

# IO-390-A Series Engine Illustrated Parts Catalog

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June 2025

| PC-IO-390-A Rev 1

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652 Oliver Street  
Williamsport, PA 17701

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

**|** Lycoming Part Number: PC-IO-390-A Rev 1

### **For additional information:**

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## Record of Revisions

**NOTICE:** Service Documents with a later release date than this parts catalog override parts information in this document.

| Rev No. | Revision Changes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Issue Date |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| New     | Initial Release                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | July 2016  |
| Rev. 1  | <p><b>Introduction</b></p> <ul style="list-style-type: none"> <li>Revised the “How to Order Parts and Publications” section</li> <li>Deleted the Roller Tappets section</li> <li>Added the Lockwire, Safety Cable section</li> </ul> <p><b>Oversize and Undersize Part Listing</b></p> <ul style="list-style-type: none"> <li>Changed the P/N for Exhaust Valve Guide from 75838 to 75838-S</li> </ul> <p><b>Chapter 24-30</b></p> <ul style="list-style-type: none"> <li>Changed the chapter name from AC Generation to DC Generation</li> <li>Moved the figure and parts list for the Alternator Assembly and Belt from Chapter 74-20 to Chapter 24-20 as new Figure 2 and renumbered remaining figures in the catalog accordingly</li> </ul> <p><b>Chapter 72-10</b></p> <ul style="list-style-type: none"> <li>Moved the figure and parts list for Compressor Attaching Parts from Chapter 24-20 to Chapter 72-10</li> </ul> <p><b>Chapter 72-20</b></p> <ul style="list-style-type: none"> <li>Revised Figures 5A and 5B</li> <li>Deleted Crankcase Assembly part number 11U28750-1S1 from the parts list for Figure 5A/5B</li> <li>Added new Crankcase Assembly part numbers, 11U28752-1S and 11U28752-1S3, to the parts list for Figure 5A/5B</li> <li>Changed the part number for item 13 in the parts list for Figure 9 from AN960-616L to NAS1149F0632P</li> <li>Added new Figures 9A and 9B and new parts list for Figures 9A and 9B</li> <li>Changed P/N LW-25-2.13 to P/N NASM90725-15 in the parts list for Figure 9</li> </ul> <p><b>Chapter 72-30</b></p> <ul style="list-style-type: none"> <li>Changed the part number for the Connecting Rod Upper Bushing in the parts list for Figure 10 from LW-13923 to 01K28983</li> <li>Changed the part number for the oil regulating piston ring from 14H23148 to 14H29865 in the parts list for Figure 10</li> <li>Revised the part numbers for items 2, 3, 4, 5, and 6 in the parts list for Figure 11</li> <li>Revised the part numbers for items 3 and 4 in the parts list for Figure 12</li> <li>Deleted part number 15G23462-C from the parts list for Figure 12</li> <li>Revised the part numbers for all push rods in the parts list for Figure 12</li> <li>Revised Figure 14 to show more accurate depiction of the rocker box cover</li> <li>Added part number LW-15592-5-04 to the parts list for Figure 14</li> <li>Added new footnote to the parts list for Figure 14</li> </ul> | June 2025  |

**Record of Revisions (Cont.)**

| <b>Rev No.</b>    | <b>Revision Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Issue Date</b> |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Rev. 1<br>(Cont.) | <p><b>Chapter 72-60</b></p> <ul style="list-style-type: none"><li>• Added part number 21A21533-27 for item 2 in the part list for Figure 18</li></ul> <p><b>Chapter 73-10</b></p> <ul style="list-style-type: none"><li>• Revised the model designation for fuel injector P/N 61J26426 in the parts list for Figure 24A</li><li>• Revised the model designation for fuel injector P/N 61J28175 in the parts list for Figure 24B</li><li>• Deleted Figure 25 and created new Figures 25A and 25B</li><li>• Deleted parts list for Figure 25 and created new parts lists for Figures 25A and 25B</li></ul> <p><b>Chapter 74-20</b></p> <ul style="list-style-type: none"><li>• Added HET magnetos as an approved alternate to the parts list for Figure 26</li><li>• Added footnote referencing S.I. 1443 to the parts list for Figure 26</li></ul> <p><b>Service Kit Section</b></p> <ul style="list-style-type: none"><li>• Revised the Description for P/N 06B26811 in the Seal and Gasket Set Table</li><li>• Revised the P/N of the Cylinder and Head Assembly in the Cylinder, Piston and Ring Assembly parts list</li><li>• Revised the P/N and description for the Rocker Box Cover Gaskets in the Cylinder, Piston and Ring Assembly parts list</li><li>• Changed the part number for the oil regulating piston ring from 14H23148 to 14H29865 in the Cylinder, Piston and Ring Assembly parts list</li></ul> | June 2025         |

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## Introduction

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

### **Purpose of this Catalog**

This Illustrated Parts Catalog contains a complete list of spare parts for the Lycoming IO-390-A Series Certified Series wide cylinder flange model engines.

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

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

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

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

The ATA 100 format designates chapters by the numeric code. In the example below, Chapter 74 is for Ignition with a subsection 20 for Distribution.

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

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

### **Numerical Index**

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

### **Description column**

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

### **Units per Assembly Column**

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

## Lockwire, Safety Cable

To maintain as assembled torque integrity Lockwire used is to be a one continuous strand twisted to keep tension on various internal fasteners ensuring a minimum torque is retained. Lockwire installed correctly will pull in the direction of fastener assembled tension. Lycoming Engines does not recommend the use of safety cable for retention of internal engine parts or assemblies. Refer to the latest revision of **Service Instruction No. 1566**.

## 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.

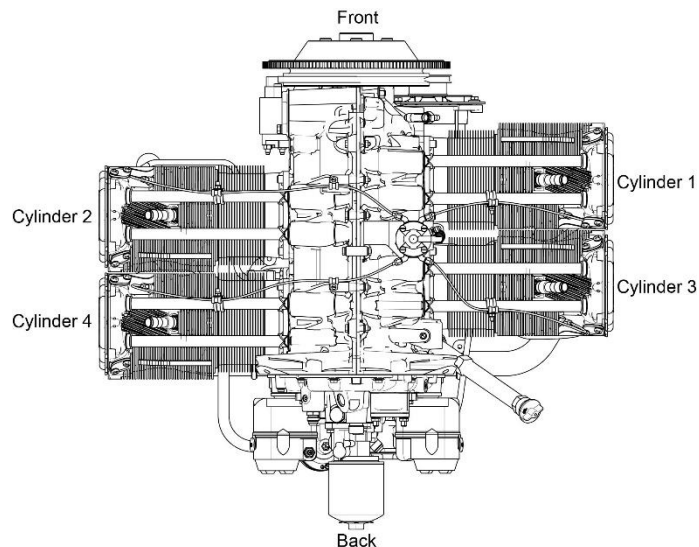
Any reference in this document to the supplier's/part manufacturer's product, by name, trademark, part number or other description is solely for the purpose of identification and does not indicate or infer that Lycoming accepts responsibility for quality control and/or airworthiness of parts, which do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

To order parts:

1. Contact the applicable Customer Service Hot Lines:  
U.S. and Canada toll free - +1-800-258-3279  
International Customers - +1-570-323-6181  
8:00 A.M. – 5:00 P.M. EST (-5GMT) Monday through Friday
2. Give the model and serial number of your engine.
3. Give the part number, nomenclature, and quantity.

To supply any comments, suggestions, or corrections to this parts catalog, go online to the Lycoming.com website on the internet.

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

### **NOTE:**

Lycoming recommends that owners of this manual sign up for email notification on the Technical Publications page of our website <https://www.lycoming.com/contact/knowledge-base/publications>. By submitting your email address, you will receive notification whenever Lycoming publishes a new or revised technical publication, including any revisions to this parts catalog.

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## Abbreviations and Acronyms

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

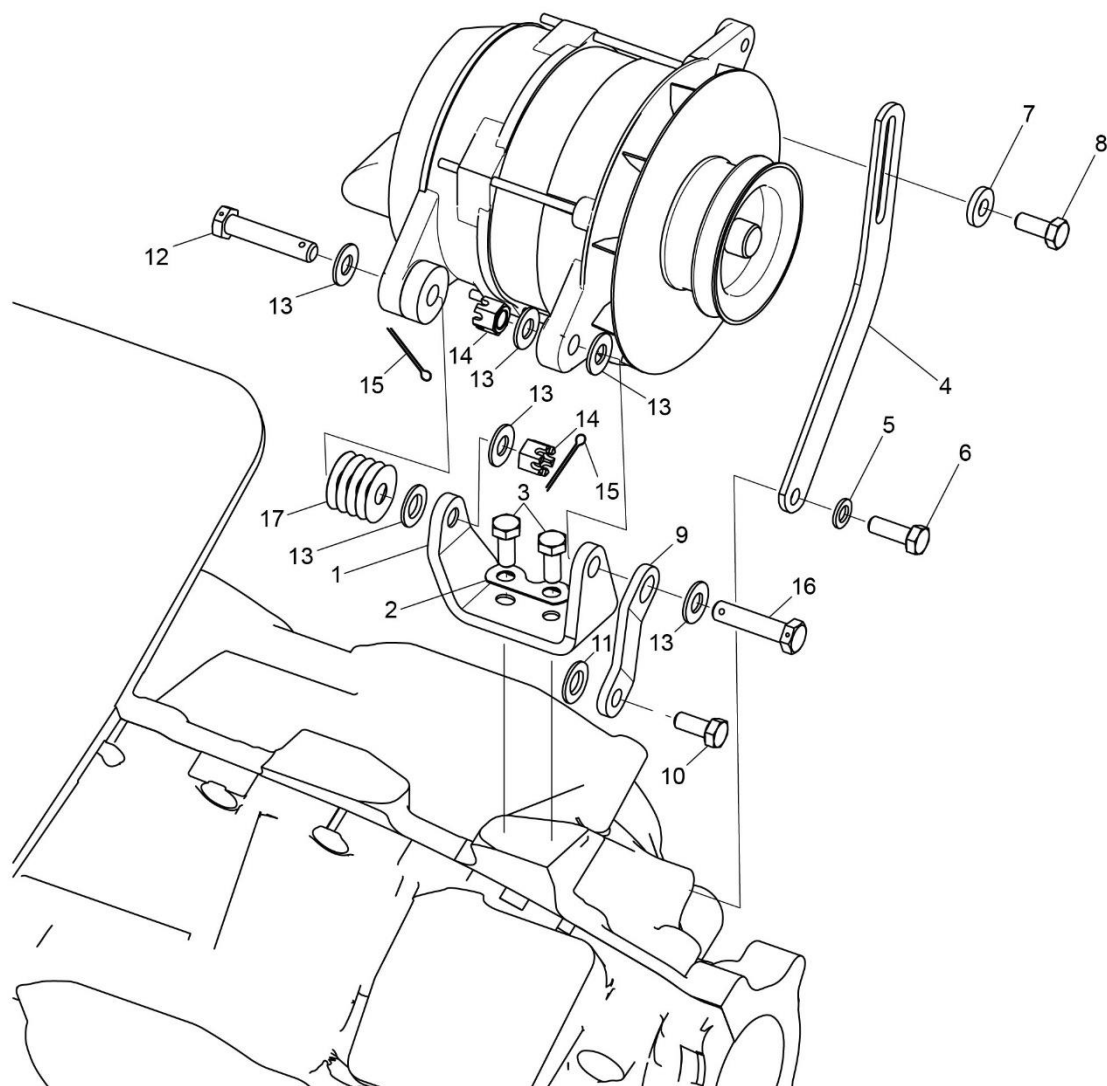
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### Oversize and Undersize Parts Listing

| PART NO.  | DESCRIPTION                 | OVERSIZE (IN.) |             |             |             |             | UNDERSIZE (IN.) |             |
|-----------|-----------------------------|----------------|-------------|-------------|-------------|-------------|-----------------|-------------|
|           |                             | P05<br>.005    | P10<br>.010 | P20<br>.020 | P30<br>.030 | P50<br>.050 | M03<br>.003     | M06<br>.006 |
| 18B23885  | BEARING, Front Crankshaft   |                |             |             |             |             | X               | X           |
| 18E23886  | BEARING, Crankshaft         |                |             |             |             |             | X               | X           |
| 18M23887  | BEARING, Connecting Rod     |                |             |             |             |             | X               | X           |
| 71903-A † | BUSHING, Counterweight      | --             | --          | --          | --          | --          | --              | --          |
| 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-S   | 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) 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 1A**  
**Alternator Attaching Parts**

## | DC GENERATION

**Figure 1A - Alternator Attaching Parts**

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

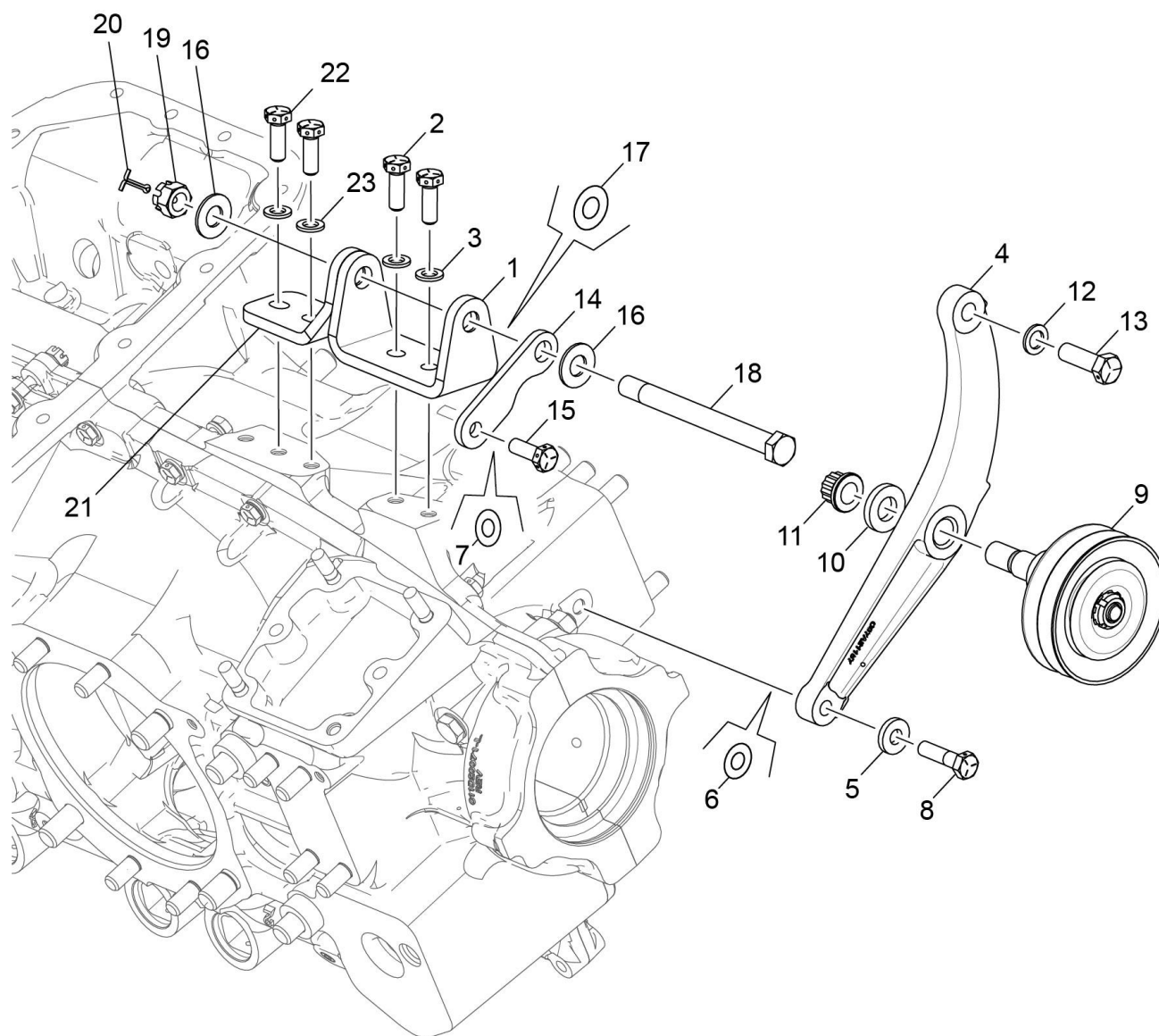
AR – As Required

❖ Install between strut and attachment to starter lug.

**| DC GENERATION****Figure 1A - Alternator Attaching Parts - Plane Power (Ship Loose)**

| <b>Figure Item</b> | <b>Code</b> | <b>Part Number</b> | <b>Description</b>                            | <b>A1B6</b> |
|--------------------|-------------|--------------------|-----------------------------------------------|-------------|
| 1                  |             | 07A19474           | BRACKET, Alternator                           | 1           |
| 2                  |             | 73383              | LOCKPLATE, 5/16 bolt x 1.00 spacing           | 1           |
| 3                  |             | LW-31-0.94         | BOLT, 5/16-18 x 15/16 long, hex. head         | 2           |
| 4                  |             | 75380              | LINK, Alternator, adjusting                   | 1           |
| 5                  |             | STD-35             | WASHER, 5/16 plain                            | 1           |
| 6                  |             | LW-31H0.75         | BOLT, 5/16-18 x 3/4 long, hex. head           | 3           |
| 7                  |             | STD-1727           | WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 th | 1           |
| 8                  |             | 07F23268           | STRUT, Alternator support                     | 1           |
| 9                  |             | STD-690            | WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick  | 1           |
| 10                 |             | 76534              | SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick    | 2           |

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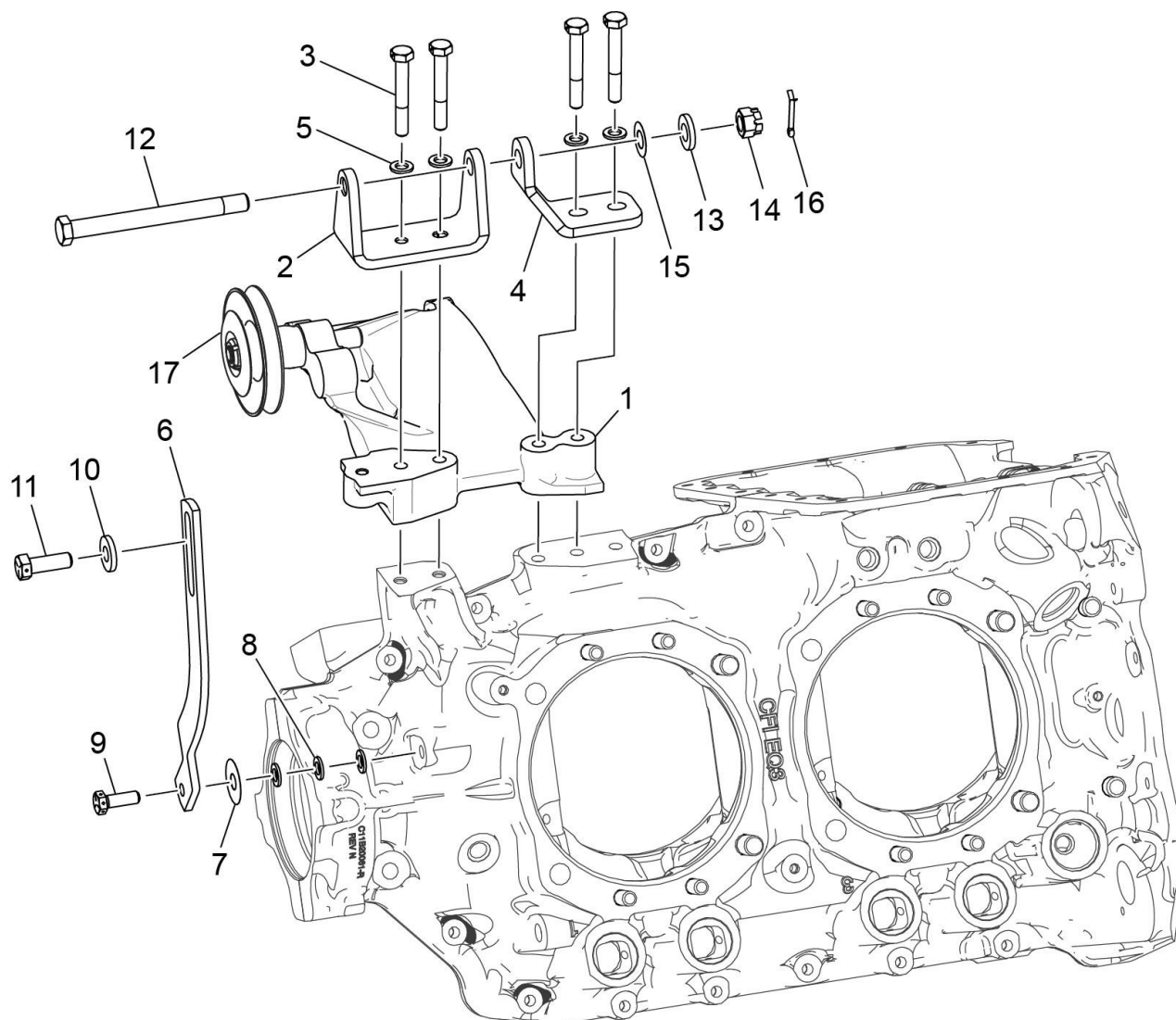


**Figure 1B**  
**Alternator Attaching Parts (Alternator 28V - 95A EL)**

## | DC GENERATION

**Figure 1B - Alternator Attaching Parts**  
**(28V - 95A)**

| Figure Item | Code | Part Number | Description                                      | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|--------------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                                  | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 07A21156    | BRACKET, Alternator                              |                    | 1                |                  |                  |
| 2           |      | LW-31H0.88  | BOLT, 5/16-18 x 7/8 long, hex head               |                    | 2                |                  |                  |
| 3           |      | STD-35      | WASHER, 5/16 plain                               |                    | 4                |                  |                  |
| 4           |      | 07A21157    | BRACKET, Alternator belt, adjust                 |                    | 1                |                  |                  |
| 5           |      | STD-1727    | WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick |                    | 1                |                  |                  |
| 6           |      | LW-14637    | SHIM, 13/16 O.D. x 11/32 I.D. x 0.005 thick      |                    | 3                |                  |                  |
| 7           |      | LW-14649    | SHIM, 13/16 O.D. x 11/32 I.D. x 0.010 thick      |                    | 3                |                  |                  |
| 8           |      | LW-31H1.22  | BOLT, 5/16-18 x 1.22 long hex head, drilled      |                    | 1                |                  |                  |
| 9           |      | LW-19265    | PULLEY AND SHAFT ASSY, Alternator                |                    | 1                |                  |                  |
| 10          |      | STD-669     | WASHER, 0.52 I.D. x 1.00 O.D. x 0.13             |                    | 1                |                  |                  |
| 11          |      | STD-2221    | NUT, 1/2-20, self locking                        |                    | 1                |                  |                  |
| 12          |      | STD-33      | WASHER, 3/8 plain                                |                    | 1                |                  |                  |
| 13          |      | LW-38H1.19  | BOLT, 3/8-16 x 1.19 long hex head, drilled       |                    | 1                |                  |                  |
| 14          |      | 07F21160    | STRUT, Alternator support                        |                    | 1                |                  |                  |
| 15          |      | LW-31H0.88  | BOLT, 5/16-18 x 7/8 long, hex head               |                    | 3                |                  |                  |
| 16          |      | STD-632     | WASHER, 7/16 plain                               |                    | 2                |                  |                  |
| 17          |      | LW-14650    | SHIM, 7/8 O.D. x 0.46 I.D. x 0.005 thick         |                    | 3                |                  |                  |
| 18          |      | AN7-44      | BOLT, 7/16-20 x 4.59 long hex head               |                    | 1                |                  |                  |
| 19          |      | AN310-7     | NUT, 7/16-20 plain, slotted                      |                    | 1                |                  |                  |
| 20          |      | STD-713     | PIN, Cotter, 0.09 dia. x 3/4 long                |                    | 1                |                  |                  |
| 21          |      | 07A26130    | BRACKET, Alternator, aft                         |                    | 1                |                  |                  |
| 22          |      | LW-31H0.88  | BOLT, 5/16-18 x 7/8 long, hex head               |                    | 2                |                  |                  |
| 23          |      | STD-35      | WASHER, 5/16 plain                               |                    | 2                |                  |                  |

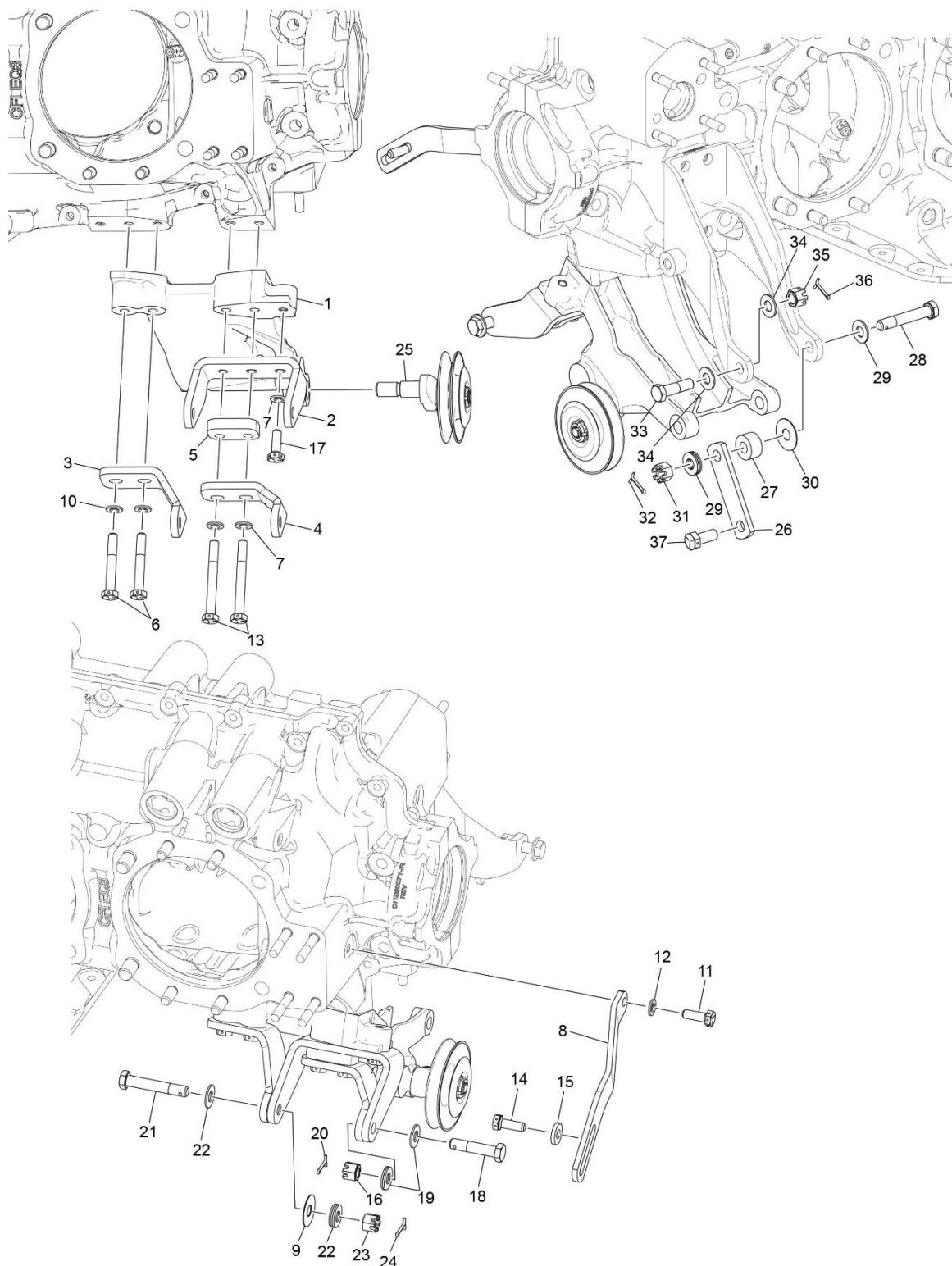


**Figure 1C**  
**Alternator Attaching Parts**  
**Dual 24V-70A-90A**

## | DC GENERATION

**Figure 1C - Alternator Attaching Parts****(Dual 24V Alt 70A - 90A)**

| Figure Item | Code | Part Number | Description                                   | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|-----------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                               | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 07A22097    | BRACKET, Alternator                           |                    |                  | 1                |                  |
| 2           |      | 07A22002    | BRACKET, Alternator, Ford, right              |                    |                  | 1                |                  |
| 3           |      | LW-31H2.13  | BOLT, 5/16-18 x 2-1/8 long hex. head D        |                    |                  | 4                |                  |
| 4           |      | 07A22125    | BRACKET, Alternator, aft                      |                    |                  | 1                |                  |
| 5           |      | STD-35      | WASHER, 5/16 plain                            |                    |                  | 4                |                  |
| 6           |      | 07F21998    | LINK, Alternator adjusting, Ford, right       |                    |                  | 1                |                  |
| 7           |      | 76534       | SHIM, 1/8 O.D. x 13/32 I.D. x 0.005 thick     |                    |                  | 3                |                  |
| 8           |      | STD-35      | WASHER, 5/16 plain                            |                    |                  | 1                |                  |
| 9           |      | LW-31H0.88  | BOLT, 5/16-18 x 7/8 long, hex. head           |                    |                  | 1                |                  |
| 10          |      | STD-1342    | WASHER, 7/8 O.D. x 25/64 I.D. x 1/8 thick     |                    |                  | 1                |                  |
| 11          |      | LW-38H1.09  | BOLT, 3/8-16 x 1 1/10 long hex. head, drilled |                    |                  | 1                |                  |
| 12          |      | AN7-44      | BOLT, 7/16-20 x 4-19/32 long, hex. head       |                    |                  | 1                |                  |
| 13          |      | STD-2092    | WASHER, 29/64 I.D. x 7/8 O.D. x 1/8 thick     |                    |                  | 1                |                  |
| 14          |      | AN310-7     | NUT, 7/16-20 plain slotted                    |                    |                  | 2                |                  |
| 15          |      | LW-14650    | SHIM, 7/8 O.D. x 23/50 I.D. x 0.005 thick     |                    |                  | 1                |                  |
| 16          |      | STD-713     | PIN, Cotter, 3/32 diameter x 3/4 long         |                    |                  | 3                |                  |
| 17          |      | 36A19951    | PULLEY AND SHAFT ASSY-idler                   |                    |                  | 1                |                  |



