

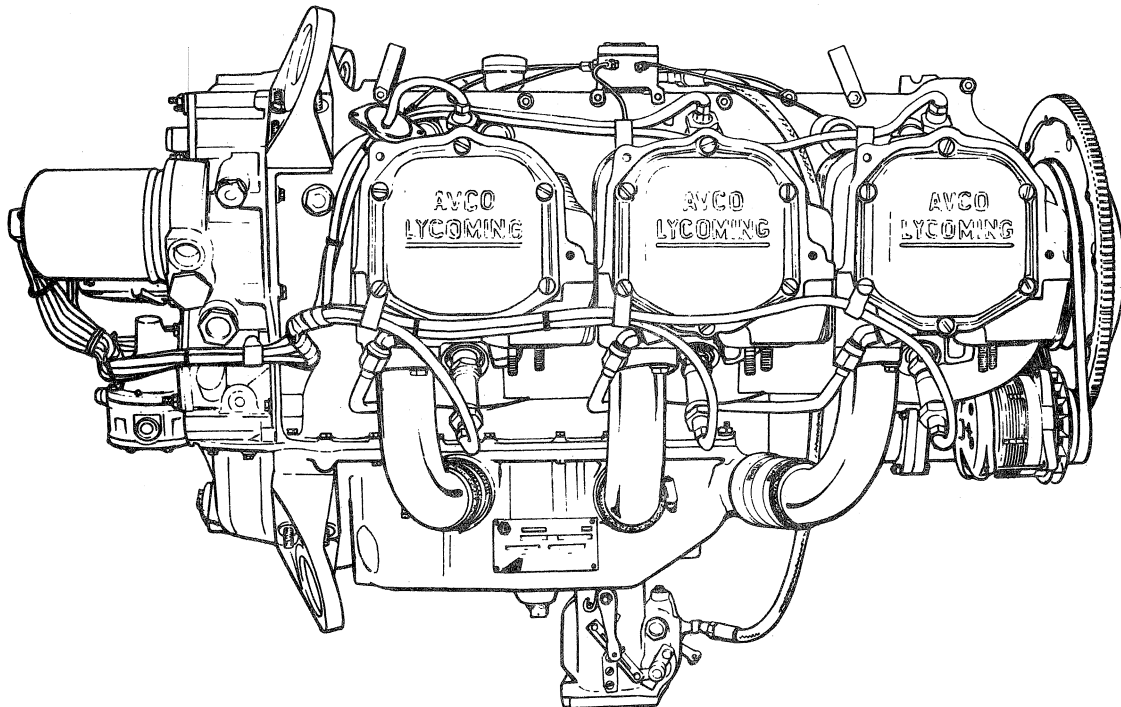
PARTS CATALOG

PC 615-1

AVCO LYCOMING IO-540-C4D5D MODEL

Wide Cylinder Flange Model

AIRCRAFT ENGINES



JULY 1982

AVCO LYCOMING WILLIAMSPORT DIVISION
652 Oliver Street, Williamsport, Pennsylvania 17701
AVCO LYCOMING ENGINE GROUP

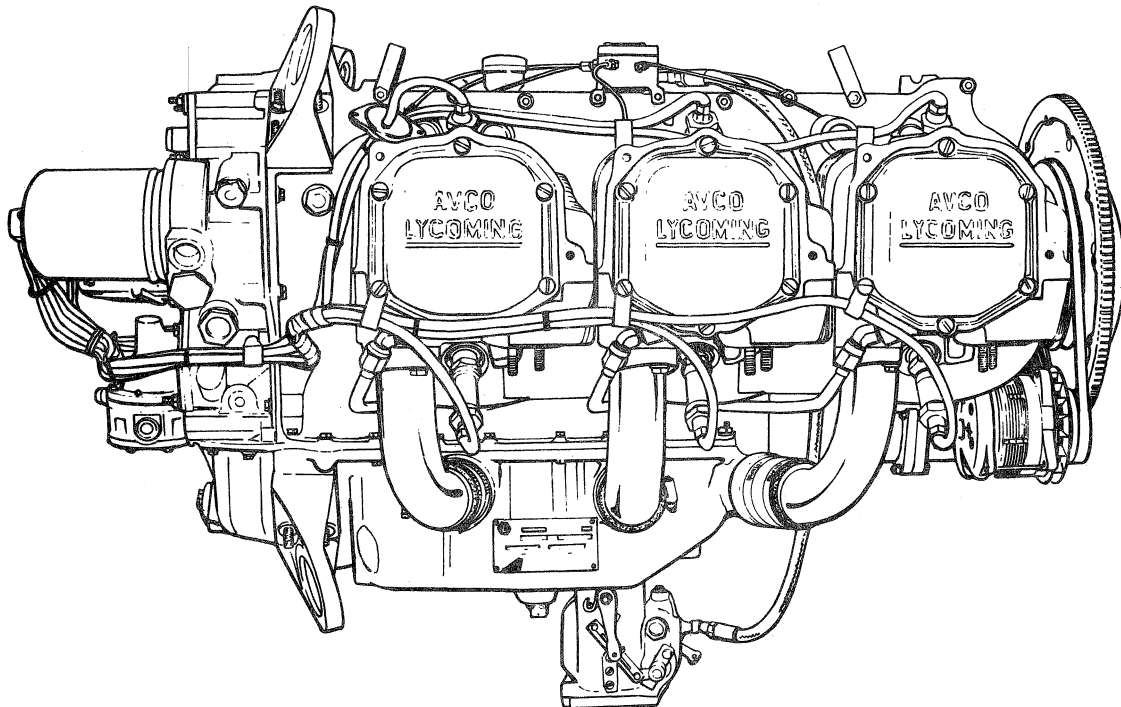
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INTRODUCTION

This illustrated parts catalog contains a complete parts listing for the Avco Lycoming IO-540-C4D5D wide cylinder flange model aircraft engines.

Major assembly and sub-assembly parts of the engines are listed in the Group Assembly sections in the general sequence of engine build up.

A Service Kits section and Oversize and Undersize Parts List are included to aid in ordering parts as necessary during overhaul.

The Numerical Index is provided for convenience in finding parts when only the part number is known.

Parts coverage of Vendor Accessories used on Avco Lycoming engines may be found in the appropriate Vendor's Parts Catalog. A list of these publications appear in the latest edition of Service Letter No. L114.

NOTE

The illustrations, pictures and drawings shown in this publication are typical of the subject matter they portray; in no instance are they to be interpreted as examples of any specific engine, equipment or part thereof.

SERVICE BULLETINS, INSTRUCTIONS AND LETTERS

Although the information contained in this parts catalog is up-to-date at time of publication, users are urged to keep abreast of later information through all Avco Lycoming distributors or from the factory by subscription. Consult the latest edition of Service Letter No. L114 for subscription information.

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IO-540-C4D5D WIDE CYLINDER FLANGE SERIES

Oversize and Undersize Parts Listing

PART NO.	DESCRIPTION	OVERSIZE									UNDERSIZE		
		P02	P05	P10	P15	P20	P30	P75	P50	P125	M03	M06	M10
LW-10647	DOWEL		X	X									
LW-11021	BEARING										X	X	X
LW-13521	BEARING			X							X	X	X
LW-13884	BEARING										X	X	X
STD-2078	DOWEL	X	X	X	X								
66610	BUSHING		X	X									
66796	INSERT			X									
69796	DOWEL	X											
71903	BUSHING -A, -B			SEE SERVICE INSTRUCTION NO. 1143 FOR SIZE									
72057	SEAT			X		X	X						
72058	SEAT			X		X	X						
72060	BUSHING		X	X	X	X							
72061	BUSHING		X	X	X	X							
72062	BUSHING		X	X	X	X							
73810	BUSHING		X	X	X			X		X			
73857	RING			X		X							
74241	RING			X									
75089	PISTON			X		X							
LW-13792	SEAL								X				
74230	GUIDE		X	X		X	X						
61681	GUIDE		X	X		X	X						

Studs available in P03, P07 and P12.

NOTE

When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing LW-13521 in .003 undersize, order part number LW-13521-M3. Oversize code letter is "P" while undersize code letter is "M". These letters are then followed by the number designating the size in thousandths of an inch.

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ASSEMBLY AND RELATED PARTS

FIG. REF. 1	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-13847	CRANKCASE ASSY.	1
2	31C-12	STUD, 5/16-18 x 1-1/2 long	2
3	31C-13	STUD, 5/16-18 x 1-5/8 long	1
4	38-13	STUD, 3/8-16 x 1-5/8 long	24
5	38-16	STUD, 3/8-16 x 2.00 long	8
6	38-22	STUD, 3/8-16 x 2-3/4 long	1
7	38D-17	STUD, 3/8-16 2-1/8 long drilled	1
8	50-15	STUD, 1/2-20 x 1-7/8 long	12
9	69796	DOWEL, Crankshaft bearing	2
10	LW-10647	DOWEL, Crankshaft bearing	6
11	STD-514	DOWEL, 5/16 dia. x 1/2 long	2
12	STD-557	DOWEL, 1/2 dia. x 11/16 long	2
13	STD-1339	PLUG, 1/16-27 NPT	1
14	1102	PLUG, 1/8-27 NPT	4
15	65007	RETAINER, Shroud tube seal	12
16	72158	BUSHING, Gov. drive idler shaft	1
17	31C-16	STUD, 5/16-18 x 2.00 long	4
18	70457	GASKET, Oil filler extension	1
19	75761	EXTENSION, Oil filler, long	1
	75675	EXTENSION, Oil filler, (short), 2-3/16 long	1
20	72220	GASKET, Oil level gage	1
21	73120	GAGE ASSY., Oil level	1
	LW-14771	GAGE ASSY., Oil level, (short)	1
22	72306	BRACKET, Engine mounting, (Dynafoal)	4
23	STD-33	WASHER, 3/8 plain	16
24	STD-678	WASHER, 3/8 lock	16
25	STD-596	NUT, 3/8-24 plain	16
26	1028-B	BALL, 11/16 dia.	1
27	61084*	SPRING, Oil pressure relief valve	un
28	STD-425	WASHER, No. 10 plain, (Max. 9)	un
29	STD-1045	GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular	1
30	76529	PLUG, Oil relief valve	1
31	LW-11021	BEARING CRANKSHAFT	6
32	LW-13884	BEARING CRANKSHAFT FRONT	2
33	LW-13792	SEAL, Crankshaft oil	1
34	72091	RING, Oil seal 23/64 I.D. x 7/64 dia. section	2
35	72877	BODY, Hydraulic tappet	12

* Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment.

