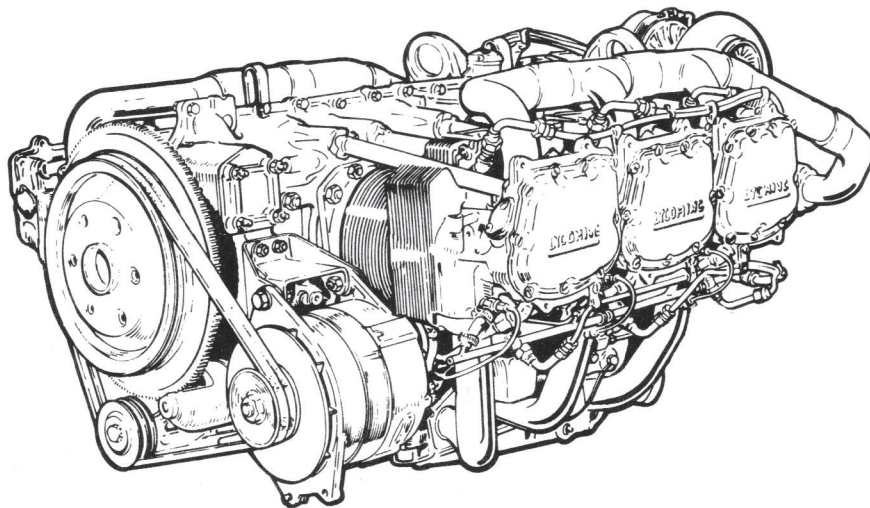


Lycoming Aircraft Engines Parts Catalog



TIO-540 Series **Standard Cylinder Flange Crankcase Models**

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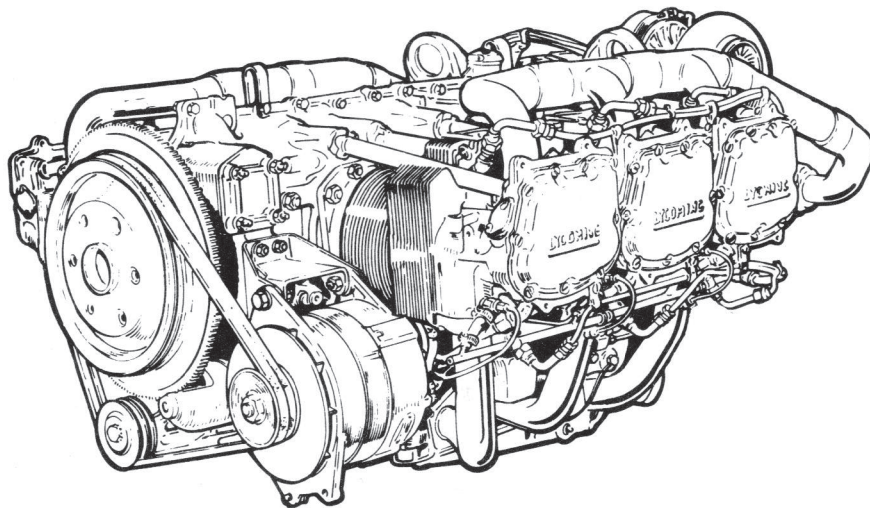
Lycoming

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Lycoming Aircraft Engines Parts Catalog



TIO-540 Series

Standard Cylinder Flange Crankcase Models

LYCOMING

INTRODUCTION

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

Lycoming TIO-540 Series standard

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

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

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

Parts coverage of Vendor Accessories used on Lycoming engines may be found in the appropriate Vendor's Parts Catalog. A list of 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 this publication are typical of the subject matter they portray.

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

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

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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-iii
Oversize and Undersize Parts Listing	iv-v
1. CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP	
Crankcase Assembly	1-1
Oil Level Gages and Engine Mounting Brackets	1-3
Crankcase Related Parts	1-5
Crankshaft and Related Parts	1-7
Camshaft and Related Parts	1-9
Propeller Governor Drive Assembly	1-10
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	2-2
Fuel Pump Assemblies	2-3
Oil Filter Assembly and Oil Cooler Bypass Valve	2-4
Vacuum Pump Drive, Oil Cooler and Breather Fittings	2-5
Turbo Scavenge Pump and Hydraulic Pump Drives and Covers	2-7
3. CYLINDER, PISTON AND VALVE TRAIN	
Connecting Rods, Piston and Ring Assemblies	3-1
Cylinder Assembly	3-3
Valve Assembly	3-5
Cylinder Related Parts	3-7
Cylinder Head Drain Tubes, Intercylinder Cooling Baffles & Related Parts	3-9
4. IGNITION SYSTEM	
Single Magnetos, Magneto Drives and Spark Plugs	4-1
5. ELECTRICAL COMPONENTS	
Alternator Assemblies and Belts	5-1
Prestolite Starter Motor and Attaching Parts	5-3
Lycoming Light Weight Starter Kit	5-5
Alternator Mounting and Attaching Parts	5-7
Alternator Mounting and Attaching Parts	5-9
Alternator and Compressor Attaching Parts	5-11
6. OIL SUMP AND INDUCTION SYSTEM	
Oil Sump Assembly and Oil Suction Screen	6-1
Oil Sump Assembly and Oil Suction Screen	6-3
Intake Pipes and Air Inlet Housing	6-5
Fuel Injector, Fuel Manifolds and Injection Nozzle	6-7
Fuel Injector, Fuel Manifold, Injection Nozzles, Hoses & Attachments	6-9

TABLE OF CONTENTS (Cont.)

SECTION	PAGE
6. OIL SUMP AND INDUCTION SYSTEM (Cont.)	
Fuel Hoses and Attaching Parts.....	6-11
Injector Nozzle Vent Manifolds, Hoses and Attachments.....	6-13
Injector Nozzle Vent Manifolds, Hoses and Attachments.....	6-15
7. TURBOCHARGER AND EXHAUST SYSTEMS	
Exhaust Manifolds and Attachments.....	7-1
Exhaust Manifolds, Bypass Valve and Attaching Parts.....	7-3
Turbocharger, Support Assembly and Exhaust Bypass Valve.....	7-5
Turbocharger, Supports, Brackets and Related Parts.....	7-7
Turbocharger Related and Attaching Parts.....	7-9
Turbocharger Related and Attaching Parts.....	7-11
Density Controllers and Related Parts.....	7-13
Turbocharger Hoses, Fittings & Related Parts.....	7-15
Turbocharger Hoses, Tank Assy. and Related Parts.....	7-17
Turbocharger Hoses, Controller and Related Parts.....	7-19
Turbocharger Hoses, Tubes and Attaching Parts.....	7-21
8. SERVICE KIT SECTION.....	8-1
9. NUMERICAL INDEX.....	9-1

Oversize and Undersize Parts Listing

PART NO.	DESCRIPTION	OVERSIZE								UNDERSIZE		
		P02 .002	P05 .005	P10 .010	P15 .015	P20 .020	P30 .030	P40 .040	P50 .050	M03 .003	M06 .006	M10 .010
61681	GUIDE	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1256 FOR APPLICATION.										
66610	BUSHING		X	X								
66670	BUSHING		X	X								
66713	GUIDE	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1256 FOR APPLICATION.										
69260	INSERT			X								
69796	DOWEL		X									
71903-A, -B	BUSHING	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1143 FOR APPLICATION.										
72057	SEAT			X		X	X					
72058	SEAT			X		X	X					
72060-S	BUSHING		X	X	X	X						
72061-S	BUSHING		X	X	X	X						
72062-S	BUSHING		X	X	X	X						
72155-S	BUSHING		X	X	X	X						
72897	GUIDE	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1256 FOR APPLICATION.										
73810	BUSHING	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1142 FOR APPLICATION.										
73857	RING			X		X						
74230	GUIDE	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1256 FOR APPLICATION.										
74241	RING			X								
74309	BEARING			X								
75656-S	BUSHING		X	X	X	X						
75657-S	BUSHING		X	X		X						
78443	SEAL	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1324 FOR APPLICATION.										
79024-S	BUSHING		X	X	X	X						
LW-10647	DOWEL		X	X								
LW-11021	BEARING				X					X	X	X
LW-11575	BEARING				X					X	X	X
LW-11997	SEAL	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1324 FOR APPLICATION.										
LW-12688	SEAT			X		X	X					
LW-13521	BEARING			X						X*	X*	X*
LW-13522	BEARING									X	X	X
LW-13792	SEAL	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1324 FOR APPLICATION.										
LW-13884	BEARING				X					X	X	X
LW-13885	BEARING									X	X	X
LW-15628	SEAL	SEE LATEST EDITION OF SERVICE INSTRUCTION NO. 1324 FOR APPLICATION.										
LW-16048	BEARING			X						X*	X*	X*
LW-19042	SEAT			X		X	X					
STD-1065	DOWEL	X	X	X	X							
16T19468	SEAT			X		X	X					

Oversize and Undersize Parts Listing (Cont.)

PART NO.	DESCRIPTION	OVERSIZE								UNDERSIZE		
		P02 .002	P05 .005	P10 .010	P15 .015	P20 .020	P30 .030	P40 .040	P50 .050	M03 .003	M06 .006	M10 .010
18A19399	BEARING				X					X	X	X
18A19441	BEARING				X					X	X	X
18D19394	BEARING				X					X	X	X
18E19396	BEARING				X					X	X	X

* Also available in P10 oversize.

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

NOTE

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

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CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP

CRANKCASE ASSEMBLY

FIG. REF. 1	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-12030	CRANKCASE ASSEMBLY (See note)		1	1	1	1	1					
	LW-11037	CRANKCASE ASSEMBLY (See note)							1	1	1	1	
2	STD-557	DOWEL, 1/2 dia. x 11/16 long, hollow	2										
3	75302	DOWEL, Crankcase thru stud	4										
4	66734	STUD, 1/2-13 x 9-7/8 long	4										
5	50-15	STUD, 1/2-13 x 1-7/8 long	12										
6	69679	STUD, 9/16-18 x 10-21/32 long	4										
7	38-13 *	STUD, 3/8-16 x 1-5/8 long		28	28	28	28	28					
	38-13	STUD, 3/8-16 x 1-5/8 long							24	24	24	24	
8	38-16	STUD, 3/8-16 x 2.00 long		8	8	8	8	8					
9	38-22	STUD, 3/8-16 x 2-3/4 long	1										
10	31C-12	STUD, 5/16-18 x 1-1/2 long	2										
11	31C-13	STUD, 5/16-18 x 1-5/8 long	1										
12	1102	PLUG, 1/8 pipe x 3/8 long	5										
13	38-15	STUD, 3/8-16 x 1-7/8 long							8	8	8	8	
14	STD-1339	PLUG, 1/16-27 pipe, Allen head	1										
15	69796	DOWEL, Crankshaft bearing	2										
16	LW-10647	DOWEL, Crankshaft bearing	6										
17	STD-514	DOWEL, 5/16 dia. x 1/2 long	2										
18	31C-14 **	STUD, 5/16-18 x 1-3/4 long		4	4	4	4	4	4		4		
	31C-16 ★	STUD, 5/16-18 x 2.00 long					4			4		4	
19	73772	NOZZLE ASSEMBLY, Piston cooling	6										
20	65007 ●	RETAINER, Shroud tube seal	12										

* Used if York compressor is installed.

** Used with AN Governor.

★ Used with Woodward Governor.

● Early crankcases used Item No. 20 Retainer, P/N 65007, installed in shroud tube bosses. Later crankcases are machined as a product improvement to accept shroud tubes without retainers. This part is a service item only.

NOTE

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

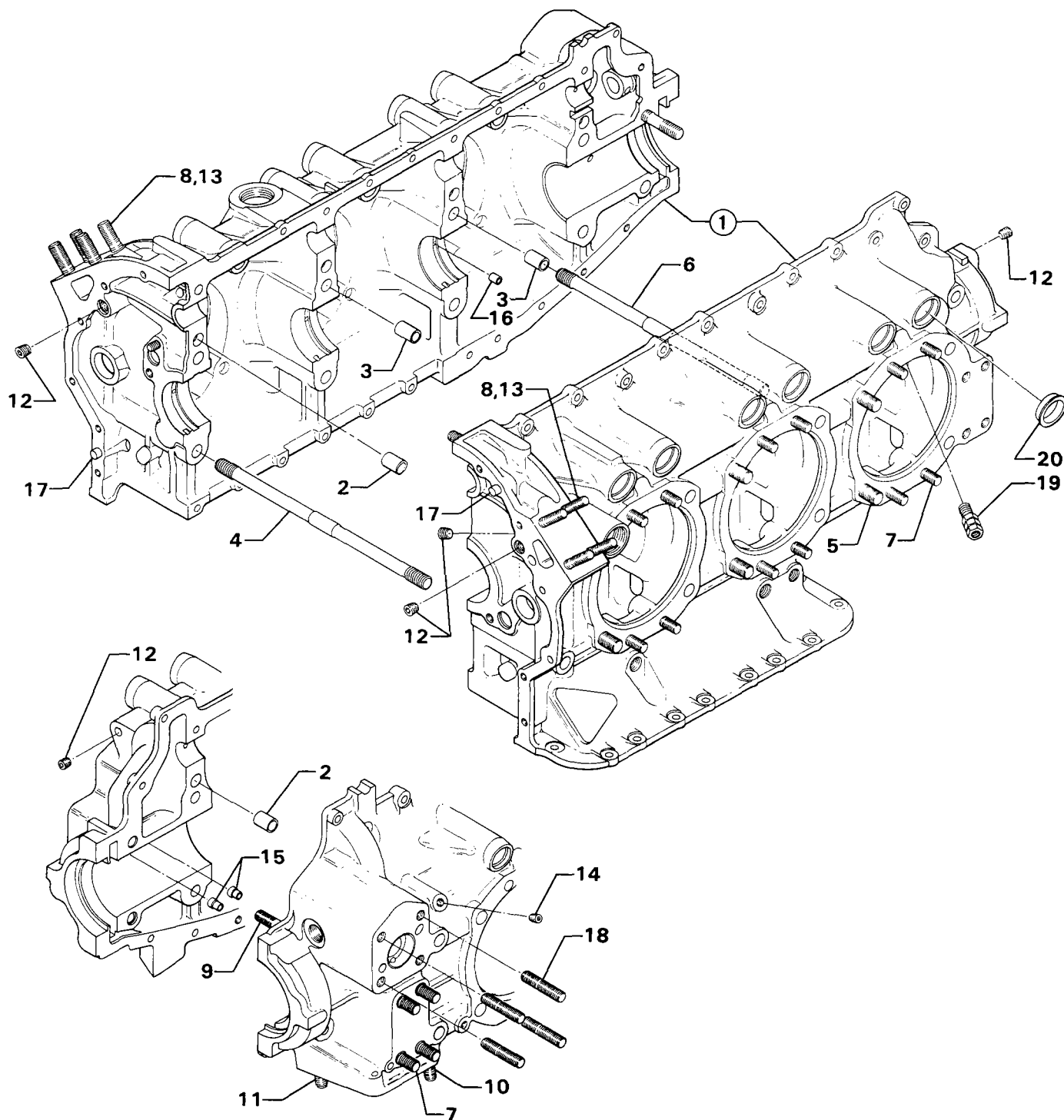


Figure 1. CRANKCASE ASSEMBLY

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP

OIL LEVEL GAGES AND ENGINE MOUNTING BRACKETS

FIG. REF. 2	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	70457	GASKET, Oil filler extension	1										
2	75761	EXTENSION, Oil filler, long								1		1	
3	77527	EXTENSION, Oil filler, short		1	1	1	1	1	1		1		
	74313	EXTENSION, Oil filler, short (alternate)		1	1	1	1	1	1		1		
4	74065	"O" RING, Oil level gage (threaded top)								1		1	
5	72312	RING, Oil seal, 1.00 I.D. x 1/8 section (cam action)		1	1	1	1	1	1		1		
6	LW-14728	GAGE ASSY., Oil level (cam action)		1	1	1	1	1					
	LW-14732	GAGE ASSY., Oil level (cam action)							1		1		
	LW-14774	GAGE ASSY., Oil level (threaded plug)								1		1	
7	12A19770	BRACKET, Engine mounting (Dynafoal)		3	3	3	3	3					
	12A19771	BRACKET, Engine mounting (Dynafoal)		1	1	1	1	1					
	12A19770	BRACKET, Engine mounting (Dynafoal)							4	4	4	4	
	70456 *	BRACKET, Engine mounting (Dynafoal)										2	
	LW-12317 *	BRACKET, Engine mounting, lower (Dynafoal)										2	
8	STD-33	WASHER, 3/8 plain	16										
9	STD-678	WASHER, 3/8 lock, internal teeth	16										
10	STD-596	NUT, 3/8-24 plain	16										

* 30° angled mount with 1-3/8 dia. hole.



Figure 2. OIL LEVEL GAGES AND ENGINE MOUNTING BRACKETS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP

CRANKCASE RELATED PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
3													
1	1028-B	BALL, 11/16 diameter	1										
2	61084 *	SPRING, Oil pressure relief valve	1										
4	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 ASSY., Oil pressure relief, adjustable	1										
5	LW-11575	BEARING, Crankshaft		6	6	6	6	6					
	18E19396	BEARING, Crankshaft (alternate)		6	6	6	6	6					
	LW-11021	BEARING, Crankshaft (alternate)							6	6	6	6	
	LW-16047	BEARING, Crankshaft (alternate)							6	6	6	6	
	18D19394	BEARING, Crankshaft							6	6	6	6	
6	LW-13885	BEARING, Crankshaft, front		2	2	2	2	2					
	18A19399	BEARING, Crankshaft, front (alternate)		2	2	2	2	2					
	LW-13884	BEARING, Crankshaft, front							2	2	2	2	
	18A19441	BEARING, Crankshaft, front (alternate)							2	2	2	2	
7	LW-15628 **	SEAL, Crankshaft oil, solid		1	1	1	1	1					
	78443 **	SEAL, Crankshaft oil, split		1	1	1	1	1					
	LW-13792 **	SEAL, Crankshaft oil, solid							1	1	1	1	
	LW-11997 **	SEAL, Crankshaft oil, split							1	1	1	1	
8	72075	SEAL, Oil, 3/32 section x 15/32 I.D.	4										
9	72091	RING, Oil seal, 23/64 I.D. x 7/64 dia.	2										
10	72877	BODY, Hydraulic tappet	12										
11	78290	PLUNGER ASSY., Hydraulic tappet	12										
12	15B21319	SOCKET, Push rod, hydraulic tappet	12										

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

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

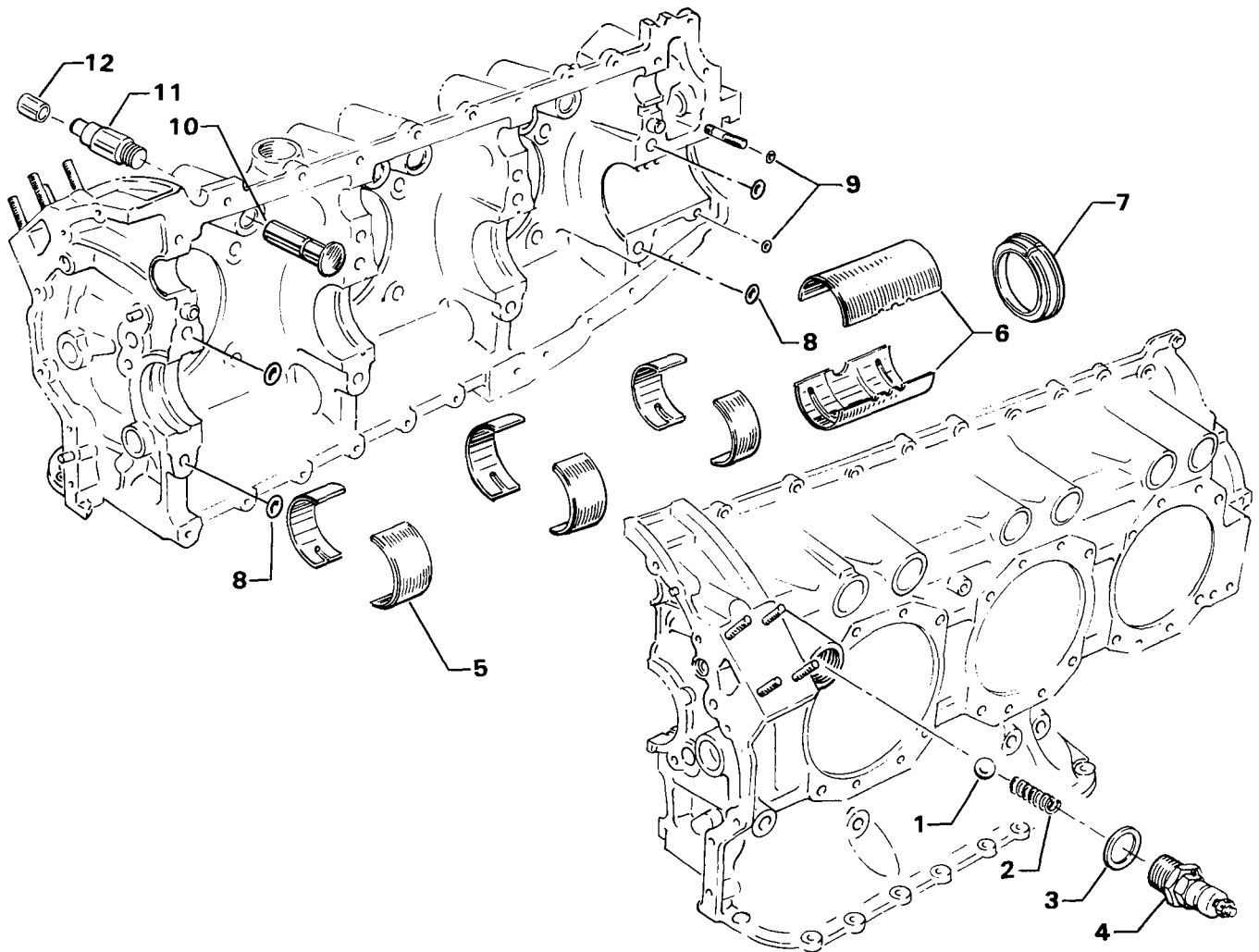


Figure 3. CRANKCASE RELATED PARTS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP

CRANKSHAFT AND RELATED PARTS

FIG. REF. 4	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	13F17777	CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY		1	1								
	13F17776	CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY				1	1	1					
	13E17676	CRANKSHAFT AND COUNTERWEIGHT ASSEMBLY							1	1	1	1	
2	13F17752	CRANKSHAFT AND PLUG ASSEMBLY		1	1								
	13F17751	CRANKSHAFT AND PLUG ASSEMBLY				1	1	1					
	13E17648	CRANKSHAFT AND PLUG ASSEMBLY							1	1	1	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	1	1	1	1					
	71640	PLUG, 1-3/8 dia.							1	1	1	1	
6	75656	BUSHING, Propeller flange, long		4	4	4	4	4					
7	72155	BUSHING, Propeller flange, short		1	1	1	1	1					
8	75657	BUSHING, Propeller flange, indexing		1	1								
9	79024	BUSHING, Propeller flange, indexing, long				1	1	1					
10	72062	BUSHING, Propeller flange, long							4	4	4	4	
11	72061	BUSHING, Propeller flange, short							1	1	1	1	
12	72060	BUSHING, Propeller flange, indexing							1	1	1	1	
13	STD-1065	DOWEL, Stepped, 5/16 x 1/4 dia. x 35/64 long	1										
14	LW-19210 **	COUNTERWEIGHT ASSEMBLY		2	2	2	2	2					
	LW-19227 **	COUNTERWEIGHT ASSEMBLY							2	2	2	2	
15	71903 ★	BUSHING, Dynamic counterweight	8										
16	76788 **	ROLLER, Dynamic counterweight, 6.3 order		2	2	2	2	2					
	72797 **	ROLLER, Dynamic counterweight, 6.3 order							2	2	2	2	
17	73648 **	ROLLER, Dynamic counterweight, 5.1 order		2	2	2	2	2					
	72965 **	ROLLER, Dynamic counterweight, 5.1 order							2	2	2	2	
18	LW-14820	RING, Internal retaining	8										
19	71907	WASHER, Dynamic counterweight	8										
20	13S19648 ●	GEAR, Crankshaft	1										
21	LW-18638	LOCKPLATE, Crankshaft gear	1										
22	STD-2209	BOLT, 5/16-24 x 1-3/4 long, hex. head	1										
23	77579 ‡	SUPPORT ASSY., Starter ring gear, 12/14 pitch						1	1				
	LW-12227 ■	SUPPORT ASSY., Starter ring gear, 12/14 pitch						1					
	LW-12605 ►	SUPPORT ASSY., Starter ring gear, 12/14 pitch						1					
	75030 ◄	SUPPORT ASSY., Starter ring gear, 12/14 pitch	1										
24	72566	GEAR, Starter ring, 12/14 pitch	1										

- * See latest edition of Service Instruction No. 1142 for application.
- ** See latest edition of Service Instruction No. 1012 for application.
- ★ See latest edition of Service Instruction No. 1143 for application.
- See latest edition of Service Bulletin No. 475 for application.
- ‡ Provision for 3.20:1 drive for alternator with no prop. de-icing.
- Provision for alternator and compressor drive.
- Alternator drive with electric de-icing for 3 bladed prop.
- ◄ Provision for 3.20:1 drive for alternator with prop. de-icing.

