

IO-540-D4B5 Series Illustrated Parts Catalog

April 2015

PC- IO-540-D4B5

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652 Oliver Street
Williamsport, PA 17701

IO-540-D4B5 Series Illustrated Parts Catalog

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RECORD OF REVISIONS

NOTE: Service Documents override parts information in this document.

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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 contains a complete list of spare parts for the Lycoming IO-540-D4B5 Certified Series wide cylinder flange model engine.

How to Use This Catalog

This catalog is based on the Air Transport Association (ATA) Spec100 format.

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 designates chapters by the numeric code. In the example below, Chapter 74 is for Ignition with a subsection 20 for Distribution.

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

NOTE: Refer to 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.

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.

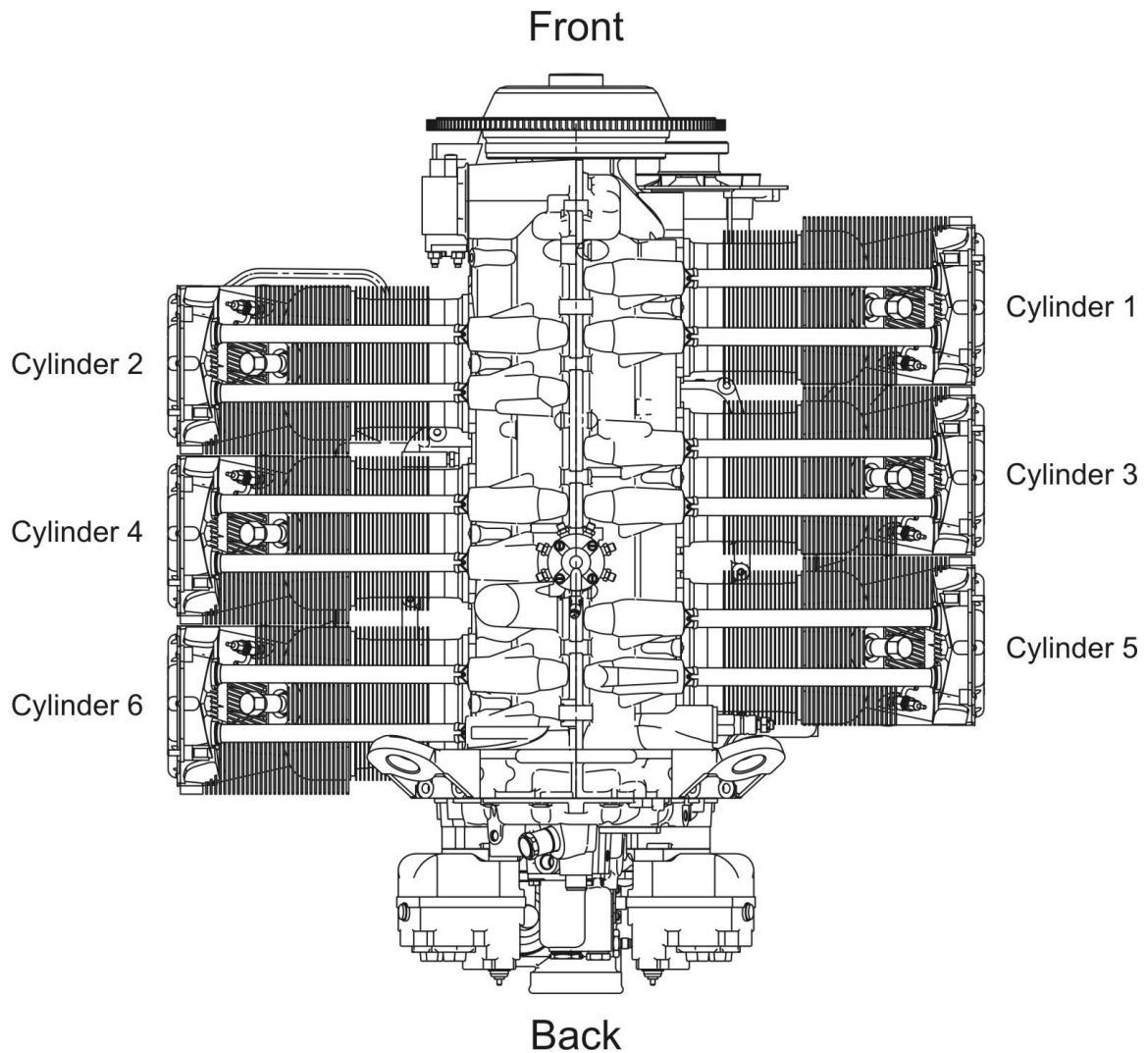
Any reference in this document to the suppliers/part manufacturer's product, by name, trademark, part number or other description is solely for the purpose of identification and does not indicate or infer that Lycoming accepts responsibility for quality control and/or airworthiness of parts, which do 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 1-4-5-2-3-6.

**Top View of Engine**

How to Order Parts and Publications

An Oversize and Undersize Parts List is included in the frontal 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 part number, nomenclature and quantity required.

The SB and SI documents are available from Lycoming distributors, 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 is responsible for notifying the factory of a change of address.

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

Call **+1-800-258-3279 - U.S. and Canada toll free**
+1-570-323-6181 - International

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Monday – Friday.

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ABBREVIATIONS AND ACRONYMS

A	
Adj.	Adjustable
AR	As Required
Assy	Assembly
ATA	Air Transport Association
C	
Cyl.	Cylinder
F	
Fill.	Fillister
H	
Hex.	Hexagon
I	
I.D.	Inside Diameter
in.	Inch
M	
mm	Millimeter
N	
No.	Number
NPT	National Pipe Taper (thread)
O	
O.D.	Outside Diameter
P	
P	Lycoming Proprietary Part
P/N	Part Number
R	
RF	Reference
S	
SB	Service Bulletin
SI	Service Instruction
T	
Temp.	Temperature
Thd.	Thread
U	
UNC	Unified National Coarse

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OVERSIZE AND UNDERSIZE PARTS LISTING

Part No.	Description	Undersize (In.)								Oversize (In.)		
		.0015	P05 .005	P10 .010	P15 .015	P20 .020	P30 .030	P40 .040	P50 .050	M03 .003	M06 .006	M10 .010
66610	BUSHING		X									
61681*	GUIDE		X	X		X						
66796	INSERT			X								
69796	STEPPED DOWEL		X									
18D26096	STRAIGHT DOWEL										X	X
72058	SEAT			X								
71903-A **	BUSHING											
72155-S	BUSHING		X	X								
16R22291*	GUIDE		X	X								
73810 ♦	BUSHING		X	X	X							
14H21950	RING			X								
74241	RING			X								
75656-S	BUSHING		X	X								
75657-S	BUSHING		X	X								
LW-13792†	SEAL								X			
72057	SEAT			X								
18A26093	BEARING									X	X	X
18D26098	BEARING									X	X	X
STD-1065	DOWEL		X	X								

NOTE

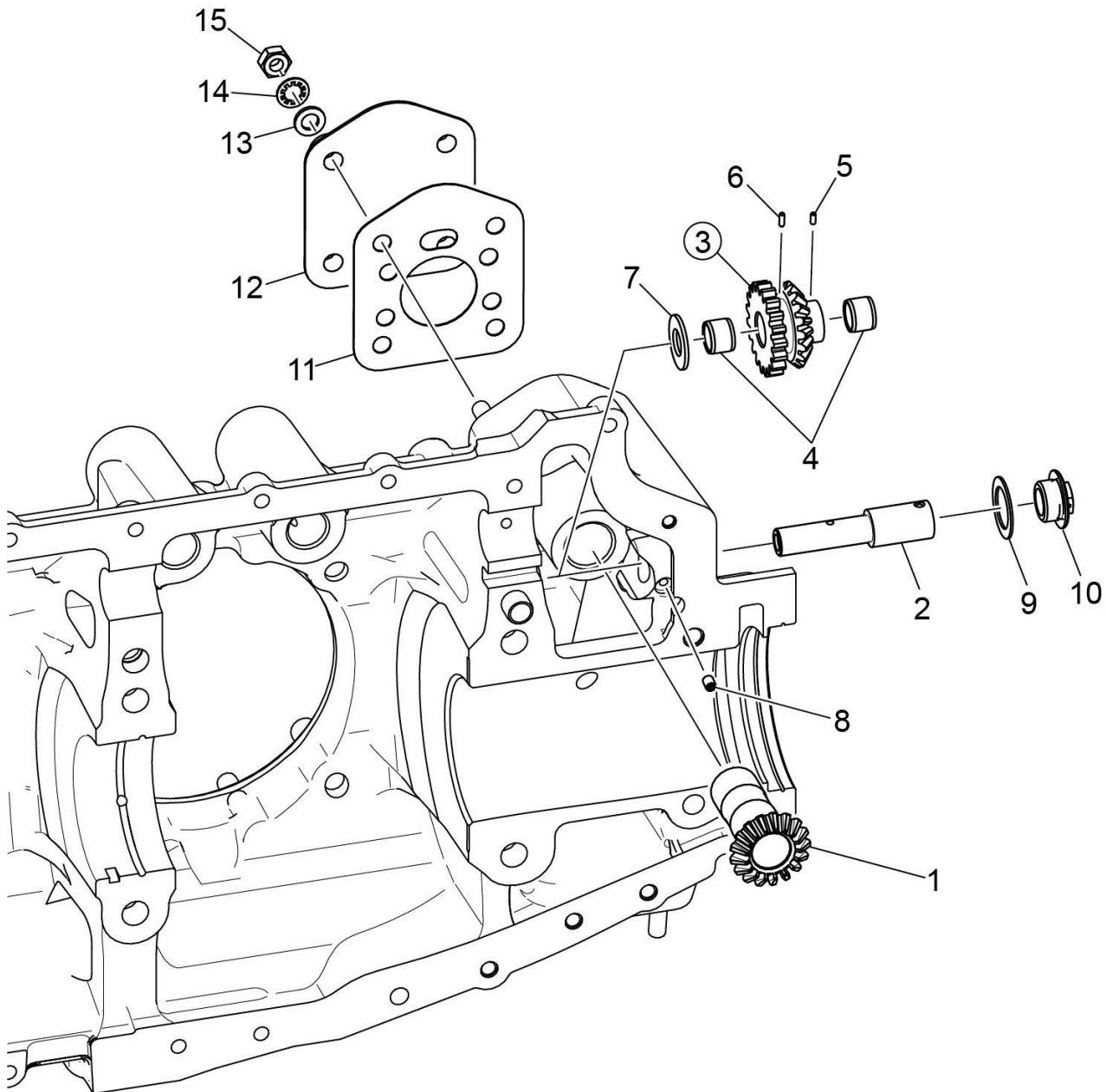
When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing P/N 18A26093 bearing in .003 in. undersize, order P/N 18A26093-M03. Undersize code letter is "M" while oversize code letter is "P". These letters are then followed by the number designating the size in thousandths of an inch.

* See latest revision of Service Instruction No. 1256. Refer to Figure 8 items 4 and 5 for valve guides

** See latest revision of Service Instruction No. 1143

♦ See latest revision of Service Instruction No. 1142

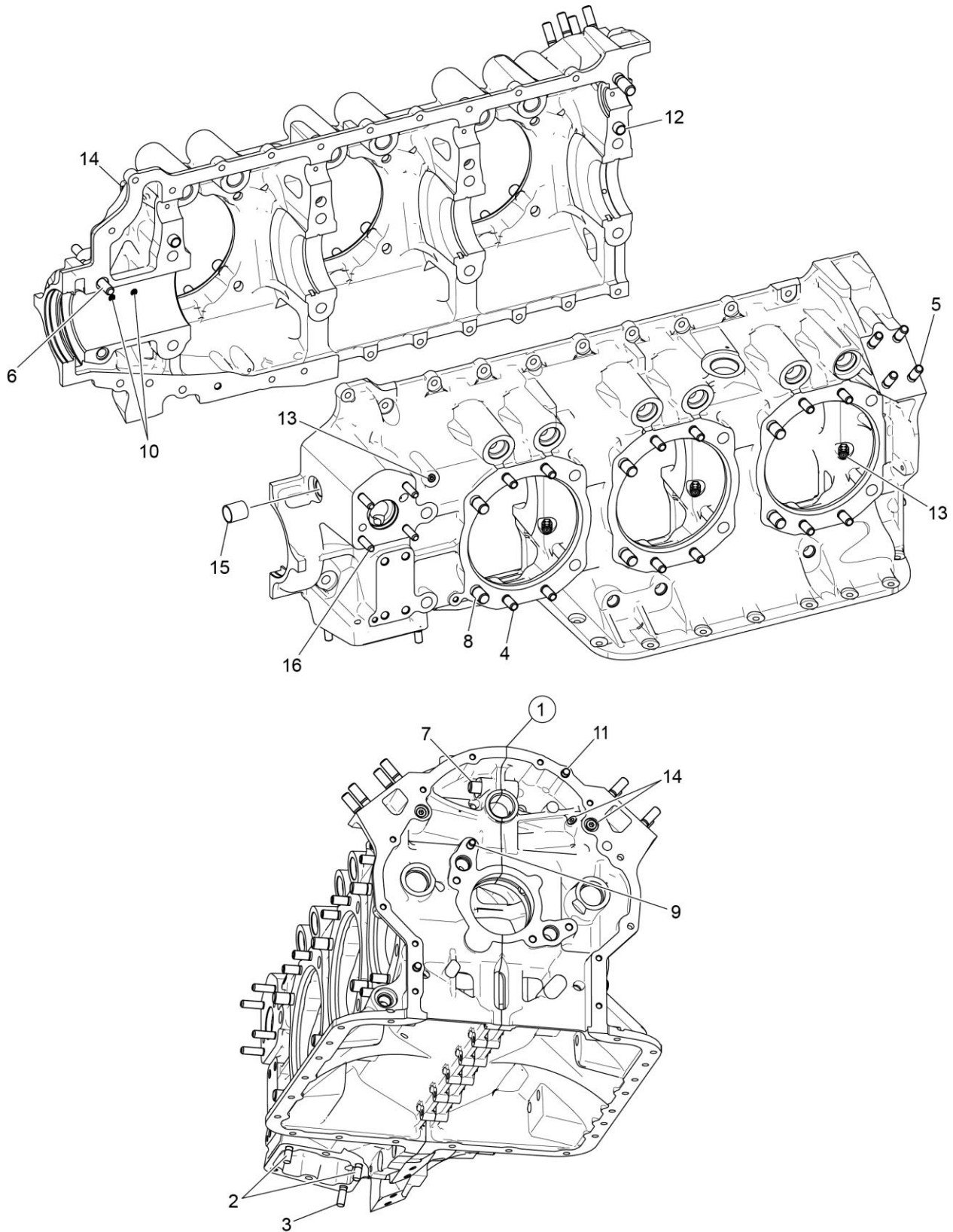
† See latest revision of Service Instruction No. 1324



