

# **IO-390-C Series Engine Illustrated Parts Catalog**

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**February 1, 2017**

**PC-IO-390-C**

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652 Oliver Street  
Williamsport, PA 17701

## **IO-390-C Series Engine Illustrated Parts Catalog**

Lycoming Part Number: PC-IO-390-C

### **For additional information:**

#### **Mailing address:**

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

#### **Phone:**

Factory: U.S. and Canada toll free: +1(800) 258-3279  
International Customers: +1(570) 323-6181

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# Introduction



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

## Purpose of this Catalog

This Illustrated Parts Catalog (IPC) contains a complete list of spare parts for the Lycoming IO-390-C Series engine models.

## How to Use this Catalog

This catalog is based on the Air Transport Association (ATA) Spec 100 format. In order to clarify illustrations, Lycoming has taken discretion to classify non-system related assemblies and components in the same chapters, because they are physically connected.

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

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

The ATA format specifies the subject matter for each chapter-section. According to the ATA Standards, the following chapters apply to the IO-390-C Series Illustrated Parts Catalog:

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

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

**NOTICE:** See the IPC Table of Contents for the sub-systems identified in each section.

## Numerical Index

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

### Description column

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

### Units per Assembly Column

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

## **Roller Tappets**

As a product improvement, Lycoming is installing roller tappets on its aircraft engines. Wide deck engines with roller tappets are identified with an “E” suffix after the serial number dash number (Example – L-\*\*\*\*\*-48E.) On rebuilt and Lycoming overhauled wide deck engines with roller tappets, the letter “A” suffix is replaced with the letter “E” suffix on the engine serial number.

The new parts include roller tappet body assembly, crankcase, camshaft, shorter push rods, shroud tubes and shroud tube seal. The engines use the same hydraulic units and the dry tappet clearance does not change. Refer to Reference 618 in the Table of Limits (SSP-1776) for dry tappet clearance values.

At this time, roller tappets are not installed in narrow deck engines.

ROLLER TAPPET PARTS ARE NOT INTERCHANGEABLE WITH CURRENT FLAT FACED TAPPETS.

If it is necessary to remove the roller tappet bodies prior to overhaul, they **must be reinstalled in the same location in the crankcase**. The roller tappets are indexed with flats in the new crankcase. It is possible to assemble the roller tappet bodies in two different orientations 180 degrees apart. Either orientation is acceptable while reinstalling. Lubricate all tappet bores, cam lobes and roller tappets with engine oil mixture only. (Refer to the latest revision of Service Instruction No. 1059.) Install the shroud tube seal in the crankcase, then install the shroud tube.

THE ROLLER TAPPETS ARE NOT FIELD REPAIRABLE AND NO DISASSEMBLY IS ALLOWED. THEREFORE, MAGNAFLUX OR ZYGLO INSPECTIONS ARE NOT ALLOWED. A VISUAL INSPECTION FOR INTEGRITY AND FREE ROTATION OF THE ROLLER ACTION IS ACCEPTABLE TO RETURN AN IN-USE ROLLER TAPPET TO SERVICE; HOWEVER, IT IS MANDATORY TO REPLACE ROLLER TAPPETS AT OVERHAUL.

## **Vendor Accessories**

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

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

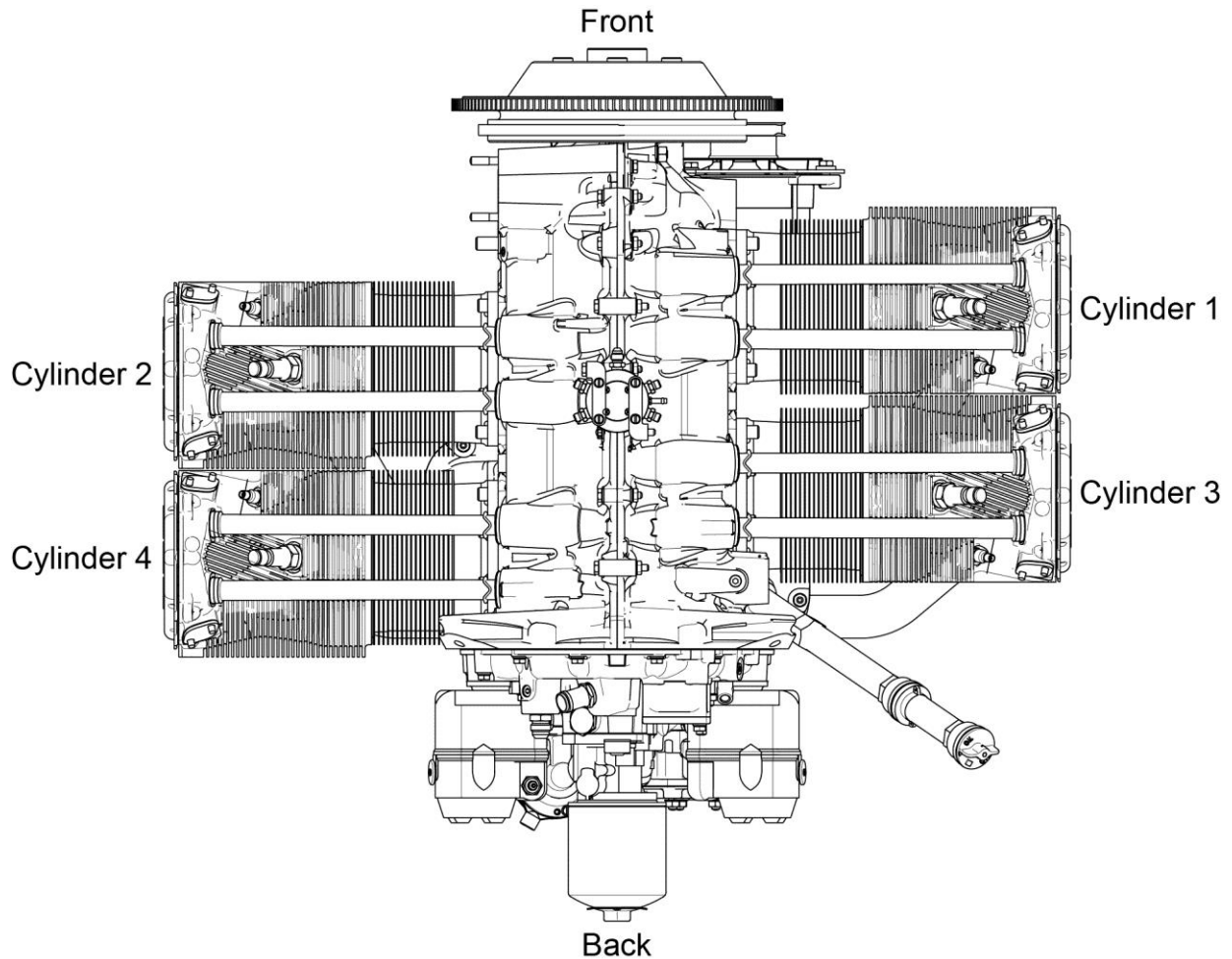
## **Environmental Compliance**

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



**Perspective of References**

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

**Top View of Engine**

**How to Order Parts and Publications**

An Oversize and Undersize Parts List is included in the front section of this catalog as an aid to order parts.

Although the information contained in this parts catalog is up-to-date at time of publication, users are advised to procure current information through all Lycoming distributors or by subscription from ATP or TDATA. 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 by subscription from ATP or TDATA.

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**

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**Abbreviations and Acronyms**

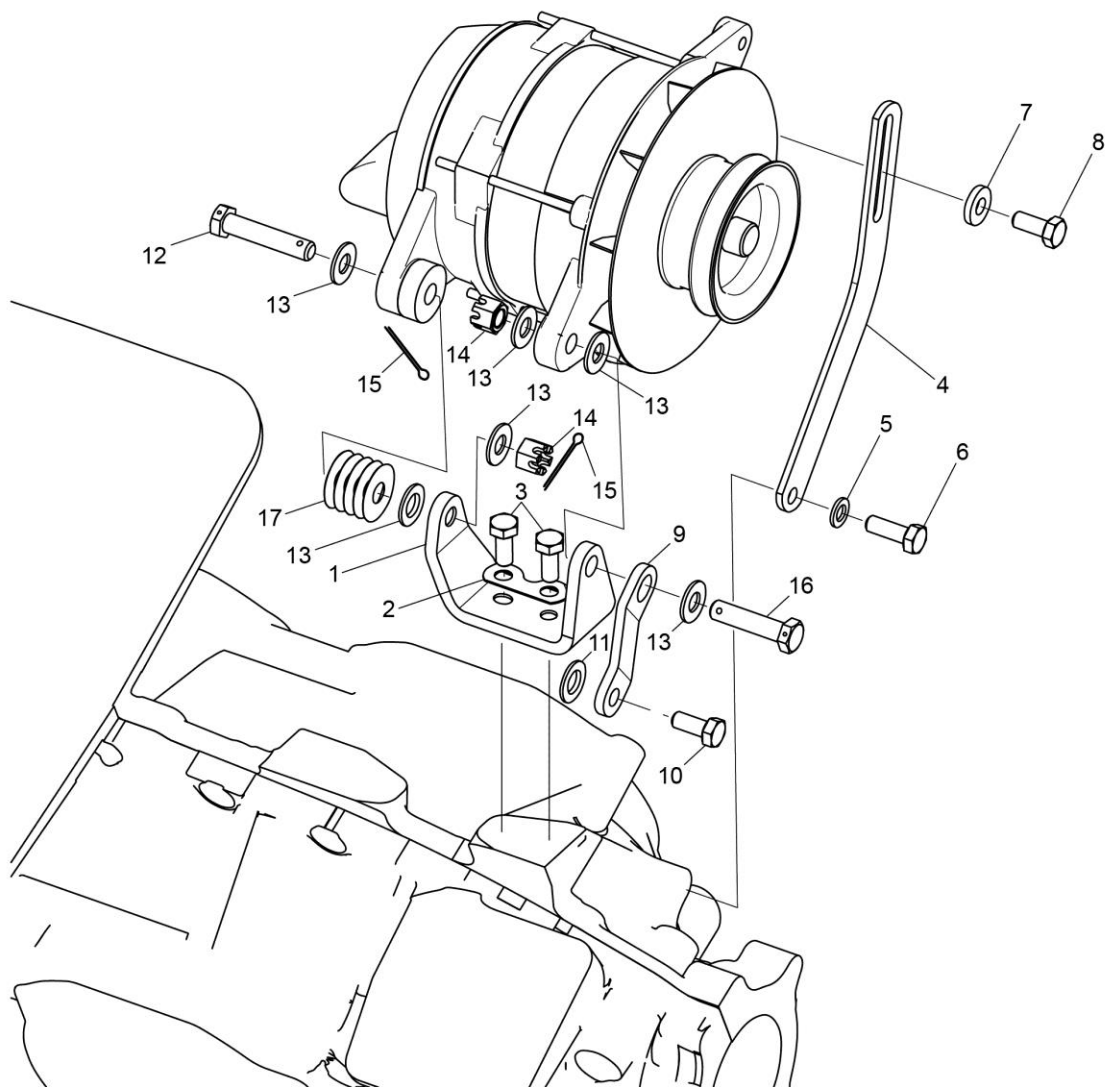
<b>A</b>	
AR	As Required
Assy.	Assembly
ATA	Air Transport Association
<b>C</b>	
Cyl.	Cylinder
<b>F</b>	
Fill.	Fillister
<b>H</b>	
Hd.	Head
Hex.	Hexagon
<b>I</b>	
I.D.	Inside Diameter
in.	Inch
IPC	Illustrated Parts Catalog
<b>M</b>	
mm	Millimeter
<b>N</b>	
No.	Number
NPT	National Pipe Taper (thread)
<b>O</b>	
O.D.	Outside Diameter
<b>P</b>	
P	Lycoming Proprietary Part
P/N	Part Number
<b>Q</b>	
Qty.	Quantity
<b>R</b>	
RF	Reference
RT	Roller Tappet
<b>S</b>	
SB	Service Bulletin
SI	Service Instruction
SSP	Special Service Publication

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**Oversize and Undersize Parts Listing**

PART NO.	DESCRIPTION	OVERSIZE (IN.)					UNDERSIZE (IN.)	
		P05 .005	P10 .010	P20 .020	P30 .030	P50 .050	M03 .003	M06 .006
18B23885	BEARING, Front Crankshaft						X	X
18E23886	BEARING, Crankshaft						X	X
18M23887	BEARING, Connecting Rod						X	X
71903-A ❖	BUSHING, Counterweight Dynamic	--	--	--	--	--	--	--
72155-S	BUSHING, Prop Flange	X						
75656-S	BUSHING, Prop Flange	X						
75657-S	BUSHING, Prop Flange	X						
66670	BUSHING, Rocker Shaft Inner		X					
STD-1065	DOWEL, Crankshaft		X					
66713	GUIDE, Intake Valve				X			
75838	GUIDE, Exhaust Valve				X			
69260	INSERT, Spark Plug		X					
72212	SEAT, Intake Valve			X				
16T19468	SEAT, Exhaust Valve			X				
LW-15628	SEAL, Crankshaft Oil					X		
❖ 71903-A is the undersize part number. When ordering, do not specify an undersize code letter								

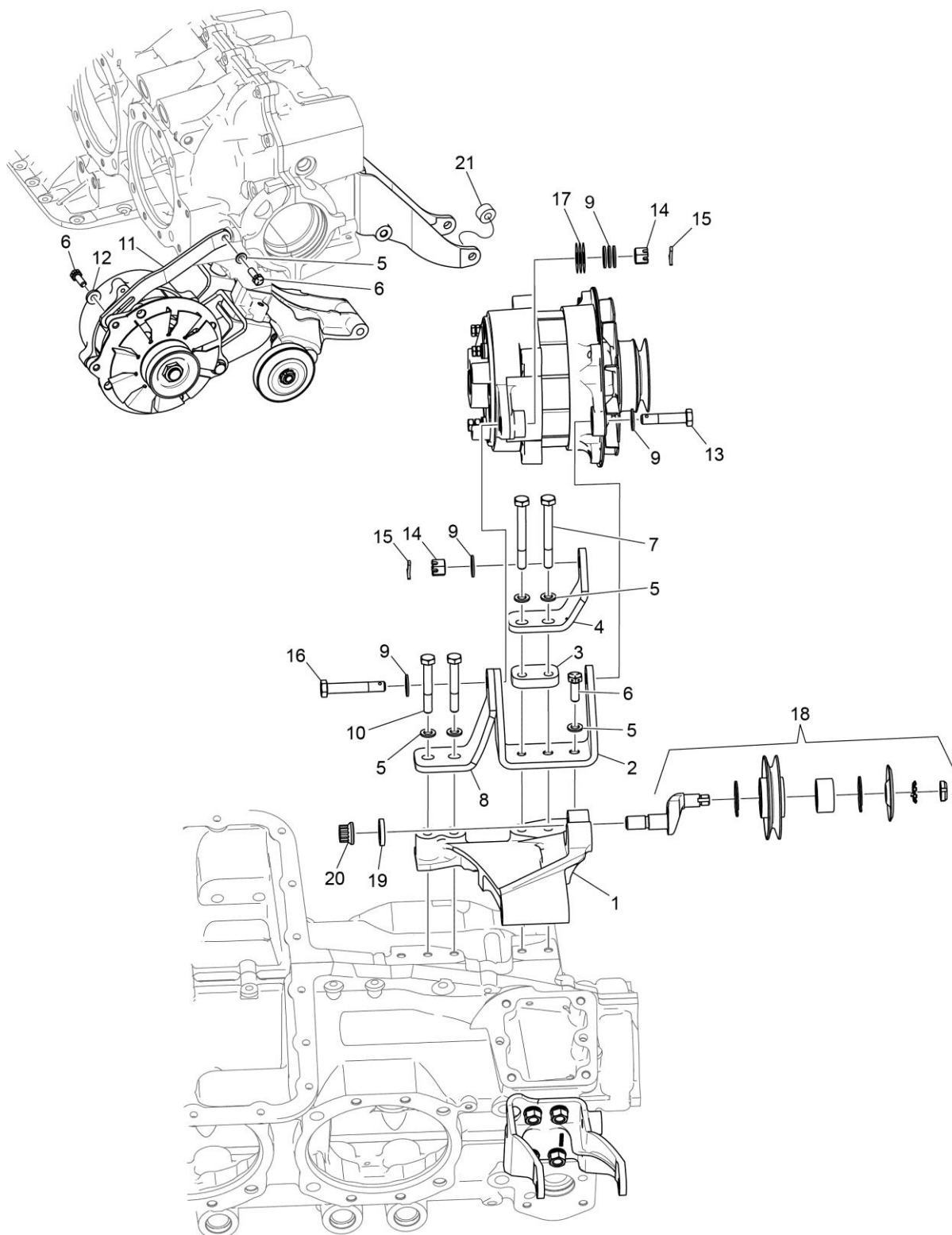
**NOTICE:** When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing Part Number (P/N) 18B23885 bearing in 0.003 in. undersize, order P/N 18B23885-M03. Undersize code letter is "M" while oversize code letter is "P". These letters are then followed by the number designating the size in thousandths of an inch.



**Figure 1A**  
**Alternator Attaching Parts (Single)**

**AC GENERATION****Figure 1A - Alternator Attaching Parts (Single)**

Figure Item	Code	Part Number	Description	Units per Assembly			
				Rear Gov		Front Gov	
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		07A19474	BRACKET, Alternator	1	1		
2		73383	LOCKPLATE, 5/16 bolt x 1.00 spacing	1	1		
3		LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	2	2		
4		75380	LINK, Alternator, adjusting	1	1		
5		STD-35	WASHER, 5/16 plain	1	1		
6		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head	1	1		
7		STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1	1		
8		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head	1	1		
9		07F23268	STRUT, Alternator support	1	1		
10		LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head	1	1		
11	❖	STD-35	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	1	1		
12		AN6-17	BOLT, 3/8-24 x 1-61/64 long, hex. head, drilled end	1	1		
13		STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	10	10		
14		STD-872	NUT, 3/8-24 slotted	2	2		
15		STD-713	COTTER PIN, 3/32 diameter x 3/4 long	2	2		
16		AN6-16	BOLT, 3/8-24 x 1-53/64 long, hex. head	1	1		
17		76534	SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick	AR	AR		
❖ Install between strut and attachment to starter lug.							

