X-202-28
1	Elbow, Pipe, 1 NPT	X-215-15
1	Nipple, Pipe, 1 NPTF X 3	X-218-22
1	Valve, Drain, 3/8 NPTF	X-256-1
2	Clamp, Hose, 0.25-0.62 ID	X-426-9
4	Washer, Beveled, 0.68	X-6011-3
1	Hose, Radiator, 1.25 X 54.0"	X-6014-30
1	Hose, Radiator Wire Insert, 4.00 X 8.00"	X-6014-31
4	Hose, 3.00 X 6.00"	X-6014-53
2	Screw, 9/16-12 X 1.000	X-6244-1
2	Fitting, Hose, 3/8 ID 1/4 NPT 1.65 L	X-652-1
1	Adapter, Hose, 1 1/4 ID 1 NPT	272930
2	Tube, Rad. Upper, 3.00 ID	272972
1	Hose, Radiator, 4.00 ID	272988
1	Tube, Radiator (stl) 4.00, Plug 3/4 NPT	272989
1	Switch Assembly, Level	273469
1	Guard, Belt RH	274428
1	Guard, Belt LH	274429
4	Clamp, Hose, 4.25-4.56 ID	274545
1	Guard, Top Belt	274594
1	Fan	274757
2	Brace, Radiator	279541
2	Support, Radiator	279544
2	Support, Radiator	279545
1	Bracket, Mounting	279595
2	Clamp, Hose, 1.50-1.81 ID	279669
6	Washer, Hardened, 17/32 X 1 1/16	290945
8	Clamp, Hose, 3.25-3.56 ID	291542
1	Guard, Belt LH	274563

Radiator Cooling

274935

See Group 104, Variation 17 For Parts List.

Cooling System Kits, continued

Qty.	Description	Part No.
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Radiator Cooling

274936

1	Radiator Assembly	A-274309
1	Fan Assembly	A-274321
1	Nipple, Pipe, 1 x 2 L, 1 NPTF	K-122
6	Screw, 1/2-13 x 2.0	X-129-47
1	Bushing, Reducer, 1 x 1 1/2	X-202-11
1	Bushing, Reducer, 1/4 F x 1/2 M	X-202-12
1	Bushing, Reducer, 3/8 x 1/2 NPT	X-202-28
1	Valve, Drain, 3/8 NPTF	X-256-1
2	Clamp, Hose, 0.25-0.62 ID	X-426-9
2	Hose, Radiator, 3.00 ID	X-507-5
2	Hose, Radiator, 3.00 ID	X-507-6
4	Washer, Beveled, 0.68	X-6011-3
1	Hose, Radiator Wire Insert, 4.00 x 8.00"	X-6014-31
1	Hose, 1.50 x 76.00"	X-6014-33
3	Screw, 9/16-12 x 1.000	X-6244-1
1	Hose, 3/8 x 54 L	X-651-12
2	Fitting, Hose, 3/8 ID, 1/4 NPT 1.65 L	X-652-1
1	Adapter, 1 1/2 ID, 1 1/2 NPT	X-751-4
1	Screw, Drill Hex, 1/4-14	X-794-1
3	Washer, Hardened, 0.406 ID, 0.812 OD	X-801-3
1	Elbow, 90° 1 1/2 NPT	151771
2	Clamp, Hose, 1.75-2.00 ID	249888
1	Tube, Rad. Lower, 4.00 ID	272973
1	Switch Assembly, Level	273469
1	Spacer, Fan	274322
2	Tube, Radiator (steel), 3.00 ID	274401
1	Hose, Radiator Lower, 4.00 ID	274402
4	Clamp, Hose, 4.25-4.56 ID	274545
1	Guard, Belt RH	274562
1	Guard, Belt LH	274563
1	Bracket	274716
1	Guard, Belt Bottom	274801
2	Support, Radiator	279542
2	Support, Radiator	279543
2	Brace, Radiator	279709
6	Washer, Hardened, 17/32 X 1 1/16	290945
8	Clamp, Hose, 3.25-3.56 ID	291542

Qty.	Description	Part No.
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Radiator Cooling

279486

1	Radiator Assembly	A-279299
1	Bushing, Reducer, 1/4 F x 1/2 M	X-202-12
1	Elbow, Pipe, 1 NPT	X-215-15
1	Nipple, Pipe, 1 NPTF x 1.50	X-218-22
1	Valve, Drain, 1/2 NPTF	X-256-5
1	Elbow, 45°	X-274-10
2	Clamp, Hose, 0.25-0.62 ID	X-426-9
4	Washer, Beveled, 0.68 ID x 2/12 Slope	X-6011-3
1	Hose, Radiator, 1/25 ID x 54 L	X-6014-66
4	Hose, Radiator, 2.5 ID x 6 L	X-6014-69
1	Hose, Radiator, 3.5 ID x 6 L	X-6014-70
1	Hose, 0.375 x 46 L	X-651-11
2	Fitting, Hose, 1/4 ID	X-652-1
6	Washer, Hardened, 0.656 ID x 1.06 OD	X-801-5
1	Adapter, Hose, 1 1/4 ID x 1 NPT	272930
1	Switch Assembly, Level	273469
8	Clamp, Hose, 2.81-3.12 ID	275527
2	Brace, Radiator	279541
2	Support, Radiator	279544
2	Support, Radiator	279545
2	Clamp, Hose, 1.50-1.81 ID	279669
1	Fan, Pusher	279863
2	Support, Radiator	279876
1	Tube, Lower Radiator	279942
2	Tube, Upper Radiator	279943
1	Guard, Belt Top	279965
1	Guard, Belt RH	279966
1	Guard, Belt LH	279967
1	Support, Belt Guard	279968
1	Bracket, Belt Guard	279969
1	Support, Belt Guard	279970
1	Support	279971
4	Clamp, Hose, 3.75-4.06 ID	291537

