

Service Parts

Mobile Generator Sets



Models:

10/12CC/CZ
10/12CCE/CEZ

KOHLER[®]
POWER SYSTEMS

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

Specification Series 110

TP-5411 6/98

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Introduction

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

This manual includes the following main sections:

- *Table of Contents*: Lists the sections of this catalog.
- *Introduction (and other information sections)*: Contains introductory material followed by sections on specification numbers, part numbers, and hardware.
- *Index*: Indexes generator set specifications and their groups.
- *Group Parts Lists*: Lists part numbers of parts in the groups.
- *Kit sections*: Lists accessories and their 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 show prefixes). The first three digits designate generator size and engine model (specification series). The remaining digits are in sequence and identify a particular spec in a series. Spec numbers break down into groups.
- *Group Number*: A group consists of parts needed to perform one or more related functions. For example, the 101 group is the generator set Air Intake group.
- *Variation Number*: A group might have several variations. Parts comprising each variation perform the same function, but parts lists vary. For example, a 50 Hz generator alternator and 60 Hz generator alternator both perform the same function. However, they are constructed of different parts. Each of these differences necessitates the assignment of a group variation number.
- *Part Number*: The part number identifies an individual assembly, subassembly, component, or accessory kit.

How to Find Part Numbers

FOLLOW THESE STEPS to identify a part:

STEP 1: Turn to the Specification Number Index. The first column lists generator set specification numbers grouped by model. The headings across the top identify the groups of parts that make up the generator set. The intersection of the specification number and the group numbers is the

variation number corresponding to the components of that specification number. Note the variation number.

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

Hardware Grades

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

Hardware References

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

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

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

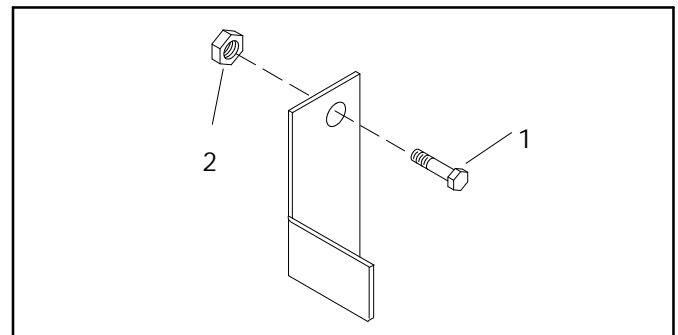


Figure 1. Hardware References

Specification Number Index

GROUP TITLE & NUMBER	<i>Gaskets & Seals</i>	<i>Cylinder Block</i>	<i>Cylinder Head & Valves</i>	<i>Front Cover Assembly</i>	<i>Camshaft & Valve Control</i>	<i>Crankshaft & Piston</i>	<i>Flywheel & Clutch</i>	<i>Oil Pump & Oil Pan</i>	<i>Fan & Water Pump</i>	<i>Intake/Exhaust Manifold</i>	<i>Ignition Module & Plugs</i>
GROUP NO.	1	2	3	4	5	6	7	8	9	10	12
SPEC NO.	VARIATION NUMBER										

10 kW											
110403	1	1	1	1	1	1	1	1	1	1	1
110404	1	1	1	1	1	1	1	1	1	1	1
110405	1	1	1	1	1	1	1	1	1	1	1
110406	1	1	1	1	1	1	1	1	1	1	1
110409	1	1	1	1	1	1	1	1	1	1	1
110410	1	1	1	1	1	1	1	1	1	1	1
110411	1	1	1	1	1	1	1	1	1	1	1
110416	1	1	1	1	1	1	1	1	1	1	1
110417	1	1	1	1	1	1	1	1	1	1	1
110423	1	4	1	1	1	1	1	1	2	1	1
110424	1	4	1	1	1	1	1	1	2	1	1
110429	1	4	1	1	1	1	1	1	2	1	1
110430	1	4	1	1	1	1	1	1	2	1	1
110431	1	4	1	1	1	1	1	1	2	1	1
110432	1	4	1	1	1	1	1	1	2	1	1
110433	1	4	1	1	1	1	1	1	2	1	1
110435	3	3	1	1	1	3	3	3	2	1	1
110436	3	3	1	1	1	3	3	3	2	1	1
110441	3	3	1	1	1	3	3	3	2	1	1
110442	3	3	1	1	1	3	3	3	2	1	1
110443	3	3	1	1	1	3	3	3	2	1	1
110444	3	3	1	1	1	3	3	3	2	1	1
110445	3	3	1	1	1	3	3	3	2	1	1
110456	3	3	1	1	1	3	3	3	2	1	1
110457	3	3	1	1	1	3	3	3	2	1	1
110458	3	3	1	1	1	3	3	3	2	1	1
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110460	3	3	1	1	1	3	3	3	2	1	1
110468	3	3	1	1	1	3	3	3	2	1	1
110469	3	3	1	1	1	3	3	3	2	1	1
110476	2	5	2	1	2	2	2	2	2	1	1
110477	2	5	2	1	2	2	2	2	2	1	1
110478	2	5	2	1	2	2	2	2	2	1	1
110479	2	5	2	1	2	2	2	2	2	1	1
110480	2	5	2	1	2	2	2	2	2	1	1
110481	2	5	2	1	2	2	2	2	2	1	1
110482	2	5	2	1	2	2	2	2	2	1	1

Specification Number Index

GROUP TITLE & NUMBER	<i>Air Intake</i>	<i>Fuel System</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>Oil Pressure Switch</i>	<i>Skid and Plant Mounting</i>	<i>Temperature Switch</i>	<i>Starter</i>	<i>Alternator</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>
GROUP NO.	101	103	104	105	107	108	109	110	112	113	201	301	701
SPEC NO.	VARIATION NUMBER												

10 kW													
110403	3	7	12	11	7	2	6	3	3	4	10	8	6
110404	3	5	16	11	7	2	6	3	3	4	10	8	6
110405	3	5	16	11	9	2	7	3	4	4	12	9	6
110406	3	7	12	11	9	2	7	3	4	4	12	9	6
110409	3	@	@	11	7	2	6	3	3	4	10	@	6
110410	3	@	@	11	9	2	7	3	4	4	12	@	6
110411	3	@	@	11	9	2	7	3	4	4	14	@	6
110416	3	9	16	11	7	2	6	3	3	4	10	8	6
110417	3	9	16	11	9	2	7	3	4	4	12	9	6
110423	3	9	12	16	7	-	6	3	3	4	10	8	6
110424	3	9	12	16	9	-	7	3	4	4	12	9	6
110429	3	5	12	16	7	-	6	3	3	4	10	8	6
110430	3	5	12	16	9	-	7	3	4	4	12	9	6
110431	3	@	@	16	7	-	6	3	3	4	10	@	6
110432	3	@	@	16	9	-	7	3	4	4	12	@	6
110433	3	@	@	16	9	-	7	3	4	4	14	@	6
110435	3	9	12	21	7	-	6	3	3	4	10	8	6
110436	3	9	12	21	9	-	7	3	4	4	12	9	6
110441	3	5	12	21	7	-	6	3	3	4	10	8	6
110442	3	5	12	21	9	-	7	3	4	4	12	9	6
110443	3	@	@	21	7	-	6	3	3	4	10	@	6
110444	3	@	@	21	9	-	7	3	4	4	12	@	6
110445	3	@	@	21	9	-	7	3	4	4	14	@	6
110456	3	13	12	21	44	-	6	3	3	4	10	8	6
110457	3	13	12	21	46	-	7	3	4	4	12	9	6
110458	3	@	@	21	7	-	6	3	3	4	10	@	6
110459	3	@	@	21	9	-	7	3	4	4	12	@	6
110460	3	@	@	21	9	-	7	3	4	4	14	@	6
110468	3	16	12	21	7	-	6	3	3	4	10	8	6
110469	3	16	12	21	9	-	7	3	4	4	12	9	6
110476	3	13	12	34	55	-	6	3	3	4	10	8	6
110477	3	13	12	34	56	-	7	3	4	4	12	9	6
110478	3	@	@	34	49	-	6	3	3	4	10	@	6
110479	3	@	@	34	50	-	7	3	4	4	12	@	6
110480	3	@	@	34	50	-	7	3	4	4	14	@	6
110481	3	16	12	34	51	-	6	3	3	4	10	8	6
110482	3	16	12	34	52	-	7	3	4	4	12	9	6

@ Desired fuel, cooling, and controller kit chosen from price list. See kits section for parts list.

Specification Number Index

GROUP TITLE & NUMBER	<i>Gaskets & Seals</i>	<i>Cylinder Block</i>	<i>Cylinder Head & Valves</i>	<i>Front Cover Assembly</i>	<i>Camshaft & Valve Control</i>	<i>Crankshaft & Piston</i>	<i>Flywheel & Clutch</i>	<i>Oil Pump & Oil Pan</i>	<i>Fan & Water Pump</i>	<i>Intake/Exhaust Manifold</i>	<i>Ignition Module & Plugs</i>
GROUP NO.	1	2	3	4	5	6	7	8	9	10	12
SPEC NO.	VARIATION NUMBER										

12 kW											
110503	2	2	2	1	2	2	2	2	1	1	1
110504	2	2	2	1	2	2	2	2	1	1	1
110507	2	2	2	1	2	2	2	2	1	1	1
110508	2	2	2	1	2	2	2	2	1	1	1
110509	2	2	2	1	2	2	2	2	1	1	1
110510	2	2	2	1	2	2	2	2	1	1	1
110511	2	2	2	1	2	2	2	2	1	1	1
110516	2	2	2	1	2	2	2	2	1	1	1
110518	2	2	2	1	2	2	2	2	1	1	1
110523	2	5	2	1	2	2	2	2	2	1	1
110525	2	5	2	1	2	2	2	2	2	1	1
110529	2	5	2	1	2	2	2	2	2	1	1
110530	2	5	2	1	2	2	2	2	2	1	1
110531	2	5	2	1	2	2	2	2	2	1	1
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110533	2	5	2	1	2	2	2	2	2	1	1
110544	2	5	2	1	2	2	2	2	2	1	1
110545	2	5	2	1	2	2	2	2	2	1	1
110546	2	5	2	1	2	2	2	2	2	1	1
110547	2	5	2	1	2	2	2	2	2	1	1
110548	2	5	2	1	2	2	2	2	2	1	1
110556	2	5	2	1	2	2	2	2	2	1	1
110557	2	5	2	1	2	2	2	2	2	1	1

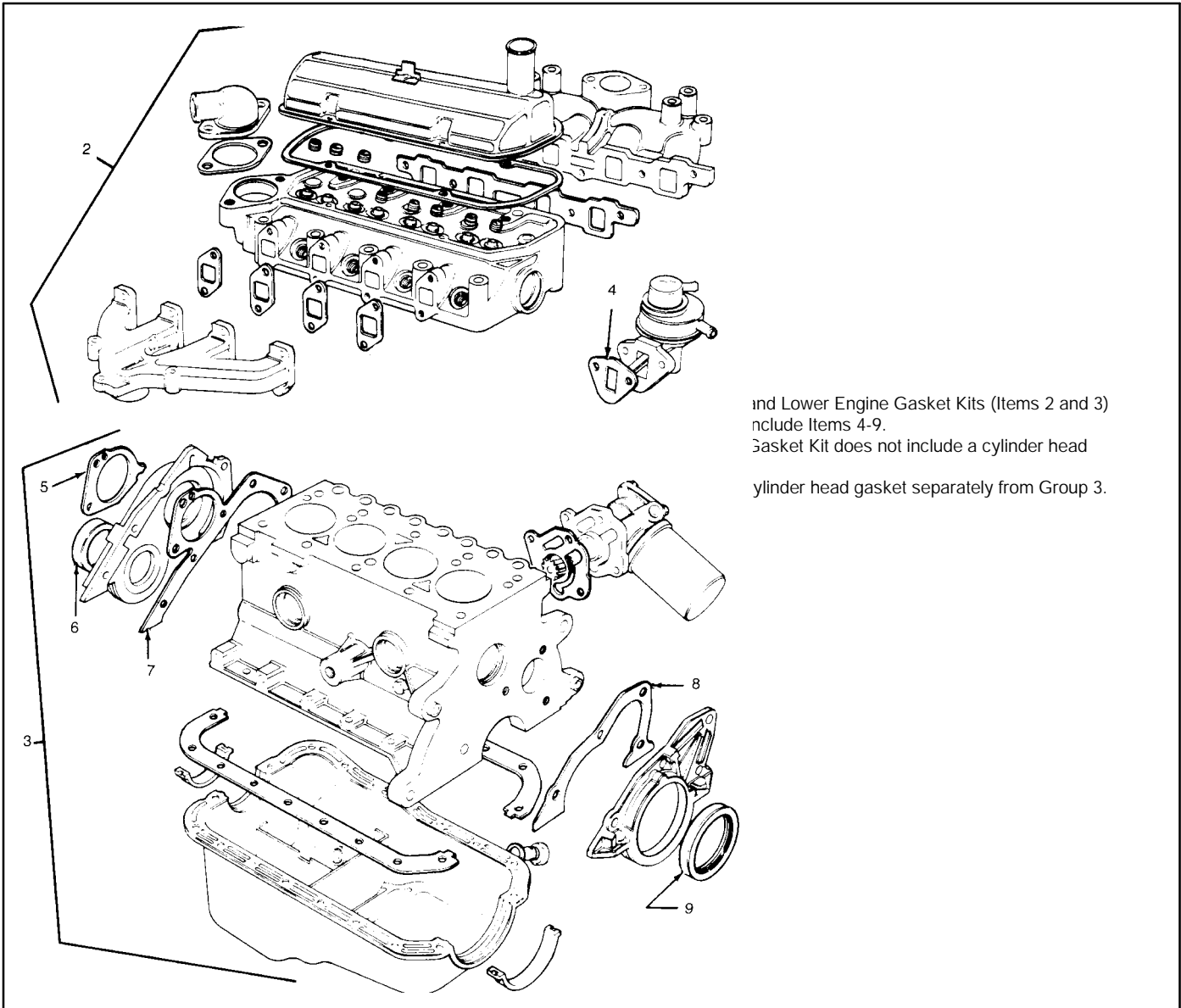
Specification Number Index

GROUP TITLE & NUMBER	<i>Air Intake</i>	<i>Fuel System</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>Oil Pressure Switch</i>	<i>Skid and Plant Mounting</i>	<i>Temperature Switch</i>	<i>Starter</i>	<i>Alternator</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>
GROUP NO.	101	103	104	105	107	108	109	110	112	113	201	301	701
SPEC NO.	VARIATION NUMBER												

12 kW													
110503	3	7	12	12	8	2	6	3	3	4	11	8	6
110504	3	5	16	12	8	2	6	3	3	4	11	8	6
110507	3	7	12	12	10	2	7	3	4	4	13	9	6
110508	3	5	16	12	10	2	7	3	4	4	13	9	6
110509	3	@	@	12	8	2	6	3	3	4	11	@	6
110510	3	@	@	12	10	2	7	3	4	4	13	@	6
110511	3	@	@	12	10	2	7	3	4	4	15	@	6
110516	3	9	16	12	8	2	6	3	3	4	11	8	6
110518	3	9	16	12	10	2	7	3	4	4	13	9	6
110523	3	9	12	17	8	-	6	3	3	4	11	8	6
110525	3	9	12	17	10	-	7	3	4	4	13	9	6
110529	3	5	12	17	8	-	6	3	3	4	11	8	6
110530	3	5	12	17	10	-	7	3	4	4	13	9	6
110531	3	@	@	17	8	-	6	3	3	4	11	@	6
110532	3	@	@	17	10	-	7	3	4	4	13	@	6
110533	3	@	@	17	10	-	7	3	4	4	15	@	6
110544	3	13	12	17	45	-	6	3	3	4	11	8	6
110545	3	13	12	17	47	-	7	3	4	4	13	9	6
110546	3	@	@	17	8	-	6	3	3	4	11	@	6
110547	3	@	@	17	10	-	7	3	4	4	13	@	6
110548	3	@	@	17	10	-	7	3	4	4	15	@	6
110556	3	16	12	17	53	-	6	3	3	4	11	8	6
110557	3	16	12	17	53	-	7	3	4	4	13	9	6

@ Desired fuel, cooling, and controller kit chosen from price list. See kits section for parts list.

Group 1: Gaskets & Seals



Upper and Lower Engine Gasket Kits (Items 2 and 3) include Items 4-9.

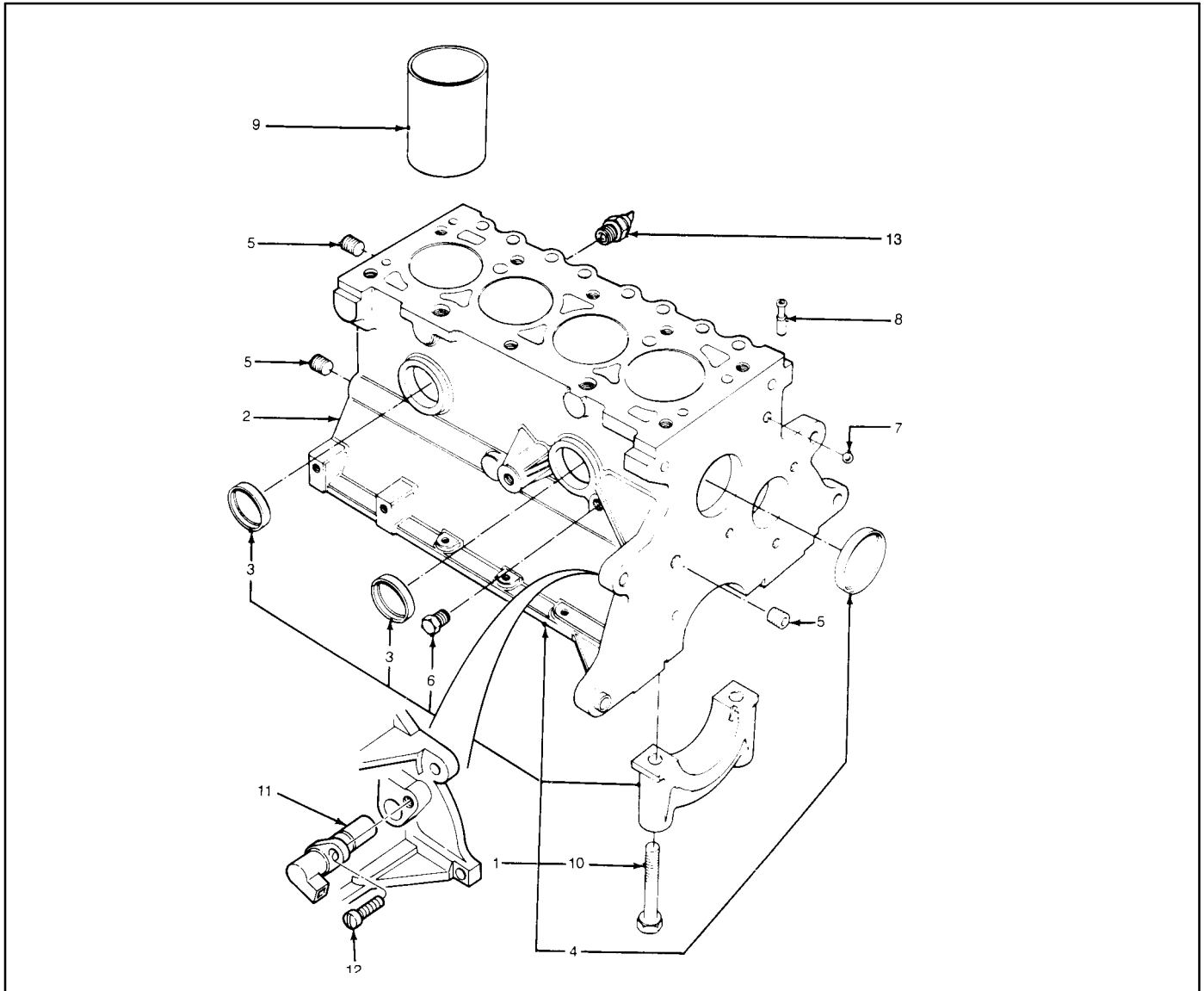
Upper Gasket Kit does not include a cylinder head

Cylinder head gasket separately from Group 3.

