

# Parts Catalog

## RV/Mobile Generator Sets



**Models:**  
7CCKM-RV  
7CCKMR

**KOHLER**<sup>®</sup>  
POWER SYSTEMS

**ISO 9001**  
**KOHLER**  
GENERATORS  
INTERNATIONALLY REGISTERED

Specification Series 1402

TP-5577 5/95b

# Table of Contents

<b>SUBJECT</b>	<b>PAGE</b>	<b>SUBJECT</b>	<b>PAGE</b>
Introduction .....	2	Group 42: Short Block .....	19
Number Significance .....	2	Group 101: Air Intake .....	20
Exploded View Drawings .....	2	Group 103: Fuel System .....	22
How to Find Part Numbers .....	3	Group 104: Cooling System .....	30
Hardware Grades .....	3	Group 105: Engine and Engine Gasket Sets .....	32
Hardware References .....	3	Group 107: Nameplate & Decals .....	34
SPECIFICATION NUMBER INDEX .....	4	Group 109: Skid & Plant Mounting .....	36
Group 2: Baffles & Shroud .....	8	Group 112: Starter .....	38
Group 3: Breather and Vent .....	9	Group 116: Exhaust System .....	38
Group 4: Camshaft and Valves .....	9	Group 201: Generator & Mounting .....	40
Group 7: Crankcase .....	10	Group 301: Controller & Mounting .....	42
Group 8: Crankshaft .....	11	Group 701: Literature .....	47
Group 9: Cylinder Head .....	11	Generator Paint .....	47
Group 10: Dipstick .....	11	Accessories .....	48
Group 11: Starter .....	12	Appendix A. ....	A-1
Group 12: Exhaust .....	13	Glossary of Abbreviations .....	A-1
Group 13: Flywheel .....	13	Appendix B. ....	B-1
Group 14: Fuel Pump .....	14	Common Hardware Application Guidelines .....	B-1
Group 18: Ignition .....	14	Appendix C. ....	C-1
Group 21: Oil Pan .....	15	Common Hardware Identification .....	C-1
Group 22: Piston and Rod .....	16	Appendix D. ....	D-1
Group 25: Oil Pump .....	16	General Torque Specifications .....	D-1
Group 26: Gear cover .....	17	Appendix E. ....	E-1
Group 29: Oil Filter .....	18	Common Hardware List .....	E-1
Group 32: Low Oil Pressure Switch .....	19		

# Introduction

This manual contains a complete listing of engine and generator service replacement parts for Kohler 7CCKM-RV and 7CCKMR generator sets. The manual includes the following main sections:

- *Table of Contents*: Lists the sections of this catalog.
- *Index*: Indexes specifications and their groups.
- *Introduction (and other information sections)*: Contains introductory material, followed by sections on specification numbers, part numbers and hardware.

- *Group Parts Lists*: Lists specific parts for the groups. Illustrations are given for most parts.

- *Appendices*: Includes Glossary of Abbreviations, Common Hardware Application Guidelines, Common Hardware Identification, General Torque Specifications, and Common Hardware List.

## Number Significance

This catalog uses a variety of numbering systems. A description of these follows:

- *Specification Number*: The generator specification number (spec number) is six digits with a PA-, PB- or PE- prefix (Specification Number Index does not use prefixes). The first three digits designate generator size and engine model (specification series). The remaining digits are in sequence and identify a particular spec in a series. Spec numbers break down into groups.
- *Group Number*: A group consists of related parts needed to provide one or more related functions. For example, the 103 group is the generator Fuel System group.

- *Variation Number*: A group might have several variations. The variations provide the same function, with minor differences. For example, dry air cleaner or oil bath air cleaner both perform the same function. However, they use different parts. Each of these differences necessitates the assignment of a group variation number.

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

## Exploded View Drawings

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

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

# How to Find Part Numbers

**FOLLOW THESE STEPS** to identify a part:

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

variation numbers for the groups (identified by column headings).

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

## Hardware Grades

**When replacing hardware do not substitute with inferior grade hardware.** All hex. head screws are hardness grade 5, except where noted. Socket head screws are similar to grade 8. All replacement hardware should be at least equal to original

manufacturer quality. Refer to Common Hardware Application Guidelines and Common Hardware Identification in the back of the manual.

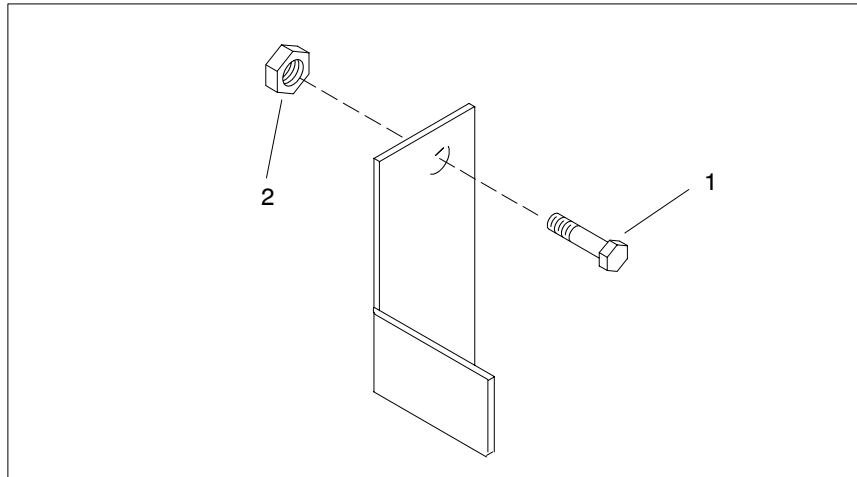
## Hardware References

Many common hardware items will appear in parts catalogs as **common hardware entries** or **hardware references**. A *common hardware entry* refers to the size of common hardware to apply in accordance with hardware guidelines. For example, item 2 (nut) in Figure 1 below would appear as "3/8-16 hardware" in the text. It indicates that the nut is 3/8-16 size. See Common Hardware Application Guidelines.

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

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

X-6021-1



**Figure 1. Hardware References**

# SPECIFICATION NUMBER INDEX

<b>GROUP TITLE &amp; NUMBER</b>	<i>Baffles and Shroud</i>	<i>Vent and Valve Cover</i>	<i>Camshaft and Valves</i>	<i>Crankcase</i>	<i>Crankshaft</i>	<i>Cylinder Head</i>	<i>Dipstick</i>	<i>Electric Start</i>	<i>Intake and Exhaust</i>	<i>Flywheel</i>	<i>Fuel Pump</i>	<i>Ignition</i>	<i>Oil Pan</i>	<i>Piston and Rod</i>	<i>Oil Pump</i>	<i>Gear Cover</i>	<i>Oil Filter</i>	<i>Oil Pressure Cutout</i>	<i>Short Block</i>
---	---------------------------	-----------------------------	----------------------------	------------------	-------------------	----------------------	-----------------	-----------------------	---------------------------	-----------------	------------------	-----------------	----------------	-----------------------	-----------------	-------------------	-------------------	----------------------------	--------------------

GROUP NO.	2	3	4	7	8	9	10	11	12	13	14	18	21	22	25	26	29	32	42
SPEC NO.	VARIATION NUMBER																		
140249	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140250	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140251	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140252	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140253	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140254	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140255	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140256	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140257	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140258	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140259	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140260	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140261	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140262	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140263	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140264	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140265	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140266	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140267	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140268	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140269	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140270	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140271	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140272	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140273	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140274	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140275	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140276	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140277	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140278	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140279	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140280	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22

# SPECIFICATION NUMBER INDEX

<b>GROUP TITLE &amp; NUMBER</b>												
	<i>Air Intake</i>	<i>Fuel System</i>	<i>Cooling System</i>	<i>Engine and Engine Gasket Set</i>	<i>Nameplates and Decals</i>	<i>Skid and Plant Mounting</i>	<i>Starter</i>	<i>Exhaust</i>	<i>Generator and Mounting</i>	<i>Control and Mounting</i>	<i>Literature</i>	

GROUP NO.	101	103	104	105	107	109	112	116	201	301	701
SPEC NO.	VARIATION NUMBER										
140249	10	18	3	10	41	47	11	18	86	45	6
140250	10	18	3	10	41	47	11	18	86	46	6
140251	10	18	3	10	41	47	11	18	85	72	6
140252	10	18	3	10	42	47	11	18	86	72	6
140253	9	19	1	12	46	47	11	19	90	73	6
140254	9	19	1	12	46	47	11	19	86	49	6
140255	10	18	1	10	40	47	11	18	85	47	6
140256	10	21	3	10	42	47	11	18	89	75	6
140257	10	21	3	10	44	47	11	18	88	76	6
140258	10	18	3	10	44	47	11	18	88	77	6
140259	10	18	3	10	41	47	11	18	90	78	6
140260	10	18	3	10	41	47	11	18	91	79	6
140261	9	19	1	12	45	47	11	19	88	80	6
140262	9	19	1	12	43	47	11	19	86	56	6
140263	9	20	1	12	55	47	11	18	86	56	6
140264	9	20	1	12	48	47	11	18	90	73	6
140265	9	20	1	12	45	47	11	18	88	80	6
140266	13	23	5	14	49	47	11	18	94	59	6
140267	13	23	5	14	49	47	11	18	94	60	6
140268	13	23	5	14	54	47	11	18	95	94	6
140269	14	24	5	14	51	47	11	19	94	63	6
140270	14	24	5	14	52	47	11	19	94	70	6
140271	14	20	5	14	48	47	11	18	94	70	6
140272	13	23	5	14	42	47	11	18	94	62	6
140273	14	24	5	14	51	47	11	19	99	67	6
140274	13	23	5	14	50	47	11	18	95	61	6
140275	13	23	5	14	42	47	11	18	98	66	6
140276	13	25	5	14	44	47	11	18	97	65	6
140277	13	25	5	14	42	47	11	18	96	64	6
140278	13	23	5	14	56	47	11	18	99	68	6
140279	13	23	5	14	56	47	11	18	100	69	6
140280	14	24	5	14	45	47	11	19	97	71	6

# SPECIFICATION NUMBER INDEX

<b>GROUP TITLE &amp; NUMBER</b>	<i>Baffles and Shroud</i>	<i>Vent and Valve Cover</i>	<i>Camshaft and Valves</i>	<i>Crankcase</i>	<i>Crankshaft</i>	<i>Cylinder Head</i>	<i>Dipstick</i>	<i>Electric Start</i>	<i>Intake and Exhaust</i>	<i>Flywheel</i>	<i>Fuel Pump</i>	<i>Ignition</i>	<i>Oil Pan</i>	<i>Piston and Rod</i>	<i>Oil Pump</i>	<i>Gear Cover</i>	<i>Oil Filter</i>	<i>Oil Pressure Cutout</i>	<i>Short Block</i>
---	---------------------------	-----------------------------	----------------------------	------------------	-------------------	----------------------	-----------------	-----------------------	---------------------------	-----------------	------------------	-----------------	----------------	-----------------------	-----------------	-------------------	-------------------	----------------------------	--------------------

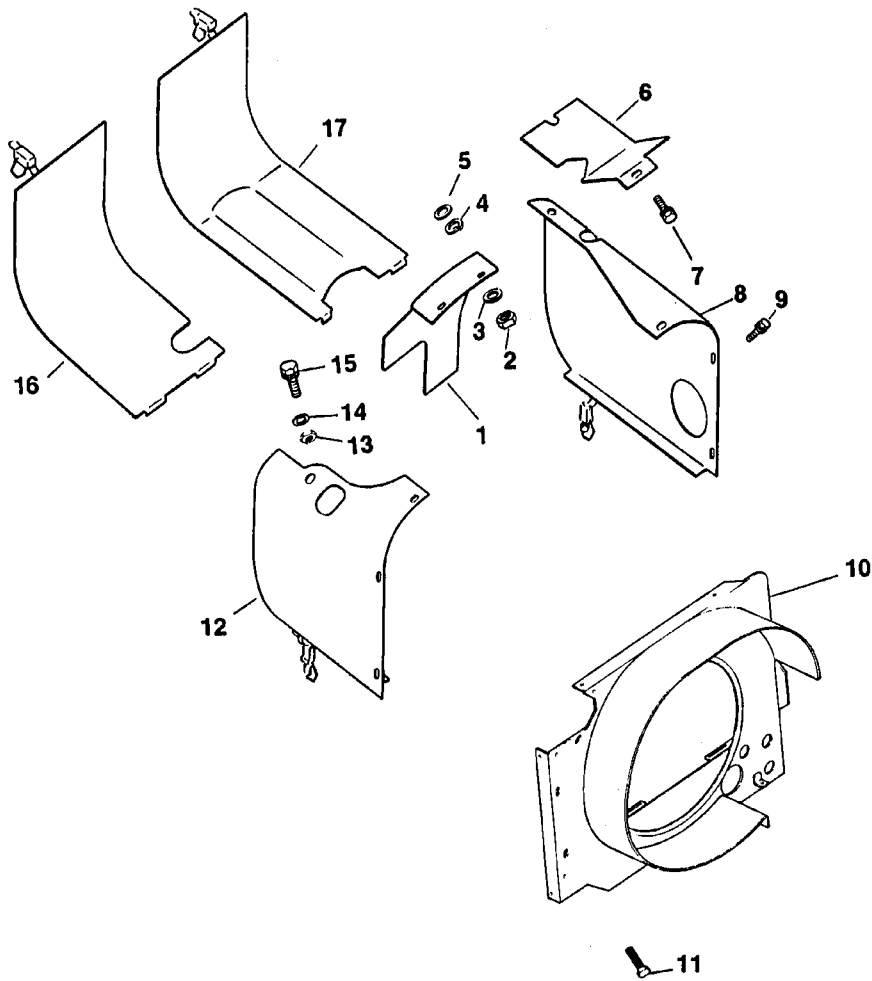
GROUP NO.	2	3	4	7	8	9	10	11	12	13	14	18	21	22	25	26	29	32	42
SPEC NO.	VARIATION NUMBER																		
140281	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	21
140282	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	21
140283	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140284	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140285	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140286	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140287	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140288	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140289	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140290	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140291	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140292	63	12	10	84	54	12	16	69	83	85	53	70	34	10	6	13	13	11	21
140293	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140294	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22
140295	63	13	10	87	54	12	16	69	83	85	53	70	34	10	6	14	13	11	22

# SPECIFICATION NUMBER INDEX

<b>GROUP TITLE &amp; NUMBER</b>	<i>Air Intake</i>	<i>Fuel System</i>	<i>Cooling System</i>	<i>Engine and Engine Gasket Set</i>	<i>Nameplates and Decals</i>	<i>Skid and Plant Mounting</i>	<i>Starter</i>	<i>Exhaust</i>	<i>Generator and Mounting</i>	<i>Control and Mounting</i>	<i>Literature</i>
---	-------------------	--------------------	-----------------------	-------------------------------------	------------------------------	--------------------------------	----------------	----------------	-------------------------------	-----------------------------	-------------------

GROUP NO.	101	103	104	105	107	109	112	116	201	301	701
SPEC NO.	VARIATION NUMBER										
140281	14	20	5	14	48	47	11	18	99	67	6
140282	14	20	5	14	45	47	11	18	97	71	6
140283	10	18	3	17	41	47	11	18	94	82	6
140284	10	18	3	17	41	47	11	18	94	83	6
140285	10	18	3	17	49	47	11	18	95	85	6
140286	10	18	3	17	42	47	11	18	94	85	6
140287	10	18	3	17	50	47	11	18	95	84	6
140288	10	21	3	17	42	47	11	18	98	88	6
140289	10	21	3	17	44	47	11	18	97	87	6
140290	10	18	3	17	44	47	11	18	96	86	6
140291	10	18	3	17	53	47	11	18	99	89	6
140292	10	18	3	17	49	47	11	18	100	90	6
140293	14	20	5	14	50	47	11	18	100	91	6
140294	14	24	5	14	50	47	11	19	100	91	6
140295	13	25	5	14	44	47	11	18	102	93	6

## Group 2: Baffles & Shroud

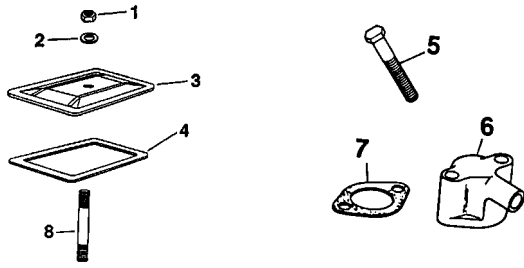


55772

Item	Qty.	Description Variation	Part No.
1	1	Baffle, top cyl. barrel #1 63	48 063 27
2	1	Nut, hex 1/4-20 63	X-81-1
3	1	Washer, plain 1/4 63	X-25-53
4	1	Washer, lock 1/4 63	X-20-1
5	1	Washer, plain 1/4 63	X-25-73
6	1	Baffle, top cyl. barrel #2 63	48 063 29
7	1	Screw, hex. wash. hd. 1/4-20 x 7/16 63	X-67-83
8	1	Baffle, #2 cylinder head 63	48 063 28
9	3	Screw, hex. wash. hd. 1/4-20 x 7/16 63	X-67-83

Item	Qty.	Description Variation	Part No.
10	1	Scroll assembly 63	48 539 04
11	2	Screw, sems 1/4-20 x 7/16 63	X-176-1
12	1	Baffle, #1 cylinder head 63	48 063 26
13	1	Nut, hex 3/8-16 63	X-83-6
14	1	Washer, plain 63	48 468 03
15	3	Screw, hex. wash. hd. 1/4-20 x 7/16 63	X-67-83
16	1	Baffle, #1 barrel 63	277048
17	1	Baffle, #2 barrel 63	48 063 24
18	1	Plug, grommet (not shown) 63	48 139 02

## Group 3: Breather and Vent

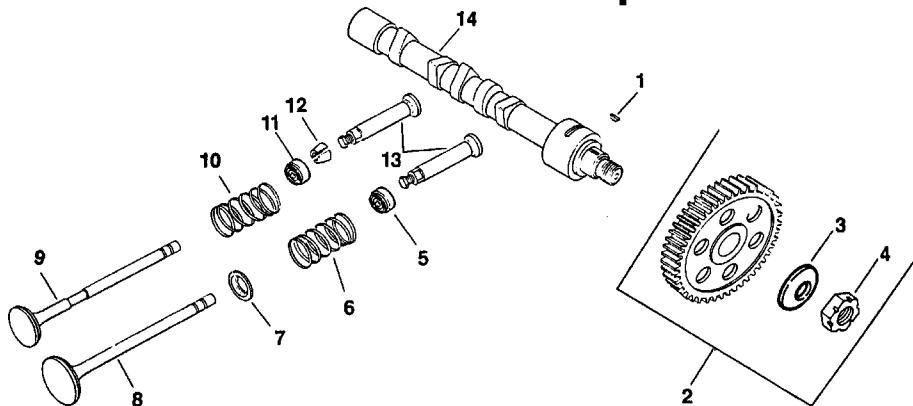


55773

Item	Qty.	Description Variation	Part No.
1	2	Nut, hex 1/4-20 12,13	X-81-1
2	4	Washer, plain 1/4 13	X-25-12
3	2	Cover, valve 12	270036
	1	Cover, valve 13	270036
	1	Cover, valve 13	48 096 14
	2	Cover, valve 12	48 096 14
4	2	Gasket, valve cover 12, 13	270034

Item	Qty.	Description Variation	Part No.
5	1	Screw, H.C. 1/4-20 x 2 3/4 12	48 086 17
	2	Screw, H.C. 1/4-20 x 1 13	X-465-3
6	1	Breather 12, 13	A-277905
7	1	Gasket, breather 12, 13	277073
8	2	Stud, valve cover 12, 13	220368
	1	Stud, valve cover 13	220368
9	1	Filter, breather 13	231419