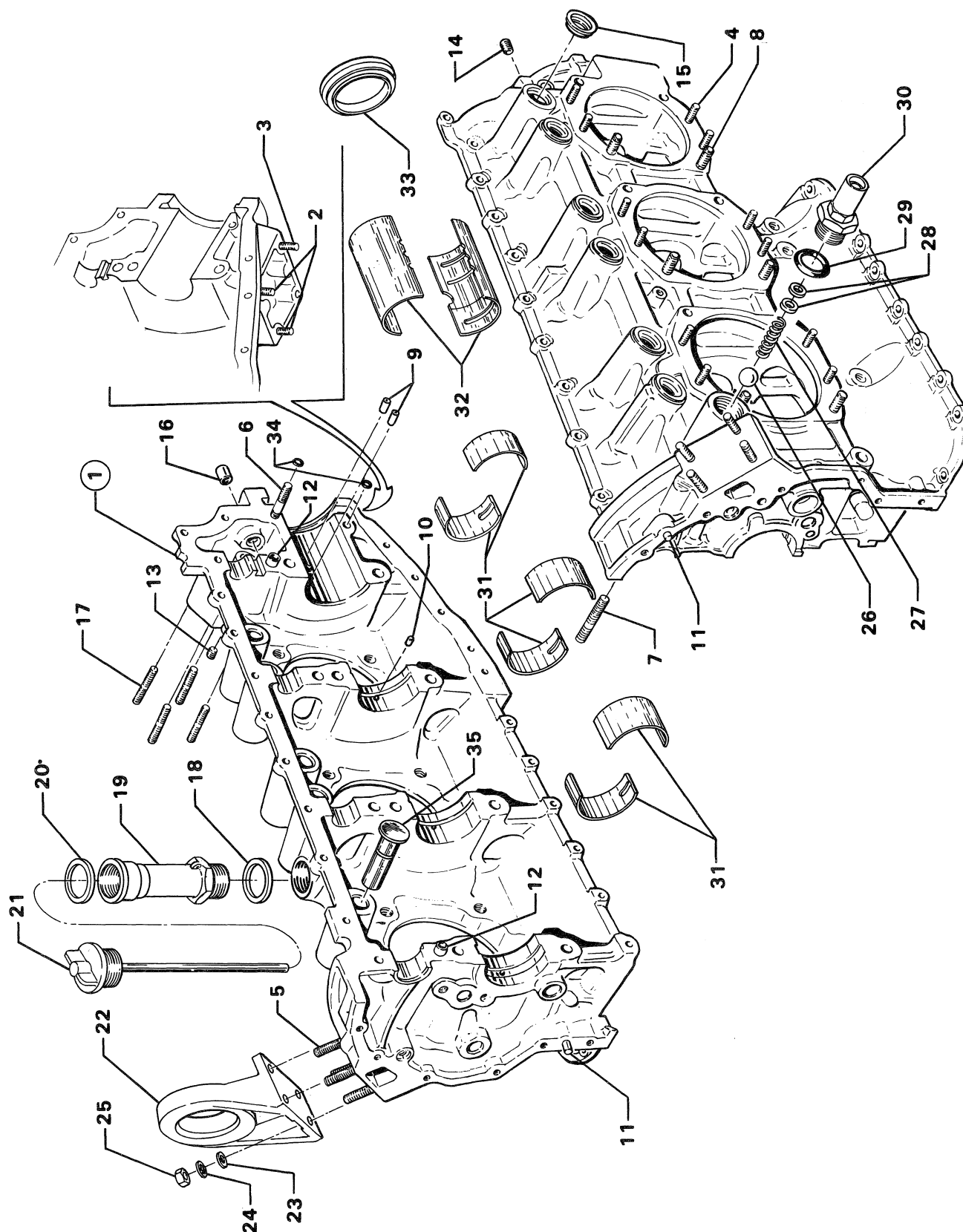


Figure 1. Crankcase Assembly and Related Parts

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKSHAFT, CAMSHAFT AND RELATED PARTS

FIG. REF. 2	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-17680	CRANKSHAFT & COUNTERWEIGHT ASSY.	1
2	LW-17651	CRANKSHAFT & PLUG ASSY.	1
3	STD-1211	PLUG, 2.00 dia. expansion	1
4	73810	BUSHING, Crankshaft dynamic counterweight	4
5	71640	PLUG, 1-3/8 dia.	1
6	72062	BUSHING, Propeller flange, long	4
7	72061	BUSHING, Propeller flange, short	1
8	72060	BUSHING, Propeller flange, indexing	1
9	STD-2078	DOWEL, 3/8 O.D. x 1/2 long	1
10	72801	COUNTERWEIGHT ASSY.	2
11	71903	BUSHING, Dynamic counterweight	8
12	72797	ROLLER, Dynamic counterweight, 6.3 order	2
13	72965	ROLLER, Dynamic counterweight, 5.1 order	2
14	LW-14820	RING, Internal retaining	8
15	71907	WASHER, Dynamic counterweight	8
16	LW-10284	GEAR, Crankshaft	1
17	LW-10332	LOCKPLATE, Crankshaft gear	1
18	AN8-14A	BOLT, 1/2-20 x 1-19/32 long	1
19	76148	CAMSHAFT	1
20	77579	SUPPORT ASSY., Starter ring gear, 12/14 pitch	1
21	72566	GEAR, Starter ring, 12/14 pitch	1
22	LW-10290	GEAR ASSY., Crankshaft idler	1
23	LW-10297	GEAR ASSY., Crankshaft idler (heavy)	1
24	LW-10299	SHAFT CRANKSHAFT IDLER GEAR	1
25	LW-10300	SHAFT CRANKSHAFT IDLER GEAR	1
26	LW-10325	SPACER, Idler gear	1
27	76155	SHAFT ASSY., Tachometer	1
28	78368	PIN, 3/16 x 2-6/16 long	1
29	76118	SPACER, Tachometer shaft centering	1
30	MS16625-1081	RING, Internal retaining	1
31	61544	PLUNGER, Fuel pump	1

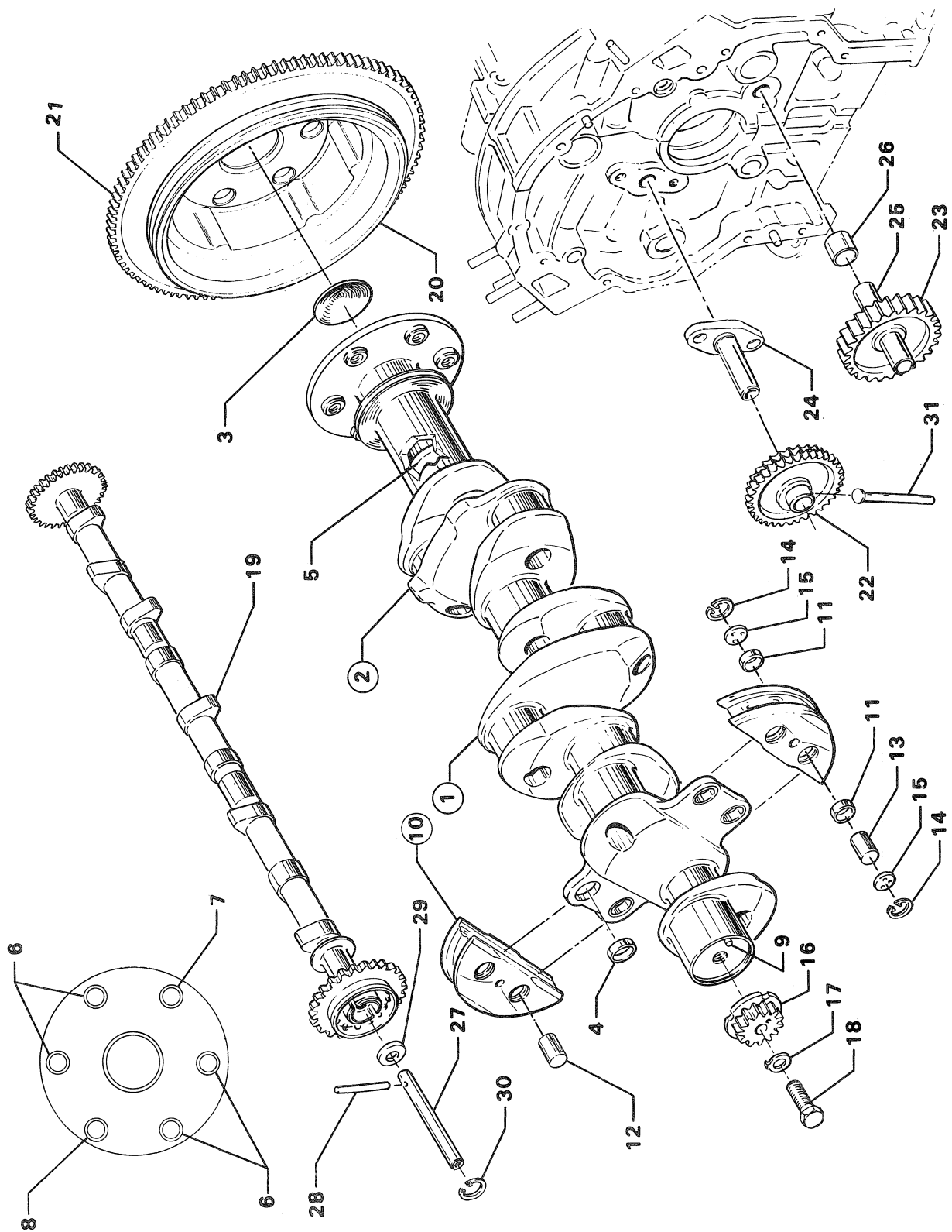


Figure 2. Crankshaft, Camshaft and Related Parts

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
PROPELLER GOVERNOR DRIVE AND CRANKCASE ATTACHING PARTS

FIG. REF. 3	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-10442	GEAR, Propeller governor drive	1
2	LW-14021	SHAFT, Propeller governor idler gear	1
3	LW-10541	GEAR ASSY., Propeller governor idler	1
4	77872	BUSHING, Propeller governor idler gear	2
5	STD-19	DOWEL, 3/32 dia. x 7/32 long	1
6	STD-798	DOWEL, 3/32 dia. x 9/32 long	1
7	73249	WASHER, Thrust	1
	73250	WASHER, Thrust	un
	73251	WASHER, Thrust	un
	73252	WASHER, Thrust	un
8	AN565B1032H5	SET SCREW, No. 10-32 x 5/16 long	1
9	70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/16 thick	1
10	LW-13896	PLUG, 3/4-16 hex. hd.	1
11	72053	GASKET, Governor	1
12	72378	COVER, Governor drive	1
13	STD-35	WASHER, 5/16 plain	un
14	STD-475	WASHER, 5/16 lock	4
15	STD-1410	NUT, 5/16-18 plain	4
16	STD-1414	BOLT, 1/4-20 x 1-1/2 long	7
17	STD-1931	BOLT, 1/4-20 x 1-7/8 long	1
18	STD-1646	BOLT, 1/4-20 x 2.00 long	2
19	STD-8	WASHER, 1/4 plain	25
20	60803	STRAP, Lifting	2
21	STD-2084	BOLT, 1/4-20 x 1-3/4 long	1
22	STD-1419	BOLT, 1/4-20 x 1-1/8 long	4
23	STD-160	WASHER, 1/4 internal lock	16
24	STD-1411	NUT, 1/4-20 plain	12
25	STD-1416	BOLT, 1/4-20 x 1-1/2 long, dr. end	6
26	STD-8	WASHER, 1/4 plain (max. 18)	un
27	STD-1409	NUT, 1/4-20 slotted shear	6
28	STD-33	WASHER, 3/8 plain	1
29	STD-872	NUT, 3/8-24 slotted shear	1
30	AN6-34A	BOLT, 3/8-24 x 3-37/64 long	1
31	STD-33	WASHER, 3/8 plain	3
32	STD-678	WASHER, 3/8 lock	2
33	STD-596	NUT, 3/8-24 plain	2
34	76220	STUD, 1/2-20 x 10-45/64 long	8

NOTE

Two STD-8 washers and one STD-1931 bolt assembled in rear top hole in crankcase.