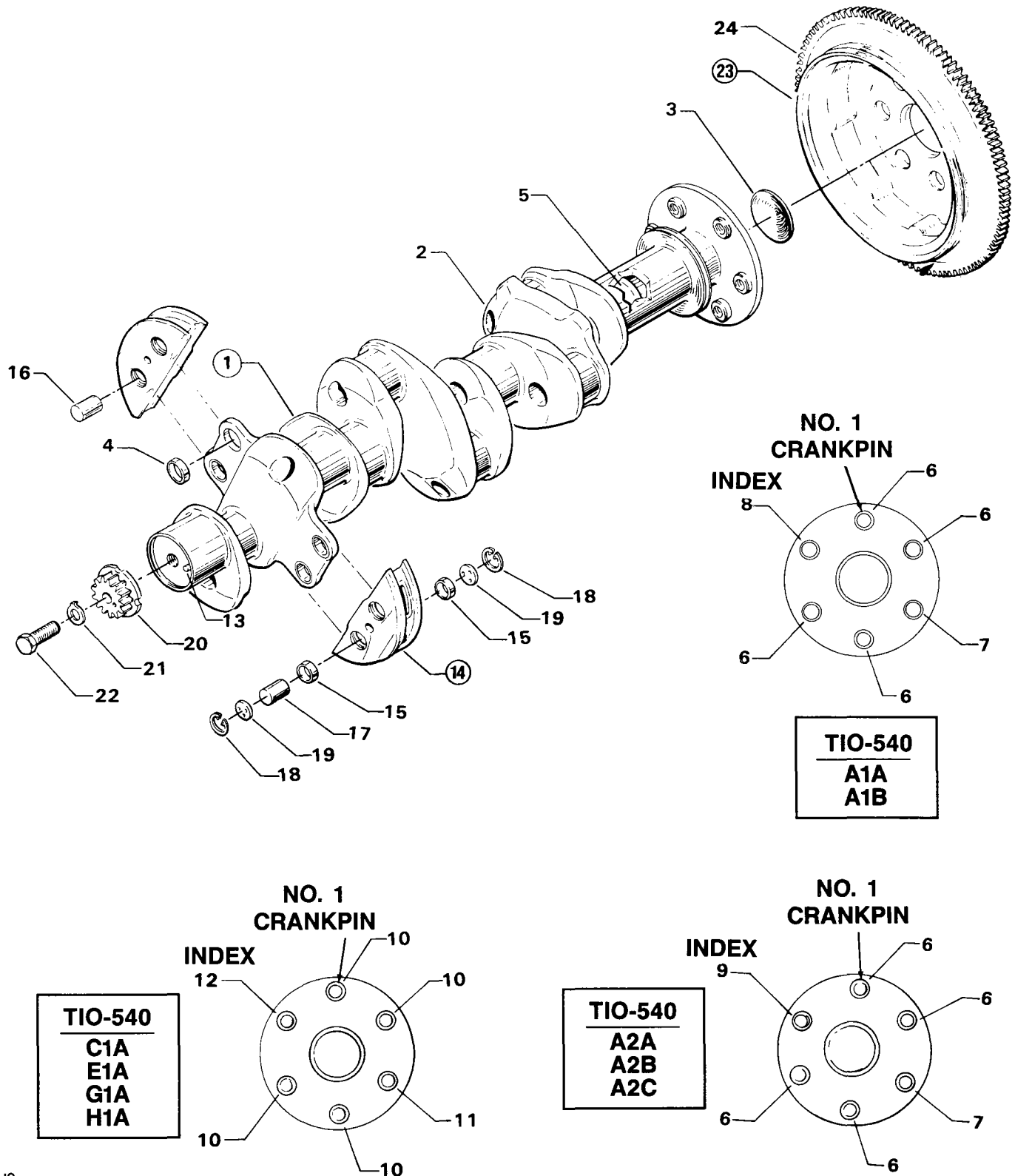
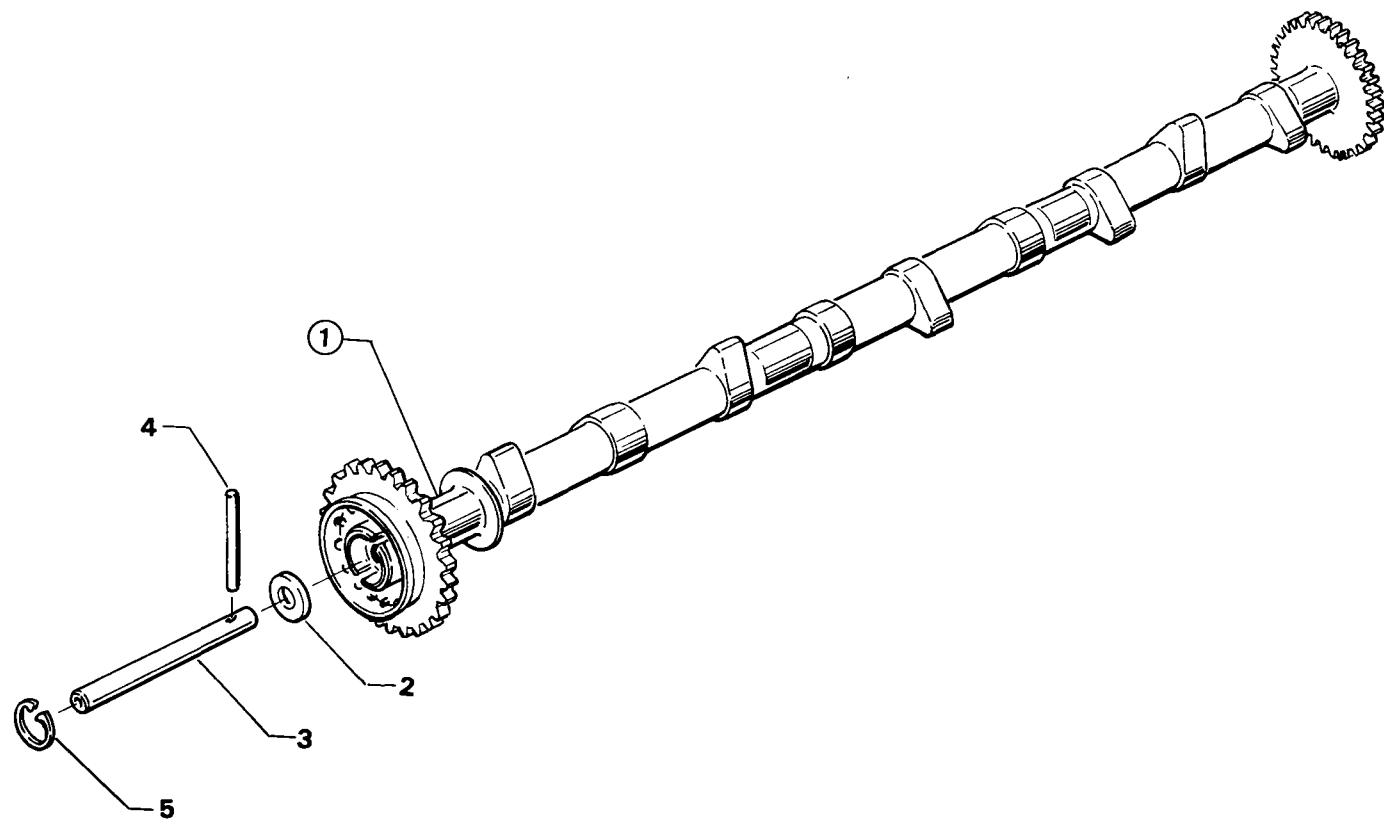


Figure 4. CRANKSHAFT AND RELATED PARTS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
CAMSHAFT AND RELATED PARTS

FIG. REF. 5	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-19340	CAMSHAFT ASSEMBLY	1										
2	76118	SPACER, Tachometer shaft centering	1										
3	76155	SHAFT ASSY., Tachometer	1										
4	LW-18667	PIN, 3/16 dia. x 2-21/64 long	1										
5	MS16625-1081	RING, Internal retaining	1										



3095

Figure 5. CAMSHAFT AND RELATED PARTS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP
PROPELLER GOVERNOR DRIVE ASSEMBLY

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	70389	GEAR, Propeller governor driven	1										
2	70384	SHAFT, Propeller governor idler gear	1										
3	70388	GEAR, Propeller governor idler	1										
4	STD-737	KEY, 3/32 x 1/2, Woodruff	1										
5	73249	WASHER, Thrust	AR										
	73250	WASHER, Thrust	AR										
	73251	WASHER, Thrust	AR										
	73252	WASHER, Thrust	AR										
	01L21418	WASHER, Thrust	AR										
6	70455	GASKET, 25/32 I.D. x 1-1/8 O.D. x 1/32 to 3/64 thick	1										
7	LW-13896	PLUG, 3/4-16 hex. hd.	1										
8	72053	GASKET, Governor	1										
9	72378	COVER, Governor drive	1										
10	STD-35	WASHER, 5/16 plain (Woodward Governor)	20										
	STD-35	WASHER, 5/16 plain (AN Governor)	4										
11	STD-475	WASHER, 5/16 lock, internal teeth	4										
12	STD-1410	NUT, 5/16-18 plain	4										

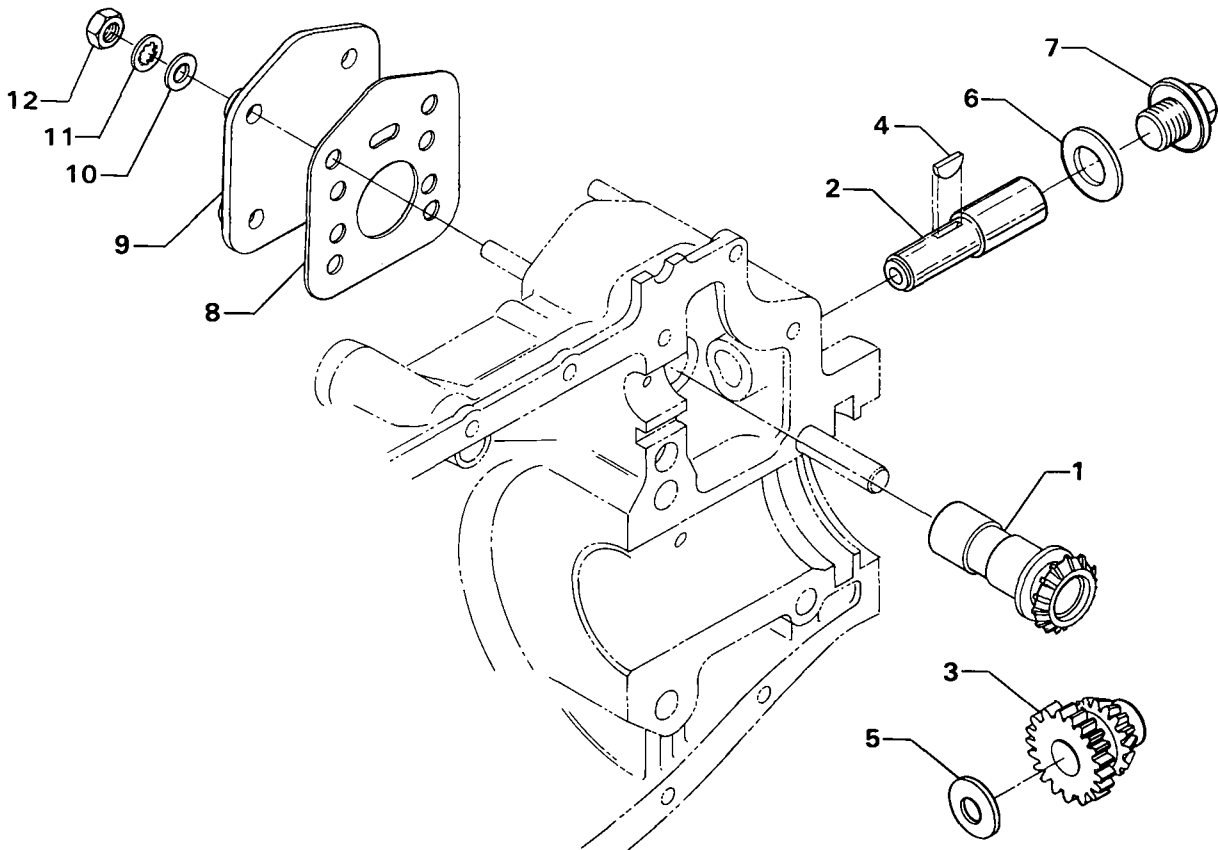


Figure 6. PROPELLER GOVERNOR DRIVE ASSEMBLY

3346

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP

CRANKSHAFT AND FUEL PUMP IDLER GEARS

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly								
				TIO-540 Standard								
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A
7												
1	71668	GEAR ASSY., Crankshaft idler, plain	2									
2	67530	BUSHING, Crankshaft idler gear	2									
3	LW-13795	SHAFT, Crankshaft idler gear	2									
4	STD-2167	SCREW, 5/16-18 x 7/8 long, hex. hd. dr.	4									
5	71664	GEAR ASSY., Fuel pump idler	1									
6	77309	BUSHING, Crankshaft idler gear	1									
7	72246	SHAFT, Fuel pump idler gear	1									
8	70474	WASHER, Fuel pump gear thrust	1									
9	STD-1737	RING, 37/64 dia. x 1/32 thick, external retaining	1									
10	71667	LOCKPLATE, 1/4 bolt x 1-3/4 spacing (offset)	1									
11	LW-25-0.63	SCREW, 1/4-20 x 5/8 long, hex. hd.	2									
12	72972	SHAFTGEAR ASSY., Fuel pump drive	1									
13	72962	THRUST BUTTON	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									

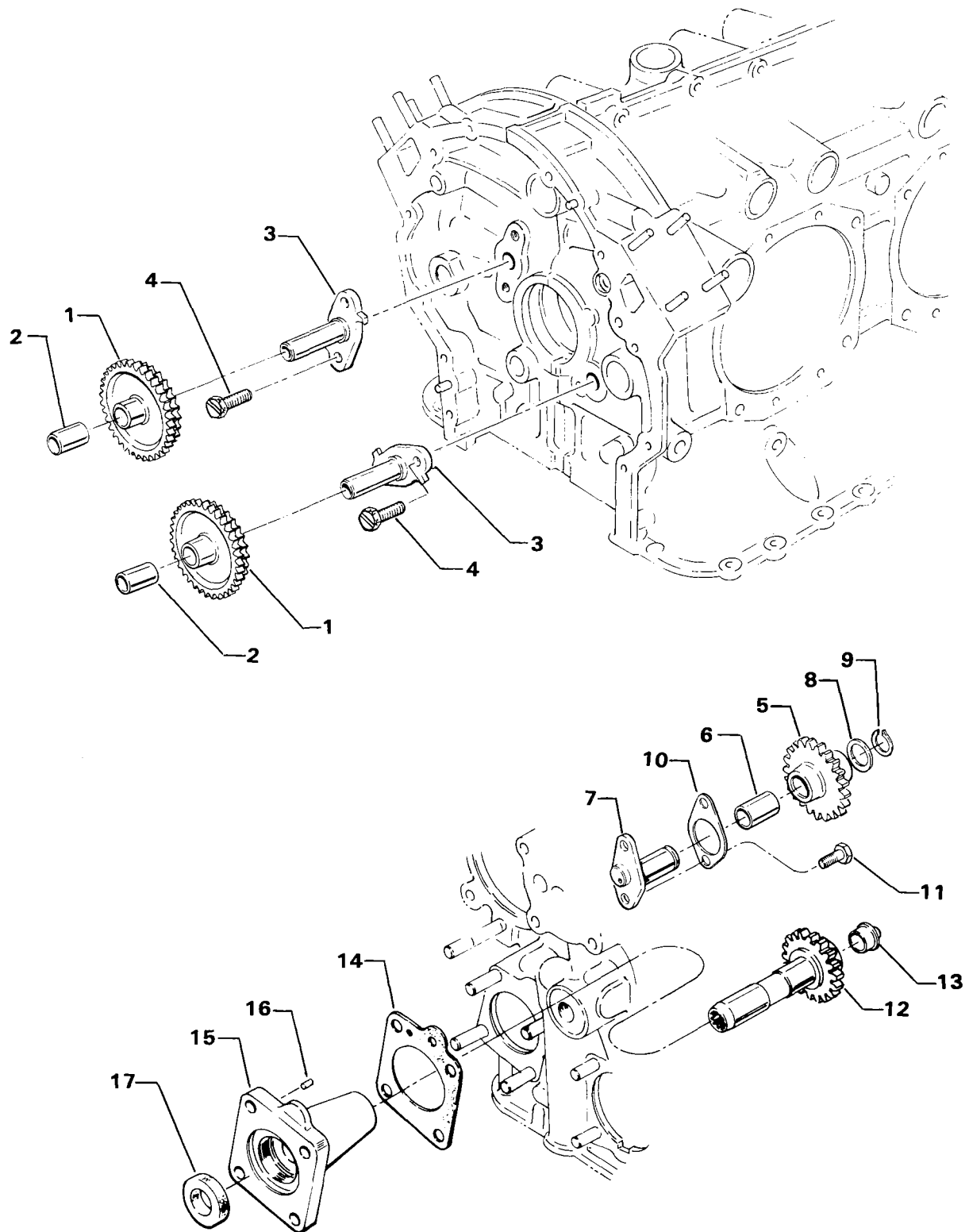


Figure 7. CRANKSHAFT AND FUEL PUMP IDLER GEARS

CRANKCASE, CRANKSHAFT AND CAMSHAFT GROUP

CRANKCASE ATTACHING PARTS

FIG. REF. 8	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-25-1.50	BOLT, 1/4-20 x 1-1/2 long, hex. hd.		11	11	11	11	11	8	8	8	8	
2	LW-25-2.00	BOLT, 1/4-20 x 2.00 long, hex. hd. (fuel manifold bracket)							2	2	2	2	
3	STD-8	WASHER, 1/4 plain		27	27	27	27	27	24	24	24	24	
4	60803	STRAP, Lifting	2										
5	LW-25-1.88	BOLT, 1/4-20 x 1-7/8 long, hex. hd.		2	2	2	2	2					
6	LW-25-1.75	BOLT, 1/4-20 x 1-3/4 long, hex. hd.							2	2	2	2	
7	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. hd.	4										
8	STD-160	WASHER, 1/4 lock, internal teeth	16										
9	STD-1411	NUT, 1/4-20 plain	12										
10	LW-25S1.50	BOLT, 1/4-20 x 1-1/2 long, hex. hd. dr. end	6										
11	STD-8	WASHER, 1/4 plain (max. 18)	AR										
12	STD-1409	NUT, 1/4-20 slotted shear	6										
13	AN6-21	BOLT, 3/8-24 x 2-13/64 long, hex. hd. drilled	1										
14	STD-33	WASHER, 3/8 plain	2										
15	STD-872	NUT, 3/8-24 slotted	1										
16	AN6-34A	BOLT, 3/8-24 x 3-37/64 long, hex. hd.	1										
17	STD-33	WASHER, 3/8 plain		3	3	3	3	4	3	3	3	3	
18	STD-678	WASHER, 3/8 lock, internal teeth	2										
19	STD-596	NUT, 3/8-24 plain	2										
20	76505	BRACKET, Support, ignition harness		1	1	1	1	1					
21	STD-692	SCREW, 10-32 x 1/2 long		1	1	1	1	1					
22	STD-28	WASHER, No. 10 plain		1	1	1	1	1					
23	LW-11866	NUT, Spacer, compressor bracket						2					

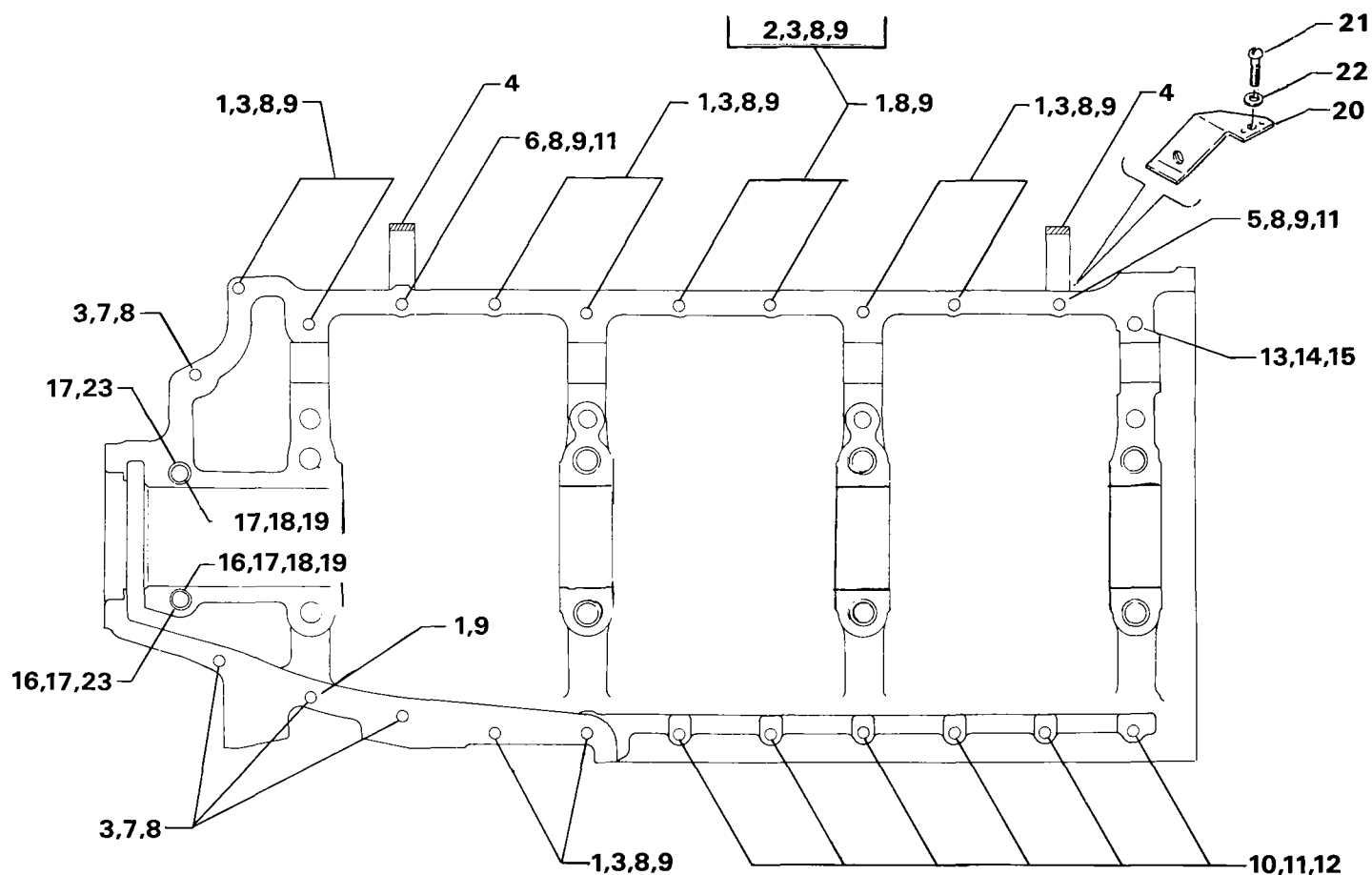


Figure 8. CRANKCASE ATTACHING PARTS

ACCESSORY HOUSING AND RELATED PARTS

ACCESSORY HOUSING ASSEMBLY

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly								
				TIO-540 Standard								
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A
9												
1	73818	GASKET, Accessory housing	1									
2	78494	HOUSING ASSY., Accessory		1	1	1	1	1				
	78207	HOUSING ASSY., Accessory							1	1	1	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	3									
5	31C-21	STUD, 5/16-18 x 2-5/8 long	4									
6	31C-19	STUD, 5/16-18 x 2-3/8 long	4									
7	25C-21	STUD, 1/4-20 x 2-5/8 long	4									
8	1102	PLUG, 1/8 pipe x 3/8 long, socket	2									

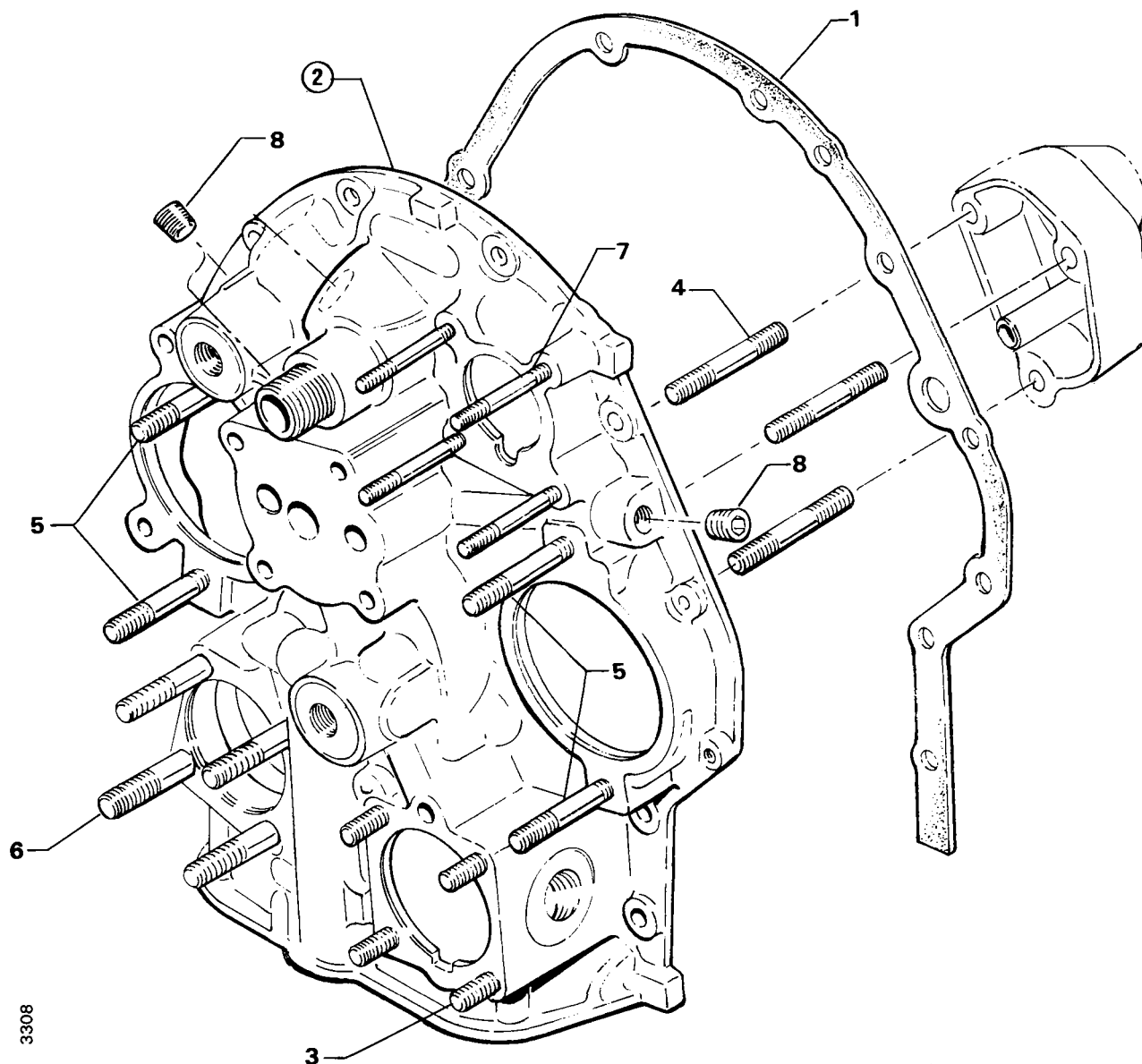


Figure 9. ACCESSORY HOUSING ASSEMBLY

ACCESSORY HOUSING AND RELATED PARTS

OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS

FIG. REF. 10	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	75287	BODY ASSY., Oil pump	1										
2	60329	SHAFT, Oil pump idler	1										
3	STD-714	PIN, 1/8 dia. x 1.00 long, cotter	1										
4	STD-1339	PLUG, 1/16-27 NPT, Allen head	1										
5	76784	SHAFT, Oil pump drive	1										
6	61297	IMPELLER, Oil pump, driving	1										
7	61298	IMPELLER, Oil pump, driven	1										
8	STD-35	WASHER, 5/16 plain	3										
9	STD-1420	NUT, 5/16-18 slotted	3										
10	LW-14260	SEAL, Tachometer drive, oil	1										
11	STD-8	WASHER, 1/4 plain	10										
12	STD-160	WASHER, 1/4 lock, internal teeth	12										
13	LW-25-0.94	BOLT, 1/4-20 x 15/16 long, hex. head	9										
14	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head	1										
15	LW-25-1.88	BOLT, 1/4-20 x 1-7/8 long, hex. head	2										

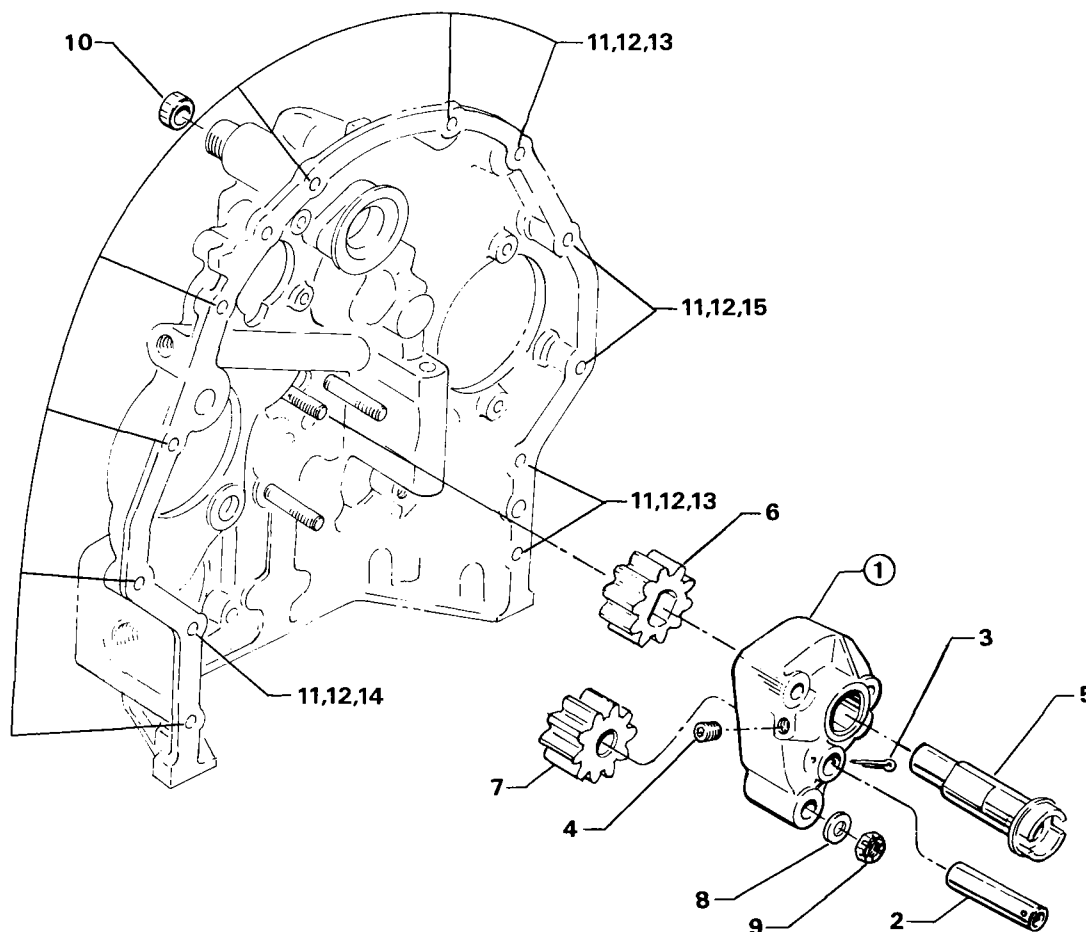


Figure 10. OIL PUMP ASSEMBLY AND ACCESSORY HOUSING ATTACHING PARTS

ACCESSORY HOUSING AND RELATED PARTS

FUEL PUMP ASSEMBLIES

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
11													
1	LW-10799	SPACER, Fuel pump, insulating	1										
2	LW-13917	PUMP ASSEMBLY, Fuel		1	1	1	1	1					
3	LW-13909	PUMP, Fuel (RG-9080-J4A) (clockwise rotation)		1	1	1	1	1					
4	76422	ELBOW, Fuel pump		1	1	1	1	1					
5	MS20822-6-8	ELBOW, 3/8 flared tube to 1/2 NPT, 90°		1	1	1	1	1					
6	78993	PUMP, Fuel (RG-17980) (clockwise rotation)							1	1	1	1	
7	02A21382	NIPPLE, Fuel pump vent		1	1	1	1	1					
8	02A21380	ELBOW, 1/8 NPT to 3/16 tube							1	1	1	1	
9	STD-35	WASHER, 5/16 plain	4										
10	STD-475	WASHER, 5/16 lock, internal teeth	4										
11	STD-1410	NUT, 5/16-18 plain	4										

