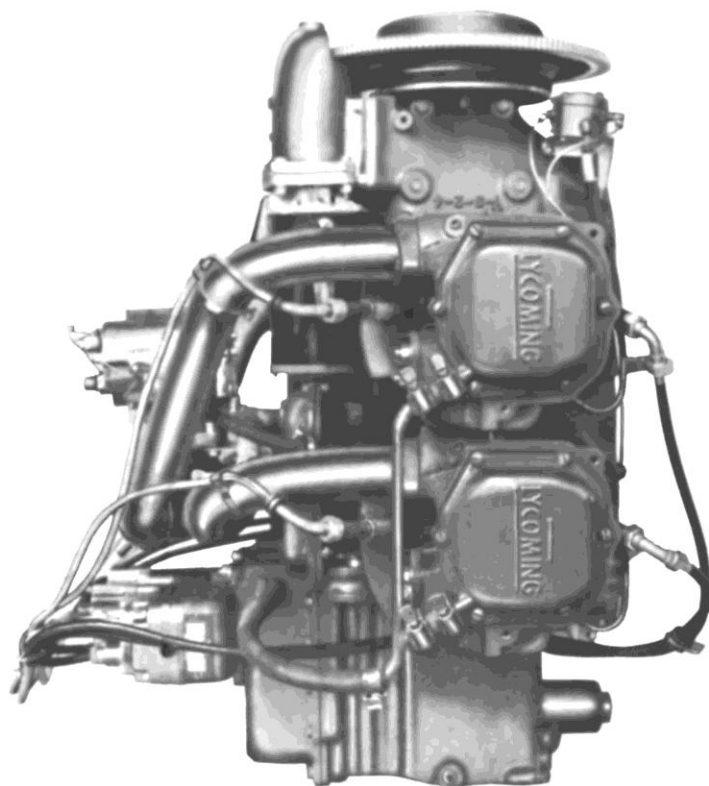


LYCOMING



Engine Parts Catalog

IVO-360-A1A Series

Wide Cylinder Flange Crankcase

LYCOMING

August 2010

INTRODUCTION

This illustrated parts catalog contains a complete part listing for the Lycoming IVO-360-A1A wide cylinder flange crankcase vertical engines.

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

A Service Kits section and an 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 Lycoming engines may be found in the appropriate Vendor's Parts Catalog. A list of addresses of where to obtain these publications appears in the latest revision of Service Letter No. L114.

NOTE

This catalog, when used in conjunction with the appropriate overhaul manual, is only to be used for parts identification.

Do not use this catalog as an assembly or installation document.

Any reference in this document to the suppliers/parts manufacturer's product, by name, trademark, part number or other description is solely for the purposes of identification and does not indicate or infer that Lycoming accepts responsibility for quality control and/or airworthiness of parts which do not pass through the Lycoming quality control system.

SERVICE BULLETINS, INSTRUCTIONS AND LETTERS

Although the information contained in this parts catalog is up-to-date at time of publication, users are advised to procure current information through all Lycoming distributors or from the factory by subscription. Consult the latest revision of Service Letter No. L114 for subscription information.

HOW TO ORDER PARTS

In ordering parts for your engine, observe the following instructions which will expedite shipment of correct parts required without delay.

- a. Always specify the model and serial number of your engine.
- b. Always specify part number, nomenclature and quantity required.

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TABLE OF CONTENTS

SECTION	PAGE
Introduction.....	i
Table of Contents.....	ii
Oversize and Undersize Parts	iii
1. CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP	
Crankcase Assembly	1-1
Oil Level Gage Assembly and Crankcase Related Parts	1-3
Crankshaft Assembly and Related Parts	1-5
Crankshaft Idler Gears, Tachometer Drive and Camshaft.....	1-7
Crankcase Attaching Parts	1-9
2. ACCESSORY HOUSING AND RELATED PARTS	
Accessory Housing Assembly	2-1
Oil Pump Assembly and Accessory Housing Attaching Parts	2-3
Fuel Pump Drive Cover and Vacuum Pump Drive and Cover	2-5
Oil Pressure Screen and Oil Cooler Bypass Valve	2-7
3. CYLINDER, PISTON AND VALVE TRAIN	
Connecting Rods, Pistons and Ring Assemblies	3-1
Cylinder Assembly.....	3-3
Cylinder Related Parts	3-5
Valve Assembly	3-7
4. IGNITION SYSTEM	
Magnetos, Magneto Drives, Harnesses and Spark Plugs.....	4-1
5. ELECTRICAL SYSTEM	
Starter and Attaching Parts	5-1
Alternator Assembly and Belt.....	5-2
Alternator Mounting and Attaching Parts.....	5-3
6. INDUCTION SYSTEM	
Magneto Case Assembly, Oil Separator and Oil Suction Screen	6-1
Intake Pipes and Attaching Parts	6-3
Fuel Injector, Fuel Manifold and Injection Nozzles	6-5
Fuel Lines and Attaching Parts	6-7
7. SERVICE KIT SECTION	7-1
8. NUMERICAL INDEX.....	8-1

OVERSIZE AND UNDERSIZE PARTS LISTING

PART NO.	DESCRIPTION	OVERSIZE (IN.)								UNDERSIZE (IN.)		
		P02 .002	P05 .005	P10 .010	P15 .015	P20 .020	P30 .030	P40 .040	P50 .050	M03 .003	M06 .006	M10 .010
76943	GUIDE	See latest revision of Service Instruction No. 1256.										
66610	BUSHING		X	X								
69260*	INSERT		X	X								
69796	DOWEL		X									
72057	SEAT		X	X		X	X					
72058	SEAT		X	X		X	X					
72155-S	BUSHING		X	X	X	X						
74241	RING		X									
75656-S	BUSHING		X	X	X	X						
75657-S	BUSHING		X	X	X	X						
LW-13792	SEAL	See latest revision of Service Instruction No. 1324.										
STD-1065	DOWEL	X	X	X	X							
14H21950	RING			X		X						
LW-15680	GUIDE	See latest revision of Service Instruction No. 1256.										
18M26104	BEARING									X*	X*	X*
18A26093	BEARING									X	X	X
18D26096	BEARING									X	X	X

* - Also available in P03 oversize.

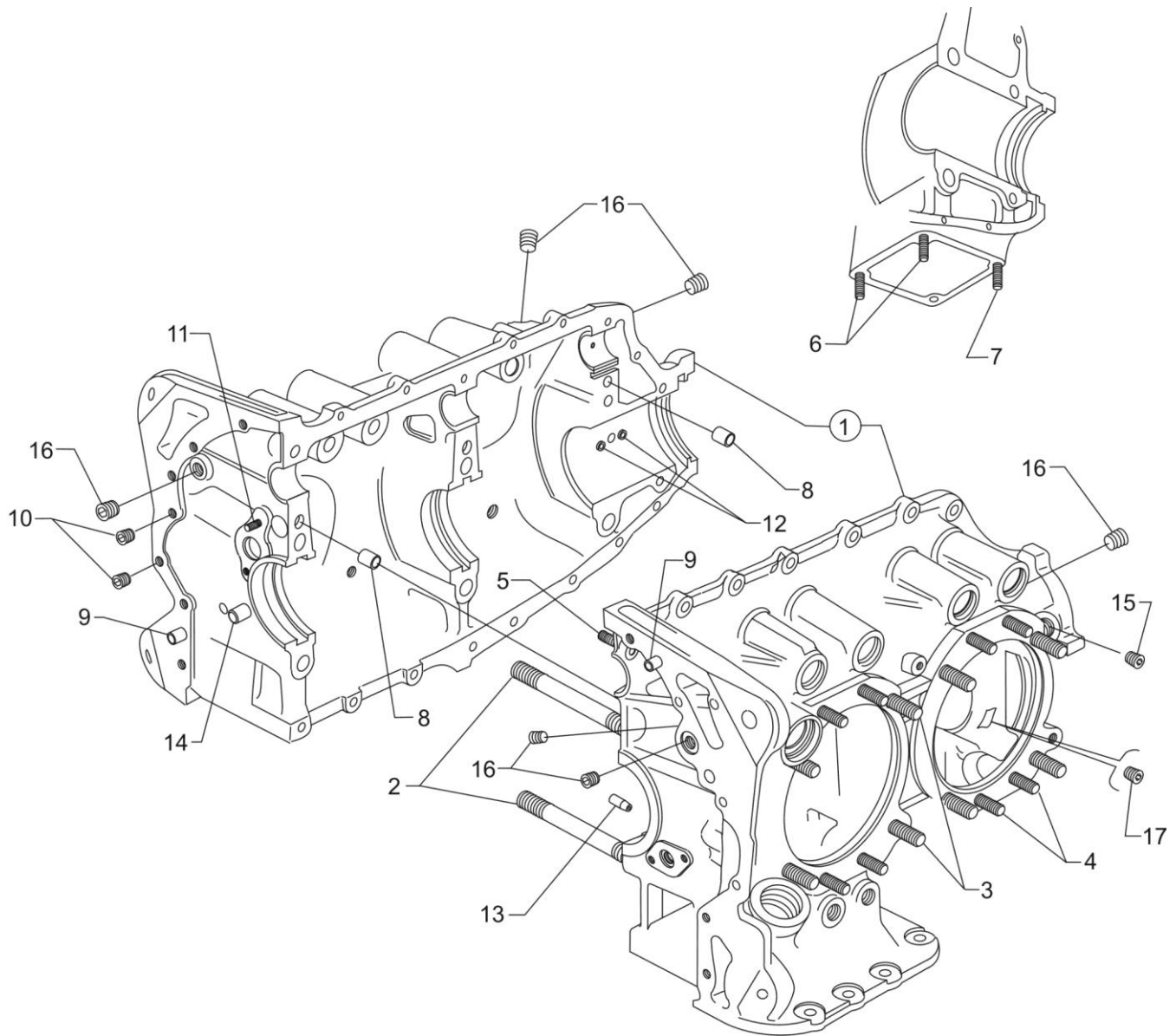
In addition to the above, studs are available in P03, P07 & P12.

NOTE

When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension with the proper part number. For example, to order bearing P/N 18A26093 in .003 undersize, order P/N 18A26093-M03. 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

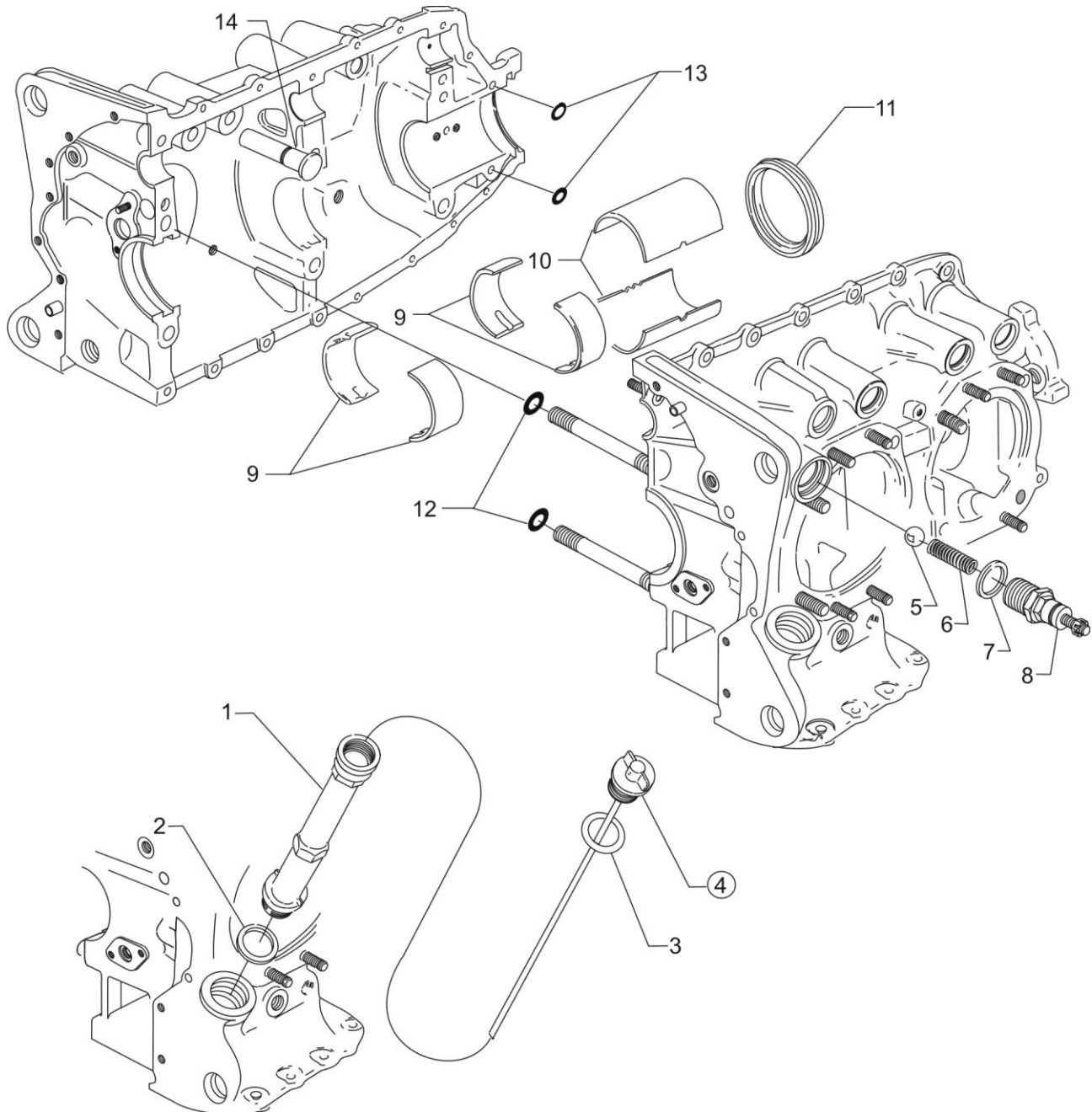
FIG. REF. 1	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-14521-1	CRANKCASE ASSEMBLY	1
2	75154	STUD, 1/2-13 x 10-1/32 long	2
3	50-15	STUD, 1/2-13 x 1-7/8 long	8
4	38-13	STUD, 3/8-16 x 1-5/8 long	16
5	38D-17	STUD, 3/8-16 x 2-1/8 long, drilled	1
6	31C-12	STUD, 5/16-18 x 1-1/2 long	2
7	31C-13	STUD, 5/16-18 x 1-5/8 long	1
8	STD-557	DOWEL, 1/2 diameter x 11/16 long, hollow	2
9	STD-514	DOWEL, 5/16 diameter x 1/2 long	2
10	STD-1623	INSERT, 1/4-20 UNC x 3/8 long	2
11	LW-13793	STUD, 5/16-18 x 15/16 long, drilled	1
12	69796	DOWEL, Crankshaft bearing	2
13	LW-10647	DOWEL, Crankshaft bearing	4
14	66145	DOWEL, 1/4 diameter x 1/2 long	3
15	STD-783	PLUG, 1/4-18 NPT, Allen head	2
16	1102	PLUG, 1/8-27 NPT, Allen head	6
17	73772	NOZZLE ASSEMBLY, Piston cooling	4

**FIGURE 1. CRANKCASE ASSEMBLY**

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
OIL LEVEL GAGE ASSEMBLY AND CRANKCASE RELATED PARTS

FIG. REF. 2	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	77526	TUBE, Oil level gage	1
2	72059	GASKET, Oil level gage	1
3	72312	RING, Oil level gage seal	1
4	74663	GAGE ASSEMBLY, Oil level	1
5	1028-B	BALL, 11/16 diameter	1
6	61084*	SPRING, Oil pressure relief valve	1
	68668*	SPRING, Oil pressure relief valve	1
	77467*	SPRING, Oil pressure relief valve	1
	LW-11713*	SPRING, Oil pressure relief valve	1
	LW-18085*	SPRING, Oil pressure relief valve	1
7	06E19769-1.25	GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular	1
8	77808	VALVE ASSEMBLY, Oil pressure relief valve, adjustable	1
9	18D26096	BEARING, Crankshaft	4
10	18A26093	BEARING, Crankshaft, front	2
11	LW-13792	SEAL, Crankshaft oil, solid	1
12	72075	SEAL, Oil, 3/32 section x 7/16 I.D.	2
13	72091	RING, Oil seal, 23/64 I.D. x 7/64 diameter	2
14	15B26064	BODY, Hydraulic tappet	8

* - Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment. Reference latest revision of Lycoming Table of Limits SSP-1776, Part IV for spring identification.