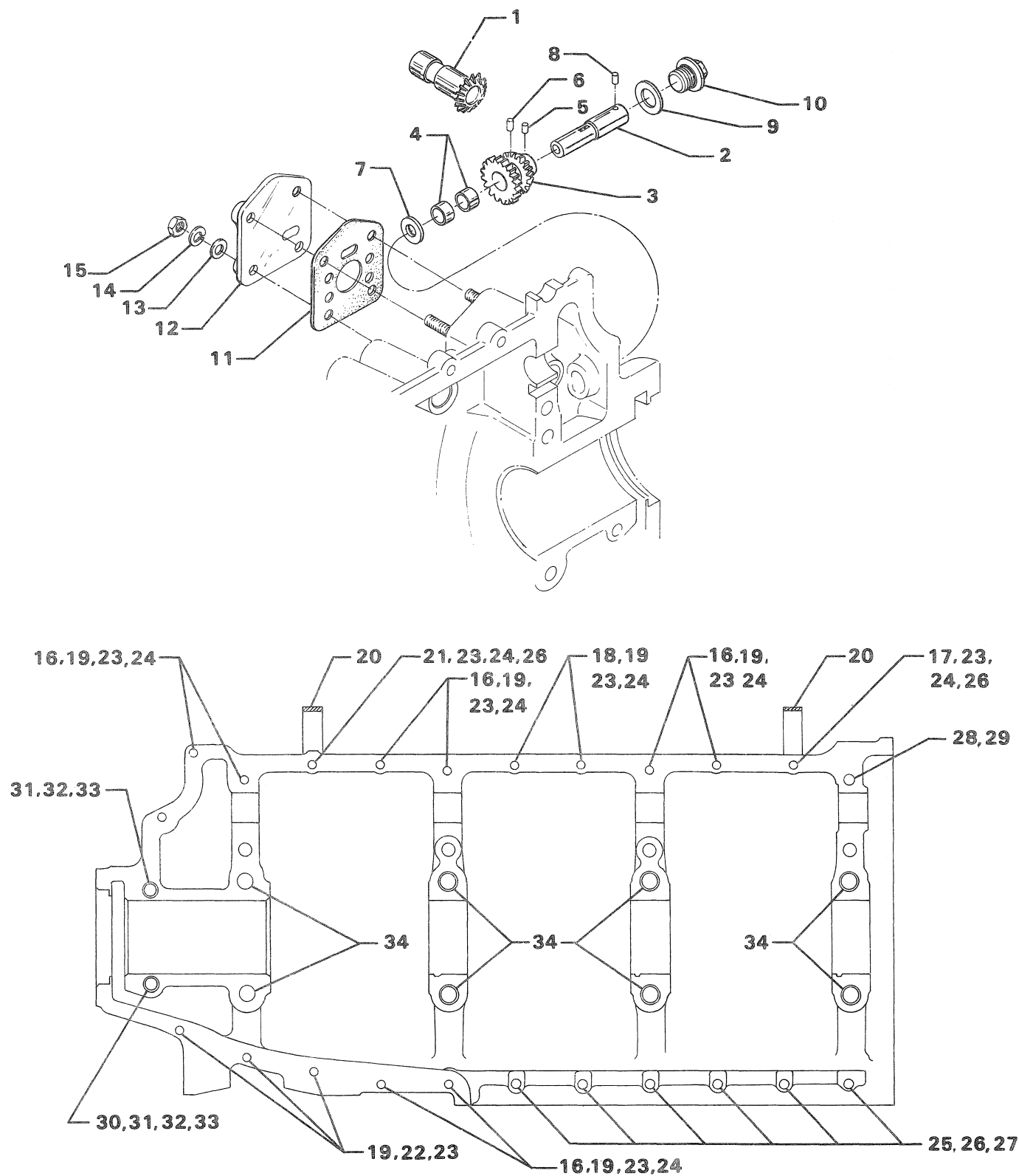


Figure 3. Propeller Governor Drive and Crankcase Attaching Parts

ACCESSORY HOUSING AND RELATED PARTS
ACCESSORY HOUSING ASSEMBLY, FUEL PUMP, DRIVES AND COVERS

FIG. REF. 4	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	73818	GASKET, Accessory housing	1
2	LW-10908	HOUSING ASSY., Accessory	1
3	31CD-20	STUD, 5/16-18 x 2-1/2 long, drill	3
4	25C-12	STUD, 1/4-20 x 1-1/2 long	8
5	31C-13	STUD, 5/16-18 x 1-5/8 long	2
6	LW-10341	INSERT, Heli-coil, 1.00-14 x 3/8 long	1
7	LW-12589	INSERT, Heli-coil, 5/8-18 x 3/8 long	1
8	MS-124703	INSERT, Heli-coil, 3/4-16 x 1-1/8 long	1
9	1102	PLUG, 1/8-27 NPT, Allen head	1
10	71651	FITTING, Breather	1
11	MS29512-10	SEAL, Oil 7/64 section x 23/32 I.D.	1
12	AN814-10L	PLUG, 7/8-14 thd.	1
13	STD-294	GASKET, 7/8 O.D. x 5/8 I.D. x 3/32 annular	2
14	1540	PLUG, Thermometer well	2
15	MS29512-10	SEAL, Oil, 3/32 section x 45/64 I.D.	2
16	LW-14828	REDUCER, 1/2 tubing to 5/8 tubing	2
17	LW-10307	GEAR ASSY., Accessory driven	1
18	71596	WASHER, Accessory drive gear	1
19	STD-208	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide	1
20	8313	GASKET, Vacuum pump	1
21	60430	COVER, Vacuum pump	1
22	STD-8	WASHER, 1/4 plain	4
23	STD-160	WASHER, 1/4 lock, internal teeth	4
24	STD-1411	NUT, 1/4-20 plain	4
25	LW-10303	PLUG, Vacuum pump drive	1
26	8313	GASKET, Vacuum pump	1
27	60430	COVER, Vacuum pump	1
28	STD-8	WASHER, 1/4 plain	4
29	STD-160	WASHER, 1/4 lock, internal teeth	4
30	STD-1411	NUT, 1/4-20 plain	4
31	60096	GASKET, Fuel pump	1
32	LW-15473	FUEL PUMP, (6441234)	1
33	STD-33	WASHER, 3/8 plain	2
34	STD-1882	SCREW, 3/8-16 x 1-9/32 long, socket hd. dr. hd.	2

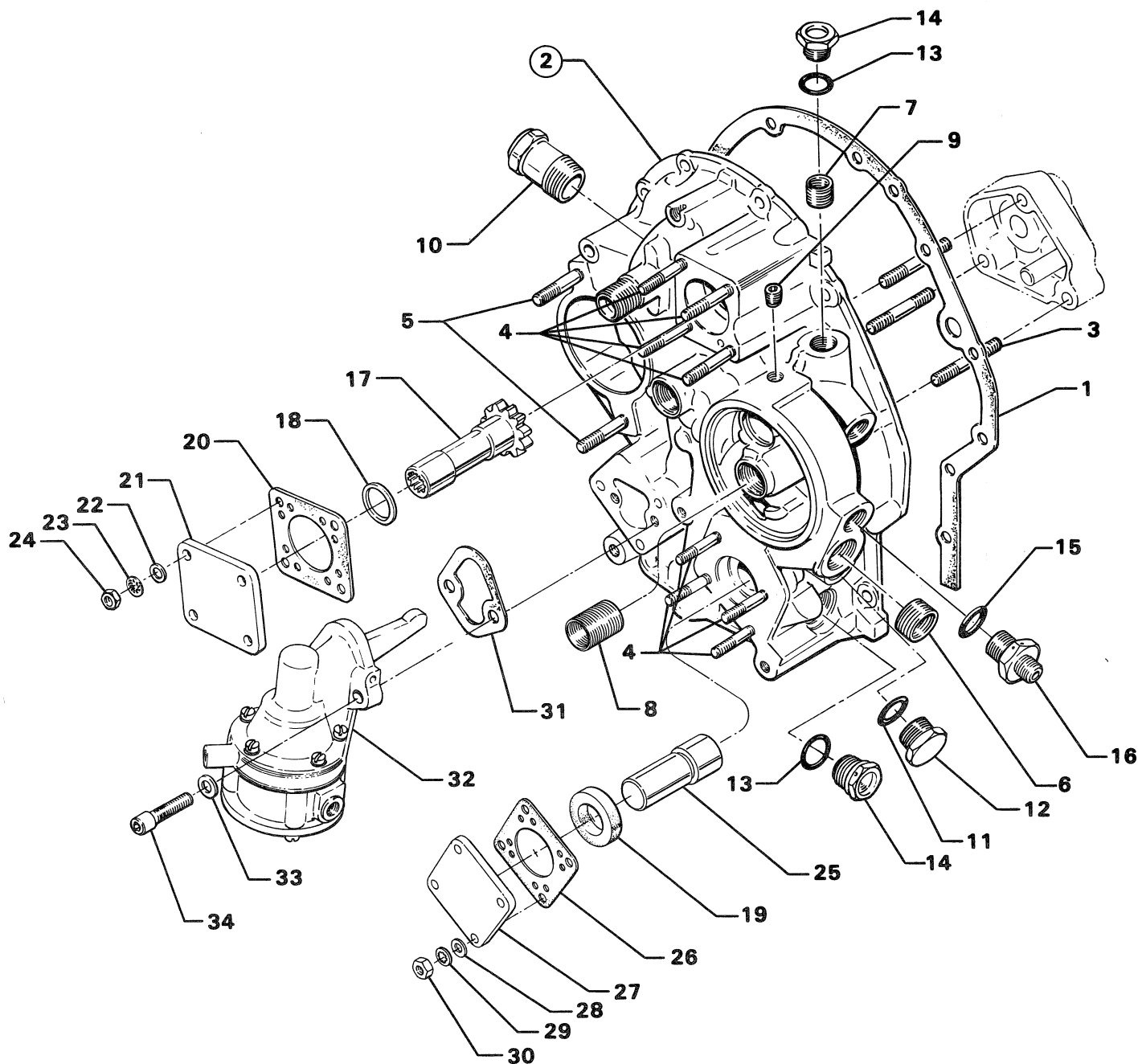


Figure 4. Accessory Housing Assembly, Fuel Pump, Drives and Covers

ACCESSORY HOUSING AND RELATED PARTS
OIL PUMP, TACHOMETER DRIVE AND OIL FILTER ASSEMBLY

FIG. REF. 5	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-10344	BODY ASSY., Oil pump	1
2	60329	SHAFT, Oil pump idler	1
3	STD-714	PIN, 1/8 dia. x 1.00 long cotter	1
4	LW-10318	GEAR ASSY., Oil pump drive	1
5	61297	IMPELLER, Oil pump driving	1
6	61298	IMPELLER, Oil pump driven	1
7	STD-35	WASHER, 5/16 plain	3
8	STD-1420	NUT, 5/16-18 slotted	3
9	LW-14260	SEAL, Tachometer drive, oil	1
10	STD-8	WASHER, 1/4 plain	12
11	STD-160	WASHER, 1/4 lock, internal	12
12	STD-1204	BOLT, 1/4-20 x 15/16 long, hex. hd.	9
13	STD-1215	BOLT, 1/4-20 x 1-1/4 long, hex hd.	1
14	STD-1875	BOLT, 1/4-20 x 13/16 long, hex hd.	2
15	LW-10321	SPRING, Oil filter, bypass valve	1
16	76539	SEAT, Oil relief valve	1
17	MS16625-1100	RING, Internal retaining	1
18	LW-13906	FILTER ASSY., Oil, short (Champion)	1
19	LW-13904	KIT, Converter plate, oil filter	1
20	75944	VALVE ASSY., Temp. control oil cooler bypass	1

