

TECHNICAL PUBLICATION REVISION

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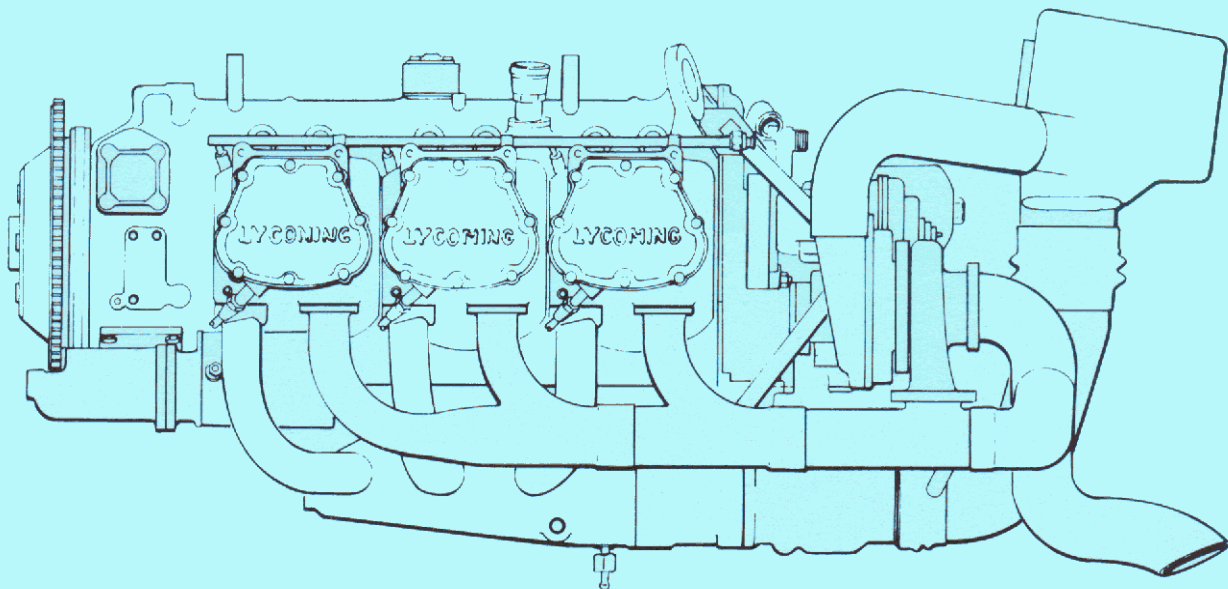
PARTS CATALOG

PC-315-1

Textron Lycoming

TIO/LTIO-540-U2A Series
Wide Cylinder Flange Model

AIRCRAFT ENGINES



Courtesy of Bomar Flying Service
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TEXTRON Lycoming

Reciprocating Engine Division/
Subsidiary of Textron Inc.

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INTRODUCTION

This illustrated parts catalog contains a complete parts listing for the Textron Lycoming TIO/LTIO-540-U2A wide cylinder flange model aircraft engines.

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 Textron 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.

NOTES

The illustrations, pictures and drawings shown in this publication are typical of the subject matter they portray; in no instance are they to be interpreted as examples of any specific engine, equipment or part thereof.

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 Textron Lycoming accepts responsibility for quality control and/or airworthiness of parts which do not pass through the Textron Lycoming quality control system.

The Turbocharger and Control Components for this engine shall be supplied by the Airframe Manufacturer.

SERVICE BULLETINS, INSTRUCTIONS AND LETTERS

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

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Oversize and Undersize Parts Listing

PART NO.	DESCRIPTION	OVERSIZE							UNDERSIZE		
		P02	P05	P10	P15	P20	P30	P50	M03	M06	M10
66670	BUSHING		X	X							
66713	GUIDE		X	X		X	X				
69260	INSERT			X							
69796	DOWEL		X								
71894	SEAT			X		X	X				
71903	BUSHING, Counterweight	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1143 FOR APPLICATION.									
72155-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							
75656-S	BUSHING		X	X	X	X					
75838	GUIDE		X	X		X	X				
79024-S	BUSHING		X	X	X	X					
LW-12688	SEAT			X		X	X				
LW-13212	BEARING								X*	X*	X*
LW-13885	BEARING								X	X	X
LW-14830	BEARING								X	X	X
LW-15628	SEAL							X			
STD-1065	DOWEL	X	X	X	X						

Studs available in P03, P07 and P12.

* Also available in P10 oversize.

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-13885 in .003 undersize, order part number LW-13885-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.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	LW-18208	CRANKCASE ASSEMBLY	1
2	31C-12	STUD. 5/16-18 x 1-1/2 long	2
3	31C-13	STUD. 5/16-18 x 1-5/8 long	1
4	38-13	STUD. 3/8-16 x 1-5/8 long	27
5	38-16	STUD. 3/8-16 x 2.00 long	8
6	38-22	STUD. 3/8-16 x 2-3/4 long	1
7	38D-17	STUD. 3/8-16 x 2-1/8 long, drilled	1
8	50-15	STUD. 1/2-13 x 1-7/8 long	12*
9	LW-13794	STUD. 5/16-18 x 1.00 long, drilled	1
10	STD-557	DOWEL. 1/2 dia. x 11/16 long, hollow	2
11	1102	PLUG. 1/8 pipe x 3/8 long	4
12	65007	RETAINER. Shroud tube seal	12
13	STD-1339	PLUG. 1/16-27 pipe, Allen head	1
14	69796	DOWEL. Crankshaft bearing	2
15	STD-514	DOWEL. 5/16 dia. x 1/2 long	2
16	72158	BUSHING. Governor drive idler shaft	1
17	31C-14	STUD. 5/16-18 x 1-3/4 long	4
18	73772	NOZZLE ASSEMBLY. Piston cooling	6

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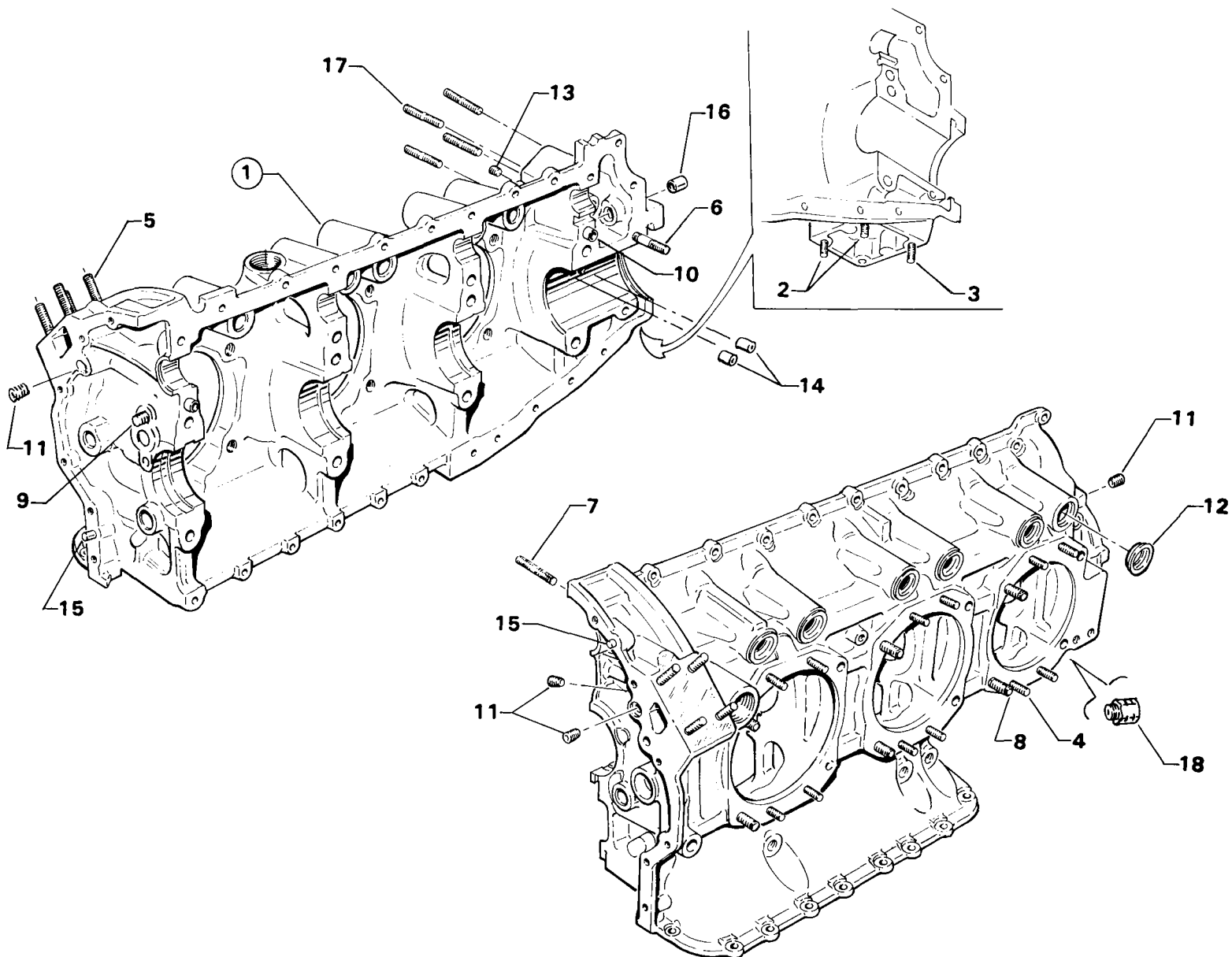
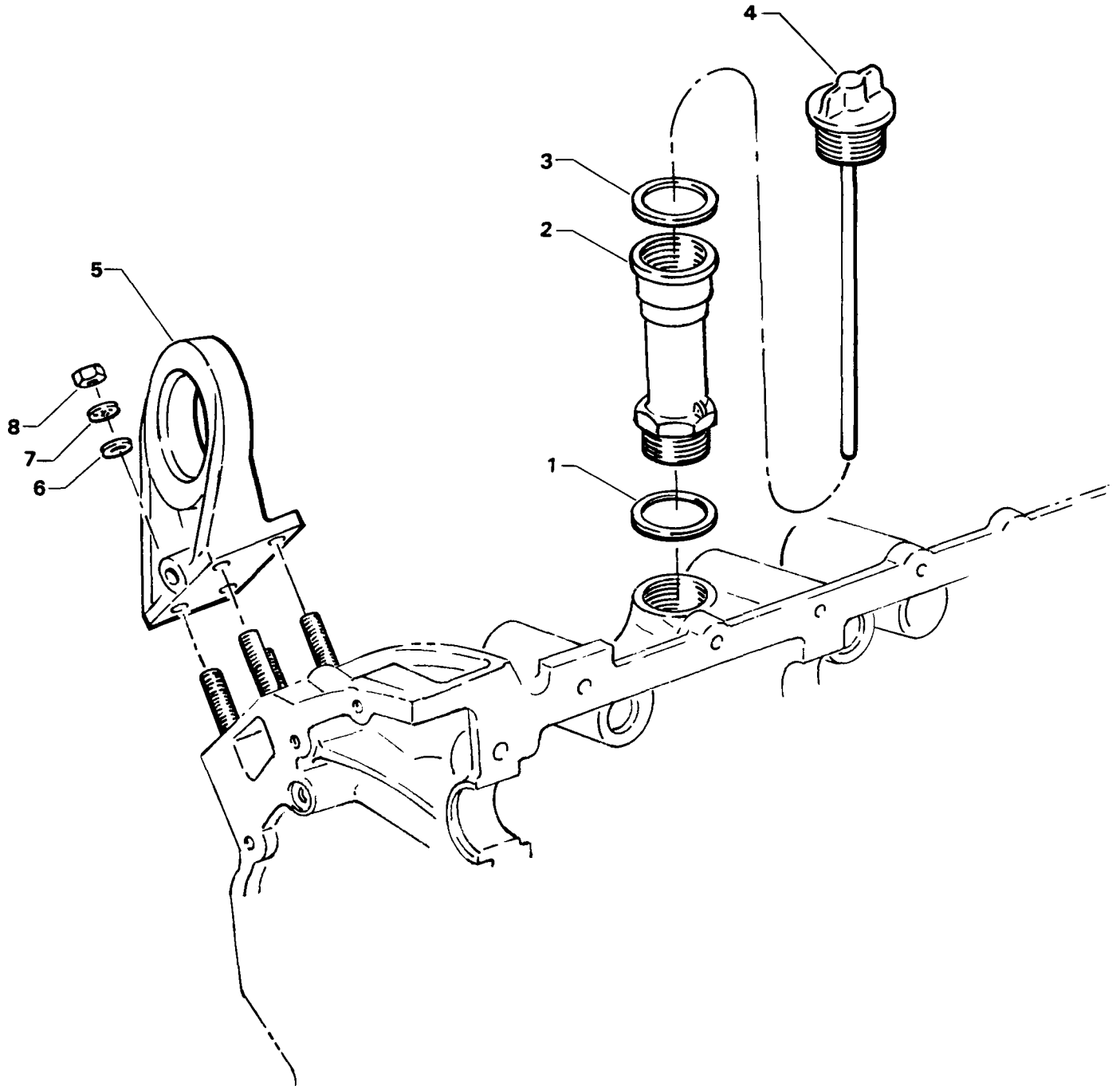


Figure 1. CRANKCASE ASSEMBLY

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ASSEMBLY

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	70457	GASKET. Oil filler extension	1
2	75737	EXTENSION. Oil filler, 2-11/16 long	1
3	72059	GASKET. Oil level gage	1
4	LW-16783-3	GAGE ASSY., Oil level	1
5	72306	BRACKET. Engine mounting (Dynafoal)	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, 21/64 thick	16

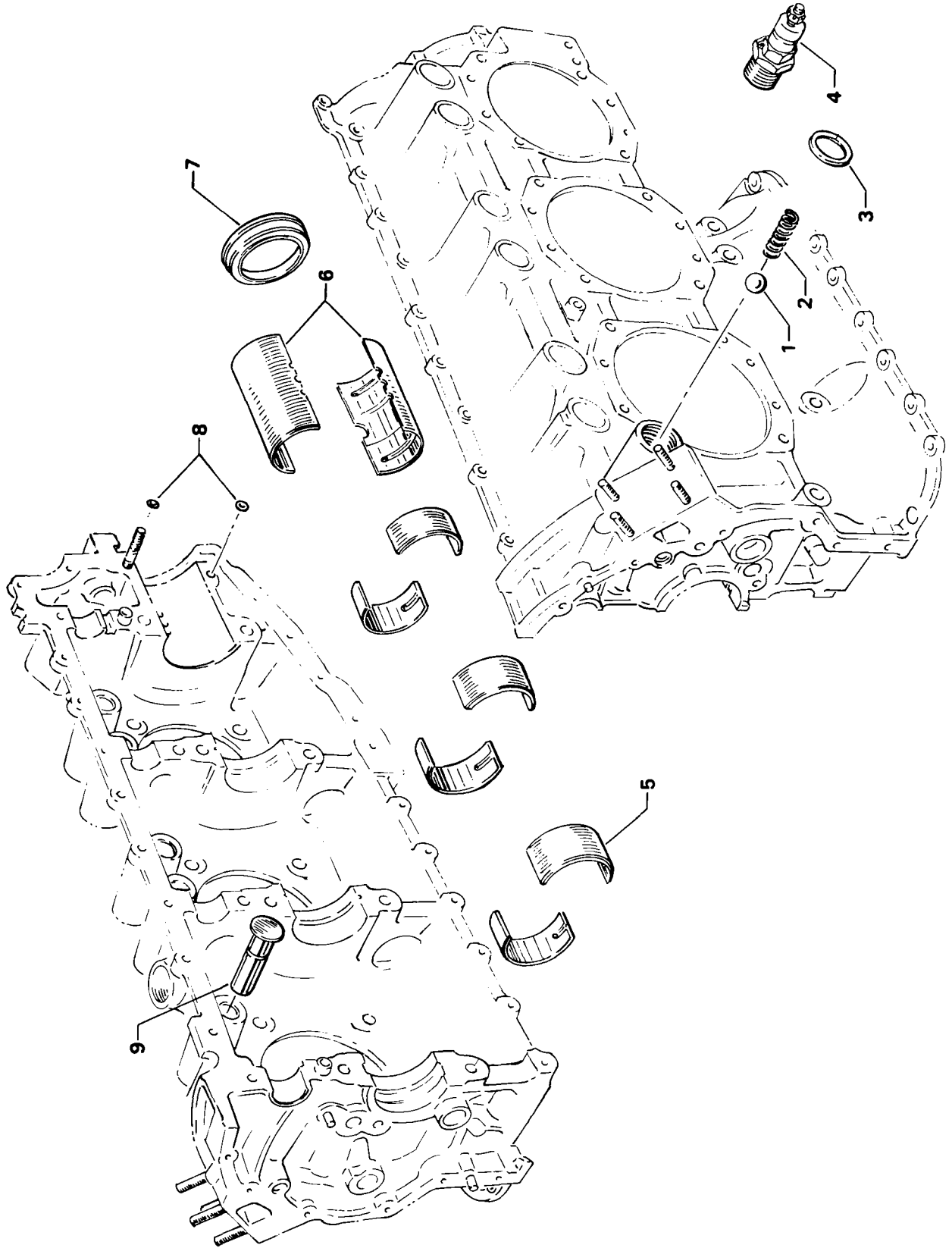


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Figure 2. OIL LEVEL GAGE AND ENGINE MOUNTING BRACKETS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE RELATED PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
3			
1	1028B	BALL, 11/16 dia.	1
2	LW-11713	SPRING, Oil pressure relief valve	1
3	STD-1045	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-14830	BEARING, Crankshaft	6
6	LW-13885	BEARING, Crankshaft (front)	2
7	LW-15628	SEAL, Crankshaft, oil	1
8	72091	RING, Oil seal, 23/64 I.D. x 7/64 dia.	2
9	72877	BODY, Hydraulic tappet	12



