

IO-360-N1A Engine Illustrated Parts Catalog

February 2016

PC-IO-360-N1A

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652 Oliver Street
Williamsport, PA 17701

IO-360-N1A Engine Illustrated Parts Catalog

Lycoming Part Number: PC-IO-360-N1A

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NOTICE: 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 (IPC) contains a complete list of spare parts for the Lycoming IO-360-N1A engine model.

How to Use this Catalog

This catalog is based on the Air Transport Association (ATA) Spec 100 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 format specifies the subject matter for each chapter-section. According to the ATA Standards, the following chapters apply to the IO-360-N1A Illustrated Parts Catalog:

24 (Electrical Power), 72 (Reciprocating Engine), 73 (Engine and Fuel Control), 74 (Ignition), and 80 (Starting).

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

NOTICE: See the IPC Table of Contents for the sub-systems identified 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 below their associated parts grouping or assembly. 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” are for “as required” applicable to bulk items or non-illustrated select-from-range-parts. The letters “RF” identify items listed for reference.

Vendor Accessories

Parts coverage of Vendor Accessories used on Lycoming engines are found in the applicable Vendor's Parts Catalog. A list of vendors' addresses is included in the latest revision of Lycoming Service Letter No. L114.

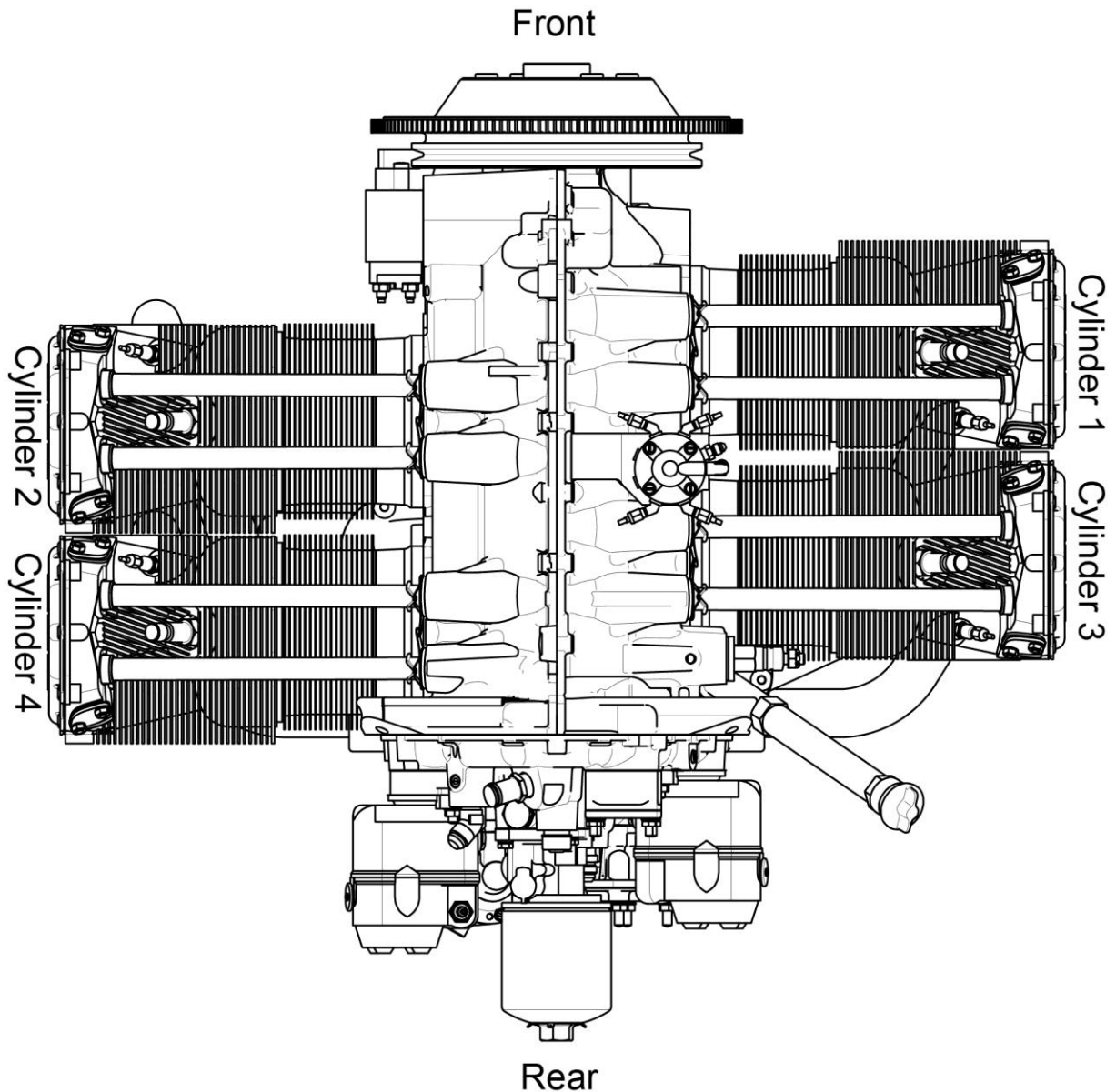
Any reference in this document to the suppliers/part manufacturer's product, by name, trademark, part number or other description is solely for the purpose of identification and does not indicate or infer that Lycoming accepts responsibility for quality control and/or airworthiness of parts, which do 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 the propeller end and the oil sump is 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 four-cylinder 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 as an aid to order parts.

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. For correct, expedited part shipments without delay:
 - A. Always give the model and serial number of your engine.
 - B. Always give the part number, nomenclature, and quantity.

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

NOTICE: The owner of the manual must give notification to Lycoming Engines for a change of address.

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

Call - U.S. and Canada toll free - +1-800-258-3279
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Monday - Friday.

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Abbreviations and Acronyms

A	
amp.	Ampere
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
IPC	Illustrated Parts Catalog
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
Q	
Qty.	Quantity
R	
RF	Reference
S	
SB	Service Bulletin
SI	Service Instruction
SSP	Special Service Publication
U	
UNF	Unified National Fine

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Oversize and Undersize Parts Listing

PART NO.	DESCRIPTION	OVERSIZE (IN.)			UNDERSIZE (IN.)	
		P05 .005	P10 .010	P50 .050	M03 .003	M06 .006
66796	INSERT		X			
69796	DOWEL	X				
72155-S	BUSHING		X			
73810	BUSHING		X			
75656-S	BUSHING		X			
75656-S	BUSHING		X			
LW-11997	SEAL			X		
LW-12688	SEAT		X			
18M26105	BEARING				X	X
LW-13792	SEAL			X		
STD-1065	DOWEL	X				
16T19468	SEAT		X			
18A26093	BEARING				X	X
18D26098	BEARING				X	X

NOTICE: 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 Part Number (P/N) 18D26098 bearing in 0.003 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.

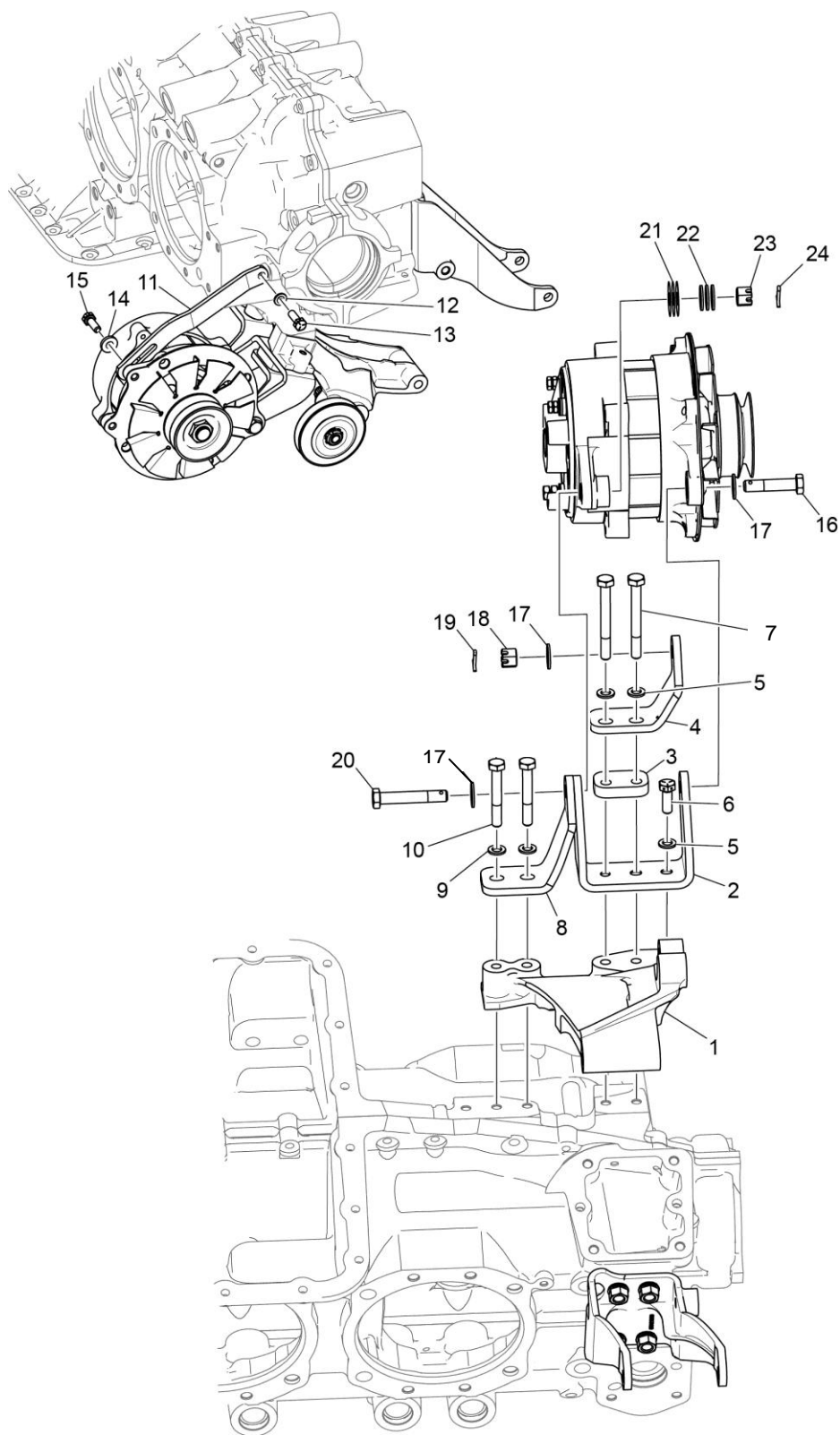


Figure 1
Alternator Attaching Parts

Figure 1 - Alternator Attaching Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1		07A22097	BRACKET, Alternator	1
2		07A19880	BRACKET, Alternator, right	1
3		01L21909	SPACER, Alternator bracket inner	1
4		07A21908	BRACKET, Alternator, inner	1
5		STD-35	WASHER, 5/16 plain	3
6		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex head	1
7		LW-31H2.75	BOLT, 5/16-18 x 2-3/4 long hex. head D	2
8		07A21910	BRACKET, Alternator, aft	1
9		STD-35	WASHER, 5/16 plain	2
10		LW-31H2.13	BOLT, 5/16-18 x 2-1/8 long hex head D	2
11		07F21298	LINK, Alternator, adjusting	1
12		STD-35	WASHER, 5/16 plain	1
13		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex head	1
14		STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
15		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex head	1
16		AN6-15	BOLT, 3/8-24 UNF x 1-45/64 long, drilled	1
17		STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	2
18		STD-872	NUT, 3/8-24 slotted	1
19		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1
20		AN6-21	BOLT, 3/8-24 UNF x 2-13/64 long, drilled	1
21		76534	SHIM, 1/8 O.D. x 13/32 I.D. x 0.005 thick	5
22		STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	4
23		STD-872	NUT, 3/8-24 slotted	1
24		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1

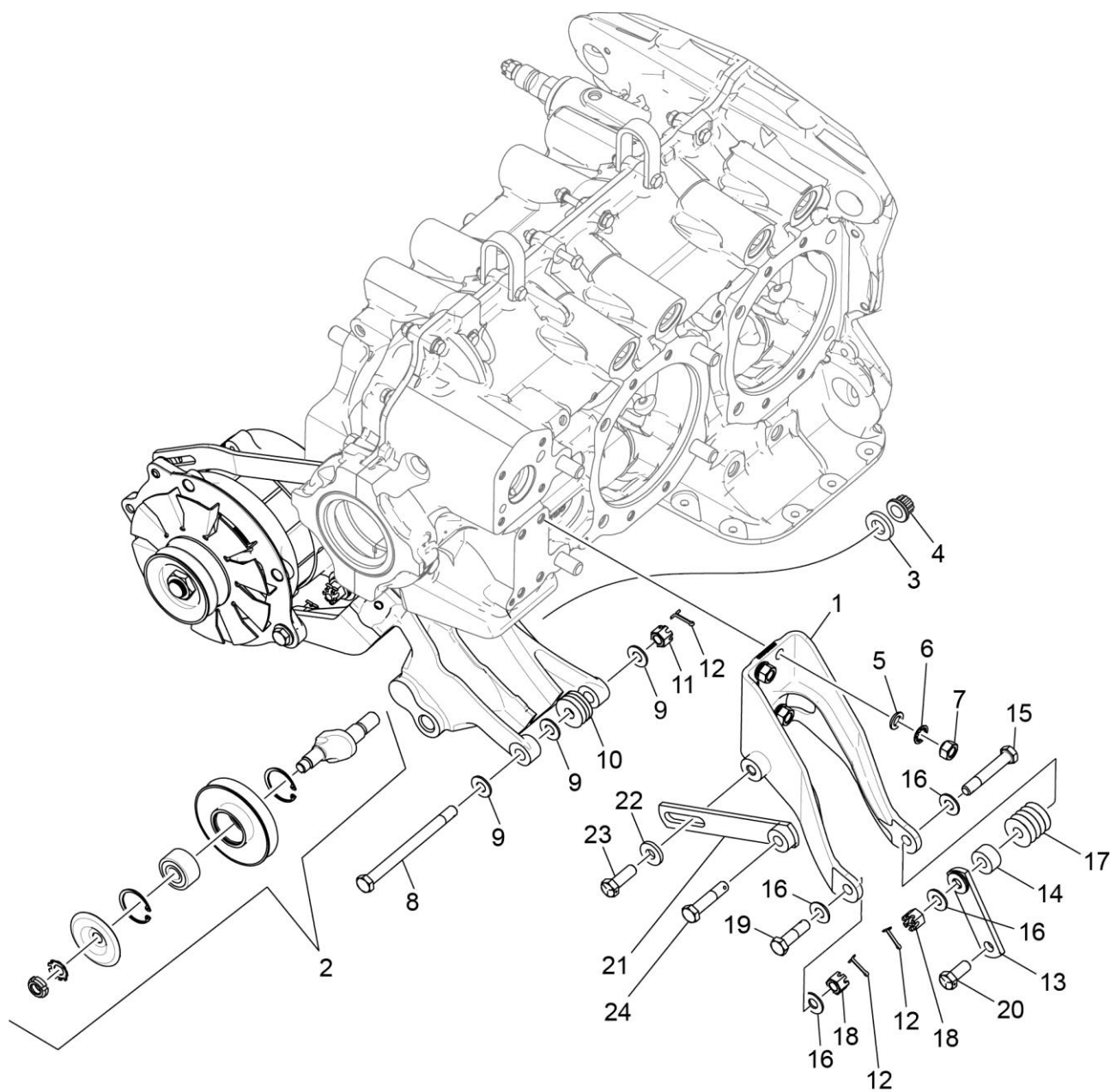


Figure 2
Compressor Mounting and Attachments

Figure 2 - Compressor Mounting and Attachments

Figure Item	Code	Part Number	Description	Units per Assembly
1		07A21030	BRACKET, Compressor	1
2		36A19951	PULLEY & SHAFT ASSEMBLY, Idler	1
3		STD-669	WASHER, 33/64 I.D. x 1.00 O.D. x 1/8 thick	1
4		STD-2221	NUT, 1/2-20 self-locking	1
5		STD-33	WASHER, 3/8 plain	4
6		STD-678	WASHER, 3/8 lock, internal teeth	4
7		383-B	NUT, 3/8-24 plain	4
8		AN7-46	BOLT, 7/16-20 x 4-27/32 long, hex.	1
9		STD-632	WASHER, 7/16 plain	3
10		LW-14650	SHIM, 7/8 O.D. X 15/32 I.D. X 0.005 thick	4
11		AN310-7	NUT, 7/16-20 plain, slotted	1
12		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	3
13		07F28735	BRACE, Alternator	1
14		01L21916	SPACER, Alternator	1
15		AN6-21	BOLT, 3/8-24 UNF x 2-13/64 long, drilled	1
16		STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	4
17		76534	SHIM, 1/8 O.D. x 13/32 I.D. x 0.005 thick	7
18		STD-872	NUT, 3/8-24 slotted	2
19		AN6-12	BOLT, 3/8-24 x 1.33 lg. hex. head	1
20		LW-31H1.06	BOLT, 5/16-18 x 1-1/16 long hex. dr.	1
21		07F28736	LINK, Freon compressor	1
22		STD-1342	WASHER, 7/8 O.D. x 0.39 I.D. x 1/8 thick	1
23		LW-38H1.09	BOLT, 3/8-16 x 1.09 long hex. dr.	1
24		AN6-15	BOLT, 3/8-24 UNF x 1-45/64 long, drilled	1

