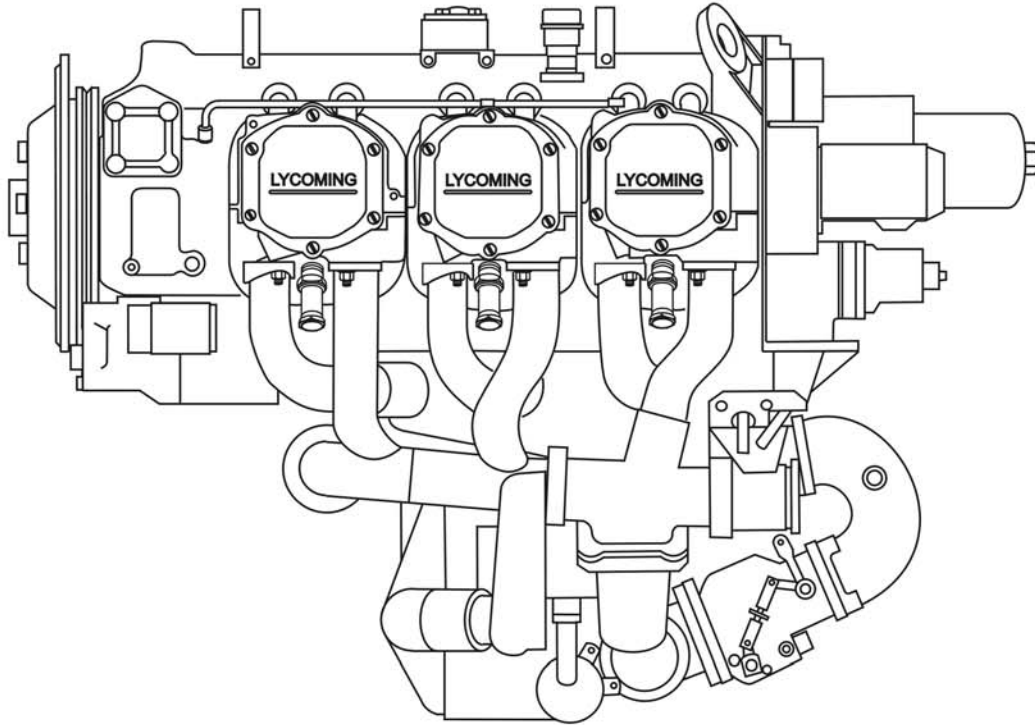


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Engine Parts Catalog
T10-540-AF1A, -AF1B
Wide Cylinder Flange Crankcase Model

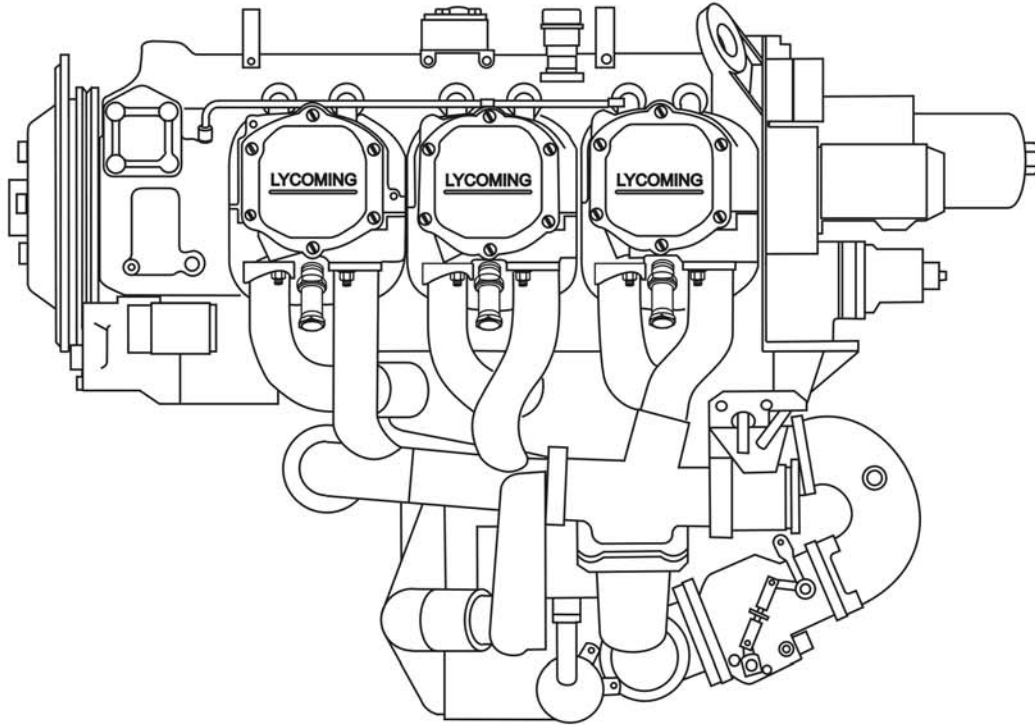
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Engine Parts Catalog
T10-540-AF1A,-AF1B
Wide Cylinder Flange Crankcase Model

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| Previous revisions to this publication | This revision consists of: - | | |
| None | February, 1995 Pages 4-1, 4-2, 4-3 | | |



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| REVISION No. AF1B Supplement PC-315-8B | PUBLICATION TIO-540-AF1A Engines | PUBLICATION No. PC-315-8 | PUBLICATION DATE SEPTEMBER 1989 |
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The attached pages have been revised to accommodate corrections and these page(s) need to replace the existing page(s) in your AF1B Supplement .

Page 6-5A, 6-7 - Revised Figure 25 Text
Page 7-10 - Revised Figure 30 Illustration

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| AF1B Supplement PC-315-8B | TIO-540-AF1A Engines | PC-315-8 | SEPTEMBER 1989 |
| The page(s) furnished herewith are intended to be used in conjunction with the existing page(s) of the publication indicated above. | | | |
| Previous <u>revisions</u> to this publication | | This supplement consists of: - | |
| <u>FEBRUARY, 1995</u> | | <u>NOVEMBER, 2002</u> | |
| PC-315-8A Revised Pages 4-1, 4-2, 4-3 | | <p>These Figures are to be used in conjunction with PC-315-8 Parts Catalog Illustrations:</p> <ul style="list-style-type: none"> Figure 1 – Crankcase Assembly Figure 2 – Oil Level Gage & Engine Mounting Figure 3 – Crankcase Related Parts Figure 4 – Camshaft, Crankshaft & Related Figure 5 – Propeller Governor Drive Assembly Figure 6 – Crankshaft & Fuel Pump Idler Gears Figure 8 – Accessory Housing Assembly Figure 9 – Oil Pump & Accessory Attaching Parts Figure 10 – Fuel Pump Assembly Figure 11 – Vacuum Pump & Oil Cooler Fittings Figure 12 – Turbo Scavenge & Hydraulic Pump Figure 13 – Oil Filter & Oil Cooler Bypass Valve Figure 14 – Connecting Rods, Pistons & Rings Figure 16 – Valve Assembly & Related Parts Figure 17 – Cylinder Related Parts Figure 18 – Magnetos, Drive, & Spark Plugs Figure 20 – Alternator Mounting & Attaching Parts Figure 21A – Shipping Kit Without Compressor Figure 22 – Oil Sump Assembly Figure 23 – Intake Pipes & Air Inlet Housing Figure 24 – Fuel Injector, Manifold & Inj. Nozzles Figure 26 – Exhaust Pipes & Transition Assembly Figure 27 – Turbocharger, Support & Attaching Figure 28 – Turbo Oil Drain Tank & Related Figure 29 – Turbocharger, Controllers, Wstgte & Hoses <p>These Figures have been added to show differences between the AF1A and the AF1B engine models:</p> <ul style="list-style-type: none"> Figure 7 – Crankcase Attaching Figure 15A – Cylinder Assembly Figure 15B – Oil Cooled Exhaust Valve Guides Figure 19 – Sky-Tec Starter Figure 25 – Injector Noz. Vent Manifolds & Hoses Figure 30 – Intercooler and Mounting Parts | |

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ASSEMBLY**

| FIG. REF. 1 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|------------------------|--|--------------------------------------|
| 1 | 11E20003-S3 * | CRANKCASE ASSEMBLY | 1 |
| | 11E24003-S3 ** | CRANKCASE ASSEMBLY | 1 |
| 2 | LW-13794 | STUD, 5/16-18 x 1.00 long (left idler pad) | 1 |
| 3 | 38-13 | STUD, 3/8-16 x 1-5/8 long (front left comp. pad) | 4 |
| 4 | 31C-12 | STUD, 5/16-18 x 1-1/2 long (starter pad, rear) | 2 |
| 5 | 31C-13 | STUD, 5/16-18 x 1-5/8 long (starter pad, front) | 1 |
| 6 | 38-13 | STUD, 3/8-16 x 1-5/8 long (cylinder pad) | 24 |
| 7 | 50-15 | STUD, 1/2-20 x 1-7/8 long (cylinder pad) | 12 |
| 8 | 38-22 | STUD, 3/8-16 x 2-3/4 long (nose of crankcase) | 1 |
| 9 | 38D-17 | STUD, 3/8-16 x 2-1/8 long (rear, above cam) | 1 |
| 10 | 38-16 * | STUD, 3/8-16 x 2.00 long (engine mount) | 8 |
| | 38-15 ** | STUD, 3/8-16 x 1-7/8 long (engine mount) | 8 |
| 11 | 69796 | DOWEL, Crankshaft, front bearing | 2 |
| 12 | STD-514 | DOWEL, 5/16 dia. x 1/2 long (accessory face) | 2 |
| 13 | STD-557 | DOWEL, 1/2 dia. x 11/16 long (between halves) | 2 |
| 14 | 72158 | BUSHING, Governor drive idler shaft | 1 |
| 15 | STD-1339 | PLUG, 1/16-27 NPT (governor pad) | 1 |
| 16 | 1102 | PLUG, 1/8 pipe x 3/8 long (oil pressure) | 4 |
| 17 | 31C-16 | STUD, 5/16-18 x 2.00 long, driven height (1.27 – 1.31) | 4 |
| 18 | 73772 | NOZZLE ASSY., Piston cooling | 6 |

* Used on TIO-540 AF1A Engines.

** Used on TIO-540-AF1B Engines.

- IMPORTANT -**Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 1 Illustration, Page 1-2.**

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
OIL LEVEL GAGE AND ENGINE MOUNTING BRACKETS**

| FIG. REF. 2 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|------------------------|--|--------------------------------------|
| 1 | 70457 | GASKET, Oil filler extension | 1 |
| 2 | 75737 | EXTENSION, Oil filler (2.69 extension) | 1 |
| 3 | 74068 | "O" RING, Oil level gage | 1 |
| 4 | LW-16783-14 | GAGE ASSY., Oil level | 1 |
| 5 | 12A19770 | BRACKET, Engine mounting (dynafocal) | 4 |
| | 12A21320 | BRACKET, Engine mounting (dynafocal) | 4 |
| 6 | STD-33 | WASHER, 3/8 plain | 16 |
| 7 | STD-678 | WASHER, 3/8 lock, internal teeth | 16 |
| 8 | STD-596 | NUT, 3/8-24 plain | 16 |

- IMPORTANT -**Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 2 Illustration, Page 1-4.**

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE RELATED PARTS**

| FIG. REF. 3 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|------------------------|--|--------------------------------------|
| 1 | 1028-B | BALL, 11/16 diameter | 1 |
| 2 | 68668 * | SPRING, Oil pressure relief valve | 1 |
| | 61084 * | 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 ASSY., Oil pressure relief, adjustable | 1 |
| 5 | LW-16711 | BEARING, Crankshaft | 6 |
| 6 | LW-13884 | BEARING, Crankshaft, front | 2 |
| | 18A19441 | BEARING, Crankshaft, front (alternate) | 2 |
| 7 | LW-13792 ** | SEAL, Crankshaft oil, solid | 1 |
| | LW-11997 ** | SEAL, Crankshaft oil, split | 1 |
| 8 | 72091 | RING, Oil seal, 23/64 I.D. x 7/64 dia. section | 2 |
| 9 | 72877 | BODY, Hydraulic tappet | 12 |

* Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment. Reference latest edition of SSP-1776, Part 1 for spring identification.

** See latest edition of Lycoming Service Instruction No. 1324 for installation.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 3 Illustration, Page 1-6.

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP CAMSHAFT, CRANKSHAFT AND RELATED PARTS

| FIG. REF. 4 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------|-------------|---|-----------------------|
| 1 | 13E17688 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 2 | 13E17648 | -- DOES NOT APPLY TO THIS MODEL -- | |
| | 13E27622 | CRANKSHAFT AND BUSHING ASSY. | 1 |
| 3 | STD-1211 | PLUG, 2.00 dia. expansion | 1 |
| 4 | 73810 * | BUSHING, Crankshaft dynamic counterweight | 4 |
| 5 | 71640 | PLUG, 1-3/8 diameter | 1 |
| 6 | 72062 | -- DOES NOT APPLY TO THIS MODEL -- | |
| | 75656-S | BUSHING, Propeller flange, long | 4 |
| 7 | 72061 | -- DOES NOT APPLY TO THIS MODEL -- | |
| | 72155-S | BUSHING, Propeller flange, short | 1 |
| 8 | 72060 | -- DOES NOT APPLY TO THIS MODEL -- | |
| | 75657-S | BUSHING, Propeller flange, indexing | 1 |
| 9 | STD-1065 | DOWEL, Stepped, 5/16 & 1/4 dia. x 35/64 long | 1 |
| 10 | LW-19210 ** | COUNTERWEIGHT ASSY. | 2 |
| 11 | 71903-A ■ | BUSHING, Dynamic counterweight | 8 |
| 12 | 76788 ** | ROLLER, Dynamic counterweight, 6.3 order | 2 |
| 13 | LW-15558 ** | ROLLER, Dynamic counterweight, 4.8 order | 2 |
| 14 | LW-14820 | RING, Internal retaining | 8 |
| 15 | 71907 | WASHER, Dynamic counterweight | 8 |
| 16 | 13S19648 ● | GEAR, Crankshaft | 1 |
| 17 | LW-18638 | LOCKPLATE, Crankshaft gear | 1 |
| 18 | STD-2209 | BOLT, 5/16-24 x 1-3/4 long, hex. head | 1 |
| 19 | LW-19340 | CAMSHAFT ASSY. | 1 |
| 20 | 76118 | SPACER, Tachometer shaft centering | 1 |
| 21 | 31M19861 | SUPPORT ASSY., Starter ring gear, 12/14 pitch | 1 |
| 22 | 72566 | GEAR, Starter ring | 1 |
| 23 | 76155 | SHAFT ASSY., Tachometer | 1 |
| 24 | LW-18667 | PIN, 3/16 dia, x 2-21/64 long | 1 |
| 25 | STD-2231 ◆ | RING, Internal retaining | 1 |

- * See latest edition of Lycoming Service Instruction No. 1142 for application.
- ** See latest edition of Lycoming Service Instruction No. 1012 for application.
- See latest edition of Lycoming Service Instruction No. 1143 for application.
- See latest edition of Lycoming Service Bulletin No. 475 for application.
- ◆ P/N STD-2231 RING supersedes P/N MS16625-1081 RING.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 4 Illustration, Page 1-8.

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
PROPELLER GOVERNOR DRIVE ASSEMBLY**

| FIG. REF. 5 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|------------------------|--|--------------------------------------|
| 1 | LW-10442 | GEAR, Propeller governor drive | 1 |
| 2 | LW-14021 | SHAFT, Propeller governor idler gear | 1 |
| 3 | LW-10541 | GEAR ASSY., Prop. governor idler | 1 |
| 4 | 77872 | BUSHING, Prop. governor idler gear | 2 |
| 5 | STD-19 | DOWEL, 3/32 dia. x 7/32 long | 1 |
| 6 | STD-798 | DOWEL, 3/32 dia. x 9/32 long | 1 |
| 7 | 73249 | WASHER, Thrust | AR |
| | 73250 | WASHER, Thrust | AR |
| | 73251 | WASHER, Thrust | AR |
| | 73252 | WASHER, Thrust | AR |
| | 01L21418 | WASHER, Thrust | AR |
| 8 | AN565B1032H5 | SET SCREW, No. 10-32 x 5/16 long | 1 |
| 9 | 70455 | GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/16 thick | 1 |
| 10 | LW-13896 | PLUG, 3/4-16 hex. hd. | 1 |
| 11 | 72053 | GASKET, Governor | 1 |
| 12 | 72378 | COVER, Governor drive | 1 |
| 13 | STD-35 | WASHER, 5/16 plain, Woodward governor | 20 |
| | STD-35 | WASHER, 5/16 plain, AN governor | 4 |
| 14 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 15 | STD-1410 | NUT, 5/16-18 plain | 4 |

- IMPORTANT -**Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 5 Illustration, Page 1-10.**

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKSHAFT AND FUEL PUMP IDLER GEARS**

| FIG. REF. 6 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|------------------------|---|--------------------------------------|
| 1 | LW-13795 | SHAFT, Crankshaft idler gear | 2 |
| 2 | LW-31H0.88 * | BOLT, 5/16-18 x 7/8 long, hex. hd. dr. | 3 |
| 3 | STD-2168 | NUT, 5/16-18 NC-3, slotted shear | 1 |
| 4 | 72246 | SHAFT, Fuel pump idler gear | 1 |
| 5 | 71667 | LOCKPLATE, 1/4 bolt x 1-3/4 spacing (offset) | 1 |
| 6 | LW-25-0.63 | BOLT, 1/4-20 x 5/8 long, hex. head | 2 |
| 7 | 71664 | GEAR ASSY., Fuel pump idler | 1 |
| 8 | 77309 | BUSHING, Crankshaft idler gear | 1 |
| 9 | 70474 | WASHER, Fuel pump thrust | 1 |
| 10 | STD-1737 | RING, 37/64 dia. x 3/64 thick, external retaining | 1 |
| 11 | 71668 | GEAR ASSY., Crankshaft idler, plain | 2 |
| 12 | 67530 | BUSHING, Crankshaft idler gear | 2 |
| 13 | 72972 | SHAFTGEAR ASSY., Fuel pump drive | 1 |
| 14 | 72962 | THRUST BUTTON, Shaftgear | 1 |
| 15 | 69164 | GASKET, Fuel pump adapter | 1 |
| 16 | 69159 | ADAPTER ASSY., Fuel pump drive | 1 |
| 17 | STD-1774 | PIN, 1/8 dia. x 1/4 long | 1 |
| 18 | STD-213 | SEAL, Oil, 3/4 I.D. x 1-3/8 O.D. | 1 |

* P/N LW-31H0.88 BOLT supersedes P/N STD-2167 SCREW.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 6 Illustration, Page 1-12.

**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ATTACHING PARTS**

| FIG. REF. 7 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|------------------------|--|--------------------------------------|
| 1 | LW-25-1.50 | BOLT, 1/4-20 x 1-1/2 long, hex. hd. | 11 |
| 2 | STD-8 | WASHER, 1/4 plain | 24 |
| 3 | 60803 | STRAP, Lifting | 2 |
| 4 | LW-25-1.88 | BOLT, 1/4-20 x 1-7/8 long, hex. hd. | 2 |
| 5 | LW-25-1.13 | BOLT, 1/4-20 x 1-1/8 long, hex. hd. | 1 |
| 6 | STD-160 | WASHER, 1/4 lock, internal teeth | 13 |
| 7 | STD-1411 | NUT, 1/4-20 plain | 12 |
| 8 | LW-25S1.50 | BOLT, 1/4-20 x 1-1/2 long, hex. hd., dr. end | 6 |
| 9 | STD-8 | WASHER, 1/4 plain | 6 |
| 10 | STD-1409 | NUT, 1/4-20 slotted shear | 6 |
| 11 | STD-33 | WASHER, 3/8 plain | 1 |
| 12 | STD-872 | NUT, 3/8-24 slotted | 1 |
| 13 | AN6-34A | BOLT, 3/8-24 x 3-37/64 long, hex. hd. | 1 |
| 14 | STD-33 | WASHER, 3/8 plain | 3 |
| 15 | STD-678 | WASHER, 3/8 lock, internal teeth | 2 |
| 16 | STD-596 | NUT, 3/8-24 plain | 2 |
| 17 | 76220 | STUD, 1/2-20 x 10-45/64 long | 8 |
| 18 | LW-31-2.75 | BOLT, 5/16-18 x 2-3/4 long, hex. hd. | 1 |
| 19 | LW-31-1.16 | BOLT, 5/16-18 x 1-5/32 long, hex. hd. | 3 |
| 20 | STD-35 | WASHER, 5/16 plain | 4 |
| 21 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |

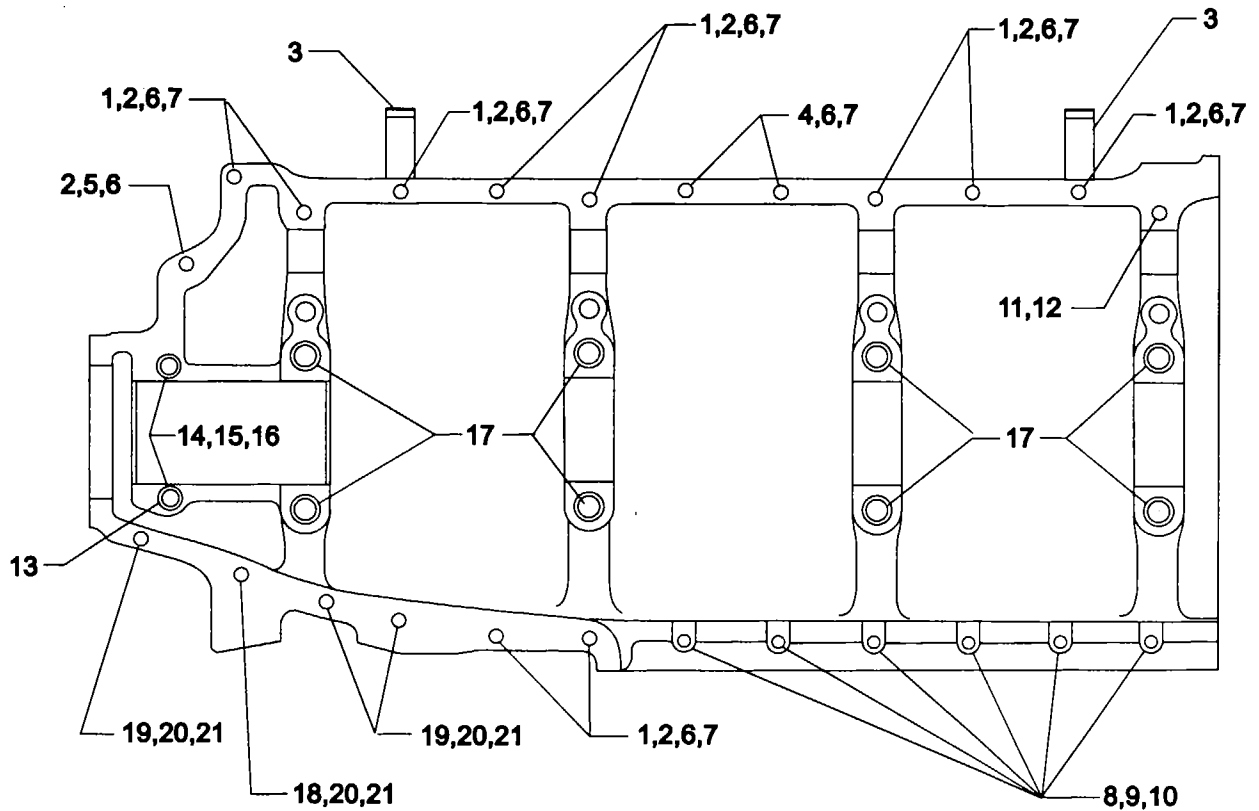


Figure 7. CRANKCASE ATTACHING PARTS

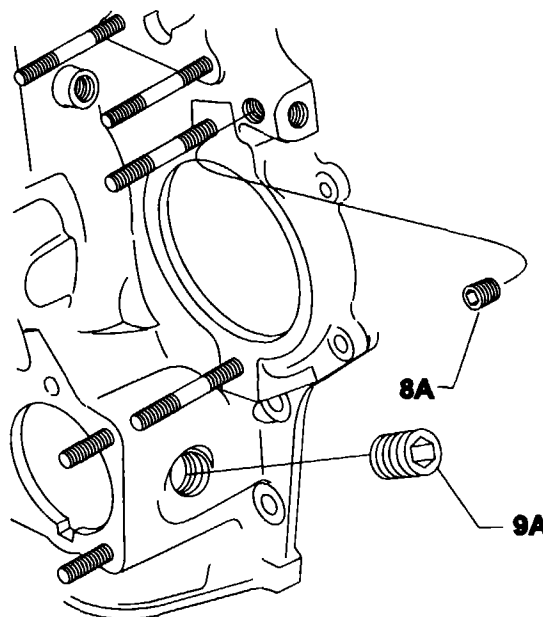
ACCESSORY HOUSING AND RELATED PARTS ACCESSORY HOUSING ASSEMBLY

| FIG. REF. 8 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-------------|---------------|--|-----------------------|
| 1 | 73818 | GASKET, Accessory housing | 1 |
| 2 | 21C21542-03 * | HOUSING ASSY., Accessory | 1 |
| 3 | 31C-12 | STUD, 5/16-18 x 1-1/2 long | 4 |
| 4 | 31CD-20 | STUD, 5/16-18 x 2-1/2 long, drilled | 3 |
| 5 | 31C-21 | STUD, 5/16-18 x 2-5/8 long | 4 |
| 6 | 31C-19 | STUD, 5/16-18 x 2-3/8 long | 4 |
| 7 | 25C-19 | STUD, 1/4-20 x 2-3/8 long | 4 |
| 8 | 1102 | PLUG, 1/8 pipe x 3/8 long, socket | 2 |
| 8A | 1102 | PLUG, 1/8 pipe x 3/8 long, socket | 3 |
| 9 | LW-18696 | TEE, 1/4 tube, restricted on run (Acc. hsg. oil to w.g.) | 1 |
| 9A | AN932-6 | PLUG, 3/4-14 NPT, Allen head | 1 |

* P/N 21C21542-03 HOUSING ASSY. supersedes P/N LW-19155 HOUSING ASSY.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 8 Illustration, Page 2-1.



**ACCESSORY HOUSING AND RELATED PARTS
OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS**

| FIG. REF. 9 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|------------------------|---------------------------------------|--------------------------------------|
| 1 | 51A22618 * | BODY ASSY., Oil pump | 1 |
| 2 | 51D22617 ** | SHAFT, Oil pump idler | 1 |
| 3 | STD-714 | PIN, 1/8 diameter x 1.00 long, cotter | 1 |
| 4 | STD-1339 | PLUG, 1/16-27 NPT, Allen head | 1 |
| 5 | 76784 | SHAFT, Oil pump drive | 1 |
| 6 | 61297 | IMPELLER, Oil pump, driving | 1 |
| 7 | 61298 | IMPELLER, Oil pump, driven | 1 |
| 8 | STD-35 | WASHER, 5/16 plain | 3 |
| 9 | STD-1420 | NUT, 5/16-18 slotted | 3 |
| 10 | LW-14260 | SEAL, Tachometer drive, oil | 1 |
| 11 | STD-8 | WASHER, 1/4 plain | 10 |
| 12 | STD-160 | WASHER, 1/4 lock, internal teeth | 12 |
| 13 | LW-25-0.94 | BOLT, 1/4-20 x 15/16 long, hex. head | 9 |
| 14 | LW-25-1.13 | BOLT, 1/4-20 x 1-1/8 long, hex. head | 1 |
| 15 | LW-25-1.44 ■ | BOLT, 1/4-20 x 1-1/2 long, hex. head | 2 |

* P/N 51A22618 BODY ASSY. supersedes P/N 75287 BODY ASSY.

** P/N 51D22617 SHAFT supersedes P/N 60329 SHAFT.

■ P/N LW-25-1.44 BOLT replaces P/N LW-25-1.50 BOLT which replaced P/N LW-25-1.88 BOLT.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 9 Illustration, Page 2-2.

**ACCESSORY HOUSING AND RELATED PARTS
FUEL PUMP ASSEMBLY AND ATTACHING PARTS**

| FIG. REF. 10 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|-----------------------------------|--------------------------------------|
| 1 | LW-10799 | SPACER, Fuel pump insulating | 1 |
| 2 | 62D22573 * | FUEL PUMP (RG17980 U/M) | 1 |
| 3 | STD-35 | WASHER, 5/16 plain | 4 |
| 4 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 5 | STD-1410 | NUT, 5/16-18 plain | 4 |

* P/N 62D22573 FUEL PUMP supersedes P/N 62D21153 FUEL PUMP.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 10 Illustration, Page 2-3.

**ACCESSORY HOUSING AND RELATED PARTS
VACUUM PUMP DRIVE, OIL COOLER AND BREATHER FITTINGS**

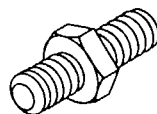
| FIG. REF. 11 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-------------------------|--------------------|--|------------------------------|
| 1 | 61183 | GASKET, Accessory housing | 1 |
| 2 | 67536 | ADAPTER ASSY., Vacuum pump | 1 |
| 3 | STD-1774 | DOWEL, 1/8 dia. x 1/4 long | 1 |
| 4 | 06A19956 | SEAL, Oil, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide | 1 |
| 5 | 72974 | GEAR ASSY., Vacuum pump driven | 1 |
| 6 | 71596 | WASHER, Accessory driven gear | 1 |
| 7 | 8313 | GASKET, Vacuum pump | 1 |
| 8 | 60430 | COVER, Vacuum pump | 1 |
| 9 | STD-8 | WASHER, 1/4 plain | 4 |
| 10 | STD-160 | WASHER, 1/4 lock, internal teeth | 4 |
| 11 | STD-1411 | NUT, 1/4-20 plain | 4 |
| 12 | 06E19769-0.63 | GASKET, Annular, 5/8 I.D. | 1 |
| 13 | 62417 | PLUG, Oil cooler bypass | 1 |
| 14 | AN816-8 * | FITTING, 1/2 tube x 3/8 NPT | 2 |
| | STD-2238 ** | NIPPLE, -10 to -6 special | 2 |
| 15 | AN844-16D | ELBOW, 3/4 NPT | 1 |

* Used on TIO-540-AF1A engines.

** Used on TIO-540-AF1B engines.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 11 Illustration, Page 2-4.



P/N STD-2238 Nipple

ACCESSORY HOUSING AND RELATED PARTS TURBO SCAVENGE PUMP AND HYDRAULIC PUMP DRIVE AND COVER

| FIG. REF. 12 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------|-----------------|--|-----------------------|
| 1 | 68315 | GASKET, Accessory drive adapter | 1 |
| 2 | 29A21405 * | DRIVE ASSY., Turbo scavenge & hydraulic pump | 1 |
| 3 | 29A21358 ** | ADAPTER ASSY., Turbo scavenge pump | 1 |
| 4 | 25C-11 | STUD, 1/4-20 x 1-3/8 long | 4 |
| 5 | STD-1774 | PIN, 1/8 dia. x 1/4 long | 2 |
| 6 | 01N19833-281 | PLUG, Pin | 1 |
| 7 | 29D21310 ■ | ADAPTER ASSY., Hydraulic pump | 1 |
| 8 | STD-1003 ● | -- DOES NOT APPLY TO THIS MODEL -- | |
| 9 | LW-15853 | SHAFT, Hydraulic pump drive | 1 |
| 10 | STD-95 | KEY, 1/8 x 1/2 Woodruff | 1 |
| 11 | LW-15550 | PUMP, Gerotor | 1 |
| 12 | MS9068-009 ● | -- DOES NOT APPLY TO THIS MODEL -- | |
| | LW-RF2.239-.070 | RING, Oil seal | 1 |
| 13 | 06A19956 | OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide | 1 |
| 14 | 77825 | SHAFTGEAR, Hydraulic pump drive | 1 |
| 15 | 77708 | WASHER, Retaining shaft gear | 1 |
| 16 | MS16562-28 | PIN, Spring, 3/32 dia. x 3/4 long | 1 |
| 17 | STD-8 | WASHER, 1/4 plain | 4 |
| 18 | STD-160 | WASHER, 1/4 internal lock | 4 |
| 19 | STD-1411 | NUT, 1/4-20 plain | 4 |
| 20 | STD-35 | WASHER, 5/16 plain | 4 |
| 21 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 22 | STD-1410 | NUT, 5/16-18 plain | 4 |
| 23 | 8313 | GASKET, Pump | 1 |
| 24 | 60430 | COVER, Pump | 1 |
| 25 | STD-8 | WASHER, 1/4 plain | 4 |
| 26 | STD-160 | WASHER, 1/4 lock, internal teeth | 4 |
| 27 | LW-25-0.94 | BOLT, 1/4-20 x 15/16 long, hex. hd. | 4 |

* P/N 29A21405 DRIVE ASSY. supersedes P/N 29C21146 DRIVE ASSY.

** P/N 29A21358 ADAPTER ASSY., Turbo supersedes P/N LW-19082 ADAPTER ASSY., Turbo.

■ P/N 29D21310 ADAPTER ASSY., Hydraulic supersedes P/N LW-19080 ADAPTER ASSY., Hydraulic.

● Used with superseded P/N LW-19080 ADAPTER ASSY., Hydraulic.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 12 Illustration, Page 2-6.

**ACCESSORY HOUSING AND RELATED PARTS
OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE**

| FIG. REF. 13 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|--|--------------------------------------|
| 1 | LW-12795 * | GASKET, Oil filter adapter | 2 |
| 2 | 77852 | BASE ASSY., Oil filter | 1 |
| 3 | 54D19625 ** | OIL FILTER, (short with stud) | 1 |
| | LW-13215 *, ■ | OIL FILTER | 2 |
| 4 | STD-8 | WASHER, 1/4 plain | 4 |
| 5 | STD-160 | WASHER, 1/4 lock, internal teeth | 1 |
| 6 | STD-1411 | NUT, 1/4-20 plain | 1 |
| 7 | LW-25-1.00 ● | BOLT, 1/4-20 x 1.00 long, hex. hd. | 3 |
| 7A | STD-160 ● | WASHER, 1/4 lock, internal teeth | 3 |
| 8 | 53E22144 ◆ | VALVE ASSY., Temp. control oil cooler bypass | 1 |
| 9 | 76510 | GASKET, Valve assembly | 1 |
| 10 | 25C-10 | STUD, 1/4-20 x 1-1/4 long | 1 |

* Extra gasket and oil filter, shipped as loose parts, with engine.

** No Longer Available.

■ See latest edition of Lycoming SSP-885 for oil filter kits and replacement filters.

◆ P/N 53E22144 VALVE ASSY. supersedes P/N 53E19600 VALVE ASSY.

● P/N LW-25.100 BOLT and P/N STD-160 WASHER replaces P/N STD-1856 SCREW.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 13 Illustration, Page 2-8.