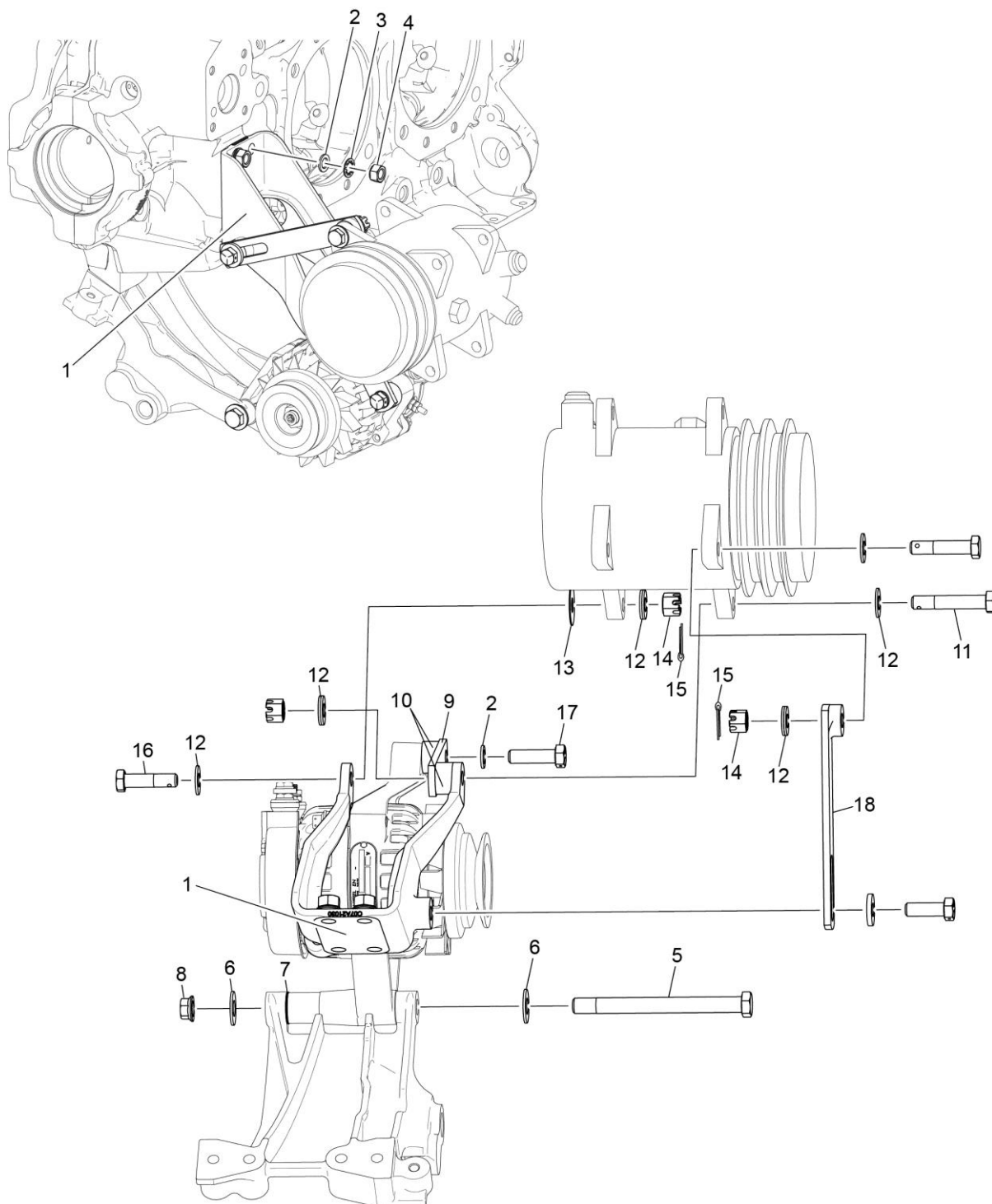


**Figure 1B**  
**Alternator Attaching Parts (Dual)**



**AC GENERATION****Figure 1B - Alternator Attaching Parts (Dual)**

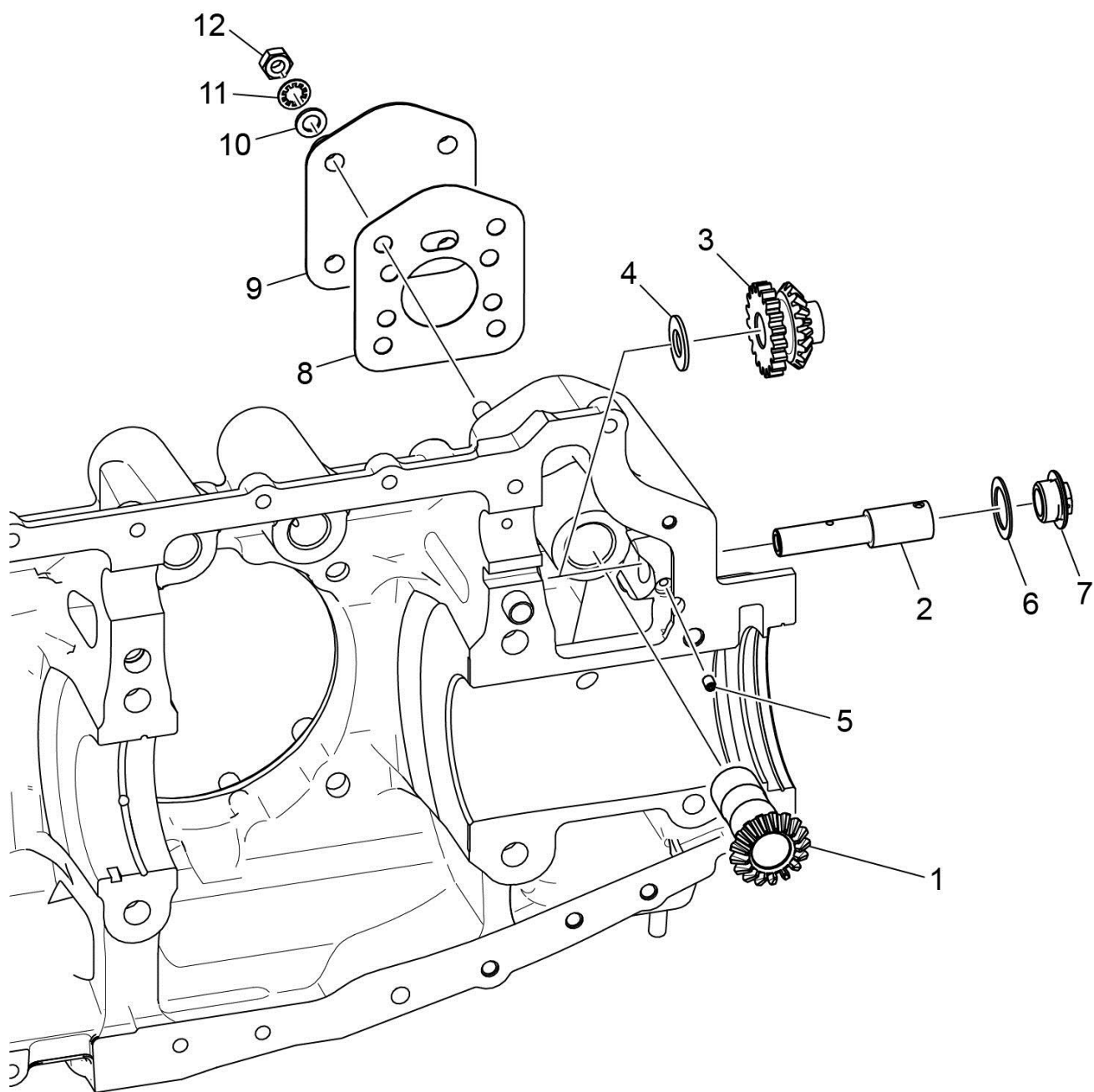
Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		07A22097	BRACKET, Alternator			1	1
2		07A19880	BRACKET-Alternator-Right (Prestolite)			1	1
3		01L21909	SPACER-Alternator Bracket Inner (Malibu)			1	1
4		07A21908	BRACKET- Alternator Bracket Inner (Malibu)			1	1
5		STD-35	WASHER, 5/16 plain			6	6
6		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex. head			3	3
7		LW-31H2.75	BOLT-5/16-18 X 2.75 Long Hex D			2	2
8		07A21910	BRACKET-Alternator aft (Malibu)			1	1
9		STD-690	WASHER, 0.81 O.D. x 0.39 I.D. x 1/16 thick			8	8
10		LW-31H2.13	BOLT 5/16-18 x 2.13 Long hex dr			2	2
11		07F21298	LINK-Alternator adjusting (Prestolite)			1	1
12		STD-1727	WASHER-Plain-0.33 I.D. x 0.75 O.D.			1	1
13		AN6-15	BOLT-.3/8-24UNF x 1.70 lg dr s			1	1
14		STD-872	NUT-.3/8-24 Slotted			2	2
15		STD-713	PIN-COTTER-0.09 dia x 0.75 long			2	2
16		AN6-21	BOLT-.3/8-24UNF X 2.20 lg-dr Slotted			1	1
17		76534	SHIM-1.13 O.D. x .4 I.D. x 0.005 thick			AR	AR
18		36A19951	PULLEY and SHAFT Assy 0.38 Belt			1	1
19		STD-669	WASHER-0.52 I.D. x 1.00 O.D. x 0.13 thick			1	1
20		STD-2221	NUT-1/2-20 Self locking			1	1
21		01L21916	SPACER, Alternator (Prestolite)			1	1



### Figure 2 Compressor Attaching Parts

**AC GENERATION****Figure 2 - Compressor Attaching Parts**

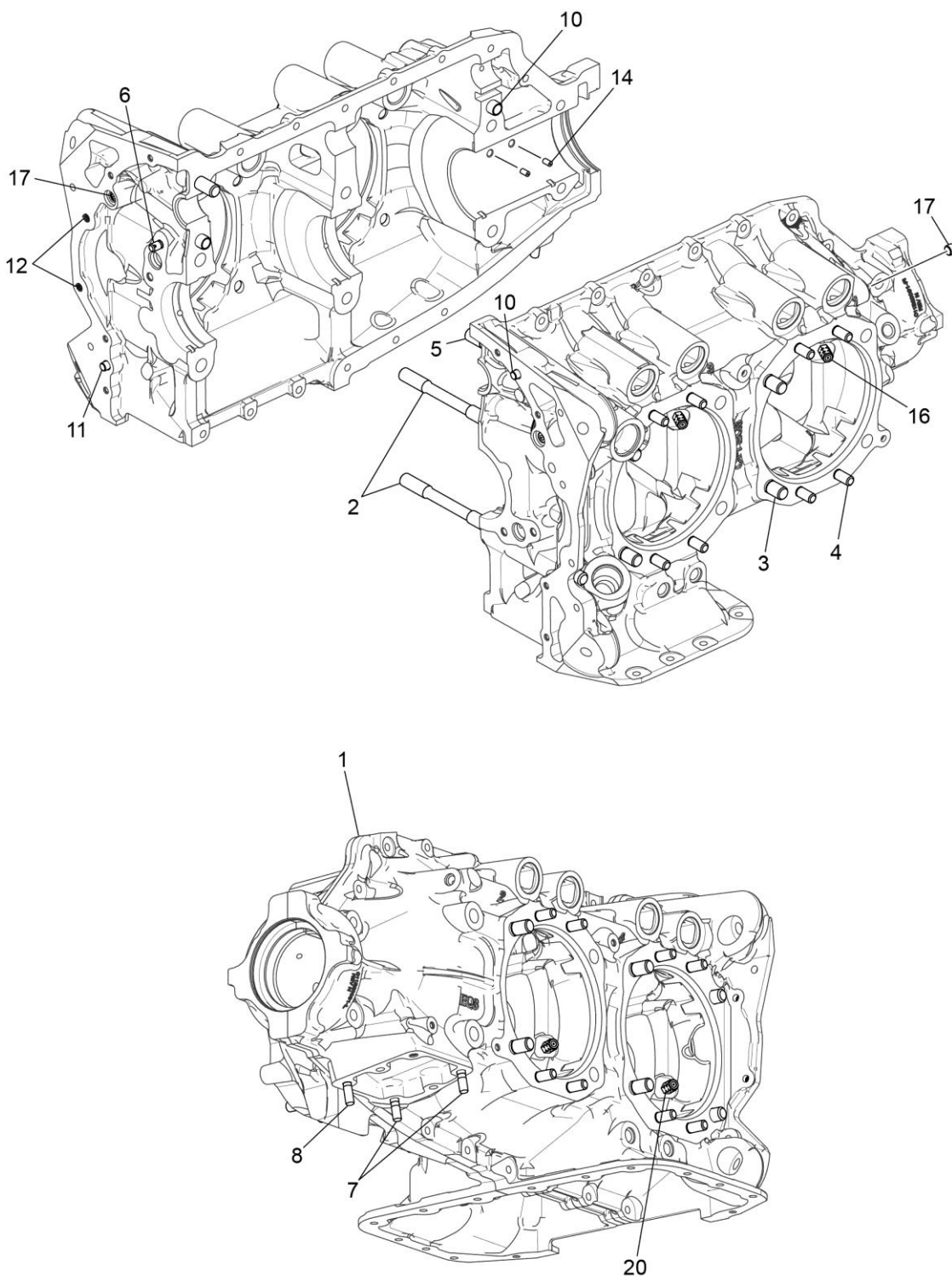
Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		07A21030	BRACKET, Compressor			1	1
2		STD-33	WASHER, 3/8 plain			4	4
3		STD-678	WASHER, 3/8 lock, internal teeth			4	4
4		383-B	NUT, 3/8-24 plain			4	4
5		AN7-45A	BOLT, 7/16-20 UNF-3A x 4.72 long			1	1
6		STD-632	WASHER, 7/16 plain			2	2
7		LW-14650	SHIM, 7/8 O.D. x 0.46 I.D. x .005 thick			12	12
8		NAS1291-7	NUT, Self lock, 7/16-20 UNJF-3B			1	1
9		07F28426	BRACE, Alternator			1	1
10		01L21916	SPACER, Alternator (Prestolite)			2	1
11		AN6-20	BOLT, 3/8-24 x 2.08 hex head			1	1
12		STD-690	WASHER, 0.81 O.D. x 0.39 I.D. x 1/16 thick			6	6
13		76534	SHIM-1.13 O.D. x .41 I.D. x 0.005 TH			AR	AR
14		STD-872	NUT-.3/8-24 SLOTTED			2	2
15		STD-713	PIN-COTTER-.09 DIA x 0.75 LONG			3	3
16		AN6-13	BOLT-3/8-24 x 1.45 LG-DR			1	1
17		LW-38H1.31	BOLT-3/8-16 x 1.31 LONG HEX D			1	1
18		07F28736	LINK-Freon compressor			1	1



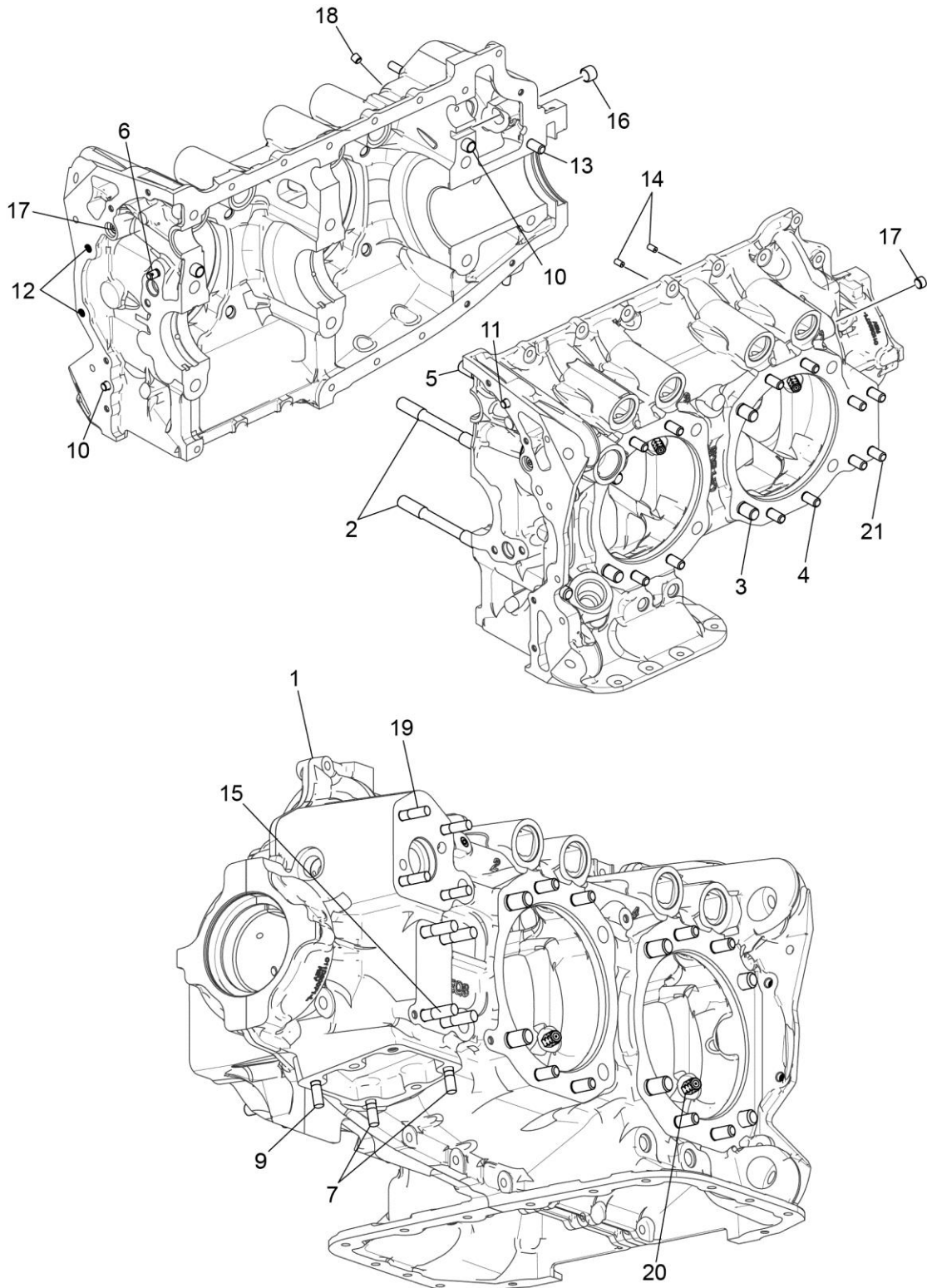
**Figure 3**  
**Propeller Governor Drive and Attaching Parts**

**FRONT SECTION****Figure 3 – Propeller Governor Drive and Attaching Parts**

Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		77875	GEAR, Propeller governor driven			1	1
2		LW-14021	SHAFT, Propeller governor idler gear			1	1
3		77874	GEAR ASSEMBLY, Propeller governor idler			1	1
4		73249	WASHER, Thrust (0.0585 - 0.0595 thick)			AR	AR
		73250	WASHER, Thrust (0.062 - 0.063 thick)			AR	AR
		73251	WASHER, Thrust (0.0655 - 0.0665 thick)			AR	AR
		73252	WASHER, Thrust (0.069 - 0.070 thick)			AR	AR
		01L21418	WASHER, Thrust (0.055 - 0.056 thick)			AR	AR
5		AN565B1032H5	SET SCREW, No. 10-32 x 5/16 long			1	1
6		70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/32 thick			1	1
7		LW-13896	PLUG, 3/4-16 hex. head			1	1
8		72053	GASKET, Governor	1	1	1	1
9		72378	COVER, Governor drive	1	1	1	1
10		STD-35	WASHER, 5/16 plain	4	4	4	4
11		STD-475	WASHER, 5/16 lock, internal teeth	4	4	4	4
12		STD-1410	NUT, 5/16-18 plain	4	4	4	4
AR as required							



**Figure 4A**  
**Crankcase Assembly - C1A6 and C3A6**



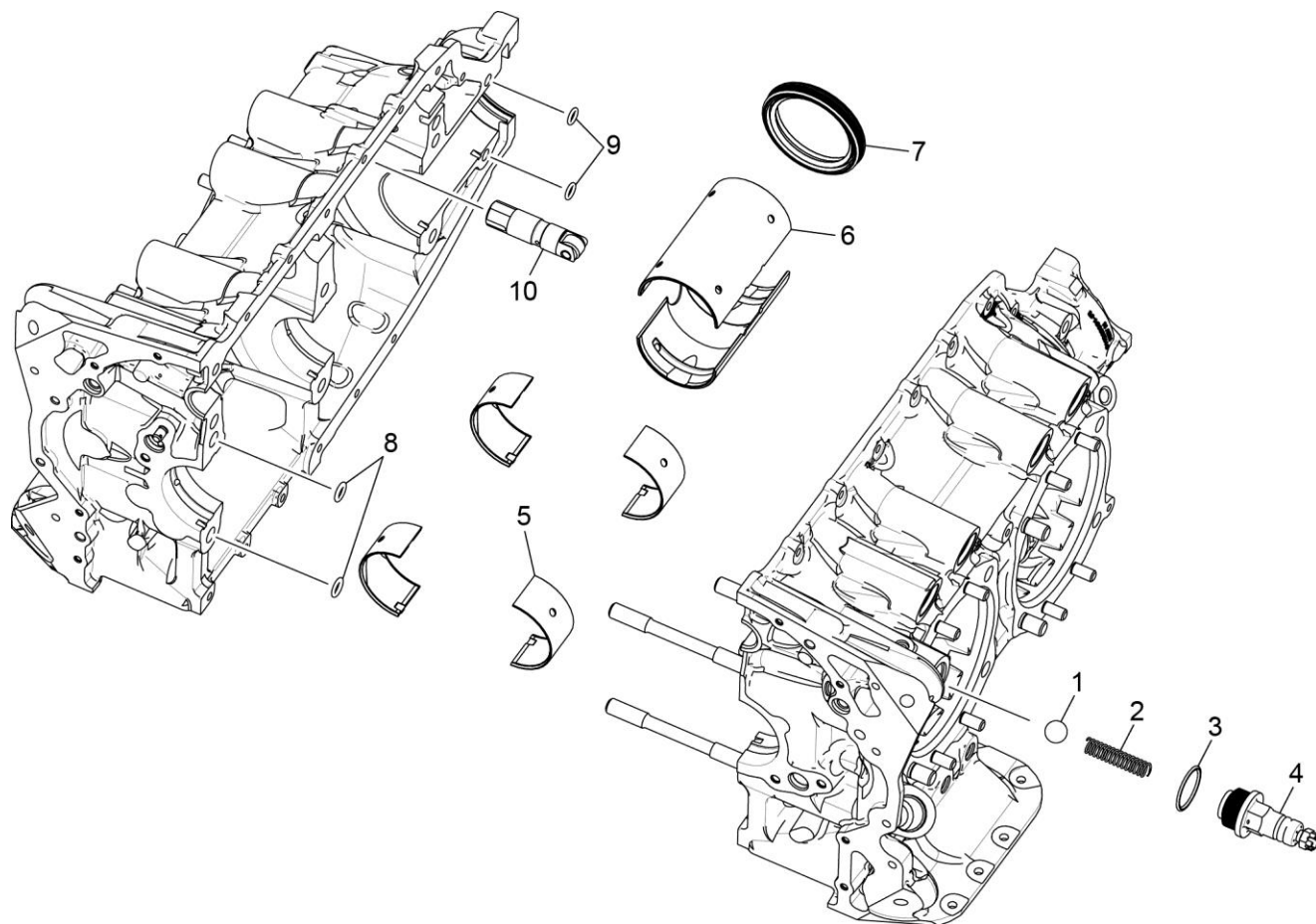
**Figure 4B**  
**Crankcase Assembly - C1B6 and C3B6**

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**POWER SECTION****Figure 4A/4B - Crankcase Assembly**

