

O-320-E1F, -E2F Series Illustrated Parts Catalog

November 2011

PC-203-4

LYCOMING © 2011

652 Oliver Street
Williamsport, PA 17701

O-320-E1F, -E2F Illustrated Parts Catalog

Lycoming Part Number: PC-203-4

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*******NOTICE*******

This parts catalog is the fourth of eight other forthcoming parts catalogs associated with O-320 engine model series as shown in the table below.

Parts Catalog Number	Engine Models
PC-203-1	O-320-A2B, -A3B
PC-203-2	O-320-A2C, -A2D
PC-203-3	O-320-E1A, -E2A
PC-203-4	O-320-E1F, -E2F
PC-203-5	O-320-E2B, -E2C
PC-203-6	O-320-E2D, -E3D
PC-203-7	O-320-E2G
PC-203-8	O-320-E2H, -E3H

NOTE: Service documents override parts information in this document.

RECORD OF REVISIONS

Rev No.	Issue Date	Initials	Insertion Date

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72-10	2-3	11/11
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72-30	14-25	11/11
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72-60	30-41	11/11

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INTRODUCTION

⚠ CAUTION: DO NOT USE THIS CATALOG AS AN ASSEMBLY OR INSTALLATION DOCUMENT. THIS CATALOG MUST ONLY BE USED TO IDENTIFY PARTS IN CONJUNCTION WITH THE APPLICABLE OVERHAUL MANUAL.

Purpose of this Catalog

This Illustrated Parts Catalog (IPC) contains a complete list of spare parts for the Lycoming O-320-E1F, -E2F wide cylinder flange model engines.

How to Use this Catalog

This catalog is based on the Air Transport Association (ATA) Spec100 format. In order to clarify illustrations, Lycoming has taken discretion to classify non-system related assemblies and components in the same chapters, because they are physically connected.

This catalog is frequently updated by Service Bulletins (SB) and Service Instructions (SI). The updated information will be incorporated into subsequent full revisions of this catalog.

The ATA two element numbering system provides consistency throughout various manuals. The bottom of each page (beyond the frontal section) contains a two element number (##-##). In the two element numbering, the first two digits represent a chapter, and the next two digits subdivide the material into a more specific section.

The ATA 100 format specifies the subject matter for each chapter-section. According to the ATA Standards, the following chapters apply to the O-320-E1F, -E2F Illustrated Parts Catalog.

72 (Reciprocating Engine), 73 (Engine and Fuel Control), 74 (Ignition), and 76 (Engine Controls).

EXAMPLE: **74** — **20**
 Chapter Section
 Ignition **Distribution**

NOTE: See the IPC Table of Contents for the sub-systems listed in each section.

Numerical Index

The Numerical Index is a single list of part numbers, names and their locations within the IPC. It is useful for locating parts when you only know the number or name of the part.

Description column

Indentation of a part name represents a lower level of assembly. Attaching parts have the same indentation level and are listed below the parts grouping or assembly they attach to. This column is often referred to as the "Nomenclature" on other ATA Spec manuals.

Units per Assembly Column

Where more than one assembly exists, this column contains the quantity of a specific part required in the build sequence of only one next higher assembly. The letters "AR" represent "as required" for bulk items or non-illustrated select-from-range-parts. "RF" represents items listed for reference purposes only.

Cross Reference List of Manufacturer Parts to Standard Part Numbers**Vendor Accessories**

Parts coverage of Vendor Accessories used on Lycoming engines may be found in the appropriate Vendor's Parts Catalog. A list of vendor's addresses appears in the latest revision of Lycoming Service Letter No. L114.

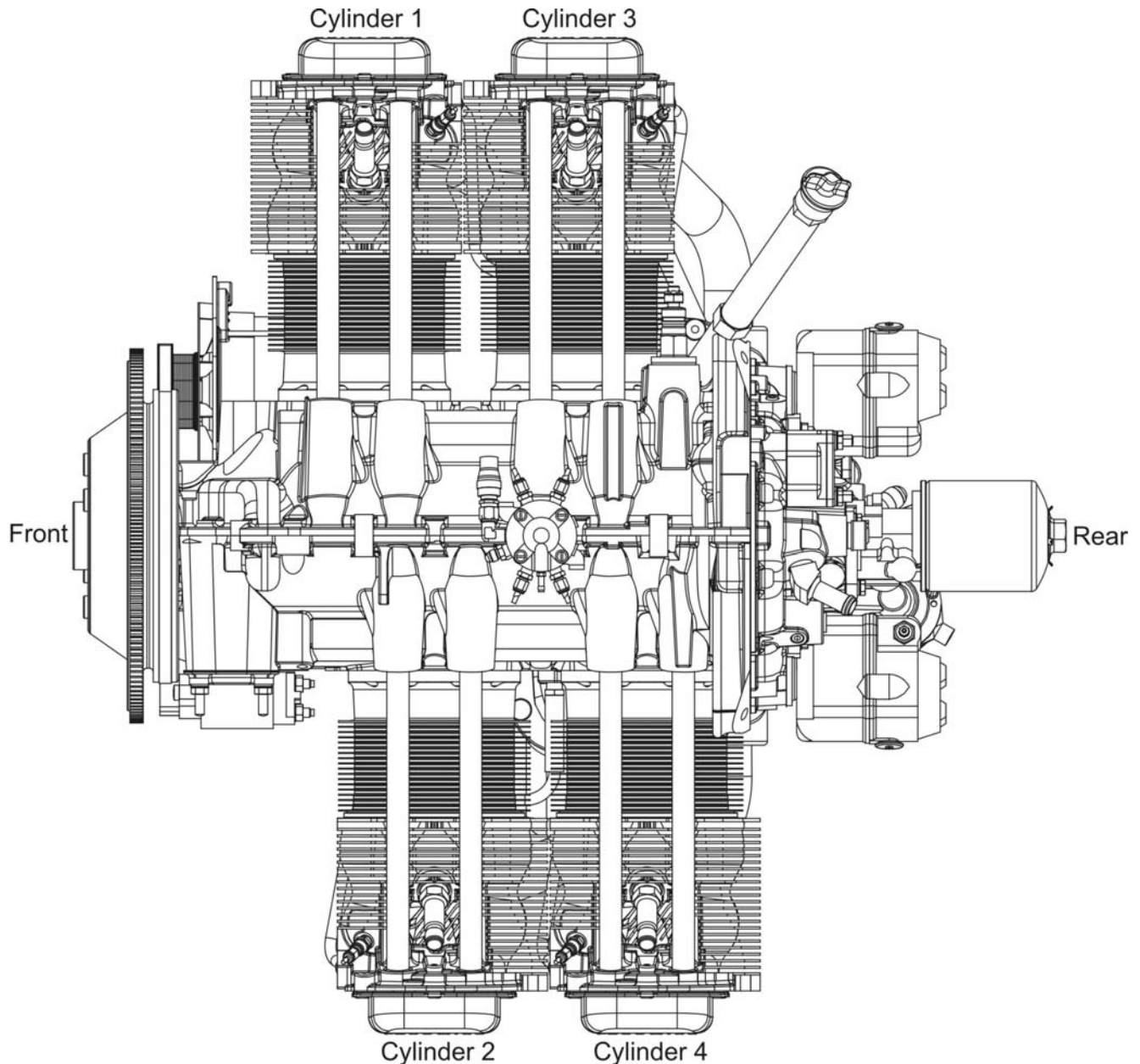
Any reference in this document to the suppliers/part manufacturer's product, by name, trademark, part number or other description is solely for the purpose of identification and does not indicate or infer that Lycoming accepts responsibility for quality control and/or airworthiness of parts, which do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

Environmental Compliance

Lycoming is concerned with preserving the environment. Lycoming strongly urges engine owners and repair/overhaul personnel to observe and comply with all federal, state, and local environmental regulations when solvents, paint, fuel, oil, chemicals, or other consumables are used in operating, maintaining, or overhauling an engine component. Please share our concern for, and commitment to a clean earth, clean water, and especially clean air for succeeding generations of flyers.

Perspective of References

In this manual, all references to locations of various components will be designated as if viewing the engine from the rear (or anti-propeller) end. The front of the engine is considered to be the propeller end and the oil sump is considered to be on the bottom of the engine. Cylinders are numbered from front to rear with the odd-numbered cylinders on the right-hand side. The firing order for this engine is 1-3-2-4

**Top View of Engine**

How to Order Parts and Publications

An Oversize and Undersize Parts List is included in the front section of this catalog, to aid in ordering parts as necessary during overhaul.

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. Refer to the latest revision of Service Letter No. L114 for subscription information.

1. In order to expedite correct part shipments without delay:
 - a. Always specify the model and serial number of your engine.
 - b. Always specify the part number, nomenclature, and quantity required.

The SB and SI documents are available from Lycoming distributors, or the factory, or by subscription.

Full Revisions of the Illustrated Parts Catalog are available from Lycoming distributors or the factory.

Every effort has been made in preparing this manual to ensure its accuracy. However, any comments, suggestions, or corrections to this manual are welcome and must be directed in writing to:

Technical Publications Coordinator**Lycoming Engines****652 Oliver Street****Williamsport, PA 17701**

NOTE: The owner of the manual must give notification to the factory for a change of address.

Additionally, Lycoming has a Customer Service Hot Line for information and assistance to owners, operators, and maintenance personnel which are servicing Lycoming engines.

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8:00 A.M. – 5:00 P.M. EST (-5GMT)

Monday – Friday.

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ABBREVIATIONS AND ACRONYMS

A	
Adj.	Adjustable
C	
Cyl.	Cylinder
D	
Dia.	Diameter
F	
Fill.	Fillister
H	
Hex.	Hexagon
I	
I.D.	Inside Diameter
N	
No.	Number
O	
O.D.	Outside Diameter
S	
Scav.	Scavenge
T	
Temp.	Temperature
V	
Vac.	Vacuum

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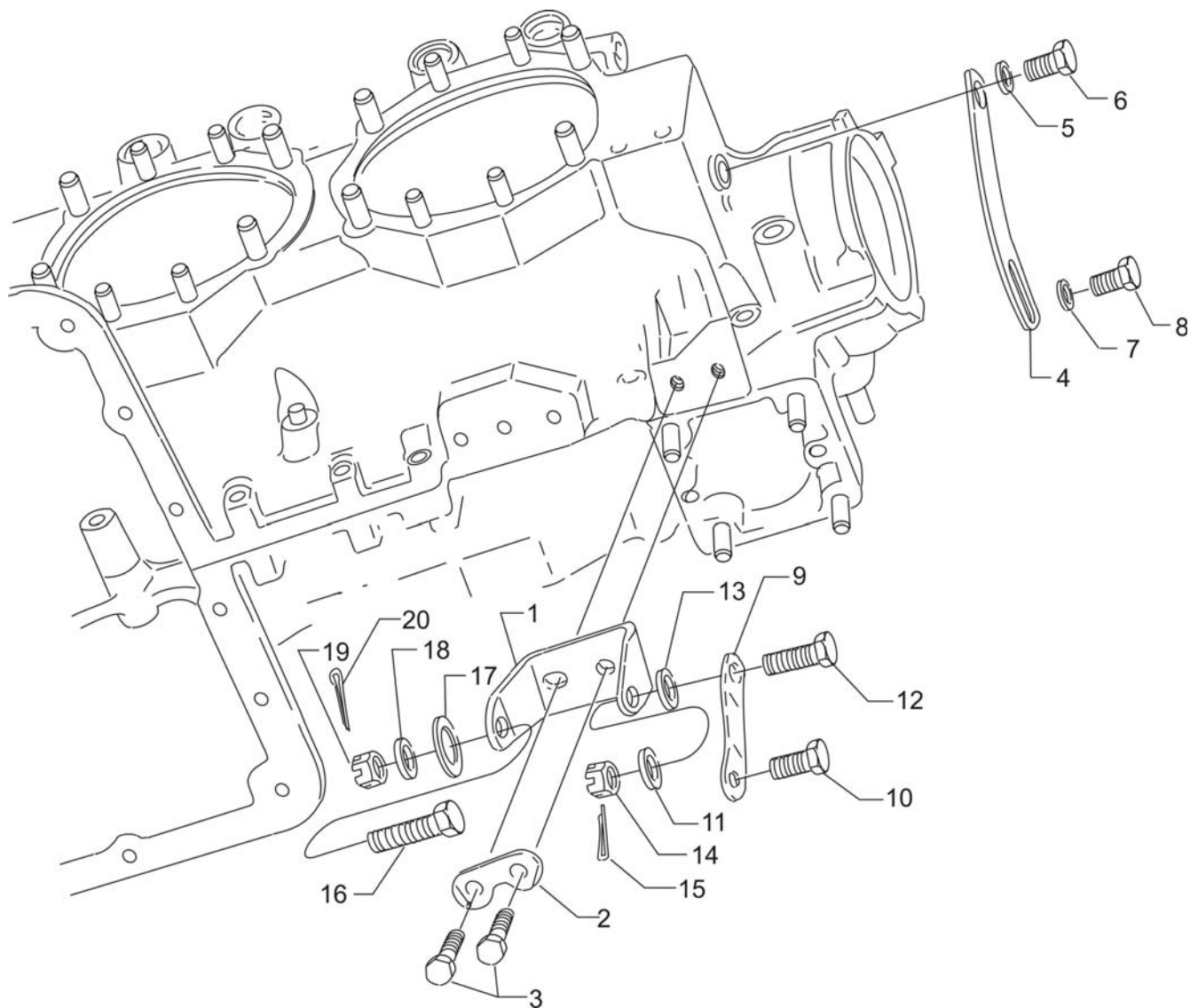
OVERSIZE AND UNDERSIZE PARTS LISTING

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
18D26098	BEARING									X	X	X
18A26093	BEARING									X	X	X
18D26096	BEARING									X	X	X
18M26104	BEARING									X	X	X
LW-13792	SEAL								X			
LW-18815-S	BUSHING		X	X	X	X						
LW-18816-S	BUSHING		X	X	X	X						
LW-18817-S	BUSHING		X	X	X	X						
LW-18921-S	BUSHING			X	X	X						
LW-18922-S	BUSHING			X	X	X						
STD-1065	DOWEL	X	X	X	X							
74241	RING			X								
14H21950	RING			X		X						
72057	SEAT		X	X		X	X					
72058	SEAT		X	X		X	X					
61681*	GUIDE		X	X		X	X	X				
16R22291*	GUIDE		X	X		X	X	X				
66610	BUSHING		X	X								

* - Refer to Figure 9 item nos. 4 and 5 for valve guides.

NOTE

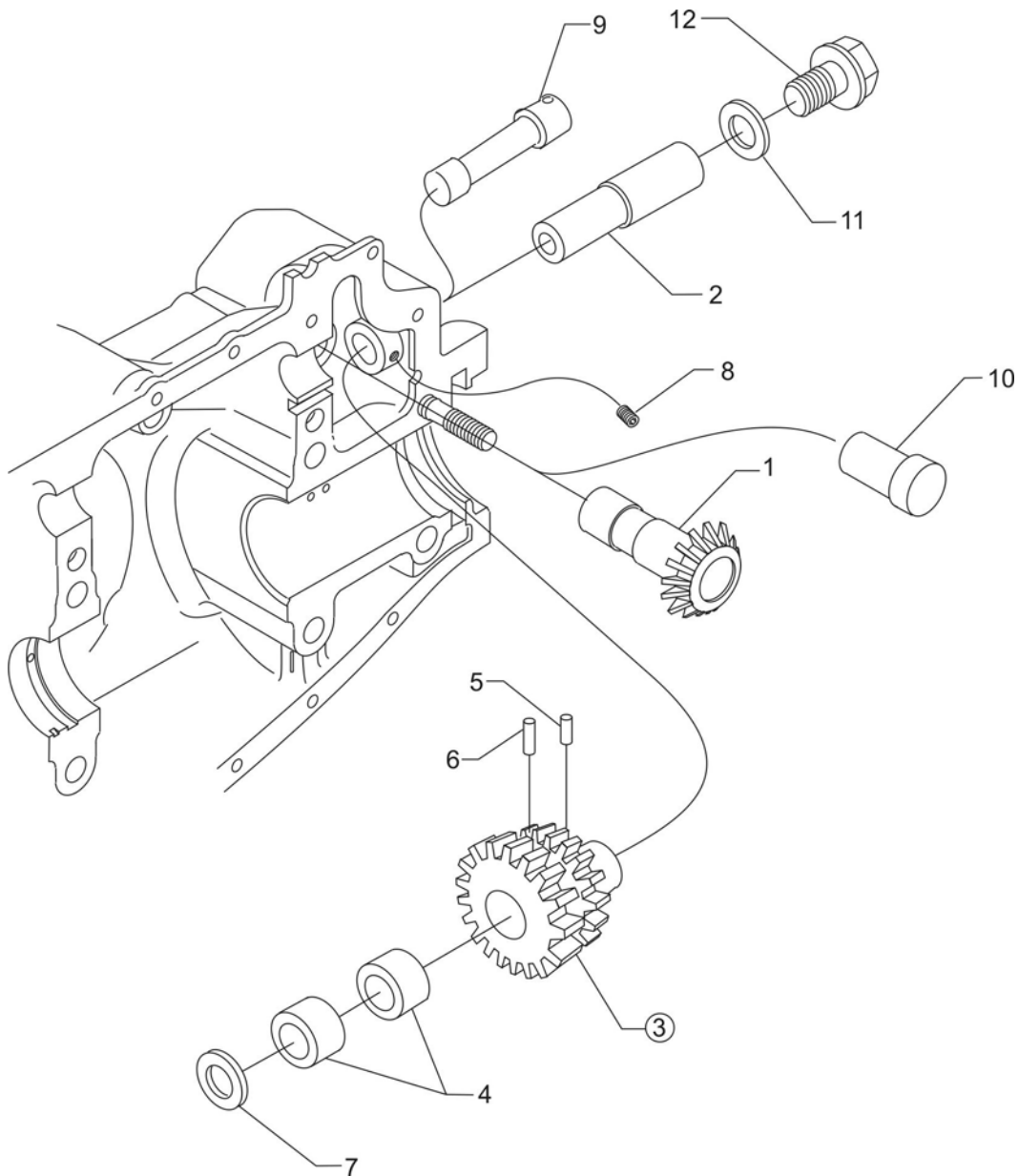
When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing P/N 18D26098 bearing in .003 in. undersize, order P/N 18D26098-M03. Undersize code letter is "M" while oversize code letter is "P". These letters are then followed by the number designating the size in thousandths of an inch.