Cooling System Kits, continued

Qty.	Description	Part No.
Radiator Cooling		279487
1	Radiator Assembly	A-279999
1	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	Elbow, Pipe, 1 NPT	X-215-15
1	Nipple, Pipe, 1 NPTF x 3	X-218-22
1	Valve, Drain, 3/8	X-256-1
2	Clamp, Hose, 0.25-0.62 ID	X-426-9
4	Washer, Beveled, 0.68, 2/12 Slope	X-6011-3
1	Hose, Radiator, 1 1/4 ID x 54 L	X-6014-30
1	Hose, Radiator, 4.0 ID x 8 L	X-6014-31
4	Hose, Radiator, 3.0 ID x 6 L	X-6014-53
2	Screw, 9/16-12 x 1	X-6244-1
2	Fitting, Hose, 1/4 NPT x 3/8	X-652-1
1	Adapter, Hose, 1 NPT X 1 1/4	272930
2	Tube, Upper Radiator, 3 OD	272972
1	Hose, Lower Radiator, 4 ID	272988
1	Tube, Lower Radiator, 4 OD	272989
1	Switch Assembly, Level	273469
1	Guard, Belt RH	274428
1	Guard, Belt LH	274429
4	Clamp, Hose, 4.25-4.56 ID	274545
1	Guard, Belt Top	274594
1	Fan	274757
2	Brace, Radiator	279541
2	Support, Radiator	279544
2	Support, Radiator	279545
1	Bracket, Mounting	279595
2	Clamp, Hose, 1.50-1.81 ID	279669
6	Washer, Hardened, 17/32 x 1 1/16	290945
8	Clamp, Hose, 3.25-3.56 ID	291542

Qty.	Description	Part No.
Radiator Cooling		279753
1	Radiator Assembly	A-279751
6	Screw, Hex Cap 1/2-13 x 2.75, Gr. 8	X-129-48
1	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	Pipe, Black Iron	X-209-15
1	Elbow, Pipe, 1 NPT	X-215-15
1	Coupling, Pipe, 1/2	X-216-20
1	Nipple, Pipe, 1 NPTF x 3	X-218-22
1	Valve, Drain, 3/8 NPTF	X-256-1
2	Clamp, Hose, 5/8	X-426-9
4	Washer, Beveled, 0.68 ID, 2/12 Slope	X-6011-3
1	Hose, Radiator, 1 1/4 ID x 54"	X-6014-30
1	Hose, Radiator Wire, 4 ID x 8"	X-6014-31
4	Hose, Radiator Wire, 3 ID x 6"	X-6014-53
2	Screw, 9/16-12 X 1	X-6244-1
2	Fitting, Hose, 1/4 ID	X-652-1
1	Adapter, Hose, 1 1/4 ID X 1 NPT	272930
2	Tube, Rad. Upper, 3 OD	272972
1	Hose, Radiator Lower, 4 ID	272988
1	Tube, Radiator Lower, 4 OD	272989
1	Switch Assembly, Level	273469
1	Guard, Belt RH	274428
1	Guard, Belt LH	274429
4	Clamp, Hose, 4 1/2	274545
1	Guard, Top Belt	274594
2	Brace, Radiator	279541
2	Support, RH Radiator	279544
2	Support, LH Radiator	279545
1	Bracket, Mounting	279595
2	Clamp, Hose, 1 1/2 Min. Dia.	279669
1	Fan	279752
6	Washer, Hardened, 17/32 x 1 1/16	290945
8	Clamp, Hose, 3 1/4 Min. Dia.	291542

Cooling System Kits, continued

Qty.	Description	Part No.
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Radiator Cooling

279860

1	Radiator Assembly	A-279649
1	Bushing, Reducer, 1/4 F x 1/2 M	X-202-12
1	Elbow, Pipe, 1 NPT	X-215-15
1	Nipple, Pipe, 1 NPTF x 1.50	X-218-22
1	Valve, Drain, 1/2 NPTF	X-256-5
2	Clamp, Hose, 0.25-0.62 ID	X-426-9
4	Washer, Beveled, 0.68 ID, 2/12 Slope	X-6011-3
1	Hose, Radiator, 1 1/4 ID x 54 L	X-6014-66
2	Hose, Radiator, 2.5 ID x 6 L	X-6014-69
2	Hose, Radiator, 3.5 ID x 6 L	X-6014-70
1	Hose, 0.375 x 46 L	X-651-11
2	Fitting, Hose, 1/4 ID	X-652-1
6	Washer, Hardened, 0.656 ID x 1.06 OD	X-801-5
1	Adapter, Hose, 1 1/4 x 1 NPT	272930
1	Switch Assembly, Level	273469
8	Clamp, Hose, 2.81-3.12 ID	275527
2	Brace, Radiator	279541
2	Support, Radiator	279544
2	Support, Radiator	279545
2	Clamp, Hose, 1.50-1.81 ID	279669
1	Fan, Pusher	279863
2	Support, Radiator	279876
1	Tube, Lower Radiator, 3.5 OD	279942
2	Tube, Upper Radiator, 2.5 OD	279943
1	Guard, Belt Top	279965
1	Guard, Belt RH	279966
1	Guard, Belt LH	279967
1	Support, Belt Guard	279968
1	Bracket, Belt Guard	279969
1	Support, Belt Guard	279970
1	Support	279971
4	Clamp, Hose, 3.75-4.06 ID	291537
1	Elbow, 45°	X-274-10