## Group 4: Camshaft and Valves

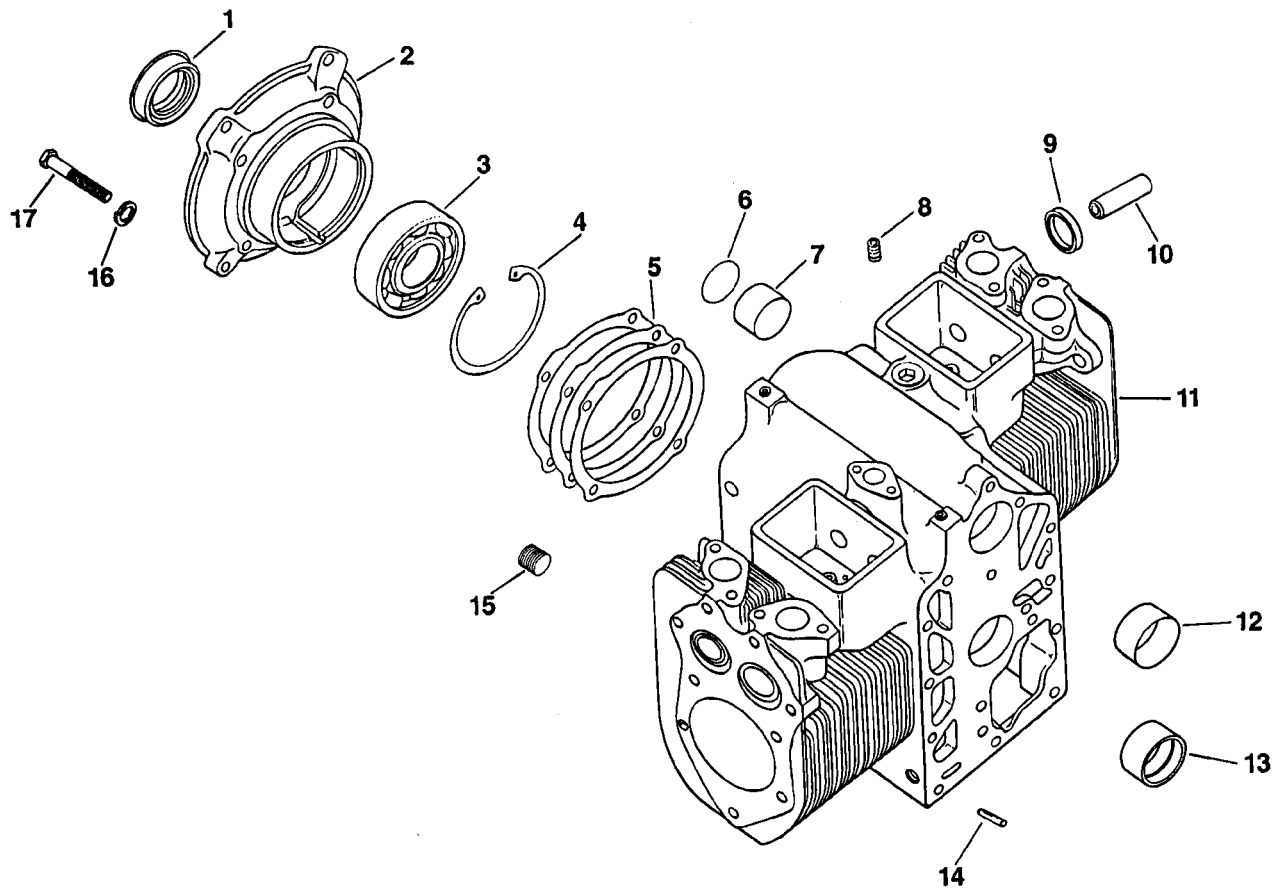


55774

Item	Qty.	Description Variation	Part No.
1	1	Key, woodruff 10	X-43-1
2	1	Kit, camshaft gear (includes 3-4) 10	48 755 34
3	1	Washer 10	48 468 04
4	1	Nut 10	48 100 04
5	2	Rotator, intake valve 10	52 413 01
6	2	Spring, intake valve 10	235168
7	4	Retainer, valve spring 10	235011

Item	Qty.	Description Variation	Part No.
8	2	Valve, intake 10	235582
9	2	Valve, exhaust 10	237672
10	2	Spring, exhaust valve 10	235168
11	4	Rotator, exhaust valve 10	52 413 01
12	4	Kit, retainer 10	41 755 10
13	4	Tappet, valve 10	D-277031
14	1	Camshaft 10	48 012 01

# Group 7: Crankcase

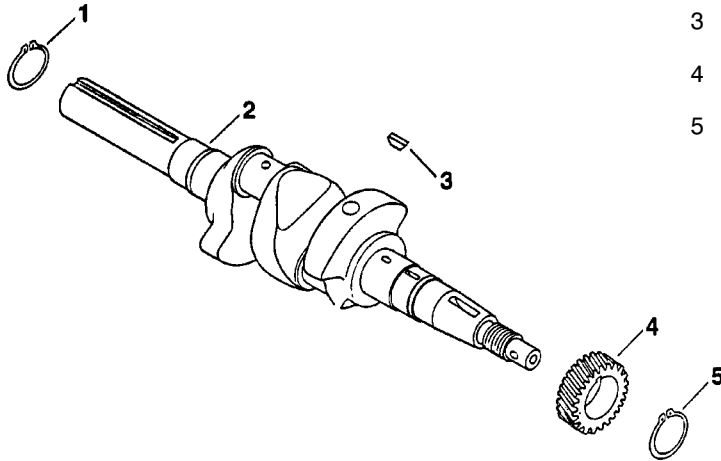


55777

Item	Qty.	Description Variation	Part No.
1	1	Seal, rear oil 84, 87	277065
2	1	Plate, rear closure 84, 87	48 009 01
3	1	Bearing, ball 84, 87	277062
4	1	Ring, retaining 84, 87	X-269-31
5	1	Gasket, closure plate 84, 87	277087
	1	Gasket, closure plate .005 84, 87	277103
	1	Gasket, closure plate .010 84, 87	277115
6	1	Plug, welch 1 1/2 84, 87	160037
7	1	Bushing 84, 87	277039
8	4	Plug, hex ctsk. 1/8 NPT 84, 87	X-75-23
9	2	Insert, intake valve 84, 87	230265

Item	Qty.	Description Variation	Part No.
10	4	Guide, valve 84, 87	235007-S
11	1	Crankcase assembly 84	48 005 06
		Crankcase assembly 87	48 005 07
12	1	Bushing 84, 87	48 158 03
13	1	Bearing, main (Std.) 84, 87	48 030 06
	1	Bearing, main (.010) 84, 87	48 030 07
	1	Bearing, main (.020) 84, 87	48 030 08
14	2	Pin, drive 3/16 x 5/8 84, 87	X-599-2
15	2	Plug, pipe 84, 87	47 139 01
16	4	Washer, lock 3/8 84, 87	X-22-1
17	4	Screw, H.C. 3/8-16 x 1 1/4 84, 87	270956

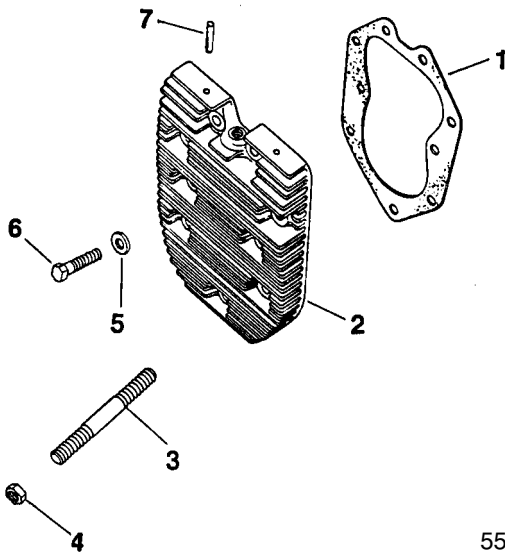
## Group 8: Crankshaft



Item	Qty.	Description Variation	Part No.
1	1	Ring retaining 1 5/8 I.D. 54	X-269-30
2	1	Crankshaft 54	48 014 14
3	1	Key, woodruff 54	X-42-15
4	1	Gear, crankshaft 54	48 043 15
5	1	Ring, retaining 1 7/16 I.D. 54	X-269-32

55778

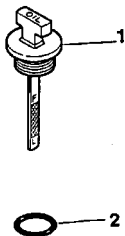
## Group 9: Cylinder Head



Item	Qty.	Description Variation	Part No.
1	2	Gasket, cylinder head 12	48 041 13
2	1	Head, cylinder #1 12	48 015 03
	1	Head, cylinder 12	48 015 04
3	1	Stud 12	48 072 05
4	1	Nut, hex 3/8 -16 12	X-83-2
5	18	Washer, plain 3/8 12	270889
6	17	Screw, H.C. 3/8-16 x 1 1/2 12	270158
7	2	Pin, roll 3/16 x 1 1/8 12	48 133 03

55779

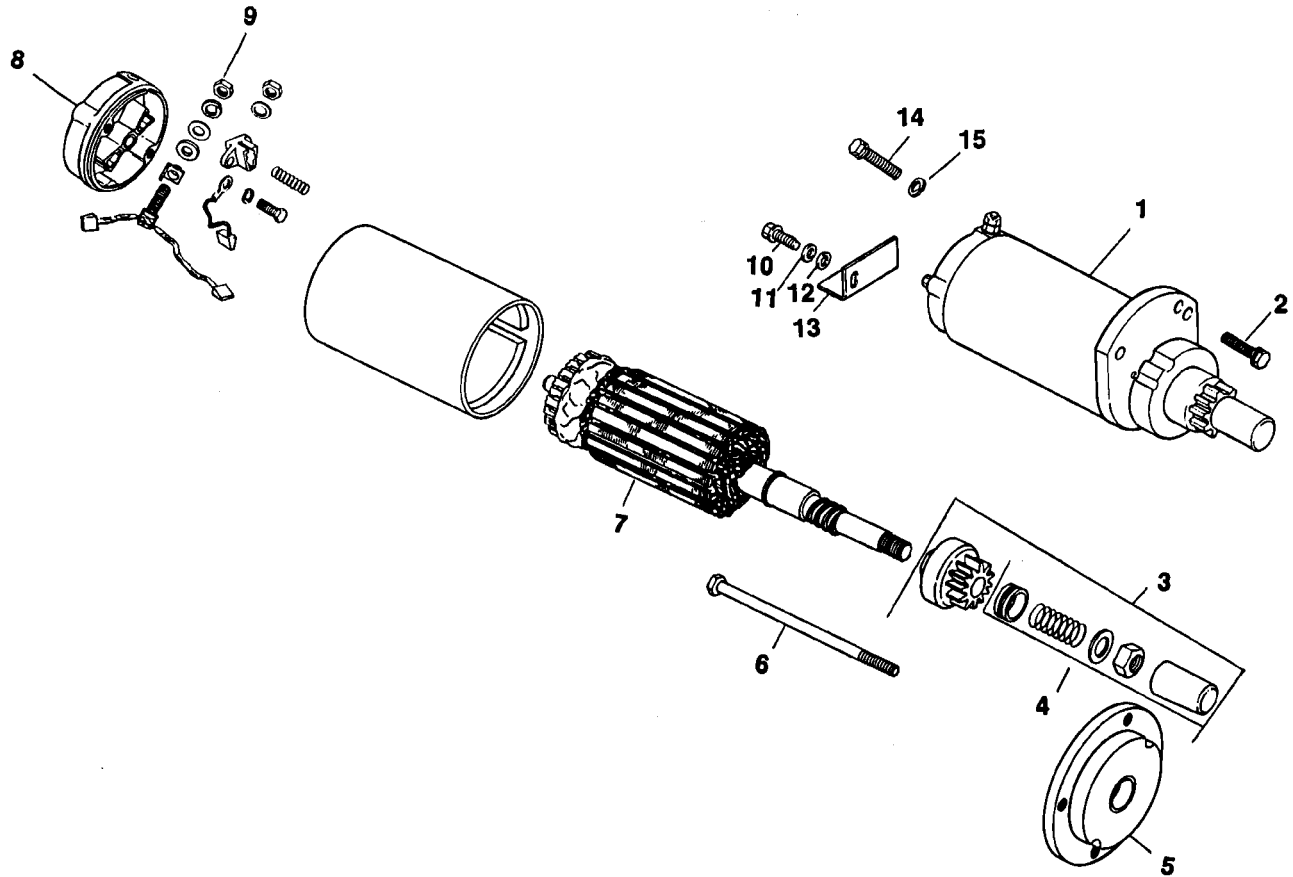
## Group 10: Dipstick



Item	Qty.	Description Variation	Part No.
1	1	Dipstick 16	48 038 02
2	1	O-ring 16	48 153 03

557710

# Group 11: Starter

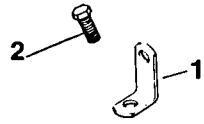


557711

Item	Qty.	Description Variation	Part No.
1	1	Starter assembly (includes items 3-9) 69	48 098 01
2	2	Screw, H.C. 5/16-18 x 1 69	X-154-2
3	1	Kit, drive (includes item 4) 69	48 755 02
4	1	Kit, drive parts 69	48 755 13
5	1	Cap, drive end 69	48 227 02
6	2	Bolt, thru 69	48 211 01
7	1	Armature 69	277605
8	1	Cap, commutator end (includes item 9) 69	48 227 04

Item	Qty.	Description Variation	Part No.
9	1	Kit, brush 69	52 755 15
10	1	Screw, H.C. 5/16-18 x 3/4 69	X-6-11
11	1	Washer, lock 5/16 69	X-21-1
12	1	Washer, plain 3/4 69	X-25-20
13	1	Bracket, starter 69	48 161 04
14	1	Screw, hex. wash. hd. 1/4-20 x 3/4 69	X-67-62
15	2	Washer, plain 3/8 69	X-25-41
16		Lubricant, starter (not shown) 69	52 357 01

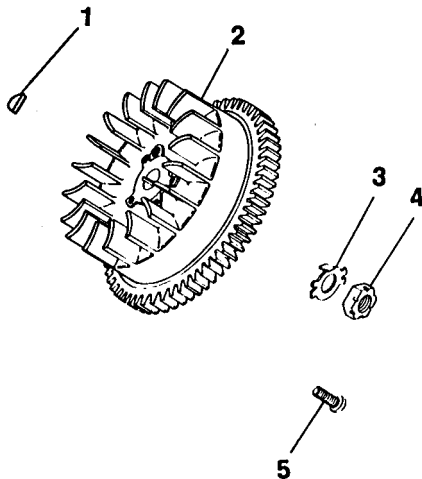
## Group 12: Exhaust



557712

Item	Qty.	Description		Part No.
		Variation		
1	2	Strap, lifting	83	52 445 02
2	2	Screw, H.C. 5/16-18 x 5/8	83	X-6-12

## Group 13: Flywheel

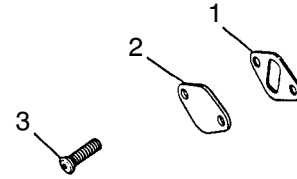


557713

Item	Qty.	Description		Part No.
		Variation		
1	1	Key, woodruff 1/4 x 1	85	X-45-3
2	1	Flywheel	85	48 025 29
3	1	Nut, lock	85	277595
4	1	Nut, hex. 1-14	85	X-80-1
5	1	Screw, trigger	85	48 086 16

## Group 14: Fuel Pump

Item	Qty.	Description Variation	Part No.
1	1	Gasket, pump 53	25 041 05
2	1	Cover, pump pad 53	240282
3	2	Screw, H.C. 1/4-20 x 5/8 53	47 086 08

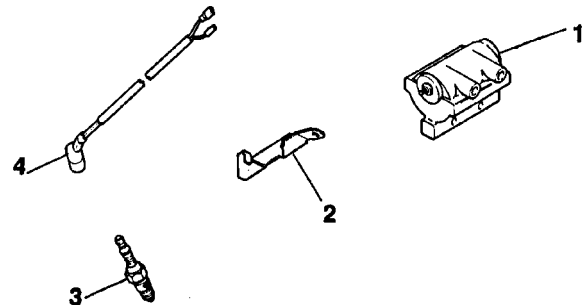


557714

See Group 103 for carburetor and related parts.

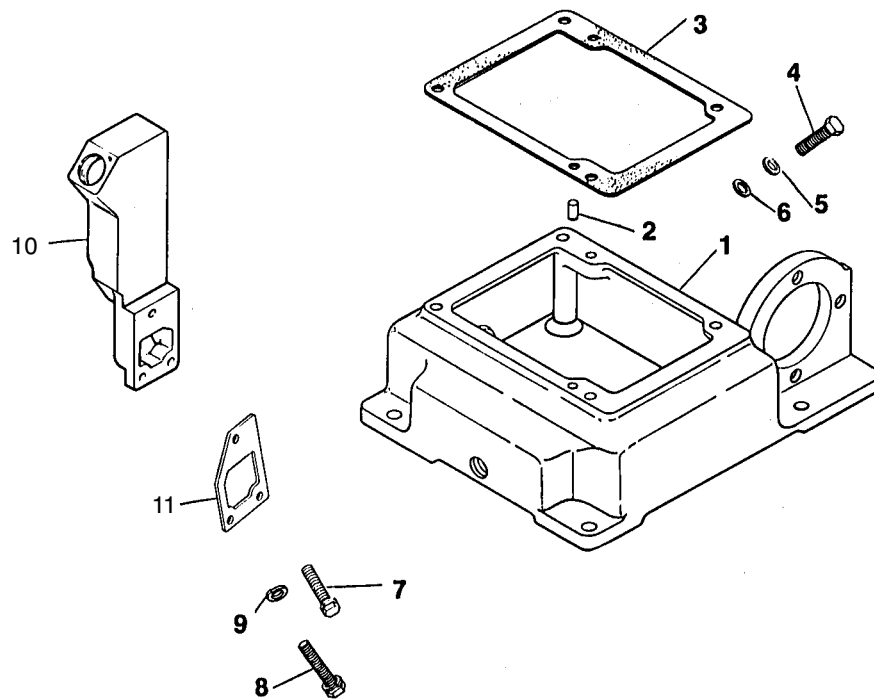
## Group 18: Ignition

Item	Qty.	Description Variation	Part No.
1	1	Coil, ignition 10	277375
1	1	Bracket, trigger 10	48 126 19
3	1	Spark Plug 10	235041-S
4	1	Coil, trigger (ignition pickup) 10	48 519 05



557718

# Group 21: Oil Pan



557721

Item	Qty.	Description Variation	Part No.
------	------	--------------------------	----------

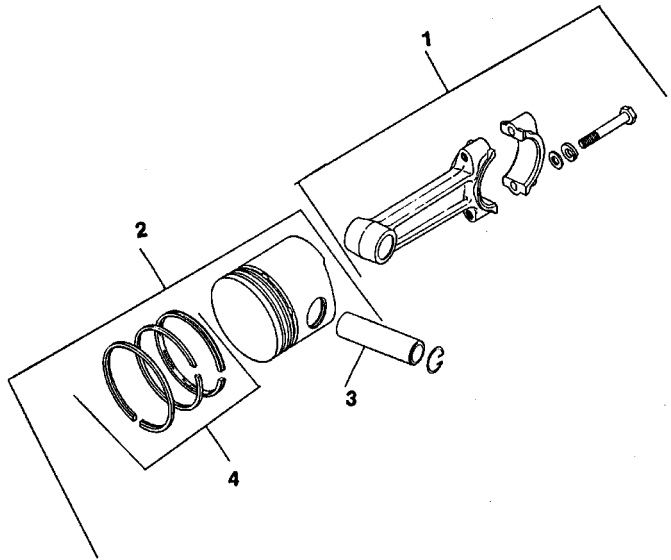
1	1	Oil pan 34	48 199 35
2	2	Shaft, governor 34	230125-S
3	1	Gasket, oil pan 34	277014
4	4	Screw, H.C. 3/8-16 x 2 7/8 34	X-159-5
5	3	Washer, 3/8 34	270889
6	1	Washer 34	47 468 07

Item	Qty.	Description Variation	Part No.
------	------	--------------------------	----------