Propeller Governor Drive Assembly
Figure 1

FIGURE 1 - PROPELLER GOVERNOR DRIVE ASSEMBLY

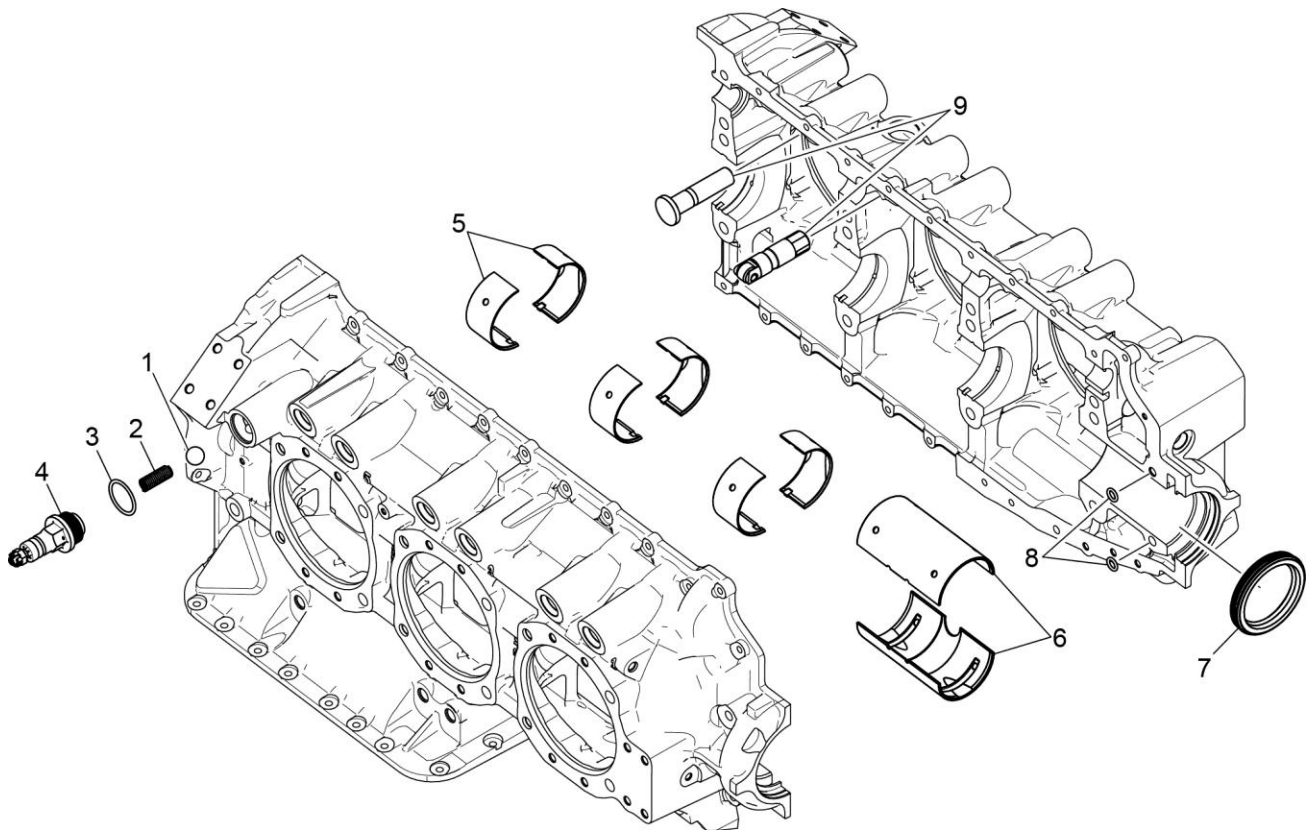
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-10442	GEAR, Propeller governor driven	1
2		LW-14021	SHAFT, Propeller governor idler gear	1
3		LW-10541	GEAR ASSEMBLY, Propeller governor idler	1
4		77872	BUSHING, Propeller governor idler gear	2
5		STD-19	DOWEL, 3/32 diameter x 7/32 long	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
	AR	01L21418	WASHER, Thrust (.055 - .056 thick)	AR
8		AN565B1032H5	SET SCREW, #10-32 x 5/16 long	1
9		70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/32 thick	1
10		LW-13896	PLUG, 3/4-16 hex. head	1
11		72053	GASKET, Governor	1
12		72378	COVER, Governor drive	1
13		STD-35	WASHER, 5/16 plain	4
14		STD-475	WASHER, 5/16 lock, internal teeth	4
15		STD-1410	NUT, 5/16-18 plain	4
AR as required				



Crankcase Assembly
Figure 2

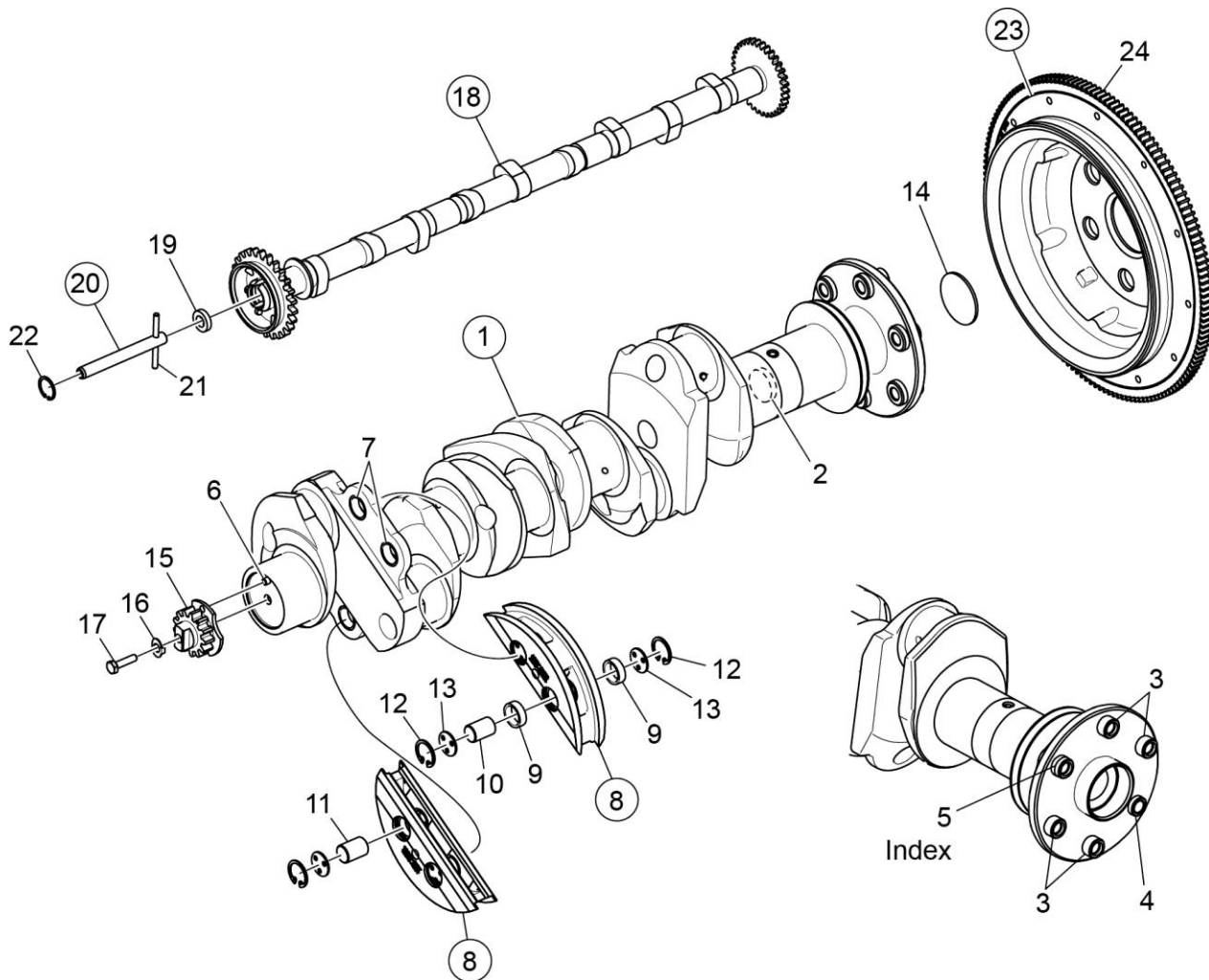
FIGURE 2 - CRANKCASE ASSEMBLY

Figure Item	Code	Part Number	Description	Units per Assembly
1	*	11E24000-S1-S	KIT, CRANKCASE ASSEMBLY -STRAIGHT BODY TAPPET	1
	P	11E24000-S1	CRANKCASE ASSEMBLY -STRAIGHT BODY TAPPET	1
	*	11E24100-S1-S	KIT, CRANKCASE ASSEMBLY-ROLLER LIFTER	1
	P	11E24100-S1	CRANKCASE ASSEMBLY-ROLLER LIFTER	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 x 2-1/8 long, drilled	1
8		50-15	STUD, 1/2-13 x 1-7/8 long	12
9		01A23354	STUD, 5/16-18 x 1.00 long , drilled	1
10		69796	DOWEL, Crankshaft, front bearing	2
11		STD-514	DOWEL, 5/16 diameter x 1/2 long	2
12		STD-557	DOWEL, 1/2 diameter x 11/16 long	2
13		STD-1339	PLUG, 1/16-27 NPT, Allen head	7
14		1102	PLUG, 1/8 pipe, Allen head	4
15		72158	BUSHING, Governor drive idler shaft	1
16		31C-17	STUD, 5/16-18 x 2-1/8 long	4
<p>P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.</p> <p>* Refer to the Service Kit Section in this parts catalog for applicable Crankcase Assembly Thru-Stud Kit Part Numbers.</p> <p>See latest revision of Service Instruction No. 1514 for shroud tube spring information.</p> <p>Refer to Service Instruction Nos. SI-1011 and 1514</p>				



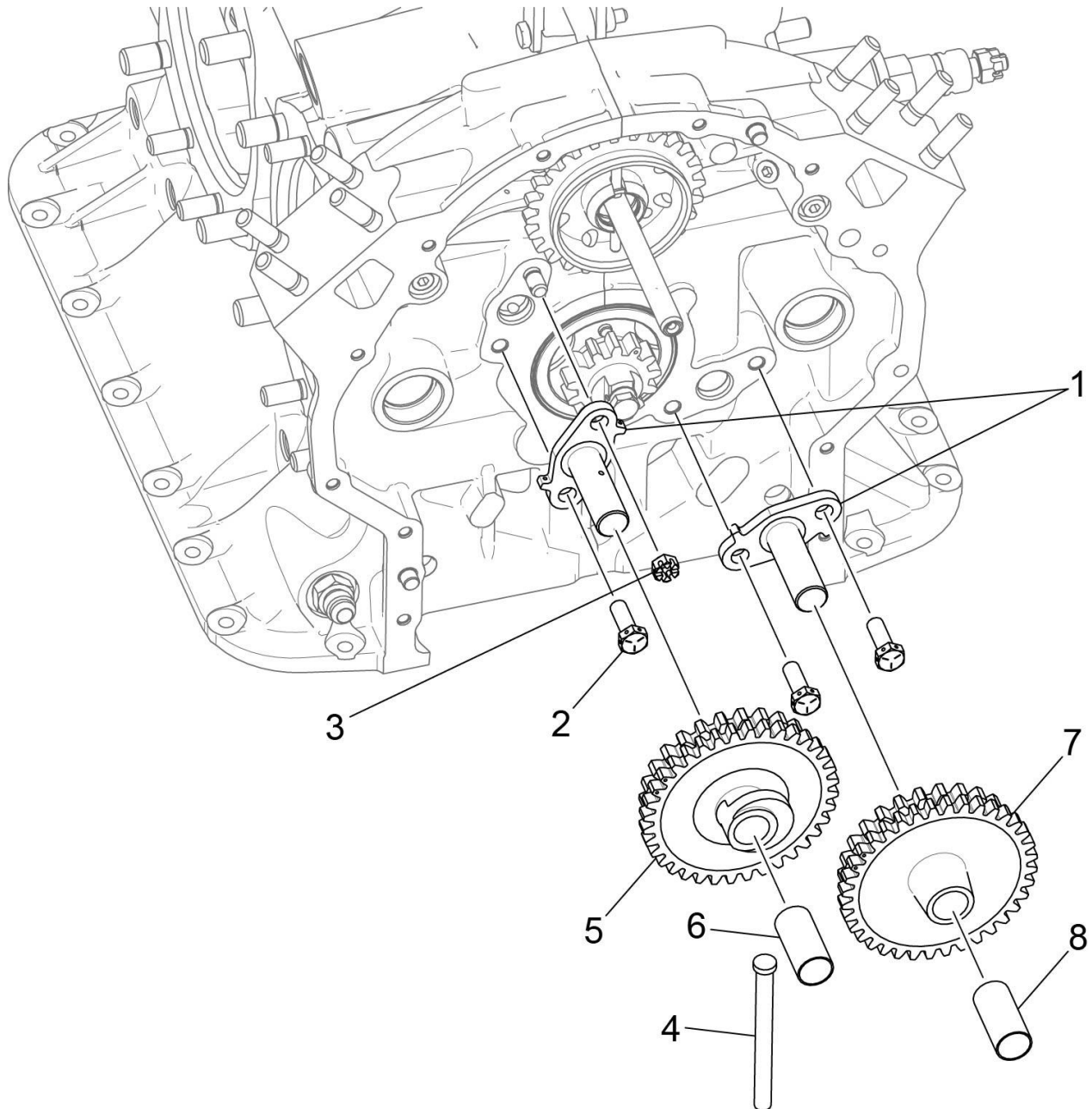
Crankcase-Related Parts
Figure 3
FIGURE 3 – CRANKCASE-RELATED PARTS

Figure Item	Code	Part Number	Description	Units per Assembly
1		1028-B	BALL, 11/16 diameter	1
2	*	68668	SPRING, Oil pressure relief valve	1
	*	61084	SPRING, Oil pressure relief valve	1
	*	LW-11713	SPRING, Oil pressure relief valve	1
	*	LW-18085	SPRING, Oil pressure relief valve	1
	*	77467	SPRING, Oil pressure relief valve	1
3		06E19769-1.25	GASKET, 1-1/4 I.D. annular	1
4		77808	VALVE ASSEMBLY, Oil pressure relief, adj.	1
5		18D26098	BEARING, Crankshaft	6
6		18A26093	BEARING, Crankshaft, front	2
7	♦	LW-13792	SEAL, Crankshaft oil	1
8		72091	RING, Oil seal, 23/64 I.D. x 7/64 dia. section	2
9	+	15B26262	BODY ASSEMBLY, Hydraulic tappet	12
	+	LRT23381	BODY ASSEMBLY, Hydraulic (roller tappet)	12
<p>* Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment. Refer to the latest revision of SSP-1776, Part I for spring identification.</p> <p>♦ Refer to latest revision of Service Instruction No. 1324 for installation.</p> <p>+ Refer to the latest revision of Service Instruction Nos. S.I. 1011 and 1514.</p>				



Crankshaft, Counterweight, Camshaft, and Related Parts**Figure 4****FIGURE 4 - CRANKSHAFT, COUNTERWEIGHT, CAMSHAFT, AND RELATED PARTS**