Item	Part Number	Description	Quantity		
			Variation No.		
			1	2	3
1	224704	Engine Gasket Kit, Complete	1		1
1	224705	Engine Gasket Kit, Complete		1	
2	224706	Engine Gasket Kit, Upper	1		1
2	224707	Engine Gasket Kit, Upper		1	
3	279143	Engine Gasket Kit, Lower	1		1
3	279145	Engine Gasket Kit, Lower		1	
4	246058	Gasket, fuel pump	1	1	1
5	224773	Gasket, water pump	1	1	1
6	279112	Seal, front cover	1	1	1
7	224722	Gasket, front cover	1	1	1
8	224748	Gasket, rear retainer	1		
8	224749	Gasket, rear retainer		1	1
9	224782	Seal, crankshaft rear	1		
9	276192	Seal, crankshaft rear		1	1

Common hardware. Procure locally.

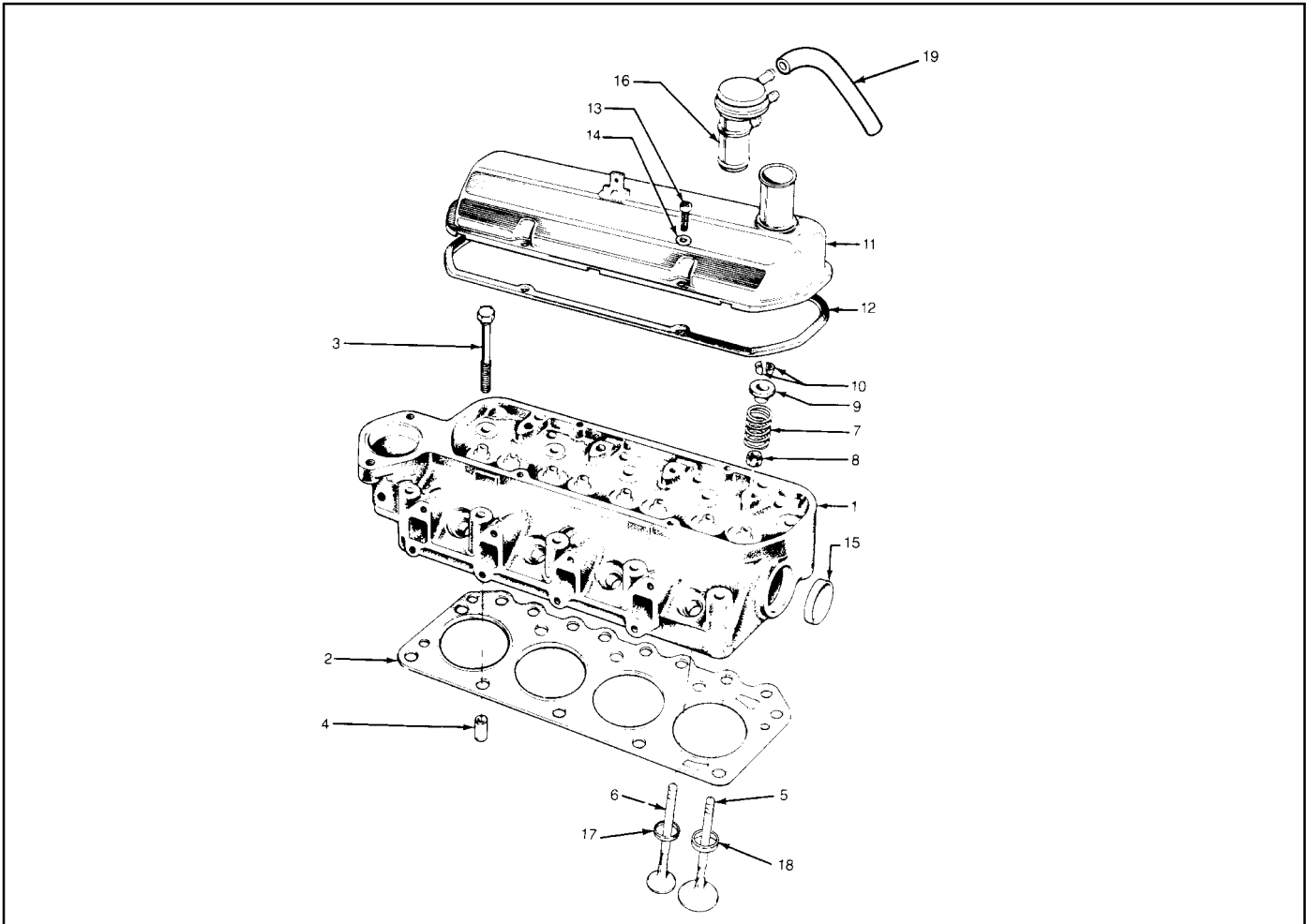
Group 2: Cylinder Block



Item	Part Number	Description	Quantity				
			Variation				
			1	2	3	4	5
1	276194	Block, cylinder (basic)			1		
1	224718	Block, cylinder (basic)		1			1
1	224717	Block, cylinder (basic)	1			1	
2	224719	Block, cylinder (includes crank, pistons, rings, etc.)	1			1	
2	276195	Block, cylinder (includes crank, pistons, rings, etc.)			1		
2	224720	Block, cylinder (includes crank, pistons, rings, etc.)		1			1
3	279188	Plug, 41.6 mm	2	2	2	2	2
4	279187	Plug, 51 mm	1	1	1	1	1
5	#	Plug, 1/4 NPT	3	3	3	3	3
6	#	Plug, 1/4 NPT	1	1	1	1	1
7	279214	Plug, ball (oil gallery)	1	1	1	1	1
8	279193	Adapter	1	1	1	1	1
9	224726	Liner, cylinder	4		4	4	
9	224727	Liner, cylinder		4			4
10	279173	Bolt, main bearing cap	6	10	10	6	10
11	224716	Transducer (speed sensor)	1	1	1	1	1
12	#	Screw, M6 x 14	1	1	1	1	1
13	276456	Switch, oil pressure			1	1	1

Common hardware. Procure locally.

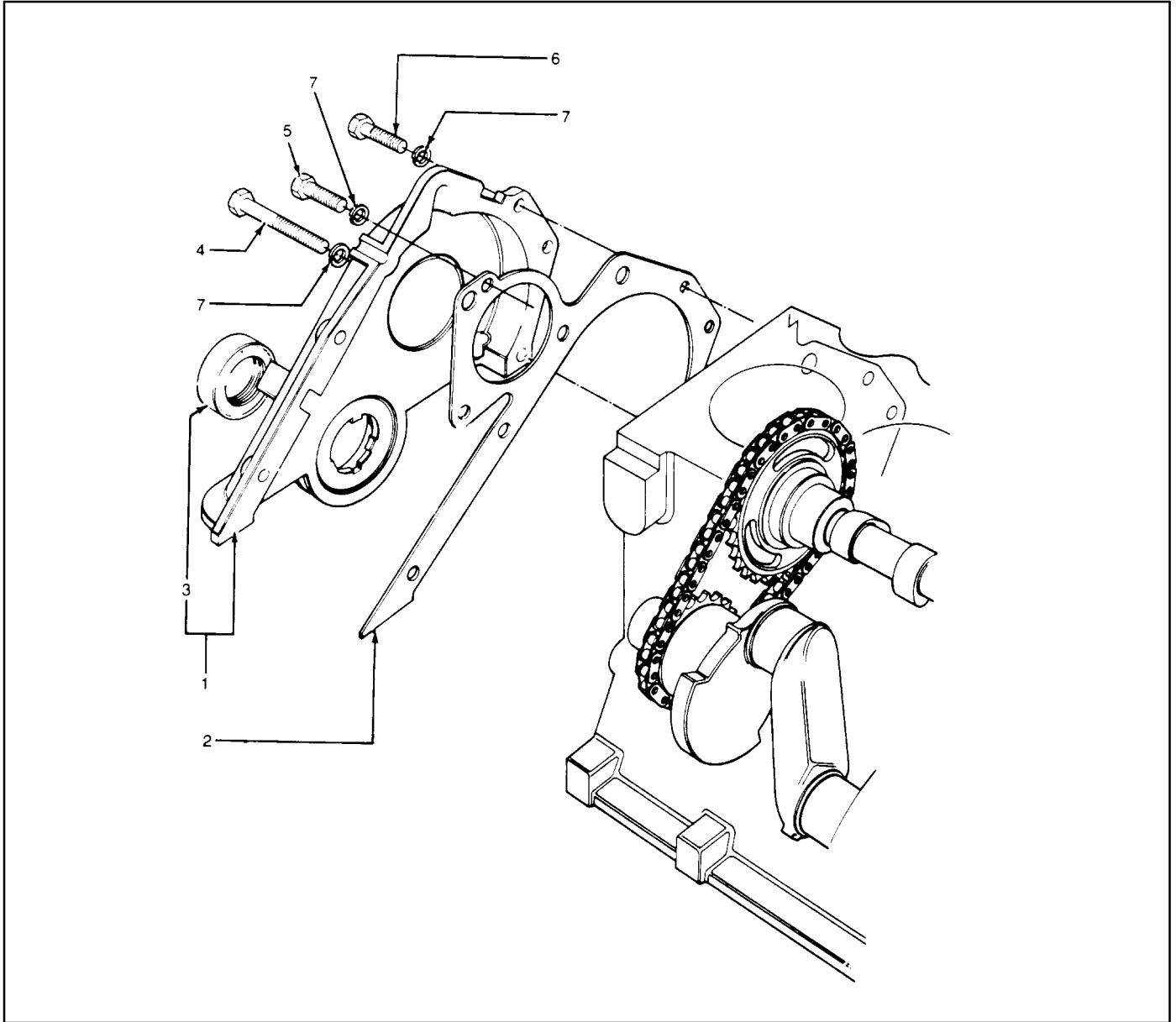
Group 3: Cylinder Head & Valves



Item	Part Number	Description	Quantity	
			1	2
1	224765	Cylinder Head Assembly		1
1	224723	Cylinder Head Assembly	1	
2	224724	Gasket, cylinder head	1	
2	224725	Gasket, cylinder head		1
3	224731	Bolt, cylinder head	10	10
4	224791	Dowel, cylinder head to block	2	2
5	224755	Valve, intake (std.)	4	
5	224757	Valve, intake (std.)		4
5	224756	Valve, intake (0.40 O/S)	4	
5	224758	Valve, intake (0.40 O/S)		4
6	224754	Valve, exhaust (std.)	4	4
6	224753	Valve, exhaust (0.40 O/S)	4	4
7	224759	Spring, valve	8	8
8	224709	Seal, valve stem	8	8
9	224770	Retainer	8	8
10	224708	Lock, valve spring	16	16
11	224762	Cover, rocker arm	1	1
12	279084	Gasket, rocker arm cover	1	1
13	224789	Screw, rocker cover/head	4	4
14	#	Washer, flat (6 mm)	4	4
15	279188	Plug (41.6 mm)	1	1
16	279115	Cap, oil (breather)	1	1
17	224730	Insert, exhaust valve seat	4	4
18	224728	Insert, intake valve seat	4	
18	224729	Insert, intake valve seat		4
19	224794	Hose, PCV	1	1

Common hardware. Procure locally.

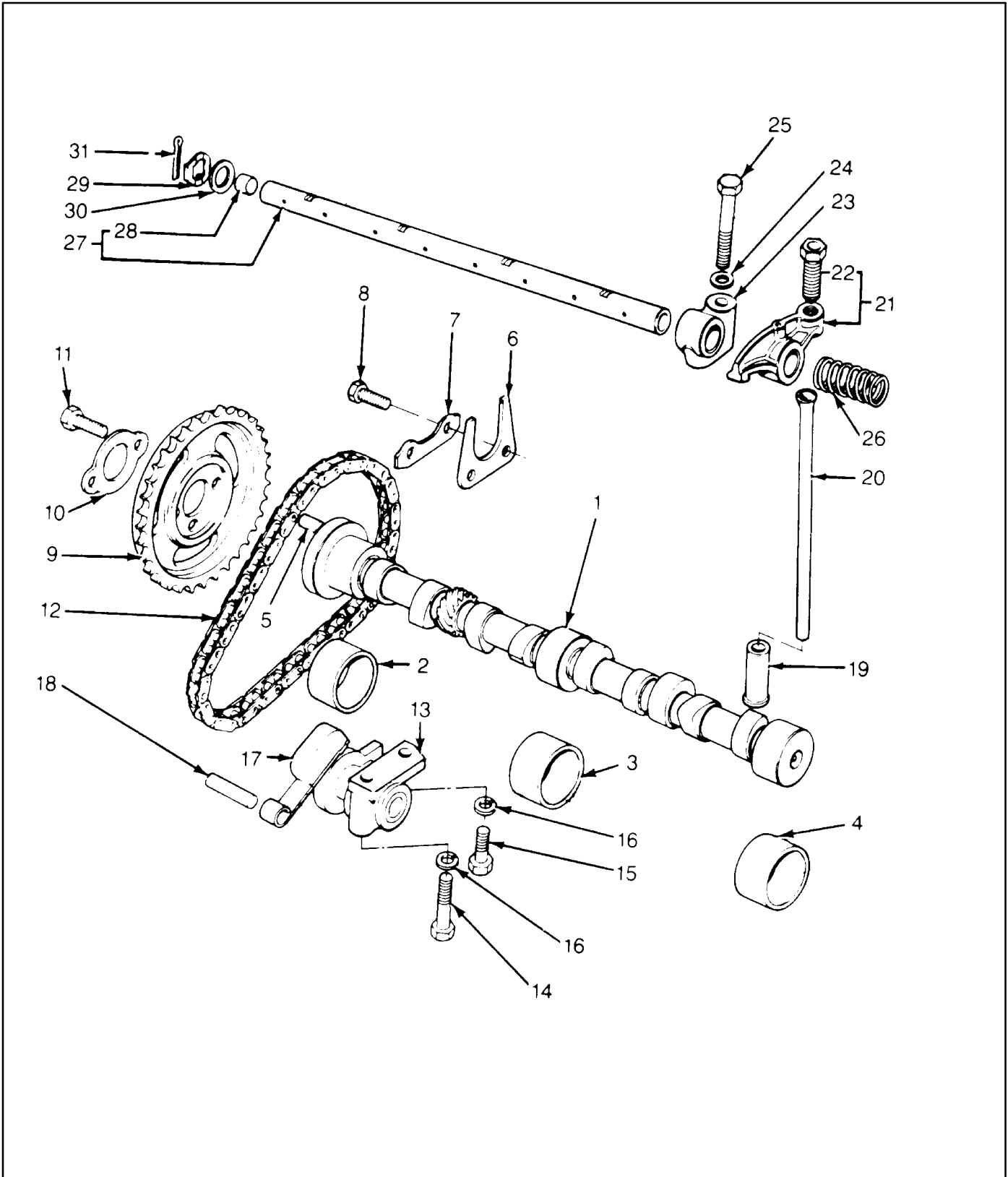
Group 4: Front Cover Assembly



Item	Part Number	Description	Quantity	
			1	Variation
1	224721	Cover and Seal Assembly	1	
2	224722	Gasket, front cover	1	
3	279111	Seal, front cover	1	
4	#	Bolt, M6 x 45	1	
5	#	Bolt, M6 x 40	3	
6	#	Bolt, M6 x 18	4	
7	#	Washer, split lock (B6)	8	

Common hardware. Procure locally.

Group 5: Camshaft & Valve Control



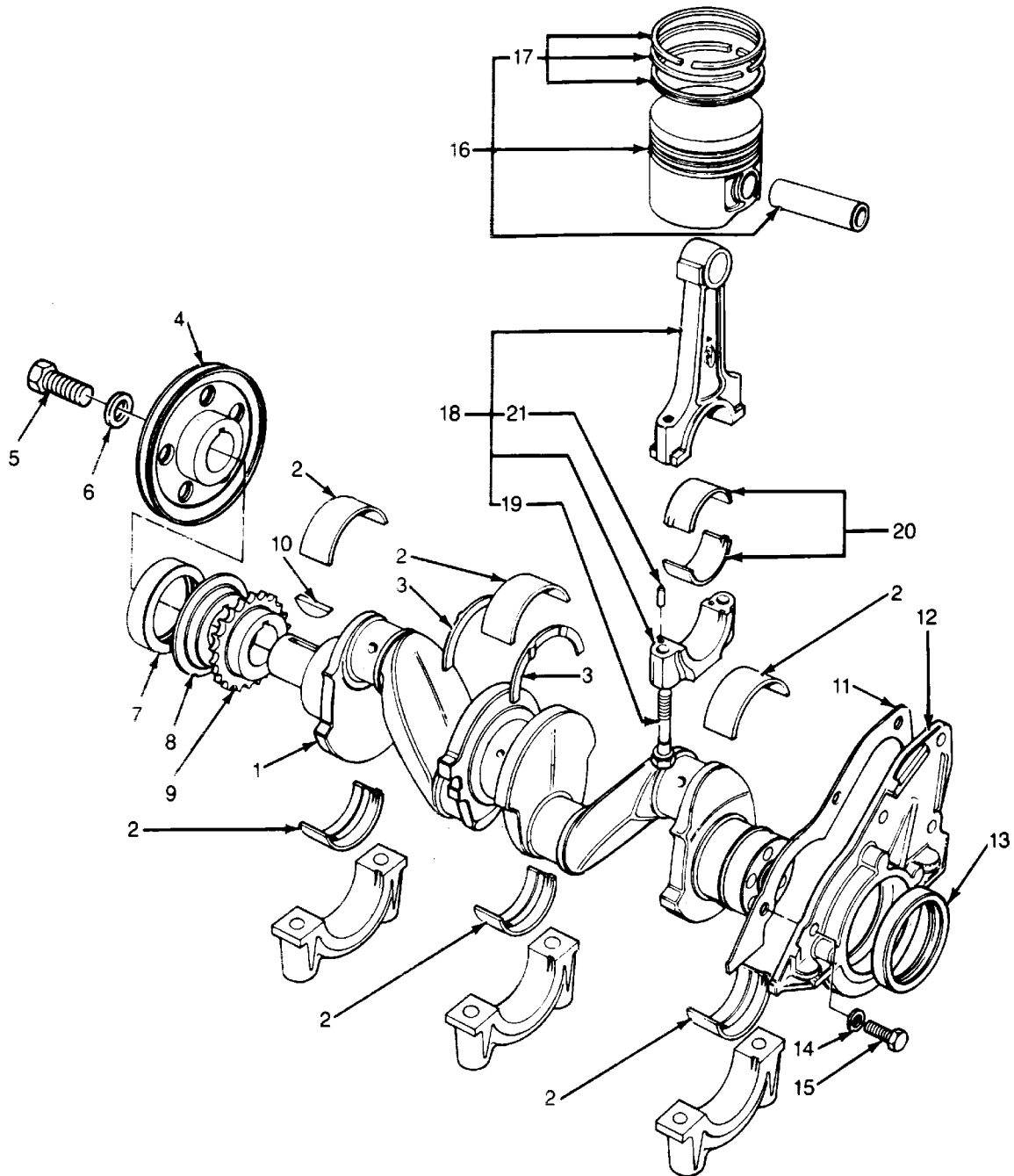
Common hardware. Procure locally.

Group 5: Camshaft & Valve Control

Item	Part Number	Description	Quantity	
			Variation	
			1	2
1	224739	Camshaft	1	
1	224740	Camshaft		1
2	279155	Bearing (std. ID, std. OD)	1	1
2	279156	Bearing (std. ID, 0.020 OD)	1	1
3	279157	Bearing (std. ID, std. OD)	1	1
3	279158	Bearing (std. ID, 0.020 OD)	1	1
4	279157	Bearing (std. ID, std. OD)	1	1
4	279158	Bearing (std. ID, 0.020 OD)	1	1
5	279152	Pin, dowel	1	1
6	279160	Plate, thrust	1	1
7	279153	Retainer	1	1
8	#	Bolt, M6 x 16	2	2
9	279067	Sprocket, camshaft	1	1
10	279154	Retainer	1	1
11	#	Bolt, M8 x 16	2	2
12	279159	Chain	1	1
13	279171	Tensioner	1	1
14	#	Bolt, M6 x 55	1	1
15	#	Bolt, M6 x 16	1	1
16	#	Washer, 1/4 split lock	2	2
17	279092	Arm, tensioner	1	1
18	279172	Pin	1	1
19	224752	Tappet, std.	8	8
20	224761	Rod, push valve	8	8
21	224760	Arm, valve rocker (right w/screw)	4	4
21	224771	Arm, valve rocker (left w/screw)	4	4
22	279163	Screw, self-locking	8	8
23	279081	Support, rocker arm shaft	4	4
24	#	Washer, B10 x 20 x 2.5	4	4
25	224788	Bolt, rocker support	4	4
26	279164	Spring, locating	3	3
27	279091	Rocker Arm Shaft Assembly	1	1
28	279170	Plug, rocker arm shaft (11 mm)	2	2
29	279085	Washer, spring	2	2
30	279048	Washer, flat	2	2
31	279055	Pin, cotter (2.3 mm)	2	2

Common hardware. Procure locally.