**FIGURE 2. OIL LEVEL GAGE ASSEMBLY AND CRANKCASE RELATED PARTS**

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKSHAFT ASSEMBLY AND RELATED PARTS

FIG. REF. 3	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	13B47121	CRANKSHAFT ASSEMBLY	1
2	STD-1065	DOWEL, Stepped, 5/16 and 1/4 diameter x 35/64 long	1
3	STD-1211	PLUG, 2.00 diameter expansion	1
4	75656-S	BUSHING, Propeller flange, long	4
5	72155-S	BUSHING, Propeller flange, short	1
6	75657-S	BUSHING, Propeller flange, indexing	1
7	13S19757*	GEAR, Crankshaft	1
8	72353	LOCKPLATE, Crankshaft gear	1
9	STD-2245	BOLT, 5/16-24 x 3/4 long	1
10	31M21951	SUPPORT ASSEMBLY, Starter ring gear, 12/14 pitch	1
11	72566	GEAR, Starter ring	1

* - See latest revision of Service Bulletin No. 475 for proper installation.

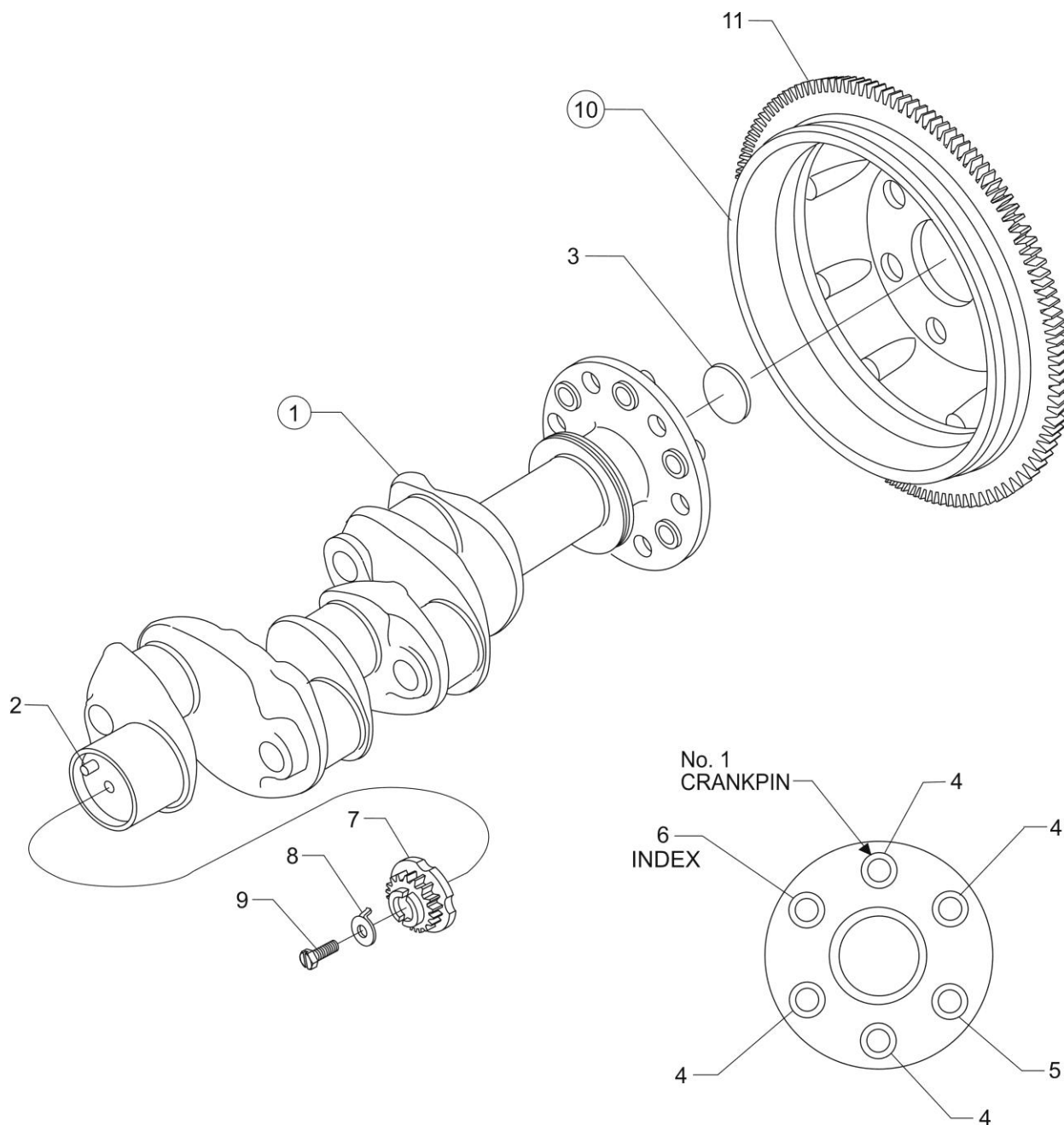


FIGURE 3. CRANKSHAFT ASSEMBLY AND RELATED PARTS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKSHAFT IDLER GEARS, TACHOMETER DRIVE AND CAMSHAFT

FIG. REF. 4	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	74996	GEAR ASSEMBLY, Crankshaft idler, plain	1
2	77309	BUSHING, Crankshaft idler gear	1
3	75708	SHAFT ASSEMBLY, Tachometer	1
4	LW-18667	PIN, 3/16 diameter x 2-21/64 long	1
5	45530	RING, Internal retaining	1
6	LW-13796	SHAFT, Crankshaft idler gear	1
7	LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex. head, drilled	1
8	STD-2168	NUT, 5/16-18 NC-3 slotted shear	1
9	76094	CAMSHAFT ASSEMBLY	1

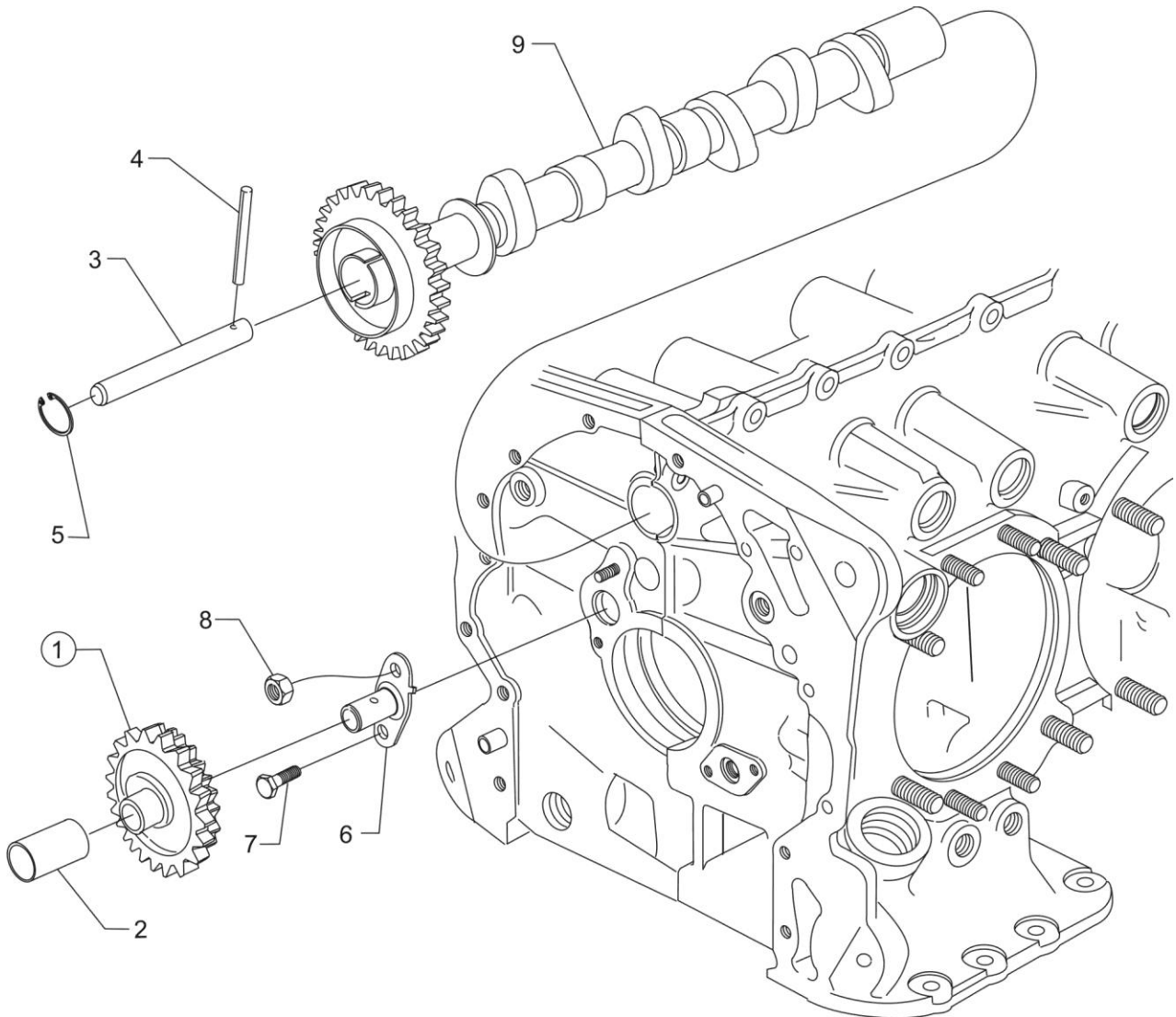
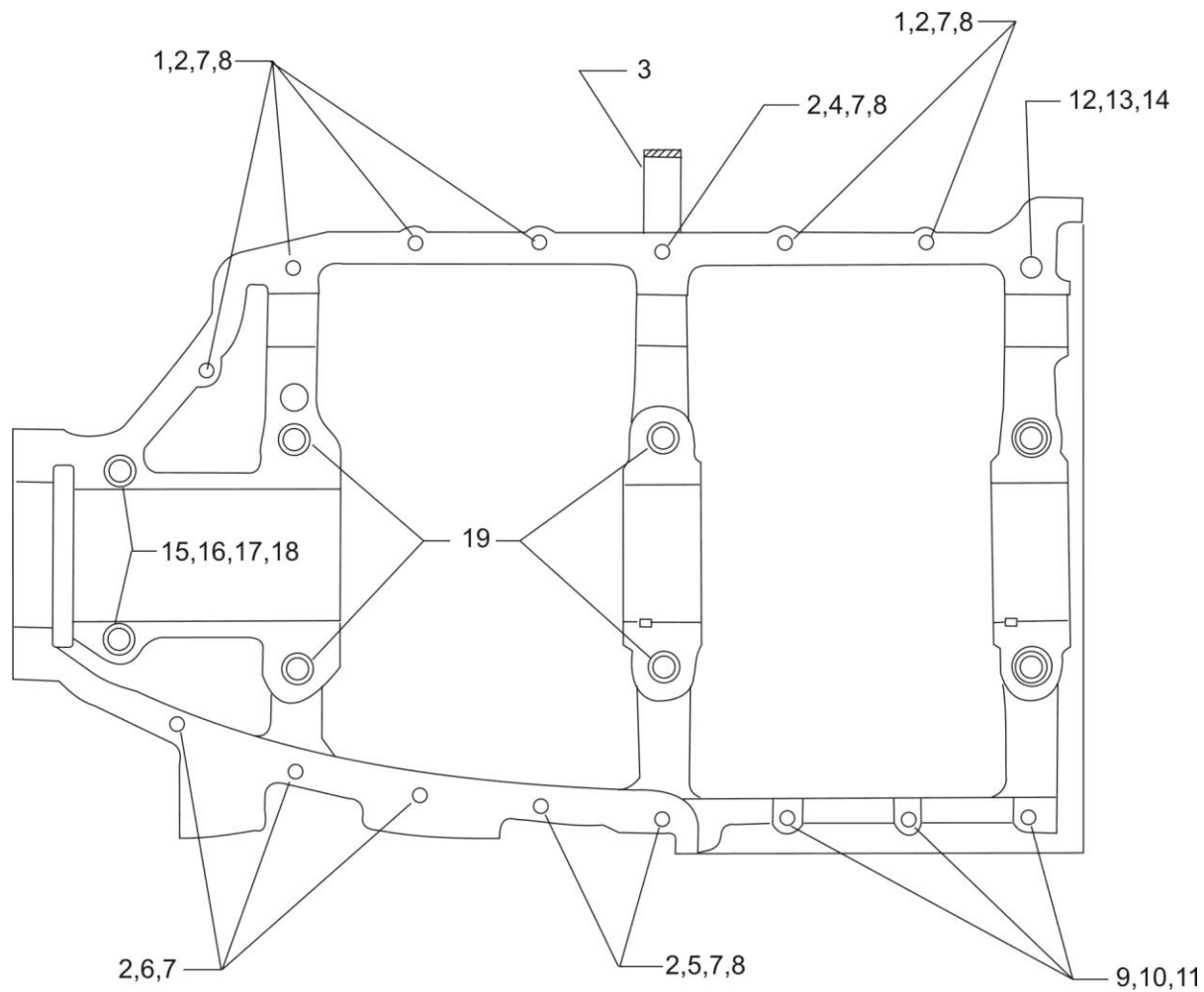