**CYLINDER, PISTON AND VALVE TRAIN
CONNECTING RODS, PISTONS AND RING ASSEMBLIES**

| FIG. REF. 14 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|---|--------------------------------------|
| 1 | LW-11750 | CONNECTING ROD ASSEMBLY | 6 |
| 2 | LW-13923 | BUSHING, Connecting rod, upper | 6 |
| 3 | 75061 | BOLT, Connecting rod | 12 |
| 4 | LW-12186 | NUT, Connecting rod bolt | 12 |
| 5 | 18M19389 | BEARING, Connecting rod | 12 |
| | LW-16048 | BEARING, Connecting rod (alternate) | 12 |
| | LW-13521 | BEARING, Connecting rod (alternate) | 12 |
| 6 | LW-12733 | PISTON, Compression ratio 8.00:1 | 6 |
| 7 | LW-14078 * | PIN, Piston | 6 |
| 8 | 72198 ** | PLUG, Piston pin | 12 |
| 9 | 74241 | RING, Piston, compression | 12 |
| 10 | 14H21990 ■ | RING, Piston, oil regulating, expander type | 6 |

* P/N LW-14078 PISTON PIN supersedes P/N LW-14077 PISTON PIN.

** P/N 72198 PISTON PLUG supersedes P/N LW-11775 PISTON PLUG.

■ P/N 14H21990 RING supersedes P/N 73857 RING.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 14 Illustration, Page 3-2.

INTENTIONALLY

LEFT

BLANK

**CYLINDER, PISTON AND VALVE TRAIN
CYLINDER ASSEMBLY**

| FIG. REF. 15A | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------|-------------|--|-----------------------|
| 1 | 16A22023 | CYLINDER AND HEAD ASSEMBLY | 6 |
| 2 | 72057 | SEAT, Intake valve | 6 |
| 3 | 72058 | SEAT, Exhaust valve | 6 |
| 4 | 61681 | GUIDE, Valve intake, flanged | 6 |
| 5 | 16R22021 | GUIDE, Valve exhaust, flanged | 6 |
| 6 | 69260 | INSERT, Spark plug, 18-1.5 MM (long reach) | 12 |
| 7 | STD-1353 | INSERT, No. 10-24 x 3/8 long | 6 |
| 8 | 31C-12 | STUD, 5/16-18 x 1-1/2 long | 12 |
| 9 | 25C-8 | STUD, 1/4-20 x 1.00 long | 6 |
| 10 | 02A22358 | ELBOW, Flared tube to 1/4 NPT | 6 |
| 11 | 66610 | BUSHING, Rocker shaft | 24 |
| 12 | 1102 * | PLUG, 1/8-27 NPT, Allen | 6 |

* Assemble in cylinder head.

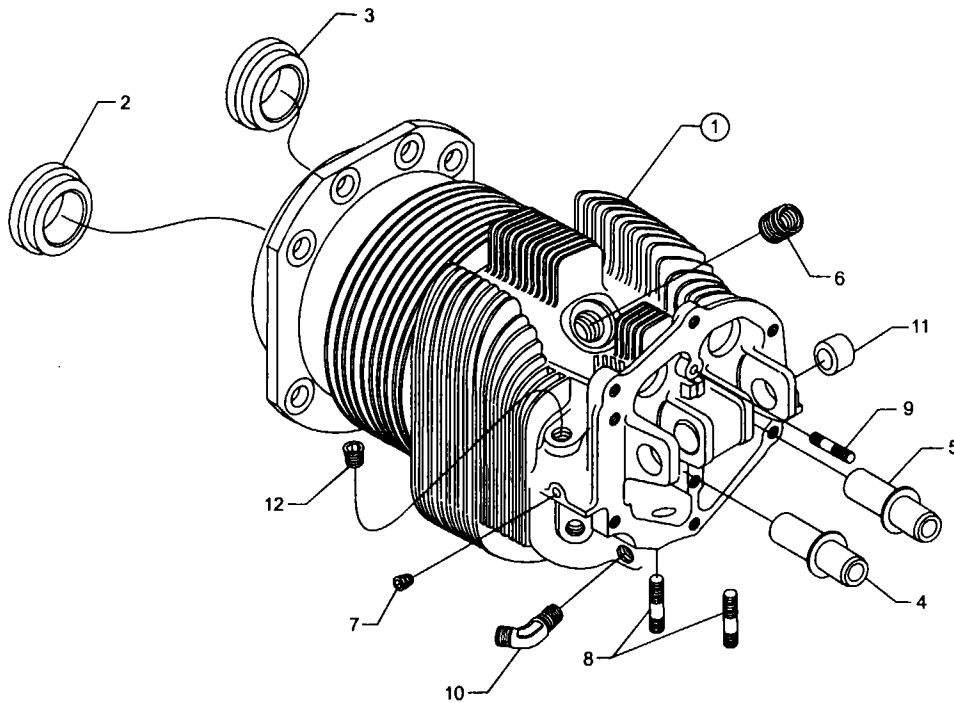


Figure 15A. CYLINDER ASSEMBLY

**CYLINDER, PISTON AND VALVE TRAIN
OIL COOLED EXHAUST VALVE GUIDE ATTACHING**

| FIG. REF. 15B | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------|------------------|--|-----------------------|
| 1 | LW-14114 | CONNECTOR, Exhaust valve oil line | 6 |
| 2 | 72376 | ELBOW, 1/4 tube x 7/16, 90° | 2 |
| 3 | LW-12876-4S066 | HOSE ASSY., 1/4 hose, 90° elbow | 4 |
| 4 | 74369 | TEE, 1/4 tube, adj. | 4 |
| 5 | STD-2238 * | NIPPLE, -10 to -6 special | 4 |
| 6 | LW-12876-4S172 | HOSE ASSY., 1/4 hose, 90° elbow (right side) | 1 |
| 7 | LW-12876-4S224 | HOSE ASSY., 1/4 hose, 90° elbow (left side) | 1 |
| 8 | AN834-4 | TEE, 3/16 flared tube, bulkhead | 1 |
| 9 | AN924-4 * | NUT, 1/4 tube, bulkhead | 1 |
| 10 | LW-12798-4S222 * | HOSE ASSY., 1/4 hose, straight | 1 |
| 11 | LW-16266-10-63 * | CLAMP, 5/8 I.D. x No. 10 screw | 1 |
| 12 | 76734 * | ZIP STRAP | 3 |

* These parts are shipped loose.

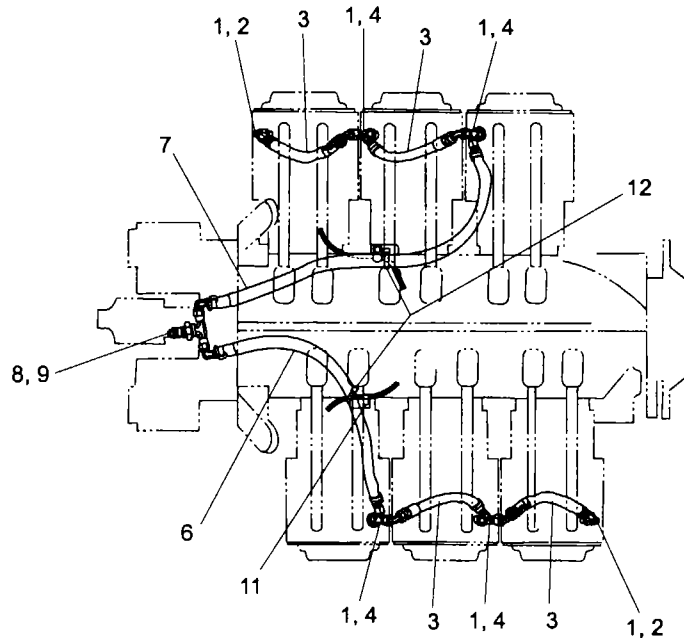


Figure 15B. OIL COOLED EXHAUST VALVE GUIDE ATTACHING

**CYLINDER, PISTON AND VALVE TRAIN
VALVE ASSEMBLY AND RELATED PARTS**

| FIG. REF. 16 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|--|--------------------------------------|
| 1 | 73938 | VALVE, Intake | 6 |
| 2 | LW-19001 | VALVE, Exhaust (rotator type) | 6 |
| 3 | LW-11795 | SPRING, Valve, inner | 12 |
| 4 | LW-11800 | SPRING, Valve, outer | 12 |
| 5 | LW-10077 | SEAT, Valve spring, upper intake | 6 |
| 6 | LW-16475 | SEAT, Valve spring, upper exhaust (rotator type) | 6 |
| 7 | 65441 | SEAT, Valve spring, lower intake | 6 |
| 8 | LW-13323 | SEAT, Valve spring, lower exhaust | 6 |
| | 17E22455 * | SEAT, Valve spring, lower exhaust | 6 |
| 9 | 60009 | KEY, Valve intake | 12 |
| 10 | 17C21191 ** | KEY, Valve exhaust (rotator type) | 12 |
| 11 | 17C19386 ■ | CAP, Valve stem exhaust (rotator type) | 6 |
| 12 | 78290 | PLUNGER ASSY., Hydraulic tappet | 12 |
| 13 | 15B21319 ◆ | SOCKET, Push rod, hydraulic tappet | 12 |
| 14 | LW-11485 | TUBE, Shroud, push rod | 12 |
| 15 | LW-14995 | SPRING, Shroud tube | 6 |
| 16 | LW-12272 | LOCKPLATE, Shroud tube | 6 |
| 17 | STD-1411 | NUT, 1/4-20 plain | 6 |
| 18 | LW-18661 | SEAL, Shroud tube | 12 |
| 19 | 70310 | SEAL, Shroud tube | 12 |
| 20 | 15F19957-34 ● | ROD ASSY., Push | AR |
| | 15F19957-35 ● | ROD ASSY., Push | AR |
| | 15F19957-36 ● | ROD ASSY., Push | AR |
| | 15F19957-37 ● | ROD ASSY., Push | AR |
| 21 | 17F19357 | ROCKER ASSY., Valve | 12 |
| 22 | 74637 | BUSHING, Valve rocker | 12 |
| 23 | LW-13790 | SHAFT, Valve rocker | 6 |
| 24 | LW-12892 | THRUST BUTTON, Rocker shaft | 12 |

* Used on TIO-540-AF1B engines.

** P/N 17C21191 KEY supersedes P/N MS13997-3 KEY.

■ P/N 17C19386 CAP supersedes P/N MS13998-3 CAP.

◆ P/N 15B21319 SOCKET supersedes P/N 78524 SOCKET.

● See latest edition of Lycoming Service Instruction No. 1060 for complete push rod application.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 16 Illustration, Page 3-6.

**CYLINDER, PISTON AND VALVE TRAIN
CYLINDER RELATED PARTS**

| FIG. REF. 17 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|---|--------------------------------------|
| 1 | 75906 | GASKET, Rocker box cover | 6 |
| 2 | 61247 | COVER, Rocker box | 6 |
| 3 | STD-1925 | SCREW, 1/4-20 x 5/8 long, pan. hd., self-locking | 36 |
| 4 | 74494 | PLATE, Spark plug caution | 6 |
| 5 | 71481 | RING, Oil seal, 3/32 dia. section x 4-27/32 I.D. | 6 |
| 6 | 77906 | SPACER, 33/64 I.D. x 7/8 O.D. x 1/8 thick | 2 |
| 7 | 74887 | SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick | 2 |
| 8 | 383-B | NUT, 3/8-24 plain | 24 |
| 9 | STD-2090 | NUT, 1/2-20 plain | 28 |
| 10 | STD-684 * | NIPPLE, Straight, 3/8 I.D. hose | 6 |
| | 02G22360 ** | NIPPLE, Flared tube to 1/4 NPT | 6 |
| 11 | STD-1821 * | HOSE, 3/8 I.D. x 2-1/2 long | 6 |
| | STD-2182 ** | HOSE, 1/2 I.D. x 2-15/32 long | 6 |
| 12 | LW-15592-5-05 * | CLAMP, Hose | 12 |
| | LW-15592-8-08 ** | CLAMP, Hose | 12 |
| 13 | 68759 * | TUBE ASSY., Cyl. head oil drain, cyl. no. 1 | 1 |
| | LW-15361 ** | TUBE ASSY., Cyl. head oil drain, cyl. no. 1 | 1 |
| 14 | 71737 * | TUBE ASSY., Cyl. head oil drain, cyl. no. 2 | 1 |
| | LW-15362 ** | TUBE ASSY., Cyl. head oil drain, cyl. no. 2 | 1 |
| 15 | 68761 * | TUBE ASSY., Cyl. head oil drain, cyls. no. 3, 4, 5, 6 | 4 |
| | LW-14680 ** | TUBE ASSY., Cyl. head oil drain, cyls. no. 3, 4, 5, 6 | 4 |
| 16 | 75339 | BAFFLE ASSY., Intercylinder | 4 |
| 17 | 71611 | RETAINER, Intercylinder baffle | 4 |
| 18 | 71610 | HOOK, Intercylinder baffle | 4 |

* Used on TIO-540-AF1A engines.

** Used on TIO-540-AF1B engines – Large drain tubes.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 17 Illustration, Page 3-8.

IGNITION SYSTEM MAGNETOS, MAGNETO DRIVES AND SPARK PLUGS

| FIG. REF. 18 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|----------------|---|-----------------------|
| 1 | 73000 | COUPLING, Magneto drive | 1 |
| 2 | LW-13641 | CUSHION, Magneto drive | 4 |
| 3 | LW-19096 | GEAR RETAINER ASSEMBLY | 2 |
| 4 | 67542 | BEARING, Ball | 2 |
| 5 | 62224 | GASKET, Magneto adapter | 1 |
| 6 | LW-12707 | ADAPTER, Magneto, right | 1 |
| 7 | LW-13926 | ADAPTER, Magneto, impulse coupling left | 1 |
| 8 | LW-12681 | GASKET, Magneto | 2 |
| 9 | 66LP-OSCPN * | MAGNETO, Right (6360) | 1 |
| 10 | 66LC35SDNP ** | MAGNETO, Left (6361), impulse coupling | 1 |
| 11 | 67J20608-P | HARNESS ASSY., Right, Slick P/N M-2966 | 1 |
| 12 | 67J20609-P | HARNESS ASSY., Left, Slick P/N M-2965 | 1 |
| 13 | 66M21195 ■ | CLAMP, Magneto | 4 |
| 14 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 15 | STD-1410 | NUT, 5/16-18 plain | 4 |
| 16 | STD-713 | COTTER PIN, 3/32 dia. x 3/4 long | 2 |
| 17 | STD-1727 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 18 | STD-2007 | WASHER, 3/8 dia. seal | 1 |
| 19 | STD-33 | WASHER, 3/8 plain | 1 |
| 20 | LW-13227 | ADAPTER, Magneto pressurization | 1 |
| 21 | LW-13226 | NUT, 3/8-16 NC, plain | 1 |
| 22 | AN824-4 | TEE, 1/4 tube | 1 |
| 23 | LW-12798-4S111 | HOSE, Right magneto to tee | 1 |
| 24 | LW-12798-4S160 | HOSE, Left magneto to tee | 1 |
| 25 | 66N21020 | VALVE ASSY., Relief | 1 |
| 26 | MS29512-04 | "O" RING | 1 |
| 27 | MS20822-4 | ELBOW, 1/4 tube to 1/8 NPT | 3 |
| 28 | AN816-4 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 29 | LW-12798-4S130 | HOSE, Tee to magneto pressurization fitting | 1 |
| 30 | 1182-H7 ♦ | SPARK PLUG, Champion (RHB37E) or Auburn (273) | 12 |

* P/N 66LP-OSCPN MAGNETO supersedes P/N 66JP-OSCPN MAGNETO.

** P/N 66LC35SDNP MAGNETO supersedes P/N 66JC35SDNP MAGNETO.

■ P/N 66M21195 CLAMP supersedes P/N 76961 CLAMP.

♦ P/N 1182-H7 SPARK PLUG replaces P/N 1182-W5 SPARK PLUG.

- IMPORTANT -

Use in conjunction with PC-315-8A REVISION (February, 1995) – Figure 18 Text & Illustration, Pages 4-1 & 4-2

**TIO-540-AF1B
BAG – MAGNETO HARNESS ATTACHING**

P/N 01P19762-4-17

| Part No. | Part Name | Qty. |
|----------------|-----------------------------------|------|
| 01P19762-4-17 | BAG – MAGNETO HARNESS ATTACHING | 1 |
| LW-16266-25-25 | CLIP, One wire | 4 |
| LW-14060 | CLIP, Two wire | 4 |
| STD-8 | WASHER, 1/4 plain | 12 |
| STD-160 | WASHER, 1/4 lock, internal teeth | 8 |
| STD-1874 | SCREW, 1/4-20 x 13/16 long | 6 |
| 76734 | ZIP STRAP | 12 |
| LW-16266-10-75 | CLAMP | 1 |
| LW-16266-25-44 | CLAMP, 7/16 I.D. x 1/4 dia. screw | 5 |
| STD-696 | WASHER, 1/4 plain (thin) | 6 |
| STD-1916 | SCREW, 1/4-20 x 1-1/8 long | 2 |
| STD-1925 | SCREW, 1/4-20 x 5/8 long | 4 |
| 72815 | BRACKET, Support clamp, 90° | 4 |
| STD-692 | SCREW, No. 10-32 x 1/2 long | 4 |
| STD-425 | WASHER, No. 10 plain | 4 |
| STD-670 | LOCKNUT, No. 10-32 | 4 |
| LW-M-2376 | PLATE, Spark plug cable | 2 |

ELECTRICAL COMPONENTS SKY TEC STARTER AND ATTACHING PARTS

| FIG. REF. 19 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|-------------|---------------------------------------|-----------------------|
| 1 | 31B22105 | STARTER, Sky-Tec (149 - 24 LS) | 1 |
| 2 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 3 | LW-31-1.16 | BOLT, 5/16-18 x 1-5/32 long, hex. hd. | 1 |
| 4 | STD-1410 | NUT, 5/16-18 plain | 3 |

NOTE

See latest edition of Lycoming Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.

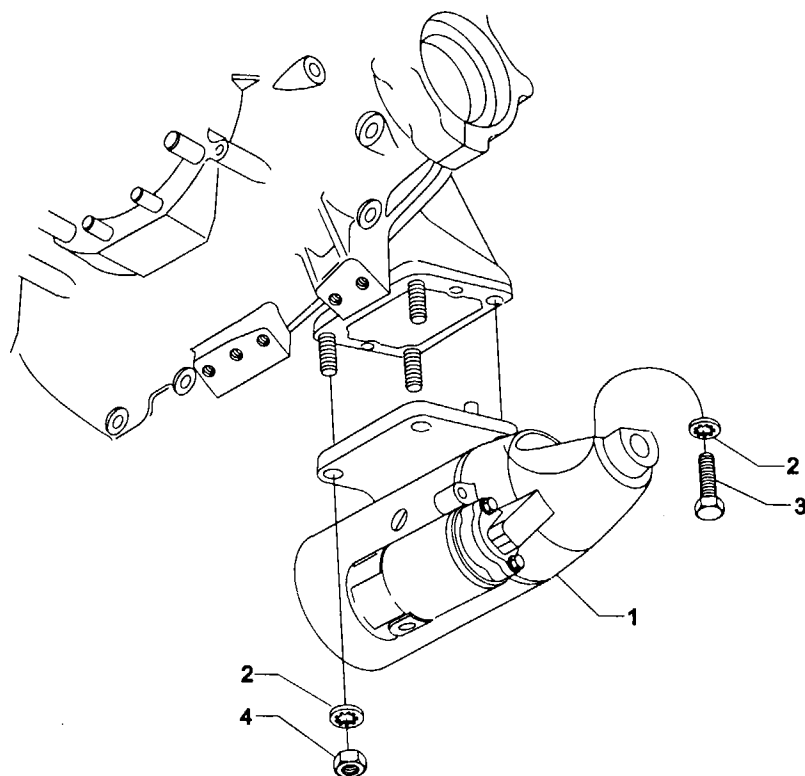


Figure 19. SKY-TEC STARTER AND ATTACHING PARTS

ELECTRICAL COMPONENTS ALTERNATOR MOUNTING AND ATTACHING PARTS

| FIG. REF. 20 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|-------------|---|-----------------------|
| 1 | 07A22097 * | BRACKET, Alternator | 1 |
| 2 | STD-35 | WASHER, 5/16 plain | 2 |
| 3 | LW-31H1.88 | BOLT, 5/16-18 x 1-7/8 long, hex. hd., dr. hd. | 2 |
| 4 | 07A22447 ** | BRACKET, Alternator, right | 1 |
| 5 | STD-35 | WASHER, 5/16 plain | 3 |
| 6 | LW-31H2.13 | BOLT, 5/16-18 x 2-1/8 long, hex. hd., dr. hd. | 2 |
| 7 | LW-31H0.88 | BOLT, 5/16-18 x 7/8 long, hex. hd., dr. hd. | 1 |
| 8 | 07F19879 | LINK, Alternator adj., right | 1 |
| 9 | STD-35 | WASHER, 5/16 plain | 1 |
| 10 | LW-31H0.88 | BOLT, 5/16-18 x 7/8 long, hex. hd., dr. hd. | 1 |
| 11 | STD-1342 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 12 | LW-38H1.09 | BOLT- 3/8-18 x 1-3/32 hex. hd., dr. hd. | 1 |
| 13 | AN7-42 ■ | BOLT, 7/16-20 x 4-21/64 long, hex. hd., dr. end | 1 |
| 14 | STD-2092 | WASHER, 29/64 I.D. x 7/8 O.D. x 1/8 thick | 2 |
| 15 | AN310-7 | NUT, 7/16-20 slotted | 1 |
| 16 | LW-14650 | SHIM, 3/8 O.D. x 29/64 I.D. x .005 thick | AR |
| 17 | STD-713 ● | PIN, Cotter, 3/32 dia. x 3/4 long | 1 |
| | STD-761 ◆ | PIN, Cotter, 3/32 dia. x 1.00 long | 1 |
| 18 | 07A21145 ● | BRACKET, Compressor | 1 |
| | 07A21292 ◆ | BRACKET, Compressor | 1 |
| 19 | STD-33 ● | WASHER, 3/8 plain | 4 |
| | STD-33 ◆ | WASHER, 3/8 plain | 2 |
| 20 | STD-678 ● | WASHER, 3/8 internal lock | 4 |
| | STD-678 ◆ | WASHER, 3/8 internal lock | 2 |
| 21 | 383-B ● | NUT, 3/8-24 plain | 4 |
| | 383-B ◆ | NUT, 3/8-24 plain | 2 |
| 22 | STD-632 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 23 | AN7-46 | BOLT, 7/16-20 x 4-27/32 long, hex. hd., dr. end | 1 |
| 24 | LW-14650 | SHIM, 7/8 O.D. x 15/32 I.D. x .005 thick | AR |
| 25 | AN310-7 | NUT, 7/16-20 slotted | 1 |
| 26 | STD-713 ● | PIN, Cotter, 3/32 dia. x 3/4 long | 1 |
| | STD-761 ◆ | PIN, Cotter, 3/32 dia. x 1.00 long | 1 |
| 27 | STD-669 | WASHER, 33/64 I.D. x 1.00 O.D. x 1/8 thick | 1 |

-- Continued Next Page --

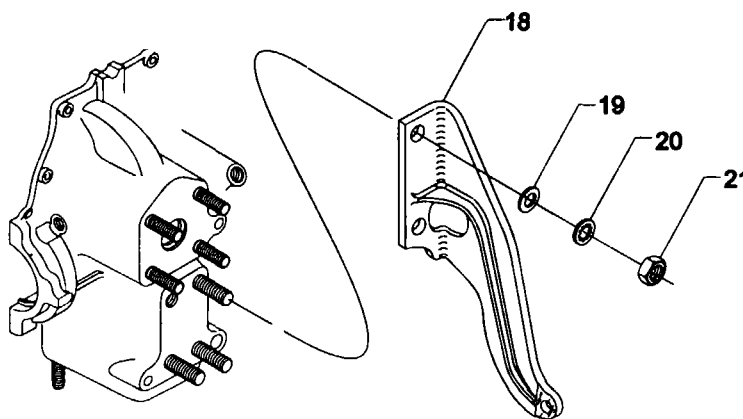
ELECTRICAL COMPONENTS ALTERNATOR MOUNTING AND ATTACHING PARTS (Continued)

| FIG. REF. 20 (Cont.) | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|--------------|---|-----------------------|
| 28 | STD-2221 | NUT, 1/2-70 self-locking | 1 |
| 29 | 36A19951 | PULLEY & SHAFT ASSY., Idler | 1 |
| 30 | 78614 | PULLEY, Idler | 1 |
| 31 | 78629 | BEARING, Ball, alternator idler pulley | 1 |
| 32 | MS16625-1125 | RING, Internal retaining | 2 |
| 33 | LW-19238 | SHAFT, Idler, alternator adjusting | 1 |
| 34 | LW-11635 | SHIELD, Alternator idler bearing | 1 |
| 35 | 76768 | LOCKWASHER, Alternator idler pulley bearing | 1 |
| 36 | 76769 | LOCKNUT, Alternator idler pulley bearing | 1 |
| 37 | 36B19954 | PULLEY, Alternator | 2 |
| 38 | 37A19773-382 | BELT, Alternator, right | 1 |
| | 37A19773-470 | BELT, Alternator, left | 1 |

- * P/N 07A22097 BRACKET supersedes P/N 07A19874 BRACKET.
- ** P/N 07A22447 BRACKET supersedes P/N 07A19878 BRACKET.
- P/N AN7-42 BOLT supersedes P/N AN7-41 BOLT.
- Used on TIO-540-AF1A engines.
- ◆ Used on TIO-540-AF1B engines.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 20 Illustration, Page 5-3.



P/N 07A21292 Compressor Bracket

**ELECTRICAL COMPONENTS
COMPRESSOR MOUNTING AND ATTACHMENTS**

| FIG. REF. 21A | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|------------------------------|------------------------|--------------------|--------------------------------------|
|------------------------------|------------------------|--------------------|--------------------------------------|

**TIO-540-AF1B
SHIPPING KIT WITHOUT COMPRESSOR
(Shipped Loose Parts)**

| Part No. | Part Name | Qty. |
|-----------------|--|-------------|
| 07F19875 | LINK, Alternator, Ford (LT) | 1 |
| AN6-13 | BOLT, 3/8-24 x 1-29/64 long, dr. | 1 |
| STD-872 | NUT, 3/8-24 slotted | 1 |
| 01L21504 | SPACER, 13/32 I.D. x 7/8 O.D. x 31/64 long | 1 |
| LW-38H1.31 | BOLT, 3/8-16 x 1-5/16 long, hex. hd. | 1 |
| STD-761 | COTTER PIN, 3/32 x 1.00 long | 1 |

OIL SUMP AND INDUCTION SYSTEM OIL SUMP ASSEMBLY AND ATTACHMENTS

| FIG. REF. 22 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|---------------|---|-----------------------|
| 1 | 06B21326 * | GASKET, Oil sump | 1 |
| 2 | 56A19865 | SUMP ASSY., Oil | 1 |
| 3 | 71699 | CONNECTION, Intake pipe | 6 |
| 4 | 25C-11 | STUD, 1/4-20 x 1-3/8 long | 13 |
| 5 | 25C-16 | STUD, 1/4-20 x 2.00 long | 1 |
| 6 | 38-15 | STUD, 3/8-16 x 1-7/8 long | 8 |
| 7 | 31C-12 | STUD, 5/16-18 x 1-1/2 long | 1 |
| 8 | 31C-14 | STUD, 5/16-18 x 1-3/4 long | 3 |
| 9 | STD-71 | PLUG, 3/8-18 NPT, socket head | 1 |
| 10 | 1102 | PLUG, 1/8-27 NPT, Allen head | 2 |
| 11 | 06E19769-1.63 | GASKET, 1-7/8 O.D. x 1-5/8 I.D. x 3/32 annular | 1 |
| 12 | LW-18434 | PLUG, Oil sump, 1-5/8 dia. | 1 |
| 13 | STD-1164 | INSERT, 5/16-18 x 5/8 long, Helicoil | 1 |
| 14 | STD-1171 | INSERT, 3/8-16 x 3/4 long, Helicoil | 3 |
| 15 | STD-8 | WASHER, 1/4 plain | 34 |
| 16 | STD-160 | WASHER, 1/4 internal lock | 27 |
| 17 | LW-25-1.13 | BOLT, 1/4-20 x 1-1/8 long, hex. head | 7 |
| 18 | LW-25-1.00 | BOLT, 1/4-20 x 1.00 long, hex. head | 6 |
| 19 | STD-1411 | NUT, 1/4-20 plain | 21 |
| 20 | STD-551 | PLUG, 1/2-14 NPT, Sq. head, dr. | 2 |
| 21 | 74655 | SPACER, Exhaust manifold bracket | 1 |
| 22 | 07H21150 | BRACKET, Exhaust manifold cable retainer | 1 |
| 23 | 02A21152 | ELBOW, (Right sump drain port, outboard, use STD-551) | 1 |
| 24 | LW-13807 | ADAPTER ASSY., Fuel drain valve, sump | 1 |

* P/N 06B21326 GASKET supersedes P/N LW-13306 GASKET.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 22 Illustration, Page 6-2.

**OIL SUMP AND INDUCTION SYSTEM
INTAKE PIPES AND AIR INLET HOUSING**

| FIG. REF. 23 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|---|--------------------------------------|
| 1 | 70485 | PIPE, Intake | 6 |
| 2 | 69603 | HOSE, 1-3/4 I.D. x 2-3/16 O.D. x 1-3/4 long | 6 |
| 3 | LW-15592-8-28 | CLAMP | 12 |
| 4 | 71973 | GASKET, 2 bolt flange, 1-7/8 I.D. | 6 |
| 5 | 73346 | FLANGE, Intake pipe, upper | 6 |
| 6 | STD-8 | WASHER, 1/4 plain | 12 |
| 7 | STD-160 | WASHER, 1/4 internal lock | 12 |
| 8 | LW-25-1.25 | BOLT, 1/4-20 x 1-1/4 long, hex. hd. | 12 |
| 9 | 78366 | HEAT SHIELD, Intake pipes (nos. 1, 2, 3, 4 & 5) | 5 |
| 10 | 40J19947 | HEAT SHIELD, Intake pipe (no. 6) | 1 |
| 11 | LW-15592-8-24 | CLAMP, 1-7/8 dia. x 9/16 wide | 12 |
| 12 | 66224 | GASKET, Air inlet | 1 |
| 13 | 41A19860 | DUCT ASSY., Air inlet | 1 |
| 14 | STD-1164 | INSERT, 5/16-18 x 5/8 long, Helicoil | 4 |
| 15 | STD-35 | WASHER, 5/16 plain | 13 |
| 16 | STD-475 | WASHER, 5/16 internal lock | 4 |
| 17 | STD-1410 | NUT, 5/16-18 plain | 4 |
| 18 | 70484 | SCREEN, Oil suction | 1 |
| 19 | 06E19769-1.00 | GASKET, 1.00 I.D. x 1-1/4 O.D. x 3/32 annular | 1 |
| 20 | LW-12545 | PLUG, 5/8 hex. hd. x 1.00-20 thread | 1 |

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 23 Illustration, Page 6-4.

**OIL SUMP AND INDUCTION SYSTEM
FUEL INJECTOR, FUEL MANIFOLD AND INJECTION NOZZLES**

| FIG. REF. 24 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|--|--------------------------------------|
| 1 | 66224 * | GASKET, Fuel injector | 1 |
| 2 | 61J21008 | FUEL INJECTOR (2549050-3) | 1 |
| 3 | STD-35 | WASHER, 5/16 plain (injector to duct) | 4 |
| 4 | STD-475 | WASHER, 5/16 lock, internal teeth (injector to duct) | 4 |
| 5 | LW-31-1.31 ** | BOLT, 5/16-18 x 1-5/16 long, hex. hd. (injector to duct) | 4 |
| 6 | LW-18854 | NOZZLE ASSY., Manifold air bleed | 6 |
| 7 | 951391 | "O" RING (2 per assy.) | 12 |
| 8 | 63B21127 | MANIFOLD ASSY., Fuel | 1 |
| 9 | AN816-4 | NIPPLE, 1/4 tube, 1/8 NPT | 1 |
| 10 | STD-148 | NIPPLE, Union, 1/8 NPT | 6 |
| 11 | 02G21382 ■ | NIPPLE, Nozzle pressure gauge | 1 |
| 12 | 73966 | SPACER, Fuel manifold bracket | 2 |
| 13 | 73965 | BRACKET, Fuel manifold | 2 |
| 14 | STD-82 | SCREW, No. 10-24 x 1/2 long, fill. hd. | 4 |
| 15 | STD-251 | WASHER, No. 10 lock, internal teeth | 4 |
| 16 | LW-12098-0-210 ● | TUBE ASSY., Fuel manifold to nozzle, cyls. 1, 2, 5, 6 | 4 |
| 17 | LW-12098-0-170 | TUBE ASSY., Fuel manifold to nozzle, cyls. 3, 4 | 2 |
| 18 | LW-16266-10-75 | CLAMP | 12 |
| 19 | LW-16266-10-13 | CLAMP | 12 |
| 20 | STD-860 | SCREW, No. 10-32 x 5/8 long, fill. head | 14 |
| 21 | STD-425 | WASHER, No. 10 plain | 2 |
| 22 | STD-670 | LOCKNUT, No. 10-32 | 14 |
| 23 | 73136 | BRACKET, 90° | 2 |
| 24 | LW-12878-4S373 | HOSE ASSY., Fuel inj. to fuel manifold (45° at inj.) | 1 |
| 25 | 73136 | BRACKET, Fuel inj. to fuel manifold hose support | 1 |
| 26 | LW-16266-10-63 | CLAMP (Attach to bracket) | 1 |
| 27 | STD-860 | SCREW, No. 10-32 x 5/8 long, fill. head | 1 |
| 28 | STD-670 | LOCKNUT, No. 10-32 | 1 |
| 29 | LW-12877-6S200 | HOSE ASSY., Fuel pump to injector | 1 |
| 30 | 02A21376 ◆ | ELBOW, 1/4 tube, 90° (fuel pump vent) | 1 |

-- Continued Next Page --

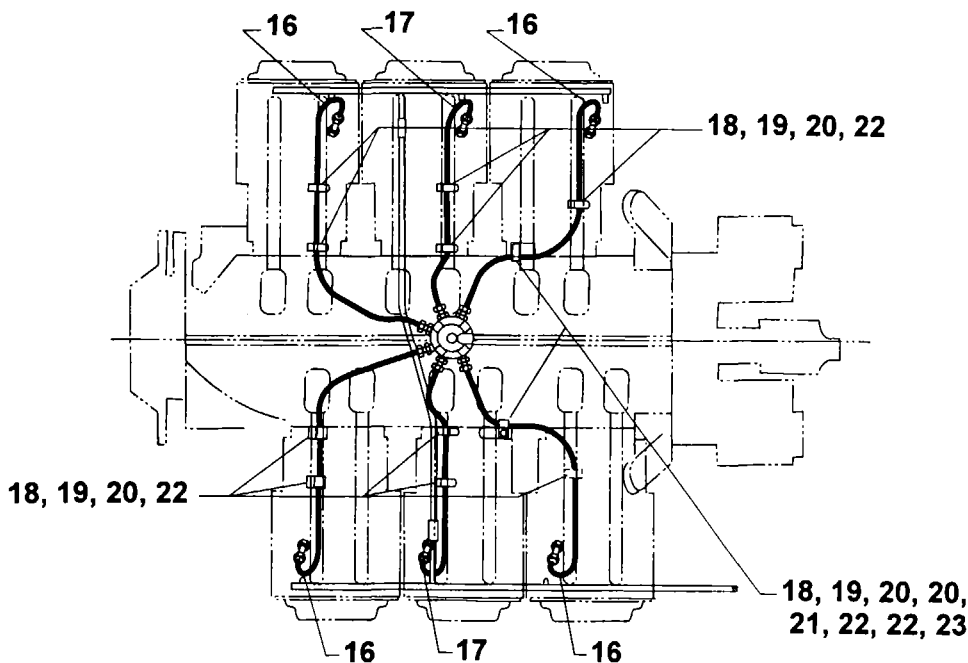
OIL SUMP AND INDUCTION SYSTEM FUEL INJECTOR, FUEL MANIFOLD AND INJECTION NOZZLES (Continued)

| FIG. REF. 24 (Cont.) | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|-------------|--|-----------------------|
| 31 | 77433 | ELBOW, 3/8 tube, 90° (fuel pump inlet) | 1 |
| 32 | AN816-6 | NIPPLE, 1/2 NPT to 3/8 tube (fuel pump outlet) | 1 |

- * After engine test, remove P/N 66224 gasket and install P/N 08C21936 plate before engine preservation.
- ** P/N LW-31-1.31 BOLT replaces P/N LW-31-1.25 BOLT.
- P/N 02G21382 NIPPLE supersedes P/N 75447 NIPPLE.
- P/N LW-12098-0-210 TUBE ASSY. supersedes P/N LW-12098-0-200 TUBE ASSY.
- ◆ P/N 02A21376 ELBOW supersedes P/N 78067 ELBOW.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 24 Illustration, Page 6-6.



