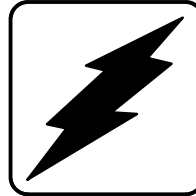


Service Parts

Industrial/RV/Mobile Generator Sets



Models:

15/20CCO-RV

15/20CCFO-RV

20RCOZ/20RCOZN



KOHLER[®]
POWER SYSTEMS

Specification Series 135

TP-5607 10/97

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Introduction

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

This manual includes the following main sections:

- *Table of Contents:* Lists the sections of this catalog.
- *Introduction (and other information sections):* Contains introductory material followed by sections on specification numbers, part numbers, and hardware.
- *Index:* Indexes generator set specifications and their groups.
- *Group Parts Lists:* Lists part numbers of parts in the groups.
- *Kit List and kit sections:* Lists kits (by model) and their parts.
- *Appendices:* Includes Glossary of Abbreviations, Common Hardware Application Guidelines, Common Hardware Identification, General Torque Specifications, and Common Hardware List.

Number Significance

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

- *Specification Number:* The generator specification number (spec number) is six digits with a PA-, PB-, or PE-prefix (Specification Number Index does not show prefixes). The first three digits designate generator size and engine model (specification series). The remaining digits are in sequence and identify a particular spec in a series. Spec numbers break down into groups.
- *Group Number:* A group consists of parts needed to perform one or more related functions. For example, the 101 group is the generator set Air Intake group.
- *Variation Number:* A group might have several variations. Parts comprising each variation perform the same function, but parts lists vary. For example, a 50 Hz generator alternator and 60 Hz generator alternator both perform the same function. However, they are constructed of different parts. Each of these differences necessitates the assignment of a group variation number.
- *Part Number:* The part number identifies an individual assembly, subassembly, component, or accessory kit.

How to Find Part Numbers

FOLLOW THESE STEPS to identify a part:

STEP 1: Turn to the Specification Number Index. The first column lists generator set specification numbers grouped

by model. The headings across the top identify the groups of parts that make up the generator set. The intersection of the specification number and the group numbers is the variation number corresponding to the components of that specification number. Note the variation number.

STEP 2: Find the page number of the group in the Table of Contents and turn to that page or page forward until you find the group. Use the drawings and itemized text to locate the part and its part number.

Hardware Grades

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

Hardware References

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

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

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

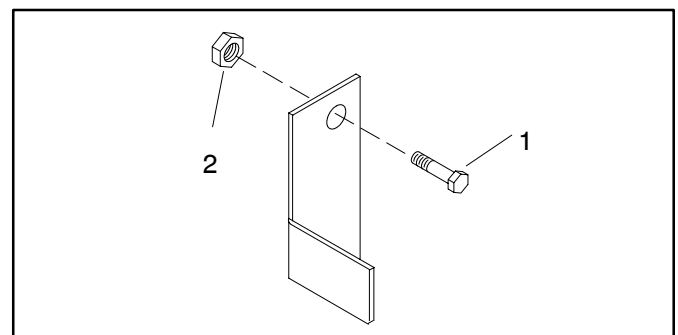


Figure 1. Hardware References

Specification Number Index

GROUP TITLE & NUMBER	<i>Cylinder Block</i>	<i>Gear Housing</i>	<i>Flywheel Housing & Oil Sump</i>	<i>Cylinder Head & Bonnet</i>	<i>Intake & Exhaust Manifold</i>	<i>Camshaft & Driving Gear</i>	<i>Turbocharger</i>	<i>Crankshaft & Piston</i>	<i>Lube Oil System</i>	<i>Cooling Water System</i>	<i>Fuel Injection Pump</i>	<i>Governor</i>
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Group No.	1	2	3	4	5	6	7	8	9	10	11	12
Spec. No.	VARIATION NUMBER											
15 kW												
135301	1	1	1	1	1	1	2	1	1	1	1	1
135303	1	1	1	1	1	1	2	1	1	1	1	1
135307	1	1	1	1	1	1	2	1	1	1	1	1
135309	1	1	1	1	1	1	2	1	1	1	1	1
135321	1	1	1	1	1	1	2	1	1	1	1	1
20 kW												
135302	2	2	2	2	2	2	2	2	2	2	2	2
135308	2	2	2	2	2	2	2	2	2	2	2	2
135304	2	2	2	2	2	2	2	2	2	2	2	2
135305	2	2	2	2	2	2	2	2	2	2	2	2
135306	2	2	2	2	2	2	2	2	2	2	2	2
135310	2	2	2	2	2	2	2	2	2	2	2	2
135311	2	2	2	2	2	2	2	2	2	2	2	2
135317	2	2	2	2	2	2	2	2	2	2	2	2
135320	2	2	2	2	2	2	2	2	2	2	2	2

Specification Number Index

GROUP TITLE & NUMBER	<i>Fuel Injection Line</i>	<i>Fuel Filter & Fuel Line</i>	<i>Starting Motor</i>	<i>Alternator</i>	<i>Gasket Set</i>								
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Group No.	13	14	15	16	17	VARIATION NUMBER							
Spec. No.													
15 kW													
135301	1	1	1	1	1								
135303	1	1	1	1	1								
135307	1	1	1	1	1								
135309	1	1	1	1	1								
135321	1	1	1	1	1								
20 kW													
135302	2	2	2	2	2								
135308	2	2	2	2	2								
135304	2	2	2	2	2								
135305	2	2	2	2	2								
135306	2	2	2	2	2								
135310	2	2	2	2	2								
135311	2	2	2	2	2								
135317	2	2	2	2	2								
135320	2	2	2	2	2								

Specification Number Index

GROUP TITLE & NUMBER	<i>Air Intake</i>	<i>Fuel System</i>	<i>Coolant System</i>	<i>Engine System</i>	<i>Nameplate and Decals</i>	<i>Skid and Plant Mounting</i>	<i>Generator and Mounting</i>	<i>Controller and Mounting</i>	<i>Literature</i>			
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Group No.	101	103	104	105	107	109	201	301	701			
Spec. No.	VARIATION NUMBER											
15 kW												
135301	10	13	16	24	20	20	31	29	5			
135303	10	13	17	24	32	20	31	31	5			
135307	10	13	17	24	27	20	34	30	5			
135309	10	13	16	24	33	20	31	31	5			
135321	10	13	17	26	27	20	35	30	5			
20 kW												
135302	11	13	16	25	21	20	32	29	5			
135308	11	13	18	25	28	20	34	30	5			
135304	11	13	18	25	29	20	32	31	5			
135305	11	13	16	25	21	20	33	29	5			
135306	11	13	18	25	23	20	33	31	5			
135310	11	13	16	25	31	20	32	31	5			
135311	11	13	16	25	21	20	33	31	5			
135317	14	15	19	25	30	20	36	34	5			
135320	11	13	18	25	28	20	35	30	5			

Specification Number Index

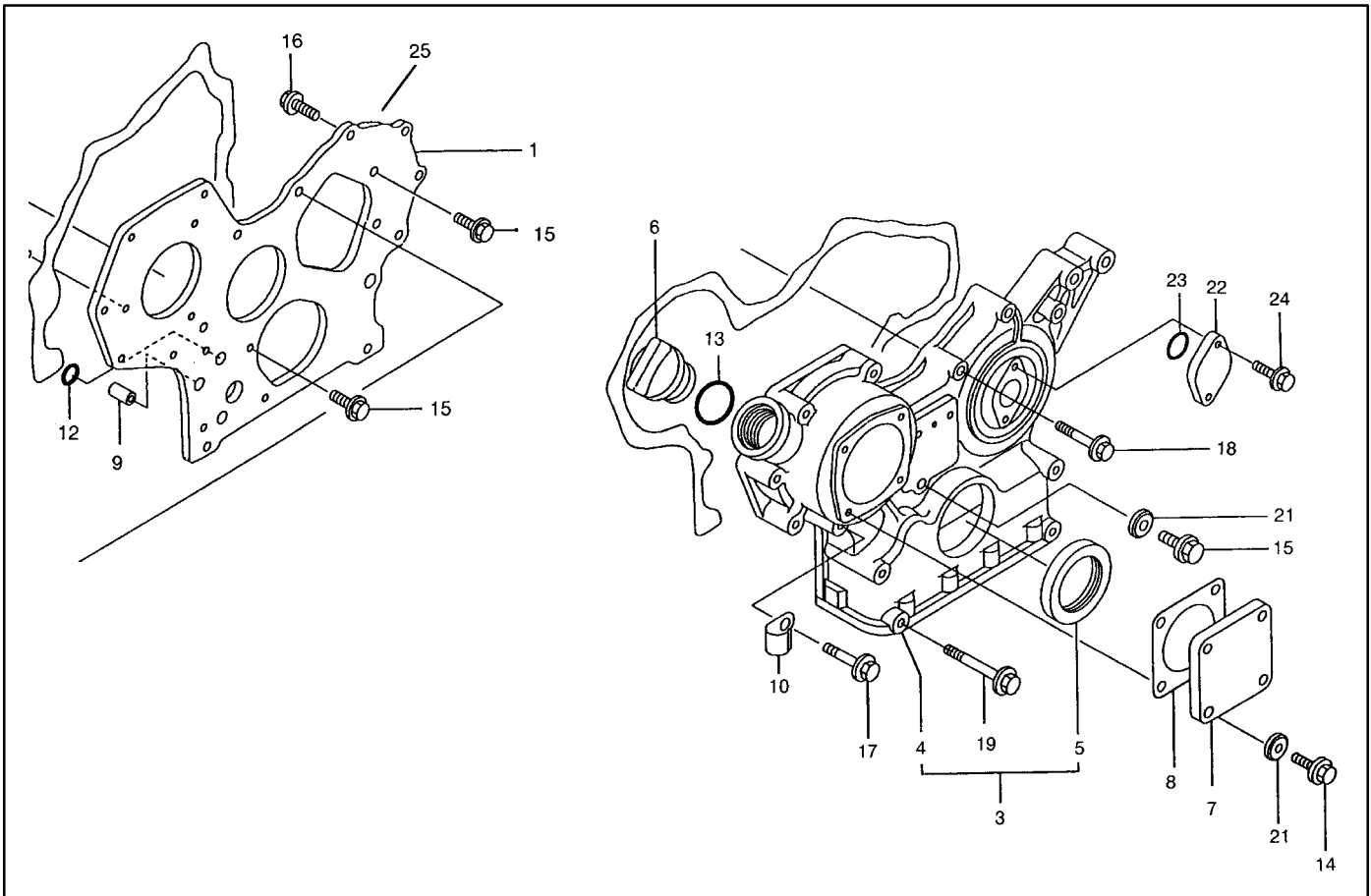
Group 1: Cylinder Block

Item	Qty.	Description Variation	Part No.
1	1	Block Assembly, cylinder (Includes Items 2-21) 1, 2	225931
2	1	Block Assembly, cylinder 1, 2	X
3	1	Cylinder Block 1, 2	X
4	3	Plug PT 1/4 1, 2	252771
5	1	Plug 1, 2	252566
6	1	Plug PT 1/8, screw 1, 2	256515
7	1	Plug 50 1, 2	225827
8	2	Plug 12 1, 2	252728
9	8	Plug 30 1, 2	225924
10	4	Gasket 8, round 1, 2	250967
11	1	Plug PT 3/8, screw (not shown) 1	250975
12	4	Bolt, M8 x 12 plated 1, 2	252695

Item	Qty.	Description Variation	Part No.
13	10	Bolt, bearing cap 1, 2	252803
14	1	Bearing Cap, main 1, 2	X
15	4	Bearing Cap 1, 2	X
16	5	Main Bearing 1, 2	256762
	5	Main Bearing, undersized 0.25 1, 2	256763
17	2	Bearing, thrust 1, 2	256764
	2	Thrust Bearing, oversized 0.25 1, 2	256765
18	1	Bushing, camshaft 1, 2	252933
19	2	Bolt, M8 x 16 plated 1, 2	252696
20	18	Stud, cylinder head 1, 2	252797
21	1	Gasket, cylinder head 1, 2	225281

X Item not sold separately

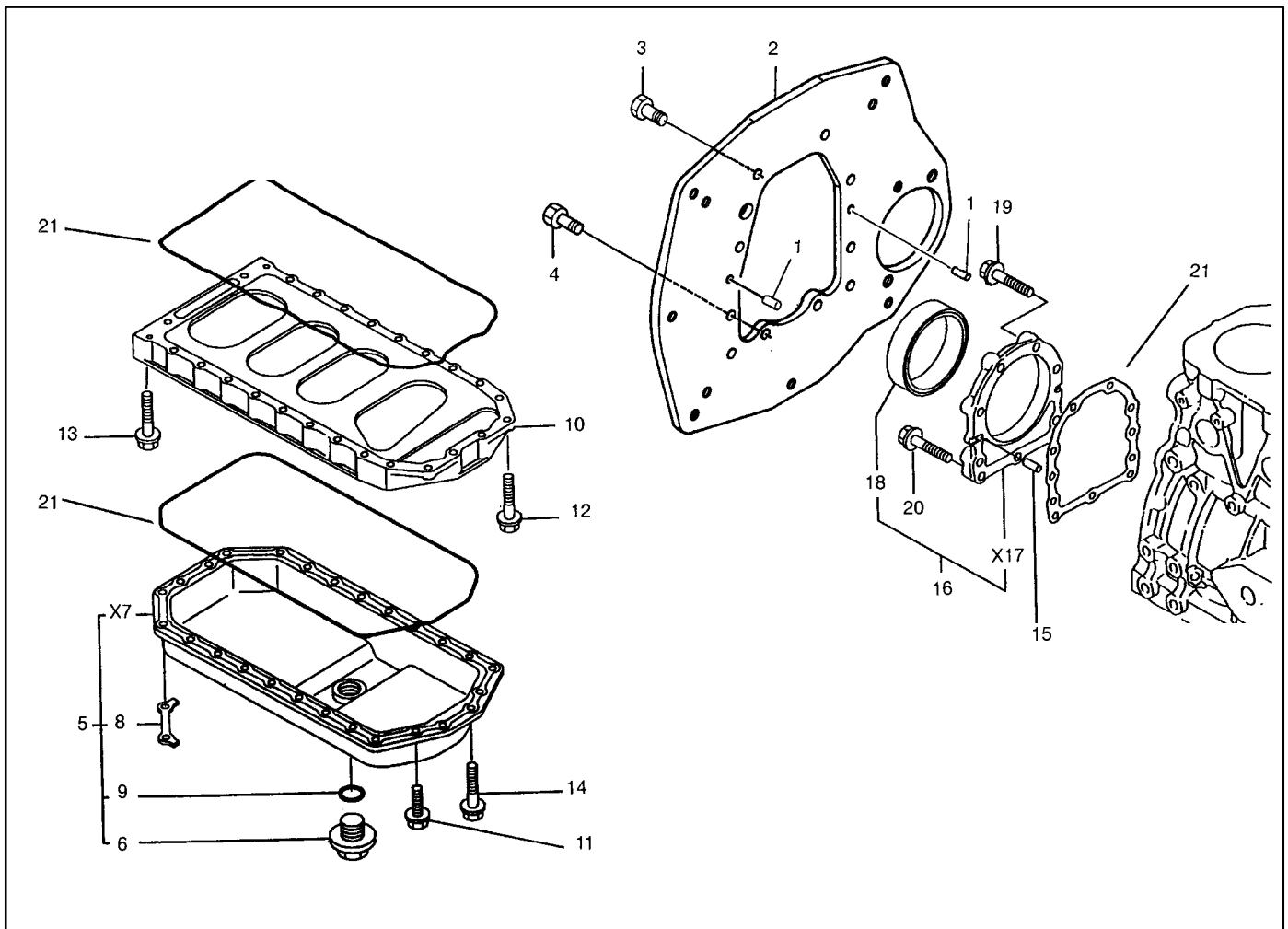
Group 2: Gear Housing



Item	Qty.	Description Variation	Part No.
1	1	Flange, gear housing 1, 2	252861
2	3	Stud, M8 x 22 1, 2	252409
3	1	Housing Assembly, gear (Includes Item 4, 5) 1, 2	229799
4	1	Housing, gear 1, 2	X
5	1	Seal, oil 1, 2	252931
6	1	Cap, lub. oil supply 1, 2	250837
7	1	Cover 1, 2	256531
8	1	Gasket 1, 2	252085
9	2	Pipe, knock L=18 1, 2	252932
10	1	Retainer 1, 2	252808
11	1	O-ring, F.I. pump 1, 2	252764
12	2	O-ring, 1A P16.0 1, 2	250981
13	1	O-ring, 1A P32.0 1, 2	252684

Item	Qty.	Description Variation	Part No.
14	4	Bolt, M8 x 12 plated 1, 2	252695
15	4	Bolt, M8 x 16 plated 1, 2	252696
16	2	Bolt, M8 x 20 plated 1, 2	252697
17	6	Bolt, M8 x 45 plated 1, 2	252703
18	3	Bolt, M8 x 55 plated 1, 2	256798
19	4	Bolt, M8 x 85 plated 1, 2	256799
20	3	Nut, M8 1, 2	252723
21	5	Seal Washer 8 1, 2	252734
22	1	Cover, blind 1, 2	252750
23	1	O-ring, 1A S24.0 1, 2	256796
24	2	Bolt, M6 x 12 plated 1, 2	225816
25	1	Gasket, Liquid 1, 2	252998

Group 3: Flywheel Housing & Oil Pump



Item	Qty.	Description Variation	Part No.
1	2	Parallel Pin 8 x 16 1, 2	256750
2	1	Mounting Flange 1, 2	229416
3	6	Bolt, M10 x 20 1, 2	229505
4	4	Bolt, M10 x 25 1, 2	252714
5	1	Sump Assembly, lub. oil (Includes item 6-9) 1, 2	252983
6	1	Plug, M22 1, 2	252943
7	1	Sump, lube oil 1, 2	X
8	2	Support, oil sump 1, 2	256752
9	1	O-ring, 1A S24.0 1, 2	256796
10	1	Spacer, oil sump 1, 2	252862
11	4	Bolt, M8 x 16 plated 1, 2	252696

Item	Qty.	Description Variation	Part No.
12	2	Bolt, M8 X 25 plated 1, 2	252699
13	20	Bolt, M8 X 45 plated 1, 2	252703
14	4	Bolt, M8 X 50 plated 1, 2	252704
15	2	Parallel Pin 8 x 16 1, 2	256750
16	1	Case Assembly, oil seal (Includes item 17, 18) 1, 2	225866
17	1	Case, oil seal 1, 2	X
18	1	Seal, oil 1, 2	252930
19	6	Bolt, M8 x 30 plated 1, 2	225819
20	3	Bolt, M8 x 35 plated 1, 2	252701
21	1	Gasket, Liquid 1, 2	252998

X Item not sold separately

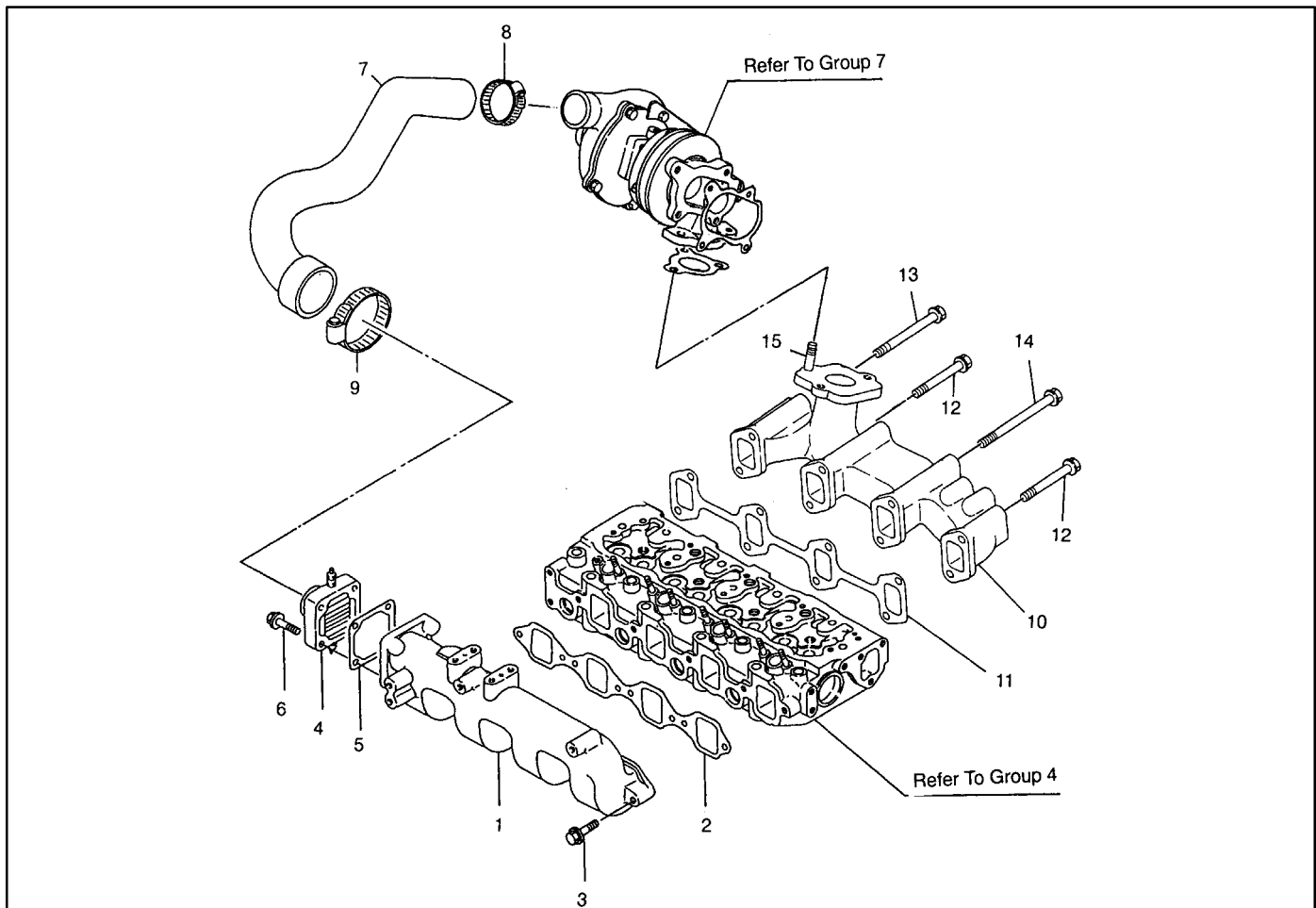
Group 4: Cylinder Head & Bonnet

Item	Qty.	Description Variation	Part No.
1	1	Pipe 1, 2	252807
2	1	Label 1, 2	X
3	4	Rivet 1, 2	X
4	2	Lifter, engine 1, 2	256532
5	4	Bolt, M8 x 14 plated 1, 2	225818
6	1	Head Assembly, cylinder (Includes items 7-30) 1	225932
	1	Head Assembly, cylinder (Includes items 7-30) 2	229843
7	1	Head Assembly, cylinder 1, 2	X
8	1	Head, cylinder 1, 2	X
9	4	Piece, cylinder 1, 2	X
10	4	Guide, intake (not shown) 1, 2	X
11	4	Guide, valve 1, 2	256736
12	4	Guide, exhaust (not shown) 1, 2	X
13	4	Guide, valve 1, 2	256768
14	4	Seat, valve (suction) 2	252871
15	4	Seat, valve (exhaust) 2	252872
16	3	Plug PT 1/4 1, 2	256525
17	4	Screw plug PT 3/8 1, 2	250975
18	8	Stud, M6 x 20 plated 1, 2	252717
19	4	Plug 22 1, 2	252729
20	2	Plug 40 1, 2	252732
21	4	Valve, intake 1, 2	252778
22	4	Valve, exhaust 1	252779
	4	Valve, exhaust 2	252780
23	8	Spring, valve 1, 2	252934
24	8	Retainer, spring 1, 2	252935
25	8	Cotter 8 1, 2	252737
26	4	Seal, valve stem 1, 2	252754
27	4	Seal, valve stem 1, 2	256578
28	8	Cap 1, 2	256717
29	2	Spring pin 6 x 12 1, 2	250963
30	8	Nut, M6 1, 2	250989