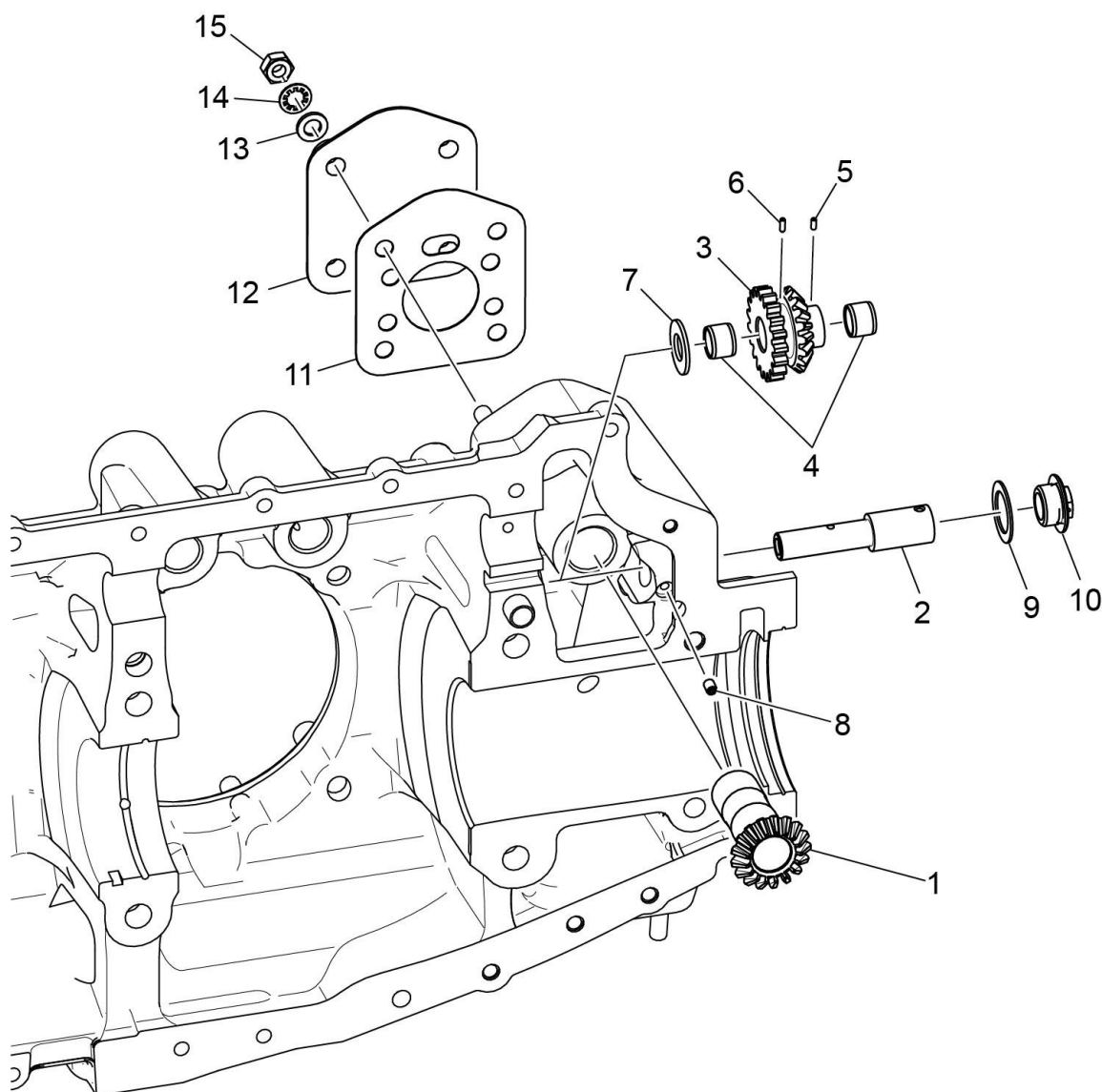


Figure 3
Propeller Governor Drive Assembly

Figure 3 - Propeller Governor Drive Assembly

Figure Item	Code	Part Number	Description	Units per Assembly
1		77875	GEAR, Propeller governor driven	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 (0.0585 - 0.0595 thick)	AR
	AR	73250	WASHER, Thrust (0.062 - 0.063 thick)	AR
	AR	73251	WASHER, Thrust (0.0655 - 0.0665 thick)	AR
	AR	73252	WASHER, Thrust (0.069 - 0.070 thick)	AR
	AR	01L21418	WASHER, Thrust (0.055 - 0.056 thick)	AR
8		AN565B1032H5	SET SCREW, No. 10-32 x 5/16 long	1
9		70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/32 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				

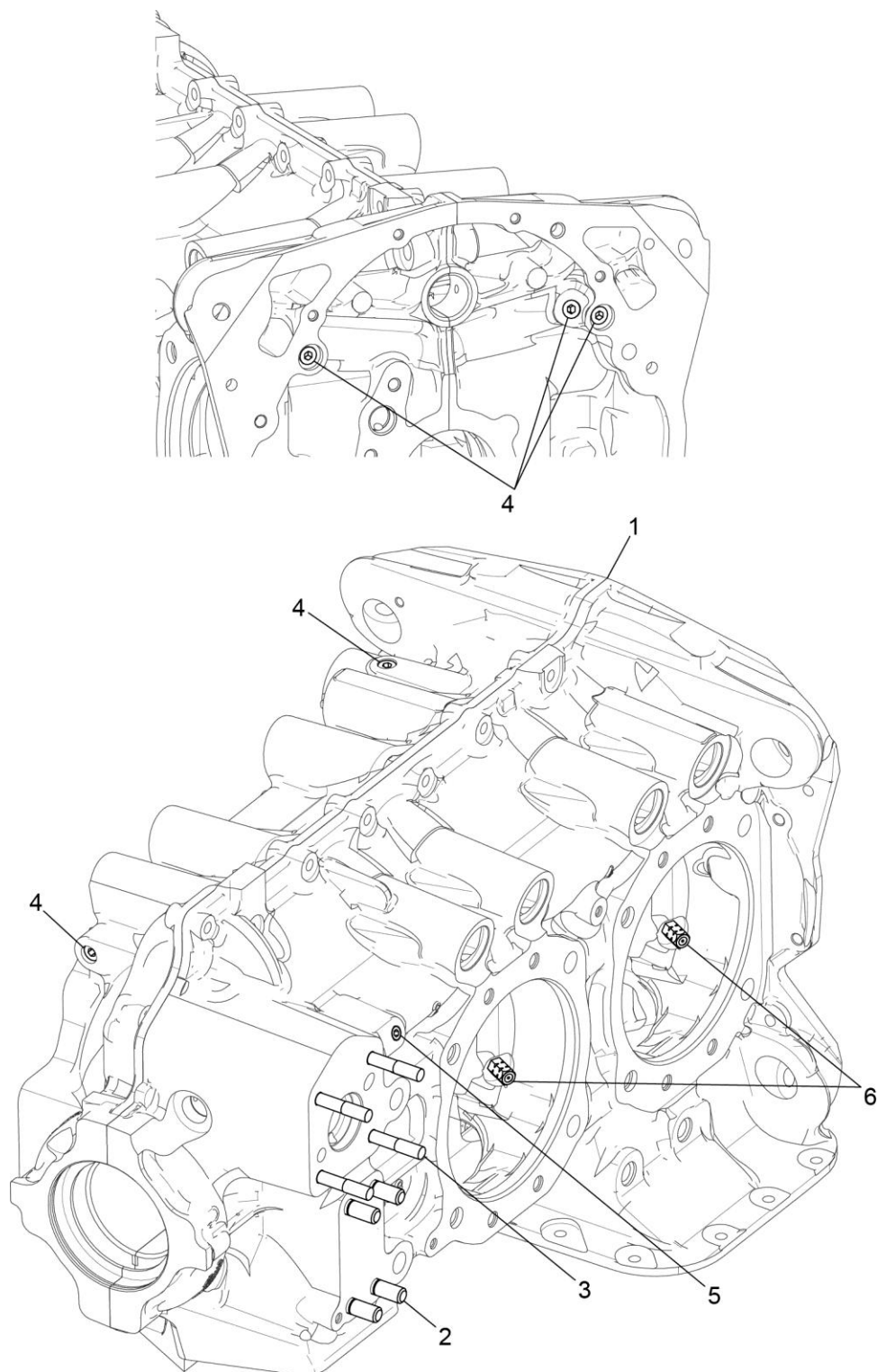


Figure 4
Crankcase Assembly

Figure 4 - Crankcase Assembly

Figure Item	Code	Part Number	Description	Units per Assembly
1		11D28751-1S3-S	KIT, Crankcase assembly	1
	P	11D28751-1S3	CRANKCASE ASSEMBLY, Studding (roller lifter)	1
2		38-13	STUD, 3/8-16 x 1-5/8 long	4
3		31C-19	STUD, 5/16-18 x 2-3/8 long	4
4		1102	PLUG, 1/8 pipe	5
5		STD-1339	PLUG, 1/16-27 NPT	1
6		73772	NOZZLE ASSEMBLY, Piston cooling	4
P Lycoming proprietary part - for reference purpose only, cannot be purchased.				

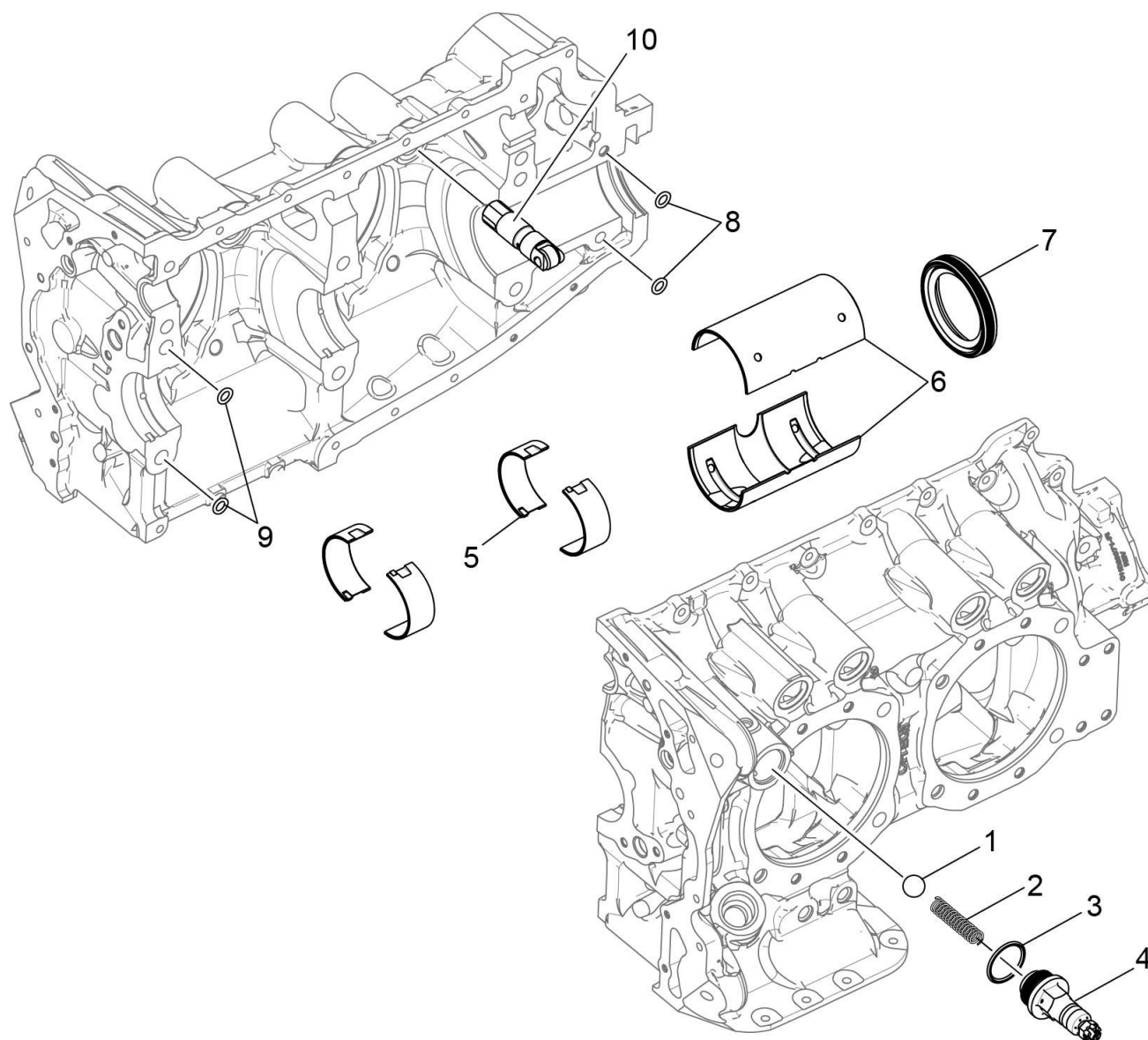


Figure 5
Crankcase Related Parts

Figure 5 - Crankcase Related Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1		1028-B	BALL, 11/16 diameter	1
2	*	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
3		06E19769-1.25	GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular	1
4		77808	VALVE ASSEMBLY, Oil pressure relief valve, adjustable	1
5		18D26098	BEARING, Crankshaft	4
6		18A26093	BEARING, Crankshaft	2
7	**	LW-13792	SEAL, Crankshaft, Oil	1
8		72075	SEAL, Oil, 3/32 section x 7/16 I.D.	2
9		72091	RING, Oil seal, 0.36 ID x 0.10 diameter	2
10		LRT23381	BODY ASSEMBLY, Hydraulic roller tappet	8
<p>* 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 I for spring identification.</p> <p>** Refer to latest revision of Lycoming Service Instruction No. 1324 for installation.</p>				