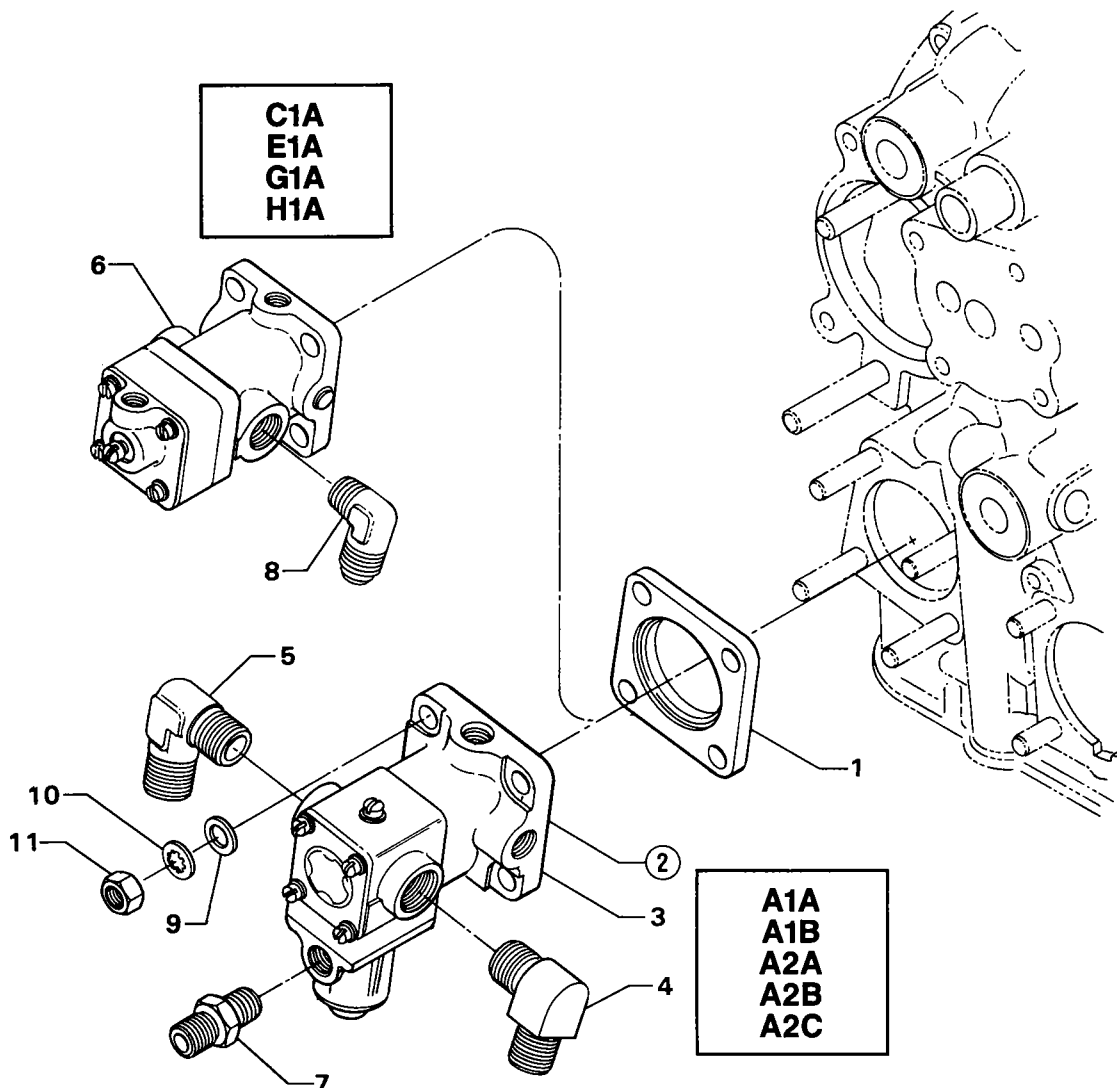


Figure 11. FUEL PUMP ASSEMBLIES

ACCESSORY HOUSING AND RELATED PARTS

OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE

FIG. REF. 12	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-12795	GASKET, Oil filter adapter (see Note)	1										
2	77853	OIL FILTER HOUSING ASSY. (see Note)	1										
3	77852	OIL FILTER BASE ASSY. (see Note)	1										
4	STD-8	WASHER, 1/4 plain	4										
5	STD-160	WASHER, 1/4 lock, internal teeth	1										
6	STD-1411	NUT, 1/4-20 plain	1										
7	STD-1856	SCREW, 1/4-20 x 1.00 long, hex. hd. self-locking	3										
8	53E19600	VALVE ASSY., Temp. control, oil cooler bypass	1										
9	76510	GASKET, Valve assembly	1										
10	25C-10	STUD, 1/4-20 x 1-1/4 long	1										
11	54D19625	OIL FILTER, (short with stud) (see Note)	1										
	54D19626 *	OIL FILTER, (long with stud) (see Note)	1										

* Long filter is used where engine airframe clearance permits.

NOTE

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

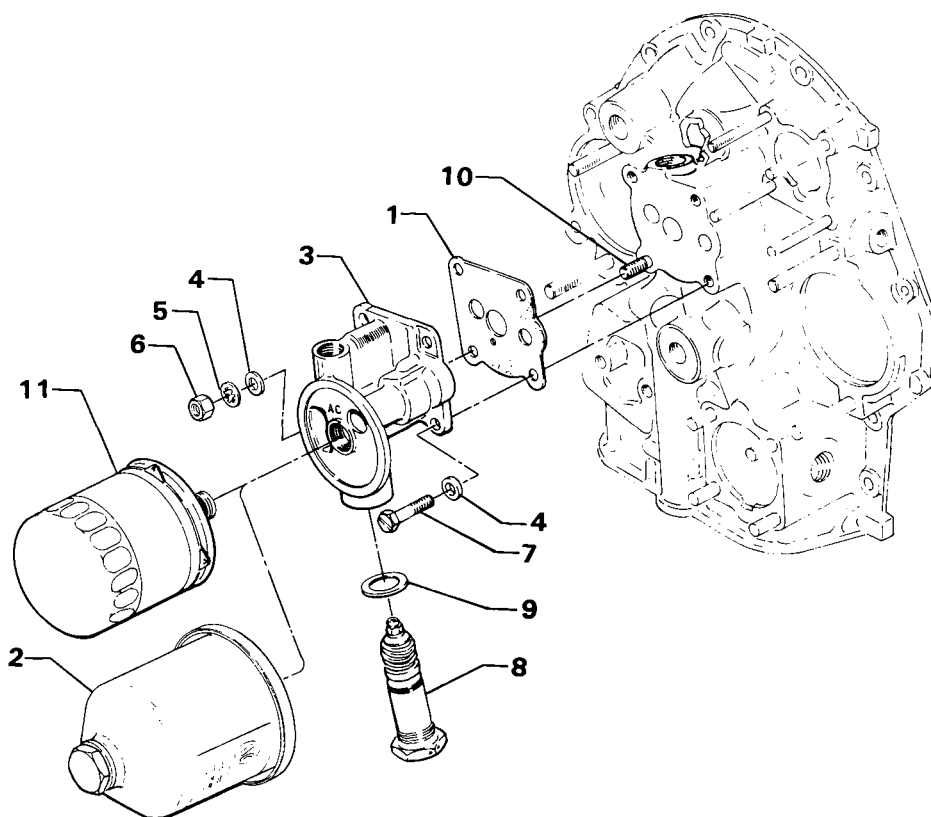


Figure 12. OIL FILTER ASSEMBLY AND OIL COOLER BYPASS VALVE

ACCESSORY HOUSING AND RELATED PARTS

VACUUM PUMP DRIVE, OIL COOLER AND BREATHER FITTINGS

FIG. REF. 13	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	61183	GASKET, Accessory adapter	1										
2	67536	ADAPTER ASSY., Vacuum pump	1										
3	STD-1774	DOWEL, 1/8 dia. x 1/4 long	1										
4	06A19956	OIL SEAL, 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	MS20823-8D	ELBOW, 1/2 flared tube & 3/8 NPT, 45°	1										
13	06E19769-0.63	GASKET, 7/8 O.D. x 5/8 I.D. x 3/32 annular	1										
14	62417	PLUG, Oil cooler bypass	1										
15	STD-784	PLUG 3/8-18 NPT (assemble in inlet boss)		1	1	1	1	1					
	STD-784	PLUG, 3/8-18 NPT (assemble in inlet & outlet bosses)							2	2	2	2	
16	71651	FITTING, Breather (assemble in accessory housing)							1	1	1	1	

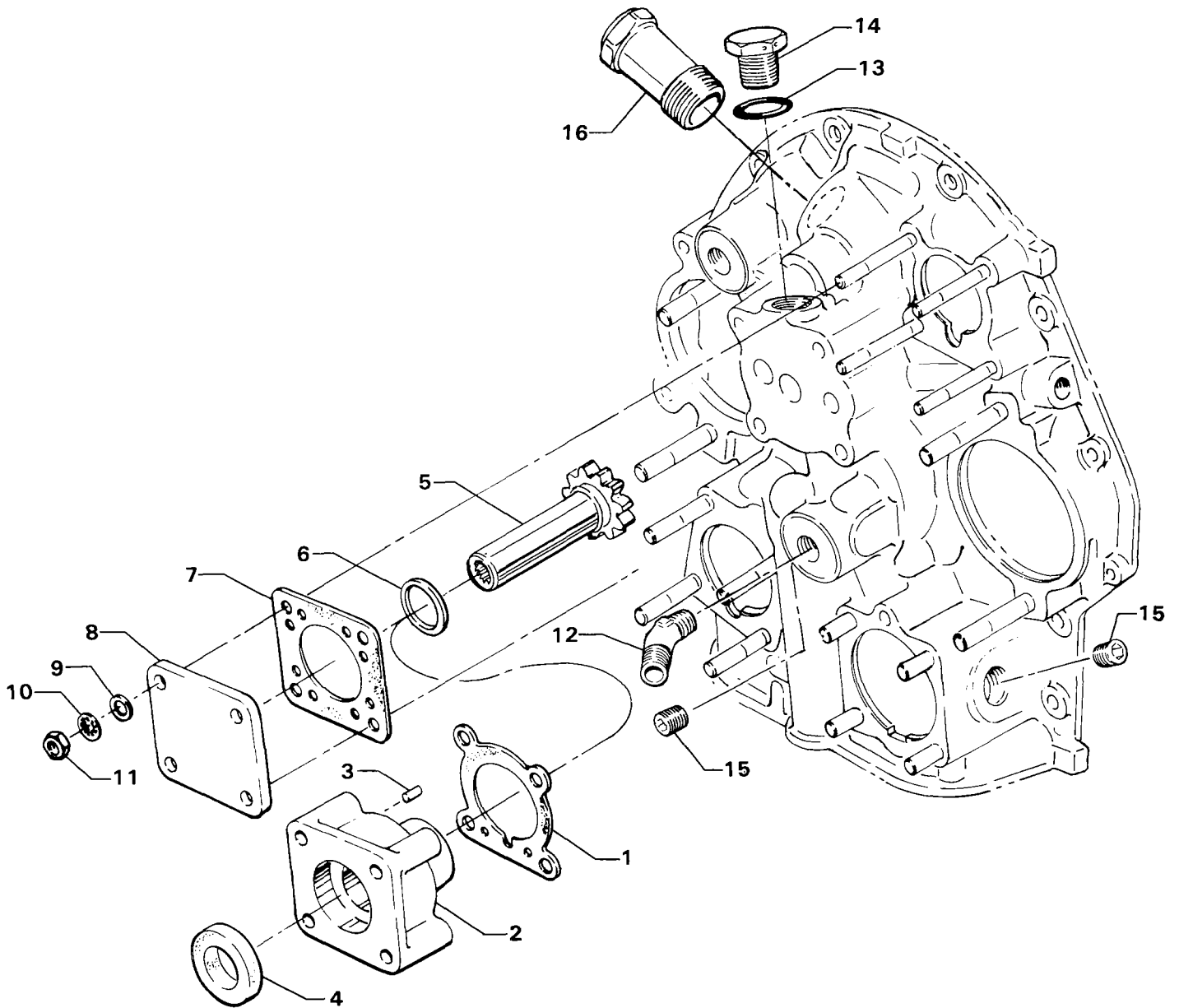


Figure 13. VACUUM PUMP DRIVE, OIL COOLER AND BREATHER FITTINGS

ACCESSORY HOUSING AND RELATED PARTS

TURBO SCAVENGE PUMP AND HYDRAULIC PUMP DRIVES AND COVERS

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	72964	GEAR ASSY., Hydraulic pump driven		1	1	1	1	1					
2	71596	WASHER, Accessory drive gear		1	1	1	1	1					
3	68315	GASKET, Hydraulic pump adapter		1	1	1	1	1					
4	71675	ADAPTER ASSY., Hydraulic pump		1	1	1	1	1					
5	06A19956	SEAL, Oil, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide		1	1	1	1	1					
6	25C-12	STUD, 1/4-20 x 1-1/2 long		4	4	4	4	4					
7	STD-1774	PIN, 1/8 dia. x 1/4 long		1	1	1	1	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, Pump	1										
12	60430	COVER, Pump	1										
13	STD-8	WASHER, Plain	4										
14	STD-160	WASHER, 1/4 lock, internal teeth	4										
15	STD-1411	NUT, 1/4-20 plain	4										
16	68315	GASKET, Turbo scavenge & hydraulic pump							1	1	1	1	
17	LW-19083	DRIVE ASSY., Turbo scavenge & hydraulic pump							1	1	1	1	
18	LW-19082	ADAPTER ASSY., Turbo scavenge pump							1	1	1	1	
19	25C-11	STUD, 1/4-20 x 1-3/8 long							4	4	4	4	
20	STD-1774	PIN, 1/8 dia. x 1/4 long							1	1	1	1	
21	01N19833-218	PLUG, Pin							1	1	1	1	
22	LW-19080	ADAPTER ASSY., Hydraulic pump							1	1	1	1	
23	STD-1003	DOWEL, Oil, 3/16 I.D. x 1/2 long							1	1	1	1	
24	LW-15853	SHAFT, Hydraulic							1	1	1	1	
25	STD-95	KEY, 1/8 x 1/2 woodruff							1	1	1	1	
26	LW-15550	PUMP, Gerotor							1	1	1	1	
27	MS9068-009	RING, Oil seal, 7/32 I.D. x 1/16 dia.							1	1	1	1	
28	06A19956	SEAL, Oil, 7/8 I.D. x 1-1/2 O.D. x 5/16 wide							1	1	1	1	
29	77825	SHAFT, Gear, hydraulic pump drive							1	1	1	1	
30	77708	WASHER, Retaining, shaft gear							1	1	1	1	
31	MS16562-28	PIN, Spring, 3/32 dia. x 3/4 long							1	1	1	1	
32	STD-8	WASHER, 1/4 plain							4	4	4	4	
33	STD-160	WASHER, 1/4 lock, internal teeth							4	4	4	4	
34	STD-1411	NUT, 1/4-20 plain							4	4	4	4	
35	25C-12	STUD, 1/4-20 National form, 1-1/2 long							4	4	4	4	

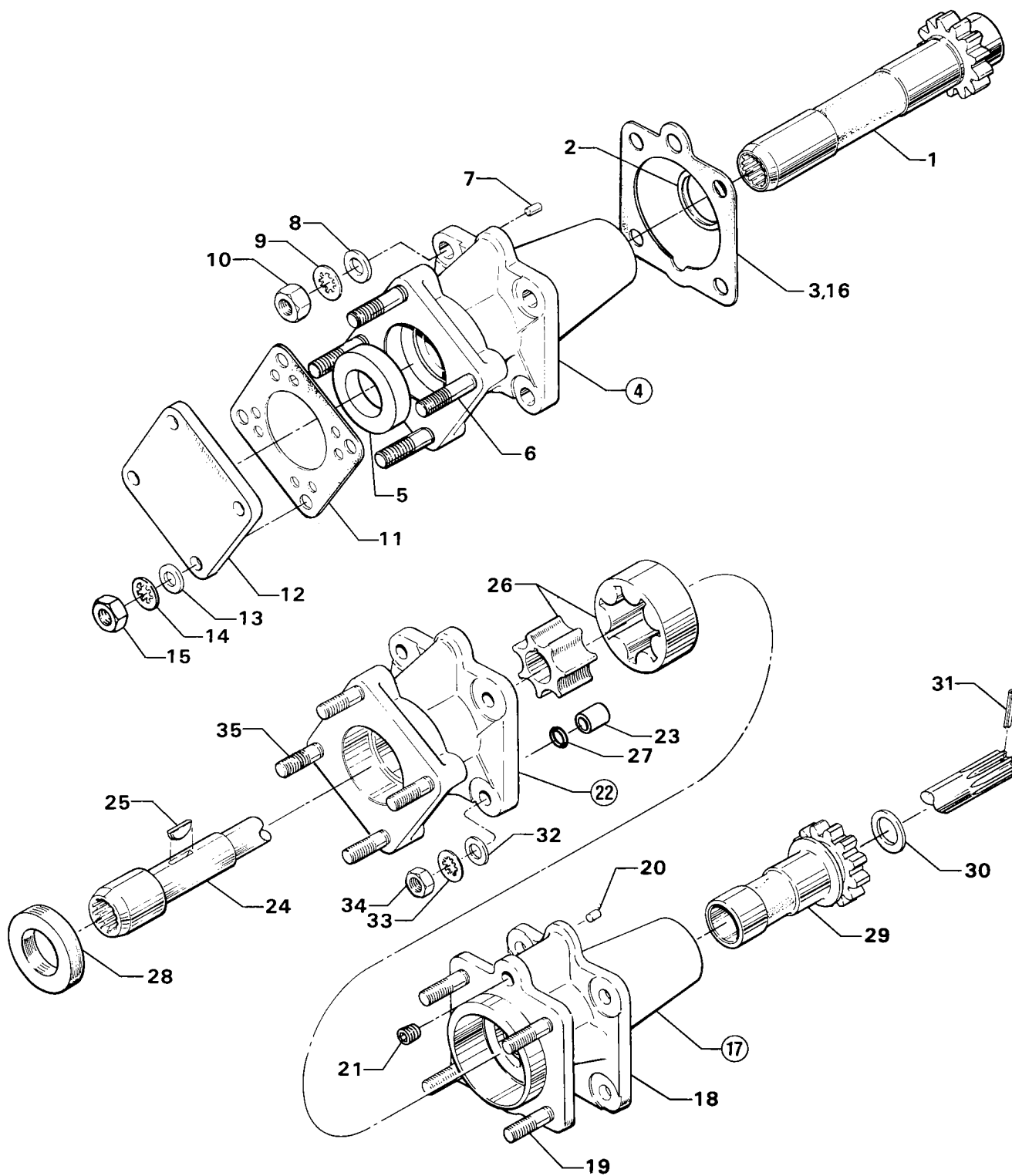


Figure 14. TURBO SCAVENGE PUMP AND HYDRAULIC PUMP DRIVES AND COVERS

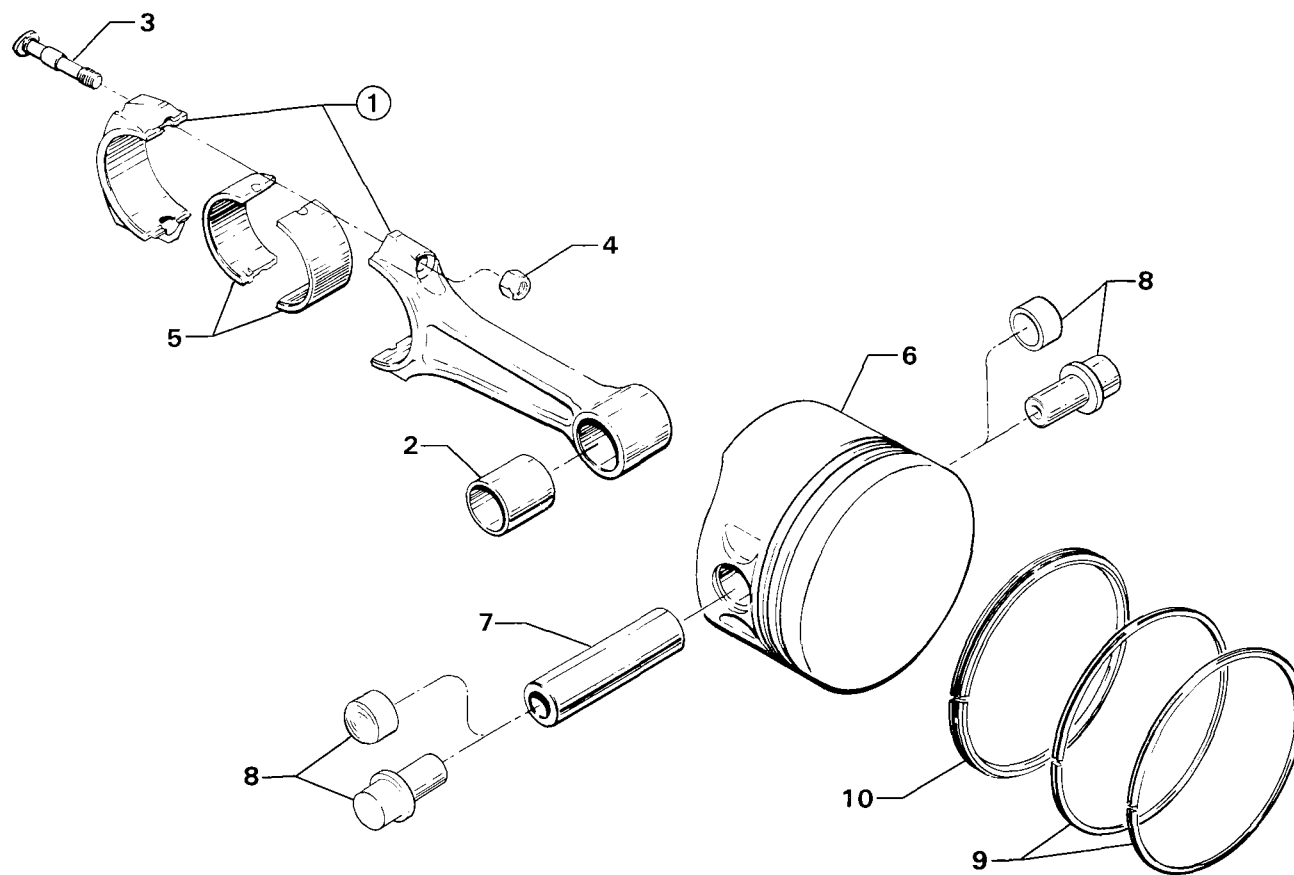
CYLINDER, PISTON AND VALVE TRAIN CONNECTING RODS, PISTONS & RING ASSEMBLIES

FIG. REF. 15	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-11750	CONNECTING ROD ASSEMBLY							6	6	6	6	
	LW-19332S	CONNECTING ROD ASSEMBLY		6	6	6	6	6					
2	LW-13923	BUSHING, Connecting rod, upper	6										
3	LW-12596	BOLT, Connecting rod		12	12	12	12	12					
	75061	BOLT, Connecting rod							12	12	12	12	
4	LW-12186	NUT, Connecting rod bolt	12										
5	LW-13521	BEARING, Connecting rod							12	12	12	12	
	LW-16048	BEARING, Connecting rod (alternate)							12	12	12	12	
	LW-13522	BEARING, Connecting rod (alternate)							12	12	12	12	
	74309	BEARING, Connecting rod		12	12	12	12	12					
	LW-14954	BEARING, Connecting rod (alternate)		12	12	12	12	12					
6	75089	PISTON, Compression ratio 8.50:1									6		
	75413	PISTON, Compression ratio 7.00:1							6	6		6	
	LW-10545	PISTON, Compression ratio 7.30:1		6	6	6	6	6					
7	LW-14078	PIN, Piston	6										
	LW-14077 *	PIN, Piston	6										
8	60828	PLUG, Piston pin	12										
	LW-11775	PLUG, Piston pin (piloted) See Note	12										
9	74241	RING, Piston, top compression	12										
10	73857	RING, Piston, oil regulating (expander type)	6										

* Used with piloted plug P/N LW-11775.

NOTE

These piston pin plugs are interchangeable in complete engine sets only with piloted Piston Pin P/N LW-14077.



3334

Figure 15. CONNECTING RODS, PISTONS & RING ASSEMBLIES

CYLINDER, PISTON AND VALVE TRAIN CYLINDER ASSEMBLY

FIG. REF. 16	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-13533	CYLINDER AND HEAD ASSEMBLY (See Note 1)		6	6	6	6	6					
	LW-13447	CYLINDER AND HEAD ASSEMBLY		6	6	6	6	6					
	LW-12433	CYLINDER AND HEAD ASSEMBLY (See Note 1)							6	6	6	6	
2	LW-12688	SEAT, Intake valve (See Note 2)		6	6	6	6	6					
	LW-19042	SEAT, Intake valve		6	6	6	6	6					
	72057	SEAT, Intake valve							6	6	6	6	
3	16T19468	SEAT, Exhaust valve		6	6	6	6	6					
	72058	SEAT, Exhaust valve							6	6	6	6	
4	66713	GUIDE, Valve intake		6	6	6	6	6					
	61681	GUIDE, Valve intake							6	6	6	6	
5	75838	GUIDE, Valve exhaust		6	6	6	6	6					
	74230	GUIDE, Valve exhaust							6	6	6	6	
6	69260	INSERT, Spark plug, 18-1.5 MM (long reach)	12										
7	31C-10	STUD, 5/16-18 x 1-1/4 long		18	18	18	18	18					
8	31C-12	STUD, 5/16-18 x 1-1 2 long							12	12	12	12	
9	25C-9	STUD, 1/4-20 x 1-1/8 long							6	6	6	6	
10	66670	BUSHING, Rocker shaft		18	18	18	18	18					
11	66610	BUSHING, Rocker shaft		6	6	6	6	6	24	24	24	24	
12	MS20823-6D	ELBOW, 3/8 Flared tube, 1/4 pipe thread	6										
13	72706	INSERT, Heli-coil, 1/4-20 NC x 3/8 long, self-lock		24	24	24	24	24					
14	STD-1872	INSERT, Heli-coil, taper pipe thread	6										
15	75151	STABILIZER, Cylinder head fins, 11 teeth		6	6	6	6	6					
16	75152	STABILIZER, Cylinder head fins, 7 teeth		6	6	6	6	6					
17	75164	STABILIZER, Cylinder head fins, 13 teeth		6	6	6	6	6					
18	STD-1353	INSERT, 10-24 x 3/8 Heli-coil							6	6	6	6	
19	1102	PLUG, 1/8-27 NPT Allen (assemble in cylinder heads)		6	6	6	6	6					

NOTE 1

This part is no longer available for TIO-540-A1A, -A1B, -A2A, -A2B and -A2C. Use Cylinder and Head Assy. Part No. LW-13447 when ordering a replacement.