Alternator Mounting and Attaching Parts
Figure 1

ELECTRICAL POWER**FIGURE 1 – ALTERNATOR MOUNTING AND ATTACHING PARTS**

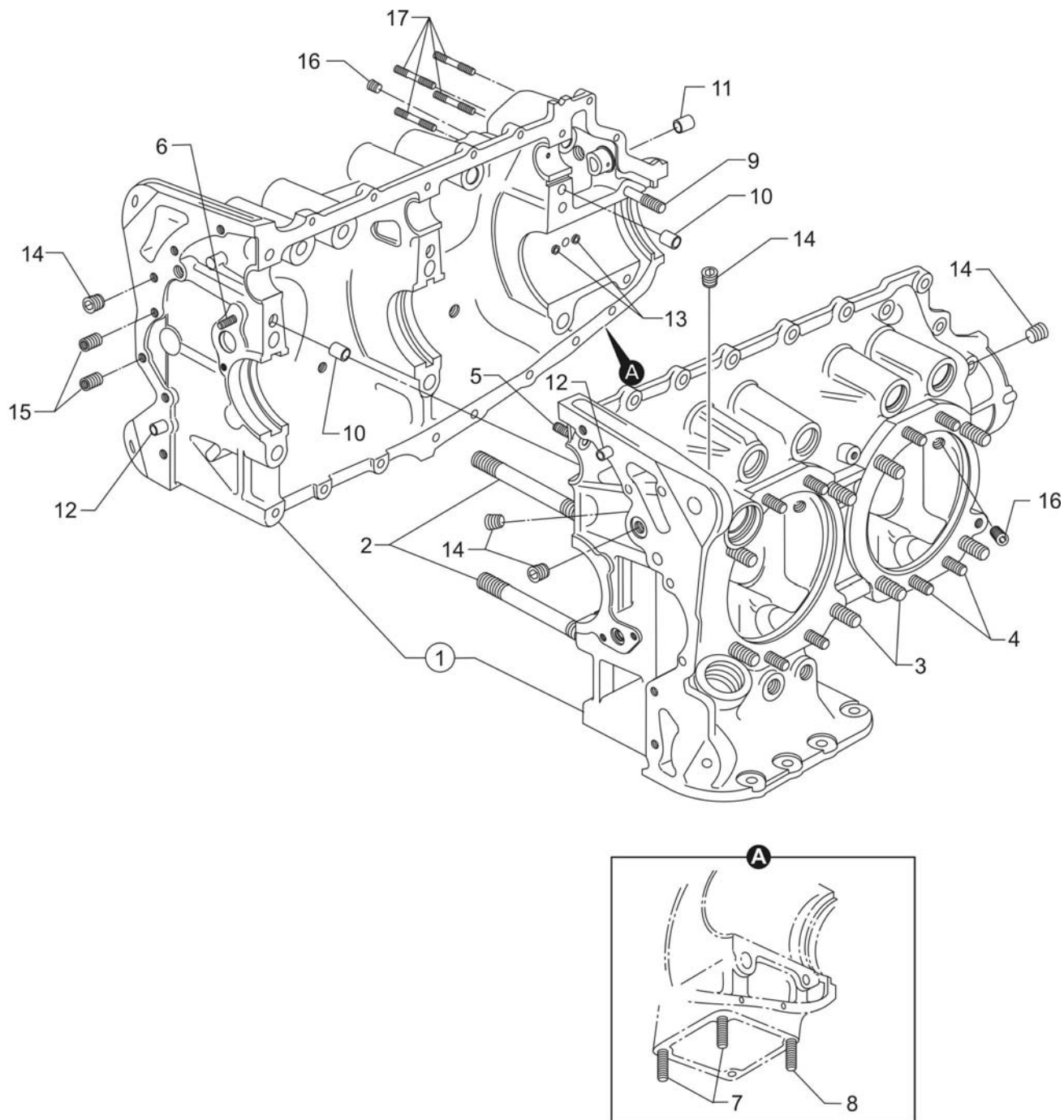
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		07A19474	BRACKET, Alternator	1	1
2		73383	LOCKPLATE, 5/16 bolt x 1.00	1	1
3		LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	2	2
4		75380	LINK, Alternator adjusting	1	1
5		STD-35	WASHER, 5/16 plain	1	1
6		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1	1
7		STD-1727	WASHER, Plain, 11/32 I.D. x 3/4 O.D.	1	1
8		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1	1
9		07F23268	STRUT, Alternator support	1	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 3/8 I.D. x 1/16 thick	1	1
12		AN6-17	BOLT, 3/8-24 x 1-15/16 long, hex. head	1	
		AN6-14	BOLT, 3/8-24 x 1-19/32 long, drilled		1
13		STD-690	WASHER, 13/16 O.D. x 3/8 I.D. x 1/16 thick	1	1
14		STD-872	NUT, 3/8-24 slotted	1	1
15		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1	1
16		AN6-16	BOLT, 3/8-24 x 1-27/32 long, hex. head	1	1
17		76534	SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick	3	3
18		STD-690	WASHER, 13/16 O.D. x 3/8 I.D. x 1/16 thick	3	3
19		STD-872	NUT, 3/8-24 slotted	1	1
20		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1	1



**Propeller Governor Drive
Figure 2**

FRONT SECTION**FIGURE 2 – PROPELLER GOVERNOR DRIVE**

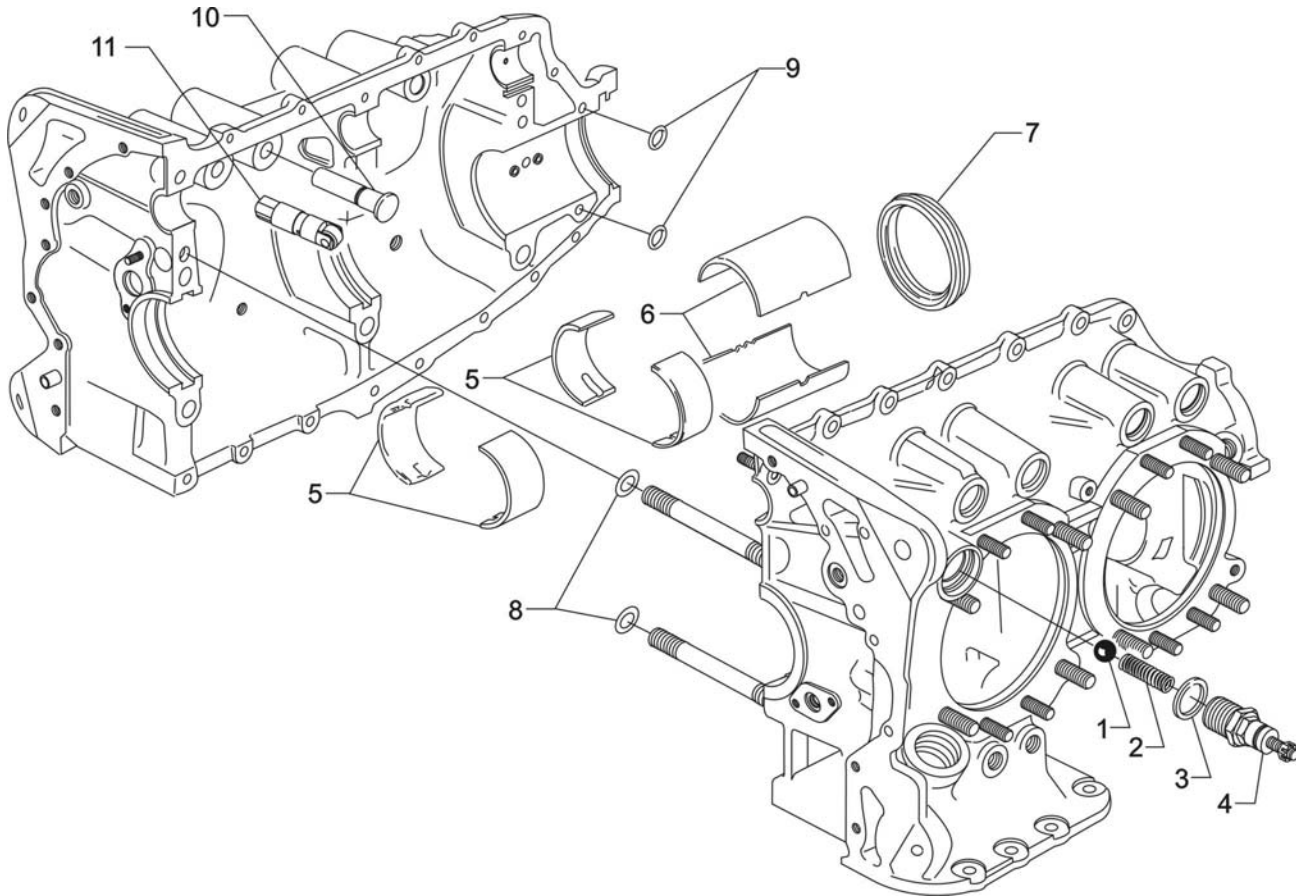
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		77875	GEAR, Propeller governor drive	1	
2		LW-14021	SHAFT, Propeller governor idler gear	1	
3		77874	GEAR ASSEMBLY, Propeller governor idler	1	
4		77872	BUSHING, Propeller governor idler gear	2	
5		STD-19	DOWEL, 3/32 diameter x 7/32 long	1	
6		STD-798	DOWEL, 3/32 diameter x 9/32 long	1	
7	AR	73249	WASHER, Thrust (.0585-.0595 thick)	AR	
	AR	73250	WASHER, Thrust (.062-.063 thick)	AR	
	AR	73251	WASHER, Thrust (.0655-.0665 thick)	AR	
	AR	73252	WASHER, Thrust (.069-.070 thick)	AR	
8		AN565B1032H5	SET SCREW, No. 10-32 x 5/16 long	1	
9		78589	PLUG, Propeller governor idler shaft		1
10		03C21721	PLUG, Propeller governor drive gear		1
11		70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/16 thick	1	1
12		LW-13896	PLUG, 3/4-16 hex. head	1	1
AR as required					



Crankcase Assembly
Figure 3

POWER SECTION**FIGURE 3 - CRANKCASE ASSEMBLY**

Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1	*	LW-18399-S	CRANKCASE ASSEMBLY KIT	1	1
	P	LW-18399-1	CRANKCASE ASSEMBLY	1	1
	*	LW-18399-5-S	CRANKCASE ASSEMBLY KIT (Roller tappet engines)	1	1
	P	LW-18399-5	CRANKCASE ASSEMBLY (Roller tappet engines)	1	1
2		75154	STUD, 1/2-13 x 10-1/32 long	2	2
3		50-15	STUD, 1/2-13 x 1-7/8 long	8	8
4		38-13	STUD, 3/8-16 x 1-5/8 long	16	16
5		38D-17	STUD, 3/8-16 x 2-1/8 long, drilled	1	1
6		LW-13793	STUD, 5/16-18 x 15/16 long, drilled	1	1
7		31C-12	STUD, 5/16-18 x 1-1/2 long	2	2
8		31C-13	STUD, 5/16-18 x 1-5/8 long	1	1
9		38-22	STUD, 3/8-16 x 1-5/8 long	1	1
10		STD-557	DOWEL, 1/2 dia. X 19/32 long, hollow	2	2
11		72158	BUSHING, Governor drive idler shaft	1	1
12		STD-514	DOWEL, 5/16 dia. x 1/2 long	2	2
13		69796	DOWEL, Crankshaft bearing	2	2
14		1102	PLUG, 1/8-27 NPT, allen head	5	5
15		STD-1623	INSERT, 1/4-20 Heli-coil x 3/8	2	2
16		STD-1339	PLUG, 1/16-27 NPT, allen head	5	4
17		31C-16	STUD, 5/16-18 x 2.00 long	4	
	**	31C-14	STUD, 5/16-18 x 1-3/4 long		4
<p>P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.</p> <p>* Refer to Service Kits Section for applicable Crankcase Assembly and Governor Thru-Stud Kit Part Numbers.</p> <p>** Used for installation of "AN" Governor.</p>					



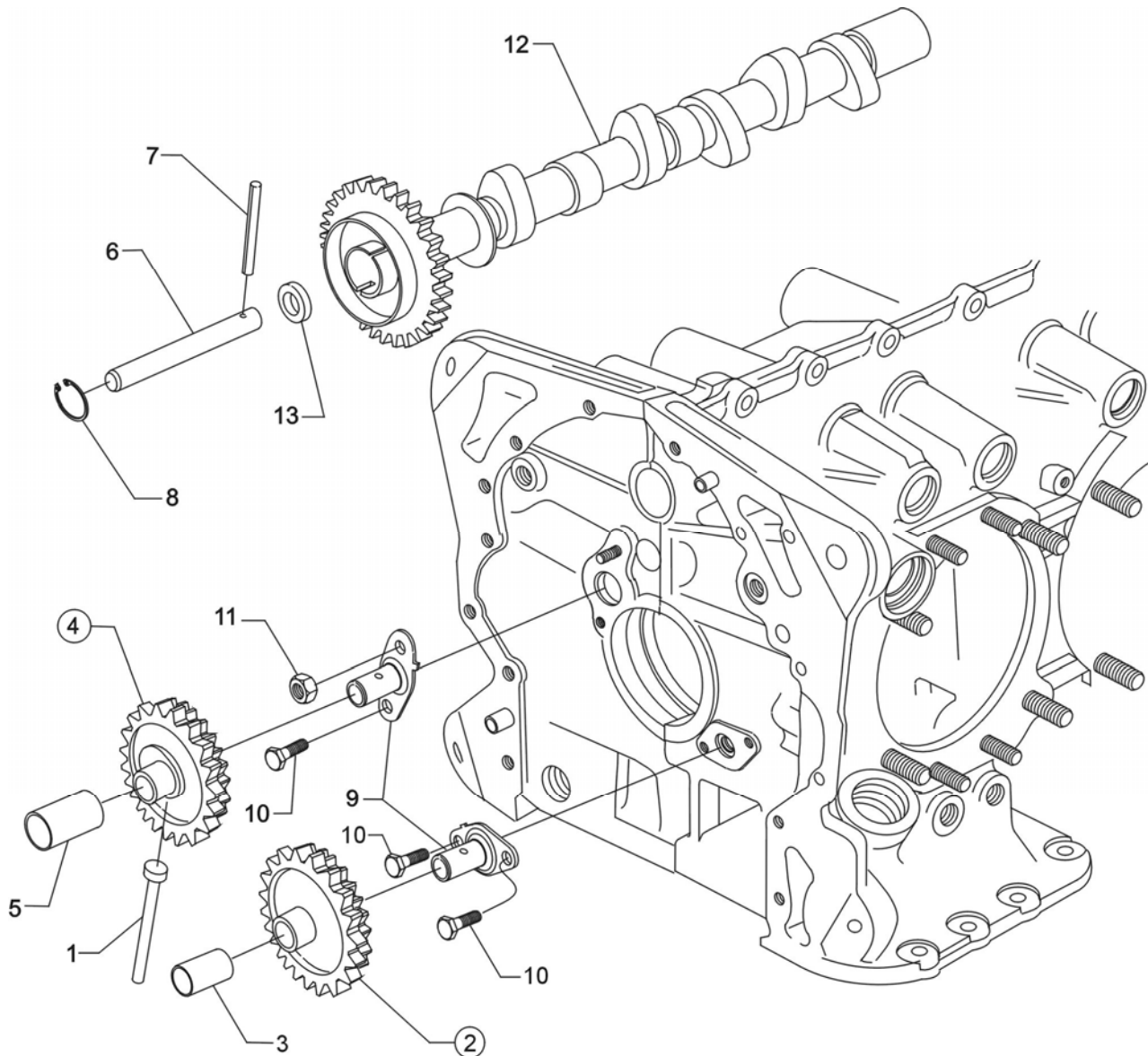
Crankcase Related Parts
Figure 4

POWER SECTION**FIGURE 4 - CRANKCASE RELATED PARTS**

Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		1028-B	BALL, 11/16 diameter	1	1
2	*	61084	SPRING, Oil pressure relief valve	1	1
	*	68668	SPRING, Oil pressure relief valve	1	1
	*	77467	SPRING, Oil pressure relief valve	1	1
	*	LW-11713	SPRING, Oil pressure relief valve	1	1
	*	LW-18085	SPRING, Oil pressure relief valve	1	1
3		06E19769-1.25	GASKET, 1-1/4 I.D., annular	1	1
4		77808	VALVE ASSEMBLY, Oil pressure relief	1	1
5		18D26098	BEARING, Crankshaft	4	
		18D26096	BEARING, Crankshaft		4
6		18A26093	BEARING, Crankshaft	2	2
7	**	LW-13792	SEAL, Crankshaft, oil	1	1
8		72075	SEAL, Oil, 3/32 section x 15/32 I.D.	2	2
9		72091	RING, Oil seal, 23/64 I.D. x 7/64 diameter	2	2
10		15B26064	BODY, Hydraulic tappet	8	8
11		LRT23381	BODY ASSEMBLY, Hydraulic tappet (Roller tappet engines)	8	8
<p>* Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment. Reference latest revision of SSP-1776, Part I for spring identification.</p> <p>** See latest revision of Lycoming Service Instruction No. 1324 for installation.</p>					

POWER SECTION**FIGURE 5 - CRANKSHAFT ASSEMBLY AND RELATED PARTS**

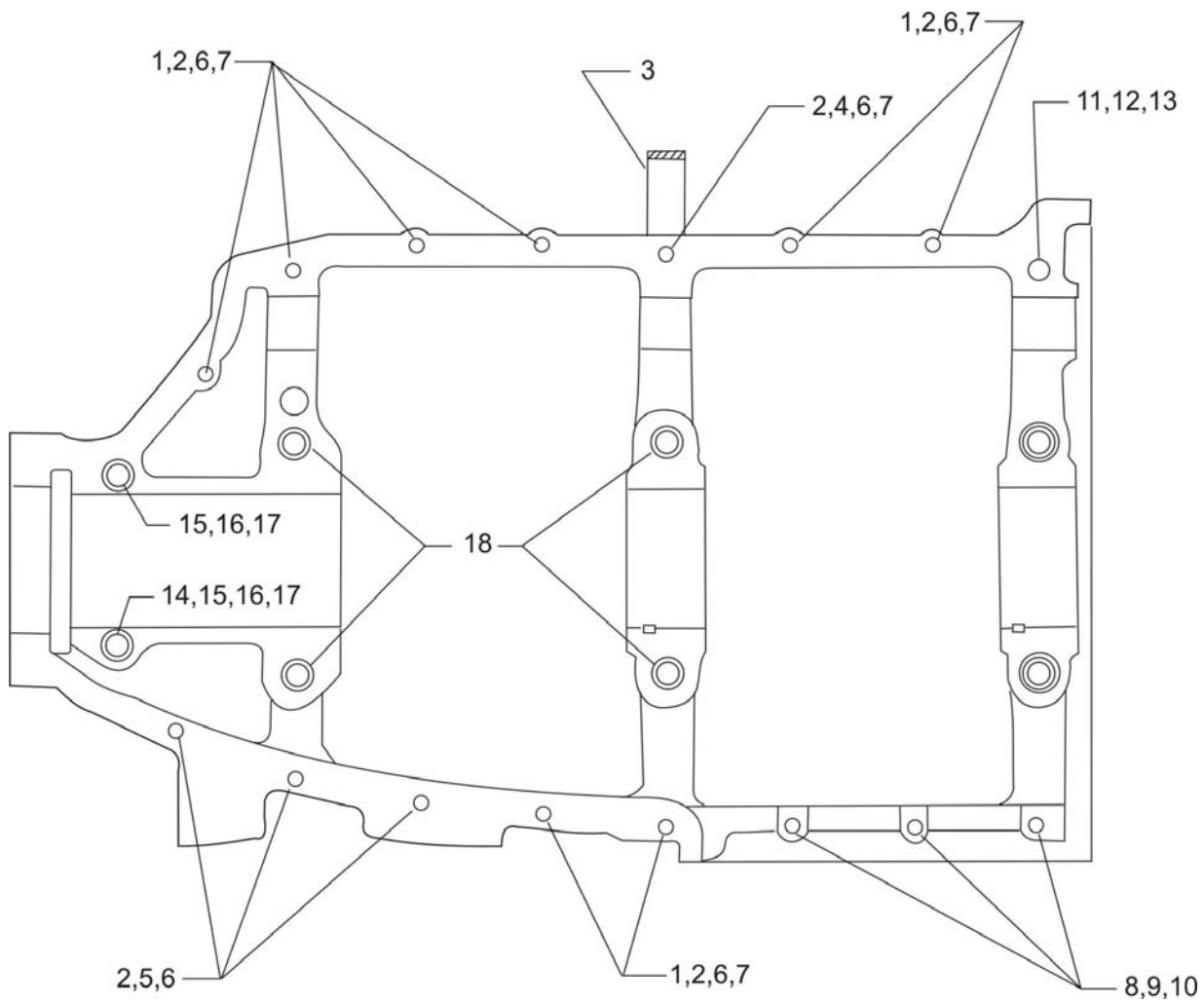
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		13B47022	CRANKSHAFT ASSEMBLY	1	
		13B47024	CRANKSHAFT ASSEMBLY		1
2		STD-1065	DOWEL, Stepped, 5/16-14 diameter	1	1
3		STD-1211	PLUG, 2.00 diameter expansion	1	1
4		LW-18921-S	BUSHING, Propeller flange, long		1
5		LW-18817-S	BUSHING, Propeller flange, long	1	
6		LW-18922-S	BUSHING, Propeller flange, short		5
7		LW-18815-S	BUSHING, Propeller flange, short	3	
8		LW-18816-S	BUSHING, Propeller flange, short	2	
9	SB*	13S19646	GEAR, Crankshaft	1	1
10		LW-18639	LOCKPLATE, Crankshaft gear	1	1
11		STD-2246	BOLT, 5/16-24 x 1.00 long	1	1
12		76628	SUPPORT ASSEMBLY, Starter ring gear	1	1
13		72566	GEAR, Starter ring, 12/14 pitch	1	1
SB Referencing Service Bulletin * Refer to latest revision of Service Bulletin No. 475 for proper installation.					



