

# TIO-540-AJ1A Illustrated Parts Catalog

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May 2016

**PC-TIO-540-AJ1A (Supersedes PC-315-12)**

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652 Oliver Street  
Williamsport, PA 17701

## **TIO-540-AJ1A Illustrated Parts Catalog**

Lycoming Part Number: PC-TIO-540-AJ1A (Supersedes PC-315-12)

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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 TIO-540-AJ1A engine model.

### **How to Use this Catalog**

This catalog is based on the Air Transport Association (ATA) Spec 100 format. 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 TIO-540-AJ1A 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:** Refer to the IPC Table of Contents for the subsystems 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 for reference.

**Vendor Accessories**

Parts coverage of Vendor Accessories used on Lycoming engines are 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.

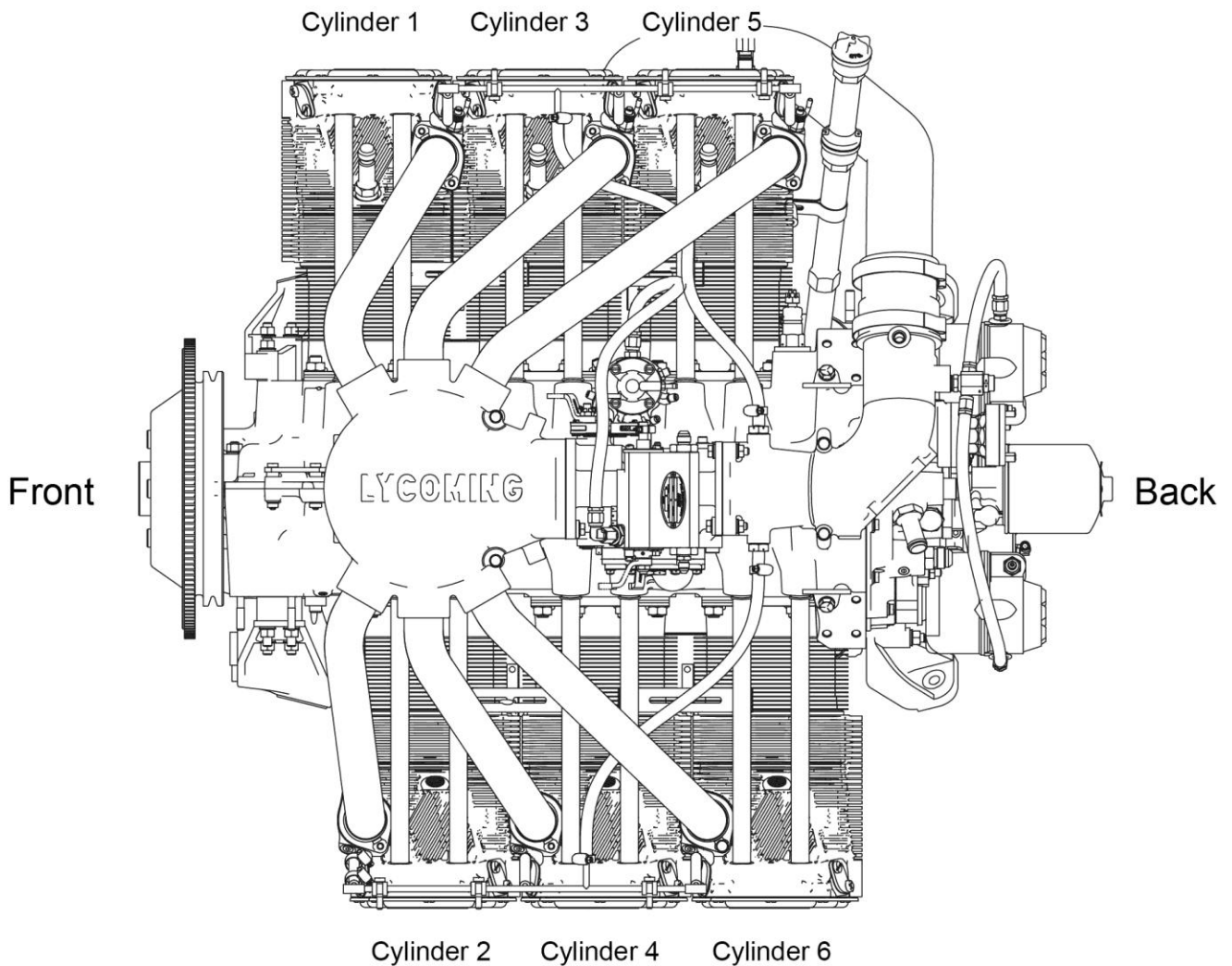
**Environmental Compliance**

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 six-cylinder 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 front section of this catalog as an 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 I writing to:

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

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**Abbreviations and Acronyms**

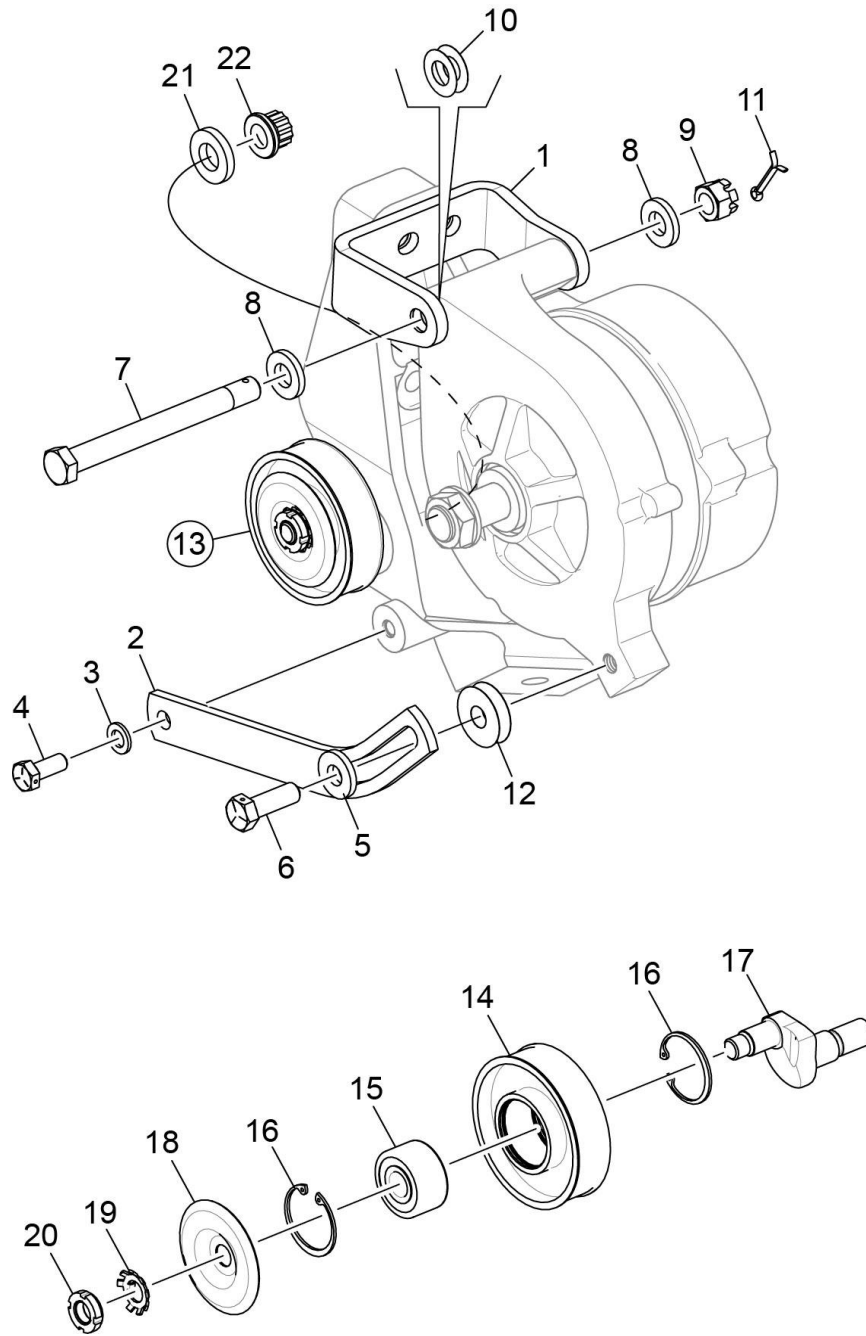
<b>A</b>	
AR	As Required
Assy.	Assembly
ATA	Air Transport Association
<b>C</b>	
Cyl.	Cylinder
<b>D</b>	
dr.	Drilled
<b>H</b>	
Hex.	Hexagon
<b>I</b>	
I.D.	Inside Diameter
in.	Inch
<b>M</b>	
mm	Millimeter
<b>N</b>	
No.	Number
NPT	National Pipe Taper (thread)
<b>O</b>	
O.D.	Outside Diameter
<b>P</b>	
P/N	Part Number
psi	Pounds per square inch
<b>Q</b>	
Qty.	Quantity
<b>R</b>	
RF	Reference
<b>S</b>	
SB	Service Bulletin
SI	Service Instruction
SSP	Special Service Publication
<b>U</b>	
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
66670	BUSHING		X			
16R21709	GUIDE	X	X			
66796	INSERT	X	X			
69796	DOWEL	X				
72155-S	BUSHING	X				
73810	BUSHING	X	X			
75656-S	BUSHING	X				
75657-S	BUSHING	X				
16R21710	GUIDE	X	X			
LW-11997	SEAL			X		
LW-19042	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

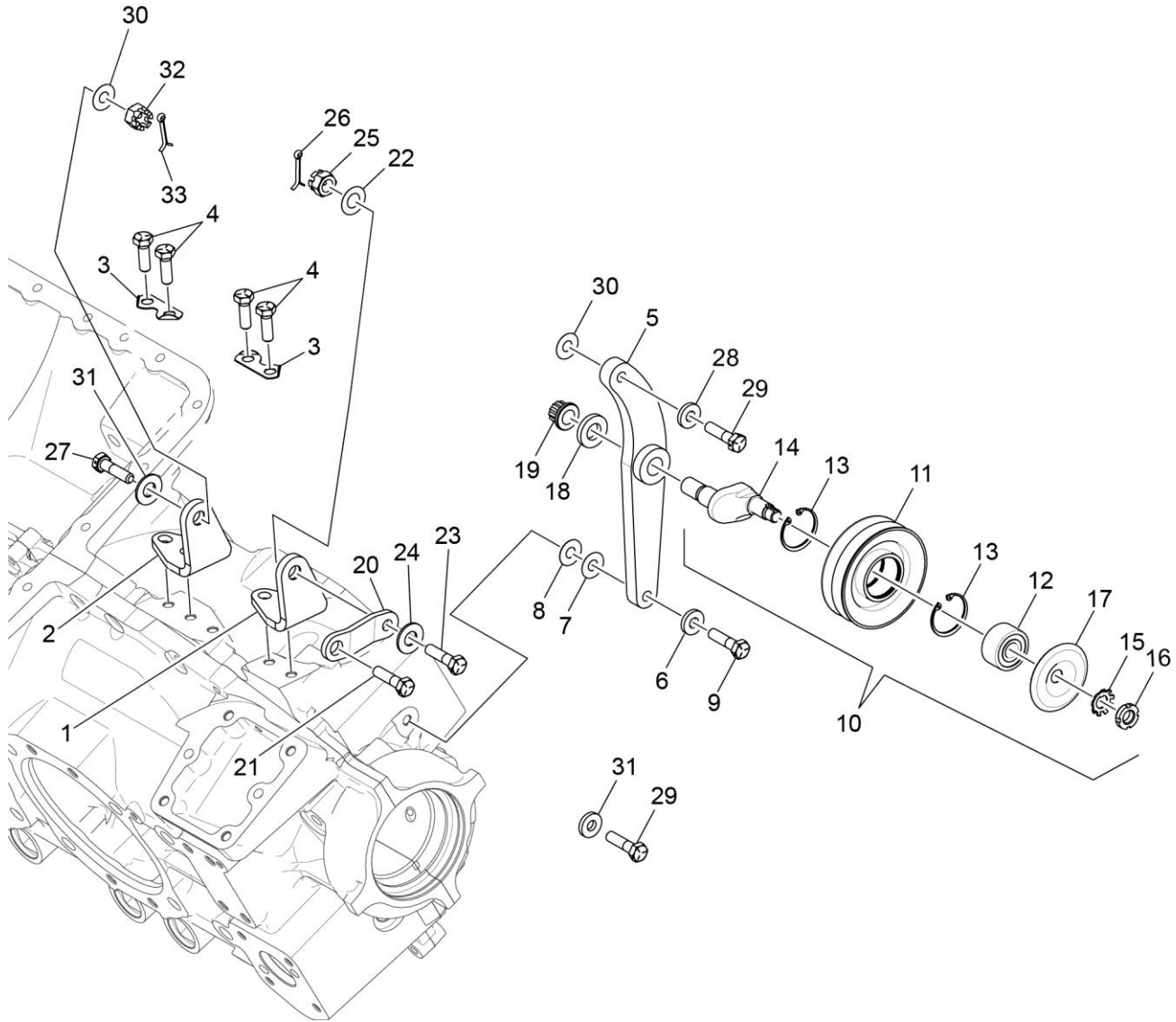
**NOTICE:** When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing P/N 18D26098 bearing in 0.003 in. undersize, order P/N 18D26098-M03. Undersize code letter is "M" while oversize code letter is "P". These letters are then followed by the number designating the size in thousandths of an inch.



**Figure 1**  
**Alternator Mounting and Attaching Parts**

**Figure 1 - Alternator Mounting and Attaching Parts**

Figure Item	Code	Part Number	Description	Units per Assembly
1		07A22214	BRACKET, Alternator	1
2		07F22423	LINK, Alternator	1
3		STD-35	WASHER, 5/16 plain	1
4		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
5		STD-1342	WASHER, 7/8 O.D. x 25/64 I.D. x 1/8 thick	1
6		LW-38H1.09	BOLT, 3/8-16 x 1 1/10 long hex. head, drilled	1
7		AN7-42	BOLT, 7/16-20 x 4-1/3 long, hex. head	1
8		STD-2092	WASHER, 29/64 I.D. x 7/8 O.D. x 1/8 thick	2
9		AN310-7	NUT, 7/16-20 plain slotted	1
10		LW-14650	SHIM, 7/8 O.D. x 23/50 I.D. x 0.005 thick	10
11		STD-713	PIN, Cotter, 3/32 diameter x 3/4 long	1
12		76534	SHIM, 1-1/8 O.D. x 13/32 I.D. x 1/64 thick	7
13		36A22270	PULLEY & SHAFT ASSEMBLY, Alternator belt adjusting	1
14		36B22247	PULLEY, Idler	1
15		78629	BALL BEARING, double row, Alternator	1
16		MS16625-1125	RING, Internal retaining, 1.250 diameter	2
17		LW-19238	SHAFT, Alternator dual belt idler	1
18		LW-11635	SHIELD, Alternator idler bearing	1
19		76768	LOCK WASHER, Alternator idler pulley bearing	1
20		76769	LOCK NUT, Alternator idler pulley bearing	1
21		STD-669	WASHER, 0.52 I.D. x 1.00 O.D. x 1/8	1
22		STD-2221	NUT, 1/2-20 self-locking	1



**Figure 2**  
**Alternator Mounting and Attaching Parts**



**Figure 2 - Alternator Mounting and Attaching Parts**

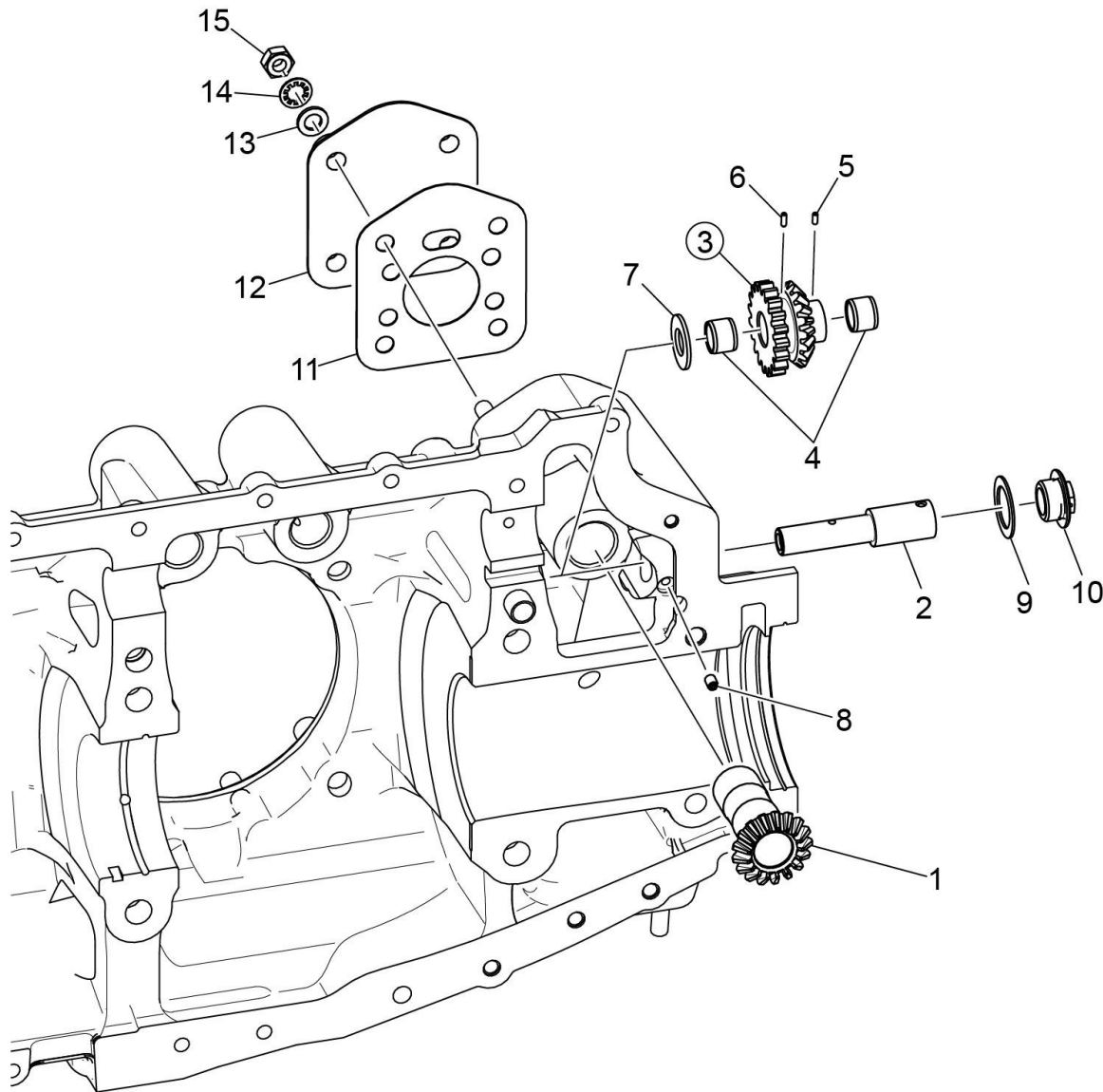
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-14141	BRACKET, Alternator, front	1
2		LW-14142	BRACKET, Alternator, rear	1
3		73383	LOCKPLATE, 5/16 bolt x 1.00 spacing	2
4		LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	4
5		LW-11147	BRACKET, Alternator belt, adjusting	1
6		STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
7		LW-14637	SHIM, 13/16 O.D. x 11/32 I.D. x 0.005 thick	3
8		LW-14649	SHIM, 13/16 O.D. x 11/32 I.D. x 0.010 thick	3
9		LW-31H1.22	BOLT, 5/16-18 x 1-7/32 long, hex. head dr.	1
10		LW-19265	PULLEY & SHAFT ASSEMBLY, Alternator	1
11		76420	PULLEY, Alternator idler, dual	1
12		78629	BALL BEARING, Double row, alt.	1
13		MS16625-1125	RING, Internal retaining, 1-1/4 diameter	2
14		LW-19238	SHAFT, Alternator dual belt idler	1
15		76768	LOCK WASHER, Alternator Idler pulley bearing	1
16		76769	LOCK NUT, Alternator idler pulley bearing	1
17		LW-11635	SHIELD, Alternator idler bearing	1
18		STD-669	WASHER, 33/64 I.D. x 1.00 O.D. x 1/8 thick	1
19		STD-2221	NUT, 1/2-20 self-locking	1
20		LW-10970	STRUT, Alternator support	1
21		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head	1
22		LW-14650	SHIM, 7/8 O.D. x 15/32 I.D. x 0.005 thick	3
23		AN7-14	BOLT, 7/16-20 UNF-3A x 1-19/32 long	1
24		STD-632	WASHER, 7/16 plain	1
25		AN310-7	NUT, 7/16-20 plain, slotted	1
26		STD-761	COTTER PIN, 3/32 x 1.00 long	1

(continued on next page)

**Figure 2 - Alternator Mounting and Attaching Parts (Cont.)**

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
27		AN7-12	BOLT, 7/16-20 UNF-3A x 1-11/32 long, drilled end	1
28		STD-1727	WASHER, Plain, 21/64 I.D. x 3/4 O.D.	1
29		LW-31H1.22	BOLT, 5/16-18 x 1-7/32 long	1
30		LW-14637	SHIM, 13/16 O.D. x 11/32 I.D. x 0.005 thick	3
31		STD-632	WASHER, 7/16 plain	1
32		AN310-7	NUT, 7/16-20 plain, slotted	1
33		STD-761	COTTER PIN, 3/32 diameter x 1.00 long	1