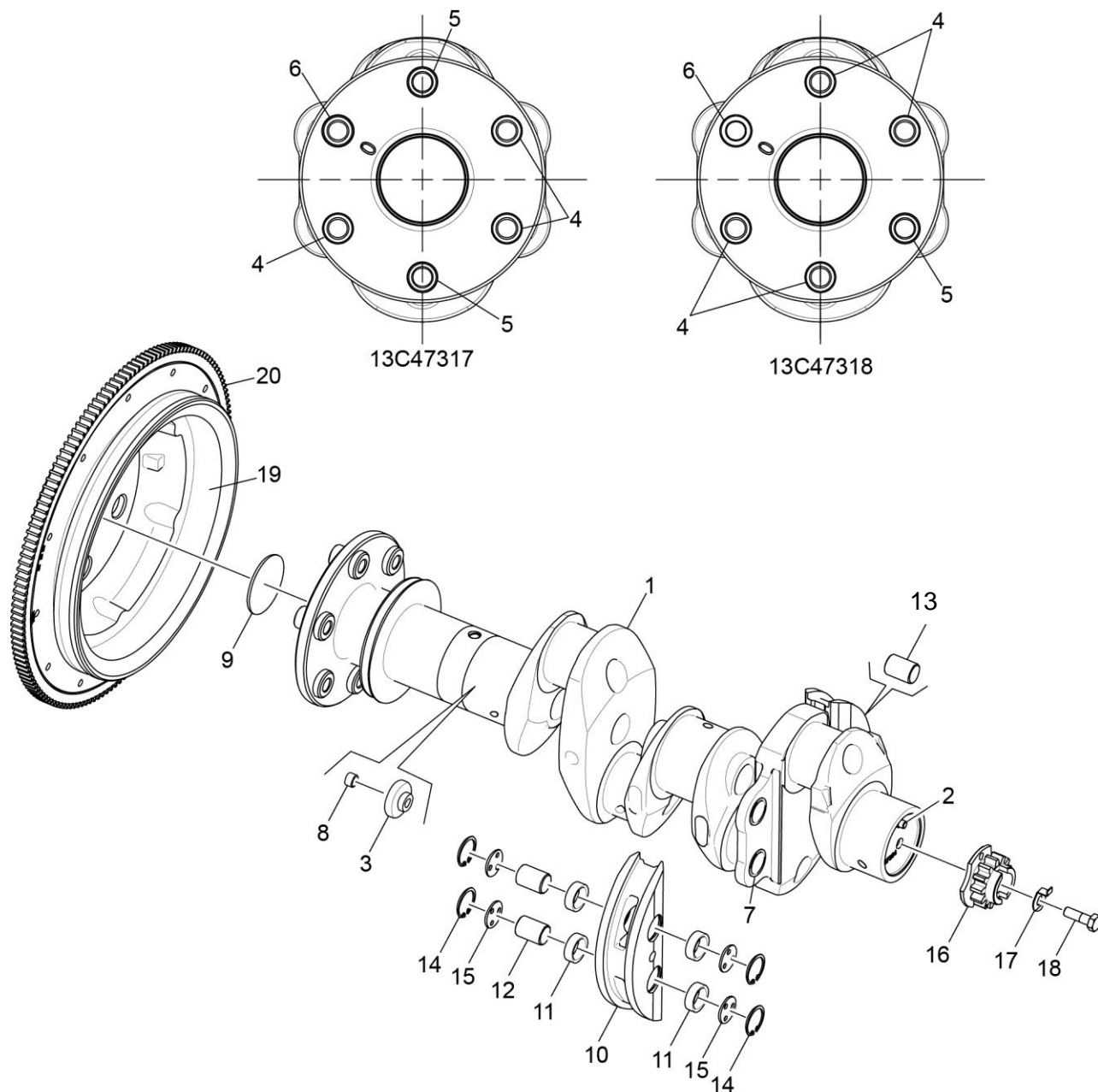
Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		11U20391-1S	CRANKCASE ASSEMBLY	1	1		
		11U28750-1S	CRANKCASE ASSEMBLY			1	1
2		01A23544	STUD, 1/2-13 x 9-27/32 long	2	2	2	2
3		50-15	STUD, 1/2-13 x 1-7/8 long	8	8	8	8
4		38-13	STUD, 3/8-16 x 1-5/8 long	13	13	13	13
5		38D-17	STUD, 3/8-16 x 2-1/8 long, drilled	1	1	1	1
6		LW-13793	STUD, 5/16-18 x 15/16 long, drilled	1	1	1	1
7		31C-12	STUD, 5/16-18 x 1-1/2 long	2	2	2	2
8		31C-13	STUD, 5/16-18 x 15/16 long	1	1		
9		31C-14	STUD, 5/16-18 x 1-1/2 long			1	1
10		STD-557	DOWEL, 1/2 diameter x 11/16 long, hollow	2	2	2	2
11		STD-514	DOWEL, 5/16 diameter x 1/2 long	2	2	2	2
12		STD-1623	INSERT, 1/4-20 UNC x 3/8 long	2	2	2	2
13		38-22	STUD, 3/8-16 x 2-3/4 long			1	1
14		69796	DOWEL, Crankshaft bearing	2	2	2	2
15		38-13	STUD, 3/8-16 x 1-5/8 long			4	4
16		72158	BUSHING, Governor drive idler shaft			4	4
17		1102	PLUG, 1/8-27 NPT, Allen head	6	6	5	5
18		STD-1339	PLUG, 1/16-27 NPT, Allen head			1	1
19		31C-17	STUD, 5/16-18 x 2.00 long			4	4
20		12E23021	NOZZLE ASSEMBLY, Piston cooling	4	4	4	4
21		31C-19	STUD, 5/16-18 x 2.38 long			4	4



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

**POWER SECTION****Figure 5 - Crankcase Related Parts**

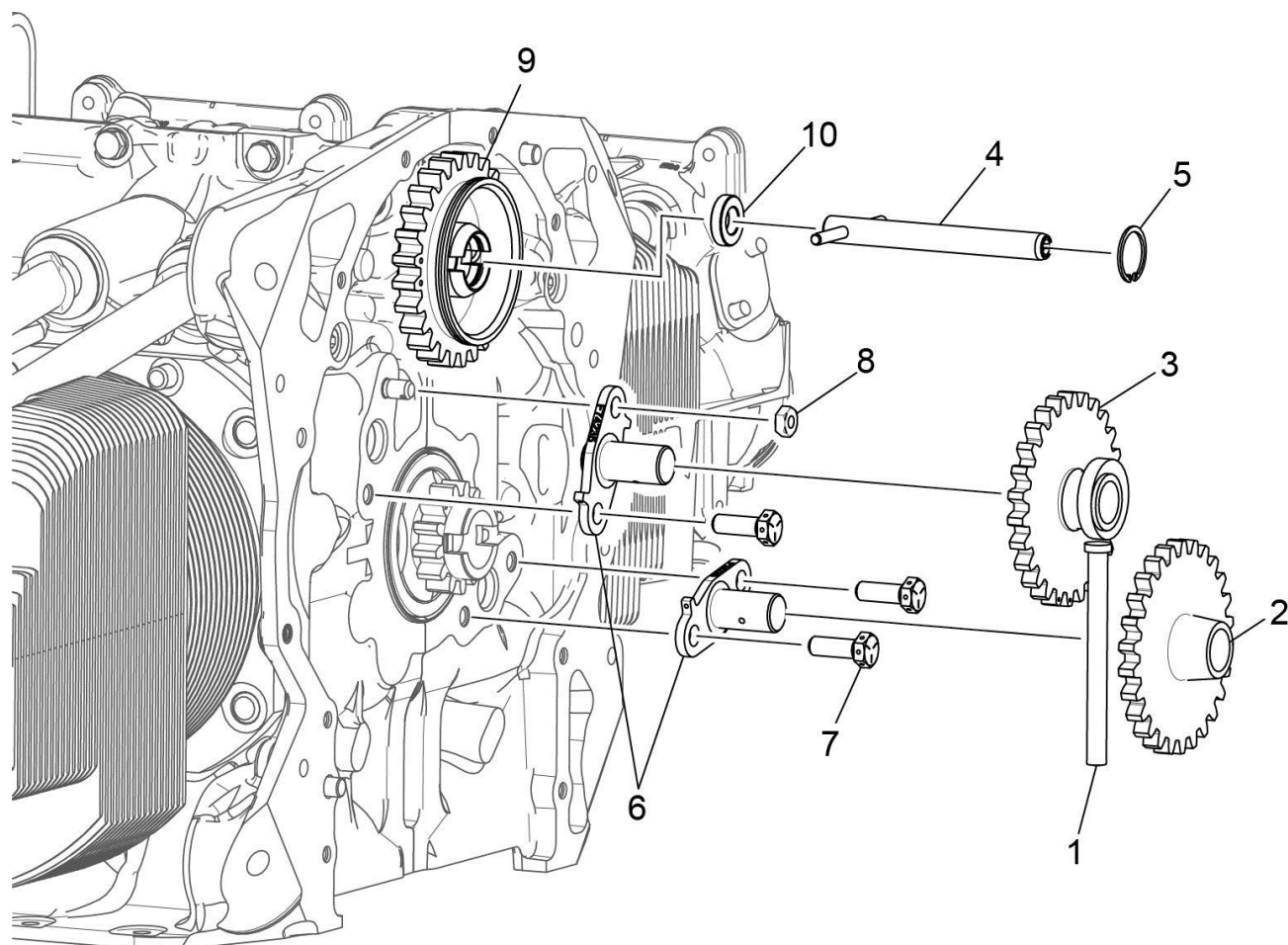
Figure Item	Code	Part Number	Description	Units per Assembly
1		1028-B	BALL, 11/16 diameter	1
2	❖	61084	SPRING, Oil pressure relief valve	1
	❖	68668	SPRING, Oil pressure relief valve	1
	❖	77467	SPRING, Oil pressure relief valve	1
	❖	LW-11713	SPRING, Oil pressure relief valve	1
	❖	LW-18085	SPRING, Oil pressure relief valve	1
3		06E19769-1.25	GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular	1
4		77808	VALVE ASSEMBLY, Oil pressure relief valve	1
5		18E23886	BEARING, Crankshaft	4
6		18B23885	BEARING, Crankshaft, front	2
7	▲	LW-15628	SEAL, Crankshaft, Oil	1
8		72075	SEAL, Oil, 3/32 section x 7/16 I.D.	2
9		72091	RING, Oil seal, 23/64 I.D. x 1/10 diameter	2
10	●	LRT23381	BODY ASSEMBLY, Hydraulic roller tappet	8
❖ Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment. Reference latest revision of Lycoming Table of Limits SSP-1776, Part I for spring identification. ▲ Refer to latest revision of Lycoming Service Instruction No. 1324 for installation. ● Sold as exchange part only.				



**Figure 6**  
**Crankshaft and Counterweight Assembly and Related Parts**

**POWER SECTION****Figure 6 - Crankshaft and Counterweight Assembly and Related Parts**

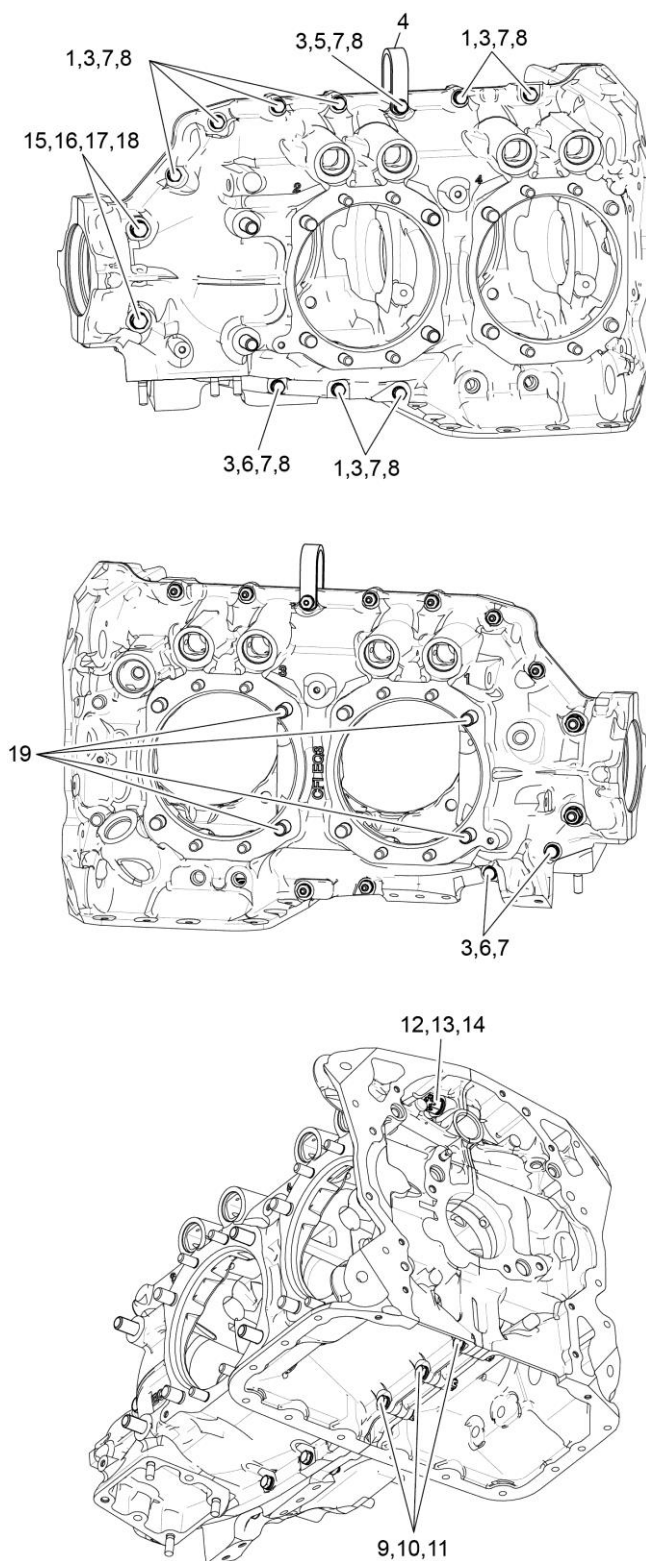
Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		13C47317	CRANKSHAFT AND BUSHING ASSEMBLY	1		1	
		13C47318	CRANKSHAFT AND BUSHING ASSEMBLY		1		1
2		STD-1065	DOWEL, Stepped, 5/16 & 1/4 diameter	1	1	1	1
3		74711	PLUG, 1-1/4	1	1	1	1
4		75656-S	BUSHING, Prop flange, long	3	4	3	4
5		72155-S	BUSHING, Prop flange, short	2	1	2	1
6		79024-S	BUSHING, Propeller flange, indexing	1		1	
		75657-S	BUSHING, Propeller flange, indexing		1		1
7		73810	BUSHING, Crankshaft counterweight	4	4	4	4
8		1102	PLUG, 1/8 pipe	1	1	1	1
9		LW-14529	PLUG, 2-1/16 diameter expansion	1	1	1	1
10		LW-19227	COUNTERWEIGHT ASSY	2	2	2	2
11		71903-A	BUSHING, Dynamic counterweight	8	8	8	8
12		14W21696	ROLLER, Dynamic counterweight	2	2	2	2
13		72797	ROLLER, Dynamic counterweight, 6.3 order	2	2	2	2
14		LW-14820	RING, Internal retaining	8	8	8	8
15		71907	WASHER, Counterweight	8	8	8	8
16	❖	13S19646	GEAR, Crankshaft	1	1	1	1
17		LW-18639	LOCKPLATE, Crankshaft gear	1	1	1	1
18		STD-2246	BOLT, 5/16-24 x 1.00 long	1	1	1	1
19		LW-16471	SUPPORT ASSEMBLY, Starter ring gear	1	1		
		31M19861	SUPPORT ASSEMBLY, Starter ring gear			1	1
20		72566	GEAR, Starter ring, 12/14 pitch	1	1	1	1
❖ Refer to the latest revision of Service Bulletin No. 475 for proper installation.							



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

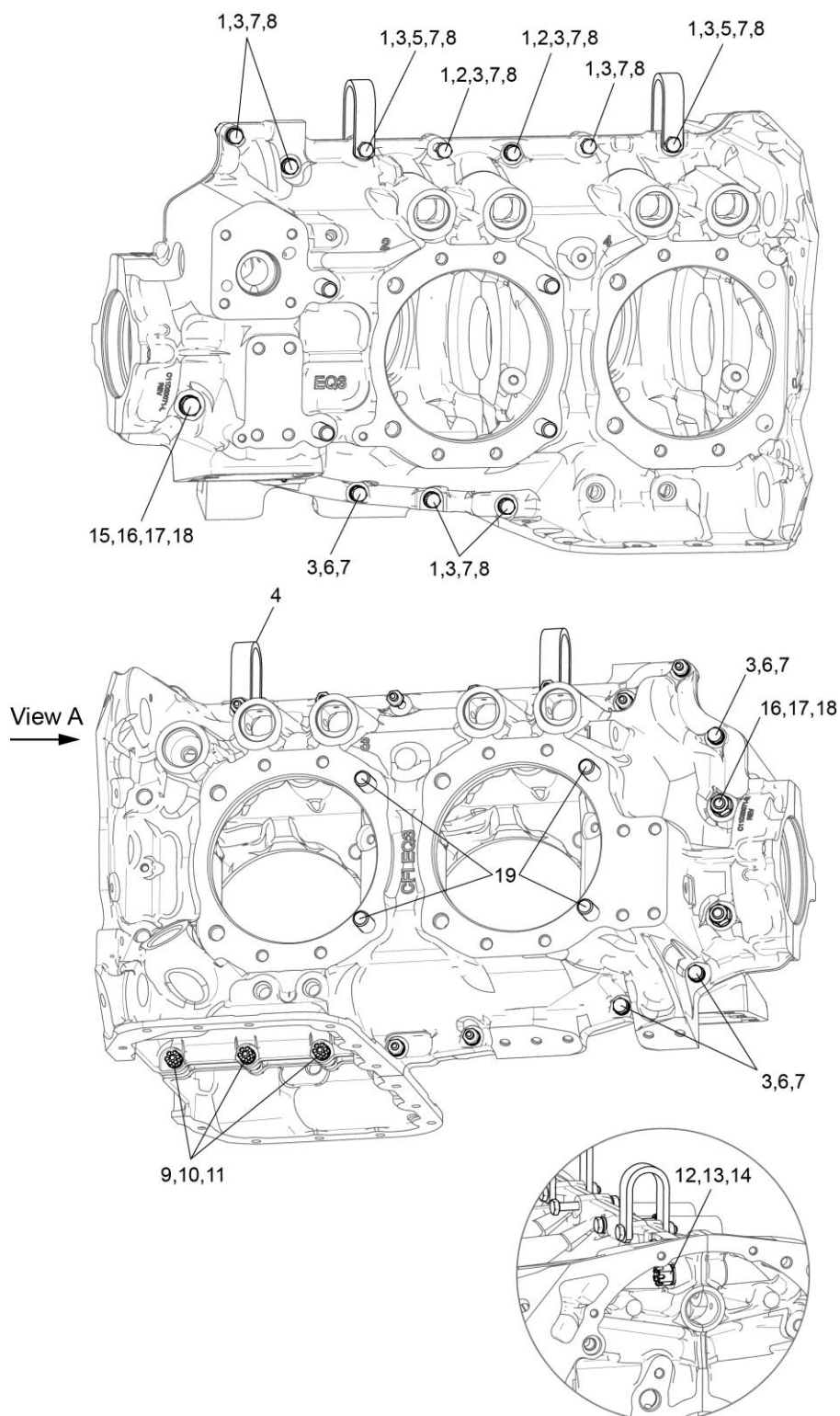
**POWER SECTION****Figure 7 - Crankshaft Idler Gears, Tachometer Drive, and Camshaft**

Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		23D26777	PLUNGER, Fuel pump, long	1	1	1	1
2		74996	GEAR ASSEMBLY, Crankshaft idler, plain	1	1	1	1
3		75072	GEAR ASSEMBLY, Crankshaft idler	1	1	1	1
4	❖	76121	SHAFT ASSEMBLY, Tachometer	1	1	1	1
5	❖	STD-2231	RING, Internal retaining	1	1	1	1
6		LW-13796	SHAFT, Crankshaft idler gear	2	2	2	2
7		LW-31H0.88	BOLT, 5/16-18 x 7/8 long, hex. head, drilled	3	3	3	3
8		STD-2168	NUT, 5/16-18 NC-3 slotted shear	1	1	1	1
9		15M23452	CAMSHAFT ASSEMBLY	1	1		
		15M23456	CAMSHAFT ASSEMBLY			1	1
10	❖	76118	SPACER, Tachometer shaft centering	1	1	1	1
❖ Optional							