FIGURE 4. CRANKSHAFT IDLER GEARS, TACHOMETER DRIVE AND CAMSHAFT

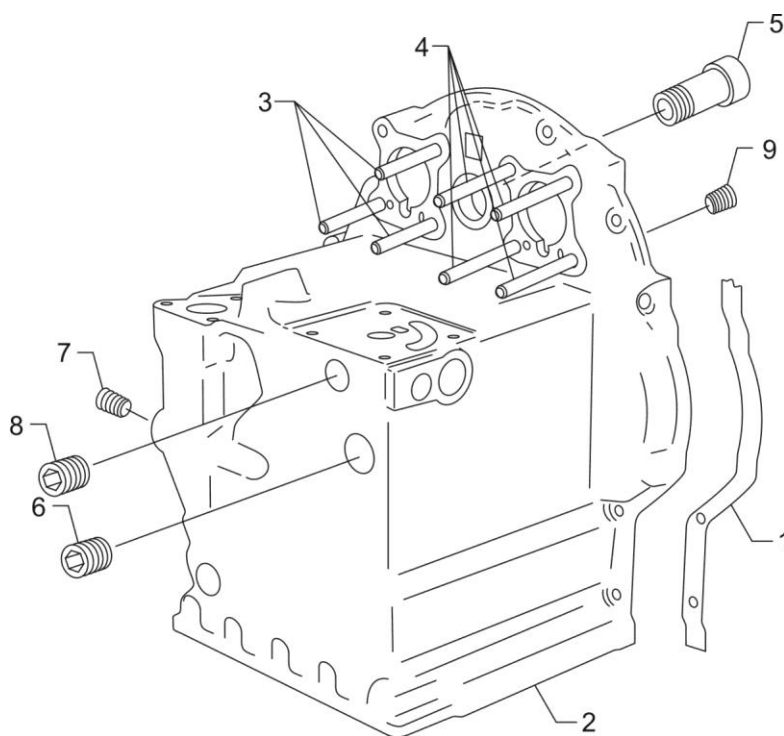
CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ATTACHING PARTS

FIG. REF. 5	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head	6
2	STD-8	WASHER, 1/4 plain	19
3	60803	STRAP, Lifting	1
4	LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. head	1
5	LW-25-1.88	BOLT, 1/4-20 x 1-7/8 long, hex. head	2
6	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	3
7	STD-160	WASHER, 1/4 lock, internal teeth	12
8	STD-1411	NUT, 1/4-20 plain	9
9	LW-25S1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head, drilled end	3
10	STD-8	WASHER, 1/4 plain (max. 9)	AR
11	STD-2249	NUT, 1/4-20 slotted	3
12	STD-33	WASHER, 3/8 plain, 1/16 thick	3
13	AN960-616L	WASHER, 3/8 plain 1/32 thick	1
14	STD-872	NUT, 3/8-24 slotted	1
15	AN6-34A	BOLT, 3/8-24 x 3-37/64 long, hex. head	2
16	STD-33	WASHER, 3/8 plain	2
17	STD-678	WASHER, 3/8 lock, internal teeth	2
18	STD-596	NUT, 3/8-24 plain	2
19	76220	STUD, 1/2-20 x 10-45/64 long	4

**FIGURE 5. CRANKCASE ATTACHING PARTS**

ACCESSORY HOUSING AND RELATED PARTS
ACCESSORY HOUSING ASSEMBLY

FIG. REF. 6	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	73818	GASKET, Accessory housing	1
2	74336	HOUSING ASSEMBLY, Accessory	1
3	31CD-17	STUD, 5/16-18 x 2-1/8 long, drilled	3
4	25C-22	STUD, 1/4-20 x 2-3/4 long	4
5	61175	ADAPTER, Tachometer	1
6	STD-783	PLUG, 1/4-18 NPT, Allen head	1
7	STD-2229	PLUG, 1/2 NPT, Allen head	2
8	STD-784	PLUG, 3/8-18 NPT, Allen head	1
9	1102	PLUG, 1/8-27 NPT, Allen head	2
10	STD-783	PLUG, 1/4-18 NPT, Allen head (not illustrated)	1

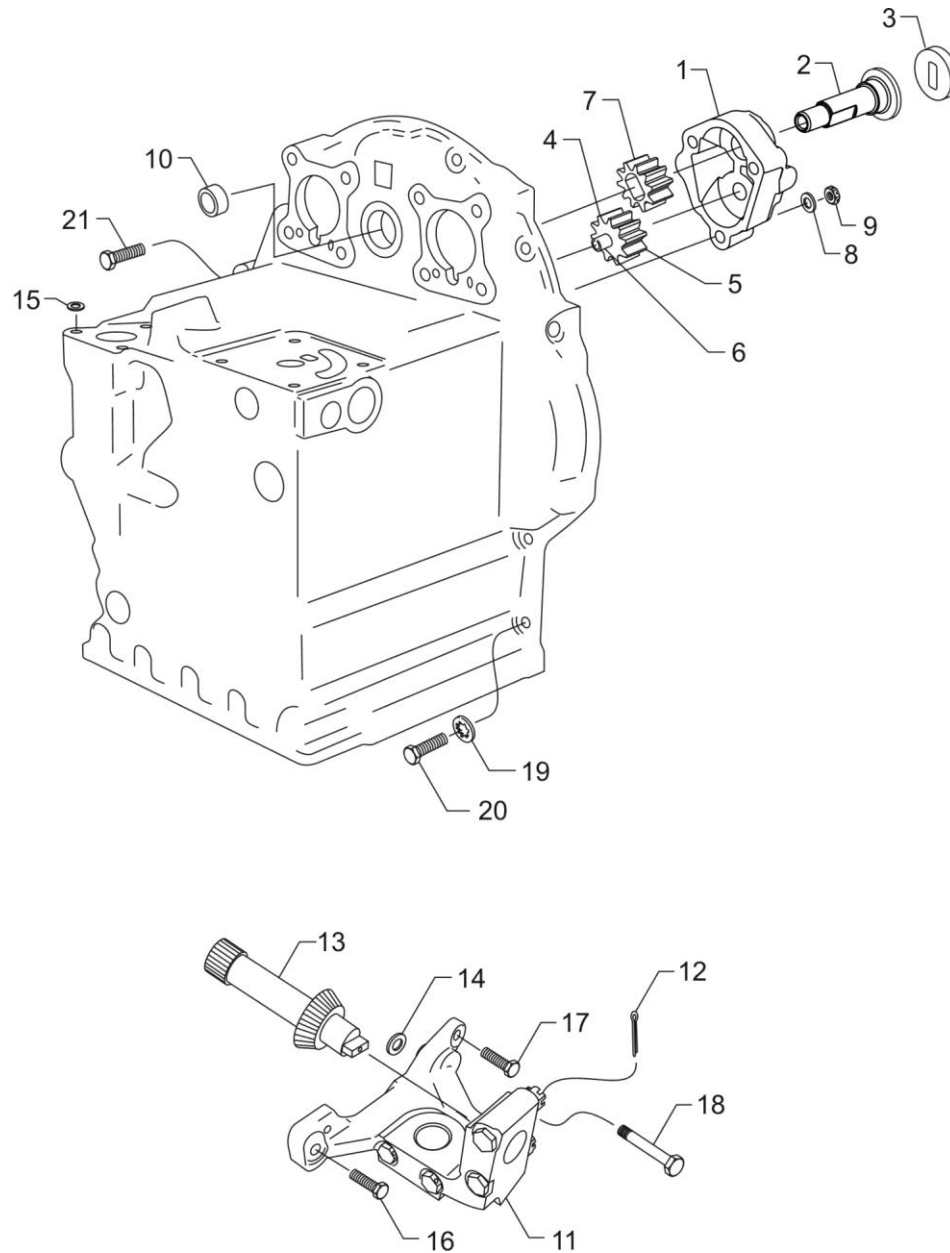
**FIGURE 6. ACCESSORY HOUSING ASSEMBLY**

ACCESSORY HOUSING AND RELATED PARTS
OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS

FIG. REF. 7	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	78531	BODY ASSEMBLY, Oil pump	1
2	61174	SHAFT, Oil pump drive	1
3	72347	COUPLING, Oil pump drive	1
4	LW-18110*	IMPELLER ASSEMBLY, Oil pump driven	1
5	LW-18108	IMPELLER, Oil pump driven	1
6	78530	SHAFT, Oil pump drive	1
7	LW-18109*	IMPELLER, Oil pump driven	1
8	STD-35	WASHER, 5/16 plain	3
9	STD-1420	NUT, 5/16-18 slotted	3
10	LW-14260	SEAL, Tachometer drive, oil	1
11	72359	SUPPORT ASSEMBLY, Magneto and oil pump	1
12	STD-68	PIN, 1/16 diameter x 1/2 long	2
13	72349	SHAFTGEAR, Accessory drive	1
14	72273**	WASHER	AR
	72274**	WASHER	AR
	72275**	WASHER	AR
15	STD-8	WASHER, 1/4 plain	3
16	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
17	LW-25H0.81	BOLT, 1/4-20 x 13/16 long, hex. head, drilled	1
18	LW-25H3.00	BOLT, 1/4-20 x 3.00 long	1
19	STD-160	WASHER, 1/4 lock, internal teeth	12
20	LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	10
21	LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. head	2

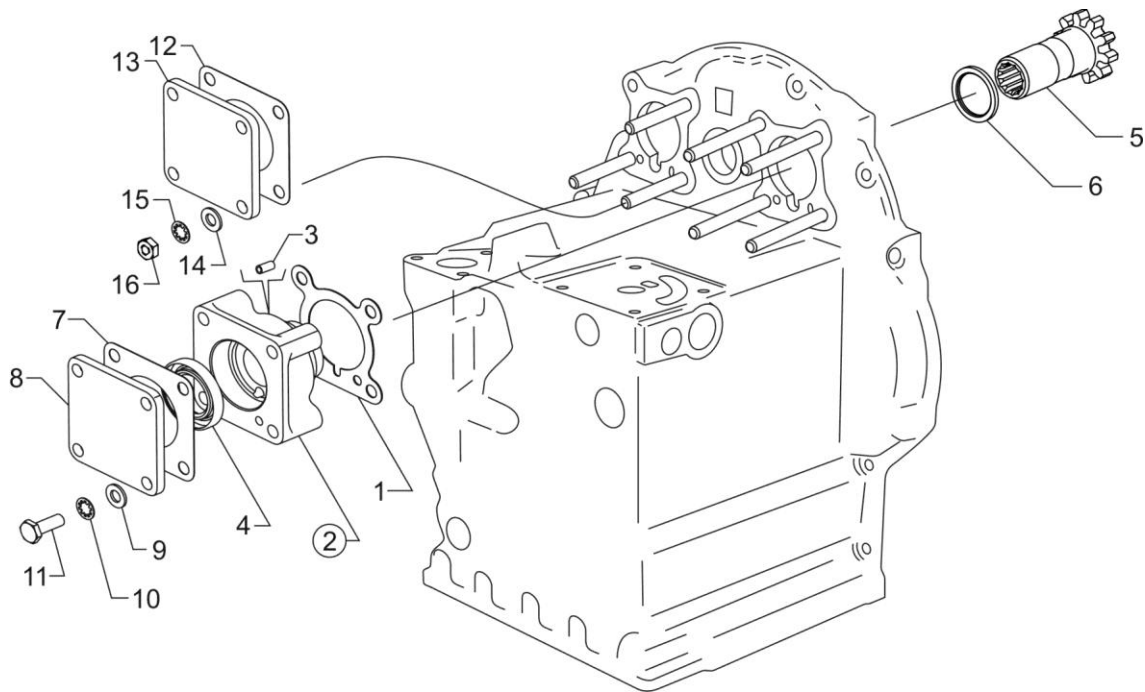
* - Sold in complete sets only (Kit P/N 05K19423-S).

** - Select one for fit.

**FIGURE 7. OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS**

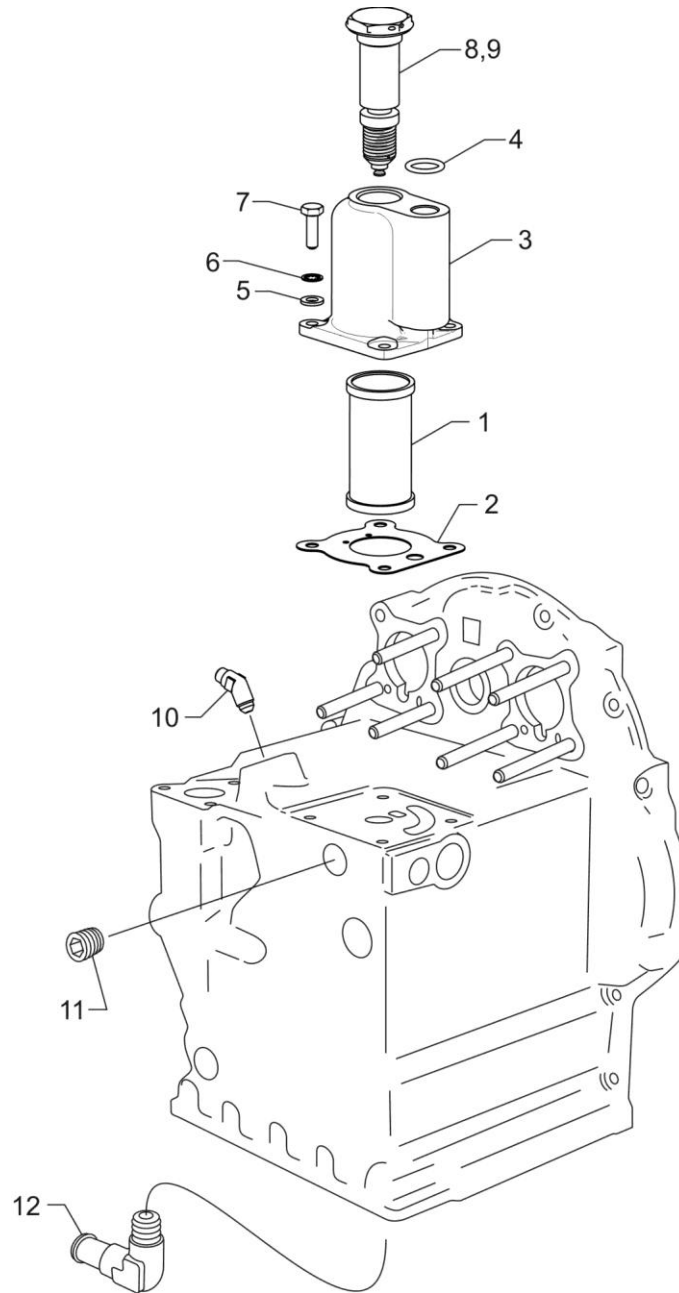
ACCESSORY HOUSING AND RELATED PARTS
FUEL PUMP DRIVE COVER AND VACUUM PUMP DRIVE AND COVER