Item	Qty.	Description Variation	Part No.
31	1	Shaft, rocker arm (Includes items 32-43) 1, 2	229444
32	2	Support, rocker arm 1, 2	252843
33	3	Support, rocker arm 1, 2	252844
34	4	Spring 1, 2	252815
35	1	Shaft, rocker arm (Includes items 36 and 37) 1, 2	225891
36	1	Shaft 1, 2	X
37	2	Plug 10 1, 2	X
38	8	Arm Assembly, rocker (Includes items 39-41) 1, 2	225869
39	8	Screw, valve 1, 2	229844
40	8	Arm, valve rocker 1, 2	X
41	8	Nut, M8 x P1.0 1, 2	252817
42	3	Stud, M8 x 18 plated 1, 2	252722
43	3	Locknut, M8 plated 1, 2	250804
44	4	Protector, nozzle 1, 2	252743
45	4	Seat, nozzle 1, 2	252744
46	4	Retainer 1, 2	252745
47	3	Bolt, M8 x 25 plated 1, 2	252699
48	7	Bolt, M8 x 50 plated 1, 2	252704
49	1	Bonnet Assembly 1, 2	225935
50	1	Cap, lub. oil supply (Includes items 51-59) 1, 2	250837
51	1	Cover, breather 1, 2	225773
52	1	Baffle, breather 1, 2	252805
53	1	Plate, shelter 1, 2	252806
54	1	Bonnet 1, 2	X
55	1	Gasket, bonnet 1, 2	252914
56	1	O-ring, 1A P32.0 1, 2	252684
57	1	O-ring, 1A S50.0 1, 2	225812
58	2	Bolt, M8 x 16 plated 1, 2	252696
59	3	Knob 1, 2	252470
60	3	O-ring, 1A P12.0 1, 2	250801

X Item not sold separately

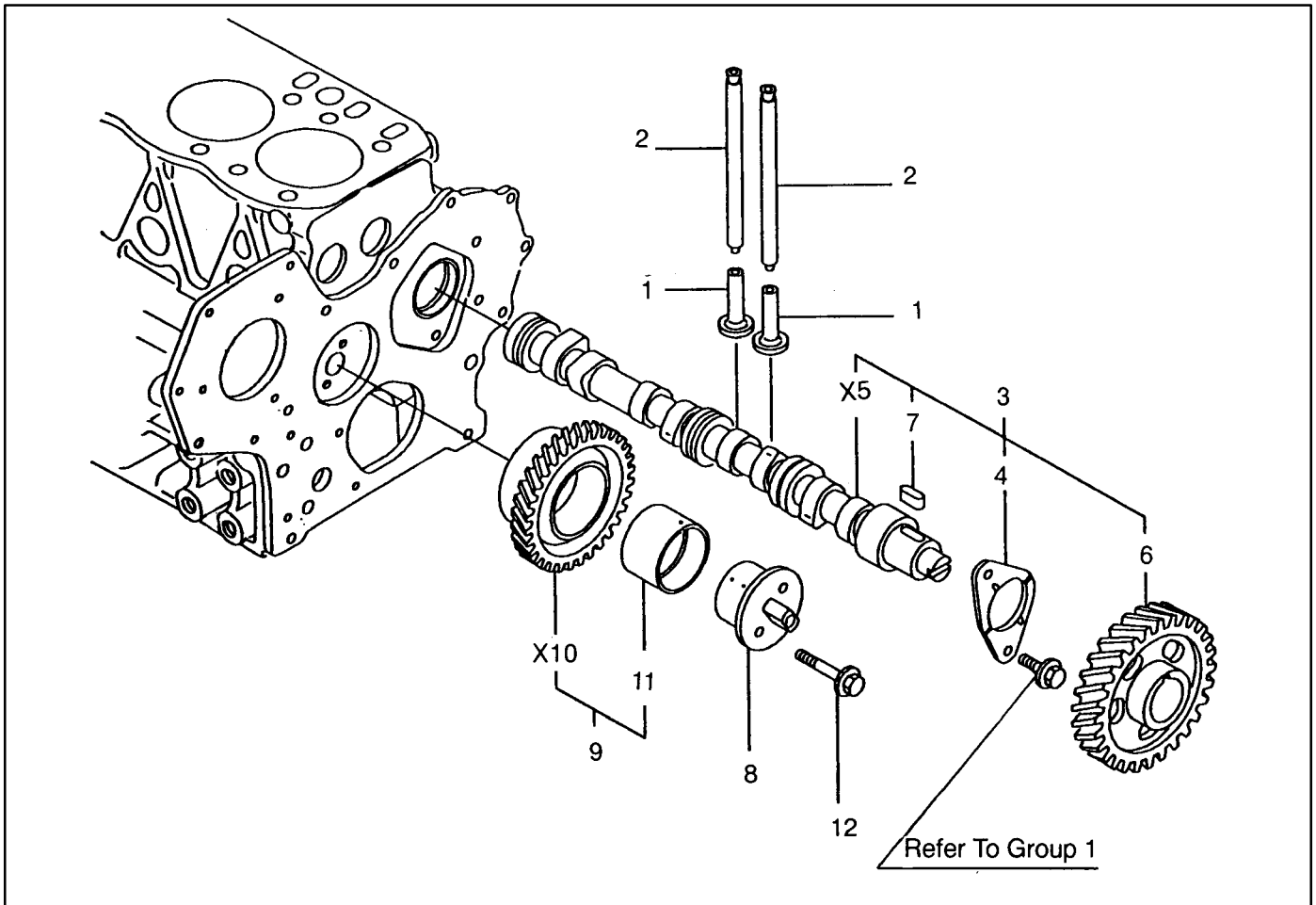
Group 5: Intake & Exhaust Manifold



Item	Qty.	Description Variation	Part No.
1	1	Manifold, air intake	256718
2	1	Gasket (non-asbestos) 1, 2	225892
3	5	Bolt, M8 x 35 plated 1, 2	252701
4	1	Heater, air 1, 2	256760
5	1	Gasket (non-asbestos) 1, 2	225778
6	4	Bolt, M8 x 35 plated 1, 2	252701
7	1	Hose (B), air intake 2	229845
8	1	Clamp 50 2	229846
9	1	Clamp 70 2	229495
10	1	Manifold, exhaust 1	229848
	1	Manifold, exhaust 2	229847

Item	Qty.	Description Variation	Part No.
11	1	Gasket, exhaust manifold 1, 2	252916
12	3	Bolt, M8 x 65 plated 2	252706
13	1	Bolt, M8 x 85 plated 2	256799
14	4	Bolt, M8 x 100 plated 2	252708
15	3	Stud, M8 x 22 plated 2	252719
16	2	Nut w/washer 8 (not shown) 1	225802
17	6	Bolt, M8 x 80 plated (not shown) 1	252707
18	4	Stud, M8 x 22 plated (not shown) 1	252719
19	2	Stud, M8 x 80 plated (not shown) 1	252720
20	1	Gasket (not shown) 1	225934

Group 6: Camshaft & Drive Gear



Item	Qty.	Description Variation	Part No.
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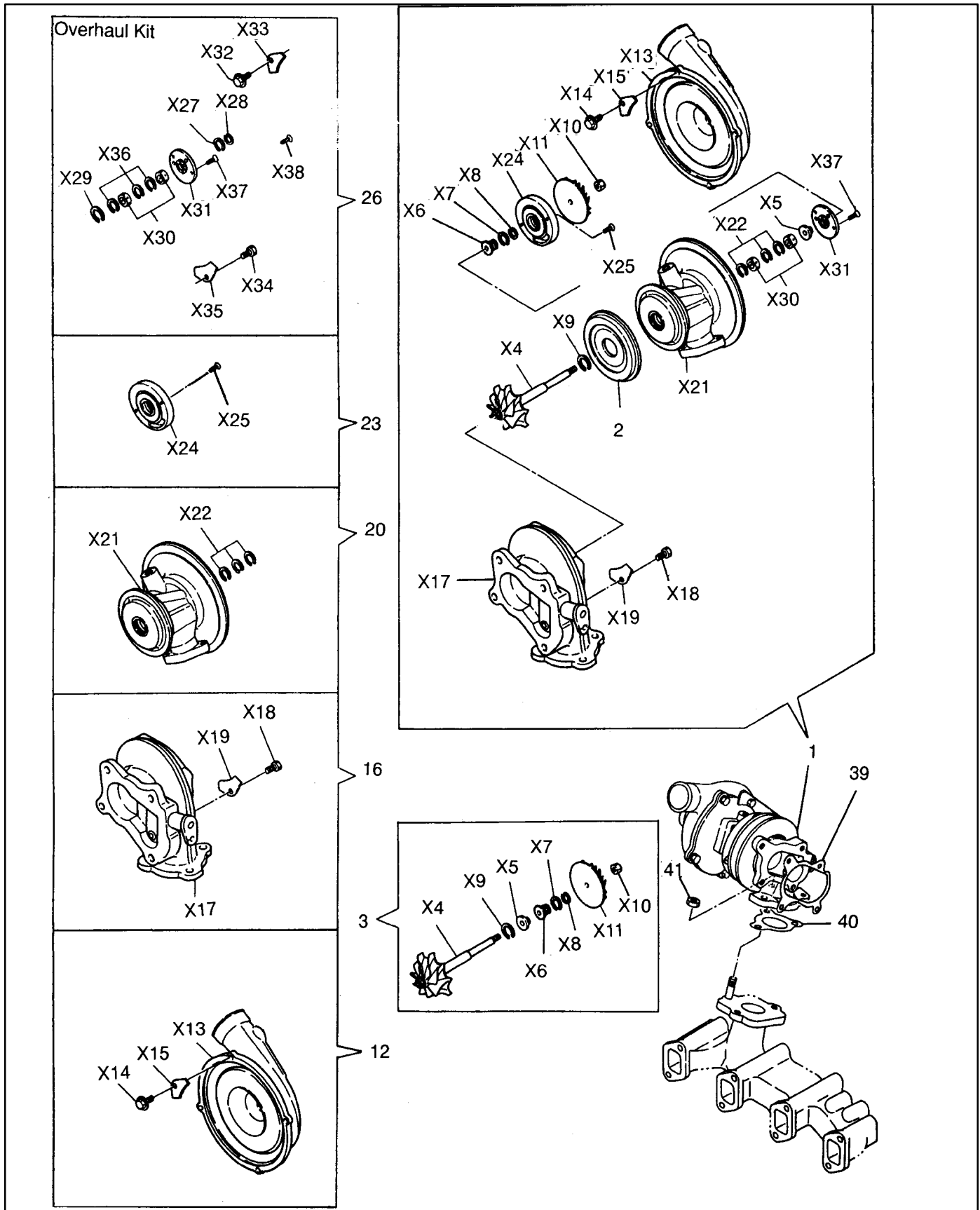
1	8	Tappet 1, 2	252819
2	8	Rod, push 1, 2	252820
3	1	Camshaft Assembly (Includes items 4-7) 1, 2	225930
4	1	Bearing, thrust 1, 2	252804
5	1	Camshaft Assembly 1, 2	X
6	1	Gear, camshaft 1, 2	256587

Item	Qty.	Description Variation	Part No.
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7	1	Key 7 x 14 1, 2	252669
8	1	Shaft, idle gear 1, 2	256753
9	1	Gear w/bushing (Includes items 10 and 11) 1, 2	256590
10	1	Gear, idle 1, 2	X
11	1	Bushing, idle gear 1, 2	256589
12	2	Bolt, M8 x 45 plated 1, 2	252703

X Item not sold separately

Group 7: Turbocharger



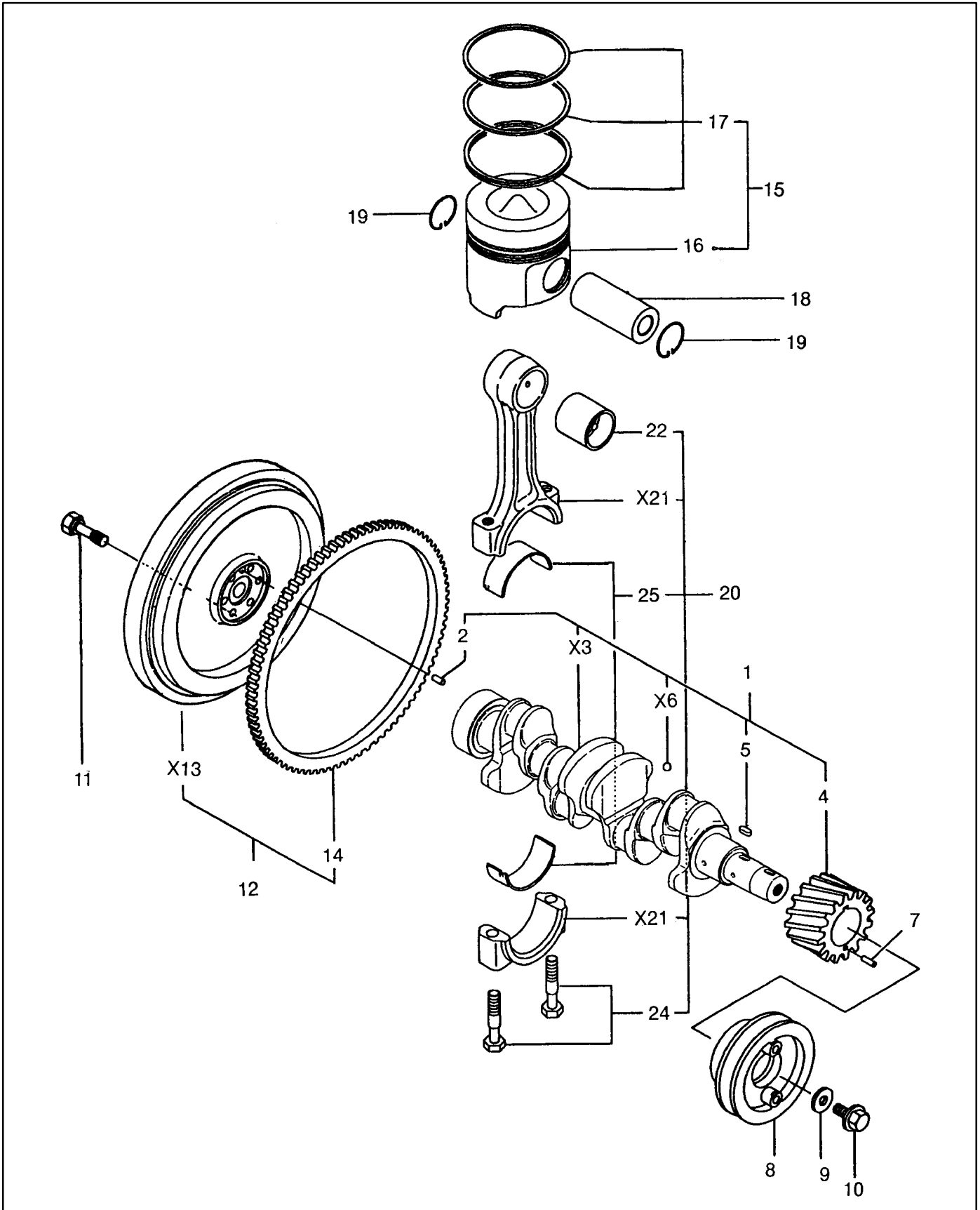
Group 7: Turbocharger

Item	Qty.	Description Variation	Part No.
1	1	Turbocharger RHB31 (Includes items 2-38) 2	229849
2	1	Protector, heat 2	229423
3	1	Rotor Assembly, turbo (Includes items 4-11) 2	229850
4	1	Shaft, turbine 2	X
5	1	Thrust bush 2	X
6	1	Oil drip 2	X
7	1	Seal Ring, blower side 2	X
8	1	Seal Ring, blower side 2	X
9	1	Seal Ring 2	X
10	1	Nut 2	X
11	1	Wheel 2	X
12	1	Housing Assembly, blower (Includes items 13-15) 2	229851
13	1	Housing, blower 2	X
14	4	Bolt, M5 x 10.5 2	X
15	2	Seal Ring, blower side 2	X
16	1	Housing Assembly, turbo (Includes items 17-19) 2	229852
17	1	Housing, turbine 2	X
18	4	Bolt, M6 x 11 2	X
19	4	Retainer 2	X
20	1	Housing Assembly, bearing (Includes items 21 and 22) 2	229424

Item	Qty.	Description Variation	Part No.
21	1	Housing, bearing 2	X
22	3	Circlip 2	X
23	1	Seal Plate Assembly (Includes items 24 and 25) 2	229853
24	1	Seal Plate 2	X
25	2	Screw 2	X
26	1	Overhaul Kit (Includes items 27-38) 2	229854
27	1	Seal Ring, blower side 2	X
28	1	Seal Ring, blower side 2	X
29	1	Seal Ring 2	X
30	2	Floating bearing 2	X
31	1	Thrust Metal 2	X
32	4	Bolt, M5 x 10.5 2	X
33	2	Seal Ring, blower side 2	X
34	4	Bolt, M6 x 11 2	X
35	4	Retainer 2	X
36	3	Circlip 2	X
37	2	Screw 2	X
38	2	Screw 2	X
39	1	Gasket 2	229855
40	1	Gasket 2	256631
41	3	Nut w/washer 8 2	225802

X Item not sold separately

Group 8: Crankshaft & Piston



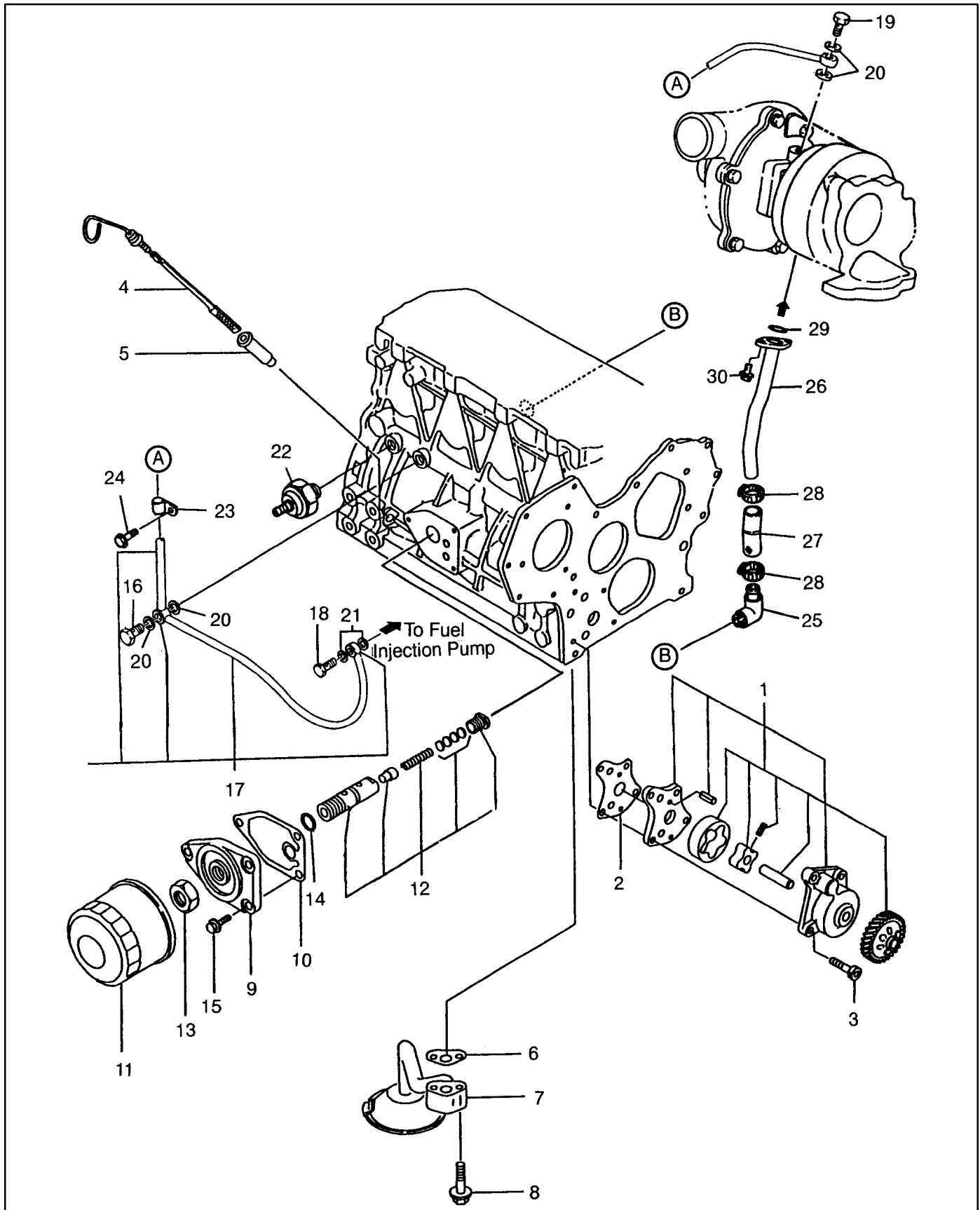
Group 8: Crankshaft & Piston

Item	Qty.	Description Variation	Part No.
1	1	Crankshaft Assembly (Includes items 2-6) 1	252984
	1	Crankshaft Assembly (Includes items 2-6) 2	229856
2	1	Parallel Pin 8 x 16 1, 2	256750
3	1	Crankshaft 1, 2	X
4	1	Gear, crankshaft 1, 2	252821
5	1	Key, 7 x 14 1, 2	252669
6	4	Ball 1/4, steel 1, 2	250977
7	1	Spring pin, 4 x 10 1, 2	252668
8	1	V-Pulley 1, 2	252918
9	1	Washer 1, 2	252937
10	1	Bolt, V-Pulley 1, 2	252763
11	6	Bolt, flywheel 1, 2	252401
12	1	Flywheel Assembly (Includes items 13 and 14) 1, 2	229857
13	1	Flywheel 1, 2	X
14	1	Gear, ring 1, 2	252774
15	4	Piston w/ring (Includes items 16 and 17) 1	225871
	4	Piston w/ring (Includes items 16 and 17) 2	229858
	4	Piston w/ring oversized 0.50 (Includes items 16 and 17) 1, 2	229862

Item	Qty.	Description Variation	Part No.
4	4	Piston w/ring, oversized 0.25 (Includes items 16-17) 1	225926
	4	Piston w/ring, oversized 0.25 (Includes items 16-17) 2	229860
16	4	Piston 1, 2	X
17	4	Ring Set, piston 1	225872
	4	Ring Set, piston 2	229859
	4	Ring Set, oversized 0.50 1, 2	229863
	4	Ring Set, oversized 0.25 1	225929
	4	Ring Set, oversized 0.25 2	229861
18	4	Pin, Piston 1, 2	252822
19	8	Circlip 1, 2	252751
20	4	Rod Assembly, connecting (Includes items 21-25) 1, 2	252980
21	4	Connecting Rod 1, 2	X
22	4	Bushing, piston pin 1, 2	X
23	4	Bushing, piston pin 1, 2	256580
24	8	Bolt, connecting rod 1, 2	250889
25	4	Bearing, crankpin 1, 2	252979
	4	Bearing, pin undersized 0.25 1, 2	256588