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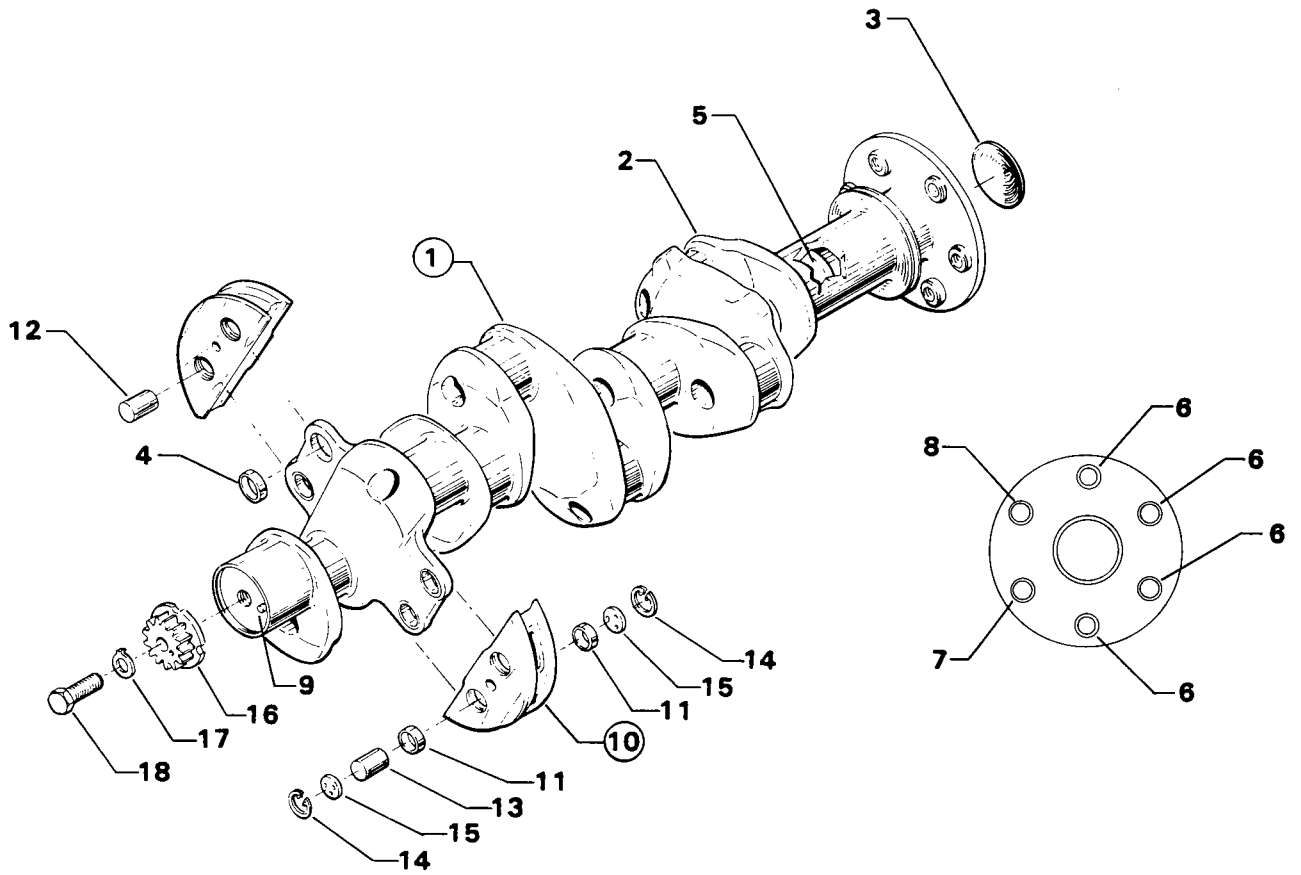
Figure 3. CRANKCASE RELATED PARTS

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

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	LW-17788*	CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY	1
	LW-17789**	CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY	1
2	LW-17763*	CRANKSHAFT AND PLUG ASSEMBLY	1
	LW-17764**	CRANKSHAFT AND PLUG ASSEMBLY	1
3	STD-1211	PLUG, 2.00 dia. expansion	1
4	73810	BUSHING, Crankshaft dynamic counterweight	4
5	60945	PLUG, 1-1/4 dia.	1
6	75656	BUSHING, Propeller flange, long	4
7	72155	BUSHING, Propeller flange, short	1
8	79024	BUSHING, Propeller flange, indexing	1
9	STD-1065	DOWEL, Stepped, 5/16 & 1/4 dia. x 35/64 long	1
10	73644	COUNTERWEIGHT ASSEMBLY	2
11	71903	BUSHING, Dynamic counterweight	8
12	76788	ROLLER, Dynamic counterweight, 6.3 order	2
13	76787	ROLLER, Dynamic counterweight, 5.1 order	2
14	LW-14820	RING, Internal retaining	8
15	71907	WASHER, Dynamic counterweight	8
16	76786	GEAR, Crankshaft	1
17	LW-18638	LOCKPLATE, Crankshaft gear	1
18	STD-2209	BOLT, 5/16-24 x 1-3/4 long, hex. hd.	1

* Used on TIO-540-U2A engines.

** Used on LTIO-540-U2A engines.



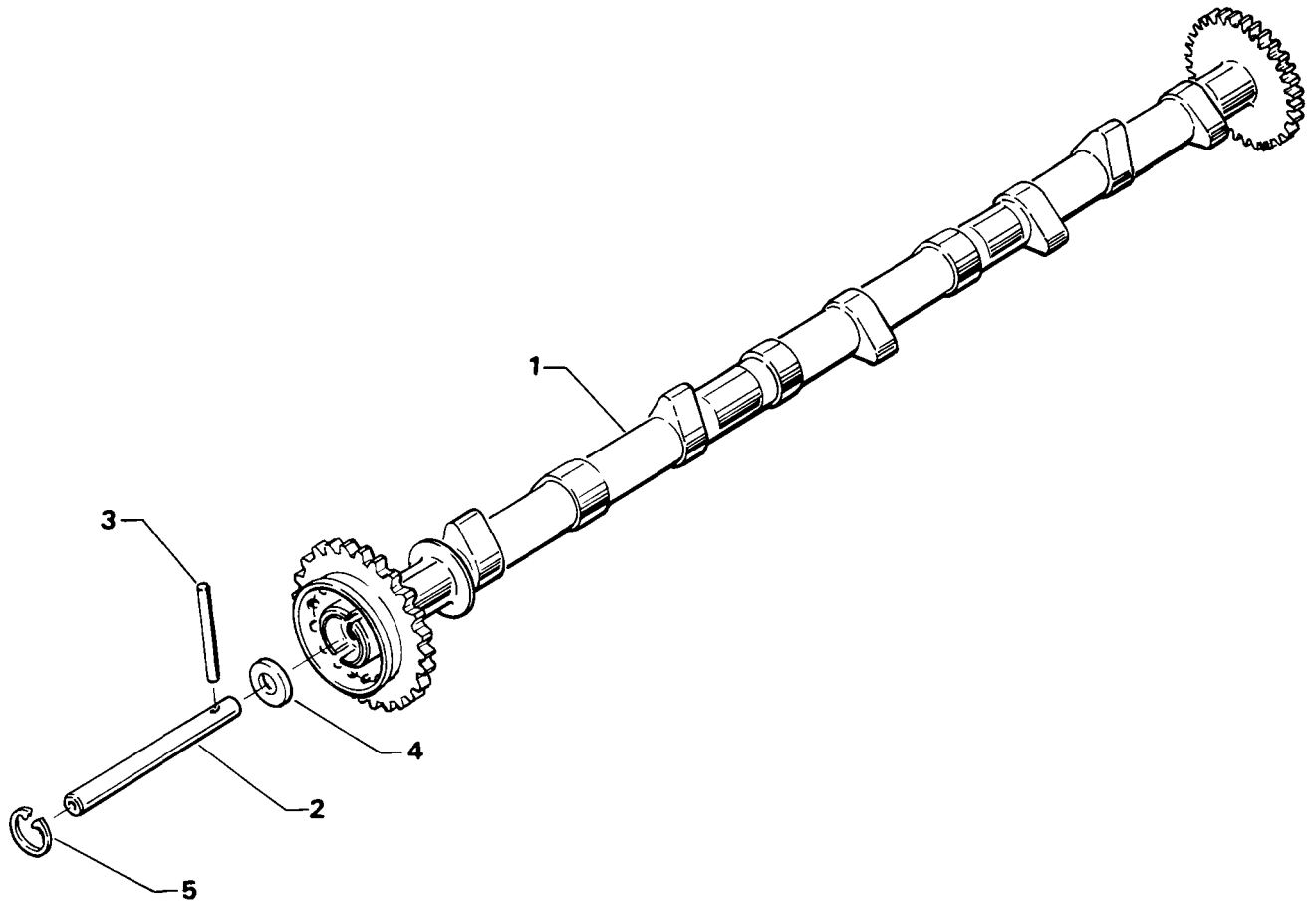
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Figure 4. CRANKSHAFT AND RELATED PARTS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CAMSHAFT AND RELATED PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
5			
1	76148*	CAMSHAFT	1
	LW-12201**	CAMSHAFT (Reverse rotation)	1
2	76155	SHAFT ASSY., Tachometer	1
3	78368	PIN, 3/16 x 2-21/64 long	1
4	76118	SPACER, Tachometer shaft centering	1
5	MS16625-1081	RING, Internal retaining	1

- * Used on TIO-540-U2A engines.
- ** Used on LTIO-540-U2A engines.

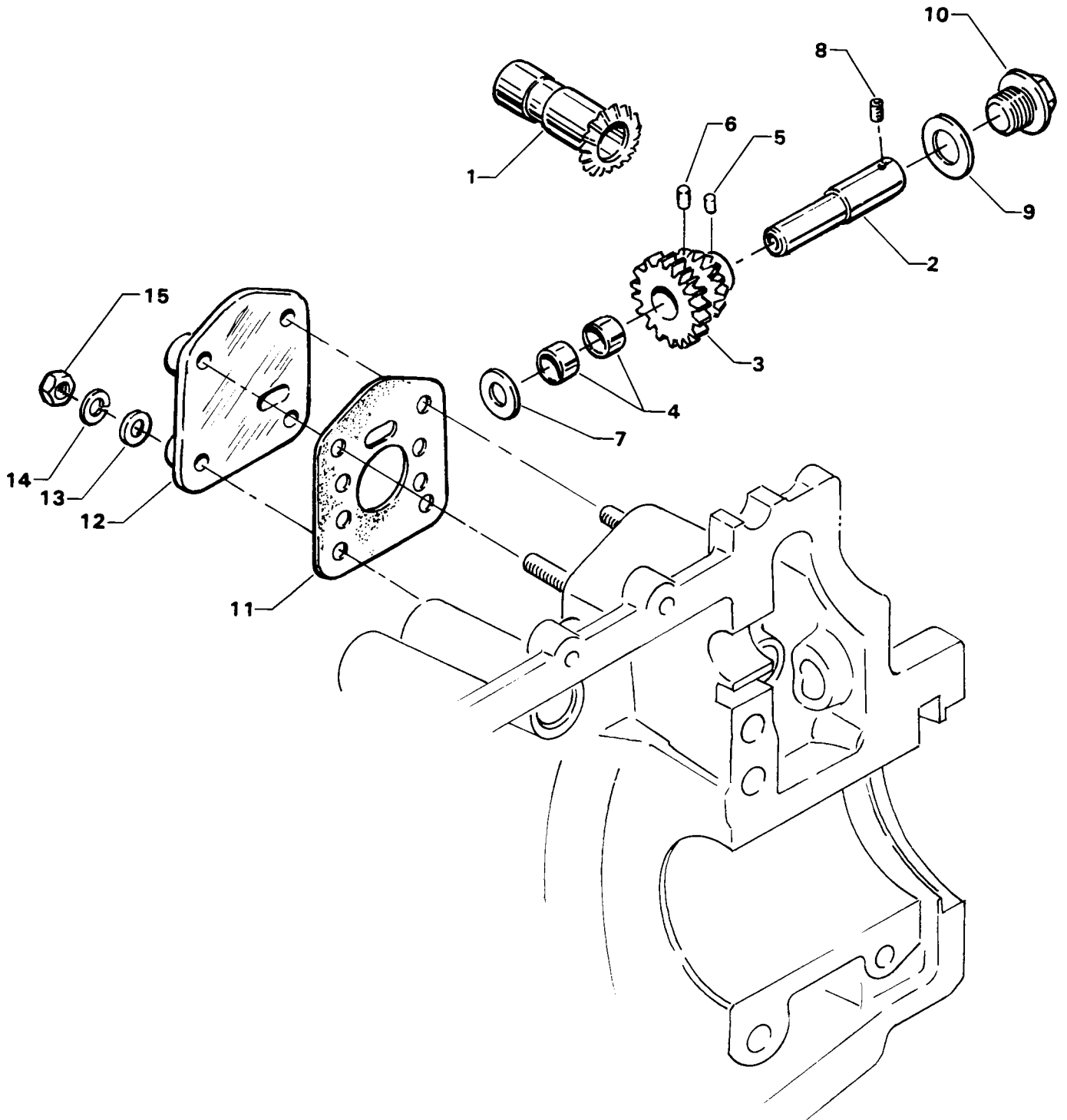


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Figure 5. CAMSHAFT AND RELATED PARTS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
PROPELLER GOVERNOR DRIVE ASSEMBLY

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
6			
1	LW-10442	GEAR, Governor drive	1
2	LW-14021	SHAFT, Propeller governor idler gear	1
3	LW-10541	GEAR ASSY., Propeller governor idler	1
4	77872	BUSHING, Propeller 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	un
	73250	WASHER, Thrust	un
	73251	WASHER, Thrust	un
	73252	WASHER, Thrust	un
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

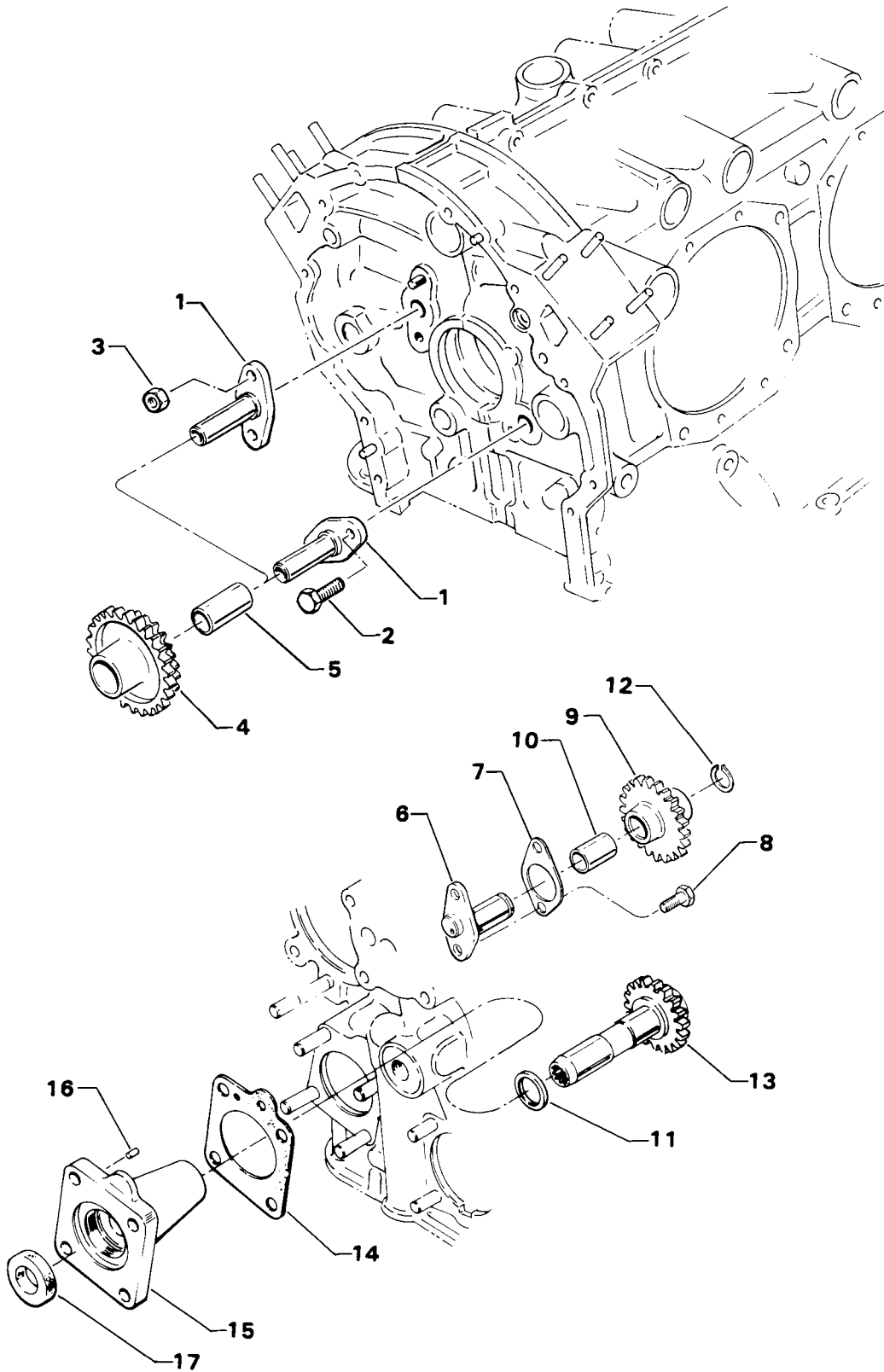


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Figure 6. PROPELLER GOVERNOR DRIVE ASSEMBLY

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

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
7			
1	LW-13795	SHAFT, Crankshaft idler gear	2
2	STD-2167	SCREW, 5/16-18 x 7/8 long, hex. hd.	3
3	STD-2168	NUT, 5/16-18 NC-3 slotted shear	1
4	71668	GEAR ASSY., Crankshaft idler, plain	2
5	67530	BUSHING, Crankshaft idler gear	2
6	72246	SHAFT, Fuel pump idler gear	1
7	71667	LOCKPLATE, 1/4 bolt x 1-3/4 spacing (offset)	1
8	STD-705	SCREW, 1/4-20 x 11/16 long, hex. hd.	2
9	71664	GEAR ASSY., Fuel pump idler	1
10	77309	BUSHING, Crankshaft idler gear	1
11	70474	WASHER, Fuel pump gear thrust	1
12	STD-1737	RING, 37/64 dia. x 3/64 thick, external retaining	1
13	72972	SHAFT GEAR ASSY., Fuel pump drive	1
14	69164	GASKET, Fuel pump adapter	1
15	69159	ADAPTER ASSY., Fuel pump drive	1
16	STD-1774	PIN, 1/8 dia. x 1/4 long	1
17	STD-213	SEAL, Oil, 3/4 I.D. x 1-3/8 O.D.	1



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Figure 7. CRANKSHAFT AND FUEL PUMP IDLER GEAR

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ATTACHING PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
8			
1	STD-1414	BOLT, 1/4-20 x 1-1/2 long, hex. hd.	11
2	STD-8	WASHER, 1/4 plain	27
3	STD-1419	BOLT, 1/4-20 x 1-1/8 long, hex. hd.	4
4	60803	STRAP, Lifting	2
5	STD-2084	BOLT, 1/4-20 x 1-3/4 long, hex. hd.	2
6	STD-160	WASHER, 1/4 lock, internal teeth	16
7	STD-1411	NUT, 1/4-20 plain	12
8	STD-1416	BOLT, 1/4-20 x 1-1/2 long, hex. hd.	6
9	STD-8	WASHER, 1/4 plain (Max. 6)	un
10	STD-1409	NUT, 1/4-20 slotted shear	6
11	AN6-34A	BOLT, 3/8-24 x 3-1/2 long, hex. hd.	1
12	STD-33	WASHER, 3/8 plain	1
13	STD-872	NUT, 3/8-24 slotted	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	8