Group 6: Crankshaft & Piston



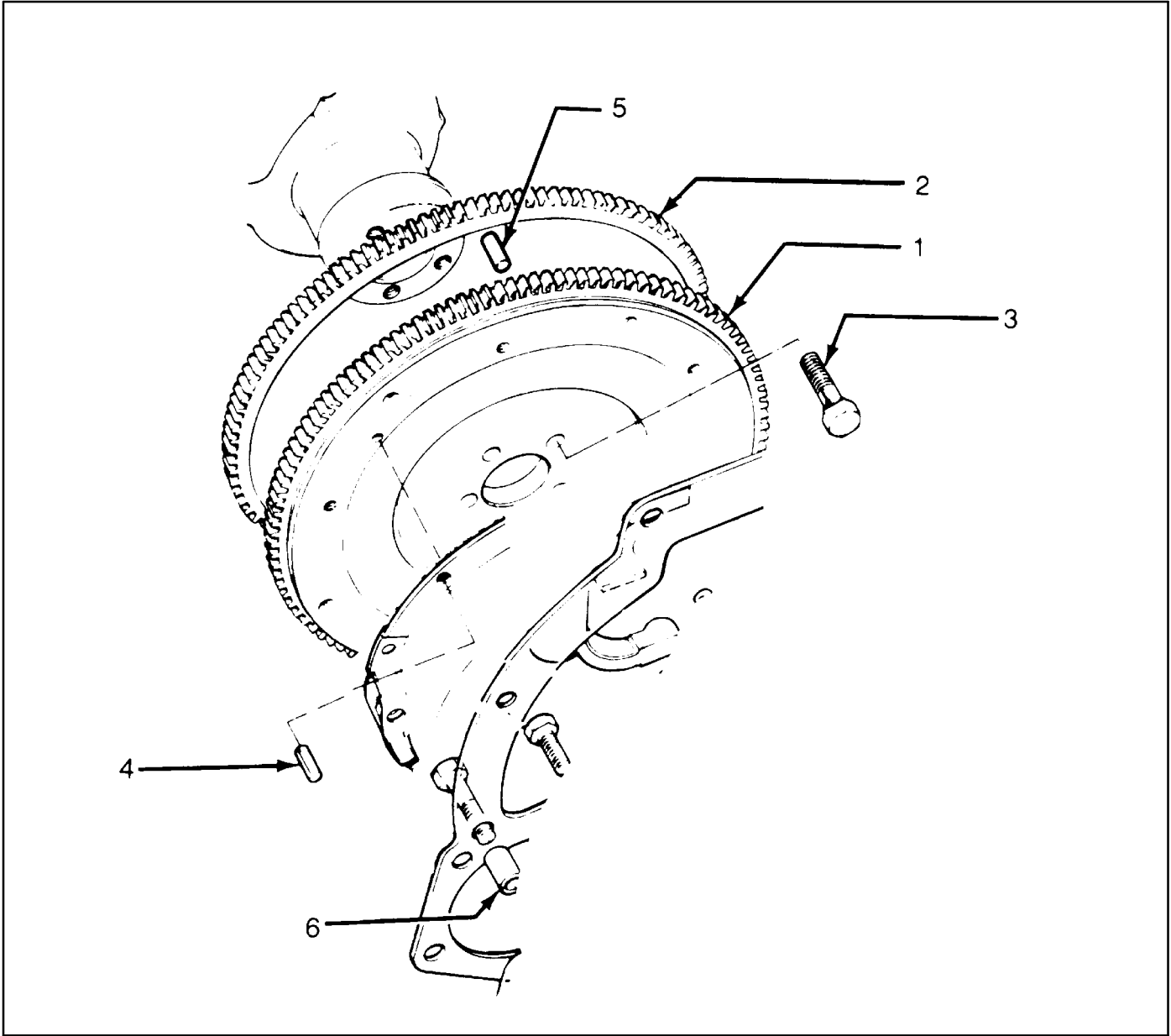
Common hardware. Procure locally.

Group 6: Crankshaft & Piston

Item	Part Number	Description	Quantity		
			Variation		
			1	2	3
1	224741	Crankshaft Assembly	1		
1	224742	Crankshaft Assembly		1	1
2	224743	Main Bearing, upper half (std. OD, std. ID)	3	5	5
2	276193	Main Bearing, lower half (std. OD, std. ID)	3	5	5
2	224744	Main Bearing (std. OD, 0.005 US ID)	3	5	5
2	224745	Main Bearing (std. OD, 0.010 US ID)	3	5	5
2	224746	Main Bearing (std. OD, 0.020 US ID)	3	5	5
2	224747	Main Bearing (std. OD, 0.030 US ID)	3	5	5
3	224768	Washer, main bearing (std.)	2	2	2
3	224769	Washer, main bearing (0.015 OS)	2	2	2
4	224701	Pulley, crankshaft	1	1	1
5	#	Bolt, pulley/crankshaft	1	1	1
6	#	Washer, pulley/crankshaft (B12)	1	1	1
7	279112	Seal, timing cover	1	1	1
8	279189	Slinger, oil	1	1	1
9	279161	Sprocket	1	1	1
10	279169	Key, woodruff	1	1	1
11	224749	Gasket, rear retainer		1	1
11	224748	Gasket, rear retainer	1		
12	279142	Rear Retainer Assembly		1	1
12	279093	Rear Retainer Assembly	1		
13	276192	Seal, crankshaft rear		1	1
13	224782	Seal, crankshaft rear	1		
14	#	Washer, lock (B8)	4	4	4
15	#	Bolt, M8 x 20	4	4	4
16	224735	Piston Assembly (std.)		4	
16	224732	Piston Assembly (std.)	4		4
16	224736	Piston Assembly (0.020 OS)		4	
16	224733	Piston Assembly (0.020 OS)	4		4
16	224737	Piston Assembly (0.040 OS)		4	
16	224734	Piston Assembly (0.040 OS)	4		4
17	276437	Ring Set (std.)		4	
17	276434	Ring Set (std.)	4		4
17	276438	Ring Set (0.020 OS)		4	
17	276435	Ring Set (0.020 OS)	4		4
17	276439	Ring Set (0.040 OS)		4	
17	276436	Ring Set (0.040 OS)	4		4
18	276440	Connecting Rod Assembly	4	4	4
19	224738	Bolt, connecting rod	8	8	8
20	276441	Bearing, connecting rod (std.)	8	8	8
20	276442	Bearing, connecting rod (0.001 US)	8	8	8
20	276443	Bearing, connecting rod (0.020 US)	8	8	8
20	276444	Bearing, connecting rod (0.030 US)	8	8	8
21	276445	Pin, connecting rod	8	8	8

Note: Verify connecting rod assembly with the engine serial number through Ford Motor Co.

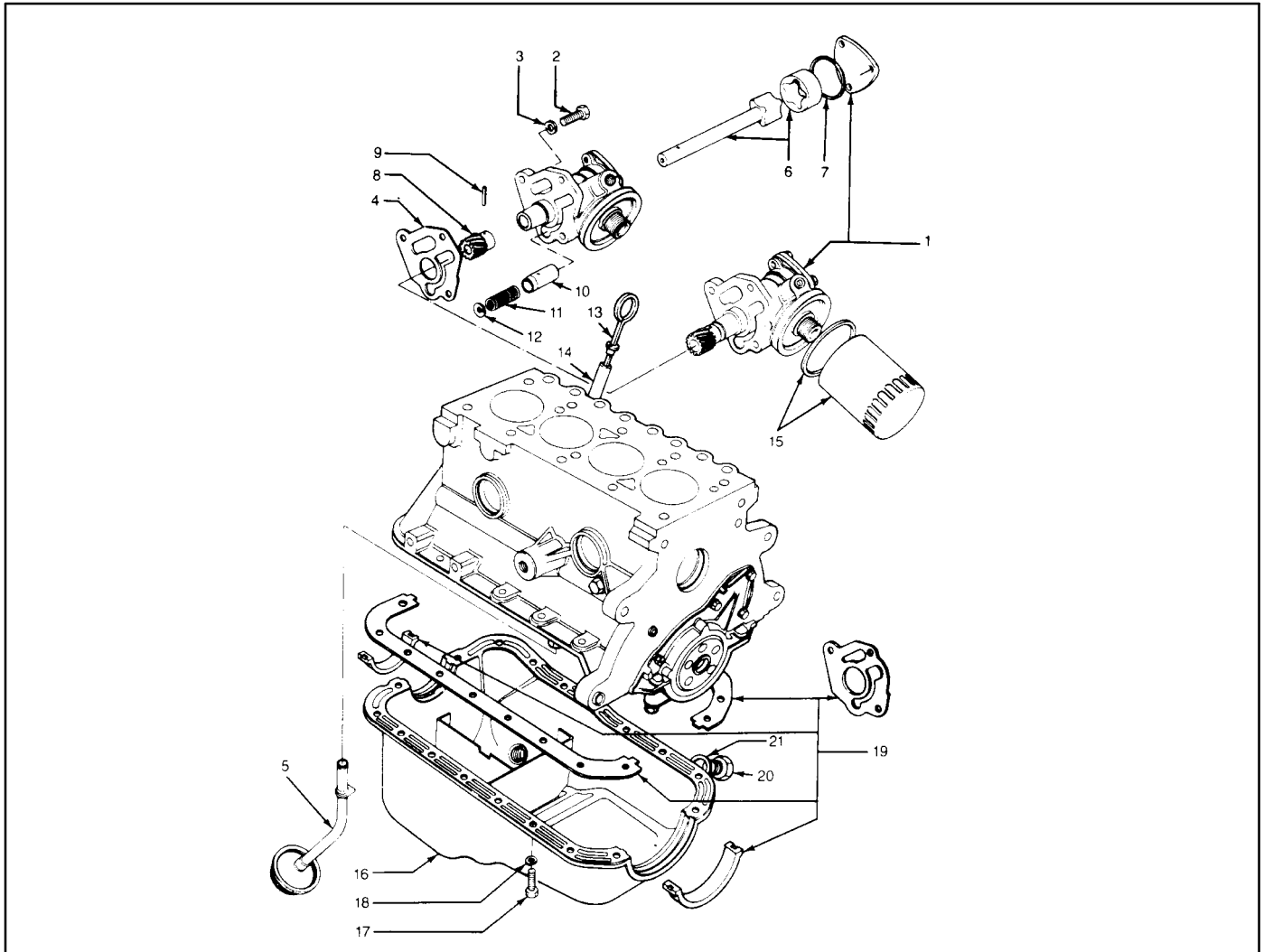
Group 7: Flywheel & Clutch



Item	Part Number	Description	Quantity		
			Variation		
			1	2	3
1	224750	Flywheel and Ring Gear Assembly	1		
1	224751	Flywheel and Ring Gear Assembly		1	1
2	279190	Gear, ring	1	1	1
3	224780	Bolt, M10 x 22.5	5	6	6
4	224779	Dowel	3	3	3
5	224792	Dowel, flywheel and crankshaft	1	1	1
6	279053	Dowel	2	2	2

Common hardware. Procure locally.

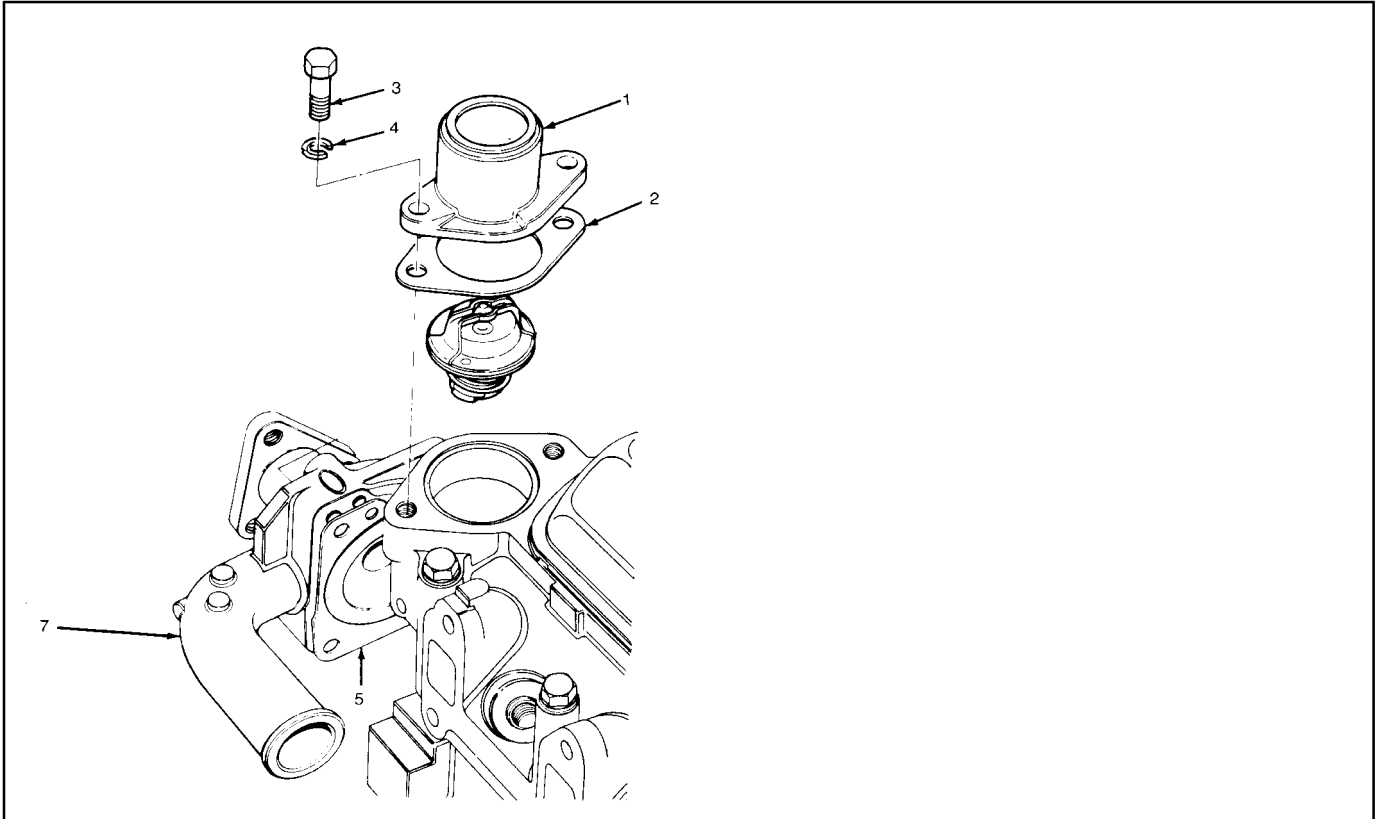
Group 8: Oil Pump & Pan



Item	Part Number	Description	Quantity		
			Variation		
			1	2	3
1	279191	Pump, oil	1	1	1
2	224790	Bolt	3	3	3
3	224787	Washer, lock (B8)	3	3	3
4	224764	Gasket, oil pump	1	1	1
5	224763	Oil Pickup Tube Assembly	1	1	1
6	279178	Rotor and Shaft	1	1	1
7	279050	Seal, cover plate	1	1	1
8	279165	Gear, oil pump	1	1	1
9	279060	Pin, drive gear	1	1	1
10	279168	Plunger, oil pump	1	1	1
11	279167	Spring	1	1	1
12	279166	Plug	1	1	1
13	244766	Indicator, oil level	1	1	1
14	224767	Tube, oil level	1	1	1
15	279218	Filter, oil	1	1	1
16	279087	Pan, oil	1		
16	279141	Pan, oil			1
17	#	Bolt, oil pan (M6 x 14)	18	18	18
18	#	Washer, lock 1/4	18	18	18
19	279143	Kit, oil pan gasket	1		
19	279145	Kit, oil pan gasket		1	1
20	224784	Plug, oil drain	1	1	1
21	224785	Gasket, oil drain plug	1	1	1

Common hardware. Procure locally.

Group 9: Fan & Water Pump

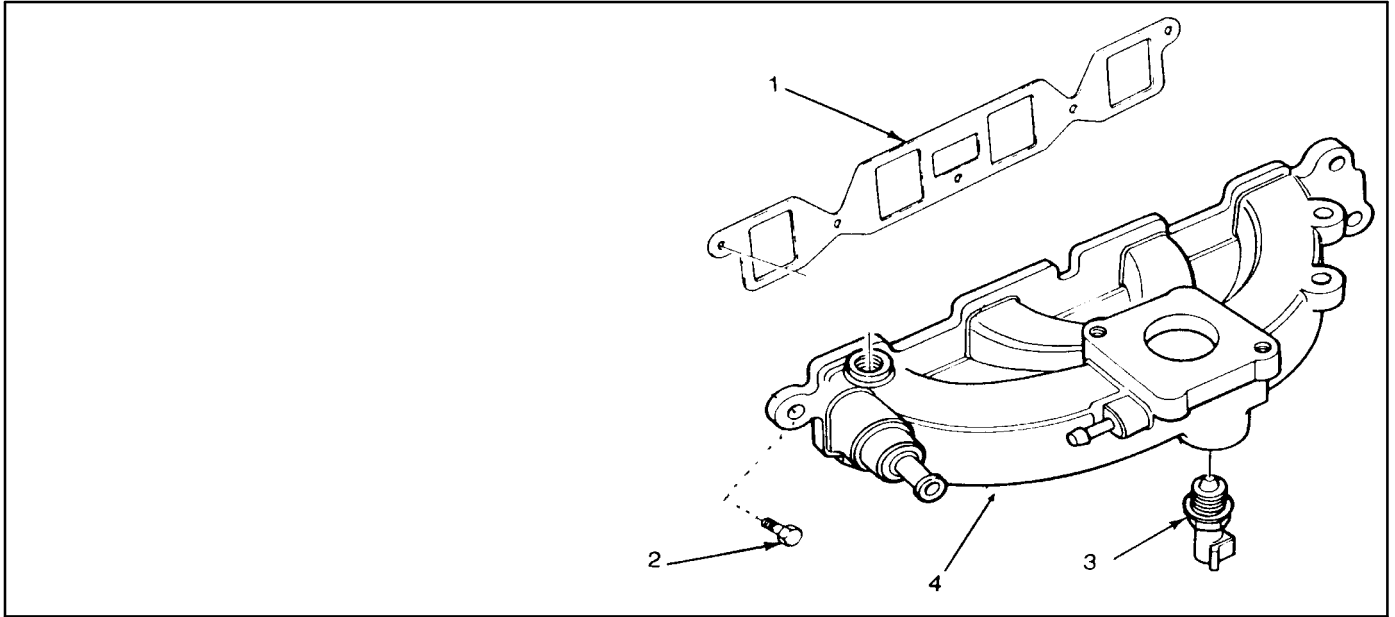


Item	Part Number	Description	Quantity	
			Variation 1	Variation 2
1	224700	Connection, water outlet (vertical)	1	1
2	246059	Gasket, water outlet	1	1
3	#	Bolt, M8 x 20	2	2
4	#	Washer, lock (B8)	2	2
5	224733	Gasket, water pump	1	1
6	#	Bolt, M6 x 50	3	3
7	224363	Pump, water service kit	1	
7	326618	Pump, water		1

See Group 104, Cooling System for additional cooling system components.

Common hardware. Procure locally.