X Item not sold separately

Group 9: Lube Oil System



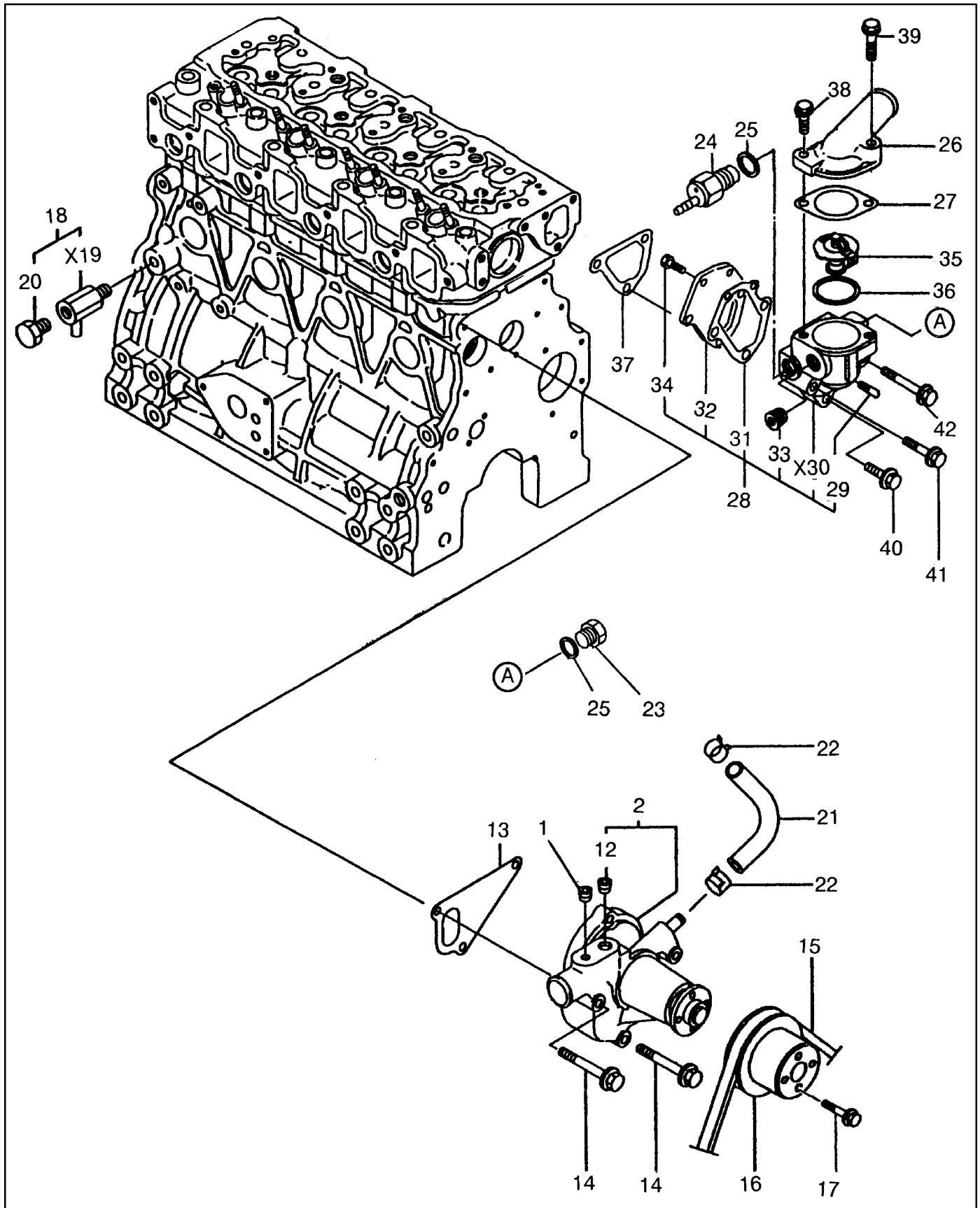
Group 9: Lube Oil System

Item	Qty.	Description Variation	Part No.
1	1	Pump Assembly, Lube Oil 1, 2	252828
2	1	Gasket, lube oil pump 1, 2	252829
3	4	Bolt, M6 x 25 1, 2	252724
4	1	Dipstick 1, 2	252951
5	1	Guide, dipstick 1, 2	252759
6	1	Gasket (non-asbestos) 1, 2	225775
7	1	Pipe Assembly, oil inlet 1, 2	252831
8	2	Bolt, M8 x 35 plated 1, 2	252701
9	1	Bracket, strainer 1, 2	256591
10	1	Gasket (non-asbestos) 1, 2	225776
11	1	Filter, oil 80 x 80L 1, 2	229841
12	1	Valve assembly, oil pressure 1, 2	252747
13	1	Nut 1, 2	252835
14	1	O-ring, 1A P16.0 1, 2	250981
15	3	Bolt, M8 x 20 plated 1, 2	252697
16	1	Joint bolt 10 1, 2	252084

Item	Qty.	Description Variation	Part No.
17	1	Pipe assembly, lube oil 1	252919
		Pipe assembly, lube oil 2	229864
18	1	Bolt 8, pipe joint 1, 2	229410
19	1	Bolt, pipe joint 2	256572
20	4	Gasket 10, round 1, 2	250968
21	2	Seal washer 8 1, 2	252734
22	1	Switch, oil pressure 1, 2	256530
23	1	Retainer 2	229865
24	1	Bolt, M8 x 10 plated 2	252694
25	1	Joint PT 3/8, pipe 2	229412
26	1	Pipe, lube oil return 2	229866
27	1	Joint, rubber 2	229735
28	2	Clamp 22 2	229490
29	1	O-ring, 4C P16.0 2	256660
30	1	Bolt, M6 x 16 plated 2	252693

X Item not sold separately

Group 10: Cooling Water System



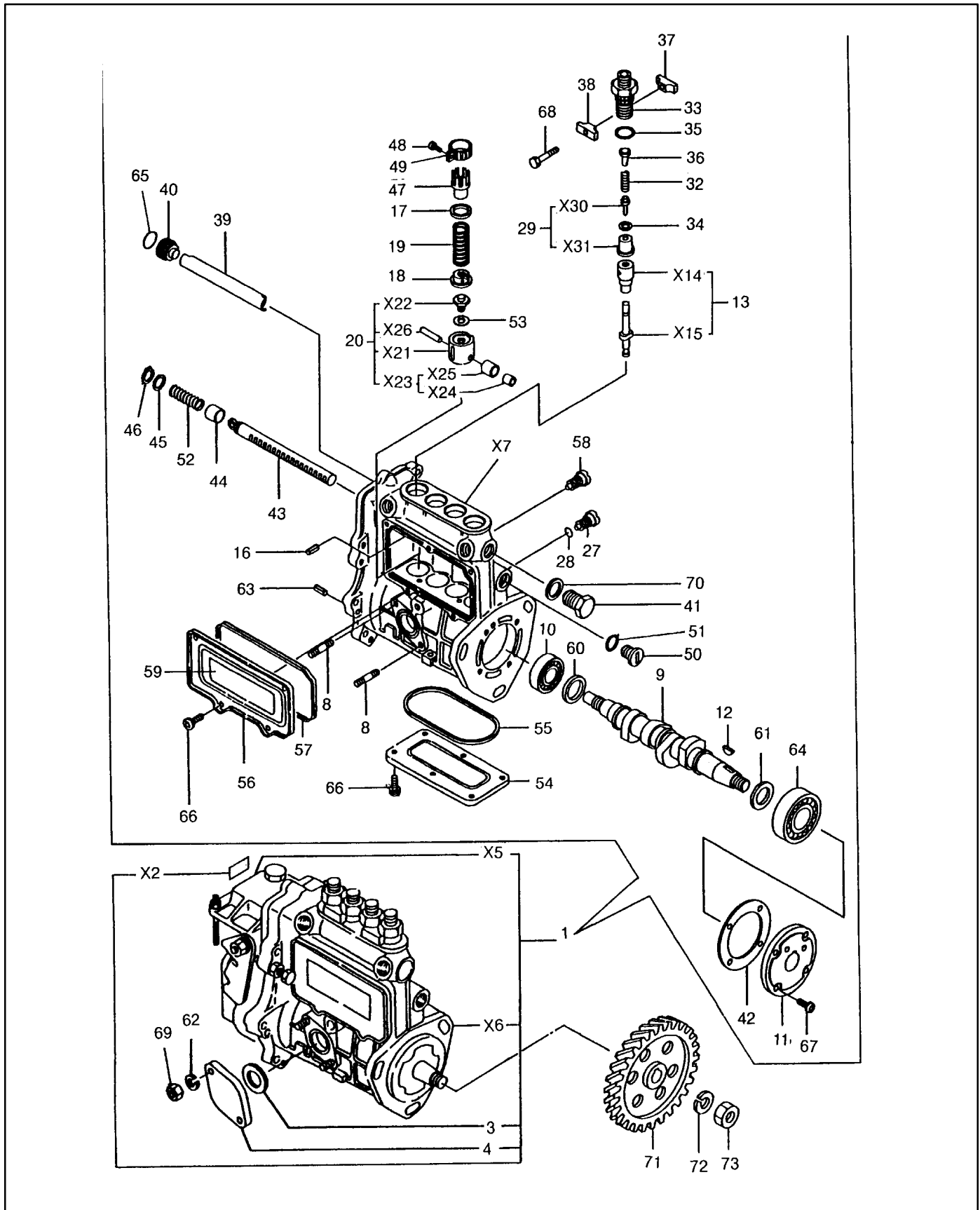
Group 10: Cooling Water System

Item	Qty.	Description Variation	Part No.
1	1	Plug PT 1/4 1, 2	256525
2	1	Pump Assembly, cool water (Includes items 3-12) 1, 2	252783
3	1	Body, cool water pump (not shown) 1, 2	X
4	1	Gasket (non-asbestos) (not shown) 1, 2	X
5	1	Plate (not shown) 1, 2	X
6	1	Impeller (not shown) 1, 2	X
7	1	Bearing (not shown) 1, 2	X
8	1	Seat, pulley (not shown) 1, 2	X
9	1	Seal, mechanical (not shown) 1, 2	X
10	1	Union, cool water pump (not shown) 1, 2	X
11	3	Screw (not shown) 1, 2	X
12	1	Plug PT 3/8, screw 1, 2	250975
13	1	Gasket, cool water pump 1, 2	252784
14	3	Bolt, M8 x 60 plated 1, 2	252705
15	1	V-belt (from Group 105) 1, 2	225626
16	1	V-pulley 1, 2	252920
17	4	Bolt, M6 x 16 plated 1, 2	252693
18	1	Cock Assembly, drain (Includes items 19 and 20) 1, 2	225704
19	1	Body, cock 1, 2	X
20	1	Valve 1, 2	229867

Item	Qty.	Description Variation	Part No.
21	1	Pipe, cool water (bypass) 1, 2	252785
22	2	Clamp 16 1, 2	252670
23	1	Plug M16 1, 2	252757
24	1	Switch, thermostat (100°) 1, 2	252752
25	2	Gasket 16 1, 2	252773
26	1	Cover, thermostat 1, 2	252895
27	1	Gasket (non-asbestos) 1, 2	249865
28	1	Case Assembly, Thermostat (Includes items 29-34) 1, 2	252786
29	1	Joint PT 1/8 1, 2	252482
30	1	Case, thermostat 1, 2	X
31	1	Gasket, cover 1, 2	252787
32	1	Cover, thermostat case 1, 2	252788
33	1	Plug PT 3/8, screw 1, 2	250975
34	2	Bolt, M6 x 16 plated 1, 2	252709
35	1	Thermostat 1, 2	225007
36	1	Gasket (non-asbestos) 1, 2	225006
37	1	Gasket, thermostat case 1, 2	252789
38	1	Bolt, M8 x 22 plated 1, 2	252698
39	1	Bolt, M8 x 32 1, 2	252700
40	1	Bolt, M8 x 25 plated 1, 2	252699
41	1	Bolt, M8 x 50 1, 2	252704
42	1	Bolt, M8 x 60 plated 1, 2	252705

X Item not sold separately

Group 11: Fuel Injection Pump



Group 11: Fuel Injection Pump

Item	Qty.	Description Variation	Part No.
1	1	Pump Assembly, fuel injection (Includes items 2-92) 1	225933
	1	Pump Assembly, fuel injection (Includes items 2-92) 2	229868
2	1	Label 1, 2	X
3	1	Gasket 1, 2	252851
4	1	Cover, blind 1, 2	256755
5	1	Governor Assembly 1, 2	X
6	1	Pump Assembly, fuel inject. (Includes item 7) 1, 2	X
7	1	Body, fuel inject pump 1, 2	X
8	2	Stud, feed pump 1, 2	256776
9	1	Camshaft 1, 2	252897
10	1	Ball bearing, thrust 1, 2	256534
11	1	Retainer, bearing 1, 2	256535
12	1	Key 1, 2	256528
13	4	Plunger, w/barrel (Includes items 14 and 15) 1	252864
	4	Plunger, w/barrel (Includes items 14 and 15) 2	256608
14	4	Barrel 1, 2	X
15	4	Plunger 1, 2	X
16	4	Pin, barrel locking 1, 2	256721
17	4	Retainer A 1, 2	252589
18	4	Spring shoe, plunger 1, 2	256536
19	4	Spring, plunger 1, 2	252490
20	4	Tappet Assembly (Includes items 21-26) 1, 2	252848
21	4	Guide, roller 1, 2	X
22	4	Bolt, adjusting 1, 2	X
23	4	Roller Assembly (Includes items 24 and 25) 1, 2	X
24	4	Roller, inner 1, 2	X

Item	Qty.	Description Variation	Part No.
25	4	Roller 1, 2	X
26	4	Pin, roller 1, 2	X
27	4	Locking, tappet 1, 2	256537
28	4	O-ring, S6 1, 2	252849
29	4	Valve w/seat, delivery (Includes items 30 and 31) 1	250849
4	4	Valve w/seat, delivery (Includes items 30 and 31) 2	256583
30	4	Seat 1, 2	X
31	4	Valve, delivery 1, 2	X
32	4	Spring, delivery valve 1, 2	256777
33	4	Guard, delivery valve 1, 2	256724
34	4	Gasket, delivery 1, 2	250839
35	4	O-ring, delivery 1, 2	250840
36	4	Stopper, valve 1, 2	256725
37	2	Locking (A) 1, 2	256726
38	2	Locking (B) 1, 2	256727
39	1	Deflector 1, 2	256728
40	1	Check bolt, deflector 1, 2	256778
41	1	Plug, M16 1, 2	256779
42	1	Shim set, adjusting (Includes items 43-46) 1, 2	256729
43	1	Rack, control 1, 2	256730
44	1	Bushing, rack 1, 2	256780
45	1	Spacer, auxiliary spring 1, 2	256694
46	1	Circlip 1, 2	256695
47	4	Pinion, control 1, 2	256696
48	4	Screw, pinion 1, 2	256697
49	4	Pinion 1, 2	256698
50	1	Plug, M12 1, 2	256781
51	1	O-ring 1, 2	252850

X Item not sold separately

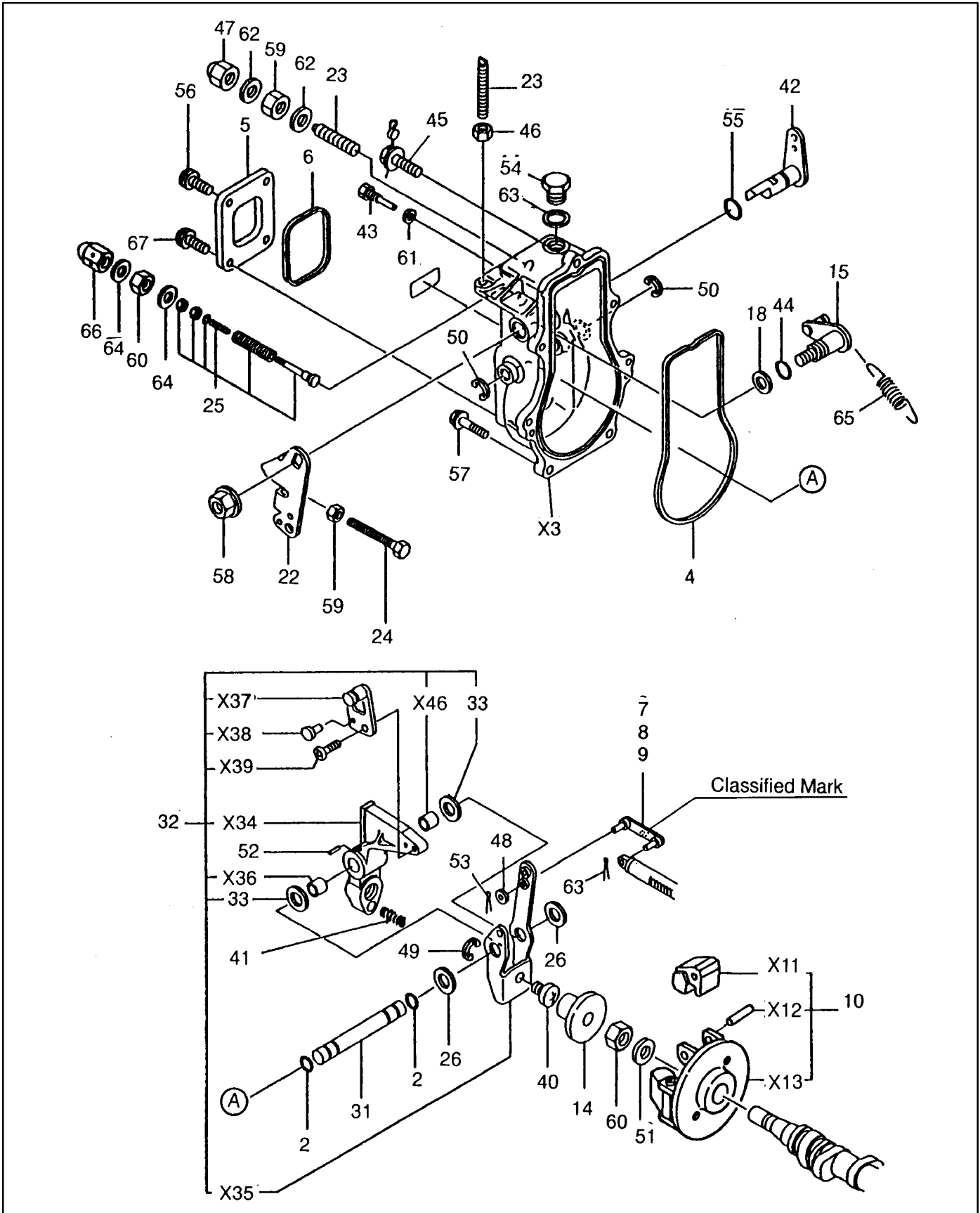
Group 11: Fuel Injection Pump

Item	Qty.	Description Variation	Part No.
52	1	Spring, rack 1, 2	256699
53	4	Shim pack (Includes items 58-75) 1, 2	256700
54	1	Cover 1, 2	225893
55	1	Gasket 1, 2	252926
56	1	Cover, side 1, 2	225894
57	1	Gasket 1, 2	252927
58	1	Locking, rack 1, 2	256701
59	1	Label, caution 1, 2	225791
60	1	Spacer T3.25 1, 2	256702
61	1	Spacer T1.5 1, 2	256703
62	2	Spring washer 6 1, 2	225804

Item	Qty.	Description Variation	Part No.
63	2	Spring pin 5 x 10 1, 2	225808
64	1	Ball Bearing 1, 2	256794
65	1	O-ring, 1A S16.0 1, 2	252686
66	11	Screw, M5 x 10 1, 2	225814
67	4	Screw, M6 x 16 1, 2	225815
68	2	Bolt, M5 x 30 plated 1, 2	225821
69	2	Nut, M6 1, 2	225824
70	1	Seal washer 16 1, 2	256663
71	1	Gear, fuel inject pump 1, 2	252827
72	1	Washer 12, spring 1, 2	252666
73	1	Nut, M12 1, 2	252725

X Item not sold separately

Group 12: Governor



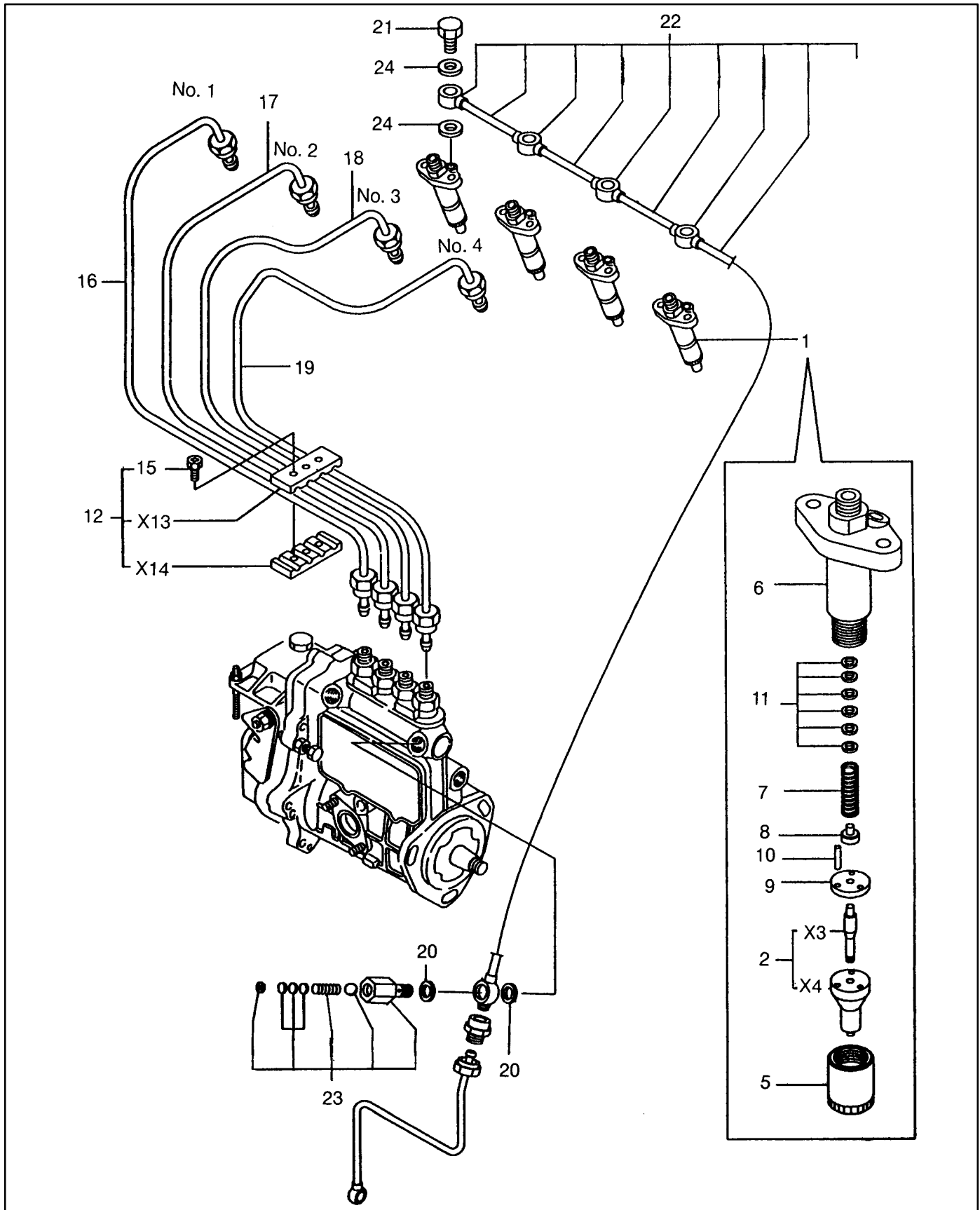
Group 12: Governor

Item	Qty.	Description Variation	Part No.
1	1	Governor Assembly 1, 2	X
2	2	O-ring, S6 1, 2	252849
3	1	Housing, governor 1, 2	X
4	1	Gasket, governor case 1, 2	252853
5	1	Cover, governor case 1, 2	252854
6	1	Gasket, case cover 1, 2	282855
7	1	Link L30 (mark 0) 1, 2	256787
8	1	Link L31 (mark 1) 1, 2	256558
9	1	Link L30.5 (mark 05) 1, 2	256559
10	1	Weight Assembly, governor (Includes items 11-13) 1, 2	252974
14	1	Sleeve 1, 2	225781
15	1	Shaft Assembly, control (Includes items 16 and 17) 1, 2	252794
16	1	Shaft (not shown) 1, 2	X
17	1	Hook (not shown) 1, 2	X
18	1	Spacer, shaft (Includes items 19-21) 1, 2	225782
19	1	Spacer T1.6 (not shown) 1, 2	X
20	1	Spacer T2.0 (not shown) 1, 2	X
21	1	Spacer T2.3 (not shown) 1, 2	X
22	1	Lever, control 1, 2	225800
23	2	Bolt, rev. limit 1, 2	225783
24	1	Bolt, idle limit 1, 2	225784
25	1	Bolt, fuel control 1, 2	225785
26	2	Spacer Assembly 1, 2	229722
31	1	Shaft, gov. lever 1, 2	225787
32	1	Lever Assembly, governor (Includes items 33-49) 1, 2	229869
33	2	Shim set (Includes items 34-43) 1, 2	252592
34	1	Lever, tension 1, 2	X
35	1	Lever, governor 1, 2	X
36	2	Bushing 1, 2	X