Qty.	Description	Part No.
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Radiator Cooling

299894

1	Radiator Assembly	A-299893
1	Fan	299892
6	Screw, 1/2-13 x 2.0	X-129-47
6	Screw, 1/2-13 x 3.0	X-129-49
1	Bushing, Reducer, 1/4 F x 1/2 M	X-202-12
1	Bushing, Reducer, 3/8 x 1/2 NPT	X-202-28
1	Elbow, Pipe, 1	X-215-15
1	Nipple, Pipe, 1 x 3	X-218-22
6	Washer, Lock, 5/8 x 1/8	X-24-2
1	Valve, Drain, 3/8 NPTF	X-256-1
2	Clamp, Hose, 0.25-0.62 ID	X-426-9
2	Hose, Radiator, 3.00 ID	X-507-5
2	Hose, Radiator, 3.00 ID	X-507-6
4	Washer, Beveled, 0.68	X-6011-3
1	Hose, Radiator Wire Insert 4.00 x 8.00"	X-6014-31
1	Hose, Radiator, 1.25 x 76.00"	X-6014-52
3	Screw, 9/16-12 x 1.000	X-6244-1
1	Hose, 3/8 x 54 L	X-651-12
2	Fitting, Hose, 3/8 ID 1/4 NPT 1.65 L	X-652-1
1	Screw, Drill Hex., 1/4-14	X-794-1
3	Washer, Hardened, 0.406 ID, 0.812 OD	X-801-3
1	Adapter, Hose, 1 1/4 ID 1 NPT	272930
1	Hose, Radiator Lower, 4.00 ID	272971
2	Tube, Radiator Upper, 3.00 ID	272972
1	Tube, Radiator Lower, 4.00 ID	272973
1	Switch Assembly, Level	273469
4	Clamp, Hose, 4.25-4.56 ID	274545
1	Guard, Belt RH	274562
1	Guard, Belt LH	274563
1	Bracket	274716
1	Guard, Belt Bottom	274801
2	Brace, Radiator	279540
2	Support, Radiator	279542
2	Support, Radiator	279543
2	Clamp, Hose, 1.50-1.81 ID	279669
6	Washer, Hardened, 17/32 X 1 1/16	290945
8	Clamp, Hose, 3.25-3.56 ID	291542

Radiator Cooling

347861

See Group 104, Variation 37 for Parts List.

Radiator Cooling

354108

See Group 104, Variation 38 for Parts List.

Cooling System Kits, continued

Qty.	Description	Part No.
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Radiator Cooling

354558

1	Radiator Assembly	A-347826
2	Bushing, Reducer 3/8	X-202-28
1	Elbow, Pipe	X-215-15
1	Nipple, Pipe	X-218-22
1	Valve, Drain, 3/8	X-256-1
1	Hose, Radiator	X-272-29
2	Clamp, Hose	X-426-9
4	Hose, Radiator	X-507-6
1	Conduit, Convoluted	X-6003-8
1	Hose, 3/8	X-651-12
2	Fitting, Hose	X-652-1
14	Washer, Hardened	X-801-9
1	Sensor, Low Fluid	254832
1	Adapter, Hose	272930
2	Tube, Radiator	274401
2	Clamp, Hose	274545
1	Bracket, Mounting	279595
2	Clamp, Hose	279669
1	Fan	279752
6	Washer, Hardened	290945
8	Clamp, Hose	291542
2	Support, Radiator	354528
1	Support, Radiator	354530
1	Support, Radiator	354531
1	Guard, Belt	354536
1	Guard, Belt	354537
1	Guard, Belt Top	354538

Radiator Cooling

354559

1	Radiator Assembly	A-354539
2	Bushing, Reducer	X-202-28
1	Elbow, Pipe	X-215-15
1	Nipple, Pipe	X-218-22
1	Valve, Drain, 3/8	X-256-1
1	Hose, Radiator	X-272-29
2	Clamp, Hose	X-426-9
4	Hose, Radiator	X-507-6
1	Conduit, Convoluted	X-6003-8
1	Hose, .375	X-651-11
2	Fitting, Hose	X-652-1
14	Washer, Hardened	X-801-9
1	Sensor, Low Fluid	254832
1	Adapter, Hose	272930
2	Tube, Radiator Upper	272972
2	Clamp, Hose	274545
1	Fan	274757
1	Bracket, Mounting	279595
2	Clamp, Hose	279669
6	Washer, Hardened	290945
8	Clamp, Hose	291542
2	Support, Radiator	354527
1	Support, Radiator	354532
1	Support, Radiator	354533
1	Guard, Belt	354536
1	Guard, Belt	354537
1	Guard, Belt Top	354538
1	Hose, Radiator Lower	354684

Qty.	Description	Part No.
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Radiator Cooling

