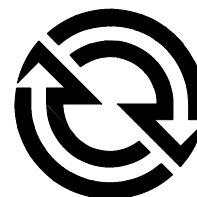


Service Parts

SPECTRUM[®]

DETROIT DIESEL



Generator Sets

Models:

20-180DS

See Group 701, Literature
for engine and accessory
Parts Catalog



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Introduction

This manual contains a complete listing of generator service replacement parts for Spectrum® 20-180DS generator sets. The manual includes the following main sections:

- *Table of Contents:* Lists the sections of this catalog.
- *Index:* Indexes specifications and their groups.
- *Introduction (and other information sections):* Contains introductory material, followed by sections on specification numbers, part numbers, and hardware.
- *Group Parts Lists:* Lists specific parts for the groups. Illustrations are given for most parts.
- *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 use 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 related parts needed to provide one or more related functions. For example, the 101 group is the generator Air Intake group.
- *Variation Number:* A group might have several variations. The variations provide the same function, with minor differences. For example, dry air cleaner or oil bath air cleaner both perform the same function. However, they use 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.

Exploded View Drawings

● *Exploded view drawings:* One or more drawings which best represent a range of variations accompanies each Group Parts List in this catalog. The drawings are a guide to part identification—they are not intended for assembly, disassembly, or maintenance. **Generator Service and other manuals are the proper guides for assembly and maintenance.**

Some parts are drawn out of proportion to display distinguishing characteristics. Some common parts are not drawn in detail. For example, the image of a hex cap screw represents a range of screws. Use the text description and part number to completely identify a part.

How to Find Part Numbers

FOLLOW THESE STEPS to identify a part:

STEP 1: Turn to the Specification Number Index in the front of the catalog. There is a table of spec numbers (grouped by model and listed vertically on the left) and the variations that comprise the groups of each spec number (listed horizontally). Locate a spec number and read

across the page to see the variation numbers for the groups (identified by column headings).

STEP 2: Using the page number in the Table of Contents, turn to the group parts list in which the desired part belongs. Use the drawings and itemized text to locate the part and its part number.

Hardware Grades

When replacing hardware do not substitute with 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 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, item 2 (nut) in Figure 1 below would appear as “3/8-16 hardware” in the text. It indicates that the nut is 3/8-16 size. See Common Hardware Application Guidelines.

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

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

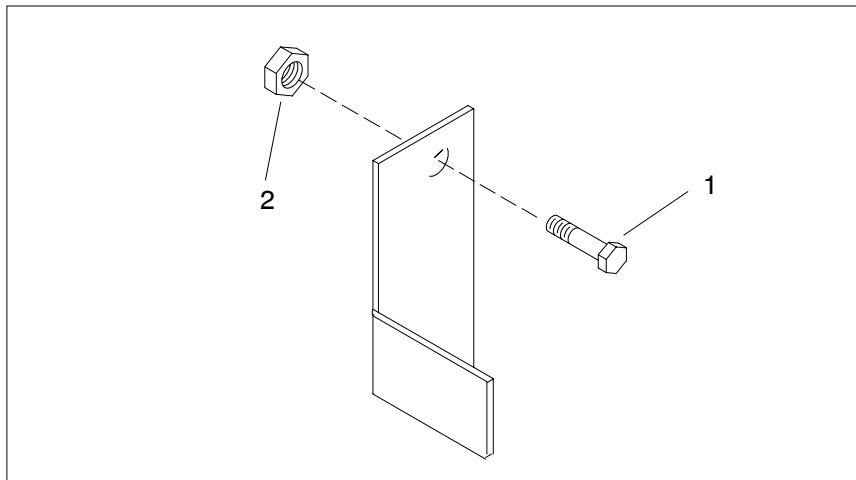


Figure 1. Hardware References

Specification Number Index

GROUP TITLE & NUMBER													
	Air Intake	Fuel System	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	103	104	105	107	108	109	110	119	201	301	701	
SPEC NO.	VARIATION NUMBER												

20DS													
192001	1	—	1	1	1	1	1	1	1	1	1	1	
192002	1	—	1	1	1	1	1	1	1	2	3	1	
192003	1	—	1	1	1	1	1	1	1	3	1	1	
192004	1	—	@	1	1	1	1	1	4	1	@	1	
192005	1	—	@	1	1	1	1	1	4	2	@	1	
192006	1	—	@	1	1	1	1	1	4	3	@	1	
30DS													
192101	2	—	2	2	3	2	2	1	2	3	1	2	
192102	2	—	2	2	3	2	2	1	2	4	3	2	
192103	2	—	2	2	3	2	2	1	2	5	1	2	
192104	2	—	@	2	3	2	2	1	5	3	@	2	
192105	2	—	@	2	3	2	2	1	5	4	@	2	
192106	2	—	@	2	3	2	2	1	5	5	@	2	
40DS													
192201	2	—	2	2	5	2	2	1	2	5	5	21	
192202	2	—	2	2	5	2	2	1	2	6	7	21	
192203	2	—	2	2	5	2	3	1	2	7	5	21	
192204	2	—	@	2	5	2	2	1	5	5	@	21	
192205	2	—	@	2	5	2	2	1	5	6	@	21	
192206	2	—	@	2	5	2	3	1	5	7	@	21	
50DS													
192301	3	—	8	3	7	2	3	2	2	7	9	9	
192302	3	—	8	3	7	2	3	2	2	8	7	9	
192303	3	—	8	3	7	2	3	2	2	9	9	9	
192304	3	—	@	3	7	2	3	2	5	7	@	9	
192305	3	—	@	3	7	2	3	2	5	8	@	9	
192306	3	—	@	3	7	2	3	2	5	9	@	9	

@ See Cooling System Kits or Controller Kits in kits section for parts list.
 — Group not used on generator set spec.

Specification Number Index

GROUP TITLE & NUMBER	Air Intake Fuel System Cooling System Engine Nameplates and Decals Oil Pressure Switches Skid and Plant Mounting Water Temperature Switches Recommended Spare Parts Generator and Mounting Controller and Mounting Literature												
	GROUP NO.	101	103	104	105	107	108	109	110	119	201	301	701
SPEC NO.	VARIATION NUMBER												

60DS													
192401	3	—	8	3	9	2	3	2	2	9	9	23	
192402	3	—	8	3	9	2	3	2	2	10	11	23	
192403	3	—	@	3	9	2	3	2	5	9	@	23	
192404	3	—	@	3	9	2	3	2	5	10	@	23	
192411	3	—	8	3	9	2	11	2	2	45	9	23	
192412	3	—	@	3	9	2	11	2	5	45	@	23	
80DS													
192501	4	—	3	5	21	3	5	3	3	11	13	3	
192502	4	—	3	5	21	3	5	3	3	12	15	3	
192503	4	—	3	5	21	3	5	3	3	13	13	3	
192504	4	—	@	5	21	3	5	3	6	11	@	3	
192505	4	—	@	5	21	3	5	3	6	12	@	3	
192506	4	—	@	5	21	3	5	3	6	13	@	3	
80DSE													
192519	4	—	3	10	21	3	5	3	3	11	13	16	
192520	4	—	3	10	21	3	5	3	3	12	15	16	
192521	4	—	3	10	21	3	5	3	3	13	17	16	
192522	4	—	@	10	21	3	5	3	6	11	@	16	
192523	4	—	@	10	21	3	5	3	6	12	@	16	
192524	4	—	@	10	21	3	5	3	6	13	@	16	
100DS													
192601	4	—	3	5	23	3	5	3	3	13	17	25	
192602	4	—	3	5	23	3	5	3	3	14	15	25	
192603	4	—	3	5	23	3	4	3	3	15	19	25	
192604	4	—	@	5	23	3	5	3	6	13	@	25	
192605	4	—	@	5	23	3	5	3	6	14	@	25	
192606	4	—	@	5	23	3	4	3	6	15	@	25	

@ See Cooling System Kits or Controller Kits in kits section for parts list.

— Group not used on generator set spec.

Specification Number Index

GROUP TITLE & NUMBER													
	Air Intake	Fuel System	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	103	104	105	107	108	109	110	119	201	301	701	
SPEC NO.	VARIATION NUMBER												

100DSE													
192619	4	—	3	10	23	3	5	3	3	13	17	27	
192620	4	—	3	10	23	3	5	3	3	14	15	27	
192621	4	—	3	10	23	3	4	3	3	15	19	27	
192622	4	—	@	10	23	3	5	3	6	13	@	27	
192623	4	—	@	10	23	3	5	3	6	14	@	27	
192624	4	—	@	10	23	3	4	3	6	15	@	27	
125DS													
192701	5	—	6	6	29	4	6	4	7	31	19	7	
192702	5	—	6	6	29	4	6	4	7	32	15	7	
192703	5	—	@	6	29	4	6	4	8	31	@	7	
192704	5	—	@	6	29	4	6	4	8	32	@	7	
150DS													
192801	6	—	11	7	33	4	7	4	9	35	21	29	
192802	6	—	11	7	33	4	7	4	9	36	22	29	
192803	6	—	17	9	35	4	10	4	11	39	21	29	
192804	6	—	@	7	33	4	7	4	10	35	@	29	
192805	6	—	@	7	33	4	7	4	10	36	@	29	
192806	6	—	@	9	35	4	10	4	12	39	@	29	
192813	6	—	17	9	35	4	10	4	11	47	21	29	
192814	6	—	@	9	35	4	10	4	12	47	@	29	

@ See Cooling System Kits or Controller Kits in kits section for parts list.

— Group not used on generator set spec.

Specification Number Index

GROUP TITLE & NUMBER													
	Air Intake	Fuel System	Cooling System	Engine	Nameplates and Decals	Oil Pressure Switches	Skid and Plant Mounting	Water Temperature Switches	Recommended Spare Parts	Generator and Mounting	Controller and Mounting	Literature	
GROUP NO.	101	103	104	105	107	108	109	110	119	201	301	701	
SPEC NO.	VARIATION NUMBER												

180DS													
192901	6	—	13	8	36	4	9	4	—	39	23	7	
192902	6	—	13	8	36	4	9	4	—	40	24	7	
192903	6	—	13	8	36	4	10	4	—	41	23	7	
192904	6	—	@	8	36	4	9	4	—	39	@	7	
192905	6	—	@	8	36	4	9	4	—	40	@	7	
192906	6	—	@	8	36	4	10	4	—	41	@	7	
192914	6	—	13	8	36	4	9	4	—	47	23	31	
192915	6	—	13	8	36	4	9	4	—	48	24	31	
192916	6	—	13	8	36	4	10	4	—	49	23	31	
192917	6	—	@	8	36	4	9	4	—	47	@	31	
192918	6	—	@	8	36	4	9	4	—	48	@	31	
192919	6	—	@	8	36	4	10	4	—	49	@	31	

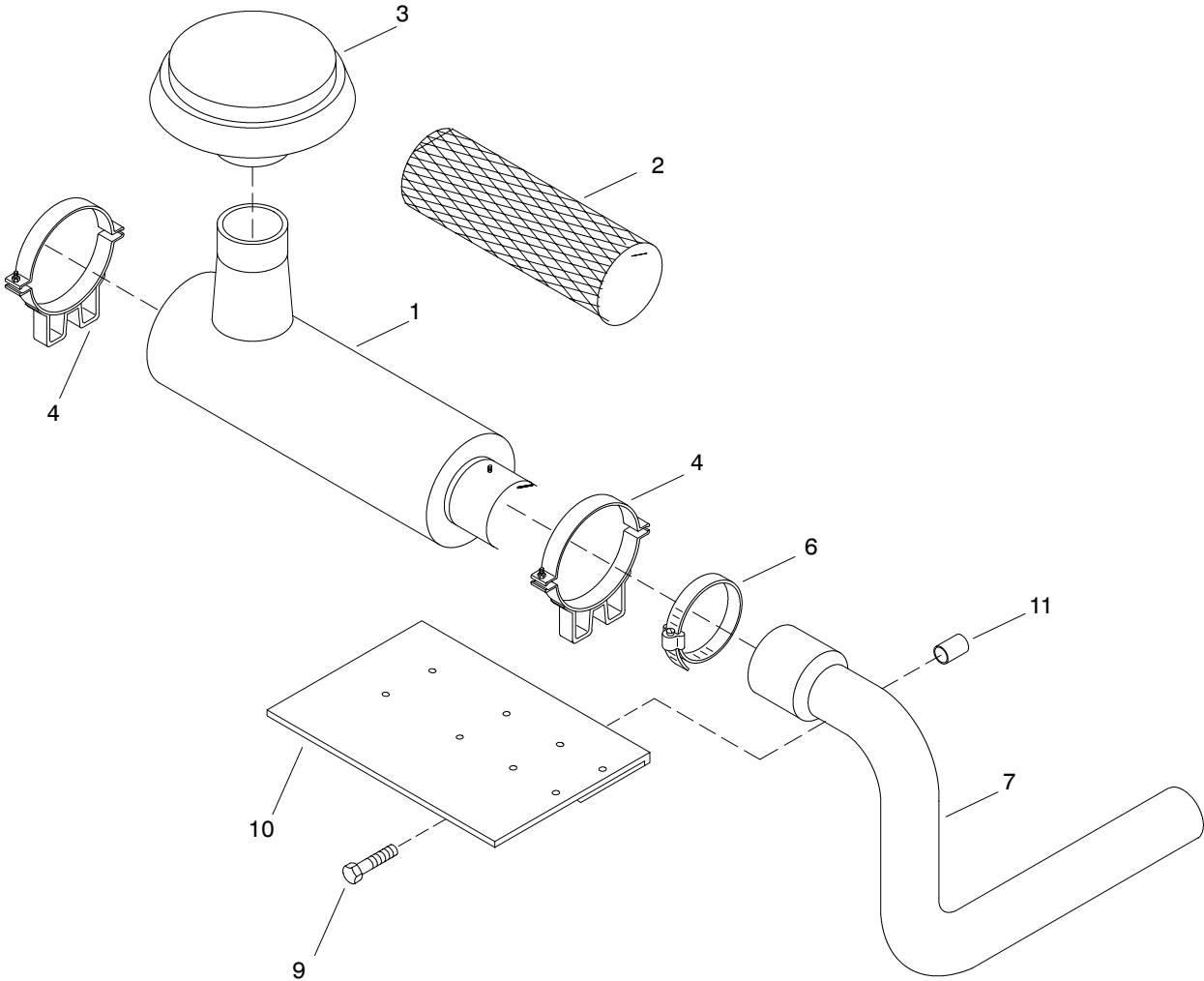
@ See Cooling System Kits or Controller Kits in kits section for parts list.

— Group not used on generator set spec.

Specification Number Index

Notes

Group 101: Air Intake



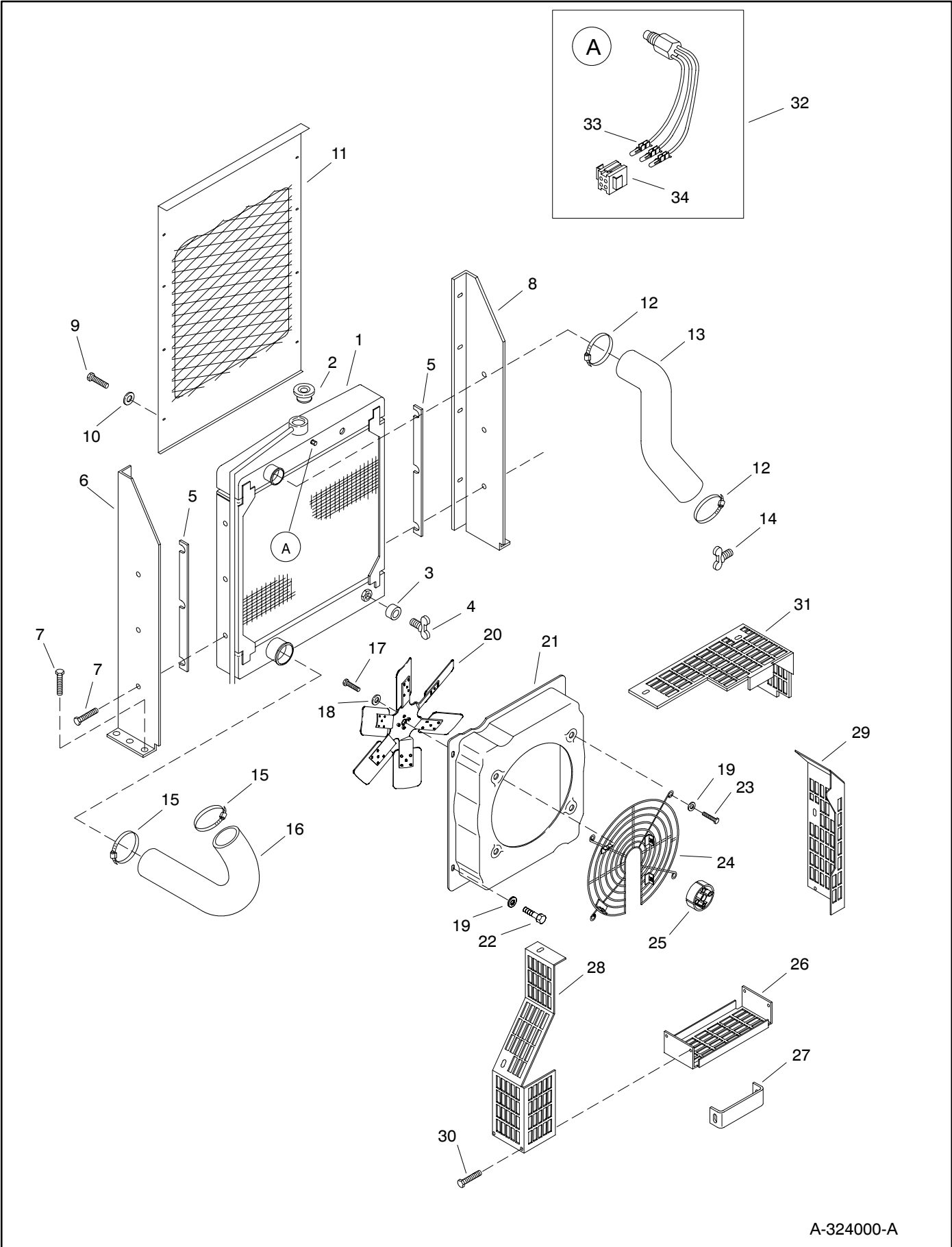
L-324000-A

Group 101: Air Intake

Item	Qty.	Description Variation	Part No.
1	1	Air Cleaner Assembly	
		1	A-324305
		4	A-324131
		2, 3	A-273699
		5	A-324204
		6	A-324434
Note: Air cleaners in this group do not apply if an optional heavy-duty air cleaner is installed. Check the generator set nameplate that lists installed accessories for the heavy-duty air cleaner kit number. See accessory parts catalog MP-5707 for optional heavy-duty air cleaner part numbers.			
2	1	Element, air cleaner	
		1	258423
		2, 3	253107
		4	324134
		5	324418
		6	324436
3	1	Cap, rain	
		4	324139
		5	254006
		6	254010
4	2	Mount, air cleaner	
		4	324133
		5	324362
		6	324363
5	1	Clamp, hose	
		2	X-426-2
		2, 3	X-426-1
		4	X-426-13

Item	Qty.	Description Variation	Part No.
6	1	Clamp, hose	
		1	324452
		3	250081
		4	254087
	1	Clamp, hose	
		5, 6	324555
		5	343049
		6	272960
7	1	Hose, air intake	
		2	324053
		3	324071
		4	324136
		5	324329
		6	324461
8	1	Clamp, exhaust pipe	
		2, 3	286283
9		Screw, hex cap	
	2	4	X-6050-15
	1	4	X-6051-10
	2	4	X-6051-2
10	1	Bracket, air cleaner	
		2, 3	324072
	1	Bracket, air cleaner	
		4	324138
	1	Bracket, air cleaner	
		5	324206
	1	Bracket, air cleaner	
		6	324463
11	3	Spacer	
		4	X-400-37