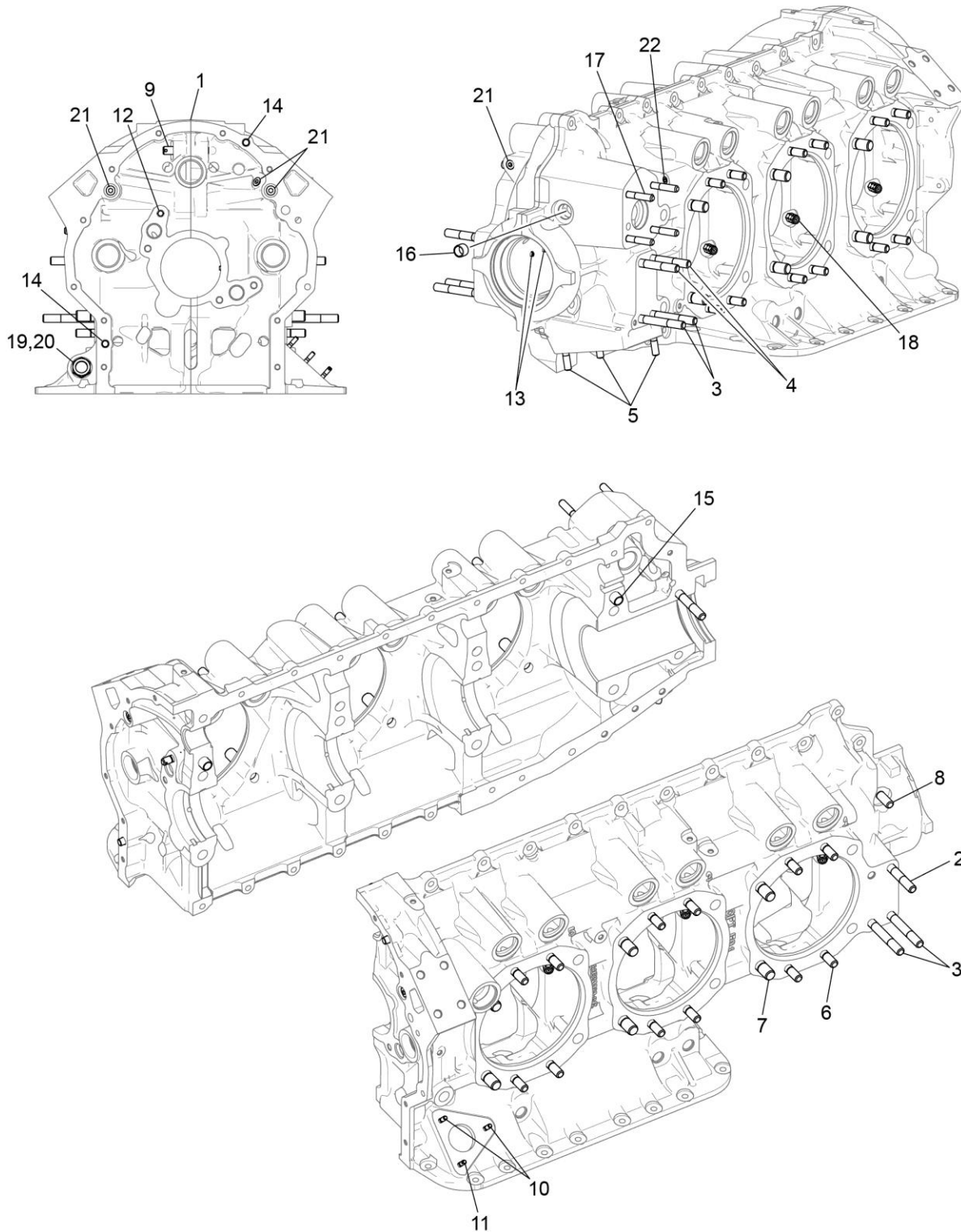
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**Figure 3**  
**Propeller Governor Drive Assembly**

**Figure 3 – 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		73249	WASHER, Thrust (0.0585 - 0.0595 thick)	AR
		73250	WASHER, Thrust (0.062 - 0.063 thick)	AR
		73251	WASHER, Thrust (0.0655 - 0.0665 thick)	AR
		73252	WASHER, Thrust (0.069 - 0.070 thick)	AR
		01L21418	WASHER, Thrust (0.055 - 0.056 thick)	AR
8		AN565B1032H5	SET SCREW, #10-32 x 1/32 long	1
9		70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/32 thick	1
10		LW-13896	PLUG, 0.750-16 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
<b>AR</b> as required				

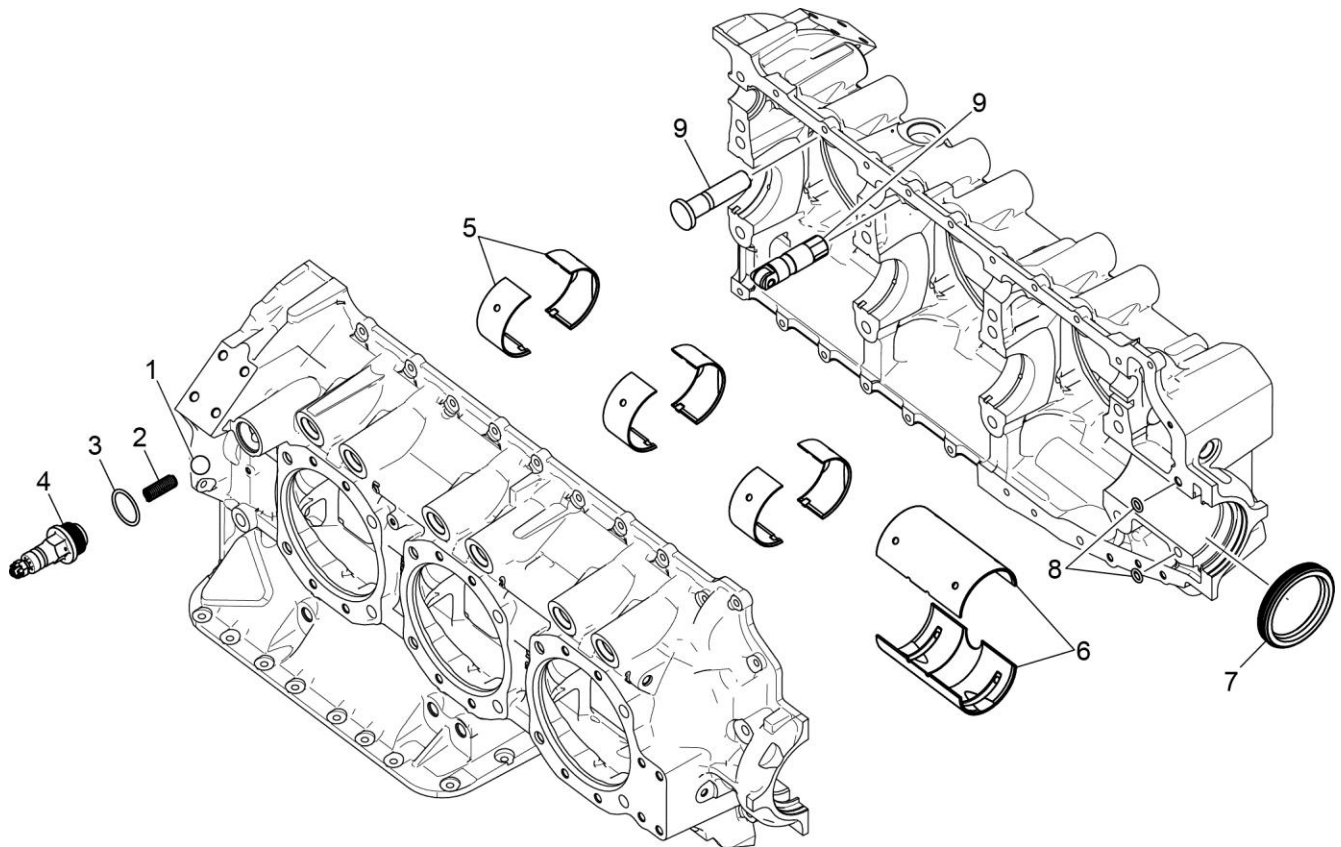


**Figure 4**  
**Crankcase Assembly**

**Figure 4 - Crankcase Assembly**

Figure Item	Code	Part Number	Description	Units per Assembly
1		11F24124-S7-S	CRANKCASE ASSEMBLY KIT (Roller tappet engines)	1
	<b>P</b>	11F24124-S7	CRANKCASE ASSEMBLY (Roller tappet engines)	1
		11F24024-S7-S	CRANKCASE ASSEMBLY KIT	1
	<b>P</b>	11F24024-S7	CRANKCASE ASSEMBLY	1
2		38-21	STUD, 3/8-16 x 2-5/8 long	1
3		38-26	STUD, 3/8-16 x 3-1/4 long	4
4		38-23	STUD, 3/8-16 x 2-7/8 long	2
5		31C-13	STUD, 5/16-18 x 1-5/8 long	3
6		38-13	STUD, 3/8-16 x 1-5/8 long	24
7		50-15	STUD, 1/2-13 x 1-7/8 long	12
8		38-22	STUD, 3/8-16 x 2-3/4 long	1
9		38D-17	STUD, 3/8-16 x 2-1/8 long, drilled	1
10		10-8	STUD, #10-32 x 1.00 long	2
11		10D-8	STUD, #10-32 x 1.00 long, drilled	1
12		01A23354	STUD, 5/16-18 x 1.00 long, drilled	1
13		69796	DOWEL, Crankshaft bearing	2
14		STD-514	DOWEL, 5/16 diameter x 1/2 long	2
15		STD-557	DOWEL, 1/2 diameter x 11/16 long, hollow	2
16		72158	BUSHING, Governor drive idler shaft	1
17		31C-17	STUD, 5/16-18 x 2-1/8 long	4
18		73772	NOZZLE ASSEMBLY, Piston cooling	6
19		MS29512-06	O-RING, 15/32 I.D. x 5/64 section	1
20		AN814-6L	PLUG, 9/16-18 hex. head	1
21		1102	PLUG, 1/8 pipe	4
22		STD-1339	PLUG, 1/16-27 NPT	1

**P** Lycoming proprietary part. Listed for reference purposes only, cannot be purchased.

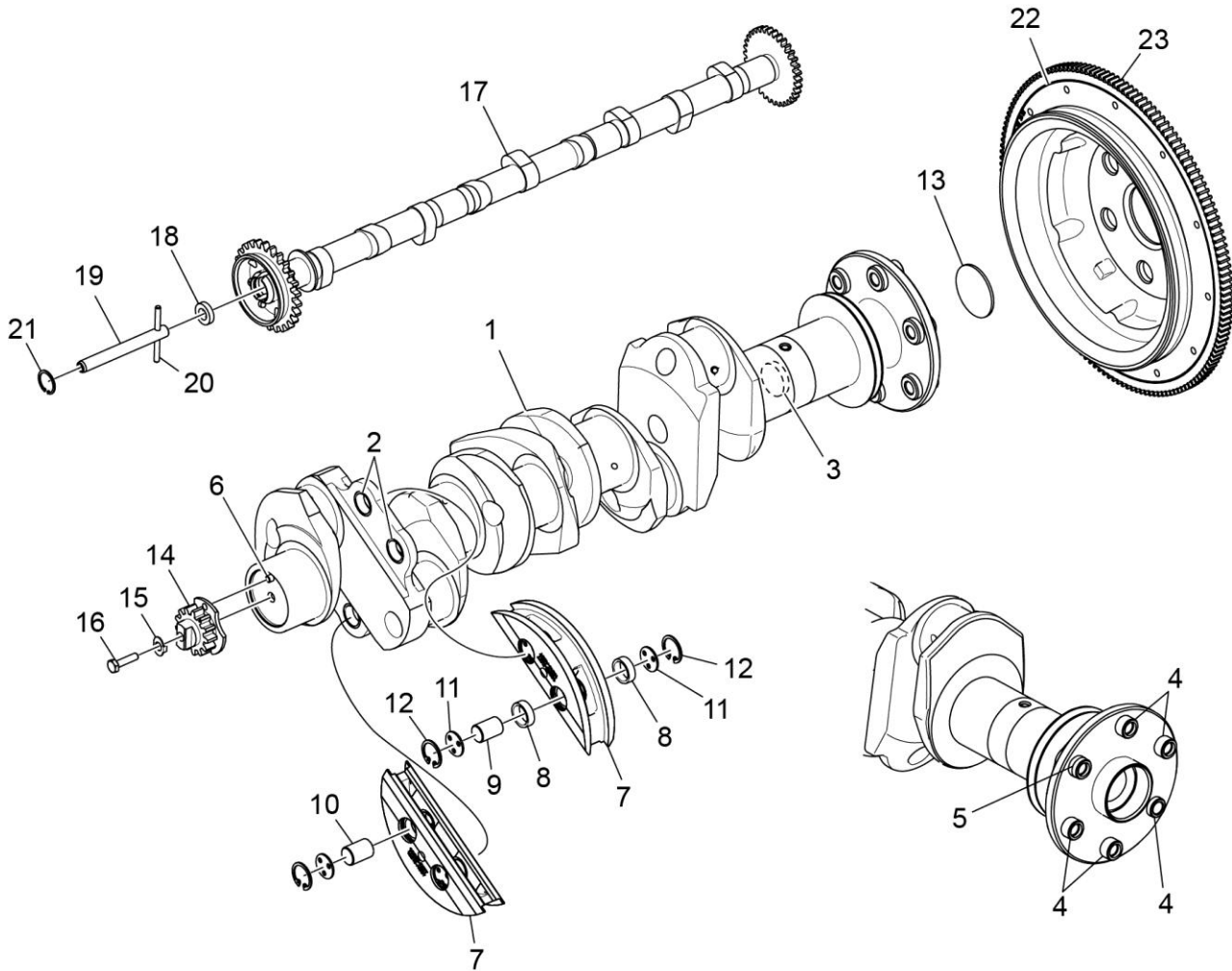


**Figure 5**  
**Crankcase Related Parts**



**Figure 5 - Crankcase Related Parts**

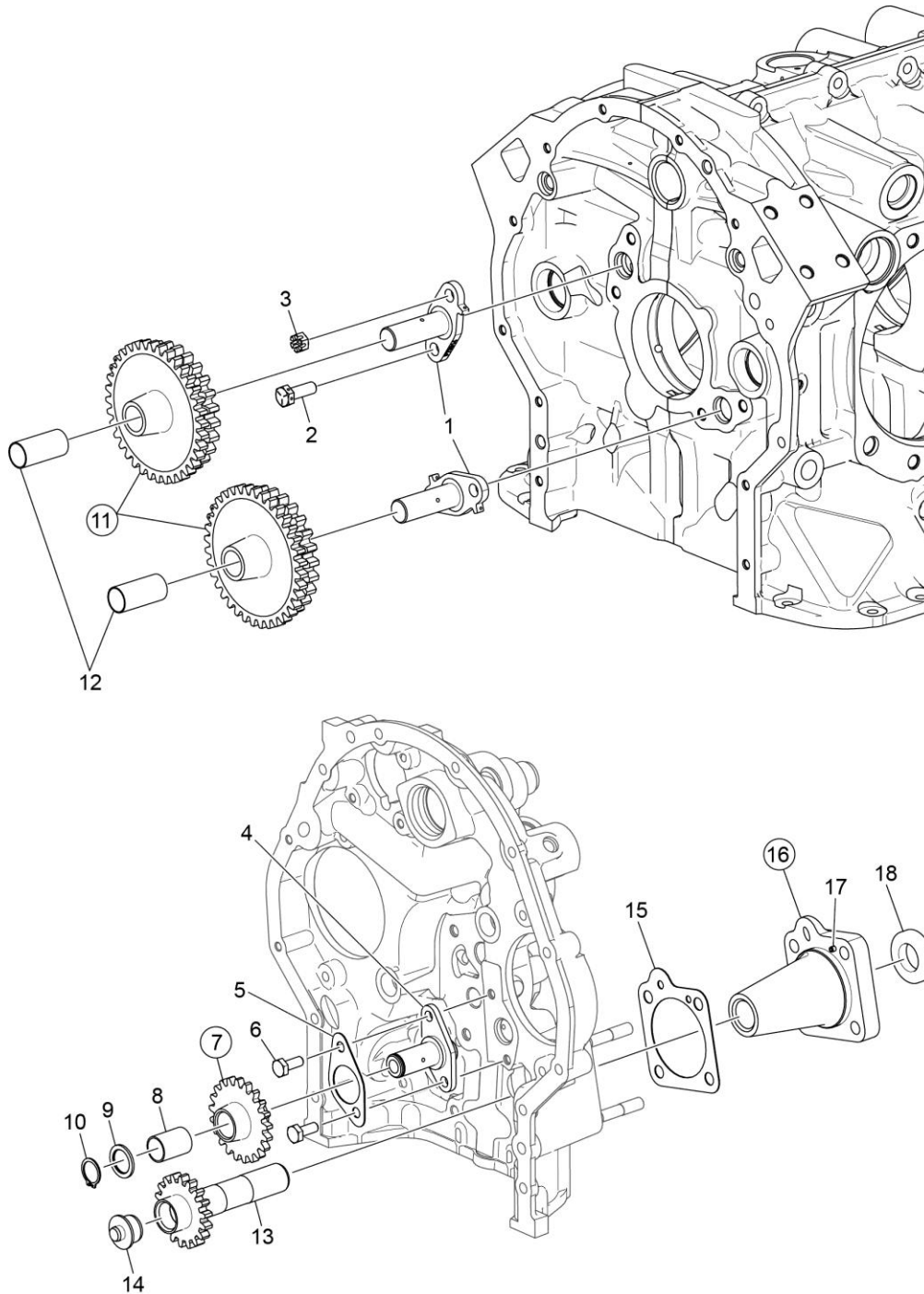
Figure Item	Code	Part Number	Description	Units per Assembly
1		1028-B	BALL, 11/16 diameter	1
2	*	61084	SPRING, Oil pressure relief valve	1
	*	68668	SPRING, Oil pressure relief valve	1
	*	77467	SPRING, Oil pressure relief valve	1
	*	LW-11713	SPRING, Oil pressure relief valve	1
	*	LW-18085	SPRING, Oil pressure relief valve	1
3		06E19769-1.25	GASKET, Annular, 1-1/4 I.D.	1
4		77808	VALVE ASSEMBLY, Oil pressure relief	1
5		18E23886	BEARING, Crankshaft	6
6		18B23885	BEARING, Crankshaft, front	2
7	**	LW-15628	SEAL, Crankshaft, oil	1
8		72091	RING, Oil seal, 23/64 I.D. x 1/10 diameter	2
9		LRT23381	BODY ASSEMBLY, Hydraulic tappet, LYC roller type	12
		15B26262	BODY ASSEMBLY, Hydraulic tappet	12
<p>* Select the 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 the latest revision of Lycoming Service Instruction No. 1324 for installation.</p>				



**Figure 6**  
**Crankshaft, Counterweight, Camshaft, and Related Parts**

**Figure 6 - Crankshaft, Counterweight, Camshaft, and Related Parts**

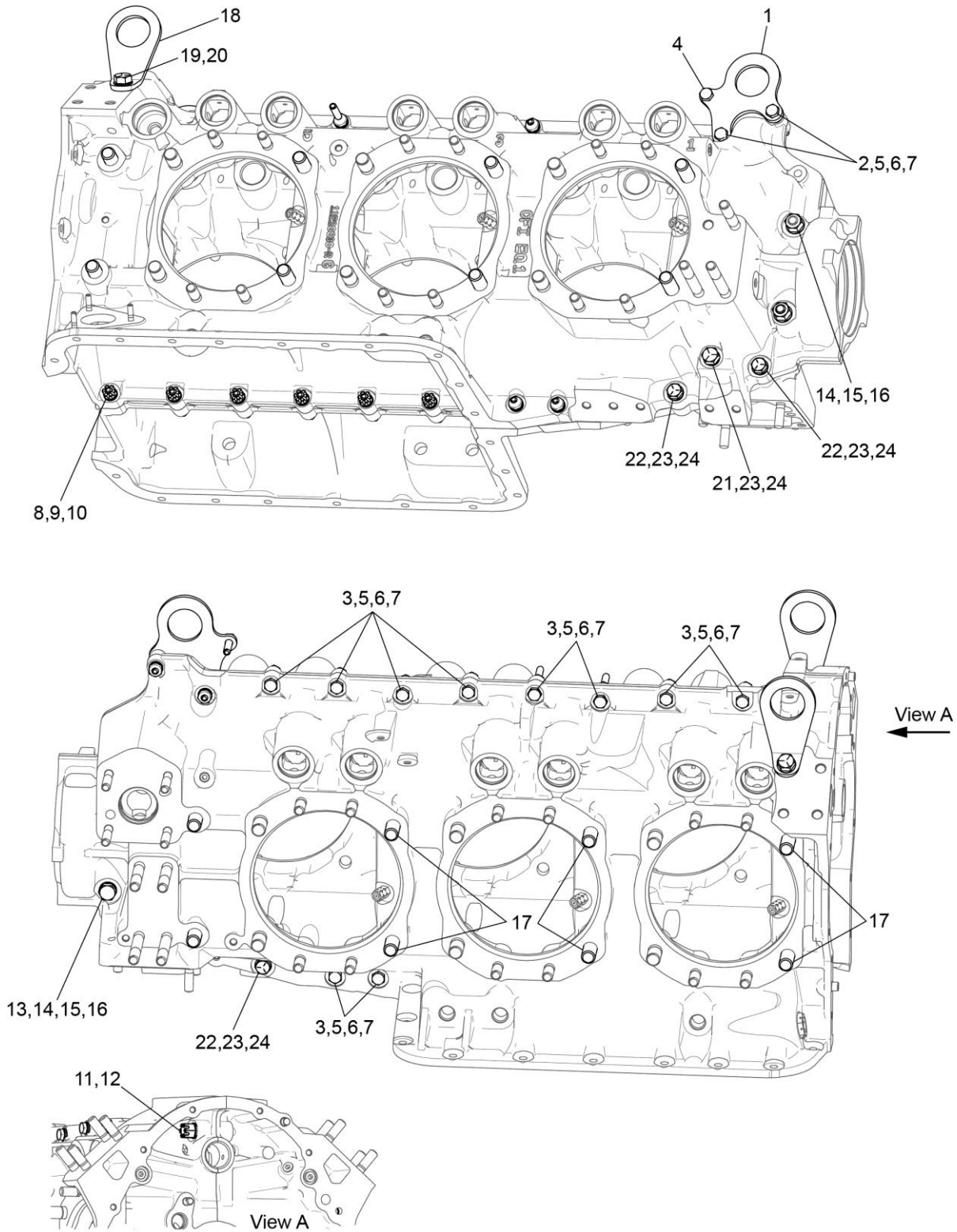
Figure Item	Code	Part Number	Description	Units per Assembly
1		13F47743	CRANKSHAFT ASSEMBLY	1
2		73810	BUSHING, Crankshaft, counterweight	4
3		60945	PLUG, 1-1/4 O.D.	1
4		75656-S	BUSHING, Propeller flange, long	5
5		75657-S	BUSHING, Propeller flange 0.7818-0.7823	1
6		STD-1065	DOWEL, Stepped, 5/16, 1/4 diameter	1
7		LW-19210	COUNTERWEIGHT ASSEMBLY	2
8		71903-A	BUSHING, Dynamic counterweight	4
9		73648	ROLLER, Dynamic counterweight, 5.1 order	2
10		76788	ROLLER, Dynamic counterweight, 6.3 order	2
11		71907	WASHER, Counterweight	8
12		LW-14820	RING, Internal retaining	8
13		STD-1211	PLUG, 2.00 diameter expansion	1
14		13S19648	GEAR, Crankshaft	1
15		LW-18638	LOCKPLATE, Crankshaft gear	1
16		STD-2247	BOLT, 5/16-24 x 1-3/4 long	1
17		15N23374	CAMSHAFT ASSEMBLY, Roller tappet	1
		LW-19340	CAMSHAFT ASSEMBLY	1
18		76118	SPACER, Tachometer shaft centering	1
19		76155	SHAFT ASSEMBLY, Tachometer	1
20		LW-18667	PIN, 3/16 diameter x 2-1/3 long	1
21		STD-2231	RING, Internal retaining (13/16 diameter housing)	1
22		31M22246	SUPPORT ASSEMBLY, Starter ring gear	1
23		72566	GEAR, Starter ring, 12/14 pitch	1