354560

1	Radiator Assembly	A-354540
2	Bushing, Reducer 3/8	X-202-28
1	Elbow, Pipe	X-215-15
1	Nipple, Pipe	X-218-22
1	Valve, Drain 3/8	X-256-1
1	Hose, Radiator	X-272-29
2	Clamp, Hose	X-426-9
4	Hose, Radiator	X-507-6
1	Conduit, Convoluted	X-6003-8
1	Hose, .375"	X-651-11
2	Fitting, Hose	X-652-1
14	Washer, Hardened	X-801-9
1	Sensor, Low Fluid	254832
1	Adapter, Hose	272930
2	Tube, Radiator Upper	272972
2	Clamp, Hose	274545
1	Bracket, Mounting	279595
2	Clamp, Hose	279669
1	Fan	279752
6	Washer, Hardened	290945
8	Clamp, Hose	291542
2	Support, Radiator	354527
1	Support, Radiator	354532
1	Support, Radiator	354533
1	Guard, Belt	354536
1	Guard, Belt	354537
1	Guard, Belt Top	354538
1	Hose, Radiator Lower	354684

Radiator Cooling

354608

1	Radiator Assembly	A-354539
2	Bushing, Reducer	X-202-28
1	Nipple, Pipe	X-218-22
1	Elbow, 45°	X-225-9
1	Valve, Drain, 3/8	X-256-1
1	Hose, Radiator	X-272-29
1	Elbow, 45°	X-274-10
2	Hose, Radiator	X-424-10
2	Clamp, Hose	X-426-9
2	Hose, Radiator	X-507-6
1	Conduit, Convoluted	X-6003-8
1	Hose, 3/8	X-651-11
2	Fitting, Hose	X-652-1
14	Washer, Hardened	X-801-9
4	Clamp, Hose	291542
2	Support, Radiator	354527
1	Support, Radiator	354532
2	Support, Radiator	354533
1	Tube, Radiator Upper	354586
1	Hose, Radiator Lower	354699
1	Guard, Belt Top	354707
1	Guard, Belt	354708
1	Guard, Belt	354709
1	Guard, Belt Bottom	354710

Cooling System Kits, continued

Qty.	Description	Part No.
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Radiator Cooling

354609

1	Radiator Assembly	A-354540
6	Bolt, h.c.	X-129-56
2	Bushing, Reducer, 3/8	X-202-28
1	Nipple, Pipe	X-218-22
1	Elbow, 45°	X-225-9
1	Valve, Drain, 3/8	X-256-1
1	Hose, Radiator	X-272-29
1	Elbow, 45°	X-274-10
1	Hose, Radiator	X-424-10
2	Clamp, Hose	X-426-9
2	Hose, Radiator	X-507-6
2	Conduit, Convuluted	X-6003-8
1	Hose, .375	X-651-11
1	Fitting, Hose	X-652-1
14	Washer, Hardened	X-801-9
1	Sensor, Low Fluid	254832
1	Adapter, Hose	272930
8	Clamp, Hose	274545
2	Clamp, Hose	275527
1	Clamp, Hose	279669
1	Fan	279752
1	Support, Belt Guard	279968
1	Bracket, Belt Guard	279969
1	Support, Belt Guard	279970
6	Washer, Hardened	290945
1	Clamp, Hose	291537
4	Clamp, Hose	291542
2	Support, Radiator	354527
1	Support, Radiator	354532
1	Support, Radiator	354533
2	Tube, Radiator Upper	354586
1	Tube, Radiator Lower	354587
1	Guard, Belt Top	354707
1	Guard, Belt	354708
1	Guard, Belt	354709
1	Guard, Belt	354710

Qty.	Description	Part No.
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Radiator Cooling

354672

1	Radiator Assembly	A-347826
6	Screw, h.c.	X-129-53
2	Bushing, Reducer, 3/8x	X-202-28
1	Elbow, Pipe	X-215-15
1	Nipple, Pipe	X-218-22
1	Valve, Drain, 3/8	X-256-1
2	Clamp, Hose	X-426-9
4	Hose, Radiator	X-507-6
4	Washer, Beveled	X-6011-3
1	Hose, Radiator	X-6014-52
1	Hose 3/8	X-651-12
2	Fitting, Hose	X-652-1
14	Washer, Hardened	X-801-9
1	Sensor, Low Fluid	254832
1	Adapter, Hose	272930
2	Tube, Radiator	274401
2	Clamp, Hose	274545
1	Bracket	274716
1	Guard, Belt Bottom	274801
2	Clamp, Hose	279669
6	Washer, Hardened	290945
8	Clamp, Hose	291542
1	Fan, Pusher	347839
1	Guard, Belt	354114
1	Guard, Belt	354115
2	Support, Radiator	354528
1	Support, Radiator	354530
1	Support, Radiator	354531
1	Hose, Radiator Lower	354684

Cooling System Kits, continued

Qty.	Description	Part No.
Radiator Cooling		354844
1	Radiator Assembly	A-354840
6	Screw, h.c	X-129-53
2	Bushing, Reducer, 3/8	X-202-28
1	Elbow, Pipe	X-215-15
1	Nipple, Pipe	X-218-22
1	Valve, Drain, 3/8	X-256-1
2	Clamp, Hose	X-426-9
4	Hose, Radiator	X-507-6
1	Conduit, Convoluted	X-6003-8
4	Washer, Beveled	X-6011-3
1	Hose, Radiator	X-6014-52
1	Hose, 3/8	X-651-12
2	Fitting, Hose	X-652-1
14	Washer, Hardened	X-801-9
1	Sensor, Low Fluid	254832
1	Adapter, Hose	272930
2	Tube, Radiator	274401
4	Clamp, Hose	274545
1	Bracket	274716
1	Guard, Belt Bottom	274801
2	Clamp, Hose	279669
6	Washer, Hardened	290945
8	Clamp, Hose	291542
1	Fan, Pusher	299892
1	Guard, Belt	354114
1	Guard, Belt	354115
1	Support, Radiator	354663
1	Support, Radiator	354664
1	Hose, Lower Radiator	354841