FUEL LINE CLAMPING DIAGRAM – TIO-540-AF1A & AF1B

**OIL SUMP AND INDUCTION SYSTEM
INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND ATTACHMENTS**

| FIG. REF. 25 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|--|--------------------------------------|
| 1 | 63E21054 | MANIFOLD, Right, injection nozzle vent | 1 |
| 2 | 63E21046 | MANIFOLD, Left, injection nozzle vent | 1 |
| 3 | LW-18737 | HOSE, 3/16 I.D. x 7/16 O.D. x 2.00 long | 6 |
| 4 | LW-15592-5-04 | CLAMP, 7/16 I.D. x 5/16 wide | 12 |
| 5 | 78127 | TUBE, Crossover, injection nozzle vent manifold | 1 |
| 6 | STD-2048 | HOSE, 1/4 I.D. x 19/32 O.D. x 2-7/16 long | 2 |
| 7 | LW-15592-5-04 | CLAMP, 7/16 I.D. x 5/16 wide | 4 |
| 8 | STD-2049 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 9 | STD-1916 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 10 | STD-2044 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 11 | LW-16266-25-25 | CLAMP | 2 |
| 12 | 78753 | BRACKET, Injector nozzle vent crossover | 1 |
| 13 | STD-692 * | SCREW, No. 10-32 x 1/2 long, fill. head | 1 |
| 14 | STD-692 ** | SCREW, No. 10-32 x 1/2 long, fill. head | 5 |
| 15 | STD-425 * | WASHER, No. 10 plain | 1 |
| 16 | STD-425 ** | WASHER, No. 10 plain | 5 |
| 17 | STD-670 * | NUT, No. 10-32 self-locking | 1 |
| 18 | STD-670 ** | NUT, No. 10-32 self-locking | 5 |
| 19 | STD-1339 | PLUG, 1/16-27 NPT | 3 |
| 20 | AN821-4 | ELBOW, 1/4 tube, 90°, left (between hose & vent tube) | 1 |
| 21 | LW-12798-4S313 | HOSE ASSY., Left side (nozzle vent to intercooler) | 1 |
| 22 | LW-12798-4S204 | HOSE ASSY., Right side (fuel pump vent to intercooler) | 1 |
| 23 | LW-16266-10-25 ** | CLAMP | 4 |
| 24 | 73152 ** | BRACKET, Support clamp | 4 |
| 25 | STD-1856 ** | SCREW, 1/4-20 x 1.00 long, hex. hd. | 4 |
| 26 | STD-2079 ** | NUT, 1/4-20 UNC. | 4 |

* Used on TIO-540-AF1A engines.

** Used on TIO-540-AF1B engines.

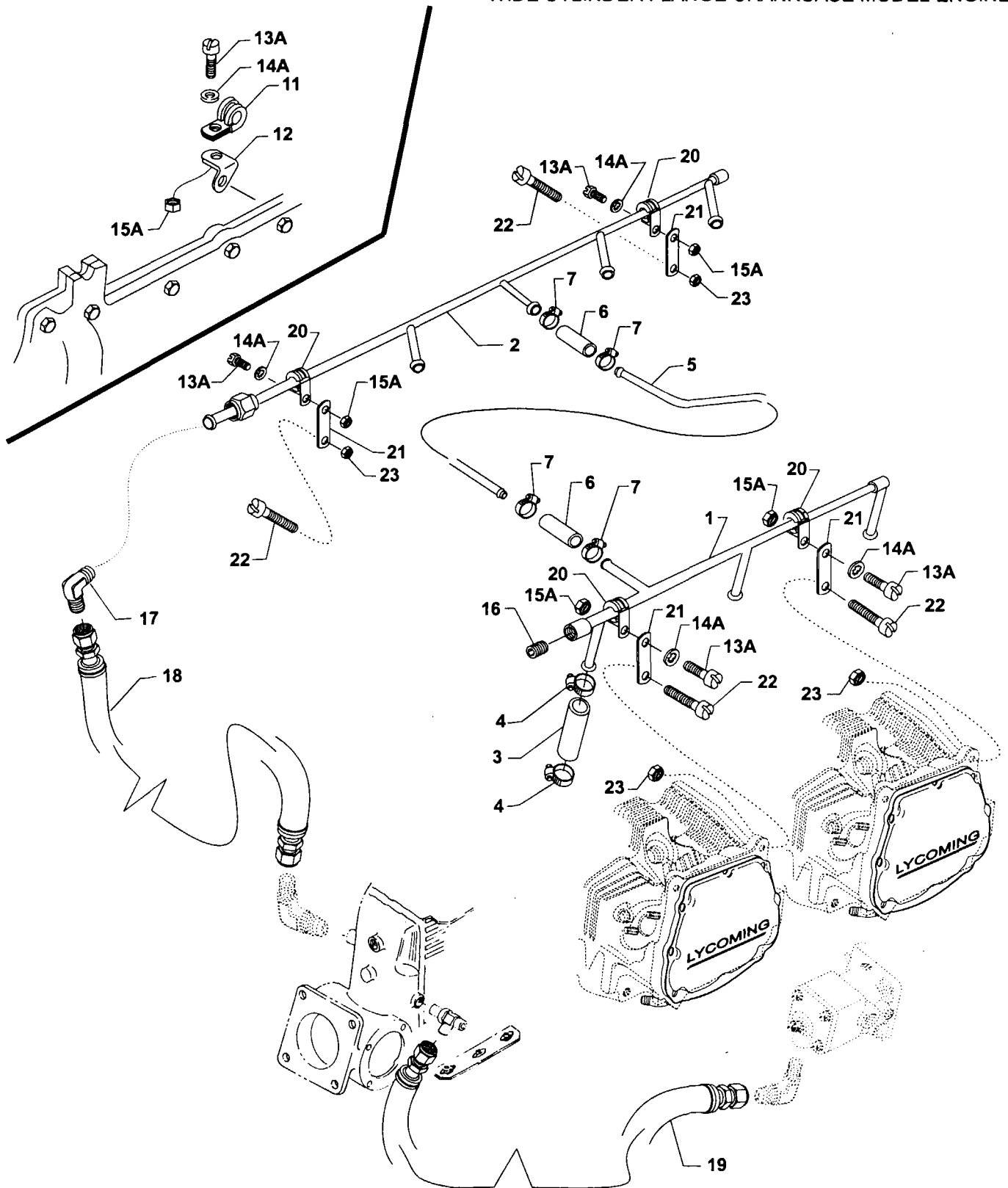


Figure 25. INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND ATTACHMENTS

TURBOCHARGER AND EXHAUST SYSTEMS EXHAUST PIPES AND TRANSITION ASSEMBLY

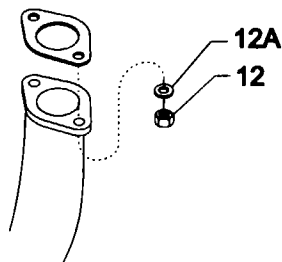
| FIG. REF. 26 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------|--------------|---|-----------------------|
| 1 | 77611 | GASKET, Exhaust flange | 6 |
| 2 | LW-12728 | ADAPTER, Exhaust pipe (cyl. nos. 2 & 3) | 2 |
| 3 | 40B21089 | PIPE, Exhaust, cylinder no. 2 & crossover | 1 |
| 4 | 40B19824 | PIPE, Exhaust, cylinder no. 4 | 1 |
| 5 | 78077 | FLANGE, V-band coupling, 2.00 O.D. tube | 1 |
| 6 | 40B19823 | PIPE, Exhaust, cylinder no. 6 | 1 |
| 7 | 40B19822 | PIPE, Exhaust, cylinder nos. 1 & 3 | 1 |
| 8 | 40B19825 | PIPE, Exhaust, cylinder no. 5 | 1 |
| 9 | 40C19819 | FLANGE, Exhaust manifold, 2.00 tube | 1 |
| 10 | 78084 | GASKET, V-band coupling, 2.00 tube | 1 |
| 11 | LW-12093-5 | COUPLING, V-band | 1 |
| 12 | STD-2233 * | LOCKNUT, 5/16-18 hex. | 12 |
| 12A | AN960C516 | WASHER, 5/16 plain | 12 |
| 13 | 47C22531 ** | TRANSITION, Exhaust | 1 |
| 14 | LW-19189 | CABLE ASSY., Exhaust manifold retaining | 1 |
| 15 | STD-1411 | NUT, 1/4-20 plain | 2 |
| 16 | LW-25SS-0.63 | BOLT, 1/4-20 x 5/8 long, hex. hd. | 1 |
| 17 | STD-2044 | NUT, 1/4-20 self-locking | 1 |
| 18 | LW-14525 | CLAMP (adjacent to center of ring of crossover) | 1 |

* P/N STD-2233 LOCKNUT supersedes P/N STD-2218 LOCKNUT.

** P/N 47C22531 TRANSITION supersedes P/N 47C19818 TRANSITION.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 26 Illustration, Page 7-2.



**TURBOCHARGER AND EXHAUST SYSTEMS
TURBOCHARGER, SUPPORT AND ATTACHING PARTS**

| FIG. REF. 27 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|--|--------------------------------------|
| 1 | 07A19834 | BRACKET, Turbocharger mounting | 1 |
| 2 | STD-678 | WASHER, 3/8 lock, internal teeth | 2 |
| 3 | LW-38-2.94 | BOLT, 3/8-16 x 2-15/16 long, hex. hd. | 1 |
| 4 | LW-38-2.00 | BOLT, 3/8-16 x 2.00 long, hex. hd. | 1 |
| 5 | 48C19836 | TURBOCHARGER, (TA0413-466011-2) | 1 |
| 6 | AN960C616 * | WASHER, 3/8 plain | 8 |
| | AN960C616 ** | WASHER, 3/8 plain (turbo to transition) | 4 |
| 6A | MS9321-12 **, ■ | WASHER, 3/8 I.D. x 3/4 O.D. x 5/64 thick (turbo to trans.) | 4 |
| 7 | AN6C12A | BOLT, 3/8-24 x 1-21/64 long, (turbo to transition) | 4 |
| 8 | MS20500-624 | NUT, 3/8-24 self-locking (turbo to transition) | 4 |
| 9 | LW-18861 | VALVE, Exhaust bypass (turbo to transition) | 1 |
| 10 | LW-12125-3 | COUPLING, V-band, 2-1/4 tube | 1 |
| 10A | LW-12093-6 ● | COUPLING, V-band, 2-1/4 tube | 1 |
| 11 | 75845 ● | GASKET, V-band, 2-1/4 tube | 2 |
| 12 | LW-19277 | HEAT SHIELD | 1 |
| 13 | AN960C516 | WASHER, 5/16 plain (turbo bracket to turbo) | 2 |
| 14 | STD-475 | WASHER, 5/16 internal lock (turbo bracket to turbo) | 2 |
| 15 | LW-31SS-0.88 | BOLT, 5/16-18 x 7/8 long (turbo bracket to turbo) | 1 |
| 16 | LW-31SS-1.13 | BOLT, 5/16-18 x 1-1/8 long (turbo bracket to turbo) | 1 |

* Used on TIO-540-AF1A engines.

** Used on TIO-540-AF1B engines.

■ Used under head of bolt at transition.

● Shipped as loose parts with engine.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 27 Illustration, Page 7-4.

TURBOCHARGER AND EXHAUST SYSTEMS TURBO OIL DRAIN TANK AND RELATED PARTS

| FIG. REF. 28 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|----------------|--|-----------------------|
| 1 | LW-12876-4S334 | HOSE ASSY. (acc. hsg. to turbo oil inlet) | 1 |
| 2 | 77813 | GASKET, Turbo oil inlet adapter | 1 |
| 3 | 77814 | ADAPTER, Turbo oil inlet | 1 |
| 4 | STD-35 | WASHER, 5/16 plain | 2 |
| 5 | STD-475 | WASHER, 5/16 lock, internal teeth | 2 |
| 6 | LW-31-0.94 | BOLT, 5/16-18 x 15/16 long, hex. hd. | 2 |
| 7 | 02A21126 | ELBOW, 1/4 tube, 45° (restricted 3/32) turbo oil inlet | 1 |
| 8 | LW-18038 | GASKET, Turbo oil drain adapter | 1 |
| 9 | 58B19764 | TANK, Turbo oil drain | 1 |
| 10 | STD-33 | WASHER, 3/8 plain | 2 |
| 11 | STD-678 | WASHER, 3/8 lock, internal teeth | 2 |
| 12 | LW-38-0.75 | BOLT, 3/8-16 x 3/4 long, hex. hd. | 2 |
| 13 | AN816-4 | NIPPLE, 1/4 tube x 1/8 NPT (in tank) | 1 |
| 14 | MS20822-8 | ELBOW, 1/2 tube, 90° (in tank) | 1 |
| 15 | MS20822-4 | ELBOW, 1/4 tube, 90° (in magneto adapter) | 1 |
| 16 | LW-12798-4S242 | HOSE ASSY. (tank to magneto adapter) | 1 |
| 17 | LW-10637 | ELBOW, 1/2 tube, 90° (in scavenge pump) | 1 |
| 18 | MS29512-08 | "O" RING, 11/16 I.D. x 5/64 wall | 1 |
| 19 | 76734 | -- DOES NOT APPLY TO THIS MODEL -- | |
| 20 | LW-13176-8S220 | HOSE ASSY. (tank to scavenge pump) | 1 |
| 21 | 07E19831 | BRACKET, Turbo oil drain tank | 1 |
| 22 | 40J22956 * | HEAT SHIELD, Turbo drain tank | 1 |
| 23 | STD-425 | WASHER, No. 10 plain | 3 |
| 24 | STD-670 | LOCKNUT, No. 10-32 | 3 |
| 25 | STD-860 | SCREW, No. 10-32 x 5/8 long, fill. hd. | 1 |
| 26 | STD-692 | SCREW, No. 10-32 x 1/2 long, fill. hd. | 2 |
| 27 | LW-11999 ** | REDUCER, 7/8-14 to 9/16-18 (wastegate oil drain) | 1 |
| 28 | LW-16561 | NIPPLE, 1/4 tube to 9/16-18 thd. (wastegate oil drain) | 1 |
| 29 | MS20822-4 | ELBOW, 1/4 tube, 90° (in acc. hsg. turbo oil) | 1 |

* P/N 40J22956 HEAT SHIELD supersedes P/N LW-19160 HEAT SHIELD.

** Requires P/N MS29512-10 O-RING.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 28 Illustration, Page 7-6.

TURBOCHARGER AND EXHAUST SYSTEMS TURBOCHARGER CONTROLLERS, WASTEGATE AND HOSES

| FIG. REF. 29 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|----------------|---|-----------------------|
| 1 | 72376 * | ELBOW, 1/4 tube, 90° (wastegate inlet) | 1 |
| 2 | LW-12798-4S274 | HOSE ASSY. (Acc. hsg. to wastegate inlet) | 1 |
| 3 | 72377 ** | ELBOW, 3/8 tube, 90° (wastegate outlet) | 1 |
| 4 | LW-12877-6S200 | HOSE ASSY. (wastegate outlet to density cont. inlet) | 1 |
| 5 | 76355 ** | TEE, 3/8 tube, adj. (density cont. inlet) | 1 |
| 6 | LW-12877-6S066 | HOSE ASSY. (Den. cont. in tee to diff. cont. in.) | 1 |
| 7 | 72377 ** | ELBOW, 3/8 tube, 90° (density cont. out) | 1 |
| 8 | LW-12483 ** | NIPPLE, 3/8 tube (diff. cont. inlet, 5/64 rest.) | 1 |
| 9 | AN893-12 | BUSHING, Reducer, 3/4-16 to 9/16 (in diff. cont. out) | 1 |
| 10 | MS29512-08 | "O" RING, 41/64 x 5/64 sect. (diff. cont. out) | 1 |
| 11 | 77461 ** | TEE, 3/8 tube, st. thd. on side (diff. cont. out) | 1 |
| 12 | LW-12877-6S110 | HOSE ASSY., (Density cont. out to differential out) | 1 |
| 13 | LW-12799-6S180 | HOSE ASSY., (Differential out to acc. hsg.) | 1 |
| 14 | 72376 * | ELBOW, 1/4 tube, 90° (in air inlet duct) right side | 1 |
| 15 | STD-1932 | BUSHING, Reduced, 1/4 to 1/8 NPT | 1 |
| 16 | 02A22542 ■ | ELBOW, 1/4 tube, 90° (.1015 rest.) | 1 |
| 17 | LW-12878-4S170 | HOSE ASSY., (Low. press. to air duct) | 1 |
| 18 | 72376 * | ELBOW, (wastegate drain) | 1 |
| 19 | LW-12876-4S172 | HOSE ASSY. (wastegate drain to crankcase) | 1 |
| 20 | AN814-4L | PLUG & BLEEDER, (air inlet duct, left side) | 1 |
| 21 | MS29512-04 | "O" RING | 1 |
| 22 | LW-16266-25-63 | CLAMP, Left magneto hose | 1 |
| 23 | 73314 | GASKET, Density controller | 1 |
| 24 | LW-10682 | CONTROLLER, Density | 1 |
| 25 | STD-28 | WASHER, No. 10 plain | 4 |
| 26 | STD-1566 | SCREW, No. 10-24 x 3/4 long, fill. hd., dr. | 4 |
| 27 | STD-1928 | SEAL, Wire | AR |
| 28 | 73314 | GASKET, Differential pressure controller | 1 |
| 29 | 48B21935 ● | CONTROLLER, Differential pressure | 1 |
| 30 | STD-28 | WASHER, No. 10 plain | 4 |
| 31 | STD-1566 | SCREW, No. 10-24 x 3/4 long, fill. hd., dr. | 4 |
| 32 | AN912-9 | BUSHING, (In acc. hsg. controller drain) | 1 |
| 33 | MS20822-6 | ELBOW, 3/8 tube, 90° (in bushing) | 1 |

* Requires P/N MS29512-04 O-RING.

** Requires P/N MS29512-06 O-RING.

■ P/N 02A22542 ELBOW supersedes P/N 78067 ELBOW.

● P/N 48B21935 CONTROLLER supersedes P/N LW-10098 CONTROLLER.

- IMPORTANT -

Use in conjunction with PC-315-8: TIO-540-AF1A Series Parts Catalog, Figure 29 Illustration, Page 7-8.

**TURBOCHARGER AND EXHAUST SYSTEMS
INTERCOOLER AND MOUNTING RELATED PARTS**

| FIG. REF. 30 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|--|--------------------------------------|
| 1 | LW-15490 | HOSE, 2-1/4 I.D. x 2-5/8 O.D. x 2-3/8 long | 1 |
| 2 | LW-14246 | HOSE, 2-1/2 to 2-1/4 I.D. x 3.00 long | 1 |
| 3 | LW-15592-8-36 | CLAMP, Hose | 3 |
| 4 | LW-15592-8-40 | CLAMP, Hose | 1 |
| 5 | 41A19821 | TUBE, Air inlet | 1 |
| 6 | 42K19837 | INTERCOOLER | 1 |
| 7 | 07E19832 | BRACKET, Intercooler to sump support | 1 |
| 8 | STD-35 | WASHER, 5/16 plain | 1 |
| 9 | STD-1727 | WASHER, 1/8 thick (assembly slot end) | 1 |
| 10 | STD-475 | WASHER, 5/16 lock, internal teeth (brk. to sump) | 2 |
| 11 | LW-14649 | SHIM, (Under either bolt) | AR |
| 12 | STD-690 | WASHER, (Under either bolt) | AR |
| 13 | LW-31-0.81 | BOLT, 5/16-18 x 13/16 long, hex. hd. | 2 |
| 14 | 07E19835 | STRUT, Support | 1 |
| 15 | STD-33 | WASHER, 3/8 plain (strut to intercooler) | 1 |
| 16 | STD-678 | WASHER, 3/8 lock, internal teeth (strut to intercooler) | 1 |
| 17 | LW-38-0.75 | BOLT, 5/16-18 x 3/4 long, hex. hd. (strut to intercooler) | 1 |
| 18 | 77504 | GASKET, Fuel injector | 1 |
| 19 | STD-8 | WASHER, 1/4 plain (intercooler to injector) | 4 |
| 20 | STD-160 | WASHER, 1/4 lock, internal teeth (intercooler to injector) | 4 |
| 21 | LW-25-1.00 | BOLT, 1/4-20 x 1.00 long, hex. hd. (intercooler to injector) | 4 |
| 22 | LW-13807 | ADAPTER ASSY., Fuel drain valve (intercooler) | 1 |
| 23 | 72376 | ELBOW, 1/4 tube, 90° (nozzle vent, left side) | 1 |
| 24 | 74369 | TEE, 1/4 tube (fuel pump & instrument vent) | 1 |

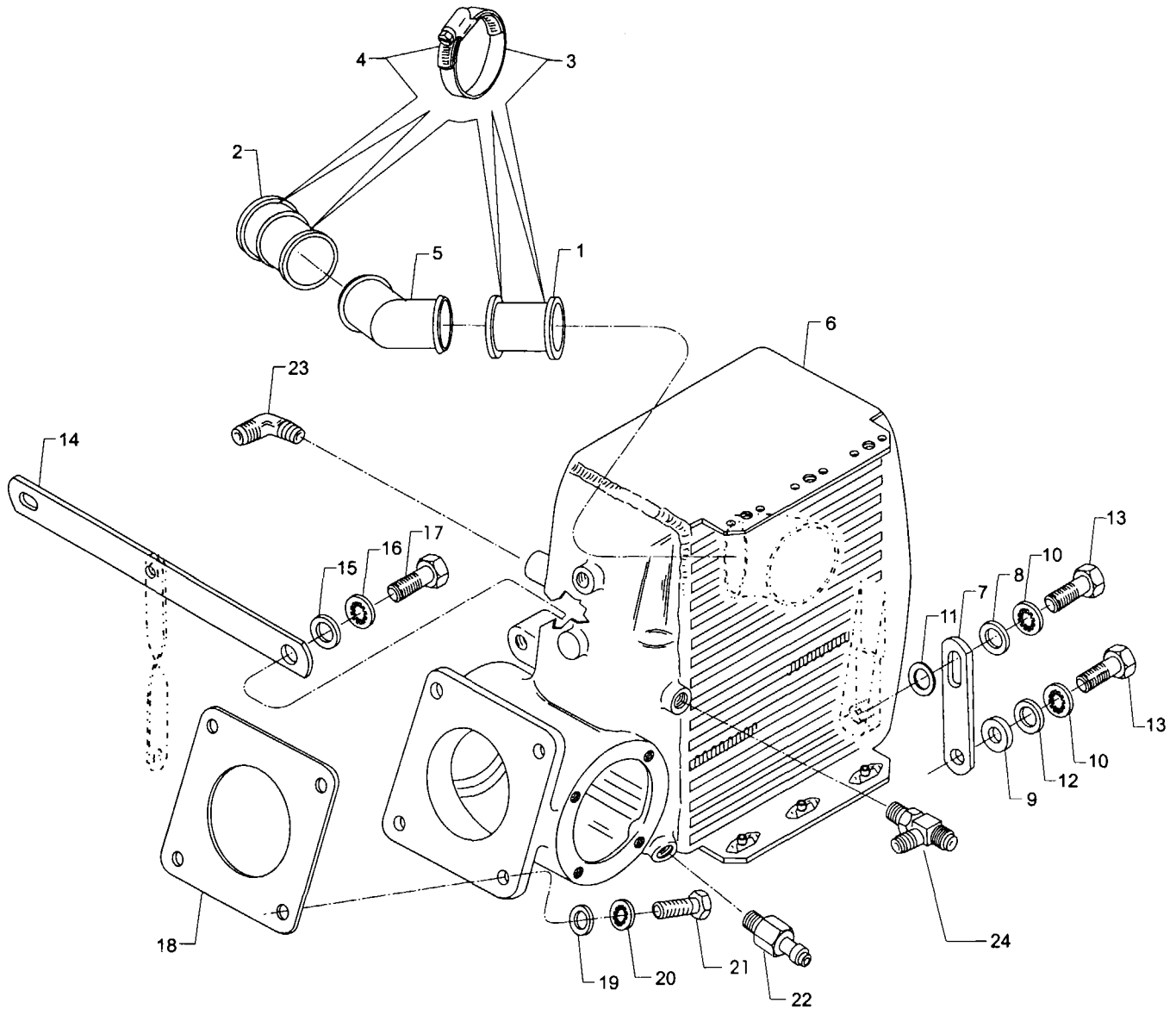


Figure 30. INTERCOOLER AND MOUNTING RELATED PARTS

INTRODUCTION

This illustrated parts catalog contains a complete parts listing for the flange model aircraft engines.

Lycoming TIO-540-AF1A wide cylinder

Major assembly and sub-assembly parts of the engines are listed in the Group Assembly sections in the general sequence of engine build up.

A Service Kits section and Oversize and Undersize Parts List are included to aid in ordering parts as necessary during overhaul.

The Numerical Index is provided for convenience in finding parts when only the part number is known.

Parts coverage of Vendor Accessories used on Lycoming engines may be found in the appropriate Vendor's Parts Catalog. A list of these publications appear in the latest edition of Service Letter No. L114.

NOTE

The illustrations, pictures and drawings shown in this publication are typical of the subject matter they portray.

This catalog, when used in conjunction with the appropriate overhaul manual, shall be used for parts identification only. Under no circumstances shall this catalog be used as an assembly or installation document.

Any reference in this document to a suppliers/parts manufacturers' product, by name, trademark, part number or other description is solely for the purposes 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.

SERVICE BULLETINS, INSTRUCTIONS AND LETTERS

Although the information contained in this parts catalog is up-to-date at time of publication, users are advised to procure current information through all Lycoming distributors or from the factory by subscription. Consult the latest edition of Service Letter No. L114 for subscription information.

HOW TO ORDER PARTS

In ordering parts for your engine, observe the following instructions which will expedite shipment of correct parts required without delay.

- a. Always specify the model and serial number of your engine.
- b. Always specify Part Number, Nomenclature and quantity required.

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Oversize and Undersize Parts Listing

| PART NO. | DESCRIPTION | OVERSIZE | | | | | | | | UNDERSIZE | | |
|-------------|-------------|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | | P02 .002 | P05 .005 | P10 .010 | P15 .015 | P20 .020 | P30 .030 | P40 .040 | P50 .050 | M03 .003 | M06 .006 | M10 .010 |
| 66610 | BUSHING | | X | X | | | | | | | | |
| 69260 | INSERT | | | X | | | | | | | | |
| 69796 | DOWEL | | X | | | | | | | | | |
| 71903-A, -B | BUSHING | SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1143 FOR APPLICATION. | | | | | | | | | | |
| 72057 | SEAT | | | X | | X | X | | | | | |
| 72058 | SEAT | | | X | | X | X | | | | | |
| 72060-S | BUSHING | | X | X | X | X | | | | | | |
| 72061-S | BUSHING | | X | X | X | X | | | | | | |
| 72062-S | BUSHING | | X | X | X | X | | | | | | |
| 73810 | BUSHING | SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1142 FOR APPLICATION. | | | | | | | | | | |
| 73857 | RING | | | X | | X | | | | | | |
| 74241 | RING | | | X | | | | | | | | |
| 76943-S | GUIDE | SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1256 FOR APPLICATION. | | | | | | | | | | |
| 77160-S | GUIDE | SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1256 FOR APPLICATION. | | | | | | | | | | |
| LW-11997 | SEAL | SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1324 FOR APPLICATION. | | | | | | | | | | |
| LW-13521 | BEARING | | | X | | | | | | X* | X* | X* |
| LW-13792 | SEAL | SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1324 FOR APPLICATION. | | | | | | | | | | |
| LW-13884 | BEARING | | | | X | | | | | X | X | X |
| LW-16048 | BEARING | | | X | | | | | | X* | X* | X* |
| LW-16711 | BEARING | | | | | | | | | X | X | X |
| STD-1065 | DOWEL | X | X | X | X | | | | | | | |
| 18A19441 | BEARING | | | | X | | | | | X | X | X |
| 18M19389 | BEARING | | | X | | | | | | X* | X* | X* |

* Also available in P10 oversize.

In addition to the above, studs are available in P01, P02, P03, P05, P07, P10 & P12.

NOTE

When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing LW-13884 in .003 undersize, order part number LW-13884-M3. Oversize code letter is "P" while undersize code letter is "M". These letters are then followed by the number designating the size in thousandths of an inch.

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ASSEMBLY

| FIG. REF. 1 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------------|--------------------|--|------------------------------|
| 1 | 11E20003-S3 * | CRANKCASE ASSEMBLY (See note) | 1 |
| 2 | LW-13794 | STUD, 5/16-18 x 1.00 long, left idler pad | 1 |
| 3 | 38-13 | STUD, 3/8-16 x 1-5/8 long, front left comp. pad | 4 |
| 4 | 31C-12 | STUD, 5/16-18 x 1-1/2 long, starter pad, rear | 2 |
| 5 | 31C-13 | STUD, 5/16-18 x 1-5/8 long, starter pad, front | 1 |
| 6 | 38-13 | STUD, 3/8-16 x 1-5/8 long, cylinder pad | 24 |
| 7 | 50-15 | STUD, 1/2-20 x 1-7/8 long, cylinder pad | 12 |
| 8 | 38-22 | STUD, 3/8-16 x 2-3/4 long, nose of crankcase | 1 |
| 9 | 38D-17 | STUD, 3/8-16 x 2-1/8 long, rear, above cam | 1 |
| 10 | 38-16 | STUD, 3/8-16 x 2.00 long, engine mount | 8 |
| 11 | 69796 | DOWEL, Crankshaft, front bearing | 2 |
| 12 | STD-514 | DOWEL, 5/16 dia. x 1/2 long, accessory face | 2 |
| 13 | STD-557 | DOWEL, 1/2 dia. x 11/16 long, between halves | 2 |
| 14 | 72158 | BUSHING, Governor drive idler shaft | 1 |
| 15 | STD-1339 | PLUG, 1/16-27 NPT, governor pad | 1 |
| 16 | 1102 | PLUG, 1/8 pipe x 3/8 long, oil pressure | 4 |
| 17 | 31C-16 | STUD, 5/16-18 x 2.00 long, driven height (1.27-1.31) | 4 |
| 18 | 73772 | NOZZLE ASSY., Piston cooling | 6 |

* Incorporates 2-3/8 diameter main bearings, piston squirts, AN governor and provision for Sankyo compressor.

NOTE

This part not available as a service item. Refer to Service Kit Section 8 for applicable Crankcase Assy. and thru stud kit part number.