Group 104: Cooling System



A-324000-A

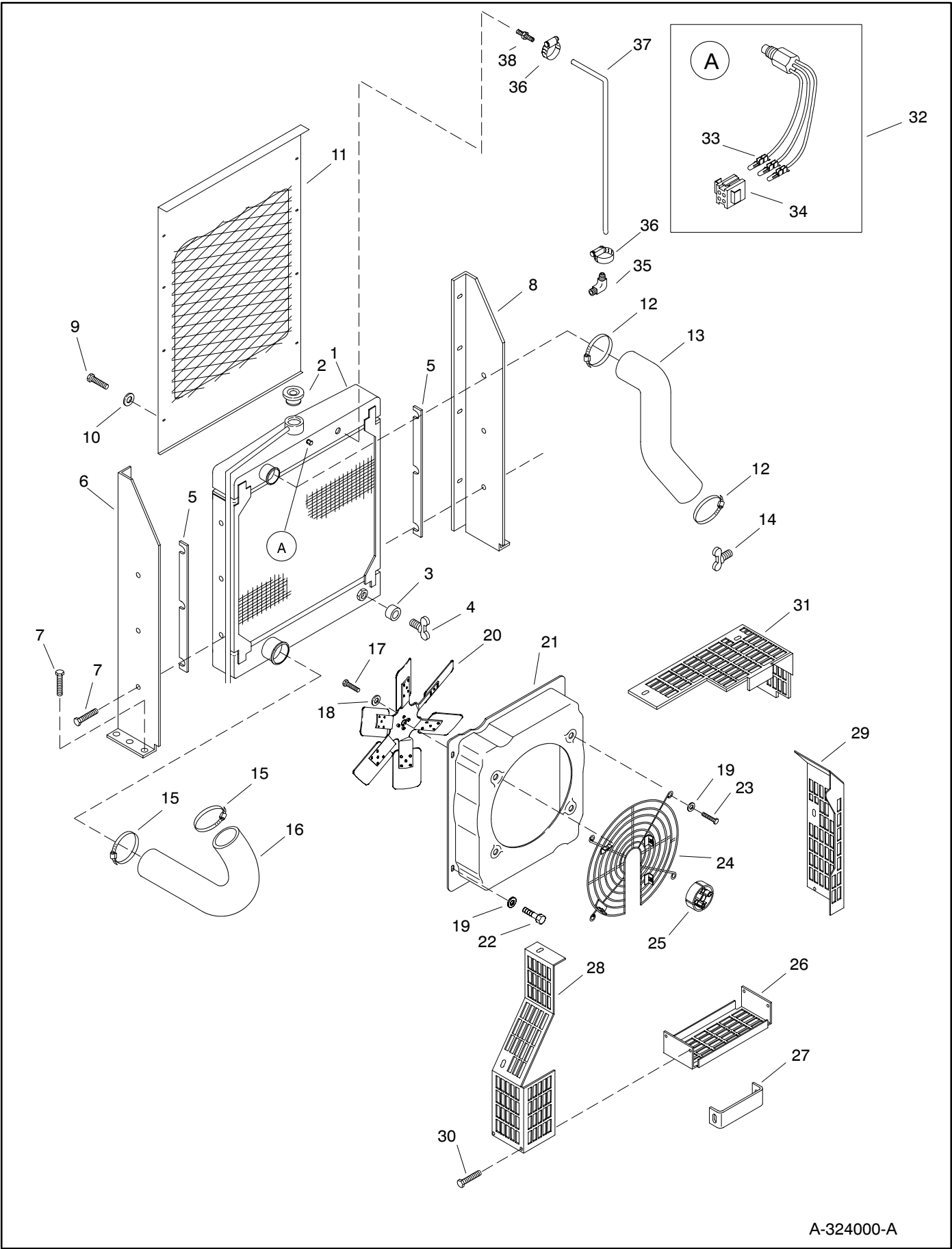
Group 104: Cooling System, Continued

Item	Qty.	Description Variation	Part No.
1	1	Radiator Assembly	
		2, 8	A-276522
		1	A-324008
		6	A-324321
		3	A-276526
		11	A-324323
		19	A-324442
2	1	Cap	
		1, 2, 3, 8	224358
		Cap	224364
3	1	Bushing, reducer	
		1	X-202-47
	1	Elbow, street 1/4	
		18, 19, 20	EH-2248
4	1	Valve, drain, 1/4"	
		2, 8	X-256-3
	2	Valve, drain, 1/4"	
		1, 3, 6, 7, 11, 13	X-256-3
5	4	Spacer, radiator support	
		2, 8	273911
	2	Spacer, radiator	
		3	324229
6	1	Support, radiator (right side)	
		2, 8	324037
		1	324013
		7	324337
		3	324080
		11, 13	324448
7	6	3/8-16 hardware	
		2, 3, 8	#
	8	3/8-16 hardware	
		1, 6	#
	8	1/2-13 hardware	
		11, 13	#
8	1	Support, radiator (left side)	
		2, 8	324036
		1	324014
		6	324079
		3	324338
		11, 13	324447
9	8	1/4-20 hardware	
		2, 8	#
	8	Screw, 1/4-20 x .50, ref.	
		1, 3	X-465-2
	6	5/16-18 hardware	
		6	#
	10	5/16-18 hardware	
		11, 13	#
10	8	Washer, 1/4"	
		1, 3	#
11	1	Guard, radiator	
		2, 8	324052
		1	324056
		33	324147
		6	324341
		11	324707
		13	324445

Item	Qty.	Description Variation	Part No.
12	2	Clamp, hose, 1.375 x 2.100	
		2, 8	X-426-4
	2	Clamp, hose, 1.375 x 2.00	
		1	X-426-4
	2	Clamp, hose	
		6, 11, 13	X-426-2
13	1	Hose, upper radiator	
		2, 8	324040
		1	324350
		3	324082
		6	324328
		11, 13	324455
14	1	Valve, drain	
		1, 3, 7, 6, 11, 13	X-256-5
15	4	Clamp, hose	
		3	250081
	2	Clamp, hose, 1 9/16 x 2 1/2"	
		2, 8	X-426-6
	2	Clamp, hose, 1.375 x 2.00	
		1	X-426-4
	2	Clamp, hose	
		6	X-426-2
	2	Clamp, hose	
		11, 13	324330
16	1	Hose, lower radiator	
		2, 8	324041
		1	324012
		3	324083
		6	324671
		11, 13	324456
17		Screw, hex head cap	
	4	3	X-6050-13
	6	6	X-6238-20
	6	11, 13	X-6238-32
18		Washer, hardened	
	4	1, 2, 8	X-801-4
	4	3	X-801-3
	6	6, 11, 13	X-801-3
19	4	Washer, plain	
		1, 2, 8	X-25-73
	4	Washer, 5/16"	
		1, 2, 3, 8, 11, 13	#
	4	Washer, plain	
		6	X-25-75

Common hardware. Procure locally.

Group 104: Cooling System, Continued



A-324000-A

Group 104: Cooling System, Continued

Item	Qty.	Description Variation	Part No.
20	1	Radiator Fan	
		2, 8	324045
		1	324009
		3	324078
		6	324319
		11, 13	324682
21	1	Shroud, fan	
		2, 8	324039
		1	226334
		3	324076
		6	324400
		11, 13	222953
22	4	Screw, 1/4 x 20 x .50, ref.	
		1, 2, 3, 8	X-465-2
	4	Screw, 6, 11, 13	X-123-3
23	4	Screw, 5/16-18 x .88	
		1, 2, 3, 8, 11, 13	X-125-31
24	1	Guard, wire fan	
		2, 8	324087
		1	324210
		3	324085
		6	324375
		11, 13	336888
25	1	Spacer, fan	
		6	324317
26	1	Guard, belt (bottom)	
		2, 8	324169
		1	324299
		6	324687
		11, 13	324692
27	1	Bracket, belt guard	
		2, 8	324227
28	1	Guard, belt (right side)	
		1	324294
	1	Guard, belt (RH)	
		3	324373
	1	Guard, belt (upper right)	
		6	324688
	1	Guard, belt (upper right)	
		11, 13	324693
	1	Guard, belt (lower right)	
		6	324384
	1	Spacer (not shown)	
		6, 11, 13	X-400-199
	1	Guard, belt (lower right)	
		11, 13	324690
	1	Guard, belt (front)	
		6, 11, 13	324686

Item	Qty.	Description Variation	Part No.
29	1	Guard, belt (LH)	
		1	324295
	1	Guard, belt (LH)	
		3	324374
	1	Guard, belt (left)	
		6	324685
	1	Guard, belt (left)	
		11, 13	324691
	1	Spacer (not shown)	
		6, 11, 13	X-400-200
30	5	Screw, drill hex	
		2, 8	X-794-1
	5	Screw, philp hex crimp	
		1	X-6216-1
	14	Screw, philp hex crimp	
		6	X-6216-1
	2	Screw, 10-24 x 3/4"	
		3	X-50-3
31	1	Guard, belt (top)	
		2	324168
		8	324411
		3	324372
		6	324683
		11, 13	324689
	1	Guard, belt (side) (not shown)	
		2, 8	324228
	2	5/16-18 hardware	
		2, 3, 8	#
	2	Washer, 5/16"	
		1	#
32	1	Switch Assembly, level	
		All	See table below
	1	Conduit, convoluted (not shown)	
		All	X-6003-8
33	1	Connector	
		All	239411
34	3	Pins	
		All	239516
35	1	Connector, hose	
		6, 11, 13	X-391-12
36	2	Clamp, hose	
		6, 11, 13	X-426-9
37	1	Hose, rubber 0.375 x 34"	
		6	X-651-15
	1	Hose, rubber .375 x 38"	
		11, 13	X-651-2
38	1	Connector, hose	
		6, 11, 13	X-380-3

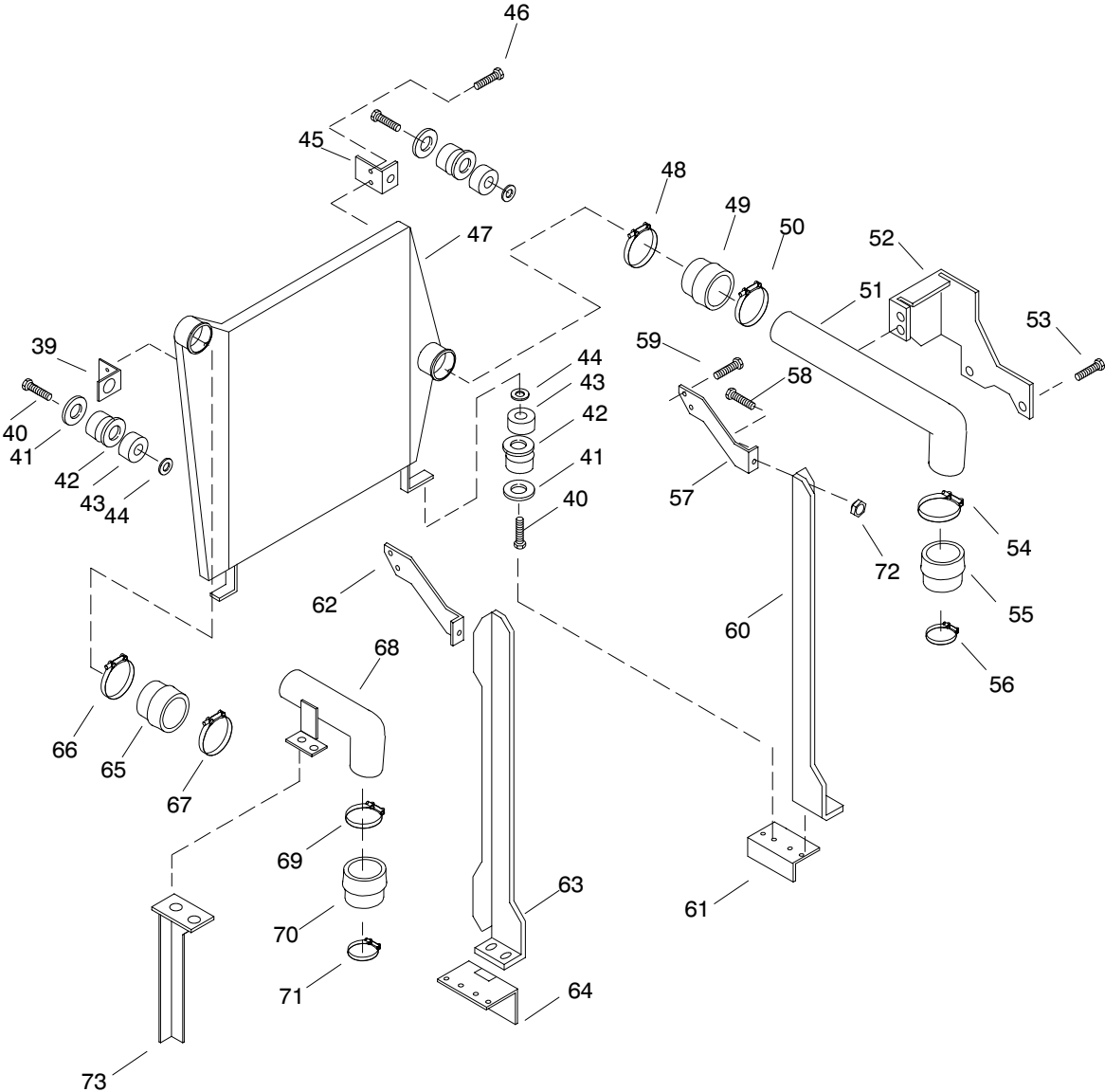
Serial Number-Contingent Cooling System Parts

Part Description	Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and After
Coolant Level Sensor	273404	254832
Bushing Reducer, 3/8 x 1/2 NPT	Not Used	X-202-28

Common hardware. Procure locally.

Group 104: Cooling System, Continued

150/180 kW



AD-324000-K

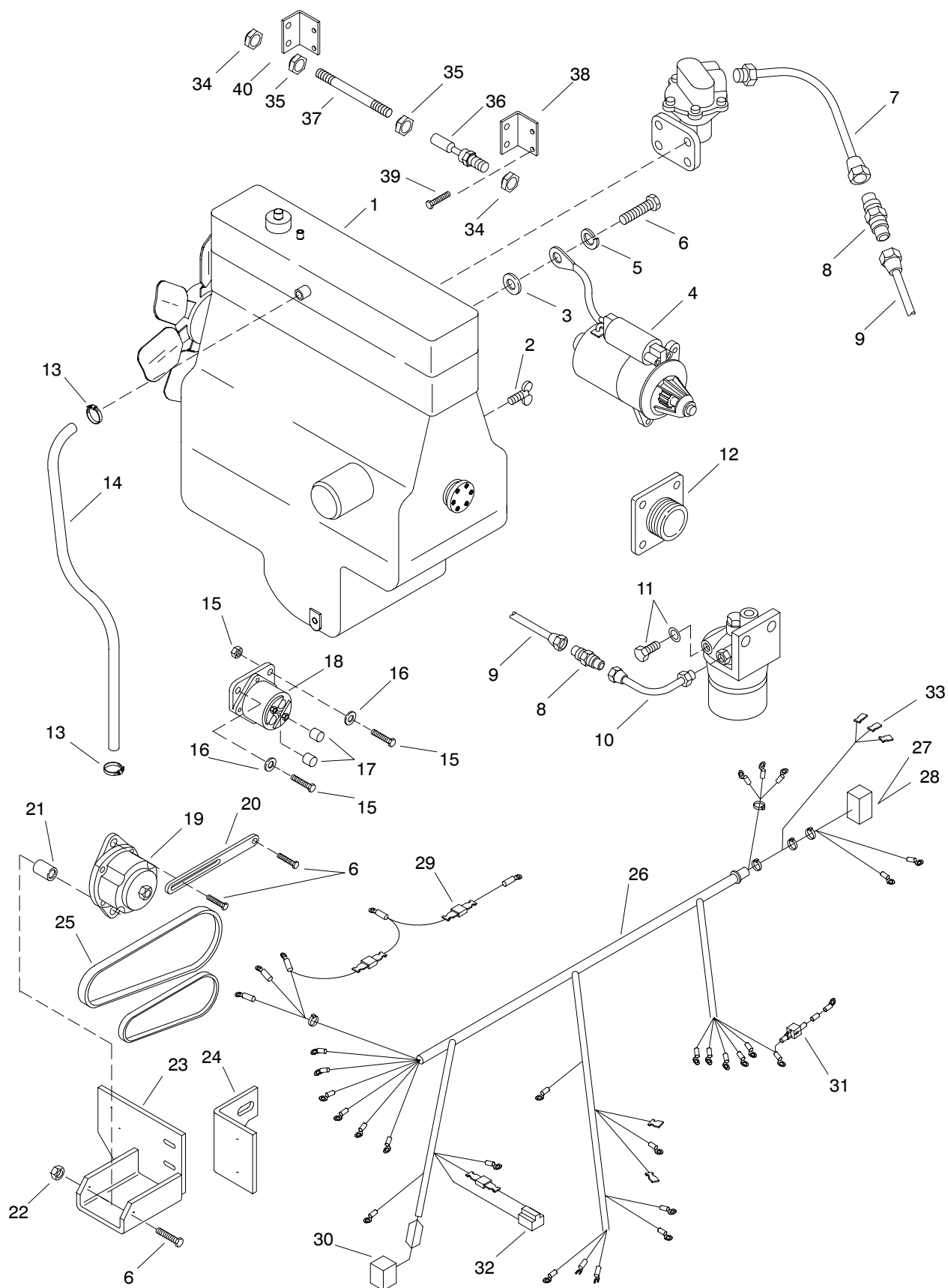
Group 104: Cooling System, Continued

Item	Qty.	Description Variation	Part No.
39	1	Bracket, charger cooler 11, 13	324451
40	1	5/16- hardware 11, 13	#
41	6	Washer, plain 11, 13	X-25-143
42	1	Washer, plain 11, 13	X-25-144
43	1	Mount, vibro 11, 13	324433
44	1	Washer, plain 11, 13	X-25-75
45	1	Bracket, charge cooler 11, 13	324451
46	1	Screw, ref. 11, 13	X-125-31
47	1	Cooler, charge air 11, 13	324334
48	1	Clamp, hose 11, 13	291590
49	1	Hose, hump 11, 13	324473
50	1	Clamp, hose 11, 13	291590
51	1	Tube, cooler/turbo 11, 13	324458
52	1	Bracket, mounting 11, 13	324460
53	1	Screw, 11, 13	X-6052-1
		Screw, 11, 13	X-6052-12
54	1	Clamp, hose 11, 13	291590
55	1	Hose, hump 11, 13	324474
56	1	Clamp, hose 11, 13	279604

Item	Qty.	Description Variation	Part No.
57	1	Bracket, charge cooler (RH) 11, 13	324675
58	1	5/16 hardware 11, 13	#
59	1	5/16 hardware 11, 13	#
60	1	Bracket, support 11, 13	324680
61	1	Support, bracket 11, 13	324678
62	1	Bracket, charge cooler 11, 13	324674
63	1	Bracket, support (LH) 11, 13	324681
64	1	Support, bracket 11, 13	324678
65	1	Hose, hump 11, 13	324473
66	1	Clamp, hose 11, 13	291590
67	1	Clamp, hose 11, 13	291590
68	1	Tube, turbo charger 11, 13	324457
69	1	Clamp 11, 13	291590
70	1	Hose, step 11, 13	324476
71	1	Clamp, hose 11, 13	324342
72	1	Nut, elastic stop 5/16 11, 13	X-101-16
73	1	Bracket, intake mounting 11, 13	324459

Common hardware. Procure locally.

Group 105: Engine



A-324000-A

Group 105: Engine

Item	Qty.	Description Variation	Part No.
1	1	Engine, DDC	
		1 (D3.152)	A-324005
		2 (4.236)	A-324003
		3 (T4.236)	A-324004
		5 (1006.6)	A-324002
		6 (DT530)	A-324006
		7, 8, 9 (DTA-466) ...	A-324007
		10 (1006.6TG)	A-327374
2	1	Valve, drain, 1/4"	
		2, 3	X-256-3
3	1	Washer, flat, 1/2"	
		1, 2, 3, 5, 10	#
4	1	Motor, starter	
		1, 2, 3, 5, 10	324355
5	1	Washer, lock, 1/2"	
		All	X-22-26
6	1	Screw, hex head cap	
		1	X-6050-4
		1, 5, 7, 8, 9, 10	X-6052-1
		6	X-6052-7
7	1	Line, fuel	
		1	324378
8	2	Union, straight	
		1, 2, 3	X-695-3
9	1	Line, flexible fuel	
		1	324377
		1 Fuel Line	
		2, 3	324607
10	1	Fuel Line	
		1	324102
		2 Fuel Line	
		2, 3	324102
11	1	Plug, o-ring	
		1, 2, 3	324376
12	1	Adapter, exhaust	
		1	324068
		2, 3	324092
		5, 10	324409
13	2	Clamp, hose	
		2, 3	X-426-10
14	1	Hose	
		2, 3	X-577-32
15	2	1/4-20 hardware	
		1, 2, 3, 5, 10	#
16	2	Washer, shakeproof, 1/4"	
		All	X-22-12
		1 Washer, shakeproof, 3/8"	
		1, 2, 3, 5, 10	X-22-14
17	1	Cap, plastic	
		1, 2, 3, 6, 7, 8, 9	X-6214-2
18	1	Solenoid, starter	
		All	291891
19	1	Alternator Assembly	
		1, 2, 3, 5, 10	324354
20	1	Arm, alternator adj.	
		1	324146
		1 Arm, alternator adj.	
		2, 3	324410

Item	Qty.	Description Variation	Part No.
21	1	Spacer	
		5	X-400-75
22	1	Nut, hex	
		3	X-632-1
23	1	Bracket, alternator mt.	
		1	324348
24	1	Bracket, alt. mtg. supp.	
		1	324349
25	1	Fan Belt Set	
		1	327119
		2, 3, 5, 6, 7, 8, 9, 10 .	327126
26	1	Harness engine wiring	
		All	See below
		1 Clamp, insulating (not shown)	
		1, 2, 3, 5, 6	X-672-3
27	1	Connector, 24 pin	
		All	295145
28	1	Connector, cable	
		All	292800
29	3	Diode, 6A 100V	
		All	233959
30	1	Connector, 4 pin	
		All	239408
31	1	Lead Assembly	
		1, 2, 3, 5, 10	253799
32	1	Connector, 2 pin	
		All	295986
33	AR	Pins, female, gold plated	
		1, 2, 3, 5	292838
34	2	Nut, lock	
		6, 7, 8, 9	X-101-7
35	2	1/4-28 Nut	
		6, 7, 8, 9	#
36	1	Ball Joint	
		6, 7, 8, 9	273731
37	1	Stud	
		6, 7, 8, 9	X-352-81
38	1	Bracket, mounting	
		6, 7, 8, 9	324465
39	2	Screw, hex. head	
		6, 7, 8, 9	X-6049-8
40	1	Bracket, mounting	
		6, 7, 8, 9	327089

Serial Number-Contingent Parts

Variation Number	Wiring Harness Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and After
1	324230	324737
2, 3	324231	324738
5, 10	324304	324739
6, 7	324343	324740
8, 9	324344	324731

Common hardware. Procure locally.