Qty.	Description	Part No.
City Water Cooling		279296
1	Bushing, Reducer, 1 1/2 x 1	X-202-11
2	Bushing, Reducer, 1/2 x 1/4	X-202-12
2	Bushing, Reducer, 3 x 2 1/2	X-202-16
2	Bushing, Reducer, 4 x 3	X-202-19
2	Bushing, Reducer, 3 x 1 1/2	X-202-20
1	Bushing, Reducer, 3 x 1/2	X-202-44
1	Tee, Pipe	X-203-4
1	Nipple, Pipe, 3/8 x 2	X-204-6
2	Elbow, Pipe, 1	X-215-15
3	Elbow, Pipe, 3	X-215-7
1	Coupling, Pipe, 3/8 x 1-3	X-216-23
1	Nipple, Pipe, 1 x 3	X-218-22
2	Nipple, Pipe, 1 x 1 1/2	X-218-24
1	Valve, Drain, 3/8	X-256-1
1	Elbow, 45°	X-274-10
1	Valve, Solenoid	X-350-9
1	Line, Fuel	X-386-96
2	Connector, Hose	X-391-16
2	Bolt, U	X-397-9
4	Clamp, Hose	X-426-10
3	Pipe, 3 x 3	X-533-17
1	Pipe, 3 x 3/4	X-533-18
2	Adapter, Hose	X-570-1
1	Hose, Radiator 1.25 x 54"	X-6014-30
2	Hose, Radiator 3.5 x 7"	X-6014-74
1	Hose, Radiator 3 x 31"	X-6014-75
2	Nipple, Combination	X-6268-4
1	Hose, Rubber, 3/8 x 34"	X-651-15
1	Hose, Rubber, 3/8 x 6"	X-651-22
2	Fitting, Hose	X-652-1
6	Clamp, Insulated	X-672-7
1	Adapter, Hose	X-751-3
1	Elbow, 90°, 1 1/2	151771
2	Nipple, Pipe, 1 1/2 x 1 3/4	155040
4	Clamp, Hose	250081
1	Adapter, Hose	272930
2	Hose, Radiator	273444
1	Switch Assembly, Level	273469
1	Regulator, Water	274743
2	Bracket, Tank	274745
1	Tank, Surge	274746
2	Bracket, Support	274892
1	Guard, Belt	279289
1	Guard, Belt	279290
1	Guard, Belt Top	279291
1	Guard, Belt Bottom	279292
1	Guard, Belt Front	279293
1	Exchanger, Heat	279297
1	Bracket, Mounting	279668
2	Clamp, Hose	279669
1	Support, Belt Guard	279968
1	Support, Belt Guard	279970
4	Clamp, Hose	291537
2	Clamp, Hose	291542
1	Tee, Pipe (adapter)	299832
2	Bracket, Support	299911
1	Bracket, Support	299912
1	Tube, Water	299913
1	Adapter, Hose	299914

Cooling System Kits, continued

Qty.	Description	Part No.
City Water Cooling 347877		
2	Bushing, Reducer, 1/2 x 1/4	X-202-12
3	Bushing, Reducer, 4 x 3	X-202-19
2	Bushing, Reducer, 3 x 1 1/2	X-202-20
1	Bushing, Reducer, 1/2 x 3/8	X-202-28
1	Bushing, Reducer, 3 x 1/2	X-202-44
2	Nipple, Pipe, 3/8 x 2	X-204-6
2	Nipple, 1 1/4 x 1 5/8	X-210-8
2	Elbow, Pipe, 1 1/4	X-215-14
3	Elbow, Pipe, 4	X-215-8
2	Coupling, Pipe, 3/8 x 1-3	X-216-23
2	Valve, Drain, 3/8	X-256-1
1	Elbow, 45°	X-274-10
1	Valve, Solenoid	X-350-9
1	Line, Fuel	X-386-96
2	Connector, Hose	X-391-16
2	Bolt, U	X-397-10
4	Clamp, Hose, 2 17/32	X-426-1
4	Clamp, Hose	X-426-10
1	Pipe	X-549-13
3	Pipe	X-549-6
3	Adapter, Hose	X-570-24
1	Hose, Radiator, 1.25 x 54"	X-6014-30
1	Hose, Radiator, 4 x 8"	X-6014-31
1	Hose, Radiator, 4 x 38"	X-6014-84
2	Nipple, Combination	X-6268-4
1	Hose, Rubber, 3/8 x 34"	X-651-15
1	Hose, Rubber, 3/8 x 6"	X-651-22
2	Fitting, Hose	X-652-1
2	Clamp, Insulated	X-672-7
1	Adapter, Hose	X-751-3
1	Elbow, 90°, 1 1/2	151771
1	Elbow	151385
1	Bushing, 2 1/16 x 1 1/4	153016
2	Nipple, Pipe, 1 1/2 x 1 3/4	155040
1	Switch Assembly, Fluid Level	254832
1	Adapter, Hose	272930
6	Clamp, Hose	274545
1	Tank, Surge	274746
1	Bracket, Mounting	279595
2	Clamp, Hose	279669
1	Guard, Belt	279850
1	Guard, Belt	279851
1	Guard, Belt Top	279849
1	Guard, Belt Front	279852
2	Bracket, Tank	328758
1	Bracket, Mounting	328759
1	Exchanger, Heat	328761
1	Tube, Radiator Lower	328762
1	Hose, Upper Right	328763
1	Hose, Upper Left	328764
1	Bracket, Support	328770
1	Hose, Lower	328771
1	Regulator, Water	347072
1	Tee, Pipe (adapter)	347168