7	2	Screw, H.C. sems 5/16-18 x 1-3/4 34	X-154-3
8	1	Screw, H.C. 34	X-6-22
9	1	Washer, lock 5/16 34	X-21-1
10	1	Adapter, oil fill 34	48 029 11
11	1	Gasket, oil fill adapter 34	48 041 09

## Group 22: Piston and Rod

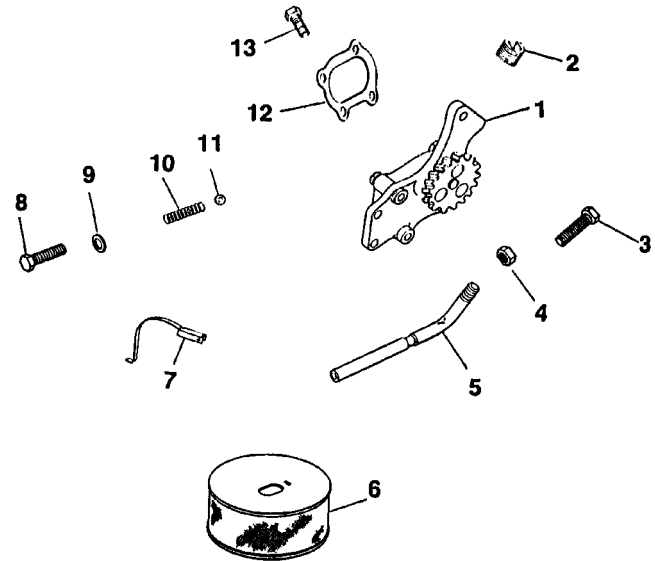
Item	Qty.	Description Variation	Part No.
1	2	Connecting Rod (Std.) 10	48 067 16
	2	Connecting Rod (.010) 10	48 067 17
2	2	Piston w/ Ring Set (Std.) 10	47 874 21
	2	Piston w/ Ring Set (.003)	47 874 21
	2	Piston w/ Ring Set (.010)	47 874 23
	2	Piston w/ Ring Set (.020)	47 874 24
	2	Piston w/ Ring Set (.030)	47 874 25
3	4	Retainer, piston pin 10	47 018 01
4	2	Ring Set (Std. & .003) 10	47 108 05
	2	Ring Set (.010)	47 108 06
	2	Ring Set (.020)	47 108 07
	2	Ring Set (.030)	47 108 08



557722

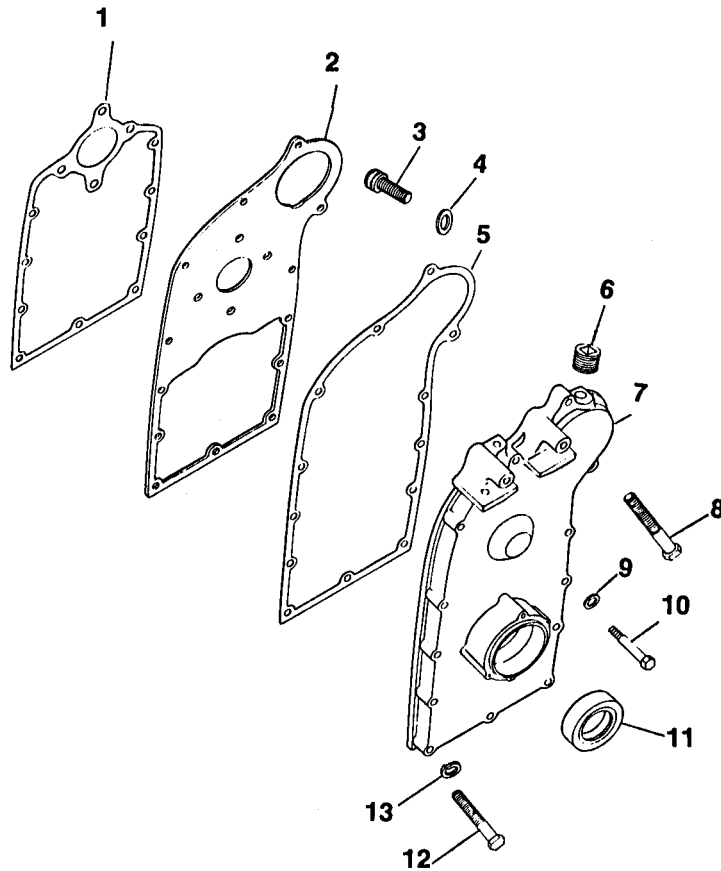
## Group 25: Oil Pump

Item	Qty.	Description Variation	Part No.
1	1	Pump, oil 6	48 393 23
2	1	Plug, hex ctsk. 1/8 6	X-75-23
3	1	Screw, H.C. 5/16-18 x 3/4 6	X-154-5
4	1	Palnut, 1/8-27 6	X-629-1
5	1	Tub, oil inlet 6	48 123 03
6	1	Strainer, oil 6	277202
7	1	Clip, oil tube 6	270085
8	1	Screw, H.C. 5/16-18 x 1 6	X-154-2
9	1	Washer, plain 7/16 6	X-25-94
10	1	Spring, relief valve 6	48 089 03
11	1	Ball, steel 6	X-212-3
12	1	Gasket, oil pump 6	48 055 02
13	3	Screw, H.C. 1/4-20 x 1 6	X-132-4



557725

## Group 26: Gear cover

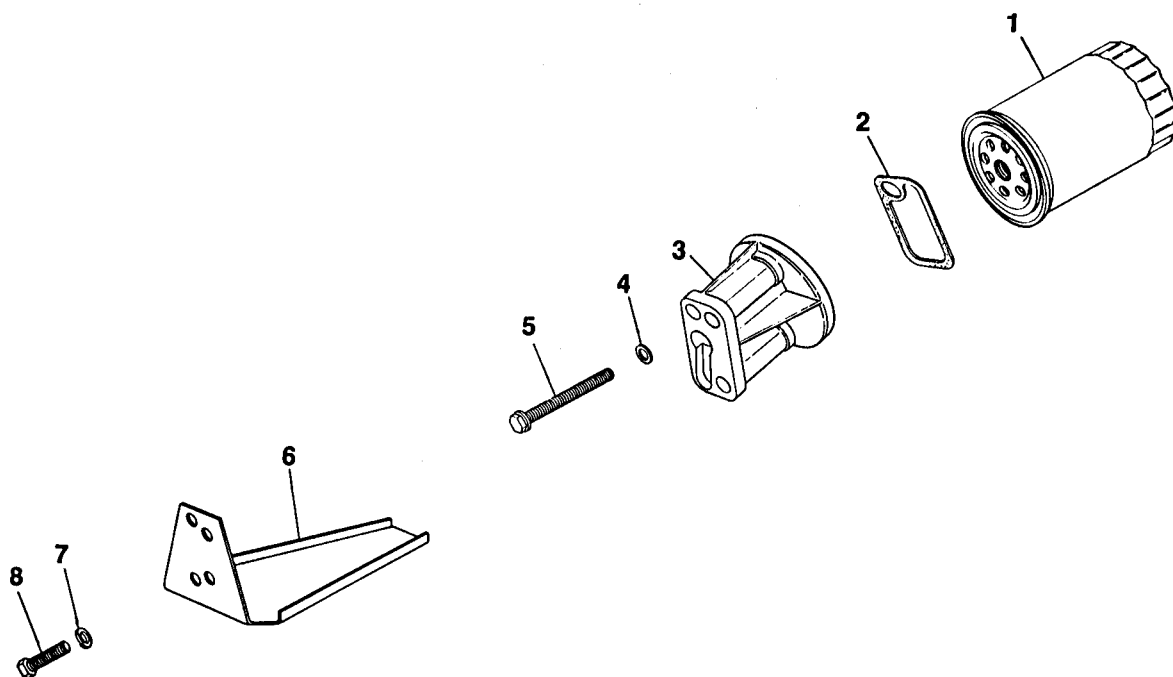


557726

Item	Qty.	Description Variation	Part No.
1	1	Gasket, gear cover plate 13, 14	227022
2	1	Plate, gear cover 13	48 146 09
	1	Plate, gear cover 14	48 146 10
3	1	Screw, hex. socket head 5/16-18 x 3/4 13, 14	X-55-6
4	1	Washer, plain 3/4 13, 14	X-25-20
5	1	Gasket, gear cover 13, 14	277020
6	1	Plug, hex ctsk. 1/4 NPT 13, 14	X-75-38

Item	Qty.	Description Variation	Part No.
7	1	Cover, gear 13, 14	48 096 13
8	6	Screw, H.C. 5/16-18 x 3/4 13, 14	X-6-11
9	2	Washer, plain 5/16 13, 14	X-25-5
10	2	Screw, H.C. 5/16-18 x 1 3/4 13, 14	277086
11	1	Seal, front oil 13, 14	52 032 08
12	7	Screw, H.C. 5/16-18 x 1 3/4 13, 14	X-6-22
13	14	Washer, lock 5/16 13, 14	X-21-1

# Group 29: Oil Filter



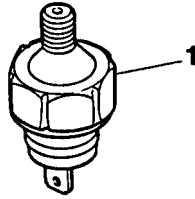
557729

Item	Qty.	Description Variation	Part No.
1	1	Filter, oil 13	277233
2	2	Gasket, oil filter 13	48 041 03
3	1	Adapter, oil filter 13	48 041 03
4	2	Washer, plain 13	X-25-44

Item	Qty.	Description Variation	Part No.
5	2	Screw, socket head 13	X-55-9
6	1	Trough 13	48 459 01
7	1	Washer, lock #10 13	X-22-9
8	1	Screw, hex. wash. hd 10-24 x 3/8 13	X-67-97

## Group 32: Low Oil Pressure Switch

Item	Qty.	Description Variation	Part No.
1	1	Oil Pressure Switch 11	48 099 07



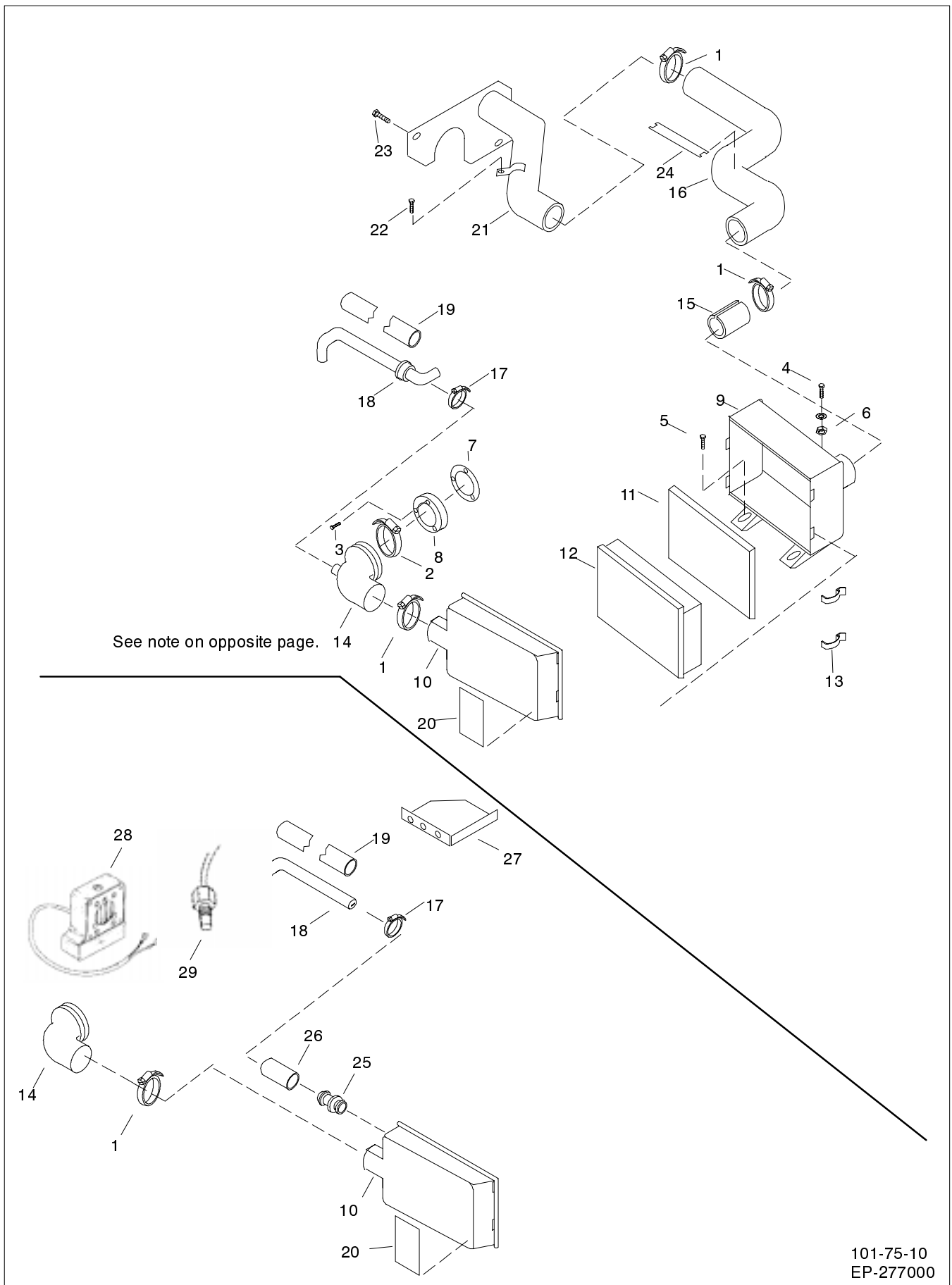
557732

## Group 42: Short Block

Item	Qty.	Description Variation	Part No.
1	1	Short Block 21	48 522 44
	1	Short Block 22	48 522 45

NOTE: Parts not illustrated

# Group 101: Air Intake



101-75-10  
EP-277000

# Group 101: Air Intake

Item	Qty.	Description Variation	Part No.
1	1	Clamp, hose 9,10, 14	X-426-19
2	1	Clamp, hose 9,10, 13, 14	X-426-20
3	3	Screw, r.h.m. 8-32 10	X-51-9
4	1	Screw, hex flange 9,10, 13, 14	X-6217-4
	1	1/4 washer (not shown) 9,10, 13, 14	
5	2	Screw, self tapping 9, 10, 13, 14	X-67-115
	2	1/4 washer (not shown) 9, 10, 13, 14	
6	1	Nut, well 9,10, 13, 14	277418
7	1	Gasket 10	278583
8	1	Adapter, carburetor 10	278608
	1	Sleeve, carburetor 9	278954
9	1	Base, air cleaner 9, 13, 14	278855
	1	Base, air cleaner 10	227543
	1	Damper, air cleaner (not shown) 10	227544
	1	Washer, curved spring (not shown) 10	278447
	1	Nut, elastic stop 8-32 (not shown) 10	X-101-11
10	1	Cover, plastic 9,10, 14	227463
	1	Cover, plastic 13	278856
11	1	Filter, precleaner 9,10, 13, 14	278857
12	1	Element, filter 9,10, 13, 14	278858
13	4	Clip, air cleaner 9,10, 13, 14	278862

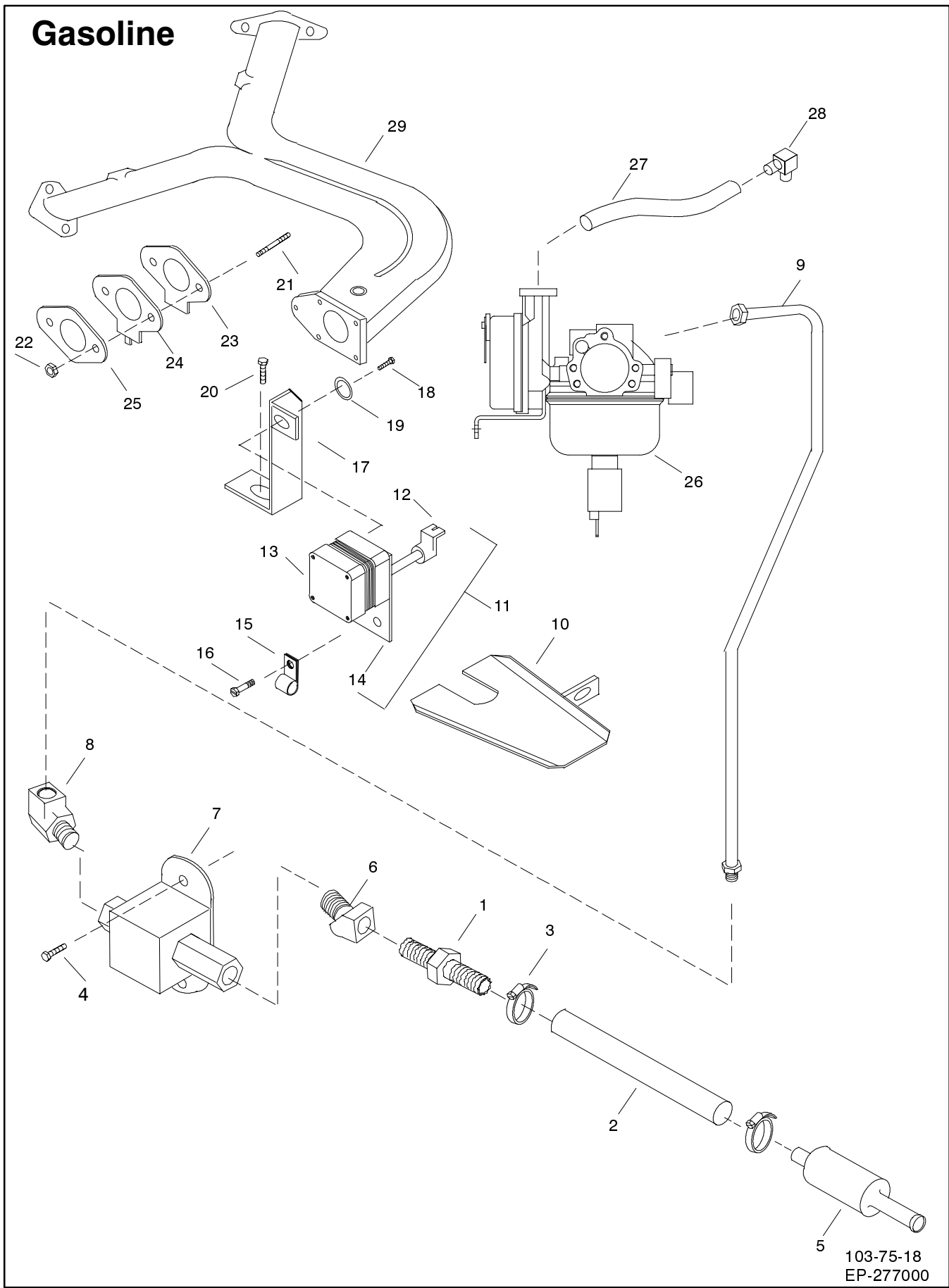
Item	Qty.	Description Variation	Part No.
14	1	Hose, air intake 9,10, 14 (variations 9 &10, see note below)	227828
	1	Hose, air intake 13	227654
15	1	Adapter, hose 10	227545
16	1	Duct, Carb. preheater 10	227549
17	1	Clamp, hose 9, 10, 14	X-426-10
18	1	Line, breather (see note below) 9, 10	227827
	1	Line, breather 13	227861
	1	Line, breather 14	227864
19	1	Insulation, sleeve 9, 10	227578
	1	Insulation, sleeve 13, 14	227547
20	1	Decal 10	227546
21	1	Tube, air intake 10	227553
22	1	Screw, self tapping 10	X-67-115
23	2	Screw, Phillips head 10	X-6216-1
24	1	Plate, hold down 10	227582
25	1	Adapter, hose 9, 10, 14	278805
26	1	Hose 9, 10, 14	X-422-28
27	1	Shield, heat 10	227756
28	1	Heater, air heater (high-limit thermostat) 13	227660
29	1	Thermostat, low-limit (mounted in manifold) 13	227680

**NOTE:** If intake hose has a hole for breather line connection, replace hose and breather line with breather line kit 227835. Kit includes items 10, 14, 18, 19, 26, 27, and new breather assembly.

