

O-540-A4E5 Series Illustrated Parts Catalog

April 2012

PC-515-A4E5

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652 Oliver Street
Williamsport, PA 17701

O-540-A4E5 Series Illustrated Parts Catalog

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For additional information:

Mailing address:

Lycoming Engines
652 Oliver Street
Williamsport, PA 17701 U.S.A.

Phone:

Factory: 570-323-6181
Sales Department: 570-327-7278
Fax: 570-327-7101

Lycoming's regular business hours are Monday through Friday from 8:00 A.M. through 5:00 P.M. Eastern Time (-5 GMT)

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NOTE: Service Documents override parts information in this document.

RECORD OF REVISIONS

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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-540-A4E5 wide cylinder flange model engine.

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 O-540-A4E5 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 Number**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.

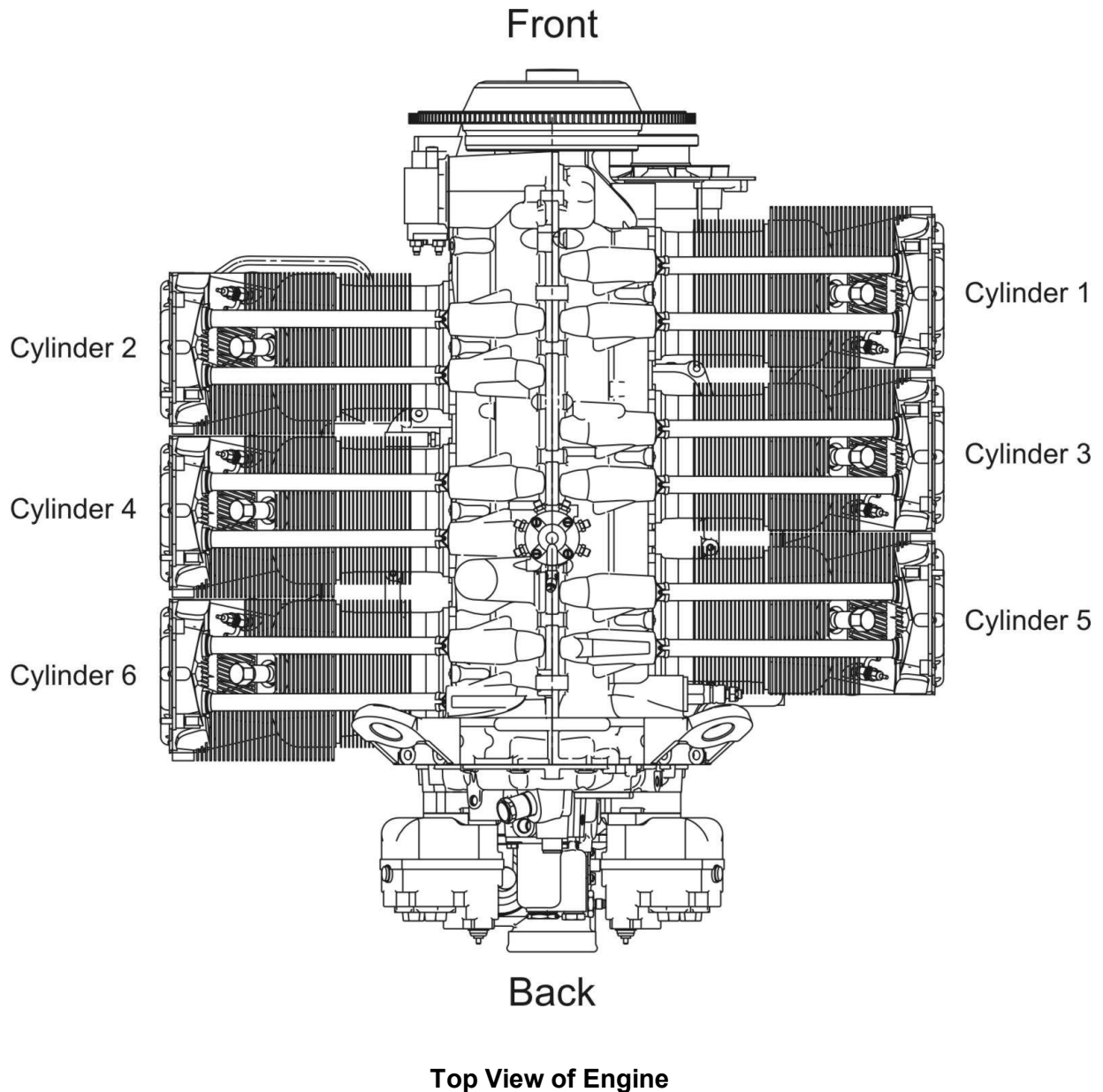
Any reference in this document to the suppliers/part manufacturer's product, by name, trademark, part number or other description is solely for the purpose of identification and does not indicate or infer that Lycoming accepts responsibility for quality control and/or airworthiness of parts, which do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



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. 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

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.

Call **(570) 323-6181**

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
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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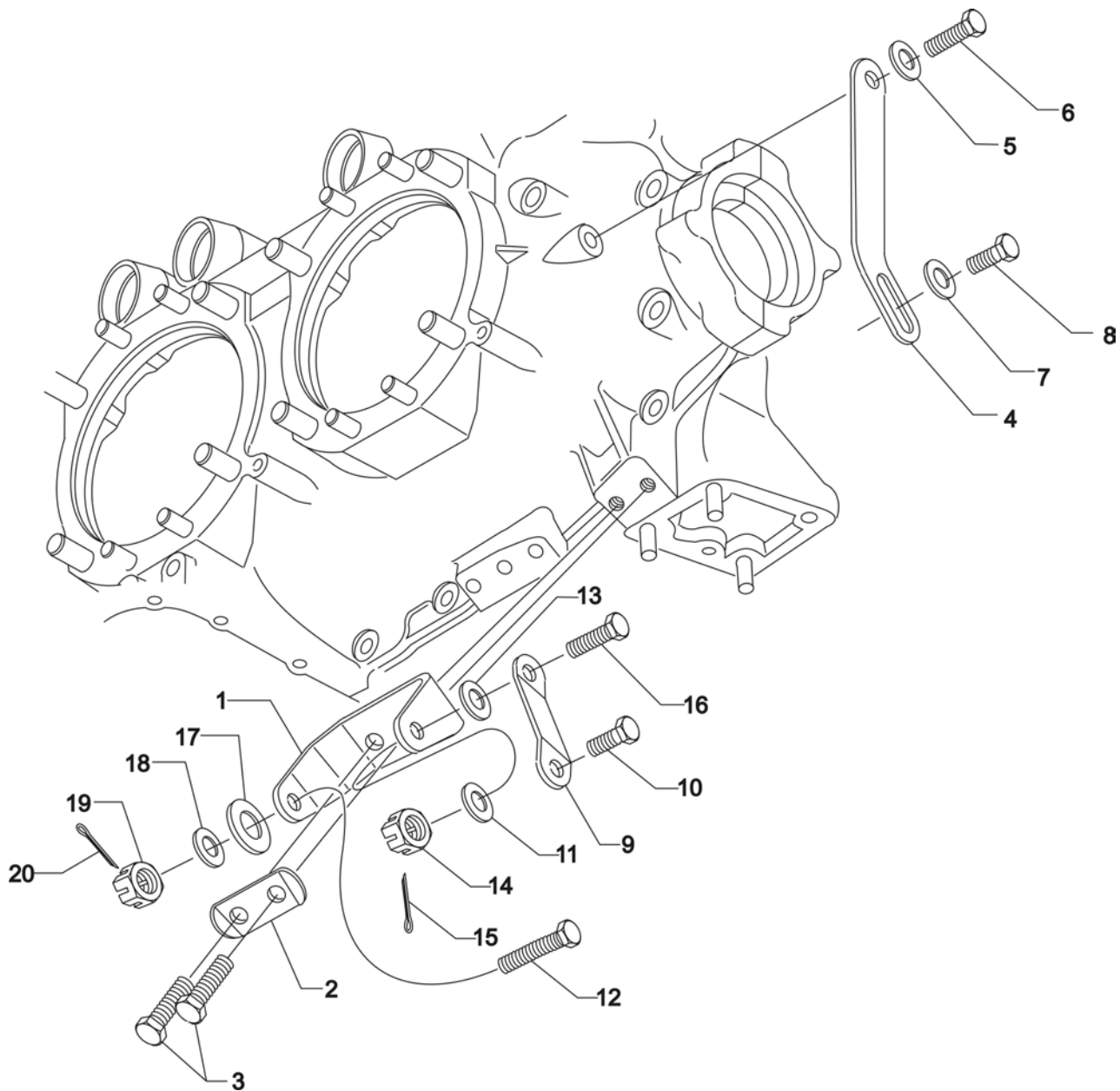
OVERSIZE AND UNDERSIZE PARTS LISTING

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
18M26105	BEARING									X	X	X
LW-13792	SEAL								X			
75656-S	BUSHING		X	X	X	X						
72155-S	BUSHING		X	X	X	X						
75657-S	BUSHING		X	X	X	X						
STD-1065	DOWEL	X	X	X	X							
74241	RING			X								
72057	SEAT		X	X		X	X					
72058	SEAT		X	X		X	X					
61681*	GUIDE		X	X	X							
16R22291*	GUIDE		X	X	X							
66610	BUSHING		X	X								

* Reference Figure 9 items no. 4 and 5 for valve guides.

NOTE

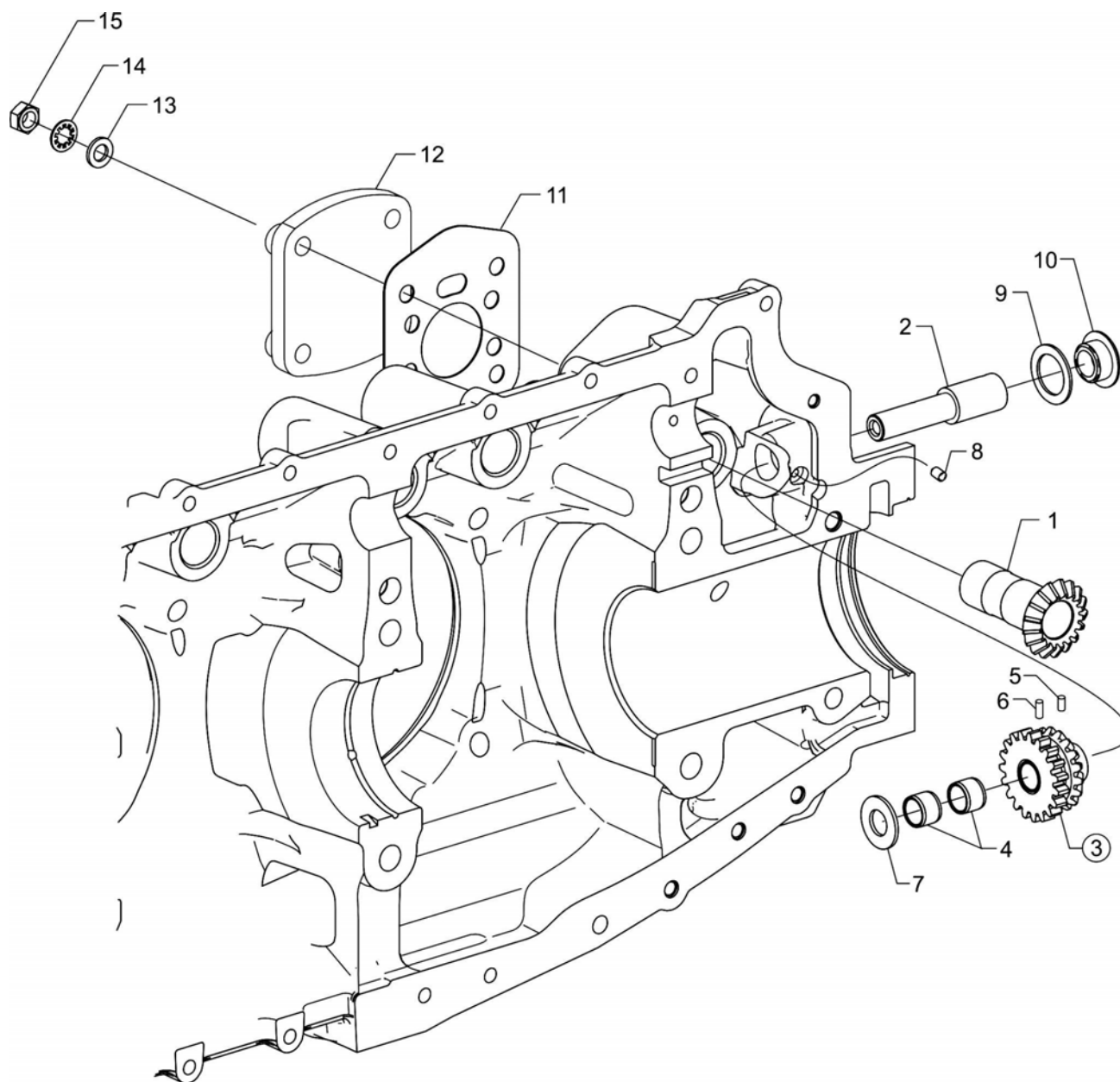
When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing P/N 18D26098 bearing in .003 in. undersize, order P/N 18D26098-M03. Undersize code letter is "M" while oversize code letter is "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**