**Figure 1D**  
**Alternator Attaching Parts**  
**Dual Alternator & Compressor Setup**

**| DC GENERATION**  
**Figure 1D - Alternator Attaching Parts**  
**Dual Alternator & Compressor Setup**

| Figure Item | Code | Part Number | Description                                  | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|----------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                              | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 07A22097    | BRACKET, Alternator                          |                    |                  |                  | 1                |
| 2           |      | 07A19880    | BRACKET, Alternator - Right (Prestolite)     |                    |                  |                  | 1                |
| 3           |      | 07A21910    | BRACKET, Alternator aft (Malibu)             |                    |                  |                  | 1                |
| 4           |      | 07A21908    | BRACKET, Alternator - Inner (Malibu)         |                    |                  |                  | 1                |
| 5           |      | 01L21909    | SPACER, Alt. bracket inner (Malibu)          |                    |                  |                  | 1                |
| 6           |      | LW-31H2.13  | BOLT, 5/16-18 x 2.13 long hex dr             |                    |                  |                  | 2                |
| 7           |      | STD-35      | WASHER, 5/16 plain                           |                    |                  |                  | 3                |
| 8           |      | 07F21298    | LINK, Alternator Adjusting (Prestolite)      |                    |                  |                  | 1                |
| 9           |      | 76534       | SHIM, 1.13 O.D. x 0.41 I.D. x 0.005 thick    |                    |                  |                  | 5                |
| 10          |      | STD-35      | WASHER, 5/16 plain                           |                    |                  |                  | 2                |
| 11          |      | LW-31H0.88  | BOLT, 5/16-18 x 7/8 long, hex. head          |                    |                  |                  | 1                |
| 12          |      | STD-35      | WASHER, 5/16 plain                           |                    |                  |                  | 1                |
| 13          |      | LW-31H2.75  | BOLT, 5/16-18 x 2-3/4 long hex dr            |                    |                  |                  | 2                |
| 14          |      | LW-31H0.88  | BOLT, 5/16-18 x 7/8 long, hex. head          |                    |                  |                  | 1                |
| 15          |      | STD-1727    | WASHER, plain 0.33 I.D. X .75 OD X           |                    |                  |                  | 1                |
| 16          |      | STD-872     | NUT, 3/8-24 slotted                          |                    |                  |                  | 1                |
| 17          |      | LW-31H0.88  | BOLT, 5/16-18 x 7/8 long, hex. head          |                    |                  |                  | 1                |
| 18          |      | AN6-15      | BOLT, 3/8-24UNF x 1.70 lg dr                 |                    |                  |                  | 1                |
| 19          |      | STD-690     | WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick |                    |                  |                  | 3                |
| 20          |      | STD-713     | PIN, COTTER, 0.09 DIA x 0.75 long            |                    |                  |                  | 1                |
| 21          |      | AN6-21      | BOLT, 3/8-24 UNF x 2.20 lg dr s              |                    |                  |                  | 1                |
| 22          |      | STD-690     | WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick |                    |                  |                  | 4                |
| 23          |      | STD-872     | NUT, 3/8-24 slotted                          |                    |                  |                  | 1                |
| 24          |      | STD-713     | PIN, COTTER, 0.09 DIA x 0.75 long            |                    |                  |                  | 1                |
| 25          |      | 36A19951    | PULLEY AND SHAFT ASSY, Idler                 |                    |                  |                  | 1                |
| 26          |      | 07F28735    | BRACE, Alternator                            |                    |                  |                  | 1                |

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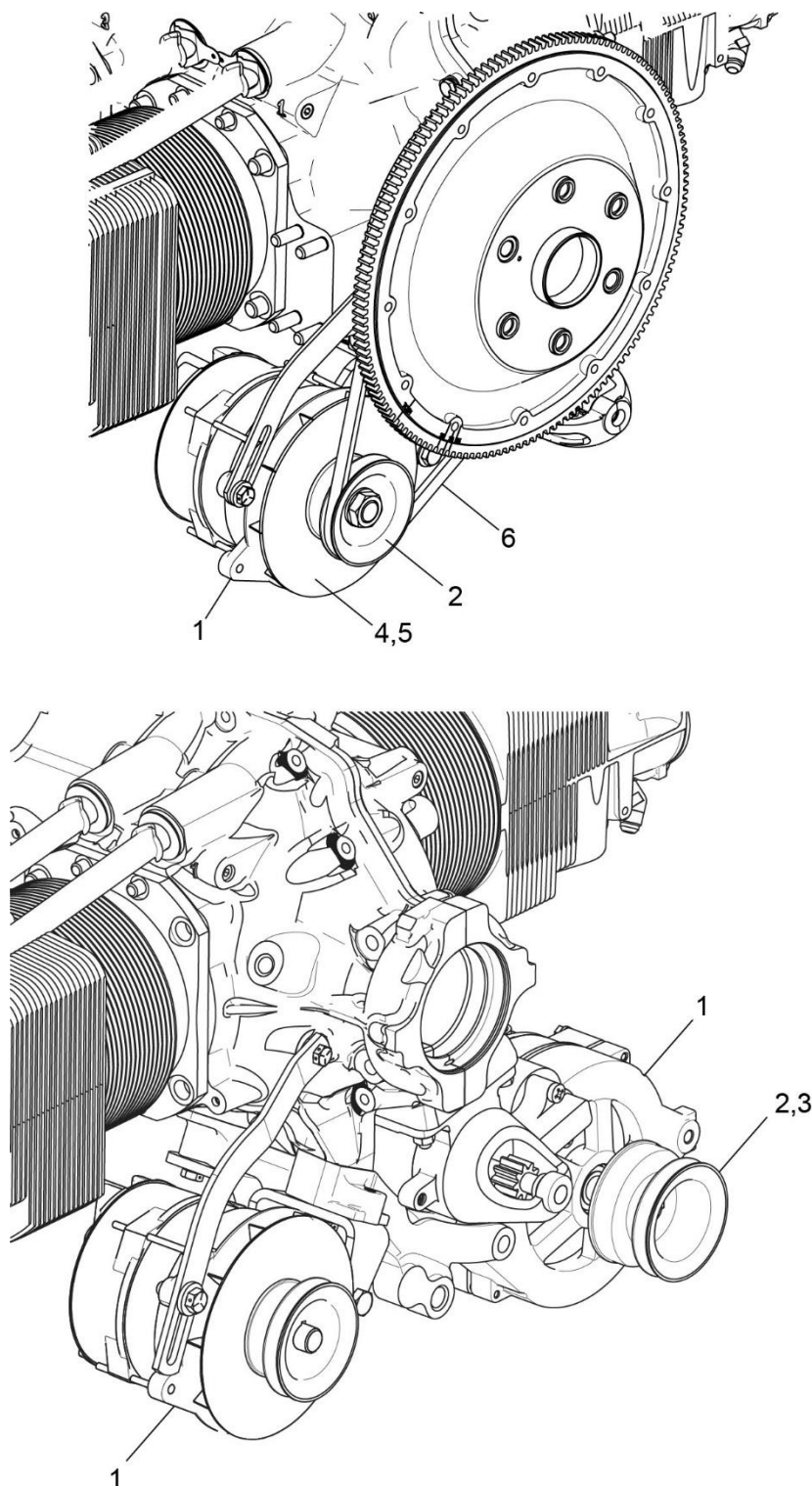
# | DC GENERATION

## Figure 1D - Alternator Attaching Parts (Cont.)

### Dual Alternator & Compressor Setup

| Figure Item | Code | Part Number | Description                                  | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|----------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                              | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 27          |      | 01L21916    | SPACER, Alternator (Prestolite)              |                    |                  |                  | 1                |
| 28          |      | AN6-21      | BOLT, 3/8-24 UNF x 2.20 lg-dr s              |                    |                  |                  | 1                |
| 29          |      | STD-690     | WASHER, 0.81 O.D. x 0.39 I.D. x 0.06 thick   |                    |                  |                  | 5                |
| 30          |      | 76534       | SHIM, 1.13 O.D. x .41 I.D. x 0.005 thick     |                    |                  |                  | 7                |
| 31          |      | STD-872     | NUT, 3/8-24 slotted                          |                    |                  |                  | 1                |
| 32          |      | STD-713     | PIN, COTTER, 0.09 DIA x 0.75 long            |                    |                  |                  | 1                |
| 33          |      | AN6-12      | BOLT, 3/8-24 x 1-21/64 lg hx hd              |                    |                  |                  | 1                |
| 34          |      | STD-690     | WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick |                    |                  |                  | 2                |
| 35          |      | STD-872     | NUT, 3/8-24 slotted                          |                    |                  |                  | 1                |
| 36          |      | STD-713     | PIN, COTTER, 0.09 DIA x 3/4 long             |                    |                  |                  | 1                |
| 37          |      | LW-31H1.06  | BOLT, 5/16-18 x 1-1/16 long hex dr           |                    |                  |                  | 1                |

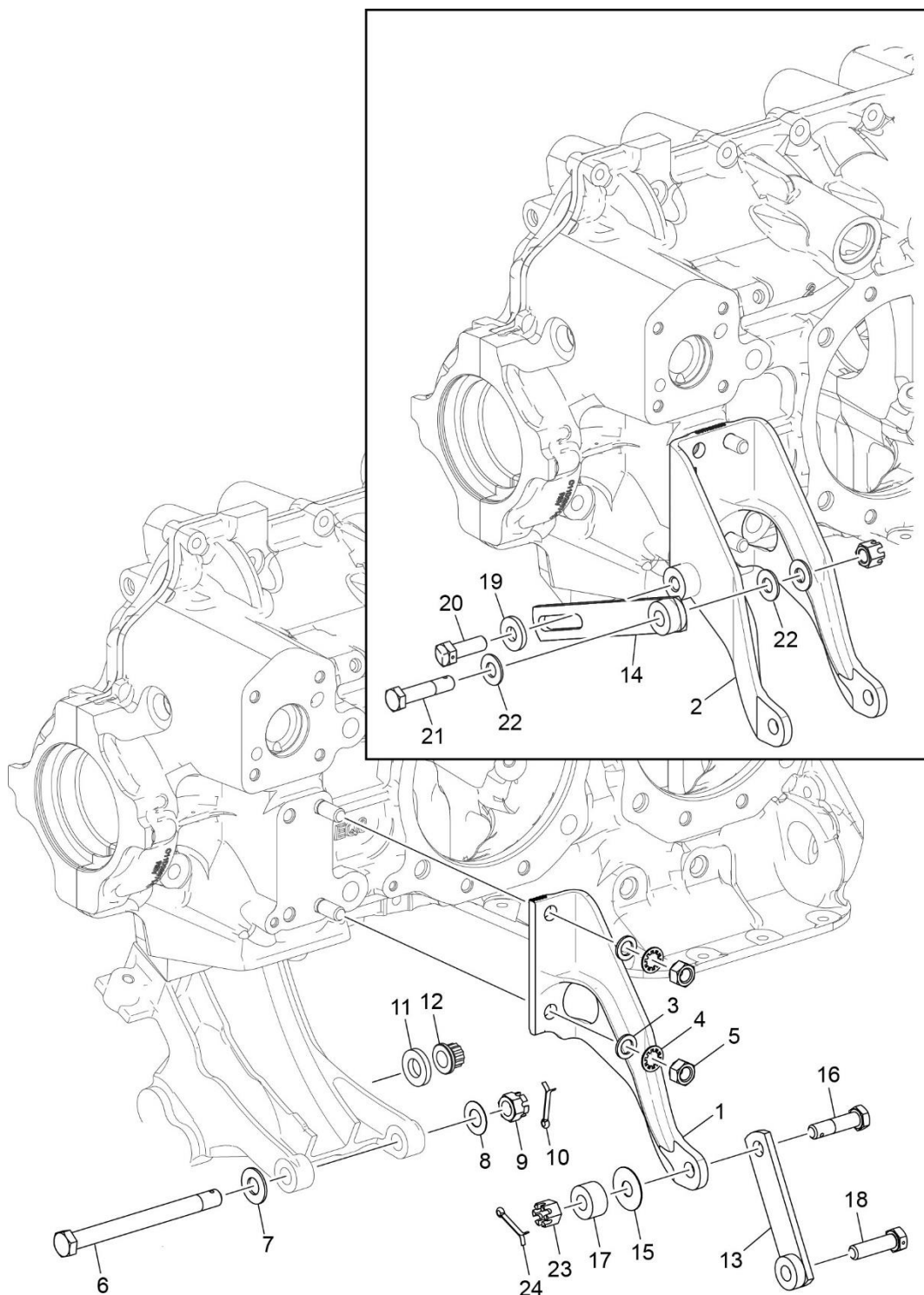
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**Figure 2**  
**Alternator Assembly and Belt**

**DC GENERATION****Figure 2 - Alternator Assembly and Belt**

| Figure Item                                                                                                                                         | Code | Part Number  | Description                                                           | Units per Assembly |         |         |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------|-----------------------------------------------------------------------|--------------------|---------|---------|---------|
|                                                                                                                                                     |      |              |                                                                       | A 1 A 6            | A 3 A 6 | A 1 B 6 | A 3 B 6 |
| 1                                                                                                                                                   |      | 32B19549     | ALTERNATOR ASSEMBLY, 12V-70A(ALX-8521LS)                              | 1                  |         |         |         |
|                                                                                                                                                     |      | 32C19553     | ALTERNATOR ASSEMBLY, 24V-70A (ALU8521LS)                              |                    |         | 1       |         |
|                                                                                                                                                     |      | 32B19567     | ALTERNATOR ASSEMBLY, 12V, 70 AMP, Thermocoupled (Type K) (ALX-8521LS) | 1                  |         | 1       | 1       |
|                                                                                                                                                     |      | 32C19568     | ALTERNATOR ASSY, 24V-70A THERMO (K Type)                              | 1                  |         |         |         |
|                                                                                                                                                     |      | 32C26767     | ALTERNATOR ASSEMBLY, Dual 28V-90A (ES4011-LS) right                   |                    |         | 1       |         |
|                                                                                                                                                     |      | 32C26768     | ALTERNATOR ASSEMBLY, Dual 28V-70A (ES-4018LS) left                    |                    |         | 1       |         |
| 2                                                                                                                                                   |      | 36B19484     | PULLEY, Alternator                                                    | 1                  |         | 1       | 1       |
|                                                                                                                                                     |      | 36B21996     | PULLEY, Alternator                                                    |                    |         | 1       |         |
|                                                                                                                                                     |      | 36B22008     | PULLEY, Alternator                                                    |                    |         | 1       |         |
| 3                                                                                                                                                   |      | 32F21674     | SPACER, Alternator fan                                                |                    |         | 1       |         |
|                                                                                                                                                     |      | 32F21668     | SPACER, Alternator fan                                                |                    |         | 1       |         |
| 4                                                                                                                                                   |      | 32G21675     | FAN, Alternator                                                       |                    |         | 1       |         |
|                                                                                                                                                     |      | 32G21669     | FAN, Alternator                                                       |                    |         | 1       |         |
| 5                                                                                                                                                   |      | 32R21676     | BACK PLATE, Alternator fan                                            |                    |         | 1       |         |
|                                                                                                                                                     |      | 32R21670     | BACK PLATE, Alternator fan                                            |                    |         | 1       |         |
| 6                                                                                                                                                   |      | 37A19773-376 | BELT, Alternator drive, 3/8 wide                                      | 1                  |         | 1       | 1       |
|                                                                                                                                                     |      | 37A19773-390 | BELT, Alternator, 3/8 wide, 39.000 long                               |                    |         |         | 1       |
|                                                                                                                                                     |      | 37A19773-470 | BELT, Alternator drive 3/8 wide                                       |                    |         | 1       | 1       |
|                                                                                                                                                     |      | 37D21992     | BELT, Alternator drive 11 mm                                          |                    |         | 1       |         |
|                                                                                                                                                     |      | 37A19773M396 | BELT, Alternator drive - set of 2 -0.380 Wide                         |                    | 1       |         |         |
|                                                                                                                                                     |      | 37B19774-482 | BELT, Compressor drive 1/2 wide                                       |                    |         |         | 1       |
| <b>NOTICE:</b> Refer to the latest revision of Lycoming Service Instruction No. 1154 for complete listing of FAA approved starters and alternators. |      |              |                                                                       |                    |         |         |         |

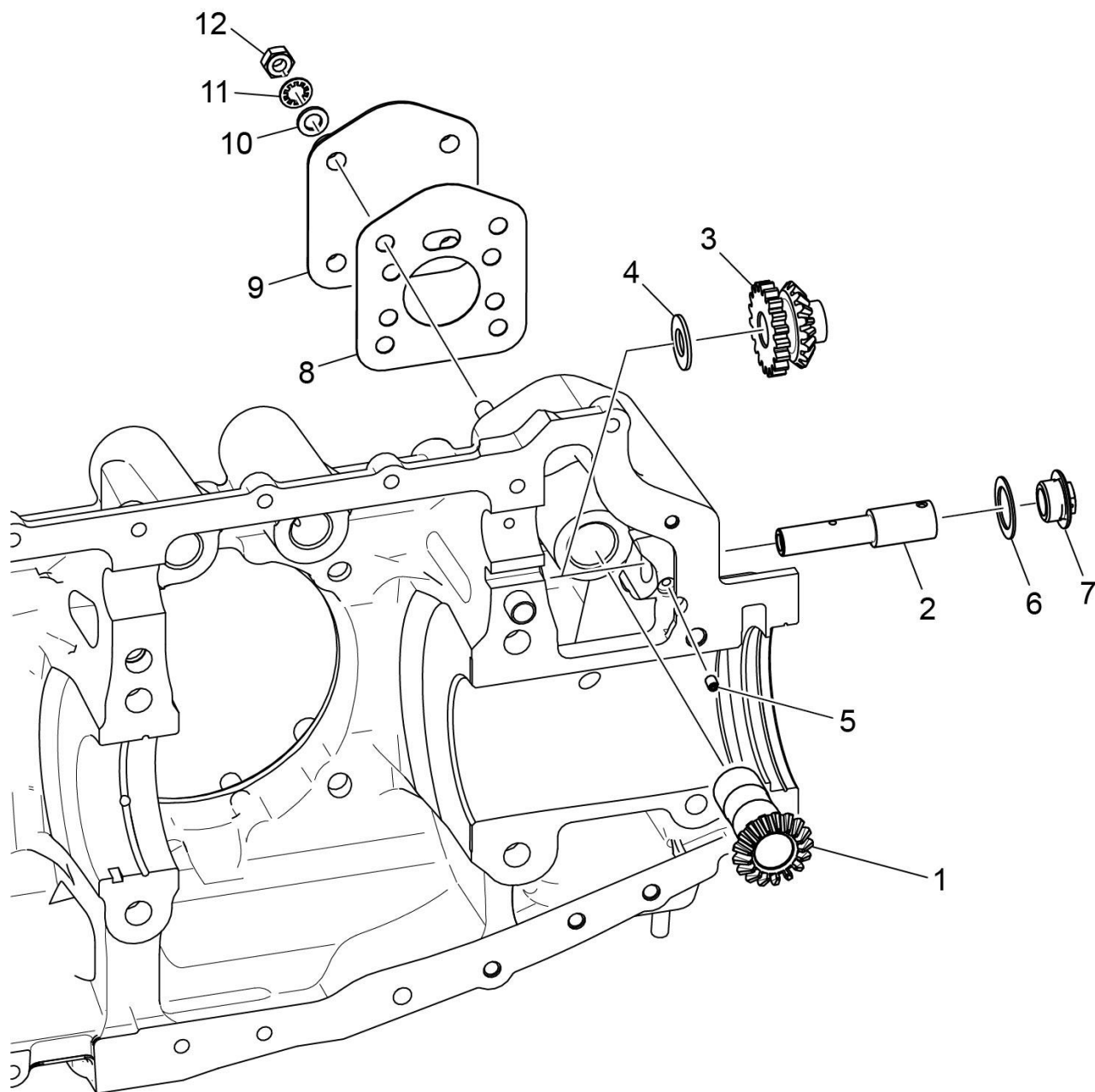


**Figure 3**  
**Compressor Attaching Parts**

## FRONT SECTION

**Figure 3 - Compressor Attaching Parts**

| Figure Item | Code | Part Number | Description                                | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|--------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                            | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 07A21292    | BRACKET, Compressor                        |                    |                  | 1                |                  |
| 2           |      | 07A21030    | BRACKET, Compressor                        |                    |                  |                  | 1                |
| 3           |      | STD-33      | WASHER, 3/8 plain                          |                    |                  | 2                | 4                |
| 4           |      | STD-678     | WASHER, 3/8 lock int teeth                 |                    |                  | 2                | 4                |
| 5           |      | 383-B       | NUT, 3/8-24 plain                          |                    |                  | 2                | 4                |
| 6           |      | AN7-46      | BOLT, 7/16-20 x 4.84 lg hex                |                    |                  | 1                | 1                |
| 7           |      | STD-632     | WASHER, 7/16 plain                         |                    |                  | 1                | 1                |
| 8           |      | LW-14650    | SHIM, 0.88 O.D. x 0.46 I.D. x .005 thick   |                    |                  | 3                | 4                |
| 9           |      | AN310-7     | NUT, 7/16-20 plain slotted                 |                    |                  | 1                | 1                |
| 10          |      | STD-713     | PIN, Cotter, 3/32 diameter x 3/4 long      |                    |                  | 1                | 1                |
| 11          |      | STD-669     | WASHER, 0.52 I.D. x 1.00 O.D. x 0.13       |                    |                  | 1                | 1                |
| 12          |      | STD-2221    | NUT, 1/2-20 self locking                   |                    |                  | 1                | 1                |
| 13          |      | 07F19875    | LINK, Alt. LT Ford                         |                    |                  | 1                |                  |
| 14          |      | 07F28736    | LINK, Freon Compressor                     |                    |                  |                  | 1                |
| 15          |      | 76534       | SHIM, 1.13 O.D. x .41 I.D. x .005 thick    |                    |                  | 3                |                  |
| 16          |      | AN6-13      | BOLT, 3/8-24 x 1.45 lg-dr                  |                    |                  | 1                |                  |
| 17          |      | 01L21504    | SPACER, 0.40 I.D. x 0.88 O.D. x 0.48 long. |                    |                  | 1                |                  |
| 18          |      | LW-38H1.31  | BOLT, 3/8-16 X 1.31 long hex dr            |                    |                  | 1                |                  |
| 19          |      | STD-1342    | WASHER, 0.88 O.D. x 0.39 I.D. x .13 thick  |                    |                  |                  | 1                |
| 20          |      | LW-38H1.09  | BOLT, 3/8-16 x 1.09 Long Hex D             |                    |                  |                  | 1                |
| 21          |      | AN6-15      | BOLT, 3/8-24 UNF x 1.70 lg-dr S            |                    |                  |                  | 1                |
| 22          |      | STD-690     | WASHER, 0.81 O.D. x 0.39 I.D. x 0.06 thick |                    |                  |                  | 3                |
| 23          |      | STD-872     | NUT, 3/8-24 Slotted                        |                    |                  | 1                | 1                |
| 24          |      | STD-713     | PIN, Cotter, 0.09 diameter x 0.75 long     |                    |                  | 1                | 1                |

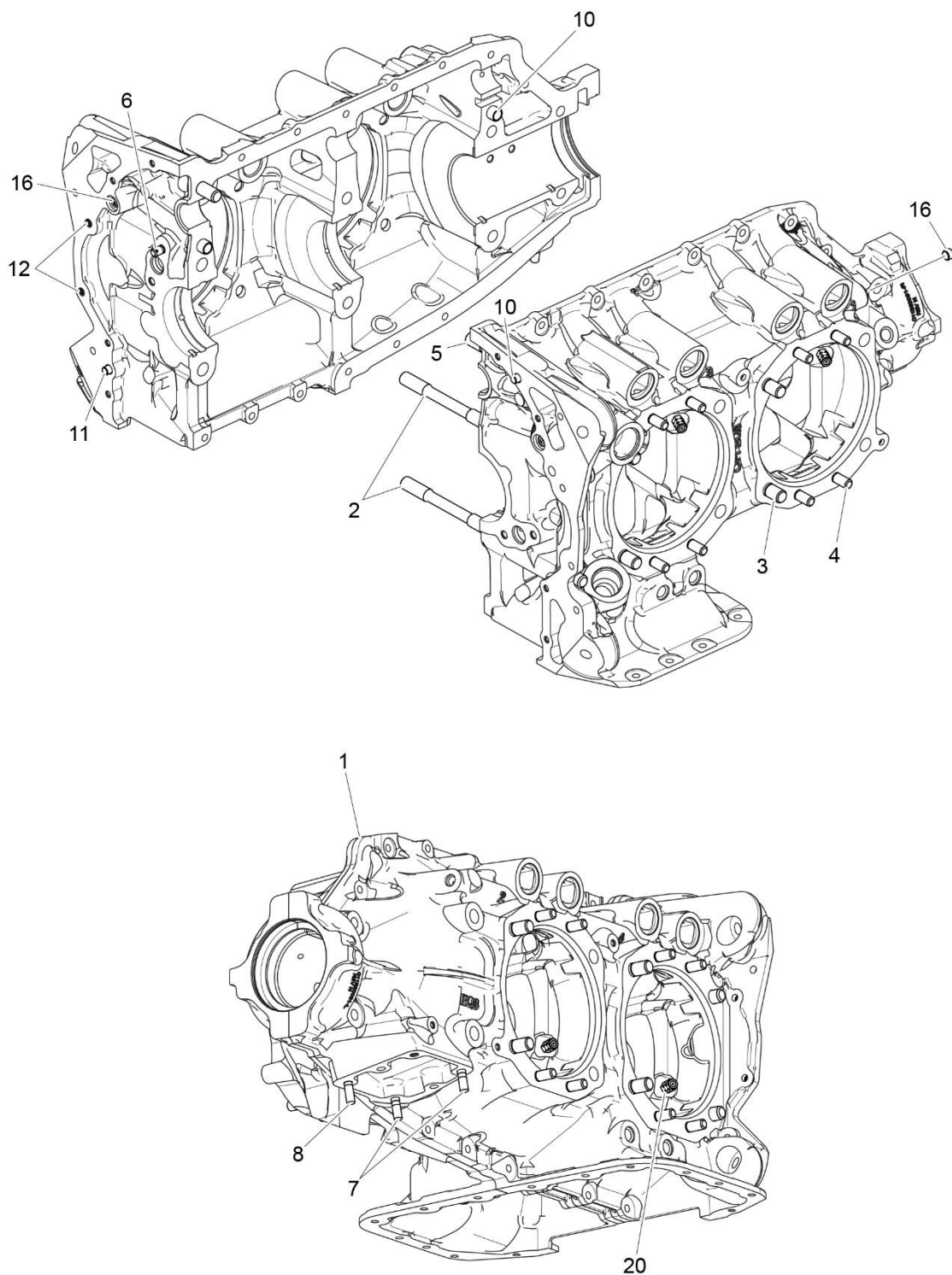


**Figure 4**  
**Propeller Governor Drive and Attaching Parts**

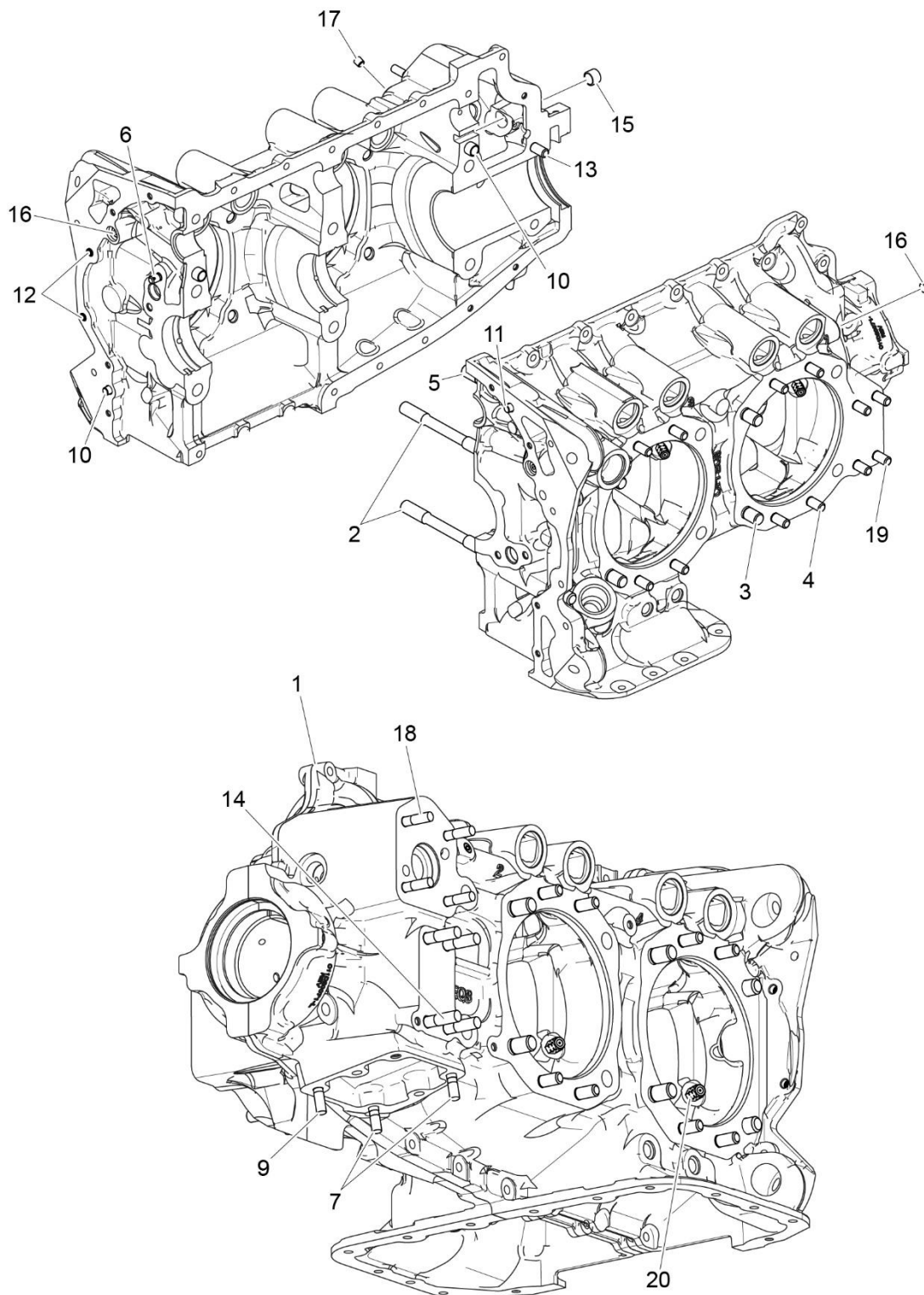
## FRONT SECTION

**| Figure 4 - Propeller Governor Drive and Attaching Parts**

| Figure Item      | Code | Part Number  | Description                                  | Units per Assembly |                  |                  |                  |
|------------------|------|--------------|----------------------------------------------|--------------------|------------------|------------------|------------------|
|                  |      |              |                                              | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1                |      | 77875        | GEAR, Propeller governor driven              |                    |                  | 1                | 1                |
| 2                |      | LW-14021     | SHAFT, Propeller governor idler gear         |                    |                  | 1                | 1                |
| 3                |      | 77874        | GEAR ASSY, 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 1/16 thick |                    |                  | 1                | 1                |
| 7                |      | LW-13896     | PLUG, 3/4-16 hex. hd                         |                    |                  | 1                | 1                |
| 8                |      | 72053        | GASKET, Governor                             |                    |                  | 1                | 1                |
| 9                |      | 72378        | COVER, Governor drive                        |                    |                  | 1                | 1                |
| 10               |      | STD-35       | WASHER, 5/16 plain                           |                    |                  | 4                | 4                |
| 11               |      | STD-475      | WASHER, 5/16 lock, internal teeth            |                    |                  | 4                | 4                |
| 12               |      | STD-1410     | NUT, 5/16-18 plain                           |                    |                  | 4                | 4                |
| AR – As Required |      |              |                                              |                    |                  |                  |                  |