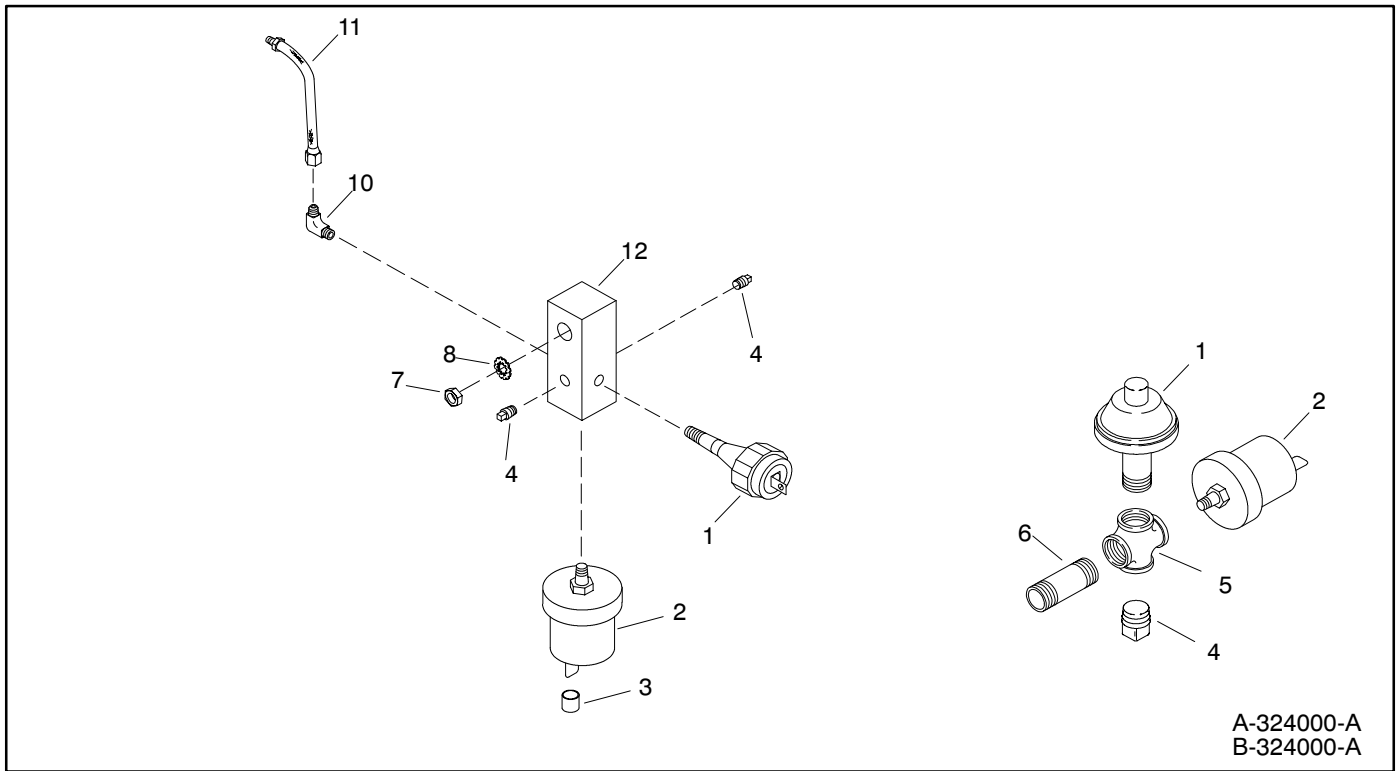
A/R As required

Group 107: Nameplates and Decals

Item	Qty.	Description Variation	Part No.
1	2	Decal, Spectrum All	X-6301-1
2	1	Decal, Spectrum All	X-6301-3
3	2	Decal, model 1	X-6299-1
	2	Decal, model 3	X-6299-2
	2	Decal, model 5	X-6299-3
	2	Decal, model 7	X-6299-4
	2	Decal, model 9	X-6299-5
	2	Decal, model 21	X-6299-6
	2	Decal, model 23	X-6299-7
	2	Decal, model 29	X-6299-8
	2	Decal, model 33, 35	X-6299-9
	2	Decal, model 36	X-6299-10
4	1	Decal, positive terminal All	238402
5	1	Decal, warning (hot engine) All	249809
6	2	Foam, packing All	254454

Item	Qty.	Description Variation	Part No.
7	1	Tag, hang All	254455
8	1	Decal, warning (unbalanced weight) All	257437
9	3	Decal, warning (Haz. Volt/Mov. Rotor) All	257438
10	1	Decal, warning (unbalanced weight) All	257441
11	1	Decal, warning (backfeed) All	258815
12	1	Decal (backfeed) 2, 4, 6, 8, 10, 25, 23, 29, 33, 35, 36	259365
13	2	Decal, Torque Symbol All	X-6302-1
14	1	Decal, warning (600 Volt Connection) 11, 13, 15, 17, 19, 22, 24, 29, 34, 37	279958
15	1	Nameplate All	324069
16	1	Decal, warning (rotating parts) All	249808
17	1	Decal, warning All	249810

Group 108: Oil Pressure Switches

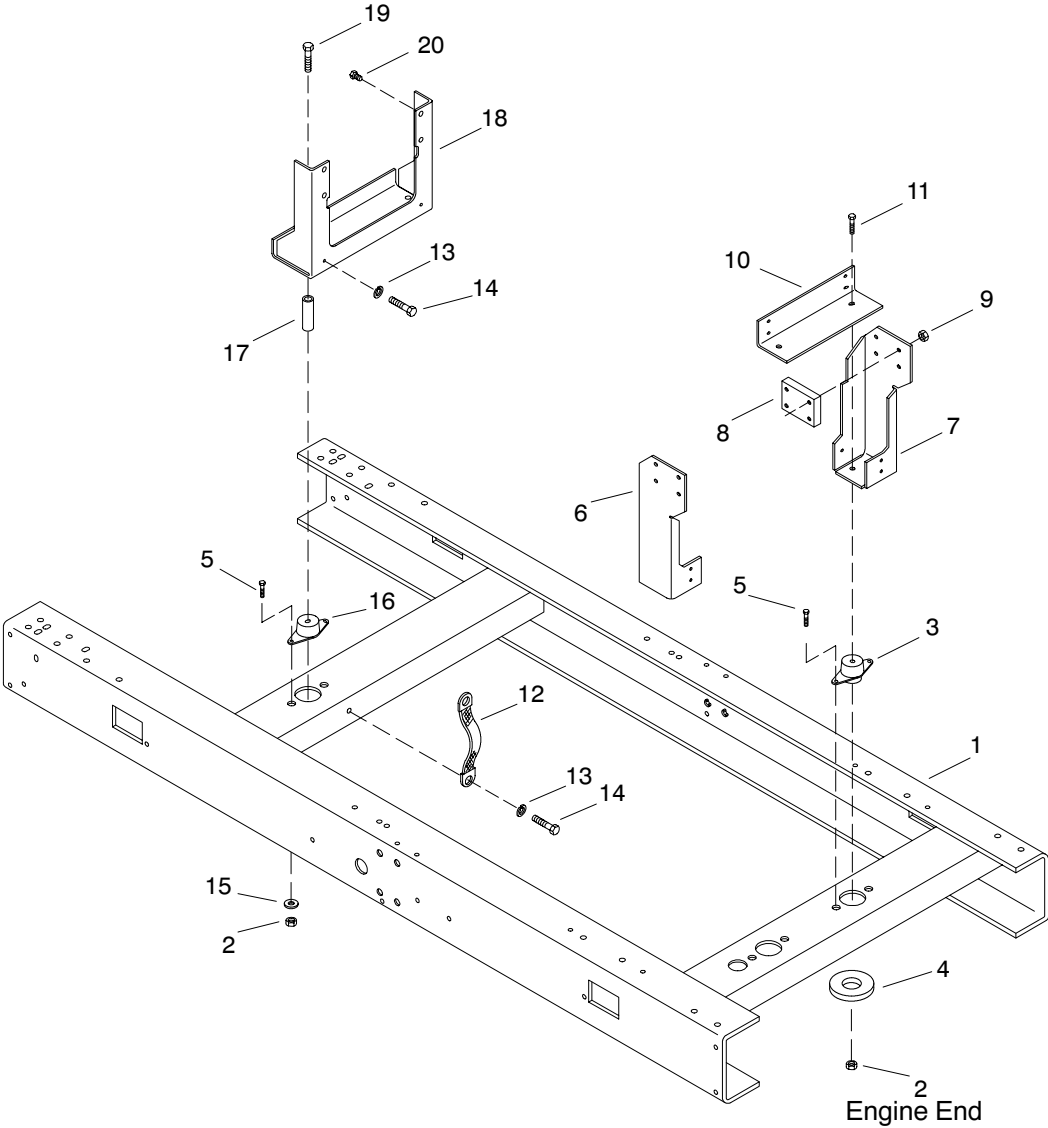


Item	Qty.	Description Variation	Part No.
1	1	Switch, oil pressure 1, 2, 4	328309
	1	Switch, oil pressure 13	328308
2	1	Sender, oil pressure 1, 2, 3, 4 2	264390 343473
3	1	Cap, plastic 1	X-6214-2
4	2	Plug, pipe 1/8" 1, 3	X-75-1
	1	Plug, pipe 1/8" 2	X-75-1
5	1	Cross, pipe 1/8" 2, 3	164037
	1	Coupling, pipe 1/8 x 1 3/16 4	X-216-24
6	1	Nipple, pipe 1/8 x 1 1/2" 2, 3, 4	289055
7	1	5/16-18 hardware 1	#
	1	Nut, 1/4-20 3	#

Item	Qty.	Description Variation	Part No.
8	1	Washer, shakeproof 3	X-22-12
	1	5/16-18 hardware 1	#
	1	Bolt, 1/4-20 3	#
9	1	5/16-18 hardware 1	#
	1	Bolt, 1/4-20 3	#
10	1	Elbow, 7/16-20 x 1/8" 1, 3	X-447-10
11	1	Line, flex fuel 1, 3	265461
12	1	Block, oil gauge 1, 3	267548

Common hardware. Procure locally.

Group 109: Skid and Plant Mounting



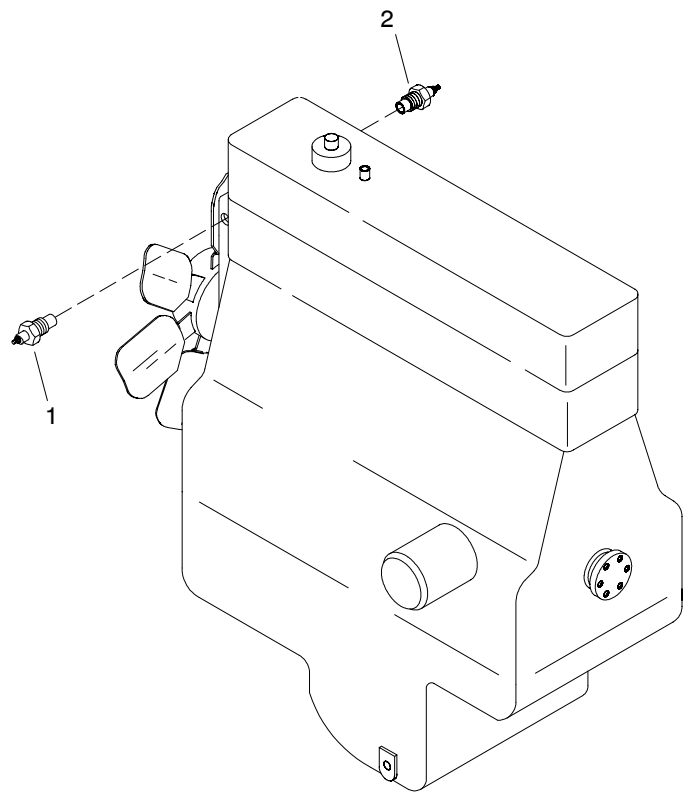
Group 109: Skid and Plant Mounting

Item	Qty.	Description Variation	Part No.
1	1	Skid	
		1	324010
		2, 3	324034
		4, 5	324077
		6	324335
		7	324701
		9, 10	324446
		11	327135
2	4	Nut, hex stop	
		1, 2, 3, 4, 5, 11	X-101-23
	2	Nut, hex stop	
		6, 7, 9, 10	X-101-23
	2	Nut, hex stop	
		6, 7, 9, 10	X-101-15
3	2	Mount, vibro	
		1, 11	324073
		2	324074
		3	324075
		4, 5, 6, 7	324389
		4	324390
		5, 11	324391
		6, 7	324392
		9, 10	336813
		9, 10	324393
4	8	Washer, plain	
		1, 2, 3, 11	X-25-140
	8	3/8-16 hardware	
		4, 5	#
5	4	3/8-16 hardware	
		1, 2, 3, 4, 5, 6, 7	#
6	1	Bracket, eng. mtg. R.H.	
		1	324345
7	1	Bracket, eng. mtg. L.H.	
		1	324346
8	2	Spacer, eng. mtg.	
		1	324351
9	8	Nut, whiz lock	
		1, 2, 3	X-6210-14
10	1	Bracket, engine mounting (bottom)	
		1	324347
	1	Bracket, engine mounting (bottom)	
		6, 7, 9, 10	324339
	2	Screw, hex. cap (not shown)	
		6, 7, 9, 10	X-6334-1
	2	Screw, hex. cap (not shown)	
		6, 7, 9, 10	X-6334-2

Item	Qty.	Description Variation	Part No.
11	4	Bolt, 1/2-13	
		1, 2, 3	#
	2	Screw, H.C.	
		4, 5, 6, 7, 9, 10	X-6021-12
12	1	Strap, ground	
		All	290418
13	4	Washer, lock, 5/16"	
		All	X-22-16
	1	Washer, lock	
		2, 3, 11	X-22-15
	8	Washer, lock, 1/2"	
		4, 5	X-22-26
14	2	5/16 hardware	
		All	#
15	2	Washer, plain	
		1, 2, 3, 11	X-25-140
	2	Washer, plain	
		4, 5	X-25-112
	2	Washer, plain	
		6, 7, 9, 10	X-25-103
16	2	Mount, engine vibro	
		1, 2, 3	276310
	2	Mount, engine vibro	
		6, 7	324392
17	2	Spacer	
		4, 5	X-400-154
	2	Spacer	
		6, 7, 9, 10	X-400-197
18	2	Support, engine	
		2, 3, 11	324035
	1	Support, engine	
		4, 5	324352
19	2	Screw, 5/8-11, ref.	
		4, 5	X-6021-12
	2	Screw, 1/2-13 x 4.50	
		6, 7	X-129-30
20	4	Screw, hex head cap	
		4, 5	X-6069-7

Common hardware. Procure locally.

Group 110: Water Temperature Switches



B-324000-A

Item	Qty.	Description	Part No.
		Variation	
1	1	Switch, high temperature shutdown	
		4	241481
	1	Switch, high temperature 1, 3	241308
	1	Switch, high temperature 2	326105
2	1	Sender, water temperature 1, 2, 3, 4	268298
	1	Bushing, reducer 3/4 x 1/2 (not shown)	
		4	153659
		Bushing, reducer 2	X-202-46

Group 119: 2000-Hour Recommended Spare Parts

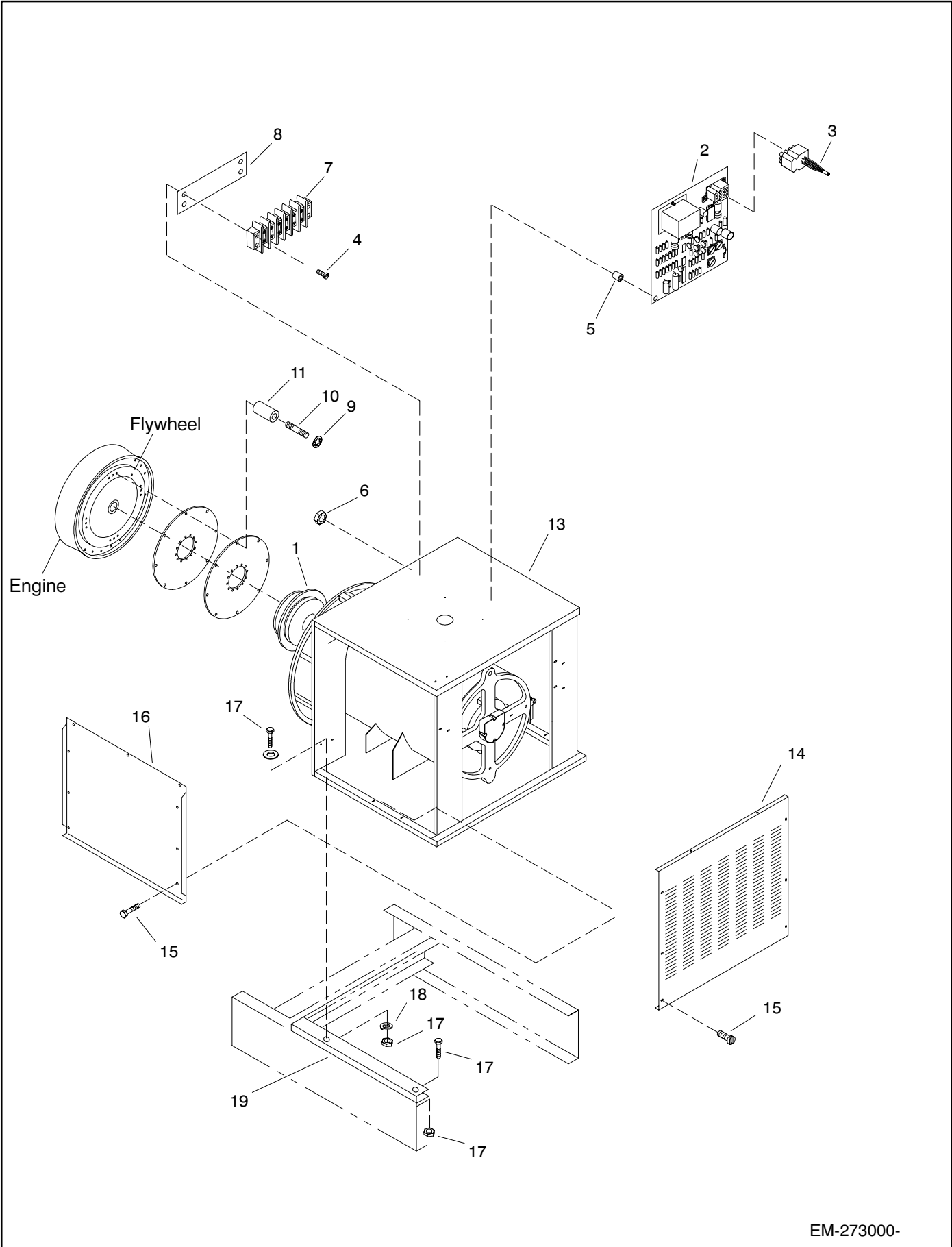
Item	Qty.	Description Variation	Part No.
1	5	Fuse, 1.5 amp 1, 2, 3, 7, 9, 11	291207
2	5	Fuse, 3 amp 1, 2, 3, 7, 9, 11	243273
3	5	Fuse, 15 amp 1, 2, 3, 7, 9, 11	283645
4	1	Main Circuit Board 1, 2, 3, 7, 9, 11	See table below
5	1	Photo Board all	B-292902
6	1	Split Activator 1, 2, 4, 5 3, 6, 7, 8, 9, 10 11, 12	B-258545 B-258549 A-233999
7	1	LED Board all	A-257099
8	1	Voltage Regulator all	C-255670
9	1	Indicator Board 1, 2, 3, 7, 9, 11	See table below
10	1	Speed Sensor 1, 2, 3, 7, 9, 11	241927
11	5	Bulb 1, 2, 3, 7, 9, 11	255126

Item	Qty.	Description Variation	Part No.
12		Upper Radiator Hose 1 2 3 7 9, 11	324350 324040 324082 324328 324455
13		Lower Radiator Hose 1 2 3 7 9, 11	324012 324041 324083 324671 324456
14	1	Thermostat and gasket kit 1-6	327127
	1	Thermostat and gasket kit 7-12	327148
		20DS Thermostat and Gasket Kit	GM35179
15	1	Fan Belt Set 1, 4	327119
	1	Fan Belt Set 2, 3, 5, 6	327126
16	4	Air Filter 1, 4 2, 5 3, 6 7, 8 9, 10, 11, 12	258423 253107 324134 324418 324436
17	4	Fuel Filter 1, 2, 4, 5 3, 6	328223 327128
	3	Primary Fuel Filter 7-12	327151
	3	Secondary Fuel Filter 7-12	327152
18	5	Oil Filter 1 2-6 7-12	327308 327125 327149
19	4	Injector 1, 4 2, 5 3, 6	327121 327124 327129