Item	Qty.	Description Variation	Part No.
37	1	Hook 1, 2	X
38	1	Pin 1, 2	X
39	1	Screw M6 x 12 1, 2	X
40	1	Shifter 1, 2	225788
41	1	Spring, fuel control 1, 2	256732
42	1	Lever Assembly, stop 1, 2	225801
43	1	Pin, stop lever 1, 2	225789
44	1	O-ring, S10 1, 2	252856
45	1	Bolt, washer based 1, 2	225790
46	1	Lock Nut, M6 1, 2	225767
47	1	Nut, cap 1, 2	225702
48	1	Washer 4 1, 2	225803
49	1	Circlip E-4 1, 2	225805
50	2	Circlip E-6 1, 2	225806
51	1	Washer 12 1, 2	256704
52	1	Spring pin 3 x 16 1, 2	225807
53	2	Snap pin 4 1, 2	225809
54	1	Plug 10 1, 2	256517
55	1	O-ring, 1A P10A 1, 2	225811
56	2	Screw M5 x 10 1, 2	225814
57	6	Bolt, M6 x 20 plated 1, 2	225817
58	1	Nut, M8 1, 2	252723
59	2	Lock Nut, M6 plated 1, 2	225825
60	2	Lock Nut, M12 plated 1, 2	225826
61	1	Seal washer 6 1, 2	250994
62	2	Seal washer 6 1, 2	225828
63	2	Seal washer 10 1, 2	225829
64	2	Seal washer 12 1, 2	252367
65	1	Spring, governor 1, 2	229870
66	1	Nut, cap 1, 2	225770
67	2	Screw, M5 x 10 1, 2	229871

X Item not sold separately

Group 13: Fuel Injection Line



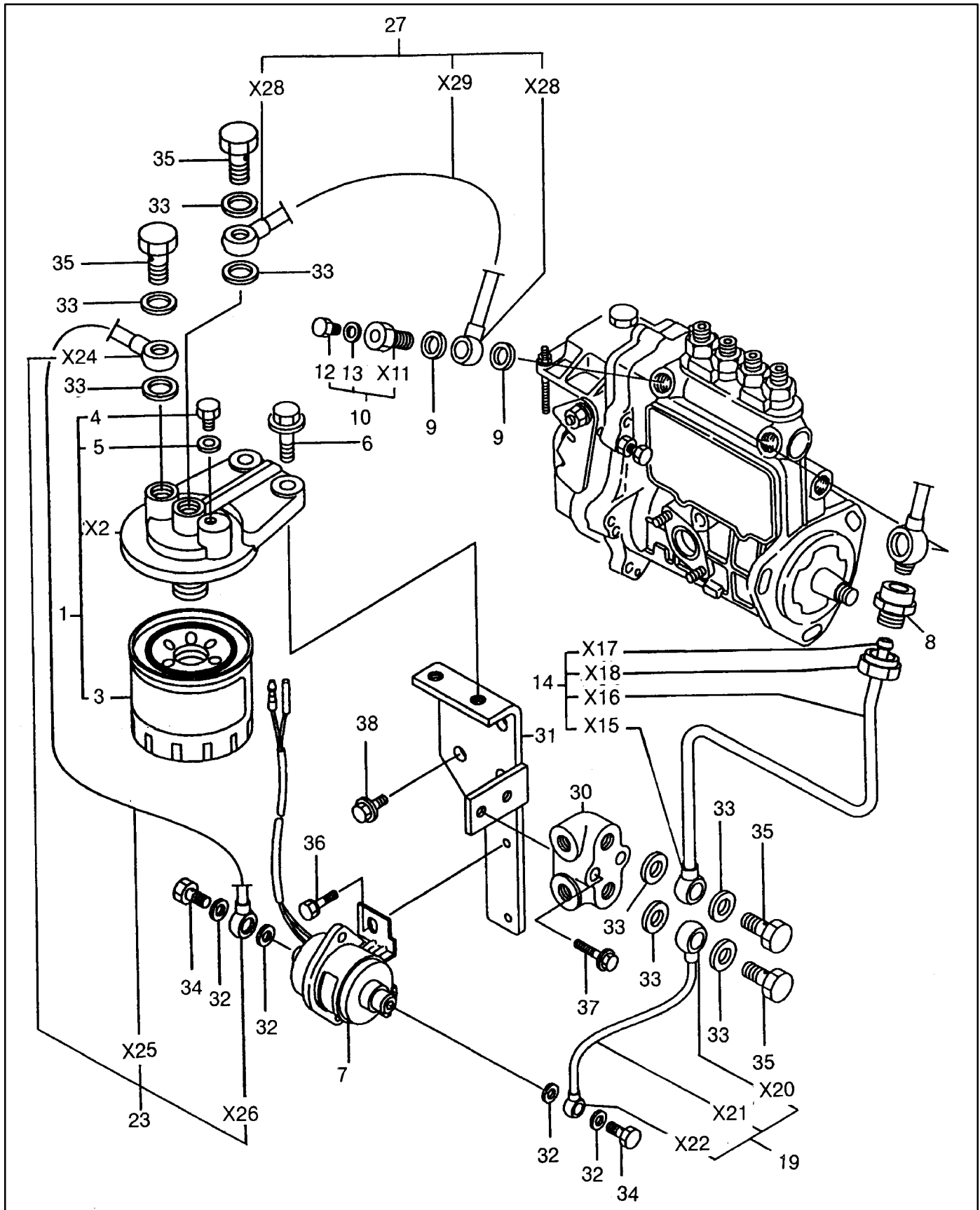
Group 13: Fuel Injection Line

Item	Qty.	Description Variation	Part No.
1	4	Valve Assembly, fuel injection (Includes items 2-11) 1	224360
	4	Valve Assembly, fuel injection (Includes items 2-11) 2	229872
2	4	Nozzle Assembly, fuel injection (Includes items 3 and 4) 1	225004
	4	Nozzle Assembly, fuel injection (Includes items 3 and 4) 2	229873
3	4	Valve 1, 2	X
4	4	Body 1, 2	X
5	4	Nut, nozzle case 1, 2	256520
6	4	Holder 1, 2	256706
7	4	Spring, nozzle 1, 2	256521
8	4	Seat, nozzle spring 1, 2	256522
9	4	Plate, stop 1, 2	256523
10	8	Pin 1, 2	256707
11	4	Shim pack 1, 2	256524

Item	Qty.	Description Variation	Part No.
12	1	Retainer (Includes items 13 and 14) 1, 2	256708
13	1	Clamp, upper 1, 2	X
14	1	Clamp, lower 1, 2	X
15	2	Bolt, M4 x 12 1, 2	225777
16	1	Pipe, fuel injection 1, 2	256709
17	1	Pipe, fuel injection 1, 2	256710
18	1	Pipe, fuel injection 1, 2	256711
19	1	Pipe, fuel injection 1, 2	256712
20	2	Gasket 12 1, 2	252739
21	4	Bolt 6, pipe joint 1, 2	256713
22	1	Pipe Assembly, F.O. return 1, 2	256714
23	1	Valve Assembly, check 1, 2	252792
24	8	Gasket 6, round 1, 2	252355

X Item not sold separately

Group 14: Fuel Filter & Fuel Line



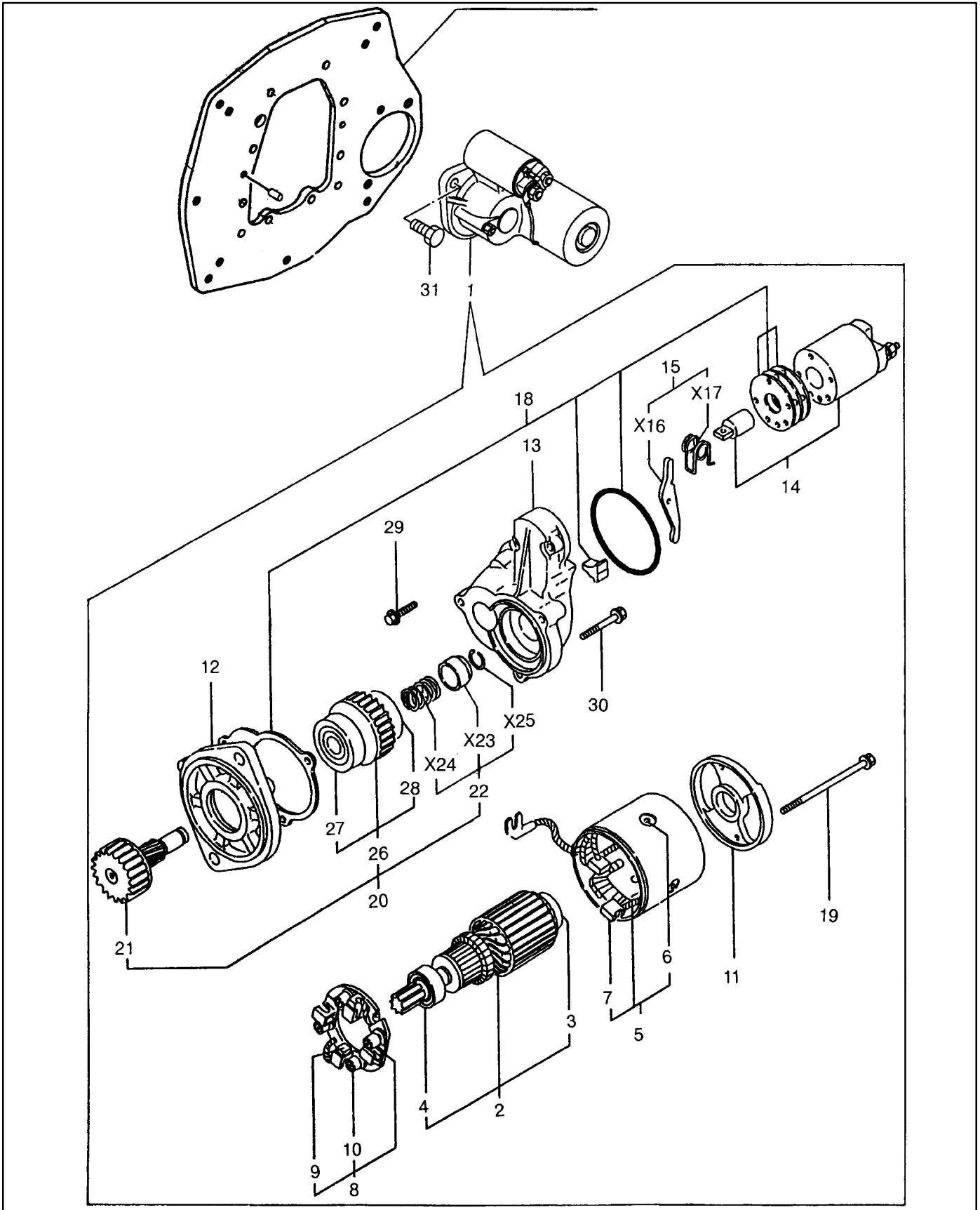
Group 14: Fuel Filter & Fuel Line

Item	Qty.	Description Variation	Part No.
1	1	Strainer Assembly, fuel (Includes items 2-5) 1, 2	256526
2	1	Body, Strainer 1, 2	X
3	1	Strainer, fuel 1, 2	225010
4	1	Plug 1, 2	252081
5	1	Seal Washer 6 1, 2	250994
6	2	Bolt, M10 x 20 plated 1, 2	225923
7	1	Pump Assembly, fuel feed 1, 2	252775
8	1	Union 1, 2	252957
9	2	Gasket 12 1, 2	252739
10	1	Bolt w/plug & seal (Includes items 11-13) 1, 2	250996
11	1	Bolt, joint 1, 2	X
12	1	Plug 1, 2	252081
13	1	Seal washer 6 1, 2	250994
14	1	Pipe Assembly, F.O. return (Includes items 15-18) 1, 2	225889
15	1	Joint, pipe 1, 2	X
16	1	Pipe 1, 2	X
17	1	Joint 8 1, 2	X
18	1	Cap nut M8 1, 2	X

Item	Qty.	Description Variation	Part No.
19	1	Pipe (A) Assembly (Includes items 20-22) 1, 2	252959
20	1	Joint, pipe 1, 2	X
21	1	Pipe 1, 2	X
22	1	Joint, pipe 1, 2	X
23	1	Pipe (B) Assembly (see group 103) (Includes items 24-26) 1, 2	
24	1	Joint pipe 1, 2	X
25	1	Pipe 1, 2	X
26	1	Joint, pipe 1, 2	X
27	1	Pipe (C) Assembly (Includes items 28 and 29) 1, 2	225890
28	2	Joint, pipe 1, 2	X
29	1	Pipe 1, 2	X
30	1	Block, fuel 1, 2	252963
31	1	Support 1, 2	225918
32	4	Gasket 8 1, 2	252356
33	8	Gasket 12, round 1, 2	250969
34	2	Joint bolt 3 1, 2	252677
35	4	Bolt, M6 joint 1, 2	250972
36	2	Bolt, M6 x 14 1, 2	225919
37	2	Bolt, M8 x 40 plated 1, 2	252702
38	3	Bolt, M10 x 16 plated 1, 2	225922

X Item not sold separately

Group 15: Starting Motor



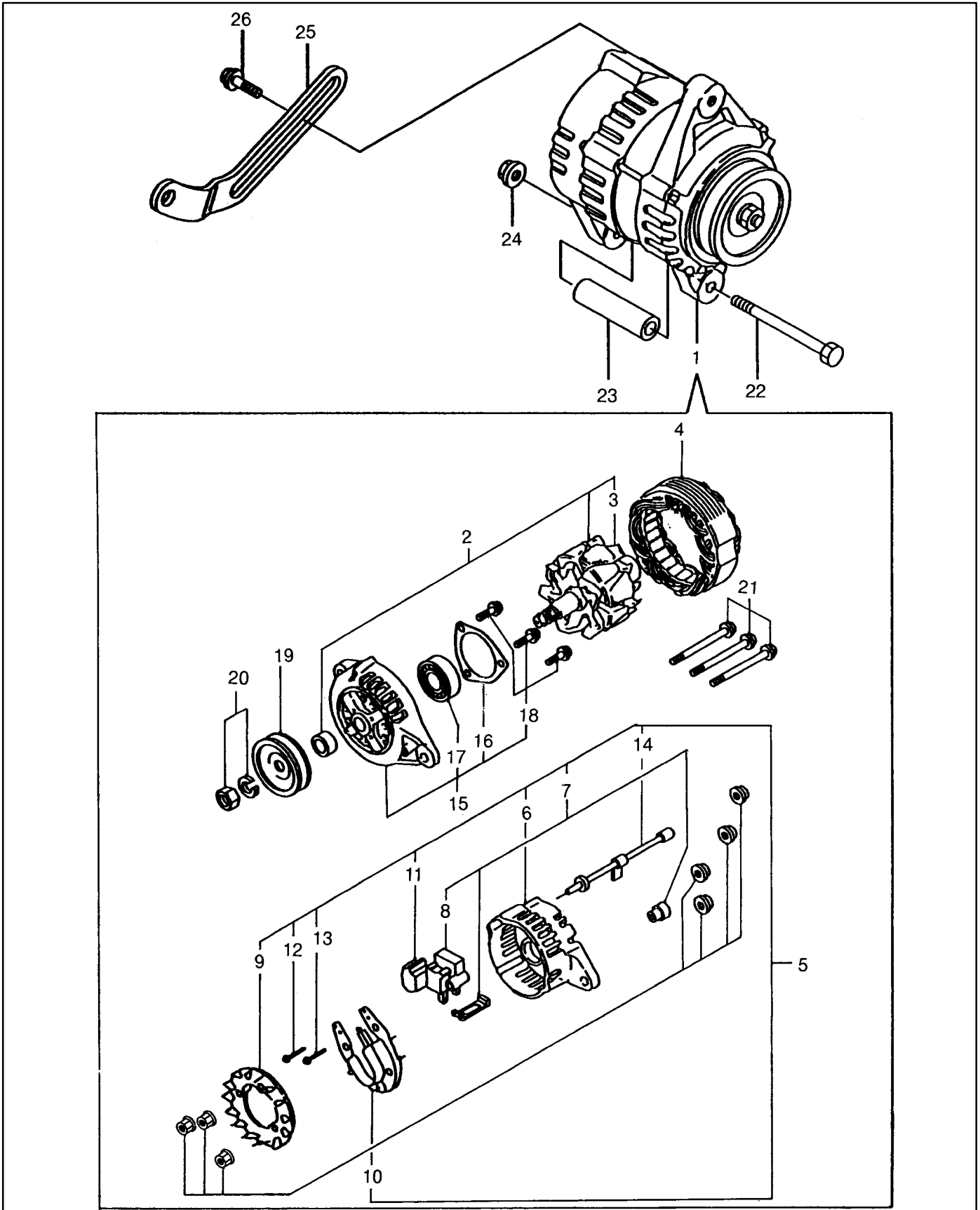
Group 15: Starting Motor

Item	Qty.	Description Variation	Part No.
1	1	Starter (Includes items 2-30) 1, 2	225014
2	1	Armature Assembly (Includes items 3 and 4) 1, 2	225878
3	1	Bearing (1) 1, 2	225896
4	1	Bearing (2) 1, 2	225897
5	1	Coil Assembly, field (Includes items 6 and 7) 1, 2	225879
6	4	Screw, pole core set 1, 2	225899
7	2	Brush (+) 1, 2	225880
8	1	Holder Assembly, brush (Includes items 9 and 10) 1, 2	225881
9	2	Brush (+) 1, 2	225882
10	4	Spring, brush 1, 2	225883
11	1	Cover, rear 1, 2	225884
12	1	Housing Assembly, gear 1, 2	225905
13	1	Housing, center 1, 2	225885
14	1	Switch Assembly, magnetic 1, 2	225886
15	1	Lever set, shift (Includes items 16 and 17) 1, 2	225908
16	1	Lever, shift 1, 2	X

Item	Qty.	Description Variation	Part No.
17	1	Spring 1, 2	X
18	1	Cover Kit, dust 1, 2	225887
19	2	Bolt, through 1, 2	225888
20	1	Pinion Assembly (Includes items 21-28) 1, 2	225911
21	11	Shaft, pinion 1, 2	225912
22	1	Stopper set, pinion (Includes items 23-25) 1, 2	225913
23	1	Stopper, pinion 1, 2	X
24	1	Spring 1, 2	X
25	1	Clip, pinion stopper 1, 2	X
26	1	Clutch Assembly (Includes items 27 and 28) 1, 2	225914
27	1	Ball Bearing (3) 1, 2	225915
28	1	Ball Bearing (4) 1, 2	225916
29	2	Bolt, M6 x 32 plated 1, 2	225920
30	3	Bolt, M6 x 40 plated 1, 2	225921
31	2	Bolt, M12 x 25 plated 1, 2	252712

X Item not sold separately

Group 16: Alternator



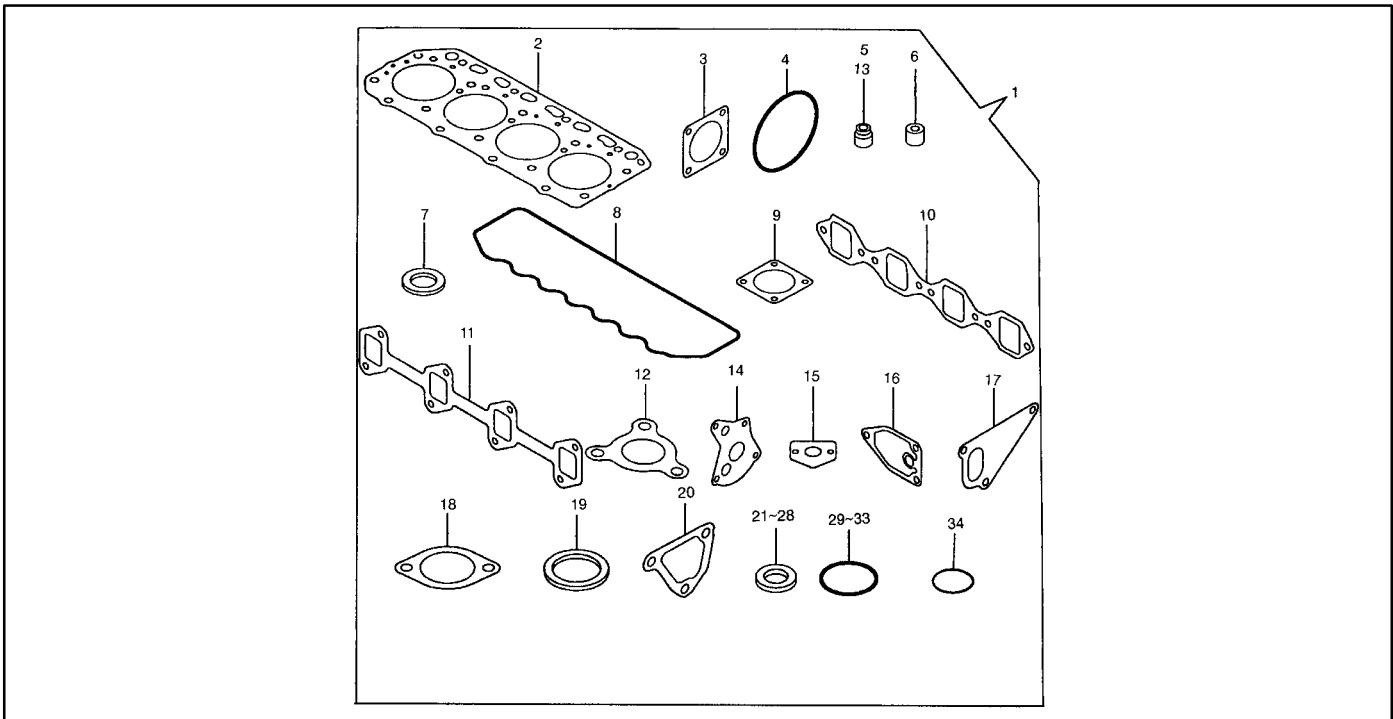
Group 16: Alternator

Item	Qty.	Description Variation	Part No.
1	1	Alternator (Includes items 2-18) 1, 2	225015
2	1	Rotor Assembly (Includes item 3) 1, 2	225736
3	1	Ball Bearing 1, 2	225750
4	1	Starter Assembly 1, 2	225737
5	1	Cover Assembly, rear (Includes items 6-14) 1, 2	225738
6	1	Cover, rear 1, 2	225739
7	1	Brush Assembly, regulator (Includes item 8) 1, 2	225740
8	1	Brush Assembly 1, 2	225025
9	1	Guide, fan side 1, 2	225741
10	1	Diode Assembly 1, 2	225742
11	1	Condenser 1, 2	225743
12	1	Bolt (1) 1, 2	225752
13	1	Bolt (2) 1, 2	225753