**Figure 5A**  
**Crankcase Assembly A1A6, A3A6**



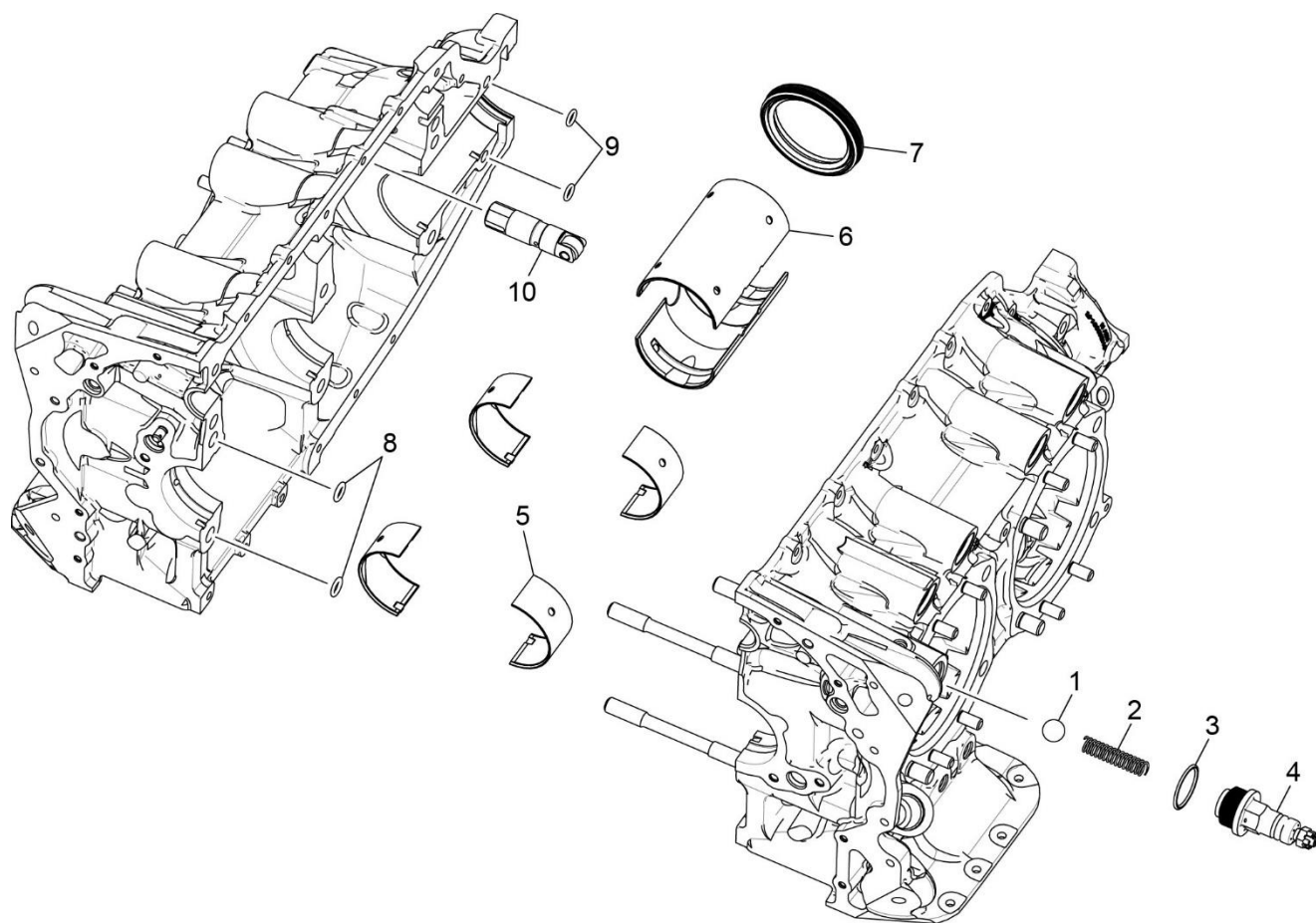
**Figure 5B**  
**Crankcase Assembly A1B6, A3B6**

## POWER SECTION

**Figures 5A/5B - Crankcase Assembly**

| Figure Item | Code | Part Number  | Description                              | Units per Assembly |                  |                  |                  |
|-------------|------|--------------|------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |              |                                          | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 11U20391-1S  | CRANKCASE ASSEMBLY                       | 1                  | 1                |                  |                  |
|             |      | 11U28752-1S1 | CRANKCASE ASSEMBLY                       |                    |                  | 1                | 1                |
|             |      | 11U28752-1S3 | 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 1-5/8 long               | 1                  | 1                |                  |                  |
| 9           |      | 31C-14       | STUD, 5/16-18 x 1-3/4 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 1-5/8 long                |                    |                  | 1                | 1                |
| 14          |      | 38-13        | STUD, 3/8-16 x 1-5/8 long                |                    |                  | 4                | 4                |
| 15          |      | 72158        | BUSHING, Governor drive idler shaft      |                    |                  | 1                | 1                |
| 16          |      | 1102         | PLUG, 1/8-27 NPT, Allen head             | 6                  | 6                | 5                | 5                |
| 17          |      | STD-1339     | PLUG, 1/16-27 NPT, Allen head            |                    |                  | 1                | 1                |
| 18          |      | 31C-16       | STUD, 5/16-18 x 2.00 long                |                    |                  | 4                | 4                |
| 19          |      | 31C-19       | STUD, 1/16-18 x 2.38 long                |                    |                  | 4                | 4                |
| 20          |      | 12E23021     | NOZZLE ASSEMBLY, Piston cooling          | 4                  | 4                | 4                | 4                |

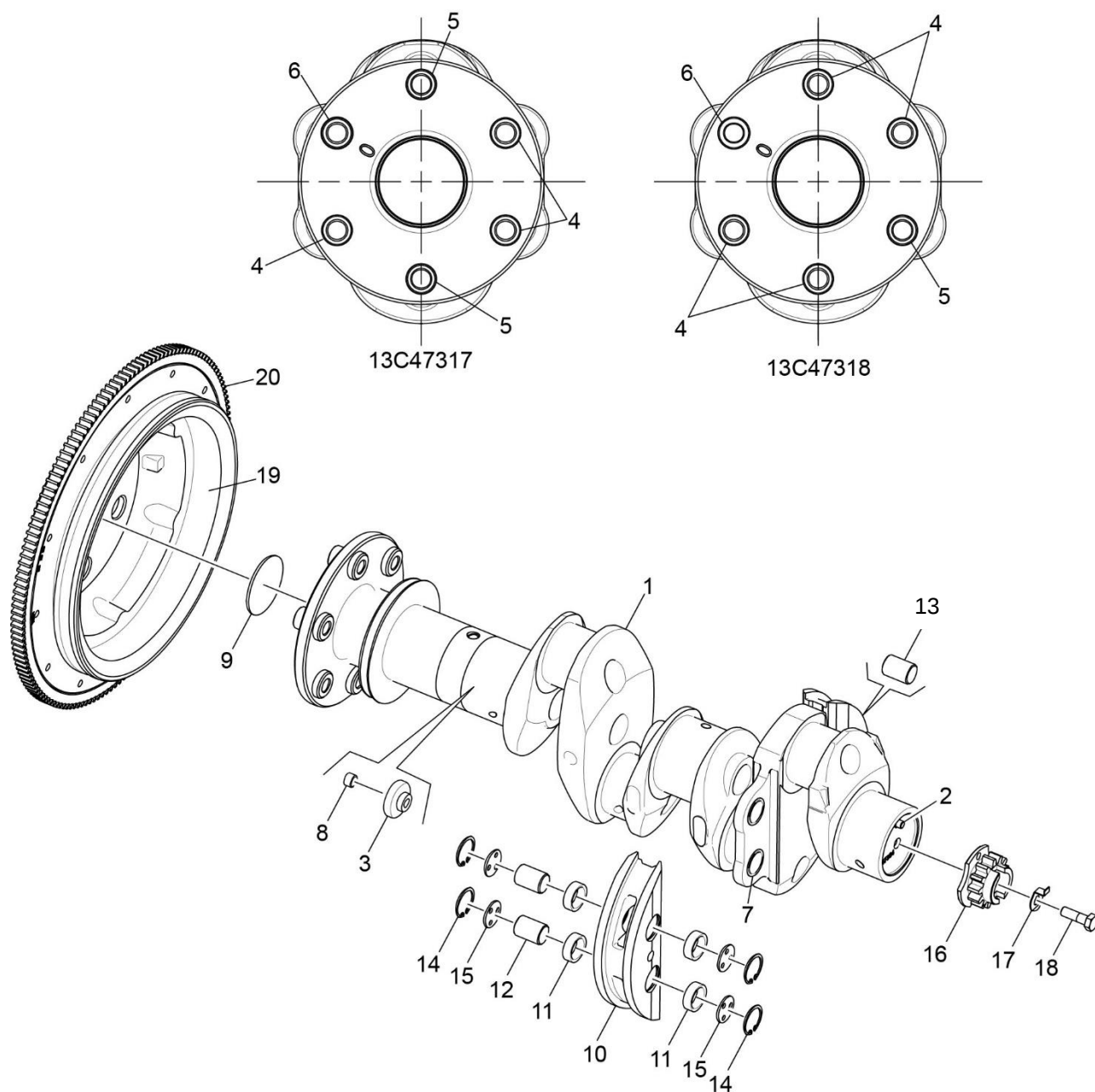
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**Figure 6**  
**Crankcase Related Parts**

**POWER SECTION****| Figure 6 - 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 hi-crush thin wall         | 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                  |
| <p>* Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment. Reference latest revision of Lycoming Table of Limits SSP-1776, Part I for spring identification.</p> <p>** Refer to latest revision of Lycoming Service Instruction No. 1324 for installation.</p> <p>*** Sold as exchange part only.</p> |      |               |                                                |                    |

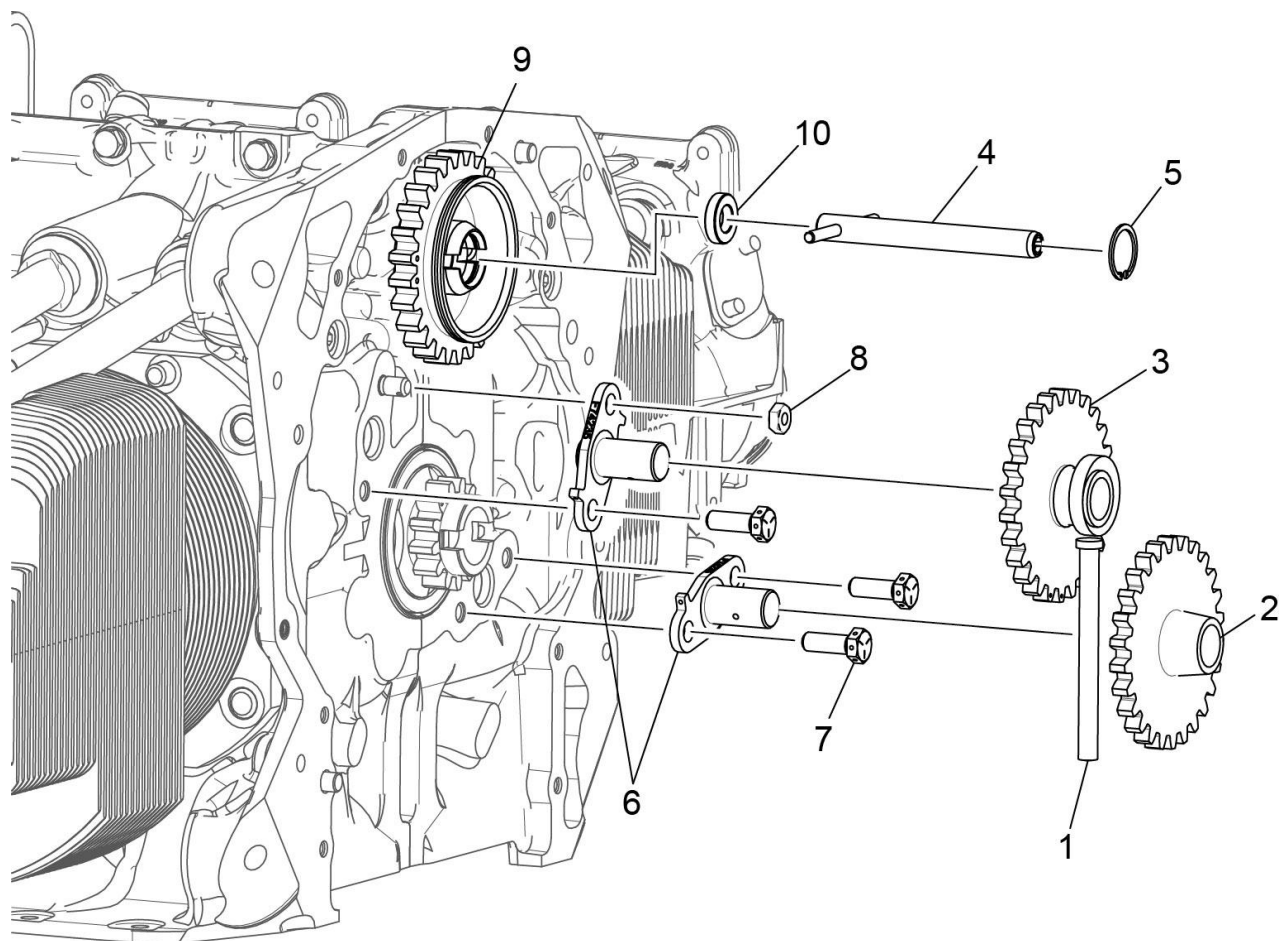


**Figure 7**  
**Crankshaft and Counterweight Assembly and Related Parts**

## POWER SECTION

| **Figure 7 - Crankshaft and Counterweight Assembly and Related Parts**

| Figure Item | Code | Part Number | Description                              | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                          | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>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                | 1                | 1                |
|             |      | 31M19861    | SUPPORT ASSEMBLY, Starter ring gear      |                    |                  |                  | 1                |
|             |      | 31M21994    | SUPPORT ASSEMBLY, Starter ring gear      |                    |                  | 1                |                  |
|             |      | 74977       | SUPPORT ASSEMBLY, Starter ring gear      |                    | 1                |                  |                  |
| 20          |      | 72566       | GEAR, Starter ring, 12/14 pitch          | 1                  | 1                | 1                | 1                |

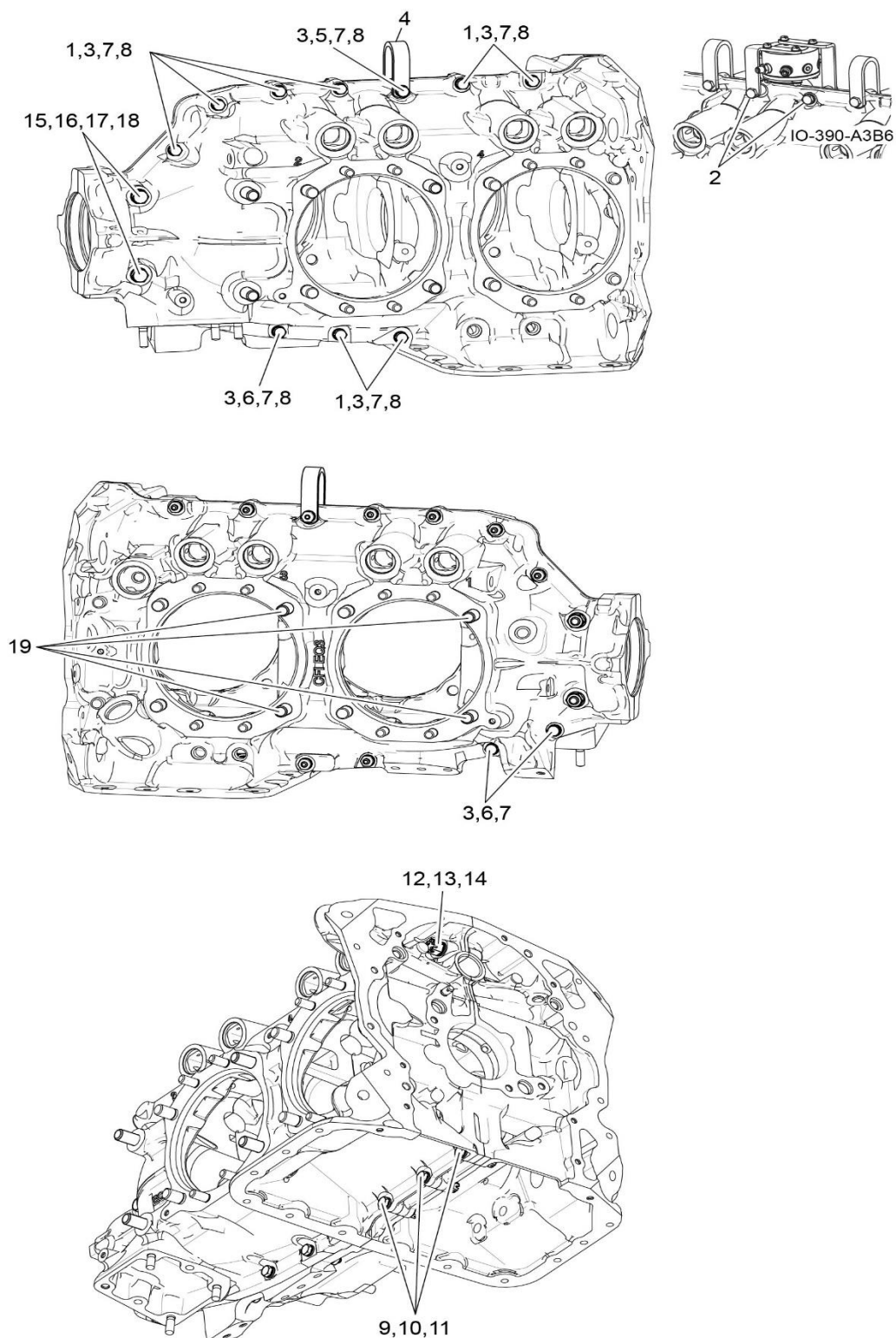


**Figure 8**  
**Crankshaft Idler Gears, Tachometer Drive, and Camshaft**

## POWER SECTION

**Figure 8 - Crankshaft Idler Gears, Tachometer Drive, and Camshaft**

| Figure Item | Code | Part Number | Description                                  | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|----------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                              | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>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                |
|             |      | 15M28669    | CAMSHAFT ASSEMBLY, (with plug, no tach)      |                    | 1                |                  |                  |
| 10          |      | 76118       | SPACER, Tachometer shaft centering           | 1                  | 1                | 1                | 1                |

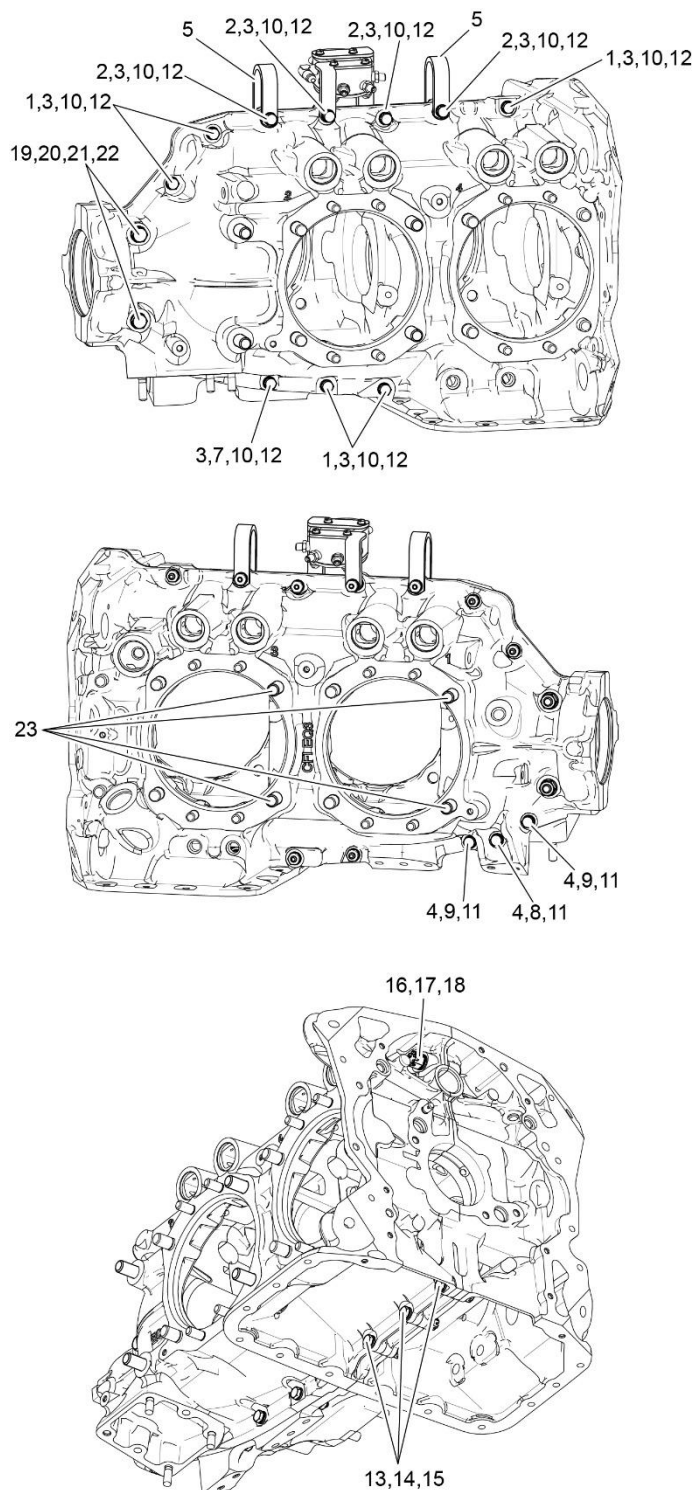


**Figure 9**  
**Crankcase Attaching Parts**

## POWER SECTION

Figure 9 - Crankcase Attaching Parts

| Figure Item                                          | Code | Part Number   | Description                                   | Units per Assembly |                  |                  |                  |     |
|------------------------------------------------------|------|---------------|-----------------------------------------------|--------------------|------------------|------------------|------------------|-----|
|                                                      |      |               |                                               | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |     |
| 1                                                    |      | LW-25-1.50    | BOLT, 1/4-20 x 1-1/2 long, hex. head          | 8                  | 8                | 8                | 8                | *5  |
| 2                                                    |      | NASM90725-15  | BOLT, 1/4-20 x 2.13 long hex                  |                    |                  |                  |                  | *2  |
| 3                                                    |      | STD-8         | WASHER, 1/4 plain                             | 19                 | 19               | 20               | 20               | *17 |
| 4                                                    |      | 60803         | STRAP, Lifting                                | 1                  | 1                | 1                | 1                | *2  |
| 5                                                    |      | LW-25-1.75    | BOLT, 1/4-20 x 1-3/4 long, hex. head          | 1                  | 1                | 1                | 1                | *2  |
| 6                                                    |      | LW-25-1.13    | BOLT, 1/4-20 x 1-1/8 long, hex. head          | 3                  | 3                | 4                | 4                | *4  |
| 7                                                    |      | STD-160       | WASHER, 1/4 lock, internal teeth              | 12                 | 12               | 13               | 13               | *13 |
| 8                                                    |      | STD-1411      | NUT, 1/4-20 plain                             | 9                  | 9                | 9                | 9                | *9  |
| 9                                                    |      | LW-25S1.50    | BOLT, 1/4-20 x 1-1/2 long, hex. head, drilled | 3                  | 3                | 3                | 3                | *3  |
| 10                                                   | AR   | STD-8         | WASHER, 1/4 plain                             | 9                  | 9                | 9                | 9                | *9* |
| 11                                                   |      | STD-2249      | NUT, 1/4-20 slotted                           | 3                  | 3                | 3                | 3                | *3  |
| 12                                                   |      | STD-33        | WASHER, 3/8 plain                             | 1                  | 1                | 1                | 1                | *2  |
| 13                                                   |      | NAS1149F0632P | WASHER, 3/8 plain, thin                       | 1                  | 1                | 1                | 1                | *3  |
| 14                                                   |      | STD-872       | NUT, 3/8-24 slotted                           | 1                  | 1                | 1                | 1                | *1  |
| 15                                                   |      | AN6-34A       | BOLT, 3/8-24 x 3-37/64 long, hex. head        | 2                  | 2                | 1                | 1                | *1  |
| 16                                                   |      | STD-33        | WASHER, 3/8 plain                             | 4                  | 4                | 3                | 3                | *3  |
| 17                                                   |      | STD-678       | WASHER, 3/8 lock, internal teeth              | 2                  | 2                | 2                | 2                | *2  |
| 18                                                   |      | STD-596       | NUT, 3/8-24 plain                             | 2                  | 2                | 2                | 2                | *2  |
| 19                                                   |      | 01A22453      | STUD, 1/2-20 x 10-1/2 long                    | 4                  | 4                | 4                | 4                | *4  |
| AR – As Required                                     |      |               |                                               |                    |                  |                  |                  |     |
| * Quantities for Front Governor - Dual Lifting Strap |      |               |                                               |                    |                  |                  |                  |     |

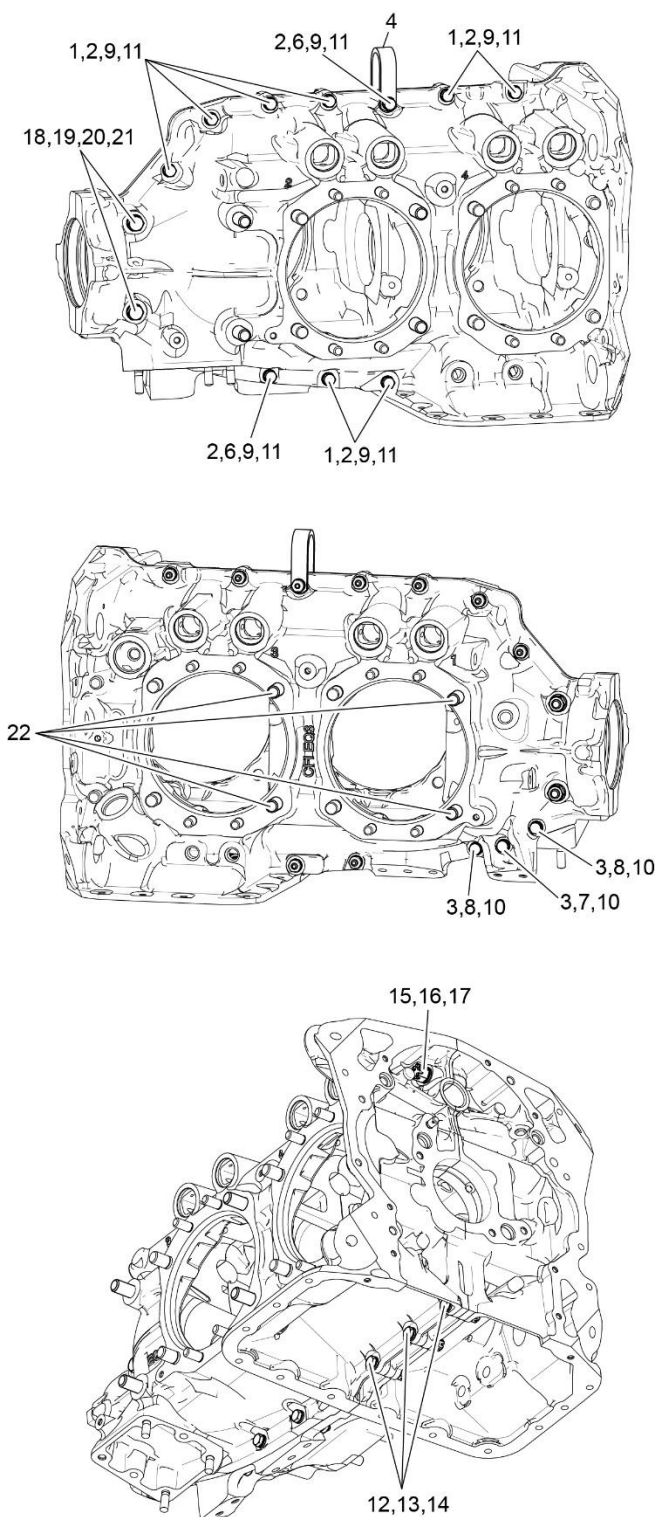


**Figure 9A**  
**Crankcase Attaching Parts**  
 (Use with Crankcase Assembly P/N 11U28752-1S)

**POWER SECTION**

**Figure 9A - Crankcase Attaching Parts**  
**(Use with Crankcase Assembly P/N 11U28752-1S)**

| Figure Item      | Code      | Part Number   | Description                                   | Units per Assembly |
|------------------|-----------|---------------|-----------------------------------------------|--------------------|
| 1                |           | LW-25-1.50    | BOLT, 1/4-20 x 1-1/2 long, hex. head          | 5                  |
| 2                |           | NASM90725-15  | BOLT, 1/4-20 x 2.13 long hex                  | 2                  |
| 3                |           | STD-8         | WASHER, 1/4 plain                             | 14                 |
| 4                |           | STD-35        | WASHER, 5/16 plain                            | 4                  |
| 5                |           | 60803         | STRAP, Lifting                                | 2                  |
| 6                |           | LW-25-1.75    | BOLT, 1/4-20 x 1-3/4 long, hex. head          | 2                  |
| 7                |           | LW-25-1.13    | BOLT, 1/4-20 x 1-1/8 long, hex. head          | 1                  |
| 8                |           | LW-31-1.31    | BOLT, 5/16-18 x 1-5/16 long, hex. head        | 2                  |
| 9                |           | LW-31-1.16    | BOLT, 5/16-18 x 1-5/32 long, hex. head        | 2                  |
| 10               |           | STD-160       | WASHER, 1/4 lock, internal teeth              | 10                 |
| 11               |           | STD-475       | WASHER, 5/16 lock, internal teeth             | 4                  |
| 12               |           | STD-1411      | NUT, 1/4-20 plain                             | 9                  |
| 13               |           | LW-25S1.50    | BOLT, 1/4-20 x 1-1/2 long, hex. head, drilled | 3                  |
| 14               | <b>AR</b> | STD-8         | WASHER, 1/4 plain                             | 9                  |
| 15               |           | STD-2249      | NUT, 1/4-20 slotted                           | 3                  |
| 16               |           | STD-33        | WASHER, 3/8 plain                             | 2                  |
| 17               |           | NAS1149F0632P | WASHER, 3/8 plain, thin                       | 3                  |
| 18               |           | STD-872       | NUT, 3/8-24 slotted                           | 1                  |
| 19               |           | AN6-34A       | BOLT, 3/8-24 x 3-37/64 long, hex. head        | 1                  |
| 20               |           | STD-33        | WASHER, 3/8 plain                             | 3                  |
| 21               |           | STD-678       | WASHER, 3/8 lock, internal teeth              | 2                  |
| 22               |           | STD-596       | NUT, 3/8-24 plain                             | 2                  |
| 23               |           | 01A22453      | STUD, 1/2-20 x 10-1/2 long                    | 4                  |
| AR – As Required |           |               |                                               |                    |