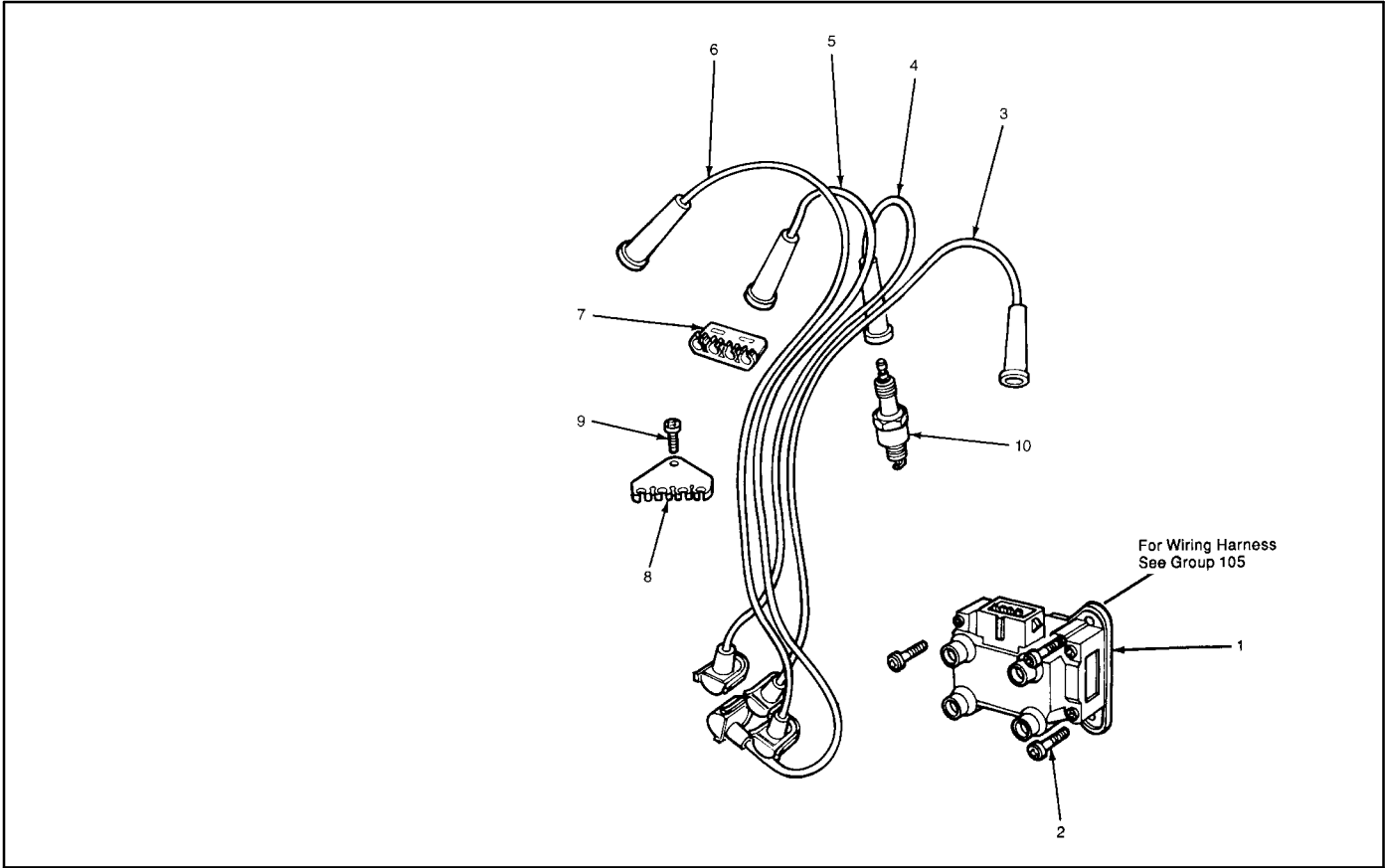
Group 10: Intake Manifold– Gas Only



Item	Part Number	Description	Quantity	
			1	Variation
1	246067	Gasket, intake manifold	1	
2	#	Bolt, M8 x 25	6	
3	224786	Sensor, water temperature	1	
4	276466	Manifold, intake (gas only) See Group 101 for gasoline intake manifold	1	

See Group 101 and Group 104 for additional manifold components.

Group 12: Ignition Module & Spark Plugs

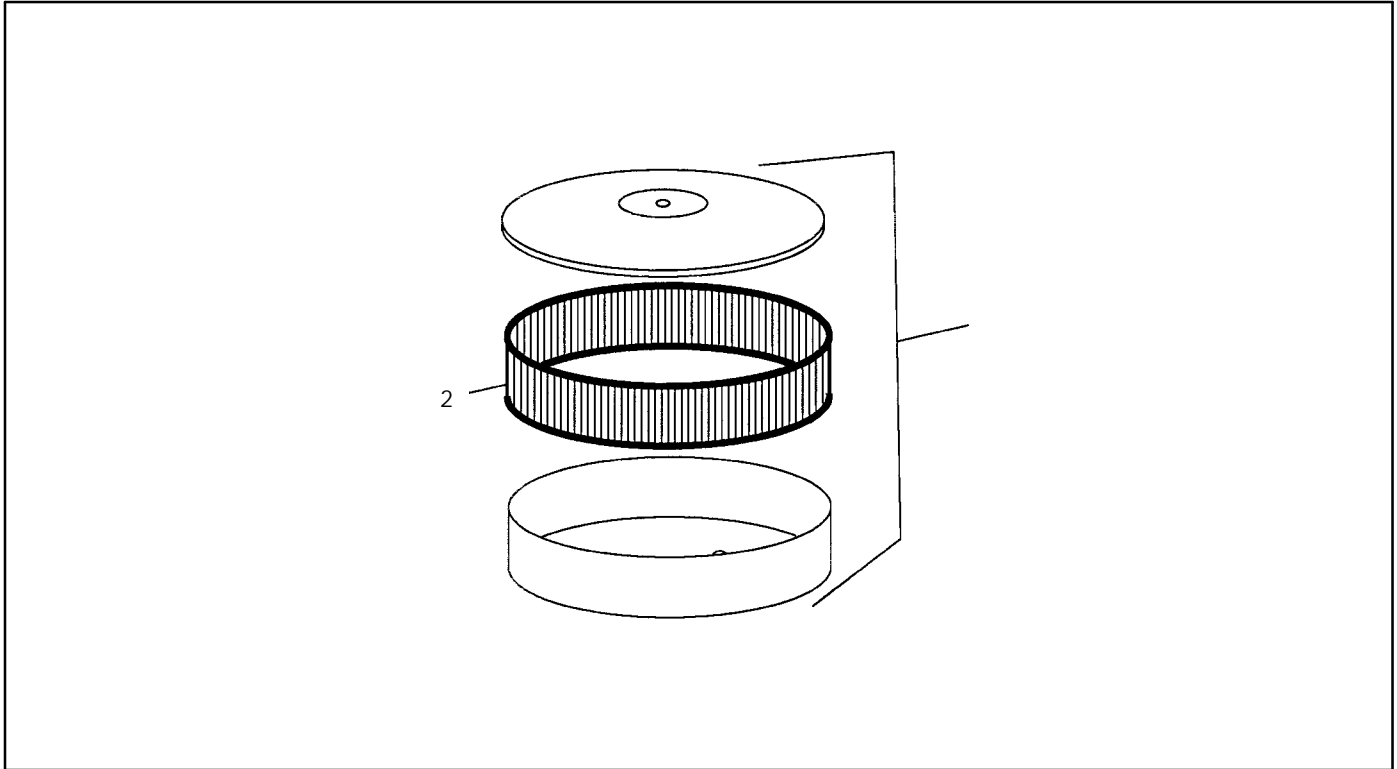


Item	Part Number	Description	Quantity	
			1	Variation
1	224710	Coil and Bracket Assembly	1	
2	#	Screw, M8 x 14	3	
3	224713	Wire, spark plug #1	1	
4	224711	Wire, spark plug #2	1	
5	224712	Wire, spark plug #3	1	
6	224714	Wire, spark plug #4	1	
7	224793	Separator, ignition wire	1	
8	224715	Separator, ignition wire	1	
9	#	Screw, M4 x 10	1	
10	224703	Spark Plug	4	

See Group 105 Engine for additional ignition components.

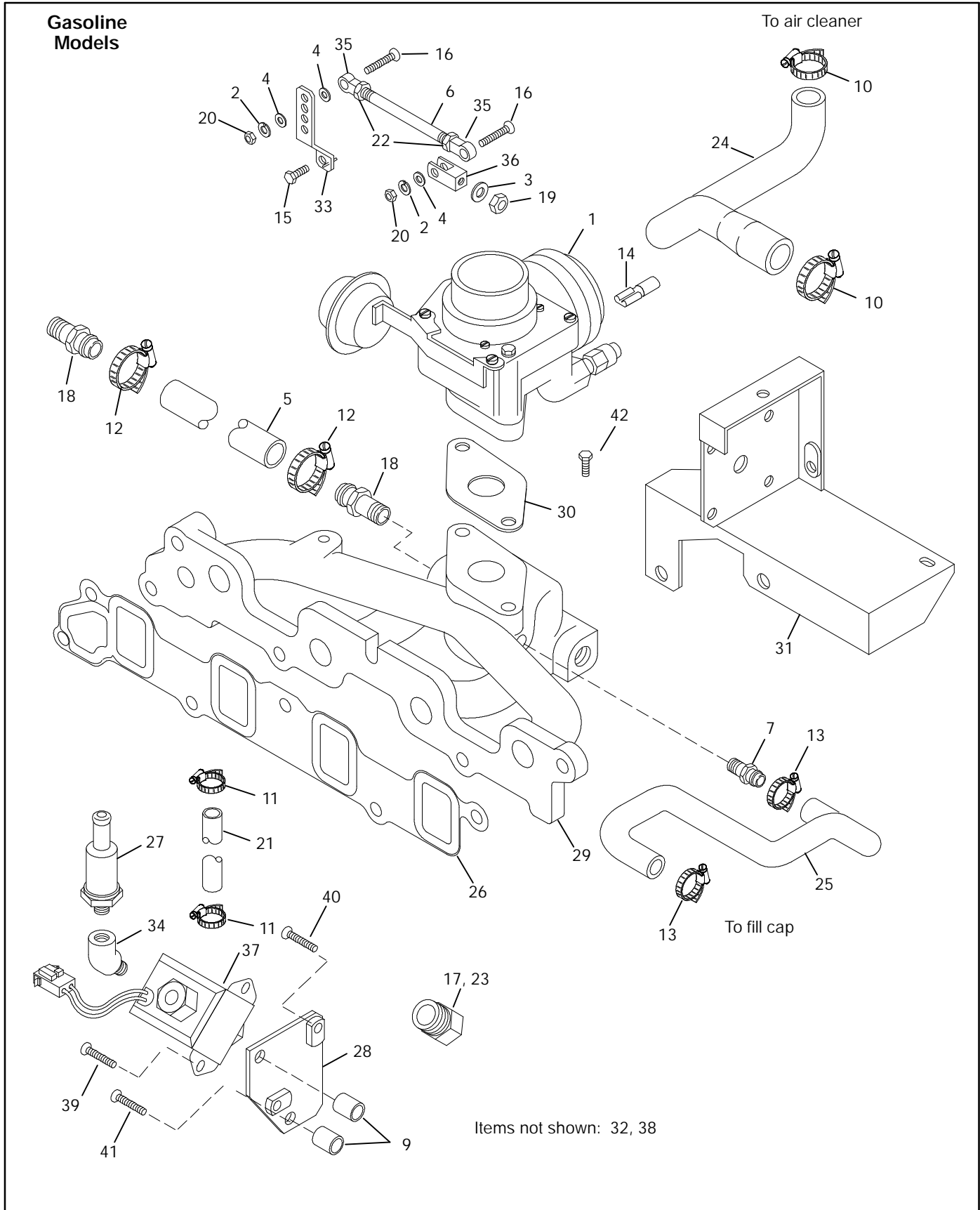
Common hardware. Procure locally.

Group 101: Air Intake



Item	Part Number	Description	Quantity	
			Variation No.	
1	A-254767	Cleaner Assembly, air	3	
2	254772	Element, air cleaner	1	

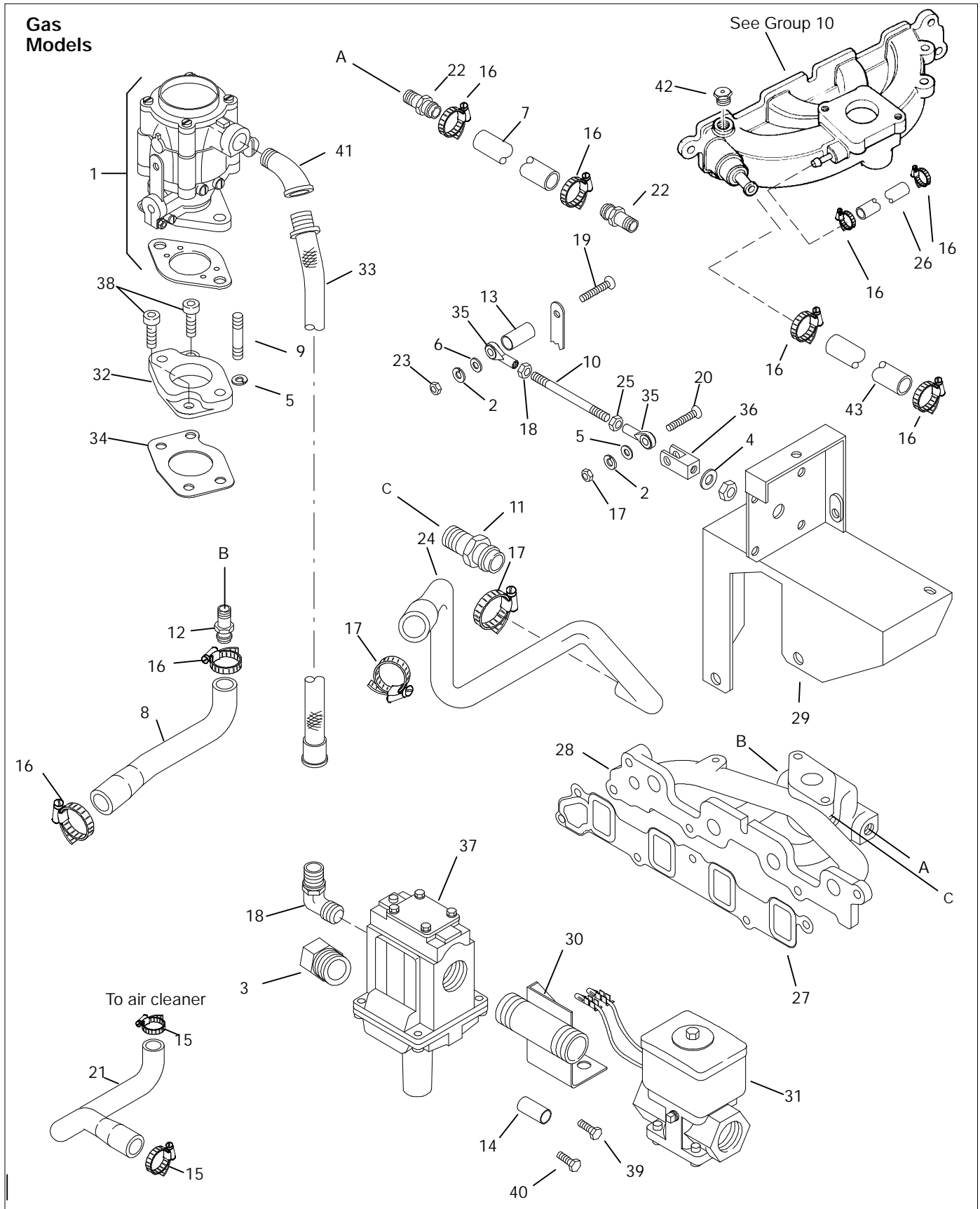
Group 103: Fuel System, Gasoline



Group 103: Fuel System, Gasoline

Item	Part Number	Description	Quantity		Variation No.
			5	13	
1	A-344520	Carburetor Assembly	1	1	
2	X-19-4	Washer, lock 1/4	2	2	
3	X-22-11	Washer, lock	1	1	
4	X-25-115	Washer, flat #10	3	3	
5	X-312-44	Hose	1	1	
6	X-352-75	Stud	1	1	
7	X-380-3	Connector, hose	1	1	
9	X-400-75	Spacer	2	2	
10	X-426-10	Clamp, hose	2	2	
11	X-426-18	Clamp, hose	2	2	
12	X-426-3	Clamp, hose 1/2-1 13/32	2	2	
13	X-429-9	Clamp, hose	2	2	
14	X-431-38	Terminal	1	1	
15	X-50-2	Screw, r.h.m. 10-32 x 3/8	1	1	
16	X-50-70	Screw, p.h.m.	2	2	
17	X-509-1	Adapter, pipe 1/4 x 1/8	1	1	
18	X-582-2	Connector, hose	2	2	
19	X-6053-1	Nut, hex. M-0637050	1	1	
20	X-6234-6	Nut, hex.	2	2	
21	X-6251-1	Hose	1	1	
22	X-70-11	Nut, hex. 10-32	2	2	
23	X-75-51	Plug, pipe	1	1	
24	226364	Hose, molded	1	1	
25	226365	Hose, molded	1	1	
26	246067	Gasket, intake manifold	1	1	
27	249433	Filter, fuel	1	1	
28	249902	Bracket, fuel pump	1	1	
29	249915	Manifold, intake	1	1	
30	249931	Gasket, carburetor	1	1	
31	249949	Bracket, governor mtg.	1	1	
32	249979	Tee, hose (not shown)	1	1	
33	254979	Lever Assembly, throttle	1	1	
34	267428	Elbow, 45 degree street	1	1	
35	272456	Rod, end	2	2	
36	273751	Yoke	1	1	
37	278490	Pump, fuel	1	1	
38	280007	Gasket, carburetor	1	1	
39	X-465-6	Screw, 1/4-20 .50	2	2	
40	X-6238-17	Screw, 3/8-16 x 2.25	1	1	
41	X-6238-7	Screw, 3/8-16 x 2.50	1	1	
42	X-125-28	Screw, 5/16-18 x 3.00	2	2	

