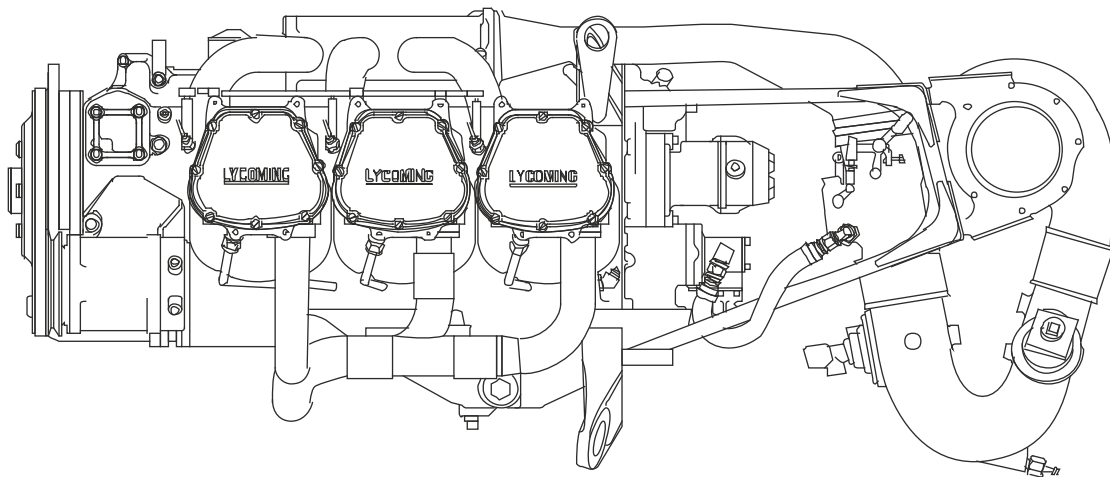


Lycoming Aircraft Engines Parts Catalog

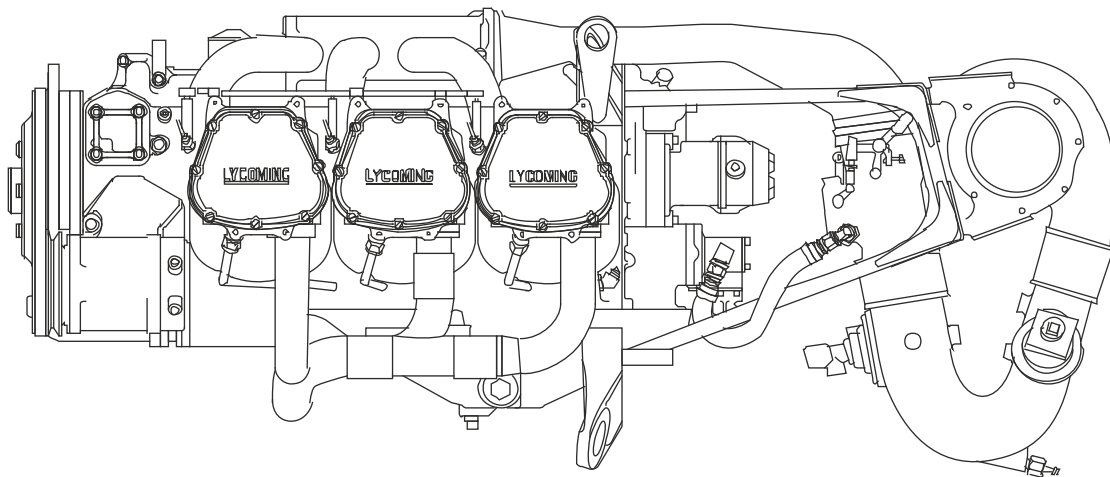


TIO-540 W2A

Wide Cylinder Flange Crankcase Model Engines

LYCOMING

Lycoming Aircraft Engines Parts Catalog



TIO-540 W2A

Wide Cylinder Flange Crankcase Model Engines

LYCOMING



TECHNICAL PUBLICATION REVISION

REVISION NO.	PUBLICATION	PUBLICATION NO.	PUBLICATION DATE
PC-315-11A	TIO-540-W2A Parts Catalog	PC-315-11	JANUARY 1989
This page(s) furnished herewith are intended to replace the corresponding pages(s) of the publication indicated above.			
PREVIOUS REVISIONS		CURRENT REVISION	
None		January 2010 iii; 1-1, 1-2, 1-3, 1-4, 1-5, 1-7, 1-13; 2-1, 2-2, 2-3, 2-4, 2-5, 2-11, 2-12; 3-1, 3-3, 3-4, 3-5, 3-6; 4-1, 4-2; 5-1, 5-2, 5-3; 6-3, 6-5, 6-7, 6-8; 7-3, 7-5; 8-1, 8-2; 9-1, 9-2, 9-3, 9-4, 9-5, 9-6	

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

Lycoming TIO-540-W2A wide

Major assembly and sub-assembly parts of the engine 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 addresses of where to obtain these publications appears in the latest edition of Service Letter No. L114.

NOTE

The illustrations, pictures and drawings shown in the 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 manufacturer's 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 Textron Lycoming quality control system.

All Lycoming publications will bear the copyright notice © Lycoming 1986, "All Rights Reserved," and all Lycoming publications are to be considered copyrighted and may not be reproduced without permission of the company.

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.

TABLE OF CONTENTS

SECTION	PAGE
Introduction	i
Table of Contents	ii
Oversize and Undersize Parts Listing	iii
1. CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP	
Crankcase Assembly	1-1
Oil Level Gage Assembly and Engine Mounting Brackets	1-3
Crankcase Related Parts	1-5
Crankshaft, Counterweight, Camshaft and Related Parts	1-7
Propeller Governor Drive Assembly	1-9
Crankshaft and Fuel Pump Idler Gears	1-11
Crankcase Attaching Parts	1-13
2. ACCESSORY HOUSING AND RELATED PARTS	
Accessory Housing Assembly	2-1
Oil Pump Assembly and Accessory Housing Attaching Parts	2-3
Fuel Pump Assembly and Attaching Parts.....	2-5
Vacuum Pump Drive, Oil Cooler and Breather Fittings	2-7
Turbo Scavenge Pump and Hydraulic Pump Drive and Cover	2-9
Oil Filter Assembly and Oil Cooler Bypass Valve	2-11
3. CYLINDER, PISTON AND VALVE TRAIN	
Connecting Rods, Pistons and Ring Assemblies	3-1
Cylinder Assembly	3-3
Valve Assembly and Related Parts	3-5
Cylinder Related Parts	3-7
4. IGNITION SYSTEM	
Pressurized Magnets (SLICK), Magneto Drives, Harnesses and Spark Plugs	4-1
5. ELECTRICAL COMPONENTS	
Prestolite Starter and Attaching Parts	5-1
Alternator Assembly and Belt	5-2
Alternator Mounting and Attaching Parts	5-3
6. OIL SUMP AND INDUCTION SYSTEM	
Oil Sump Assembly and Induction Housing	6-1
Intake Pipes, Air Inlet Housing and Oil Suction Screen	6-3
Fuel Injector, Fuel Manifold and Injection Nozzles	6-5
Injector Nozzle Vent Manifolds, Hoses and Manifold Fuel Drains	6-7
7. TURBOCHARGER AND EXHAUST SYSTEMS	
Exhaust Crossover Pipes and Transition Assembly	7-1
Exhaust Bypass Valve and Wastegate Supports	7-3
Turbocharger, Support and Attaching Parts	7-5
Turbocharger Tank Assy., Hoses and Related Parts	7-7
Density Controller and Related Parts	7-9
Differential Pressure Controller and Related Parts	7-11
8. SERVICE KIT SECTION	8-1
9. NUMERICAL INDEX	9-1

OVERSIZE AND UNDERSIZE PARTS LISTING

PART NO.	DESCRIPTION	OVERSIZE (IN.)								UNDERSIZE (IN.)		
		P02 .002	P05 .005	P10 .010	P15 .015	P20 .020	P30 .030	P40 .040	P50 .050	M03 .003	M06 .006	M10 .010
66670	BUSHING		X	X								
69260	INSERT		X	X								
69796	DOWEL		X									
71903-A	BUSHING	See latest revision of Service Instruction No. 1143.										
72155-S	BUSHING		X	X	X							
75656-S	BUSHING		X	X								
76940	SEAL	See latest revision of Service Instruction No. 1324.										
79024-S	BUSHING		X	X								
18E23886	BEARING									X*	X*	
LW-15628	SEAL	See latest revision of Service Instruction No. 1324.										
LW-19042	SEAT			X		X	X					
16T19468	SEAT			X		X	X					
LW-18753	GUIDE	See latest revision of Service Instruction No. 1256.										
LW-18833	GUIDE	See latest revision of Service Instruction No. 1256.										
18B23885	BEARING									X*	X*	X*

* - Also available in P15 oversize.

In addition to the above, studs are available in P03, P07 & P12.

NOTE

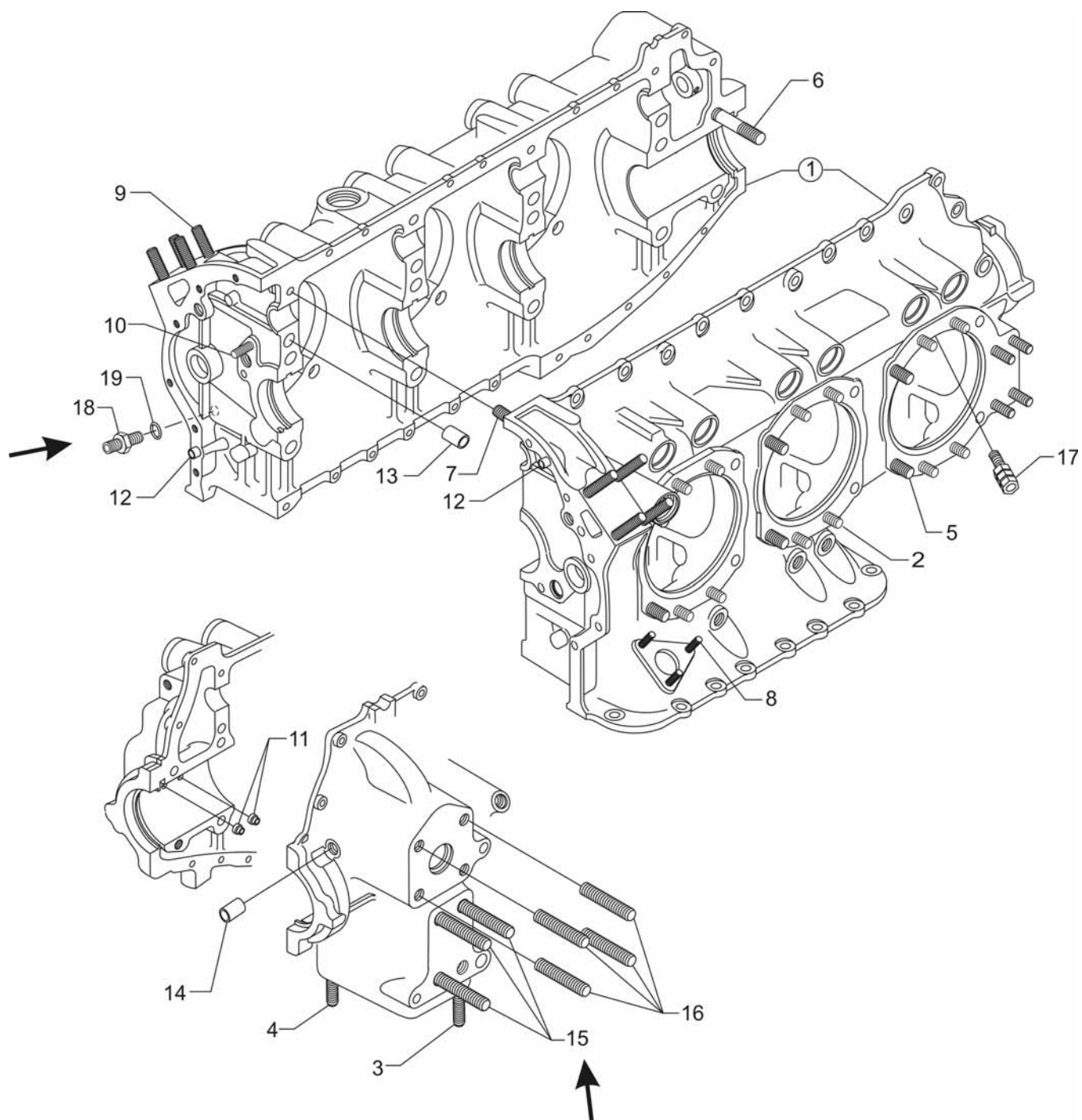
When ordering oversize and undersize parts, be sure to specify the required oversize and undersize dimension along with the proper part number. For example, to order bearing P/N LW-14830 in .003 undersize, order P/N LW-14830-M03. Oversize code letter is "P" while undersize code letter is "M". These letters 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	11F24021-S2	CRANKCASE ASSEMBLY (See Note)	1
2	38-13	STUD, 3/8-16 x 1-5/8 long	24
3	31C-12	STUD, 5/16-18 x 1-1/2 long	2
4	31C-13	STUD, 5/16-18 x 1-5/8 long	1
5	50-15	STUD, 1/2-13 x 1-7/8 long	12
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	10-8	STUD, No. 10-32 x 1.00 long	3
9	38-16	STUD, 3/8-16 x 2.00 long	8
10	01A23354	STUD, 5/16-18 x 1.00 long, drilled	1
11	69796	DOWEL, Crankshaft, front bearing	2
12	STD-514	DOWEL, 5/16 diameter x 1/2 long	2
13	STD-557	DOWEL, 1/2 diameter x 11/16 long	2
14	72158	BUSHING, Governor drive idler shaft	1
15	38-13	STUD, 3/8-16 x 1-5/8 long	3
16	31C-17	STUD, 5/16-18 x 2-1/8 long	4
17	73772	NOZZLE ASSEMBLY, Piston cooling	6
18	75739	NIPPLE, 3/8 flared tube	1
19	MS29512-06	“O” RING, 15/32 I.D. x 5/64 section	1

NOTE

This crankcase assembly is not available as a service item. Refer to Service Kits, Section 8, for applicable Crankcase Assembly and Governor Stud Kit Part Number.

**FIGURE 1. CRANKCASE ASSEMBLY**

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

FIG. REF. 2	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-18481	GASKET, Oil filler adapter	1
2	LW-18482	ADAPTER, Oil filler tube	1
3	STD-28	WASHER, No. 10 plain	3
4	STD-251	WASHER, No. 10 internal lock	3
5	STD-63	NUT, No. 10-32 plain	3
6	72059	GASKET, Oil level gage	1
7	LW-15970	TUBE, Oil level gage, short	1
8	74068	RING, Oil level gage plug	1
9	LW-16783-27	GAGE ASSEMBLY, Oil level	1
10	LW-14688	BRACKET, Engine mounting, dynafocal (bottom)	2
11	LW-18626	BRACKET ASSEMBLY, Engine mounting (left)	1
12	LW-18624	BRACKET ASSEMBLY, Engine mounting (right)	1
13	STD-1171	INSERT, 3/8-16 Heli-coil x 3/4 long	2
14	STD-33	WASHER, 3/8 plain	16
15	STD-678	WASHER, 3/8 lock, internal teeth	16
16	STD-596	NUT, 3/8-24 plain	16
17	LW-18760	EYE, Lifting	2
18	STD-678	WASHER, 3/8 lock, internal teeth	2
19	LW-38-1.13	BOLT, 3/8-16 x 1-1/8 long, hex. head	2
20	STD-33	WASHER, 3/8 plain	8



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	61084*	SPRING, Oil pressure relief valve	1
	68668*	SPRING, Oil pressure relief valve	1
	77467*	SPRING, Oil pressure relief valve	1
	LW-11713*	SPRING, Oil pressure relief valve	1
	LW-18085*	SPRING, Oil pressure relief valve	1
3	06E19769-1.25	GASKET, 1-1/4 I.D. x 1-1/2 O.D. x 3/32 annular	1
4	77808	VALVE ASSEMBLY, Oil pressure relief valve, adjustable	1
5	18E23886	BEARING, Crankshaft	6
6	18B23885	BEARING, Crankshaft, front	2
7	LW-15628**	SEAL, Crankshaft oil, solid	1
8	72091	RING, Oil seal, 23/64 I.D. x 7/64 diameter	2
9	15B26064	BODY, Hydraulic tappet	12

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

** - See latest revision of Service Instruction No. 1324 for installation.

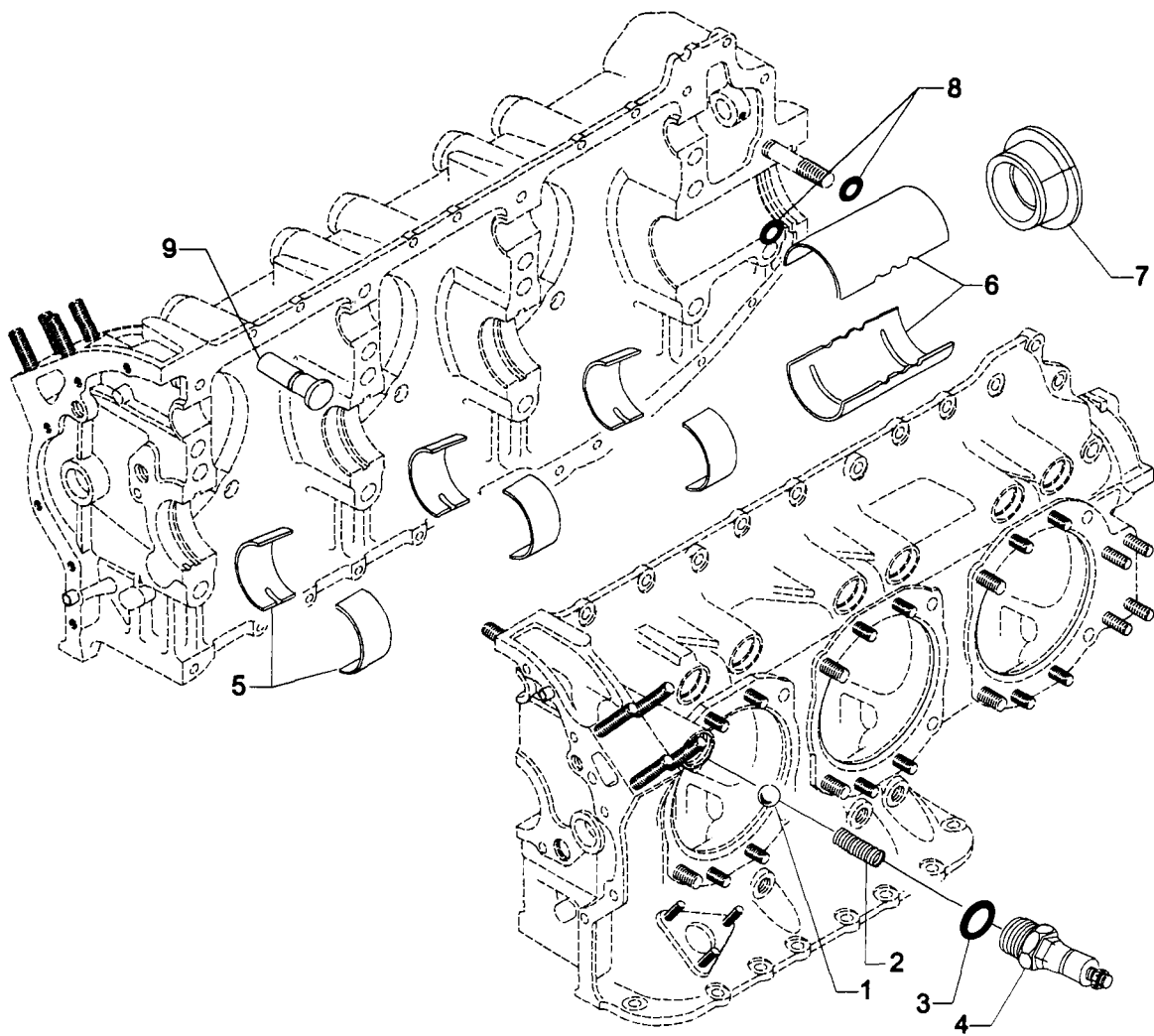


Figure 3. CRANKCASE RELATED PARTS

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

FIG. REF. 4	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	13F47738	CRANKSHAFT ASSEMBLY	1
1A	73810*	BUSHING, Crankshaft, dynamic counterweight	4
2	60945	PLUG, 1-1/4 O.D.	1
3	75656-S	BUSHING, Propeller flange, long	4
4	72155-S	BUSHING, Propeller flange, short	1
5	79024-S	BUSHING, Propeller flange, indexing	1
6	LW-19210**	COUNTERWEIGHT ASSEMBLY	2
7	71903-A♦	BUSHING, Dynamic counterweight	8
8	73648**	ROLLER, Dynamic counterweight, 5.1 order	2
9	76788**	ROLLER, Dynamic counterweight, 6.3 order	2
10	71907	WASHER, Dynamic counterweight	8
11	LW-14820	RING, Internal retaining	8
12	STD-1211	PLUG, 2.00 diameter expansion	1
13	13S19648†	GEAR, Crankshaft	1
14	LW-18638	LOCKPLATE, Crankshaft gear	1
15	STD-2247	BOLT, 5/16-24 x 1-3/4 long	1
16	LW-19340	CAMSHAFT ASSEMBLY	1
17	76118	SPACER, Tachometer shaft centering	1
18	76155	SHAFT ASSEMBLY, Tachometer	1
19	LW-18667	PIN, 3/16 diameter x 2-21/64 long	1
20	STD-2231	RING, Internal retaining	1
21	LW-16471	SUPPORT ASSEMBLY, Starter ring gear	1
22	72566	GEAR, Starter ring, 12/14 pitch	1

* - See latest revision of Service Instruction No. 1142 for application.

** - See latest revision of Service Instruction No. 1012 for application.

♦ - See latest revision of Service Instruction No. 1143 for application.

† - See latest revision of Service Bulletin No. 475 for application.

CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY KIT P/N 05K47788 AVAILABLE.