**Figure 8A**  
**Crankcase Attaching Parts (C1A6 and C3A6)**



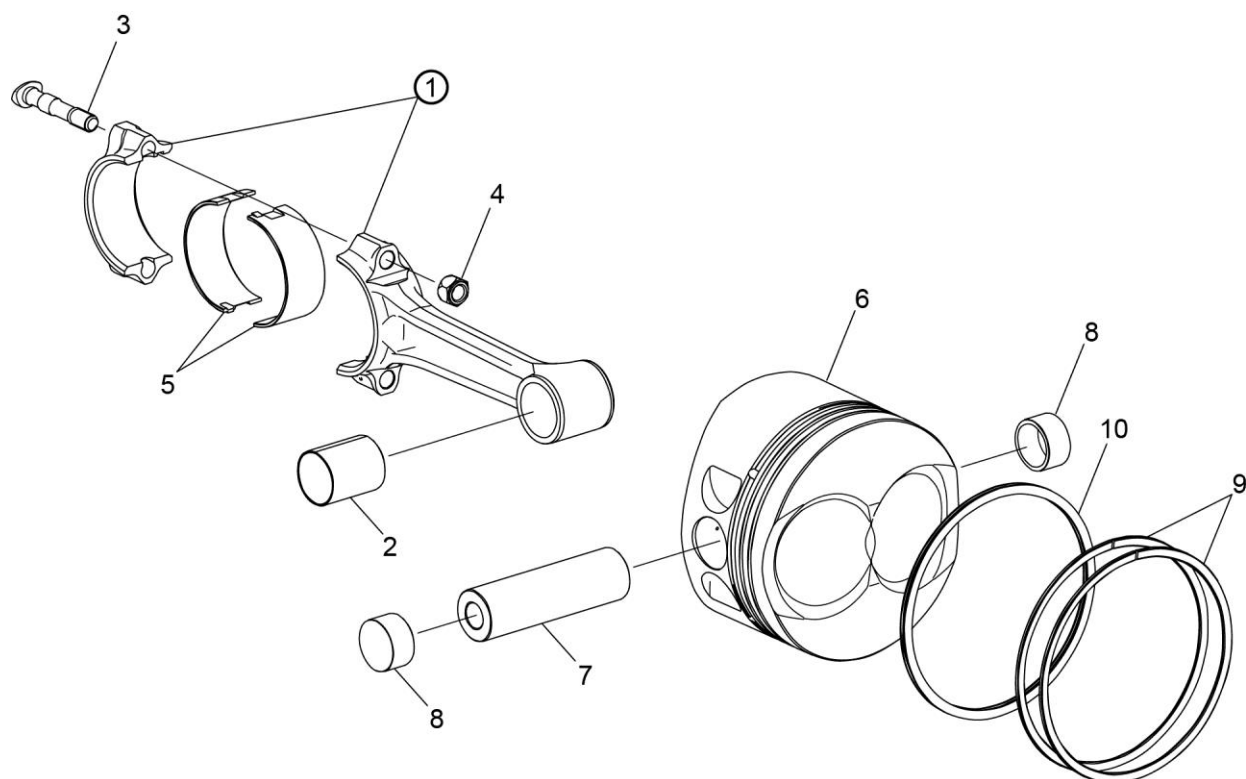


**Figure 8B**  
**Crankcase Attaching Parts (C1B6 and C3B6)**

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**POWER SECTION****Figure 8A and 8B - Crankcase Attaching Parts**

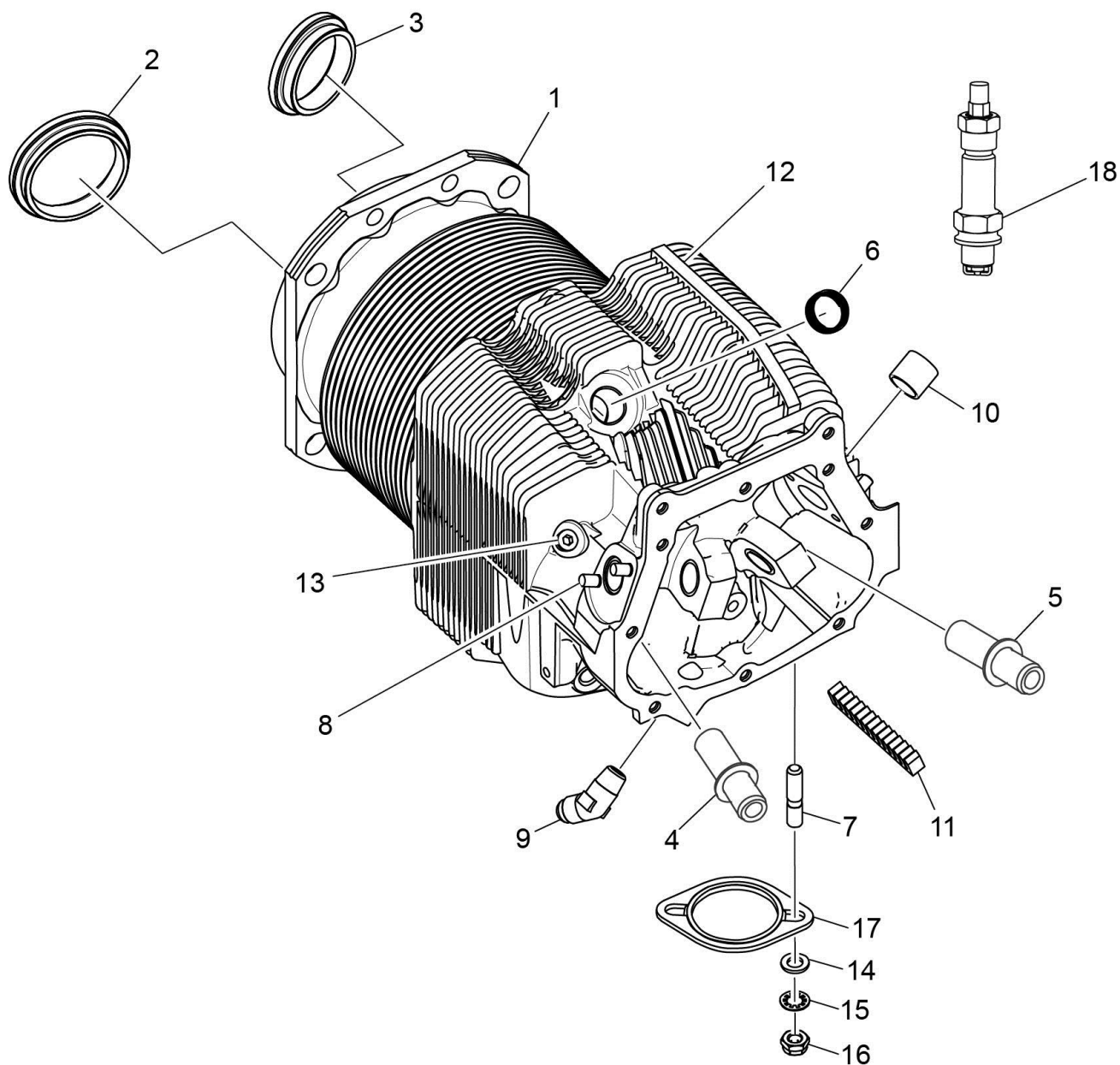
Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head	6	6	5	5
2		LW-25-2.13	BOLT, 1/4-20 x 2-1/8 long hex. head	2	2	2	2
3		STD-8	WASHER, 1/4 plain	19	19	17	17
4		60803	STRAP, Lifting	2	2	2	2
5		LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. head	2	2	2	2
6		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	3	3	4	4
7		STD-160	WASHER, 1/4 lock, internal teeth	12	12	13	13
8		STD-1411	NUT, 1/4-20 plain	9	9	9	9
9		LW-25S1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head, drilled	3	3	3	3
10	<b>AR</b>	STD-8	WASHER, 1/4 plain	9	9	9	9
11		STD-2249	NUT, 1/4-20 slotted	3	3	3	3
12	<b>AR</b>	STD-33	WASHER, 3/8 plain	1	1	2	2
13	<b>AR</b>	AN960-616L	WASHER, 3/8 plain, thin	1	1	3	3
14		STD-872	NUT, 3/8-24 slotted	1	1	1	1
15		AN6-34A	BOLT, 3/8-24 x 3-37/64 long, hex. head	2	2	1	1
16		STD-33	WASHER, 3/8 plain	4	4	3	3
17		STD-678	WASHER, 3/8 lock, internal teeth	2	2	2	2
18		STD-596	NUT, 3/8-24 plain	2	2	2	2
19		01A22453	STUD, 1/2-20 x 10-1/2 long	4	4	4	4
<b>AR as required</b>							



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

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

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		77450	CONNECTING ROD ASSEMBLY	4
2		LW-13923	BUSHING, Connecting rod, upper	4
3		75061	BOLT, Connecting rod	8
4		LW-12186	NUT, Connecting rod bolt	8
5		18M23887	BEARING, Connecting rod	8
6		14E23911	PISTON, Compression ratio 8.90:1	4
7	▲	14J22048	PIN, Piston	4
8		72198	PLUG, Piston pin	8
9		14G22050	RING, Piston compression	8
10		14H23148	RING, Piston oil regulating, expander type	4
▲ Refer to the latest revision of Lycoming Service Instruction No. 1267.				



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

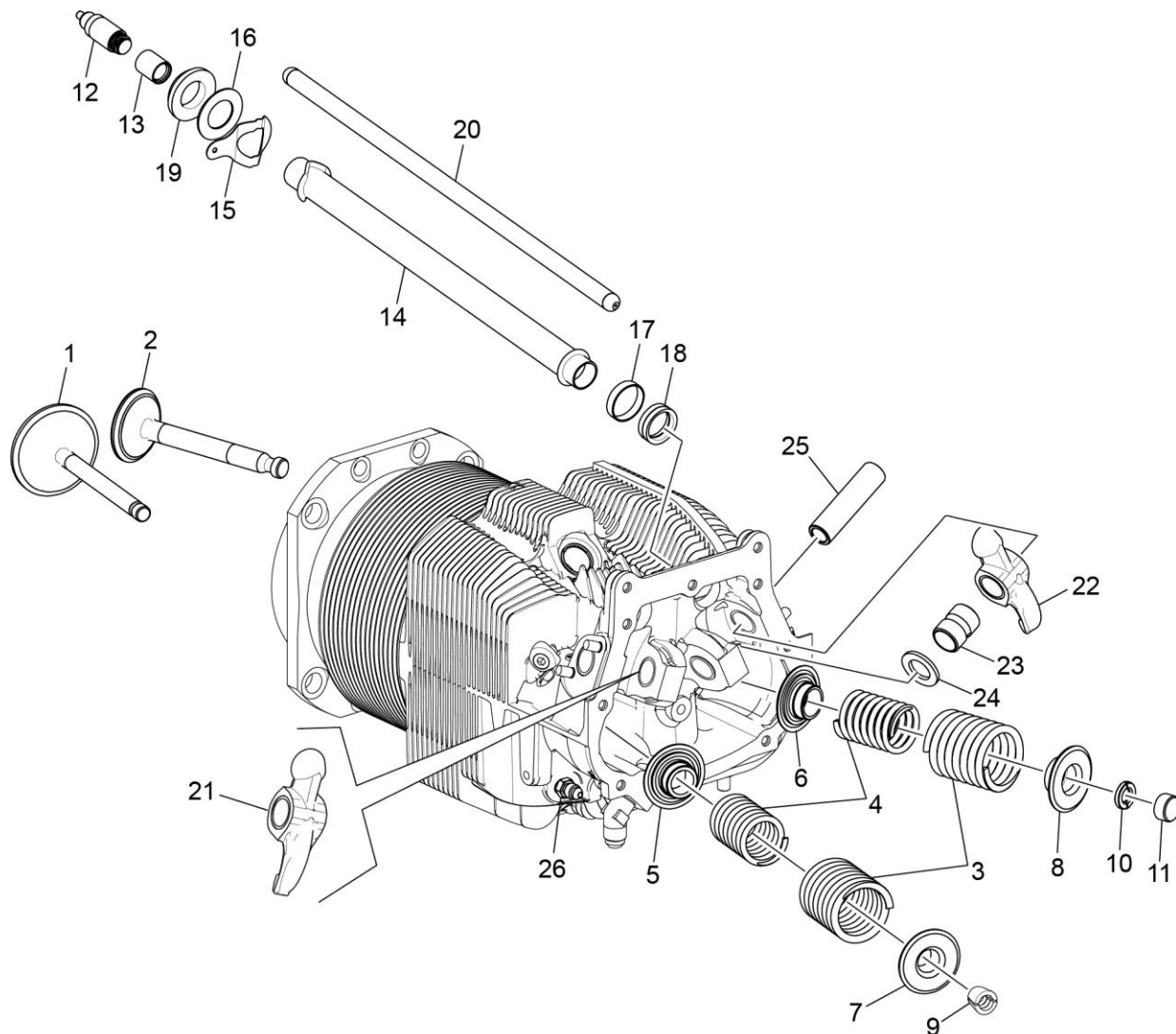
**CYLINDER SECTION****Figure 10 - Cylinder Assembly**

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		16A26081	CYLINDER AND HEAD ASSEMBLY, Nitrided bore	4
2		72212	SEAT, Intake valve	4
3		16T19468	SEAT, Valve, exhaust	4
4		LW-11956	GUIDE, Valve, intake	4
5		LW-11958	GUIDE, Valve, exhaust	4
6		69260	INSERT, Spark plug, 18-1.5 MM	8
7		31C-13	STUD, 5/16-18 x 1-5/8 long	8
8		25C-8	STUD, 1/4-20 x 1.00 long	16
9		MS20823-6D	ELBOW, 45°, 3/8 flared tube	4
10		66670	BUSHING, Rocker shaft, inner	16
11		72343	STABILIZER, Cylinder head fins, 15 teeth	4
12		72344	STABILIZER, Cylinder head fins, 26 teeth	4
13		1102	PLUG, 1/8-27 NPT, Allen head	4
14		STD-35	WASHER, 5/16 plain	8
15		STD-475	WASHER, 5/16 lock, internal teeth	8
16		STD-1410	NUT, 5/16-18 plain	8
17	❖	75118	GASKET, Exhaust flange	8
	❖	77611	GASKET, Exhaust flange	4
18	<b>V ▲</b>	1182-G7	SPARK PLUG, Champion REB37E	8

❖ This part is shipped loose with the engine and optional on all models.

**V** Vendor Prime Manufacturer part

**▲** Refer to the latest revision of Lycoming Service Instruction No. 1042 for a complete listing of all approved spark plugs.



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



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

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		17A23946	VALVE, Intake	4
2		17B23935	VALVE, Exhaust	4
3		LW-11796	SPRING, Valve, outer	8
4		LW-11797	SPRING, Valve, inner	8
5		LW-13321	SEAT, Valve spring, lower intake	4
6		LW-13322	SEAT, Valve spring, lower exhaust	4
7		LW-10077	SEAT, Valve spring, upper intake	4
8		LW-16475	SEAT, Valve spring, upper exhaust	4
9		60009	KEY, Valve, intake	8
10		17C21191	KEY, Valve, exhaust	8
11		17C19386	CAP, Valve stem, exhaust	4
12		15B26066	PLUNGER ASSEMBLY, Hydraulic tappet	8
13		15B21319	SOCKET, Hydraulic tappet	8
14		15G23462	SHROUD TUBE ASSEMBLY, Push rod	8
15		15H21201	SPRING, Shroud tube	16
16		01L23459	WASHER, 3/4 I.D. x 1-3/8 O.D. x 1/32	8
17		61503	SLEEVE, Shroud tube	8
18		LW-18661	SEAL, Shroud tube	8
19		06A23493	SEAL, Shroud tube	8
20	❖	15F19957-51	ROD ASSEMBLY, Push (A total of 8 required)	<b>AR</b>
	❖	15F19957-52	ROD ASSEMBLY, Push (A total of 8 required)	<b>AR</b>
	❖	15F19957-53	ROD ASSEMBLY, Push (A total of 8 required)	<b>AR</b>
	❖	15F19957-54	ROD ASSEMBLY, Push (A total of 8 required)	<b>AR</b>
	❖	15F19957-55	ROD ASSEMBLY, Push (A total of 8 required)	<b>AR</b>
	❖	15F19957-56	ROD ASSEMBLY, Push (A total of 8 required)	<b>AR</b>
<b>AR</b> As Required ❖ See latest revision of Service Instruction No. 1060 for complete push rod application				

(continued on next page)

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

Figure Item	Code	Part Number	Description	Units per Assembly
20	❖	15F21362-17	ROD ASSEMBLY, Push (A total of 8 required)	AR
	❖	15F21362-18	ROD ASSEMBLY, Push (A total of 8 required)	AR
	❖	15F21362-19	ROD ASSEMBLY, Push (A total of 8 required)	AR
	❖	15F21362-20	ROD ASSEMBLY, Push (A total of 8 required)	AR
	❖	15F21362-21	ROD ASSEMBLY, Push (A total of 8 required)	AR
	❖	15F21362-22	ROD ASSEMBLY, Push (A total of 8 required)	AR
21	▲	17F21188	ROCKER ASSEMBLY, Valve, intake	4
22	▲	17F21187	ROCKER ASSEMBLY, Valve, exhaust	4
23		74389	BUSHING, Valve rocker	8
24		71549	WASHER, Thrust, valve rocker	8
25		72626	SHAFT, Valve rocker	8
26	●	02G21382	NIPPLE, Nozzle pressure gauge	1

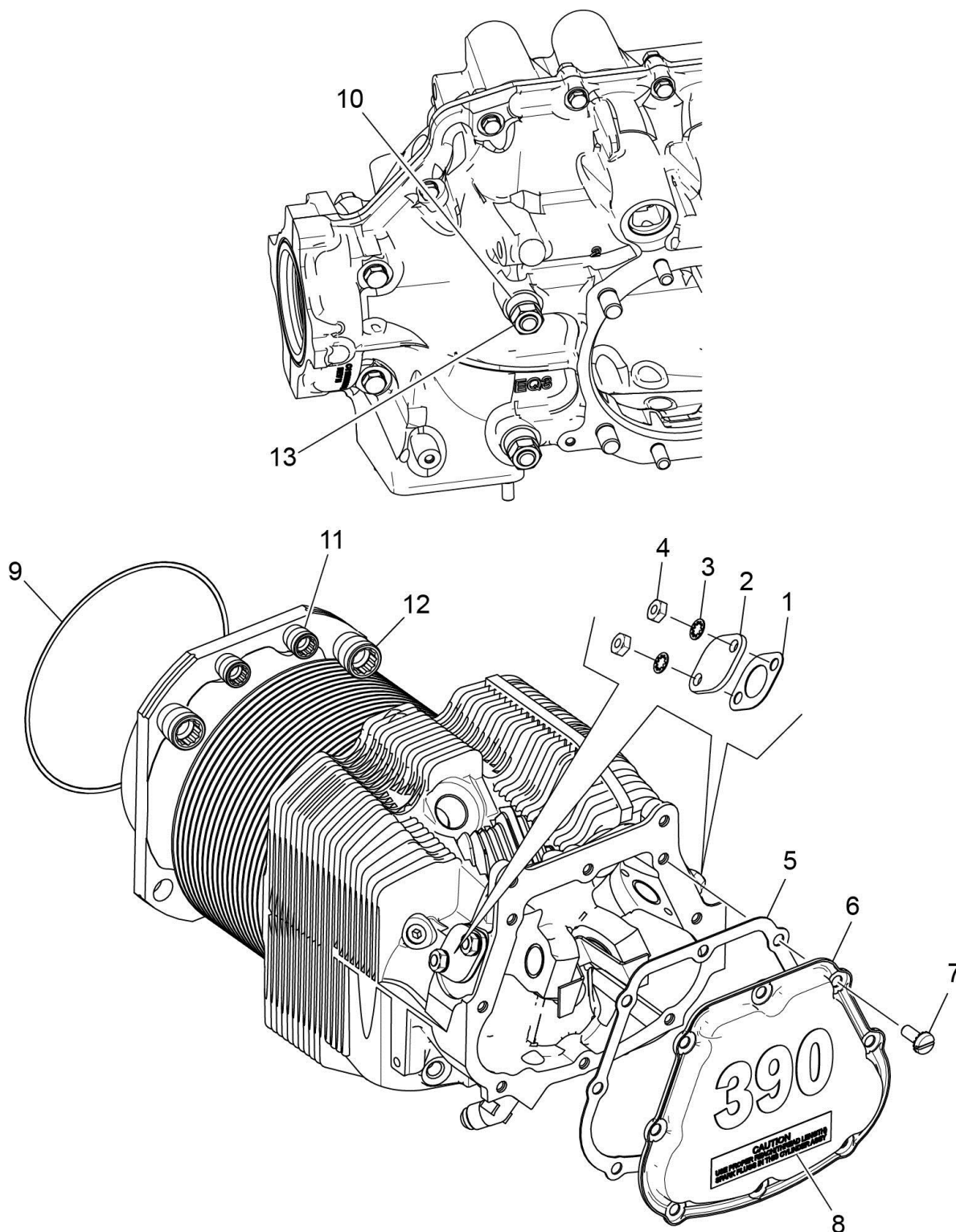
**AR** As Required

❖ See 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 (21188) could be all that is shown of the part number.