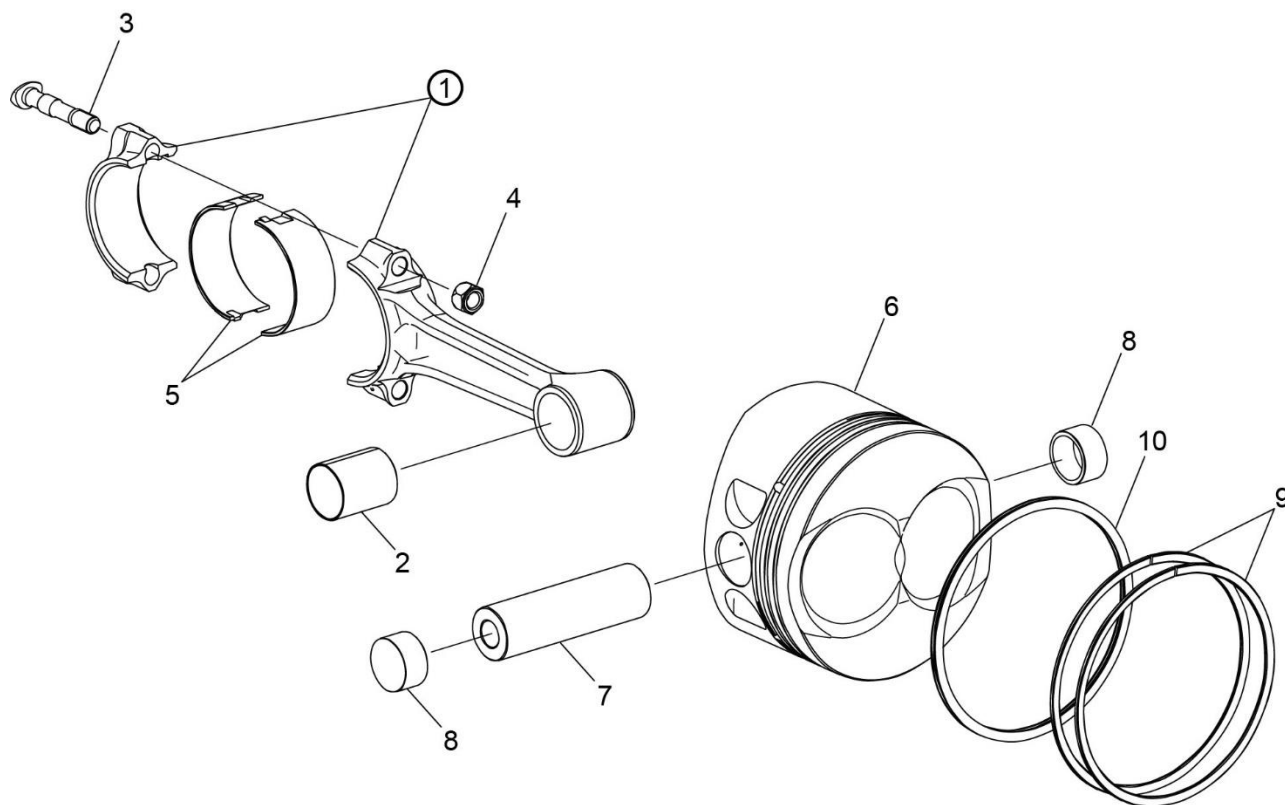


**Figure 9B**  
**Crankcase Attaching Parts**  
 (Use with Crankcase Assembly P/N 11U28752-1S3)

**POWER SECTION**

**Figure 9B - Crankcase Attaching Parts**  
**(Use with Crankcase Assembly P/N 11U28752-1S3)**

| Figure Item      | Code      | Part Number   | Description                                   | Units per Assembly |
|------------------|-----------|---------------|-----------------------------------------------|--------------------|
| 1                |           | LW-25-1.50    | BOLT, 1/4-20 x 1-1/2 long, hex. head          | 8                  |
| 2                |           | STD-8         | WASHER, 1/4 plain                             | 17                 |
| 3                |           | STD-35        | WASHER, 5/16 plain                            | 3                  |
| 4                |           | 60803         | STRAP, Lifting                                | 1                  |
| 5                |           | LW-25-1.75    | BOLT, 1/4-20 x 1-3/4 long, hex. head          | 1                  |
| 6                |           | LW-25-1.13    | BOLT, 1/4-20 x 1-1/8 long, hex. head          | 1                  |
| 7                |           | LW-31-1.25    | BOLT, 5/16-18 x 1-1/4 long, hex. head         | 1                  |
| 8                |           | LW-31-1.16    | BOLT, 5/16-18 x 1-5/32 long, hex. head        | 2                  |
| 9                |           | STD-160       | WASHER, 1/4 lock, internal teeth              | 10                 |
| 10               |           | STD-475       | WASHER, 5/16 lock, internal teeth             | 3                  |
| 11               |           | STD-1411      | NUT, 1/4-20 plain                             | 9                  |
| 12               |           | LW-25S1.50    | BOLT, 1/4-20 x 1-1/2 long, hex. head, drilled | 3                  |
| 13               | <b>AR</b> | STD-8         | WASHER, 1/4 plain                             | 9                  |
| 14               |           | STD-2249      | NUT, 1/4-20 slotted                           | 3                  |
| 15               |           | STD-33        | WASHER, 3/8 plain                             | 1                  |
| 16               |           | NAS1149F0632P | WASHER, 3/8 plain, thin                       | 1                  |
| 17               |           | STD-872       | NUT, 3/8-24 slotted                           | 1                  |
| 18               |           | AN6-34A       | BOLT, 3/8-24 x 3-37/64 long, hex. head        | 1                  |
| 19               |           | STD-33        | WASHER, 3/8 plain                             | 3                  |
| 20               |           | STD-678       | WASHER, 3/8 lock, internal teeth              | 2                  |
| 21               |           | STD-596       | NUT, 3/8-24 plain                             | 2                  |
| 22               |           | 01A22453      | STUD, 1/2-20 x 10-1/2 long                    | 4                  |
| AR – As Required |           |               |                                               |                    |

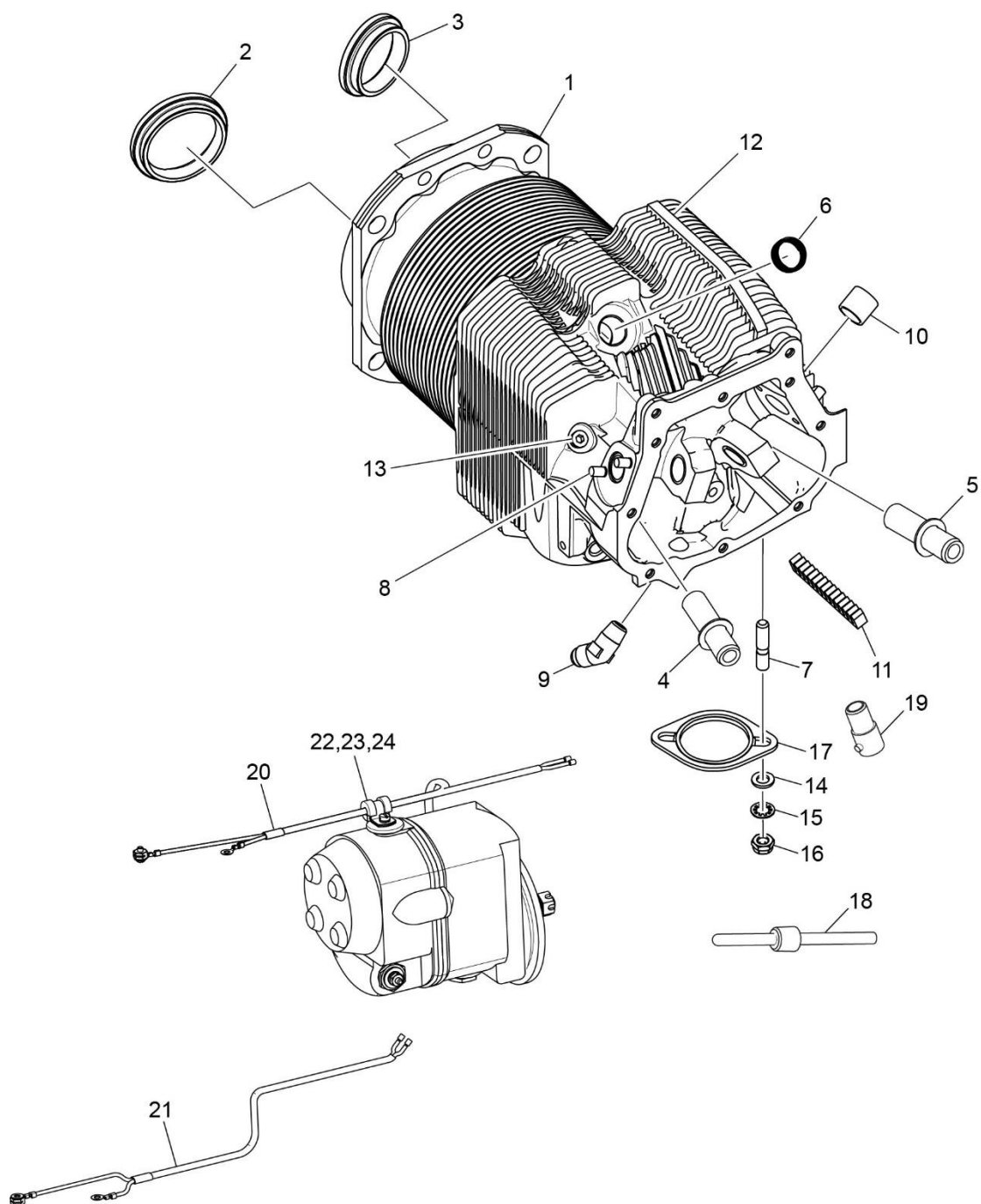


**Figure 10**  
**Connecting Rods, Pistons, and Ring Assemblies**

## CYLINDER SECTION

**Figure 10 - Connecting Rods, Pistons, and Ring Assemblies**

| Figure Item                                                             | Code | Part Number | Description                                | Units per Assembly |                  |                  |                  |
|-------------------------------------------------------------------------|------|-------------|--------------------------------------------|--------------------|------------------|------------------|------------------|
|                                                                         |      |             |                                            | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1                                                                       |      | 77450-S     | CONNECTING ROD ASSEMBLY                    | 4                  | 4                | 4                | 4                |
| 2                                                                       |      | 01K28983    | BUSHING, Connecting rod, upper             | 4                  | 4                | 4                | 4                |
| 3                                                                       |      | 75060       | BOLT, Connecting rod                       | 8                  | 8                | 8                | 8                |
| 4                                                                       |      | LW-12186    | NUT, Connecting rod bolt                   | 8                  | 8                | 8                | 8                |
| 5                                                                       |      | 18M23887    | BEARING, Connecting rod                    | 8                  | 8                | 8                | 8                |
| 6                                                                       |      | 14E23911    | PISTON, Compression ratio 8.90:1           | 4                  | 4                | 4                | 4                |
| 7                                                                       |      | 14J22048    | PIN, Piston                                | 4                  | 4                | 4                | 4                |
| 8                                                                       | *    | 72198       | PLUG, Piston pin                           | 8                  | 8                | 8                | 8                |
| 9                                                                       |      | 14G22050    | RING, Piston compression                   | 8                  | 8                | 8                | 8                |
| 10                                                                      |      | 14H29865    | RING, Piston oil regulating, expander type | 4                  | 4                | 4                | 4                |
| * Refer to the latest revision of Lycoming Service Instruction No. 1267 |      |             |                                            |                    |                  |                  |                  |

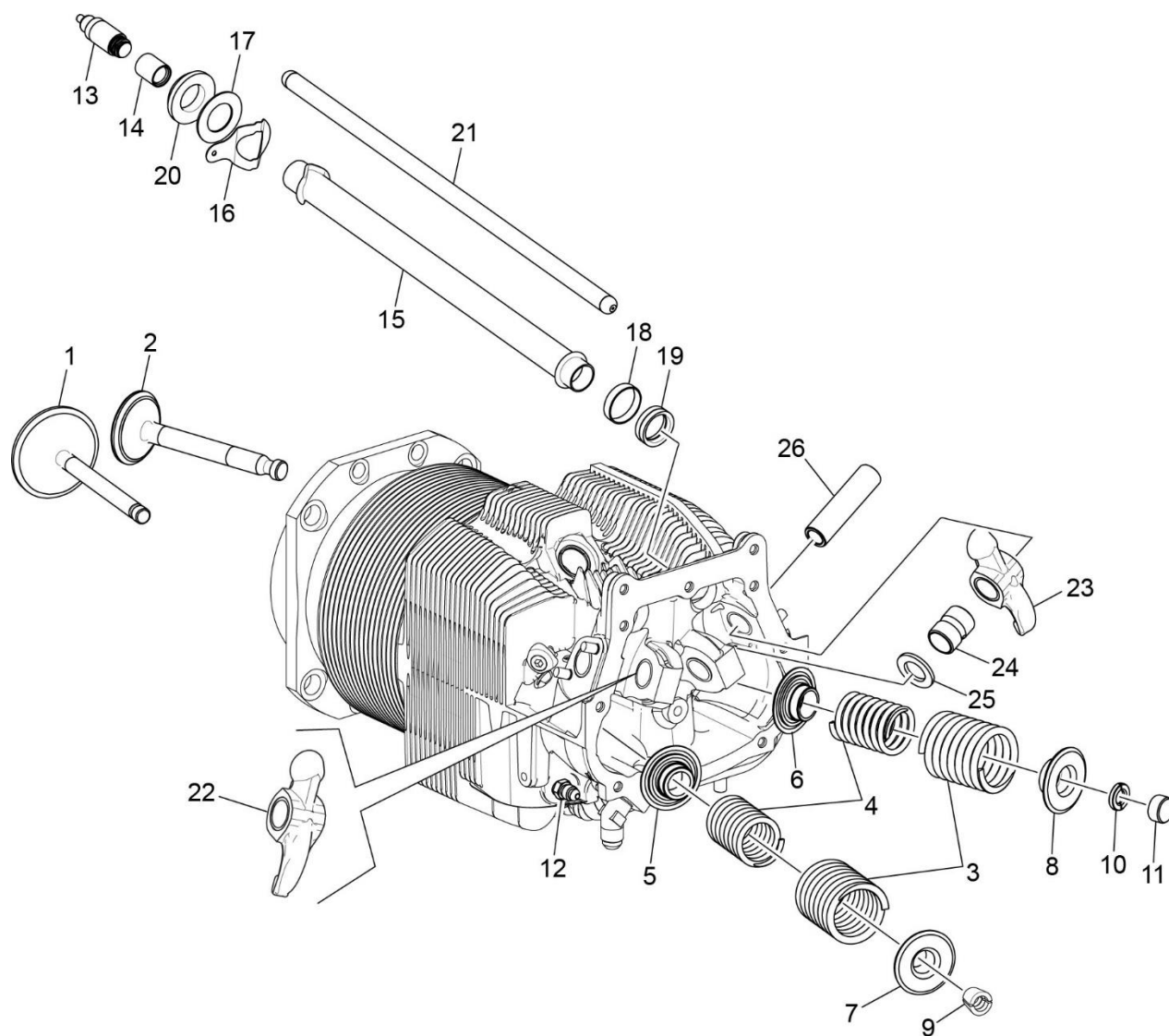


**Figure 11**  
**Cylinder Assembly**

## CYLINDER SECTION

Figure 11 - Cylinder Assembly

| Figure Item                                   | Code | Part Number   | Description                              | Units per Assembly |                  |                  |                  |
|-----------------------------------------------|------|---------------|------------------------------------------|--------------------|------------------|------------------|------------------|
|                                               |      |               |                                          | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1                                             |      | 16A26081      | CYLINDER AND HEAD ASSEMBLY, Nitrided     | 4                  | 4                | 4                | 4                |
| 2                                             |      | 72212         | SEAT, Intake valve                       | 4                  | 4                | 4                | 4                |
| 3                                             |      | 16T19468      | SEAT, Valve, exhaust                     | 4                  | 4                | 4                | 4                |
| 4                                             |      | 66713-P05     | GUIDE, Valve, intake                     | 4                  | 4                | 4                | 4                |
| 5                                             |      | 75838-P05     | GUIDE, Valve, exhaust                    | 4                  | 4                | 4                | 4                |
| 6                                             |      | 69260         | INSERT, Spark plug, 18-1.5 MM            | 8                  | 8                | 8                | 8                |
| 7                                             |      | 31C-13        | STUD, 5/16-18 x 1-5/8 long               | 8                  | 8                | 8                | 8                |
| 8                                             |      | 25C-8         | STUD, 1/4-20 x 1.00 long                 | 16                 | 16               | 16               | 16               |
| 9                                             |      | MS20823-6D    | ELBOW, 45°, 3/8 flared tube              | 4                  | 4                | 4                | 4                |
| 10                                            |      | 66670         | BUSHING, Rocker shaft, inner             | 16                 | 16               | 16               | 16               |
| 11                                            |      | 72343         | STABILIZER, Cylinder head fins, 15 teeth | 4                  | 4                | 4                | 4                |
| 12                                            |      | 72344         | STABILIZER, Cylinder head fins, 26 teeth | 4                  | 4                | 4                | 4                |
| 13                                            |      | 1102          | PLUG, 1/8-27 NPT, Allen head             | 4                  | 4                | 4                | 4                |
| 14                                            |      | STD-35        | WASHER, 5/16 plain                       | 8                  | 8                | 8                | 8                |
| 15                                            |      | STD-475       | WASHER, 5/16 lock, internal teeth        | 8                  | 8                | 8                | 8                |
| 16                                            |      | STD-1410      | NUT, 5/16-18 plain                       | 8                  | 8                | 8                | 8                |
| 17                                            | *    | 75118         | GASKET, Exhaust flange                   | 8                  | 8                | 8                | 8                |
|                                               | *    | 77611         | GASKET, Exhaust flange                   |                    | 4                |                  | 4                |
| 18                                            |      | LW-18752      | THERMOCOUPLE, K, cyl. head bayonet       | 4                  |                  | 4                | 4                |
| 19                                            |      | AN4076-1      | FITTING, Temp. measuring element         | 4                  |                  | 4                | 4                |
| 20                                            |      | 05U22561      | THERMOCOUPLE, Installation, K type       | 2                  |                  | 2                | 2                |
| 21                                            |      | LW-18756      | WIRE ASSY, mag thermo (K-type)           | 2                  |                  | 2                | 2                |
| 22                                            |      | LW-16266-0-19 | CLAMP, Cushion 0.19 I.D.                 | 2                  |                  | 2                | 2                |
| 23                                            |      | STD-380       | SCREW, No. 8-32 x 3/8 long dr            | 2                  |                  | 2                | 2                |
| 24                                            |      | STD-250       | WASHER, No. 8 spring lock                | 2                  |                  | 2                | 2                |
| * This part is shipped loose with the engine. |      |               |                                          |                    |                  |                  |                  |



**Figure 12**  
**Valve Assembly and Related Parts**

## CYLINDER SECTION

**Figure 12 - Valve Assembly and Related Parts**

| Figure Item | Code | Part Number | Description                          | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|--------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                      | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 17A23946    | VALVE, Intake                        | 4                  | 4                | 4                | 4                |
| 2           |      | 17B23935    | VALVE, Exhaust                       | 4                  | 4                | 4                | 4                |
| 3           |      | 17D29056    | SPRING, Valve, outer                 | 8                  | 8                | 8                | 8                |
| 4           |      | 17D29057    | SPRING, Valve, inner                 | 8                  | 8                | 8                | 8                |
| 5           |      | LW-13321    | SEAT, Valve spring, lower intake     | 4                  | 4                | 4                | 4                |
| 6           |      | LW-13322    | SEAT, Valve spring, lower exhaust    | 4                  | 4                | 4                | 4                |
| 7           |      | LW-10077    | SEAT, Valve spring, upper intake     | 4                  | 4                | 4                | 4                |
| 8           |      | LW-16475    | SEAT, Valve spring, upper exhaust    | 4                  | 4                | 4                | 4                |
| 9           |      | 60009       | KEY, Valve, intake                   | 8                  | 8                | 8                | 8                |
| 10          |      | 17C21191    | KEY, Valve, exhaust                  | 8                  | 8                | 8                | 8                |
| 11          |      | 17C19386    | CAP, Valve stem, exhaust             | 4                  | 4                | 4                | 4                |
| 12          |      | 02G21382    | NIPPLE, Nozzle pressure gauge        |                    |                  |                  | 1                |
| 13          |      | 15B26066    | PLUNGER ASSEMBLY, Hydraulic tappet   | 8                  | 8                | 8                | 8                |
| 14          |      | 15B21319    | SOCKET, Hydraulic tappet             | 8                  | 8                | 8                | 8                |
| 15          |      | 15G23462    | SHROUD TUBE ASSEMBLY, Push rod       | 8                  | 8                | 8                | 8                |
| 16          |      | 15H21201    | SPRING, Shroud tube                  | 16                 | 16               | 16               | 16               |
| 17          |      | 01L23459    | WASHER, 3/4 I.D. x 1-3/8 O.D. x 1/32 | 8                  | 8                | 8                | 8                |
| 18          |      | 61503       | SLEEVE, Shroud tube                  | 8                  | 8                | 8                | 8                |
| 19          |      | LW-18661    | SEAL, Shroud tube                    | 8                  | 8                | 8                | 8                |
| 20          |      | 06A23493    | SEAL, Shroud tube                    | 8                  | 8                | 8                | 8                |

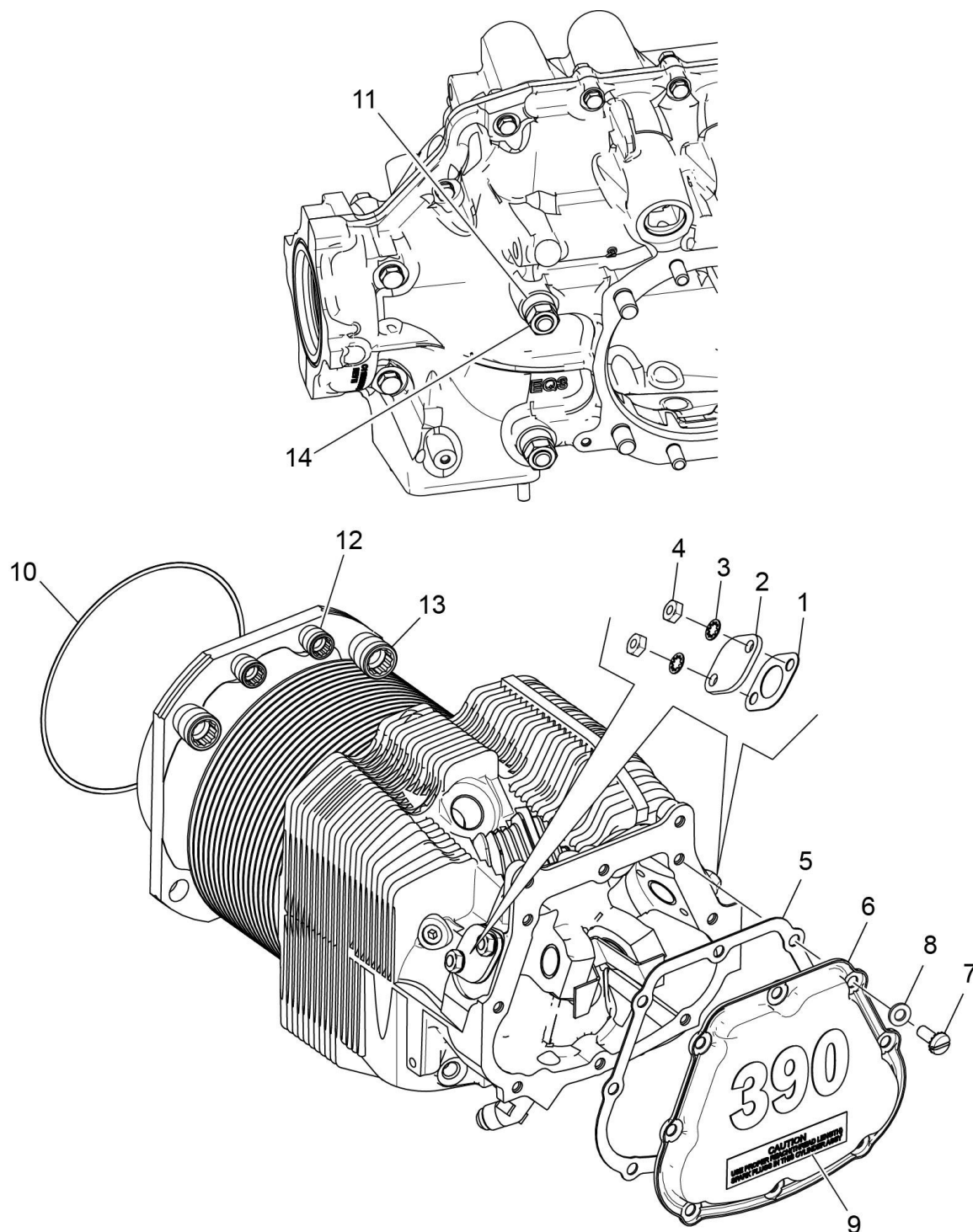
(continued on next page)

## CYLINDER SECTION

**Figure 12 - Valve Assembly and Related Parts (Cont.)**

| Figure Item                                                                                                                                 | Code | Part Number | Description                                | Units per Assembly |                  |                  |                  |
|---------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|--------------------------------------------|--------------------|------------------|------------------|------------------|
|                                                                                                                                             |      |             |                                            | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 21                                                                                                                                          |      | 15F28835-51 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28835-52 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28835-53 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28835-54 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28835-55 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28835-56 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28864-17 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28864-18 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28864-19 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28864-20 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28864-21 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
|                                                                                                                                             |      | 15F28864-22 | ROD ASSEMBLY, Push (A total of 8 required) | AR                 | AR               | AR               | AR               |
| 22                                                                                                                                          | *    | 17F21188    | ROCKER ASSEMBLY, Valve, intake             | 4                  | 4                | 4                | 4                |
| 23                                                                                                                                          | *    | 17F21187    | ROCKER ASSEMBLY, Valve, exhaust            | 4                  | 4                | 4                | 4                |
| 24                                                                                                                                          |      | 74389       | BUSHING, Valve rocker                      | 8                  | 8                | 8                | 8                |
| 25                                                                                                                                          |      | 71549       | WASHER, Thrust, valve rocker               | 8                  | 8                | 8                | 8                |
| 26                                                                                                                                          |      | 72626       | SHAFT, Valve rocker                        | 8                  | 8                | 8                | 8                |
| AR – As Required                                                                                                                            |      |             |                                            |                    |                  |                  |                  |
| * Due to the size of the area where the part number is stamped, the last five digits (19357) could be all that is shown of the part number. |      |             |                                            |                    |                  |                  |                  |

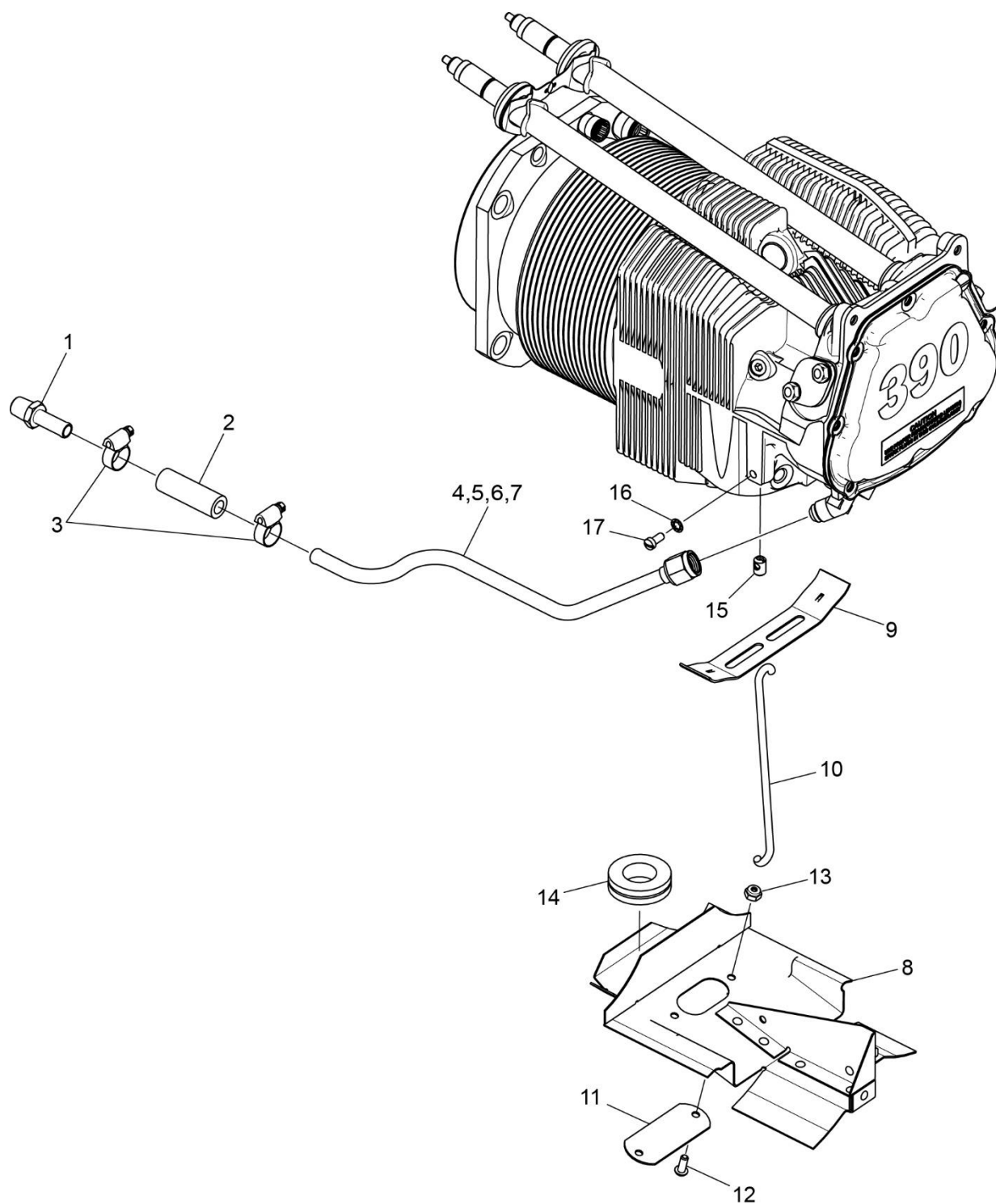
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**Figure 13**  
**Cylinder Related Parts**