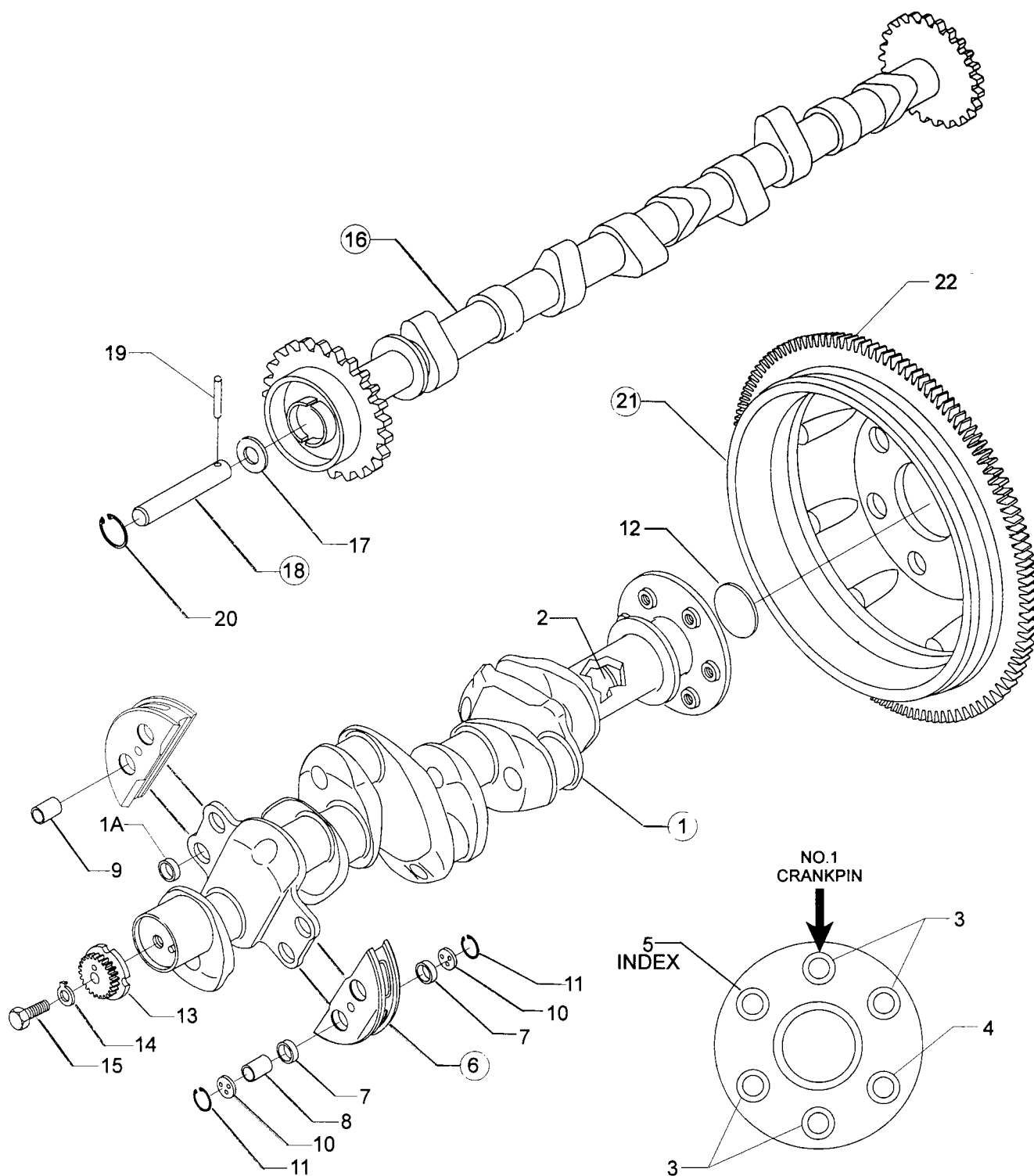


Figure 4. CRANKSHAFT, COUNTERWEIGHT, CAMSHAFT AND RELATED PARTS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP PROPELLER GOVERNOR DRIVE ASSEMBLY

FIG REF. 5	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	LW-10442	GEAR, Propeller governor driven	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 (.0585 - .0595 thick)	AR
	73250	WASHER, Thrust (.062 - .063 thick)	AR
	73251	WASHER, Thrust (.0655 - .0665 thick)	AR
	73252	WASHER, Thrust (.069 - .070 thick)	AR
	01L21418	WASHER, Thrust (.055 - .056 thick)	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 1/32 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	20
14	STD-475	WASHER, 5/16 lock, internal teeth	4
15	STD-1410	NUT, 5/16-18 plain	4

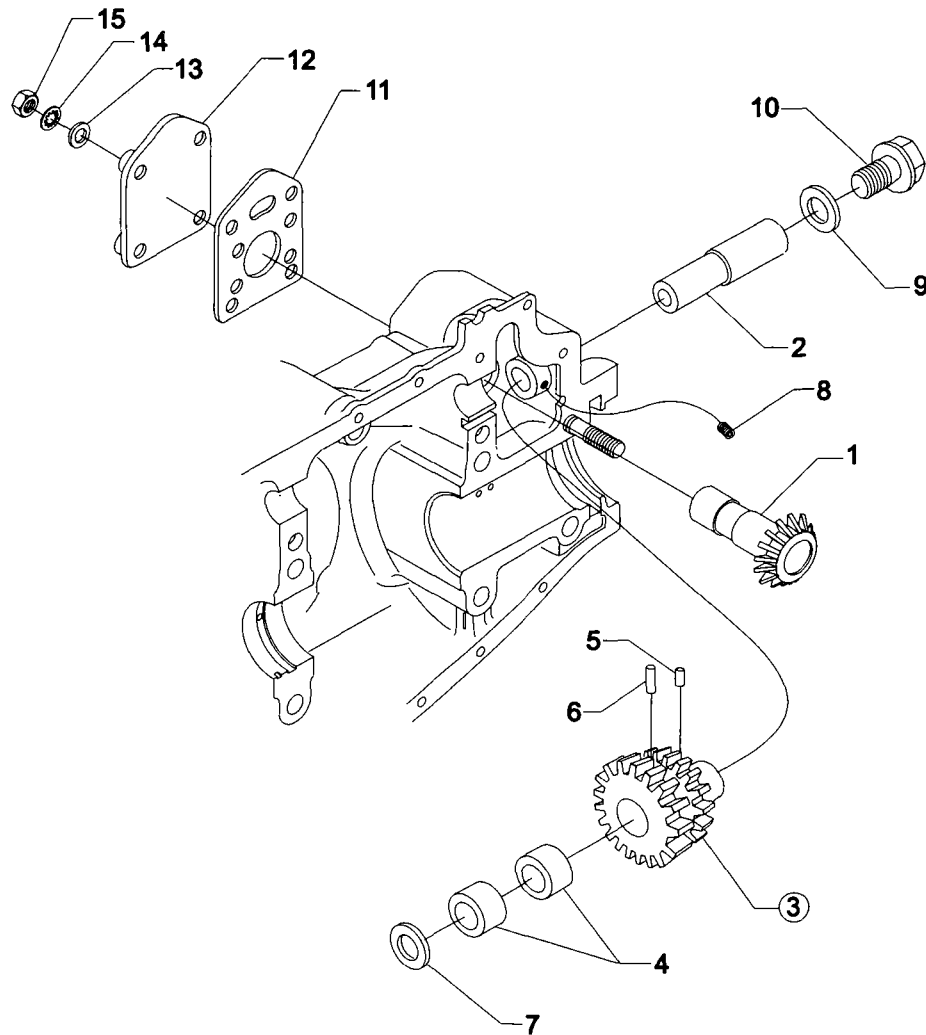


Figure 5. PROPELLER GOVERNOR DRIVE ASSEMBLY

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

FIG REF. 6	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
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	1
6	LW-25-0.63	BOLT, 1/4-20 x 5/8 long, hex. hd.	2
7	71664	GEAR ASSY., Fuel pump idler	1
8	77309	BUSHING, Crankshaft idler gear	1
9	70474	WASHER, Fuel pump idler, 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	1
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	OIL SEAL, 3/4 I.D. x 1-3/8 O.D.	1



CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CRANKCASE ATTACHING PARTS

FIG. REF. 7	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	60803	STRAP, Lifting	1
2	LW-25-2.25	BOLT, 1/4-20 x 2-1/4 long, hex. head	1
3	LW-25-2.00	BOLT, 1/4-20 x 2.00 long, hex. head	1
4	LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. head	1
5	LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head	10
6	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
7	STD-8	WASHER, 1/4 plain	30
8	STD-160	WASHER, 1/4 lock, internal teeth	13
9	STD-1411	NUT, 1/4-20 plain	14
10	LW-25S1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head, drilled end	6
11	STD-8	WASHER, 1/4 plain	6
12	STD-2249	NUT, 1/4-20 slotted shear	6
13	STD-33	WASHER, 3/8 plain	1
14	STD-872	NUT, 3/8-24 slotted	1
15	AN6-34A	BOLT, 3/8-24 x 3-37/64 long, hex. head	1
16	STD-33	WASHER, 3/8 plain	4
17	STD-678	WASHER, 3/8 lock, internal teeth	2
18	STD-596	NUT, 3/8-24 plain	2
19	76220	STUD, 1/2-20 x 10-45/64 long	8
20	LW-31-2.75	BOLT, 5/16-18 x 2-3/4 long, hex. head	1
21	LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	3
22	STD-35	WASHER, 5/16 plain	4
23	STD-475	WASHER, 5/16 lock, internal teeth	4

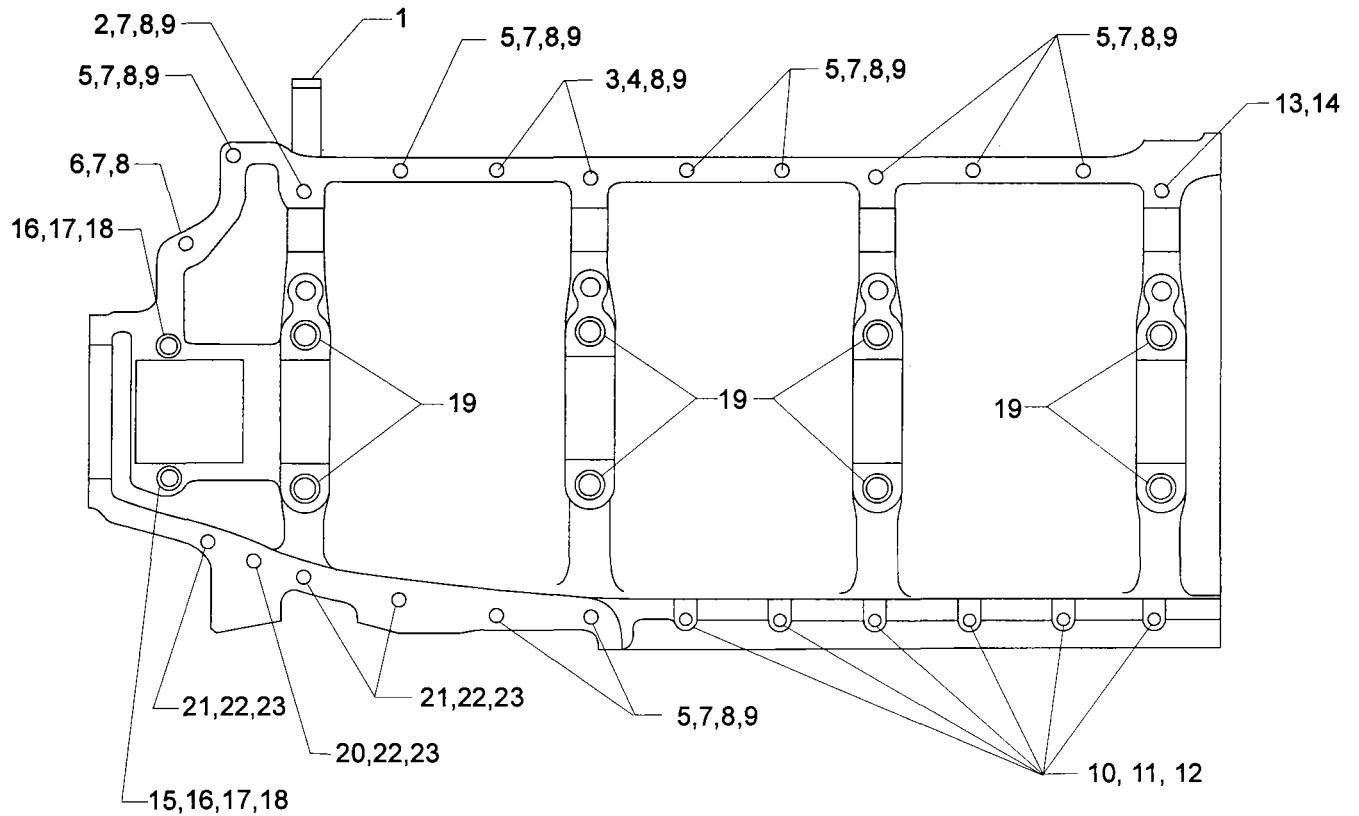
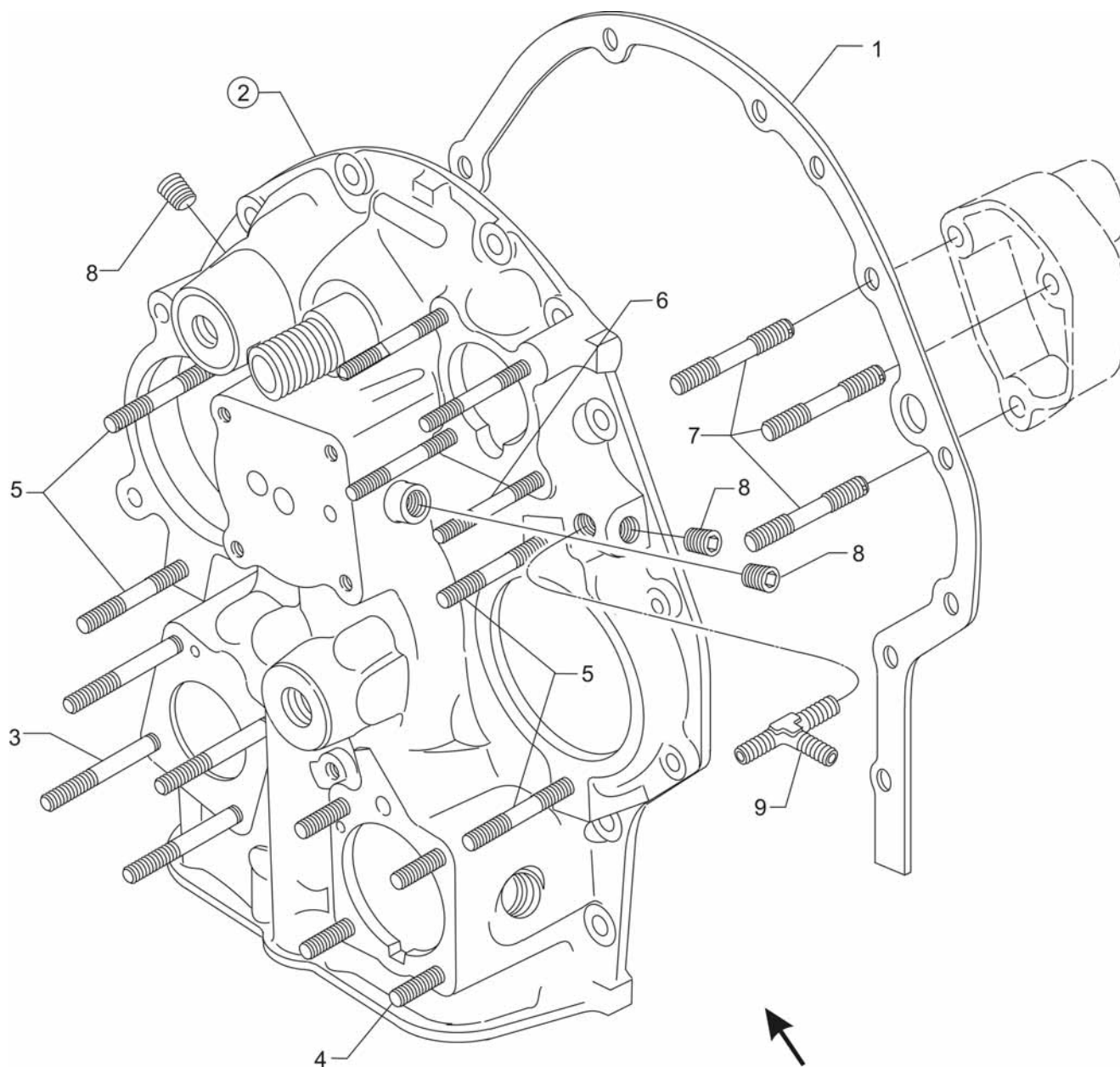


Figure 7. CRANKCASE ATTACHING PARTS

ACCESSORY HOUSING AND RELATED PARTS
ACCESSORY HOUSING ASSEMBLY

FIG. REF. 8	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	73818	GASKET, Accessory housing	1
2	21C21542-04	HOUSING ASSEMBLY, Accessory	1
3	31C-19	STUD, 5/16-18 x 2-3/8 long	4
4	31C-12	STUD, 5/16-18 x 1-1/2 long	4
5	31C-21	STUD, 5/16-18 x 2-5/8 long	4
6	25C-21	STUD, 1/4-20 x 2-5/8 long	4
7	31CD-20	STUD, 5/16-18 x 2-1/2 long, drilled	3
8	1102	PLUG, 1/8-27 NPT, Allen head	3
9	LW-18696	TEE, 1/4 tube (restricted on run)	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	51A22618	BODY ASSEMBLY, 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	1
5	51C23290*	IMPELLER ASSEMBLY, Oil pump, driven	1
6	51C23275	IMPELLER, Oil pump, driven	1
7	76784	SHAFT, Oil pump drive	1
8	51B23274*	IMPELLER, Oil pump, driving	1
9	STD-35	WASHER, 5/16 plain	3
10	STD-1420	NUT, 5/16-18 slotted	3
11	LW-14260	SEAL, Tachometer drive, oil	1
12	STD-8	WASHER, 1/4 plain	12
13	STD-160	WASHER, 1/4 lock, internal teeth	12
14	LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	9
15	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
16	LW-25-1.44	BOLT, 1/4-20 x 1-7/16 long, hex. head	2

* - Sold in complete sets (Kit P/N 05K23463).



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	62E22584	FUEL PUMP ASSEMBLY	1
3	62E23189	FUEL PUMP (RG9080-J8A/M)	1
4	76422	ELBOW, 90° tube to male (inlet)	1
5	78523	ELBOW, 1/2 NPT to 3/8 tube , 90° (outlet)	1
6	02G21382	NIPPLE, Nozzle pressure gauge	1
7	STD-35	WASHER, 5/16 plain	4
8	STD-475	WASHER, 5/16 lock, internal teeth	4
9	STD-1410	NUT, 5/16-18 plain	4

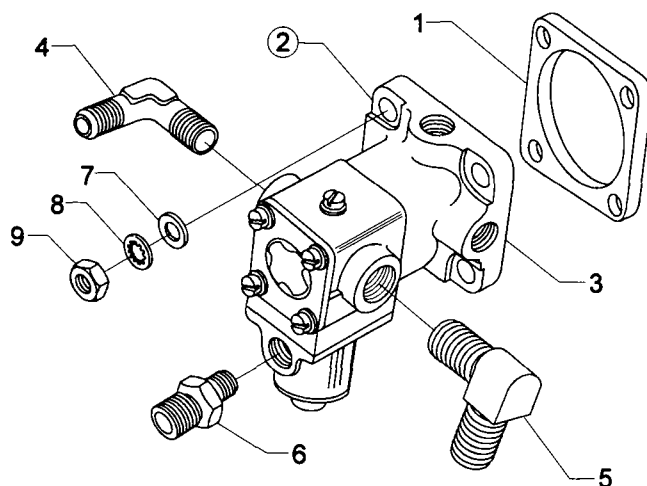


Figure 10. FUEL PUMP ASSEMBLY AND ATTACHING PARTS

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

FIG REF. 11	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	61183	GASKET, Accessory adapter	1
2	67536	ADAPTER ASSY., Vacuum pump	1
3	06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide	1
4	STD-1774	PIN, 1/8 dia. x 1/4 long	1
5	72974	GEAR ASSY., Vacuum pump driven	1
6	71596	WASHER, Accessory drive 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, 7/8 O.D. x 5/8 I.D. x 3/32 annular	1
13	AN844-12D	ELBOW, 3/4 NPT to 3/4 I.D. hose	1
14	AN816-8	NIPPLE, 1/2 flared tube	2
15	62417	PLUG, Oil cooler by-pass	1

