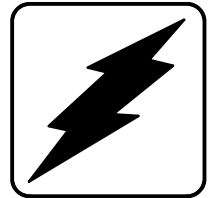


Service Parts

Industrial Generator Sets



Models:

10RY/RZ

12RY/RZ

KOHLER[®]
POWER SYSTEMS

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

TP-5849 9/01c

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Introduction

This manual lists service replacement parts for 10-12 kW generator sets.

At the time of print this manual applied to the generator set specification (spec) numbers listed in the Specification Number Index. On occasion this manual may apply to specs not listed in the Specification Number Index.

Information in this publication represents data available at the time of print. Kohler Co. reserves the right to change this publication and the products represented without notice and without any obligation or liability whatsoever.

This manual includes the following main sections:

Table of Contents. Lists the sections of the manual.

Introduction (and other information sections). Contains introductory material about part numbers, illustrations, and hardware.

Specification Number Index. Lists the generator set specs and groups.

Group Parts Lists. List the part numbers of parts in the groups.

Kit Sections. List modules and accessories and their parts.

Appendices. Include Abbreviations, Common Hardware Application Guidelines, General Torque Specifications, Common Hardware Identification, and Common Hardware List.

x:in:004:002

Numbering System Significance

This manual uses the following numbering systems:

Specification Number. The product identification number located on the generator set nameplate. Specification numbers break down into groups.

Group Number. A unique number representing a parts group needed to assemble a generator set function. For example, Group 101 is the Air Intake group.

Variation or Module Number. A group might have several variations. Each variation performs the same function with different parts lists. For example, a 50 Hz generator alternator and a 60 Hz generator alternator both perform the same function; however, with different parts. Each difference requires a group variation or module number.

Part Number. The part number identifies an individual assembly, subassembly, component, or accessory kit.

x:in:004:003:a

Illustrations

Illustrations (or exploded-view drawings) best representing the widest range of variations accompany most groups in this manual. Illustrations do not depict all details and may not show all parts. Do not use illustrations for assembly or disassembly instructions.

x:in:004:004

How to Find Part Numbers

Use the following steps to locate a service replacement part.

1. Locate the generator set nameplate to **identify the generator set spec number**.
2. Locate a second generator set nameplate listing accessories to **identify installed modules**. On some models the accessory nameplate is mounted inside the generator junction box.
3. **Turn to the Specification Number Index**. The first column lists the generator set spec numbers. The headings identify the groups of parts that make up the generator set.
4. **Identify the group** most likely to include the service part number.
5. **Find the group variation number** at the intersection of the spec number row and the group column. Note the variation number.
6. **Page forward to locate the group** identified in step 4 or find the appropriate page in the Table of Contents.
7. **Find the part on the illustration** and note the item number of the part or **find the part description in the parts list**.
8. Select **the part number that corresponds to your group variation**. The first column lists the illustration item number. Find the variation identified in the Specification Number Index or the module number found on the generator set nameplate in the appropriate column on the right side of the parts list table. Find the quantity used at the intersection of the item number row and the variation column. A blank space at the intersection means the variation/module does not use that part number.

x:in:004:005

Hardware References

Many common hardware items do not appear in parts manuals or will appear as common hardware entries. A common hardware entry lists the size of the hardware. For example, an item that appears as "Hardware, 3/8-16" in the text means that the piece is 3/8-16 size. Obtain common hardware locally or, if contacting the factory, use the Common Hardware List in the appendix to identify the common hardware part number and specifications. See Common Hardware Application Guidelines in the appendix for mating hardware instructions.

Some hardware items require a specific size or some other characteristic. In that case, use the part number listed in the text.

When replacing hardware, do not substitute inferior grade hardware. Replacement hardware grade should be equal to or better than the grade of the manufacturer's original hardware. Use the Common Hardware List in the appendix to identify the common hardware hardness.

x:in:004:006

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											
110446	1	1	1	1	1	2	1	1	2	1	1
110447	1	1	1	1	1	2	1	1	2	1	1
110448	1	1	1	1	1	2	1	1	2	1	1
110449	1	1	1	1	1	2	1	1	2	1	1
110450	1	1	1	1	1	2	1	1	2	1	1
110461	1	1	1	1	1	2	1	1	2	1	1
110462	1	1	1	1	1	2	1	1	2	1	1
110463	1	1	1	1	1	2	1	1	2	1	1
110464	1	1	1	1	1	2	1	1	2	1	1
110465	1	1	1	1	1	2	1	1	2	1	1
110470	1	1	1	1	1	2	1	1	2	1	1
110471	1	1	1	1	1	2	1	1	2	1	1
110472	1	1	1	1	1	2	1	1	2	1	1
110473	1	1	1	1	1	2	1	1	2	1	1
110474	1	1	1	1	1	2	1	1	2	1	1
110475	1	1	1	1	1	2	1	1	2	1	1
110483	2	2	2	1	2	1	1	1	1	1	1
110484	2	2	2	1	2	1	1	1	1	1	1
110485	2	2	2	1	2	1	1	1	1	1	1
110486	2	2	2	1	2	1	1	1	1	1	1
110487	2	2	2	1	2	1	1	1	1	1	1
110488	2	2	2	1	2	1	1	1	1	1	1
110489	2	2	2	1	2	1	1	1	1	1	1
110490	2	2	2	1	2	1	1	1	1	1	1
GM17783-GA1	2	2	2	1	2	1	1	1	1	1	1
GM17783-GA2	2	2	2	1	2	1	1	1	1	1	1

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											
110534	2	2	2	1	2	1	1	1	1	1	1
110535	2	2	2	1	2	1	1	1	1	1	1
110536	2	2	2	1	2	1	1	1	1	1	1
110537	2	2	2	1	2	1	1	1	1	1	1
110538	2	2	2	1	2	1	1	1	1	1	1
110549	2	2	2	1	2	1	1	1	1	1	1
110550	2	2	2	1	2	1	1	1	1	1	1
110551	2	2	2	1	2	1	1	1	1	1	1
110552	2	2	2	1	2	1	1	1	1	1	1
110553	2	2	2	1	2	1	1	1	1	1	1
110558	2	2	2	1	2	1	1	1	1	1	1
110559	2	2	2	1	2	1	1	1	1	1	1
110560	2	2	2	1	2	1	1	1	1	1	1
110561	2	2	2	1	2	1	1	1	1	1	1
110562	2	2	2	1	2	1	1	1	1	1	1
110563	2	2	2	1	2	1	1	1	1	1	1
110568	2	2	2	1	2	1	1	1	1	1	1
110569	2	2	2	1	2	1	1	1	1	1	1
GM17783-GA3	2	2	2	1	2	1	1	1	1	1	1
GM17783-GA4	2	2	2	1	2	1	1	1	1	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>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	109	110	112	113	201	301	701
Spec No.	Variation Number											

10 kW												
110446	5	10	14	26	22	11	4	5	5	22	20	4
110447	5	@	@	26	22	11	4	5	5	22	@	4
110448	5	10	14	26	25	12	4	6	5	25	21	5
110449	5	@	@	26	25	12	4	6	6	25	@	5
110450	5	@	@	26	25	12	4	6	6	28	@	5
110461	5	10	14	26	22	11	4	5	5	22	20	4
110462	5	@	@	26	22	11	4	5	5	22	@	4
110463	5	10	14	26	25	12	4	6	5	25	21	5
110464	5	@	@	26	25	12	4	6	5	25	@	5
110465	5	@	@	26	25	12	4	6	6	28	@	5
110470	5	15	14	26	22	11	4	5	5	22	20	4
110471	5	15	14	26	25	12	4	6	5	25	21	5
110472	5	15	14	26	36	11	4	5	5	22	20	4
110473	5	15	14	26	37	12	4	6	5	25	21	5
110474	5	15	14	26	32	11	4	5	5	22	20	4
110475	5	15	14	26	33	12	4	6	5	25	21	5
110483	5	@	@	24	22	11	4	5	5	22	@	12
110484	5	@	@	24	25	12	4	6	5	25	@	12
110485	5	15	14	24	22	11	4	5	5	22	20	12
110486	5	15	14	24	25	12	4	6	5	25	21	12
110487	5	15	14	24	36	11	4	5	5	22	20	12
110488	5	15	14	24	37	12	4	6	5	25	21	12
110489	5	18	14	24	32	11	4	5	5	22	20	12
110490	5	18	14	24	33	12	4	6	5	25	21	12
GM17783-GA1	5	@	@	GR1	22	11	4	5	5	22	@	12
GM17783-GA2	5	@	@	GR1	25	12	4	6	5	25	@	12

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

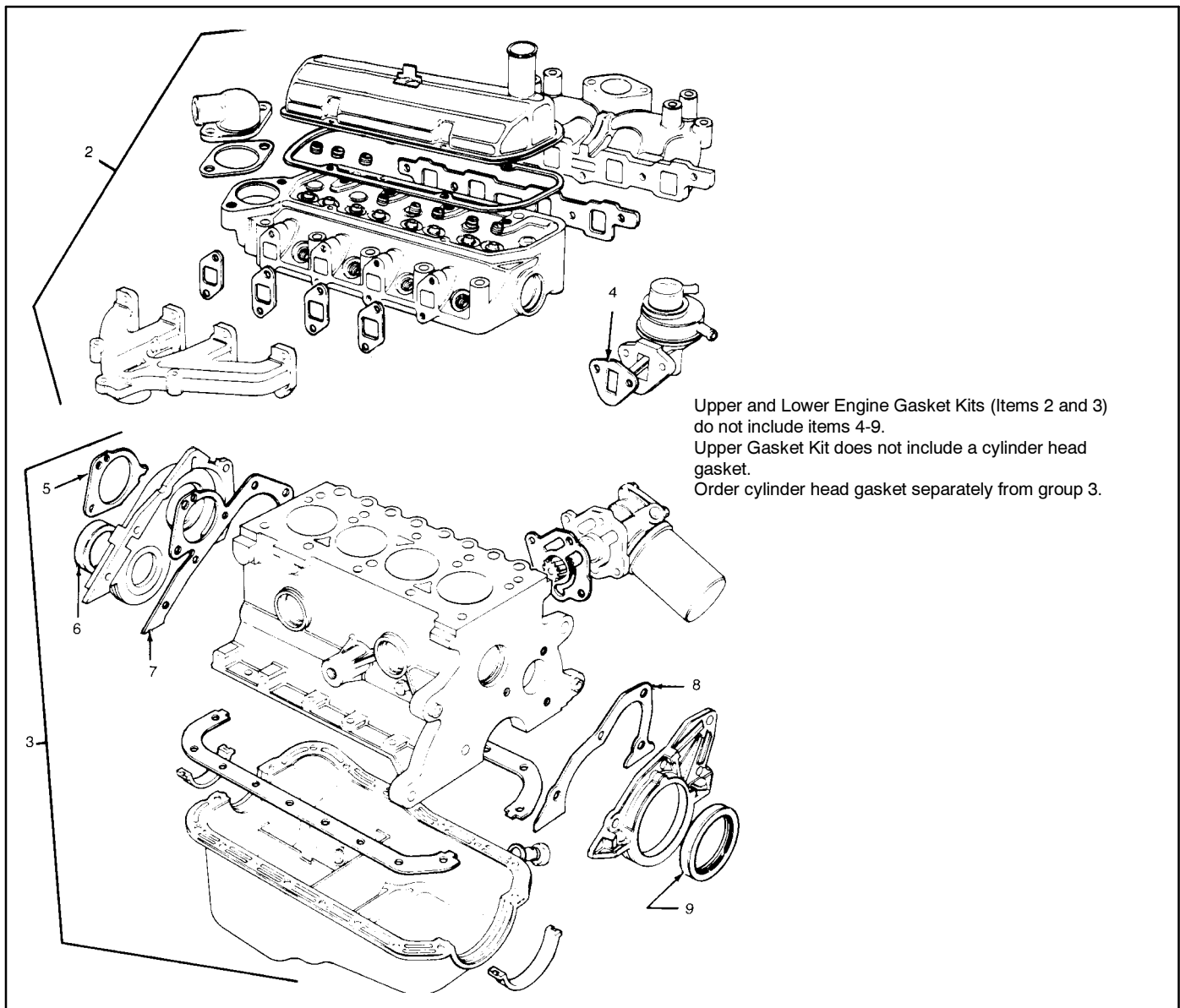
Specification Number Index

Group Title & Number	<i>Air Intake</i>	<i>Fuel System</i>	<i>Cooling System</i>	<i>Engine</i>	<i>Nameplates and Decals</i>	<i>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	109	110	112	113	201	301	701
Spec No.	Variation Number											

12 kW												
110534	5	10	14	24	18	11	4	5	5	18	20	4
110535	5	@	@	24	18	11	4	5	5	18	@	4
110536	5	10	14	24	19	12	4	6	5	19	21	5
110537	5	@	@	24	19	12	4	6	5	19	@	5
110538	5	@	@	24	19	12	4	6	5	26	@	5
110549	5	10	14	24	18	11	4	5	5	18	20	4
110550	5	@	@	24	18	11	4	5	5	18	@	13
110551	5	10	14	24	19	12	4	6	5	19	21	5
110552	5	@	@	24	19	12	4	6	5	19	@	5
110553	5	@	@	24	19	12	4	6	5	26	@	5
110558	5	15	14	24	18	11	4	5	5	18	20	13
110559	5	15	14	24	19	12	4	6	5	19	21	5
110560	5	15	14	24	38	11	4	5	5	18	20	13
110561	5	15	14	24	39	12	4	6	5	19	21	5
110562	5	15	14	24	34	11	4	5	5	18	20	13
110563	5	15	14	24	35	12	4	6	5	19	21	5
110568	5	18	14	24	34	11	4	5	5	18	20	13
110569	5	18	14	24	35	12	4	6	5	19	21	13
GM17783-GA3	5	@	@	GR1	18	11	4	5	5	18	@	13
GM17783-GA4	5	@	@	GR1	19	12	4	6	5	19	@	13

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

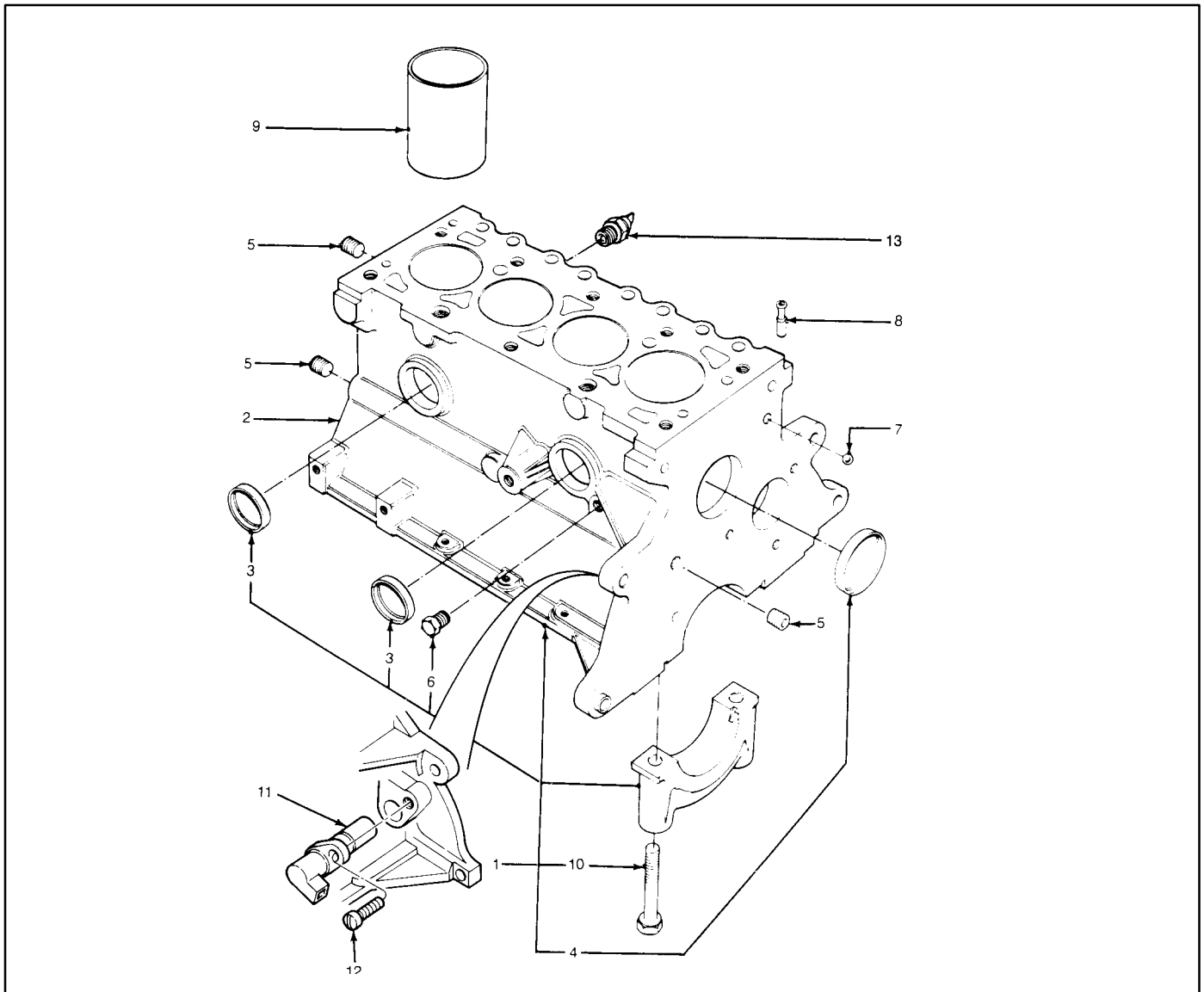
Group 1: Gaskets & Seals



Upper and Lower Engine Gasket Kits (Items 2 and 3) do not include items 4-9.
 Upper Gasket Kit does not include a cylinder head gasket.
 Order cylinder head gasket separately from group 3.

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

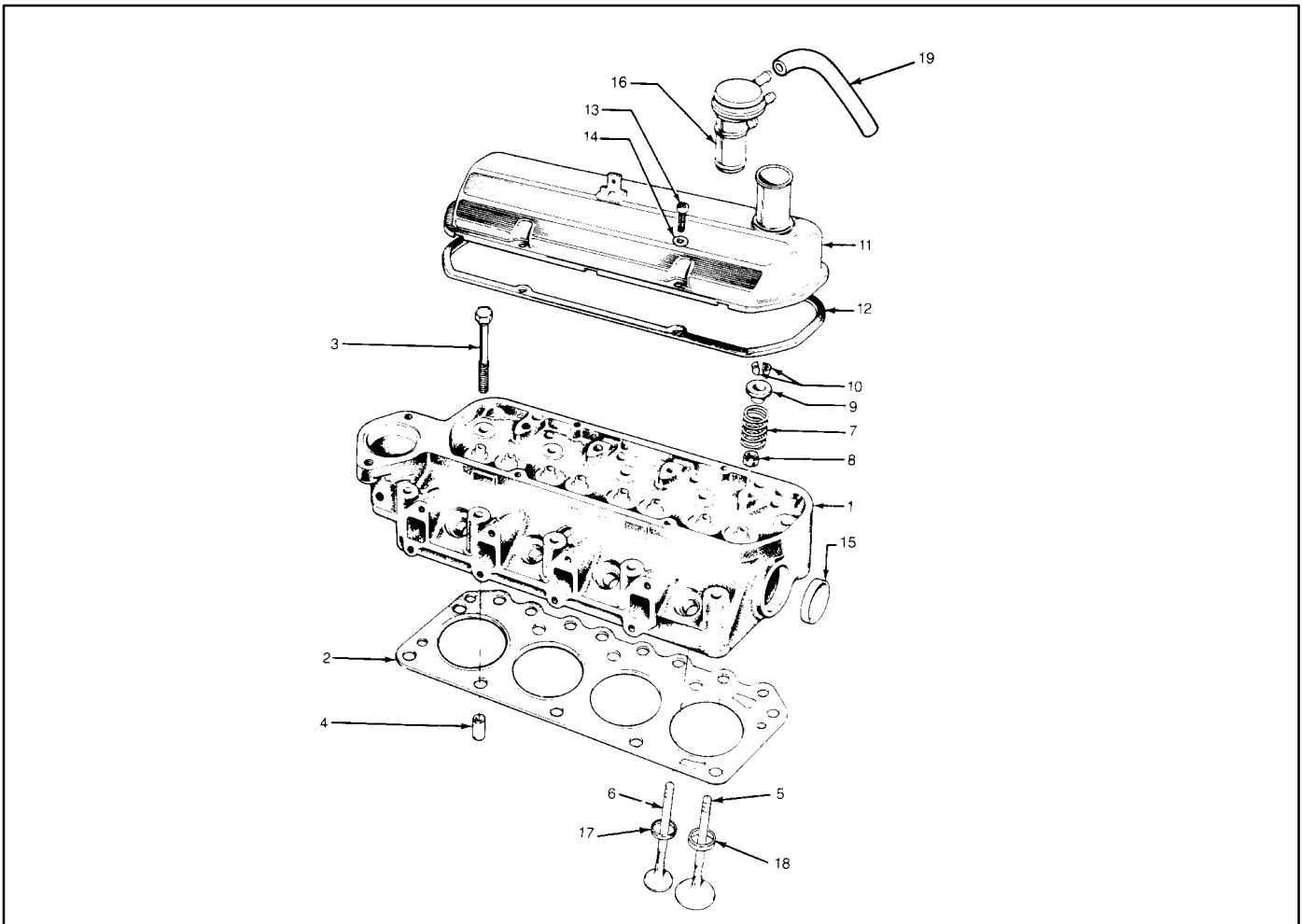
Group 2: Cylinder Block



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

Common hardware; procure locally.

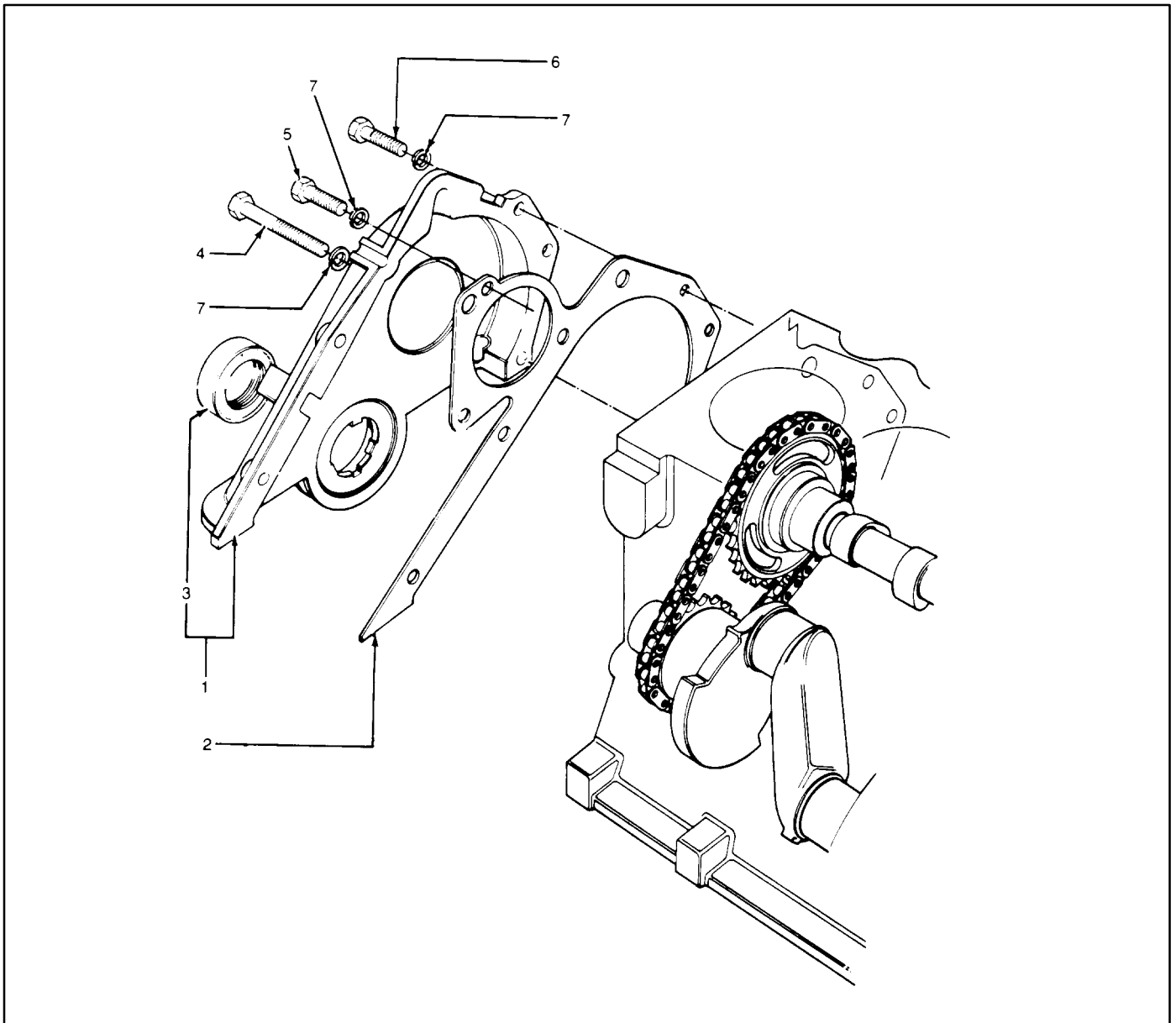
Group 3: Cylinder Head & Valves



Item	Part Number	Description	Quantity	
			1	2
1	GM24858	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.