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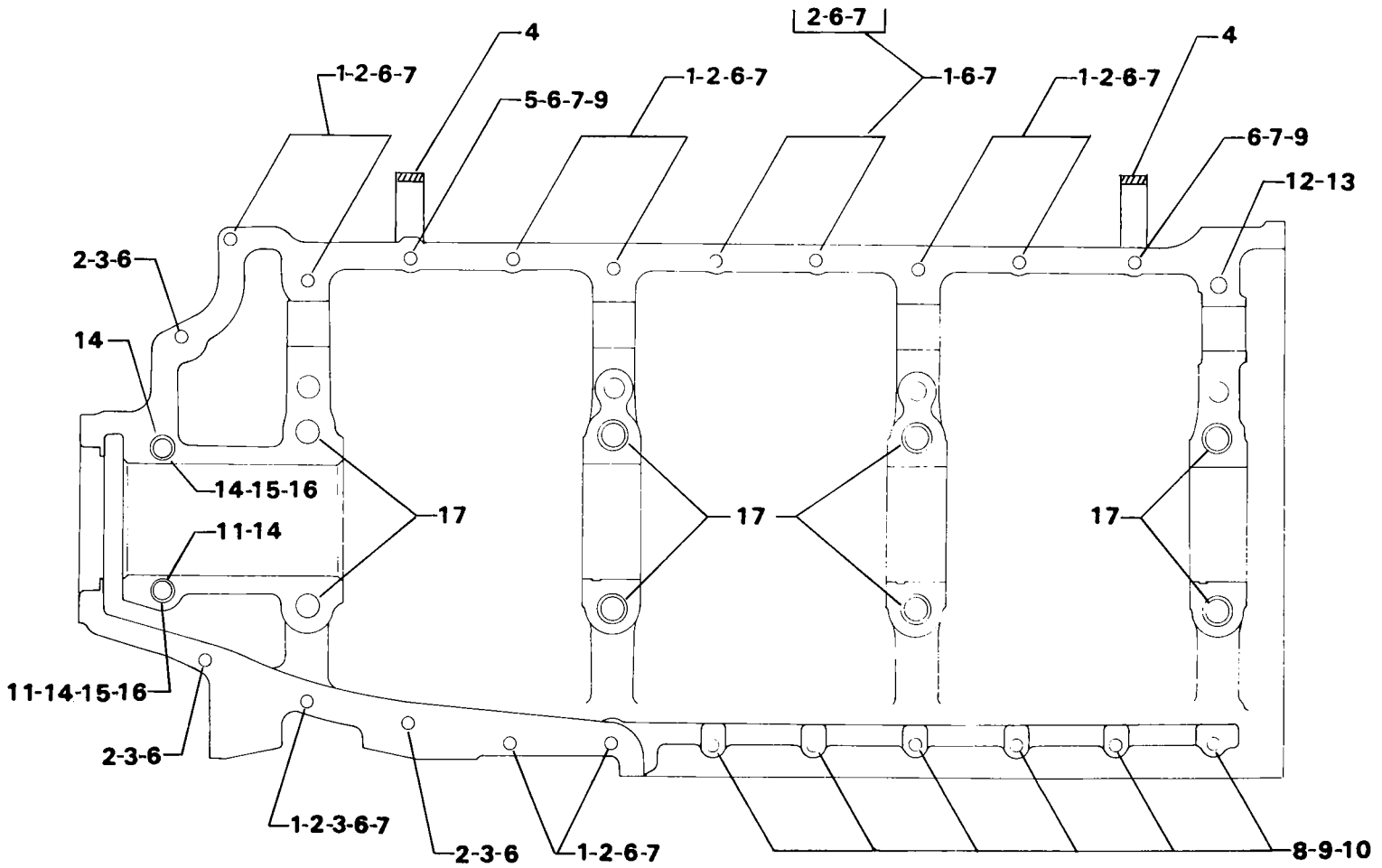


Figure 8. CRANKCASE ATTACHING PARTS

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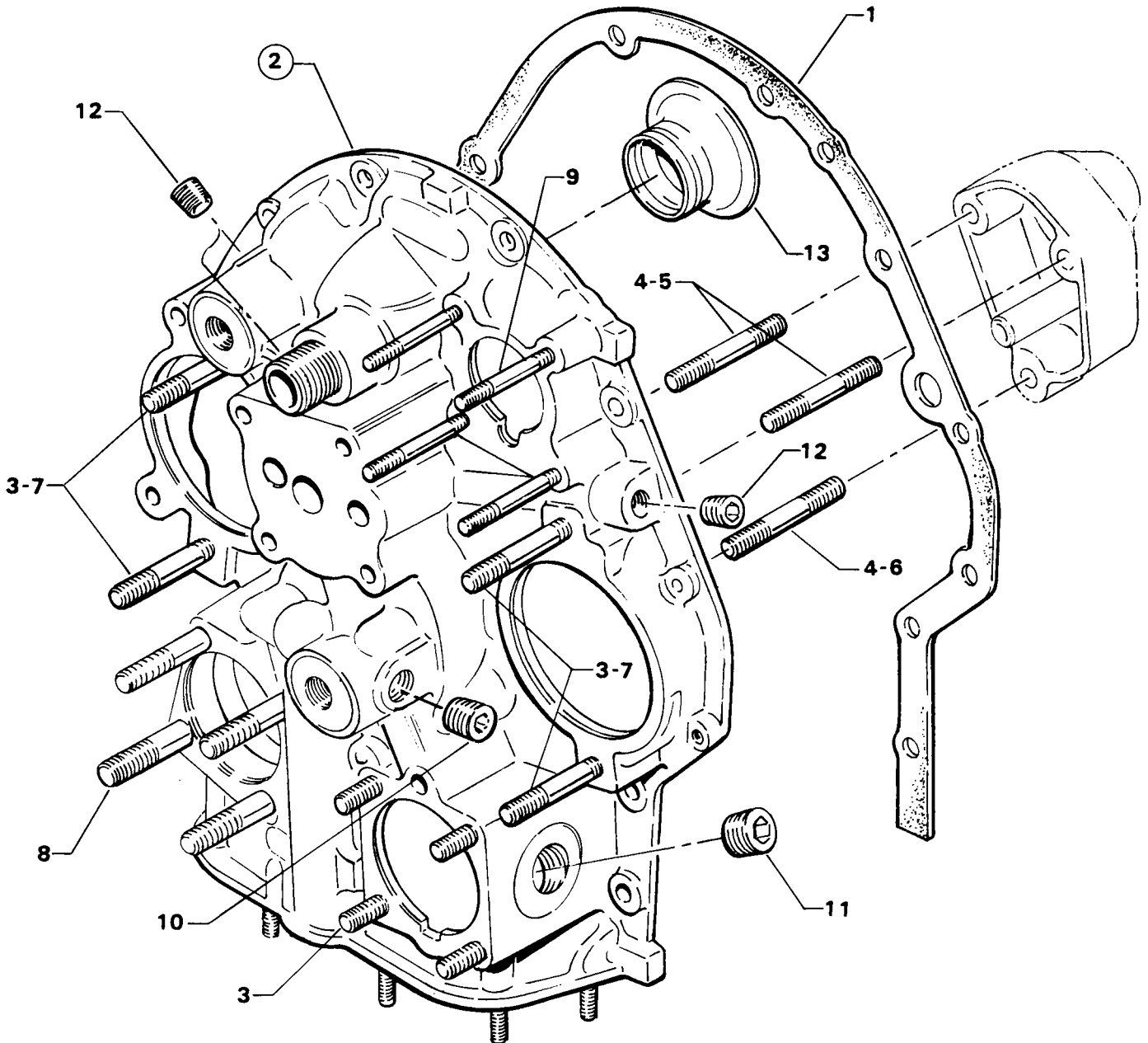
ACCESSORY HOUSING AND RELATED PARTS
ACCESSORY HOUSING ASSEMBLY

FIG. REF. 9	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	73818	GASKET, Accessory housing	1
2	LW-10641*	HOUSING ASSEMBLY, Accessory	1
	LW-18309**	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	31CD-19**	STUD, 5/16-18 x 2-21/64 long	2
6	31CD-24**	STUD, 5/16-18 x 3.00 long	1
7	31C-21	STUD, 5/16-18 x 2-5/8 long	4
8	31C-19	STUD, 5/16-18 x 2-3/8 long	4
9	25C-21	STUD, 1/4-20 x 2-5/8 long	4
10	STD-783**	PLUG, 1/4-18 NPT	1
11	STD-784*	PLUG, 3/8 pipe, Allen hd.	1
12	1102	PLUG, 1/8 pipe x 3/8 long, socket	2
13	76156	SHIELD, Oil accessory breather	1

* Used on TIO-540-U2A engines.

** Used on LTIO-540-U2A engines.

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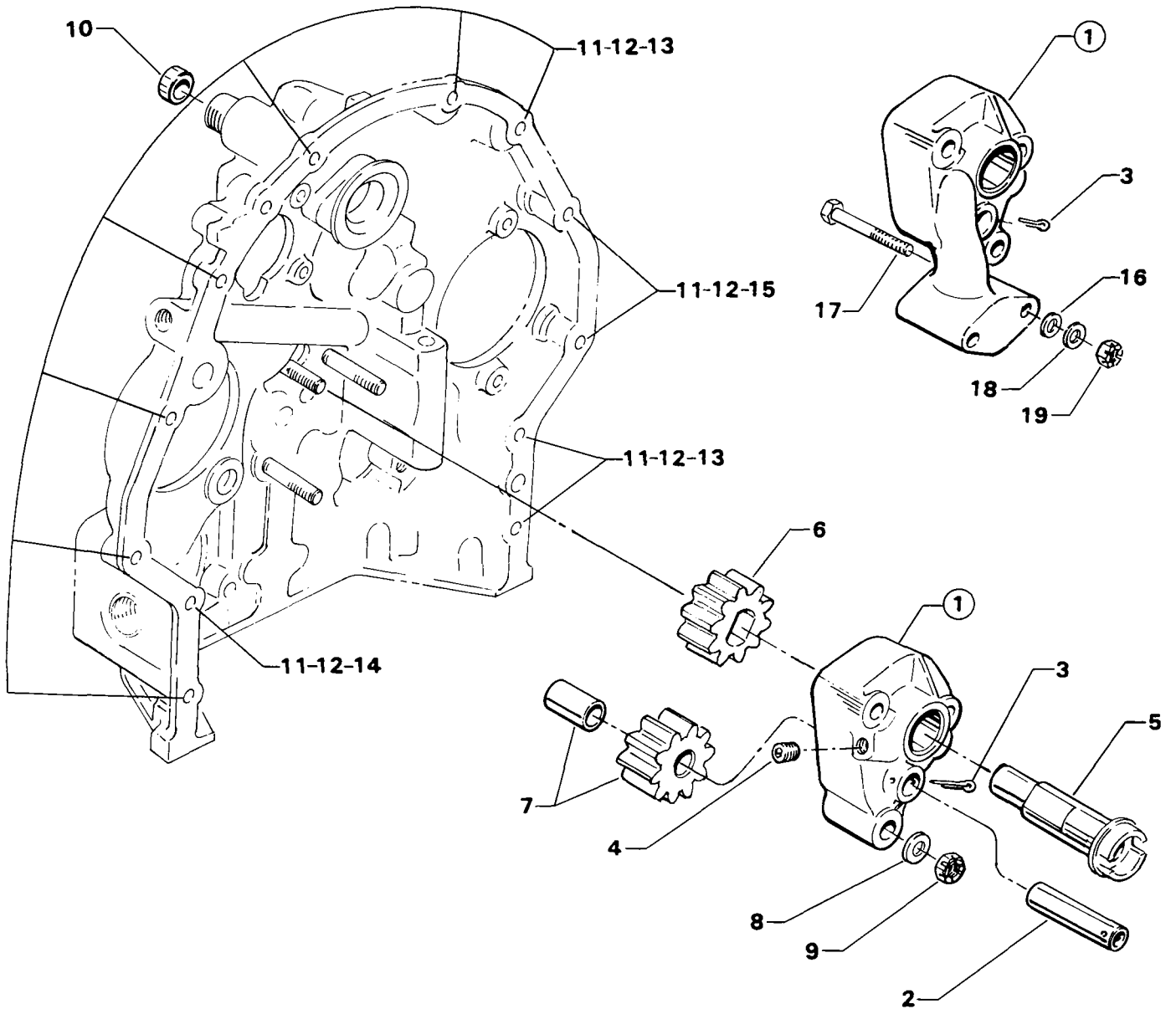
Figure 9. ACCESSORY HOUSING ASSEMBLY

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

FIG. REF. 10	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	75287*	BODY ASSEMBLY, Oil pump	1
	LW-16718**	BODY ASSEMBLY, Oil pump	1
2	60329	SHAFT, Oil pump idler	1
3	STD-714*	PIN, 1/8 dia. x 1.00 long, cotter	1
	AN380C4-2**	PIN, 1/8 dia. x 1/2 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	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, 1/4-20 lock, internal teeth	12
13	STD-1204	BOLT, 1/4-20 x 15/16 long, hex hd.	9
14	STD-1419	BOLT, 1/4-20 x 1-1/8 long, hex hd.	1
15	STD-1931	BOLT, 1/4-20 x 1-7/8 long, hex hd.	2
16	STD-1227**	WASHER, 1/4 copper	2
17	STD-1904**	BOLT, 1/4-20 x 2-3/4 long, hex hd., drive end	2
18	STD-8**	WASHER, 1/4 plain	2
19	STD-1409**	NUT, 1/4-20, slotted shear	2

* Used on TIO-540-U2A engines.

** Used on LTIO-540-U2A engines.



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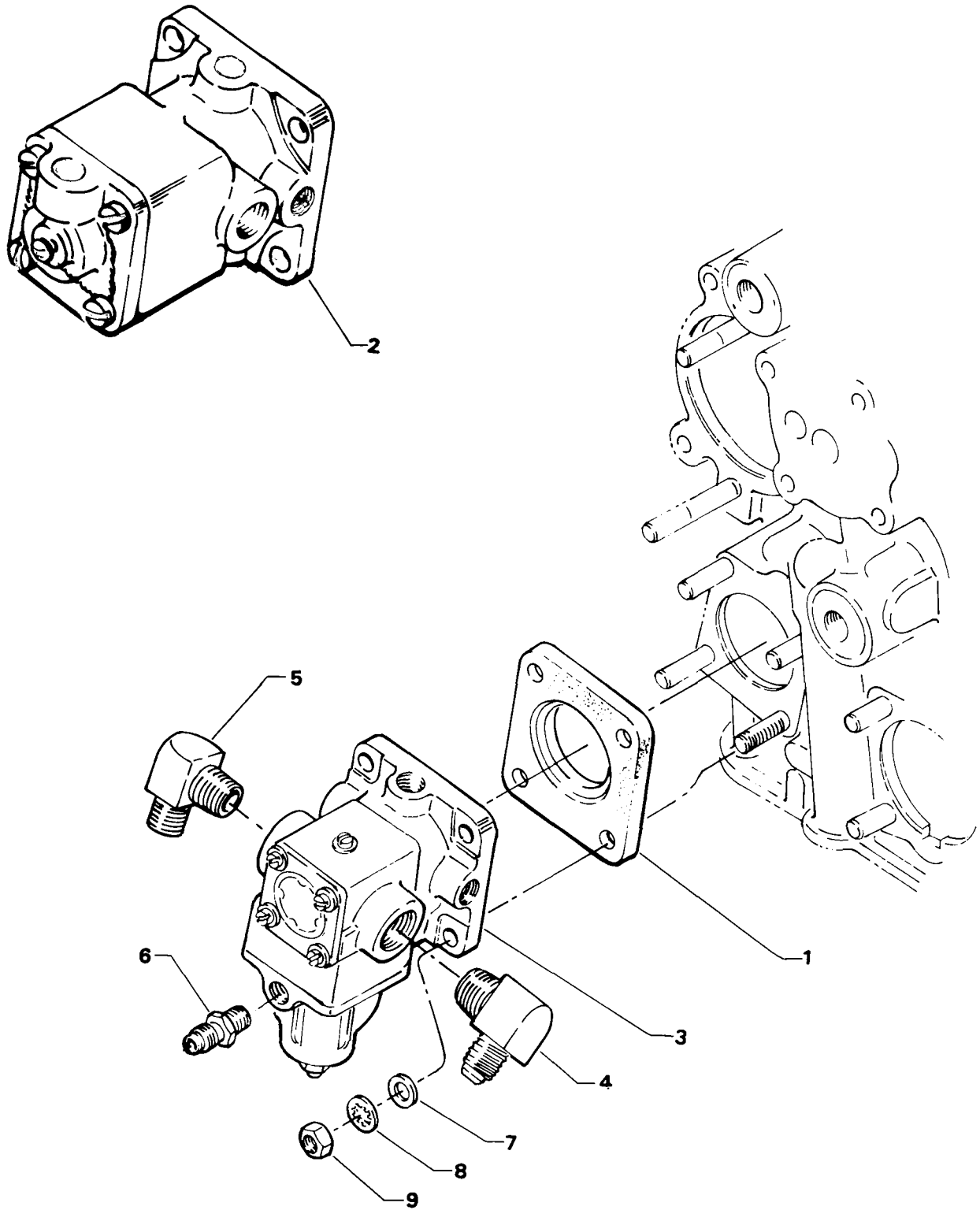
Figure 10. OIL PUMP AND ACCESSORY HOUSING ATTACHING PARTS

ACCESSORY HOUSING AND RELATED PARTS
FUEL PUMP ASSEMBLIES

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
11			
1	LW-10799	SPACER, Fuel pump insulating	1
2	LW-13909*	PUMP, Fuel (RG9080-J4A)	1
	LW-18461**	PUMP ASSY., Fuel	1
3	LW-14444**	PUMP, Fuel (RG9080-J6A)	1
4	76422**	ELBOW, Fuel pump	1
5	MS20822-6-8**	ELBOW, 3/8 tube to 1/2 NPT, 90°	1
6	75447**	NIPPLE, Fuel pump vent	1
7	STD-35	WASHER, 5/16 plain	4
8	STD-475	WASHER, 5/16 lock	4
9	STD-1410	NUT, 5/16-18 plain	4

* Used on TIO-540-U2A engines.