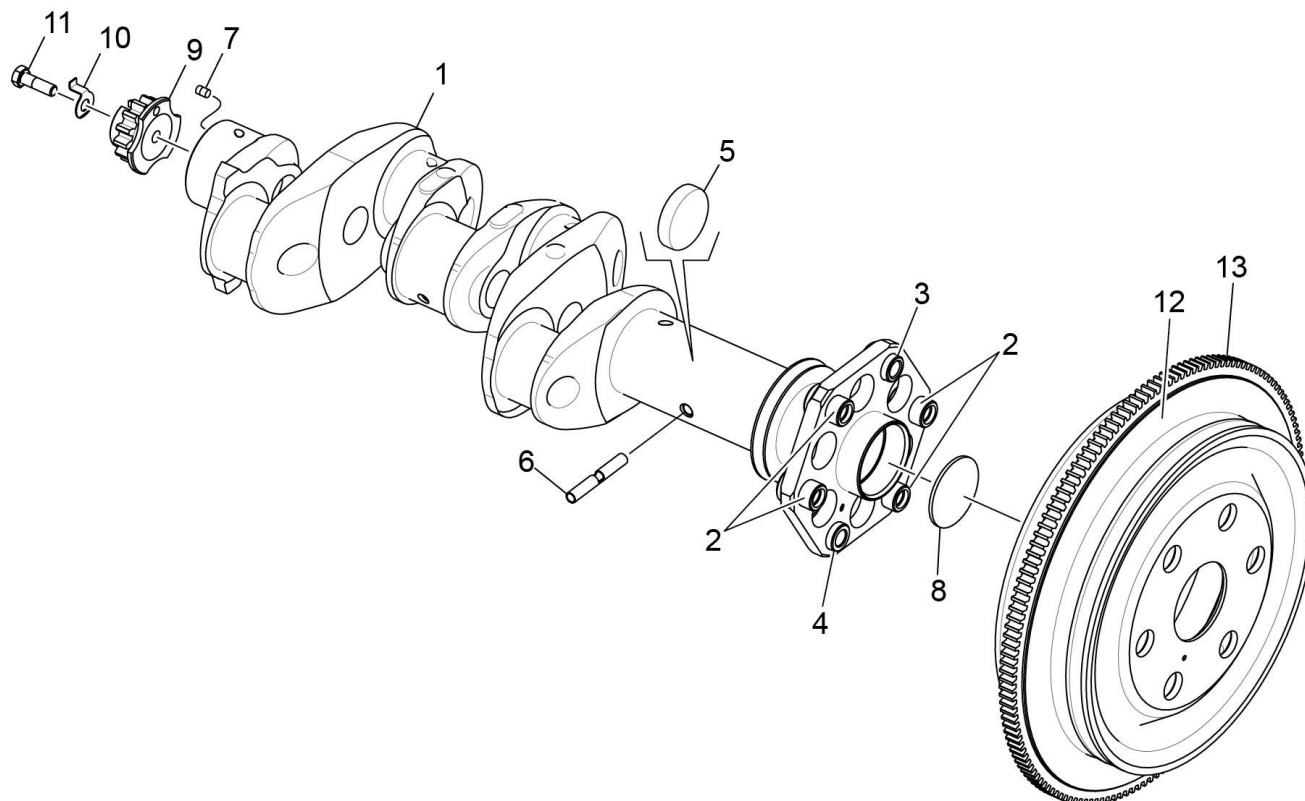


Figure 6 Crankshaft Assembly and Related Parts

Figure 6 - Crankshaft Assembly and Related Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1		13B47146	CRANKSHAFT AND BUSHING ASSEMBLY	1
2		75656-S	BUSHING, Propeller flange, long	4
3		72155-S	BUSHING, Propeller flange 0.7505 - 0.7510	1
4		75657-S	BUSHING, Propeller flange 0.7818 - 0.7823	1
5		61510	PLUG, 1-3/4 diameter	1
6		68484	TUBE, Crankshaft propeller, oil	4
7		STD-1065	DOWEL, Stepped, 0.310-0.251 diameter	1
8		STD-1211	PLUG, 2.00 diameter expansion	1
9	*	13S19646	GEAR, Crankshaft	1
10		LW-18639	LOCKPLATE, Crankshaft gear	1
11		STD-2246	BOLT, 5/16-24 x 1.00 long	1
12		31M19861	SUPPORT ASSEMBLY, Starter ring gear	1
13		72566	GEAR, Starter ring, 12/14 pitch	1
* Refer to the latest revision of Service Bulletin No. 475 for proper installation.				

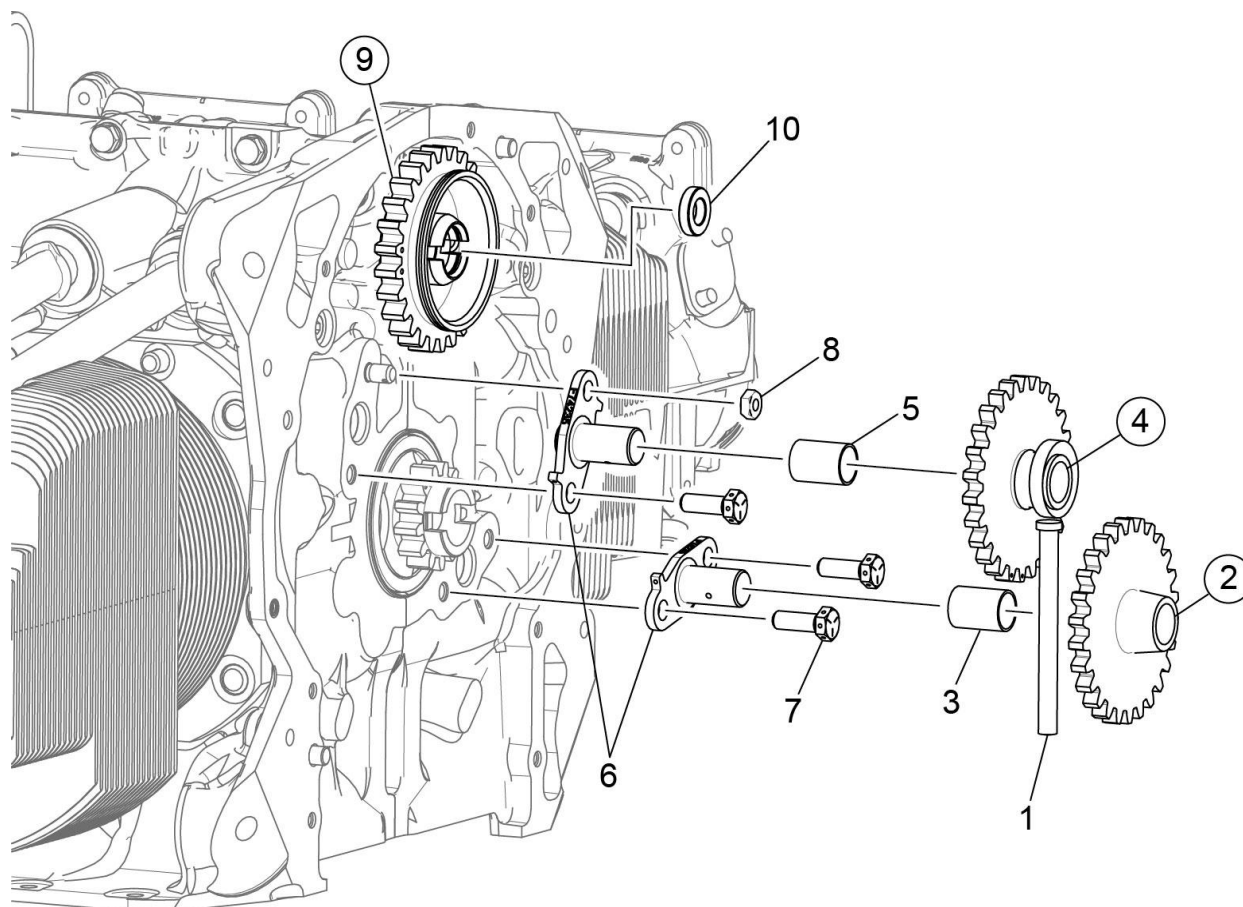


Figure 7
Crankshaft Idler Gears, Tachometer Drive, and Camshaft

Figure 7 - Crankshaft Idler Gears, Tachometer Drive, and Camshaft

Figure Item	Code	Part Number	Description	Units per Assembly
1		23D26777	PLUNGER, Fuel pump, long	1
2		74996	GEAR ASSEMBLY, Crankshaft idler, plain	1
3		77309	BUSHING, Crankshaft idler gear	1
4		75072	GEAR ASSEMBLY, Crankshaft idler	1
5		77309	BUSHING, Crankshaft idler gear	1
6		LW-13796	SHAFT, Crankshaft idler gear	2
7		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex. head, drilled	3
8		STD-2168	NUT, 5/16-18 NC-3 slotted shear	1
9		15M23456	CAMSHAFT ASSEMBLY, Roller lifter	1
10		76118	SPACER, Tachometer shaft centering	1

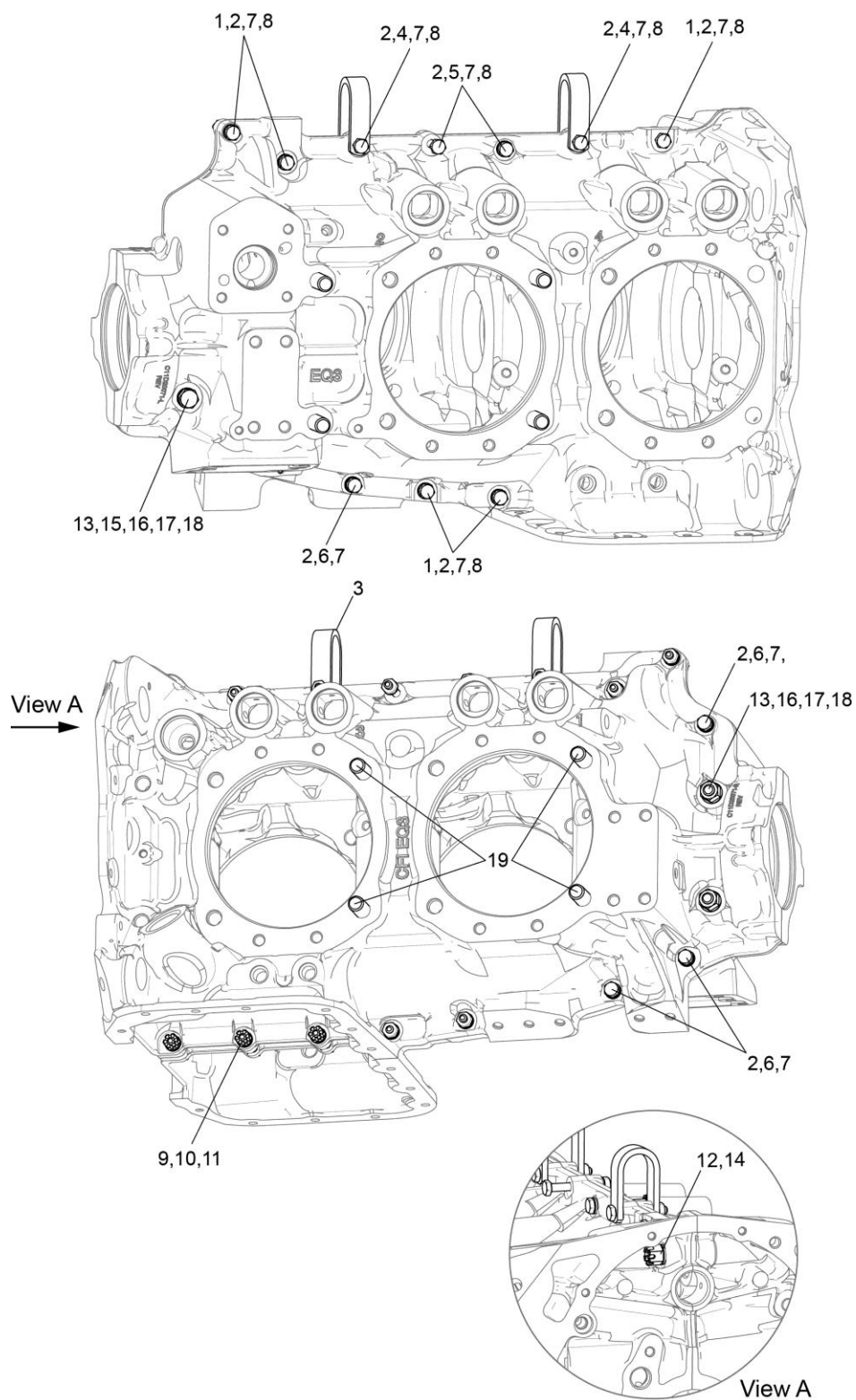


Figure 8
Crankcase Attaching Parts

Figure 8 - Crankcase Attaching Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head	5
2		STD-8	WASHER, 1/4 plain	17
3		60803	STRAP, Lifting	2
4		LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. head	2
5		LW-25-2.13	BOLT, 1/4-20 x 2-1/8 long, hex. head	2
6		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	4
7		STD-160	WASHER, 1/4 lock, internal teeth	13
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	3
10	AR	STD-8	WASHER, 1/4 plain	9
11		STD-2249	NUT, 1/4-20 slotted	3
12		STD-33	WASHER, 3/8 plain	2
13		AN960-616L	WASHER, 3/8 plain (thin)	3
14		STD-872	NUT, 3/8-24 slotted	1
15		AN6-34A	BOLT, 3/8-24 x 3-37/64 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	4
AR as required				

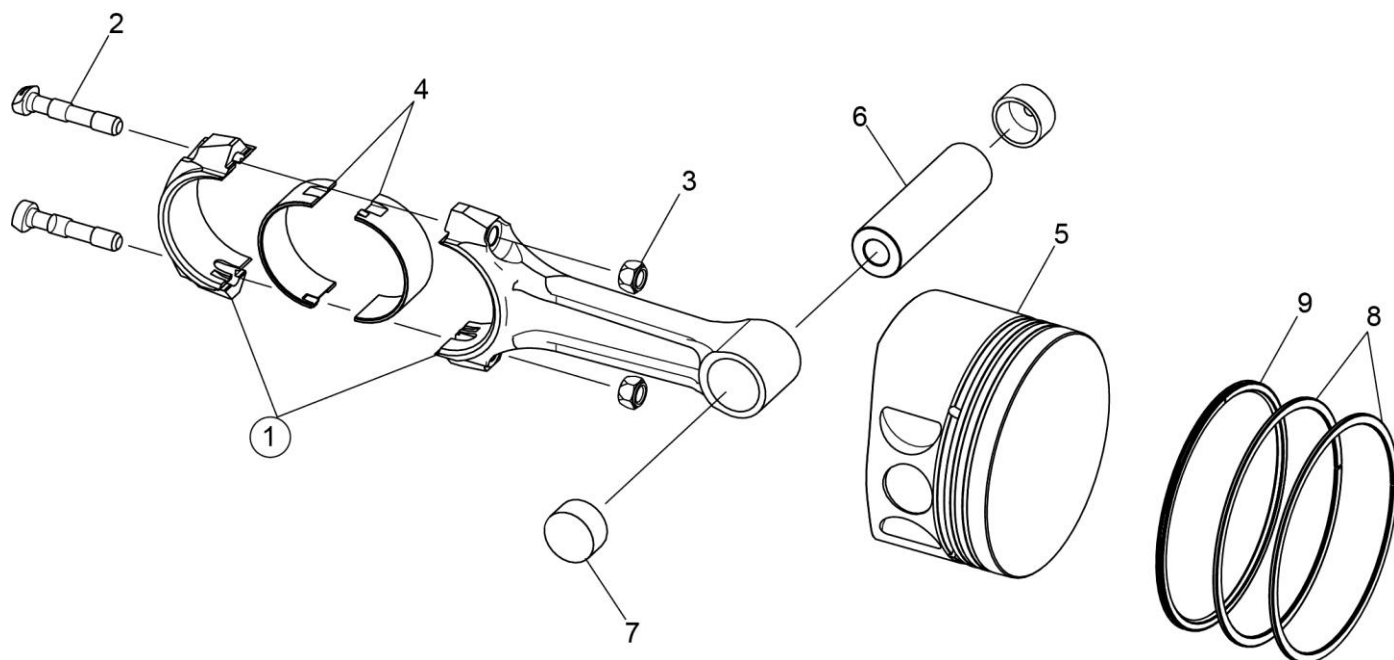


Figure 9
Connecting Rods, Pistons, and Ring Assemblies

Figure 9 - Connecting Rods, Pistons, and Ring Assemblies

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-11750-S	CONNECTING ROD ASSEMBLY	4
2	P	14S23890	BOLT, Connecting rod	8
		75061	BOLT, Connecting rod	8
3		LW-12186	NUT, Connecting rod bolt	8
4		18M26105	BEARING, Connecting rod	8
5		14D23912	PISTON, Compression ratio 8.50:1	4
6	*	LW-14078	PIN, Piston	4
7		72198	PLUG, Piston pin	8
8		74241	RING, Piston, compression, 5-1/8 bore	8
9		14H21950	RING, Piston, oil, 5-1/8 bore	4
P Lycoming proprietary part - for reference purpose only, cannot be purchased. * Refer to the latest revision of Lycoming Service Instruction No. 1267.				