**CYLINDER SECTION****| Figure 13 - Cylinder Related Parts**

| Figure Item | Code | Part Number | Description                                     | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|-------------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                                 | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 66732       | GASKET, Valve rocker shaft cover                | 8                  | 8                | 8                | 8                |
| 2           |      | 72710       | COVER, Valve rocker shaft                       | 8                  | 8                | 8                | 8                |
| 3           |      | STD-160     | WASHER, 1/4 lock, internal teeth                | 16                 | 16               | 16               | 16               |
| 4           |      | STD-1411    | NUT, 1/4-20 plain                               | 16                 | 16               | 16               | 16               |
| 5           |      | 67193       | GASKET, Rocker box cover                        | 4                  | 4                | 4                | 4                |
|             |      | 06B26811    | GASKET, Rocker box cover (silicone)             |                    |                  |                  | 4                |
| 6           |      | 17J26469    | COVER ASSEMBLY, Rocker box                      | 4                  | 4                | 4                | 4                |
|             |      | 17J26469-C  | COVER ASSEMBLY, Rocker box                      |                    |                  | 4                |                  |
| 7           |      | STD-1925    | SCREW, 1/4-20 x 5/8 long, pan hd., self-locking | 32                 | 32               | 32               | 32               |
|             |      | 01F22880    | SCREW, 1/4-20 X 0.595 LG.(stainless)            |                    |                  | 32               |                  |
| 8           |      | MS35335-33  | WASHER                                          |                    |                  | 32               |                  |
| 9           |      | 74494       | PLATE, Spark plug reach caution                 | 4                  | 4                | 4                | 4                |
| 10          |      | 71481       | RING, Oil seal, 3/32 diameter x 4-27/32 long    | 4                  | 4                | 4                | 4                |
| 11          |      | 74887       | SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick       | 2                  | 2                | 2                | 2                |
| 12          |      | 71134       | NUT, 3/8-24 NF-3                                | 16                 | 16               | 16               | 16               |
| 13          |      | 71133       | NUT, 1/2-20 NF-3                                | 16                 | 16               | 16               | 16               |
| 14          |      | STD-2090    | NUT, 1/2-20 plain                               | 2                  | 2                | 2                | 2                |

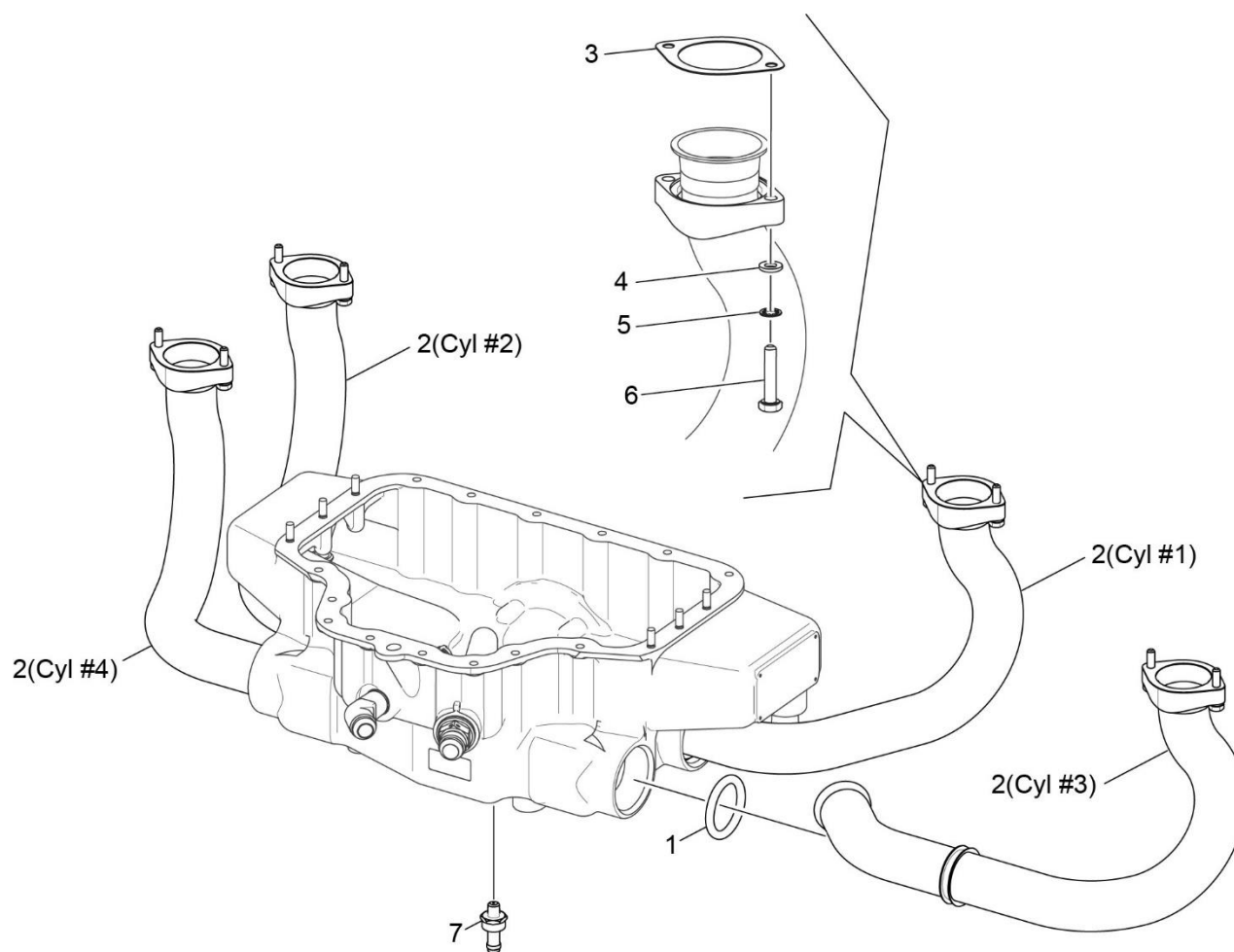


**Figure 14**  
**Cylinder Head Drain Tubes and Intercylinder Cooling Baffles**

## CYLINDER SECTION

**Figure 14 - Cylinder Head Drain Tubes and Intercylinder Cooling Baffles**

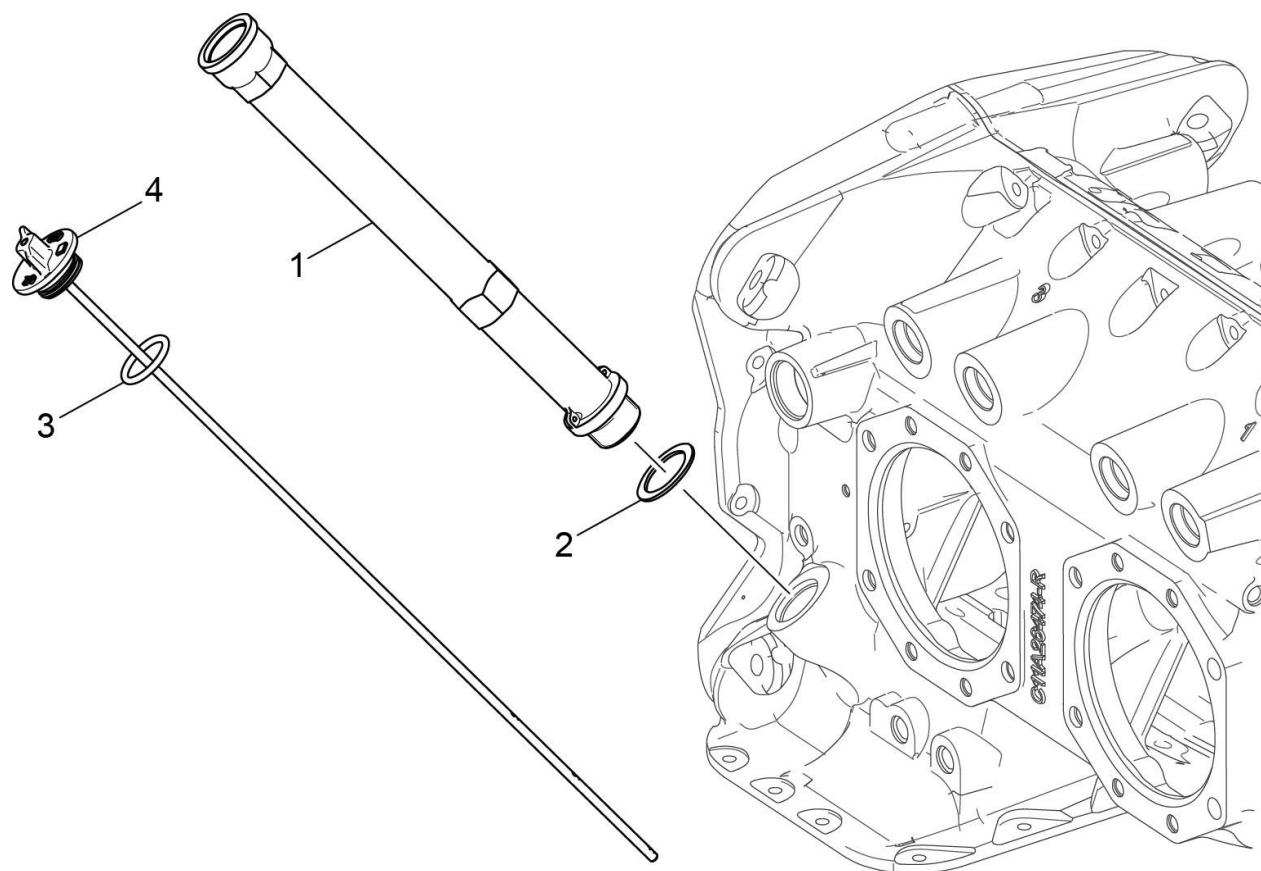
| Figure Item                                                                                                                                                                    | Code | Part Number   | Description                                    | Units per Assembly |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------|------------------------------------------------|--------------------|
| 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, 7/16 O.D.                         | 8                  |
|                                                                                                                                                                                | ***  | LW-15592-5-05 | 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                  |
| <p>* Install on left side cylinders No. 2 and 4</p> <p>** Install on right side between cylinders No. 1 and 3</p> <p>*** Use only in complete sets of the same part number</p> |      |               |                                                |                    |



**Figure 15**  
**Intake Pipes Assembly**

**CYLINDER SECTION****| Figure 15 - Intake Pipes Assembly**

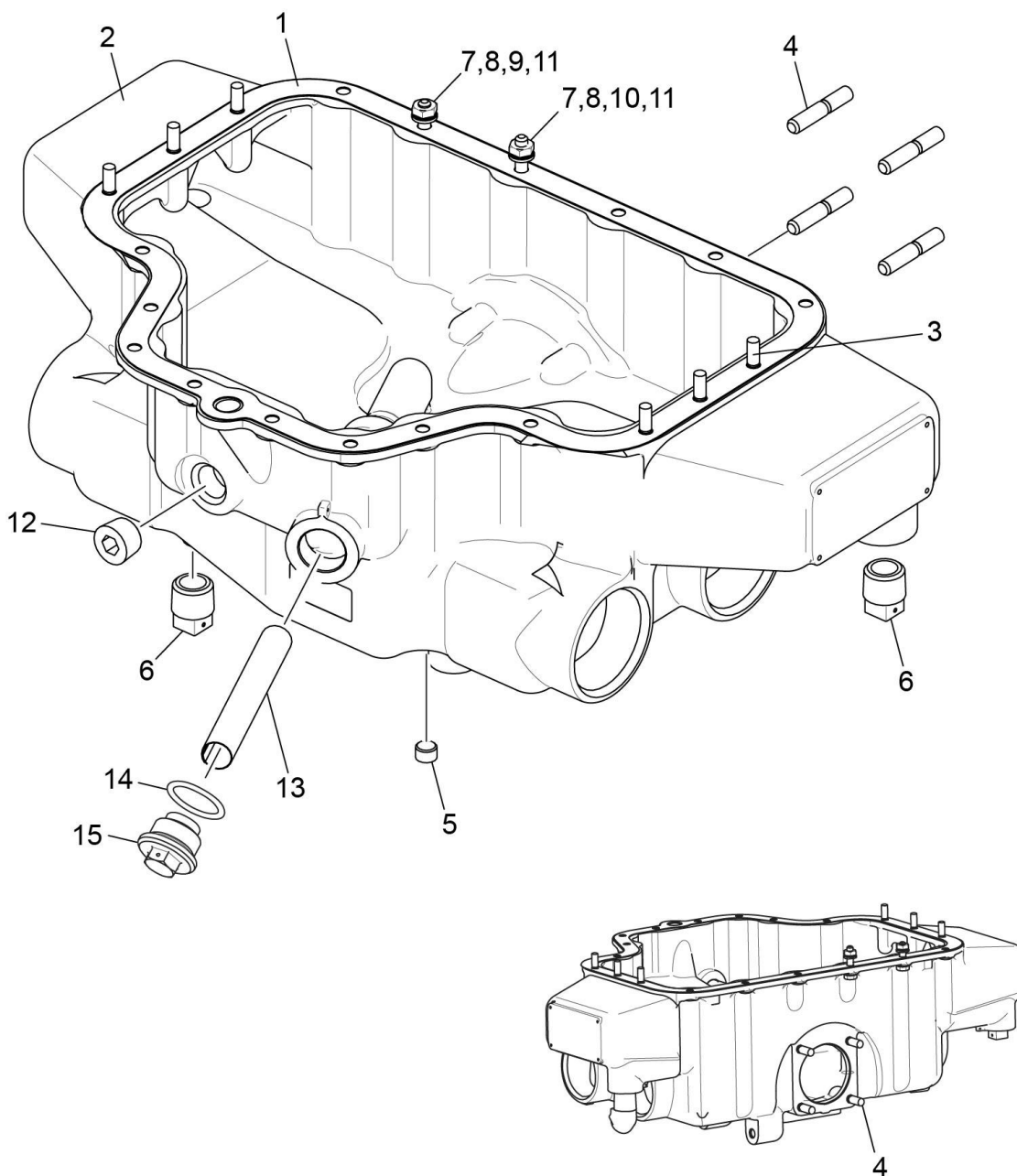
| <b>Figure Item</b> | <b>Code</b> | <b>Part Number</b> | <b>Description</b>                   | <b>Units per Assembly</b> |
|--------------------|-------------|--------------------|--------------------------------------|---------------------------|
| 1                  |             | 77569              | SEAL, Intake pipe                    | 4                         |
| 2                  |             | 78741              | PIPE, Intake, cylinder No. 1         | 1                         |
|                    |             | 78742              | PIPE, Intake, cylinder No. 2         | 1                         |
|                    |             | 78743              | PIPE, Intake, cylinder No. 3         | 1                         |
|                    |             | 78744              | PIPE, Intake, cylinder No. 4         | 1                         |
| 3                  |             | 71973              | GASKET, 2 bolt flange, 1-3/4 I.D.    | 4                         |
| 4                  |             | STD-8              | WASHER, 1/4 plain                    | 8                         |
| 5                  |             | STD-160            | WASHER, 1/4 lock, internal teeth     | 8                         |
| 6                  |             | LW-25-1.25         | BOLT, 1/4-20 x 1-1/4 long, hex. head | 8                         |
| 7                  |             | 75444              | ADAPTER ASSEMBLY, Fuel drain valve   | 1                         |



**Figure 16**  
**Oil Level Gage**

**LUBRICATION SYSTEM****| Figure 16 - Oil Level Gage**

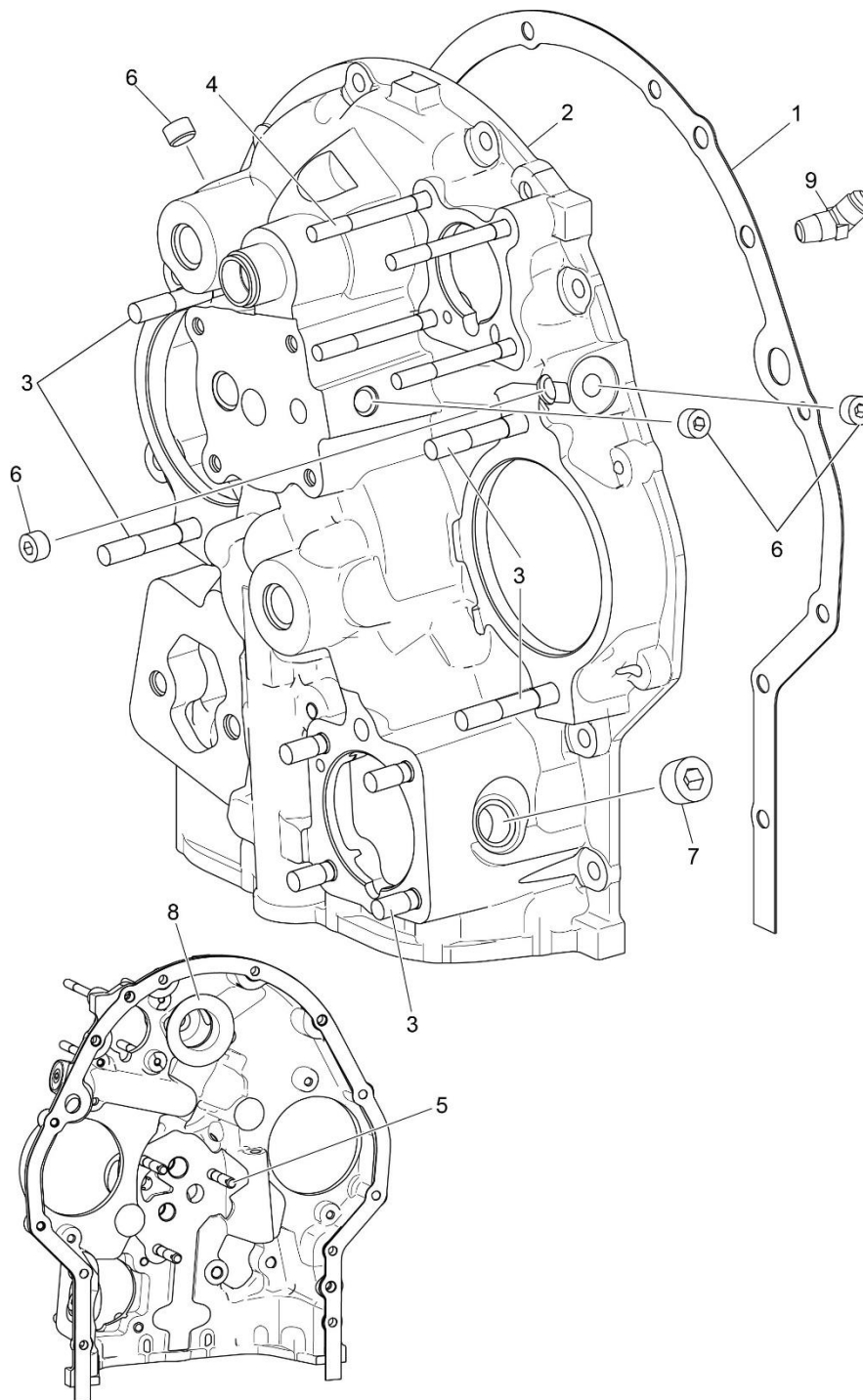
| Figure Item | Code | Part Number | Description                           | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|---------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                       | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 75736       | TUBE, Oil level gage (Long 11.57 in.) | 1                  | 1                | 1                | 1                |
|             |      | 56C23075    | TUBE, Oil level gage (Long 15.08 in.) | 1                  |                  |                  | 1                |
| 2           |      | 72059       | GASKET, Oil level gage                | 1                  | 1                | 1                | 1                |
| 3           |      | 74068       | RING, Oil level gage plug             | 1                  | 1                | 1                | 1                |
|             |      | 74065       | RING, Oil level gage plug             | 1                  |                  |                  | 1                |
| 4           |      | LW-14760    | GAGE ASSEMBLY, Oil level              | 1                  | 1                | 1                | 1                |
|             |      | LW-14763    | GAGE ASSEMBLY, Oil level              | 1                  |                  |                  | 1                |



**Figure 17**  
**Oil Sump Assembly and Oil Suction Screen**

**LUBRICATION SYSTEM****| Figure 17 - Oil Sump Assembly and Oil Suction Screen**

| Figure Item | Code | Part Number   | Description                            | Units per Assembly |                  |                  |                  |
|-------------|------|---------------|----------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |               |                                        | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | LW-13353      | GASKET, Oil sump                       | 1                  | 1                | 1                | 1                |
| 2           |      | LW-13864      | SUMP ASSEMBLY, Oil                     | 1                  | 1                | 1                | 1                |
| 3           |      | 61400         | STUD, 1/4-20 x 1-3/16 long             | 6                  | 6                | 6                | 6                |
| 4           |      | 31C-14        | STUD, 5/16-18 x 1-3/4 long             | 4                  | 4                | 4                | 4                |
| 5           |      | 1102          | PLUG, 1/8 pipe                         | 1                  | 1                | 1                | 1                |
| 6           |      | STD-551       | PLUG, 1/2-14 NPT, square head, drilled | 2                  | 2                | 2                | 2                |
| 7           |      | STD-8         | WASHER, 1/4 plain                      | 26                 | 26               | 26               | 26               |
| 8           |      | STD-160       | WASHER, 1/4 lock, internal teeth       | 20                 | 20               | 20               | 20               |
| 9           |      | LW-25-0.94    | BOLT, 1/4-20 x 15/16 long, hex. head   | 12                 | 12               | 12               | 12               |
| 10          |      | LW-25-1.13    | BOLT, 1/4-20 x 1-1/8 long, hex. head   | 2                  | 2                | 2                | 2                |
| 11          |      | STD-1411      | NUT, 1/4-20 plain                      | 12                 | 12               | 12               | 12               |
| 12          |      | STD-2229      | PLUG, 1/2 NPT, Allen head              | 1                  | 1                | 1                | 1                |
| 13          |      | 70484         | SCREEN, Oil suction                    | 1                  | 1                | 1                | 1                |
| 14          |      | 06E19769-1.00 | GASKET, Annular, 1.00 I.D.             | 1                  | 1                | 1                | 1                |
| 15          |      | LW-12545      | PLUG, 5/8 hex. head x 1.00-20 thread   | 1                  | 1                | 1                | 1                |

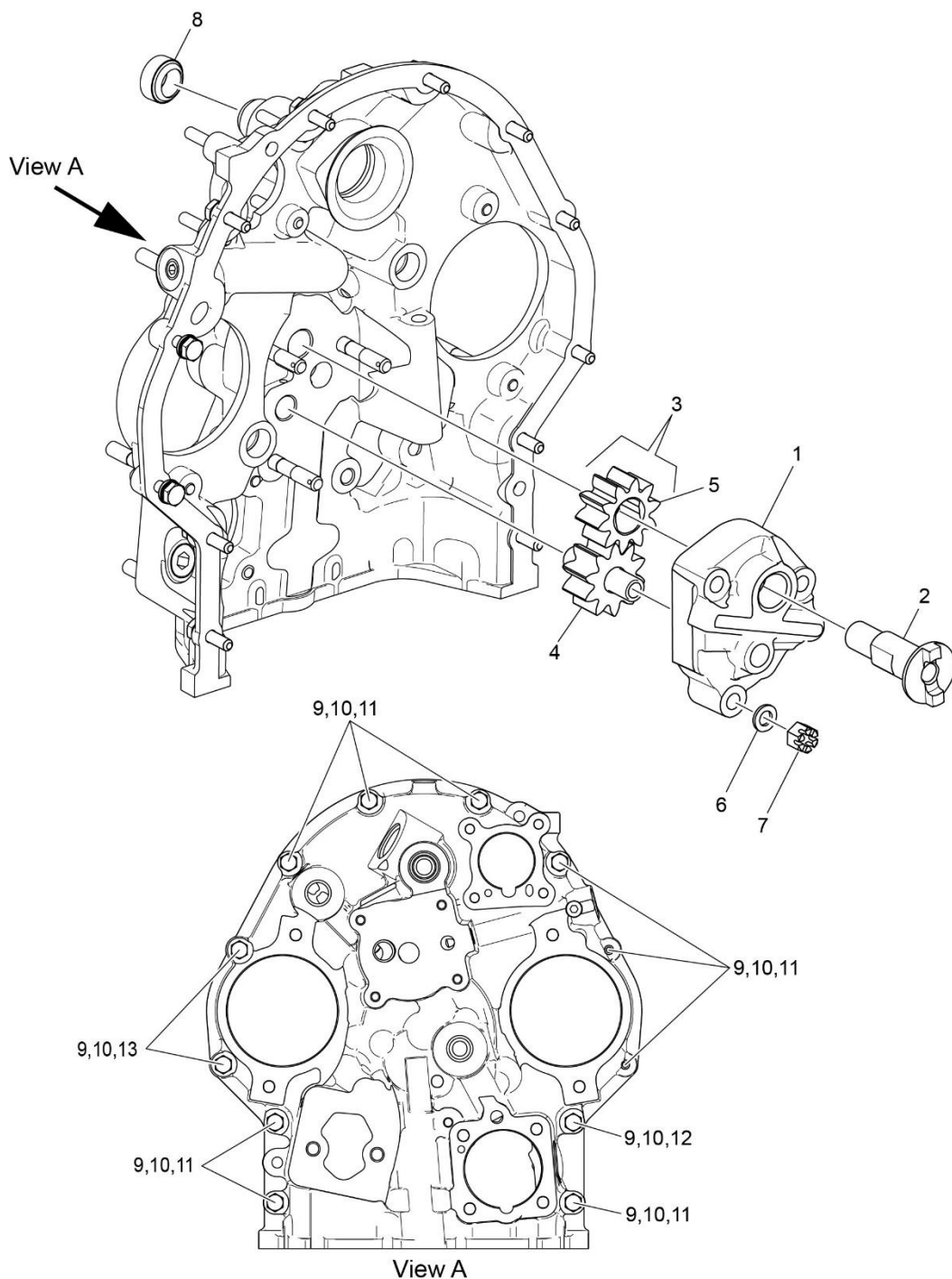


**| Figure 18**  
**Accessory Housing Assembly**

## ACCESSORY DRIVES

| **Figure 18 - Accessory Housing Assembly**

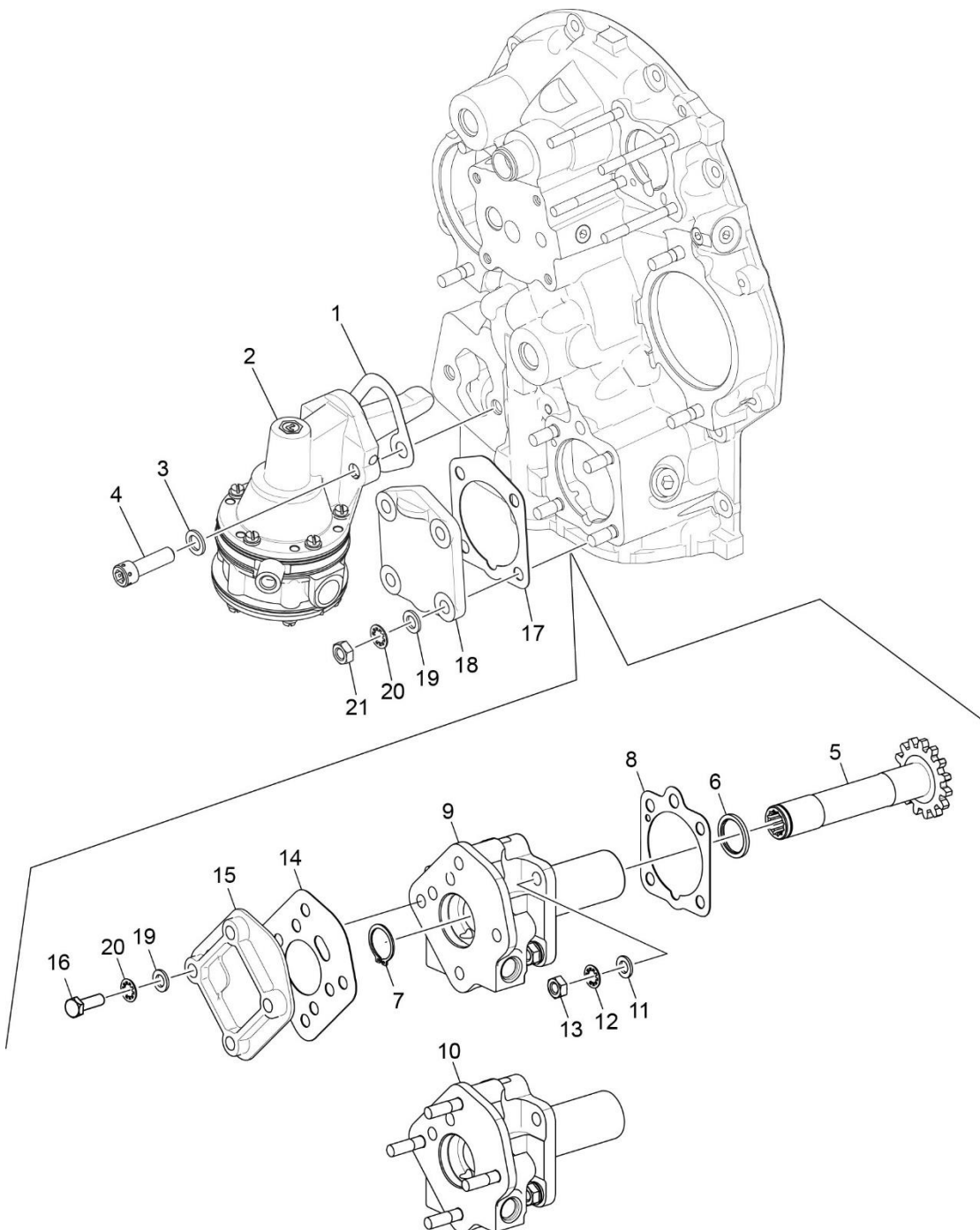
| Figure Item | Code | Part Number | Description                           | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|---------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                       | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 73818       | GASKET, Accessory housing             | 1                  | 1                | 1                | 1                |
| 2           |      | 21A21533-30 | HOUSING, ACCESSORY ASSEMBLY, Studding | 1                  | 1                | 1                | 1                |
|             |      | 21A21533-26 | HOUSING ASSEMBLY, Accessory studding  |                    | 1                |                  |                  |
|             |      | 21A21533-27 | HOUSING ASSEMBLY, Accessory studding  | 1                  |                  |                  |                  |
|             |      | 21A21533-33 | HOUSING ASSEMBLY, Accessory studding  |                    |                  |                  | 1                |
| 3           |      | 31C-12      | STUD, 5/16-18 x 1-1/2 long            | 8                  | 8                | 8                | 8                |
| 4           |      | 25C-22      | STUD, 1/4-20 x 2-3/4 long             | 4                  | 4                | 4                | 4                |
|             |      | 25C-12      | STUD, 1/4-20 x 1-1/2 long             |                    | 4                |                  |                  |
|             |      | 61400       | STUD, 1/4-20 x 1-3/16 long            |                    |                  |                  | 4                |
| 5           |      | 31CD-17     | STUD, 5/16-18 x 2-1/8 long drilled    | 3                  | 3                | 3                | 3                |
| 6           |      | 1102        | PLUG, 1/8 pipe                        | 4                  | 4                | 4                | 4                |
| 7           |      | STD-784     | PLUG, 3/8-18 NPT, Allen head          | 1                  | 1                | 1                | 1                |
| 8           |      | 76119       | SHIELD, Accessory breather oil        | 1                  | 1                | 1                | 1                |
| 9           |      | MS20823-4   | ELBOW, 1/8 NPT to 1/4 flared tube     |                    |                  |                  | 1                |