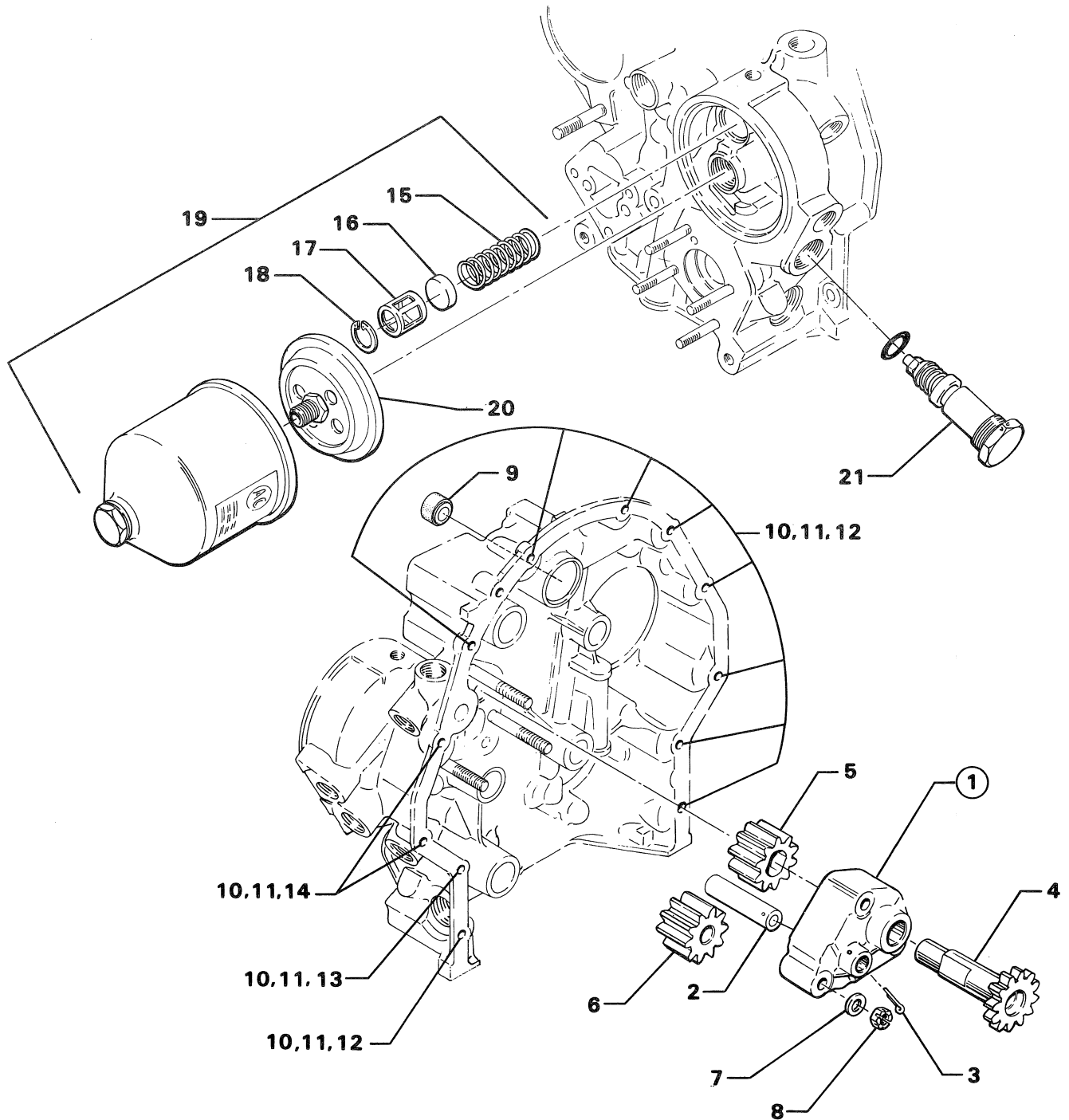


Figure 5. Oil Pump Tachometer Drive and Oil Filter Assembly

CYLINDER, PISTON AND VALVE TRAIN
CYLINDER, VALVE ASSEMBLY AND ATTACHING PARTS

FIG. REF. 6	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-12427	CYLINDER AND HEAD ASSY., Nitrided	6
2	72057	SEAT, Intake valve	6
3	72058	SEAT, Exhaust valve	6
4	76943	GUIDE, Valve, intake	6
5	77160	GUIDE, Valve, exhaust	6
6	66796	INSERT, Spark plug, 18-1.5MM	12
7	STD-1872	INSERT, 1/8-27 Heli-coil taper pipe thd.	12
8	31C-12	STUD, 5/16-18 x 1-1/2 long	12
9	25C-9	STUD, 1/4-20 x 1-1/8 long	6
10	MS20823-6D	ELBOW, 45°, 3/8 flared tube	6
11	66610	BUSHING, Rocker shaft	24
12	73938	VALVE, Intake	6
13	74541	VALVE, Exhaust rotator type	6
14	LW-11795	SPRING, Valve, inner	12
15	LW-11800	SPRING, Valve, outer	12
16	65441	SEAT, Valve spring, lower, intake	6
17	LW-10077	SEAT, Valve spring, upper, intake	6
18	LW-13323	SEAT, Valve spring, lower, exhaust	6
19	LW-16475	SEAT, Valve spring, upper, exhaust rotator type	6
20	60009	KEY, Valve intake	12
21	MS-13997-3	KEY, Valve exhaust (rotator type)	12
22	MS-13998-3	CAP, Valve stem, exhaust (rotator type)	6
23	78290	PLUNGER ASSY., Hydraulic tappet	12
24	78524	SOCKET, Push rod, hydraulic tappet	12
25	LW-11485	TUBE, Push rod shroud	12
26	LW-14995	SPRING, Shroud tube	6
27	LW-12272	LOCKPLATE, Shroud tube	6
28	STD-1411	NUT, 1/4-20 plain	6
29	62922	SEAL, Shroud tube	12
30	70310	SEAL, Shroud tube	12