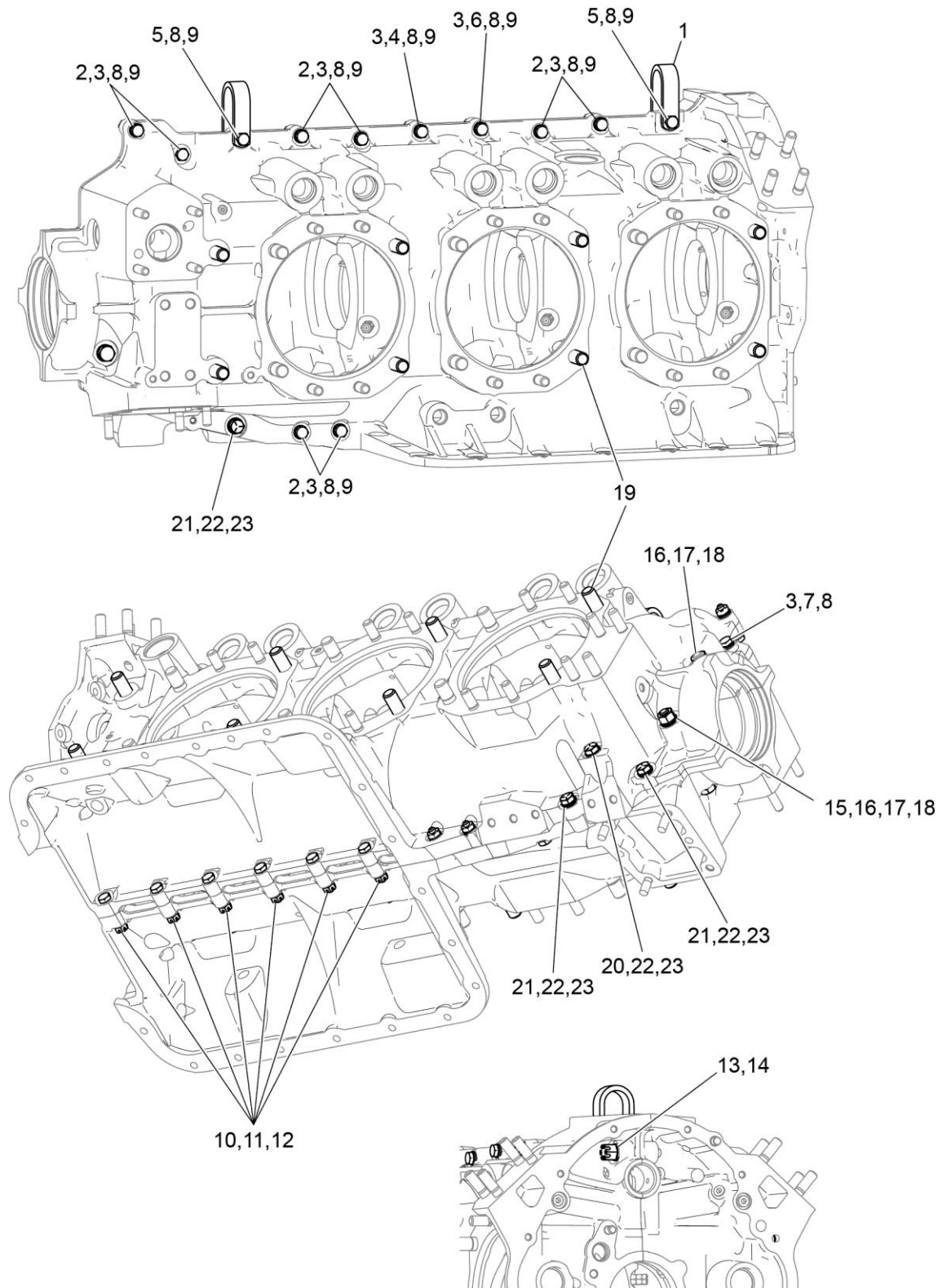
Figure Item	Code	Part Number	Description	Units per Assembly
1		13E47622	CRANKSHAFT ASSEMBLY	1
2		71640	PLUG, 1.38 diameter expansion	1
3		75656-S	BUSHING, Propeller flange, long	4
4		72155-S	BUSHING, Propeller flange, short	1
5		75657-S	BUSHING, Propeller flange, indexing	1
6		STD-1065	DOWEL, Stepped, 5/16 & 1/4 dia. x 35/64	1
7		73810	BUSHING, Crankshaft, counterweight	4
8	*	LW-19227	COUNTERWEIGHT ASSEMBLY	2
9		71903-A	BUSHING, Dynamic counterweight	4
10	*	72797	ROLLER, Dynamic counterweight, 6.3 order	2
11	*	72965	ROLLER, Dynamic counterweight	2
12		LW-14820	RING, Internal retaining	8
13		71907	WASHER, Dynamic counterweight	8
14		STD-1211	PLUG, 2.00 diameter expansion	1
15	**	13S19647	GEAR, Crankshaft	1
16		LW-18638	LOCKPLATE, Crankshaft gear	1
17		STD-2247	BOLT, 5/16-24 x 1.75	1
18		15N23374	CAMSHAFT ASSEMBLY, roller lifter	1
		LW-19340	CAMSHAFT ASSEMBLY	1
19		76118	SPACER, Tachometer shaft centering	1
20		76155	SHAFT ASSEMBLY, Tachometer	1
21		LW-18667	PIN, 3/16 diameter x 2-21/64 long	1
22		STD-2231	RING, Internal retaining	1
23		LW-18633	SUPPORT ASSEMBLY, Starter ring gear	1
		31M22045	SUPPORT ASSEMBLY, Starter ring gear	1
24		72566	GEAR, Starter ring	1
<p>* Refer to the latest revision of Service Instruction No. 1535 for counterweight and roller installation.</p> <p>** Refer to the latest revision of Service Bulletin No. 475 for installation.</p>				



Crankshaft and Fuel Pump Idler Gears

Figure 5
FIGURE 5 – CRANKSHAFT AND FUEL PUMP IDLER GEARS

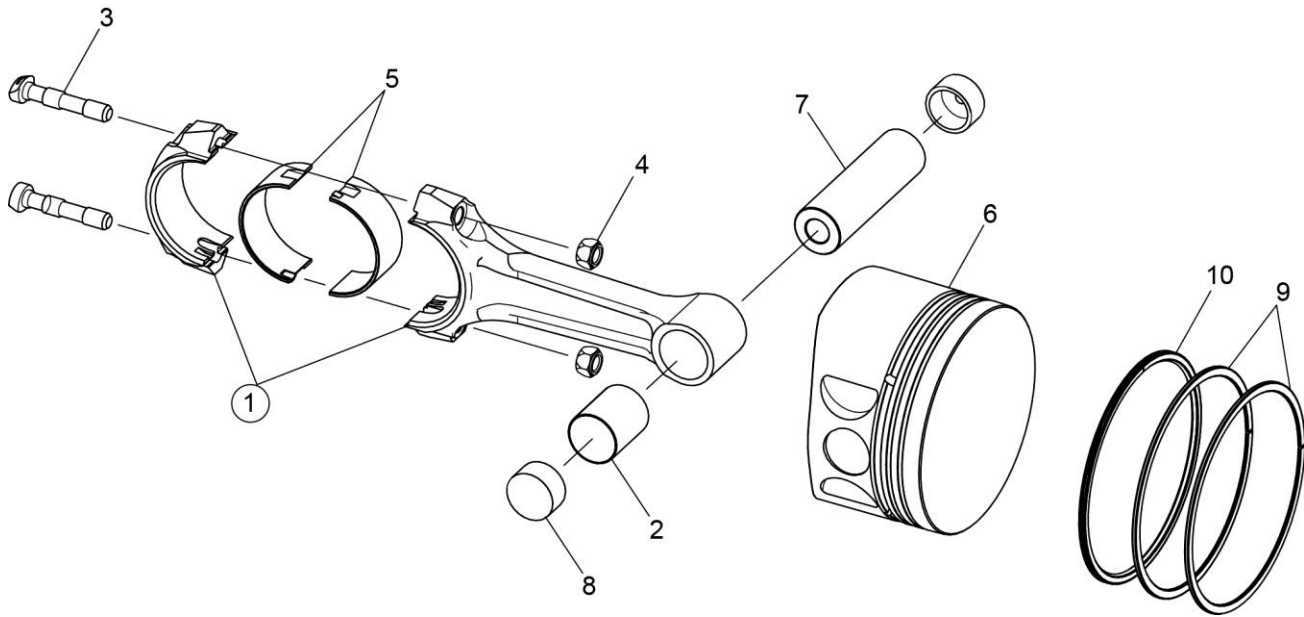
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-13795	SHAFT, Crankshaft idler gear	2
2		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex head, drilled	3
3		STD-2168	NUT, 5/16-18 NC, slotted, shear	1
4		23D26777	PLUNGER, Fuel pump, long	1
5		71652	GEAR ASSEMBLY, Crankshaft idler	1
6		67530	BUSHING, Crankshaft idler gear	1
7		71668	GEAR ASSEMBLY, Crankshaft idler, plain	1
8		67530	BUSHING, Crankshaft idler gear	1



Crankcase Attaching Parts
Figure 6

FIGURE 6 - CRANKCASE ATTACHING PARTS

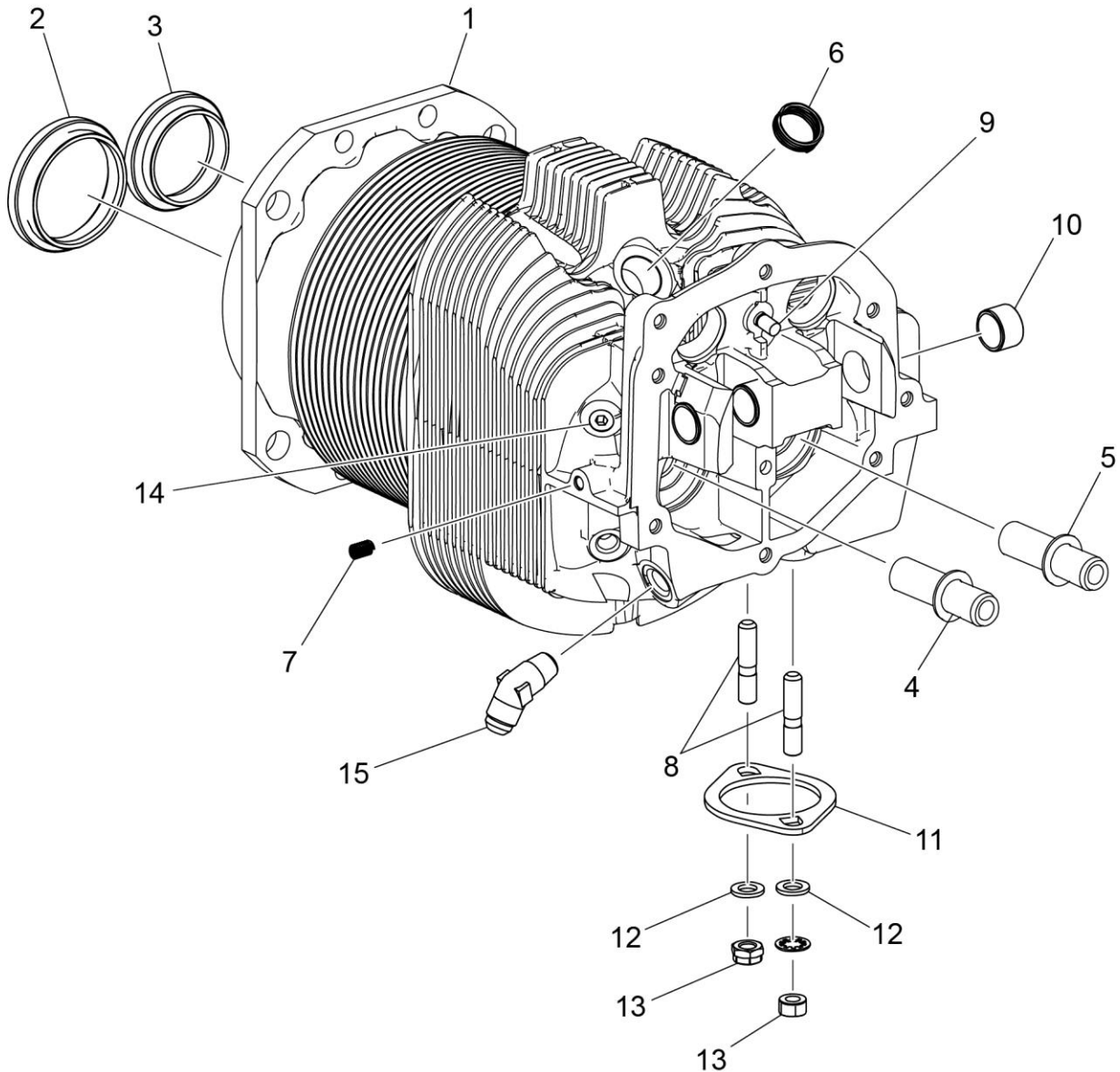
Figure Item	Code	Part Number	Description	Units per Assembly
1		60803	STRAP, Lifting	2
2		LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head	8
3		STD-8	WASHER, 1/4 plain	22
4		LW-25-1.88	BOLT, 1/4-20 x 1-3/4 long, hex. head	1
5		LW-25-2.00	BOLT, 1/4-20 x 2.00 long, hex. head	2
6		LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. head	1
7		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
8		STD-160	WASHER, 1/4 lock, internal teeth	13
9		STD-1411	NUT, 1/4-20 plain	12
10		LW-25S1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head, drilled	6
11		STD-8	WASHER, 1/4 plain	18
12		STD-2249	NUT, 1/4-20 slotted shear	6
13		STD-33	WASHER, 3/8 plain	1
14		STD-872	NUT, 3/8-24 slotted	1
15		AN6-34A	BOLT, 3/8-24 x 3-9/16 long, hex. head	1
16		STD-33	WASHER, 3/8 plain	3
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	8
20		LW-31-2.75	BOLT, 5/16-18 x 2-3/4 long, hex. head	1
21		LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	3
22		STD-35	WASHER, 5/16 plain	4
23		STD-475	WASHER, 5/16 lock, internal teeth	4



Connecting Rods, Pistons, and Ring Assemblies
Figure 7

FIGURE 7 - CONNECTING RODS, PISTONS, AND RING ASSEMBLIES

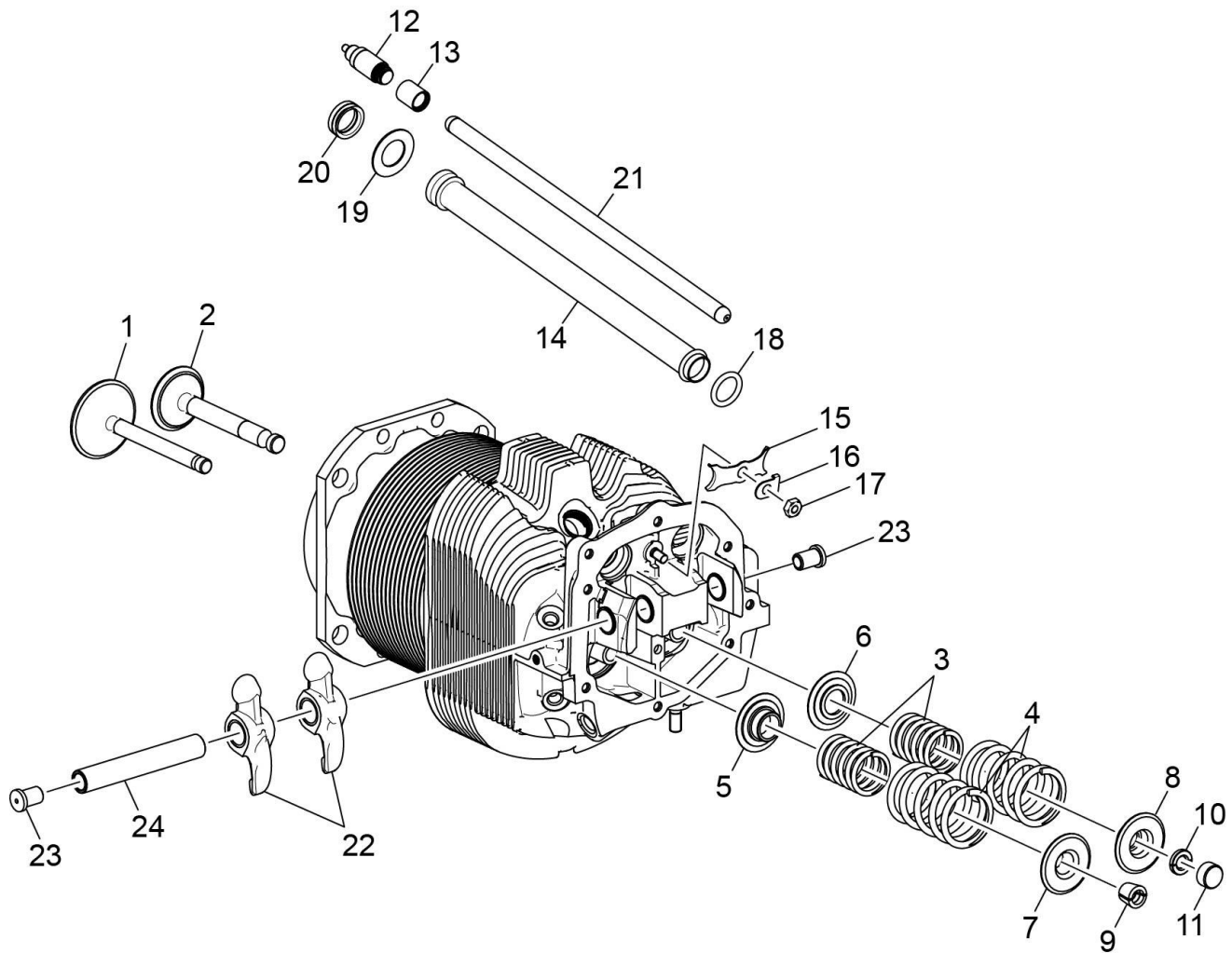
Figure Item	Code	Part Number	Description	Units per Assembly
1	P	LW-11750	CONNECTING ROD ASSEMBLY	6
		LW-11750-S	CONNECTING ROD ASSEMBLY	6
2	P	LW-13923	BUSHING, Connecting rod, upper	6
3	P	14S23890	BOLT, Connecting rod	12
	*	75061	BOLT, Connecting rod	12
4		LW-12186	NUT, Connecting rod bolt	12
5		18M26105	BEARING, Connecting rod	12
6		14D23912	PISTON, Compression ratio, 8.50:1	6
7		LW-14078	PIN, Piston	6
8		72198	PLUG, Piston pin	12
9		74241	RING, Piston compression	12
10		14H21950	RING, Piston, oil regulating, expander type	6
P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased. * Service use only.				