**Figure 19**  
**Oil Pump Assembly and Accessory Housing Attaching Parts**

**ACCESSORY DRIVES****| Figure 19 - Oil Pump Assembly and Accessory Housing Attaching Parts**

| Figure Item | Code | Part Number | Description                           | Units per Assembly |
|-------------|------|-------------|---------------------------------------|--------------------|
| 1           |      | 78531       | BODY ASSEMBLY, Oil pump               | 1                  |
| 2           |      | 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           |      | LW-14260    | SEAL, Tachometer drive, oil           | 1                  |
| 9           |      | STD-8       | WASHER, 1/4 plain                     | 12                 |
| 10          |      | STD-160     | WASHER, 1/4 lock, internal teeth      | 12                 |
| 11          |      | LW-25-0.94  | BOLT, 1/4-20 x 15/16 long, hex. head  | 9                  |
| 12          |      | LW-25-1.13  | BOLT, 1/4-20 x 1-1/8 long, hex. head  | 1                  |
| 13          |      | LW-25-1.44  | BOLT, 1/4-20 x 1-7/16 long, hex. head | 2                  |

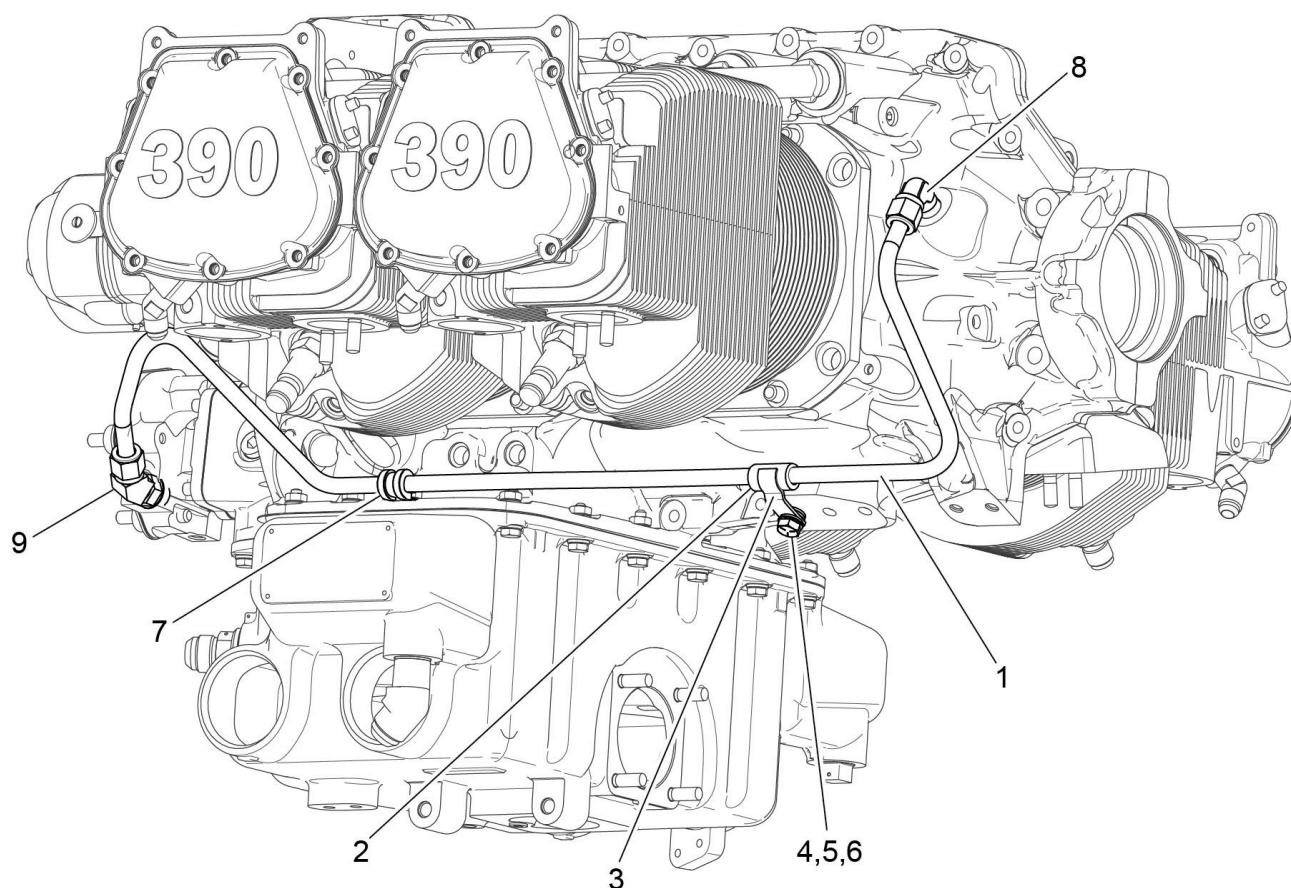


**Figure 20**  
**Fuel Pump, Propeller Governor Drive Adapter and Cover**

## ACCESSORY DRIVES

| **Figure 20 - Fuel Pump, Propeller Governor Drive Adapter and Cover**

| Figure Item                                                | Code | Part Number | Description                                       | Units per Assembly |                  |                  |                  |
|------------------------------------------------------------|------|-------------|---------------------------------------------------|--------------------|------------------|------------------|------------------|
|                                                            |      |             |                                                   | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1                                                          |      | 60096       | GASKET, Fuel pump                                 | 1                  | 1                | 1                | 1                |
| 2                                                          |      | 62B26931    | FUEL PUMP, High Pressure                          | 1                  | 1                | 1                | 1                |
| 3                                                          |      | STD-33      | WASHER, 3/8 plain                                 | 2                  | 2                | 2                | 2                |
| 4                                                          |      | STD-1882    | SCREW, 3/8-16 x 1-9/32 long, socket head, drilled | 2                  | 2                | 2                | 2                |
| 5                                                          |      | 68317       | SHAFTGEAR, Propeller Governor Drive               | 1                  | 1                |                  |                  |
| 6                                                          |      | 71596       | WASHER, Accessory drive gear                      | 1                  | 1                |                  |                  |
| 7                                                          |      | STD-1221    | RING, 13/16 diameter x 1/32 thick                 | 1                  | 1                |                  |                  |
| 8                                                          |      | 68315       | GASKET, Accessory drive adapter                   | 1                  | 1                |                  |                  |
| 9                                                          |      | 78594 ▲     | ADAPTER ASSY., Propeller gov. drive               | 1                  | 1                |                  |                  |
| 10                                                         |      | 75153 ■     | ADAPTER ASSY., Propeller gov. drive (with studs)  | 1                  | 1                |                  |                  |
|                                                            |      | 20D28263 ♦  | ADAPTER ASSY., Propeller gov. drive (with studs)  |                    | 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                |                  |                  |
| 14                                                         |      | 72053       | GASKET, Governor                                  | 1                  | 1                |                  |                  |
| 15                                                         |      | 72378       | COVER, Governor drive                             | 1                  | 1                |                  |                  |
| 16                                                         |      | LW-31H1.22  | BOLT, 5/16-18 x 1.22 long                         | 1                  | 1                |                  |                  |
| 17                                                         |      | 69551       | GASKET, Governor                                  |                    |                  | 1                | 1                |
| 18                                                         |      | 69106       | COVER, Governor                                   |                    |                  | 1                | 1                |
| 19                                                         |      | STD-35      | WASHER, 5/16 plain                                | 4                  | 4                | 4                | 4                |
| 20                                                         |      | STD-475     | WASHER, 5/16 lock, internal teeth                 | 4                  | 4                | 4                | 4                |
| 21                                                         |      | STD-1410    | NUT, 5/16-18 plain                                | 4                  | 4                | 4                | 4                |
| ■ Woodward governor    ▲ "AN" governor    ♦ Hartzell S-4-5 |      |             |                                                   |                    |                  |                  |                  |

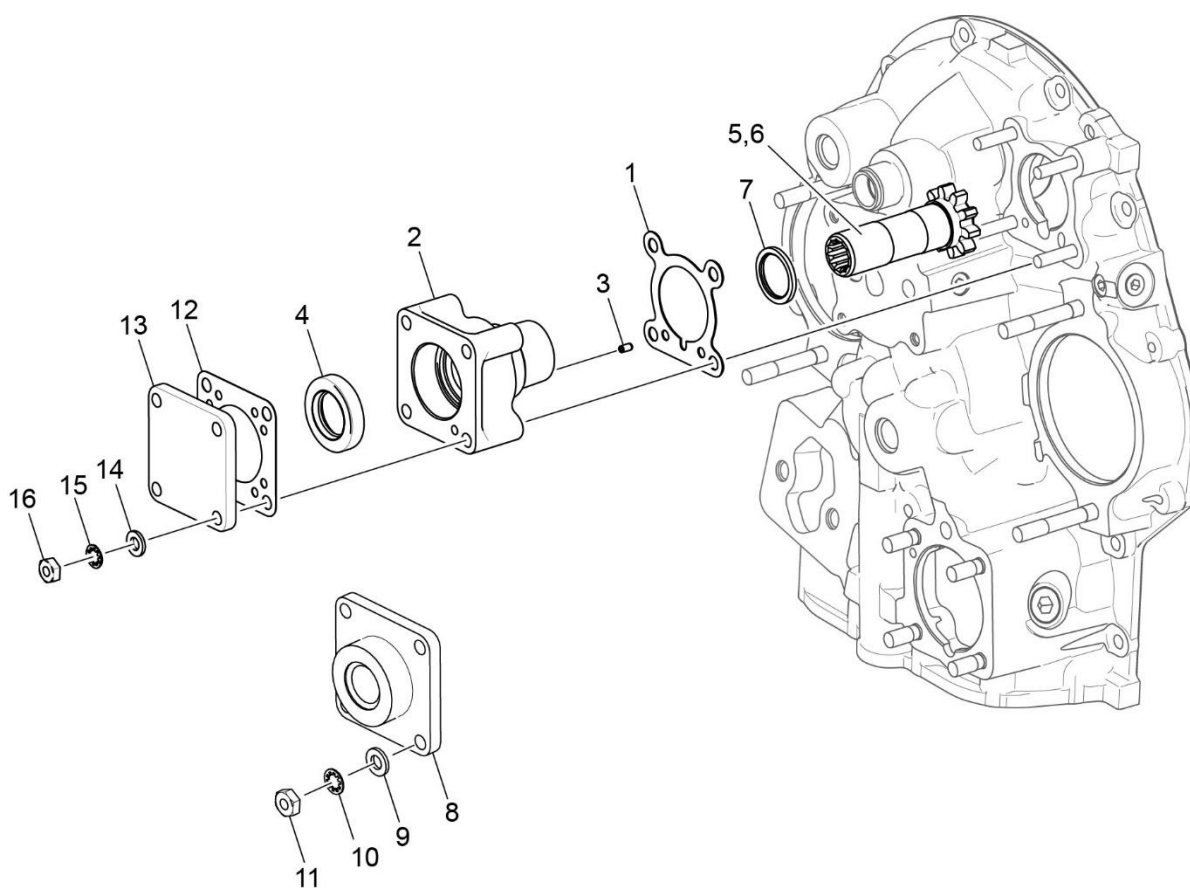


**Figure 21**  
**Propeller Governor Oil Line Tube Assembly and Attaching Parts**

## ACCESSORY DRIVES

**Figure 21 - Propeller Governor Oil Line Tube Assembly and Attaching Parts**

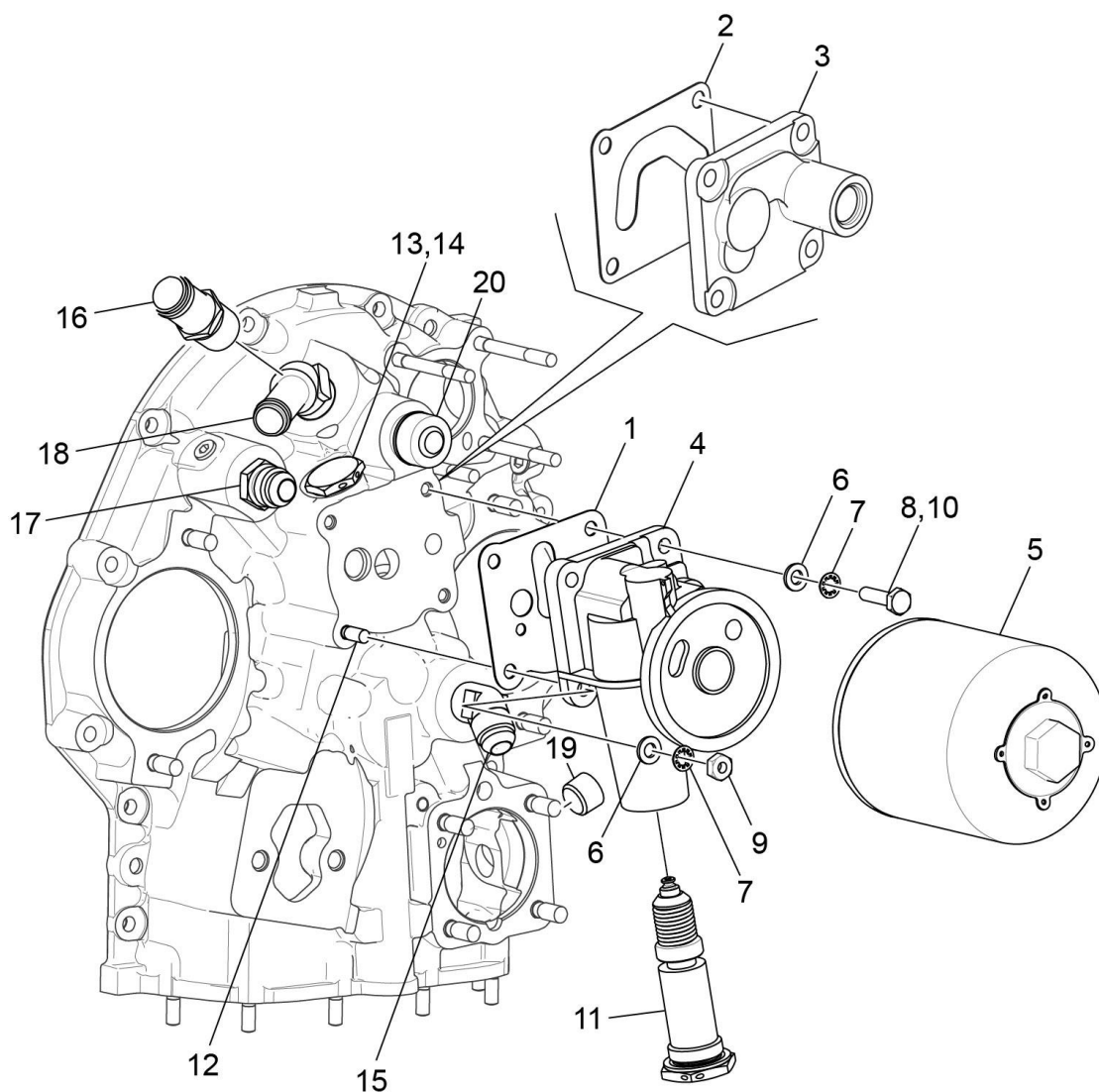
| Figure Item | Code | Part Number  | Description                               | Units per Assembly |                  |                  |                  |
|-------------|------|--------------|-------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |              |                                           | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 75167        | TUBE ASSEMBLY, Propeller governor oil     | 1                  |                  |                  |                  |
|             |      | 75730        | TUBE ASSEMBLY, Propeller governor oil     |                    | 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- | 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 22**  
**Vacuum Pump Drive and Cover**

**ACCESSORY DRIVES****| Figure 22 - Vacuum Pump Drive and Cover**

| <b>Figure Item</b> | <b>Code</b> | <b>Part Number</b> | <b>Description</b>                     | <b>Units per Assembly</b> |
|--------------------|-------------|--------------------|----------------------------------------|---------------------------|
| 1                  |             | 61183              | GASKET, Accessory adapter              | 1                         |
| 2                  |             | 61098              | ADAPTER ASSEMBLY, Vacuum pump          | 1                         |
| 3                  |             | STD-1774           | PIN, 1/8 diameter x 1/4 long           | 1                         |
| 4                  |             | 06A19956           | OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 | 1                         |
| 5                  |             | 72970              | GEAR ASSEMBLY, Vacuum pump driven      | 1                         |
| 6                  |             | 72962              | THRUST BUTTON, Vacuum pump gear        | 1                         |
| 7                  |             | 71596              | WASHER, Accessory drive gear           | 1                         |
| 8                  |             | 8313               | GASKET, Vacuum pump                    | 1                         |
| 9                  |             | 60430              | COVER, Vacuum pump                     | 1                         |
| 10                 |             | STD-8              | WASHER, 1/4 plain                      | 4                         |
| 11                 |             | STD-160            | WASHER, 1/4 lock, internal teeth       | 4                         |
| 12                 |             | STD-1411           | NUT, 1/4-20 plain                      | 4                         |

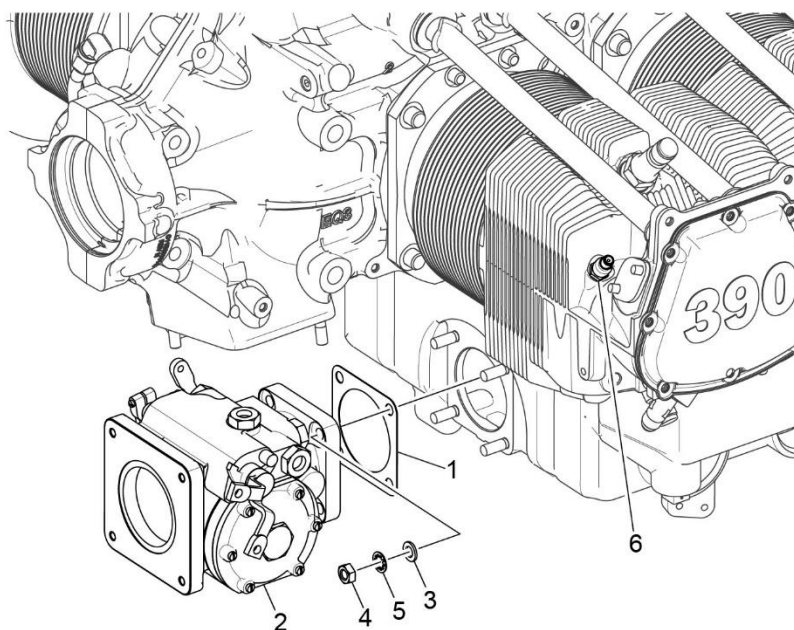
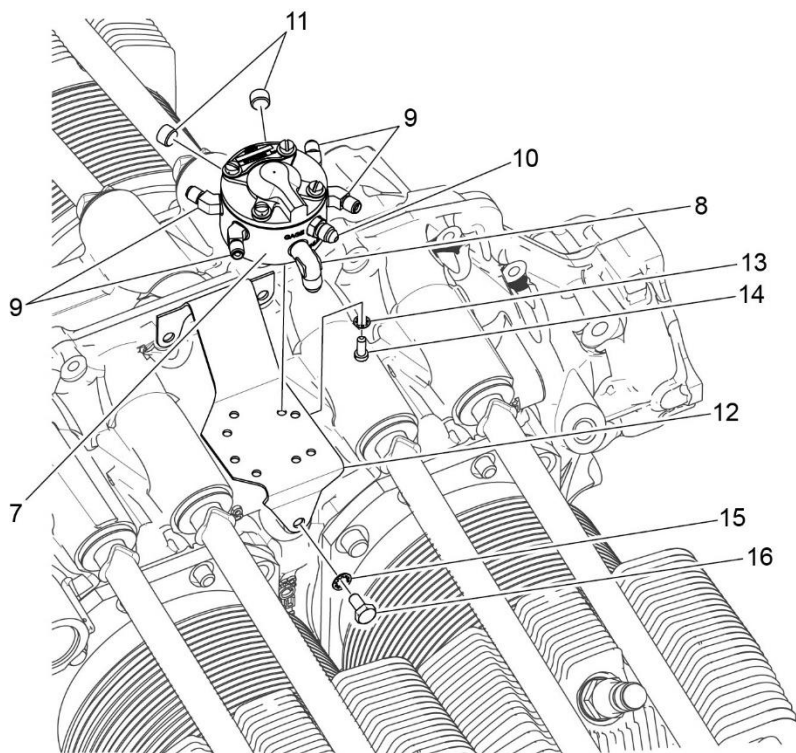


**Figure 23**  
**Oil Filter Assembly, Oil Cooler Bypass Valve, and Fittings**

## ACCESSORY DRIVES

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

| Figure Item                                                                            | Code | Part Number   | Description                                      | Units per Assembly |                  |                  |                  |
|----------------------------------------------------------------------------------------|------|---------------|--------------------------------------------------|--------------------|------------------|------------------|------------------|
|                                                                                        |      |               |                                                  | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1                                                                                      | *    | 06B23862      | GASKET, Oil filter adapter                       | 2                  | 2                | 2                | 2                |
| 2                                                                                      |      | 06B21644      | GASKET, Oil filter base cover (Remote Filter)    |                    |                  | 1                |                  |
| 3                                                                                      |      | 21M23736      | COVER, Oil filter base (Remote Filter)           |                    |                  | 1                |                  |
| 4                                                                                      |      | 77852         | OIL FILTER BASE ASSEMBLY                         | 1                  | 1                | 1                | 1                |
| 5                                                                                      |      | LW-13215      | OIL FILTER, Short, CH48110-1                     | 1                  | 1                | 1                | 1                |
| 6                                                                                      |      | STD-8         | WASHER, 1/4 plain                                | 4                  | 4                | 4                | 4                |
| 7                                                                                      |      | STD-160       | WASHER, 1/4 lock, internal teeth                 | 4                  | 4                | 4                | 4                |
| 8                                                                                      |      | LW-25-0.94    | BOLT, 1/4-20 x 15/16 long, hex. head             |                    |                  | 3                |                  |
| 9                                                                                      |      | STD-1411      | NUT, 1/4-20 plain                                | 1                  | 1                | 1                | 1                |
| 10                                                                                     |      | LW-25-1.00    | BOLT, 1/4-20 x 1.00 long, hex. head              | 3                  | 3                | 3                | 3                |
|                                                                                        |      | LW-25H-1.00   | BOLT, Drilled hex head, 1/4-20 x 1.00 long       |                    |                  | 1                |                  |
| 11                                                                                     |      | 53E22144      | VALVE ASSEMBLY, Temp. control, oil cooler bypass | 1                  | 1                | 1                | 1                |
| 12                                                                                     |      | 25C-10        | STUD, 1/4-20 x 1-1/4 long                        | 1                  | 1                | 1                | 1                |
| 13                                                                                     |      | 06E19769-0.63 | GASKET, Annular, 5/8 I.D.                        | 1                  | 1                | 1                | 1                |
| 14                                                                                     |      | 62417         | PLUG, Oil cooler bypass                          | 1                  | 1                | 1                | 1                |
| 15                                                                                     |      | MS20823-8     | ELBOW, 3/8 NPT, 1/2 flared tube                  | 1                  | 1                | 1                | 1                |
| 16                                                                                     |      | 71140         | FITTING, Breather                                | 1                  |                  | 1                | 1                |
| 17                                                                                     |      | AN816-8       | NIPPLE, 1/2 flared tube                          | 1                  | 1                | 1                | 1                |
| 18                                                                                     |      | AN844-10D     | ELBOW, Pipe                                      | 1                  | 1                |                  |                  |
| 19                                                                                     |      | 62732         | CAP, Tachometer drive                            | 1                  | 1                | 1                | 1                |
| * One of the oil filter adapter gaskets P/N 06B23862 is shipped loose with the engine. |      |               |                                                  |                    |                  |                  |                  |

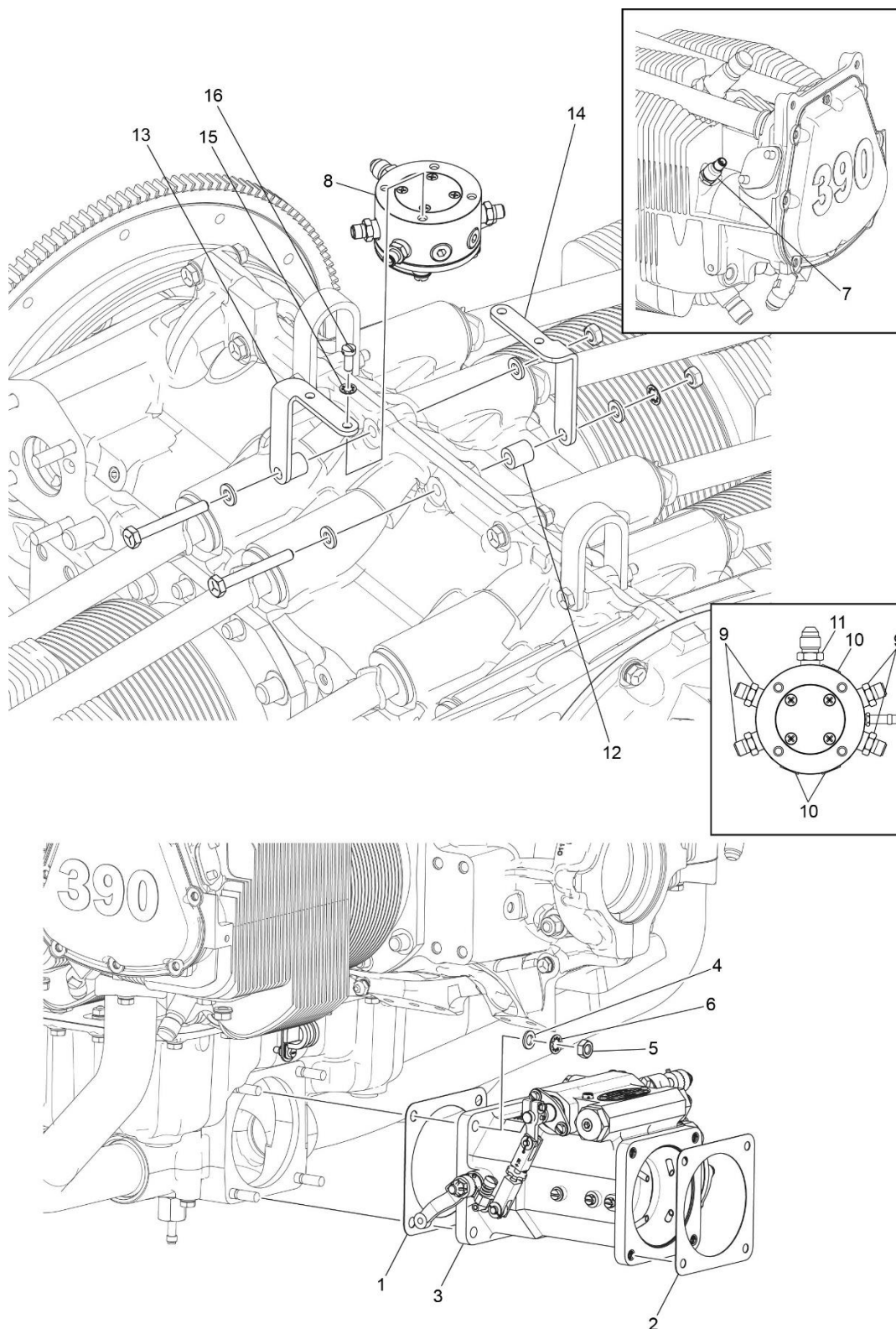


**Figure 24A**  
**Fuel Injector, Fuel Manifold Assembly, and Brackets**

## FUEL DISTRIBUTION

Figure 24A - Fuel Injector, Fuel Manifold Assembly, and Brackets

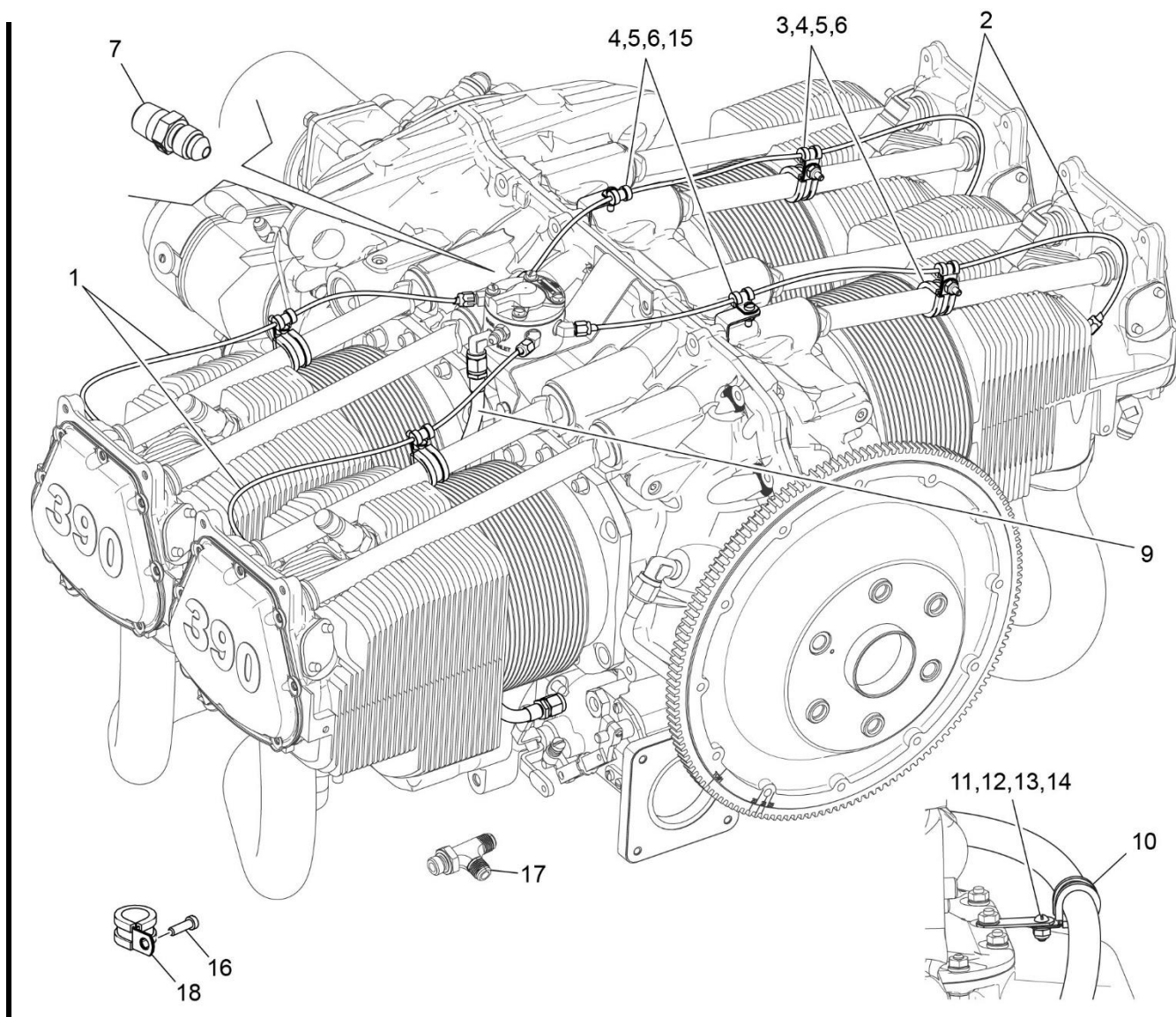
| Figure Item | Code | Part Number | Description                             | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|-----------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                         | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 66224       | GASKET, Carburetor                      | 1                  | 1                | 1                | 1                |
| 2           |      | 61J26426    | FUEL INJECTOR, LFR-NNSS5 AV 2524054-11  | 1                  | 1                | 1                | 1                |
| 3           |      | STD-35      | WASHER, 5/16 plain                      | 4                  | 4                | 4                | 4                |
| 4           |      | STD-1410    | NUT, 5/16-18 plain                      | 4                  | 4                | 4                | 4                |
| 5           |      | STD-475     | WASHER, 5/16 lock, internal teeth       | 4                  | 4                | 4                | 4                |
| 6           |      | 63C26450    | NOZZLE, Injection, low, AV 2524864-2    | 4                  | 4                | 4                | 4                |
| 7           |      | 63B26702    | MANIFOLD ASSEMBLY                       | 1                  |                  | 1                | 1                |
|             |      | 63B26724    | MANIFOLD ASSEMBLY                       |                    | 1                |                  |                  |
| 8           |      | MS20822-4   | ELBOW, 1/8 NPT to 1/4 tube, 90°         | 1                  | 1                | 1                | 1                |
| 9           |      | AN791-2     | ELBOW, Union 45°, 1/8 tube              | 4                  | 4                | 4                | 4                |
| 10          |      | 02G21382    | NIPPLE, Nozzle pressure gauge           | 1                  | 1/0              | 1                | 1                |
| 11          |      | 1102        | PLUG, 1/8 pipe                          | 2                  | 2/3              | 2                | 2                |
| 12          |      | 75009       | BRACKET, Fuel manifold                  | 1                  | 1                | 1                | 1                |
| 13          |      | STD-251     | WASHER, No. 10, internal lock           | 4                  | 4                | 4                | 4                |
| 14          |      | STD-82      | SCREW, No. 10-24 x 1/2 long, fill. head | 4                  | 4                | 4                | 4                |
| 15          |      | STD-160     | WASHER, 1/4 lock, internal teeth        | 1                  | 1                | 1                | 1                |
| 16          |      | LW-25-0.50  | BOLT, 1/4-20 x 1/2 long, hex. head      | 1                  | 1                | 1                | 1                |