Qty.	Description	Part No.
City Water Cooling 354568		
1	Bushing, Reducer 1-1/2	X-202-11
2	Bushing, Reducer 1/4	X-202-12
3	Bushing, Reducer	X-202-19
2	Bushing, Reducer	X-202-20
1	Bushing, Reducer	X-202-44
1	Bushing, Reducer	X-202-46
1	Tee, Pipe	X-203-24
2	Nipple, Pipe 3/8x2	X-204-6
1	Elbow, Pipe	X-215-15
3	Elbow, Pipe	X-215-8
2	Coupling, Pipe 3/8	X-216-23
2	Nipple, Pipe 1x1-1/2	X-218-24
2	Valve, Drain 3/8	X-256-1
1	Valve, Solenoid	X-350-9
1	Line, Fuel	X-386-96
2	Connector, Hose	X-391-16
2	Bolt, U	X-397-10
4	Clamp, Hose, 2-17/32	X-426-1
4	Clamp, Hose	X-426-10
1	Pipe	X-549-13
3	Pipe	X-549-6
3	Adapter, Hose	X-570-24
1	Hose, Radiator	X-6014-30
1	Hose, Radiator Wire Insert	X-6014-31
1	Hose, Radiator	X-6014-84
2	Nipple, Combination	X-6268-4
1	Hose, Rubber, .375	X-651-15
1	Hose, Rubber, .375	X-651-22
2	Fitting, Hose	X-652-1
6	Clamp, Insulated	X-672-7
1	Adapter, Hose	X-751-3
1	Elbow, 90°	151771
2	Nipple, Pipe 1-1/2	155040
1	Sensor, Low Fluid	254832
1	Cap, Pressure	258037
6	Clamp, Hose	274545
1	Regulator, Water	274743
1	Tank, Surge	274746
1	Bracket, Mounting	279595
2	Clamp, Hose	279669
1	Guard, Belt Top	279849
1	Guard, Belt RH	279850
1	Guard, Belt LH	279851
1	Guard, Belt Front	279852
2	Bracket, Tank	328758
1	Bracket, Mounting	328759
1	Bracket, Support	328760
1	Exchanger, Heat	328761
1	Tube, Radiator Lower	328762
1	Hose, Upper	328763
1	Hose, Upper	328764
1	Hose, Lower	328771
1	Tee, Pipe	347168

Cooling System Kits, continued

Qty.	Description	Part No.
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Remote Radiator Setup

279295

1	Elbow, Pipe, 1 NPT	X-215-15
1	Nipple, Pipe, 1 x 1 1/2 NPT	X-218-24
1	Valve, Drain, 1/4	X-256-3
2	Hose, Radiator, 2.5 ID x 6 L	X-6014-69
2	Hose, Radiator, 3.5 ID x 6 L	X-6014-70
1	Adapter, Hose, 1 1/4 ID x 1 NPT	272930
4	Clamp, Hose, 2.81-3.12 ID	275527
1	Guard, Belt RH	279289
1	Guard, Belt LH	279290
1	Guard, Belt Top	279291
1	Guard, Belt Bottom	279292
1	Guard, Belt Front	279293
1	Skid	279294
2	Clamp, Hose, 1.50-1.81 ID	279669
1	Tube, Radiator Lower	279942
1	Support, Belt Guard	279968
1	Bracket, Belt Guard	279969
1	Support, Belt Guard	279970
4	Clamp, Hose, 3.75-4.06 ID	291537

Remote Radiator Setup

279854

1	Elbow, Pipe, 1 NPT	X-215-15
1	Nipple, Pipe, 1 NPT x 3	X-218-22
1	Valve, Drain, 1/4	X-256-3
2	Hose, Radiator, 3 ID x 5.5 L	X-507-5
4	Washer, Beveled, 0.44 ID, 2/12 Slope	X-6011-4
1	Hose, Radiator, 4 ID x 8 L	X-6014-31
2	Screw, 9/16-12 x 1	X-6244-1
1	Adapter, Hose, 1 1/4 x 1 NPT	272930
1	Hose, Radiator Lower, 4 ID	272971
1	Tube, Radiator Lower, 4 OD	272973
4	Clamp, Hose, 4.25-4.56 ID	274545
1	Guard, Belt Top	279849
1	Guard, Belt RH	279850
1	Guard, Belt LH	279851
1	Guard, Belt Front	279852
1	Skid	279853
4	Clamp, Hose, 3.25-3.56 ID	291542
1	Bracket, Mounting	299899