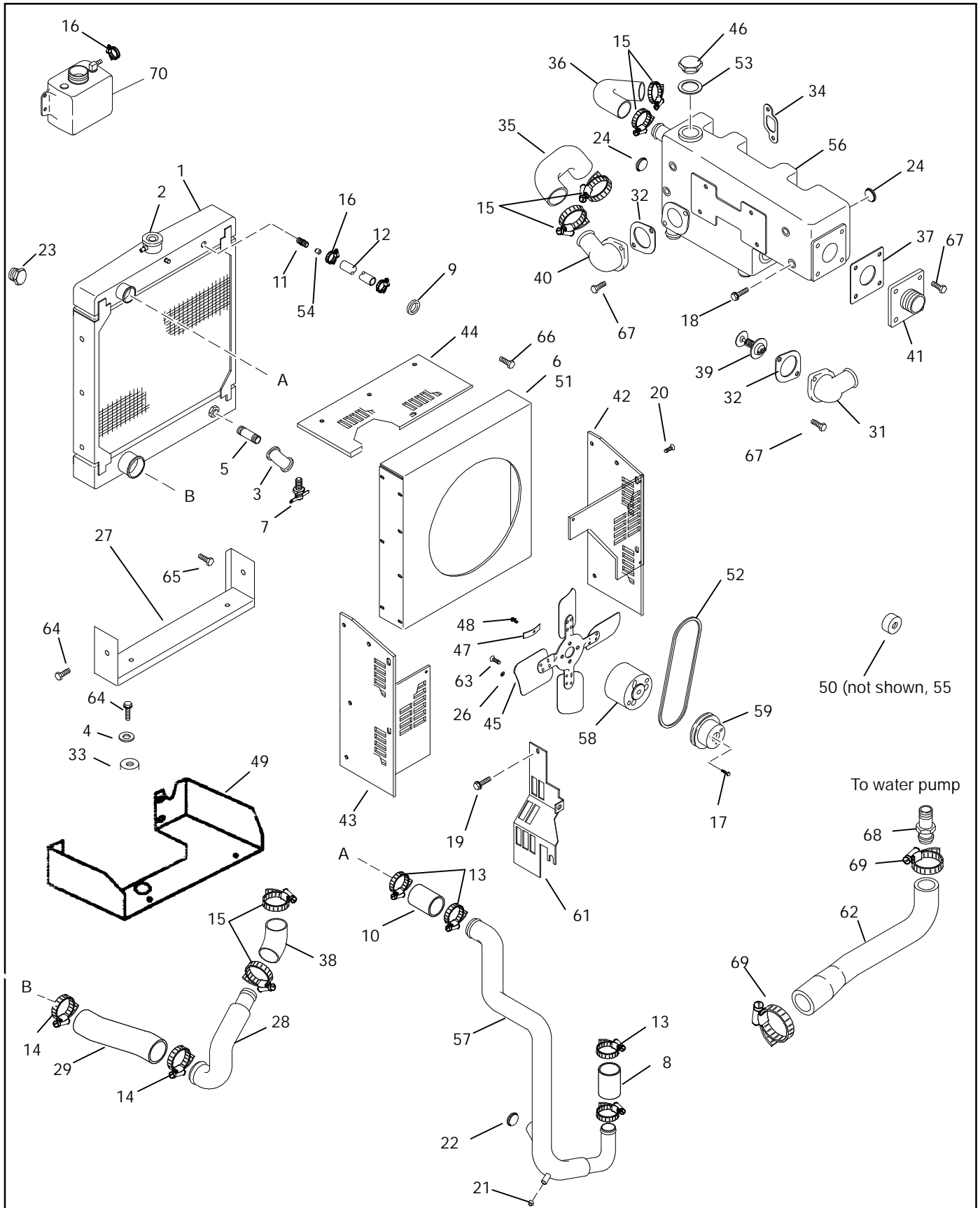
Group 103: Fuel System, Gas



Group 103: Fuel System, Gas

Item	Part Number	Description	Quantity			
			Variation No.			
			7	9	16	
1	A-254697	Carburetor Assembly	1			
1	A-226678	Carburetor Assembly		1	1	
1	226679	Plug, carburetor (.75 diameter hole)		1	1	
1	226680	Plug, carburetor (.437 diameter hole)		1	1	
2	X-19-4	Washer, lock	2	2	2	
3	X-202-26	Bushing, reducer 3/8 x 3/4	1			
4	X-22-11	Washer, lock 1/4	1	1	1	
5	X-22-5	Washer, lock shakeproof 5	2	2	2	
6	X-25-115	Washer, plain	3	2	2	
7	X-312-44	Hose	1			
8	X-312-3	Hose	1			
9	X-352-37	Stud	2	2	2	
10	X-352-75	Stud	1			
10	X-352-79	Stud		1	1	
11	X-380-3	Connector, hose	1			
12	X-391-2	Connector, hose 5/5 x 3/8	1	1	1	
13	X-400-178	Spacer	1			
13	X-400-127	Spacer		1	1	
14	X-400-75	Spacer	2	2	2	
15	X-426-10	Clamp, hose	2	2	2	
16	X-426-3	Clamp, hose 1/2-1 13/32	2	2	2	
17	X-426-9	Clamp, hose	2	2	2	
18	X-447-9	Elbow, 5/8-18 x 3/8	1			
18	X-447-16	Elbow		1	1	
19	X-50-57	Screw, r.h.m. 10-32 x 1 1/2	1			
19	X-50-71	Screw, r.h.m. 10-32 x 1 1/4		1	1	
20	X-50-70	Screw, pan head machine	1	1	1	
21	X-577-6	Hose, 5/8 x 11	1			
21	226363	Hose, molded		1	1	
22	X-582-2	Connector, hose	2			
23	X-6234-6	Nut, hex.	2	2	2	
24	X-651-21	Hose, rubber .375 x 22"	1			
25	X-70-11	Nut, hex.	2			
26	246053	Hose, vacuum	1			
26	226362	Hose, molded		1	1	
27	246067	Gasket, intake manifold	1			
28	249915	Manifold, intake	1			
29	249949	Bracket, governor mtg.	1			
29	256845	Bracket, governor		1	1	
30	254849	Bracket, fuel valve	1	1	1	
31	254859	Valve Assembly, gas	1	1	1	
32	254895	Adapter Subassembly, carb	1			
32	256947	Adapter, carburetor		1	1	
33	256858	Line, flexible fuel	1			
33	226377	Line, flexible fuel		1	1	
34	258024	Gasket, exhaust flange	1			
34	256948	Gasket, intake manifold		1	1	
35	272456	Rod, end	2	2	2	
36	273751	Yoke	1	1	1	
37	291259	Regulator, pressure	1	1	1	
38	X-125-5	Screw, 5/16-18 x 1	2			
38	256957	Screw, socket head		2	2	
39	X-6238-7	Screw, 3/8-16 x 2.5	1	1	1	
40	X-6238-17	Screw, 3/8-16 x 2.25	1	1	1	
41	X-274-6	Elbow, street 3/8		1	1	
42	X-75-2	Plug, pipe		1	1	
43	X-312-18	Hose		1	1	

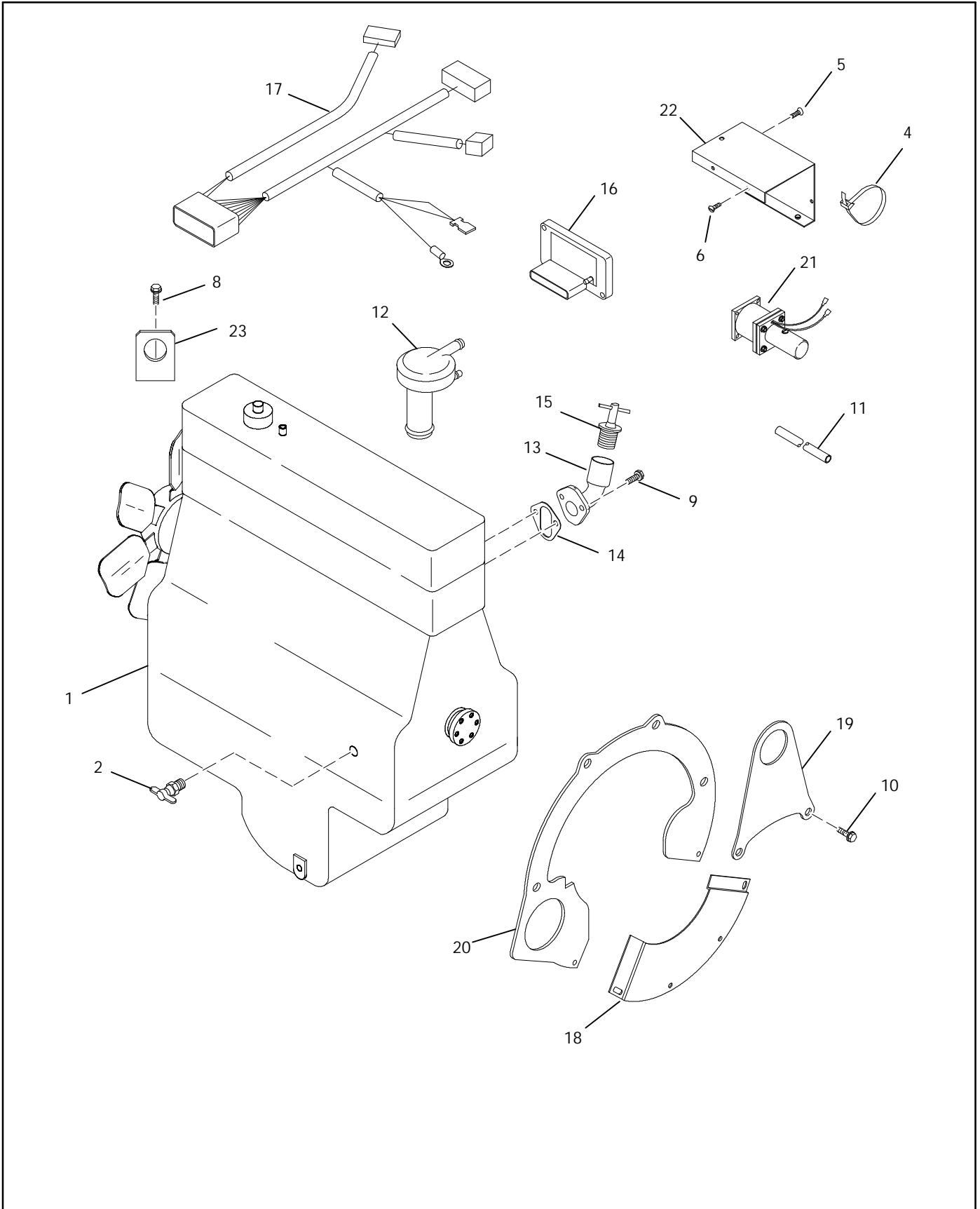
Group 104: Cooling System



Group 104: Cooling System

Item	Part Number	Description	Quantity	
			12	16
1	A-254774	Radiator Assembly	1	1
2	226734	Radiator Cap	1	1
3	X-215-5	Elbow, pipe 1/4	1	1
4	X-22-5	Washer, lock 5/16	2	2
5	X-220-6	Nipple, pipe 1/4 x 1 1/2	1	1
6	X-25-101	Washer, plain	4	4
7	X-256-3	Valve, drain 1/4	1	1
8	X-272-2	Hose, 1 1/4 x 2 1/2	1	1
9	X-284-2	Grommet, 1 5/8	1	1
10	X-304-2	Hose	1	1
11	X-380-5	Connector, hose	1	1
12	X-386-95	Line, fuel	1	1
13	X-426-4	Clamp, hose 1.75 x 2.10	4	4
14	X-426-6	Clamp, hose 1 9/16 x 2 1/2	2	2
15	X-426-8	Clamp, hose 1 15/16 x 1 3/16	6	6
16	X-426-9	Clamp, hose	3	3
17	X-6049-15	Screw, slotted hex cap	3	3
18	X-6050-13	Screw, hex head cap	8	8
19	X-6050-8	Screw, hex head cap	1	
20	X-6216-1	Screw, hex head	16	16
21	X-75-1	Plug, pipe 1/8	1	1
22	X-75-10	Plug, pipe 3/8	1	1
23	X-75-28	Plug, pipe 1/2	1	1
24	X-75-48	Plug, pipe 1" brass	2	
25	X-75-49	Plug, pipe 3/4" brass	1	
26	X-801-2	Washer, hardened	2	2
27	225597	Bracket, radiator mtg.	1	1
28	226567	Tube, radiator outlet	1	1
29	226637	Hose, radiator	1	1
31	254810	Cover, thermostat (before generator s/n 334671)	1	1
31	229064	Cover, thermostat (after generator s/n 334670)	1	1
32	229963	Gasket, water outlet	2	2
33	239497	Vibromount	2	2
34	246060	Gasket, exhaust manifold	4	4
35	249814	Hose, molded	1	1
36	249823	Hose, molded	1	1
37	249905	Gasket, exhaust	1	1
38	249906	Hose, molded	1	1
39	249930	Thermostat	1	1
40	249942	Cover, thermostat	1	1
41	254692	Flange, exhaust outlet	1	1
42	254703	Guard, belt right	1	1
43	254704	Guard, belt left	1	1
44	254735	Guard, belt top	1	1
45	254736	Fan, pusher	1	1
46	254761	Plug, exhaust manifold	1	1
47	254764	Strap	1	1
48	254766	Screw, socket hex cap	1	1
49	254770	Support, radiator	1	1
50	254771	Bracket, radiator support (not shown)	1	1
51	254773	Shroud, fan	1	1
52	254782	Belt, V	1	1
53	254795	Gasket, exhaust manifold	1	1
54	254922	Valve	1	1
55	255443	Bumper	2	2
56	256979	Manifold, exhaust	1	1
57	256998	Tube, radiator inlet	1	1
58	260088	Spacer, fan	1	1
59	260091	Pulley, water pump	1	1
60	276552	Washer, nylon (not shown)	1	
61	326798	Guard, belt	1	1
62	344581	Hose, molded	1	1
63	X-465-8	Screw, 1/4-20 x 1.25	2	2
64	X-125-23	Screw, 5/16-18 x .62	4	4
65	X-465-6	Screw, 1/4-20 x .5	2	2
66	X-465-17	Screw, 1/4-20 x .38	6	6
67	X-125-5	Screw, 5/16-18 x 1	8	8
68	X-391-2	Connector, Hose	1	1
69	X-426-3	Clamp, hose	3	3
70	249396	Bottle, overflow	1	1

Group 105: Engine



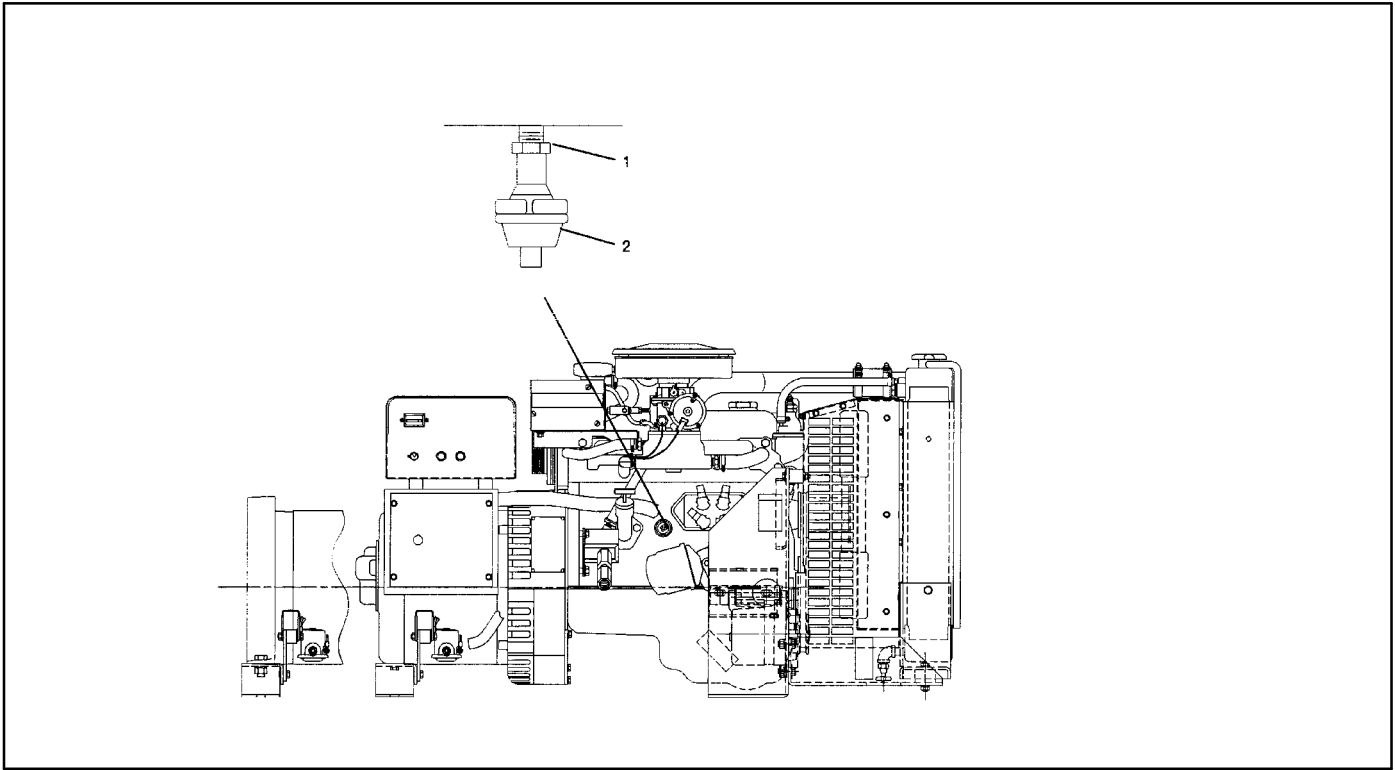
Group 105: Engine

Item	Part Number	Description	Quantity							
			Variation No.							
			11	12	16	17	21	34		
1	A-246377	Engine Assembly	1							
1	A-246378	Engine Assembly		1						
1	A-260089	Engine Assembly			1					
1	B-260090	Engine Assembly				1				1
1	B-229525	Engine Assembly						1		
2	X-256-2	Valve, drain 1/8	1	1	1	1	1	1	1	1
3	X-431-28	Terminal (not shown)	1	1	1	1	1	1	1	1
4	X-468-3	Tie, cable nylon	2	2	2	2	2	2	2	2
5	X-50-1	Screw, r.h.m.	5	5	5	5	5	5	5	5
6	X-50-3	Screw, r.h.m. 10-24	2	2	2	2	2	2	2	2
7	X-55-2	Screw, hex. socket head (not shown)	4	4	4	4	4	4	4	4
8	X-6050-1	Screw, hex head cap M8-1.25 x 30mm	1	1	1	1	1	1	1	1
9	X-6050-3	Screw, hex head cap M8-1.25 x 20mm	2	2	2	2	2	2	2	2
10	X-6051-10	Screw, hex cap M10-1.5 x 40mm	2	2	2	2	2	2	2	2
11	246053	Hose, vacuum	1	1	1	1	1	1	1	1
12	246054	Cap Assembly, oil fill	1	1	1	1	1	1	1	1
13	246057	Tube, oil fill	1	1	1	1	1	1	1	1
14	246058	Gasket	1	1	1	1	1	1	1	1
15	246063	Cap, oil fill tube	1	1	1	1	1	1	1	1
16	246065	Control Assembly, ignition	1	1	1	1	1	1	1	1
17	246068	Harness, wiring	1	1						
17	226530	Harness, wiring			1					
17	226884	Harness, wiring					1		1	1
18	249384	Guard, adapter	1	1	1	1	1	1	1	1
19	249445	Bracket, lifting	1	1	1	1	1	1	1	1
20	249889	Plate, rear engine support	1	1	1	1	1	1	1	1
21	249923	Actuator, linear	1	1	1	1	1	1	1	1
22	249990	Bracket, controller mtg.	1	1	1	1	1	1	1	1
23	254809	Bracket, lifting eye	1	1	1	1	1	1	1	1
24	276317	Washer, nylon						1		

Group 107: Nameplate and Decals

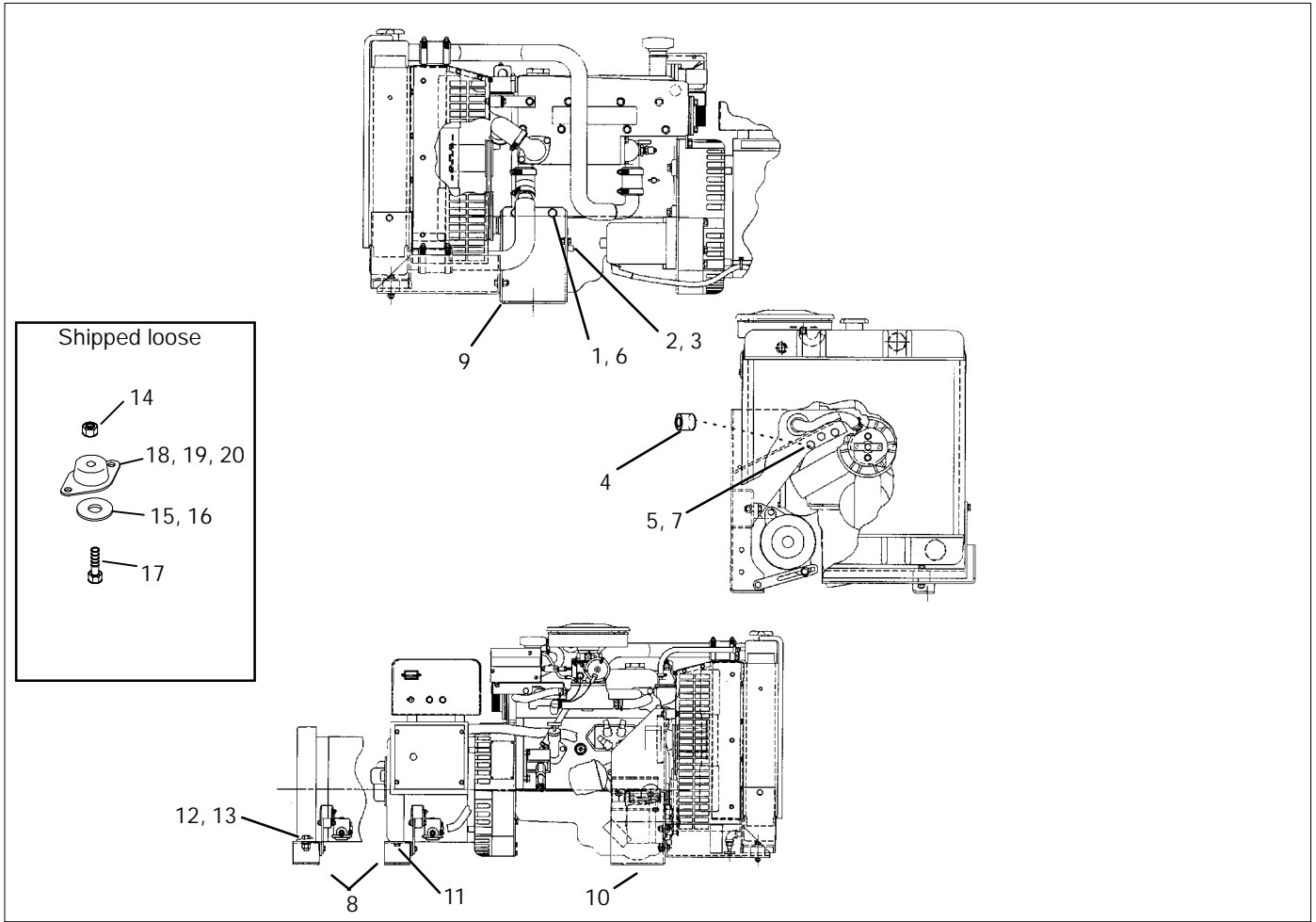
Item	Part Number	Description	Quantity														
			Variation No.														
			7	8	9	10	44	45	46	47	49	50	51	52	53	54	55
1	X-22-12	Washer, lock 1/4 int./ext. tooth	1				1				1		1			1	
2	X-67-114	Screw, self-tapping	1				1				1		1			1	
3	X-67-5	Screw, drive 2 x 3/116	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	224233	Decal, 1-800 number	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	238162	Decal, positive battery connection	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Not Available	Nameplate serial number	5	5	5	5	5	5	5	5	5	4	4	4	5	5	4
7	241655	Decal, negative battery connection	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	249808	Decal, rotating parts	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	249809	Decal, hot engine	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	249810	Decal, hot coolant	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	257438	Decal, moving rotor	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	258815	Decal, backfeed voltage	1	1			1	1		1		1		1		1	
13	280561	Decal, water drain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	280562	Decal, oil drain	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	Not Available	Nameplate	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	290435	Decal, equipment ground	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	254831	Decal, regulator adjustment			1	1			1	1		1					1
18	259365	Decal, backfire (inside controller)							1	1						1	
19	226892	Decal, emission					1		1				1				
19	226888	Decal, emission								1				1	1	1	1
20	246091	Nameplate, engine									1						
21	246066	Adhesive, neoprene									1						