**Figure 24B**  
**Fuel Injector, Fuel Manifold Assembly, and Brackets**

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

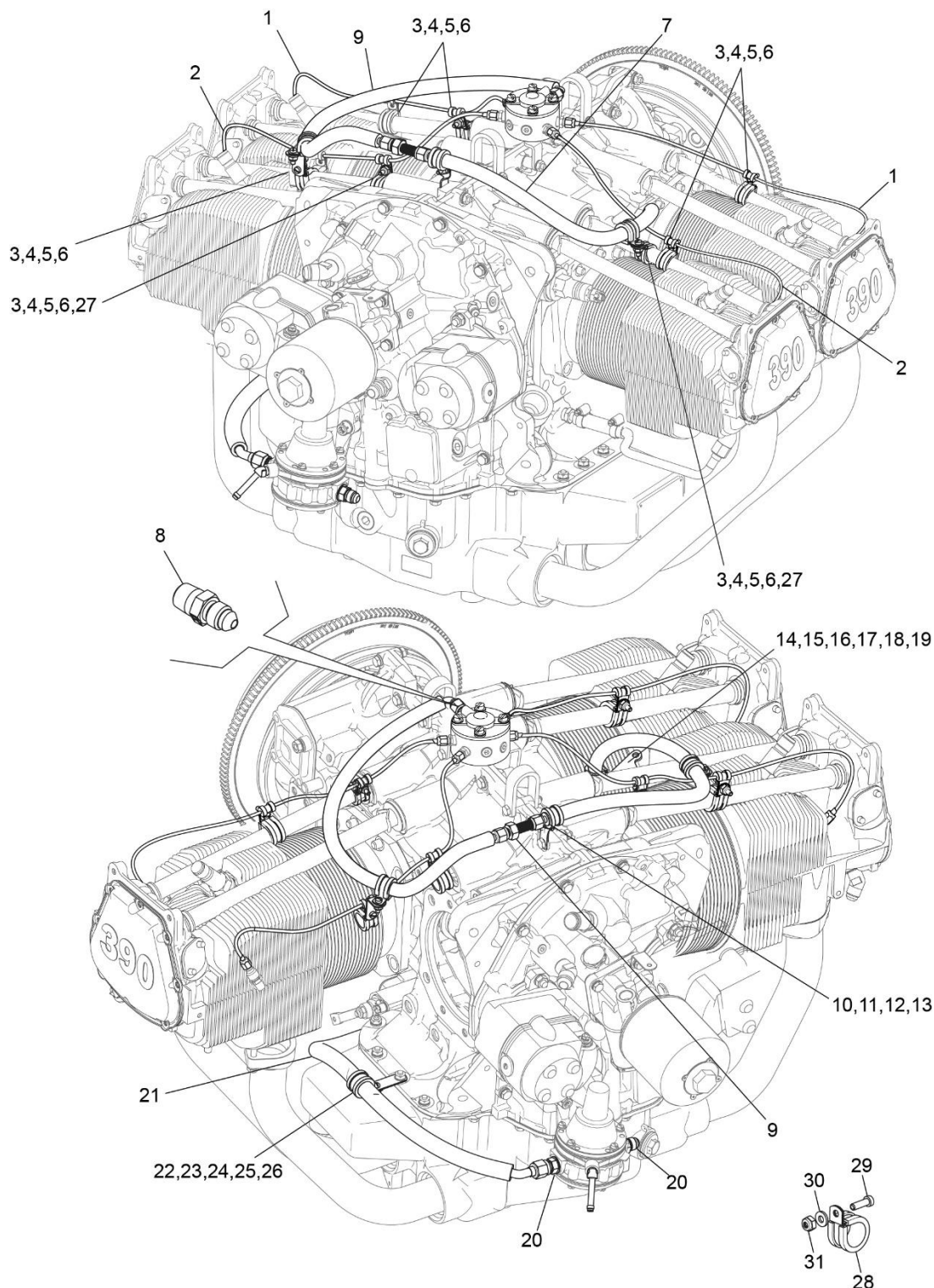
| Figure Item | Code | Part Number | Description                          | Units per Assembly |                  |                  |                  |
|-------------|------|-------------|--------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |             |                                      | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | 66224       | GASKET, Carburetor                   |                    |                  |                  | 1                |
| 2           |      | 77504       | GASKET, Fuel injector                |                    |                  |                  | 1                |
| 3           |      | 61J28175    | FUEL INJECTOR, LFR-NNSS5 AV2581000   |                    |                  |                  | 1                |
| 4           |      | STD-35      | WASHER, 5/16 plain                   |                    |                  |                  | 4                |
| 5           |      | STD-1410    | NUT, 5/16-18 plain                   |                    |                  |                  | 4                |
| 6           |      | STD-475     | WASHER, 5/16 lock, internal teeth    |                    |                  |                  | 4                |
| 7           |      | 63C26450    | NOZZLE, Injection, low, AV 2524864-2 |                    |                  |                  | 4                |
| 8           |      | 63B8207     | MANIFOLD ASSY, Fuel                  |                    |                  |                  | 1                |
| 9           |      | STD-148     | NIPPLE, Union,-.1/8 NPT              |                    |                  |                  | 4                |
| 10          |      | 1102        | PLUG, 1/8 pipe                       |                    |                  |                  | 3                |
| 11          |      | AN816-4     | NIPPLE, 1/8 NPT to 1/4 tube          |                    |                  |                  | 1                |
| 12          |      | 73966       | SPACER, Fuel manifold bracket        |                    |                  |                  | 2                |
| 13          |      | 07A22995    | BRACKET, Fuel manifold               |                    |                  |                  | 1                |
| 14          |      | 07A22996    | BRACKET, Fuel manifold               |                    |                  |                  | 1                |
| 15          |      | STD-251     | WASHER, No. 10 inter                 |                    |                  |                  | 4                |
| 16          |      | STD-82      | SCREW, No. 10-24                     |                    |                  |                  | 4                |



**Figure 25A**  
**Fuel Lines, Fuel Hoses, and Attaching Parts**

**FUEL DISTRIBUTION****Figure 25A - Fuel Lines, Fuel Hoses, and Attaching Parts**

| Figure Item | Code | Part Number    | Description                             | Units per Assembly |            |            |            |
|-------------|------|----------------|-----------------------------------------|--------------------|------------|------------|------------|
|             |      |                |                                         | A 1<br>A 6         | A 3<br>A 6 | A 1<br>B 6 | A 3<br>B 6 |
| 1           |      | LW-12098-0-140 | TUBE ASSEMBLY, Fuel                     | 2                  | 2          | 2          | 2          |
| 2           |      | LW-12098-0-210 | TUBE ASSEMBLY, Fuel injector line       | 2                  | 2          | 2          | 2          |
| 3           |      | LW-16266-10-75 | CLAMP                                   | 4                  | 4          | 4          | 4          |
| 4           |      | LW-16266-10-13 | CLAMP, 1/8 diameter for No.10 screw     | 6                  | 6          | 6          | 6          |
| 5           |      | STD-860        | SCREW, No. 10-32 x 5/8 long, fill. head | 6                  | 6          | 6          | 6          |
| 6           |      | STD-670        | LOCK NUT, No. 10-32                     | 6                  | 6          | 6          | 6          |
| 7           |      | LW-16562       | NIPPLE, 3/8 flared tube, 9/16-18        | 1                  | 1          | 1          | 1          |
| 8           |      | LW-12799-6S254 | HOSE ASSEMBLY, 3/8 hose, straight       | 1                  | 1          | 1          | 1          |
| 9           |      | LW-12798-4S172 | HOSE ASSEMBLY, 1/4 hose, straight       | 1                  | 1          | 1          | 1          |
| 10          |      | LW-16266-10-75 | CLAMP                                   | 1                  | 1          | 1          | 1          |
| 11          |      | 73152          | BRACKET, Support clamp                  | 1                  | 1          | 1          | 1          |
| 12          |      | STD-692        | SCREW, No. 10-32 x 1/2 long, round head | 1                  | 1          | 1          | 1          |
| 13          |      | STD-425        | WASHER, No. 10 plain                    | 1                  | 1          | 1          | 1          |
| 14          |      | STD-670        | LOCK NUT, No. 10-32                     | 1                  | 1          | 1          | 1          |
| 15          |      | 73136          | BRACKET, Extension, fuel injector       | 2                  | 2          | 2          | 2          |
| 16          |      | STD-860        | SCREW, No. 10-32 x 5/8 long, fill. head |                    |            | 1          |            |
| 17          |      | 76355          | TEE, 3/8 tube with 9/16 thread          |                    |            | 1          |            |
| 18          |      | LW-16266-25-75 | CLAMP, 3/4 I.D. x 1/4 dia. screw        |                    |            | 1          |            |



**Figure 25B**  
**Fuel Lines, Fuel Hoses, and Attaching Parts**

**FUEL DISTRIBUTION****Figure 25B - Fuel Lines, Fuel Hoses, and Attaching Parts**

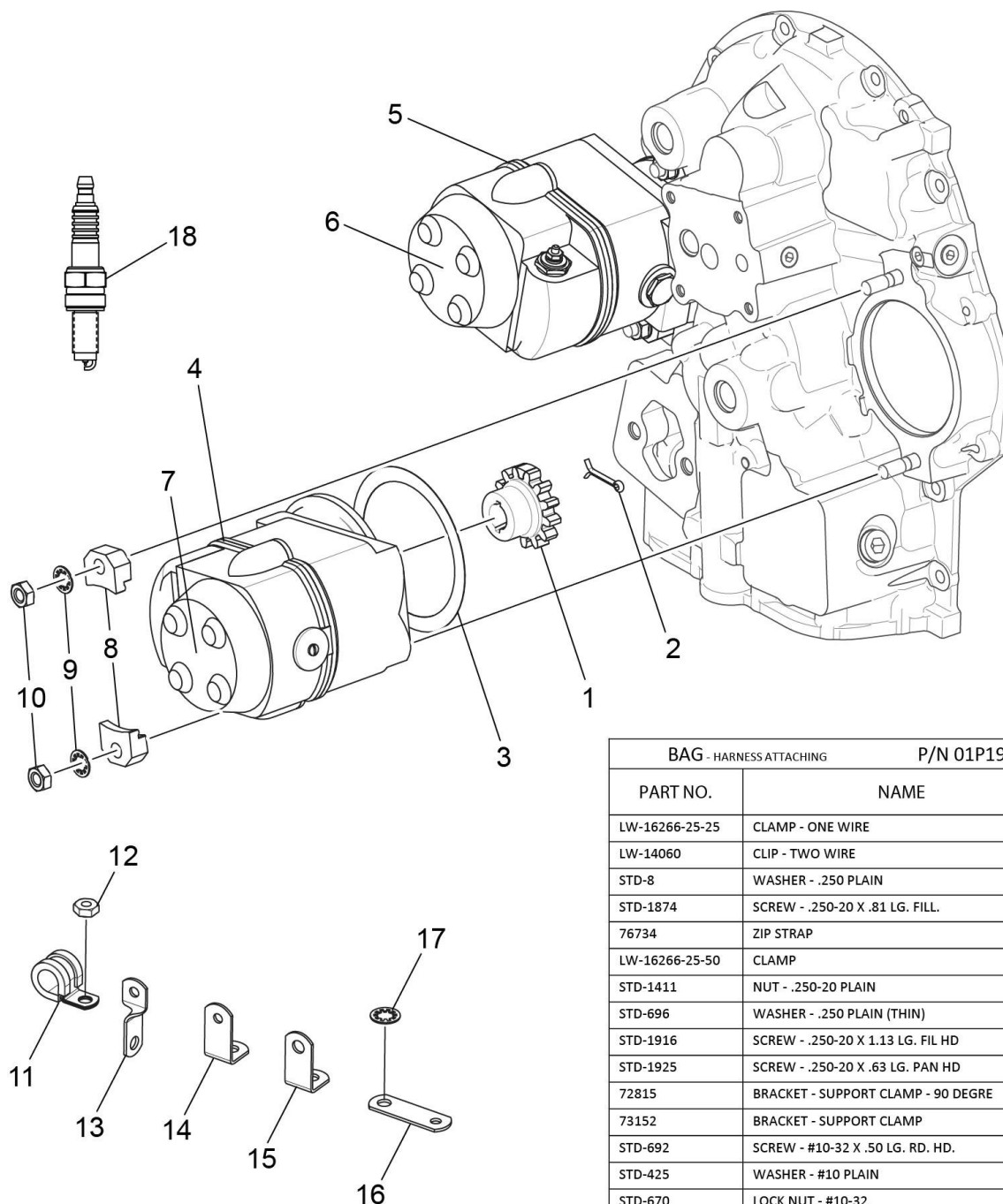
| Figure Item | Code | Part Number    | Description                                                                            | Units per Assembly |                  |                  |                  |
|-------------|------|----------------|----------------------------------------------------------------------------------------|--------------------|------------------|------------------|------------------|
|             |      |                |                                                                                        | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1           |      | LW-12098-0-170 | TUBE ASSEMBLY, Fuel                                                                    |                    |                  |                  | 2                |
| 2           |      | LW-12098-0-190 | TUBE ASSEMBLY, Fuel                                                                    |                    |                  |                  | 2                |
| 3           |      | LW-16266-10-75 | CLAMP, 3/4 ID X #10 SCREW                                                              |                    |                  |                  | 8                |
| 4           |      | LW-16266-10-13 | CLAMP, 1/8 diameter for No.10 screw                                                    |                    |                  |                  | 8                |
| 5           |      | STD-860        | SCREW, No. 10-32 x 5/8 long, fill. head                                                |                    |                  |                  | 8                |
| 6           |      | STD-670        | LOCK NUT, No. 10-32                                                                    |                    |                  |                  | 8                |
| 7           |      | 02M22637-4S300 | HOSE ASSEMBLY                                                                          |                    |                  |                  | 1                |
| 8           |      | AN815-4        | UNION, 1/4 fl tube                                                                     |                    |                  |                  | 1                |
| 9           |      | 02M28686-4S205 | HOSE ASSEMBLY, Teflon 1/4 hose - 90 degree elbow with straight fitting - 20.625 length |                    |                  |                  | 1                |
| 10          |      | 72815          | BRACKET, Support                                                                       |                    |                  |                  | 1                |
| 11          |      | STD-860        | SCREW, #10-32 x 5/8 Lg.-fill. hd                                                       |                    |                  |                  | 1                |
| 12          |      | STD-670        | LOCK NUT, No. 10-32                                                                    |                    |                  |                  | 1                |
| 13          |      | LW-16266-10-63 | CLAMP, 5/8 I.D. x No. 10 screw                                                         |                    |                  |                  | 1                |
| 14          |      | 07A28507       | BRACKET ASSY, Fuel line support                                                        |                    |                  |                  | 1                |
| 15          |      | STD-670        | LOCK NUT, No. 10-32                                                                    |                    |                  |                  | 1                |
| 16          |      | STD-692        | SCREW, No. 10-32 x 1/2 long, round head                                                |                    |                  |                  | 2                |
| 17          |      | STD-425        | WASHER, No. 10 plain                                                                   |                    |                  |                  | 3                |
| 18          |      | STD-860        | SCREW, No. 10-32 x 5/8 long, fill. head                                                |                    |                  |                  | 1                |
| 19          |      | LW-16266-10-63 | CLAMP                                                                                  |                    |                  |                  | 1                |
| 20          |      | LW-16562       | NIPPLE, 3/8 flared tube, 9/16-18                                                       |                    |                  |                  | 2                |
| 21          |      | 02M22792-6S221 | HOSE ASSEMBLY                                                                          |                    |                  |                  | 1                |
| 22          |      | LW-16266-10-75 | CLAMP, 3/4 ID X #10 screw                                                              |                    |                  |                  | 1                |
| 23          |      | 73152          | BRACKET, Support clamp                                                                 |                    |                  |                  | 1                |
| 24          |      | STD-692        | SCREW, No. 10-32 x 1/2 long, round head                                                |                    |                  |                  | 1                |
| 25          |      | STD-425        | WASHER, No. 10 plain                                                                   |                    |                  |                  | 1                |

(continued on next page)

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

| Figure Item | Code | Part Number    | Description                       | Units per Assembly |                  |                  |                  |
|-------------|------|----------------|-----------------------------------|--------------------|------------------|------------------|------------------|
|             |      |                |                                   | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 26          |      | STD-670        | LOCK NUT, No. 10-32               |                    |                  |                  | 1                |
| 27          |      | 73136          | BRACKET, Extension, fuel injector |                    |                  |                  | 2                |
| 28          |      | LW-16266-10-63 | CLAMP, 5/8 I.D. x No. 10 screw    |                    |                  |                  | 2                |
| 29          |      | STD-860        | SCREW, #10-32 x 5/8 Lg.-fill. hd  |                    |                  |                  | 2                |
| 30          |      | STD-425        | WASHER, No. 10 plain              |                    |                  |                  | 2                |
| 31          |      | STD-670        | LOCK NUT, No. 10-32               |                    |                  |                  | 2                |

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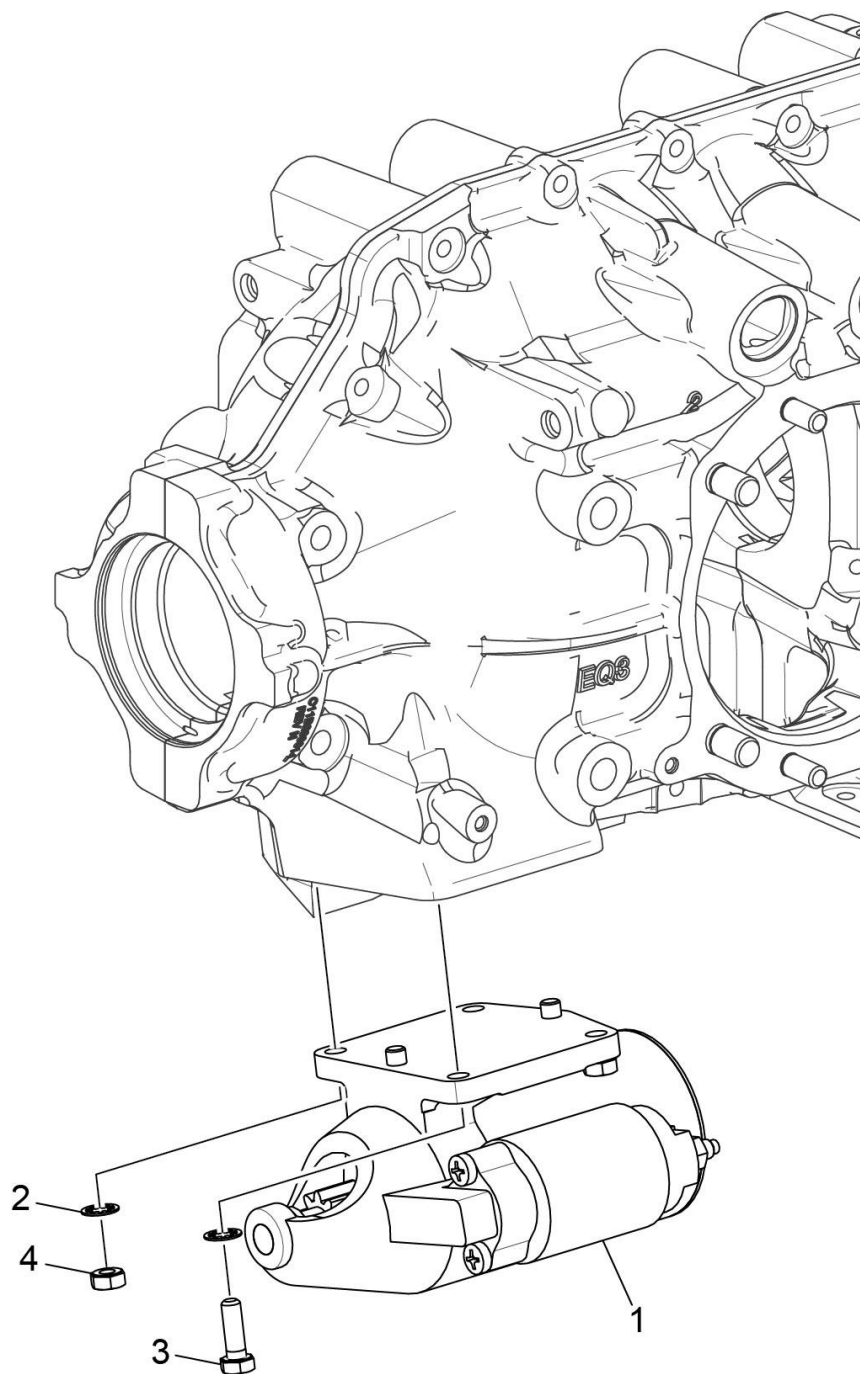


| BAG - HARNESS ATTACHING |                                             | P/N 01P19762-2-7 |
|-------------------------|---------------------------------------------|------------------|
| PART NO.                | NAME                                        | QTY.             |
| LW-16266-25-25          | 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 Spark Plugs

**DISTRIBUTION****| Figure 26 – Magnetos, Magneto Drives, Harnesses, and Spark Plugs**

| Figure Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Code | Part Number    | Description                            | Units per Assembly |                  |                  |                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------|----------------------------------------|--------------------|------------------|------------------|------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |                |                                        | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      | 68C19622       | GEAR, Magneto                          | 2                  | 2                | 2                | 2                |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      | MS9245-44      | COTTER PIN, 3/32 diameter x 5/8 long   | 2                  | 2                | 2                | 2                |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      | LW-12681       | GASKET, Magneto                        | 2                  | 2                | 2                | 2                |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      | 66GP-0SANN     | MAGNETO, Plain 4370                    | 1                  | 1                | 1                | 1                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | *    | 66GHP-0SBNN    | MAGNETO (ES4370)                       | 1                  | 1                | 1                | 1                |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      | 66GR15SANN     | MAGNETO, Retard 4345                   | 1                  | 1                | 1                | 1                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | *    | 66GHR15SBNN    | MAGNETO (ES4345)                       | 1                  | 1                | 1                | 1                |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | V    | 67P20413       | HARNESS ASSEMBLY, Slick, Left, V M4019 | 1                  | 1                | 1                | 1                |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | V    | 67P20412       | HARNESS ASSEMBLY, Slick, Right, V      | 1                  | 1                | 1                | 1                |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      | 66M21195       | CLAMP, Magneto                         | 4                  | 4                | 4                | 4                |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      | STD-475        | WASHER, 5/16 lock, internal teeth      | 4                  | 4                | 4                | 4                |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | STD-1410       | NUT, 5/16-18 plain                     | 4                  | 4                | 4                | 4                |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | LW-16266-25-50 | CLAMP                                  |                    |                  | 2                | 2                |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | STD-1411       | NUT, 1/4-20 plain                      |                    |                  | 2                | 2                |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | 72815          | BRACKET, Support clamp, 90°            |                    |                  | 5                | 5                |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | 73136          | BRACKET, Extension, fuel injector line |                    |                  | 3                | 4                |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | 77410          | BRACKET, 90°                           |                    |                  | 2                | 2                |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | 73152          | BRACKET, Support clamp                 |                    |                  | 4                | 4                |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | STD-475        | WASHER, 5/16 lock, internal teeth      |                    |                  | 4                | 4                |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | V**  | 1182-G7        | SPARK PLUG, Champion, REB37E           | 8                  | 8                | 8                | 8                |
| ***                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      | 01P19762-2-7   | BAG, Harness attaching                 | 1                  | 1                | 1                | 1                |
| <p>* Refer to the latest revision of Service Instruction No. 1443 for a listing of approved alternate ignition systems.</p> <p>V Vendor Prime Manufacturer part</p> <p>** Refer to the latest revision of Lycoming Service Instruction No. 1042 for a complete listing of all approved spark plugs.</p> <p>*** 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.</p> |      |                |                                        |                    |                  |                  |                  |



**Figure 27**  
**Starter Motor and Attaching Parts**

## CRANKING

**Figure 27 - Starter Motor and Attaching Parts**

| Figure Item                                                                                                                                                                | Code | Part Number | Description                             | Units per Assembly |                  |                  |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|-----------------------------------------|--------------------|------------------|------------------|------------------|
|                                                                                                                                                                            |      |             |                                         | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 1                                                                                                                                                                          |      | 31B23592    | STARTER, 12/14P 12/24V, (149NL Sky-Tec) | 1                  | 1                |                  |                  |
|                                                                                                                                                                            |      | 31B26554    | STARTER, 12/14P 24V (149NL/EC SKY-Tec ) |                    | 1                |                  | 1                |
|                                                                                                                                                                            |      | 31A22104    | STARTER, Sky-Tec (149-12LS)             | 1                  | 1                | 1                | 1                |
|                                                                                                                                                                            |      | 31B22105    | STARTER, Sky-Tec (149-24LS)             | 1                  |                  | 1                |                  |
| 2                                                                                                                                                                          |      | STD-475     | WASHER, 5/16 lock, internal teeth       | 4                  | 4                | 4                | 4                |
| 3                                                                                                                                                                          |      | LW-31-0.94  | BOLT, 5/16-18 x 15/16 long, hex head    | 1                  | 1                | 1                | 1                |
| 4                                                                                                                                                                          |      | STD-1410    | NUT, 5/16-18 plain                      | 3                  | 3                | 3                | 3                |
| <b>NOTICE:</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                                            | Units per Assembly |                  |                  |                  |
|------------------|------------------------------------------------------|--------------------|------------------|------------------|------------------|
|                  |                                                      | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 05K26640         | KIT - SEAL AND GASKET SET                            | 1                  | 1                | 1                | 1                |
| 05K28818 *       | KIT - SEAL AND GASKET SET                            |                    |                  |                  | 1                |
| AN901-8A         | GASKET, Metal tube connect seal                      | 1                  | 1                | 1                | 1                |
| LW-12681         | GASKET, Magneto                                      | 2                  | 2                | 2                | 2                |
| LW-13353         | GASKET, Oil sump                                     | 1                  | 1                | 1                | 1                |
| LW-14260         | SEAL, Tachometer                                     | 1                  | 1                | 1                | 1                |
| LW-15628         | SEAL, Crankshaft, oil                                | 1                  | 1                | 1                | 1                |
| LW-18639         | LOCKPLATE, Crankshaft gear                           | 1                  | 1                | 1                | 1                |
| LW-18661         | SEAL, Shroud tube                                    | 8                  | 8                | 8                | 8                |
| 06A19956         | SEAL, OIL 7/8 I.D. x 1-1/2 O.D. x 5/16               | 1                  | 1                | 1                | 1                |
| 06A23493         | SEAL, Shroud tube                                    | 8                  | 8                | 8                | 8                |
| 06B23862         | GASKET, Oil filter adapter                           | 2                  | 2                | 2                | 2                |
| 06E19769-0.63    | GASKET, Annular, 5/8 I.D.                            | 1                  | 1                | 1                | 1                |
| 06E19769-1.00 ** | GASKET, Annular 1.00 I.D.                            | 1                  | 1                | 1                | 1                |
| 06E19769-1.25    | GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular       | 1                  | 1                | 1                | 1                |
| 8313             | GASKET, Vacuum                                       | 1                  | 1                | 1                | 1                |
| 60096            | GASKET, Fuel pump                                    | 1                  | 1                | 1                | 1                |
| 61183            | GASKET, Accessory adapter                            | 1                  | 1                | 1                | 1                |
| 66224            | GASKET, Carburetor                                   | 1                  | 1                | 1                | 1                |
| 66732            | GASKET, Valve rocker shaft cover                     | 8                  | 8                | 8                | 8                |
| 67193 **         | GASKET, Rocker box cover                             | 1                  | 1                | 1                | 1                |
| 06B26811         | GASKET, Rocker box cover (Silicone)                  |                    |                  |                  | 4                |
| 68315            | GASKET-Accessory drive adapter                       | 1                  | 1                | 1                | 1                |
| 71481            | RING, Oil seal, 4-27/32 I.D. x 3/32 diameter section | 4                  | 4                | 4                | 4                |
| 71973            | GASKET, 2 bolt flange, 1-3/4 I.D.                    | 4                  | 4                | 4                | 4                |
| 72053            | GASKET, Governor                                     | 1                  | 1                | 1                | 1                |
| 72059            | GASKET, Oil level gage                               | 1                  | 1                | 1                | 1                |
| 72075            | SEAL, Oil, 3/32 section x 7/16 I.D.                  | 2                  | 2                | 2                | 2                |
| 72091            | RING, Oil seal, 0.36 I.D. x 0.10 diameter            | 2                  | 2                | 2                | 2                |
| 73818            | GASKET, Accessory housing                            | 1                  | 1                | 1                | 1                |
| 74068            | RING, Oil level gage plug                            | 1                  | 1                | 1                | 1                |
| 75118 **         | GASKET, Exhaust flange                               | 4                  | 4                | 4                | 4                |
| 77611            | GASKET, Exhaust flange                               |                    |                  |                  | 4                |
| 77569 **         | RING, Seal, Intake pipe                              | 4                  | 4                | 4                | 4                |