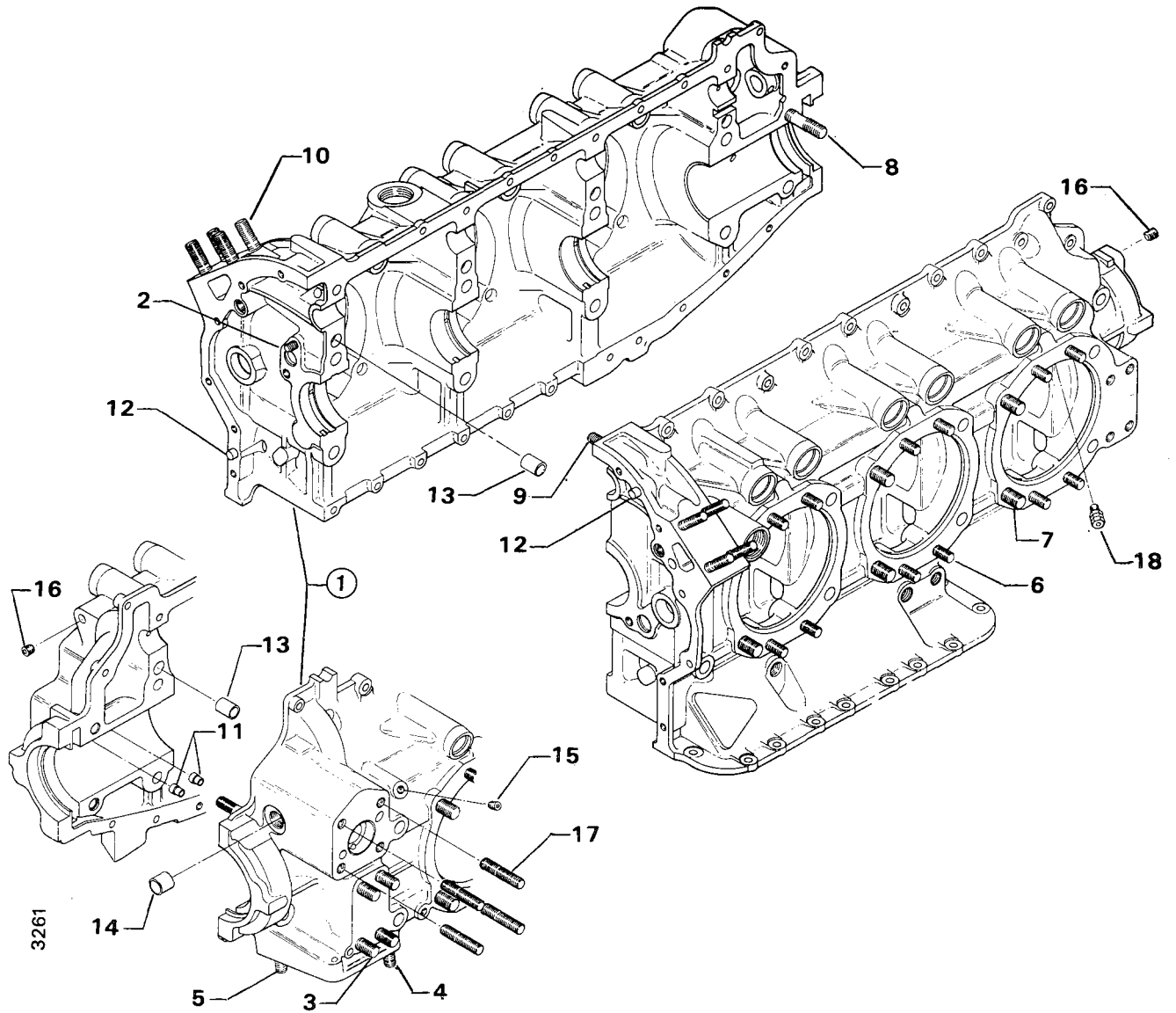
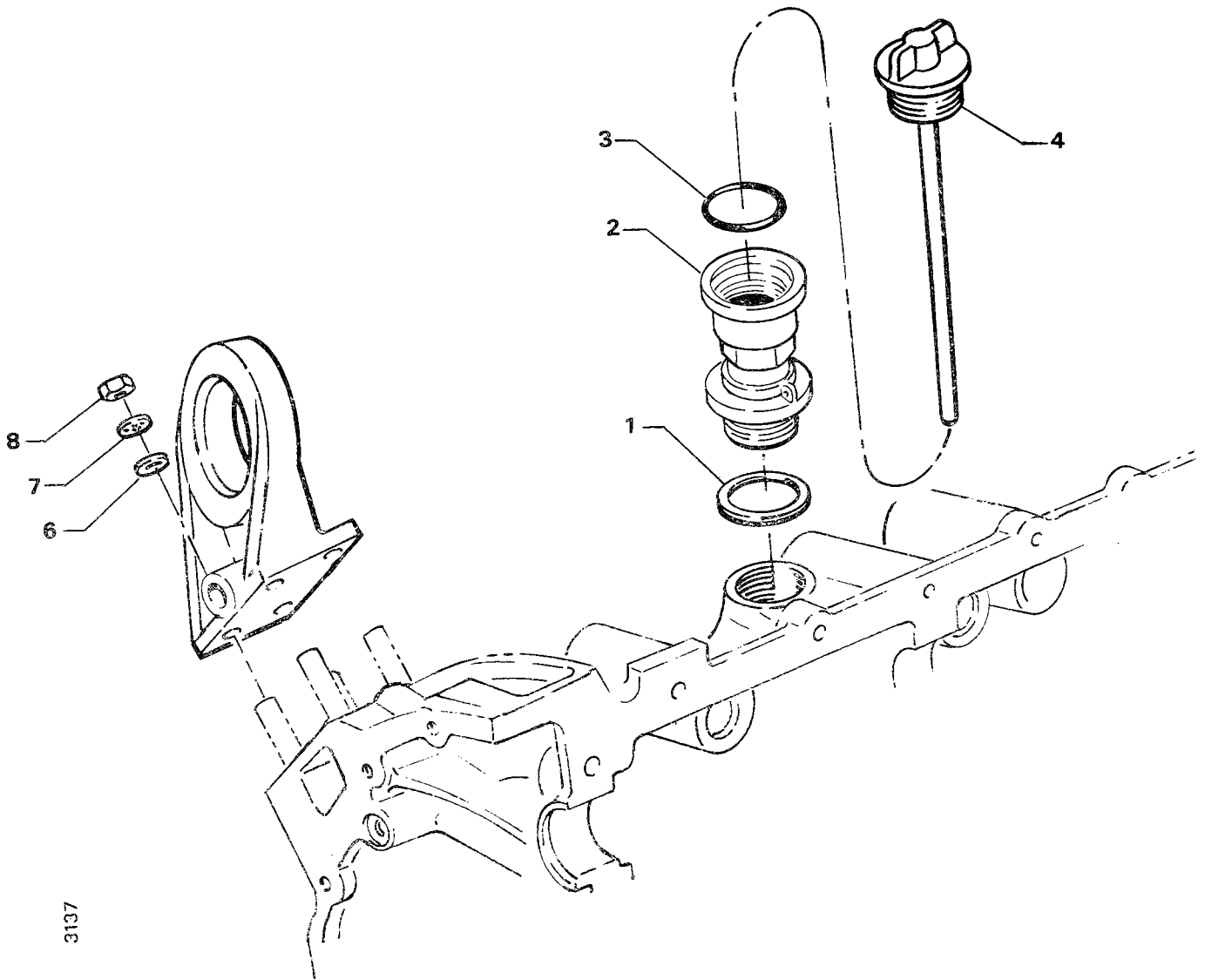


Figure 1. CRANKCASE ASSEMBLY

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
OIL LEVEL GAGE AND ENGINE MOUNTING BRACKETS

| FIG. REF. 2 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------------------|------------------------|--|--------------------------------------|
| 1 | 70457 | GASKET, Oil filler extension | 1 |
| 2 | 75737 | EXTENSION, Oil filler (2.69 extension) | 1 |
| 3 | 74068 | "O" RING, Oil level gage | 1 |
| 4 | LW-16783-14 | GAGE ASSY., Oil level | 1 |
| 5 | 12A19770 | BRACKET, Engine mounting (Dynafocal) | 4 |
| 6 | STD-33 | WASHER, 3/8 plain | 16 |
| 7 | STD-678 | WASHER, 3/8 lock, internal teeth | 16 |
| 8 | STD-596 | NUT, 3/8-24 plain | 16 |



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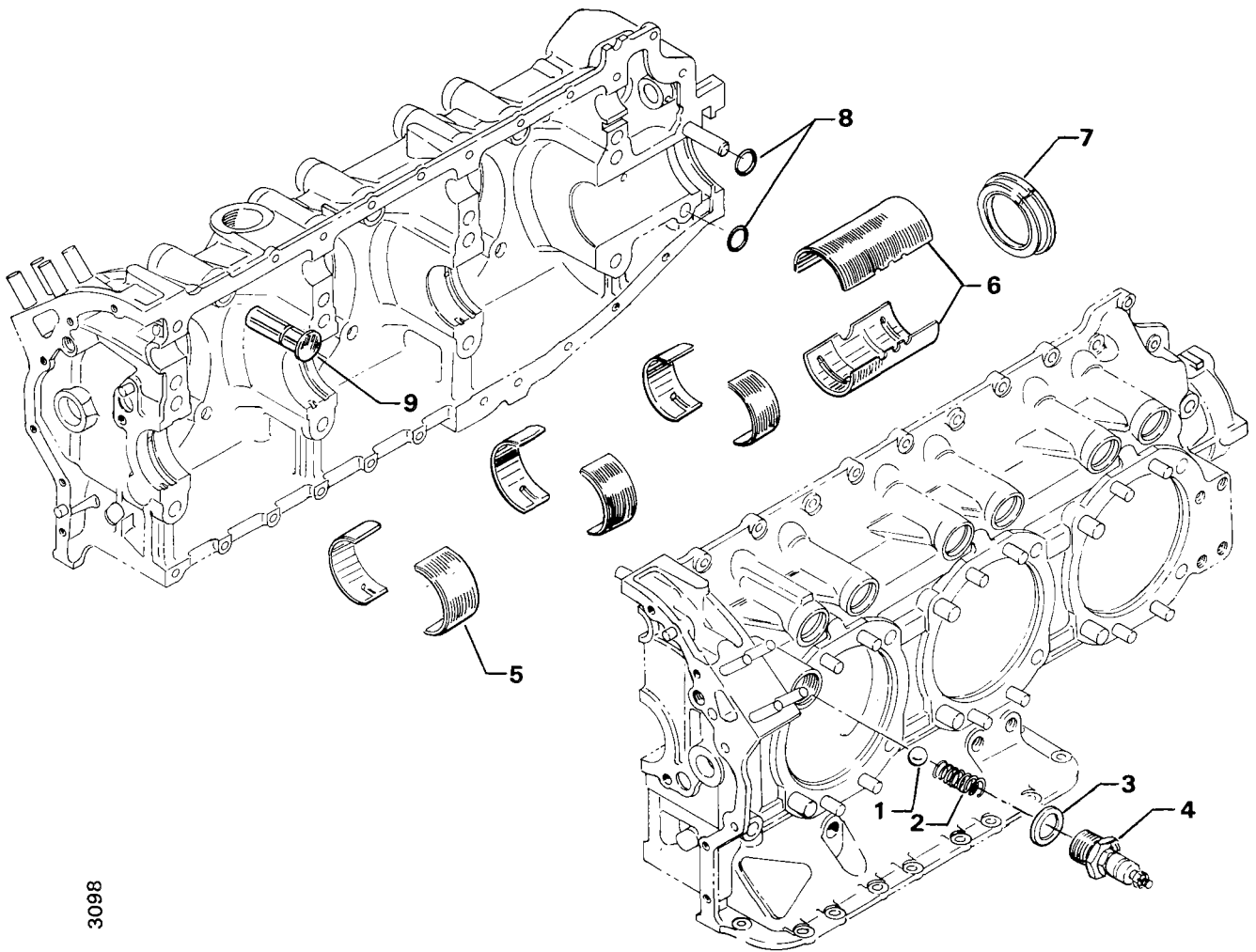
Figure 2. OIL LEVEL GAGE AND ENGINE MOUNTING BRACKETS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
 CRANKCASE RELATED PARTS

| FIG. REF. 3 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-------------|---------------|---|-----------------------|
| 1 | 1028-B | BALL, 11/16 diameter | 1 |
| 2 | 68668 * | SPRING, Oil pressure relief valve | 1 |
| | 61084 * | 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, adjustable | 1 |
| 5 | LW-16711 | BEARING, Crankshaft | 6 |
| 6 | LW-13884 | BEARING, Crankshaft, front | 2 |
| | 18A19441 | BEARING, Crankshaft, front (alternate) | 2 |
| 7 | LW-13792 * * | SEAL, Crankshaft oil | 1 |
| | LW-11997 * * | SEAL, Crankshaft oil, split | 1 |
| 8 | 72091 | RING, Oil seal, 23/64 I.D. x 7/64 dia. section | 2 |
| 9 | 72877 | BODY, Hydraulic tappet | 12 |

* Select spring to give a minimum of three threads exposed on adjusting screw to allow field adjustment. Reference latest edition of SSP-1776, Part 1 for spring identification.

* * See latest edition of Service Instruction No. 1324 for application.



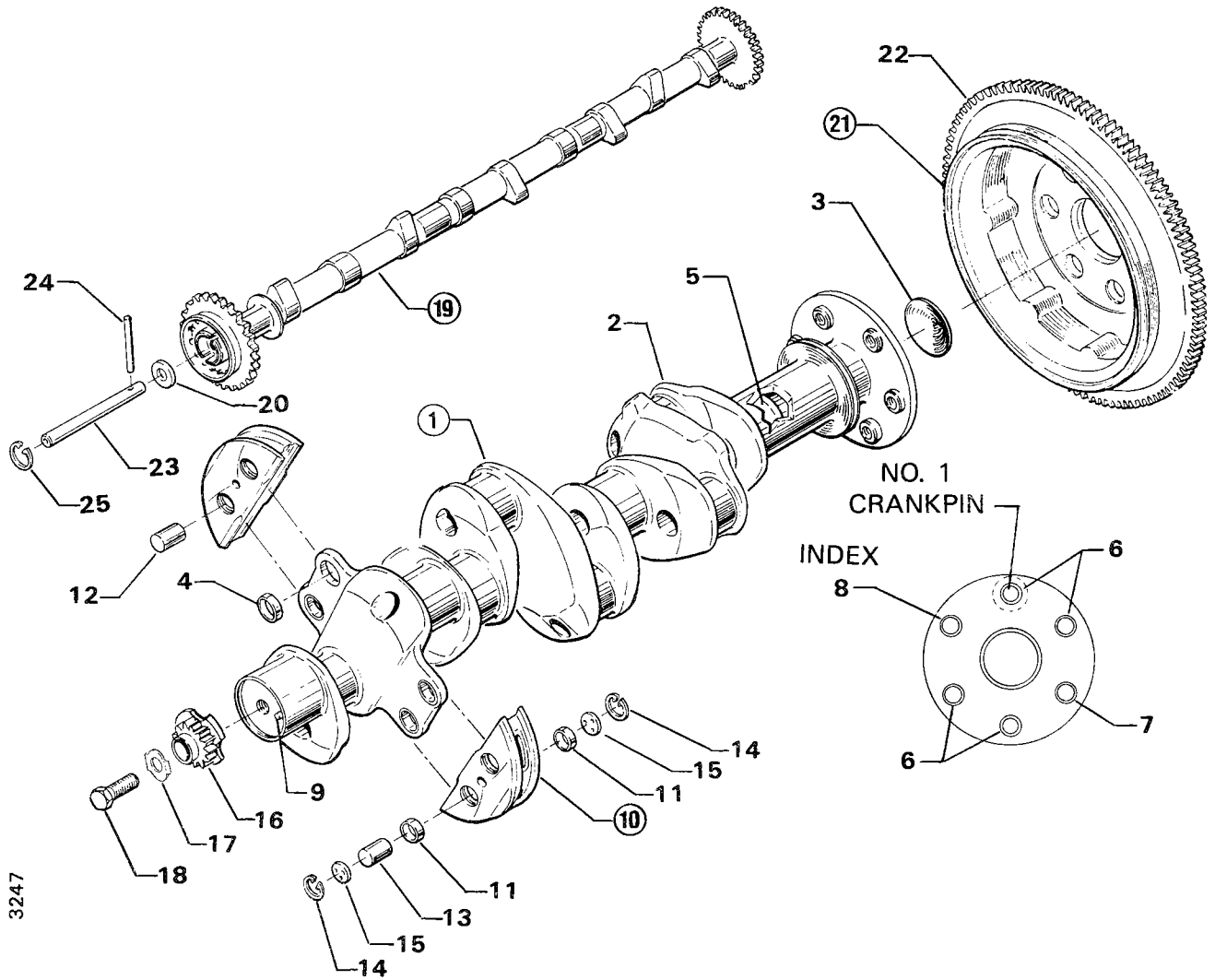
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Figure 3. CRANKCASE RELATED PARTS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CAMSHAFT, CRANKSHAFT AND RELATED PARTS

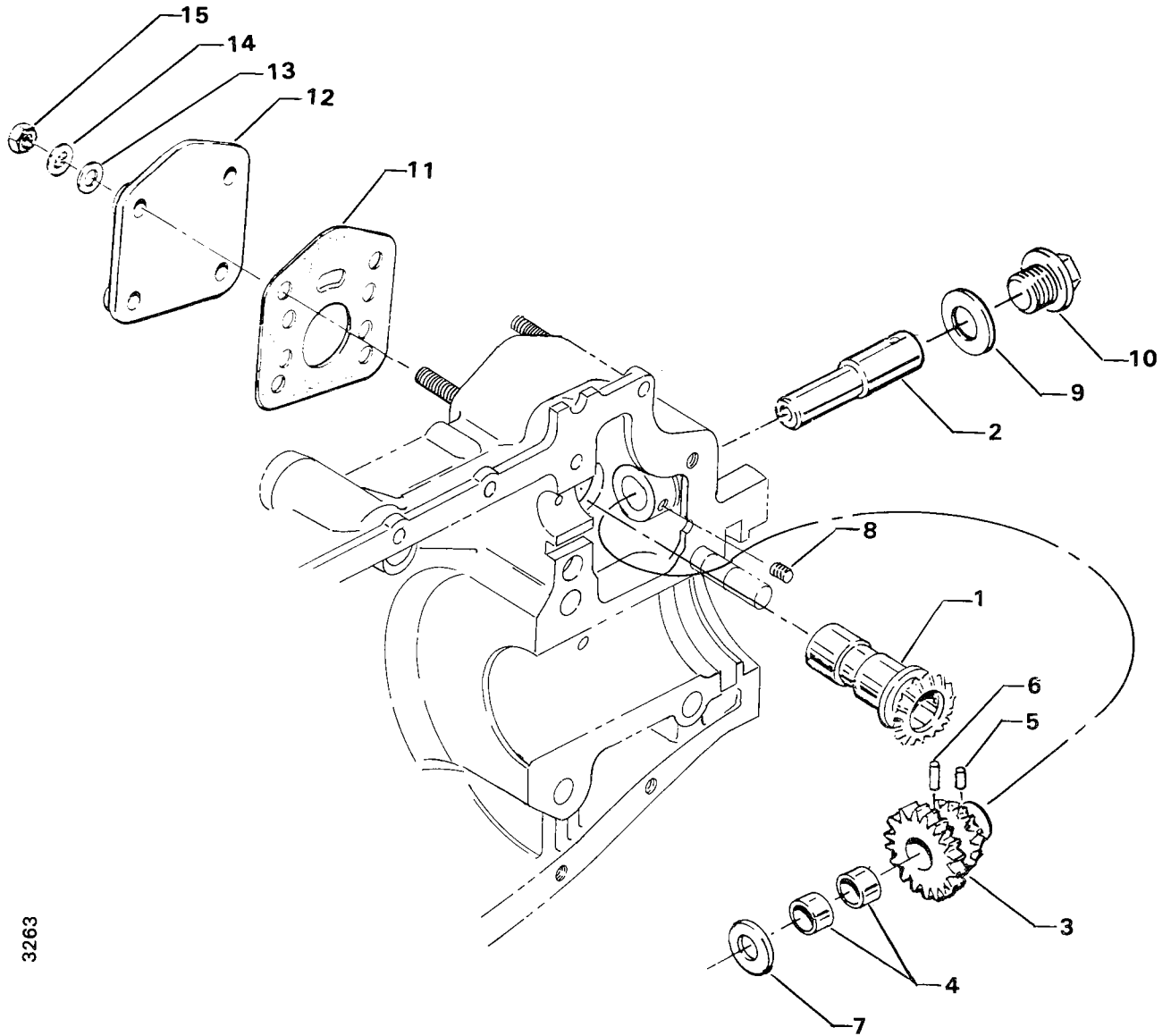
| FIG. REF. 4 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|----------------|--------------|---|-----------------------|
| 1 | 13E17688 | CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY | 1 |
| 2 | 13E17648 | CRANKSHAFT AND PLUG ASSEMBLY | 1 |
| 3 | STD-1211 | PLUG, 2.00 dia. expansion | 1 |
| 4 | 73810 * | BUSHING, Crankshaft dynamic counterweight | 4 |
| 5 | 71640 | PLUG, 1-3/8 diameter | 1 |
| 6 | 72062 | BUSHING, Propeller flange, long | 4 |
| 7 | 72061 | BUSHING, Propeller flange, short | 1 |
| 8 | 72060 | BUSHING, Propeller flange, indexing | 1 |
| 9 | STD-1065 | DOWEL, Stepped, 5/16 & 1/4 dia. x 35/64 long | 1 |
| 10 | LW-19210 * * | COUNTERWEIGHT ASSEMBLY | 2 |
| 11 | 71903 * | BUSHING, Dynamic counterweight | 8 |
| 12 | 76788 * * | ROLLER, Dynamic counterweight, 6.3 order | 2 |
| 13 | LW-15558 * * | ROLLER, Dynamic counterweight, 4.8 order | 2 |
| 14 | LW-14820 | RING, Internal retaining | 8 |
| 15 | 71907 | WASHER, Dynamic counterweight | 8 |
| 16 | 13S19648 ● | GEAR, Crankshaft | 1 |
| 17 | LW-18638 | LOCKPLATE, Crankshaft gear | 1 |
| 18 | STD-2209 | BOLT, 5/16-24 x 1-3/4 long, hex. head | 1 |
| 19 | LW-19340 | CAMSHAFT ASSEMBLY | 1 |
| 20 | 76118 | SPACER, Tachometer shaft centering | 1 |
| 21 | 31M19861 | SUPPORT ASSY., Starter ring gear, 12/14 pitch | 1 |
| 22 | 72566 | GEAR, Starter ring | 1 |
| 23 | 76155 | SHAFT ASSY., Tachometer | 1 |
| 24 | LW-18667 | PIN, 3/16 dia. x 2-21/64 long | 1 |
| 25 | MS16625-1081 | RING, Internal retaining | 1 |

- * See latest edition of Service Instruction No. 1142 for application.
- * * See latest edition of Service Instruction No. 1012 for application.
- ★ See latest edition of Service Instruction No. 1143 for application.
- See latest edition of Service Bulletin No. 475 for application.



**CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
 PROPELLER GOVERNOR DRIVE ASSEMBLY**

| FIG. REF. 5 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-------------|--------------|--|-----------------------|
| 1 | LW-10442 | GEAR, Propeller governor drive | 1 |
| 2 | LW-14021 | SHAFT, Propeller governor idler gear | 1 |
| 3 | LW-10541 | GEAR ASSY., Prop. governor idler | 1 |
| 4 | 77872 | BUSHING, Prop. governor idler gear | 2 |
| 5 | STD-19 | DOWEL, 3/32 dia. x 7/32 long | 1 |
| 6 | STD-798 | DOWEL, 3/32 dia. x 9/32 long | 1 |
| 7 | 73249 | WASHER, Thrust | AR |
| | 73250 | WASHER, Thrust | AR |
| | 73251 | WASHER, Thrust | AR |
| | 73252 | WASHER, Thrust | AR |
| 8 | AN565B1032H5 | SET SCREW, No. 10-32 x 5/16 long | 1 |
| 9 | 70455 | GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/16 thick | 1 |
| 10 | LW-13896 | PLUG, 3/4-16 hex. head | 1 |
| 11 | 72053 | GASKET, Governor | 1 |
| 12 | 72378 | COVER, Governor drive | 1 |
| 13 | STD-35 | WASHER, 5/16 plain, Woodward governor | 20 |
| | STD-35 | WASHER, 5/16 plain, AN governor | 4 |
| 14 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 15 | STD-1410 | NUT, 5/16-18 plain | 4 |



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Figure 5. PROPELLER GOVERNOR DRIVE ASSEMBLY

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKSHAFT AND FUEL PUMP IDLER GEARS

| FIG. REF. 6 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------------|--------------------|---|------------------------------|
| 1 | LW-13795 | SHAFT, Crankshaft idler gear | 2 |
| 2 | STD-2167 | SCREW, 5/16-18 x 7/8 long, hex. head, dr. | 3 |
| 3 | STD-2168 | NUT, 5/16-18 NC-3, slotted shear | 1 |
| 4 | 72246 | SHAFT, Fuel pump idler gear | 1 |
| 5 | 71667 | LOCKPLATE, 1/4 bolt x 1-3/4 spacing (offset) | 1 |
| 6 | LW-25-0.63 | SCREW, 1/4-20 x 5/8 long, hex. head | 2 |
| 7 | 71664 | GEAR ASSEMBLY, Fuel pump idler | 1 |
| 8 | 77309 | BUSHING, Crankshaft idler gear | 1 |
| 9 | 70474 | WASHER, Fuel pump thrust | 1 |
| 10 | STD-1737 | RING, 37/64 dia. x 3/64 thick, external retaining | 1 |
| 11 | 71668 | GEAR ASSY., Crankshaft idler, plain | 2 |
| 12 | 67530 | BUSHING, Crankshaft idler gear | 2 |
| 13 | 72972 | SHAFTGEAR ASSY., Fuel pump drive | 1 |
| 14 | 72962 | THRUST BUTTON, Shaftgear | 1 |
| 15 | 69164 | GASKET, Fuel pump adapter | 1 |
| 16 | 69159 | ADAPTER ASSEMBLY, Fuel pump drive | 1 |
| 17 | STD-1774 | PIN, 1/8 dia. x 1/4 long | 1 |
| 18 | STD-213 | SEAL, Oil, 3/4 I.D. x 1-3/8 O.D. | 1 |

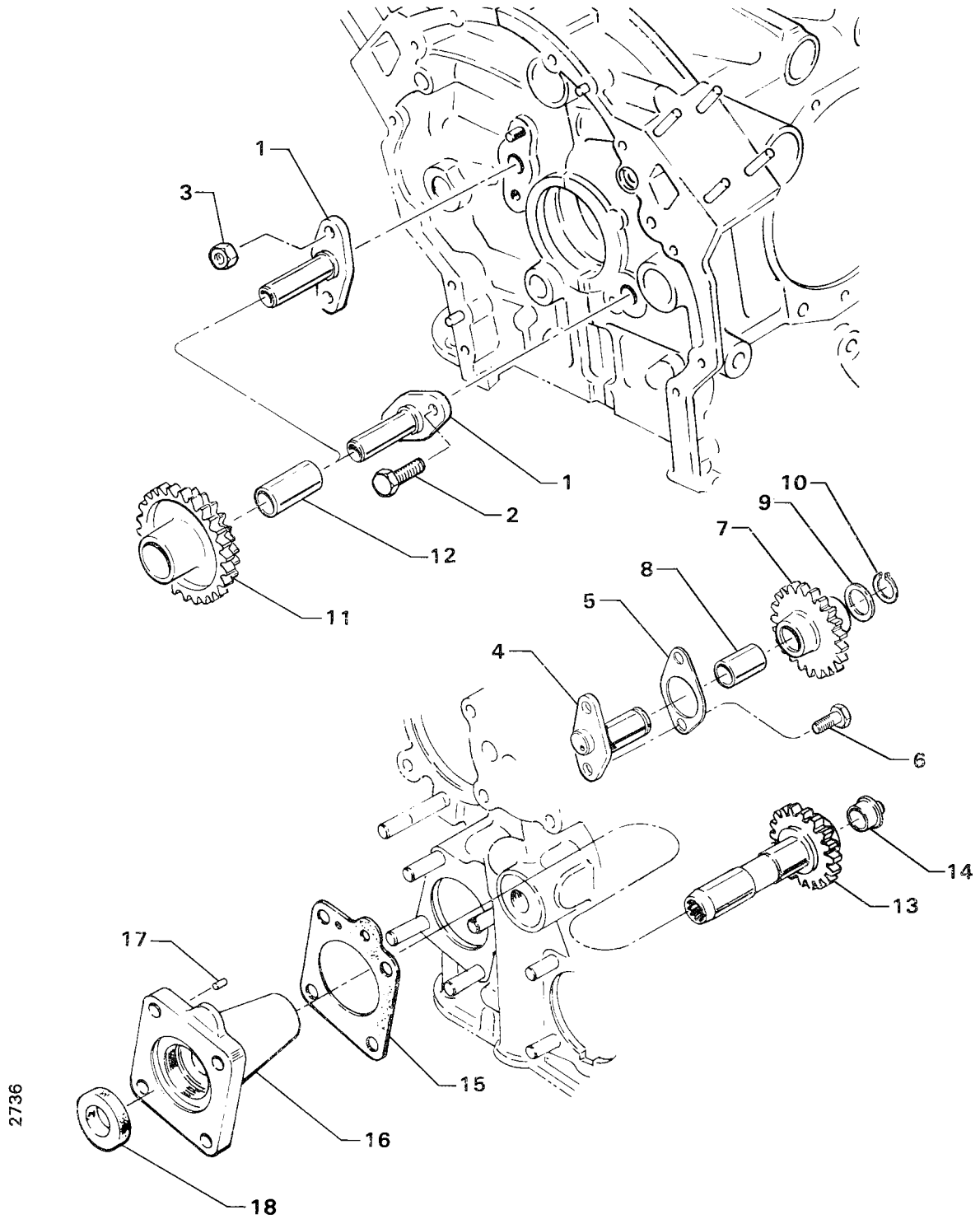
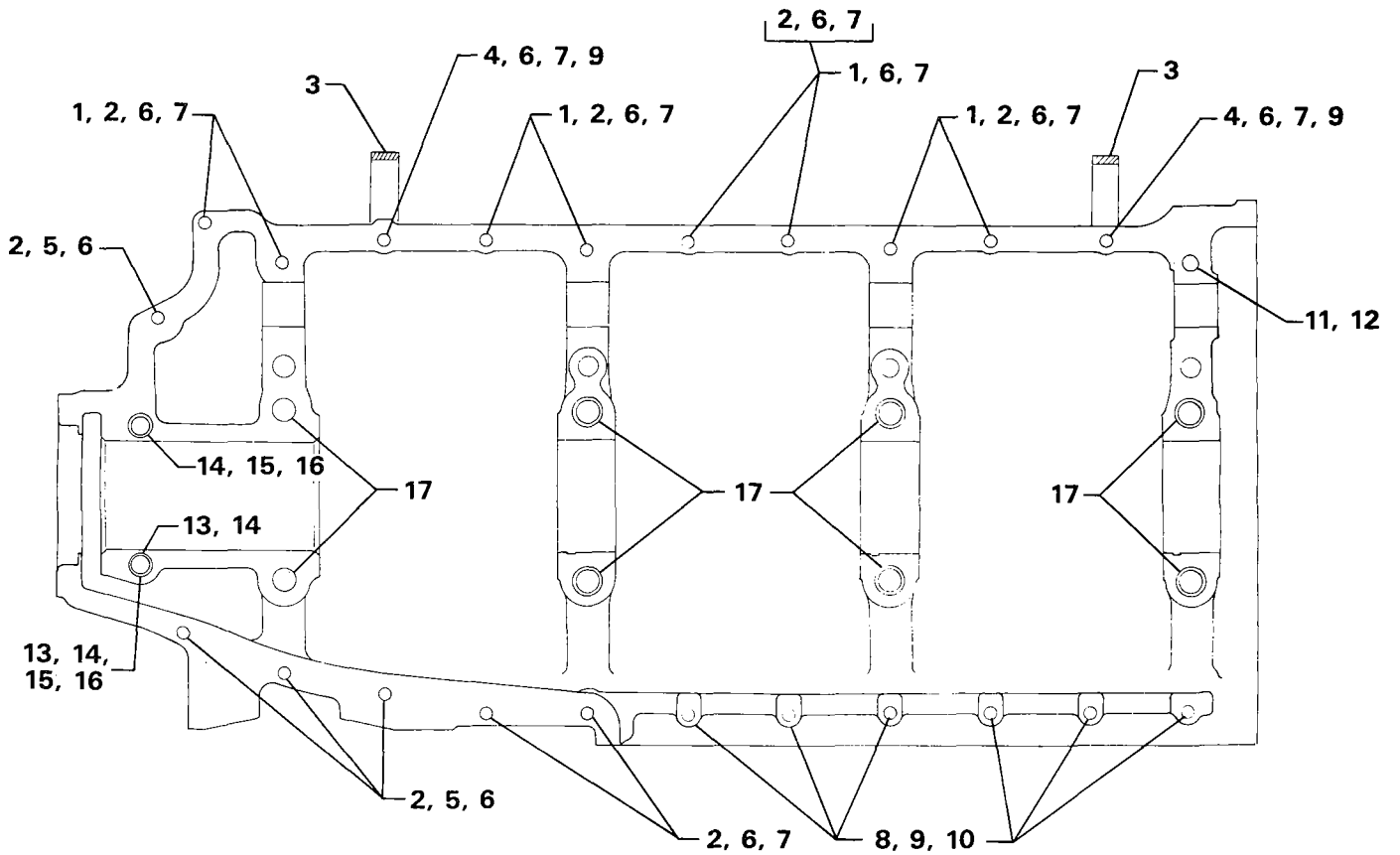


Figure 6. CRANKSHAFT AND FUEL PUMP IDLER GEARS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ATTACHING PARTS

| FIG. REF. 7 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------------|--------------------|---|------------------------------|
| 1 | LW-25-1.50 | BOLT, 1/4-20 x 1-1/2 long, hex. head | 11 |
| 2 | STD-8 | WASHER, 1/4 plain | 27 |
| 3 | 60803 | STRAP, Lifting | 2 |
| 4 | LW-25-1.75 | BOLT, 1/4-20 x 1-3/4 long, hex. head | 2 |
| 5 | LW-25-1.13 | BOLT, 1/4-20 x 1-1/8 long, hex. head | 4 |
| 6 | STD-160 | WASHER, 1/4 lock, internal teeth | 16 |
| 7 | STD-1411 | NUT, 1/4-20 plain | 12 |
| 8 | LW-25S1.50 | BOLT, 1/4-20 x 1-1/2 long, hex. hd. dr. end | 6 |
| 9 | STD-8 | WASHER, 1/4 plain (max. 6) | AR |
| 10 | STD-1409 | NUT, 1/4-20 slotted shear | 6 |
| 11 | STD-33 | WASHER, 3/8 plain | 1 |
| 12 | STD-872 | NUT, 3/8-24 slotted | 1 |
| 13 | AN6-34A | BOLT, 3/8-24 x 3-1/2 long, hex. head | 1 |
| 14 | STD-33 | WASHER, 3/8 plain | 3 |
| 15 | STD-678 | WASHER, 3/8 lock, internal teeth | 2 |
| 16 | STD-596 | NUT, 3/8-24 plain | 2 |
| 17 | 76220 | STUD, 1/2-20 x 11-1/2 long | 8 |



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Figure 7. CRANKCASE ATTACHING PARTS

ACCESSORY HOUSING AND RELATED PARTS
 ACCESSORY HOUSING ASSEMBLY

| FIG. REF. 8 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-------------|-------------|--|-----------------------|
| 1 | 73818 | GASKET, Accessory housing | 1 |
| 2 | LW-19155 | HOUSING ASSEMBLY, Accessory | 1 |
| 3 | 31C-12 | STUD, 5/16-18 x 1-1/2 long | 4 |
| 4 | 31CD-20 | STUD, 5/16-18 x 2-1/2 long, drilled | 3 |
| 5 | 31C-21 | STUD, 5/16-18 x 2-5/8 long | 4 |
| 6 | 31C-19 | STUD, 5/16-18 x 2-3/8 long | 4 |
| 7 | 25C-19 | STUD, 1/4-20 x 2-3/8 long | 4 |
| 8 | 1102 | PLUG, 1/8 pipe x 3/8 long, socket | 2 |
| 9 | LW-18696 | TEE, 1/4 tube, restricted on run (Acc. hsg. oil to W.G.) | 1 |