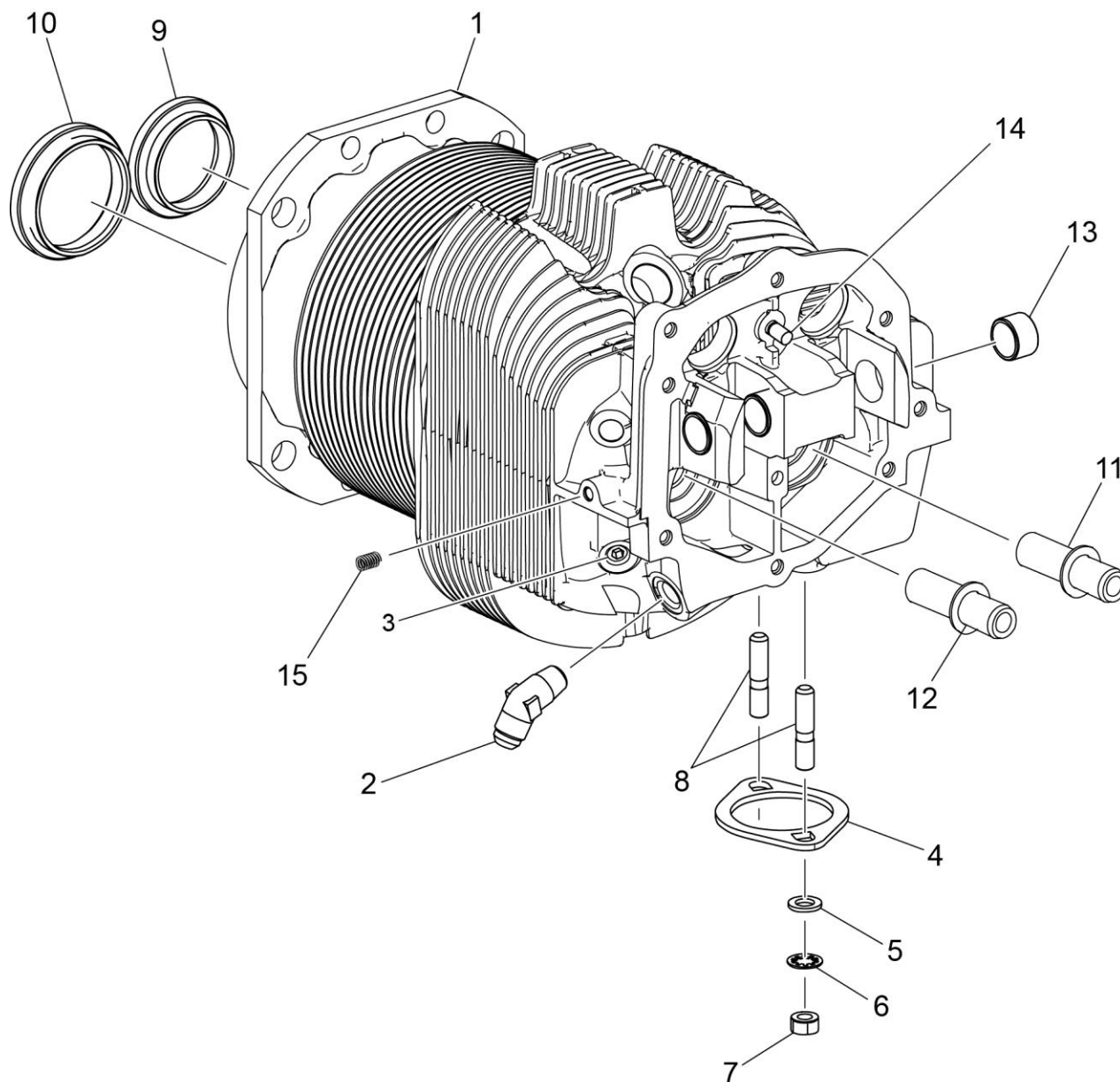


Figure 10 Cylinder Assembly

Figure 10 - Cylinder Assembly

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-13870	CYLINDER ASSEMBLY	4
2		MS20823-6D	ELBOW, 45°, 3/8 flared tube	4
3		1102	PLUG, 1/8-27 NPT, Allen head	4
4		77611	GASKET, Exhaust flange	4
5		STD-35	WASHER, 5/16 plain	8
6		STD-475	WASHER, 5/16 lock, internal teeth	8
7		STD-1410	NUT, 5/16-18, plain	8
8		31C-12	STUD, 5/16-18 x 1-1/2 long	8
9		72058	SEAT, Exhaust valve	4
10		72057	SEAT, Intake valve	4
11	P *	16R22126	GUIDE, Valve, exhaust	4
12	P *	76943	GUIDE, Valve, intake	4
13		66610	BUSHING, Rocker shaft	16
14		25C-8	STUD, 1/4-20 x 1.00 long	4
15		STD-1353	INSERT, No. 10-24 UNC x 3/8 long	4
P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased. * Refer to the latest revision of Service Instruction No. 1256 for service valve guides.				

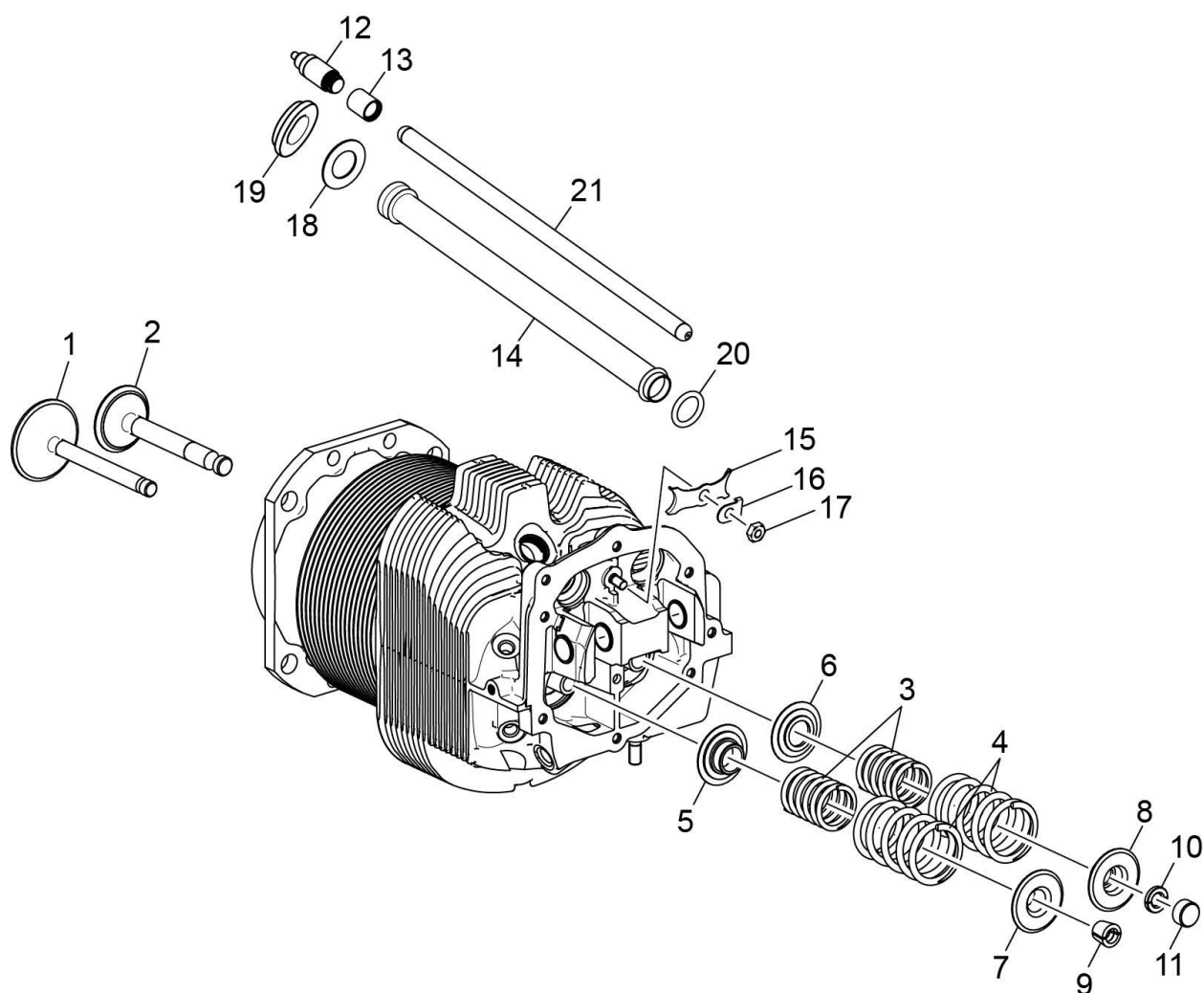


Figure 11
Valve Assembly and Related Parts

Figure 11 - Valve Assembly and Related Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1		17A23938	VALVE, Intake	4
2		17B23936	VALVE, Exhaust (rotator type)	4
3		LW-11795	SPRING, Valve, inner	8
4		LW-11800	SPRING, Valve, outer	8
5		65441	SEAT, Valve spring, lower intake	4
6		LW-13323	SEAT, Valve spring, lower exhaust	4
7		LW-10077	SEAT, Valve spring, upper intake	4
8		LW-16475	SEAT, Valve spring, upper, exhaust (rotator type)	4
9		60009	KEY, Valve	8
10		17C21191	KEY, Valve, exhaust	8
11		17C19386	CAP, Valve stem, exhaust (rotator type)	4
12		15B26066	PLUNGER ASSEMBLY, Hydraulic lifter	8
13		15B21319	SOCKET, Hydraulic tappet	8
14		15G23461	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		01L23459	WASHER, 25/32 I.D. x 1-3/8 O.D. x 1/32 thick	8
19		06A23493	SEAL, Shroud tube	8
20		70310	SEAL, Shroud tube	8
21	*	15F19957-28	ROD ASSEMBLY, Push	AR
	*	15F19957-29	ROD ASSEMBLY, Push	AR
	*	15F19957-30	ROD ASSEMBLY, Push	AR
	*	15F19957-31	ROD ASSEMBLY, Push	AR
	*	15F19957-32	ROD ASSEMBLY, Push	AR
	*	15F19957-33	ROD ASSEMBLY, Push	AR
	*	15F19957-34	ROD ASSEMBLY, Push	AR
AR as required				
* See latest revision of Service Instruction No. 1060 for complete push rod application.				

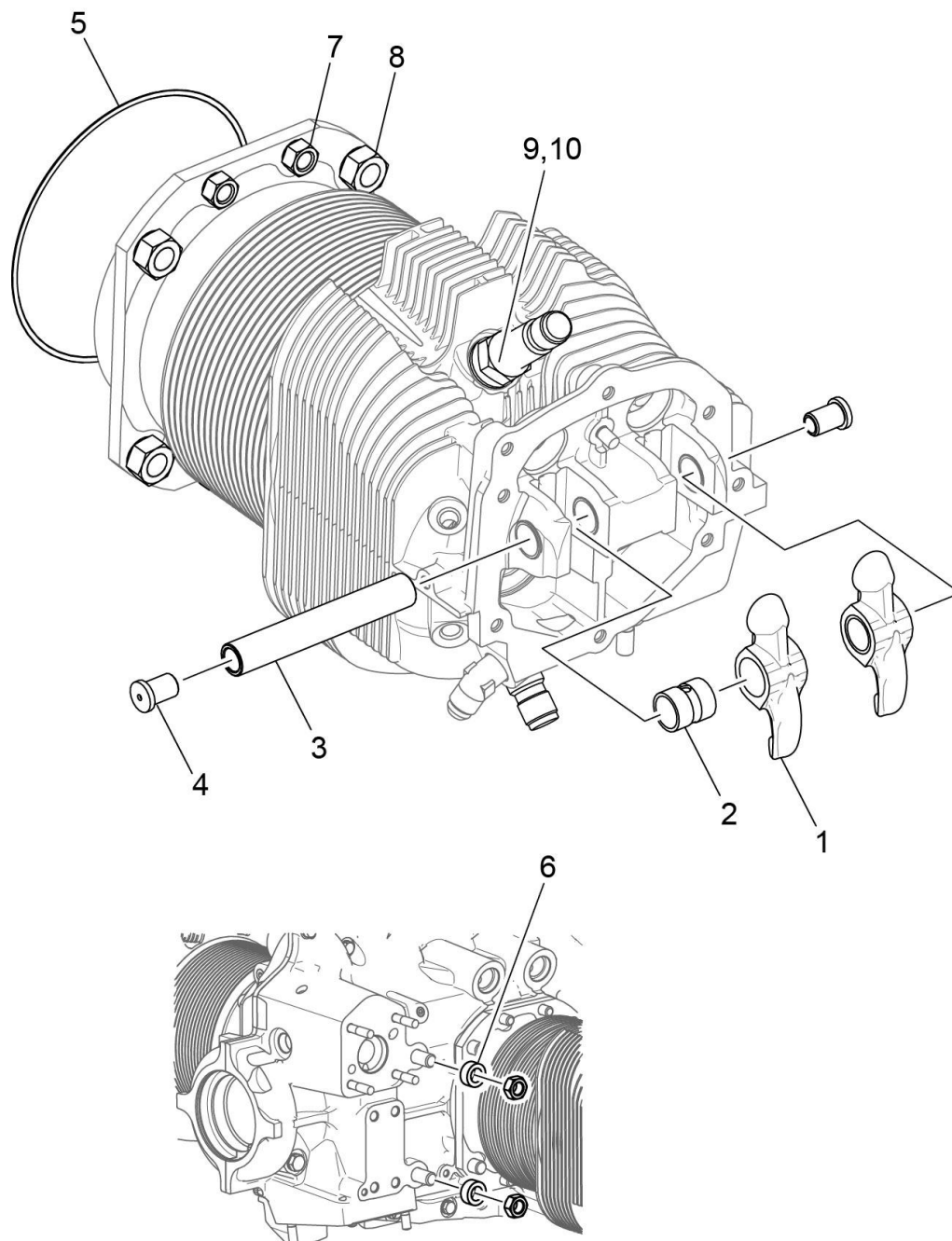


Figure 12
Cylinder Related Parts

Figure 12 - Cylinder Related Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1	*	17F19357	ROCKER ASSEMBLY, Valve	8
2		74637	BUSHING, Valve rocker	1
3		LW-13790	SHAFT, Valve rocker	4
4		LW-12892	THRUST BUTTON, Rocker shaft	8
5		71481	RING, Oil seal, 4-27/32 ID x 3/32 diameter section	4
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	16
8		STD-2090	NUT, 1/2-20 plain	18
9		66796	INSERT, Spark plug	8
10	**	1182-E7	SPARK PLUG	8
<p>* Due to the size of the area where the part number is stamped, the last five digits (19357) could be all that is shown of the part number.</p> <p>** Refer to the latest revision of Lycoming Service Instruction No. 1042 for complete listing of all approved spark plugs.</p>				

