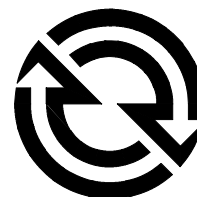


Service Parts

SPECTRUM®

DETROIT DIESEL



Generator Sets

Models:

200-300DS

See Group 701, Literature for
Engine and Accessories
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*: Lists part numbers of parts in the groups.
- *Kit List and kit sections*: Lists controller and cooling system kits (by model) and their parts. See Parts Catalog 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 original manufacturer's hardware quality. Refer to Common Hardware Application Guidelines and Common Hardware Identification in the back of the manual.

Hardware References

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

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

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

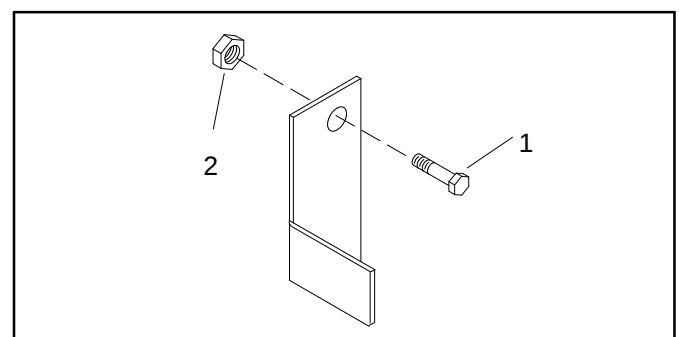


Figure 1. Hardware References

Specification Number Index

GROUP TITLE & NUMBER													
	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
200DS													
191001	1	15	16	18	4	1	11	1	1	127	32	33	
191002	1	@	16	18	4	1	11	1	2	127	@	33	
191003	1	@	16	19	4	1	11	1	2	129	@	33	
191004	1	@	16	18	4	1	11	1	2	128	@	33	
191096	1	15	47	18	4	1	11	12	1	143	45	33	
191097	1	@	47	18	4	1	11	12	2	143	@	33	
191098	1	15	47	18	4	1	11	12	1	144	45	33	
191099	1	@	47	18	4	1	11	12	2	144	@	33	
191100	1	15	47	18	4	1	11	12	1	145	62	33	
191101	1	@	47	18	4	1	11	12	2	145	@	33	
191253	29	15	58	63	E58	44	E58	E58	1	262	75	33	
191254	29	15	58	63	E58	44	E58	E58	1	263	75	33	
191255	29	15	58	63	E58	44	E58	E58	1	264	78	33	
191256	29	15	58	63	E58	44	E58	E58	1	265	78	33	
191257	@	@	58	63	E58	@	E58	E58	2	@	@	33	

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

— Group not used on generator set spec.

Specification Number Index

GROUP TITLE & NUMBER													
	<i>Air Intake</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>Oil Pressure Switches</i>	<i>Skid and Plant Mounting</i>	<i>Water Temperature Switches</i>	<i>Starter</i>	<i>Recommended Spare Parts</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
230DS													
191005	12	2	17	23	9	2	11	2	3	127	33	34	
191006	12	@	17	23	9	2	11	2	4	127	@	34	
191007	12	@	17	24	9	2	11	2	4	129	@	34	
191008	12	@	17	23	9	2	11	2	4	128	@	34	
191102	12	2	48	23	9	2	11	13	3	143	46	34	
191103	12	@	48	23	9	2	11	13	4	143	@	34	
191104	12	2	48	23	9	2	11	13	3	144	46	34	
191105	12	@	48	23	9	2	11	13	4	144	@	34	
191106	12	2	48	23	9	2	11	13	3	145	65	34	
191107	12	@	48	24	9	2	11	13	4	145	@	34	
191230	27	32	55	23	9	41	11	16	—	143	46	34	
191231	27	@	55	23	9	41	11	16	—	143	@	34	
191232	27	@	55	23	9	41	11	16	—	145	@	34	
191233	27	@	55	23	9	41	11	16	—	144	@	34	
191234	27	32	55	23	9	41	11	16	—	144	46	34	
191235	27	32	55	23	9	41	11	16	—	145	65	34	
191258	30	32	59	66	E59	45	E59	E59	3	262	77	34	
191259	30	32	59	66	E59	45	E59	E59	3	263	77	34	
191260	30	32	59	66	E59	45	E59	E59	3	264	78	34	
191261	30	32	59	66	E59	45	E59	E59	3	265	78	34	
191262	@	@	59	@	E59	@	E59	E59	4	@	@	34	

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

— Group not used on generator set spec.

Specification Number Index

GROUP TITLE & NUMBER													
	Air Intake	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Starter	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
250DS													
191009	12	5	18	25	9	2	11	2	5	130	33	35	
191010	12	@	18	25	9	2	11	2	6	130	@	35	
191011	12	@	18	26	9	2	11	2	6	131	@	35	
191012	12	@	18	25	9	2	11	2	6	128	@	35	
191108	12	5	49	25	9	2	11	13	5	146	46	35	
191109	12	@	49	25	9	2	11	13	6	146	@	35	
191110	12	5	49	25	9	2	11	13	5	144	46	35	
191111	12	@	49	25	9	2	11	13	6	144	@	35	
191112	12	5	49	25	9	2	11	13	5	147	65	35	
191113	12	@	49	26	9	2	11	13	6	147	@	35	
191229	12	@	49	25	9	41	11	13	6	148	@	35	
191236	27	32	56	25	9	41	11	16	—	146	46	35	
191237	27	@	56	25	9	41	11	16	—	146	@	35	
191238	27	@	56	25	9	41	11	16	—	147	@	35	
191239	27	@	56	25	9	41	11	16	—	144	@	35	
191240	27	32	56	25	9	41	11	16	—	144	46	35	
191241	27	32	56	25	9	41	11	16	—	147	65	35	
191252	12	32	49	25	9	41	11	13	—	148	46	35	
191265	30	32	60	66	E60	45	E60	E60	5	266	138	35	
191266	30	32	60	66	E60	45	E60	E60	5	263	138	35	
191268	30	32	60	66	E60	45	E60	E60	5	267	78	35	
191269	30	32	60	66	E60	45	E60	E60	5	265	78	35	
191271	@	@	60	66	E60	@	E60	E60	6	@	@	35	

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

— Group not used on generator set spec.

Specification Number Index

GROUP TITLE & NUMBER													
	<i>Air Intake</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>Oil Pressure Switches</i>	<i>Skid and Plant Mounting</i>	<i>Water Temperature Switches</i>	<i>Starter</i>	<i>Recommended Spare Parts</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
275DS													
191013	13	5	19	27	9	2	11	2	5	132	33	36	
191014	13	@	19	27	9	2	11	2	6	132	@	36	
191015	13	@	19	28	9	2	11	2	6	133	@	36	
191016	13	@	19	27	9	2	11	2	6	128	@	36	
191114	13	5	50	27	9	2	11	13	5	148	46	36	
191115	13	@	50	27	9	2	11	13	6	148	@	36	
191116	13	5	50	27	9	2	11	13	5	144	46	36	
191117	13	@	50	27	9	2	11	13	6	144	@	36	
191118	13	5	50	27	9	2	11	13	5	149	65	36	
191119	13	@	50	28	9	2	11	13	6	149	@	36	
191242	28	33	57	27	9	41	11	16	—	148	138	36	
191243	28	@	57	27	9	41	11	16	—	148	@	36	
191244	28	@	57	27	9	41	11	16	—	149	@	36	
191245	28	@	57	27	9	41	11	16	—	144	@	36	
191246	28	33	57	27	9	41	11	16	—	144	138	36	
191247	28	33	57	27	9	41	11	16	—	149	65	36	
191270	31	33	61	66	E61	45	E61	E61	5	266	138	36	
191272	31	33	61	66	E61	45	E61	E61	5	267	78	35	
191273	@	@	61	66	E61	@	E61	E61	6	@	@	36	

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

— Group not used on generator set spec.

Specification Number Index

GROUP TITLE & NUMBER													
	<i>Air Intake</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>Oil Pressure Switches</i>	<i>Skid and Plant Mounting</i>	<i>Water Temperature Switches</i>	<i>Starter</i>	<i>Recommended Spare Parts</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>	
GROUP NO.	101	104	105	107	108	109	110	112	119	201	301	701	
SPEC NO.	VARIATION NUMBER												
300DS													
191017	13	5	19	29	9	2	11	2	5	128	34	36	
191018	13	@	19	29	9	2	11	2	6	128	@	36	
191019	13	@	19	30	9	2	11	2	6	134	@	36	
191120	13	5	50	29	9	2	11	13	5	144	47	36	
191121	13	@	50	29	9	2	11	13	6	150	@	36	
191124	13	5	50	29	9	2	11	13	5	150	69	36	
191125	13	@	50	30	9	2	11	13	6	150	@	36	
191248	28	33	57	29	9	41	11	16	—	144	47	36	
191249	28	@	57	29	9	41	11	16	—	144	@	36	
191250	28	@	57	29	9	41	11	16	—	150	@	36	
191251	28	33	57	29	9	41	11	16	—	150	69	36	
191274	31	33	61	66	E61	45	E61	E61	5	263	138	36	
191275	31	33	61	66	E61	45	E61	E61	5	265	78	36	
191276	@	@	61	66	E61	@	E61	E61	6	@	@	36	

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

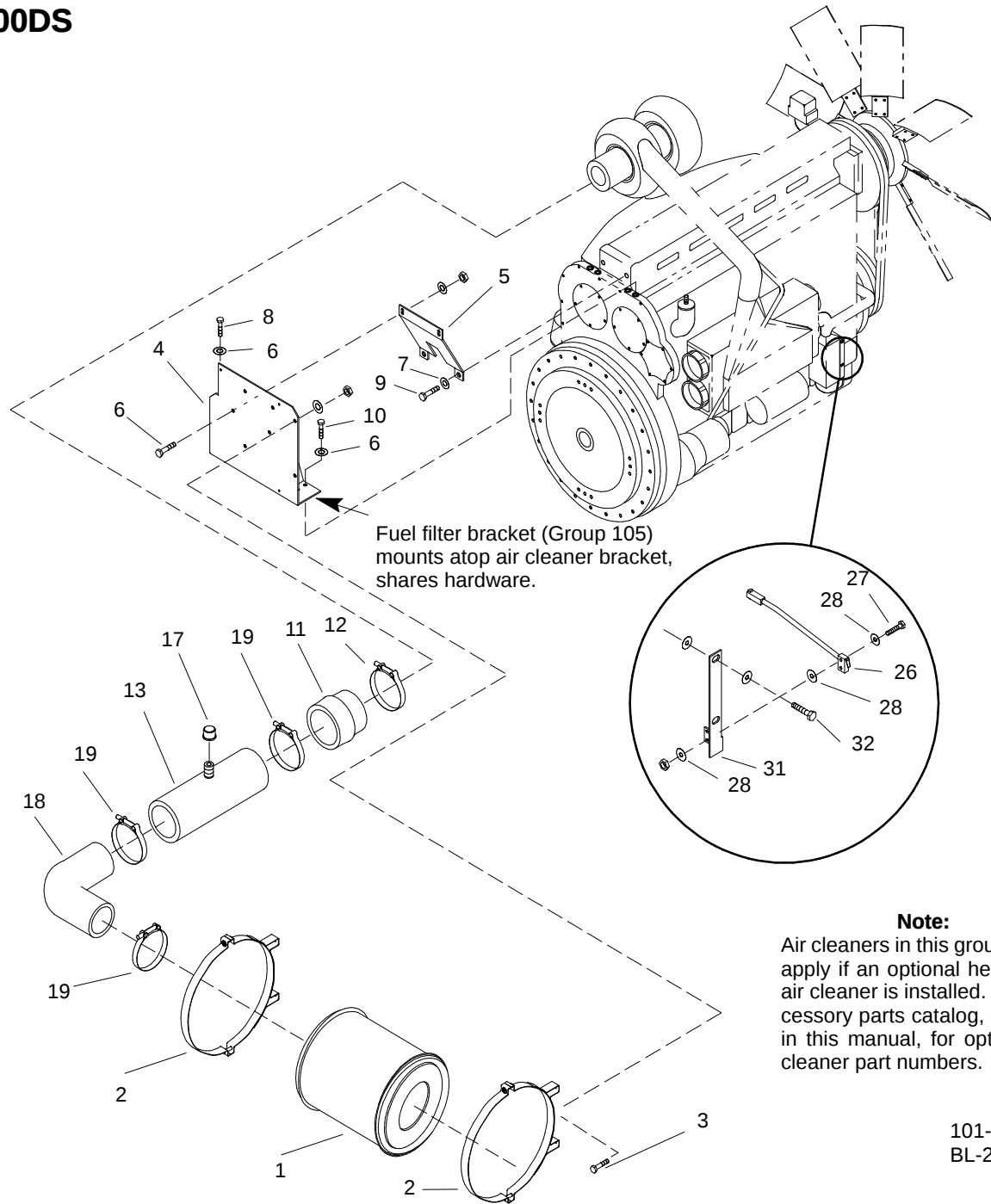
— Group not used on generator set spec.

Specification Number Index

Notes

Group 101: Air Intake

200DS



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

101-70-1
BL-272000

Item	Qty.	Description Variation	Part No.
1	1	Cleaner, air	A-291512
	1	Element, air cleaner (for A-291512) (not shown)	292922

Item	Qty.	Description Variation	Part No.
1	1	Cleaner, air 12, 13, 27, 28, 29	272981

Group 101: Air Intake, Continued

Item	Qty.	Description Variation	Part No.
2	2	Bracket, air cleaner mtg. 1	291501
	2	Clamp, air cleaner, 6 13/16" min rad. 12, 13, 27, 28	272983
	2	Mount, air cleaner 29	274242
3	4	Hardware, 3/8-16 1, 29	#
4	1	Bracket, air cleaner mtg. (L-shaped) 1	272642
	2	Bracket, air cleaner mtg. 12, 13, 27, 28	274595
5	1	Bracket, air cleaner mtg. (angled) 1	272640
6		Hardware, 3/8-16 1	#
7		Hardware, 7/16-14 12, 13, 27, 28	#
8	2	Screw, ref., 3/8-16 x 3/4 1	X-6238-10
9	2	Screw, ref., 7/16-14 x 1 1/2 1	X-6024-3
10	2	Screw, ref., 3/8-16 x 1 1/4 1	X-6238-4
	4	Screw, ref., 7/16-14 x 1 12, 13, 27, 28	X-6024-2
11	1	Hose, hump 1, 29	272641
	1	Hose, hump 12, 27	272628
	1	Hose, hump 13, 28	274221
12	1	Clamp, hose (band), 5 1/2" 1, 12, 27	291562
	1	Clamp, hose (band), 6" 9, 13, 28	291504
	1	Clamp, hose 29	254344
13	1	Tube assembly 1, 29	274620
14	1	Tubing, steel, 6 x 5 3/4" 12, 13, 27, 28	X-522-60
15	3	Clamp, hose (band), 6 1/2" 12, 13, 27, 28	254013

Item	Qty.	Description Variation	Part No.
16	1	Tubing assy., 6 x 5 3/4" 12, 13, 27, 28	274623
17	1	Cap, pipe 12, 13, 27, 28, 29	X-268-7
18	1	Elbow, 90° 1	291502
	1	Elbow, 90° (filter side) 12, 13, 27, 28	272663
	1	Elbow, 90° 29	291567
19	3	Clamp, hose (band), 6" 1	291504
	2	Clamp, hose (band), 6" 29	291504
	1	Clamp 29	280998
20	1	Clamp, hose, 6 1/2" min. i.d. 12, 13, 27, 28	272960
21	1	Clamp, 7 11/16" min. dia. 12, 13, 27, 28	279482
22	1	Elbow, 90° (engine side) 12, 13, 27, 28	272627
23	1	Deflector, heat 12, 13, 27, 28	274588
24	2	Mount, air cleaner, 6 1/2" 12, 13, 27, 28	258279
25		Hardware, 3/8-16 12, 13, 27, 28	#
26	1	Limit switch assy. 1, 12, 13, 27, 28	272790
27	2	Screw, ref., 6-32 x 3/4 1	X-49-6
	2	Screw, ref., 6-32 x 7/8 12, 13, 27, 28	X-49-3
28		Hardware, 6-32 1, 12, 13, 27, 28	#
29	1	Guard, limit switch 12, 13, 27, 28	279562
30	2	Screw, drill, 5/32 x 9/16 12, 13, 27, 28	X-794-2
31	1	Bracket, limit switch mtg. 1	272927
	1	Bracket, limit switch mtg. 12, 13, 27, 28	279740
32		Hardware, 7/16 1	#

Common Hardware; Procure Locally

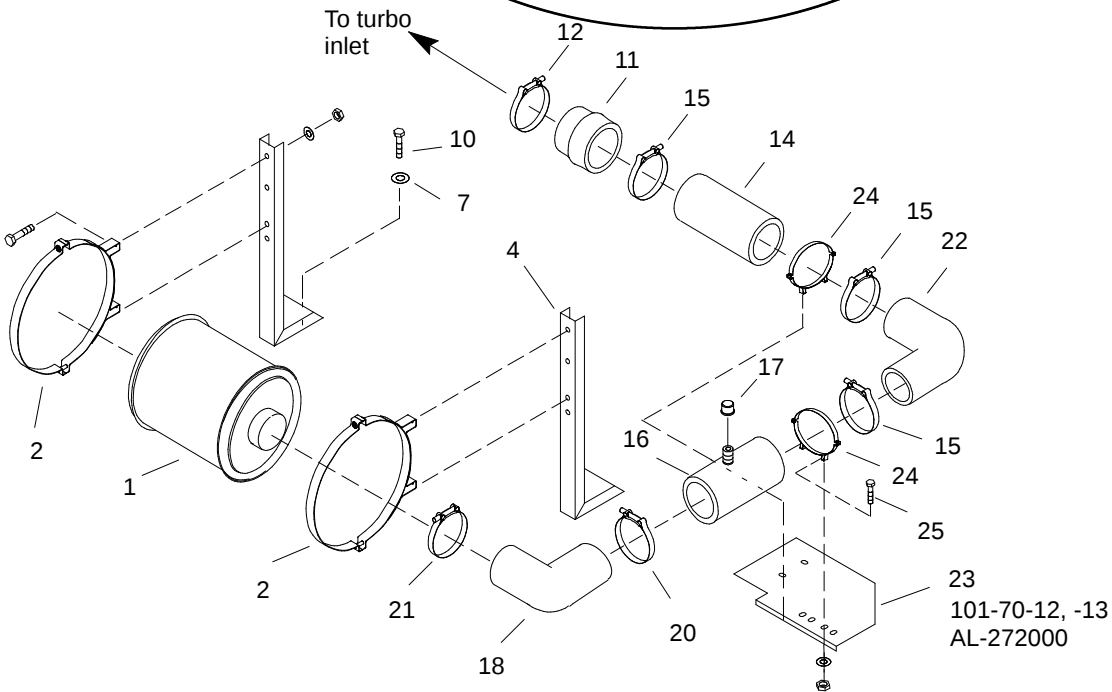
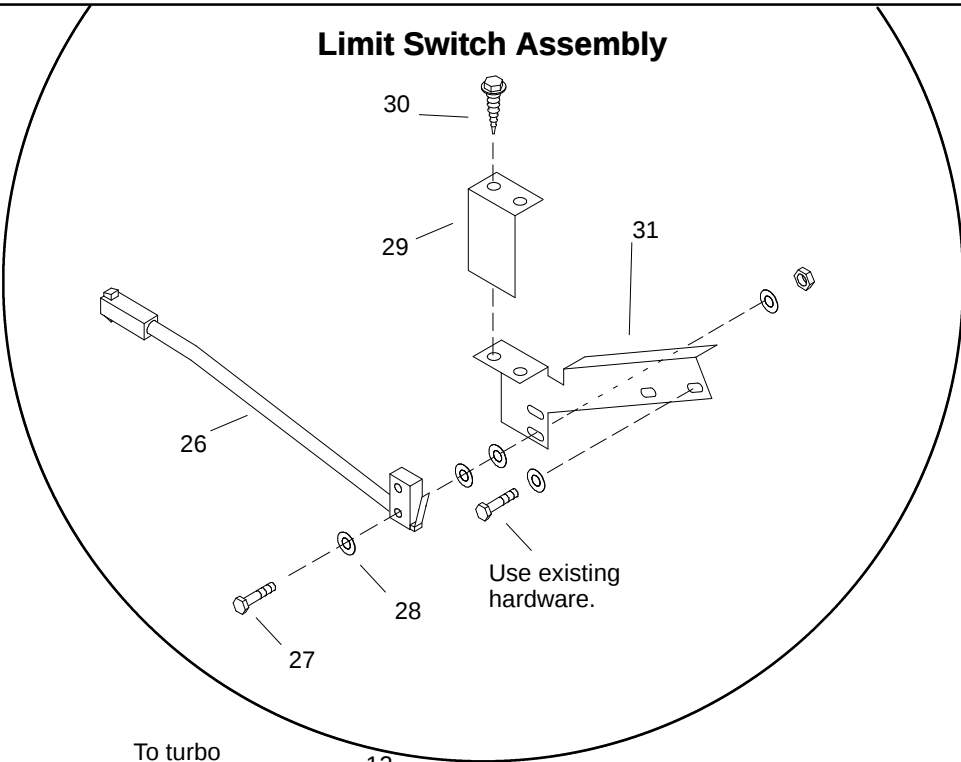
Group 101: Air Intake, Continued

230-300DS

Note:

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

Limit Switch Assembly



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

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

Group 101: Air Intake, Continued

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

Item	Qty.	Description Variation	Part No.
19	3	Clamp, hose (band), 6" 1	291504
20	1	Clamp, hose, 6 1/2" min. i.d. 12, 13, 27, 28, 30, 31	272960
21	1	Clamp, 7 11/16" min. dia. 12, 13, 27, 28, 30, 31	279482
22	1	Elbow, 90° (engine side) 12, 13, 27, 28, 30, 31	272627
23	1	Deflector, heat 12, 13, 27, 28, 30, 31	274588
24	2	Mount, air cleaner, 6 1/2" 12, 13, 27, 28, 30, 31	258279
25		Hardware, 3/8-16 12, 13, 27, 28	#
26	1	Limit switch assy. 1, 12, 13, 27, 28	272790
27	2	Screw, ref., 6-32 x 3/4 1	X-49-6
	2	Screw, ref., 6-32 x 7/8 12, 13, 27, 28	X-49-3
28		Hardware, 6-32 1, 12, 13, 27, 28	#
29	1	Guard, limit switch 12, 13, 27, 28	279562
30	2	Screw, drill, 5/32 x 9/16 12, 13, 27, 28	X-794-2
31	1	Bracket, limit switch mtg. 1	272927
	1	Bracket, limit switch mtg. 12, 13, 27, 28	279740
32		Hardware, 7/16 1	#

Modular Spec Cross-Reference Table

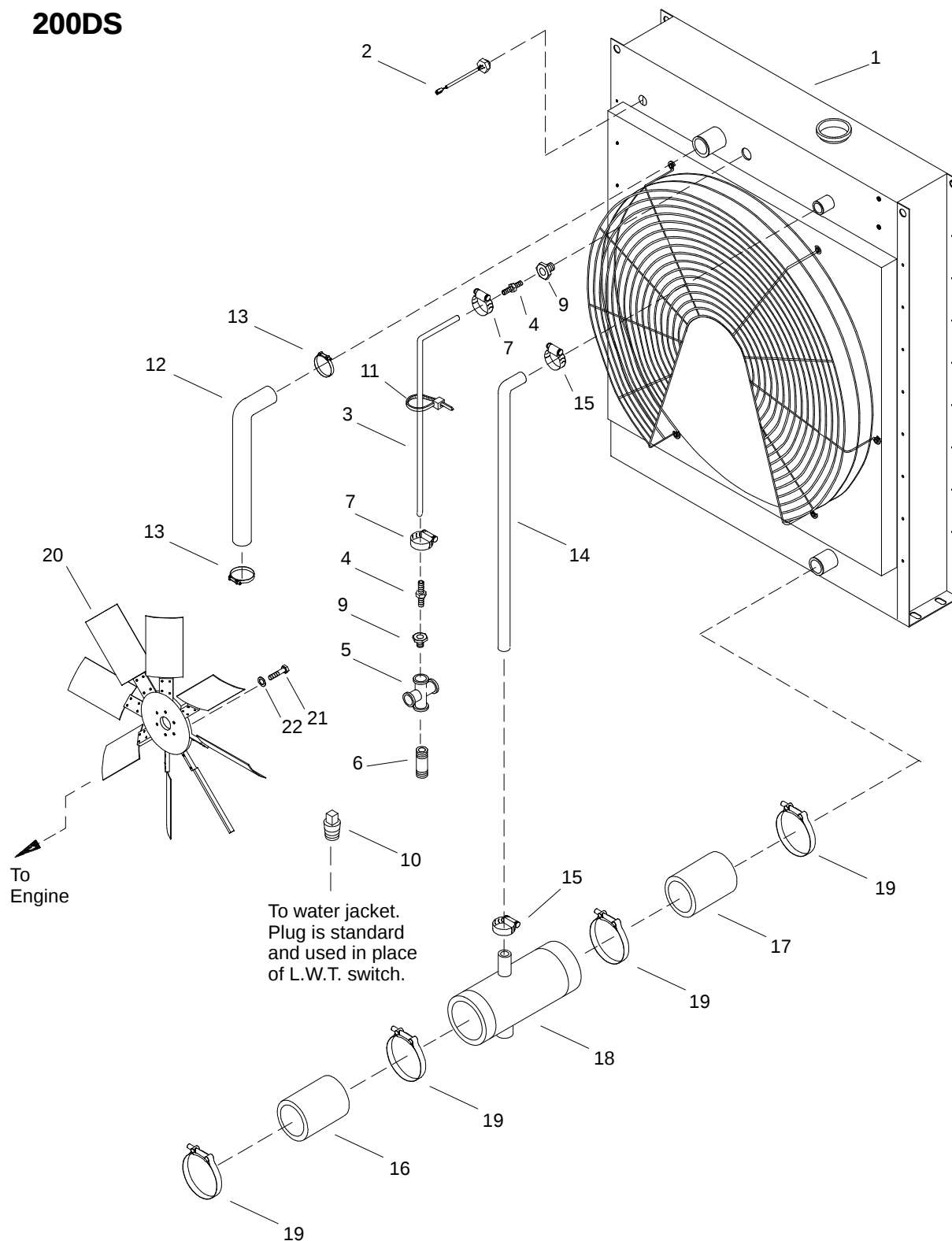
Some modular generator specs listed in the specification number index require an air cleaner kit. Refer to the generator set nameplate to identify the air cleaner kit number installed on your generator set. The parts list of the kit is identical to a variation shown in this group. Use the following table to identify the equivalent variation number. See kit part list section for heavy-duty air cleaner kits.

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

Common Hardware; Procure Locally

Group 104: Cooling System

200DS



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BL-272000

Group 104: Cooling System, Continued

Item	Qty.	Description Variation	Part No.
1	1	Radiator assembly	
		2	A-272616
		5	A-279675
		15	A-328687
		32	A-328712
		33	A-328711
	1	Cap	
		2, 15	224358
		5 15	224357
	1	Glass, radiator sight GM22998	
		2, 5	274831
2	1	Sensor, coolant level	
		2, 5, 15, 32, 33	See chart below
	1	Conduit (not shown)	
		all	X-6003-8
3	1	Line, 1/4" i.d. x 23 1/2" (vent)	
		15	X-651-21
	2	Line, flex vent, 1/4 x 30"	
		2, 5	X-386-75
	1	Line, vent	
		2, 5	X-651-33
	1	Line, vent	
		33, 34	X-651-5
4	4	Fitting, hose, 1/4 x 1/4" NPT	
		2, 5	X-652-3
	2	Fitting, hose	
		2, 5, 15, 32, 33	X-652-1
5	1	Cross, pipe, 1/2" NPT	
		15	X-207-7
6	1	Nipple, pipe, 1/2 x 1 3/16"	
		15	X-209-2
7	2	Clamp, hose, 5/8"	
		15, 32, 33	X-426-9
	4	Clamp, hose, 5/8"	
		2, 5	X-426-9
8	2	Elbow, street, 1/2" NPT	
		2, 5	X-211-1
9	2	Bushing, reducer, 1/4" F x 1/2" M	
		15	X-202-12
	4	Bushing, reducer, 1/4" F x 1/2" M	
		2, 5	X-202-12
10	1	Plug, pipe, 1/2" NPT	
		15	X-75-28
11	1	Tie, cable, 21"	
		15	X-468-7
	1	Tie, cable, 14"	
		2, 5	X-468-4
12	2	Hose, radiator (upper)	
		2, 5	X-613-7
	1	Hose, radiator (upper)	
		15	274514

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

Serial Number-Contingent Parts

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

Common Hardware; Procure Locally

200DS

Use radiator hardware.

Front engine mount mounted here.

104-70-15
BL-272000

Group 104: Cooling System, Continued

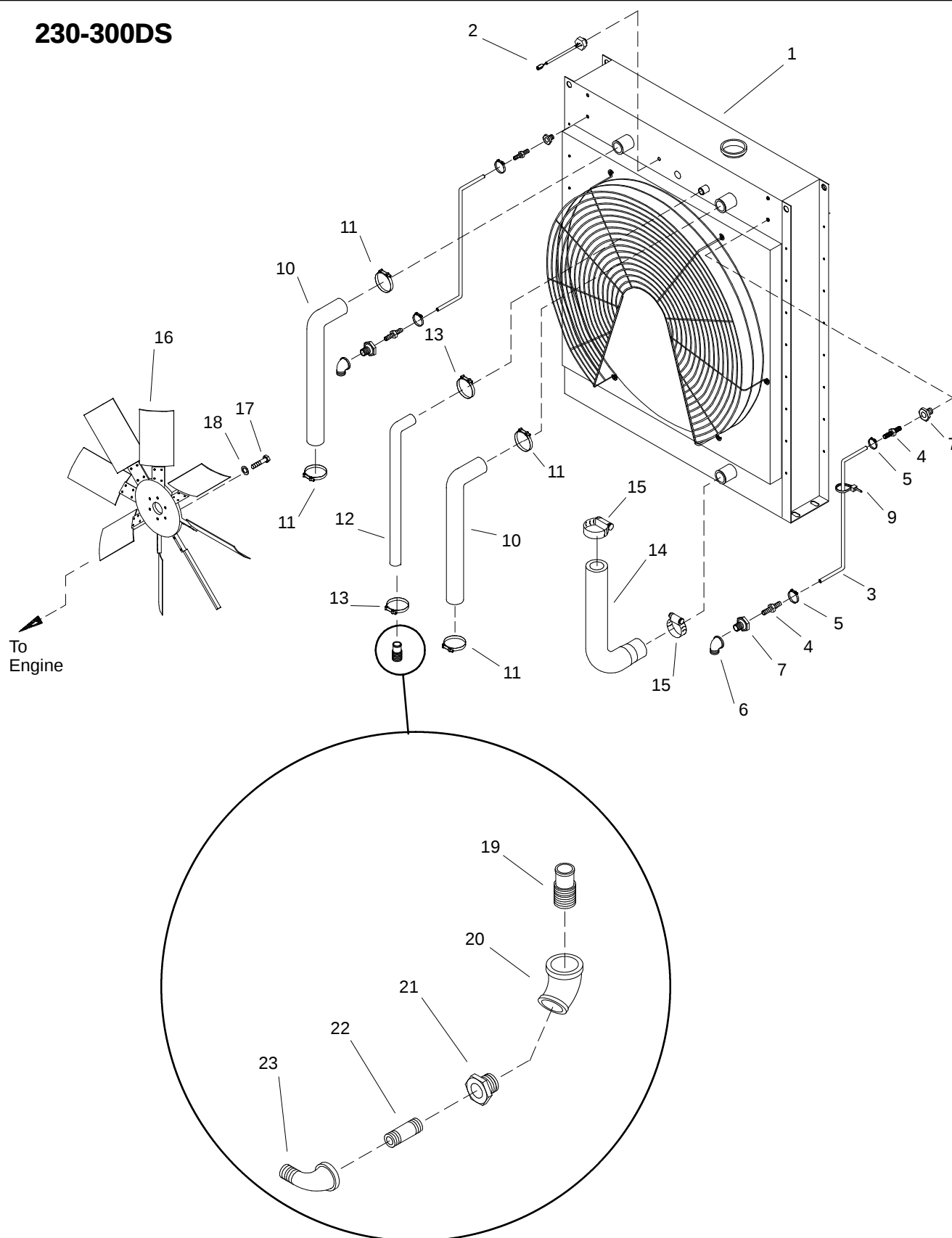
Item	Qty.	Description Variation	Part No.
23	1	Valve, drain, 3/8" NPT 2, 5, 15, 32, 33	X-256-1
24	1	Bushing, reducer, 3/8" F x 1/2" M 2, 5, 15, 32, 33	X-202-28
25		Support, radiator (base mount) 2	272617
	2	Support, radiator side 32, 33	328594
26		Hardware, 5/8-11 2, 5, 15	#
27		Hardware, 3/4-10 2, 15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

Item	Qty.	Description Variation	Part No.
		15	X-129-18
32	2	Screw, ref., 1/2-13 x 3/4"	
		15	X-129-15
	4	Screw, ref., 1/2-13 x 1"	
		2, 5	X-129-17
33		Hardware, 1/2-13 2, 5, 15	#
34	1	Guard, fan (upper left) 15	274515
35	1	Guard, fan (lower left) 15	274517
36	1	Guard, fan (right) 15	274516
37	1	Bracket, fan guard (lower left) 15	274383
38	1	Bracket, fan guard (lower right) 15	274520
39		Hardware, 1/4-20 15	#
40		Hardware, 5/16-18 15	#
41	4	Screw, ref., 3/8-16 x 5/8"	
		15	X-6238-2
42	2	Screw, ref., 7/16-14 x 3/4"	
		15	X-6024-5
43		Hardware, 3/8 15	#
44		Hardware, 7/16 15	#
45	4	Washer, hardened 2, 5, 15, 32, 33	X-809-9

Common Hardware; Procure Locally

Group 104: Cooling System, Continued

230-300DS



104-70-5
AL-272000

Group 104: Cooling System, Continued

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

Item	Qty.	Description Variation	Part No.
		1" i.d. x 50"	
		15	X-356-32
	1	Hose, bypass,	
		1 1/4" i.d. x 54"	
		2, 5	X-6014-30
	1	Hose, bypass	
		32, 33	X-356-34
13	2	Clamp, hose, 1 1/2"	
		15	X-426-15
	2	Clamp, hose, 1 3/4"	
		2, 5, 32, 33	X-426-8
14	1	Hose, lower radiator	
		2	272620
		5	274245
		32, 33	328387
15	2	Clamp, hose, 3 3/4" min. dia.	
		2, 5, 32, 33	X-426-1
16	1	Fan	
		2, 5, 15, 32, 33	299963
17	6	Screw, hex cap, 5/16-18 x 3"	
		5	X-125-37
18	6	Washer, hardened,	
		21/64 x 23/32 x 1/8"	
		2, 5, 15, 32, 33	X-801-4
19	1	Adapter, hose,	
		1 1/4" ID, 1" NPT	
		2, 5	272930
20	1	Elbow, 45°, 1" NPT	
		2, 5	X-255-9
21	1	Bushing, reducer, 3/4" F x 1" M	
		2, 5	X-202-1
22	1	Nipple, pipe, 3/4" NPT x 2"	
		2, 5	X-206-2
	1	Connector, hose	
		32, 33	X-582-16
23	1	Elbow, 90°, 3/4" NPT	
		2, 5, 32, 33	SA-472

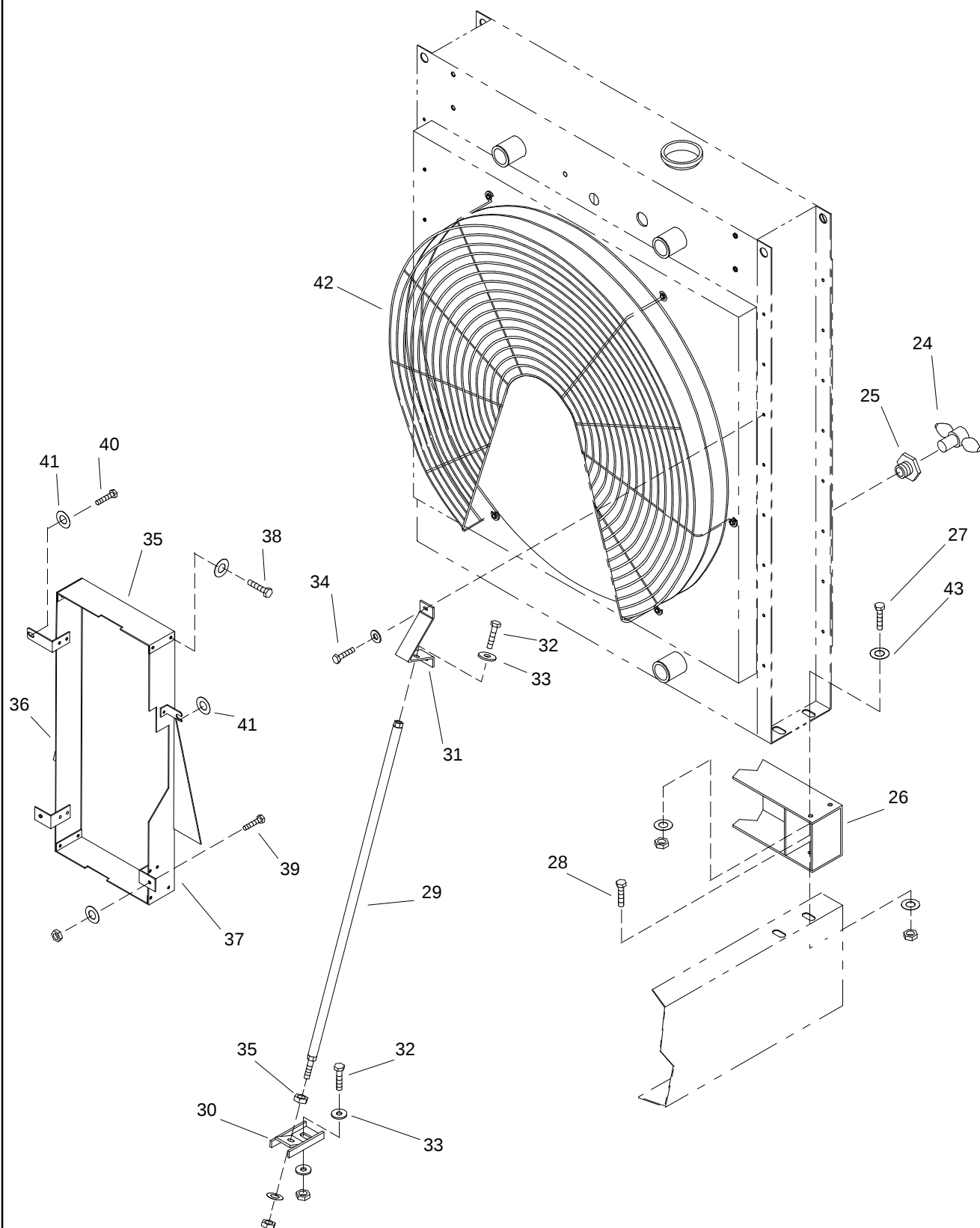
Serial Number-Contingent Parts

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

Common Hardware; Procure Locally

Group 104: Cooling System, Continued

230-300DS



104-70-5
AL-272000

Group 104: Cooling System, Continued

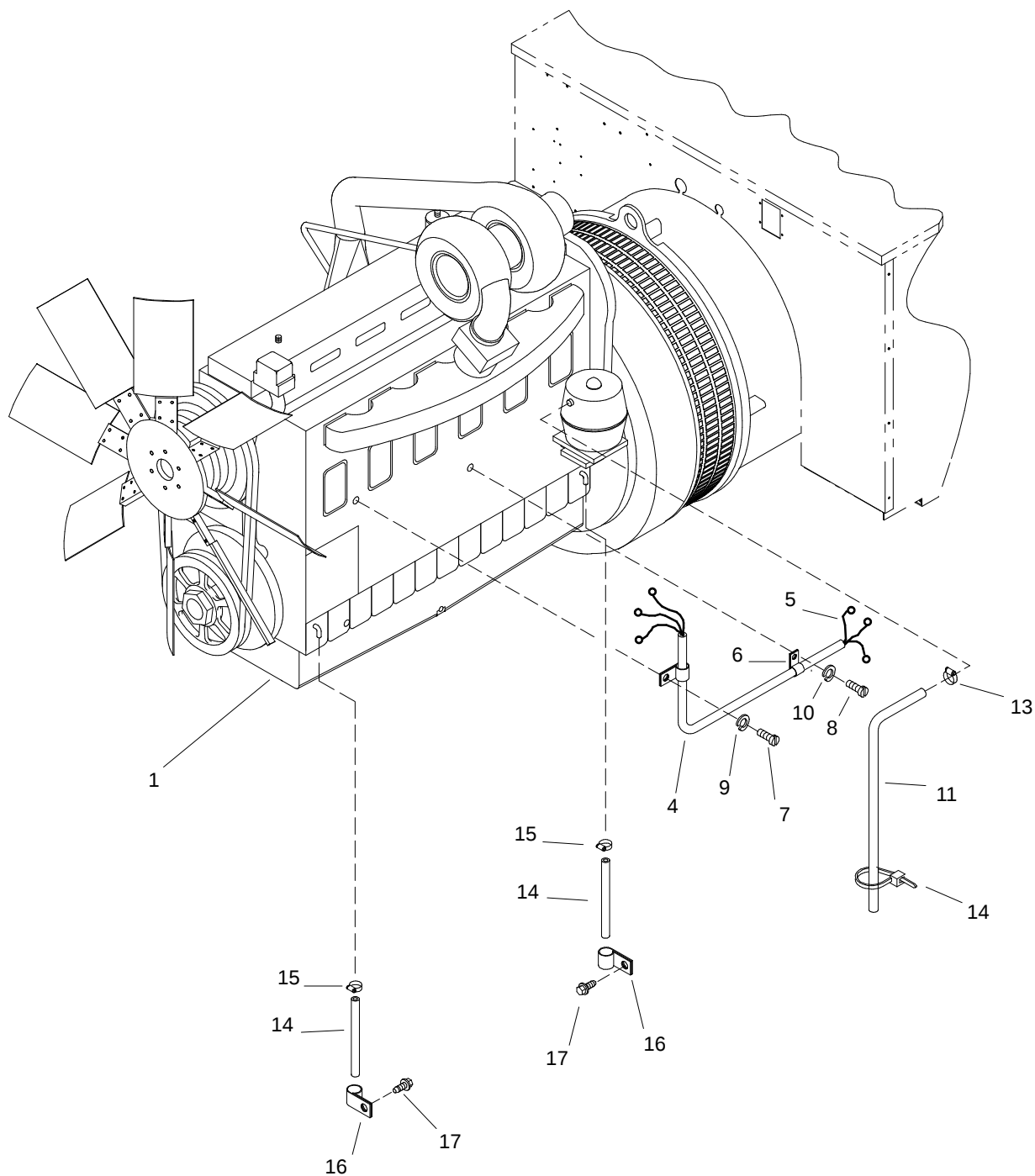
Item	Qty.	Description Variation	Part No.
24	1	Valve, drain, 3/8" NPT 2, 5, 15, 32, 33	X-256-1
25	1	Bushing, reducer, 3/8" F x 1/2" M 2, 5, 15	X-202-28
26	1	Support, radiator, (base mount) 15	274513
	1	Support, radiator, (base mount) 2	272617
	1	Side Support, radiator 32, 33	328594
27		Hardware, 5/8-11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