Anti-icing kit 227836 is available to improve cold weather starting.

# Group 103: Fuel System

## Gasoline



103-75-18  
EP-277000

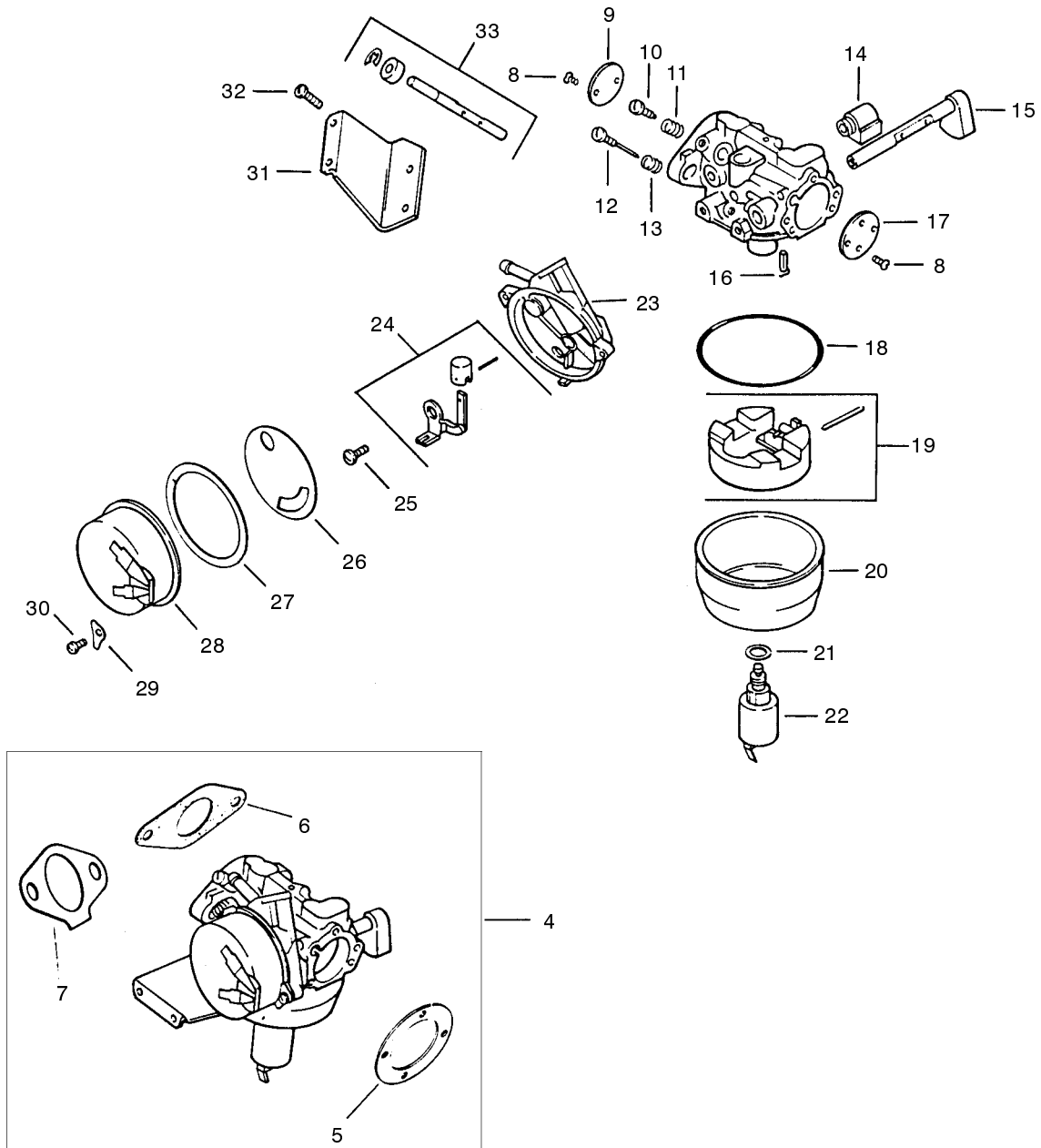
## Group 103: Fuel System

Item	Qty.	Description Variation	Part No.
1	1	Connector, hose 1/8 x 1/4 18, 23	X-380-1
	1	Connector, hose 21, 25	X-380-5
2	1	Line, flex. fuel 1/4 x 9 18, 23	X-386-14
	1	Line, flex. fuel 21, 25	X-386-93
3	2	Clamp, hose 18, 21, 23, 25	X-426-9
4	2	Screw, self tapping 18, 21, 23, 25	X-67-115
5	1	Filter, fuel 18, 23	228269
	1	Filter, fuel 21, 25	227647
6	1	Elbow, 45 deg. street 18, 21, 23, 25	267428
7	1	Pump assembly, fuel 18, 21, 23, 25	278760
8	1	Elbow, 45 degree 18, 21, 23, 25	278770
9	1	Line, fuel 18, 21	278895
	1	Line, fuel 23, 25	227753
10	1	Tray, drip 18, 21, 23, 25	278980
11	1	Actuator Assembly, rotary (Includes items 12-14) 18, 21, 23, 25	A-278779
12	1	Coupling, governor 18, 21, 23, 25	278671
13	1	Actuator 18, 21, 23, 25	278672
14	1	Bracket, actuator 18, 21, 23, 25	278675

Item	Qty.	Description Variation	Part No.
15	1	Clip, wire 5/16 18, 21, 23, 25	X-339-3
16	2	Screw, Phil. hex crimpite 18, 21, 23, 25	X-6216-1
17	1	Bracket, intake support 18, 21	278915
	1	Bracket, intake support 23, 25	227764
18	1	Screw, pan head 18, 21, 23, 25	X-49-40
19	1	#4 washer 18, 21, 23, 25	#
20	2	Screw, self tapping 18, 21, 23, 25	X-67-115
21	2	Stud 18, 21	X-352-90
	2	Stud 23, 25	X-352-91
22	2	Nut, hex 18, 21, 23, 25	X-76-2
23	1	Gasket, PTC 18, 21	278570
24	1	PTC Assembly (thermister heater) 18, 21	278542
25	1	Gasket, carburetor 18, 21, 23, 25	278869
26	1	Carburetor 18, 21, 23, 25	See following 2 pages
27	1	Line, fuel 18, 21, 23, 25	X-386-98
28	1	Connector, hose 1/8 x 1/4 18, 21, 23, 25	X-391-1
29	1	Intake Manifold 18, 21, 23, 25	227656

# Group 103: Fuel System

## Gasoline



5577103

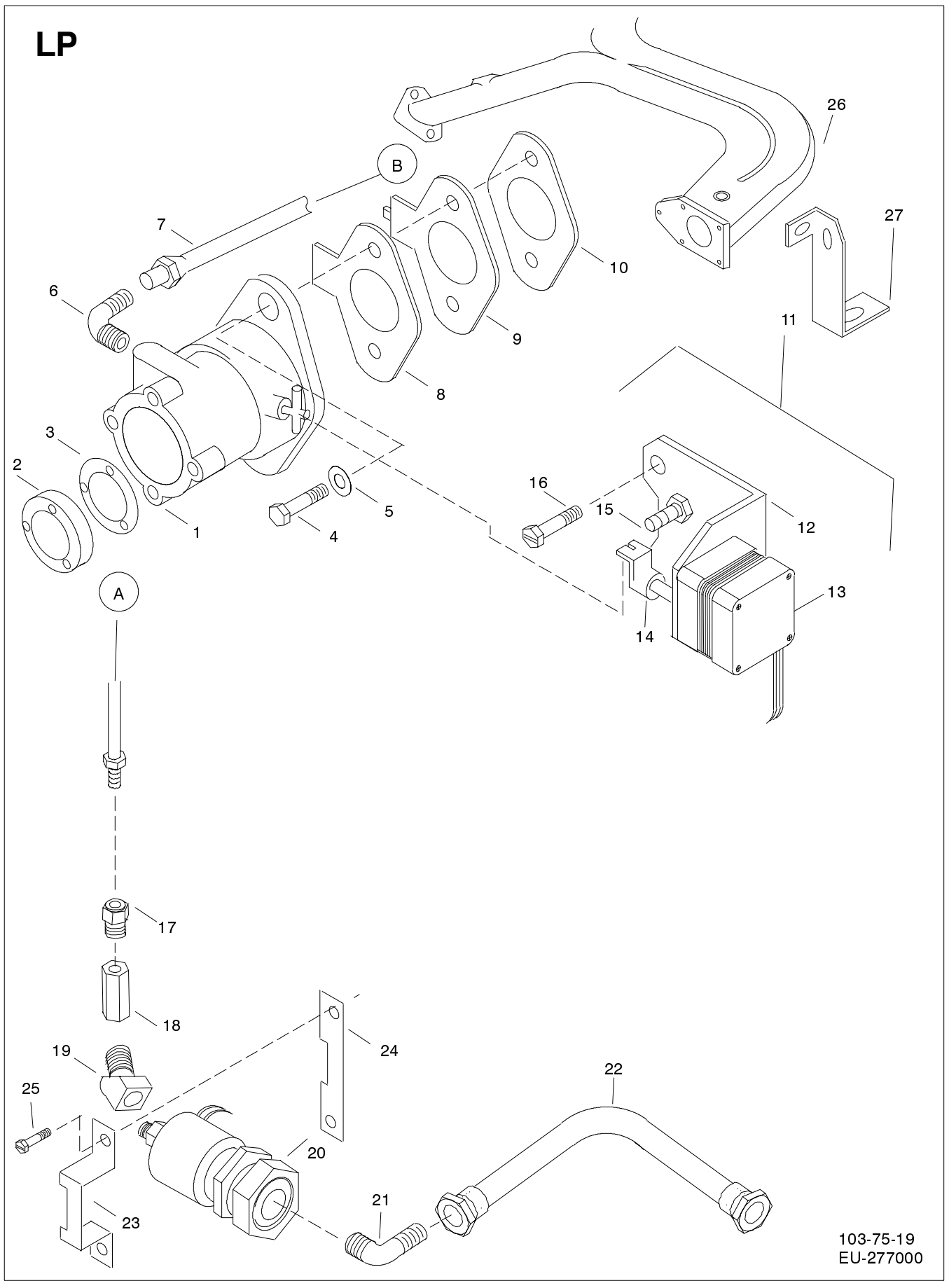
## Group 103: Fuel System

Item	Qty.	Description Variation	Part No.
4	1	Kit, carburetor (Includes items 5-33. Carburetor assembly 48 053 39 comprises items 8-33) all	48 853 02
5	1	Gasket, elbow all	41 041 11
6	1	Gasket, flange all	210223
7	1	Gasket, thermister all	52 041 22
8	4	Screw , throttle & choke plate all	25 086 27
9	1	Plate, throttle all	25 146 05
10	1	Needle, idle all	25 368 02
11	1	Spring, idle needle all	25 089 02
12	1	Needle, high speed adj. all	52 368 03
13	1	Spring, high speed adj.needle all	25 089 02
14	1	Elbow, male all	52 054 45
15	1	Shaft, throttle all	52 144 22
16	1	Needle and seat (Available only in Carburetor repair kit 52 757 04)	
17	1	Plate, choke all	52 146 10
18	1	Gasket, fuel bowl all	25 041 04
19	1	Kit, float assembly	

Item	Qty.	Description Variation	Part No.
		all	25 757 09
20	1	Bowl, fuel all	25 104 01
21	1	Gasket, bowl screw all	25 041 03
22	1	Solenoid assembly all	52 435 06
23	1	Assembly, choke heate allr	52 175 03
24	1	Assembly, choke lever all	277272
25	1	Screw, 6-32 x 1/4" all	X-170-2
26	1	Plate, baffle all	277297
27	1	Gasket, air cleaner all	277281
28	1	Housing, choke assembly all	52 081 05
29	1	Retainer, thermostat all	277275
30	1	Screw, 8-32 x 1/4" all	X-14-6
31	1	Bracket all	52 126 20
32	2	Screw, tapping all	52 086 18
33	1	Shaft, choke assembly all	52 144 20
NOT ILLUSTRATED			
		Carburetor repair kit (Includes Needle & Seat, 5, 6, 7, 18, 21)	52 757 04

# Group 103: Fuel System

LP



103-75-19  
EU-277000

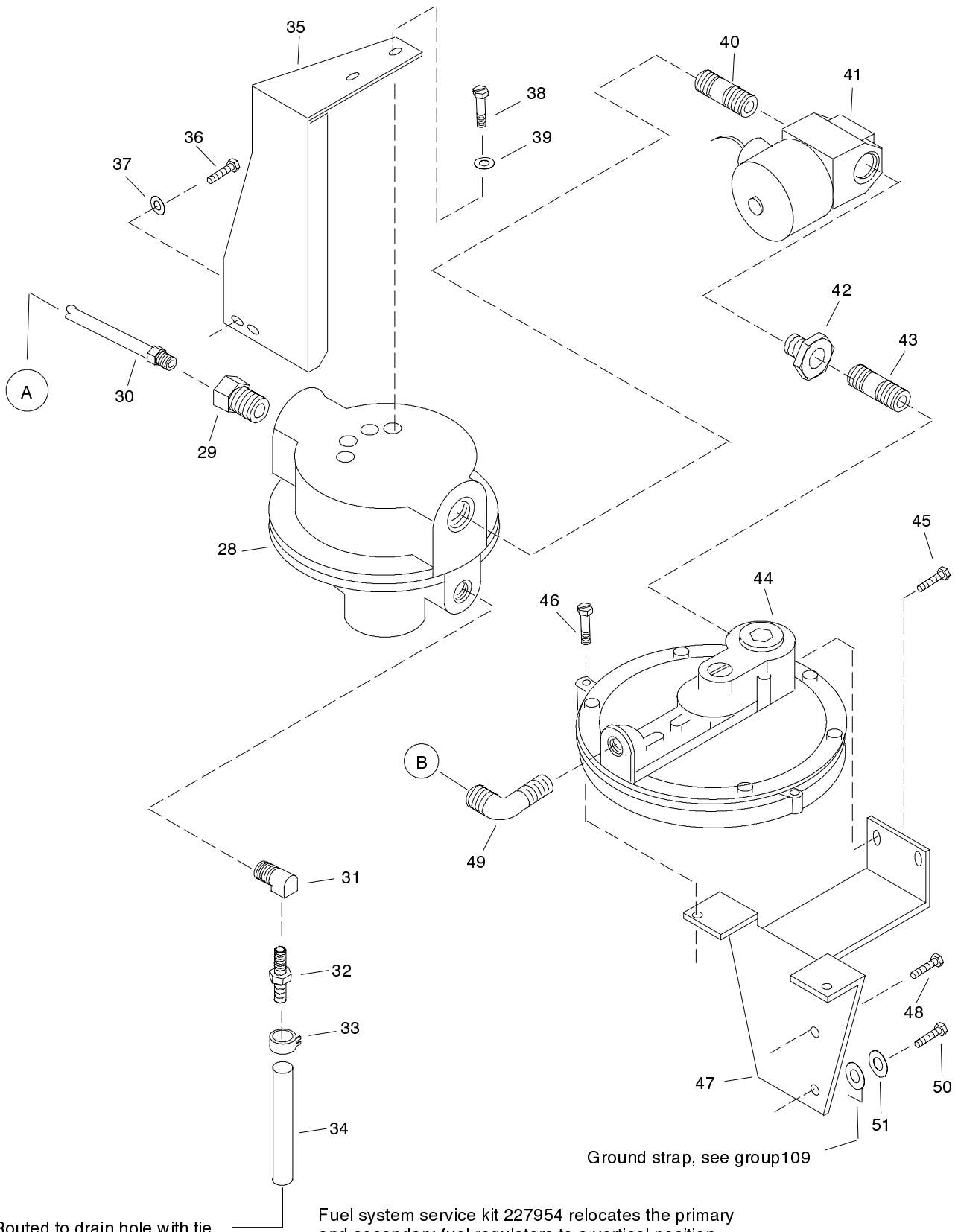
## Group 103: Fuel System

Item	Qty.	Description Variation	Part No.
1	1	Carburetor Assembly (LP liquid) 19, 24	A-227432
	1	Carburetor Assembly (LP vapor) 20	A-227617
2	1	Carburetor sleeve 19, 24	278954
	1	Adaptor, carburetor 20	278608
3	1	Gasket, adapter 20	227635
4	2	5/16-18 bolt 19	#
	2	Stud 20	X-352-90
	2	Nut, hex 20	X-76-2
5	2	Washer, plain 19, 24	#
6	1	Elbow, 45 deg. flare 19	X-6289-1
	1	Bushing, reducer 1/4 x 1/2 20	X-202-12
	1	Nipple, pipe 1/4 x 7/8 20	X-220-5
7	1	Line, fuel 19, 24	227419
8	1	Gasket, PTC 19, 24	278528
	1	Gasket, PTC 20	278570
9	1	PTC assembly 19, 24	278445
	1	PTC assembly 20	278542
10	1	Gasket, carburetor 19, 24	271030
	1	Gasket, carburetor 20	278869
11	1	Actuator Assembly (includes items 12-15) 19, 24	A-227422
	1	Actuator Assembly (includes items 12-15) 20	A-227638
12	1	Bracket, actuator 19, 24	227417
		Bracket, actuator 20	227637
13	1	Actuator 19, 20, 24	278672

Item	Qty.	Description Variation	Part No.
14	1	Coupling, governor 19, 20, 24	278671
15	1	Screw, H.C., ref. 19, 20	X-465-8
	1	1/4-20 nut 19, 20	#
16	2	Screw, self tapping 19, 24	X-67-114
17	1	Fitting, fuel 19, 24	X-6290-2
18	1	Coupling, pipe 19	X-216-29
	1	Bushing, reducer 3/8 x 1/2 20	X-202-28
19	1	Elbow, 45 degree 19, 24	227521
	1	Elbow, 45 degree flare 20	X-6289-2
20	1	Solenoid assembly (includes valve) 19, 24	A-278958
		Valve, gas 19, 24	278878
		Valve, gas 20	227648
		Harness 20	227619
21	1	Elbow, 45 degree flare 19, 24	X-6289-1
	1	Elbow, 45 degree street 20	227642
	1	Connector 1/2 union 20	X-296-10
22	1	Line, flexible fuel 19, 20, 24	227457
23	1	Bracket, valve mounting 19, 24	227415
	1	Bracket, valve mounting 20	227632
24	1	Plate, spacer 19, 24	227416
25	2	Screw, self tapping 19, 20, 24	X-67-115
26	1	Manifold, intake 19, 24	227656
	1	Manifold, intake 20	227634
27	2	Bracket, intake manifold support 19, 20, 24	227764

# Group 103: Fuel System

LP



Fuel system service kit 227954 relocates the primary and secondary fuel regulators to a vertical position. See Accessories section for parts list of kit.