**Figure 7**  
**Crankshaft and Fuel Pump Idler Gears**

**Figure 7 - Crankshaft and Fuel Pump Idler Gears**

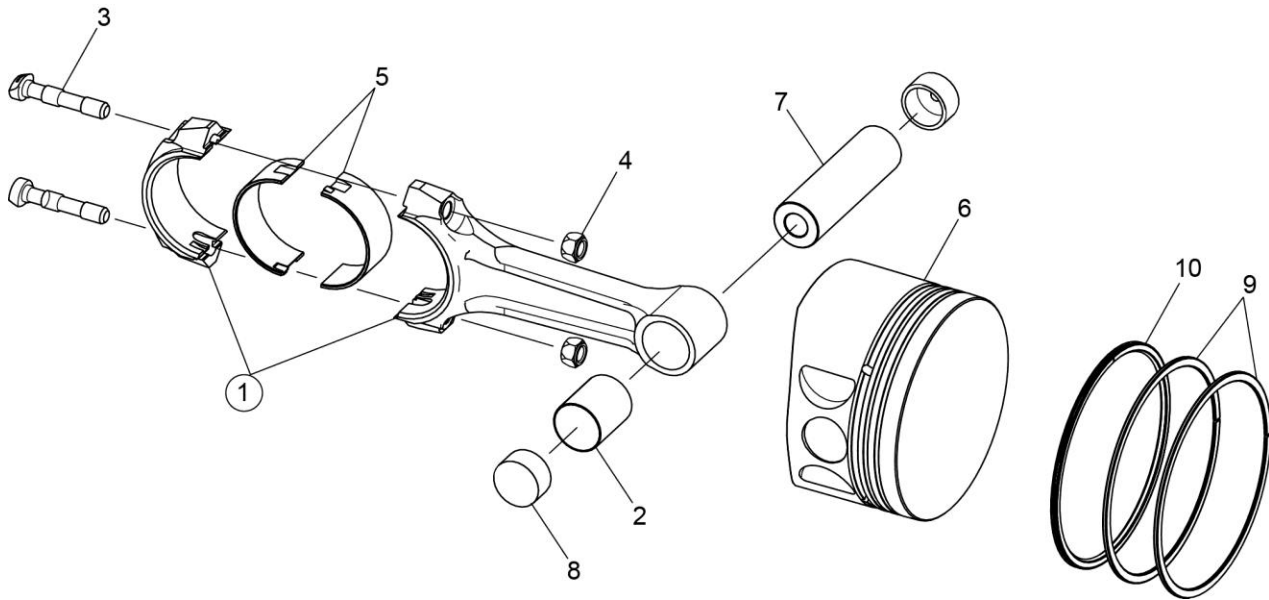
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-13795	SHAFT, Crankshaft idler gear	2
2		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex head, drilled	3
3		STD-2168	NUT, 5/16-18 NC, slotted, shear	1
4		72246	SHAFT, Fuel pump idler gear	1
5		71667	LOCKPLATE, 1/4 bolt x 1-3/4 spacing	1
6		LW-25-0.63	BOLT, 1/4-20 x 5/8 long, hex. head	2
7		71664	GEAR ASSEMBLY, Fuel pump idler	1
8		77309	BUSHING, Crankshaft idler gear	1
9		70474	WASHER, Fuel pump idler, thrust	1
10		STD-1737	RING, External retaining, 9/16 diameter	1
11		71668	GEAR ASSEMBLY, Crankshaft idler, plain	2
12		67530	BUSHING, Crankshaft idler gear	2
13		72972	SHAFTGEAR ASSEMBLY, Fuel pump drive	1
14		72962	THRUST BUTTON, Vacuum pump gear	1
15		69164	GASKET, Fuel pump adapter	1
16		69159	ADAPTER ASSEMBLY, Fuel pump drive	1
17		STD-1774	PIN, 1/8 diameter x 1/4 long	1
18		STD-213	OIL SEAL, 3/4 I.D. x 1-3/8 O.D.	1



**Figure 8**  
**Crankcase Attaching Parts**

**Figure 8 - Crankcase Attaching Parts**

Figure Item	Code	Part Number	Description	Units per Assembly
1		07E22596	SUPPORT, Induction housing	1
2		LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex head	2
3		LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex head	10
4		LW-25-1.13	BOLT, 1/4-20 x 1.13 long, hex head	1
5		STD-8	WASHER, 1/4 plain	30
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		STD-8	WASHER, 1/4 plain	6
10		STD-2249	NUT, 1/4-20 slotted	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 3.58 long, hex head	1
14		STD-33	WASHER, 3/8 plain	4
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 10.70 long	8
18		12B22287	EYE, Lifting, rear	2
19		STD-678	WASHER, 3/8 lock, internal teeth	2
20		LW-38-1.13	BOLT, 3/8-16 x 1-1/8 long, hex head	2
21		LW-31-2.75	BOLT, 5/16-18 x 2-3/4 long, hex head	1
22		LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex head	3
23		STD-35	WASHER, 5/16 plain	4
24		STD-475	WASHER, 5/16 lock, internal teeth	4

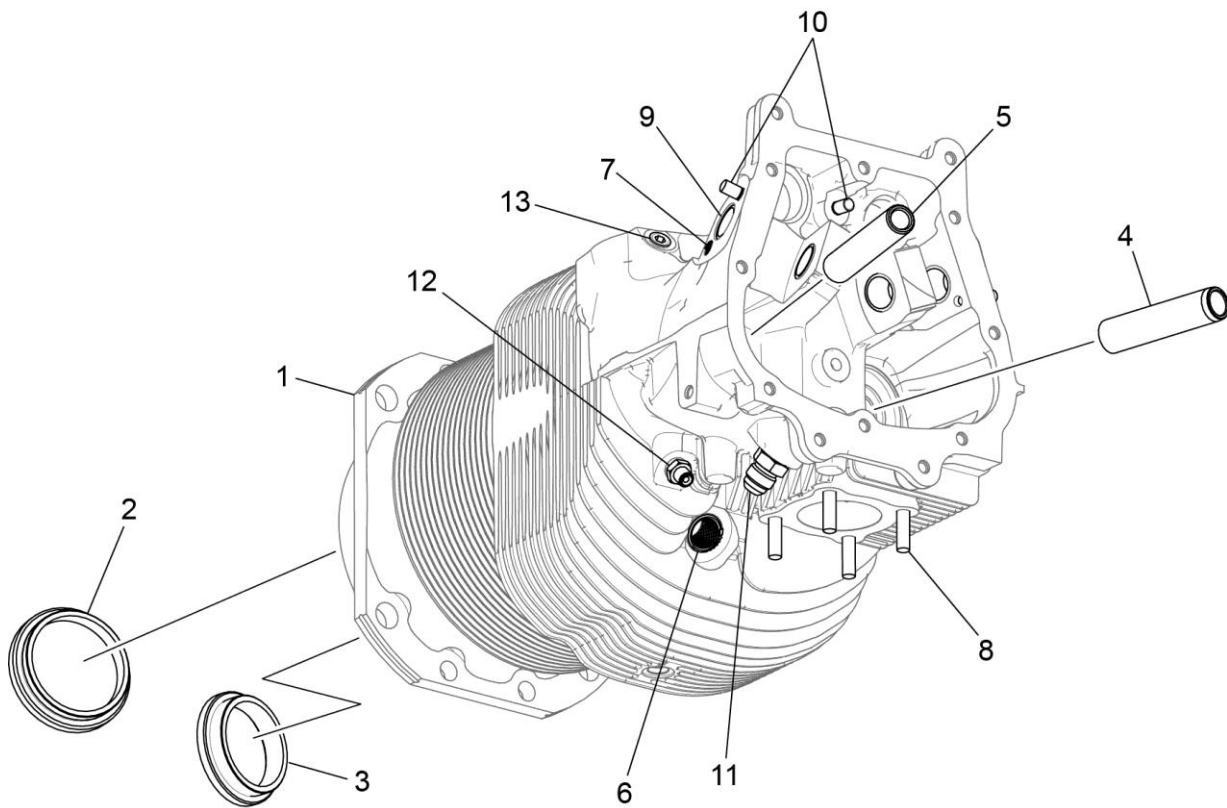


**Figure 9**  
**Connecting Rods, Pistons, and Ring Assemblies**



**Figure 9 - Connecting Rods, Pistons, and Ring Assemblies**

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-19332-S	CONNECTING ROD ASSEMBLY	6
2		LW-13923	BUSHING, Connecting rod, upper	6
3		LW-12596	BOLT, Connecting rod	12
4		LW-12186	NUT, Connecting rod bolt	12
5		18N26106	BEARING, Connecting rod	12
6		14D23907	PISTON, Compression ratio 7.30:1	6
7		LW-14078	PIN, Piston	6
8		72198	PLUG, Piston pin	12
9		74241	RING, Piston, compression, 5-1/8 bore	12
10		14H21950	RING, Piston, oil, 5-1/8 bore	6

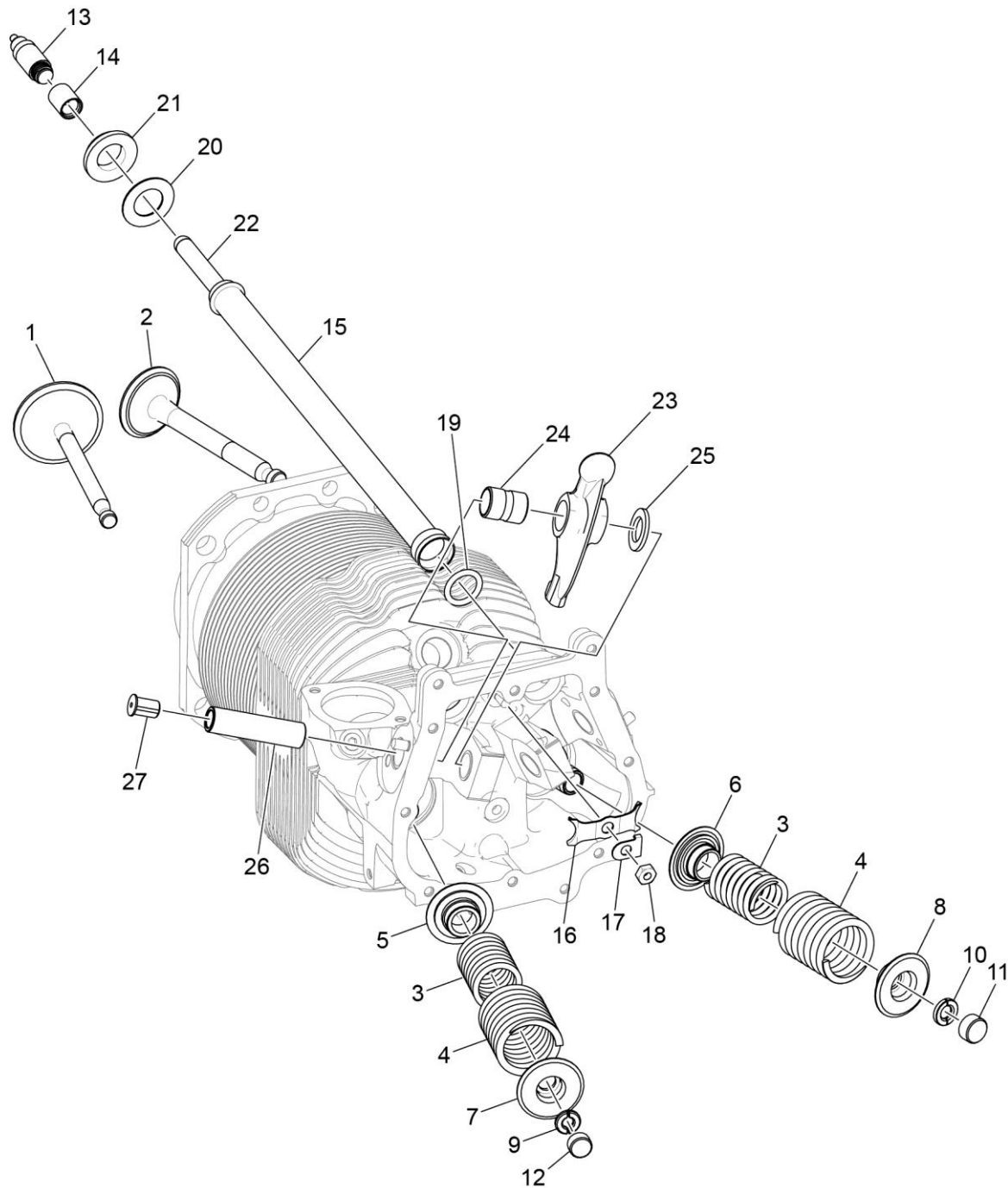


**Figure 10**  
**Cylinder Assembly**

**Figure 10 - Cylinder Assembly**

Figure Item	Code	Part Number	Description	Units per Assembly
1		16A22541	CYLINDER & HEAD ASSEMBLY	6
2		LW-19042	SEAT, Intake valve	6
3		16T19468	SEAT, Valve, exhaust	6
4	*	LW-18833	GUIDE, Exhaust valve (NI-resist)	6
5	*	LW-18753	GUIDE, Valve, intake	6
6		69260	INSERT, Spark plug, 18-1.5 mm	12
7		72706	INSERT, 1/4-20 UNC x 3/8 long	12
8		25C-11	STUD, 1/4-20 x 1-3/8 long	24
9		66670	BUSHING, Rocker shaft, inner	24
10		25C-8	STUD, 1/4-20 x 1.00 long	18
11		AN816-6	NIPPLE, 1/4 NPT to 3/8 tube	6
12		STD-148	NIPPLE, Union, 1/8 NPT	6
13		1102	PLUG, 1/8 PIPE	6

\* Refer to the latest revision of Lycoming Service Instruction No. 1256 for valve guides for service use.



**Figure 11**  
**Valve Assembly and Related Parts**

**Figure 11 – Valve Assembly and Related Parts**

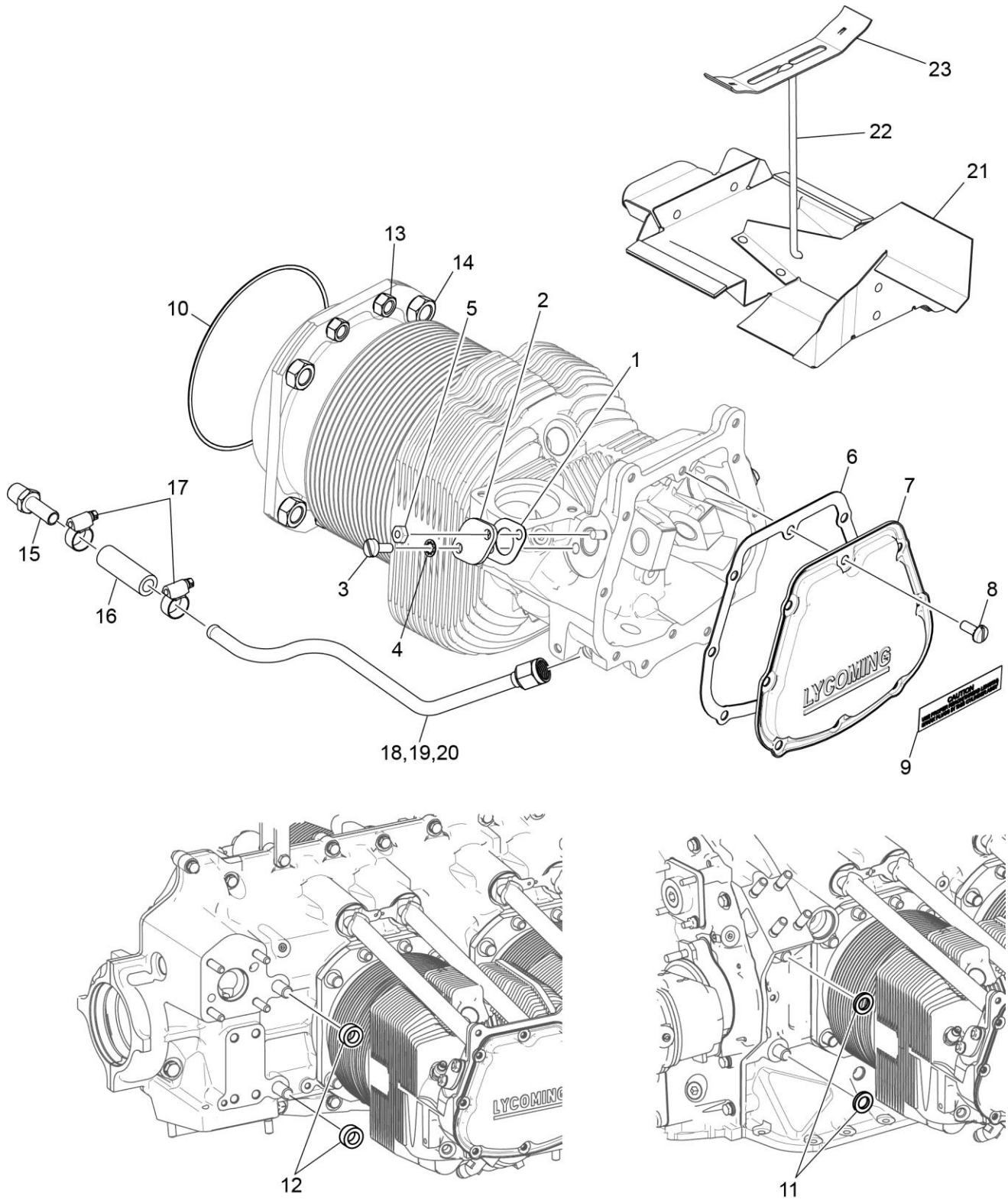
Figure Item	Code	Part Number	Description	Units per Assembly
1		17A26621	VALVE, Intake	6
2		17B23944	VALVE, Exhaust	6
3		LW-11797	SPRING, Valve, inner	12
4		LW-11796	SPRING, Valve, outer	12
5		LW-13321	SEAT, Valve spring, lower intake	6
6		LW-13322	SEAT, Valve spring, lower exhaust	6
7		69532	SEAT, Valve spring, upper intake	6
8		LW-16475	SEAT, Valve spring, upper exhaust	6
9		72050	KEY, Valve, intake	12
10		17C21191	KEY, Valve, exhaust	12
11		17C19386	CAP, Valve stem, exhaust (rotator type)	6
12		62388	CAP, Valve stem	6
13		15B26066	PLUNGER ASSEMBLY, Hydraulic lifter	12
14		15B21319	SOCKET, Hydraulic tappet	12
15		15G23487	TUBE, Push rod shroud, RT	12
		LW-18944	TUBE, Push rod shroud	12
16		LW-14995	SPRING, Shroud tube	6
17		LW-12272	LOCKPLATE, Shroud tube	6
18		STD-1411	NUT, 1/4-20 plain	6
19		70310	SEAL, Shroud tube, both	12
20		01L23459	WASHER, 25/32 I.D. x 1-3/8 O.D. x 1/32, RT	12
21		06A23493	SEAL, Shroud tube, RT	12
		LW-18661	SEAL, Shroud tube	12

(continued on next page)

**Figure 11 – Valve Assembly and Related Parts (Cont.)**

Figure Item	Code	Part Number	Description	Units per Assembly
22	*	15F19957-59	ROD ASSEMBLY, Push, RT	AR
	*	15F19957-60	ROD ASSEMBLY, Push, RT	AR
	*	15F19957-61	ROD ASSEMBLY, Push, RT	AR
	*	15F19957-62	ROD ASSEMBLY, Push, RT	AR
	*	15F19957-63	ROD ASSEMBLY, Push, RT	AR
	*	15F19957-64	ROD ASSEMBLY, Push, RT	AR
	*	15F19957-65	ROD ASSEMBLY, Push	AR
	*	15F19957-66	ROD ASSEMBLY, Push	AR
	*	15F19957-67	ROD ASSEMBLY, Push	AR
	*	15F19957-68	ROD ASSEMBLY, Push	AR
23	**	17F23342	ROCKER ASSEMBLY, 1.4 ratio	12
24		74389	BUSHING, Valve rocker	12
25		71549	WASHER, Thrust, valve rocker	12
26		72626	SHAFT, Valve rocker	12
27		LW-11665	THRUST BUTTON, Rocker shaft	24
<p><b>AR</b> as required, total of 12 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 part number is stamped, the last five digits (23342) could be all that is shown of the part number.</p>				