NOTE 2

This seat is a component part of Cylinder and Head Assy. Part No. LW-13533. Order Seat Part No. LW-19042 if Cylinder and Head Assy. Part No. LW-13533 has been replaced by Part No. LW-13447.

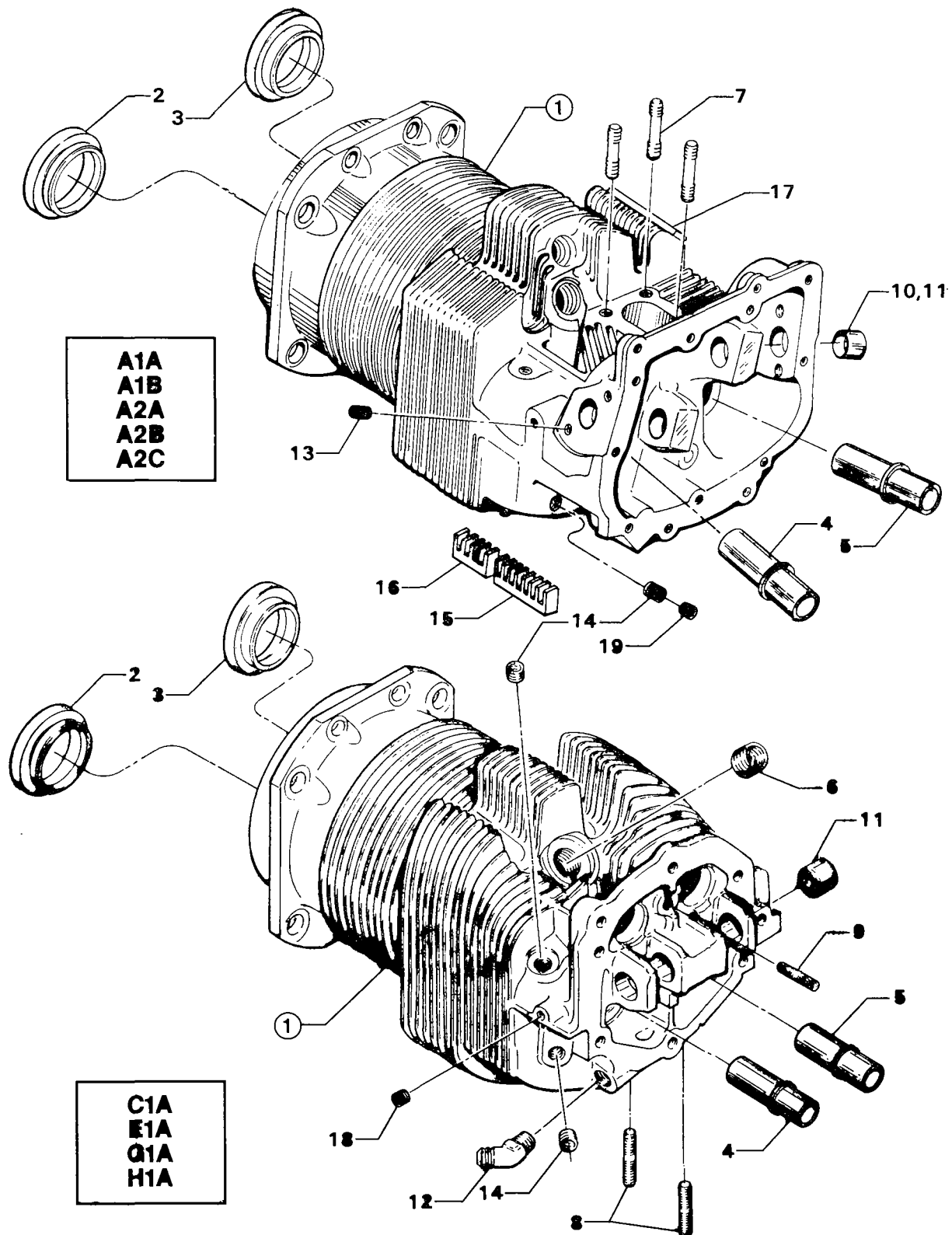


Figure 16. CYLINDER ASSEMBLY

CYLINDER, PISTON AND VALVE TRAIN VALVE ASSEMBLY

FIG. REF. 17	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-13622	VALVE, Intake		6	6	6	6	6					
	73938	VALVE, Intake							6	6	6	6	
2	LW-16740	VALVE, Exhaust (rotator type)		6	6	6	6	6					
	LW-19001	VALVE, Exhaust (rotator type)							6	6	6	6	
3	LW-13322	SEAT, Valve spring, lower exhaust		6	6	6	6	6					
	LW-13323	SEAT, Valve spring, lower exhaust							6	6	6	6	
4	LW-13321	SEAT, Valve spring, lower intake		6	6	6	6	6					
	65441	SEAT, Valve spring, lower intake							6	6	6	6	
5	69532	SEAT, Valve spring, upper intake		6	6	6	6	6					
	LW-10077	SEAT, Valve spring, upper intake							6	6	6	6	
6	LW-16475	SEAT, Valve spring, upper exhaust (rotator type)	6										
7	LW-11796	SPRING, Valve, outer		12	12	12	12	12					
	LW-11800	SPRING, Valve, outer							12	12	12	12	
8	LW-11797	SPRING, Valve, inner		12	12	12	12	12					
	LW-11795	SPRING, Valve, inner							12	12	12	12	
9	72050	KEY, Valve, intake		12	12	12	12	12					
	60009	KEY, Valve, intake							12	12	12	12	
10	17C21191	KEY, Valve, exhaust (rotator type)	12										
11	17C19386	CAP, Valve stem, exhaust (rotator type)	6										
	62388	CAP, Valve stem		6	6	6	6	6					
12	1102	PLUG, 1/8 pipe x 3/8 long							5	5	5	5	
13	MS20823-3 *	ELBOW, 1/8 NPT to 3/16 tube, 45°							1	1	1	1	
14	72255	SHROUD TUBE ASSY., Push rod, intake		6	6	6	6	6					
15	72257	SHROUD TUBE ASSY., Push rod, exhaust		6	6	6	6	6					
16	LW-11485	TUBE, Push rod shroud							12	12	12	12	
17	LW-13077	SPRING, Shroud tube		24	24	24	24	24					
	LW-14995	SPRING, Shroud tube							6	6	6	6	
18	66728	WASHER, 25/32 I.D. x 1-1/4 O.D. x 1/32 thick (24 max.)		AR	AR	AR	AR	AR					
19	61503	SLEEVE, Shroud tube seal		12	12	12	12	12					
20	LW-18661	SEAL, Shroud tube, 5/16 wide		24	24	24	24	24	12	12	12	12	
21	70310	SEAL, Shroud tube, 23/32 I.D. x 1/8 dia. section							12	12	12	12	
22	LW-12272	LOCKPLATE, Shroud tube							6	6	6	6	
23	STD-1411	NUT, 1/4-20 plain							6	6	6	6	

* Assemble in No. 5 cylinder.

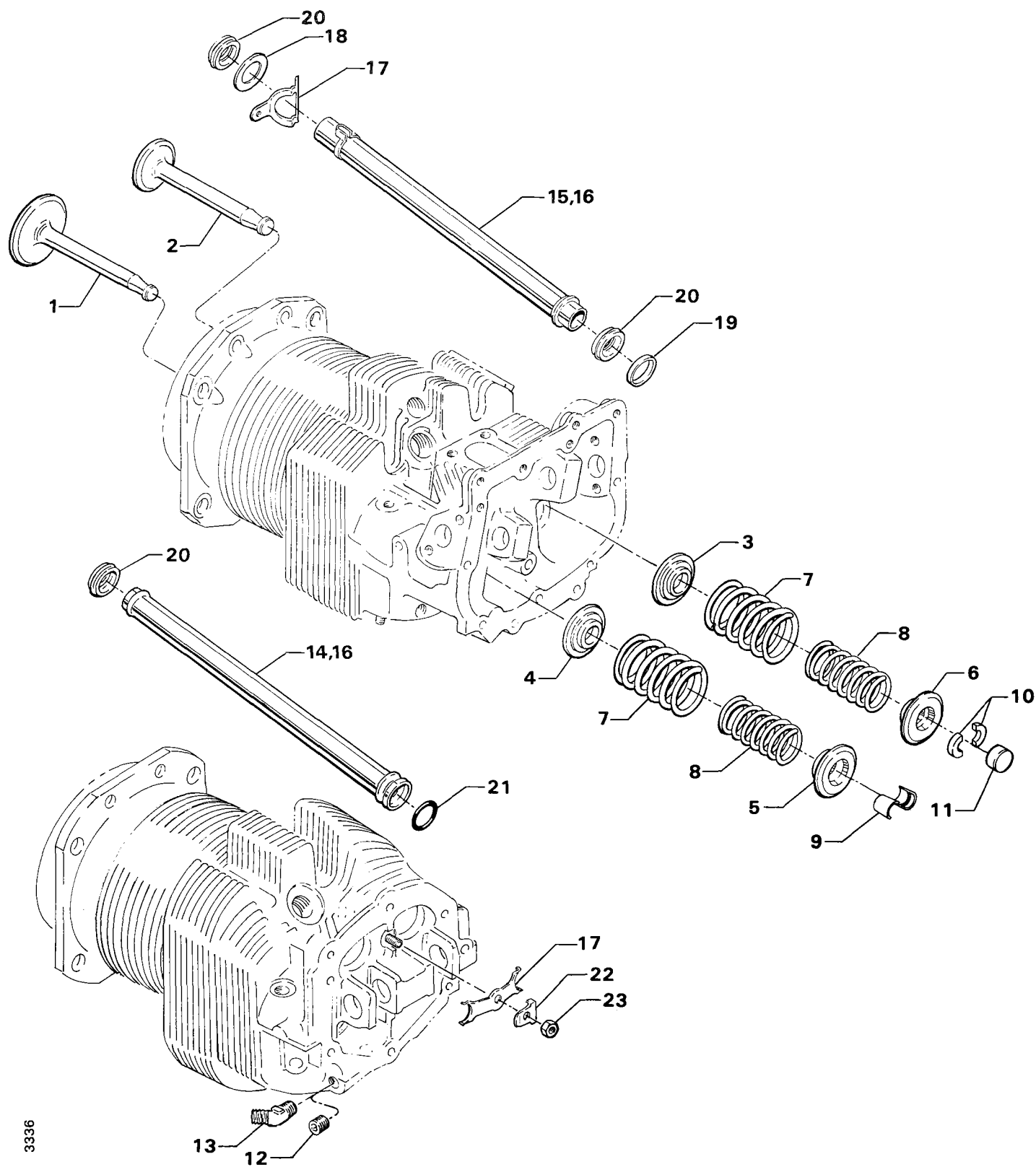


Figure 17. VALVE ASSEMBLY

CYLINDER, PISTON AND VALVE TRAIN CYLINDER RELATED PARTS

FIG. REF. 18	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	73434 *	ROD ASSY., Push (total of 12 required)							AR	AR	AR	AR	
	15F19957-35 *	ROD ASSY., Push (total of 12 required)							AR	AR	AR	AR	
	15F19957-36 *	ROD ASSY., Push (total of 12 required)							AR	AR	AR	AR	
	73437 *	ROD ASSY., Push (total of 12 required)							AR	AR	AR	AR	
	15F19957-55 *	ROD ASSY., Push, intake (total of 6 required)		AR	AR	AR	AR	AR					
	73456 *	ROD ASSY., Push, intake (total of 6 required)		AR	AR	AR	AR	AR					
	15F19957-57 *	ROD ASSY., Push, intake (total of 6 required)		AR	AR	AR	AR	AR					
	15F19957-58 *	ROD ASSY., Push, intake (total of 6 required)		AR	AR	AR	AR	AR					
	73556 *	ROD ASSY., Push, intake (total of 6 required)		AR	AR	AR	AR	AR					
	73557 *	ROD ASSY., Push, intake (total of 6 required)		AR	AR	AR	AR	AR					
	73555 *	ROD ASSY., Push, intake (total of 6 required)		AR	AR	AR	AR	AR					
	15F21362-24 *	ROD ASSY., Push, intake (total of 6 required)		AR	AR	AR	AR	AR					
	73446 *	ROD ASSY., Push, exhaust (total of 6 required)		AR	AR	AR	AR	AR					
	73445 *	ROD ASSY., Push, exhaust (total of 6 required)		AR	AR	AR	AR	AR					
	15F19957-47 *	ROD ASSY., Push, exhaust (total of 6 required)		AR	AR	AR	AR	AR					
	73448 *	ROD ASSY., Push, exhaust (total of 6 required)		AR	AR	AR	AR	AR					
	73546 *	ROD ASSY., Push, exhaust (total of 6 required)		AR	AR	AR	AR	AR					
	73547 *	ROD ASSY., Push, exhaust (total of 6 required)		AR	AR	AR	AR	AR					
	73548 *	ROD ASSY., Push, exhaust (total of 6 required)		AR	AR	AR	AR	AR					
	73545 *	ROD ASSY., Push, exhaust (total of 6 required)		AR	AR	AR	AR	AR					
2	71481	RING, Oil seal, 3/32 dia. section x 4-27/32 I.D.	6										
3	69531	PLATE, Cylinder hold down nut	12										
4	71133	NUT, 1/2-20 NF-3, cylinder hold down	24										
5	71134	NUT, 3/8-24 NF-3, cylinder hold down	24										
6	71549 **	WASHER, Valve rocker, thrust		12	12	12	12	12					
7	72626	SHAFT, Valve rocker		12	12	12	12	12					
8	17F21186	ROCKER ASSY., Intake valve		6	6	6	6	6					
9	74389	BUSHING, Valve rocker		6	6	6	6	6					
10	17F21190	ROCKER ASSY., Exhaust valve		6	6	6	6	6					
11	LW-12588	BUSHING, Valve rocker		6	6	6	6	6					
12	17F19353	ROCKER ASSY., Valve							12	12	12	12	
13	74637	BUSHING, Valve rocker							12	12	12	12	
14	LW-13790	SHAFT, Valve rocker							6	6	6	6	
15	LW-12892	THRUST BUTTON, Rocker shaft							12	12	12	12	

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

** See latest edition of Service Bulletin No. 225 for complete Service application.

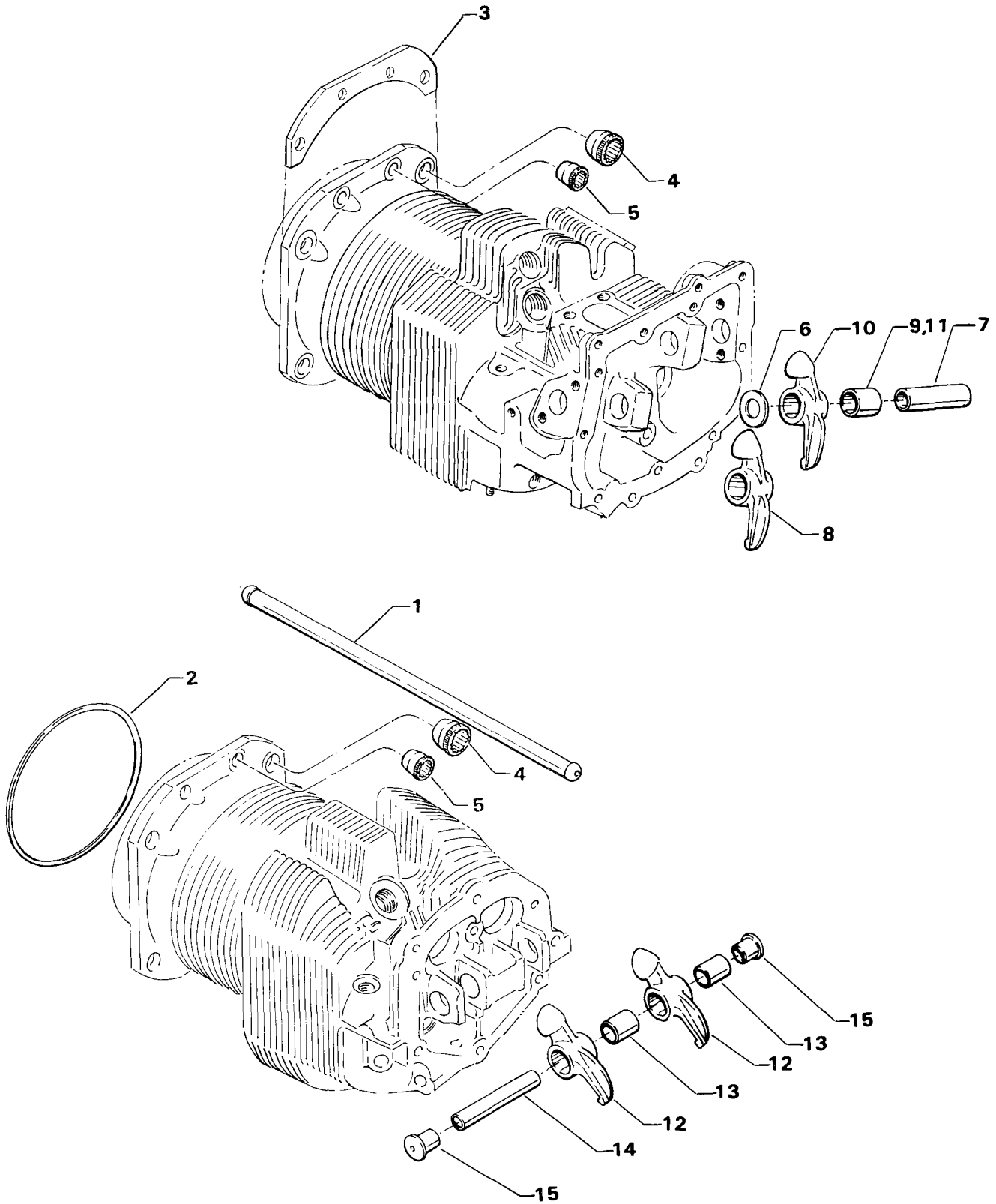


Figure 18. CYLINDER RELATED PARTS

CYLINDER, PISTON AND VALVE TRAIN

CYLINDER HEAD DRAIN TUBES, INTERCYLINDER COOLING BAFFLES AND RELATED PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	66732	GASKET, Valve rocker shaft cover		12	12	12	12	12					
2	72710	COVER, Valve rocker shaft		12	12	12	12	12					
3	75233	"O" RING		24	24	24	24	24					
4	72709	SCREW, 1/4-20 x 5/8 long, self-sealing		24	24	24	24	24					
5	71450	GASKET, Rocker box cover		6	6	6	6	6					
	75906	GASKET, Rocker box cover							6	6	6	6	
6	72242	COVER ASSY., Rocker box		6	6	6	6	6					
7	61247	COVER, Rocker box							6	6	6	6	
8	STD-1925	SCREW, 1/4-20 x 5/8 long, pan hd., self-locking		54	54	54	54	54	31	31	31	31	
9	74494	PLATE, Spark plug reach caution	6										
10	STD-35	WASHER, 5/16 plain							12	12	12	12	
11	STD-475	WASHER, 5/16 lock, internal teeth							12	12	12	12	
12	STD-1410	NUT, 5/16 plain							12	12	12	12	
13	STD-684	NIPPLE, Straight, 3/8 I.D. hose	6										
14	STD-1821	HOSE, 3/8 I.D. x 2-1/2 long							6	6	6	6	
	STD-2180	HOSE, 3/8 I.D. x 1-13/16 long		6	6	6	6	6					
15	LW-15592-5-05	CLAMP, Hose	12										
16	68759	TUBE ASSY., Cylinder head oil drain, cyl. no. 1							1	1	1	1	
	71737	TUBE ASSY., Cylinder head oil drain, cyl. no. 2							1	1	1	1	
	68761	TUBE ASSY., Cylinder head oil drain, cyl. nos. 3, 4, 5, 6							4	4	4	4	
	72702	TUBE ASSY., Cylinder head oil drain, cyl. no. 1		1	1	1	1	1					
	72703	TUBE ASSY., Cylinder head oil drain, cyl. no. 2		1	1	1	1	1					
	LW-11935 *	TUBE ASSY., Cylinder head oil drain, cyl. no. 2						1					
	73027	TUBE ASSY., Cylinder head oil drain, cyl. nos. 3, 4, 5, 6		4	4	4	4	4					
17	LW-18106	BAFFLE ASSY., Intercylinder		4	4	4	4	4					
	72152	BAFFLE ASSY., Intercylinder							3	3	3	3	
	73975	BAFFLE ASSY., Intercylinder							1	1	1	1	
18	71610	HOOK, Intercylinder baffle retainer	4										
19	71611	RETAINER, Intercylinder baffle	4										
20	72834	COVER, Baffle ignition hole		4	4	4	4	4					
21	STD-692	SCREW, 10-32 x 1/2 long, rd. hd.		8	8	8	8	8					
22	AN931-12S17	GROMMET, 3/4 I.D. x 1-3/8 O.D. x 3/8 thick							1	1	1	1	

* Used if York compressor is installed.

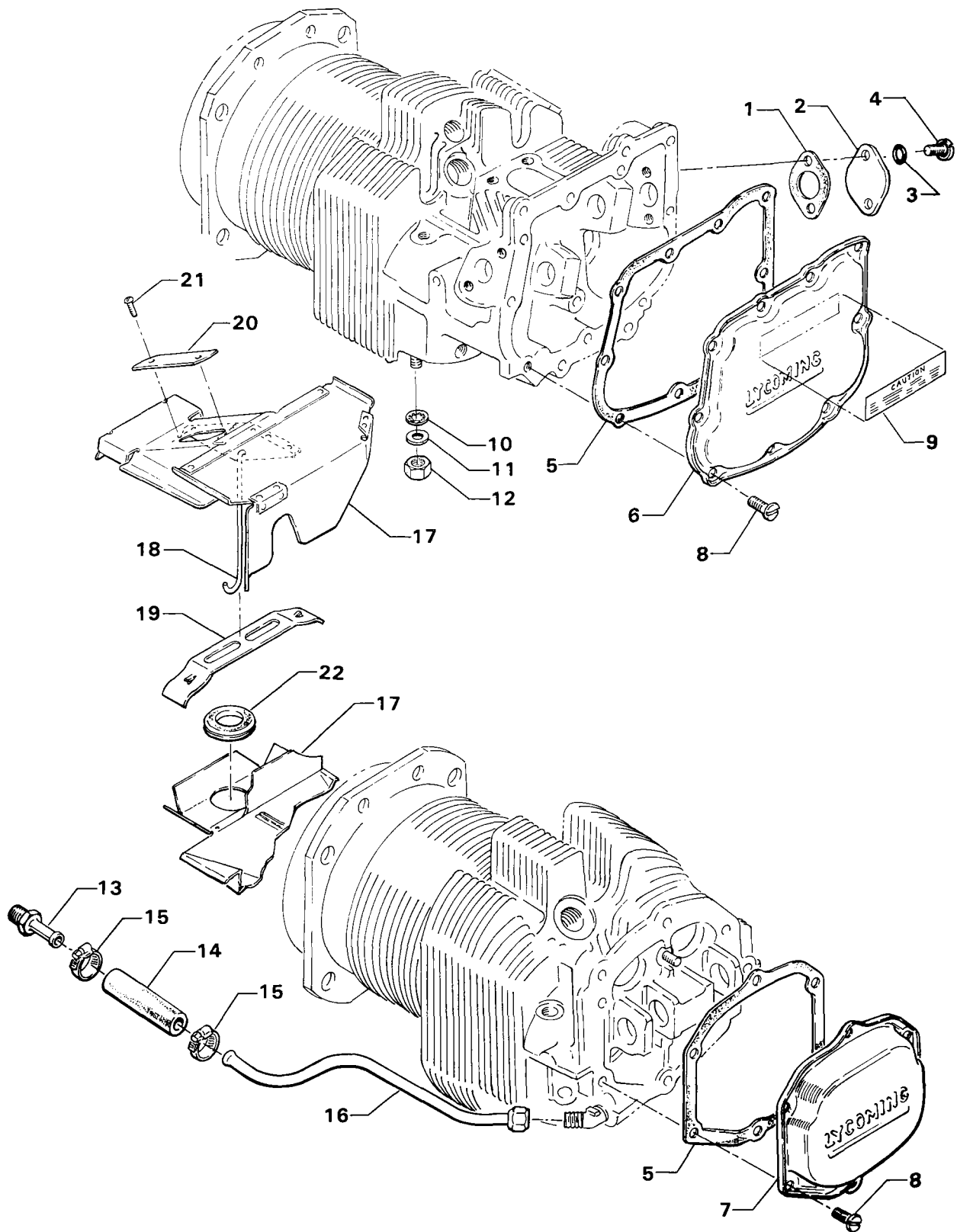


Figure 19. CYLINDER HEAD DRAIN TUBES, INTERCYLINDER COOLING BAFFLES AND RELATED PARTS

IGNITION SYSTEM

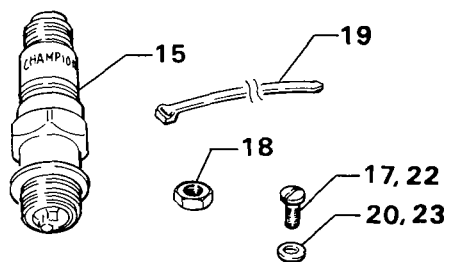
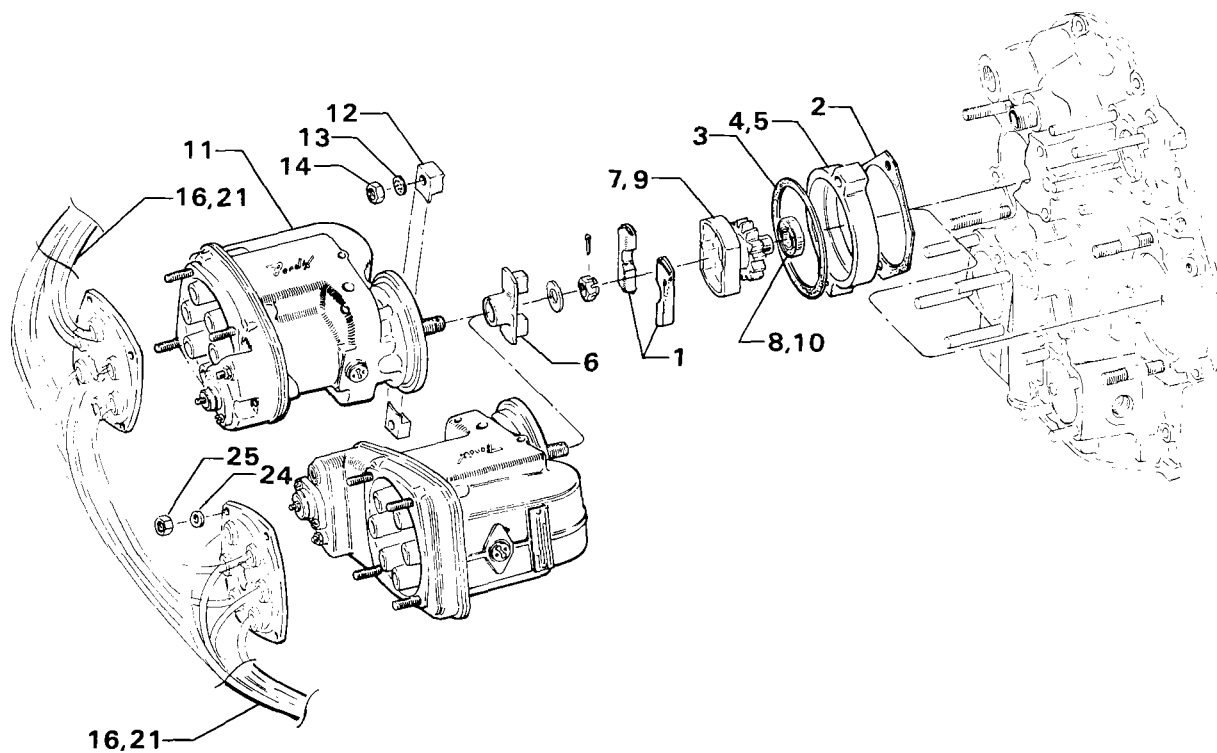
SINGLE MAGNETOS, MAGNETO DRIVES AND SPARK PLUGS

FIG. REF. 20	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-13641	CUSHION, Magneto drive	4										
2	62224	GASKET, Magneto adapter	2										
3	LW-12681	GASKET, Magneto	2										
4	LW-12707	ADAPTER, Magneto		2	2	2	2	2	2				
5	LW-13926	ADAPTER, Magneto							1	1	1	1	
	LW-12707	ADAPTER, Magneto							1	1	1	1	
6	73000	COUPLING, Magneto drive	1										
	73013	COUPLING, Magneto drive (retard)							1		1		
	73636	COUPLING, Magneto drive (right)		1	1	1	1	1					
7	LW-19096	GEAR RETAINER ASSY.		1	1	1	1	1	2	2	2	2	
8	67542	BEARING, Ball		1	1	1	1	1	2	2	2	2	
9	LW-19102	GEAR RETAINER ASSY.		1	1	1	1	1					
10	67542	BEARING, Ball		1	1	1	1	1					
11	LW-349290-1	MAGNETO, S6LN-1208 (37-1/2° retard)		1	1	1	1	1	1		1		
	LW-349310-1	MAGNETO, S6LN-1209		1	1	1	1	1	1		1		
	LW-349310-8	MAGNETO, S6LN-1209 (electric tach. pick-up)								1		1	
	LW-349370-4	MAGNETO, Impulse coupling, S6LN-1227 (35° lag)								1		1	
12	66M19385	CLAMP, Magneto	4										
13	STD-475	WASHER, 5/16 lock, internal teeth	4										
14	STD-1410	NUT, 5/16-18 plain	4										
15	1182-K4 *	SPARK PLUG, (Champion RHB-36W) Iridium		12	12								
	1182-W5 *	SPARK PLUG, (Champion RHB-37E)			12								
	1182-Q6 *	SPARK PLUG, (Champion RHB-36S)				12	12	12					
	1182-N4 *	SPARK PLUG, (Champion REB-37E)							12	12	12	12	
16	LW-720465-2	HARNESS ASSY., Ignition		1	1	1	1	1					
17	STD-1925	SCREW, 1/4 x 5/8 long, plain hd., self-locking		12	12	12	12	12					
18	MS25082-6	NUT, 3/8-24, thin		2	2	2	2	2					
19	76734	ZIP STRAP		2	2	2	2	2					
20	STD-696	WASHER, 1/4 plain, thin		AR	AR	AR	AR	AR					
21	LW-720470-5	HARNESS ASSY., Ignition							1		1		
22	STD-1874	SCREW, 1/4-20 x 13/16 long, fill. hd., self-locking							6		6		
23	STD-696	WASHER, 1/4 plain, thin							AR		AR		
24	10-92879-43	LOCKWASHER, Cover	8										
25	10-92873-302	NUT, Cover	8										

* Item No. 15 spark plug is used in current production only. Additional spark plugs are available for this engine. See latest edition of Lycoming Service Instruction No. 1042 for complete listing of all approved spark plugs.