103-75-19  
EU-277000

## Group 103: Fuel System

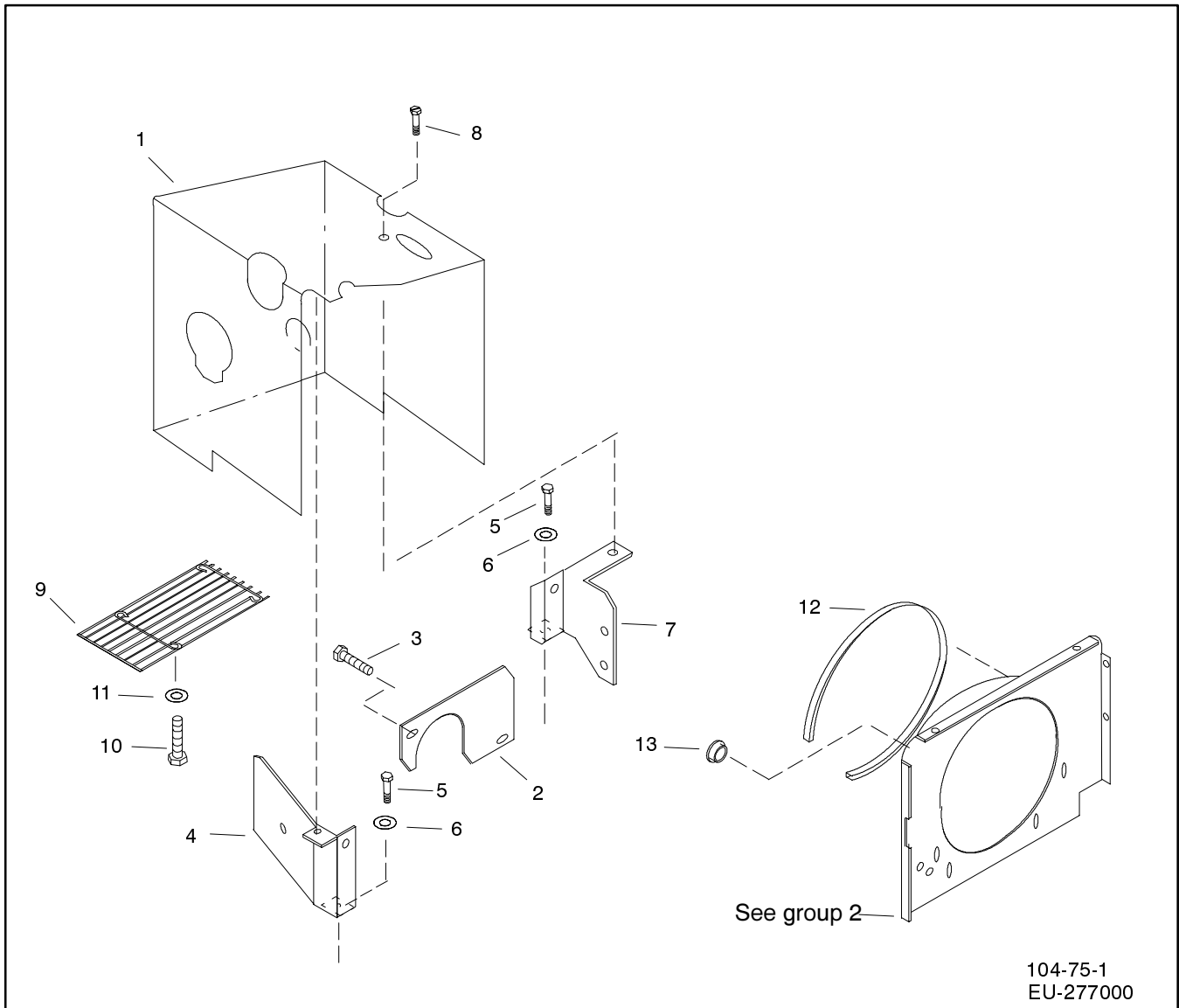
Item	Qty.	Description Variation	Part No.
28	1	Regulator, gas (primary) 19, 24	278889
	1	Regulator, gas (primary) 20	227649
29	1	Fitting, fuel 19, 24	X-6290-2
30	1	Line, fuel 19, 24	227420
	7	Clip (Not shown) 19, 24	X-414-4
	7	Screw, drill (Not shown) 19, 24	X-794-3
31	1	Elbow, street 1/8 x 1/4 19, 24	X-555-2
32	1	Connector, hose 1/8 x 1/4 19, 24	X-380-1
33	1	Clamp, hose 1/2 19, 24	X-309-14
34	1	Line, flex. fuel 1/4 x 30" 19, 24	X-386-75
	1	Tie, cable (not shown) 19	X-468-1
35	1	Bracket, regulator 19, 24	227414
36	2	Screw, hex. hd. 10-24 x 1/2 19, 24	X-67-52
37	2	#10 washers 19, 24	#
38	2	Screw, tapping 8-32 x 1/2 19, 24	X-67-60
39	2	#8 washers 19, 24	#

Item	Qty.	Description Variation	Part No.
40	1	Pipe 19, 24	X-204-9
41	1	Solenoid assembly, fuel 19, 24	A-227540
42	1	Bushing, reducer 19, 24	X-202-30
43	1	Nipple, pipe 1/4 x 7/8 19, 24	X-220-5
44	1	Regulator, gas (secondary) 19, 24	A-227531
45	2	Screw, self tapping 19, 24	X-67-115
46	2	Screw, thread forming 19, 24	X-67-128
47	1	Bracket, regulator 19, 24	227413
48	1	Screw, self tapping 19, 24	X-67-115
49	1	Elbow, 5/8-18 x 3/8 19, 24	X-447-9
50	1	Screw, self tapping 19, 24	X-67-114
51	1	Washer, shakeproof 19	X-22-12

**Note**

Fuel system service kit 227954 relocates the primary and secondary fuel regulators to a vertical position. See Accessories section for parts list of kit.

# Group 104: Cooling System



Item	Qty.	Description Variation	Part No.
------	------	--------------------------	----------

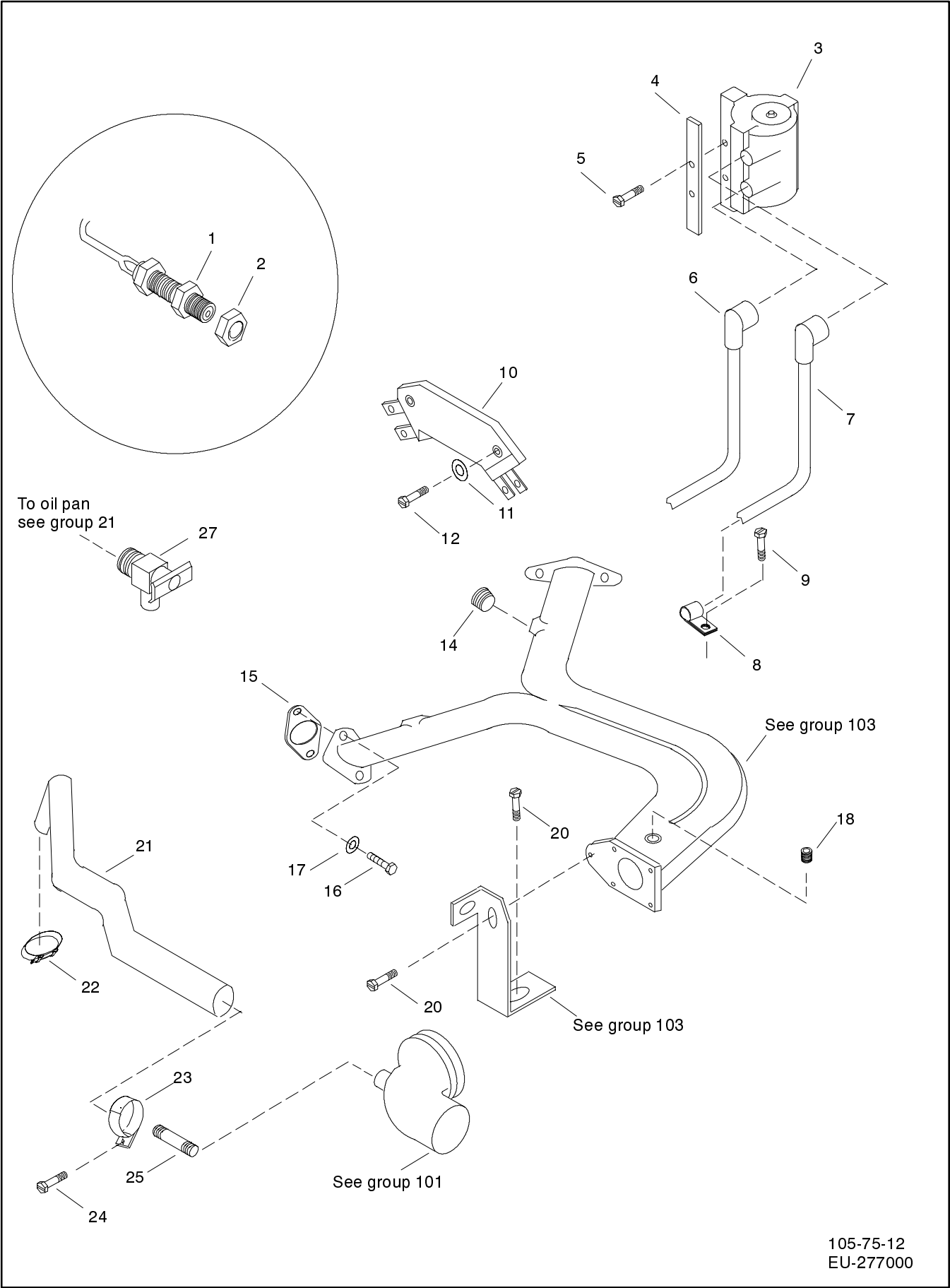
1	1	Hood	
		1, 3, 5	227754-BLK
	1	Liner, defective(not shown)	
		1, 3, 5	227404
	1	Liner, defective(not shown)	
		1, 3, 5	227405
	1	Liner, defective(not shown)	
		1, 3, 5	227406
2	1	Plate, closure	
		1, 5	278982
3	2	Screw, Phil. hex crimplite	
		1, 5	X-6216-1
4	1	Bracket, hood mtg.(left side)	
		1, 3, 5	227755
		Heat Shield (not shown)	
		1, 3, 5	227756
5	1	Screw, socket head	
		1, 3, 5	X-55-27

Item	Qty.	Description Variation	Part No.
------	------	--------------------------	----------

6	1	Washer, plain	
		1, 3, 5	X-25-33
7	1	Bracket, hood mt.(right side)	
		1, 3, 5	278987
8	11	Screw, self tapping	
		1, 3, 5	X-67-115
9	1	Guard, fan	
		1, 3, 5	278888
10	4	Screw, hex. hd.10-24 x 1/2	
		1, 3, 5	X-67-52
11	4	Washer, plain	
		1, 3, 5	X-25-45
12	1	U-channel	
		1, 3, 5	X-6047-10
13	1	Bushing	
		1, 3, 5	248896

This page intentionally left blank

# Group 105: Engine



105-75-12  
EU-277000

## Group 105: Engine

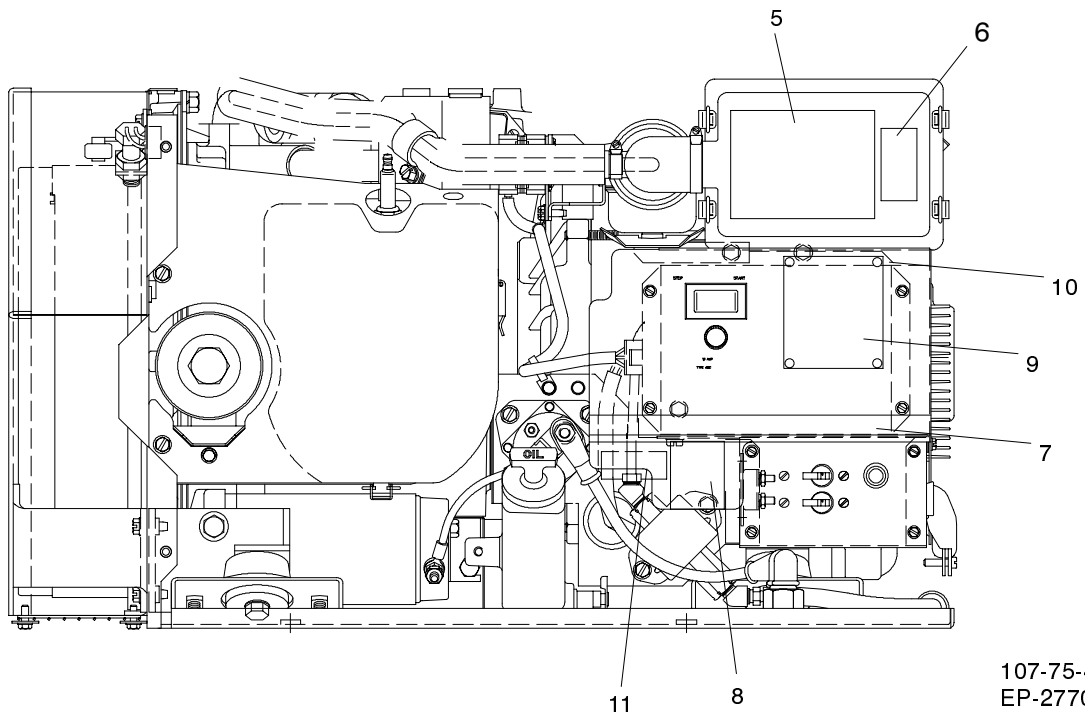
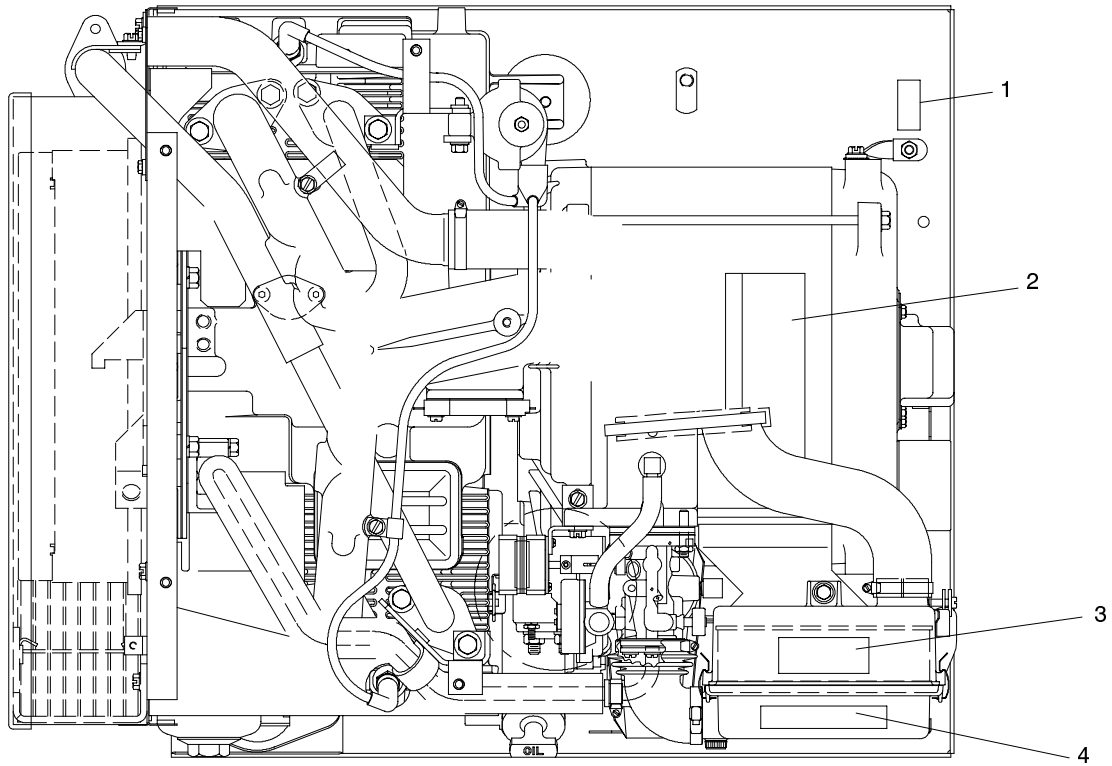
Item	Qty.	Description Variation	Part No.
1	1	Sensor Assembly,mag. 10,12	A-278782
	1	Sensor Assembly,mag. 14,17	227737
2	1	Nut, hex 10,12, 14, 17	X-6053-8
3	1	Coil, ignition 10,12, 14, 17	278904
	2	Spark Plug 10,12, 14, 17	235041-S
4	1	Plate, coil mounting 10,12, 14, 17	278423
5	2	Screw, hex flange 10,12, 14, 17	X-6217-4
6	1	Lead, ignition 10,12, 14, 17	278908
7	1	Lead, ignition 10,12, 14, 17	278909
8	1	Clamp, insulator 10,12, 14, 17	X-672-15
9	1	Screw, self tapping 10,12, 17	X-67-115
10	1	Module, control trigger 10,12, 14, 17	278903
11	2	#8 washers 10,12, 14, 17	X-22-7
12	2	Screw, self tapping 10,12, 14, 17	X-67-132
13	1	See Group 103 all	
14	2	Plug, pipe 3/4 10,12, 14, 17	X-75-18
15	2	Gasket, intake manifold 10,12, 14, 17	278988

Item	Qty.	Description Variation	Part No.
16	4	Screw, socket head 10,12, 14, 17	X-55-27
17	4	Washer, plain 10,12, 14, 17	X-25-33
18	1	Plug, pipe 12	X-75-23
19	1	See Group 103 all	
20	1	Screw, self tapping 10,12	X-67-115
21	1	Hose, breather 12	227827
22	1	Clamp, hose 12, 17	X-426-10
23	1	Clamp, insulated 10,12, 17	X-672-13
24	1	Screw, self tapping 10,12	X-67-115
25	1	Connector, hose 12	X-582-14
26	1	Engine Assembly Kohler spec no. 36389 (not shown) 10,12, 17	A-278716
	1	Engine Assembly Kohler spec no. 36396 (not shown) 14	A-227865
27	1	Valve, drain 10,12, 14, 17	278905

**Items not shown:**

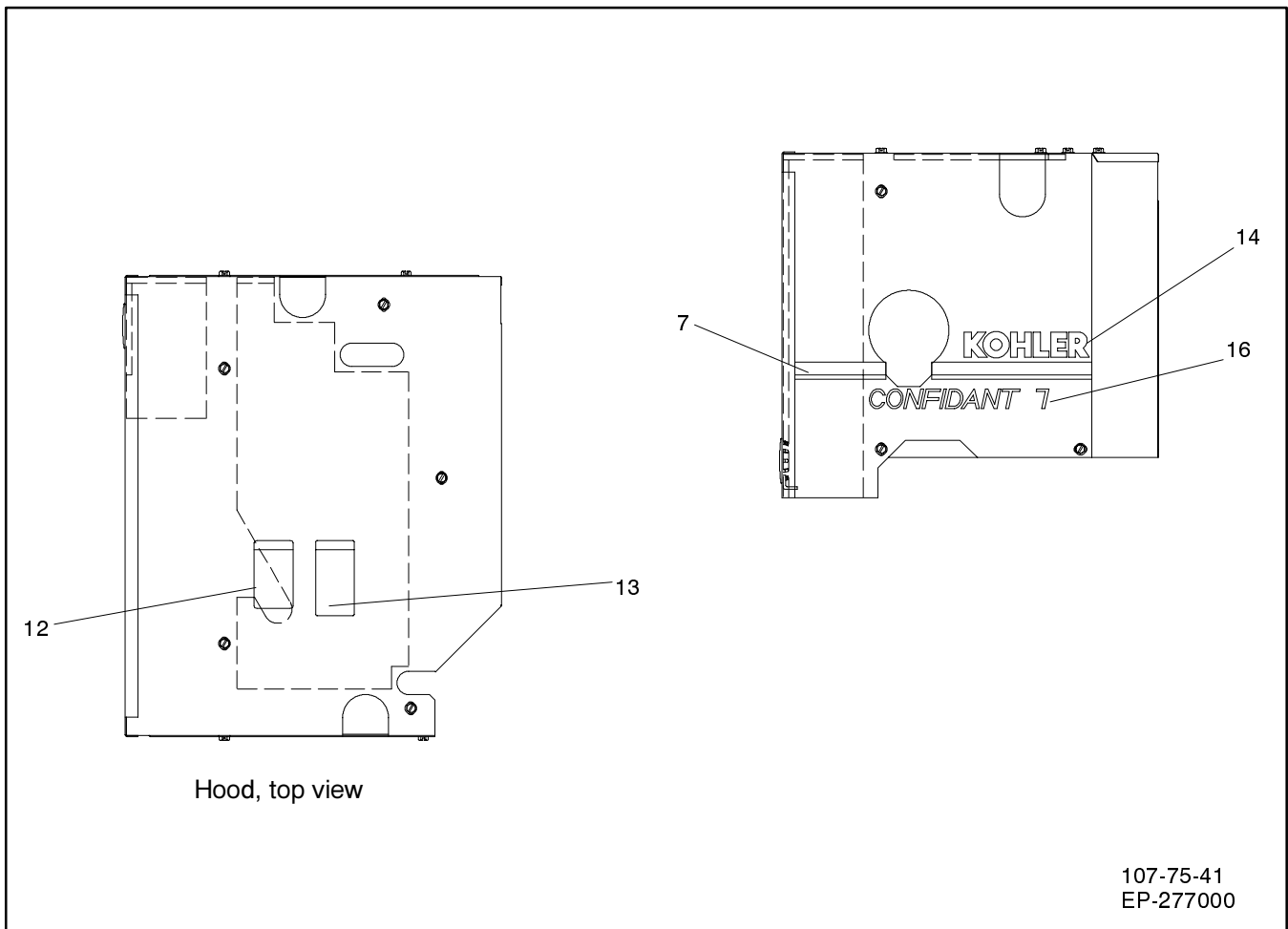
1	Gasket Set with Seals all	48 755 33
1	Gasket Set without Seals all	48 004 02