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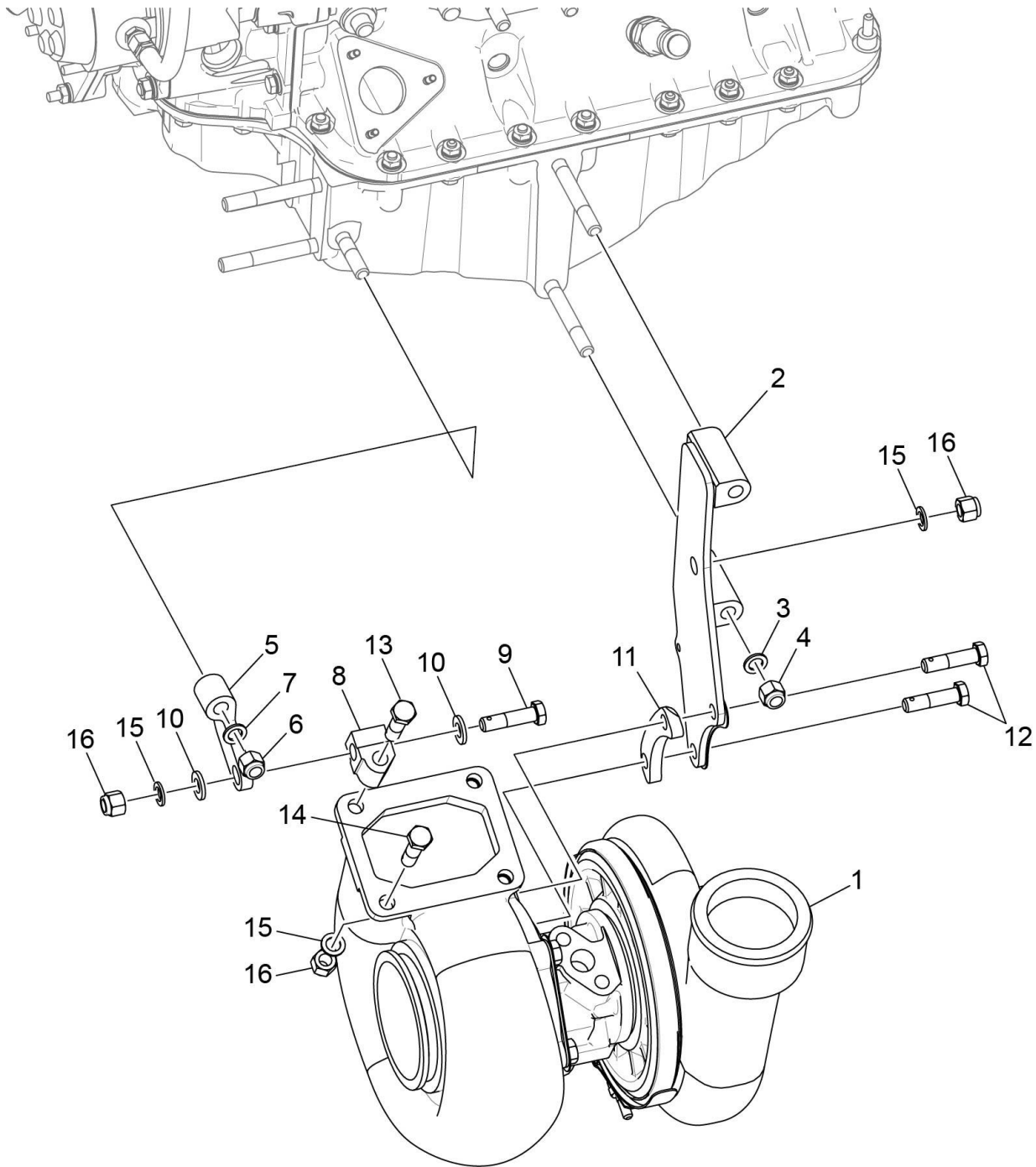


**Figure 12**  
**Cylinder Related Parts**



**Figure 12 - Cylinder Related Parts**

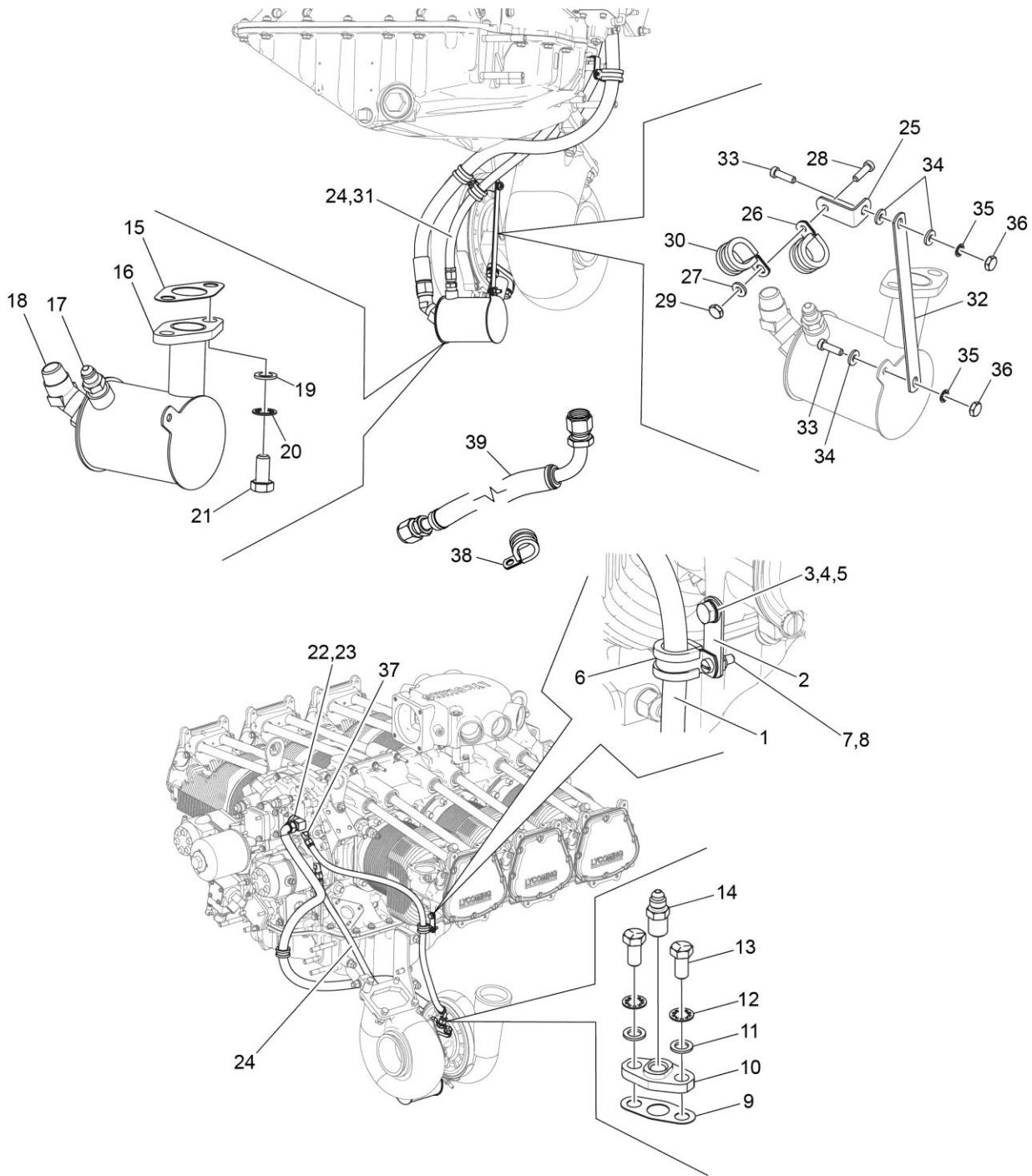
Figure Item	Code	Part Number	Description	Units per Assembly
1		66732	GASKET, Valve rocker shaft cover	12
2		72710	COVER, Valve rocker shaft	12
3		72709	SCREW, 1/4-20 x 5/8 long, stainless	12
4		STD-160	WASHER, 1/4 lock, internal teeth	12
5		STD-1411	NUT, 1/4-20 plain	12
6		76036	GASKET, Rocker box cover	6
7		LW-14433	COVER ASSEMBLY, Rocker box	6
8		STD-1925	SCREW, 1/4-20 x 5/8 long, pan. head	48
9		74494	PLATE, Spark plug reach caution	6
10		71481	RING, Oil seal, 9/100 diameter x 4-27/32 I.D.	6
11		77906	SPACER, 13/25 I.D. x 7/8 O.D. x 1/8 thick	2
12		74887	SPACER, 13/25 I.D. x 7/8 O.D. x 3/8 thick	2
13		383-B	NUT, 3/8-24 plain	24
14		STD-2090	NUT, 1/2-20 plain	28
15		STD-684	NIPPLE, Straight, 3/8 I.D. hose	6
16		STD-2180	HOSE, 3/8 I.D. x 1-7/8 long	6
17		LW-15592-5-05	CLAMP, Hose	12
18		LW-18555	TUBE ASSEMBLY, Cyl. head oil drain, cyl. No.1	1
19		17T19439	TUBE ASSEMBLY, Cyl. head oil drain, cyl. No. 2	1
20		LW-18557	TUBE ASSEMBLY, Cyl. head oil drain, cyl. No. 3,4,5,6	4
21		LW-18832	BAFFLE ASSEMBLY, Intercylinder	4
22		71610	HOOK, Intercylinder baffle retainer	4
23		71611	RETAINER, Intercylinder baffle	4



**Figure 13**  
**Turbocharger, Supports, and Attaching Parts**

**Figure 13 - Turbocharger, Supports, and Attaching Parts**

Figure Item	Code	Part Number	Description	Units per Assembly
1		46P22250	TURBOCHARGER, TA6102-466881	1
2		07A22265	BRACKET, Turbo mounting	1
3		AN960C616	WASHER, 3/8 plain	2
4		MS20500-624	NUT, 3/8-24 self-locking	2
5		07A22279	BRACKET, Rear turbo support	1
6		MS20500-624	NUT, 3/8-24 self-locking	1
7		AN960C616	WASHER, 3/8 plain	1
8		03G22280	LUG, Rear turbo support	1
9		AN6C17A	BOLT, 3/8-24 UNF x 1-61/64 long	1
10		STD-2032	WASHER, 3/4 I.D. x 25/64 O.D. x 3/32 thick	2
11		01L22286	SPACER, Turbo mounting bracket	1
12		LW-38SS-1.06	BOLT, Hex head coarse thread	2
13		AN6C22A	BOLT, 3/8-24 UNF x 2-21/64 long	1
14		AN6C11A	BOLT, 3/8-24 UNF x 1-13/64 long	2
15		AN960C616	WASHER, 3/8 plain	7
16		MS20500-624	NUT, 3/8-24 self-locking	7



**Figure 14**  
**Turbo Oil Drain Tank, Hoses, and Attaching Parts**

**Figure 14 - Turbo Oil Drain Tank, Hoses, and Attaching Parts**

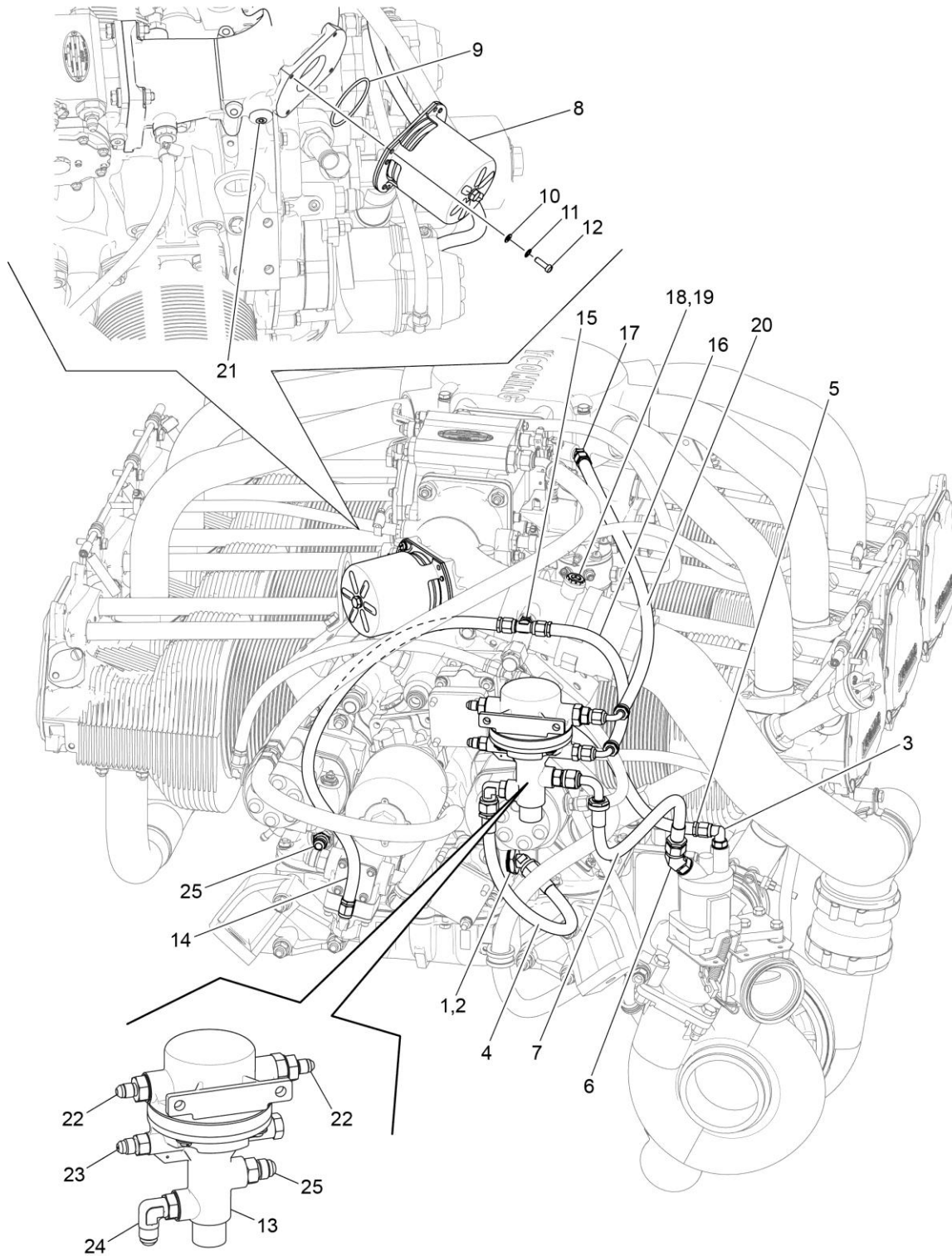
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-12878-4S260	HOSE ASSEMBLY, 1/4 hose, 45° elbow	1
2		73152	BRACKET, Support clamp	1
3		LW-25-0.50	BOLT, 1/4-20 x 1/2 long, hex. head	1
4		STD-8	WASHER, 1/4 plain	1
5		STD-160	WASHER, 1/4 lock, internal teeth	1
6		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw	1
7		STD-969	SCREW, No. 10-32 x 1/2 long, fillister head	1
8		STD-670	LOCK NUT, No. 10-32	1
9		75371	GASKET, Turbo oil inlet adapter	1
10		LW-14465	ADAPTER, Turbo oil	1
11		STD-33	WASHER, 3/8 plain	2
12		STD-678	WASHER, 3/8 lock, internal teeth	2
13		LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. head	2
14		78212	CHECK VALVE ASSEMBLY	1
15		06B22275	GASKET, Turbo drain tank	1
16		58B22273	TANK, Turbo oil drain	1
17		AN816-4	NIPPLE, 1/8 NPT to 1/4 tube	1
18		MS20823-8	ELBOW, 1/2 flared tube, 3/8 NPT	1
19		STD-33	WASHER, 3/8 plain	2
20		STD-678	WASHER, 3/8 lock, internal teeth	2
21		LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. head	2
22		MS29512-08	O-RING, 41/64 I.D. x 5/64 section	1
23		LW-10637	ELBOW, 90°, 1/2 tube, 3/4-16 thread	1
24		LW-12798-4S274	HOSE ASSEMBLY, 1/4 hose, straight	1
25		73136	BRACKET, Extension, fuel injector line	1

(continued on next page)

**Figure 14 - Turbo Oil Drain Tank, Hoses, and Attaching Parts (Cont.)**

Figure Item	Code	Part Number	Description	Units per Assembly
26		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw	1
27		STD-425	WASHER, No. 10 plain	1
28		STD-860	SCREW, No. 10-32 x 5/8 long, fillister head	3
29		STD-63	NUT, No. 10-32 plain	3
30		LW-16266-10-88	CLAMP	2
31		76734	ZIP STRAP	3
32		07A22274	BRACKET, Turbo drain tank	1
33		STD-860	SCREW, No. 10-32 x 5/8 long, fillister head	2
34		STD-425	WASHER, No. 10 plain	3
35		STD-251	WASHER, No. 10, internal lock	2
36		STD-63	NUT, No. 10-32 plain	2
37		MS20822-4	ELBOW, 1/8 NPT to 1/4 tube, 90°	1
38		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw	1
39		LW-14848-8S360	HOSE ASSEMBLY, 1/2 hose, 90 elbow	1

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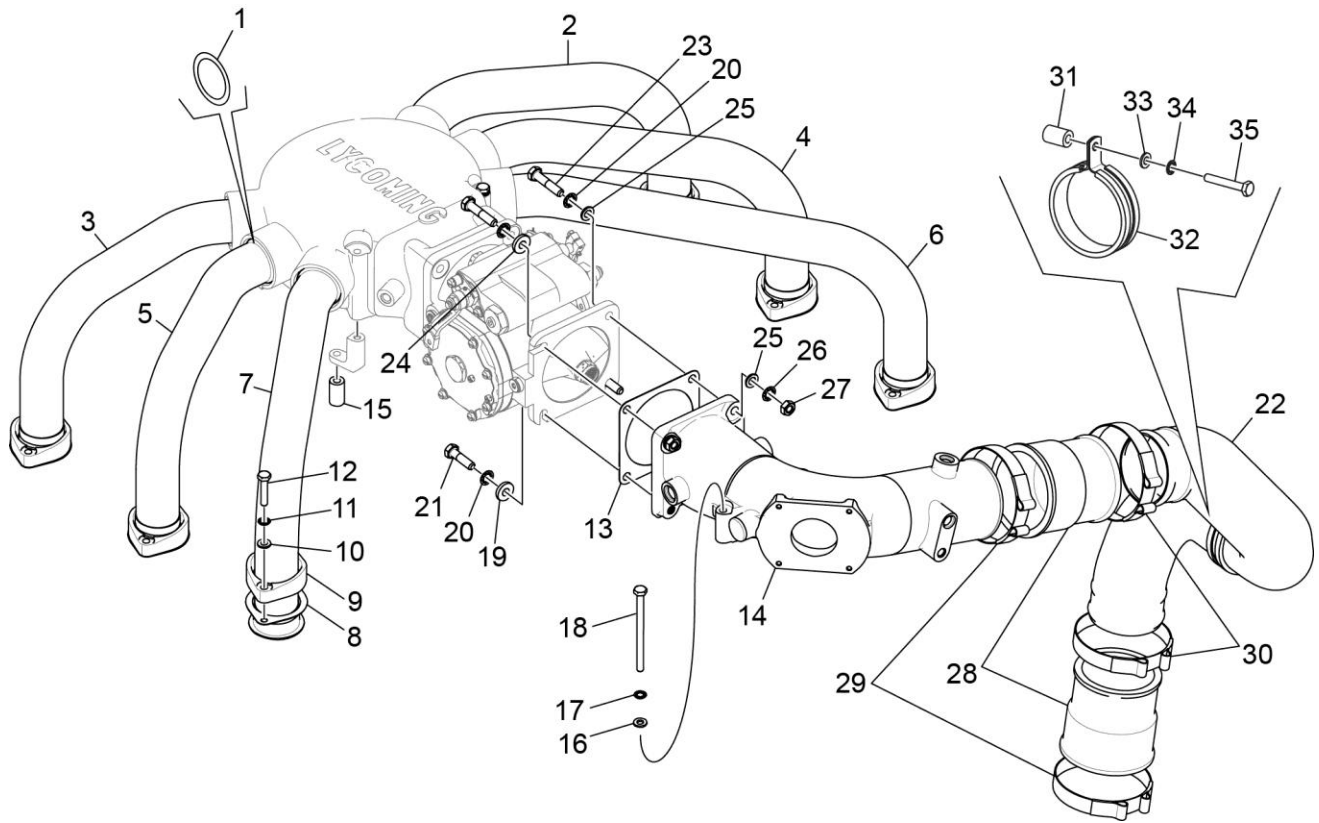


**Figure 15**  
**Sloped Controller and Related Parts**



**Figure 15 - Sloped Controller and Related Parts**

Figure Item	Code	Part Number	Description	Units per Assembly
1		MS20823-6	ELBOW, 1/4 NPT to 3/8 flared tube	1
2		AN912-9	BUSHING, Reducer, 3/4 NPT to 1/4 NPT	1
3		72376	ELBOW, 90° , 1/4 tube to 7/16 thread	1
4		LW-12799-6S144	HOSE ASSEMBLY, 3/8 hose, straight	1
5		LW-12798-4S095	HOSE ASSEMBLY, 1/4 hose, straight	1
6		74070	ELBOW, 3/8 flared tube, 9/16-18 thread	1
7		LW-12877-6S142	HOSE ASSEMBLY, 3/8 hose, 90° elbow	1
8		LW-14445-11	VALVE ASSEMBLY, Absolute pressure relief	1
9		MS29513-138	O-RING, 2-7/64 I.D. x 7/64 section	1
10		STD-28	WASHER, No. 10 plain	4
11		STD-251	WASHER, No. 10, internal lock	4
12		STD-2248	SCREW, No. 10-24 x 5/8 long, fillister head	4
13		48B22314	CONTROLLER, Sloped	1
14		LW-12798-4S204	HOSE ASSEMBLY, 1/4 hose, straight	1
15		75948	TEE, 1/4 tube x 7/16 thread	1
16		LW-12876-4S120	HOSE ASSEMBLY, 1/4 hose, 90° elbow	1
17		02A22619	ELBOW, 1/8 NPT to 1/4 flared tube	1
18		MS29512-04	O-RING, 11/32 I.D. x 1/16 section	2
19		AN814-4L	PLUG & BLEEDER, 7/16-20 UNF, dr.	1
20		LW-12876-4S250	HOSE ASSEMBLY, 1/4 hose, 90° elbow	1
21		1102	PLUG, 1/8 pipe	1
22		LW-16561	NIPPLE, 1/4 tube to 9/16-18 thread	2
23		02G22466	NIPPLE, 5/16-24 to 7/16-20 thread	1
24		72377	ELBOW, 3/8 flared tube, adjustable	1
25		75739	NIPPLE, 3/8 flared tube	2