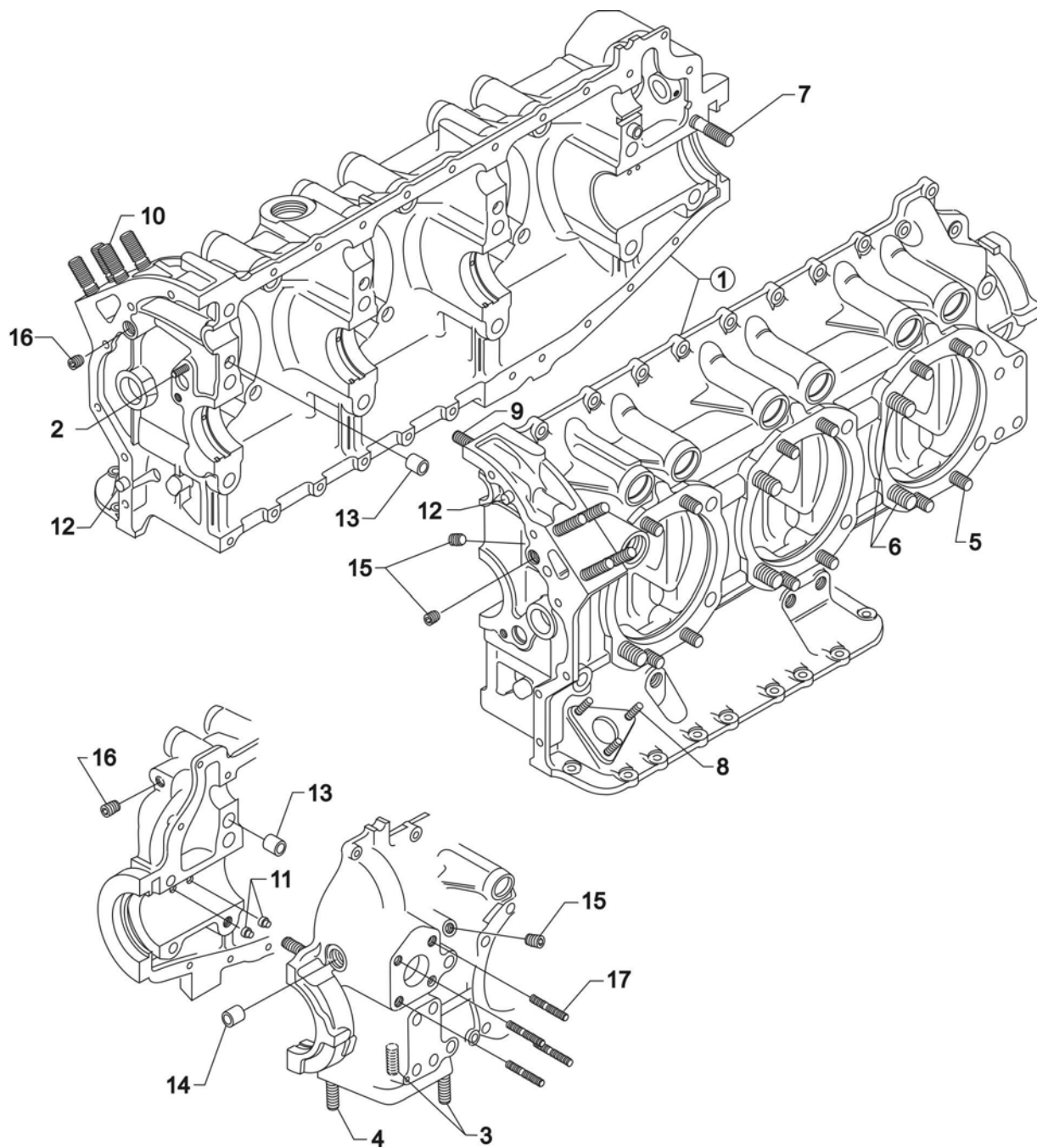
Figure Item	Code	Part Number	Description	Units per Assembly
1		07A19474	BRACKET, Alternator	1
2		73383	LOCKPLATE, 5/16 bolt x 1.00 spacing	1
3		LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	2
4		75380	LINK, Alternator adjusting	1
5		STD-35	WASHER, 5/16 plain	1
6		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
7		STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
8		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
9		07F23268	STRUT, Alternator support	1
10		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
11		STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	1
12		AN6-14	BOLT, 3/8-24 x 1-19/32 long, hex. head, drilled	1
13		STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	1
14		STD-872	NUT, 3/8-24 slotted	1
15		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1
16		AN6-16	BOLT, 3/8-24 x 1-53/64 long, hex. head, drilled	1
17	AR	76534	SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick (max. 3)	AR
18		STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	1
19		STD-872	NUT, 3/8-24 slotted	1
20		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1
AR as required				



Propeller Governor Drive
Figure 2

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

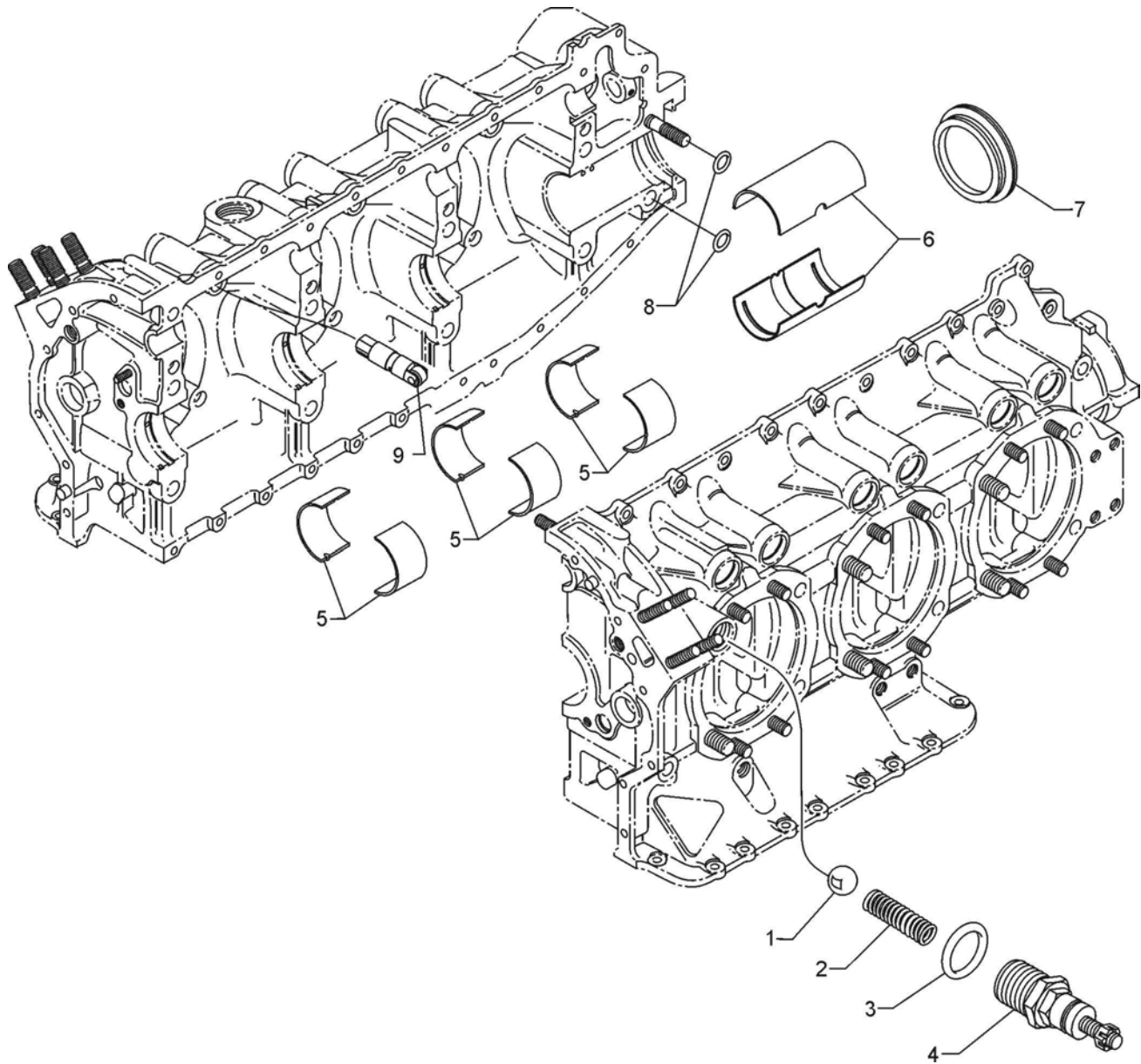
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-10442	GEAR, Propeller governor drive	1
2		LW-14021	SHAFT, Propeller governor idler gear	1
3		LW-10541	GEAR ASSEMBLY, Propeller governor idler	1
4		77872	BUSHING, Propeller governor idler gear	2
5		STD-19	DOWEL, 3/32 diameter x 7/32 long	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, No. 10-32 x 5/16 long	1
9		70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/16 thick	1
10		LW-13896	PLUG, 3/4-16 hex. head	1
11		72053	GASKET, Governor	1
12		72378	COVER, Governor drive	1
13		STD-35	WASHER, 5/16 plain	20
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 3

POWER SECTION**FIGURE 3 - CRANKCASE ASSEMBLY**

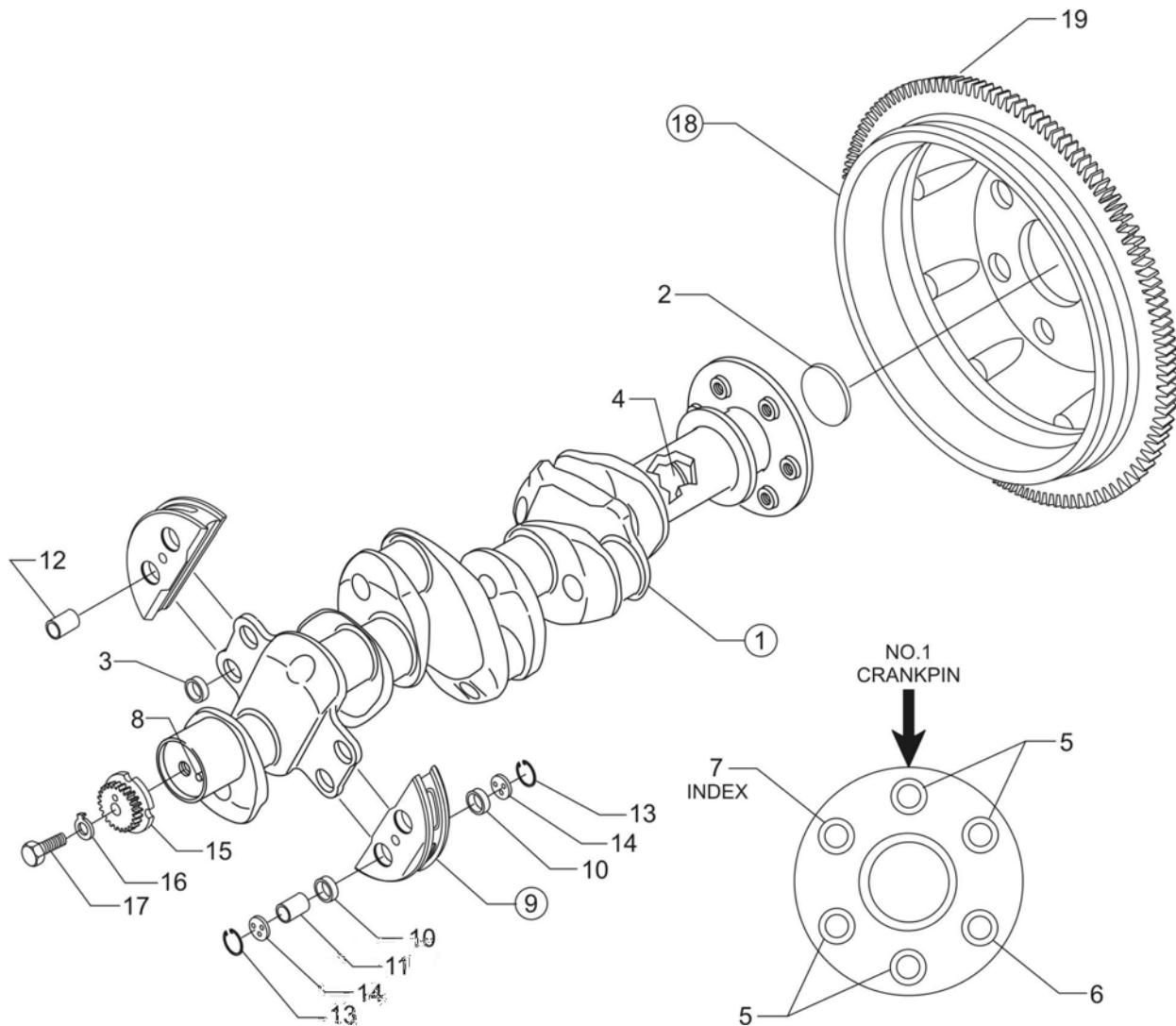
Figure Item	Code	Part Number	Description	Units per Assembly
1	*	11E24101-S1-S	CRANKCASE ASSEMBLY KIT	1
	P	11E24101-S1	CRANKCASE ASSEMBLY	1
2		01A23354	STUD, 5/16-18 x 1.00 long, drilled	1
3		31C-12	STUD, 5/16-18 x 1-1/2 long	2
4		31C-13	STUD, 5/16-18 x 1-5/8 long	1
5		38-13	STUD, 3/8-16 x 1-5/8 long	24
6		50-15	STUD, 1/2-13 x 1-7/8 long	12
7		38-22	STUD, 3/8-16 x 2-3/4 long	1
8		10-8	STUD, No. 10-32 x 1.00 long	3
9		38D-17	STUD, 3/8-16 x 2-1/8 long, drilled	1
10		38-16	STUD, 3/8-16 x 2.00 long	8
11		69796	DOWEL, Crankshaft bearing	2
12		STD-514	DOWEL, 5/16 diameter x 1/2 long	2
13		STD-557	DOWEL, 1/2 diameter x 11/16 long	2
14		72158	BUSHING, Governor drive idler shaft	1
15		STD-1339	PLUG, 1/16-27 NPT, allen head	7
16		1102	PLUG, 1/8-27 NPT, allen head	4
17		31C-17	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>				



Crankcase Related Parts
Figure 4

POWER SECTION**FIGURE 4 - 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, Annular, 1-1/4 I.D.	1
4		77808	VALVE ASSEMBLY, Oil pressure relief valve, adj.	1
5		18D26098	BEARING, Crankshaft	6
6		18A26093	BEARING, Crankshaft	2
7	**	LW-13792	SEAL, Crankshaft oil	1
8		72091	RING, Oil seal, 23/64 I.D. x 7/64 diameter	2
9		LRT23381	BODY ASSEMBLY, Hydraulic tappet, roller type	12
<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>** Refer to the latest revision of Service Instruction No. 1324 for installation.</p>				