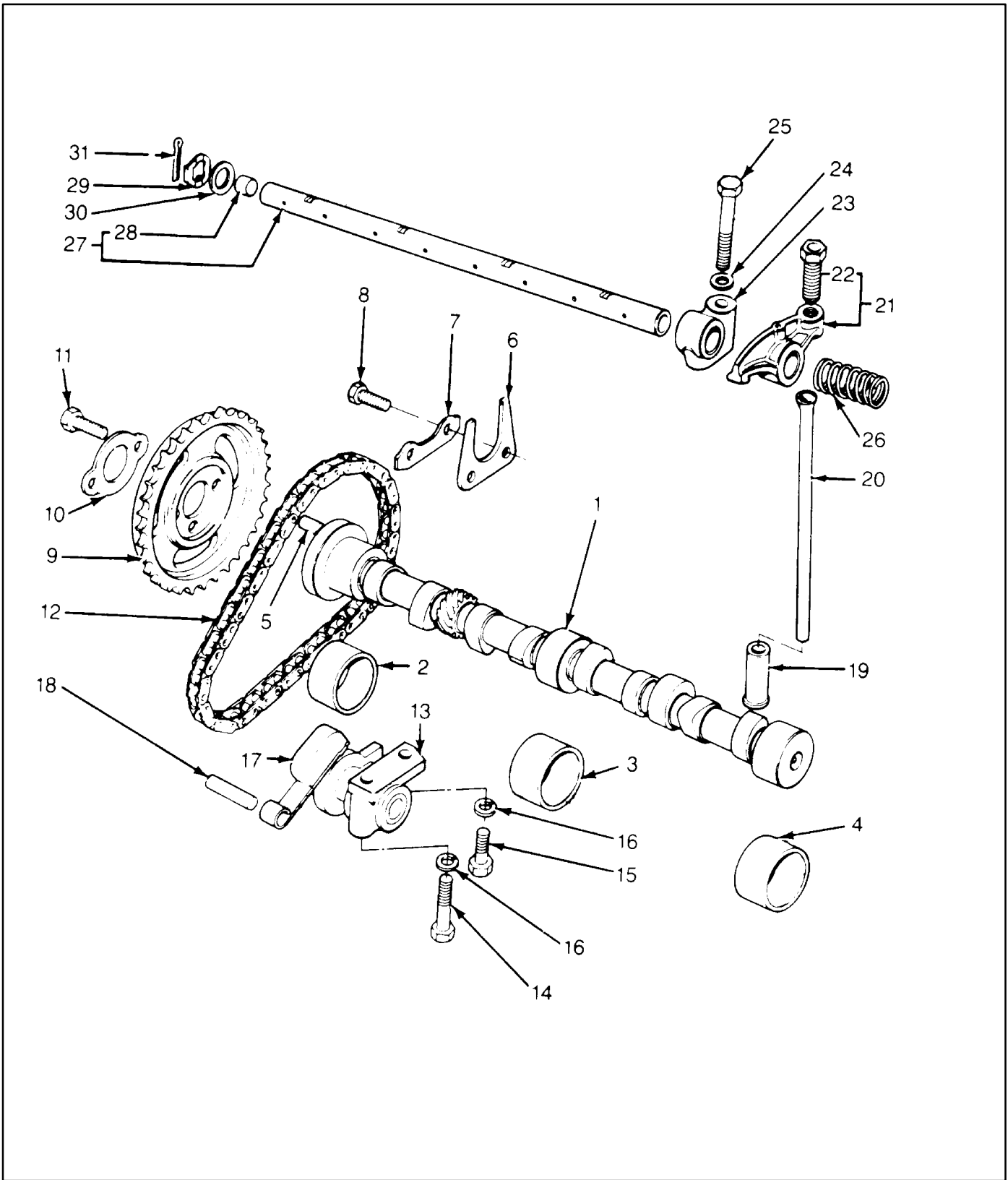
Group 4: Front Cover assembly



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

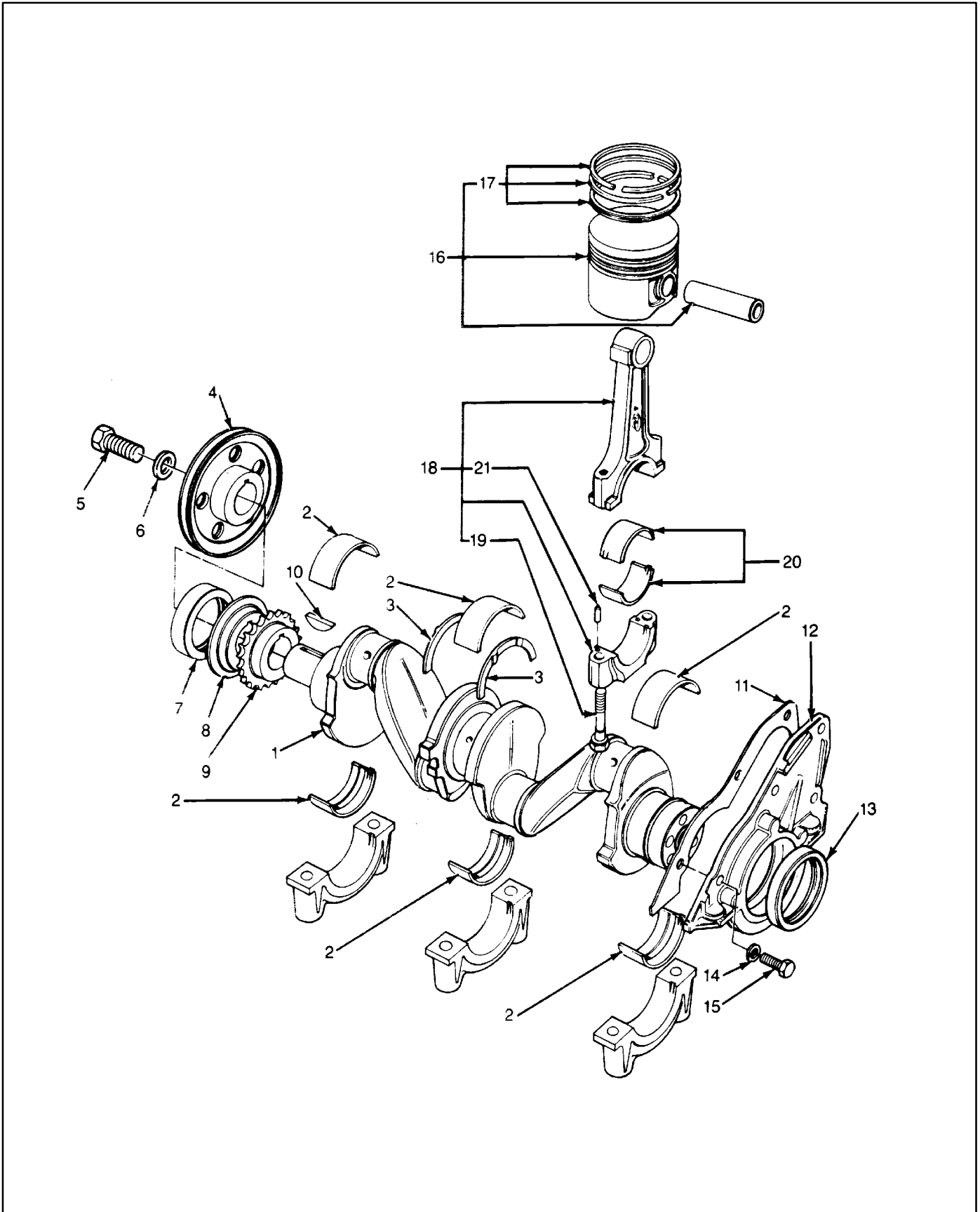


Group 5: Camshaft & Valve Control

Item	Part Number	Description	Quantity	
			Variation 1	Variation 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 and Piston



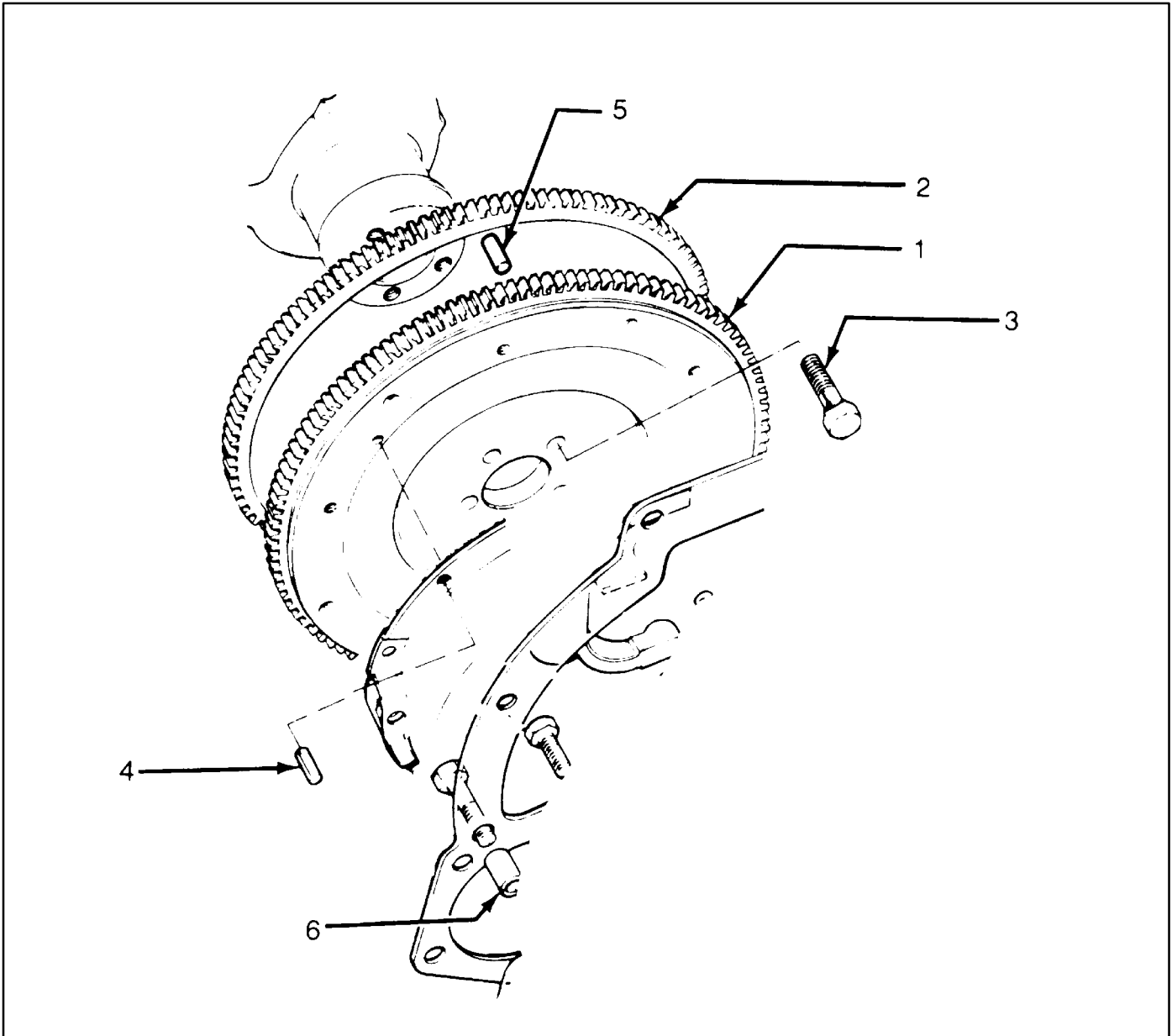
Group 6: Crankshaft & Piston

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

Common hardware; procure locally.

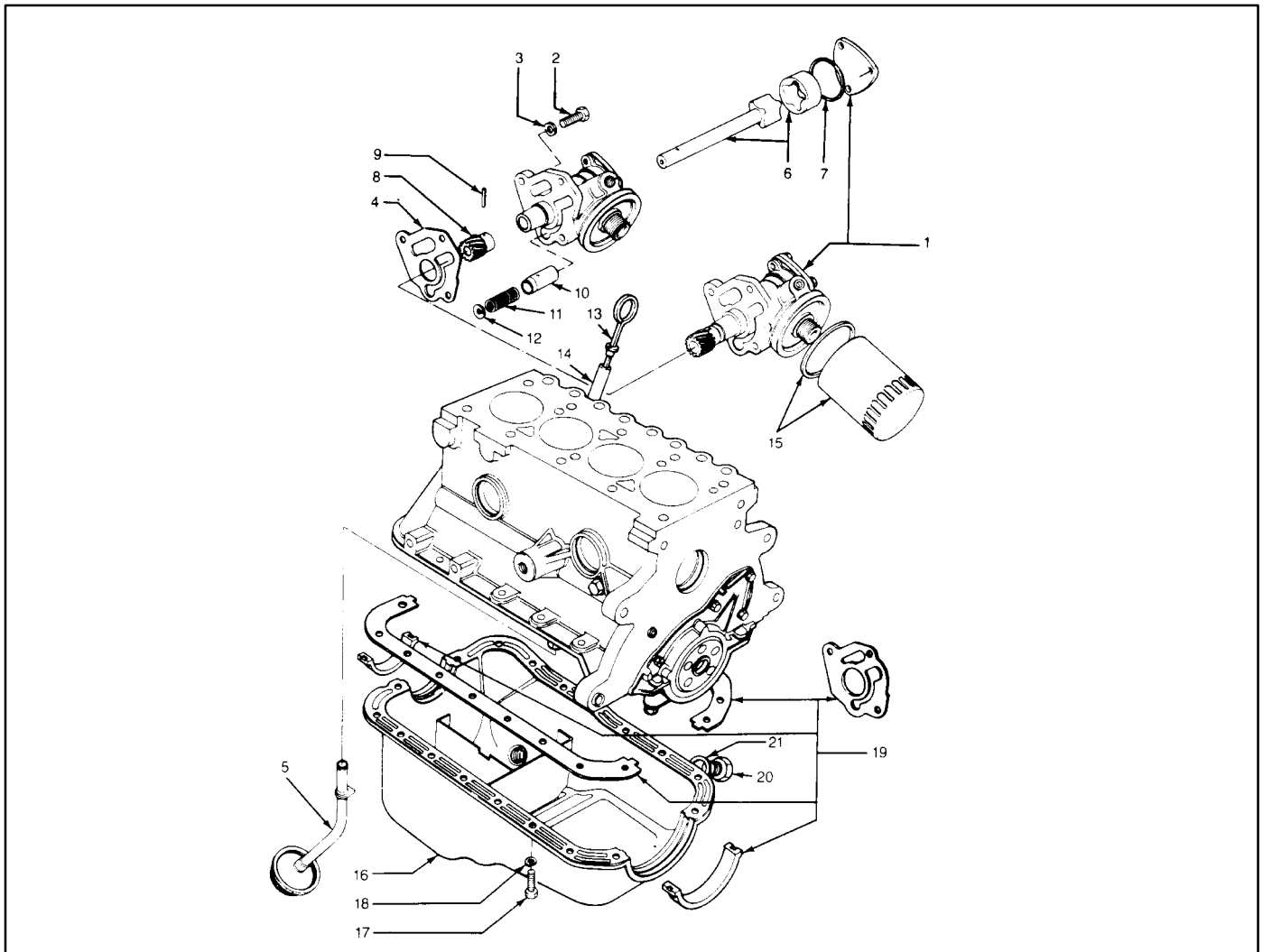
Note: Verify connecting rod assembly with the engine serial number through Ford Motor Co.

Group 7: Flywheel & Clutch



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

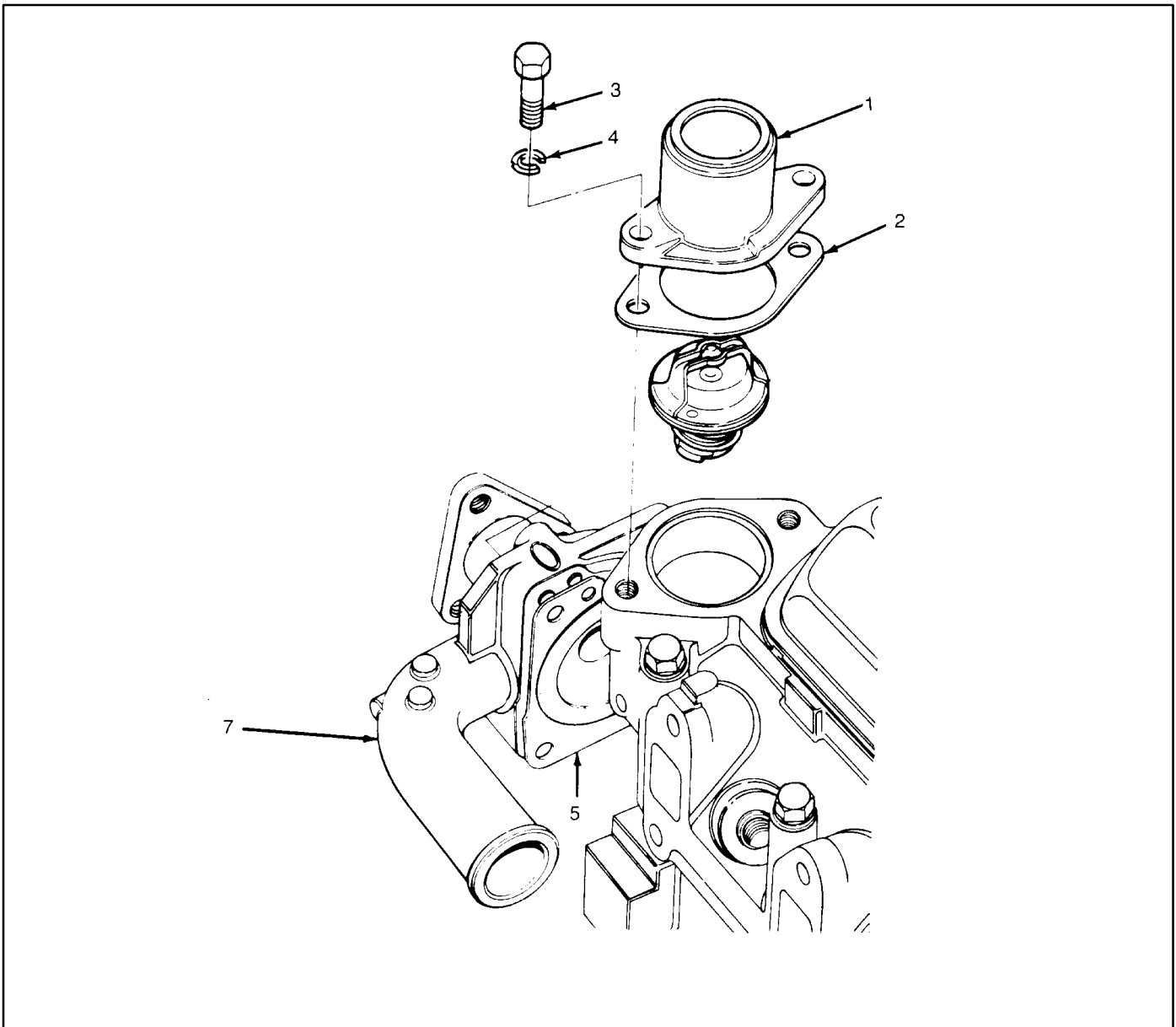
Group 8: Oil Pump & Pan



Item	Part Number	Description	Quantity	
			1	Variation
1	279191	Pump, oil	1	
2	244790	Bolt	3	
3	224787	Washer, lock (B8)	3	
4	224764	Gasket, oil pump	1	
5	224763	Oil pickup tube assembly	1	
6	279178	Rotor and shaft	1	
7	279050	Seal, cover plate	1	
8	279165	Gear, oil pump	1	
9	279060	Pin, drive gear	1	
10	279168	Plunger, oil pump	1	
11	279167	Spring	1	
12	279166	Plug	1	
13	244766	Indicator, oil level	1	
14	224767	Tube, oil level	1	
15	279218	Filter, oil	1	
16	279141	Pan, oil	1	
17	#	Bolt, oil pan (M6 x 14)	18	
18	#	Washer, lock 1/4	18	
19	279145	Kit, oil pan gasket	1	
20	224784	Plug, oil drain	1	
21	224785	Gasket, oil drain plug	1	

Common hardware; procure locally.

Group 9: Fan & Water Pump



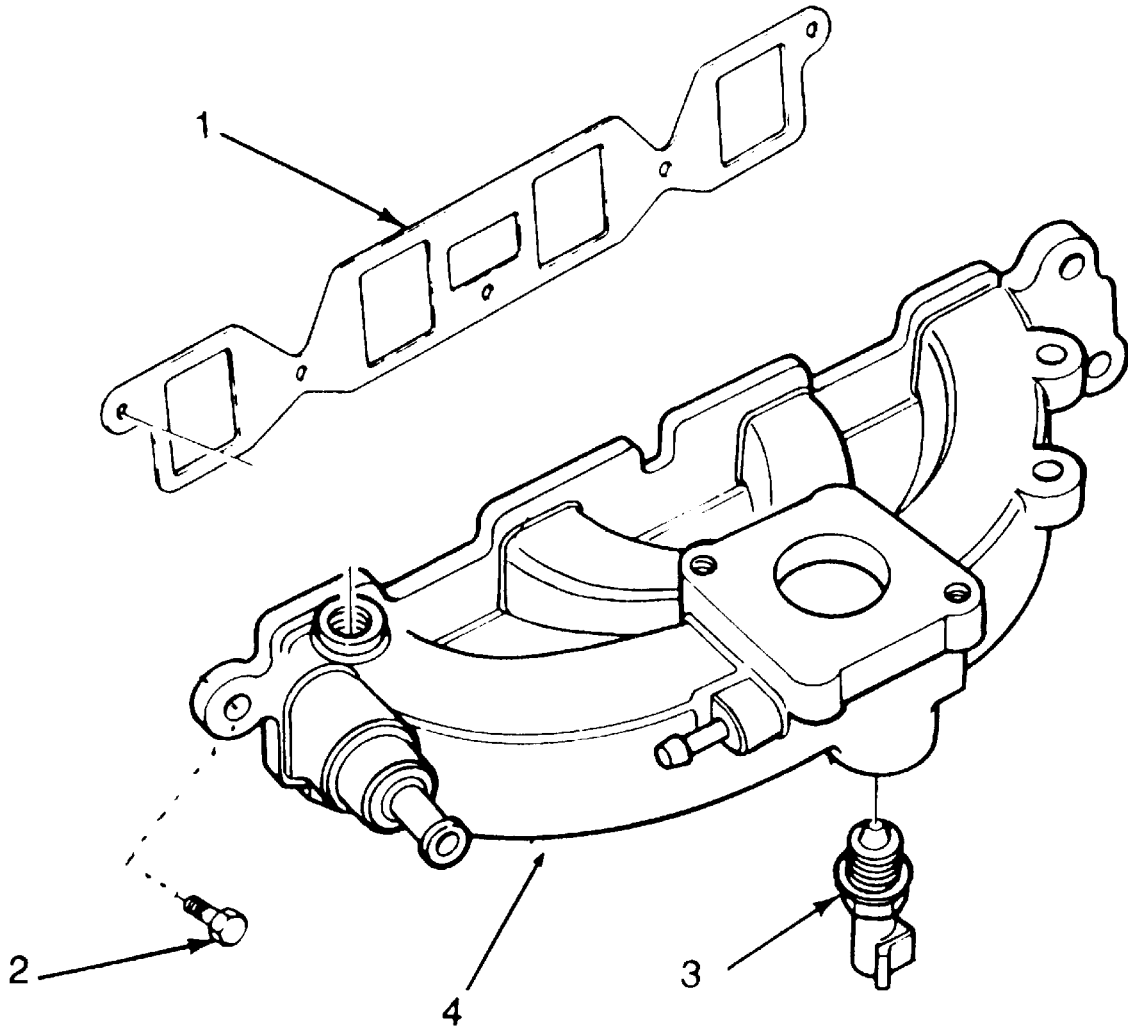
Item	Part Number	Description	Quantity	
			1	2
1	224700	Connection, water outlet (vertical)	1	1
2	246059	Gasket, water outlet	1	1
3	#	Bolt, M8 x 20	2	2
4	#	Washer, lock (B8)	2	2
5	224773 224700	Gasket, water pump	1	1
6	#	Bolt, M6 x 50 (not shown)	3	3
7	224363	Pump, water	1	
7	224772	Pump, water		1

Common hardware; procure locally.