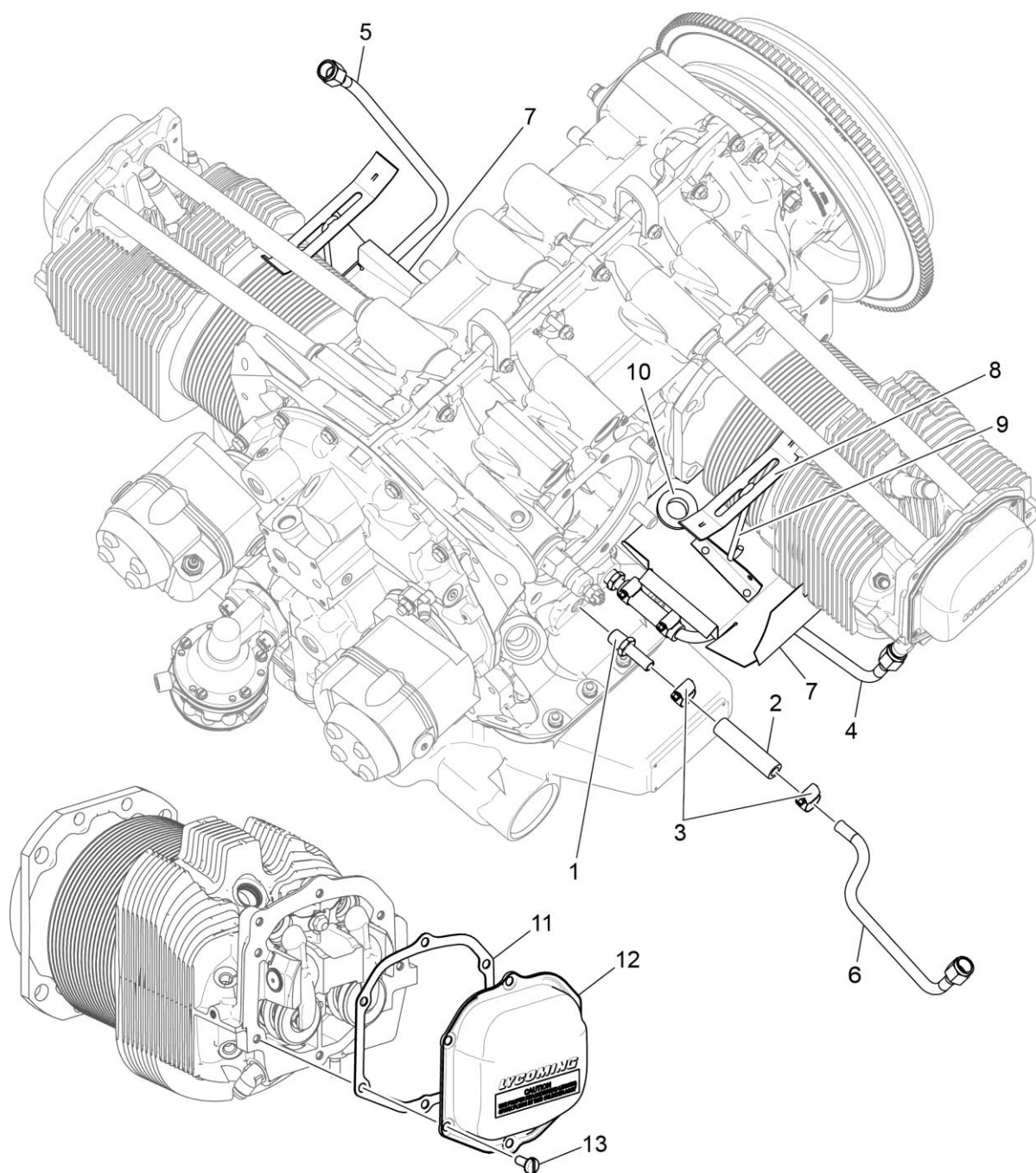


Figure 13
Cylinder Head Drain Tubes, Intercylinder Cooling Baffles, and Rocker Box Covers

**Figure 13 - Cylinder Head Drain Tubes, Intercylinder Cooling Baffles,
and Rocker Box Covers**

Figure Item	Code	Part Number	Description	Units per Assembly
1		STD-684	NIPPLE, Straight, 3/8 I.D. hose	4
2		STD-1821	HOSE, 3/8 x 2-1/2 long	4
3		LW-15592-5-05	CLAMP, Hose	8
4		68759	TUBE ASSEMBLY, Cylinder head oil drain, cyl. No. 1	1
5		68760	TUBE ASSEMBLY, Cylinder head oil drain, cyl. No. 2	1
6		68761	TUBE ASSEMBLY, Cylinder head oil drain, cyl. No. 3 & 4	2
7	*	LW-15839	BAFFLE ASSEMBLY, Intercylinder	1
	**	LW-16838	BAFFLE ASSEMBLY, Intercylinder	1
8		71611	RETAINER, Intercylinder baffle	2
9		71629	HOOK, Intercylinder baffle retainer	2
10	**	MS35489-20X	GROMMET, (on baffle)	1
11		06B26669	GASKET, Rocker box cover	4
12		61247	COVER, Rocker box	4
13		STD-1925	SCREW, 1/4-20 x 5/8 long, pan head, self-locking	24
* Install on left side cylinders No. 2 and 4				
** Install on right side between cylinders No. 1 and 3				

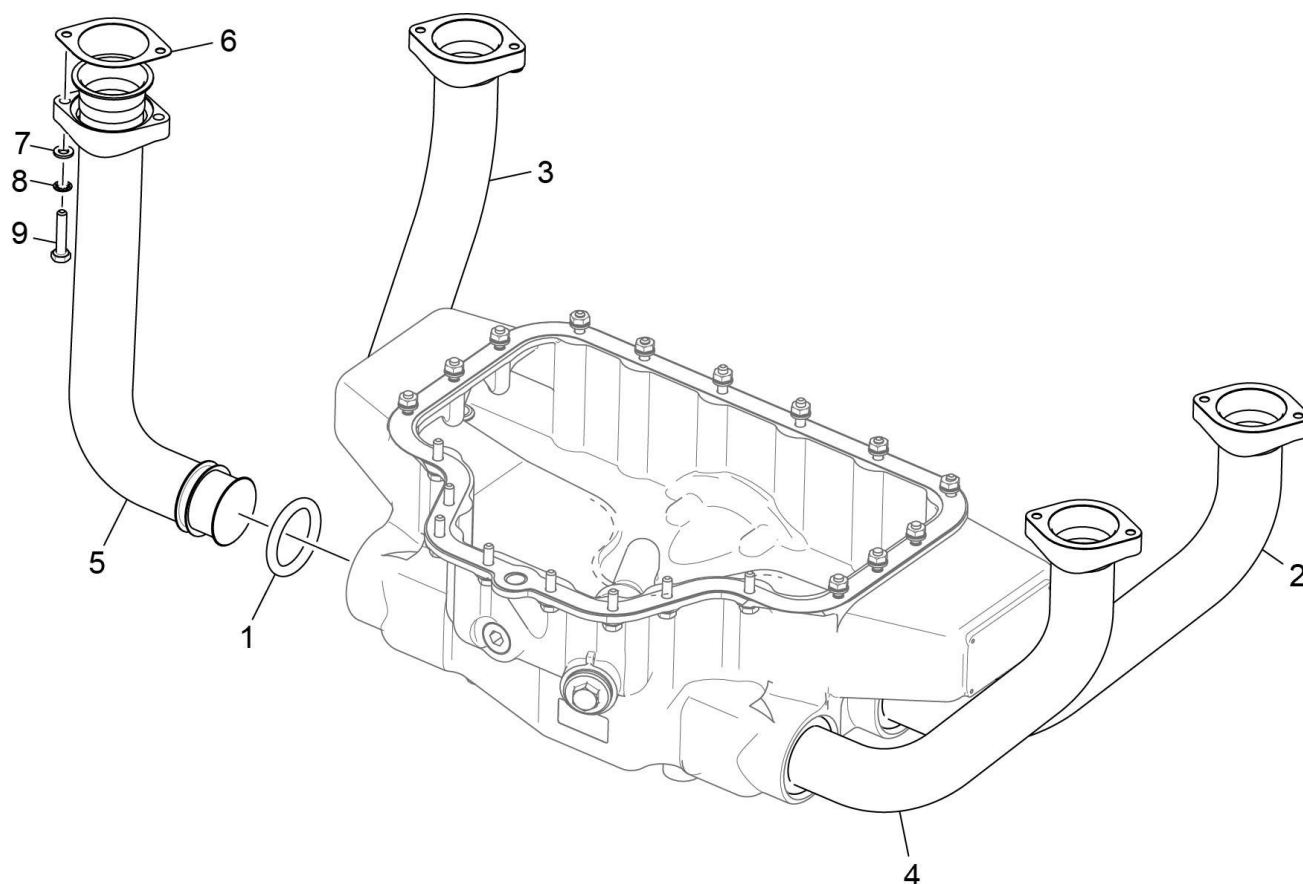


Figure 14
Intake Pipes Assembly

Figure 14 - Intake Pipes Assembly

Figure Item	Code	Part Number	Description	Units per Assembly
1		77569	RING, Seal, intake pipe	4
2		42E22611	PIPE, Intake, cylinder No. 1	1
3		42E22612	PIPE, Intake, cylinder No. 2	1
4		42E22613	PIPE, Intake, cylinder No. 3	1
5		42E22614	PIPE, Intake, cylinder No. 4	1
6		71973	GASKET, 2 bolt flange, 1-3/4 I.D.	4
7		STD-8	WASHER, 1/4 plain	8
8		STD-160	WASHER, 1/4 lock, internal teeth	8
9		LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long	8

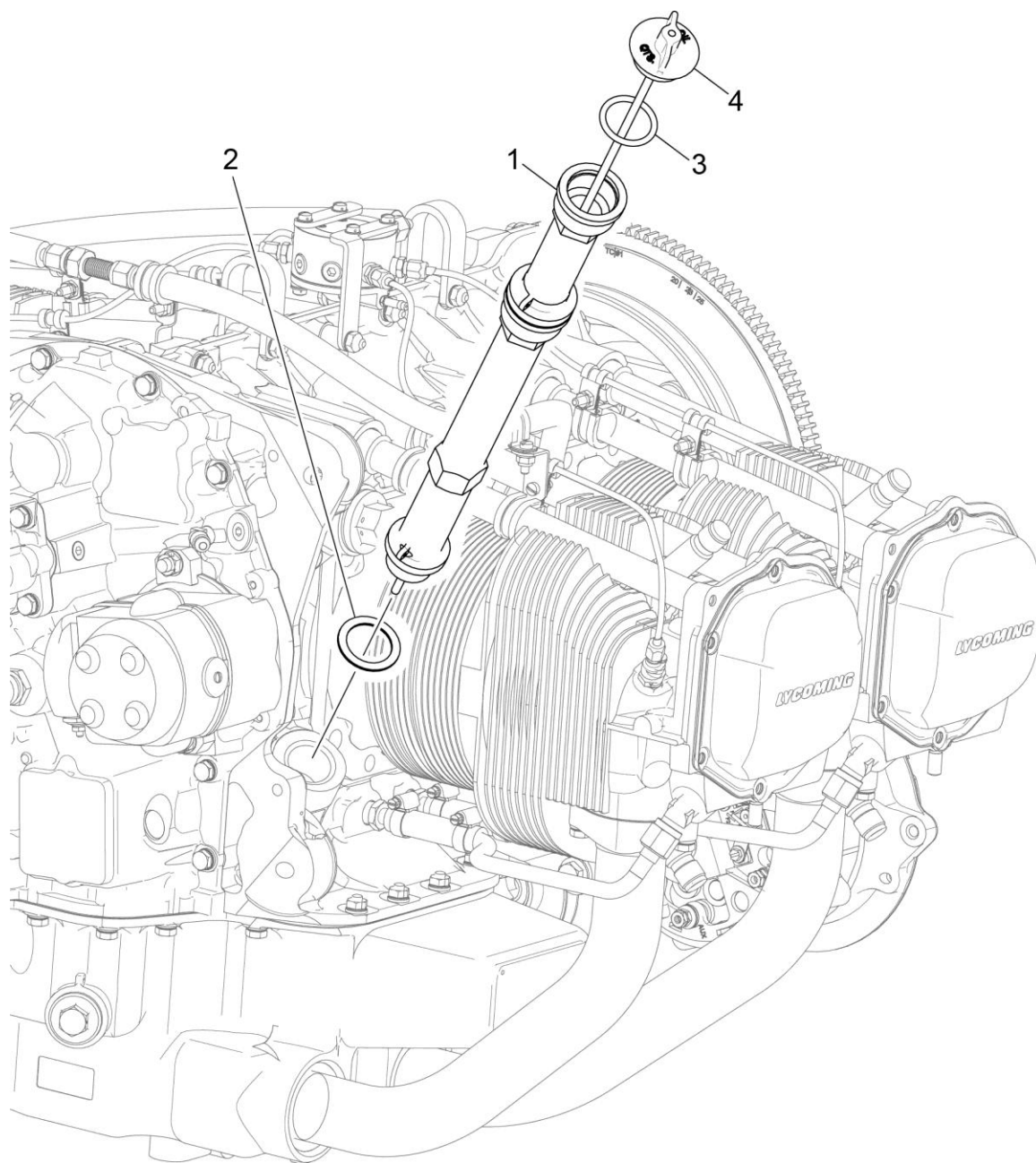


Figure 15
Oil Level Gage

Figure 15 - Oil Level Gage

Figure Item	Code	Part Number	Description	Units per Assembly
1		56C23075	TUBE, Oil level gage (long)	1
2		72059	GASKET, Oil level gage	1
3		74065	RING, Oil level gage seal	1
4		56C23672	GAGE ASSEMBLY, Oil level	1

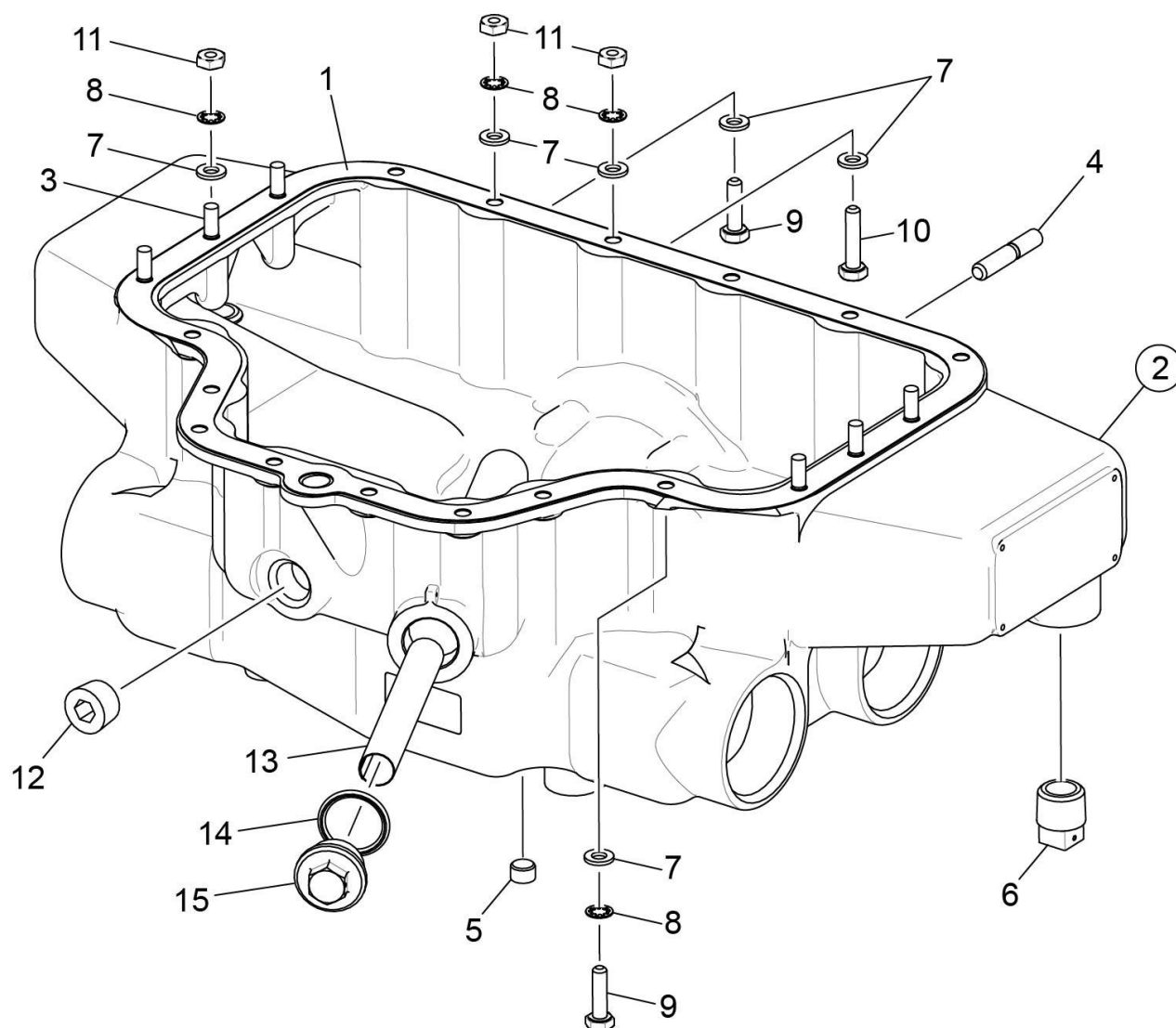


Figure 16
Oil Sump and Induction Housing Assembly

Figure 16 - Oil Sump and Induction Housing Assembly

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-13353	GASKET, Oil sump	1
2		LW-13864	SUMP ASSEMBLY, Oil	1
3		61400	STUD, 1/4-20 x 1-3/16 long	6
4		31C-14	STUD, 5/16-18 X 1-3/4 long	4
5		1102	PLUG, 1/8 pipe	1
6		STD-551	PLUG, 1/2-14 NPT, square head, drilled	2
7		STD-8	WASHER, 1/4 plain	26
8		STD-160	WASHER, 1/4 lock, internal teeth	20
9		LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	12
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		STD-2229	PLUG, 1/2 NPT, Allen head	1
13		70484	SCREEN, Oil suction	1
14		06E19769-1.00	GASKET, Annular, 1.00 I.D.	1
15		LW-12545	PLUG, 5/8 hex. head x 1.00-20 thread	1