Crankshaft Assembly and Related Parts
Figure 5

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

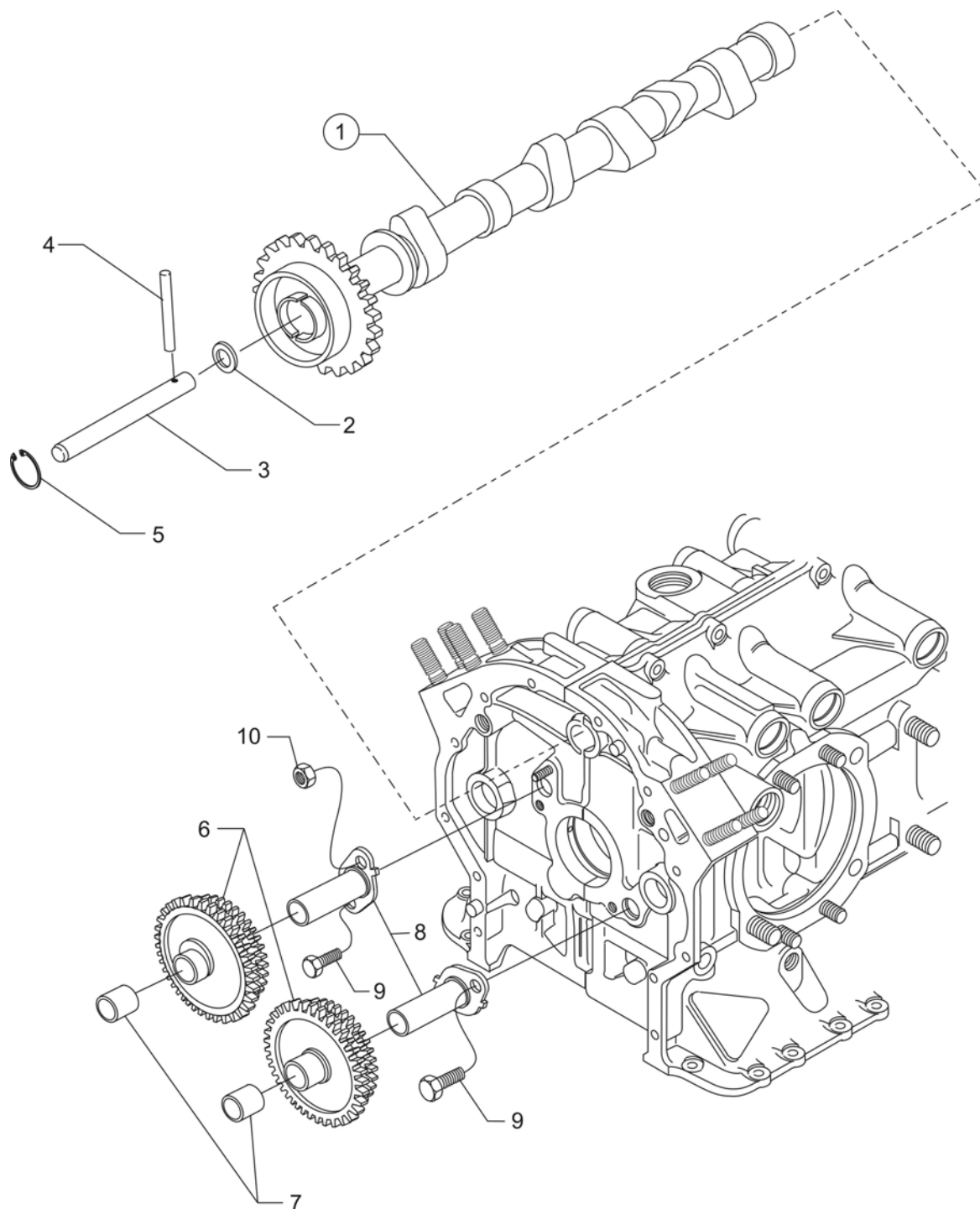
Figure Item	Code	Part Number	Description	Units per Assembly
1		13E47622	CRANKSHAFT ASSEMBLY	1
2		STD-1211	PLUG, 2.00 diameter expansion	1
3		73810	BUSHING, Crankshaft counterweight	4
4		71640	PLUG, 1-3/8 diameter	1
5		75656-S	BUSHING, Propeller flange, long	4
6		72155-S	BUSHING, Propeller flange, short	1
7		75657-S	BUSHING, Propeller flange, indexing	1
8		STD-1065	DOWEL, Stepped, 5/16 x 1/4 diameter	1
9	*	LW-19227	COUNTERWEIGHT ASSEMBLY	2
10		71903-A	BUSHING, Dynamic counterweight	8
11	*	72797	ROLLER, Dynamic counterweight, 6.3 order	2
12	*	72965	ROLLER, Dynamic counterweight, 5.1 order	2
13		LW-14820	RING, Internal retaining	8
14		71907	WASHER, Counterweight	8
15	SB**	13S19647	GEAR, Crankshaft	1
16		LW-18638	LOCKPLATE, Crankshaft	1
17		STD-2247	BOLT, 5/16-24 x 1-3/4 long	1
18		LW-16471	SUPPORT ASSEMBLY, Starter ring gear	1
19		72566	GEAR, Starter ring, 12/14 pitch	1

SB Referencing Service Bulletin

* Refer to the latest revision of Service Instruction No. 1012 for proper counterweight and roller location.

** Refer to the latest revision of Service Bulletin No. 475 for proper installation.

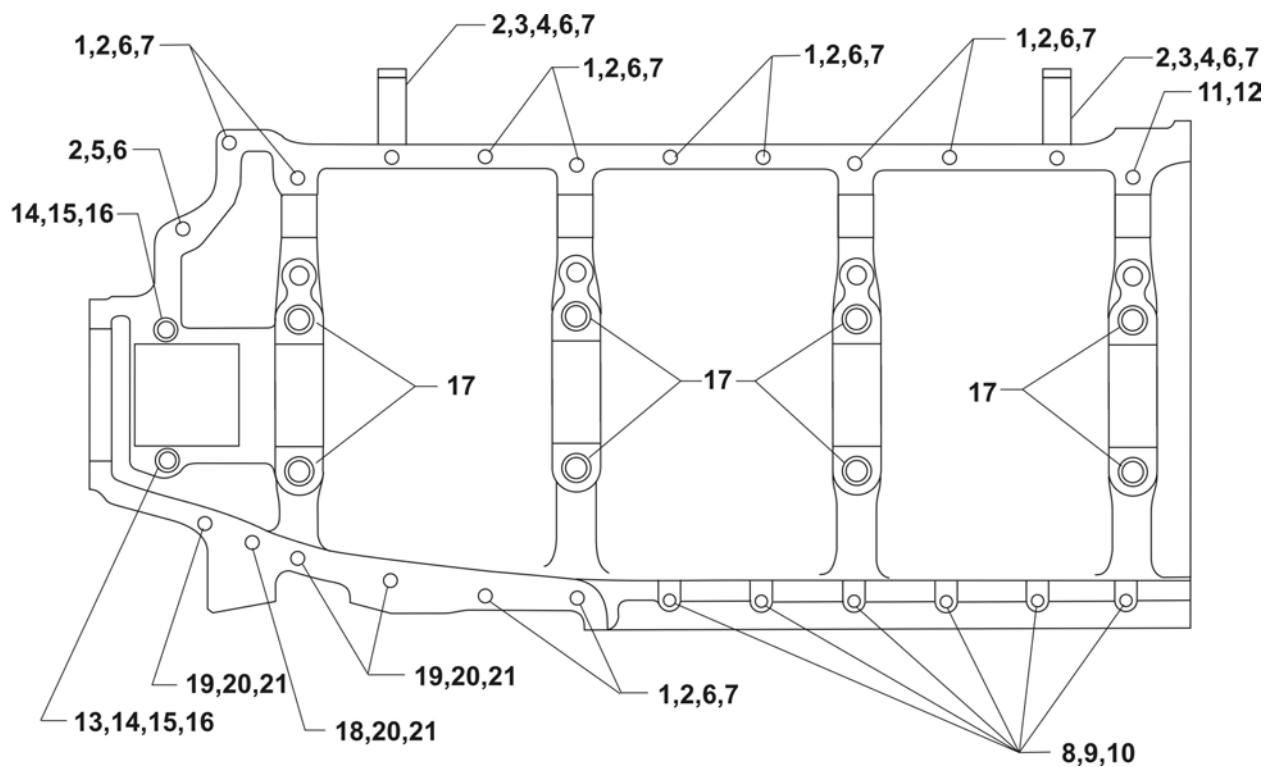
NOTE: Refer to Service Kit Section for Crankshaft and Counterweight Assembly kit.



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

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

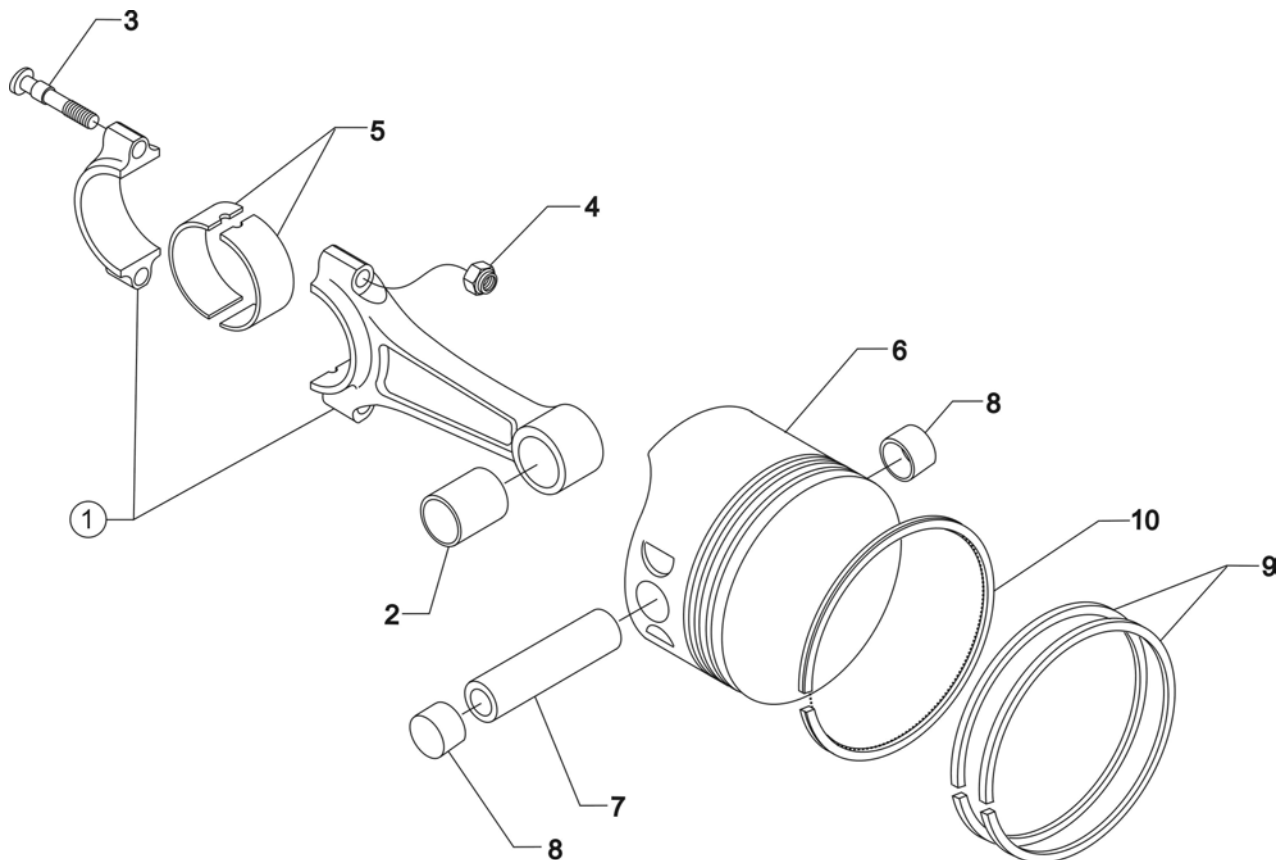
Figure Item	Code	Part Number	Description	Units per Assembly
1		15N23374	CAMSHAFT ASSEMBLY	1
2		76118	SPACER, Tachometer shaft centering	1
3		76155	SHAFT ASSEMBLY, Tachometer	1
4		LW-18667	PIN, 3/16 diameter x 2-21/64 long	1
5		STD-2231	RING, Internal retaining (13/16)	1
6		71668	GEAR ASSEMBLY, Crankshaft idler, plain	2
7		67530	BUSHING, Crankshaft idler gear	2
8		LW-13795	SHAFT, Crankshaft idler gear	2
9		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex. head, drilled	3
10		STD-2168	NUT, 5/16-18 NC-3 slotted shear	1



Crankcase Attaching Parts
Figure 7

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

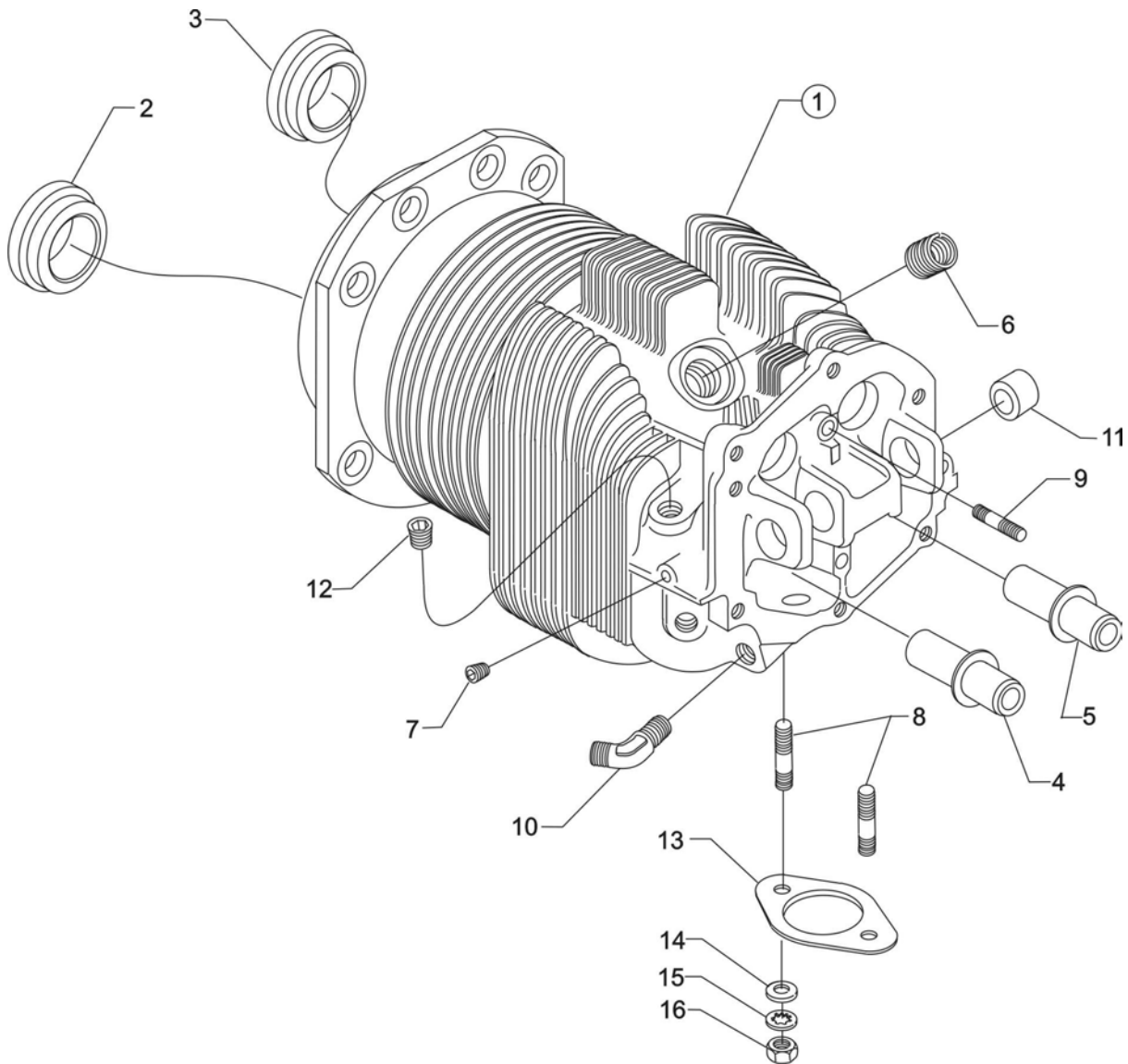
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head	11
2		STD-8	WASHER, 1/4 plain	24
3		60803	STRAP, Lifting	2
4		LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. head	2
5		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
6		STD-160	WASHER, 1/4 lock, internal teeth	13
7		STD-1411	NUT, 1/4-20 plain	12
8		LW-25S1.50	BOLT, 1/4-20 x 1-1/2 long, drilled end	6
9	AR	STD-8	WASHER, 1/4 plain (max. 8)	AR
10		STD-2249	NUT, 1/4-20 slotted shear	6
11		STD-33	WASHER, 3/8 plain	1
12		STD-872	NUT, 3/8-24 slotted	1
13		AN6-34A	BOLT, 3/8-24 x 3-37/64 long, hex. head	1
14		STD-33	WASHER, 3/8 plain	3
15		STD-678	WASHER, 3/8 lock, internal teeth	2
16		STD-596	NUT, 3/8-24 plain	2
17		76220	STUD, 1/2-20 x 10-45/64 long	8
18		LW-31-2.75	BOLT, 5/16-18 x 2-3/4 long, hex. head	1
19		LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	3
20		STD-35	WASHER, 5/16 plain	4
21		STD-475	WASHER, 5/16 lock, internal teeth	4
AR as required				