NOTE: Additional cooling system components are listed in Group 104—Cooling System.

Group 10: Intake Manifold - Gas Only

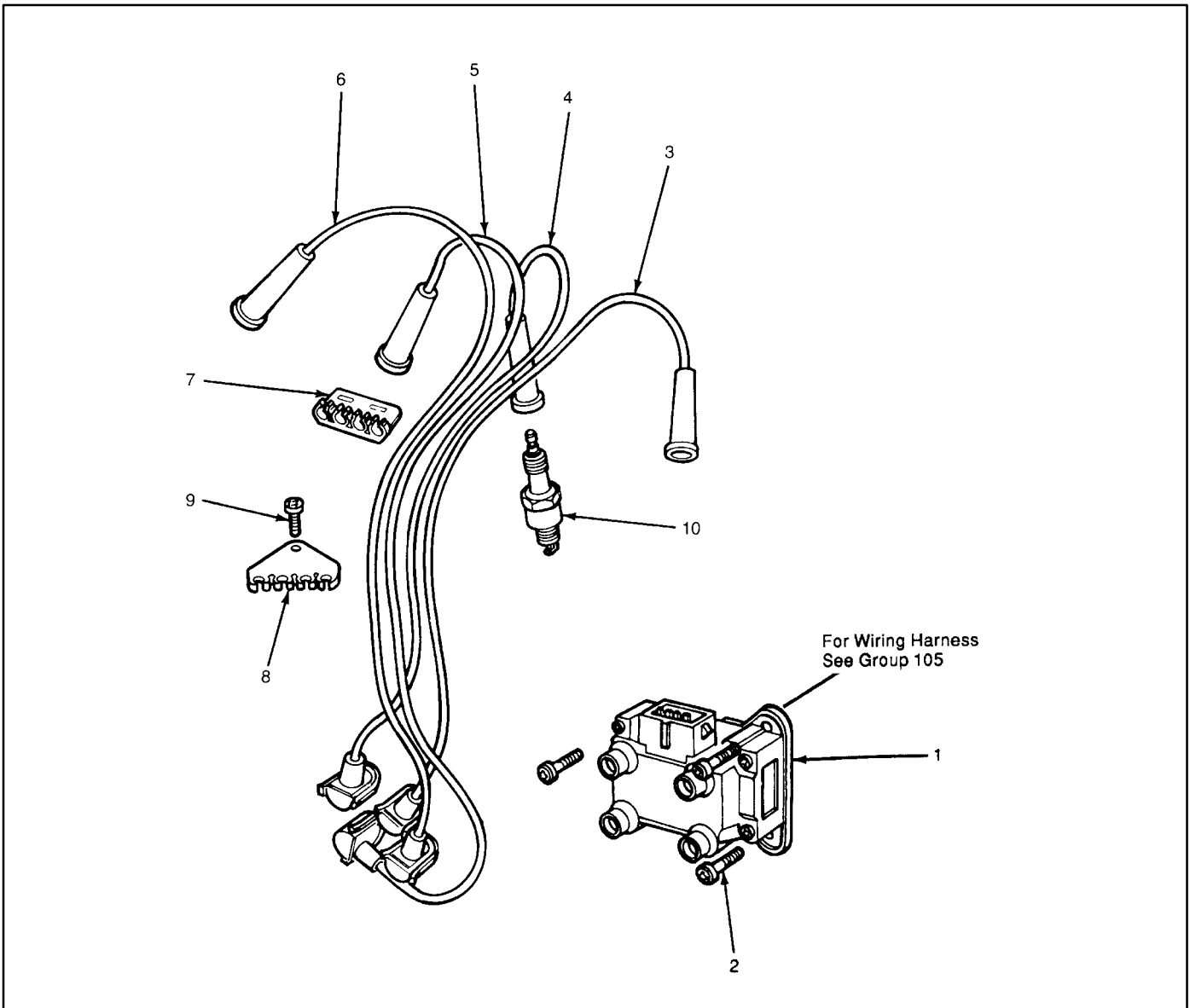
NOTE: See Group 101 and Group 104 for additional manifold components.



Item	Part Number	Description	Quantity	
			1	Variation
1	246067	Gasket, intake manifold	1	
2	#	Bolt, M8 x 25	6	
3	GM42271224786	Sensor, water temperature	1	
4	276466	Manifold, intake (gas only) See Group 101 for gasoline intake manifold	1	

Common hardware; procure locally.

Group 12: Ignition Module & Spark Plugs



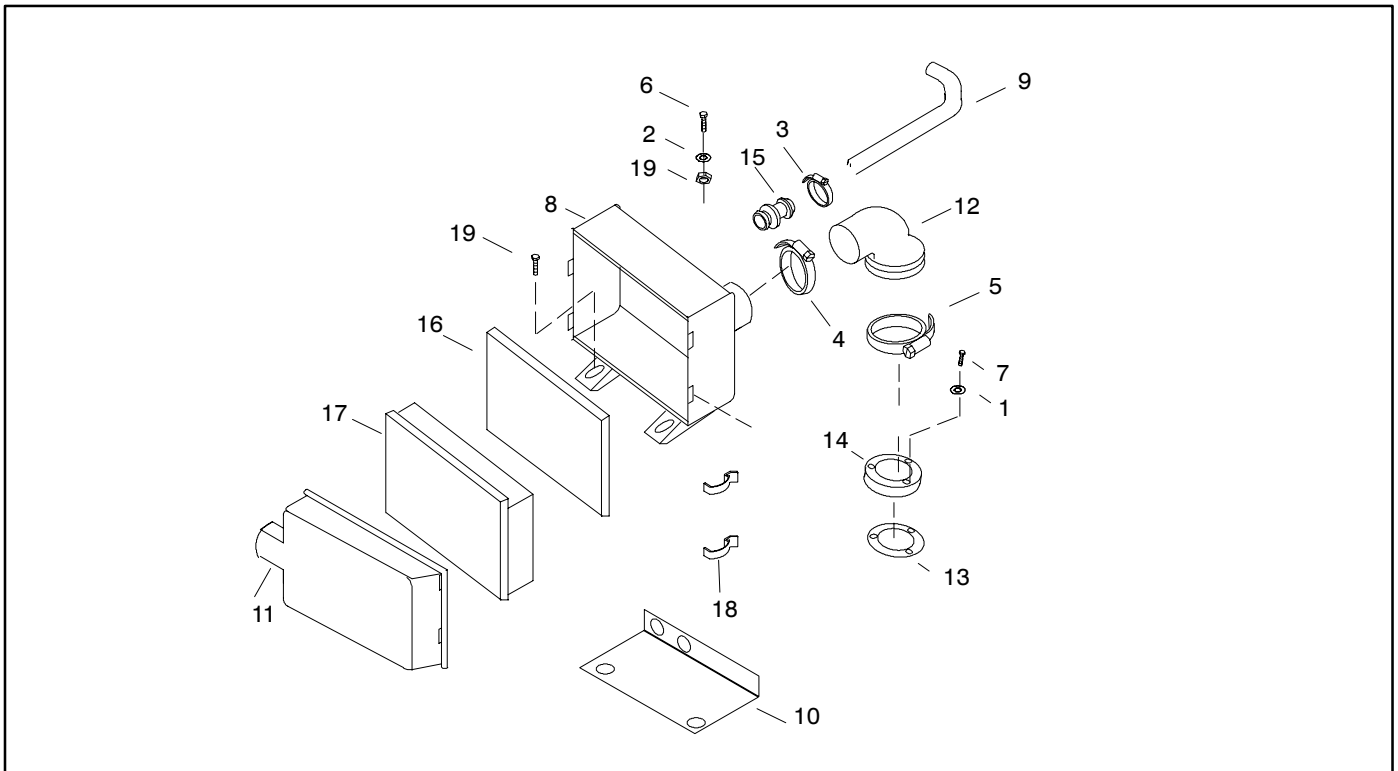
Item	Part Number	Description	Quantity	
			1	Variation
1	224710	Coil and bracket assembly	1	
2	#	Screw, M8 x 14	3	
3	224713	Wire, spark plug #1	1	
4	224711	Wire, spark plug #2	1	
5	224712	Wire, spark plug #3	1	
6	224714	Wire, spark plug #4	1	
7	224793	Separator, ignition wire	1	
8	224715	Separator, ignition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

Note: Order different part numbers for units with engine build date later than August/September 1998. See PB-95. [Click here.](#)

Common hardware; procure locally.

NOTE: See Group 105 Engine for additional ignition components.

Group 101: Air Intake

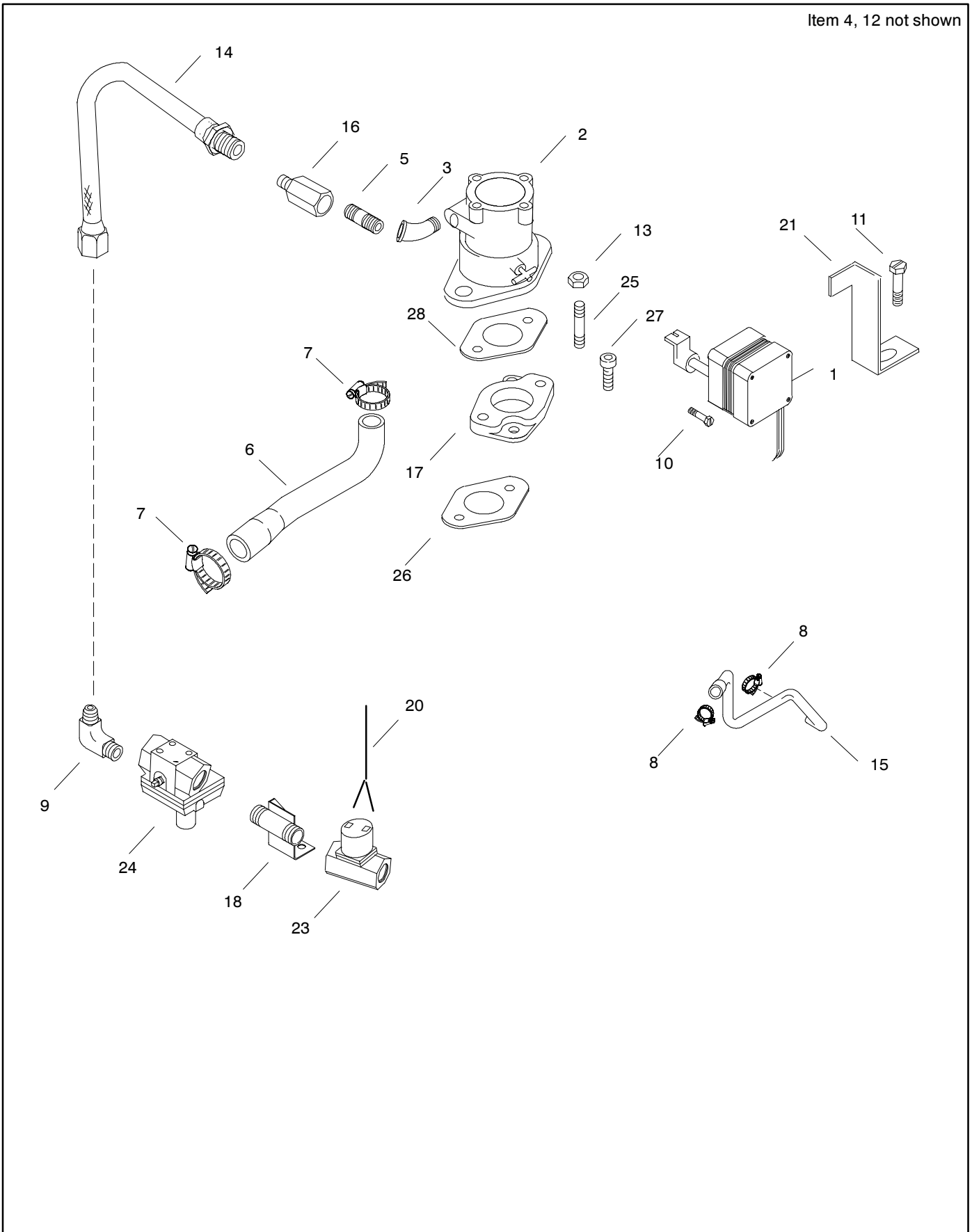


Item	Part Number	Description	Quantity	
			5	Variation No.
1	X-22-7	Washer, lock, 172 ID x .33 in. OD	3	
2	X-400-174	Spacer, .282 ID x .5 OD x .75 ID	1	
3	X-426-10	Clamp, hose 0.5/1 in. diameter	2	
4	X-426-19	Clamp, hose 1.5 in. diameter	1	
5	X-426-20	Clamp, hose 0.63-1.5 in. diameter	1	
6	X-465-9	Screw, hex cap	1	
7	X-51-11	Screw, cross recess round machine	3	
8	226555	Base, air cleaner	1	
9	226556	Hose, molded (62 in. ID)	1	
10	226561	Bracket, air cleaner	1	
11	227463	Cover, plastic	1	
12	227828	Hose, molded air intake (1.29 in. ID)	1	
13	278583	Gasket	1	
14	278608	Adapter, carburetor	1	
15	278805	Adapter, nylon hose	1	
16	278857	Filter	1	
17	278858	Element, air cleaner	1	
18	278862	Clip, air cleaner	4	
19	#	1/4-20 hardware	2	

Comon hardware. Procure locally.

Group 103: Fuel System

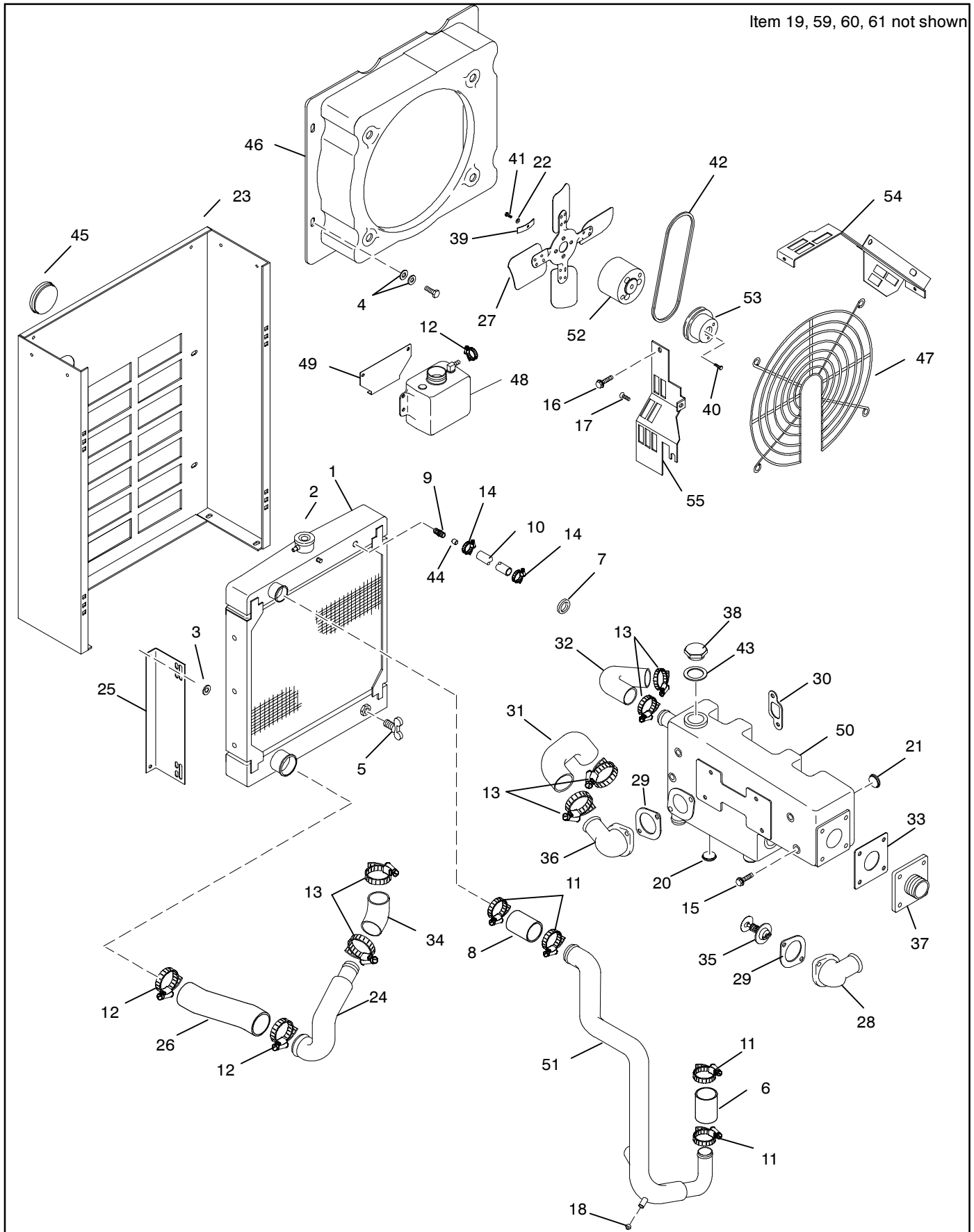
Item 4, 12 not shown



Group 103: Fuel System

Item	Part Number	Description	Quantity		
			Variation No.		
			10	15	18
1	A-226553	Actuator assembly, rotary	1	1	1
2	A-226683	Carburetor assembly	1	1	1
3	X-215-5	Elbow, pipe, 90 deg x 1/4 in. npt	1	1	1
4	X-22-40	Washer, lock, .119 ID x .253 in. OD (not shown)	4	4	4
5	X-220-14	Pipe, 1/4 in. npt x 2.50 in.	1	1	1
6	X-312-18	Hose, molded, .62 in. ID	1	1	1
7	X-426-3	Clamp, hose, .56/1.06 in.	2	2	2
8	X-426-9	Clamp, hose, .25/.70 in.	2	2	2
9	X-447-17	Elbow, oil line, 90 deg	1	1	1
10	X-49-43	Screw, slotted pan head machine	4	4	4
11	X-6049-2	Screw, H.C. M6 x 1 x 16	1	1	1
12	X-75-51	Plug, pipe, 1/4 in. nptf (not shown)	1	1	1
13	X-76-2	Nut, hex jam, 1/4-20	2	2	2
14	225160	Fuel line, flexible	1	1	1
15	226362	Hose, molded, .31 in. ID	1	1	1
16	226550	Fuel block	1	1	1
17	226552	Adapter, carburetor	1	1	1
18	226554	Bracket, fuel valve	1	1	1
19	226560	Bracket, stepper motor (not shown)	1	1	1
20	226645	Wiring harness, regulator harness	1	1	1
21	226662	Bracket, throttle stop	1	1	1
22	226682	Tag, instruction (not shown)	1	1	1
23	227648	Valve, gas	1	1	1
24	227649	Regulator, gas	1	1	1
25	X-352-125	Stud, 1/4-20 x 1.12 in.	1	1	1
26	256948	Gasket, intake manifold	2	2	2
27	256957	Screw, hex socket head machine	2	2	2
28	278869	Gasket, carburetor	1	1	1
29	M933-06016-60	Screw, hex cap (not shown)	1	1	1
30	X-6219-8	Screw, hex socket set (not shown)			1
31	227961	Plug, expansion (not shown)			1

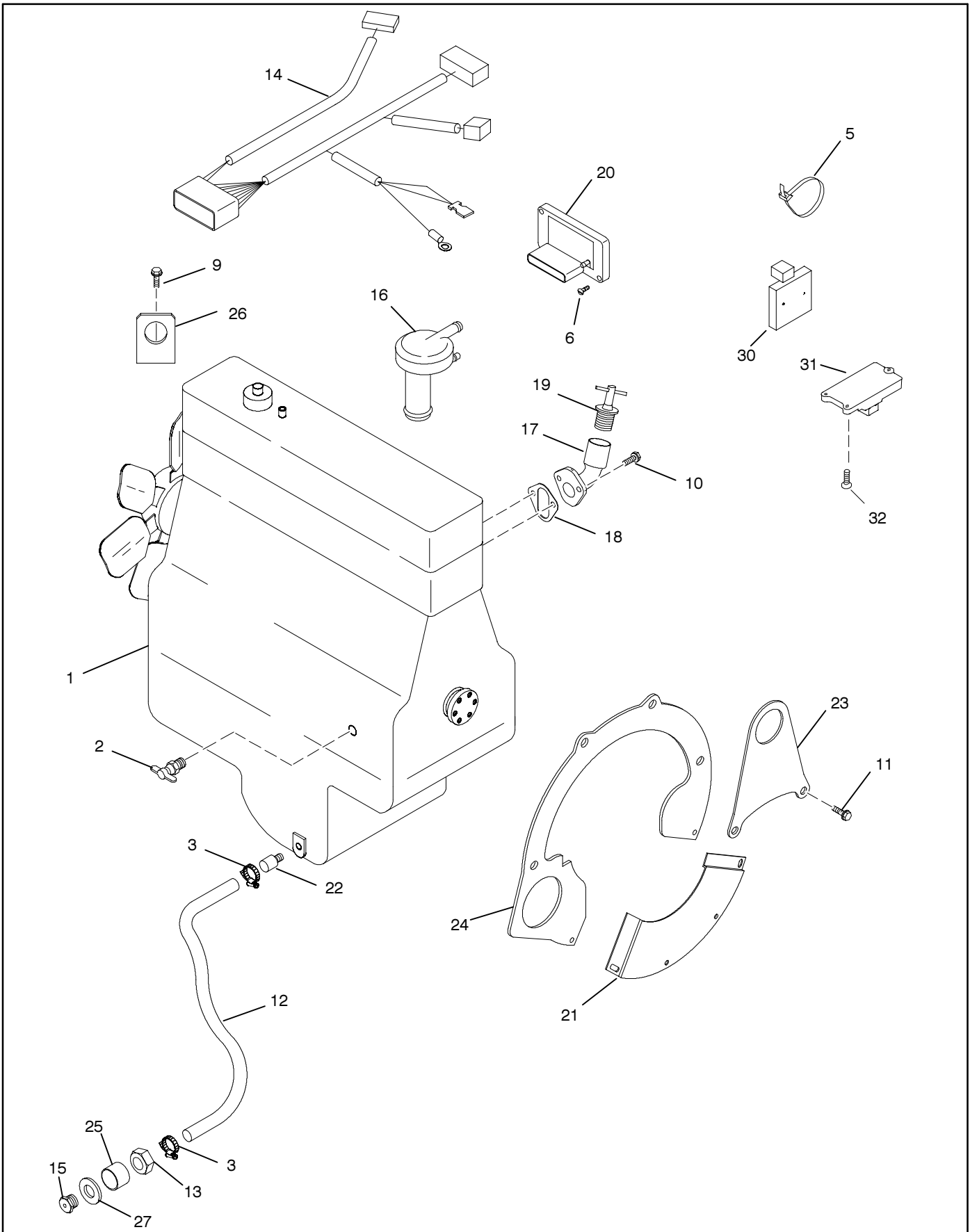
Group 104: Cooling System



Group 104: Cooling System

Item	Part Number	Description	Quantity	
			14	Variation No.
1	A-254774	Radiator assembly	1	
2	226734	Radiator cap	1	
3	X-22-16	Washer, lock, .326 ID x .883 in. OD	6	
4	X-25-73	Washer, plain, .266 ID x 1 in. OD	4	
5	X-256-3	Valve, drain, 1/4 in. nptf	1	
6	X-272-2	Hose, radiator, straight, 1.25 in. ID	1	
7	X-284-2	Grommet, round	1	
8	X-304-2	Hose, radiator, straight, 1.5 in. ID	1	
9	X-380-5	Connector, hose + Vibra Seal	1	
10	X-386-95	Fuel line, flexible	1	
11	X-426-4	Clamp, hose, 1.31/2.25 in.	4	
12	X-426-6	Clamp, hose, 1.56/2.5 in.	2	
13	X-426-8	Clamp, hose, .81/1.75 in.	6	
14	X-426-9	Clamp, hose, .25/.70 in.	3	
15	M931-08120-60	Screw, hex head cap	8	
16	M933-08016-60	Screw, hex head cap	1	
17	X-6216-1	Screw, Phillips hex crimpite	1	
18	X-75-1	Plug, pipe, 1/8 in. nptf	1	
19	X-75-10	Plug, pipe, 3/8 in. nptf	1	
20	X-75-49	Plug, pipe, 3/4 in. nptf	1	
21	X-75-48	Plug, pipe, 1 in. nptf	2	
22	X-801-2	Washer, hardened, .281 ID x .625 in. OD	2	
23	226522	Shroud, radiator	1	
24	226567	Tube, radiator outlet, 1.75 in. OD	1	
25	226583	Support, radiator	2	
26	226637	Hose, lower radiator, 1.75 in. ID	1	
27	226651	Fan, pusher	1	
28	229064	Cover, thermostat	1	
29	229963	Gasket, water outlet	2	
30	246060	Gasket, exhaust manifold	4	
31	249814	Hose, molded, 1.25 in. ID	1	
32	249823	Hose, molded coolant, 1.25 in. ID	1	
33	249905	Gasket, exhaust	1	
34	249906	Hose, molded, 1.25 in. ID	1	
35	249930	Thermostat	1	
36	249942	Cover, thermostat	1	
37	254692	Flange, exhaust outlet	1	
38	254761	Plug, exhaust manifold	1	
39	254764	Strap	1	
40	254765	Screw, socket hex cap	3	
41	254766	Screw, hex socket head machine	1	
42	254782	Belt, V (34 in.)	1	
43	254795	Gasket, exhaust manifold	1	
44	254922	Valve	1	
45	254949	Plug	1	
46	256925	Shroud, fan	1	
47	256946	Guard, fan	1	
48	256971	Bottle, overflow	1	
49	256972	Bracket, water bottle	1	
50	256979	Manifold, exhaust	1	
51	256998	Tube, radiator inlet, steel, 1.5 in.	1	
52	260088	Spacer, fan, 1.89 in.	1	
53	260091	Pulley, water pump	1	
54	326797	Guard, belt	1	
55	326798	Guard, belt	1	
56	226926	Radiator, Baffle (not shown)	2	
57	X-6049-15	Screw, hex socket head machine (not shown)	3	
58	X-6365-1	Insert, threaded, 5/16-18 in. (not shown)	4	
59	M912-06045-92	Screw, socket head cap	3	
60	226926	Baffle, radiator	2	
61	226734	Cap, radiator	1	