**Crankshaft Idler Gears, Tachometer Drive and Camshaft
Figure 6**

POWER SECTION**FIGURE 6 - CRANKSHAFT IDLER GEARS, TACHOMETER DRIVE AND CAMSHAFT**

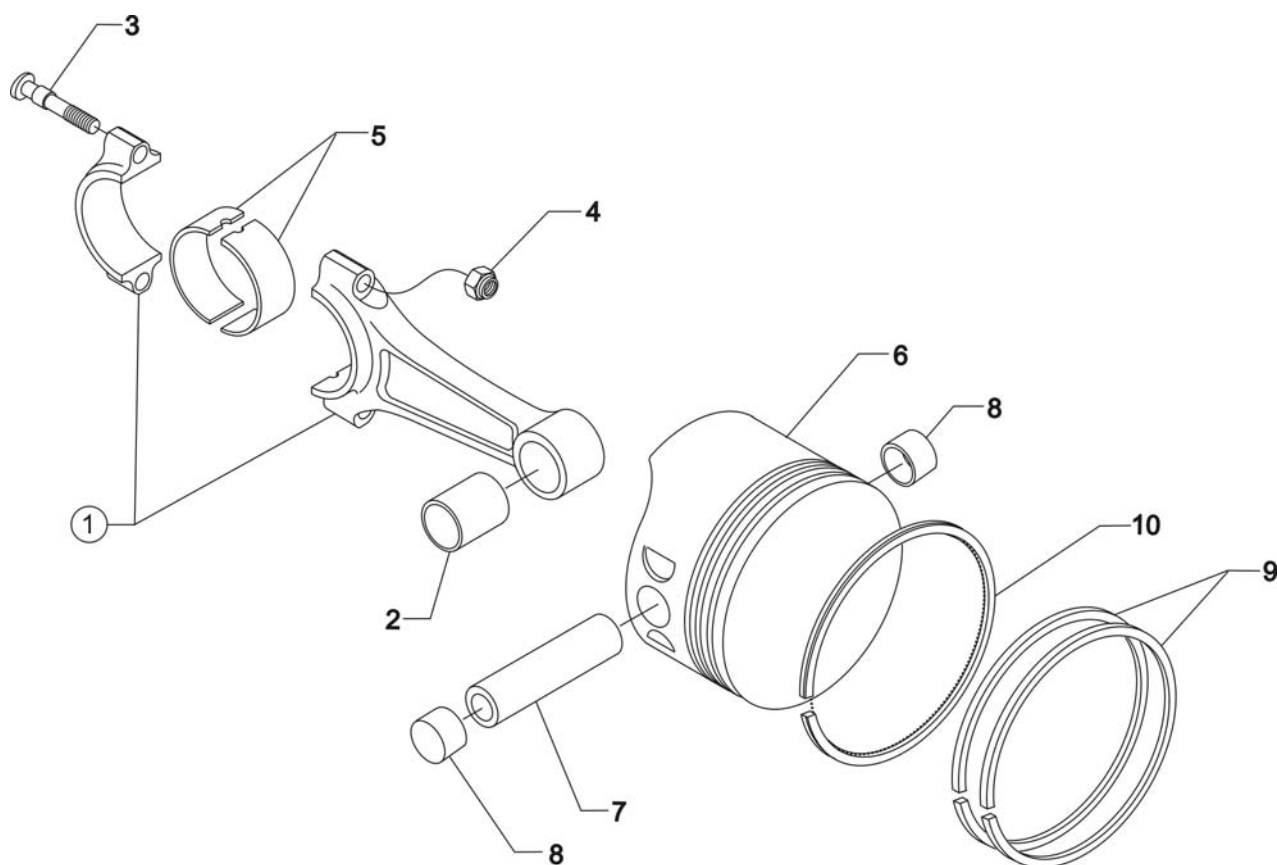
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		61544	PLUNGER, Fuel pump, long	1	1
2		74996	GEAR ASSEMBLY, Crankshaft idler, plain	1	1
3		77309	BUSHING, Crankshaft idler gear	1	1
4		75072	GEAR ASSEMBLY, Crankshaft idler	1	1
5		77309	BUSHING, Crankshaft idler gear	1	1
6		76121	SHAFT ASSEMBLY, Tachometer	1	1
7		LW-18667	PIN, 3/16 diameter x 2-11/32 long	1	1
8		STD-2231	RING, Internal retaining (13/16)	1	1
9		LW-13796	SHAFT, Crankshaft idler gear	2	2
10		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex. head, drilled	3	3
11		STD-2168	NUT, 5/16-18 NC-3 slotted shear	1	1
12		LW-18843	CAMSHAFT ASSEMBLY	1	1
		15M23452	CAMSHAFT ASSEMBLY (Roller tappet engines)	1	1
13		76118	SPACER, Tachometer shaft, centering	1	1



Crankcase Attaching Parts
Figure 7

POWER SECTION**FIGURE 7 - CRANKCASE ATTACHING PARTS**

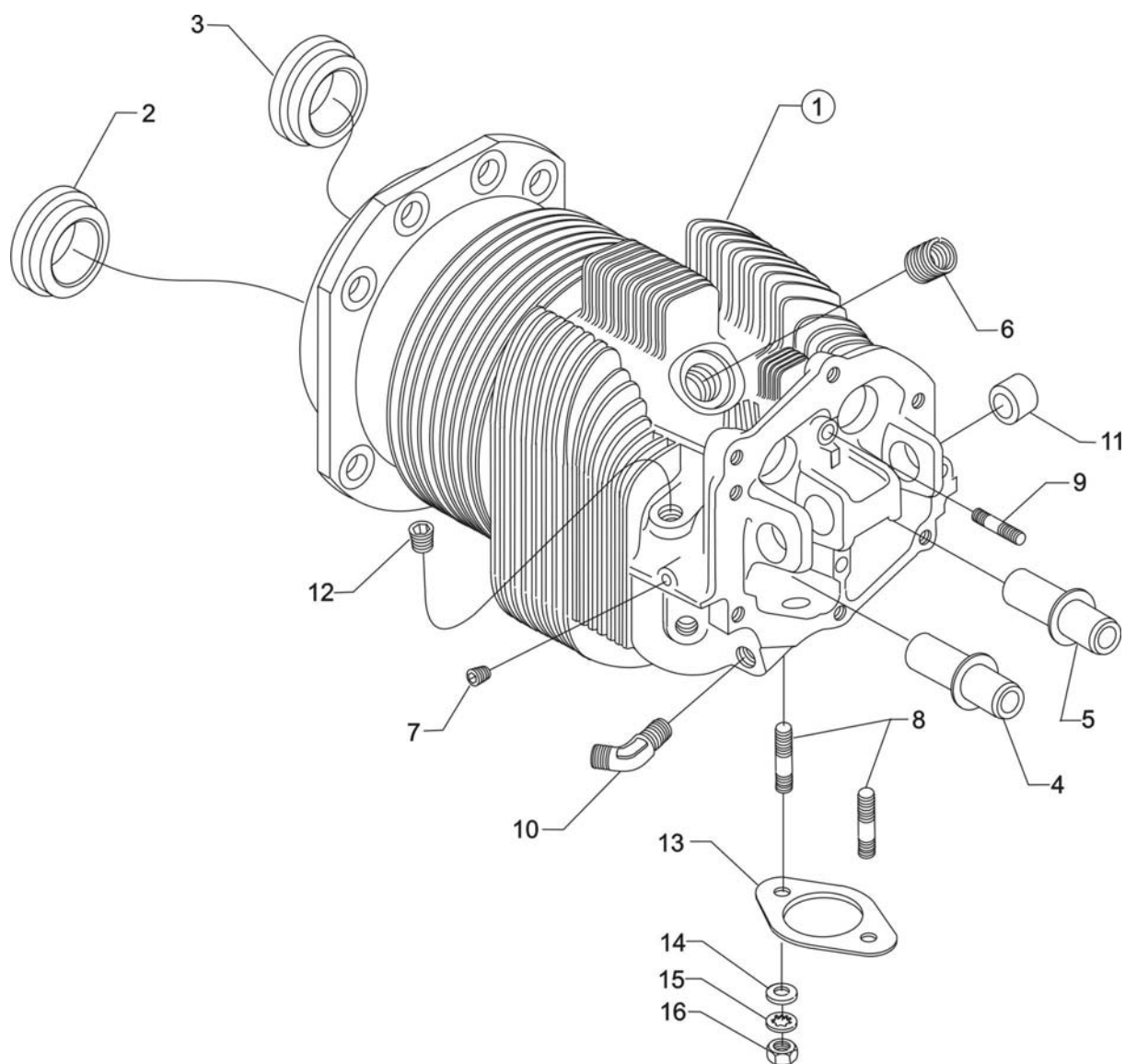
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head	8	8
2		STD-8	WASHER, 1/4 plain	20	20
3		60803	STRAP, Lifting	1	1
4		LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. head	1	1
5		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	4	4
6		STD-160	WASHER, 1/4 lock, internal teeth	13	13
7		STD-1411	NUT, 1/4-20 plain	9	9
8		LW-25S1.50	BOLT, 1/4-20 x 1-1/2 long, drilled end	3	3
9		STD-8	WASHER, 1/4 plain	9	9
10		STD-2249	NUT, 1/4-20 slotted	3	3
11		STD-33	WASHER, 3/8 plain	3	3
12		AN960-616L	WASHER, 3/8 plain (thin)	1	1
13		STD-872	NUT, 3/8-24 slotted	1	1
14		AN6-34A	BOLT, 3/8-24 x 3-19/32 long, hex. head	1	1
15		STD-33	WASHER, 3/8 plain	2	2
16		STD-678	WASHER, 3/8 lock, internal teeth	2	2
17		STD-596	NUT, 3/8-24 plain	2	2
18		76220	STUD, 1/2-20 x 10-11/16 long	4	4



Connecting Rods, Pistons and Ring Assemblies
Figure 8

CYLINDER SECTION**FIGURE 8 - CONNECTING RODS, PISTONS AND RING ASSEMBLIES**

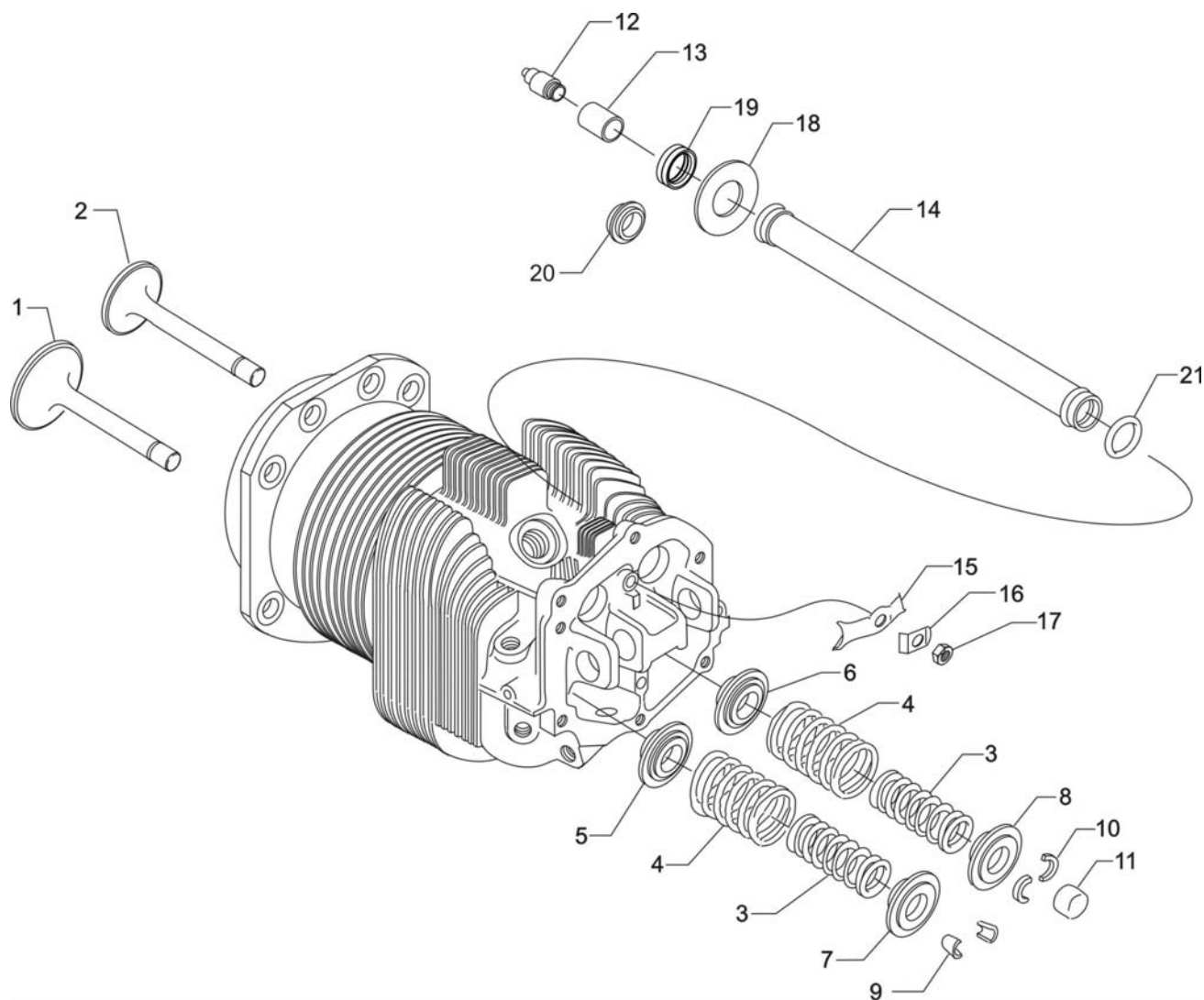
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		78030-S	CONNECTING ROD ASSEMBLY	4	4
2		LW-13923	BUSHING, Connecting rod, upper	4	4
3		78027	BOLT, Connecting rod	8	8
4		LW-12186	NUT, Connecting rod bolt	8	8
5		18M26104	BEARING, Connecting rod	8	8
6		14D23915	PISTON, 7.00:1 compression ratio	4	4
7		LW-14078	PIN, Piston	4	4
8		72198	PLUG, Piston pin	8	8
9		74241	RING, Piston compression	8	8
10		14H21950	RING, Piston, oil	4	4