▲ Optional fitting for the manifold pressure gage attachment

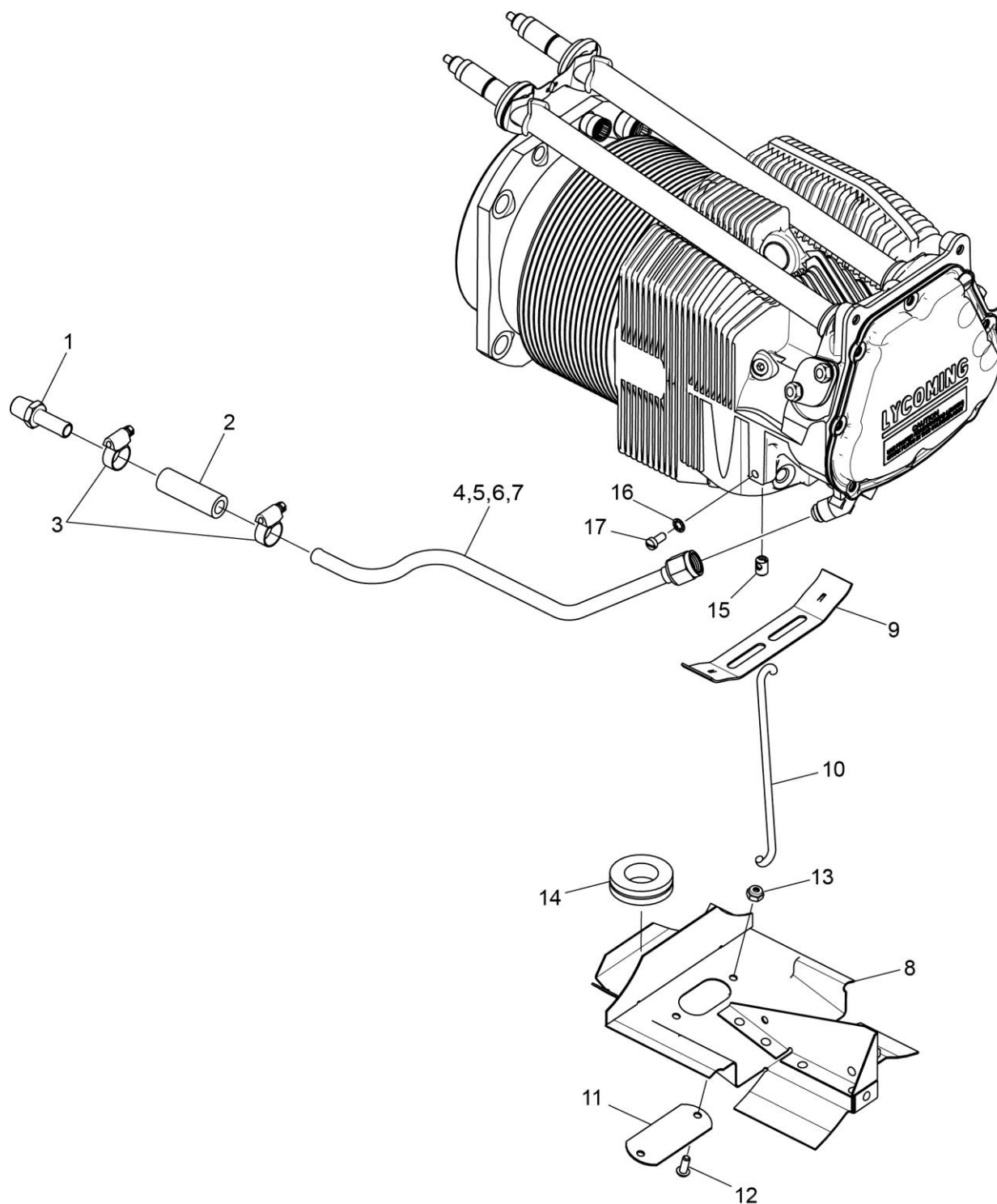
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**Figure 12**  
**Cylinder Related Parts**

**CYLINDER SECTION****Figure 12 - Cylinder Related Parts**

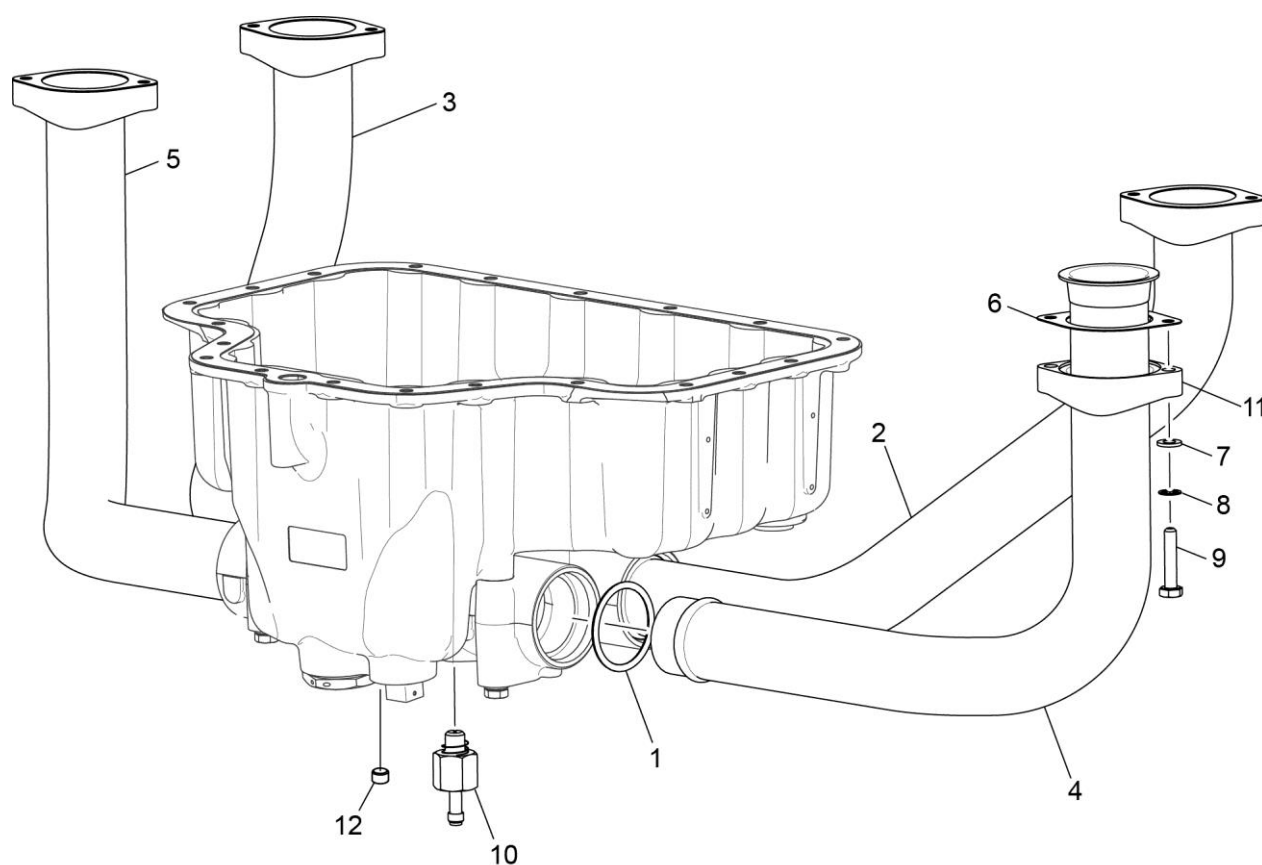
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		66732	GASKET, Valve rocker shaft cover	8
2		17H28668	COVER, Valve rocker shaft	8
3		STD-160	WASHER, 1/4 lock, internal teeth	16
4		STD-1411	NUT, 1/4-20 plain	16
5		06B26811	GASKET, Rocker box cover, silicone	4
6		17J28667	COVER ASSEMBLY, Rocker box	4
7		STD-1925	SCREW, 1/4-20 x 5/8 long, pan hd., self-locking	32
8		74494	PLATE, Spark plug reach caution	4
9		71481	RING, Oil seal, 3/32 diameter x 4-27/32 long	4
10		74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick	2
11		71134	NUT, 3/8-24 NF-3	16
12		71133	NUT, 1/2-20 NF-3	16
13		STD-2090	NUT, 1/2-20 plain	2



**Figure 13**  
**Cylinder Head Drain Tubes and Intercylinder Cooling Baffles**

**CYLINDER SECTION****Figure 13 - Cylinder Head Drain Tubes and Intercylinder Cooling Baffles**

Figure Item	Code	Part Number	Description	Units per Assembly
1		STD-684	NIPPLE, Straight, 3/8 I.D. hose	4
2		STD-2180	HOSE, 3/8 x 1-13/16 long	4
3		LW-15592-5-04	CLAMP, Hose	8
4		72702	TUBE ASSEMBLY, Cyl. head oil drain, cyl. No. 1	1
5		72703	TUBE ASSEMBLY, Cyl. head oil drain, cyl. No. 2	1
6		74808	TUBE ASSEMBLY, Cyl. head oil drain, cyl. No. 3	1
7		73027	TUBE ASSEMBLY, Cyl. head oil drain, cyl. No. 4	1
8	❖	75338	BAFFLE ASSEMBLY, Intercylinder	1
	▲	75337	BAFFLE ASSEMBLY, Intercylinder	1
9		71611	RETAINER, Intercylinder baffle	2
10		17M23284	HOOK, Intercylinder baffle retainer	2
11		72834	COVER, Baffle ignition cable hole	2
12		STD-692	SCREW, No. 10-32 x 1/2 long, round head	4
13		STD-670	LOCK NUT, No. 10-32	4
14	▲	MS35489-20X	GROMMET	1
15		65614	PLUG, Baffle attaching	4
16		STD-251	WASHER, No. 10, internal lock	4
17		STD-1686	SCREW, No. 10-32 x 7/16 long	4
❖ Install on left side cylinders No. 2 and 4				
▲ Install on right side between cylinders No. 1 and 3				

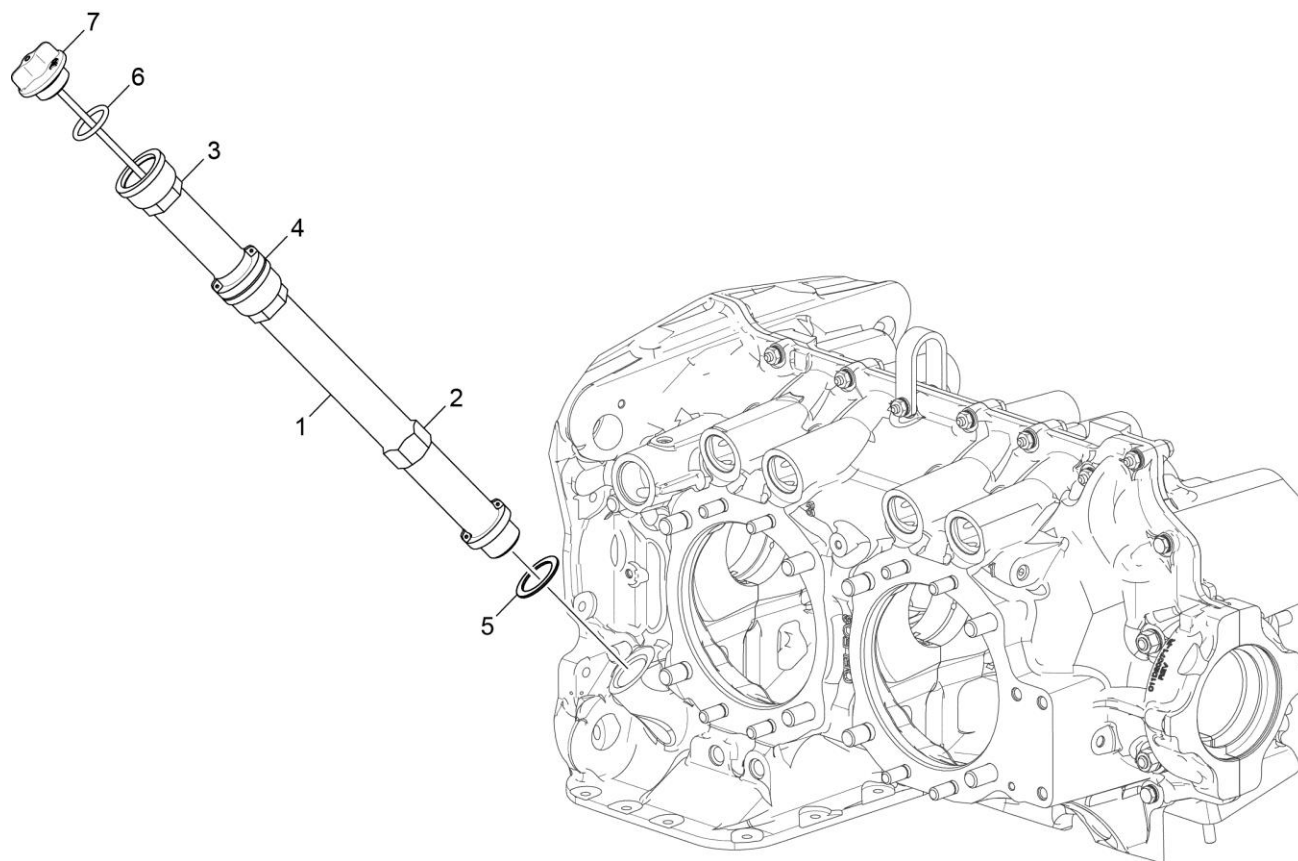


**Figure 14**  
**Intake Pipes Assembly**



**CYLINDER SECTION****Figure 14 – Intake Pipes Assembly**

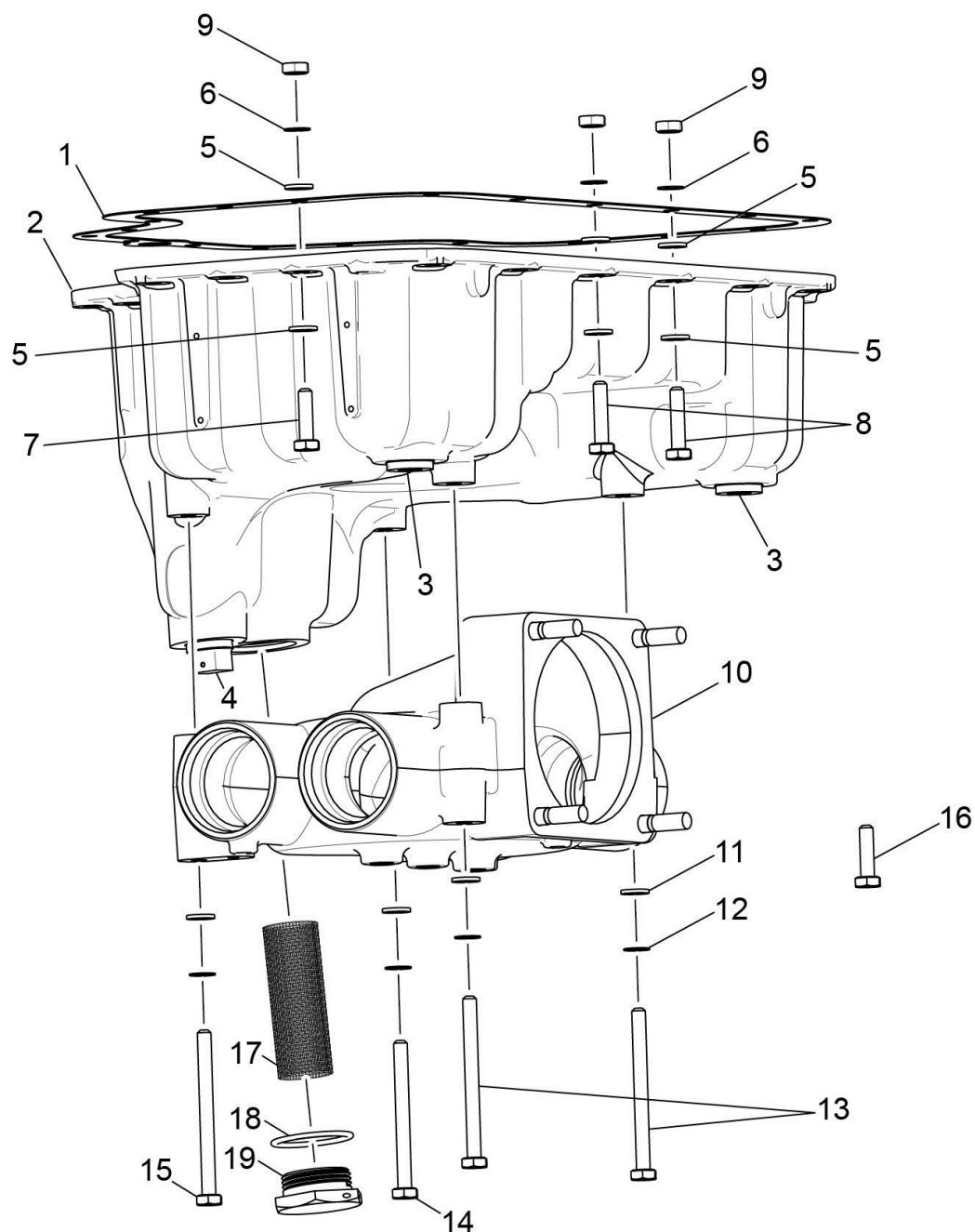
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		72711	SEAL, Intake pipe	4
2		42E28520	PIPE, Intake, cylinder No. 1	1
3		42E28521	PIPE, Intake, cylinder No. 2	1
4		42E28522	PIPE, Intake, cylinder No. 3	1
	❖	42E28711	PIPE, Intake, cylinder No. 3	1
5		42E28523	PIPE, Intake, cylinder No. 4	1
6		71973	GASKET, 2 bolt flange, 1-3/4 I.D.	4
7		STD-8	WASHER, 1/4 plain	8
8		STD-160	WASHER, 1/4 lock, internal teeth	8
9		LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head	8
10	❖	LW-13807	ADAPTER ASSEMBLY, Fuel drain valve	1
11		74360	FLANGE, Intake pipe, upper	4
12		1102	PLUG	3
❖ <b>Optional</b>				



**Figure 15**  
**Oil Level Gage**

**LUBRICATION SYSTEM****Figure 15 - Oil Level Gage**

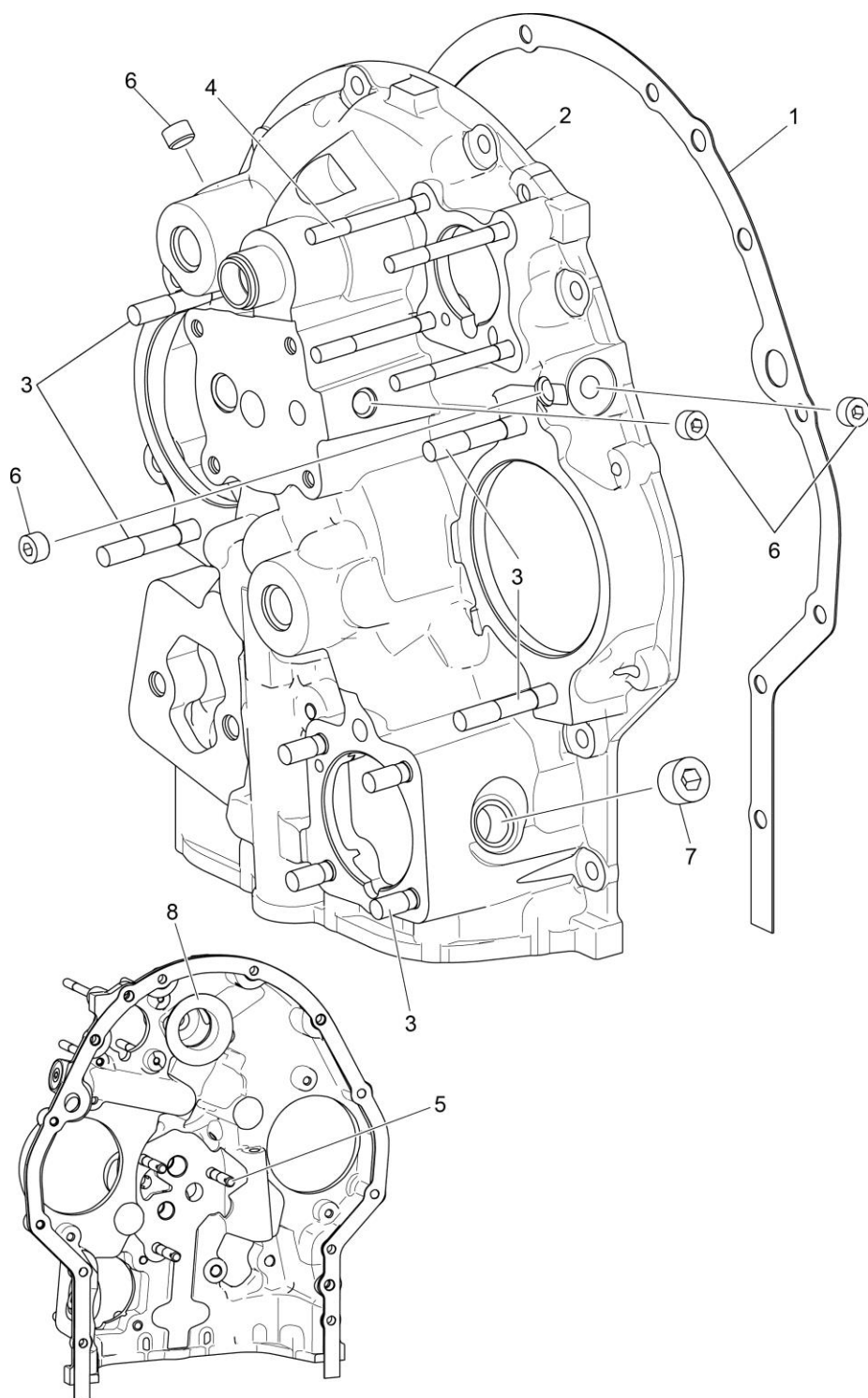
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		56C23075	TUBE, Oil level gage (long)	1
2		75767	TUBE, Oil level gage	1
3		75761	EXTENSION, Oil filter	1
4		72220	GASKET, Oil level gage	1
5		72059	GASKET, Oil level gage	1
6		74065	O-RING, Oil level gage	1
7		56C23680	GAGE ASSEMBLY, Oil level	1