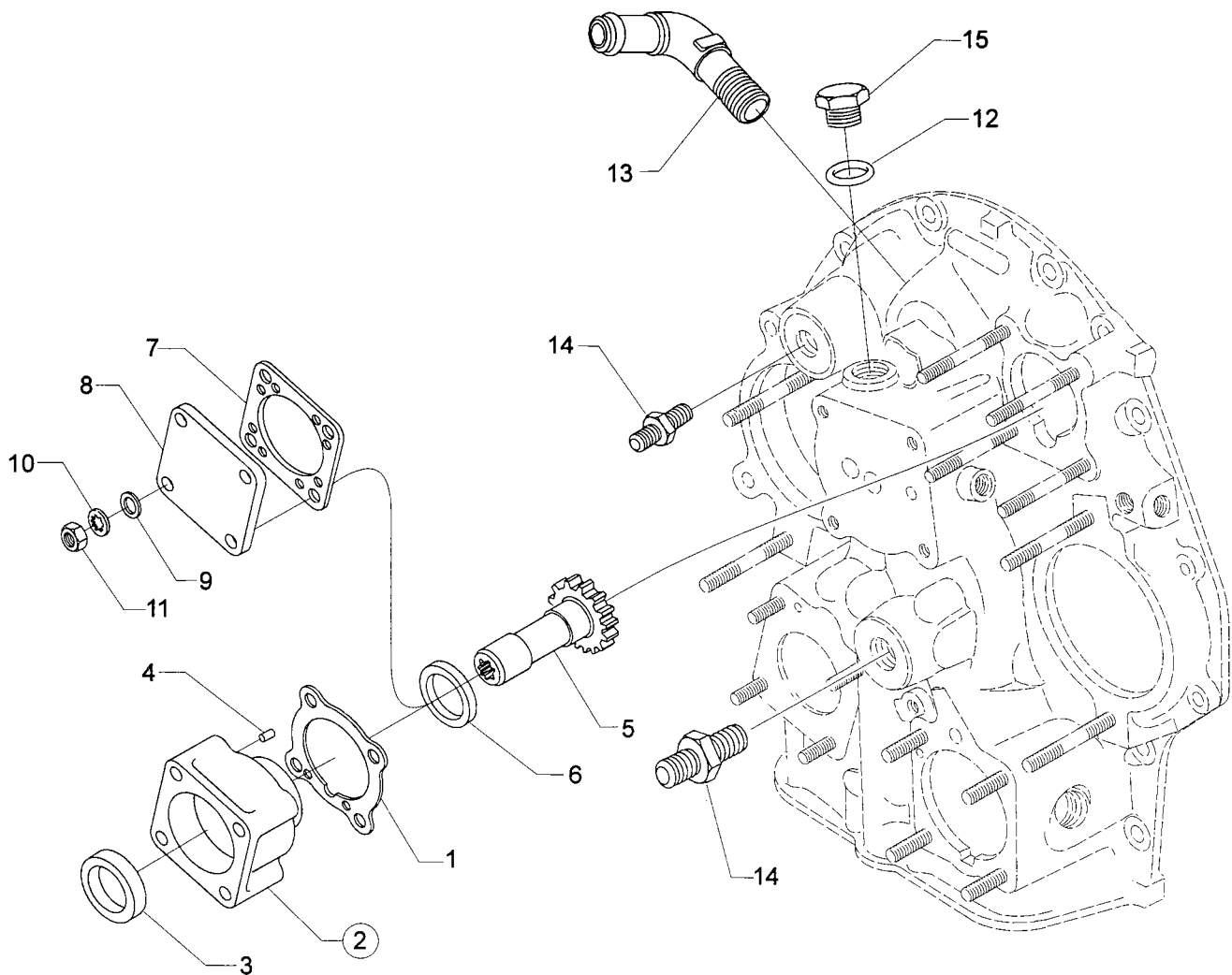


Figure 11. VACUUM PUMP DRIVE, OIL COOLER AND BREATHER FITTINGS

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

FIG REF. 12	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	68315	GASKET, Accessory drive adapter	1
2	29A21372	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, Hydraulic pump	1
8	LW-RF2.239-.070	RING, Oil seal	1
9	LW-15853	SHAFT, Hydraulic pump drive	1
10	STD-95	KEY, 1/8 x 1/2 Woodruff	1
11	LW-15550	GENERATOR PUMP	1
12	06A19956	OIL SEAL, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide	1
13	77825	SHAFTGEAR, Hydraulic pump drive	1
14	77708	WASHER, Retaining shaftgear	1
15	MS16562-28	PIN, 3/32 dia. x 3/4 long, slotted	1
16	STD-8	WASHER, 1/4 plain	4
17	STD-160	WASHER, 1/4 lock, internal teeth	4
18	STD-1411	NUT, 1/4-20 plain	4
19	25C-12	STUD, 1/4-20 x 1-1/2 long	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	STD-1411	NUT, 1/4-20 plain	4

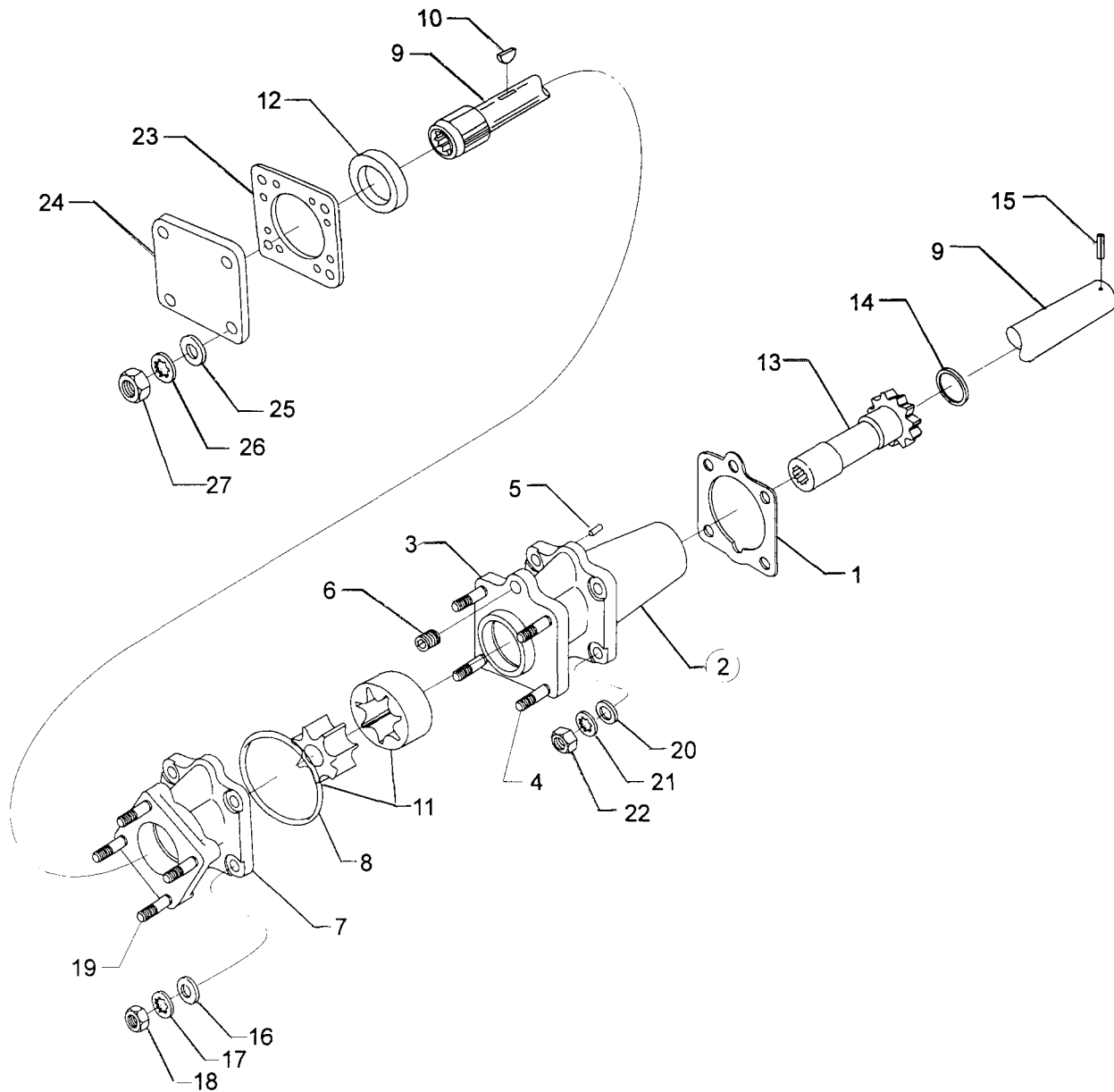


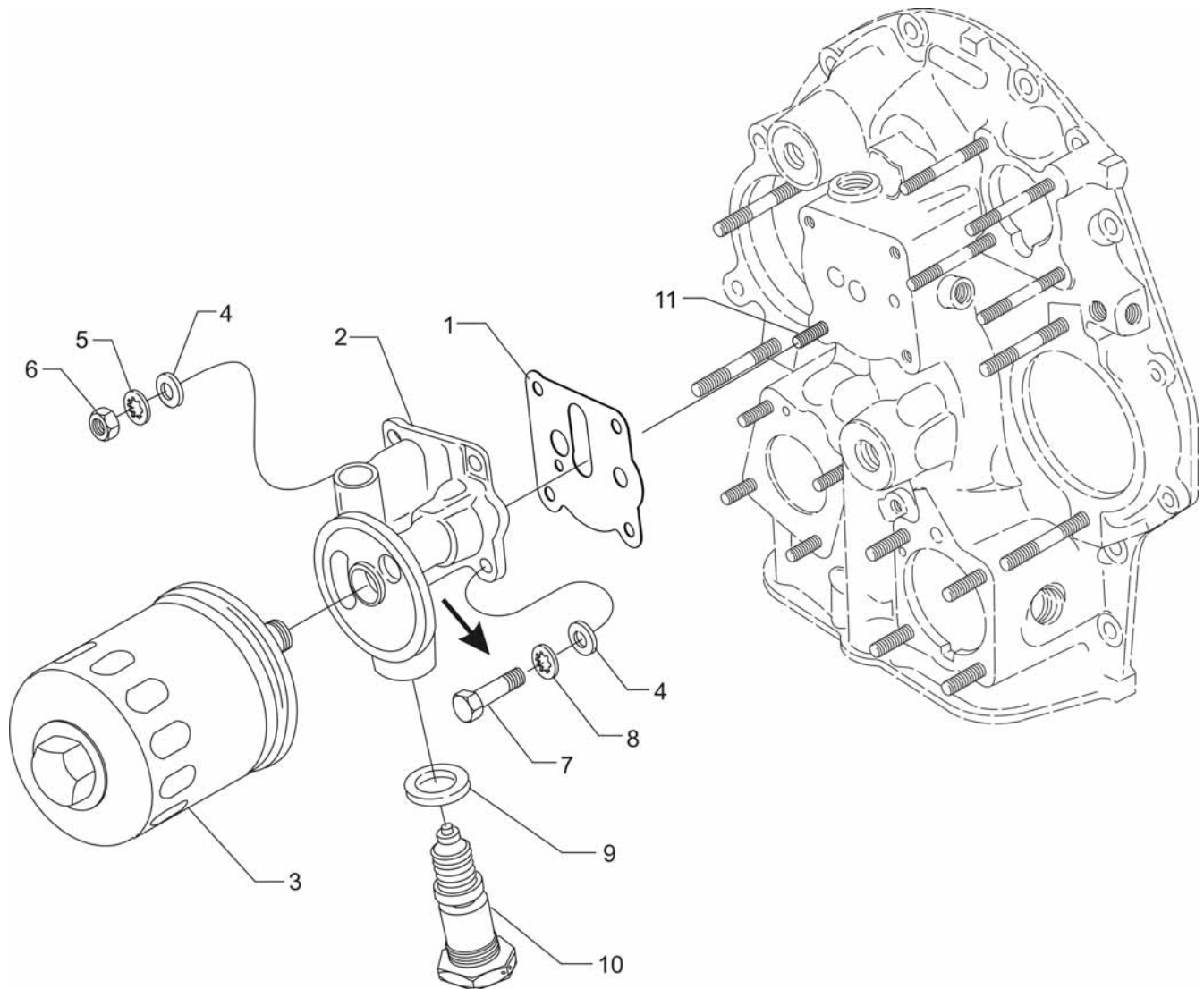
Figure 12. TURBO SCAVENGE PUMP AND HYDRAULIC PUMP DRIVE AND COVER

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

FIG. REF. 13	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	06B23862*	GASKET, Oil filter adapter	2
2	77852	OIL FILTER BASE ASSEMBLY	1
3	LW-13215**	OIL FILTER, Lycoming	1
4	STD-8	WASHER, 1/4 plain	4
5	STD-160	WASHER, 1/4 lock, internal teeth	1
6	STD-1411	NUT, 1/4-20 plain	1
7	LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head	3
8	STD-160	WASHER, 1/4 lock, internal teeth	3
9	53E22144	VALVE ASSEMBLY, Temperature control oil cooler	1
10	76510	GASKET, Valve assembly	1
11	25C-10	STUD, 1/4-20 x 1-1/4 long	1

* - Extra gasket shipped as loose part with engine.

** - See latest revision of SSP-885 for oil filter kits and replacement filters.

**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-13422-S	CONNECTING ROD ASSEMBLY	6
2	LW-13923	BUSHING, Connecting rod	6
3	14S23889*	BOLT, Connecting rod	12
	LW-12596**	BOLT, Connecting rod	12
4	LW-12186	NUT, Connecting rod bolt	12
5	LW-16143	BEARING, Connecting rod	12
6	LW-10545-S	PISTON, Compression ratio, 7.30:1	6
7	LW-14078	PIN, Piston	6
8	72198	PLUG, Piston pin	12
9	74241	RING, Piston, compression	12
10	14H21950	RING, Piston, oil regulating, expander type	6

* - Lycoming use only.

** - Service use only.

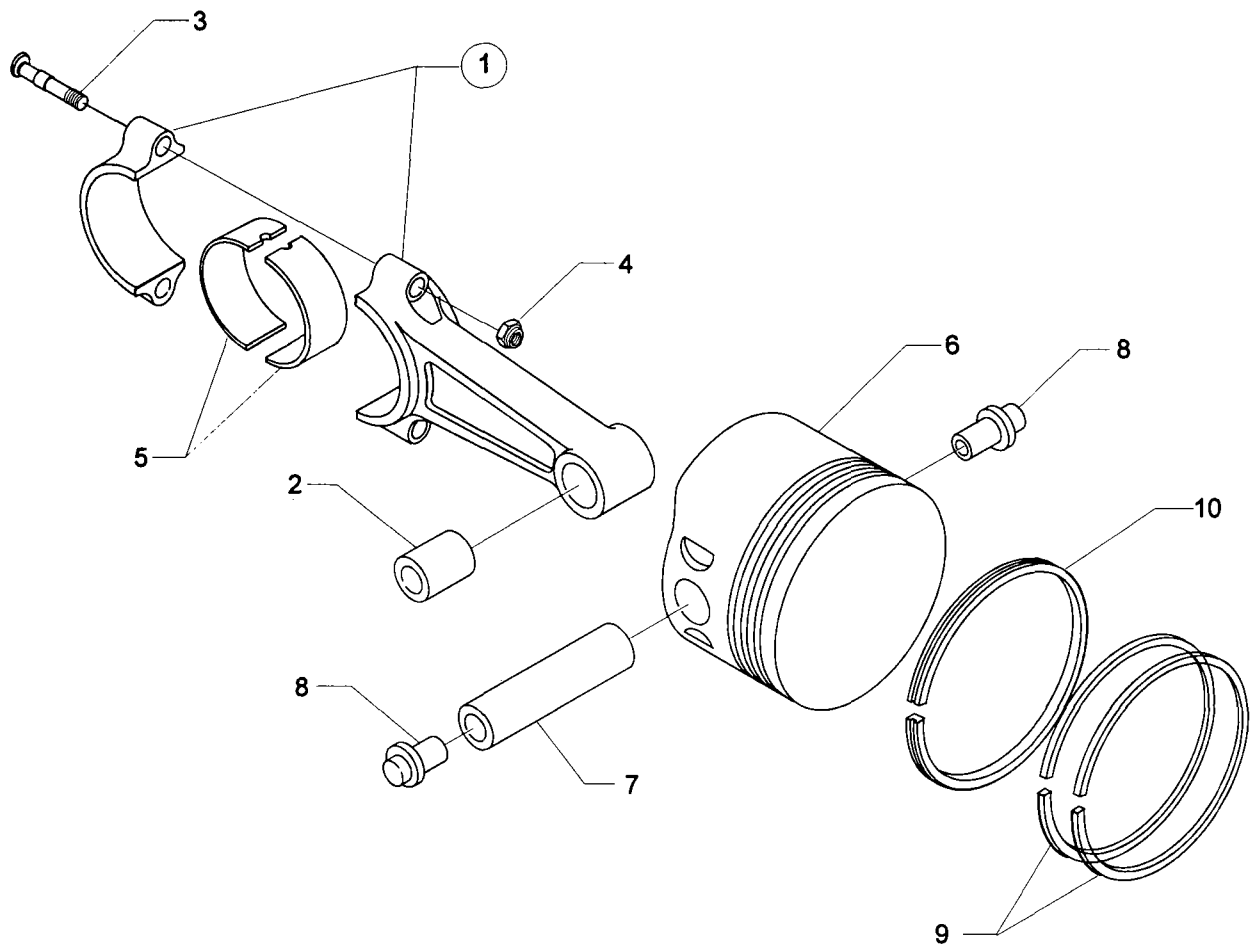


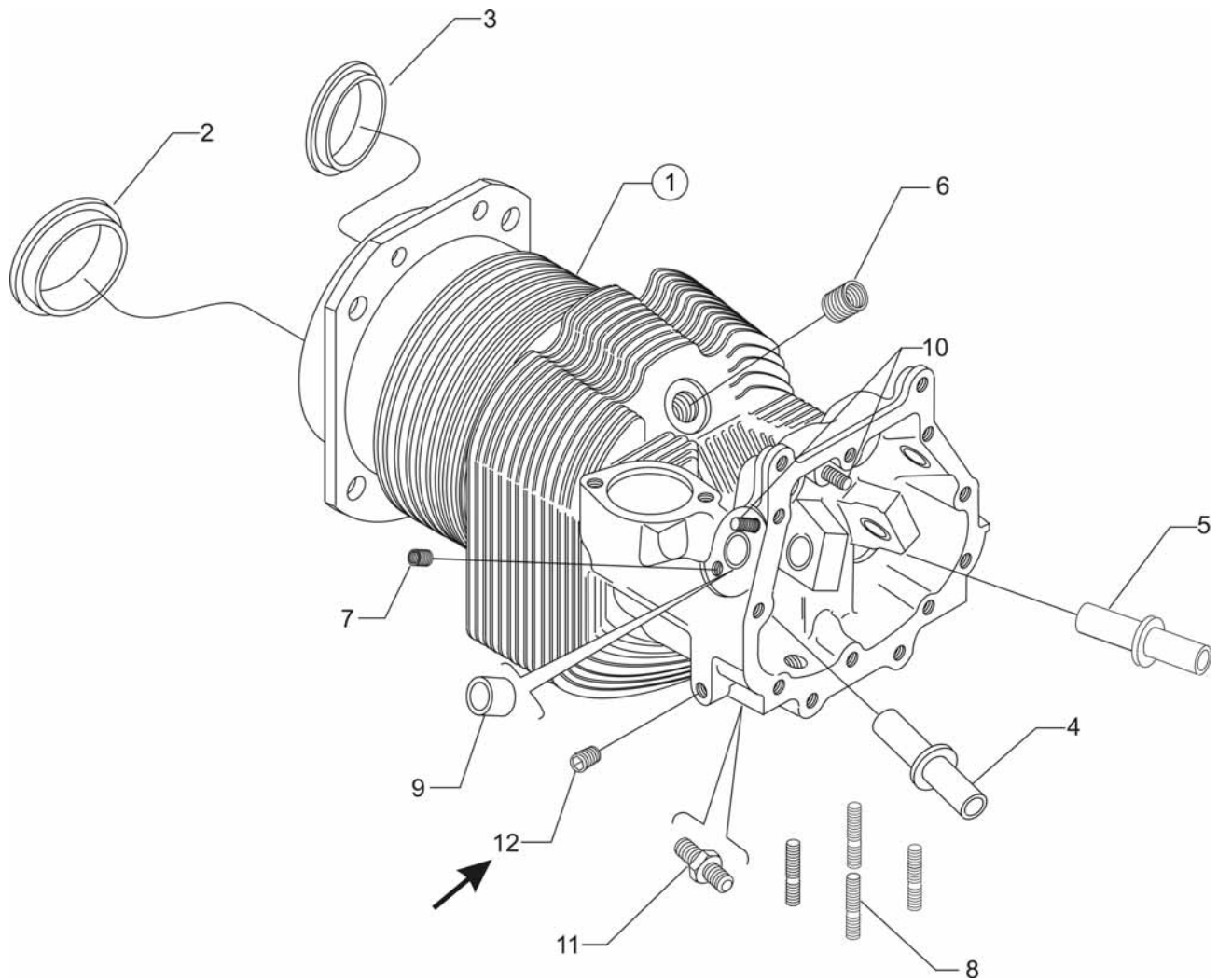
Figure 14. CONNECTING RODS, PISTONS AND RING ASSEMBLIES

CYLINDER, PISTON AND VALVE TRAIN
CYLINDER ASSEMBLY

FIG. REF. 15	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	16A19516	CYLINDER AND HEAD ASSEMBLY	6
2	LW-19042	SEAT, Intake valve	6
3	16T19468	SEAT, Exhaust valve	6
4	LW-18753*	GUIDE, Intake valve, flanged	6
5	LW-18833*	GUIDE, Exhaust valve, flanged	6
6	69260	INSERT, Spark plug, 18-1.5MM	12
7	72706	INSERT, 1/4-20 x 3/8 long	12
8	25C-11	STUD, 1/4-20 x 1-3/8 long	24
9	66670	BUSHING, Rocker shaft, inner	24
10	25C-8	STUD, 1/4-20 x 1.00 long	18
11	AN816-6	NIPPLE, 1/4 NPT to 3/8 tube	6
12	1102**	PLUG, 1/8-27 NPT, Allen head	6

* - See latest revision of Service Instruction No. 1256.