Remote Radiator Setup

279855

1	Elbow, Pipe, 1 NPT	X-215-15
1	Nipple, Pipe, 1 NPT x 3	X-218-22
1	Valve, Drain, 1/4	X-256-3
2	Clamp, Hose, 1 15/16	X-426-8
2	Hose, Radiator, 3 ID x 5.5 L	X-507-3
1	Hose, Radiator, 4 ID x 8 L	X-6014-31
1	Hose, 1.25 ID x 34 L	X-6014-42
2	Screw, 9/16-12 x 1	X-6244-1
1	Adapter, Hose, 1 1/4 x 1 NPT	272930
1	Hose, Radiator Lower, 4 ID	272988
1	Tube, Radiator Lower, 4 OD	272989
4	Clamp, Hose, 4.25-4.56 ID	274545
1	Bracket, Mounting	279959
1	Guard, Belt Top	279849
1	Guard, Belt RH	279850
1	Guard, Belt LH	279851
1	Guard, Belt Front	279852
1	Skid	279856
4	Clamp, Hose, 3.25-3.56 ID	291542

Qty.	Description	Part No.
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Remote Radiator Setup

328001

1	Valve, Drain, 1/4	X-256-3
2	Hose, Radiator, 2.5 ID x 6 L	X-6014-69
2	Hose, Radiator, 3.5 ID x 6 L	X-6014-70
4	Clamp, Hose, 2.81-3.12 ID	275527
1	Guard, Belt RH	279289
1	Guard, Belt LH	279290
1	Guard, Belt Top	279291
1	Guard, Belt Bottom	279292
1	Guard, Belt Front	279293
1	Skid	299987
1	Tube, Radiator Lower	279942
1	Support, Belt Guard	279968
1	Bracket, Belt Guard	279969
1	Support, Belt Guard	279970
4	Clamp, Hose, 3.75-4.06 ID	291537

Remote Radiator Setup

328651

1	Valve, Drain, 1/4	X-256-3
2	Hose, Radiator, 3 ID x 5.5 L	X-507-3
1	Hose, Radiator, 4 ID x 8 L	X-6014-31
1	Hose, 1.25 ID x 34 L	X-6014-42
2	Screw, 9/16-12 x 1	X-6244-1
1	Hose, Radiator Lower, 4 ID	272988
1	Tube, Radiator Lower, 4 OD	272989
4	Clamp, Hose, 4.25-4.56 ID	274545
1	Bracket, Mounting	279595
1	Guard, Belt Top	279849
1	Guard, Belt RH	279850
1	Guard, Belt LH	279851
1	Guard, Belt Front	279852
1	Skid	328650
4	Clamp, Hose, 3.25-3.56 ID	291542

Remote Radiator Set Up

347878

1	Elbow, Pipe, 1 NPT	X-215-15
1	Nipple, Pipe, 1 NPT x 3	X-218-22
1	Valve, Drain, 1/4	X-256-3
2	Hose, Radiator, 3 ID x 5.5 L	X-507-6
4	Washer, Beveled, 0.44 ID, 2/12 Slope	X-6011-4
1	Hose, Radiator, 4 ID x 8 L	X-6014-31
2	Screw, 9/16-12 x 1	X-6244-1
1	Adapter, Hose, 1 1/4 x 1 NPT	272930
1	Hose, Radiator Lower	272988
1	Tube, Radiator Lower	272989
4	Clamp, Hose, 4.25-4.56 ID	274545
1	Guard, Belt Top	279849
1	Guard, Belt RH	279850
1	Guard, Belt LH	279851
1	Guard, Belt Front	279852
4	Clamp, Hose, 3.25-3.56 ID	291542
1	Plate, Cover	347879

Cooling System Kits, continued

Qty.	Description	Part No.
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Remote Radiator Setup

354567

1	Valve, Drain 1/4	X-256-3
2	Hose, Radiator	X-507-6
2	Clamp, Hose	274545
1	Bracket, Mounting	279595
1	Guard, Belt Top	279849
1	Guard, Belt RH	279850
1	Guard, Belt LH	279851
1	Guard, Belt Front	279852
4	Clamp, Hose	291542
1	Plate, Cover	347879
1	Hose, Radiator Lower	354684

Qty.	Description	Part No.
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Remote Radiator Setup

354615

1	Valve, Drain, 1/4	X-256-3
2	Hose, Radiator	X-424-10
1	Clamp, Hose	274545
4	Clamp, Hose	275527
1	Guard, Belt	279289
1	Guard, Belt	279290
1	Guard, Belt Top	279291
1	Guard, Belt Bottom	279292
1	Guard, Belt Front	279293
1	Support, Belt Guard	279968
1	Bracket, Belt Guard	279969
1	Support, Belt Guard	279970
1	Clamp, Hose	291537
1	Hose, Radiator Lower	354699

Air Cleaner Kits

Qty.	Description	Part No.
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Heavy-Duty Air Cleaner Kit		354049
2	Cleaner Assembly, Air	A-279714
1	Element, Air Cleaner	279738
8	Washer, Plain	X-25-1
1	Bracket,Air Cleaner Right	274285
1	Bracket, Air Cleaner Left	274286
2	Tube Assembly	274619
4	Bracket, Air Cleaner	279715
2	Clamp, Hose	279717
2	Hose, Hump	279720
2	Bracket, Air Cleaner	279721
2	Cap, Rain	279722
4	Clamp	280998
2	Clamp, Hose	291504
2	Hose, Hump	291560