Cylinder Assembly
Figure 8

FIGURE 8 - CYLINDER ASSEMBLY

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-12427	CYLINDER ASSEMBLY, Nitrided	6
2		72057	SEAT, Intake valve	6
3		72058	SEAT, Exhaust valve	6
4	P *	76943	GUIDE, Valve, intake, flangeless	6
5	P *	16R22126	GUIDE, Valve, exhaust, flangeless	6
6		66796	INSERT, Spark plug, 18-1.5 mm	12
7		STD-1353	INSERT, #10-24 UNC, 3/4 long	6
8		31C-12	STUD, 5/16-18 x 1-1/2 long	12
9		25C-8	STUD, 1/4-20 x 1.00 long	1
10		66610	BUSHING, Rocker shaft, inner	24
11		75118	GASKET, Exhaust flange	6
12		STD-35	WASHER, 5/16 plain	12
13		STD-2043	NUT, 5/16-18, self locking	12
14		1102	PLUG, 1/8 pipe, Allen head	6
15		MS20823-6D	ELBOW, 45 degree, 3/8 flared tube	6
<p>P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.</p> <p>* Refer to latest revision of Service Instruction No. 1256 for valve guides for service use.</p>				



Valve Assembly and Related Parts (on Engines with Roller Tappets)
Figure 9

FIGURE 9 – VALVE ASSEMBLY AND RELATED PARTS (ON ENGINES WITH ROLLER TAPPETS)

Figure Item	Code	Part Number	Description	Units per Assembly
1		17A23938	VALVE, Intake	6
2		17B23936	VALVE, Exhaust	6
3		LW-11795	SPRING, Valve, inner	12
4		LW-11800	SPRING, Valve, outer	12
5		65441	SEAT, Valve spring, lower intake	6
6		LW-13323	SEAT, Valve spring, lower exhaust	6
7		LW-10077	SEAT, Valve spring, upper intake	6
8		LW-16475	SEAT, Valve spring, upper exhaust	6
9		60009	KEY, Valve, intake	12
10		17C21191	KEY, Valve, exhaust	12
11		17C19386	CAP, Valve stem, exhaust (rotator type)	6
12		15B26066	PLUNGER ASSEMBLY, Hydraulic lifter	12
13		15B21319	SOCKET, Hydraulic lifter	12
14		15G23461	SHROUD TUBE ASSEMBLY, Push rod	12
15	*	LW-14995	SPRING, Shroud tube	6
16		LW-12272	LOCKPLATE, Shroud tube	6
17		STD-1411	NUT, 1/4-20, plain	6
18		70310	SEAL, Shroud tube	12
19		01L23459	WASHER, 13/32 I.D. x 1-3/8 O.D. x 0.041	12
20		06A23493	SEAL, Shroud tube	12

NOTE: Various push rod lengths are used to set valve clearances.

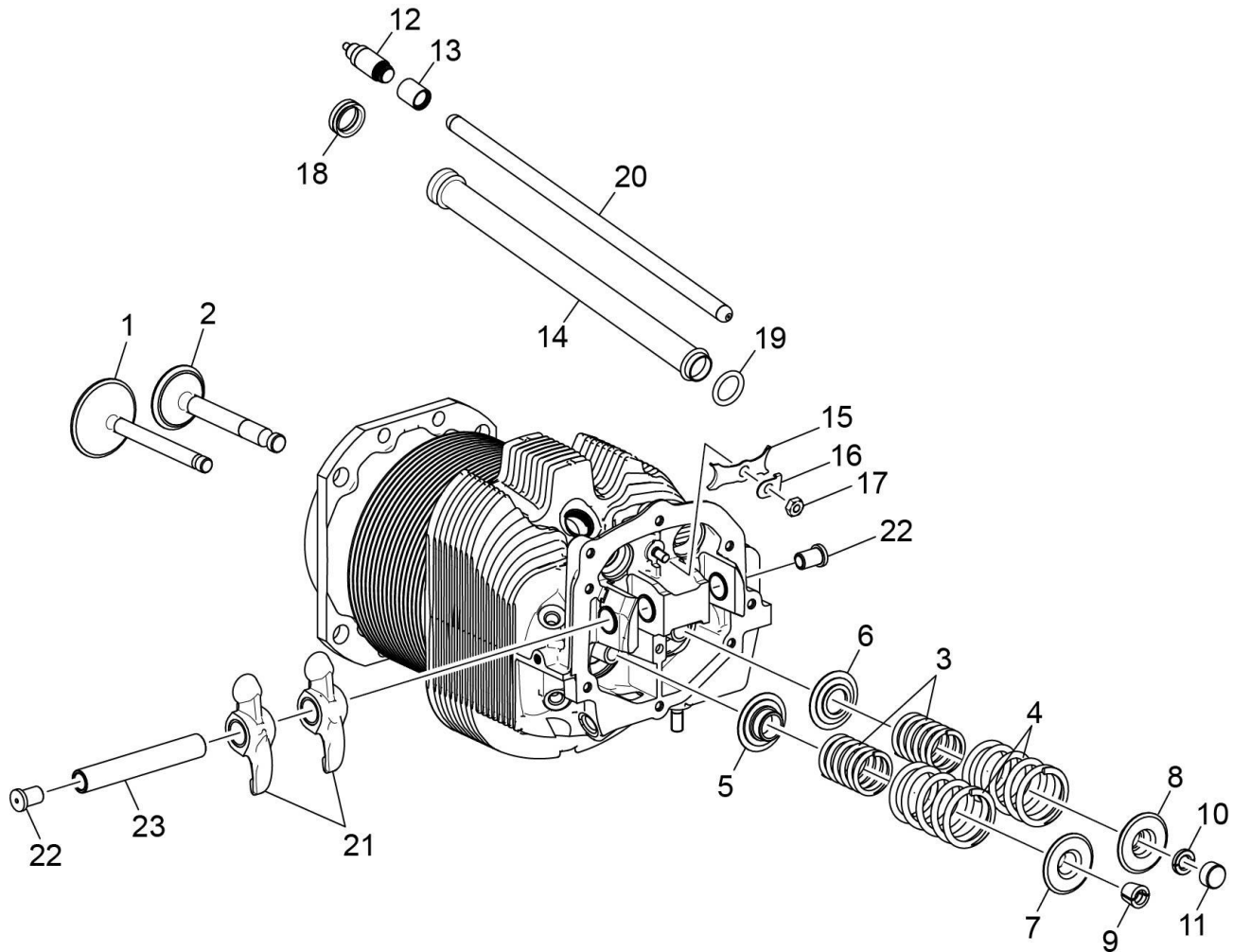
* See latest revision of Service Instruction No. 1514 for shroud tube spring information.

(continued on next page)

FIGURE 9 - VALVE ASSEMBLY AND RELATED PARTS (ON ENGINES WITH ROLLER TAPPETS) (CONT.)

Figure Item	Code	Part Number	Description	Units per Assembly
21	AR *	15F19957-28	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-29	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-30	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-31	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-32	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-33	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-34	ROD ASSEMBLY, Push (A total of 12 required)	AR
22	**	17F19357	ROCKER ASSEMBLY, Valve, intake and exhaust	12
23		LW-12892	THRUST BUTTON, Rocker shaft	12
24		LW-13790	SHAFT, Valve rocker	6
AR as required * Various push rod lengths are used to set valve clearances. Refer to the latest revision of Service Instruction No. 1060 for complete push rod application. ** Due to the size of the area where the number is stamped, the last five digits may be all that is shown (19357).				

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Valve Assembly and Related Parts (on Engines with Straight-Body Tappets)
Figure 9A

FIGURE 9A – VALVE ASSEMBLY AND RELATED PARTS (ON ENGINES WITH STRAIGHT-BODY TAPPETS)

Figure Item	Code	Part Number	Description	Units per Assembly
1		17A23938	VALVE, Intake	6
2		17B23936	VALVE, Exhaust	6
3		LW-11795	SPRING, Valve, inner	12
4		LW-11800	SPRING, Valve, outer	12
5		65441	SEAT, Valve spring, lower intake	6
6		LW-13323	SEAT, Valve spring, lower exhaust	6
7		LW-10077	SEAT, Valve spring, upper intake	6
8		LW-16475	SEAT, Valve spring, upper exhaust	6
9		60009	KEY, Valve, intake	12
10		17C21191	KEY, Valve, exhaust	12
11		17C19386	CAP, Valve stem, exhaust (rotator type)	6
12		15B26066	PLUNGER ASSEMBLY, Hydraulic lifter	12
13		15B21319	SOCKET, Hydraulic lifter	12
14		LW-11485	SHROUD TUBE ASSEMBLY, Push rod	12
15	*	LW-14995	SPRING, Shroud tube	6
16		LW-12272	LOCKPLATE, Shroud tube	6
17		STD-1411	NUT, 1/4-20, plain	6
18		LW-18661	SEAL, Shroud tube	12
19		70310	SEAL, Shroud tube	12
<p>NOTE: Various push rod lengths are used to set valve clearances. * See latest revision of Service Instruction No. 1514 for shroud tube spring information.</p>				

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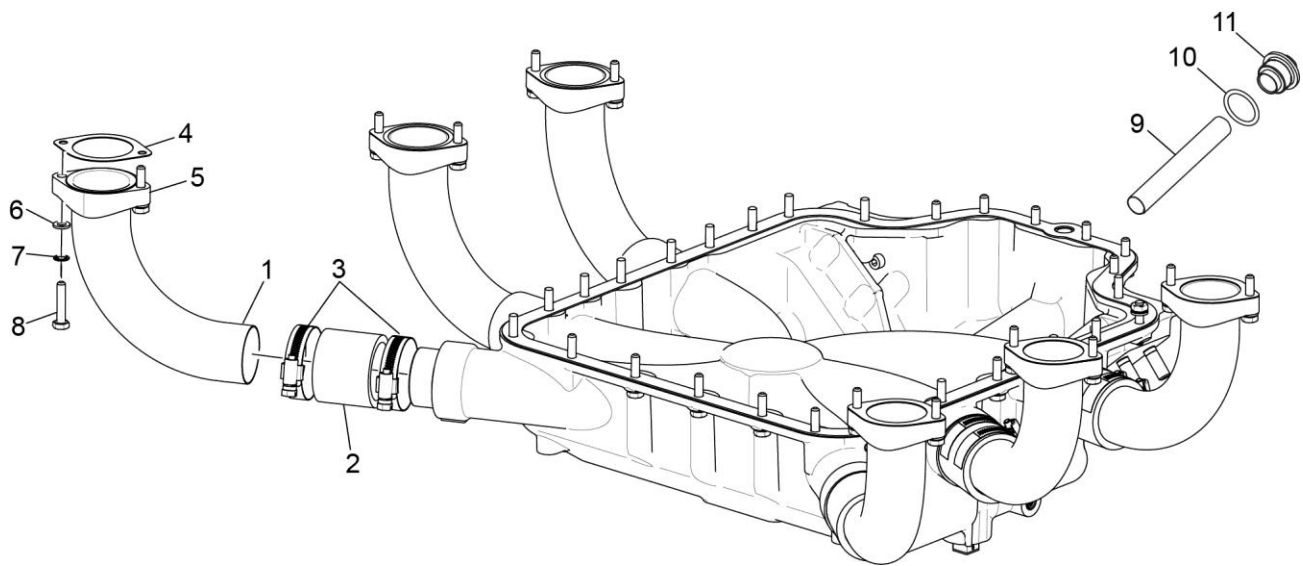
FIGURE 9A - VALVE ASSEMBLY AND RELATED PARTS (ON ENGINES WITH STRAIGHT BODY TAPPETS) (CONT.)