# Group 107: Nameplate & Decals



107-75-41  
EP-277000

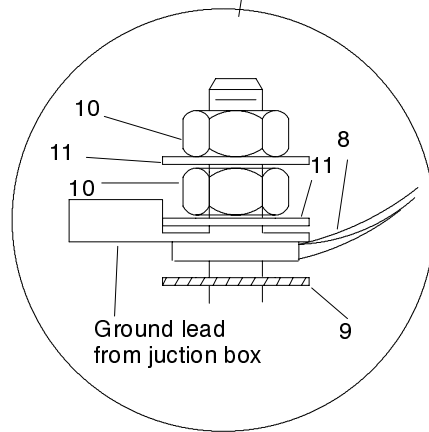
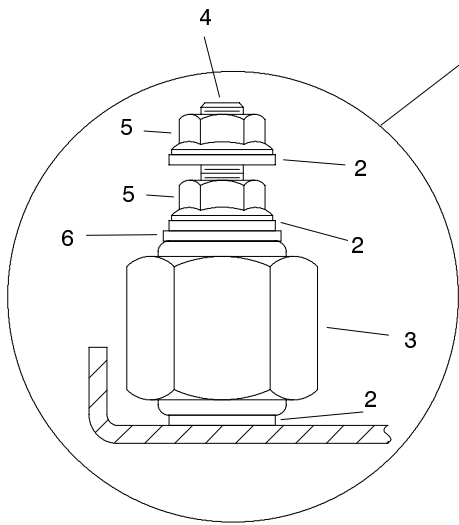
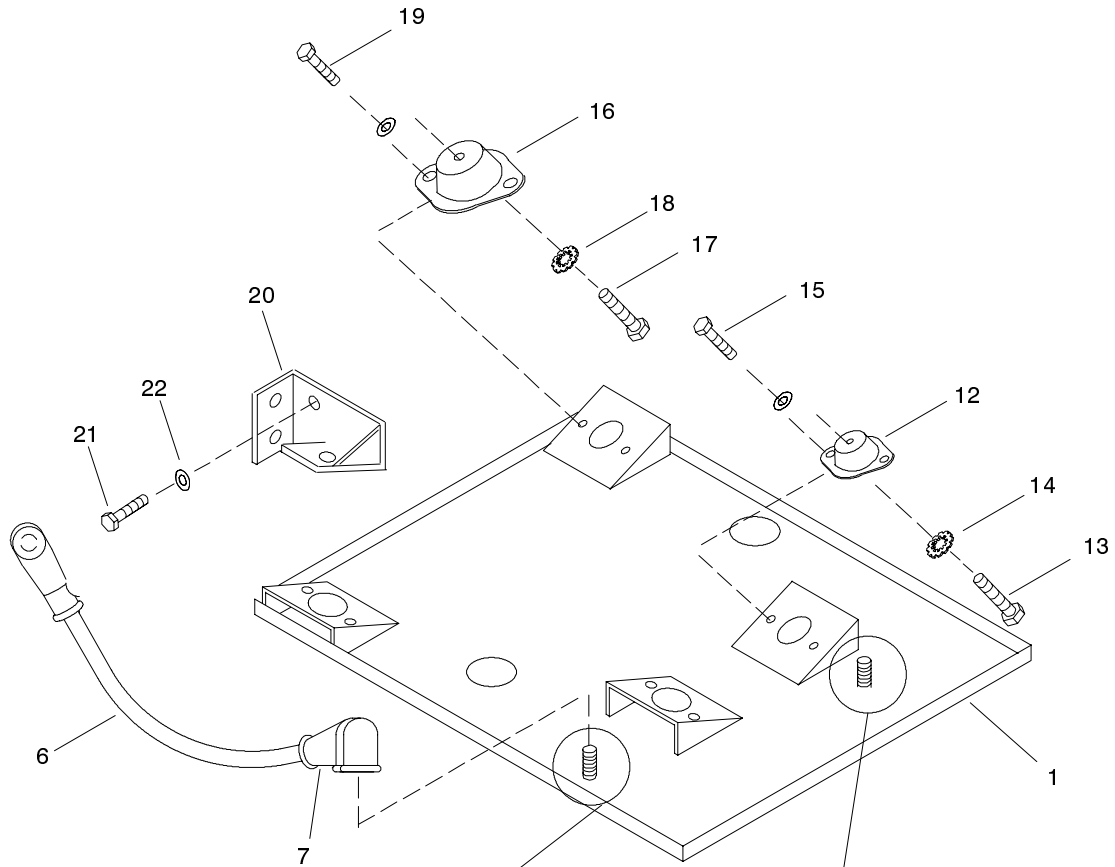
# Group 107: Nameplate & Decals



Item	Qty.	Description Variation	Part No.
1	1	Decal, ground all	238575
2	1	Decal, warning hazardous volt. all	239771
3	1	Decal, U.L. all	239772
4	1	Decal, instruction all	278911
5	1	Decal, service all	278912
6	1	Decal, winter/summer 40, 41, 42, 44, 54	227546
7	2	Decal, stripe all	278433
8	1	Decal, 1-800 number all	224233
9	1	Nameplate all	239573

Item	Qty.	Description Variation	Part No.
10	4	Rivit, pop all	X-793-3
11	1	Decal, connection all	238162
12	1	Decal, warning fire hazard all	228489
13	1	Decal, warning carbon mon. all	239796
14	1	Decal, Kohler all	X-6276-3
15	1	Decal, Confidant-7 all	278432
16	1	Decal, CSA (not shown) 40, 41, 42, 43, 46 48, 49, 53, 54, 55, 56	278949
17	1	Key (not shown) 44	X-286-6
18	1	Cap (not shown) 44	227539

# Group 109: Skid & Plant Mounting



109-75-47  
EP-277000

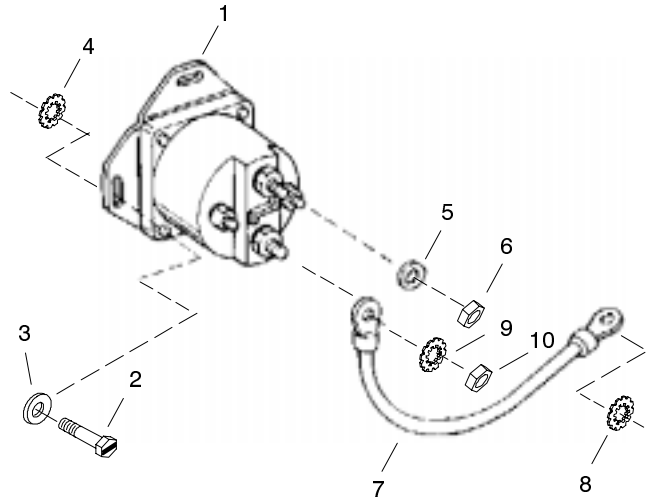
## Group 109: Skid & Plant Mounting

Item	Qty.	Description Variation	Part No.
1	1	Tray (before serial number 346535) 47	278873
		Tray (serial numbers 346535 and after) 47	227926
2	1	1/4 washers 47	#
3	1	Insulator, panel 47	233269
4	1	Stud, brass 47	227588
5	1	1/4-20 nuts 47	#
6	1	Cable, battery 47	X-545-33
7	2	Boot 47	238915
8	1	Strap, ground 47	X-6046-1
9	1	Washer, shakeproof 47	X-22-12
10	1	1/4-20 nuts 47	#
11	1	1/4 washers	

Item	Qty.	Description Variation	Part No.
		47	#
12	2	Mount, vibro (gen. end) 47	258659
13	2	Screw, 3/8-16 x 1.75, ref. 47	X-6238-1
14	2	Washer, lock shakeproof 47	X-22-10
15	4	5/16-18 hardware 47	#
16	2	Mount, vibro (eng. end, white) 47	225124
17	2	Screw, 3/8-16 x 2.00, ref. 47	X-6238-6
18	2	Washer, lock shakeproof 47	X-22-10
19	4	5/16-18 hardware 47	#
20	1	Bracket, mounting 47	278870
21	2	Screw, 3/8-16 x .75, ref. 47	X-6238-10
22	2	3/8 washers 47	#

## Group 112: Starter

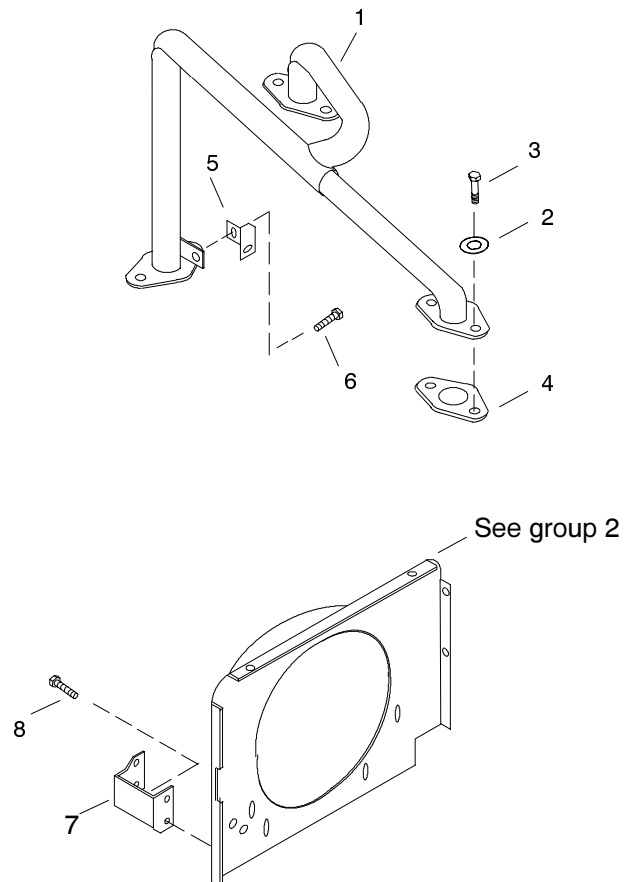
Item	Qty.	Description Variation	Part No.
1	1	Switch, relay 11	278973
2	2	Screw, self-tapping 11	X-67-115
3	2	1/4 washers 11	
4	1	Washer, shakeproof 11	X-22-11
5	1	Washer, lock shakeproof 11	X-22-9
6	1	#10-32 nut 11	
7	1	Cable, battery 11	X-545-88
8	1	Washer, shakeproof 11	X-22-12
9	2	Washer, lock shakeproof 11	X-22-5
10	2	5/16-18 nuts 11	



5577112

## Group 116: Exhaust System

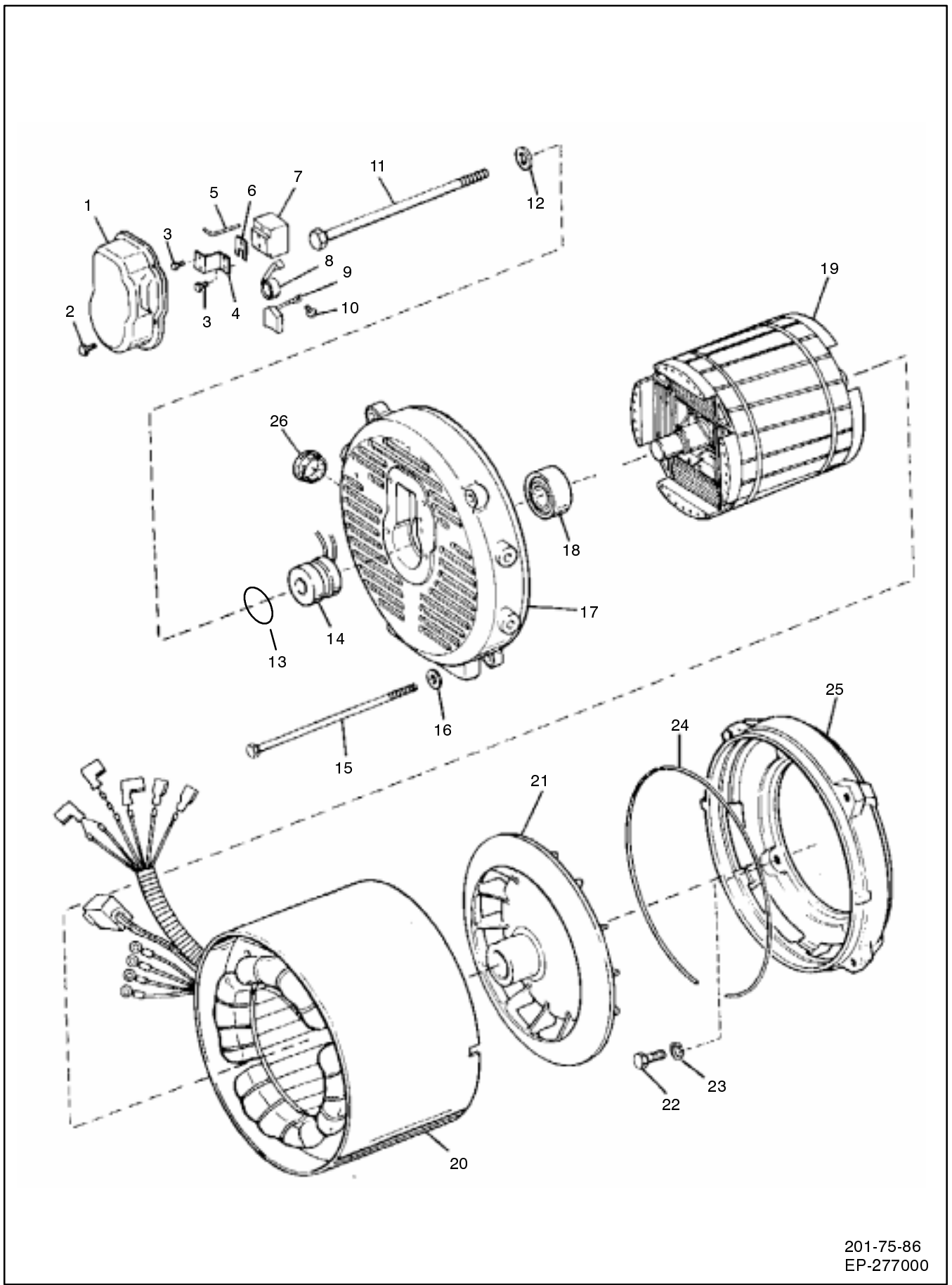
Item	Qty.	Description Variation	Part No.
1	1	Manifold, exhaust 18	278867
	1	Manifold, exhaust 19	227882
2	4	Washer, plain 18,19	X-25-33
3	4	Screw, hex. socket head 18,19	X-55-6
4	2	Gasket, manifold 18,19	278200
5	1	Bracket, exhaust manifold 18,19	278859
6	2	Screw, self tapping 18,19	X-67-115
7	1	Bracket, muffler mounting 18,19	278871
8	2	Screw, self tapping 18,19	X-67-114



116-75-18

This page intentionally left blank

# Group 201: Generator & Mounting



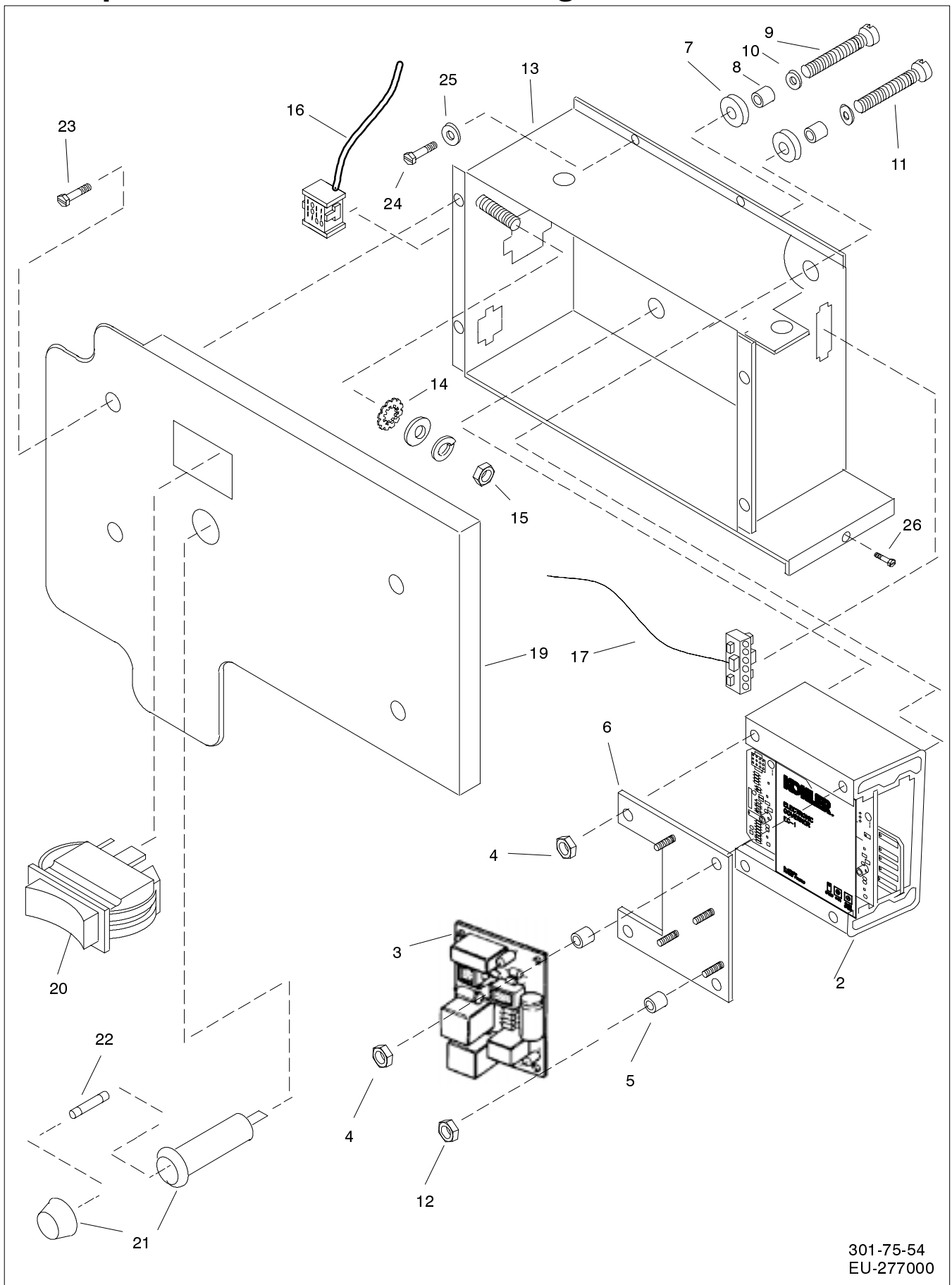
201-75-86  
EP-277000

## Group 201: Generator & Mounting

Item	Qty.	Description Variation	Part No.
1	1	Cover, brush holder 85, 86, 87, 90, 91, 94, 95, 99, 100	278877
	1	Bushing, nylon (not shown) 85, 86, 87, 90, 91, 94, 95, 99, 100	X-634-22
2	4	Screw, hex. hd. 10-24 x 1/2 85, 86, 87, 90, 91, 94, 95, 99, 100	X-67-113
3	2	Screw, hex. hd. machine all	X-97-13
	2	Washer, lock shakeproof (not shown) all	X-22-9
4	1	Bracket, brush holder 85, 86, 87, 90, 91, 94, 95, 99, 100	229335
	1	Bracket, brush holder 88, 89, 97, 102	278943
5	1	Retainer, wire all	238247
6	3	Shim, brush holder all	238248
7	1	Holder, brush all	239247
8	2	Spring all	238150
9	2	Brush all	239282
10	2	Screw, r.h.m. 6-32 x 5/16 all	X-49-1
11	1	Bolt, thru 85, 86, 87, 90, 91, 94, 95, 99, 100	278342
	1	Bolt, thru 88, 89, 97, 102	227455
12	1	Washer, plain 85, 86, 87, 90, 91, 94, 95, 99, 100	X-25-30
	1	Washer, plain 88, 89, 97, 102	X-25-97
13	1	O-Ring all	256466
14	1	Ring, collector 85, 86, 87, 90, 91, 94, 95, 99, 100	241671
	1	Ring, collector 88, 89, 97	238134
15	4	Bolt, over all	238525
16	4	Washer, hardened all except 87, 88, 97	X-801-2
	4	Washer, special 87, 88, 97	229239