**SERVICE KIT SECTION**  
**Seal and Gasket Set (Cont.)**

| Part No.                                                                                                                    | Part Name                        | Units per Assembly |                  |                  |                  |
|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------|------------------|------------------|------------------|
|                                                                                                                             |                                  | A<br>1<br>A<br>6   | A<br>3<br>A<br>6 | A<br>1<br>B<br>6 | A<br>3<br>B<br>6 |
| 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                  | 1                | 1                | 1                |
| * Use Kit P/N 05K28818 only for engines having P/N 06B26811 rocker box cover gasket<br>** Not for use with Kit P/N 05K28818 |                                  |                    |                  |                  |                  |

**SERVICE KIT SECTION**  
**Cylinder, Piston and Ring Assembly**

| Part No. | Part Name                                    | Qty. |
|----------|----------------------------------------------|------|
| 05K26625 | KIT - CYLINDER, PISTON AND RING ASSEMBLY     | 1    |
| 16A26081 | CYLINDER AND HEAD ASSEMBLY                   | 1    |
| 1102     | PLUG, 1/8 pipe                               | 1    |
| 71481    | RING, Oil seal, 3/32 diameter x 4-27/32 I.D. | 1    |
| 14D23911 | PISTON, Compression ratio 8.90:1             | 1    |
| 14G22050 | RING, Piston, compression,                   | 2    |
| 14H29865 | RING, Piston, oil                            | 1    |
| 14J22048 | PIN, Piston                                  | 1    |
| 72198    | PLUG, Piston pin                             | 2    |
| 66732    | GASKET, Valve rocker shaft cover             | 2    |
| 06B26811 | GASKET, Rocker box cover (Silicone)          | 1    |
| 71973    | GASKET, 2 bolt flange, 1-13/16 I.D.          | 1    |
| 06A23493 | SEAL, Shroud tube                            | 2    |
| 71195    | CONTAINER                                    | 1    |
| 75118    | GASKET, Exhaust flange                       | 2    |
| 77569    | RING, Seal, Intake pipe                      | 1    |
| LW-18661 | SEAL, Shroud tube                            | 2    |
| SSP-115  | STICKER                                      | 1    |

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| 01A22453       | STUD          | 27       |
| 01A22453       | STUD          | 29       |
| 01A22453       | STUD          | 31       |
| 01A23544       | STUD          | 19       |
| 01F22880       | SCREW         | 41       |
| 01K28983       | BUSHING       | 33       |
| 01L21418       | WASHER        | 15       |
| 01L21504       | SPACER        | 13       |
| 01L21909       | SPACER        | 8        |
| 01L21916       | SPACER        | 9        |
| 01L23459       | WASHER        | 37       |
| 01P19762-2-7   | BAG           | 73       |
| 02G21382       | NIPPLE        | 37       |
| 02G21382       | NIPPLE        | 63       |
| 02M22637-4S300 | HOSE ASSEMBLY | 69       |
| 02M22792-6S221 | HOSE ASSEMBLY | 69       |
| 02M28686-4S205 | HOSE ASSEMBLY | 69       |
| 05K19423-S     | IMPELLER KIT  | 53       |
| 05U22561       | THERMOCOUPLE  | 35       |
| 06A19956       | OIL SEAL      | 59       |
| 06A23493       | SEAL          | 37       |
| 06B21644       | GASKET        | 61       |
| 06B23862       | GASKET        | 61       |
| 06B26811       | GASKET        | 41       |
| 06E19769-0.63  | GASKET        | 61       |
| 06E19769-1.00  | GASKET        | 49       |
| 06E19769-1.25  | GASKET        | 21       |
| 07A19474       | BRACKET       | 1        |
| 07A19474       | BRACKET       | 2        |
| 07A19880       | BRACKET       | 8        |
| 07A21030       | BRACKET       | 13       |
| 07A21156       | BRACKET       | 4        |
| 07A21157       | BRACKET       | 4        |
| 07A21292       | BRACKET       | 13       |
| 07A21908       | BRACKET       | 8        |
| 07A21910       | BRACKET       | 8        |
| 07A22002       | BRACKET       | 6        |

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| 07A22097     | BRACKET         | 6        |
| 07A22097     | BRACKET         | 8        |
| 07A22125     | BRACKET         | 6        |
| 07A22995     | BRACKET         | 65       |
| 07A22996     | BRACKET         | 65       |
| 07A26130     | BRACKET         | 4        |
| 07A28507     | BRACKET ASSY    | 69       |
| 07F19875     | LINK            | 13       |
| 07F21160     | STRUT           | 4        |
| 07F21298     | LINK            | 8        |
| 07F21998     | LINK            | 6        |
| 07F23268     | STRUT           | 1        |
| 07F23268     | STRUT           | 2        |
| 07F28735     | BRACE           | 8        |
| 07F28736     | LINK            | 13       |
| 1028-B       | BALL            | 21       |
| 1102         | PLUG            | 19       |
| 1102         | PLUG            | 23       |
| 1102         | PLUG            | 35       |
| 1102         | PLUG            | 49       |
| 1102         | PLUG            | 51       |
| 1102         | PLUG            | 63       |
| 1102         | PLUG            | 65       |
| 1182-G7      | SPARK PLUG      | 73       |
| 11U20391-1S  | CRANKCASE ASSY  | 19       |
| 11U28752-1S1 | CRANKCASE ASSY  | 19       |
| 11U28752-1S3 | CRANKCASE ASSY  | 19       |
| 12E23021     | NOZZLE ASSEMBLY | 19       |
| 13C47317     | CRANKSHAFT ASSY | 23       |
| 13C47318     | CRANKSHAFT ASSY | 23       |
| 13S19646     | GEAR            | 23       |
| 14E23911     | PISTON          | 33       |
| 14G22050     | RING            | 33       |
| 14H29865     | RING            | 33       |
| 14J22048     | PIN             | 33       |
| 14W21696     | ROLLER          | 23       |
| 15B21319     | SOCKET          | 37       |

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| 15F28835-53 | ROD ASSEMBLY     | 38       |
| 15F28835-54 | ROD ASSEMBLY     | 38       |
| 15F28835-55 | ROD ASSEMBLY     | 38       |
| 15F28835-56 | ROD ASSEMBLY     | 38       |
| 15F28864-17 | ROD ASSEMBLY     | 38       |
| 15F28864-18 | ROD ASSEMBLY     | 38       |
| 15F28864-19 | ROD ASSEMBLY     | 38       |
| 15F28864-20 | ROD ASSEMBLY     | 38       |
| 15F28864-21 | ROD ASSEMBLY     | 38       |
| 15F28864-22 | ROD ASSEMBLY     | 38       |
| 15G23462    | SHROUD TUBE ASSY | 37       |
| 15H21201    | SPRING           | 37       |
| 15M23452    | CAMSHAFT ASSY    | 25       |
| 15M23456    | CAMSHAFT ASSY    | 25       |
| 15M28669    | CAMSHAFT ASSY    | 25       |
| 16A26081    | CYLINDER ASSY    | 35       |
| 16T19468    | SEAT             | 35       |
| 17A23946    | VALVE            | 37       |
| 17B23935    | VALVE            | 37       |
| 17C19386    | CAP              | 37       |
| 17C21191    | KEY              | 37       |
| 17D29056    | SPRING           | 37       |
| 17D29057    | SPRING           | 37       |
| 17F21187    | ROCKER ASSEMBLY  | 38       |
| 17F21188    | ROCKER ASSEMBLY  | 38       |
| 17J26469    | COVER ASSEMBLY   | 41       |
| 17J26469-C  | COVER ASSEMBLY   | 41       |
| 17M23284    | HOOK             | 43       |
| 18B23885    | BEARING          | 21       |
| 18E23886    | BEARING          | 21       |
| 18M23887    | BEARING          | 33       |
| 20D28263    | ADAPTER ASSY     | 55       |
| 21A21533-26 | HOUSING ASSY     | 51       |
| 21A21533-27 | HOUSING ASSY     | 51       |
| 21A21533-30 | HOUSING          | 51       |
| 21A21533-33 | HOUSING ASSY     | 51       |
| 21M23736    | COVER            | 61       |

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| 23D26777     | PLUNGER          | 25       |
| 25C-10       | STUD             | 61       |
| 25C-12       | STUD             | 51       |
| 25C-22       | STUD             | 51       |
| 25C-8        | STUD             | 35       |
| 31A22104     | STARTER          | 75       |
| 31B22105     | STARTER          | 75       |
| 31B23592     | STARTER          | 75       |
| 31B26554     | STARTER          | 75       |
| 31C-12       | STUD             | 19       |
| 31C-12       | STUD             | 51       |
| 31C-13       | STUD             | 19       |
| 31C-13       | STUD             | 35       |
| 31C-14       | STUD             | 19       |
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| 31C-16       | STUD             | 19       |
| 31C-19       | STUD             | 19       |
| 31CD-17      | STUD             | 51       |
| 31M19861     | SUPPORT ASSY     | 23       |
| 31M21994     | SUPPORT ASSY     | 23       |
| 32B19549     | ALTERNATOR ASSY  | 11       |
| 32B19567     | ALTERNATOR ASSY  | 11       |
| 32C19553     | ALTERNATOR ASSY  | 11       |
| 32C19568     | ALTERNATOR ASSY  | 11       |
| 32C26767     | ALTERNATOR ASSY  | 11       |
| 32C26768     | ALTERNATOR ASSY  | 11       |
| 32F21668     | SPACER           | 11       |
| 32F21674     | SPACER           | 11       |
| 32G21669     | FAN              | 11       |
| 32G21675     | FAN              | 11       |
| 32R21670     | BACK PLATE       | 11       |
| 32R21676     | BACK PLATE       | 11       |
| 36A19951     | PULLEY AND SHAFT | 6        |
| 36A19951     | PULLEY AND SHAFT | 8        |
| 36B19484     | PULLEY           | 11       |
| 36B21996     | PULLEY           | 11       |
| 36B22008     | PULLEY           | 11       |
| 37A19773-376 | BELT             | 11       |
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| 38D-17       | STUD           | 19       |
| 50-15        | STUD           | 19       |
| 53E22144     | VALVE ASSEMBLY | 61       |
| 56C23075     | TUBE           | 47       |
| 60009        | KEY            | 37       |
| 60096        | GASKET         | 55       |
| 60430        | COVER          | 59       |
| 60803        | STRAP          | 27       |
| 60803        | STRAP          | 29       |
| 60803        | STRAP          | 31       |
| 61084        | SPRING         | 21       |
| 61098        | ADAPTER ASSY   | 59       |
| 61174        | SHAFT          | 53       |
| 61183        | GASKET         | 59       |
| 61400        | STUD           | 49       |
| 61400        | STUD           | 51       |
| 61503        | SLEEVE         | 37       |
| 61J26426     | FUEL INJECTOR  | 63       |
| 61J28175     | FUEL INJECTOR  | 65       |
| 62417        | PLUG           | 61       |
| 62732        | CAP            | 61       |
| 62B26931     | FUEL PUMP      | 55       |
| 63B26702     | MANIFOLD ASSY  | 63       |
| 63B26724     | MANIFOLD ASSY  | 63       |
| 63B8207      | MANIFOLD ASSY  | 65       |
| 63C26450     | NOZZLE         | 63       |
| 63C26450     | NOZZLE         | 65       |
| 65614        | PLUG           | 43       |
| 66224        | GASKET         | 63       |
| 66224        | GASKET         | 65       |
| 66670        | BUSHING        | 35       |
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| 66GHP-0SBNN  | MAGNETO        | 73       |

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| 66GP-0SANN  | MAGNETO      | 73       |
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| 66M21195    | CLAMP        | 73       |
| 67193       | GASKET       | 41       |
| 67P20412    | HARNESS ASSY | 73       |
| 67P20413    | HARNESS ASSY | 73       |
| 68315       | GASKET       | 55       |
| 68317       | SHAFTGEAR    | 55       |
| 68668       | SPRING       | 21       |
| 68C19622    | GEAR         | 73       |
| 69106       | COVER        | 55       |
| 69260       | INSERT       | 35       |
| 69551       | GASKET       | 55       |
| 70455       | GASKET       | 15       |
| 70484       | SCREEN       | 49       |
| 71133       | NUT          | 41       |
| 71134       | NUT          | 41       |
| 71140       | FITTING      | 61       |
| 71481       | RING         | 41       |
| 71549       | WASHER       | 38       |
| 71596       | WASHER       | 55       |
| 71596       | WASHER       | 59       |
| 71611       | RETAINER     | 43       |
| 71903-A     | BUSHING      | 23       |
| 71907       | WASHER       | 23       |
| 71973       | GASKET       | 45       |
| 72053       | GASKET       | 15       |
| 72053       | GASKET       | 55       |
| 72059       | GASKET       | 47       |
| 72075       | SEAL         | 21       |
| 72091       | RING         | 21       |
| 72155-S     | BUSHING      | 23       |
| 72158       | BUSHING      | 19       |
| 72198       | PLUG         | 33       |
| 72212       | SEAT         | 35       |
| 72343       | STABILIZER   | 35       |
| 72344       | STABILIZER   | 35       |
| 72378       | COVER        | 15       |
| 72378       | COVER        | 55       |

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| 72703    | TUBE ASSEMBLY | 43       |
| 72710    | COVER         | 41       |
| 72797    | ROLLER        | 23       |
| 72815    | BRACKET       | 69       |
| 72815    | BRACKET       | 73       |
| 72834    | COVER         | 43       |
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| 73027    | TUBE ASSEMBLY | 43       |
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| 73136    | BRACKET       | 70       |
| 73136    | BRACKET       | 73       |
| 73152    | BRACKET       | 67       |
| 73152    | BRACKET       | 69       |
| 73152    | BRACKET       | 73       |
| 73249    | WASHER        | 15       |
| 73250    | WASHER        | 15       |
| 73251    | WASHER        | 15       |
| 73252    | WASHER        | 15       |
| 73383    | LOCKPLATE     | 1        |
| 73383    | LOCKPLATE     | 2        |
| 73810    | BUSHING       | 23       |
| 73818    | GASKET        | 51       |
| 73966    | SPACER        | 65       |
| 74065    | RING          | 47       |
| 74068    | RING          | 47       |
| 74070    | ELBOW         | 57       |
| 74389    | BUSHING       | 38       |
| 74494    | PLATE         | 41       |
| 74711    | PLUG          | 23       |
| 74808    | TUBE ASSEMBLY | 43       |
| 74887    | SPACER        | 41       |
| 74977    | SUPPORT ASSY  | 23       |
| 74996    | GEAR ASSEMBLY | 25       |
| 75009    | BRACKET       | 63       |
| 75060    | BOLT          | 33       |
| 75072    | GEAR ASSEMBLY | 25       |

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| 75167     | TUBE ASSEMBLY   | 57       |
| 75337     | BAFFLE ASSEMBLY | 43       |
| 75338     | BAFFLE ASSEMBLY | 43       |
| 75380     | LINK            | 1        |
| 75380     | LINK            | 2        |
| 75444     | ADAPTER ASSY    | 45       |
| 75656-S   | BUSHING         | 23       |
| 75657-S   | BUSHING         | 23       |
| 75730     | TUBE ASSEMBLY   | 57       |
| 75736     | TUBE            | 47       |
| 75838-P05 | GUIDE           | 35       |
| 76118     | SPACER          | 25       |
| 76119     | SHIELD          | 51       |
| 76121     | SHAFT ASSEMBLY  | 25       |
| 76355     | TEE             | 67       |
| 76534     | SHIM            | 1        |
| 76534     | SHIM            | 2        |
| 76534     | SHIM            | 6        |
| 76534     | SHIM            | 8        |
| 76534     | SHIM            | 9        |
| 76534     | SHIM            | 13       |
| 77410     | BRACKET         | 73       |
| 77450-S   | CONN ROD ASSY   | 33       |
| 77467     | SPRING          | 21       |
| 77504     | GASKET          | 65       |
| 77569     | SEAL            | 45       |
| 77611     | GASKET          | 35       |
| 77808     | VALVE ASSEMBLY  | 21       |
| 77852     | OIL FILTER BASE | 61       |
| 77874     | GEAR ASSY       | 15       |
| 77875     | GEAR            | 15       |
| 78531     | BODY ASSEMBLY   | 53       |
| 78594     | ADAPTER ASSY    | 55       |
| 78741     | PIPE            | 45       |
| 78742     | PIPE            | 45       |
| 78743     | PIPE            | 45       |
| 78744     | PIPE            | 45       |

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| 79024-S        | BUSHING       | 23       |
| 8313           | GASKET        | 59       |
| AN310-7        | NUT           | 4        |
| AN310-7        | NUT           | 6        |
| AN310-7        | NUT           | 13       |
| AN4076-1       | FITTING       | 35       |
| AN565B1032H5   | SET SCREW     | 15       |
| AN6-12         | BOLT          | 9        |
| AN6-13         | BOLT          | 13       |
| AN6-15         | BOLT          | 8        |
| AN6-15         | BOLT          | 13       |
| AN6-16         | BOLT          | 1        |
| AN6-17         | BOLT          | 1        |
| AN6-21         | BOLT          | 8        |
| AN6-21         | BOLT          | 9        |
| AN6-34A        | BOLT          | 27       |
| AN6-34A        | BOLT          | 29       |
| AN6-34A        | BOLT          | 31       |
| AN7-44         | BOLT          | 4        |
| AN7-44         | BOLT          | 6        |
| AN7-46         | BOLT          | 13       |
| AN791-2        | ELBOW         | 63       |
| AN815-4        | UNION         | 69       |
| AN816-4        | NIPPLE        | 65       |
| AN816-8        | NIPPLE        | 61       |
| AN844-10D      | ELBOW         | 61       |
| LRT23381       | BODY ASSEMBLY | 21       |
| LW-10077       | SEAT          | 37       |
| LW-11713       | SPRING        | 21       |
| LW-12098-0-140 | TUBE ASSEMBLY | 67       |
| LW-12098-0-170 | TUBE ASSEMBLY | 69       |
| LW-12098-0-190 | TUBE ASSEMBLY | 69       |
| LW-12098-0-210 | TUBE ASSEMBLY | 67       |
| LW-12186       | NUT           | 33       |
| LW-12545       | PLUG          | 49       |
| LW-12681       | GASKET        | 73       |
| LW-12798-4S172 | HOSE ASSEMBLY | 67       |
| LW-12799-6S254 | HOSE ASSEMBLY | 67       |
| LW-13215       | OIL FILTER    | 61       |
| LW-13321       | SEAT          | 37       |

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| LW-13353       | GASKET        | 49       |
| LW-13793       | STUD          | 19       |
| LW-13796       | SHAFT         | 25       |
| LW-13864       | SUMP ASSEMBLY | 49       |
| LW-13896       | PLUG          | 15       |
| LW-14021       | SHAFT         | 15       |
| LW-14260       | SEAL          | 53       |
| LW-14529       | PLUG          | 23       |
| LW-14637       | SHIM          | 4        |
| LW-14649       | SHIM          | 4        |
| LW-14650       | SHIM          | 4        |
| LW-14650       | SHIM          | 6        |
| LW-14650       | SHIM          | 13       |
| LW-14760       | GAGE ASSEMBLY | 47       |
| LW-14763       | GAGE ASSEMBLY | 47       |
| LW-14820       | RING          | 23       |
| LW-15592-5-04  | CLAMP         | 43       |
| LW-15592-5-05  | CLAMP         | 43       |
| LW-15628       | SEAL          | 21       |
| LW-16266-0-19  | CLAMP         | 35       |
| LW-16266-10-13 | CLAMP         | 67       |
| LW-16266-10-13 | CLAMP         | 69       |
| LW-16266-10-63 | CLAMP         | 69       |
| LW-16266-10-63 | CLAMP         | 70       |
| LW-16266-10-75 | CLAMP         | 67       |
| LW-16266-10-75 | CLAMP         | 69       |
| LW-16266-25-38 | CLAMP         | 57       |
| LW-16266-25-50 | CLAMP         | 69       |
| LW-16266-25-50 | CLAMP         | 73       |
| LW-16266-25-75 | CLAMP         | 67       |
| LW-16471       | SUPPORT ASSY  | 23       |
| LW-16475       | SEAT          | 37       |
| LW-16562       | NIPPLE        | 67       |
| LW-16562       | NIPPLE        | 69       |
| LW-18085       | SPRING        | 21       |
| LW-18109       | IMPELLER      | 53       |
| LW-18110       | IMPELLER ASSY | 53       |
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| LW-18661       | SEAL          | 37       |

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| LW-18752    | THERMOCOUPLE     | 35       |
| LW-18756    | WIRE ASSY        | 35       |
| LW-19227    | COUNTERWEIGHT    | 23       |
| LW-19265    | PULLEY AND SHAFT | 4        |
| LW-25-0.50  | BOLT             | 63       |
| LW-25-0.94  | BOLT             | 49       |
| LW-25-0.94  | BOLT             | 53       |
| LW-25-0.94  | BOLT             | 61       |
| LW-25-1.00  | BOLT             | 61       |
| LW-25-1.13  | BOLT             | 27       |
| LW-25-1.13  | BOLT             | 29       |
| LW-25-1.13  | BOLT             | 31       |
| LW-25-1.13  | BOLT             | 49       |
| LW-25-1.13  | BOLT             | 53       |
| LW-25-1.25  | BOLT             | 45       |
| LW-25-1.44  | BOLT             | 53       |
| LW-25-1.50  | BOLT             | 27       |
| LW-25-1.50  | BOLT             | 29       |
| LW-25-1.50  | BOLT             | 31       |
| LW-25-1.75  | BOLT             | 27       |
| LW-25-1.75  | BOLT             | 29       |
| LW-25-1.75  | BOLT             | 31       |
| LW-25H-1.00 | BOLT             | 61       |
| LW-25S1.50  | BOLT             | 27       |
| LW-25S1.50  | BOLT             | 29       |
| LW-25S1.50  | BOLT             | 31       |
| LW-31-0.94  | BOLT             | 1        |
| LW-31-0.94  | BOLT             | 2        |
| LW-31-0.94  | BOLT             | 57       |
| LW-31-0.94  | BOLT             | 75       |
| LW-31-1.16  | BOLT             | 29       |
| LW-31-1.16  | BOLT             | 31       |
| LW-31-1.25  | BOLT             | 31       |
| LW-31-1.31  | BOLT             | 29       |
| LW-31H0.75  | BOLT             | 1        |
| LW-31H0.75  | BOLT             | 2        |
| LW-31H0.88  | BOLT             | 4        |
| LW-31H0.88  | BOLT             | 6        |
| LW-31H0.88  | BOLT             | 8        |
| LW-31H0.88  | BOLT             | 25       |

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| LW-31H1.06    | BOLT       | 9        |
| LW-31H1.22    | BOLT       | 4        |
| LW-31H1.22    | BOLT       | 55       |
| LW-31H2.13    | BOLT       | 6        |
| LW-31H2.13    | BOLT       | 8        |
| LW-31H2.75    | BOLT       | 8        |
| LW-38H1.09    | BOLT       | 6        |
| LW-38H1.09    | BOLT       | 13       |
| LW-38H1.19    | BOLT       | 4        |
| LW-38H1.31    | BOLT       | 13       |
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| MS20822-6     | ELBOW      | 57       |
| MS20823-4     | ELBOW      | 51       |
| MS20823-6D    | ELBOW      | 35       |
| MS20823-8     | ELBOW      | 61       |
| MS35335-33    | WASHER     | 41       |
| MS35489-20X   | GROMMET    | 43       |
| MS9245-44     | COTTER PIN | 73       |
| NAS1149F0632P | WASHER     | 27       |
| NAS1149F0632P | WASHER     | 29       |
| NAS1149F0632P | WASHER     | 31       |
| NASM90725-15  | BOLT       | 27       |
| NASM90725-15  | BOLT       | 29       |
| STD-8         | WASHER     | 27       |
| STD-8         | WASHER     | 29       |
| STD-8         | WASHER     | 31       |
| STD-8         | WASHER     | 45       |
| STD-8         | WASHER     | 49       |
| STD-8         | WASHER     | 53       |
| STD-8         | WASHER     | 59       |
| STD-8         | WASHER     | 61       |
| STD-33        | WASHER     | 4        |
| STD-33        | WASHER     | 13       |
| STD-33        | WASHER     | 27       |
| STD-33        | WASHER     | 29       |
| STD-33        | WASHER     | 31       |
| STD-33        | WASHER     | 55       |
| STD-35        | WASHER     | 1        |
| STD-35        | WASHER     | 2        |
| STD-35        | WASHER     | 4        |

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| STD-35   | WASHER    | 6        |
| STD-35   | WASHER    | 8        |
| STD-35   | WASHER    | 15       |
| STD-35   | WASHER    | 29       |
| STD-35   | WASHER    | 31       |
| STD-35   | WASHER    | 35       |
| STD-35   | WASHER    | 53       |
| STD-35   | WASHER    | 55       |
| STD-35   | WASHER    | 57       |
| STD-35   | WASHER    | 63       |
| STD-35   | WASHER    | 65       |
| STD-82   | SCREW     | 63       |
| STD-82   | SCREW     | 65       |
| STD-148  | NIPPLE    | 65       |
| STD-160  | WASHER    | 27       |
| STD-160  | WASHER    | 29       |
| STD-160  | WASHER    | 31       |
| STD-160  | WASHER    | 41       |
| STD-160  | WASHER    | 45       |
| STD-160  | WASHER    | 49       |
| STD-160  | WASHER    | 53       |
| STD-160  | WASHER    | 59       |
| STD-160  | WASHER    | 61       |
| STD-160  | WASHER    | 63       |
| STD-250  | WASHER    | 35       |
| STD-251  | WASHER    | 43       |
| STD-251  | WASHER    | 63       |
| STD-251  | WASHER    | 65       |
| STD-380  | SCREW     | 35       |
| STD-425  | WASHER    | 67       |
| STD-425  | WASHER    | 69       |
| STD-425  | WASHER    | 70       |
| STD-475  | WASHER    | 15       |
| STD-475  | WASHER    | 29       |
| STD-475  | WASHER    | 31       |
| STD-475  | WASHER    | 35       |
| STD-475  | WASHER    | 55       |
| STD-475  | WASHER    | 57       |
| STD-475  | WASHER    | 63       |
| STD-475  | WASHER    | 65       |

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| STD-475  | WASHER     | 73       |
| STD-475  | WASHER     | 75       |
| STD-514  | DOWEL      | 19       |
| STD-551  | PLUG       | 49       |
| STD-557  | DOWEL      | 19       |
| STD-596  | NUT        | 27       |
| STD-596  | NUT        | 29       |
| STD-596  | NUT        | 31       |
| STD-632  | WASHER     | 4        |
| STD-632  | WASHER     | 13       |
| STD-669  | WASHER     | 4        |
| STD-669  | WASHER     | 13       |
| STD-670  | LOCK NUT   | 43       |
| STD-670  | LOCK NUT   | 67       |
| STD-670  | LOCK NUT   | 67       |
| STD-670  | LOCK NUT   | 69       |
| STD-670  | LOCK NUT   | 70       |
| STD-678  | WASHER     | 13       |
| STD-678  | WASHER     | 27       |
| STD-678  | WASHER     | 29       |
| STD-678  | WASHER     | 31       |
| STD-684  | NIPPLE     | 43       |
| STD-690  | WASHER     | 1        |
| STD-690  | WASHER     | 2        |
| STD-690  | WASHER     | 8        |
| STD-690  | WASHER     | 9        |
| STD-690  | WASHER     | 13       |
| STD-692  | SCREW      | 43       |
| STD-692  | SCREW      | 67       |
| STD-692  | SCREW      | 69       |
| STD-713  | COTTER PIN | 1        |
| STD-713  | COTTER PIN | 4        |
| STD-713  | COTTER PIN | 6        |
| STD-713  | COTTER PIN | 8        |
| STD-713  | COTTER PIN | 9        |
| STD-713  | COTTER PIN | 13       |
| STD-784  | PLUG       | 51       |
| STD-860  | SCREW      | 67       |
| STD-860  | SCREW      | 69       |
| STD-860  | SCREW      | 70       |

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| STD-872  | NUT       | 1        |
| STD-872  | NUT       | 8        |
| STD-872  | NUT       | 9        |
| STD-872  | NUT       | 13       |
| STD-872  | NUT       | 27       |
| STD-872  | NUT       | 29       |
| STD-872  | NUT       | 31       |
| STD-1065 | DOWEL     | 23       |
| STD-1221 | RING      | 55       |
| STD-1339 | PLUG      | 19       |
| STD-1342 | WASHER    | 6        |
| STD-1342 | WASHER    | 13       |
| STD-1410 | NUT       | 15       |
| STD-1410 | NUT       | 35       |
| STD-1410 | NUT       | 55       |
| STD-1410 | NUT       | 63       |
| STD-1410 | NUT       | 65       |
| STD-1410 | NUT       | 73       |
| STD-1410 | NUT       | 75       |
| STD-1411 | NUT       | 27       |
| STD-1411 | NUT       | 29       |
| STD-1411 | NUT       | 31       |
| STD-1411 | NUT       | 41       |
| STD-1411 | NUT       | 49       |
| STD-1411 | NUT       | 59       |

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| STD-1411 | NUT       | 73       |
| STD-1420 | NUT       | 53       |
| STD-1623 | INSERT    | 19       |
| STD-1686 | SCREW     | 43       |
| STD-1727 | WASHER    | 1        |
| STD-1727 | WASHER    | 2        |
| STD-1727 | WASHER    | 4        |
| STD-1727 | WASHER    | 8        |
| STD-1774 | PIN       | 59       |
| STD-1882 | SCREW     | 55       |
| STD-1925 | SCREW     | 41       |
| STD-1930 | HOSE      | 57       |
| STD-2090 | NUT       | 41       |
| STD-2092 | WASHER    | 6        |
| STD-2168 | NUT       | 25       |
| STD-2180 | HOSE      | 43       |
| STD-2221 | NUT       | 4        |
| STD-2221 | NUT       | 13       |
| STD-2229 | PLUG      | 49       |
| STD-2231 | RING      | 25       |
| STD-2246 | BOLT      | 23       |
| STD-2249 | NUT       | 27       |
| STD-2249 | NUT       | 29       |
| STD-2249 | NUT       | 31       |