Connecting Rods, Pistons and Ring Assemblies
Figure 8

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

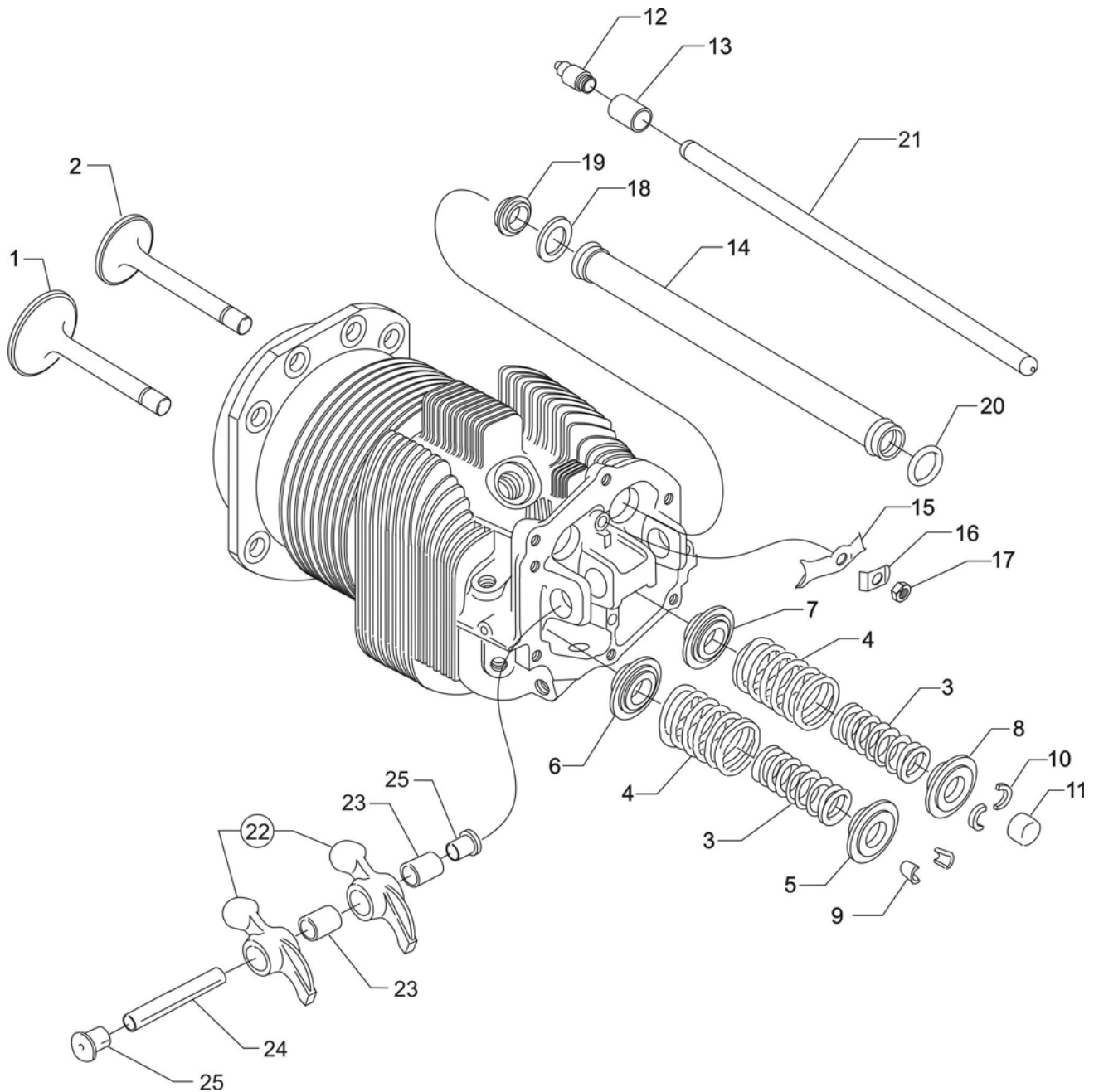
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-11750-S	CONNECTING ROD ASSEMBLY	6
2		LW-13923	BUSHING, Connecting rod, upper	6
3	* P	75061 14S23890	BOLT, Connecting rod	12
4		LW-12186	NUT, Connecting rod bolt	12
5		18M26105	BEARING, Connecting rod	12
6		14D23912	PISTON, Compression 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 purpose only, cannot be purchased. * Service use only. ** Refer to the latest revision of Service Instruction No. 1267.				



Cylinder Assembly
Figure 9

CYLINDER SECTION
FIGURE 9 - CYLINDER ASSEMBLY

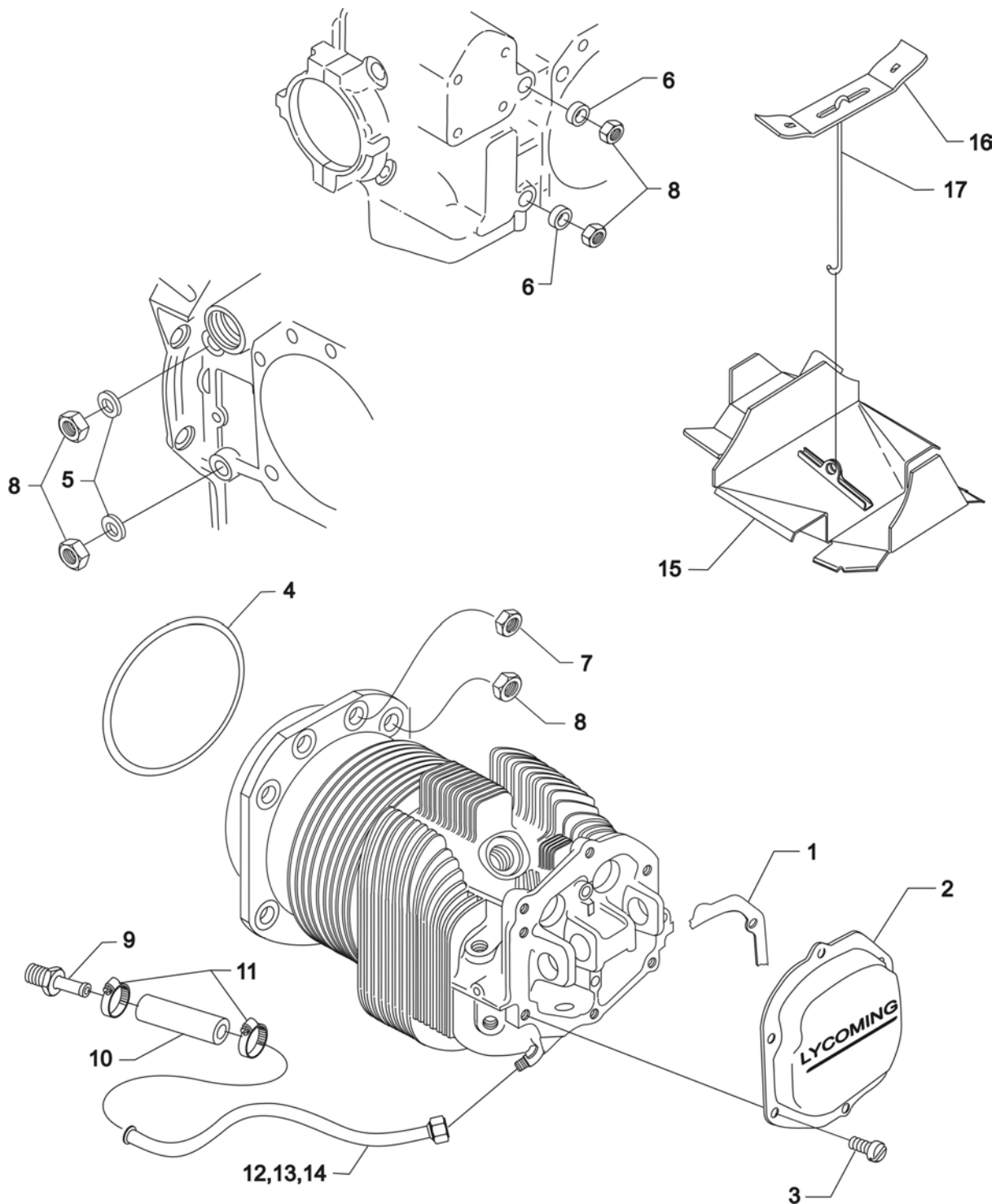
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-12427	CYLINDER ASSEMBLY, Nitrided	6
2		72057	SEAT, Valve, intake	6
3		72058	SEAT, Valve, exhaust	6
4	P*	76943	GUIDE, Valve, intake	6
5	P*	16R22126	GUIDE, Valve, exhaust	6
6	P	66796	INSERT, Spark plug, 18-1.5 mm	12
7		STD-1353	INSERT, No. 10-24 UNC x 3/8 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	6
10		MS20823-6D	ELBOW, 45° x 3/8 flared tube	6
11		66610	BUSHING, Rocker shaft	24
12	**	1102	PLUG, 1/8-27 NPT, allen head	6
13		77611	GASKET, Exhaust flange	6
14		STD-35	WASHER, 5/16 plain	12
15		STD-475	WASHER, 5/16 lock, internal teeth	12
16		STD-1410	NUT, 5/16-18 plain	12
<p>P Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.</p> <p>* Refer to the latest revision of Service Instruction No. 1256 for service valve guides.</p> <p>** Assemble in cylinder head.</p>				



Valve Assembly and Related Parts
Figure 10

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

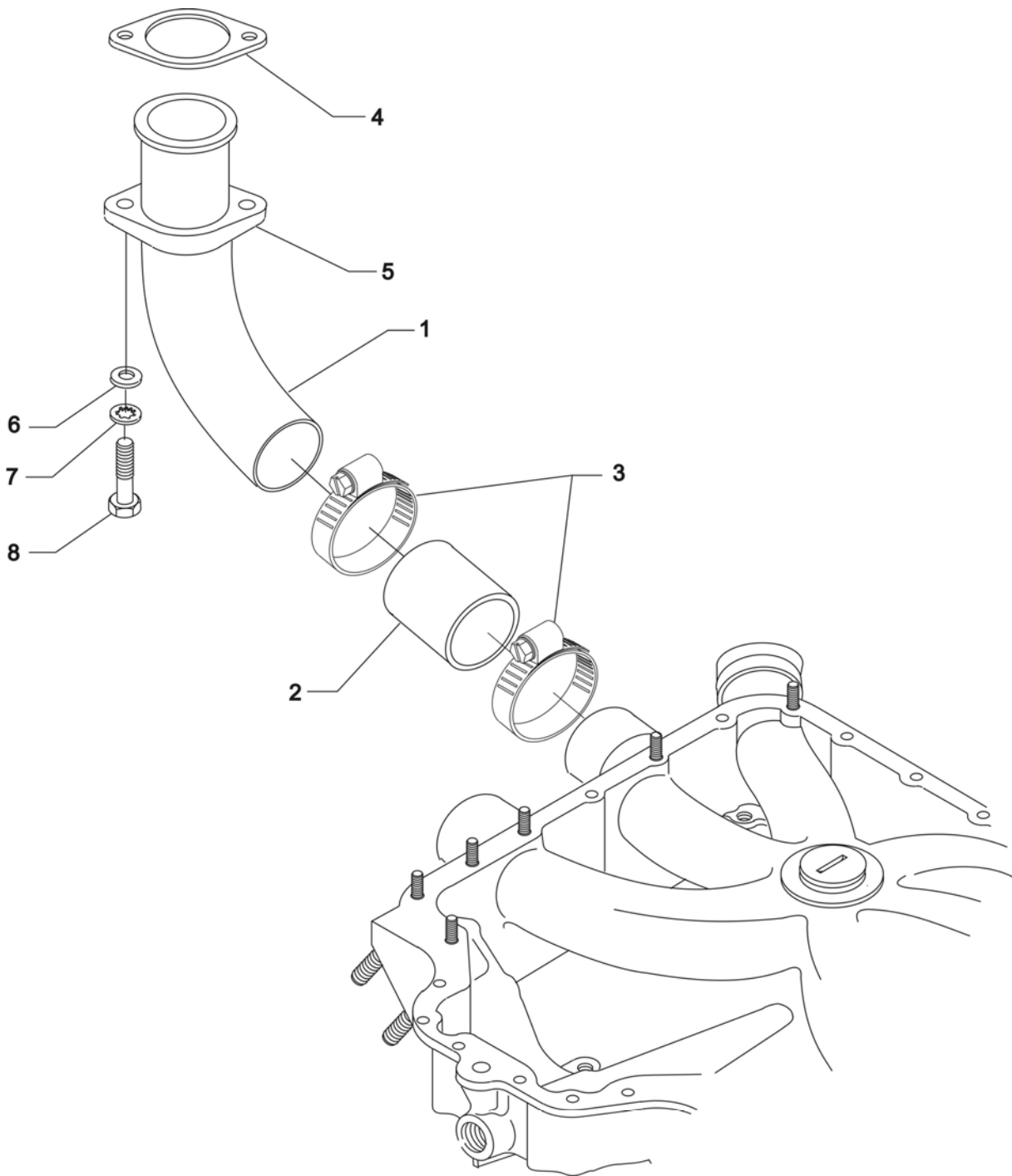
Figure Item	Code	Part Number	Description	Units per Assembly
1		17A23938	VALVE, Intake	6
2		17B23936	VALVE, Exhaust (rotator type)	6
3		LW-11795	SPRING, Valve, inner	12
4		LW-11800	SPRING, Valve, outer	12
5		LW-10077	SEAT, Valve spring, upper intake	6
6		65441	SEAT, Valve spring, lower intake	6
7		LW-13323	SEAT, Valve spring, lower exhaust	6
8		LW-16475	SEAT, Valve spring, upper exhaust (rotator type)	6
9		60009	KEY, Valve, intake	12
10		17C21191	KEY, Valve, exhaust (rotator type)	12
11		17C19386	CAP, Valve stem, exhaust (rotator type)	6
12		15B26066	PLUNGER ASSEMBLY, Hydraulic tappet	12
13		15B21319	SOCKET, Push rod, hydraulic tappet	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		01L23459	WASHER, 25/32 I.D. x 1-3/8 O.D. x 1/32 thick	12
19		06A23493	SEAL, Shroud tube	12
20		70310	SEAL, Shroud tube	12
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		74637	BUSHING, Valve rocker, intake and exhaust	12
24		LW-13790	SHAFT, Valve rocker	6
25		LW-12892	THRUST BUTTON, Rocker shaft	12
AR as required * Refer to the latest revision of Service Instruction No. 1060 for complete push rod application. ** Due to the size of the area where the part number is stamped, the last five digits may be all that is shown (19357). NOTE: Various push rod lengths are used to set valve clearances.				