Item	Qty.	Description Variation	Part No.
17	1	End bracket kit 85, 86, 90, 91, 94, 95, 99	227564
	1	End bracket kit 87	229239
	1	Bracket, end 88, 97, 102	278807
	1	Bracket, end 89	227584
	1	Cover (not shown) 88, 89, 97, 102	278840
	1	Cover (not shown) 88, 89, 97, 102	278842
	6	Screw, tapping 8-32 (not shown) 88, 89	X-67-59
	6	Screw, tapping 8-32 (not shown) 97, 102	X-67-43
18	1	Bearing, ball all	X-758-1
19	1	Rotor Assembly (includes items 14,18,21) 85, 86, 87, 90, 91, 94, 95, 99, 100	B-278340
	1	Rotor Assembly (includes items 14,18,21) 88, 89, 97, 102	A-278920
20	1	Stator Assembly 85 86 87, 89 88, 90 91 94, 102 95 97, 99 100	278919 278981 227442 278918 227456 227781 227780 227776 227777
21	1	Fan, generator all	238204
22	4	Screw, H.C., ref. all	X-6024-2
23	4	7/16 washers all	#
24	1	Guard, generator fan all	238214
25	1	Adapter, generator all	277937
26	1	Nylon grommet 87, 96	X-6090-3
	1	Bushing 88, 97, 102	X-634-12
	1	Bushing 88, 97, 102	X-634-12
	1	Nylon grommet 89	X-6072-4

# Group 301: Controller & Mounting

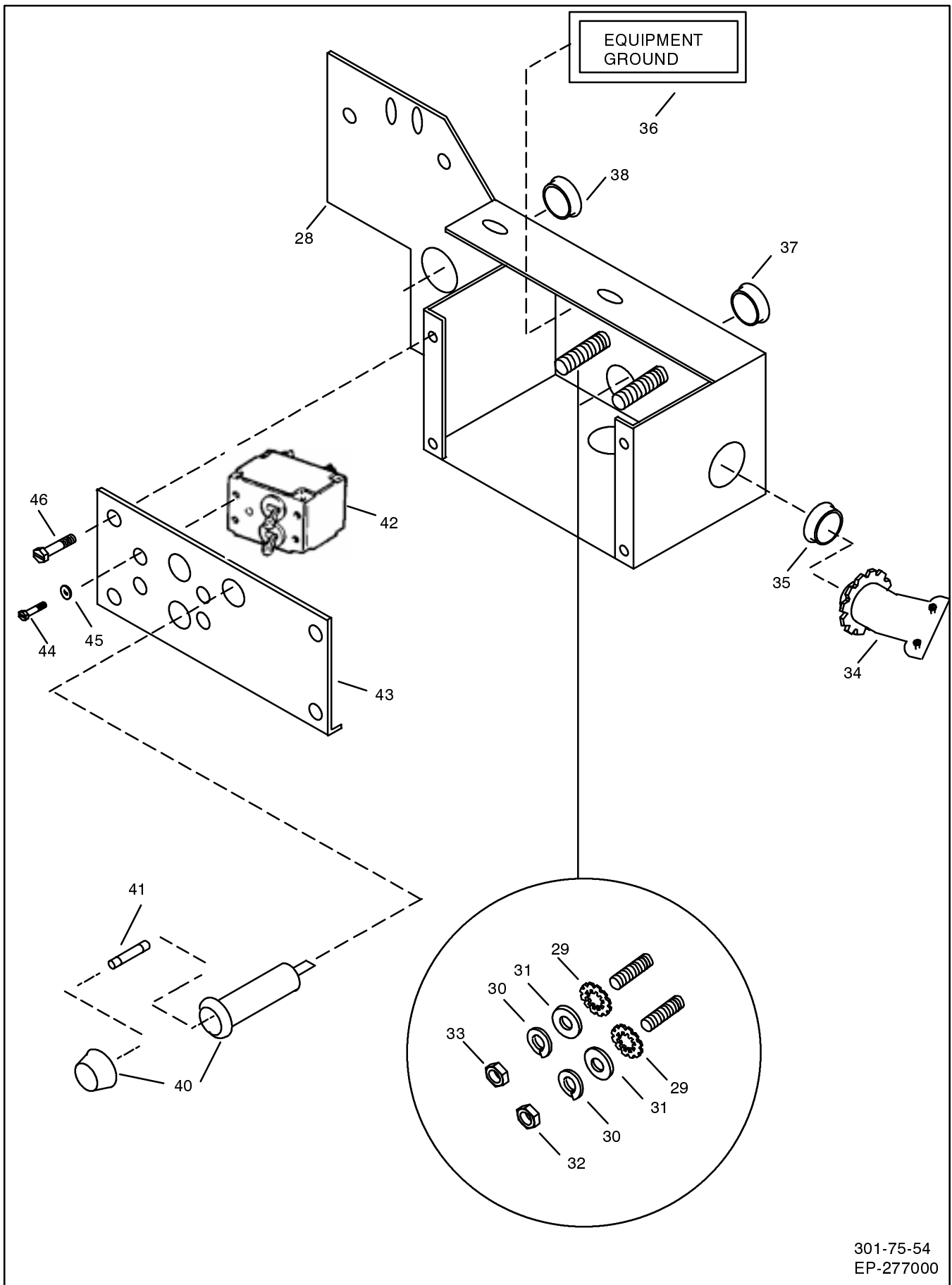


## Group 301: Controller & Mounting

Item	Qty.	Description Variation	Part No.
1	1	Controller Assembly (includes items 2-17) 45, 46, 49, 54, 72, 73, 75 - 80	A-227799
	1	Controller Assembly (includes items 2 - 17) 82-94, 59-71	A-227879
2	1	Governor Assembly, electronic all	D-278670
3	1	Circuit Board Assembly all	F-239563
4	4	Nut all	X-101-22
5	5	Spacer, fiber all	X-712-16
6	1	Plate, circuit board all	278749
7	4	Grommet, vibro mount all	278999
8	4	Spacer all	X-400-187
9	3	Screw, pan head all	X-49-46
10	4	#6 washers all	#
11	1	Screw, pan head all	X-49-47
12	4	Nut, hex all	X-70-12
13	1	Box, controller all except 59-71, 82-94	278972
	1	Box, controller 59-71, 82-94	227741
	1	Grommet, nylon 59-71, 82-94	X-6033-9

Item	Qty.	Description Variation	Part No.
14	1	Washer, shakeproof all	X-22-18
15	1	#8-32 hardware all	#
16	1	Harness, wiring all except 82-94	227402
17	1	Harness, remote wiring all	227403
18	1	Cover Assembly (includes items 19-22) all	B-278574
19	1	Cover, silkscreen all	278751
20	1	Switch, rocker all	249406
21	1	Holder, fuse all	267996
22	1	Fuse, 15 Amp all	283645
23	4	Screw, drill all	X-794-3
24	5	Screw, self tapping all	X-67-115
25	3	Washer, lock 1/4 all	X-22-11
26	1	Screw, hex slotted 8-32 all	X-67-43

# Group 301: Controller & Mounting



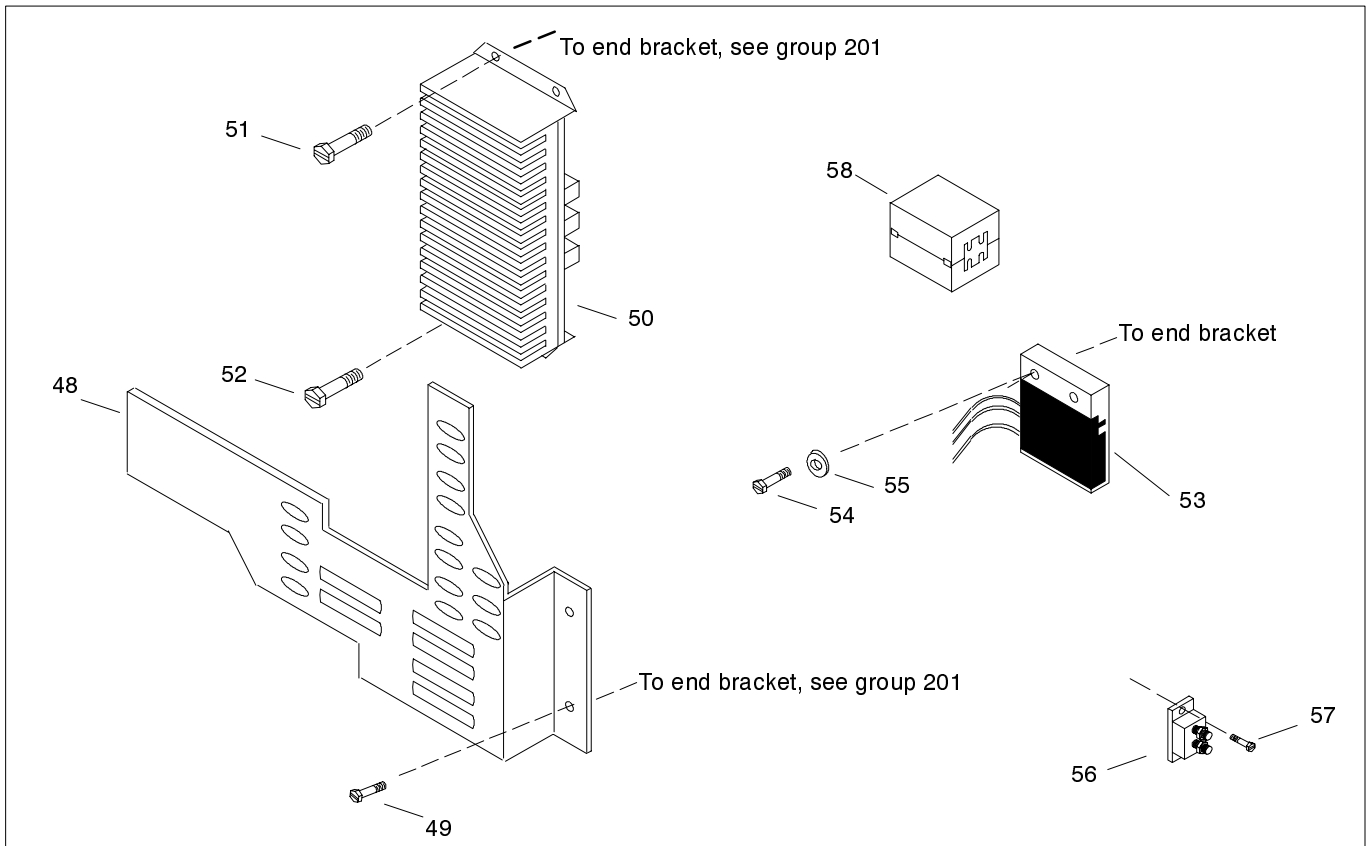
301-75-54  
EP-277000

# Group 301: Controller & Mounting

Item	Qty.	Description Variation	Part No.
27	1	Box Assembly, junction (includes items 28-38) 45, 56, 72, 73, 76, 46, 49 47, 79 57, 61, 65, 67, 68, 69, 70, 71, 82, 89, 91, 93, 94 60, 63, 83 84, 90 62, 85 75, 77 78, 80 64, 66, 86, 88 92	A-278883 A-278884  A-227723 A-227721 A-227722 A-227725 A-278886 A-278885 A-227724 A-227838
	1	Strain relief bushing for thermostat leads (not shown) 59, 60, 61, 62, 64, 65, 66, 68, 69, 93, 94	227665
28	1	Box, junction All except 59-71, 82-94 59-71, 82-94	278881 227668
29	2	Washer, shakeproof all	X-22-12
30	2	Washer, lock 1/4 all	X-22-11
31	2	1/4 washer all	#
32	1	1/4-20 nut all	#
33	1	Nut, hex all	X-81-8
34	1	Connector, conduit all	156327
35	1	Bushing, plastic all	227407
36	1	Decal, ground all	238575
37	1	Bushing, nylon all	X-634-11
38	1	Bushing all	X-634-16
39	1	Cover Assembly (includes items 40-45) 45, 56 46, 49 47, 79 59, 82 60, 83 61, 69, 94 84, 90 62, 65, 68, 85, 89, 93 63, 87 64, 66, 86, 88 67, 71 70 72, 73, 78, 80 75, 77 91	A-278891 A-278890 A-278892 A-227791 A-227790 A-227931 A-227792 A-227795 A-227796 A-227793 A-227798 A-227797 A-278962 A-278893 A-227823

Item	Qty.	Description Variation	Part No.
40	1	Holder, fuse all except 82-93, 59-71	238426
	1	Holder, fuse 82-93, 59-71	267996
	1	Plug, button 63, 67, 70, 71, 87, 91	X-301-20
41	1	Fuse, 5 Amp all	239298
42	1	Breaker, circuit, 30 amp, 1 pole 46, 49, 60, 61, 69, 83, 63, 87, 91, 94	278190
	2	Breaker, circuit, 30 amp, 1 pole 45, 72, 73, 76, 78, 80	278190
	1	Breaker, circuit, 30 amp, 2 pole 59, 62, 65, 67, 68, 70, 82, 85, 89, 93, 71	227669
	1	Breaker, circuit, 25 amp, 2 pole 84, 90	227672
	1	Breaker, circuit 20 amp 46, 49, 60, 85, 63, 87	278257
	3	Breaker, circuit 17 amp 75, 77	278699
	2	Breaker, circuit 25 amp 47, 79	278784
	1	Terminal, jumper (not shown) 45, 46, 56, 57, 59, 60, 63, 70, 82, 83, 87	249956
	1	Cover plate (not shown) 61, 69, 91, 94	227593
43	1	Cover, silkscreen 45, 72, 73, 76, 78, 80 46, 49 47, 79 59, 61, 62, 65, 67, 68, 69, 70, 67, 70, 71, 91, 93, 94 60, 83, 63, 87 71, 82, 85, 89, 91, 93 77	278898 278900 278892 227785 227787 227786 278901
44	4	Screw, r.h.m. 6-32 all except 75, 77	X-49-25
	6	Screw, r.h.m. 6-32 75, 77	X-49-25
45	4	#6 washer all except 75, 77	#
	6	#6 washers 75, 77	#
46	4	Screw, hex. slotted 8-32 all	X-67-43

# Group 301: Controller & Mounting



Item	Qty.	Description Variation	Part No.
------	------	--------------------------	----------

47	1	Harness, engine wiring 45, 46, 47, 72 49, 56 59, 60, 61, 62, 82, 83, 84, 85, 94 63, 70 64, 68, 69, 86, 89, 90 65, 66, 87, 88 66, 67, 91 71 73 75, 76 77 78, 79 80 93	278880 227438 227705 227707 227704 227702 227706 227703 227424 227454 227443 227443 227586 227878
48	1	Guard, harness all except 75, 76, 80, 94	278977
49	2	Screw, self tapping all except 75, 76, 80, 94	X-67-113
50	1	Voltage Regulator all	228605
51	3	Screw, hex. slotted hd. 8-32 all except 75, 76, 80, 94	X-67-43
	4	Screw, hex slotted hd. 8-32 75, 76, 80, 94	X-67-59

Item	Qty.	Description Variation	Part No.
------	------	--------------------------	----------

52	1	Screw, tapping 8-32 x 1/2 all except 75, 76, 80, 94	X-67-60
53	1	Charger Assembly, battery 73, 75, 76, 77, 78, 79, 80	B-278660
54	2	Screw, self tapping 64, 65, 67, 68, 69, 71, 73, 75, 76, 77, 79, 80, 86-91	X-67-125
55	2	Washer, plain 64, 65, 67, 68, 69, 71, 73, 75, 76, 77, 78, 79, 80, 86-91	X-25-74
56	1	Breaker, circuit 73, 75, 76, 77, 78, 79, 80, 64, 65, 67, 68, 69, 71, 86-89, 90, 91	241879
57	2	Screw, self tapping 73, 75, 76, 77, 78, 79, 80	X-67-113
58	1	Radio Frequency Interference (RFI) filter kit 45, 46, 49, 56, 72, 73, 75-80	227874

## Group 701: Literature

Item	Qty.	Description Variation	Part No.
1	1	Owners and Installation Manual 6	TP-5571
2	1	Service Manual, generator 6	TP-5570
3	1	Parts Catalog 6	TP-5577

Item	Qty.	Description Variation	Part No.
4	1	Service Manual, Kohler engine 6	ENS-607
5	1	Floor Template	G25-2

## Generator Paint

1	Black Spray Paint, 12 oz. can	221292
---	-------------------------------	--------

# Accessories

Qty.	Description	Kit/Part No.
------	-------------	--------------

## Exhaust Kits

Note: Muffler system as viewed from service side.