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

Group 201: Generator and Mounting



EM-273000-

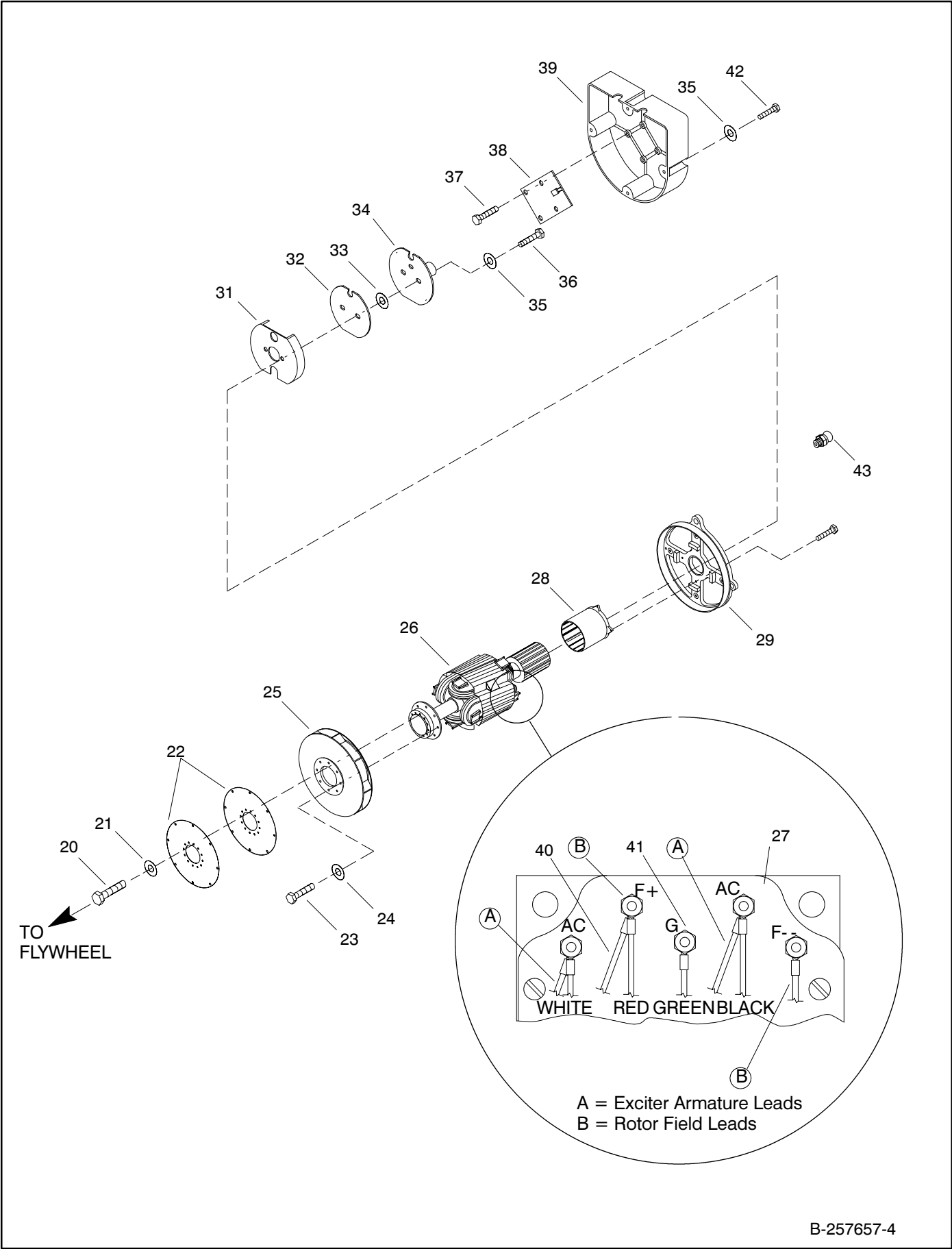
Group 201: Generator and Mounting, Continued

Item	Qty.	Description Variation	Part No.
1	1	Alternator Assembly (includes items 21-63)	
		11	A-276686
		12	A-276688
		13	A-276687
		14	A-276689
		15	A-276684
		1	B-257718
		2	B-257725
		3	B-257719
		4	B-257726
		5	B-257720
		6	B-257727
		7	B-257721
		8	B-257728
		9	B-257739
		10	B-257729
		31, 35	A-276678
		32, 36	A-324202
		39	A-222882
		40	A-324503
		41	A-324504
		45	A-276669
		47	A-347216
		48	A-347217
		49	A-347218
2	1	Regulator, voltage All except 47-49	C-255670
		47-49	A-354653
3	1	Harness, wiring All except 39-41, 47-49	255481
		39-41, 47-49	354118
4	2	Screw, 8-32 x 3/4 in. All	X-51-11
5	4	Standoff, circuit board All	360459
6	4	Nut, #8-32 All	#
7	1	Block, terminal All	295314
8	1	Marker, strip All	255080

Item	Qty.	Description Variation	Part No.
9	8	Washer, hardened All	X-801-3
10	8	Stud 1-15, 45	X-352-92
	8	Stud 31, 32, 35, 36, 39-41, 47-49	X-352-63
11	8	Spacer All	X-400-132
12		Screw, hex head 11, 12, 13, 14	X-6051-4
	6	1-10	270956
	6	31, 32, 35, 36, 45	270158
	12	39-41	270158
13	1	Box, junction 11-15, 31, 32, 35, 36	222825
		1-10	222823
		39- 41, 47-49	222844
		45	222824
14	1	Cover, rear 11-15, 31, 32, 35, 36	222838
		1-10	222834
		39- 41, 47-49	336004
		45	222836
15	12	Screw, hex All	X-6216-1
16	2	Cover, side 11-15, 31, 32, 35, 36, 45 ...	222835
		1-10	222833
		39-41, 47-49	336001
17	8	3/8-16 hardware All	#
18	2	Washer, shakeproof, 3/8 in. All	X-22-14
19	2	Bracket, junction box 11-15	326281
	2	Bracket, junction box 39-41, 47-49	336085

Common hardware. Procure locally.

Group 201: Generator and Mounting, Continued



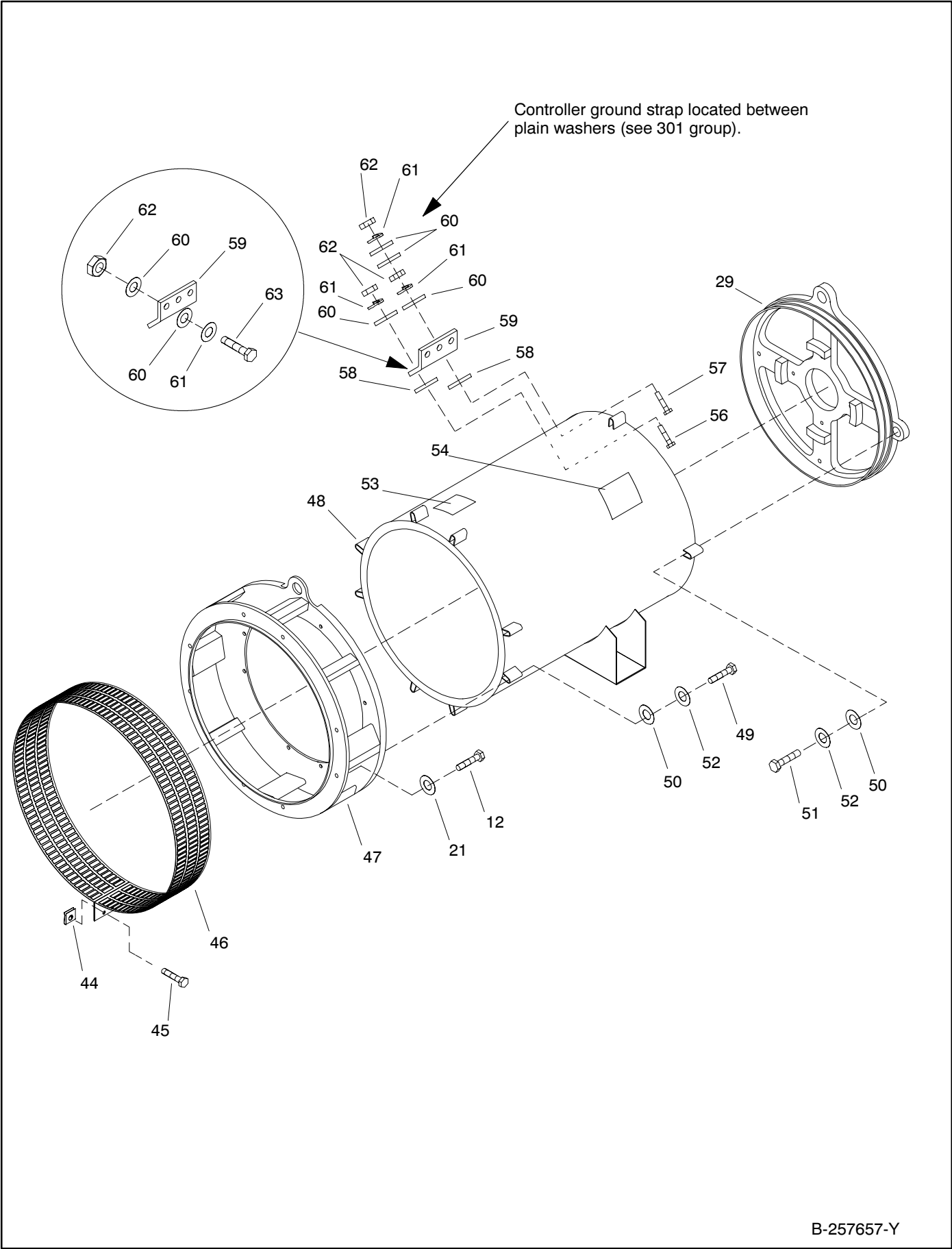
Group 201: Generator and Mounting, Continued

Item	Qty.	Description Variation	Part No.
20	12	Screw, hexagon head 11-15, 45	270956
	8	Screw, hexagon head 1-10,	270956
	6	Screw, special 31, 32, 35, 36	270158
	12	Screw, special 39-41, 47-49	270158
21	12	Washer, hardened All	X-801-3
22		Disc, armature drive	
	3	11-15, 31, 32, 35, 36	257103
	2	1-10	257015
	4	39, 40	222881
	1	41, 47-49	222881
		45	257102
23	4	Screw, 3/8-16 x 1 in. All except 39-41,47-49	X-6238-11
	8	Screw, 3/8-16 x 1 in. 39-41, 47-49	X-6238-11
24	4	Washer, plain All except 39-41,47-49	X-25-93
	18	Washer, plain 39-41, 47-49	X-25-93
25	1	Fan, generator 11-15, 31, 32, 35, 36,45 1-10 39-41, 47-49	257173 257020 257855
26	1	Rotor Assembly	
		11, 12	A-276664
		13, 14	A-276665
		15, 31, 32, 35, 36	A-276666
		1, 2	A-258980
		3, 4	A-258979
		6	A-258978
		7, 8	A-258977
		9, 10	A-258975
		39, 40	A-222883
		41	A-324502
		45	A-276659
		47, 48	A-347190
		49	A-347191
27	1	SCR Assembly	
		1-10	B-258545
		11-15, 31, 32, 35, 36,45	B-258549
		39-41	A-233999
		47-49	A-354299

Item	Qty.	Description Variation	Part No.
28	1	Exciter Assembly, Field	
		5-15	257081
		1-4	257080
		31, 32, 35, 36, 45	276657
		47-49	347707
29	1	Bracket, end	
		11-15, 31, 32, 35, 36, 45	257983
		1-10	257984
		39-41	257982
		47-49	347236
30	4	Screw, 5/16-18 x 1.50 All except 47-49 47-49	X-125-34 X-6238-17
31	1	Actuator, magnetic All	257077
32	1	Insulator All	257850
33	2	Washer, insulating All	243321
34	1	Photo Transistor Assembly All	B-292902
35	6	Washer, lock, shakeproof All	X-22-9
36	6	Screw, H.C., 10 x 24 x 5/8 in. All	X-117-5
37	4	Screw, hex, washer head All	X-6071-1
38	1	LED circuit board All	A-257099
39	1	Cover, circuit board All	257258
40	4	Terminal All except 39-41,47-49 39, 41, 47-49 40	X-283-7 X-431-25 X-285-1
41	5	Nut 15, 31, 35	X-101-22
	5	Nut, hex All	X-101-24
42	4	Screw, self-tapping All	X-67-133
43	1	Fitting, grease 47-49	347119

Common hardware. Procure locally.

Group 201: Generator and Mounting, Continued



B-257657-Y

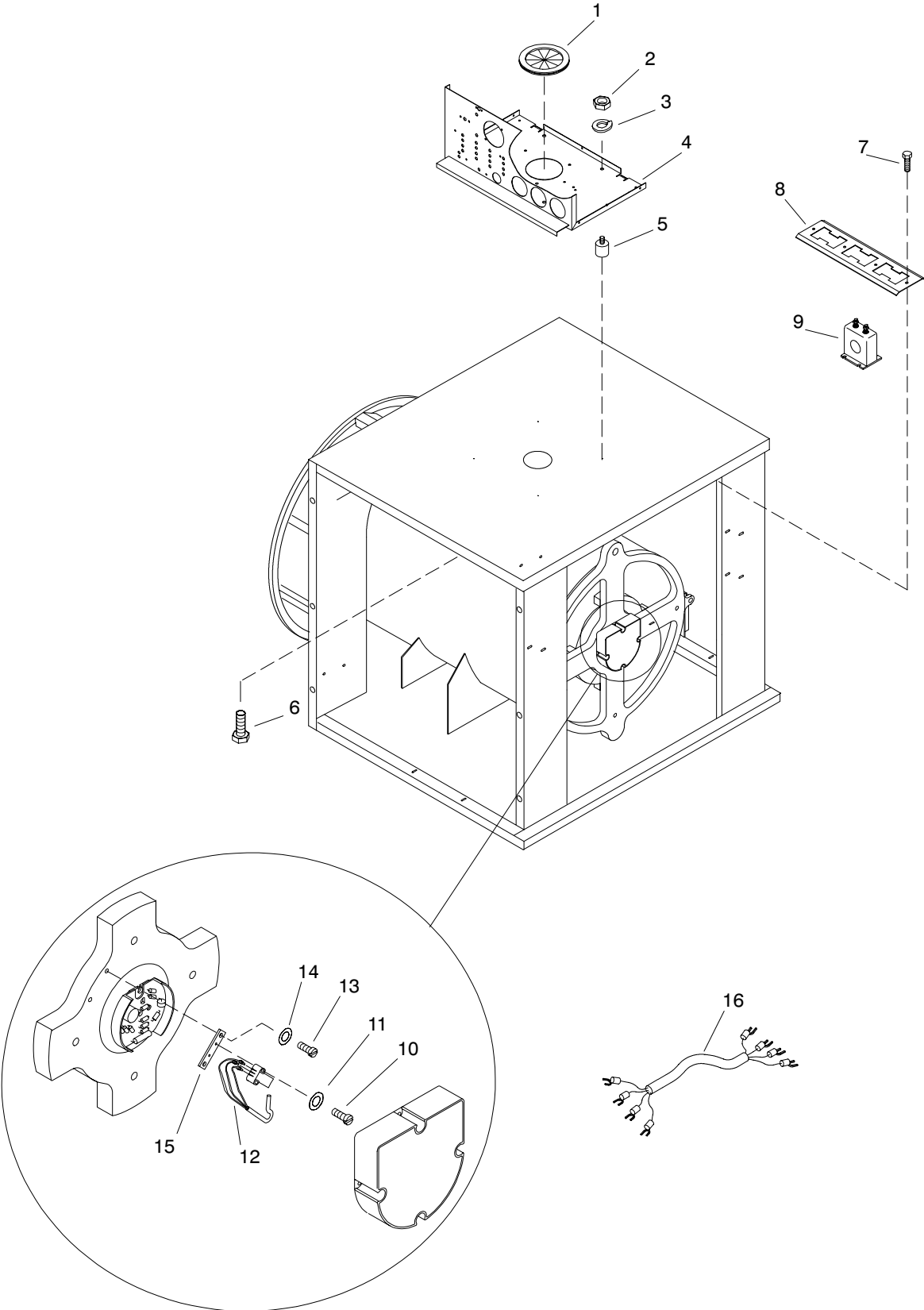
Group 201: Generator and Mounting, Continued

Item	Qty.	Description Variation	Part No.
44	2	Clip, speed All	257442
45	2	Screw, self-tapping All	X-67-125
46	1	Guard, generator fan 11-15, 31, 32, 35, 36, 45 ...	257179
		1-10	257046
		39-41	257582
		47-49	347268
47	1	Adapter, generator 11-15, 45,	257175
		1-10	257018
		31, 32, 35, 36	257248
		39-41	222880
		47-49	347241
48	1	Stator Assembly 11, 45	257687
		12	257690
		13	257688
		14	257691
		15, 31, 35	257689
		1	257765
		2	257770
		3	257766
		4	257771
		5	257767
		6	257772
		7	257768
		8	257773
		9	257769
		10	257774
		32, 36	257692
		39	257573
		40	257777
		41	257574
		47	347196
		48	347202
		49	347197
49	5	Screw, 3/8-16 x 3 in. All except 39-41, 47-49	X-6238-9
	1	Screw, special All except 39-41, 47-49	X-6238-6
	8	Screw, hex. cap 39-41	X-129-49
		47-49	X-129-25
50	12	Washer, special 39-41, 47-49	257951
51	4	Screw, special 11, 13, 15, 31, 35	X-6238-9
		Screw, special 12, 14, 32, 36	273737
		Screw, hex. cap 39, 41	X-129-49
		Screw, special 40	273738
		47-49	X-129-25

Item	Qty.	Description Variation	Part No.
52	12	Washer, hardened 39-41, 47-49	290945
53	1	Decal, warning 2, 41	257437
54	1	Decal, warning 2, 4, 6, 8, 10, 41	257441
55	1	Decal, warning (not shown) 2, 41	257438
56	1	Screw, hardened 1-10	X-465-22
		11-15, 31, 32, 35, 36	X-125-41
		39-41	X-6238-31
		47-49	X-6238-11
57	1	Screw, hex head machine 11-15, 31, 32, 35, 36, 45 ...	X-791-9
		1-10	X-791-8
		39-41	X-791-10
		47-49	X-791-6
58	2	Washer, lock 11-15, 31, 32, 35, 36	X-22-45
		1-10	X-22-44
		39-41, 47-49	X-22-46
59	1	Connector, load 11-15, 31, 32, 35, 36, 45 ...	257985
		1-10	257986
		39-41, 47-49	257978
60		Washer, plain 11-15, 31, 32, 35, 36, 39-41	X-25-138
	5	11-15, 31, 32, 35, 36	X-25-139
	10	1, 3, 5, 7, 9	X-25-136
	5	2, 4, 6, 8, 10	X-25-136
	5	1, 3, 5, 7, 9	X-25-142
61		Washer, spring 11-15, 31, 32, 35, 36	X-6086-17
	5	1-10	X-6086-16
	6	39-41	X-6086-15
62	6	Nut, hex 11-15, 31, 32, 35, 36, 45 ...	X-6234-2
		1-10	X-6234-1
		39-41	X-6234-7
		47-49	#
63		Screw, hardened 1 31, 32, 35, 36	X-465-23
	3	11-15, 45	X-125-42
	3	39-41	X-6238-28
	3	47-49	X-6238-5

Common hardware. Procure locally.

Group 301: Controller and Mounting



EM-273000-

Group 301: Controller and Mounting

Item	Qty.	Description Variation	Part No.
1	1	Grommet All	X-284-31
2	4	Nut, 5/16-18 All	#
3	4	Washer, lock, 5/16" All	X-22-16
4	1	Controller Assembly (Includes items 1, 2, 5, and 17-72) All	See Table Below
5	4	Bumper All	292834
6	4	Screws, 5/16-18 x .62 All	X-125-23
7	4	Screw, drill hex All	X-794-1
8	1	Bracket, CT mounting 1, 3, 5, 79, 11, 13, 15, 17, 22 19, 21 23, 24	276417 299966 325382
9	3	Transformer, current 1, 15 3 5, 22 7 9, 13 11 17 19 21 23 24	259360 259793 259414 259792 255860 259359 253503 273257 253610 272691 279272
10	2	Screw, r.h.m. All	X-49-35
11	2	Washer, shakeproof All	X-22-24

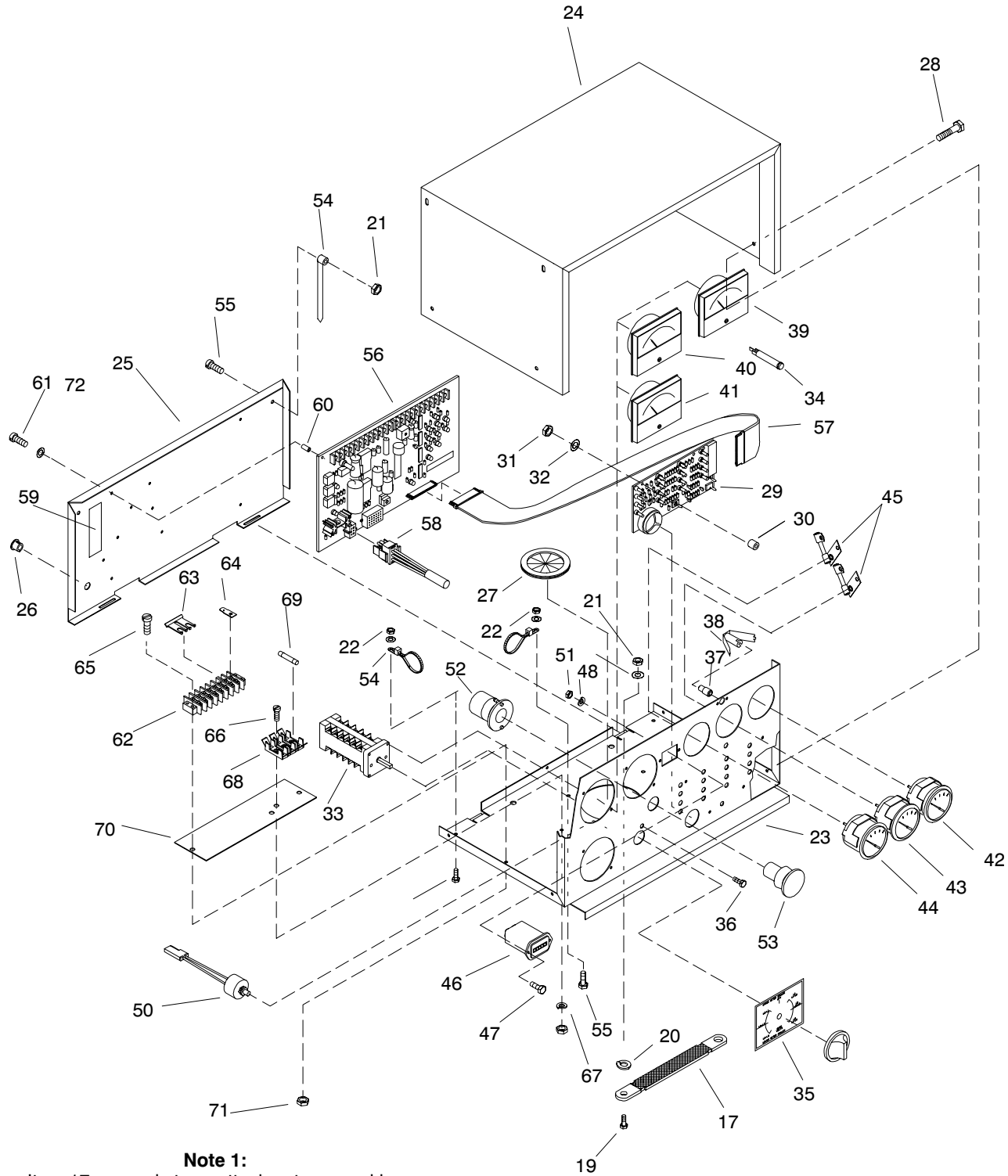
Item	Qty.	Description Variation	Part No.
12	1	Sensor, ferromagnetic All	241623
13	2	Screw, H.C. 10-24 x 5/8" All	X-117-5
14	2	Washer, lock shakeproof All	X-22-9
15	1	Bracket, sensor mounting All	257070
16	1	Harness, wiring All except 21-24 21-24	255040 354119

Serial Number-Contingent Controller Assemblies

Variations	Controller Assembly Part Number	
	Before Serial Number 363369	Serial Numbers 363369 and after
1	A-325010	A-325712
3	A-325009	A-325711
5	A-325011	A-325714
7	A-325012	A-325715
9, 13	A-325013	A-325716
11	A-325014	A-325717
15	A-325016	A-325720
17	A-325015	A-325719
19	A-325037	A-325741
21	A-325033	A-325737
22	A-325017	A-325721
23	A-325034	A-325738
24	A-325035	A-325739

Common hardware. Procure locally.