Group 108: Oil Pressure Switch



Item	Part Number	Description	Quantity	
			Variation No.	
			2	
1	A-106	Bushing, reducer 1/8 x 1/4	1	
2	328309	Switch Assembly, pressure	1	

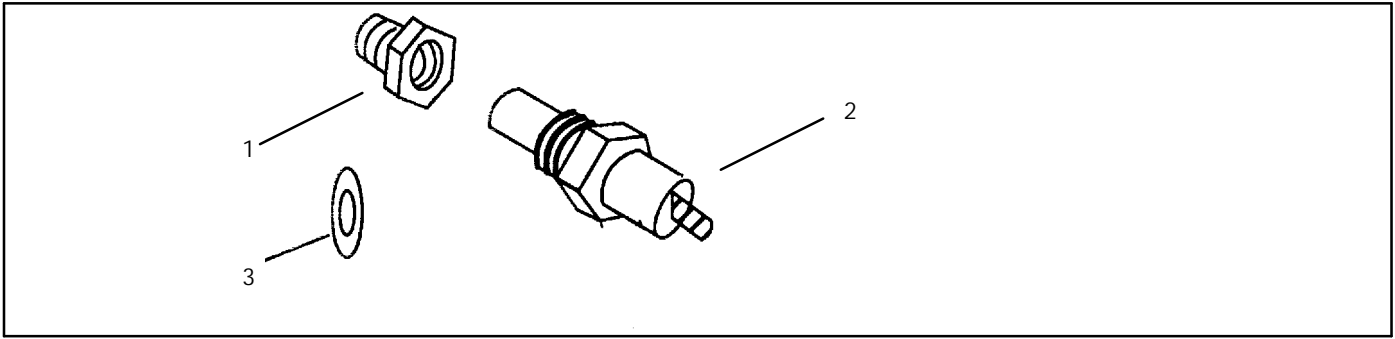
Group 109: Skid and Plant Mounting



Item	Part Number	Description	Quantity	
			6	7
1	X-22-14	Washer, shakeproof 3/8	2	2
2	X-22-16	Washer, lock 5/16	1	1
3	X-377-11	Connector, cable	1	1
4	X-400-37	Spacer	2	2
5	X-6051-10	Screw, hex cap M10-1.5 x 40mm	1	1
6	X-6051-3	Screw, hex head cap M10 1.5 x 25mm	2	2
7	X-6051-9	Screw, hex head cap M10 1.5 x 50mm	2	2
8	254709	Support, generator	1	1
9	254768	Support, engine	1	1
10	254769	Support, engine	1	1
11	X-125-3	Screw, 5/16-18 x .75	2	
12	X-129-19	Screw, 1/2-13 x 1.50		2
13	X-25-26	Washer, 0.531 x 1.062 x 0.095		2
14	X-101-13	Nut, lock	4	4
15	X-25-37	Washer, plain .406 x 812 x .065	4	4
16	X-25-96	Washer, plain	4	4
17	X-6238-17	Screw, H.C.	4	4
18	225124	Vibromount, rear	2	2
19	225125	Vibromount, front left	1	1
20	229127	Vibromount, front right	1	1

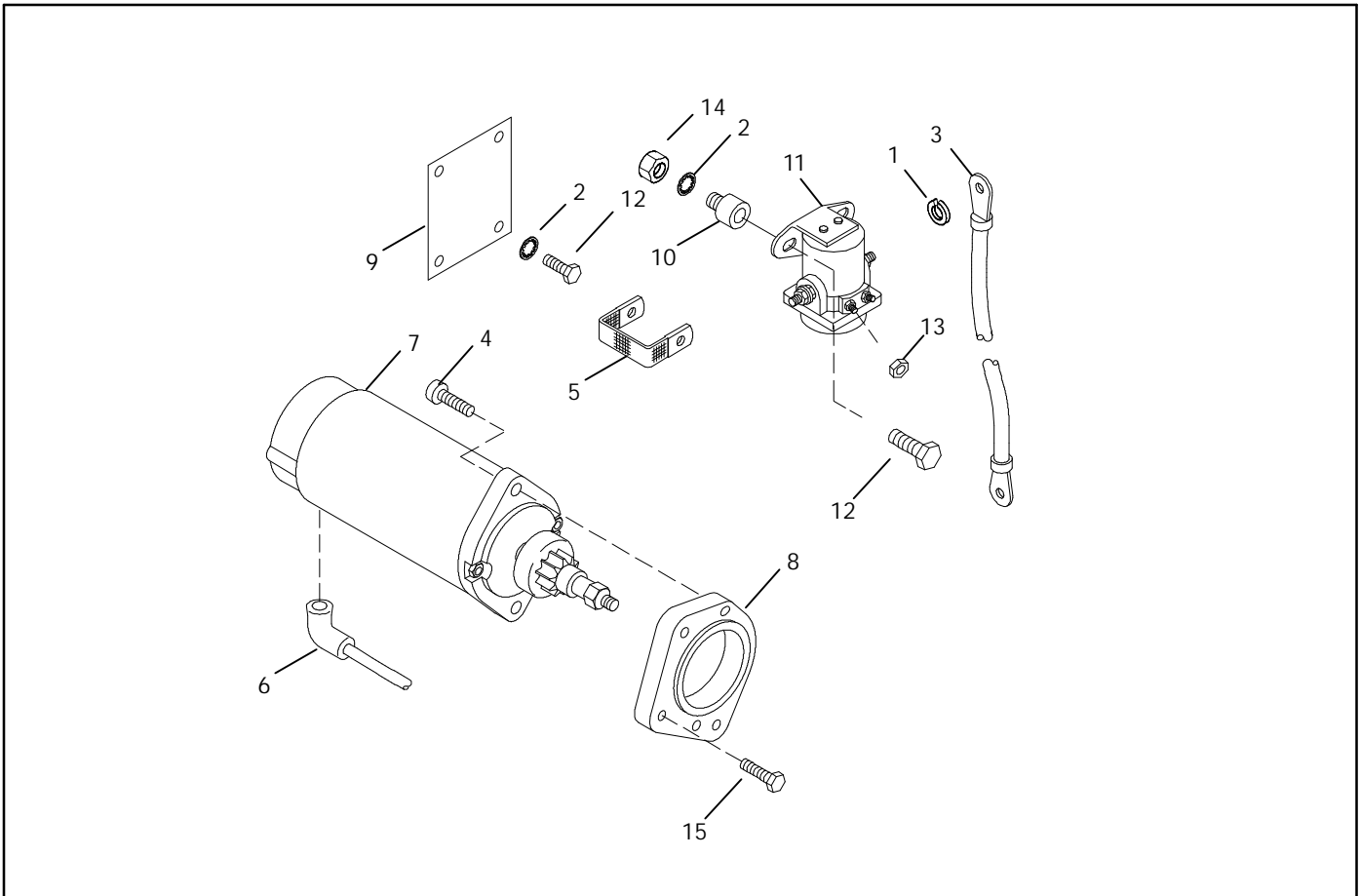
Common hardware. Procure locally.

Group 110: Temperature Switch



Item	Part Number	Description	Quantity	
			3	Variation No.
1	249959	Adapter	2	
2	255241	Switch, High Water Temperature	1	
3	276552	Washer, Nylon	3	

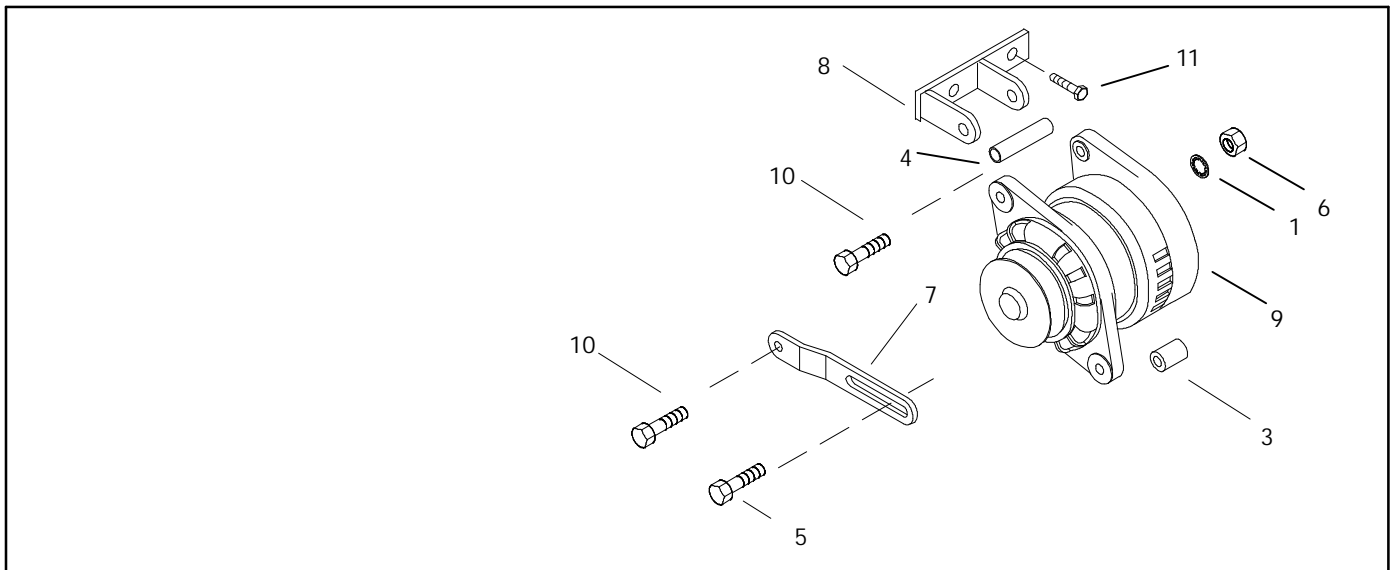
Group 112: Starter



Group 112: Starter

Item	Part Number	Description	Quantity	
			3	4
1	X-22-11	Washer, Lock 1/4	1	1
2	X-22-12	Washer, Shakeproof 1/4	4	4
3	X-545-77	Cable, Battery	1	
3	X-545-83	Cable, Battery		1
4	X-55-27	Screw, Socket Head	2	2
5	223033	Strap, Ground 3/8 x 5	1	1
6	238915	Boot	2	2
7	246056	Starter	1	1
8	249371	Spacer, Starter	1	1
9	254780	Bracket, Solenoid	1	1
10	259632	Bumper	2	2
11	291891	Solenoid, Starter	1	1
12	X-465-16	Screw, 1/4-20 x .75	2	2
13	#	10-32 Nut	1	1
14	#	1/4-20 Nut	1	1
15	X-6238-19	Screw, 3/8-16 x 3.25	3	3

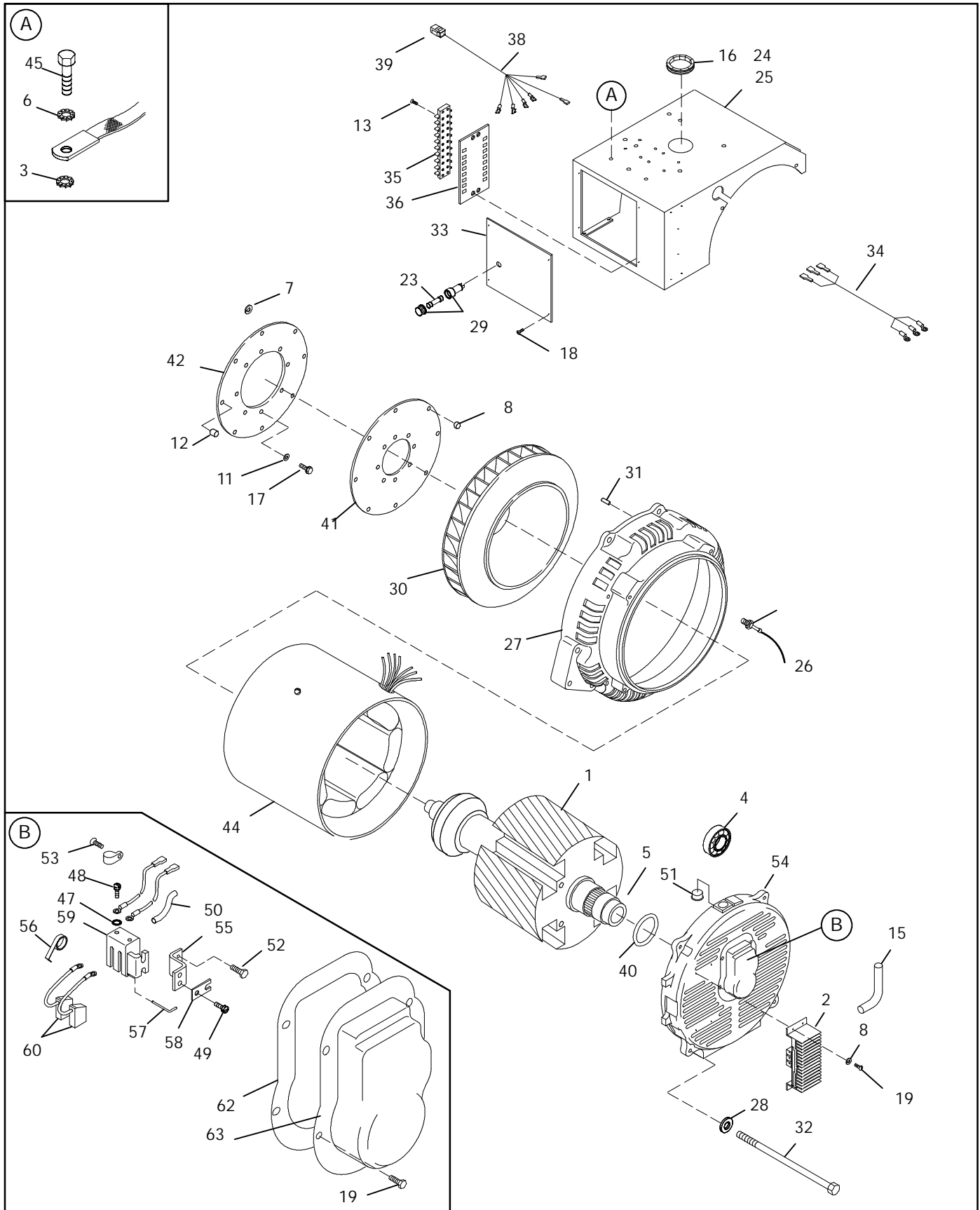
Group 113: Alternator



Item	Part Number	Description	Quantity	
			4	
1	X-22-11	Washer, Lock 1/4	1	
3	X-400-177	Spacer, 0.344 x 0.75 x 01.03	1	
4	X-400-183	Spacer, 0.344 x 0.625 x 1.794	1	
5	X-6050-4	Screw, Hex Head Cap	1	
6	X-6053-1	Nut, Hex M-0637050	1	
6	X-6053-6	Nut, Hex	1	
7	254784	Arm, Alternator Adjustment	1	
8	256923	Bracket, Alternator	1	
9	256924	Alternator	1	
10	#	5/16-18 Hardware	1	
11	#	3/8-16 Hardware	2	
12	X-25-1	Washer (between mounting foot and alternator bracket to align alternator pulley with engine pulleys)	2	

Common hardware. Procure locally.

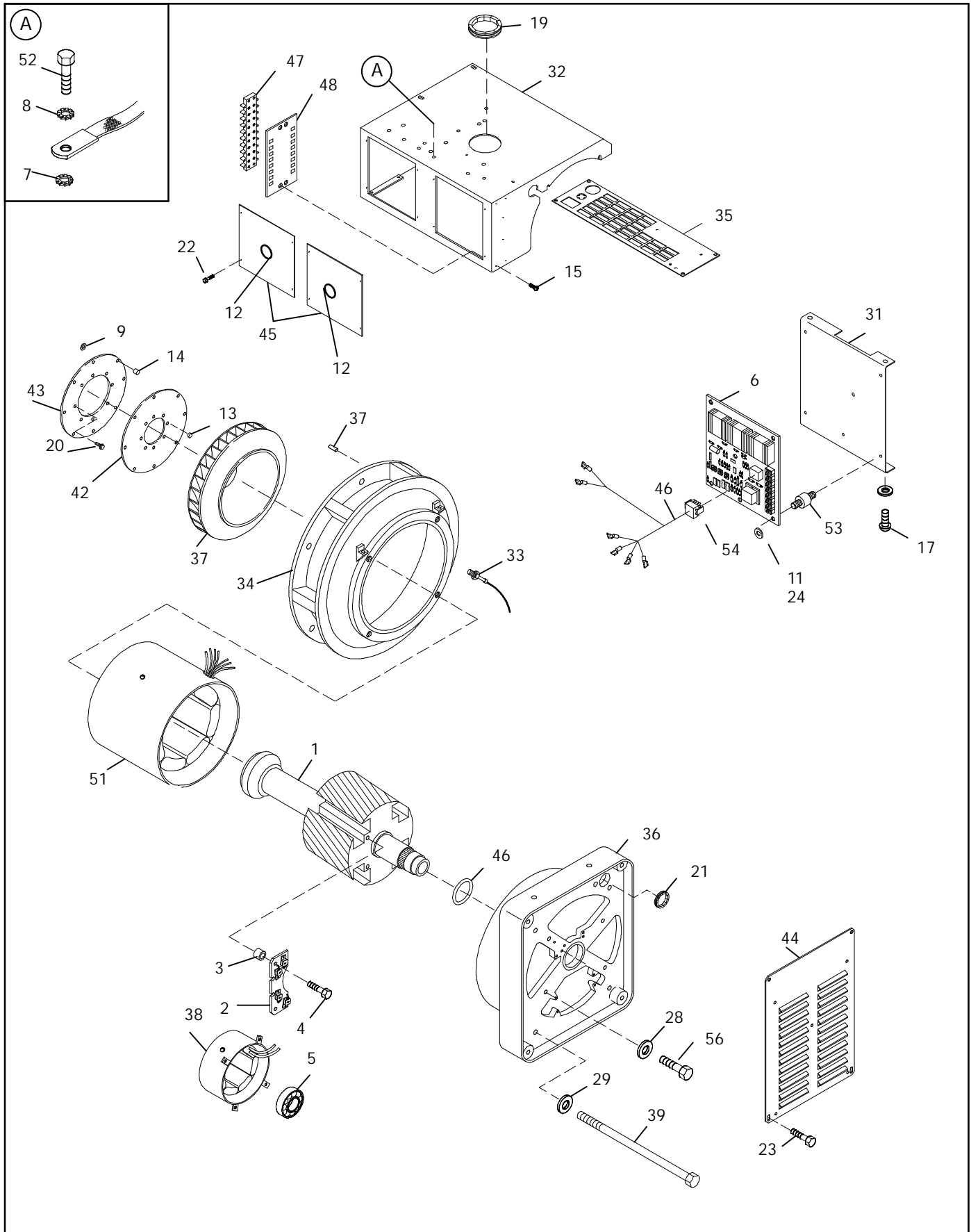
Group 201: Generator and Mounting, 1-Phase