Group 105: Engine



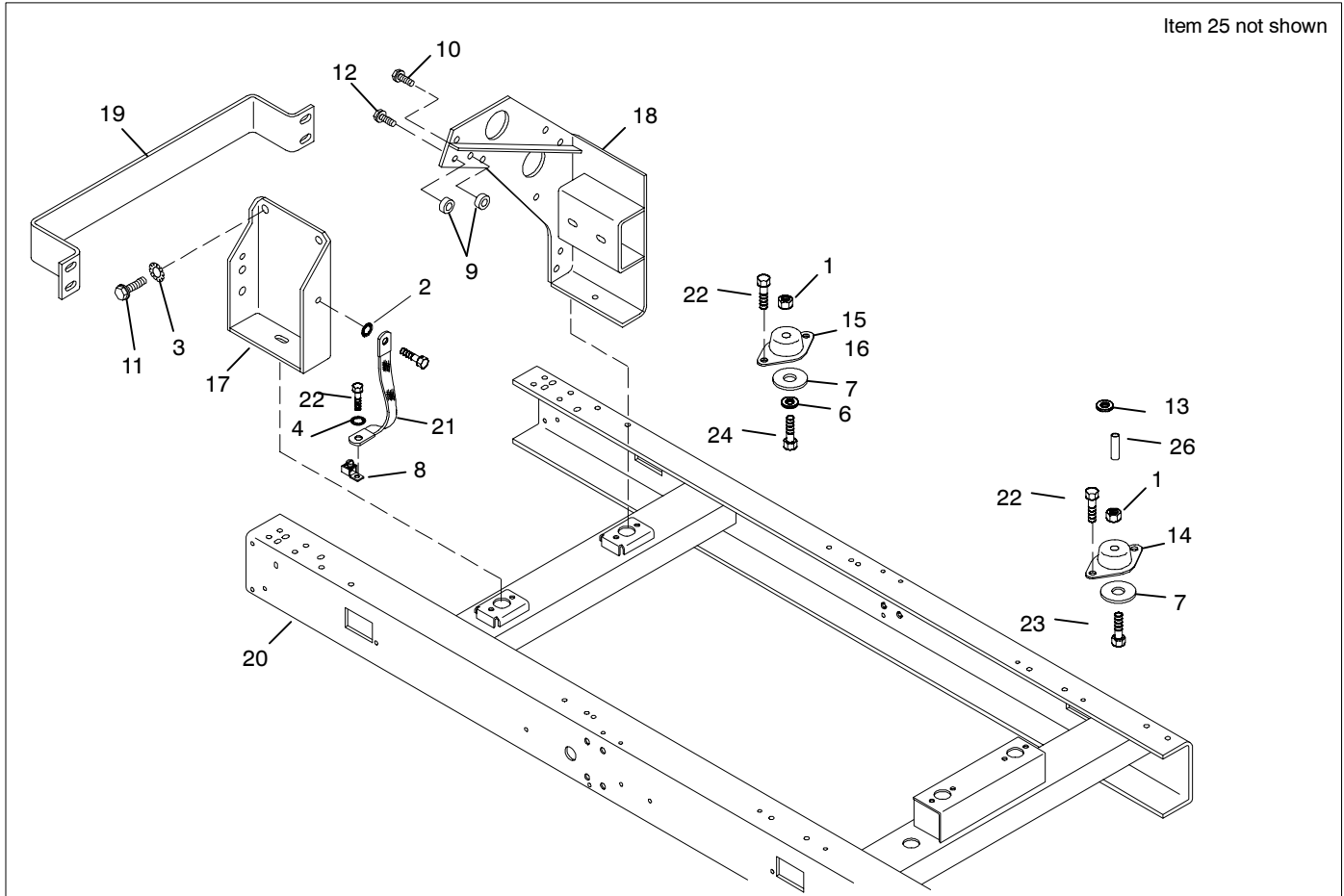
Group 105: Engine

Item	Part Number	Description	Quantity		
			Variation No.		
			24	26	GR1
1	B-260090	Engine assembly	1		
1	B-229525	Engine assembly		1	
1	C-260090	Engine assembly			1
2	X-256-2	Valve, drain, 1/8 in. nptf	1	1	1
3	X-426-9	Clamp, hose, .25/.70 in.	2	2	2
4	X-431-28	Terminal, fast-on, female, 18-22 AWG (not shown)	1		1
5	X-468-3	Cable tie, nylon	2		2
6	X-50-1	Screw, slotted pan head machine	5		5
7	X-50-3	Screw, slotted pan head machine (not shown)	2	2	
8	X-55-2	Screw, hex socket head machine (not shown)	4		4
9	M933-8030-60	Screw, hex head cap M8-1.25 x 30mm	1	1	1
10	M933-08020-60	Screw, hex head cap M8-1.25 x 20mm	2	2	2
11	M931-10040-60	Screw, hex cap M10-1.5 x 40mm	2	2	2
12	X-651-3	Hose, rubber, straight, .375 in. ID	1	1	1
13	X-80-1	Nut, hex jam, 1 1/4	1	1	1
14	226884	Wiring harness	1	1	
14	GM17770	Wiring harness			1
15	241062	Plug, drain	1	1	1
16	246054	Cap, oil fill assembly	1	1	1
17	246057	Tube, oil fill cap, steel, 1 in. OD	1	1	1
18	246058	Gasket, fuel pump	1	1	1
19	246063	Cap, oil fill tube	1	1	1
20	246065	Control assembly, ignite	1	1	
21	249384	Guard, adapter	1	1	1
22	344826	Valve, oil drain	1	1	1
23	249445	Bracket, lifting	1	1	1
24	249889	Plate, engine support	1	1	1
25	254720	Adapter, hose	1	1	1
26	254809	Bracket, lifting eye	1	1	1
27	276552	Washer, nylon, .878 ID x 1.132 in. OD	1	1	1
28	276317	Washer, nylon, .578 ID x 1.067 in. OD (not shown)	1	1	1
29	X-22-22	Washer, lock, .20 ID x .403 in. OD (not shown)		1	
30	GM17771	Manifold, air pressure module			1
31	GM17769	Ignition control module			1
31	X-50-56	Screw, slotted pan head machine			2

Group 107: Nameplate and Decals

Item	Part Number	Description	Quantity												
			Variation No.												
			18	19	22	25	32	33	34	35	36	37	38	39	
1	224233	Decal, 1-800 number	1	1	1	1	1	1	1	1	1	1	1	1	1
2	226917	Decal, negative battery connection	1	1	1	1	1	1	1	1	1	1	1	1	1
3	238162	Marker, adhesive	1	1	1	1	1	1	1	1	1	1	1	1	1
4	239796	Decal, warning	1	1	1	1	1	1	1	1	1	1	1	1	1
5	249808	Decal, warning rotating parts	1	1	1	1	1	1	1	1	1	1	1	1	1
6	249809	Decal, caution hot engine	1	1	1	1	1	1	1	1	1	1	1	1	1
7	249810	Decal, warning hot coolant	1	1	1	1	1	1	1	1	1	1	1	1	1
8	254831	Decal, regulator Adjustment		1		1		1		1		1		1	
9	257438	Decal, danger moving rotor	1	1	1	1	1	1	1	1	1	1	1	1	1
10	258815	Decal, warning voltage backfeed	1		1		1		1		1		1		1
10	259365	Decal (NRP)		1		1		1		1		1		1	
11	290435	Decal	1	1	1	1	1	1	1	1	1	1	1	1	1
12	327004	Nameplate, model/ratings, Kohler	1	1	1	1	1	1	1	1	1	1	1	1	1
13	GM14167	Decal, drain	2	2	2	2	2	2	2	2	2	2	2	2	2
14	GM11930	Decal, emissions					1		1		1		1		1
14	GM11931	Decal, emissions									1		1		1
15	X-6247-16	Decal	2	2						2				2	2
15	X-6247-17	Decal, model			2	2	2	2	2	2	2	2	1		

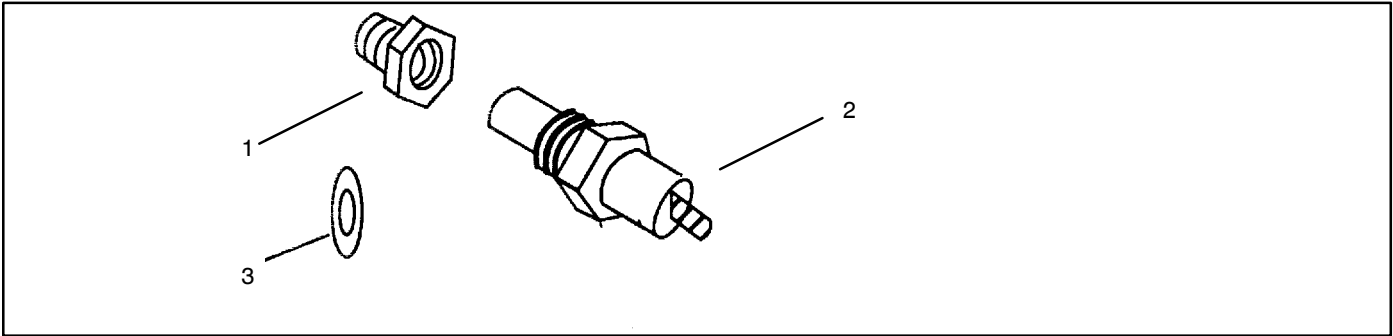
Group 109: Skid and Plant Mounting



Item	Part Number	Description	Quantity	
			Variation No. 11	Variation No. 12
1	X-101-16	Nut, hex elastic stop, 5/16-18	2	4
2	X-22-12	Washer, lock, .262 ID x .743 in. OD	1	1
3	X-22-14	Washer, lock, .391 ID x .975 in. OD	2	2
4	X-22-16	Washer, lock, .326 ID x .883 in. OD	1	1
6	X-25-20	Washer, plain, .312 ID x .75 OD	2	2
7	X-25-96	Washer, plain, .406 ID x 2 in. OD	4	4
8	X-377-11	Connector, cable	1	1
9	X-400-37	Spacer, .437 ID x .75 OD x .812 in.	3	3
10	M931-10040-60	Screw, hex cap M10-1.5 x 40mm	1	1
11	M931-10050-60	Screw, hex head cap M10 1.5 x 25mm	2	2
12	M933-10025-60	Screw, hex head cap M10 1.5 x 50mm	2	2
13	X-801-3	Washer, hardened (on end bracket)	2	2
14	225124	Vibromount, rear	2	2
15	225125	Vibromount, front left	1	1
16	229127	Vibromount, front right	1	1
17	249991	Support, engine	1	1
18	254714	Support, engine (RS)	1	1
19	254775	Stiffener, engine support	1	1
20	256831	Skid	1	
20	256832	Skid		1
21	290418	Strap, ground	1	1
22	X-125-3	Screw, ref.	5	5
23	X-125-26	Screw, ref.	2	
23	#	3/8-16 hardware		2
24	#	5/16-18 hardware		2
25	X-465-1	Screw, ref.	1	1
26	X-400-191	Spacer, .384 ID x .5 OD x .25 in.	2	2

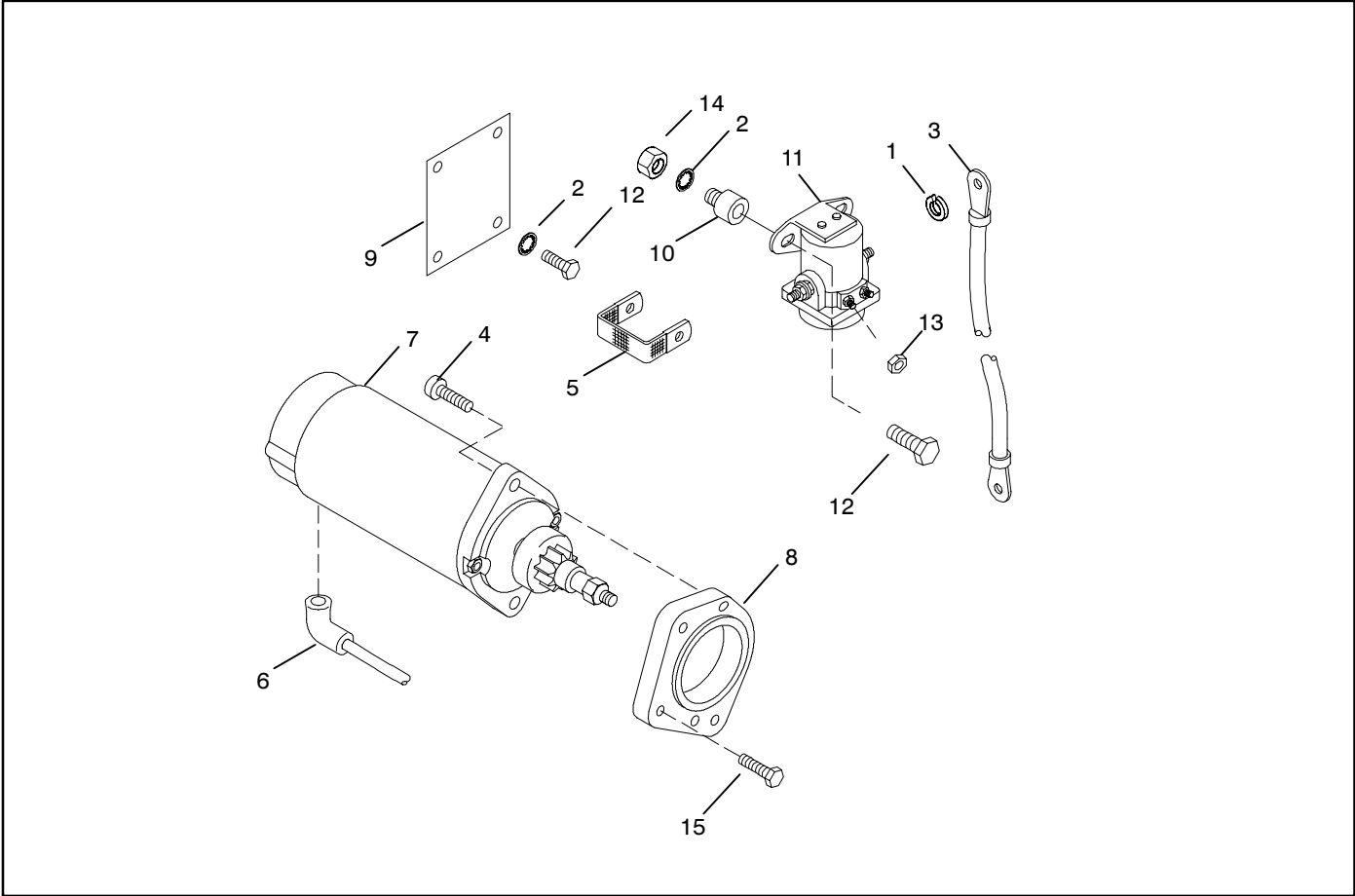
Common hardware. Procure locally.

Group 110: Water Temperature Switch



Item	Part Number	Description	Quantity	
			4	Variation No.
1	249959	Adapter	1	
2	255241	Switch, high temperature shutoff	1	
3	276552	Washer, nylon, .878 ID x 1.132 in. OD	3	

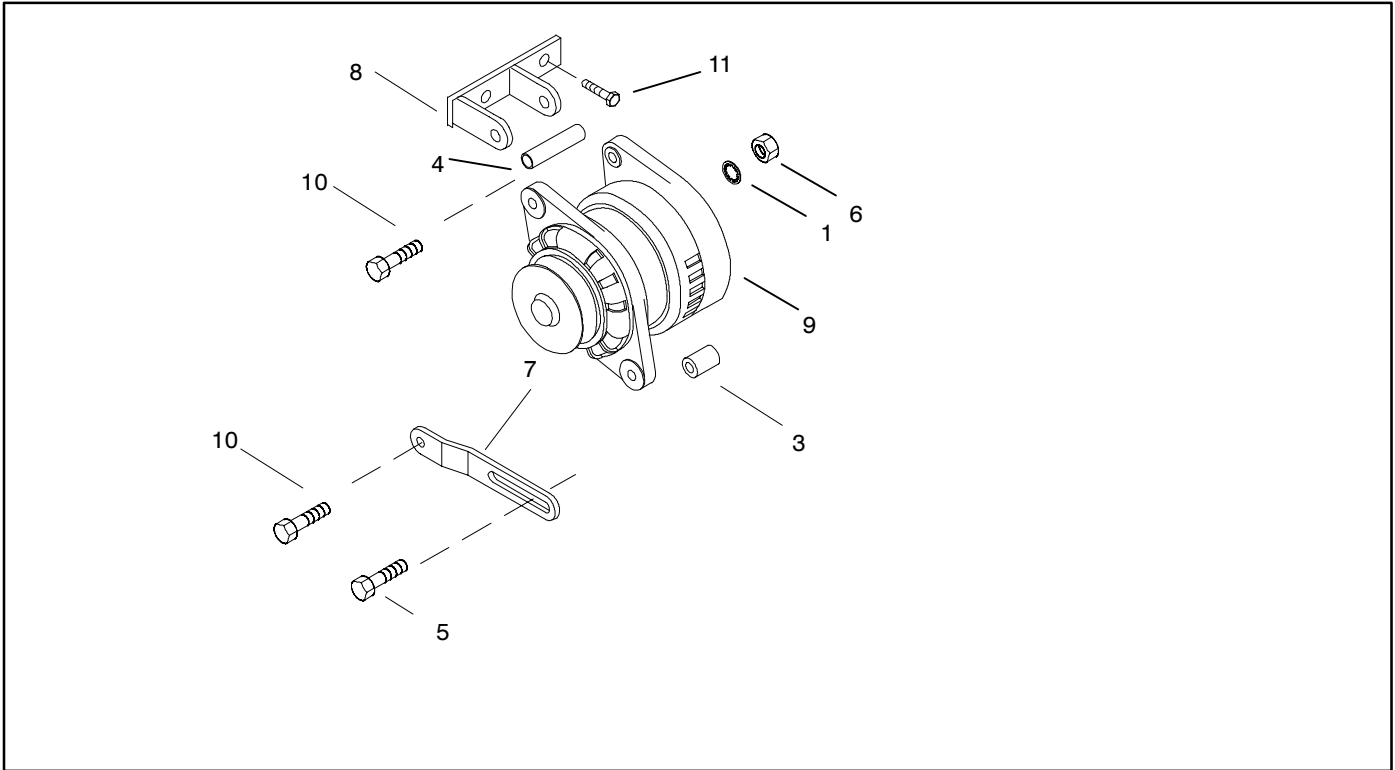
Group 112: Starter



Item	Part Number	Description	Quantity	
			5	6
1	X-22-11	Washer, lock, .262 ID x .469 in. OD	1	1
2	X-22-12	Washer, lock, .262 ID x .743 in. OD	4	4
3	X-545-77	Lead, battery cable, no. 6, 25 in.	1	
3	X-545-83	Lead, battery cable, no. 6, 30 in.		1
4	X-55-27	Screw, hex socket head machine	2	2
5	223033	Strap, ground, 3/8 x 5	1	1
6	238915	Boot	2	2
7	246056	Starter, marine	1	1
8	249371	Spacer, starter, 2.44 in. ID x .93 in. OD	1	1
9	254780	Bracket, solenoid	1	1
10	259632	Bumper	2	2
11	291891	Solenoid	1	1
12	X-465-16	Screw, ref.	2	2
13	#	10-32 Nut	1	1
14	#	1/4-20 Nut	1	1
15	X-6238-19	Screw, ref.	3	3

Comon hardware. Procure locally.

Group 113: Alternator

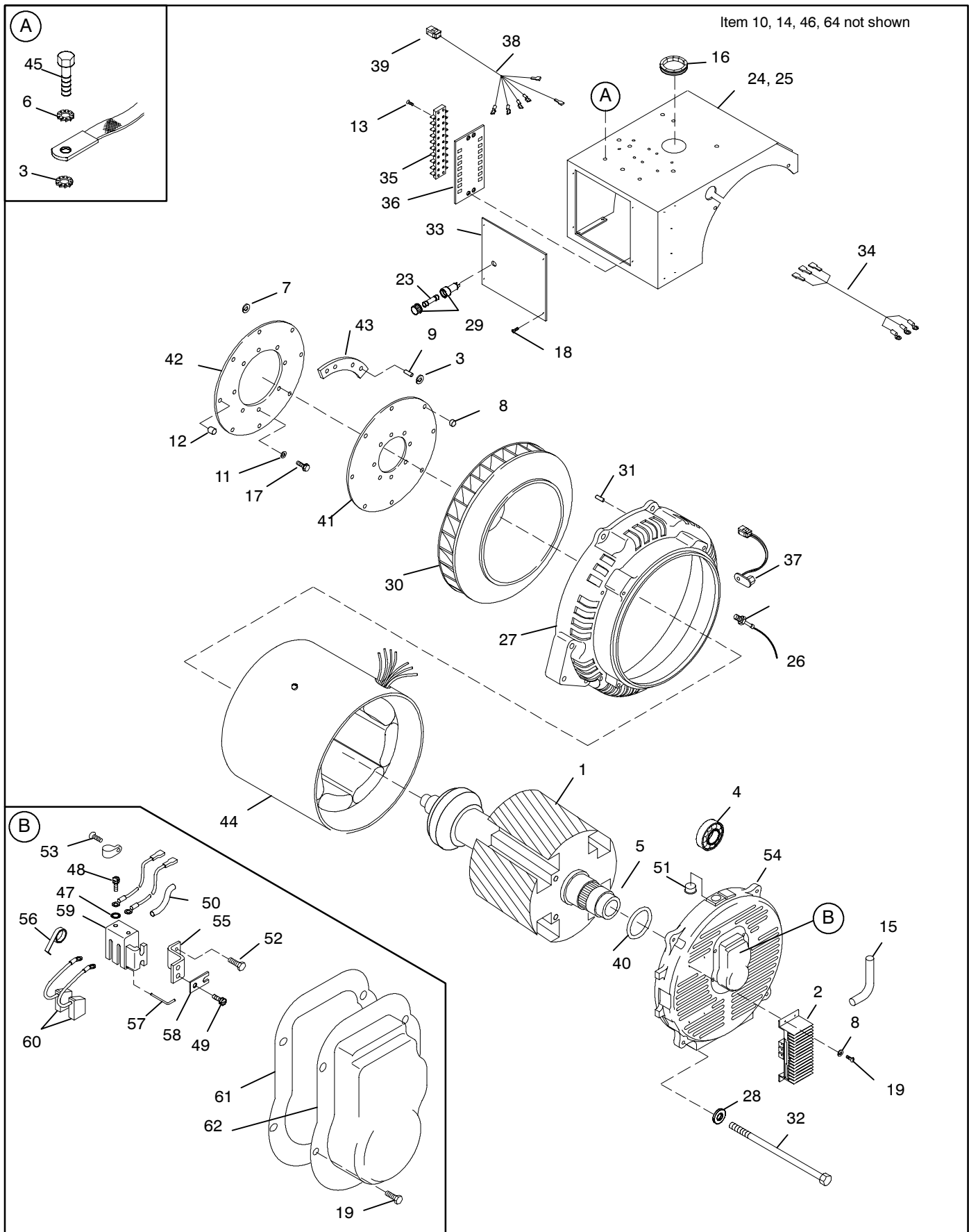


Item	Part Number	Description	Quantity	
			5	6
1	X-22-11	Washer, lock, .262 ID x .469 in. OD	1	1
3	X-400-177	Spacer, .344 ID x .75 OD x .103 in.	1	1
4	X-400-183	Spacer, .344 ID x .625 OD x 1.794 in.	1	1
5	M933-08025-60	Screw, hex cap	1	
6	M934-06-60	Nut, hex, 6mm	1	
6	X-6053-6	Nut, hex		1
7	254784	Arm, alternator adjusting	1	1
8	256923	Bracket, alternator	1	1
9	256924	Alternator	1	1
10	#	5/16-18 hardware	1	1
11	#	3/8-16 hardware	2	2
12	X-25-1	Washer, plain, .438 ID x 1 in. OD	3	

Common hardware. Procure locally.