FIG. REF. 8	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	61183	GASKET, Vacuum pump	1
2	61098	ADAPTER ASSEMBLY, Vacuum pump	1
3	STD-1774	PIN, 1/8 diameter x 1/4 long	1
4	06A19556	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide	1
5	72970	GEAR ASSEMBLY, Vacuum pump driven	1
6	71596	WASHER, Accessory drive gear	1
7	8313	GASKET, Vacuum pump	1
8	60430	COVER, Vacuum pump	1
9	STD-8	WASHER, 1/4 plain	4
10	STD-160	WASHER, 1/4 lock, internal teeth	4
11	LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	4
12	8313	GASKET, Fuel pump	1
13	60430	COVER, Fuel pump	1
14	STD-8	WASHER, 1/4 plain	4
15	STD-160	WASHER, 1/4 lock, internal teeth	4
16	STD-1411	NUT, 1/4-20 plain	4

**FIGURE 8. FUEL PUMP DRIVE COVER AND VACUUM PUMP DRIVE AND COVER**

ACCESSORY HOUSING AND RELATED PARTS
OIL PRESSURE SCREEN AND OIL COOLER BYPASS VALVE

FIG. REF. 9	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	62817	SCREEN ASSEMBLY, Oil pressure	1
2	61173	GASKET, Oil pressure housing	1
3	69510	HOUSING, Oil pressure screen	1
4	06E19769-0.63	GASKET, 7/8 O.D. x 5/8 I.D. x 3/32 annular	1
5	STD-8	WASHER, 1/4 plain	4
6	STD-160	WASHER, 1/4 lock, internal teeth	4
7	LW-25-0.81	BOLT, 1/4-20 x 13/16 long, hex. head	4
8	53E22144	VALVE ASSEMBLY, Temperature control oil cooler bypass	1
9	76510	GASKET, Valve assembly	1
10	MS20823-8	ELBOW, 3/8 NPT, 1/2 flared tube	1
11	STD-784	PLUG, 3/8-18 NPT, Allen head	1
12	STD-2232	ELBOW, 3/4 NPT and hose, 90°	1

**FIGURE 9. OIL PRESSURE SCREEN AND OIL COOLER BYPASS VALVE**

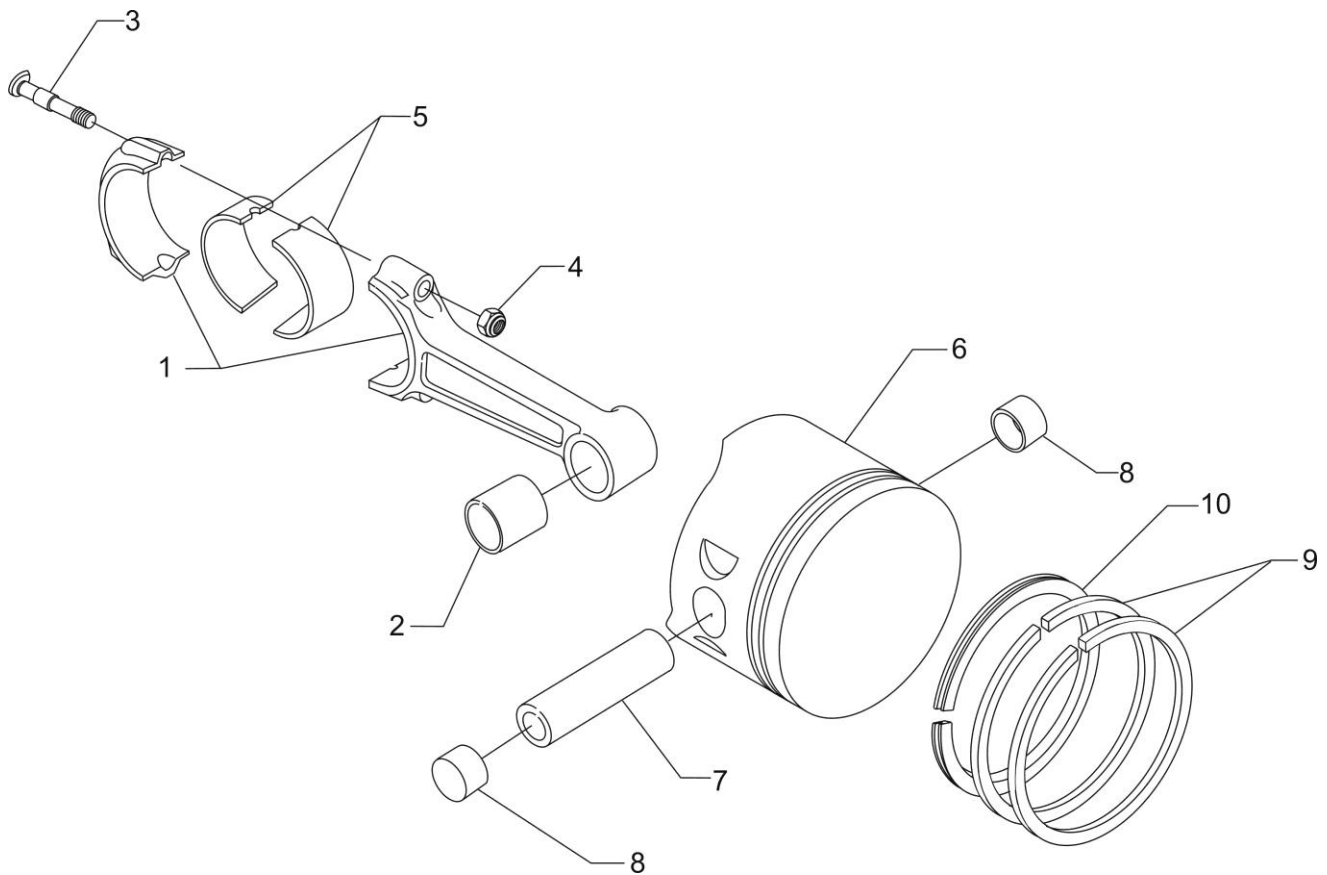
CYLINDER, PISTON AND VALVE TRAIN
CONNECTING RODS, PISTONS AND RING ASSEMBLIES

FIG. REF. 10	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-11750	CONNECTING ROD ASSEMBLY	4
2	LW-13923	BUSHING, Connecting rod, upper	4
3	14S23890*	BOLT, Connecting rod	8
	75061**	BOLT, Connecting rod	8
4	LW-12186	NUT, Connecting rod bolt	8
5	18M26105	BEARING, Connecting rod	8
6	75089	PISTON, Compression ratio 8.50:1	4
7	LW-14078♦	PIN, Piston	4
8	72198	PLUG, Piston pin	8
9	74241	RING, Piston compression	8
10	14H21950	RING, Piston, oil regulating (expander type)	4

* - Lycoming use only.

** - Service use only.

♦ - See latest revision of Service Instruction No. 1267.

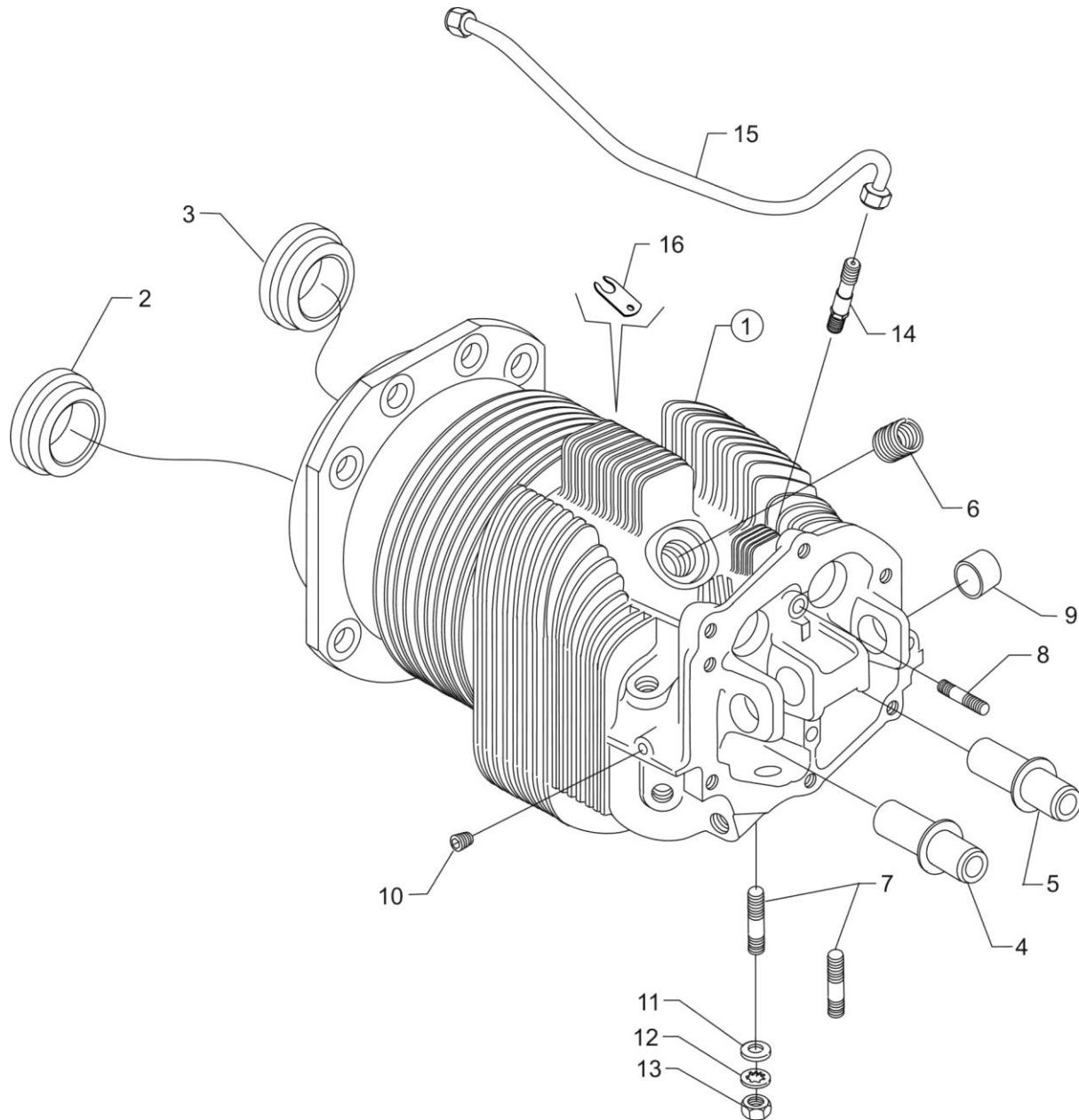
**FIGURE 10. CONNECTING RODS, PISTONS AND RING ASSEMBLIES**

**CYLINDER, PISTON AND VALVE TRAIN
CYLINDER ASSEMBLY**

FIG. REF. 11	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-15682	CYLINDER ASSEMBLY, Nitrided	4
2	72057	SEAT, Intake valve	4
3	72058	SEAT, Exhaust valve	4
4	76943*	GUIDE, Valve intake	4
5	LW-15680*	GUIDE, Valve exhaust	4
6	69260	INSERT, Spark plug, 18-1.5 MM	8
7	31C-12	STUD, 5/16-18 x 1-1/2 long	8
8	25C-8	STUD, 1/4-20 x 1.00 long	4
9	66610	BUSHING, Rocker shaft	16
10	1102**	PLUG, 1/8-27 NPT, Allen head	4
11	STD-35	WASHER, 5/16 plain	8
12	STD-475	WASHER, 5/16 lock, internal teeth	8
13	STD-1410	NUT, 5/16-18 plain	8
14	61634	CONNECTOR, Exhaust valve oil line	4
15	72624	TUBE ASSEMBLY, Exhaust valve oil line	4
16	72111	PLATE, Grommet	4

* - See latest revision of Service Instruction No. 1256.

** - Assemble in cylinder head.

**FIGURE 11. CYLINDER ASSEMBLY**

CYLINDER, PISTON AND VALVE TRAIN
CYLINDER RELATED PARTS

FIG. REF. 12	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	71481	RING, Oil seal, 3/32 diameter x 4-27/32 long	4
2	74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick	2
3	383-B	NUT, 3/8-24 plain	16
4	STD-2090	NUT, 1/2-20 plain	18
5	74494	PLATE, Spark plug reach, caution	4
6	STD-684	NIPPLE, Straight, 3/8 I.D. hose	4
7	STD-2180	HOSE, 3/8 I.D. x 1-13/16 long	8
8	LW-15592-5-05	CLAMP, Hose	8
9	17T21683	TUBE, Cylinder head oil drain, cylinder no. 1	1
10	17T21684	TUBE, Cylinder head oil drain, cylinder no. 2	1
11	17T21685	TUBE, Cylinder head oil drain, cylinder no. 3	1
12	17T21686	TUBE, Cylinder head oil drain, cylinder no. 4	1
13	75339	BAFFLE ASSEMBLY, Intercylinder	1
	LW-13389	BAFFLE ASSEMBLY, Intercylinder	1
14	71611	RETAINER, Intercylinder baffle	2
15	71610	HOOK, Intercylinder baffle retainer	2
16	MS35489-20X	GROMMET	1
17	75906	GASKET, Rocker box cover	4
18	61247	COVER, Rocker box	4
19	STD-1925	SCREW, 1/4-20 x 5/8 long, pan head, self-locking	24

