

P773-2
For Model: M773LW2

PARTS MANUAL

Marine Generators | Marine Diesel Engines | Land-Based Generators



LUGGER





— CALIFORNIA —
Proposition 65 Warning:

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.



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PARTS CATALOG

for Model
M773LW2

Please read thoroughly before attempting to use this manual:

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Proprietary Information

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INTRODUCTION

MODEL DESIGNATION

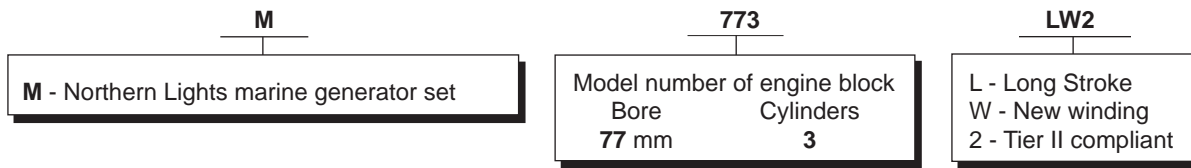
MODELS INCLUDED

This manual covers the operating instructions for:

M773LW2 which uses the 773LW2 engine

MODEL NUMBERS

Model numbers give the unit's application, block model, aspiration, and RPM:

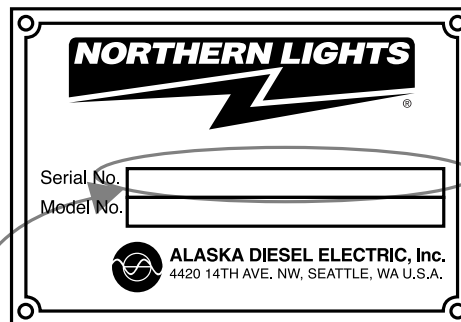


M773LW2 = Northern Lights marine diesel generator set with an 773 engine and a PX309K2 generator, with a new winding, Tier II compliant.

SERIAL NUMBERS

NORTHERN LIGHTS

Your set has three serial numbers: ① an engine number stamped on the block, ② a generator plate, and ③ a generator set plate. Use the serial number on the **generator set plate** when ordering parts or in correspondence. The generator set plate is found on the service side of the generator and resembles the drawing below.



*Generator Set Serial Number
for units with PXX
generators*

READING A PARTS PAGE

IMPORTANT:

Before selecting parts, be sure that you are choosing parts from the correct page.
 Check the model designation at the page top.
 Do not use this illustration for parts purchasing.

1 — ELECTRICAL SYSTEM

ALTERNATOR ASSEMBLY: M - NL844

KEY	PART NUMBER	QTY.	DESCRIPTION	SERIALNUMBER
0	185046210	1	Alternator Assembly	-
1	185446219	1	Flywheel, complete	-
2	185446217	1	Plate, complete	-
3	185716200	1	Plate	-
4	185446218	1	Stator, complete	-
5	040126210	2	Bearing	-
6	020210010	1	Nut	-
7	027100010	1	Spring washer	-
8	026100010	1	Washer	-
9	185446220	1	Clamp	-
10	015140408	1	Screw	-
11	015140425	2	Screw	-
12	199236510	1	Collar	-

13 — P844 06/05 — 14
 11 — 5-2 — 12

REFERENCES:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Grouping section title. 2. Model designation of equipment that uses parts listed on this page. 3. Title and description of assembly. 4. Drawing numbers that correspond to key column numbers for parts identification. 5. Key column for locating parts shown on drawing. 6. Part number. | <ol style="list-style-type: none"> 7. Quantity of parts used. 8. Description of each component part. 9. Serial number of unit the part fits. 10. Assembly or kit designated by Key 0 or ••/•. 11. Grouping index number. 12. Page number within the grouping index. 13. Manual title. 14. Page publication date. |
|--|--|

NOTE: ⇐ Arrows always point toward the front of the engine.

Cylinder Block Assembly

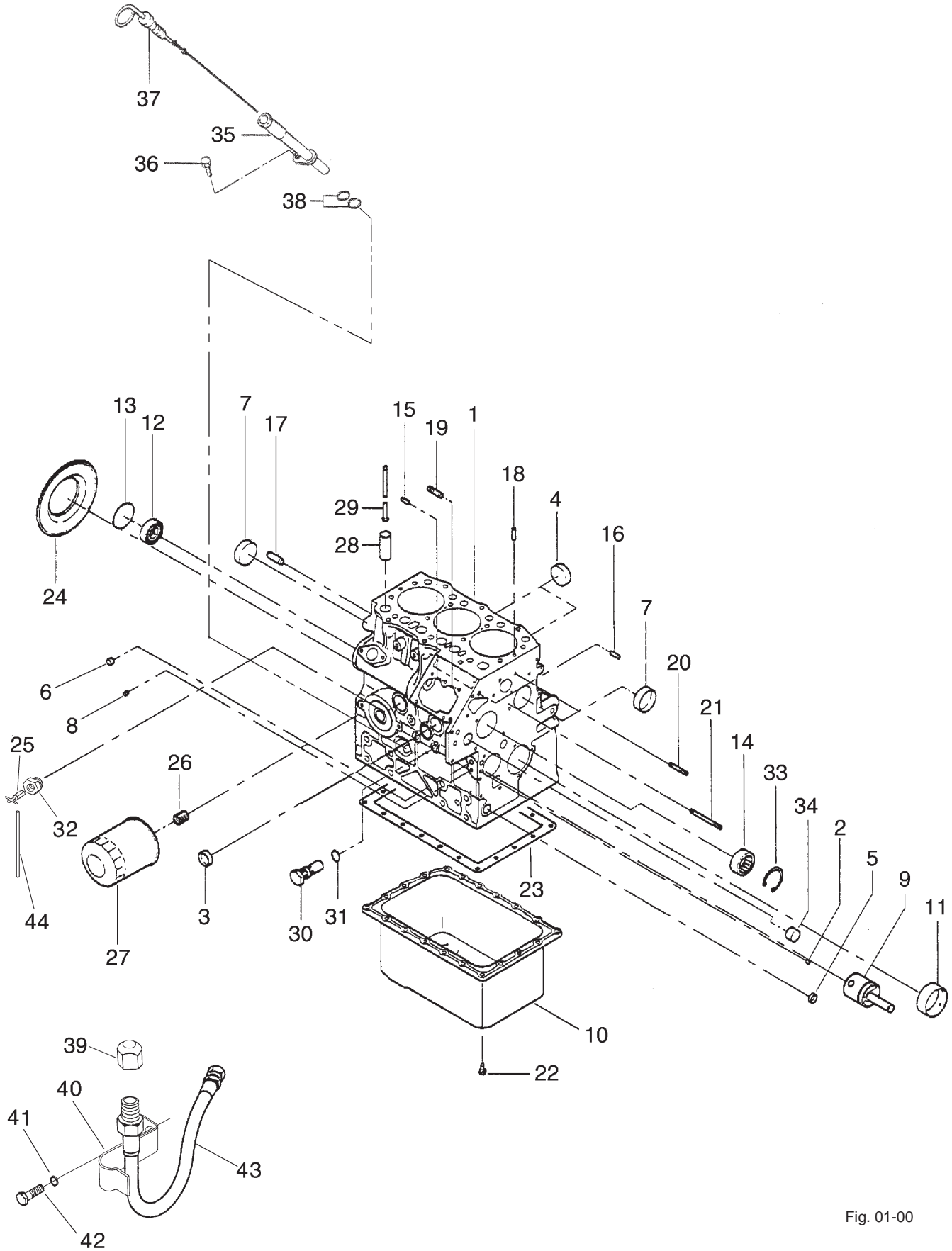


Fig. 01-00

Cylinder Block Assembly

KEY	PART NUMBER	QTY	DESCRIPTION	S/N
1	110103541	1	Cylinder Block Assembly (Includes keys #2 - #21)	-
2	198466050	1	Plug	-
3	064210025	1	Expansion Plug, 25 mm	-
4	064210035	2	Expansion Plug, 35 mm	-
5	064210015	1	Expansion Plug, 15 mm	-
6	198466010	4	Plug	-
7	064210040	2	Expansion Plug, 40 mm	-
8	198466030	4	Plug	-
9	165296142	1	Idle Gear Shaft Assembly	-
10	110708620	1	Oil Pan	-
11	198517592	1	Bushing; S.T.D. (formerly #198517591)	-
	198517596	1	Bushing; U.S. 0.25 (formerly #198517595)	-
	198517599	1	Bushing; U.S. 0.50 (formerly #198517598)	-
12	040106203	1	Bearing	-
13	064100045	1	Expansion Plug, 45 mm	-
14	042303015	1	Bearing	-
15	030500512	2	Dowel Pin	-
16	030500616	2	Dowel Pin	-
17	030501025	2	Dowel Pin	-
18	030309005	2	Spring Pin	-
19	012100620	2	Stud	-
20	012100635	1	Stud	-
21	012110660	1	Stud	-
22	010109235	20	Capscrew, Hex Head M6 x 1.0 x 14 mm (with Lock Washer)	-
23	110996800	1	Gasket	-
24	050209107	1	Oil Seal	-
25	198736050	1	Drain Cock	-
26	140546020	1	Joint	-
27	24-02001	1	Oil Filter	-
28	120116160	6	Tappet	-
29	120456222	6	Push Rod	-
30	140036220	1	Relief Valve Assembly	-
31	052109078	1	O-ring	-
32	198486770	1	Bushing	-
33	036509005	1	Snap Ring	-
34	198466060	1	Plug	-
35	110756490	1	Dipstick Tube	-
36	011310612	1	Bolt	-
37	198416270	1	Dipstick	-
38	052109113	2	O-ring	-
39	21-00003	1	Cap	-
40	23-78601	1	Bracket	-
41	15-00302	1	Lock Washer 3/8	-
42	12-00311	1	Capscrew, Hex Head 3/8-16 x 3/4"	-
43	18-72004	1	Oil Drain Hose	-
44	068115200	1	Tube	-

Crankshaft Assembly

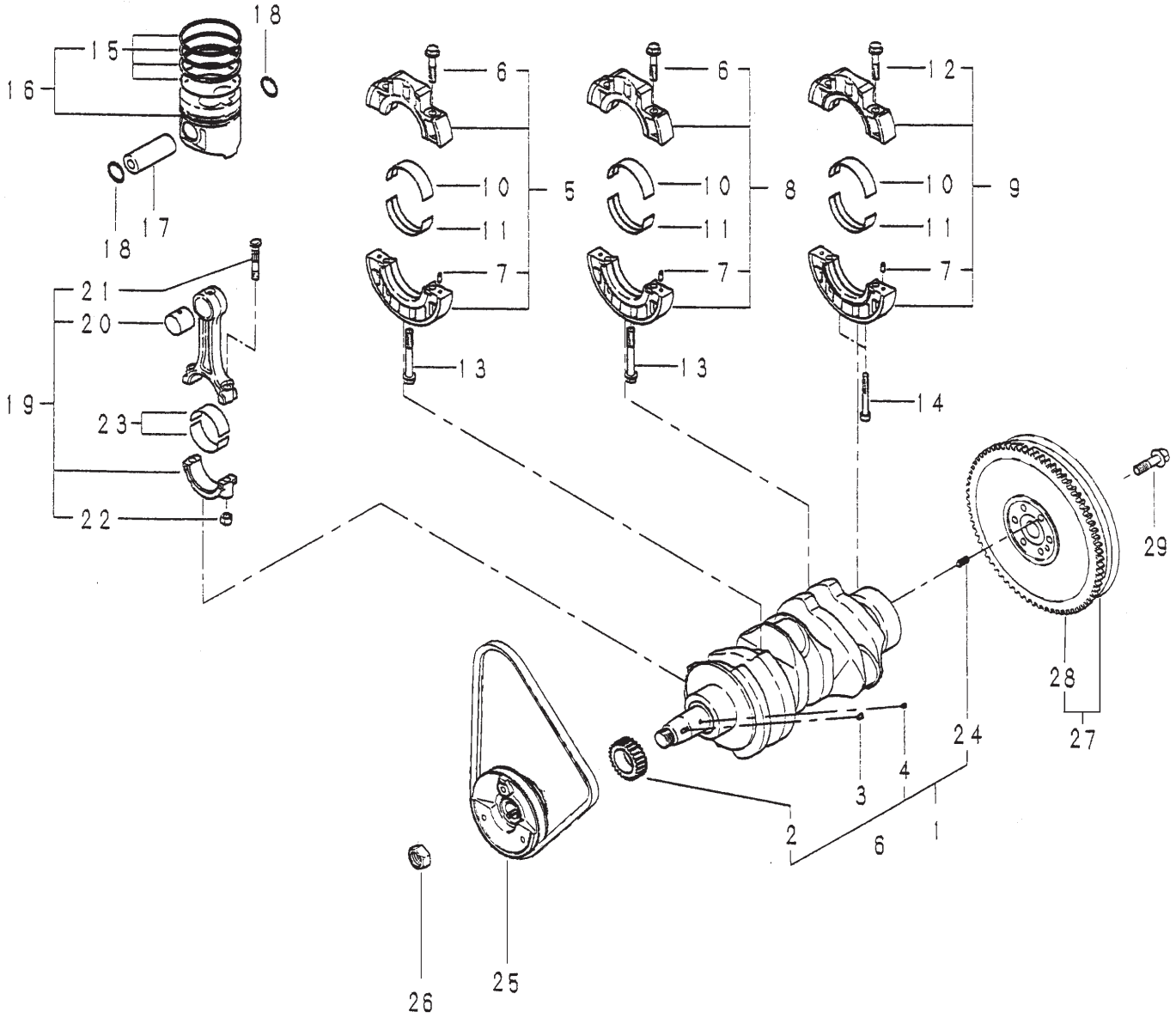


Fig. 1-2

Crankshaft Assembly

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	115256830	1	Crankshaft Assembly (includes keys #2 - 4 & 24)	-
2	115276180	1	Crankshaft Gear	-
3	034100508	1	Key	-
4	030509020	1	Dowel Pin	-
5	110156400	1	Bearing Holder Assembly (includes keys #6 & 7)	-
6	010810840	4	Bolt	-
7	030500612	6	Dowel Pin	-
8	110156410	1	Bearing Holder Assembly (includes keys #6 & 7)	-
9	110156420	1	Bearing Holder Assembly (includes keys #7 & 12)	-
10	198517572	3	Bearing; Upper S.T.D. (formerly #198517571)	-
	198517576	3	Bearing; Upper Undersized 0.25 mm (formerly #198517575)	-
	198517579	3	Bearing; Upper Undersized 0.50 mm (formerly #198517578)	-
11	198517582	3	Bearing; Lower S.T.D. (formerly #198517581)	-
	198517586	3	Bearing; Lower U.S. 0.25 mm (formerly #198517585)	-
	198517589	3	Bearing; Lower U.S. 0.50 mm (formerly #198517588)	-
12	010810845	2	Bolt	-
13	011510840	2	Bolt	-
14	010700835	2	Bolt	-
15	115107900	3	Ring Kit; S.T.D.	-
	115107430	3	Ring Kit; Oversized 0.50 mm	-
16	115017460	3	Piston Kit; S.T.D.	-
	115017450	3	Piston Kit; Oversized 0.50 mm	-
17	115326231	3	Piston Pin	-
18	036500021	6	Snap Ring	-
19	115026340	3	Connecting Rod Assembly (includes keys #20 - 22)	-
20	198517125	3	Bushing	-
21	115176150	6	Connecting Rod Bolt	-
22	020109075	6	Nut	-
23	198517602	6	Bearing; S.T.D. (formerly #198517601)	-
	198517606	6	Bearing; Undersized 0.25 (formerly #198517605)	-
	198517609	6	Bearing; Undersized 0.50 (formerly #198517608)	-
24	030300816	1	Spring Pin	-
25	115396650	1	Crankshaft Pulley	-
26	020800018	1	Nut	-
27	115356720	1	Flywheel Assembly (includes key #28)	-
28	115376130	1	Ring Gear	-
29	010109340	6	Bolt	-