**Cylinder Related Parts
Figure 11**

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

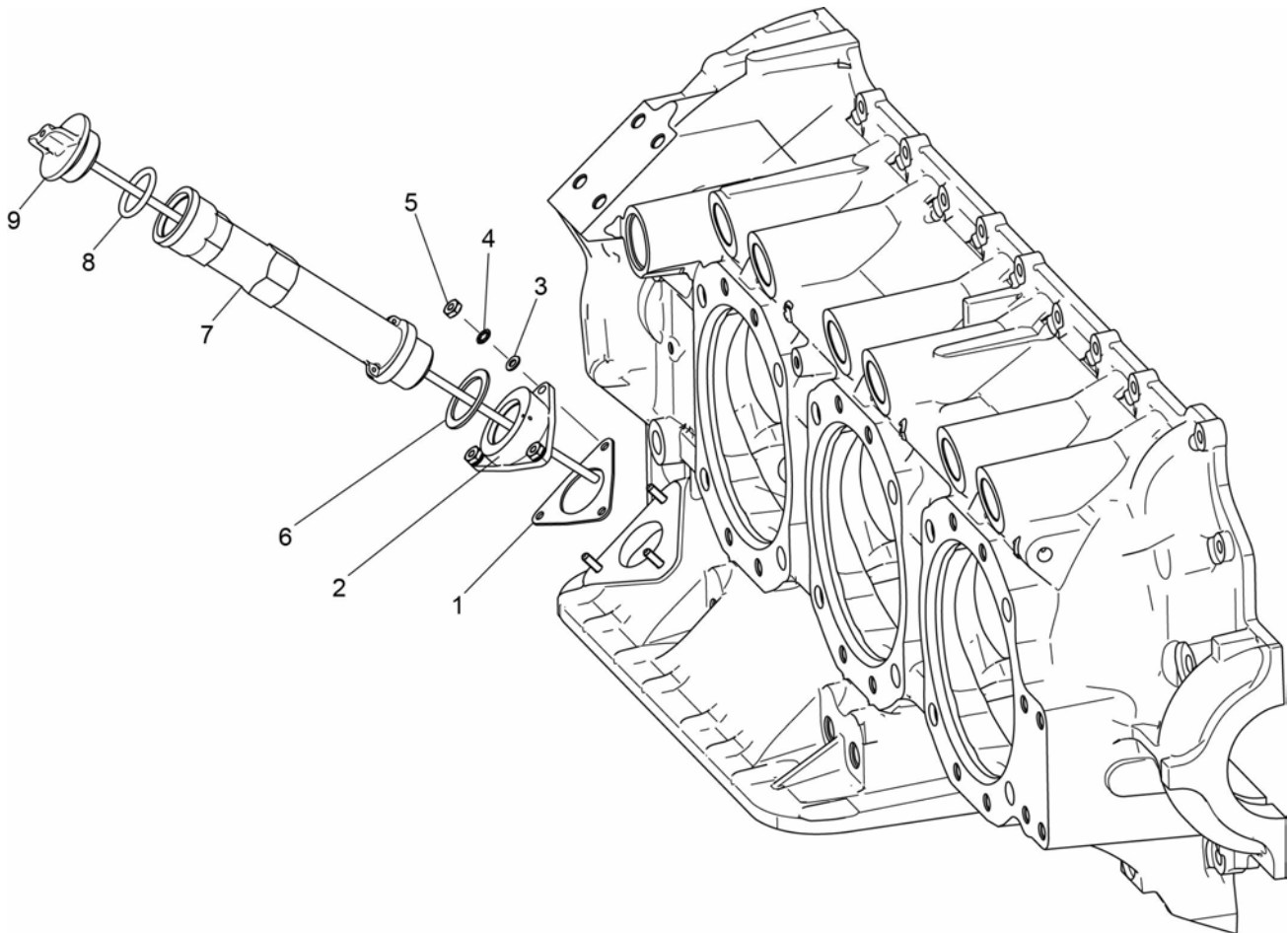
Figure Item	Code	Part Number	Description	Units per Assembly
1		75906	GASKET, Rocker box cover	6
2		61247	COVER, Rocker box	6
3		STD-1925	SCREW, 1/4-20 x 5/8 long, pan. head, self-locking	36
4		71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	6
5		77906	SPACER, 33/64 I.D. x 7/8 O.D. x 1/8 thick	2
6		74887	SPACER, 33/46 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 2-1/2 long	6
11		LW-15592-5-05	CLAMP, Hose	12
12		68759	TUBE ASSY., Cylinder head oil drain, cyl. no. 1	1
13		71737	TUBE ASSY. Cylinder head oil drain, cyl. no. 2	1
14		68761	TUBE ASSY., Cylinder head oil drain, cyls. no. 3,4,5,6	4
15		75339	BAFFLE ASSEMBLY, Intercylinder	4
16		71611	RETAINER, Intercylinder baffle	4
17		71610	HOOK, Intercylinder baffle retainer	4



Intake Pipes and Attaching Parts
Figure 12

CYLINDER SECTION**FIGURE 12 – INTAKE PIPES AND ATTACHING PARTS**

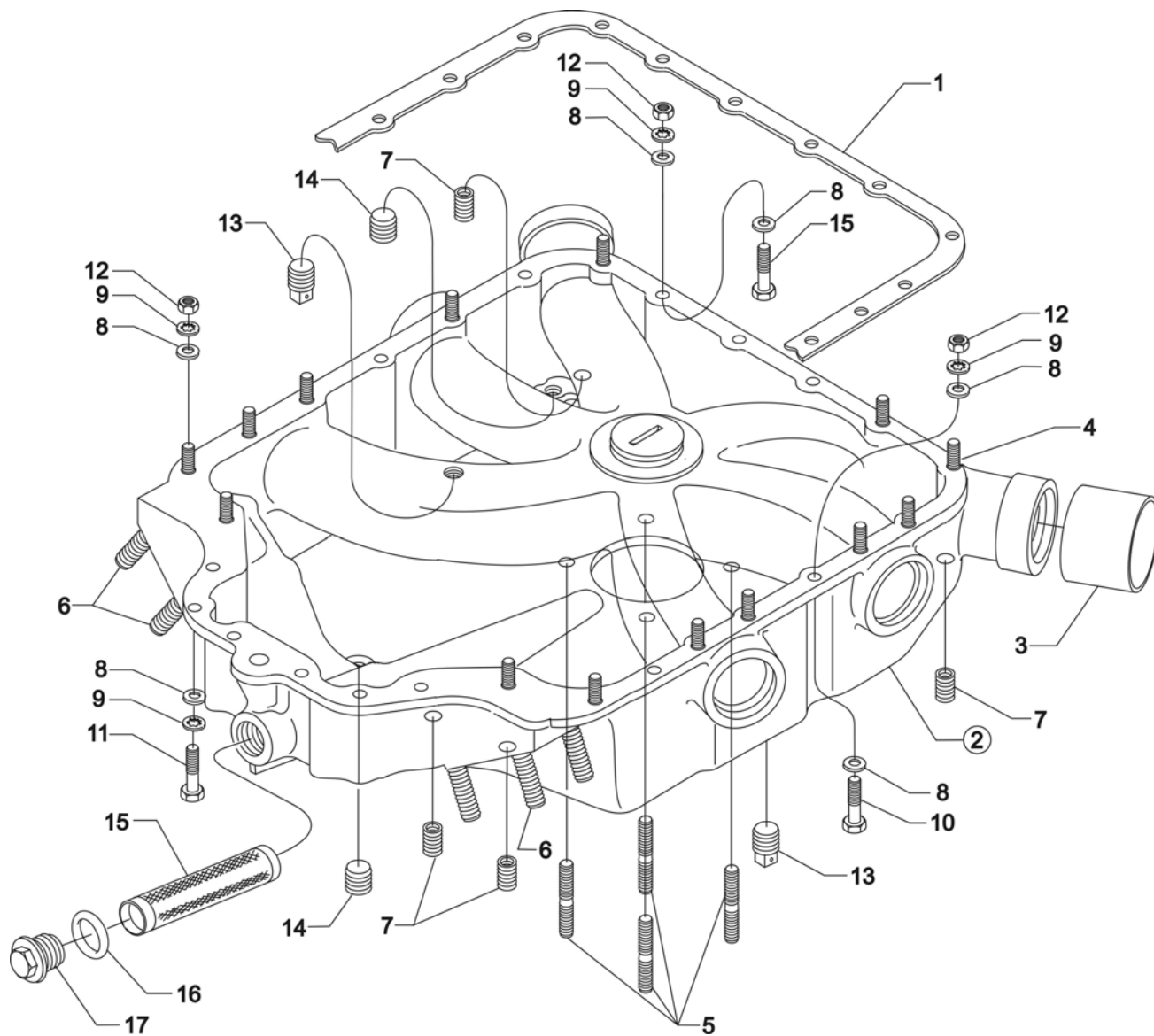
Figure Item	Code	Part Number	Description	Units per Assembly
1		70485	PIPE, Intake	6
2		69603	HOSE, 1-3/4 I.D. x 2-3/16 O.D. x 1-3/4 long	6
3		LW-15592-8-28	CLAMP, Hose	12
4		71973	GASKET, 2 bolt flange, 1-7/8 I.D.	6
5		73346	FLANGE, Intake pipe, upper	6
6		STD-8	WASHER, 1/4 plain	12
7		STD-160	WASHER, 1/4 lock, internal teeth	12
8		LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head	12



Oil Level Gage Assembly
Figure 13

LUBRICATION SYSTEM**FIGURE 13 – OIL LEVEL GAGE ASSEMBLY**

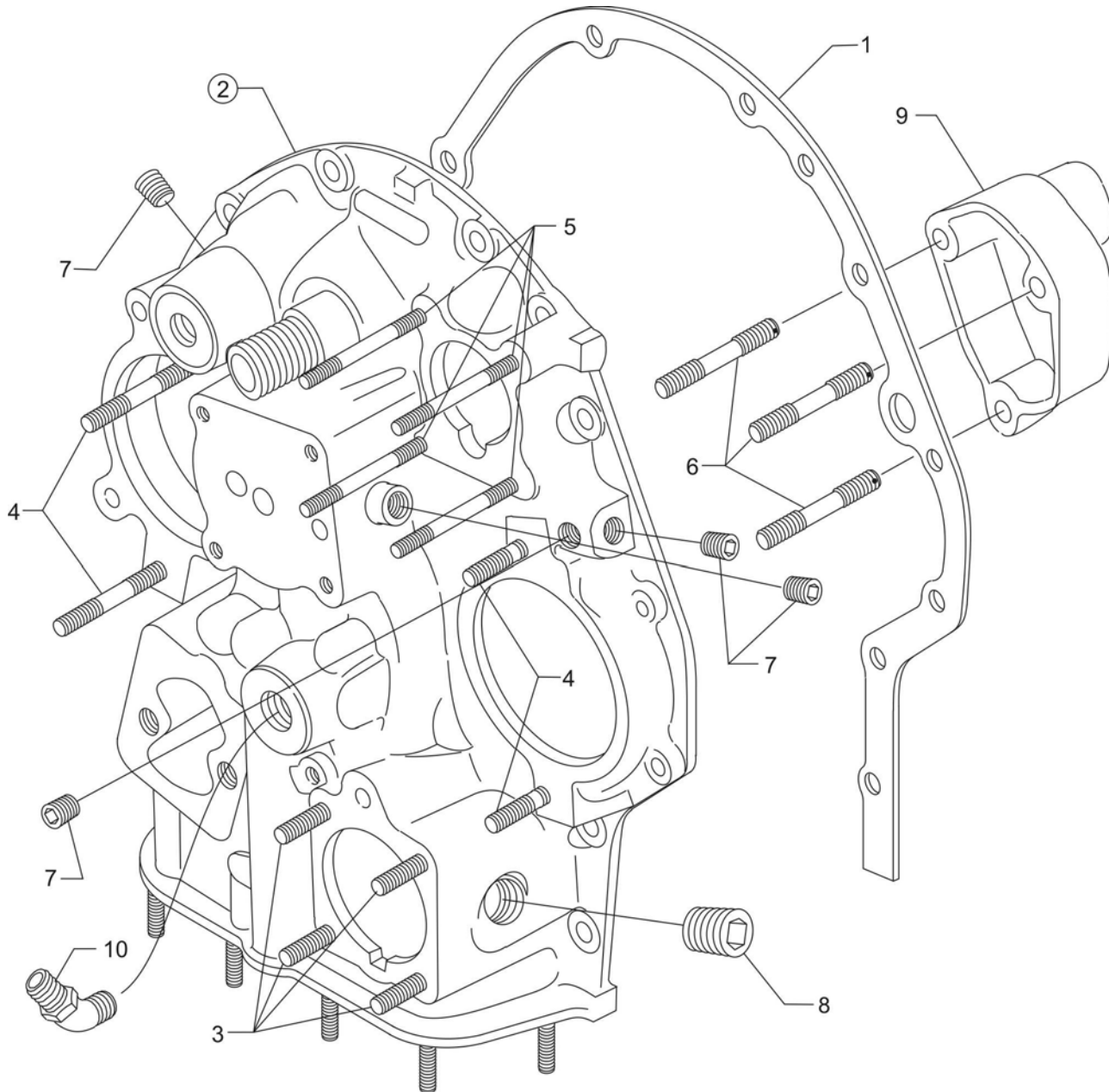
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-18481	GASKET, Oil filler adapter	1
2		LW-18482	ADAPTER, Oil filler tube	1
3		STD-28	WASHER, No. 10 plain	3
4		STD-251	WASHER, No. 10 lock, internal teeth	3
5		STD-63	NUT, No. 10-32 plain	3
6		72059	GASKET, Oil level gage	1
7		75735	TUBE, Oil level gage (6-5/16 long)	1
8		74068	RING, Oil level gage plug	1
9		LW-16783-5	GAGE ASSEMBLY, Oil level	1