Cylinder Assembly
Figure 9

CYLINDER SECTION**FIGURE 9 - CYLINDER ASSEMBLY**

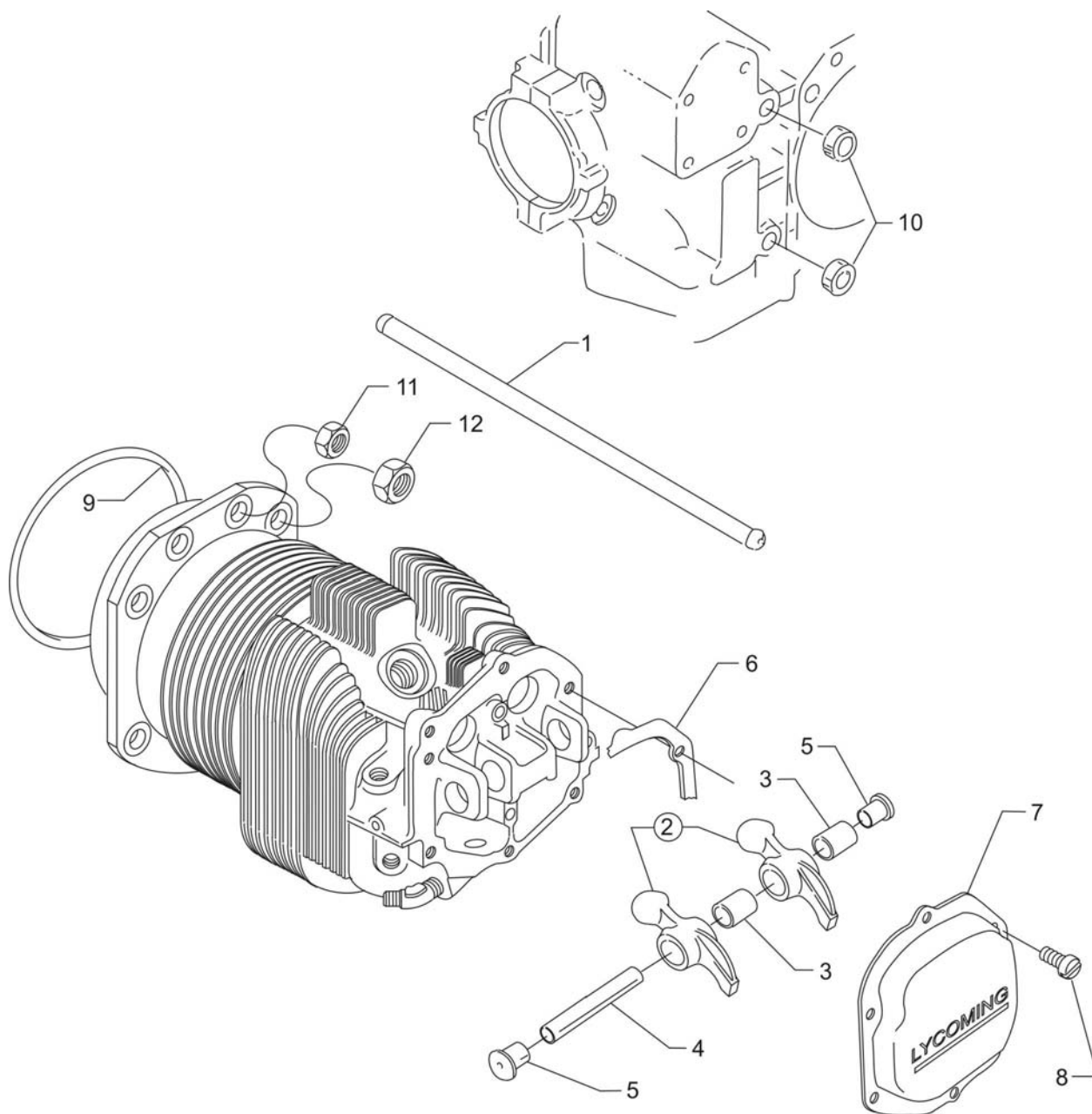
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		LW-12416	CYLINDER ASSEMBLY, Nitrided	4	4
2		72057	SEAT, Intake valve	4	4
3		72058	SEAT, Exhaust valve	4	4
4	P*	76943	GUIDE, Valve, intake	4	4
5	P*	16R22126	GUIDE, Valve, exhaust	4	4
6	P	66796	INSERT, Spark plug, 18-1.5 MM	8	8
7		STD-1353	INSERT, No. 10-24 UNC x 3/8 long	4	4
8		31C-12	STUD, 5/16-18 x 1-1/2 long	8	8
9		25C-8	STUD, 1/4-20 x 1.00 long	4	4
10		MS20823-6D	ELBOW, 45°, 3/8 flared tube	4	4
11		66610	BUSHING, Rocker shaft	16	16
12	**	1102	PLUG, 1/8-27 NPT, allen head	4	4
13		77611	GASKET, Exhaust flange	4	4
14		STD-35	WASHER, 5/16 plain	8	8
15		STD-475	WASHER, 5/16 lock, internal teeth	8	8
16		STD-1410	NUT, 5/16-18 plain	8	8
<p>P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.</p> <p>* See latest revision of Service Instruction No. 1256 for service valve guides.</p> <p>** Used on installations without injector or priming system.</p>					



Valve Assembly and Related Parts
Figure 10

CYLINDER SECTION**FIGURE 10 – VALVE ASSEMBLY AND RELATED PARTS**

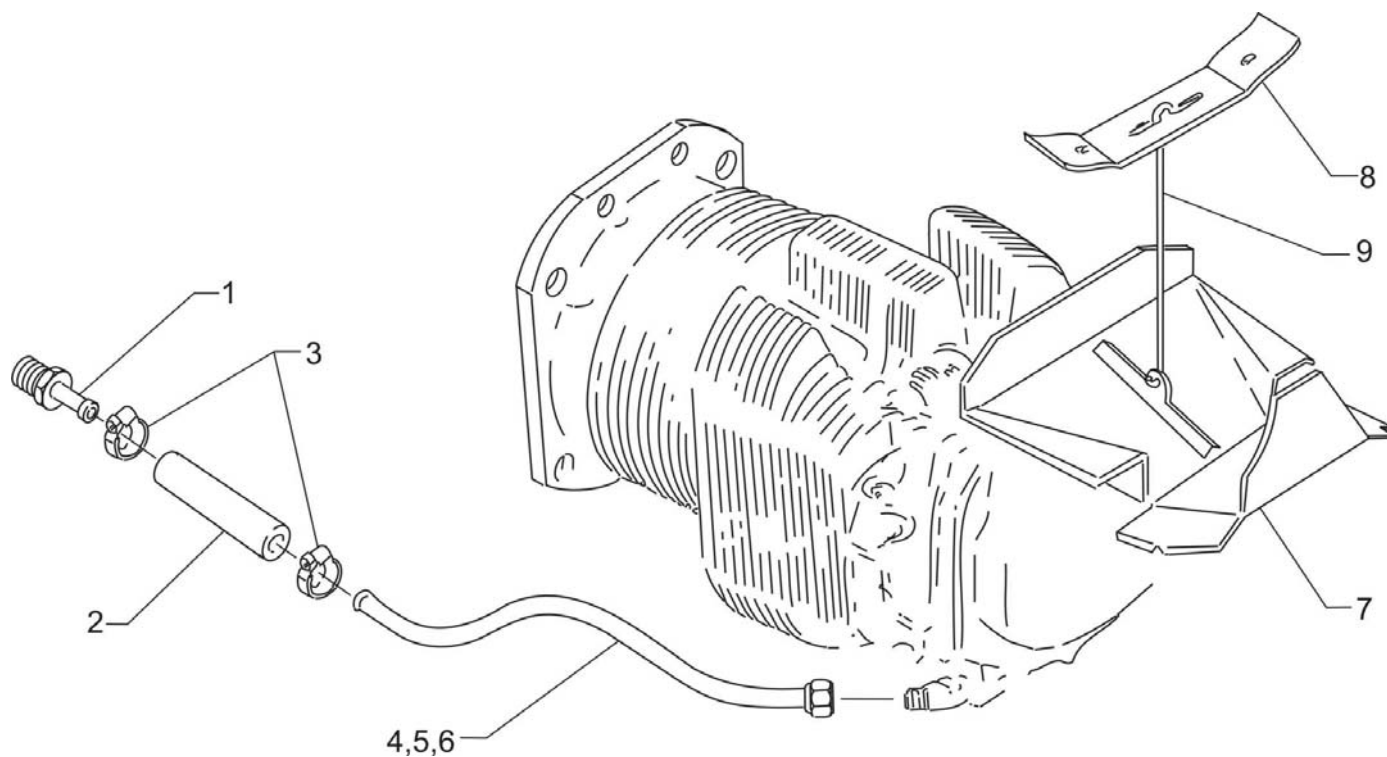
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		17A23938	VALVE, Intake	4	4
2		17B23936	VALVE, Exhaust (rotator type)	4	4
3		LW-11795	SPRING, Valve, inner	8	8
4		LW-11800	SPRING, Valve, outer	8	8
5		65441	SEAT, Valve spring, lower intake	4	4
6		LW-13323	SEAT, Valve spring, lower exhaust	4	4
7		LW-10077	SEAT, Valve spring, upper intake	4	4
8		LW-16475	SEAT, Valve spring, upper exhaust (rotator type)	4	4
9		60009	KEY, Valve, intake	8	8
10		17C21191	KEY, Valve, exhaust (rotator type)	8	8
11		17C19386	CAP, Valve stem, exhaust (rotator type)	4	4
12		15B26066	PLUNGER ASSEMBLY, Hydraulic lifter	8	8
13		15B21319	SOCKET, Hydraulic tappet	8	8
14		68987	SHROUD TUBE ASSEMBLY, Push rod	8	8
		15G23494	SHROUD TUBE ASSEMBLY, Push rod (Roller tappet engines)	8	8
15		LW-14995	SPRING, Shroud tube	4	4
16		LW-12272	LOCKPLATE, Shroud tube	4	4
17		STD-1411	NUT, 1/4-20 plain	4	4
18		01L23459	WASHER, 25/32 I.D. x 3/8 O.D. x 1/32 thick (Roller tappet engines)	8	8
19	*	LW-18661	SEAL, Shroud tube	8	8
20		06A23493	SEAL, Shroud tube (Roller tappet engines)	8	8
21	**	70310	SEAL, Shroud tube	8	8
* This seal is used on flat tappet engines only. ** This seal is used on both flat tappet engines and roller tappet engines.					



Cylinder Related Parts
Figure 11

CYLINDER SECTION**FIGURE 11 – CYLINDER RELATED PARTS**

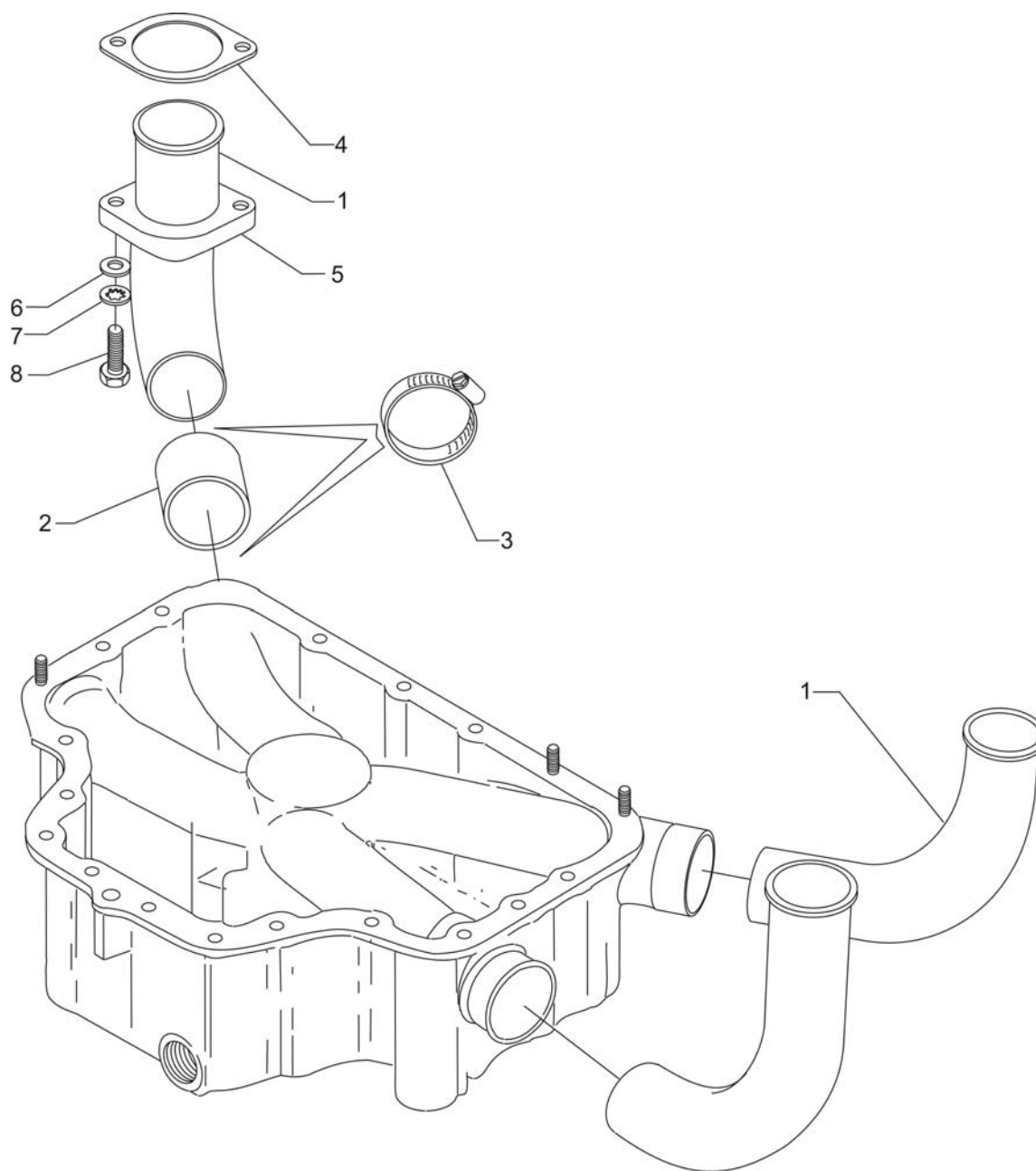
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1	AR*♦	15F19957-08	ROD ASSEMBLY, Push (A total of 8 required)	AR	AR
	AR*♦	15F19957-09	ROD ASSEMBLY, Push (A total of 8 required)	AR	AR
	AR*♦	15F19957-10	ROD ASSEMBLY, Push (A total of 8 required)	AR	AR
1	AR†♦	15F19957-11	ROD ASSEMBLY, Push (A total of 8 required)	AR	AR
	AR†♦	15F19957-12	ROD ASSEMBLY, Push (A total of 8 required)	AR	AR
	AR‡♦	15F19957-13	ROD ASSEMBLY, Push (A total of 8 required)	AR	AR
	AR‡♦	15F19957-14	ROD ASSEMBLY, Push (A total of 8 required)	AR	AR
	AR‡♦	15F19957-15	ROD ASSEMBLY, Push (A total of 8 required)	AR	AR
2	**	17F19357	ROCKER ASSEMBLY, Valve	8	8
3		74637	BUSHING, Valve rocker	8	8
4		LW-13790	SHAFT, Valve rocker	4	4
5		LW-12892	THRUST BUTTON, Rocker shaft	8	8
6		75906	GASKET, Rocker box cover	4	4
7		61247	COVER, Rocker box	4	4
8		STD-1925	SCREW, 1/4-20 x 5/8 long, pan. head	24	24
9		71481	RING, Oil seal, 3/32 dia. x 4-27/32 I.D.	4	4
10		74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick	2	2
11		383-B	NUT, 3/8-24 plain	16	16
12		STD-2090	NUT, 1/2-20 plain	18	18
<p>AR as required</p> <p>* These push rods are not to be used on flat tappet engines.</p> <p>† These push rods can be used on both flat tappet and roller tappet engines.</p> <p>‡ These push rods are not to be used on roller tappet engines.</p> <p>♦ See latest revision of Service Instruction No. 1060 for complete push rod application.</p> <p>** Due to the size of the area where the part number is stamped, the last five digits may be all that is shown (19357).</p> <p>NOTE: Various push rod lengths are used to set valve clearances.</p>					



Cylinder Head Drain Tubes and Intercylinder Cooling Baffles
Figure 12

CYLINDER SECTION**FIGURE 12 –CYLINDER HEAD DRAIN TUBES AND INTERCYLINDER COOLING BAFFLES**

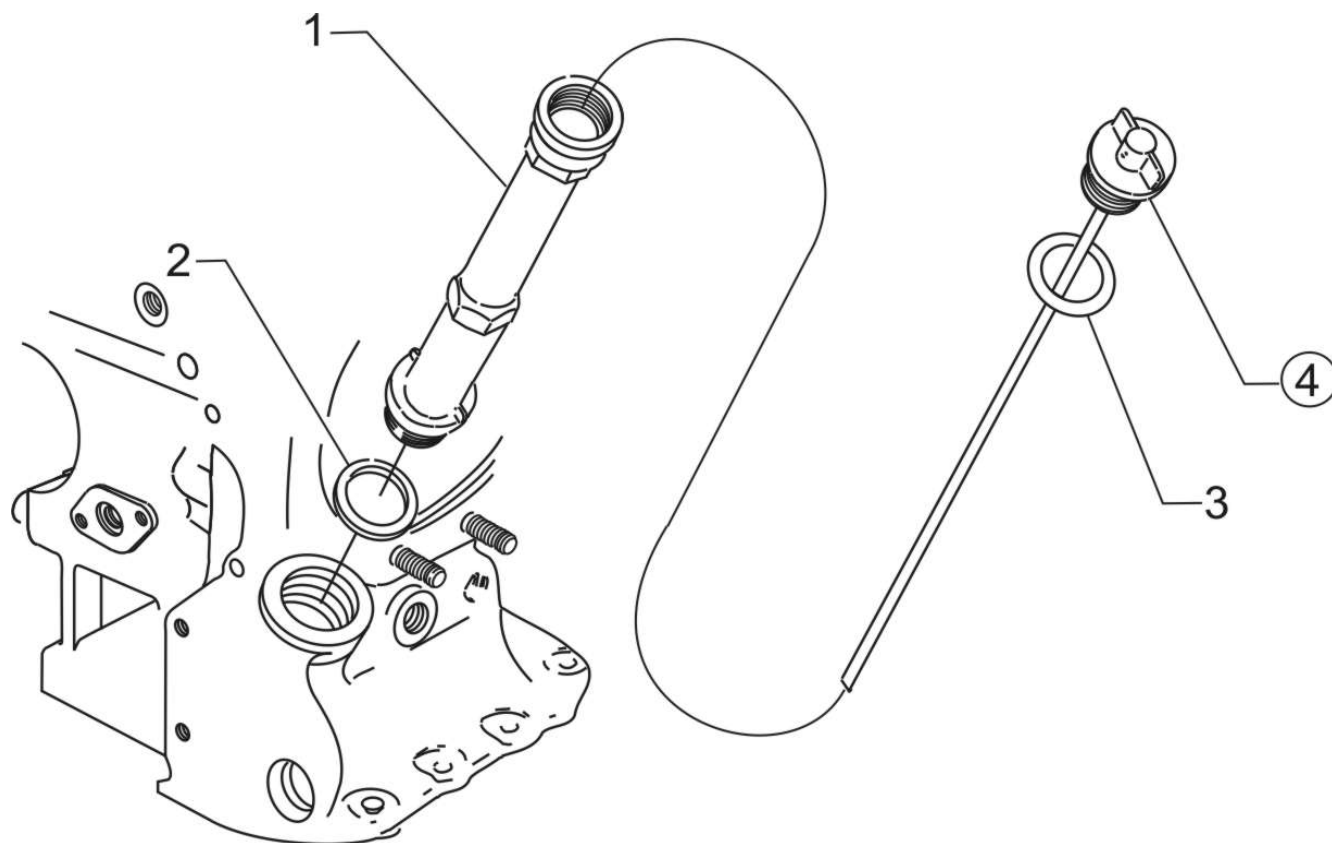
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		STD-684	NIPPLE, Straight, 3/8 I.D. hose	4	4
2		STD-2180	HOSE, 3/8 I.D. x 1-7/8 long	4	4
3		LW-15592-5-05	CLAMP, Hose	8	8
4		68759	TUBE ASSEMBLY, Oil drain, cylinder no. 1	1	1
5		68760	TUBE ASSEMBLY, Oil drain, cylinder no. 2	1	1
6		68761	TUBE ASSEMBLY, Oil drain, cylinders no. 3 & 4	2	2
7		72569	BAFFLE ASSEMBLY, Intercylinder	2	2
8		71611	RETAINER, Intercylinder baffle	2	2
9		71610	HOOK, Intercylinder baffle retainer	2	2