**Figure 16**  
**Intake Pipes, Air Inlet Housing, and Attaching Parts**

**Figure 16 – Intake Pipes, Air Inlet Housing, and Attaching Parts**

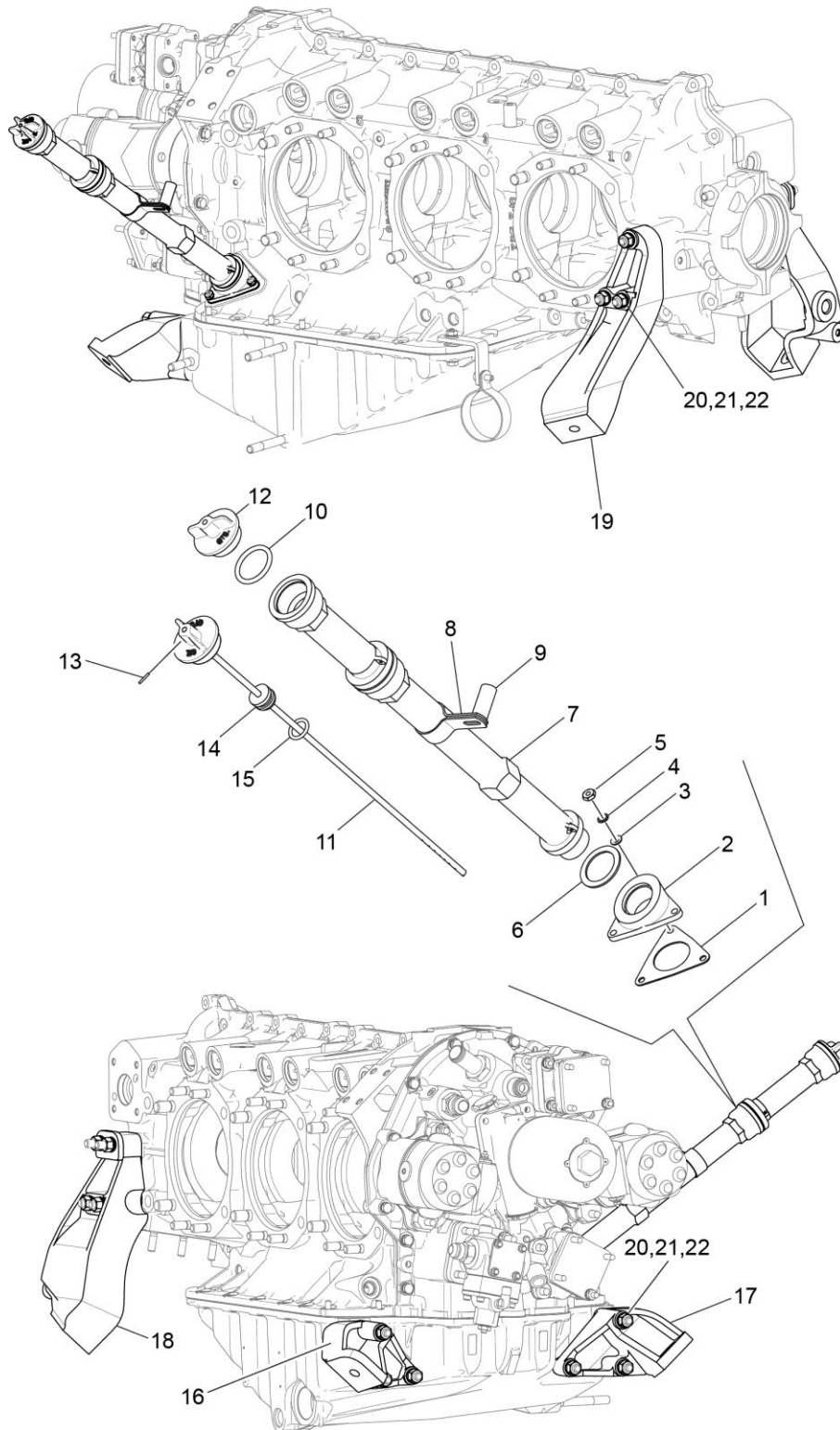
Figure Item	Code	Part Number	Description	Units per Assembly
1		72711	RING, Seal, intake pipes	6
2		42E22417	PIPE, Intake, cylinder No. 1	1
3		42E22418	PIPE, Intake, cylinder No. 2	1
4		42E22419	PIPE, Intake, cylinder No. 3	1
5		42E22420	PIPE, Intake, cylinder No. 4	1
6		42E22421	PIPE, Intake, cylinder No. 5	1
7		42E22422	PIPE, Intake, cylinder No. 6	1
8		71973	GASKET, 2 bolt flange, 1-13/16 I.D.	6
9		74360	FLANGE, Intake pipe	6
10		STD-8	WASHER, 1/4 plain	12
11		STD-160	WASHER, 1/4 lock, internal teeth	12
12		LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head	12
13		74944	GASKET, Turbocharger controller adapter	1
14		41A22425	HOUSING, Air inlet	1
15		01L22432	SPACER, 9/32 I.D. x 9/16 O.D. x 1.00	2
16		STD-8	WASHER, 1/4 plain	2
17		STD-160	WASHER, 1/4 lock, internal teeth	2
18		LW-25-3.00	BOLT, 1/4-20 x 3.00 long, hex. head	2
19		STD-1727	WASHER, Plain, 21/64 I.D. x 3/4 O.D. x 1/8 thick	2
20		STD-475	WASHER, 5/16 lock, internal teeth	2
21		LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	2
22		02P22557	TUBE, Air inlet	1
23		LW-31-1.50	BOLT, 5/16-18 x 1-1/2 long, hex. head	2
24		STD-1727	WASHER, Plain, 21/64 I.D. x 3/4 O.D. x 1/8 thick	2
25		STD-35	WASHER, 5/16 plain	2
26		STD-475	WASHER, 5/16 lock, internal teeth	2
27		STD-1410	NUT, 5/16-18 plain	2
28		02M22269	HOSE, 2-3/4 to 3.00 I.D. x 3-1/2 long	2
29		LW-15858-62-350	CLAMP, T-bolt	2

(continued on next page)

**Figure 16 – Intake Pipes, Air Inlet Housing, and Attaching Parts (Cont.)**

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
30		LW-15858-62-325	CLAMP, T-bolt	2
31		01L22292	SPACER, 9/32 I.D. x 9/16 O.D.	1
32		07C22293	CLAMP, 2-3/4 I.D. x 5/8 cushion	1
33		STD-8	WASHER, 1/4 plain	2
34		STD-160	WASHER, 1/4 lock, internal teeth	1
35		LW-25-1.63	BOLT, 1/4-20 x 1-5/8 long, hex. head	1

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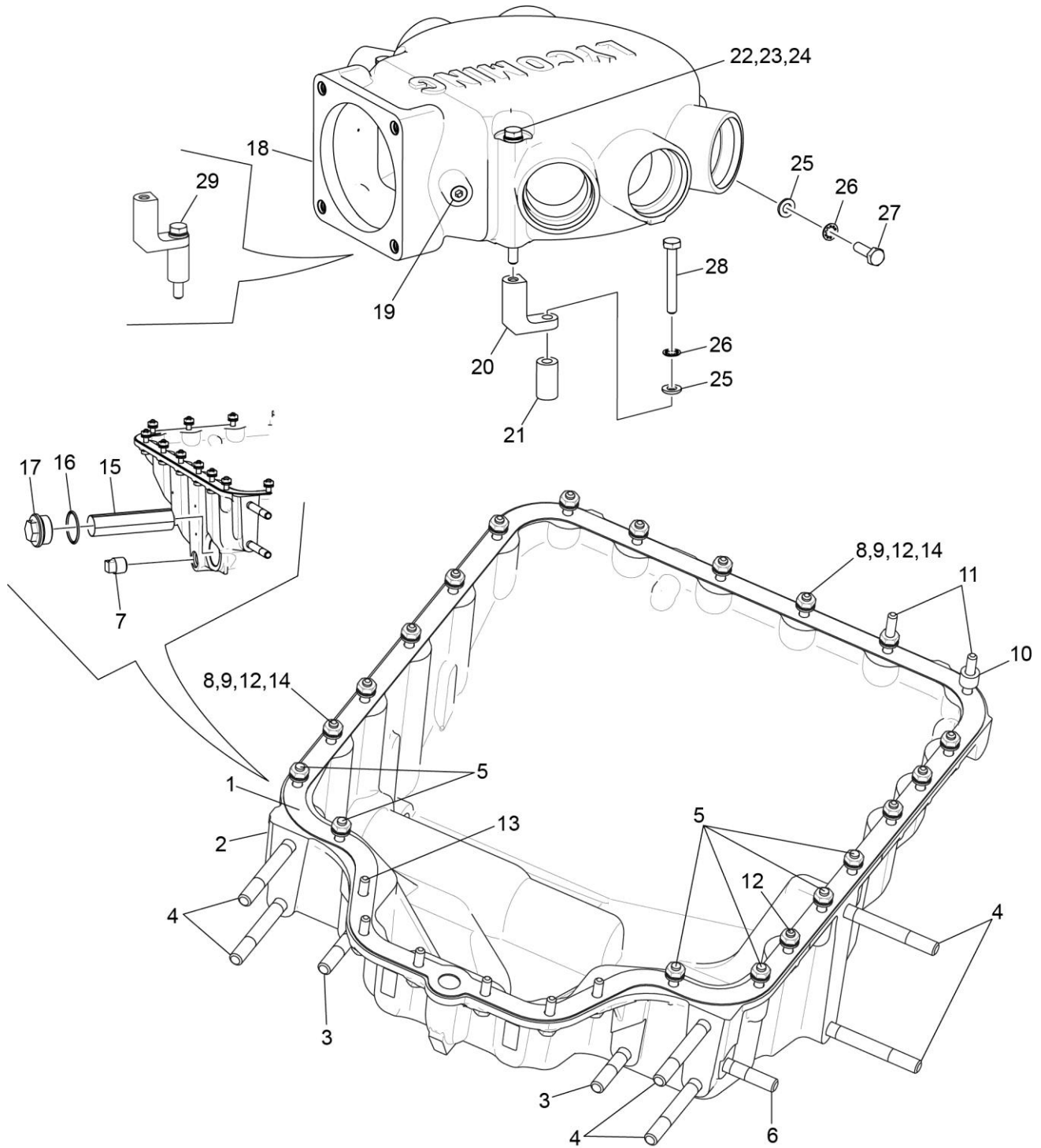


**Figure 17**  
**Oil Level Gage Assembly and Engine Mounting Brackets**

**Figure 17 - Oil Level Gage Assembly and Engine Mounting Brackets**

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-18481	GASKET, Oil filler adapter	1
2		12D22326	ADAPTER, Oil filler tube	1
3		STD-28	WASHER, No. 10 plain	3
4		STD-251	WASHER, No. 10 internal lock	3
5		STD-63	NUT, No. 10-32 plain	3
6	*	72059	GASKET, Oil level gage	1
7	*	56C23075	TUBE, Oil level gage (long)	1
8	*	07C23076	CLAMP, Oil filler tube	1
9	*	01L23080	SPACER, 7/32 I.D. x 1/2 O.D. x 1-3/32 thick	1
10	*	74065	RING, Oil level gage seal	1
11	*	LW-16783-29	GAGE ASSEMBLY, Oil level	1
12	*	72844	PLUG, Oil level gage	1
13		STD-366	PIN, 1/16 diameter x 7/16 long	1
14		74525	BUSHING, Oil level gage	1
15		74524	RING, Oil level gage bushing	1
16		12A22201	BRACKET, Engine mount, left rear	1
17		12A22202	BRACKET, Engine mount, right rear	1
18		12A22233	BRACKET, Engine mount, left front	1
19		12A22234	BRACKET, Engine mount, right front	1
20		STD-33	WASHER, 3/8 plain	13
21		STD-678	WASHER, 3/8 lock, internal teeth	13
22		STD-596	NUT, 3/8-24 plain	13

\* These parts are shipped loose.

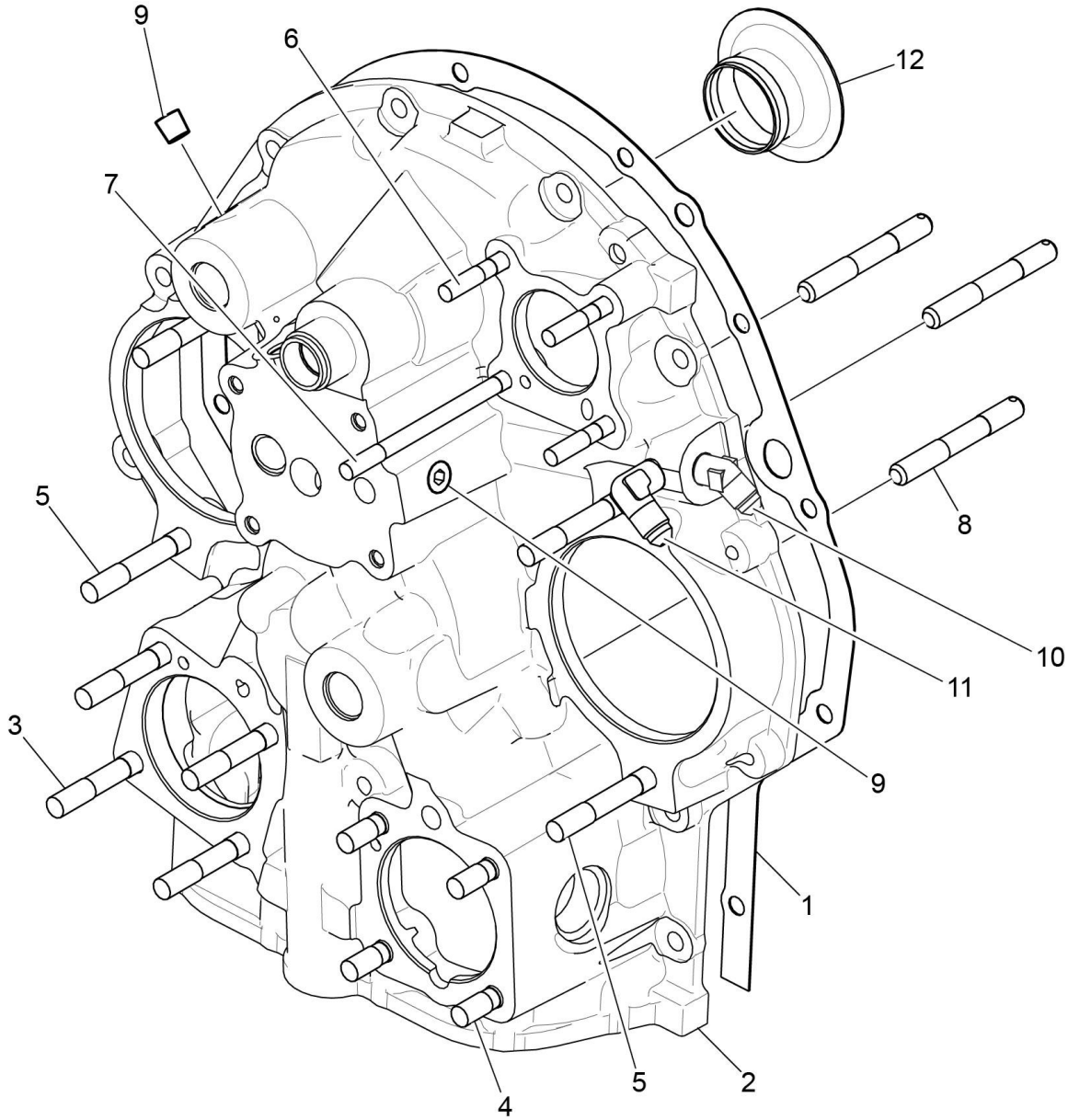


**Figure 18**  
**Oil Sump Assembly, Induction Housing, and Oil Suction Screen**



**Figure 18 – Oil Sump Assembly, Induction Housing, and Oil Suction Screen**

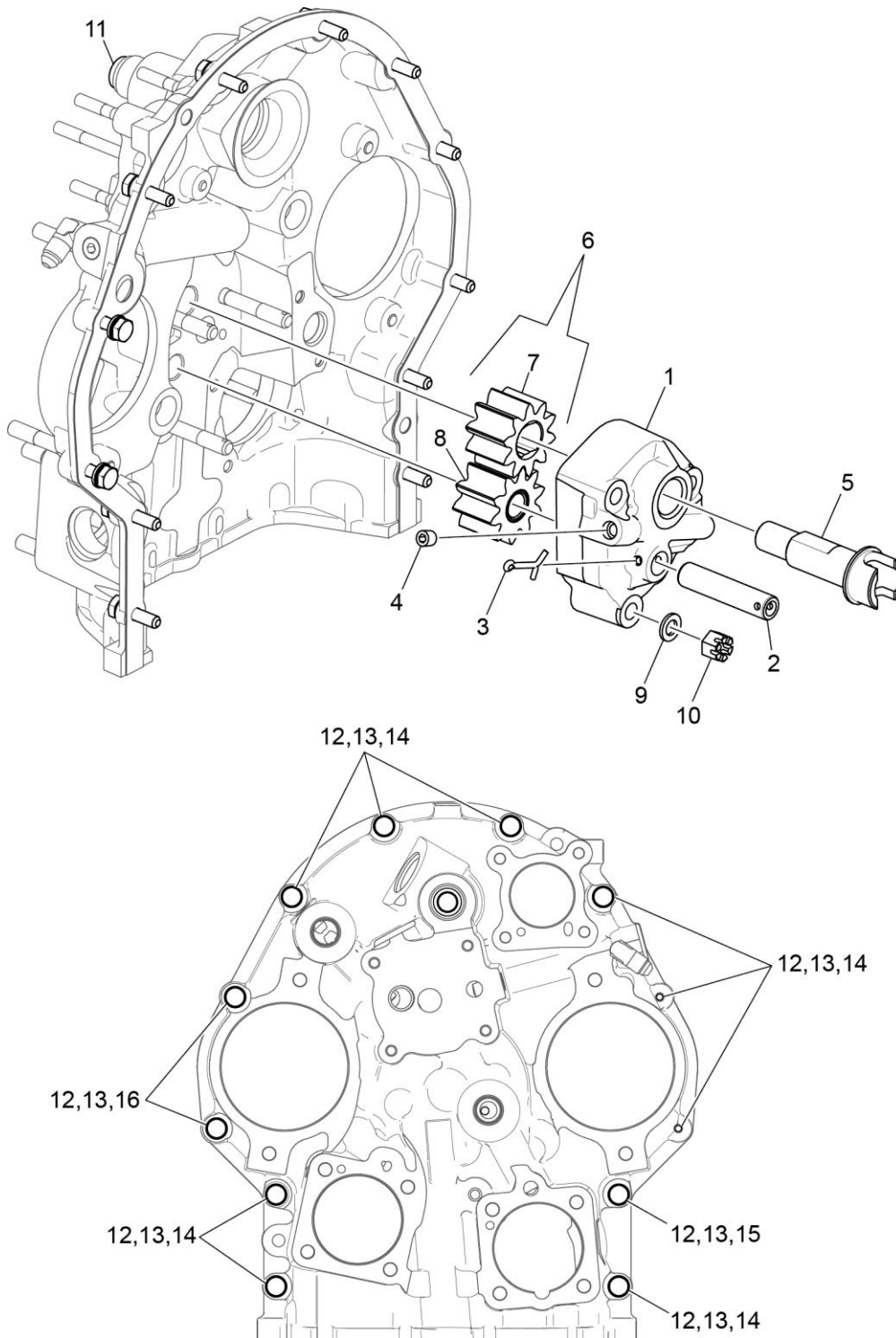
Figure Item	Code	Part Number	Description	Units per Assembly
1		06B21326	GASKET, Oil sump	1
2		56A22281	SUMP ASSEMBLY, OIL	1
3		38-20	STUD, 3/8-16 x 2-1/2 long	2
4		38-28	STUD, 3/8-16 x 3-1/2 long	6
5		25C-11	STUD, 1/4-20 x 1-3/8 long	6
6		38-19	STUD, 3/8-16 x 2-3/8 long	1
7		STD-551	PLUG, 1/2-14 NPT, square head, drilled	1
8		STD-8	WASHER, 1/4 plain	33
9		STD-160	WASHER, 1/4 lock, internal teeth	27
10		74655	SPACER, Exhaust manifold	2
11		LW-25-1.75	BOLT, 1/4-20 X 1-3/4 long, hex. head	2
12		LW-25-1.13	BOLT, 1/4-20 X 1-1/8 long, hex. head	13
13		LW-25-1.00	BOLT, 1/4-20 X 1.00 long, hex. head	6
14		STD-1411	NUT, 1/4-20 plain	21
15		77644	SCREEN, Oil suction	1
16		06E19769-1.50	GASKET, ANNULAR, 1-1/2 I.D.	1
17		77645	PLUG, 1-1/2-18-hex.head	1
18		42A22429	HOUSING, Induction	1
19		1102	PLUG, 1/8 pipe	1
20		07A22431	BRACKET, Support induction housing	2
21		01L22432	SPACER, 9/32 I.D. x 9/16 O.D. x 1.00	1
22		STD-8	WASHER, 1/4 plain	2
23		STD-160	WASHER, 1/4 lock, internal teeth	2
24		LW-25-3.63	BOLT, 1/4-20 x 3-5/8 long, hex. head	2
25		STD-8	WASHER, 1/4 plain	3
26		STD-160	WASHER, 1/4 lock, internal teeth	3
27		LW-25-0.81	BOLT, 1/4-20 x 13/16 long, hex. head	1
28		LW-25-1.88	BOLT, 1/4-20 x 1-7/8 long, hex. head	1
29		LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head	1



**Figure 19**  
**Accessory Housing Assembly**

**Figure 19 – Accessory Housing Assembly**

Figure Item	Code	Part Number	Description	Units per Assembly
1		73818	GASKET, Accessory housing	1
2		21C21542-05	HOUSING ASSEMBLY, Accessory, studding	1
3		31C-19	STUD, 5/16-18 x 2-3/8 long	4
4		31C-12	STUD, 5/16-18 x 1-1/2 long	4
5		31C-21	STUD, 5/16-18 x 2-5/8 long	4
6		25C-14	STUD, 1/4-20 x 1-3/4 long	3
7		25C-31	STUD, 1/4-20 x 3-7/8 long	1
8		31CD-20	STUD, 5/16-18 x 2-1/2 long, drilled	3
9		1102	PLUG, 1/8 pipe	2
10		MS20823-4	ELBOW, 1/8 NPT to 1/4 fl tube, 45°	1
11		MS20822-4	ELBOW, 1/8 NPT to 1/4 tube, 90°	1
12		76156	SHIELD, Oil accessory breather	1