NOTE

Harness Assy. P/N 77514 used on TIO-540-E1A and -H1A is no longer available. When ordering, use Slick Harness replacement P/N LW-M-2457, Left and P/N LW-M-2458, Right. Also order (2) Spark Plug Cable Plates P/N LW-M-2376.



**Plate Part No.
LW-M-2376
See Note on
Page 4-1.**

Figure 20. SINGLE MAGNETOS, MAGNETO DRIVES AND SPARK PLUGS

ELECTRICAL COMPONENTS

ALTERNATOR ASSEMBLIES AND BELTS

FIG. REF. 21	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly								
				TIO-540 Standard								
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A
1	32C19553	ALTERNATOR ASSY., 24V.-70 amp.		1	1	1	1	1	1			
2	LW-14326	ALTERNATOR, 24V.-70 amp. (ALU-8421-LS)		1	1	1	1	1	1			
3	36B19484	PULLEY, Alternator		1	1	1	1	1	1			
4	LW-14356 *	ALTERNATOR ASSY., 24V.-70 amp.						1				
5	LW-14326	ALTERNATOR, 24V.-70 amp. (ALU-8421-LS)						1				
6	LW-13347	PULLEY, Alternator						1				
7	32B19551	ALTERNATOR ASSY., 24V.-50 amp.			1					1		1
8	LW-14321	ALTERNATOR, 24V.-50 amp. (ALT-8421-LS)			1					1		1
9	36B19484	PULLEY, Alternator			1					1		1
10	32B19549	ALTERNATOR ASSY., 12V.-70 amp.							1		1	
11	LW-14318	ALTERNATOR, 12V.-70 amp. (ALX-8421-LS)							1		1	
12	36B19484	PULLEY, Alternator							1		1	
13	37A19773-382 **	BELT, Alternator drive, 3/8 wide		1	1	1	1	1				
	37A19773-367	BELT, Alternator drive, 3/8 wide							1		1	
	37A19773-376	BELT, Alternator drive, 3/8 wide								1		1
	LW-18129 *	BELT, Alternator drive, (11MM)						1				

* Used with York freon compressor.

** For use with idler pulley.

NOTE

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

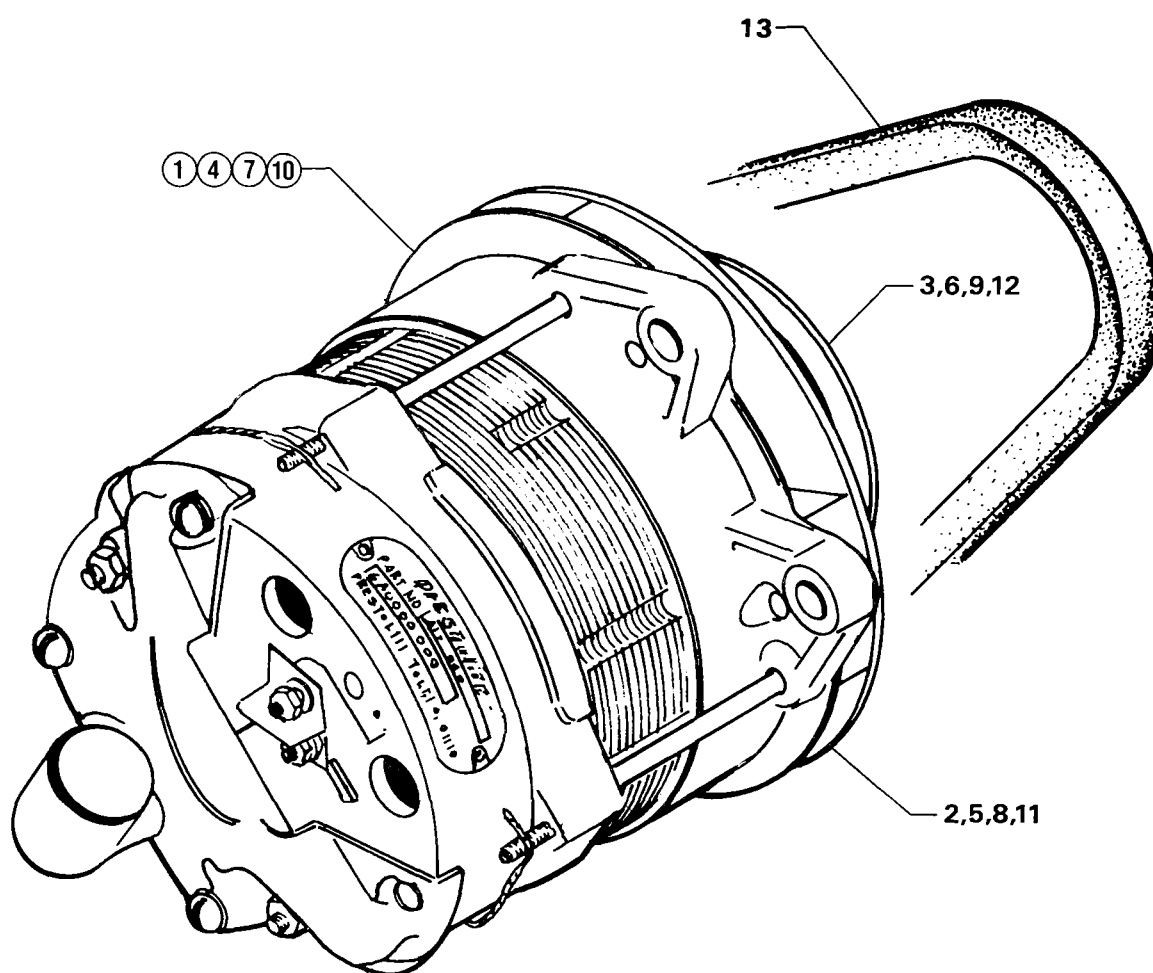


Figure 21. ALTERNATOR ASSEMBLIES AND BELTS

ELECTRICAL COMPONENTS

PRESTOLITE STARTER MOTOR AND ATTACHING PARTS

FIG. REF. 22	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-15571	STARTER, 12V. (3.38:1 internal reduction) 12/14 pitch pinion (MZ-4222)							1		1		
	LW-15577 *	STARTER, 24V. (3.38:1 internal reduction) 12/14 pitch pinion (MHB-4018)						1					
	LW-15572	STARTER, 24V. (3.38:1 internal reduction) 12/14 pitch pinion (MHB-4016)		1	1	1	1	1	1	1		1	
2	STD-35	WASHER, 5/16 plain	4										
3	STD-475	WASHER, 5/16 lock, internal teeth	4										
4	LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. hd.	1										
5	STD-1410	NUT, 5/16-18 plain	3										

* Used with York freon compressor.

NOTE

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

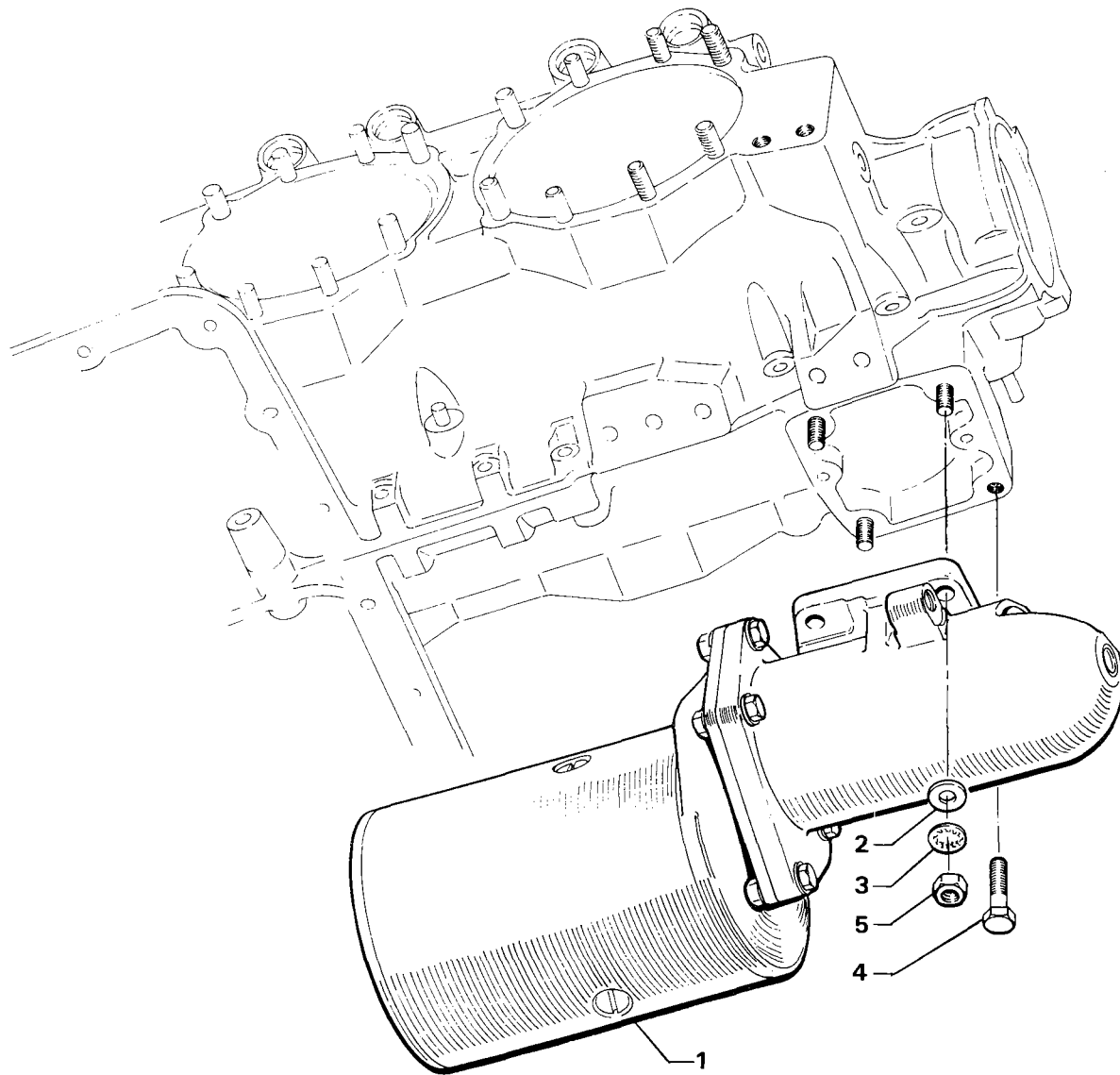


Figure 22. PRESTOLITE STARTER MOTOR AND ATTACHING PARTS

ELECTRICAL COMPONENTS

LYCOMING LIGHT WEIGHT STARTER KIT

FIG. REF. 22A	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	05K21302-2 *	KIT, Light Weight Starter, 12/14 pitch, 24 volt	1										
	05K21302-1 *	KIT, Light Weight Starter, 12/14 pitch, 12 volt	1										
2	LW-16152	SPACER, Starter/crankcase	1										
3	05K21194 **	KIT, Shim, light weight starter	1										
4	STD-35	WASHER, 5/16 plain	4										
5	STD-475	WASHER, 5/16 lock, internal teeth	4										
6	LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head	1										
7	STD-1410	NUT, 5/16-18 plain	3										

* Refer to latest edition of Starter Maintenance Manual SSP-490 for complete parts breakdown.

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

NOTE

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

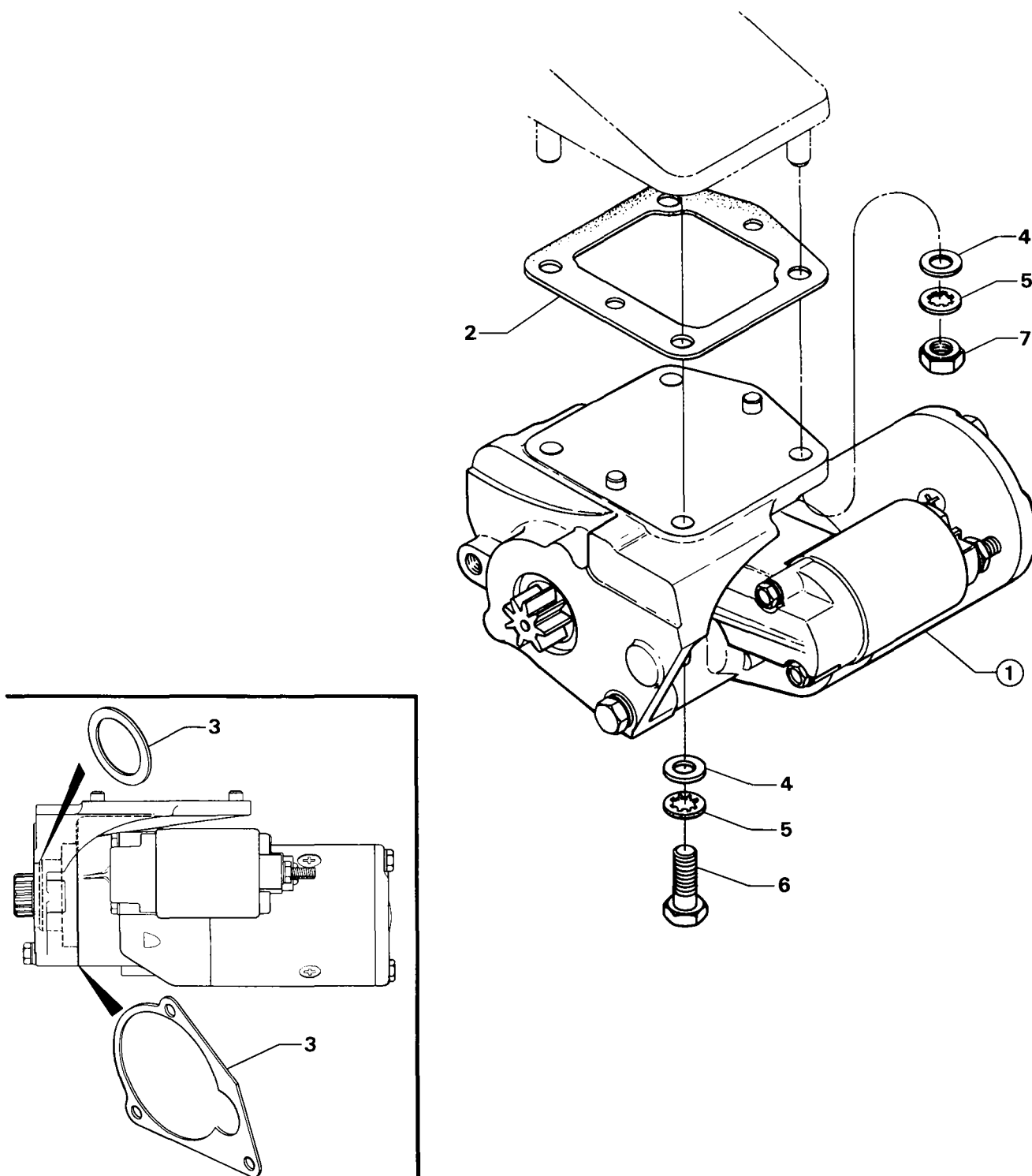


Figure 22A.

LYCOMING LIGHT WEIGHT STARTER KIT

ELECTRICAL COMPONENTS
ALTERNATOR MOUNTING AND ATTACHING PARTS

FIG. REF. 23	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly							
				TIO-540 Standard							
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A
1	77756	BRACKET, Alternator						1		1	
	07A19474	BRACKET, Alternator							1		1
2	73383	LOCKPLATE, 5/16 bolt x 1.00 spacing						1	1	1	1
3	LW-31-0.94	BOLT, 5/16-18 x 15/16 long, hex. hd.						2	2	2	2
4	LW-10091	LINK, Alternator adjusting						1		1	
	75380	LINK, Alternator adjusting							1		1
5	STD-35	WASHER, 5/16 plain						1	1	1	1
6	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd. dr.						1	1	1	1
7	STD-1727	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick						1	1	1	1
8	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd. dr.						1	1	1	1
9	AN6-12	BOLT, 3/8-24 x 1-21/64 long, hex. hd. dr. end						1		1	
10	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick						AR		AR	
11	STD-872	NUT, 3/8-24 slotted						1		1	
12	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long						1		1	
13	74323	STRUT, Alternator support							1		1
14	LW-31H.75	BOLT, 5/16-18 x 3/4 long, hex. hd. dr.							1		1
15	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick							AR		AR
16	AN6-17	BOLT, 3/8-24 x 1-61/64 long, hex. hd. drilled end							1		1
17	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick							AR		AR
18	STD-872	NUT, 3/8-24 slotted							1		1
19	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long							1		1
20	AN6-16	BOLT, 3/8-24 x 1-53/64 long, hex. hd. drilled end						1	1	1	1
21	76534	SHIM, 1-1/8 O.D. x 13/32 I.D. x 1/64 thick						AR	AR	AR	AR
22	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick						AR	AR	AR	AR
23	STD-872	NUT, 3/8-24 slotted						1	1	1	1
24	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long						1	1	1	1

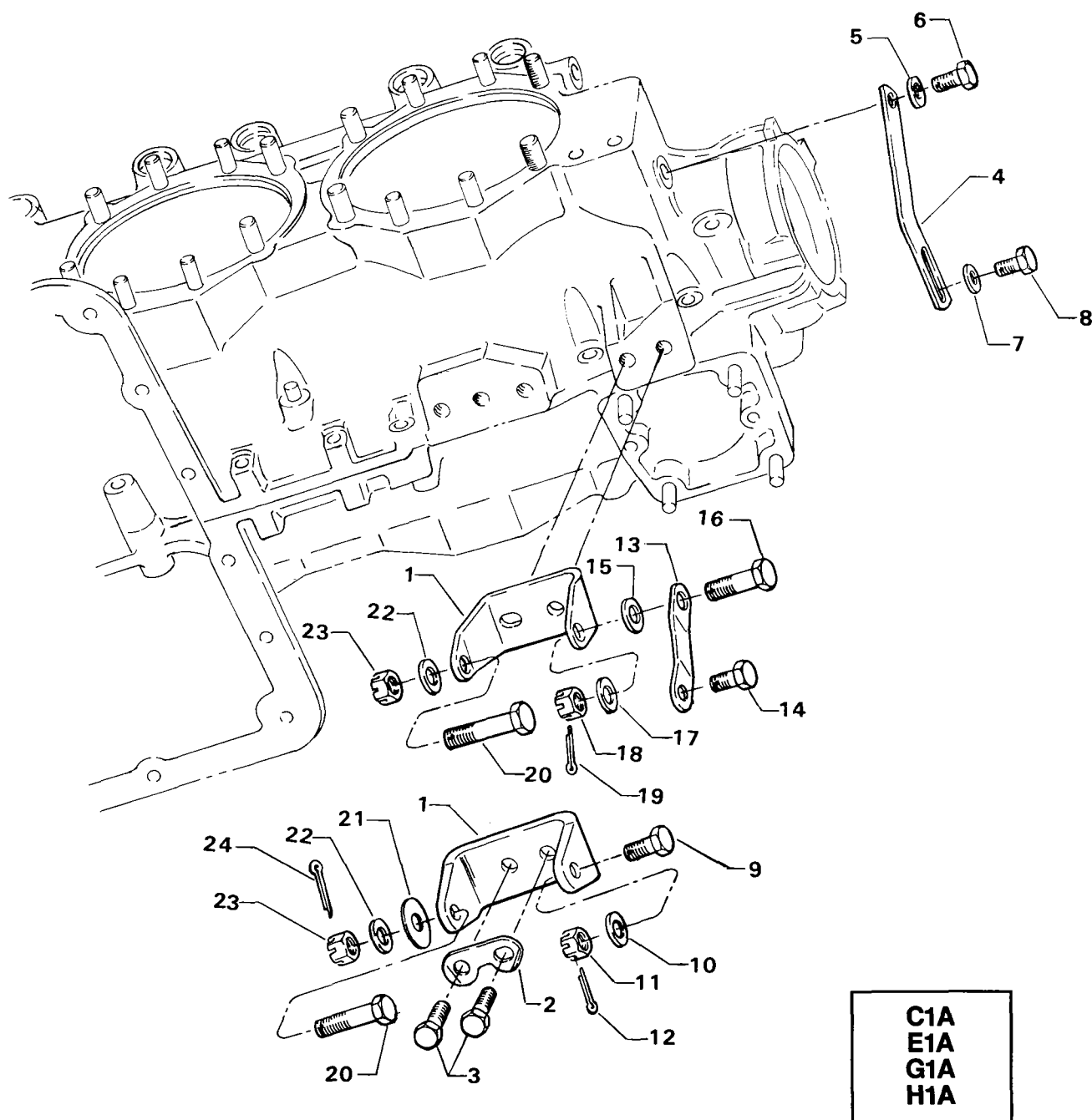


Figure 23. ALTERNATOR MOUNTING AND ATTACHING PARTS

ELECTRICAL COMPONENTS

ALTERNATOR MOUNTING AND ATTACHING PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	77756 *	BRACKET, Alternator		1	1	1	1	1					
	74324 **	BRACKET, Alternator		1	1	1	1						
2	73383	LOCKPLATE, 5/16 bolt x 1.00 spacing		1	1	1	1	1					
3	STD-1838 *	BOLT, 5/16-18 x 15/16 long, hex. head		2	2	2	2	2					
	LW-31-0.94 **	BOLT, 5/16-18 x 15/16 long, hex. head		2	2	2	2						
4	LW-18759 *	BRACKET, Alternator belt adjusting		1	1	1	1	1					
	74518 **	BRACKET, Alternator belt adjusting		1	1	1	1						
5	STD-1727 *	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick		2	2	2	2	2					
	STD-1727 **	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick		1	1	1	1						
6	LW-14637 *	SHIM, 13/16 O.D. x 11/32 I.D. x .005 thick		AR	AR	AR	AR	AR					
7	LW-14649 *	SHIM, 13/16 O.D. x 11/32 I.D. x .010 thick		AR	AR	AR	AR	AR					
8	LW-31H1.31 *	BOLT, 5/16-18 x 1-5/16 long, hex. head drilled		2	2	2	2	2					
	LW-31H1.22 **	BOLT, 5/16-18 x 1-7/32 long, hex. head drilled		1	1	1	1						
9	LW-10952 * *	SHIM, 13/16 O.D. x 13/32 I.D. x .005 thick		AR	AR	AR	AR	AR					
10	LW-19262	PULLEY & SHAFT ASSY., Alternator belt adjusting		1	1	1	1	1					
11	78614	PULLEY, Alternator belt adjusting		1	1	1	1	1					
12	78629	BEARING, Ball, alternator idler pulley		1	1	1	1	1					
13	MS16625-1125	RING, Internal retaining, 1-1/4 diameter		2	2	2	2	2					
14	LW-19237	IDLER SHAFT, Alternator belt adjusting		1	1	1	1	1					
15	76768	LOCKWASHER, Alternator idler pulley bearing		1	1	1	1	1					
16	76769	LOCKNUT, Alternator idler pulley bearing		1	1	1	1	1					
17	LW-11635	SHIELD, Idler shaft		1	1	1	1	1					
18	STD-669	WASHER, 33/64 I.D. x 1.00 O.D. x 1/8 thick		1	1	1	1	1					
19	STD-2221	NUT, 1/2-20 self-locking		1	1	1	1	1					
20	STD-1727 **	WASHER, Plain, 3/4 O.D. x 11/32 I.D. x 1/8 thick		1	1	1	1						
21	LW-14637 ** *	SHIM, 13/16 O.D. x 11/32 I.D. x .005 thick		AR	AR	AR	AR						
22	LW-31H.122 **	BOLT, 5/16-18 x 1-7/32 long, hex. hd., drilled		1	1	1	1						
23	LW-10952 ** *	SHIM, 13/16 O.D. x 13/32 I.D. x .005 thick		AR	AR	AR	AR						
24	STD-690 **	WASHER, 13/16 O.D. x 25/64 I.D. x 1/8 thick		1	1	1	1						
25	AN6-12 *	BOLT, 3/8-24 x 1-21/64 long, hex. hd. drilled end		1	1	1	1	1					
26	AN6-32 **	BOLT, 3/8-24 x 3-21/64 long, hex. hd. drilled end		1	1	1	1						
27	STD-690	WASHER, 13/16 O.D. x 25/64 I.D. x 1/8 thick		AR	AR	AR	AR	AR					
28	STD-872	NUT, 3/8-24 slotted		1	1	1	1	1					
29	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long		1	1	1	1	1					
30	74323 **	STRUT, Alternator support		1	1	1	1						
31	LW-31H.75 **	BOLT, 5/16-18 x 3/4 long, hex. head drilled		1	1	1	1						
32	76534 *	SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick		AR	AR	AR	AR	AR					
33	AN6-16 *	BOLT, 3/8-24 x 1-53/64 long, hex. hd. drilled end		1	1	1	1	1					
34	STD-690 *	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick		AR	AR	AR	AR	AR					
35	STD-872 *	NUT, 3/8-24 slotted		1	1	1	1	1					
36	STD-713 *	PIN, Cotter, 3/32 dia. x 3/4 long		1	1	1	1	1					

* Used with Prestolite installation.