Oil Pump & Pick-up

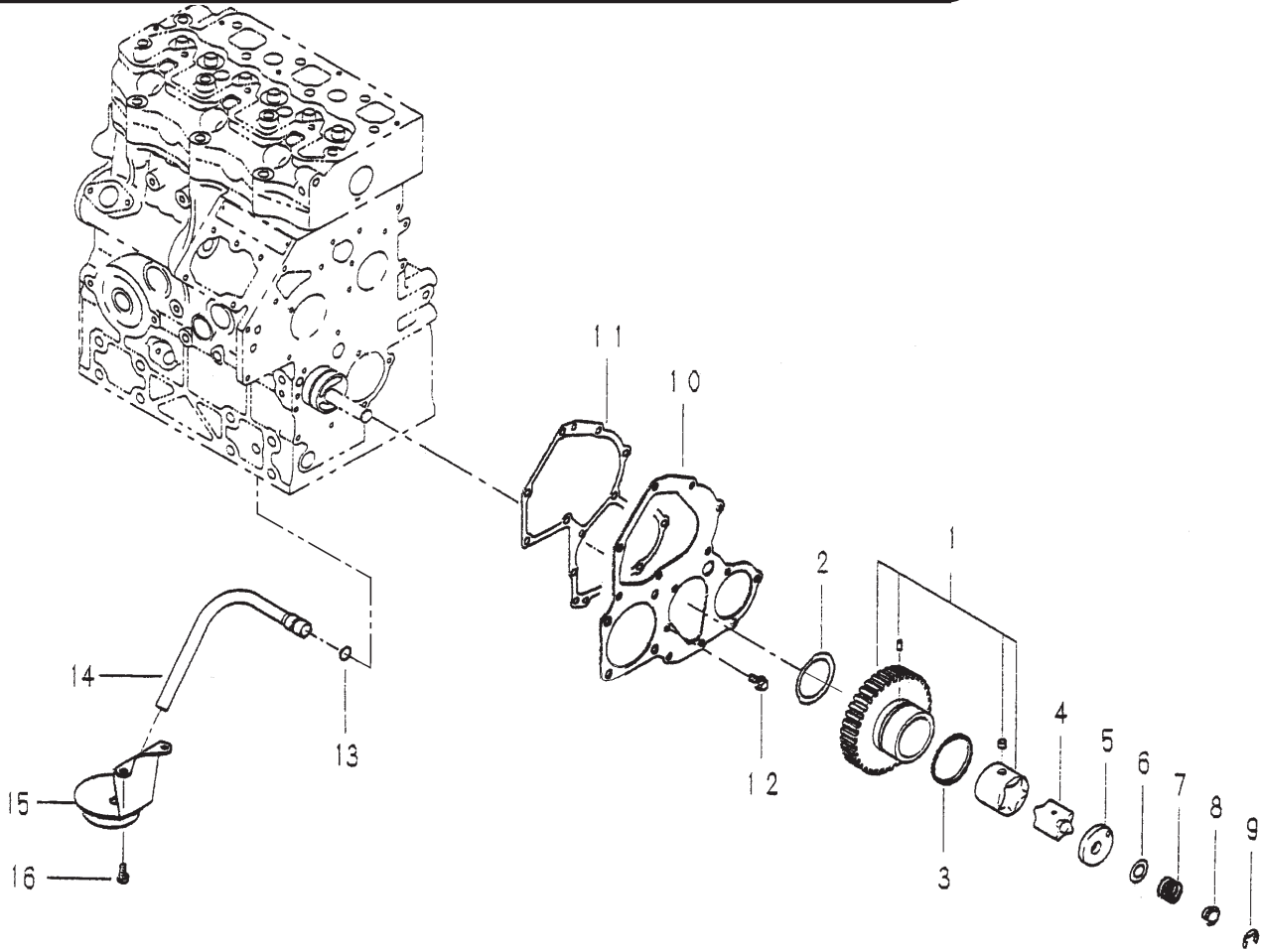


Fig. 1-4

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	165026100	1	Idle Gear Assembly	-
2	199266180	1	Thrust Washer	-
3	198216821	1	Spring	-
4	140166130	1	Rotor	-
5	140116140	1	Oil Pump Cover	-
6	199286150	**	Shim, 0.1 mm	-
	199286160	**	Shim, 0.15 mm	-
	199286170	**	Shim, 0.2 mm	-
	199286180	**	Shim, 0.5 mm	-
7	198216720	1	Spring	-
8	199236540	1	Collar	-
9	036800010	1	Snap Ring	-
10	165166240	1	Front Plate	-
11	165996520	1	Gasket	-
12	011310612	3	Bolt	-
13	052109076	1	O-ring	-
14	140986830	1	Oil Pipe	-
15	140406500	1	Pick-up	-
16	011310612	2	Bolt	-
			**As required	

Camshaft

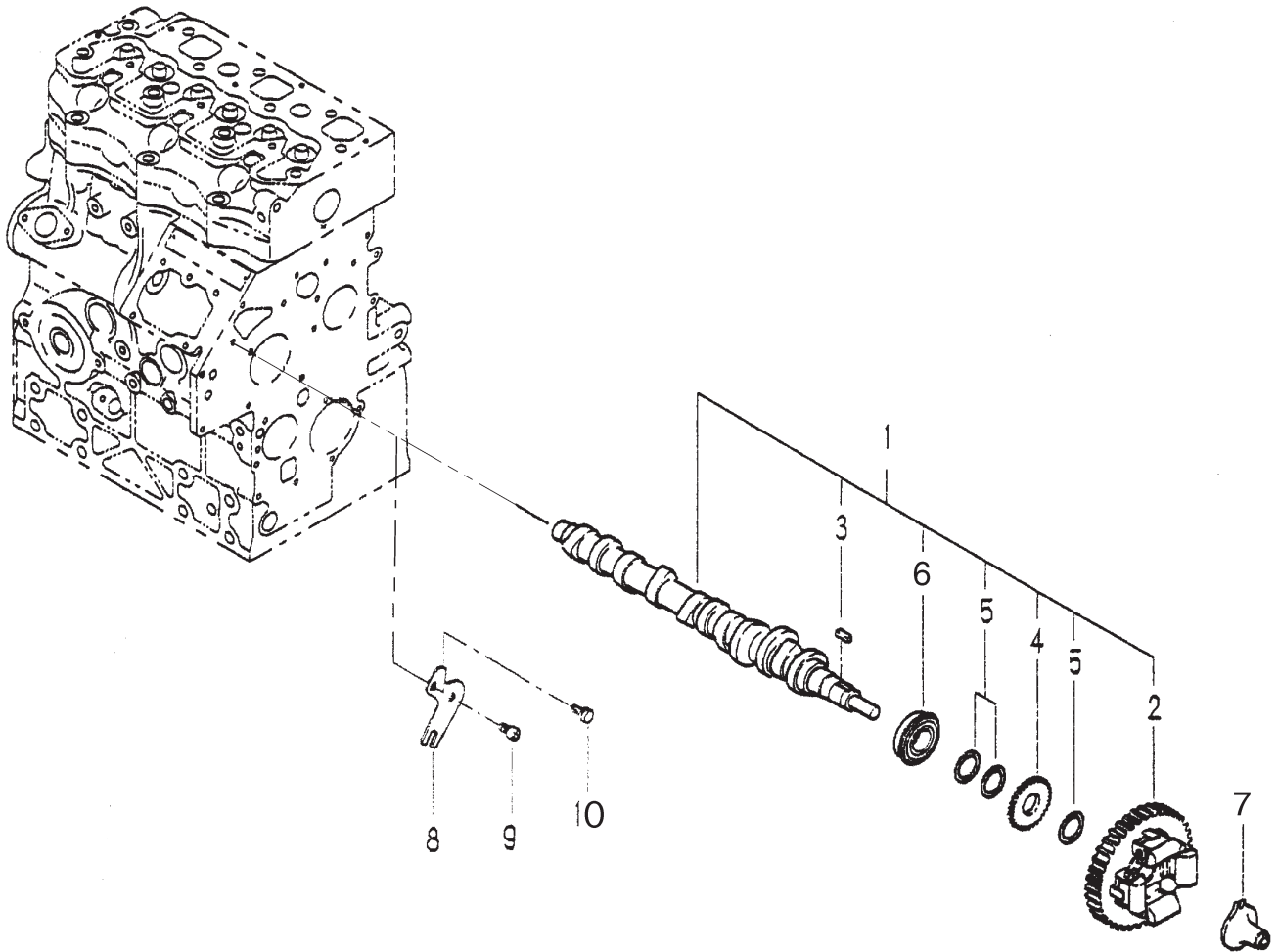


Fig. 1-5

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	120026081	1	Cam Shaft Assembly (includes keys #2- 6)	-
2	120016021	1	Cam Gear Assembly	-
3	034100508	1	Key	-
4	120736081	1	Gear	-
5	199216230	3	Spacer	-
6	040109059	1	Bearing	-
7	125256120	1	Slider	-
8	199566651	1	Plate	-
9	010700610	1	Bolt	-
10	011310612	1	Bolt	-

Cylinder Head

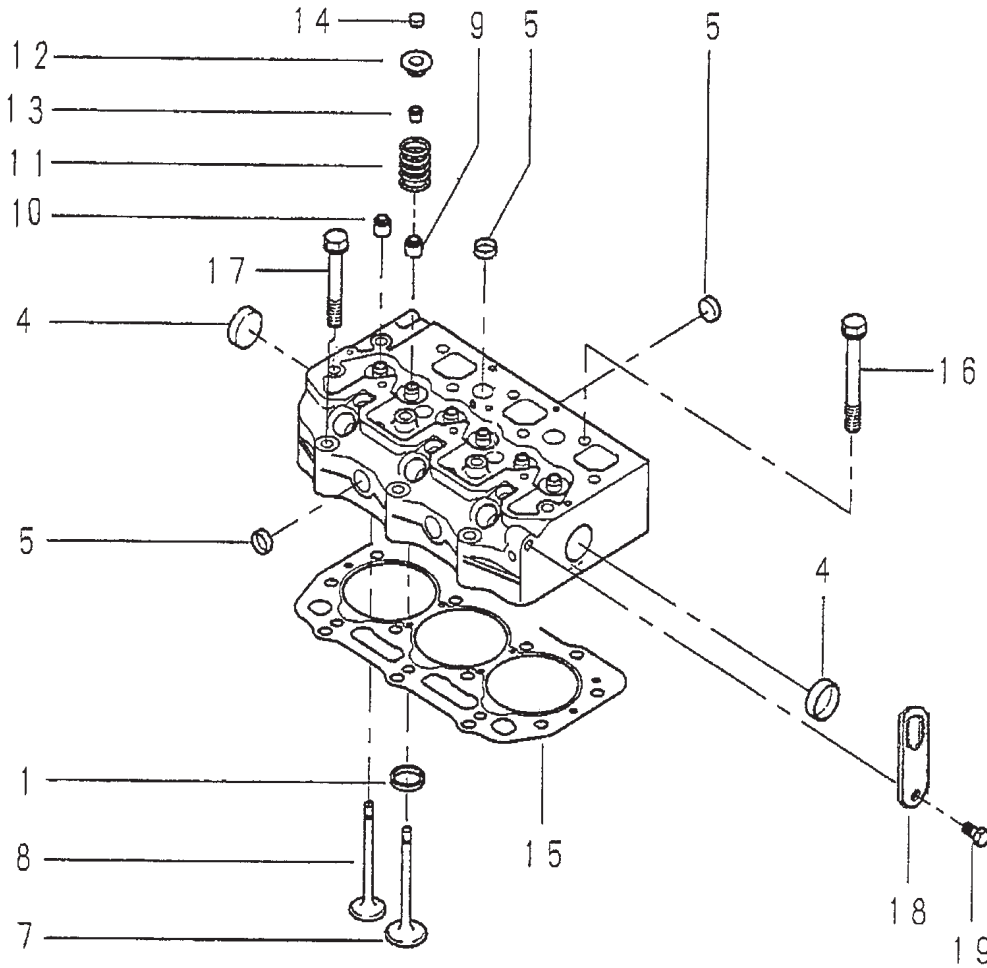
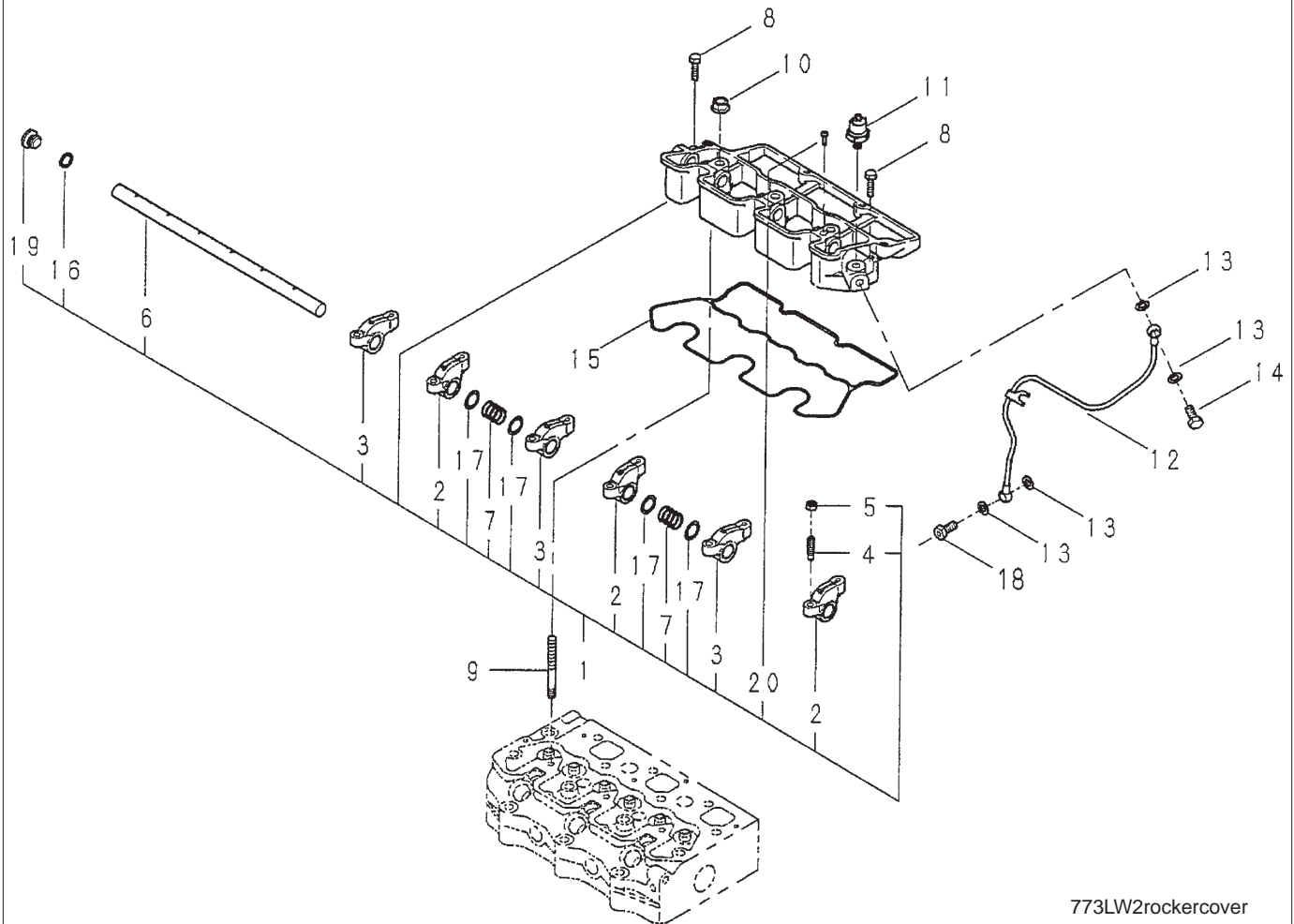


Fig. 1-6

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	111010720	1	Cylinder Head Assembly - (Includes keys #1 - 14)	-
1	110136300	3	Valve Seat	-
4	064210030	2	Expansion Plug, 30 mm	-
5	064210018	8	Expansion Plug, 18 mm	-
7	120166360	3	Intake Valve	-
8	120176250	3	Exhaust Valve	-
9	120406070	3	Intake Valve Guide Seal	-
10	120406050	3	Exhaust Valve Guide Seal	-
11	198216700	6	Spring	-
12	120186080	6	Retainer	-
13	120226070	12	Cotter	-
14	120216040	6	Cap	-
15	111147560	1	Head Gasket; t = 1.2	-
	111147570	1	Head Gasket; t = 1.3	-
16	111136440	11	Head Bolt	-
17	111136450	3	Head Bolt	-
18	195816650	2	Lifting Eye	-
19	011510820	1	Bolt	-

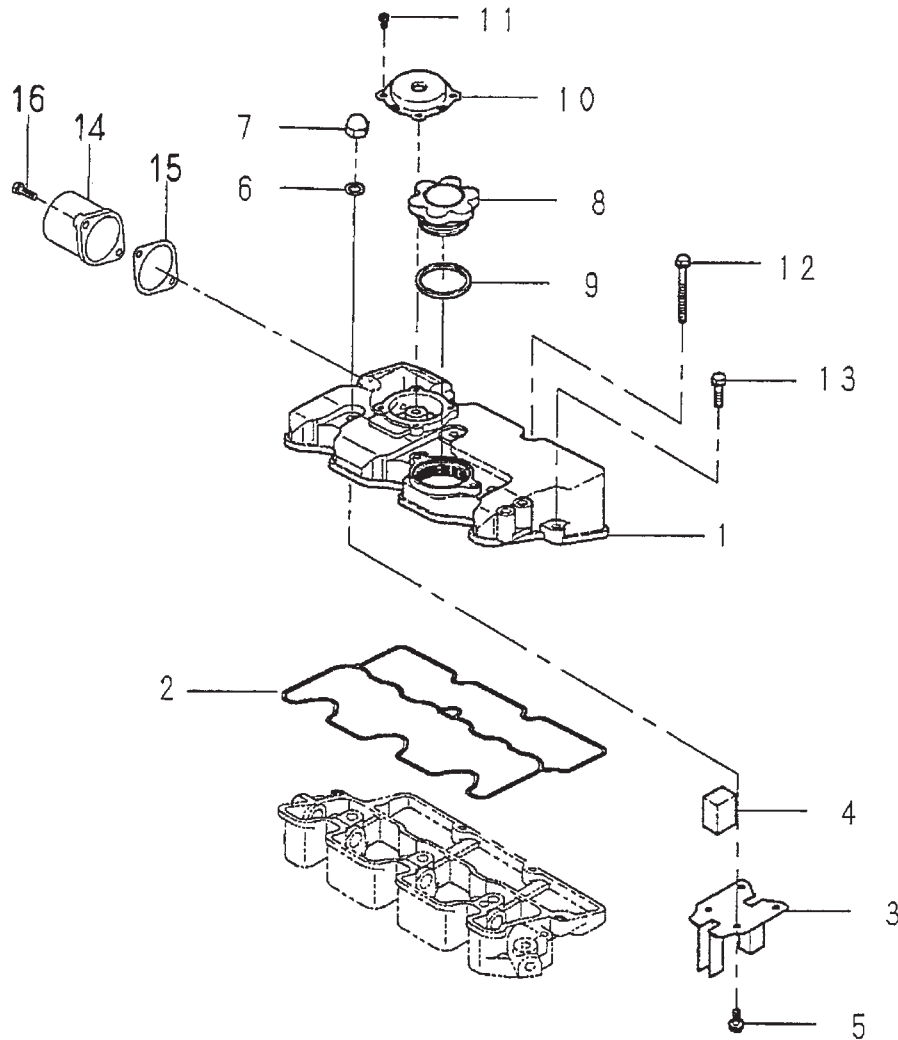
Rocker Arm Assembly



773LW2rockercover

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	120037130	1	Rocker Arm Assembly (includes keys #2- 7, 16,17,19, & 20)	-
2	120356200	3	Intake Rocker Arm	-
3	120356210	3	Exhaust Rocker Arm	-
4	199486220	6	Screw	-
5	020109076	6	Nut	-
6	120316300	1	Rocker Arm Shaft	-
7	198216780	2	Spring	-
8	011310625	2	Bolt	-
9	012109177	3	Stud Bolt	-
10	023100008	3	Nut	-
11	185246011	1	Oil Pressure Switch (see Electrical System)	-
12	140607270	1	Oil Pipe	-
13	140996260	4	Gasket	-
14	198486780	1	Eye Bolt	-
15	120996150	1	Gasket	-
16	052100120	1	O-ring	-
17	199280280	4	Shim	-
18	198487590	1	Banjo Bolt (Tapped 1/8 NPT Female)	-
19	198436150	1	Plug	-
20	015100410	1	Screw	-