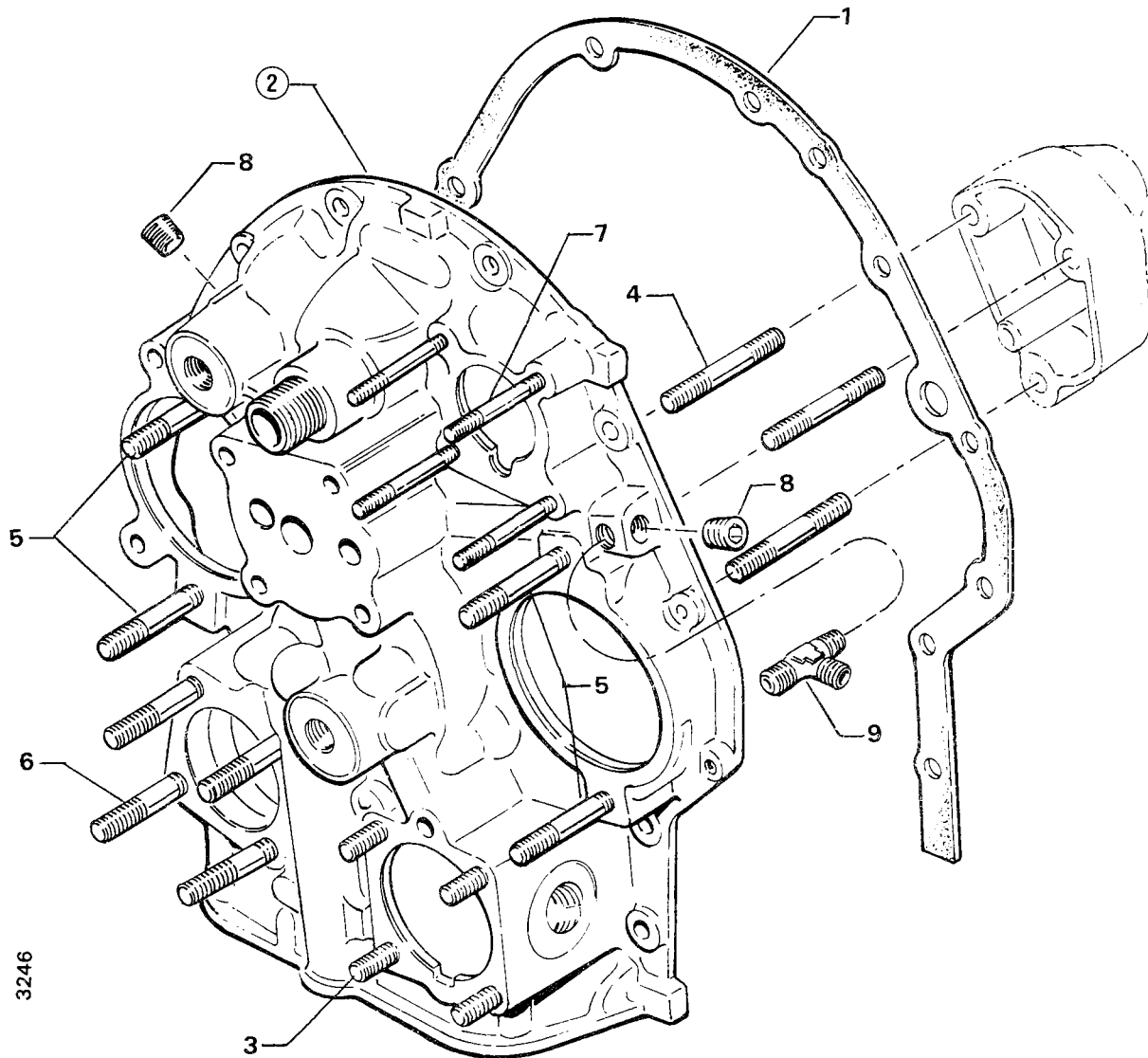


Figure 8. ACCESSORY HOUSING ASSEMBLY

ACCESSORY HOUSING AND RELATED PARTS
OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS

| FIG. REF. 9 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-------------|-------------|---------------------------------------|-----------------------|
| 1 | 75287 | BODY ASSEMBLY, Oil pump | 1 |
| 2 | 60329 | SHAFT, Oil pump idler | 1 |
| 3 | STD-714 | PIN, 1/8 diameter x 1.00 long, cotter | 1 |
| 4 | STD-1339 | PLUG, 1-/16-27 NPT, Allen head | 1 |
| 5 | 76784 | SHAFT, Oil pump drive | 1 |
| 6 | 61297 | IMPELLER, Oil pump, driving | 1 |
| 7 | 61298 | IMPELLER, Oil pump, driven | 1 |
| 8 | STD-35 | WASHER, 5/16 plain | 3 |
| 9 | STD-1420 | NUT, 5/16-18 slotted | 3 |
| 10 | LW-14260 | SEAL, Tachometer drive, oil | 1 |
| 11 | STD-8 | WASHER, 1/4 plain | 10 |
| 12 | STD-160 | WASHER, 1/4 lock, internal teeth | 12 |
| 13 | LW-25-0.94 | BOLT, 1/4-20 x 15/16 long, hex. head | 9 |
| 14 | LW-25-1.13 | BOLT, 1/4-20 x 1-1/8 long, hex. head | 1 |
| 15 | LW-25-1.88 | BOLT, 1/4-20 x 1-7/8 long, hex. head | 2 |

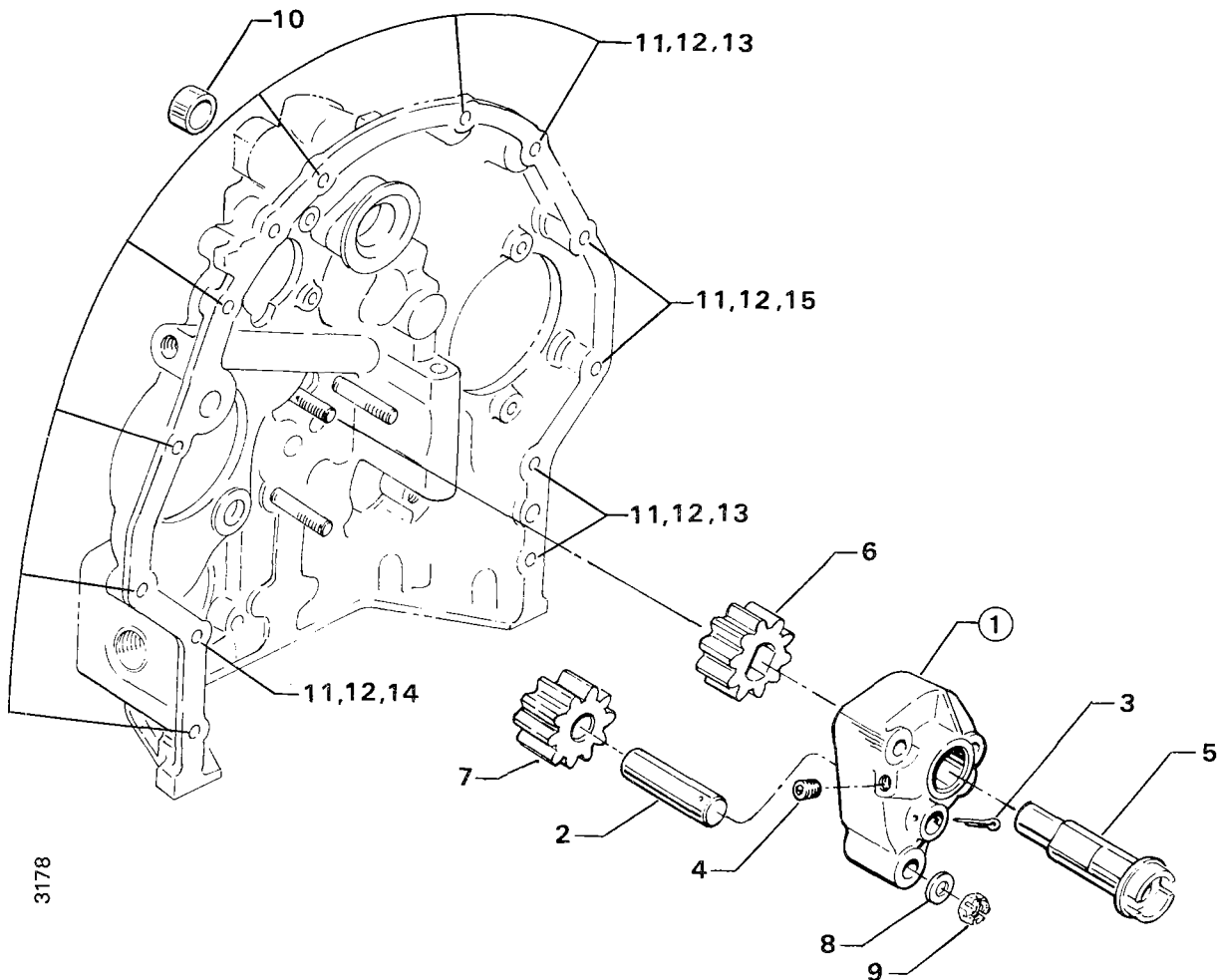


Figure 9. OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS

ACCESSORY HOUSING AND RELATED PARTS
FUEL PUMP ASSEMBLY AND ATTACHING PARTS

| FIG. REF. 10 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|-------------|-----------------------------------|-----------------------|
| 1 | LW-10799 | SPACER, Fuel pump insulating | 1 |
| 2 | 62D21153 | PUMP, Fuel | 1 |
| 3 | STD-35 | WASHER, 5/16 plain | 4 |
| 4 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 5 | STD-1410 | NUT, 5/16-18 plain | 4 |

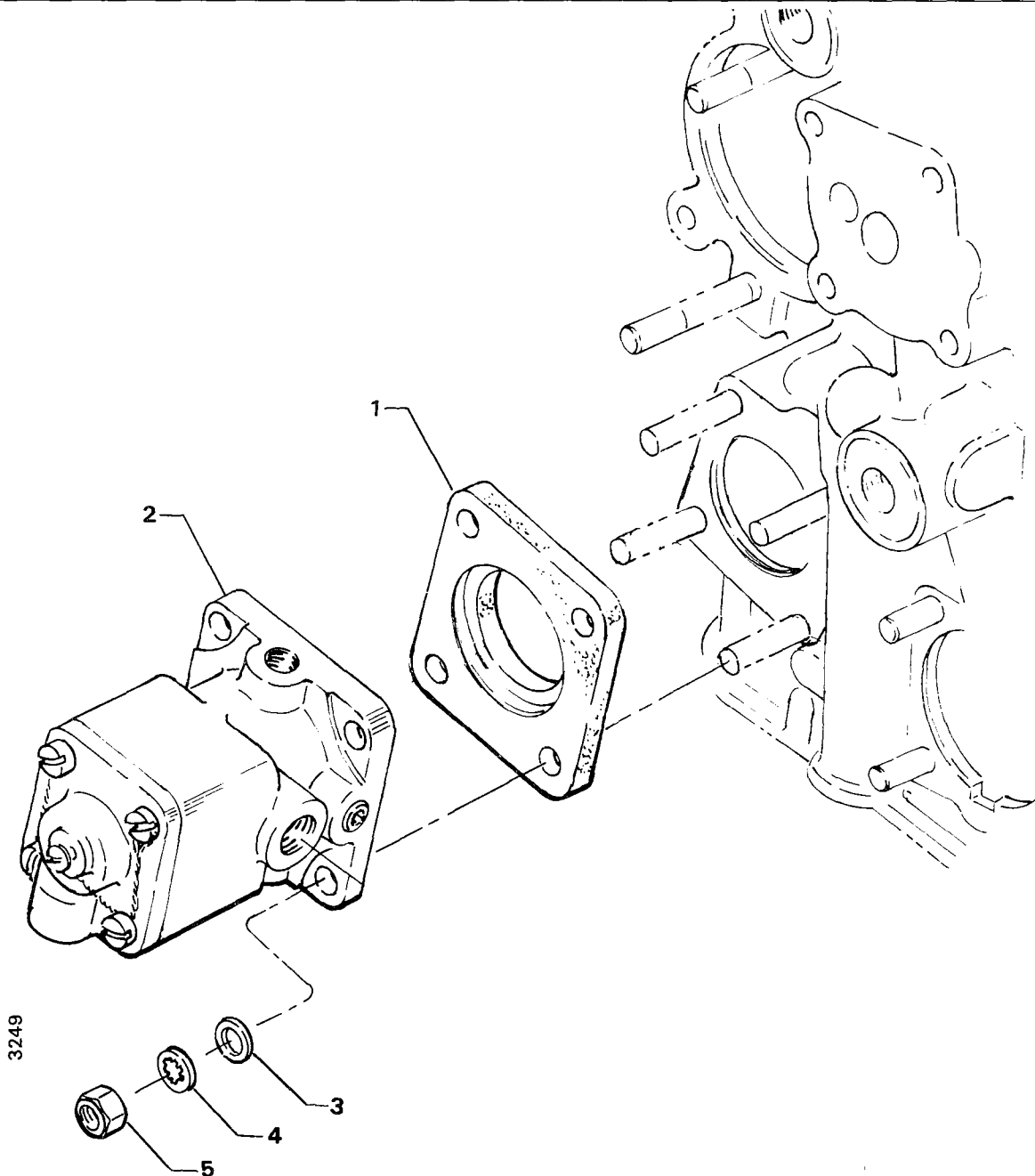


Figure 10. FUEL PUMP ASSEMBLY AND ATTACHING PARTS

ACCESSORY HOUSING AND RELATED PARTS
 VACUUM PUMP DRIVE, OIL COOLER AND BREATHER FITTINGS

| FIG. REF. 11 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------|---------------|--|-----------------------|
| 1 | 61183 | GASKET, Accessory adapter | 1 |
| 2 | 67536 | ADAPTER ASSY., Vacuum pump | 1 |
| 3 | STD-1774 | DOWEL, 1/8 dia. x 1/4 long | 1 |
| 4 | 06A19956 | SEAL, Oil, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide | 1 |
| 5 | 72974 | GEAR ASSY., Vacuum pump driven | 1 |
| 6 | 71596 | WASHER, Accessory driven gear | 1 |
| 7 | 8313 | GASKET, Vacuum pump | 1 |
| 8 | 60430 | COVER, Vacuum pump | 1 |
| 9 | STD-8 | WASHER, 1/4 plain | 4 |
| 10 | STD-160 | WASHER, 1/4 lock, internal teeth | 4 |
| 11 | STD-1411 | NUT, 1/4-20 plain | 4 |
| 12 | 06E19769-0.63 | GASKET | 1 |
| 13 | 62417 | PLUG, Oil cooler bypass | 1 |
| 14 | AN816-8 | FITTING, 1/2 tube x 3/8 NPT | 2 |
| 15 | AN844-16D | ELBOW, 3/4 NPT | 1 |

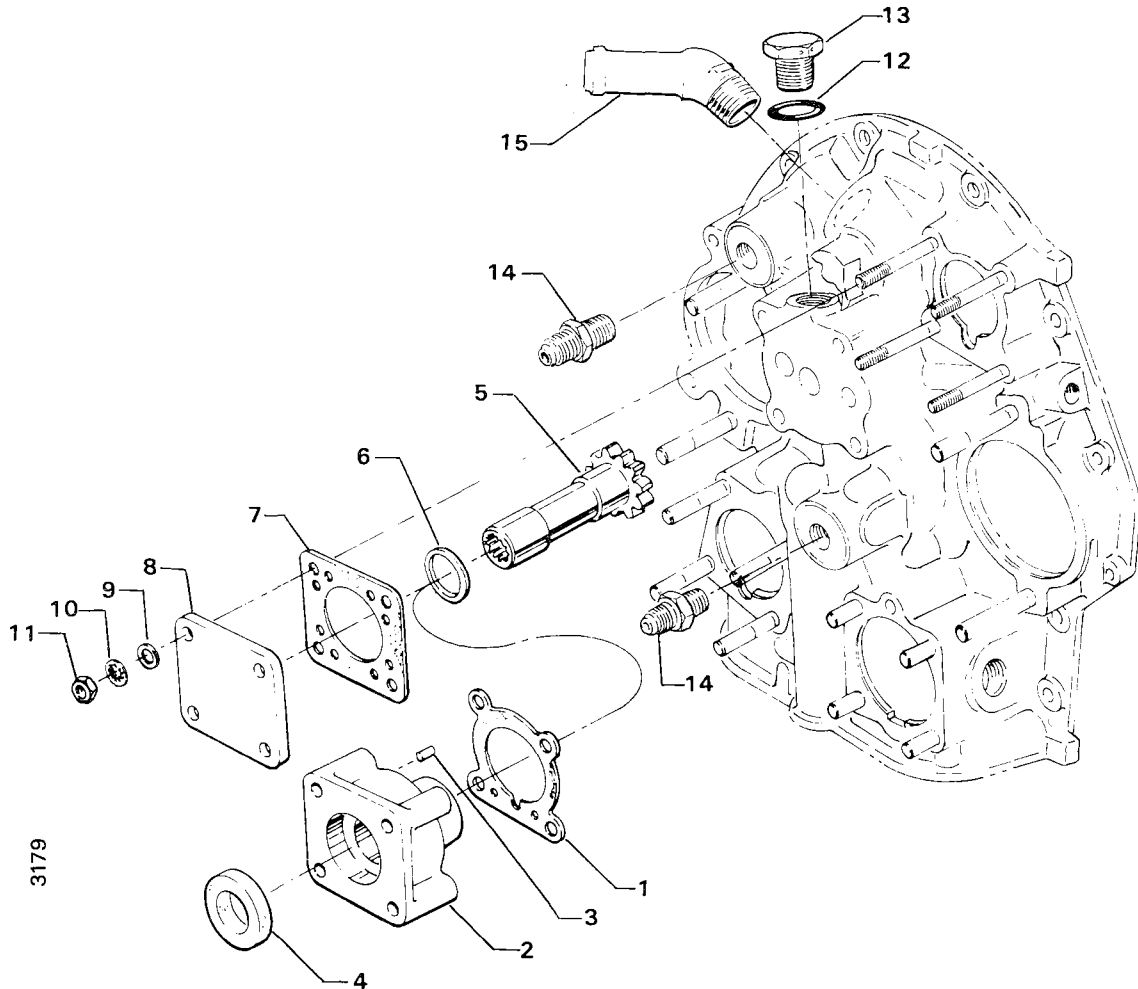
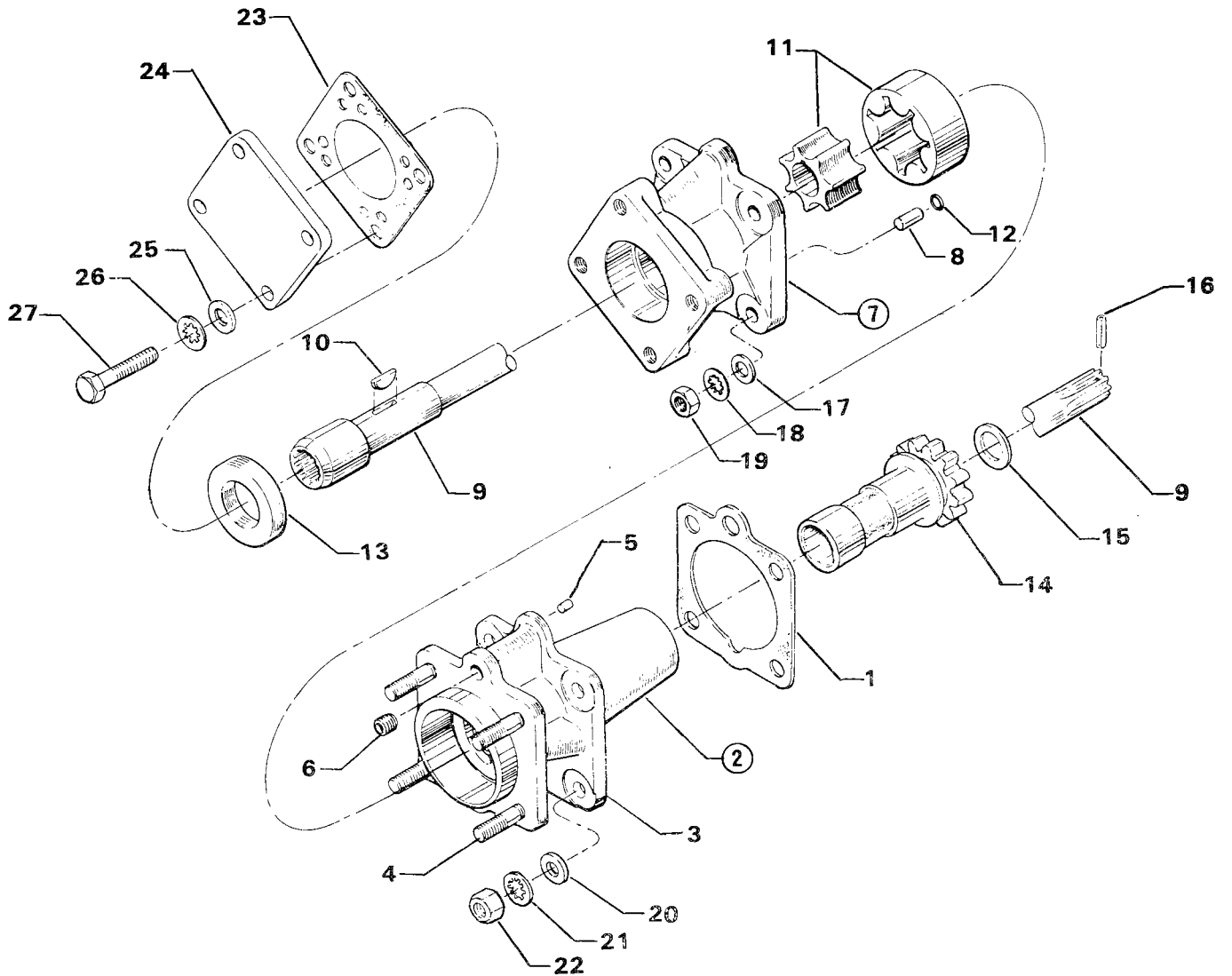


Figure 11. VACUUM PUMP DRIVE, OIL COOLER AND BREATHER FITTINGS

ACCESSORY HOUSING AND RELATED PARTS
TURBO SCAVENGE PUMP AND HYDRAULIC PUMP DRIVE AND COVER

| FIG. REF. 12 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|--|------------------------------|
| 1 | 68315 | GASKET, Accessory drive adapter | 1 |
| 2 | 29C21146 | DRIVE ASSY., Turbo scavenge & hydraulic pump | 1 |
| 3 | LW-19082 | ADAPTER ASSY., Turbo scavenge pump | 1 |
| 4 | 25C-11 | STUD, 1/4-20 x 1-3/8 long | 4 |
| 5 | STD-1774 | PIN, 1/8 dia. x 1/4 long | 1 |
| 6 | 01N19833-218 | PLUG, Pin | 1 |
| 7 | LW-19080 | ADAPTER ASSY., Hydraulic pump | 1 |
| 8 | STD-1003 | DOWEL, Oil, 3/16 I.D. x 1/2 long | 1 |
| 9 | LW-15853 | SHAFT, Hydraulic drive | 1 |
| 10 | STD-95 | KEY, 1/8 x 1/2 Woodruff | 1 |
| 11 | LW-15550 | PUMP, Gerotor | 1 |
| 12 | MS9068-009 | RING, Oil seal, 7/32 I.D. x 1/16 dia. | 1 |
| 13 | 06A19956 | OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide | 1 |
| 14 | 77825 | SHAFT, Gear, hydraulic pump drive | 1 |
| 15 | 77708 | WASHER, Retaining shaft gear | 1 |
| 16 | MS16562-28 | PIN, Spring, 3/32 dia. x 3/4 long | 1 |
| 17 | STD-8 | WASHER, 1/4 plain | 4 |
| 18 | STD-160 | WASHER, 1/4 internal lock | 4 |
| 19 | STD-1411 | NUT, 1/4-20 plain | 4 |
| 20 | STD-35 | WASHER, 5/16 plain | 4 |
| 21 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 22 | STD-1410 | NUT, 5/16-18 plain | 4 |
| 23 | 8313 | GASKET, Pump | 1 |
| 24 | 60430 | COVER, Pump | 1 |
| 25 | STD-8 | WASHER, 1/4 plain | 4 |
| 26 | STD-160 | WASHER, 1/4 lock, internal teeth | 4 |
| 27 | LW-25-0.94 | BOLT, 1/4-20 x 15/16 long, hex. hd. | 4 |



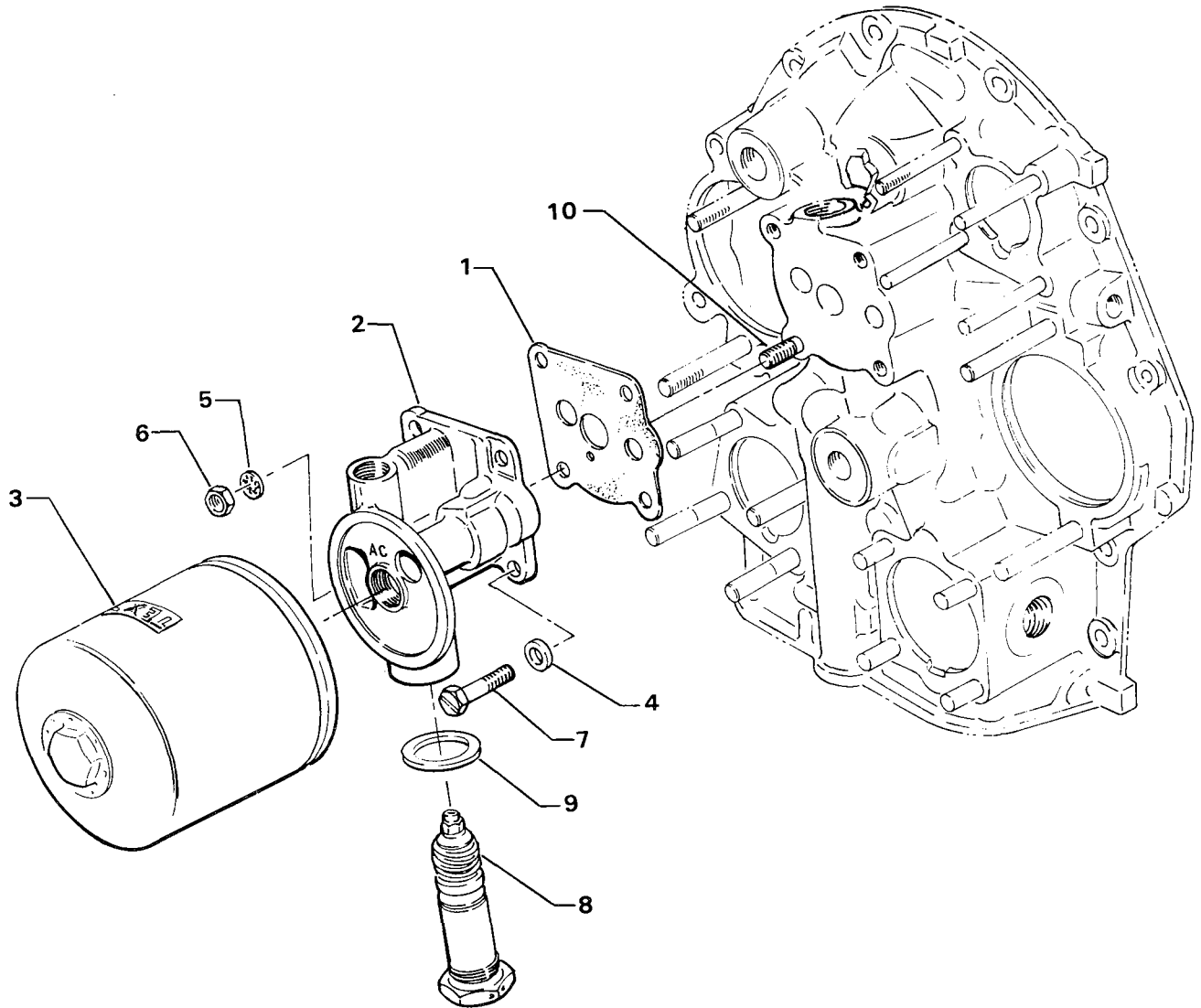
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Figure 12. TURBO SCAVENGE PUMP AND HYDRAULIC PUMP DRIVE AND COVER

ACCESSORY HOUSING AND RELATED PARTS
OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE

| FIG. REF. 13 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|---|------------------------------|
| 1 | LW-12795 | GASKET, Oil filter adapter | 1 |
| 2 | 77852 | BASE ASSY., Oil filter | 1 |
| 3 | 54D19625 * | OIL FILTER, (short with stud) | 1 |
| 4 | STD-8 | WASHER, 1/4 plain | 4 |
| 5 | STD-160 | WASHER, 1/4 lock, internal teeth | 1 |
| 6 | STD-1411 | NUT, 1/4-20 plain | 1 |
| 7 | STD-1856 | SCREW, 1/4-20 x 1.00 long, hex. hd., self-locking | 3 |
| 8 | 53E19600 | VALVE ASSY., Temp. control, oil cooler bypass | 1 |
| 9 | 76510 | GASKET, Valve assembly | 1 |
| 10 | 25C-10 | STUD, 1/4-20 x 1-1/4 long | 1 |

* Reference latest edition of SSP-885 for oil filter kits and replacement filters.

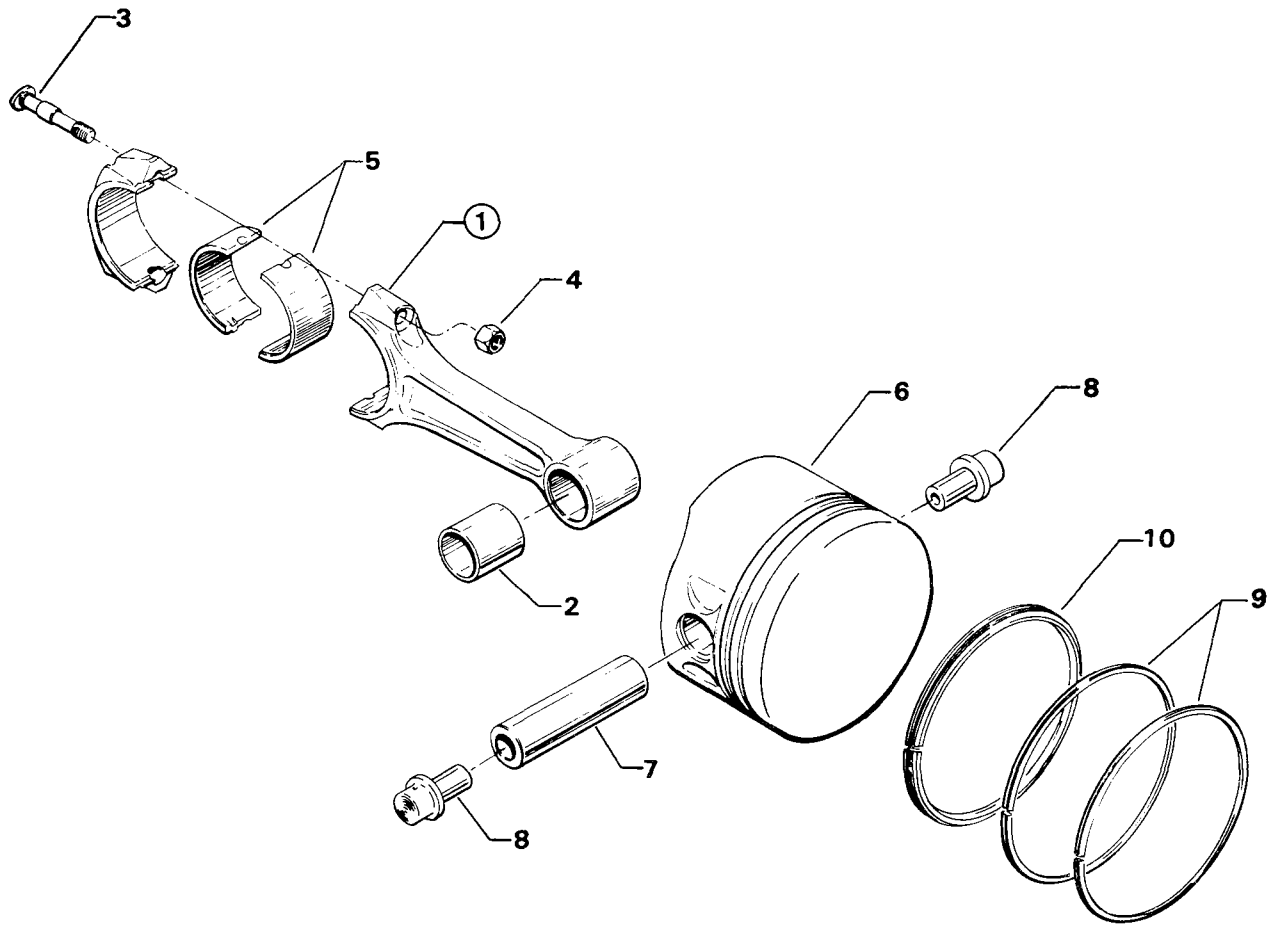


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Figure 13. OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE

CYLINDER, PISTON AND VALVE TRAIN
CONNECTING RODS, PISTONS AND RING ASSEMBLIES

| FIG. REF. 14 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|---|------------------------------|
| 1 | LW-11750 | CONNECTING ROD ASSEMBLY | 6 |
| 2 | LW-13923 | BUSHING, Connecting rod, upper | 6 |
| 3 | 75061 | BOLT, Connecting rod | 12 |
| 4 | LW-12186 | NUT, Connecting rod bolt | 12 |
| 5 | 18M19389 | BEARING, Connecting rod | 12 |
| | LW-16048 | BEARING, Connecting rod (alternate) | 12 |
| | LW-13521 | BEARING, Connecting rod (alternate) | 12 |
| 6 | LW-12733 | PISTON, Compression ratio 8.00:1 | 6 |
| 7 | LW-14077 | PIN, Piston | 6 |
| 8 | LW-11775 | PLUG, Piston pin | 12 |
| 9 | 74241 | RING, Piston, compression | 12 |
| 10 | 73857 | RING, Piston, oil regulating, expander type | 6 |



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Figure 14. CONNECTING RODS, PISTONS AND RING ASSEMBLIES

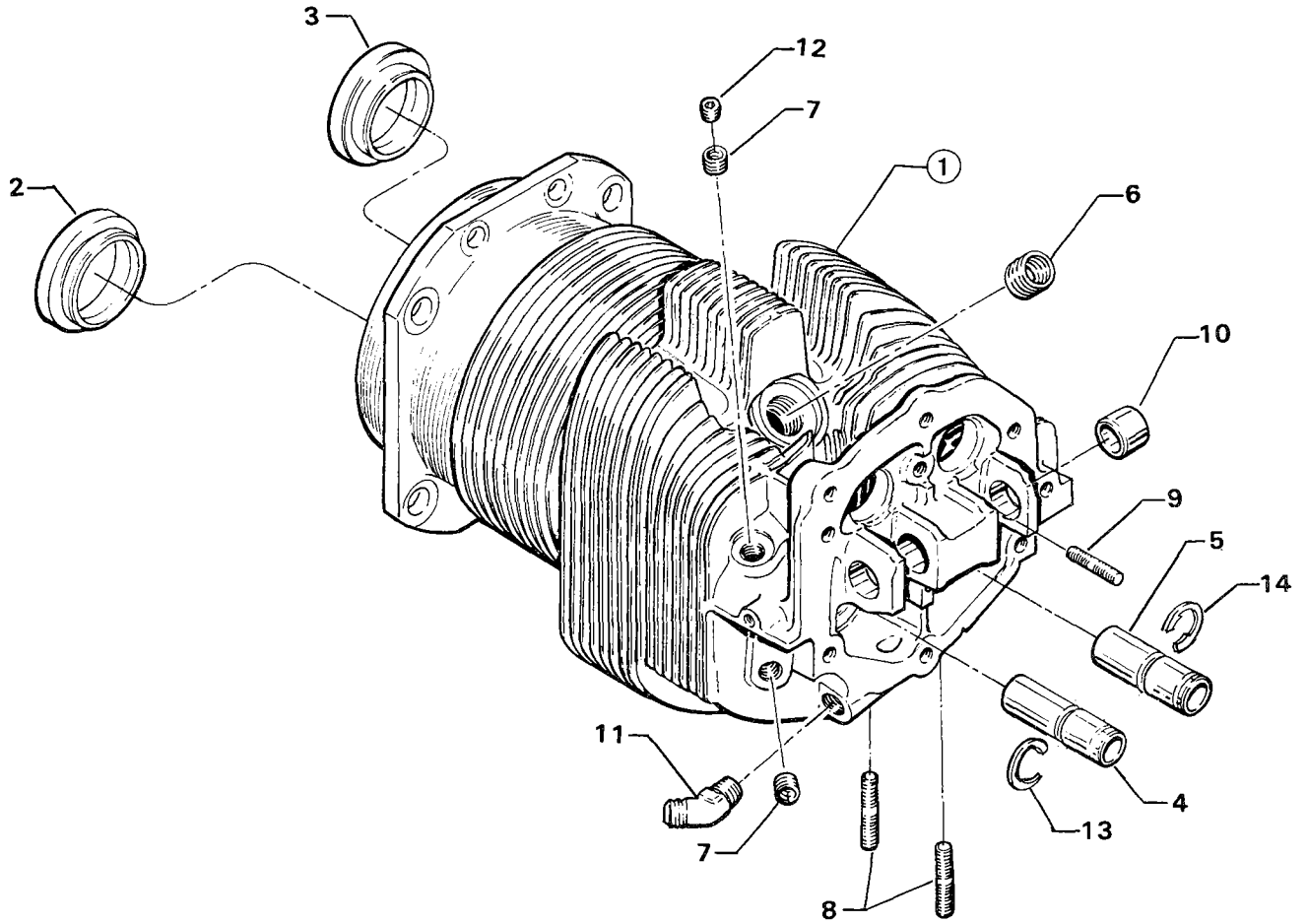
CYLINDER, PISTON AND VALVE TRAIN
 CYLINDER ASSEMBLY

| FIG. REF. 15 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|--|------------------------------|
| 1 | LW-12429 | CYLINDER AND HEAD ASSEMBLY, Nitrided | 6 |
| 2 | 72057 | SEAT, Intake valve | 6 |
| 3 | 72058 | SEAT, Exhaust valve | 6 |
| 4 | 76943-S * | GUIDE, Valve intake, grooved (flangeless) | 6 |
| 5 | 77160-S * * | GUIDE, Valve exhaust, grooved (flangeless) | 6 |
| 6 | 69260 | INSERT, Spark plug, 18-1.5 MM (long reach) | 12 |
| 7 | STD-1872 | INSERT, 1/8-27 Heli-Coil taper pipe thread | 6 |
| 8 | 31C-12 | STUD, 5/16-18 x 1-1/2 long | 12 |
| 9 | 25C-9 | STUD, 1/4-20 x 1-1/8 long | 6 |
| 10 | 66610 | BUSHING, Rocker shaft | 24 |
| 11 | MS20823-6D | ELBOW, 3/8 flared tube, 45° | 6 |
| 12 | 1102 * | PLUG, 1/8-27 NPT, Allen | 6 |
| 13 | LW-19298 | RING, Guide retaining, intake | 6 |
| 14 | LW-19299 | RING, Guide retaining, exhaust | 6 |

* Item No. 13 valve guide ring P/N LW-19298 must be ordered separately when ordering this part. Refer to latest edition of Service Instruction No. 1256.