Notes

Group 201: Generator and Mounting



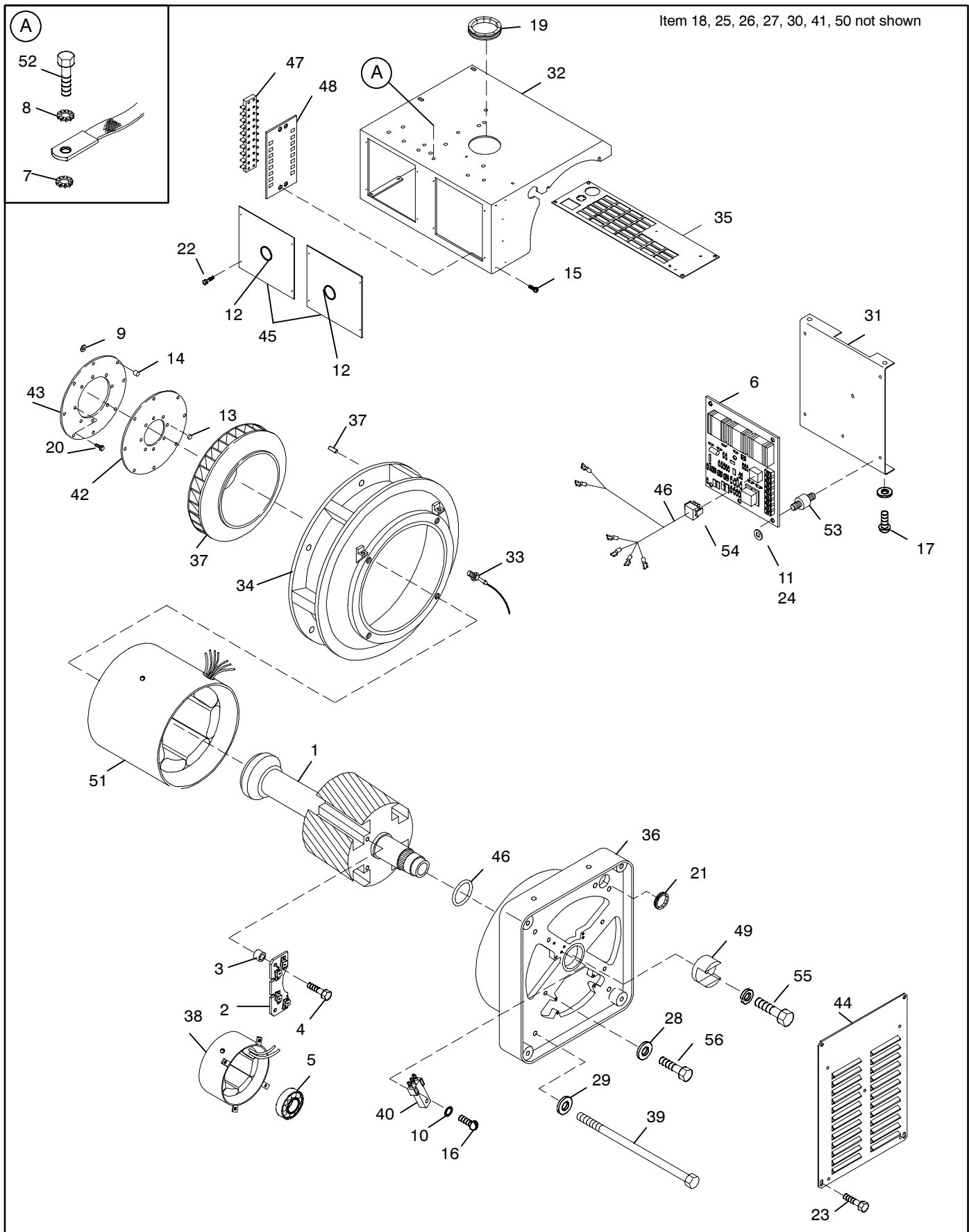
Group 201: Generator and Mounting

Item	Part Number	Description	Quantity	
			Variation No.	
			18	22
1	A-249377	Rotor assembly	1	
1	A-249376	Rotor assembly		1
2	F-278598	Voltage regulator assembly (PB3E)	1	1
3	X-22-11	Washer, lock, .262 ID x .469 in. OD	11	11
4	X-758-1	Ball bearing	1	1
5	241671	Ring collector	1	1
6	X-22-12	Washer, lock, .262 ID x .743 in. OD	1	1
7	X-22-14	Washer, lock, .391 ID x .975 in. OD	1	1
8	X-22-7	Washer, lock, .172 ID x .333 in. OD	4	4
9	X-280-24	Pin, roll	4	4
10	X-301-23	Plug, button		1
11	X-400-156	Spacer, .281 ID x .4 OD x .1 in.	8	8
12	X-400-31	Spacer, .282 ID x .5 OD x .25 in.	8	4
13	X-49-3	Screw, slotted pan head machine, 6-32 x 7	2	2
14	X-51-15	Screw, cross recess pan head mach, 8-32 x 1/2	3	
15	X-6003-104	Conduit, convoluted	1	
16	X-6033-1	Grommet, u-channel	1	
16	X-6033-4	Grommet, nylon		1
17	X-6050-8	Screw, hex head cap	6	6
18	X-6216-1	Screw, Phillips hex crimplite	4	4
19	X-67-113	Screw, hex washer, thread-forming	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, 10 A, 250 V	1	1
24	226483	Bracket, controller		1
25	226484	Bracket, controller	1	
26	226529	Sensor, magnetic	1	1
27	358378	Adapter, generator	1	1
28	229239	Washer, special, .281 ID x .62 in. OD	2	2
29	238426	Fuse holder, .25 x 1.25 in.	1	1
30	239646	Fan, generator	1	1
31	246064	Dowel pin	2	2
32	249401	Bolt, 1/4-20 x 11.44 in.	4	
32	238246	Bolt, over		4
33	254724	Panel, regulator	1	2
34	254815	Wiring harness, 10/12.5 kW, 3 ph.	1	1
35	254819	Strip, terminal	1	1
36	254821	Marker, strip	1	1
37	358385	Sensor assembly, speed (0.7 in. diameter)	1	1
38	254992	Wiring harness, 18 kW, 1 ph., Ford	1	1
39	269190	Connector, 6-pin	1	1
40	256466	O-Ring	1	
41	256872	Disc, armature drive	1	1
42	256873	Disc, armature drive	1	1
43	256893	Actuator, magnetic	2	2
44	257353	Stator assembly	1	
44	257351	Stator assembly		1
45	267491	Screw, hex head machine, special thread	1	1
46	C-254994	End bracket assembly	1	1
47	X-22-6	Washer, lock, .146 ID x .285 in. OD	2	2
48	X-49-1	Screw, slotted pan head machine	2	2
49	X-50-67	Screw, r.h.m. 10-24 x 7/16	2	2
50	X-6079-2	Tubing, heat shrink	2	2
51	X-634-12	Bushing, .75 x 1.000 in. NPT	2	2
52	X-67-113	Screw, hex washer, thread-forming	4	4
53	X-97-13	Screw, slotted hex washer head machine	3	1
54	229138	End bracket	1	1
55	229335	Bracket, brush holder	1	1
56	238150	Spring, stainless steel	2	2
57	238247	Retainer, wire	1	1
58	238248	Shim, brush holder	3	3
59	239247	Brush holder	1	1
60	239282	Brush	2	2
61	278427	Gasket, cover	1	1
62	278804	Cover, brush holder	1	1
63	X-400-244	Spacer (not shown)	1	1
64	M933-0816-60	Screw, hex cap	6	1

Units built prior to October 19, 1999 used sensor 254842 which has a 0.46 diameter sensing face and used adapter 226559. Order sensor 254842 for units built prior to October 19, 1999 if available.

Service kit 358419 for adapter 226559 includes:
 Adapter 358378 (item 27)
 Sensor 358385 (item 37)
 Spacer X-400-244 (item 63)

Group 201: Generator and Mounting, 3-phase

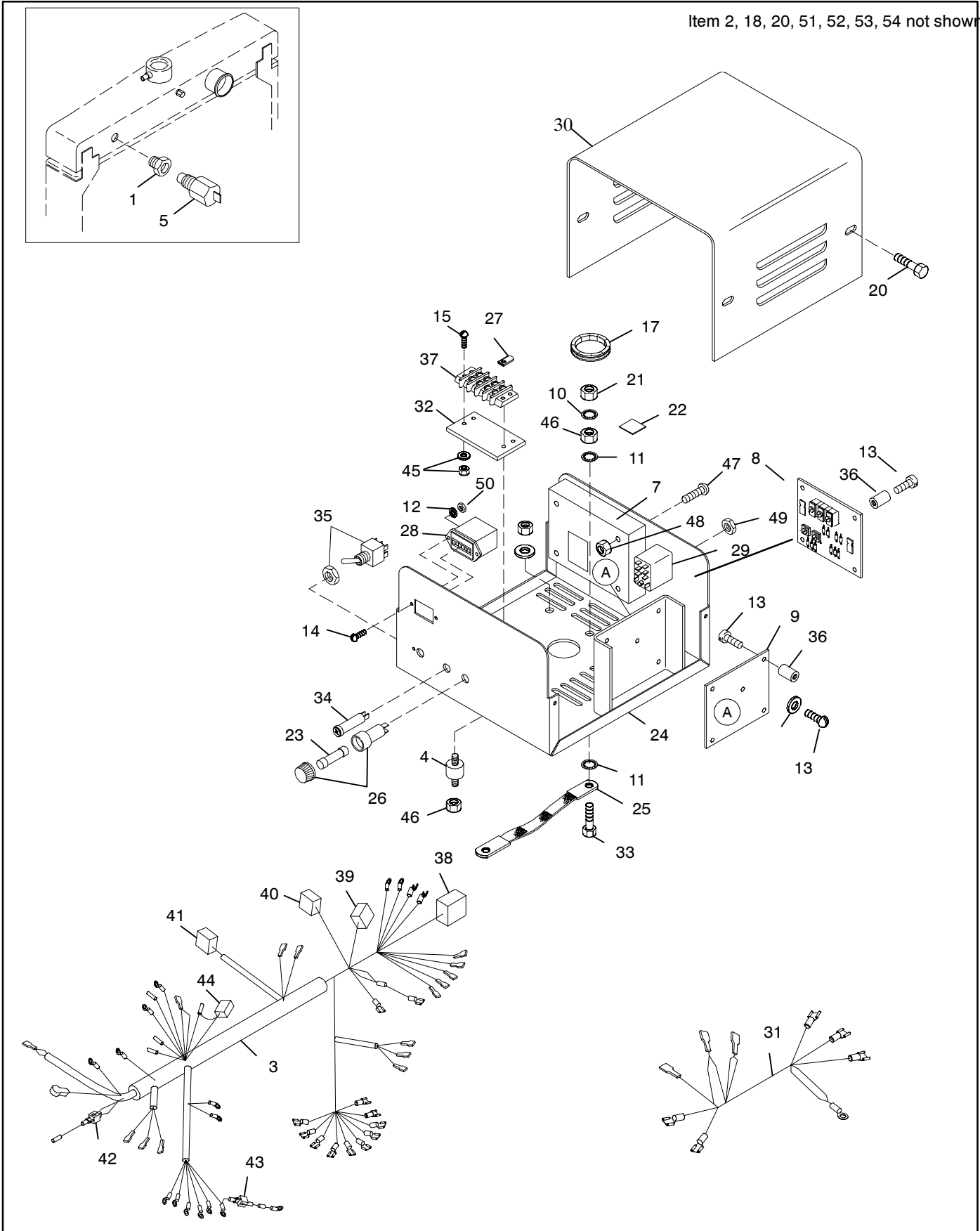


Group 201: Generator and Mounting, 3-phase

Item	Part Number	Description	Quantity			
			Variation No.			
			19	25	26	28
1	A-257348	Rotor assembly	1		1	
1	A-257346	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, PB-5	1	1	1	1
7	X-22-11	Washer, lock, .262 ID x .469 in. OD	11	11	11	11
8	X-22-12	Washer, lock, .262 ID x .743 in. OD	1	1	1	1
9	X-22-14	Washer, lock, .391 ID x .975 in. OD	1	1	1	1
10	X-22-24	Washer, lock, .119 ID x .263 in. OD	2	2	2	2
11	X-25-65	Washer, plain		12		
12	X-301-21	Plug, button	2	2	2	2
13	X-400-156	Spacer, .281 ID x .4 OD x .1 in.	8	8	8	8
14	X-400-31	Spacer, .282 ID x .5 OD x .25 in.	8	8	8	8
15	X-49-3	Screw, slotted pan head machine, r.h.m. 6-32 x 7	2	2	2	2
16	X-49-35	Screw, slotted round head machine, 4-40	2	2	2	2
17	X-50-13	Screw, slotted pan head machine, r.h.m. 10-24 x 0.375	4	4	4	4
18	X-51-15	Screw, cross recess pan head mach, 8-32 x 0.5	3		3	3
19	X-6033-2	Grommet, u-channel	1	1	1	1
20	X-6050-8	Screw, hex head cap	6	6	6	6
21	X-6072-2	Grommet, u-channel	1	1	1	1
22	X-6216-1	Screw, Phillips hex crimplite	12	12	12	12
23	X-67-52	Screw, hex washer, thread-forming, 10-24 x 1/2	4	4	4	4
24	X-72-4	Nut, hex 8-32		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, .281 ID x .625 in. OD	4	4	4	4
29	X-801-3	Washer, hardened, .406 ID x .812 in. OD	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	226529	Sensor, magnetic	1	1	1	1
34	226565	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 field assembly	1	1	1	1
39	239720	Bolt, 3/8-16 x 17.71 in.	4	4	4	4
40	241623	Sensor, ferromagnetic	1	1	1	1
41	246064	Pin, dowel	2	2	2	2
42	256873	Disc, armature drive	1	1	1	1
43	256872	Disc, armature drive	1	1	1	1
44	250713	Panel, louver	1	1	1	1
45	254724	Panel, regulator	2	2	2	2
46	254817	Wiring harness, relay controller	1	1	1	1
47	254819	Strip, terminal	1	1	1	1
48	254821	Marker, strip	1	1	1	1
49	254904	Actuator, magnetic	1	1	1	1
50	256466	O-Ring	1	1	1	1
51	257354	Stator assembly	1			
51	257352	Stator assembly		1		
51	228538	Stator assembly			1	
51	228537	Stator assembly				1
52	267491	Screw, hex head machine, special thread	1	1	1	1
53	282829	Vibromount	6	6	6	6
54	254852	Connector, 6-pin	1	1	1	1
55	X-465-15	Screw, ref.	1	1	1	1
56	X-465-16	Screw, ref.	4	4	4	4

Group 301: Controller and Mounting

Item 2, 18, 20, 51, 52, 53, 54 not shown



Group 301: Controller and Mounting

Item	Part Number	Description	Quantity	
			Variation No.	
			20	21
1	X-202-28	Bushing, reducing (3/8 x 1/2 in. npt)	1	1
2	X-75-10	Plug, pipe (3/8 in. nptf) (not shown)	1	1
3	226517	Wiring harness, engine, 10/12 kW, 3 ph. (includes items 38-44, 51-53)	1	
3	226510	Wiring harness, engine, 10/12 kW, 1 ph. (includes items 38-44, 51-53)		1
4	241769	Mount, controller	4	4
5	254832	Sensor, low fluid	1	1
6	A-226509	Controller assembly	1	1
7	B-226400	Governor assembly, electronic	1	1
8	C-284507	PCB assembly, cyclic crank	1	1
9	F-254717	PCB, relay controls assembly	1	1
10	X-22-11	Washer, lock, .262 ID x .469 in. OD	1	1
11	X-22-12	Washer, lock, .262 ID x .743 in. OD	2	2
12	X-22-6	Washer, lock, .146 ID x .285 in. OD	2	2
13	X-49-25	Screw, slotted pan head machine, 6-32 x 1/4	18	18
14	X-49-39	Screw, slotted pan head machine	2	2
15	X-50-3	Screw, slotted pan head machine, r.h.m. 10-24	2	2
16	X-51-36	Screw, slotted pan head machine, r.h.m. 8-32 x 1 1/2	4	4
17	X-6033-6	Grommet, u-channel	1	1
18	X-6081-3	Tube, heat shrink (not shown)	1	1
19	X-6216-1	Screw, Phillips hex crimpfitite	4	4
20	X-748-21	Tubing, heat shrink (not shown)	1	1
21	X-71-2	Nut, hex machine screw, 6-32	1	1
22	201620-152	Tab, Identification	1	1
23	223316	Fuse, 10 A, 250 V	1	1
24	226442	Box, silkscreened	1	1
25	230857	Strap, ground	1	1
26	238426	Fuse holder, .25 x 1.25 in.	1	1
27	238582	Terminal, spade, male	4	4
28	238736	Meter, run time, 10000 hour	1	1
29	241736	Relay	1	1
30	254800	Cover, controller	1	1
31	254820	Wiring harness, extension	1	1
32	254822	Marker, strip	1	1
33	267491	Screw, hex head machine, special thread	1	1
34	269373	Lamp, 14 V, .33 W	1	1
35	287812	Switch, toggle, 2 pole	1	1
36	287948	Spacer	9	9
37	292940	Strip, terminal	1	1
38	269366	Connector, 15-Pin	1	1
39	292371	Jack, 2-position	1	1
40	269190	Connector, 6-Pin	1	1
41	241605	Connector, 12-Pin	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
47	X-51-36	Screw, ref.	4	4
48	#	#8-32 Nut	4	4
49	#	#6-32 Nut	1	1
50	X-71-2	Nut	2	2
51	239408	Connector, 4-Position(not shown)	1	
52	241606	Terminal, socket (not shown)	6	3
53	290262	Book (not shown)	1	1
54	X-81-8	Nut, hex, 1/4-20 (not shown)	1	1

Comon hardware. Procure locally.

Group 701: Literature

Item	Part Number	Description	Quantity			
			Variation No.			
			4	5	12	13
1	TP-5346	Service Manual Ford VSG-411/413 Engine	1	1	1	1
2	TP-5407	Service Manual, 10/12RZ/RFZ Generator Set	1	1	1	1
3	TP-5847	Service Manual, 10-18RY/RZ	1	1	1	1
4	TP-5398	Operation Manual, Ford VSG-411/413 Engine	1	1	1	1
5	TP-5870	Operation Manual, 10-18RY/RZ, 17/22RY	1	1	1	1
6	TP-5631	Operation Manual, 6.5-18 kW Generator Sets	1	1	1	1
7	TP-5700	Installation Manual, Standby	1	1	1	1
7	TP-5700-CS	Installation Manual, Chinese Simplified	1	1	1	1
7	TP-5700-CT	Installation Manual, Chinese Traditional	1	1	1	1
7	TP-5700-F	Installation Manual, French	1	1	1	1
7	TP-5700-G	Installation Manual, German	1	1	1	1
7	TP-5700-S	Installation Manual, Spanish	1	1	1	1
8	TP-5849	Parts Catalog, 10/12RY/RZ Generator Sets			1	1
8	TP-5415	Parts Catalog, 10/12RY/RZ Ford VSG413	1	1		
9	TP-5716	Wiring Diagram Manual, 10-18RY/RZ	1	1	1	1
10	TP-5374	Warranty, 1 Year LTD	1	1	1	1
11	TP-5762	Warranty, California Emission	1	1	1	1

Kit List

	10RY	10RZ	12RY	12RZ
Controllers, optional (Group 301)				
5-Light	226571	226515	226571	226515
5-Light, 600V	NA	226516	NA	226516
Relay, 1-Light	226519	226512	226519	226512
5-Light remote control	226572	226572	226572	226572
5-Light remote control, 600V	NA	226573	NA	226573
Remote connection kit	226492	226497	226492	226497
40 foot remote mounting cable	PA-254847	PA-254847	PA-254847	PA-254847
Cooling systems, optional (Group 104)				
Radiator cooling	226588	226588	226588	226588
Radiator cooling with sound shield housing	226346	226346	226346	226346
Heat exchanger cooling, city water cooling	256936	256936	256936	256936
Duct fange, radiator	254757	254757	254757	254757
Heater, block 110/120V, 630-750W	256839	256839	256839	256839
Heater, block 190/240V, 470-750W	254970	254970	254970	254970
Fuel systems, optional (Group 103)				
Automatic changeover, natural gas to LP/LP to natural gas	NA	NA	NA	NA
Auxiliary fuel pump	PA-324405	PA-324405	PA-324405	PA-324405
Flexible fuel lines, gas	226663	226663	226663	226663
Flexible fuel lines, gasoline	254976	254976	254976	254976
gas Strainer	PA-290275	PA-290275	PA-290275	PA-290275
gasoline fuel system	NA	NA	NA	NA
LP gas Liquid withdrawal fuel system	226577	226577	226577	226577
Natural gas or LP gas fuel system	226549	226549	226549	226549
Natural gas only	226730	226730	226730	226730
LP gas only	326851	326851	326851	326851
Paint and Miscellaneous Parts				
Generator Paint, Kohler cream beige (spray can)	221338	221338	221338	221338
Generator Paint, Kohler cream beige (gallon can)	221337	221337	221337	221337
Optional Accessories				
Air Cleaner, heavy-duty (gas)	256459	256459	256459	256459
Air Cleaner, heavy-duty (gasoline)	256460	256460	256460	256460
Air Intake, heavy-duty (gasoline)	326826	326826	326826	326826
Alarm, chime	PA-292496	PA-292496	PA-292496	PA-292496
Alarm panel, remote audible visual	PA-292856	PA-292856	PA-292856	PA-292856
Battery, 1/12V, dry	PA-226948	PA-226948	PA-226948	PA-226948
Battery charger, trickle	PAA-248952	PAA-248952	PAA-248952	PAA-248952
Battery charger, equalize/float	PAD-292862	PAD-292862	PAD-292862	PAD-292862
Battery charger with alarms, equalize/float	PAD-292863	PAD-292863	PAD-292863	PAD-292863
Battery charger, float (12V-5A)	GM11849-KP1	GM11849-KP1	GM11849-KP1	GM11849-KP1
Breaker, line circuit 15 amp	254729	254729	254729	254729
Breaker, line circuit 20 amp	254730	254730	254730	254730
Breaker, line circuit 30 amp	254731	254731	254731	254731
Breaker, line circuit 40 amp	254732	254732	254732	254732
Breaker, line circuit 50 amp	254733	254733	254733	254733
Connector, flexible exhaust	PA-254973	PA-254973	PA-254973	PA-254973
Connection kit, customer	256886	256886	256886	256886
Connection kit, Load 1 phase	254881	254882	254881	254882
Contact kit, dry 10 SPDT	PA-256887	PA-256887	PA-256887	PA-256887
Contact kit, dry 1 SPDT	PA-256881	PA-256881	PA-256881	PA-256881
CSA	250600	250600	250600	250600
Emergency stop switch, remote	PA-293906	PA-293906	PA-293906	PA-293906
End caps, skid	254762	254762	254762	254762
FASTCHECK and wiring harness	PA-272766	PA-272766	PA-272766	PA-272766
Gauge package, engine	254975	254975	254975	254975
Guards, rodent	256930	256931	256930	256931
Heater, battery	256980	256980	256980	256980
Heater, generator strip	NA	256892	NA	256892
Housing, weather (sheet metal)	226589	226590	226589	226590
Housing, weather (with end caps)	GM11564-KP1	GM11564-KP2	GM11564-KP1	GM11564-KP1
Housing, sound shield (cream beige)	276196	256874	256826	256826
Housing, sound shield (forest green)	276197	256875	256827	256875
Lifting eye hooks	256913	256912	256913	256912
Literature, NFPA-110 required	PA-256864	PA-256865	PA-256864	PA-256865
Literature, general mMaintenance	PA-276825	PA-276825	PA-276825	PA-276825
Literature, overhaul	PA-276806	PA-276807	PA-276806	PA-276807
Overvoltage protection shutdown	291746	291746	291746	291746
Rack and cable, gattery	254883	254884	254883	254884
Relay, common failure	225196	225196	225196	225196
Relay, run	273743	273743	273743	273743
Remote annunciator, 16-Light (flush or surface mount)	PA-293991	PA-293991	PA-293991	PA-293991
Senders, prealarm	256988	256988	256988	256988
Silencer, critical (engine mounted)	254964	254964	254964	254964
Tail pipe and rain cap	256851	256851	256851	256851

Kit Parts List

Qty.	Description	Part No.
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Controller Kits

Remote Connection

226492

8	Screw, r.h.m. 10/24	X-50-8
1	Plug, pipe 1/8	X-75-1
1	Cross, pipe 1/8	164037
1	Bracket, current transformer mounting	226481
1	Wiring Harness, engine	226493
2	Transformer, current	254786
1	Diode	254990
1	Sender, temperature	255240
1	Sender, oil pressure	264390
1	Switch Assembly, level	273404
1	Nipple, pipe 1/8 x 1 1/2	289055
1	Controller Box Assembly, includes the following	A-226562
4	Screw, cross recess round machine	X-51-11
2	Screw, cross recess pan head machine	X-51-15
4	Screw, slotted round head machine	X-51-33
1	Grommet, nylon	X-6033-5
1	Grommet, nylon	X-6033-8
1	Box, controller	226430
4	Terminal	238898
1	Block, terminal	243845
1	Block, terminal	246115
1	Cover, controller	254800
4	Bumper	255443
1	Bracket, mounting	258846
1	Strip, terminal	282824
1	Marker, strip	258848

Remote Connection

226497

8	Screw, r.h.m. 10/24	X-50-8
1	Plug, pipe 1/8	X-75-1
1	Cross, pipe 1/8	164037
1	Bracket, current transformer mounting	226480
1	Wiring Harness, engine	226495
2	Transformer, current	254786
1	Diode	254990
1	Sender, temperature	255240
1	Sender, oil pressure	264390
1	Switch Assembly, level	273404
1	Nipple, pipe 1/8 x 1 1/2	289055
1	Controller Box Assembly, includes the following	A-226562
4	Screw, cross recess round machine	X-51-11
2	Screw, cross recess pan head machine	X-51-15
4	Screw, slotted round head machine	X-51-33
4	Screw, Phillips hex crimpite	X-6216-1
1	Grommet, nylon	X-6033-5
1	Grommet, nylon	X-6033-8
1	Box, controller	226430
4	Terminal	238898
1	Block, terminal	243845
1	Block, terminal	246115
1	Cover, controller	254800
4	Bumper	255443
1	Bracket, mounting	258846
1	Strip, terminal	282824
1	Marker, strip	258848

Relay, 1-Light Controller

226512

See variation 21 in Group 301, Controller for parts list.