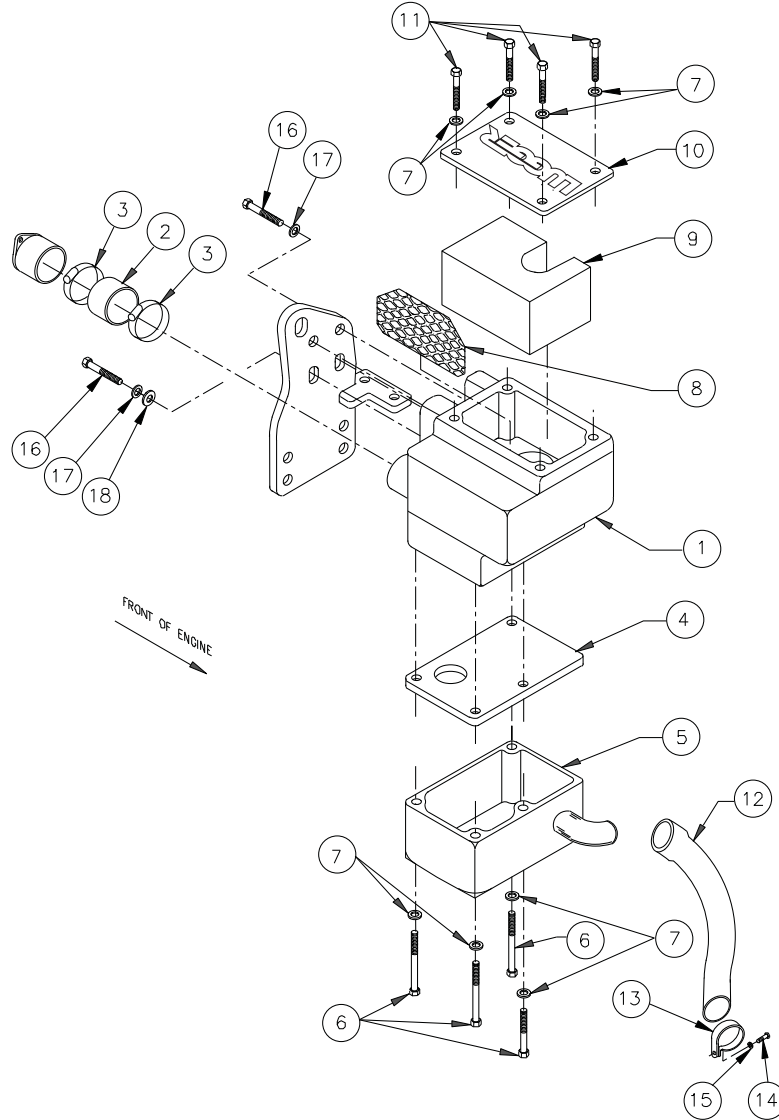
Rocker Arm Cover



773LW2rockerarmcover

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	111217960	1	Rocker Arm Cover	-
2	111996420	1	Gasket	-
3	110666220	1	Retainer	-
4	110666060	1	Vent Filter	-
5	015600406	4	Screw	-
6	140996260	3	Gasket	-
7	024600008	3	Cap nut	-
8	198436010	1	Cap	-
9	052100400	1	O-ring	-
10	110566080	1	Valve	-
11	011100408	4	Bolt	-
12	011310680	3	Bolt	-
13	011310625	2	Bolt	-
14	135566610	1	Air Intake	-
15	135996750	1	Gasket	-
16	011310620	2	Bolt	-

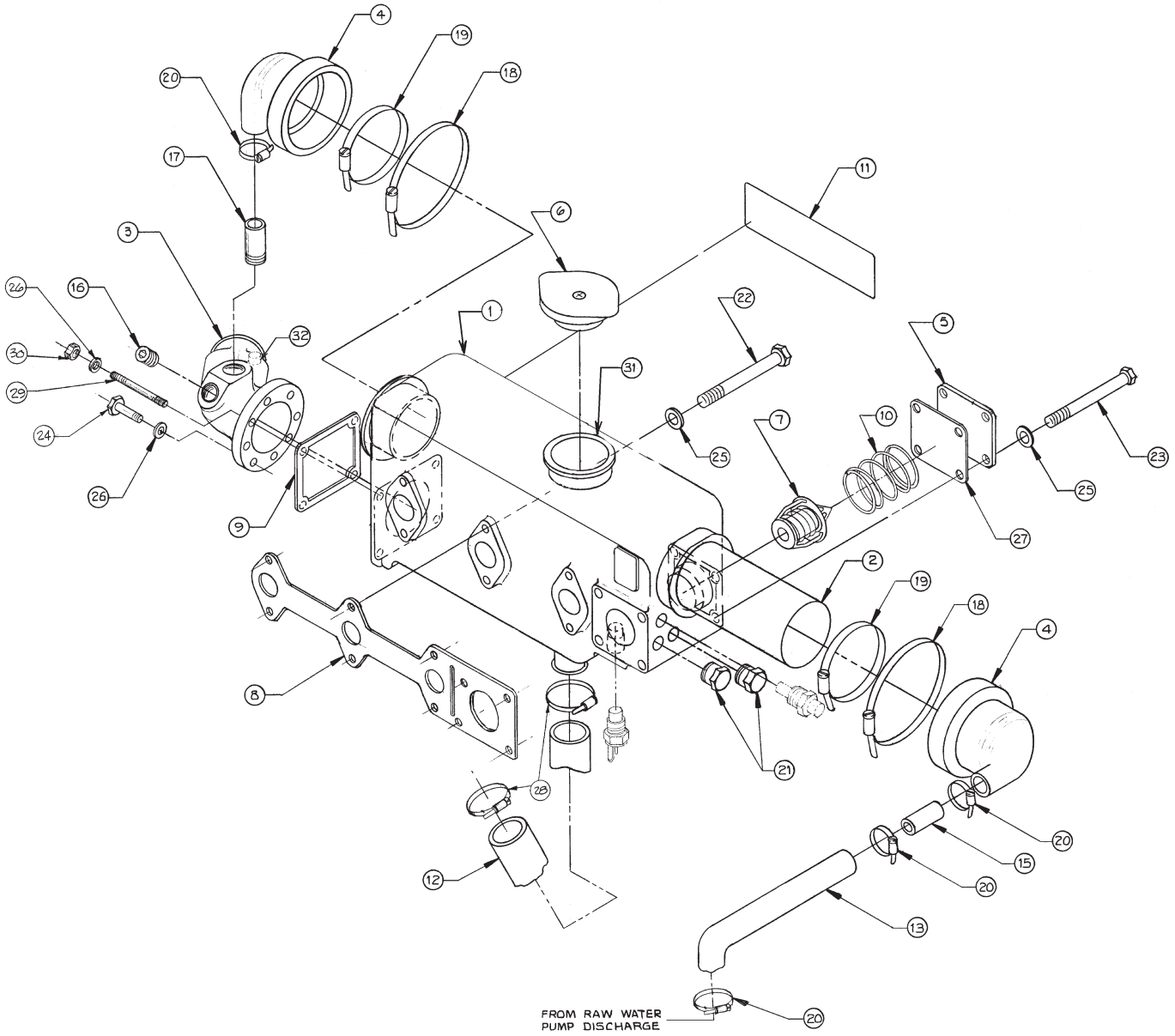
Air Filter and Housing



A-10836A / C-5742

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	24-28200	1	Air Filter Assembly (includes keys #1-18)	-
1	10-28202	1	Air Filter Housing	-
2	18-28201	1	Hose 1- 5/8" ID x 1- 3/4" 3 Ply Silicone	-
3	19-01024	2	Hose Clamp #24	-
4	28-28601	1	Intake Silencer Plate	-
5	10-28603	1	Cover, Lower Air Intake	-
6	12-01124	4	Capscrew, Hex Head M6 x 1.0 x 50 mm	-
7	15-00008	8	Flat Washer M6	-
8	24-28601	1	Screen	-
9	24-28602	1	Air Filter Element	-
10	10-28602	1	Cover, Air Filter Housing	-
11	12-01131	4	Capscrew, Hex Head M6 x 1.0 x 20 mm	-
12	18-28601	1	Hose, Air Intake	-
13	19-70022	1	Cushion Clamp #22	-
14	12-09751	1	Capscrew, Hex Head M8 x 1.25 x 16 mm S/S	-
15	15-00706	1	Flat Washer M8 S/S	-
16	12-00712	4	Capscrew, Hex Head M8 x 1.25 x 25 mm	-
17	15-00702	4	Lock Washer, Helical M8	-
18	15-00701	2	Flat Washer M8	-

Exhaust Manifold and Heat Exchanger



A-9289/ D-3465

Exhaust Manifold and Heat Exchanger

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	10-02001	1	Exhaust Manifold/ Expansion Tank	-
2	20-12002	1	Heat Exchanger Element	-
3	27-32003	1	Wet Exhaust Elbow, Stainless Steel	-
	135616235	1	Wet Exhaust Elbow, Cast Iron	-
4	145536370	2	Heat Exchanger End Cap	-
5	28-18601	1	Thermostat Cover Plate	-
6	21-12013	1	Filler Cap	-
7	145206022	1	Thermostat	-
8	11-08601	1	Gasket	-
9	11-31902	1	Gasket	-
10	00-13101	1	Spring	-
11	00-08301	1	"Northern Lights" Decal	-
12	18-18601	1	Coolant Pump Inlet Hose	-
13	41-00004	13"	Hose 3/4" ID x 18-1/2"	-
15	21-13102	1	Union 3/4" Hose Barb	-
16	198436140	1	Socket Head Plug 1/2 BSPT, Steel	-
17	145986150	1	Connector 1/2 BSPT x 3/4 HB, Steel	-
18	19-00048	2	Hose Clamp #48	-
19	19-00040	2	Hose Clamp #40	-
20	19-00012	4	Hose Clamp #12	-
21	21-31003	**	Hex Head Plug, Brass 3/8 NPT	-
22	12-09136	6	Capscrew, Hex Head M6 x 1.0 x 90 mm S/S	-
23	12-09130	4	Capscrew, Hex Head M6 x 1.0 x 95 mm S/S	-
24	12-09712	3	Capscrew, Hex Head M8 x 1.25 x 25 mm S/S	-
25	15-01134	10	Flat Washer M6 S/S	-
26	15-00706	4	Flat Washer M8 S/S	-
27	11-18602	1	Gasket	-
28	19-00016	2	Hose Clamp #16	-
29	13-09710	1	Stud M8 x 1.25 x 25 mm (35 mm LOA S/S)	-
30	14-09711	1	Hex Nut, M8 x 1.25 S/S	-
31	20-12207	1	Filler Neck	-
32	22-42070	1	Switch, High Exhaust Temperature	-
33	22-40482	1	Harness, Exhaust Temperature Switch (not shown)	-

**As required

Coolant Pump

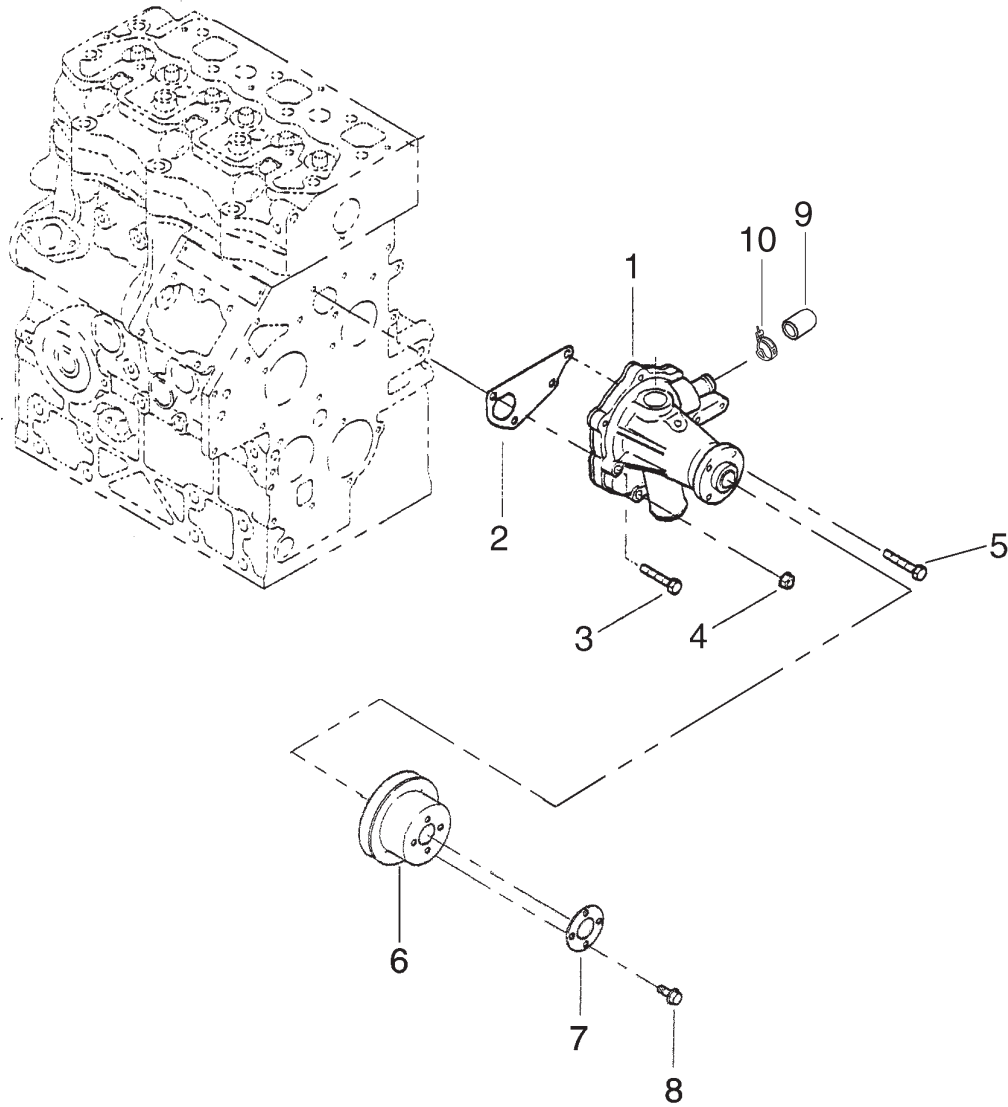
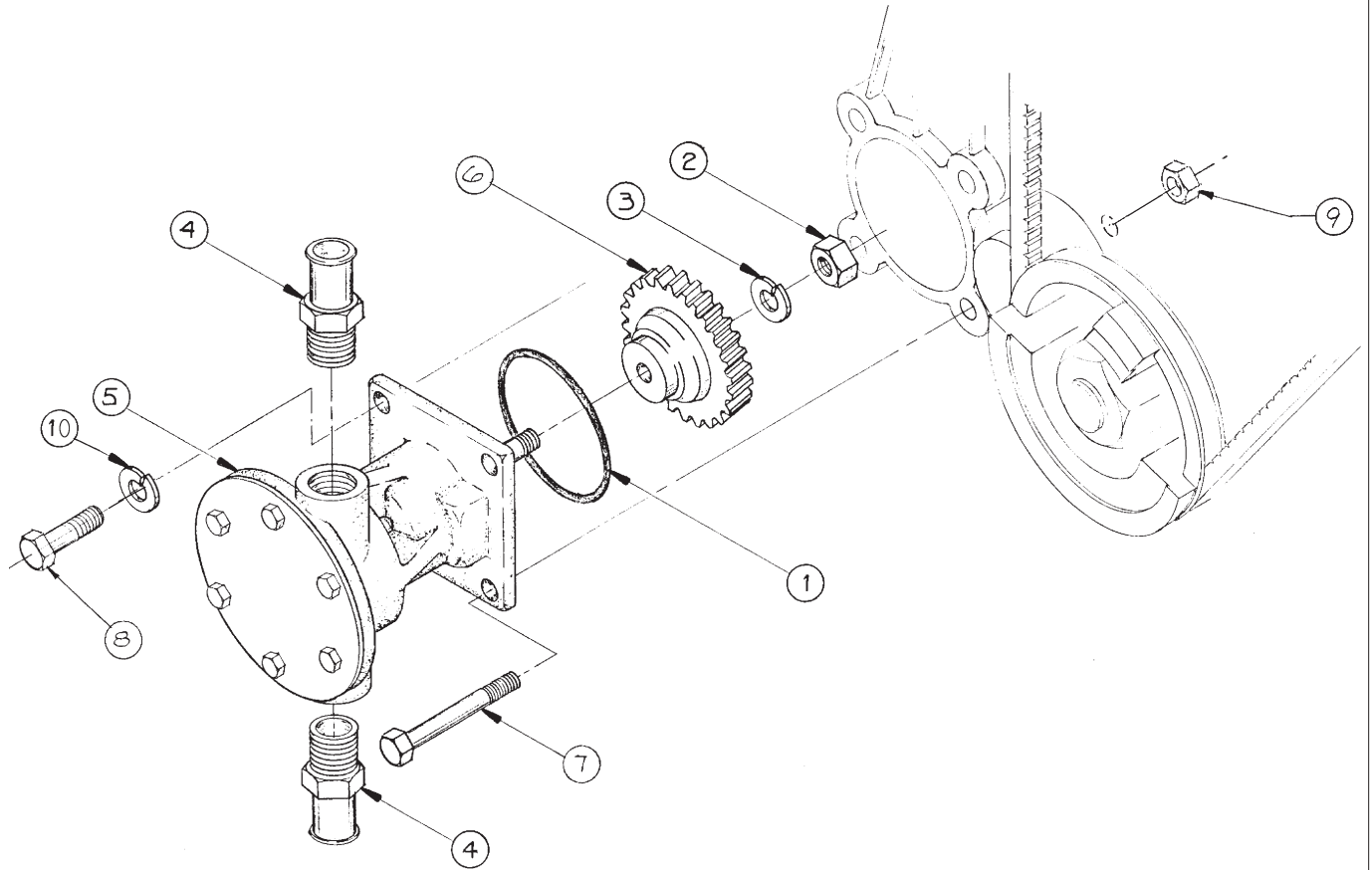