* * Item No. 14 valve guide ring P/N LW-19299 must be ordered separately when ordering this part. Refer to latest edition of Service Instruction No. 1256.

★ Assemble in cylinder head.



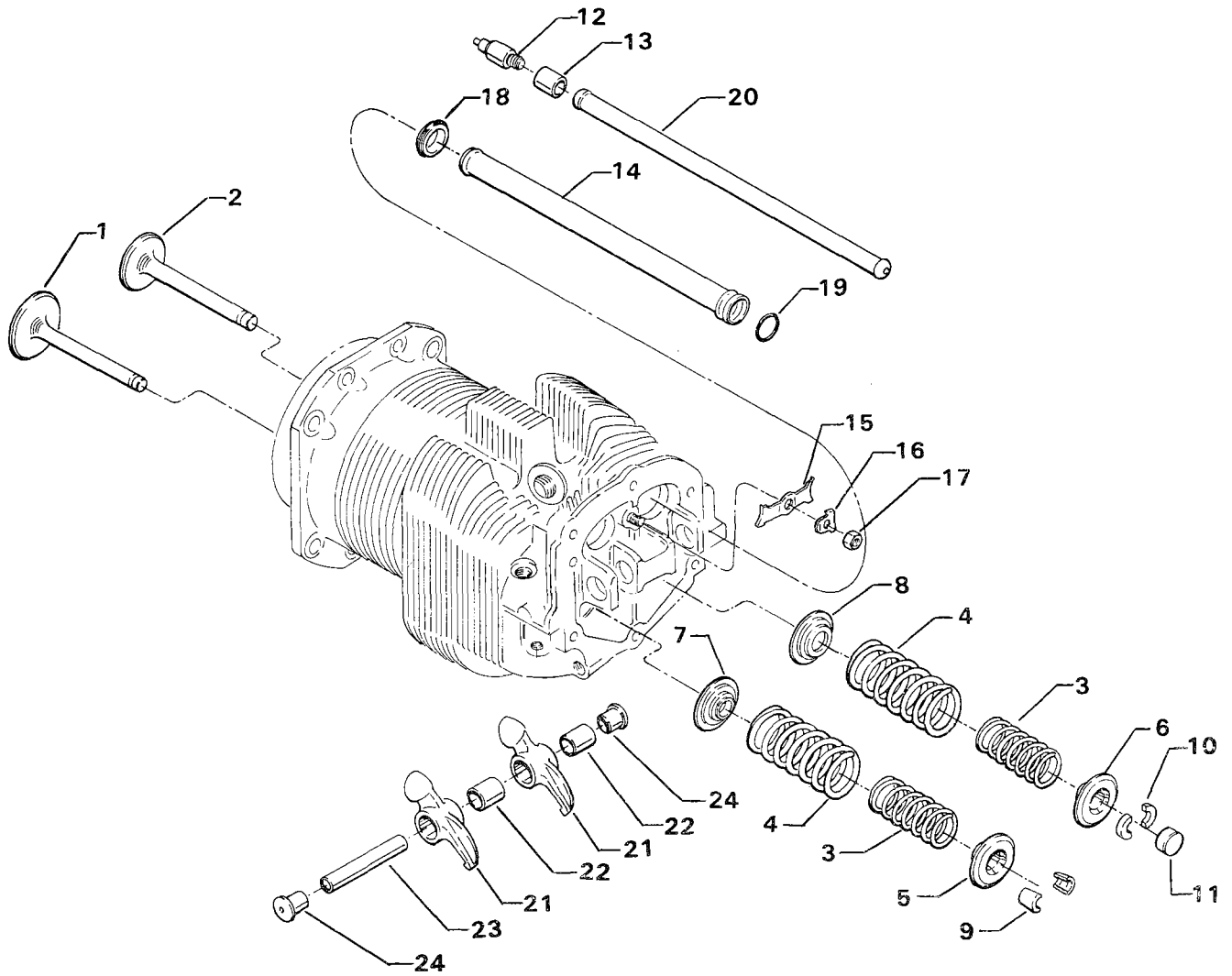
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Figure 15. CYLINDER ASSEMBLY

**CYLINDER PISTON AND VALVE TRAIN
 VALVE ASSEMBLY AND RELATED PARTS**

| FIG. REF. 16 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|--|------------------------------|
| 1 | 73938 | VALVE, Intake | 6 |
| 2 | LW-19001 | VALVE, Exhaust (rotator type) | 6 |
| 3 | LW-11795 | SPRING, Valve, inner | 12 |
| 4 | LW-11800 | SPRING, Valve, outer | 12 |
| 5 | LW-10077 | SEAT, Valve spring, upper intake | 6 |
| 6 | LW-16475 | SEAT, Valve spring, upper exhaust (rotator type) | 6 |
| 7 | 65441 | SEAT, Valve spring, lower intake | 6 |
| 8 | LW-13323 | SEAT, Valve spring, lower exhaust | 6 |
| 9 | 60009 | KEY, Valve intake | 12 |
| 10 | MS13997-3 | KEY, Valve exhaust (rotator type) | 12 |
| 11 | MS13998-3 | CAP, Valve stem exhaust (rotator type) | 6 |
| 12 | 78290 | PLUNGER ASSY., Hydraulic tappet | 12 |
| 13 | 78524 | SOCKET, Push rod, hydraulic tappet | 12 |
| 14 | LW-11485 | TUBE, Shroud, push rod | 12 |
| 15 | LW-14995 | SPRING, Shroud tube | 6 |
| 16 | LW-12272 | LOCKPLATE, Shroud tube | 6 |
| 17 | STD-1411 | NUT, 1/4-20 plain | 6 |
| 18 | LW-18661 | SEAL, Shroud tube | 12 |
| 19 | 70310 | SEAL, Shroud tube | 12 |
| 20 | 15F19957-34 * | ROD ASSY., Push | AR |
| | 15F19957-35 * | ROD ASSY., Push | AR |
| | 15F19957-36 * | ROD ASSY., Push | AR |
| | 15F19957-37 * | ROD ASSY., Push | AR |
| 21 | 17F19353 | ROCKER ASSY., Valve | 12 |
| 22 | 74637 | BUSHING, Valve rocker | 12 |
| 23 | LW-13790 | SHAFT, Valve rocker | 6 |
| 24 | LW-12892 | THRUST BUTTON, Rocker shaft | 12 |

* See latest edition of Service Instruction No. 1060 for complete push rod application.



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Figure 16. VALVE ASSEMBLY AND RELATED PARTS

CYLINDER PISTON AND VALVE TRAIN
CYLINDER RELATED PARTS

| FIG. REF. 17 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|---|------------------------------|
| 1 | 75906 | GASKET, Rocker box cover | 6 |
| 2 | 61247 | COVER, Rocker Box | 6 |
| 3 | STD-1925 | SCREW, 1/4-20 x 5/8 long, pan hd., self-locking | 36 |
| 4 | 74494 | PLATE, Spark plug caution | 6 |
| 5 | 71481 | RING, Oil seal, 3/32 dia. section x 4-27/32 I.D. | 6 |
| 6 | 77906 | SPACER, 33/64 I.D. x 7/8 O.D. x 1/8 thick | 2 |
| 7 | 74887 | SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick | 2 |
| 8 | 383-B | NUT, 3/8-24 plain | 24 |
| 9 | STD-2090 | NUT, 1/2-20 plain | 28 |
| 10 | STD-684 | NIPPLE, Straight, 3/8 I.D. hose | 6 |
| 11 | STD-1821 | HOSE, 3/8 I.D. x 2-1/2 long | 6 |
| 12 | LW-15592-5-05 | CLAMP, Hose | 12 |
| 13 | 68759 | TUBE ASSY., Cyl. head oil drain, cyl. no. 1 | 1 |
| 14 | 71737 | TUBE ASSY., Cyl. head oil drain, cyl. no. 2 | 1 |
| 15 | 68761 | TUBE ASSY., Cyl. head oil drain, cyls. no. 3, 4, 5, 6 | 4 |
| 16 | 75339 | BAFFLE ASSY., Intercylinder | 4 |
| 17 | 71611 | RETAINER, Intercylinder baffle | 4 |
| 18 | 71610 | HOOK, Intercylinder baffle | 4 |

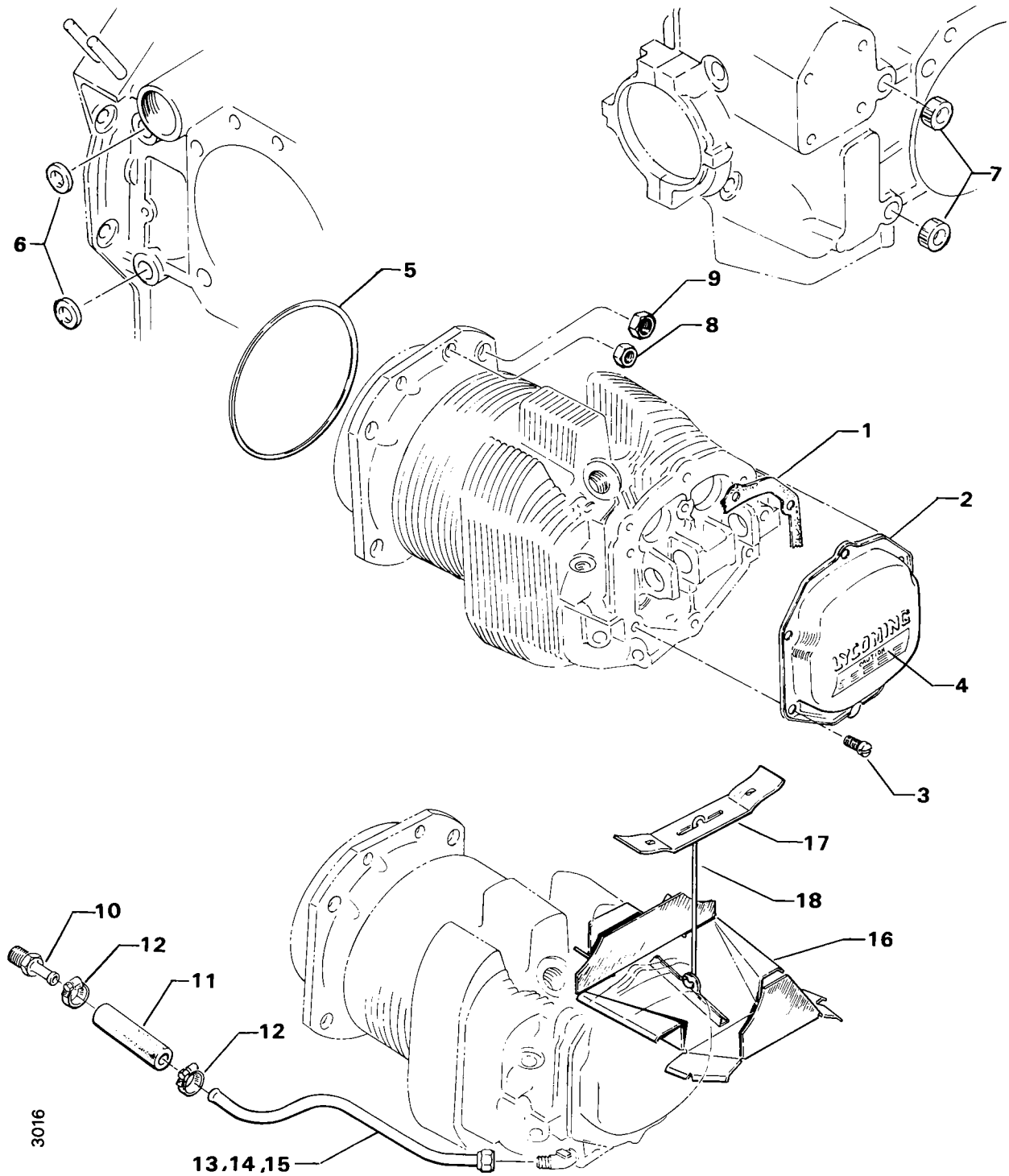


Figure 17. CYLINDER RELATED PARTS

IGNITION SYSTEM

PRESSURIZED MAGNETOS (SLICK), MAGNETO DRIVES, HARNESSSES AND SPARK PLUGS

| FIG. REF. 18 | PART NUMBER | DESCRIPTION | QTY. PER ASSY. |
|--------------|----------------|--|----------------|
| 1 | 73000 | COUPLING, Magneto drive | 1 |
| | 73000 | COUPLING, Magneto drive | 2 |
| 2 | LW-13641 | CUSHION, Magneto drive | 4 |
| 3 | LW-19096 | GEAR RETAINER ASSY. | 2 |
| 4 | 67542 | BEARING, Ball | 2 |
| 5 | 62224 | GASKET, Magneto adapter | 1 |
| | 62224 | GASKET, Magneto adapter | 2 |
| 6 | LW-12707 | ADAPTER, Magneto, right | 1 |
| 7 | LW-13926 | ADAPTER, Magneto, left, impulse coupling | 1 |
| | LW-13926 | ADAPTER, Magneto, right, plain & left, retard | 2 |
| 8 | LW-12681 | GASKET, Magneto | 2 |
| 9 | 66LP-0SCNP | MAGNETO, Right, Slick Model No. 6360 | 1 |
| 10 | 66LC35SDNP | MAGNETO, Left, (Impulse), Slick Model No. 6361 | 1 |
| | 66LR30SCNP | MAGNETO, Left, (Retard), Slick Model No. 6363 | 1 |
| 11 | 67J20608-P | HARNESS ASSY., Right, Slick P/N M-2966 | 1 |
| 12 | 67J20609-P | HARNESS ASSY., Left, Slick P/N M-2965 | 1 |
| 13 | 66M21195 | CLAMP, Magneto | 4 |
| 14 | STD-475 | WASHER, 5/16 lock, internal teeth | 4 |
| 15 | STD-1410 | NUT, 5/16-18 plain | 4 |
| 16 | STD-713 | COTTER PIN, 3/32 dia. x 3/4 long | 2 |
| 17 | STD-1727 | WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick | 4 |
| 18 | STD-2007 | WASHER, 3/8 dia. seal | 1 |
| 19 | STD-33 | WASHER, 3/8 plain | 1 |
| 20 | LW-13227 | ADAPTER, Magneto pressurization | 1 |
| 21 | LW-13226 | NUT, 3/8-16 NC, plain | 1 |
| 22 | AN824-4 | TEE, 1/4 tube | 1 |
| | AN826-4 | TEE, 1/4 tube | 1 |
| 23 | LW-12798-4S111 | HOSE, Right magneto to tee | 1 |
| 24 | LW-12798-4S160 | HOSE, Left magneto to tee | 1 |
| | LW-12798-4S204 | HOSE, Left magneto to tee | 1 |
| 25 | 66N21020 | VALVE ASSY., Relief | 1 |
| 26 | MS29512-04 | "O" RING | 1 |
| 27 | MS20822-4 | ELBOW, 1/4 tube to 1/8 NPT | 3 |
| | MS20822-4 | ELBOW, 1/4 tube to 1/8 NPT | 2 |
| 28 | AN816-4 | NIPPLE, 1/4 flared tube, 1/8 NPT | 1 |
| 29 | LW-12798-4S130 | HOSE, Tee to magneto pressurization fitting | 1 |
| 30 | 1182-H7* | SPARK PLUG, Champion (RHB37E) or Auburn (273) | 12 |

* Item No. 30 spark plugs are used in current production. See latest edition of Service Instruction No. 1042 for complete listing of all approved spark plugs.

Lycoming

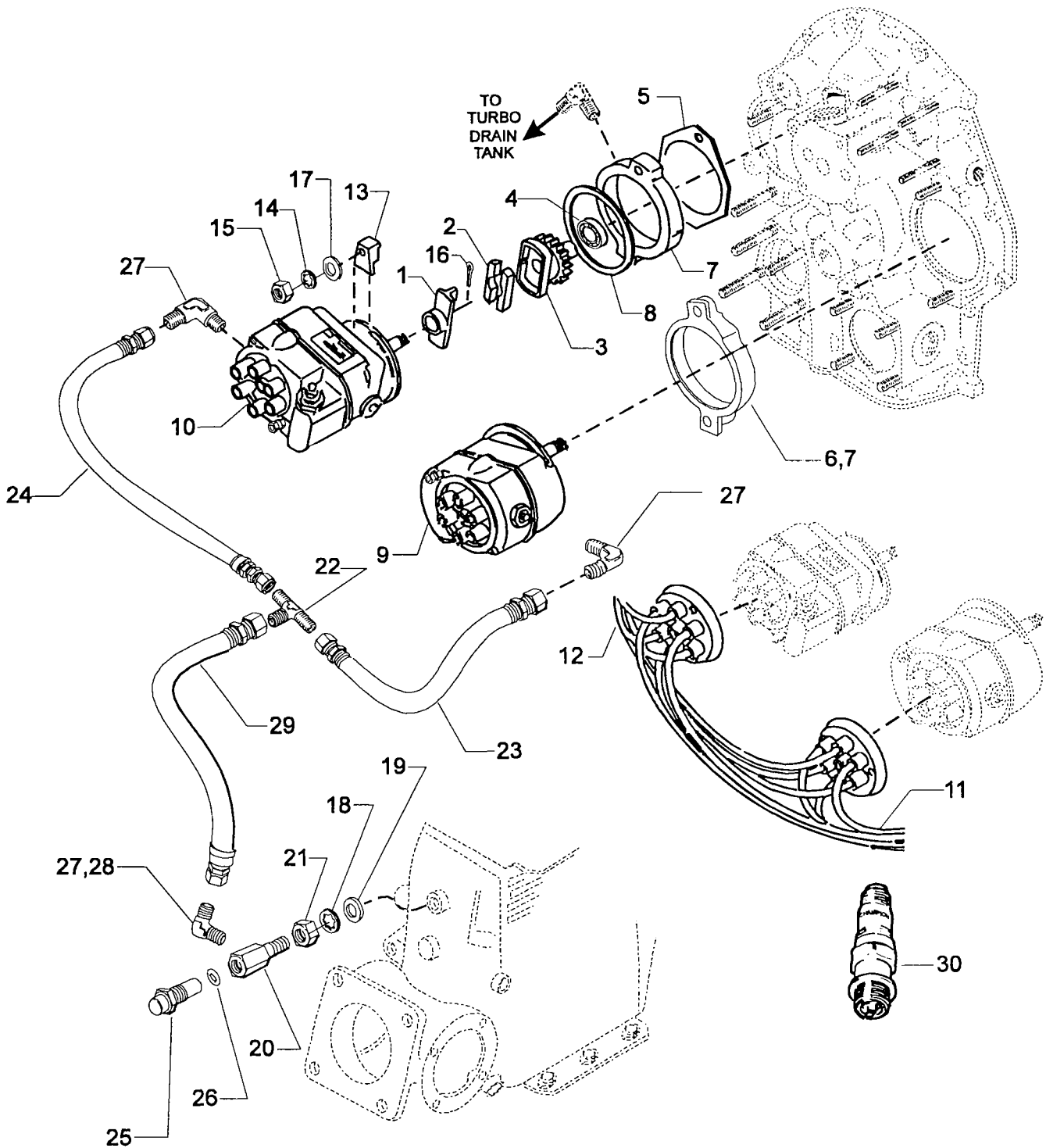


Figure 18. MAGNETOS, MAGNETO DRIVES AND SPARK PLUGS

BAG - MAGNETO HARNESS ATTACHING P/N 01P19762-4

| Part No. | Part Name | Qty. |
|-------------------|--|----------|
| 01P19762-4 | BAG - MAGNETO HARNESS ATTACHING | 1 |
| LW-16266-25-25 | CLIP, 1 wire | 4 |
| LW-14060 | CLIP, 2 wire, 1/4 screw | 4 |
| STD-8 | WASHER, 1/4 plain | 12 |
| STD-160 | WASHER, 1/4 lock | 8 |
| STD-1874 | SCREW, Rocker box | 6 |
| 76734 | ZIP STRAP | 12 |
| LW-16266-10-75 | CLIP, 6 wire | 2 |
| LW-16266-25-44 | CLIP, 4 wire | 5 |
| STD-696 | WASHER, 1/4 thin | 6 |
| AN500-416-18 | SCREW, 1/4 x 1-1/8 long | 2 |
| STD-1925 | SCREW, 1/4 x 5/8 long | 4 |
| 72815 | BRACKET, Twist | 4 |
| STD-692 | SCREW, No. 10 (Bracket to Clip) | 4 |
| STD-425 | WASHER, No. 10 (Bracket to Clip) | 4 |
| STD-670 | NUT, No. 10 (Bracket to Clip) | 4 |
| LW-M-2376 | PLATE, 3 wire | 2 |

ELECTRICAL COMPONENTS
STARTER MOTOR AND ATTACHING PARTS

| FIG. REF. 19 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|-------------|---------------------------------------|-----------------------|
| 1 | 31B21064 | STARTER ASSEMBLY | 1 |
| 2 | 31E21143 | MOTOR AND SOLENOID ASSEMBLY | 1 |
| 3 | 31D21088 | HOUSING ASSY., Starter support | 1 |
| 4 | STD-514 | DOWEL | 2 |
| 5 | LW-25-1.75 | BOLT, 1/4-20 x 1-3/4 long, hex. head | 1 |
| 6 | LW-25-2.00 | BOLT, 1/4-20 x 2.00 long, hex. head | 2 |
| 7 | STD-160 | WASHER, 1/4 lock, internal tooth | 3 |
| 8 | STD-8 | WASHER, 1/4 plain | 3 |
| 9 | STD-35 | WASHER, 5/16 plain | 4 |
| 10 | STD-475 | WASHER, 5/16 lock, internal tooth | 4 |
| 11 | LW-31-1.16 | BOLT, 5/16-18 x 1-5/32 long, hex. hd. | 1 |
| 12 | STD-1410 | NUT, 5/16-18 plain | 3 |
| 13 | 01L21158 * | SHIM, Starter (housing shaped) | AR |
| 14 | 01L21159 * | SHIM, Starter | AR |

* Refer to latest edition of Service Instruction No. 1447 for shim application.

NOTE

See latest edition of Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.

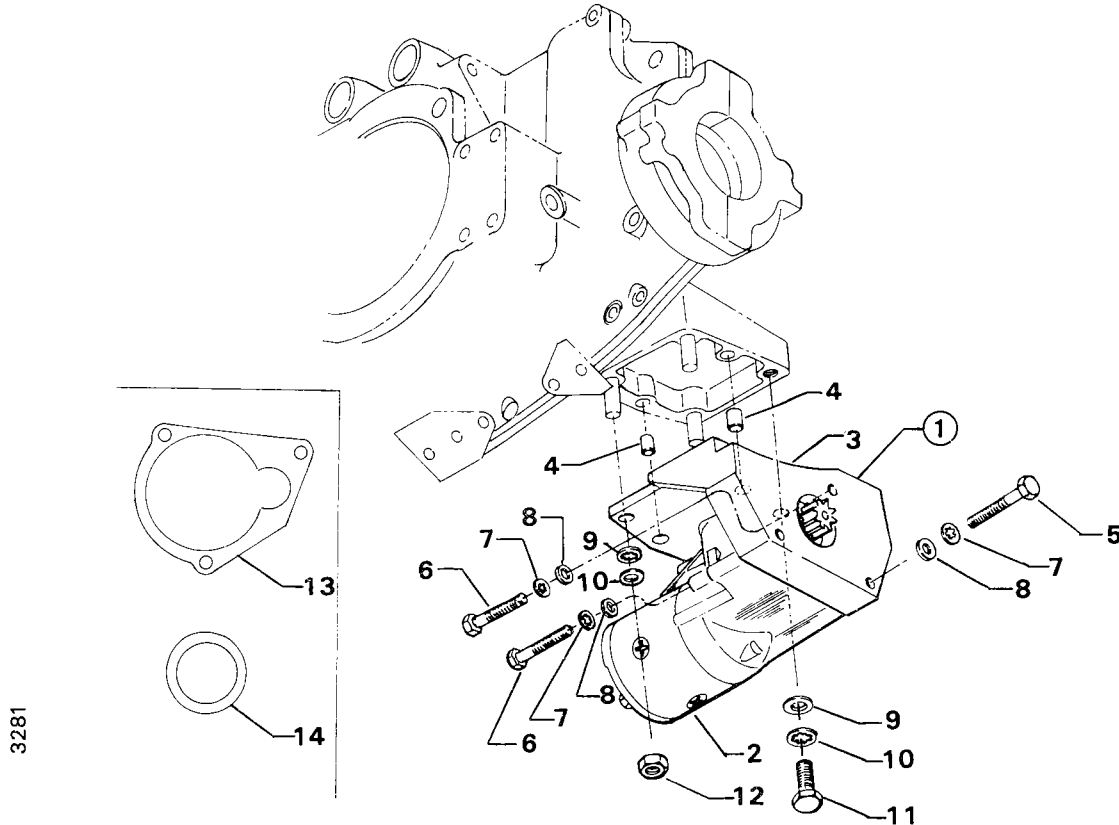


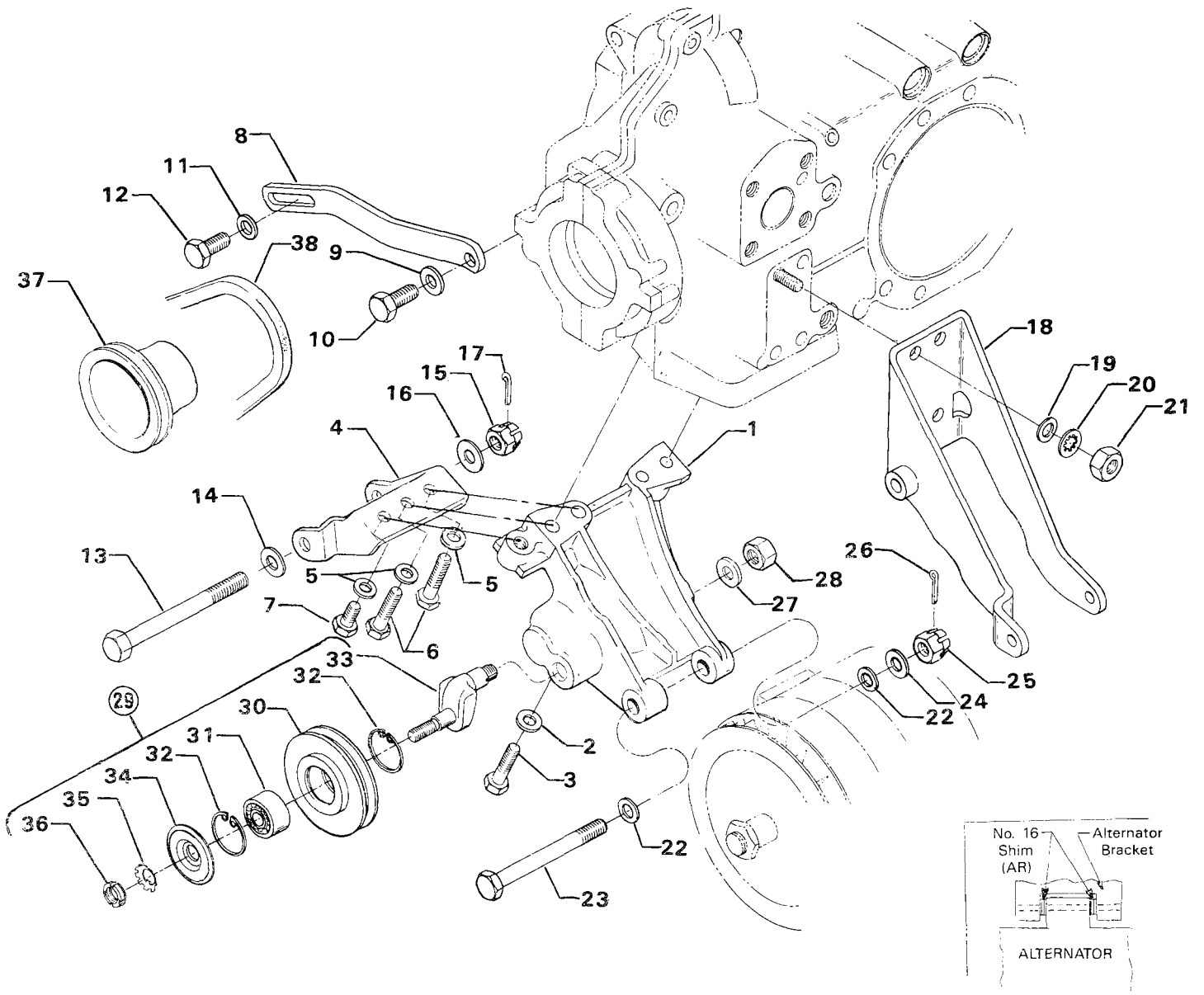
Figure 19. STARTER MOTOR AND ATTACHING PARTS

ELECTRICAL COMPONENTS ALTERNATOR MOUNTING AND ATTACHING PARTS

| FIG. REF. 20 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|--------------|---|-----------------------|
| 1 | 07A19874 | BRACKET, Alternator | 1 |
| 2 | STD-35 | WASHER, 5/16 plain (rear pad) | 2 |
| 3 | LW-31H1.88 | BOLT, 5/16-18 x 1-7/8 long, hex. hd., dr. hd. (rear pad) | 2 |
| 4 | 07A19878 | BRACKET, Alternator, right | 1 |
| 5 | STD-35 | WASHER, 5/16 plain | 3 |
| 6 | LW-31H2.13 | BOLT, 5/16-18 x 2-1/8 long, hex. hd., dr. hd. (front pad) | 2 |
| 7 | LW-31H0.88 | BOLT, 5/16-18 x 7/8 long, hex. hd., dr. hd. | 1 |
| 8 | 07F19879 | LINK, Alternator adj., right | 1 |
| 9 | STD-35 | WASHER, 5/16 plain (link to crankcase) | 1 |
| 10 | LW-31H0.88 | BOLT, 5/16-18 x 7/8 long, hex. hd., dr. hd. (link to crankcase) | 1 |
| 11 | STD-1342 | WASHER, Plain, 7/8 O.D. x 25/64 I.D. x 1/8 thick (link to alt.) | 1 |
| 12 | LW-38H1.09 | BOLT, 3/8-18 x 1-3/32, hex. hd., dr. hd. (link to alternator) | 1 |
| 13 | AN7-41 | BOLT, 7/16-20 x 4-7/32 long, hex. hd. dr. end (alt. to bracket) | 1 |
| 14 | STD-2092 | WASHER, 29/64 I.D. x 7/8 O.D. x 1/8 thick (alt. to bracket) | 1 |
| 15 | AN310-7 | NUT, 7/16-20 slotted (alternator to bracket) | 1 |
| 16 | LW-14650 | SHIM, 3/8 O.D. x 29/64 I.D. x .005 thick (alt. to bracket) | AR |
| 17 | STD-713 | PIN, Cotter, 3/32 dia. x 3/4 long (alt. to bracket) | 1 |
| 18 | 07A21145 | BRACKET, Compressor | 1 |
| 19 | STD-33 | WASHER, 3/8 plain (bracket to crankcase) | 4 |
| 20 | STD-678 | WASHER, 3/8 internal lock (bracket to crankcase) | 4 |
| 21 | 383-B | NUT, 3/8-24 plain (bracket to crankcase) | 4 |
| 22 | STD-632 | WASHER, 15/16 O.D. x 29/64 I.D. x 1/16 thick (alt. to bracket) | 1 |
| 23 | AN7-46 | BOLT, 7/16-20 x 4-27/32 lg., hex. hd. dr. end (alt. to bkt.) | 1 |
| 24 | LW-14650 | SHIM, 7/8 OD. x 15/32 I.D. x .005 thick (alt. to bkt.) | AR |
| 25 | AN310-7 | NUT, 7/16-20 slotted (alt. to bracket) | 1 |
| 26 | STD-713 | PIN, Cotter, 3/32 dia. x 3/4 long (alt. to bracket) | 1 |
| 27 | STD-669 | WASHER, 33/64 I.D. x 1.00 O.D. x 1/8 thick | 1 |
| 28 | STD-2221 | NUT, 1/2-70 self-locking | 1 |
| 29 | 36A19951 | PULLEY & SHAFT ASSY., Idler | 1 |
| 30 | 78614 | PULLEY, Idler | 1 |
| 31 | 78629 | BEARING, Ball, alternator idler pulley | 1 |
| 32 | MS16625-1125 | RING, internal retaining | 2 |
| 33 | LW-19238 | SHAFT, Idler, alternator adjusting | 1 |
| 34 | LW-11635 | SHIELD, Alternator idler bearing | 1 |
| 35 | 76768 | LOCKWASHER, Alternator idler pulley bearing | 1 |
| 36 | 76769 | LOCKNUT, Alternator idler pulley bearing | 1 |
| 37 | 36B19954 | PULLEY, Alternator | 2 |
| 38 | 37A19773-382 | BELT, Alternator, right | 1 |
| | 37A19773-470 | BELT, Alternator, left | 1 |

NOTE

See latest edition of Service Instruction No. 1154 for complete listing of FAA approved starters, generators, alternators, regulators and relays.