Item	Qty.	Description Variation	Part No.
14	1	Wire Assembly, lead 1, 2	225754
15	1	Cover Assembly, front (Includes items 16-18) 1, 2	225744
16	1	Retainer, bearing 1, 2	225745
17	1	Ball Bearing 1, 2	225749
18	1	Screw kid 1, 2	225751
19	1	Pulley 1, 2	225746
20	1	Nut Assembly, pulley 1, 2	225747
21	1	Bolt, through 1, 2	225748
22	1	Bolt, M8 x 105 1, 2	225772
23	1	Spacer 1, 2	229874
24	1	Nut, M8 1, 2	252723
25	1	Adjuster (from group 105) 1, 2	229212
26	1	Bolt, M8 x 25 1, 2	252692

X Item not sold separately

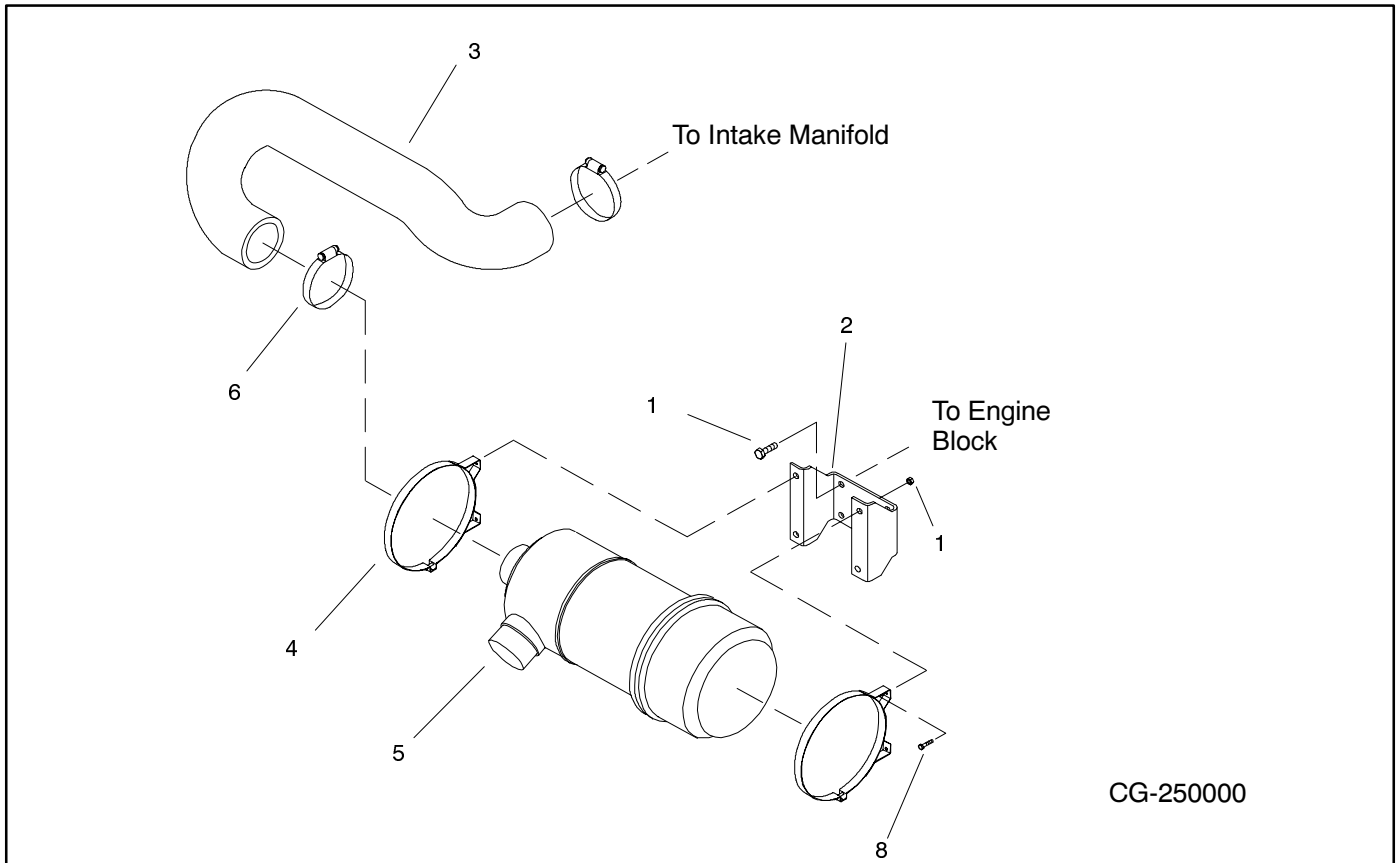
Group 17: Gasket Set



Item	Qty.	Description Variation	Part No.
1	1	Gasket set (Includes items 2-33) 1, 2	229875
2	1	Gasket, cylinder head 1, 2	225281
3	1	Gasket 1, 2	252085
4	1	O-ring, fuel injection pump 1, 2	252764
5	4	Seal, valve stem 1, 2	256578
6	4	Protector, nozzle 1, 2	252743
7	4	Seat, nozzle 1, 2	252744
8	1	Gasket, bonnet 1, 2	252914
9	1	Gasket 1, 2	225778
10	1	Gasket 1, 2	225892
11	1	Gasket, exhaust manifold 1, 2	252916
12	1	Gasket 1, 2	256631
13	4	Seal, valve stem 1, 2	252754
14	1	Gasket, lube oil pump 1, 2	252829
15	1	Gasket 1, 2	225775
16	1	Gasket 1, 2	225776
17	1	Gasket, cool water pump 1, 2	252784

Item	Qty.	Description Variation	Part No.
18	1	Gasket 1, 2	249865
19	1	Gasket 1, 2	225006
20	1	Gasket, thermostat case 1, 2	252789
21	4	Gasket 12 1, 2	252739
22	7	Seal washer 8 1, 2	252734
23	4	Gasket 10, round 1, 2	250968
24	8	Gasket 12, round 1, 2	250969
25	8	Gasket 6, round 1, 2	252355
26	4	Gasket 8, round 1, 2	250967
27	4	Gasket 8 1, 2	252356
28	2	Gasket 16 1, 2	252773
29	3	O-ring, 1A P12.0 1, 2	250801
30	3	O-ring, 1A P16.0 1, 2	250981
31	2	O-ring, 1A P32.0 1, 2	252684
32	2	O-ring, 1A S24.0 1, 2	256796
33	1	O-ring, 1A S50.0 1, 2	225812
34	1	Gasket 2	229855

Group 101: Air Intake

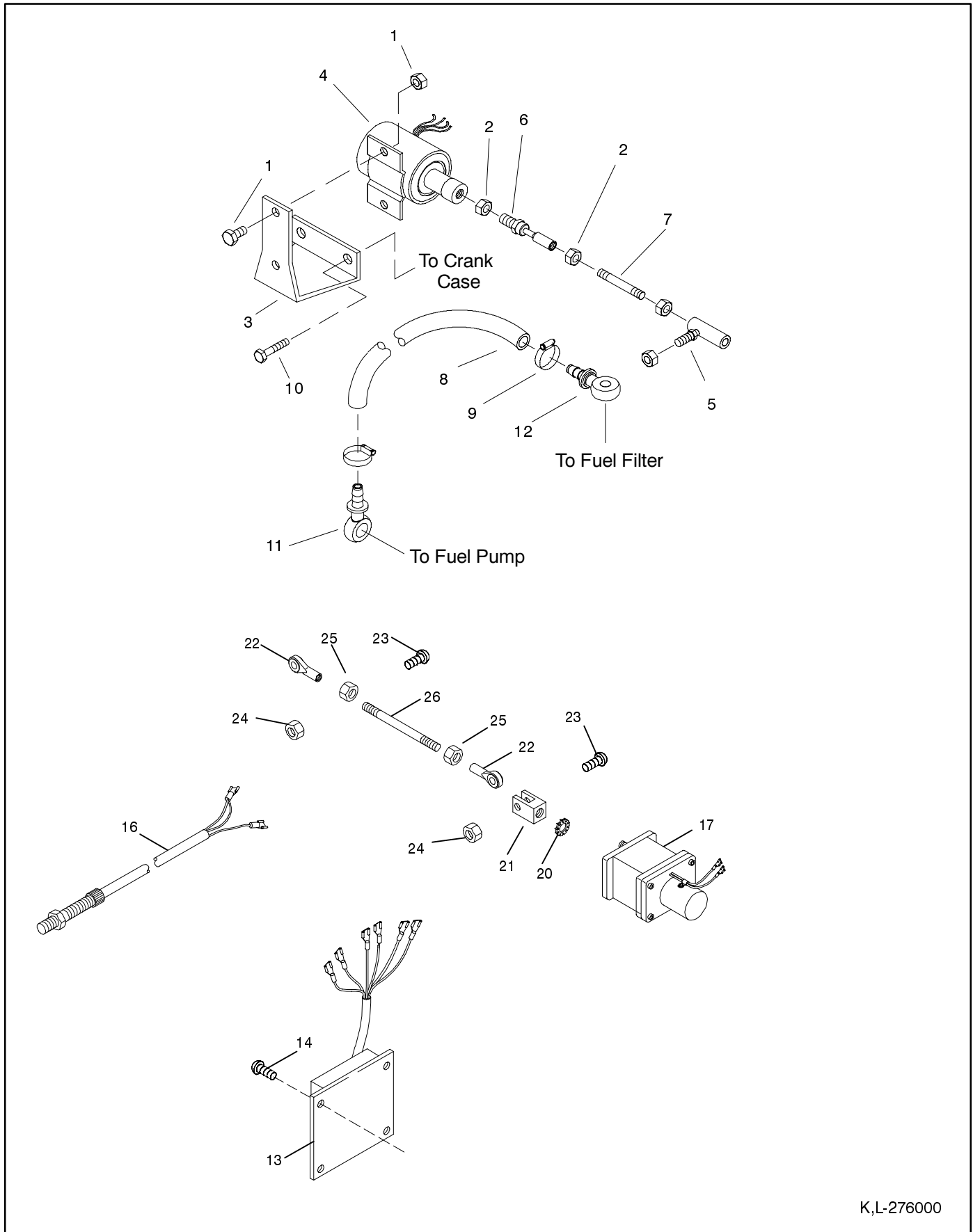


Item	Qty.	Description Variation	Part No.
1	4	1/4-20 Hardware 10, 11, 14	#
2	1	Bracket, air cleaner 10, 11	225565
	1	Bracket, air cleaner 14	225068
3	1	Hose, air intake 10	225566
	1	Hose, air intake 11	225572
	1	Hose, air intake 14	225469
4	2	Band, mounting 10, 11, 14	258708
5	1	Air cleaner 10, 11	A-258643

Item	Qty.	Description Variation	Part No.
1		Air cleaner element 10, 11, 14	258646
6	2	Clamp, hose 10,	X-426-16
	1	Clamp, hose 11, 14	X-426-16
7	1	Clamp, hose 1.375 x 2 11, 14 (Item not shown)	X-426-4
8	4	Screw, H.C., M8-1.25 10, 11	X-6050-8
	4	Screw, H.C. 14	X-6050-3

Common Hardware Procure Locally

Group 103: Fuel System



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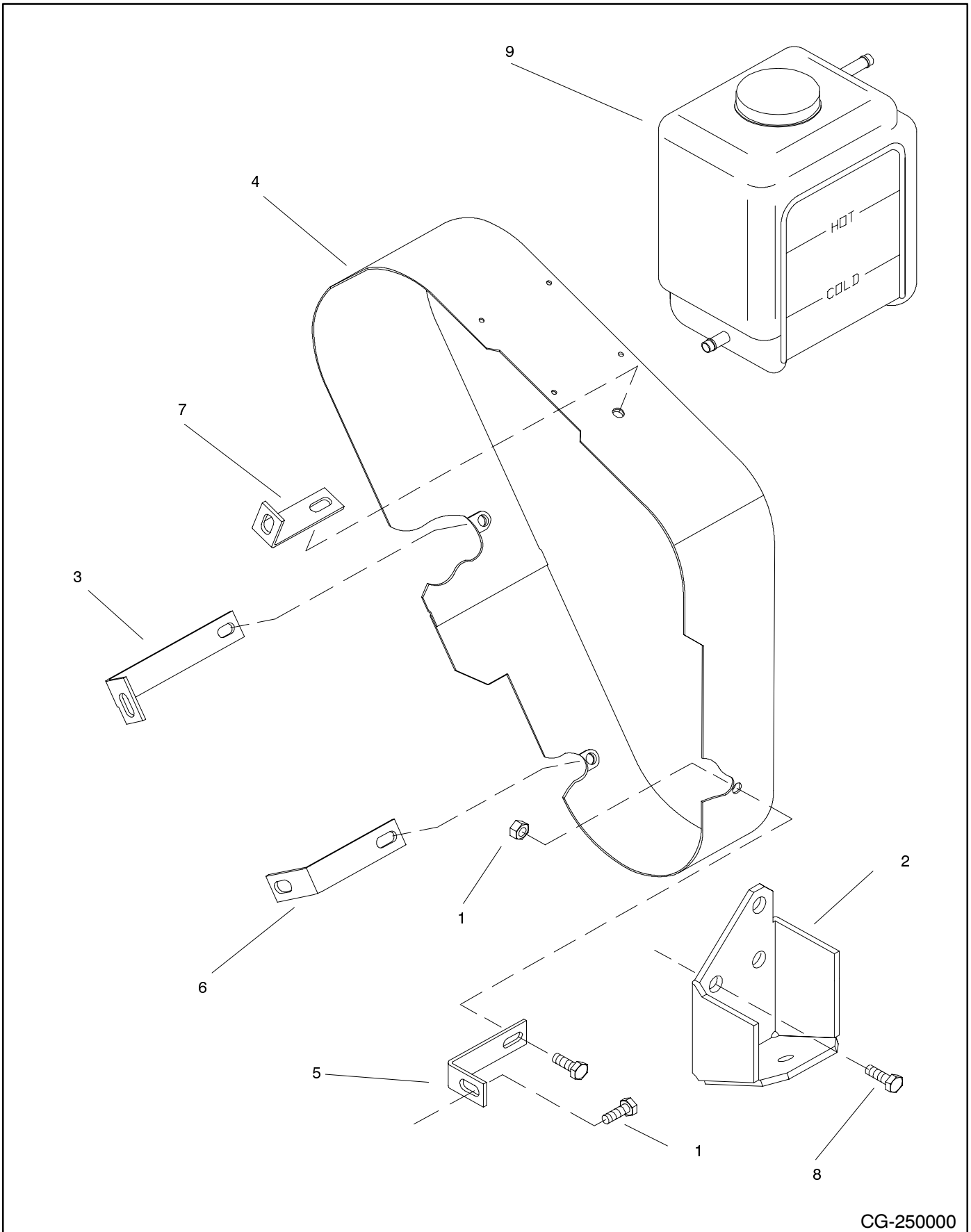
Group 103: Fuel System

Item	Qty.	Description Variation	Part No.
1	2	1/4-20 Hardware 13	#
2	4	1/4-28 Nut 13	#
3	1	Bracket, solenoid mounting 13	225567
4	1	Solenoid, fuel 13	258628
5	1	Ball-joint 13	273730
6	1	Ball-joint 13	273731
7	1	Stud 13	X-352-82
8	1	Line, flexible fuel 13, 15	X-386-6
9	2	Clamp, hose 13, 15	X-426-9
10	2	Screw, H.C., M8-1.25 13	X-6050-8
11	1	Union, banjo 13, 15	X-6288-1
12	1	Union, banjo 13, 15	X-6288-3
13	1	Governor Assembly, electronic 15	A-246045
	1	Cable, Power (not shown) 15	225484
14	4	Screw, r.h.m. 8-32 15	X-51-9

Item	Qty.	Description Variation	Part No.
15	1	Bracket, mounting (not shown) 15	225489
16	1	Pickup, speed 15	225486
17	1	Actuator, linear 15	249923
18	1	Bracket, actuator (not shown) 15	225783
19	2	Screw, H.C., M8-1.25 (not shown) 15	X-6050-8
20	1	Washer, lock 1/4 15	X-22-11
21	1	Yoke 15	273751
22	2	Rod, rnd 15	272456
23	2	Screw, r.h.m. 10-32 15	X-50-56
24	2	Nut, elastic 10-32 15	X-101-12
25	2	Nut, Hex. 10-32 15	X-70-11
26	1	Stud 15	X-352-79
27	1	Bracket, gov. arm (not shown) 15	225482
28	2	Spacer 15	X-400-155
2	2	Screw, r.h.m. 10-32 15	X-50-6

Common Hardware Procure Locally

Group 104: Cooling System



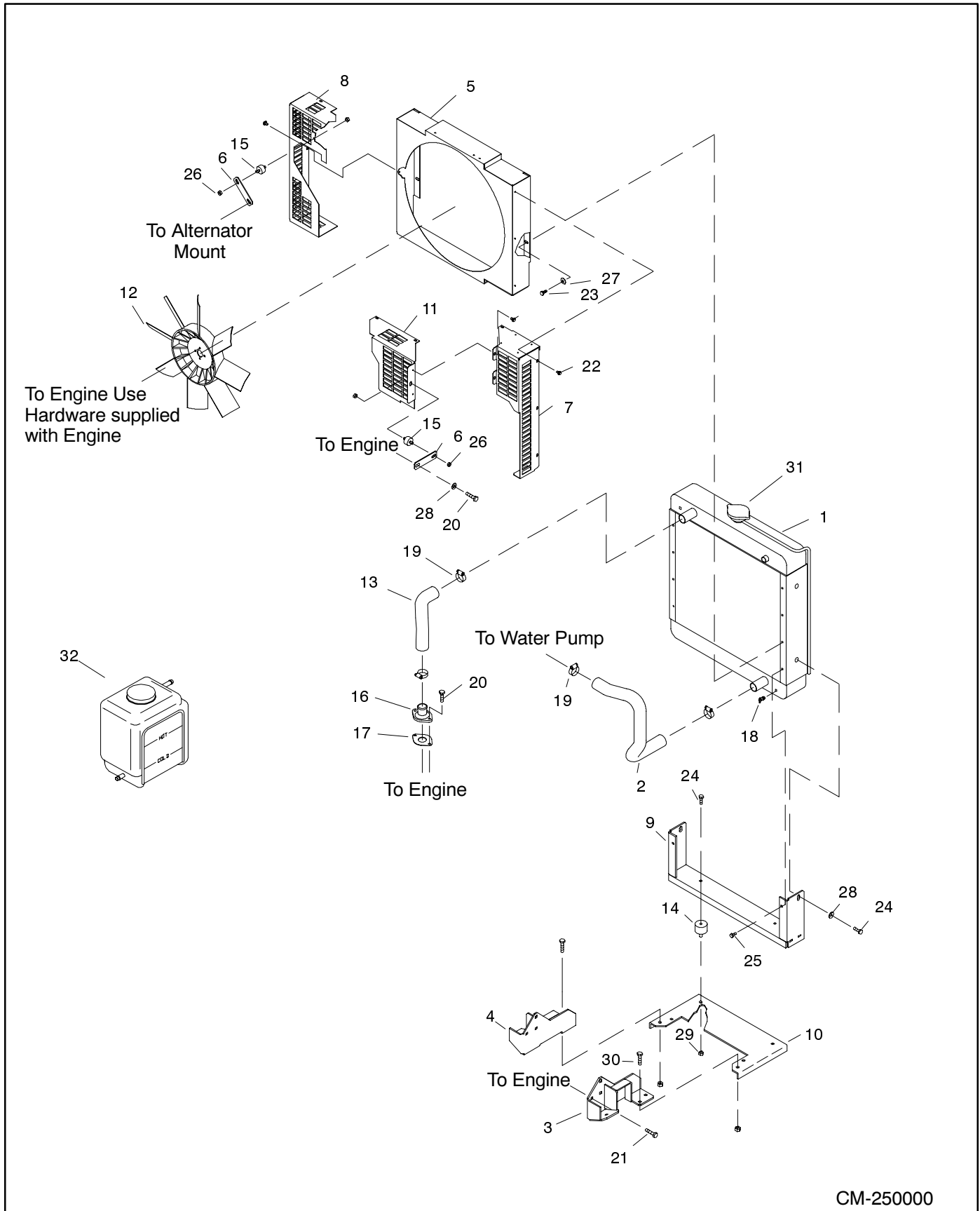
Group 104: Cooling System

Item	Qty.	Description Variation	Part No.
1	4	Screw, M8-1.25 x 70 16	X-6050-20
2	2	Bracket, engine mtg. 16	225568
3	1	Bracket, belt guard 16	225622
4	1	Guard, belt 16	225623
5	1	Bracket, belt guard 16	258688

Item	Qty.	Description Variation	Part No.
6	1	Bracket, belt guard 16	258690
7	1	Bracket, belt guard 16	258715
8	6	Screw, hex head cap 16	X-6051-2
9	1	Bottle, overflow 16	249396

Common Hardware Procure Locally

Group 104: Cooling System, Continued



CM-250000

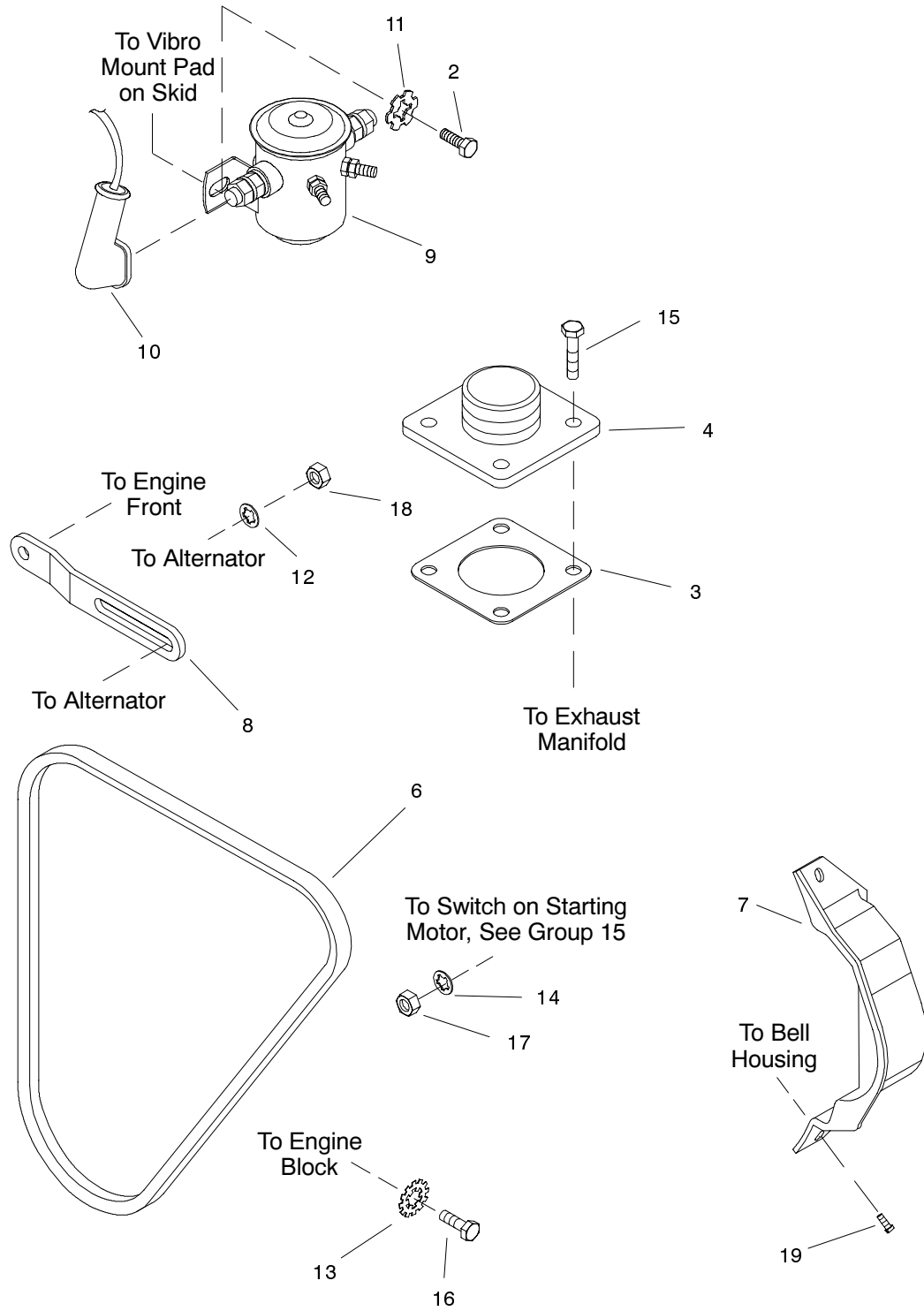
Group 104: Cooling System, Continued

Item	Qty.	Description Variation	Part No.
1	1	Radiator Assembly 17	A-225589
	1	Radiator Assembly 18, 19	A-225067
2	1	Hose, lower radiator 17, 18, 19	225060
3	1	Bracket, engine mtg. right 17, 18, 19	225590
4	1	Bracket, engine mtg. left 17, 18, 19	225591
5	1	Shroud, fan 17, 18, 19	225943
6	2	Bracket, shroud support 17, 18, 19	225593
7	1	Guard, belt (RH) 17, 18, 19	225595
8	1	Guard, belt (LH) 17, 18, 19	225596
9	6	Bracket, radiator mounting 17, 18, 19	225597
10	1	Bracket, radiator 17, 18, 19	225598
11	1	Guard, belt (Top) 17, 18, 19	225599
12	1	Fan, suction 17, 18	225600
	1	Fan, Pusher 19	225771
	1	Baffle, fan (not shown) 19	225942
13	1	Hose, upper radiator 17, 18, 19	225061
14	2	Mount, vibro 17, 18, 19	239497
15	2	Mount, controller 17, 18, 19	241769
16	1	Cover, thermostat	249863