** Used with Delco-Remy installation.

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

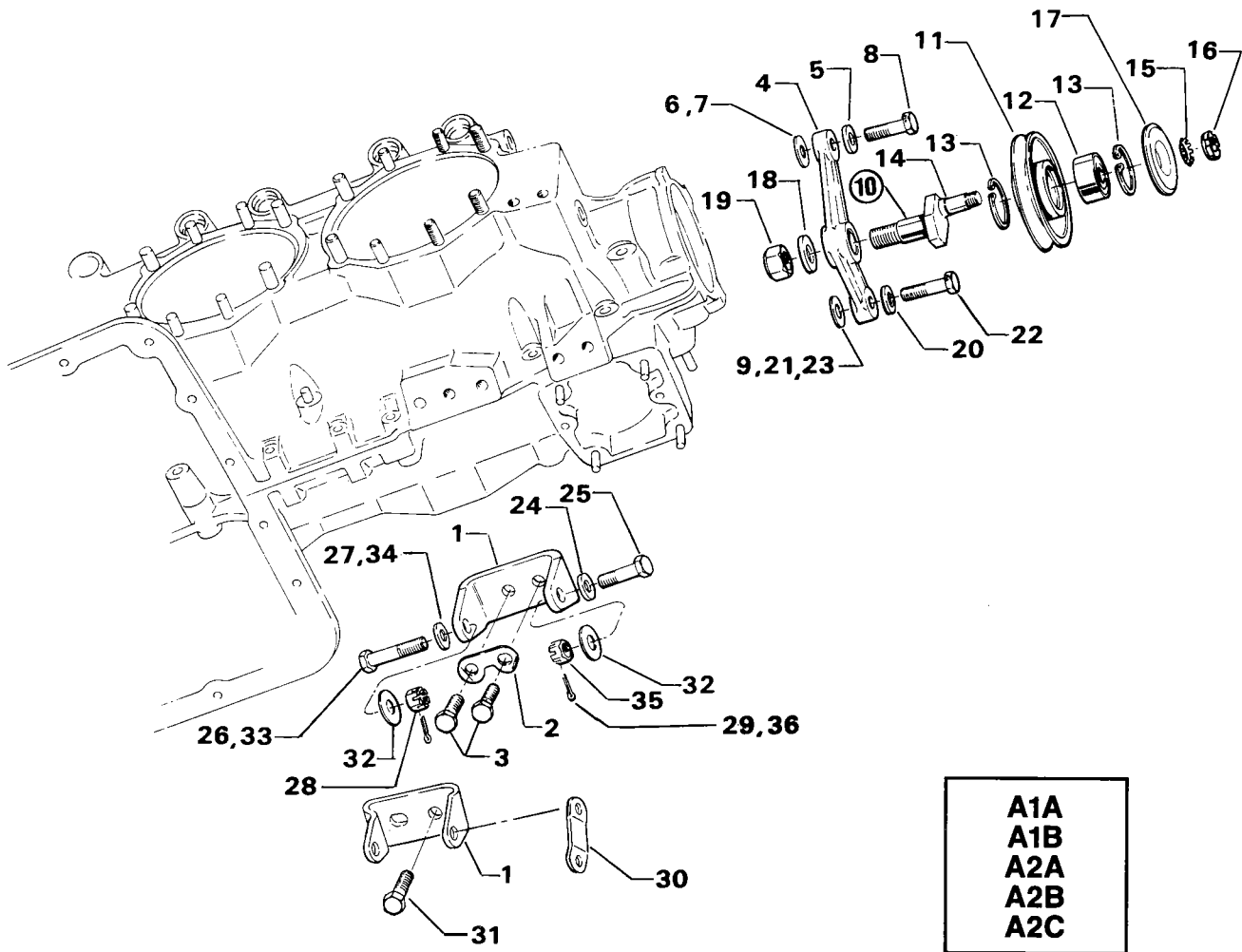


Figure 24. ALTERNATOR MOUNTING AND ATTACHING PARTS

ELECTRICAL COMPONENTS

ALTERNATOR AND COMPRESSOR ATTACHING PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly																
				TIO-540 Standard																
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A								
25																				
1	LW-13434	BRACKET, Alternator								1										
2	LW-13435	SUPPORT, Alternator bracket								1										
3	STD-690	WASHER, 13/16 O.D. x 25/64 x 1/16 thick								4										
4	STD-678	WASHER, 3/8 lock, internal lock								4										
5	STD-596	NUT, 3/8-24 plain								4										
6	LW-12237	BRACKET ASSY., Alternator belt adjusting								1										
7	STD-1373	INSERT, 5/16-18 x 15/32 long, heli-coil								1										
8	STD-1727	WASHER, 3/4 O.D. x 11/32 I.D. x 1/8 thick								2										
9	LW-14637 *	SHIM, 13/16 x 11/32 I.D. x .005 thick								AR										
10	LW-14649 *	SHIM, 13/16 x 11/32 I.D. x .010 thick								AR										
11	LW-31H1.31	BOLT, 5/16 x 18 x 1-5/16 long, drilled head								2										
12	LW-19261	PULLEY & SHAFT ASSY., Alternator belt adjusting								1										
13	LW-12233	PULLEY, Alternator belt adjusting (11MM)								1										
14	78629	BALL BEARING, Alternator idler pulley								1										
15	MS16625-1125	RING, Internal retaining, 1-1/4 diameter								2										
16	LW-19237	IDLER SHAFT, Alternator adjusting								1										
17	LW-11635	SHIELD, Alternator idler pulley bearing								1										
18	76768	LOCKWASHER, Alternator idler pulley bearing								1										
19	76769	LOCKNUT, Alternator idler pulley bearing								1										
20	STD-2221	NUT, 1/2-20 self-locking, 39/64 thick								1										
21	LW-10952 **	SHIM, 13/16 O.D. x 13/32 I.D. x .005 thick								AR										
22	76534 **	SHIM, 1-1/8 O.D. x 13/32 I.D. x .005 thick								AR										
23	AN6-12	BOLT, 3/8-24 x 1-21/64 long, drilled end								1										
24	AN6-17	BOLT, 3/8-24 x 1-61/64 long, drilled end								1										
25	STD-690 **	WASHER, 13/16 O.D. x 25/64 I.D. x 1/16 thick								AR										
26	STD-872	NUT, 3/8-24 slotted								2										
27	STD-713	PIN, Cotter, 3/32 dia. x 3/4 long								2										
28	LW-12232	SHIM, 9/16 O.D. x 9/32 I.D. x .005 thick								AR										
29	LW-12231	BRACE, Alternator belt adjusting								1										
30	STD-8 ★	WASHER, 1/4 plain								3										
31	LW-25-1.75 ★	BOLT, 1/4-20 x 1-3/4 long, hex. head								1										
32	STD-1685 ★	NUT, 1/4-20 self-locking								1										
33	LW-10952	SHIM, 13/16 O.D. x 13/32 I.D. x .005 thick								AR										
34	LW-15429	SHIM, 13/16 O.D. x 13/32 I.D. x .015 thick								AR										
35	LW-11459	BRACKET, Compressor								1										
36	STD-33	WASHER, 3/8 plain								2										
37	STD-678	WASHER, 3/8 lock, internal teeth								2										
38	AN6-30A	BOLT, 3/8-24 x 3-13/64 long, hex. head								2										
39	STD-35	WASHER, 3/8 plain								4										
40	STD-475	WASHER, Lock, internal teeth								4										
41	LW-31-1.16	BOLT, 5/16-18 x 1-5/32 long, hex. head								4										
42	STD-1342	WASHER, 25/64 I.D. x 7/8 O.D. x 1/8 thick								8										
43	STD-2045	NUT, 3/8-24 self-locking								4										
44	LW-10954	BELT, Compressor drive, 1/2 in. wide								1										

* Shim as required for belt alignment with LW-14637 and LW-14649 between crankcase and idler adjusting bracket.

** Shim with 76534 and STD-690 (rear end) and LW-10952 (front end) at alternator bracket as required for belt alignment.

★ To attach brace to starter.

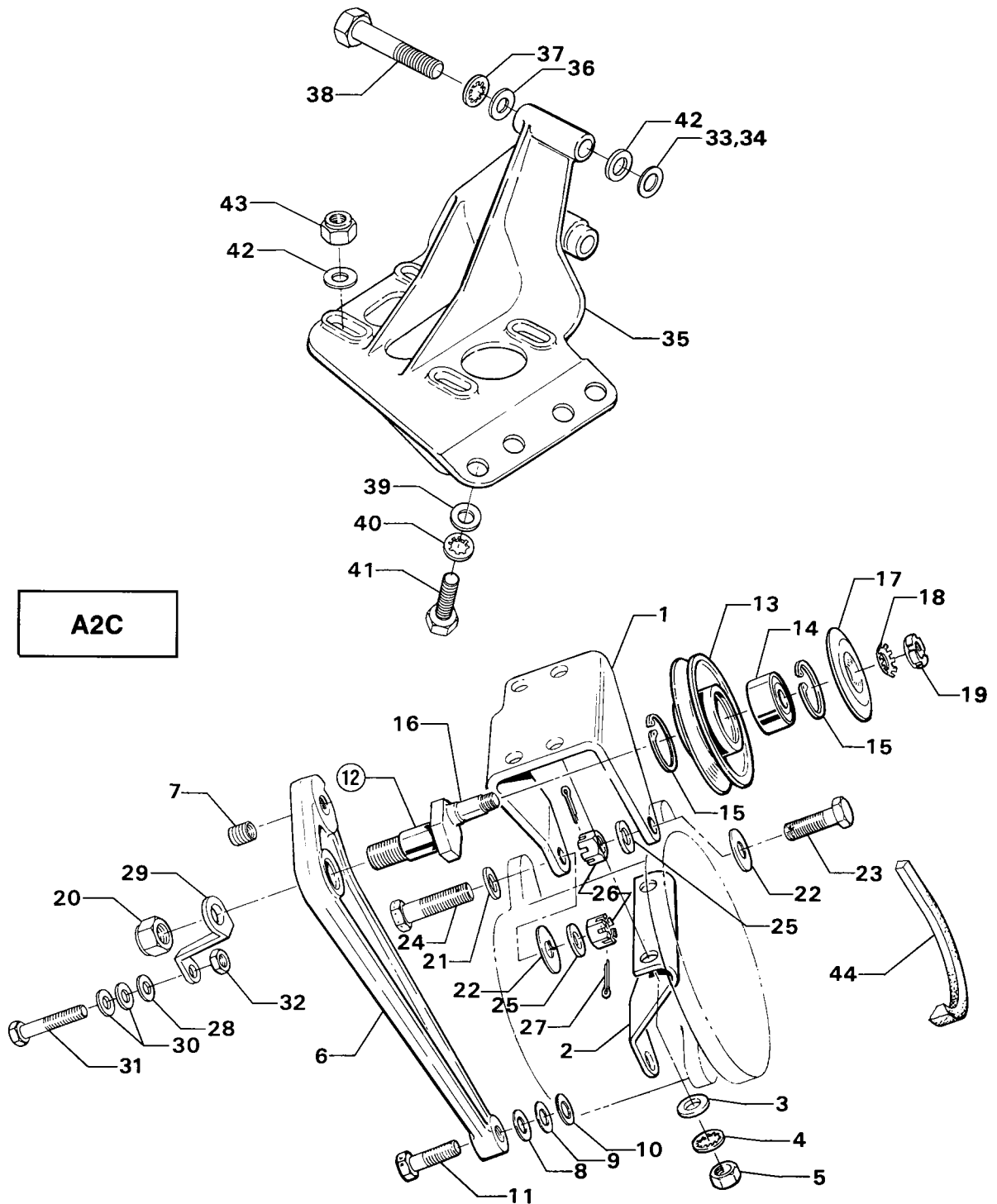


Figure 25. ALTERNATOR AND COMPRESSOR ATTACHING PARTS

OIL SUMP AND INDUCTION SYSTEM

OIL SUMP ASSEMBLY AND OIL SUCTION SCREEN

FIG. REF. 26	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	06B21326	GASKET, Oil sump							1	1	1	1	
2	78065	SUMP ASSY., Oil							1	1	1	1	
3	71699	CONNECTION, Intake pipe							6	6	6	6	
4	25C-11	STUD, 1/4-20 x 1-3/8 long							14	14	14	14	
5	STD-1164	INSERT, 5/16-18 Heli-coil x 5/8 long							4	4	4	4	
6	38-15	STUD, 3/8-16 x 1-7/8 long							8	8	8	8	
7	STD-1173	INSERT, 1/4-20 Heli-coil x 5/8 long							4	4	4	4	
8	1102	PLUG, 1/8-27 NPT Allen							1	1	1	1	
9	STD-8	WASHER, 1/4 plain							34	34	34	34	
10	STD-160	WASHER, 1/4 internal lock							27	27	27	27	
11	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head							7	7	7	7	
12	LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head							6	6	6	6	
13	STD-1411	NUT, 1/4-20 plain							21	21	21	21	
14	STD-551	PLUG, 1/2-14 NPT sq. hd., drilled							2	2	2	2	
15	70484	SCREEN, Oil suction							1	1	1	1	
16	06E19769-1.00	GASKET, 1.00 I.D. x 1-1/4 O.D. x 3/32 annular							1	1	1	1	
17	LW-12545	PLUG, 5/8 hex. hd. x 1.00-20 thread							1	1	1	1	

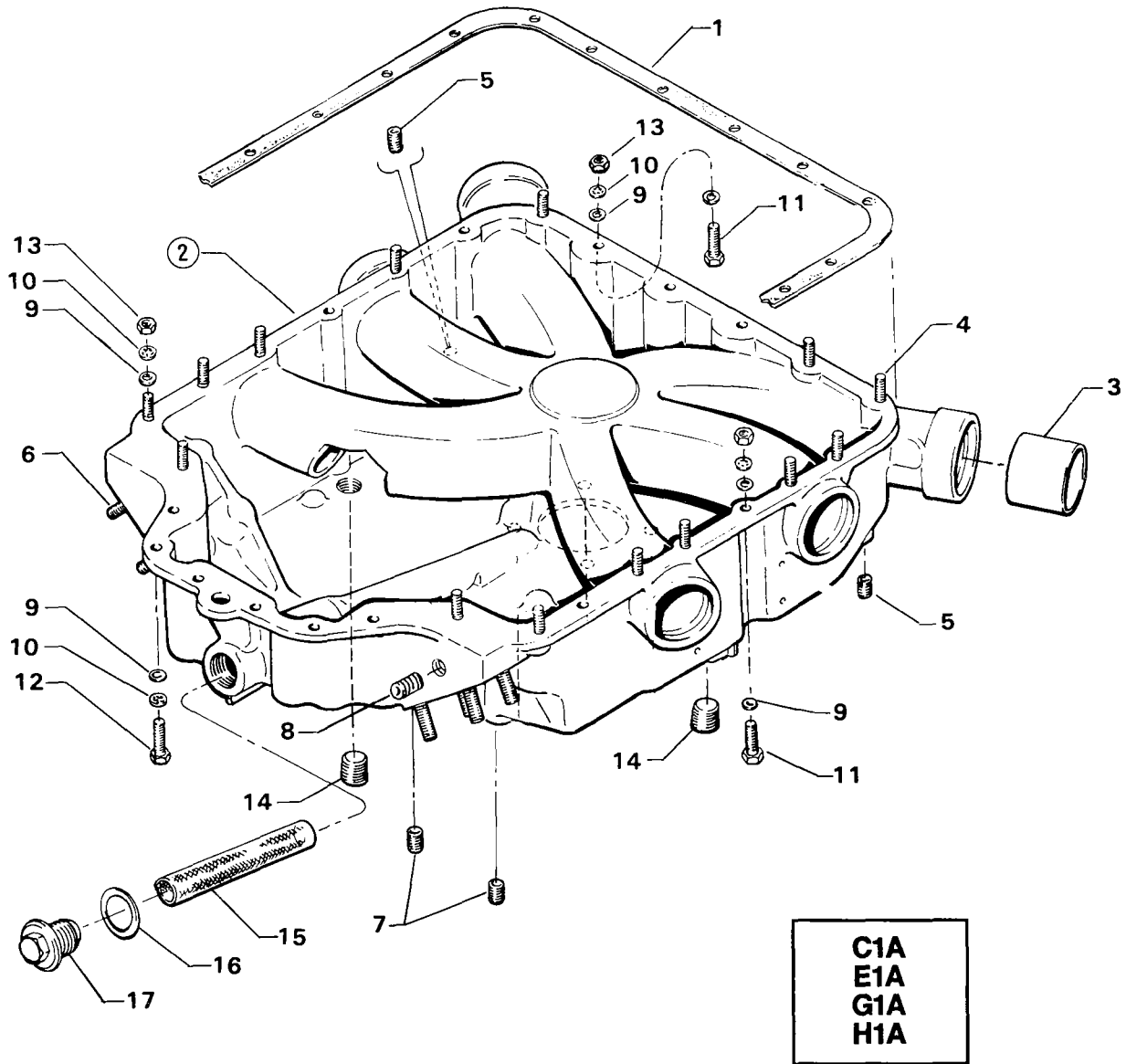


Figure 26. OIL SUMP ASSEMBLY AND OIL SUCTION SCREEN

OIL SUMP AND INDUCTION SYSTEM
OIL SUMP ASSEMBLY AND OIL SUCTION SCREEN

FIG. REF. 27	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	06B21326	GASKET, Oil sump		1	1	1	1	1					
2	76762	HOUSING ASSY., Oil sump and induction		1	1	1	1	1					
3	LW-18291	COVER, Induction housing		1	1	1	1	1					
4	STD-514	DOWEL, 5/16 dia. x 1/2 long		2	2	2	2	2					
5	72179	STUD, Intake pipe extension		3	3	3	3	3					
6	25C-9	STUD, 1/4-20 x 1-1/8 long		4	4	4	4	4					
7	25C-11	STUD, 1/4-20 x 1-3/8 long		15	15	15	15	15					
8	38-15	STUD, 3/8-16 x 1-7/8 long		8	8	8	8	8					
9	72706	INSERT, Heli-coil 1/4-20 x 3/8 long, self-lock		14	14	14	14	14					
10	1102	PLUG, 1/8 NPT, Allen head		2	2	2	2	2					
11	STD-91	PLUG, 1/2-14 NPT, Allen head		1	1	1	1	1					
12	1102	PLUG, 1/8 NPT, Allen head		3	3	3	3	3					
13	STD-784	PLUG, 3/8-18 NPT, Allen head		2	2	2	2	2					
14	STD-355	PLUG, 3/4-14 NPT, Allen head		2	2	2	2	2					
15	STD-8	WASHER, 1/4 plain		29	29	29	29	29					
16	STD-160	WASHER, Lock, internal teeth		23	23	23	23	23					
17	LW-25-2.00	BOLT, 1/4-20 x 2.00 long, hex. head		2	2	2	2	2					
18	LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head		10	10	10	10	10					
19	STD-1411	NUT, 1/4 plain		13	13	13	13	13					
20	06E19769-0.91	GASKET, Annular, 1-1/8 O.D. x 29/32 I.D. x 1/16		1	1	1	1	1					
21	72958	BAFFLE, Oil sump		1	1	1	1	1					
22	72960	PLUG, 7/8-14 x 5/8 hex. head		1	1	1	1	1					
23	LW-25-0.81	BOLT, 1/4-20 x 13/16 long		4	4	4	4	4					
24	STD-8	WASHER, 1/4 plain		37	37	37	37	37					
25	STD-160	WASHER, lock, internal teeth		23	23	23	23	23					
26	LW-25-1.13	BOLT, 1/4-20 x 1-1/8 long, hex. head		6	6	6	6	6					
27	LW-25-1.00	BOLT, 1/4-20 x 1.00 long, hex. head		8	8	8	8	8					
28	STD-1411	NUT, 1/4-20 plain		25	25	25	25	25					
29	STD-551	PLUG, 1/2-14 NPT, sq. head, drilled		2	2	2	2	2					
30	60422	SCREEN, Oil suction		1	1	1	1	1					
31	06E19769-1.00	GASKET, 1.00 I.D. x 1-1/4 O.D. x 3/32		1	1	1	1	1					
32	LW-12545	PLUG, 5/8 hex. head x 1.00-20 thread		1	1	1	1	1					

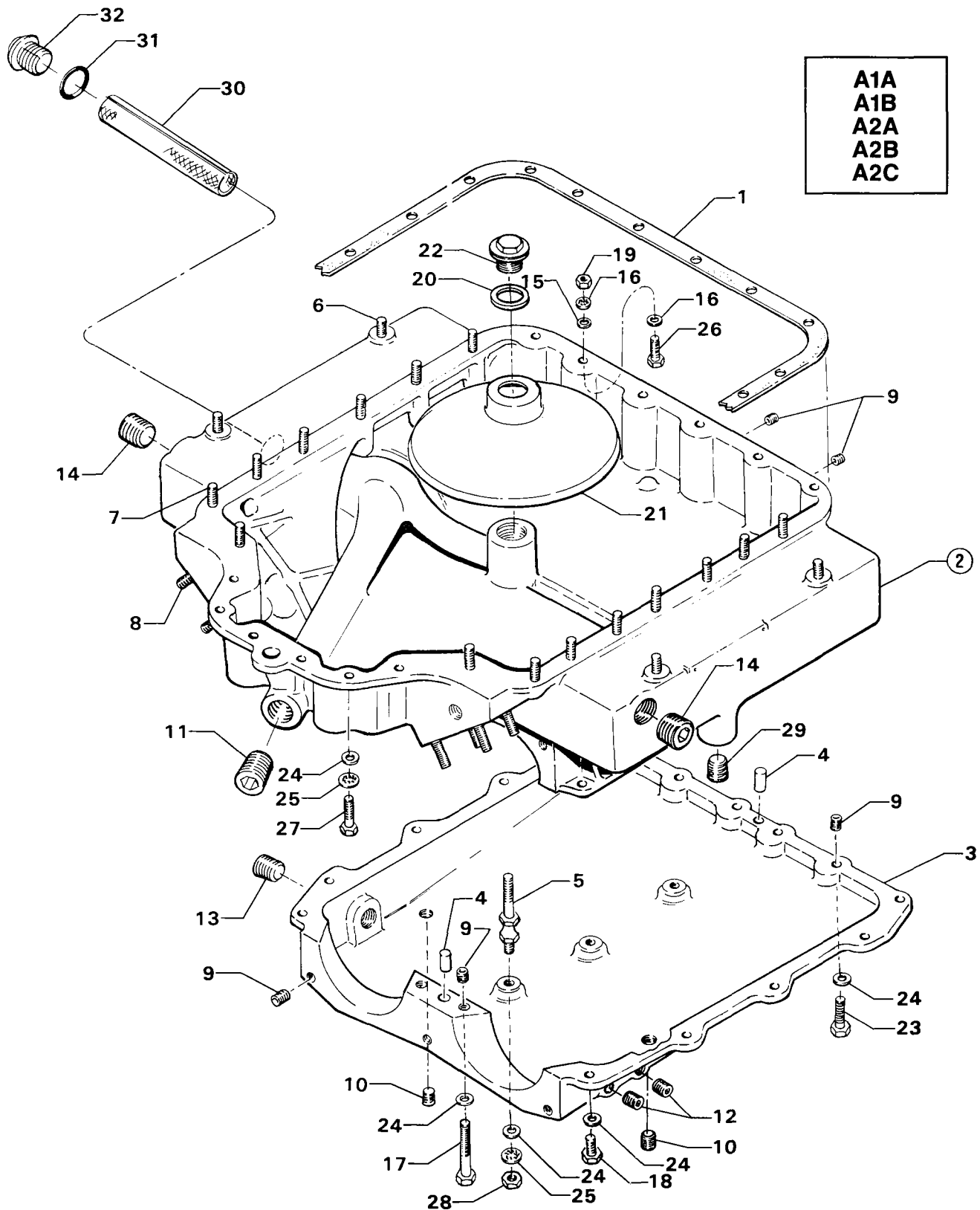


Figure 27. OIL SUMP ASSEMBLY AND OIL SUCTION SCREEN

OIL SUMP AND INDUCTION SYSTEM INTAKE PIPES AND AIR INLET HOUSING

FIG. REF. 28	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	72711	RING, Seal, intake pipes		6	6	6	6	6					
2	LW-12191	PIPE, Intake, cylinder no. 1		1	1	1	1	1					
3	LW-12192	PIPE, Intake, cylinder no. 2		1	1	1	1	1					
4	LW-12193	PIPE, Intake, cylinder no. 3		1	1	1	1	1					
5	LW-12194	PIPE, Intake, cylinder nos. 4 & 5		2	2	2	2	2					
6	LW-12195	PIPE, Intake, cylinder no. 6		1	1	1	1	1					
7	71973	GASKET, 2 bolt flange, 1-7/8 I.D.		6	6	6	6	6					
8	74360	FLANGE, Intake pipe, upper		6	6	6	6	6					
9	STD-8	WASHER, 1/4 plain		12	12	12	12	12					
10	STD-160	WASHER, 1/4 lock, internal teeth		12	12	12	12	12					
11	LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head		12	12	12	12	12					
12	70485	PIPE, Intake							6	6	6	6	
13	69603	HOSE, 1-3/4 I.D. x 2-3/16 O.D. x 1-3/4 long							6	6	6	6	
14	LW-15592-8-28	CLAMP, Hose							12	12	12	12	
15	71973	GASKET, 2 bolt flange, 1-7/8 I.D.							6	6	6	6	
16	73346	FLANGE, Intake pipe, upper							6	6	6	6	
17	STD-8	WASHER, 1/4 plain							12	12	12	12	
18	STD-160	WASHER, 1/4 lock, internal teeth							12	12	12	12	
19	LW-25-1.25	BOLT, 1/4-20 x 1-1/4 long, hex. head							12	12	12	12	
20	78366	HEAT SHIELD, No. 1 and 2 pipe							2	2	2	2	
21	LW-15592-8-24	CLAMP, 1-13/16 dia. x 9/16 wide							4	4	4	4	
22	72210	GASKET, Air throttle housing		1	1	1	1	1					
23	77998	HOUSING ASSY., Air inlet		1	1	1	1	1					
24	STD-1164	INSERT, 5/16-18 Heli-coil, 5/8 long		4	4	4	4	4					
25	STD-8	WASHER, 1/4 plain		6	6	6	6	6					
26	LW-25-0.81	BOLT, 1/4-20 x 13/16 long, hex. head		6	6	6	6	6					