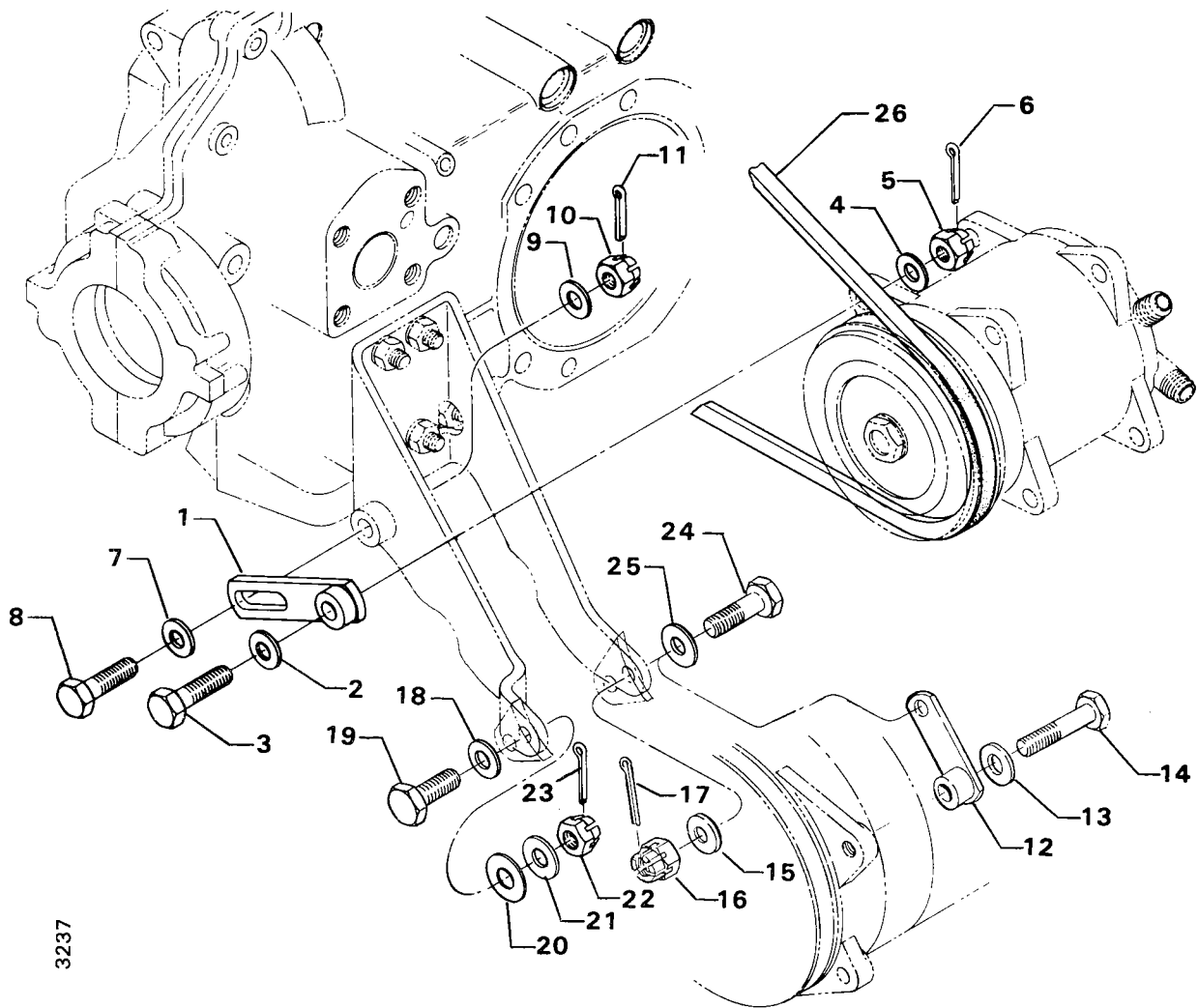


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Figure 20. ALTERNATOR MOUNTING AND ATTACHING PARTS

ELECTRICAL COMPONENTS
COMPRESSOR MOUNTING AND ATTACHMENTS

| FIG. REF. 21 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|--|------------------------------|
| 1 | 07F19883 | LINK, Compressor adjusting | 1 |
| 2 | STD-690 | WASHER, 3/8 plain (link to compressor) | 1 |
| 3 | AN6-15 | BOLT, 3/8-24 x 1-45/64 long (link to compressor) | 1 |
| 4 | STD-690 | WASHER, 3/8 plain (link to compressor) | 1 |
| 5 | STD-872 | NUT, 3/8-24 slotted (link to compressor) | 1 |
| 6 | STD-713 | PIN, Cotter, 3/32 dia. x 3/4 long (link to compressor) | 1 |
| 7 | STD-1342 | WASHER, Plain, 51/64 O.D. x 25/64 I.D. x 1/8 thick (link to bracket) | 1 |
| 8 | AN6-14 | BOLT, 3/8-24 x 1-37/64 long, hex. hd. dr. end (link to bracket) | 1 |
| 9 | STD-690 | WASHER, 3/8 plain (link to bracket) | 1 |
| 10 | STD-872 | NUT, 3/8-24 slotted (link to bracket) | 1 |
| 11 | STD-713 | PIN, Cotter, 3/32 dia. x 3/4 long (link to bracket) | 1 |
| 12 | 07F19875 | LINK, Alternator | 1 |
| 13 | STD-690 | WASHER, 3/8 plain (compressor rear lug) | 2 |
| 14 | AN6-15 | BOLT, 3/8-24 x 1-45/64 long, hex. hd. dr. end (comp. rear lug) | 1 |
| 15 | STD-690 | WASHER, 3/8 plain (compressor rear lug) | 2 |
| 16 | STD-872 | NUT, 3/8-24 slotted (compressor rear lug) | 1 |
| 17 | STD-713 | PIN, Cotter, 3/32 dia. x 3/4 lg. (compressor rear lug) | 1 |
| 18 | STD-690 | WASHER, 3/8 plain (compressor fwd. lug) | 1 |
| 19 | AN6-13 | BOLT, 3/8-24 x 1-29/64 long (compressor fwd. lug) | 1 |
| 20 | 76534 | SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick (comp. fwd. lug) | AR |
| 21 | STD-690 | WASHER, 3/8 plain (compressor fwd. lug) | 1 |
| 22 | STD-872 | NUT, 3/8-24 slotted (compressor fwd. lug) | 1 |
| 23 | STD-713 | PIN, Cotter, 3/32 x 3/4 long (compressor fwd. lug) | 1 |
| 24 | LW-38H1.31 | BOLT, 3/8-18 x 1-5/16 (link to alternator) | 1 |
| 25 | STD-690 | WASHER, 3/8 plain (link to alternator) | 1 |
| 26 | 37B19774-460 | BELT, Compressor drive | 1 |

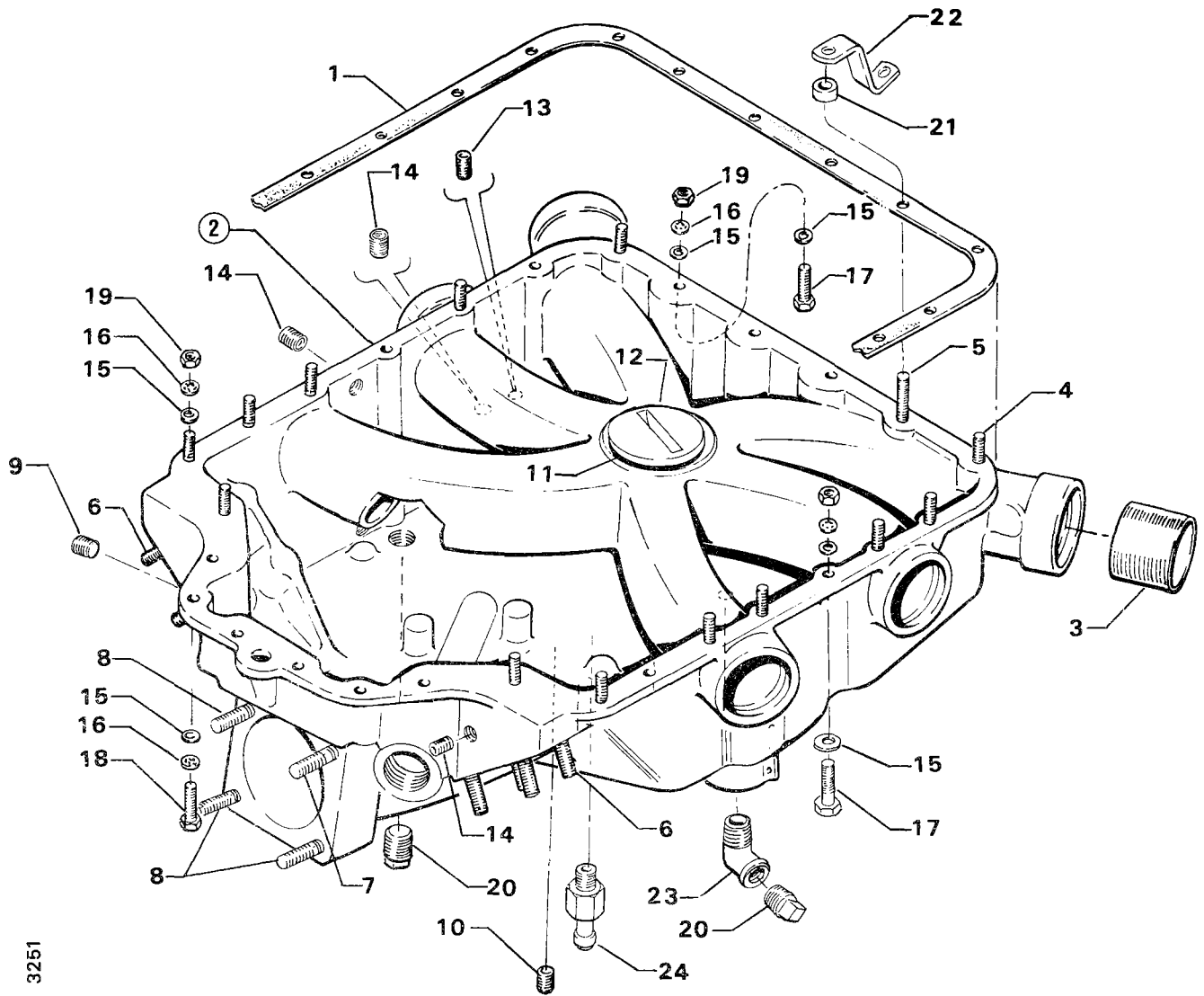


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Figure 21. COMPRESSOR MOUNTING AND ATTACHMENTS

OIL SUMP AND INDUCTION SYSTEM
OIL SUMP ASSEMBLY AND ATTACHMENTS

| FIG. REF. 22 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|---|------------------------------|
| 1 | LW-13306 | GASKET, Oil sump | 1 |
| 2 | 56A19865 | SUMP ASSEMBLY, Oil | 1 |
| 3 | 71699 | CONNECTOR, Intake pipe | 6 |
| 4 | 25C-11 | STUD, 1/4-20 x 1-3/8 long | 13 |
| 5 | 25C-16 | STUD, 1/4-20 x 2.00 long | 1 |
| 6 | 38-15 | STUD, 3/8-16 x 1-7/8 long | 8 |
| 7 | 31C-12 | STUD, 5/16-18 x 1-1/2 long | 1 |
| 8 | 31C-14 | STUD, 5/16-18 x 1-3/4 long | 3 |
| 9 | STD-71 | PLUG, 3/8-18 NPT, socket head | 1 |
| 10 | 1102 | PLUG, 1/8-27 NPT, Allen head | 2 |
| 11 | 06E19769-1.63 | GASKET, 1-7/8 O.D. x 1-5/8 I.D. x 3/32 | 1 |
| 12 | LW-18434 | PLUG, Oil sump, 1-5/8 dia. | 1 |
| 13 | STD-1164 | INSERT, 5/16-18 x 5/8 long, Heli-Coil | 1 |
| 14 | STD-1171 | INSERT, 3/8-16 x 3/4 Heli-Coil | 3 |
| 15 | STD-8 | WASHER, 1/4 plain | 34 |
| 16 | STD-160 | WASHER, 1/4 internal lock | 27 |
| 17 | LW-25-1.13 | BOLT, 1/4-20 x 1-1/8 long, hex. head | 7 |
| 18 | LW-25-1.00 | BOLT, 1/4-20 x 1.00 long, hex. head | 6 |
| 19 | STD-1411 | NUT, 1/4-20 plain | 21 |
| 20 | STD-551 | PLUG, 1/2-14 NPT square head, dr. | 2 |
| 21 | 74655 | SPACER, Exhaust manifold bracket | 1 |
| 22 | 07H21150 | BRACKET, Exhaust manifold cable retainer | 1 |
| 23 | 02A21152 | ELBOW, (Right sump drain port, outboard, use STD-551) | 1 |
| 24 | LW-13807 | ADAPTER ASSY., Fuel drain valve, sump | 1 |

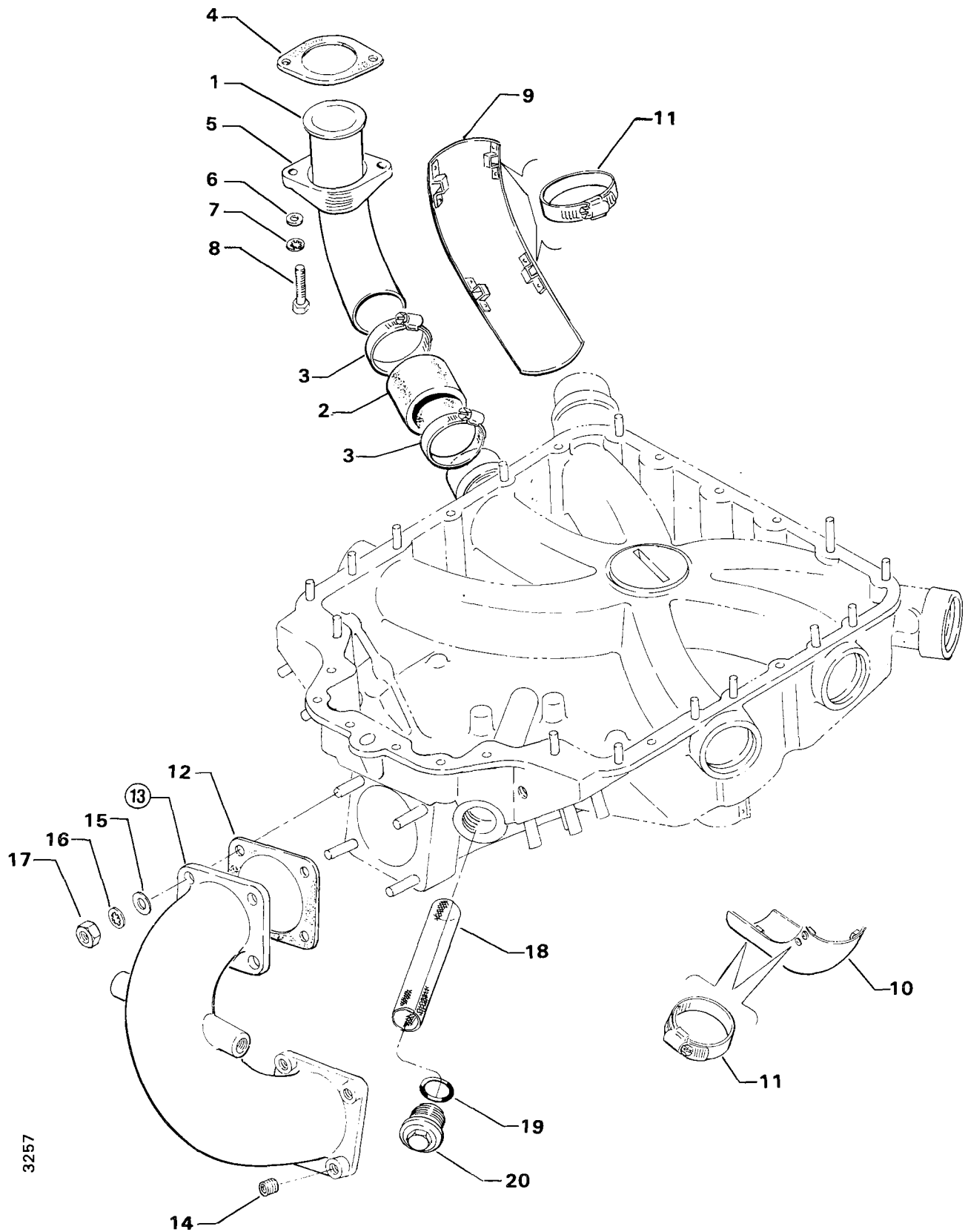


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Figure 22. OIL SUMP ASSEMBLY AND ATTACHMENTS

OIL SUMP AND INDUCTION SYSTEM
 INTAKE PIPES AND AIR INLET HOUSING

| FIG. REF. 23 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|---|------------------------------|
| 1 | 70485 | PIPE, Intake | 6 |
| 2 | 69603 | HOSE, 1-3/4 I.D. x 2-3/16 O.D. x 1-3/4 long | 6 |
| 3 | LW-15592-8-28 | CLAMP | 12 |
| 4 | 71973 | GASKET, 2 bolt flange, 1-7/8 I.D. | 6 |
| 5 | 73346 | FLANGE, Intake pipe, upper | 6 |
| 6 | STD-8 | WASHER, 1/4 plain | 12 |
| 7 | STD-160 | WASHER, 1/4 internal lock | 12 |
| 8 | LW-25-1.25 | BOLT, 1/4-20 x 1-1/4 long, hex. hd. | 12 |
| 9 | 78366 | HEAT SHIELD, Intake pipes (nos. 1, 2, 3, 4 & 5) | 5 |
| 10 | 40J19947 | HEAT SHIELD, Intake pipe (no. 6) | 1 |
| 11 | LW-15592-8-24 | CLAMP, 1-7/8 dia. x 9/16 wide | 12 |
| 12 | 66224 | GASKET, Air inlet | 1 |
| 13 | 41A19860 | DUCT ASSY., Air inlet | 1 |
| 14 | STD-1164 | INSERT, 5/16-18 x 5/8 long, Heli-Coil | 4 |
| 15 | STD-35 | WASHER, 5/16 plain | 13 |
| 16 | STD-475 | WASHER, 5/16 internal lock | 4 |
| 17 | STD-1410 | NUT, 5/16-18 plain | 4 |
| 18 | 70484 | SCREEN, Oil suction | 1 |
| 19 | 06E19769-1.00 | GASKET, 1.00 I.D. x 1-1/4 O.D. x 3/32 annular | 1 |
| 20 | LW-12545 | PLUG, 5/8 hex. hd. x 1.00-20 thread | 1 |



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Figure 23. INTAKE PIPES AND AIR INLET HOUSING

OIL SUMP AND INDUCTION SYSTEM
FUEL INJECTOR, FUEL MANIFOLD AND INJECTION NOZZLES

| FIG. REF. 24 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|---|------------------------------|
| 1 | 66224 | GASKET, Fuel injector | 1 |
| 2 | 61J21008 | FUEL INJECTOR (2549050-1) | 1 |
| 3 | STD-35 | WASHER, 5/16 plain (injector to duct) | 4 |
| 4 | STD-475 | WASHER, 5/16 internal lock (injector to duct) | 4 |
| 5 | LW-31-1.25 | BOLT, 5/16-18 x 1-1/4 long, hex. hd. (injector to duct) | 4 |
| 6 | LW-18854 | NOZZLE ASSY., Manifold air bleed | 6 |
| 7 | 951391 | "O" RING (2 per assy.) | 12 |
| 8 | 63B21127 | MANIFOLD ASSY., Fuel | 1 |
| 9 | AN816-4 | NIPPLE, 1/4 tube, 1/8 NPT | 1 |
| 10 | STD-148 | NIPPLE, Union, 1/8 NPT | 6 |
| 11 | 75447 | NIPPLE, 3/16 tube to 1/8 NPT, restricted | 1 |
| 12 | 73966 | SPACER, Fuel manifold bracket | 2 |
| 13 | 73965 | BRACKET, Fuel manifold | 2 |
| 14 | STD-82 | SCREW, No. 10-24 x 1/2 long, dr. hd. | 4 |
| 15 | STD-251 | WASHER, No. 10 lock, internal teeth | 4 |
| 16 | LW-12098-0-200 | TUBE ASSY., Fuel manifold to nozzle, cyls. 1, 2, 5, 6 | 4 |
| 17 | LW-12098-0-170 | TUBE ASSY., Fuel manifold to nozzle, cyls. 3, 4 | 2 |
| 18 | LW-16266-10-75 | CLAMP | 12 |
| 19 | LW-16266-10-13 | CLAMP | 12 |
| 20 | STD-860 | SCREW, No. 10-32 x 5/8 long, fill. head | 14 |
| 21 | STD-425 | WASHER, No. 10 plain | 2 |
| 22 | STD-670 | NUT, No. 10-32 self-locking | 14 |
| 23 | 73136 | BRACKET, 90° | 2 |
| 24 | LW-12878-4S-373 | HOSE ASSY., Fuel inj. to fuel manifold (45° at inj.) | 1 |
| 25 | 73136 | BRACKET, Fuel inj. to fuel manifold hose support | 1 |
| 26 | LW-16266-10-63 | CLAMP, (Attach to bracket) | 1 |
| 27 | STD-860 | SCREW, No. 10-32 x 5/8 long, fill. head | 1 |
| 28 | STD-670 | NUT, No. 10-32 self-locking | 1 |
| 29 | LW-12877-6S-200 | HOSE ASSY., Fuel pump to injector | 1 |
| 30 | 78067 | ELBOW, 1/4 tube, 90° (fuel pump vent) | 1 |
| 31 | 77433 | ELBOW, 3/8 tube, 90° (fuel pump inlet) | 1 |
| 32 | MS20822-6 | ELBOW, 3/8 flared tube w / 1/4 NPT, 90° (outlet) | 1 |

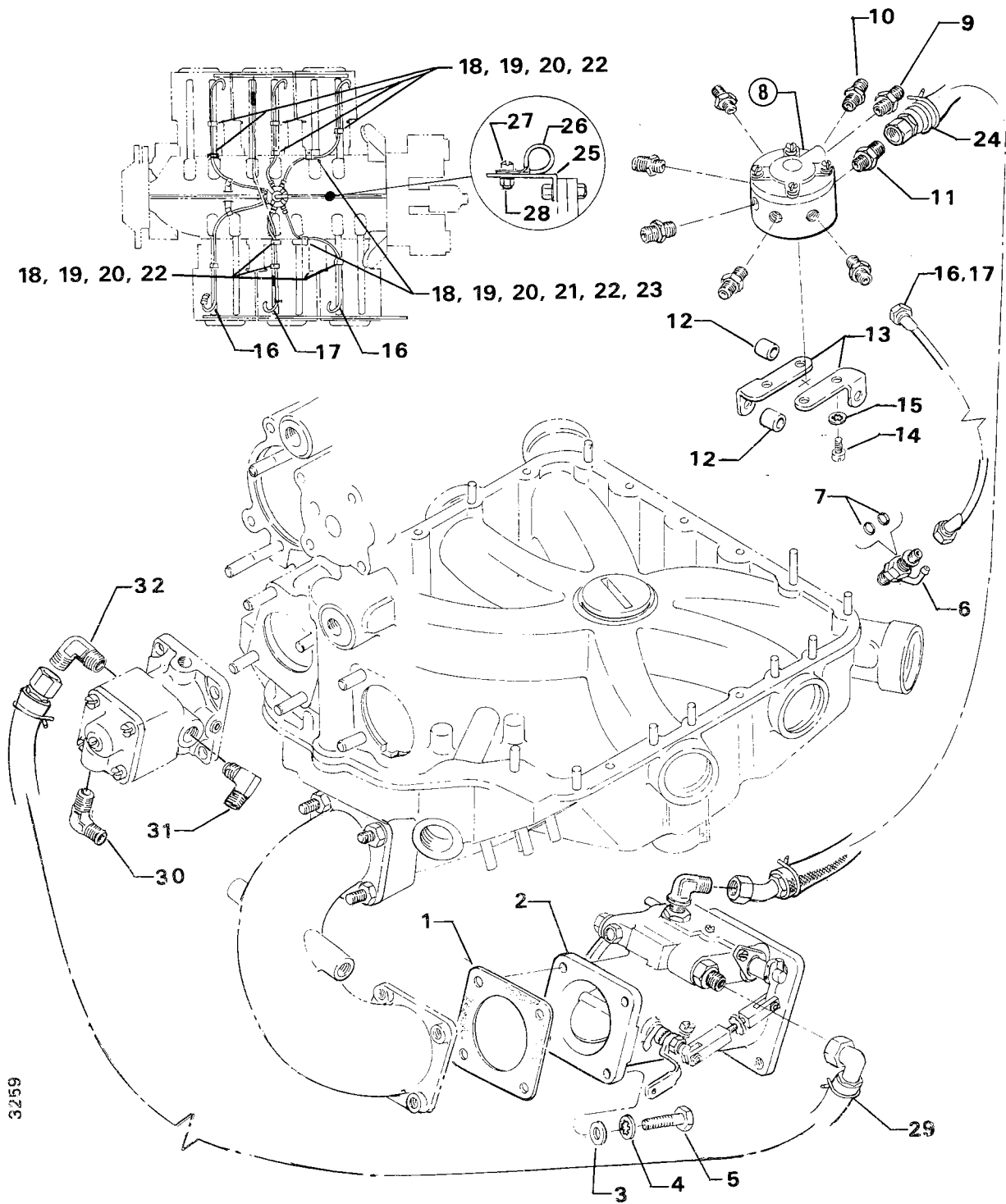


Figure 24. FUEL INJECTOR, FUEL MANIFOLD AND INJECTION NOZZLES

OIL SUMP AND INDUCTION SYSTEM
INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND ATTACHMENTS

| FIG. REF. 25 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|--|------------------------------|
| 1 | 63E21054 | MANIFOLD, Right, Injection nozzle vent | 1 |
| 2 | 63E21046 | MANIFOLD, Left, injection nozzle vent | 1 |
| 3 | LW-18737 | HOSE, 3/16 I.D. x 7/16 O.D. x 2.00 long | 6 |
| 4 | LW-15592-5-04 | CLAMP, 7/16 I.D. x 5/16 wide | 12 |
| 5 | 78127 | TUBE, Crossover, injection nozzle vent manifold | 1 |
| 6 | STD-2048 | HOSE, 1/4 I.D. x 19/32 O.D. x 2-7/16 long | 2 |
| 7 | LW-15592-5-04 | CLAMP, 7/16 I.D. x 5/16 wide | 4 |
| 8 | STD-2049 | CLIP, 1/4 dia. tube x 1/4 screw | 4 |
| 9 | STD-1916 | SCREW, 1/4-20 x 1-1/8 long, fill. hd., self-locking | 4 |
| 10 | STD-2044 | NUT, 1/4-20 self-locking | 4 |
| 11 | LW-16266-25-25 | CLAMP | 2 |
| 12 | 78753 | BRACKET, Injector nozzle vent crossover | 1 |
| 13 | STD-692 | SCREW, 10-32 x 1/2 long, fill. head | 1 |
| 14 | STD-425 | WASHER, No. 10 plain | 1 |
| 15 | STD-670 | NUT, No. 10-32 self-locking | 1 |
| 16 | STD-1339 | PLUG, 1/16-27 NPT | 3 |
| 17 | AN821-4 | ELBOW, 1/4 tube, 90°, left (between hose & vent tube) | 1 |
| 18 | LW-12798-4S-313 | HOSE ASSY., (Nozzle vent to intercooler) left side | 1 |
| 19 | LW-12798-4S-204 | HOSE ASSY., (Fuel pump vent to intercooler) right side | 1 |

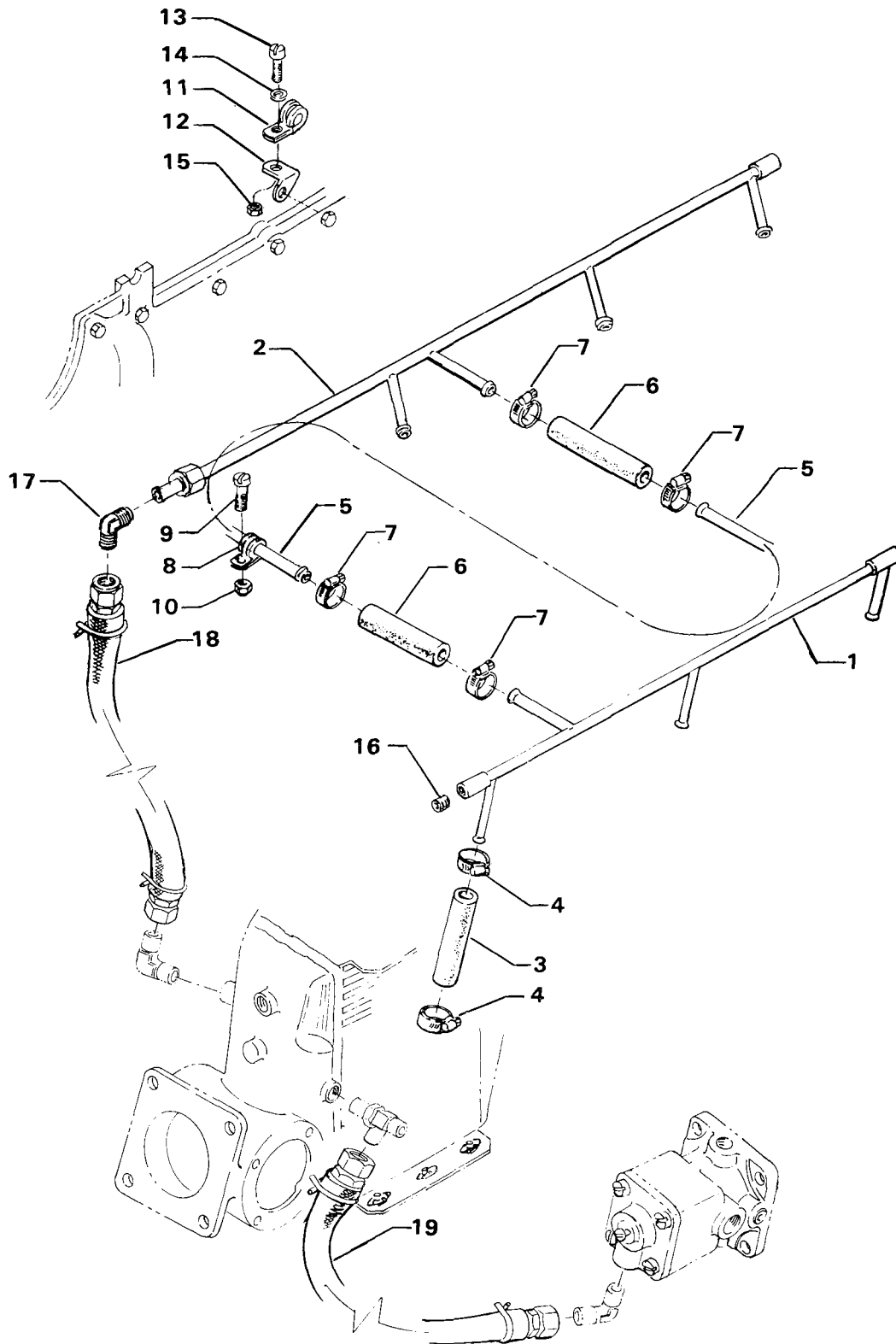
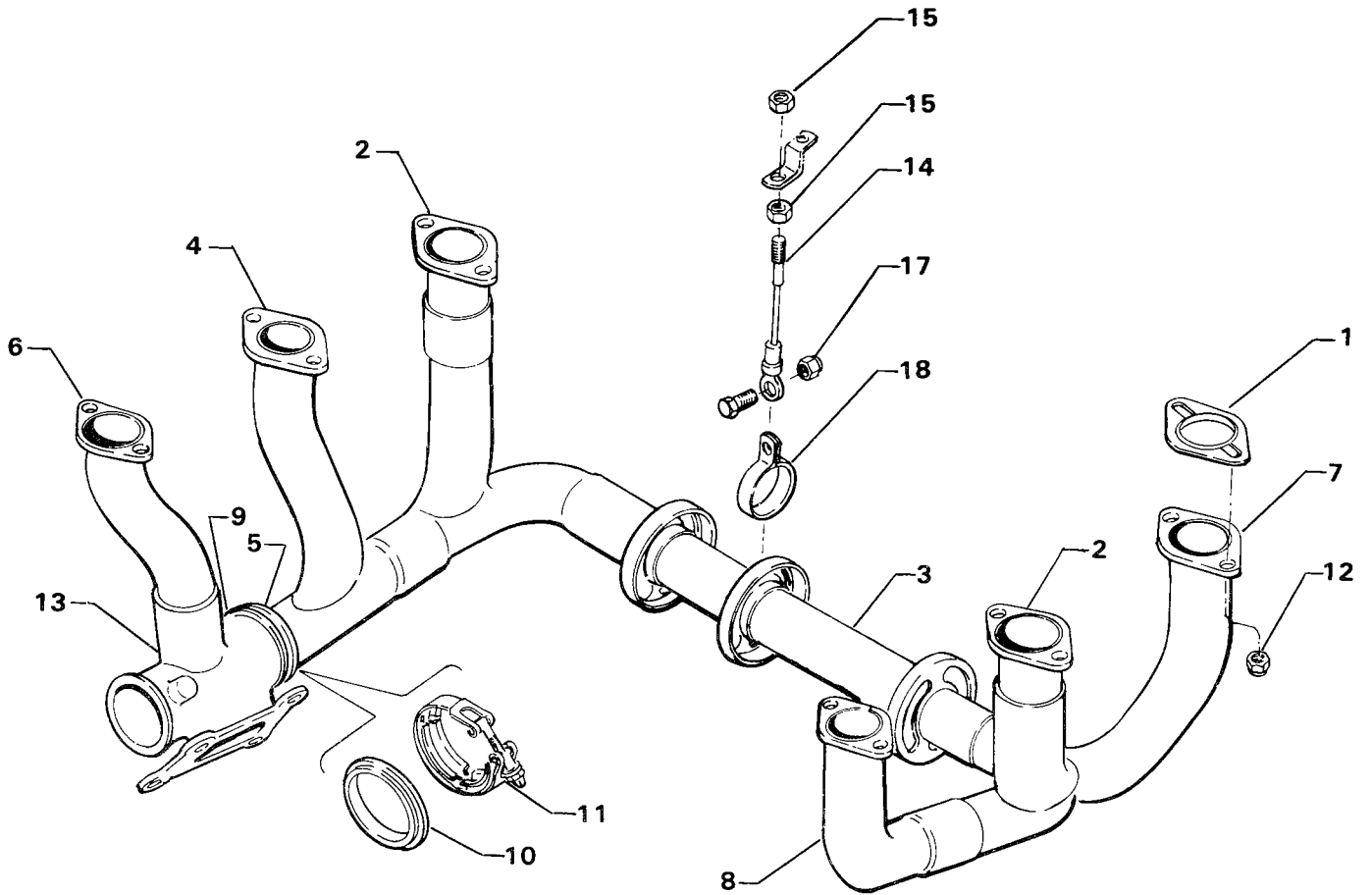