Heavy-Duty Air Cleaner Kit		354588
2	Cleaner Assembly, Air	A-279713
1	Element, Air Cleaner	279736
2	Tube, Steel	X-522-66
2	Clamp	254013
2	Clamp, Hose	254344
2	Cap, Rain	272674
1	Bracket, Air Cleaner	279284
1	Bracket, Air Cleaner	279285
2	Hose, Hump	279744
4	Clamp	280998
4	Bracket, Air Cleaner	291666
2	Hose, Hump	354441

Qty.	Description	Part No.
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Heavy-Duty Air Cleaner Kit		354561
2	Cleaner Assembly, Air	A-279713
1	Element, Air Cleaner	279736
8	Washer, Plain	X-25-1
1	Tube, Steel	X-522-72
2	Clamp	254013
2	Cap, Rain	272674
1	Bracket,Air Cleaner Right	274285
1	Bracket, Air Cleaner Left	274286
2	Bracket, Air Cleaner	279721
2	Hose, Hump	279744
4	Clamp	280998
2	Clamp, Hose	291504
4	Bracket, Air Cleaner	291666
2	Hose, Hump	354447

Heavy-Duty Air Cleaner Kit		354566
2	Cleaner Assembly, Air	A-279713
1	Element, Air Cleaner	279736
8	Washer, Plain	X-25-1
2	Tube, Steel	X-522-72
2	Clamp	254013
2	Clamp, Hose	254344
2	Cap, Rain	272674
1	Bracket,Air Cleaner Right	274285
1	Bracket,Air Cleaner Left	274286
2	Bracket, Air Cleaner	279721
2	Hose, Hump	279744
4	Clamp	280998
4	Bracket, Air Cleaner	291666
2	Hose, Hump	354441

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
AISI	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 ₂ 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 ²	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 ³	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 ³ /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		

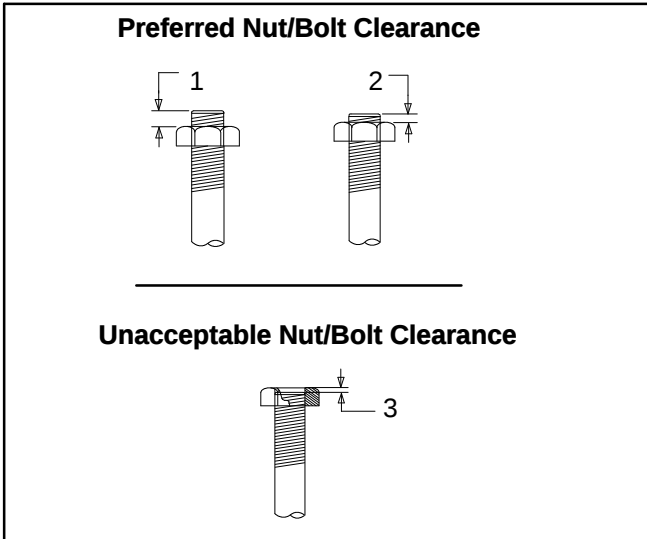
Appendix B. Common Hardware Application Guidelines

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 Figure 3 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

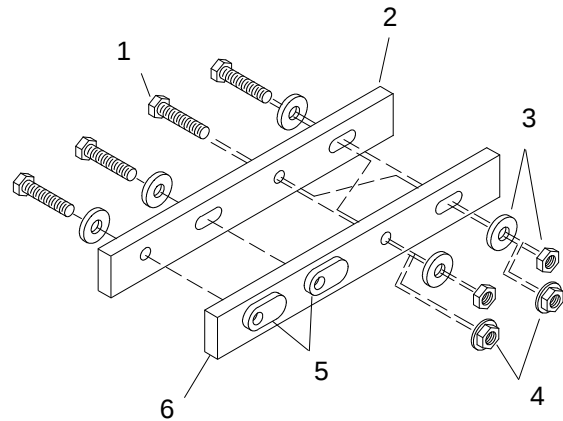
Figure 3. Acceptable Bolt Lengths

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 4. 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)		

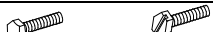
Metric Fasteners

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.

Torque ft-lb (Nm)					
Size (mm)	Fasteners Assembled Into Aluminum				
	5.8	6.8	10.9		
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

Screws/Bolts/Studs Head Styles	
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	
Drive Styles	
Hex.	
Hex. and Slotted	
Phillips	
Slotted	
Hex. Socket	
Hardness Grade	
American Standard	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9	
Metric	
Number stamped on hardware; 5.8 shown	

Nuts Nut Styles	
Hex. Head	
Lock Nut or Nylock Nut	
Square Nut	
Cap Nut or Acorn Nut	
Wing Nut	
Nut Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Metric	
Number stamped on hardware	
Washers	
Washer Styles	
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)

$\frac{1}{4}$ -20 x 1
 Length In Inches (Screws and Bolts)
 Threads Per Inch
 Major Thread Diameter In Fractional Inches Or Screw Number Size

Metric (Screws, Bolts, Studs, and Nuts)

M8-1.25 x 20
 Length In Millimeters (Screws and Bolts)
 Distance Between Threads In Millimeters
 Major Thread Diameter In Millimeters

Plain Washers

$\frac{9}{32}$ x $\frac{5}{8}$ x $\frac{1}{16}$
 Thickness
 External Dimension
 Internal Dimension

Lock Washers

$\frac{5}{8}$
 Internal Dimension

Appendix E. Common Hardware List

The Common Hardware List 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

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