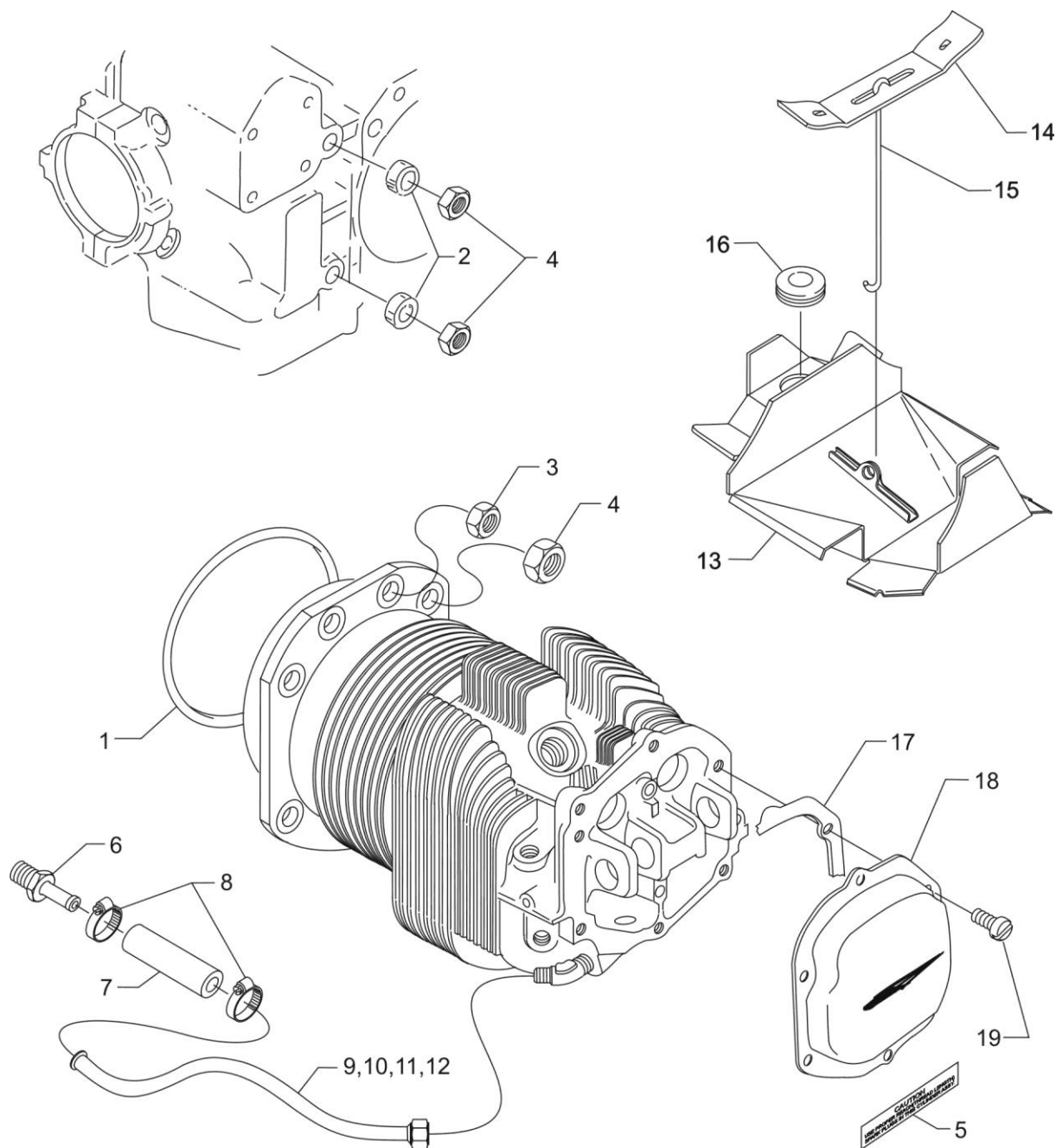


FIGURE 12. CYLINDER RELATED PARTS

CYLINDER, PISTON AND VALVE TRAIN
VALVE ASSEMBLY

FIG. REF. 13	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	17A23938	VALVE, Intake	4
2	17B23936	VALVE, Exhaust (rotator type)	4
3	61625	SEAT, Valve spring, lower	8
4	LW-11795	SPRING, Valve, inner	8
5	LW-11800	SPRING, Valve, outer	8
6	LW-10077	SEAT, Valve spring, upper intake	4
7	LW-16475	SEAT, Valve spring, upper exhaust (rotator type)	4
8	60009	KEY, Valve, intake	8
9	17C21191	KEY, Valve, exhaust (rotator type)	8
10	STD-783	PLUG, 1/4-18 NPT, Allen head	4
11	17C19386	CAP, Valve stem, exhaust (rotator type)	4
12	15B26066	PLUNGER ASSEMBLY, Hydraulic tappet	8
13	15B21319	SOCKET, Hydraulic tappet	8
14	LW-11485	SHROUD TUBE ASSEMBLY, Push rod	8
15	LW-14995	SPRING, Shroud tube	4
16	LW-12272	LOCKPLATE, Shroud tube	4
17	STD-1411	NUT, 1/4-20 plain	4
18	LW-18661	SEAL, Shroud tube	8
19	70310	SEAL, Shroud tube	8
20	15F19957-34*	ROD ASSEMBLY, Push (A total of 8 required)	AR
	15F19957-35*	ROD ASSEMBLY, Push (A total of 8 required)	AR
	15F19957-36*	ROD ASSEMBLY, Push (A total of 8 required)	AR
	15F19957-37*	ROD ASSEMBLY, Push (A total of 8 required)	AR
21	17F19357**	ROCKER ASSEMBLY, Valve	8
22	74637	BUSHING, Valve rocker	8
23	LW-13790	SHAFT, Valve rocker	4
24	LW-12892	THRUST BUTTON, Rocker shaft	8

* - See latest revision of Service Instruction No. 1060 for complete push rod application.

** - Due to the size of the area where the part number is stamped, the last five digits may be all that is shown (19357).

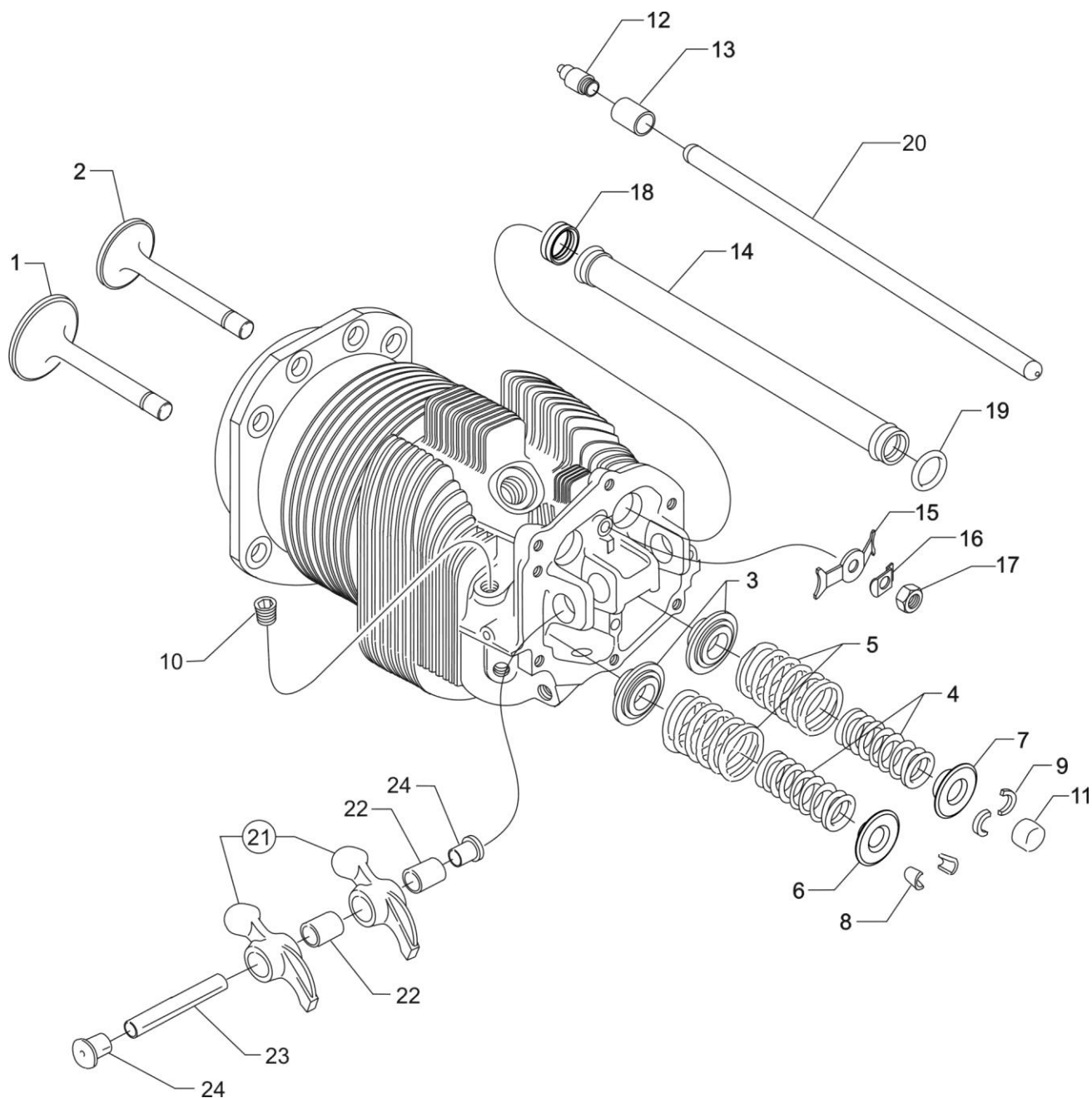
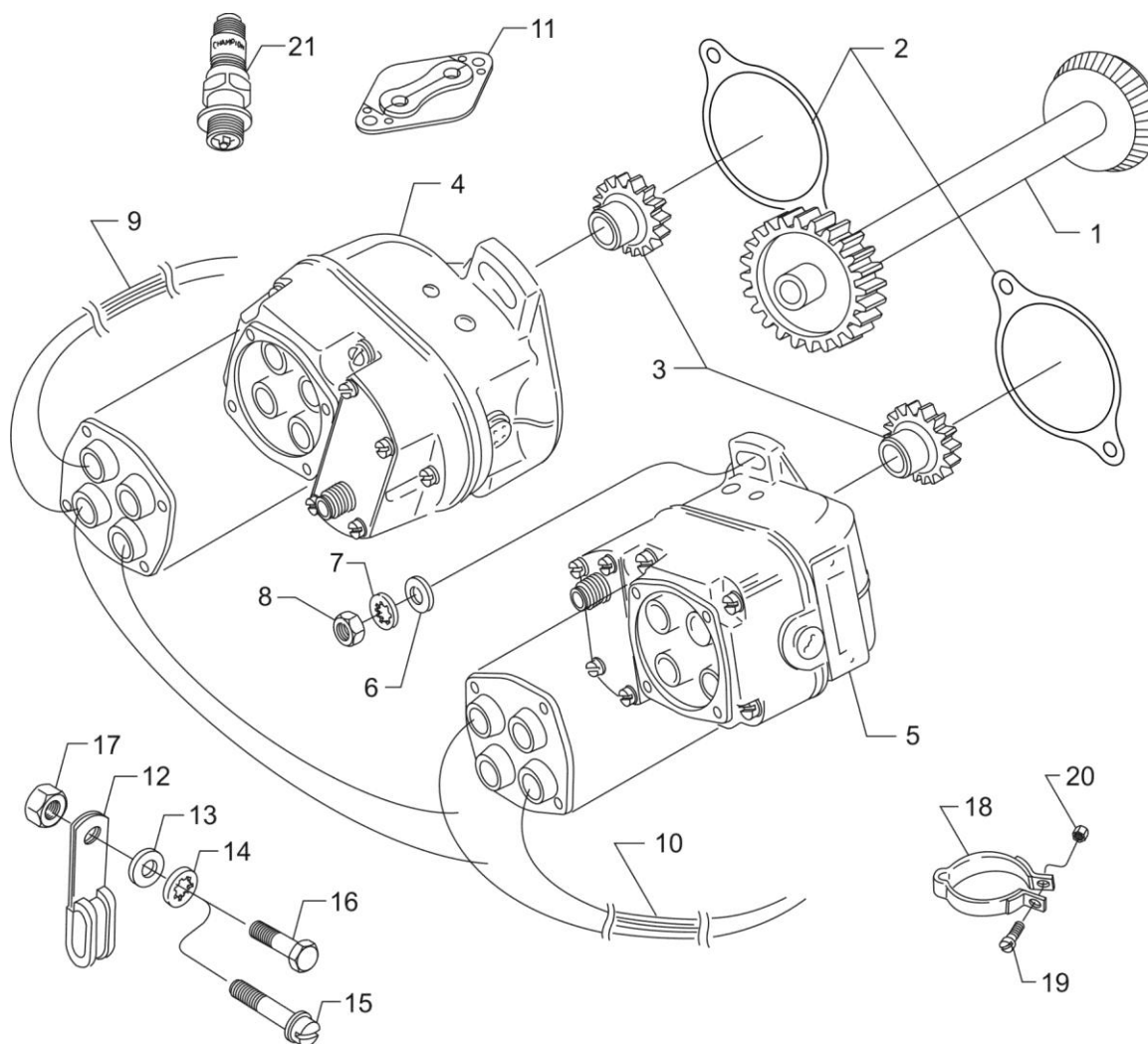


FIGURE 13. VALVE ASSEMBLY

IGNITION SYSTEM
MAGNETOS, MAGNETO DRIVES, HARNESSES AND SPARK PLUGS

FIG. REF. 14	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	72400	SHAFTGEAR ASSEMBLY, Magneto driven	1
2	62224	GASKET, Magneto adapter	2
3	68C19622	GEAR, Magneto	2
4	66B21778	MAGNETO, S4LSC-204, 10-600644-1	1
5	66B21772	MAGNETO, S4LSC-200, 10-600614-1	1
6	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	4
7	STD-475	WASHER, 5/16 lock, internal teeth	4
8	STD-1410	NUT, 5/16-18 plain	4
9	LW-M-4032	HARNESS ASSEMBLY, 1-3 side	1
10	LW-M-4031	HARNESS ASSEMBLY, 2-4 side	1
11	LW-M-2375	PLATE, Spark plug cable, two wire	2
12	LW-14060	CLIP, Two wire	4
13	STD-8	WASHER, 1/4 plain	4
14	STD-160	WASHER, 1/4 lock, internal teeth	3
15	STD-1916	SCREW, 1/4-20 x 1-1/8 long, fill. head	1
16	LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head	1
17	STD-1411	NUT, 1/4-20 plain	2
18	LW-18959-175-25	CLAMP, 1-3/4 I.D.	4
19	STD-553	SCREW, No. 6-32 x 1/2 long, round head	4
20	MS21044N06	NUT, No. 6-32 self-locking	4
21	1182-L7*	SPARK PLUG, Champion RHB36S	8
	1182-L8*	SPARK PLUG, Unison, URHB36S	8

* - Item No. 21 spark plugs are used in current production only. See latest revision of Service Instruction No. 1042 for complete listing of all approved spark plugs.