**Figure 16**  
**Oil Sump Assembly and Oil Suction Screen**

**LUBRICATION SYSTEM****Figure 16 – Oil Sump Assembly and Oil Suction Screen**

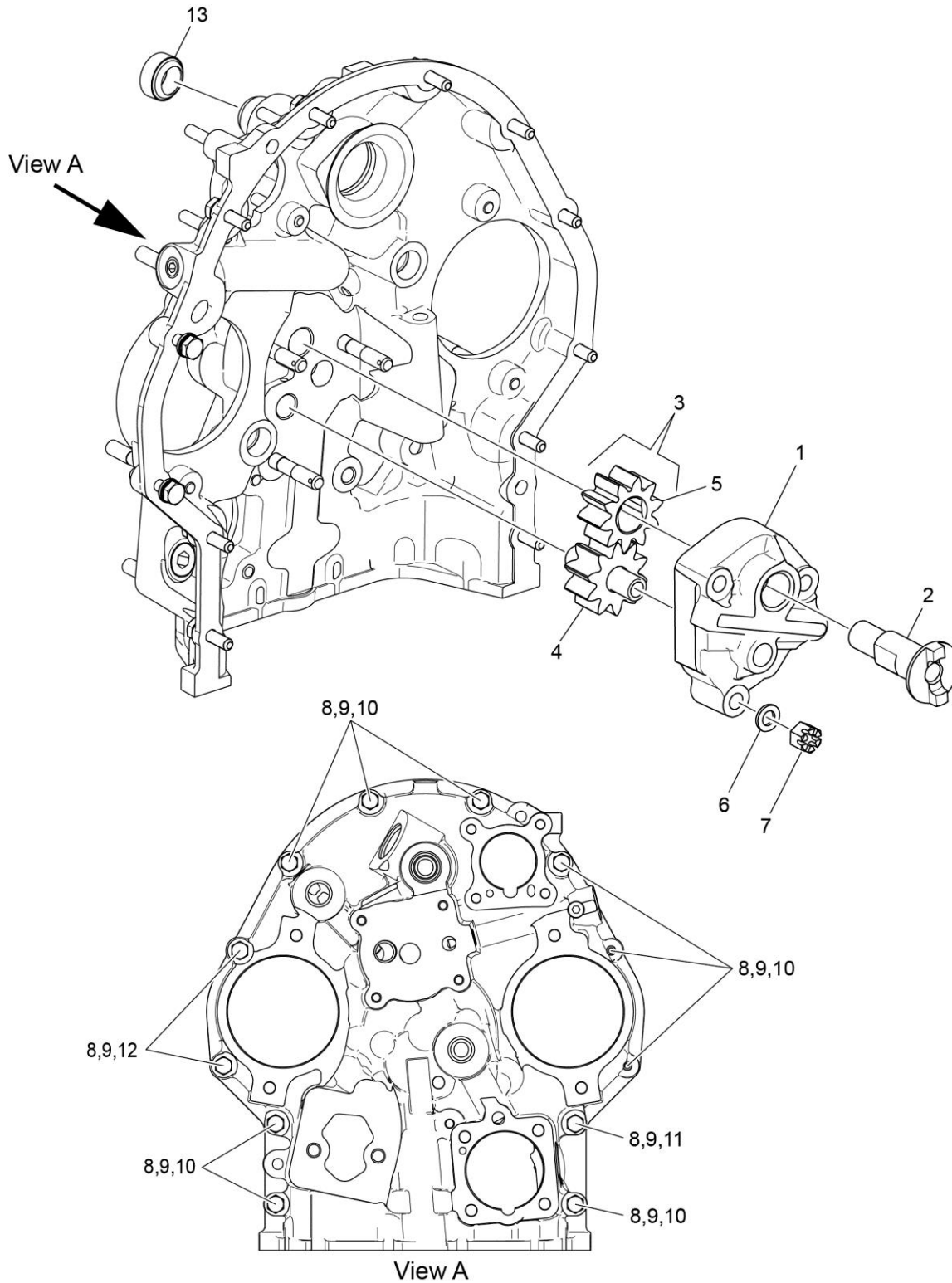
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		LW-13353	GASKET, Oil sump	1
2		56B28511	SUMP ASSEMBLY, Oil	1
3		STD-2229	PLUG, 1/2 NPT, Allen head	2
4		STD-551	PLUG, 1-1/2	1
5		STD-8	WASHER, 1/4 plain	32
6		STD-160	WASHER, 1/4 lock, internal teeth	20
7		LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	18
8		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	2
9		STD-1411	NUT, 1/4-20 plain	12
10		42A28515	HOUSING ASSEMBLY, Induction	1
11		STD-8	WASHER, 1/4 plain	4
12		STD-160	WASHER, 1/4 lock, internal teeth	4
13		LW-25-2.94	BOLT, 1/4-20 x 2-15/16 long, hex. head	2
14		LW-25-2.69	BOLT, 1/4-20 x 2-11/16 long, hex. head	1
15		LW-25-3.00	BOLT, 1/4-20 x 3.00 long, hex. head	1
16		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	4
17		61378	SCREEN, Oil suction	1
18		06E19769-1.25	GASKET, Annular, 1-1/4 I.D.	1
19		61358	PLUG, 1-1/2 hex. x 1-1/4-12	1



### Figure 17 Accessory Housing Assembly

**ACCESSORY DRIVES****Figure 17 – Accessory Housing Assembly**

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		73818	GASKET, Accessory housing	1
2		21A26252-38	ACCESSORY HOUSING ASSEMBLY, Studding	1
3	❖	21A21533-30	ACCESSORY HOUSING ASSEMBLY, Studding	1
4		31C-12	STUD, 5/16-18 x 1-1/2 long	8
5		25C-22	STUD, 1/4-20 x 2-3/4 long	4
6		31CD-17	STUD, 5/16-18 x 2-1/8 long drilled	3
7		1102	PLUG, 1/8 pipe	4
8		STD-784	PLUG, 3/8-18 NPT, Allen head	1
9		76119	SHIELD, Accessory breather oil	1
❖ Accessory Housing with optional accessory drive pads				

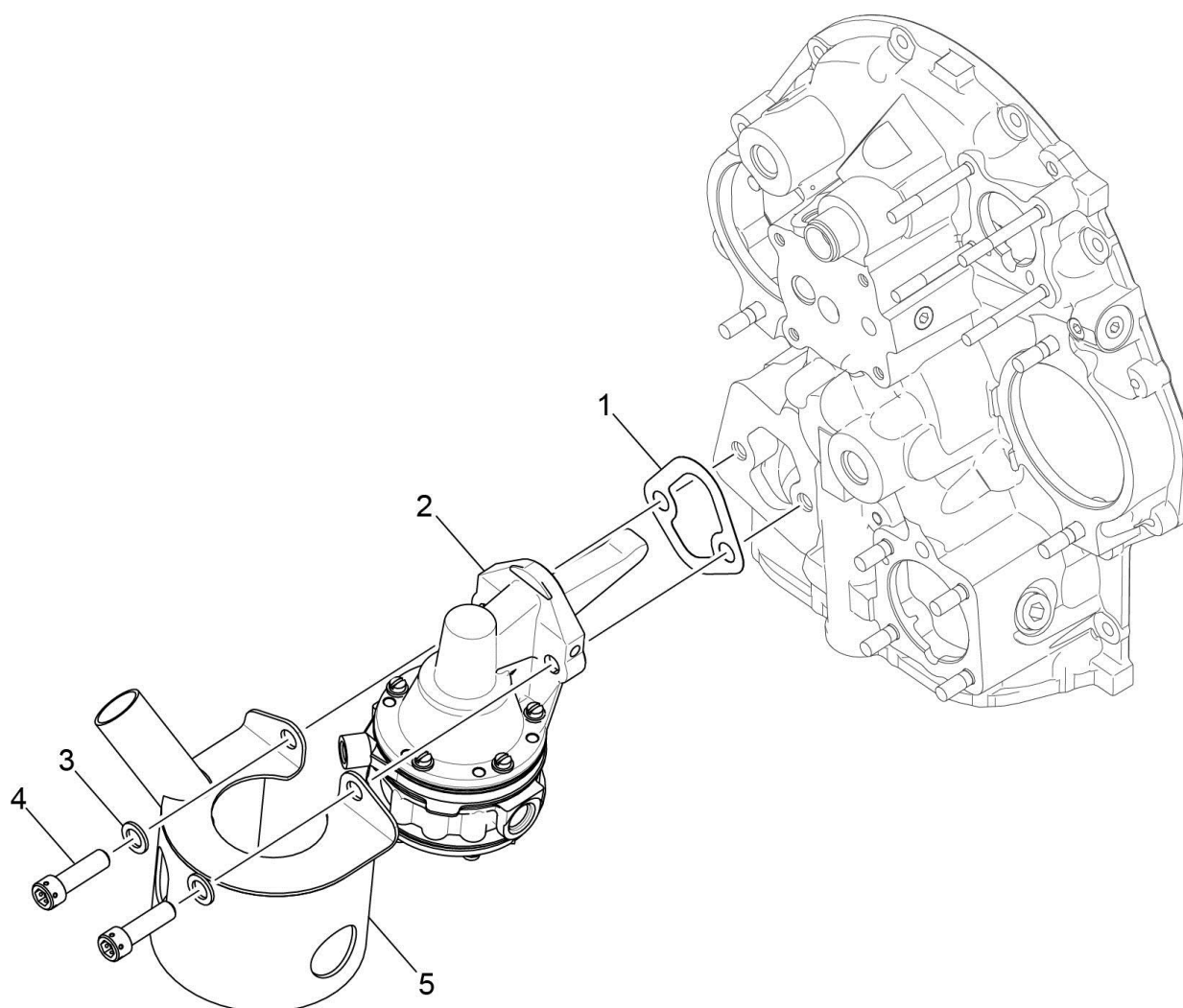


**Figure 18**  
**Oil Pump Assembly and Accessory Housing Attaching Parts**



**ACCESSORY DRIVES****Figure 18 – Oil Pump Assembly and Accessory Housing Attaching Parts**

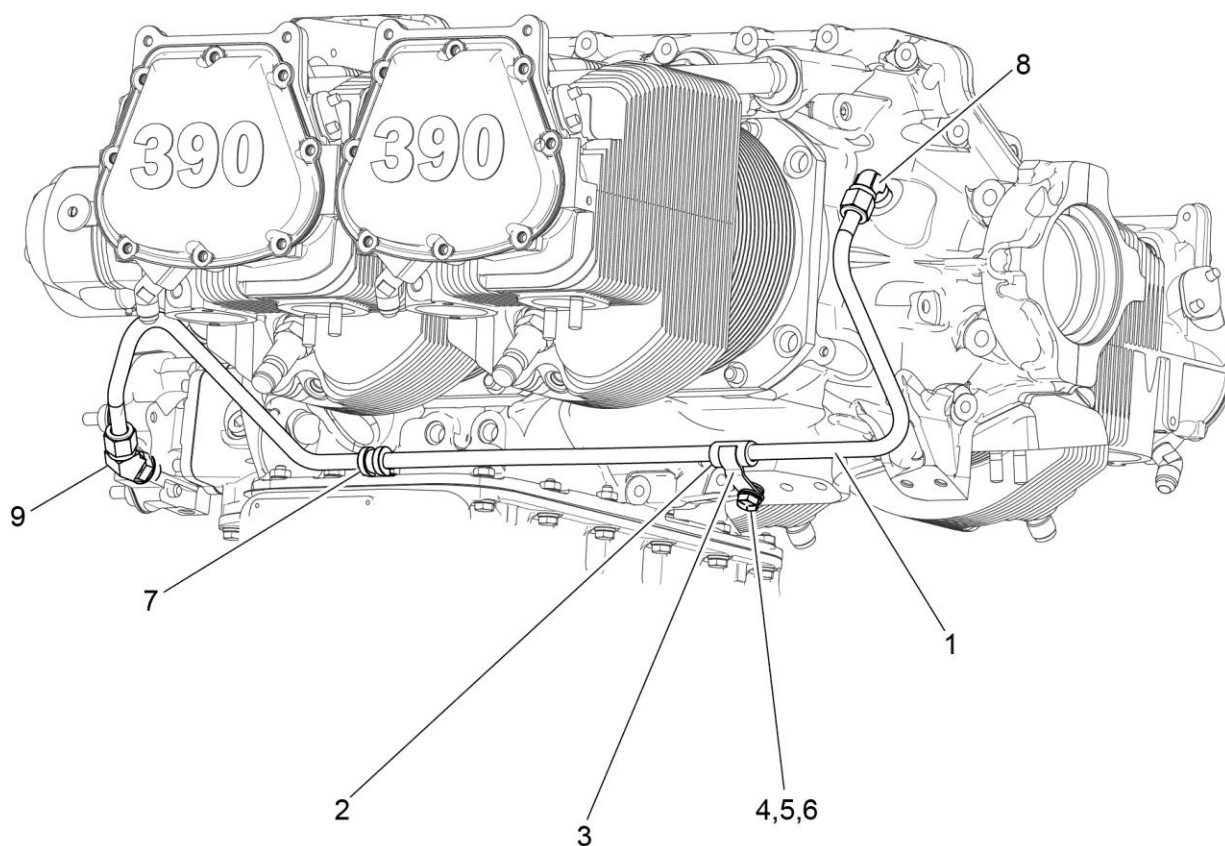
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		51F28531	BODY ASSEMBLY, Oil pump	1
2		61174	SHAFT, Oil pump drive	1
3		05K19423-S	IMPELLER KIT	1
4		LW-18110	IMPELLER ASSEMBLY, Oil pump driven	1
5		LW-18109	IMPELLER, Oil pump driven	1
6		STD-35	WASHER, 5/16 plain	3
7		STD-1420	NUT, 5/16-18 slotted	3
8		STD-8	WASHER, 1/4 plain	12
9		STD-160	WASHER, 1/4 lock, internal teeth	12
10		LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	9
11		LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
12		LW-25-1.44	BOLT, 1/4-20 x 1-7/16 long, hex. head	2
13		LW-14260	SEAL, Tachometer drive, oil	1



**Figure 19**  
**Fuel Pump and Attaching Parts**

**ACCESSORY DRIVES****Figure 19 - Fuel Pump and Attaching Parts**

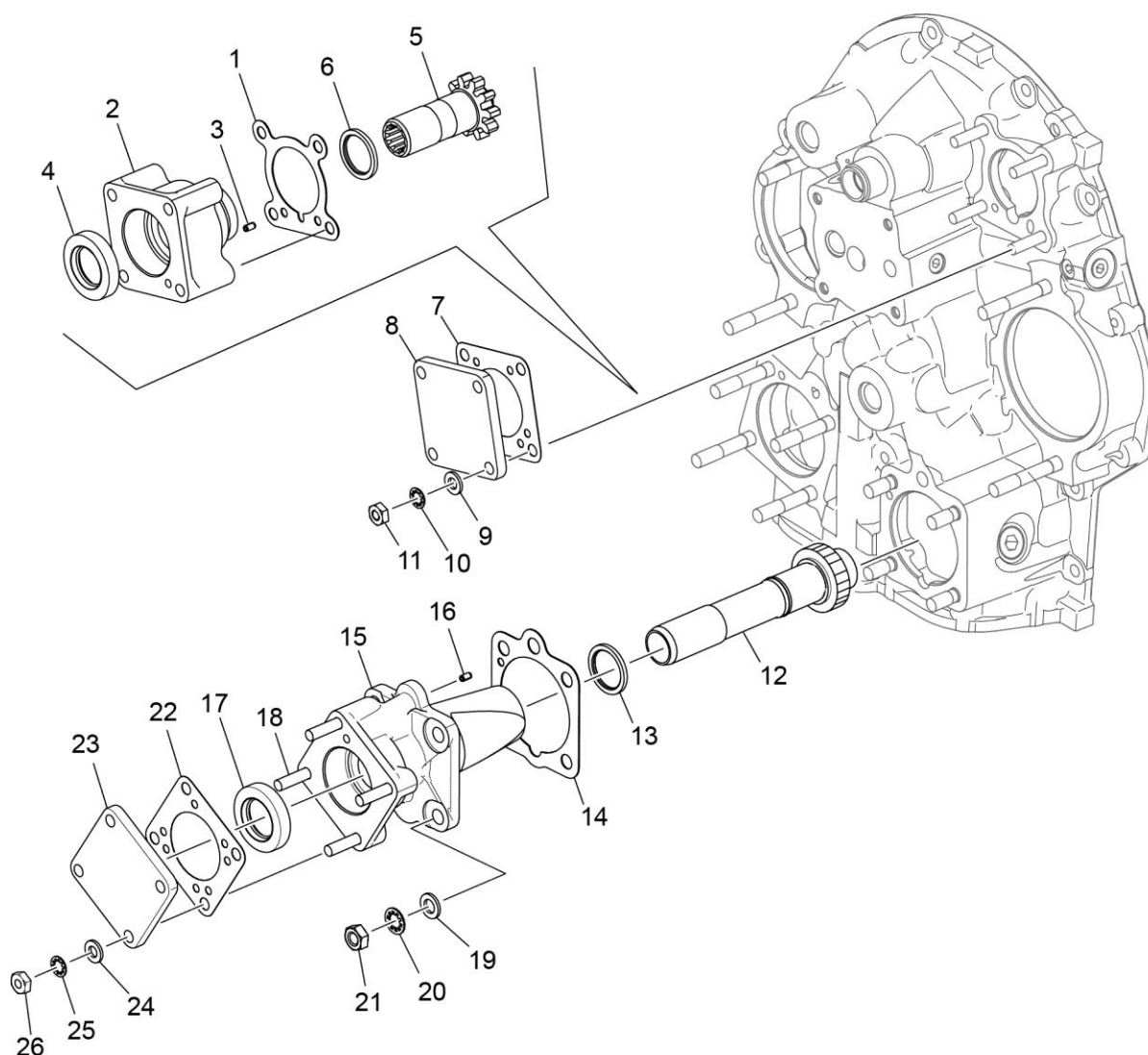
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		60096	GASKET, Fuel pump	1
2		62B26931	FUEL PUMP, High Pressure	1
3		STD-33	WASHER, 3/8 plain	2
4		STD-1882	SCREW, 3/8-16 x 1-9/32 long, socket head, drilled	2
5	❖	05A28344	SHROUD ASSEMBLY, Fuel pump	1
❖ Optional				



**Figure 20**  
**Propeller Governor Oil Line Tube Assembly and Attaching Parts**

**ACCESSORY DRIVES****Figure 20 - Propeller Governor Oil Line Tube Assembly and Attaching Parts**

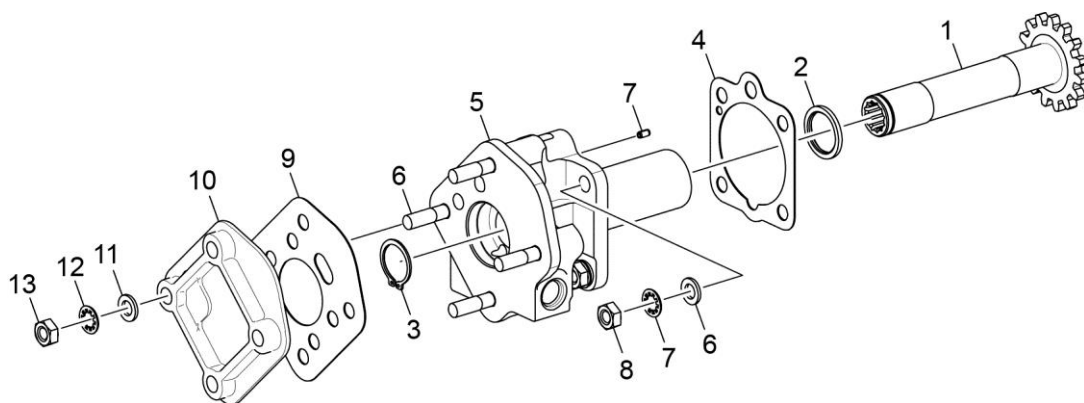
Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		75167	TUBE ASSEMBLY, Propeller governor oil line	1	1		
2		STD-1930	HOSE, 3/8 I.D. x 1.00 long	1	1		
3		75165	CLIP, Propeller governor oil line support	1	1		
4		STD-35	WASHER, 5/16 plain	3	3		
5		STD-475	WASHER, 5/16 lock, internal teeth	1	1		
6		LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	1	1		
7		LW-16266-25-38	CLAMP, 3/8 I.D. x 1/4 diameter screw	1	1		
8		MS20822-6	ELBOW, 1/4 NPT to 3/8 flared tube, 90°	1	1		
9		74070	ELBOW, 3/8 flared tube and 9/16-18	1	1		