Item	Qty.	Description Variation	Part No.
		17, 18, 19	
17	1	Gasket, thermostat 17, 18, 19	249865
18	1	Valve, drain 1/4" 17, 18, 19	X-256-3
19	4	Clamp, hose 17, 18, 19	X-426-8
20	3	Screw, hex head cap 17, 18, 19	X-6050-3
21	6	Screw, hex head cap 17, 18, 19	X-6051-2
22	12	Screw, phil hex #10-24 17, 18, 19	X-6216-1
23	4	1/4-20 x .50 hex bolt 17, 18, 19	X-465-6
24	4	5/16-18 x .50 hex bolt 17, 18, 19	X-125-33
25	2	1/4-20 x .62 hex bolt 17, 18, 19	X-465-2
26	4	1/4-20 Nut 17, 18, 19	#
27	4	1/4 Washer 17, 18, 19	#
28	3	5/16 Washer 17, 18, 19	#
29	2	5/16-18 Nut 17, 18, 19	#
30	4	3/8-16 Hardware 17, 18, 19	#
31	1	Cap, radiator 17	258126
	1	Cap, radiator 18, 19	224368
32	2	Bottle, overflow 17, 18, 19	249396

Common Hardware Procure Locally

Group 105: Engine



CG-250000

Group 105: Engine

Item	Qty.	Description Variation	Part No.
1	1	Engine assembly 15kW-4TN84E 24	A-225267
	1	Engine assembly 20kW-4TN84TE 25	A-225268
2	2	1/4-20 Hardware 24, 25, 26	#
3	1	Gasket, exhaust 24, 26	225223
4	1	Flange, exhaust outlet 24, 26	225265
5	1	Flange, exhaust outlet 25	225573
6	1	Belt, V (Also see Group 10) 24, 25, 26	225626
7	1	Guard, generator fan 24, 25, 26	229113
8	1	Bracket, alt. adjustment 24, 25, 26	229212
9	1	Relay 24, 25, 26	233442

Item	Qty.	Description Variation	Part No.
10	1	Boot 24, 25, 26	238915
11	2	Washer, shakeproof 1/4 24, 25, 26	X-22-12
12	1	Washer, shakeproof #10 24, 25, 26	X-22-13
13	1	Washer, shakeproof 3/8 24, 25, 26	X-22-14
14	1	Washer, lock shakeproof 5/16 24, 25, 26	X-22-5
15	4	Screw, H.C., M8-1.25 24, 26	X-6050-8
16	1	Screw, hex head cap M10-1.50 24, 25, 26	X-6051-2
17	1	Nut, hex. M8 x 1.25 24, 26	X-6053-2
	5	Nut, hex. M8 x 1.25 25	X-6053-2
18	1	Nut, hex M5 x .80 24, 25, 26	X-6053-6
19	2	Screw, self-tapping 24, 25, 26	X-67-113

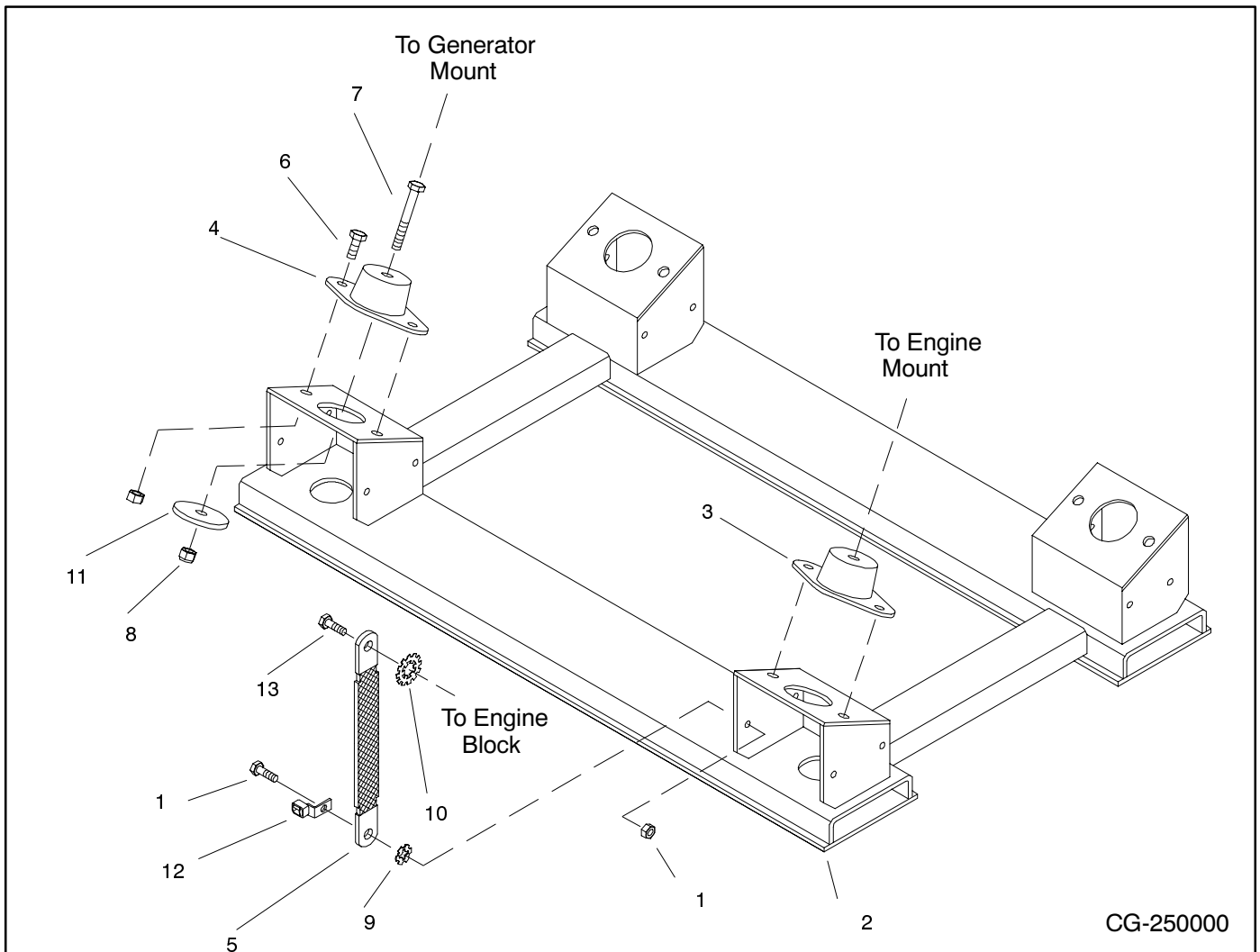
Common Hardware Procure Locally

Group 107: Nameplate & Decals

Item	Qty.	Description Variation	Part No.
1	1	Decal, 1-800 number all	224233
2	1	Decal, model 20, 22, 27, 32, 33	225555
	1	Decal, model 21, 23, 28, 29, 30, 31	225556
3	1	Marker, adhesive all	238162
4	4	Nameplate serial no. all	N/A
5	1	Decal, ground all	238575
6	1	Nameplate all	239573
7	1	Decal, warning "Backfeed" all	239771
8	1	Decal, warning "Fire Hazard" all	239773
9	1	Decal, "10 Amp." 20, 21, 22, 23, 29, 31, 33	241771

Item	Qty.	Description Variation	Part No.
10	1	Decal, warning "Rotating Parts" all	249808
11	1	Decal, warning "Hot Engine" all	249809
12	1	Decal, warning "Hot Coolant" 22, 23, 27, 28, 29, 30, 32	249810
13	1	Decal, "RV Listed" 27	259282
14	1	Decal, stripe all	278433
15	1	Decal, water drain 22, 23, 27, 28, 29, 30, 32	280561
16	1	Decal, oil drain all	280562
17	1	Logo, Kohler all	X-6276-3
18	4	Rivet, pop all	X-793-3
19	1	Decal, CSA 20, 21, 31, 33	225165
20	1	Decal, US Testing 29, 31, 32, 33	227990
21	1	Decal, Caution "For standby service..." 29, 30, 32	255882
22	1	Decal, Cable 31	320596
23	1	Nameplate, CSA 27, 28, 29, 32	343292

Group 109: Skid and Plant Mounting



Item	Qty.	Description Variation	Part No.
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1	1	1/4-20 Hardware 20	#
2	1	Skid 20	225569
3	2	Mount, vibro 20	229127
4	2	Mount, vibro 20	278322
5	1	Strap, ground 20	290418
6	4	5/16-18 Bolt 20	#
7	8	5/16-18 Hardware 20	#

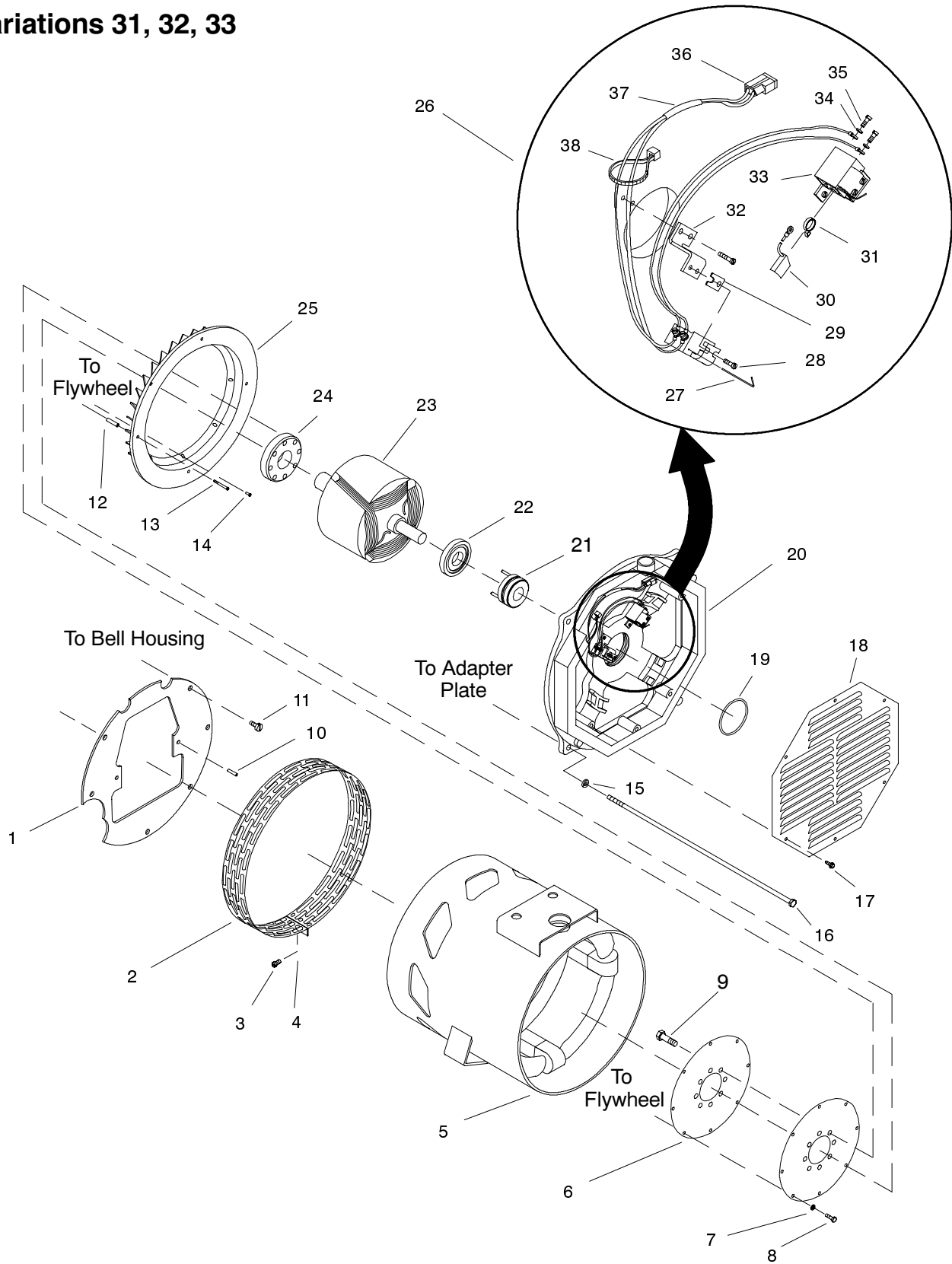
Item	Qty.	Description Variation	Part No.
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8	4	Nut, elbow stop 5/16-18 20	X-101-16
9	1	Washer, shakeproof 1/4 20	X-22-12
10	1	Washer, shakeproof 3/8 20	X-22-14
11	4	Washer, plain .406 x 2.00 x .188 20	X-25-96
12	1	Terminal, grounding 20	X-377-11
13	1	Screw, H.C., M10-1.50 20	X-6051-2

Common Hardware Procure Locally

Group 201: Generator & Mounting

Variations 31, 32, 33



CJ-250000

Group 201: Generator & Mounting

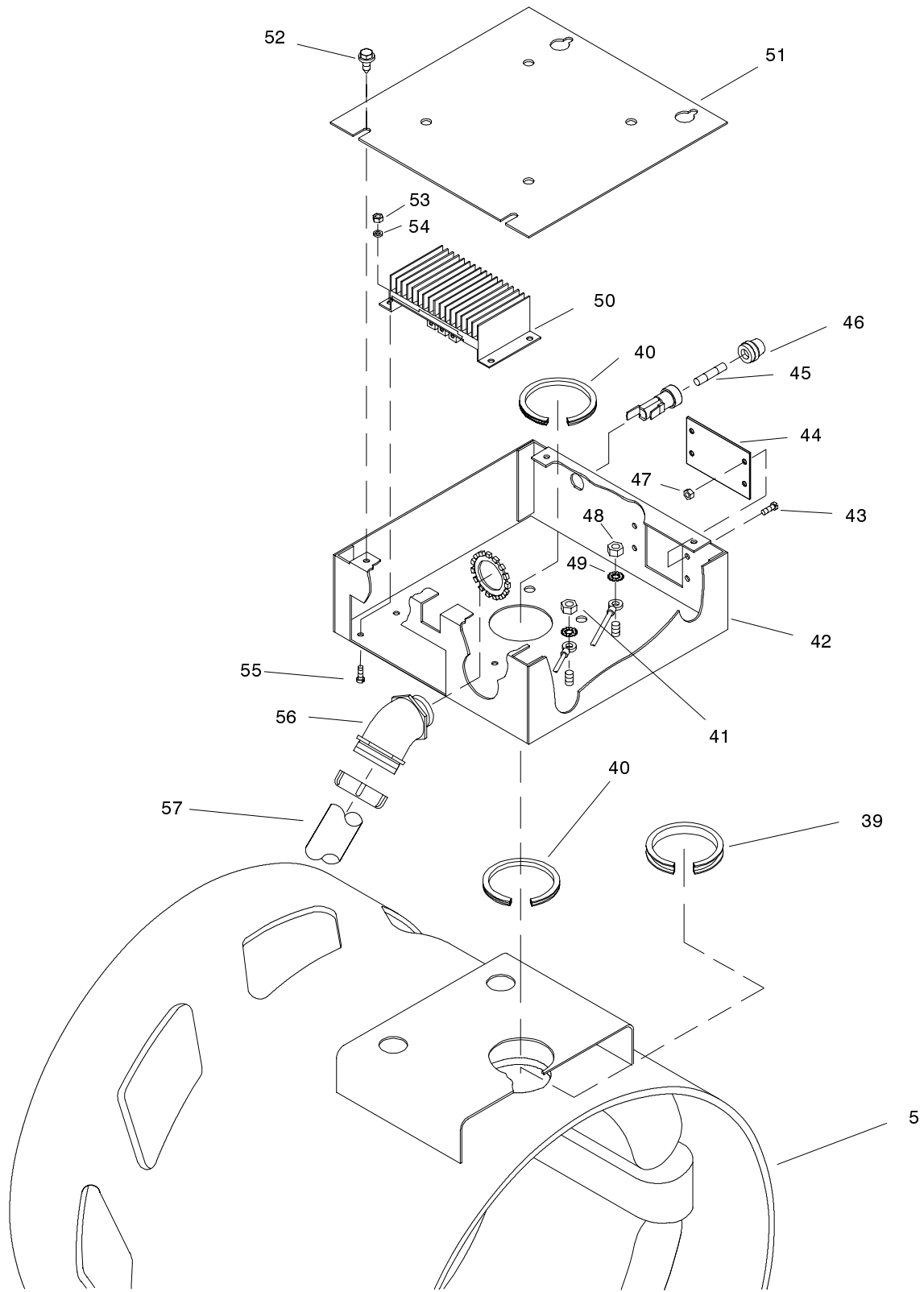
Item	Qty.	Description Variation	Part No.
1	1	Plate, locator 31, 32, 33	229097
2	1	Guard, Generator fan 31, 32, 33	229109
3	1	Screw, self-tapping 10-24 31, 32, 33	X-67-125
4	1	Clip, speed 31, 32, 33	257442
5	1	Stator assembly 31, 32, 33	225279
6	2	Disc, armature drive 31, 32, 33	257017
7	8	5/16 Washer 31, 32, 33	#
8	8	Screw, H.C., M8-1.25 31, 32, 33	X-6050-8
9	8	Cap Screw, 3/8-16 31	X-6238-3
10	2	Pin, knurled 31, 32, 33	229356
11	7	Screw, H.C., M10-1.50 31, 32, 33	X-6051-13
12	4	Spacer 31, 32, 33	X-400-189
13	4	Screw, pan head metric 31, 32, 33	X-6284-1
14	4	Screw, pan head metric 31, 32, 33	X-6284-2
15	4	Washer, hardened 31, 32, 33	X-801-3
16	4	Screw, H.C., M10-1.50 31, 32, 33	X-6051-19
17	6	Screw, self-tapping 10-32 31, 32, 33	X-67-113
18	1	Panel, end bracket 31, 32, 33	225545
19	1	O-ring 31, 32, 33	229110
20	1	Bracket, end 31, 32, 33	225531
21	1	Collector, ring 31, 32, 33	238134

Item	Qty.	Description Variation	Part No.
22	1	Bearing, ball 31, 32, 33	X-758-15
23	1	Rotor assembly (Includes items 21, 22, 24) 31	A-225275
1	1	Rotor assembly (Includes items 21, 22, 24) 32	A-225276
1	1	Rotor assembly (Includes items 21, 22, 24) 33	A-225286
24	1	Hub, drive 31, 32, 33	229060
25	1	Fan, generator 31, 32, 33	225214
26	1	Bracket assembly, end (Includes items 27-38) 31, 32, 33	A-225532
27	2	Retainer, wire 31, 32, 33	238247
28	4	Screw, hex head machine 31, 32, 33	X-97-13
29	2	Shim, brush holder 31, 32, 33	238248
30	4	Brush 31, 32, 33	239282
31	4	Spring 31, 32, 33	238150
32	2	Bracket, brush holder 31, 32, 33	229178
33	2	Holder, brush 31, 32, 33	239247
34	4	Washer, lock #6 31, 32, 33	X-22-6
35	4	Screw, r.h.m. 6-32 x .312 31, 32, 33	X-49-1
36	1	Terminal 31, 32, 33	269166
37	1	Sleeve, insulating 31, 32, 33	X-415-2
38	1	Tie, cable 31, 32, 33	X-468-6