** - Assemble in cylinder head.

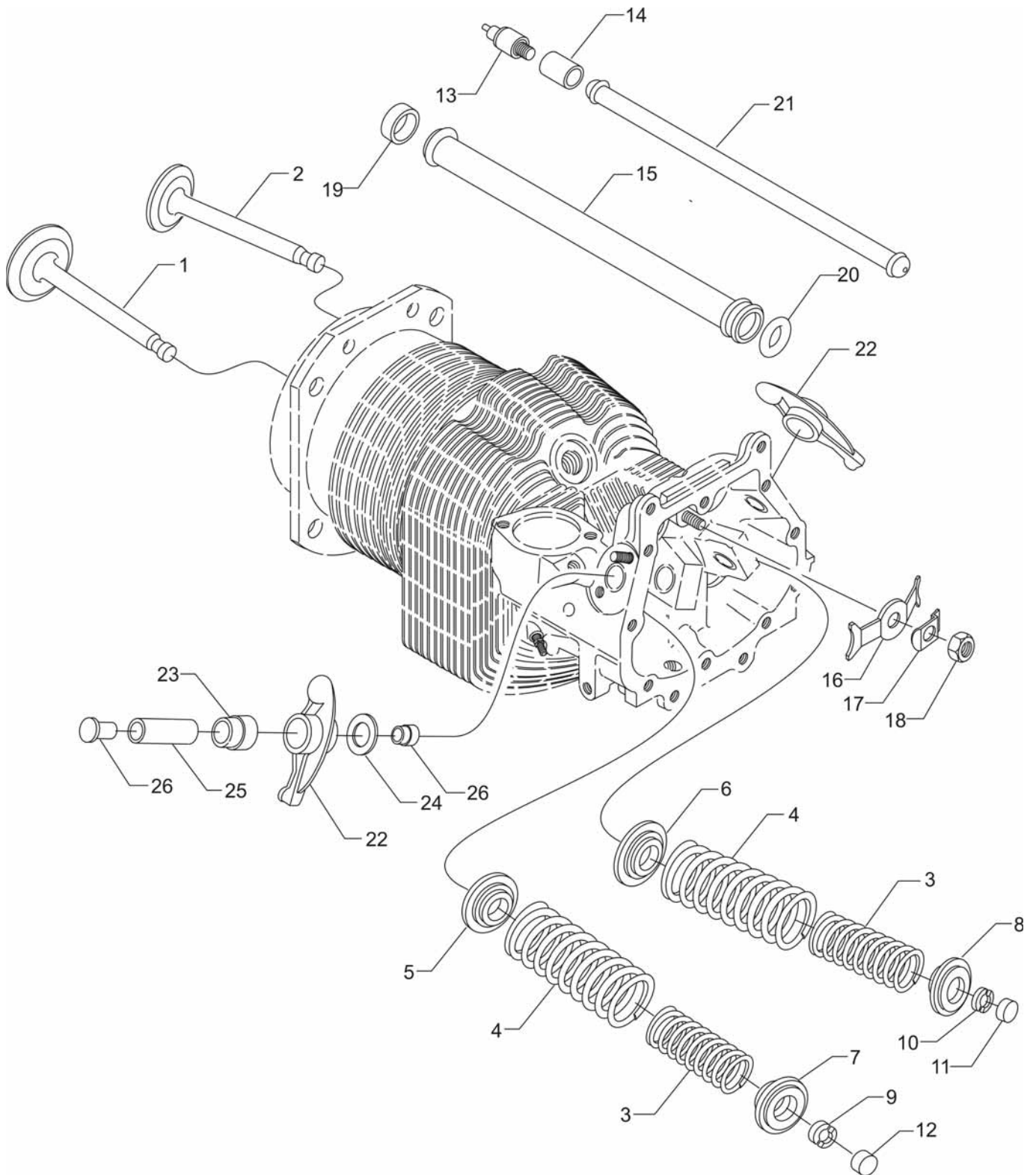
**FIGURE 15. CYLINDER ASSEMBLY**

CYLINDER, PISTON AND VALVE TRAIN
VALVE ASSEMBLY AND RELATED PARTS

FIG. REF. 16	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	17A23942	VALVE, Intake	6
2	17B23944	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	6
8	LW-16475	SEAT, Valve spring, upper exhaust	6
9	72050	KEY, Valve intake	12
10	17C21191	KEY, Valve exhaust	12
11	17C19386	CAP, Valve stem, exhaust (rotator type)	6
12	62388	CAP, Valve stem	6
13	15B26066	PLUNGER ASSEMBLY, Hydraulic tappet	12
14	15B21319	SOCKET, Hydraulic tappet	12
15	LW-18944	TUBE, Push rod shroud	12
16	LW-14995	SPRING, Shroud tube	6
17	LW-12272	LOCKPLATE, Shroud tube	6
18	STD-1411	NUT, 1/4-20 plain	6
19	LW-18661	SEAL, Shroud tube	12
20	70310	SEAL, Shroud tube	12
21	15F19957-63*	ROD ASSEMBLY, Push	AR
	15F19957-64*	ROD ASSEMBLY, Push	AR
	15F19957-65*	ROD ASSEMBLY, Push	AR
	15F19957-66*	ROD ASSEMBLY, Push	AR
	15F19957-67*	ROD ASSEMBLY, Push	AR
	15F19957-68*	ROD ASSEMBLY, Push	AR
22	15F23345**	ROCKER ASSEMBLY, Valve	12
23	74389	BUSHING, Valve rocker	12
24	71549	WASHER, Valve rocker, thrust	12
25	72626	SHAFT, Valve rocker	12
26	LW-11665	THRUST BUTTON, Rocker shaft	24

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

** - Due to the size of the area where the part number is stamped, the last five digits may be all that is shown (23345).

**FIGURE 16. VALVE ASSEMBLY AND RELATED PARTS**

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

FIG REF. 17	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	66732	GASKET, Valve rocker shaft cover	12
2	72710	COVER, Valve rocker shaft	12
3	72709	SCREW, 1/4-20 x 5/8 long	12
3A	75233	"O" RING	12
4	STD-160	WASHER, 1/4 lock, internal teeth	12
5	STD-1411	NUT, 1/4-20 plain	12
6	76036	GASKET, Rocker box cover	6
7	LW-14433	COVER ASSY., Rocker box	6
8	STD-1925	SCREW, 1/4-20 x 5/8 long, pan. head	48
9	74494	PLATE, Spark plug reach caution	6
10	71481	RING, Oil seal, 3/32 dia. x 4-27/32 I.D.	6
11	77906	SPACER, 33/64 I.D. x 7/8 O.D. x 1/8 thick	2
12	74887	SPACER, 33/64 I.D. x 7/8 O.D. x 3/8 thick	2
13	383-B	NUT, 3/8-24 plain	24
14	STD-2090	NUT, 1/2-20 plain	28
15	STD-684	NIPPLE, Straight, 3/8 I.D. hose	6
16	STD-2180	HOSE, 3/8 I.D. x 1-13/16 long	6
17	LW-15592-5-05	CLAMP, Hose	12
18	LW-18555	TUBE ASSY., Cyl. hd. oil drain, cyl. # 1	1
19	17T19439	TUBE ASSY., Cyl. hd. oil drain, cyl. # 2	1
20	LW-18557	TUBE ASSY., Cyl. hd. oil drain, cyl. # 3,4,5,6	4
21	LW-18832	BAFFLE ASSY., Intercylinder	4
22	71610	HOOK, Intercylinder baffle retainer	4
23	71611	RETAINER, Intercylinder baffle	4

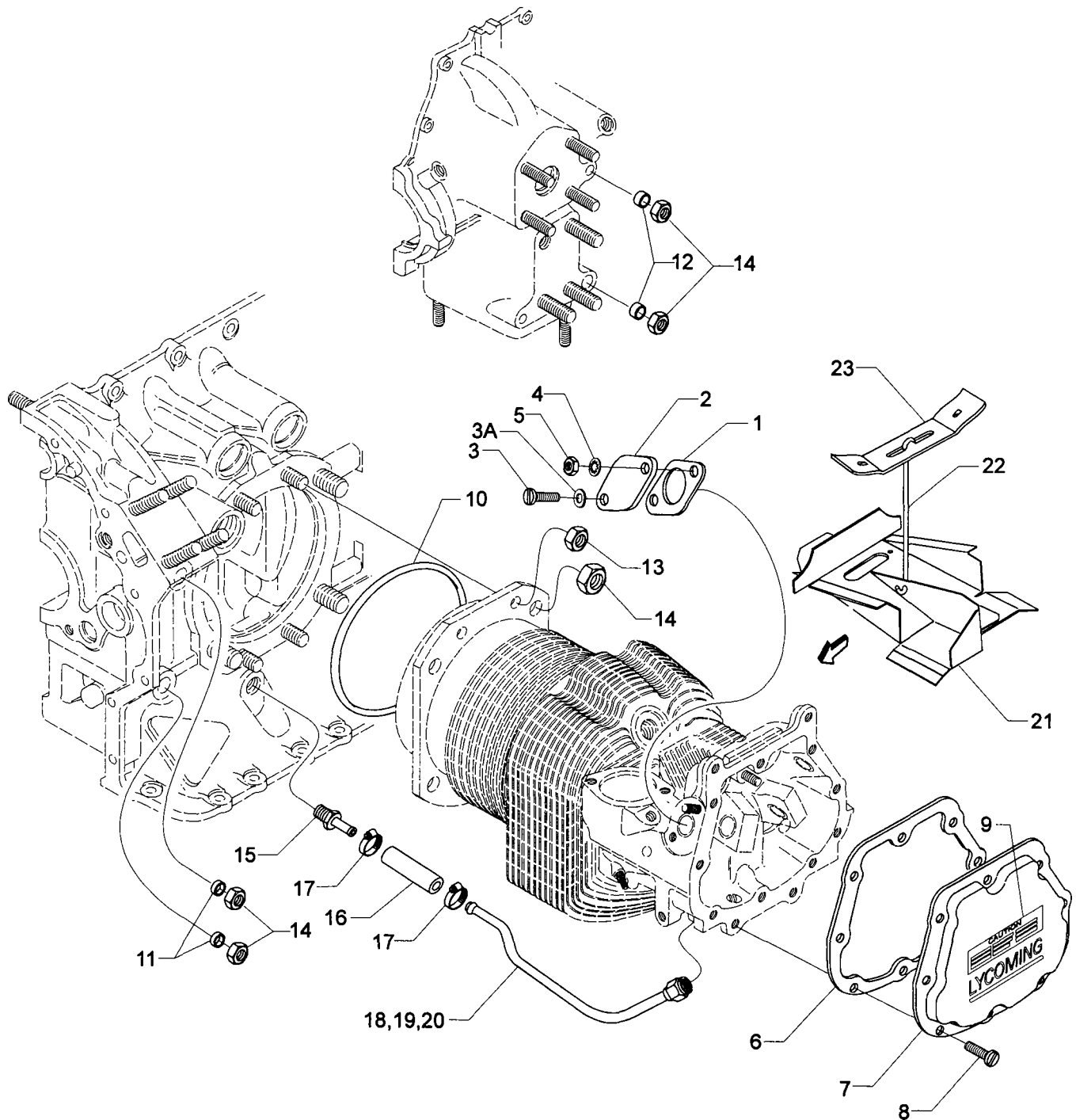


Figure 17. CYLINDER RELATED PARTS

IGNITION SYSTEM**PRESSURIZED MAGNETOS (SLICK), MAGNETO DRIVES, HARNESES AND SPARK PLUGS**

FIG. REF. 18	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	68H22624	CUSHION, Magneto drive	4
2	LW-19096	GEAR RETAINER ASSEMBLY	1
3	LW-19102	GEAR RETAINER ASSEMBLY	1
4	67542	BALL BEARING	2
5	62224	GASKET, Magneto adapter	2
6	LW-12707	ADAPTER, Magneto, left, impulse coupling	1
7	LW-13926	ADAPTER, Magneto, right	1
8	LW-12681	GASKET, Magneto	2
9	66LC35SDNP	MAGNETO, Left and right, Slick Model No. 6361	2
10	67J20608P	HARNESS ASSEMBLY, Right, Slick P/N M-2966	1
11	67J20609-P	HARNESS ASSEMBLY, Left, Slick P/N M-2965	1
12	66M21195	CLAMP, Magneto	4
13	STD-475	WASHER, 5/16 lock, internal teeth	4
14	STD-1410	NUT, 5/16-18 plain	4
15	STD-713	COTTER PIN, 3/32 diameter x 3/4 long	2
16	STD-2007	WASHER, 3/8 diameter seal	1
17	STD-33	WASHER, 3/8 plain	7
18	LW-13227	ADAPTER, Magneto Pressurization	1
19	LW-13226	NUT, 3/8-16 plain	1
20	AN825-4	TEE, 1/4 flared tube x 1/8 NPT	1
21	LW-12798-4S190	HOSE ASSEMBLY, 1/4 hose, straight	1
22	LW-12878-4S200	HOSE ASSEMBLY, 1/4 hose, 45° elbow	1
23	66N21020	VALVE ASSEMBLY, Relief	1
24	MS29512-04	“O” RING	1
25	MS20822-4	ELBOW, 1/4 tube to 1/8 NPT, 90°	1
26	AN816-4	NIPPLE, 1/8 NPT to 1/4 tube	1
27	1182-H7*	SPARK PLUG, Champion RHB37E	12
	1182-Q4*	SPARK PLUG, Unison URHB37E	12
**	01P29762-4	BAG, Magneto harness attaching	1

* - These spark plugs are used in current production. See latest revision of Service Instruction No. 1042 for complete listing of all approved spark plugs.

** - See Page 4-2 for a breakdown of individual parts contained in the magneto and harness attaching parts bag. These parts to be attached by customer per engine line drawing included in each bag.

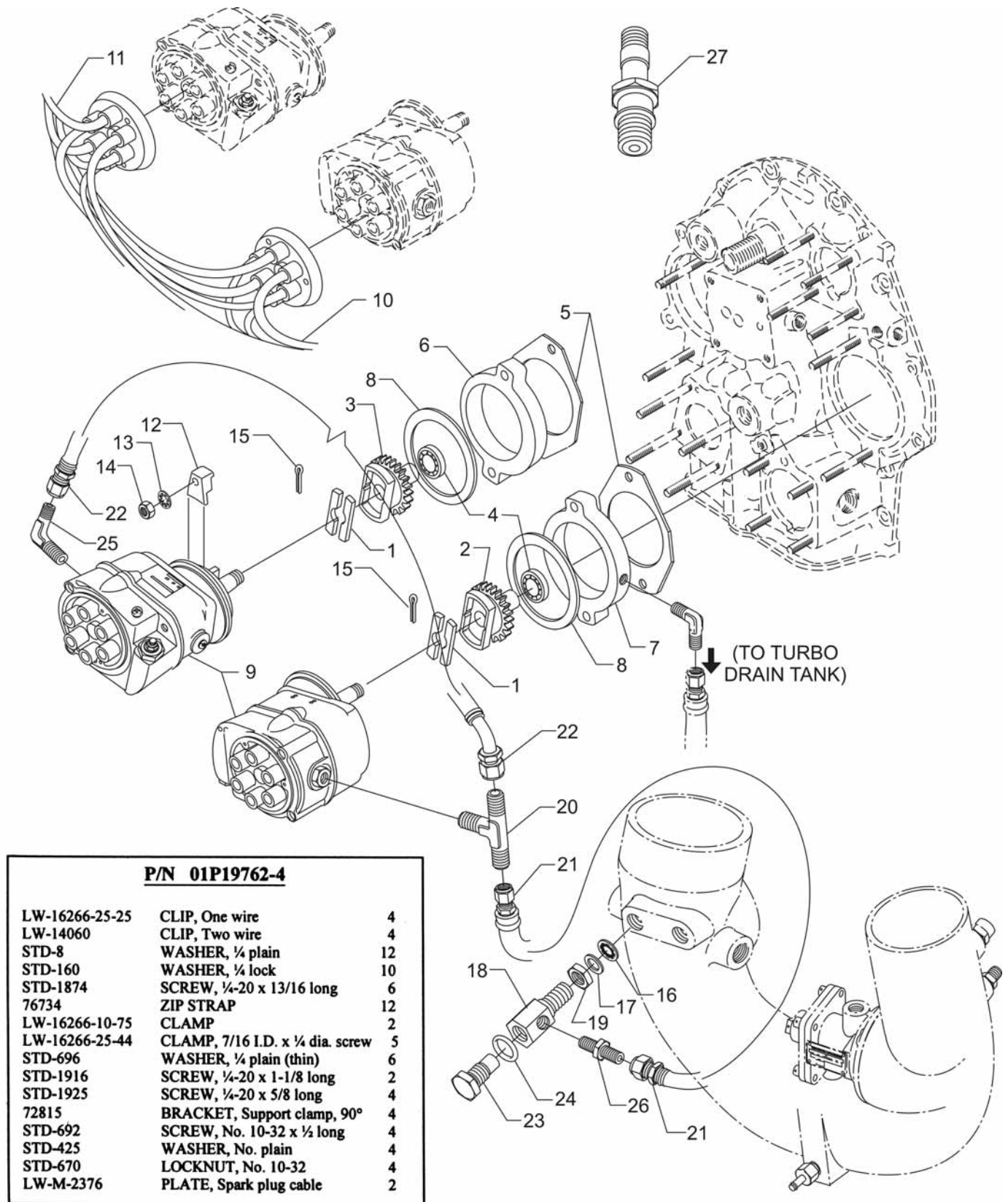


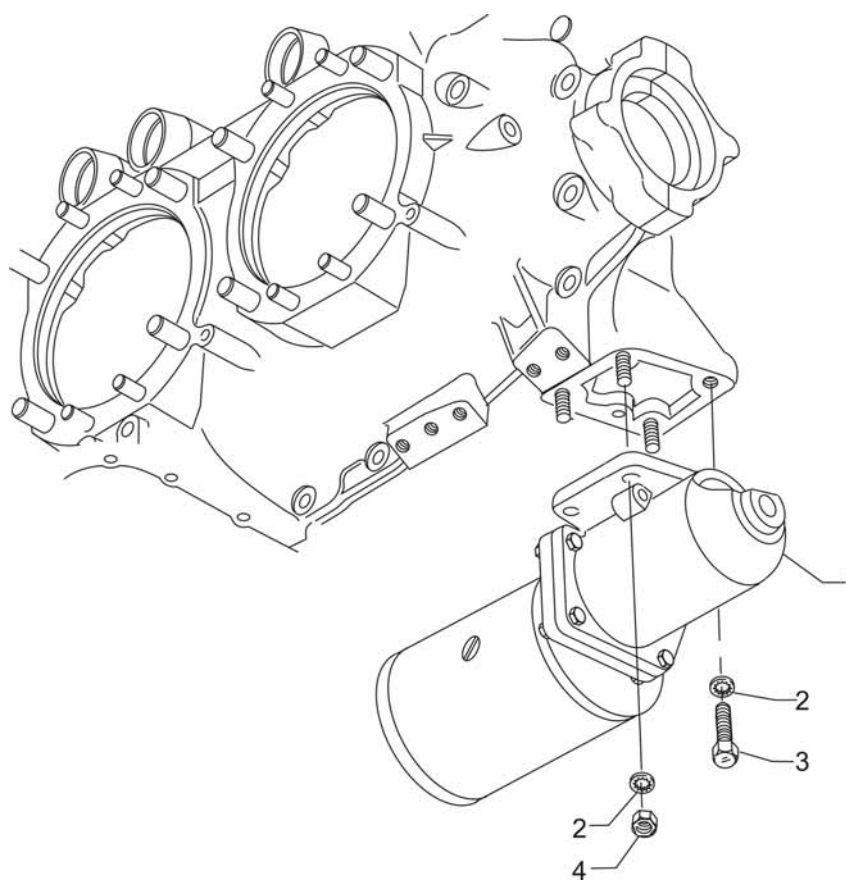
FIGURE 18. PRESSURIZED MAGNETOS (SLICK), MAGNETO DRIVES, HARNESSES AND SPARK PLUGS

ELECTRICAL SYSTEM
PRESTOLITE STARTER AND ATTACHING PARTS

FIG. REF. 19	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	31B22105	STARTER, Sky-Tec (149-24LS)	1
2	STD-475	WASHER, 5/16 lock, internal teeth	4
3	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	1
4	STD-1410	NUT, 5/16-18 plain	3

NOTE

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

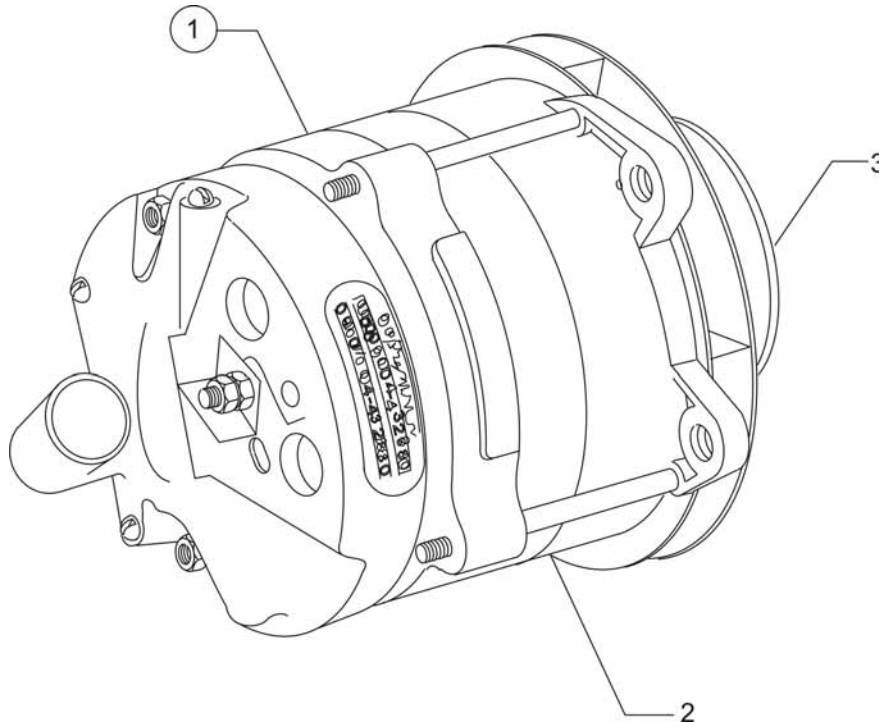

FIGURE 19. PRETOLITE STARTER AND ATTACHING PARTS

ELECTRICAL SYSTEM
ALTERNATOR ASSEMBLY AND BELT

FIG. REF. 20	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	32C19553	ALTERNATOR ASSEMBLY, 24 volt, 70 Amp.	1
2	LW-14326	ALTERNATOR, 24 volt (ALU-8421-LS)	1
3	36B19484	PULLEY, Alternator	1

NOTE

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

**FIGURE 20. ALTERNATOR ASSEMBLY AND BELT**

ELECTRICAL SYSTEM
ALTERNATOR MOUNTING AND ATTACHING PARTS

FIG. REF. 21	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	07A19474	BRACKET, Alternator	1
2	73383	LOCKPLATE, 5/16 bolt x 1.00 spacing	1
3	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. head	2
4	75380	LINK, Alternator adjusting	1
5	STD-35	WASHER, 5/16 plain	1
6	LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
7	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick	1
8	LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
9	07F23268	STRUT, Alternator support	1
10	LW-31H0.75	BOLT, 5/16-18 x 3/4 long, hex. head, drilled	1
11	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	1
12	AN6-17	BOLT, 3/8-24 x 1-61/64 long, hex. head	1
13	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	3
14	STD-872	NUT, 3/8-24 slotted	1
15	STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1
16	AN6-16	BOLT, 3/8-24 x 1-53/64 long, hex. head	1
17	76534	SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick	5
18	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick	3
19	STD-872	NUT, 3/8-24 slotted	1
20	STD-713	COTTER PIN, 3/32 diameter x 3/4 long	1