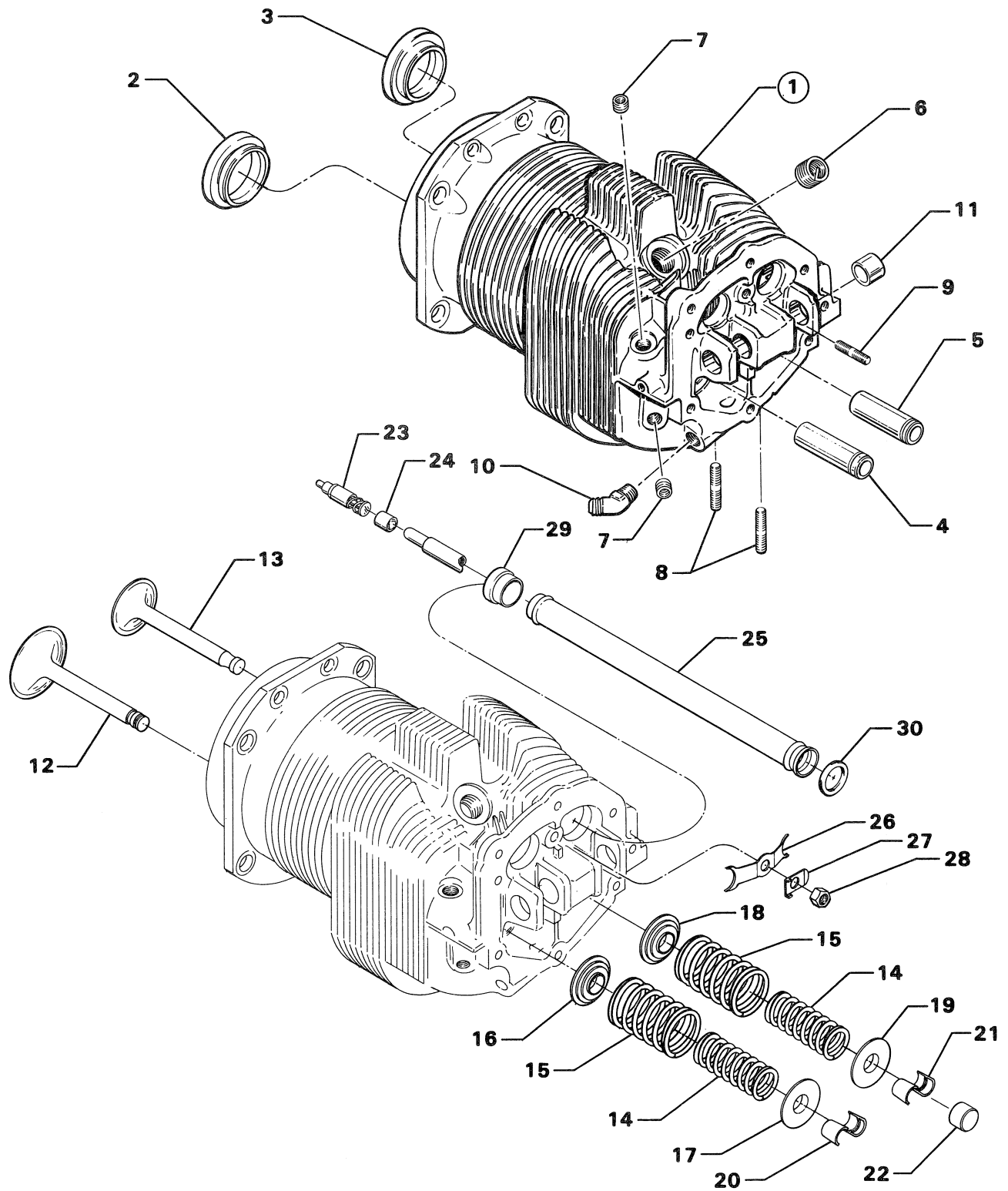


Figure 6. Cylinder, Valve Assembly and Attaching Parts

CYLINDER, PISTON AND VALVE TRAIN
CONNECTING ROD, PISTON, ROCKER AND INTERCYLINDER BAFFLE ASSEMBLIES

FIG. REF. 7	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-11750	CONNECTING ROD ASSY., Machining	6
2	LW-13923	BUSHING, Connecting rod, upper	6
3	75061	BOLT, Connecting rod	12
4	LW-12186	NUT, Connecting rod bolt	12
5	LW-13521	BEARING, Connecting rod	12
6	75089	PISTON, Compression ratio 8.50:1	6
7	LW-14078	PIN, Piston	6
8	60828	PLUG, Piston pin	12
9	74241	RING, Piston compression	12
10	73857	RING, Piston, oil regulating, expander type	6
11	73434	ROD ASSY., Push	un
	73435	ROD ASSY., Push	un
	73436	ROD ASSY., Push	un
	73437	ROD ASSY., Push	un
12	69444	ROCKER ASSY., Valve, intake	6
13	60398	BUSHING, Valve rocker, intake	6
14	74636	ROCKER ASSY., Valve, exhaust	6
15	74637	BUSHING, Valve rocker, exhaust	6
16	LW-13790	SHAFT, Valve rocker	6
17	LW-12892	THRUST BUTTON, Rocker shaft	12
18	75906	GASKET, Rocker box cover	6
19	61247	COVER, Rocker box	6
20	STD-1925	SCREW, 1/4-20 x 5/8 long, pan head, self-locking	36
21	71481	RING, Oil seal, 3/32 dia. x 4-27/32 I.D.	6
22	77906	SPACER, 33/64 I.D. x 7/8 x 1/8 thick (rear of c'case)	2
23	74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick (front of c'case)	2
24	383-B	NUT, 3/8-24 plain	24
25	STD-2090	NUT, 1/2-20 plain	28
26	65321	GASKET, Exhaust flange	6
27	61260	FLANGE, Exhaust, stainless	6
28	1102	PLUG	6
29	STD-684	NIPPLE, Straight 3/8 I.D. hose	6
30	STD-1821	HOSE, 3/8 I.D. x 2-1/2 long	6
31	LW-15592-5-05	CLAMP, Hose	12
32	68759	TUBE ASSY., Cyl. head oil drain, cyl. no. 1	1
	71737	TUBE ASSY., Cyl. head oil drain, cyl. no. 2	1
	68761	TUBE ASSY., Cyl. head oil drain, cyl. nos. 3, 4, 5, 6	4
33	75339	BAFFLE ASSY., Intercylinder	3
	73975	BAFFLE ASSY., Intercylinder	1
34	71611	RETAINER, Intercylinder baffle	4
35	71610	HOOK, Intercylinder baffle retainer	4
36	AN931-12517	GROMMET, 3/4 I.D. x 1-3/8 O.D. x 3/8 thick	1

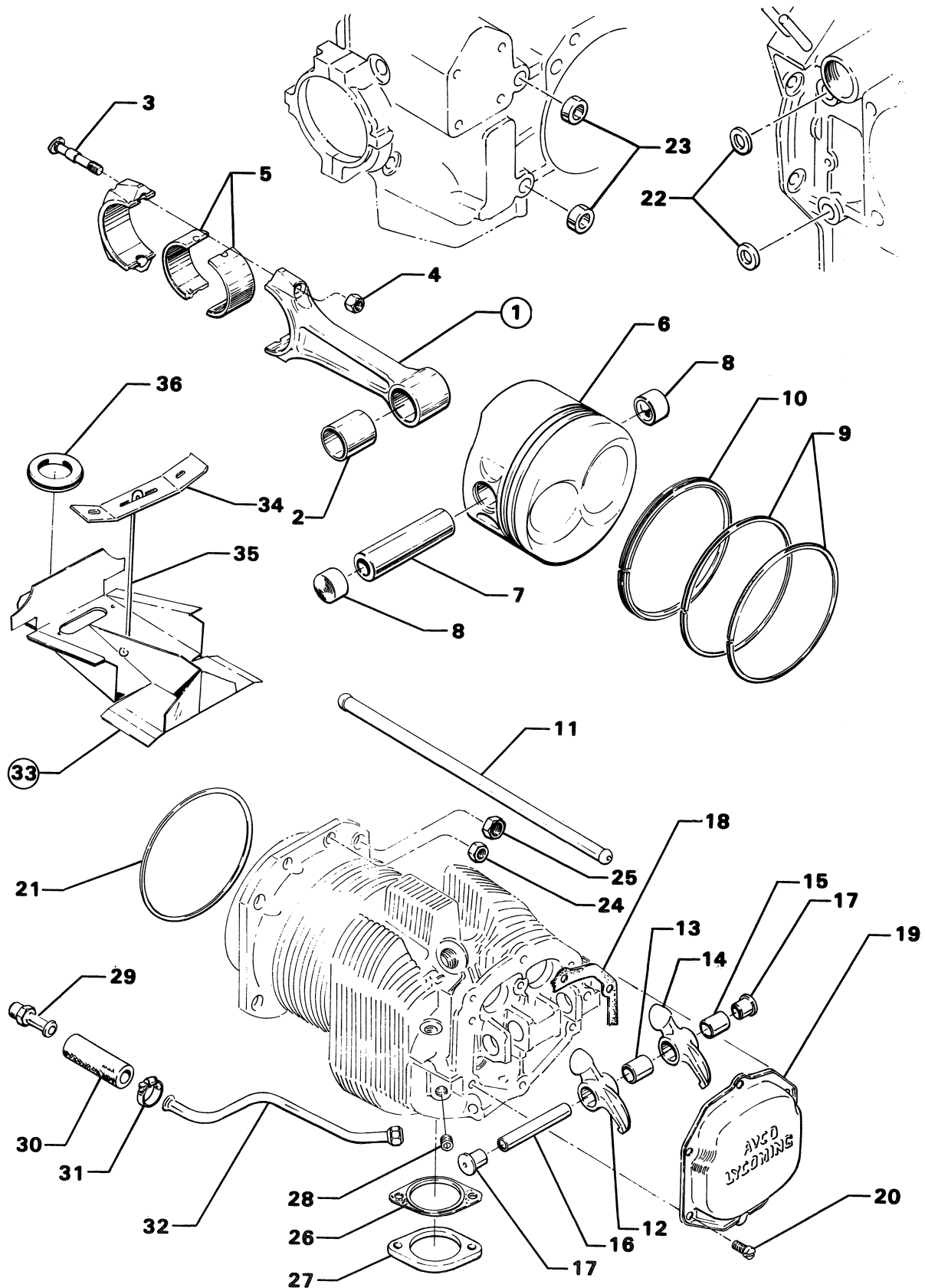


Figure 7. Connecting Rod, Piston, Rocker and Intercylinder Baffle Assemblies

IGNITION SYSTEM
MAGNETO DRIVES AND MAGNETOS

FIG. REF. 8	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-13642	GEAR, Retainer, magneto drive	1
2	LW-13641	CUSHION, Magneto drive	2
3	LW-12681	GASKET, Magneto	1
4	LW-685126-105	MAGNETO, Ignition system (D6LN-3031)	1
	LW-682560-11	MAGNETO, Ignition	1
	LW-684602-303	HARNESS, Ignition	1
5	75965	CLAMP, Magneto	2
6	STD-475	WASHER, 5/16 lock, internal teeth	2
7	STD-1410	NUT, 5/16-18 plain	2
8	LW-620026-2	CLIP, One wire for 1/4 screw (bottom leads)	4
9	LW-620026-2	CLIP, One wire (top leads)	2
10	STD-8	WASHER, 1/4 plain	14
11	LW-620028-2	CLIP, Two wire for 1/4 screw (bottom leads)	1
12	LW-620028-3	CLIP, Two wire for 1/4 screw (top leads)	2
13	LW-620029-6	CLIP, Three wire for #10-32 screw (bottom leads)	1
14	LW-620029-6	CLAMP, Three wire (bottom leads)	2
15	LW-620037-4	CLIP, Six wire for #10-32 screw	1
16	LW-620036-4	CLIP, Six wire for #10-32 screw	1
17	LW-620032-7	CLAMP, Ignition harness	1
18	LW-14875	BRACKET, Extension	1
19	STD-692	SCREW, #10-32	2
20	STD-670	NUT, Self-locking	2
21	LW-16266-10-75	CLAMP	1
22	76734	ZIP STRAP	26
23	STD-696	WASHER, 1/4 plain (thin)	un
24	STD-1874	SCREW, 1/4-20 x 13/16 long	7
25	STD-1925	SCREW, 1/4-20 self-locking	2
26	STD-2029	BOLT, 1/4-20 x 1-1/8 long, hex. hd.	2
27	10-720631-48	REPLACEMENT LEAD, Bendix harness, 48'', (4T,6T,4B,6B)	un
	10-720631-78	REPLACEMENT LEAD, Bendix harness, 78'', (1T,2T,3T,5T,1B,2B,3B,5B)	un
28	LW-382698	KIT, Magneto ground terminal	2
29	1182-D4	SPARK PLUG, Champion (RHM38E)	12