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

Common Hardware; Procure Locally

Group 105: Engine

200-300DS



105-70-16
BL-272000

Group 105: Engine, Continued

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

Item	Qty.	Description Variation	Part No.
11	1	Hose, 1 1/4" i.d. 16	X-6260-6
	1	Hose, 1 1/4" i.d. 47, 58	X-6260-5
12	2	Clamp, hose, 1 3/4" 16-19, 48-50, 58	X-426-8
13	2	Tie, cable, 14" 17-19, 48-50	X-468-4
14	2	Hose, rubber, 3/8 x 18" 16, 47, 58	X-651-3
	2	Hose, 3/8 i.d. x 28" 17-19, 48-50	X-651-28
	2	Line, fuel (copper), 3/8" OD x 2" 17-19, 48-50	X-432-12
	1	Hose, rubber, 3/8" OD x 2" 59-61	X-651-28
	2	Line, fuel (copper), 3/8" OD x 2" 59-61	X-432-12
15	2	Clamp, hose, 5/8" 16, 47, 58	X-426-9
	4	Clamp, hose, 5/8" 17-19, 48-50, 59-61	X-426-9
16	2	Clamp, insulated, 7/16" i.d. 16, 47	X-672-7
17	2	Screw, drill, 1/4-14 x 3/4" 16, 47	X-794-1

Serial Number-Contingent Wiring Harnesses

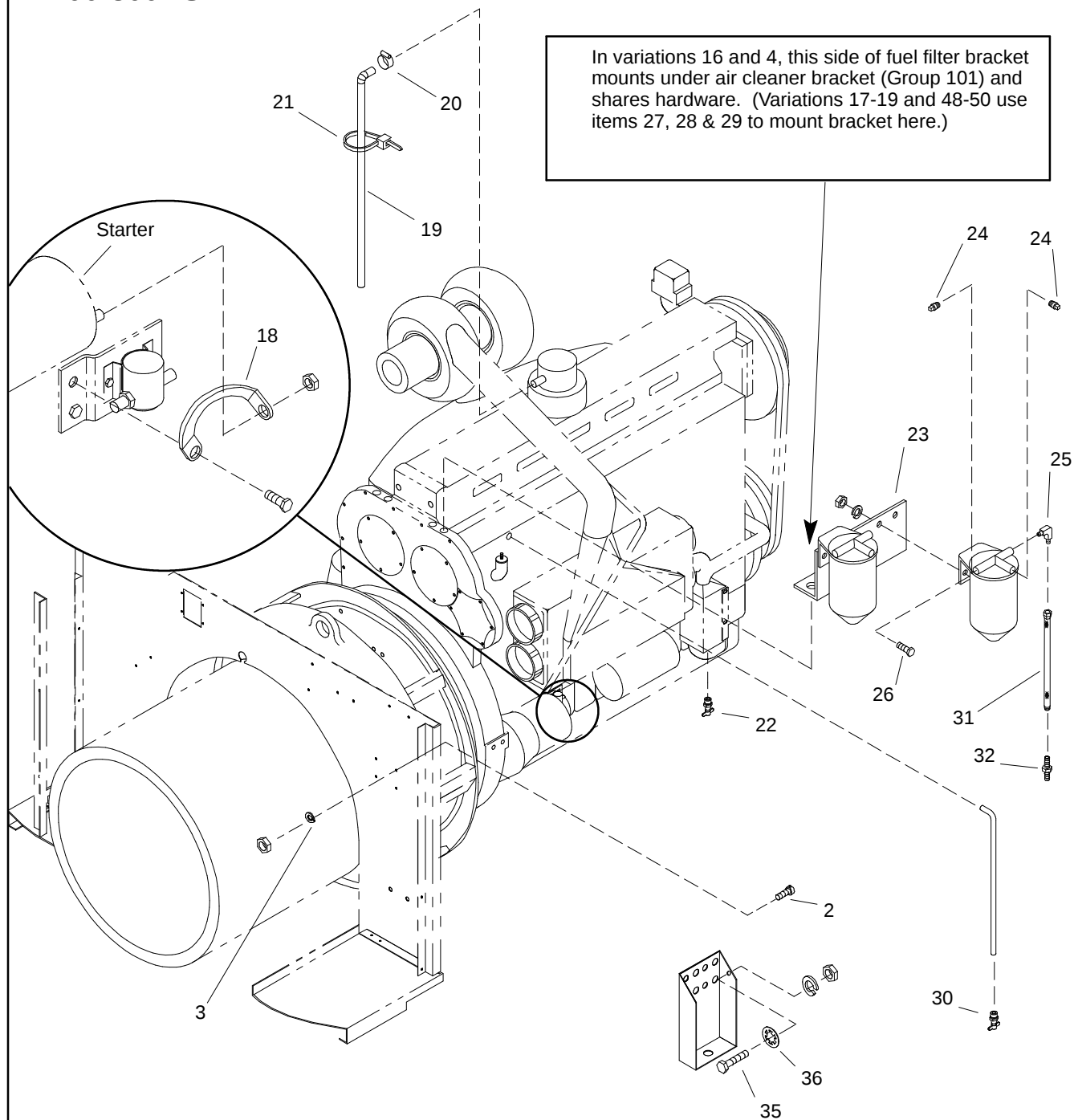
Variation Number	Wiring Harness Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and after
16	272651	272651
17-19	272755	272755
47	328045	347221
48-50	328046	347222
55-57	328046	347298
58	N/A	347297
59-61	N/A	347298

N/A = Not Applicable

Common Hardware; Procure Locally

Group 105: Engine, Continued

200-300DS



105-70-16
BL-272000

Group 105: Engine, Continued

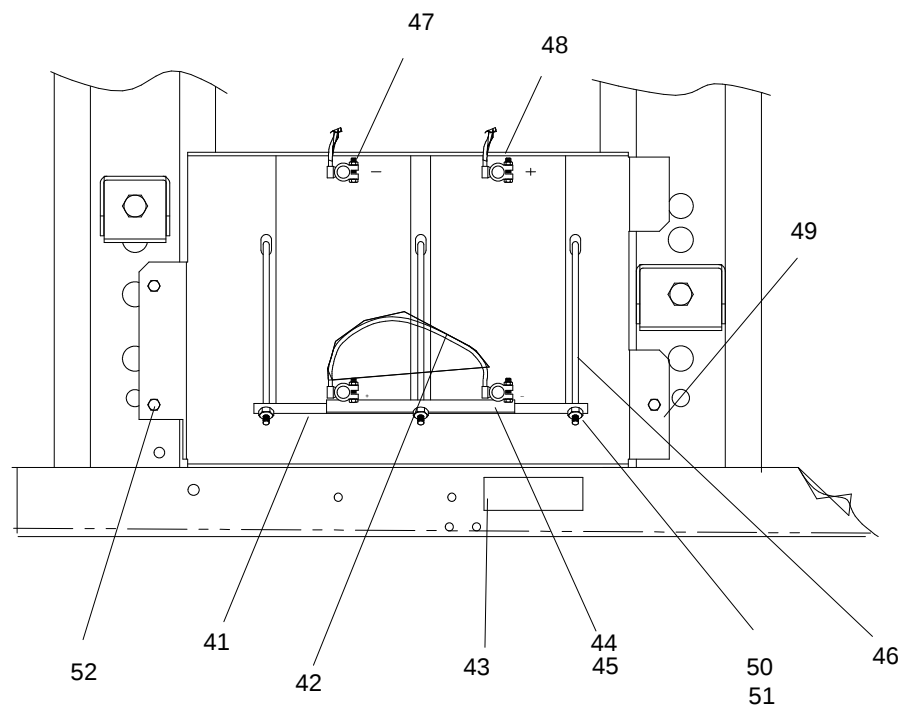
Item	Qty.	Description Variation	Part No.
18	1	Strap, ground 16-19, 47-50, 55-61	287363
19	1	Hose, 1 1/4" i.d. 16, 47, 58	X-6260-8
	2	Hose, 1 1/4 i.d. x 32" 17-19	X-6260-7
	1	Hose, 1 1/4 i.d. 48-50, 55-57, 59-61	X-6260-5
20	2	Clamp, hose, 1 3/4" 16-19, 47-50, 55-58	X-426-8
	1	Clamp, hose, 1 3/4" 59-61	X-426-8
21	2	Tie, cable, 14" 17-19, 48-50, 55-57	X-468-4
	1	Tie, cable, 14" 59-61	X-468-4
22	1	Valve, drain, 1/4" NPT 16-19, 47-50, 55-61	X-256-3
23	1	Bracket, fuel filter 16, 47, 58	274525
	1	Bracket, fuel filter 17-19, 48-50, 55-57, 59-61	274227
24	2	Plug, pipe, 3/8" NPT 16, 47, 58-61	X-75-10
	3	Plug, pipe, 3/8" NPT 17-19, 48-50, 55-57	X-75-10
25	1	Elbow, 7/8-14, 3/8" thread; 5/8" OD 16, 47, 58	X-447-14
26		Hardware, 3/8-16 16-19, 47-50, 55-61	#
27	2	Screw, ref., 5/16-18 x 5 1/2" 17-19, 48-50, 55-57	X-125-35
	1	Screw, ref., 5/16-18 x 5 1/2" 59-61	X-125-35
28		Hardware, 5/16 17-19, 48-50, 55-57, 59-61	#
29	2	Spacer, 11/32 x 3/4 x 3/8" 17-19, 48-50, 55-57, 59-61	X-400-41
30	1	Cap, inverted flare 16, 47, 58-61	274975
	1	Cap, pipe 17-19, 48-50, 55-57	X-268-3
	1	Plug, Pipe 55, 59-61	X-75-51

Item	Qty.	Description Variation	Part No.
31	1	Line, flex. fuel 16, 47, 58-61	274632
32	1	Connector, 1/2-union, 7/8-14, 3/8 thd. 16, 47, 58-61	X-296-8
33	1	Element, primary fuel filter (not shown) 16-19, 47-50, 55-61	279262
34	1	Element, secondary fuel filter (not shown) 16-19, 47-50, 55-61	279261
35		Hardware, 3/8-16 16, 47	
36	1	Washer, int. ext. tooth, ref., 3/8" 16, 47	X-22-14
37	1	Element, oil filter (not shown) 16-19, 47-50, 55-61	279260
38	1	Element, water separation (not shown) 16-19, 47-50, 55-61	279973
		Water separation element is offered only for units with engineered special water separation accessory.	
39	1	Belts, fan (2-belt set) (not shown) 16, 47	279974
	1	Belts, fan (3-belt set) (not shown) 17-19, 48-50, 55-61	279975
40	1	Controller, governor (See Group 201)	

Common Hardware; Procure Locally

Group 105: Engine, Continued

200-300DS



105-70-16
MF-272000

Group 105: Engine, Continued

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

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

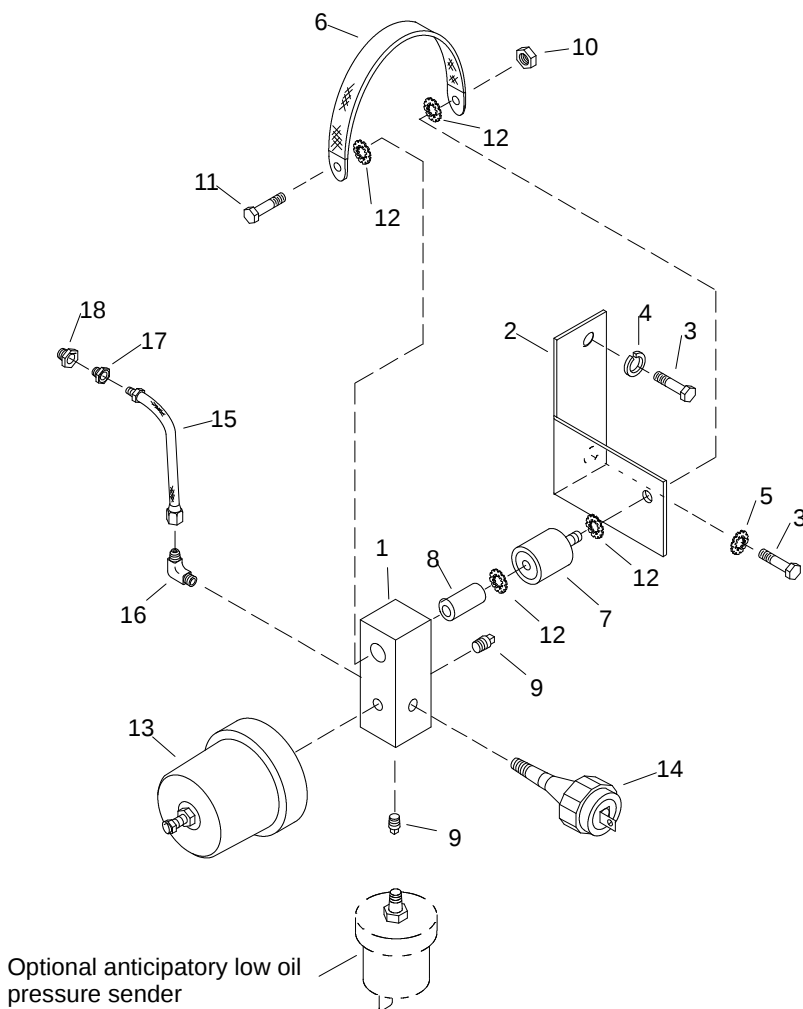
Common Hardware; Procure Locally

Group 107: Nameplate and Decals

Item	Qty.	Description Variation	Part No.
1	2	Decal, 200kW Spectrum 18, 19	X-6299-11
	1	Decal, 230kW Spectrum 23, 24	X-6299-12
	1	Decal, 250kW Spectrum 25, 26	X-6299-13
	1	Decal, 275kW Spectrum 27, 28	X-6299-14
	1	Decal, 300kW Spectrum 29, 30	X-6299-15
2	1	Decal, Spectrum 18, 19, 63	X-6301-2
	2	Decal, Spectrum 23-29, 66	X-6301-1
3	1	Decal, Spectrum 18, 19, 23,-30	X-6301-3
4	1	Decal, Spectrum 25-30	X-6301-4
5	2	Decal, Torque Symbol 3.14 dia. 18, 19, 23-30	X-6302-1
6	1	Decal, Torque Symbol 5.25 dia. 25-30	X-6302-2
7	1	Decal, (positive terminal) 18, 23, 25, 27, 29, 63, 66	238402
8	1	Decal, warning (rotating parts) 18, 23, 25, 27, 29	249808

Item	Qty.	Description Variation	Part No.
9	1	Decal, warning (hot engine) 18, 23, 25, 27, 29, 63, 66	249809
10	1	Decal, (For standby service...) 19, 24, 26, 28, 30	249815
11	1	Decal, equipment ground 19, 24, 26, 28, 30	290435
12	3	Decal, danger (hazardous voltage/moving rotor) 18, 19, 23-30, 63, 66	257438
13	1	Nameplate 18, 19, 23-30, 63, 66	324069
14	1	Nameplate, C.S.A. 19, 24, 26, 28, 30	324238
15	1	Decal, warning (hazardous voltage) 18, 23, 25, 27, 29, 63, 66	258815
16	1	Decal, warning (w/ factory connection-600V units) 19, 24, 26, 28, 30, 63, 66	279958
17	1	Tag, instruction 19, 24, 26, 28, 30	255798
18	1	Decal, Warning (unbalanced weight) (sling method) 63, 66	257437
19	1	Decal, Warning (unbalanced weight) 63, 66	257441

Group 108: Oil Pressure Switches



108-70-4
BL-272000

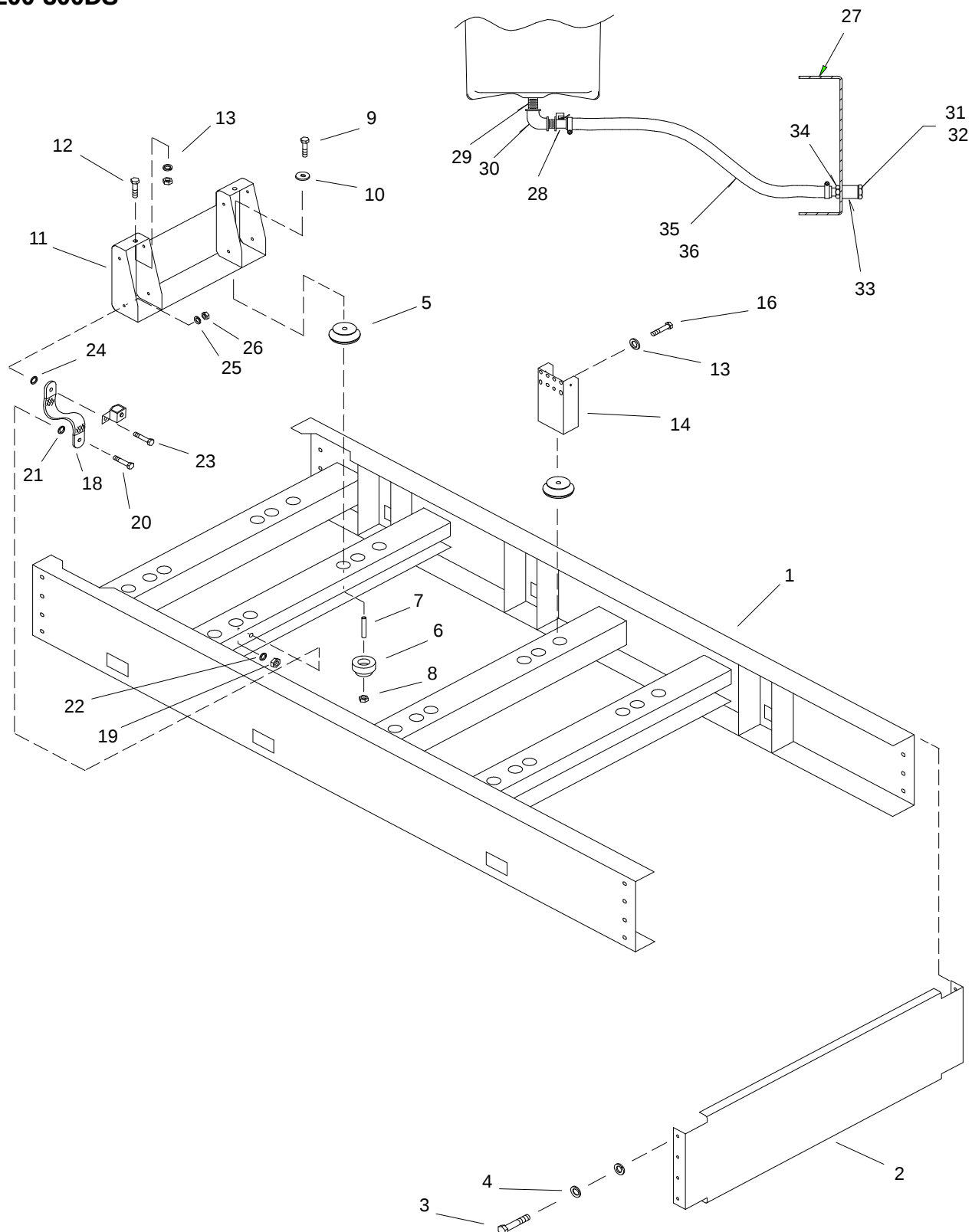
Item	Qty.	Description Variation	Part No.
1	1	Block, oil gauge 4, 9, E58-E61	267548
2	1	Bracket, sender mtg. 4, E58	274980
	1	Bracket, sender mtg. 9, E59-E61	274299
3	2	Screw, ref., 3/8-16 x 1" 4, 9, E58-E61	X-6238-11
4		Hardware, 3/8 4, 9, E58-E61	#
	4	Washer, shakeproof, 3/8 E58	X-22-14
5	1	Washer,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