Fig. 3-2

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	145017910	1	Coolant Pump Assembly	-
2	145996830	1	Gasket	-
3	011310635	1	Bolt	-
4	023100006	1	Nut	-
5	011310630	2	Bolt	-
6	145336490	1	Pulley	-
7	145386520	1	Spacer	-
8	011310614	4	Bolt	-
9	21-18601	1	Cap	-
10	19-18601	1	Clamp	-

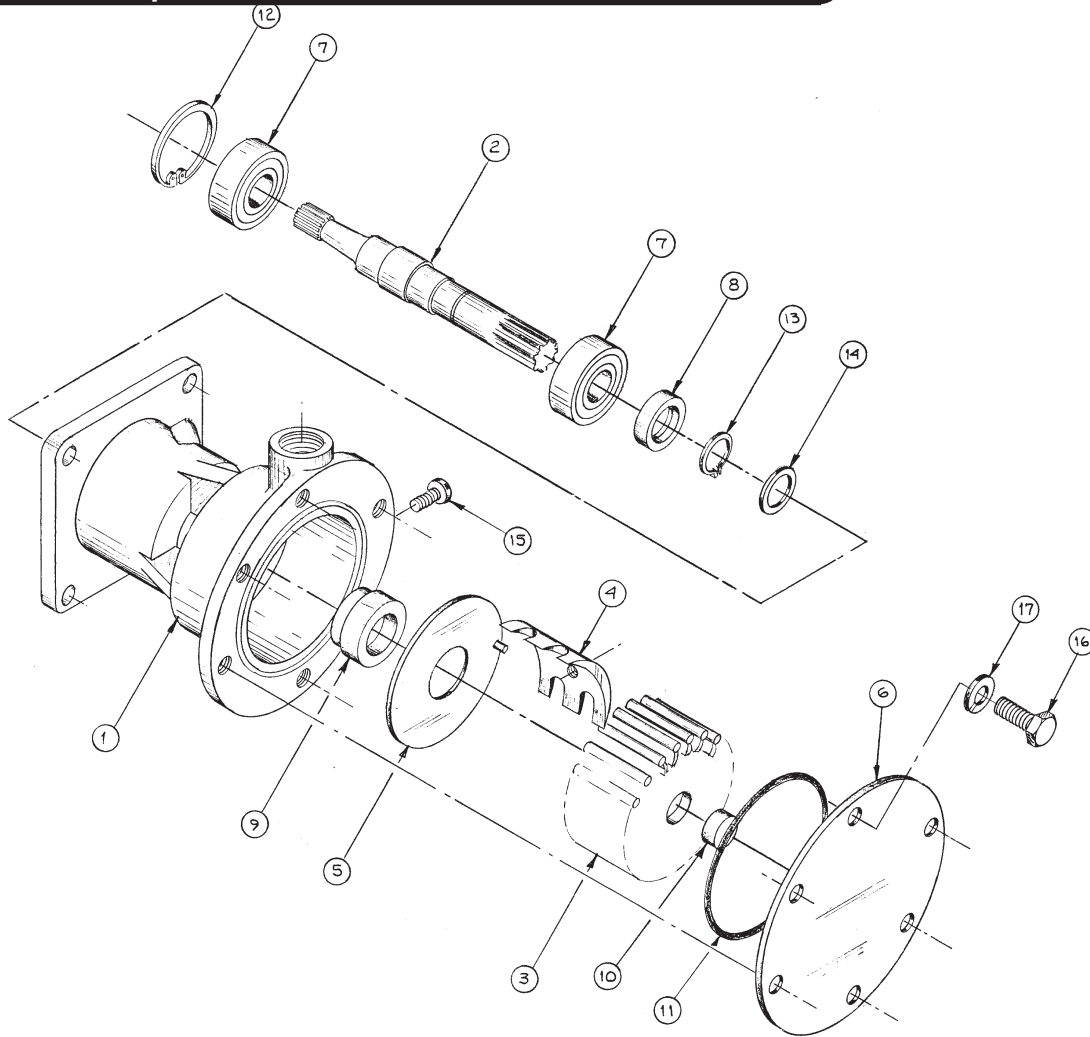
Raw Water Pump and Mounting



A-4779/ B-3842B

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	16-13101	1	O-Ring	-
2	14-00811	1	Nut M10 x 1.5	-
3	15-00802	1	Lock Washer M10	-
4	21-00129	2	Fitting 1/2 NPT x 3/4 Hose Barb	-
5	25-12057	1	Raw Water Pump (see parts detail)	-
6	340460141	1	Drive Gear	-
7	12-34801	3	Capscrew, Hex Head M8 x 1.25 x 70 mm	-
8	12-00718	1	Capscrew, Hex Head M8 x 1.25 x 65 mm	-
9	023100008	3	Hex Nut M8 x 1.25, Flanged	-
10	15-00702	1	Lock Washer M8	-

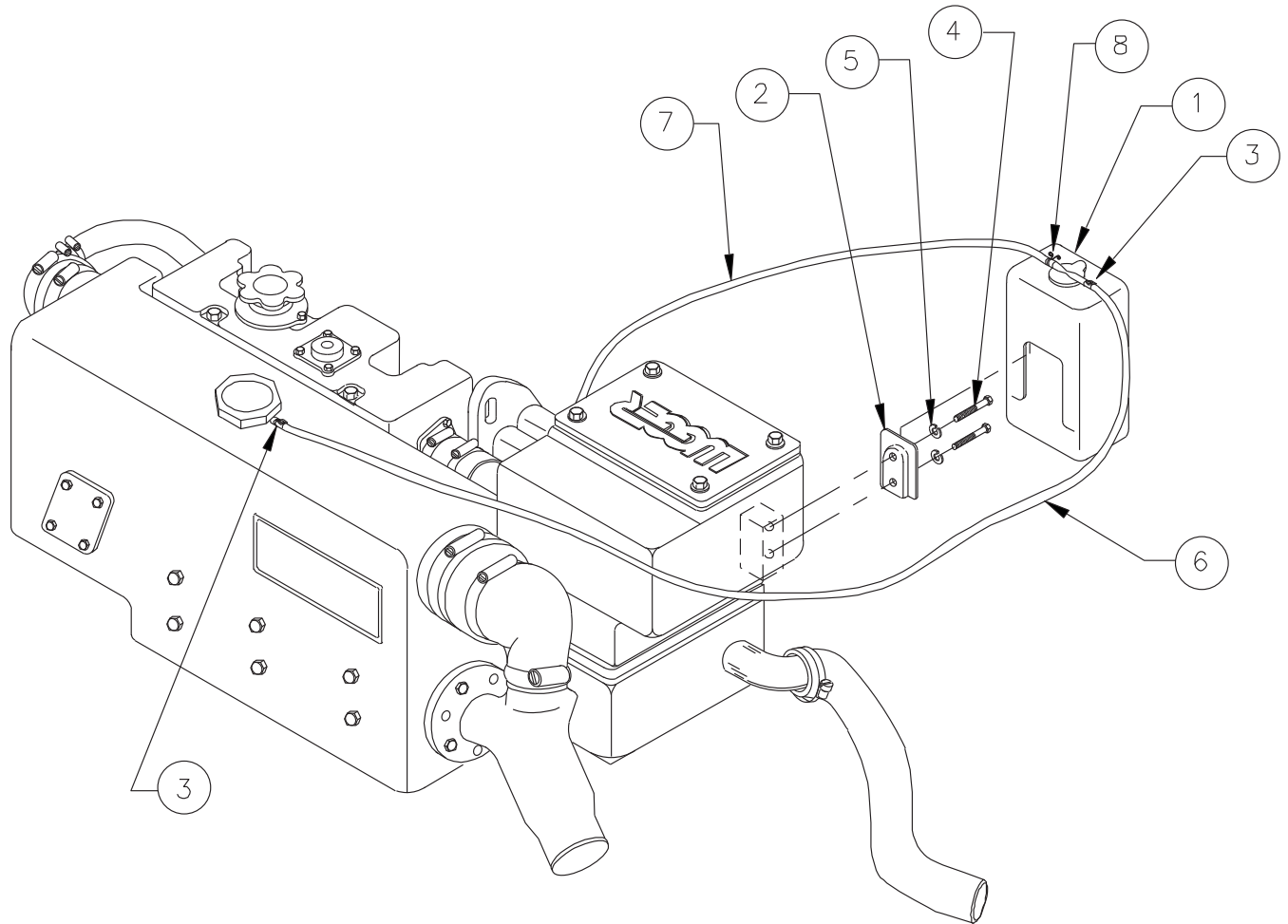
Raw Water Pump Detail



A-3706/ C-2204

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	25-12057	1	Raw Water Pump Assembly (includes keys #1 - 17)	-
•	25-12004	1	Repair Kit (includes keys #3- 9, & 11)	-
1	25-12058	1	Raw Water Pump Body	-
2	25-12059	1	Shaft	-
3	25-12060	1	Impeller	-
4	25-12061	1	Cam	-
5	25-12062	1	Wear Plate	-
6	25-12063	1	End Cover	-
7	25-12064	1	Bearing	-
8	25-12065	1	Lip Seal	-
9	25-12066	1	Mechanical Seal	-
10	25-12017	1	Spline Seal	-
11	25-12067	1	O-ring	-
12	25-12068	1	Retaining Ring	-
13	25-12069	1	Retaining Ring	-
14	25-12070	1	Washer	-
15	25-12071	1	Pan Head Screw #10-32 x 3/8	-
16	25-12072	1	Hex Head Screw #10-32 x 3/8	-
17	25-12073	1	Split Lock Washer #10	-

Coolant Recovery Tank



A-9347/ B-8741

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	310550130	1	Coolant Recovery Tank	-
2	222300090	1	Coolant Recovery Tank Mounting Bracket	-
3	19-18602	2	Hose Clamp	-
4	12-00030	2	Capscrew, Hex Head, M6 x 1.0 x 16 mm	-
5	15-01132	2	Lock Washer	-
6	27-18601	1	Tube 5/16" ID x 23" Polyurethane	-
7	18-18602	1	Hose 5/16" ID x 28" Polyvinyl	-
8	19-18602	1	Hose Clamp	-

General Arrangement

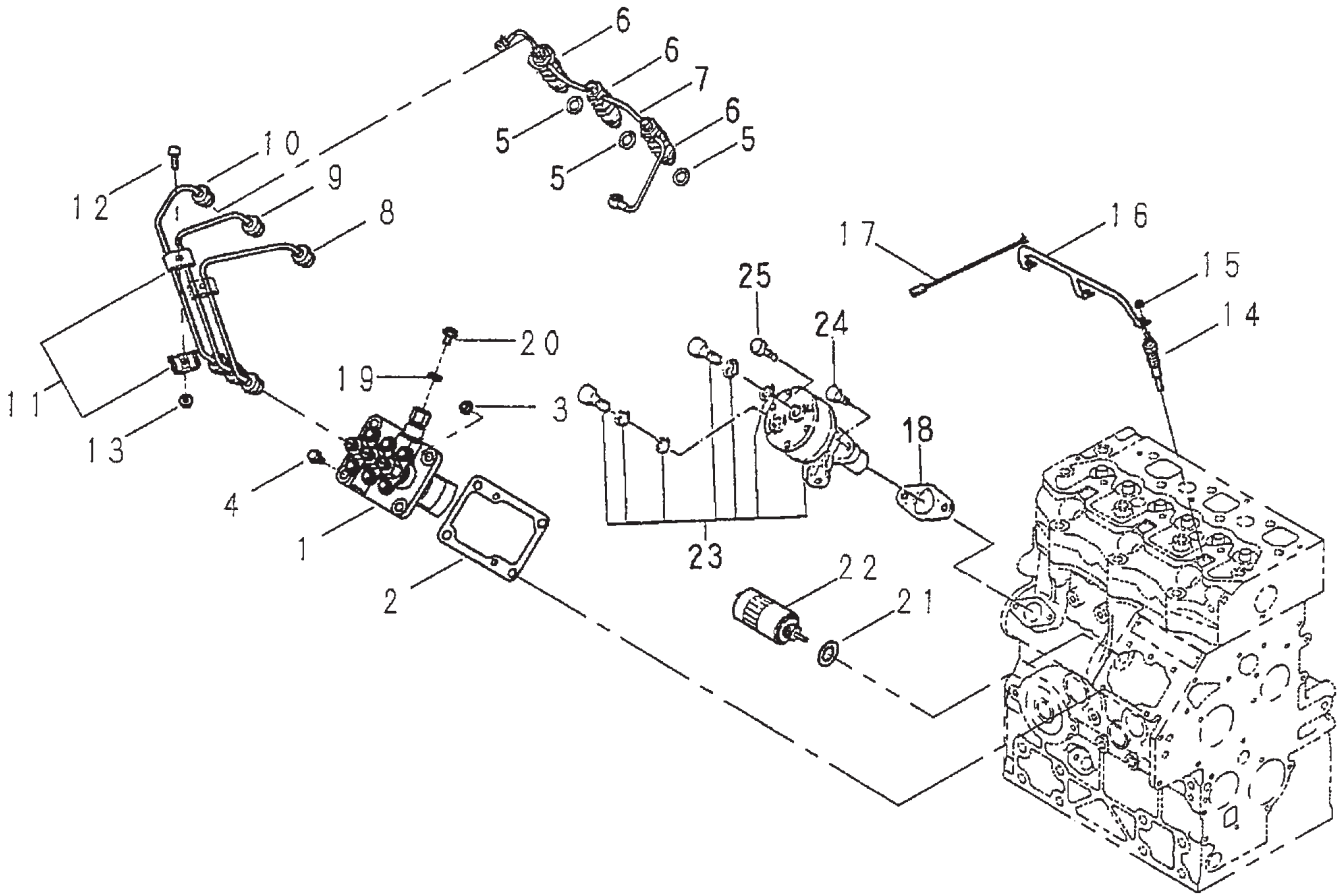


Fig. 4-00

General Arrangement

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	131017921	1	Injection Pump Assembly	-
2	131426300	1	Shim Set	-
3	023100006	2	Nut	-
4	011310620	2	Bolt	-
5	131426200	3	Gasket	-
6	131406340	3	Injector Assembly	-
7	131606880	1	Return Line	-
8	131507740	1	Injection Line #1	-
9	131507750	1	Injection Line #2	-
10	131507760	1	Injection Line #3	-
11	199106021	4	Clamp	-
12	010110625	2	Bolt	-
13	023100006	2	Nut	-
14	185366220	3	Glow Plug, 12 Volt	-
15	023100004	3	Nut	-
16	185376370	1	Connector	-
17	185606170	1	Wire Harness	-
18	130996130	1	Gasket	-
19	025100006	1	Seal Washer	-
20	131236280	1	Screw	-
21	025100016	1	Seal Washer	-
22	185206084	1	Solenoid, 12 Volt Standard Ground	-
23	130506140	1	Feed Pump	-
24	011140614	2	Bolt	-
25	011140616	1	Bolt	-

Governor and Timing Gear Case

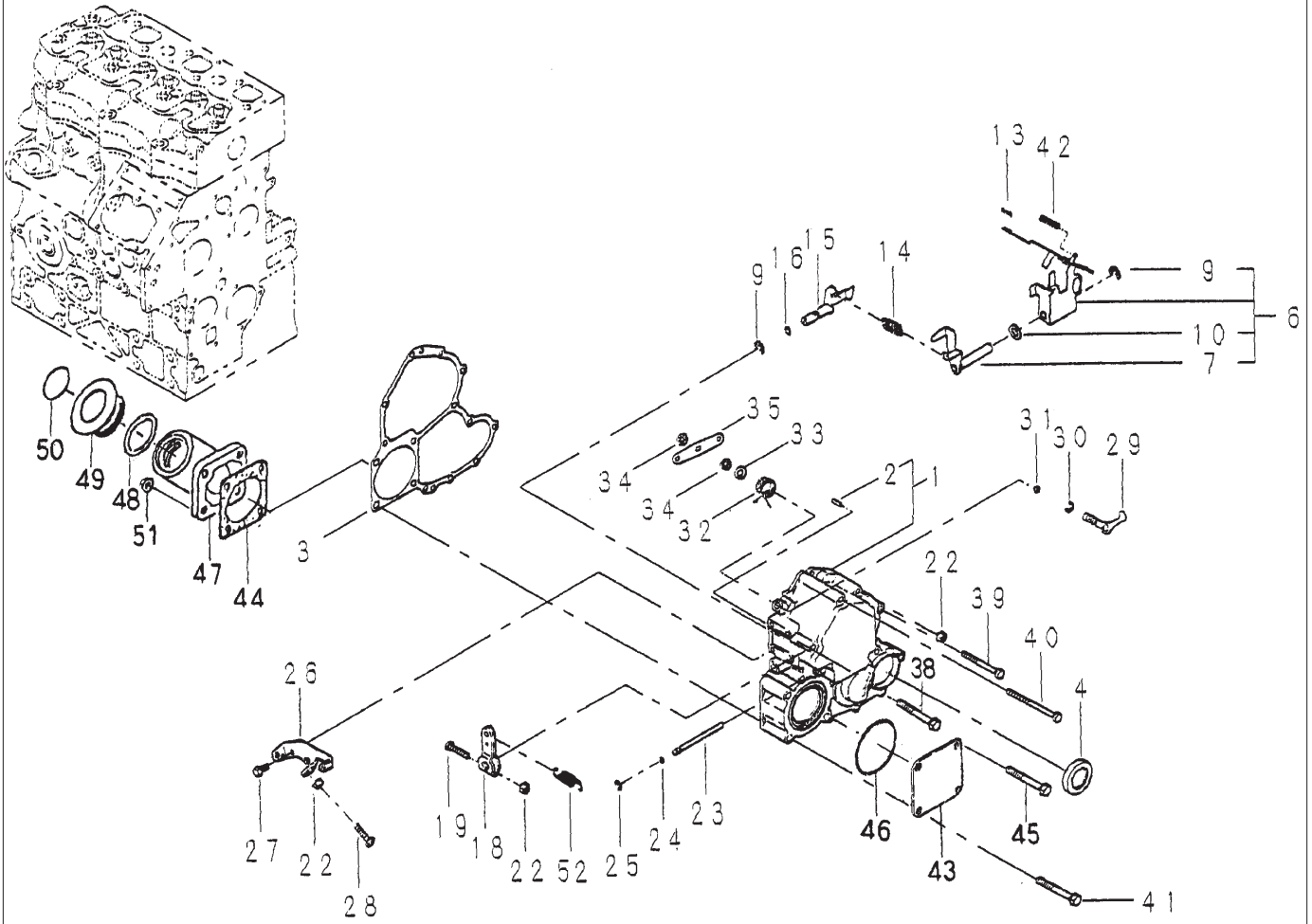


Fig. 4-2

Governor and Timing Gear Case

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	165106111	1	Timing Gear Case (includes key #2)	-
2	030300414	1	Spring Pin	-
3	165996530	1	Gasket	-
4	198636090	1	Oil Seal	-
6	125046260	1	Governor Lever Assembly (includes keys 7, 9, 10)	-
7	125406071	1	Tension Lever	-
9	036800008	2	Snap Ring	-
10	026200010	1	Washer	-
13	031100004	1	Snap Pin	-
14	198217390	1	Spring	-
15	125156170	1	Arm	-
16	052109110	1	O-ring	-
18	125416020	1	Governor Lever	-
19	010110630	1	Bolt	-
22	023100006	3	Nut	-
23	125116131	1	Shaft	-
24	052109108	2	O-ring	-
25	036800005	1	Snap Ring	-
26	125976120	1	Bracket	-
27	011310614	2	Bolt	-
28	012810640	1	Bolt	-
29	125156180	1	Arm	-
30	036800006	1	Snap Ring	-
31	052109109	1	O-ring	-
32	198216760	1	Spring	-
33	026200008	1	Washer	-
34	020700008	2	Nut	-
35	125176080	1	Stop Lever	-
38	011310640	5	Bolt	-
39	011310660	3	Bolt	-
40	011310680	2	Bolt	-
41	011510865	3	Bolt	-
42	198216731	1	Start Spring	-
43	165206320	1	Cover (Keel Cooled Units Only)	-
44	340990011	1	Gasket	-
45	011510860	1	Bolt	-
46	052300700	1	O-ring	-
47	110766200	1	Holder	-
48	052300400	1	O-ring	-
49	198436010	1	Cap	-
50	390190460	1	Plate	-
51	023100008	3	Nut	-
52	398210070	1	Spring	-