Common Hardware Procure Locally

Group 201: Generator & Mounting

Variations 31, 32, 33



CJ-250000

Group 201: Generator & Mounting

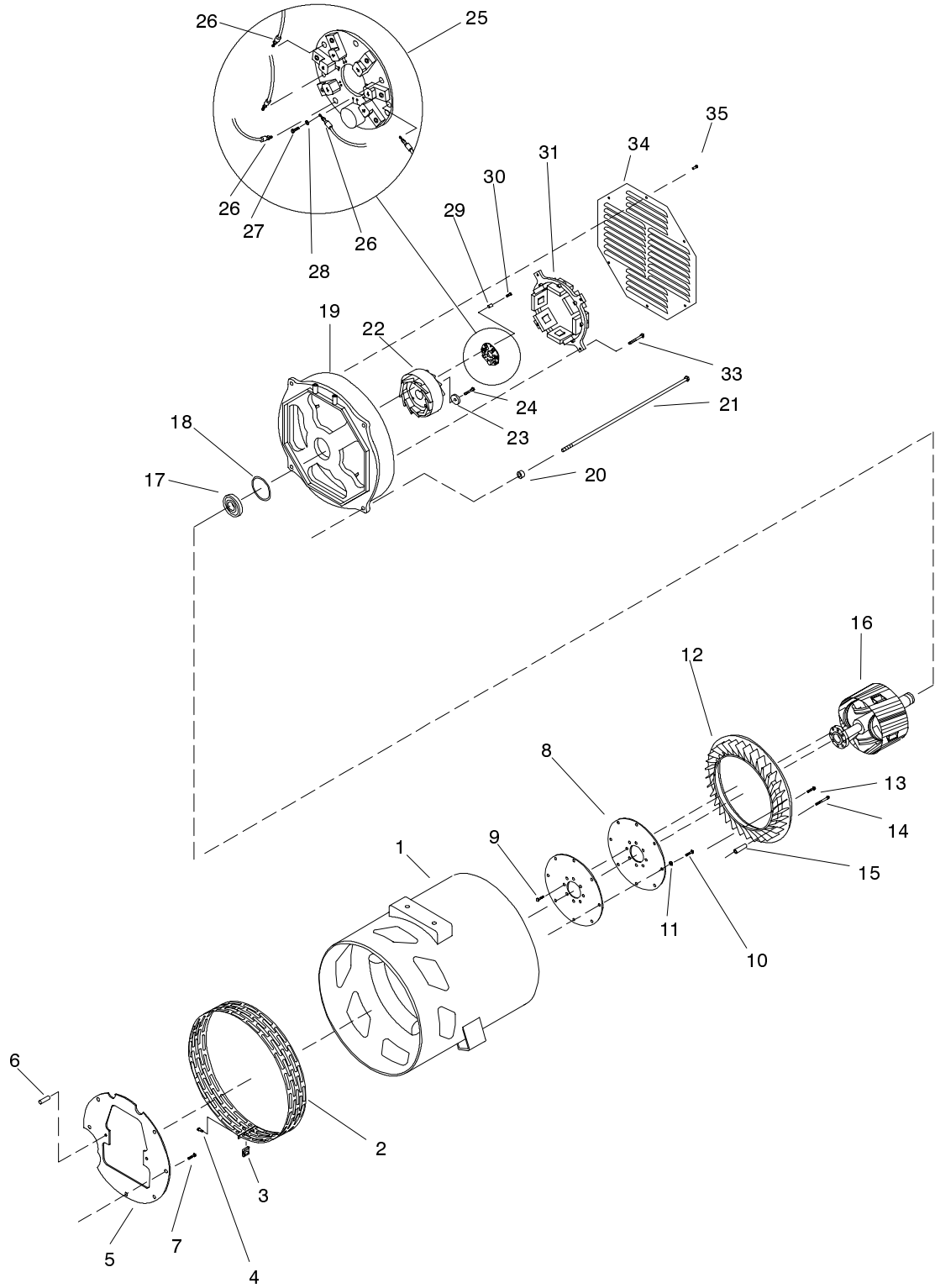
Item	Qty.	Description Variation	Part No.
39	1	Grommet, nylon 31	X-6028-1
40	1	Grommet, nylon 31, 32, 33	X-6033-6
41	1	Nut, hex (green) 31, 32, 33	X-81-8
42	1	Box, junction 31, 32, 33	225662
43	4	Screw, r.h.m. 6-32 x .250 31, 32, 33	X-49-25
44	1	Plate, cover 31, 32, 33	245264
45	1	Fuse, 10 amp 31, 32, 33	223316
46	1	Holder, fuse 31, 32, 33	238426
47	4	#6-32 Nut 31, 32, 33	#
48	2	1/4-20 Nut 31, 32, 33	#
49	2	Washer, shakeproof 1/4 31, 32, 33	X-22-12
50	1	Voltage regulator, (PBIIIIE) 31, 32, 33	E-278598
51	1	Cover, junction box 31, 32, 33	225530

Item	Qty.	Description Variation	Part No.
52	4	Screw, phil hex #10-24 31, 32, 33	X-6216-1
53	4	#8-32 Nut 31, 32, 33	#
54	4	#8 Washer 31, 32, 33	#
55	2	1/4-20 Screw 31, 32, 33	#
56	1	Conduit connector 31, 32	X-6027-10
57	1	Harness, wiring (AC) (Includes items 58 and 59, not shown) 31, 32, 33	225661
58	1	Conduit, flexible 31, 32, 33	X-6026-10
59	1	Connector, conduit 31, 32, 33	X-6027-9
60	1	Box assembly, junction (Includes items 42, 43, 44, 47) 31, 32, 33	A-225679

Common Hardware Procure Locally

Group 201: Generator & Mounting

Variations 34, 35, 36



BY-250000

Group 201: Generator & Mounting

Item	Qty.	Description Variation	Part No.
1	1	Stator Assembly 34, 35	225285
	1	Stator Assembly 36	225481
2	1	Guard, generator fan 34, 35, 36	229109
3	1	Clip, speed 34, 35, 36	257442
4	1	Screw, self-tapping 34, 35, 36	X-67-125
5	1	Plate, locator 34, 35, 36	229097
6	2	Pin, knurled 34, 35, 36	229356
7	6	Screw, H.C., M10-1.5 34, 35, 36	X-6051-13
8	2	Disc, armature drive 34, 35, 36	257017
9	8	Screw, 3/8-16 x .875 34, 35, 36	X-6238-3
10	8	Screw, H. C., M8-1.25 34, 35, 36	X-6050-8
11	8	5/16 Washer 34, 35, 36	#
12	1	Fan, generator 34, 35, 36	225214
13	4	Screw, M5 x .8 x 10mm 34, 35, 36	X-6284-1
14	4	Screw, M5 x .8 x 45mm 34, 35, 36	X-6284-2
15	4	Spacer 34, 35, 36	X-400-189
16	1	Rotor Assembly (includes item 17) 34, 35, 36	A-229209

Item	Qty.	Description Variation	Part No.
17	1	Bearing, ball 34, 35, 36	X-758-15
18	1	O-Ring 34, 35, 36	229110
19	1	Bracket, end 34, 36	229072
	1	Bracket, end 35	344565
20	4	Washer, hardened 34, 35, 36	X-801-3
21	4	Screw, H.C. M10 x 1.5 34, 35, 36	X-6051-19
22	1	Exciter, armature 34, 36	229099
	1	Exciter, armature 35	344568
23	1	Washer, plain 34, 35, 36	X-25-129
24	1	Screw, 3/8-16 x .875 34, 35, 36	X-6238-3
25	1	Circuit Board Assy. 34, 35, 36	A-229152
26	3	Terminal 34, 35, 36	X-283-3
27	5	Screw, 8-32 x .75 34, 35, 36	X-51-8
28	5	Washers, lock #8 34, 35, 36	X-22-7
29	3	Spacer 34, 35, 36	X-712-17
30	3	Screw, self-tapping 34, 35, 36	X-67-129
31	1	Exciter Assembly, field 34, 36	A-229277
32	1	Exciter Assembly, field 35	344570
33	4	Screw, hex. head mac. 34, 35, 36	X-97-14
34	1	Panel, end bracket 34, 35, 36	225545
35	6	Screw, self-tapping 34, 35, 36	X-67-113

Common Hardware Procure Locally

Group 301: Controller & Mounting

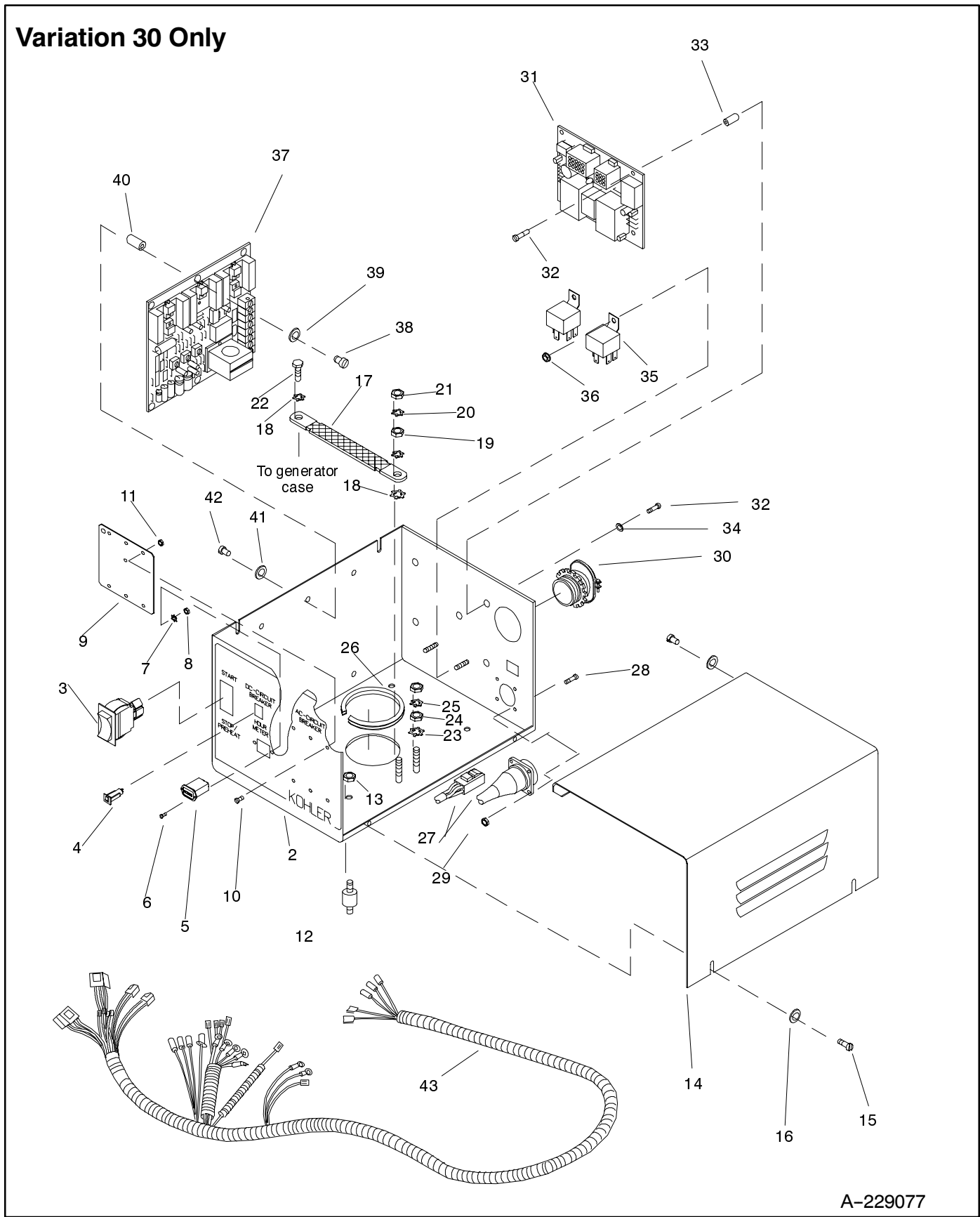
Item	Qty.	Description Variation	Part No.
1	1	Engine Harness, wiring (Includes the following, not shown) 29, 31	225309
	1	Connector, 4 position 29, 31	239408
	2	Diode, 6 amp, 100V 29, 31	233959
	1	Connector plug 29, 31	239493
	1	Connector, 2 position 29, 31	269166
	1	Connector, 6 position 29, 31	269190
	1	Boot 29, 31	290262
2	1	Controller assembly (Includes items 3-24) 29, 31	A-225312
3	1	Circuit board assembly, universal 29, 31	E-239563
4	1	1/4 Washer, lock 29, 31	X-22-11
5	2	Washer, Lock #6 29, 31	X-22-6
6	10	Screw, r.h.m. 6-32 29, 31	X-49-25
7	4	Screw, r.h.m. 6-32 29, 31	X-49-26
8	2	Screw, pan head 29, 31	X-49-39
9	4	Screw, phil hex #10-24 29, 31	X-6216-1
10	6	Nut, hex 6-32 29, 31	X-71-2
11	1	Nut, hex (green) 29, 31	X-81-8
12	2	Fuse, 10 amp 29, 31	223316

Item	Qty.	Description Variation	Part No.
13	1	Box, silkscreened 29, 31	225523
14	1	Cover, controller 29, 31	225527
15	2	Holder, fuse 29, 31	238426
16	1	Meter, hour 29, 31	238736
17	4	Mount, controller 29, 31	241769
18	1	Switch, rocker 29, 31	249406
19	2	Relay 29, 31	259391
20	5	Spacer, PC board 29, 31	287948
21	5	Washer, nylon 29, 31	239665
22	1	Harness, wiring (Includes the following, not shown) 29, 31	225308
	4	Diode, 6 amp, 100V 29, 31	233959
	1	Connector, receptacle 29, 31	239486
	1	Connector, 9 position 29, 31	259689
	1	Connector, 6 position 29, 31	269190
	1	Connector, 15 position 29, 31	269366
23	2	#10-32 nut 29, 31	#
24	4	1/4-20 nut 29, 31	#

Common Hardware Procure Locally

Group 301: Controller & Mounting

Variation 30 Only



A-229077

Group 301: Controller & Mounting

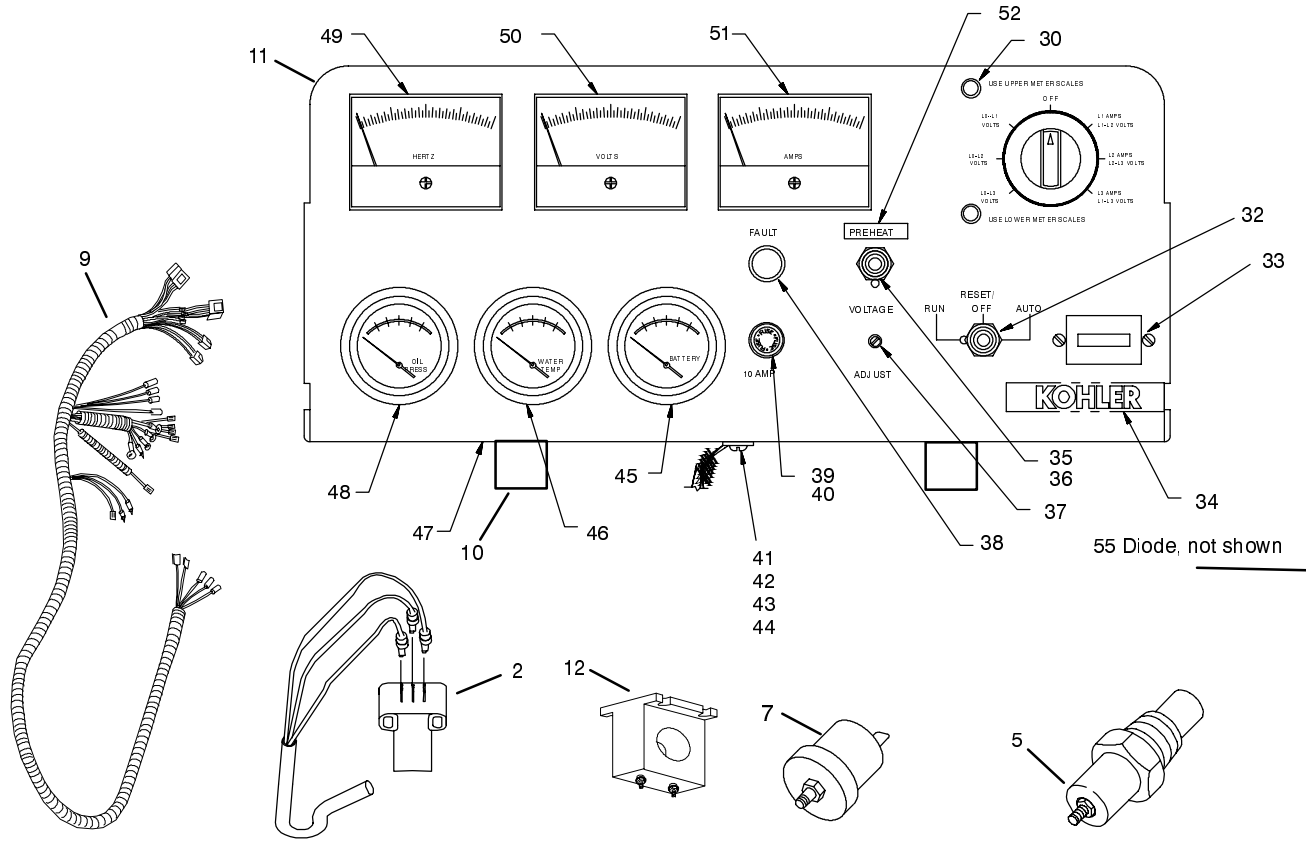
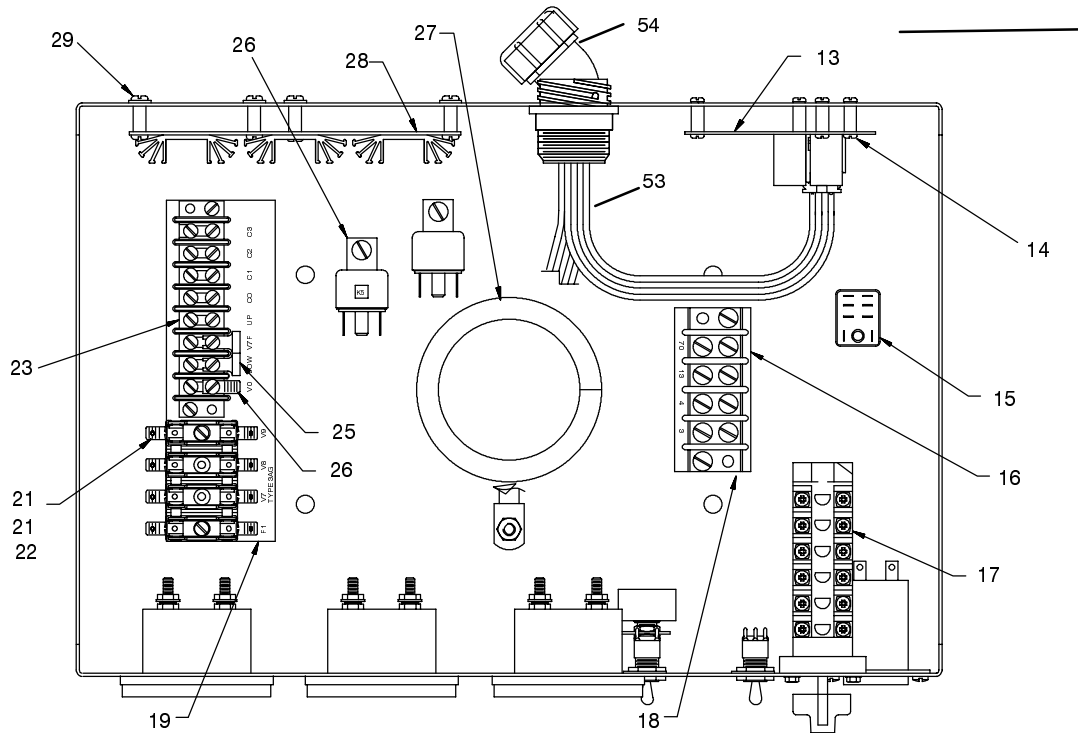
Item	Qty.	Description Variation	Part No.
1	1	Controller Assembly 30	A-229077
2	1	Box, silkscreen 30	229075
3	1	Switch, rocker 30	249406
4	1	Breaker, circuit 10 amp 30	250719
5	1	Meter, hour 30	238736
6	6	Screw, 6-32 x .625 30	X-49-26
7	5	Washer, lock #6 30	X-22-6
8	2	Nut, hex. 6-32 30	X-71-2
9	1	Plate, cover 30	246434
10	6	Screw, 6-32 x 5 30	X-49-1
11	6	#6-32 Nut 30	#
12	4	Mount, controller 30	229353
13	4	1/4-20 Nut 30	#
14	1	Cover, controller 30	229076
	1	Decal, regulator adjustment (not shown) 30	254831
15	2	Screw, 10-24 x 1/2 30	X-67-52
16	2	#10 Washers 30	#
17	1	Strap, ground 30	246083
	1	Tube, vinyl (not shown) 30	X-696-2
18	2	Washer, shakeproof 30	X-22-12
19	1	Nut, hex. 1/4-20 30	X-76-2
20	3	Washer, lock 1/4 30	X-22-11
21	1	Nut, hex 1/4-20 (green) 30	X-81-8
22	1	1/4-20 Bolt 30	#
23	2	Washer, 1/4 #8-32 int.-ext. tooth 30	X-22-12
24	2	Nut, hex 1/4-20 30	X-76-2
25	3	Washer, lock 1/4 30	X-22-11
26	1	Grommet, nylon 30	X-6033-4

Item	Qty.	Description Variation	Part No.
27	1	Harness, controller (Includes the following) 30	229129
	1	Fuse, 10 amp	223316
	4	Diode, 6 amp, 100V	233959
	1	22-Pin Connector	239496
	1	6-Pin Connector P3	241616
	1	6-Pin Connector	241617
	1	12-Pin Connector	254852
	1	Fuse, 8 Amp. 250V	258405
	1	9-Pin Connector	259689
	1	In-line Fuse Holder	269216
	1	15-Pin Connector	269366
28	4	#6-32 Nut 30	#
29	6	Screw, 6-32 x 1/2 30	X-49-26
30	1	Connector, cable 30	X-6266-1
31	1	Circuit Board, universal 30	H-239563
32	10	Screw, 6-32 x 1/4 30	X-49-25
33	5	Spacer, circuit board 30	287948
34	5	#6 Washer 30	#
35	2	Relay 30	259391
36	2	#10-32 Nut 30	#
37	1	Voltage Regulator, PBV 30	B-258296
38	6	Screw, #8-32 x 1/4 30	X-51-8
39	6	Washer, nylon 30	239665
40	6	Spacer 30	229357
41	2	#8 Washer 30	#
	4	Washer, lock #8 30	X-22-7
42	6	Screw, #8-32 x 3/8 30	X-51-12
43	1	Harness, engine wiring (includes the following) 30	225674
	2	Diode, 6 amp, 100V	233959
	1	22-Pin Connector	239493
	1	6-Pin Connector	241616
	1	2-Pin Connector Plug	292370
	1	2 -Pin Connector Jack	292371

Common Hardware Procure Locally

Group 301: Controller & Mounting

Variation 34 only



Group 301: Controller & Mounting

Item	Qty.	Description Variation	Part No.
1	1	Controller Assembly (Includes items 13-55) 34	A-225476
2	1	Sensor, speed 34	241623
3	1	Actuator, magnetic (not shown) 34	225473
4	1	Bracket, sensor mounting (not shown) 34	225472
5	1	Sender, water temperature 34	249348
6	1	Bushing, adapter (not shown) 34	225127
7	1	Sender, oil pressure 34	264390
8	1	Bushing, reducer (not shown) 34	A-106
9	1	Harness, wiring (includes the following) 34	225470
	2	Diode, 6 amp, 100V	233959
	1	22-Pin Connector	239493
	1	Boot	290262
	1	2-Pin Connector Plug	292370
	1	2-Pin Connector Jack	292371
10	4	Mount, controller 34	246267
11	1	Cover, Controller 34	336602
12	3	Transformer 34	259360
13	1	PCB Assy, cont relay 34	F-254717
14	5	Spacer 34	287948
15	1	Relay 34	241736
16	1	Strip, marker 34	336605
17	1	Switch, selector 34	292374
18	1	Strip, terminal 34	292940
19	1	Strip, marker 34	336636
20	1	Holder, fuse 34	336635
21	3	Fuse, 1.5 amp, 250V 34	291207
22	1	Fuse, 15 amp, 250V 34	283645
23	1	Block, terminal 34	246115
24	1	Jumper 34	X-6048-2
25	1	Terminal 34	238898
26	2	Relay 34	259391
27	1	Grommet 34	X-284-31
28	1	PCB Assy., PBV regulator 34	A-225491

Item	Qty.	Description Variation	Part No.
29	6	Spacer 34	229357
30	2	Lamp 34	291740
31	1	Resistor Assembly (not shown) 34	226666
32	1	Switch, toggle 34	287812
33	1	Meter, hour 34	238736
34	1	Logo, Kohler 34	X-6276-9
35	1	Ring Lock Switch 34	151511
36	1	Switch, toggle 34	354151
37	1	Potentiometer Assembly 34	A-255041
38	1	Lamp 34	269373
39	1	Holder, fuse 34	238426
40	1	Fuse, 10 amp 34	223316
41	1	Screw, r.h.m. 34	X-50-70
42	2	Nut, Hex. 34	X-6234-6
43	1	Strap, Ground 34	X-6046-4
44	1	Tube, vinyl 34	D-393-31
45	1	Voltmeter 34	253329
46	1	Gauge, water temperature 34	282898
47	1	Box, silkscreen 34	225475
48	1	Gauge, oil pressure 34	282897
49	1	Meter, frequency 34	292069
50	1	Meter, volts AC 34	282814
51	1	Meter, amps AC 34	295337
52	1	Decal, preheat 34	225488
53	1	Harness, wiring (includes the following) 34	225477
	2	Diode, 6 amp, 100V	233959
	1	22-Pin Connector	239496
	1	12-Pin Connector Plug	254852
	1	15-Pin Connector Plug	269366
	1	Holder, in-line fuse	322557
54	1	Connector, conduit 34	X-6027-10
55	2	Diode 6 amp, 100V In-line (not shown) 34	233959