** Used on LTIO-540-U2A engines.

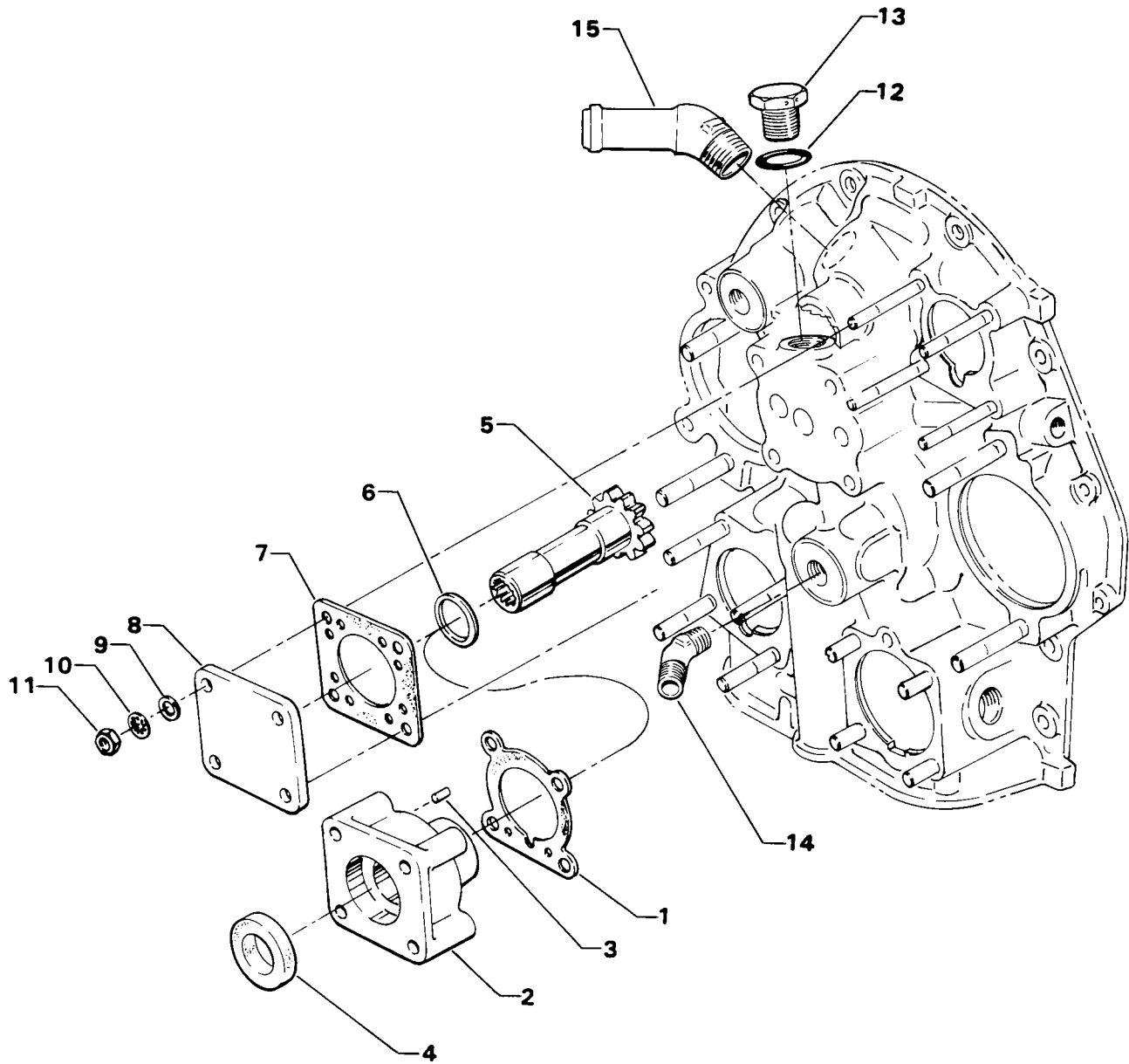


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Figure 11. FUEL PUMP ASSEMBLIES

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

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
12			
1	61183	GASKET, Accessory adapter	1
2	67536	ADAPTER ASSEMBLY, Vacuum pump	1
3	STD-1774	DOWEL, 1/8 dia. x 1/4 long	1
4	STD-208	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	STD-294	GASKET, 7/8 O.D. x 5/8 I.D. x 3/32 annular	1
13	62417	PLUG, Oil cooler bypass	1
14	MS20823-8	ELBOW, 1/2 flared tube, 3/8 NPT, 45°	2
15	AN-844-16D	ELBOW, 3/4 pipe thread to 1.00 I.D. hose, 45°	1



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Figure 12. VACUUM PUMP DRIVE, OIL COOLER AND BREATHER FITTINGS

ACCESSORY HOUSING AND RELATED PARTS
HYDRAULIC PUMP DRIVE AND COVERS

FIG. REF. 13	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	72964	GEAR ASSY., Hydraulic pump driven	1
2	71596	WASHER, Accessory drive gear	1
3	68315	GASKET, Accessory drive adapter	1
4	LW-10807	ADAPTER ASSY., Hydraulic pump	1
5	STD-208	SEAL, Oil, 7/8 I.D. x 1-1/2 x 5/16 wide	1
6	25C-32	STUD, 1/4-20 x 4.00 long	4
7	STD-1774	PIN, 1/8 dia. x 1/4 long	1
8	STD-35	WASHER, 5/16 plain	4
9	STD-475	WASHER, 5/16 lock, internal teeth	4
10	STD-1410	NUT, 5/16-18 plain	4
11	8313	GASKET, Hydraulic pump	1
12	60430	COVER, Hydraulic pump	1
13	LW-10806	SPACER, Hydraulic pump stud	4
14	STD-8	WASHER, 1/4 plain	4
15	STD-160	WASHER, 1/4 lock, internal teeth	4
16	STD-1411	NUT, 1/4-20 plain	4

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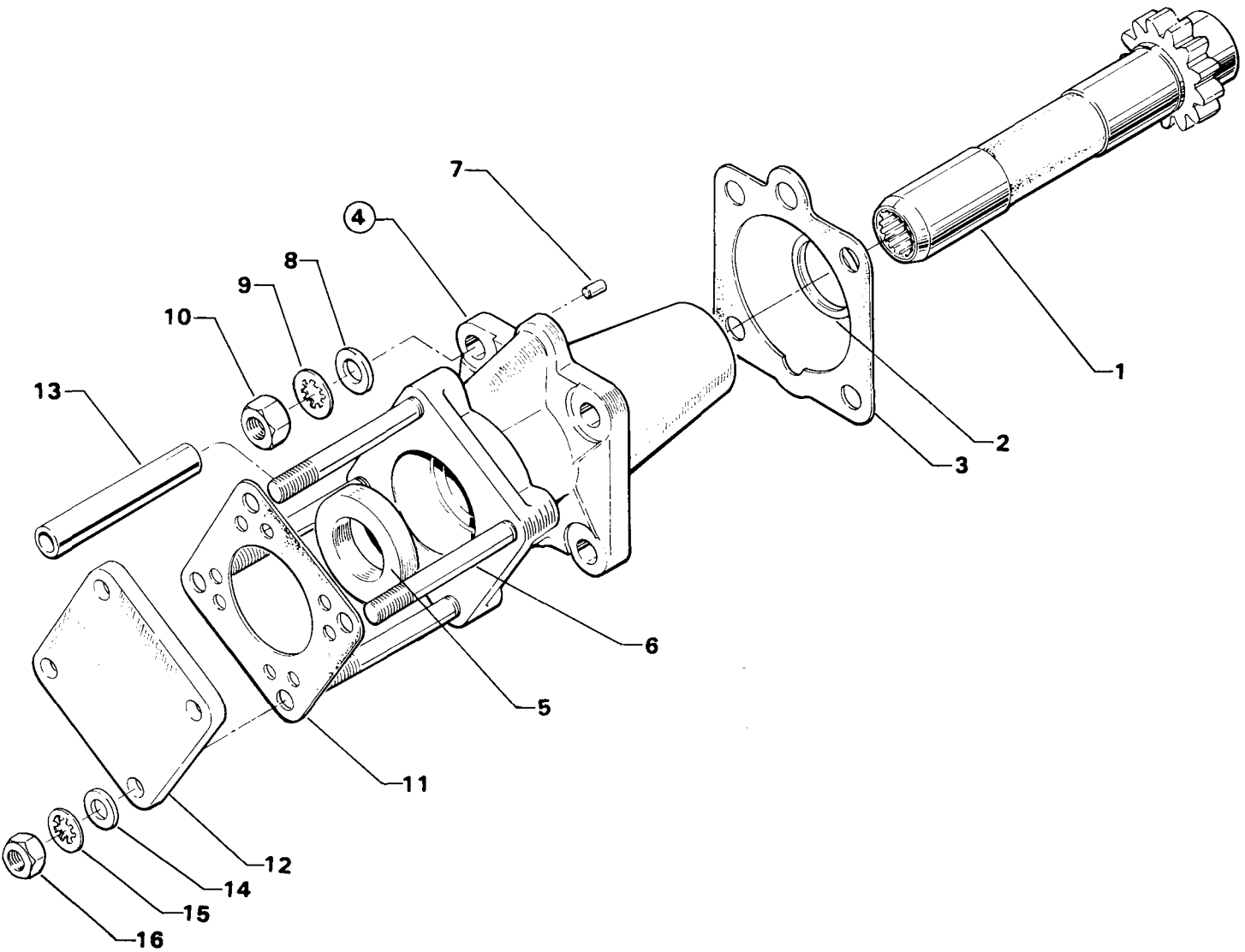
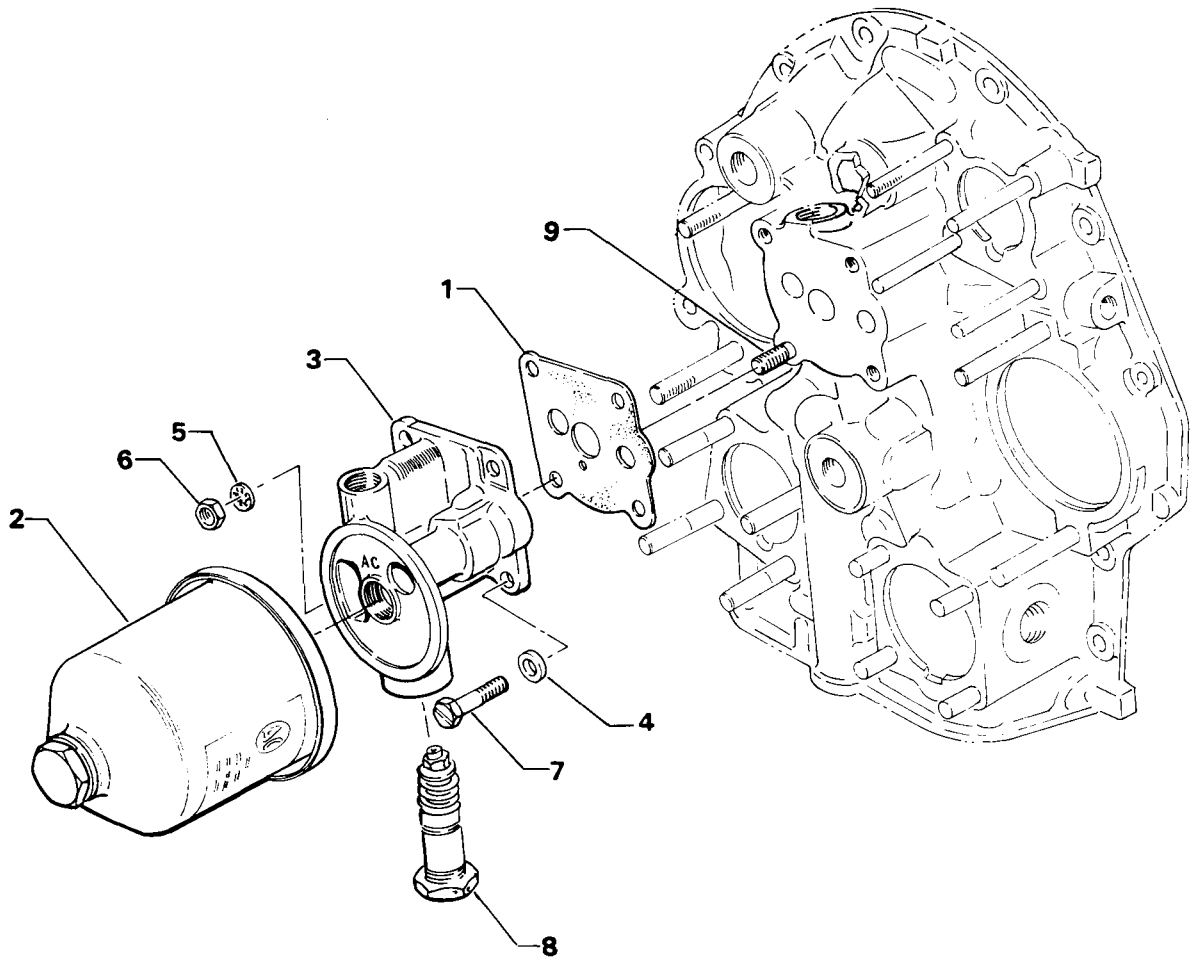


Figure 13. HYDRAULIC PUMP DRIVE AND COVERS

2-10

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

FIG. REF. 14	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	LW-12795	GASKET, Oil filter adapter	2
2	LW-13215	OIL FILTER, Short, (spin-on type)	1
3	77852	BASE ASSY., Oil filter	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	75944	VALVE ASSY., Temp. control, oil cooler bypass	1
9	25C-10	STUD, 1/4-20 x 1-1/4 long	1



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Figure 14. OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE

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

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
15			
1	LW-13422	CONNECTING ROD ASSEMBLY	6
2	LW-13923	BUSHING, Connecting rod, upper	6
3	LW-12596	BOLT, Connecting rod	12
4	LW-12186	NUT, Connecting rod bolt	12
5	LW-13212	BEARING, Connecting rod	12
	LW-13209	BEARING, Connecting rod (alternate)	12
	LW-16143	BEARING, Connecting rod (alternate)	12
6	LW-10545	PISTON, Compression ratio, 7.30:1 (finned)	6
7	LW-14078	PIN, Piston	6
8	60828	PLUG, Piston pin	12
9	74241	RING, Piston, top compression	12
10	73857	RING, Piston, oil regulating (expander type)	6

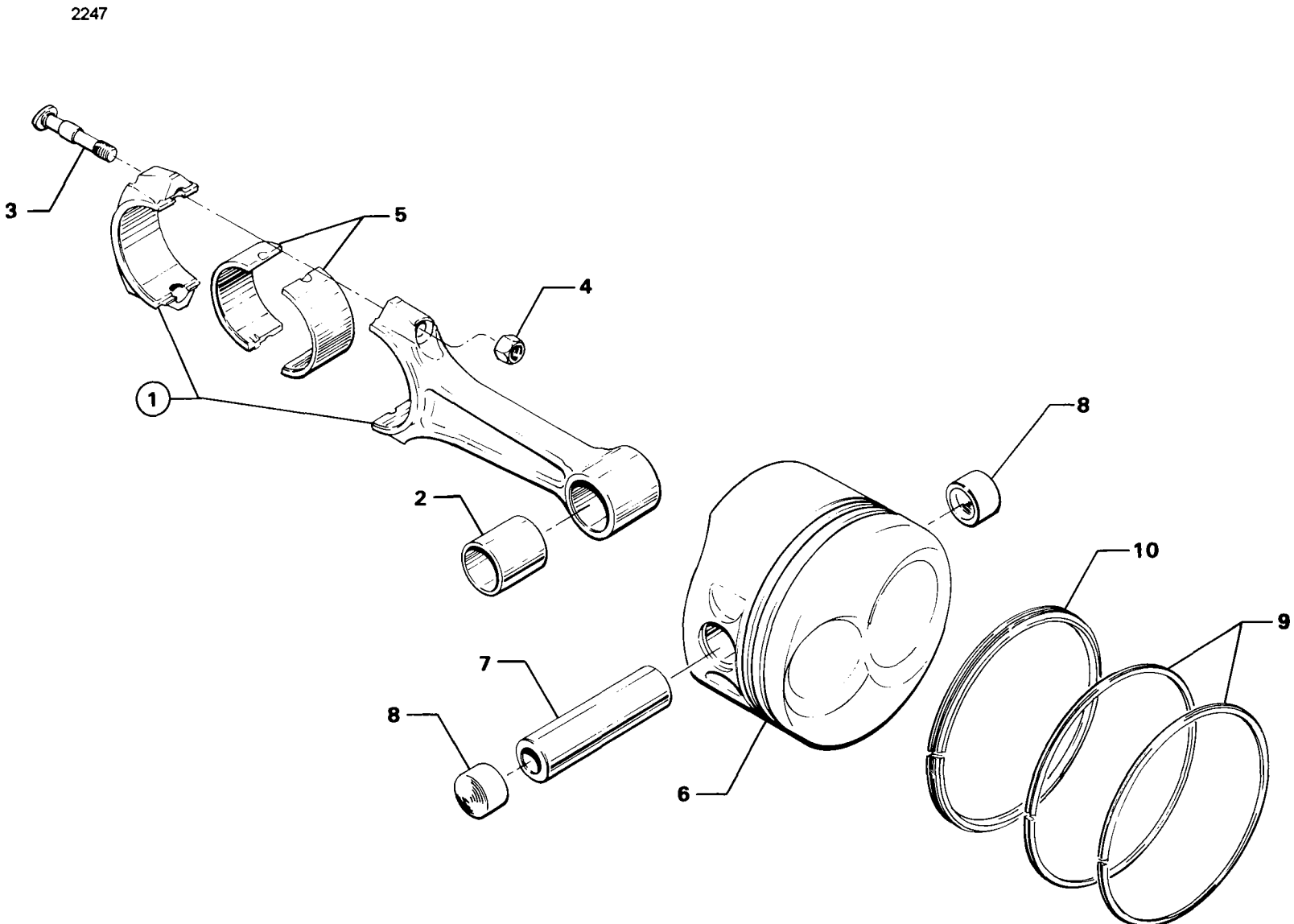
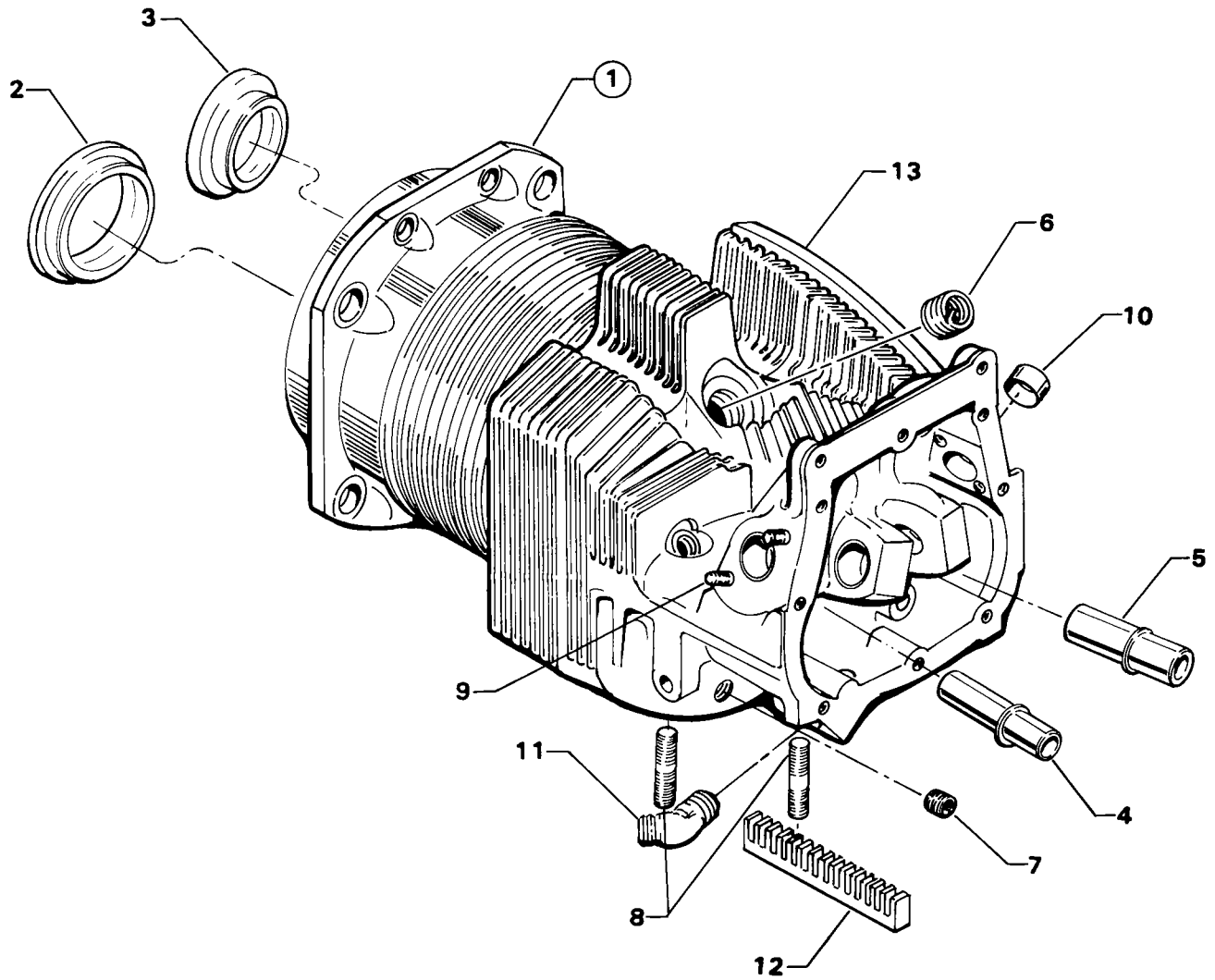