Fuel Filter and Piping

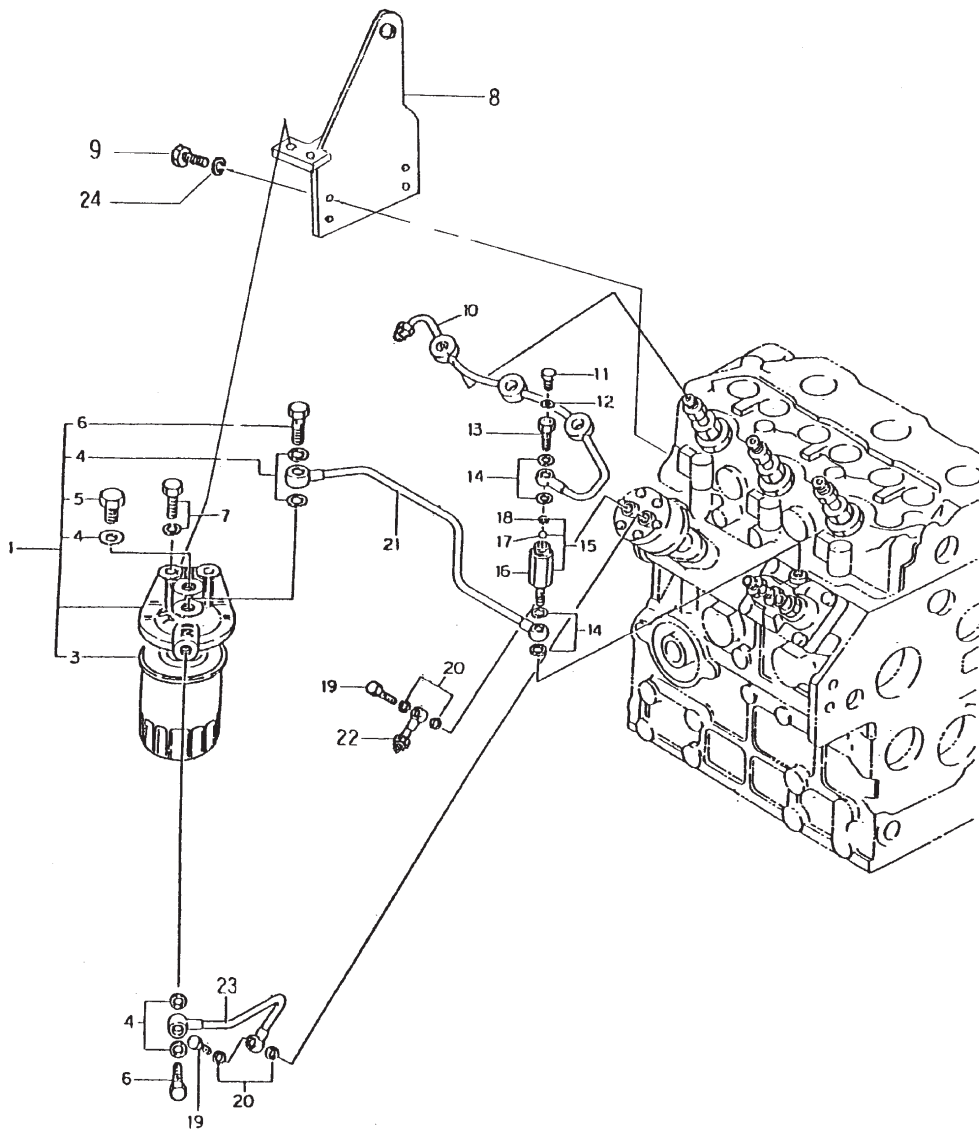
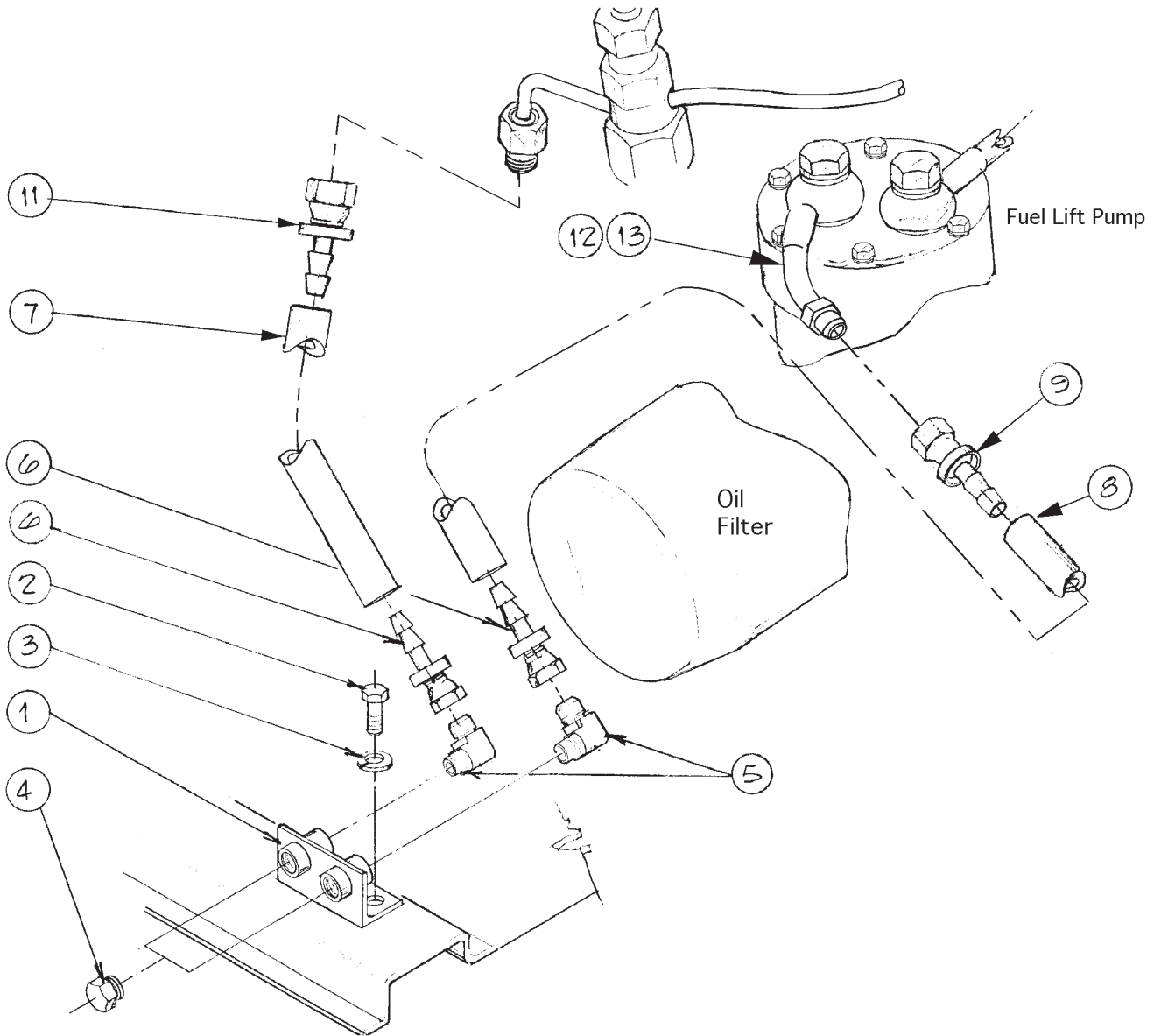


Fig. 4-4

Fuel Filter and Piping

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	130306190	1	Fuel Filter Assembly (includes keys #3 - 6)	-
3	24-52020	1	Fuel Filter	-
4	130326051	5	Gasket	-
5	130396030	1	Plug	-
6	130436011	2	Joint Bolt	-
7	011511025	2	Bolt	-
8	23-08603	1	Bracket, Filter Support & Lifting Eye	-
9	010700820	4	Bolt	-
10	131606880	1	Return Pipe	-
11	131236280	1	Screw	-
12	025100006	1	Seal Washer	-
13	131236190	1	Bolt	-
14	140996270	4	Gasket	-
15	140036141	1	Valve Assembly (includes keys 16- 18)	-
16	198487002	1	Connector	-
17	048100010	1	Steel Ball	-
18	198116230	1	Rubber	-
19	130516092	2	Bolt	-
20	198996060	4	Gasket	-
21	130556921	1	Pipe	-
22	130556681	1	Pipe	-
23	130556931	1	Pipe	-
24	027100008	4	Spring Washer	-

Fuel Line Connection



A-9317/ B-7019

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	10-51099	1	Fuel Manifold 1/4 NPT	-
2	12-00031	2	Capscrew, Hex Head M6 x 1.0 x 20 mm S/S	-
3	15-01132	2	Lock Washer M6	-
4	21-00046	2	Plug, Plastic, 1/4 NPT (for shipping)	-
5	21-71044	2	Male Elbow 90°, brass 1/4 NPT x 1/4-45T	-
6	21-71045	2	Female Swivel, brass 1/4 HB x 1/4-45T	-
7	41-01011	12"	Hose 1/4" ID Push-on	-
8	41-01011	18"	Hose 1/4" ID Push-on	-
9	21-71048	1	Female Swivel, brass 1/4 HB x 5/16-45T	-
11	21-80002	1	Female Swivel, steel 1/4 HB x 1/4-37T	-
12	130556681	1	Fitting, Fuel Inlet M8 Banjo x 5/16-37T	-
13	130516069	2	Sealing Washer (not shown)	-

Fuel Injector

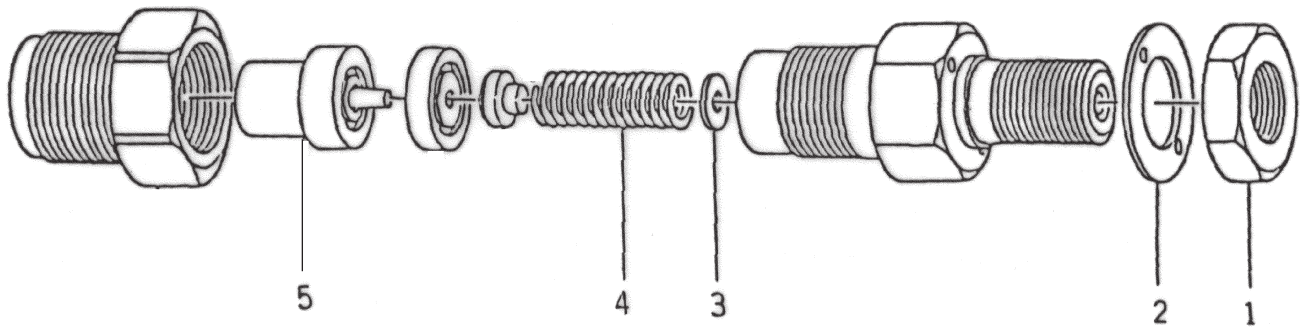


Fig. 4-10

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	131406340	1	Injector Assembly (includes keys #1 - #8)	-
1	131446069	1	Nut	-
2	131426210	1	Gasket	-
3	131437640	1	Shim	-
4	131446066	1	Spring	-
5	131416150	1	Nozzle	-

Fuel Feed Pump

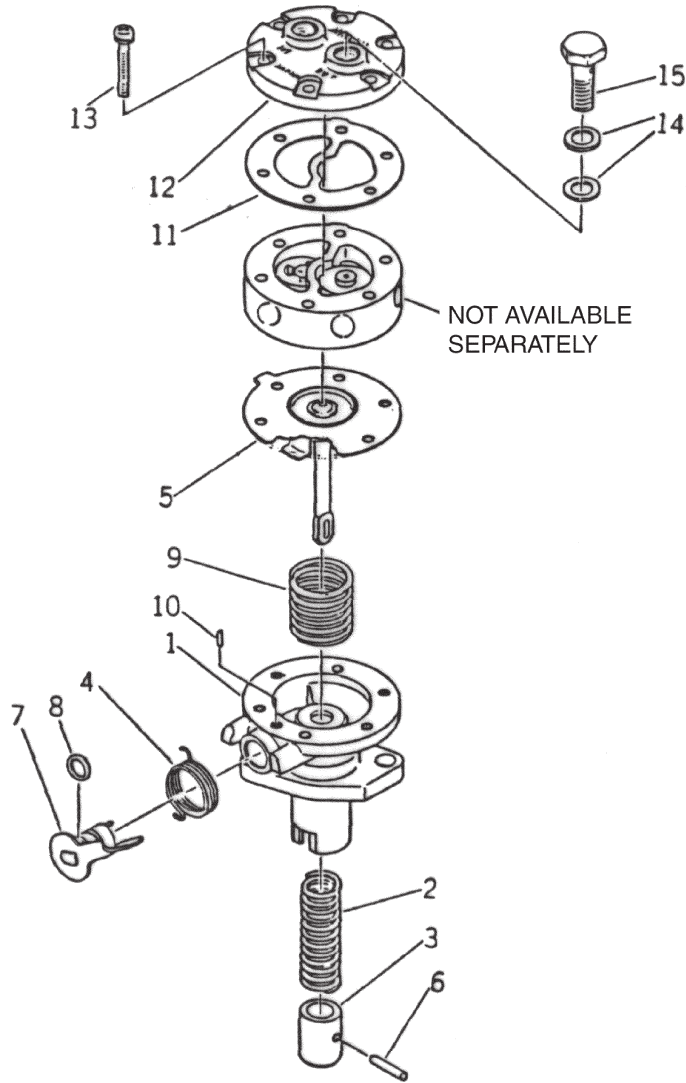
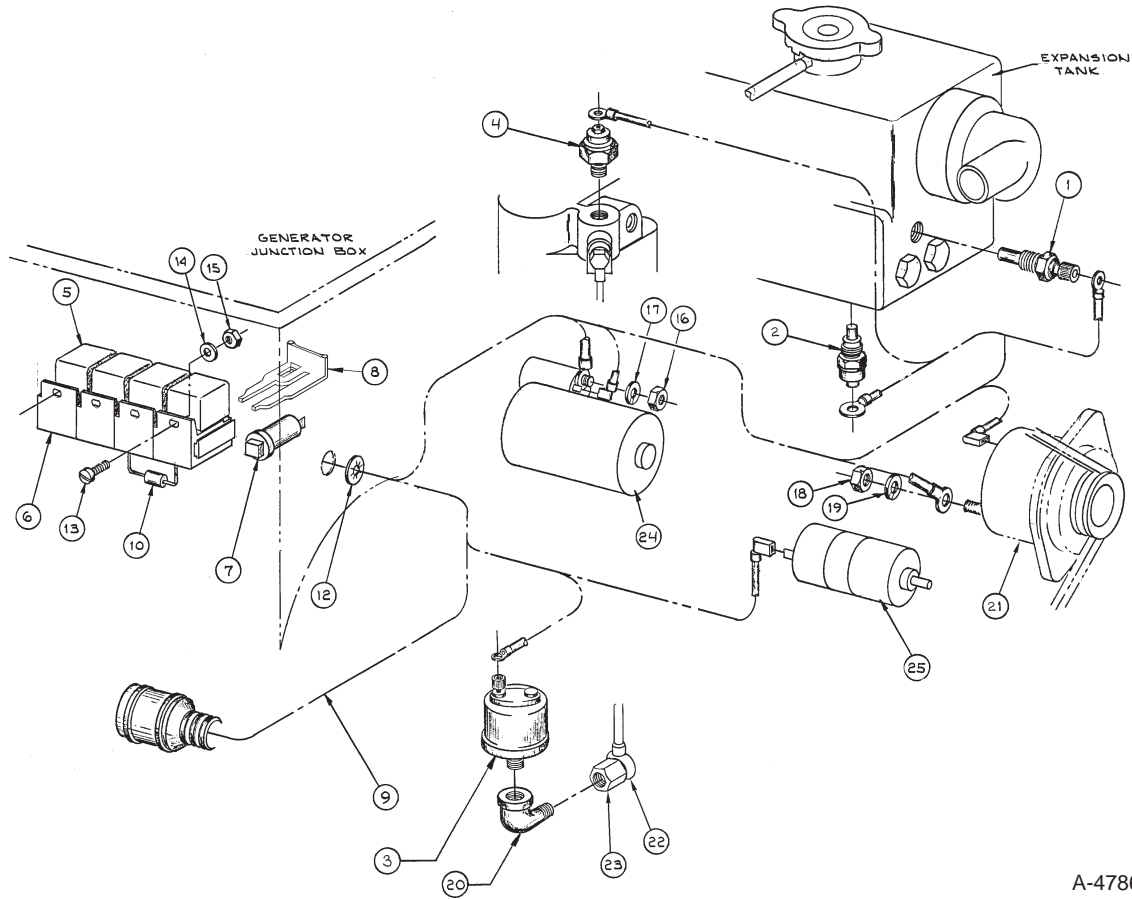