Intake Pipes and Attaching Parts
Figure 13

CYLINDER SECTION**FIGURE 13 – INTAKE PIPES AND ATTACHING PARTS**

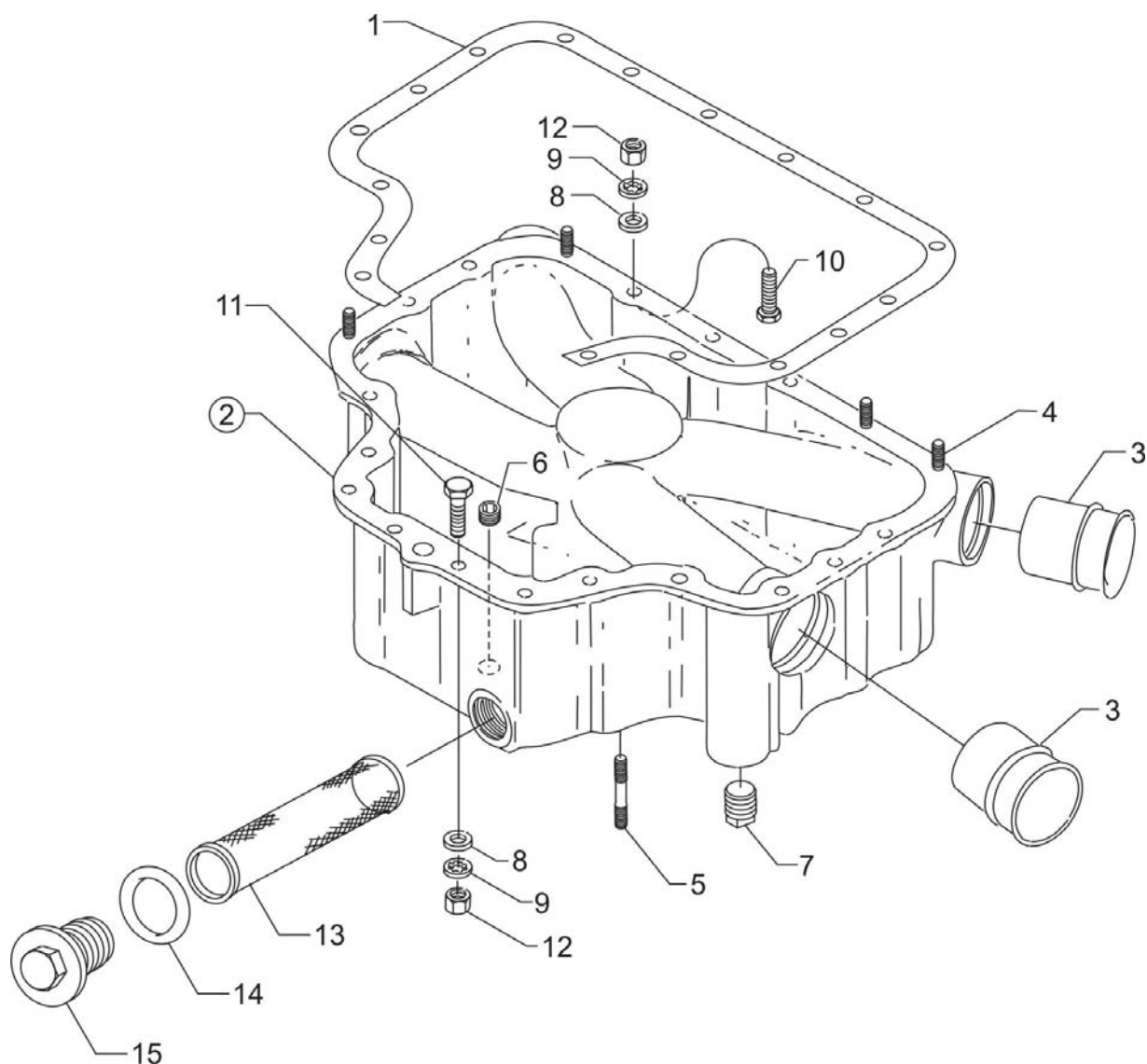
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		74084	PIPE, Intake	4	4
2		69603	HOSE, 1-3/4 I.D. x 2-3/16 O.D. x 1-3/4 long	4	4
3		LW-15592-8-28	CLAMP, Hose	8	8
4		71973	GASKET, 2 bolt flange, 1-13/16 I.D.	4	4
5		73346	FLANGE, Intake pipe, upper	4	4
6		STD-8	WASHER, 1/4 plain	8	8
7		STD-160	WASHER, 1/4 lock, internal teeth	8	8
8		LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head	8	8



**Oil Level Gage
Figure 14**

LUBRICATION SYSTEM**FIGURE 14 – OIL LEVEL GAGE**

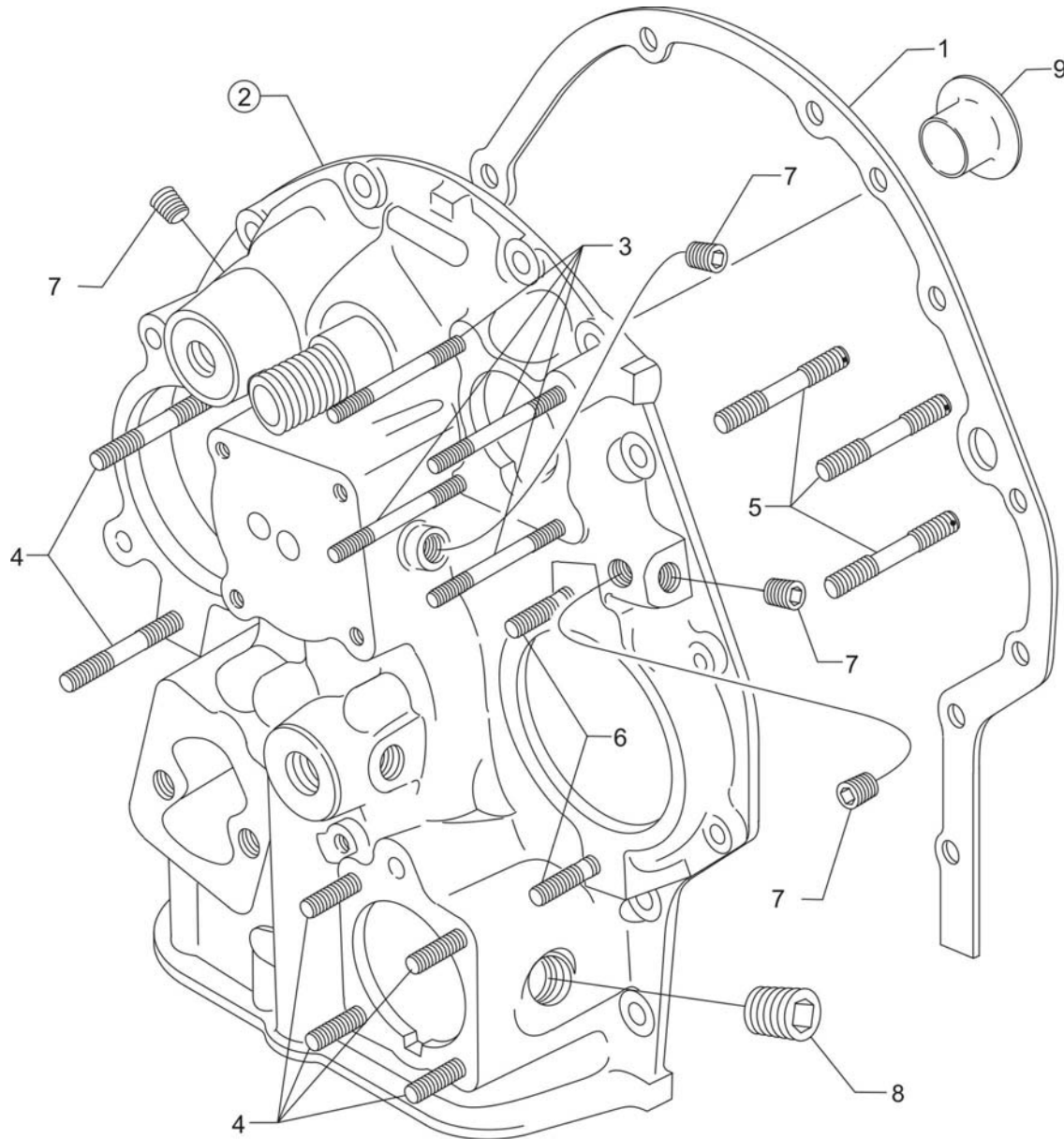
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		75767	TUBE, Oil level gage, 10-9/16 long	1	
		75736	TUBE, Oil level gage, 11-9/16 long	1	1
2		72059	GASKET, Oil level gage	1	1
3	*	74065	RING, Oil level gage seal	1	
	**	74068	RING, Oil level gage plug	1	1
4		LW-14780	GAGE ASSEMBLY, Oil level	1	
		LW-16783-18	GAGE ASSEMBLY, Oil level	1	1
* Use with LW-14780 Oil Level Gage Assembly. ** Use with LW-16783-18 Oil Level Gage Assembly.					



Oil Sump Assembly and Oil Suction Screen
Figure 15

LUBRICATION SYSTEM**FIGURE 15 – OIL SUMP ASSEMBLY AND OIL SUCTION SCREEN**

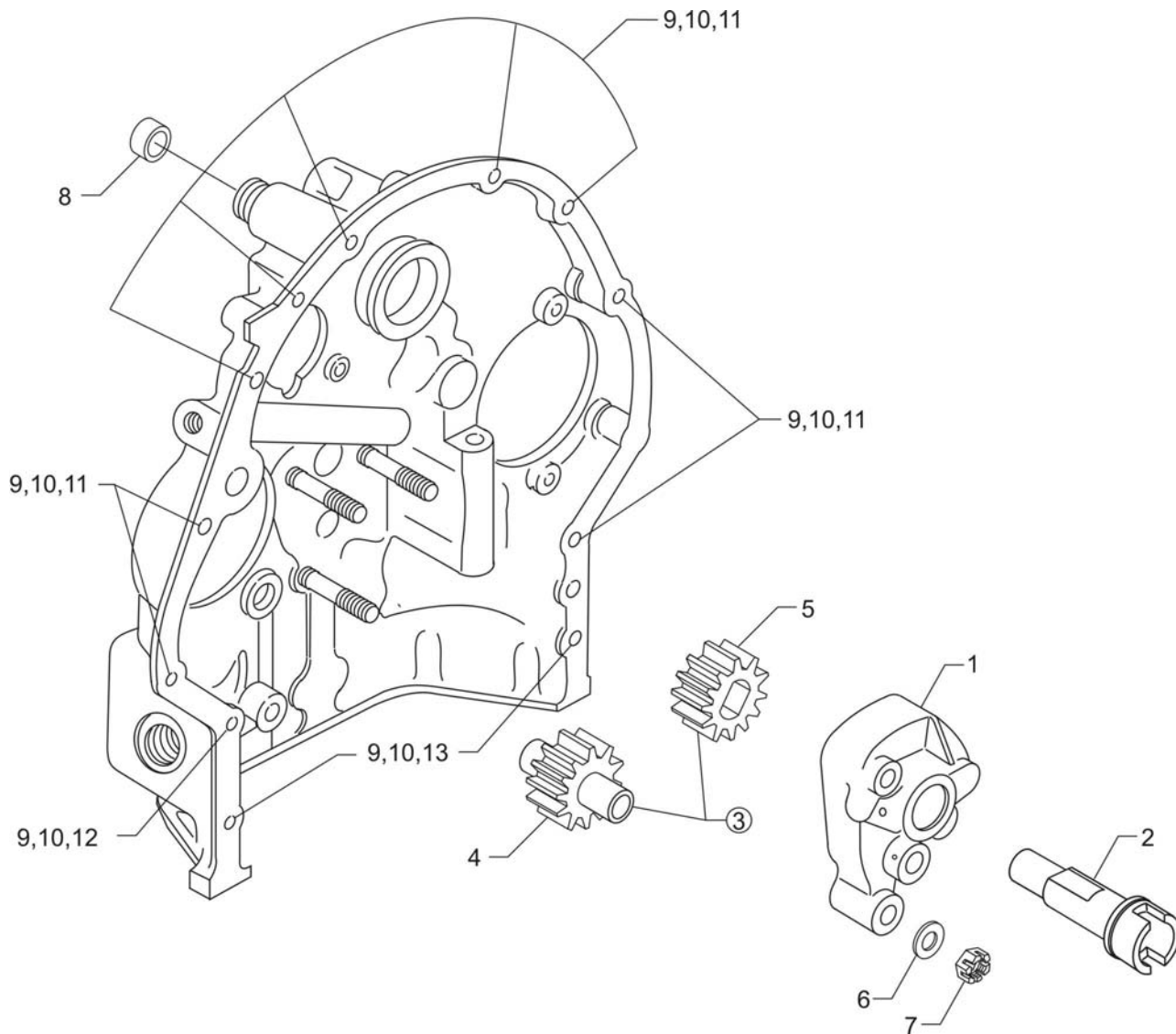
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		LW-13353	GASKET, Oil sump	1	1
2		LW-10828	SUMP ASSEMBLY, Oil	1	1
3		78914	CONNECTION, Intake pipe	4	4
4		61400	STUD, 1/4-20 x 1-3/16 long	4	4
5		31C-15	STUD, 5/16-18 x 1-7/8 long	4	4
6		STD-91	PLUG, 1/2-14 NPT, allen head	1	1
7		STD-551	PLUG, 1/2-14 NPT, square head, drilled	2	2
8		STD-8	WASHER, 1/4 plain	28	28
9		STD-160	WASHER, 1/4 lock, internal teeth	20	20
10		LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	14	14
11		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	2	2
12		STD-1411	NUT, 1/4-20 plain	12	12
13		70484	SCREEN, Oil suction screen	1	1
14		06E19769-1.00	GASKET, Annular, 1.00 I.D.	1	1
15		LW-12545	PLUG, 5/8 hex. head x 1.00-20 thread	1	1



Accessory Housing Assembly
Figure 16

ACCESSORY DRIVES**FIGURE 16 – ACCESSORY HOUSING ASSEMBLY**

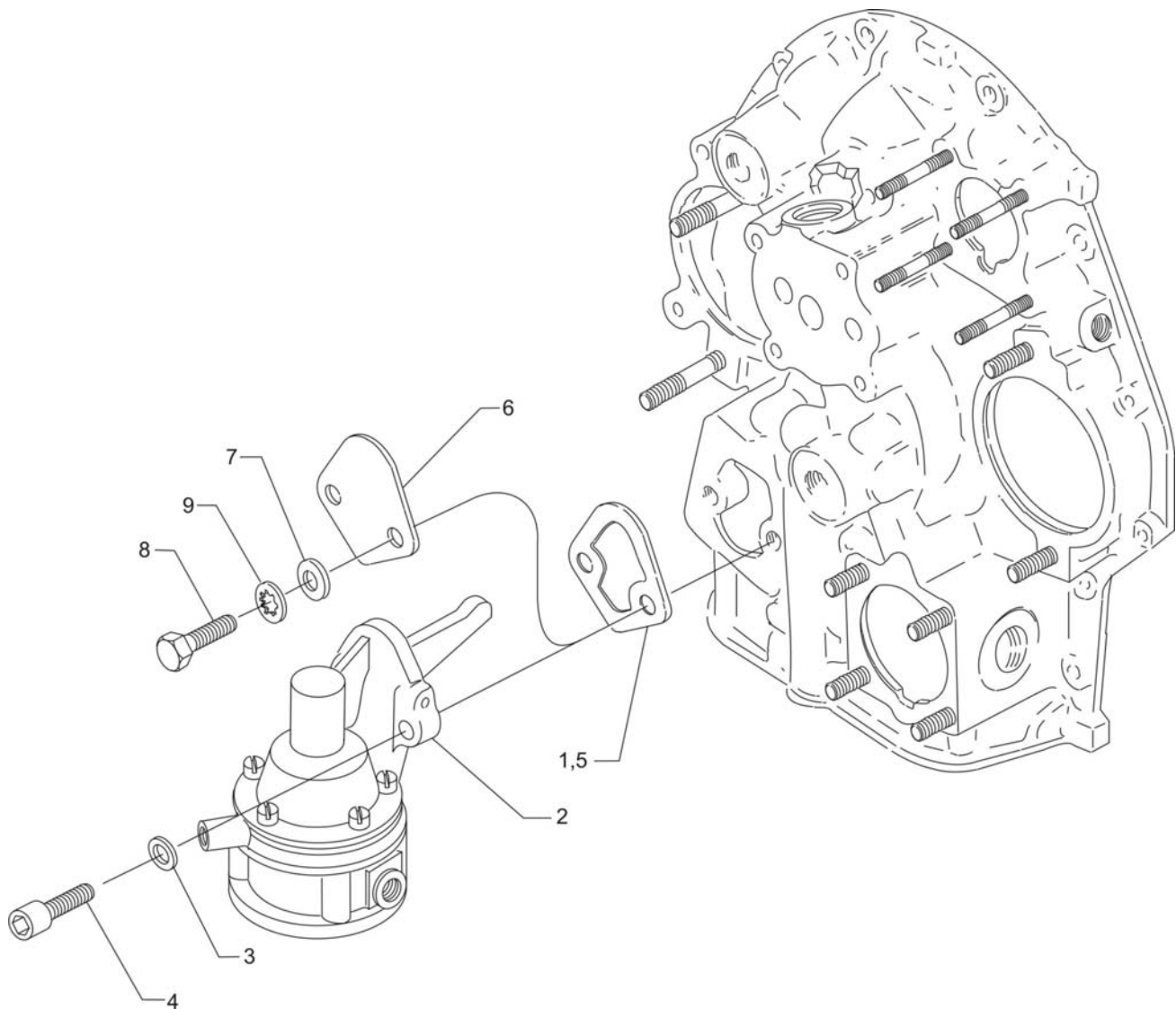
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		73818	GASKET, Accessory housing	1	1
2		21A21533-04	HOUSING ASSEMBLY, Accessory	1	1
3		25C-22	STUD, 1/4-20 x 2-3/4 long	4	4
4		31C-12	STUD, 5/16-18 x 1-1/2 long	6	6
5		31CD-17	STUD, 5/16-18 x 2-1/8 long, drilled	3	3
6		31C-19	STUD, 5/16-18 x 2-3/8 long	2	2
7		1102	PLUG, 1/8-27 NPT, allen head	4	4
8		STD-784	PLUG, 3/8-18 NPT, allen head	1	1
9		76119	SHIELD, Accessory breather oil	1	1



**Oil Pump Assembly and Accessory Housing Attaching Parts
Figure 17**

ACCESSORY DRIVES**FIGURE 17 – OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS**