Oil Sump Assembly and Oil Suction Screen
Figure 14

LUBRICATION SYSTEM**FIGURE 14 – OIL SUMP ASSEMBLY AND OIL SUCTION SCREEN**

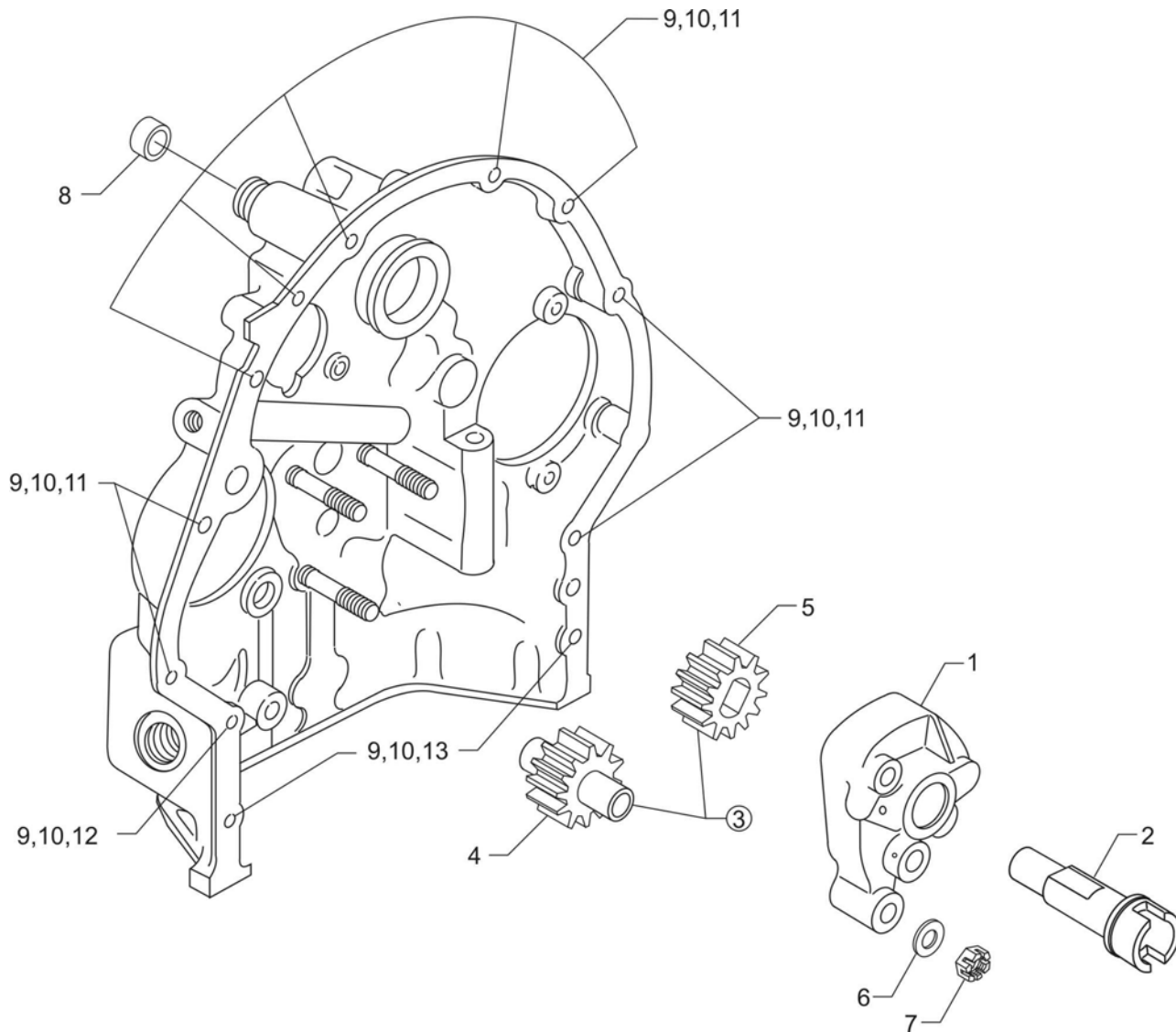
Figure Item	Code	Part Number	Description	Units per Assembly
1		06B21326	GASKET, Oil sump	1
2		LW-13901	SUMP ASSEMBLY, Oil	1
3		71699	CONNECTION, Intake pipe	6
4		25C-11	STUD, 1/4-20 x 1-3/8 long	14
5		31C-15	STUD, 5/16-18 x 1-7/8 long	4
6		38-15	STUD, 3/8-16 x 1-7/8 long	8
7		STD-1173	INSERT, 1/4-20 Heli-coil x 1/2 long	4
8		STD-8	WASHER, 1/4 plain	34
9		STD-160	WASHER, 1/4 lock, internal teeth	27
10		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 NPT, allen head	2
15		70484	SCREEN, Oil suction	1
16		06E19769-1.00	GASKET, Annular, 1.00 I.D.	1
17		LW-12545	PLUG, 5/8 hex. head x 1.00-20 thread	1



**Accessory Housing Assembly
Figure 15**

ACCESSORY DRIVES**FIGURE 15 – ACCESSORY HOUSING ASSEMBLY**

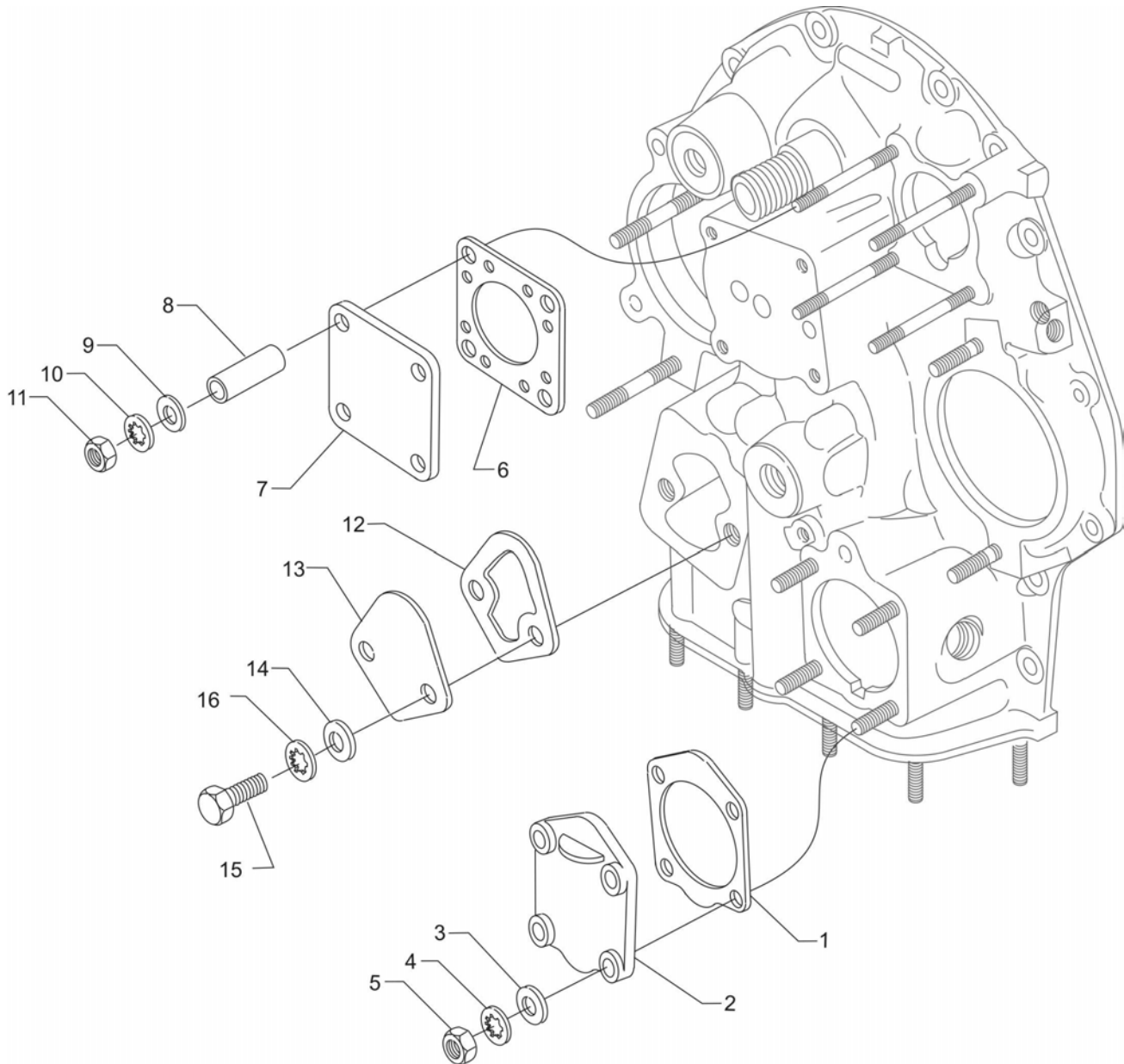
Figure Item	Code	Part Number	Description	Units per Assembly
1		73818	GASKET, Accessory housing	1
2		21C21539-02	HOUSING ASSEMBLY, Accessory	1
3		31C-12	STUD, 5/16-18 x 1-1/2 long	4
4		31C-21	STUD, 5/16-18 x 2-5/8 long	4
5		25C-21	STUD, 1/4-20 x 2-5/8 long	4
6		31CD-17	STUD, 5/16-18 x 2-1/8 long, drilled	3
7		1102	PLUG, 1/8-27 NPT, allen head	4
8		STD-784	PLUG, 3/8-18 NPT, allen head	1
9		76156	SHIELD, Oil accessory breather	1
10		02A21126	ELBOW, 1/4 tube, 45°	1



**Oil Pump Assembly and Accessory Housing Attaching Parts
Figure 16**

ACCESSORY DRIVES**FIGURE 16 – OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS**

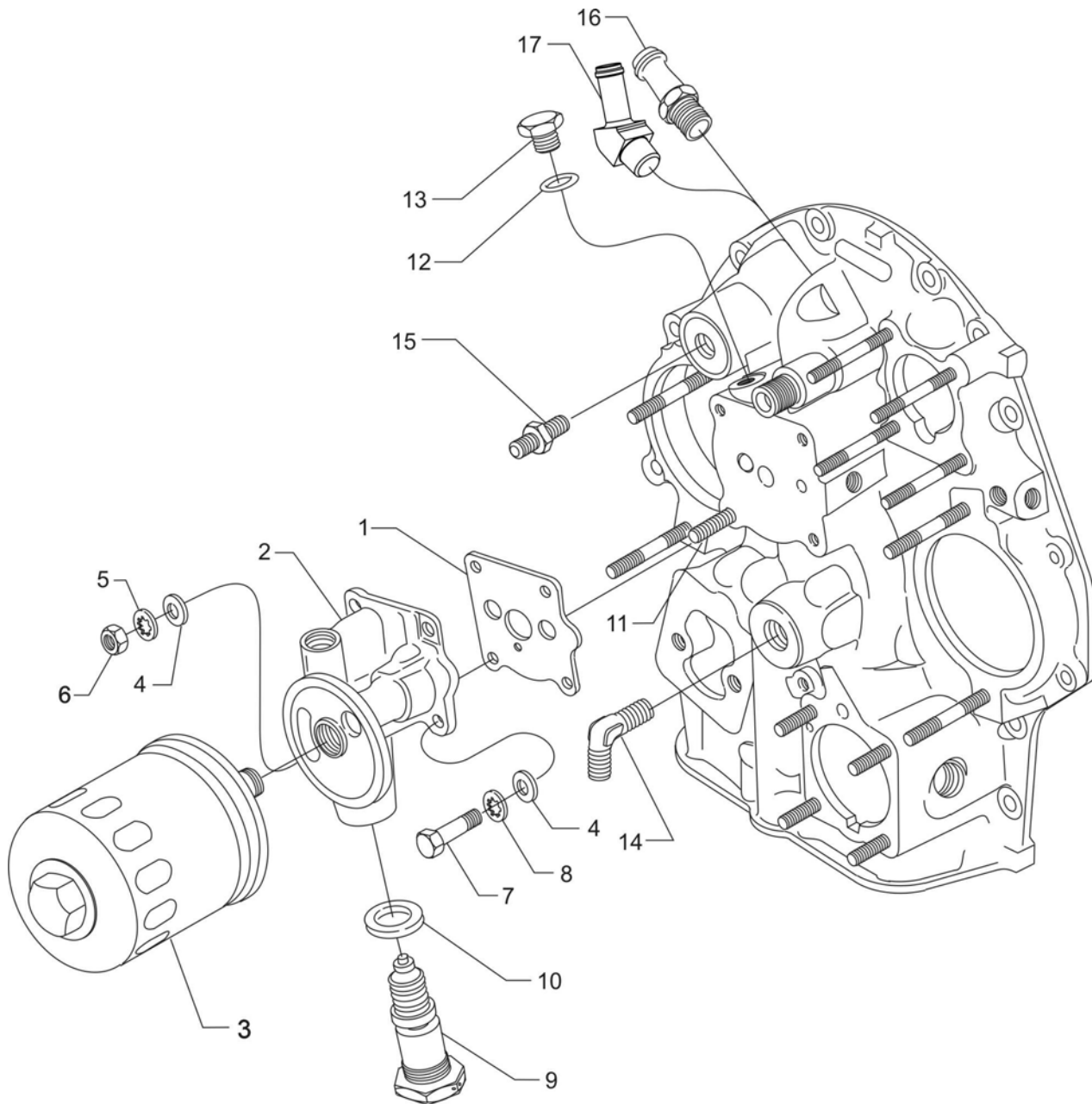
Figure Item	Code	Part Number	Description	Units per Assembly
1		78531	BODY ASSEMBLY, Oil pump	1
2		74641	SHAFT, Oil pump drive	1
3		05K19423-S	IMPELLER KIT	1
4	*	LW-18110	IMPELLER ASSEMBLY, Oil pump driven	1
5	*	LW-18109	IMPELLER, Oil pump driven	1
6		STD-35	WASHER, 5/16 plain	3
7		STD-1420	NUT, 5/16-18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