Group 201: Generator and Mounting, 1-Phase

Item	Part Number	Description	Quantity	
			Variation No.	
			10	11
1	A-24937	Rotor Assembly	1	
1	A-249377	Rotor Assembly		1
2	E-278598	Voltage Regulator Assembly (PBIIE)	1	1
4	X-758-1	Ball Bearing	1	1
5	241671	Ring Collector	1	1
6	X-22-12	Washer, shakeproof 1/4	2	3
7	X-22-14	Washer, shakeproof 3/8	1	1
8	X-22-7	Washer, lock #8	4	4
10	X-301-23	Plug, button	1	1
11	X-400-156	Spacer	8	8
12	X-400-31	Spacer, 1/20 x 9/32 x 1/4	4	4
13	X-49-3	Screw, r.h.m. 6-32 x 7	2	2
15	X-6003-104	Conduit, convoluted	1	1
16	X-6033-4	Grommet, nylon	1	1
17	X-6050-8	Screw, hex head cap	6	6
18	X-6216-1	Screw, hex head	4	4
19	X-67-113	Screw, self-tapping	6	6
20	X-750-14	Marker, wire tab no. 1 (not shown)	1	1
21	X-750-15	Marker, wire tab no. 2 (not shown)	1	1
22	201620-94	Tab, identification (not shown)	2	1
23	223316	Fuse, .25 x 1.25 250V 10 Amp	1	1
24	254719	Bracket, controller		1
25	254718	Bracket, controller	1	
26	226532	Sensor, magnetic	1	1
27	246074	Adapter, generator	1	1
28	229239	Washer, special	2	2
29	238426	Holder, fuse	1	1
30	239646	Fan, generator	1	1
31	246064	Pin, dowel	2	2
32	249401	Bolt, over		4
33	238246	Bolt, over	4	
33	254724	Panel, regulator mounting	1	1
34	254815	Harness, wiring	1	1
35	254819	Strip, terminal	1	1
36	254821	Marker, strip	1	1
38	254992	Harness, wiring	1	1
39	269190	Connector, 6-pin	1	1
40	256466	O-Ring	1	1
41	256872	Disc, armature drive	1	1
42	256873	Disc, armature drive	1	1
43	292371	Plug, 2 position B1 & B2 alternator leads (not shown)	1	1
44	254906	Stator Assembly	1	
44	254908	Stator Assembly		1
45	267491	Screw, special	1	1
46	C-254994	Bracket Assembly, end	1	1
47	X-22-6	Washer, lock #6	2	2
48	X-49-1	Screw, r.h.m. 6-32 x 5	2	2
49	X-50-67	Screw, r.h.m. 10-24 x 7/16	2	2
50	X-6079-2	Tube, heat shrink	2	2
51	X-634-12	Bushing	2	2
52	X-67-113	Screw, self-tapping	4	4
53	X-97-13	Screw, hex. head	1	1
54	229138	Bracket, end	1	1
55	229335	Bracket, brush holder	1	1
56	238150	Spring	2	2
57	238247	Retainer, wire	1	1
58	238248	Shim, brush holder	3	3
59	239247	Holder, brush	1	1
60	239282	Brush	2	2
61	256466	O-Ring	1	1
62	278427	Gasket, cover	1	1
63	278804	Cover, brush holder	1	1

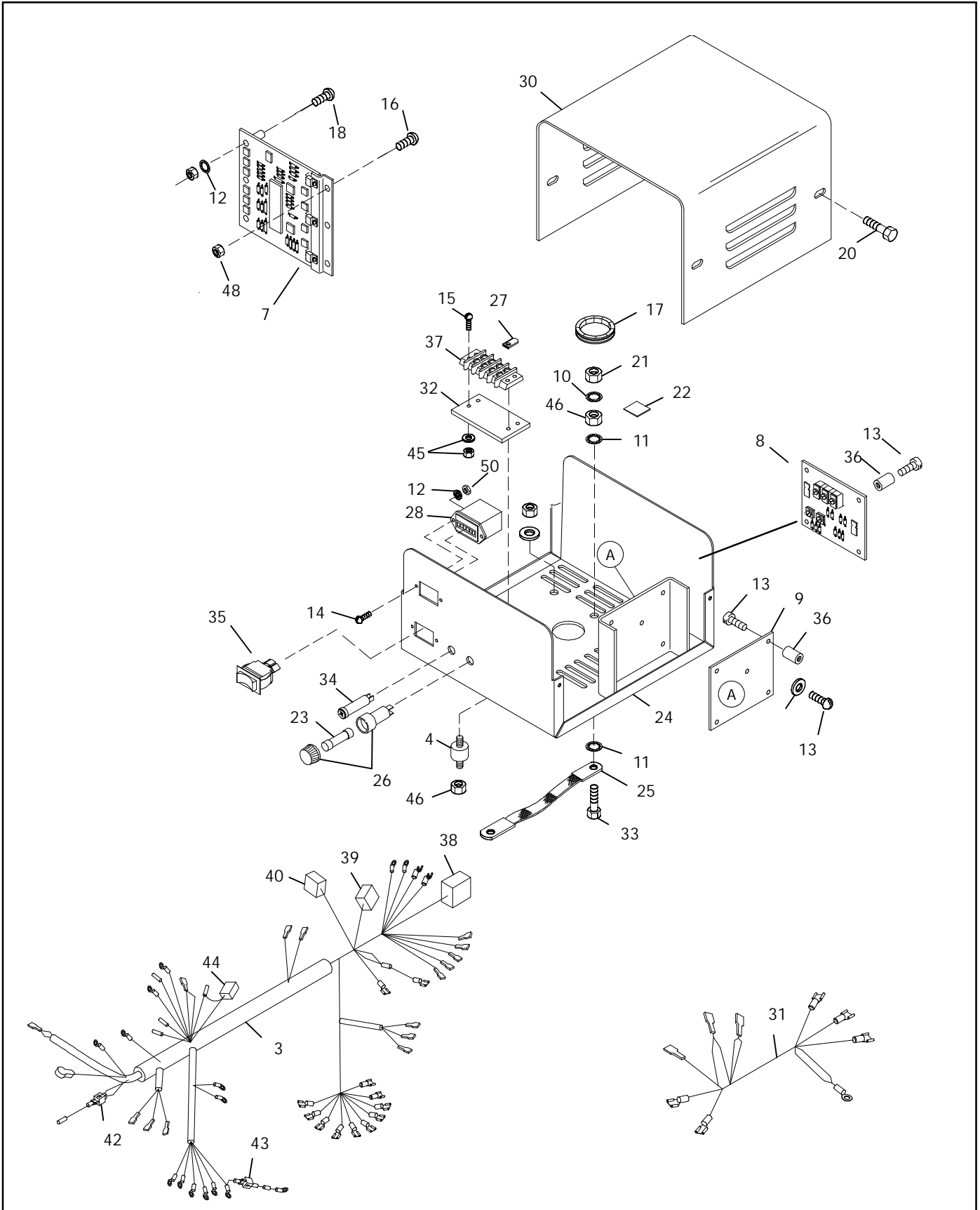
Group 201: Generator and Mounting, 3-Phase



Group 201: Generator and Mounting, 3-Phase

Item	Part Number	Description	Quantity			
			Variation No.			
			12	13	14	15
1	A-257346	Rotor Assembly	1		1	
1	A-257348	Rotor Assembly		1		1
2	A-239669	Circuit Board	1	1	1	1
3	X-400-143	Spacer	1	1	1	1
4	X-6071-5	Screw	1	1	1	1
5	X-758-1	Ball Bearing	1	1	1	1
6	B-258296	Voltage Regulator Assembly, PBV	1	1	1	1
7	X-22-11	Washer, lock 1/4	3	3	3	3
8	X-22-12	Washer, shakeproof 1/4	1	1	1	1
9	X-22-14	Washer, shakeproof 3/3	1	1	1	1
11	X-25-65	Washer, plain	12	12	12	12
12	X-301-21	Plug, button	2	2	2	2
13	X-400-156	Spacer	8	8	8	8
14	X-400-31	Spacer, 1/20 x 9/32 x 1/4	8	8	8	8
15	X-49-3	Screw, r.h.m. 6-32 x 7	2	2	2	2
17	X-50-13	Screw, r.h.m. 10-24 x 0.375	4	4	4	4
19	X-6033-2	Grommet, nylon	1	1	1	1
20	X-6050-8	Screw, hex head cap	6	6	6	6
21	X-6072-2	Grommet, nylon	1	1	1	1
22	X-6216-1	Screw, hex. head	12	12	12	12
23	X-67-52	Screw, hex. head 10-24 x 1/2	4	4	4	4
24	X-72-4	Nut, hex 8-32	12	12	12	12
25	X-750-14	Marker, wire tab no. 1	1	1	1	1
26	X-750-15	Marker, wire tab no. 2	1	1	1	1
27	X-750-16	Marker, wire tab no. 3	1	1	1	1
28	X-801-2	Washer, hardened 0.281 x 0.625	4	4	4	4
29	X-801-3	Washer, hardened 0.406 x 0.812	4	4	4	4
30	201620-94	Tab, identification	1	1	1	1
31	226482	Bracket, regulator mounting	1	1	1	1
32	226485	Box, junction	1	1	1	1
33	226532	Sensor, magnetic speed	1	1	1	1
34	254856	Adapter, generator	1	1	1	1
35	226584	Panel, junction box	1	1	1	1
36	228614	Bracket, end	1	1	1	1
37	239646	Fan, generator	1	1	1	1
38	239702	Exciter Assembly, field	1	1	1	1
39	239720	Bolt, over	4	4	4	4
41	246064	Pin, dowel	2	2	2	2
42	256872	Disc, drive	1	1	1	1
43	256873	Disc, drive	1	1	1	1
44	250713	Panel, louver	1	1	1	1
45	254724	Panel, regulator mounting	2	2	2	2
46	254817	Harness, wiring	1	1	1	1
47	254819	Strip, terminal	1	1	1	1
48	254821	Marker, strip	1	1	1	1
50	256466	O-Ring	1	1	1	1
51	254907	Stator Assembly	1			
51	254909	Stator Assembly		1		
51	254913	Stator Assembly			1	
51	254914	Stator Assembly				1
52	267491	Screw, special	1	1	1	1
53	282829	Vibromount	6	6	6	6
54	254852	Connector, 6-pin	1	1	1	1
56	X-465-16	Screw, 1/4-20 x .75	4	4	4	4

Group 301: Controller and Mounting



Group 301: Controller and Mounting

Item	Part Number	Description	Quantity	
			Variation No.	
			8	9
2	X-75-10	Plug, Pipe 3/8 (not shown)	1	1
3	226536	Harness, engine wiring	1	
3	226533	Harness, engine wiring		1
4	241769	Mount, controller	4	4
6	A-254898	Controller Assembly	1	1
7	A-249922	PCB Assy., elect. governor	1	1
8	H-239563	PCB Assy., LOPCON w/TM DLY	1	1
9	B-249812	PCB Assy., OS-time delay	1	1
10	X-22-11	Washer, lock 1/4	1	1
11	X-22-12	Washer, shakeproof 1/4	2	2
12	X-22-6	Washer, lock #6	2	2
13	X-49-25	Screw, r.h.m. 6-32 x 1/4	18	18
14	X-49-39	Screw, pan head	2	2
15	X-50-3	Screw, r.h.m. 10-24	2	2
16	X-51-15	Screw, r.h.m. 8-32 x 1/2	3	3
17	X-6033-6	Grommet, nylon	1	1
18	X-49-6	Screw, r.h.m. 6-32 x 3/4	1	1
19	X-6216-1	Screw, hex head	4	4
21	X-81-8	Nut, hex	1	1
22	201620-152	Tab, identification	1	1
23	223316	Fuse, .25 x 1.25 250V 10 amp	1	1
24	254896	Box, silkscreened	1	1
25	230857	Lead, ground	1	1
26	238426	Holder, fuse	1	1
27	238582	Terminal	4	4
28	238736	Hourmeter	1	1
30	254800	Cover, controller	1	1
31	254897	Harness, wiring	1	1
32	254822	Marker, strip	1	1
33	267491	Screw, special	1	1
34	269373	Lamp	1	1
35	249406	Switch, rocker	1	1
36	287948	Spacer, circuit board	9	9
37	292940	Strip, terminal	1	1
38	269366	15-Pin Connector P1	1	1
39	292371	2-Position Jack P2	1	1
40	292370	2-Pin Connector	1	1
42	233959	Diode, 6 amp	1	1
43	253798	Lead Assembly	1	1
44	292370	2-Pin Connector	1	1
45	#	#10-24 Hardware	2	2
46	#	1/4-20 Nut	5	5
48	#	#8-32 Nut	4	4
49	#	#6-32 Nut	1	1
50	X-71-2	Nut	2	2

Common hardware. Procure locally.

Group 701: Literature

Item	Part Number	Description	Quantity	
			Variation No.	
			6	
1	TP-5346	Service Manual, Ford VSG-411/413 engine	1	
2	TP-5422	Service Manual, 10/12CC/CZ generator sets	1	
3	TP-5411	Parts Catalog, 10/12CC/CZ generator sets	1	
4	TP-5405	Operation Manual, 10/12CC/CZ generator sets	1	
5	TP-5251	Safety Precautions	1	

Kit Parts List

Qty.	Description	Part No.
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Circuit Breaker Kits

Circuit Breaker, 40 Amp, 240 V		254727
4	Washer, plain .156 x .375 x .049	X-25-9
4	Screw, r.h.m. 6-32 x 3/8	X-49-2
1	Breaker, circuit	249478
1	Panel, regulator mtg.	254725

Circuit Breaker, 50 Amp, 240 V		254728
4	Washer, plain .156 x .375 x .049	X-25-9
4	Screw, r.h.m. 6-32 x 3/8	X-49-2
1	Breaker, circuit	249479
1	Panel, regulator mtg.	254725

Circuit Breaker, 15 Amp, 600 V		254729
1	Installation Instructions	TT-713
4	Washer, plain .156 x .375 x .049	X-25-9
4	Screw, r.h.m. 6-32 x 3/8	X-49-2
1	Breaker, circuit	250575
1	Panel, regulator mtg.	254726

Circuit Breaker, 20 Amp, 600 V		254730
1	Installation Instructions	TT-713
4	Washer, plain .156 x .375 x .049	X-25-9
4	Screw, r.h.m. 6-32 x 3/8	X-49-2
1	Panel, regulator mtg.	254726
1	Breaker, circuit	269251

Circuit Breaker, 30 Amp, 600 V		254731
1	Installation Instructions	TT-713
4	Washer, plain .156 x .375 x .049	X-25-9
4	Screw, r.h.m. 6-32 x 3/8	X-49-2
1	Panel, regulator mtg.	254726
1	Breaker, circuit	269250

Circuit Breaker, 40 Amp, 600 V		254732
1	Installation Instructions	TT-713
4	Washer, plain .156 x .375 x .049	X-25-9
4	Screw, r.h.m. 6-32 x 3/8	X-49-2
1	Panel, regulator mtg.	254726
1	Breaker, circuit	269252

Circuit Breaker, 50 Amp, 600 V		254733
1	Installation Instructions	TT-713
4	Washer, plain .156 x .375 x .049	X-25-9
4	Screw, r.h.m. 6-32 x 3/8	X-49-2
1	Panel, regulator mtg.	254726
1	Breaker, circuit	269249

Circuit Breaker, 60 Amp, 600 V		254876
1	Installation Instructions	TT-713
4	Washer, plain .156 x .375 x .049	X-25-9
4	Screw, r.h.m. 6-32 x 3/8	X-49-2
1	Breaker, circuit	253224
1	Panel, regulator mtg.	254726

Qty.	Description	Part No.
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Controller Kits

Mounted Relay Controller, 1-Phase		254933
Parts list same as Group 301, variation 8.		

Remote Mounted Relay Controller, 7.5 Ft., 1-Phase		254935
1	Grommet, 7/8	X-284-7
2	Screw, r.h.m. 6-32 x 7/8	X-49-3
3	Screw, r.h.m. 10-24 x 5	X-50-8
8	Screw, hex. head	X-6216-1
1	Plug, pipe 3/8	X-75-10
1	Harness, engine wiring	226536
1	Strip, terminal	254819
1	Box, governor board	254925
1	Cover, governor board	254926
1	Bracket, term. strip	254927
1	Strip, marker	254928
1	Harness, remote adapter	254929
1	Plug	254946
1	Controller Assembly	A-254947

Remote Mounted Relay Controller, 15 Ft., 1-Phase		254936
1	Grommet, 7/8	X-284-7
2	Screw, r.h.m. 6-32 x 7/8	X-49-3
3	Screw, r.h.m. 10-24 x 5	X-50-8
8	Screw, hex. head	X-6216-1
1	Plug, pipe 3/8	X-75-10
1	Harness, engine wiring	226536
1	Strip, terminal	254819
1	Box, governor board	254925
1	Cover, governor board	254926
1	Bracket, term. strip	254927
1	Strip, marker	254928
1	Harness, remote adapter	254929
1	Plug	254946
1	Controller Assembly	A-254948

Mounted Relay Controller, 3-Phase		254934
Parts list same as Group 301, variation 9.		

Remote Mounted Relay Controller, 7.5 Ft., 3-Phase		254937
1	Grommet, 7/8	X-284-7
2	Screw, r.h.m. 6-32 x 7/8	X-49-3
3	Screw, r.h.m. 10-24 x 5	X-50-8
8	Screw, hex. head	X-6216-1
1	Plug, pipe 3/8	X-75-10
1	Harness, engine wiring	226533
1	Strip, terminal	254819
1	Box, governor board	254925
1	Cover, governor board	254926
1	Bracket, term. strip	254927
1	Strip, marker	254928
1	Harness, remote adapter	254929
1	Plug	254949
1	Controller Assembly	A-254947

Kit Parts List

Qty.	Description	Part No.
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Remote Mounted Relay Controller, 15 Ft., 3-Phase

254938

1	Grommet, 7/8	X-284-7
2	Screw, r.h.m. 6-32 x 7/8	X-49-3
3	Screw, r.h.m. 10-24 x 5	X-50-8
8	Screw, hex. head	X-6216-1
1	Plug, pipe 3/8	X-75-10
1	Harness, engine wiring	226533
1	Strip, terminal	254819
1	Box, governor board	254925
1	Cover, governor board	254926
1	Bracket, term. strip	254927
1	Strip, marker	254928
1	Harness, remote adapter	254929
1	Plug	254949
1	Controller Assembly	A-254948

Remote Mounted Relay, 7.5 Ft.

PA-254939

1	Installation Instructions	TT-813
1	Grommet, 7/8	X-284-7
2	Screw, r.h.m. 6-32 x 7/8	X-49-3
3	Screw, r.h.m. 10-24 x 5	X-50-8
8	Screw, hex. head	X-6216-1
1	Strip, terminal	254819
1	Box, governor board	254925
1	Cover, governor board	254926
1	Bracket, term. strip	254927
1	Strip, marker	254928
1	Harness, remote adapter	254929
1	Harness, remote	254930
1	Plug	254946
1	Plug	254949
4	Bumper	254443

Remote Mounted Relay, 15 Ft.

PA-254940

1	Installation Instructions	TT-813
1	Grommet, 7/8	X-284-7
2	Screw, r.h.m. 6-32 x 7/8	X-49-3
3	Screw, r.h.m. 10-24 x 5	X-50-8
8	Screw, hex. head	X-6216-1
1	Strip, terminal	254819
1	Box, governor board	254925
1	Cover, governor board	254926
1	Bracket, term. strip	254927
1	Strip, marker	254928
1	Harness, remote adapter	254929
1	Harness, remote	254931
1	Plug	254946
1	Plug	254949
4	Bumper	254443

Cooling Kits

Block Heater, 110-120V, 630-750W

256839

2	Clamp, Hose 1/2-1-13	X-426-3
1	Heater, block	254987

Block Heater, 190-240V, 470-750W

254970

1	Clamp, Hose 1/2-1-13	X-426-3
1	Heater, block	254969

Coolant System, Wet Exhaust Manifold

226347

Parts list same as Group 104, variation 12.