**Figure 21**  
**Vacuum and Hydraulic Pump Drives and Covers**

**ACCESSORY DRIVES****Figure 21 – Vacuum and Hydraulic Pump Drives and Covers**

Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		61183	GASKET, Accessory adapter	1	1	1	1
2		61098	ADAPTER ASSEMBLY, Vacuum pump	1	1	1	1
3		STD-1774	PIN, 1/8 diameter x 1/4 long	1	1	1	1
4		06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16	1	1	1	1
5		72970	GEAR ASSEMBLY, Vacuum pump driven	1	1	1	1
6		71596	WASHER, Accessory drive gear	1	1	1	1
7		8313	GASKET, Vacuum pump	1	1	1	1
8		60430	COVER, Vacuum pump	1	1	1	1
9		STD-8	WASHER, 1/4 plain	4	4	4	4
10		STD-160	WASHER, 1/4 lock, internal teeth	4	4	4	4
11		STD-1411	NUT, 1/4-20 plain	4	4	4	4
12		27A22099	GEAR ASSEMBLY, Hydraulic pump driven			1	1
13		71596	WASHER, Accessory drive gear			1	1
14		68315	GASKET, Accessory drive adapter			1	1
15		27D21252	ADAPTER ASSEMBLY, Hydraulic pump			1	1
16		STD-1774	PIN, 1/8 diameter x 1/4 long			1	1
17		06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide			1	1
18		25C-12	STUD, 1/4-20 x 1-1/2 long			4	4
19		STD-35	WASHER, 5/16 plain			4	4
20		STD-475	WASHER, 5/16 lock, internal teeth			4	4
21		STD-1410	NUT, 5/16-18 plain			4	4
22		8313	GASKET, Hydraulic pump			1	1
23		60430	COVER, Hydraulic pump			1	1
24		STD-8	WASHER, 1/4 plain			4	4
25		STD-160	WASHER, 1/4 lock, internal teeth			4	4
26		STD-1411	NUT, 1/4-20 plain			4	4

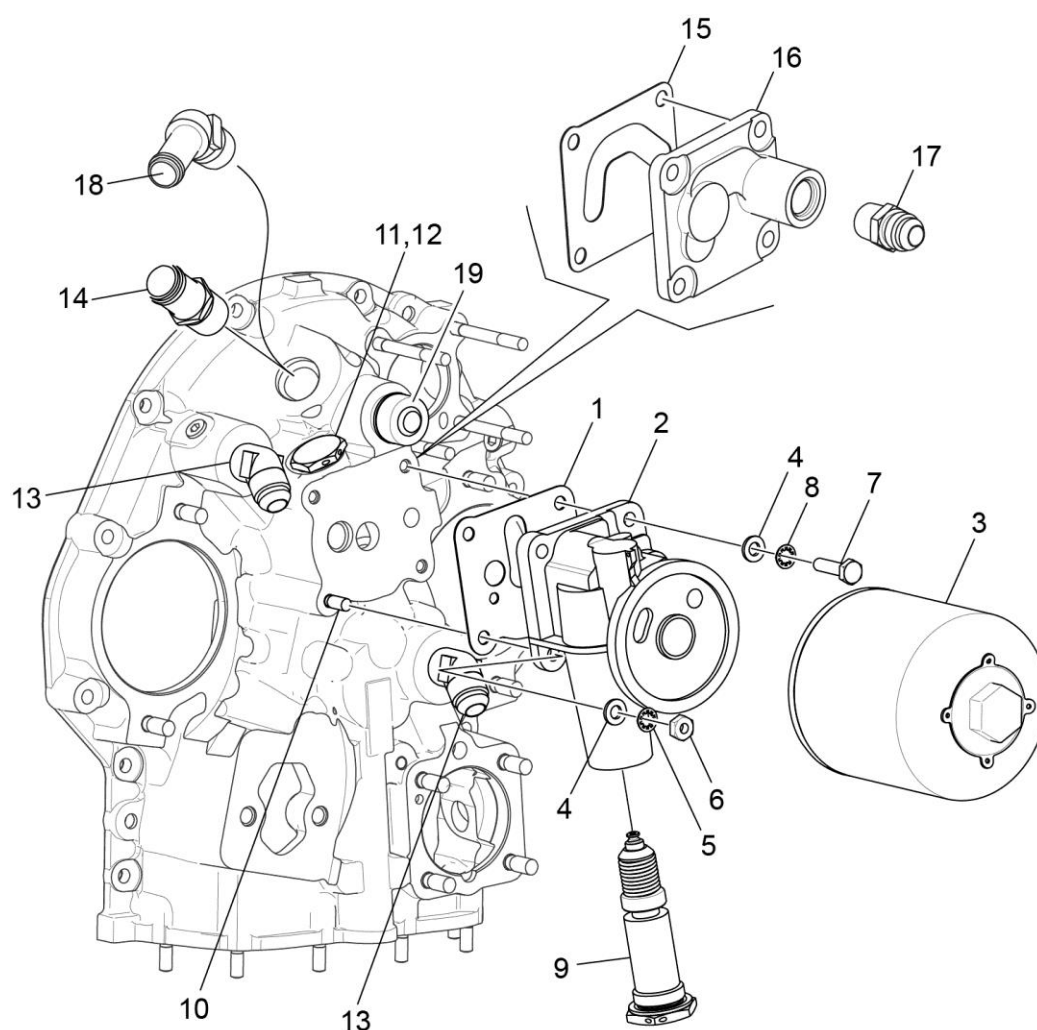


**Figure 22**  
**Propeller Governor Drive (Rear) and Cover**



**ACCESSORY DRIVES****Figure 22 – Propeller Governor Drive (Rear) and Cover**

Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		68317	SHAFTGEAR, Propeller Governor Drive	1	1		
2		71596	WASHER, Accessory drive gear	1	1		
3		STD-1221	RING, 13/16 diameter x 1/32 thick	1	1		
4		68315	GASKET, Accessory drive adapter	1	1		
5		75153	ADAPTER ASSY., Propeller gov. drive (with studs)	1	1		
6		STD-35	WASHER, 5/16 plain	4	4		
7		STD-475	WASHER, 5/16 lock, internal teeth	4	4		
8		STD-1410	NUT, 5/16-18 plain	4	4		
9		72053	GASKET, Governor	1	1		
10		72378	COVER, Governor drive	1	1		
11		STD-35	WASHER, 5/16 plain	4	4		
12		STD-475	WASHER, 5/16 lock, internal teeth	4	4		
13		STD-1410	NUT, 5/16-18 plain	4	4		



**Figure 23**  
**Oil Filter Assembly, Oil Cooler Bypass Valve, and Fittings**

**ACCESSORY DRIVES****Figure 23 – Oil Filter Assembly, Oil Cooler Bypass Valve, and Fittings**

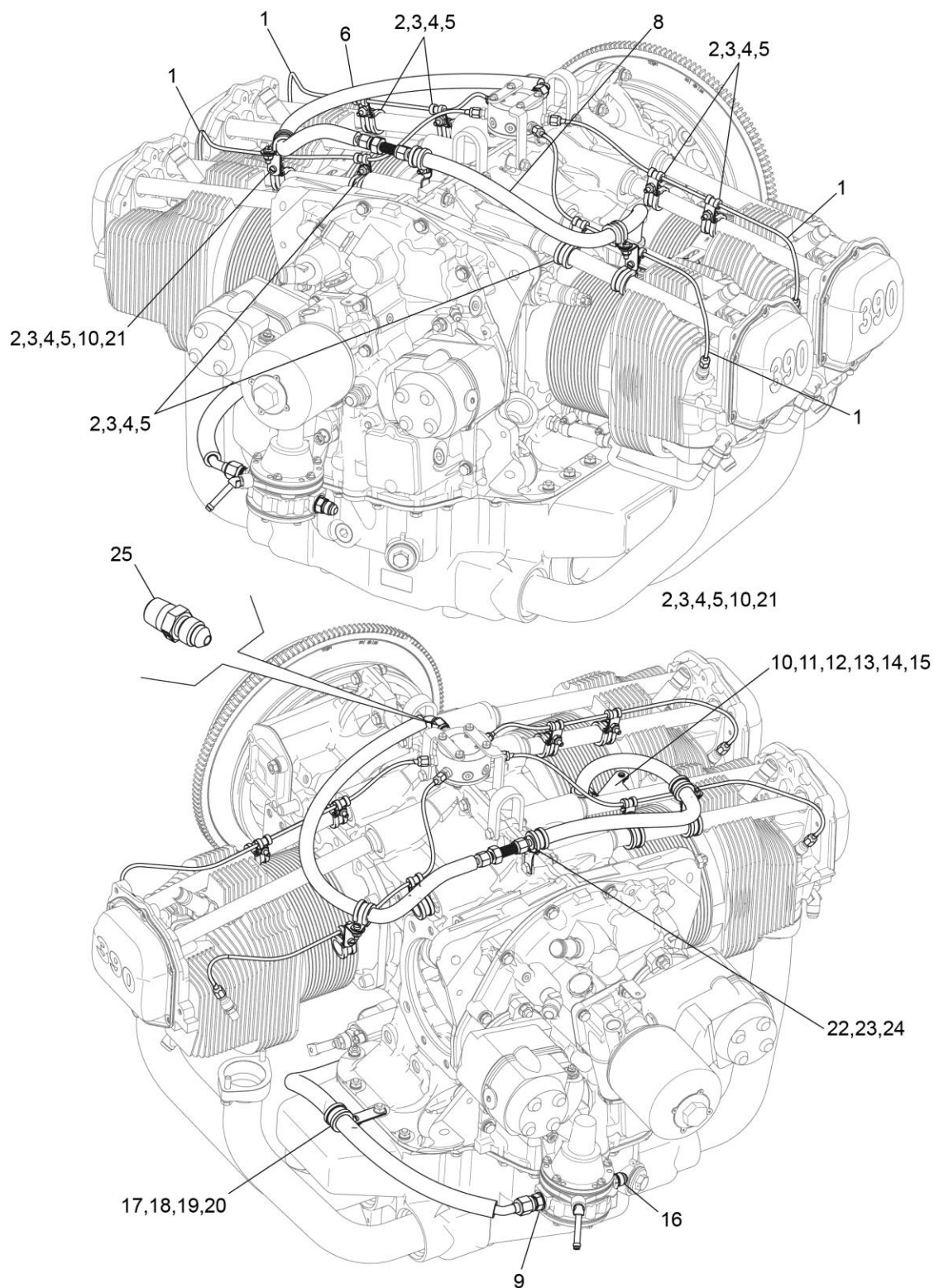
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1	❖	06B23862	GASKET, Oil filter adapter	2
2		77852	OIL FILTER BASE ASSEMBLY	1
3		LW-13215	OIL FILTER, Short, CH48110-1	1
4		STD-8	WASHER, 1/4 plain	4
5		STD-160	WASHER, 1/4 lock, internal teeth	1
6		STD-1411	NUT, 1/4-20 plain	1
7		LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head	3
8		STD-160	WASHER, 1/4 lock, internal teeth	3
9		53E22144	VALVE ASSEMBLY, Temp. control, oil cooler bypass	1
10		25C-10	STUD, 1/4-20 x 1-1/4 long	1
11		06E19769-0.63	GASKET, Annular, 5/8 I.D.	1
12		62417	PLUG, Oil cooler bypass	1
13		MS20823-8	ELBOW, 3/8 NPT, 1/2 flared tube	2
14		71140	FITTING, Breather	1
15	▲	06B21644	GASKET, Oil filter base cover	1
16	▲	21M23736	COVER, Oil filter base	1
17	▲	AN816-8	NIPPLE, 1/2 flared tube	1
18	●	AN844-10D	ELBOW, Pipe	1
	◆	62732	CAP, Tachometer drive	1

- ❖ One of the oil filter adapter gaskets P/N 06B23862 is shipped loose with the engine.
- ▲ Optional for use with remote oil filters
- Optional breather fitting
- ◆ Optional with tachometer drive



**FUEL DISTRIBUTION****Figure 24 – Fuel Injector, Fuel Manifold Assembly, and Brackets**

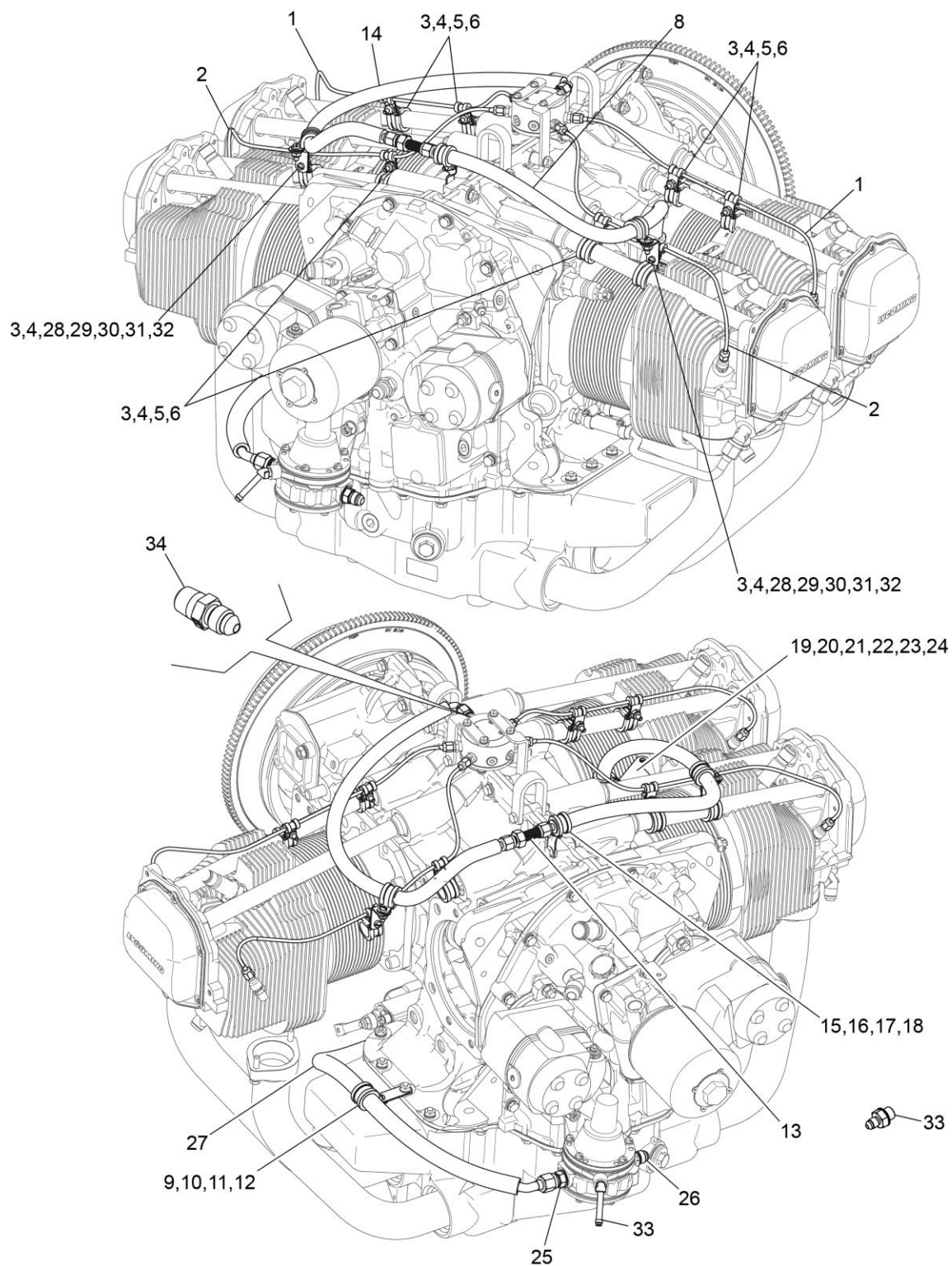
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		73032	GASKET, Air Inlet housing	1
2		61M28534	FUEL INJECTOR, RSA-10AD2, AV 2581500	1
3		06B28651	GASKET, Air Inlet housing	1
4		STD-35	WASHER, 5/16 plain	2
5		STD-1727	WASHER, Plain, 0.33 I.D. x 3/4 O.D.	2
6		STD-1410	NUT, 5/16-18 plain	4
7		STD-475	WASHER, 5/16 lock, internal teeth	4
8		63C26450	NOZZLE, Injection, low, AV 2524864-2	4
9	❖	63B28207	MANIFOLD ASSEMBLY, Fuel (4 PSI)	1
		63B28106	MANIFOLD ASSEMBLY, Fuel (4 PSI) AVStar	1
10		STD-148	NIPPLE, Union, 1/8 NPT	4
11		1102	PLUG, 1/8 Pipe	2
12		AN816-4	NIPPLE, 1/8 NPT to 1/4 tube	1
13		MS20822-4	ELBOW, 1/8 NPT to 1/4 tube, 90°	1
14		73966	SPACER, Fuel manifold bracket	2
15	❖	07A22995	BRACKET, Fuel manifold	1
16	❖	07A22996	BRACKET, Fuel manifold	1
17		07A23031	BRACKET, Fuel manifold	1
18		07A23032	BRACKET, Fuel manifold	1
19		STD-251	WASHER, No. 10, internal lock	4
20		STD-82	SCREW, No. 10-24 x 1/2 long, fill. head	4
21		LW-25-2.00	BOLT-.250-20 X 2.00 LONG HEX	2
22		STD-8	WASHER-.250 PLAIN	2
23		STD-160	WASHER-.250 LOCK INT.TEETH	2
❖ Inverted Fuel Manifold Assembly (optional)				



**Figure 25A**  
**Fuel Lines, Fuel Hoses, and Attaching Parts (C1A6 and C3A6)**

**FUEL DISTRIBUTION****Figure 25A – Fuel Lines, Fuel Hoses, and Attaching Parts (C1A6 and C3A6)**

Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		LW-12098-0-180	TUBE ASSEMBLY, Fuel	4	4		
2		LW-16266-10-75	CLAMP	8	8		
3		LW-16266-10-13	CLAMP, 1/8 diameter for No.10 screw	8	8		
4		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	8	8		
5		STD-670	LOCK NUT, No. 10-32	8	8		
6		LW-12876-4S120	HOSE ASSY-1/4 hose, 90-degree elbow	1	1		
7		AN815-4	UNION-.1/4 flared tube	1	1		
8		LW-12798-4S160	HOSE ASSEMBLY, 1/4 hose straight	1	1		
9		LW-16561	NIPPLE, 3/8 flared tube, 9/16-18	1	1		
10		07A28507	BRACKET ASSY, fuel line support	1	1		
11		STD-692	SCREW, No. 10-32 x 1/2 long, round head	2	2		
12		STD-425	WASHER, No. 10 plain	3	3		
13		STD-670	LOCK NUT, No. 10-32	1	1		
14		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	1	1		
15		LW-16266-25-63	CLAMP, 5/8 I.D. x 1/4 diameter screw	1	1		
16		LW-16562	NIPPLE, 3/8 flared tube, 9/16-18	1	1		
17		73152	BRACKET, support clamp	1	1		
18		LW-16266-10-75	CLAMP	1	1		
19		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	1	1		
20		STD-670	LOCK NUT, No. 10-32	1	1		
21		73136	BRACKET, Extension, fuel injector	1	1		
22		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw	1	1		
23		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	1	1		
24		STD-670	LOCK NUT, No. 10-32	1	1		
25		02G21379	NIPPLE, 1/8 NPT to 1/4 tube	1	1		