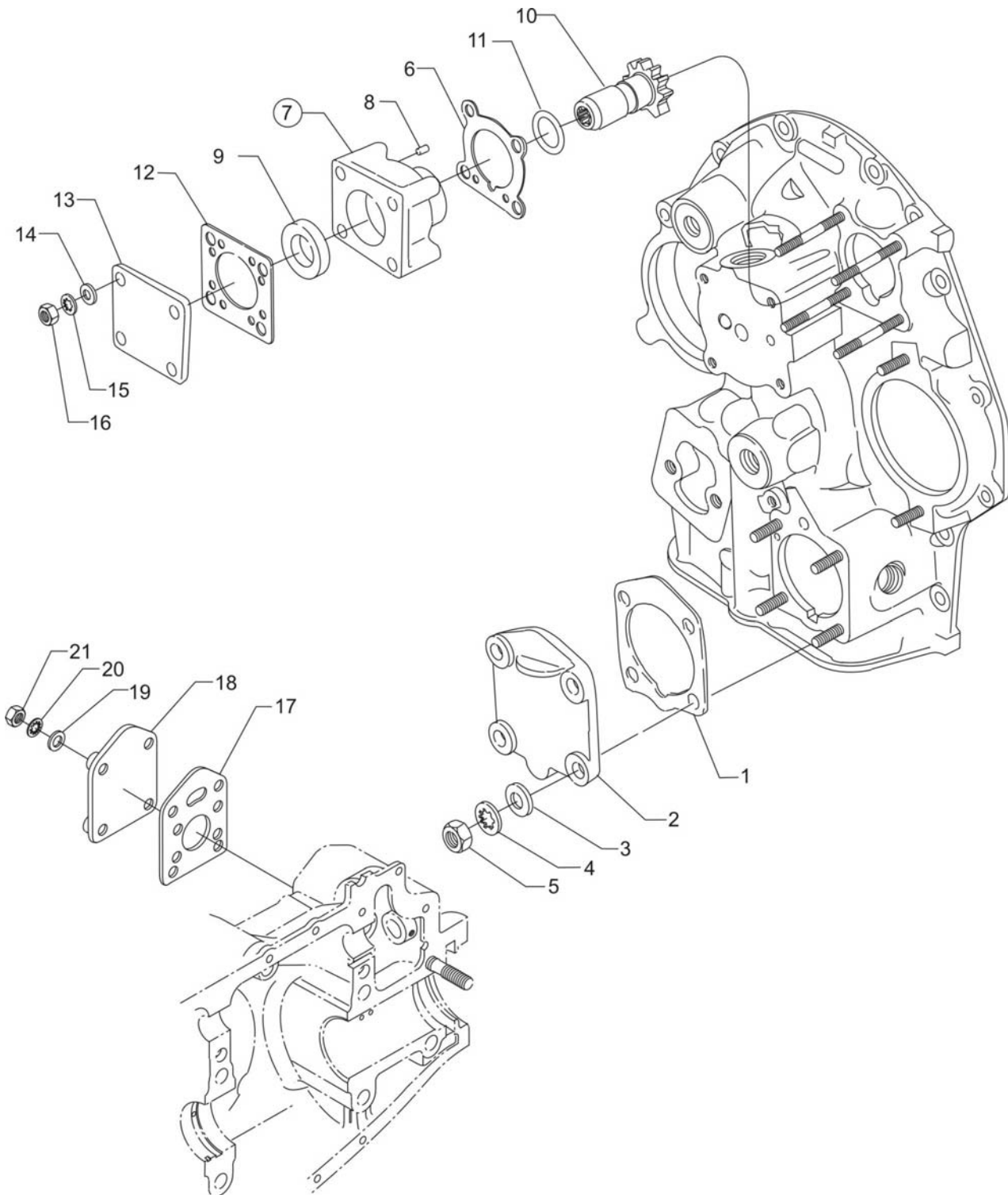
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		78531	BODY ASSEMBLY, Oil pump	1	1
2		61174	SHAFT, Oil pump drive	1	1
3		05K19423-S	IMPELLER KIT	1	1
4	*	LW-18110	IMPELLER ASSEMBLY, Oil pump driven	1	1
5	*	LW-18109	IMPELLER, Oil pump driven	1	1
6		STD-35	WASHER, 5/16 plain	3	3
7		STD-1420	NUT, 5/16-18 slotted	3	3
8		LW-14260	SEAL, Oil, tachometer drive	1	1
9		STD-8	WASHER, 1/4 plain	12	12
10		STD-160	WASHER, 1/4 lock, internal teeth	12	12
11		LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	9	9
12		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1	1
13		LW-25-1.44	BOLT, 1/4-20 x 1-7/16 long, hex. head	2	2
* Sold in complete sets only (Kit P/N 05K19423-S).					



Fuel Pump Assembly and Attaching Parts
Figure 18

ACCESSORY DRIVES**FIGURE 18 – FUEL PUMP ASSEMBLY AND ATTACHING PARTS**

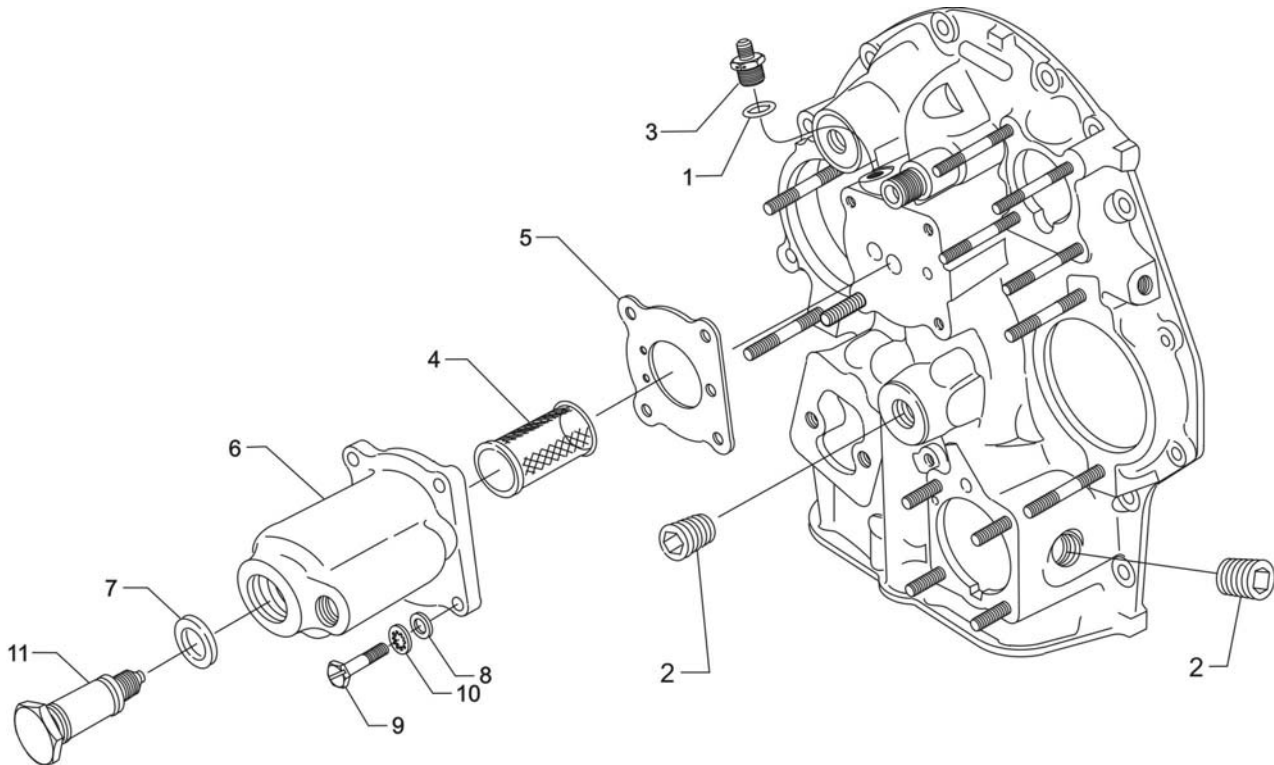
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		60096	GASKET, Fuel pump	1	1
2		LW-15472	FUEL PUMP, Dual diaphragm, low pressure	1	1
3		STD-33	WASHER, 3/8 plain	2	2
4		STD-1882	SCREW, 3/8-16 x 1-9/32 long, socket head, drilled	2	2
5		60096	GASKET, Fuel pump	1	
6		03D23350	COVER, Fuel pump	1	
7		STD-33	WASHER, 3/8 plain	2	
8		LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. head	2	
9		STD-678	WASHER, 3/8 lock, internal teeth	2	



**Propeller Governor Drive Cover, Vacuum Pump Drive and Cover
Figure 19**

ACCESSORY DRIVES**FIGURE 19 – PROPELLER GOVERNOR DRIVE COVER, VACUUM PUMP DRIVE AND COVER**

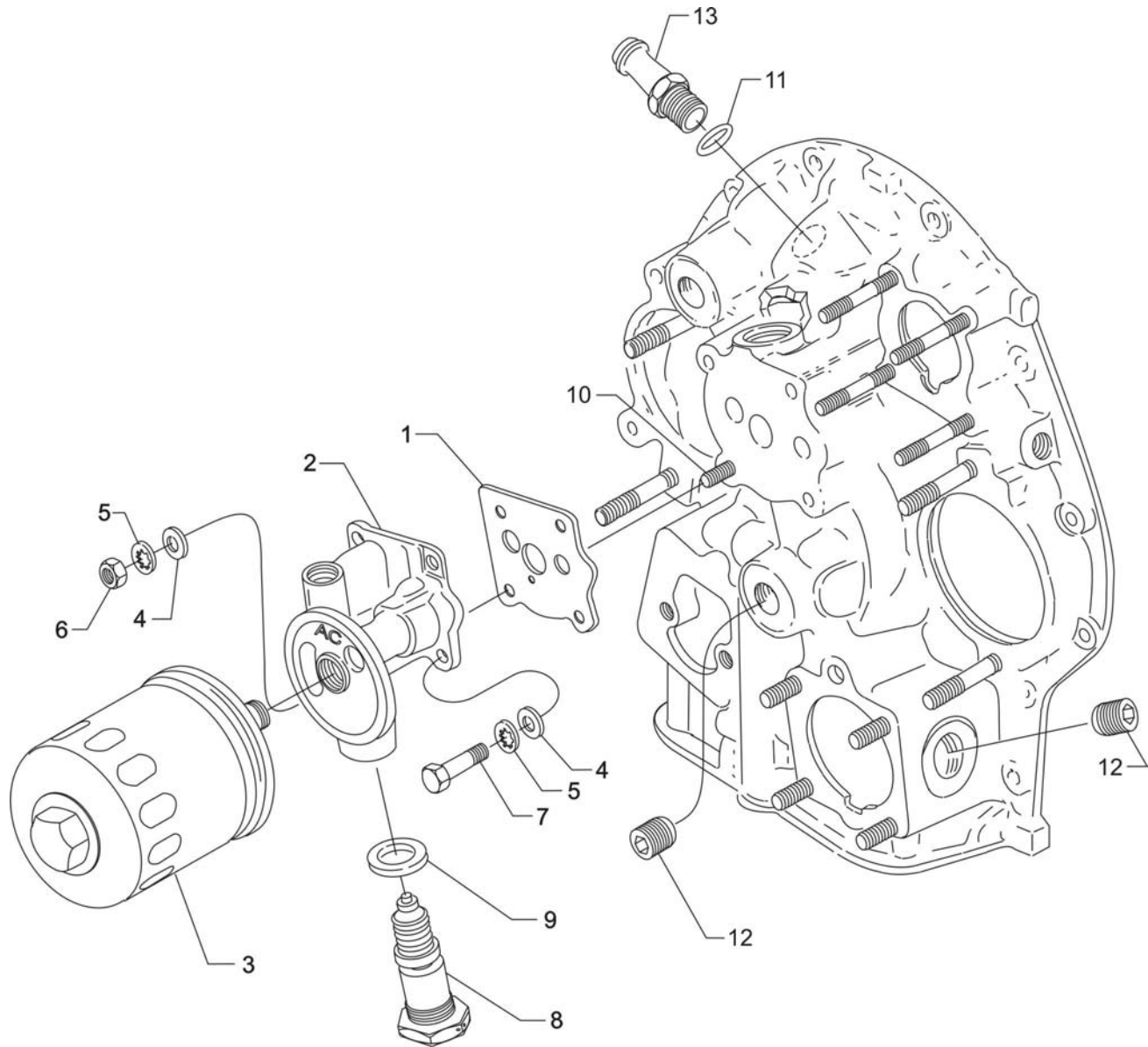
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		69551	GASKET, Accessory drive adapter	1	1
2		69106	COVER, Governor drive adapter pad	1	1
3		STD-35	WASHER, 5/16 plain	4	4
4		STD-475	WASHER, 5/16 lock, internal teeth	4	4
5		STD-1410	NUT, 5/16-18 plain	4	4
6		61183	GASKET, Accessory adapter	1	1
7		61098	ADAPTER ASSEMBLY, Vacuum pump	1	1
8		STD-1774	PIN, 1/8 diameter x 1/4 long	1	1
9		06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide	1	1
10		72970	GEAR ASSEMBLY, Vacuum pump driven	1	1
11		71596	WASHER, Accessory drive gear	1	1
12		8313	GASKET, Vacuum pump	1	1
13		60430	COVER, Vacuum pump	1	1
14		STD-8	WASHER, 1/4 plain	4	4
15		STD-160	WASHER, 1/4 lock, internal teeth	4	4
16		STD-1411	NUT, 1/4-20 plain	4	4
17		72053	GASKET, Governor	1	1
18		72378	COVER, Governor drive	1	1
19		STD-35	WASHER, 5/16 plain	4	4
20		STD-475	WASHER, 5/16 lock, internal teeth	4	4
21		STD-1410	NUT, 5/16-18 plain	4	4



Oil Cooler Bypass Valve and Oil Pressure Screen
Figure 20

ACCESSORY DRIVES**FIGURE 20 – OIL COOLER BYPASS VALVE AND OIL PRESSURE SCREEN**

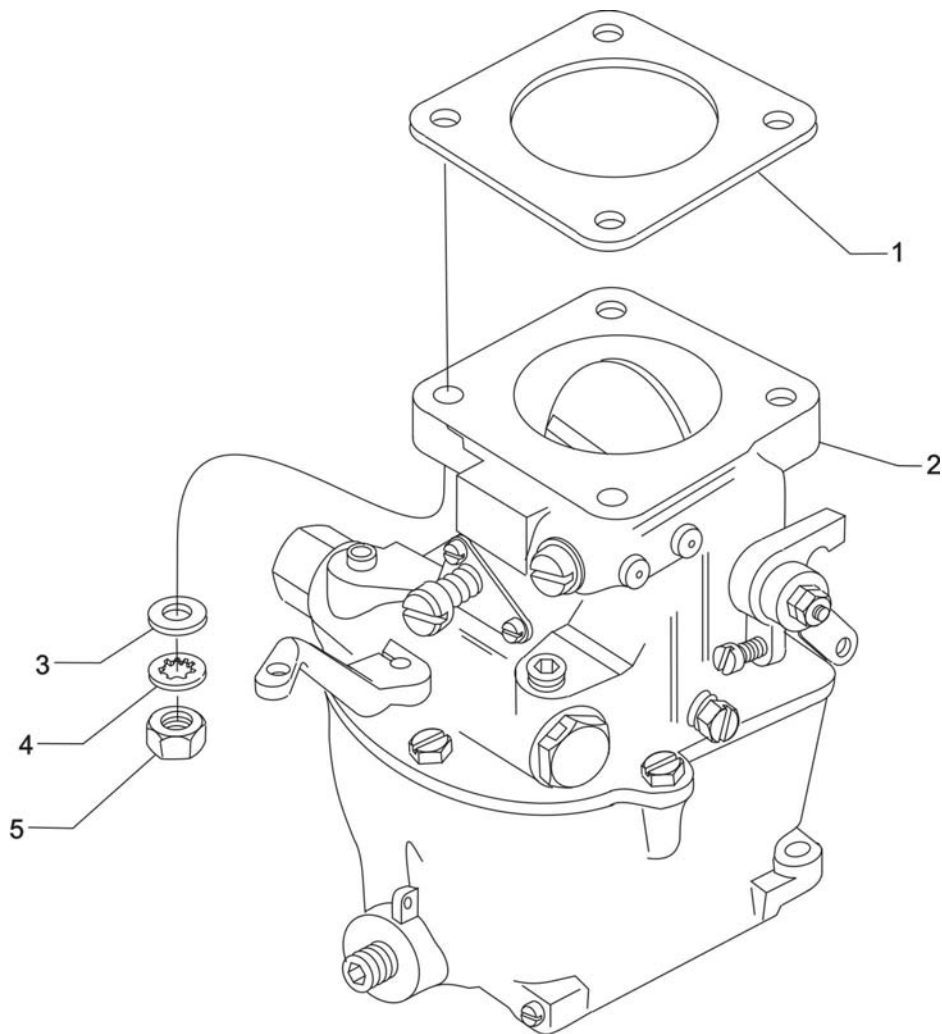
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		06E19769-0.63	GASKET, 5/8 I.D. annular	1	1
2		STD-784	PLUG, 3/8-18 NPT, allen head	2	2
3		69675	CONNECTOR, Accessory housing oil cooler	1	1
4		62817	SCREEN ASSEMBLY, Oil pressure	1	1
5		61173	GASKET, Oil pressure housing	1	1
6		69510	HOUSING, Oil pressure screen	1	1
7		06E19769-0.63	GASKET, 5/8 I.D. annular	1	1
8		STD-8	WASHER, 1/4 plain	4	4
9		LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head	4	4
10		STD-160	WASHER, 1/4 lock, internal teeth	4	4
11		53E22144	VALVE ASSEMBLY, Temperature control, oil cooler bypass	1	1