Qty.	Description	Part No.
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Coolant System, Dry Exhaust Manifold

226350

1	Radiator Assembly	A-254774
1	Elbow, pipe 1/4	X-215-5
1	Nipple, pipe 1/4 x 1-1	X-220-6
1	Valve, drain 1/4	X-256-3
1	Grommet, 1-5/8	X-284-2
1	Connector, hose	X-380-5
1	Line, Fuel	X-386-95
1	Clamp, hose 2-1/4	X-426-4
2	Clamp, hose 1 9/16 x 2 1/2	X-426-6
3	Clamp, hose 1 15/16 x 1 3/16	X-426-8
2	Clamp, hose 5/8 x 1/4	X-426-9
1	Channel, U	X-6047-9
1	Plug, pipe 1/2	X-75-28
5	Screw, drill	X-794-2
2	Washer, hardened	X-801-2
1	Bracket, radiator mtg.	225597
1	Hose, molded	226318
1	Hose, molded	226319
1	Guard, cover	226423
1	Tube, radiator outlet	226567
1	Radiator Hose	226637
1	Cap, radiator	226734
2	Vibromount	239497
4	Gasket, exhaust manifold	246060
1	Guard, belt (R.H.)	254703
1	Guard, belt (L.H.)	254704
1	Guard, belt (top)	254735
1	Fan, pusher	254736
1	Strap	254764
1	Screw, socket hex cap	254766
1	Support, radiator	254770
1	Shroud, fan	254773
1	Belt, V	254782
1	Valve	254922
2	Bumper	255443
1	Manifold, exhaust	256932
1	Bracket, radiator	256963
8	Nut, hex	256965
1	Spacer, fan	260088
1	Pulley, water pump	260091
1	Guard, belt	326798

Heat Recovery Fittings, Wet Manifold

254921

1	Housing Assembly, thermostat	A-241576
3	Clamp, hose 2 1/4	X-426-4
1	Tube, radiator outlet	226566
1	Hose, inlet	254915
1	Hose, outlet	254916
1	Tube, radiator inlet	254917
1	Thermostat	254920

Heat Recovery Fittings, Dry Manifold

226314

1	Housing Assy, thermostat	A-241576
1	Hose, 1 1/4 x 2 1/2	X-272-2
3	Clamp, hose 2 1/4	X-426-4
1	Clamp, hose 1 15/16 x 1 3/16	X-426-8
1	Tube, radiator outlet	226566
1	Tube, coolant	256454
1	Hose, coolant	256961
1	Hose, coolant	256962

Radiator Guard

254798

2	Spacer, 11/32 x 5/8 x 1/4	X-400-74
1	Guard, radiator	254723

Kit Parts List

Qty.	Description	Part No.
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Exhaust Kits

Critical Silencer and Mounting

254964

1	Bushing, reducer	X-202-48
1	Pipe	X-210-25
1	Pipe	X-210-26
1	Elbow, pipe	X-215-20
1	Elbow, 90 degree	X-215-21
1	Coupling, pipe 1 1/4	X-216-30
1	U-Bolt, 2 in.	X-397-3
1	Silencer	150213
1	Bracket, silencer 2 31/32 x 2 3/4	254962
1	Bracket, silencer 2 x 1 11/16	254963

Critical Silencer Mounting

254965

1	Pipe, 1 1/4 NPT x 6	X-210-20
1	Pipe, 1 1/4 NPT x 15	X-210-21
1	Elbow, pipe 1 1/4	X-215-14
1	Coupling, pipe 1 1/4 x-216-22	X-216-22
1	U-Bolt, 2 in.	X-397-3
1	Elbow, 90°	151771
1	Bushing	153016
1	Bracket, silencer 3 x 2 3/4	254962
1	Bracket, silencer 2 x 1 11/16	254963

Critical Exhaust Silencer

PA-150201

1	Muffler	150201
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Industrial Exhaust Silencer

150213

Flexible Exhaust Connector

PA-254973

1	Coupling, pipe 1 1/2 x 2	X-216-21
1	Bushing, 2 1/16 x 1 1/4	153016
1	Connector, exhaust	254972

Qty.	Description	Part No.
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Fuel Kits

Gasoline Fuel System

344254

Parts list same as Group 103, variation 13.

Gasoline Fuel System

254956

Parts list same as Group 103, variation 5.

LP Vapor Fuel System

254957

Parts list same as Group 103, variation 7.

LP Vapor Fuel System

256949

1	Carburetor Assembly	A-226678
2	Elbow, street 3/8	X-274-6
1	Hose	X-312-18
1	Stud, 5/16-18 x 1	X-352-37
1	Stud	X-352-79
1	Spacer	X-400-127
2	Spacer, 13/32 x 19/64 x 12 gauge	X-400-75
2	Clamp, hose	X-426-10
2	Clamp, hose 1/2 x1 13/16	X-426-3
2	Clamp, hose 5/8	X-426-9
1	Elbow, oil line	X-447-16
1	Hose, molded	226362
1	Hose, molded	226363
1	Line, flexible fuel	226377
1	Bracket, fuel valve	254849
1	Valve Assembly, gas	254859
1	Bracket, governor	256845
1	Adapter, carburetor	256947
1	Gasket, intake manifold	256948
1	Screw, socket head	256957
2	Rod, end	272456
1	Yoke	273751
1	Regulator, pressure	291259

LPG Liquid Withdrawal

226688

1	Carburetor Assembly	A-226678
1	Elbow, pipe 1/4	X-215-5
1	Nipple, pipe	X-220-6
1	Elbow, street 3/8	X-274-6
1	Hose	X-312-16
1	Hose	X-312-18
2	Stud, 5/16-18 x 1	X-352-37
1	Stud	X-352-79
2	Connector, hose	X-391-2
1	Spacer, 7/32 x 1/2 x 41/64	X-400-178
2	Spacer, 13/32 x 19/64 x 12 gauge	X-400-75
2	Clamp, hose 1 in.	X-426-10
5	Clamp, hose 1/2-1-13	X-426-3
2	Clamp, hose	X-426-9
1	Elbow	X-447-17
1	Plug, pipe 1/2	X-75-3
1	Bracket, converter	226284
1	Hose, molded	226362
1	Hose, molded	226363
1	Line, flexible fuel	226377
1	Plug, carburetor	226679
1	Plug, carburetor	226680
1	Decal, emissions	226695
1	Hose, vacuum	246053
1	Solenoid Assembly	256449
1	Bracket, governor	256845
1	Converter	256903
1	Adapter, carburetor	256947
1	Gasket, intake manifold	256948
2	Screw, socket head	256957
2	Rod, end	272456
1	Yoke	273751

Kit Parts List

Qty.	Description	Part No.
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LPG Liquid Withdrawal

226283

1	Carburetor Assembly	A-226678
1	Plug, carburetor	226679
1	Plug, carburetor	226680
1	Elbow, pipe 1/4	X-215-5
1	Nipple, pipe	X-220-6
1	Elbow, street 3/8	X-274-6
1	Hose	X-312-16
1	Hose	X-312-18
2	Stud, 5/16-18 x 1	X-352-37
1	Stud	X-352-79
2	Connector, hose	X-391-2
1	Spacer, 7/32 x 1/2 x 41/64	X-400-178
2	Spacer, 13/32 x 19/64 x 12 gauge	X-400-75
2	Clamp, hose 1 in.	X-426-10.
5	Clamp, hose 1/2 x 1 13/16	X-426-3
2	Clamp, hose	X-426-9
1	Elbow	X-447-17
1	Plug, pipe 1/2	X-75-3
1	Bracket, converter	226284
1	Hose, molded	226362
1	Hose, molded	226363
1	Line, flexible fuel	226377
1	Hose, vacuum	246053
1	Solenoid Assembly	256449
1	Bracket, governor	256845
1	Converter	256903
1	Adapter, carburetor	256947
1	Gasket, intake manifold	256948
2	Screw, socket head	256957
2	Rod, end	272456
1	Yoke	273751

Qty.	Description	Part No.
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Dual Fuel, LP Vapor/Gasoline

344258

1	Carburetor Assembly	A-344520
1	Bushing, reducer 3/8	X-202-23
1	Elbow, pipe 1/4	X-215-5
1	Hose, radiator	X-281-4
1	Hose	X-312-16
1	Hose	X-312-44
1	Hose, 5/8" I.D.	X-312-5
1	Nipple, pipe	X-220-6
1	Elbow, street 3/8	X-274-6
1	Stud	X-352-75
2	Connector, hose	X-391-2
2	Spacer, 13/32 x 19/64 x 12 gauge	X-400-75
2	Clamp, hose 1 in.	X-426-10
2	Clamp, hose	X-426-18
4	Clamp, hose 1/2-1-13	X-426-3
2	Clamp, hose 1 9/16 x 2	X-426-6
2	Clamp, hose	X-426-9
1	Terminal, pushon 1/4	X-431-38
1	Elbow	X-447-17
1	Plug, pipe 1/2	X-75-3
1	Adapter, pipe 1/4 x 18	X-509-1
2	Connector, hose	X-582-2
1	Hose	X-6251-1
1	Plug, pipe	X-75-51
1	Venturi, LP	226297
1	Harness, wiring	226298
1	Bracket, switch	226300
1	Hose, molded	226364
1	Hose, molded	226365
1	Line, flexible fuel	226377
1	Switch, toggle	241911
1	Gasket, intake manifold	246067
1	Filter, fuel	249433
1	Clamp, hose	249888
1	Manifold, intake	249915
1	Gasket, carburetor	249931
1	Bracket, governor mtg.	249949
1	Tee, hose	249979
1	Bracket, fuel valve	254849
1	Valve Assembly, gas	254859
1	Lever Assembly, throttle	254979
1	Decal	256992
2	Rod, end	272456
1	Yoke	273751
1	Pump, fuel	278490
1	Regulator, pressure	291259

Flexible Fuel Line for Gasoline

PA-254976

1	Installation Instructions	TT-1025
1	Hose, oil drain	267958

Flexible Fuel Line for Gas

PA-254977

1	Installation Instructions	TT-1025
1	Nipple, pipe	X-206-9
1	Elbow, pipe 3/4	X-215-2
1	Line, flex. fuel	256857

Gas Strainer

PA-290275

1	Strainer, gas	292485
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Harness Kits

12" Remote Harness

PA-254971

1	Harness, remote	254971
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Kit Parts List

Qty.	Description	Part No.
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Load Connection Kits

Load Connection, 1-Phase		254881
2	Insulator, panel	233269
2	Stud, brass	237612

Load Connection, 3-Phase		254882
3	Insulator, panel	233269
3	Stud, brass	237612

Panel and Meter Kits

Engine Gauge Kit		254975
1	Tee, pipe 1/8 x 1/8 x 1/8	X-203-16
1	Adapter, pipe 1/4 x 18	X-509-1
1	Voltmeter	253329
1	Harness, wiring	254974
1	Sender, temperature	255240
1	Sender, oil pressure gauge	264390
1	Gauge, oil pressure	28297
1	Gauge, water temperature	282898
1	Nipple, pipe 1/8 x 1 1/2	289055

Remoe Start Panel		PA-254999
1	Panel Assembly	A-250795
1	Connector, plug	241617
1	Panel	250796
1	Switch, rocker	269296

Start Key Kit		256942
1	Plate, silkscreened	256939
1	Plate, rear	256940
1	Switch Assembly, key	256941

Miscellaneous Kits

Battery, Heavy-Duty 12 Volt 630 CCA		PA-253357
1	Stud, conversion	254427
1	Battery	291918

Battery Cables, 36 in.		PA-254988
1	Cable, battery (red)	X-545-31
1	Cable, battery (black)	244095

Qty.	Description	Part No.
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Battery Charger, Trickle Charger

Battery Charger, Trickle Charger		PAA-248952
1	Installation Instructions	TT-938
1	Battery Charger Assembly (includes the following)	A-248952
1	Terminal	X-283-8
2	Block, terminal	X-405-2
1	Terminal, female	X-431-27
9	Terminal, female	X-431-28
2	Connector, non-metallic	X-567-1
4	Screw, drill	X-794-2
1	Holder, fuse	238426
1	Cord, power	246185
1	Cover, battery charger	246604
1	Ammeter, DC	269202
1	Transformer	269204
4	Spacer, screen	270833
1	Fuse, 1.5 amp	291207
1	Lamp	291208
1	Resistor	291209
1	Switch, "High/Low" slide	291210
1	Switch, "12/24-Volt" slide	291211
1	Rectifier, silicon	291212
1	Resistor	291213
1	Cable, positive	291215
1	Cable, negative	291216
1	Nameplate, part no.	291221
1	Breaker, circuit	291265
1	Rheostat	291975
1	Box battery charger	325389

Battery Charger, Equalize/Float

Battery Charger, Equalize/Float		PAD-292862
1	Installation Instructions	TT-680
1	Installation Instructions, circuit board	TT-729
1	Battery Charger Assembly (includes the following)	D-292862
1	Board, circuit	C-262377
2	Terminal, ring (4-6 screw)	X-283-1
2	Terminal, ring (8-10 screw)	X-283-11
3	Terminal, ring (6-8 screw)	X-283-2
2	Tubing, heat shrink	X-6081-3
1	Decal, connection	233966
1	Fuse, 5 amp	239298
2	Clip, speed	257442
1	Fuse, 25 amp	262389
1	Transformer	262394
1	Decal, warning	262397
1	Clip, cable	262399
2	Holder, fuse	263156
4	Spacer, circuit board	287948
1	Lamp	291208
1	Decal, explosion "battery gases"	292387
1	Sink, heat	292938
1	Strip, terminal	292940
1	Ammeter, DC	292941
1	Voltmeter, DC	292942
1	Module, SCR	292945
1	Resistor, power	292947
1	Fuse, 7 amp	292948
1	Harness, wiring	292958
1	Marker, strip	292961
1	Marker, strip	292962
2	Retainer	295010
1	Block, terminal	295314
4	Nut, captive	298810
1	Box, battery charger	325593
1	Door, silkscreen	325596
1	Nameplate	325608

Kit Parts List

Qty.	Description	Part No.
Oil Drain Extension		254991
1	Clamp, hose 5/8	X-426-9
1	Hose, rubber 3/8 x 18	X-651-3
1	Valve, oil drain	249437
1	Clip, hose	267959
1	Washer, Nylon	276317
Power Take-off		256840
1	Pulley, crankshaft	256926
2	Retainer Assembly	256927
1	Washer, compression	256928
1	Screw, H.C.	256929

Qty.	Description	Part No.
Vibration Mounts		PA-254951
	Vibromount (2)	254950
	Vibromount, green (2)	278322
Generator Paint, Kohler Cream Beige (Spray Can)		221338
Generator Paint, Kohler Cream Beige (One Gallon Can)		221337

Appendix A. Glossary of Abbreviations

This manual uses abbreviations throughout its text. Normally the terms are in complete form with the abbreviation following in parenthesis the first time they appear. After that they appear in the abbreviated form. Listed below are the commonly used abbreviations. Some abbreviations are not applicable to this application.

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

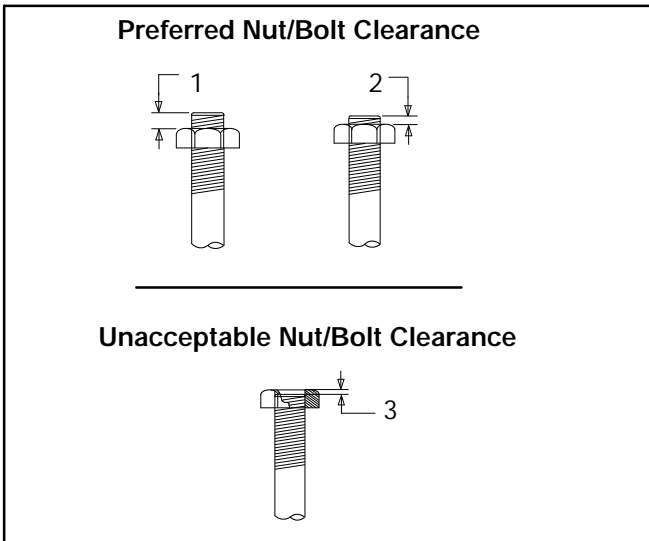
Appendix B. Common Hardware Application Guidelines

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

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

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

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



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

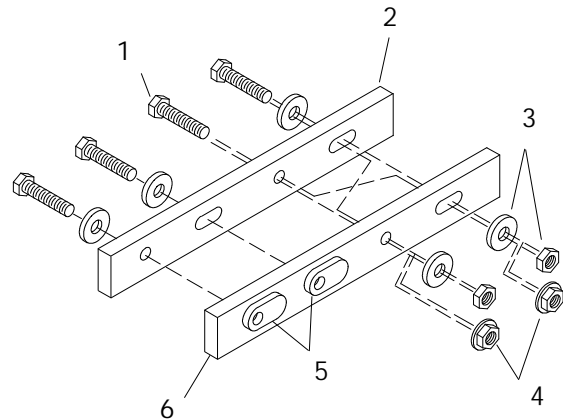
Figure 2. Acceptable Bolt Lengths

Steps for common hardware application:

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

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

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



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

Figure 3. Acceptable Hardware Combinations

Appendix C. General Torque Specifications

SAE Fasteners

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

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

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





















Metric Fasteners















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

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

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

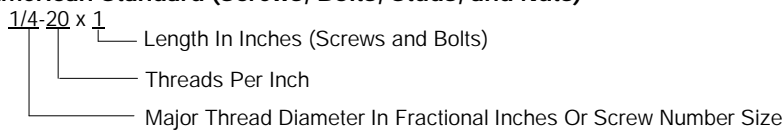
Appendix D. Common Hardware Identification

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

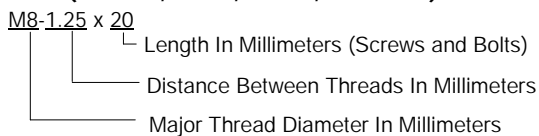
Nuts Nut Styles	
Hex. Head	
Lock Nut or Nylock Nut	
Square Nut	
Cap Nut or Acorn Nut	
Wing Nut	
Nut Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Metric	
Number stamped on hardware	
Washers	
Washer Styles	
Plain	
Split Lock or Spring	
Spring or Wave	
External Tooth Lock	
Internal Tooth Lock	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

Sample Dimensions

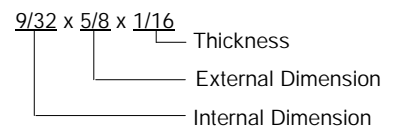
American Standard (Screws, Bolts, Studs, and Nuts)



Metric (Screws, Bolts, Studs, and Nuts)



Plain Washers



Lock Washers



Appendix E. Common Hardware List

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

HEX BOLTS (GRADE 5)

Part No.	Dimensions
X-465-17	1/4-20 x .38
X-465-6	1/4-20 x .50
X-465-2	1/4-20 x .62
X-465-16	1/4-20 x .75
X-465-18	1/4-20 x .88
X-465-7	1/4-20 x 1.00
X-465-8	1/4-20 x 1.25
X-465-9	1/4-20 x 1.50
X-465-10	1/4-20 x 1.75
X-465-11	1/4-20 x 2.00
X-465-12	1/4-20 x 2.25
X-465-14	1/4-20 x 2.75
X-465-21	1/4-20 x 5.00
X-465-25	1/4-28 x .38
X-465-20	1/4-28 x 1.00
X-125-33	5/16-18 x .50
X-125-23	5/16-18 x .62
X-125-3	5/16-18 x .75
X-125-31	5/16-18 x .88
X-125-5	5/16-18 x 1.00
X-125-24	5/16-18 x 1.25
X-125-34	5/16-18 x 1.50
X-125-25	5/16-18 x 1.75
X-125-26	5/16-18 x 2.00
230578	5/16-18 x 2.25
X-125-29	5/16-18 x 2.50
X-125-27	5/16-18 x 2.75
X-125-28	5/16-18 x 3.00
X-125-46	5/16-18 x 3.25
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-125-30	5/16-24 x .75
X-125-47	5/16-24 x .88
X-125-39	5/16-24 x 2.00
X-125-44	5/16-24 x 2.50
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-6238-24	3/8-16 x 5.00
X-6238-18	3/8-16 x 5.50
X-6238-32	3/8-16 x 5.75
X-6238-25	3/8-16 x 6.50
X-6238-34	3/8-16 x 7.00
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-6238-36	3/8-24 x 6.50

HEX BOLTS (GRADE 5), continued

Part No.	Dimensions
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-6024-7	7/16-14 x 3.00
X-6024-13	7/16-14 x 4.00
X-6024-10	7/16-14 x 4.50
X-6024-12	7/16-14 x 6.50
X-6024-9	7/16-20 x 1.25
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-129-55	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-792-5	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	Spirallock Nut
X-6210-6	1/4-28	Spirallock Nut
X-6210-7	5/16-18	Spirallock Nut
X-6210-8	5/16-24	Spirallock Nut
X-6210-9	3/8-16	Spirallock Nut
X-6210-10	3/8-24	Spirallock Nut
X-6210-11	7/16-14	Spirallock Nut
X-6210-12	1/2-13	Spirallock Nut
X-6210-15	7/16-20	Spirallock Nut
X-6210-14		Spirallock Nut
X-85-3	5/8-11	Std. Nut
X-88-12	3/4-10	Std. Nut
X-6009-2	1-8	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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