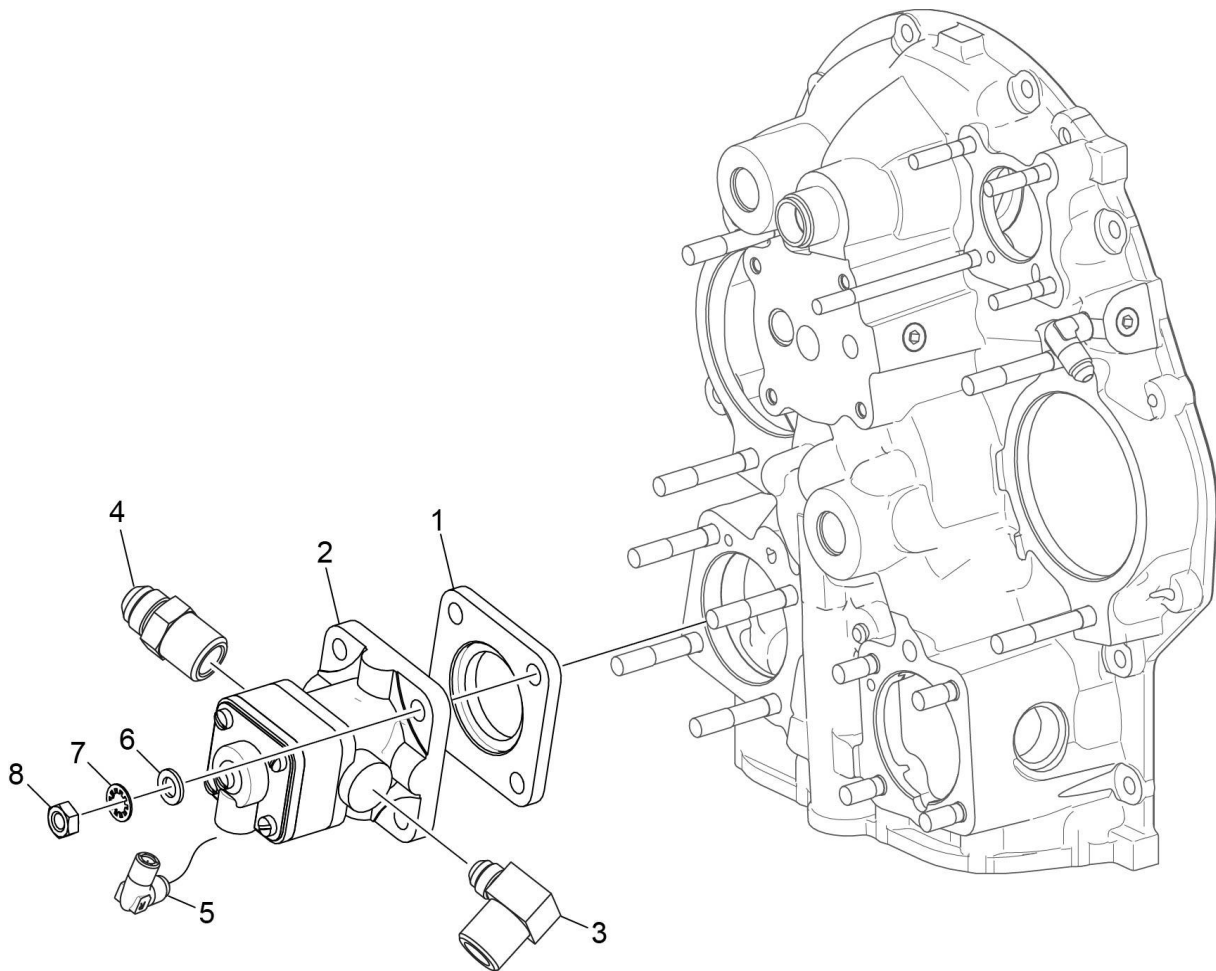


**Figure 20**  
**Oil Pump Assembly and Accessory Housing Attaching Parts**

**Figure 20 – Oil Pump Assembly and Accessory Housing Attaching Parts**

Figure Item	Code	Part Number	Description	Units per Assembly
1		51A22618	BODY ASSEMBLY, Oil pump	1
2	<b>P</b>	51D22617	SHAFT, Oil pump, idler	1
3		STD-714	PIN, 1/8 diameter x 1.00 long, cotter	1
4		STD-1339	PLUG, 1/16, 27 NPT	1
5		76784	SHAFT, Oil pump drive	1
6		05K23463	IMPELLER KIT	1
7	<b>P *</b>	51B23274	IMPELLER, Pump driving	1
8	<b>P *</b>	51C23290	IMPELLER ASSEMBLY, Oil pump driven	1
9		STD-35	WASHER, 5/16 plain	3
10		STD-1420	NUT, 5/16, 18 slotted	3
11		LW-14260	SEAL, Tachometer drive, oil	1
12		STD-8	WASHER, 1/4 plain	12
13		STD-160	WASHER, 1/4 lock, internal teeth	12
14		LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	9
15		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
16		LW-25-1.44	BOLT, 1/4-20 x 1-7/16 long, hex. head	2

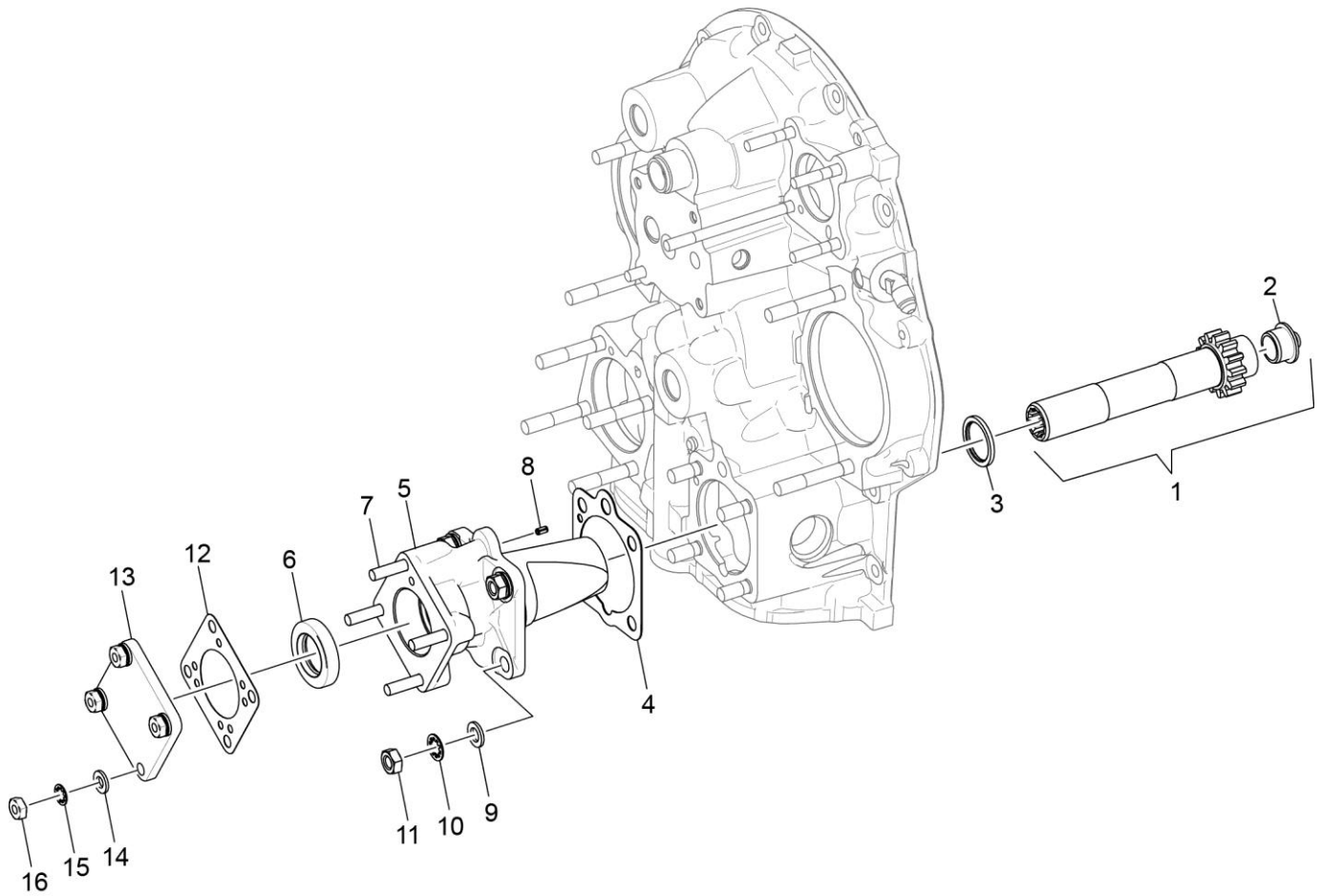
**P** Lycoming proprietary part. Listed for reference purpose only, cannot be purchased.  
**\*** To ensure impellers are replaced together, oil pump impellers available in kit form only.



**Figure 21**  
**Fuel Pump Assembly and Attaching Parts**

**Figure 21 - Fuel Pump Assembly and Attaching Parts**

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-10799	SPACER, Fuel pump, insulating	1
2		62E23190	FUEL PUMP, Kelly 200F-5006	1
		62E23189	FUEL PUMP, 200F-5005 (AN Drive)	1
3		78523	ELBOW, 1/2 NPT to 3/8 tube, 90	1
4		02G23478	NIPPLE, 1/2 flared tube to 1/2 pipe thread	1
5		02A21376	ELBOW, Fuel pump, vent	1
6		STD-35	WASHER, 5/16 plain	4
7		STD-475	WASHER, 5/16 lock, internal teeth	4
8		STD-1410	NUT, 5/16, 18 plain	4

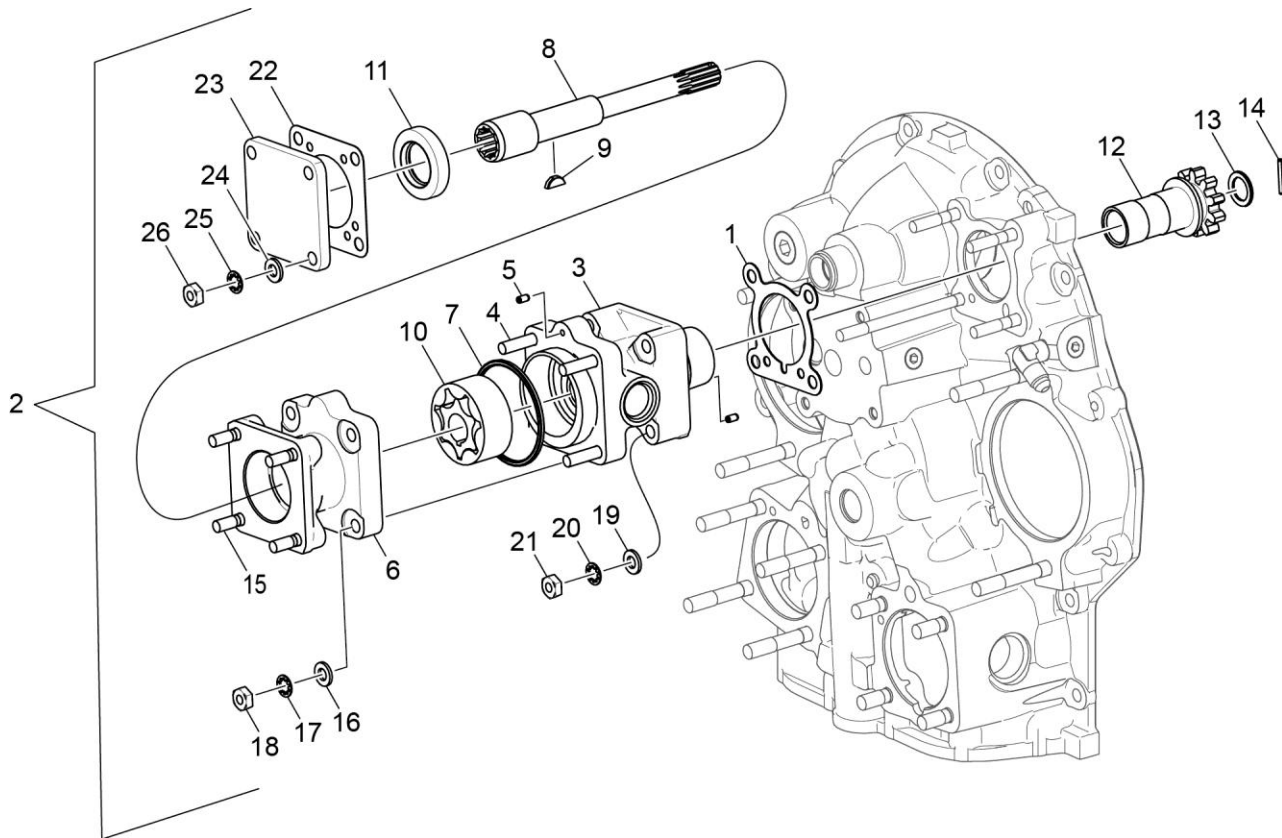


**Figure 22**  
**Hydraulic Pump Drive and Cover**



**Figure 22 – Hydraulic Pump Drive and Cover**

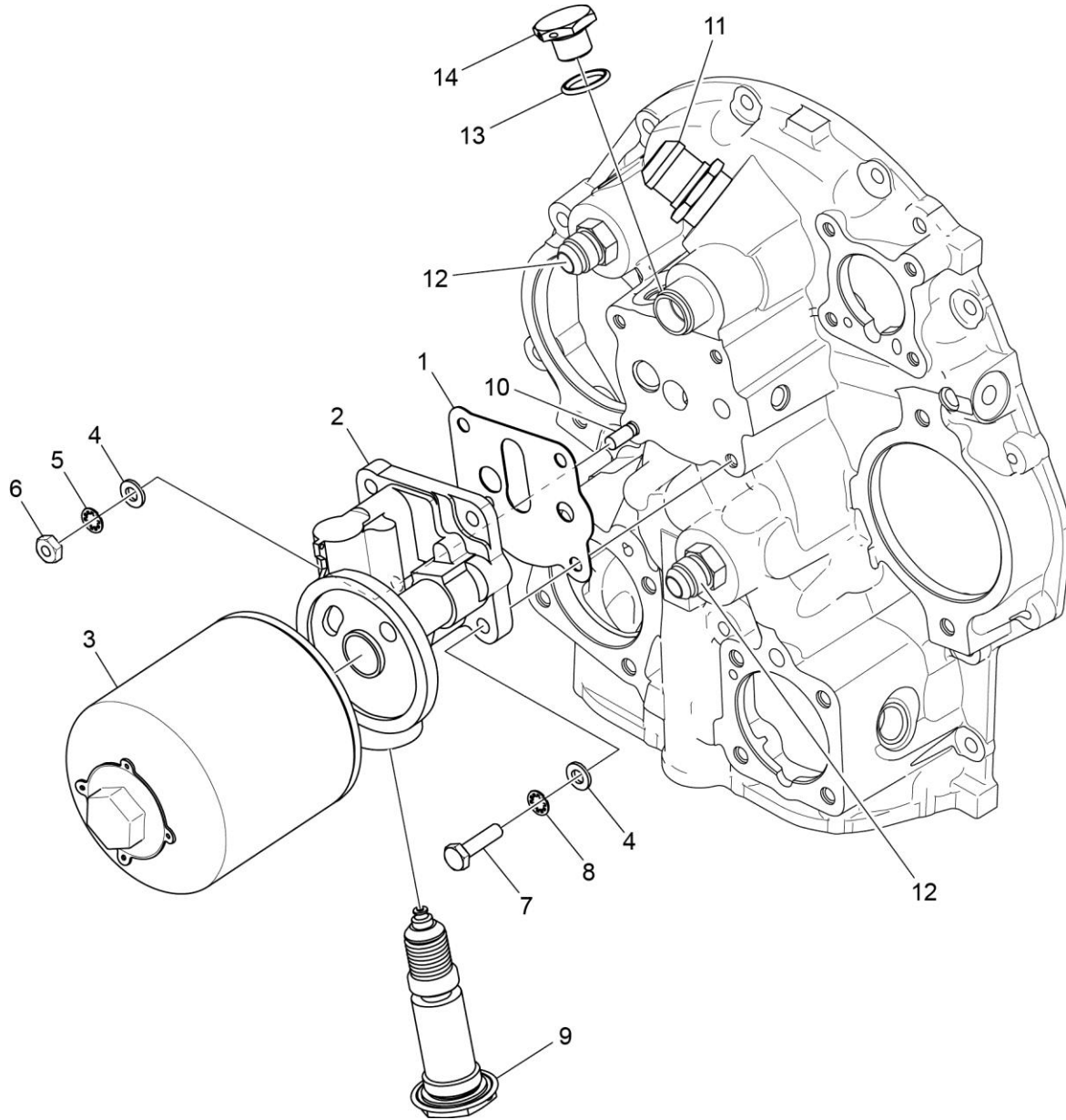
Figure Item	Code	Part Number	Description	Units per Assembly
1		72964	GEAR ASSEMBLY, Hydraulic pump driven	1
2		72962	THRUST BUTTON, Hydraulic pump gear	1
3		71596	WASHER, Accessory drive gear	1
4		68315	GASKET, Accessory drive adapter	1
5	*	27D21250	ADAPTER ASSEMBLY, Hydraulic pump	1
	**	71675	ADAPTER ASSEMBLY, Hydraulic pump	1
6		06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide	1
7		25C-12	STUD, 1/4-20 x 1-1/2 long	4
8		STD-1774	PIN, 1/8 diameter x 1/4 long	1
9		STD-35	WASHER, 5/16 plain	4
10		STD-475	WASHER, 5/16 lock, internal teeth	4
11		STD-1410	NUT, 5/16-18 plain	4
12		8313	GASKET, Vacuum pump	1
13		60430	COVER, Vacuum pump	1
14		STD-8	WASHER, 1/4 plain	4
15		STD-160	WASHER, 1/4 lock, internal teeth	4
16		STD-1411	NUT, 1/4-20 plain	4
* No provision for oil supply				
** Has provision for oil supply				



**Figure 23**  
**Turbo Scavenge Pump and Vacuum Pump Drive and Cover**

**Figure 23 – Turbo Scavenge Pump and Vacuum Pump Drive and Cover**

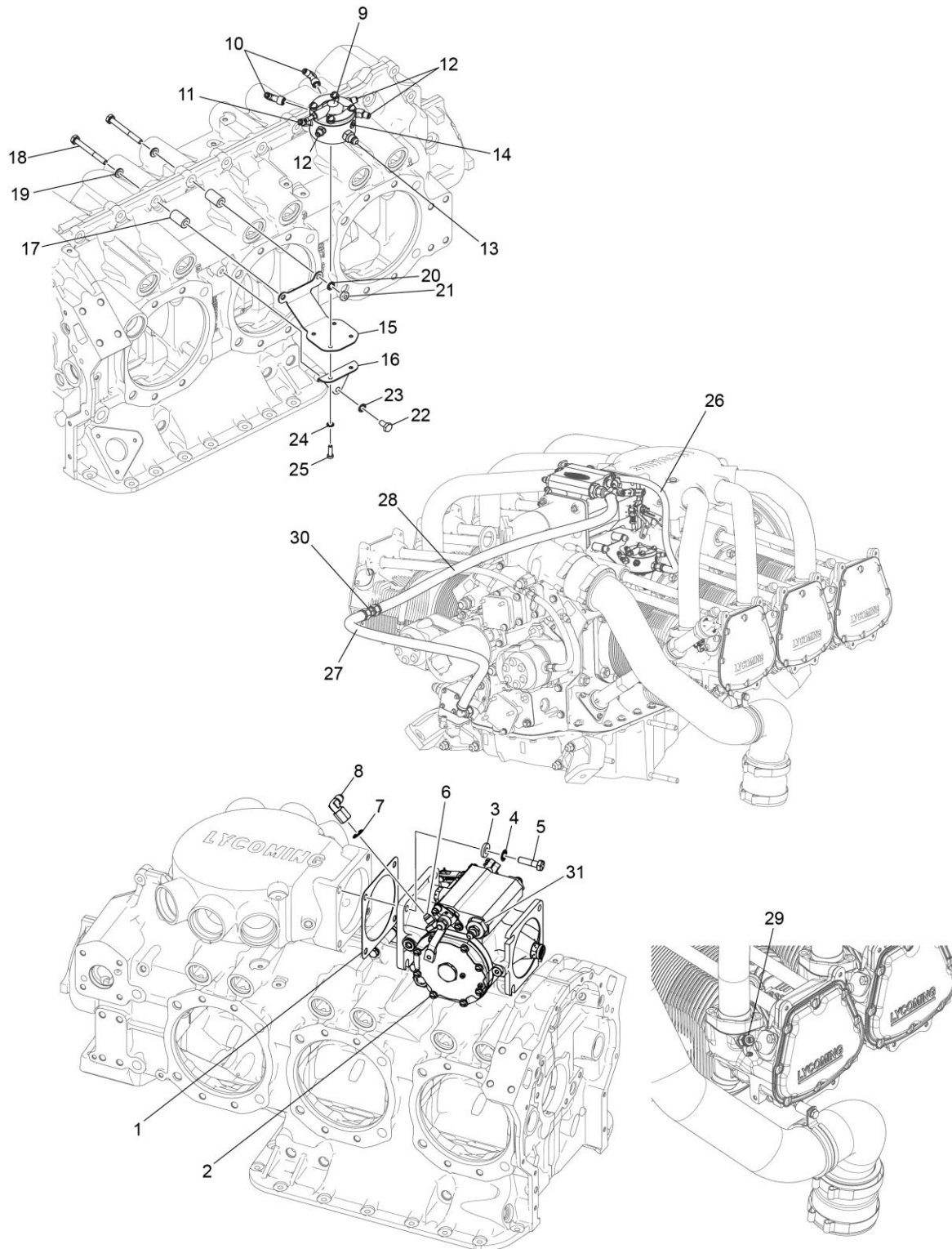
Figure Item	Code	Part Number	Description	Units per Assembly
1		61183	GASKET, Accessory adapter	1
2		29A22457	DRIVE ASSEMBLY, Turbocharger scavenge & vacuum pump	1
3		29A22456	ADAPTER ASSEMBLY, Turbocharger scavenge pump	1
4		25C-11	STUD, 1/4-20 x 1-3/8 long	3
5		STD-1774	PIN, 1/8 x diameter x 1/4 long	2
6		29D22366	ADAPTER, Vacuum pump	1
7		MS28775-137	O-RING, 2-1/16 I.D. x 7/64 diameter section	1
8		29E22367	SHAFT, Vacuum pump drive	1
9		STD-95	KEY, 1/8 x 1/2 Woodruff	1
10		LW-15550	GEROTOR PUMP	1
11		06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16	1
12		29H22368	SHAFTGEAR, Vacuum pump drive	1
13		77708	WASHER, Retaining, propeller governor drive shaftgear	1
14		MS16562-28	PIN, 3/32 diameter x 3/4 long, slotted	1
15		25C-10	STUD, 1/4-20 x 1-1/4 long	4
16		STD-8	WASHER, 1/4 plain	3
17		STD-160	WASHER, 1/4 lock, internal teeth	3
18		STD-1411	NUT, 1/4-20 plain	3
19		STD-8	WASHER, 1/4 plain	4
20		STD-160	WASHER, 1/4 lock, internal teeth	4
21		STD-1411	NUT, 1/4-20 plain	4
22		8313	GASKET, Vacuum pump	1
23		60430	COVER, Vacuum pump	1
24		STD-8	WASHER, 1/4 plain	4
25		STD-160	WASHER, 1/4 lock, internal teeth	4
26		STD-1411	NUT, 1/4-20 plain	4