### Under Set Mounted

#### Right Side Outlet

**PA-227875  
& PA-278639**

1	Screw, Hex head	X-791-7
1	Washer, plain	X-25-85
1	Nut, whiz 5/16-18	X-6210-7
3	Screw, hex flange	X-6217-1
1	Screw, drill	X-794-3
1	Clamp, U	X-722-8
1	Gasket, exhaust	278320
1	Arrester, spark (PA-278639 only)	278621
1	Muffler	278736
1	Adapter, exhaust	278766
1	Strap, muffler mounting	278769
1	Bracket, muffler mounting	278772
1	Installation Instructions	TT-870

#### Left Side Outlet

**PA-278638**

1	Screw, Hex head	X-791-7
1	Washer, plain	X-25-85
1	Nut, whiz 5/16-18	X-6210-7
3	Screw, hex flange	X-6217-1
1	Clamp, U	X-722-8
1	Screw, drill	X-794-3
1	Gasket, exhaust	278320
1	Arrester, spark	278621
1	Muffler	278737
1	Adapter, exhaust	278766
1	Strap, muffler mounting	278769
1	Bracket, muffler mounting	278772
1	Installation Instructions	TT-870

### Special applications to lower muffler additional 8"

#### Right Side Outlet

**PA-227435**

1	Screw, Hex head	X-791-7
2	Washer, plain	X-25-85
1	Nut, whiz 5/16-18	X-6210-7
3	Screw, hex flange	X-6217-1
1	Clamp, U	X-722-8
1	Screw, drill	X-794-3
1	Bracket, muffler mounting	227433
1	Adapter, exhaust	227434
1	Gasket, exhaust	278320
1	Arrester, spark	278621
1	Muffler	278736
1	Strap, muffler mounting	278769
1	Installation Instructions	TT-870

Qty.	Description	Kit/Part No.
------	-------------	--------------

#### Left Side Outlet

**PA-227436**

1	Screw, Hex head	X-125-23
1	Screw, Hex head	X-791-7
1	Washer, plain	X-25-40
1	Washer, plain	X-25-85
3	Screw, hex flange	X-6217-1
1	Clamp, U	X-722-8
1	Screw, drill	X-794-3
1	Bracket, muffler mounting	227433
1	Adapter, exhaust	227434
1	Gasket, exhaust	278320
1	Arrester, spark	278621
1	Muffler	278737
1	Strap, muffler mounting	278769
1	Installation Instructions	TT-870

### Below Floor Mounted Set

#### Front Outlet

**PA-278983**

2	Screw, hex flange	X-6217-1
2	Screw, hex flange	X-6217-2
1	Clamp, U	X-722-8
1	Screw, drill	X-794-3
1	Gasket, exhaust	278320
1	Adapter, exhaust	278979
1	Arrester, spark	278621
1	Muffler	278734
1	Installation Instructions	TT-870

#### Rear Outlet

**PA-278984**

2	Screw, hex flange	X-6217-1
2	Screw, hex flange	X-6217-2
1	Clamp, U	X-722-8
1	Screw, drill	X-794-3
1	Gasket, exhaust	278320
1	Adapter, exhaust	278979
1	Arrester, spark	278621
1	Muffler	278735
1	Installation Instructions	TT-870

#### Side Outlet

**PA-278985**

2	Screw, hex flange	X-6217-1
2	Screw, hex flange	X-6217-2
1	Clamp, U	X-722-8
1	Screw, drill	X-794-3
1	Gasket, exhaust	278320
1	Adapter, exhaust	278979
1	Arrester, spark	278621
1	Muffler, above tray	278733
1	Installation Instructions	TT-870

#### Center Tap Bottom Outlet

**PA-278986**

2	Screw, hex flange	X-6217-1
2	Screw, hex flange	X-6217-2
1	Clamp, U	X-722-8
1	Screw, drill	X-794-3
1	Gasket, exhaust	278320
1	Adapter, exhaust	278979
1	Arrester, spark	278621
1	Muffler	278963
1	Installation Instructions	TT-870

# Accessories

Qty.	Description	Kit/Part No.
------	-------------	--------------

## Remote Control Kits

### Illuminated Rocker Switch and Mounting Plate

#### PAA-278727

1	Panel Assy., remote (includes the following)	A-278727
1	Connector	239408
1	Panel, remote	250796
1	Switch, rocker	269296

### Illuminated Rocker Switch, Running Time, & Mounting Plate

#### PAA-239419

2	Screw, sheet metal	X-798-1
1	Switch Assembly, remote (includes the following)	A-239419
1	Meter, hour	238736
1	Harness, wiring	239418
1	Switch, rocker	269296
1	Panel, remote	269298

### 15 foot Harness

#### PA-278730

1	Harness, wiring	278730
---	-----------------	--------

### 30 foot Harness

#### PA-278728

1	Harness, wiring	278728
---	-----------------	--------

### 40 foot Harness

#### PA-278729

1	Harness, wiring	278729
---	-----------------	--------

### Adaptor Harness, 12 inch Pigtail

#### PA-278681

1	Harness, wiring	278681
---	-----------------	--------

### Adaptor Harness, 36" 6 pin to 4 pin

#### PA-278682

1	Harness, wiring	278682
---	-----------------	--------

### Hour Meter

#### PA-227629

1	Bracket, hour meter	227616
1	Harness, wiring	227623
1	Meter, hour	238735

### Key Switch Kit

#### PA-227615

1	Plate	227613
1	Plate, rear	227614
1	Switch Assembly	526941

Qty.	Description	Kit/Part No.
------	-------------	--------------

## Below Floor Mounting Kits

### Below Floor Mounting System

#### PA-227840

1	Base, below floor tray	227829
1	Plate, front	278711
1	Cover, side	278712
1	Cover, back	278713

### Below Floor Housing and Hinge Kit

#### PA-227522

1	Screw, H.C.	X-125-33
1	Nut, whiz 5/16-18	X-6210-7
6	Screw, hex flange	X-6217-1
6	Screw, hex flange	X-6217-5
3	Bushing	X-634-25
2	Screw, self tapping	X-67-114
11	Screw, self tapping	X-67-115
1	Bracket	227491
1	Decal	227500
1	Baffle, heat	227502
1	Strap, support	227509
1	Decal	227587
1	Decal, warning	278850
1	Plate, hinge	278924
1	Bracket, housing	278934
1	Tray, hinged	278921
1	Panel Assembly	A-227493
2	Screw, hex flange	X-6217-1
9	Screw, hex flange	X-6217-5
2	Screw, self tapping	X-67-115
1	Support, left center	227501
1	Support, rear	227503
1	Bracket, right corner	227504
1	Bracket, left corner	227505
2	Hinge	278925
1	Support, right center	227508
1	Panel, rear housing	227496
1	Panel Assembly	A-227494
2	Screw, self tapping	X-67-64
1	Plate, spacer	227515
1	Support, left side	227507
1	Panel, left housing	227499
1	Panel Assembly	A-227495
6	Screw, self tapping	X-67-64
1	Panel, right front	227498
1	Plate, spacer	227518
1	Support, right side	227506
1	Panel, right housing	227497

# Accessories

## Fuel System Kits

### **LP Fuel Regulator Relocation Service Kit 227954**

1	Installation Instructions	TT-1063
1	Tee, black iron 3/8 x 3/8	X-203-15
1	Pipe	X-204-21
1	Nipple, pipe 3/8 x 1 /12	X-204-8
1	Cap, pipe	X-268-9
1	Elbow, street 3/8	X-274-6
1	Insulation, sleeve	227574
1	Fuel Line	227938
1	Bracket, regulator	227939
1	Bracket, regulator	227940
1	Adapter, pipe	227941
1	Line, fuel	227951
1	Union, inverted flare	227952
1	Liner, reflective	227955
1	Insulation, breather line	227957
1	Spacer, 0,281 x 0.50 x 0.375	265861

# Appendix A.

## Glossary of Abbreviations

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

AC	alternating current	EMI	electromagnetic interference
AISI	American Iron and Steel Institute	EPA	Environmental Protection Agency
Amp	ampere	etc.	etcetera, (and so forth)
Amps	amperes	ext.	external
ANSI	American National Standard Institute	°F	Fahrenheit degree
API	American Petroleum Institute	fl. oz.	fluid ounce, fluid ounces
approx.	approximate, approximately	FM	frequency modulation
A/R	as required, as requested	ft.	foot, feet
A/S	as supplied, as stated, as suggested	ft. lbs.	foot pound, foot pounds
ASA	American Standards Association	ga.	gauge
ASME	American Society of Mechanical Engineers	gal./ gals.	gallon, gallons
assy.	assembly	gph	gallons per hour
ASTM	American Society for Testing Materials	gpm	gallons per minute
ATDC	after top dead center	gr.	grade
aux.	auxiliary	grd.	ground
AWG	American Wire Gauge	HCHT	high cylinder head temperature
AWM	appliance wiring material	HET	high exhaust (or engine) temperature
BBDC	before bottom dead center	Hg	mercury (element)
BDC	before dead center	H <sub>2</sub> O	water
BHP	brake horsepower	HP	horsepower
bmep	brake mean effective pressure	hr, hrs	hour
Btu	British thermal unit	Hz	hertz (cycles per second)
°C	Celsius degree	ID	inside diameter
cc	cubic centimeter	IEEE	Institute of Electrical and Electronic Engineers
CCA	cold cranking Amps.	in.	inch(es)
CEC	Canadian Electrical Code	inc.	incorporated
cfh	cubic feet per hour	in. lbs.	inch pounds
cfm	cubic feet per minute	int.	internal
CID	cubic inch displacement	int.-ext.	internal-external
cm	centimeter, centimeters	ISO	International Standards Organization
cmm	cubic meters per minute	J	joule, joules
co.	company	JIS	Japanese Industry Standard
cont'd.	continued	kg	kilogram, kilograms
CSA	Canadian Standards Association	kg/cm <sup>2</sup>	kilograms per square centimeter
CT	current transformer	kgm	kilogram meter(s)
cu. in.	cubic inch, cubic inches	kJ	kilojoules (btu cal)
cyl.	cylinder	km	kilometer, kilometers
dB	decibel	kPa	kiloPascal, kiloPascals
dBA	decibels (A weighted)	kph	kilometers per hour
DC	direct current	kV	kilovolt
DCR	direct current resistance	kVA	kilovolt amperes
deg.	degree	kW	kilowatt, kilowatts
dept.	department	kWH	kilowatt hour
dia.	diameter	L	liter, liters
e.g.	example given	LxWxH	length x width x height
EIA	Electronic Industries Association	LED(s)	light emitting diode

lb., lbs.	pound, pounds	PF	power factor
L/hr.	liter per hour, liters per hour	PMG	permanent magnet generator
L/min.	liter(s) per minutes,	pot.	potentiometer
LOP	low oil pressure	ppm	parts per million
LP	liquefied petroleum	psi	pounds per square inch
m	meter, meters	pt., pts.	pint, pints
m <sup>3</sup>	cubic meter, cubic meters	PVC	polyvinyl chloride
max.	maximum	qt., qts.	quart, quarts
MCM	one thousand circular mils.	qty.	quantity
megger	megohmmeter	ref.	reference
MHz	megahertz	RFI	radio frequency interference
mi.	mile, miles	r.h.m.	round-head machine (screw)
mil	one one-thousandth of an inch	rms	root mean square
min.	minimum	RPM	revolutions per inch
mJ	millijoule, millijoules	RTV	room temperature vulcanization
MJ	mega joule, mega joules	SAE	Society of Automotive Engineers
mm	millimeter, millimeters	SCR	silicon controlled rectifier
m <sup>3</sup> /min	cubic meters per minute	sec.	second, seconds
MPa	megaPascal	spec.	specs, specification
mW	milliwatt, milliwatts	sq.	square
MW	megawatt, megawatts	sq. cm	square centimeters
N/A	not available or not applicable	sq. in.	square inch, square inches
NBS	National Bureau of Standards	tach	tachometer
N.C.	normally closed	TDC	top dead center
NEC	National Electrical Code	tech. pub.	technical publications
NEMA	National Electrical Manufacturers Association	temp.	temperature
NFPA	National Fire Protection Association	TIF	telephone influence factor
Nm	Newton meter, Newton meters	TP, TPs	technical publications
no., nos	number, numbers	turbo	turbocharger
NPT	National Standard taper pipe thread per general use	UHF	ultrahigh frequency
N/R	not required	UNC	Unified coarse thread (was NC)
OC	overcrank	UNF	Unified fine thread (was NF)
OD	outside diameter	UL	Underwriter's Laboratories, Inc.
OEM	original equipment manufacturer	U/S	undersize
OS	overspeed, oversize	U.S.A.	United States of America
O/S	oversize	V	volt, volts
OSHA	Occupational Safety and Health Act	vac	Volts alternating current
OV	overvoltage	vdc	volts direct current
oz.	ounce, ounces	VHF	very high frequency
		W	watt, watts

# Appendix B.

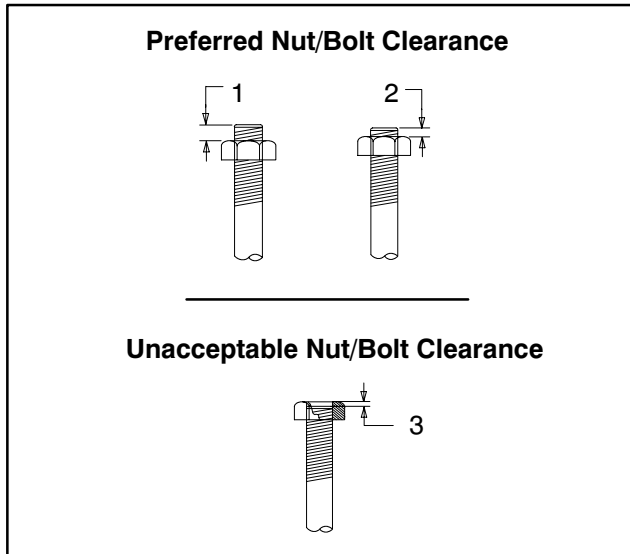
## Common Hardware Application Guidelines

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 loc washers as a bolt locking device where specified. Use SAE flate washers with whiz nuts, spirallock nuts, or standard nuts and preloading (torque) of the bolt in all other applications.

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



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

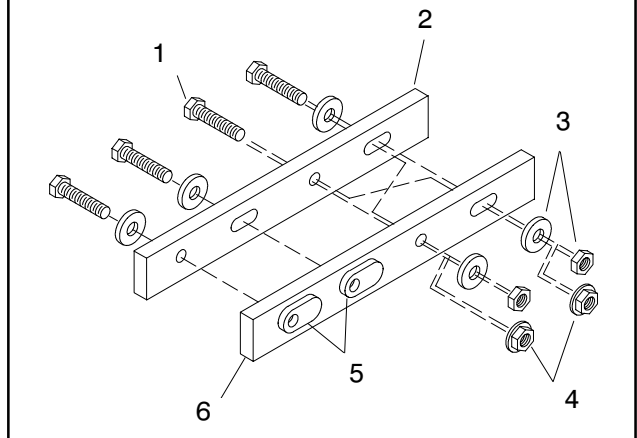
**Figure 1. Acceptable Bolt Lengths**

### Steps for common hardware application:

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

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

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



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

**Figure 2. Acceptable Hardware Combinations**

THIS PAGE INTENTIONALLY LEFT BLANK



## Nuts

### Styles



Hex. Head



Lock Nut or  
Nylock Nut



Square Nut



Cap Nut or  
Acorn Nut



Wing Nut

### Grade (Hardness)

#### American Standard



Grade 2



Grade 5

#### Metric



5.8



8.8



10.9



12.9

### Sample Dimensions

#### American Standard

Major Thread Diameter In Fractional Inches Or  $\frac{1}{4}$ -20 Threads Per Inch  
Screw Number Size

#### Metric

Major Thread Diameter In Millimeters  $M8-1.25$  Distance Between Threads In Millimeters

## Washers

### Styles



Plain  
Washer



Split Lock Washer  
or Spring Washer



Spring Washer  
or Wave Washer



External  
Tooth Lock  
Washer



Internal Tooth  
Lock Washer



Internal-External Tooth  
Lock Washer

### Grade (Hardness)

There is no marking to identify hardness. Usually hardened washers have a black oxide or black phosphate finish rather than a zinc (silver-colored) finish.

### Sample (Hardness)

#### Plain Washers

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

#### Lock Washers

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

# Appendix D.

## General Torque Specifications

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

new plated threads. Increase values by 20% if non-plated threads are used.

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

Use the following specifications for metric fasteners when no torque values are given elsewhere in this manual for a specified bolt. These values on based on new plated threads. Increase values by 20% if non-plated threads are used.

Screws threaded into aluminum must have two diameters of threads engaged and may require 30% or more reduction in the torque.

### Torque ft-lb (Nm)

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

THIS PAGE INTENTIONALLY LEFT BLANK

# Appendix E.

## Common Hardware List

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

### HEX BOLTS (GRADE 5)

<u>Part Number</u>	<u>Dimensions</u>	<u>Part Number</u>	<u>Dimensions</u>
X-465-17	1/4-20 x .38	X-6238-13	3/8-16 x 4.50
X-465-6	1/4-20 x .50	X-6238-18	3/8-16 x 5.50
X-465-2	1/4-20 x .62	X-6238-25	3/8-16 x 6.50
X-465-16	1/4-20 x .75		
X-465-18	1/4-20 x .88	X-6238-14	3/8-24 x .75
X-465-7	1/4-20 x 1.00	X-6238-16	3/8-24 x 1.25
X-465-8	1/4-20 x 1.25	X-6238-21	3/8-24 x 4.00
X-465-9	1/4-20 x 1.50	X-6238-22	3/8-24 x 4.50
X-465-10	1/4-20 x 1.75	X-6024-5	7/16-14 x .75
X-465-11	1/4-20 x 2.00	X-6024-2	7/16-14 x 1.00
X-465-12	1/4-20 x 2.25	X-6024-8	7/16-14 x 1.25
X-465-14	1/4-20 x 2.75	X-6024-3	7/16-14 x 1.50
X-465-21	1/4-20 x 5.00	X-6024-4	7/16-14 x 2.00
		X-6024-11	7/16-14 x 2.75
X-465-25	1/4-28 x .38	X-6024-12	7/16-14 x 6.50
X-465-20	1/4-28 x 1.00	X-129-15	1/2-13 x .75
X-125-33	5/16-18 x .50	X-129-17	1/2-13 x 1.00
X-125-23	5/16-18 x .62	X-129-18	1/2-13 x 1.25
X-125-3	5/16-18 x .75	X-129-19	1/2-13 x 1.50
X-125-31	5/16-18 x .88	X-129-20	1/2-13 x 1.75
X-125-5	5/16-18 x 1.00	X-129-21	1/2-13 x 2.00
X-125-24	5/16-18 x 1.25	X-129-22	1/2-13 x 2.25
X-125-34	5/16-18 x 1.50	X-129-23	1/2-13 x 2.50
X-125-25	5/16-18 x 1.75	X-129-24	1/2-13 x 2.75
X-125-26	5/16-18 x 2.00	X-129-25	1/2-13 x 3.00
230578	5/16-18 x 2.25	X-129-27	1/2-13 x 3.50
X-125-29	5/16-18 x 2.50	X-129-29	1/2-13 x 4.00
X-125-27	5/16-18 x 2.75	X-129-30	1/2-13 x 4.50
X-125-28	5/16-18 x 3.00	X-463-9	1/2-13 x 5.50
X-125-22	5/16-18 x 4.50	X-129-44	1/2-13 x 6.00
X-125-32	5/16-18 x 5.00	X-129-51	1/2-20 x .75
X-125-35	5/16-18 x 5.50	X-129-45	1/2-20 x 1.25
X-125-36	5/16-18 x 6.00	X-129-52	1/2-20 x 1.50
X-125-40	5/16-18 x 6.50	X-6021-3	5/8-11 x 1.00
		X-6021-4	5/8-11 x 1.25
X-125-43	5/16-24 x 1.75	X-6021-2	5/8-11 x 1.50
X-125-44	5/16-24 x 2.50	X-6021-1	5/8-11 x 1.75
X-125-30	5/16-24 x .75	273049	5/8-11 x 2.00
X-125-39	5/16-24 x 2.00	X-6021-5	5/8-11 x 2.25
X-125-38	5/16-24 x 2.75	X-6021-6	5/8-11 x 2.50
X-6238-2	3/8-16 x .62	X-6021-7	5/8-11 x 2.75
X-6238-10	3/8-16 x .75	X-6021-12	5/8-11 x 3.75
X-6238-3	3/8-16 x .88	X-6021-11	5/8-11 x 4.50
X-6238-11	3/8-16 x 1.00	X-6021-10	5/8-11 x 6.00
X-6238-4	3/8-16 x 1.25	X-6021-9	5/8-18 x 2.50
X-6238-5	3/8-16 x 1.50	X-6239-1	3/4-10 x 1.00
X-6238-1	3/8-16 x 1.75	X-6239-8	3/4-10 x 1.25
X-6238-6	3/8-16 x 2.00	X-6239-2	3/4-10 x 1.50
X-6238-17	3/8-16 x 2.25	X-6239-3	3/4-10 x 2.00
X-6238-7	3/8-16 x 2.50	X-6239-4	3/4-10 x 2.50
X-6238-8	3/8-16 x 2.75	X-6239-5	3/4-10 x 3.00
X-6238-9	3/8-16 x 3.00	X-6239-6	3/4-10 x 3.50
X-6238-19	3/8-16 x 3.25	X-792-1	1-8 x 2.25
X-6238-12	3/8-16 x 3.50	X-792-5	1-8 x 3.00
X-6238-20	3/8-16 x 3.75	X-792-8	1-8 x 5.00

## NUTS

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

### NOTE

6-32 and 8-32 standard nuts must be used for circuit board mountings and some controller assembly applications and are not classified as common hardware. For this reason they are not on this list.

## PLAIN WASHERS

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

**TP-5577 5/95b**

**PRINTED IN U.S.A.**

**KOHLER**<sup>®</sup>  
POWER SYSTEMS

KOHLER CO. KOHLER, WISCONSIN 53044  
PHONE 414-565-3381  
FAX 414-459-1646 (North American Sales), 414-459-1614 (International)  
FOR SALES & SERVICE IN U.S.A. & CANADA PHONE 1-800-544-2444