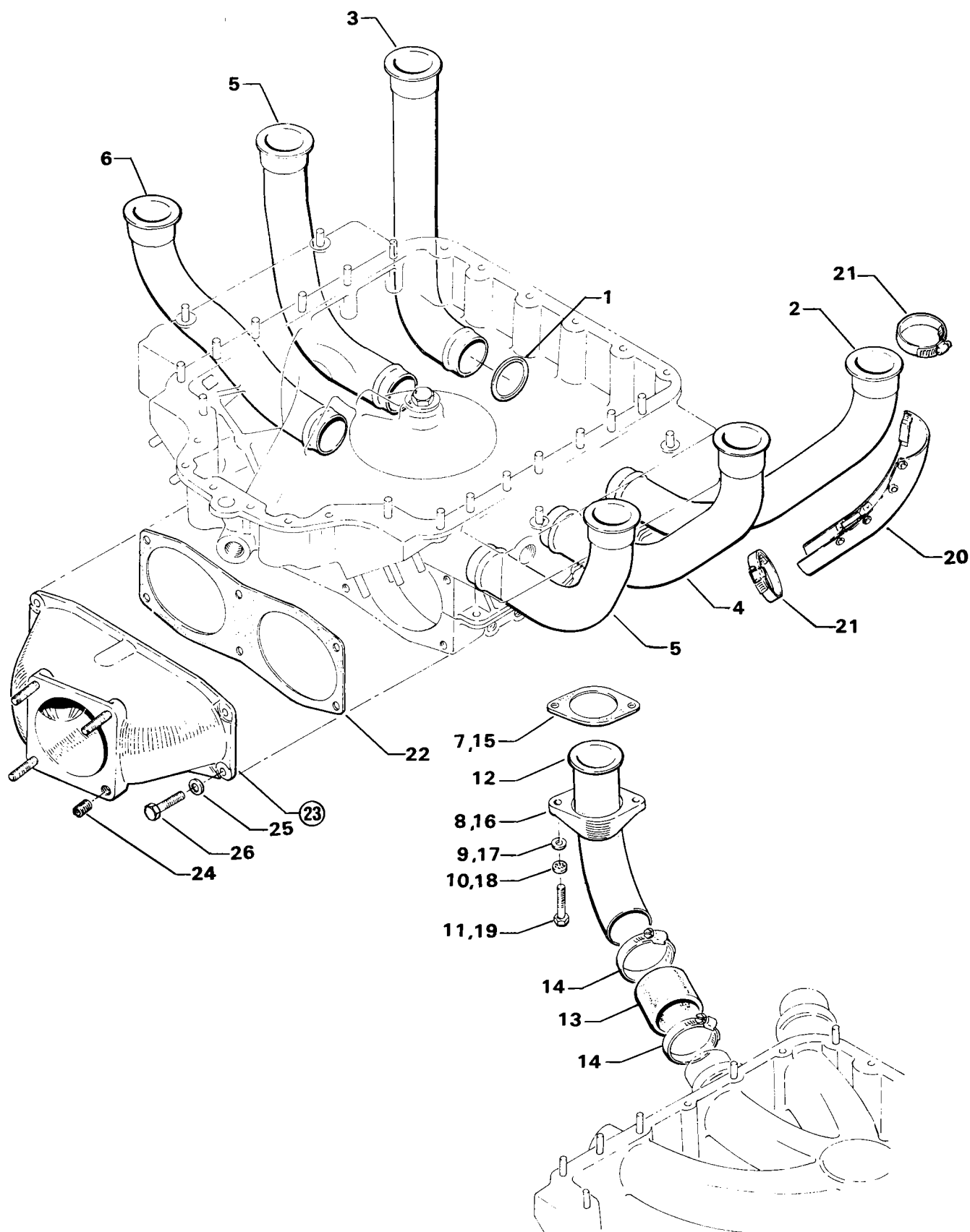


Figure 28. INTAKE PIPES AND AIR INLET HOUSING

OIL SUMP AND INDUCTION SYSTEM

FUEL INJECTOR, FUEL MANIFOLDS AND INJECTION NOZZLE

FIG. REF. 29	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly								
				TIO-540 Standard								
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A
1	73032	GASKET, Air inlet housing		1	1	1	1	1				
2	78802	FUEL INJECTOR ASSY.		1	1	1	1	1				
3	75311	FUEL INJECTOR (2524163-14)		1	1	1	1	1				
4	AN825-4	TEE, 1/4 flared tube, 1/8 pipe thread		1	1	1	1	1				
5	MS29512-06	SEAL, Oil, 5/64 dia. section x 15/32 I.D.		1	1	1	1	1				
6	AN924-6	NUT, Flared tube, bulkhead fitting		1	1	1	1	1				
7	76779	ADAPTER, Injector, fuel outlet		1	1	1	1	1				
8	AN914-1	ELBOW, 1/8 pipe thread		1	1	1	1	1				
9	02A21377	ELBOW & BUSHING ASSY., 45°		1	1	1	1	1				
10	STD-475	WASHER, 5/16-18 internal lock		4	4	4	4	4				
11	STD-35	WASHER, 5/16 plain		3	3	3	3	3				
12	LW-31-1.31	BOLT, 5/16-18 x 1-5/16 long, hex. head		4	4	4	4	4				
13	STD-1727	WASHER, Plain, 3/4 O.D. x 21/64 I.D. x 1/8		1	1	1	1	1				
14	AN929-3	CAP ASSY., 3/16 flared tube fitting		1	1	1	1	1				
15	LW-12879-6S120	HOSE, Fuel pump to injector		1	1	1	1	1				
16	LW-18853	NOZZLE, Injection (2524923)		6	6	6	6	6				
17	951391	"O" RING		12	12	12	12	12				
18	75414	BRACKET, Fuel manifold		2	2	2	2	2				
19	STD-160	WASHER, 1/4 lock, internal teeth		2	2	2	2	2				
20	STD-1411	NUT, 1/4-20 plain		2	2	2	2	2				
21	76778	MANIFOLD ASSY., Fuel, right		1	1	1	1	1				
22	STD-148	NIPPLE, Union, 1/8 tube		2	2	2	2	2				
23	MS20822-4	ELBOW, 1/4 flared tube, 1/8 NPT, 90°		1	1	1	1	1				
24	STD-2166	ELBOW, Union		1	1	1	1	1				
25	76777	MANIFOLD ASSY., Fuel, left		1	1	1	1	1				
26	STD-148	NIPPLE, Union, 1/8 tube		1	1	1	1	1				
27	MS20822-4	ELBOW, 1/4 flared tube, 1/8 NPT, 90°		1	1	1	1	1				
28	STD-2166	ELBOW, Union		1	1	1	1	1				
29	AN791-2	ELBOW, Union, 1/8 NPT (45°)		1	1	1	1	1				
30	LW-25-0.75	BOLT, 1/4-20 x 3/4 long, hex. head		2	2	2	2	2				
31	STD-8	WASHER, 1/4 plain		2	2	2	2	2				
32	STD-160	WASHER, 1/4 lock, internal teeth		2	2	2	2	2				
33	STD-1411	NUT, 1/4-20 plain		2	2	2	2	2				

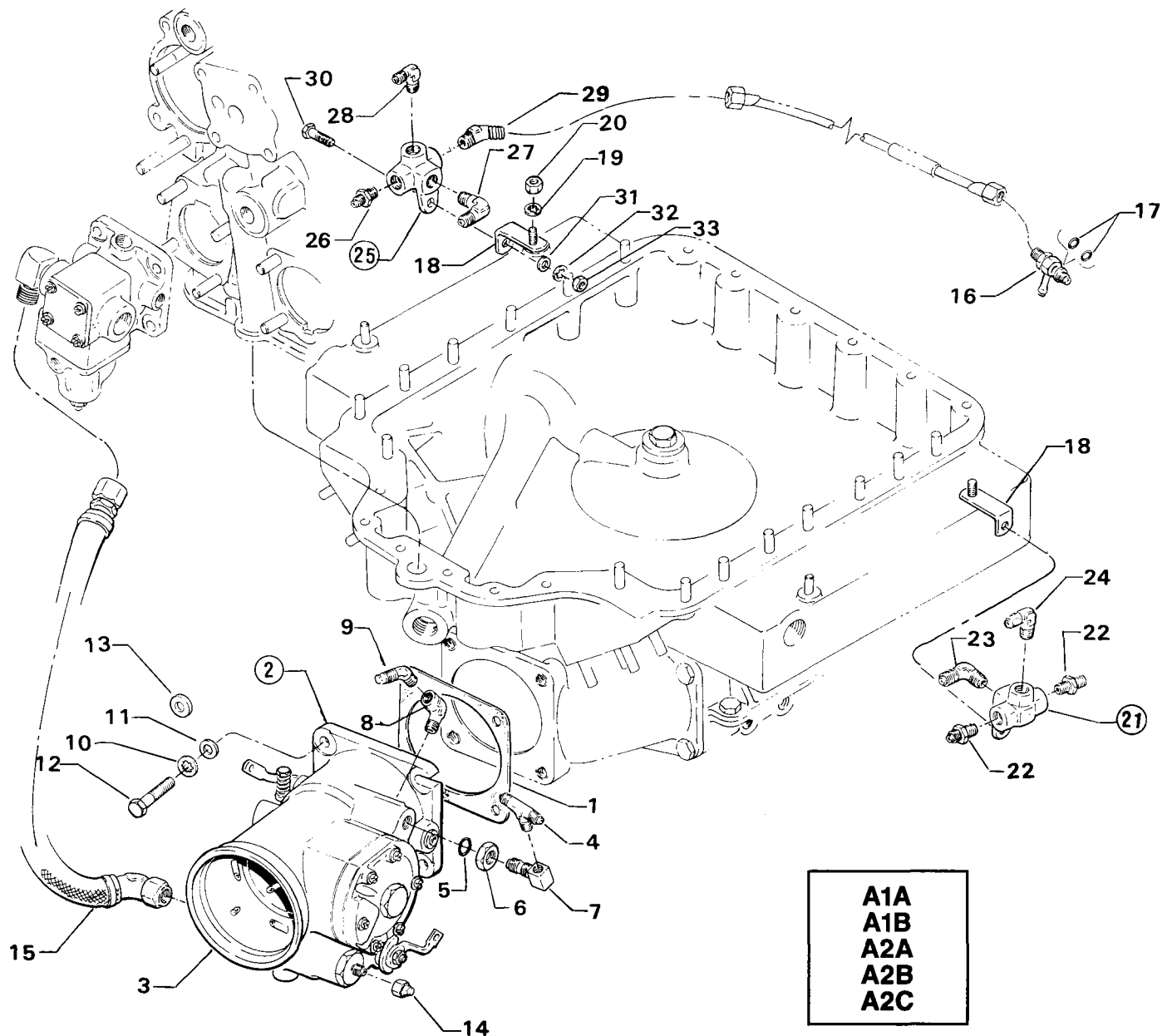


Figure 29. FUEL INJECTOR, FUEL MANIFOLDS AND INJECTION NOZZLE

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

FIG. REF. 30	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	66224	GASKET, Fuel injector							1	1	1	1	
2	78318	FUEL INJECTOR, Bendix (2524359-10)							1	1	1	1	
3	STD-35	WASHER, 5/16 plain							4	4	4	4	
4	STD-475	WASHER, 5/16 internal lock							4	4	4	4	
5	LW-31-1.25	BOLT, 5/16-18 x 1-1/4 long, hex. head							4	4	4	4	
6	LW-18854	NOZZLE ASSY., Manifold air bleed (2524917)							6	6	6	6	
7	951391	"O" RING							12	12	12	12	
8	75283	MANIFOLD ASSY., Fuel							1	1	1	1	
9	MS20823-4	ELBOW, 1/4 tube, 1/8 NPT (45°)							1	1	1	1	
10	STD-148	NIPPLE, Union, 1/8 NPT							6	6	6	6	
11	LW-12604	NIPPLE, 1/8 tube to 1/8 NPT, restricted							1	1	1	1	
12	73966	SPACER, Fuel manifold bracket							2	2	2	2	
13	73965	BRACKET, Fuel manifold							2	2	2	2	
14	STD-251	WASHER, No. 10 lock, internal teeth							4	4	4	4	
15	STD-82	SCREW, No. 10-32 x 1/2 long, fill. hd. dr.							4	4	4	4	
16	LW-12098-0-200	TUBE ASSY., Fuel manifold to nozzle, cyls. 1, 2, 5 & 6							4	4	4	4	
17	LW-12098-0-170	TUBE ASSY., Fuel manifold to nozzle, cyls. 3 & 4							2	2	2	2	
18	LW-16266-10-75	CLAMP							12	12	12	12	
19	LW-16266-10-13	CLAMP							12	12	12	12	
20	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head							14	14	14	14	
21	STD-425	WASHER, No. 10 plain							12	12	12	12	
22	STD-670	NUT, No. 10-32 self-locking							14	14	14	14	
23	73136	BRACKET, 90°							2	2	2	2	
24	LW-13192-4S334	HOSE ASSY., Fuel injector to fuel manifold							1	1	1	1	
25	74278	BRACKET ASSY., Fuel line support							1	1	1	1	
26	LW-16266-25-63	CLAMP							1	1	1	1	
27	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head							1	1	1	1	
28	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head							2	2	2	2	
29	STD-425	WASHER, No. 10 plain							3	3	3	3	
30	STD-670	NUT, No. 10-32 self-locking							1	1	1	1	
31	LW-12879-6S380	HOSE ASSY., Fuel pump to injector							1	1	1	1	
32	LW-16266-25-75	CLAMP, (Attach to sump)							1	1	1	1	
33	LW-16266-25-63	CLAMP							1	1	1	1	
34	LW-16266-25-75	CLAMP							1	1	1	1	
35	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head							1	1	1	1	
36	STD-425	WASHER, No. 10 plain							2	2	2	2	
37	STD-670	NUT, No. 10-32 self-locking							1	1	1	1	
38	AN825-6	TEE, 3/8 flared tube with 1/4 NPT							1	1	1	1	
39	MS20822-6	ELBOW, 3/8 flared tube with 1/4 NPT, 90°							1	1	1	1	
40	73136	BRACKET, Extension (angle)							1	1	1	1	
41	STD-471	SCREW, 1/4-20 x 1/2 long							1	1	1	1	
42	STD-8	WASHER, 1/4 plain							1	1	1	1	
43	STD-160	WASHER, 1/4 lock, internal teeth							1	1	1	1	
44	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head							1	1	1	1	
45	STD-425	WASHER, No. 10 plain							1	1	1	1	
46	STD-670	NUT, No. 10-32 self-locking							1	1	1	1	

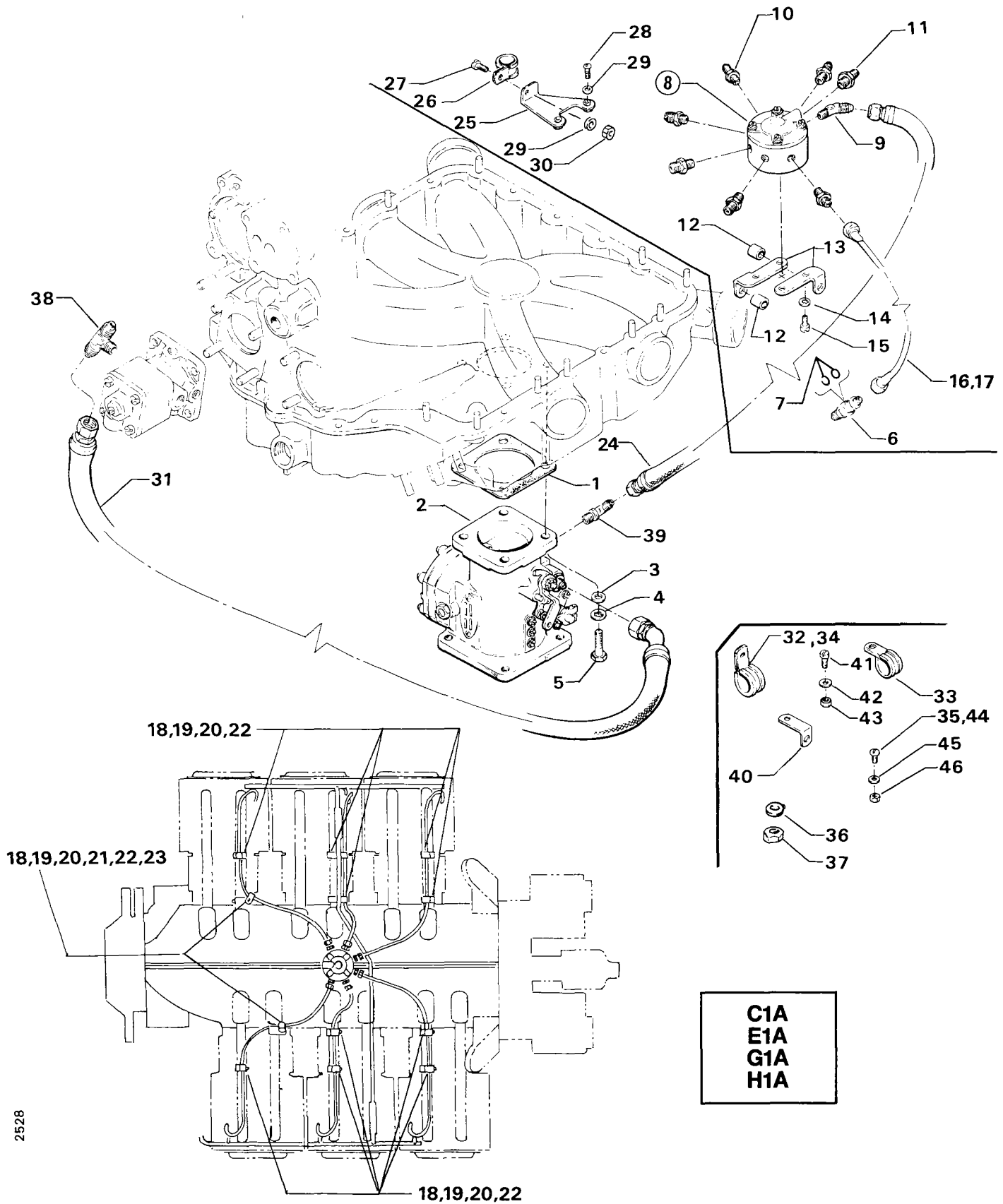


Figure 30. FUEL INJECTOR, FUEL MANIFOLD, INJECTION NOZZLES, HOSES AND ATTACHMENTS

OIL SUMP AND INDUCTION SYSTEM FUEL HOSES AND ATTACHING PARTS

FIG. REF. 31	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-12878-4S176	HOSE, Fuel injector to fuel manifold, right		1	1	1	1	1					
2	LW-12798-4S242	HOSE, Fuel injector to fuel manifold, left		1	1	1	1	1					
3	LW-16266-25-63	CLAMP		2	2	2	2	2					
4	STD-8	WASHER, 1/4 plain		2	2	2	2	2					
5	STD-160	WASHER, 1/4 lock, internal teeth		2	2	2	2	2					
6	STD-1411	NUT, 1/4-20 plain		2	2	2	2	2					
7	LW-12098-0-100	TUBE ASSY., Fuel manifold to nozzle, cyls. 1, 3, 4 & 6		4	4	4	4	4					
8	LW-12098-0-170	TUBE ASSY., Fuel manifold to nozzle, cyls. 2 & 5		2	2	2	2	2					
9	73152	BRACKET, Support clamp		1	1	1	1	1					
10	LW-16266-10-13	CLAMP		1	1	1	1	1					
11	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head		1	1	1	1	1					
12	STD-670	NUT, No. 10-32, self-locking		1	1	1	1	1					
13	73136	BRACKET, Extension, angle		1	1	1	1	1					
14	LW-16266-10-13	CLAMP		1	1	1	1	1					
15	LW-16266-10-38	CLAMP						1					
16	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head		1	1	1	1	1					
17	STD-670	NUT, No. 10-32, self-locking		1	1	1	1	1					
18	LW-16266-10-13	CLAMP, Nozzle line		5	5	5	5	5					
19	LW-16266-10-38	CLAMP, Nozzle vent lines		5	5	5	5	5					
20	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head		5	5	5	5	5					
21	STD-670	NUT, No. 10-32, self-locking		5	5	5	5	5					

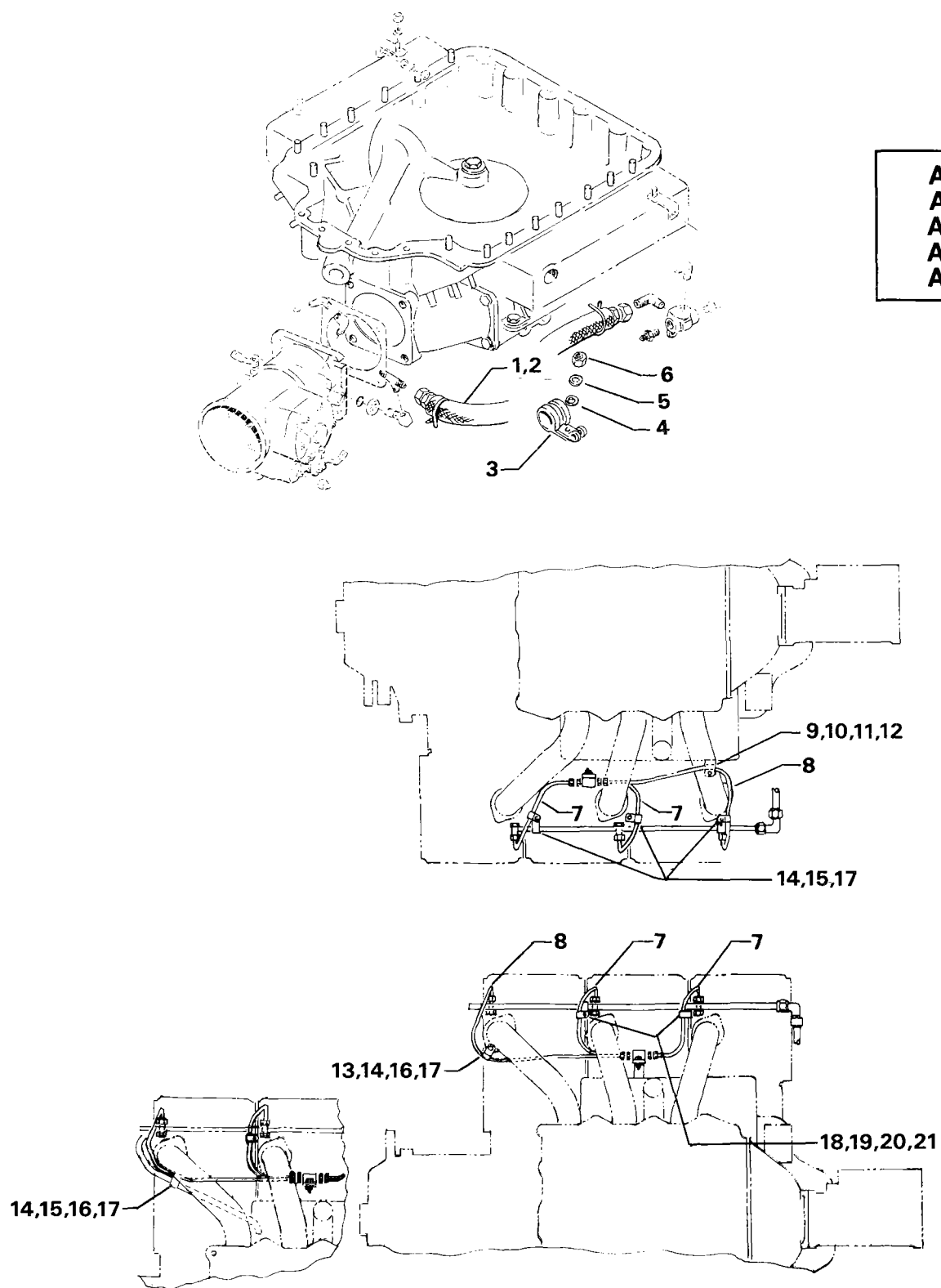


Figure 31. FUEL HOSES AND ATTACHING PARTS

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

FIG. REF. 32	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	75340	MANIFOLD, Injector nozzle vent, outer right (16.13 long)		1	1	1	1	1					
2	75332	MANIFOLD, Injector nozzle vent, outer left (21.18 long)		1	1	1	1	1					
3	76772	HOSE, 3/16 I.D. x 7/16 O.D. x 1-7/8 long		6	6	6	6	6					
4	LW-15592-5-04	CLAMP, 7/16 I.D. x 5/16 wide		12	12	12	12	12					
5	74832	BRACKET, Nozzle vent manifold		4	4	4	4	4					
6	STD-860	SCREW, 10-32 x 5/8 long, rd. head		5	5	5	5	5					
7	STD-670	NUT, No. 10-32 self-locking		5	5	5	5	5					
8	STD-1339	PLUG, 1/16-27 NPT, Allen head		2	2	2	2	2					
9	02A21169	ELBOW, Manifold, 3/8 flared tube coupling, 90°		2	2	2	2	2					
10	LW-12783-6-194	HOSE, Manifold, injector nozzle vent, inner right		1	1	1	1	1					
	LW-12783-6-220	HOSE, Manifold, injector nozzle vent, inner left		1	1	1	1	1					
11	LW-16266-25-50	CLAMP, Fuel line		4	4	4	4	4					
12	76734	ZIP STRAP		2	2	2	2	2					
13	02M19799	HOSE, Split (Assemble on vent hose to turbo strut)		2	2	2	2	2					

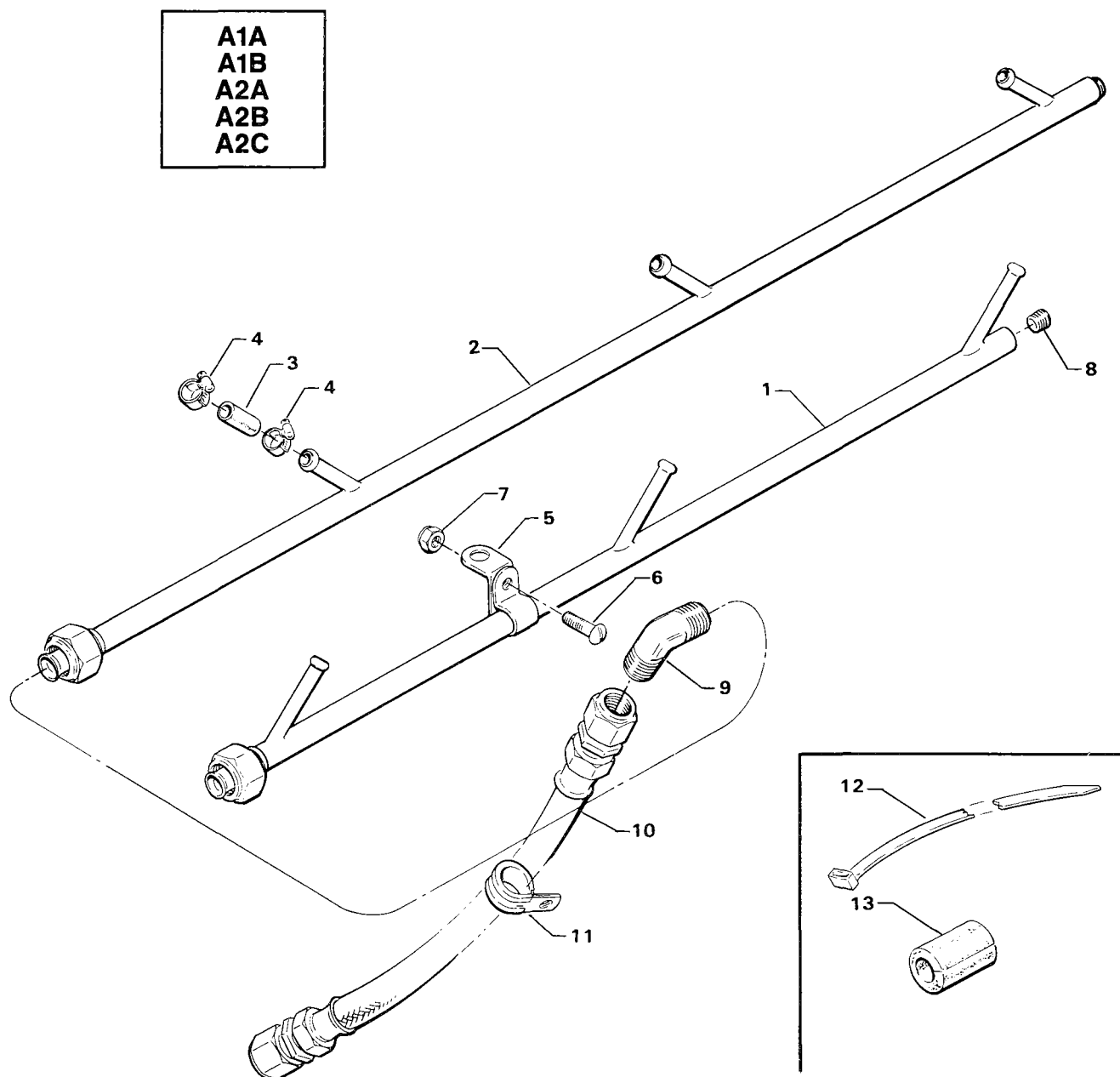


Figure 32. INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND ATTACHMENTS

OIL SUMP AND INDUCTION SYSTEM

INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND ATTACHMENTS

FIG. REF. 33	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly								
				TIO-540 Standard								
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A
1	78109	MANIFOLD, Injector nozzle vent, right							1	1	1	1
2	78110	MANIFOLD, Injector nozzle vent, left							1	1	1	1
3	74493	HOSE, 3/16 I.D. x 7/16 O.D. x 2-1/2 long							6	6	6	6
4	LW-15592-5-04	CLAMP, 7/16 I.D. x 5/16 wide							12	12	12	12
5	78127	TUBE, Crossover, injectornozzle vent manifold							1	1	1	1
6	STD-2048	HOSE, 1/4 I.D. x 19/32 O.D. x 2-7/16 long							2	2	2	2
7	LW-15592-5-04	CLAMP, 7/16 I.D. x 5/16 wide							4	4	4	4
8	LW-16266-25-25	CLIP, 1/4 dia. tube for 1/4 dia. screw							2	2	2	2
9	STD-1916	SCREW, 1/4-20 x 1-1/8 long, fill. hd., self-locking							2	2	2	2
10	STD-1685	NUT, 1/4-20, self-locking							2	2	2	2
11	LW-16266-25-25	CLAMP							2	2	2	2
12	78753	BRACKET, Injector nozzle vent crossover							1	1	1	1
13	STD-692	SCREW, No. 10-32 x 1/2 long, fill. head							1	1	1	1
14	STD-425	WASHER, No. 10 plain							1	1	1	1
15	STD-670	NUT, No. 10-32 self-locking							1	1	1	1
16	STD-1339	PLUG, 1/16-27 NPT, Allen							3	3	3	3
17	AN815-4	NIPPLE, 1/4 tube (between hole & vent tube)							1	1	1	1
18	LW-12784-4-310	HOSE ASSY., Nozzle vent to air inlet housing							1	1	1	1
19	LW-16266-25-31	CLAMP, Bracket							1	1	1	1
20	73136	BRACKET, Support clamp (attach to sump)							1	1	1	1
21	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head							1	1	1	1
22	STD-425	WASHER, No. 10 plain (clip to bracket)							1	1	1	1
23	STD-670	NUT, No. 10-32 self-locking							1	1	1	1
24	72376 *	ELBOW, 1/4 tube to 7/16 thread (air inlet housing)							1	1	1	1

* Uses "O" Ring, P/N MS29512-04.