Figure 25. INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND ATTACHMENTS

TURBOCHARGER AND EXHAUST SYSTEMS
EXHAUST PIPES AND TRANSITION ASSEMBLY

| FIG. REF. 26 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|---|------------------------------|
| 1 | 77611 | GASKET, Exhaust flange | 6 |
| 2 | LW-12728 | ADAPTER, Exhaust pipe (cyl. nos. 2 & 3) | 2 |
| 3 | 40B21089 | PIPE, Exhaust, cylinder no. 2 & crossover | 1 |
| 4 | 40B19824 | PIPE, Exhaust, cylinder no. 4 | 1 |
| 5 | 78077 | FLANGE, V-Band coupling, 2.00 O.D. tube | 1 |
| 6 | 40B19823 | PIPE, Exhaust, cylinder no. 6 | 1 |
| 7 | 40B19822 | PIPE, Exhaust, cylinder nos. 1 & 3 | 1 |
| 8 | 40B19825 | PIPE, Exhaust, cylinder no. 5 | 1 |
| 9 | 40C19819 | FLANGE, Exhaust manifold, 2.00 tube | 1 |
| 10 | 78084 | GASKET, V-Band coupling, 2.00 tube | 1 |
| 11 | LW-12093-5 | COUPLING, V-Band | 1 |
| 12 | STD-2218 | NUT, 5/16-18 self-locking | 12 |
| 13 | 47C19818 | TRANSITION, Exhaust | 1 |
| 14 | LW-19189 | CABLE ASSY., Exhaust manifold retaining | 1 |
| 15 | STD-1411 | NUT, 1/4-20 plain | 2 |
| 16 | LW25SS-0.63 | BOLT, 1/4-20 x 5/8 long, hex. hd. | 1 |
| 17 | STD-2044 | NUT, 1/4-20 self-locking | 1 |
| 18 | LW-14525 | CLAMP, (Adjacent to center ring of crossover) | 1 |

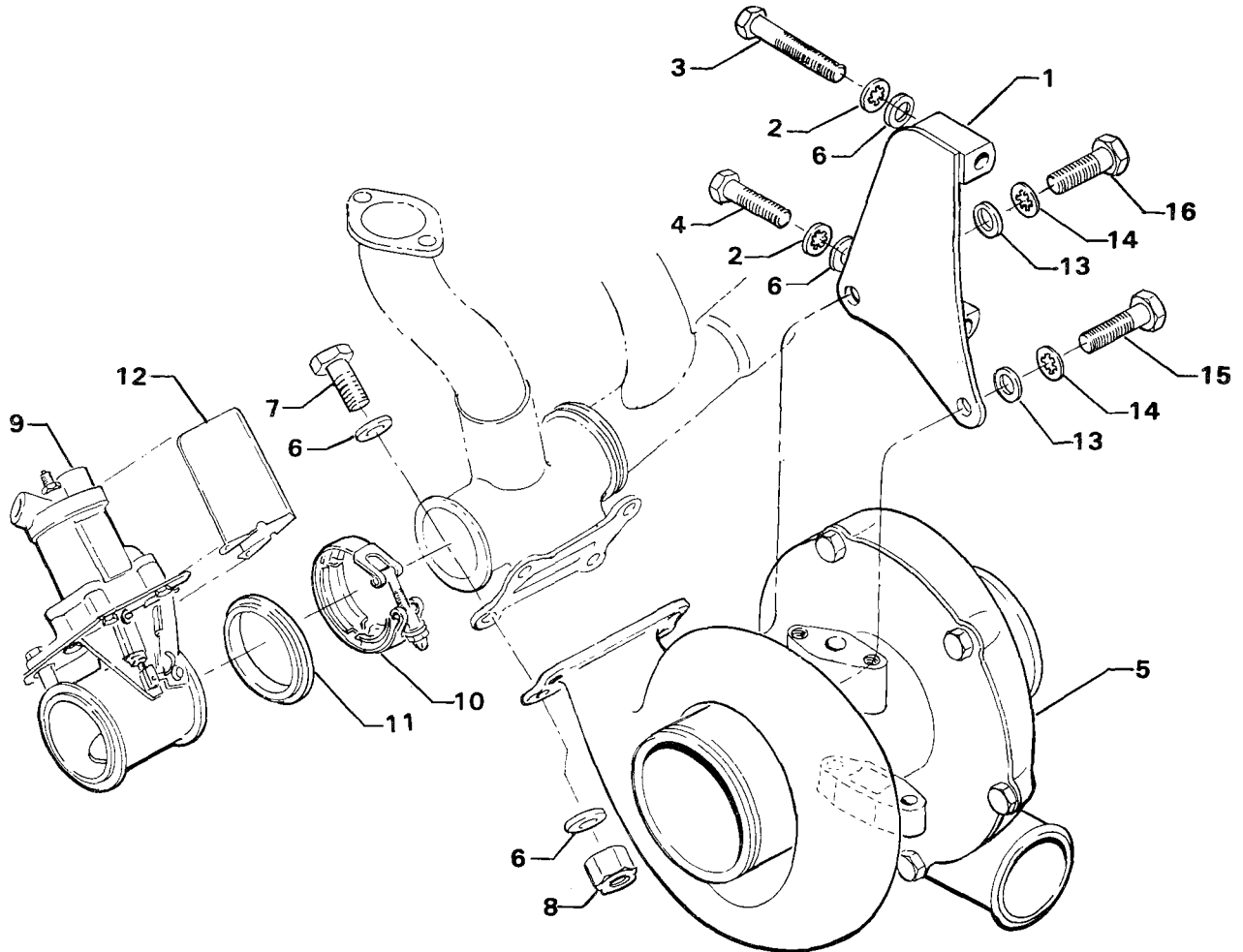


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Figure 26. EXHAUST PIPES AND TRANSITION ASSEMBLY

TURBOCHARGER AND EXHAUST SYSTEMS
 TURBOCHARGER, SUPPORT AND ATTACHING PARTS

| FIG. REF. 27 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|-----------------------------|------------------------|---|--------------------------------------|
| 1 | 07A19834 | BRACKET, Turbocharger mounting | 1 |
| 2 | STD-678 | WASHER, 3/8 internal lock | 2 |
| 3 | LW-38-2.94 | BOLT, 3/8-16 x 2-15/16 long, hex. hd. | 1 |
| 4 | LW-38-2.00 | BOLT, 3/8-16 x 2.00 long, hex. hd. | 1 |
| 5 | 46C19836 | TURBOCHARGER, (TA0413) (466011-2) | 1 |
| 6 | AN960C-616 | WASHER, 3/8 plain | 8 |
| 7 | AN6C-12A | BOLT, 3/8-24 x 1-21/64 long (turbo to transition) | 4 |
| 8 | MS20500-624 | NUT, 3/8-24 self-locking (turbo to transition) | 4 |
| 9 | LW-18861 | VALVE, Exhaust bypass (turbo to transition) | 1 |
| 10 | LW-12125-3 | COUPLING, V-Band, 2-1/4 tube | 1 |
| 11 | 75845 | GASKET, V-Band, 2-1/4 tube | 1 |
| 12 | LW-19277 | HEAT SHIELD | 1 |
| 13 | AN960C-516 | WASHER, 5/16 plain (turbo bracket to turbo) | 2 |
| 14 | STD-475 | WASHER, 5/16 int. lock (turbo bracket to turbo) | 2 |
| 15 | LW-31SS-0.88 | BOLT, 5/16-18 x 7/8 long (turbo bracket to turbo) | 1 |
| 16 | LW-31SS-1.13 | BOLT, 5/16-18 x 1-1/8 long (turbo bracket to turbo) | 1 |

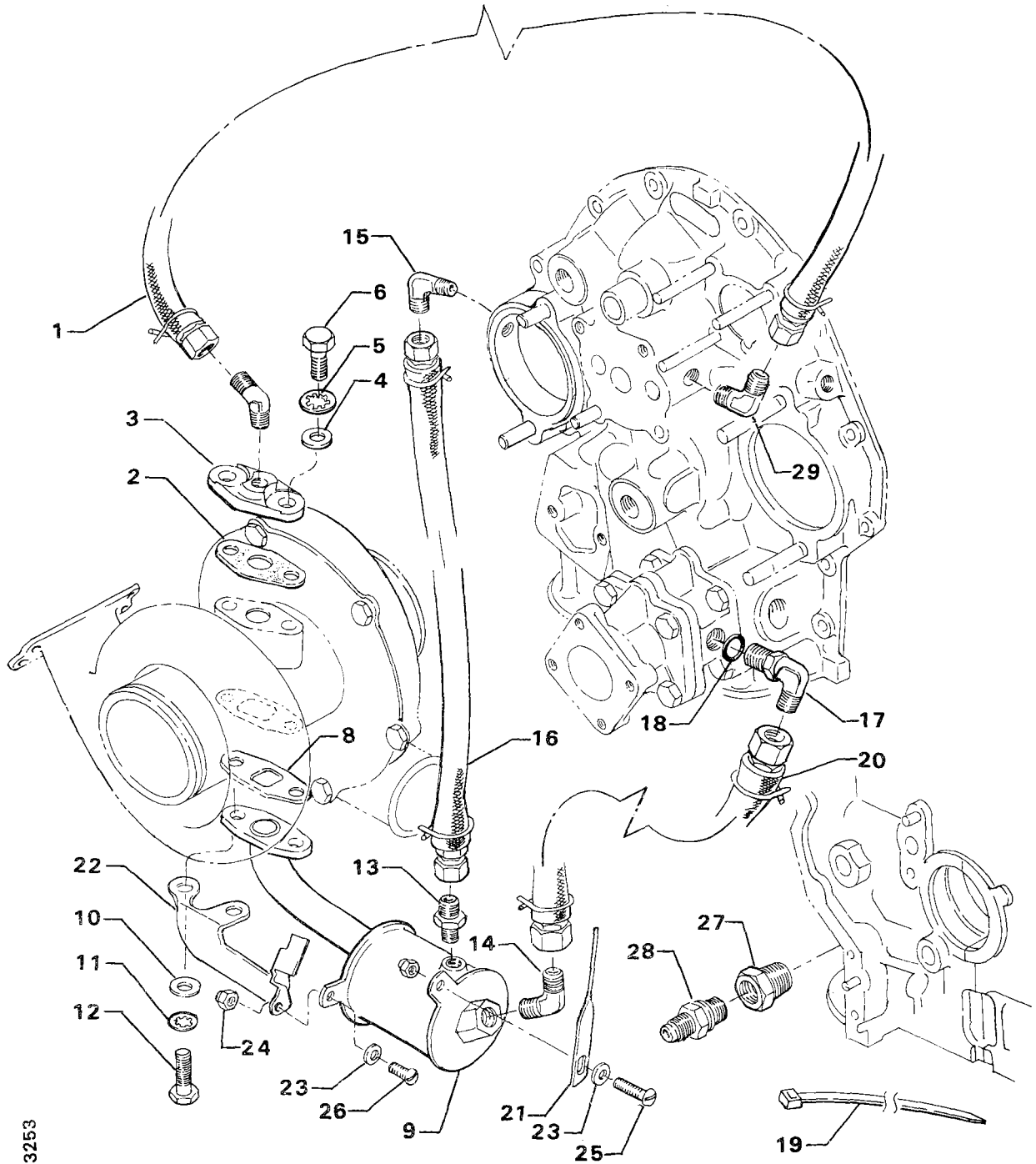


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Figure 27. TURBOCHARGER, SUPPORT AND ATTACHING PARTS

TURBOCHARGER AND EXHAUST SYSTEMS
TURBO OIL DRAIN TANK AND RELATED PARTS

| FIG. REF. 28 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|--|------------------------------|
| 1 | LW-12876-4S-334 | HOSE ASSEMBLY (acc. hsg. to turbo oil inlet) | 1 |
| 2 | 77813 | GASKET, Turbo oil inlet adapter | 1 |
| 3 | 77814 | ADAPTER, Turbo oil inlet | 1 |
| 4 | STD-35 | WASHER, 5/16 plain | 2 |
| 5 | STD-475 | WASHER, 5/16 internal lock | 2 |
| 6 | LW-31-0.94 | BOLT, 5/16-18 x 15/16 long, hex. hd. | 2 |
| 7 | 02A21126 | ELBOW, 1/4 tube, 45° (restricted 3/32) turbo oil inlet | 1 |
| 8 | LW-18038 | GASKET, Turbo oil drain adapter | 1 |
| 9 | 58B19764 | TANK, Turbo oil drain | 1 |
| 10 | STD-33 | WASHER, 3/8 plain | 2 |
| 11 | STD-678 | WASHER, 3/8 internal lock | 2 |
| 12 | LW-38-0.75 | BOLT, 3/8-16 x 3/4 long, hex. hd. | 2 |
| 13 | AN816-4 | NIPPLE, 1/4 tube x 1/8 NPT (in tank) | 1 |
| 14 | MS20822-8 | ELBOW, 1/2 tube, 90° (in tank) | 1 |
| 15 | MS20822-4 | ELBOW, 1/4 tube, 90° (in magneto adapter) | 1 |
| 16 | LW-12798-4S-242 | HOSE ASSY., (tank to magneto adapter) | 1 |
| 17 | LW-10637 | ELBOW, 1/2 tube, 90° (in scavenge pump) | 1 |
| 18 | MS29512-08 | "O" RING, 11/16 I.D. x 5/64 wall | 1 |
| 19 | 76734 | ZIP STRAP | 3 |
| 20 | LW-13176-8S-220 | HOSE ASSY., (tank to scavenge pump) | 1 |
| 21 | 07E19831 | BRACKET, Turbo oil drain tank | 1 |
| 22 | LW-19160 | HEAT SHIELD, Turbo drain tank | 1 |
| 23 | STD-425 | WASHER, No. 10 plain | 3 |
| 24 | STD-670 | NUT, 10-32 self-locking | 3 |
| 25 | STD-860 | SCREW, 10-32 x 5/8 long, fill. hd. | 1 |
| 26 | STD-692 | SCREW, 10-32 x 1/2 long, fill. hd. | 2 |
| 27 | LW-11999 | REDUCER, 7/8-14 to 9/16-18 (wastegate oil drain) | 1 |
| 28 | LW-16561 | NIPPLE, 1/4 tube to 9/16-18 thd. (wastegate oil drain) | 1 |
| 29 | MS20822-4 | ELBOW, 1/4 tube, 90° (in acc. hsg. turbo oil) | 1 |



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Figure 28. TURBO OIL DRAIN TANK AND RELATED PARTS

TURBOCHARGER AND EXHAUST SYSTEMS
TURBOCHARGER CONTROLLERS, WASTEGATE AND HOSES

| FIG. REF. 29 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|--------------|-----------------|---|-----------------------|
| 1 | 72376 | ELBOW, 1/4 tube, 90° (W.G. inlet) | 1 |
| 2 | LW-12798-4S-274 | HOSE ASSY., (Acc. hsg. to wastegate inlet) | 1 |
| 3 | 72377 | ELBOW, 3/8 tube, 90° (W.G. inlet) | 1 |
| 4 | LW-12877-6S-200 | HOSE ASSY., (W.G. out to density cont. inlet) | 1 |
| 5 | 76355 | TEE, 3/8 tube, adj. (density cont. inlet) | 1 |
| 6 | LW-12877-6S-066 | HOSE ASSY., (Den. cont. in tee to diff. cont. in) | 1 |
| 7 | 72377 | ELBOW, 3/8 tube, 90° (density cont. out) | 1 |
| 8 | LW-12483 | NIPPLE, 3/8 tube, (diff. cont. inlet, 5/64 rest.) | 1 |
| 9 | AN893-12 | BUSHING, Reduced 3/4 to 9/16 (in diff. cont. out) | 1 |
| 10 | MS29512-08 | "O" RING, 41/64 x 5/64 sect. (diff. cont. out) | 1 |
| 11 | 77461 | TEE, 3/8 tube, st. thd. on side (diff. cont. out) | 1 |
| 12 | LW-12877-6S-110 | HOSE ASSY., (Density cont. to differential out) | 1 |
| 13 | LW-12799-6S-180 | HOSE ASSY., (Differential out to acc. hsg.) | 1 |
| 14 | 72376 | ELBOW, 1/4 tube, 90° (in air inlet duct) right side | 1 |
| 15 | STD-1932 | BUSHING, Reduced, 1/4 to 1/8 NPT | 1 |
| 16 | 78067 | ELBOW, 1/4 tube, 90° (Diff. low press. port) .025 rest. | 1 |
| 17 | LW-12878-4S-170 | HOSE ASSY., (Low press. to air duct) | 1 |
| 18 | 72376 | ELBOW, (W.G. drain) | 1 |
| 19 | LW-12876-4S-172 | HOSE ASSY., (W.G. drain to crankcase) | 1 |
| 20 | AN814-4L | PLUG, (Air inlet duct, left side) | 1 |
| 21 | MS29512-04 | "O" RING | 1 |
| 22 | LW-16266-25-63 | CLAMP, Left magneto hose | 1 |
| 23 | 73314 | GASKET, Density controller | 1 |
| 24 | LW-10682 | CONTROLLER, Density | 1 |
| 25 | STD-28 | WASHER, No. 10 plain | 4 |
| 26 | STD-1566 | SCREW, 10-24 x 3/4 long, fill. hd. dr. | 4 |
| 27 | STD-1928 | SEAL, Wire | AR |
| 28 | 73314 | GASKET, Differential pressure controller | 1 |
| 29 | LW-10098 | CONTROLLER, Differential pressure | 1 |
| 30 | STD-28 | WASHER, No. 10 plain | 4 |
| 31 | STD-1566 | SCREW, 10-24 x 3/4 long, fill. hd. dr. | 4 |
| 32 | AN912-9 | BUSHING, (In acc. hsg., controller drain) | 1 |
| 33 | MS20822-6 | ELBOW, 3/8 tube, 90° (in bushing) | 1 |

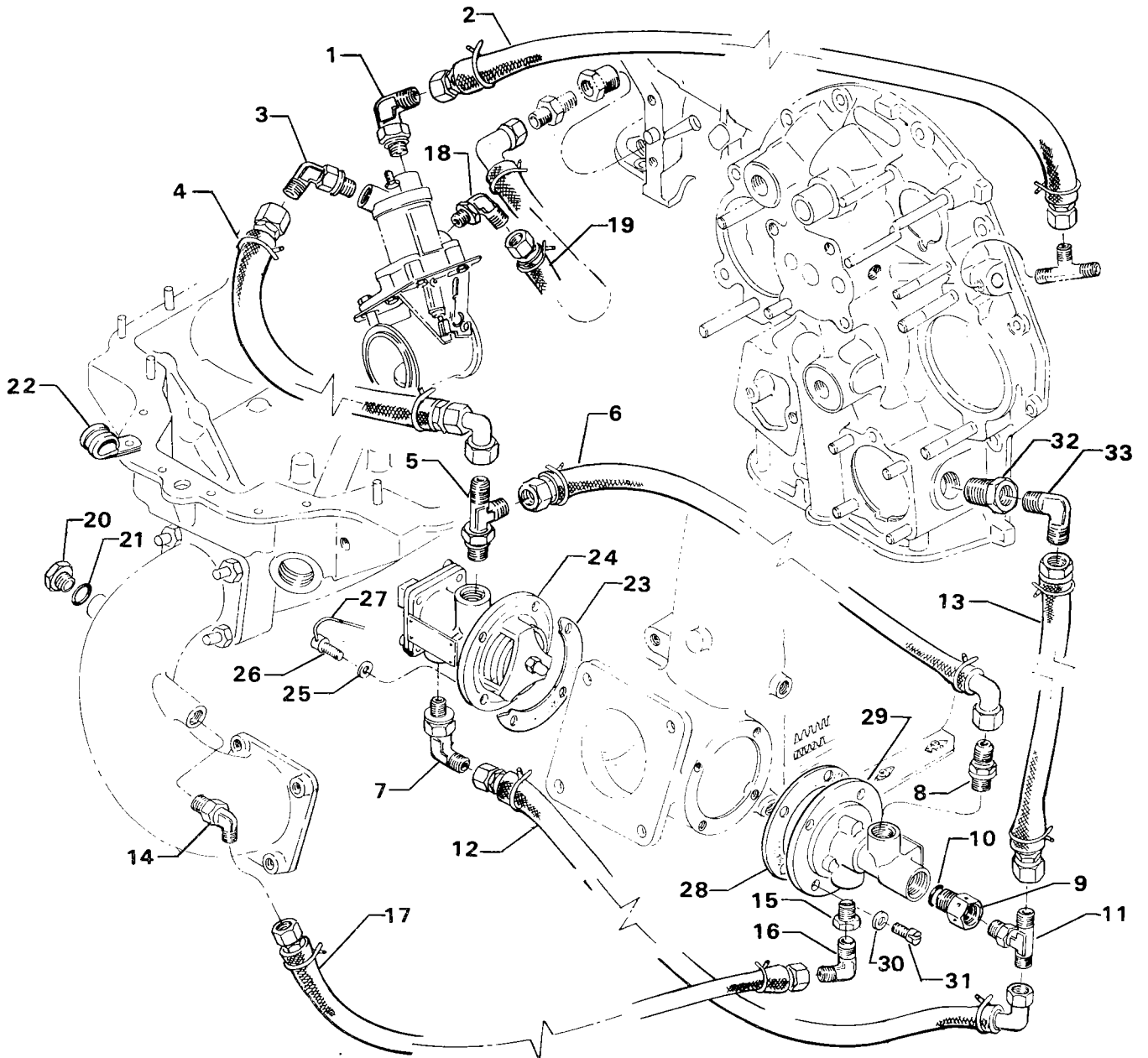


Figure 29. TURBOCHARGER CONTROLLERS, WASTEGATE AND HOSES

TURBOCHARGER AND EXHAUST SYSTEM
INTERCOOLER AND MOUNTING RELATED PARTS

| FIG. REF. 30 | PART NUMBER | DESCRIPTION | QUANTITY PER ASSEMBLY |
|---------------------|--------------------|--|------------------------------|
| 1 | LW-15490 | HOSE, 2-1/4 I.D. x 2-5/8 O.D. x 2-3/8 long | 1 |
| 2 | LW-14246 | HOSE, 2-1/2 to 2-1/4 I.D. x 3.00 long | 1 |
| 3 | LW-15592-8-36 | CLAMP, Hose | 3 |
| 4 | LW-15592-8-40 | CLAMP, Hose | 1 |
| 5 | 41A19821 | TUBE, Air inlet | 1 |
| 6 | 42K19837 | INTERCOOLER | 1 |
| 7 | 07E19832 | BRACKET, Intercooler to sump support | 1 |
| 8 | STD-35 | WASHER, 5/16 plain | 1 |
| 9 | STD-1727 | WASHER, 1/8 thick (assembly slot end) | 1 |
| 10 | STD-475 | WASHER, 5/16 internal lock (brk. to sump) | 2 |
| 11 | LW-14649 | SHIM, (Under either bolt) | AR |
| 12 | STD-690 | SHIM, (Under either bolt) | AR |
| 13 | LW-31-0.81 | BOLT, 5/16-18 x 13/16 long, hex. hd. | 2 |
| 14 | STD-33 | WASHER, 3/8 plain (strut to intercooler) | 1 |
| 15 | STD-678 | WASHER, 3/8 internal lock (strut to intercooler) | 1 |
| 16 | LW-38-0.75 | BOLT, 5/16-18 x 3/4 long, hex. hd. (strut to intercooler) | 1 |
| 17 | 77504 | GASKET, Fuel injector | 1 |
| 18 | STD-8 | WASHER, 1/4 plain (intercooler to injector) | 4 |
| 19 | STD-160 | WASHER, 1/4 internal lock (intercooler to injector) | 4 |
| 20 | LW-25-1.00 | BOLT, 1/4-20 x 1.00 long, hex. hd. (intercooler to injector) | 4 |
| 21 | LW-13807 | ADAPTER ASSY., Fuel drain valve (intercooler) | 1 |
| 22 | 72376 | ELBOW, 1/4 tube, 90° (nozzle vent, left side) | 1 |
| 23 | 74369 | TEE, 1/4 tube (fuel pump & instrument vent) | 1 |

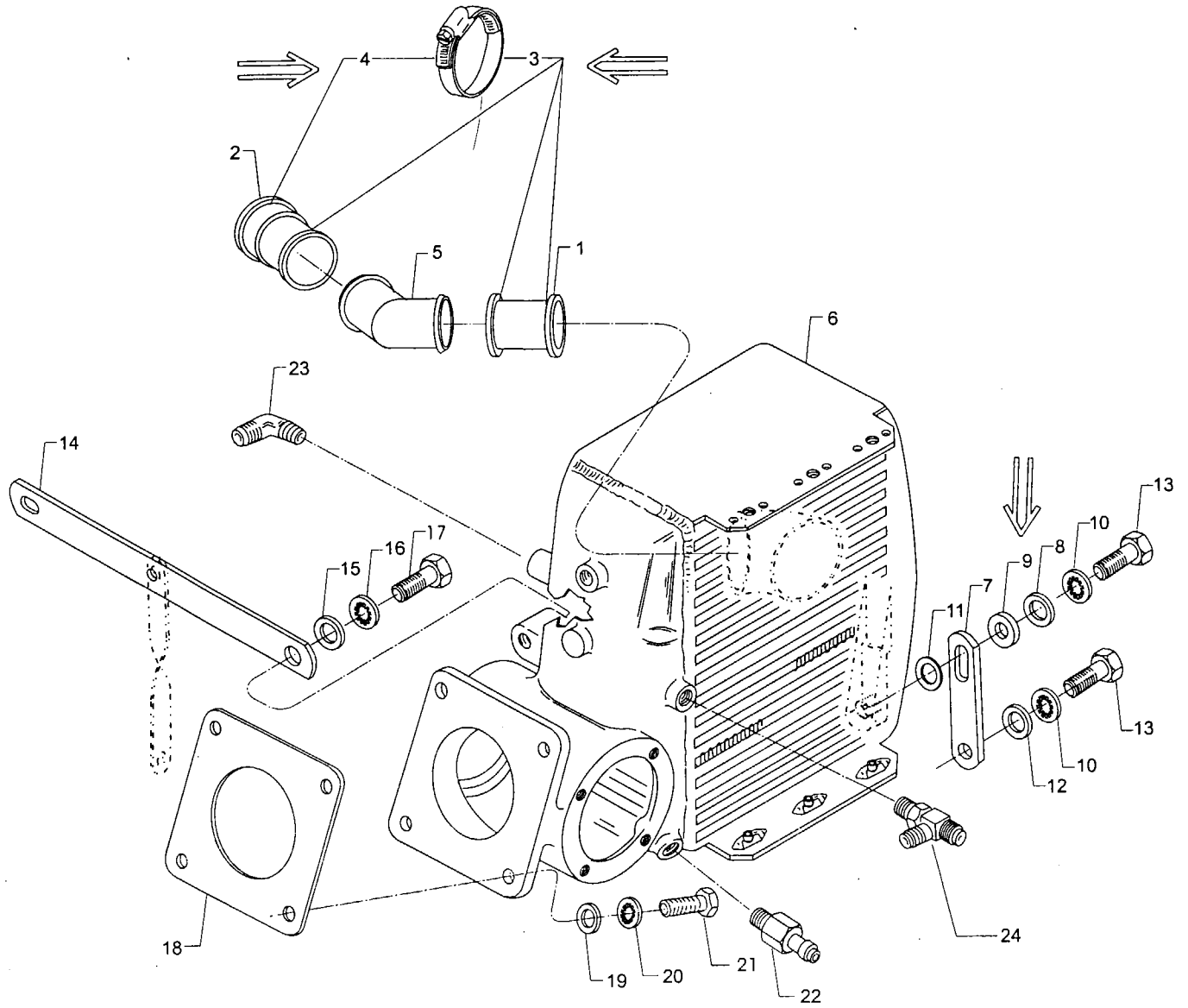


Figure 30. INTERCOOLER AND MOUNTING RELATED PARTS

SERVICE KIT SECTION

SEAL AND GASKET SET

| Part No. | Part Name | Qty. |
|---------------|----------------------------------|------|
| 05K21173 | SEAL AND GASKET SET | 1 |
| LW-12272 | LOCKPLATE, Shroud tube | 6 |
| LW-12681 | GASKET, Magneto | 2 |
| LW-12795 | GASKET, Oil filter adapter | 1 |
| LW-13306 | GASKET, Oil sump | 1 |
| LW-13792 | SEAL, Crankshaft oil | 1 |
| LW-14260 | SEAL, Tachometer drive oil | 1 |
| LW-14995 | SPRING, Shroud tube | 6 |
| LW-18038 | GASKET, Turbo. oil drain adapter | 1 |
| LW-18638 | LOCKPLATE, Crankshaft gear | 1 |
| LW-18661 | SEAL, Shroud tube | 12 |
| MS9068-009 | RING, Oil seal | 1 |
| MS16625-1081 | RING, Internal retaining | 1 |
| MS29512-04 | SEAL, "O" Ring | 2 |
| STD-213 | SEAL, Fuel pump adapter | 1 |
| STD-2217 | SEAL, Vac. and hyd. pump adapter | 1 |
| 8313 | GASKET, Vacuum pump | 2 |
| 61183 | GASKET, Accessory adapter | 1 |
| 62224 | GASKET, Magneto adapter | 1 |
| 66224 | GASKET, Fuel injector | 2 |
| 68315 | GASKET, Accessory drive adapter | 1 |
| 69164 | GASKET, Fuel pump adapter | 1 |
| 70310 | SEAL, Shroud tube | 12 |
| 70455 | GASKET, Prop. drive plug | 1 |
| 70457 | GASKET, Oil filler adapter | 1 |
| 71481 | RING, Seal, cylinder base | 6 |
| 71667 | LOCKPLATE, Fuel idler gearshaft | 1 |
| 71973 | GASKET, Intake flange | 6 |
| 72053 | GASKET, Governor | 1 |
| 72091 | RING, Oil seal | 2 |
| 73314 | GASKET, Density controller | 2 |
| 73818 | GASKET, Accessory housing | 1 |
| 74068 | SEAL, Oil level gage | 1 |
| 75845 | GASKET, V-Band (2.25 tube) | 1 |
| 75906 | GASKET, Rocker box cover | 6 |
| 77504 | GASKET, Fuel injector | 1 |
| 77611 | GASKET, Exhaust flange | 6 |
| 77813 | GASKET, Turbo. oil inlet adapter | 1 |
| 78084 | GASKET, V-Band (2.00 tube) | 1 |
| 06A19956 | SEAL, Oil | 1 |
| 06E19769-0.63 | GASKET, Oil cooler bypass | 1 |
| 06E19769-1.00 | GASKET, Oil suction screen | 1 |
| 06E19769-1.25 | GASKET, Oil pressure relief | 1 |
| 06E19769-1.63 | GASKET, Oil sump plug | 1 |
| MS29512-08 | SEAL, "O" Ring | 2 |

SERVICE KIT SECTION

CYLINDER, PISTON AND RING ASSEMBLY

| Part No. | Part Name | Qty. |
|-----------|------------------------------------|------|
| LW-19179 | CYLINDER, PISTON AND RING ASSEMBLY | 1 |
| LW-10077 | SEAT, Valve spring | 1 |
| LW-11775 | PLUG, Piston pin | 2 |
| LW-11795 | SPRING, Valve, auxiliary | 2 |
| LW-11800 | SPRING, Valve, outer | 2 |
| LW-12272 | LOCKPLATE, Shroud tube | 1 |
| LW-12429 | CYLINDER ASSEMBLY | 1 |
| LW-12733 | PISTON, 3 Ring | 1 |
| LW-12892 | THRUST BUTTON | 2 |
| LW-13323 | SEAT, Valve spring, lower | 2 |
| LW-13790 | SHAFT, Valve rocker | 1 |
| LW-14077 | PIN, Piston | 1 |
| LW-14995 | SPRING, Shroud tube | 1 |
| LW-16475 | SEAT, Valve spring | 1 |
| LW-18661 | SEAL, Shroud tube | 2 |
| 17F19353 | ROCKER ASSY., Valve | 2 |
| MS13997-3 | KEY, Valve | 2 |
| MS13998-3 | CAP, Valve stem | 1 |
| SSP-2272 | TAG | 1 |
| SSP-2472 | TAG | 1 |
| STD-1874 | SCREW, 1/4-20 x 13/16 long | 1 |
| STD-1925 | SCREW, 1/4-20 x 5/8 long | 6 |
| 60009 | KEY, Valve | 2 |
| 60828 | PLUG, Piston pin | 2 |
| 61247 | COVER, Rocker box | 1 |
| 70310 | SEAL, Shroud tube | 2 |
| 71481 | SEAL, Cylinder base | 1 |
| 73857 | RING, Piston, oil regulating | 1 |
| 73938 | VALVE, Intake | 1 |
| 74241 | RING, Piston, top compression | 2 |
| 75906 | GASKET, Rocker box cover | 1 |
| LW-19001 | VALVE, Exhaust | 1 |

SERVICE KIT SECTION

CRANKCASE ASSY. AND THRU STUD KIT

| Part No. | Part Name | Qty. |
|-----------------|-----------------------------------|------|
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| 11E20003-S3* | CRANKCASE ASSEMBLY | 1 |
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| 31C-16 | STUD, Woodward Governor | 4 |
| STD-1339 | PLUG | 7 |
| AN565-B-1032-H4 | SET SCREW | 1 |
| AN565-B-1032-H5 | SET SCREW | 1 |
| SSP-272 | TAG, Piston cooling nozzles | 1 |
| SSP-582 | TAG, Thin wall bearings | 1 |
| SSP-1576 | TAG, Governor drive idler shaft | 1 |
| SSP-1769 | TAG, Governor drive pad studs | 1 |
| 1102 | PLUG, 1/8 pipe, oil pressure | 4 |

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| 07F19879 | Link | 5-2 | 53E19600 | Valve Assy. | 2-7 |
| 07F19883 | Link | 5-4 | 54D19625 | Oil Filter | 2-7 |
| 07H21150 | Bracket | 6-1 | 56A19865 | Sump Assy. | 6-1 |
| 11E20003-S3 | Crankcase Assy. | 1-1 | 58B19764 | Tank | 7-5 |
| 12A19770 | Bracket | 1-3 | 61J21008 | Fuel Injector | 6-5 |
| 13E17648 | Crankshaft Assy. | 1-7 | 62D21153 | Pump | 2-3 |
| 13E17688 | Crankshaft Assy. | 1-7 | 63B21127 | Manifold Assy. | 6-5 |
| 13S19648 | Gear | 1-7 | 63E21046 | Manifold | 6-7 |
| 15F19957-34 | Rod Assy. | 3-5 | 63E21054 | Manifold | 6-7 |
| 15F19957-35 | Rod Assy. | 3-5 | 66JC-35SDNP | Magneto | 4-1 |
| 15F19957-36 | Rod Assy. | 3-5 | 66JP-OSCNP | Magneto | 4-1 |
| 15F19957-37 | Rod Assy. | 3-5 | 66N21020 | Valve Assy. | 4-1 |
| 17F19353 | Rocker Assy. | 3-5 | 67J20608-P | Harness Assy. | 4-1 |
| 18A19441 | Bearing | 1-5 | 67J20609-P | Harness Assy. | 4-1 |
| 18M19389 | Bearing | 3-1 | | | |