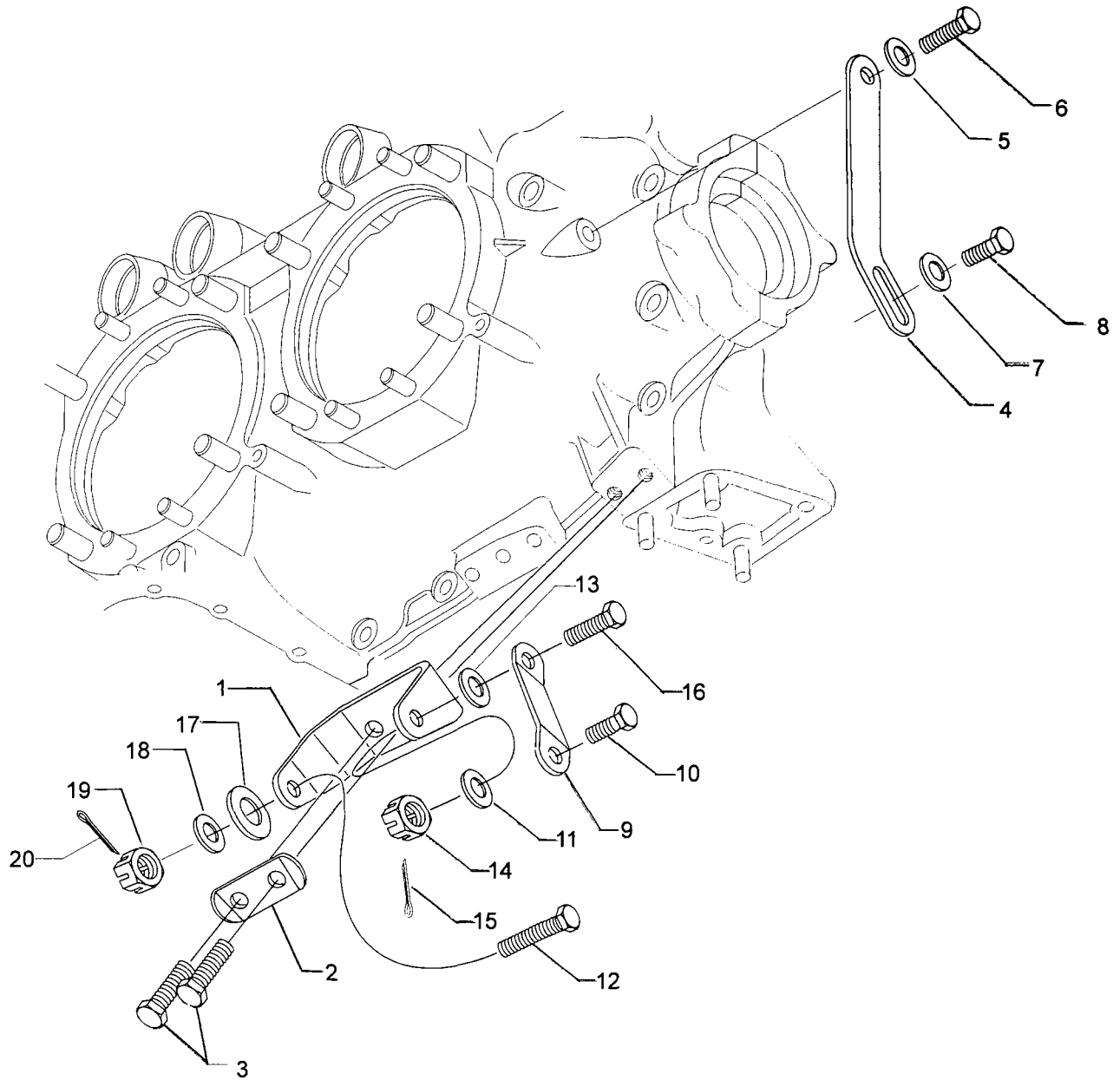


Figure 21. ALTERNATOR MOUNTING AND ATTACHING PARTS

**OIL SUMP AND INDUCTION SYSTEM
OIL SUMP ASSEMBLY AND INDUCTION HOUSING**

FIG REF. 22	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	06B21326	GASKET, Oil sump	1
2	LW-19007	SUMP ASSY., Oil	1
3	38-15	STUD, 3/8-16 x 1-7/8 long	8
4	25C-11	STUD, 1/4-20 x 1-3/8 long	15
5	STD-551	PLUG, 1/2-14 NPT, Sq. hd., drilled	2
6	STD-8	WASHER, 1/4 plain	33
7	STD-160	WASHER, 1/4 lock, internal teeth	27
8	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. hd.	6
9	LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. hd.	5
10	STD-1411	NUT, 1/4-20 plain	21
11	LW-25-1.88	BOLT, 1/4-20 x 1-7/8 long, hex. head	1
12	73966	SPACER, Exhaust manifold	1
13	LW-19191	BRACKET, Cable, exhaust manifold	1
14	LW-18466	HOUSING ASSY., Induction	1
15	1102	PLUG, 1/8 pipe	1
16	STD-1173	INSERT, 1/4-20 x 1/2 long	9
17	STD-8	WASHER, 1/4 plain	1
18	STD-160	WASHER, 1/4 lock, internal teeth	1
19	LW-12232	SHIM, 9/16 O.D. x 9/32 I.D. x .005 thick	3
20	LW-25-4.41	BOLT, 1/4-20 x 4-13/32 long, hex. hd.	1
21	LW-18467	STRAP, Support, induction housing	1
22	STD-2178	WASHER, 9/32 I.D. x 5/8 O.D. x 1/16 thick	1
23	STD-8	WASHER, 1/4 plain	2
24	STD-160	WASHER, 1/4 lock, internal teeth	3
25	LW-25-0.81	BOLT, 1/4-20 x 13/16 long, hex. hd.	2
26	77644	SCREEN, Oil suction	1
27	06E19769-1.50	GASKET, Annular, 1-1/2 I.D.	1
28	77645	PLUG, 1-1/2-18 hex. hd.	1

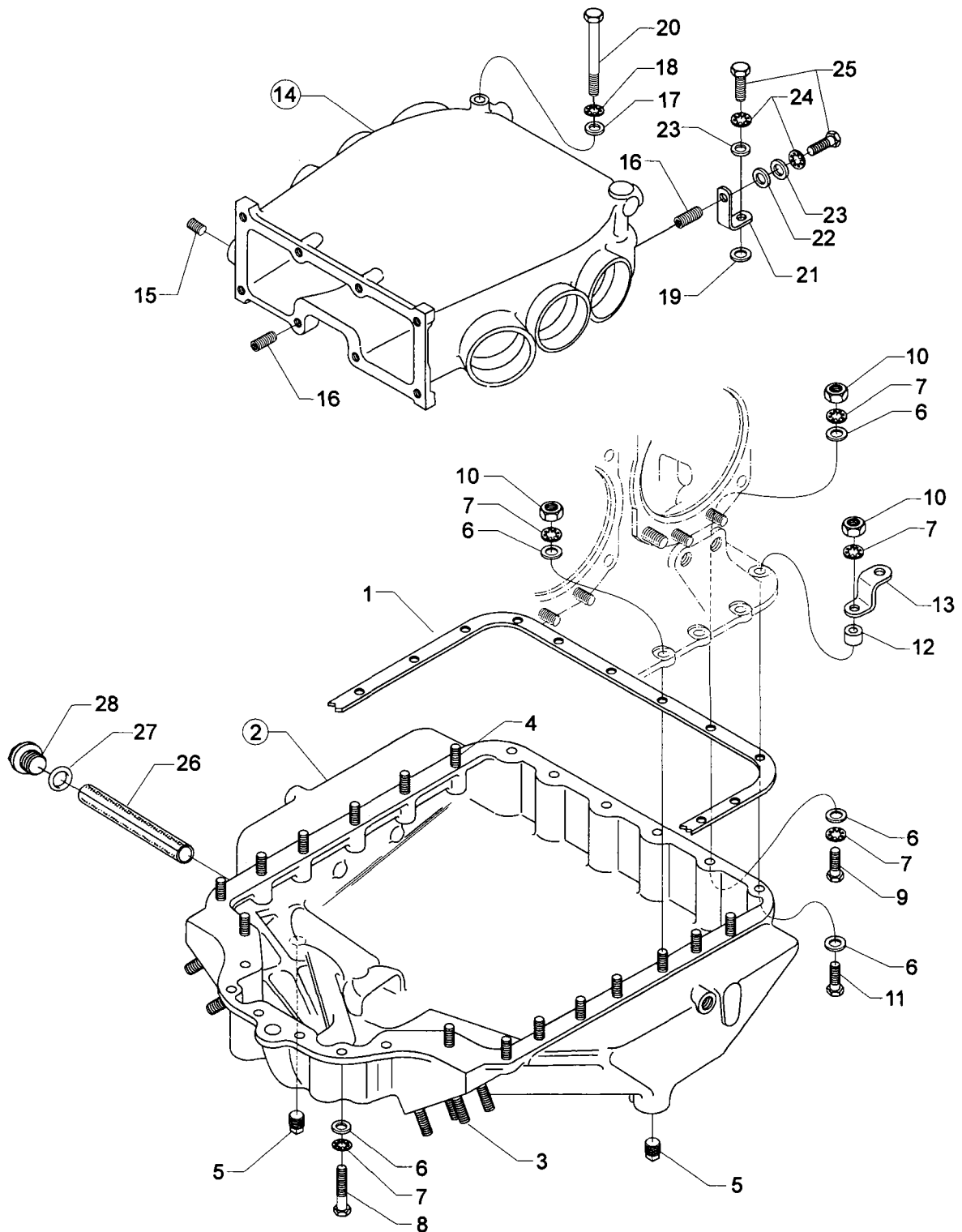


Figure 22. OIL SUMP ASSEMBLY AND INDUCTION HOUSING

OIL SUMP AND INDUCTION SYSTEM
INTAKE PIPES, AIR INLET HOUSING AND OIL SUCTION SCREEN

FIG. REF. 23	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	77569	RING, Seal, intake pipes	6
2	LW-18325	PIPE, Intake, cylinders no. 1 and 6	2
3	LW-18326	PIPE, Intake, cylinders no. 2 and 5	2
4	LW-18327	PIPE, Intake, cylinders no. 3 and 4	2
5	71973	GASKET, 2 bolt flange, 1-3/4 I.D.	6
6	STD-8	WASHER, 1/4 plain	12
7	STD-160	WASHER, 1/4 lock, internal teeth	12
8	LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head	12
9	LW-18329	GASKET, Air inlet housing	1
10	LW-19162	HOUSING ASSEMBLY, Air inlet	1
11	LW-19161	HOUSING, Air inlet	1
12	LW-18671	BAFFLE, Air inlet housing	1
13	STD-1164	INSERT, 5/16-18 UNC x 5/8 long	4
14	STD-1173	INSERT, 1/2-20 UNC x 1/2 long	2
15	STD-8	WASHER, 1/4 plain	12
16	STD-160	WASHER, 1/4 lock, internal teeth	8
17	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1
18	LW-25-0.94	BOLT, 1/4-20 x 15/16 long	7
19	LW-18763	SPACER, Air inlet housing support, right and left	2
20	07A19797	BRACKET ASSEMBLY, Air inlet housing	1
21	07A19798	BRACKET ASSEMBLY, Air inlet housing	1
22	STD-8	WASHER, 1/4 plain	2
23	STD-160	WASHER, 1/4 lock, internal teeth	2
24	STD-2042	BOLT, 1/4-20 x 1-3/16 long, hex. head	2
25	STD-1727	WASHER, Plain, 21/64 I.D. x 3/4 O.D. x 1/8 thick	4
26	STD-475	WASHER, 5/16 lock, internal teeth	4
27	LW-31-1.31	BOLT, 5/16-18 x 1-5/16 long, hex. head	4

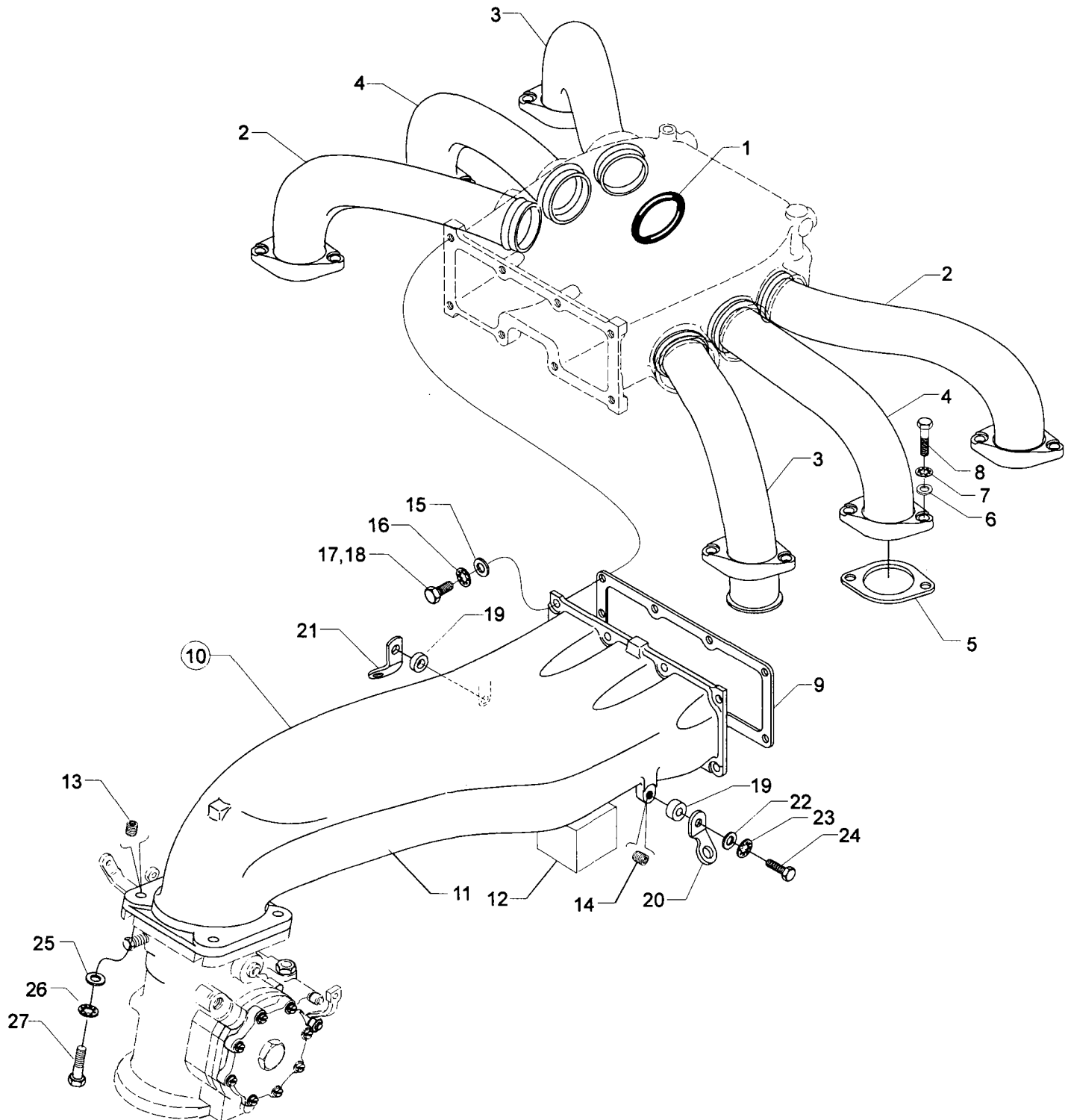


Figure 23. INTAKE PIPES, AIR INLET HOUSING AND OIL SUCTION SCREEN

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

FIG. REF. 24	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	73032	GASKET, Air inlet housing	1
2	LW-18916	FUEL INJECTOR, 2524935-3	1
3	AN919-6	REDUCER, 3/8 flared tube to 1/4 tube	1
4	LW-12878-4S373	HOSE ASSEMBLY, 1/4 hose, 45° elbow	1
5	73136	BRACKET, Extension, fuel injector line	1
6	LW-16266-10-63	CLAMP	1
7	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	1
8	STD-670	LOCKNUT, No. 10-32	1
9	LW-18855	NOZZLE ASSEMBLY, Hi-flow 90 (2524926)	6
9A	941391	“O” RING	12
10	07A19479	BRACKET, Fuel manifold	1
11	LW-19158	MANIFOLD ASSEMBLY, Fuel	1
12	STD-2166	ELBOW, Union, 90°, 1/8 NPT	1
13	AN791-2	ELBOW, Union, 45°, 1/8 tube	3
14	STD-148	NIPPLE, Union, 1/8 NPT	2
15	MS20823-4	ELBOW, 1/8 NPT to 1/4 flared tube	1
16	02G21446	NIPPLE, 1/8 NPT to 1/8 tube	1
17	STD-251	WASHER, No. 10 internal lock	4
18	STD-82	SCREW, No. 10-24 x 1/2 long, fill. head	4
19	LW-12098-0-190	TUBE ASSEMBLY, Fuel injector line	1
20	LW-12098-0-210	TUBE ASSEMBLY, Fuel injector line	1
21	LW-12098-0-240	TUBE ASSEMBLY, Fuel injector line	1
22	LW-12098-0-260	TUBE ASSEMBLY, Fuel manifold to nozzle	1
23	LW-12098-0-300	TUBE ASSEMBLY, Fuel injector line	1
24	LW-12098-0-340	TUBE ASSEMBLY, Fuel injector line	1
25	LW-16266-10-13	CLAMP, 1/8 diameter for no. 10 screw	12
26	LW-16266-10-75	CLAMP	10
27	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	10
28	STD-670	LOCKNUT, No. 10-32	10
29	LW-12799-6S110	HOSE ASSEMBLY, 3/8 hose, straight	1
30	LW-16142-3S130	HOSE ASSEMBLY, 3/16 hose, straight	1

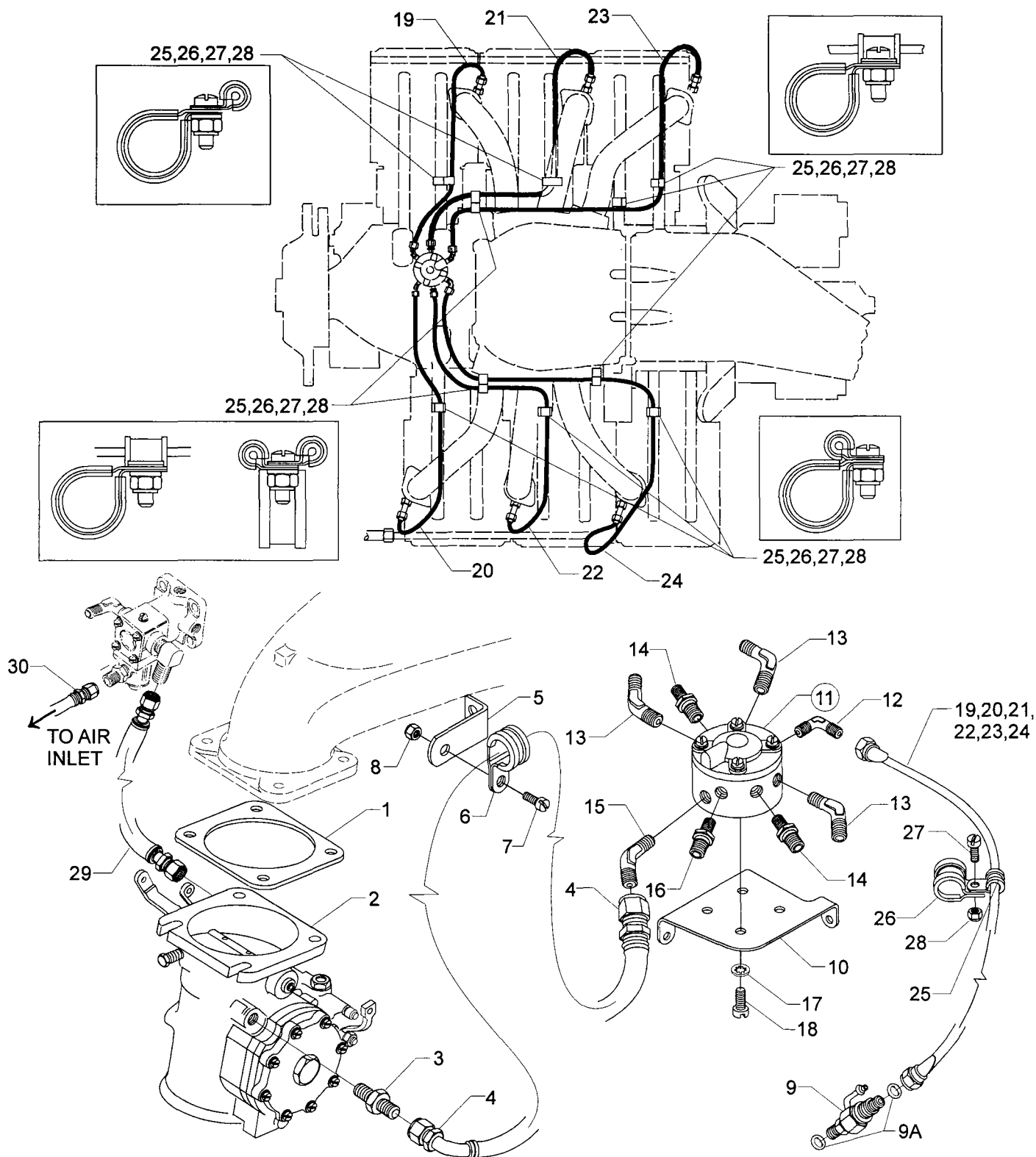


Figure 24. FUEL INJECTOR, FUEL MANIFOLD AND INJECTION NOZZLES

OIL SUMP AND INDUCTION SYSTEM
INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND MANIFOLD FUEL DRAINS

FIG. REF. 25	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-18860	MANIFOLD, Injector nozzle vent	2
2	STD-1339	PLUG, 1/16-27 NPT, Allen head	4
3	LW-18737	HOSE, 3/16 I.D. x 7/16 O.D. x 2.00 long	6
4	LW-15592-5-04	CLAMP, 7/16 O.D. hose	12
5	LW-16266-25-25	CLIP, One wire	6
6	STD-2029*	BOLT, 1/4-20 x 1-1/8 long, hex. head	2
7	STD-2042**	BOLT, 1/4-20 x 1-3/16 long, hex. head	4
8	LW-18675-2	HOSE, Nozzle vent, right side to tee	1
9	LW-18675-3	HOSE, Nozzle vent, left side to tee	1
10	LW-19157	TEE, Nozzle vent, 1/4 hose	1
11	LW-18675	HOSE, Nozzle vent, tee to air duct	1
12	LW-15592-5-04	CLAMP, 7/16 O.D. hose	6
13	LW-16266-10-63	CLAMP, 5/8 I.D. x 1/4 diameter screw	1
14	LW-16266-25-50	CLAMP	3
15	LW-16266-10-75	CLAMP, 3/4 I.D. x 1/4 diameter screw	2
16	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head	2
17	STD-425	WASHER, No. 10 plain	2
18	STD-670	LOCKNUT, No. 10-32	2
19	LW-18535	MANIFOLD ASSEMBLY, Drain, right and left	2
20	STD-148	NIPPLE, Union, 1/8 NPT	4
21	1102	PLUG, 1/8-27 NPT, Allen head	2
22	LW-13807	ADAPTER ASSEMBLY, Fuel drain valve	2
23	STD-8	WASHER, 1/4 plain	2
24	STD-160	WASHER, 1/4 lock, internal teeth	2
25	LW-25-0.81	BOLT, 1/4-20 x 13/16 long, hex. head	2
26	LW-12098-0-160	TUBE ASSEMBLY, Fuel drain, cylinder no. 2	1
27	LW-12098-0-090	TUBE ASSEMBLY, Fuel drain, cylinders no. 3, 4, 6	3
28	LW-12098-0-130	TUBE ASSEMBLY, Fuel drain, cylinders no. 1, 5	2
29	LW-12098-0-012	TUBE ASSEMBLY, Fuel drain, intermediate, right and left	2
30	STD-853	TEE, Union, 1/8 tube	2
31	LW-16266-10-38	CLAMP, 3/8 diameter for no. 10 screw	3
32	LW-16266-10-13	CLAMP, 1/8 diameter for no. 10 screw	3
33	STD-969	SCREW, No. 10-32 x 1/2 long, fill. head	3
34	STD-670	LOCKNUT, No. 10-32	3
35	STD-148	NIPPLE, Union, 1/8 NPT	6

* - Assemble one at no. 2 cylinder front ear and one at no. 4 cylinder rear ear.