Figure Item	Code	Part Number	Description	Units per Assembly
20	AR *	15F19957-34	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-35	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-36	ROD ASSEMBLY, Push (A total of 12 required)	AR
	AR *	15F19957-37	ROD ASSEMBLY, Push (A total of 12 required)	AR
21	**	17F19357	ROCKER ASSEMBLY, Valve, intake and exhaust	12
22		LW-12892	THRUST BUTTON, Rocker shaft	12
23		LW-13790	SHAFT, Valve rocker	6
<p>AR as required</p> <p>* Various push rod lengths are used to set valve clearances. Refer to the latest revision of Service Instruction No. 1060 for complete push rod application.</p> <p>** Due to the size of the area where the number is stamped, the last five digits could be all that is shown (19357).</p>				

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FIGURE 10 – CYLINDER-RELATED PARTS

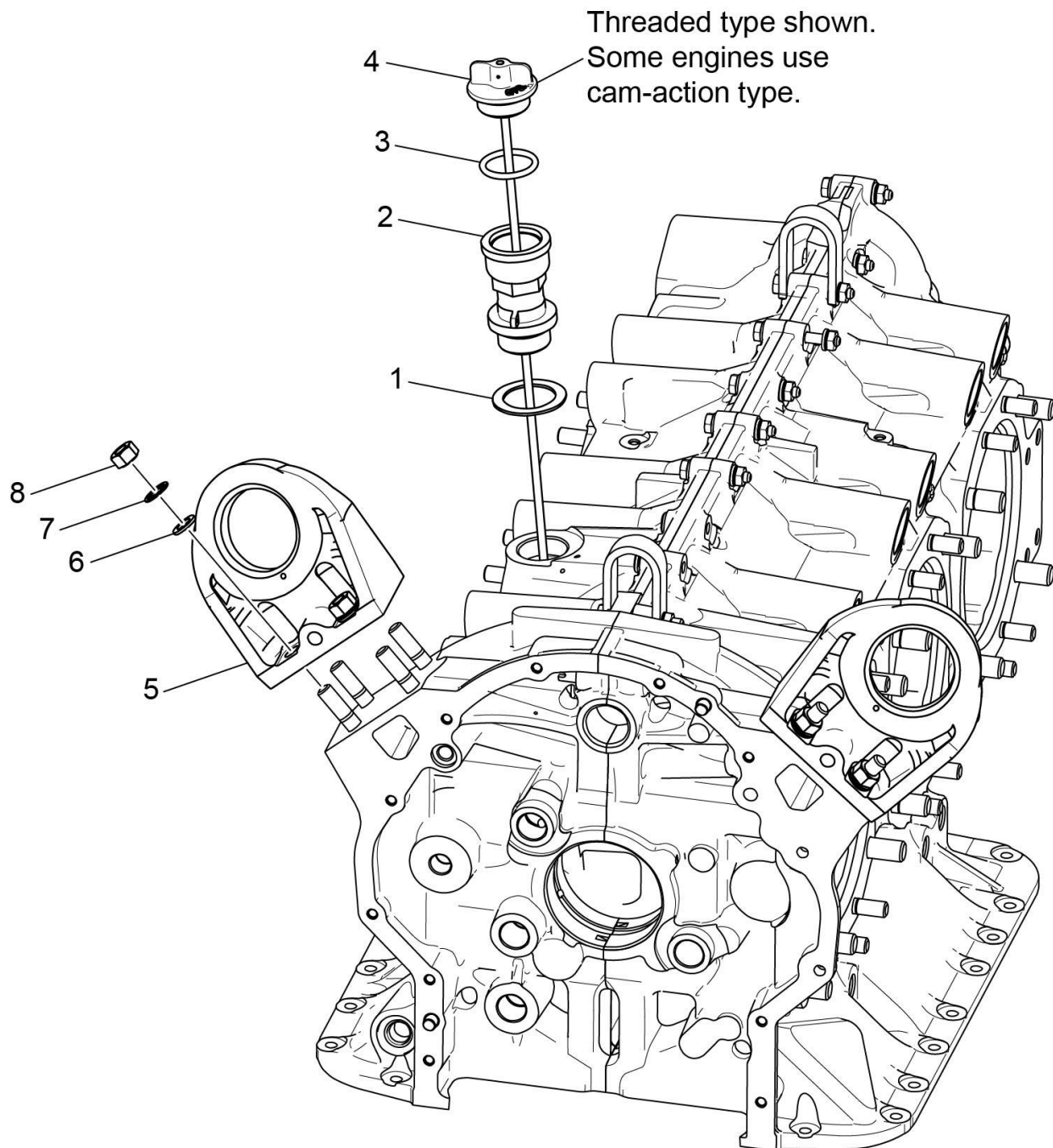
Figure Item	Code	Part Number	Description	Units per Assembly
1		75906	GASKET, Rocker box cover	6
2		61247	COVER ASSEMBLY, Rocker box	6
3		STD-1925	SCREW, 1/4-20 x 5/8 long, pan. head, self-locking	36
4		71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	6
5		77906	SPACER, 33/64 I.D. x 7/8 O.D. x 1/8 thick	2
6		74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick	2
7		383-B	NUT, 3/8-24 plain	24
8		STD-2090	NUT, 1/2-20 plain	28
9		STD-684	NIPPLE, Straight, 3/8 I.D. hose	6
10		STD-1821	HOSE, 3/8 I.D. x 2.50 long	6
11		LW-15592-5-05	CLAMP, Hose	12
12		68759	TUBE ASSEMBLY, Cyl. head oil drain, cyl. no.1	1
13		71737	TUBE ASSEMBLY, Cyl. head oil drain, cyl. no. 2	1
14		68761	TUBE ASSEMBLY, Cyl. head oil drain, cyl. no. 3,4,5,6	4
15		75339	BAFFLE ASSEMBLY, Intercylinder	3
16		LW-13389	BAFFLE ASSEMBLY, Intercylinder	1
17		71610	HOOK, Intercylinder baffle retainer	4
18		71611	RETAINER, Intercylinder baffle	4
19	*	MS35489-20X	GROMMET	1
* Install in LW-13389 baffle.				



**Intake Pipes
Figure 11**

FIGURE 11 – INTAKE PIPES

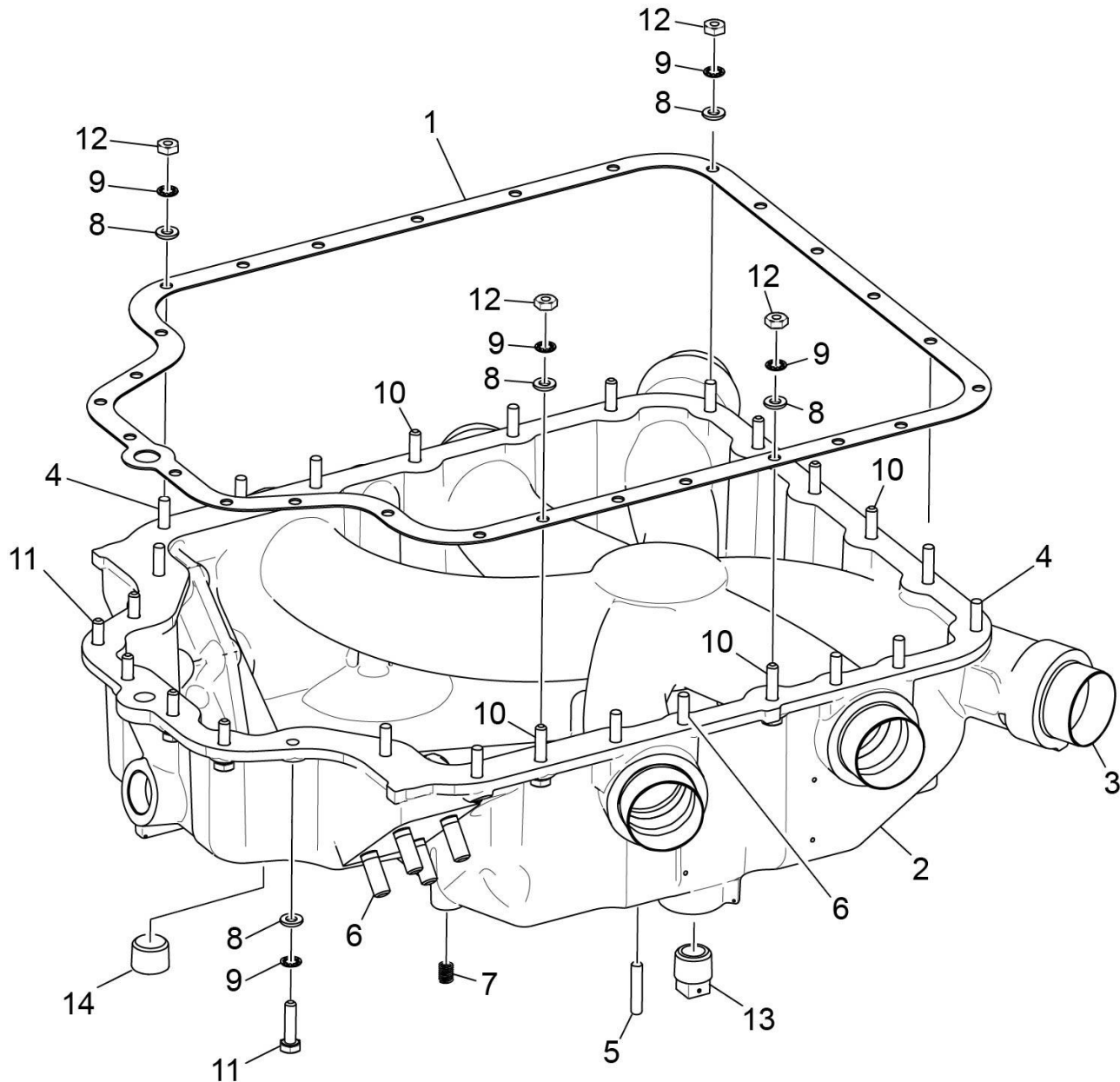
Figure Item	Code	Part Number	Description	Units per Assembly
1		70485	PIPE, Intake	6
2		69603	HOSE, 1-3/4 I.D. x 2-3/16 O.D. x 1.75	6
3		LW-15592-8-28	CLAMP, Hose	12
4		71973	GASKET, 2 bolt flange, 1-13/16 I.D.	6
5		73346	FLANGE, Intake pipe, upper	6
6		STD-8	WASHER, 1/4 plain	12
7		STD-160	WASHER, 1/4 lock, internal teeth	12
8		LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head	12
9		70484	SCREEN, Oil suction	1
10		06E19769-1.00	GASKET, Annular, 1.00 I.D.	1
11		LW-12545	PLUG, 5/8 hex head x 1.00-20 thread	1



Oil Level Gage and Engine Mounting Brackets
Figure 12

FIGURE 12 – OIL LEVEL GAGE AND ENGINE MOUNTING BRACKETS

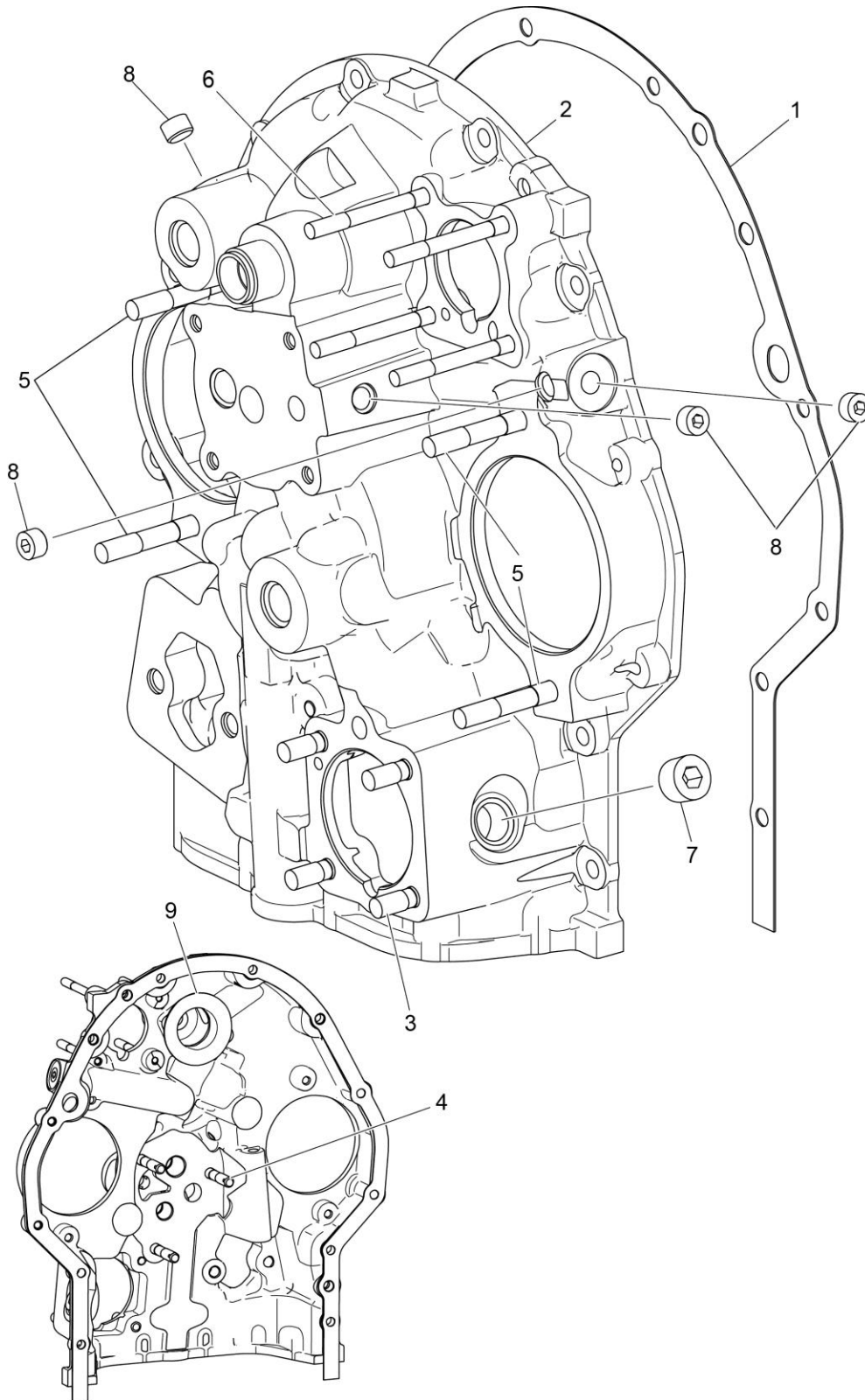
Figure Item	Code	Part Number	Description	Units per Assembly
1		70457	GASKET, Oil filler extension	1
2		77527	EXTENSION, Oil filler (2-3/16 long)	1
		75675	EXTENSION, Oil filler (2-3/16 long)	1
3		72312	O-RING, Oil level gage	1
		74065	O-RING, Oil level gage	1
4		LW-14732	GAGE ASSEMBLY, Oil level	1
		LW-16783-24	GAGE ASSEMBLY, Oil level	1
5		12A19770	BRACKET, Engine mounting (dynafocal)	4
6		STD-33	WASHER, 3/8 plain	16
7		STD-678	WASHER, 3/8 lock, internal teeth	16
8		STD-596	NUT, 3/8-24 plain	16