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

Common Hardware; Procure Locally

Group 109: Skid and Plant Mounting

200-300DS



109-70-1
BL-272000

Group 109: Skid and Plant Mounting

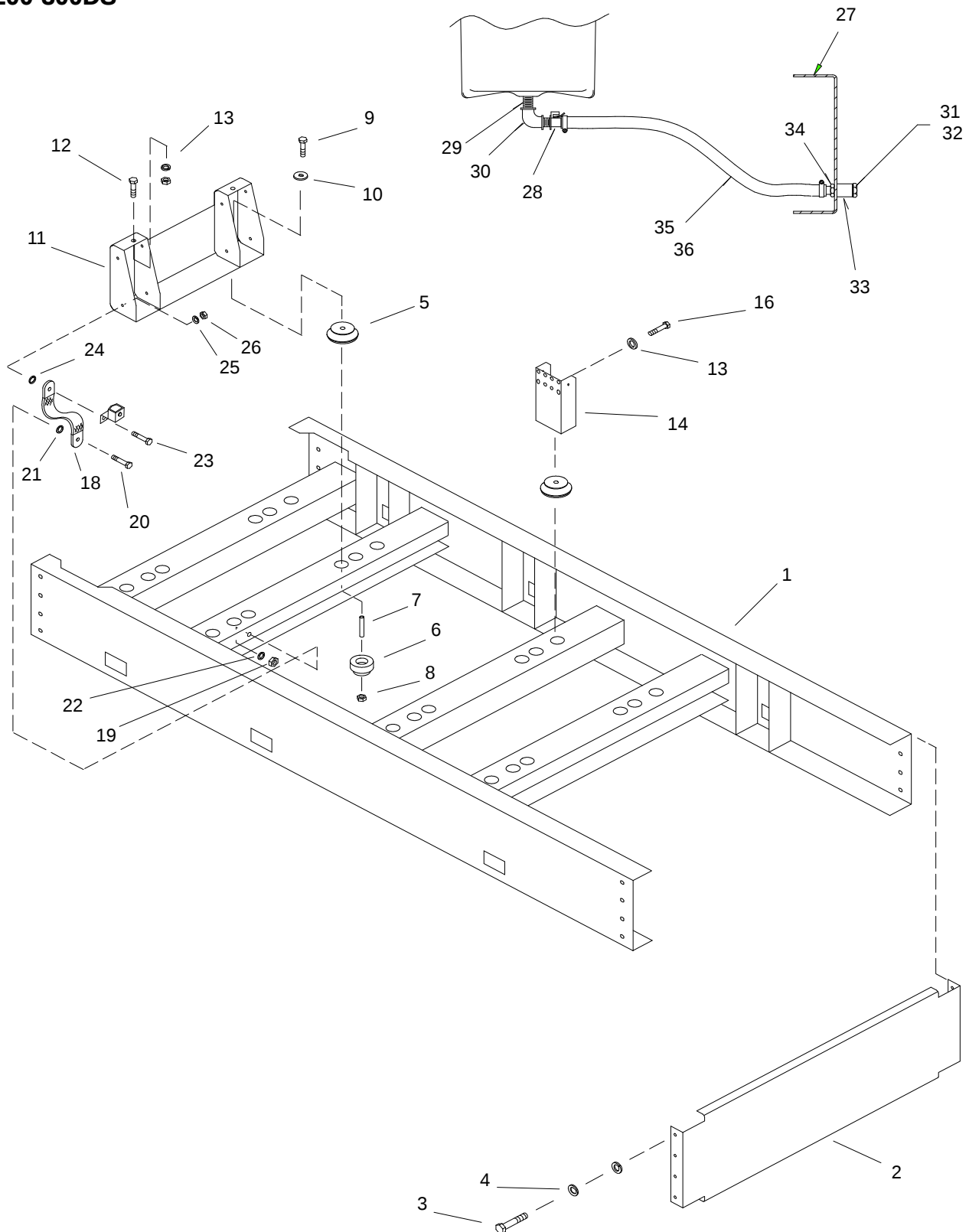
Item	Qty.	Description Variation	Part No.
1	1	Skid	
		1, 44	299827
		2	279488
		41, 45	328597
2	1	Crossmember, skid end	
		1, 2, 41, 44, 45	274441
3	8	Screw, ref., 3/8-16 x 1"	
		1, 2	X-6238-11
		Hardware, 3/8-16	
		44, 45	#
4		Hardware, 3/8	
		1, 2, 44, 45	#
5	6	Mount, vibro (white, engine)	
		1, 44, 45	274266
	4	Mount, vibro (white, engine)	
		2, 41	274266
	2	Mount, vibro (orange, generator)	
		2, 41	274267
6	6	Damper, vibration 1"	
		1, 2, 41, 44, 45	286020
7	6	Spacer, (engine), 2 11/16"	
		1, 2, 41, 44, 45	X-400-168
8	6	Nut, 1/2-13 nylon lock	
		1, 2, 41, 44, 45	X-101-23
9	6	Screw, ref., 1/2-13 x 4"	
		1, 2, 41, 44	X-129-29
		Hardware, 1/2-13	
		45	#
10	6	Washer, plain,	
		9/16 x 1 1/4 x 5/32	
		1, 2, 41, 44, 45	X-25-30
11	1	Support, front engine	
		1, 44	272654
	2	Support, front engine	
		2, 41, 45	272618
12	2	Screw, ref., 1/2-13 x 2 3/4"	
		1	X-129-24
	8	Screw, ref., 7/16-14 x 1"	
		2, 41, 45	X-6024-2
	8	Hardware, 1/2-13	
		44	#
13		Hardware, 1/2-13	
		1, 44	#
		Hardware, 5/8 washer	
		45	#
14	2	Support, rear engine mtg	
		1, 44	272653
	2	Support, rear engine mtg	
		2, 41, 45	272619
15		Hardware, 7/16	
		2, 41	#
16	8	Screw, ref., 1/2-13 x 1"	
		1, 44	X-129-17
	8	Screw, socket head, ref.,	
		5/8-11 x 1 1/4"	
		2, 41, 45	X-55-25
17		Hardware, 5/8	
		2, 41	#

Item	Qty.	Description Variation	Part No.
18	1	Strap, ground	
		1 (left front), 2 (right front)	
		44, 45	290418
19	1	Nut, 5/16-18	
		1	X-82-2
	2	Nut, 5/16-18	
		2, 41	X-82-2
		Hardware, 1/4-20	
		44	
		Hardware, 5/16-18	
		45	#
20	1	Screw, 5/16-18 x 3/4	
		1	X-125-3
	2	Screw, 5/16-18 x 1	
		2, 41	X-125-5
		Hardware, 1/4-20 screw	
		44	#
		Hardware, 5/16-18 bolt	
		45	#
21	1	Washer, shakeproof, 5/16	
		1, 45	X-22-16
	4	Washer, shakeproof, 5/16	
		2, 41	X-22-16
		1/4-20 hdw	
		44	
22	1	Washer, split lock, 5/16	
		1	X-21-1
	1	Washer, shakeproof	
		44	X-22-12
	1	Washer, shakeproof, 5/16	
		45	X-22-16
23	1	Screw, 1/4-20 x 3/4	
		1	X-465-16
		Hardware, 5/16-18	
		45	
24	1	Washer, shakeproof, 1/4	
		1	X-22-12
	1	Washer, shakeproof, 5/16	
		44, 45	X-22-16
25	1	Washer, split lock, 1/4	
		1	X-20-16
	1	Washer, shakeproof	
		44, 45	X-22-16
26	1	Nut, 1/4-20	
		1	X-81-1
		Hardware, 5/16	
		44, 45	#
27	1	Decal, Oil Drain	
		44, 45	280562
28	1	Valve, Oil Drain	
		44, 45	272701
29	1	Nipple, Pipe	
		45	X-209-5
30	1	Elbow, Pipe	
		45	X-215-1
31	1	Washer, Nylon	
		44, 45	276552

Common Hardware; Procure Locally

Group 109: Skid and Plant Mounting

200-300DS



109-70-1
BL-272000

Group 109: Skid and Plant Mounting

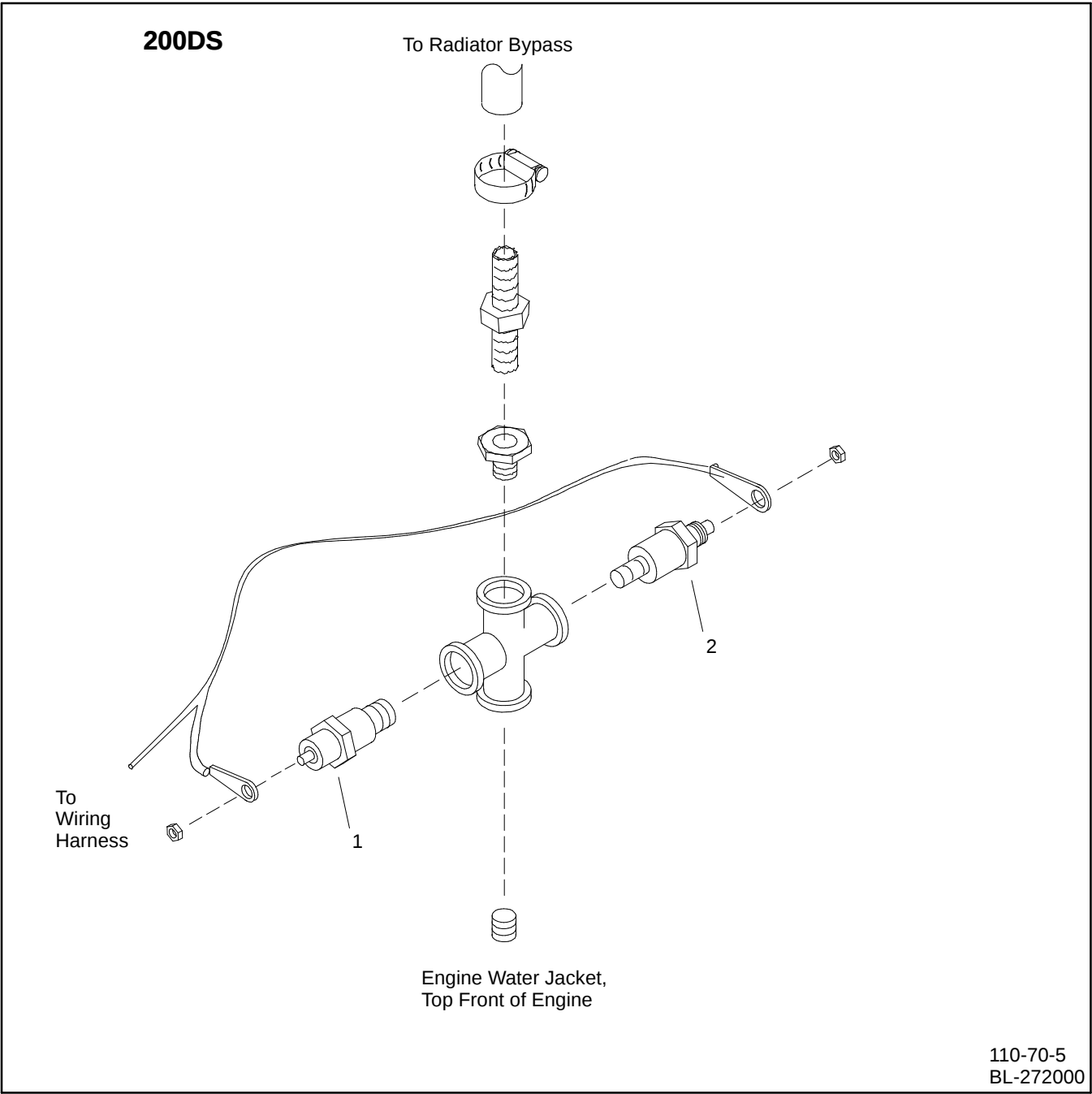
Item	Qty.	Description Variation	Part No.
32	1	Plug, Drain 44, 45	241062
33	1	Adapter, Hose 44, 45	273729
34	1	Nut, Hex 44, 45	X-80-1
35	2	Clamp, Hose 44, 45	X-426-10
36	1	Hose 44, 45	X-577-18

Modular Spec Cross-Reference Table

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

Skid Kit	Equivalent Variation Number
325981	44
325982	45

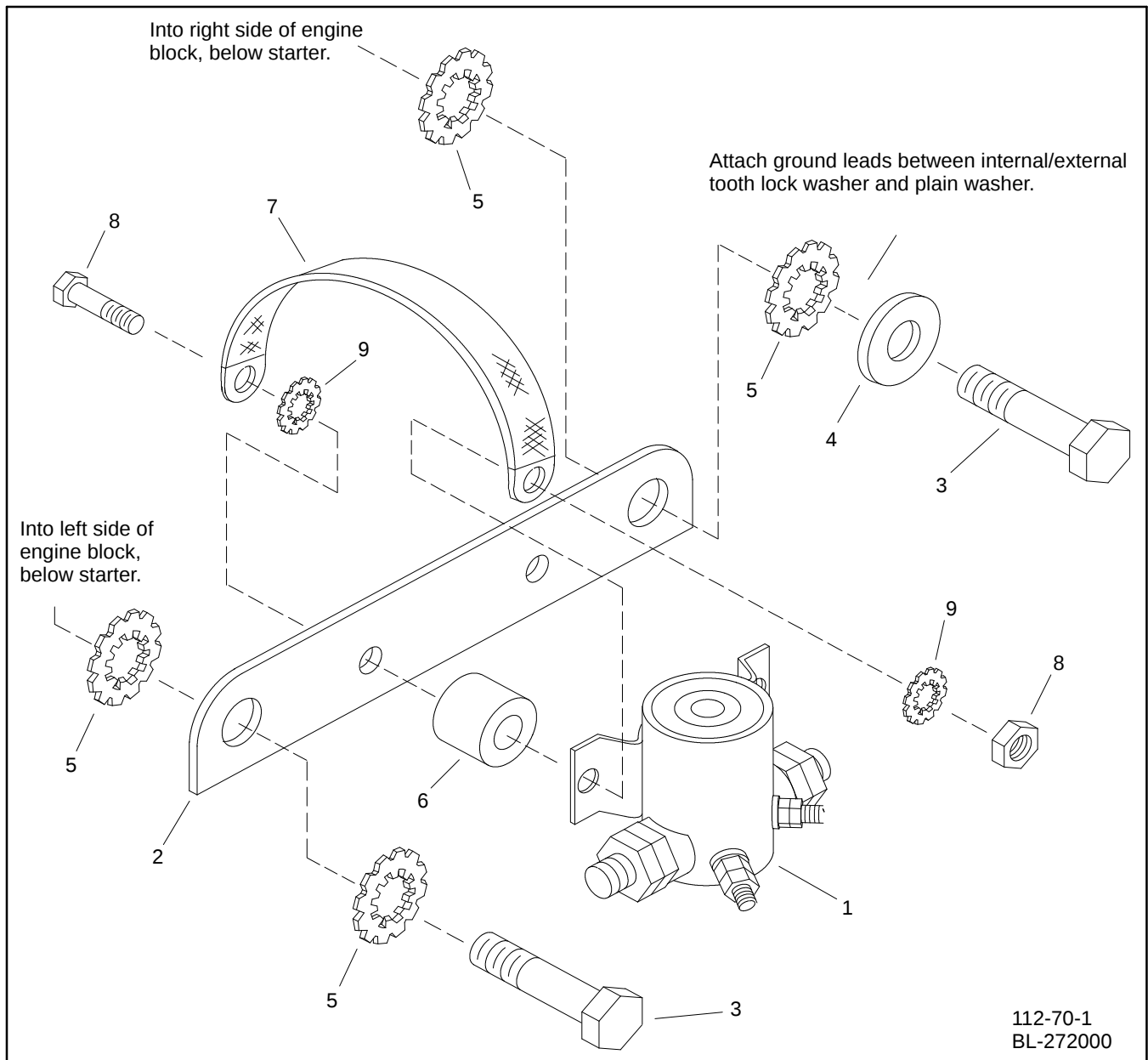
Group 110: Water Temperature Switches



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

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

Group 112: Starter



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

Common Hardware; Procure Locally

Group 119: Recommended Spare Parts

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

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

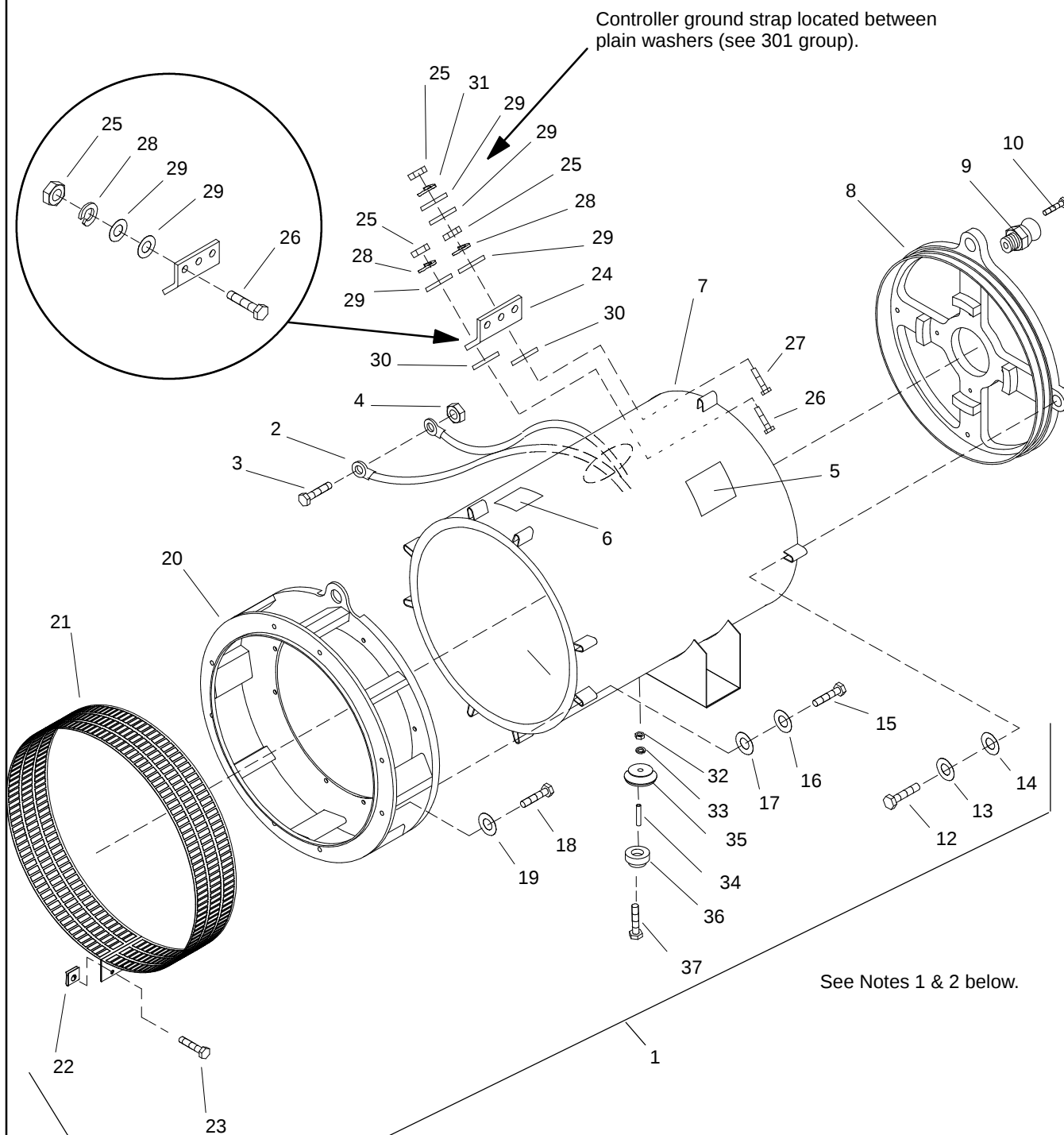
Serial Number-Contingent Spare Parts

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

Notes

Group 201: Generator and Mounting

200-300DS



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

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

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Alt. assy. A-257965

Group 201: Generator and Mounting, Continued

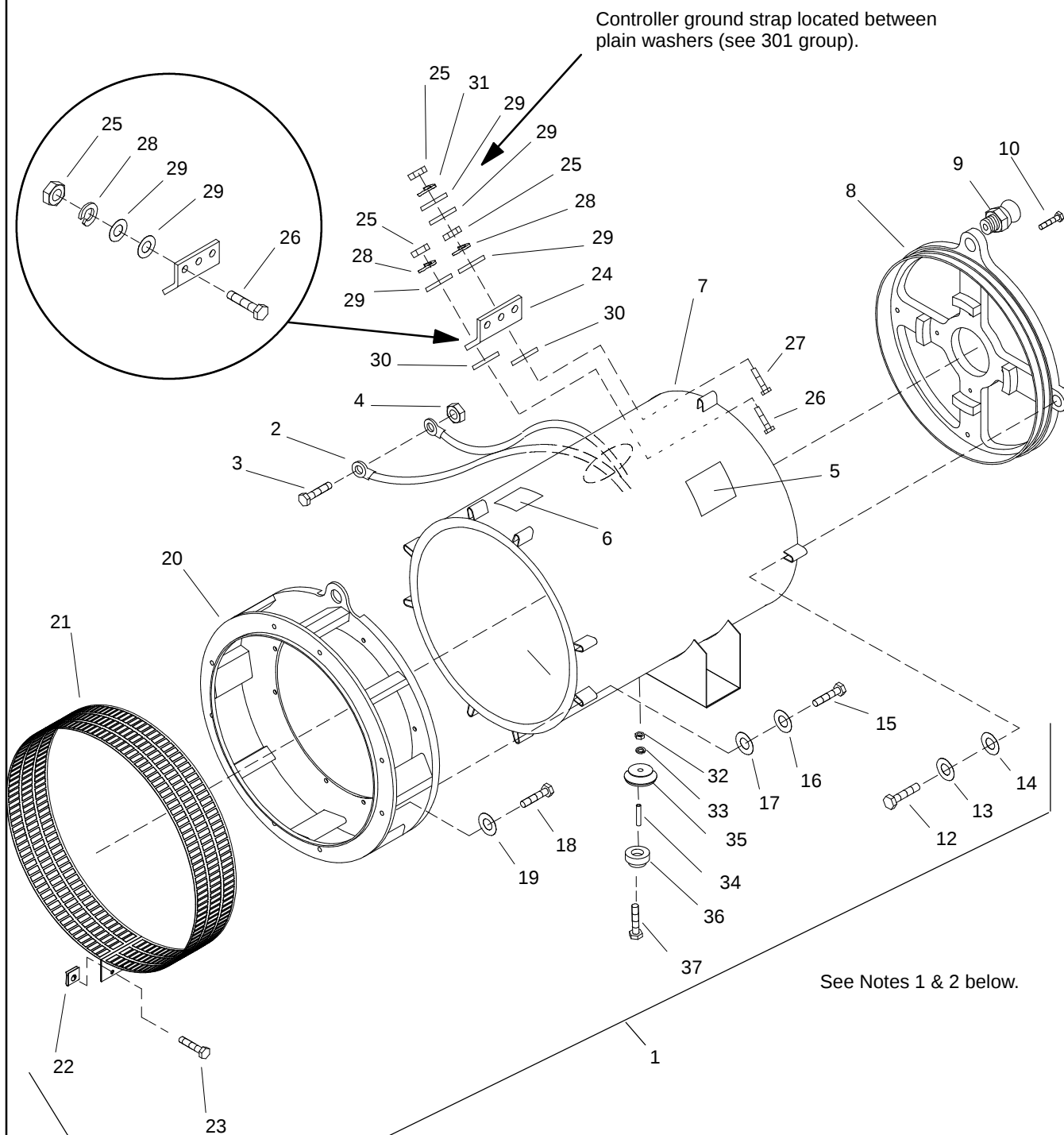
Item	Qty.	Description Variation	Part No.
1	1	Alternator assembly	
		127, 143	A-257965
		128, 144	A-257968
		129, 145	A-257970
		130, 146	A-257966
		132, 148	A-257967
		131, 147	A-257971
		134, 150	A-257973
		133, 149	A-257972
		262	A-347209
		263	A-347211
		264	A-347213
		265	A-347215
		266	A-347210
		267	A-347214
2	1	Marker, L1 lead	
		127-130, 132-134, 143-146, 148-150, 262-267	X-750-14
	1	Marker, L2 lead	
		127-130, 132-134, 143-146, 148-150, 262-267	X-750-15
	1	Marker, L3 lead	
		127-130, 132-134, 143-146, 148-150, 262-267	X-750-16
3	3	Screw, 3/8-16 x 1 1/4	
		127-130, 132-134, 143-146, 148-150	X-6238-4
	3	Hardware, 3/8	
		262-267	#
4	3	Nut, 3/8-16	
		128-131, 133, 134, 143-146, 148-150	X-83-2
	3	Hardware, 3/8	
		262-267	#
5	1	Decal, warning (unbalanced weight)	
		all	257441
6	1	Decal, warning (unbalanced weight)	
		all	257437
7	1	Stator assembly	
		127, 143	257574
		130, 132, 146, 148	257575
		128, 144	257789
		129, 145	257778
		131, 133, 147, 149	257779
		134, 150	257792
		262	347197
		263, 265	347199
		264	347203
		266	347198
		267	347204