Group 301: Controller and Mounting



Note 1:

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

Note 2:

Resistors (item 45) mount on back of water temp. gauge and oil pressure gauge (items 43 & 44).

301-70-1
D-272000
A-325008

Group 301: Controller and Mounting

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	2	Nut, 10-24 All	X-6234-6
22	1	Nut, 10-24 All	#
23	1	Box, controller All	325073
24	1	Cover, controller All	325003
25	1	Plate, hinge All	292908
26	1	Plug, plastic button, 7/16 All	X-301-34
27	1	Grommet, 3 x 3 1/2 x 5/64 All	X-284-31
28	10	Screw, 10-24 x 1/2 All	X-6216-1
29	1	Indicator Circuit Board All	See table below
30	4	Spacer, nylon, #8 hole x 1/2" All	X-712-9
31	1	Nut, 8-32 All	X-72-4
32	3	Washer, lock, #8 All	X-22-7
	1	Washer, shakeproof, #8 All	X-22-20
33	1	Switch, selector 3, 7, 11, 15, 22	292374
	1	Switch, selector 1, 5, 13, 17, 19, 21	292373
34	2	Lamp, meter scale all	253332
35	1	Decal, selector switch All	325072
36	2	Screw, thread forming All	X-67-127
37	2	Bulb (lamp) All	255126
38	2	Socket, lamp All	284990
39	1	AC Ammeter 17, 22	282954
		13, 15	282950
		3	282934
		1, 7	295337
		19, 24	282955
		21	295339
		23	295340

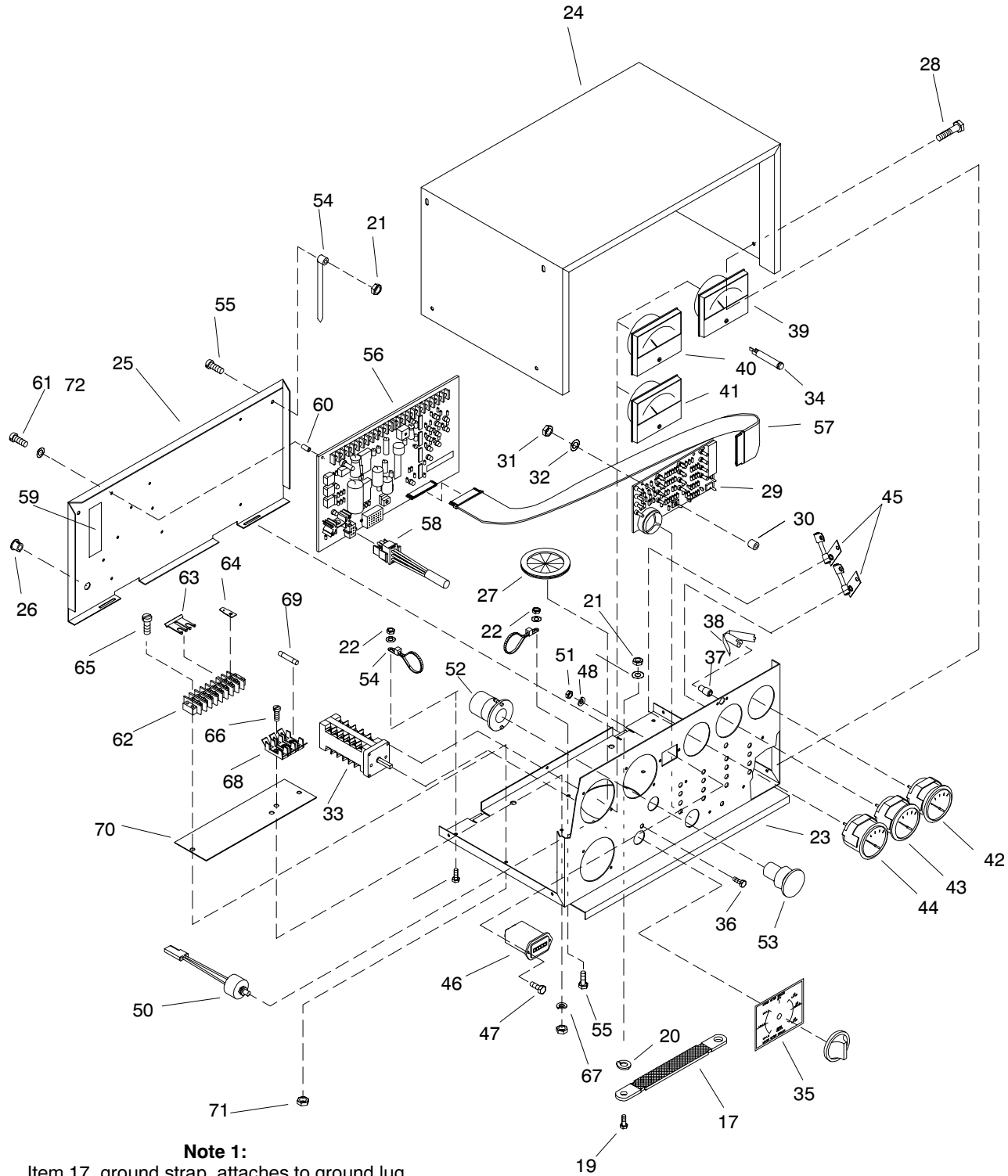
Item	Qty.	Description Variation	Part No.
40	1	AC Voltmeter 1, 5, 13, 17, 19, 21, 23	282814
		3, 7, 11, 15, 22, 24	282815
41	1	Meter, frequency All	295069
42	1	DC Voltmeter All	253329
43	1	Gauge, water temperature All	282898
44	1	Gauge, oil pressure All	282897
45	2	Resistor, 24 Volt 3, 7, 11, 15, 22	292352
46	1	Hourmeter All	238736
47	2	Screw, 6-32 x 1/2 All	X-49-39
48	2	Washer, int. tooth lock, 6 All	X-22-6
49	1	Decal, voltage adjustment (not shown) All	292361
50	1	Potentiometer assembly All	A-255041
51	1	Nut, 6-32 All	X-71-2
52	1	Plug All	X-301-29
53	1	See item 52 All	
54	5	Tie, cable All	X-468-3
55	5	Screw, 10-24 x 3/4 All	X-50-3
56	1	Main Circuit Board All	See table below
57	1	Controller Ribbon Cable All	See table 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

Common hardware. Procure locally.

Group 301: Controller and Mounting



Note 1:

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

Note 2:

Resistors (item 45) mount on back of water temp. gauge and oil pressure gauge (items 43 & 44).

301-70-1
D-272000
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Group 301: Controller and Mounting

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, two-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
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	#
Items not shown:			
	12	Lens, red	253241
	1	Lens, green	253242
	3	Lens, yellow	255931

Common hardware. Procure locally.

Group 701: Literature

Item	Qty.	Description Variation	Part No.
1	1	Installation Manual All	MP-5700
2	1	Operation Manual, generator All	MP-5750
		Operation Manual, D3.152 engine 1	TP-5682
		Operation Manual, 4.236 engine 2, 9, 21, 23	TP-5683
		Operation Manual, 1006.6 engine 3, 25	TP-5684
		Operation Manual, Series 40 7, 29	TP-5710
3	1	Parts Catalog, generator All	MP-5681
		Parts Catalog, D3.152 engine 1	TP-5698
		Parts Catalog, 4.236 engine 2, 21	TP-5699
		Parts Catalog, T4.236 engine 9, 23	TP-5701
		Parts Catalog, Series 40 engine 3, 25	TP-5702
		Parts Catalog, 1006.6 engine 7, 29	TP-5711
		Parts Catalog, generator accessories All	MP-5707

Item	Qty.	Description Variation	Part No.
4	1	Service Manual, generator All	MP-5353
		Service Manual, D3.152 engine 1	TP-5691
		Service Manual, 4.236 engine 2, 9, 21, 23	TP-5693
		Service Manual, 1006.6 engine 3, 25	TP-5694
		Service Manual, Series 40 engine 7, 29	TP-5712
5	1	Wiring Diagrams, 20–180 kW All	MP-5717

Paint and Miscellaneous Parts

1	Spectrum Gray Gallon Can	221332
1	Spectrum Gray 12 oz. Spray Can	221331

	20DS	30DS	40DS	50DS	60DS	80DS/ DSE	100DS/ DSE	125DS	150DS	180DS
CONTROLLER KITS										
6-light	325142	325142	325152	325162	325162	325172	325182	325186	325192	325210
6-light, oversized meterbox	325144	325144	325154	325164	325164	325174	325184	325188	325194	325212
6-light, oversized meterbox, 600 V	325148	325148	325158	325158	325168	325178	325178	325178	325198	325216
6-light, 600 V	325146	325146	325156	325156	325166	325176	325176	325176	325196	325214
16-light	325141	325141	325151	325161	325161	325171	325181	325187	325191	325203
16-light, oversized meterbox	325145	325145	325155	325163	325163	325175	325183	325189	325197	325207
16-light, oversized meterbox, 600 V	325147	325147	325157	325157	325169	325177	325177	325177	325201	325209
16-light, 600 V	325143	325143	325153	325153	325167	325173	325173	325173	325195	325205
Manual	325149	325149	325159	325159	325165	325179	325185	325190	325200	325218
Manual, 600 V	325150	325150	325160	325160	325170	325180	325180	325180	325202	325220
COOLING SYSTEM KITS										
Block Heater, 110-120 Volt	324058	324054	324054	324054	324054	324277	324277	324568	324570	324570
Block Heater, 190-208/220-240 Volt	324059	324055	324055	324055	324055	324278	324278	324569	324571	324571
Radiator, duct flange	324203	324205	324205	324205	324205	324302	324302	326214	222997	222997
Radiator, 50° ambient	324027	324047	324047	324049	324048	324281	324282	324399	324510	324444
Radiator, 50° ambient with optional generator	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	324444	N/A
Radiator, 40° ambient	N/A	N/A	N/A	324048	324048	324281	324281	324332	324721	324443
Radiator, 40° ambient with optional generator	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	324509	N/A
City Water Cooling	324097	324096	324096	324096	324096	324426	324426	324717	N/A	N/A
Remote Radiator Set Up	324430	324422	324422	324422	324422	324427	324427	324716	N/A	N/A
OPTIONAL KITS										
See Parts Catalog MP-5707 for optional kit parts lists.										

6- and 7-Light Controller Kits

6- AND 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325142	325144	325146	325148	325152
1	Controller Assembly*		A-325042	A-325111	A-325041	A-325110	A-325043
1	Controller Assembly*		A-325782**	A-325818**	A-325781**	A-325817**	A-325783**
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted		N/A	N/A	X-6003-17	X-6003-17	N/A
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259360	259360	259793	259793	259414
1	Bracket, CT Mounting	276417					

6- AND 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325154	325156	325158	325162	325164
1	Controller Assembly*		A-325112	A-325044	A-325113	A-325045	A-325114
1	Controller Assembly*		A-325819**	A-325784**	A-325820**	A-325785**	A-325821**
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted		N/A	X-6003-17	X-6003-17	N/A	N/A
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259414	259792	259792	255860	255860
1	Bracket, CT Mounting	276417					

6- AND 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325166	325168	325172	325174	325176
1	Controller Assembly*		A-325046	A-325115	A-325045	A-325114	A-325048
1	Controller Assembly*		A-325786**	A-325822**	A-325785**	A-325821**	A-325788**
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted		X-6003-17	X-6003-17	N/A	N/A	X-6003-17
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259359	259359	255860	255860	259359
1	Bracket, CT Mounting	276417					

* See Controller Assembly section for parts list.

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

N/A Not Applicable

6- and 7-Light Controller Kits, Continued

6- AND 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325178	325182	325184		
1	Controller Assembly*		A-325117	A-325047	A-325116		
1	Controller Assembly*		A-325824**	A-325787**	A-325823**		
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convolute		X-6003-17	N/A	N/A		
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259360	253503	253503		
1	Bracket, CT Mounting	276417					

6- AND 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325186	325188	325192	325194	325196
1	Controller Assembly*		A-325069	A-325138	A-325065	A-325134	A-325049
1	Controller Assembly*		A-325810**	A-325845**	A-325806**	A-325841**	A-325790**
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convolute		N/A	N/A	N/A	N/A	X-6003-17
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		273257	273257	253610	253610	259414
1	Bracket, CT Mounting		299966	299966	299966	299966	276417

6- AND 7-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325198	325210	325212	325214	325216
1	Controller Assembly*		A-325120	A-325066	A-325135	A-325067	A-325136
1	Controller Assembly*		A-325827**	A-325807**	A-325842**	A-325808**	A-325843**
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convolute		X-6003-17	N/A	N/A	X-6003-17	X-6003-17
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259414	272691	272691	279272	279272
1	Bracket, CT Mounting		276417	325382	325382	325382	325382

* See Controller Assembly section for parts list.

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

N/A Not Applicable

6-Light Controller Assemblies

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts				
			A-325041	A-325042	A-325043	A-325044	A-325045
1	Potentiometer Assembly	A-255041					
1	6-light Circuit Board	B-292381					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Hex	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
6	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282814	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282934	295337	282338	295337	282950
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	N/A	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292373	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	292836					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325074					

N/A Not Applicable

6-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts				
			A-325046	A-325047	A-325048	A-325049	A-325065
1	Potentiometer Assembly	A-255041					
1	6-light Circuit Board	B-292381					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Hex	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
6	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282815	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295338	282954	282950	282954	295339
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	292352	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292374	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	292836					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325074					

N/A Not Applicable

6-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts				
			A-325066	A-325067	A-325069		
1	Potentiometer Assembly	A-255041					
1	6-light Circuit Board	B-292381					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Hex	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
6	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282814	282815	282814		
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295340	282955	282955		
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		
1	Decal	292361					
1	Switch, Selector		292374	292374	292373		
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	292836					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325074					

N/A Not Applicable

6-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts				
			A-325110	A-325111	A-325112	A-325113	A-325114
1	Potentiometer Assembly	A-255041					
1	6-light Circuit Board	B-292381					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex CrimpTite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
6	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
3	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282815	282814	282814	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282934	295337	295338	295337	282950
3	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	N/A	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292373	292374	292373
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
1	Box, Silkscreened Controller	325076					

N/A Not Applicable

6-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts				
			A-325115	A-325116	A-325117	A-325120	A-325134
1	Potentiometer Assembly	A-255041					
1	6-light Circuit Board	B-292381					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex Crimptite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
6	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp	253332					
3	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282815	282814	282815	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295338	282954	282950	282955	295339
3	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	292352	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292374	292374	292373
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	325072	328072	N/A
1	Box, Silkscreened Controller	325076					

N/A Not Applicable

6-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	6-Light Controller Assembly Number/Unique Parts				
			A-325135	A-325136	A-325138		
1	Potentiometer Assembly	A-255041					
1	6-light Circuit Board	B-292381					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex CrimpTite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
6	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp	253332					
3	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282814	282815	282814		
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295340	282955	282955		
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		
1	Decal	292361					
1	Switch, Selector		292374	292374	392373		
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	292836					
1	Meter, Frequency	295069					
1	Cover, Controller	325007					
1	Decal, Selector Switch		325072	325072	N/A		
1	Box, Silkscreened Controller	325076					

N/A Not Applicable

7-Light Controller Assemblies

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325781	A-325782	A-325783	A-325784	A-325785
1	Potentiometer Assembly	A-255041					
1	Indicator Circuit Board	A-336430					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Hex	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
7	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282814	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282934	295337	282338	295337	282950
2	Socket, Lamp	284990					
9	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	N/A	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292373	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325945					

N/A Not Applicable

7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325786	A-325787	A-325788	A-325790	A-325806
1	Potentiometer Assembly	A-255041					
1	Indicator Circuit Board	A-336430					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Hex	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
7	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282815	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295338	282954	282950	282954	295339
2	Socket, Lamp	284990					
9	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	292352	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292374	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325945					

N/A Not Applicable

7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325807	A-325808	A-325810		
1	Potentiometer Assembly	A-255041					
1	Indicator Circuit Board	A-336430					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Hex	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
7	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282814	282815	282814		
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295340	282955	282955		
2	Socket, Lamp	284990					
9	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		N/A	292352	N/A		
1	Decal	292361					
1	Switch, Selector		292374	292374	292373		
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch	325072					
1	Box, Silkscreened Controller	325945					

N/A Not Applicable

7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325817	A-325818	A-325819	A-325820	A-325821
1	Potentiometer Assembly	A-255041					
1	Indicator Circuit Board	A-336430					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex CrimpTite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
7	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
3	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282815	282814	282814	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282934	295337	295338	295337	282950
3	Socket, Lamp	284990					
9	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	N/A	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292373	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325007					
1	Decal, Selector Switch		325072	N/A	N/A	325072	N/A
1	Box, Silkscreened Controller	325943					

N/A Not Applicable

7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325822	A-325823	A-325824	A-325827	A-325841
1	Potentiometer Assembly	A-255041					
1	Indicator Circuit Board	A-336430					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex Crimptite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
7	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp	253332					
3	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282815	282814	282815	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295338	282954	282950	282955	295339
3	Socket, Lamp	284990					
9	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	292352	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292374	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325007					
1	Decal, Selector Switch		325072	N/A	325072	328072	N/A
1	Box, Silkscreened Controller	325943					

N/A Not Applicable

7-Light Controller Assemblies, Continued

Qty.	Description	Common Parts	7-Light Controller Assembly Number/Unique Parts				
			A-325842	A-325843	A-325845		
1	Potentiometer Assembly	A-255041					
1	Indicator Circuit Board	A-336430					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
8	Washer, Plain	X-25-73					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex CrimpTite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
7	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp	253332					
3	Lamp	255126					
4	Bumper	255443					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282814	282815	282814		
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295340	282955	282955		
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		
1	Decal	292361					
1	Switch, Selector		292374	292374	392373		
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325007					
1	Decal, Selector Switch		325072	325072	N/A		
1	Box, Silkscreened Controller	325943					

N/A Not Applicable

16-Light Controller Kits

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS							
Qty.	Description	Common	Kit Number/Unique Parts				
			325141	325143	325145	325147	325151
1	Controller Assembly*		A-325010	A-325009	A-325079	A-325078	A-325011
1	Controller Assembly*		A-325712**	A-325711 **	A-325748**	A-325747**	A-325714**
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted			X-6003-17	N/A	X-6003-17	N/A
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259360	259793	259360	259793	259414
1	Bracket, CT Mounting	276417					

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325153	325155	325157	325161	325163
1	Controller Assembly*		A-325012	A-325080	A-325081	A-325013	A-325082
1	Controller Assembly*		A-325715**	A-325749**	A-325750**	A-325716**	A-325751 **
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted		X-6003-17	N/A	X-6003-17	N/A	N/A
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259792	259414	259792	255860	255860
1	Bracket, CT Mounting	276417					

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325167	325169	325171	325173	325175
1	Controller Assembly*		A-325014	A-325083	A-325013	A-325016	A-325082
1	Controller Assembly*		A-325717**	A-325752**	A-325716**	A-325720**	A-325751 **
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted		X-6003-17	X-6003-17	X-6003-17	N/A	N/A
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259359	259359	255860	259360	255860
1	Bracket, CT Mounting	276417					

* See Controller Assembly section for parts list.

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

N/A Not Applicable

16-Light Controller Kits, Continued

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325177	325181	325183	325187	325189
1	Controller Assembly*		A-325085	A-325015	A-325084	A-325037	A-325106
1	Controller Assembly*		A-325754**	A-325719**	A-325753**	A-325741**	A-325775**
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted		X-6003-17	N/A	N/A	N/A	N/A
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		259360	253503	253503	273257	273257
1	Bracket, CT Mounting		276417	276417	276417	299966	299966

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325191	325195	325197	325201	325203
1	Controller Assembly*		A-325033	A-325017	A-325102	A-325086	A-325034
1	Controller Assembly*		A-325737**	A-325721**	A-325771**	A-325755**	A-325738**
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted		N/A	X-6003-17	N/A	X-6003-17	N/A
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		253610	259414	253610	259414	272691
1	Bracket, CT Mounting		299966	276417	299966	276417	325382

16-LIGHT MICROPROCESSOR CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325205	325207	325209		
1	Controller Assembly*		A-325035	A-325103	A-325104		
1	Controller Assembly*		A-325739**	A-325772**	A-325773**		
2	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	Washer, Lock Shakeproof	X-22-9					
2	Screw, r.h.m.	X-49-35					
1	Conduit, Convoluted		X-6003-17	N/A	X-6003-17		
1	Clamp, Insulator	X-672-15					
1	Screw, Drill Hex.	X-794-1					
1	Sensor, Ferromagnetic	241623					
1	Harness, Wiring	255040					
1	Bracket, Sensor Mounting	257070					
3	Transformer, Current		279272	272691	279272		
1	Bracket, CT Mounting		325382	325382	325382		

* See Controller Assembly section for parts list.