Figure 15. CONNECTING RODS, PISTONS AND RING ASSEMBLIES

CYLINDER, PISTON AND VALVE TRAIN
CYLINDER ASSEMBLY

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
16			
1	LW-12988*	CYLINDER AND HEAD ASSEMBLY	6
2	LW-12688	SEAT, Intake valve	6
3	71894	SEAT, Exhaust valve	6
4	66713	GUIDE, Valve intake	6
5	75838	GUIDE, Valve exhaust (Ni-Resist)	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-13	STUD, 5/16-18 x 1-5/8 long	12
9	25C-8	STUD, 1/4-20 x 1.00 long	24
10	66670	BUSHING, Rocker shaft	24
11	MS20823-6D	ELBOW, 3/8 flared tube, 1/4 pipe thread	6
12	72343	STABILIZER, Cylinder head fins, 15 teeth	6
13	72344	STABILIZER, Cylinder head fins, 26 teeth	6
14	1102	PLUG, 1/8-27 NPT, Allen	6

* Nitrided cylinder, long reach plug



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Figure 16. CYLINDER ASSEMBLY

CYLINDER, PISTON AND VALVE TRAIN
VALVE ASSEMBLY

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
17			
1	LW-13622	VALVE, Intake (small diameter intake rotator)	6
2	LW-16740	VALVE, Exhaust (rotator type)	6
3	LW-11797	SPRING, Valve, inner	12
4	LW-11796	SPRING, Valve, outer	12
5	LW-13321	SEAT, Valve spring, lower intake	6
6	LW-13322	SEAT, Valve spring, lower exhaust	6
7	69532	SEAT, Valve spring, upper intake (rotator)	6
8	LW-16475	SEAT, Valve spring, upper exhaust (rotator)	6
9	72050	KEY, Valve intake (rotator)	12
10	62388	CAP, Valve stem intake (rotator)	6
11	MS13997-3	KEY, Valve exhaust (rotator)	12
12	MS13998-3	CAP, Valve stem, exhaust (rotator)	6
13	78290	PLUNGER ASSY., Hydraulic tappet	12
14	78524	SOCKET, Push rod, hydraulic tappet	12
15	72255	TUBE ASSY., Shroud, push rod	12
16	LW-13077	SPRING, Shroud tube	24
17	66728*	WASHER, 25/32 I.D. x 1-1/4 O.D. x 1/32 thick	un
18	61503	SLEEVE, Shroud tube seal	12
19	LW-18661	Seal, Shroud tube (w/61503 sleeve)	12
20	62922	SEAL, Shroud tube (w/crankcase end)	12
21	73455**	ROD ASSY., Push	un
	73456**	ROD ASSY., Push	un
	73457**	ROD ASSY., Push	un
	73458**	ROD ASSY., Push	un
	73555**	ROD ASSY., Push	un
	73556**	ROD ASSY., Push	un
	73557**	ROD ASSY., Push	un
	73558**	ROD ASSY., Push	un
22	67113	ROCKER ASSY., Intake valve	6
23	67114	BUSHING, Valve rocker	6
24	67112	ROCKER ASSY., Exhaust valve	6
25	67114	BUSHING, Valve rocker	6
26	71549	WASHER, Valve rocker thrust	12
27	72626	SHAFT, Valve rocker	12

* See latest edition of Textron Lycoming Service Instruction No. 1284 for application of Part No. 66728 washer.

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

2089-B

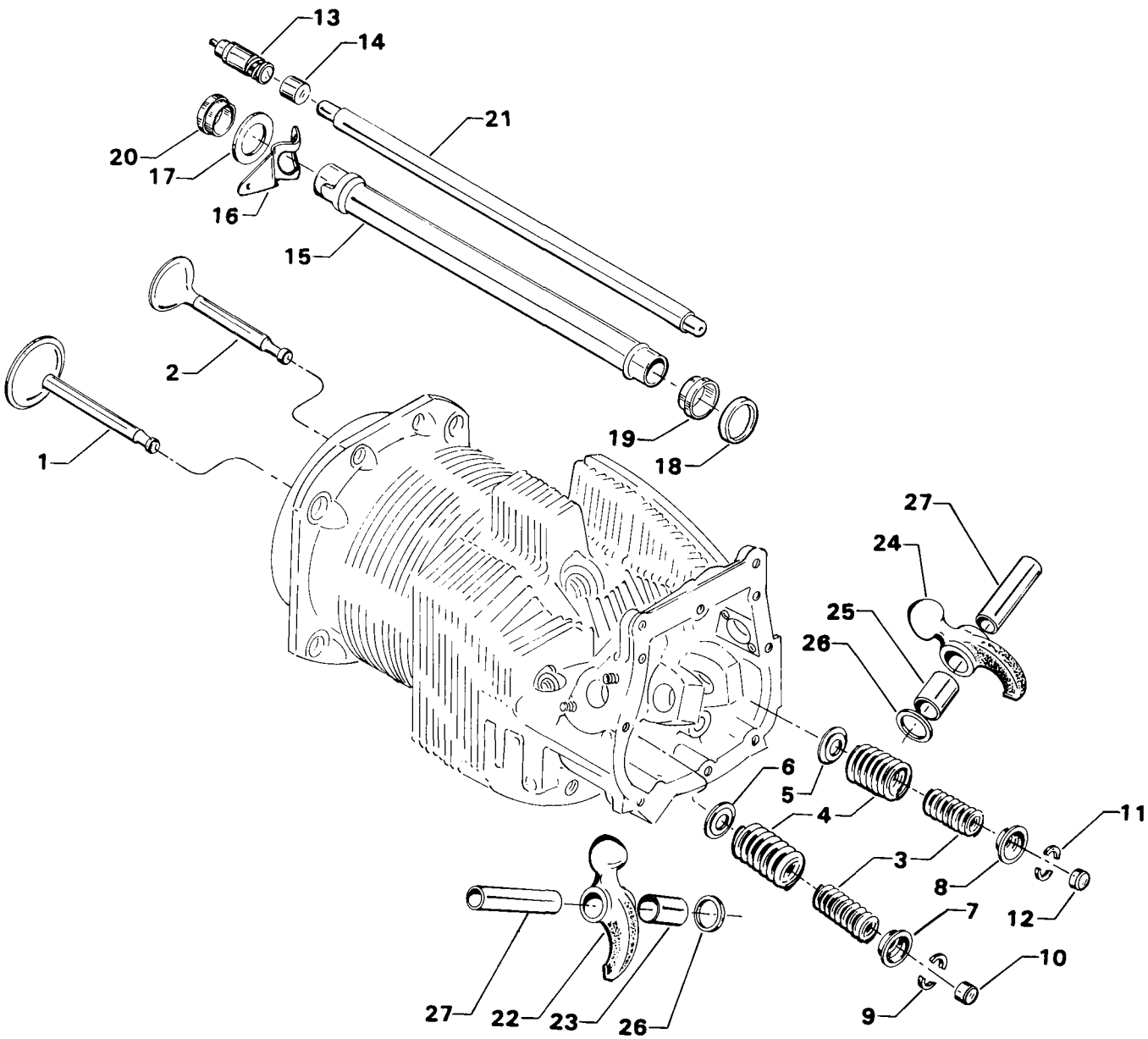


Figure 17. VALVE ASSEMBLY

CYLINDER, PISTON AND VALVE TRAIN
CYLINDER RELATED PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
18			
1	66732	GASKET, Cover, valve rocker shaft	12
2	66731	COVER, Valve rocker shaft	12
3	STD-160	WASHER, 1/4 internal lock	24
4	STD-1411	NUT, 1/4-20 plain	24
5	67193	GASKET, Rocker box cover	6
6	68795	COVER ASSY., Rocker box	6
7	STD-1925	SCREW, 1/4-20 x 5/8 long, pan hd., self-locking	48
8	74494	PLATE, Spark plug caution	6
9	71481	RING, Oil seal, 3/32 dia. x 4-27/32 I.D.	6
10	77906	SPACER, 33/64 I.D. x 7/8 O.D. x 1/8 thick	2
11	74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick	2
12	383-B	NUT, 3/8-24 plain	24
13	STD-2090	NUT, 1/2-20 plain	28
14	STD-684	NIPPLE, Straight, 3/8 I.D. hose	6
15	STD-2180	HOSE, 3/8 I.D. x 1-13/16 long	6
16	LW-15592-5-05	CLAMP, Hose	12
17	72702	TUBE ASSY., Cyl. head oil drain, cyl. no. 1	1
18	72703	TUBE ASSY., Cyl. head oil drain, cyl. no. 2	1
19	73027	TUBE ASSY., Cyl. head oil drain, cyls. no. 3, 4, 5, 6	4
20	LW-10610	BAFFLE AND CLIP ASSY., Intercylinder, cyls. no. 1 & 6	2
21	LW-10611	BAFFLE AND CLIP ASSY., Intercylinder, cyls. no. 2 & 5	2
22	71610	HOOK, Intercylinder baffle retainer	4
23	71611	RETAINER, Intercylinder baffle	4
24	72834	COVER, Baffle ignition cable hole	4
25	STD-692	SCREW, No. 10/32 x 1/2 long, rd. hd.	8
26	STD-670	NUT, No. 10/32 self-locking	8
27	65614	PLUG, Baffle attaching	4
28	STD-251	WASHER, No. 10, internal lock	4
29	STD-1686	SCREW, 10/32 x 7/16 long, fill. hd.	4

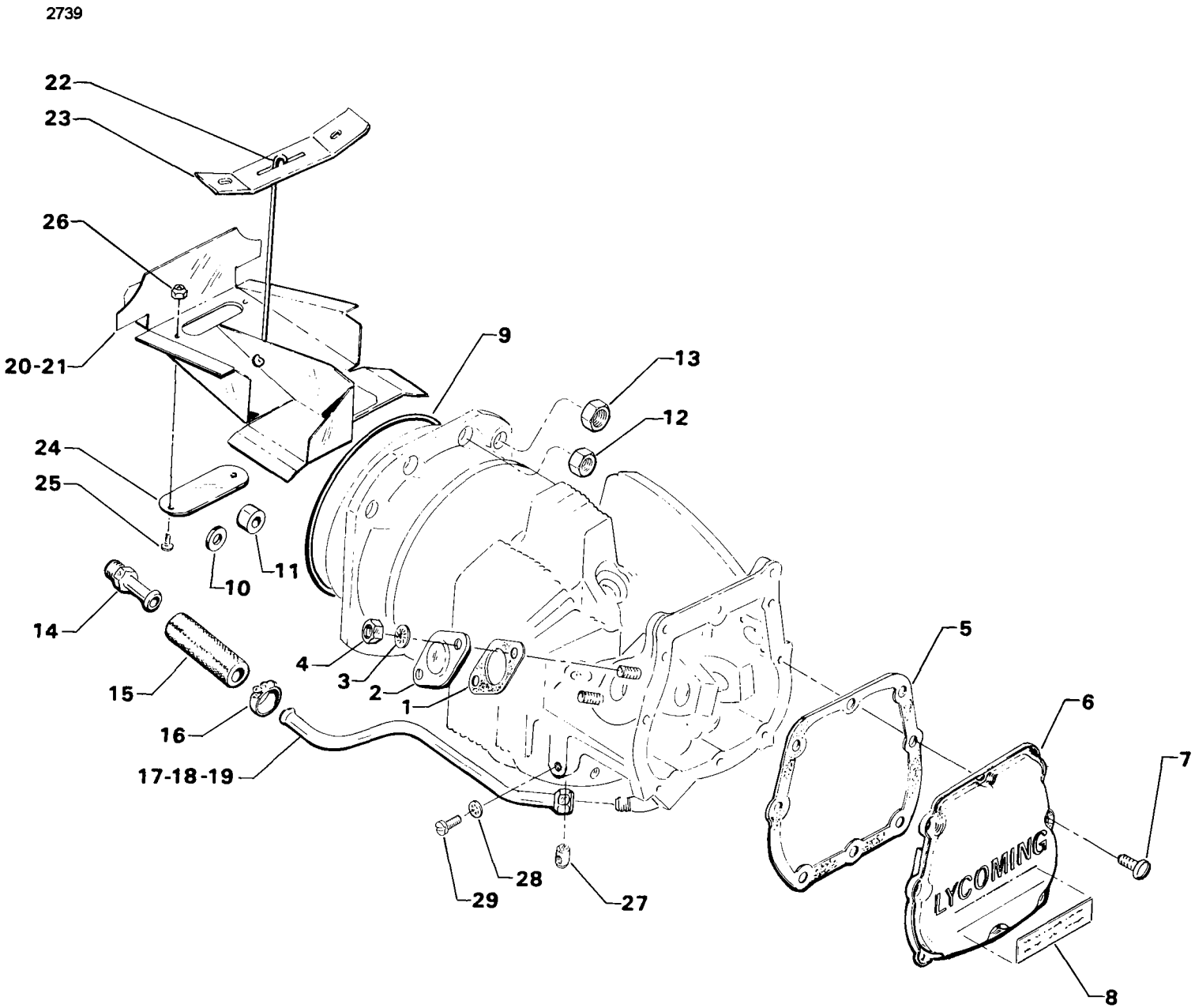


Figure 18. CYLINDER RELATED PARTS

IGNITION SYSTEM
MAGNETOS, MAGNETO DRIVES AND SPARK PLUGS

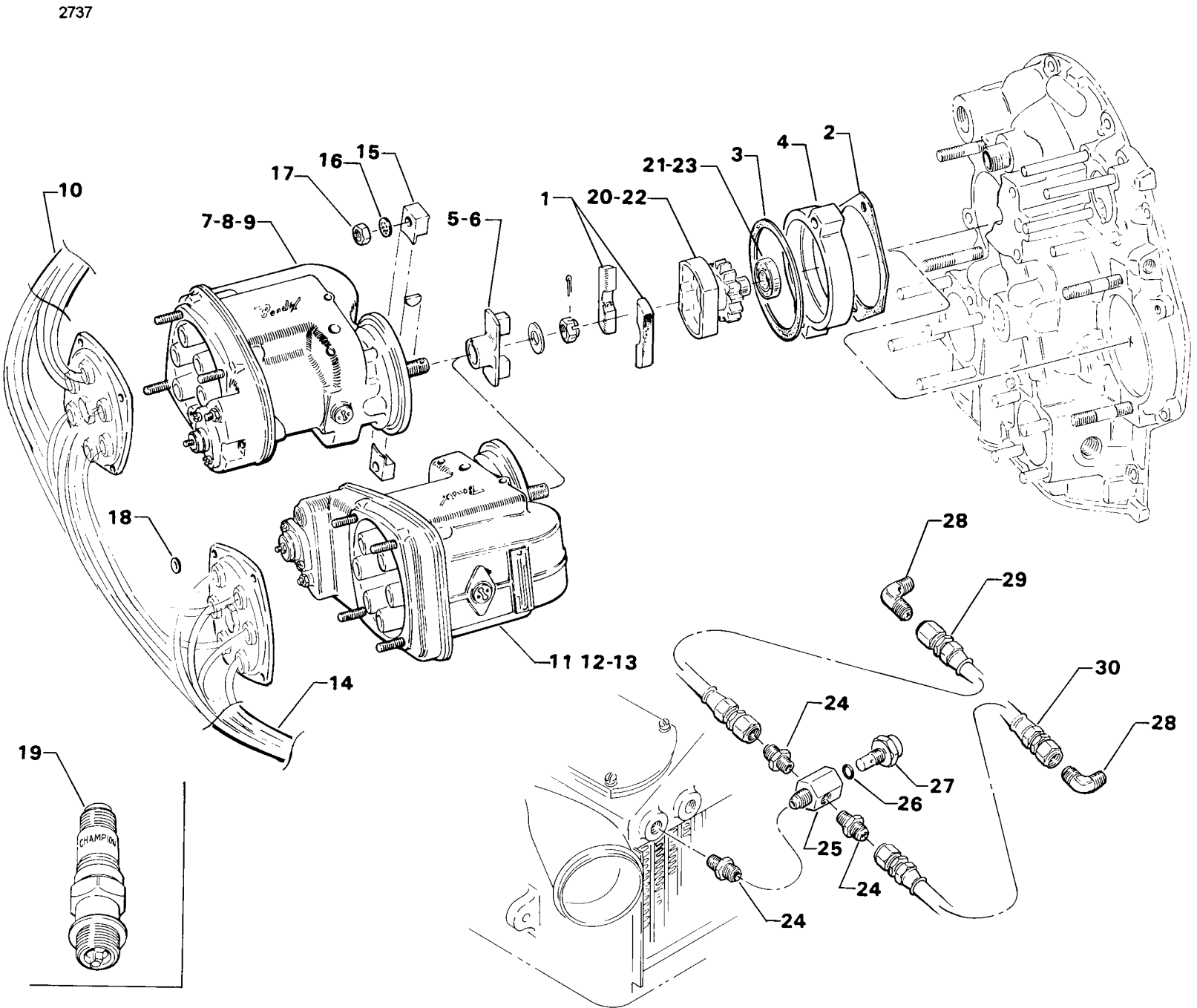
FIG. REF. 19	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	LW-12136	CUSHION, Magneto drive	4
2	62224	GASKET, Magneto adapter	2
3	LW-12681	GASKET, Magneto	2
4	LW-12707	ADAPTER, Magneto	2
5	73013	COUPLING, Magneto drive (retard)	1
6	73636	COUPLING, Magneto drive (right)	1
7	LW-349610-2*	MAGNETO, Ignition system	1
8	LW-349490-2*	MAGNETO, Ignition, S6LN-1258 (25° retard)	1
9	LW-349510-2*	MAGNETO, Ignition, S6LN-1259	1
10	LW-720515-203*	HARNESS, Ignition, (3/4-20)	1
11	LW-349610-3**	MAGNETO, Ignition system	1
12	LW-349490-3**	MAGNETO, Ignition, S6RN-1258 (25° retard)	1
13	LW-349510-3**	MAGNETO, Ignition, S6RN-1259	1
14	LW-720515-203**	HARNESS, Ignition (3/4-20)	1
15	75965	CLAMP, Magneto	4
16	STD-475	WASHER, 5/16 lock, internal teeth	4
17	STD-1410	NUT, 5/16-18 plain	4
18	STD-696	WASHER, 1/4 plain	un
19	1182-K4†	SPARK PLUG, (Champion RHB-36W) (Iridium) long reach	12
20	LW-16494*	GEAR RETAINER ASSY.	2
21	67542*	BEARING, Ball	2
22	LW-18194**	GEAR RETAINER ASSY.	2
23	67542**	BEARING, Ball	2
24	AN816-4	NIPPLE, 1/4 flared tube, 1/8 NPT	3
25	LW-18262	ADAPTER, Magneto pressurization	1
26	MS29512-4	SEAL, Oil, 5/64 dia. sect. 23/64 I.D.	1
27	LW-13134	VALVE ASSY., Relief	1
28	MS20822-4	ELBOW, 1/4 flared tube, 1/8 NPT, 90°	2
29	LW-12784-4-060	HOSE ASSY., Magneto adapter to left magneto	1
30	LW-12784-4-080	HOSE ASSY., Magneto adapter to right magneto	1

† Item No. 19 spark plug is used in current production only. Additional spark plugs are available for this engine. See latest edition of Textron Lycoming Service Instruction No. 1042 for complete listing of all approved spark plugs.

- * Used on TIO-540-U2A engines.
- ** Used on LTIO-540-U2A engines.

NOTE

Individual spark plug leads may be replaced by ordering either 620633-48 (1B, 2B, 3B, 4B, 5B, 6B, 3T, 4T, 5T, 6T) or 620633-72 (1T, 2T). Replacement Elbow is P/N 10-320573-2.