Common Hardware Procure Locally

Group 701: Literature

Item	Qty.	Description Variation	Part No.
1	1	Guide, safety 5, 7	TP-5251
2	1	RV Warranty 5, 7	TP-5376
3	1	Operation/Installation Manual, 15/20CCO Yanmar 5, 7	TP-5605
4	1	Service Manual, 15/20CCO Yanmar 5, 7	TP-5606

Item	Qty.	Description Variation	Part No.
5	1	Parts Catalog, 15/20CCO/CCFO Yanmar 5, 7	TP-5607
6	1	Parts Catalog, trailer-mounted Generator Sets 7	TP-5883
7	1	Service Manual, Yanmar 3TN82E/4TN8E 5, 7	TP-5365
8	1	Operation Manual, ROZJA DEC-1 7	TP-5767

	15 kW	20 kW
Circuit Breaker Kits		
60 Hz Voltage Connection, 1-phase		
120/240 Volt	PA-225632	PA-225636
100/200 Volt	PA-225633	PA-225638
50 Hz Voltage Connection, 1-phase		
120/240 Volt	PA-225634	PA-225637
110/220 Volt	PA-225635	PA-225633
100/200 Volt	PA-225632	PA-225636
200 Volt	PA-225641	PA-225642
60 Hz Voltage Connection, 3-phase		
120/240 Volt	PA-260107	PA-260108
139/240 Volt	PA-260107	PA-260108
127/220 Volt	PA-260107	PA-260113
277/480 Volt	PA-225669	PA-260109
240/416 Volt	PA-260109	PA-260110
120/208 Volt	PA-260108	PA-260113
50 Hz Voltage Connection, 3-phase		
120/240 Volt	PA-260107	PA-260113
139/240 Volt	PA-260107	PA-260108
127/220 Volt	PA-225669	PA-260109
277/480 Volt	PA-260669	PA-260109
240/416 Volt	PA-260669	PA-260109
120/208 Volt	PA-260107	PA-260108
110/220 Volt	PA-260110	PA-260108
Cooling System Kits		
Remote Radiator	PAA-225575	PAA-225579
Pusher Fan	225944	225944
Block Heater	225292	225292
Block Heater	225494	225494
Exhaust System Kits		
Flexible Exhaust Connector	PA-225607	PA-225607
Exhaust Installation	PA-225627	PA-225627
Exhaust Manifold Blanket	PA-227644	PA-227643
Muffler	PA-225606	PA-225606
Silencer, oval	PA-225321	PA-225321
Spark Arrestor	PA-225323	PA-225323
Fuel System Kits		
Fuel Water Separator	225625	225625
Flexible Fuel Lines	225207	225207
Heavy-Duty Fuel Pump	225463	225463
Harness Kits		
Harness, remote 1 foot (pigtail) (1-phase models)	PA-225536	PA-225536
Harness, remote 1 foot (pigtail) (3-phase models)	PA-249941	PA-249941
Harness, remote mounting 7.5 feet	PA-225552	PA-225552
Harness, remote mounting 15 feet	PA-225563	PA-225563
Extension Harness 15 feet (1-phase models)	PA-225580	PA-225580
Extension Harness 15 feet (3-phase models)	PA-249334	PA-249334
Extension Harness 25 feet (1-phase models)	PA-225581	PA-225581
Extension Harness 25 feet (3-phase models)	PA-249336	PA-249336
Panel Kits		
Panel	PA-225585	PA-225585
Panel	PA-225588	PA-225588
Remote Start Panel	PA-225576	PA-225576
Remote Start and 2-Meter Panel	PA-344040	PA-344040
Remote Start and 4-Meter Panel	PA-344041	PA-344041
Miscellaneous		
Engine Senders	PA-225621	PA-225621
Airbag Mount	PA-225647	PA-225647
Black spray paint	221292	221292

Kit Parts List

Qty.	Description	Kit/Part Number
Circuit Breaker		
1	Breaker, circuit, 65 amp	PA-225632 X-506-24
1	Decal, notice	246242
1	Installation Instructions	TT-875
Circuit Breaker		
1	Decal, notice	PA-225633 246242
1	Breaker, circuit, 80 amp, 2 pole	X-506-30
1	Installation Instructions	TT-875
Circuit Breaker		
1	Decal, notice	PA-225634 246242
1	Breaker, circuit, 53 amp	X-506-44
1	Installation Instructions	TT-875
Circuit Breaker		
1	Decal, notice	PA-225635 246242
1	Breaker, circuit, 60 amp, 2 pole	X-506-23
1	Installation Instructions	TT-875
Circuit Breaker		
1	Decal, notice	PA-225636 246242
1	Breaker, circuit, 85 amp	X-506-25
1	Installation Instructions	TT-875
Circuit Breaker		
1	Decal, notice	PA-225637 246242
1	Breaker, circuit, 70 amp	X-506-27
1	Installation Instructions	TT-875
Circuit Breaker		
1	Decal, notice	PA-225638 246242
1	Breaker, circuit, 100 amp	225629
1	Installation Instructions	TT-875
Circuit Breaker		
1	Decal, notice	PA-225641 246242
1	Plate, cover	229183
1	Breaker, circuit, 60 amp	X-506-51
1	Installation Instructions	TT-875
Circuit Breaker		
1	Decal, notice	PA-225642 246242
1	Breaker, circuit, 80 amp	X-506-52
1	Plate, cover	229183
1	Installation Instructions	TT-875
Circuit Breaker		
1	Breaker, circuit, 25 amp	PA-225669 225168
1	Decal, notice	246242
3	Boot	238915
1	Installation Instructions	TT-799
Circuit Breaker		
1	Breaker, circuit, 50 amp	PA-260107 269249
1	Decal, notice	246242
3	Boot	238915
1	Installation Instructions	TT-799
Circuit Breaker		
1	Breaker, circuit, 60 amp	PA-260108 253224
1	Decal, notice	246242
3	Boot	238915
1	Installation Instructions	TT-799

Qty.	Description	Kit/Part Number
Circuit Breaker		
1	Breaker, circuit, 30 amp	PA-260109 269250
1	Decal, notice	246242
3	Boot	238915
1	Installation Instructions	TT-799
Circuit Breaker		
1	Breaker, circuit, 40 amp	PA-260110 269252
1	Decal, notice	246242
3	Boot	238915
1	Installation Instructions	TT-799
Circuit Breaker		
1	Breaker, circuit, 70 amp	PA-260113 258381
3	Boot	238915
1	Installation Instructions	TT-799
1	Decal, notice	246242
Remote Radiator 15 kW		
5		PAA-22557
1	Installation Instructions	TT-1004
1	Harness, wiring	225682
1	Harness, wiring	225683
1	Harness, wiring	225684
1	Relay Tab 20 A 12 vdc	259391
1	Holder, in-line fuse	269216
1	Fuse 15 A 250V	283645
1	Radiator assembly, remote (Includes the following)	A-225575
1	Radiator, assembly	A-225589
1	Radiator cap	258126
1	Fan assembly, suction	A-225578
1	Valve, drain 1/4	X-256-3
4	Screw, r.h.m. 10-24 x 3	X-50-3
1	Shroud, fan	225577
1	Plug, pipe 1/2	X-75-3
Remote Radiator 20 kW		
9		PAA-22557
1	Installation Instructions	TT-1004
1	Harness, wiring	225682
1	Harness, wiring	225683
1	Harness, wiring	225684
1	Relay Tab 20 A 12 vdc	259391
1	Holder, in-line fuse	269216
1	Fuse 15 A 250V	283645
1	Radiator Assembly, remote (Includes the following)	A-225579
1	Radiator Assembly	A-225067
1	Radiator cap	224368
1	Fan Assembly, suction	A-225578
1	Valve, drain 1/4	X-256-3
4	Screw, r.h.m. 10-24 x 3	X-50-3
1	Shroud, fan	225577
1	Plug, pipe 1/2	X-75-3
Pusher Fan		
1	Installation Instructions	225944 TT-1011
1	Fan, pusher	225771
1	Baffle, fan	225942

Kit Parts List

Qty.	Description	Kit/Part Number
Block Heater 225292		
1	Installation Instructions	TT-1009
2	Hose	X-312-52
6	Clamp, hose 1/2 x 1 13/32	X-426-3
2	Clamp, hose 1 15/16	X-426-8
1	Connector, hose	225250
1	Bushing, reducer 1/2	168848
1	Bracket, block heater	225293
1	Hose, molded	225294
1	Bracket, block heater	225297
1	Heater, block	276358
1	Tag, hang	279047
Block Heater 225494		
1	Installation Instructions	TT-1191
1	Hose, rubber	X-312-36
4	Clamp, hose	X-426-10
2	Clamp, hose 1 15/16	X-426-8
1	Connector, hose	X-582-1
1	Bushing, reducer 1/2	168848
1	Connector, hose	225250
1	Hose	225443
1	Hose	225444
1	Bracket, block heater	225498
1	Hose, molded	276206
1	Heater, block	352945
1	Tag, hang	279047
Exhaust Connector PA-225607		
1	Elbow, 90°	151771
1	Connector, exhaust	254972
Exhaust Installation PA-225627		
1	Elbow, 90°	151771
1	Nipple, pipe 1 1/2 x 2	155029
Exhaust Manifold Blanket PA-227643		
1	Cover, turbo insulation	227645
1	Cover, exhaust manifold	227646
1	Installation Instructions	TT-912
Exhaust Manifold Blanket PA-227644		
1	Cover, insulator	225291
1	Installation Instructions	TT-913
Muffler PA-225606		
1	Muffler, exhaust	225603
1	Adapter, hose	286831
1	Clamp, muffler	288827
Silencer, Oval PA-225321		
1	Muffler	225316
Spark Arrestor PA-225323		
1	Clamp, muffler	X-722-4
1	Arrestor, spark	225319
1	Connector, I.D./O.D.	225320
1	Clamp, muffler	277706

Qty.	Description	Kit/Part Number
Fuel Water Separator PA-225625		
1	Installation Instructions	TT-888
1	Connector, hose	X-380-4
1	Line, flex fuel	X-386-100
1	Connector, hose elbow	X-391-25
2	Clamp, hose	X-426-9
1	Filter, water separator	225455
1	Bracket, separator filter	225605
2	Plug, pipe	X-75--51
Flexible Fuel line PA-225207		
1	Installation Instructions	TT-1013
4	Elbow, oil line connector	X-447-7
1	Line, flexible fuel	225204
Heavy-duty Fuel Pump PA-225463		
1	Installation Instructions	TT-1138
3	Nut, hex elastic stop	X-101-25
11	Washer, plain	X-25-40
3	Grommet	X-284-29
2	Insulink, 22-18 gauge	X-367-3
1	Line, flex. fuel	X-386-74
1	Line, flexible fuel	X-386-99
2	Connector, hose elbow	X-391-20
4	Clamp, hose	X-426-9
2	Screw, hex head cap	X-6049-8
2	Union, banjo	X-6288-1
1	Bracket, fuel pump mtg	225462
1	Pump, fuel	229051
2	Lead, wire	229056
Harness, Remote 1 Foot PA-225536		
1	Harness, remote 1 foot	225536
Harness, Remote 1 Foot PA-249941		
1	Harness, remote 1 foot	249935
Harness, Remote 7.5 feet PA-225552		
1	Harness, remote 7.5 feet	225552
Harness, Remote 15 feet PA-225563		
1	Harness, remote 15 feet	225563
Extension Harness, 15 feet PA-225580		
1	Harness, extension 15 feet	225580
Extension Harness, 15 feet PA-249334		
1	Harness, extension 15 feet	249334
Extension Harness, 25 feet PA-225581		
1	Harness, extension 25 feet	225581
Extension Harness, 25 feet PA-249336		
1	Harness, extension 25 feet	249336
1	Adapter, exhaust	X-570-22

Kit Parts List

Qty.	Description	Kit/Part Number	Qty.	Description	Kit/Part Number
Remote Panel PA-225576			Remote Start and 2-Meter Panel PA-344040		
1	Installation Instructions	TT-872	1	Installation Instructions	TT-1072
1	Panel assembly remote (Includes the following)	A-225574	1	Decal, warning	249494
1	Connector, plug 6 position	241617	1	Panel, control (Includes the following)	A-344033
1	Panel, remote	260105	1	Panel, control	344029
1	Switch, rocker	269296	1	Harness, panel	344031
Panel PA-225585			1	Gauge, temperature	344035
1	Installation Instructions	TT-874	1	Gauge, oil pressure	344036
1	Panel, control (Includes the following)	A-225584	1	Switch, rocker	344039
1	Panel, silkscreened	225583	Remote Start and 4-Meter Panel PA-344041		
1	Switch, rocker	249330	1	Installation Instructions	TT-1073
1	Harness, wiring	249331	1	Decal, warning	249494
1	Gauge, oil pressure	249438	1	Panel, control (Includes the following)	A-344034
1	Gauge, water temperature	249440	1	Panel, control	344030
Panel PA-225588			1	Harness, wiring	344032
1	Installation Instructions	TT-873	1	Gauge, temperature	344035
1	Panel, control (Includes the following)	A-225587	1	Gauge, oil pressure	344036
1	Panel, silkscreened	225586	1	Gauge, volt	334037
1	Switch, rocker	249330	1	Gauge, hour meter	334038
1	Gauge, oil pressure	249438	1	Switch, rocker	344039
1	Gauge, water temperature	249440	Black Spray Paint 221292		
1	Meter, hour	249461	1	Black spray paint	221292
1	Voltmeter, battery	249462	Heavy-duty Fuel Pump PA-225647		
1	Harness, panel	249467	1	Installation Instructions	TT-905
Sender PA-225621			4	Nut, hex elastic stop 5/8-11	X-101-15
1	Bushing, adapter	225127	4	Washer, lock 3/8	X-22-14
1	Sender, water temperature	249348	1	Washer, lock 5/16	X-22-16
1	Sender, oil pressure	344305	4	Washer, plain	X-25-109
1	Bushing, reducing	A-106	4	Washer, plain	X-25-15
1	Installation Instructions	TT-886	2	Elbow, street	X-274-17
			8	Stud	X-352-67
			4	Spacer	X-400-75
			1	Strap, ground	X-6046-6
			1	Skid	225643
			4	Mount, airbag	225644
			4	Valve, air supply	225645
			4	Cable, restraining	225646
			2	Bracket, airbag mounting	225656
			2	Bracket, airbag mounting	225657
			1	Decal, warning	239771
			1	Decal, oil drain	280562

Appendix A. Glossary of Abbreviations

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

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

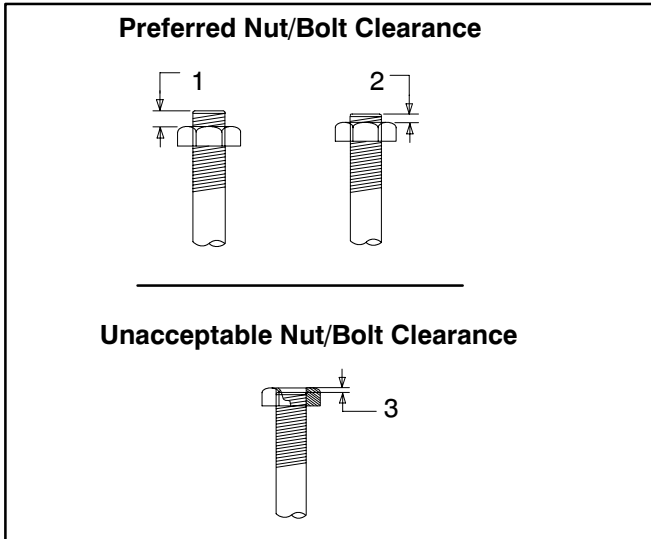
Appendix B. Common Hardware Application Guidelines

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

Bolt/Screw Length: When bolt/screw length is not given, use NO TAG as a guide. As a general rule, a minimum length of one thread beyond the nut and a maximum length of 1/2 the bolt/screw diameter beyond the nut is the preferred method.

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

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



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

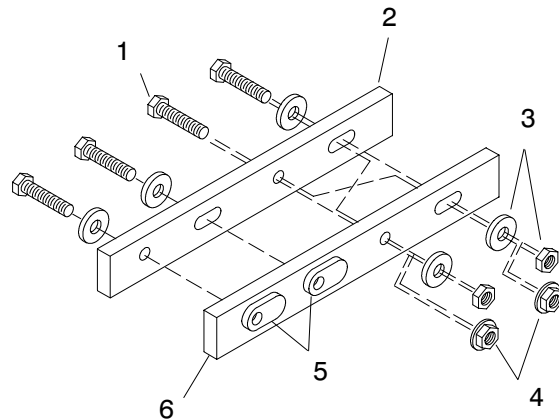
Figure 2. Acceptable Bolt Lengths

Steps for common hardware application:

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

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

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



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

Figure 3. Acceptable Hardware Combinations

Appendix C. General Torque Specifications

SAE Fasteners

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

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

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




















Metric Fasteners














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

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

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

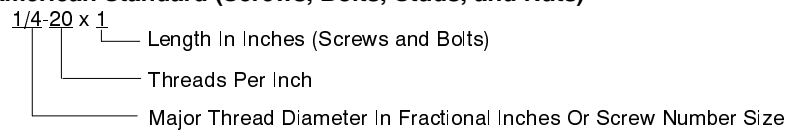
Appendix D. Common Hardware Identification

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

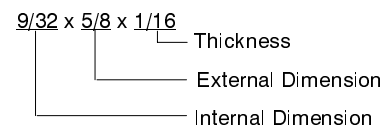
Nuts Nut Styles	
Hex. Head	
Lock Nut or Nylock Nut	
Square Nut	
Cap Nut or Acorn Nut	
Wing Nut	
Nut Hardness Grades	
American Standard	
Grade 2	
Grade 5	
Metric	
Number stamped on hardware	
Washers	
Washer Styles	
Plain	
Split Lock or Spring	
Spring or Wave	
External Tooth Lock	
Internal Tooth Lock	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

Sample Dimensions

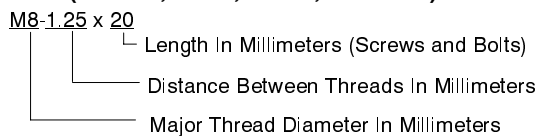
American Standard (Screws, Bolts, Studs, and Nuts)



Plain Washers



Metric (Screws, Bolts, Studs, and Nuts)



Lock Washers



Appendix E. Common Hardware List

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

HEX BOLTS (GRADE 5)

Part No.	Dimensions
X-465-17	1/4-20 x .38
X-465-6	1/4-20 x .50
X-465-2	1/4-20 x .62
X-465-16	1/4-20 x .75
X-465-18	1/4-20 x .88
X-465-7	1/4-20 x 1.00
X-465-8	1/4-20 x 1.25
X-465-9	1/4-20 x 1.50
X-465-10	1/4-20 x 1.75
X-465-11	1/4-20 x 2.00
X-465-12	1/4-20 x 2.25
X-465-14	1/4-20 x 2.75
X-465-21	1/4-20 x 5.00
X-465-25	1/4-28 x .38
X-465-20	1/4-28 x 1.00
X-125-33	5/16-18 x .50
X-125-23	5/16-18 x .62
X-125-3	5/16-18 x .75
X-125-31	5/16-18 x .88
X-125-5	5/16-18 x 1.00
X-125-24	5/16-18 x 1.25
X-125-34	5/16-18 x 1.50
X-125-25	5/16-18 x 1.75
X-125-26	5/16-18 x 2.00
230578	5/16-18 x 2.25
X-125-29	5/16-18 x 2.50
X-125-27	5/16-18 x 2.75
X-125-28	5/16-18 x 3.00
X-125-22	5/16-18 x 4.50
X-125-32	5/16-18 x 5.00
X-125-35	5/16-18 x 5.50
X-125-36	5/16-18 x 6.00
X-125-40	5/16-18 x 6.50
X-125-43	5/16-24 x 1.75
X-125-44	5/16-24 x 2.50
X-125-30	5/16-24 x .75
X-125-39	5/16-24 x 2.00
X-125-38	5/16-24 x 2.75
X-6238-2	3/8-16 x .62
X-6238-10	3/8-16 x .75
X-6238-3	3/8-16 x .88
X-6238-11	3/8-16 x 1.00
X-6238-4	3/8-16 x 1.25
X-6238-5	3/8-16 x 1.50
X-6238-1	3/8-16 x 1.75
X-6238-6	3/8-16 x 2.00
X-6238-17	3/8-16 x 2.25
X-6238-7	3/8-16 x 2.50
X-6238-8	3/8-16 x 2.75
X-6238-9	3/8-16 x 3.00
X-6238-19	3/8-16 x 3.25
X-6238-12	3/8-16 x 3.50
X-6238-20	3/8-16 x 3.75
X-6238-13	3/8-16 x 4.50
X-6238-18	3/8-16 x 5.50
X-6238-25	3/8-16 x 6.50
X-6238-14	3/8-24 x .75
X-6238-16	3/8-24 x 1.25
X-6238-21	3/8-24 x 4.00
X-6238-22	3/8-24 x 4.50
X-6024-5	7/16-14 x .75
X-6024-2	7/16-14 x 1.00
X-6024-8	7/16-14 x 1.25
X-6024-3	7/16-14 x 1.50
X-6024-4	7/16-14 x 2.00
X-6024-11	7/16-14 x 2.75
X-6024-12	7/16-14 x 6.50
X-129-15	1/2-13 x .75

HEX BOLTS (GRADE 5), continued

Part No.	Dimensions
X-129-17	1/2-13 x 1.00
X-129-18	1/2-13 x 1.25
X-129-19	1/2-13 x 1.50
X-129-20	1/2-13 x 1.75
X-129-21	1/2-13 x 2.00
X-129-22	1/2-13 x 2.25
X-129-23	1/2-13 x 2.50
X-129-24	1/2-13 x 2.75
X-129-25	1/2-13 x 3.00
X-129-27	1/2-13 x 3.50
X-129-29	1/2-13 x 4.00
X-129-30	1/2-13 x 4.50
X-463-9	1/2-13 x 5.50
X-129-44	1/2-13 x 6.00
X-129-51	1/2-20 x .75
X-129-45	1/2-20 x 1.25
X-129-52	1/2-20 x 1.50
X-6021-3	5/8-11 x 1.00
X-6021-4	5/8-11 x 1.25
X-6021-2	5/8-11 x 1.50
X-6021-1	5/8-11 x 1.75
273049	5/8-11 x 2.00
X-6021-5	5/8-11 x 2.25
X-6021-6	5/8-11 x 2.50
X-6021-7	5/8-11 x 2.75
X-6021-12	5/8-11 x 3.75
X-6021-11	5/8-11 x 4.50
X-6021-10	5/8-11 x 6.00
X-6021-9	5/8-18 x 2.50
X-6239-1	3/4-10 x 1.00
X-6239-8	3/4-10 x 1.25
X-6239-2	3/4-10 x 1.50
X-6239-3	3/4-10 x 2.00
X-6239-4	3/4-10 x 2.50
X-6239-5	3/4-10 x 3.00
X-6239-6	3/4-10 x 3.50
X-792-1	1-8 x 2.25
X-792-5	1-8 x 3.00
X-792-8	1-8 x 5.00

NUTS

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

WASHERS

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

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