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

N/A Not Applicable

16-Light Controller Assemblies

Qty.	Description	Common Parts	16-Light Controller Assembly Number/Unique Parts				
			A-325009	A-325010	A-325011	A-325012	A-325013
1	Potentiometer Assembly	A-255041					
1	16-light Circuit Board	B-292357					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
5	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Phil Hex Crimptite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
12	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282814	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282934	295337	282338	295337	282950
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	N/A	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292373	292374	292373
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
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-325014	A-325015	A-325016	A-325017	A-325033
1	Potentiometer Assembly	A-255041					
1	16-light Circuit Board	B-292357					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
5	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Phil Hex CrimpTite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
12	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282815	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295338	282954	282950	282954	295339
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	292352	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292374	292374	292373
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	325072	325072	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-325034	A-325035	A-325037		
1	Potentiometer Assembly	A-255041					
1	16-light Circuit Board	B-292357					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
5	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Phil Hex Crimptite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
12	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282814	282815	282814		
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295340	282955	282955		
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		
1	Decal	292361					
1	Switch, Selector		292374	292374	292373		
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	325072	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-325078	A-325079	A-325080	A-325081	A-325082
1	Potentiometer Assembly	A-255041					
1	16-light Circuit Board	B-292357					
1	Main Circuit Board	G-292806					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex CrimpTite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
12	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282814	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282934	295337	282338	295337	282950
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	N/A	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292373	292374	292373
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
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-325083	A-325084	A-325085	A-325086
1	Potentiometer Assembly	A-255041				
1	16-light Circuit Board	B-292357				
1	Main Circuit Board	G-292806				
1	Washer, Shakeproof	X-22-20				
2	Washer, Lock	X-22-50				
4	Washer, Lock #6	X-22-6				
3	Washer, Lock #8	X-22-7				
1	Grommet	X-284-31				
1	Plug, Button	X-301-29				
1	Plug, Button	X-301-34				
2	Screw, r.h.m. 6-32 x 3/8	X-49-2				
18	Screw, r.h.m. 6-32 x 1/4	X-49-25				
2	Screw, Pan Head	X-49-39				
5	Screw, r.h.m. 10-24 x 3/4	X-50-3				
1	Screw, Pan Head Machine	X-50-70				
2	Screw, r.h.m.	X-51-53				
1	Strap, Ground	X-6046-2				
1	Jumper	X-6048-2				
10	Screw, Phil Hex Crimptite	X-6216-1				
2	Nut, Hex.	X-6234-6				
2	Screw, Thread Forming	X-67-127				
1	Sleeve	X-696-5				
4	Spacer	X-712-9				
1	Tab, Ident.	201620-86				
1	Meter, Hour	238736				
1	Terminal	238898				
1	Connector, Plug 6 Position	241617				
1	Block, Terminal	246115				
12	Lens, Red	253241				
1	Voltmeter	253329				
2	Lamp, Meter Scale	253332				
2	Lamp	255126				
1	Plate, Hinge	292908				
1	Voltmeter, AC		282815	282814	282815	282815
1	Gauge, Oil Pressure	282897				
1	Gauge, Water Temperature	282898				
1	Ammeter		295338	282954	282950	282954
2	Socket, Lamp	284990				
8	Spacer, Circuit Board	287948				
3	Fuse, 1.5 Amp	291207				
1	Decal	292347				
1	Resistor		292352	N/A	292352	292352
1	Decal	292361				
1	Switch, Selector		292374	292373	292374	292374
1	Holder, Fuse	292821				
1	Marker, Strip	292823				
1	Bumper	292834				
1	Harness, Cable	292836				
1	Meter, Frequency	295069				
1	Cover, Controller	325007				
1	Decal, Selector Switch		325072	N/A	325072	325072
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-325102	A-325103	A-325104	A-325106
1	Potentiometer Assembly	A-255041				
1	16-light Circuit Board	B-292357				
1	Main Circuit Board	G-292806				
1	Washer, Shakeproof	X-22-20				
2	Washer, Lock	X-22-50				
4	Washer, Lock #6	X-22-6				
3	Washer, Lock #8	X-22-7				
1	Grommet	X-284-31				
1	Plug, Button	X-301-29				
1	Plug, Button	X-301-34				
2	Screw, r.h.m. 6-32 x 3/8	X-49-2				
18	Screw, r.h.m. 6-32 x 1/4	X-49-25				
2	Screw, Pan Head	X-49-39				
5	Screw, r.h.m. 10-24 x 3/4	X-50-3				
1	Screw, Pan Head Machine	X-50-70				
2	Screw, r.h.m.	X-51-53				
1	Strap, Ground	X-6046-2				
1	Jumper	X-6048-2				
10	Screw, Phil Hex Crimptite	X-6216-1				
2	Nut, Hex.	X-6234-6				
2	Screw, Thread Forming	X-67-127				
1	Sleeve	X-696-5				
4	Spacer	X-712-9				
1	Tab, Ident.	201620-86				
1	Meter, Hour	238736				
1	Terminal	238898				
1	Connector, Plug 6 Position	241617				
1	Block, Terminal	246115				
12	Lens, Red	253241				
1	Voltmeter	253329				
2	Lamp, Meter Scale	253332				
2	Lamp	255126				
1	Plate, Hinge	292908				
1	Voltmeter, AC		282814	282814	282815	282814
1	Gauge, Oil Pressure	282897				
1	Gauge, Water Temperature	282898				
1	Ammeter		295339	295340	282955	282955
2	Socket, Lamp	284990				
8	Spacer, Circuit Board	287948				
3	Fuse, 1.5 Amp	291207				
1	Decal	292347				
1	Resistor		N/A	N/A	292352	N/A
1	Decal	292361				
1	Switch, Selector		292373	292374	292374	292373
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		N/A	325072	325072	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-325711	A-325712	A-325714	A-325715	A-325716
1	Potentiometer Assembly	A-255041					
1	16-light Circuit Board	A-336432					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
5	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Phil Hex Crimptite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
12	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282814	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282934	295337	282338	295337	282950
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	N/A	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292373	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch		325072	N/A	N/A	325072	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-325717	A-325719	A-325720	A-325721	A-325737
1	Potentiometer Assembly	A-255041					
1	16-light Circuit Board	A-336432					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
5	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Phil Hex CrimpTite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
12	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282815	282814	282815	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295338	282954	282950	282954	295339
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	292352	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292374	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch		325072	N/A	325072	325072	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-325738	A-325739	A-325741		
1	Potentiometer Assembly	A-255041					
1	16-light Circuit Board	A-336432					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
5	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
10	Screw, Phil Hex Crimptite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
12	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	292908					
1	Voltmeter, AC		282814	282815	282814		
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		295340	282955	282955		
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		
1	Decal	292361					
1	Switch, Selector		292374	292374	292373		
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325003					
1	Decal, Selector Switch		325072	325072	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-325747	A-325748	A-325749	A-325750	A-325751
1	Potentiometer Assembly	A-255041					
1	16-light Circuit Board	A-336432					
1	Main Circuit Board	A-336415					
1	Washer, Shakeproof	X-22-20					
2	Washer, Lock	X-22-50					
4	Washer, Lock #6	X-22-6					
3	Washer, Lock #8	X-22-7					
1	Grommet	X-284-31					
1	Plug, Button	X-301-29					
1	Plug, Button	X-301-34					
2	Screw, r.h.m. 6-32 x 3/8	X-49-2					
18	Screw, r.h.m. 6-32 x 1/4	X-49-25					
2	Screw, Pan Head	X-49-39					
4	Screw, r.h.m. 10-24 x 3/4	X-50-3					
1	Screw, Pan Head Machine	X-50-70					
2	Screw, r.h.m.	X-51-53					
1	Strap, Ground	X-6046-2					
1	Jumper	X-6048-2					
12	Screw, Phil Hex Crimptite	X-6216-1					
2	Nut, Hex.	X-6234-6					
2	Screw, Thread Forming	X-67-127					
1	Sleeve	X-696-5					
4	Spacer	X-712-9					
1	Tab, Ident.	201620-86					
1	Meter, Hour	238736					
1	Terminal	238898					
1	Connector, Plug 6 Position	241617					
1	Block, Terminal	246115					
12	Lens, Red	253241					
1	Voltmeter	253329					
2	Lamp, Meter Scale	253332					
2	Lamp	255126					
1	Plate, Hinge	273785					
1	Voltmeter, AC		282815	282814	282814	282815	282814
1	Gauge, Oil Pressure	282897					
1	Gauge, Water Temperature	282898					
1	Ammeter		282934	295337	282338	295337	282950
2	Socket, Lamp	284990					
8	Spacer, Circuit Board	287948					
3	Fuse, 1.5 Amp	291207					
1	Decal	292347					
1	Resistor		292352	N/A	N/A	292352	N/A
1	Decal	292361					
1	Switch, Selector		292374	292373	292373	292374	292373
1	Holder, Fuse	292821					
1	Marker, Strip	292823					
1	Bumper	292834					
1	Harness, Cable	336428					
1	Meter, Frequency	295069					
1	Cover, Controller	325007					
1	Decal, Selector Switch		325072	N/A	N/A	325072	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-325752	A-325753	A-325754	A-325755
1	Potentiometer Assembly	A-255041				
1	16-light Circuit Board	A-336432				
1	Main Circuit Board	A-336415				
1	Washer, Shakeproof	X-22-20				
2	Washer, Lock	X-22-50				
4	Washer, Lock #6	X-22-6				
3	Washer, Lock #8	X-22-7				
1	Grommet	X-284-31				
1	Plug, Button	X-301-29				
1	Plug, Button	X-301-34				
2	Screw, r.h.m. 6-32 x 3/8	X-49-2				
18	Screw, r.h.m. 6-32 x 1/4	X-49-25				
2	Screw, Pan Head	X-49-39				
5	Screw, r.h.m. 10-24 x 3/4	X-50-3				
1	Screw, Pan Head Machine	X-50-70				
2	Screw, r.h.m.	X-51-53				
1	Strap, Ground	X-6046-2				
1	Jumper	X-6048-2				
10	Screw, Phil Hex Crimptite	X-6216-1				
2	Nut, Hex.	X-6234-6				
2	Screw, Thread Forming	X-67-127				
1	Sleeve	X-696-5				
4	Spacer	X-712-9				
1	Tab, Ident.	201620-86				
1	Meter, Hour	238736				
1	Terminal	238898				
1	Connector, Plug 6 Position	241617				
1	Block, Terminal	246115				
12	Lens, Red	253241				
1	Voltmeter	253329				
2	Lamp, Meter Scale	253332				
2	Lamp	255126				
1	Plate, Hinge	273785				
1	Voltmeter, AC		282815	282814	282815	282815
1	Gauge, Oil Pressure	282897				
1	Gauge, Water Temperature	282898				
1	Ammeter		295338	282954	282950	282954
2	Socket, Lamp	284990				
8	Spacer, Circuit Board	287948				
3	Fuse, 1.5 Amp	291207				
1	Decal	292347				
1	Resistor		292352	N/A	292352	292352
1	Decal	292361				
1	Switch, Selector		292374	292373	292374	292374
1	Holder, Fuse	292821				
1	Marker, Strip	292823				
1	Bumper	292834				
1	Harness, Cable	336428				
1	Meter, Frequency	295069				
1	Cover, Controller	325007				
1	Decal, Selector Switch		325072	N/A	325072	325072
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-325771	A-325772	A-325773	A-325775
1	Potentiometer Assembly	A-255041				
1	16-light Circuit Board	A-336432				
1	Main Circuit Board	A-336415				
1	Washer, Shakeproof	X-22-20				
2	Washer, Lock	X-22-50				
4	Washer, Lock #6	X-22-6				
3	Washer, Lock #8	X-22-7				
1	Grommet	X-284-31				
1	Plug, Button	X-301-29				
1	Plug, Button	X-301-34				
2	Screw, r.h.m. 6-32 x 3/8	X-49-2				
18	Screw, r.h.m. 6-32 x 1/4	X-49-25				
2	Screw, Pan Head	X-49-39				
5	Screw, r.h.m. 10-24 x 3/4	X-50-3				
1	Screw, Pan Head Machine	X-50-70				
2	Screw, r.h.m.	X-51-53				
1	Strap, Ground	X-6046-2				
1	Jumper	X-6048-2				
10	Screw, Phil Hex Crimptite	X-6216-1				
2	Nut, Hex.	X-6234-6				
2	Screw, Thread Forming	X-67-127				
1	Sleeve	X-696-5				
4	Spacer	X-712-9				
1	Tab, Ident.	201620-86				
1	Meter, Hour	238736				
1	Terminal	238898				
1	Connector, Plug 6 Position	241617				
1	Block, Terminal	246115				
12	Lens, Red	253241				
1	Voltmeter	253329				
2	Lamp, Meter Scale	253332				
2	Lamp	255126				
1	Plate, Hinge	273785				
1	Voltmeter, AC		282814	282814	282815	282814
1	Gauge, Oil Pressure	282897				
1	Gauge, Water Temperature	282898				
1	Ammeter		295339	295340	282955	282955
2	Socket, Lamp	284990				
8	Spacer, Circuit Board	287948				
3	Fuse, 1.5 Amp	291207				
1	Decal	292347				
1	Resistor		N/A	N/A	292352	N/A
1	Decal	292361				
1	Switch, Selector		292373	292374	292374	292373
1	Holder, Fuse	292821				
1	Marker, Strip	292823				
1	Bumper	292834				
1	Harness, Cable	336428				
1	Meter, Frequency	295069				
1	Cover, Controller	325007				
1	Decal, Selector Switch		N/A	325072	325072	N/A
1	Box, Silkscreened Controller	325075				
1	Lens, Green	253242				
3	Lens, Yellow	255931				

N/A Not Applicable

Manual Controller Assemblies

MANUAL CONTROLLER KIT PARTS							
Qty.	Description	Common	Kit Number/Unique Parts				
			325149	325159	325160	325165	325170
1	Controller Assembly*		A-324108	A-324109	A-324110	A-324111	A-324112
4	Washer, Lock 5/16	X-22-16					
1	Terminal	X-283-8					
1	Conduit, Convoluted		N/A	N/A	X-6003-17	N/A	X-6003-17
1	Screw, Drill Hex.	X-794-1					
1	Harness, Wiring	255040					
3	Transformer, Current		259360	259414	259792	255860	259359
1	Bracket, CT Mounting	276417					

MANUAL CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325179	325180	325185	325190	325200
1	Controller Assembly*		A-324111	A-324114	A-324113	A-324120	A-324117
4	Washer, Lock 5/16	X-22-16					
1	Terminal	X-283-8					
1	Conduit, Convoluted		N/A	X-6003-17	N/A	N/A	N/A
1	Screw, Drill Hex.	X-794-1					
1	Harness, Wiring	255040					
3	Transformer, Current		255860	259360	253503	273257	253610
1	Bracket, CT Mounting		276417	276417	276417	299966	299966

MANUAL CONTROLLER KIT PARTS, CONTINUED							
Qty.	Description	Common	Kit Number/Unique Parts				
			325202	325218	325220		
1	Controller Assembly*		A-324115	A-324118	A-324119		
4	Washer, Lock 5/16	X-22-16					
1	Terminal	X-283-8					
1	Conduit, Convoluted		X-6003-17	N/A	X-6003-17		
1	Screw, Drill Hex.	X-794-1					
1	Harness, Wiring	255040					
3	Transformer, Current		259414	272691	279272		
1	Bracket, CT Mounting		276417	325382	325382		

* See Controller Assembly section for parts list.

N/A Not Applicable

Manual Controller Assemblies

Qty.	Description	Common Parts	Manual Controller Assembly Number/Unique Parts						
			A-324108	A-324109	A-325110	A-324111	A-324112	A-324113	A-324114
1	Potentiometer Assembly	A-255041							
1	Overspeed Circuit Board	A-249812							
1	Main Circuit Board	F-239563							
1	Washer, Shakeproof #10	X-22-13							
4	Washer, Lock #6	X-22-6							
1	Grommet	X-284-31							
1	Plug, Button	X-301-34							
2	Terminal	X-431-25							
2	Terminal	X-431-29							
2	Screw, 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, r.h.m. 10-24 x 1	X-50-7							
2	Screw, r.h.m. 8-32 x 3/8	X-51-12							
2	Screw, r.h.m.	X-51-53							
1	Strap, Ground	X-6046-2							
1	Jumper	X-6048-2							
10	Screw, Phil Hex Crimptite	X-6216-1							
2	Screw, Thread Forming	X-67-127							
1	Sleeve	X-696-5							
1	Tab, Ident.	201620-86							
1	Fuse, 10 Amp	223316							
1	Holder, Fuse	238426							
1	Meter, Hour	238736							
1	Terminal	238898							
1	Block, Terminal	246115							
1	Switch, Rocker	249406							
1	Voltmeter	253329							
2	Lamp, Meter Scale	253332							
2	Lamp	255126							
1	Lamp	269373							
1	Plate, Hinge	273376							
1	Harness, Controller	274710							
1	Voltmeter, AC		282814	282814	282815	282814	282815	282814	282815
1	Gauge, Oil Pressure	282897							
1	Gauge, Water Temperature	282898							
1	Ammeter		295337	282338	295337	282950	295338	282954	282950
2	Socket, Lamp	284990							
8	Spacer, Circuit Board	287948							
3	Fuse, 1.5 Amp	291207							
1	Decal	292347							
1	Resistor		N/A	N/A	292352	N/A	292352	N/A	292352
1	Decal	292361							
1	Switch, Selector		292373	292373	292374	292373	292374	292373	292374
1	Holder, Fuse	292821							
1	Marker, Strip	292823							
1	Bumper	292834							
1	Meter, Frequency	295069							
1	Transformer, Controller	295281							
1	Cover, Controller	325003							
1	Decal, Selector Switch		N/A	N/A	325072	N/A	325072	N/A	325072
1	Box, Controller	324140							

N/A Not Applicable

Manual Controller Assemblies, Continued

Qty.	Description	Common Parts	Manual Controller Assembly Number/Unique Parts						
			A-324115	A-324117	A-324118	A-324119	A-324120		
1	Potentiometer Assembly	A-255041							
1	Overspeed Circuit Board	A-249812							
1	Main Circuit Board	F-239563							
1	Washer, Shakeproof #10	X-22-13							
4	Washer, Lock #6	X-22-6							
1	Grommet	X-284-31							
1	Plug, Button	X-301-34							
2	Terminal	X-431-25							
2	Terminal	X-431-29							
2	Screw, 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, r.h.m. 10-24 x 1	X-50-7							
2	Screw, r.h.m. 8-32 x 3/8	X-51-12							
2	Screw, r.h.m.	X-51-53							
1	Strap, Ground	X-6046-2							
1	Jumper	X-6048-2							
10	Screw, Phil Hex Crimptite	X-6216-1							
2	Screw, Thread Forming	X-67-127							
1	Sleeve	X-696-5							
1	Tab, Ident.	201620-86							
1	Fuse, 10 Amp	223316							
1	Holder, Fuse	238426							
1	Meter, Hour	238736							
1	Terminal	238898							
1	Block, Terminal	246115							
1	Switch, Rocker	249406							
1	Voltmeter	253329							
2	Lamp, Meter Scale	253332							
2	Lamp	255126							
1	Lamp	269373							
1	Plate, Hinge	273376							
1	Harness, Controller	274710							
1	Voltmeter, AC		282815	282814	292814	282815	282814		
1	Gauge, Oil Pressure	282897							
1	Gauge, Water Temperature	282898							
1	Ammeter		282954	298339	295340	282955	282955		
2	Socket, Lamp	284990							
8	Spacer, Circuit Board	287948							
3	Fuse, 1.5 Amp	291207							
1	Decal	292347							
1	Resistor		292352	N/A	N/A	292352	N/A		
1	Decal	292361							
1	Switch, Selector		292374	292373	292373	292374	292373		
1	Holder, Fuse	292821							
1	Marker, Strip	292823							
1	Bumper	292834							
1	Meter, Frequency	295069							
1	Transformer, Controller	295281							
1	Cover, Controller	325003							
1	Decal, Selector Switch		325072	N/A	325072	325072	N/A		
1	Box, Controller	324140							

N/A Not Applicable

Cooling System Kits

Qty.	Description	Part No.
Block Heater, 110-120 V		
1	Nipple, 1/2 x 2 1/2	X-209-3
1	Elbow, pipe, 1/2	X-215-1
1	Elbow, pipe, 1/4	X-215-5
1	Nipple, pipe, 1/4 x 7/8	X-220-5
1	Hose	X-312-18
1	Hose, 5/8" ID	X-312-5
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-1
1	Connector, hose	X-582-22
1	Tag, hang	279047
1	Bracket, block hrt m	326219
1	Heater, block	326247
Block Heater, 190-208/220-240 V		
1	Nipple, 1/2 x 2 1/2	X-209-3
1	Elbow, pipe, 1/2	X-215-1
1	Elbow, pipe, 1/4	X-215-5
1	Nipple, pipe, 1/4 x 7/8	X-220-5
1	Hose	X-312-18
1	Hose, 5/8" ID	X-312-5
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-1
1	Connector, hose	X-582-22
1	Tag, hang	279047
1	Bracket, block hrt m	326219
1	Heater, block	326248
Block Heater, 110-120 V		
1	Tee, pipe, 1/2	X-203-13
1	Tee, black iron, 3/8	X-203-15
1	Nipple, pipe, 3/8 x 1	X-204-9
1	Nipple, pipe, 1/2 x 3	X-209-11
1	Hose, 5/8" ID	X-312-5
1	Hose	X-312-51
1	Connector, hose elbow	X-391-19
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-2
1	Tag, hang	279047
1	Plug, freeze	324094
1	Bracket, block	326219
1	Heater, block	326220
Block Heater, 190-208/220-240 V		
1	Tee, pipe, 1/2	X-203-13
1	Tee, black iron, 3/8	X-203-15
1	Nipple, pipe, 3/8 x 1	X-204-9
1	Nipple, pipe, 1/2 x 3	X-209-11
1	Hose, 5/8" ID	X-312-5
1	Hose	X-312-51
1	Connector, hose elbow	X-391-19
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-2
1	Tag, hang	279047
1	Plug, freeze	324094
1	Bracket, block	326219
1	Heater, block	326221