Qty.	Description	Part No.
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5-Light Controller

226515

8	Screw, r.h.m. 10/24	X-50-8
1	Adapter, pipe 1/4	X-509-1
1	Plug, pipe 1/8	X-75-1
1	Cross, pipe 1/8	164037
1	Bracket, current transformer mounting	226480
1	Wiring Harness, engine	226495
2	Transformer, current	254786
1	Diode	254990
1	Sender, temperature	255240
1	Sender, oil pressure	264390
1	Switch Assembly, level	273404
1	Nipple, pipe 1/8 x 1 1/2	289055
1	Controller Assembly, includes the following	A-226444
1	Potentiometer	A-254796
1	Circuit Board, main	A-328003
1	Circuit Board, indicator	B-292381
1	Governor Assembly	B-226400
1	Grommet	X-284-31
1	Spacer	X-400-135
1	Terminal, female	X-431-42
3	Screw, cross recess pan head machine	X-468-3
2	Screw, cross recess pan head machine	X-49-2
18	Screw, slotted pan head machine	X-49-25
2	Screw, slotted pan head machine	X-49-39
1	Screw, slotted pan head machine	X-50-10
2	Screw, slotted pan head machine	X-50-3
1	Screw, slotted pan head machine	X-50-56
1	Screw, slotted pan head machine	X-50-70
4	Screw, slotted pan head machine	X-51-33
2	Screw, slotted pan head machine	X-51-53
1	Plug, cap 1/8"	X-519-1
1	Jumper	X-6048-2
2	Tubing, heat shrink	X-6079-2
1	Tube, vinyl	X-696-2
4	Spacer, .25 OD, .5 in.	X-712-9
1	Ammeter, 0-30/60 A, AC	225176
1	Strip, marker	225178
1	Strip, marker	225179
1	Cover, controller	225181
1	Bracket, governor mounting	226597
1	Box, controller	226598
2	Diode, 2 amp, 100v in-line	223959
1	Plate, hinge	227850
1	Meter, hour	238736
1	Terminal	238898
1	Plug, connector	241617
1	Relay	241736
1	Strap, ground	246083
1	Block, terminal	246115
1	Voltmeter	253329
2	Lamp	255126
1	Voltmeter, AC	282814
1	Gauge, oil pressure	282897
1	Gauge, water temperature	282898
2	Socket, lamp	284990
9	Spacer, circuit board	287948
3	Fuse, 1.5 amp.	291207
2	Lamp	291740
1	Decal, fuse identification	292347
1	Decal, voltage adjustment	292361
1	Switch, selector	292373
1	Holder, fuse	292821
4	Bumper	292834
1	Harness, cable	292836
1	Meter, frequency	295069

Kit Parts List

Qty.	Description	Part No.
5-Light Controller		
		226516
8	Screw, r.h.m. 10/24	X-50-8
1	Adapter, pipe 1/4	X-509-1
1	Plug, pipe 1/8	X-75-1
1	Cross, pipe 1/8	164037
1	Bracket, current transformer mounting	226480
1	Wiring Harness, engine	226495
2	Transformer, current	254786
1	Diode	254990
1	Sender, temperature	255240
1	Sender, oil pressure	264390
1	Switch Assembly, level	273404
1	Nipple, pipe 1/8 x 1 1/2	289055
1	Controller Assembly, includes the following	A-226444
1	Potentiometer	A-254796
1	Circuit Board, main	A-328003
1	Circuit Board, indicator	B-292381
1	Governor Assembly	B-226400
1	Grommet	X-284-31
1	Spacer	X-400-135
1	Terminal, female	X-431-42
1	Plug, cap 1/8"	X-519-1
1	Jumper	X-6048-2
2	Tubing, heat shrink	X-6079-2
1	Sleeving	X-696-2
4	Spacer #8 x 1/2 x 1/4	X-712-9
1	Ammeter	225175
1	Nameplate	225177
1	Strip, marker	225178
1	Strip, marker	225179
1	Cover, controller	225181
1	Bracket, governor mounting	226597
1	Box, controller	226598
2	Diode, 2 amp, 100v in-line	223959
1	Plate, hinge	227850
1	Meter, hour	238736
1	Terminal	238898
1	Plug, connector	241617
1	Relay	241736
1	Strap, ground	246083
1	Block, terminal	246115
1	Voltmeter	253329
2	Lamp	255126
1	Voltmeter, AC	282815
1	Gauge, oil pressure	282897
1	Gauge, water temperature	282898
2	Socket, lamp	284990
9	Spacer, circuit board	287948
3	Fuse, 1.5 amp.	291207
2	Lamp	291740
1	Decal, fuse identification	292347
1	Resistor	292352
1	Decal, voltage adjustment	292361
1	Switch, selector	292373
1	Holder, fuse	292821
4	Bumper	292834
1	Harness, cable	292836
1	Meter, frequency	295069
Relay, 1-Light Controller		
		226519

See variation 20 in Group 301, Controller for parts list.

Qty.	Description	Part No.
5-Light Controller		
		226571
1	Bushing, reducer 1/8 x 1/4	A-106
8	Screw, r.h.m. 10/24	X-50-8
1	Adapter, pipe 1/4	X-509-1
1	Plug, pipe 1/8	X-75-1
1	Cross, pipe 1/8	164037
1	Bracket, current transformer mounting	226481
1	Wiring Harness, engine	226493
2	Transformer, current	254786
1	Diode	254990
1	Sender, temperature	255240
1	Sender, oil pressure	264390
1	Switch Assembly, level	273404
1	Controller Assembly, includes the following	A-226444
1	Potentiometer	A-254796
1	Circuit Board, main	A-328003
1	Circuit Board, indicator	B-292381
1	Governor Assembly	B-226400
1	Grommet	X-284-31
1	Spacer	X-400-135
1	Terminal, female	X-431-42
1	Plug, cap 1/8"	X-519-1
1	Jumper	X-6048-2
2	Tubing, heat shrink	X-6079-2
1	Sleeving	X-696-2
4	Spacer #8 x 1/2 x 1/4	X-712-9
1	Ammeter	225176
1	Strip, marker	225178
1	Strip, marker	225179
1	Cover, controller	225181
1	Bracket, governor mounting	226597
1	Box, controller	226598
2	Diode, 2 amp, 100v in-line	223959
1	Plate, hinge	227850
1	Meter, hour	238736
1	Terminal	238898
1	Plug, connector	241617
1	Relay	241736
1	Strap, ground	246083
1	Block, terminal	246115
1	Voltmeter	253329
2	Lamp	255126
1	Voltmeter, AC	282814
1	Gauge, oil pressure	282897
1	Gauge, water temperature	282898
2	Socket, lamp	284990
9	Spacer, circuit board	287948
3	Fuse, 1.5 amp.	291207
2	Lamp	291740
1	Decal, fuse identification	292347
1	Decal, voltage adjustment	292361
1	Switch, selector	292373
1	Holder, fuse	292821
4	Bumper	292834
1	Harness, cable	292836
1	Meter, frequency	295069

Kit Parts List

Qty.	Description	Part No.
5-Light Remote Controller		
		226572
1	Controller Assembly, includes the following	A-226444
1	Potentiometer	A-254796
1	Circuit Board, main	A-328003
1	Circuit Board, indicator	B-292381
1	Governor Assembly	B-226400
1	Grommet	X-284-31
1	Spacer	X-400-135
1	Terminal, female	X-431-42
1	Plug, cap 1/8"	X-519-1
1	Jumper	X-6048-2
2	Tubing, heat shrink	X-6079-2
1	Sleeving	X-696-2
4	Spacer #8 x 1/2 x 1/4	X-712-9
1	Ammeter	225176
1	Strip, marker	225178
1	Strip, marker	225179
1	Cover, controller	225181
1	Bracket, governor mounting	226597
1	Box, controller	226598
2	Diode, 2 amp, 100V in-line	223959
1	Plate, hinge	227850
1	Meter, hour	238736
1	Terminal	238898
1	Plug, connector	241617
1	Relay	241736
1	Strap, ground	246083
1	Block, terminal	246115
1	Voltmeter	253329
2	Lamp	255126
1	Voltmeter, AC	282814
1	Gauge, oil pressure	282897
1	Gauge, water temperature	282898
2	Socket, lamp	284990
9	Spacer, circuit board	287948
3	Fuse, 1.5 amp.	291207
2	Lamp	291740
1	Decal, fuse identification	292347
1	Decal, voltage adjustment	292361
1	Switch, selector	292373
1	Holder, fuse	292821
4	Bumper	292834
1	Harness, cable	292836
1	Meter, frequency	295069

Qty.	Description	Part No.
5-Light Remote Controller		
		226573
1	Controller Assembly, includes the following	A-226445
1	Potentiometer	A-254796
1	Circuit Board, main	A-328003
1	Circuit Board, indicator	B-292381
1	Governor Assembly	B-226400
1	Grommet	X-284-31
1	Spacer	X-400-135
1	Terminal, female	X-431-42
1	Plug, cap 1/8"	X-519-1
1	Jumper	X-6048-2
2	Tubing, heat shrink	X-6079-2
1	Sleeving	X-696-2
4	Spacer #8 x 1/2 x 1/4	X-712-9
1	Ammeter	225175
1	Nameplate	225177
1	Strip, marker	225178
1	Strip, marker	225179
1	Cover, controller	225181
1	Bracket, governor mounting	226597
1	Box, controller	226598
2	Diode, 2 amp, 100V in-line	223959
1	Plate, hinge	227850
1	Meter, hour	238736
1	Terminal	238898
1	Plug, connector	241617
1	Relay	241736
1	Strap, ground	246083
1	Block, terminal	246115
1	Voltmeter	253329
2	Lamp	255126
1	Voltmeter, AC	282815
1	Gauge, oil pressure	282897
1	Gauge, water temperature	282898
2	Socket, lamp	284990
9	Spacer, circuit board	287948
3	Fuse, 1.5 amp.	291207
2	Lamp	291740
1	Decal, fuse identification	292347
1	Resistor	292352
1	Decal, voltage adjustment	292361
1	Switch, selector	292373
1	Holder, fuse	292821
4	Bumper	292834
1	Harness, cable	292836
1	Meter, frequency	295069

40-Ft. Remote Mounting Cable		
		PA-254847
1	Harness, wiring	254847

Kit Parts List

Qty.	Description	Part No.
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Cooling System Kits

Radiator Coolant System Kit **226349**

1	Radiator Assembly	A-254774
1	Valve, drain 1/4	X-256-3
1	Hose, 1 1/4 x 2 1/2	X-272-2
1	Grommet, 1 5/8	X-284-2
1	Hose	X-304-2
1	Connector, hose	X-380-5
1	Line, fuel	X-386-95
4	Clamp, hose 1 3/8	X-426-4
2	Clamp, hose 1 9/16	X-426-6
6	Clamp, hose 1 15/16	X-426-8
3	Clamp, hose 5/8	X-426-9
1	Plug, pipe 1/8	X-75-1
1	Plug, pipe 3/8	X-75-10
1	Plug, pipe 3/4	X-75-18
1	Plug, pipe	X-75-42
1	Washer, hardened	X-801-2
1	Tube, radiator outlet	226567
1	Hose, radiator	226637
1	Fan, pusher	226651
1	Cover, thermostat	229064
1	Gasket, water outlet	229963
1	Gasket, exhaust manifold	246060
1	Hose, molded	249814
1	Hose, molded	249823
1	Gasket, exhaust	249905
1	Hose, molded	249906
1	Thermostat	249930
1	Cover, thermostat	249942
1	Plug	253268
1	Flange, exhaust outlet	254692
1	Support, radiator	254705
1	Support, radiator	254706
1	Plug, exhaust manifold	254761
1	Strap	254764
3	Screw, socket hex head	254765
1	Screw, socket hex head	254766
1	Belt, V	254782
1	Gasket, exhaust manifold	254795
1	Valve	254922
1	Shroud, fan	256925
1	Guard, fan	256946
1	Bottle, overflow	256971
1	Bracket, water bottle	256972
1	Bracket, air recirculator	256973
2	Insulator, acoustic	256974
1	Insulator, acoustic	256975
1	Manifold, exhaust	256979
1	Bracket, airrecirculator	256995
1	Insulator, acoustic	256996
1	Tube, radiator inlet	256998
1	Spacer, fan	260088
1	Pulley, water pump	260091
1	Guard, belt	326797
1	Guard, belt	326798

Radiator Cooling System **226588**

See variation 14 in Group 104, Cooling System for parts list.

Qty.	Description	Part No.
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Radiator Duct Flange Kit **254757**

10	Screw, drill hex	X-794-1
8	Rivet, pop, .187 in.	X-794-11
2	Frame, air duct, side	254755
2	Frame, air duct, bottom	254756

City Water Cooling Kit **256936**

1	Bushing, reducer 1/8 x 1 1/4	X-202-27
2	Bushing, reducer	X-202-41
1	Tee, pipe, 1 x 1 x 1 npt	X-203-2
2	Nipple 1/2 x 1 3/16	X-209-2
2	Elbow, street 1/2	X-211-1
2	Coupling, pipe	X-216-24
2	Nipple, pipe 1/8 x 3/4	X-217-6
9	Washer, plain, .438 ID x 1 in. OD	X-25-1
2	Valve, drain 1/8	X-256-2
1	Hose 1 1/4 x 2 1/2	X-272-2
1	Hose	X-304-2
1	Clamp, hose 1/2	X-309-14
1	Valve, solenoid	X-350-7
1	Connector, hose	X-380-5
1	Line, fuel	X-386-93
1	Line, fuel	X-386-95
1	Clip, tube	X-414-1
4	Clamp, hose 1 3/8	X-426-4
7	Clamp, hose 1 15/16	X-426-8
2	Clamp, hose 5/8	X-426-9
1	Hose	X-6014-62
3	Screw, hex cap	M933-06020-60
8	Screw, hex cap	M931-08120-60
1	Screw, hex cap	M933-08016-60
1	Screw, Phillips hex crimpitite	X-6216-1
1	Plug, pipe 1/8	X-75-1
1	Plug, pipe 3/8	X-75-10
1	Plug, pipe, 1" nptf	X-75-48
2	Plug, pipe, 3/4" nptf	X-75-49
2	Adapter, hose 1 x 1	X-751-1
6	Screw, drill hex	X-794-1
2	Elbow	151385
1	Hose	226324
1	Cover, thermostat	229064
1	Gasket, water outlet	229963
2	Gasket, exhaust manifold	246060
1	Hose, molded	249814
1	Hose, molded	249823
1	Gasket, exhaust	249905
1	Cover, thermostat	249942
1	Flange, exhaust outlet	254692
1	Plug, exhaust manifold	254761
1	Belt, V	254782
1	Gasket, exhaust manifold	254795
1	Thermostat	254920
1	Valve	254922
1	Exchanger, heat	256935
1	Bracket, tank	256943
1	Guard, belt	256944
1	Bracket, extension	256945
1	Tank, expansion	256953
1	Manifold, exhaust	256979
1	Tube, radiator outlet	256998
1	Cap, pressure	258037
1	Pulley, water pump	260091
1	Regulator, water	290176
1	Guard, belt	326797
1	Guard, belt	326798

Block Heater Kit **254970**

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

Kit Parts List

Qty.	Description	Part No.
Block Heater Kit 256839		
2	Clamp, hose 1/2	X-426-3
1	Heater, block	254987

Fuel System Kits

Gas Strainer Kit PA-290275		
1	Strainer, gas	292485

Auxiliary Fuel Pump Kits PA-324405		
1	Pump, electric fuel	324420

Flexible Fuel Line, gasoline 254976		
1	Line, fuel	267958

Flexible Fuel Line, gas 226663		
1	Line, fuel	326268

LP Gas Liquid Withdrawal Fuel System 226577

1	Carburetor Assembly	A-226683
1	Actuator Assembly	A-226553
1	Elbow, pipe 1/4	X-215-5
1	Nipple, pipe 1/4 x 1 1/2	X-220-6
1	Pipe, 1/4 x 2 1/2	X-220-14
1	Hose, .62 I.D.	X-312-47
1	Hose, rubber 5/8 x 49	X-312-37
2	Connector, hose	X-391-2
2	Clamp, hose	X-426-10
4	Clamp, hose 1/2	X-426-3
2	Clamp, hose 5/8	X-426-9
1	Elbow	X-447-17
1	Screw, slotted round head machine	X-50-57
1	Plug, pipe	X-75-2
1	Hose, molded	226362
1	Line, flexible fuel	226379
1	Block, fuel	226550
1	Adapter, carburetor	226552
1	Bracket, actuator	226560
1	Converter	226576
1	Solenoid Assembly	256449
1	Bracket, converter	256888
2	Gasket, intake manifold	256948
2	Screw, socket head	256957
1	Gasket, carburetor	278869

Qty.	Description	Part No.
Natural Gas or LP Gas Fuel System 226549		
See variation 10 in Group 103, Fuel System for parts list.		
Fuel System, LP Gas Only, CARB/EPA Cert. 326851		

1	Fuel line, flexible	225160
1	Hose, molded, .31 in. ID	226362
1	Fuel block	226550
1	Adapter, carburetor	226552
1	Bracket, fuel valve	226554
1	Bracket, stepper motor	226560
1	Wiring harness, regulator harness	226645
1	Bracket, throttle stop	226662
1	Tag, instruction	226682
1	Valve, gas	227648
1	Regulator, gas	227649
1	Plug, expansion	227961
2	Gasket, intake manifold	256948
2	Screw, hex socket head machine	256957
1	Gasket, carburetor	278869
1	Actuator, rotary	A-226553
1	Carburetor	A-226683
1	Decal, emissions	GM11930
1	Screw, hex cap	M933-06016-60
1	Elbow, pipe, 90 deg x 1/4 in.npt	X-215-5
4	Washer, lock.119 ID x .253 in. OD	X-22-40
1	Pipe, 1/4 in.npt x 2.50 in.	X-220-14
1	Hose, molded, .62 in. ID	X-312-18
2	Stud, 1/4-20 x 1.12 in.	X-352-125
2	Clamp, hose, .5/1 in.	X-426-10
2	Clamp, hose, .56/1.06 in.	X-426-3
2	Clamp, hose, .25/.70 in.	X-426-9
1	Elbow, oil line, 90 deg	X-447-17
4	Screw, slotted pan head machine	X-49-43
1	Screw, hex socket set	X-6219-8
1	Plug, pipe, 1/4 in. nptf	X-75-51
2	Nut, hex jam, 1/4-20	X-76-2

Kit Parts List

Qty.	Description	Part No.
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Fuel System, Nat Gas Only, CARB/EPA Cert. 226730

1	Fuel line, flexible	225160
1	Hose, molded, .31 in. ID	226362
1	Fuel block	226550
1	Adapter, carburetor	226552
1	Bracket, fuel valve	226554
1	Bracket, stepper motor	226560
1	Wiring harness, regulator harness	226645
1	Bracket, throttle stop	226662
1	Tag, instruction	226682
1	Valve, gas	227648
1	Regulator, gas	227649
2	Gasket, intake manifold	256948
2	Screw, hex socket head machine	256957
1	Gasket, carburetor	278869
1	Actuator, rotary	A-226553
1	Carburetor	A-226683
1	Decal, emissions	GM11931
1	Screw, hex cap	M933-06016-60
1	Elbow, pipe, 90 deg x 1/4 in.npt	X-215-5
4	Washer, lock, .119 ID x .253 in. OD	X-22-40
1	Pipe, 1/4 in.npt x 2.50 in.	X-220-14
1	Hose, molded, .62 in. ID	X-312-18
2	Stud, 1/4-20 x 1.12 in.	X-352-125
2	Clamp, hose, .5/1 in.	X-426-10
2	Clamp, hose, .56/1.06 in.	X-426-3
2	Clamp, hose, .25/.70 in.	X-426-9
1	Elbow, oil line, 90 deg	X-447-17
4	Screw, slotted pan head machine	X-49-43
1	Plug, pipe, 1/4 in. nptf	X-75-51
2	Nut, hex jam, 1/4-20	X-76-2

Optional Accessory Kits

Air Cleaner, Heavy-Duty

256459

1	Cleaner Assembly, includes element	A-258643
1	Element, air cleaner	258646
1	Hose, radiator	X-281-4
1	Hose, 5/8 I.D.	X-312-5
4	Clamp, hose	250081
1	Support, air cleaner	256456
1	Hose, air cleaner	256457
1	Hood, air inlet	258707
2	Band, mounting	258708
1	Connector, hose	276216

Air Cleaner, Heavy-Duty

256460

1	Cleaner Assembly, air, includes element	A-258643
1	Element, air cleaner	258646
1	Hose, radiator	X-281-4
1	Hose, 5/8 I.D.	X-312-5
4	Clamp, hose	250081
1	Support, air cleaner	256456
1	Hose, air cleaner	256458
1	Hood, air inlet	258707
1	Band, mounting	258708
1	Connector, hose	276216

Air Intake, Heavy Duty

326826

1	Hose, molded air intake, 1.75 in. ID	225517
4	Clamp, hose, 2.06/3 in.	250081
1	Support, air cleaner	256456
2	Band, mounting	258708
1	Coupling, hose	276216
1	Air cleaner	A-258643
1	Hose, radiator, straight, 2 in. ID	X-281-4
2	Clamp, hose, .56/1.06 in.	X-426-3
1	Hose, molded, .62 in. ID	X-571-2

Qty.	Description	Part No.
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Alarm, Chime

PA-292496

1	Installation Instructions	TT-827
1	Plate Assembly (includes the following	A-292497
1	Circuit Board	A-292493
4	Stud	X-6205-3
4	Spacer	X-712-9
1	Lens, red	253241
1	Plate	292499
4	Screw, mounting	292828

Alarm Panel, Remote Audible Visual

PA-292856

1	Installation Instructions	TT-639
1	Panel Assembly	A-292887
1	Board, circuit	A-292883
4	Stud, self-clinching	X-6205-3
4	Spacer #8 x 1/2 x 1/4	X-712-9
1	Lens, red	253241
4	Screw, mounting	292828
1	Plate, silkscreened	292936

Battery, 1/12V, 200CA, Dry

PA-226948

1	Battery	239102
1	Battery activation	TT-796

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 number	291221
1	Breaker, circuit	291265
1	Rheostat	291975
1	Box battery charger	325389

Kit Parts List

Qty.	Description	Part No.
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
2	Holder, fuse	263156
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	325609

Qty.	Description	Part No.
Battery Charger, Equalize/Float (with alarms)		
PAD-292863		
1	Installation Instructions	TT-680
1	Installation Instructions, circuit board	TT-729
1	Battery Charger Assembly (includes the following	D-292863
1	Board, circuit alarm	B-262374
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
1	Retainer	295010
1	Block, terminal	295314
4	Nut, captive	298810
1	Box, battery charger	325593
1	Door, silkscreen	325596
1	Nameplate	325609