**Oil Sump Assembly
Figure 13**

FIGURE 13 – OIL SUMP ASSEMBLY

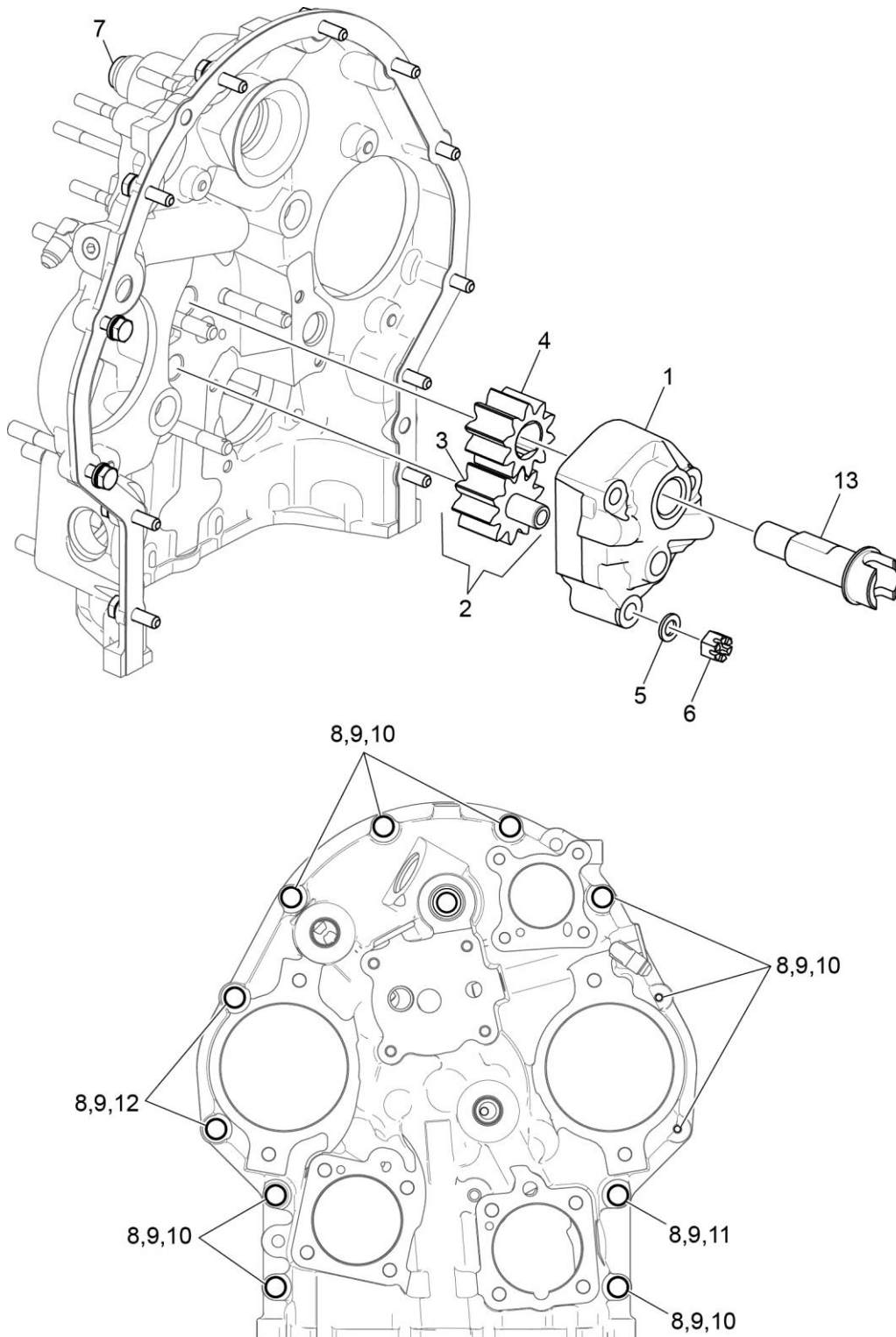
Figure Item	Code	Part Number	Description	Units per Assembly
1		06B21326	GASKET, Oil sump	1
2		LW-13901	SUMP ASSEMBLY, Oil	1
3		71699	CONNECTION, intake pipe	6
4		25C-11	STUD, 1/4-20 x 1-3/8 long	14
5		31C-15	STUD, 5/16-18 x 1-7/8 long	4
6		38-15	STUD, 3/8-16 x 1-7/8 long	8
7		STD-1173	INSERT, 1/4-20 UNC x 1/2 long	4
8		STD-8	WASHER, 1/4 plain	34
9		STD-160	WASHER, 1/4 lock, internal teeth	27
10		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	7
11		LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head	6
12		STD-1411	NUT, 1/4-20 plain	21
13		STD-551	PLUG, 1/2-14 NPT, square head, drilled	2
14		STD-2229	PLUG, 1/2-14 NPT, Allen head	2



**Accessory Housing Assembly
Figure 14**

FIGURE 14 – ACCESSORY HOUSING ASSEMBLY

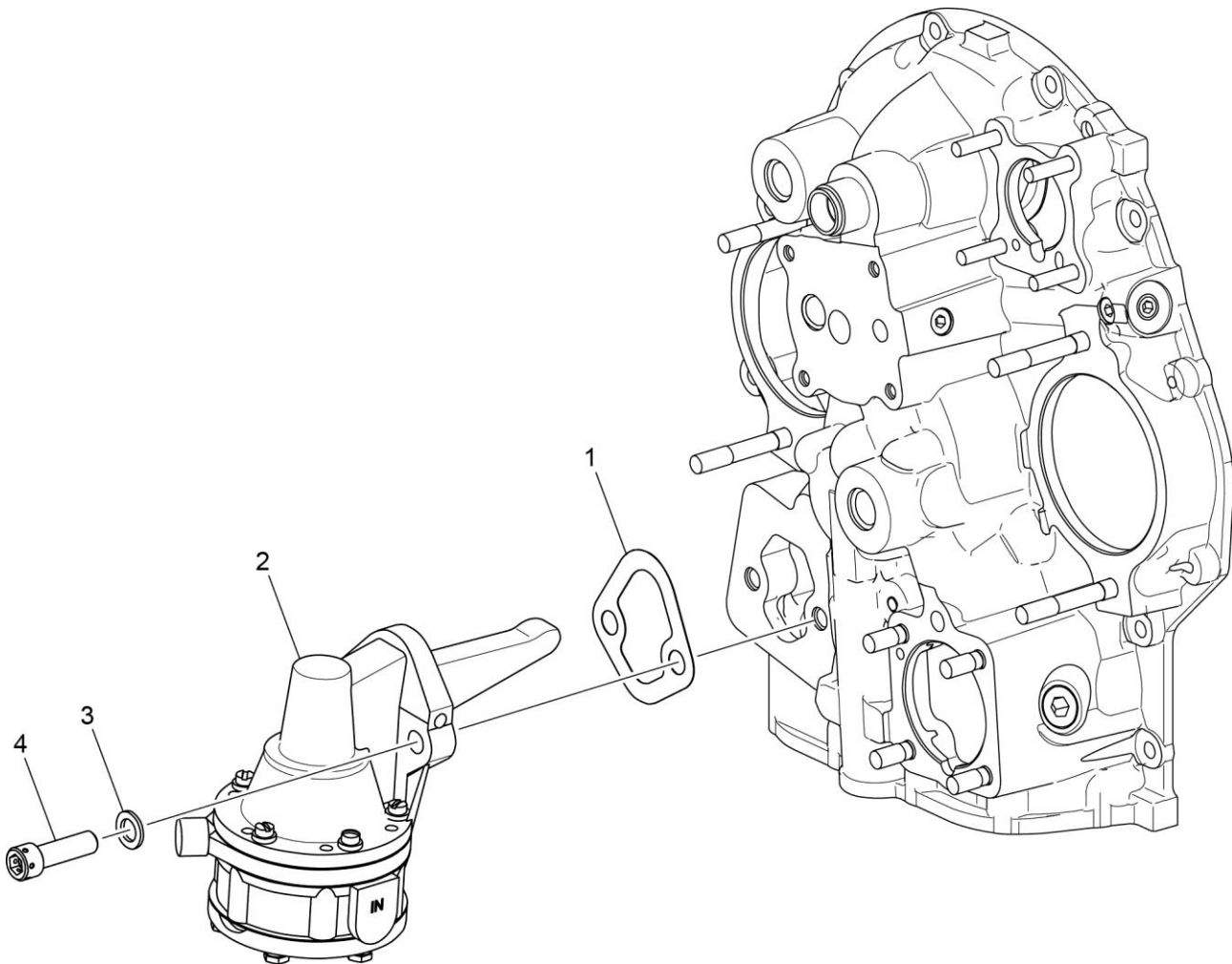
Figure Item	Code	Part Number	Description	Units per Assembly
1		73818	GASKET, Accessory housing	1
2		21C21539-02	HOUSING ASSEMBLY, Accessory	1
3		31C-12	STUD, 5/16-18 x 1-1/2 long	4
4		31CD-17	STUD, 5/16-18 x 2-1/8 long, drilled	3
5		31C-21	STUD, 5/16-18 x 2-5/8 long	4
6		25C-21	STUD, 1/4-20 x 2-5/8 long	4
7		STD-784	PLUG, 3/8-18 NPT, Allen head	1
8		1102	PLUG, 1/8-27 NPT, Allen head	4
9		76156	SHIELD, Oil accessory	1



Oil Pump Assembly and Accessory Housing Attaching Parts
Figure 15

FIGURE 15 – OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS

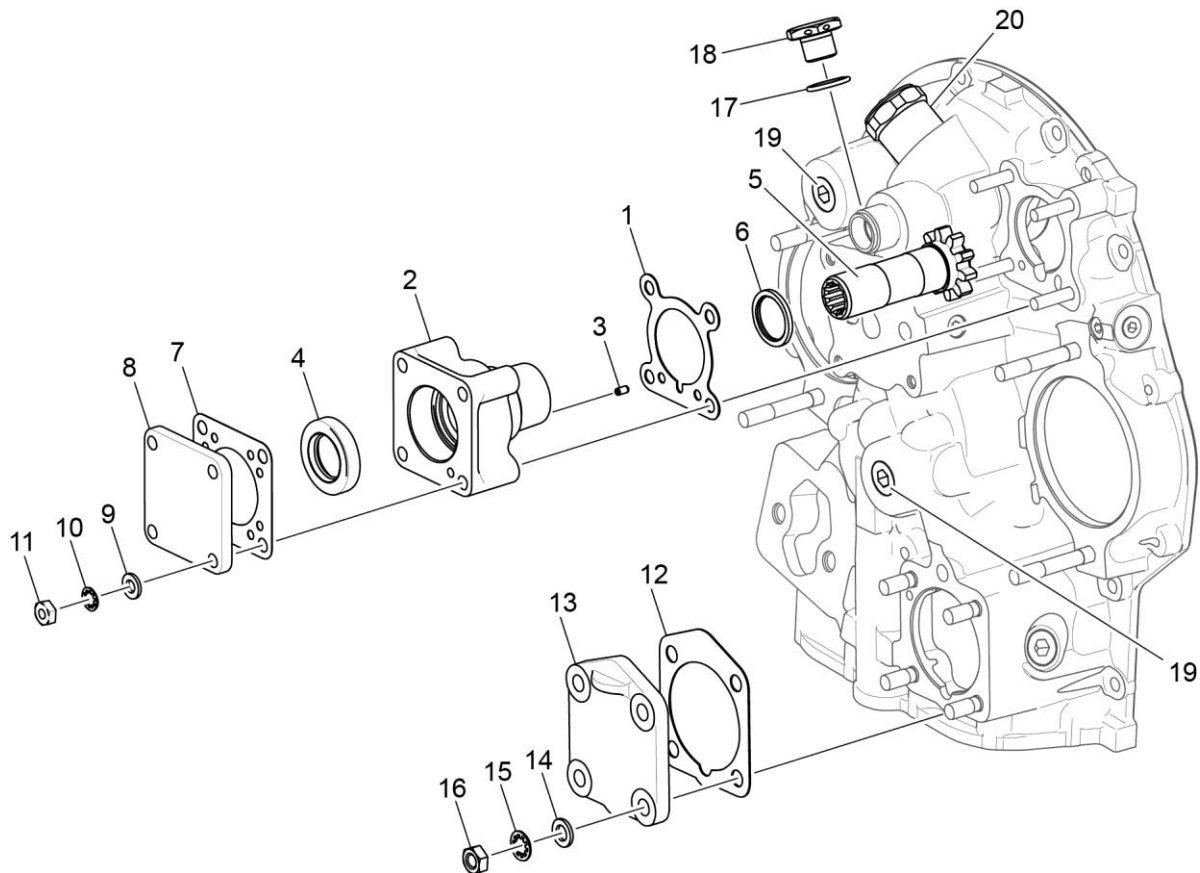
Figure Item	Code	Part Number	Description	Units per Assembly
1		78531	BODY ASSEMBLY, Oil pump	1
2		05K19423-S	IMPELLER KIT	1
3	*	LW-18110	IMPELLER ASSEMBLY, Oil pump driven	1
4	*	LW-18109	IMPELLER, Pump driving	1
5		STD-35	WASHER, 5/16 plain	3
6		STD-1420	NUT, 5/16-18 slotted	3
7		LW-14260	SEAL, Tachometer drive, oil	1
8		STD-8	WASHER, 1/4 plain	12
9		STD-160	WASHER, 1/4 lock, internal teeth	12
10		LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	9
11		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
12		LW-25-1.44	BOLT, 1/4-20 x 1-7/16 long, hex. head	2
13		74641	SHAFT, Oil pump drive	1
* Sold in complete sets only (Kit P/N 05K19423-S).				



Fuel Pump Assembly and Attaching Parts
Figure 16

FIGURE 16 – FUEL PUMP ASSEMBLY AND ATTACHING PARTS

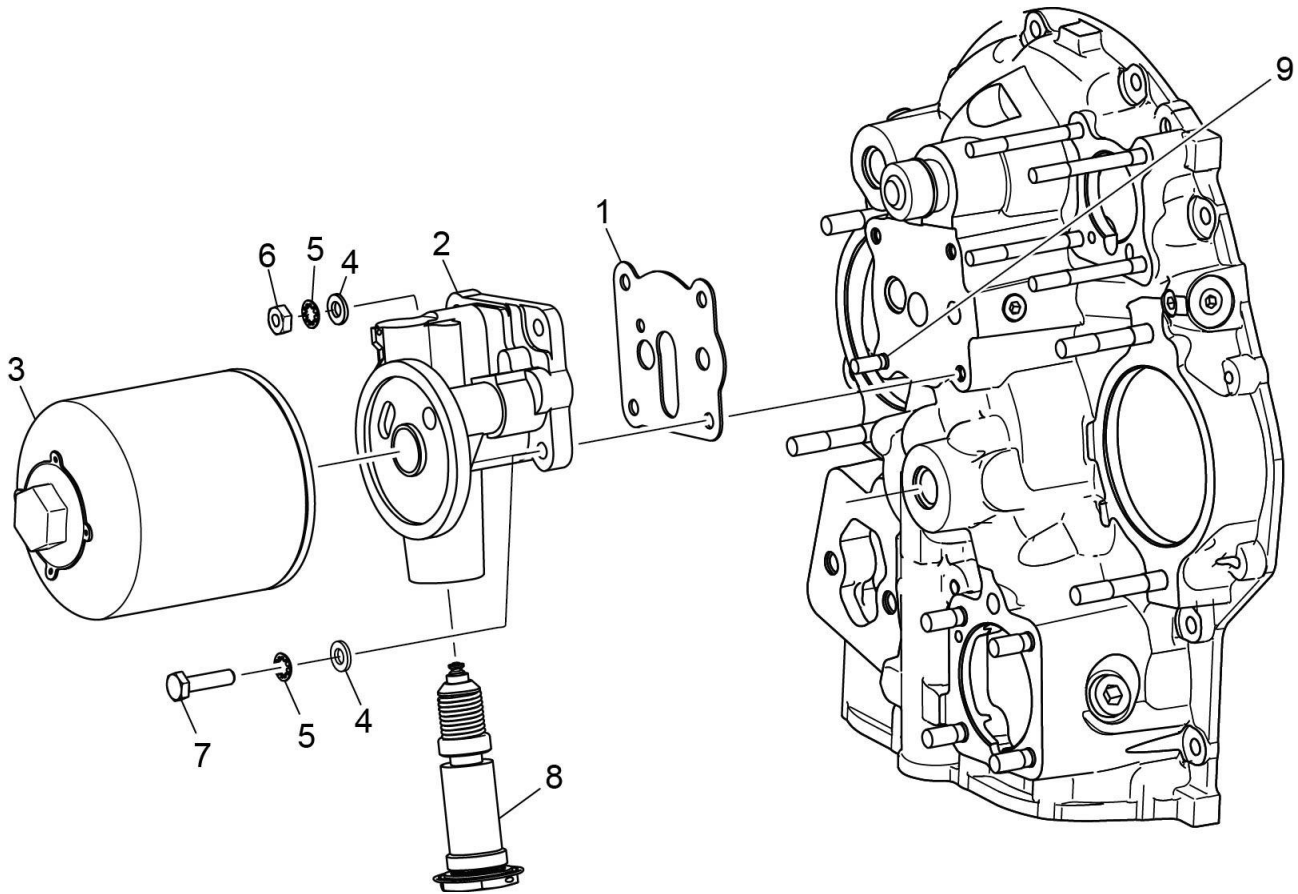
Figure Item	Code	Part Number	Description	Units per Assembly
1		60096	GASKET, Fuel pump	1
2	V	62B26931	FUEL PUMP (High Pressure)	1
3		STD-33	WASHER, 3/8 plain	2
4		STD-1882	SCREW, 3/8-16 x 1-9/32 long, socket head, drilled	2
V Vendor Prime Manufacturer part				