Item	Qty.	Description Variation	Part No.
8	1	Bracket, end	
		all except 262-267	257982
	1	Bracket, end	
		262-267	347236
9	1	Fitting, Grease	
		262-267	347119
10	1	Screw	
		262-267	X-465-25
11	1	Guard, gen., CSA and 600V (covers end bracket)	
		129, 131, 133, 134, 145, 147, 149, 150	274598
12	4	Screw, 1/2-13 x 3 1/4	
		all	X-129-46
	4	Screw, 3/8-16 x 4 (CSA and 600V only)	
		129, 131, 133, 134 145, 147, 149, 150	273738
		On CSA models, item 12 extends through item 8, and then lock washer and 1/2-13 nut fit on exposed threads of item 12.	
	4	Screw	
		262-267	X-129-25
13	4	Washer, hardened, 17/32 x 1 1/16	
		all	290945
14	4	Washer, 9/16 x 1 1/4 x 5/32	
		all	257951
	4	Washer, int. tooth lock, 1/2 (CSA and 600V only) (not shown)	
		129, 131, 133, 134, 145, 147, 149, 150	X-22-4
	4	Nut, 1/2-13 (CSA and 600V only) (not shown)	
		131, 133, 134, 147, 149, 150	X-89-8
15	8	Screw, 1/2-13 x 3 1/4	
		all except 262-267	X-129-46
		Screw	
		262-267	X-129-25
16	8	Washer, hardened, 17/32 x 1 1/16 x 3/32	
		all	290945
17	8	Washer, 9/16 x 1 1/4 x 5/32	
		all	257951

Common Hardware; Procure Locally

Group 201: Generator and Mounting, Continued

200-300DS



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

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

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Group 201: Generator and Mounting, Continued

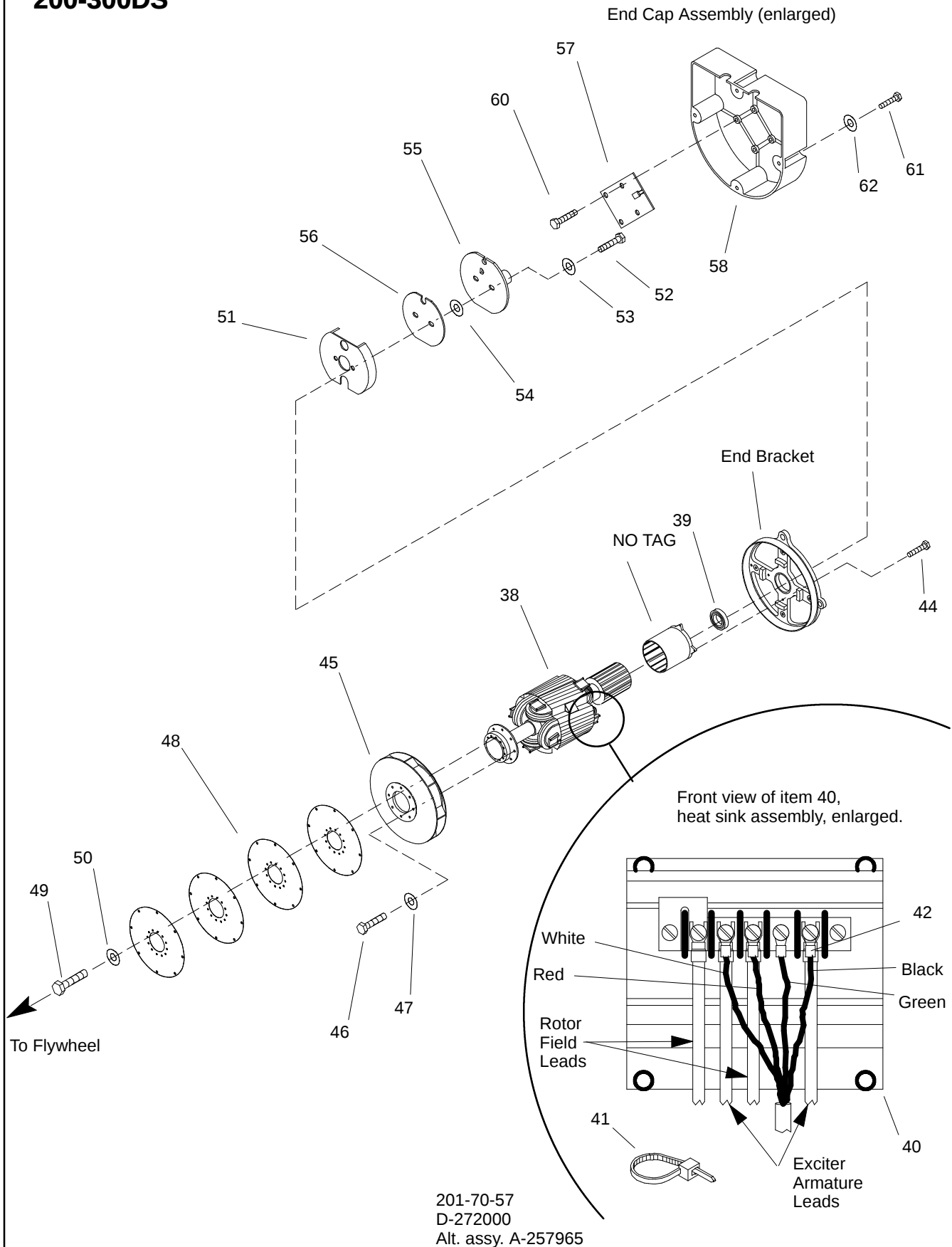
Item	Qty.	Description Variation	Part No.
18	8	Screw, 7/16-14 x 1 1/2 all except 262-267	X-6024-3
19	8	Washer, hardened, 15/32 x 59/64 all except 262-267	X-801-6
20	1	Adapter, generator all except 262-267	257579
	1	Adapter, generator 262-267	347240
21	2	Guard, generator fan (5-7/8 wide) all except 262-267	257582
	2	Guard, generator fan 262-267	347268
22	4	J-Clip, speed, 10-24 all	257442
23	4	Screw, 10-24 x 3/4 127-134, 262-267	X-67-125
24	1	Plate, ground lug all	257978
25	6	Nut, 3/8-16 all	X-83-2
	2	Nut, 3/8-16 hardware 262-267	#
26	4	Screw, 3/8-16 x 1 1/4, all except 18, 262-267	X-6238-4
	1	Screw 262-267	X-6238-11
	3	Screw 262-267	X-6238-5

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

Common Hardware; Procure Locally

Group 201: Generator and Mounting, Continued

200-300DS



Group 201: Generator and Mounting, Continued

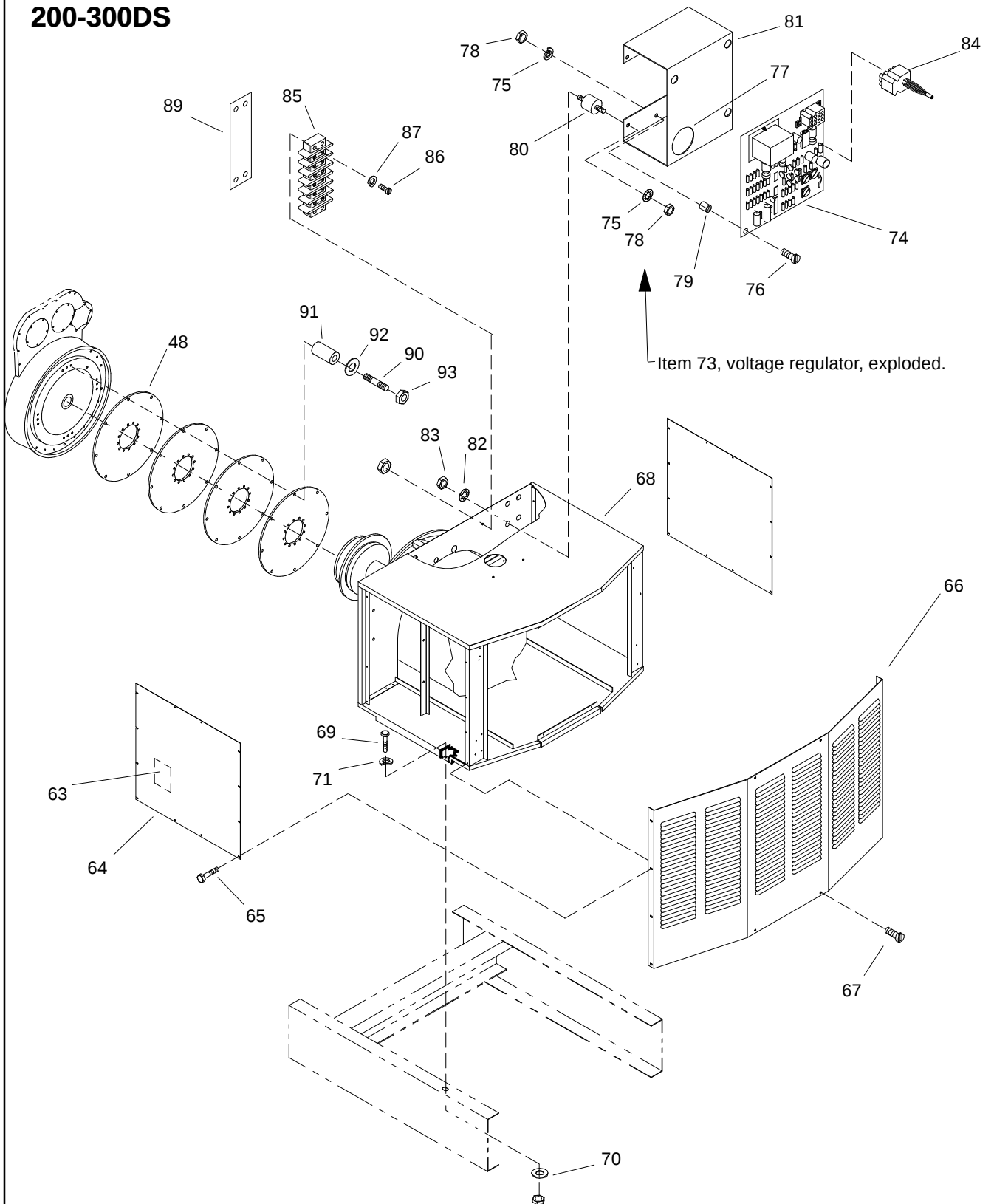
Item	Qty.	Description Variation	Part No.
38	1	Rotor assembly	
		128, 134, 144, 150	A-257962
		127, 129, 143, 145	A-257960
		130, 131, 146, 147	A-257961
		132, 133, 148, 149	A-257974
		263, 265	A-347189
		262, 264	A-347187
		266, 267	A-347188
39	1	Bearing, ball (rotor end)	
		all	X-758-9
40	1	Sink assy., heat	
		all except 262-267	A-258939
	1	Sink assy., heat	
		262-267	A-354299
41	1	Tie, cable	
		all except 262-267	X-468-7
42	4	Terminal, push-on, 1/4 ins. F	
		all	X-431-25
	4	Terminal, spade, 6	
		129, 131, 145, 147	X-285-1
43	1	Exciter assembly, field	257963
		all except 262-267	
	1	Exciter assembly, field	
		262-267	347707
44	4	Screw, 3/8-16 x 1 3/4	
		all except 262-267	X-6238-1
	4	Screw	
		262-267	X-6238-17
45	1	Fan, generator	
		all	257855
46	8	Screw, 3/8-16 x 1	
		all	X-6238-11
47	8	Washer, plain, 13/32 x 3/4 x 1/8	
		all	X-25-93
48	4	Disc, armature drive	
		all	257581
	49	12 Screw, 3/8-16 x 1 1/2, Gr. 8	
		all	270158

Item	Qty.	Description Variation	Part No.
50	12	Washer, hardened, 13/32 x 13/16 x 3/64	
		all	X-801-3
51	1	Actuator, magnetic	
		all	257077
52	2	Screw, 10-24 x 5/8	
		all	X-117-5
53	2	Washer, int. tooth lock, 10	
		127-134, 262-267	243321
54	2	Washer, insulated, 7/32 x 1/2 x 1/16	
		all	X-22-9
55	1	Board assy., circuit (photo trans.)	
		all	B-292902
56	1	Insulator	
		all except 262-267	257850
	1	Insulator	
		262-267	257258
57	1	Board assembly, circuit (LED)	
		all	A-257099
58	1	Cover, circuit board	
		all	257258
59	1	Conduit, plastic (not shown)	
		129, 131	X-6003-17
60	4	Screw, 10 x 3/8 sheet metal	
		all	X-6071-1
61	4	Screw, 10-24 x 5/8	
		all except 262-267	X-117-5
	4	Screw, self-tapping	
		262-267	X-67-133
62	4	Washer, int. tooth lock, 10	
		all except 262-267	X-22-9

Common Hardware; Procure Locally

Group 201: Generator and Mounting, Continued

200-300DS



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Alt. assy. A-257965

Group 201: Generator and Mounting, Continued

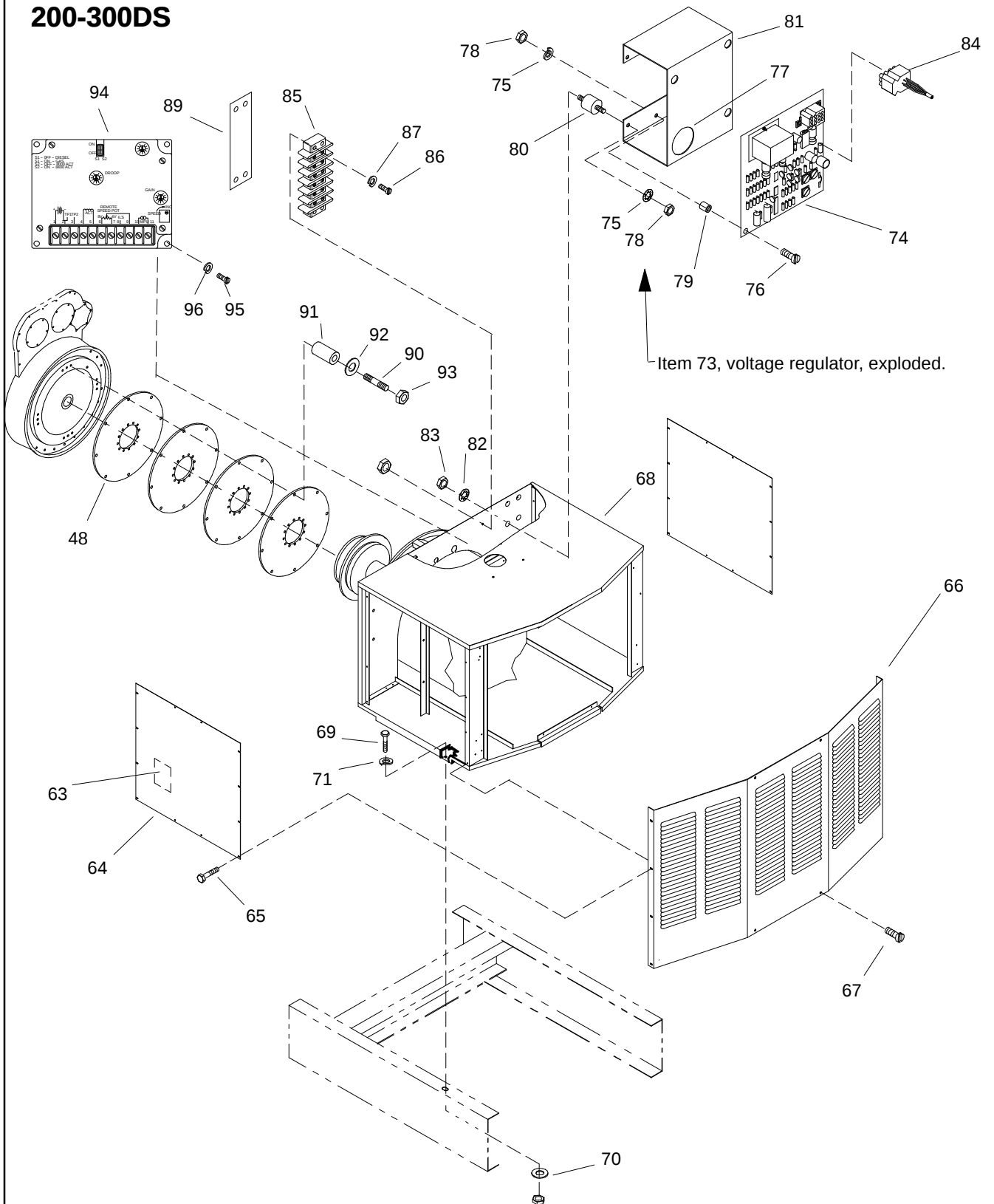
Item	Qty.	Description Variation	Part No.
63	1	Decal, warning (haz. volt./moving parts) all	257438
64	2	Cover, side 127-134	272689
	2	Cover, side 143-150, 262-267	336001
65	16	Screw, 10-24 x 1/2 all	X-6216-1
66	1	Cover, rear 127-134	272688
	1	Cover, rear 143-150, 262-267	336005
67	4	Screw, 10-24 x 1/2 all	X-6216-1
68	1	Box, junction 127-134	272680
	1	Box, junction 143-150, 262-267	336021
	1	Bracket, junction box (not shown) 143-150, 262-267	336085
69	6	Screw, 3/8-16 x 1 all except 262-267	X-6238-11
	8	Screw, 3/8-16 x 1 hardware 262-267	#
70	5	Washer, split lock, 3/8 all except 262-267	X-22-1
	8	Washer, 3/8 hardware 262-267	#
71	5	Washer, 13/32 x 13/16 all except 262-267	X-25-37
	8	Washer, 3/8 hardware 262-267	#
72	2	Washer, int./ext. tooth lock, 3/8 (not shown) all	X-22-14
73	1	Regulator assembly, voltage (includes items 74-81) 127-134	B-292789
74	1	Board assy., circuit (voltage reg.) all	
75	8	Washer, ext. tooth lock, #8 127-134	X-22-20
	4	Washer, ext. tooth lock, #8 143-150, 262-267	X-22-20
	4	Washer, lock #8	

Item	Qty.	Description Variation	Part No.
		143-150, 262-267	X-22-7
76	5	Screw, 8-32 x 3/4 127-134	X-51-11
77	1	Bushing, plastic hose, 1 1/2 127-134	X-634-16
78	8	Nut, 8-32 all	X-72-4
79	5	Bushing, insulating 1/4 x 3/8 x 7/16 all	239513
80	3	Mount, vibro 127-134	
	3	Mount, vibro 143-150	282829
	4	Mount, vibro 262-267	282829
81	1	Bracket, regulator 127-134	282832
82	3	Washer, split lock, 8 127-134 except 262-267	X-18-2
83	3	Nut, 8-32 127-134	X-72-4
84	1	Harness, wiring all except 143-148, 262-267	255481
	1	Harness, wiring 143-148, 262-267	354118
85	1	Block, terminal (6-terminal) all	295314
86	2	Screw, 8-32 x 3/4 all	X-51-11
87	2	Washer, split lock, 8 all except 262-267	X-18-2
88	2	Nut, 8-32, hardware 262-267	#
89	1	Marker, strip all	255080
90	8	Stud (alt. mounting), 1/2-13 x 3 127-134	X-352-71
	8	Screw, H.C. 1/2-13 x 1/4 (not shown) 143-150, 262-267	X-129-54