**Oil Filter Assembly, Oil Cooler Bypass Valve and Breather Fitting
Figure 21**

ACCESSORY DRIVES**FIGURE 21 – OIL FILTER ASSEMBLY, OIL COOLER BYPASS VALVE
AND BREATHER FITTING**

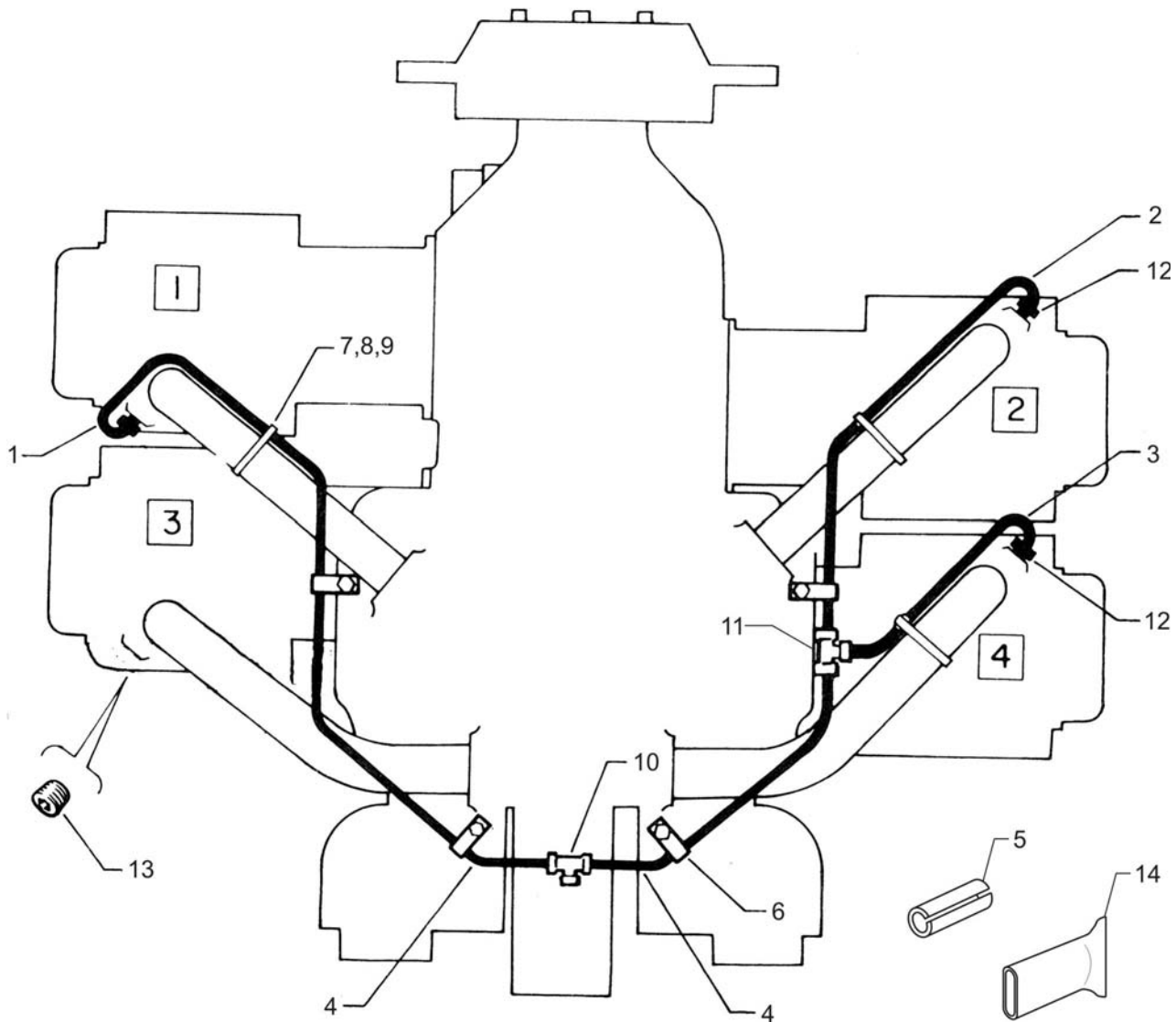
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		06B23862	GASKET, Oil filter adapter	1	
2		77852	OIL FILTER BASE ASSEMBLY	1	
3		LW-13215	OIL FILTER, Short	1	
4		STD-8	WASHER, 1/4 plain	4	
5		STD-160	WASHER, 1/4 lock, internal teeth	4	
6		STD-1411	NUT, 1/4-20 plain	1	
7		LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head	3	
8		53E22144	VALVE ASSEMBLY, Temperature control oil cooler bypass	1	
9		76510	GASKET, Valve assembly	1	
10		25C-10	STUD, 1/4-20 x 1-1/4 long	1	
11		06E19769-0.63	GASKET, 7/8 O.D. x 5/8 I.D. x 3/32 annular	1	
12		STD-784	PLUG, 3/8 NPT, allen head	2	
13		71140	FITTING, Breather	1	
<u>NOTE:</u> Reference latest revision of SSP-885 for oil filters and replacement filters.					



Carburetor Assembly
Figure 22

FUEL DISTRIBUTION**FIGURE 22 – CARBURETOR ASSEMBLY**

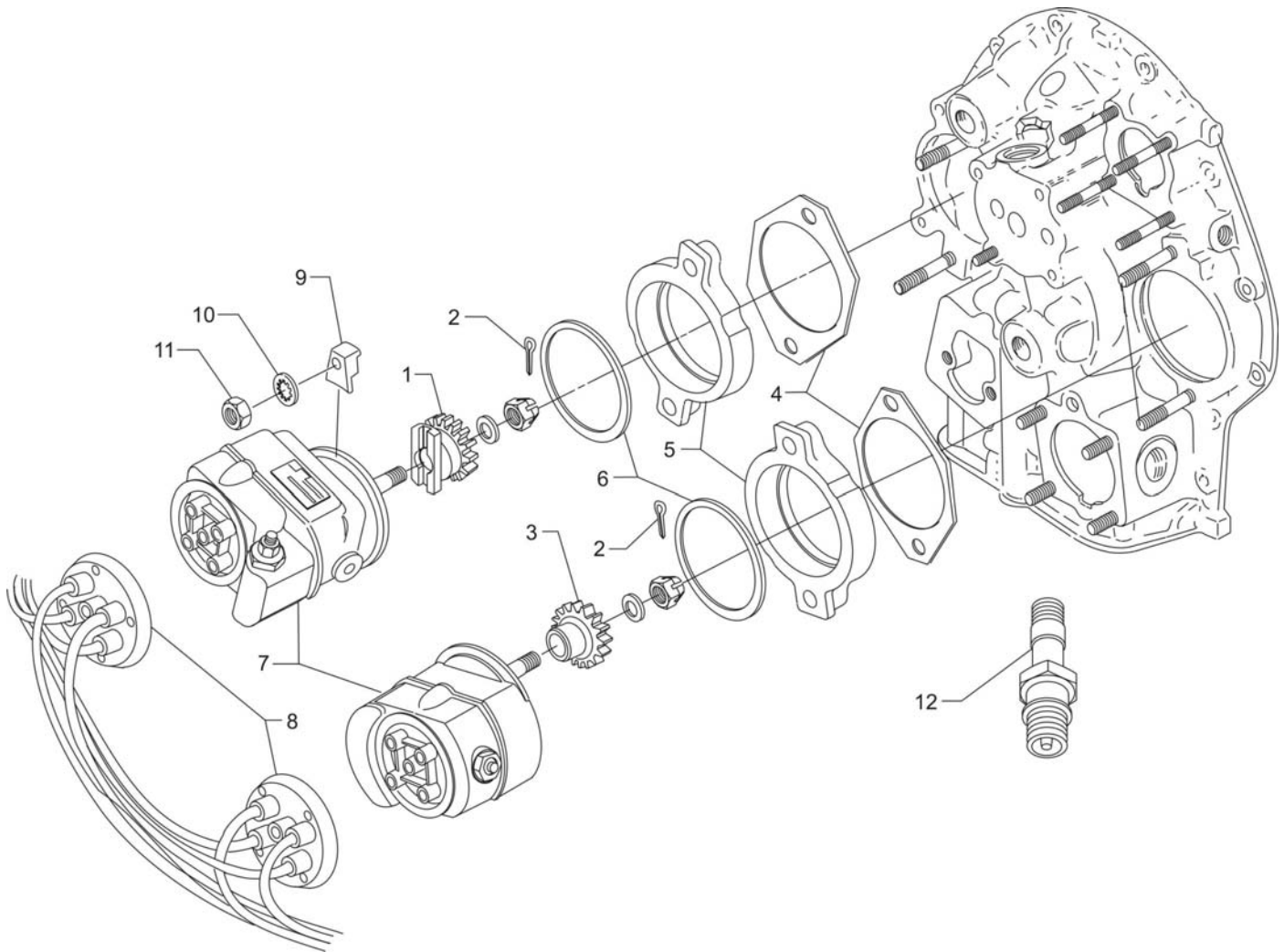
Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		66224	GASKET, Carburetor	1	1
2	V	61B26213	CARBURETOR, MA-4SPA V AV 10-5009	1	1
3		STD-35	WASHER, 5/16 plain	4	4
4		STD-475	WASHER, 5/16 lock, internal teeth	4	4
5		STD-1410	NUT, 5/16-18 plain	4	4
V Vendor Prime Manufacturer part					



**Priming Lines
Figure 23**

FUEL DISTRIBUTION**FIGURE 23 – PRIMING LINES**

Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		LW-12098-0-170	TUBE ASSEMBLY, Primer, cylinder no. 1	1	
2		LW-12098-0-130	TUBE ASSEMBLY, Primer, cylinder no. 2	1	
3		LW-12098-0-280	TUBE ASSEMBLY, Primer, cylinder no. 4	1	
4		LW-12098-0-100	TUBE ASSEMBLY, Primer, intermediate	1	
5		LW-12598	SLEEVE, Priming line	3	
6		LW-16266-25-13	CLAMP	3	
7		LW-18959-175-25	CLAMP, 1-3/4 I.D.	3	
8		STD-553	SCREW, No. 6-32 x 1/2 long, round head	3	
9		MS21044N06	NUT, No. 6-32 self-locking	3	
10		STD-853	TEE, Union, 1/8 tube	1	
11		LW-18071	TEE, Union, 1/8tube	1	
12		63D21408	NIPPLE ASSEMBLY, Primer	3	
13	*	1102	PLUG, 1/8-27 NPT, allen head (assemble in cylinder head)	4	4
14		61597	CAP, Sealing, 5/16 diameter x 1.00 long	1	
* Used when no priming lines.					



Magnetos, Magneto Drives, Harnesses and Spark Plugs
Figure 24

IGNITION DISTRIBUTION SYSTEM**FIGURE 24 -MAGNETOS, MAGNETO DRIVES, HARNESSES AND SPARK PLUGS**

Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		61665	GEAR, Magneto, impulse coupling	1	1
2		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	2	2
3		68C19622	GEAR, Magneto	1	1
4		62224	GASKET, Magneto adapter	1	1
5		LW-12706	ADAPTER, Magneto, impulse coupling	1	1
6		LW-12681	GASKET, Magneto	2	2
7	V	66GP-0SANN	MAGNETO, Plain, Slick V 4370	1	1
	V	66GC20SFNN	MAGNETO, Impulse, Slick V 4371	1	
	V	66GC25SFNN	MAGNETO, Impulse, Slick V 4373	1	1
8	V	67P20406	HARNESS ASSEMBLY, Right, Slick V M2992	1	
	V	67P20407	HARNESS ASSEMBLY, Left, Slick V M1795	1	
	V	67P20414	HARNESS ASSEMBLY, Right, Slick, V M2982	1	1
	V	67P20415	HARNESS ASSEMBLY, Left, Slick, V M2981	1	1
9		66M21195	CLAMP, Magneto	4	4
10		STD-475	WASHER, 5/16 lock, internal teeth	4	4
11		STD-1410	NUT, 5/16-18 plain	4	4
12	V*	1182-E7	SPARK PLUG, Champion V REM38E	8	8
	**	01P19762-1-43	BAG, Harness attaching	1	
	♦	01P19762-1-2	Bag, Harness attaching	1	1
<p>V Vendor Prime Manufacturer part</p> <p>* Item No. 12 spark plugs are used in current production only. Additional spark plugs are available for this engine. See latest revision of Lycoming Service Instruction No. 1042 for complete listing of all approved spark plugs.</p> <p>** See page 48 for breakdown of individual parts contained in the magneto and harness attaching bag (P/N 01P19762-1-43). These parts to be added by customer per engine line drawing included in each bag.</p> <p>♦ See page 48 for break-down of individual parts contained in the magneto and harness attaching bag (P/N 01P19762-1-2). These parts to be added by customer per engine line drawing included in each bag.</p>					

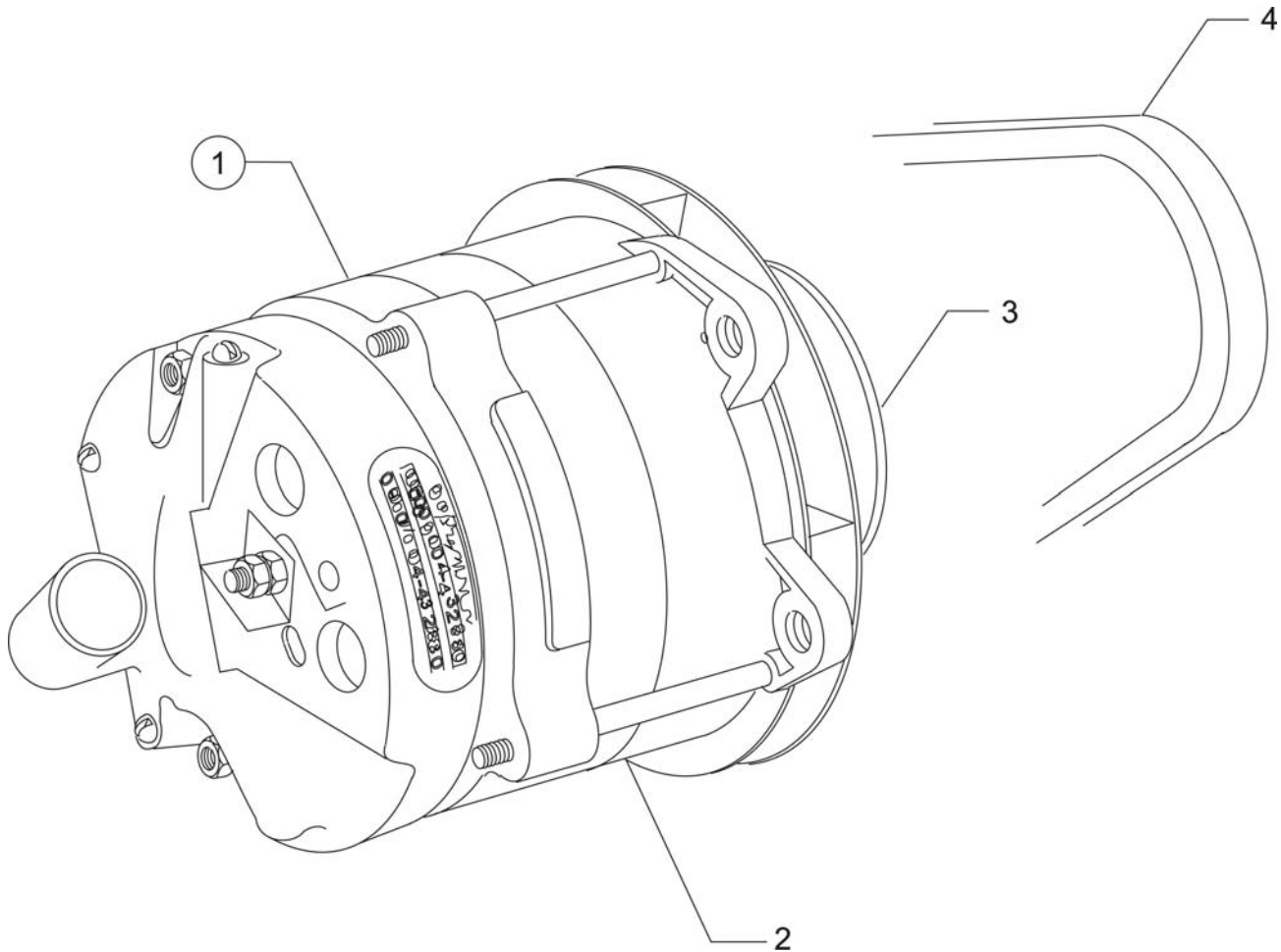
01P19762-1-43 – Bag, Magneto Harness Attaching

Part No.	Part Name	Qty.
LW-16266-25-25	CLIP, One wire	4
LW-14060	CLIP, Two wire	3
STD-8	WASHER, 1/4 plain	8
STD-1874	SCREW, 1/4 lock (rocker box)	6
76734	ZIP STRAP	8
LW-16266-25-50	CLIP, Four wire	1
STD-696	WASHER, 1/4 plain	4
STD-1916	SCREW, 1/4-20 x 1-1/8 long, fill. head	3
LW-M-2375	PLATE, Spark plug cable, two wire	2

01P19762-1-2 – Bag, Magneto Harness Attaching

Part No.	Part Name	Qty.
LW-16266-25-25	CLIP, One wire	2
LW-14060	CLIP, Two wire	3
STD-8	WASHER, 1/4 plain	8
STD-1874	SCREW, 1/4 lock (rocker box)	6
76734	ZIP STRAP	8
LW-16266-25-50	CLIP, Four wire	1
STD-696	WASHER, 1/4 plain	4
STD-1916	SCREW, 1/4-20 x 1-1/8 long, fill. head	3
LW-M-2375	PLATE, Spark plug cable, two wire	2

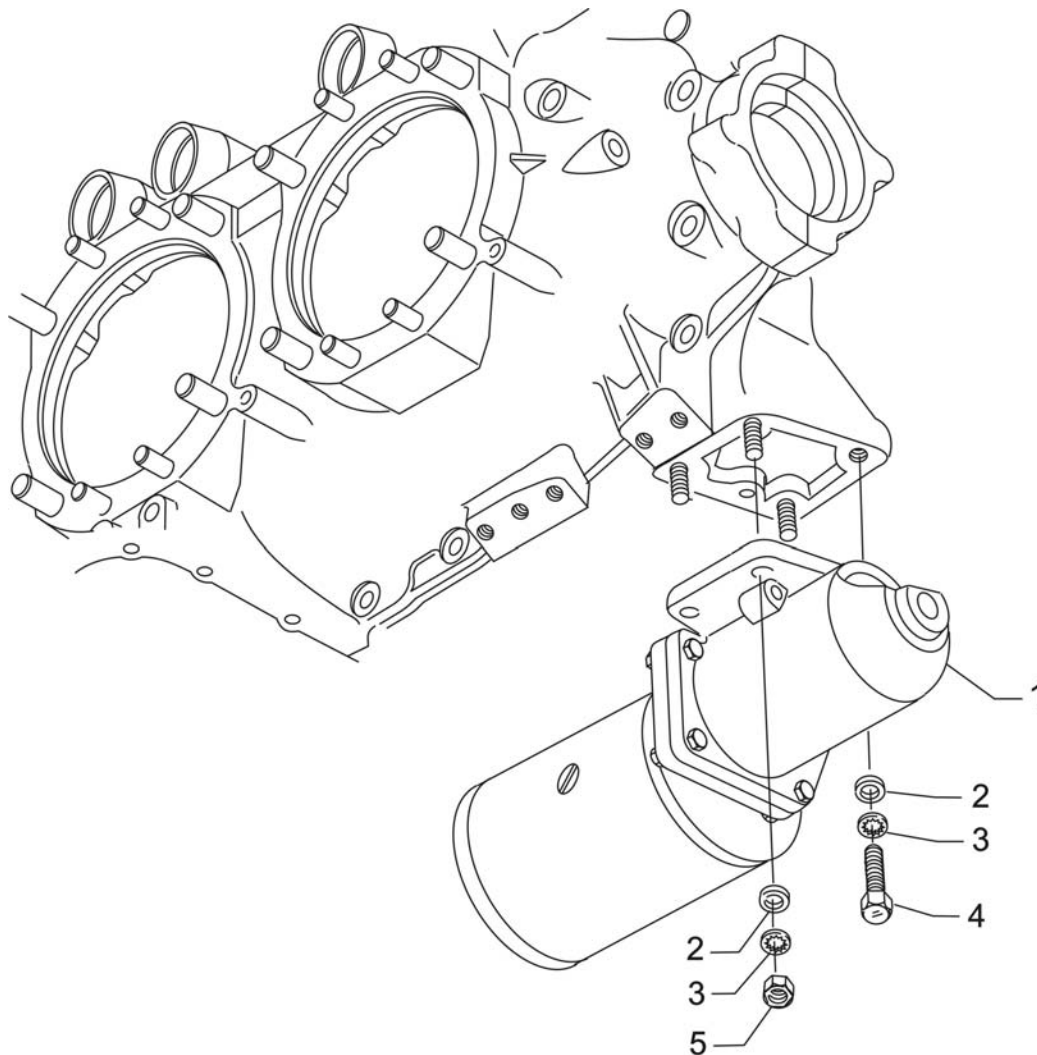
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**Alternator Assembly and Belt
Figure 25**

IGNITION DISTRIBUTION SYSTEM**FIGURE 25 – ALTERNATOR ASSEMBLY AND BELT**

Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1		32B19549	ALTERNATOR ASSEMBLY, 12V.-70Amp.	1	
2	V	LW-14318	ALTERNATOR, V ALX-8521-LS	1	
3		36B19484	PULLEY, Alternator	1	
4		37A19773-376	BELT, Alternator drive, 3/8 wide	1	1
V Vendor Prime Manufacturer part NOTE: See latest revision of Lycoming Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.					