Vacuum Pump Drive and Oil Cooler
Figure 17

FIGURE 17 – VACUUM PUMP DRIVE AND OIL COOLER

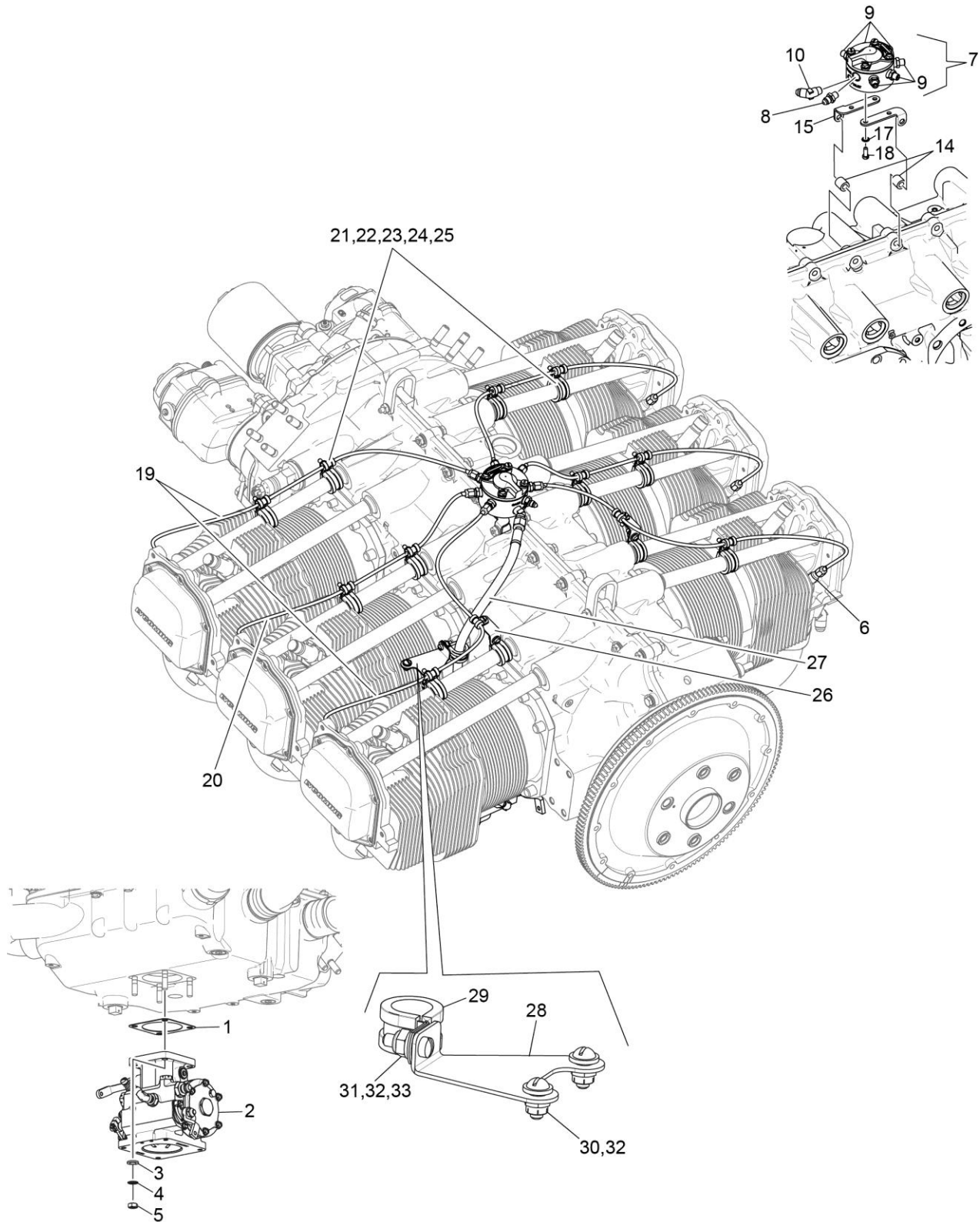
Figure Item	Code	Part Number	Description	Units per Assembly
1		61183	GASKET, Accessory adapter	1
2		67536	ADAPTER ASSEMBLY, Vacuum pump	1
3		STD-1774	PIN, 1/8 diameter x 1/4 long	1
4		06A19956	SEAL, Oil, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide	1
5		72974	GEAR ASSEMBLY, Vacuum pump driven	1
6		71596	WASHER, 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		STD-1411	NUT, 1/4-20 plain	4
12		69551	GASKET, Accessory drive adapter	1
13		69106	COVER, Governor drive adapter pad	1
14		STD-35	WASHER, 5/16 plain	4
15		STD-475	WASHER, 5/16 lock, internal teeth	4
16		STD-1410	NUT, 5/16-18 plain	4
17		06E19769-0.63	GASKET, Annular, 5/8 I.D.	1
18		69675	CONNECTOR, Accessory housing, oil cooler	1
19		STD-784	PLUG, 3/8-18 NPT Allen head	2
20		71651	FITTING, Breather	1



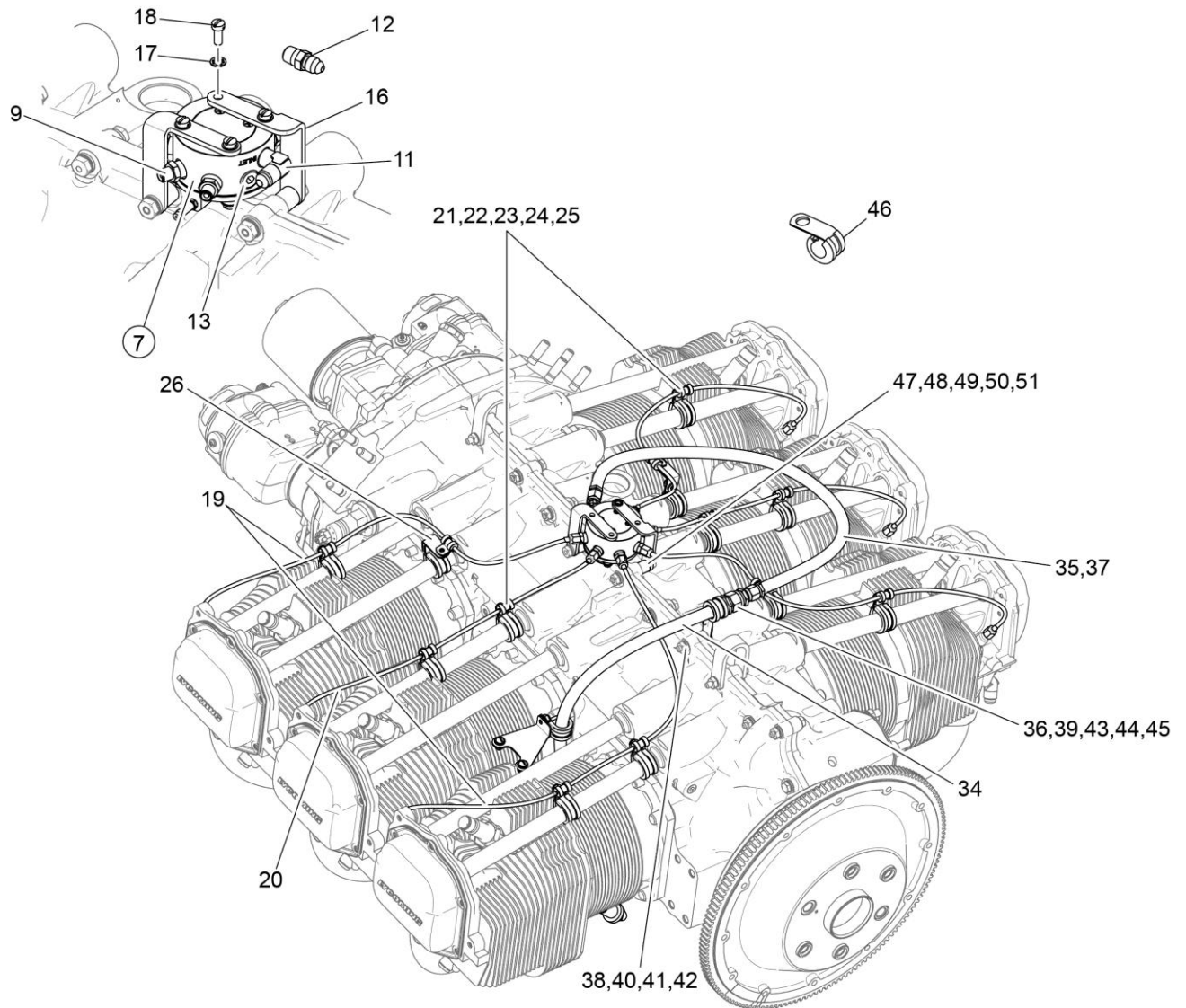
Oil Filter Assembly And Oil Cooler Bypass Valve
Figure 18

FIGURE 18 – OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE

Figure Item	Code	Part Number	Description	Units per Assembly
1		06B23862	GASKET, Oil filter adapter	1
2		77852	BASE ASSEMBLY, Oil filter	1
3	V	LW-13215	OIL FILTER, Short, (V CH48110-1)	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, with gasket, Temp. control, oil cooler bypass	1
9		25C-10	STUD, 1/4-20 x 1.25 long	1
V Vendor Prime Manufacturer part				



Fuel Injector, Fuel Lines and Manifold Assembly
Figure 19-1



**Fuel Injector, Fuel Lines and Manifold Assembly
Figure 19-2**

FIGURES 19-1, 19-2 - FUEL INJECTOR, FUEL LINES AND MANIFOLD ASSEMBLY

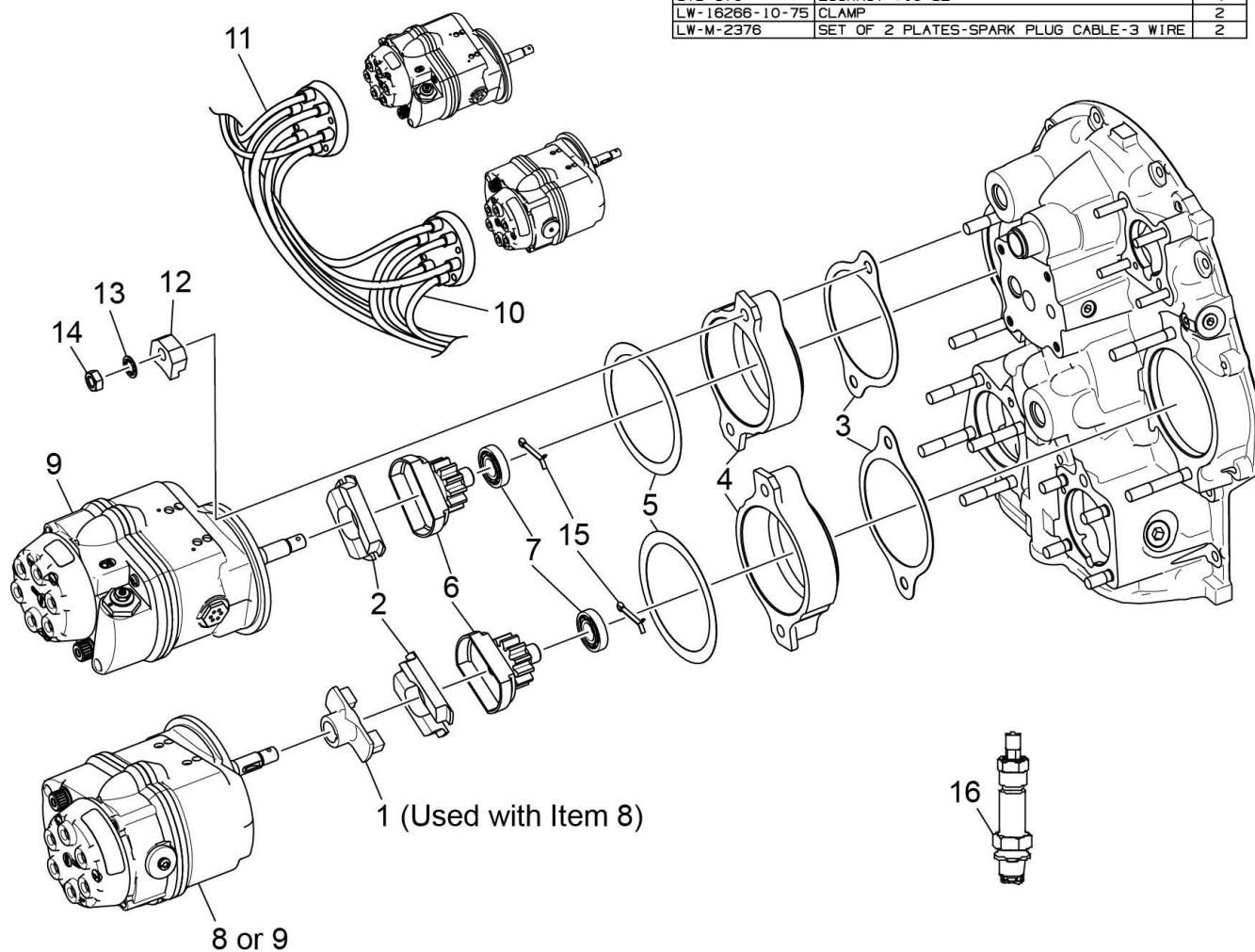
Figure Item	Code	Part Number	Description	Units per Assembly
1		66224	GASKET	1
2		61J26426	FUEL INJECTOR (2524054-11)	1
		61J26427	FUEL INJECTOR (2576544-3)	1
3		STD-35	WASHER, 5/16 plain	4
4		STD-475	WASHER, 5/16 lock, internal teeth	4
5		STD-1410	NUT, 5/16-18, plain	4
6		63C26450	NOZZLE, Injection (2524864-2)	6
7		63B26725	MANIFOLD ASSEMBLY, Fuel	1
		63B26717	MANIFOLD ASSEMBLY, Fuel	1
		63B26714	MANIFOLD ASSEMBLY, Fuel	1
8		02G21446	NIPPLE, 1/8 NPT to 1/4 tube	1
9		STD-148	NIPPLE, Union, 1/8 NPT	6
10		MS20823-4	ELBOW, 1/8 NPT to 1/4 fl tube	1
11		MS20822-4	ELBOW, 1/8 NPT to 1/4 fl tube, 90	1
12		02G21382	NIPPLE, Nozzle pressure gauge	1
13		1102	PLUG, 1/8 pipe	1
14		73966	SPACER, Fuel manifold	2
15		07A23031	BRACKET, Fuel manifold	2
16		07A22995	BRACKET, Fuel manifold	2
17		STD-251	WASHER, #10, internal lock	4
18		STD-82	SCREW, #10-24 x 1/2 long, fill. head	4
19		LW-12098-0-210	TUBE ASSEMBLY, Fuel injector line	4
20		LW-12098-0-170	TUBE ASSEMBLY, Fuel injector line	2
21		LW-16266-10-75	CLAMP	12
22		LW-16266-10-13	CLAMP, 1/8 diameter for #10 screw	12
23		STD-860	SCREW, #10-32 x 5/8 long, fill. head	14
24		STD-425	WASHER, #10 plain	2
25		STD-670	LOCKNUT, #10-32	14
26		73136	BRACKET, Extension, fuel injector line	2
27		LW-12798-4S274	HOSE ASSEMBLY, 1/4 hose, straight	1
28		74278	BRACKET ASSEMBLY, Fuel line support	1

FIGURE 19-1, 19-2 - FUEL INJECTOR, FUEL LINES AND MANIFOLD ASSEMBLY (CONT.)