Common Hardware; Procure Locally

Group 201: Generator and Mounting, Continued

200-300DS



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

Group 201: Generator and Mounting, Continued

Item	Qty.	Description Variation	Part No.
91	8	Spacer, 17/32 x 1 x 3/4 127-134	X-400-161
92	8	Washer, hardened, 17/32 x 1 1/16 all	290945
93	8	Nut, 1/2-13 127-134	X-89-17
94	1	Controller, Governor 262-267	347841
95	4	Screw, 10-24 x 1/2 262-267	X-50-15
96	4	10-24 Nut 262-267	#

Modular Spec Cross-Reference Table

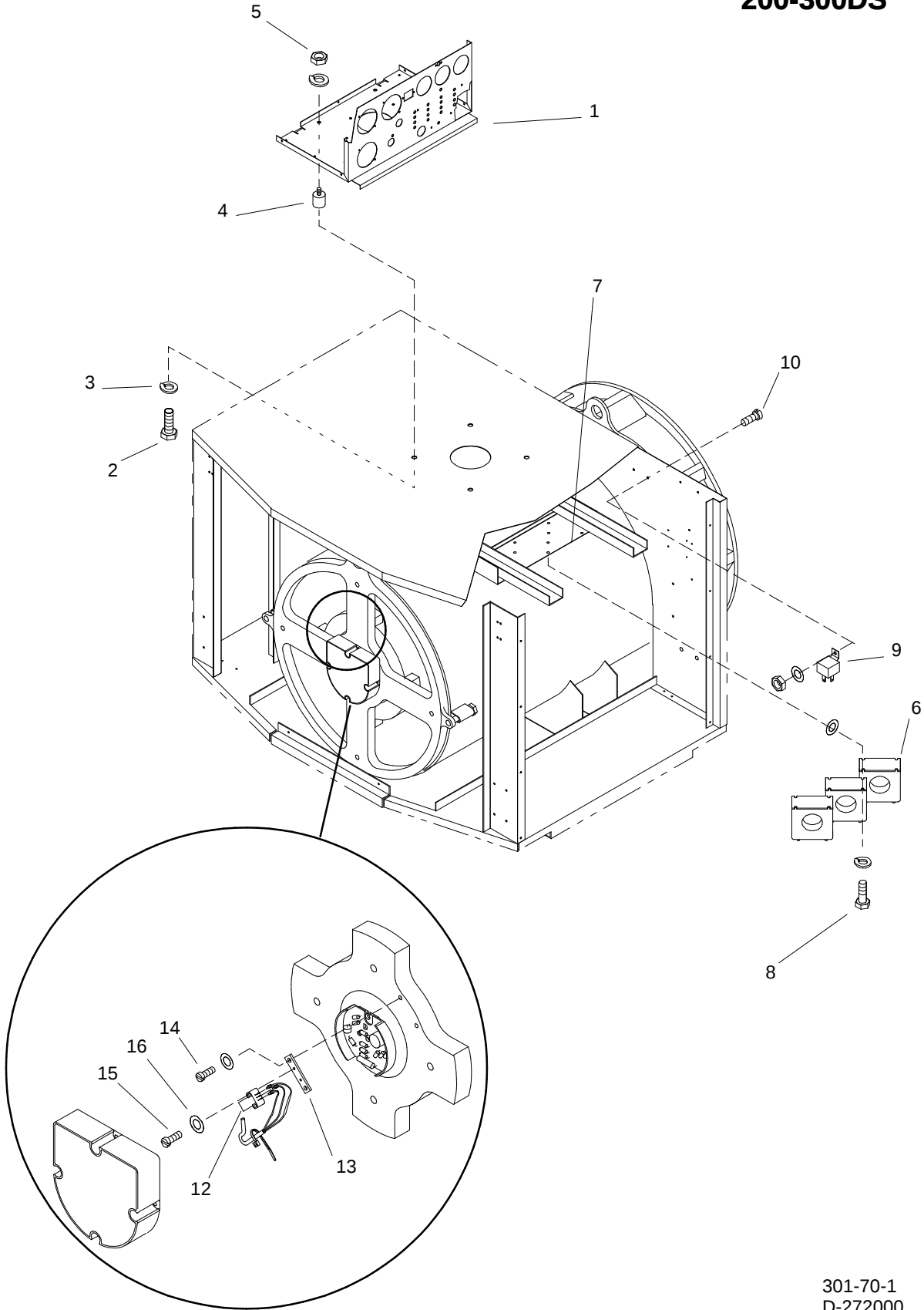
Some modular generator specs listed in the specification number index require an alternator kit. Refer to the generator set nameplate to identify the alternator kit number installed on your generator set. The parts list of the kit is identical to a variation shown in this group. Use the following table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

Kit	Equivalent Variation Number
347312	262
347313	263
347314	264
347315	265
347316	266
347317	267

Common Hardware; Procure Locally

Group 301: Controller and Mounting

200-300DS



Group 301: Controller and Mounting, Continued

Item	Qty.	Description Variation	Part No.
1	1	Controller assembly Includes items 4, 15-62 all	See table below
2	4	Screw, 5/16-18 x 3 1/2 all	X-125-23
3	4	Washer, int./ext. tooth lock, 5/16 all	X-22-16
4	4	Bumper, rubber all	292834
5	4	Nut, 5/16-18 all	X-82-2
		Nut, 5/16-18, hardware 75, 77, 78, 138	#
6	3	Transformer, current 32, 45, 75	272691
	3	Transformer, current 33, 46, 77	273258
	3	Transformer, current 34, 47	272678
	3	Transformer, current 62	279272
	3	Transformer, current 65, 78	279273
	3	Transformer, current 69	272690
	3	Transformer, current 138	343297
7	1	Bracket, transformer mounting 45-47, 62, 65, 69, 75, 77, 78 138	325382
	4	Screw, drill (not shown) (mounts bracket to stator) 45-47, 62, 65, 75, 77, 78, 138	X-794-1
8	12	Screw, 10-24 x 5/8 all except 75, 77, 78, 138	X-117-5
9	1	Relay all (Two Relays used with optional air box shutdown)	272684
10	2	Screw, 10-24 x 5/8 all	X-117-5

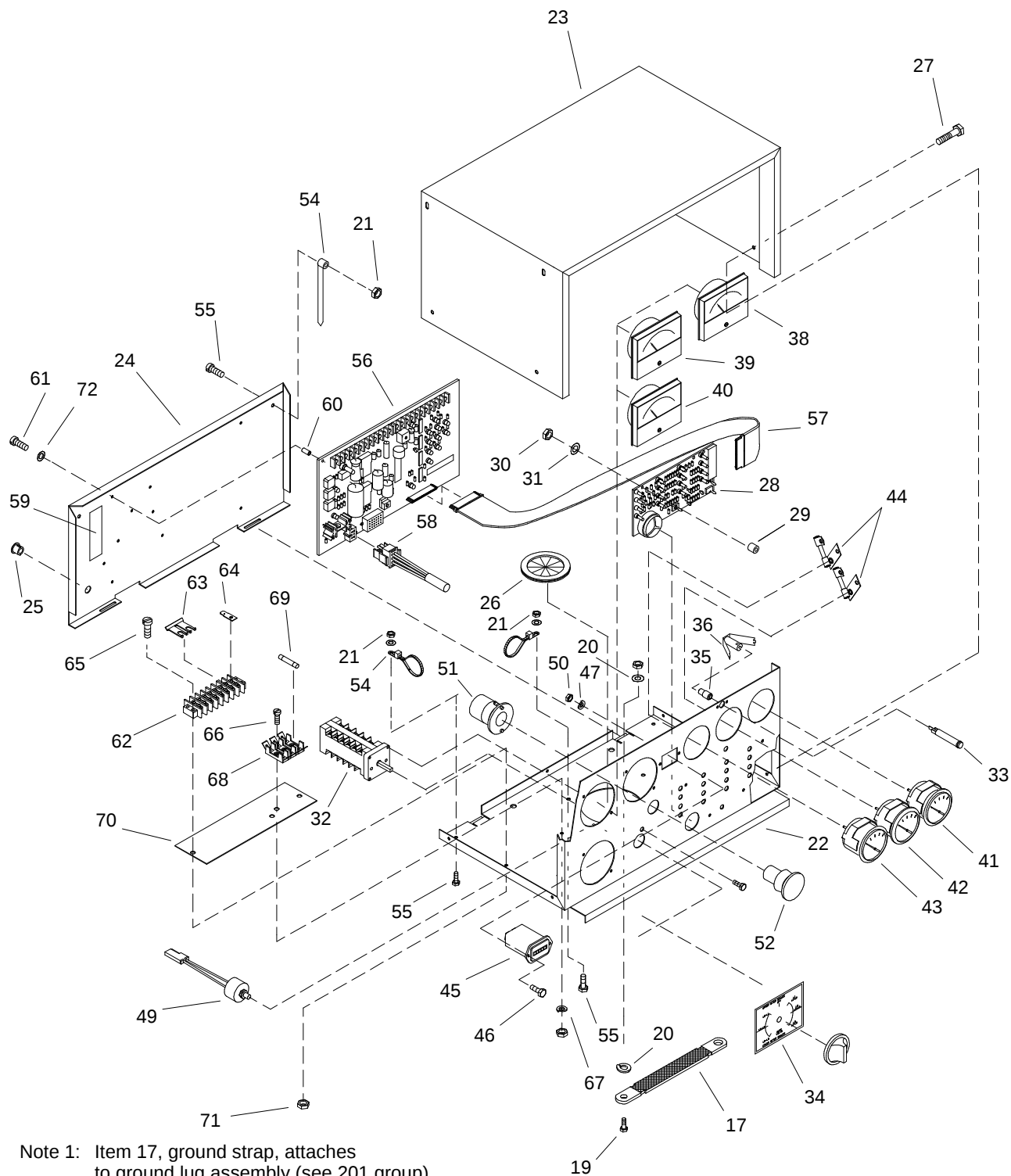
Item	Qty.	Description Variation	Part No.
11	1	Harness, wiring (CT) (not shown) all except 75, 78, 138	255040
	1	Harness, wiring 75, 77, 78, 138	354119
12	1	Sensor, speed all except 75, 78, 138	241927
	1	Sensor, Speed 75, 77, 78, 138	241623
	1	Clamp, insulator (not shown) 32-34, 75, 78	X-672-15
13	1	Bracket, sensor mounting all	257070
14	2	Screw, 10-24 x 5/8 all	X-117-5
15	2	Screw, 4-40 x 7/8 all	X-49-35
16	2	Washer, int. tooth lock, 4 all	X-22-24

Serial Number-Contingent Controller Assemblies

Variations	Controller As- sembly Part Number	Controller As- sembly Part Number
	Before Serial Number 363369	Serial Numbers 363369 and after
32, 45, 75	A-325020	A-325724
33, 46, 77	A-325022	A-325726
34, 47	A-325031	A-325735
62	A-325021	A-325725
65, 78	A-325023	A-325727
69	A-325032	A-325736
138	-	A-350137

Group 301: Controller and Mounting, Continued

200-300DS



Note 1: Item 17, ground strap, attaches to ground lug assembly (see 201 group).

Note 2: Resistors (item 44) mount on back of water temp. gauge and oil press. gauge (items 42 and 43).

301-70-1
D-272000
A-325008

Group 301: Controller and Mounting, Continued

Item	Qty.	Description Variation	Part No.
17	1	Strap, ground all	X-6046-2
18	1	Sleeving (not shown) all	X-696-5
19	1	Screw, 10-24 x 1.0 all	X-50-70
20	2	Washer, 10 all	X-22-50
21	1	Nut, 10-24 all	#
22	1	Box, controller all	325073
23	1	Cover, controller all	325003
24	1	Plate, hinge all	292908
25	1	Plug, plastic button, 7/16 all	X-301-34
26	1	Grommet, 3 x 3 1/2 x 5/64 all	X-284-31
27	9	Screw, 10-24 x 1/2 all	X-6216-1
28	1	Indicator Board all	See chart below
29	4	Spacer, nylon, 8 hole x 1/2" all	X-712-9
30	1	Nut, 8-32 all	X-72-4
31	3	Washer, lock, 8 all	X-22-7
	1	Washer, shakeproof, 8 all	X-22-20
32	1	Switch, selector all	292374
33	2	Lamp all except 138	253332
	2	Lamp 138	291740
34	1	Decal, selector switch all	325072
35	2	Screw, thread forming all	X-67-127
36	2	Bulb, (lamp) no. 313 all	283420
37	2	Socket, lamp all	284990
38	1	AC Ammeter 32, 45, 65, 75, 78	295340
	1	AC Ammeter 33, 46, 69, 77	282956
	1	AC Ammeter 34, 47	282957
	1	AC ammeter 62	282955
	1	AC ammeter 138	343299
39	1	AC Voltmeter 32-34, 45-47, 75, 77, 138	282814
	1	AC Voltmeter 62, 65, 69, 78	282815
	1	AC Voltmeter 138	343299

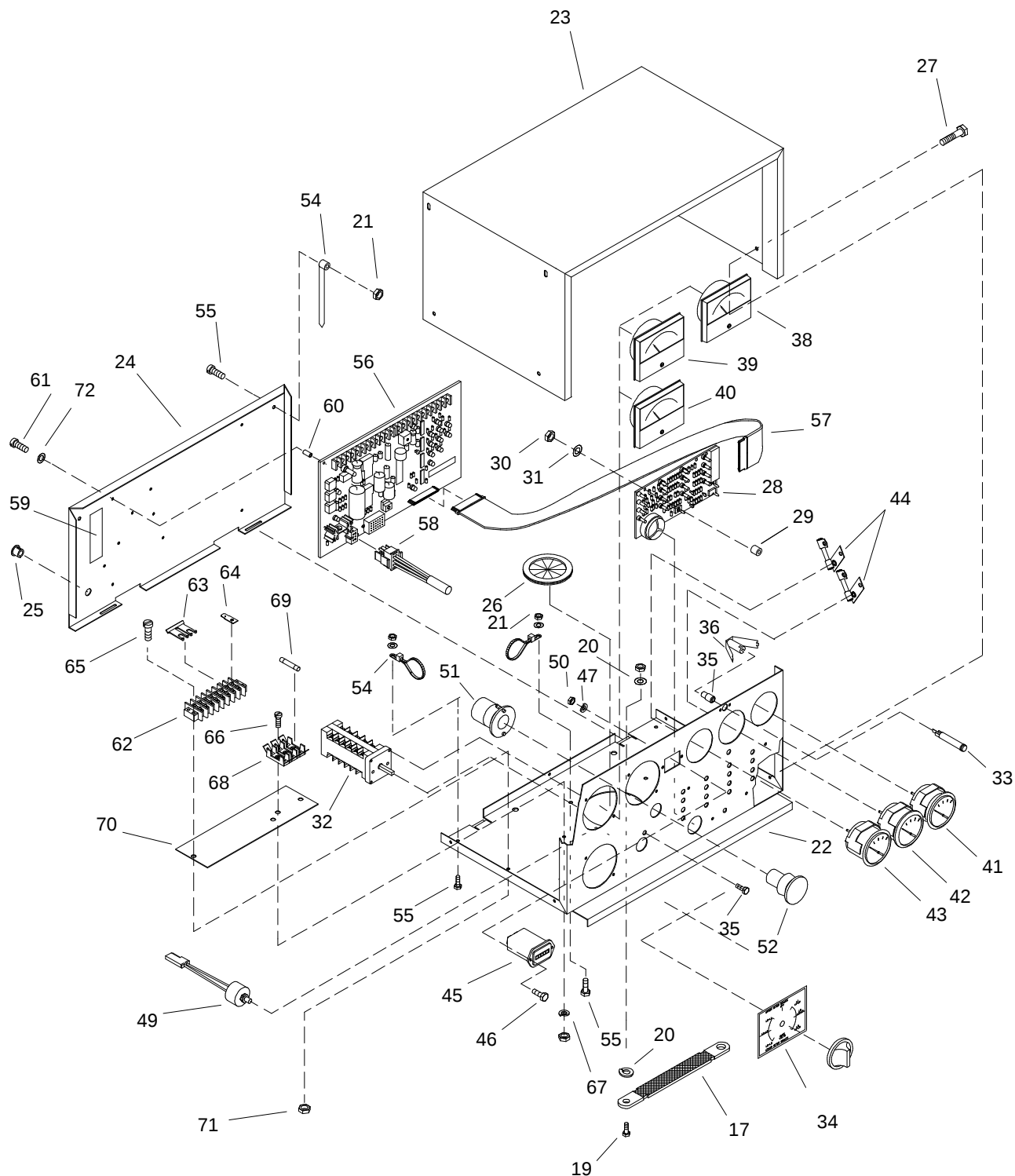
Item	Qty.	Description Variation	Part No.
40	1	Meter, frequency all	295069
41	1	DC Voltmeter all	255224
42	1	Gauge, water temperature all	282898
43	1	Gauge, oil pressure all	282897
44	2	Resistor, 24 Volt all	268297
45	1	Meter, hour all	238736
46	2	Screw, 6-32 x 1/2 all	X-49-39
	1	Washer 138	X-22-6
		Nut 138	X-71-2
47	2	Washer, int. tooth lock, 6 all	X-22-6
48	1	Decal, voltage adjustment (not shown) all	292361
49	1	Potentiometer Assembly all	A-255041
50	1	Nut, 6-32 all	X-71-2
51	1	Switch, emergency stop (see item 52) all	292364
52	1	Pushbutton, not sold apart from item 51 all	
53	1	Decal, emergency stop (not shown) all	292467
54	4	Tie, cable all	X-468-3
55	4	Screw, 10-24 x 3/4 all	X-50-3
56	1	Board assembly, circuit (main) all	See chart below
57	1	Controller Ribbon Cable all	See chart below

Serial Number-Contingent Controller Parts

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

Group 301: Controller and Mounting, Continued

200-300DS



Note 1: Item 17, ground strap, attaches to ground lug assembly (see 201 group).

Note 2: Resistors (item 44) mount on back of water temp. gauge and oil press. gauge (items 42 and 43).

301-70-1
D-272000
A-325008

Group 301: Controller and Mounting, Continued

Item	Qty.	Description Variation	Part No.
58	1	Connector, plug all	241617
59	1	Decal, fuse rating all	292347
60	9	Spacer, circuit board all	287948
61	18	Screw, 6-32 x 1/4 all	X-49-25
62	1	Block, terminal (8-terminal) all	246115
63	1	Jumper (2-terminal) all	X-6048-2
64	1	Terminal, push-on, 1/4 all	238898
65	2	Screw, 8-32 x 5/8 all	X-51-53
66	2	Screw, 6-32 x 3/8 all	X-49-2

Item	Qty.	Description Variation	Part No.
67	2	Washer, int. tooth lock, 6 all	X-22-6
	2	Nut, 6-32 138	#
68	1	Holder, fuse all	292821
69	3	Fuse, 1.5 amp. all	291207
70	1	Marker, terminal strip all	292823
71	2	Nut, 32-8 all	#
72	9	Washer, 6 all	#
73	12	Lens, red (not shown) all	253421
74	1	Lens, green (not shown) all	253242
75	3	Lens, yellow (not shown) all	255931

Group 701: Literature

Item	Qty.	Description Variation	Part No.
1	1	Installation Manual all	MP-5700
2	1	Operation Manual, generator set all	MP-5750
	1	Operation Manual, DDC engine all	TP-5611
3	1	Service Manual, generator all	MP-5353
		Service Manual, DDC 71 Series engine 33	TP-5391
		Service Manual, DDC 92 Series 34-36	TP-5382
4	1	Parts Catalog, 200-300DS all	MP-5354

Item	Qty.	Description Variation	Part No.
5	1	Parts Catalog, DDC Engine, 200 kW 33	TP-5677
		Parts Catalog, DDC Engine, 230 kW 34	TP-5635
		Parts Catalog, DDC Engine, 250 kW 35	TP-5636
		Parts Catalog, DDC Engine, 275/300 kW 36	TP-5637
6	1	Parts Catalog, accessories all	MP-5707
7	1	Wiring Diagrams all	MP-5721

Paint and Miscellaneous Parts

Generator Paint (Spray Can)	221331
Generator Paint (Gallon Can)	221332

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

6- or 7-Light

	325222	325230	350165	325230	325238
Standard meterbox		325222 *	325230 *		
	325234	325234	325234	325234	325234
Standard meterbox, 600V	325266 *	325266 *			
	325232	350166	350166	325232	325240
Oversized meterbox	325224 *	325224 *	325232 *		
	325236	325236	325236	325236	325244
Oversized meterbox, 600V	325228 *	325228 *			

16-Light

	325221	325221	350163	350163	350163
Standard meterbox	325211 *	325211 *	325221 *	325221 *	325229 *
	325223	325223 *			325223
Standard meterbox, 600V	325213 *	325213 *	325223	325223	325231 *
		325225	350164	350164	350164
Oversized meterbox	325215	325215 *	325225 *	325225 *	325233 *
	325227	325227			325227
Oversized meterbox, 600V	325217 *	325217 *	325227	325227	325235 *
Meterbox for switchgear, no controls or AC meter	325219 for all models				
Meterbox relocation kit	PAB-258849-SD for all models				

Digital Controller

Standard	350068	350069	350069	350069	350070
600V	350071	350072	350072	350072	350073

Cooling Systems, optional (Group 104)

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

Air Cleaners, optional (Group 101)

Heavy duty	354324	354351	354351	354354	354387
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Optional Accessories

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

* Obsolete kit
N/A Not applicable

6- and 7-Light Controller Kits

6- and 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS								
	Description	Common	Kit Number/Unique Parts					
			325232	325234	325236	325238	325240	325242
1	Controller assembly*		A-325123	A-325055	A-325124	A-325063	A-325122	A-325064
1	Controller assembly*		A-325830**	A-325796**	A-325831**	A-325804**	A-325839**	A-325805**
4	Screw, h.c. 10-24 x 5/8	X-117-5						
4	Washer, lock 5/16	X-22-16						
2	Washer, shakeproof	X-22-24						
2	Screw, r.h.m. 4-40 x 5/8	X-49-35						
1	Relay	272684						
1	Clamp, insulator	X-672-15						
1	Sensor, ferromagnetic	241623						
1	Harness, wiring	354119						
1	Bracket, sensor mounting	257070						
3	Transformer, current		273258	279273	279273	272678	272678	272690
1	Bracket, CT mounting	325382						

6- and 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
	Description	Common	Kit Number/Unique Parts					
			325222	325224	325226	325228	325229	325230
1	Controller assembly*		A-325052	A-325121	A-325053	A-325122	A-325735	A-325054
1	Controller assembly*		A-325793**	A-325828**	A-325794**	A-325829**		A-325795**
4	Screw, HC 10-24 x 5/8	X-117-5						
4	Washer, lock 5/16	X-22-16						
2	Washer, shakeproof	X-22-24						
2	Screw, r.h.m. 4-40 x 5/8	X-49-35						
1	Relay	272684						
1	Clamp, insulator	X-672-15						
1	Sensor, ferromagnetic	241623						
1	Harness, wiring	354119						
1	Bracket, sensor mounting	257070						
3	Transformer, current		272691	272691	279272	279272	272678	273258
1	Bracket, CT mounting	325382						

* See controller assembly section for parts list.