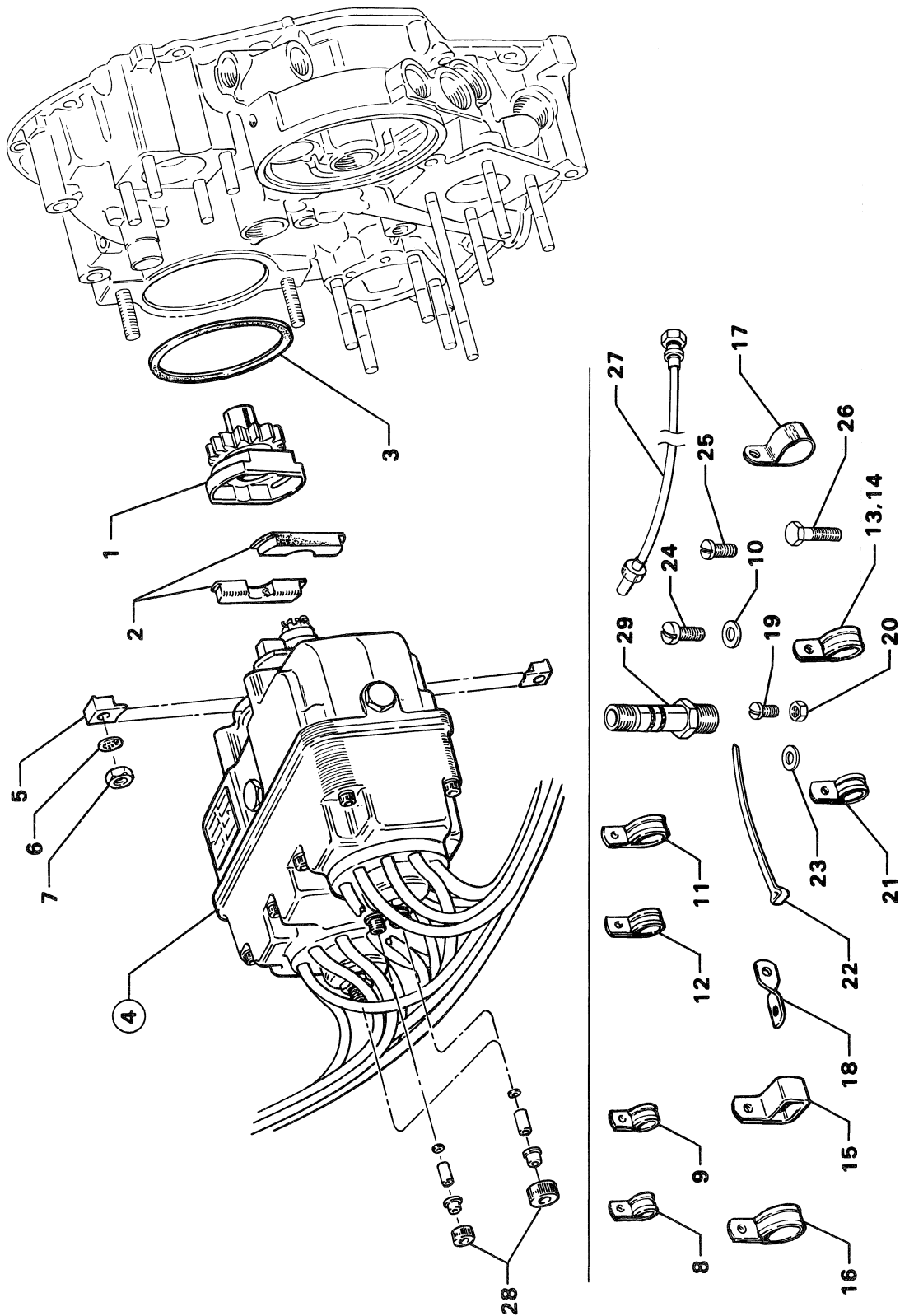


Figure 8. Magneto Drives and Magnetos

ELECTRICAL SYSTEM
STARTER, ALTERNATOR AND ATTACHING PARTS

FIG. REF. 9	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-13039	BRACKET, Alternator	1
2	73383	LOCKPLATE, 5/16 bolt x 1.00 spacing	1
3	STD-1838	BOLT, 5/16-18 x 15/16 long, hex. hd.	2
4	75380	LINK, Alternator adjusting	1
5	STD-35	WASHER, 5/16 plain	1
6	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd. dr.	1
7	STD-1727	WASHER, Plain 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
8	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd. dr.	1
9	74323	STRUT, Alternator support	1
10	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd. dr.	1
11	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	1
12	AN6-14	BOLT, 3/8-24 x 1-37/64 long, hex. hd., drilled end	1
13	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	un
14	STD-872	NUT, 3/8-24 slotted	1
15	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long	1
16	AN6-16	BOLT, 3/8-24 x 1-53/64 long, hex. hd., drilled end	1
17	76534	SHIM, 1-1/8 O.D. x 13/32 x 1/64 thick	un
18	STD-690	WASHER, 13/16 O.D. x 25/64 x 1/16 thick	un
19	STD-82	NUT, 3/8-24 slotted	1
20	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long	1
21	LW-12840	ALTERNATOR ASSY., 12V-70A (3.25:1 ratio) (internally grounded)	1
22	76026	BELT, Alternator drive (3/8 wide)	1
23	LW-15571	STARTER, 12 volt (3.38:1 internal reduction) 12/14 pinion (MZ-422)	1
24	STD-35	WASHER, 5/16 plain	4
25	STD-475	WASHER, 5/16 lock, internal teeth	4
26	STD-2156	BOLT, 5/16-18 x 1-5/32 long, hex. hd.	1
27	STD-1410	NUT, 5/16-18 plain	3
28	LW-12083	SWITCH, Magnetic, 12 volt (SAZ-4201E-1)	1

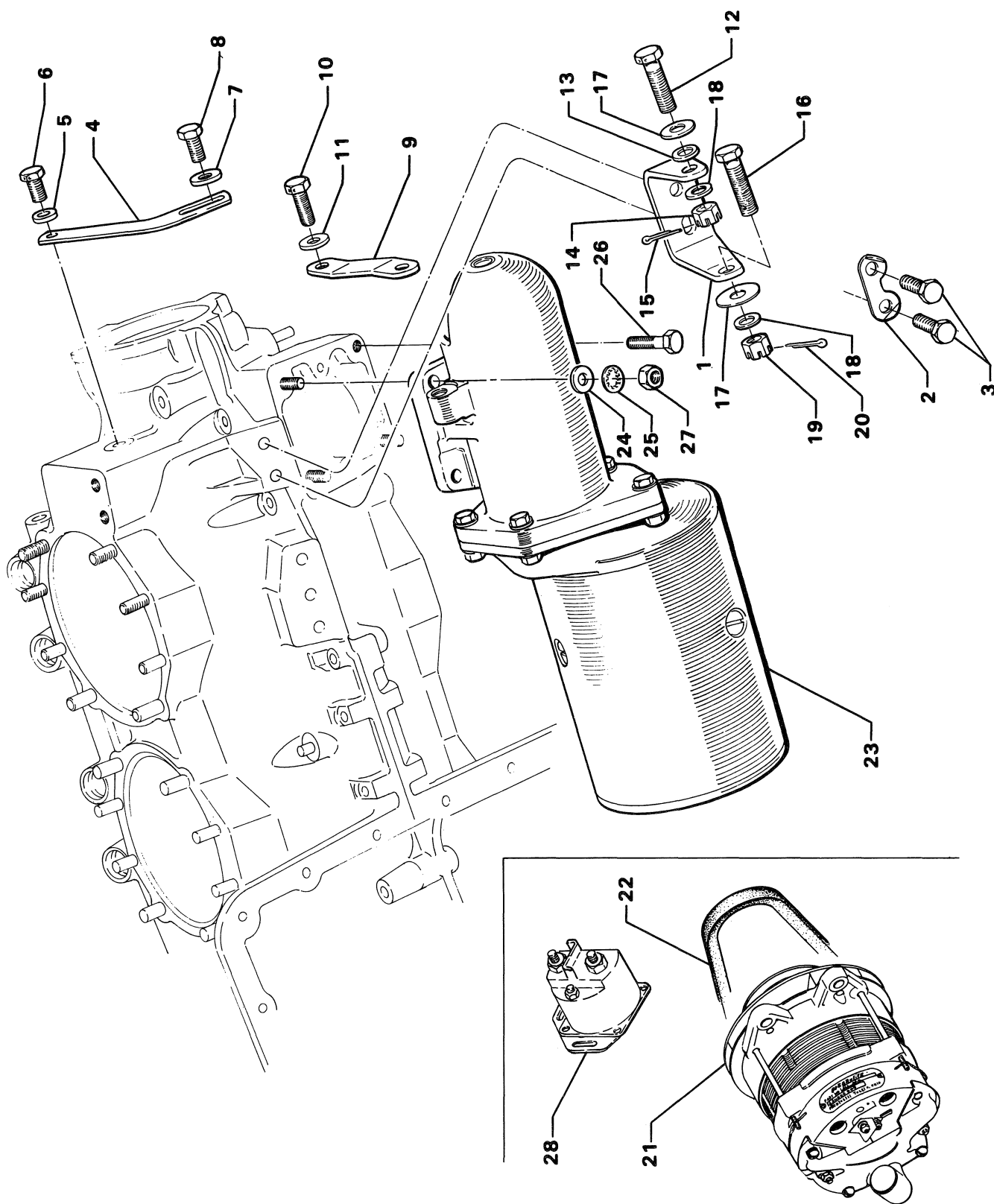


Figure 9. Starter, Alternator and Attaching Parts

OIL SUMP AND INDUCTION SYSTEM

OIL SUMP ASSEMBLY, INTAKE PIPES AND ATTACHING PARTS

FIG. REF. 10	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-13306	GASKET, Oil sump	1
2	72056	SUMP ASSY., Oil	1
3	71699	CONNECTION, Intake pipe	6
4	25C-11	STUD, 1/4-20 x 1-3/8 long	14
5	31C-15	STUD, 5/16-18 x 1-7/8 long	4
6	38-15	STUD, 3/8-16 x 1-7/8 long	8
7	STD-1173	INSERT, 1/4-20 Heli-coil x 1/2 long	4
8	STD-8	WASHER, 1/4 plain	34
9	STD-160	WASHER, 1/4 lock, internal teeth	27
10	STD-1419	BOLT, 1/4-20 x 1-1/8 long, hex. hd.	7
11	STD-1688	BOLT, 1/4-20 x 1.00 long, hex. hd.	6
12	STD-1411	NUT, 1/4-20 plain	21
13	STD-551	PLUG, 1/2-14 NPT, sq. head, drilled	2
14	70484	SCREEN, Oil suction	1
15	STD-111	GASKET, 1.00 I.D. x 1-1/4 O.D. x 3/32 annular	1
16	LW-12545	PLUG, 5/8 hex. hd. x 1.00-20 thd.	1
17	61548	PLATE, Name	1
18	STD-1901	DRIVE STUD, No. 4 x 3/16 long, round hd.	4
19	70485	PIPE, Intake	6
20	69603	HOSE, 1-3/4 I.D. x 2-3/16 O.D. x 1-3/4	6
21	LW-15592-8-28	CLAMP, Hose	12
22	71973	GASKET, 2-bolt flange, 1-7/8 I.D.	6
23	72346	FLANGE, Intake pipe (upper)	6
24	STD-8	WASHER, 1/4 plain	12
25	STD-160	WASHER, 1/4 lock, internal teeth	12
26	STD-1215	Bolt, 1/4-20 x 1-1/4 long, hex. hd.	12