Fig. 4-11

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	130506140	1	Feed Pump Assembly (includes keys #1 - 15)	-
1	130516080	1	Housing*	-
2	130516081	1	Spring*	-
3	130516082	1	Piston*	-
4	130516083	1	Spring*	-
5	130516084	1	Diaphragm	-
6	130516085	1	Pin*	-
7	130516086	1	Lever*	-
8	131226180	1	O-ring*	-
9	130516087	1	Spring*	-
10	130516088	1	Guide*	-
11	130516089	1	Gasket*	-
12	130516090	1	Cap*	-
13	130516091	6	Screw	-
14	130516069	4	Gasket	-
15	130516092	2	Joint Bolt	-
			*Not available separately	

Engine Electrical - 12 Volt Standard Ground



A-4786/ C-2490B

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	22-42055	1	Temperature Sender, 0-250°F Single Station 3/8 NPT	-
2	385720110	1	Temperature Switch 95°C	-
3	22-41016	1	Oil Pressure Sender 0-80 PSI, Single Station 1/8 NPT	-
4	185246011	1	Oil Pressure Switch	-
5	22-42047	4	Relay, 12 Volt SPDT	-
6	22-40391	4	Relay Base	-
7	22-42043	1	Circuit Breaker	-
8	22-40393	4	Terminal Retainer	-
9	22-48601	1	Engine Wire Harness (includes key #10)	-
10	22-41060	2	Diode, 6 Amp 50 Volt	-
11	22-40930	1	Wire Harness Extension 20' (not shown)	-
12	00-40028	1	Grommet	-
13	12-00094	2	Machine Screw #10-32 x 3/8" Stainless Steel	-
14	15-00032	2	Flat Washer #10	-
15	14-00001	2	Hex Nut, #10-32	-
16	14-00711	1	Hex Nut, M8 x 1.25	-
17	15-00702	1	Lock Washer M8	-
18	14-04401	1	Hex Nut, M5 x 0.8	-
19	15-04400	1	Lock Washer M5	-
20	21-04801	1	Street Elbow 90°, 1/8 NPT Steel	-
21	185046220	1	Alternator 12 Volt (see parts detail)	-
22	140607270	1	Oil Line	-
23	198487590	1	Banjo Bolt (Tapped 1/8 NPT Female)	-
24	185086551	1	Starter 12 Volt (marked #M001T66081, see parts detail)	-
25	185206084	1	Fuel Solenoid	-

Alternator and Starter

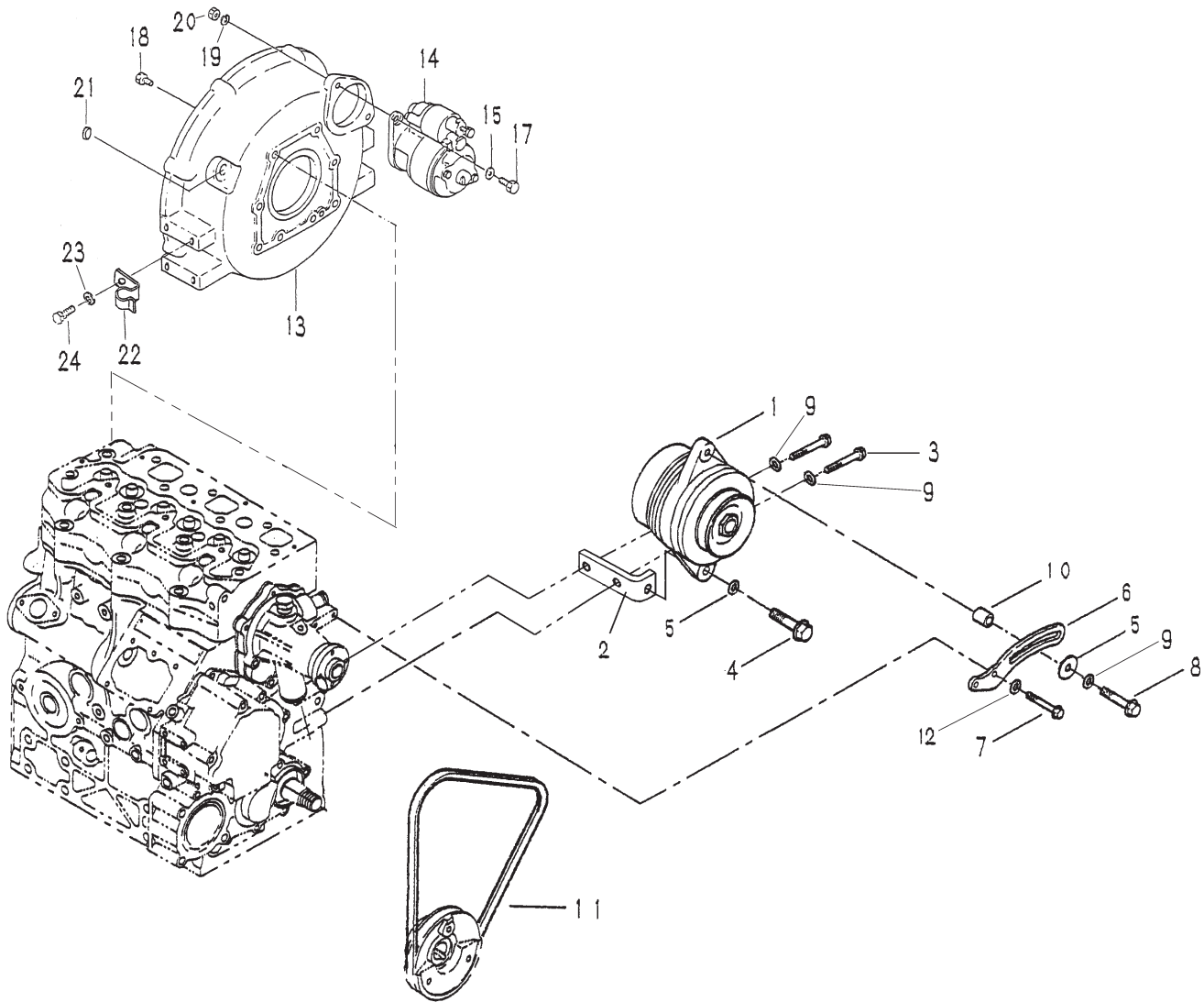


Fig. 5-1

Alternator and Starter

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	185046220	1	Alternator 12 Volt, 40 Amp (see parts detail)	-
2	23-48601	1	Bracket, Alternator Mounting	-
3	12-09712	2	Capscrew, Hex Head M8 x 1.25 x 25 mm S/S	-
4	12-09814	1	Capscrew, Hex Head M10 x 1.5 x 35 mm S/S	-
5	15-09805	2	Flat Washer M10 S/S	-
6	23-48602	1	Tensioning Arm	-
7	12-01102	2	Capscrew, Hex Head M6 x 1.0 x 16 mm S/S	-
8	12-09714	1	Capscrew, Hex Head M8 x 1.25 x 40 mm S/S	-
9	15-00705	2	Lock Washer M8 S/S	-
10	199236680	1	Spacer	-
11	40-08601	1	Drive Belt	-
12	15-00610	2	Lock Washer M6 S/S	-
13	110446421	1	Flywheel Housing	-
14	185086551	1	Starter, 12 Volt (see parts detail)	-
15	026100010	2	Washer	-
17	010311045	2	Bolt	-
18	010311020	8	Bolt	-
19	027100010	2	Spring Washer	-
20	020900010	2	Nut	-
21	398460091	1	Plug	-
22	140976080	1	Bracket	-
23	027100010	1	Spring Washer	-
24	199436350	1	Bolt	-

Alternator Assembly

12 Volt / 40 Amp Standard Ground

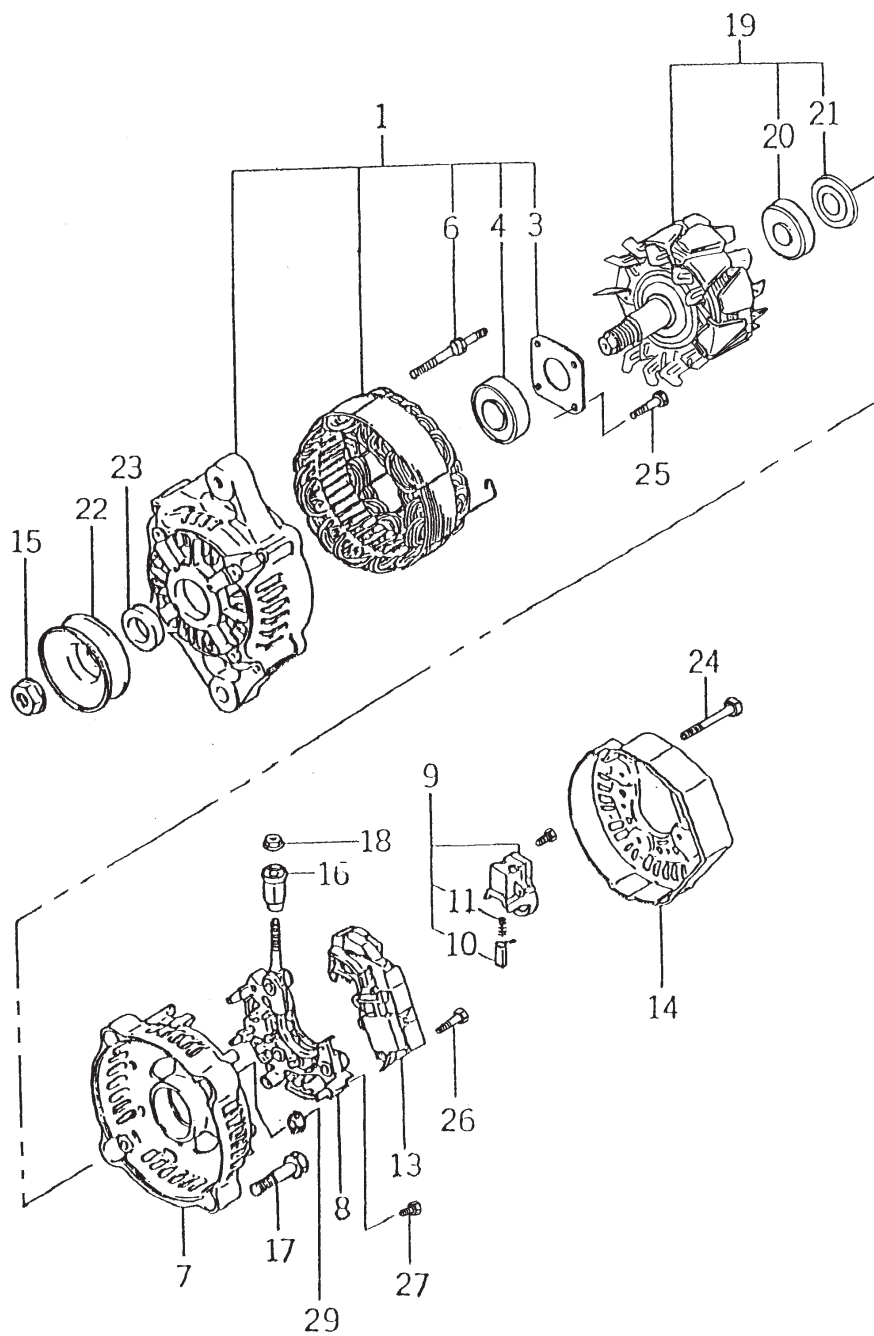


Fig. 5-4

Alternator Assembly*12 Volt / 40 Amp Standard Ground*

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	185046220	1	Alternator Assembly (includes keys #1- 29)	-
1	185446221	1	Frame Sub Assembly (includes keys #3,4,6)	-
3	185446223	1	Retainer Plate	-
4	185446224	1	Ball Bearing	-
6	185446227	2	Stud Bolt	-
7	185446228	1	Rear End Frame	-
8	185446229	1	Rectifier Holder	-
9	185446230	1	Brush Holder (includes keys #10-11)	-
10	185426231	2	Brush	-
11	185446232	2	Spring	-
13	185446234	1	Regulator Assembly	-
14	185446235	1	Rear End Cover	-
15	185446236	1	Nut	-
16	185446237	1	Insulation Brush	-
17	185446238	2	Bolt	-
18	185446239	1	Nut	-
19	185446240	1	Rotor Assembly (includes keys #20- 21)	-
20	185446241	1	Ball Bearing	-
21	185446242	1	Bearing Cover	-
22	185446243	1	Pulley	-
23	185446244	1	Collar	-
24	185446245	3	Bolt	-
25	185446258	4	Screw	-
26	185446262	2	Screw	-
27	185446260	6	Screw	-
29	185446261	1	Screw	-

12 Volt Starter Assembly

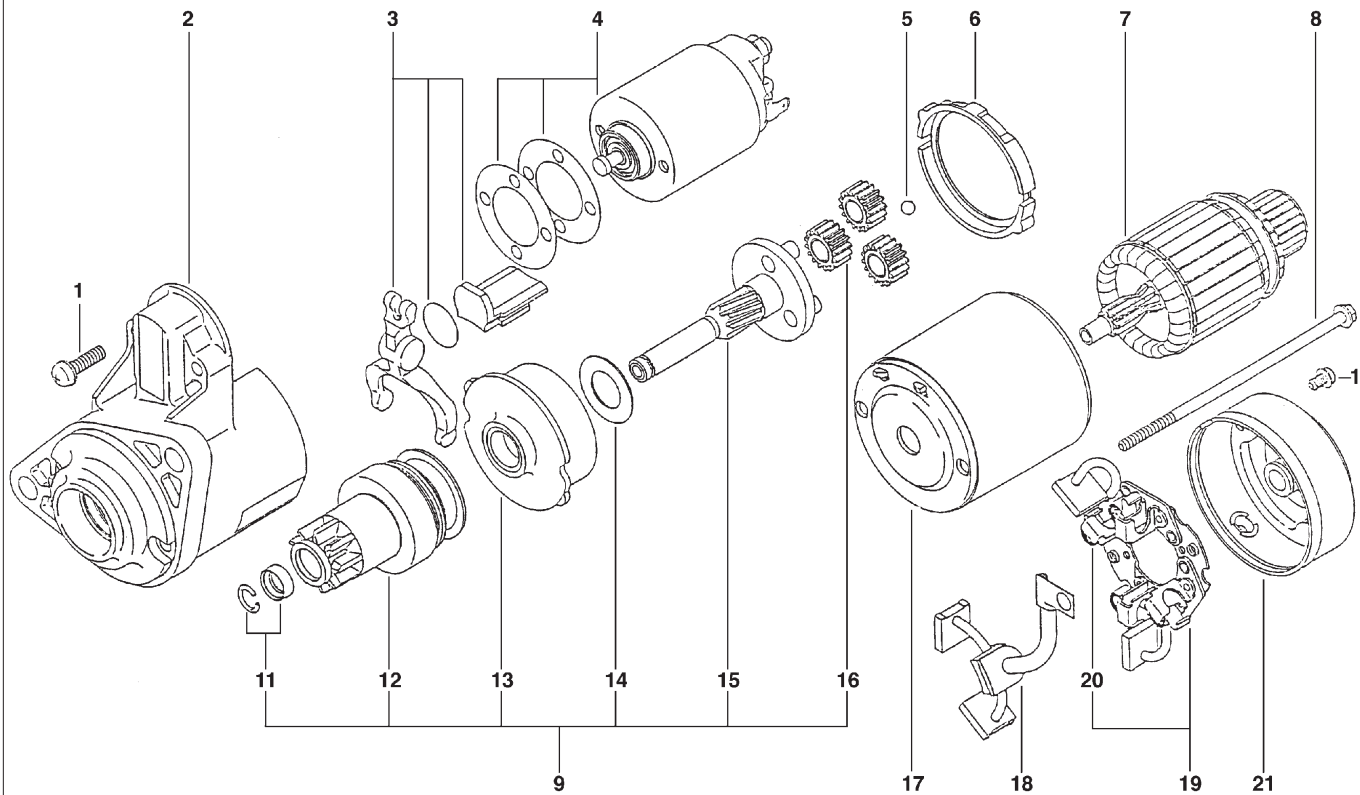
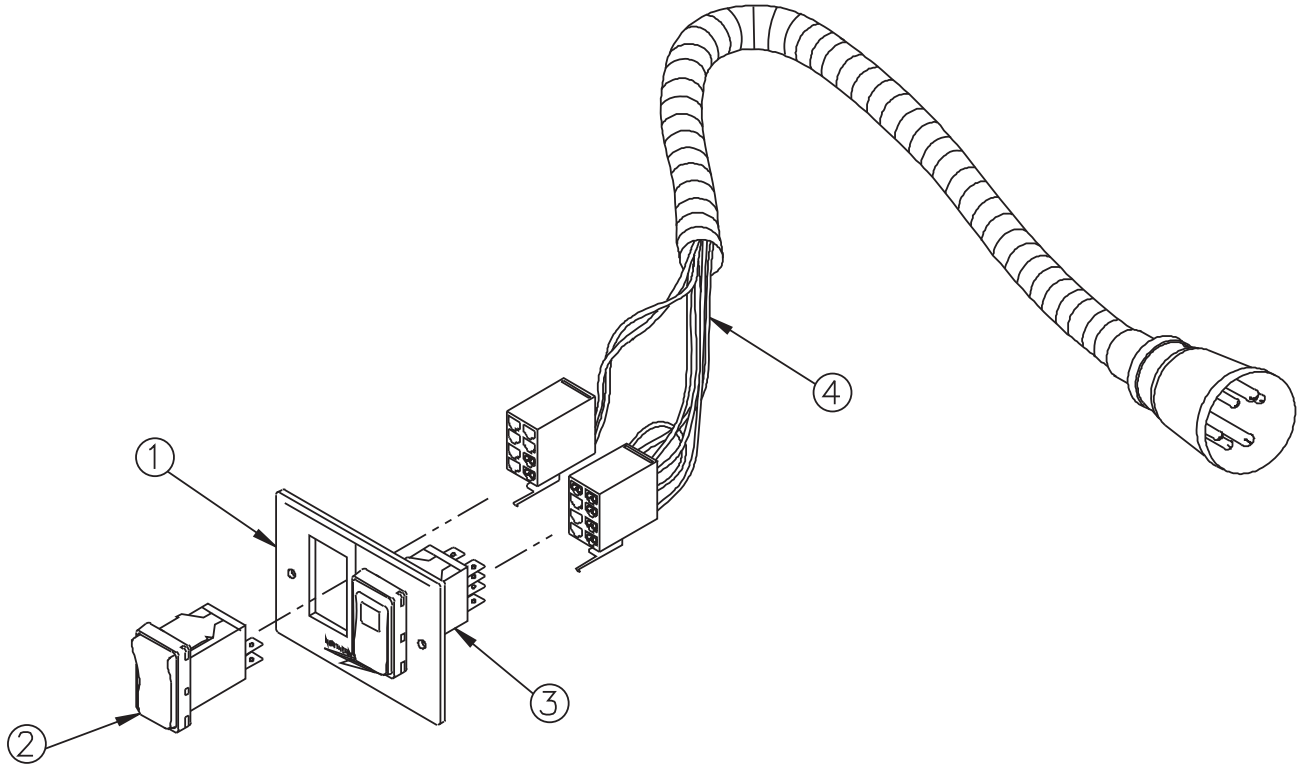