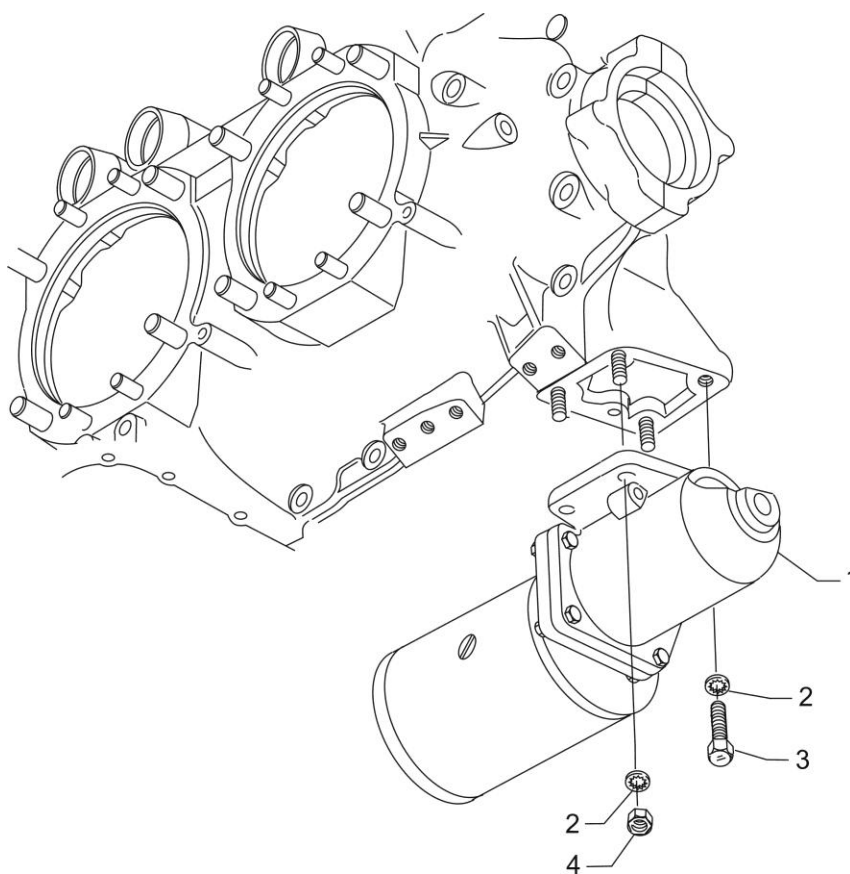
**FIGURE 14. MAGNETOS, MAGNETO DRIVES, HARNESSES AND SPARK PLUGS**

ELECTRICAL SYSTEM
STARTER AND ATTACHING PARTS

FIG. REF. 15	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	31A22110	STARTER, Sky-Tec (149-12HT)	1
2	STD-475	WASHER, 5/16 lock, internal teeth	4
3	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	1
4	STD-1410	NUT, 5/16-18 plain	3

NOTE

See latest revision of Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.

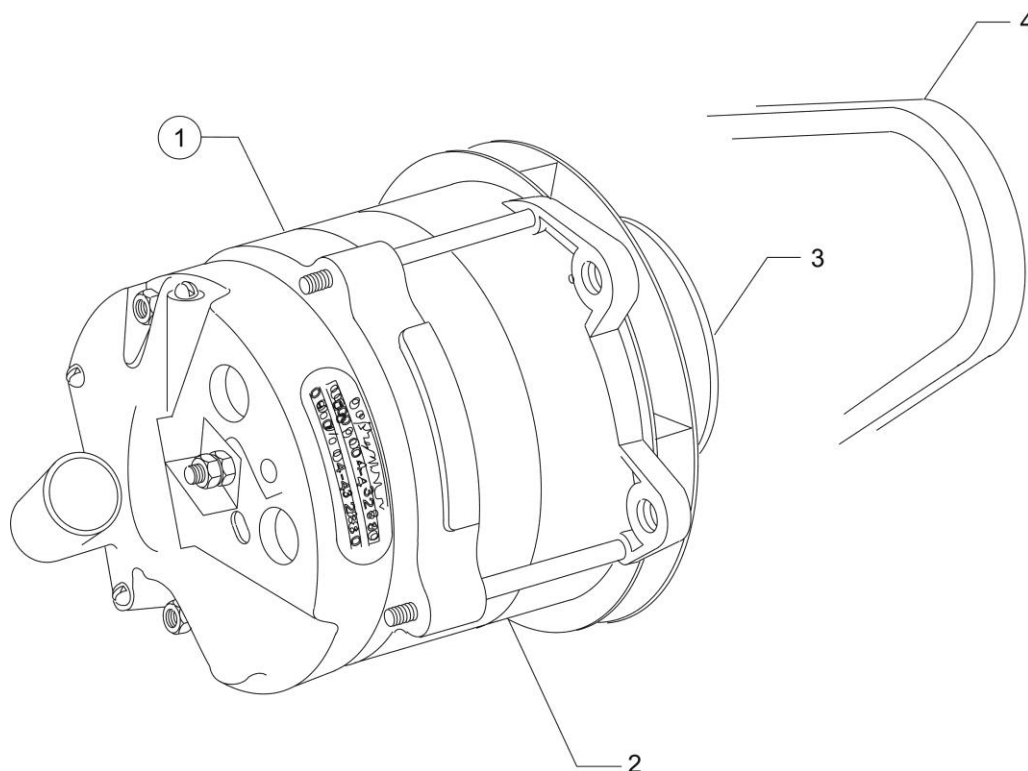
**FIGURE 15. STARTER AND ATTACHING PARTS**

ELECTRICAL SYSTEM
ALTERNATOR ASSEMBLY AND BELT

FIG. REF. 16	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	32B19549	ALTERNATOR ASSEMBLY, 12 volt, 70 amp.	1
2	LW-14318	ALTERNATOR, 12 volt, 70 amp. (ALX-8521LS).	1
3	36B19484	PULLEY, Alternator	1
4	37A19773-372	BELT, Alternator drive, 3/8 wide	1

NOTE

See latest revision of Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.


FIGURE 16. ALTERNATOR ASSEMBLY AND BELT

ELECTRICAL SYSTEM
ALTERNATOR MOUNTING AND ATTACHING PARTS

FIG. REF. 17	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	07A19474	BRACKET, Alternator	1
2	73383	LOCKPLATE, 5/16 bolt x 1.00 spacing	1
3	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	2
4	75380	LINK, Alternator adjusting	1
5	STD-35	WASHER, 5/16 plain	1
6	LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
7	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
8	LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
9	07F23268	STRUT, Alternator support	1
10	LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled`	1
11	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	1
12	AN6-17	BOLT, 3/8-24 x 1-15/16 long, hex. head, drilled end	1
13	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	3
14	STD-872	NUT, 3/8-24 slotted	1
15	STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1
16	AN6-16	BOLT, 3/8-24 x 1-53/64 long, hex. head, drilled end	1
17	76534	SHIM, 1-1/8 O.D. x 25/64 I.D. x 1/16 thick	5
18	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	3
19	STD-872	NUT, 3/8-24 slotted	1
20	STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1

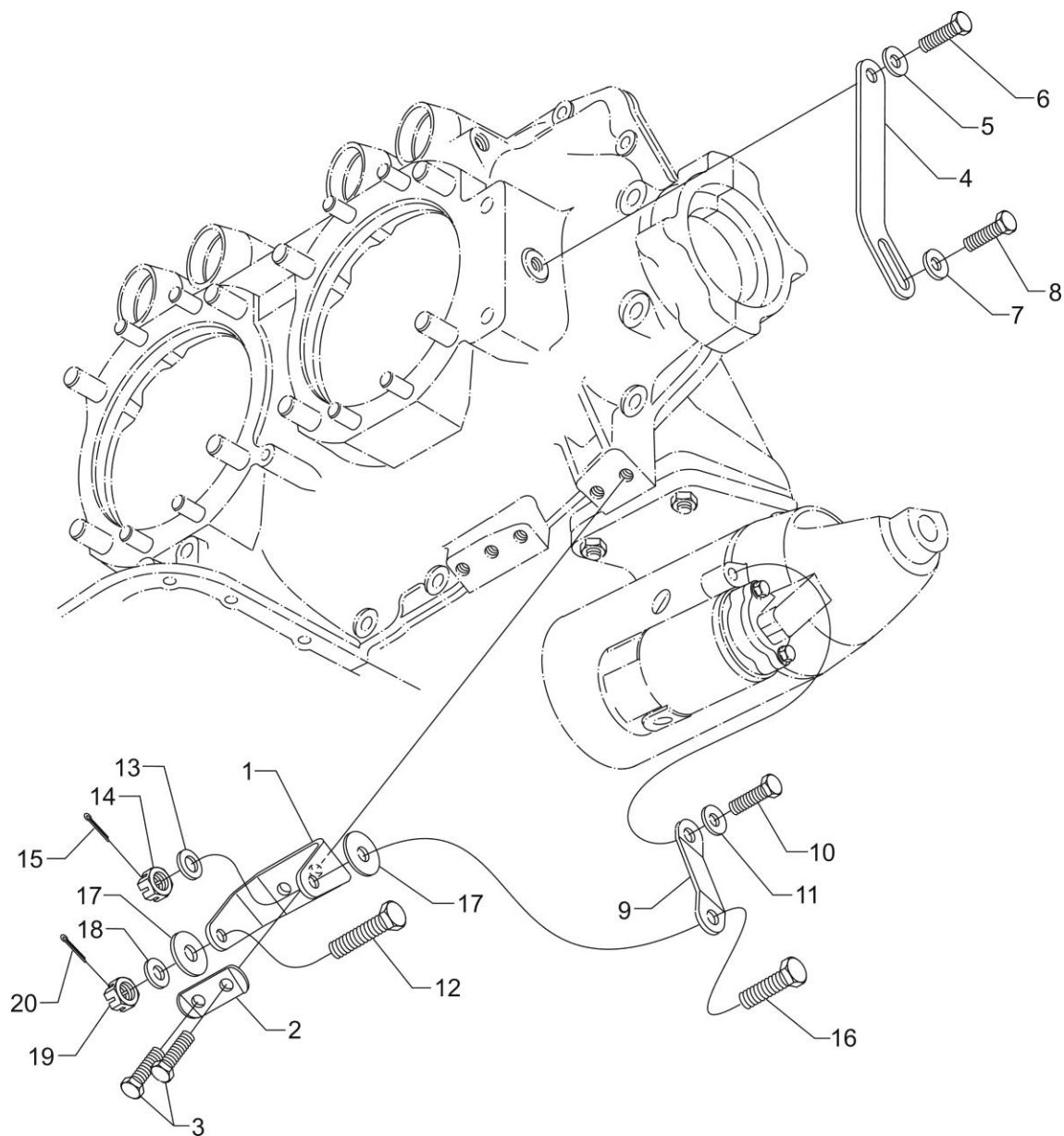


FIGURE 17. ALTERNATOR MOUNTING AND ATTACHING PARTS

INDUCTION SYSTEM
MAGNETO CASE ASSEMBLY, OIL SEPARATOR AND OIL SUCTION SCREEN

FIG. REF. 18	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	72278	GASKET, Magneto case	1
2	72512	CASE ASSEMBLY, Magneto	1
3	72379	SEPARATOR ASSEMBLY, Oil	1
4	STD-1650	BOLT, No. 10-32 x 21/32 long	2
5	STD-1803	WASHER, No. 10 plain	2
6	STD-670	LOCKNUT, No. 10-32	2
7	STD-8	WASHER, 1/4 plain	39
8	STD-160	WASHER, 1/4 lock, internal teeth	27
9	LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	25
10	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	2
11	STD-1411	NUT, 1/4-20 plain	12
12	70484	SCREEN, Oil suction	1
13	72391	GASKET, Oil drain and suction screen	1
14	72397	ADAPTER, Oil drain	1
15	STD-8	WASHER, 1/4 plain	3
16	STD-160	WASHER, 1/4 lock, internal teeth	3
17	LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head	3
18	STD-453	PLUG, 3/8-18 NPT, square head, drilled	1

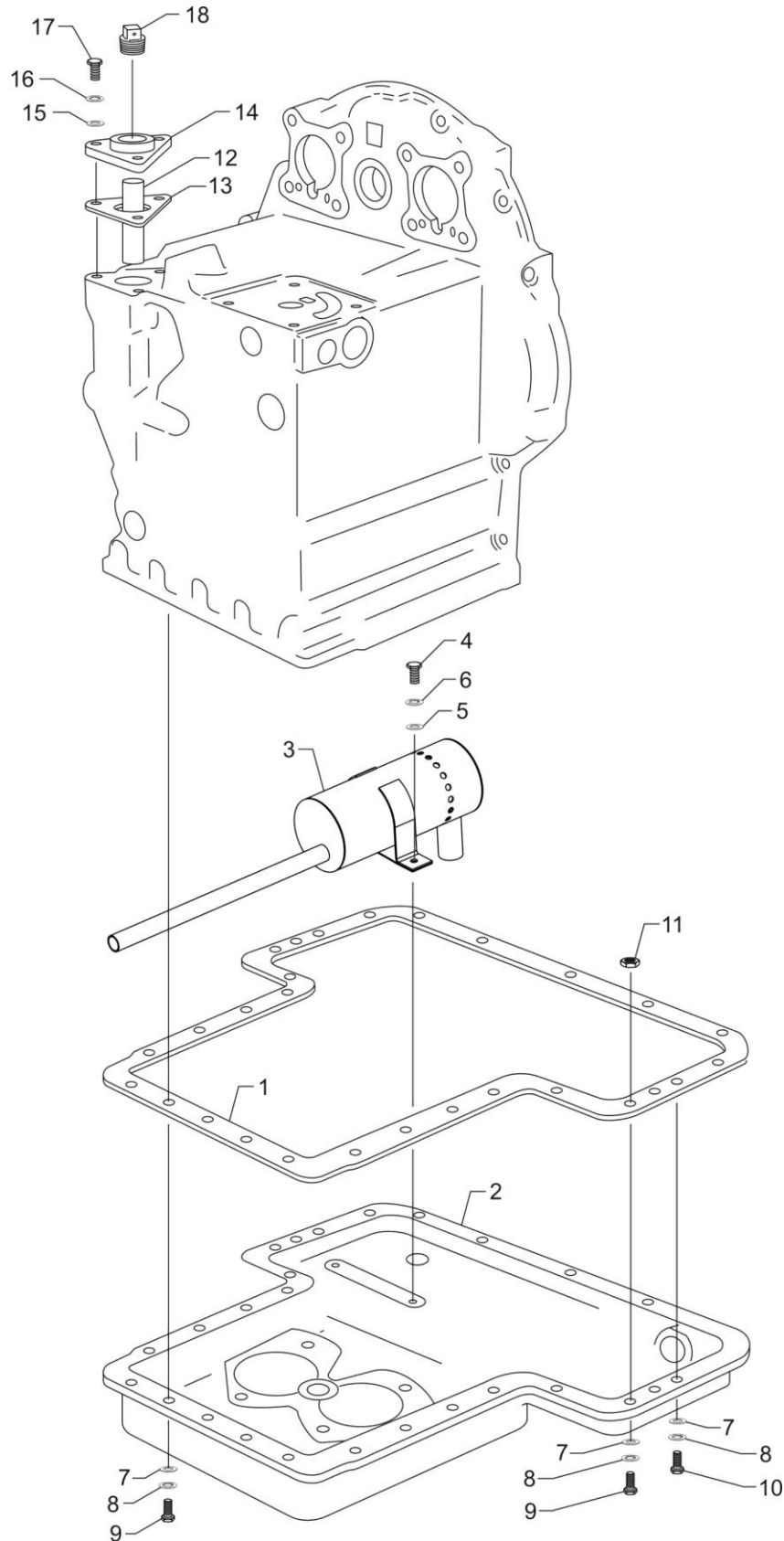
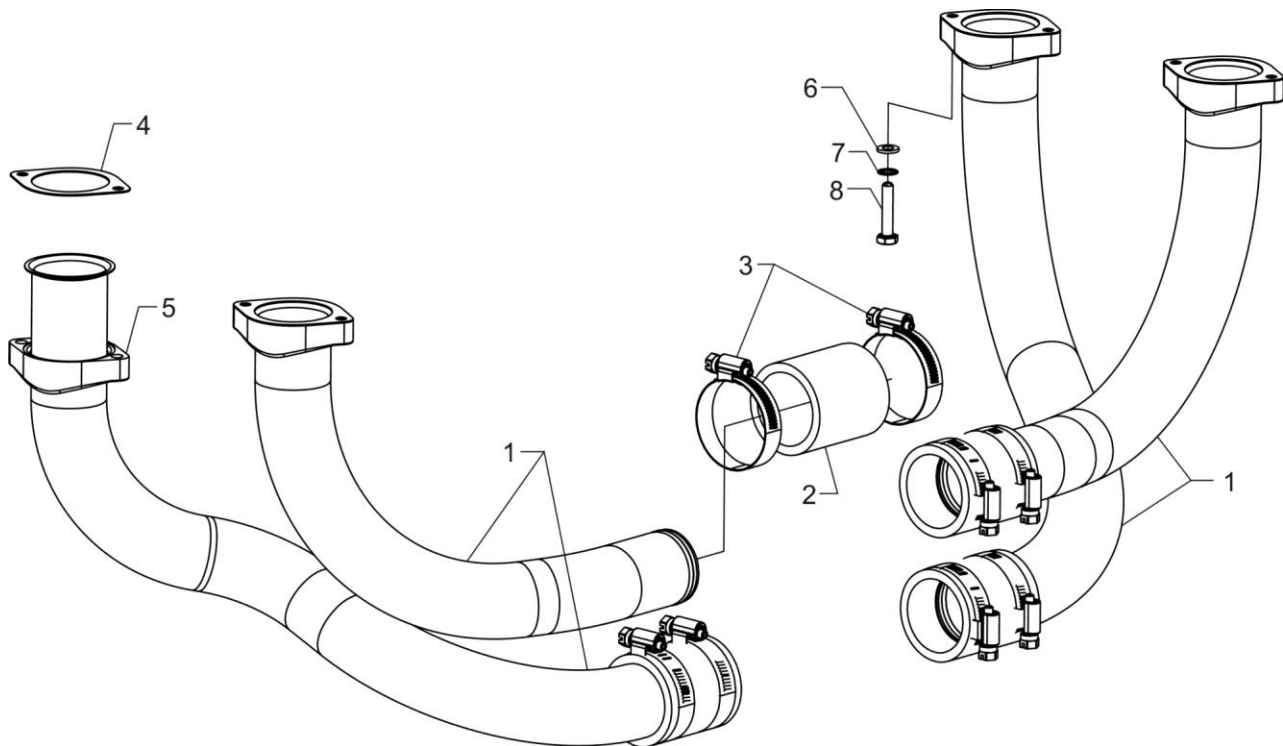