Figure Item	Code	Part Number	Description	Units per Assembly
29		LW-16266-25-50	CLAMP	1
30		STD-692	SCREW, #10-32 x 1/2 long, round head	2
31		STD-860	SCREW, #10-32 x 5/8 long, fill. head	1
32		STD-425	WASHER, #10 plain	3
33		STD-670	LOCKNUT, #10-32	1
34		LW-12877-6S254	HOSE ASSEMBLY, 3/8 hose, 90 elbow	1
35		LW-12798-4S303	HOSE ASSEMBLY, 1/4 hose, straight	1
36		AN815-4	UNION, 1/4 fl tube	1
37		LW-12798-4S150	HOSE ASSEMBLY, 1/4 hose, straight	1
38		74655	SPACER, Exhaust manifold	1
39		LW-16266-25-63	CLAMP, 5/8 I.D. x 1/4 dia. screw	1
40		STD-8	WASHER, 1/4 plain	1
41		STD-160	WASHER, 1/4 lock int. teeth	1
42		LW-25-0.94	BOLT, 1/4-20 x 15/16 long hex	1
43		72815	BRACKET, Support clamp, 90 degree	1
44		STD-860	SCREW, #10-32 x 5/8 long, fill. head	1
45		STD-670	LOCKNUT, #10-32	1
46		LW-16266-10-63	CLAMP, 5/8 I.D. x #10 screw	1
47		73966	SPACER, Fuel manifold	2
48		LW-25-2.00	BOLT, 1/4-20 x 2.00 long hex	2
49		STD-8	WASHER, 1/4 plain	4
50		STD-160	WASHER, 1/4 lock int. teeth	2
51		STD-1411	NUT, 1/4-20 plain	2

17

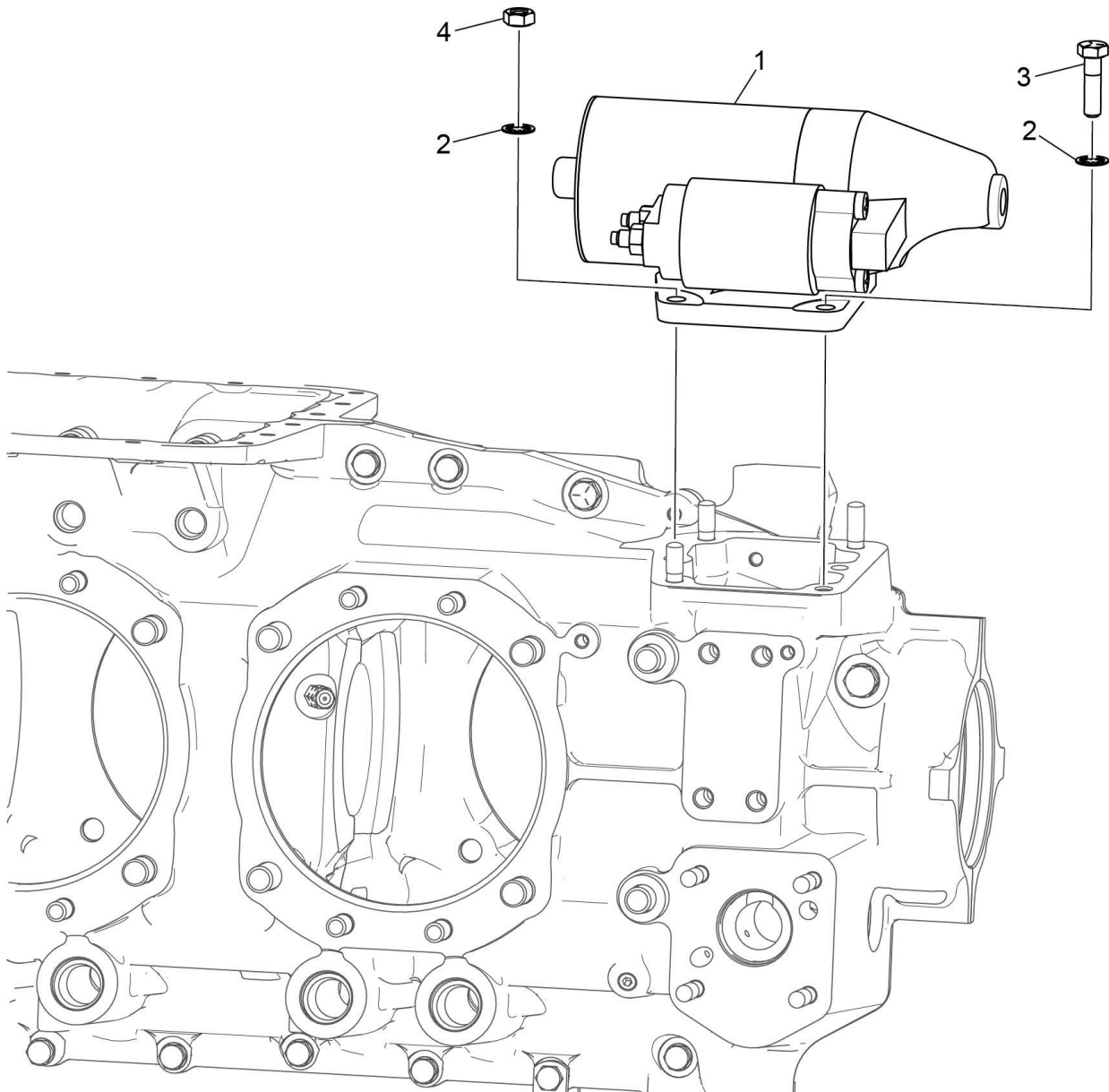
BAG-HARNESS ATTACHING		P/N 01P19762-4-44
PART NO.	NAME	QTY
LW-16266-25-25	CLAMP-ONE WIRE	4
LW-14060	CLIP-TWO WIRE	4
STD-8	WASHER-.250 PLAIN	12
STD-160	WASHER-.250 LOCK INT. TEETH	8
STD-1874	SCREW-.250-20 X .81 LG. FILL.	6
76734	ZIP STRAP	12
LW-16266-25-44	CLAMP-.44 ID X .250 DIA. SCREW	2
STD-696	WASHER-.250 PLAIN (THIN)	6
STD-1916	SCREW-.250-20 X 1.13 LG. FIL HD	2
STD-1925	SCREW-.250-20 X .63 LG. PAN HD	4
72815	BRACKET-SUPPORT CLAMP-90 DEGRE	4
STD-692	SCREW-#10-32 X .50 LG. RD. HD.	4
STD-425	WASHER-#10 PLAIN	4
STD-670	LOCKNUT-#10-32	4
LW-16266-10-75	CLAMP	2
LW-M-2376	SET OF 2 PLATES-SPARK PLUG CABLE-3 WIRE	2



Magnetos, Magneto Drives And Spark Plugs
Figure 20

FIGURE 20 - MAGNETOS, MAGNETO DRIVES AND SPARK PLUGS

Figure Item	Code	Part Number	Description	Units per Assembly
1		73000	COUPLING, Magneto drive	1
2		68H22624	CUSHION, Magneto drive	4
3		62224	GASKET, Magneto adapter	2
4		LW-12707	ADAPTER, Magneto	2
5		LW-12681	GASKET, Magneto	2
6		LW-19096	GEAR RETAINER ASSEMBLY	2
7		67542	BALL BEARING	2
8	V	66LP-0SCNN	MAGNETO, Plain, right, (V Model No. 6350)	1 or 0
9	V	66LC35SDNN	MAGNETO, Impulse, left or left and right, (V Model No. 6351)	1 or 2
10	V	67U20608	HARNESS, Right, (V Slick M-2878)	1
	V	67U20638	HARNESS, Right, (V Slick M-2962)	1
11	V	67U20609	HARNESS, Left, (V Slick M-2877)	1
	V	67U20639	HARNESS, Left, (V Slick M-2961)	1
12		66M21195	CLAMP, Magneto	4
13		STD-475	WASHER, 5/16 lock, internal teeth	4
14		STD-1410	NUT, 5/16-18 plain	4
15		MS9245-44	COTTER PIN, 3/32 diameter x 3/4 long	2
16	V	1182-E7	SPARK PLUG, (V Champion REM38E)	12
17	P	01P19762-4-44	BAG, Magneto harness attaching	1
V Vendor Prime Manufacturer part P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.				



Starter Motor and Attaching Parts
Figure 21

FIGURE 21 - STARTER MOTOR AND ATTACHING PARTS

Figure Item	Code	Part Number	Description	Units per Assembly
1	V	31A22104	STARTER, 12V., (V Sky Tec, 149-12LS)	1
2		STD-475	WASHER, 5/16 lock, internal teeth	4
3		LW-31-0.94	BOLT, 5/16-18 x 0.94 long, hex.head	1
4		STD-1410	NUT, 5/16-18 plain	3
<p>V Vendor Prime Manufacturer part</p> <p>NOTE: Refer to the latest revision of Service Instruction No. 1154 for complete listing of FAA approved starters and alternators.</p>				

SERVICE KIT SECTION**SEAL AND GASKET SET**

PART NO.	PART NAME	Qty.
73569-1	KIT - SEAL AND GASKET SET	1
06A19956	SEAL, Oil, 7/8 I.D. x 1-1/2 O.D. x 5/16	2
06A23493	SEAL, Shroud tube	12
06B21326	GASKET, Oil sump	1
06B23862	GASKET, Oil filler adapter	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.	1
1691-C	GASKET, Fuel pump	1
60096	GASKET, Fuel pump	1
61173	GASKET, Oil pressure housing	1
61183	GASKET, Accessory adapter	1
62224	GASKET, Magneto adapter	4
66224	GASKET, Carburetor	1
68315	GASKET, Accessory drive adapter	1
69164	GASKET, Fuel pump adapter	1
69345	SPACER	6
69551	GASKET, Accessory drive adapter	1
70310	SEAL, Shroud tube	12
70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/32 thick	1
70457	GASKET, Oil filler extension	1
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	6
71667	LOCKPLATE, 1/4 bolt x 1.75	1
71973	GASKET, 2 bolt flange, 1-13/16 I.D.	6
72053	GASKET, Governor	1
72059	GASKET, Oil level Gage	1
72075	SEAL, Oil, 29/64 I.D. x 3/32 section	8
72078	LOCKPLATE, 5/16 bolt x 1.33	2
72091	RING, Oil seal, 0.36 I.D. x 7/64 diameter	2
72210	GASKET, Air throttle housing	1
72312	RING, Oil seal, 1.00 x 1.30	1
73383	LOCKPLATE, 5/16 bolt x 1.00	2
73818	GASKET, Accessory housing	1
74065	RING, Oil level gage seal	1
74068	RING, Oil level gage plug	1
74305	SEAL	1
75906	GASKET, Rocker box cover	6

SEAL AND GASKET SET (CONT.)

PART NO.	PART NAME	Qty.
76510	GASKET, Oil cooler bypass valve	1
76940	SEAL, Crankshaft oil	1
77611	GASKET, Exhaust flange	6
8313	GASKET, Vacuum pump	2
LW-12272	LOCKPLATE, Shroud tube	6
LW-12681	GASKET, Magneto	2
LW-13792	SEAL, Crankshaft oil	1
LW-14260	SEAL, Tachometer drive, oil	1
LW-14995	SPRING, Shroud tube	6
LW-15628	SEAL, Crankshaft oil	1
LW-18638	LOCKPLATE, Crankshaft gear	1
LW-18661	SEAL, Shroud tube	12
STD-2231	RING, Internal retaining, 0.812	1
STD-213	SEAL, Oil, 3/4 I.D. x 1-3/8 O.D.	1

CYLINDER, PISTON AND RING ASSEMBLY

PART NO.	PART NAME	Qty.
05K21102	KIT - CYLINDER, PISTON AND RING ASSEMBLY	1
LW-12425	CYLINDER ASSEMBLY	1
17A23938	VALVE, Intake	1
17B23936	VALVE, Exhaust (rotator type)	1
65441	SEAT, Valve spring, lower intake	1
LW-13323	SEAT, Valve spring, lower exhaust	1
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 (rotator type)	1
60009	KEY, Valve intake	2
17C21191	KEY, Valve exhaust (rotator type)	2
MS20823-6D	ELBOW, 45 degree, 3/8 flared tube	1
17C19386	CAP, Valve stem, exhaust (rotator type)	1
1102	PLUG, 1/8-27 NPT, Allen head	2
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	1
14D23912	PISTON, 8.50:1	1
74241	RING, Piston, compression	2
14H21950	RING, Piston, oil regulating (expander type)	1
LW-14078	PIN, Piston	1
72198	PLUG, Piston pin	2
75906	GASKET, Rocker box cover	1
LW-18661	SEAL, Shroud tube	2
SSP-299	TAG, Use of piston pin plugs	1
77611	GASKET, Exhaust flange	1
71973	GASKET, 2 bolt flange, 1-13/16 I.D.	1
70310	SEAL, Shroud tube	2
LW-12272	LOCKPLATE, Shroud tube	1

CRANKCASE ASSEMBLY AND THRU-STUD KIT

Code	PART NO.	PART NAME	Qty.
	11E24000-S1-S	KIT - CRANKCASE ASSEMBLY AND THRU-STUD	1
P	11E24000-S1	CRANKCASE ASSEMBLY	1
	76220	STUD, 1/2-20 x 10-45/64 long	8
	31C-14	STUD, 5/16-18 x 1-3/4 long	4
	31C-16	STUD, 5/16-18 x 2.00 long	4
	STD-1339	PLUG, 1/16-27 NPT, Allen head	7
	AN565B1032H4	SETSCREW, #10-32 x 1/4 long	1
	AN565B1032H5	SETSCREW, #10-32 x 5/16 long	1
	1102	PLUG, 1/8-27 NPT, Allen head	4
	LW-31-2.75	BOLT, 5/16-18 x 2-3/4 long	1
	LW-31-1.16	BOLT, 5/16-18 x 1.16 long	3
	STD-35	WASHER, 5/16 plain	4
	STD-475	WASHER, 5/16 lock, internal teeth	4
P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.			

CRANKCASE ASSEMBLY AND THRU-STUD KIT

Code	PART NO.	PART NAME	Qty.
	11E24100-S1-S	KIT - CRANKCASE ASSEMBLY AND THRU-STUD	1
P	11E24100-S1	CRANKCASE ASSEMBLY	1
	STD-1339	PLUG, 1/16-27 NPT, Allen head	7
	1102	PLUG, 1/8 NPT	4
	31C-17	STUD, 5/16-18 X 2-1/8 long	4
	STD-8	WASHER, 1/4 plain	6
	LW-25-2.00	BOLT, 1/4-20 X 2.00 long hex	2
	LW-25-1.13	BOLT, 1/4-20 X 1-1/8 long hex	1
	STD-160	WASHER, 1/4 lock, int. teeth	6
	STD-1411	NUT, 1/4-20 plain	6
	STD-33	WASHER, 3/8 plain	4
	STD-872	NUT, 3/8-24 slotted	1
	AN6-34A	BOLT, 3/8-24 X 3.58 long, hex head	1
	STD-678	WASHER, 3/8 lock, int. teeth	2
	STD-596	NUT, 3/8-24 plain	2
	76220	STUD, 1/2-20 X 10.70 long	8
	STD-475	WASHER, 5/16 lock, int. teeth	4
P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.			

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