Fig. 03-03

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	185086551	1	Starter (includes all keys)	-
1	185846468	1	Screw Set	-
2	185846610	1	Front Housing	-
3	185846615	1	Lever Assembly	-
4	185816340	1	Solenoid	-
5	185846616	1	Ball	-
6	185846617	1	Packing Ring	-
7	185846618	1	Armature	-
8	185846621	1	Bolt Set	-
9	185866391	1	Drive Assembly (includes keys #11 - 16)	-
11	185846614	1	Stopper Set	-
12	185866411	1	Pinion Assembly	-
13	185846612	1	Internal Gear Assembly	-
14	185846611	1	Washer	-
15	185866400	1	Shaft Assembly	-
16	185846613	3	Gear Assembly	-
17	185846619	1	Housing and Field Coil Assembly	-
18	185416490	1	Brush Assembly	-
19	185416500	1	Brush Holder Assembly	-
20	185886070	1	Spring	-
21	185846620	1	Rear Housing	-

S-1 Control Panel 12 & 24 Volt

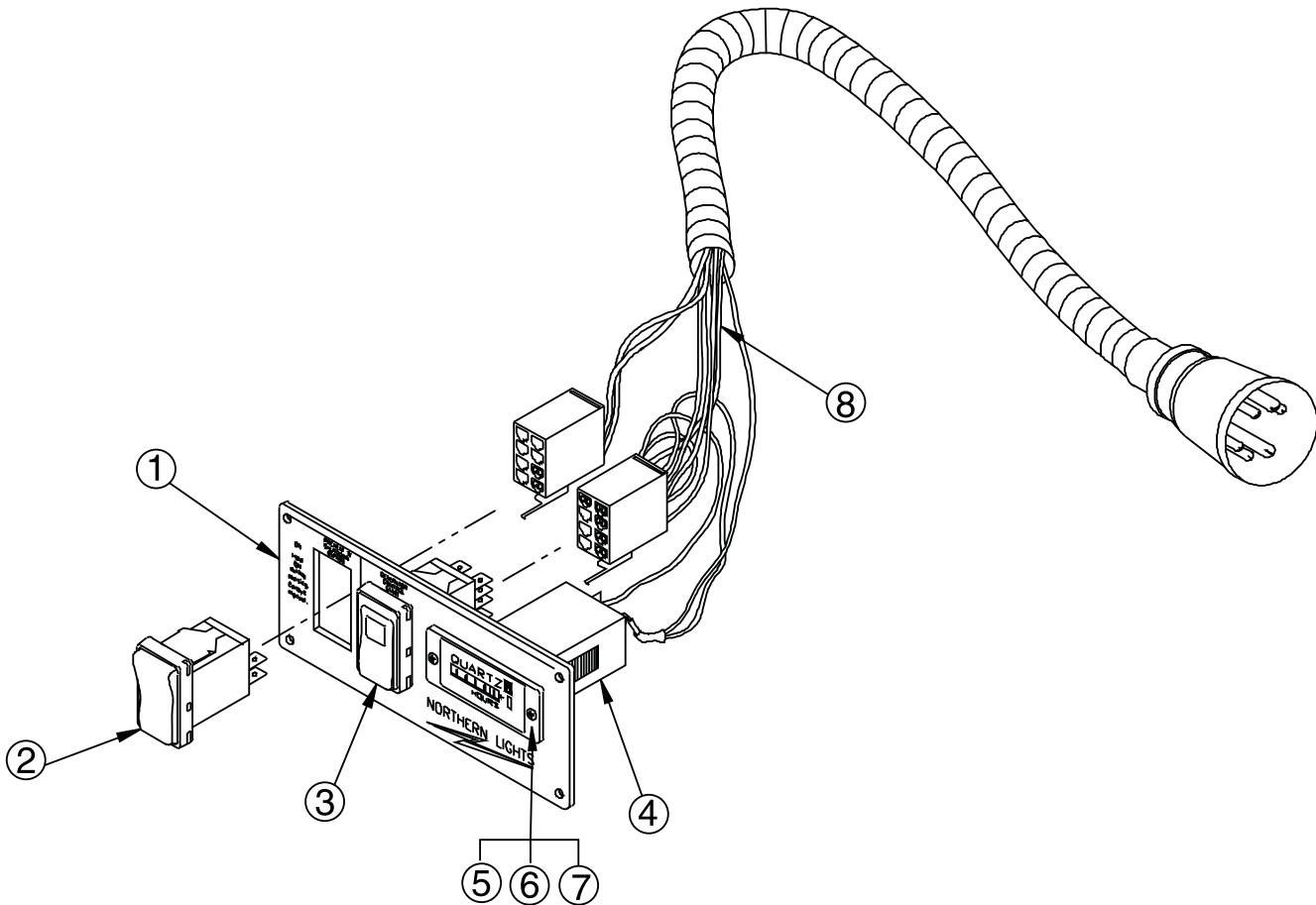


A-8551, A-8552/ B-5970

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	22-92110	1	S-1 Start/Stop Control Panel, 12 Volt (includes all keys)	-
••	22-92115	1	S-1 Start/Stop Control Panel, 24 Volt (includes all keys)	-
1	00-40013	1	Plate, S-1 Control Panel	-
2	22-90167	1	Rocker Switch	-
3	22-90168	1	Rocker Switch	-
4	22-42066	1	Wire Harness, 12 Volt	-
	22-42067	1	Wire Harness, 24 Volt	-
5	00-00013	1	Label "12 Volt" *	-
	00-00014	1	Label "24 Volt" *	-
6	22-40012	1	Resistor, 200 Ohm, 3 Watt (24 Volt Panel only) *	-
			*Not shown	

Series 1-B Start-Stop Control Panel

12 and 24 Volts

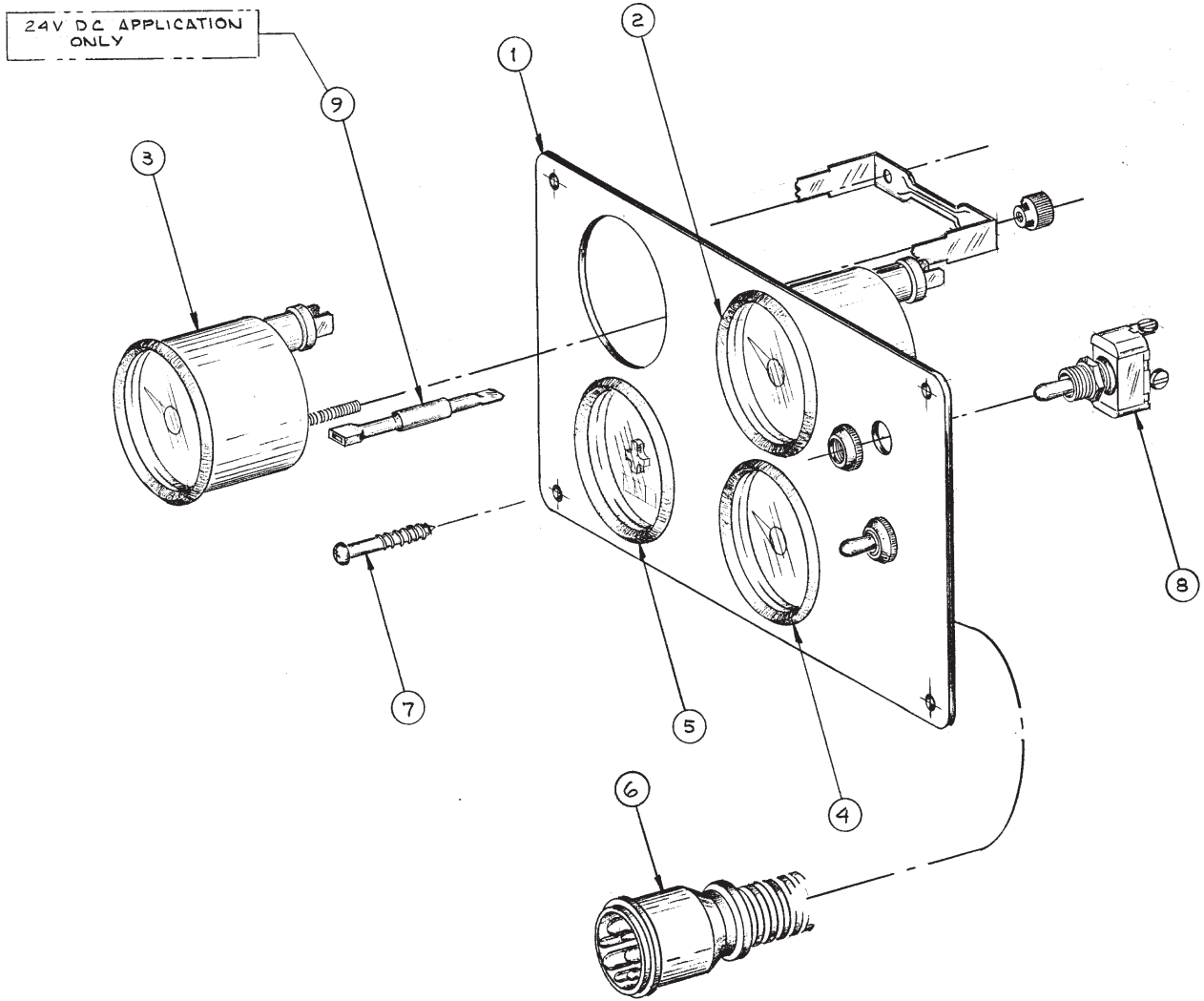


A-8553/ B-5971

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	22-92120	1	S 1-B Start/Stop Control Panel - 12 Volt (includes all keys)	-
••	22-92125	1	S 1-B Start/Stop Control Panel - 24 Volt (includes all keys)	-
1	28-90003	1	Plate	-
2	22-90167	1	Rocker Switch	-
3	22-90168	1	Rocker Switch	-
4	22-90009	1	Hour Meter	-
5	12-00093	2	Machine Screw, Round Head Philips #6 - 32 x 1/2"	-
6	15-00030	2	Star Washer, Internal #6, Stainless Steel	-
7	14-00015	2	Hex Nut #6 - 32, Stainless Steel	-
8	22-42063	1	Wire Harness - 12 Volt Panels	-
	22-42064	1	Wire Harness - 24 Volt Panels	-

Flush Mount Dual Station Control Panel 12 & 24 Volt

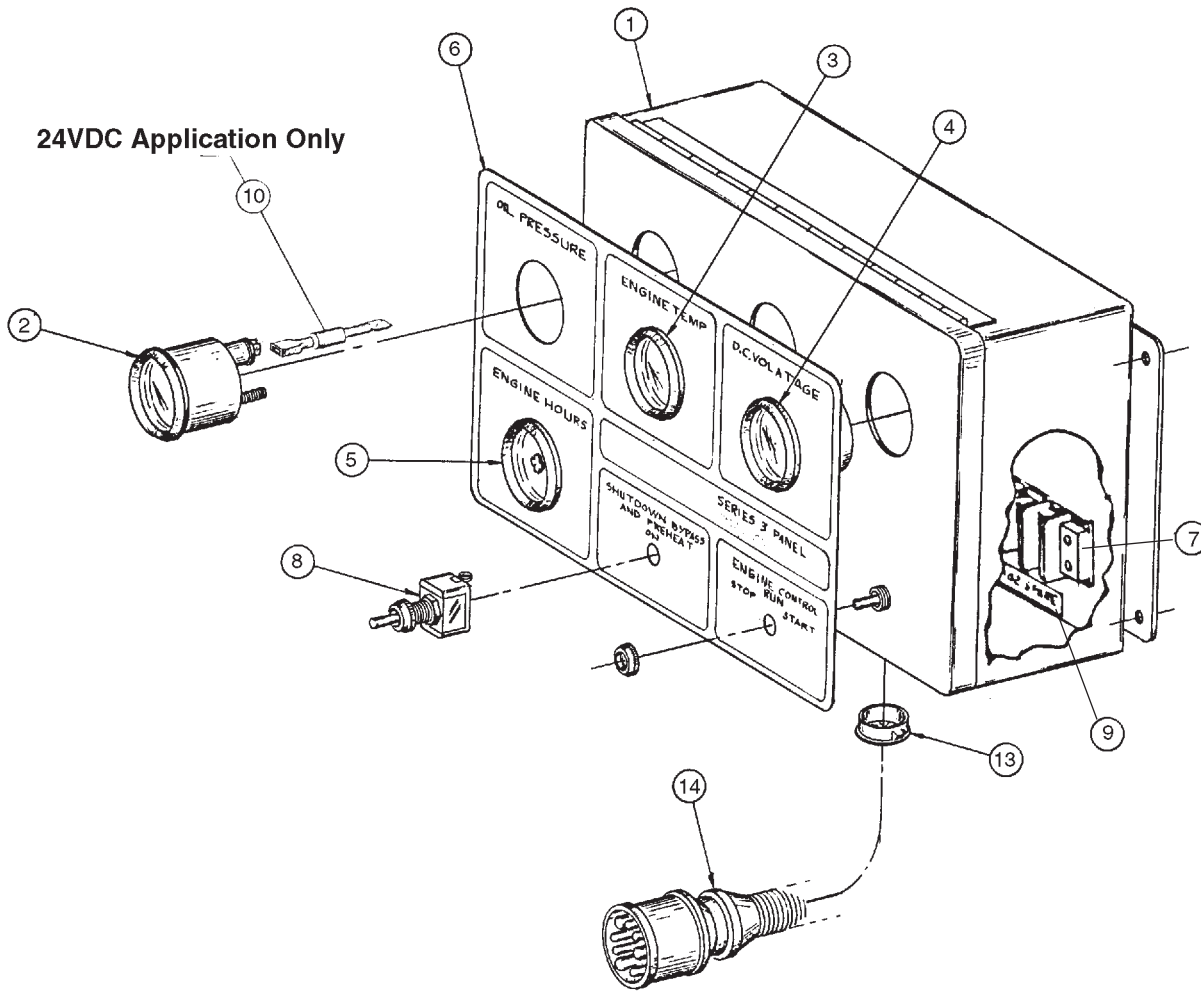
VDO Standard Line Black Bezel Gauges



A-4732, A-4597/ C-2441

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	22-92015	1	S-3C Control Panel, 12 Volt (includes all keys)	-
••	22-92014	1	S-3C Control Panel, 24 Volt (includes all keys)	-
1	28-90010	1	Panel Plate	-
2	37-40010	1	Oil Pressure Gauge, 0-80 PSI	-
3	37-40011	1	Engine Temperature Gauge, 0-250° F	-
4	37-40012	1	DC Voltmeter, 12 Volt	-
	37-40014	1	DC Voltmeter, 24 Volt	-
5	37-40013	1	Hourmeter	-
6	22-42024	1	Panel Wire Harness (not shown)	-
7	12-90007	**	Self Tapping Screw, Oval Head Phillips #6 x 3/4"	-
8	22-41051	2	Toggle Switch	-
9	22-40004	2	Resistor Kit (24 volt panel only)	-
10	22-44852	**	12 Volt Bulb (not shown)	-
	22-44853	**	24 Volt Bulb (not shown)	-
			**As required	