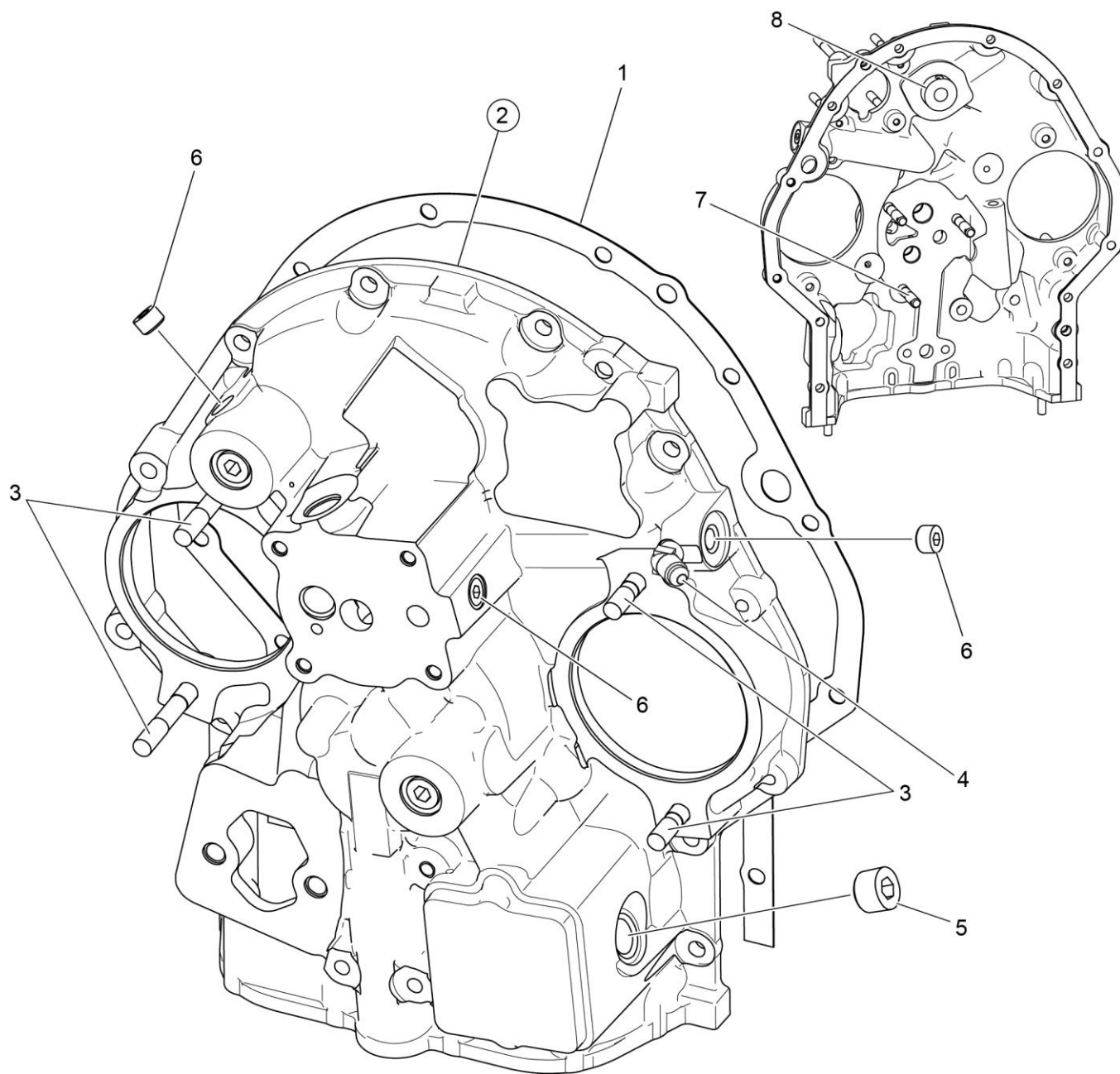


Figure 17
Accessory Housing Assembly

Figure 17 - Accessory Housing Assembly

Figure Item	Code	Part Number	Description	Units per Assembly
1		73818	GASKET, Accessory housing	1
2		21A26242-33	ACCESSORY HOUSING ASSEMBLY, Studding	1
3		31C-12	STUD, 5/16-18 x 1-1/2 long	4
4		MS20823-4	ELBOW, 1/8 NPT to 1/4 flared tube	1
5		STD-784	PLUG, 3/8-18 NPT, Allen head	1
6		1102	PLUG, 1/8 pipe	3
7		31CD-17	STUD, 5/16-18 x 2-1/8 long drilled	3
8		76119	SHIELD, Accessory breather oil	1

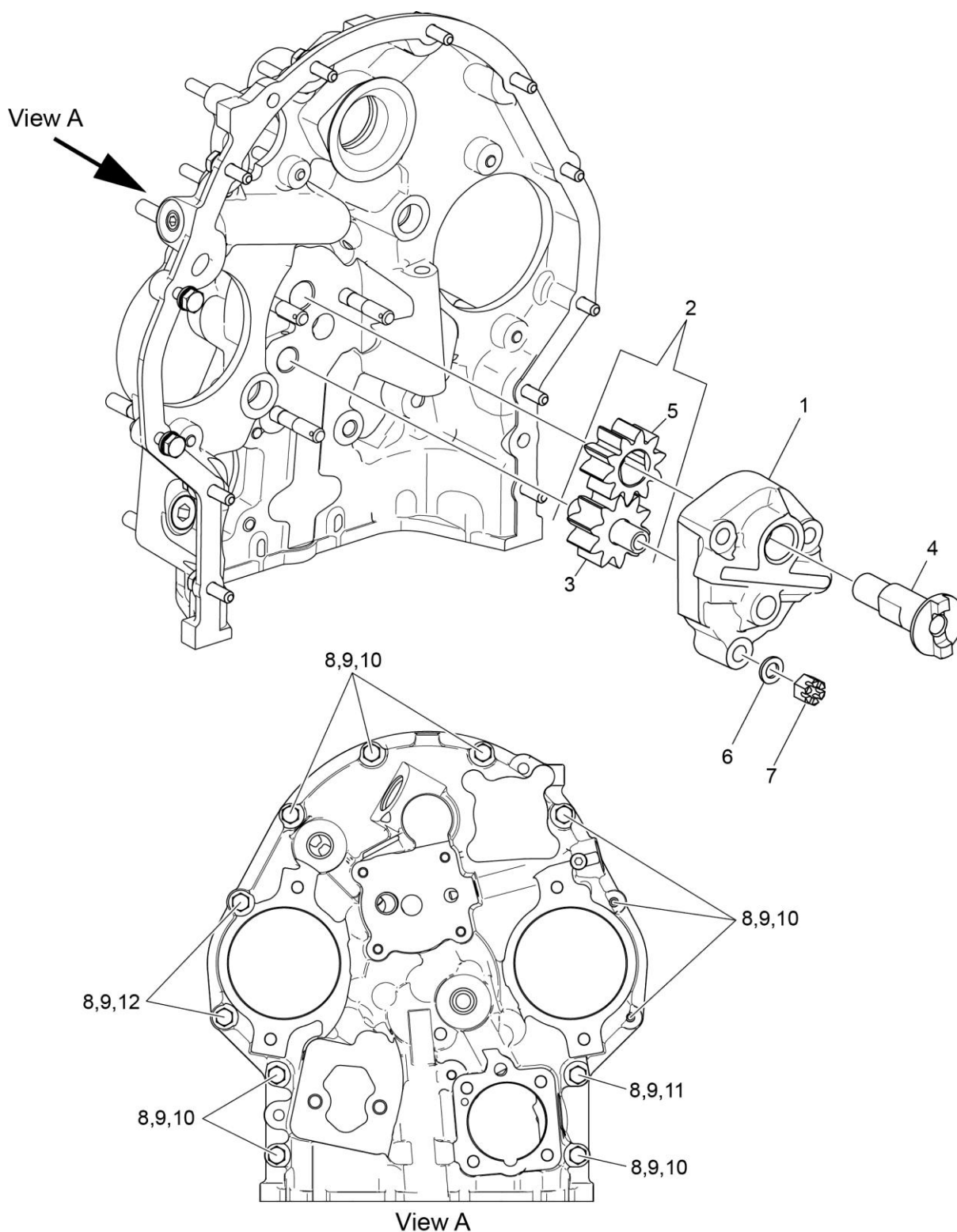


Figure 18
Oil Pump Assembly and Accessory Housing Attaching Parts

Figure 18 - 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	*	61174	SHAFT, Oil pump drive	1
5	*	LW-18109	IMPELLER, Oil pump driven	1
6		STD-35	WASHER, 5/16 plain	3
7		STD-1420	NUT, 5/16-18 slotted	3
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
* To ensure impellers are replaced together, oil pump impellers available in kit form only.				

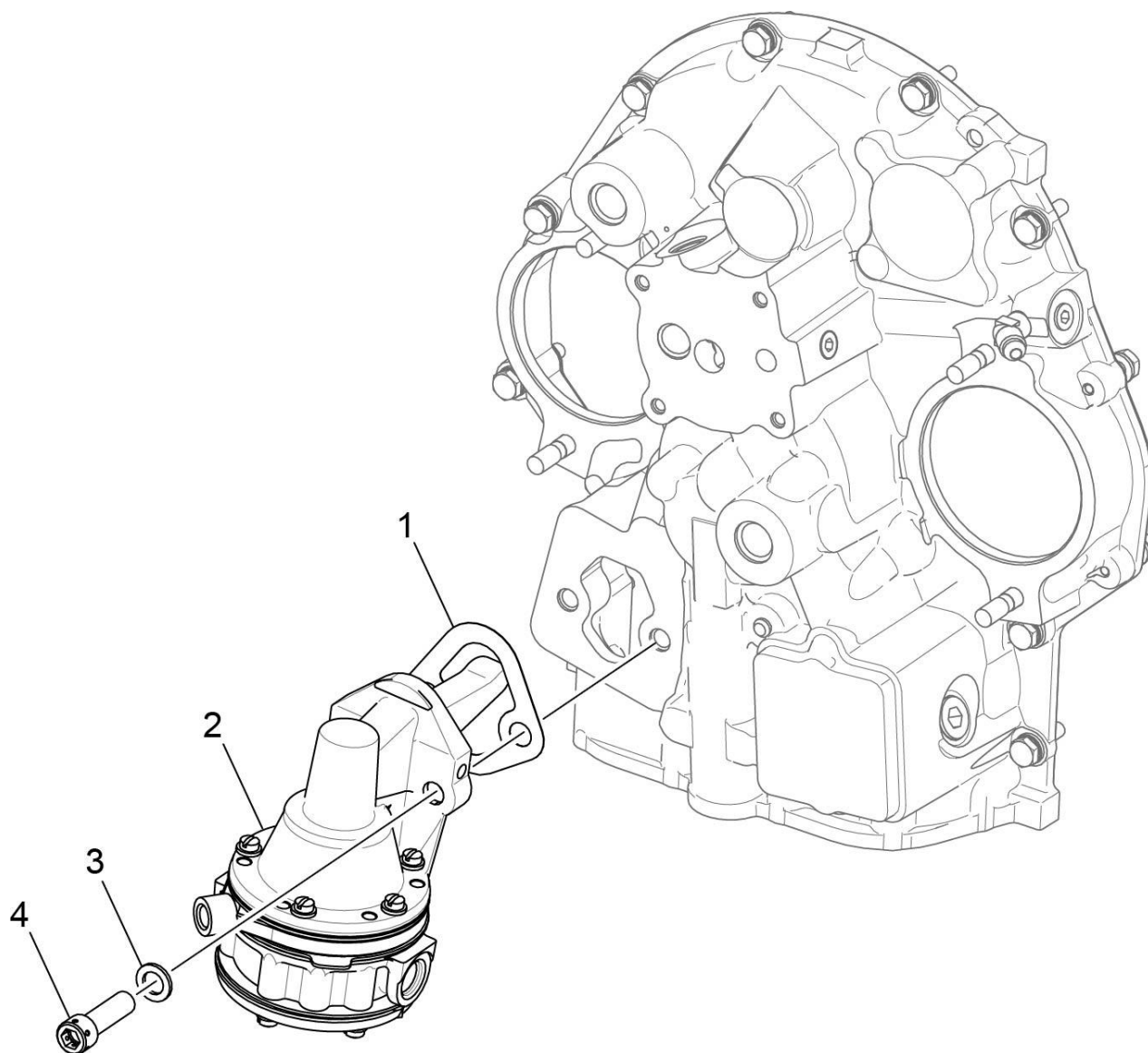


Figure 19
Fuel Pump Assembly and Attaching Parts

Figure 19 - Fuel Pump Assembly and Attaching Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1		60096	GASKET, Fuel pump	1
2		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