Battery Charger, Float, 12V-5A		
GM11849-KP1		
1	Battery Charger, 12V-6A, Float-Equalizer	GM11849

CSA Listing		
250600		
1	Tag, instruction	255798
1	Decal, caution stdby svc connect	255882
1	Decal, electrical equipment, 2.25 x 2	343292
4	Screw, drive	X-67-5

Kit Parts List

Qty.	Description	Part No.
Line Circuit Breaker Kit 254729		
1	Installation Instructions	TT-713
1	Breaker, 15 amp. circuit	250575
1	Panel, regulator mounting	254726
Line Circuit Breaker Kit 254730		
1	Installation Instructions	TT-713
1	Breaker, 20 amp. circuit	269251
1	Panel, regulator mounting	254726
Line Circuit Breaker Kit 254731		
1	Installation Instructions	TT-713
1	Breaker, 30 amp. circuit	269250
1	Panel, regulator mounting	254726
Line Circuit Breaker Kit 254732		
1	Installation Instructions	TT-713
1	Breaker, 40 amp. circuit	269252
1	Panel, regulator mounting	254726
Line Circuit Breaker Kit 254733		
1	Installation Instructions	TT-713
1	Breaker, 50 amp. circuit	269249
1	Panel, regulator mounting	254726
Flexible Exhaust Connection Kit PA-254973		
1	Coupling, pipe 1 1/2 x 2 1/16 x 2 3/16	X-216-21
1	Bushing, 2 1/16 x 1 1/4 x 1 1/2 NPT	153016
1	Connector, exhaust	254972
Connection Kit, Customer 256886		
1	Installation Instructions	TT-831
4	Screw, Phillips hex crimpitite	X-6216-1
1	Plug, button	X-301-29
1	Grommet	243319
1	Box, dry contact	256878
1	Cover, dry contact	256880
1	Block, terminal	273769
1	Strip, terminal	273770
Connection Kit, Load, Single-Phase/RV 254881		
1	Installation Instructions	TT-839
2	Insulator, panel	233269
2	Stud, brass	237612
Connection Kit, Load, Three-Phase/RZ 254882		
1	Installation Instructions	TT-839
3	Insulator, panel	233269
3	Stud, brass	237612
Dry Contact Kit PA-256887		
1	Installation Instructions	TT-951
1	Circuit Board, dry relay	D-294303
1	Plug, button	X-301-29
1	Screw, Phillips hex crimpitite	X-6216-1
6	Spacer, 8 x 1/2 x 1/4	X-712-9
1	Grommet	243319
1	Box, dry contact	256878
1	Cover, dry contact	256880
1	Block, terminal	273769
1	Strip, terminal	273770
Dry Contact Kit PA-256881		
1	Installation Instructions	TT-950
1	Circuit Board, 1 relay dry	C-294301
4	Spacer, #8 x 1/2 x 1/4	X-712-9
1	Bracket, mounting	256877

Qty.	Description	Part No.
Emergency Stop, Remote PA-293906		
1	Installation Instructions	TT-940
1	Switch, emergency stop	A-222654
1	Rod, glass	222655
Enclosure, Weather, w/End caps GM11564-KP1		
2	Rail, extension	254862
2	Bracket, extension rail	254863
1	Weather Housing, 10-12 kW	TT-1117
8	Nut, hex elastic stop, 5/16-18	X-101-16
18	Bolt, hex cap	X-125-5
30	Washer, plain, .219 ID x .5 in. OD	X-25-36
4	Washer, plain, .281 ID x .625 in. OD	X-25-40
24	Washer, plain, .344 ID x .687 in. OD	X-25-85
4	Bolt, hex cap	X-465-16
30	Nut, flange whiz, 10-24	X-6210-5
1	Base, weather housing 10-12 kW Ford includes the following	GM11564-B
10	Nut, hex elastic stop, 5/16-18	X-101-16
4	Nut, hex elastic stop, 1/4-20	X-101-8
4	Washer, plain .266 ID x 1" OD	X-25-73
2	Plug, button	X-301-24
30	Retainer, nut	X-6204-3
8	Screw, Phillips hex crimpitite	X-6216-1
12	Screw, hex washer head, drill	X-794-1
2	Plug	253268
5	Latch	253373
10	Plug, plastic	253723
2	Door, housing	GM11563
1	Door, housing rear	GM11561
1	Shroud, rear	GM12527
1	Roof	GM12528
2	Panel, housing	256835
2	Door, housing	GM11562
1	Bracket, housing support	273976
1	Bracket, housing support	273977
60	Screw, Flat C'Sunk, Head Machine	295098
6	Hinge, split	297600
4	Hinge, split	297601
2	Plug, button	X-301-39
2	End cap, skid	254745
4	Cover, skid rail	254758
12	Screw, hex seal washer head, drill	X-794-4

Kit Parts List

Qty.	Description	Part No.
Enclosure, Weather, w/End caps GM11564-KP2		
1	Weather Housing, 10-12 kW	TT-1117
10	Bolt, hex cap	X-125-5
30	Washer, plain, .219 ID x .5 in. OD	X-25-36
4	Washer, plain, .281 ID x .625 in. OD	X-25-40
20	Washer, plain, .344 ID x .687 in. OD	X-25-85
4	Bolt, hex cap	X-465-16
30	Nut, flange whiz, 10-24	X-6210-5
1	Base, weather housing 10-12 kW Ford includes the following	GM11564-B
10	Nut, hex elastic stop, 5/16-18	X-101-16
4	Nut, hex elastic stop, 1/4-20	X-101-8
4	Washer, plain .266 ID x 1" OD	X-25-73
2	Plug, button	X-301-24
30	Retainer, nut	X-6204-3
8	Screw, Phillips hex crimpitite	X-6216-1
12	Screw, hex washer head, drill	X-794-1
2	Plug	253268
5	Latch	253373
10	Plug, plastic	253723
2	Door, housing	GM11563
1	Door, housing rear	GM11561
1	Shroud, rear	GM12527
1	Roof	GM12528
2	Panel, housing	256835
2	Door, housing	GM11562
1	Bracket, housing support	273976
1	Bracket, housing support	273977
60	Screw, Flat C'Sunk, Head Machine	295098
6	Hinge, split	297600
4	Hinge, split	297601
2	Plug, button	X-301-39
2	End cap, skid	254745
4	Cover, skid rail	254758
12	Screw, hex seal washer head, drill	X-794-4

End Cap, Skid		254762
2	Plug, button	X-301-39
2	Cover, skid end	254745
4	Cover, skid rail	254758

Fastcheck		PA-272766
1	Controller Assembly	B-291930
1	Harness, wiring	255915

Engine Gauge Kit		254975
1	Tee, pipe 1/8 x 1/8 x 1/8	X-203-16
1	Adapter, pipe 1/4 x 1/8	X-509-1
1	Voltmeter	253329
1	Harness, wiring	254974
1	Sender, temperature	255240
1	Sender, oil pressure gauge	264390
1	Gauge, oil pressure	282897
1	Gauge, water temperature	282898
1	Nipple, pipe 1/8 x 1 1/2	289055

Guard, Rodent		256930
4	Spacer	X-400-194
2	Screw, self-tapping	X-67-129
4	Screw, hex hd. 10-24	X-67-51
1	Plate, rodent guard	225946
1	Plate, rodent guard	225947
1	Guard, rodent	229892
1	Clip, speed	257442

Qty.	Description	Part No.
Guard, Rodent 256931		
4	Spacer	X-400-194
2	Screw, self-tapping	X-67-129
4	Screw, hex hd. 10-24	X-67-51
1	Plate, rodent guard	225946
1	Plate, rodent guard	225947
1	Guard, rodent	229892
1	Screem, louver	256902
1	Clip, speed	257442

Heater, Battery		256980
1	Installation Instructions	TT-916
1	Heater, battery	326687

Heater, Generator Strip		256892
1	Heater, strip	256890
1	Bracket	256891

Housing, Weather		226589
1	Installation Instructions	TT-1117
2	Button, plug	X-301-24
30	Retainer, nut	X-6204-3
13	Screw, Phillips hex crimpitite	X-6216-1
2	Decal, stripes	X-6232-1
2	Decal	X-6246-6
4	Screw, drill hex	X-794-1
2	Plug	253268
5	Latch	253373
10	Plug, plastic	253723
2	Rail, extension	254862
2	Bracket, extension rail	254863
1	Bracket, water bottle	254919
2	Door, housing	256451
1	Door, rear housing	256455
1	Shroud, rear housing	256833
1	Roof, housing	256834
2	Panel, housing	256835
2	Door, housing	256836
1	Bracket, housing support	273976
1	Bracket, housing support	273977
60	Flat Head Machine Screw	295098
4	Hinge, split	297600
6	Hinge, split	297601

Housing, Weather		226590
1	Installation Instructions	TT-1117
2	Button, plug	X-301-24
30	Retainer, nut	X-6204-3
13	Screw, Phillips hex crimpitite	X-6216-1
2	Decal, stripes	X-6232-1
2	Decal	X-6246-6
4	Screw, drill hex	X-794-1
2	Plug	253268
60	Flat Head Machine Screw	295098
5	Latch	253373
10	Plug, plastic	253723
1	Bracket, water bottle	254919
2	Door, housing	256451
1	Door, rear housing	256455
1	Shroud, rear housing	256833
1	Roof, housing	256834
2	Panel, housing	256835
2	Door, housing	256836
1	Bracket, housing support	273976
1	Bracket, housing support	273977
4	Hinge, split	297600
6	Hinge, split	297601

Kit Parts List

Qty.	Description	Part No.
Housing, Sound Shield		
		256826
1	Installation Instructions	TT-764
1	Guard Assembly, exhaust	A-226275
1	Shield Assembly	A-256815
1	Elbow, street	EH-2226
1	Pipe, 1 1/2 x 3.25	X-205-11
1	Pipe, 1 1/4 x 2.5	X-210-10
1	Pipe, 1 1/4 x 7.38	X-210-23
1	Nipple 1 1/4 x 2	X-210-3
2	Coupling, pipe	X-216-21
2	Coupling, pipe	X-216-22
1	Nipple, pipe	X-224-1
2	Elbow, 45 degree	X-225-1
1	Bolt, U	X-397-3
4	Clamp, hose 1 9/16	X-426-6
3	Screw, drill hex	X-794-1
1	Elbow, 90 degrees	151771
1	Nipple, pipe 1 1/2 x 21	151803
2	Liner, reflective	226262
4	Liner, reflective	226263
1	Adapter, exhaust	226264
1	Connector, exhaust	226281
2	Rail, extension	254862
2	Bracket, extension rail	254863
1	Bracket, silencer	254962
1	Bracket	256828
1	Muffler	256889
1	Bracket, silencer	256897
2	Cover, skid end	256956
1	Bracket, air recirculate	256973
2	Insulator, acoustic foam	256974
1	Insulator, acoustic foam	256975
1	Bracket, air recirculate	256995
1	Insulator, acoustic foam	256996

Housing, Sound Shield		
		256827
1	Installation Instructions	TT-764
1	Guard Assembly, exhaust	A-226275
1	Shield Assembly	A-256822
1	Elbow, street	EH-2226
1	Pipe, 1 1/2 x 3.25	X-205-11
1	Pipe, 1 1/4 x 2.5	X-210-10
1	Pipe, 1 1/4 x 7.38	X-210-23
1	Nipple 1 1/4 x 2	X-210-3
2	Coupling, pipe	X-216-21
2	Coupling, pipe	X-216-22
1	Nipple, pipe	X-224-1
2	Elbow, 45 degree	X-225-1
1	Bolt, U	X-397-3
4	Clamp, hose 1 9/16	X-426-6
3	Screw, drill hex	X-794-1
1	Elbow, 90 degrees	151771
1	Nipple, pipe 1 1/2 x 21	151803
2	Liner, reflective	226262
4	Liner, reflective	226263
1	Adapter, exhaust	226264
1	Connector, exhaust	226281
2	Rail, extension	254862
2	Bracket, extension rail	254863
1	Bracket, silencer	254962
1	Bracket	256828
1	Muffler	256889
1	Bracket, silencer	256897
2	Cover, skid end	256956
1	Bracket, air recirculate	256973
2	Insulator, acoustic foam	256974
1	Insulator, acoustic foam	256975
1	Bracket, air recirculate	256995
1	Insulator, acoustic foam	256996

Qty.	Description	Part No.
Housing, Sound Shield		
		256874
1	Installation Instructions	TT-764
1	Guard Assembly, exhaust	A-226275
1	Shield Assembly	A-256815
1	Elbow, street	EH-2226
1	Pipe, 1 1/2 x 3.25	X-205-11
1	Pipe, 1 1/4 x 2.5	X-210-10
1	Pipe, 1 1/4 x 7.38	X-210-23
1	Nipple 1 1/4 x 2	X-210-3
2	Coupling, pipe	X-216-21
2	Coupling, pipe	X-216-22
1	Nipple, pipe	X-224-1
2	Elbow, 45 degree	X-225-1
1	Bolt, U	X-397-3
4	Clamp, hose 1 9/16	X-426-6
3	Screw, drill hex	X-794-1
1	Elbow, 90 degrees	151771
1	Nipple, pipe 1 1/2 x 21	151803
2	Liner, reflective	226262
4	Liner, reflective	226263
1	Adapter, exhaust	226264
1	Connector, exhaust	226281
1	Bracket, silencer	254962
1	Bracket	256828
1	Muffler	256889
1	Bracket, silencer	256897
2	Cover, skid end	256956
1	Bracket, air recirculate	256973
2	Insulator, acoustic foam	256974
1	Insulator, acoustic foam	256975
1	Bracket, air recirculate	256995
1	Insulator, acoustic foam	256996

Housing, Sound Shield		
		256875
1	Installation Instructions	TT-764
1	Guard Assembly, exhaust	A-226275
1	Shield Assembly	A-256822
1	Elbow, street	EH-2226
1	Pipe, 1 1/2 x 3.25	X-205-11
1	Pipe, 1 1/4 x 2.5	X-210-10
1	Pipe, 1 1/4 x 7.38	X-210-23
1	Nipple 1 1/4 x 2	X-210-3
2	Coupling, pipe	X-216-21
2	Coupling, pipe	X-216-22
1	Nipple, pipe	X-224-1
2	Elbow, 45 degree	X-225-1
1	Bolt, U	X-397-3
4	Clamp, hose 1 9/16	X-426-6
3	Screw, drill hex	X-794-1
1	Elbow, 90 degrees	151771
1	Nipple, pipe 1 1/2 x 21	151803
2	Liner, reflective	226262
4	Liner, reflective	226263
1	Adapter, exhaust	226264
1	Connector, exhaust	226281
1	Bracket, silencer	254962
1	Bracket	256828
1	Muffler	256889
1	Bracket, silencer	256897
2	Cover, skid end	256956
1	Bracket, air recirculate	256973
2	Insulator, acoustic foam	256974
1	Insulator, acoustic foam	256975
1	Bracket, air recirculate	256995
1	Insulator, acoustic foam	256996

Kit Parts List

Qty.	Description	Part No.
Housing, Sound Shield		
		276196
1	Installation Instructions	TT-764
1	Guard Assembly, exhaust	A-226275
1	Shield Assembly	A-256822
1	Elbow, street	EH-2226
1	Pipe, 1 1/2 x 3.25	X-205-11
1	Pipe, 1 1/4 x 2.5	X-210-10
1	Pipe, 1 1/4 x 7.38	X-210-23
1	Nipple 1 1/4 x 2	X-210-3
2	Coupling, pipe	X-216-21
2	Coupling, pipe	X-216-22
1	Nipple, pipe	X-224-1
2	Elbow, 45 degree	X-225-1
1	Bolt, U	X-397-3
4	Clamp, hose 1 9/16	X-426-6
3	Screw, drill hex	X-794-1
1	Elbow, 90 degrees	151771
1	Nipple, pipe 1 1/2 x 2 1/2	151803
2	Liner, reflective	226262
4	Liner, reflective	226263
1	Adapter, exhaust	226264
1	Connector, exhaust	226281
2	Rail, extension	254862
2	Bracket, extension rail	254863
1	Bracket, silencer	254962
1	Bracket	256828
1	Muffler	256889
1	Bracket, silencer	256897
2	Cover, skid end	256956
1	Bracket, air recirculate	256973
2	Insulator, acoustic foam	256974
1	Insulator, acoustic foam	256975
1	Bracket, air recirculate	256995
1	Insulator, acoustic foam	256996
Lifting Eye Hooks		
		256912
1	Installation Instructions	TT-948
8	Nut, hex stop	X-101-23
2	Grommet 1/2 x 13/16	X-284-15
2	Stud	X-352-78
1	Nut, eye	256906
1	Bracket, lifting	256911
1	Decal, caution	256933
Lifting Eye Hooks		
		256913
1	Installation Instructions	TT-948
8	Nut, hex stop	X-101-23
2	Grommet 1/2 x 13/16	X-284-15
2	Stud	X-352-78
1	Nut, eye	256906
1	Bracket, lifting	256910
1	Decal, caution	256933
Literature, NFPA-110 Required		
		PA-256864
2	Service Manual, Ford VSG-411/413 Engine	TP-5346
2	Service Manual, 10/12/18RY/RFY Generator Set	TP-5406
2	Service Manual, 10-18RY/RZ, Industrial	TP-5847
2	Operation Manual, Ford VSG-411/413 Engine	TP-5398
2	Operation Manual, 6.5-18 kW Generator Set	TP-5631
2	Operation Manual, 10-18RY/RZ, Industrial	TP-5870
2	Parts Catalog, 10RY/RZ, 12RY/RZ	TP-5849
2	Installation Manual	TP-5700
2	Wiring Diagram Manual, 10-18RY/RZ, 17/22RY	TP-5716

Qty.	Description	Part No.
Literature, NFPA-110 Required		
		PA-256865
2	Service Manual, Ford VSG-411/413	TP-5346
2	Service Manual, 10-18RY/RZ, Industrial	TP-5847
2	Operation Manual, Ford VSG411/413	TP-5398
2	Operation Manual, 10-18RY/RZ, Industrial	TP-5870
2	Installation Manual	TP-5700
2	Parts Catalog, 10RY/RZ, 12RY/RZ	TP-5849
2	Wiring Diagram, 10-18RY/RZ, 17/22RY	TP-5716
Literature, General Maintenance		
		PA-276825
1	Operation Manual, Ford VSG-411/413 Engine	TP-5398
1	Operation Manual, 10-18RY/RZ, Industrial	TP-5870
1	Parts Catalog, 10RY/RZ, 12RY/RZ	TP-5849
1	Wiring Diagram Manual, 10-18RY/RZ, 17/22RY	TP-5716
Literature, Overhaul		
		PA-276806
1	Service Manual, Ford VSG-411/413	TP-5346
1	Service Manual, 10-18RY/RZ, Industrial	TP-5847
1	Operation Manual, Ford VSG411/413	TP-5398
1	Operation Manual, 10-18RY/RZ, Industrial	TP-5870
1	Installation Manual	TP-5700
1	Parts Catalog, 10RY/RZ, 12RY/RZ	TP-5849
1	Wiring Diagram, 10-18RY/RZ, 17/22RY	TP-5716
Literature, Overhaul		
		PA-276807
1	Service Manual, Ford VSG-411/413	TP-5346
1	Service Manual, 10-18RY/RZ, Industrial	TP-5847
1	Operation Manual, Ford VSG411/413	TP-5398
1	Installation Manual	TP-5700
1	Operation Manual, 10-18RY/RZ, Industrial	TP-5870
1	Parts Catalog, 10RY/RZ, 12RY/RZ	TP-5849
1	Wiring Diagram Manual, 10-18RY/RZ, 17/22RY	TP-5716
Overvoltage Protection Shutdown		
		291746
1	Installation Instructions	TT-1003
1	Board, circuit	G-291739
1	Terminal insulink 14-16 gauge	X-367-1
2	Spacer	292372
Rack and Cable, Battery		
		254883
1	Cable, battery, red	X-545-55
1	Cable, battery, black	X-545-82
1	Bracket, hold-down	238725
1	Boot	238915
1	Rack, battery	254850
2	Bolt, angle	255512
1	Decal, warning "explosion"	273780
Rack and Cable, Battery		
		254884
1	Cable, battery, red	X-545-81
1	Cable, battery, black	X-545-82
1	Bracket, hold-down	238725
1	Boot	238915
1	Rack, battery	254850
2	Bolt, angle	255512
1	Decal, warning "explosion"	273780
Relay, Common Failure		
		225196
1	Installation Instructions	TT-841
1	Circuit Board Assembly, diode	A-256884
1	Circuit Board Assembly, 1 relay dry	C-294301
7	Spacer	X-712-9
1	Bracket, mounting	225195
1	Harness, wiring	256883
Relay, Run		
		273743
1	Installation Instructions	TT-700
1	Relay Assembly	273705

Kit Parts List

Qty.	Description	Part No.
Remote Annunciator, 16-Light (Flush or Surface Mount)		PA-293991
1	Installation Instructions	TT-1023
1	Panel, front annunciator	293992
2	Bracket, mounting	293993
1	Annunciator Panel Assembly (includes *	A-258782
1	Board, circuit*	A-292885
1	Grommet, 1 3/8*	X-284-3
6	Screw, drill*	X-794-2
1	Bracket, wall mounting*	253346
1	Panel, front*	253350
1	Decal, marker*	258832
1	Nameplate*	258834
1	Harness, wiring*	258890
1	Block, terminal*	258891
2	Panel, side*	287798
1	Contact Assembly, includes **	A-292983
1	Board, circuit**	A-320639
6	Spacer**	X-712-9
1	Fuse, 10 amp**	223316
1	Bracket, fuse holder**	226675
1	Box, dry contact**	226676
1	Grommet**	243488
1	Fuse Block**	256493
1	Marker, strip**	256494
1	Harness, annunciator**	256495
1	Cover**	256880
1	Harness, wiring**	293982
Sender, Prealarm		256988
1	Bushing, reducer 3/8	X-202-23
1	Switch, high temperature	255242
1	Switch, low water temperature	255264
1	Switch, oil pressure	271425
Silencer, Critical, Engine Mounted		254964
1	Installation Instructions	TT-1148
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	X-216-30
1	U-Bolt	X-397-3
1	Silencer	150213
1	Bracket, silencer, lower	254962
1	Bracket, silencer, upper	254963
Tail Pipe and Rain Cap		256851
1	Cap, vertical exhaust	276126

Appendix A Abbreviations

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

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

kg	kilogram	MW	megawatt	rms	root mean square
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'unites</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, pounds	ns	nanosecond	sq. cm	square centimeter
lbm/ft ³	pounds mass per cubic feet	OC	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	OF	overfrequency	stl.	steel
LED	light emitting diode	opt.	option, optional	tach.	tachometer
Lph	liters per hour	OS	oversize, overspeed	TD	time delay
Lpm	liters per minute	OSHA	Occupational Safety and Health Administration	TDC	top dead center
LOP	low oil pressure	OV	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	PC	personal computer	TDNE	time delay normal to emergency
L _{wa}	sound power level, A weighted	PCB	printed circuit board	TDOE	time delay off to emergency
LWL	low water level	pF	picofarad	TDON	time delay off to normal
LWT	low water temperature	PF	power factor	temp.	temperature
m	meter, milli (1/1000)	ph., ∅	phase	term.	terminal
M	mega (10 ⁶ when used with SI units), male	PHC	Phillips head crimptite (screw)	TIF	telephone influence factor
m ³	cubic meter	PHH	Phillips hex head (screw)	TIR	total indicator reading
m ³ /min.	cubic meters per minute	PHM	pan head machine (screw)	tol.	tolerance
mA	milliampere	PLC	programmable logic control	turbo.	turbocharger
man.	manual	PMG	permanent-magnet generator	typ.	typical (same in multiple locations)
max.	maximum	pot	potentiometer, potential	UF	underfrequency
MB	megabyte (2 ²⁰ bytes)	ppm	parts per million	UHF	ultrahigh frequency
MCM	one thousand circular mils	PROM	programmable read-only memory	UL	Underwriter's Laboratories, Inc.
MCCB	molded-case circuit breaker	psi	pounds per square inch	UNC	unified coarse thread (was NC)
meggar	megohmmeter	pt.	pint	UNF	unified fine thread (was NF)
MHz	megahertz	PTC	positive temperature coefficient	univ.	universal
mi.	mile	PTO	power takeoff	US	undersize, underspeed
mil	one one-thousandth of an inch	PVC	polyvinyl chloride	UV	ultraviolet, undervoltage
min.	minimum, minute	qt.	quart	V	volt
misc.	miscellaneous	qty.	quantity	VAC	volts alternating current
MJ	megajoule	R	replacement (emergency) power source	VAR	voltampere reactive
mJ	millijoule	rad.	radiator, radius	VDC	volts direct current
mm	millimeter	RAM	random access memory	VFD	vacuum fluorescent display
mOhm, mΩ	milliohm	RDO	relay driver output	VGA	video graphics adapter
MOhm, MΩ	megohm	ref.	reference	VHF	very high frequency
MOV	metal oxide varistor	rem.	remote	W	watt
MPa	megapascal	RFI	radio frequency interference	WCR	withstand and closing rating
mpg	miles per gallon	RH	round head	w/	with
mph	miles per hour	RHM	round head machine (screw)	w/o	without
MS	military standard	rly.	relay	wt.	weight
m/sec.	meters per second			xfrm	transformer
MTBF	mean time between failure				
MTBO	mean time between overhauls				
mtg.	mounting				

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 Appendix C, General Torque Specifications, and other torque specifications in the service literature.