** - Assemble one each at no. 3, 4 and 5 cylinder front ears and one at no. 5 cylinder rear ear.

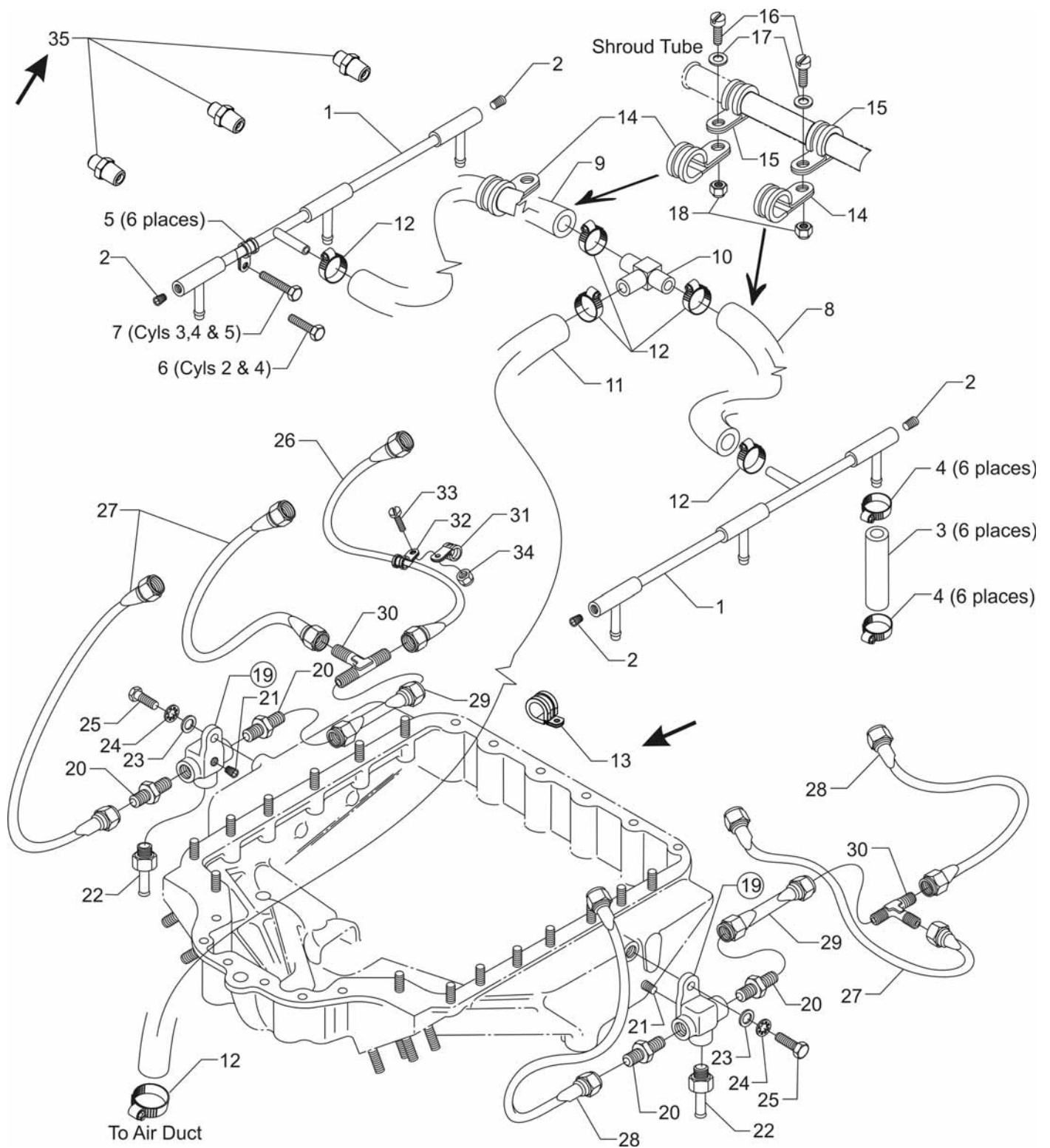


FIGURE 25. INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND MANIFOLD FUEL DRAINS

TURBOCHARGER AND EXHAUST SYSTEMS EXHAUST CROSSOVER PIPES AND TRANSITION ASSEMBLY

FIG REF. 26	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	LW-18234	GASKET, Exhaust flange	12
2	40B19830	MANIFOLD ASSY., Exhaust, right	1
3	LW-18441	PIPE, Exhaust, cyl. no. 1	1
4	LW-18951	PIPE, Exhaust, cyl. no. 3	1
5	40B19815	PIPE, Exhaust, cyl. no. 5	1
6	LW-18440	ADAPTER, Exhaust pipe	1
7	STD-1932	BUSHING, 1/4 to 1/8 NPT	1
8	LW-18514	PIPE, Exhaust, right, inter.	1
9	LW-18958	MANIFOLD ASSY., Exhaust, left	1
10	LW-18446	PIPE, Exhaust, cyl. no. 6	1
11	LW-18440	ADAPTER, Exhaust pipe	1
12	LW-18444	PIPE, Exhaust, cyl. no. 4	1
13	LW-18952	PIPE, Exhaust, cyl. no. 2	1
14	LW-18513	PIPE, Exhaust, rear	1
15	LW-18526	GASKET, V-band coupling, 2-1/2 tube	1
16	LW-12093-7	COUPLING, V-band, 2-1/2 O.D. tube	1
17	LW-18588	TRANSITION ASSY., Exhaust	1
18	STD-1932	BUSHING, 1/4 to 1/8 NPT	1
19	STD-405	PLUG, 1/8 NPT, Sq. hd., drilled	1
20	STD-2044	NUT, 1/4-20 self-locking	24
21	LW-18439	HEAT SHIELD	1
22	LW-15592-8-28	CLAMP, 1-3/4 dia. x 1/2 wide	3

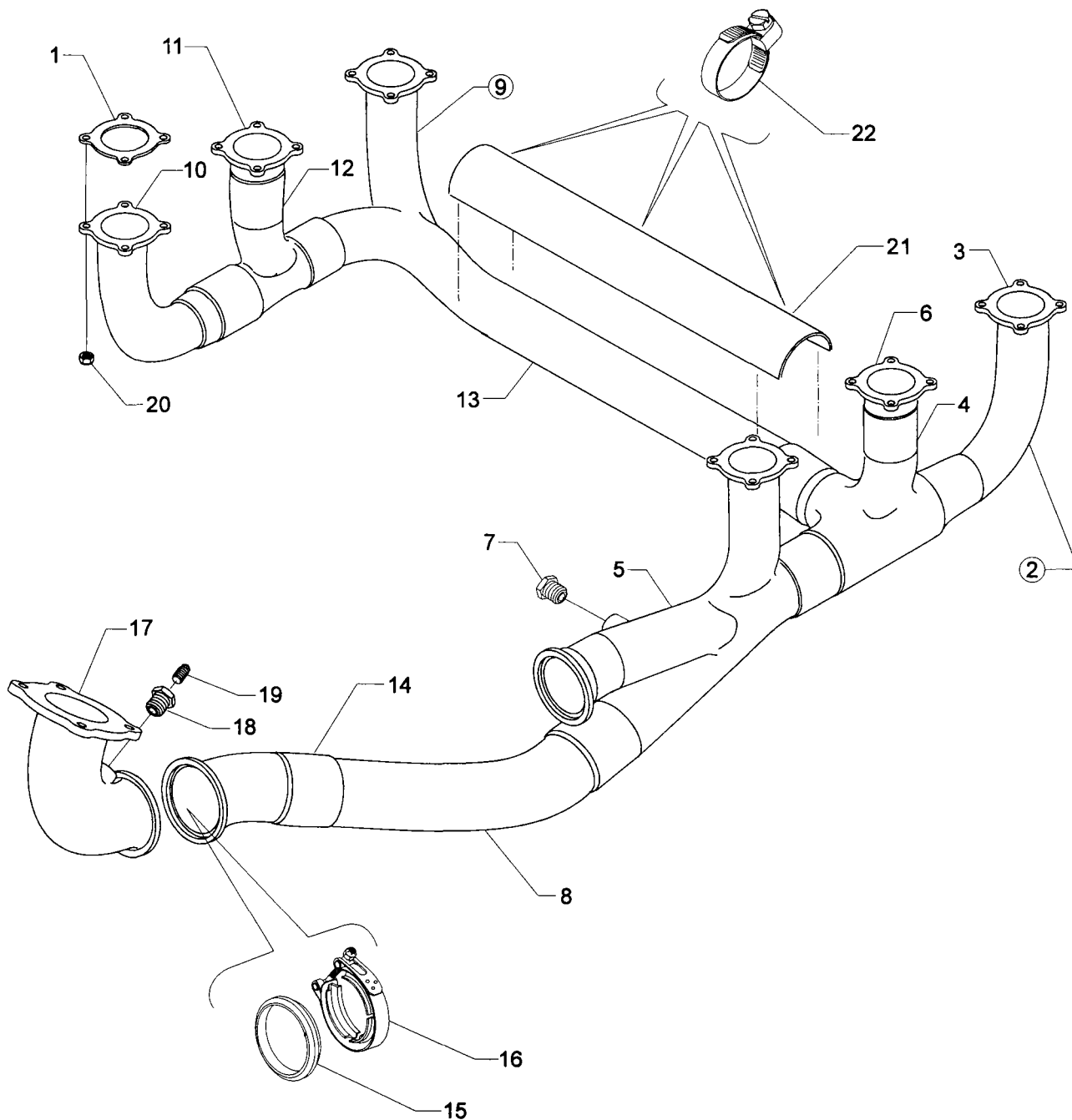


Figure 26. EXHAUST CROSSOVER PIPES AND TRANSITION ASSEMBLY

TURBOCHARGER AND EXHAUST SYSTEM
EXHAUST BYPASS VALVE AND WASTEGATE SUPPORTS

FIG. REF. 27	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	LW-18861	VALVE, Exhaust bypass	1
2	75845	GASKET, V-band coupling, 2-1/4	1
3	LW-12093-6	COUPLING, V-band, 2-1/4 O.D. tube	1
4	LW-18824	BRACKET, Wastegate	1
5	LW-18509	WASHER, 1/4 I.D. x 3/4 O.D. x 3/32 thick	4
6	STD-8	WASHER, 1/4 plain	2
7	LW-25SS-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. head	2
8	STD-160	WASHER, 1/4 lock, internal teeth	2
9	LW-18827	SUPPORT, Wastegate (top)	1
10	07F19814	SUPPORT, Wastegate (bottom)	1
11	STD-1727	WASHER, Plain, 21/64 I.D. x 3/4 O.D. x 1/8 thick	2
12	LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	1
13	STD-2043	NUT, 5/16-18 self-locking	1
14	LW-19189	CABLE, Exhaust manifold retainer	1
15	LW-25-0.63	BOLT, 1/4-20 x 5/8 long, hex. head	1
16	STD-2044	NUT, 1/4-20 self-locking	1
17	STD-1411	NUT, 1/4-20 plain	2
18	LW-14525	CLAMP, Exhaust pipe	1

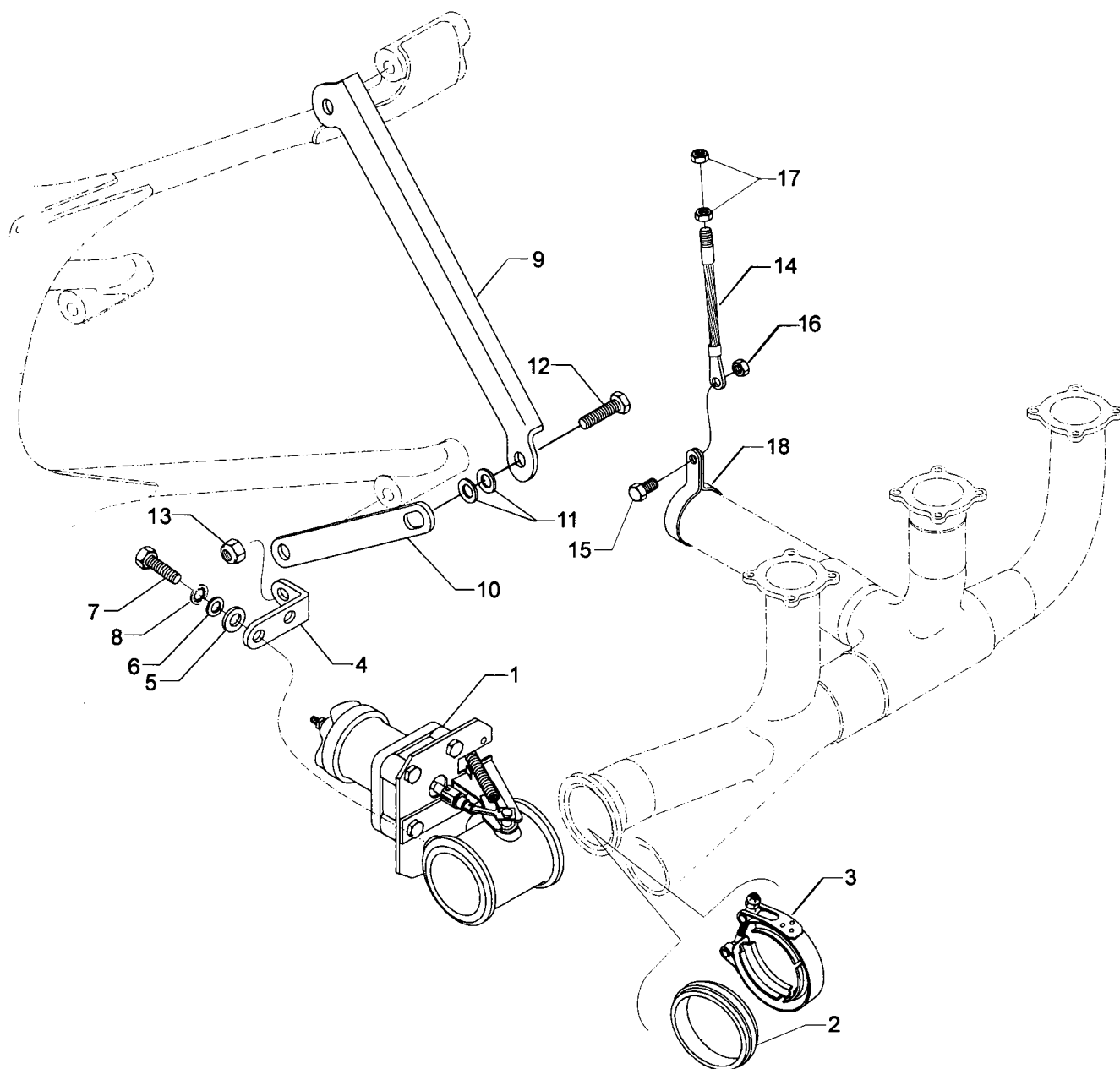


Figure 27. EXHAUST BYPASS VALVE AND WASTEGATE SUPPORTS

TURBOCHARGER AND EXHAUST SYSTEM
TURBOCHARGER, SUPPORT AND ATTACHING PARTS

FIG. REF. 28	PART NUMBER	DESCRIPTION	QUANTITY PER ASSEMBLY
1	07E23155	SUPPORT ASSEMBLY, Turbocharger	1
2	STD-35	WASHER, 5/16 plain	3
3	STD-2197	WASHER, 21/64 I.D. x 13/16 O.D. x 1/16 thick	6
4	STD-1727	WASHER, Plain, 21/64 I.D. x 3/4 O.D. x 1/8 thick	1
5	LW-31S4.72	BOLT, 5/16-18 x 4-23/32 long, drilled	1
6	LW-31S4.94	BOLT, 5/16-18 x 4-15/16 long, drilled	3
7	STD-1420	NUT, 5/16-18 slotted	4
8	STD-68	PIN, 1/16 diameter x 1/2 long	4
9	LW-19159	BRACKET, Turbo mounting	1
10	STD-33	WASHER, 3/8 plain	3
11	STD-1421	BOLT, 3/8-24 x 7/8 long, hex. head	3
12	STD-2045	NUT, 3/8-24 self-locking	3
13	LW-18452	SPACER, Turbocharger	1
14	LW-18453	BRACKET, Turbo and compressor	1
15	78703	DAMPER, 3/8 square x 16-1/32 to 16-3/32 long	1
16	STD-33	WASHER, 3/8 plain	3
17	STD-1421	BOLT, 3/8-24 x 7/8 long, hex. head	3
18	STD-2045	NUT, 3/8-24 self-locking	3
19	LW-18470	TURBOCHARGER, TH08A69-465680-5	1
20	AN960C616	WASHER, 3/8 plain	8
21	AN6C13A	BOLT, 3/8-24 UNF x 1-29/64 long	4
22	MS20500-624	NUT, 3/8-24 UNF self-locking	4
23	LW-18520	SPACER, Turbocharger	1
24	AN960C616	WASHER, 3/8 plain	2
25	MS20500-624	NUT, 3/8-24 UNF self-locking	1
26	AN6C26A	BOLT, 3/8-24 UNF x 2-53/64 long	1