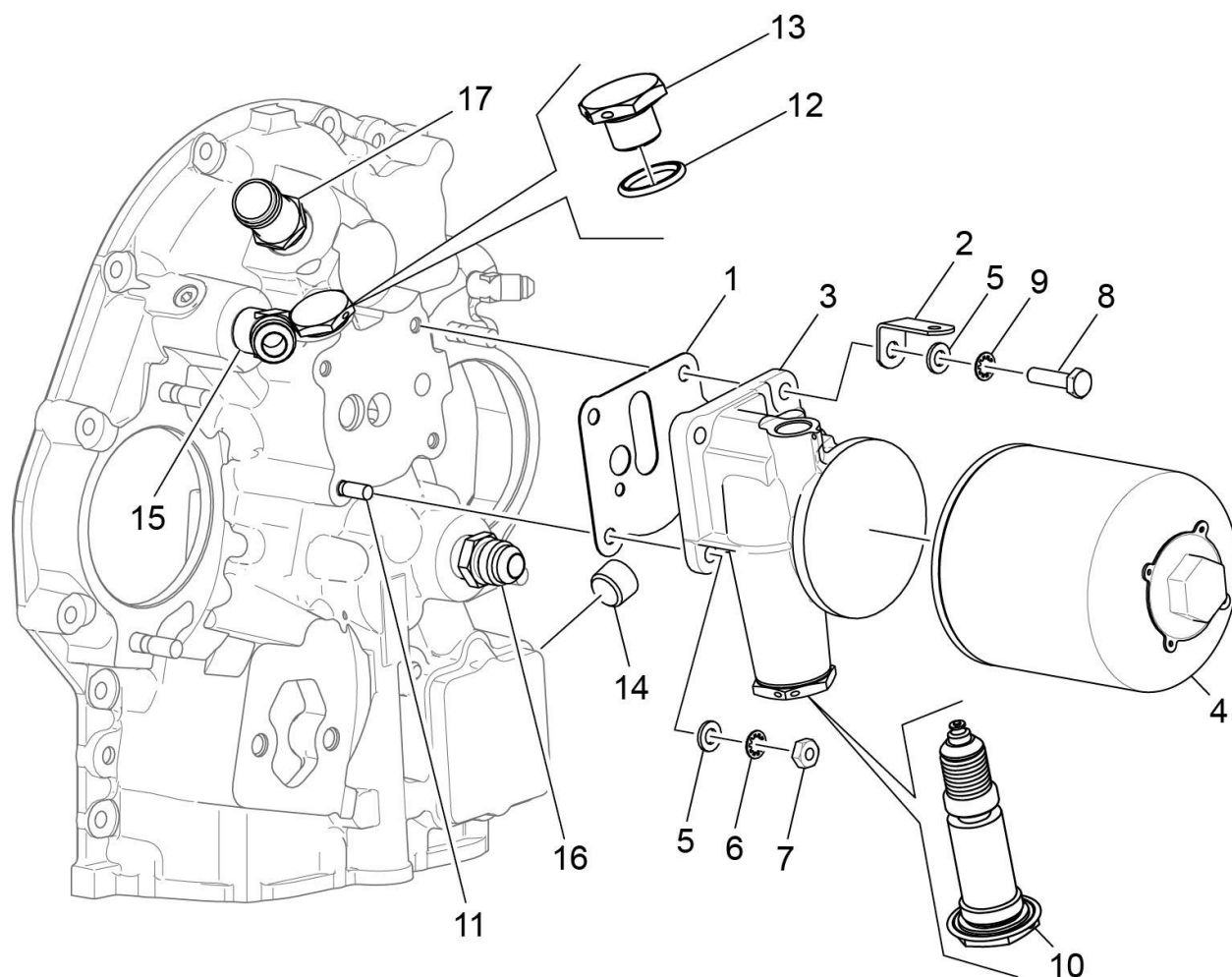


Figure 20
Oil Filter Assembly, Oil Cooler Bypass Valve, and Fittings

Figure 20 - Oil Filter Assembly, Oil Cooler Bypass Valve, and Fittings

Figure Item	Code	Part Number	Description	Units per Assembly
1	*	06B23862	GASKET, Oil filter adapter	2
2		73136	BRACKET, Extension, fuel injector line	1
3		77852	OIL FILTER BASE ASSEMBLY	1
4		LW-13215	OIL FILTER, Short, CH48110-1	1
5		STD-8	WASHER, 1/4 plain	4
6		STD-160	WASHER, 1/4 lock, internal teeth	1
7		STD-1411	NUT, 1/4-20 plain	1
8		LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head	3
9		STD-160	WASHER, 1/4 lock, internal teeth	3
10		53E22144	VALVE ASSEMBLY, Temp. control, oil cooler bypass	1
11		25C-10	STUD, 1/4-20 x 1-1/4 long	1
12		06E19769-0.63	GASKET, Annular, 5/8 I.D.	1
13		62417	PLUG, Oil cooler bypass	1
14		STD-784	PLUG, 3/8-18 NPT, Allen	1
15		MS20823-8	ELBOW, 3/8 NPT, 1/2 flared tube	1
16		AN816-8	NIPPLE, 1/2 flared tube	1
17		71140	FITTING, Breather	1
* One of the gaskets P/N 06B23862 is shipped loose with the engine.				

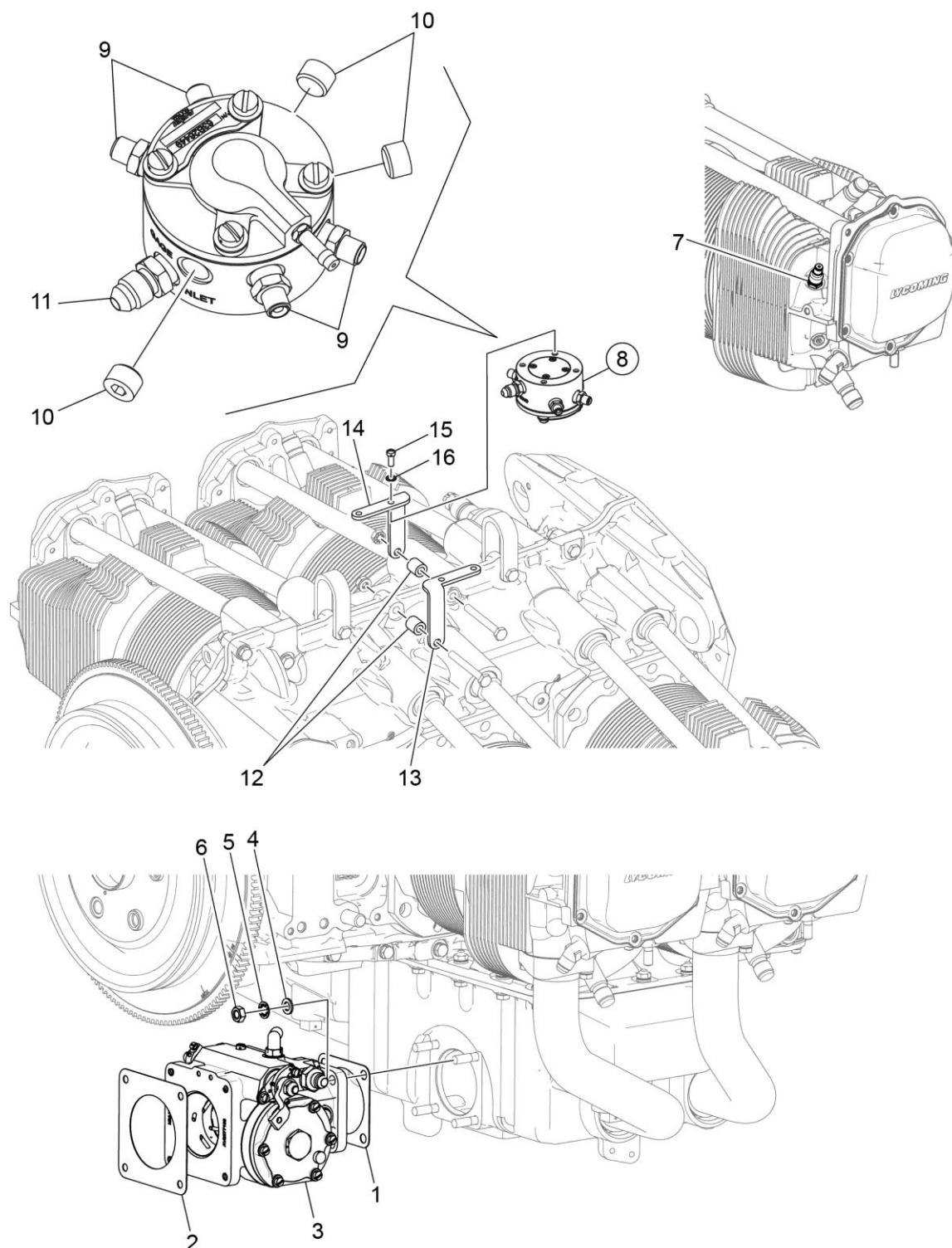


Figure 21
Fuel Injector, Fuel Manifold, and Injection Nozzles

Figure 21 - Fuel Injector, Fuel Manifold, and Injection Nozzles

Figure Item	Code	Part Number	Description	Units per Assembly
1		66224	GASKET, Carburetor	1
2		77504	GASKET, Fuel injector	1
3		61J26823	FUEL INJECTOR, RSA-5AD1	1
4		STD-35	WASHER, 5/16 plain	4
5		STD-475	WASHER, 5/16 lock, internal teeth	4
6		STD-1410	NUT, 5/16-18 plain	4
7		63C26450	NOZZLE, Injection, low (AV2524864-2)	4
8		63B28207	MANIFOLD ASSEMBLY, Fuel	1
9		STD-148	NIPPLE, Union, 1/8 NPT	4
10		1102	PLUG, 1/8-27 NPT, Allen head	3
11		AN816-4	NIPPLE, 1/8 NPT to 1/4 tube	1
12		73966	SPACER, Fuel manifold bracket	2
13		07A22995	BRACKET, Fuel manifold	1
14		07A22996	BRACKET, Fuel manifold	1
15		STD-82	SCREW, No.10-24 x 1/2 long, fill. head	4
16		STD-251	WASHER, No.10, internal lock	4

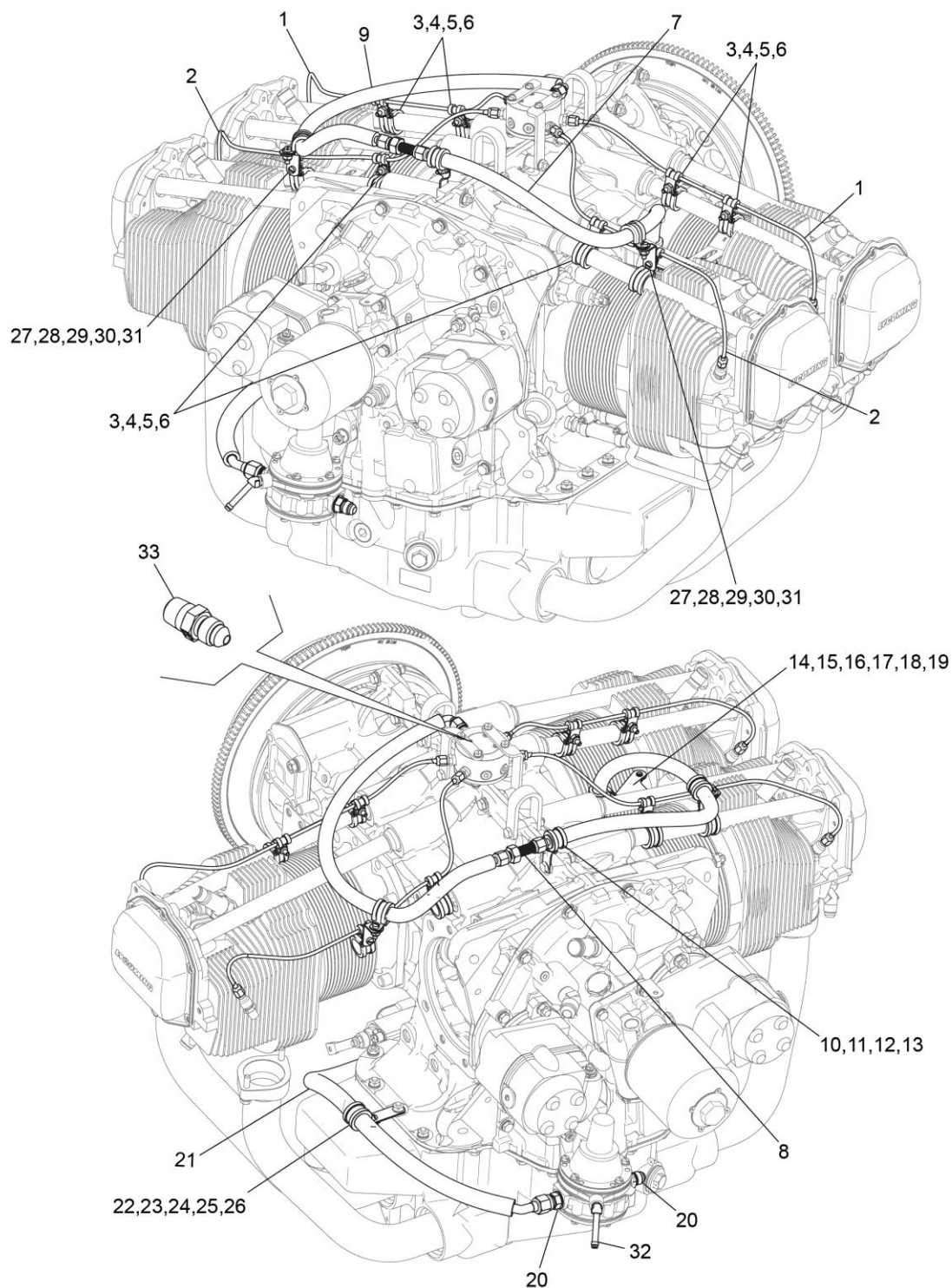


Figure 22
Fuel Lines and Attaching Parts

Figure 22 - Fuel Lines and Attaching Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-12098-0-170	TUBE ASSEMBLY, Fuel	2
2		LW-12098-0-190	TUBE ASSEMBLY, Fuel injector line	2
3		LW-16266-10-75	CLAMP	8
4		LW-16266-10-13	CLAMP, 1/8 diameter for No.10 screw	8
5		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	8
6		STD-670	LOCK NUT, No. 10-32	8
7		02M28209	HOSE ASSEMBLY, Teflon 1/4 hose, straight fittings	1
8		AS5406-04	UNION, 1/4 flared tube bulkhead	1
9		02M28210	HOSE ASSEMBLY, Teflon 1/4 hose, 90° elbow	1
10		72815	BRACKET, Support clamp, 90°	1
11		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	1
12		STD-670	LOCK NUT, No. 10-32	1
13		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw	1
14		07A28507	BRACKET ASSEMBLY, Fuel line support	1
15		STD-670	LOCK NUT, No. 10-32	1
16		STD-692	SCREW, No. 10-32 x 1/2 long, round head	2
17		STD-425	WASHER, No. 10 plain	3
18		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	1
19		LW-16266-25-50	CLAMP	1
20		LW-16562	NIPPLE, 3/8 flared tube, 9/16-18	2
21		02M28208	HOSE ASSEMBLY, Teflon 3/8 hose, 45° elbow	1
22		LW-16266-10-75	CLAMP	1
23		73152	BRACKET, Support clamp	1
24		STD-692	SCREW, No. 10-32 x 1/2 long, round head	1
25		STD-425	WASHER, No. 10 plain	1
26		STD-670	LOCK NUT, No. 10-32	1
27		73136	BRACKET, Extension, fuel injector	2
28		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw	2
29		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	2
30		STD-425	WASHER, No. 10 plain	2
31		STD-670	LOCK NUT, No. 10-32	2
32		AN844-4D	ELBOW, Pipe to hose	1
33		02G21382	NIPPLE, Nozzle pressure gauge	1