Qty.	Description	Part No.
Block Heater, 110-120 V		
1	Tee, pipe, 1/4	A-110
1	Nipple, pipe, 1/4 x 1 1/2	X-220-6
1	Hose, 5/8 x 36	X-312-13
1	Hose	X-312-46
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-22
1	Connector, hose	X-582-3
1	Plug, freeze	276212
1	Tag, hang	279047
1	Bracket, block	326219
1	Heater, block	326247
Block Heater, 190-208/220-240 V		
1	Tee, pipe, 1/4	A-110
1	Nipple, pipe, 1/4 x 1 1/2	X-220-6
1	Hose, 5/8 x 36	X-312-13
1	Hose	X-312-46
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-22
1	Connector, hose	X-582-3
1	Plug, freeze	276212
1	Tag, hang	279047
1	Bracket, block	326219
1	Heater, block	326248
Block Heater, 110-120 V		
1	Tee, pipe, 1/2	X-203-13
1	Nipple, pipe, 1/2 x 1 1/2	X-209-5
1	Hose	X-312-35
1	Hose	X-312-51
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-1
1	Connector, hose	X-582-2
1	Plug, freeze	324094
1	Bracket, block	326219
1	Heater, block	326234
Block Heater, 190-208/220-240 V		
1	Tee, pipe, 1/2	X-203-13
1	Nipple, pipe, 1/2 x 1 1/2	X-209-5
1	Hose	X-312-35
1	Hose	X-312-51
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-1
1	Connector, hose	X-582-2
1	Plug, freeze	324094
1	Bracket, block	326219
1	Heater, block	326233
Block Heater, 110-120 V		
1	Tee, pipe, 1/2	X-203-13
1	Nipple, pipe, 1/2 x 1 1/2	X-209-5
1	Hose	X-312-24
1	Hose	X-312-51
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-1
1	Connector, hose	X-582-2
1	Plug, freeze	324094
1	Bracket, block	326219
1	Heater, block	326234

Cooling System Kits, Continued

Qty.	Description	Part No.
Block Heater, 190-208/220-240 V		
1	Tee, pipe, 1/2	X-203-13
1	Nipple, pipe, 1/2 x 1 1/2	X-209-5
1	Hose	X-312-24
1	Hose	X-312-51
4	Clamp, hose	X-426-10
1	Connector, hose	X-582-1
1	Connector, hose	X-582-2
1	Plug, freeze	324094
1	Bracket, block	326219
1	Heater, block	326235
Cooling, Radiator Duct Flange		
8	Rivet, pop	X-781-11
6	Screw, drill hex	X-794-1
2	Frame, air duct	324518
2	Frame, air duct	324519
Cooling, Radiator Duct Flange		
8	Rivet, pop	X-781-11
6	Screw, drill hex	X-794-1
2	Frame, air duct	324199
2	Frame, air duct	324201
Cooling, Radiator Duct Flange		
8	Rivet, pop	X-781-11
6	Screw, drill hex	X-794-1
2	Frame, air duct	324200
2	Frame, air duct	324201
Cooling, Radiator Duct Flange		
8	Rivet, pop	X-781-11
4	Screw, drill hex	X-794-1
2	Frame, air duct	324300
2	Frame, air duct	324301
Cooling, Radiator Duct Flange		
8	Rivet, pop	X-781-11
4	Screw, drill hex	X-794-1
2	Frame, air duct	326212
2	Frame, air duct	326213
Cooling, City Water		
1	Valve Drain 3/8	X-256-1
1	Valve, solenoid	X350-7
1	Line, flexible 5/16	X-386-36
2	Hose, radiator	X-6014-59
4	Clamp, hose	249888
1	Cap, pressure	258037
1	Tank, expansion	274645
1	Regulator, water	290176
1	Bracket, expansion tank	324051
1	Guard, belt (right)	324084
1	Guard, belt (left)	324095
1	Guard, belt (front)	324081
1	Hose, molded	324127
1	Guard, belt right	324636
1	Bracket, heat exchanger	326160
1	Exchanger, heat	326160
2	Plate, heat exchanger	326166

Qty.	Description	Part No.
Cooling, City Water		
1	Valve Drain 1/8	X-256-2
1	Valve Drain	X-256-5
1	Valve, solenoid	X350-7
1	Line, flexible 5/16	X-386-36
2	Hose, radiator	X-6014-59
4	Clamp, hose	249888
1	Cap, pressure	258037
1	Tank, expansion	274645
1	Hose, lower radiator	324041
1	Exchanger, heat	324307
1	Guard, belt (right)	324660
1	Guard, belt (left)	324661
1	Guard, belt (top)	324662
1	Guard, belt (front)	324663
1	Bracket, mounting (right)	324664
1	Bracket, mounting (left)	324665
1	Bracket, mounting (bottom)	324666
1	Bracket, mounting (bottom)	324667
1	Support, tank	324668
1	Bracket, heat exchanger	324669
1	Regulator, water	324670
1	Support, top	324290
2	Bracket, support	324291
Cooling, Remote Radiator		
1	Hose, lower radiator	324041
1	Hose, upper radiator	324040
1	Bracket, expansion tank	324084
1	Guard, belt (right)	324084
1	Guard, belt (left)	324095
1	Guard, belt (front)	324635
1	Guard, belt (right)	324636
Cooling, City Water		
2	Valve Drain 3/8	X-256-2
1	Valve, solenoid	X350-8
1	Line, flexible 5/16	X-386-36
2	Hose, radiator	X-6014-10
2	Clamp, hose	249887
2	Clamp, hose	250081
1	Cap, pressure	258037
3	Adapter, hose	285685
1	Regulator, water	290377
2	Support, heat exchanger	290378
1	Hose, lower radiator	324083
1	Hose, upper radiator	324625
1	Bracket, expansion tank	324626
1	Guard, belt (right)	324629
1	Guard, belt (left)	324628
1	Guard, belt (front)	324627
1	Guard, alternator	324630
1	Exchanger, heat	326160

Cooling System Kits, Continued

Qty.	Description	Part No.	Qty.	Description	Part No.
Cooling, Remote Radiator 324427			Cooling, City Water 324717		
4	Clamp, hose	250081	2	Valve Drain 3/8	X-256-1
1	Hose, lower radiator	324083	1	Valve Drain 1/4	X-256-3
1	Hose, upper radiator	324625	1	Valve Drain	X-256-5
1	Bracket, expansion tank	324626	1	Clamp, hose 1/2	X-309-14
1	Guard, belt (right)	324629	1	Valve, solenoid	X-350-7
1	Guard, belt (left)	324628	1	Line, flexible 5/16	X-386-36
1	Guard, belt (front)	324627	1	Spacer	X-400-199
1	Guard, alternator	324630	1	Spacer	X-400-200
Cooling, Remote Radiator 324430			2	Clamp, hose	X-426-2
1	Valve Drain	X-256-5	1	Adapter, hose	X-570-20
1	Hose, radiator	X-304-15	1	Hose, radiator	X-6014-55
1	Clamp, hose	X-426-4	1	Hose, radiator	X-6014-79
1	Hose, lower radiator	324012	2	Clamp	X-672-10
1	Guard, belt (right)	324660	2	Clamp, hose	249887
1	Guard, belt (left)	324661	1	Cap, pressure	258037
1	Guard, belt (top)	324662	1	Tank, expansion	274645
1	Guard, belt (front)	324663	2	Clamp, hose	275527
1	Bracket, mounting (right)	324664	1	Adapter, hose	286831
1	Bracket, mounting (left)	324665	1	Regulator, water	290176
1	Bracket, mounting (bottom)	324666	1	Exchanger, heat	324309
1	Bracket, mounting (bottom)	324667	1	Hose, upper radiator	324328
Cooling, Remote Radiator 324716			1	Guard, belt (right)	324695
1	Valve Drain 1/4	X-256-3	1	Guard, belt (left)	324696
1	Valve Drain	X-256-5	1	Guard, belt (top)	324694
1	Spacer	X-400-119	1	Guard, belt (front)	324697
1	Spacer	X-400-200	1	Guard, bottom	324698
2	Clamp, hose	X-426-2	1	Guard, right	324699
1	Hose, radiator	X-6014-55	1	Bracket, heat exchanger	324700
1	Screw, hex head machine	X-6050-18	2	Support, surge tank	324714
1	Screw, hex head machine	X-6050-19	1	Bracket, mounting	324715
20	Screw, Phillips hex crimp	X-6216-1	2	Bracket, support	326291
2	Clamp, hose	275527	Cooling Kit 324332		
1	Hose, upper radiator	324328	Parts information same as Group 104, Variation 7.		
1	Guard, belt (top)	324694			
1	Guard, belt (RS)	324695			
1	Guard, belt (LS)	324696			
1	Guard, belt (front)	324697			
1	Guard, belt (bottom)	324698			
1	Guard (RS)	324699			

Cooling System Kits, Continued

Qty.	Description	Part No.
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Cooling Kit		324399
1	Radiator assembly	A-324322
4	Washer, plain	X-25-73
2	Valve, drain, 1/4	X-256-3
1	Valve, drain	X-256-5
1	Connector, hose	X-380-3
1	Connector, hose	X-391-12
1	Spacer	X-400-199
1	Spacer	X-400-200
4	Clamp, hose, 1 7/8-3 5/8	X-426-2
2	Clamp, hose	X-426-9
6	Washer, hardened	X-801-3
1	Hose, rubber 0.375 x 34	X-651-15
1	Switch assembly, level	
	before serial number 363369	273404
	serial number 363369 and after	254832
	Bushing, reducer 3/8 x 12	X-202-28
1	Shroud, fan	276400
1	Spacer, fan	324317
1	Fan	324319
1	Hose, upper radiator	324328
1	Support, radiator (LH)	324338
1	Support, radiator (RH)	324337
1	Guard, fan	324375
1	Guard, radiator	324341
1	Hose, lower radiator	324671
1	Guard, belt (top)	324683
1	Guard, belt (right)	324684
1	Guard, belt (left)	324685
1	Guard, belt (front)	324686
1	Guard, belt (bottom)	324687
1	Guard, belt (right)	324688

Qty.	Description	Part No.
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Cooling Kit		324443
1	Radiator assembly	A-324442
2	Nut, elastic stop 5/16	X-101-16
1	Elbow, street 1/4	X-211-6
4	Washer, plain	X-25-143
4	Washer, plain	X-25-144
8	Washer, plain	X-25-73
2	Valve, drain, 1/4	X-256-3
1	Valve, drain	X-256-5
1	Connector, hose	X-380-3
1	Connector, hose	X-391-12
1	Spacer	X-400-199
1	Spacer	X-400-200
2	Clamp, hose, 1 7/8-3 5/8	X-426-2
2	Clamp, hose	X-426-9
6	Washer, hardened	X-801-3
1	Hose, rubber 0.375 x 38	X-651-2
1	Switch assembly, level	
	before serial number 363369	273404
	serial number 363369 and after	254832
	Bushing, reducer 3/8 x 12	X-202-28
1	Clamp, hose	279604
1	Clamp, hose	291590
1	Shroud, fan	222953
1	Spacer, fan	324318
4	Mount, vibro	324433
1	Cooler, charge air	324334
2	Clamp, hose	324330
1	Clamp, hose	324342
1	Guard, fan	324438
1	Support, radiator (LH)	324447
1	Support, radiator (RH)	324448
1	Hose, upper radiator	324455
1	Hose, lower radiator	324456
1	Tube, cooler intake	324457
1	Tube, turbo	324458
1	Bracket, intake tube	324459
1	Bracket, mounting	324460
1	Hose, step	324473
1	Hose, step	324474
1	Hose, step	324476
1	Brace, cooler	324674
1	Brace, cooler	324675
1	Support, cooler	324678
1	Bracket, support	324680
1	Bracket, support	324681
2	Bracket, charge cooler	324451
1	Fan	324706
1	Guard, belt (top)	324689
1	Guard, belt (right)	324690
1	Guard, belt (left)	324691
1	Guard, belt (front)	324686
1	Guard, belt (bottom)	324692
1	Guard, belt (right)	324693

Cooling System Kits, Continued

Qty.	Description	Part No.
Cooling Kit		324444
1	Radiator assembly	A-324442
2	Nut, elastic stop 5/16	X-101-16
1	Elbow, street 1/4	X-211-6
4	Washer, plain	X-25-143
4	Washer, plain	X-25-144
8	Washer, plain	X-25-73
2	Valve, drain, 1/4	X-256-3
1	Valve, drain	X-256-5
1	Connector, hose	X-380-3
1	Connector, hose	X-391-12
1	Spacer	X-400-199
1	Spacer	X-400-200
2	Clamp, hose, 1 7/8-3 5/8	X-426-2
2	Clamp, hose	X-426-9
6	Washer, hardened	X-801-3
1	Hose, rubber 0.375 x 38	X-651-2
1	Switch assembly, level	
	before serial number 363369	273404
	serial number 363369 and after	254832
	Bushing, reducer 3/8 x 12	X-202-28
1	Clamp, hose	279604
1	Clamp, hose	291590
1	Shroud, fan	222953
1	Spacer, fan	324318
4	Mount, vibro	324433
1	Cooler, charge air	324334
1	Clamp, hose	324342
1	Guard, fan	324438
1	Support, radiator (LH)	324447
1	Support, radiator (RH)	324448
1	Hose, upper radiator	324455
1	Hose, lower radiator	324456
1	Tube, cooler intake	324457
1	Tube, turbo	324458
1	Bracket, intake tube	324459
1	Bracket, mounting	324460
1	Hose, step	324473
1	Hose, step	324474
1	Hose, step	324476
1	Brace, cooler	324674
1	Brace, cooler	324675
1	Support, cooler	324678
1	Bracket, support	324680
1	Bracket, support	324681
2	Bracket, charge cooler	324451
1	Fan	324706
1	Guard, belt (top)	324689
1	Guard, belt (right)	324690
1	Guard, belt (left)	324691
1	Guard, belt (front)	324686
1	Guard, belt (bottom)	324692
1	Guard, belt (right)	324693

Cooling Kit

Parts information same as Group 104, Variation 20.

324509

Qty.	Description	Part No.
Cooling Kit		324510
1	Radiator assembly	A-324442
2	Nut, elastic stop 5/16	X-101-16
1	Elbow, street 1/4	X-211-6
4	Washer, plain	X-25-143
4	Washer, plain	X-25-144
8	Washer, plain	X-25-73
2	Valve, drain, 1/4	X-256-3
1	Valve, drain	X-256-5
1	Connector, hose	X-380-3
1	Connector, hose	X-391-12
1	Spacer	X-400-199
1	Spacer	X-400-200
2	Clamp, hose, 1 7/8-3 5/8	X-426-2
2	Clamp, hose	X-426-9
6	Washer, hardened	X-801-3
1	Hose, rubber 0.375 x 38	X-651-2
1	Switch assembly, level	
	before serial number 363369	273404
	serial number 363369 and after	254832
	Bushing, reducer 3/8 x 12	X-202-28
1	Shroud, fan	222953
1	Clamp, hose	279604
1	Spacer, fan	324318
4	Mount, vibro	324433
1	Cooler, charge air	324334
1	Clamp, hose	324342
1	Guard, fan	324438
1	Support, radiator (LH)	324447
1	Support, radiator (RH)	324448
1	Hose, upper radiator	324455
1	Hose, lower radiator	324456
1	Tube, cooler intake	324457
1	Tube, turbo	324458
1	Bracket, intake tube	324459
1	Bracket, mounting	324460
1	Hose, step	324474
1	Hose, step	324476
1	Brace, cooler	324674
1	Brace, cooler	324675
1	Support, cooler	324678
1	Bracket, support	324680
1	Bracket, support	324681
2	Bracket, charge cooler	324451
1	Fan	324682
1	Guard, belt (top)	324689
1	Guard, belt (right)	324690
1	Guard, belt (left)	324691
1	Guard, belt (front)	324686
1	Guard, belt (bottom)	324692
1	Guard, belt (right)	324693
1	Guard, radiator	324707

Cooling Kit

Parts information same as Group 104, Variation 18.

324721

Cooling System Kits, Continued

Qty.	Description	Part No.
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Cooling Kit

324027

1	Radiator assembly	A-324008
1	Bushing, reducer, 1/4 x 1/2	X-202-12
10	Washer, plain	X-25-73
2	Valve, drain, 1/4	X-256-3
1	Valve, drain	X-256-5
3	Clamp, hose, 1.375 x 2.100	X-426-4
1	Clamp, hose, 1 15/16 x 1 3/16	X-426-8
11	Screw, phil hex crimpitite	X-6216-1
4	Washer, hardened	X-801-4
1	Shroud, fan	226334
1	Switch assembly, level	
	before serial number 363369	273404
	serial number 363369 and after	254832
	Bushing, reducer 3/8 x 12	X-202-28
1	Fan	324009
1	Hose, lower radiator	324012
1	Support, radiator R.H.	324013
1	Support, radiator L.H.	324014
1	Guard, radiator	324056
1	Guard, wire fan	324210
1	Guard, belt (RH)	324294
1	Guard, belt (LH)	324295
1	Guard, belt (bottom)	324299
1	Hose, upper radiator	324350

Cooling Kit

324282

1	Radiator assembly	A-276527
4	Washer, plain	X-25-73
1	Valve, drain, 1/4	X-256-3
1	Valve, drain	X-256-5
4	Washer, hardened	X-801-3
4	Clamp, hose	250081
1	Switch assembly, level	
	before serial number 363369	273404
	serial number 363369 and after	254832
	Bushing, reducer 3/8 x 12	X-202-28
1	Shroud, fan	324076
1	Fan	324078
1	Support, radiator	324079
1	Support, radiator	324080
1	Hose, radiator upper	324082
1	Hose, radiator lower	324083
1	Guard, fan	324085
1	Guard, radiator	324147
1	Spacer, radiator	324229
1	Guard, belt (top)	324372
1	Guard, belt (right)	324373
1	Guard, belt (left)	324374
1	Spacer, fan	324379
1	Guard, belt (bottom)	324492

Qty.	Description	Part No.
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Cooling Kit

324047

1	Radiator assembly	A-276522
4	Washer, plain	X-25-73
1	Valve, drain, 1/4	X-256-3
2	Clamp, hose, 1.375 x 2.100	X-426-4
2	Clamp, hose, 1 9/16 x 2 1/2	X-426-6
5	Screw, drill hex	X-794-1
4	Washer, hardened	X-801-4
1	Switch assembly, level	
	before serial number 363369	273404
	serial number 363369 and after	254832
	Bushing, reducer 3/8 x 12	X-202-28
4	Spacer, radiator support	273911
1	Support, radiator (LH)	324036
1	Support, radiator (RH)	324037
1	Shroud, fan	324039
1	Hose, upper radiator	324040
1	Hose, lower radiator	324041
1	Fan, pusher	324045
1	Guard, radiator	324052
1	Guard, fan	324087
1	Guard, belt (top)	324168
1	Guard, belt (bottom)	324169
1	Bracket, belt guard	324227
1	Guard, belt (side)	324228

Cooling Kit

324047

Parts information same as Group 104, Variation 9.

Cooling System Kits, Continued

Qty.	Description	Part No.	Qty.	Description	Part No.
Cooling Kit 324049			Cooling Kit 324281		
1	Radiator assembly	A-273412	1	Radiator assembly	A-324442
4	Washer, plain	X-25-73	1	Fitting, elbow 1/4 in. street	EH-2248
1	Valve, drain, 1/4	X-256-3	2	Nut, elastic stop 5/16	X-101-16
2	Clamp, hose, 1.375 x 2.100	X-426-4	1	Bushing, reducer 3/8 x 12	X-202-28
2	Clamp, hose, 1 9/16 x 2 1/2	X-426-6	2	Washer, plain	X-25-143
5	Screw, drill hex	X-794-1	2	Washer, plain	X-25-144
4	Washer, hardened	X-801-4	6	Washer, plain	X-25-75
1	Switch assembly, level		2	Valve, drain, 1/4	X-256-3
	before serial number 363369	273404	1	Valve, drain	X-256-5
	serial number 363369 and after	254832	1	Connector, hose	X-380-3
	Bushing, reducer 3/8 x 12	X-202-28	1	Connector, hose	X-391-12
4	Spacer, radiator support	273911	1	Spacer	X-400-199
1	Support, radiator (LH)	324036	1	Spacer	X-400-200
1	Support, radiator (RH)	324037	2	Clamp, hose, 1 7/8-3 5/8	X-426-2
1	Shroud, fan	324039	2	Clamp, hose	X-426-9
1	Hose, upper radiator	324040	6	Washer, hardened	X-801-3
1	Hose, lower radiator	324041	1	Hose, rubber 0.375 x 38	X-651-2
1	Fan, pusher	324046	1	Sensor, low fluid	254832
1	Guard, radiator	324052	1	Clamp, hose	279604
1	Guard, fan	324087	1	Spacer, fan	324318
1	Guard, belt (bottom)	324169	1	Cooler, charge air	324334
1	Bracket, belt guard	324227	4	Mount, vibro	324433
1	Guard, belt (side)	324228	1	Clamp, hose	324342
1	Guard, belt (top)	324411	1	Support, radiator (LH)	324447
Cooling Kit 324281			1	Support, radiator (RH)	324448
1	Radiator Assembly	A-276526	1	Hose, upper radiator	324455
4	Washer, plain	X-25-73	1	Hose, lower radiator	324456
2	Valve, drain, 1/4	X-256-3	1	Tube, cooler intake	324457
1	Valve, drain,	X-256-5	1	Tube, turbo	324458
4	Washer, hardened	X-801-3	1	Bracket, intake tube	324459
4	Clamp, hose	250081	1	Bracket, mounting	324460
1	Switch assembly, level		1	Hose, step	324474
	before serial number 363369	273404	1	Hose, step	324476
	serial number 363369 and after	254832	1	Brace, cooler	324674
	Bushing, reducer 3/8 x 12	X-202-28	1	Brace, cooler	324675
1	Shroud, fan	324076	1	Support, cooler	324678
1	Fan	324078	1	Bracket, support	324680
1	Support, radiator	324079	1	Bracket, support	324681
1	Support, radiator	324080	1	Fan	324682
1	Hose, radiator upper	324082	1	Guard, belt (top)	324689
1	Hose, radiator lower	324083	1	Guard, belt (right)	324690
1	Guard, fan	324085	1	Guard, belt (left)	324691
1	Guard, radiator	324147	1	Guard, belt (front)	324686
2	Spacer, radiator	324229	1	Guard, belt (bottom)	324692
1	Guard, belt (top)	324372	1	Guard, belt (right)	324693
1	Guard, belt (right)	324373	1	Guard, radiator	324707
1	Guard, belt (left)	324374	1	Guard, wire fan	336888
1	Guard, belt (bottom)	324492	Cooling Kit 324281		
Cooling Kit 324281			Parts information same as Group 104, Variation 19.		
Parts information same as Group 104, Variation 18.					