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

6- and 7-Light Controller Kits

6- and 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
			Kit Number/Unique Parts					
	Description	Common	325244	325266	350165	350166		
1	Controller assembly		A-325133					
1	Controller assembly		A-325840**	A-325059	A-350138	A-350140		
4	Screw, hex hd		X-117-5			X-117-5		
5	Screw, hex hd				X-117-5			
6	Screw, hex hd			X-794-2				
4	Washer, lock 5/16	X-22-16						
2	Washer, lock #4	X-22-24						
2	Screw, r.d.h.	X-49-35						
1	Clamp, insulator	X-672-15						
4	Screw, drill hex		X-794-1		X-794-1	X-794-1		
1	Sensor, ferromagnetic	241623						
1	Bracket, sensor mtg.	257070						
1	Relay	272684						
3	Transformer, current		272690	258990	343297	343297		
1	Harness, wiring		354119	258453	354119	354119		
1	Bracket, mounting	325382						
8	Washer, lock			X-22-20				
1	Grommet			X-284-25				
2	Screw, r.h.m.			X-51-11				
1	Marker, strip			255080				
1	Harness, wiring			274964				
2	Relay			272684				
1	Panel relay			274796				
4	Mount, vibro			282829				
1	Pickup, speed			291288				
1	Block, terminal			295314				
3	Transformer			258990				

* See Controller Assembly section for parts list.

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

6-Light Controller Assemblies

Qty.	Description	Common Parts	6-Light Controller Assembly Number/ Unique Parts			
			A-325052	A-325053	A-325054	A-325055
1	Potentiometer assembly	A-255041				
1	6-light circuit board	B-292381				
1	Main circuit board	G-292806				
1	Washer, shakeproof ET	X-22-20				
2	Washer, lock	X-22-50				
4	Washer, lock #6	X-22-6				
3	Washer, lock #8	X-22-7				
1	Grommet, 3 x 3 1/2	X-284-31				
1	Plug, button 7/16	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. 8-32 x 5/8	X-51-53				
2	Plug, cap	X-519-1				
1	Strap, ground	X-6046-2				
1	Jumper, 2-terminal	X-6048-2				
10	Screw, hex 10-24 x 1/2	X-6216-1				
2	Nut, hex	X-6234-6				
2	Nut, hex	X-67-127				
1	Sleeve	X-696-5				
4	Spacer	X-712-9				
1	Tab, ident	201620-86				
1	Meter, hour	238736				
1	Terminal, 1/4 push-on	238898				
1	Connector, plug 6-position	241617				
1	Block, 8-terminal	246115				
6	Lens, red	253241				
1	Voltmeter	255224				
2	Resistor, 24 volt	268297				
1	Voltmeter, AC		282814	282815	282814	282815
1	Gauge, oil pressure	282897				
1	Gauge, water temp.	282898				
2	Bulb	283420				
1	Ammeter, AC		295340	282955	282956	295340
2	Socket, lamp	284990				
9	Spacer, circuit board	287948				
3	Fuse, 1.5 amp	291207				
2	Lamp	291740				
1	Decal, fuse	292347				
1	Resistor		N/A	292352	N/A	292352
1	Decal, voltage adjustment	292361				
1	Switch, pushbutton	292364				
1	Switch, selector	292374				
1	Decal, emergency stop	292467				
1	Holder, fuse	292821				
1	Marker, strip	292823				
1	Bumper	292834				
1	Harness, cable	292836				
1	Plate, hinge	292908				
1	Meter, frequency	295069				
1	Cover, controller	325003				
1	Box, silkscreened	325072				
1	Box, controller	325074				

N/A Not Applicable

6-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts		
			A-325059	A-325063	A-325064
1	Potentiometer assembly	A-255041			
1	6-light circuit board	B-292381			
1	Main circuit board	G-292806			
1	Washer, shakeproof ET	X-22-20			
2	Washer, lock	X-22-50			
4	Washer, lock #6	X-22-6			
3	Washer, lock #8	X-22-7			
1	Grommet, 3 x 3 1/2	X-284-31			
1	Plug, button 7/16	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. 8-32 x 5/8	X-51-53			
2	Plug, cap	X-519-1			
1	Strap, ground	X-6046-2			
1	Jumper, 2-terminal	X-6048-2			
10	Screw, hex 10-24 x 1/2	X-6216-1			
2	Nut, hex	X-6234-6			
2	Nut, hex	X-67-127			
1	Sleeve	X-696-5			
4	Spacer	X-712-9			
1	Tab, ident	201620-86			
1	Meter, hour	238736			
1	Terminal, 1/4 push-on	238898			
1	Connector, plug 6 Position	241617			
1	Block, 8-terminal	246115			
6	Lens, red	253241			
1	Voltmeter	255224			
2	Resistor, 24 volt	268297			
1	Voltmeter, AC		282815	282814	282815
1	Gauge, oil pressure	282897			
1	Gauge, water temp.	282898			
2	Bulb	283420			
1	Ammeter, AC		282957	282957	282956
2	Socket, lamp	284990			
9	Spacer, circuit board	287948			
3	Fuse, 1.5 amp	291207			
2	Lamp	291740			
1	Decal, fuse	292347			
1	Resistor		292352	N/A	292352
1	Decal, voltage adjustment		N/A	292361	292361
1	Switch, pushbutton	292364			
1	Switch, selector	292374			
1	Decal, emergency stop	292467			
1	Holder, fuse	292821			
1	Marker, strip	292823			
1	Bumper	292834			
1	Harness, cable	292836			
1	Plate, hinge	292908			
1	Meter, frequency	295069			
1	Cover, controller	325003			
1	Box, silkscreened	325072			
1	Box, controller	325074			

N/A Not Applicable

6-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts					
			A-325121	A-325122	A-325123	A-325124	A-325132	A-325133
1	Potentiometer assembly	A-255041						
1	6-light circuit board	B-292381						
1	Main circuit board	G-292806						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
8	Washer	X-25-73						
8	Washer	X-468-3						
1	Grommet, 3 x 3 1/2	X-284-31						
1	Plug, button 7/16	X-301-34						
4	Tie, cable	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
4	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m. 8-32 x 5/8	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
10	Screw, hex 10-24 x 1/2	X-6216-1						
2	Nut, hex	X-6234-6						
2	Screw	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
1	Meter, hour	238736						
1	Tab, ident	201620-86						
1	Terminal, 1/4 push-on	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal 8- terminal	246115						
6	Lens, red	253241						
1	Voltmeter	255224						
4	Bumper	255443						
2	Resistor, 24 volt	268297						
1	Plate, hinge	273785						
3	Bulb	283420						
1	Voltmeter, AC		282814	282815	282814	282815	282814	282815
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
1	Ammeter, AC		295340	282955	282956	295340	282957	282956
3	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal, fuse	292347						
1	Resistor		N/A	292352	N/A	N/A	N/A	N/A
1	Decal, voltage adjustment	292361						
1	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Harness, cable	292836						
1	Meter, frequency	295069						
1	Cover, controller	325007						
1	Decal, selection	325072						
1	Box, controller	325076						

N/A Not Applicable

7-Light Controller Assemblies

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts					
			A-325793	A-325794	A-325795	A-325796	A-325804	A-325805
1	Potentiometer assembly	A-255041						
1	Indicator circuit board	A-336430						
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet, 3 x 3 1/2	X-284-31						
1	Washer, split lock 5/16	X-21-1						
1	Plug, button 7/16	X-301-34						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
5	Tie, Cable	X-468-3						
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. 8-32 x 5/8	X-51-53						
2	Plug, cap	X-519-1						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
10	Screw, hex 10-24 x 1/2	X-6216-1						
2	Nut, hex	X-6234-6						
1	Switch, pushbutton	292364						
2	Screw	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
1	Tab, ident	201620-86						
1	Meter, hour	238736						
1	Terminal, 1/4 push-on	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal 8-terminal	246115						
6	Lens, red	253241						
2	Lamp, neon 120V	253332						
1	Voltmeter	255224						
2	Resistor, 24 volt	268297						
1	Voltmeter, AC		282814	282815	282814	282815	282814	282815
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
1	Ammeter, AC		295340	282955	282956	295340	282957	282956
2	Bulb	283420						
2	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal, fuse	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal, voltage adjustment	292361						
1	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Plate, hinge	292908						
1	Meter, frequency	295069						
1	Cover, controller	325003						
1	Decal, selector switch	325072						
1	Box, controller	325945						
1	Harness, cable	336428						

N/A Not Applicable

7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts					
			A-325828	A-325829	A-325830	A-325831	A-325839	A-325840
1	Potentiometer assembly	A-255041						
1	Indicator circuit board	A-336430						
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
8	Washer	X-25-73						
1	Grommet, 3 x 3 1/2	X-284-31						
1	Plug, button 7/16	X-301-34						
4	Tie, Cable	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
4	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m. 8-32 x 5/8	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
10	Screw, hex 10-24 x 1/2	X-6216-1						
2	Nut, hex	X-6234-6						
2	Screw	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
4	Tab, ident	201620-86						
1	Meter, hour	238736						
1	Terminal, 1/4 push-on	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal 8- terminal	246115						
6	Lens, red	253241						
1	Voltmeter	255224						
4	Bumper	255443						
2	Resistor, 24 volt	268297						
1	Plate, hinge	273785						
1	Voltmeter, AC		282814	282815	282814	282815	282814	282815
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
3	Bulb	283420						
3	Socket, lamp	284990						
9	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal, fuse	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal, voltage adjustment	292361						
1	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Meter, frequency	295069						
1	Ammeter, AC		295340	282955	282956	295340	282957	282956
1	Cover, controller	325007						
1	Decal, selector switch	325072						
1	Box, controller	325943						
1	Harness, cable	336428						

N/A Not Applicable

7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts					
			A-325735	A-350138	A-350140			
1	Potentiometer assembly	A-255041						
1	Indicator circuit board		A-336432	A-336430	A-336430			
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
8	Washer, plain		N/A	N/A	X-25-73			
1	Grommet 3 x 3 1/2	X-284-31						
1	Plug, button 7/16	X-301-34						
#	Tie, cable	X-468-3	(5)	(5)	(4)			
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						
#	Screw, r.h.m. 10-24 x 3/4	X-50-3	(5)	(5)	(4)			
1	Screw, pan head machine	X-50-70						
#	Screw, r.h.m. 8-32 x 5/8	X-51-53	(2)	(3)	(2)			
2	Plug, cap		X-519-1	X-519-1	N/A			
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
#	Screw, hex 10-24 x 1/2	X-6216-1	(10)	(10)	(12)			
2	Nut, hex	X-6234-6						
2	Screw	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
1	Tab, ident	201620-86						
1	Meter, hour	238736						
1	Terminal, 1/4 push-on	238898						
1	Connector, plug 6-Position	241617						
1	Block, terminal 8-terminal	246115						
#	Lens, red	253241	(12)	(7)	(7)			
1	Voltmeter	255224						
1	Lens, green		253242	N/A	N/A			
3	Lens, yellow		255931	N/A	N/A			
4	Bumper		N/A	N/A	255443			
2	Resistor, 24 volt	268297						
1	Voltmeter, AC	282814						
1	Gauge, oil pressure	282897						
1	Gauge, water temp.	282898						
#	Bulb	283420	(2)	(2)	(3)			
#	Socket, lamp	284990	(2)	(2)	(3)			
#	Spacer, circuit board	287948	(9)	(9)	(8)			
3	Fuse, 1.5 Amp	291207						
2	Lamp	291740						
1	Decal, fuse	292347						
1	Resistor		N/A	N/A	N/A			
1	Decal, voltage adjustment	292361						
1	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
#	Bumper	292834	(4)	(1)	(1)			
1	Plate, hinge		292908	292908	273785			
1	Meter, frequency	295069						
1	Ammeter, AC		282957	343299	343299			
1	Cover, controller		325003	325003	325007			
1	Decal, selector switch	325072						
1	Harness, cable	336428						
1	Box, controller		350174	325945	325943			

N/A Not Applicable

16-Light Controller Kits

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS								
	Description	Common	Kit Number/Unique Parts					
			325211	325213	325215	325217	325221	325223
1	Controller assembly*		A-325020	A-325021	A-325089	A-325090	A-325022	A-325023
1	Controller assembly*		A-325724**	A-325725**	A-325758**	A-325759**	A-325726**	A-325727**
4	Screw, HC 10-24 x 5/8	X-117-5						
4	Washer, lock 5/16	X-22-16						
2	Washer, shakeproof	X-22-24						
2	Screw, r.h.m. 4-40 x 5/8	X-49-35						
1	Relay	272684						
1	Clamp, insulator	X-672-15						
1	Sensor, ferromagnetic	241623						
1	Harness, wiring	354119						
1	Bracket, sensor mounting	257070						
3	Transformer, current		272691	279272	272691	279272	273258	279273
1	Bracket, CT mounting	325382						

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
	Description	Common	Kit Number/Unique Parts					
			325225	325227	325229	325231	325233	325235
1	Controller assembly*		A-325091	A-325092	A-325031	A-325032	A-325100	A-325101
1	Controller assembly*		A-325760**	A-325761**	A-325735**	A-325736**	A-325769**	A-325770**
4	Screw, HC 10-24 x 5/8	X-117-5						
4	Washer, lock 5/16	X-22-16						
2	Washer, shakeproof	X-22-24						
2	Screw, r.h.m. 4-40 x 5/8	X-49-35						
1	Relay	272684						
1	Clamp, insulator	X-672-15						
1	Sensor, ferromagnetic	241623						
1	Harness, wiring	354119						
1	Bracket, sensor mounting	257070						
3	Transformer, current		273258	279273	272678	272690	272678	272690
1	Bracket, CT mounting	325382						

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED								
Qty.	Description	Common	Kit Numbers/Unique Parts					
			325221	325223	325225	325227	350163	350164
1	Controller assembly		A-325726	A-325727	A-325760	A-325761	A-350137	A-350139
3	Screw, 10-24		X-117-5					
4	Screw, 10-24			X-117-5	X-117-5	X-117-5	X-117-5	X-117-5
4	Screw, 10-24			X-117-5	X-117-5	X-117-5	X-117-5	X-117-5
4	Washer, lock	X-22-16						
2	Washer, lock	X-22-24						
2	Washer, lock		X-22-9	X-22-9				
2	Screw, r.d.h. sltd	X-49-35						
1	Clamp, insulator	X-672-15						
4	Screw, drill hex.	X-794-1						
1	Sensor, ferromagnetic	241623						
1	Bracket, sensor mounting	257070						
1	Relay	272684						
3	Transformer, current		273258	279273	273258	279273	343297	
1	Bracket, mounting	325382						
1	Harness, wiring	354119						

* See Controller Assembly section for parts list.

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

16-Light Controller Assemblies

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-325020	A-325021	A-325022	A-325023	A-325031	A-325032
1	Potentiometer assembly	A-255041						
1	16-light circuit board	B-292357						
1	Main circuit board	G-292806						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet 3 x 3 1/2	X-284-31						
1	Switch, pushbutton	292364						
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. 8-32 x 5/8	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
10	Screw, Phillips 10-24 x 1/2	X-6216-1						
2	Nut, hex.	X-6234-6						
2	Screw, thread forming	X-67-127						
1	Sleeve	X-696-5						
4	Spacer	X-712-9						
2	Bulb	283420						
1	Meter, hour	238736						
1	Terminal, 1/4 push-on	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
12	Lens, red	253241						
1	Voltmeter	253329						
2	Lamp, meter scale	253332						
2	Lamp, neon 120V	253332						
1	Plate, hinge	292908						
1	Voltmeter, AC		282814	282815	282814	282815	282814	282815
1	Gauge, oil pressure	282897						
1	Gauge, water temperature	282898						
1	Ammeter, AC		295340	282955	282956	295340	282950	282957
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	N/A	292352
1	Decal, voltage adjustment	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	N/A	N/A	325072	N/A	N/A
1	Box, silkscreened controller	325073						
1	Lens, green	253242						
3	Lens, yellow	255931						

N/A Not Applicable

16-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-325089	A-325090	A-325091	A-325092	A-325100	A-325101
1	Potentiometer assembly	A-255041						
1	16-light circuit board	B-292357						
1	Main circuit board	G-292806						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet 3 x 3 1/2	X-284-31						
1	Switch, pushbutton	292364						
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. 8-32 x 5/8	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
10	Screw, Phillips 10-24 x 1/2	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						
3	Bulb	283420						
1	Meter, hour	238736						
1	Terminal, 1/4 push-on	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
12	Lens, red	253241						
1	Voltmeter	253329						
2	Lamp, meter scale	253332						
2	Lamp, neon 120V	253332						
1	Plate, hinge	273785						
1	Voltmeter, AC		282814	282815	282814	282815	282814	282815
1	Gauge, oil pressure	282897						
1	Gauge, water temperature	282898						
1	Ammeter, AC		295340	282955	282956	295340	282957	282956
3	Socket, lamp	284990						
8	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	N/A
1	Decal, voltage adjustment	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	N/A	N/A	325072	N/A	N/A
1	Box, silkscreened controller	325075						
1	Lens, green	253242						
3	Lens, yellow	255931						

N/A Not Applicable

16-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-325724	A-325725	A-325726	A-325727	A-325735	A-325736
1	Potentiometer assembly	A-255041						
1	Indicator circuit board	A-336432						
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
1	Grommet 3 x 3 1/2	X-284-31						
1	Plug, button		X-301-29	X-301-29	N/A	N/A	N/A	N/A
1	Plug, button	X-301-34						
5	Tie, cable	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
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. 8-32 x 5/8	X-51-53						
2	Plug, cap	X-519-1						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
10	Screw, Phillips 10-24 x 1/2	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	Voltmeter	225224						
1	Meter, hour	238736						
1	Terminal, 1/4 push-on	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
12	Lens, red	253241						
1	Lens, green	253242						
3	Lens, yellow	255931						
3	Lens, yellow	255931						
2	Resistor	268297						
1	Voltmeter, AC		282814	282815	282814	282815	282814	282815
1	Gauge, oil pressure	282897						
1	Gauge, water temperature	282898						
1	Ammeter, AC		295340	282955	282956	295340	282957	282956
2	Bulb	283420						
2	Socket, lamp	284990						
8	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal, voltage adjustment	292361						
1	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Plate, hinge	292908						
1	Meter, frequency	295069						
1	Cover, controller	325003						
1	Decal, selector switch	325072						
1	Box, silkscreened controller	350173						
1	Harness, cable	336428						

N/A Not Applicable

16-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-325758	A-325759	A-325760	A-325761	A-325769	A-325770
1	Potentiometer assembly	A-255041						
1	Indicator circuit board	A-336432						
1	Main circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
8	Washer, plain	X-25-73						
1	Grommet, 3 x 3 1/2	X-284-31						
1	Plug, button	X-301-34						
4	Tie, cable	X-468-3						
2	Screw, r.h.m. 6-32 x 3/8	X-49-2						
18	Screw, r.h.m. 6-32 x 1/4	X-49-25						
2	Screw, pan head	X-49-39						
5	Screw, r.h.m. 10-24 x 3/4	X-50-3						
1	Screw, pan head machine	X-50-70						
2	Screw, r.h.m. 8-32 x 5/8	X-51-53						
1	Strap, ground	X-6046-2						
1	Jumper, 2-terminal	X-6048-2						
10	Screw, Phillips 10-24 x 1/2	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	Meter, hour	238736						
1	Terminal 1/4 push-on	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
12	Lens, red	253241						
1	Lens, green	253242						
1	Voltmeter	255224						
4	Bumper	235443						
3	Lens, yellow	255931						
2	Resistor	268297						
1	Plate, hinge	273785						
1	Voltmeter, AC		282814	282815	282814	282815	282814	282815
1	Gauge, oil pressure	282897						
1	Gauge, water temperature	282898						
3	Bulb	283420						
3	Socket, lamp	284990						
8	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal	292347						
1	Resistor		N/A	292352	N/A	292352	N/A	292352
1	Decal, voltage adjustment	292361						
2	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Ammeter, AC		295340	282955	282956	295340	282957	282956
1	Meter, frequency	295069						
1	Cover, controller	325007						
1	Decal, selector switch	325072						
1	Harness, cable	336428						
1	Box, silkscreened controller	350175						