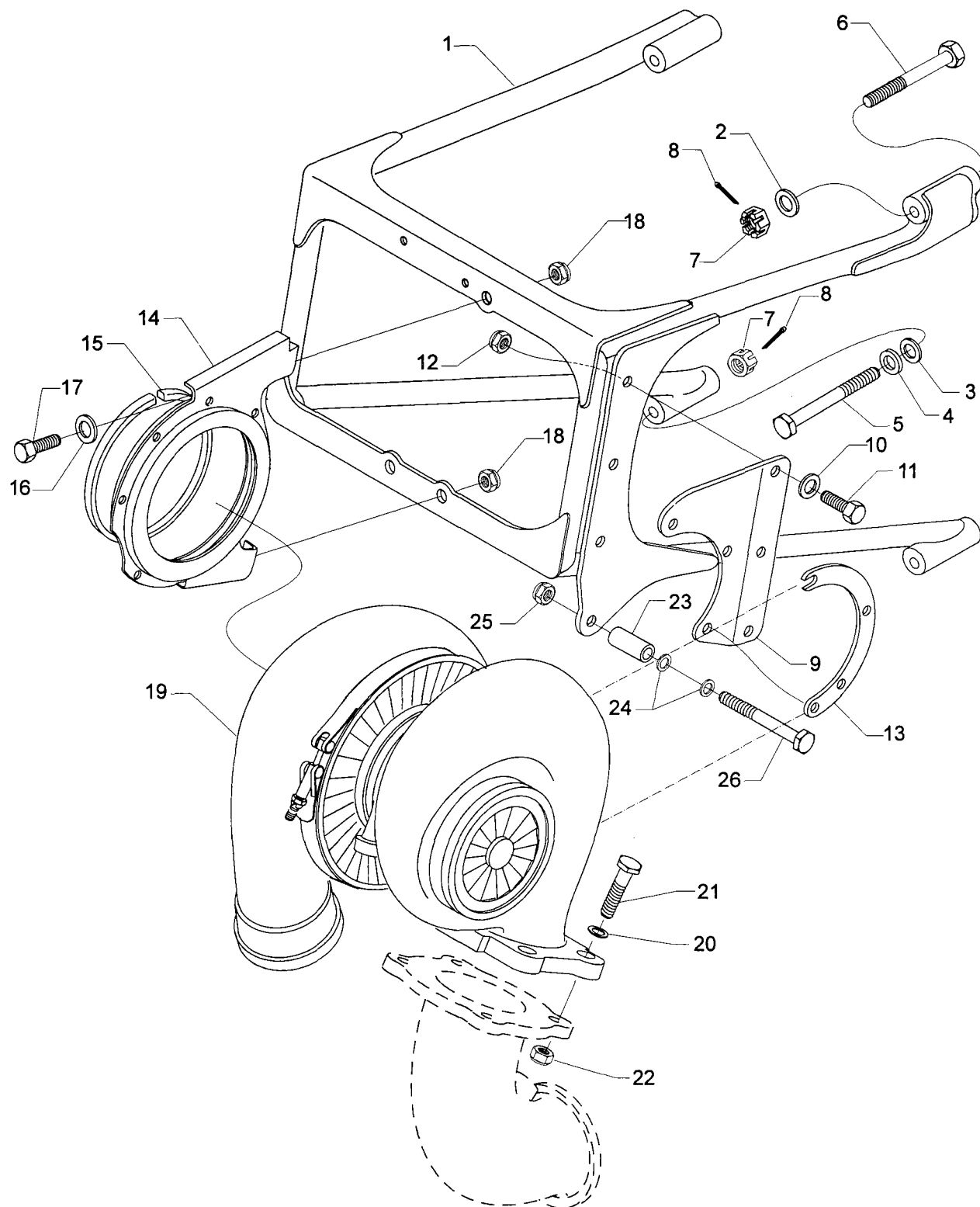


Figure 28. TURBOCHARGER, SUPPORT AND ATTACHING PARTS

TURBOCHARGER AND EXHAUST SYSTEMS
TURBOCHARGER TANK ASSY., HOSES AND RELATED PARTS

FIG REF. 29	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	AN912-9	BUSHING, Reducer, 3/4 NPT	1
2	MS20822-6	ELBOW, 1/4 NPT to 3/8 flared tube, 90°	1
3	MS20823-4	ELBOW, 1/8 NPT to 1/4 flared tube	1
4	LW-12798-4S160	HOSE ASSY., 1/4 hose, straight	1
5	75371	GASKET, Turbo oil inlet adapter	1
6	LW-14465	ADAPTER, Turbo oil	1
7	STD-33	WASHER, 3/8 plain	2
8	STD-678	WASHER, 3/8 lock, internal teeth	2
9	LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. hd.	2
10	STD-1932	BUSHING, 1/4 to 1/8 NPT	1
11	LW-13128	ELBOW, 1/4 flared tube & 1/8 NPT	1
12	LW-10122	GASKET, Turbo oil drain adapter	1
13	LW-18950	TANK ASSY., Turbo oil drain	1
14	LW-18539	TANK, Turbo oil drain	1
15	AN816-4	NIPPLE, 1/8 NPT to 1/4 tube	1
16	MS20823-8	ELBOW, 1/2 flared tube, 3/8 NPT	1
17	STD-33	WASHER, 3/8 plain	2
18	STD-678	WASHER, 3/8 lock, internal teeth	2
19	LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. hd.	2
20	MS29512-08	"O" RING	1
21	LW-10637	ELBOW, 90°, 1/2 tube, 3/4-16 thread	1
22	LW-12798-4S222	HOSE ASSY., 1/4 hose, straight	1
23	LW-13176-8S180	HOSE ASSY., Straight	1
24	76734	ZIP STRAP	3
25	LW-18540	HEAT SHIELD, Turbo oil drain	1
26	STD-692	SCREW, No. 10-32 x 1/2 long, rd. hd.	3
27	STD-425	WASHER, No. 10 plain	3
28	STD-251	WASHER, No. 10, internal lock	3
29	STD-63	NUT, No. 10-32 plain	3
30	MS20822-4	ELBOW, 1/8 NPT to 1/4 tube, 90°	1

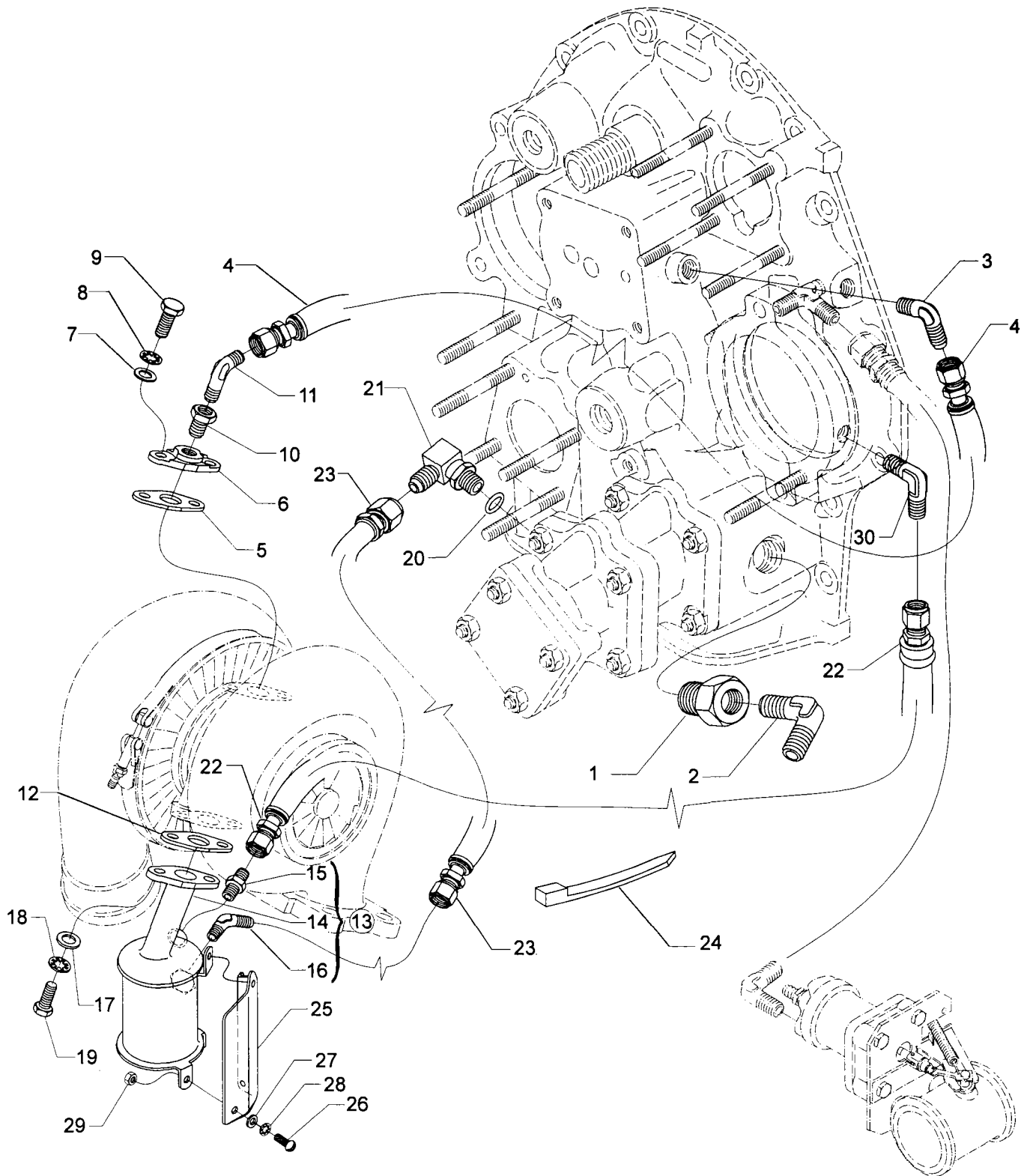


Figure 29. TURBOCHARGER TANK ASSY., HOSES AND RELATED PARTS

**TURBOCHARGER AND EXHAUST SYSTEMS
DENSITY CONTROLLER AND RELATED PARTS**

FIG REF. 30	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	LW-19119	HOSE, 3-7/8 I.D. x 2-3/4 long	1
2	LW-15570	CLAMP, T-bolt, 4-3/8 dia.	1
3	LW-15858-62-443	CLAMP, T-bolt, 4-3/8 dia.	1
4	LW-18793	DUCT, Air inlet controller housing	1
5	AN814-6L	PLUG, 9/16-18 hex. head	1
6	MS29512-06	"O" RING	2
7	75505	ADAPTER, 9/16-18 to 1/4 NPT	1
8	LW-19178	ADAPTER, Straight, NPT to hose	1
9	LW-13807	ADAPTER ASSY., Fuel drain valve	1
10	MS28775-015	"O" RING	1
11	AN816-3	NIPPLE, 1/8 NPT x 3/16 tube	1
12	LW-18825	SUPPORT, Air inlet duct	1
13	STD-475	WASHER, 5/16 lock, internal teeth	1
14	STD-1727	WASHER, Plain, 21/64 I.D. x 3/4 O.D. x 1/8 thick	1
15	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. hd.	1
16	STD-33	WASHER, 3/8 plain	1
17	STD-1342	WASHER, 7/8 O.D. x 25/64 I.D. x 1/8 thick	1
18	STD-1421	BOLT, 3/8-24 x 7/8 long, hex. hd.	1
19	STD-2045	NUT, 3/8-24 self-locking	1
20	LW-12434	HOSE, Air box, 3.00 I.D. x 2-15/16 long	1
21	LW-15858-62-350	CLAMP, Hose, 3-1/2 I.D. x 9/16 wide	2
22	73314	GASKET, Density	1
23	LW-16840	CONTROLLER, Density	1
24	STD-28	WASHER, No. 10 plain	4
25	STD-1566	SCREW, No. 10-24 x 3/4 long, fill. hd.	4

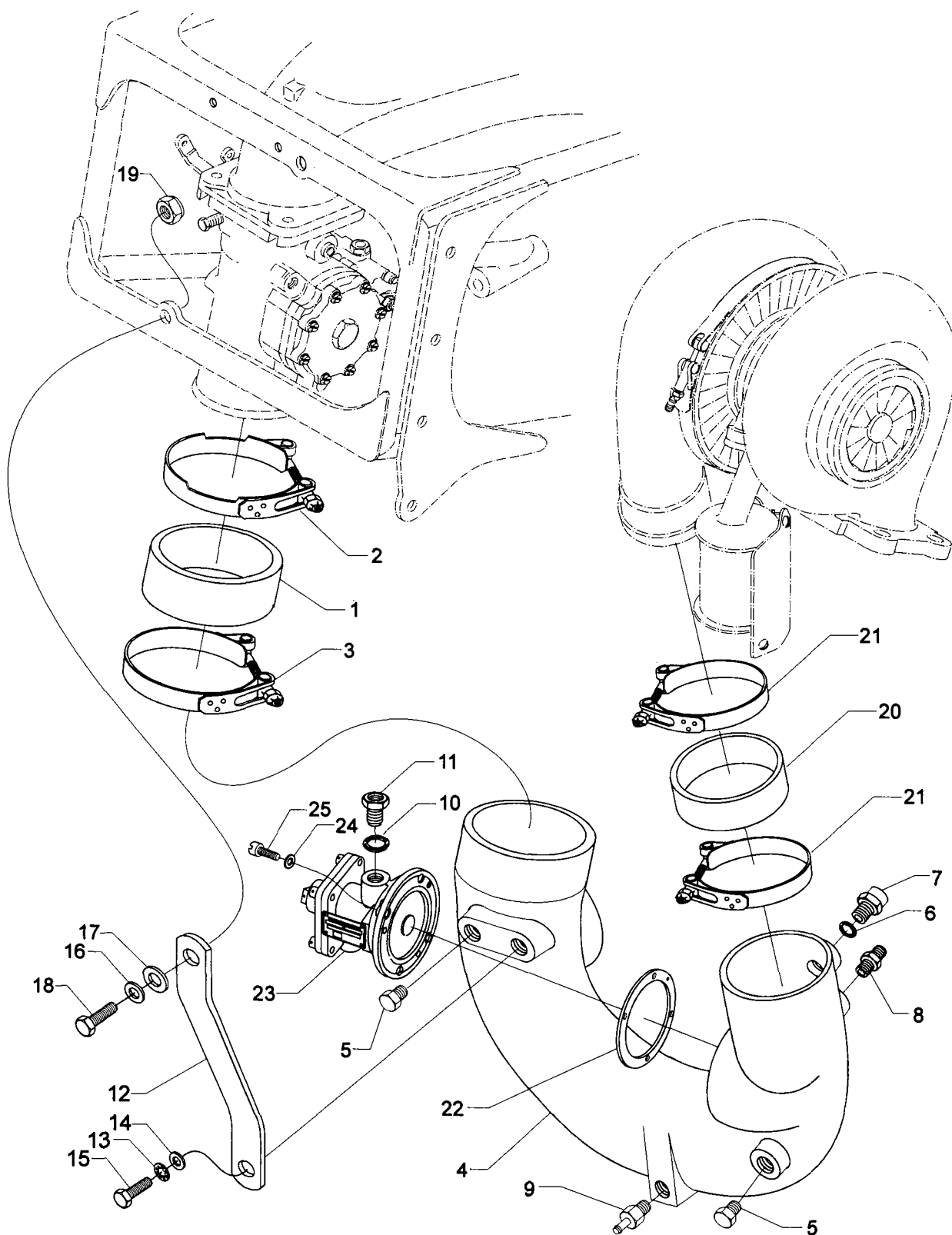


Figure 30. DENSITY CONTROLLER AND RELATED PARTS

TURBOCHARGER AND EXHAUST SYSTEMS DIFFERENTIAL PRESSURE CONTROLLER AND RELATED PARTS

FIG REF. 31	PART NUMBER	DESCRIPTION	QTY. PER ASSY.
1	72376*	ELBOW, 90°, 1/4 tube x 7/16	1
2	LW-12798-4S120	HOSE ASSY., 1/4 hose, straight	1
3	72377**	ELBOW, 3/8 flared tube, adj.	1
4	76355**	TEE, 3/8 tube w/ 9/16 thread	1
5	LW-12877-6S200	HOSE ASSY., 3/8 hose, 90° elbow	1
6	LW-12483**	NIPPLE, 3/8 tube, restricted	1
7	LW-12877-6S124	HOSE ASSY., 3/8 hose, 90° elbow	1
8	73314	GASKET, Differential pressure	1
9	LW-10098	CONTROLLER, Differential pressure	1
10	STD-28	WASHER, No. 10 plain	4
11	STD-1703	SCREW, No. 10-24 x 11/16 long, hex. hd.	4
12	STD-1932	BUSHING, 1/4 to 1/8 NPT	1
13	MS20822-4	ELBOW, 1/8 NPT to 1/4 tube, 90°	1
14	72377**	ELBOW, 3/8 flared tube, adj.	1
15	MS29512-08	"O" RING	1
16	AN893-12	BUSHING, Reducer, 3/4-16	1
17	77461**	TEE, 3/8 tube, adj.	1
18	LW-12877-6S142	HOSE ASSY., 3/8 hose, 90° elbow	1
19	LW-12799-6S130	HOSE ASSY., 3/8 hose, straight	1
20	LW-12798-4S222	HOSE ASSY., 1/4 hose, straight	1
21	MS20822-4	ELBOW, 1/8 NPT to 1/4 tube, 90°	1
22	1102	PLUG, 1/8 pipe (left side inlet housing)	1

* Uses P/N MS29512-04 "O" ring.

** Uses P/N MS29512-06 "O" ring.

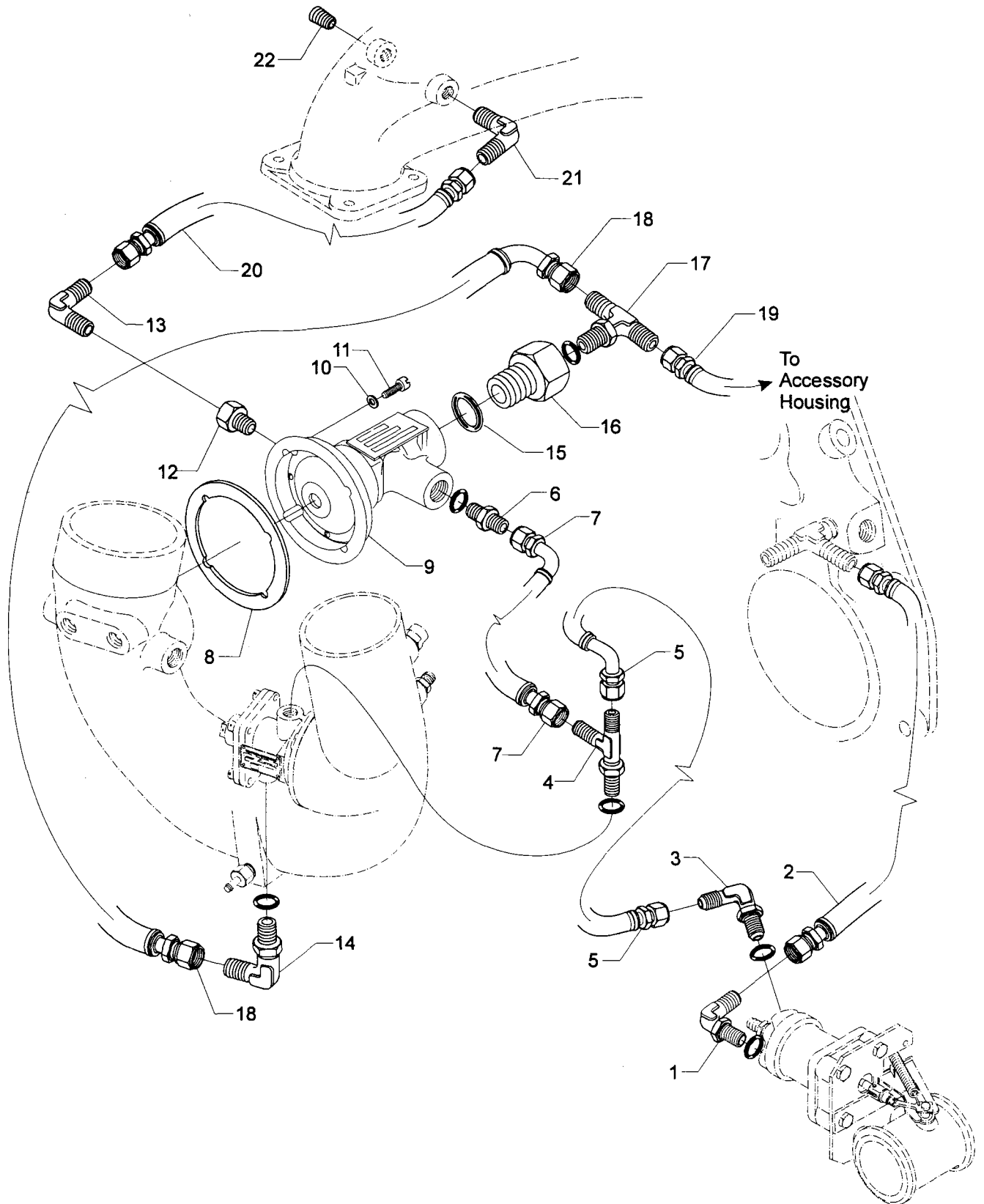


Figure 31. DIFFERENTIAL PRESSURE CONTROLLER AND RELATED PARTS

SERVICE KIT SECTION**SEAL AND GASKET SET**

Part No.	Part Name	Qty.
LW-19259	KIT - SEAL AND GASKET SET	1
STD-2231	Ring, Internal retaining	1
MS29512-04	SEAL, "O" ring	2
MS28775-015	SEAL, "O" ring	1
MS29512-06	SEAL, "O" ring	2
MS29512-08	SEAL, "O" ring	2
STD-213	SEAL, Oil (fuel pump drive)	1
06E19769-0.63	GASKET	2
06E19769-1.25	GASKET	1
STD-1737	RING	1
06A19956	SEAL, Oil	2
8313	GASKET, Vacuum pump	2
61183	GASKET, Accessory adapter	1
62224	GASKET, Magneto	2
66732	GASKET, Valve rocker shaft cover	12
68315	GASKET, Accessory drive adapter	1
69164	GASKET, Fuel pump adapter	1
70310	SEAL, Shroud tube	12
70455	GASKET	1
71481	RING, Oil seal	6
71667	LOCKPLATE, Crankshaft idler gear	2
71973	GASKET, Intake flange	6
72053	GASKET, Governor drive pad	1
72059	GASKET, Oil filler extension	1
72091	RING, Oil seal	2
72220	GASKET, Oil filler extension	1
73032	RING, Air inlet housing	1
73314	GASKET, Density controller	2
73383	LOCKPLATE	2
73818	GASKET, Accessory housing	1
74068	"O" RING, Oil level gage	1
75371	GASKET, Turbo oil inlet adapter	1
75845	GASKET, V-band coupling, 2-1/2 tube	1
76036	GASKET, Rocker box cover	6
77569	RING, Seal, intake pipe	6
78443	SEAL, Crankshaft, oil	1
75233	SEAL, Rocker shaft cover	12
LW-10122	GASKET, Turbo oil drain adapter	1
LW-12681	GASKET, Magneto	2
LW-12795	GASKET	1
06B23862	GASKET, Oil filter adapter	1
06B21326	GASKET, Oil sump	1
LW-14260	SEAL, Tachometer	1
LW-15628	SEAL, Crankshaft	1
LW-18234	GASKET, Exhaust flange	12
LW-18329	GASKET, Air inlet housing	1
LW-18481	GASKET, Oil filler adapter	1
LW-18526	GASKET, V-band coupling, 2-1/2 tube	1
LW-18638	LOCKPLATE, Crankshaft gear	1
LW-18661	SEAL, Shroud tube	12

SERVICE KIT SECTION (CONT.)**SEAL AND GASKET SET (CONT.)**

Part No.	Part Name	Qty.
LW-19259	KIT - SEAL AND GASKET SET (CONT.)	1
LW-RF2.239-.070	RING, Oil seal	1
68H22624	CUSHION, Magneto drive	4
STD-2180	HOSE, 3/8 I.D. x 1-13/16 long	6
951391	RING	12