Cooling System Kits, Continued

Qty.	Description	Part No.
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Cooling Kit		324281
1	Radiator assembly	A-324442
1	Fitting, elbow 1/4 in. street	EH-2248
2	Nut, elastic stop 5/16	X-101-16
1	Bushing, reducer 3/8 x 12	X-202-28
2	Washer, plain	X-25-143
2	Washer, plain	X-25-144
2	Washer, plain	X-25-75
2	Valve, drain, 1/4	X-256-3
1	Valve, drain	X-256-5
1	Connector, hose	X-380-3
1	Connector, hose	X-391-12
1	Spacer	X-400-199
1	Spacer	X-400-200
2	Clamp, hose, 1 7/8-3 5/8	X-426-2
2	Clamp, hose	X-426-9
6	Washer, hardened	X-801-3
1	Hose, rubber 0.375 x 38	X-651-2
1	Sensor, low fluid	254832
1	Clamp, hose	279604
1	Spacer, fan	324318
1	Cooler, charge air	324334
4	Mount, vibro	324433
1	Clamp, hose	324342
2	Clamp, hose	324330
6	Clamp, hose	291590
1	Support, radiator (LH)	324447
1	Support, radiator (RH)	324448
1	Hose, upper radiator	324455
1	Hose, lower radiator	324456
1	Hose, hump, straight, 4 in.	324443
1	Tube, cooler intake	324457
1	Tube, turbo	324458
1	Bracket, intake tube	324459
1	Bracket, mounting	324460
1	Hose, step	324474
1	Hose, step	324476
1	Brace, cooler	324674
1	Brace, cooler	324675
1	Support, cooler	324678
1	Bracket, support	324680
1	Bracket, support	324681
1	Fan	324706
1	Guard, belt (top)	324689
1	Guard, belt (right)	324690
1	Guard, belt (left)	324691
1	Guard, belt (front)	324686
1	Guard, belt (bottom)	324692
1	Guard, belt (right)	324693
1	Guard, radiator	324445
1	Guard, wire fan	336888

Cooling Kit 324281

Parts information same as Group 104, Variation 20.

Appendix A. Abbreviations

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

A, amp	ampere	CG	center of gravity	F	Fahrenheit, female
ABDC	after bottom dead center	CID	cubic inch displacement	fglass.	fiberglass
AC	alternating current	CL	centerline	FHM	flat head machine (screw)
A/D	analog to digital	cm	centimeter	fl. oz.	fluid ounce
ADC	analog to digital converter	cmm	cubic meters per minute	flex.	flexible
adj.	adjust, adjustment	CMOS	complementary metal oxide substrate (semiconductor)	freq.	frequency
ADV	advertising dimensional drawing			FS	full scale
AHWT	anticipatory high water temperature	cogen.	cogeneration	ft.	foot, feet
AISI	American Iron and Steel Institute	COM	communications (port)	ft. lbs.	foot pounds (torque)
ALOP	anticipatory low oil pressure	conn.	connection	ft./min.	feet per minute
alt.	alternator	cont.	continued	g	gram
Al	aluminum	CPVC	chlorinated polyvinyl chloride	ga.	gauge (meters, wire size)
ANSI	American National Standards Institute (formerly American Standards Association, ASA)	crit.	critical	gal.	gallon
		CRT	cathode ray tube	gen.	generator
		CSA	Canadian Standards Association	genset	generator set
		CT	current transformer	GFI	ground fault interrupter
AO	anticipatory only	Cu	copper	gnd.	ground
API	American Petroleum Institute	cu. in.	cubic inch	gov.	governor
approx.	approximate, approximately	cw.	clockwise	gph	gallons per hour
AR	as required, as requested	CWC	city water-cooled	gpm	gallons per minute
AS	as supplied, as stated, as suggested	cyl.	cylinder	gr.	grade, gross
ASE	American Society of Engineers	D/A	digital to analog	gr. wt.	gross weight
ASME	American Society of Mechanical Engineers	DAC	digital to analog converter	H x W x D	height by width by depth
assy.	assembly	dB	decibel	HC	hex cap
ASTM	American Society for Testing Materials	dBA	decibel (A weighted)	HCHT	high cylinder head temperature
ATDC	after top dead center	DC	direct current	HD	heavy duty
ATS	automatic transfer switch	DCR	direct current resistance	HET	high exhaust temperature
auto.	automatic	deg., °	degree	hex	hexagon
aux.	auxiliary	dept.	department	Hg	mercury (element)
A/V	audio/visual	dia.	diameter	HH	hex head
avg.	average	DI/EO	dual inlet/end outlet	HHC	hex head cap
AVR	automatic voltage regulator	DIN	Deutsches Institut fur Normung e. V. (also Deutsche Industrie Normenausschuss)	HP	horsepower
AWG	American Wire Gauge			hr.	hour
AWM	appliance wiring material	DIP	dual inline package	HS	heat shrink
bat.	battery	DPDT	double-pole, double-throw	hsg.	housing
BBDC	before bottom dead center	DPST	double-pole, single-throw	HVAC	heating, ventilation, and air conditioning
BC	battery charger, battery charging	DS	disconnect switch	HWT	high water temperature
BCA	battery charging alternator	DVR	digital voltage regulator	Hz	hertz (cycles per second)
BCI	Battery Council International	E, emer.	emergency (power source)	IC	integrated circuit
BDC	before dead center	EDI	electronic data interchange	ID	inside diameter, identification
BHP	brake horsepower	EFR	emergency frequency relay	IEC	International Electrotechnical Commission
blk.	black (paint color), block (engine)	e.g.	for example (<i>exempli gratia</i>)	IEEE	Institute of Electrical and Electronics Engineers
		EG	electronic governor	IMS	improved motor starting
		EGSA	Electrical Generating Systems Association	in.	inch
blk. htr.	block heater	EIA	Electronic Industries Association	in. H ₂ O	inches of water
BMEP	brake mean effective pressure	EI/EO	end inlet/end outlet	in. Hg	inches of mercury
bps	bits per second	EMI	electromagnetic interference	in. lbs.	inch pounds
br.	brass	emiss.	emission	inc.	incorporated
BTDC	before top dead center	eng.	engine	ind.	industrial
Btu	British thermal unit	EPA	Environmental Protection Agency	int.	internal
Btu/min.	British thermal units per minute	EPS	emergency power system	int./ext.	internal/external
C	Celsius, centigrade	ER	emergency relay	I/O	input/output
cal.	calorie	ES	engineering special, engineered special	IP	iron pipe
CARB	California Air Resources Board	ESD	electrostatic discharge	ISO	International Organization for Standardization
CB	circuit breaker	est.	estimated	J	joule
cc	cubic centimeter	E-Stop	emergency stop	JIS	Japanese Industry Standard
CCA	cold cranking amps	etc.	et cetera (and so forth)	k	kilo (1000)
ccw.	counterclockwise	exh.	exhaust	K	kelvin
CEC	Canadian Electrical Code	ext.	external	kA	kiloampere
cfh	cubic feet per hour			KB	kilobyte (2 ¹⁰ bytes)
cfm	cubic feet per minute			kg	kilogram

kg/cm ²	kilograms per square centimeter	mW	milliwatt	rnd.	round
kgm	kilogram-meter	μF	microfarad	ROM	read only memory
kg/m ³	kilograms per cubic meter	N, norm.	normal (power source)	rot.	rotate, rotating
kHz	kilohertz	NA	not available, not applicable	rpm	revolutions per minute
kJ	kilojoule	nat. gas	natural gas	RS	right side
km	kilometer	NBS	National Bureau of Standards	RTV	room temperature vulcanization
kOhm, kΩ	kilo-ohm	NC	normally closed	SAE	Society of Automotive Engineers
kPa	kilopascal	NEC	National Electrical Code	scfm	standard cubic feet per minute
kph	kilometers per hour	NEMA	National Electrical Manufacturers Association	SCR	silicon controlled rectifier
kV	kilovolt	NFPA	National Fire Protection Association	s, sec.	second
kVA	kilovolt ampere	Nm	newton meter	SI	<i>Système international d'unités</i> , International System of Units
kVAR	kilovolt ampere reactive	NO	normally open	SI/EO	side in/end out
kW	kilowatt	no., nos.	number, numbers	sil.	silencer
kWh	kilowatt-hour	NPS	National Pipe, Straight	SN	serial number
kWm	kilowatt mechanical	NPSC	National Pipe, Straight-coupling	SPDT	single-pole, double-throw
L	liter	NPT	National Standard taper pipe thread per general use	SPST	single-pole, single-throw
LAN	local area network	NPTF	National Pipe, Taper-Fine	spec, specs	specification(s)
L x W x H	length by width by height	NR	not required, normal relay	sq.	square
lb.	pound	ns	nanosecond	sq. cm	square centimeter
lbm/ft ³	pounds mass per cubic feet	O/C	overcrank	sq. in.	square inch
LCB	line circuit breaker	OD	outside diameter	SS	stainless steel
LCD	liquid crystal display	OEM	original equipment manufacturer	std.	standard
ld. shd.	load shed	O/F	overfrequency	stl.	steel
LED	light emitting diode	opt.	option, optional	tach.	tachometer
Lph	liters per hour	O/S	oversize, overspeed	TD	time delay
Lpm	liters per minute	OSHA	Occupational Safety and Health Administration	TDC	top dead center
LOP	low oil pressure	O/V	overvoltage	TDEC	time delay engine cooldown
LP	liquefied petroleum	oz.	ounce	TDEN	time delay emergency to normal
LPG	liquefied petroleum gas	p., pp.	page, pages	TDES	time delay engine start
LS	left side	PA	packed accessory	TDNE	time delay normal to emergency
L _{wa}	sound power level, A weighted	PC	personal computer	TDOE	time delay off to emergency
LWL	low water level	PCB	printed circuit board	TDON	time delay off to normal
LWT	low water temperature	pF	picofarad	temp.	temperature
m	meter, milli (1/1000)	PF	power factor	term.	terminal
M	mega (10 ⁶ when used with SI units), male	ph.	phase	TIF	telephone influence factor
m ³	cubic meter	PHC	Phillips head crimp (screw)	TIR	total indicator reading
m ³ /min.	cubic meters per minute	PHH	Phillips hex head (screw)	tol.	tolerance
mA	milliampere	PHM	pan head machine (screw)	turbo.	turbocharger
man.	manual	PLC	programmable logic control	typ.	typical (same in multiple locations)
max.	maximum	PMG	permanent magnet generator	U/F	underfrequency
MB	megabyte (2 ²⁰ bytes)	pot	potentiometer, potential	UHF	ultrahigh frequency
MCM	one thousand circular mils	ppm	parts per million	UL	Underwriter's Laboratories, Inc.
meggar	megohmmeter	PROM	programmable read only memory	UNC	unified coarse thread (was NC)
MHz	megahertz	psi	pounds per square inch	UNF	unified fine thread (was NF)
mi.	mile	pt.	pint	univ.	universal
mil	one one-thousandth of an inch	PTC	positive temperature coefficient	U/S	undersize, underspeed
min.	minimum, minute	PTO	power takeoff	UV	ultraviolet
misc.	miscellaneous	PVC	polyvinyl chloride	U/V	undervoltage
MJ	megajoule	qt.	quart	V	volt
mJ	millijoule	qty.	quantity	VAC	volts alternating current
mm	millimeter	R	replacement (emergency) power source	VAR	voltampere reactive
mOhm, mΩ	milliohm	rad.	radiator, radius	VDC	volts direct current
MOhm, MΩ	megohm	RAM	random access memory	VFD	vacuum fluorescent display
MOV	metal oxide varistor	RDO	relay driver output	VGA	video graphics adapter
MPa	megapascal	ref.	reference	VHF	very high frequency
mpg	miles per gallon	rem.	remote	W	watt
mph	miles per hour	RFI	radio frequency interference	WCR	withstand and closing rating
MS	military standard	RH	round head	w/	with
m/sec.	meters per second	RHM	round head machine (screw)	w/o	without
MTBF	mean time between failure	rly.	relay	wt.	weight
MTBO	mean time between overhauls	rms	root mean square	xfrm	transformer
mtg.	mounting				
MW	megawatt				

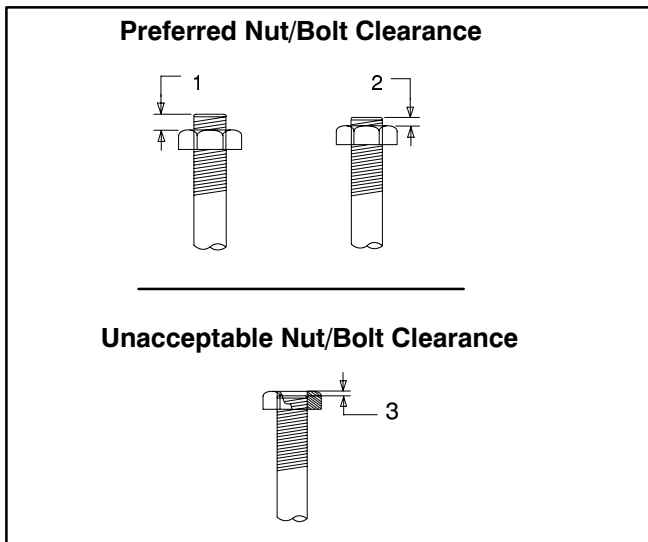
Appendix B. Common Hardware Application Guidelines

Use the information below and on the following pages to identify proper fastening techniques when no specific reference for reassembly is made.

Bolt/Screw Length: When bolt/screw length is not given, use Figure 1 as a guide. As a general rule, a minimum length of one thread beyond the nut and a maximum length of 1/2 the bolt/screw diameter beyond the nut is the preferred method.

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

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

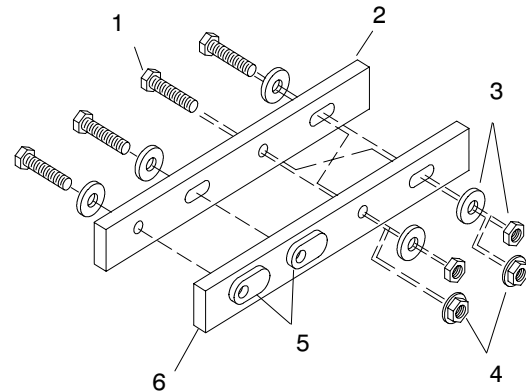


1. 1/2 of Bolt Diameter
2. Min. 1 Full Thread Beyond Top of Nut
3. Below Top of Nut

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

American Standard Fasteners

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

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

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

Metric Fasteners

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

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

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

Appendix D. Common Hardware Identification

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

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

Sample Dimensions

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

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

Metric (Screws, Bolts, Studs, and Nuts)

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

Plain Washers

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

Lock Washers

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

Appendix E. Common Hardware List

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

HEX BOLTS (GRADE 5)

Part No.	Dimensions
X-465-17	1/4-20 x .38
X-465-6	1/4-20 x .50
X-465-2	1/4-20 x .62
X-465-16	1/4-20 x .75
X-465-18	1/4-20 x .88
X-465-7	1/4-20 x 1.00
X-465-8	1/4-20 x 1.25
X-465-9	1/4-20 x 1.50
X-465-10	1/4-20 x 1.75
X-465-11	1/4-20 x 2.00
X-465-12	1/4-20 x 2.25
X-465-14	1/4-20 x 2.75
X-465-21	1/4-20 x 5.00
X-465-25	1/4-28 x .38
X-465-20	1/4-28 x 1.00
X-125-33	5/16-18 x .50
X-125-23	5/16-18 x .62
X-125-3	5/16-18 x .75
X-125-31	5/16-18 x .88
X-125-5	5/16-18 x 1.00
X-125-24	5/16-18 x 1.25
X-125-34	5/16-18 x 1.50
X-125-25	5/16-18 x 1.75
X-125-26	5/16-18 x 2.00
230578	5/16-18 x 2.25
X-125-29	5/16-18 x 2.50
X-125-27	5/16-18 x 2.75
X-125-28	5/16-18 x 3.00
X-125-22	5/16-18 x 4.50
X-125-32	5/16-18 x 5.00
X-125-35	5/16-18 x 5.50
X-125-36	5/16-18 x 6.00
X-125-40	5/16-18 x 6.50
X-125-43	5/16-24 x 1.75
X-125-44	5/16-24 x 2.50
X-125-30	5/16-24 x .75
X-125-39	5/16-24 x 2.00
X-125-38	5/16-24 x 2.75
X-6238-2	3/8-16 x .62
X-6238-10	3/8-16 x .75
X-6238-3	3/8-16 x .88
X-6238-11	3/8-16 x 1.00
X-6238-4	3/8-16 x 1.25
X-6238-5	3/8-16 x 1.50
X-6238-1	3/8-16 x 1.75
X-6238-6	3/8-16 x 2.00
X-6238-17	3/8-16 x 2.25
X-6238-7	3/8-16 x 2.50
X-6238-8	3/8-16 x 2.75
X-6238-9	3/8-16 x 3.00
X-6238-19	3/8-16 x 3.25
X-6238-12	3/8-16 x 3.50
X-6238-20	3/8-16 x 3.75
X-6238-13	3/8-16 x 4.50
X-6238-18	3/8-16 x 5.50
X-6238-25	3/8-16 x 6.50

X-6238-14	3/8-24 x .75
X-6238-16	3/8-24 x 1.25
X-6238-21	3/8-24 x 4.00
X-6238-22	3/8-24 x 4.50
X-6024-5	7/16-14 x .75
X-6024-2	7/16-14 x 1.00
X-6024-8	7/16-14 x 1.25
X-6024-3	7/16-14 x 1.50
X-6024-4	7/16-14 x 2.00
X-6024-11	7/16-14 x 2.75
X-6024-12	7/16-14 x 6.50
X-129-15	1/2-13 x .75
X-129-17	1/2-13 x 1.00
X-129-18	1/2-13 x 1.25
X-129-19	1/2-13 x 1.50
X-129-20	1/2-13 x 1.75
X-129-21	1/2-13 x 2.00
X-129-22	1/2-13 x 2.25
X-129-23	1/2-13 x 2.50
X-129-24	1/2-13 x 2.75
X-129-25	1/2-13 x 3.00
X-129-27	1/2-13 x 3.50
X-129-29	1/2-13 x 4.00
X-129-30	1/2-13 x 4.50
X-463-9	1/2-13 x 5.50
X-129-44	1/2-13 x 6.00
X-129-51	1/2-20 x .75
X-129-45	1/2-20 x 1.25
X-129-52	1/2-20 x 1.50
X-6021-3	5/8-11 x 1.00
X-6021-4	5/8-11 x 1.25
X-6021-2	5/8-11 x 1.50
X-6021-1	5/8-11 x 1.75
273049	5/8-11 x 2.00
X-6021-5	5/8-11 x 2.25
X-6021-6	5/8-11 x 2.50
X-6021-7	5/8-11 x 2.75
X-6021-12	5/8-11 x 3.75
X-6021-11	5/8-11 x 4.50
X-6021-10	5/8-11 x 6.00
X-6021-9	5/8-18 x 2.50
X-6239-1	3/4-10 x 1.00
X-6239-8	3/4-10 x 1.25
X-6239-2	3/4-10 x 1.50
X-6239-3	3/4-10 x 2.00
X-6239-4	3/4-10 x 2.50
X-6239-5	3/4-10 x 3.00
X-6239-6	3/4-10 x 3.50
X-792-1	1-8 x 2.25
X-792-5	1-8 x 3.00
X-792-8	1-8 x 5.00

NUTS

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

WASHERS

Part No.	ID	OD	Thickness	Bolt/ Screw
X-25-46	.125	.250	.022	#4
X-25-9	.156	.375	.049	#6
X-25-48	.188	.438	.049	#8
X-25-36	.219	.500	.049	#10
X-25-40	.281	.625	.065	1/4
X-25-85	.344	.687	.065	5/16
X-25-37	.406	.812	.065	3/8
X-25-34	.469	.922	.065	7/16
X-25-26	.531	1.062	.095	1/2
X-25-15	.656	1.312	.095	5/8
X-25-29	.812	1.469	.134	3/4
X-25-127	1.062	2.000	.134	1

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