Starter Motor and Attaching Parts

Figure 26

CRANKING SECTION**FIGURE 26 - STARTER MOTOR AND ATTACHING PARTS**

Figure Item	Code	Part Number	Description	Units per Assembly	
				E1F	E2F
1	V	31A22104	STARTER, Sky-Tec, V 149-12LS	1	
	V	31A26041	STARTER ASSEMBLY, 12V., Kelly V ERZ-8011		1
2	*	STD-35	WASHER, 5/16 plain		4
3		STD-475	WASHER, 5/16 lock, internal teeth	4	4
4		LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	1	
	*	LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head		1
5		STD-1410	NUT, 5/16-18 plain	3	3
<p>V Vendor Prime Manufacturer part * Use with Kelly starters only. NOTE: See latest revision of Lycoming Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.</p>					

SERVICE KIT SECTION**SEAL AND GASKET SET**

PART NO.	PART NAME	Qty.
69371-1	KIT - SEAL AND GASKET SET	1
LW-12272	LOCKPLATE, Shroud tube	4
LW-12681	GASKET, Magneto	2
06B23862	GASKET, Oil filter adapter	1
LW-13353	GASKET, Oil sump	1
LW-13792	CRANKSHAFT, Oil seal	1
LW-14260	SEAL, Tachometer drive, oil	1
LW-14995	SPRING, Shroud tube	4
LW-18639	LOCKPLATE, Crankshaft gear	1
LW-18661	SEAL, Shroud tube	16
77611	GASKET, Exhaust flange	4
MS29512-06	"O" RING, 15/32 I.D. x 5/64 section	1
STD-1006	RING, Oil seal, 7/16 I.D. x 3/32 diameter	1
STD-2072	"O" RING, Static seal	1
STD-213	OIL SEAL, 3/4 I.D. x 1-3/8 O.D.	1
06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16	1
STD-548	OIL SEAL, 7/8 x 1-3/8 x 5/16	1
06E19769-0.63	GASKET, Annular, 5/8 I.D.	2
06E19769-1.00	GASKET, Annular, 1.00 I.D.	1
06E19769-1.25	GASKET, Annular, 1-1/4 I.D.	2
1691-C	GASKET, Fuel pump	1
60096	GASKET, Fuel pump	1
60592	GASKET, Carburetor	1
60820	GASKET, Oil suction tube flange	1
61173	GASKET, Oil pressure housing	1
61183	GASKET, Accessory adapter	1
61531	GASKET, Hydraulic valve	1
62224	GASKET, Magneto adapter	4
66224	GASKET, Carburetor	2
68315	GASKET, Accessory drive adapter	1
69164	GASKET, Fuel pump adapter	1
69345	SPACER	4
69551	GASKET, Accessory drive adapter	1
69720	GASKET, Dual accessory drive	1
69827	GASKET, Governor spacer	1

SERVICE KIT SECTION (CONT.)**SEAL AND GASKET SET (CONT.)**

69371-1	KIT – SEAL AND GASKET SET (CONT.)	1
70310	SEAL, Shroud tube	8
70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/32	1
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	4
71973	GASKET, 2 bolt flange, 1-13/16 I.D.	4
72053	GASKET, Governor	2
72059	GASKET, Oil level gage	1
72075	SEAL, Oil, 3/32 section x 29/64 I.D.	6
72078	LOCKPLATE, 5/16 bolt x 1-21/64 sp	2
72091	RING, Oil seal, 3/8 x 7/64 diameter	2
72312	RING, Oil seal, 1.00 x 1-5/16	1
72879	LOCKPLATE, 1/4 bolt x 1-3/4 sp	1
73383	LOCKPLATE, 5/16 bolt x 1.00	2
73817	LOCKPLATE, 1/4 bolt x 1-3/4 sp	2
73818	GASKET, Accessory housing	1
74065	RING, Oil level gage seal	1
74068	RING, Oil level gage plug	1
74524	RING, Oil level gage bushing	1
75906	GASKET, Rocker box cover	4
76510	GASKET, Oil cooler bypass	1
76940	SEAL, Crankshaft oil	1
8313	GASKET, Vacuum pump	2
06A23493	SEAL, Shroud tube	8

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

PART NO.	PART NAME	Qty.
05K21237-A	KIT - CYLINDER, PISTON AND RING ASSEMBLY	1
LW-12416	CYLINDER ASSEMBLY	1
17A23938	VALVE, Intake	1
17B23936	VALVE, Exhaust	1
65441	SEAT, Valve spring, lower intake	1
LW-13323	SEAT, Valve spring, lower	1
LW-11800	SPRING, Valve, outer	2
LW-11795	SPRING, Valve inner	2
LW-10077	SEAT, Valve spring, upper	1
LW-16475	SEAT, Valve spring, upper exhaust	1
60009	KEY, Valve, intake	2
17C21191	KEY, Valve, exhaust	2
MS20823-6D	ELBOW, 45°, 3/8 flared tube	1
17C19386	CAP, Valve stem, exhaust (rotator)	1
1102	PLUG, 1/8-27 NPT, allen head	2
75413	PISTON	1
74241	RING, Piston, compression	2
14H21950	RING, Piston, oil	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 cover	1
SSP-109	TAG, Use of piston pins	1
77611	GASKET, Exhaust flange	1
71973	GASKET, 2 bolt flange	1
LW-12272	LOCKPLATE, Shroud tube	1
SSP-299	TAG, Use of piston pin plugs	1
06A23493	SEAL, Shroud tube	2

SERVICE KIT SECTION (CONT.)**CRANKCASE ASSEMBLY AND THRU-STUD KIT**

PART NO.	PART NAME	Qty.
LW-18399-S	KIT - CRANKCASE ASSEMBLY AND THRU-STUD	1
LW-18399-1	CRANKCASE ASSEMBLY	1
76220	THRU-STUD	4
31C-14	STUD, 5/16-18 x 1-3/4 long	4
74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick	2
AN565B1032H4	SET SCREW, No. 10-32 x 1/4 long	1
AN565B1032H5	SET SCREW, No. 10-32 x 15/16 long	1
STD-2090	NUT, 1/4-20 plain	2

CRANKCASE ASSEMBLY AND THRU-STUD KIT (ROLLER TAPPET ENGINES)

PART NO.	PART NAME	Qty.
LW-18399-5-S	KIT - CRANKCASE ASSEMBLY AND THRU-STUD	1
LW-18399-5	CRANKCASE ASSEMBLY (Roller tappet engines)	1
76220	THRU-STUD	4
31C-14	STUD, 5/16-18 x 1-3/4 long	4
74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick	2
AN565B1032H4	SET SCREW, No. 10-32 x 1/4 long	1
AN565B1032H5	SET SCREW, No. 10-32 x 15/16 long	1
STD-2090	NUT, 1/4-20 plain	2

NUMERICAL INDEX

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
AN565B1032H5	Set Screw	3	LW-13792	Seal	7
AN6-14	Bolt	1	LW-13793	Stud	5
AN6-16	Bolt	1	LW-13796	Shaft	11
AN6-17	Bolt	1	LW-13896	Plug	3
AN6-34A	Bolt	13	LW-13923	Bushing	15
AN960-616L	Washer	13	LW-14021	Shaft	3
LRT23381	Body Assy.	7	LW-14078	Pin	15
LW-25-0.94	Bolt	29	LW-14260	Seal	33
LW-25-0.94	Bolt	33	LW-14318	Alternator	51
LW-25-1.00	Bolt	39	LW-14780	Gage Assy.	27
LW-25-1.00	Bolt	41	LW-14995	Spring	19
LW-25-1.13	Bolt	13	LW-15472	Fuel Pump	35
LW-25-1.13	Bolt	29	LW-15592-5-05	Clamp	23
LW-25-1.13	Bolt	33	LW-15592-8-28	Clamp	25
LW-25-1.25	Bolt	25	LW-16266-25-13	Clamp	45
LW-25-1.44	Bolt	33	LW-16475	Seat	19
LW-25-1.50	Bolt	13	LW-16783-18	Gage Assy.	27
LW-25-1.75	Bolt	13	LW-18071	Tee	45
LW-25S1.50	Bolt	13	LW-18085	Spring	7
LW-31-0.94	Bolt	1	LW-18108	Impeller	33
LW-31-0.94	Bolt	53	LW-18109	Impeller	33
LW-31-1.16	Bolt	53	LW-18110	Impeller Assy.	33
LW-31H0.75	Bolt	1	LW-18399-1	Crankcase Assy.	5
LW-31H0.75	Bolt	1	LW-18399-5	Crankcase Assy. Kit	5
LW-31H0.75	Bolt	1	LW-18399-5-S	Crankcase Assy.	5
LW-31H0.88	Bolt	11	LW-18399-S	Crankcase Assy. Kit	5
LW-38-0.75	Bolt	35	LW-18639	Lockplate	9
LW-10077	Seat	19	LW-18661	Seal	19
LW-10828	Sump Assy.	29	LW-18667	Pin	11
LW-11713	Spring	7	LW-18815-S	Bushing	9
LW-11795	Spring	19	LW-18816-S	Bushing	9
LW-11800	Spring	19	LW-18817-S	Bushing	9
LW-12098-0-100	Tube Assy.	45	LW-18843	Camshaft Assy.	11
LW-12098-0-130	Tube Assy.	45	LW-18921-S	Bushing	9
LW-12098-0-170	Tube Assy.	45	LW-18922-S	Bushing	9
LW-12098-0-280	Tube Assy.	45	LW-18959-175-25	Clamp	45
LW-12186	Nut	15	MS20823-6D	Elbow	17
LW-12272	Lockplate	19	MS21044N06	Nut	45
LW-12416	Cylinder Assy.	17	STD-8	Washer	13
LW-12545	Plug	29	STD-8	Washer	25
LW-12598	Sleeve	45	STD-8	Washer	29
LW-12681	Gasket	47	STD-8	Washer	33
LW-12706	Adapter	47	STD-8	Washer	37
LW-12892	Thrust Button	21	STD-8	Washer	39
LW-13215	Oil Filter	41	STD-8	Washer	41
LW-13323	Seat	19	STD-19	Dowel	3
LW-13353	Gasket	29	STD-33	Washer	13
LW-13790	Shaft	21	STD-33	Washer	35

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
STD-35	Washer	1	STD-1411	Nut	19
STD-35	Washer	17	STD-1411	Nut	29
STD-35	Washer	33	STD-1411	Nut	37
STD-35	Washer	37	STD-1411	Nut	41
STD-35	Washer	43	STD-1420	Nut	33
STD-35	Washer	53	STD-1623	Insert	5
STD-91	Plug	29	STD-1727	Washer	1
STD-148	Nipple	45	STD-1774	Pin	37
STD-160	Washer	13	STD-1882	Screw	35
STD-160	Washer	25	STD-1925	Screw	21
STD-160	Washer	29	STD-2090	Nut	21
STD-160	Washer	33	STD-2168	Nut	11
STD-160	Washer	37	STD-2180	Hose	23
STD-160	Washer	39	STD-2246	Bolt	9
STD-160	Washer	41	STD-2249	Nut	13
STD-475	Washer	17	25C-8	Stud	17
STD-475	Washer	37	25C-10	Stud	41
STD-475	Washer	43	25C-22	Stud	31
STD-475	Washer	47	31C-12	Stud	5
STD-475	Washer	53	31C-12	Stud	17
STD-514	Dowel	5	31C-12	Stud	31
STD-551	Plug	29	31C-13	Stud	5
STD-553	Screw	45	31C-14	Stud	5
STD-557	Dowel	5	31C-15	Stud	29
STD-596	Nut	13	31C-16	Stud	5
STD-678	Washer	13	31C-19	Stud	31
STD-678	Washer	35	31CD-17	Stud	31
STD-684	Nipple	23	38-13	Stud	5
STD-690	Washer	1	38-22	Stud	5
STD-713	Cotter Pin	1	38D-17	Stud	5
STD-713	Cotter Pin	47	50-15	Stud	5
STD-784	Plug	31	383-B	Nut	21
STD-784	Plug	39	1028-B	Ball	7
STD-784	Plug	41	1102	Plug	5
STD-798	Dowel	3	1102	Plug	17
STD-853	Tee	45	1102	Plug	31
STD-872	Nut	1	1102	Plug	45
STD-872	Nut	13	1182-E7	Spark Plug	47
STD-1065	Dowel	9	8313	Gasket	37
STD-1211	Plug	9	60009	Key	19
STD-1339	Plug	5	60096	Gasket	35
STD-1353	Insert	17	60430	Cover	37
STD-1410	Nut	17	60803	Strap	13
STD-1410	Nut	37	61084	Spring	7
STD-1410	Nut	43	61098	Adapter Assy.	37
STD-1410	Nut	47	61173	Gasket	39
STD-1410	Nut	53	61174	Shaft	33
STD-1411	Nut	13	61183	Gasket	37

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PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
61247	Cover	21	73383	Lockplate	1
61400	Stud	29	73818	Gasket	31
61544	Plunger	11	74065	Ring	27
61597	Cap	45	74068	Ring	27
61665	Gear	47	74084	Pipe	25
62224	Gasket	47	74241	Ring	15
62817	Screen Assy.	39	74637	Bushing	21
65441	Seat	19	74887	Spacer	21
66224	Gasket	43	74996	Gear Assy.	11
66610	Bushing	17	75072	Gear Assy.	11
66796	Insert	17	75154	Stud	5
68668	Spring	7	75380	Link	1
68759	Tube Assy.	23	75736	Tube	27
68760	Tube Assy.	23	75767	Tube	27
68761	Tube Assy.	23	75906	Gasket	21
68987	Shroud Tube Assy.	19	76118	Spacer	11
69106	Cover	37	76119	Shield	31
69510	Housing	39	76121	Shaft Assy.	11
69551	Gasket	37	76220	Stud	13
69603	Hose	25	76510	Gasket	41
69675	Connector	39	76534	Shim	1
69796	Dowel	5	76628	Support Assy.	9
70310	Seal	19	76943	Guide	17
70455	Gasket	3	77309	Bushing	11
70484	Screen	29	77467	Spring	7
71140	Fitting	41	77611	Gasket	17
71481	Ring	21	77808	Valve Assy.	7
71596	Washer	37	77852	Oil Filter Base Assy.	41
71610	Hook	23	77872	Bushing	3
71611	Retainer	23	77874	Gear Assy.	3
71973	Gasket	25	77875	Gear	3
72053	Gasket	37	78027	Bolt	15
72057	Seat	17	78030-S	Conn. Rod Assy.	15
72058	Seat	17	78530	Shaft	33
72059	Gasket	27	78531	Body Assy.	33
72075	Seal	7	78589	Plug	3
72091	Ring	7	78914	Connection	29
72158	Bushing	5	01L23459	Washer	19
72198	Plug	15	01P19762-1-2	Bag, Attaching	47
72378	Cover	37	01P19762-1-43	Bag, Attaching	47
72566	Gear	9	03C21721	Plug	3
72569	Baffle Assy.	23	03D23350	Cover	35
72970	Gear Assy.	37	06A19956	Oil Seal	37
73249	Washer	3	06A23493	Seal	19
73250	Washer	3	06B23862	Gasket	41
73251	Washer	3	06E19769-0.63	Gasket	39
73252	Washer	3	06E19769-0.63	Gasket	41
73346	Flange	25	06E19769-1.00	Gasket	29

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PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
06E19769-1.25	Gasket	7	17C21191	Key	19
07A19474	Bracket	1	17F19357	Rocker Assy.	21
07F23268	Strut	1	18A26093	Bearing	7
13B47022	Crankshaft Assy.	9	18D26096	Bearing	7
13B47024	Crankshaft Assy.	9	18D26098	Bearing	7
13S19646	Gear	9	18M26104	Bearing	15
14D23915	Piston	15	21A21533-04	Housing Assy.	31
14H21950	Ring	15	31A22104	Starter	53
15B21319	Socket	19	31A26041	Starter Assy.	53
15B26064	Body	7	32B19549	Alternator Assy.	51
15B26066	Plunger Assy.	19	36B19484	Pulley	51
15F19957-08	Rod Assy.	21	37A19773-376	Belt	51
15F19957-09	Rod Assy.	21	53E22144	Valve Assy.	39
15F19957-10	Rod Assy.	21	53E22144	Valve Assy.	41
15F19957-11	Rod Assy.	21	61B26213	Carburetor	43
15F19957-12	Rod Assy.	21	63D21408	Nipple Assy.	45
15F19957-13	Rod Assy.	21	66GC20SFNN	Magneto	47
15F19957-14	Rod Assy.	21	66GC25SFNN	Magneto	47
15F19957-15	Rod Assy.	21	66GP-0SANN	Magneto	47
15G23494	Shroud Tube Assy.	21	66M21195	Clamp	47
15M23452	Camshaft Assy.	11	67P20406	Harness Assy.	47
16R22126	Guide	17	67P20407	Harness Assy.	47
17A23938	Valve, Intake	19	67P20414	Harness Assy.	47
17B23936	Valve, Exhaust	19	67P20415	Harness Assy.	47
17C19386	Cap	19	68C19622	Gear	47