**Propeller Governor Drive Cover, Vacuum Pump Drive Cover and Fuel Pump Cover
Figure 17**

ACCESSORY DRIVES**FIGURE 17 – PROPELLER GOVERNOR DRIVE COVER, VACUUM PUMP DRIVE COVER
AND FUEL PUMP DRIVE COVER**

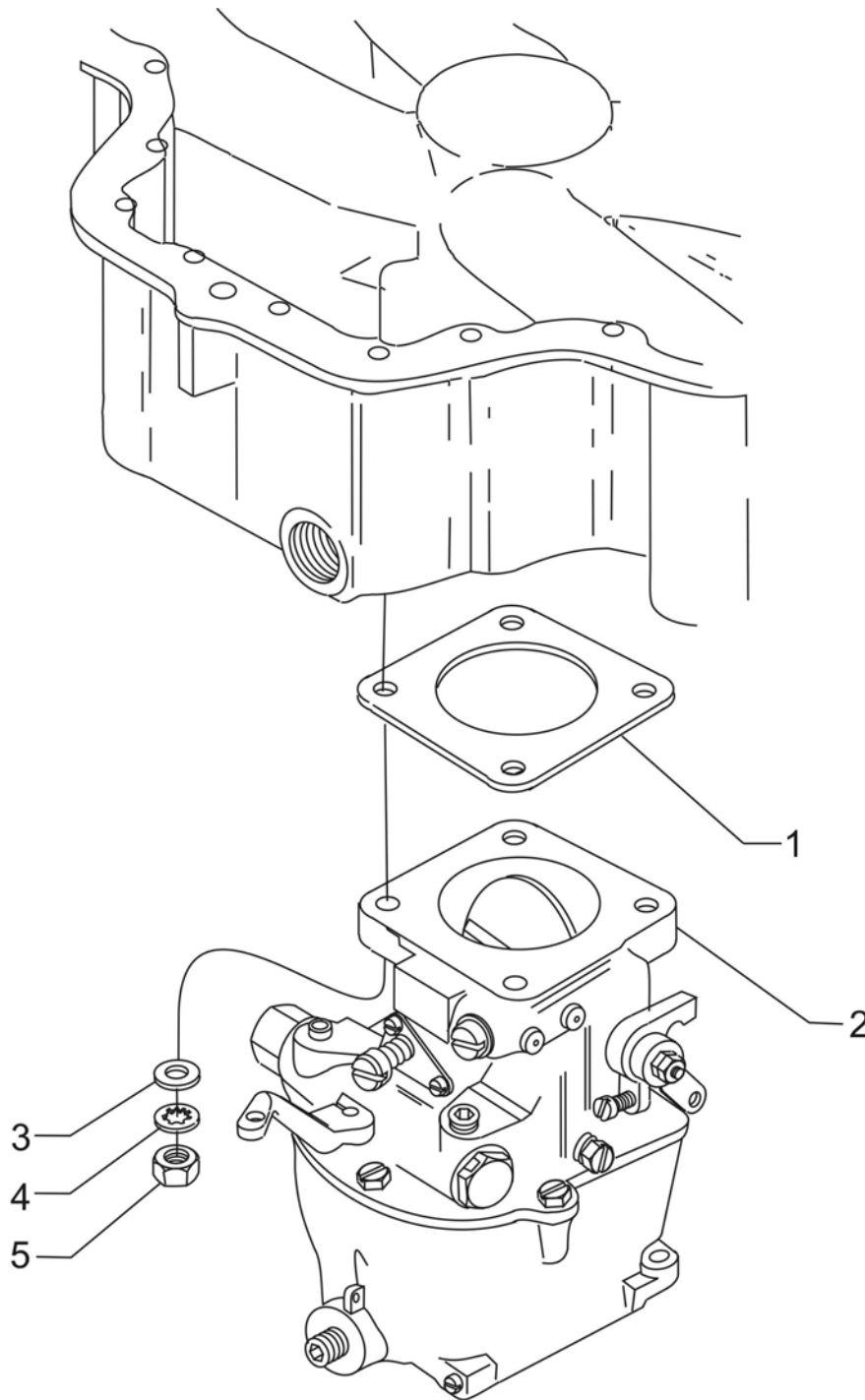
Figure Item	Code	Part Number	Description	Units per Assembly
1		69551	GASKET, Accessory drive adapter	1
2		69106	COVER, Governor drive adapter pad	1
3		STD-35	WASHER, 5/16 plain	4
4		STD-475	WASHER, 5/16 lock, internal teeth	4
5		STD-1410	NUT, 5/16-18 plain	4
6		61183	GASKET, Vacuum pump	1
7		60430	COVER, Vacuum pump	1
8		68593	SPACER, Vacuum pump stud	4
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		60096	GASKET, Fuel pump	1
13		03D23350	COVER, Fuel pump	1
14		STD-33	WASHER, 3/8 plain	2
15		LW-38-0.75	BOLT, 3/8-16 x 3/4 long	2
16		STD-678	WASHER, 3/8 lock, internal teeth	2



**Oil Filter Assembly and Oil Cooler Bypass Valve
Figure 18**

ACCESSORY DRIVES**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	OIL FILTER BASE ASSEMBLY	1
3		LW-13215	OIL FILTER, Short, spin-on	1
4		STD-8	WASHER, 1/4 plain	4
5		STD-160	WASHER, 1/4 lock, internal teeth	1
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		STD-160	WASHER, 1/4 lock, internal teeth	3
9		53E22144	VALVE ASSEMBLY, Temperature control oil cooler bypass	1
10		76510	GASKET, Valve assembly	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		MS20822-8	ELBOW, 1/2 flared tube, 3/8 NPT	1
15		AN816-8	NIPPLE, 1/2 flared tube	1
16		AN912-7D	BUSHING, Reducer	1
17		AN844-10D	ELBOW, Pipe	1



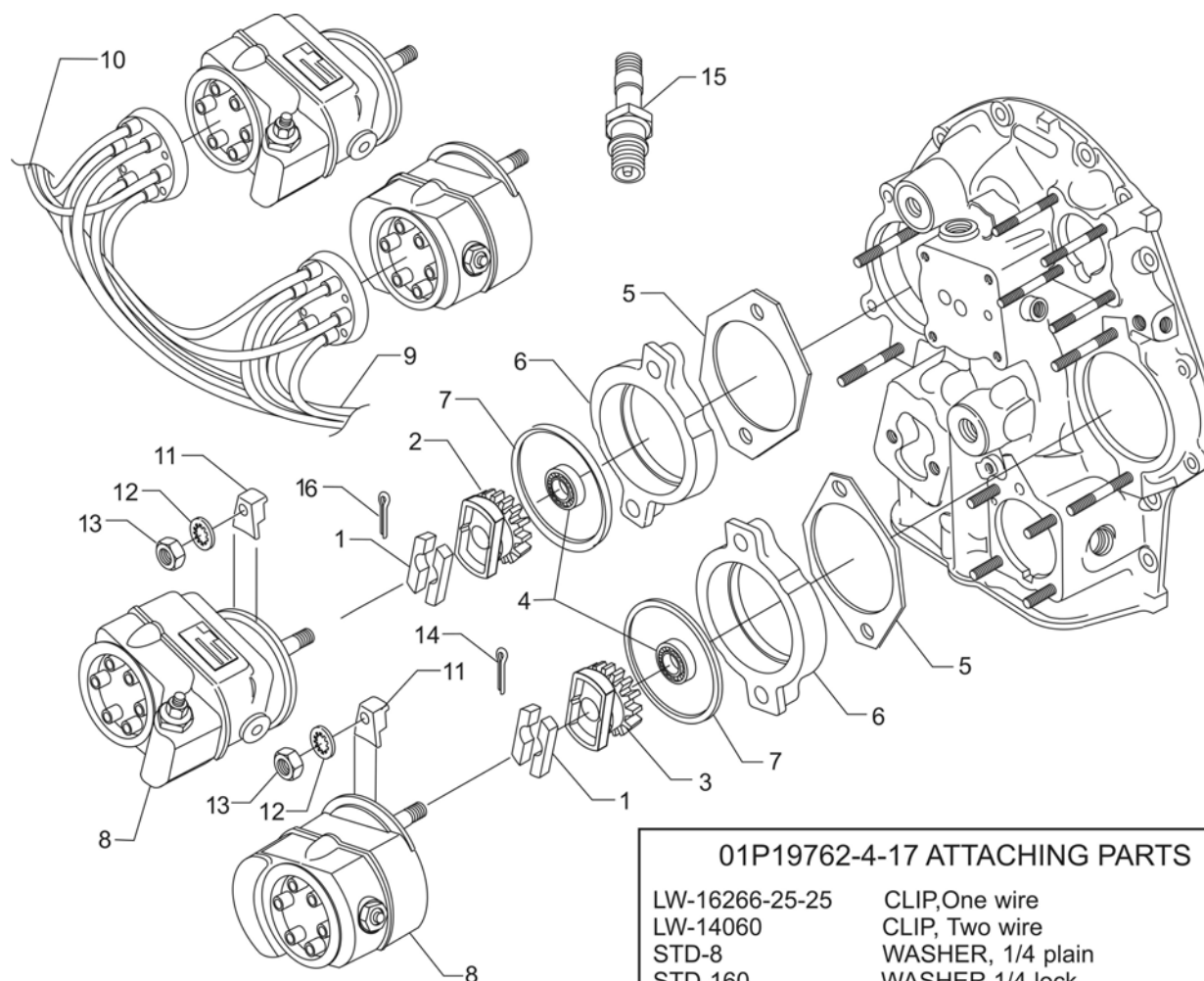
Carburetor Assembly
Figure 19

FUEL DISTRIBUTION**FIGURE 19 – CARBURETOR ASSEMBLY**

Figure Item	Code	Part Number	Description	Units per Assembly
1		66224	GASKET, Carburetor	1
2	V	61C26134	CARBURETOR, MA-4-5, V AV 10-4404-1	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
V Vendor Prime Manufacturer part				

FUEL DISTRIBUTION
FIGURE 20 – PRIMING SYSTEM

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-12098-0-160	TUBE ASSEMBLY, Primer, cylinder no. 3	1
2		LW-12098-0-190	TUBE ASSEMBLY, Primer, cylinder no. 4	1
3		LW-12098-0-130	TUBE ASSEMBLY, Primer, cylinders no. 5 and 6	2
4		LW-12098-0-100	TUBE ASSEMBLY, Primer, intermediate, right	1
5		LW-12098-0-130	TUBE ASSEMBLY, Primer, intermediate, left	1
6		LW-12598	SLEEVE, Primer line	4
7		LW-16266-25-13	CLAMP, Primer line	4
8		LW-18959-175-25	CLAMP, Primer line	4
9		STD-553	SCREW, No. 6-32 x 1/2 long, round head	4
10		MS21044N06	NUT, No. 6-32 self-locking	4
11		STD-853	TEE, Union, 1/8 tube	2
12		63D21408	NIPPLE ASSEMBLY, Primer	4
13		61597	CAP, Sealing, 5/16 x 1.00 long	1
14		1102	PLUG, 1/8-27 NPT, allen head	2
15		LW-18071	TEE, Union, 1/8 tube	1

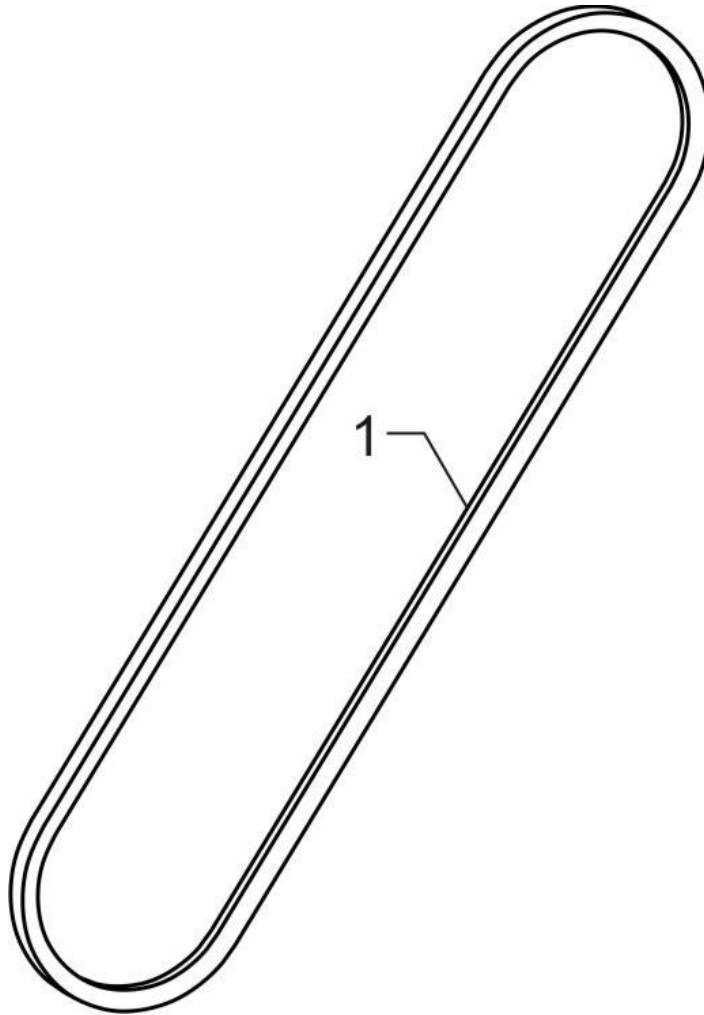

01P19762-4-17 ATTACHING PARTS

LW-16266-25-25	CLIP, One wire	4
LW-14060	CLIP, Two wire	4
STD-8	WASHER, 1/4 plain	12
STD-160	WASHER, 1/4 lock	8
STD-1874	SCREW, 1/4-20 x 13/16 long	6
76734	ZIP STRAP	12
LW-16266-25-44	CLAMP	5
STD-696	WASHER, 1/4 plain	6
LW-M-2376	PLATE Spark plug cable	2
LW-16266-10-75	CLAMP	1
STD-1916	SCREW, 1/4-20	2
STD-1925	SCREW, 1/4-20	4
72815	BRACKET, SUPPORT	4
STD-692	SCREW, No 10-32	4
STD-425	WASHER, No 10 plain	4
STD-670	LOCKNUT, No 10-32	4