CYLINDER, PISTON AND RING ASSEMBLY

Part No.	Part Name	Qty.
05K21261	KIT – CYLINDER, PISTON AND RING ASSEMBLY	1
16A19516	CYLINDER ASSEMBLY	1
17B23944	VALVE, Exhaust, rotator type	1
17A23942	VALVE, Intake	1
LW-11796	SPRING, Valve, outer	2
LW-11797	SPRING, Valve, inner	2
69532	SEAT, Valve spring, upper intake	1
LW-16475	SEAT, Valve spring, upper exhaust	1
LW-13321	SEAT, Intake valve, spring, lower	1
LW-13322	SEAT, Exhaust valve, spring, lower	1
72050	KEY, Valve, intake	2
17C21191	KEY, Valve, exhaust	2
62388	CAP, Valve stem	1
17C19386	CAP, Valve stem, exhaust, rotator	1
14D21953-S	PISTON, 5.125 bore, 7.3:1 compression	1
74241	RING, Piston, compression	2
14H21950	RING, Piston, oil regulating	1
LW-14078	PIN, Piston	1
60828	PLUG, Piston pin	2
72198	PLUG, Piston pin	2
66732	GASKET, Valve rocker shaft cover	2
76036	GASKET, Rocker box cover	1
LW-18661	SEAL, Shroud tube	4
71481	RING, Oil seal, 3/32 diameter x 4-27/32 I.D.	1
SSP-299	TAG, Use of piston pin plugs	1
71973	GASKET, 2 bolt flange, 1-3/4 I.D.	1
LW-18234	GASKET, Exhaust flange	2
951391	“O” RING	2
STD-148	NIPPLE, Union, 1/4 NPT	1

NUMERICAL INDEX

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
AN565B1032H5	Set Screw	1-9	LW-31H0.88	Bolt	1-11
AN6-16	Bolt	5-3	LW-31S4.72	Bolt	7-5
AN6-17	Bolt	5-3	LW-31S4.94	Bolt	7-5
AN6C13A	Bolt	7-5	LW-38-0.75	Bolt	7-7
AN6C26A	Bolt	7-5	LW-38-1.13	Bolt	1-3
AN6-34A	Bolt	1-13	LW-10098	Diff. Press. Controller	7-11
AN791-2	Elbow	6-5	LW-10122	Gasket	7-7
AN816-3	Nipple	7-9	LW-10442	Gear	1-9
AN816-6L	Plug	7-9	LW-10541	Gear Assy.	1-9
AN816-4	Nipple	4-1	LW-10545-S	Piston	3-1
AN816-4	Nipple	7-7	LW-10637	Elbow	7-7
AN816-6	Nipple	3-3	LW-10799	Spacer	2-5
AN816-8	Nipple	2-7	LW-11665	Thrust Button	3-5
AN825-4	Tee	4-1	LW-11713	Spring	1-5
AN844-12D	Elbow	2-7	LW-11796	Spring	3-5
AN893-12	Bushing	7-11	LW-11797	Spring	3-5
AN912-9	Bushing	7-7	LW-12093-6	Coupling	7-3
AN919-6	Reducer	6-5	LW-12093-7	Coupling	7-1
AN960C616	Washer	7-5	LW-12098-0-012	Tube Assy.	6-7
LW-RF2.239-.070	Ring	2-9	LW-12098-0-090	Tube Assy.	6-7
LW-25-0.63	Screw	1-11	LW-12098-0-130	Tube Assy.	6-7
LW-25-0.63	Screw	7-3	LW-12098-0-160	Tube Assy.	6-7
LW-25-0.81	Bolt	6-1	LW-12098-0-190	Tube Assy.	6-5
LW-25-0.81	Bolt	6-7	LW-12098-0-210	Tube Assy.	6-5
LW-25-0.94	Bolt	2-3	LW-12098-0-240	Tube Assy.	6-5
LW-25-0.94	Bolt	6-3	LW-12098-0-260	Tube Assy.	6-5
LW-25-1.00	Bolt	2-11	LW-12098-0-300	Tube Assy.	6-5
LW-25-1.00	Bolt	6-1	LW-12098-0-340	Tube Assy.	6-5
LW-25-1.13	Bolt	1-13	LW-12186	Nut	3-1
LW-25-1.13	Bolt	2-3	LW-12232	Shim	6-1
LW-25-1.13	Bolt	6-1	LW-12272	Lockplate	3-5
LW-25-1.13	Bolt	6-3	LW-12434	Hose	7-9
LW-25-1.25	Bolt	6-3	LW-12483	Nipple	7-11
LW-25-1.44	Bolt	2-3	LW-12596	Bolt	3-1
LW-25-1.50	Bolt	1-13	LW-12681	Gasket	4-1
LW-25-1.75	Bolt	1-13	LW-12707	Adapter	4-1
LW-25-1.88	Bolt	6-1	LW-12798-4S120	Hose Assy.	7-11
LW-25-2.00	Bolt	1-13	LW-12798-4S160	Hose Assy.	7-7
LW-25-2.25	Bolt	1-13	LW-12798-4S190	Hose Assy.	4-1
LW-25-4.41	Bolt	6-1	LW-12798-4S222	Hose Assy.	7-7
LW-25S-1.50	Bolt	1-13	LW-12798-4S222	Hose Assy.	7-11
LW-25SS-1.50	Bolt	7-3	LW-12799-6S110	Hose Assy.	6-5
LW-31-0.94	Bolt	5-1	LW-12799-6S130	Hose Assy.	7-11
LW-31-0.94	Bolt	5-3	LW-12877-6S124	Hose Assy.	7-11
LW-31-0.94	Bolt	7-9	LW-12877-6S142	Hose Assy.	7-11
LW-31-1.16	Bolt	1-13	LW-12877-6S200	Hose Assy.	7-11
LW-31-1.16	Bolt	7-3	LW-12878-4S200	Hose Assy.	4-1
LW-31-1.31	Bolt	6-3	LW-12878-4S373	Hose Assy.	6-5
LW-31-2.75	Bolt	1-13	LW-13128	Elbow	7-7
LW-31H0.75	Bolt	5-3	LW-13176-8S180	Hose Assy.	7-7

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
LW-13215	Oil Filter	2-11	LW-18326	Intake Pipe	6-3
LW-13226	Nut	4-1	LW-18327	Intake Pipe	6-3
LW-13227	Adapter	4-1	LW-18329	Gasket	6-3
LW-13321	Seat	3-5	LW-18439	Heat Shield	7-1
LW-13322	Seat	3-5	LW-18440	Adapter	7-1
LW-13422-S	Connecting Rod Assy.	3-1	LW-18441	Exhaust Pipe	7-1
LW-13795	Stud	1-11	LW-18444	Exhaust Pipe	7-1
LW-13807	Adapter Assy.	6-7	LW-18446	Exhaust Pipe	7-1
LW-13807	Adapter Assy.	7-9	LW-18452	Spacer	7-5
LW-13896	Plug	1-9	LW-18453	Bracket	7-5
LW-13923	Bushing	3-1	LW-18466	Ind. Housing Assy.	6-1
LW-13926	Adapter	4-1	LW-18467	Strap	6-1
LW-14021	Shaft	1-9	LW-18470	Turbocharger	7-5
LW-14078	Pin	3-1	LW-18481	Gasket	1-3
LW-14260	Seal	2-3	LW-18482	Adapter	1-3
LW-14336	Alternator	5-2	LW-18509	Washer	7-3
LW-14433	Cover Assy.	3-7	LW-18513	Exhaust Pipe	7-1
LW-14465	Adapter	7-7	LW-18514	Exhaust Pipe	7-1
LW-14525	Clamp	7-3	LW-18520	Spacer	7-5
LW-14688	Bracket	1-3	LW-18526	Gasket	7-1
LW-14820	Ring	1-7	LW-18535	Manifold Assy.	6-7
LW-14995	Spring	3-5	LW-18539	Tank	7-7
LW-15550	Gerotor Pump	2-9	LW-18540	Heat Shield	7-7
LW-15570	Clamp	7-9	LW-18555	Tube Assy.	3-7
LW-15592-5-04	Clamp	6-7	LW-18557	Tube Assy.	3-7
LW-15592-5-05	Clamp	3-7	LW-18588	Transition Assy.	7-1
LW-15592-8-28	Clamp	7-1	LW-18624	Bracket Assy.	1-3
LW-15628	Seal	1-5	LW-18626	Bracket Assy.	1-3
LW-15853	Shaft	2-9	LW-18638	Lockplate	1-7
LW-15858-62-350	Clamp	7-9	LW-18661	Seal	3-5
LW-15858-62-443	Clamp	7-9	LW-18667	Pin	1-7
LW-15970	Tube	1-3	LW-18671	Baffle	6-3
LW-16142-3S130	Hose Assy.	6-5	LW-18675	Hose	6-7
LW-16143	Bearing	3-1	LW-18675-2	Hose	6-7
LW-16266-10-13	Clamp	6-5	LW-18675-3	Hose	6-7
LW-16266-10-13	Clamp	6-7	LW-18696	Tee	2-1
LW-16266-10-38	Clamp	6-7	LW-18737	Hose	6-7
LW-16266-10-63	Clamp	6-5	LW-18753	Guide	3-3
LW-16266-10-63	Clamp	6-7	LW-18760	Eye	1-3
LW-16266-10-75	Clamp	6-7	LW-18763	Spacer	6-3
LW-16266-25-25	Clamp	6-7	LW-18793	Duct	7-9
LW-16266-25-50	Clamp	6-7	LW-18824	Bracket	7-3
LW-16471	Support Assy.	1-7	LW-18827	Wastegate Support	7-3
LW-16475	Seat	3-5	LW-18832	Baffle Assy.	3-7
LW-16783-6	Gage Assy.	1-3	LW-18833	Guide	3-3
LW-16783-27	Gage Assy.	1-3	LW-18835	Support	7-3
LW-16840	Density Controller	7-9	LW-18855	Nozzle Assy.	6-5
LW-18085	Spring	1-5	LW-18860	Manifold	6-7
LW-18234	Gasket	7-1	LW-18661	Valve	7-3
LW-18325	Intake Pipe	6-3	LW-18916	Fuel Injector	6-5

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
LW-18944	Tube	3-5	STD-33	Washer	4-1
LW-18950	Tank Assy.	7-7	STD-33	Washer	7-5
LW-18951	Exhaust Pipe	7-1	STD-33	Washer	7-7
LW-18952	Exhaust Pipe	7-1	STD-33	Washer	7-9
LW-18958	Manifold Assy.	7-1	STD-35	Washer	1-9
LW-19007	Sump Assy.	6-1	STD-35	Washer	1-13
LW-19042	Seat	3-3	STD-35	Washer	2-3
LW-19096	Gear Retainer Assy.	4-1	STD-35	Washer	2-5
LW-19102	Gear Retainer Assy.	4-1	STD-35	Washer	2-9
LW-19119	Hose	7-9	STD-35	Washer	5-3
LW-19157	Tee	6-7	STD-35	Washer	7-5
LW-19158	Manifold Assy.	6-5	STD-63	Nut	1-3
LW-19159	Bracket	7-5	STD-63	Nut	7-7
LW-19161	Air Inlet Housing	6-3	STD-68	Pin	7-5
LW-19162	Air Inlet Housing Assy.	6-3	STD-82	Screw	6-5
LW-19178	Adapter	7-9	STD-95	Key	2-9
LW-19189	Cable	7-3	STD-148	Nipple	6-5
LW-19191	Bracket	6-1	STD-148	Nipple	6-7
LW-19210	Counterweight Assy.	1-7	STD-160	Washer	1-13
LW-19340	Camshaft Assy.	1-7	STD-160	Washer	2-3
MS16562-28	Pin	2-9	STD-160	Washer	2-7
MS20500-624	Nut	7-5	STD-160	Washer	2-9
MS20822-4	Elbow	4-1	STD-160	Washer	2-11
MS20822-4	Elbow	7-7	STD-160	Washer	3-7
MS20822-4	Elbow	7-11	STD-160	Washer	6-1
MS20822-6	Elbow	7-7	STD-160	Washer	6-3
MS20823-4	Elbow	6-5	STD-160	Washer	6-7
MS20823-4	Elbow	7-7	STD-160	Washer	7-3
MS20823-8	Elbow	7-7	STD-213	Oil Seal	1-11
MS28775-015	“O” Ring	7-9	STD-251	Washer	1-3
MS29512-04	“O” Ring	4-1	STD-251	Washer	6-5
MS29512-06	“O” Ring	1-1	STD-251	Washer	7-7
MS29512-06	“O” Ring	7-9	STD-405	Plug	7-1
MS29512-08	“O” Ring	7-7	STD-425	Washer	6-7
MS29512-08	“O” Ring	7-11	STD-425	Washer	7-7
STD-8	Washer	1-13	STD-475	Washer	1-9
STD-8	Washer	2-3	STD-475	Washer	1-13
STD-8	Washer	2-7	STD-475	Washer	2-5
STD-8	Washer	2-9	STD-475	Washer	2-9
STD-8	Washer	2-11	STD-475	Washer	4-1
STD-8	Washer	6-1	STD-475	Washer	5-1
STD-8	Washer	6-3	STD-475	Washer	6-3
STD-8	Washer	6-7	STD-475	Washer	7-9
STD-8	Washer	7-3	STD-514	Dowel	1-1
STD-19	Dowel	1-9	STD-551	Plug	6-1
STD-28	Washer	1-3	STD-557	Dowel	1-1
STD-28	Washer	7-9	STD-596	Nut	1-3
STD-28	Washer	7-11	STD-596	Nut	1-13
STD-33	Washer	1-3	STD-670	Locknut	6-5
STD-33	Washer	1-13	STD-678	Washer	1-3

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
STD-678	Washer	1-13	STD-1774	Pin	2-9
STD-678	Washer	7-7	STD-1925	Screw	3-7
STD-684	Nipple	3-7	STD-1932	Bushing	7-1
STD-690	Washer	5-3	STD-1932	Bushing	7-7
STD-692	Screw	7-7	STD-1932	Bushing	7-11
STD-713	Cotter Pin	4-1	STD-2007	Washer	4-1
STD-713	Cotter Pin	5-3	STD-2029	Bolt	6-7
STD-714	Pin	2-3	STD-2042	Bolt	6-3
STD-798	Dowel	1-9	STD-2042	Bolt	6-7
STD-853	Tee	6-7	STD-2043	Nut	7-3
STD-860	Screw	6-5	STD-2044	Nut	7-1
STD-860	Screw	6-7	STD-2044	Nut	7-3
STD-872	Nut	1-13	STD-2045	Nut	7-5
STD-872	Nut	5-3	STD-2045	Nut	7-9
STD-969	Screw	6-7	STD-2090	Nut	3-7
STD-1164	Insert	6-3	STD-2166	Elbow	6-5
STD-1171	Insert	1-3	STD-2168	Nut	1-11
STD-1173	Insert	6-1	STD-2178	Washer	6-1
STD-1173	Insert	6-3	STD-2180	Hose	3-7
STD-1211	Plug	1-7	STD-2197	Washer	7-5
STD-1339	Plug	2-3	STD-2231	Ring	1-7
STD-1339	Plug	6-7	STD-2247	Bolt	1-7
STD-1342	Washer	7-9	STD-2249	Nut	1-13
STD-1410	Nut	1-9	10-8	Stud	1-1
STD-1410	Nut	2-5	25C-8	Stud	3-3
STD-1410	Nut	2-9	25C-10	Stud	2-11
STD-1410	Nut	4-1	25C-11	Stud	2-9
STD-1410	Nut	5-1	25C-11	Stud	3-3
STD-1411	Nut	1-13	25C-11	Stud	6-1
STD-1411	Nut	2-7	25C-12	Stud	2-9
STD-1411	Nut	2-9	25C-21	Stud	2-1
STD-1411	Nut	2-11	31C-12	Stud	1-1
STD-1411	Nut	3-5	31C-12	Stud	2-1
STD-1411	Nut	3-7	31C-13	Stud	1-1
STD-1411	Nut	6-1	31C-17	Stud	1-1
STD-1411	Nut	7-3	31C-19	Stud	2-1
STD-1420	Nut	2-3	31C-21	Stud	2-1
STD-1420	Nut	7-5	31CD-20	Stud	2-1
STD-1421	Bolt	7-5	38-13	Stud	1-1
STD-1421	Bolt	7-9	38-15	Stud	6-1
STD-1566	Screw	7-9	38-16	Stud	1-1
STD-1703	Screw	7-11	38-22	Stud	1-1
STD-1727	Washer	5-3	38D-17	Stud	1-1
STD-1727	Washer	6-3	50-15	Stud	1-1
STD-1727	Washer	7-3	383-B	Nut	3-7
STD-1727	Washer	7-5	1028-B	Ball	1-5
STD-1727	Washer	7-9	1102	Plug	2-1
STD-1737	Ring	1-11	1102	Plug	3-3
STD-1774	Pin	1-11	1102	Plug	6-1
STD-1774	Pin	2-7	1102	Plug	6-7

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
1102	Plug	7-11	72378	Cover	1-9
1182-H7	Spark Plug	4-1	72566	Gear	1-7
1182-Q4	Spark Plug	4-1	72626	Shaft	3-5
8313	Gasket	2-7	72706	Insert	3-3
8313	Gasket	2-9	72709	Screw	3-7
60430	Cover	2-7	72710	Cover	3-7
60430	Cover	2-9	72962	Thrust Button	1-11
60803	Strap	1-13	72972	Shaftgear Assy.	1-11
60945	Plug	1-7	72974	Gear Assy.	2-7
61084	Spring	1-5	73032	Gasket	6-5
61183	Gasket	2-7	73136	Bracket	6-5
62224	Gasket	4-1	73249	Washer	1-9
62388	Cap	3-5	73250	Washer	1-9
62417	Plug	2-7	73251	Washer	1-9
66670	Bushing	3-3	73252	Washer	1-9
66732	Gasket	3-7	73314	Gasket	7-9
67530	Bushing	1-11	73314	Gasket	7-11
67536	Adapter Assy.	2-7	73383	Lockplate	5-3
67542	Ball Bearing	4-1	73648	Roller	1-7
68315	Gasket	2-9	73772	Nozzle Assy.	1-1
68668	Spring	1-5	73810	Bushing	1-8
69159	Adapter Assy.	1-11	73818	Gasket	2-1
69164	Gasket	1-11	73966	Spacer	6-1
69260	Insert	3-3	74068	Ring	1-3
69532	Seat	3-5	74241	Ring	3-1
69796	Dowel	1-1	74389	Bushing	3-5
70310	Seal	3-5	74494	Plate	3-7
70455	Gasket	1-9	74887	Spacer	3-7
70474	Washer	1-11	75233	“O” Ring	3-7
71481	Ring	3-7	75371	Gasket	7-7
71549	Washer	3-5	75380	Link	5-3
71596	Washer	2-7	75505	Adapter	7-9
71610	Hook	3-7	75656-S	Bushing	1-7
71611	Retainer	3-7	75739	Nipple	1-1
71664	Gear Assy.	1-11	75845	Gasket	7-3
71667	Lockplate	1-11	76036	Gasket	3-7
71668	Gear Assy.	1-11	76118	Spacer	1-7
71903-A	Bushing	1-7	76155	Shaft Assy.	1-7
71907	Washer	1-7	76220	Stud	1-13
71973	Gasket	6-3	76355	Tee	7-11
72050	Key	3-5	76422	Elbow	2-5
72053	Gasket	1-9	76510	Gasket	2-11
72059	Gasket	1-3	76534	Shim	5-3
72091	Ring	1-5	76734	Zip Strap	7-7
72155-S	Bushing	1-7	76784	Shaft	2-3
72158	Bushing	1-1	76788	Roller	1-7
72198	Plug	3-1	77309	Bushing	1-11
72246	Shaft	1-11	77461	Tee	7-11
72376	Elbow	7-11	77467	Spring	1-5
72377	Elbow	7-11	77569	Ring	6-3

NUMERICAL INDEX (CONT.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
77644	Screen	6-1	15B26066	Plunger Assy.	3-5
77645	Plug	6-1	15F19957-63	Rod Assy.	3-5
77708	Washer	2-9	15F19957-64	Rod Assy.	3-5
77808	Valve Assy.	1-5	15F19957-65	Rod Assy.	3-5
77825	Shaftgear	2-9	15F19957-66	Rod Assy.	3-5
77852	Oil Filter Base Assy.	2-11	15F19957-67	Rod Assy.	3-5
77872	Bushing	1-9	15F19957-68	Rod Assy.	3-5
77906	Spacer	3-7	16A19516	Cylinder & Head Assy.	3-3
78523	Elbow	2-5	16T19468	Seat	3-3
78703	Damper	7-5	17A23942	Intake Valve	3-5
79024-S	Bushing	1-7	17B23944	Exhaust Valve	3-5
951391	“O” Ring	6-5	17C19386	Key	3-5
01A23354	Stud	1-1	17C21191	Cap	3-5
01L21418	Washer	1-9	17T19439	Tube Assy.	3-7
01N19833-281	Plug	2-9	18B23885	Bearing	1-5
01P19762-4	Bag Attaching	4-1	18E23886	Bearing	1-5
02G21382	Nipple	2-5	21C21542-04	Housing Assy.	2-1
02G21446	Nipple	6-5	29A21358	Adapter Assy.	2-9
06A19956	Oil Seal	2-7	29A21372	Drive Assy.	2-9
06A19956	Oil Seal	2-9	29D21310	Adapter	2-9
06B21326	Gasket	6-1	31B22105	Starter	5-1
06B23862	Gasket	2-11	32C19553	Alternator Assy.	5-2
06E19769-0.63	Gasket	2-7	36B19484	Pulley	5-2
06E19769-1.25	Gasket	1-5	40B19815	Exhaust Pipe	7-1
06E19769-1.50	Gasket	6-1	40B19830	Adapter	7-1
07A19474	Bracket	5-3	51A22618	Body Assy.	2-3
07A19479	Bracket	6-5	51B23274	Impeller	2-3
07A19797	Bracket Assy.	6-3	51C23275	Impeller	2-3
07A19798	Bracket Assy.	6-3	51C23290	Impeller Assy.	2-3
07E23155	Support Assy.	7-5	51D22617	Shaft	2-3
07F19814	Wastegate Support	7-3	53E22144	Valve Assy.	2-11
07F23268	Strut	5-3	62E22584	Fuel Pump Assy.	2-5
11F23345	Rocker Assy.	3-5	62E23189	Fuel Pump	2-5
11F24021-S2	Crankcase Assy.	1-1	66LC35SDNP	Magneto	4-1
13F47738	Crankshaft Assy.	1-7	66N21020	Valve Assy.	4-1
13S19648	Gear	1-7	66M21195	Clamp	4-1
14H21950	Ring	3-1	67J20608-P	Harness Assy.	4-1
14S23889	Bolt	3-1	67J20609-P	Harness Assy.	4-1
15B21319	Socket	3-5	68H22624	Cushion	4-1
15B26064	Body	1-5			