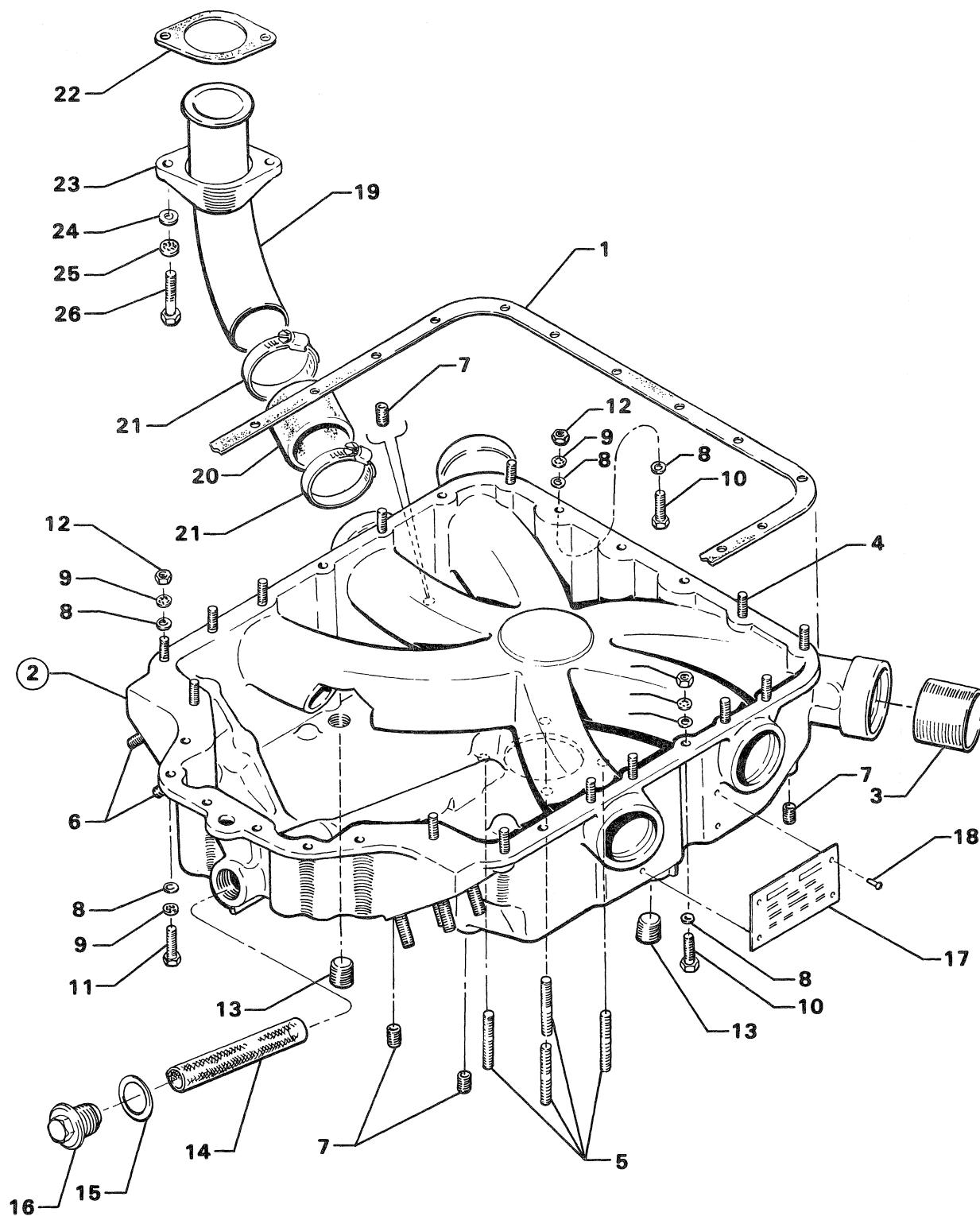


Figure 10. Oil Sump Assembly, Intake Pipes and Attaching Parts

OIL SUMP AND INDUCTION SYSTEM
FUEL INJECTOR, MANIFOLD, LINES, HOSES AND ATTACHING PARTS

FIG. REF. 11	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	66224	GASKET, Fuel injector	1
2	73937	FUEL INJECTOR, (Bendix), 2524054-9	1
3	STD-35	WASHER, 5/16 plain	4
4	STD-1410	NUT, 5/16-18 plain	4
5	STD-1763	LOCKNUT, 5/16 Palnut	4
6	LW-18265	NOZZLE, Injection (2524864)	6
7	75283	MANIFOLD ASSY., Fuel	1
8	MS20823-4	ELBOW, 1/4 tube 1/8 NPT, 45°	1
9	STD-148	NIPPLE, Union 1/8 NPT	6
10	LW-12604	NIPPLE, 1/8 tube to 1/8 NPT (restricted)	1
11	73966	SPACER, Fuel manifold bracket	2
12	73965	BRACKET, Fuel manifold	2
13	STD-251	WASHER, No. 10 lock, internal teeth	4
14	STD-82	SCREW, No. 10-24 x 1/2 long, hd. dr.	4
15	LW-12098-0-200	TUBE ASSY., Fuel manifold to nozzle cyls. 1, 2, 5, 6	4
16	LW-12098-0-170	TUBE ASSY., Fuel manifold to nozzle cyls. 3, 4	2
17	LW-16266-10-75	CLAMP	12
18	LW-16266-10-13	CLAMP	12
19	STD-860	SCREW, No. 10-32 x 5/8 long, fill. hd.	14
20	STD-425	WASHER, No. 10 plain	2
21	STD-670	NUT, No. 10-32 self-locking	14
22	73136	BRACKET, 90°	2
23	LW-12798-4S-274	HOSE ASSY., Fuel injector to fuel manifold	1
24	74278	BRACKET ASSY., Fuel line support	1
25	STD-1891	CLINCH NUT, No. 10-32 self-locking	2
26	LW-16266-25-63	CLAMP	1
27	STD-860	SCREW, No. 10-32 x 5/8 long, fill. hd.	1
28	STD-692	SCREW, No. 10-32 x 1/2 long, round hd.	2
29	STD-425	WASHER, No. 10 plain	3
30	STD-670	NUT, No. 10-32 self-locking	1
31	LW-12799-6S-254	HOSE, Fuel pump to injector	1
32	74070	ELBOW, 3/8 tubing, adjustable 45°	1

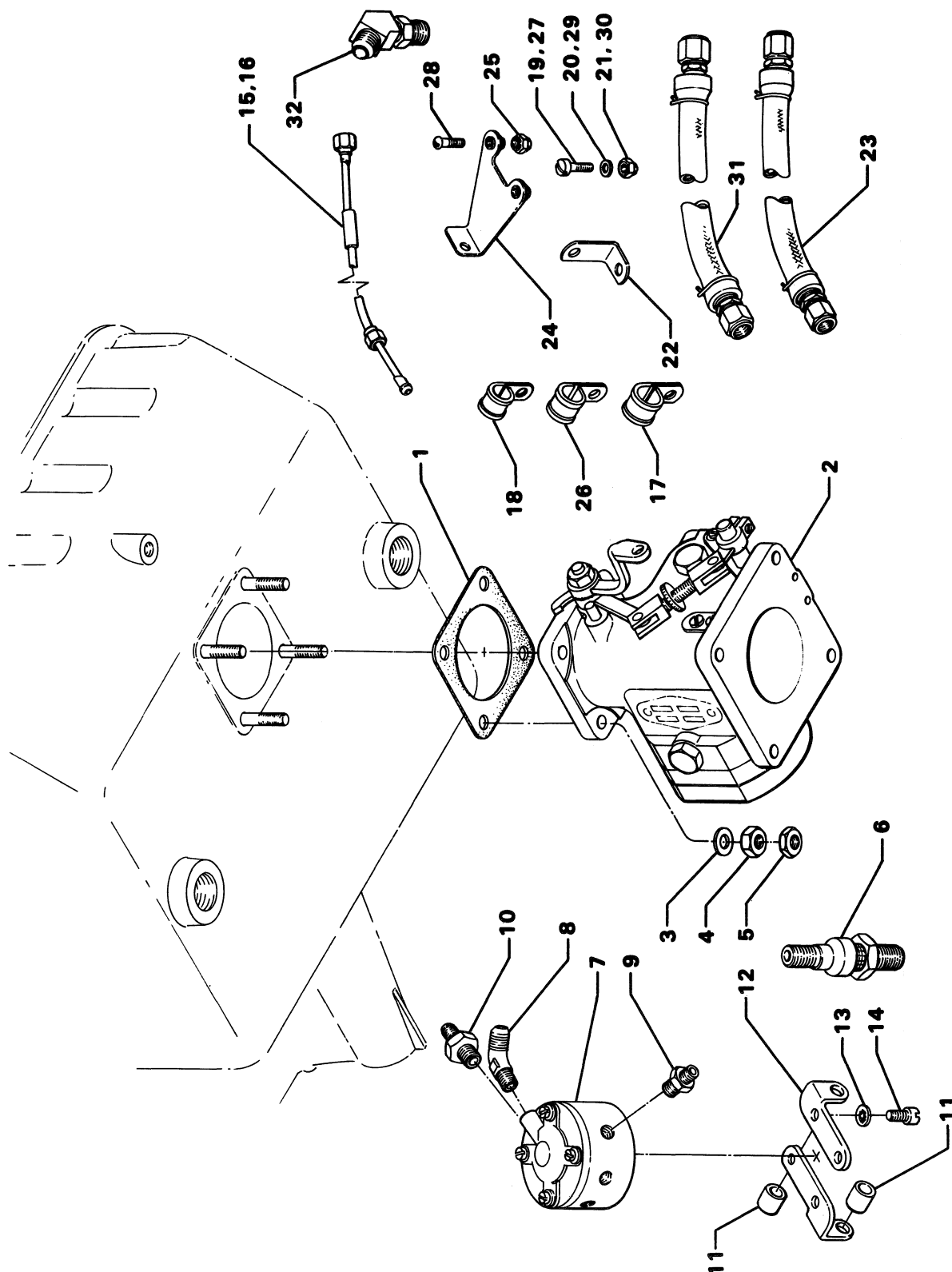


Figure 11. Fuel Injector, Manifold, Lines, Hoses, and Attaching Parts

SERVICE KIT SECTION**SEAL AND GASKET SET**
IO-540-C4D5D (Parallel Head) Wide Cylinder Flange Model

Part No.	Part Name	Qty.
LW-13377	SEAL AND GASKET SET	1
MS29512-6	SEAL, Oil	1
MS29512-10	SEAL, Oil	3
MS16625-1081	RING, Internal ret.	1
STD-111	GASKET, Oil suction screen	1
STD-1045	GASKET, Oil press. relief valve	1
8313	GASKET, Vac. & hyd. pump	3
60096	GASKET, Fuel pump	1
LW-14260	SEAL, Tach. dr.	1
LW-18661	SEAL, Shroud tube	12
66224	GASKET, Fuel inj.	1
70310	SEAL, Shroud tube	12
70455	GASKET, Prop. dr. gear plug	1
70457	GASKET, Oil filler ext.	1
71481	RING, Cyl. base seal	6
LW-14820	RING, Internal ret.	8
71973	GASKET, Int. pipe flange	6
72053	GASKET, Governor	1
72091	RING, Oil seal	2
72312	RING, Oil seal oil level gage	1
73383	LOCKPLATE, Alt. bracket	1
73818	GASKET, Acc. hsg.	1
75118	GASKET, Exh. flange	12
75906	GASKET, Rocker box cover	6
LW-15628	SEAL, Crankshaft oil	1
LW-10332	LOCKPLATE, Crankshaft gear	1
LW-13792	SEAL, Crankshaft	1
LW-12681	GASKET, Magneto	1
LW-12272	LOCKPLATE, Shroud tube	6
LW-13306	GASKET, Oil sump	1
LW-14995	SPRING, Shroud tube	6
STD-208	SEAL, Oil	1
71193	BOX, Set-up	1
72220	GASKET	1
77154	GASKET	1
STD-294	GASKET	1
65321	GASKET	6
STD-1733	"O" RING	1
MS-9068-009	RING, Oil seal	1
72059	GASKET	1

SERVICE KIT SECTION**CYLINDER, PISTON AND RING KIT**
IO-540-C4D5D Wide Cylinder Flange Models

Part No.	Part Name	Qty.
76296	CYLINDER, PISTON AND RING KIT	1
MS-13997-3	KEY, Valve exhaust	2
MS-13998-3	CAP, Valve stem, exhaust	1
STD-1215	BOLT	2
STD-1411	NUT, Plain, 1/4-20	1
STD-1925	SCREW	6
60009	KEY, Valve, intake	2
60828	PLUG, Piston pin	2
61247	COVER, Rocker box	1
LW-18661	SEAL, Shroud tube	2
65441	SEAT, Valve spring, lower (intake)	1
69444	ROCKER ASSY., Valve, intake	1
70310	SEAL, Shroud tube	2
71195	BOX, Set-up	1
71481	SEAL, Cylinder base	1
72198	PLUG, Piston	2
73857 or LW-12328	RING, Piston, oil reg.	1
73938	VALVE, Intake	1
74241	RING, Piston, compression	2
74541	VALVE, Exhaust	1
74636	ROCKER ASSY., Exhaust	1
75089	PISTON	1
75906	GASKET, Rocker box cover	1
LW-10077	SEAT, Valve spring upper (intake)	1
LW-11775	PLUG, Piston pin (aluminum)	2
LW-11795	SPRING, Valve inner	2
LW-11800	SPRING, Valve outer	2
LW-12272	LOCKPLATE, Shroud tube	1
LW-12427	CYLINDER ASSY., Nitrided	1
LW-12892	THRUST BUTTON	2
LW-13323	SEAT, Valve spring lower (exhaust)	1
LW-13790	SHAFT, Valve rocker	1
LW-14077	PIN, Piston	1
LW-14995	SPRING, Shroud tube	1
LW-16475	SEAT, Valve spring upper (exhaust)	1
SSP-672	TAG	1
SSP-2472	TAG	1