FIGURE 18. MAGNETO CASE ASSEMBLY, OIL SEPARATOR AND OIL SUCTION SCREEN

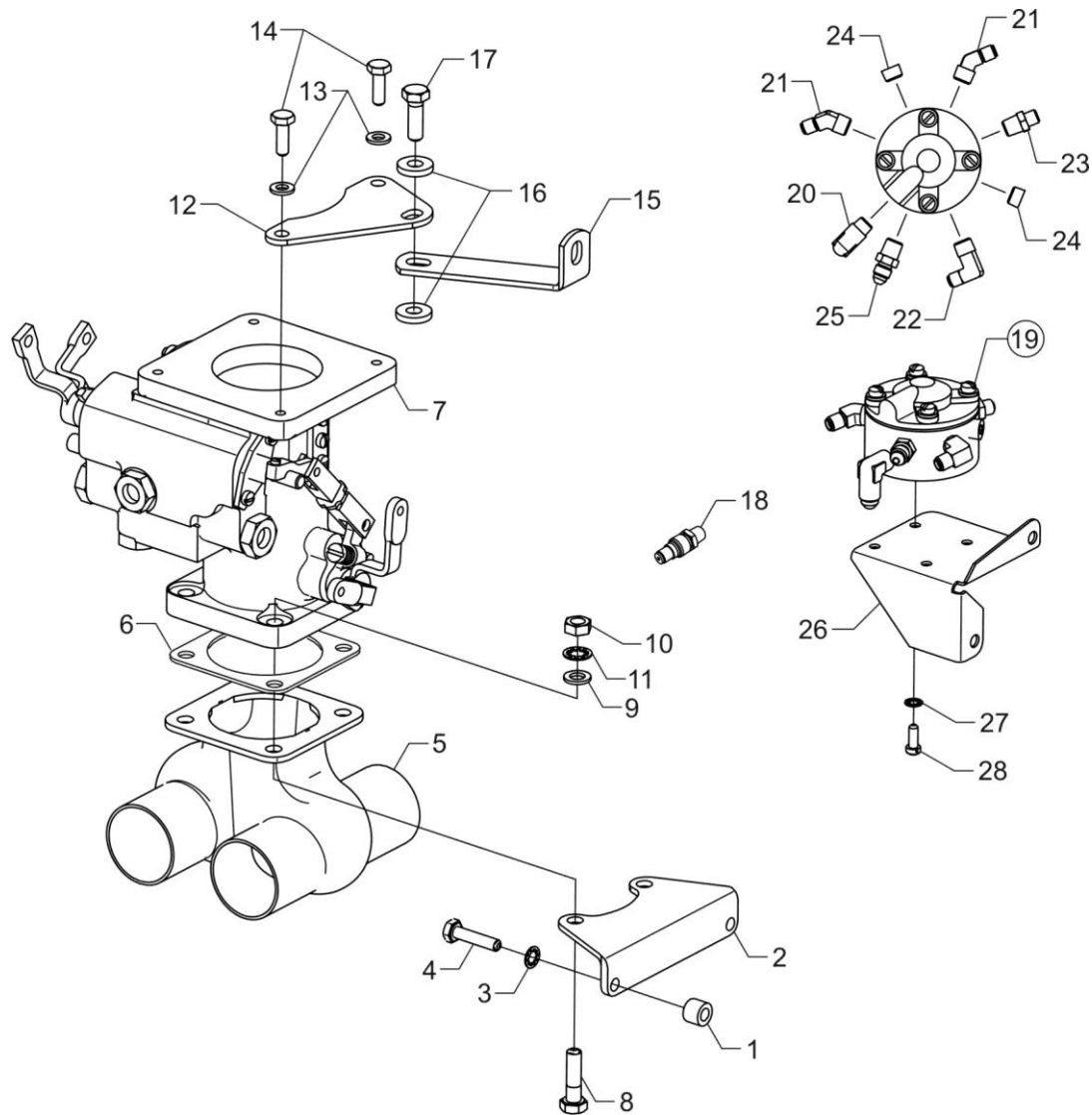
INDUCTION SYSTEM
INTAKE PIPES AND ATTACHING PARTS

FIG. REF. 19	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	74764	PIPE, Intake, cylinder no. 1	1
	74652	PIPE, Intake, cylinder no. 2	1
	74653	PIPE, Intake, cylinder no. 3	1
	74654	PIPE, Intake, cylinder no. 4	1
2	STD-1792	HOSE, 1-3/4 I.D. x 2-3/8 long	4
3	LW-15592-8-28	CLAMP, Hose	8
4	71973	GASKET, 2 bolt flange, 1-3/4 I.D.	4
5	73346	FLANGE, Intake pipe, upper	4
6	STD-8	WASHER, 1/4 plain	8
7	STD-160	WASHER, 1/4 lock, internal teeth	8
8	LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head	8

**FIGURE 19. INTAKE PIPES AND ATTACHING PARTS**

INDUCTION SYSTEM
FUEL INJECTOR, FUEL MANIFOLD AND INJECTION NOZZLES

FIG. REF. 20	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	74655	SPACER, Exhaust manifold	2
2	07F21411	BRACKET, Fuel manifold	1
3	STD-160	WASHER, 1/4 lock, internal teeth	2
4	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	2
5	74659	MANIFOLD ASSEMBLY, Fuel injector	1
6	66224	GASKET, Fuel injector	1
7	74642	FUEL INJECTOR, 2524171-11	1
8	LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	4
9	STD-35	WASHER, 5/16 plain	4
10	STD-1410	NUT, 5/16-18 plain	4
11	STD-475	WASHER, 5/16 lock, internal teeth	4
12	07F21406	BRACKET, Fuel injector	1
13	STD-8	WASHER, 1/4 plain	4
14	LW-25-0.67	BOLT, 1/4-20 x 5/8 long, hex. head	2
15	07F21407	STRUT, Fuel injector	1
16	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	2
17	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	1
18	LW-18265	NOZZLE, Injection (2524864)	4
19	75281	MANIFOLD ASSEMBLY, Fuel	1
20	MS20822-4	ELBOW, 1/8 NPT to 1/4 tube, 90°	1
21	AN791-2	ELBOW, Union, 45°, 1/8 tube	2
22	STD-2166	ELBOW, Union, 90°, 1/8 NPT	1
23	STD-148	NIPPLE, Union, 1/8 NPT	1
24	1102	PLUG, 1/8-27 NPT, Allen head	2
25	02G21382	NIPPLE, Nozzle pressure gage	1
26	07A22167	BRACKET, Fuel manifold	1
27	STD-251	WASHER, No. 10, internal lock	4
28	STD-82	SCREW, No. 10-24 x 1/2 long, fill. head	4

**FIGURE 20. FUEL INJECTOR, FUEL MANIFOLD AND INJECTION NOZZLES**

INDUCTION SYSTEM
FUEL LINES AND ATTACHING PARTS

FIG. REF. 21	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-12098-0-220	TUBE ASSEMBLY, Fuel manifold to nozzle, cylinder no. 1	1
2	LW-12098-0-180	TUBE ASSEMBLY, Fuel manifold to nozzle, cylinder no. 2	1
3	LW-12098-0-300	TUBE ASSEMBLY, Fuel manifold to nozzle, cylinder no. 3	1
4	LW-12098-0-260	TUBE ASSEMBLY, Fuel manifold to nozzle, cylinder no. 4	1
5	LW-16266-10-75	CLAMP	7
6	LW-16266-10-13	CLAMP, 1/8 diameter for no. 10 screw	13
7	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	12
8	73136	BRACKET, Extension, fuel injector line	3
9	LW-12798-4S340	HOSE ASSEMBLY, 1/4 hose, straight	1
10	72815	BRACKET, Support clamp, 90°	1
11	74278	BRACKET ASSEMBLY, Fuel line support	1
12	LW-16266-10-63	CLAMP, 5/8 I.D. x no. 10 screw	3
13	STD-160	WASHER, 1/4 lock, internal teeth	2
14	STD-475	WASHER, 5/16 lock, internal teeth	1
15	STD-1410	NUT, 5/16-18 plain	1
16	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
17	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	1
18	74655	SPACER, Exhaust manifold	2
19	STD-670	LOCKNUT, No. 10-32	12
20	73136	BRACKET, Extension, fuel injector line	1
21	STD-475	WASHER, 5/16 lock, internal teeth	1
22	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	6
23	STD-425	WASHER, No. 10 plain	6
24	STD-670	LOCKNUT, No. 10-32	3

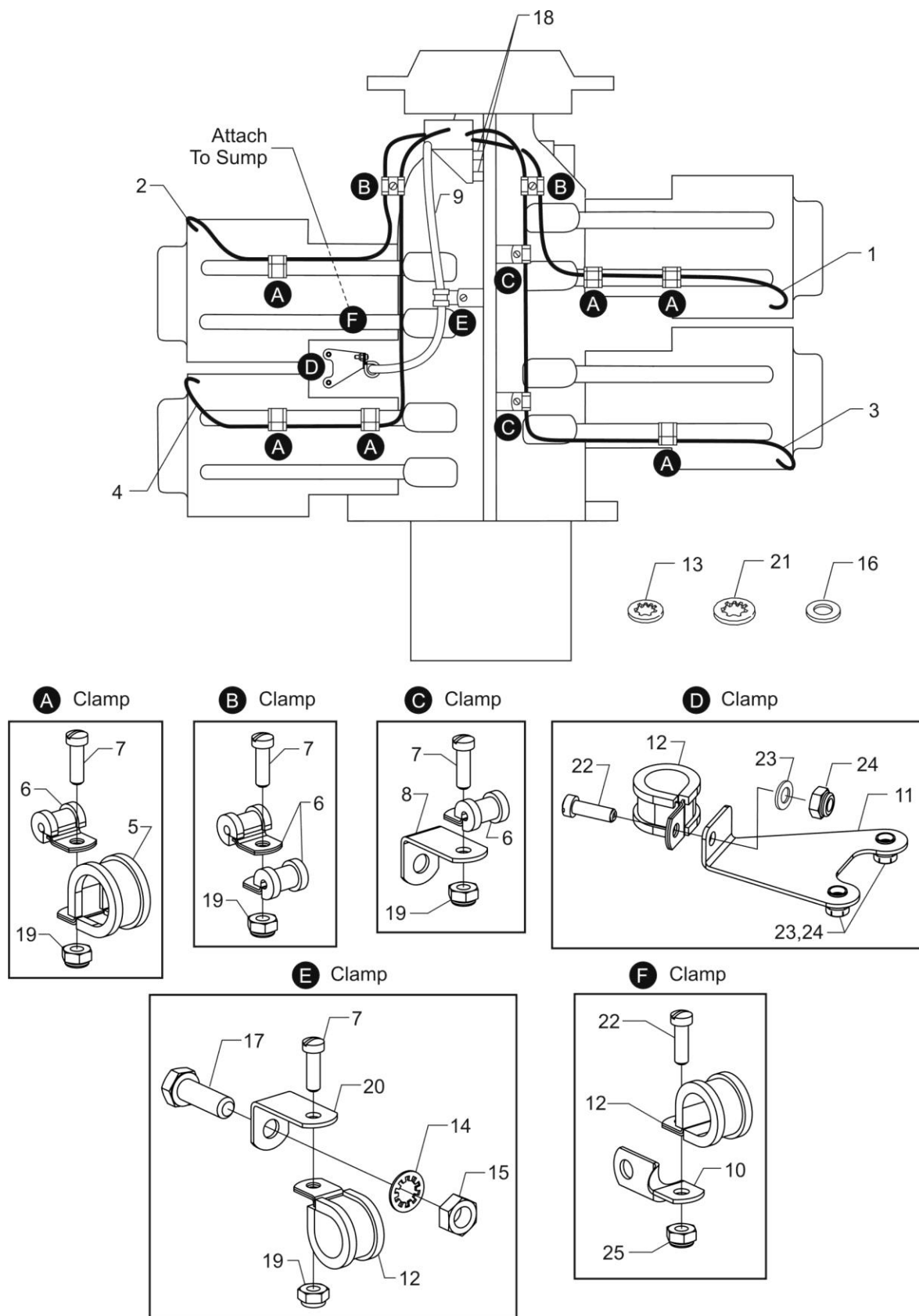


FIGURE 21. FUEL LINES AND ATTACHING PARTS

SECTION 7
SERVICE KIT SECTION**SEAL AND GASKET SET**

PART NO.	PART NAME	QTY.
71187-1	KIT - SEAL AND GASKET SET	1
LW-12272	LOCKPLATE, Shroud tube	4
LW-13792	SEAL, Crankshaft (solid)	1
LW-14260	SEAL, Tachometer drive oil	1
LW-14995	SPRING, Shroud tube	4
LW-18661	SEAL, Shroud tube	8
77611	GASKET, Exhaust flange	4
06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16	1
06E19769-0.63	GASKET, Annular	1
06E19769-1.25	GASKET, Annular	1
61173	GASKET, Oil pressure housing	1
61183	GASKET, Accessory adapter	1
62224	GASKET, Magneto adapter	4
66224	GASKET, Fuel injector	1
69345	SPACER	4
70310	SEAL, Shroud tube	8
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	4
71973	GASKET, Two bolt flange, 1-13/16 I.D.	4
72059	GASKET, Oil level gage	1
72075	SEAL, Oil,	6
72078	LOCKPLATE, 5/16 bolt	2
72091	RING, Oil seal, 3/8 I.D. x 3/32 diameter	2
72278	GASKET, Magneto case	1
72312	RING, Oil seal, 1.00 x 1-5/15	1
72353	LOCKPLATE, Crankshaft gear	1
72391	GASKET, Oil drain and suction screen	1
73817	LOCKPLATE, 1/4 bolt	1
73818	GASKET, Accessory housing	1
74068	RING, Oil level gage plug	1
75906	GASKET, Rocker box	4
76510	GASKET, Oil cooler bypass valve	1
76940	SEAL, Crankshaft oil	1
8313	GASKET, Vacuum pump	2