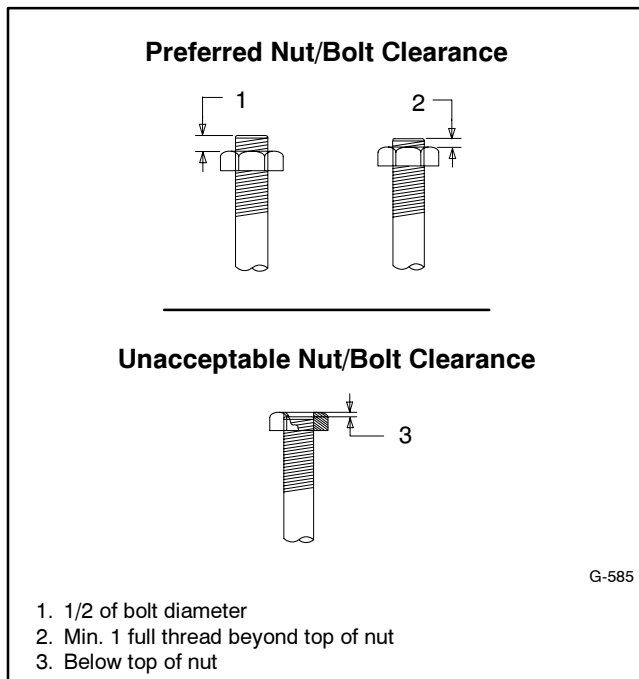


Figure 1 Acceptable Bolt Lengths

1. 1/2 of bolt diameter
2. Min. 1 full thread beyond top of nut
3. Below top of nut

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 Figure 2.

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 Figure 2, which depicts the preceding hardware configuration possibilities.

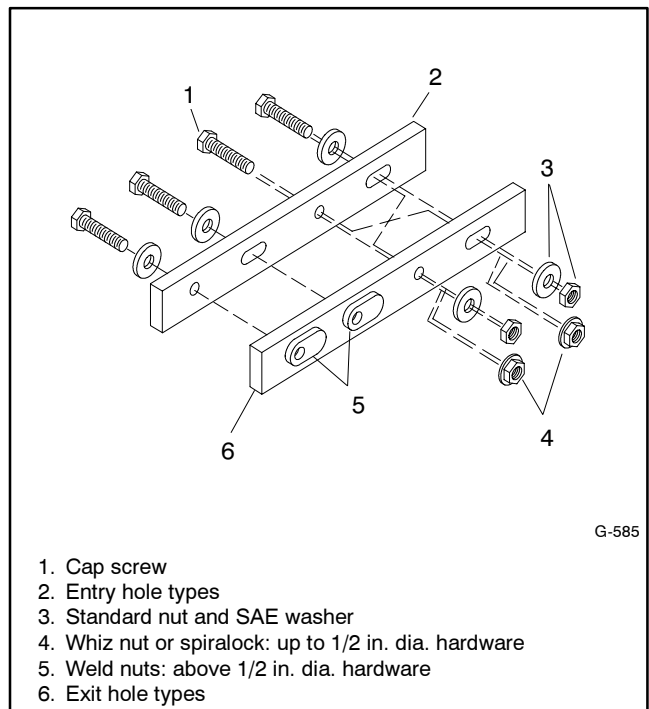


Figure 2 Acceptable Hardware Combinations

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

Appendix C General Torque Specifications















Use the following torque specifications when service literature instructions give no specific torque values. The charts list values for new plated, zinc phosphate, or












oiled threads. Increase values by 15% for nonplated threads. All torque values are +0%/-10%.






American Standard Fasteners Torque Specifications					
Size	Torque Measurement	Assembled into Cast Iron or Steel			Assembled into Aluminum Grade 2 or 5
		Grade 2	Grade 5	Grade 8	
8-32	Nm (in. lb.)	1.8 (16)	2.3 (20)	—	1.8 (16)
10-24	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	2.9 (26)
10-32	Nm (in. lb.)	2.9 (26)	3.6 (32)	—	2.9 (26)
1/4-20	Nm (in. lb.)	6.8 (60)	10.8 (96)	14.9 (132)	6.8 (60)
1/4-28	Nm (in. lb.)	8.1 (72)	12.2 (108)	16.3 (144)	8.1 (72)
5/16-18	Nm (in. lb.)	13.6 (120)	21.7 (192)	29.8 (264)	13.6 (120)
5/16-24	Nm (in. lb.)	14.9 (132)	23.1 (204)	32.5 (288)	14.9 (132)
3/8-16	Nm (ft. lb.)	24.0 (18)	38.0 (28)	53.0 (39)	24.0 (18)
3/8-24	Nm (ft. lb.)	27.0 (20)	42.0 (31)	60.0 (44)	27.0 (20)
7/16-14	Nm (ft. lb.)	39.0 (29)	60.0 (44)	85.0 (63)	—
7/16-20	Nm (ft. lb.)	43.0 (32)	68.0 (50)	95.0 (70)	—
1/2-13	Nm (ft. lb.)	60.0 (44)	92.0 (68)	130.0 (96)	—
1/2-20	Nm (ft. lb.)	66.0 (49)	103.0 (76)	146.0 (108)	—
9/16-12	Nm (ft. lb.)	81.0 (60)	133.0 (98)	187.0 (138)	—
9/16-18	Nm (ft. lb.)	91.0 (67)	148.0 (109)	209.0 (154)	—
5/8-11	Nm (ft. lb.)	113.0 (83)	183.0 (135)	259.0 (191)	—
5/8-18	Nm (ft. lb.)	128.0 (94)	208.0 (153)	293.0 (216)	—
3/4-10	Nm (ft. lb.)	199.0 (147)	325.0 (240)	458.0 (338)	—
3/4-16	Nm (ft. lb.)	222.0 (164)	363.0 (268)	513.0 (378)	—
1-8	Nm (ft. lb.)	259.0 (191)	721.0 (532)	1109.0 (818)	—
1-12	Nm (ft. lb.)	283.0 (209)	789.0 (582)	1214.0 (895)	—

Metric Fasteners Torque Specifications, Measured in Nm (ft. lb.)					
Size (mm)	Assembled into Cast Iron or Steel			Assembled into Aluminum Grade 5.8 or 8.8	
	Grade 5.8	Grade 8.8	Grade 10.9		
M6 x 1.00	5.6 (4)	9.9 (7)	14.0 (10)	5.6 (4)	
M8 x 1.25	13.6 (10)	25.0 (18)	35.0 (26)	13.6 (10)	
M8 x 1.00	21.0 (16)	25.0 (18)	35.0 (26)	21.0 (16)	
M10 x 1.50	27.0 (20)	49.0 (35)	68.0 (50)	27.0 (20)	
M10 x 1.25	39.0 (29)	49.0 (35)	68.0 (50)	39.0 (29)	
M12 x 1.75	47.0 (35)	83.0 (61)	117.0 (86)	—	
M12 x 1.50	65.0 (48)	88.0 (65)	125.0 (92)	—	
M14 x 2.00	74.0 (55)	132.0 (97)	185.0 (136)	—	
M14 x 1.50	100.0 (74)	140.0 (103)	192.0 (142)	—	
M16 x 2.00	115.0 (85)	200.0 (148)	285.0 (210)	—	
M16 x 1.50	141.0 (104)	210.0 (155)	295.0 (218)	—	
M18 x 2.50	155.0 (114)	275.0 (203)	390.0 (288)	—	
M18 x 1.50	196.0 (145)	305.0 (225)	425.0 (315)	—	

Appendix D Common Hardware Identification

Screw/Bolts/Studs	
Head Styles	
Hex Head or Machine Head	
Hex Head or Machine Head with Washer	
Flat Head (FHM)	
Round Head (RHM)	
Pan Head	
Hex Socket Head Cap or Allen™ Head Cap	
Hex Socket Head or Allen™ Head Shoulder Bolt	
Sheet Metal Screw	
Stud	
Drive Styles	
Hex	
Hex and Slotted	
Phillips®	
Slotted	
Hex Socket	

Nuts	
Nut Styles	
Hex Head	
Lock or Elastic	
Square	
Cap or Acorn	
Wing	
Washers	
Washer Styles	
Plain	
Split Lock or Spring	
Spring or Wave	
External Tooth Lock	
Internal Tooth Lock	
Internal-External Tooth Lock	

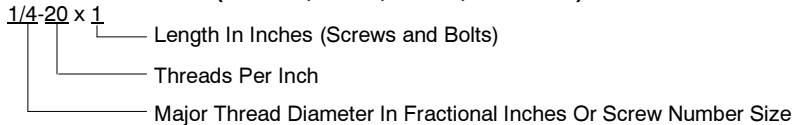
Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Grade 8	
Grade 8/9 (Hex Socket Head)	
Metric	
Number stamped on hardware; 5.8 shown	

Allen™ head screw is a trademark of Holo-Krome Co.

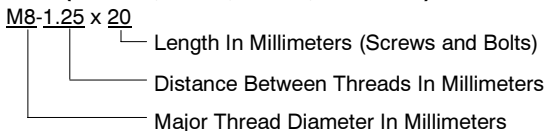
Phillips® screw is a registered trademark of Phillips Screw Company.

Sample Dimensions

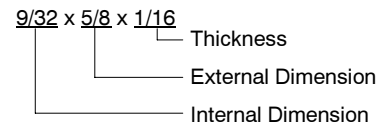
American Standard (Screws, Bolts, Studs, and Nuts)



Metric (Screws, Bolts, Studs, and Nuts)



Plain Washers



Lock Washers



Appendix E Common Hardware List

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

American Standard

Part No.	Dimensions	Part No.	Dimensions	Part No.	Dimensions	Type		
Hex Head Bolts (Grade 5)			Hex Head Bolts, cont.			Hex Nuts		
X-465-17	1/4-20 x .38	X-6024-5	7/16-14 x .75	X-6009-1	1-8	Standard		
X-465-6	1/4-20 x .50	X-6024-2	7/16-14 x 1.00	X-6210-3	6-32	Whiz		
X-465-2	1/4-20 x .62	X-6024-8	7/16-14 x 1.25	X-6210-4	8-32	Whiz		
X-465-16	1/4-20 x .75	X-6024-3	7/16-14 x 1.50	X-6210-5	10-24	Whiz		
X-465-18	1/4-20 x .88	X-6024-4	7/16-14 x 2.00	X-6210-1	10-32	Whiz		
X-465-7	1/4-20 x 1.00	X-6024-11	7/16-14 x 2.75					
X-465-8	1/4-20 x 1.25	X-6024-12	7/16-14 x 6.50	X-6210-2	1/4-20	Spiralock		
X-465-9	1/4-20 x 1.50	X-129-15	1/2-13 x .75	X-6210-6	1/4-28	Spiralock		
X-465-10	1/4-20 x 1.75	X-129-17	1/2-13 x 1.00	X-6210-7	5/16-18	Spiralock		
X-465-11	1/4-20 x 2.00	X-129-18	1/2-13 x 1.25	X-6210-8	5/16-24	Spiralock		
X-465-12	1/4-20 x 2.25	X-129-19	1/2-13 x 1.50	X-6210-9	3/8-16	Spiralock		
X-465-14	1/4-20 x 2.75	X-129-20	1/2-13 x 1.75	X-6210-10	3/8-24	Spiralock		
X-465-21	1/4-20 x 5.00	X-129-21	1/2-13 x 2.00	X-6210-11	7/16-14	Spiralock		
X-465-25	1/4-28 x .38	X-129-22	1/2-13 x 2.25	X-6210-12	1/2-13	Spiralock		
X-465-20	1/4-28 x 1.00	X-129-23	1/2-13 x 2.50	X-6210-15	7/16-20	Spiralock		
X-125-33	5/16-18 x .50	X-129-24	1/2-13 x 2.75	X-6210-14	1/2-20	Spiralock		
X-125-23	5/16-18 x .62	X-129-25	1/2-13 x 3.00					
X-125-3	5/16-18 x .75	X-129-27	1/2-13 x 3.50	X-85-3	5/8-11	Standard		
X-125-31	5/16-18 x .88	X-129-29	1/2-13 x 4.00	X-88-12	3/4-10	Standard		
X-125-5	5/16-18 x 1.00	X-129-30	1/2-13 x 4.50	X-89-2	1/2-20	Standard		
X-125-24	5/16-18 x 1.25	X-463-9	1/2-13 x 5.50					
X-125-34	5/16-18 x 1.50	X-129-44	1/2-13 x 6.00					
X-125-25	5/16-18 x 1.75							
X-125-26	5/16-18 x 2.00	X-129-51	1/2-20 x .75	Washers				
230578	5/16-18 x 2.25	X-129-45	1/2-20 x 1.25	Part No.	ID	OD	Thick.	Bolt/ Screw
X-125-29	5/16-18 x 2.50	X-129-52	1/2-20 x 1.50	X-25-46	.125	.250	.022	#4
X-125-27	5/16-18 x 2.75	X-6021-3	5/8-11 x 1.00	X-25-9	.156	.375	.049	#6
X-125-28	5/16-18 x 3.00	X-6021-4	5/8-11 x 1.25	X-25-48	.188	.438	.049	#8
X-125-22	5/16-18 x 4.50	X-6021-2	5/8-11 x 1.50	X-25-36	.219	.500	.049	#10
X-125-32	5/16-18 x 5.00	X-6021-1	5/8-11 x 1.75	X-25-40	.281	.625	.065	1/4
X-125-35	5/16-18 x 5.50	273049	5/8-11 x 2.00	X-25-85	.344	.687	.065	5/16
X-125-36	5/16-18 x 6.00	X-6021-5	5/8-11 x 2.25	X-25-37	.406	.812	.065	3/8
X-125-40	5/16-18 x 6.50	X-6021-6	5/8-11 x 2.50	X-25-34	.469	.922	.065	7/16
X-125-43	5/16-24 x 1.75	X-6021-7	5/8-11 x 2.75	X-25-26	.531	1.062	.095	1/2
X-125-44	5/16-24 x 2.50	X-6021-12	5/8-11 x 3.75	X-25-15	.656	1.312	.095	5/8
X-125-30	5/16-24 x .75	X-6021-11	5/8-11 x 4.50	X-25-29	.812	1.469	.134	3/4
X-125-39	5/16-24 x 2.00	X-6021-10	5/8-11 x 6.00	X-25-127	1.062	2.000	.134	1
X-125-38	5/16-24 x 2.75	X-6021-9	5/8-18 x 2.50					
X-6238-2	3/8-16 x .62	X-6239-1	3/4-10 x 1.00					
X-6238-10	3/8-16 x .75	X-6239-8	3/4-10 x 1.25					
X-6238-3	3/8-16 x .88	X-6239-2	3/4-10 x 1.50					
X-6238-11	3/8-16 x 1.00	X-6239-3	3/4-10 x 2.00					
X-6238-4	3/8-16 x 1.25	X-6239-4	3/4-10 x 2.50					
X-6238-5	3/8-16 x 1.50	X-6239-5	3/4-10 x 3.00					
X-6238-1	3/8-16 x 1.75	X-6239-6	3/4-10 x 3.50					
X-6238-6	3/8-16 x 2.00	X-792-1	1-8 x 2.25					
X-6238-17	3/8-16 x 2.25	X-792-5	1-8 x 3.00					
X-6238-7	3/8-16 x 2.50	X-792-8	1-8 x 5.00					
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							

Metric

Hex head bolts are hardness grade 8.8 unless noted.

Part No.	Dimensions	Part No.	Dimensions	Part No.	Dimensions	Type		
Hex Head Bolts (partial thread)								
M931-05055-60	M5-0.80 x 55	Hex Head Bolts (full thread)						
M931-06040-60	M6-1.00 x 40	M933-04006-60	M4-0.70 x 6	M934-03-50	M3-0.50	Standard		
M931-06055-60	M6-1.00 x 55	M933-05035-60	M5-0.80 x 35	M934-035-50	M3.5-0.50	Standard		
M931-06060-60	M6-1.00 x 60	M933-05050-60	M5-0.80 x 50	M934-04-50	M4-0.70	Standard		
M931-06070-60	M6-1.00 x 70	M933-06010-60	M6-1.00 x 10	M934-05-50	M5-0.80	Standard		
M931-06070-SS	M6-1.00 x 70	M933-06014-60	M6-1.00 x 14	M982-05-80	M5-0.80	Elastic Stop		
M931-06075-60	M6-1.00 x 75	M933-06016-60	M6-1.00 x 16	M934-06-60	M6-1.00	Standard		
M931-06090-60	M6-1.00 x 90	M933-06020-60	M6-1.00 x 20	M934-06-64	M6-1.00	Std. (green)		
M931-06150-60	M6-1.00 x 150	M933-06025-60	M6-1.00 x 25	M6923-06-80	M6-1.00	Spirallock		
M931-08035-60	M8-1.25 x 35	M933-06040-60	M6-1.00 x 40	M982-06-80	M6-1.00	Elastic Stop		
M931-08040-60	M8-1.25 x 40	M933-06050-60	M6-1.00 x 50	M934-08-60	M8-1.25	Standard		
M931-08040-82	M8-1.25 x 40*	M933-08012-60	M8-1.25 x 12	M6923-08-80	M8-1.25	Spirallock		
M931-08045-60	M8-1.25 x 45	M933-08016-60	M8-1.25 x 16	M982-08-80	M8-1.25	Elastic Stop		
M931-08050-60	M8-1.25 x 50	M933-08020-60	M8-1.25 x 20	M934-10-60	M10-1.50	Standard		
M931-08055-60	M8-1.25 x 55	M933-08025-60	M8-1.25 x 25	M934-10-60F	M10-1.25	Standard		
M931-08055-82	M8-1.25 x 55*	M933-08030-60	M8-1.25 x 30	M6923-10-80	M10-1.50	Spirallock		
M931-08060-60	M8-1.25 x 60	M933-08030-82	M8-1.25 x 30*	M6923-10-62	M10-1.50	Spirallock†		
M931-08070-60	M8-1.25 x 70	M933-10012-60	M10-1.50 x 12	M982-10-80	M10-1.50	Elastic Stop		
M931-08070-82	M8-1.25 x 70*	M961-10020-60	M10-1.25 x 20	M934-12-60	M12-1.75	Standard		
M931-08075-60	M8-1.25 x 75	M933-10020-60	M10-1.50 x 20	M934-12-60F	M12-1.25	Standard		
M931-08080-60	M8-1.25 x 80	M933-10025-60	M10-1.50 x 25	M6923-12-80	M12-1.75	Spirallock		
M931-08090-60	M8-1.25 x 90	M961-10030-60	M10-1.25 x 30	M982-12-80	M12-1.75	Elastic Stop		
M931-08095-60	M8-1.25 x 95	M933-10030-82	M10-1.50 x 30*	M982-14-80	M14-2.00	Elastic Stop		
M931-08100-60	M8-1.25 x 100	M961-10035-60	M10-1.25 x 35	M6923-16-80	M16-2.00	Spirallock		
M931-08120-60	M8-1.25 x 120	M933-10035-60	M10-1.50 x 35	M982-16-80	M16-2.00	Elastic Stop		
M931-08130-60	M8-1.25 x 130	M933-12016-60	M12-1.75 x 16	M934-18-80	M18-2.5	Standard		
M931-08140-60	M8-1.25 x 140	M933-12020-60	M12-1.75 x 20	M982-18-80	M18-2.50	Elastic Stop		
M931-10040-82	M10-1.25 x 40*	M933-12025-60	M12-1.75 x 25	M934-20-80	M20-2.50	Standard		
M931-10040-60	M10-1.50 x 40	M933-12025-82	M12-1.75 x 25*	M982-20-80	M20-2.50	Elastic Stop		
M931-10045-60	M10-1.50 x 45	M961-12030-60	M12-1.25 x 30	M934-22-60	M22-2.50	Standard		
M931-10050-60	M10-1.50 x 50	M933-12030-60	M12-1.75 x 30	M934-24-80	M24-3.00	Standard		
M931-10055-60	M10-1.50 x 55	M933-12035-60	M12-1.75 x 35	M982-24-80	M24-3.00	Elastic Stop		
M931-10060-60	M10-1.50 x 60	M961-12040-82	M12-1.25 x 40*	M934-30-80	M30-3.50	Standard		
M931-10065-60	M10-1.50 x 65	M933-12040-60	M12-1.75 x 40	Washers				
M931-10070-60	M10-1.50 x 70	M933-12040-82	M12-1.75 x 40*	Part No.	ID	OD	Bolt/ Thick. Screw	
M931-10080-60	M10-1.50 x 80	M961-14025-60	M14-1.50 x 25	M125A-03-80	3.2	7.0	0.5 M3	
M931-10090-60	M10-1.50 x 90	M933-14025-60	M14-2.00 x 25	M125A-04-80	4.3	9.0	0.8 M4	
M931-10090-82	M10-1.50 x 90*	M961-16025-60	M16-1.50 x 25	M125A-05-80	5.3	10.0	1.0 M5	
M931-10100-60	M10-1.50 x 100	M933-16025-60	M16-2.00 x 25	M125A-06-80	6.4	12.0	1.6 M6	
M931-10110-60	M10-1.50 x 110	M961-16030-82	M16-1.50 x 30*	M125A-08-80	8.4	16.0	1.6 M8	
M931-10120-60	M10-1.50 x 120	M933-16030-82	M16-2.00 x 30*	M125A-10-80	10.5	20.0	2.0 M10	
M931-10130-60	M10-1.50 x 130	M933-16035-60	M16-2.00 x 35	M125A-12-80	13.0	24.0	2.5 M12	
M931-10140-60	M10-1.50 x 140	M961-16040-60	M16-1.50 x 40	M125A-14-80	15.0	28.0	2.5 M14	
M931-10180-60	M10-1.50 x 180	M933-16040-60	M16-2.00 x 40	M125A-16-80	17.0	30.0	3.0 M16	
M931-12045-60	M12-1.75 x 45	M933-16050-60	M16-2.00 x 50	M125A-18-80	19.0	34.0	3.0 M18	
M960-12050-60	M12-1.25 x 50	M933-16050-82	M16-2.00 x 50*	M125A-20-80	21.0	37.0	3.0 M20	
M960-12050-82	M12-1.25 x 50*	M933-16060-60	M16-2.00 x 60	M125A-24-80	25.0	44.0	4.0 M24	
M931-12050-60	M12-1.75 x 50	M933-18035-60	M18-2.50 x 35					
M931-12055-60	M12-1.75 x 55	M933-18050-60	M18-2.50 x 50					
M931-12060-60	M12-1.75 x 60	M933-18060-60	M18-2.50 x 60					
M931-12065-60	M12-1.75 x 65	M933-20050-60	M20-2.50 x 50					
M931-12075-60	M12-1.75 x 75	M933-20055-60	M20-2.50 x 55					
M931-12080-60	M12-1.75 x 80	Pan Head Machine Screws						
M931-12090-60	M12-1.75 x 90	M7985A-03010-20	M3-0.50 x 10	* This metric hex bolt's hardness is grade 10.9.				
M931-12100-60	M12-1.75 x 100	M7985A-03012-20	M3-0.50 x 12	† This metric hex nut's hardness is grade 8.				
M931-12110-60	M12-1.75 x 110	M7985A-04010-20	M4-0.70 x 10					
M960-16090-60	M16-1.50 x 90	M7985A-04020-20	M4-0.70 x 20					
M931-16090-60	M16-2.00 x 90	M7985A-04100-20	M4-0.70 x 100					
M931-16100-60	M16-2.00 x 100	M7985A-05010-20	M5-0.80 x 10					
M931-20065-60	M20-2.50 x 65	M7985A-05012-20	M5-0.80 x 12					
M931-20120-60	M20-2.50 x 120	M7985A-05016-20	M5-0.80 x 16					
M931-20160-60	M20-2.50 x 160	M7985A-05100-20	M5-0.80 x 100					
M931-22090-60	M22-2.50 x 90	M7985A-06100-20	M6-1.00 x 100					
M931-22120-60	M22-2.50 x 120	Flat Head Machine Screws						
M931-22160-60	M22-2.50 x 160	M965A-04012-SS	M4-0.70 x 12					
M931-24090-60	M24-3.00 x 90	M965A-05012-SS	M5-0.80 x 12					
M931-24120-60	M24-3.00 x 120	M965A-05016-20	M5-0.80 x 16					
M931-24160-60	M24-3.00 x 160							

Notes

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