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PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
AN6-14	Bolt	5-1	LW-13790	Shaft	3-3
AN6-16	Bolt	5-1	LW-13792	Seal	1-1
AN6-34A	Bolt	1-5	LW-13847	Crankcase Assy.	1-1
AN8-14A	Bolt	1-3	LW-13884	Bearing	1-1
AN565B1032H5	Set Screw	1-5	LW-13896	Plug	1-5
AN814-10L	Plug	2-1	LW-13904	Kit	2-3
AN931-12S17	Grommet	3-3	LW-13906	Filter Assy.	2-3
LW-31H.75	Bolt	5-1	LW-13923	Bushing	3-3
LW-10077	Seal	3-1	LW-14021	Shaft	1-5
LW-10284	Gear	1-3	LW-14078	Pin	3-3
LW-10290	Gear Assy.	1-3	LW-14260	Seal	2-3
LW-10297	Gear Assy.	1-3	LW-14316	Alternator	5-1
LW-10299	Shaft	1-3	LW-14771	Gage	1-1
LW-10300	Shaft	1-3	LW-14774	Gage	1-1
LW-10303	Plug	2-1	LW-14820	Ring	1-3
LW-10307	Gear	2-1	LW-14828	Reducer	2-1
LW-10318	Gear	2-3	LW-14875	Bracket	4-1
LW-10321	Spring	2-3	LW-14995	Spring	3-1
LW-10325	Spacer	1-3	LW-15473	Fuel Pump	2-1
LW-10332	Lockplate	1-3	LW-15571	Starter	5-1
LW-10341	Insert	2-1	LW-15592-5-05	Clamp	3-3
LW-10344	Oil Pump	2-3	LW-15592-8-28	Clamp	6-1
LW-10442	Gear	1-5	LW-15895	Regulator	5-1
LW-10541	Gear Assy.	1-5	LW-16266-10-13	Clamp	6-3
LW-10647	Dowel	1-1	LW-16266-10-75	Clamp	4-1
LW-10908	Housing	2-1	LW-16266-10-75	Clamp	6-3
LW-11021	Bearing	1-1	LW-16266-25-63	Clamp	6-3
LW-11485	Tube	3-1	LW-16475	Seat	3-1
LW-11750	Rod	3-3	LW-17651	Crankshaft	1-3
LW-11795	Spring	3-1	LW-17680	Crankshaft	1-3
LW-11800	Spring	3-1	LW-18265	Nozzle	6-3
LW-12083	Switch	5-1	LW-382698	Kit	4-1
LW-12098-0-170	Tube	6-3	LW-620026-2	Clip	4-1
LW-12098-0-200	Tube	6-3	LW-620028-2	Clip	4-1
LW-12186	Nut	3-3	LW-620028-3	Clip	4-1
LW-12272	Lockplate	3-1	LW-620029-6	Clamp	4-1
LW-12427	Cylinder	3-1	LW-620032-7	Clamp	4-1
LW-12545	Plug	6-1	LW-620036-4	Clip	4-1
LW-12589	Insert	2-1	LW-620037-4	Clip	4-1
LW-12604	Nipple	6-3	LW-682560-11	Magneto	4-1
LW-12681	Gasket	4-1	LW-684602-303	Harness	4-1
LW-12798-4S-274	Hose	6-3	LW-685126-105	Magneto	4-1
LW-12799-6S-254	Hose	6-3	MS-13997-3	Key	3-1
LW-12892	Thrust	3-3	MS-13998-3	Cap	3-1
LW-13039	Bracket	5-1	MS-16625-1081	Ring	1-3
LW-13306	Gasket	6-1	MS16625-1100	Ring	2-3
LW-13323	Seat	3-1	MS20823-4	Elbow	6-3
LW-13521	Bearing	3-3	MS20823-6D	Elbow	3-1
LW-13641	Cushion	4-1	MS29512-10	Seal	2-1
LW-13642	Gear Retainer	4-1	MS29512-10	Seal	2-1

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PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
MS-124703	Insert	2-1	STD-872	Nut	5-1
STD-8	Washer	1-5	STD-1045	Gasket	1-1
STD-8	Washer	2-1	STD-1173	Insert	6-1
STD-8	Washer	2-3	STD-1204	Bolt	2-3
STD-8	Washer	4-1	STD-1211	Plug	1-3
STD-8	Washer	6-1	STD-1215	Bolt	2-3
STD-19	Dowel	1-5	STD-1215	Bolt	6-1
STD-33	Washer	1-1	STD-1339	Plug	2-3
STD-33	Washer	1-5	STD-1409	Nut	1-5
STD-33	Washer	2-1	STD-1410	Nut	1-5
STD-33	Washer	1-5	STD-1410	Nut	4-1
STD-35	Washer	1-5	STD-1410	Nut	5-1
STD-35	Washer	2-3	STD-1410	Nut	6-3
STD-35	Washer	5-1	STD-1411	Nut	1-5
STD-35	Washer	6-3	STD-1411	Nut	2-1
STD-82	Nut	5-1	STD-1411	Nut	3-1
STD-82	Screw	6-3	STD-1411	Nut	6-1
STD-111	Gasket	6-1	STD-1414	Bolt	1-5
STD-148	Nipple	6-3	STD-1416	Bolt	1-5
STD-160	Washer	1-5	STD-1419	Bolt	1-5
STD-160	Washer	2-1	STD-1419	Bolt	6-1
STD-160	Washer	2-3	STD-1420	Nut	2-3
STD-160	Washer	6-1	STD-1646	Bolt	1-5
STD-208	Oil Seal	2-1	STD-1688	Bolt	6-1
STD-251	Washer	6-3	STD-1727	Washer	5-1
STD-294	Gasket	2-1	STD-1763	Locknut	6-3
STD-425	Washer	1-1	STD-1821	Hose	3-3
STD-425	Washer	6-3	STD-1838	Bolt	5-1
STD-475	Washer	1-5	STD-1872	Insert	3-1
STD-475	Washer	4-1	STD-1874	Screw	4-1
STD-475	Washer	5-1	STD-1875	Bolt	2-3
STD-514	Dowel	1-1	STD-1882	Screw	2-1
STD-551	Plug	6-1	STD-1891	Nut	6-3
STD-557	Dowel	1-1	STD-1901	Stud	6-1
STD-596	Nut	1-1	STD-1925	Screw	3-3
STD-596	Nut	1-5	STD-1931	Bolt	1-5
STD-670	Nut	4-1	STD-2029	Bolt	4-1
STD-670	Nut	6-3	STD-2078	Dowel	1-3
STD-678	Washer	1-1	STD-2084	Bolt	1-5
STD-678	Washer	1-5	STD-2090	Nut	3-3
STD-684	Nipple	3-3	STD-2156	Bolt	5-1
STD-690	Washer	5-1	10-720631-48	Lead	4-1
STD-692	Screw	4-1	10-720631-78	Lead	4-1
STD-692	Screw	6-3	25C-9	Stud	3-1
STD-696	Washer	4-1	25C-11	Stud	6-1
STD-713	Pin	5-1	25C-12	Stud	2-1
STD-714	Pin	2-3	31C-12	Stud	3-1
STD-798	Dowel	1-5	31C-12	Stud	3-3
STD-860	Screw	6-3	31C-13	Stud	1-1
STD-872	Nut	1-5	31C-13	Stud	2-1

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31C-15	Stud	6-1	71610	Hook	3-3
31C-16	Stud	1-1	71611	Retainer	3-3
31CD-20	Stud	2-1	71640	Plug	1-3
38-15	Stud	6-1	71651	Fitting	2-1
38-16	Stud	1-1	71699	Pipe	6-1
38-22	Stud	1-1	71737	Tube	3-3
38D-17	Stud	1-1	71903	Bushing	1-3
50-15	Stud	1-1	71907	Washer	1-3
383-B	Nut	3-3	71973	Gasket	6-1
1028-B	Ball	1-1	72053	Gasket	1-5
1102	Plug	1-1	72056	Sump	6-1
1102	Plug	2-1	72057	Seat	3-1
1102	Plug	3-3	72058	Seat	3-1
1182-D4	Spark Plug	4-1	72060	Bushing	1-3
1540	Plug	2-1	72061	Bushing	1-3
8313	Gasket	2-1	72062	Bushing	1-3
60009	Key	3-1	72091	Ring, Oil seal	1-1
60096	Gasket	2-1	72158	Bushing	1-1
60329	Shaft	2-3	72220	Gasket	1-1
60398	Bushing	3-3	72306	Bracket	1-1
60430	Cover	2-1	72378	Cover	1-5
60803	Strap	1-5	72566	Gear	1-3
60828	Plug	3-3	72797	Roller	1-3
61084	Spring	1-1	72801	Counterweight Assy.	1-3
61247	Cover	3-3	72877	Body, Hyd. tappet	1-1
61260	Flange	3-3	72965	Roller	1-3
61297	Impeller	2-3	73136	Bracket	6-3
61298	Impeller	2-3	73249	Washer	1-5
61544	Plunger	1-3	73250	Washer	1-5
61548	Plate	6-1	73251	Washer	1-5
61681	Guide	3-1	73252	Washer	1-5
62922	Seal	3-1	73346	Flange	6-1
65007	Retainer	1-1	73383	Lockplate	5-1
65321	Gasket	3-3	73434	Rod	3-3
65441	Seat	3-1	73435	Rod	3-3
66224	Gasket	6-3	73436	Rod	3-3
66610	Bushing	3-1	73437	Rod	3-3
66796	Insert	3-1	73810	Bushing	1-3
68759	Tube	3-3	73818	Gasket	2-1
68761	Tube	3-3	73857	Ring	3-3
69444	Rocker	3-3	73937	Fuel injector	6-3
69603	Hose	6-1	73938	Valve	3-1
69796	Dowel	1-1	73965	Bracket	6-3
70310	Seal	3-1	73966	Spacer	6-3
70455	Gasket	1-5	73975	Baffle	3-3
70457	Gasket	1-1	74070	Elbow	6-3
70484	Screen	6-1	74230	Guide	3-1
70485	Pipe	6-1	74241	Ring	3-3
71481	Ring	3-3	74278	Bracket	6-3
71596	Washer	2-1	74323	Strut	5-1

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74541	Valve	3-1	76118	Spacer	1-3
74636	Rocker	3-3	76148	Camshaft	1-3
74637	Bushing	3-3	76155	Shaft Assy.	1-3
74887	Spacer	3-3	76220	Stud	1-5
75061	Bolt	3-3	76529	Plug	1-1
75089	Piston	3-3	76534	Shim	5-1
75283	Manifold	6-3	76539	Seat	2-3
75339	Baffle	3-3	76734	Zip Strap	4-1
75380	Link	5-1	77579	Support Assy.	1-3
75675	Extension	1-1	77872	Bushing	1-5
75761	Extension	1-1	77906	Spacer	3-3
75906	Gasket	3-3	78059	Relay	5-1
75944	Valve	2-3	78290	Plunger	3-1
75965	Clamp	4-1	78368	Pin	1-3
76026	Belt	5-1	78524	Socket	3-1