Magneto Drives, Harnesses and Spark Plugs
Figure 21

IGNITION DISTRIBUTION SYSTEM**FIGURE 21 – MAGNETO DRIVES, HARNESES AND SPARK PLUGS**

Figure Item	Code	Part Number	Description	Units per Assembly
1		68H22624	CUSHION, Magneto drive	4
2		LW-19096	GEAR ASSEMBLY, Retainer	1
3		LW-19100	GEAR ASSEMBLY, Retainer	1
4		67542	BALL BEARING	2
5		62224	GASKET, Magneto adapter	2
6		LW-12707	ADAPTER, Magneto	2
7		LW-12681	GASKET, Magneto	2
8	V	66LC35SDNN	MAGNETO, Impulse, left and right, Slick Model V 6351	2
9	V	67U20638	HARNESS, Right, Slick V M-2962	1
10	V	67U20639	HARNESS, Left, Slick V M-2961	1
11		66M21195	CLAMP, Magneto	4
12		STD-475	WASHER, 5/16 lock, internal teeth	4
13		STD-1410	NUT, 5/16-18 plain	4
14		MS29245-44	COTTER PIN, 3/32 diameter x 5/8 long	2
15	V*	1182-E7	SPARK PLUG, Champion V REM38E	12
	**	01P19762-4-17	BAG, Magneto harness attaching	1
<p>V Vendor Prime Manufacturer part</p> <p>* Item No. 15 spark plugs are used in current production only. Additional spark plugs are available for this engine. Refer to the latest revision of Service Instruction No. 1042 for complete listing of all approved spark plugs.</p> <p>** See page 40 for breakdown of individual parts contained in the magneto and harness attaching bag. These parts to be added by customer per engine line drawing included in each bag.</p>				

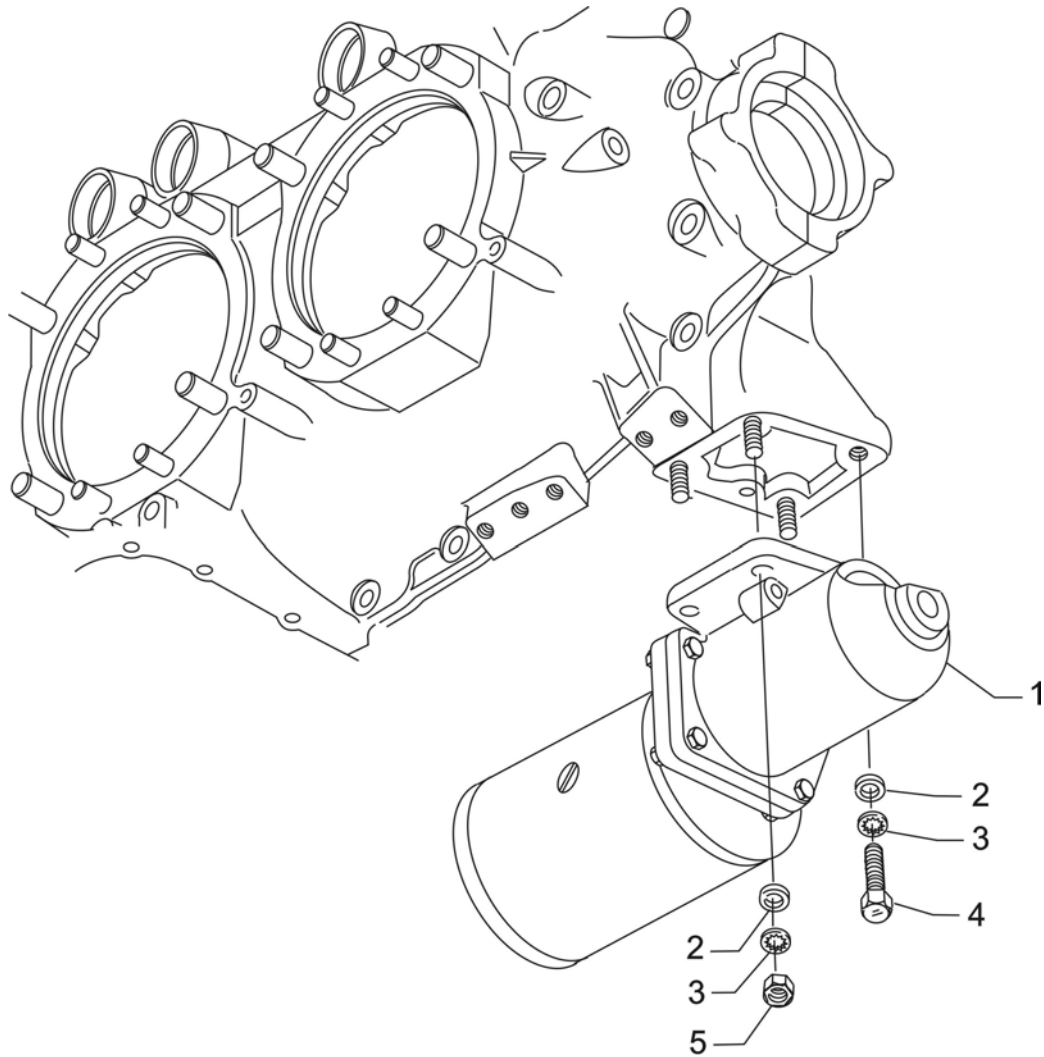


Alternator Assembly Belt
Figure 22

IGNITION DISTRIBUTION SYSTEM**FIGURE 22 – ALTERNATOR ASSEMBLY BELT**

Figure Item	Code	Part Number	Description	Units per Assembly
1		37A19773-376	BELT, Alternator, 3/8 wide	1
<u>NOTE:</u> Refer to the latest revision of Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.				

**ALTERNATOR
NOT SUPPLIED
BY
LYCOMING**



Starter Motor and Attaching Parts
Figure 23

CRANKING SECTION**FIGURE 23 - STARTER MOTOR AND ATTACHING PARTS**

Figure Item	Code	Part Number	Description	Units per Assembly
1	V	31B26040	STARTER ASSEMBLY, 24 V., Hartzell V ERB-8011	1
2		STD-35	WASHER, 5/16 plain	4
3		STD-475	WASHER, 5/16 lock, internal teeth	4
4		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
V Vendor Prime Manufacturer part <u>NOTE:</u> Refer to the latest revision of Service Instruction No. 1154 for complete listing of FAA approved starters, generators, regulators and relays.				

SERVICE KIT SECTION
SEAL AND GASKET SET

PART NO.	PART NAME	Qty.
71569-1	KIT - SEAL AND GASKET SET	1
LW-12272	LOCKPLATE, Shroud tube	6
LW-12681	GASKET, Magneto	2
06B23862	GASKET, Oil filter adapter	1
06B21326	GASKET, Oil sump	1
LW-13792	SEAL, Crankshaft oil	1
LW-14260	SEAL, Tachometer drive oil	1
LW-14995	SPRING, Shroud tube	6
LW-15628	SEAL, Crankshaft	1
LW-18638	LOCKPLATE, Crankshaft gear	1
LW-18661	SEAL, Shroud tube	12
77611	GASKET, Exhaust flange	6
STD-2231	RING, Internal retaining	1
STD-213	SEAL, Oil, 3/4 I.D. x 1-3/8 O.D.	1
06A19956	SEAL, Oil, 7/8 I.D. x 1-1/2 O.D.	2
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	1
70457	GASKET, Oil filler extension	1
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	6
71667	LOCKPLATE, Fuel pump idler gear	1
71973	GASKET, 2 bolt flange	6
72053	GASKET, Governor	1

SEAL AND GASKET SET (CONT.)

PART NO.	PART NAME	Qty.
71569-1	KIT - SEAL AND GASKET SET	1
72059	GASKET, Oil level gage	1
72075	SEAL, Oil, 3/32 section x 7/16 I.D.	8
72078	LOCKPLATE, Cam gear	2
72091	RING, Oil seal, 25/64 I.D. x 3/32 diameter	2
72210	GASKET, Air throttle housing	1
72312	RING, Oil seal, 1.00 x 1-5/16	1
73383	LOCKPLATE, 5/16 bolt x 1.00	2
73818	GASKET, Accessory housing	1
74065	"O" RING, Oil level gage	1
74068	"O" RING, Oil level gage plug	1
74305	SEAL	1
75906	GASKET, Rocker box cover	6
76510	GASKET, Oil cooler bypass valve	1
76940	SEAL, Crankshaft oil	1
8313	GASKET, Vacuum pump	2
06A23493	SEAL, Shroud tube	12

CYLINDER, PISTON AND RING ASSEMBLY

PART NO.	PART NAME	Qty.
05K21104	KIT - CYLINDER, PISTON AND RING ASSEMBLY	1
LW-12427	CYLINDER ASSEMBLY	1
17A23938	VALVE, Intake	1
17B23936	VALVE, Exhaust	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	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
14D23912	PISTON	1

CYLINDER, PISTON AND RING ASSEMBLY (CONT.)

PART NO.	PART NAME	Qty.
05K21104	KIT - CYLINDER, PISTON AND RING ASSEMBLY	1
74241	RING, Piston, compression	2
14H21950	RING, Piston, oil	1
LW-14078	PIN, Piston	1
71481	RING, Oil seal, 3/32 diameter x 4-27/43 I.D.	1
LW-18661	SEAL, Shroud tube	2
70310	SEAL, Shroud tube	2
75906	GASKET, Rocker box cover	1
72198	PLUG, Piston pin	2
77611	GASKET, Exhaust flange	1
71973	GASKET, 2 bolt flange	1
LW-12272	LOCKPLATE, Shroud tube	1
06A23493	SEAL, Shroud tube	2
SSP-299	TAG, Use of piston pin plugs	1

CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY KIT

PART NO.	PART NAME	Qty.
05K23340	KIT - CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY	1
13E47622	CRANKSHAFT ASSEMBLY	1
14U22539	COUNTERWEIGHT ASSEMBLY	2
14W22647	ROLLER, Counterweight, 4.1 order	2
70416	ROLLER, Counterweight	2
71907	WASHER, Dynamic counterweight	8
LW-14820	RING, Internal retaining	8

CRANKCASE ASSEMBLY AND THRU-STUD KITS

PART NO.	PART NAME	Qty.
11E24101-S1-S	KIT - CRANKCASE ASSEMBLY AND THRU-STUD	1
11E24101-S1	CRANKCASE ASSEMBLY	1
76220	THRU-STUD	8
31C-14	STUD, 5/16-18 x 1-3/4 long	4
31C-16	STUD, 5/16-18 x 2.00 long	4
1102	PLUG, 1/8-27 NPT, allen head	4
AN565B1032H4	SET SCREW, No. 10-32 x 1/4 long	1
AN565B1032H5	SET SCREW, No. 10-32 x 15/16 long	1
STD-1339	PLUG, 1/16-27 NPT, allen head	7
LW-31-2.75	BOLT, 5/16-18 x 2-3/4 long, hex. head	1
LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	3
STD-35	WASHER, 5/16 plain	4
STD-475	WASHER, 5/16 lock, internal teeth	4

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AN6-14	Bolt	1	LW-13795	Shaft	11
AN6-16	Bolt	1	LW-13896	Plug	3
AN6-34A	Bolt	13	LW-13901	Sump Assy.	27
AN816-8	Nipple	35	LW-13923	Bushing	15
AN844-10D	Elbow	35	LW-14021	Shaft	3
AN912-7D	Bushing	35	LW-14078	Pin	15
LRT23381	Body Assy.	7	LW-14260	Seal	31
LW-25-0.94	Bolt	31	LW-14820	Ring	9
LW-25-1.00	Bolt	27	LW-14995	Spring	19
LW-25-1.00	Bolt	35	LW-15592-5-05	Clamp	21
LW-25-1.13	Bolt	13	LW-15592-8-28	Clamp	23
LW-25-1.13	Bolt	27	LW-16266-25-13	Clamp	39
LW-25-1.13	Bolt	31	LW-16471	Support Assy.	9
LW-25-1.25	Bolt	23	LW-16475	Seat	19
LW-25-1.44	Bolt	31	LW-16783-5	Gage Assy.	25
LW-25-1.50	Bolt	13	LW-18071	Tee	39
LW-25-1.75	Bolt	13	LW-18085	Spring	7
LW-25S1.50	Bolt	13	LW-18109	Impeller	31
LW-31-0.94	Bolt	1	LW-18110	Impeller Assy.	31
LW-31-1.16	Bolt	13	LW-18481	Gasket	25
LW-31-1.16	Bolt	45	LW-18482	Adapter	25
LW-31-2.75	Bolt	13	LW-18638	Lockplate	9
LW-31H0.75	Bolt	1	LW-18667	Pin	11
LW-31H0.88	Bolt	11	LW-18959-175-25	Clamp	39
LW-38-0.75	Bolt	33	LW-19096	Gear Assy.	41
LW-10077	Seat	19	LW-19100	Gear Assy.	41
LW-10442	Gear	3	LW-19227	Counterweight Assy.	9
LW-10541	Gear Assy.	3	MS20822-8	Elbow	35
LW-11713	Spring	7	MS20823-6D	Elbow	17
LW-11750-S	Conn. Rod Assy.	15	MS21044N06	Nut	39
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LW-12098-0-160	Tube Assy.	39	STD-8	Washer	31
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LW-12545	Plug	27	STD-33	Washer	13
LW-12598	Sleeve	39	STD-33	Washer	33
LW-12681	Gasket	41	STD-35	Washer	1
LW-12707	Adapter	41	STD-35	Washer	3
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LW-13215	Oil Filter	35	STD-35	Washer	17
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STD-160	Washer	33	STD-2231	Ring	11
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STD-251	Washer	25	STD-2249	Nut	13
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STD-475	Washer	13	25C-8	Stud	17
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68759	Tube Assy.	21	75656-S	Bushing	9
68761	Tube Assy.	21	75657-S	Bushing	9
69106	Cover	33	75735	Tube	25
69551	Gasket	33	75906	Gasket	21
69603	Hose	23	76118	Spacer	11
69796	Dowel	5	76155	Shaft Assy.	11
70310	Seal	19	76156	Shield	29
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70485	Pipe	23	76534	Shim	1
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71611	Retainer	21	77611	Gasket	17
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71668	Gear Assy.	11	77852	Oil Filter Base Assy.	35
71699	Connection	27	77872	Bushing	3
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73252	Washer	3	13E47622	Crankshaft Assy.	9
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