**Figure 24**  
**Oil Filter Assembly, Oil Cooler Bypass Valve, and Breather Fitting**

**Figure 24 – Oil Filter Assembly, Oil Cooler Bypass Valve, and Breather Fitting**

Figure Item	Code	Part Number	Description	Units per Assembly
1	*	06B23862	GASKET, Oil filter adapter	2
2		77852	OIL FILTER BASE ASSEMBLY	1
3		LW-13215	OIL FILTER, SHORT, CH48110-1	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	3
8		STD-160	WASHER, 1/40 lock, internal teeth	3
9		53E22144	VALVE ASSEMBLY, Temperature control, oil cooler by-pass	1
10		25C-10	STUD, 1/4-20 x 1-1/4 long	1
11		AN840-12D	FITTING, Breather	1
12	**	STD-2238	NIPPLE, -10 TO -6 special	2
13		06E19769-0.63	GASKET, Annular, 5/8 I.D.	1
14		62417	PLUG, Oil cooler bypass	1
<p>* Extra gasket shipped loose with engine.  ** Extra nipple shipped loose with engine.</p>				

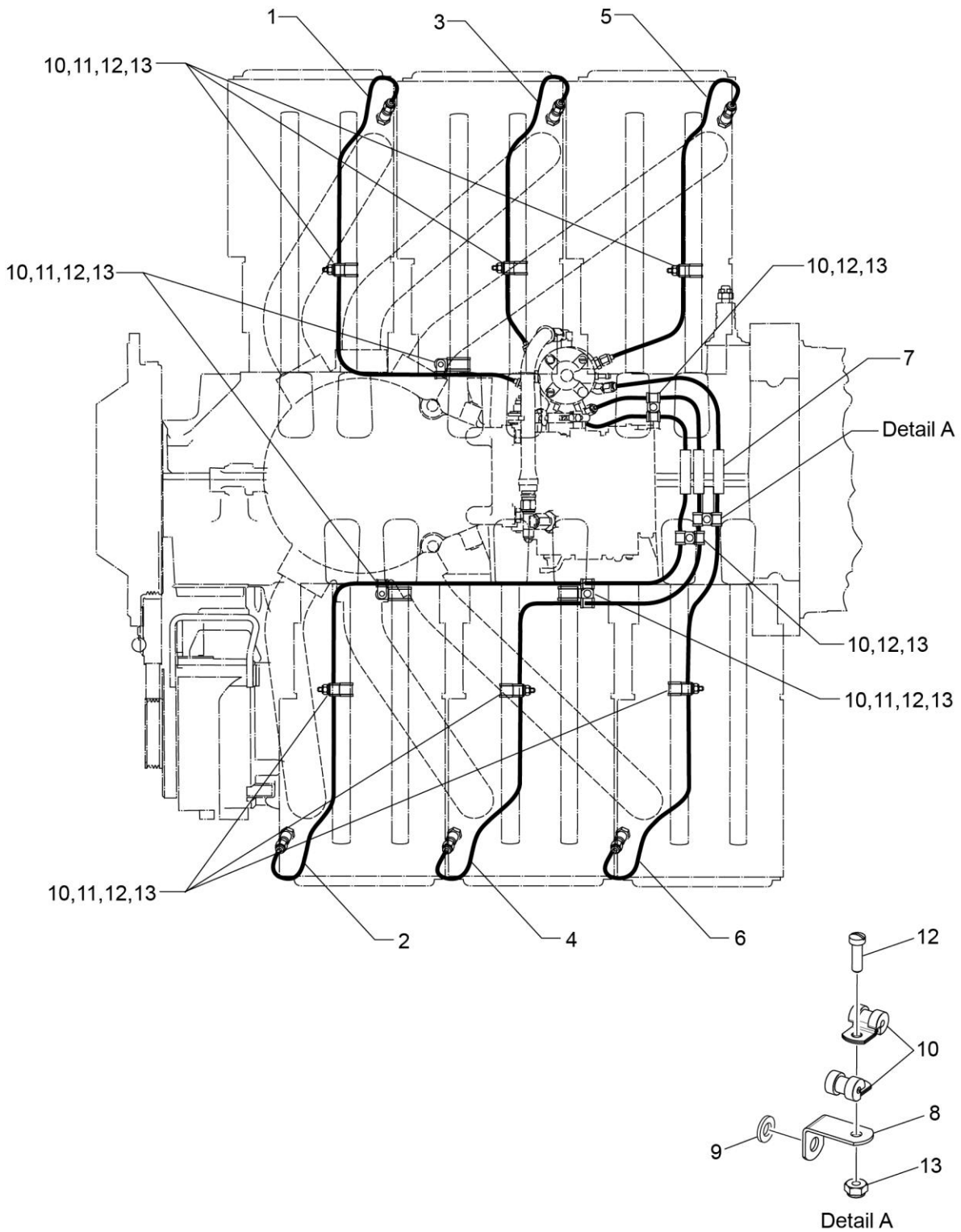


**Figure 25**  
**Fuel Injector, Fuel Manifold, and Injection Nozzles**

**Figure 25 – Fuel Injector, Fuel Manifold, and Injection Nozzles**

Figure Item	Code	Part Number	Description	Units per Assembly
1		73032	GASKET, Air inlet housing	1
2		61M26613	FUEL INJECTOR, RSA-10ED1 (AV 2576562-4)	1
		61M23897	FUEL INJECTOR	1
3		STD-1727	WASHER, plain, 21/64 I.D. x 3/4 O.D. x 1/8 thick	4
4		STD-475	WASHER, 5/16 lock, internal teeth	4
5		LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	4
6		AN919-6	REDUCER, Ext. 3/8 fl tube to 1/4	1
7		MS29512-06	O-RING, 15/32 I.D. x 5/64 section	1
8		78302	ELBOW, 90°, 1/4 tube O.D. with swivel nut	1
9		63B26707	MANIFOLD ASSEMBLY, Fuel, 4 psi	1
10		STD-2166	ELBOW, Union, 90°, 1/8 NPT	2
11		AN791-2	ELBOW, Union, 45°, 1/8 tube	3
12		STD-148	NIPPLE, Union, 1/8 NPT	1
13		AN816-4	NIPPLE, 1/8 NPT to 1/4 tube	1
14		1102	PLUG, 1/8 pipe	1
15		07A22398	BRACKET, Fuel manifold	1
16		07A22397	BRACKET, Fuel manifold	1
17	*	01L22325	SPACER, Induction housing, 61/64 long	2
18	*	STD-2025	BOLT, 1/4-20 x 2-7/16 long, hex. head	2
19		STD-8	WASHER, 1/4 plain	2
20		STD-160	WASHER, 1/4 lock, internal teeth	2
21		STD-1411	NUT, 1/4-20 plain	2
22		LW-25-0.50	BOLT, 1/4-20 1/2 long, hex. head	1
23		STD-160	WASHER, 1/4 lock internal teeth	1
24		STD-251	WASHER, No. 10, internal lock	4
25		STD-82	SCREW, No.10-24 x 1/2 long fillister head	4
26		LW-12798-4S172	HOSE ASSEMBLY, 1/4 hose, straight	2
27		LW-12877-6S220	HOSE ASSEMBLY, 3/8 hose, 90 elbow	1
28		LW-12879-6S082	HOSE ASSEMBLY, 3/8 hose, 45 elbow	1
29		63C26452	NOZZLE ASSEMBLY, high 90 (AV2524926-1), 8 on hex	6
30		AN815-6	UNION, 3/8 flared tube	1
31		02G23257	NIPPLE, 1/4 flared tube to 1/8-27 NPT (restricted 0.026)	1

\* These bolts and spacers replace P/N LW-25-1.50 bolts shown in Figure 8 when the fuel manifold bracket is installed.

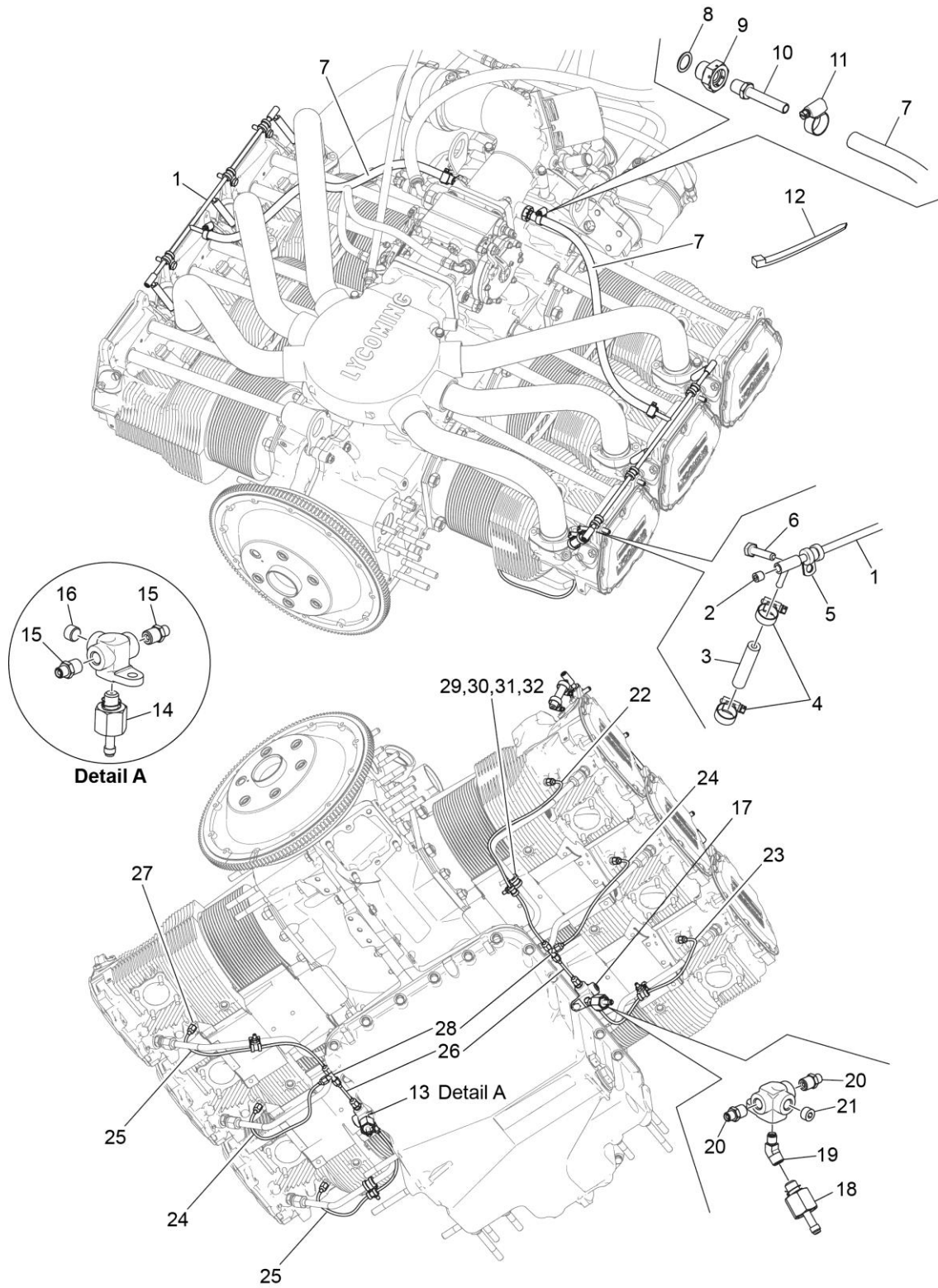


**Figure 26**  
**Fuel Lines and Attaching Parts**



**Figure 26 – Fuel Lines and Attaching Parts**

Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-12098-0-210	TUBE ASSEMBLY, Fuel injector line	1
2		LW-12098-0-412	TUBE ASSEMBLY, Fuel manifold to nozzle	1
3		LW-12098-0-150	TUBE ASSEMBLY, Fuel	1
4		LW-12098-0-340	TUBE ASSEMBLY, Fuel injector line	1
5		LW-12098-0-170	TUBE ASSEMBLY, Fuel	1
6		LW-12098-0-280	TUBE ASSEMBLY, Fuel injector line	1
7		02M22427	HOSE, 3/16 I.D. x 7/16 O.D. x 1-7/8	3
8		73136	BRACKET, Extension, fuel injector line (angle)	1
9		STD-8	WASHER, 1/4 plain	2
10		LW-16266-10-13	CLAMP, 1/8 diameter for No. 10 screw	16
11		LW-16266-10-75	CLAMP	9
12		STD-860	SCREW, No. 10-32 x 5/8 long, fillister head	12
13		STD-670	LOCK NUT, No. 10-32	12



**Figure 27**  
**Injector Nozzle Vent Manifolds, Fuel Drain Manifolds, and Tube Assemblies**

**Figure 27 – Injector Nozzle Vent Manifolds, Fuel Drain Manifolds, and Tube Assemblies**

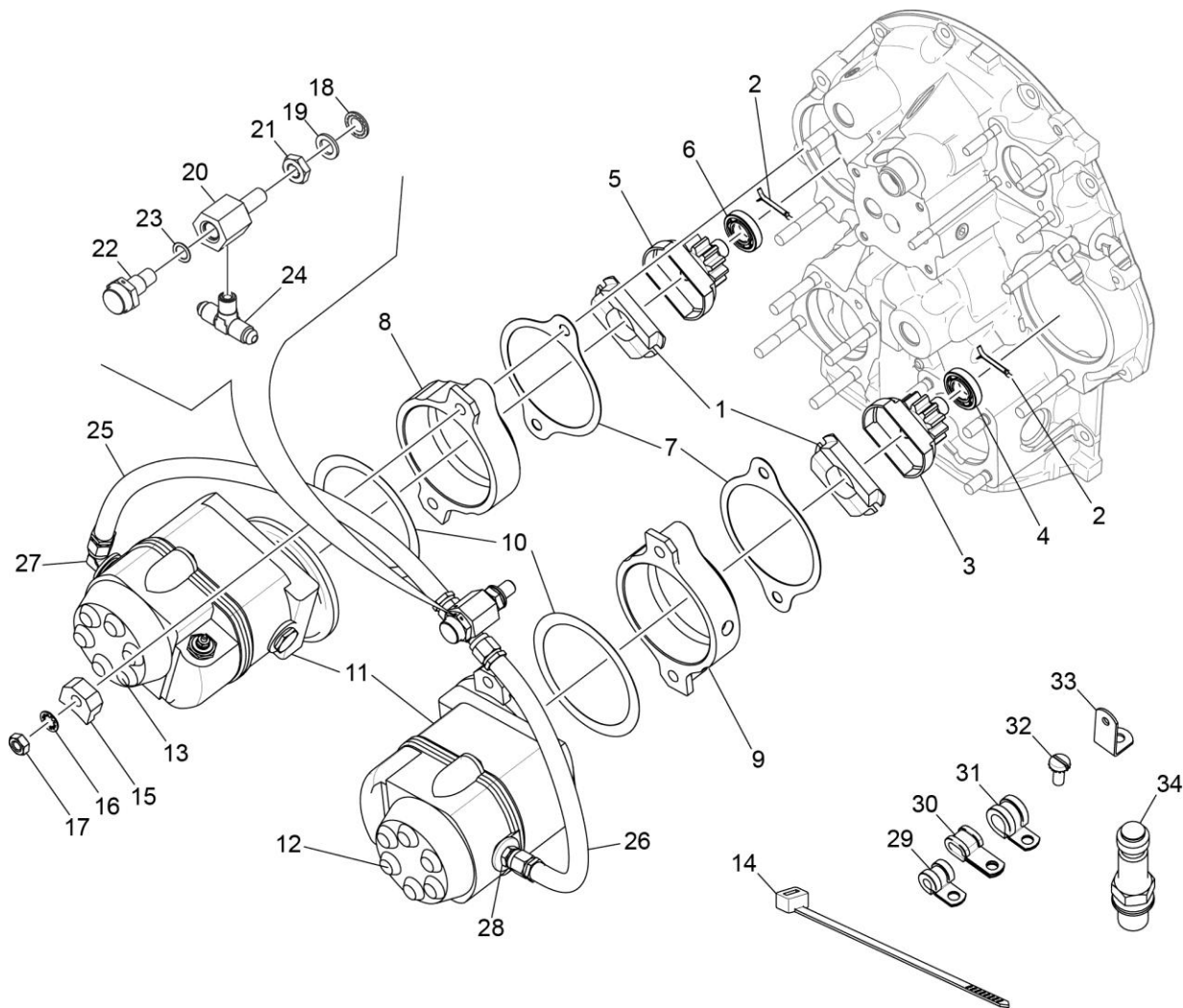
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-18860	MANIFOLD, Injector nozzle vent	2
2		STD-1339	PLUG, 1/16-27 NPT	4
3		LW-18737	HOSE, 3/16 I.D. x 7/16 O.D. x 2.00 long	6
4		LW-15592-5-04	CLAMP, Hose, 7/16 O.D.	12
5		LW-16266-25-25	CLAMP, One wire	6
6		STD-2029	BOLT, 1/4-20 x 1-1/8 long, hex. head	6
7		LW-18675-4	HOSE, 1/4 I.D. x 1/2 O.D. x 20-1/2 long	2
8		MS29512-06	O-RING, 15/32 I.D. x 5/64 section	2
9		74797	FITTING, 9/16-18 to 1/8-27 NPT	2
10		AN840-4D	ADAPTER, Straight, 1/8 NPT	2
11		LW-15592-5-04	CLAMP, Hose, 7/16 O.D.	4
12		76734	ZIP STRAP	5
13		63M22386	MANIFOLD ASSEMBLY, Fuel drain	1
		63M26585	MANIFOLD ASSEMBLY, Fuel drain	1
14		LW-13807	ADAPTER ASSEMBLY, Fuel drain valve	1
15		STD-148	NIPPLE, Union, 1/8 NPT	2
16		1102	PLUG, 1/8 pipe	1
17		63M22564	MANIFOLD ASSEMBLY, Fuel drain	1
18		LW-13807	ADAPTER ASSEMBLY, Fuel drain valve	1
19		02A22460	ELBOW, Street, 1/8-27 NPT, 45°	1
20		STD-148	NIPPLE, Union, 1/8 NPT	2
21		1102	PLUG, 1/8 pipe	1
22		LW-12098-0-160	TUBE ASSEMBLY, Fuel drain, cyl. No. 2	1
23		LW-12098-0-100	TUBE ASSEMBLY, Fuel drain, cyl. No. 6	1

(continued on next page)

**Figure 27 – Injector Nozzle Vent Manifolds, Fuel Drain Manifolds and Tube Assemblies  
(Cont.)**

Figure Item	Code	Part Number	Description	Units per Assembly
24		LW-12098-0-090	TUBE ASSEMBLY, Fuel drain, cyl. No. 3 & 4	2
25		LW-12098-0-130	TUBE ASSEMBLY, Fuel drain, cyl. No. 1 & 5	2
26		LW-12098-0-012	TUBE ASSEMBLY, Fuel drain, int., rt. & lt.	2
27		STD-148	NIPPLE, Union, 1/8 NPT	6
28		STD-853	TEE, Union, 1/8 tube	2
29		LW-16266-10-38	CLAMP, 3/8 diameter for No. 10 screw	4
30		LW-16266-10-13	CLAMP, 1/8 diameter for No. 10 screw	4
31		STD-860	SCREW, No. 10-32 x 5/8 long, fillister head	4
32		STD-670	LOCK NUT, No. 10-32	4

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**Figure 28**  
**Magnetos, Magneto Drives, Harnesses, and Spark Plugs**

**Figure 28 – Magnetos, Magneto Drives, Harnesses, and Spark Plugs**

Figure Item	Code	Part Number	Description	Units per Assembly
1		68H22624	CUSHION, Magneto drive	4
2		MS9245-44	COTTER PIN, 3/32 diameter x 5/8 long	2
3		LW-19096	GEAR RETAINER ASSEMBLY	1
4		67542	BALL BEARING	1
5		LW-19102	GEAR RETAINER ASSEMBLY	1
6		67542	BALL BEARING	1
7		62224	GASKET, Magneto adapter	2
8		LW-12707	ADAPTER, Magneto, left, impulse coupling	1
9		LW-13926	ADAPTER, Magneto	1
10		LW-12681	GASKET, Magneto	2
11		66LC35SDNP	MAGNETO, Impulse 6361	2
12		67J20608-P	HARNESS, Right, Slick P/N M-2966	1
13		67J20609-P	HARNESS, Left, Slick P/N M-2965	1
14		76734	ZIP STRAP	4
15		66M21195	CLAMP, Magneto	4
16		STD-475	WASHER, 5/16 lock, internal teeth	4
17		STD-1410	NUT, 5/16-18 plain	4
18		STD-2007	WASHER, 3/8 diameter seal	1
19		STD-33	WASHER, 3/8 plain	7
20		LW-13227	ADAPTER, Magneto pressurization	1
21		LW-13226	NUT, 3/8-16 plain	1
22		66N21020	VALVE ASSEMBLY, Relief	1
23		MS29512-04	O-RING, 11/32 I.D. x 1/16 sect.	1
24		AN825-4	TEE, 1/4 flared tube x 1/8 NPT	1
25		LW-12798-4S111	HOSE ASSEMBLY, 1/4 hose, straight	1
26		LW-12798-4S130	HOSE ASSEMBLY, 1/4 hose, straight	1
27		MS20822-4	ELBOW, 1/8 NPT to 1/4 tube, 90°	1
28		AN816-4	NIPPLE, 1/8 NPT to 1/4 tube	1