SERVICE KIT SECTION (CONT.)**CYLINDER, PISTON AND RING ASSEMBLY KIT**

PART NO.	PART NAME	QTY.
05K22294	KIT – CYLINDER PISTON AND RING ASSEMBLY	1
LW-15682	CYLINDER ASSEMBLY	1
17A23938	VALVE, Intake	1
17B23936	VALVE, Exhaust	1
61625	SEAT, Valve spring, lower	2
LW-11800	SPRING, Valve, outer	2
LW-11795	SPRING, Valve, inner	2
LW-10077	SEAT, Valve spring, upper intake	1
LW-16475	SEAT, Valve spring, upper exhaust	1
60009	KEY, Valve, intake	2
17C21191	KEY, Valve, exhaust	2
STD-783	PLUG, 1/4-18 NPT, Allen head	1
17C19386	CAP, Valve stem, exhaust	1
1102	PLUG, 1/8-27 NPT, Allen head	3
75089	PISTON	1
74241	RING, Piston, compression	2
14H21950	RING, Piston, oil regulating	1
LW-14078	PIN, Piston	1
72198	PLUG, Piston pin	2
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	1
70310	SEAL, Shroud tube	2
LW-18661	SEAL, Shroud tube	2
75906	GASKET, Rocker box	1
77611	GASKET, Exhaust	1
71973	GASKET, Two bolt flange	1
SSP-299	TAG	1

SECTION 8
NUMERICAL INDEX

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
AN6-16	Bolt	5-3	LW-13796	Shaft	1-7
AN6-17	Bolt	5-3	LW-13923	Bushing	3-1
AN6-34A	Bolt	1-9	LW-14060	Clip	4-1
AN791-2	Elbow	6-5	LW-14078	Piston Pin	3-1
AN960-616L	Washer	1-9	LW-14260	Seal	2-3
LW-25-0.67	Bolt	6-5	LW-14318	Alternator	5-2
LW-25-0.81	Bolt	2-7	LW-14521-1	Crankcase Assy.	1-1
LW-25-0.94	Bolt	2-3	LW-14995	Spring	3-7
LW-25-0.94	Bolt	2-5	LW-15592-5-05	Clamp	3-5
LW-25-0.94	Bolt	6-1	LW-15592-8-28	Clamp	6-3
LW-25-1.00	Bolt	6-1	LW-15680	Guide	3-3
LW-25-1.13	Bolt	1-9	LW-15682	Cylinder Assy.	3-3
LW-25-1.13	Bolt	2-3	LW-16266-10-13	Clamp	6-7
LW-25-1.13	Bolt	6-1	LW-16266-10-63	Clamp	6-7
LW-25-1.13	Bolt	6-5	LW-16266-10-75	Clamp	6-7
LW-25-1.25	Bolt	4-1	LW-16475	Seat	3-7
LW-25-1.25	Bolt	6-1	LW-18085	Spring	1-3
LW-25-1.50	Bolt	1-9	LW-18108	Impeller	2-3
LW-25-1.75	Bolt	1-9	LW-18109	Impeller	2-3
LW-25-1.75	Bolt	2-3	LW-18110	Impeller Assy.	2-3
LW-25-1.88	Bolt	1-9	LW-18265	Nozzle	6-5
LW-25H0.81	Bolt	2-3	LW-18661	Seal	3-7
LW-25H3.00	Bolt	2-3	LW-18667	Pin	1-7
LW-25S1.50	Bolt	1-9	LW-18959-175-25	Clamp	4-1
LW-31-0.94	Bolt	5-1	LW-M-2375	Plate	4-1
LW-31-0.94	Bolt	5-3	LW-M-4031	Harness Assy.	4-1
LW-31-0.94	Bolt	6-5	LW-M-4032	Harness Assy.	4-1
LW-31-0.94	Bolt	6-7	MS21044N06	Nut	4-1
LW-31-1.16	Bolt	6-5	MS20822-4	Elbow	6-5
LW-31H0.75	Bolt	5-3	MS20823-8	Elbow	2-7
LW-31H0.88	Bolt	1-7	MS35489-20X	Grommet	3-5
LW-10077	Seat	3-7	STD-8	Washer	1-9
LW-10647	Dowel	1-1	STD-8	Washer	2-3
LW-11485	Shroud Tube Assy.	3-7	STD-8	Washer	2-5
LW-11713	Spring	1-3	STD-8	Washer	2-7
LW-11750	Connecting Rod Assy.	3-1	STD-8	Washer	4-1
LW-11795	Spring	3-7	STD-8	Washer	6-1
LW-11800	Spring	3-7	STD-8	Washer	6-3
LW-12098-0-180	Tube Assy.	6-7	STD-8	Washer	6-5
LW-12098-0-220	Tube Assy.	6-7	STD-33	Washer	1-9
LW-12098-0-260	Tube Assy.	6-7	STD-35	Washer	2-3
LW-12098-0-300	Tube Assy.	6-7	STD-35	Washer	3-3
LW-12186	Nut	3-1	STD-35	Washer	5-3
LW-12272	Lockplate	3-7	STD-35	Washer	6-5
LW-12798-4S340	Hose Assy.	6-7	STD-68	Pin	2-3
LW-12892	Thrust Button	3-7	STD-82	Screw	6-5
LW-13389	Baffle Assy.	3-5	STD-148	Nipple	6-5
LW-13790	Shaft	3-7	STD-160	Washer	1-9
LW-13792	Seal	1-3	STD-160	Washer	2-3
LW-13793	Stud	1-1	STD-160	Washer	2-5

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
STD-160	Washer	2-7	STD-1727	Washer	6-7
STD-160	Washer	4-1	STD-1774	Pin	2-5
STD-160	Washer	6-1	STD-1792	Hose	6-3
STD-160	Washer	6-3	STD-1803	Washer	6-1
STD-160	Washer	6-5	STD-1916	Screw	4-1
STD-160	Washer	6-7	STD-1925	Screw	3-5
STD-251	Washer	6-5	STD-2090	Nut	3-5
STD-425	Washer	6-7	STD-2166	Elbow	6-5
STD-453	Plug	6-1	STD-2168	Nut	1-7
STD-475	Washer	3-3	STD-2180	Hose	3-5
STD-475	Washer	4-1	STD-2229	Plug	2-1
STD-475	Washer	5-1	STD-2232	Elbow	2-7
STD-475	Washer	6-5	STD-2245	Bolt	1-5
STD-475	Washer	6-7	STD-2249	Nut	1-9
STD-514	Dowel	1-1	25C-8	Stud	3-3
STD-553	Screw	4-1	25C-22	Stud	2-1
STD-557	Dowel	1-1	31C-12	Stud	1-1
STD-596	Nut	1-9	31C-12	Stud	3-3
STD-670	Locknut	6-1	31C-13	Stud	1-1
STD-670	Locknut	6-7	31CD-17	Stud	2-1
STD-678	Washer	1-9	38-13	Stud	1-1
STD-684	Nipple	3-5	38D-17	Stud	1-1
STD-690	Washer	5-3	50-15	Stud	1-1
STD-713	Cotter Pin	5-3	383-B	Nut	3-5
STD-783	Plug	1-1	1028-B	Ball	1-3
STD-783	Plug	2-3	1102	Plug	1-1
STD-783	Plug	3-7	1102	Plug	2-1
STD-784	Plug	2-1	1102	Plug	3-3
STD-784	Plug	2-7	1102	Plug	6-5
STD-860	Screw	6-7	1182-L7	Spark Plug	4-1
STD-872	Nut	1-9	1182-L8	Spark Plug	4-1
STD-872	Nut	5-3	8313	Gasket	2-5
STD-1065	Dowel	1-5	45530	Ring	1-7
STD-1211	Plug	1-5	60009	Key	3-7
STD-1410	Nut	3-3	60430	Cover	2-5
STD-1410	Nut	4-1	60803	Lifting Strap	1-9
STD-1410	Nut	5-1	61084	Spring	1-3
STD-1410	Nut	6-5	61098	Adapter Assy.	2-5
STD-1410	Nut	6-7	61173	Gasket	2-7
STD-1411	Nut	1-9	61174	Shaft	2-3
STD-1411	Nut	2-5	61175	Adapter	2-1
STD-1411	Nut	3-7	61183	Gasket	2-5
STD-1411	Nut	4-1	61247	Rocker Box Cover	3-5
STD-1411	Nut	6-1	61625	Seat	3-7
STD-1420	Nut	2-3	61634	Connector	3-3
STD-1623	Insert	1-1	62224	Gasket	4-1
STD-1650	Bolt	6-1	62817	Screen Assy.	2-7
STD-1727	Washer	4-1	66145	Dowel	1-1
STD-1727	Washer	5-3	66224	Gasket	6-5
STD-1727	Washer	6-5	66610	Bushing	3-3

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
68668	Spring	1-3	74654	Intake Pipe	6-3
69260	Insert	3-3	74655	Spacer	6-5
69510	Housing	2-7	74655	Spacer	6-7
69796	Dowel	1-1	74659	Manifold Assy.	6-5
70310	Seal	3-7	74663	Gage Assy.	1-3
70484	Screen	6-1	74764	Intake Pipe	6-3
71481	Ring	3-5	74887	Spacer	3-5
71596	Washer	2-5	74996	Gear Assy.	1-7
71610	Hook	3-5	75061	Bolt	3-1
71611	Retainer	3-5	75089	Piston	3-1
71973	Gasket	6-3	75154	Stud	1-1
72057	Seat	3-3	75281	Manifold Assy.	6-5
72058	Seat	3-3	75339	Baffle Assy.	3-5
72059	Gasket	1-3	75380	Link	5-3
72075	Seal	1-3	75656-S	Bushing	1-5
72091	Ring	1-3	75657-S	Bushing	1-5
72111	Plate	3-3	75708	Shaft Assy.	1-5
72155-S	Bushing	1-5	75906	Gasket	3-5
72198	Plug	3-1	76094	Camshaft Assy.	1-7
72273	Washer	2-3	76220	Stud	1-9
72274	Washer	2-3	76510	Gasket	2-7
72275	Washer	2-3	76534	Shim	5-3
72278	Gasket	6-1	76943	Guide	5-3
72312	Ring	1-3	77309	Bushing	1-7
72347	Coupling	2-3	77467	Spring	1-3
72349	Shaftgear	2-3	77526	Tube	1-3
72353	Lockplate	1-5	77808	Valve Assy.	1-3
72359	Support Assy.	2-3	78530	Shaft	2-3
72379	Separator Assy.	6-1	78531	Body Assy.	2-3
72391	Gasket	6-1	02G21382	Nipple	6-5
72397	Adapter	6-1	06A19556	Oil Seal	2-5
72400	Shaftgear Assy.	4-1	06E19769-0.63	Gasket	2-7
72512	Case Assy.	6-1	06E19769-1.25	Gasket	1-3
72566	Gear	1-5	07A19474	Bracket	5-3
72624	Tube Assy.	3-3	07A22167	Bracket	6-5
72815	Bracket	6-7	07F21406	Bracket	6-5
72970	Gear Assy.	1-5	07F21407	Strut	6-5
73136	Bracket	6-7	07F21411	Bracket	6-5
73346	Flange	6-3	07F23268	Strut	5-3
73383	Lockplate	5-3	13B47121	Crankshaft Assy.	1-5
73772	Nozzle Assy.	1-1	13S19757	Gear	1-5
73818	Gasket	2-1	14H21950	Ring	3-1
74241	Ring	3-1	14S23890	Bolt	3-1
74278	Bracket Assy.	6-7	15B21319	Socket	3-7
74336	Housing Assy.	2-1	15B26064	Tappet Body	1-3
74494	Plate	3-5	15B26066	Plunger Assy.	3-7
74637	Bushing	3-7	15F19957-34	Rod Assy.	3-7
74642	Fuel Injector	6-5	15F19957-35	Rod Assy.	3-7
74652	Intake Pipe	6-3	15F19957-36	Rod Assy.	3-7
74653	Intake Pipe	6-3	15F19957-37	Rod Assy.	3-7

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
17A23938	Valve	3-7	18M26105	Bearing	3-1
17B23936	Valve	3-7	31A22110	Starter	5-1
17C19386	Cap	3-7	31M21951	Support Assy.	1-5
17C21191	Key	3-7	32B19549	Alternator Assy.	5-2
17F19357	Rocker Assy.	3-7	36B19484	Pulley	5-2
17T21683	Tube	3-5	37A19773-372	Alternator Belt	5-2
17T21684	Tube	3-5	53E22144	Valve Assy.	2-7
17T21685	Tube	3-5	66B21772	Magneto	4-1
17T21686	Tube	3-5	66B21778	Magneto	4-1
18A26093	Bearing	1-3	68C19622	Gear	4-1
18D26096	Bearing	1-3			