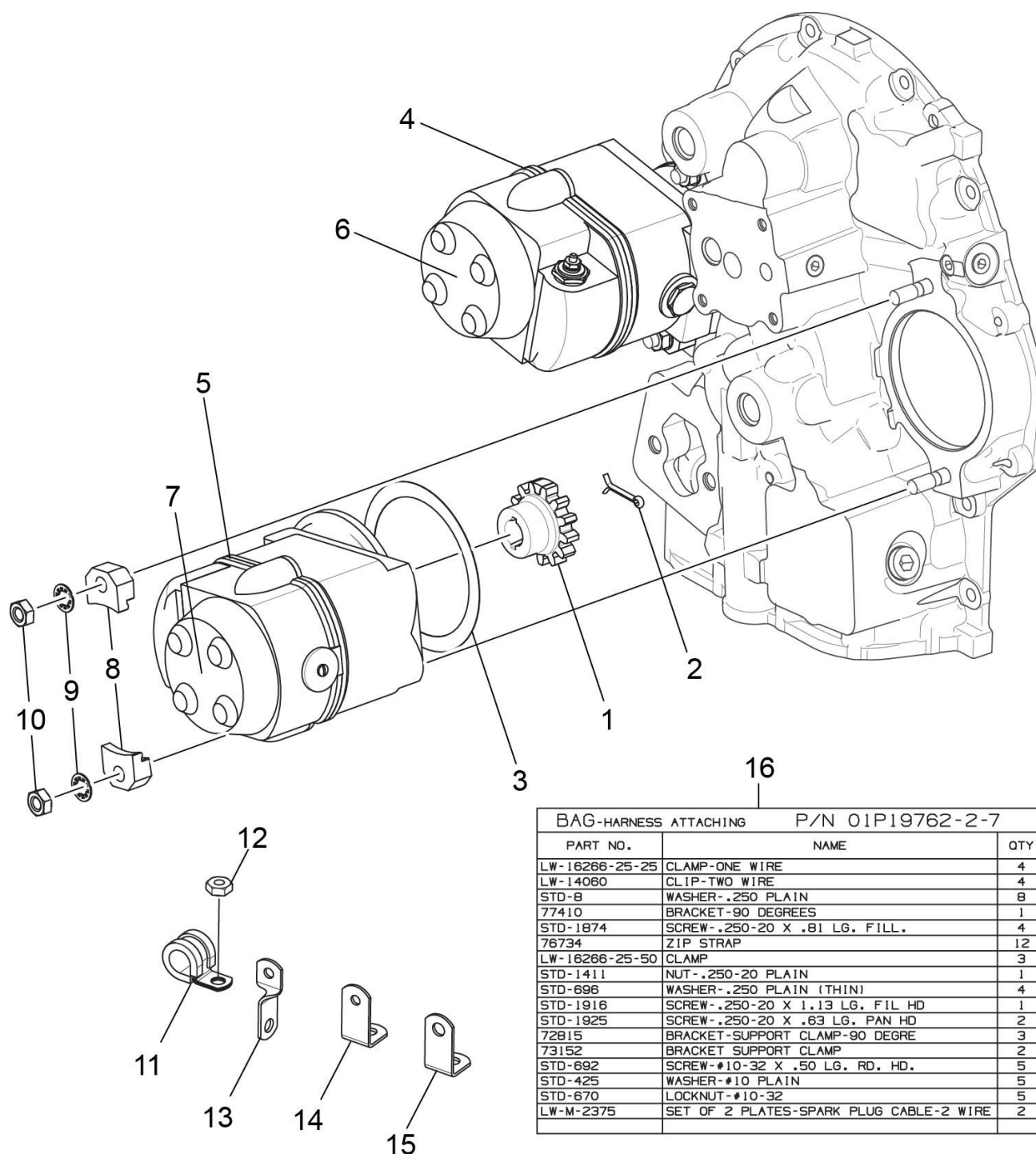


Figure 23
Magnetos, Magneto Drives and Harnesses

Figure 23 - Magnetos, Magneto Drives and Harnesses

Figure Item	Code	Part Number	Description	Units per Assembly
1		68C19622	GEAR, Magneto	2
2		MS9245-44	PIN, 3/32 diameter x 5/8 long, cotter style D	2
3		LW-12681	GASKET, Magneto	2
4		66GP-0SANN	MAGNETO, Plain 4370	1
5		66GR25SANN	MAGNETO, Retard 4347	1
6	V	67P20413	HARNESS ASSEMBLY, Slick, Left, V M4019	1
7	V	67P20412	HARNESS ASSEMBLY, Slick, Right, V M4020	1
8		66M21195	CLAMP, Magneto M3741	4
9		STD-475	WASHER, 5/16 lock, internal teeth	4
10		STD-1410	NUT, 5/16-18 plain	4
11		LW-16266-25-50	CLAMP	2
12		STD-1411	NUT, 1/4-20 plain	1
13		72815	BRACKET, Support clamp, 90°	5
14		73136	BRACKET, Extension, fuel injector	3
15		77410	BRACKET, 90°	2
16		01P19762-2-7	BAG, Harness attaching	1
V Vendor Prime Manufacturer part				

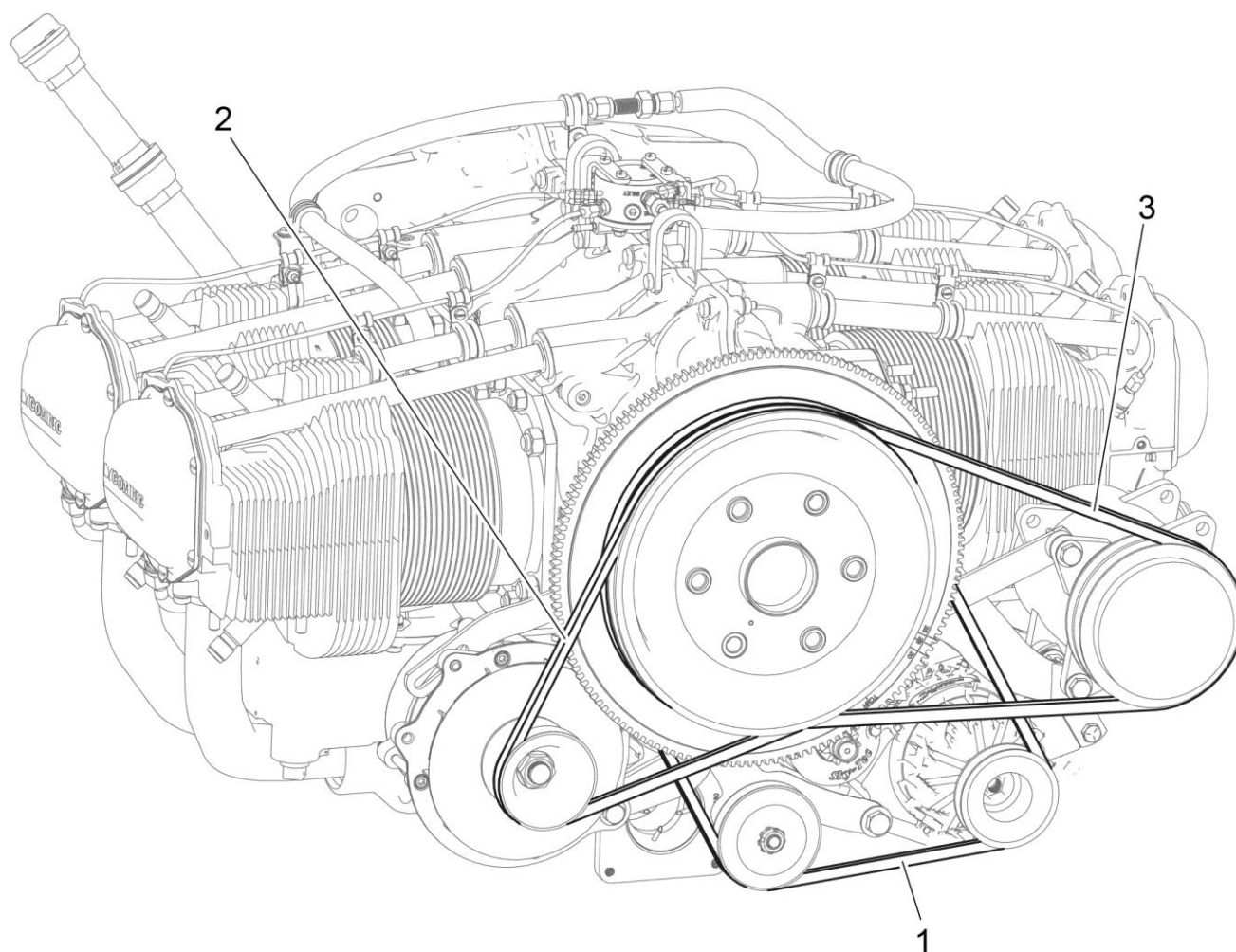


Figure 24
Alternator Belts

Figure 24 - Alternator Belts

Figure Item	Code	Part Number	Description	Units per Assembly
1		37A19773-390	BELT, 3/8 wide, 39-000 long	1
2		37A19773-470	BELT, Alternator drive, 3/8 wide	1
3		37B19774-482	BELT, Compressor drive, 1/2 wide	1

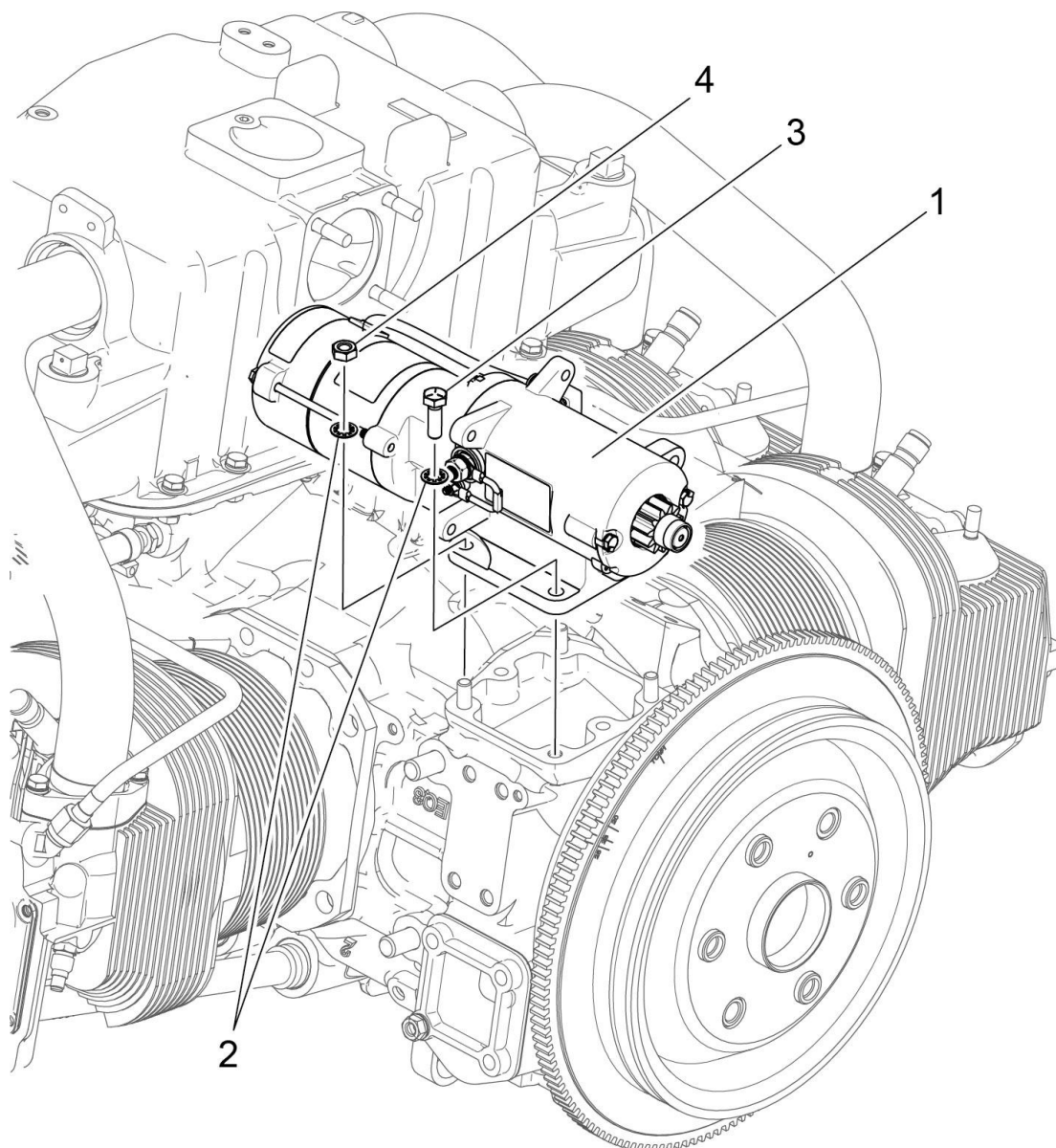


Figure 25
Starter Motor and Attaching Parts

Figure 25 - Starter Motor and Attaching Parts

Figure Item	Code	Part Number	Description	Units per Assembly
1	V	31B26554	STARTER, SKY-TEC 12/14 pitch 24 V 149NL/EC	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
V Vendor Prime Manufacturer part NOTICE: Refer to the latest revision of Service Instruction No. 1154 for complete listing of FAA-approved starters, alternators, generators, regulators and relays.				

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Service Kit Section**Seal and Gasket Set**

PART NO.	PART NAME	Qty.
05K28420	KIT - SEAL AND GASKET SET	1
AN901-8A	GASKET, Metal tube connect seal	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	SEAL, Crankshaft, oil	1
LW-14995	SPRING, Shroud tube	4
LW-18639	LOCKPLATE, Crankshaft gear	1
STD-475	WASHER, 5/16 lock, internal teeth	24
STD-713	COTTER PIN, 3/32 diameter x 3/4 long	2
06A23493	SEAL, Shroud tube	8
06B26669	GASKET, Rocker box cover	4
06E19769-0.63	GASKET, Annular, 5/8 I.D.	2
06E19769-1.00	GASKET, Annular, 1.00 I.D.	1
06E19769-1.25	GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular	1
60096	GASKET, Fuel pump	1
66224	GASKET, Carburetor	2
70310	SEAL, Shroud tube	8
70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/32 thick	1
71481	RING, Oil seal, 4-27/32 ID x 3/32 diameter section	4
71973	GASKET, 2 bolt flange, 1-3/4 I.D.	4
72053	GASKET, Governor	2
72059	GASKET, Oil level gage	1
72075	SEAL, Oil, 3/32 section x 7/16 I.D.	6
72091	RING, Oil seal, 0.36 ID x 0.10 diameter	2
72220	GASKET, Oil level gage	1
73818	GASKET, Accessory housing	1
74065	RING, Oil level gage seal	1
77504	GASKET, Fuel injector	1
77611	GASKET, Exhaust flange	4
77569	RING, Seal, intake pipe	4
MS16625-1125	RING, Internal retaining, 1-1/4 diameter	2
MS9245-44	PIN, 3/32 diameter x 5/8 long, cotter style D	2

Cylinder, Piston and Ring Assembly

Part No.	Part Name	Qty.
05K28650	KIT - CYLINDER, PISTON AND RING ASSEMBLY	1
LW-13870	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	2
MS20823-6D	ELBOW, 45 degree, 3/8 flared tube	1
17C19386	CAP, Valve stem, exhaust (rotator type)	1
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	2
14D23912	PISTON, 8.50:1	1
74241	RING, Piston, compression	2
14H21950	RING, Piston, oil, 5.125 bore	1
LW-14078	PIN, Piston	1
72198	PLUG, Piston pin	2
LW-12272	LOCKPLATE, Shroud tube	1
STD-1411	NUT, 1/4-20 plain	1
01L23459	WASHER, 25/32 I.D. x 1-3/8 O.D. x 0.041	2
06A23493	SEAL, Shroud tube	2
70310	SEAL, Shroud tube	2
77611	GASKET, Exhaust flange	1
STD-475	WASHER, 5/16 lock, internal teeth	2
SSP-115	STICKER	1

Crankshaft and Counterweight Assembly Kit

PART NO.	PART NAME	Qty.
05K28421	KIT - CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY	1
13B47146	CRANKSHAFT & BUSHING ASSEMBLY	1
18D26098	BEARING, Crankshaft	4
18A26093	BEARING, Crankshaft	2
LW-13792	SEAL, Crankshaft, oil	1
LW-18639	LOCKPLATE, Crankshaft gear	1
STD-2246	BOLT, 5/16-24 x 1.00 long	1

Crankcase Assembly and Thru-Stud Kit

PART NO.	PART NAME	Qty.
11D28751-1S3-S	KIT - CRANKCASE ASSEMBLY AND THRU-STUD	1
11D28751-1S	CRANKCASE ASSEMBLY	1
75154	STUD, 1/2-13 x 10-1/32 long	2
50-15	STUD, 1/2-13 x 1-7/8 long	8
38-13	STUD, 3/8-16 x 1-5/8 long	13
38D-17	STUD, 3/8-16 x 2-1/8 long, drilled	1
LW-13793	STUD, 5/16-18 x 15/16 long, drilled	1
31C-12	STUD, 5/16-18 x 1-1/2 long	2
31C-13	STUD, 5/16-18 x 1-5/8 long	1
38-22	STUD, 3/8-16 x 2-3/4 long	1
STD-557	DOWEL, 1/2 diameter x 11/16 long, hollow	2
72158	BUSHING, Governor drive idler shaft	1
STD-514	DOWEL, 5/16 diameter x 1/2 long	2
69796	DOWEL, Crankshaft bearing	2
1102	PLUG, 1/8-27 NPT, Allen head	4
STD-1623	INSERT, 1/4-20 Heli-coil x 3/8 long	2
STD-1339	PLUG, 1/16-27 NPT, Allen head	1
38-13	STUD, 3/8-16 x 1-5/8 long	4
31C-19	STUD, 5/16-18 x 2-3/8 long	4
1102	PLUG, 1/8-27 NPT, Allen head	5
STD-1339	PLUG, 1/16-27 NPT, Allen head	1
73772	NOZZLE ASSEMBLY, Piston cooling	4
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LW-25-2.13	BOLT, 1/4-20 x 2-1/8 long, hex. head	2
76220	STUD, 1/2-20 x 10-45/64 long	4
STD-160	WASHER, 1/4 lock, internal teeth	14
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