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Figure 19. MAGNETOS, MAGNETO DRIVES AND SPARK PLUGS

IGNITION SYSTEM

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

FIG. REF. 19A	PART NUMBER	DESCRIPTION	QTY. PER ASSY.	
			TIO	LTIO
1	73636	COUPLING, Magneto drive	1	1
	73013	COUPLING, Magneto drive	1	1
2	LW-13641	CUSHION, Magneto drive	4	4
3	LW-19096	GEAR RETAINER ASSY.	2	2
4	67542	BEARING, Ball	2	2
5	62224	GASKET, Magneto adapter	2	2
6	LW-12707	ADAPTER, Magneto	2	2
7	LW-12681	GASKET, Magneto	2	2
8	66LP-0SCNP	MAGNETO, Right, Slick Model No. 6360	1	
	66LP-0RCNP	MAGNETO, Right, Slick Model No. 6340		1
9	66LR25SCNP	MAGNETO, Left, (Retard), Slick Model No. 6365	1	
	66LR25RCNP	MAGNETO, Left, (Retard), Slick Model No. 6391		1
10	67J20608-P	HARNESS ASSY., Right, Slick P/N M-2966	1	1
11	67J20609-P	HARNESS ASSY., Left, Slick P/N M-2965	1	1
12	66M21195	CLAMP, Magneto	4	4
13	STD-475	WASHER, 5/16 lock, internal teeth	4	4
14	STD-1410	NUT, 5/16-18 plain	4	4
15	STD-713	COTTER PIN, 3/32 dia. x 3/4 long	2	2
16	LW-12784-4-102	HOSE, Right magneto to nipple	1	1
17	AN816-4	NIPPLE, 1/4 flared tube, 1/8 NPT	3	3
18	LW-12784-4-060	HOSE, Left magneto to nipple	1	1
19	LW-18262	ADAPTER, Magneto pressurization	1	1
20	66N21020	VALVE ASSY., Relief	1	1
21	MS29512-04	SEAL, Oil, 5/64 dia. section x 23/64 I.D.	1	1
22	MS20822-4	ELBOW, 1/4 flared tube, 1/8 NPT, 90°	2	2
23	1182-L7*	SPARK PLUG, Champion (RHB36S) or Auburn (281)	12	12

* Item No. 23 spark plugs are used in current production. See latest edition of Textron Lycoming Service Instruction No. 1042 for complete listing of all approved spark plugs.

Part No.	Part Name	Qty.
LW-M-2376	PLATE, 3 Wire	2
76734	ZIP STRAP	1
LW-16266-25-25	CLIP, One wire for 1/4 screw	2
LW-14060	CLIP, Two wire for 1/4 screw	2
LW-16266-25-44	CLAMP, Three wire	4
LW-16266-10-75	CLAMP, Six wire	2

ATTACHING HARDWARE

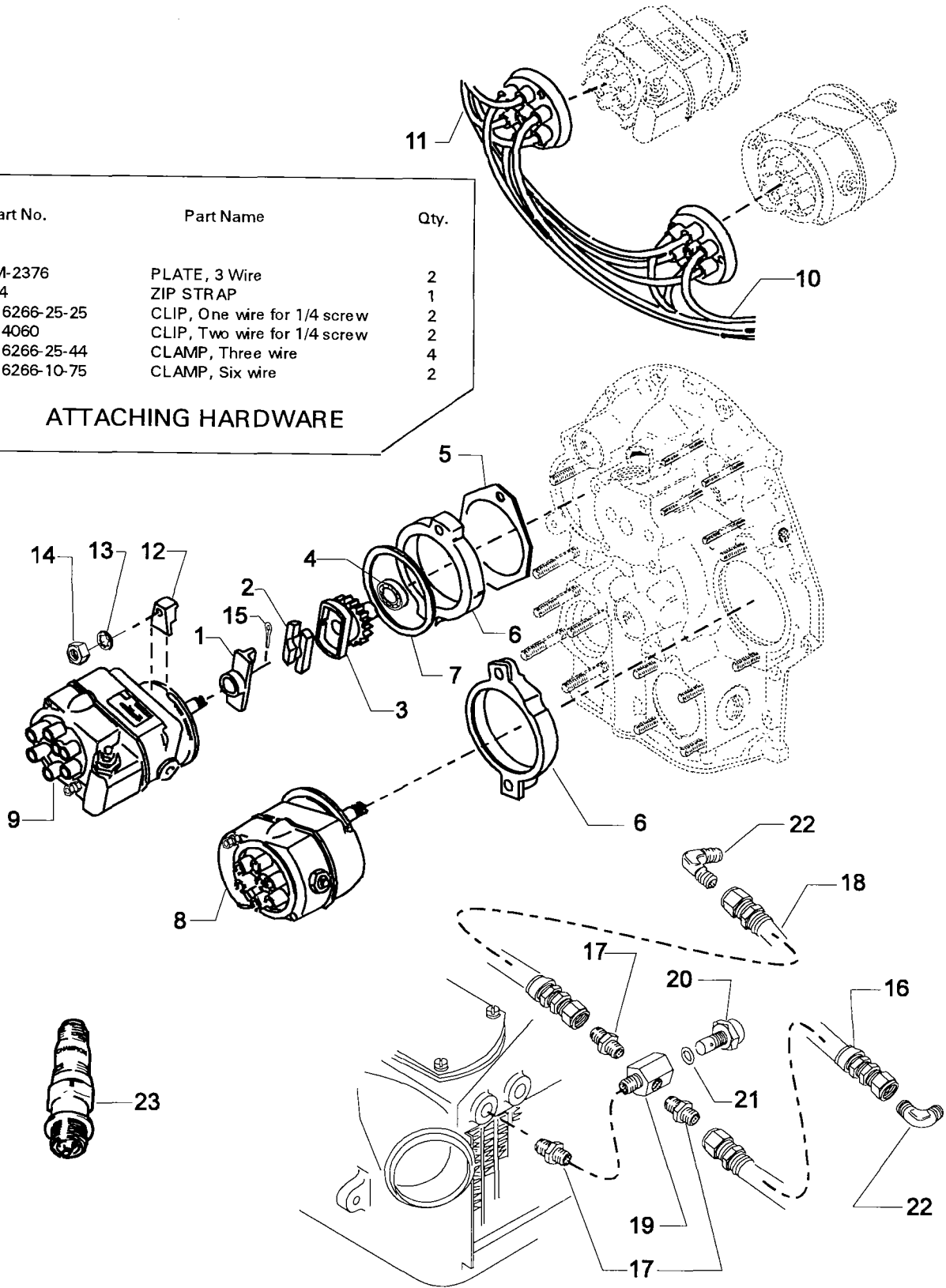


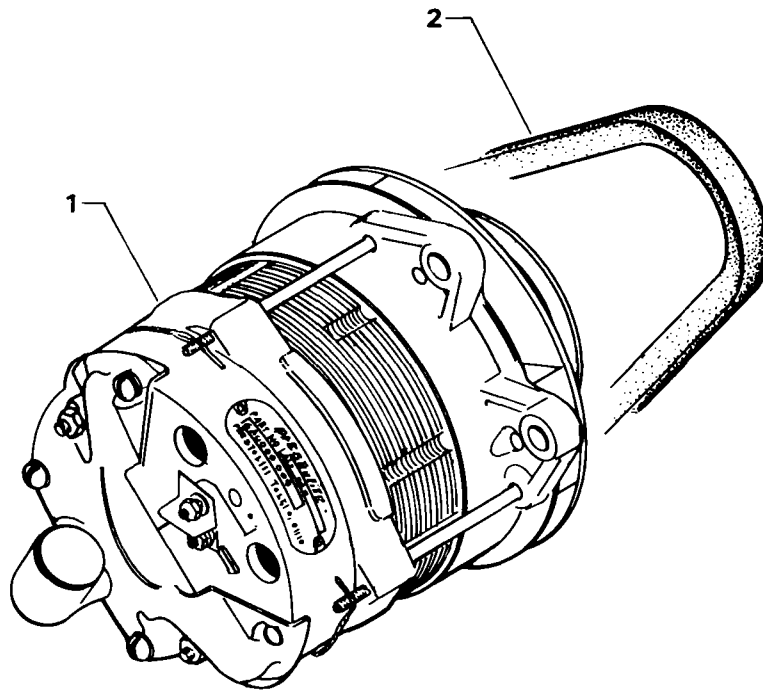
Figure 19A. PRESSURIZED MAGNETOS (SLICK), MAGNETO DRIVES, HARNESSES AND SPARK PLUGS

ELECTRICAL COMPONENTS
ALTERNATOR AND BELT

FIG. REF. 20	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	LW-14324	ALTERNATOR, 24 volt, 70 amp., externally grounded (ALU-8421)	1
2	74519	BELT, Alternator drive, 3/8 wide	1

NOTE

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

**Figure 20. ALTERNATOR AND BELT**

ELECTRICAL COMPONENTS
STARTER MOTOR AND ATTACHING PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
21			
1	LW-15572*	STARTER, 24 volt (3.38:1 internal reduction) (12/14 p. pinion) (MHB-4016)	1
	LW-14214**	STARTER, 24 volt, 3.38:1, ratio - 12/14 pitch (MHB-4014)	1
2	STD-35	WASHER, 5/16 plain	4
3	STD-475	WASHER, 5/16 internal lock	4
4	STD-2156	BOLT, 5/16-18 x 1-5/32 long, hex hd.	1
5	STD-1410	NUT, 5/16-18 plain	3

* Used on T10-540-U2A engines.
 ** Used on LT10-540-U2A engines.

NOTE

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

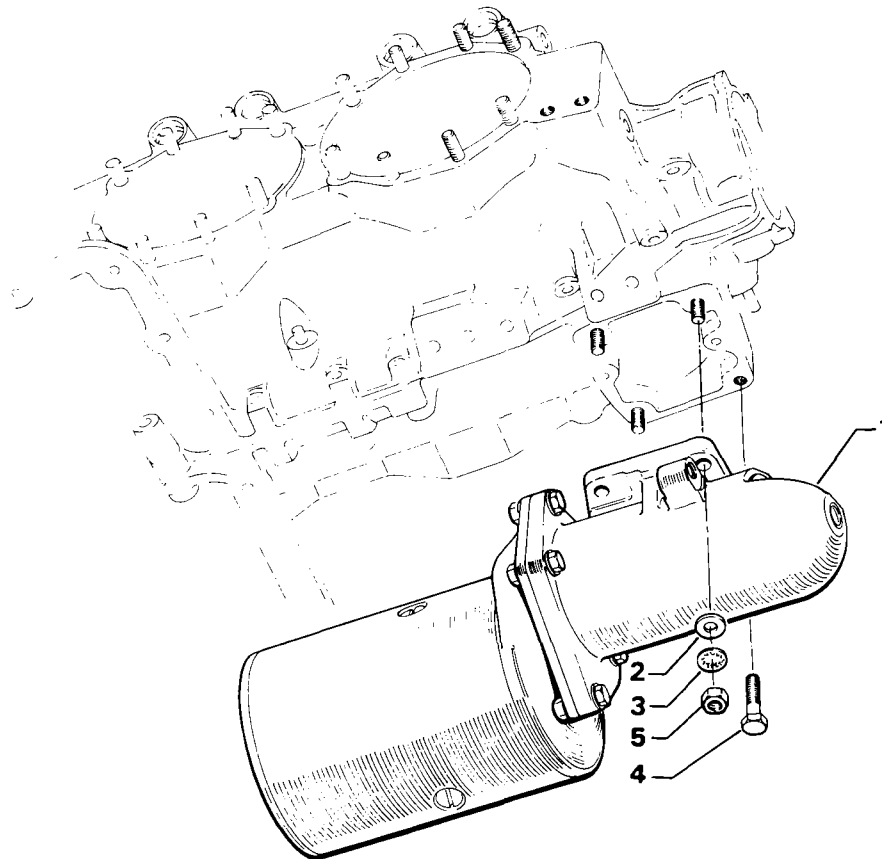


Figure 21. STATER MOTOR AND ATTACHING PARTS

ELECTRICAL COMPONENTS
ALTERNATOR MOUNTING AND ATTACHING PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
22			
1	77756	BRACKET, Alternator	1
2	73383	LOCKPLATE, 5/16 bolt x 1.00 spacing	1
3	STD-1838	BOLT, 5/16-18 x 5/16 long, hex hd.	2
4	77757	BRACKET, Alternator belt adjusting	1
5	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
6	LW-14637*	SHIM, 13/16 O.D. x 11/32 I.D. x .005 thick	un
7	LW-14649*	SHIM, 13/16 O.D. x 11/32 I.D. x .010 thick	un
8	STD-1889	BOLT, 15/16-18 x 1-7/32 long, hex hd., drilled	1
9	78639	PULLEY & SHAFT ASSY., Alternator belt adjusting	1
10	78614	PULLEY, Alternator belt adjusting	1
11	78629	BEARING, Ball, alternator idler pulley	1
12	MS16625-1125	RING, Internal retaining, 1-1/8 diameter	2
13	78617	IDLER SHAFT, Alternator belt adjusting	1
14	76768	WASHER, Lock, alternator idler pulley bearing	1
15	76769	LOCKNUT, Alternator idler pulley bearing	1
16	STD-669	WASHER, 33/64 I.D. x 1.00 O.D. x 1/8	1
17	STD-676	NUT, 1/2-20 self-locking, 39/64 thick	1
18	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
19	LW-14637*	SHIM, 13/16 O.D. x 11/32 I.D. x .005 thick	un
20	STD-1889	BOLT, 5/16-18 x 1-7/32 long, hex hd., drilled	1
21	LW-10952*	SHIM, 13/16 O.D. x 13/32 I.D. x .005 thick	un
22	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	un
23	AN6-12	BOLT, 3/8-24 x 1-21/64 long, hex hd., drilled end	1
24	STD-872	NUT, 3/8-24 slotted	1
25	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long	1
26	76534	SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick	un
27	AN6-16	BOLT, 3/8-24 x 1-53/64 long, hex hd., drilled end	1
28	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	un
29	STD-872	NUT, 3/8-24 slotted	1
30	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long	1

* Shim as required for belt alignment between crankcase, idler adj. bracket, alternator and alternator bracket.

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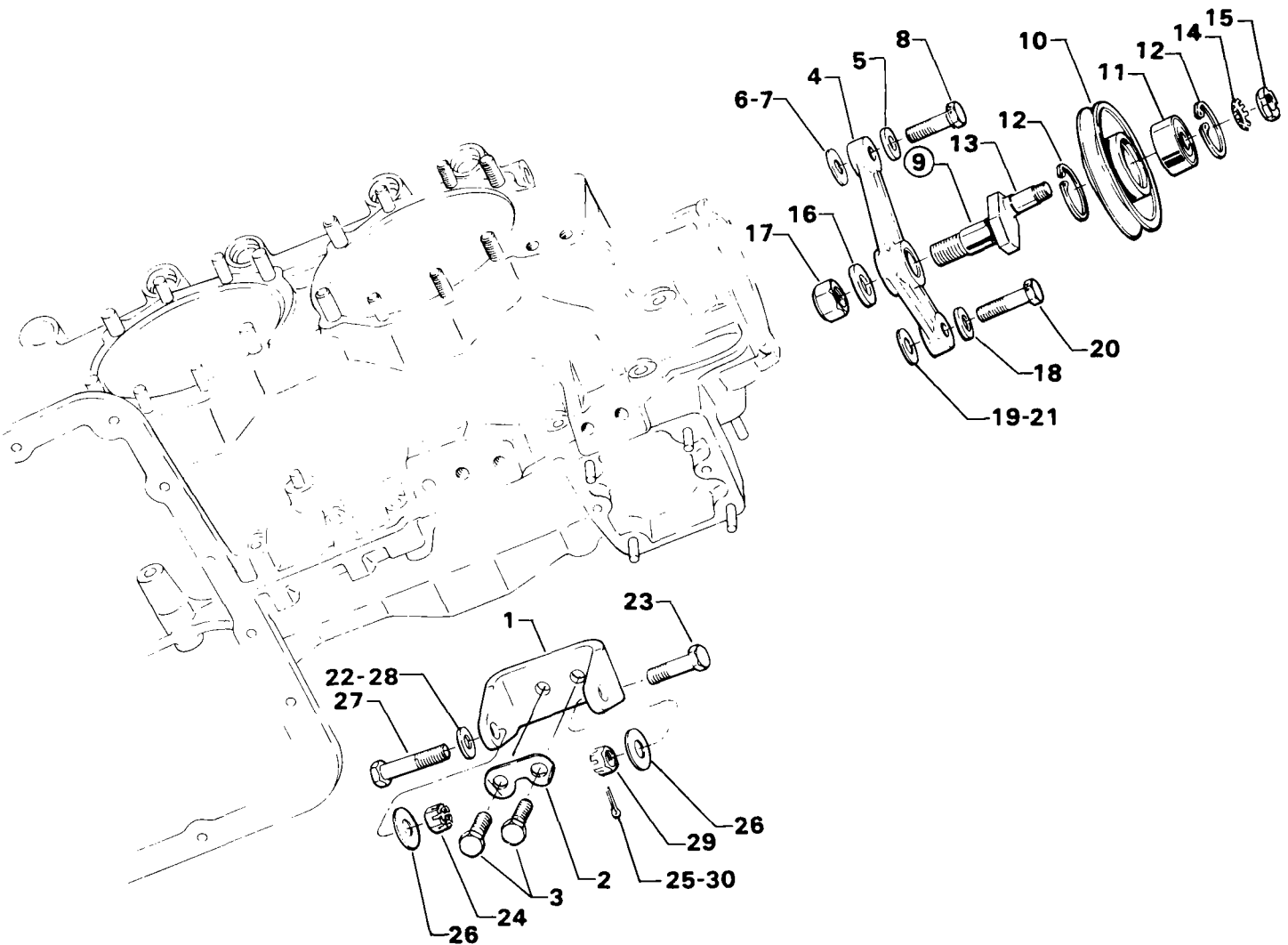
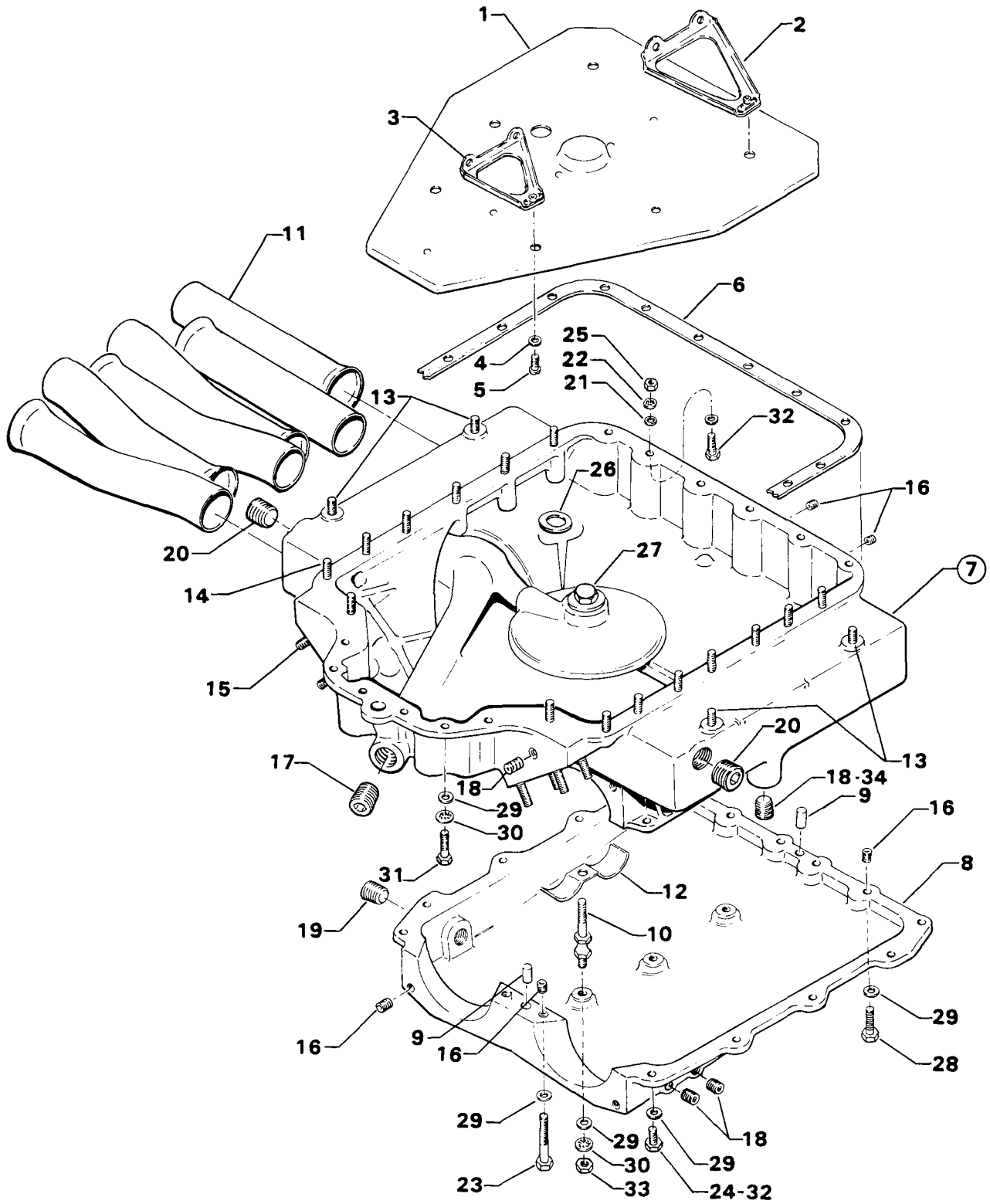