**Figure 25B**  
**Fuel Lines, Fuel Hoses, and Attaching Parts (C1B6 and C3B6)**



**FUEL DISTRIBUTION****Figure 25B – Fuel Lines, Fuel Hoses, and Attaching Parts (C1B6 and C3B6)**

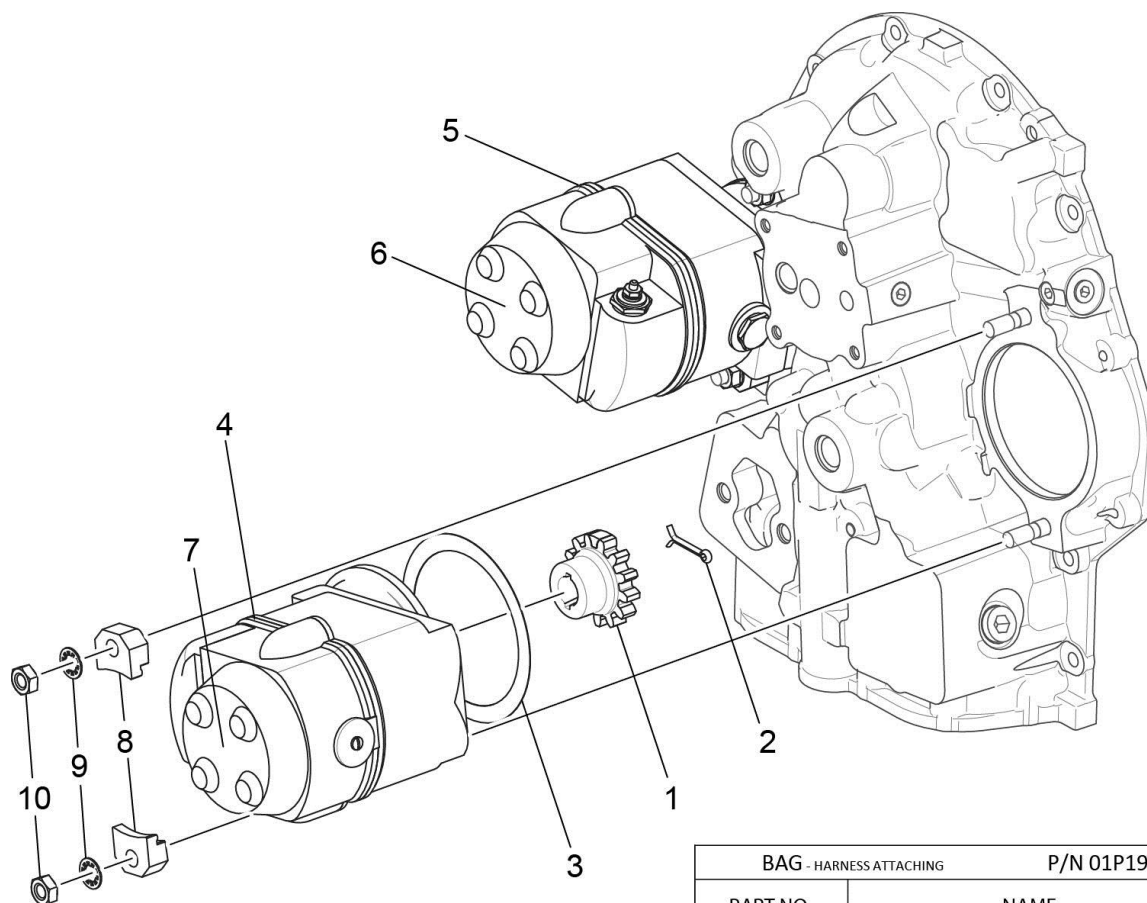
Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1		LW-12098-0-170	TUBE ASSEMBLY, Fuel			2	2
2		LW-12098-0-190	TUBE ASSEMBLY, Fuel injector line			2	2
3		LW-16266-10-75	CLAMP			8	8
4		LW-16266-10-13	CLAMP, 1/8 diameter for No.10 screw			8	8
5		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head			8	8
6		STD-670	LOCK NUT, No. 10-32			8	8
7		LW-16561	NIPPLE, 3/8 flared tube, 9/16-18			1	1
8		02M28686-4S380	HOSE ASSEMBLY, 1/4 hose, straight			1	1
9		73136	BRACKET, Extension, fuel injector			1	1
10		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw			1	1
11		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head			1	1
12		STD-670	LOCK NUT, No. 10-32			1	1
13		AS5406-04	UNION, 1/4 flare tube bulkhead			1	1
14		02M28686-4S205	HOSE ASSY, Teflon 1/4 hose, 90 el. w/ str. fit.			1	1
15		72815	BRACKET, Support clamp, 90 degree			1	1
16		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head			1	1
17		STD-670	LOCK NUT, No. 10-32			1	1
18		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw			1	1
19		07A28507	BRACKET ASSY, fuel line support			1	1
20		STD-670	LOCK NUT, No. 10-32			1	1
21		STD-692	SCREW, No. 10-32 x 1/2 long, round head			2	2
22		STD-425	WASHER, No. 10 plain			3	3
23		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head			1	1
24		LW-16266-25-50	CLAMP			1	1
25		LW-16562	NIPPLE, 3/8 flared tube, 9/16-18			1	1
26		72377	ELBOW, 3/8 flared tube, adjustable			1	1

Continued on next page

**FUEL DISTRIBUTION****Figure 25B – Fuel Lines, Fuel Hoses, and Attaching Parts (C1B6 and C3B6) (Cont.)**

Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
27		02M22792-6S221	HOSE ASSEMBLY, Teflon 3/8 hose, 45 deg. elbow with straight fitting - 22-1/8 length			1	1
28		73136	BRACKET, Extension, fuel injector			2	2
29		LW-16266-10-63	CLAMP, 5/8 I.D. x No. 10 screw			2	2
30		STD-860	SCREW, No. 10-32 x 5/8 long, fill. head			2	2
31		STD-425	WASHER, No. 10 plain			2	2
32		STD-670	LOCK NUT, No. 10-32			2	2
33		AN844-4D	ELBOW, pipe to hose			1	1
34		02G21379	NIPPLE, 1/8 NPT to 1/4 tube			1	1

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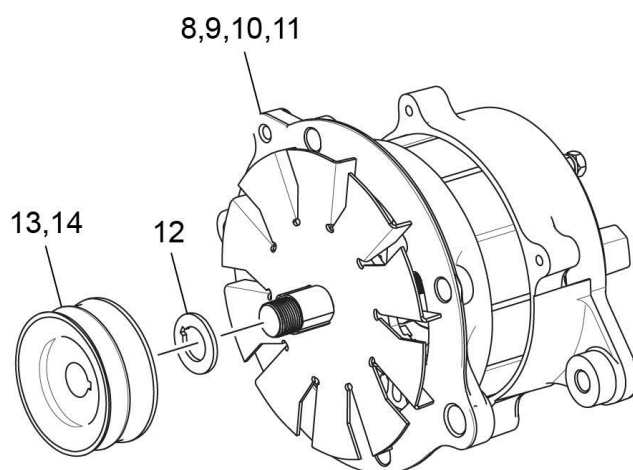
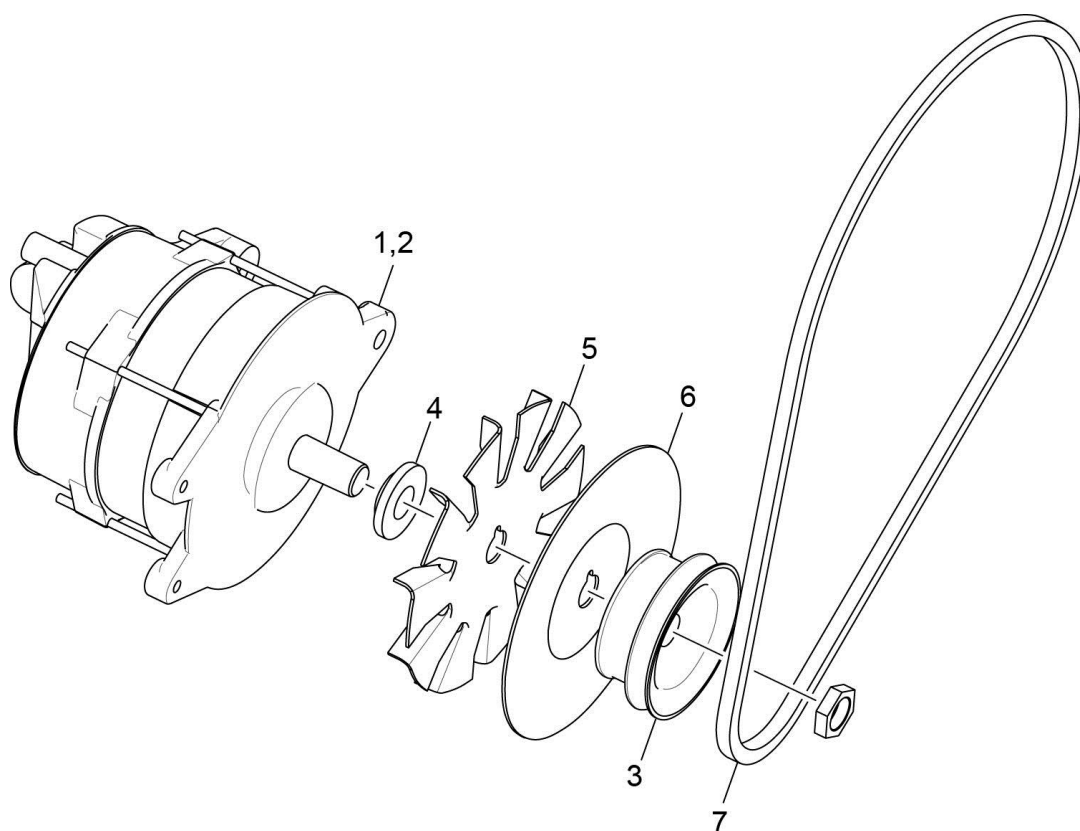


BAG - HARNESS ATTACHING		P/N 01P19762-2-7
PART NO.	NAME	QTY.
LW-16266-25-25	CLAMP - ONE WIRE	4
LW-14060	CLIP - TWO WIRE	4
STD-8	WASHER - .250 PLAIN	8
STD-1874	SCREW - .250-20 X .81 LG. FILL.	4
76734	ZIP STRAP	12
LW-16266-25-50	CLAMP	3
STD-1411	NUT - .250-20 PLAIN	1
STD-696	WASHER - .250 PLAIN (THIN)	4
STD-1916	SCREW - .250-20 X 1.13 LG. FIL HD	1
STD-1925	SCREW - .250-20 X .63 LG. PAN HD	2
72815	BRACKET - SUPPORT CLAMP - 90 DEGRE	3
73152	BRACKET - SUPPORT CLAMP	2
STD-692	SCREW - #10-32 X .50 LG. RD. HD.	5
STD-425	WASHER - #10 PLAIN	5
STD-670	LOCK NUT - #10-32	5
LW-M-2375	SET OF 2 PLATES - SPARK PLUG CABLE - 2 WIRE	2

**Figure 26**  
**Magnetos, Magneto Drives, and Harnesses,**

**DISTRIBUTION****Figure 26 – Magnetos, Magneto Drives, and Harnesses**

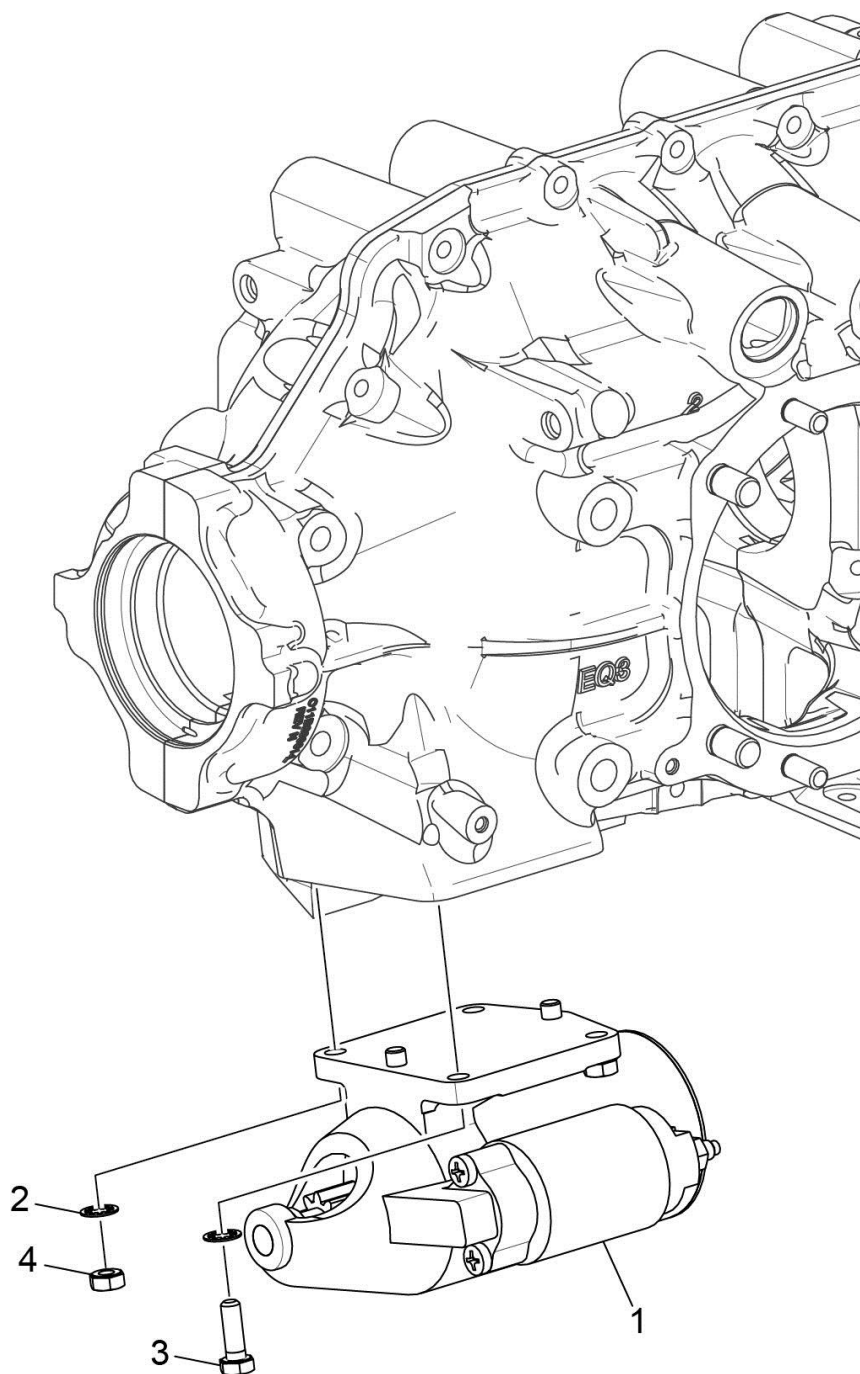
<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		68C19622	GEAR, Magneto	2
2		MS9245-44	COTTER PIN, 3/32 diameter x 5/8 long	2
3		LW-12681	GASKET, Magneto	2
4		66GP-0SANN	MAGNETO, Plain 4370	1
5		66GR15SANN	MAGNETO, Retard 4345	1
6	<b>V</b>	67P20413	HARNESS ASSEMBLY, Slick, Left, V M4019	1
7	<b>V</b>	67P20412	HARNESS ASSEMBLY, Slick, Right, V M4020	1
8		66M21195	CLAMP, Magneto	4
9		STD-475	WASHER, 5/16 lock, internal teeth	4
10		STD-1410	NUT, 5/16-18 plain	4
	❖	01P19762-2-7	BAG, Harness attaching	1
❖ See Figure for a breakdown of individual parts contained in the magneto and harness attaching parts bag. These parts to be attached by customer per engine line drawing included in each bag.				



**Figure 27**  
**Alternator Assembly and Belt**

**DISTRIBUTION****Figure 27 -Alternator Assembly and Belt**

Figure Item	Code	Part Number	Description	Units per Assembly			
				C 1 A 6	C 3 A 6	C 1 B 6	C 3 B 6
1	<b>V</b>	32B19549	ALTERNATOR ASSEMBLY, 12V, 70A	1	1	1	1
	❖	32C19553	ALTERNATOR ASSEMBLY, 24V 70A	1	1	1	1
2	<b>V</b>	LW-14318	ALTERNATOR, 12V, 70A (ALX-8521-LS)	1	1	1	1
	<b>V</b> ❖	LW-14326	ALTERNATOR, 24V, 70A (ALU8521-LS)	1	1	1	1
3		36B19484	PULLEY, Alternator	1	1	1	1
4		32F21674	SPACER, Alternator fan	1	1	1	1
		32F21668	SPACER, Alternator fan	1	1	1	1
5		32G21675	FAN, Alternator	1	1	1	1
		32G21669	FAN, Alternator	1	1	1	1
6		332R21676	BACK PLATE, Alternator fan	1	1	1	1
7		37A19773-376	BELT, Alternator drive, 3/8 wide	1	1	1	1
	▲	37A19773-390	BELT, Alternator, 3/8 wide, 39.000 long	1	1	1	1
	▲	37A19773-470	BELT, Alternator drive 3/8 wide	1	1	1	1
	▲	37B19774-482	BELT, Compressor drive 1/2 wide	1	1	1	1
8		32C22528	ALTERNATOR ASSY, 24V, 75A			1	1
9	<b>V</b>	32C22515	ALTERNATOR, 24V, 75A (ALU6539-LS)			1	1
10		32C22527	ALTERNATOR ASSY, 24V, 75A			1	1
11	<b>V</b>	32C22515	ALTERNATOR, 24V, 75A (ALU6539-LS)			1	1
12		LW-15403	WASHER, Alternator, 0.67ID X 1.16			1	1
13		36B19900	PULLEY, Alternator			1	1
14		36B19887	PULLEY, Alternator			1	1
❖ Optional 24V, 70A Alternator ▲ Used with optional dual-alternator and A/C compressor front end accessory drive.							



**Figure 28**  
**Starter Motor and Attaching Parts**



**CRANKING****Figure 28 - Starter Motor and Attaching Parts**

<b>Figure Item</b>	<b>Code</b>	<b>Part Number</b>	<b>Description</b>	<b>Units per Assembly</b>
1		31B22105	STARTER, Skv-Tec (149-24LS)	1
		31B26554	STARTER, Sky-Tec (149NL/EC)	1
2		STD-475	WASHER, 5/16 lock, internal teeth	4
3		LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	1
4		STD-1410	NUT, 5/16-18 plain	3
<b><u>NOTICE:</u></b> Refer to the latest revision of Service Instruction No. 1154 for complete listing of FAA-approved starters, alternators, generators, regulators and relays.				

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

Part No.	Part Name	Qty.
05K28818	KIT - SEAL AND GASKET SET	1
AN901-8A	GASKET, Metal tube connect seal	1
LW-12681	GASKET, Magneto	2
LW-13353	GASKET, Oil sump	1
LW-14260	SEAL, Tachometer	1
LW-15628	SEAL, Crankshaft, oil	1
LW-18639	LOCKPLATE, Crankshaft gear	1
LW-18661	SEAL, Shroud tube	8
06A19956	SEAL, OIL 7/8 I.D. x 1-1/2 O.D. x 5/16	1
06A23493	SEAL, Shroud tube	8
06B23862	GASKET, Oil filter adapter	2
06E19769-0.63	GASKET, Annular, 5/8 I.D.	1
06E19769-1.25	GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular	1
8313	GASKET, Vacuum	1
60096	GASKET, Fuel pump	1
61183	GASKET, Accessory Adapter	1
66224	GASKET, Carburetor	1
66732	GASKET, Valve Rocker Shaft Cover	8
06B26811	GASKET, Rocker box cover	4
68315	GASKET-Accessory Drive Adapter	1
71481	RING, Oil seal, 4-27/32 I.D. x 3/32 diameter section	4
71973	GASKET, 2 bolt flange, 1-3/4 I.D.	4
72053	GASKET, Governor	1
72059	GASKET, Oil level gage	1
72075	SEAL, Oil, 3/32 section x 7/16 I.D.	2
72091	RING, Oil seal, 0.36 I.D. x 0.10 diameter	2
73818	GASKET, Accessory Housing	1
74068	RING, Oil level gage plug	1
77611	GASKET, Exhaust flange	4
72711	RING, Seal Intake pipes	4
73032	GASKET, Air inlet housing	1
MS28775-015	"O" RING, 0.551 I. D x 0.07 O.D.	1
06B28651	GASKET, Air inlet housing	1
SSP-115	STICKER	1

**Cylinder, Piston and Ring Assembly**

<b>Part No.</b>	<b>Part Name</b>	<b>Qty.</b>
05K26625	KIT - CYLINDER, PISTON AND RING ASSEMBLY	1
16A26081	CYLINDER AND HEAD ASSEMBLY	1
14E23911	PISTON, Compression ratio 8.90:1	1
14G22050	RING, Piston, compression	2
14H23148	RING- Piston oil regulating (expander type)	1
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	1
14J22048	PIN, Piston	1
72198	PLUG, Piston pin	2
66732	GASKET, Valve rocker shaft cover	2
67193	GASKET, Rocker box cover	1
71973	GASKET, 2 bolt flange, 1-13/16 I.D.	1
06A23493	SEAL, Shroud tube	2
75118	GASKET, Exhaust flange	2
77569	RING, Seal-intake pipe	1
LW-18661	SEAL, Shroud tube	2
1102	PLUG, 1/8 pipe	1
SSP-115	STICKER	1

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06B21644	GASKET	53	07F21298	LINK	3
01L21418	WASHER	7	07F23268	STRUT	1
01L21909	SPACER	3	07F28426	BRACE	5
01L21916	SPACER	3	07F28736	LINK-	5
01L21916	SPACER	5	1028-B	BALL	13
01L23459	WASHER	27	1102	PLUG	11
01P19762-2-7	BAG	63	1102	PLUG	15
02G21379	NIPPLE	57	1102	PLUG	25
02G21379	NIPPLE	60	1102	PLUG	35
02G21382	NIPPLE	28	1102	PLUG	41
02M22792-6S221	HOSE ASSY	59	1102	PLUG	55
02M28686-4S205	HOSE ASSY	59	1102	PLUG	69
02M28686-4S380	HOSE ASSY	59	1182-G7	SPARK PLUG	25
05A28344	SHROUD ASSY	45	11U20391-1S	CRANKCASE ASSY	11
05K19423-S	IMPELLER KIT	43	11U28750-1S	CRANKCASE ASSY	11
05K26625	KIT	69	12E23021	NOZZLE ASSY	11
06A19956	OIL SEAL	49	13C47317	CR'SHFT/BSHG ASSY	15
06A19956	OIL SEAL	49	13C47318	CR'SHFT/BSHG ASSY	15
06A23493	SEAL	27	13S19646	GEAR	15
06A23493	SEA	69	14E23911	PISTON	23
06B23862	GASKET	53	14E23911	PISTON	69
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06B28651	GASKET	55	14G22050	RING	69
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07A19880	BRACKET	3	14S23890	BOLT	23
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07A21908	BRACKET	3	15B21319	SOCKET	27
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