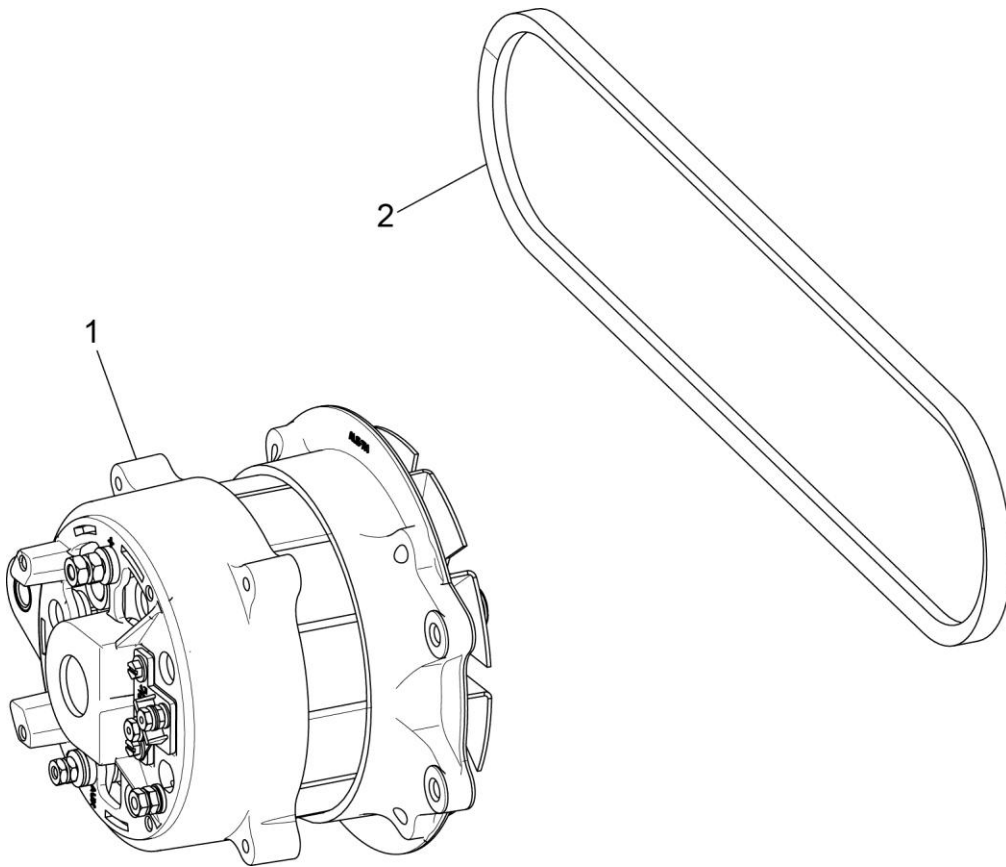
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**Figure 28 – Magnetos, Magneto Drives, Harnesses, and Spark Plugs (Cont.)**

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
29		LW-16266-25-25	CLAMP, One wire	2
30		LW-14060	CLIP, Two wire	2
31		LW-16266-25-44	CLAMP, 7/16 I.D. x 1/4 diameter screw	3
32		STD-1925	SCREW, 1/4-20 x 5/8 long, pan. head, self-locking	2
33		73136	BRACKET, Extension, fuel injector line	1
34	*	1182-H7	SPARK PLUG, Champion P/N RHB37E	12
* Refer to the latest revision of Lycoming Service Instruction No. 1042 for complete listing of all approved spark plugs.				



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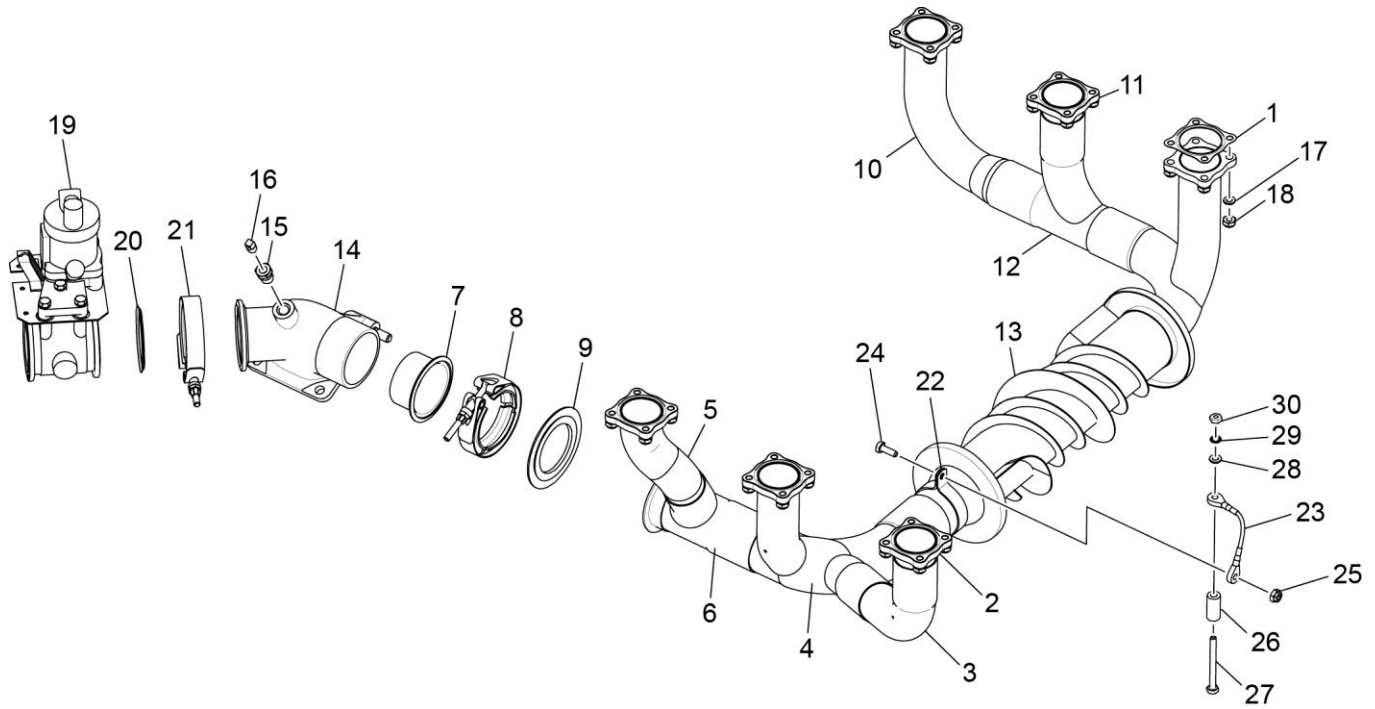


**Figure 29**  
**Alternator Assembly**

**Figure 29 – Alternator Assembly**

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		LW-18900	ALTERNATOR ASSEMBLY, 24 volt, 100 amp	1
2		37A19773M376	BELT, Alternator, set of 2, 3/8 wide	1

NOTE: See latest revision of Lycoming Service Instruction No. 1154 for complete listing of FAA approved starters and alternators.



**Figure 30**  
**Exhaust Crossover Pipes, Bypass Valve, and Transition Assembly**

**Figure 30 - Exhaust Crossover Pipes, Bypass Valve, and Transition Assembly**

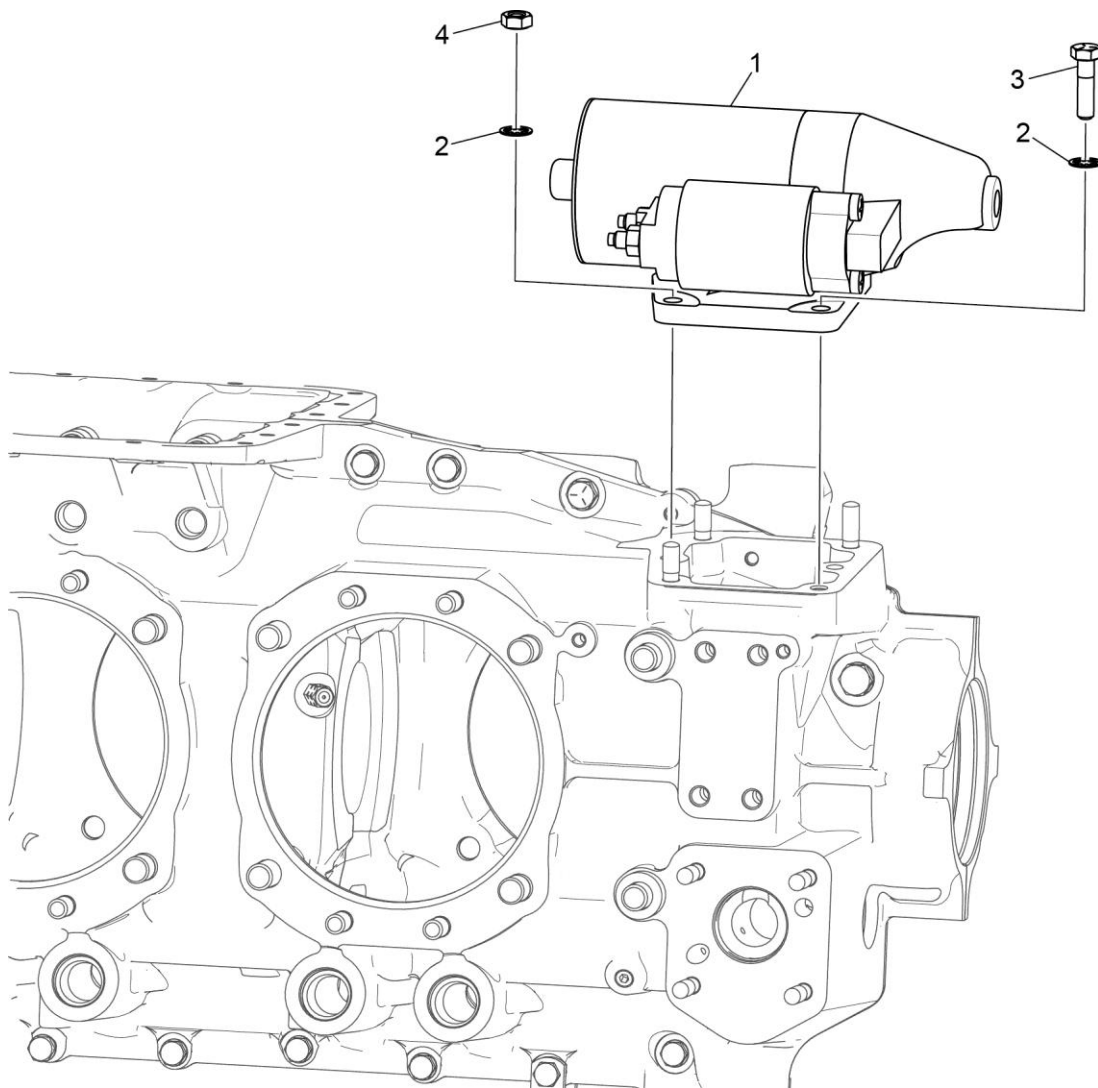
Figure Item	Code	Part Number	Description	Units per Assembly
1		LW-18234	GASKET, Exhaust flange	12
2		40G22384	ADAPTER, Exhaust pipe, cyl. No.1	1
3		40B22190	PIPE, Exhaust, cyl. No. 1	1
		40B23387	PIPE, Exhaust cyl. No. 1 (EGT probe hole)	1
4		40B22621	PIPE, Exhaust, cyl. No. 3	1
		40B23388	PIPE, Exhaust cyl. No. 3 (EGT probe hole)	1
5		40B22193	PIPE, Exhaust, cyl. No. 5	1
		40B23389	PIPE, Exhaust cyl. No. 5 (EGT probe hole)	1
6		40B22267	PIPE, Exhaust, inter. cyl. No. 5	1
7		40C22381	FLANGE, Exhaust manifold	1
8		40D22382	COUPLING, V-band	1
9		78246	GASKET, V-band coupling 2-1/4 tube	1
10		40B22380	PIPE, Exhaust, left, cyl. No. 6	1
		40B23384	PIPE, Exhaust cyl. No. 6 (EGT probe hole)	1
11		40G22384	ADAPTER, Exhaust pipe, cyl. No. 4	1
12		40B22379	PIPE, Exhaust, left, cyl. No. 4	1
		40B23385	PIPE, Exhaust cyl. No. 4 (EGT probe hole)	1
13		40B22318	PIPE, Exhaust, cyl. No. 2	1
		40B23386	PIPE, Exhaust cyl. No. 4 (EGT probe hole)	1
14		47C22625	TRANSITION ASSEMBLY, Exhaust	1
15		STD-1932	BUSHING, 1/4 to 1/8 NPT	1
16		STD-405	PLUG, 1/8 NPT, Square head, drilled	1
17		AN960C416	WASHER, 1/4 plain	24
18		STD-2044	NUT, 1/4-20 self-locking	24
19		LW-18861	VALVE, Exhaust bypass	1
20		75845	GASKET, V-band coupling, 2-1/4 tube	1
21		40D22383	COUPLING, V-band	1
22		07C21979	CLAMP, 2-1/4 I.D. x 5/8 wide	1

(continued on next page)

**Figure 30 - Exhaust Crossover Pipes, Bypass Valve, and Transition Assembly (Cont.)**

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
23		LW-15437	CABLE ASSEMBLY, Exhaust manifold retainer	1
24		LW-25SS-0.75	BOLT, 1/4-20 x 3/4 long, hex. head	1
25		STD-2044	NUT, 1/4-20 self-locking	1
26		01L22212	SPACER, Induction housing	1
27		LW-25-2.69	BOLT, 1/4-20 x 2-11/16 long, hex. head	1
28		STD-8	WASHER, 1/4 plain	1
29		STD-160	WASHER, 1/4 lock, internal teeth	1
30		STD-1411	NUT, 1/4-20 plain	1

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**Figure 31**  
**Sky-Tec Starter and Attaching Parts**



**Figure 31 - Sky-Tec Starter and Attaching Parts**

Figure Item	Code	Part Number	Description	Units per Assembly
1	*	31B22101	STARTER, Sky-Tec (149 - 24 PM)	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
* Refer to the latest revision of Service Instruction No. 1154 for a complete list of FAA-approved starters and alternators.				

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**Service Kit Section**  
**Seal and Gasket Set**

<b>PART NO.</b>	<b>PART NAME</b>	<b>Qty.</b>
05K22781	KIT - SEAL AND GASKET SET	1
70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/16 thick	1
71481	RING, Oil seal, 9/100 diameter x 4-27/32 I.D.	6
71973	GASKET, 2 bolt flange, 1-13/16 I.D.	6
72053	GASKET, Governor	1
72059	GASKET, Oil level gage	1
72091	RING, Oil seal, 23/64 I.D. x 1/10 diameter	2
72711	RING, Seal, intake pipes	6
73032	GASKET, Air inlet housing	1
73818	GASKET, Accessory housing	1
74068	RING, Oil level gage plug	1
74524	RING, Oil level gage bushing	1
74944	GASKET, Turbocharger controller adapter	1
76036	GASKET, Rocker box cover	6
LW-18737	HOSE, 3/16 I.D. x 7/16 O.D. x 2.00 long	6
MS28775-137	O-RING, 2-1/16 I.D. x 7/64 diameter section	1
MS29512-04	O-RING, 11/32 I.D. x 1/16 section	4
MS29512-08	O-RING, 41/64 I.D. x 5/64 section	1
MS29513-138	O-RING, 2-7/64 I.D. x 7/64 section	1
STD-213	OIL SEAL, 3/4 I.D. x 1-3/8 O.D.	1
06B22275	GASKET, Turbo drain tank	1
75371	GASKET, Turbo oil inlet adapter	1
02M22427	HOSE, 3/16 I.D. x 7/16 O.D. x 1-7/8	3
LW-18675-4	HOSE, 1/4 I.D. x 1/2 O.D. x 20-1/2 long	2
02M22269	HOSE, 2-3/4 to 3.00 I.D. x 3-1/2 long	2

**Cylinder, Piston and Ring Assembly**

<b>PART NO.</b>	<b>PART NAME</b>	<b>Qty.</b>
05K22680	KIT - CYLINDER, PISTON AND RING ASSEMBLY	1
16G23273-02	CYLINDER HEAD & VALVE ASSEMBLY	1
14D23907	PISTON, Compression ratio 7.30:1	1
74241	RING, Piston, compression, 5-1/8 bore	2
14H21950	RING, Piston, oil, 5-1/8 bore	1
LW-14078	PIN, Piston	1
72198	PLUG, Piston pin	2
66732	GASKET, Valve rocker shaft cover	2
76036	GASKET, Rocker box cover	1

**Cylinder, Piston and Ring Assembly (Cont.)**

<b>PART NO.</b>	<b>PART NAME</b>	<b>Qty.</b>
LW-18661	SEAL, Shroud tube	4
70310	SEAL, Shroud tube	2
LW-12272	LOCKPLATE, Shroud tube	1
71481	RING, Oil seal, 9/100 diameter x 4-27/32 I.D.	1
SSP-299	TAG	1
71195	CONTAINER	1
71973	GASKET, 2 bolt flange, 1-13/16 I.D.	1
LW-18234	GASKET, Exhaust flange	2
951391	PACKING, Pre-formed	2
06A23493	SEAL, Shroud tube	2
STD-148	NIPPLE, Union, 1/8 NPT	1
1102	PLUG, 1/8 pipe	1

**Crankshaft and Counterweight Assembly Kit**

<b>PART NO.</b>	<b>PART NAME</b>	<b>Qty.</b>
05K47793	KIT - CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY	1
13F47743	CRANKSHAFT ASSEMBLY	1
LW-19210	COUNTERWEIGHT ASSEMBLY	2
73648	ROLLER, Dynamic counterweight, 5.1 order	2
76788	ROLLER, Dynamic counterweight, 6.3 order	2
71907	WASHER, Counterweight	8
LW-14820	RING, Internal retaining	8

**Crankcase Assembly and Thru-Stud Kits**

<b>PART NO.</b>	<b>PART NAME</b>	<b>Qty.</b>
11F24024-S7-S	KIT - CRANKCASE ASSEMBLY AND THRU-STUD	1
11F24024-S7	CRANKCASE ASSEMBLY, machining & studding (roller lifter)	1
31C-13	STUD, 5/16-18 x 1-5/8 long	3
38-13	STUD, 3/8-16 X 1-5/8 long	24
50-15	STUD, 1/2-13 X 1-7/8 long	12
38-22	STUD, .3/8-16 X 2-3/4 long	1
38D-17	STUD, 3/8-16 X 2-1/8 long -dr	1
10-8	STUD, #10-32 X 1.00 long	2
10D-8	STUD, #10-32 X 1.00 long dr	1
01A23354	STUD, 5/16-18 X 1.00 long -dr	1
69796	DOWEL, Crankshaft bearing	2
STD-514	DOWEL, 5/16 DIA X 1/2 long	2
STD-557	DOWEL, 1/2 DIA X 11/16 long -hollow	2
72158	BUSHING, Governor dr idler shaft	1
38-21	STUD, 3/8-16 X 2-5/8 long	1
38-26	STUD, 3/8-16 X 3-1/4 long	4
38-23	STUD, 3/8-16 X 2-7/8 long	2
76220	STUD, 1/2-20 X 10.70 long	8
31C-17	STUD, 5/16-18 X 2-1/8 long	4
STD-1339	PLUG, 1/16-27 NPT	3
AN565B1032H4	SETSCREW, #10-32 x 1/4 long	1
AN565B1032H5	SETSCREW, #10-32 x 5/16 long	1
SSP-272	TAG	1
SSP-1576	TAG	1
1102	PLUG, 1/8 pipe	4
73772	NOZZLE ASSY, Piston cooling	6
MS29512-06	O-RING, 0.468 I.D. x 0.078 section	1
AN814-6L	PLUG, 7/16-18 hex. head	1

**Crankcase Assembly and Thru-Stud Kits**

<b>PART NO.</b>	<b>PART NAME</b>	<b>Qty.</b>
11F24124-S7-S	KIT - CRANKCASE ASSEMBLY AND THRU-STUD	1
11F24124-S7	CRANKCASE ASSEMBLY, machining & studding (roller lifter)	1
31C-13	STUD, 5/16-18 x 1-5/8 long	3
38-13	STUD, 3/8-16 X 1-5/8 long	24
50-15	STUD, 1/2-13 X 1-7/8 long	12
38-22	STUD, .3/8-16 X 2-3/4 long	1
38D-17	STUD, 3/8-16 X 2-1/8 long -dr	1
10-8	STUD, #10-32 X 1.00 long	2
10D-8	STUD, #10-32 X 1.00 long dr	1
01A23354	STUD, 5/16-18 X 1.00 long -dr	1
69796	DOWEL, Crankshaft bearing	2
STD-514	DOWEL, 5/16 DIA X 1/2 long	2
STD-557	DOWEL, 1/2 DIA X 11/16 long -hollow	2
72158	BUSHING, Governor dr idler shaft	1
38-21	STUD, 3/8-16 X 2-5/8 long	1
38-26	STUD, 3/8-16 X 3-1/4 long	4
38-23	STUD, 3/8-16 X 2-7/8 long	2
76220	STUD, 1/2-20 X 10.70 long	8
31C-17	STUD, 5/16-18 X 2-1/8 long	4
STD-1339	PLUG, 1/16-27 NPT	3
AN565B1032H4	SETSCREW, #10-32 x 1/4 long	1
AN565B1032H5	SETSCREW, #10-32 x 5/16 long	1
SSP-272	TAG	1
SSP-1576	TAG	1
1102	PLUG, 1/8 pipe	4
73772	NOZZLE ASSY, Piston cooling	6
MS29512-06	O-RING, 0.468 I.D. x 0.078 section	1
AN814-6L	PLUG, 7/16-18 hex. head	1

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