Figure 22. ALTERNATOR MOUNTING AND ATTACHING PARTS

OIL SUMP AND INDUCTION SYSTEM
OIL SUMP AND INDUCTION HOUSING ASSEMBLY

FIG. REF. 23	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	LW-13383	BAFFLE, Oil sump	1
2	LW-13384	SUPPORT, Oil sump baffle	4
3	LW-13385	SUPPORT, Oil sump baffle	2
4	STD-425	WASHER, 7/16 O.D. x 13/64 I.D. x 1/16 thick	6
5	STD-1686	SCREW, 10-32 x 7/16 long, fill. hd.	6
6	LW-13306	GASKET, Oil sump	1
7	LW-14946	HOUSING ASSY., Oil sump and induction	1
8	LW-18291	COVER, Induction housing	1
9	STD-514	DOWEL, 5/16 dia. x 1/2 long	2
10	72179	STUD, Intake pipe extension	3
11	72167	PIPE, Extension, intake cylinder, no. 1 & 2	2
	72168	PIPE, Extension, intake cylinder, no. 3 & 4	2
	72169	PIPE, Extension, intake cylinder, no. 5 & 6	2
12	LW-11273	CLAMP, Intake pipe extension	3
13	25C-9	STUD, 1/4-20 N. form x 1-1/8 long	4
14	25C-11	STUD, 1/4-20 x 1-3/8 long	15
15	38-17	STUD, 3/8-16 x 2-1/8 long	8
16	72706	INSERT, Heli-Coil 1/4-20 x 3/8 long, self-lock	14
17	STD-91	PLUG, 1/2-14 NPT, Allen head	1
18	1102	PLUG, 1/8 NPT, Allen head	5
19	STD-784	PLUG, 3/8-18 NPT, Allen head	1
20	STD-355	PLUG, 3/4-14 NPT, Allen head	2
21	STD-8	WASHER, 1/4 plain	29
22	STD-160	WASHER, Lock, internal teeth	23
23	STD-1646	BOLT, 1/4-20 x 2.00 long, hex. head	2
24	STD-1688	BOLT, 1/4-20 x 1.00 long, hex. head	10
25	STD-1411	NUT, 1/4 plain	13
26	STD-589	GASKET, Annular, 1-1/8 O.D. x 29/32 I.D. x 1/16	1
27	72960	PLUG, 7/8-14 x 5/8 hex. head	1
28	STD-1875	BOLT, 1/4-20 x 13/16 long	4
29	STD-8	WASHER, 1/4 plain	37
30	STD-160	WASHER, Lock, internal teeth	23
31	STD-1419	BOLT, 1/4-20 x 1-1/8 long, hex. head	6
32	STD-1688	BOLT, 1/4-20 x 1.00 long, hex. head	8
33	STD-1411	NUT, 1/4-20 plain	25
34	STD-551	PLUG, 1/2-14 NPT, sq. hd., drilled	2

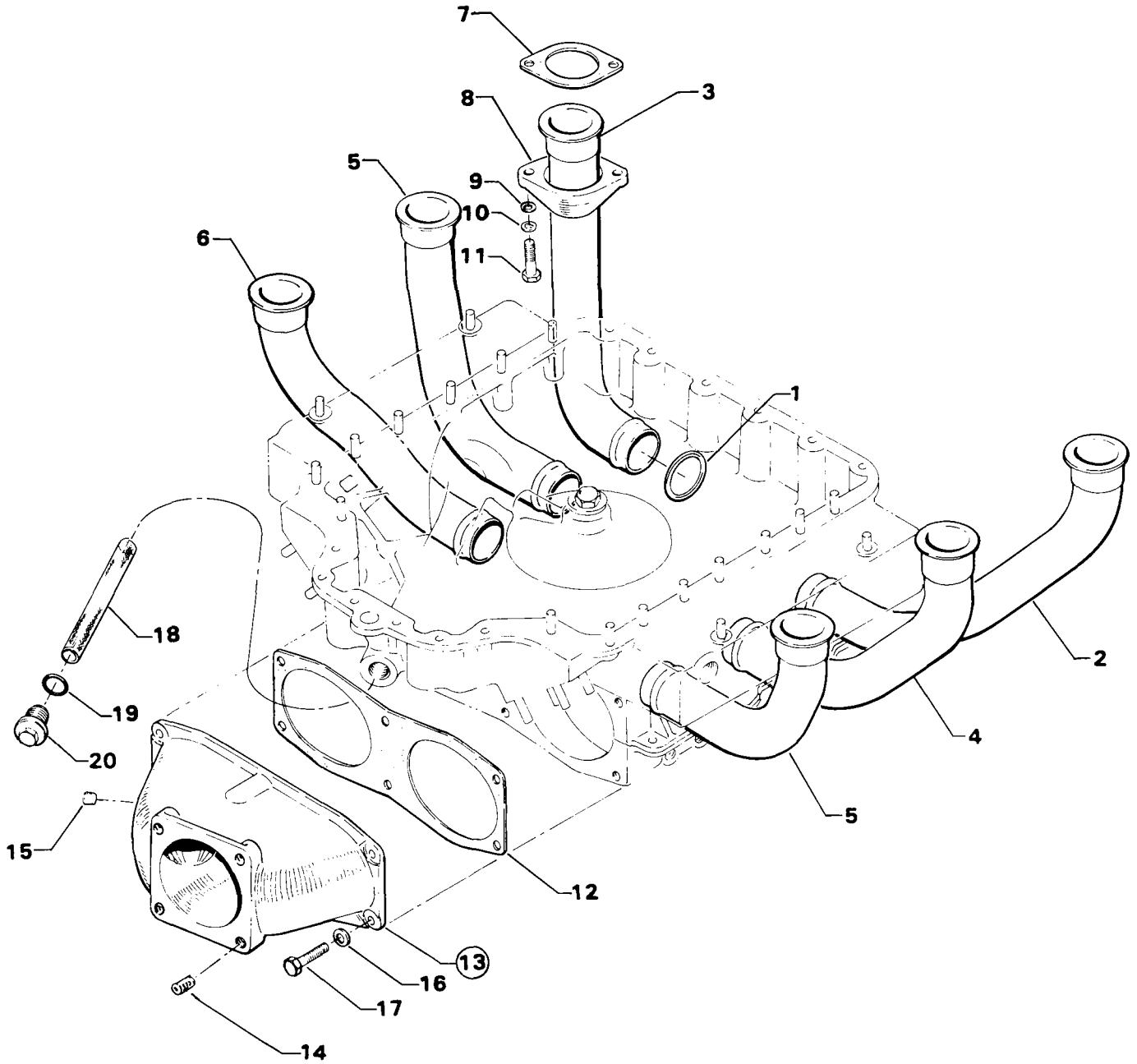


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Figure 23. OIL SUMP AND INDUCTION HOUSING ASSEMBLY

OIL SUMP AND INDUCTION SYSTEM
INTAKE PIPES AND AIR INLET HOUSING

FIG. REF. 24	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	72711	RING, Seal, intake pipes	6
2	LW-12191	PIPE, Intake, cylinder no. 1	1
3	LW-12192	PIPE, Intake, cylinder no. 2	1
4	LW-12193	PIPE, Intake, cylinder no. 3	1
5	LW-12194	PIPE, Intake, cylinder no. 4 & 5	2
6	LW-12195	PIPE, Intake, cylinder no. 6	1
7	71973	GASKET, 2 bolt flange, 1-7/8 I.D.	6
8	74360	FLANGE, Intake pipe, upper	6
9	STD-8	WASHER, 1/4 plain	12
10	STD-160	WASHER, 1/4 lock, internal teeth	12
11	STD-1215	BOLT, 1/4-20 x 1-1/4 long, hex. head	12
12	72210	GASKET, Air throttle housing	1
13	LW-18981	HOUSING ASSY., Air inlet	1
14	STD-1164	INSERT, Heli-coil 5/16-18 x 5/8 long	4
15	1102	PLUG, 1/8 pipe, Allen head	1
16	STD-8	WASHER, 1/4 plain	6
17	STD-1875	BOLT, 1/4-20 x 13/16 long, hex. head	6
18	60422	SCREEN, Oil suction	1
19	STD-111	GASKET, 1.00 I.D. x 1-1/4 O.D. x 3/32	1
20	LW-12545	PLUG, 5/8 Hex. head x 1.00, 20 thread	1



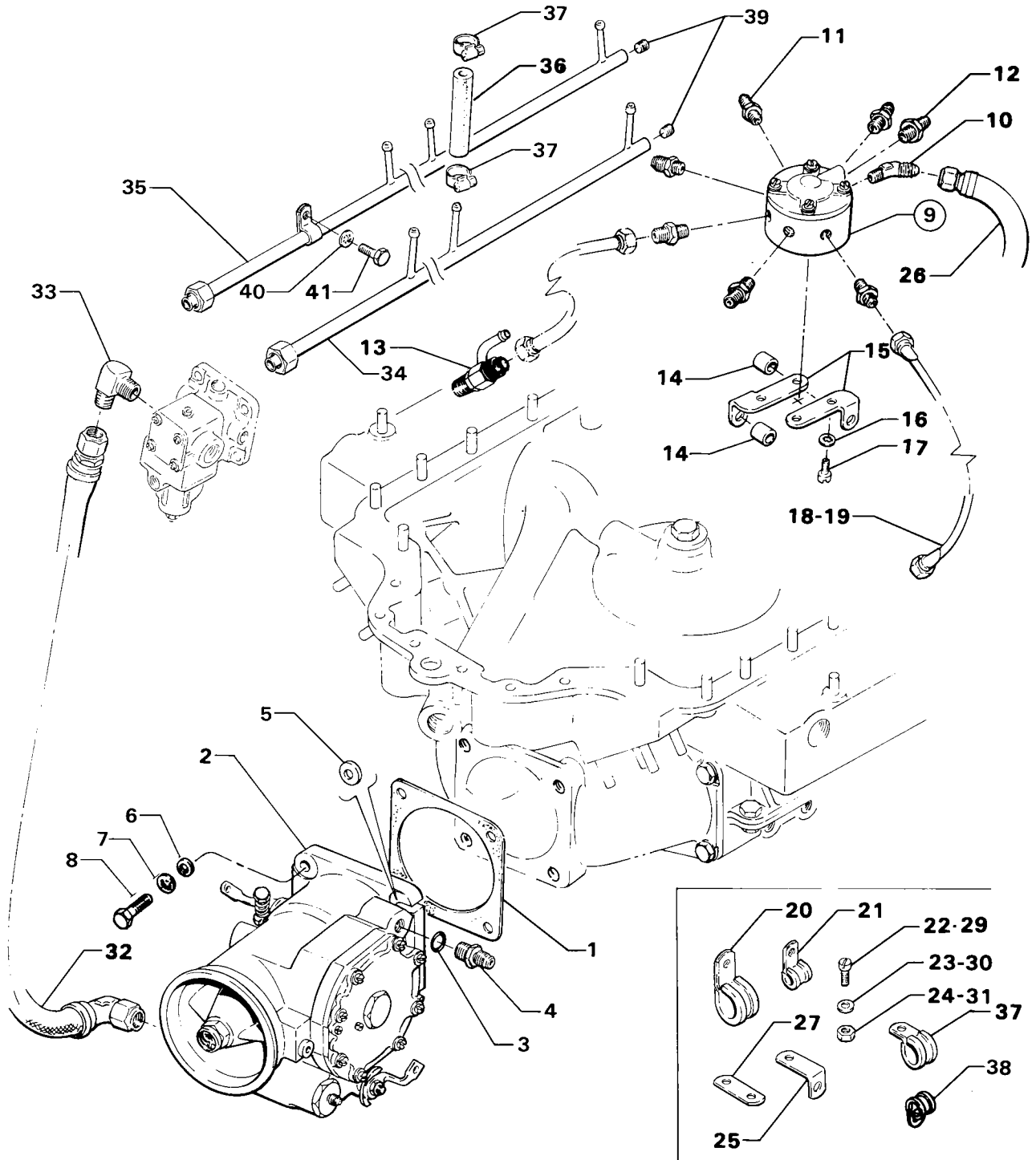
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Figure 24. INTAKE PIPES AND AIR INLET HOUSING

OIL SUMP AND INDUCTION SYSTEM
FUEL INJECTOR, FUEL MANIFOLD AND AIR BLEED NOZZLES

FIG. REF. 25	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
1	73032	GASKET, Air inlet housing	1
2	LW-18157	FUEL INJECTOR (2524880-1)	1
3	MS29512-6	SEAL, Oil	1
4	AN919-6	REDUCER, Flared tube (3/8 O.D. to 1/4 O.D.)	1
5	STD-1727	WASHER, 5/16 thick	2
6	STD-35	WASHER, 5/16 plain	2
7	STD-475	WASHER, 5/16 internal tooth	4
8	STD-1828	BOLT, 5/16-18 x 1-5/16 long, hex hd.	4
9	79007	MANIFOLD ASSY., Fuel	1
10	MS20823-4	ELBOW, 1/4 tube x 1/8 NPT, 45°	1
11	AN780-2	NIPPLE, Union 1/8 NPT	6
12	75447	NIPPLE, 3/16 tube to 1/8 NPT, restricted	1
13	LW-18182	NOZZLE ASSY., Manifold air bleed	6
14	73966	SPACER, Fuel manifold bracket	2
15	73965	BRACKET, Fuel manifold	2
16	STD-251	WASHER, No. 10 lock, internal teeth	4
17	STD-82	SCREW, No. 10-24 x 1/2 long, fill. hd. drive	4
18	LW-12098-0-200	TUBE ASSY., Fuel manifold to nozzle cyls. 1, 2, 5 & 6	4
19	LW-12098-0-170	TUBE ASSY., Fuel manifold to nozzle cyls. 3 & 4	2
20	LW-16266-10-75	CLAMP	10
21	LW-16266-10-13	CLAMP	12
22	STD-860	SCREW, No. 10-32 x 5/8 long, fill. hd.	14
23	STD-425	WASHER, No. 10, plain	2
24	STD-670	NUT, No. 10-32, self-locking	14
25	73136	BRACKET, 90°	4
26	LW-12876-4S334	HOSE ASSY., Fuel injector to fuel manifold	1
27	73152	BRACKET, Support clamp	1
28	LW-16266-25-63	CLAMP	2
29	STD-860	SCREW, No. 10-32 x 5/8 long, fill. hd.	1
30	STD-425	WASHER, No. 10, plain	1
31	STD-670	NUT, No. 10-32, self-locking	1
32	LW-12877-6S-045	HOSE ASSY., Fuel pump to injector	1
33	MS20822-6-8	ELBOW, 3/8 flared tube with 1/2 NPT, 90° fuel pump outlet	1
34	LW-18028	MANIFOLD, Right, outer, injector nozzle vent	1
35	LW-16599	MANIFOLD, Left, outer, injector nozzle vent	1
36	LW-18724	HOSE, 3/16 I.D. x 7/16 O.D. x 3-1/4 long	6
37	LW-15592-5-04	CLAMP, 7/16 I.D. x 5/16 wide	12
38	LW-16266-25-38*	CLIP, 3/8 I.D. x 1/4 screw	4
39	STD-1339	PLUG, 1/16-27 NPT, Allen	2
40	STD-160*	WASHER, 1/4 lock, internal teeth	4
41	STD-1688	BOLT, 1/4-20 x 1.00 long, hex. hd.	4

* Assemble 1 each at top forward boss on cylinders 2, 3, 5 & 6.

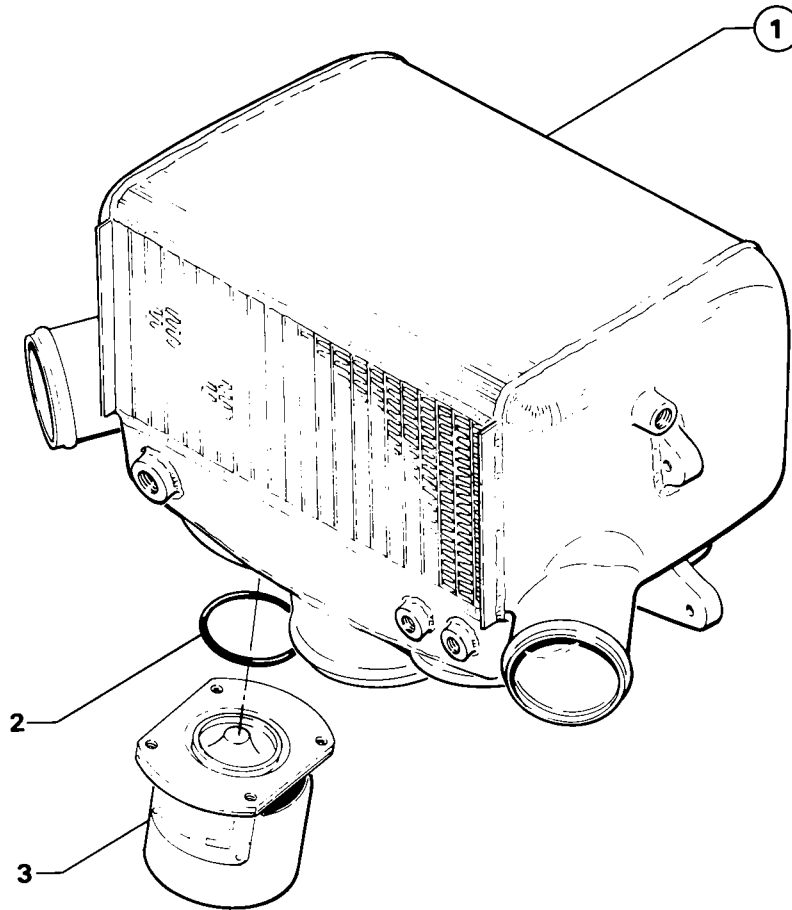


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Figure 25. FUEL INJECTOR, FUEL MANIFOLD AND AIR BLEED NOZZLES

TURBOCHARGER AND EXHAUST SYSTEMS
INTERCOOLER ASSEMBLY AND RELATED PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	QUALITY PER ASSEMBLY
26			
1	LW-18821	INTERCOOLER, Harrison (HR800159)	1
2	MS29513-138	SEAL, "O" Ring, 2-7/64 x 7/64 section	1
3	LW-14445-2	VALVE ASSY., Absolute pressure relief	1



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Figure 26. INTERCOOLER ASSEMBLY AND RELATED PARTS

TURBOCHARGER AND EXHAUST SYSTEMS

NOTE

The Turbocharger and Control Components for this engine shall be supplied by the Airframe Manufacturer.