S-3B Control Panel 12 & 24 Volt

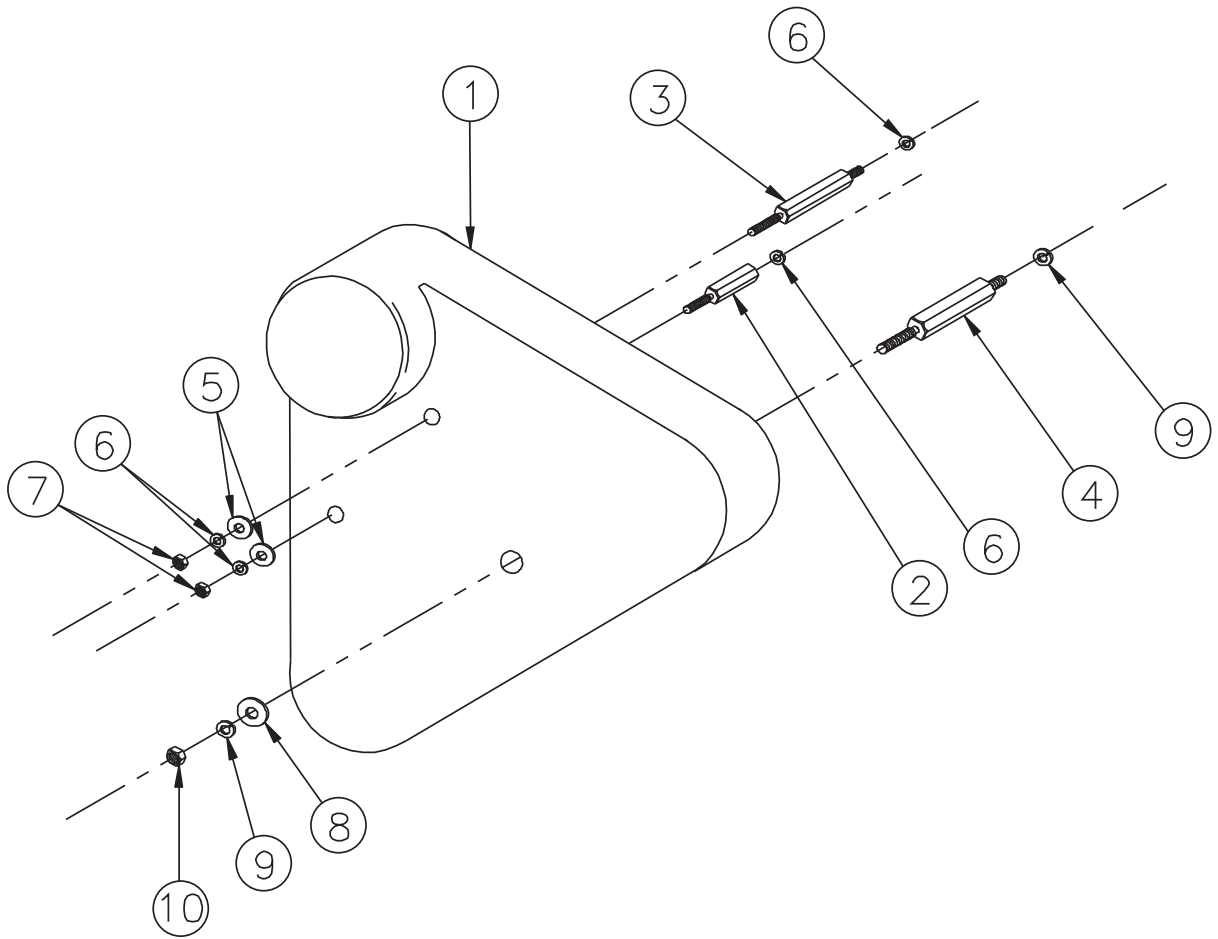


A-4722, A-4723/ C-2470

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	22-92031	1	S-3B Control Panel, 12 Volt (includes all keys)	-
••	22-95420	1	S-3B Control Panel, 24 Volt (includes all keys)	-
1	39-40008	1	Enclosure	-
2	37-40010	1	Oil Pressure Gauge, 0-80 PSI	-
3	37-40011	1	Engine Temperature Gauge, 0-250° F	-
4	37-40012	1	DC Voltmeter, 12 Volt	-
	37-40014	1	DC Voltmeter, 24 Volt	-
5	37-40013	1	Hourmeter	-
6	00-91018	1	Panel Decal	-
7	22-41077	1	Terminal Board	-
8	22-41051	2	Toggle Switch	-
9	22-00052	1	Number Strip	-
10	22-40004	2	Resistor Kit (24 volt panel only)	-
11	22-44852	**	12 Volt Bulb (not shown)	-
	22-44853	**	24 Volt Bulb (not shown)	-
12	22-40257	1	Wire Harness (not shown)	-
13	00-41015	1	Plastic Bushing	-
14	22-40062	1	Connection Harness	-
			**As required	

Belt Guard Assembly

Standard Small Frame Alternators



A-9314/ B-6972

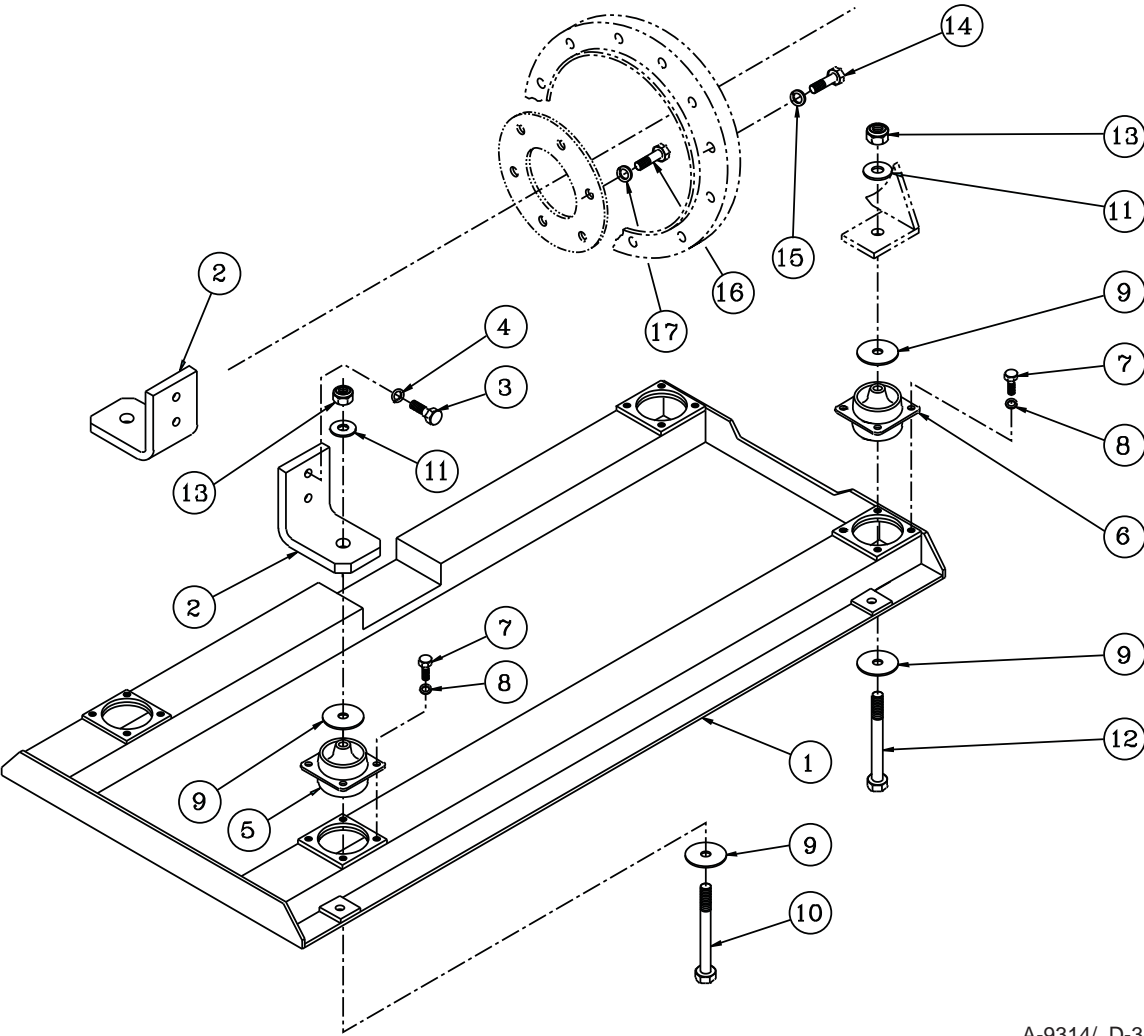
KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	00-08601	1	Belt Guard	-
2	12-90049	1	Capscrew, Hex Head M6 x 1.0 x 15 mm (Head tapped M6 x 1.0 x 10 mm Special)	-
3	13-91132	1	Stud, M6 x 1.0 x 111.4 mm	-
4	13-90070	1	Stud, M10 x 1.5 x 110.8 mm	-
5	15-01134	2	Flat Washer M6 S/S	-
6	15-00610	4	Lock Washer, Helical M6 S/S	-
7	14-01132	2	Hex Nut M6 x 1.0 S/S	-
8	15-09805	1	Flat Washer M10 S/S	-
9	15-00808	2	Lock Washer, Helical M10 S/S	-
10	14-00817	1	Hex Nut M10 x 1.5 mm S/S	-

GROUP 6 – GASKET SETS

Gasket Kits

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	29-08601	1	Gasket Kit (includes all keys)	-
1	050209107	1	Oil Seal, Rear	-
2	052109076	1	O-ring, Suction Oil Pipe	-
3	110996800	1	Gasket, Oil Pan	-
4	165996520	1	Gasket, Front Plate	-
5	052109108	2	O-ring, Governor Shaft	-
6	052109110	1	O-ring, Rocker Arm	-
7	052109109	1	O-ring, Rocker Arm	-
8	165996530	1	Gasket, Timing Gear Case	-
9	198636090	1	Oil Seal, Front	-
10	340990011	1	Gasket, Gear Case Cover	-
11	131426300	1	Adjusting Shim Set	-
12	025100006	1	Seal Washer	-
13	140996260	4	Gasket	-
14	111147570	1	Head Gasket, t=1.3	-
15	120406050	3	Valve Guide Seal, Exhaust	-
16	120406070	3	Valve Guide Seal, Intake	-
17	131426200	3	Gasket, Injector Lower Side	-
18	131426210	3	Gasket, Injector Upper Side	-
19	052100120	1	O-ring, Rocker Arm Shaft	-
20	120996150	1	Gasket, Rocker Arm Bracket	-
21	111996420	1	Gasket, Rocker Arm Cover	-
22	140996260	3	Gasket, Rocker Arm Cover	-
23	052100400	2	O-ring, Oil Filter Cap	-
24	135996750	1	Gasket, Air Intake	-
25	145996830	1	Gasket, Water Pump	-
26	130516069	4	Gasket	-
27	130996130	1	Gasket, Fuel Pump	-
28	052109113	2	O-ring, Gauge Guide	-
29	025100016	1	Seal Washer, Solenoid	-
30	052109078	1	O-ring, Relief Valve	-
31	130326051	5	Gasket	-
32	140996270	4	Gasket, Valve Assembly	-
33	052300700	1	O-ring, Gear Case Cover	-
34	314990030	1	Gasket	-
35	11-08601	1	Gasket, Exhaust	-
36	11-18602	1	Gasket, Thermostat Cover	-
37	16-13101	1	O-ring, Raw Water Pump	-

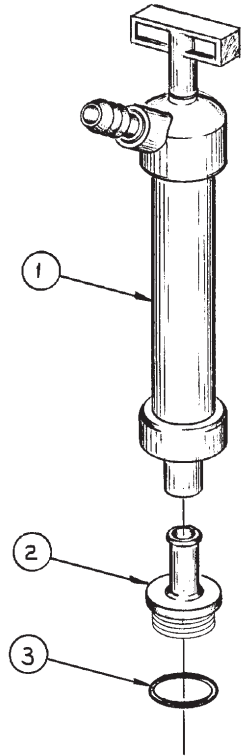
Base Frame Assembly



A-9314/ D-3472

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	39-88601	1	Base Frame, Steel	-
2	23-88211	2	Bracket	-
3	12-00943	4	Capscrew, Hex Head M12 x 1.25 x 30 mm	-
4	15-00912	4	Lock Washer, Helical M12	-
5	33-83108	2	Platform Mount, 155 lb.	-
6	33-83108	2	Platform Mount, 155 lb.	-
7	12-00776	16	Capscrew, Hex Head M8 x 1.25 x 20 mm, Stainless Steel	-
8	15-00705	16	Lock Washer, Helical M8, S/S	-
9	15-00020	8	Snubbing Washer 2.88 x 0.52 x 0.125	-
10	12-09956	2	Capscrew, Hex Head M12 x 1.75 x 65 mm, S/S	-
11	15-09007	4	Flat Washer M12, S/S	-
12	12-09956	2	Capscrew, Hex Head M12 x 1.75 x 65 mm S/S	-
13	14-09830	4	Hex Nut, Nylock M12 x 1.75, S/S	-
14	12-00313	8	Capscrew, Hex Head 3/8-16 x 1-1/4"	-
15	15-00302	8	Lock Washer, Helical 3/8	-
16	12-00753	6	Capscrew, Hex Head M8 x 1.25 x 30 mm	-
17	15-00702	6	Lock Washer, Helical M8	-

Oil Drain Kit

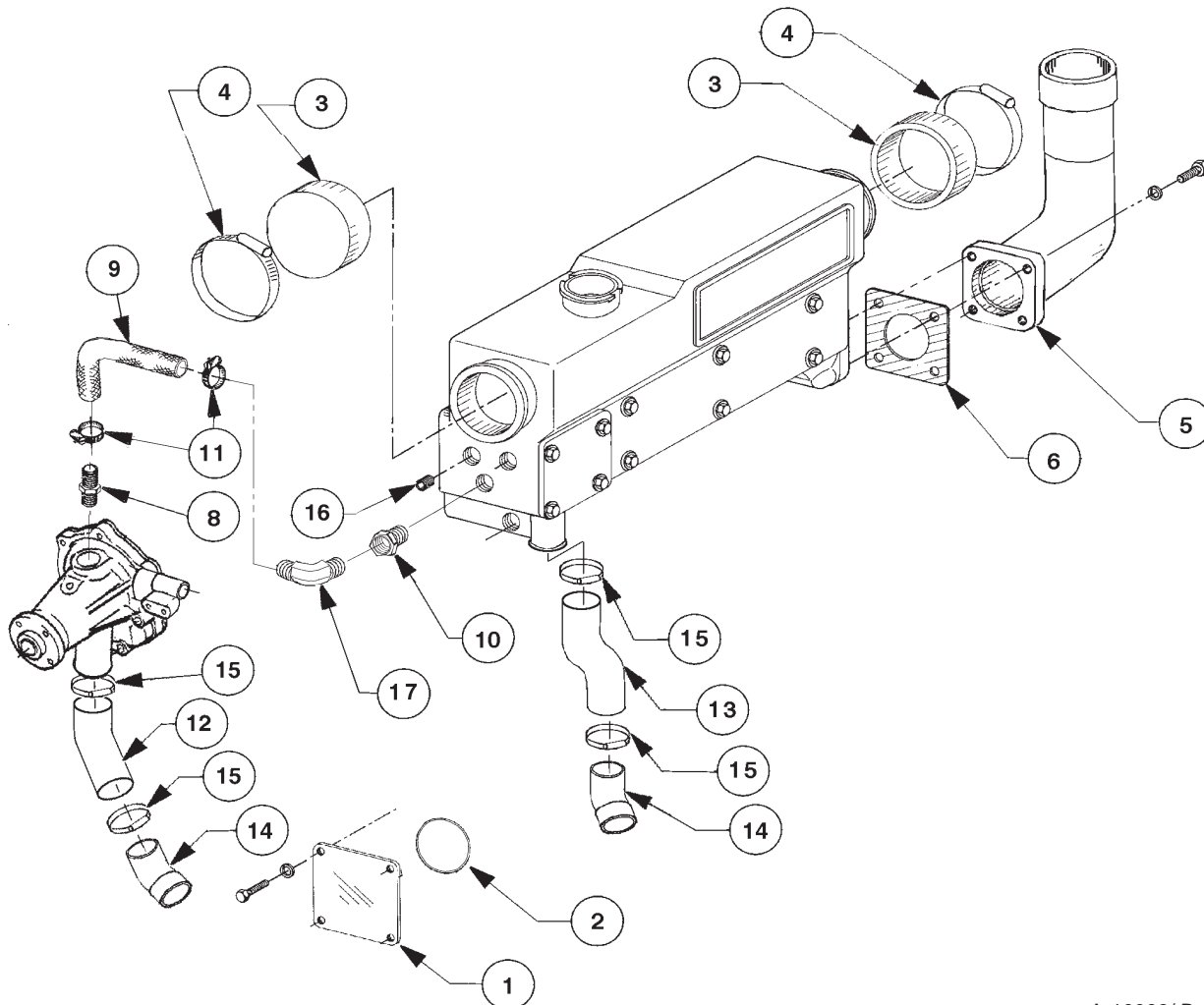


A-5024/ B-3990

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
••	34-70010		Oil Drain Kit Complete (includes all keys)	-
1	36-72002	1	Hand Pump	-
2	31-70001	1	Adapter, Oil Drain	-
3	16-70001	1	O-ring	-

Keel Cooling Conversion

Marine Application - with Dry Exhaust



A-10008/ B-9387

KEY	PART NUMBER	QTY	DESCRIPTION	SERIAL NUMBER
1	165206320	1	Cover (white)	-
2	052300700	1	O-ring	-
3	20-12019	2	End Cap, Rubber	-
4	19-00048	2	Hose Clamp, #48	-
5	27-32007	1	Elbow, Dry Exhaust 1-1/2" NPT	-
6	11-31902	1	Gasket, Exhaust Outlet Mtg.	-
7	00-32008	1	Exhaust Lagging (not shown)	-
8	21-17304	1	Male Connector, Brass 3/8 NPT x 5/8 HB	-
9	18-18603	1	Hose, Coolant By-pass	-
10	21-10044	1	Adapter, 3/8 NPT x 3/8 NPT	-
11	19-00008	2	Hose Clamp #8	-
12	18-18604	1	Hose, Coolant Pump Inlet	-
13	18-18605	1	Hose, Expansion Tank Outlet	-
14	21-18602	2	Male Elbow, 45°, Copper 1-1/8" HB x 1-1/4" HB	-
15	19-00016	4	Hose Clamp #16	-
16	21-51900	1	Plug, Socket Head 1/8 NPT	-
17	21-05409	1	Male Elbow, 3/8 NPT x 5/8 Hose Barb	-



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