N/A Not Applicable

16-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts					
			A-350137	A-350139				
1	Potentiometer assembly	A-255041						
1	Indicator circuit board	A-336432						
1	Main Circuit board	A-336415						
1	Washer, shakeproof ET	X-22-20						
2	Washer, lock	X-22-50						
4	Washer, lock #6	X-22-6						
3	Washer, lock #8	X-22-7						
8	Washer, plain		N/A	X-25-73				
1	Grommet, 3 x 3 1/2	X-284-31						
1	Plug, button	X-301-34						
#	Tie, cable	X-468-3	(5)	(4)				
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. 8-32 x 5/8	X-51-53						
2	Plug, cap		X-519-1	N/A				
1	Strap, ground	X-6046-2						
1	Jumper, 2- terminal	X-6048-2						
10	Screw, Phillips 10-24 x 1/2	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, 1/4 push-on	238898						
1	Connector, plug 6-position	241617						
1	Block, terminal	246115						
12	Lens, red	253241						
1	Lens, green	253242						
1	Voltmeter	255224						
4	Bumper		N/A	235443				
3	Lens, yellow	255931						
2	Resistor	268297						
1	Plate, hinge		292908	273785				
1	Voltmeter, AC	282814						
1	Gauge, oil pressure	282897						
1	Gauge, water temperature	282898						
3	Bulb	283420						
3	Socket, lamp	284990						
8	Spacer, circuit board	287948						
3	Fuse, 1.5 amp	291207						
2	Lamp	291740						
1	Decal	292347						
1	Decal, voltage adjustment	292361						
2	Switch, pushbutton	292364						
1	Switch, selector	292374						
1	Decal, emergency stop	292467						
1	Holder, fuse	292821						
1	Marker, strip	292823						
1	Bumper	292834						
1	Ammeter, AC	343299						
1	Meter, frequency	295069						
1	Cover, controller		325003	325007				
1	Decal, selector switch	325072						
1	Harness, cable	336428						
1	Box, silkscreened controller		350174	350175				

N/A Not Applicable

See quantity under controller

Digital Controller

Qty.	Description	Common Parts	Digital Controller Kit Number/Unique Parts					
			350068	350069	350070	350071	350072	350073
1	Controller Assembly	A-350124						
4	Screw, hex 10-24X5/	X-117-5						
4	Washer, lock	X-22-16						
2	Washer, lock	X-22-24						
2	Screw, rdh sltd	X-49-35						
1	Clamp, insulator	X-672-15						
4	Screw, drill	X-794-1						
1	Sensor, ferromagnetic	241623						
1	Bracket, sensor mounting	257070						
1	Relay	272684						
3	Transformer, current		272690	273258	272678	279272	279273	272690
1	Bracket, CT mounting	325382						
1	Harness, wiring	354119						

Digital Controller Assembly		
Qty.	Description	A-350124
1	Potentiometer, voltage adjustment	A-328774
1	Knob, potentiometer	X-6136-39
1	Switch, emergency stop	292364
1	Switch, selector	347969
3	Fuse, 1.5A 250V	291207
2	Lamp, Panel	283420
4	Bumper	292834
1	Holder, fuse	292821

Controller Kits

Qty.	Description	Kit/Part No.
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Meterbox for Switchgear Kit		325219
2	Screw, 5/16-18 x 5/8	X-117-5
4	Washer, int./ext. tooth lock, 5/16	X-22-16
2	Screw, 8-32 x 3/4	X-51-11
2	Relay	272684
1	Switch assembly, limit	263438
1	Controller assembly (includes the following items)	A-325346
1	Potentiometer assembly	A-25141
2	Washer, int./ext. tooth lock, 10	X-22-13
14	Washer, int. tooth lock, 6	X-22-6
1	Grommet, 3 x 3 1/2	X-284-31
1	Tie, cable	X-468-
12	Screw, pan head, 6-32 x 9/32	X-49-15
2	Screw, pan head, 6-32 x 1/2	X-49-39
2	Screw, pan head, 10-24 x 3/4	X-50-3
1	Screw, pan head, 10-24 x 1	X-50-7
1	Strap, ground	X-6046-2
1	Switch, speed	X-6122-1
9	Screw, 10-24 x 1/2	X-6216-1
1	Sleeving	X-695-5
4	Screw, slotted round head, 1/4-20 x 1/2	X-73-1
1	Meter, hour	238736
1	Voltmeter	255224
1	Box, controller	263153
1	Panel	263154
2	Resistor, 24 Volt	268297
1	Harness, wiring (24-pin)	273764
6	Strip, marker	273781
1	Harness, wiring (black, red, white, green)	273983
1	Harness, wiring (red, black, shielded)	273984
1	Gauge, oil pressure	282897
1	Gauge, water temperature	282898
6	Strip, terminal (9-terminal)	283060
2	Bulb, No. 313	283420
2	Socket, lamp	283990
1	Switch, pushbutton	292364
1	Decal, emergency stop	292467
1	Cover, controller	292818
4	Bumper	292834

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

Cooling System Kits

Qty.	Description	Kit/Part No.
Cooling, City Water-cooled 274749		
1	Elbow, street, 1 1/2 NPT	A-27
1	Elbow, 90° 3/4 NPT	SA-472
1	Bushing, reducer, 3/4 F x 1 M	X-202-1
1	Bushing, reducer, 1 F x 1 1/2 M	X-202-11
3	Bushing, reducer, 1/4 F x 1/2 M	X-202-12
1	Bushing, reducer, 2 F x 3 M	X-202-21
1	Bushing, reducer, 3/8 F x 1/2 M	X-202-28
1	Bushing	X-202-40
1	Bushing, reducer	X-202-44
1	Nipple, 3/4 NPT x 2 In.	X-206-2
1	Nipple, pipe	X-206-4
1	Nipple, pipe	X-206-9
1	Cross, pipe	X-207-7
1	Nipple	X-209-2
1	Elbow, street, 2 NPTF	X-211-4
1	Elbow, pipe, 3/4"	X-215-2
1	Elbow, pipe, 1/4"	X-215-5
2	Pipe	X-220-14
14	Washer, plain, 7/16 x 1 x 5/64	X-25-1
1	Valve, drain, 1/4 NPT	X-256-3
2	Hose, 2 1/4 x 3"	X-281-8
1	Valve, solenoi.d.	X-350-9
1	Hose, rubber	X-356-18
1	Line, fuel	X-386-94
4	Clamp, hose	X-426-10
2	Clamp, hose, 1 1/2"	X-426-15
8	Clamp, hose, 1 7/8"	X-426-2
2	Clamp, hose, 5/8"	X-426-9
2	Tie, cable	X-468-5
4	Adapter, hose, 2 1/4 i.d. x 2 NPT	X-570-9
1	Connector, hose	X-582-16
1	Connector, hose	X-582-9
1	Conduit, convoluted	X-6003-8
1	Hose 2 1/4" x 28"	X-613-7
1	Hose, rubber	X-651-27
1	Hose, rubber 3/8 x 18"	X-651-3
1	Hose	X-651-33
2	Fitting, hose	X-652-1
3	Clamp, insulated	X-672-7
6	Screw, drill, 1/4-14 x 3/4	X-794-1
1	Sensor, low fluid	254832
1	Cap, pressure	258037
1	Tube, lower water inlet	272852
4	Screw, 5/8-11 x 2	273049
1	Switch assembly, level	273469
1	Regulator, water	274742
1	Support, heat exchanger	274744
2	Bracket, tank	274745
1	Tank, surge	274746
2	Bracket, support	274892
1	Guard, belt (r.h.)	274968
1	Guard, belt (l.h.)	274969
1	Guard, belt (Front)	274970
2	Clamp, hose	279604
1	Hose, upper	279605
1	Bracket, support	279742
1	Exchanger, heat	286143
1	Clamp, exhaust	289372
1	Tee, pipe	299832
Cooling, City Water-Cooled 274774		
1	Elbow, street, 1 1/2 NPT	A-27
1	Elbow, 90°, 3/4 NPT	SA-472
1	Bushing, reducer, 3/4 F x 1 M	X-202-1
1	Bushing, reducer, 1 F x 1 1/2 M	X-202-11
4	Bushing, reducer, 1/4 F x 1/2 M	X-202-12
1	Bushing, reducer, 2-1/2 F x 3 M	X-202-16
2	Bushing, reducer, 2 F x 3 M	X-202-21
1	Bushing, reducer, 3/8 F x 1/2 M	X-202-28
1	Bushing, reducer, 1 F x 1 1/4 M	X-202-32
1	Bushing, reducer	X-202-44

1	Tee, pipe, 1 NPT	X-203-4
2	Nipple, 3/8 NPT x 3"	X-204-7
1	Nipple, 3/4 NPT x 2"	X-206-2
2	Elbow, street, 2 NPTf	X-211-4
2	Elbow, 3/8 NPT	X-215-9
1	Nipple, 1 NPT x 3"	X-218-22
1	Elbow, 45°, 1"	X-225-9
1	Nipple, 1 NPT x 2 1/2"	X-229-1
2	Valve, drain, 3/8 NPT	X-256-1
1	Valve, solenoi.d.	X-350-9
1	Line, fuel, 5/16 i.d. x 76"	X-386-96
6	Connector, hose	X-391-16
2	Bolt, U	X-397-9
8	Clamp, hose	X-426-10
1	Pipe, iron	X-491-7
2	Adapter, hose, 2 1/2 i.d. x 2 NPT	X-570-9
2	Connector, hose	X-582-9
1	Conduit, convoluted	X-6003-8
1	Hose, 3 i.d. x 32 1/2"	X-6014-54
1	Hose, radiator, 1 1/4 i.d. x 54"	X-6014-57
2	Hose, radiator	X-6014-61
2	Nipple, combination	X-6268-4
1	Hose, rubber, 3/8 x 34"	X-651-15
1	Hose	X-651-28
1	Hose, rubber, 3/8 x 18"	X-651-3
1	Hose, rubber, 3/8 x 30"	X-651-5
1	Clamp	X-672-10
5	Clamp, insulated	X-672-7
12	Screw, drill hex	X-794-1
1	Elbow	151385
1	Nipple, pipe 1 1/2 x 21/2	151803
2	Bushing, reducer	160212
1	Sensor, low fluid	254832
1	Cap, pressure	258037
1	Hose, radiator	272620
1	Adapter, hose	272930
1	Regulator, water	274743
2	Bracket, tank	274745
1	Tank, surge	274746
1	Guard, belt (front)	274769
1	Guard, belt top	274770
1	Guard, belt (l.h.)	274771
1	Guard, belt (r.h.)	274772
1	Support, heat exchanger	274773
1	Exchanger, heat	274777
2	Br acket, support	274892
2	Gasket, thermostat housing	274982
1	Bracket, mounting	279668
2	Clamp, hose	279669
4	Clamp, hose (Band), 3 1/2"	291542
1	Tee, pipe (adapter)	299832
1	Clamp, hose	324330
4	Clamp, hose	328800
1	Adapter, hose	328892

Cooling System Kits, continued

Qty.	Description	Kit/Part No.
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Cooling, Radiator		274804
1	Radiator assembly	A-279619
1	Elbow	Sa-472
6	Screw, hex cap	X-125-37
1	Bushing, reducer, 3/4 F x 1 M	X-202-1
1	Bushing, reducer, 3/8 F x 2 M	X-202-28
1	Nipple, pipe, 3/4 Npt x 2"	X-206-2
1	Elbow, 45°, 1"	X-225-9
1	Valve, drain, 3/8 Npt	X-256-1
2	Clamp, hose, 2 17/32"	X-426-1
4	Clamp, hose, 5/8"	X-426-9
1	Tie, cable	X-468-4
1	Conduit, convoluted	X-6003-8
1	Hose, radiator	X-6014-30
2	Hose, radiator	X-6014-48
1	Hose	X-651-33
2	Fitting, hose	X-652-1
2	Clamp, insulated	X-672-7
6	Washer, hardened	X-801-4
4	Washer, hardened	X-801-9
1	Sensor, low fluid	254832
1	Guard, belt	272717
1	Guard, belt (L.H.)	272740
1	Guard, Belt (R.H.)	272741
1	Adapter, hose	272930
1	Fan	279620
1	Hose, radiator	279621
2	Clamp, hose	279669
2	Bracket, radiator support	299880
2	Bracket, radiator support	299881
2	Brace, radiator	299889
4	Clamp, hose	328800

Cooling, Radiator		274739
See Group 104, Variation 5 For Parts List		

Cooling, Radiator		274750
See Group 104, Variation 15 For Parts List		

Cooling, Radiator		274752
See Group 104, Variation 2 For Parts List		

Cooling, Radiator		328719
See group 104, variation 32 For Parts List		

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

Cooling System Kits, continued

Qty.	Description	Kit/Part No.
Cooling, Radiator 274804		
1	Radiator assembly	A-279619
1	Elbow	SA-472
6	Screw, hex cap	X-125-37
1	Bushing, reducer 3/4 x 1	X-202-1
2	Bushing, reducer 3/8	X-202-28
1	Nipple, pipe 3/4 x 2	X-206-2
1	Elbow, 45° 1 in.	X-225-9
1	Valve, drain 3/8	X-256-1
2	Clamp, hose 2-17/32	X-426-1
2	Clamp, hose	X-426-9
1	Tie, cable	X-468-4
1	Conduit, convoluted	X-6003-8
1	Hose, radiator	X-6014-30
2	Hose, radiator	X-6014-48
1	Hose	X-651-33
2	Fitting, hose	X-652-1
2	Clamp, insulated	X-672-7
6	Washer, hardened	X-801-4
4	Washer, hardened	X-801-9
1	Sensor, low fluid	254832
1	Guard, belt	272717
1	Guard, belt	272740
1	Guard, belt	272741
1	Adapter, hose	272930
1	Fan	279620
1	Hose, rad terminal	279621
2	Clamp, hose	279669
2	Bracket, radiator supp	299880
2	Bracket, radiator supp	299881
2	Brace, radiator	299889
4	Clamp, hose	328800
Cooling, Radiator 328720		
1	Radiator assembly	A-328711
1	Elbow, 90° 3/4 NPT	SA-472
6	Screw, hex cap	X-125-37
1	Bushing, reducer, 3/8 F x 1/2 M	X-202-28
1	Valve, drain, 3/8 NPT	X-256-1
1	Hose	X-356-34
2	Clamp, hose, 2 17/32"	X-426-1
2	Clamp, hose	X-426-2
2	Clamp, hose, 1 15/16"	X-426-8
2	Clamp, hose, 5/8"	X-426-9
1	Tie, cable	X-468-4
2	Connector, hose	X-582-16
1	Conduit, convoluted	X-6003-8
1	Hose, rubber, 3/8 x 30"	X-651-5
2	Fitting, hose,	X-652-1
6	Washer, hardened, 21/64 x 23/32 x 1/8	X-801-4
4	Washer, hardened	X-801-9
1	Sensor, low fluid	254832
1	Guard, belt	272717
1	Guard, belt (l.h.)	272740
1	Guard, belt (r.h.)	272741
1	Fan	299963
1	Brace, radiator	328384
1	Hose, lower radiator	328387
1	Guard, wire fan	328592
1	Guard, radiator	328593
2	Support, radiator	328594
1	Shroud, fan	328595
1	Hose, upper radiator	328889
1	Hose, upper radiator	328890
2	Spacer, radiator	347449
1	Bracket, radiator	347708

Qty.	Description	Kit/Part No.
Cooling, Remote Radiator 274775		
1	Bushing, reducer, 1/4 F	X-202-12
1	Valve, drain, 1/4	X-256-3
2	Clamp, hose, 2 17/32	X-426-1
2	Hose, 2 1/2 i.d. x 28"	X-613-7
12	Screw, drill, 1/4-14 x 3/4	X-794-1
1	Adapter, hose	272930
1	Guard, belt (front)	274769
1	Guard, belt (top)	274770
1	Guard, belt (l.h.)	274771
1	Guard, belt (r.h.)	274772
1	Hose, lower radiator	328387
4	Clamp, hose	328800
Cooling, Remote Radiator 274748		
2	Bushing, reducer	X-202-12
1	Cross, pipe, 1/2	X-207-7
1	Nipple, 1/2 x 1 3/16	X-209-2
8	Washer, plain	X-25-1
1	Hose, 2 1/4 i.d. x 5"	X-281-1
1	Hose, 2 1/4 i.d. x 3"	X-281-8
6	Clamp, hose, 1 7/8	X-426-2
8	Clamp, hose	X-426-10
1	Hose, rubber, 3/8 x 6"	X-651-22
9	Fitting, hose	X-652-1
8	Screw, drill, 1/4-14 x 3/4	X-794-1
1	Hose, upper radiator	274514
1	Guard, belt (r.h.)	274968
1	Guard, belt (l.h.)	274969
1	Guard, belt (Front)	274970
2	Connector, hose	299910

Cooling System Kits, continued

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

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

Cooling System Kits, continued

Qty.	Description	Kit/Part No.
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Heater, Block

279923

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

Qty.	Description	Kit/Part No.
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Heater, Block

279924

4	Nut, elastic stop	X-101-8
8	Washer, shakeproof	X-22-12
1	Elbow	X-274-2
2	Clamp, hose	X-426-1
4	Clamp, hose	X-426-12
2	Connector, hose	X-582-8
1	Hose	X-691-21
1	Hose, 3/4 i.d. x 39"	X-691-26
2	Screw, drill hex.	X-794-1
1	Bushing, reducer	153659
1	Strap, ground	223033
4	Bumper	259632
1	Holder, in-line fuse	269216
1	Bracket, block heater	274431
1	Tag, hang	279047
1	Tag, instruction	279280
1	Thermostat	279813
1	Heater, block	279814
1	Connector, hose	279857
1	Bracket	279944
1	Fuse	292937
1	Box, block heater	354315
1	Cover, block heater cont	354317
1	Gasket, control box	354318
1	Decal, warning	354325
1	Label, wiring diagram	354327

Heater, Block

279925

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

Air Cleaner Kits, Heavy Duty

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

354324

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

Air Cleaner, Heavy Duty

354351

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

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

354354

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

Air Cleaner, Heavy Duty

354387

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

Appendix A. Glossary of Abbreviations

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

AC	alternating current	gph	gallons per hour	N.C.	normally closed
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		

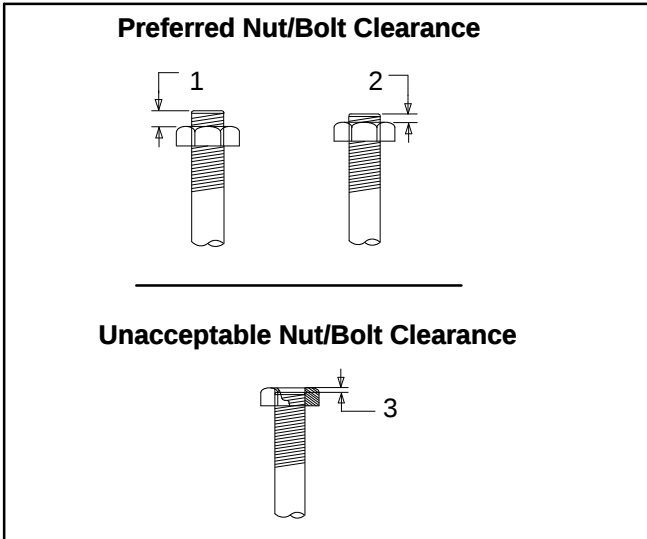
Appendix B. Common Hardware Application Guidelines

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 NO TAG as a guide. As a general rule, a minimum length of one thread beyond the nut and a maximum length of 1/2 the bolt/screw diameter beyond the nut is the preferred method.

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

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



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

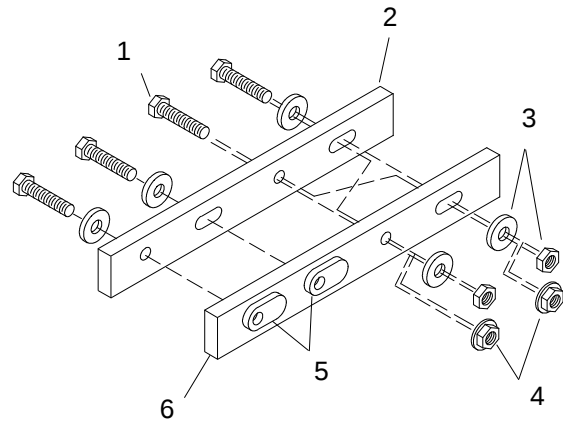
Figure 2. Acceptable Bolt Lengths

Steps for common hardware application:

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

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

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



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

Figure 3. Acceptable Hardware Combinations

Appendix C. General Torque Specifications

SAE Fasteners

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

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

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

Metric Fasteners

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

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

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

Appendix D. Common Hardware Identification

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

SPECTRUM[®]

DETROIT DIESEL



SPECTRUM, N7650 County Trunk LS, Sheboygan, Wisconsin 53083 U.S.A.
Phone 920-459-1877
Fax 920-459-1825 (U.S.A. Sales), Fax 920-459-1614 (International)

MP-5354 10/97

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