SERVICE KIT SECTION

SEAL AND GASKET SET
WIDE CYLINDER FLANGE MODELS

Part No.	Part Name	Qty.
LW-18072	SEAL AND GASKET SET	1
MS16625-1081	RING, Internal retaining	1
MS29512-6	SEAL, Oil	1
MS29513-138	SEAL, Oil	1
STD-111	GASKET	2
STD-208	SEAL, Oil	2
STD-213	SEAL, Oil (fuel pump drive)	1
STD-294	GASKET	2
STD-589	GASKET	1
STD-1045	GASKET	1
STD-1737	RING	1
8313	GASKET, Vacuum pump	2
61183	GASKET, Accessory adapter	1
62224	GASKET, Magneto	4
LW-18661	SEAL, Shroud tube	24
66732	GASKET, Valve rocker shaft cover	12
67193	GASKET, Rocker box cover	6
LW-18638	LOCKPLATE, Crankshaft gear	1
68315	GASKET, Acc. drive adapter	1
69164	GASKET, Fuel pump adapter	1
69551	GASKET, Acc. pad cover	1
70455	GASKET	1
70457	GASKET	1
71193	BOX	1
71481	RING, Oil seal	6
71667	LOCKPLATE, Crankshaft idler gear	2
71973	GASKET, Intake flange	6
72053	GASKET, Governor drive pad	1
72091	RING, Oil seal	2
72210	GASKET, Oil throttle housing	1
72312	RING, Oil seal	1
72711	RING, Oil seal, intake pipe	6
73032	RING, Air inlet housing	1
73818	GASKET, Acc. housing	1
77611	GASKET, Exhaust flange	6
LW-12681	GASKET, Magneto	2
LW-12795	GASKET	1
LW-13306	GASKET, Oil sump	1
LW-14260	SEAL, Tachometer	1
LW-15628	SEAL, Crankshaft	1

SERVICE KIT SECTION

**CYLINDER, PISTON AND RING KIT
WIDE CYLINDER FLANGE MODELS**

Part No.	Part Name	Qty.
LW-18069	CYLINDER, PISTON AND RING KIT	1
72050	KEY, Valve	2
60828	PLUG, Piston pin	2
LW-18661	SEAL, Shroud tube	4
66731	COVER, Valve rocker shaft	2
66732	GASKET, Valve rocker shaft cover	2
67112	ROCKER ASSY., Exhaust valve	1
67113	ROCKER ASSY., Intake valve	1
67193	GASKET, Rocker box cover	1
LW-13321	SEAT, Valve spring, lower	1
68795	COVER ASSY., Rocker box	1
71195	BOX, Set up	1
71481	RING, Oil seal	1
71549	WASHER, Valve rocker	2
72626	SHAFT, Valve rocker	2
73857	RING, Oil regulator	1
73112 or LW-13322	SEAT, Valve spring, lower	1
LW-13622	VALVE, Intake	1
74241	RING, Piston	2
LW-11167	VALVE, Exhaust, nimonic	1
LW-16475	SEAT, Valve spring	1
69532	SEAT, Valve spring	1
LW-11775	PLUG, Piston pin	2
LW-11796	SPRING, Valve, outer	2
LW-11797	SPRING, Valve, auxiliary	2
LW-10545S	PISTON	1
LW-13446 or LW-14077	PIN, Piston	1
LW-12988	CYLINDER ASSY.	1
MS13997-3	KEY, Valve (rotator type)	2
MS13998-3	CAP, Valve stem	1
STD-160	WASHER, Internal lock	4
STD-1411	NUT, Plain	4
STD-1215	BOLT	2
STD-1925	SCREW	9
62388	CAP	2
74494	PLATE, Spark plug caution	1

NUMERICAL INDEX

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
AN380C4-2	Pin	2-3	LW-13321	Seat	3-5
AN565B1032H5	Set Screw	1-11	LW-13322	Seat	3-5
AN6-12	Bolt	5-3	LW-13383	Baffle	6-1
AN6-16	Bolt	5-3	LW-13384	Support	6-1
AN6-34A	Bolt	1-15	LW-13385	Support	6-1
AN780-2	Nipple	6-5	LW-13422	Connecting Rod Assy.	3-1
AN816-4	Nipple	4-1	LW-13622	Valve	3-5
AN844-16D	Elbow	2-7	LW-13794	Stud	1-1
AN919-6	Reducer	6-5	LW-13795	Shaft	1-13
LW-10442	Gear	1-11	LW-13885	Bearing	1-5
LW-10541	Gear Assy.	1-11	LW-13896	Plug	1-11
LW-10545	Piston	3-1	LW-13909	Pump	2-5
LW-10610	Baffle Assy.	3-7	LW-13923	Bushing	3-1
LW-10611	Baffle Assy.	3-7	LW-14021	Shaft	1-11
LW-10641	Housing Assy.	2-1	LW-14078	Pin	3-1
LW-10799	Spacer	2-5	LW-14214	Starter	5-2
LW-10806	Spacer	2-9	LW-14260	Seal	2-3
LW-10807	Adapter Assy.	2-9	LW-14324	Alternator	5-1
LW-10952	Shim	5-3	LW-14444	Pump	2-5
LW-11273	Clamp	6-1	LW-14445-2	Valve Assy.	7-1
LW-11713	Spring	1-5	LW-14637	Shim	5-3
LW-11796	Spring	3-5	LW-14649	Shim	5-3
LW-11797	Spring	3-5	LW-14820	Ring	1-7
LW-12098-0-170	Tube Assy.	6-5	LW-14830	Bearing	1-5
LW-12098-0-200	Tube Assy.	6-5	LW-14946	Housing Assy.	6-1
LW-12136	Cushion	4-1	LW-15572	Starter	5-2
LW-12186	Nut	3-1	LW-15592-5-04	Clamp	6-5
LW-12191	Pipe	6-3	LW-15592-5-05	Clamp	3-7
LW-12192	Pipe	6-3	LW-15628	Seal	1-5
LW-12193	Pipe	6-3	LW-16143	Bearing	3-1
LW-12194	Pipe	6-3	LW-16266-10-13	Clamp	6-5
LW-12195	Pipe	6-3	LW-16266-10-75	Clamp	6-5
LW-12201	Camshaft	1-9	LW-16266-25-38	Clip	6-5
LW-12545	Plug	6-3	LW-16266-25-63	Clamp	6-5
LW-12596	Bolt	3-1	LW-16475	Seat	3-5
LW-12681	Gasket	4-1	LW-16494	Gear Retainer Assy.	4-1
LW-12688	Seat	3-3	LW-16599	Manifold	6-5
LW-12707	Adapter	4-1	LW-16718	Body Assy.	2-3
LW-12784-4-060	Hose Assy.	4-1	LW-16740	Valve	3-5
LW-12784-4-080	Hose Assy.	4-1	LW-16783-3	Gage Assy.	1-3
LW-12795	Gasket	2-11	LW-17763	Crankshaft	1-7
LW-12876-4S334	Hose Assy.	6-5	LW-17764	Crankshaft	1-7
LW-12877-6S-045	Hose Assy.	6-5	LW-17788	Crankshaft	1-7
LW-12988	Cylinder & Head Assy.	3-3	LW-17789	Crankshaft	1-7
LW-13077	Spring	3-5	LW-18028	Manifold	6-5
LW-13134	Valve Assy.	4-1	LW-18157	Fuel Injector	6-5
LW-13209	Bearing	3-1	LW-18182	Nozzle Assy.	6-5
LW-13212	Bearing	3-1	LW-18194	Gear Retainer Assy.	4-1
LW-13215	Oil Filter	2-11	LW-18208	Crankcase Assy.	1-1
LW-13306	Gasket	6-1	LW-18262	Adapter	4-1

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PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
LW-18291	Cover	6-1	STD-160	Washer	2-9
LW-18309	Housing Assy.	2-1	STD-160	Washer	2-11
LW-18461	Pump Assy.	2-5	STD-160	Washer	3-7
LW-18638	Lockplate	1-7	STD-160	Washer	6-1
LW-18661	Seal	3-5	STD-160	Washer	6-3
LW-18724	Hose	6-5	STD-160	Washer	6-5
LW-18821	Intercooler	7-1	STD-208	Seal	2-7
LW-18981	Housing Assy.	6-3	STD-208	Seal	2-9
LW-349490-2	Magneto	4-1	STD-213	Seal	1-13
LW-349490-3	Magneto	4-1	STD-251	Washer	3-7
LW-349510-2	Magneto	4-1	STD-251	Washer	6-5
LW-349510-3	Magneto	4-1	STD-294	Gasket	2-7
LW-349610-2	Magneto	4-1	STD-355	Plug	6-1
LW-349610-3	Magneto	4-1	STD-425	Washer	6-1
LW 720515-203	Harness	4-1	STD-425	Washer	6-5
MS13997-3	Key	3-5	STD-475	Washer	1-11
MS13998-3	Cap	3-5	STD-475	Washer	2-5
MS16625-1081	Ring	1-9	STD-475	Washer	2-9
MS16625-1125	Ring	5-3	STD-475	Washer	4-1
MS20822-4	Elbow	4-1	STD-475	Washer	5-2
MS20822-6-8	Elbow	2-5	STD-475	Washer	6-5
MS20822-6-8	Elbow	6-5	STD-514	Dowel	1-1
MS20823-4	Elbow	6-5	STD-514	Dowel	6-1
MS20823-6D	Elbow	3-3	STD-551	Plug	6-1
MS20823-8	Elbow	2-7	STD-557	Dowel	1-1
MS29512-4	Seal	4-1	STD-589	Gasket	6-1
MS29512-6	Seal	6-5	STD-596	Nut	1-3
MS29513-138	Seal	7-1	STD-596	Nut	1-15
STD-8	Washer	1-15	STD-669	Washer	5-3
STD-8	Washer	2-3	STD-670	Nut	3-7
STD-8	Washer	2-7	STD-670	Nut	6-5
STD-8	Washer	2-9	STD-676	Nut	5-3
STD-8	Washer	2-11	STD-678	Washer	1-3
STD-8	Washer	6-1	STD-678	Washer	1-15
STD-8	Washer	6-3	STD-684	Nipple	3-7
STD-19	Dowel	1-11	STD-690	Washer	5-3
STD-33	Washer	1-3	STD-692	Screw	3-7
STD-33	Washer	1-15	STD-696	Washer	4-1
STD-35	Washer	1-11	STD-705	Screw	1-13
STD-35	Washer	2-3	STD-713	Pin	5-3
STD-35	Washer	2-5	STD-714	Pin	2-3
STD-35	Washer	2-9	STD-783	Plug	2-1
STD-35	Washer	5-2	STD-784	Plug	2-1
STD-35	Washer	6-5	STD-784	Plug	6-1
STD-82	Screw	6-5	STD-798	Dowel	1-11
STD-91	Plug	6-1	STD-860	Screw	6-5
STD-111	Gasket	6-3	STD-872	Nut	1-15
STD-160	Washer	1-15	STD-872	Nut	5-3
STD-160	Washer	2-3	STD-1045	Gasket	1-5
STD-160	Washer	2-7	STD-1065	Dowel	1-7

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
STD-1164	Insert	6-3	STD-2156	Bolt	5-2
STD-1204	Bolt	2-3	STD-2167	Screw	1-13
STD-1211	Plug	1-7	STD-2168	Nut	1-13
STD-1215	Bolt	6-3	STD-2180	Hose	3-7
STD-1227	Washer	2-3	STD-2209	Bolt	1-7
STD-1339	Plug	1-1	25C-8	Stud	3-3
STD-1339	Plug	2-3	25C-9	Stud	6-1
STD-1339	Plug	6-5	25C-10	Stud	2-11
STD-1409	Nut	1-15	25C-11	Stud	6-1
STD-1409	Nut	2-3	25C-21	Stud	2-1
STD-1410	Nut	1-11	25C-32	Stud	2-9
STD-1410	Nut	2-5	31C-12	Stud	1-1
STD-1410	Nut	2-9	31C-12	Stud	2-1
STD-1410	Nut	4-1	31C-13	Stud	1-1
STD-1410	Nut	5-2	31C-13	Stud	3-3
STD-1411	Nut	1-15	31C-14	Stud	1-1
STD-1411	Nut	2-7	31C-19	Stud	2-1
STD-1411	Nut	2-9	31C-21	Stud	2-1
STD-1411	Nut	2-11	31CD-19	Stud	2-1
STD-1411	Nut	3-7	31CD-20	Stud	2-1
STD-1411	Nut	6-1	31CD-24	Stud	2-1
STD-1414	Bolt	1-15	38-13	Stud	1-1
STD-1416	Bolt	1-15	38-16	Stud	1-1
STD-1419	Bolt	1-15	38-17	Stud	6-1
STD-1419	Bolt	2-3	38-22	Stud	1-1
STD-1419	Bolt	6-1	38D-17	Stud	1-1
STD-1420	Nut	2-3	50-15	Stud	1-1
STD-1646	Bolt	6-1	383-B	Nut	3-7
STD-1686	Screw	3-7	1028B	Ball	1-5
STD-1686	Screw	6-1	1102	Plug	1-1
STD-1688	Bolt	6-1	1102	Plug	2-1
STD-1688	Bolt	6-5	1102	Plug	3-3
STD-1727	Washer	5-3	1102	Plug	6-1
STD-1727	Washer	6-5	1102	Plug	6-3
STD-1737	Ring	1-13	1182-K4	Spark Plug	4-1
STD-1774	Pin	1-13	8313	Gasket	2-7
STD-1774	Dowel	2-7	8313	Gasket	2-9
STD-1774	Pin	2-9	60329	Shaft	2-3
STD-1828	Bolt	6-5	60422	Screen	6-3
STD-1838	Bolt	5-3	60430	Cover	2-7
STD-1856	Screw	2-11	60430	Cover	2-9
STD-1872	Insert	3-3	60803	Strap	1-15
STD-1875	Bolt	6-1	60828	Plug	3-1
STD-1875	Bolt	6-3	60945	Plug	1-7
STD-1889	Bolt	5-3	61183	Gasket	2-7
STD-1904	Bolt	2-3	61297	Impeller	2-3
STD-1925	Screw	3-7	61298	Impeller	2-3
STD-1931	Bolt	2-3	61503	Sleeve	3-5
STD-2084	Bolt	1-15	62224	Gasket	4-1
STD-2090	Nut	3-7	62388	Cap	3-5

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
62417	Plug	2-7	72246	Shaft	1-13
62922	Seal	3-5	72255	Tube Assy.	3-5
65007	Retainer	1-1	72306	Bracket	1-3
65614	Plug	3-7	72343	Stabiizer	3-3
66670	Bushing	3-3	72344	Stabilizer	3-3
66713	Guide	3-3	72378	Cover	1-11
66728	Washer	3-5	72626	Shaft	3-5
66731	Cover	3-7	72702	Tube Assy.	3-7
66732	Gasket	3-7	72703	Tube Assy.	3-7
67112	Rocker Assy.	3-5	72706	Insert	6-1
67113	Rocker Assy.	3-5	72711	Ring	6-3
67114	Bushing	3-5	72834	Cover	3-7
67193	Gasket	3-7	72877	Body	1-5
67530	Bushing	1-13	72960	Plug	6-1
67536	Adapter Assy.	2-7	72964	Gear Assy.	2-9
67542	Bearing	4-1	72972	Shaft Gear Assy.	1-13
68315	Gasket	2-9	72974	Gear Assy.	2-7
68795	Cover Assy.	3-7	73013	Coupling	4-1
69159	Adapter Assy.	1-13	73027	Tube Assy.	3-7
69164	Gasket	1-13	73032	Gasket	6-5
69260	Insert	3-3	73136	Bracket	6-5
69532	Seat	3-5	73152	Bracket	6-5
69796	Dowel	1-1	73249	Washer	1-11
70455	Gasket	1-11	73250	Washer	1-11
70457	Gasket	1-3	73251	Washer	1-11
70474	Washer	1-13	73252	Washer	1-11
71481	Ring	3-7	73383	Lockplate	5-3
71549	Washer	3-5	73455	Rod Assy.	3-5
71596	Washer	2-7	73456	Rod Assy.	3-5
71596	Washer	2-9	73457	Rod Assy.	3-5
71610	Hook	3-7	73458	Rod Assy.	3-5
71611	Retainer	3-7	73555	Rod Assy.	3-5
71664	Gear Assy.	1-13	73556	Rod Assy.	3-5
71667	Lockplate	1-13	73557	Rod Assy.	3-5
71668	Gear Assy.	1-13	73558	Rod Assy.	3-5
71894	Seat	3-3	73636	Coupling	4-1
71903	Bushing	1-7	73644	Counterweight Assy.	1-7
71907	Washer	1-7	73772	Nozzle Assy.	1-1
71973	Gasket	6-3	73810	Bushing	1-7
72050	Key	3-5	73818	Gasket	2-1
72053	Gasket	1-11	73857	Ring	3-1
72059	Gasket	1-3	73965	Bracket	6-5
72091	Ring	1-5	73966	Spacer	6-5
72155	Bushing	1-7	74241	Ring	3-1
72158	Bushing	1-1	74360	Flange	6-3
72167	Pipe	6-1	74494	Plate	3-7
72168	Pipe	6-1	74519	Belt	5-1
72169	Pipe	6-1	74887	Spacer	3-7
72179	Stud	6-1	75287	Body Assy.	2-3
72210	Gasket	6-3	75447	Nipple	2-5

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
75447	Nipple	6-5	76787	Roller	1-7
75656	Bushing	1-7	76788	Roller	1-7
75737	Extension	1-3	77309	Bushing	1-13
75838	Guide	3-3	77756	Bracket	5-3
75944	Valve Assy.	2-11	77757	Bracket	5-3
75965	Clamp	4-1	77808	Valve Assy.	1-5
76118	Spacer	1-9	77852	Base Assy.	2-11
76148	Camshaft	1-9	77872	Bushing	1-11
76155	Shaft Assy.	1-9	77906	Spacer	3-7
76156	Shield	2-1	78290	Plunger Assy.	3-5
76220	Stud	1-15	78368	Pin	1-9
76422	Elbow	2-5	78524	Socket	3-5
76534	Shim	5-3	78614	Pulley	5-3
76768	Washer	5-3	78617	Idler Shaft	5-3
76769	Locknut	5-3	78629	Bearing	5-3
76784	Shaft	2-3	78639	Pulley & Shaft Assy.	5-3
76786	Gear	1-7	79007	Manifold Assy.	6-5
			79024	Bushing	1-7