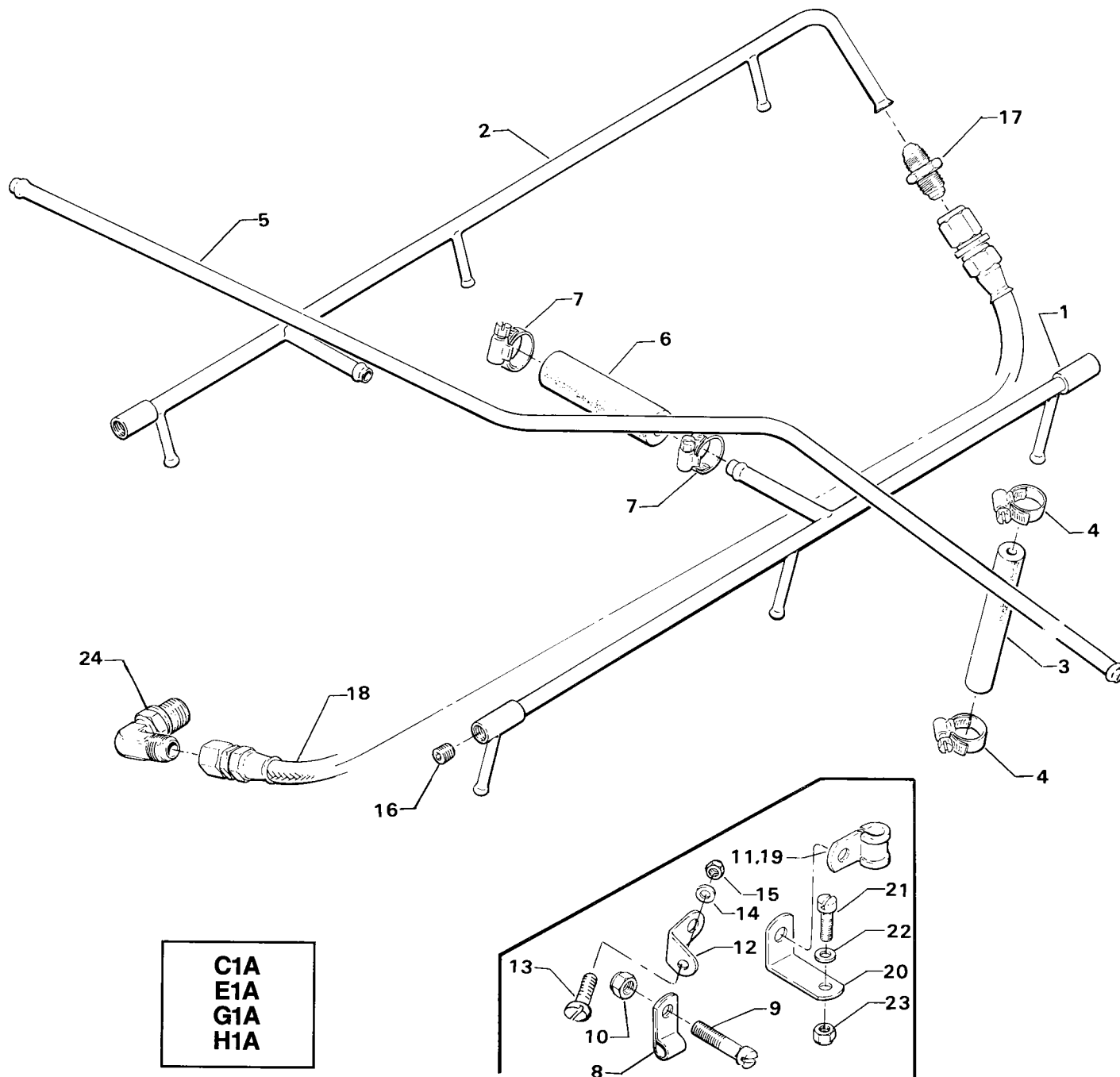
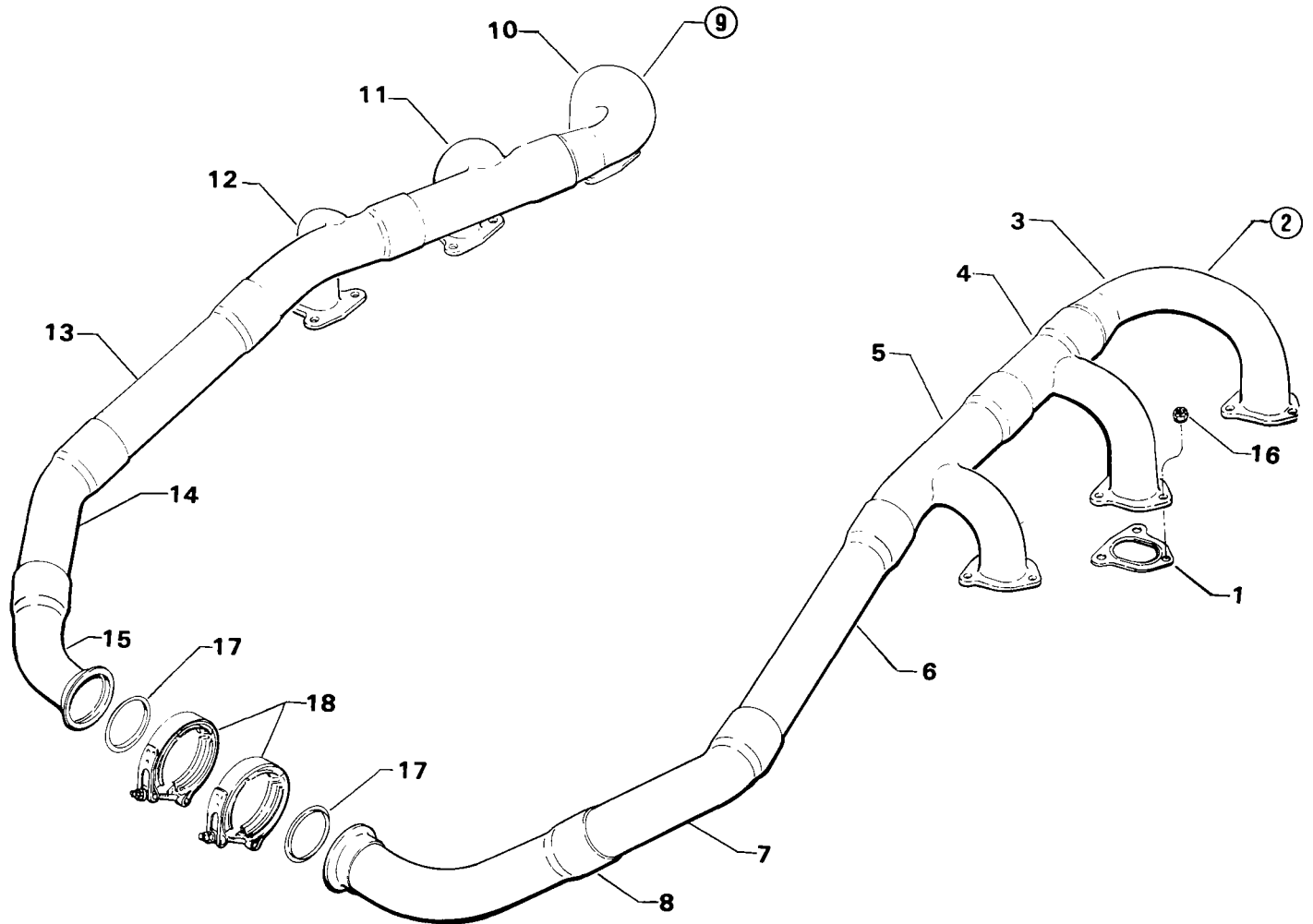


Figure 33. INJECTOR NOZZLE VENT MANIFOLDS, HOSES AND ATTACHMENTS

TURBOCHARGER AND EXHAUST SYSTEMS
EXHAUST MANIFOLDS AND ATTACHMENTS

FIG. REF. 34	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A A	A B	A A	A B	A C	C A	E A	G A	H A	
1	LW-15619	GASKET, Exhaust flange		12	12	12	12	12					
2	LW-16794	MANIFOLD ASSY., Exhaust, right		1	1	1	1	1					
3	LW-10159	PIPE, Exhaust, cyl. no. 1		1	1	1	1	1					
4	LW-10160	PIPE, Exhaust, cyl. no. 3		1	1	1	1	1					
5	LW-10161	PIPE, Exhaust, cyl. no. 5		1	1	1	1	1					
6	LW-15850	PIPE, Exhaust, right		1	1	1	1	1					
7	LW-16792	PIPE, Exhaust, right rear, intermediate		1	1	1	1	1					
8	LW-16793	PIPE, Exhaust, right		1	1	1	1	1					
9	LW-16791	MANIFOLD ASSY., Exhaust, left		1	1	1	1	1					
10	LW-10164	PIPE, Exhaust, cylinder no. 2		1	1	1	1	1					
11	LW-10163	PIPE, Exhaust, cylinder no. 4		1	1	1	1	1					
12	LW-10162	PIPE, Exhaust, cylinder no. 6		1	1	1	1	1					
13	LW-15849	PIPE, Exhaust, left intermediate		1	1	1	1	1					
14	LW-16789	PIPE, Exhaust, left rear, intermediate		1	1	1	1	1					
15	LW-16790	PIPE, Exhaust, left rear		1	1	1	1	1					
16	STD-2218	NUT, 5/16-18 self-locking		18	18	18	18	18					
17	78083	GASKET, V-Band coupling, 2.00 O.D. tube		2	2	2	2	2					
18	LW-12093-5	COUPLING, V-Band, 2.00 O.D. tube		2	2	2	2	2					



**A1A
A1B
A2A
A2B
A2C**

Figure 34. EXHAUST MANIFOLDS AND ATTACHMENTS

TURBOCHARGER AND EXHAUST SYSTEMS

EXHAUST MANIFOLDS, BYPASS VALVE AND ATTACHING PARTS

FIG. REF. 35	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly								
				TIO-540 Standard								
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A
1	75118	GASKET, Exhaust flange							12	12	12	12
2	LW-16909	MANIFOLD ASSY., Left							1	1	1	1
3	78687	ADAPTER, Exhaust pipe, cyl. no. 2							1	1	1	1
4	LW-16901	PIPE, Exhaust, cyl. no. 2							1	1	1	1
5	78054	ADAPTER, Exhaust pipe cyl. head (cyl. nos. 4 & 6)							2	2	2	2
6	LW-12281	PIPE, Exhaust (cyl. nos. 4 & 6)							1	1	1	1
7	78965	MANIFOLD ASSY., Right							1	1	1	1
8	78061	PIPE, Exhaust, cyl. no. 1							1	1	1	1
9	78054	ADAPTER, Exhaust pipe cyl. head (cyl. nos. 3 & 5)							2	2	2	2
10	78062	PIPE, Exhaust, cyl. no. 3							1	1	1	1
11	78063	PIPE, Exhaust, cyl. no. 5							1	1	1	1
12	LW-11657	EXTENSION, Wastegate indexing, male							1	1	1	1
13	LW-11656	EXTENSION, Wastegate indexing, female							1	1	1	1
14	LW-11655	U-BOLT, 1/4-20, NC-3 thread							1	1	1	1
15	LW-11654	CLAMP, Exhaust manifold joint							1	1	1	1
16	STD-2044	NUT, 1/4-20 UNC, self-locking							2	2	2	2
17	78246	GASKET, V-Band coupling, 2-1/4 O.D. tube							1	1	1	1
18	LW-12093-6	COUPLING, V-Band, 2-1/4 tube							1	1	1	1
19	STD-35	WASHER, 5/16 plain							12	12	12	12
20	STD-2043	NUT, 5/16 self-locking							12	12	12	12
21	LW-12778	VALVE, Exhaust bypass							1	1	1	1
22	72376 *	ELBOW, 1/4 tube, 90°							1	1	1	1
23	LW-12093-6	COUPLING, V-Band, 2-1/4 O.D. tube							2	2	2	2
24	75845	GASKET, V-Band coupling, 2-1/4 O.D. tube							2	2	2	2
25	LW-11223	FLANGE, Exhaust manifold							1	1	1	1
26	LW-10801	BAFFLE, Exhaust bypass valve							1	1	1	1
27	STD-2047	BOLT, 1/4-20 x 1-3/8 long, hex. head							2	2	2	2
28	STD-425	WASHER, No. 10 plain							3	3	3	3
29	STD-251	WASHER, No. 10 internal lock							3	3	3	3
30	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head							3	3	3	3
31	STD-63	NUT, 10-32 plain							3	3	3	3
32	AN742-37	CLAMP, 2-5/16 I.D. for 3/16 dia. screw							1	1	1	1
33	AN520-10-12	SCREW, No. 10-32 x 3/4 long, rd. head							1	1	1	1
34	STD-670	NUT, No. 10-32 self-locking							1	1	1	1
35	78246	GASKET, V-Band coupling, 2-1/4 tube							2	2	2	2
36	78064	FLANGE, Exhaust manifold							1	1	1	1
37	LW-16902	FLANGE, Exhaust manifold							1	1	1	1
38	LW-12093-6	COUPLING, V-Band, 2-1/4 tube							2	2	2	2
39	477312	SPRING, Exhaust valve							1	1	1	1

* Uses "O" Ring, P/N MS29512-04.

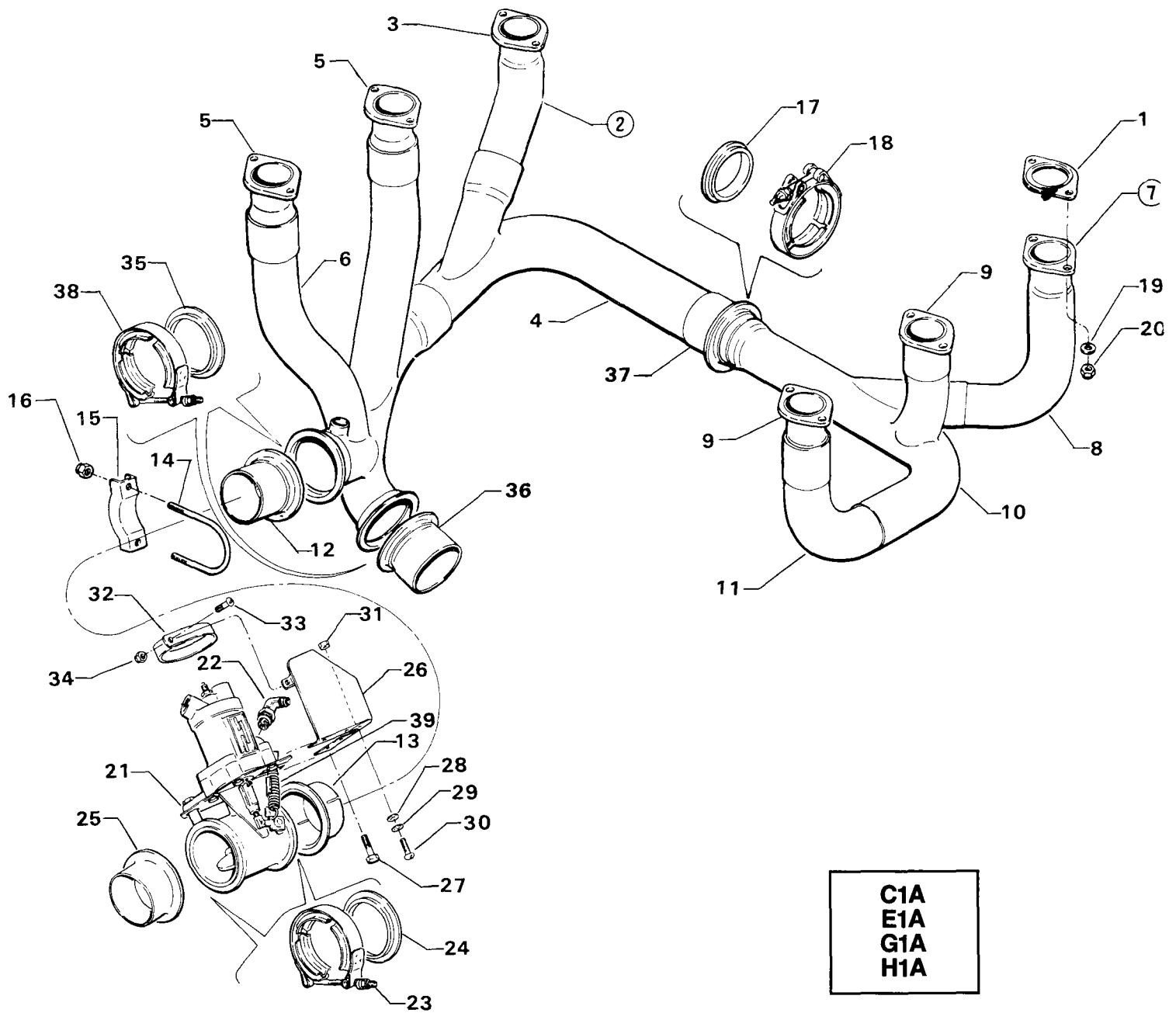
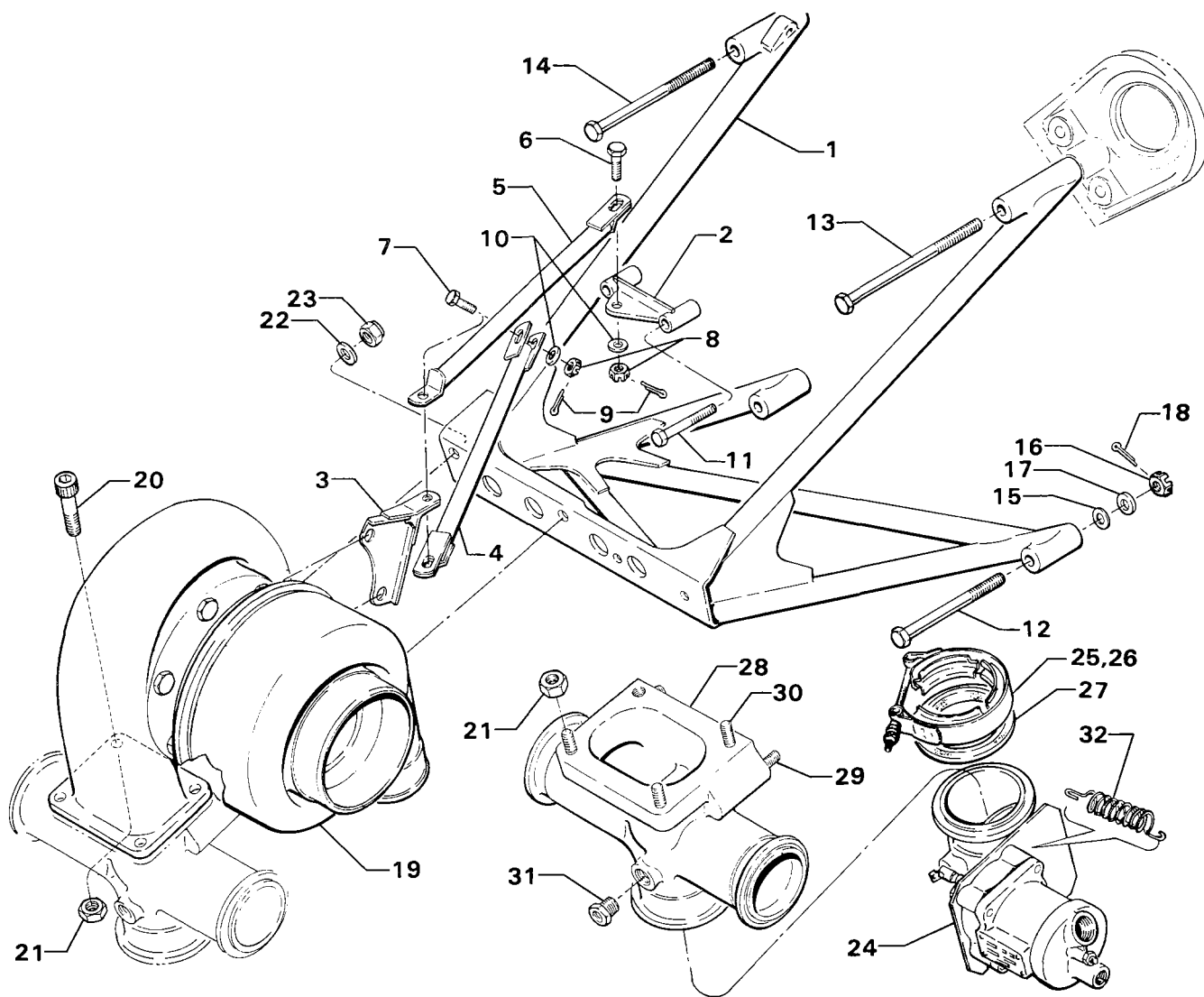


Figure 35. EXHAUST MANIFOLDS, BYPASS VALVE AND ATTACHING PARTS

TURBOCHARGER AND EXHAUST SYSTEMS

TURBOCHARGER, SUPPORT ASSEMBLY AND EXHAUST BYPASS VALVE

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-15952	SUPPORT ASSY., Turbocharger		1	1	1	1	1					
2	76770	BRACKET, Support rod		1	1	1	1	1					
3	LW-10119	PLATE, Top support		1	1	1	1	1					
4	LW-16965	ROD, Top support, left		1	1	1	1	1					
5	LW-18248	ROD, Top support, right		1	1	1	1	1					
6	LW-25S0.77	BOLT, 1/4-20 x 49/64 long, drilled end		1	1	1	1	1					
7	LW-25S1.14	BOLT, 1/4-20 x 1-9/64 long, drilled end		2	2	2	2	2					
8	STD-1864	NUT, 1/4-20 slotted		3	3	3	3	3					
9	STD-68	PIN, Cotter, 1/16 dia. x 1/2 long		3	3	3	3	3					
10	STD-8	WASHER, 1/4 plain		3	3	3	3	3					
11	LW-25-2.00	BOLT, 1/4-20 x 2.00 long, hex. hd.		2	2	2	2	2					
12	LW-31S4.10	BOLT, Turbocharger, bottom		2	2	2	2	2					
13	LW-31S5.31	BOLT, Turbocharger, top right		1	1	1	1	1					
14	LW-31S4.72	BOLT, Turbocharger support, top left		1	1	1	1	1					
15	STD-2205	WASHER, 5/16 plain, thin		AR	AR	AR	AR	AR					
16	STD-1420	NUT, 5/16-18 slotted		4	4	4	4	4					
17	STD-2197	WASHER, 5/16 plain x 13/16 O.D.		4	4	4	4	4					
18	STD-68	PIN, Cotter		4	4	4	4	4					
19	LW-12689	TURBOCHARGER (TE-0659)		1	1	1	1	1					
20	STD-2154	BOLT, 3/8-24 x 1-3/4 long, Allen head		1	1	1	1	1					
21	MS20500-624	NUT, 3/8-24 self-lock		4	4	4	4	4					
22	AN960C516	WASHER, 5/16 plain		2	2	2	2	2					
23	STD-2043	NUT, 5/16-18 self-locking		2	2	2	2	2					
24	LW-12778	VALVE, Exhaust bypass		1	1	1	1	1					
25	LW-12093-6	COUPLING, V-Band, 2-1/4 O.D. tube		1	1	1	1	1					
26	LW-12125-3	COUPLING, V-Band, 2-1/4 O.D. tube		1	1	1	1	1					
27	75845	GASKET, V-Band coupling, 2-1/4 O.D. tube		1	1	1	1	1					
28	LW-12127	TRANSITION ASSY., Turbocharger		1	1	1	1	1					
29	LW-12167	STUD, 5/16-18 x 1-1/4 long		2	2	2	2	2					
30	77823	STUD, 3/8-16 x 1-3/8 long		3	3	3	3	3					
31	STD-1932	BUSHING, 1/4 to 1/8 NPT		1	1	1	1	1					
32	477312	SPRING, Exhaust valve		1	1	1	1	1					



**A1A
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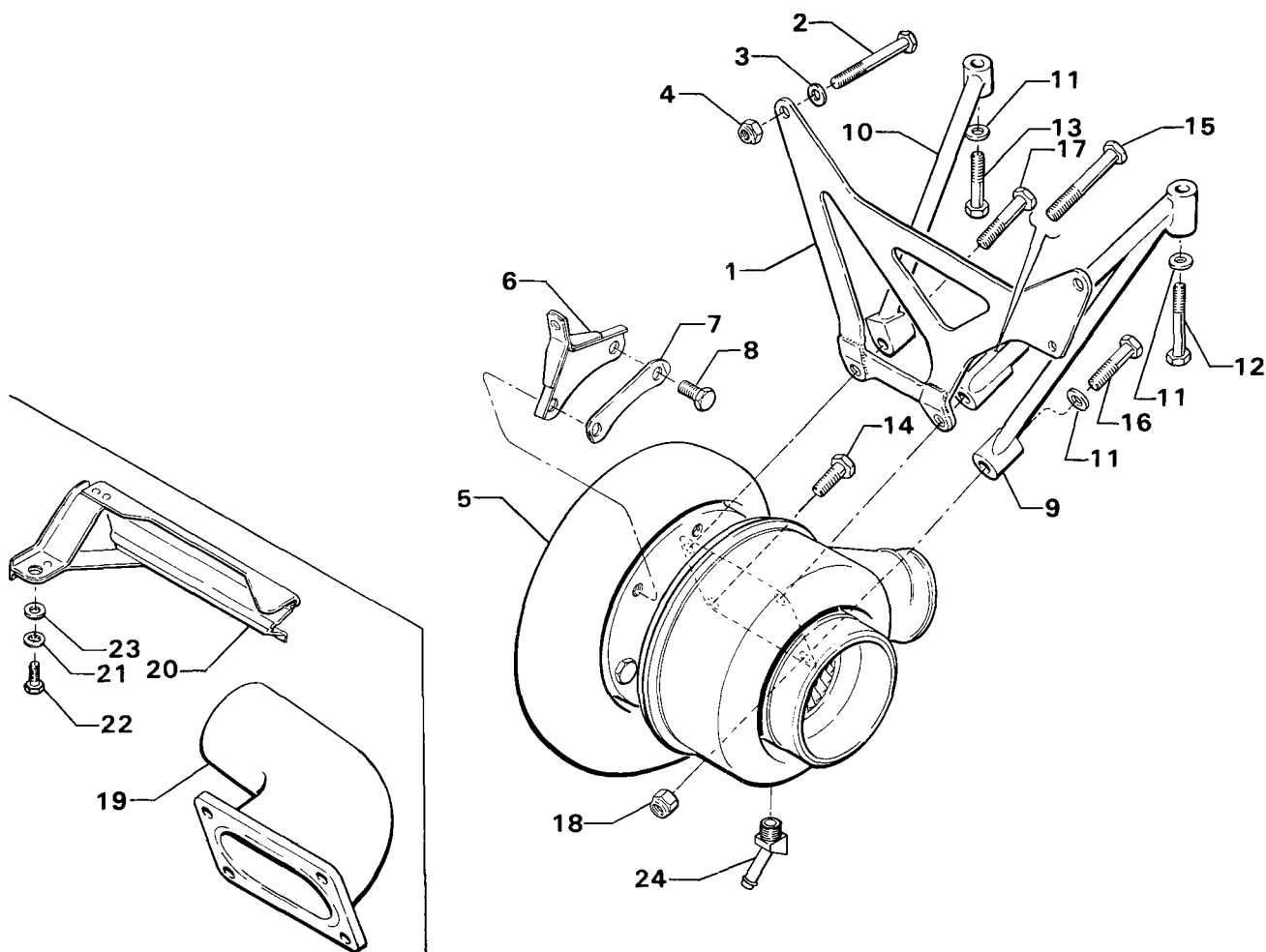
Figure 36. TURBOCHARGER, SUPPORT ASSEMBLY AND EXHAUST BYPASS VALVE

TURBOCHARGER AND EXHAUST SYSTEMS

TURBOCHARGER, SUPPORTS, BRACKETS AND RELATED PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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* Used on right engine only for Piper installation.



C1A
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Figure 37. TURBOCHARGER, SUPPORTS, BRACKETS AND RELATED PARTS

TURBOCHARGER AND EXHAUST SYSTEMS

TURBOCHARGER RELATED AND ATTACHING PARTS

FIG. REF. 38	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	75330	HOSE, Air duct, 2-1/2 I.D.		1	1	1	1	1					
2	LW-15858-62-294	CLAMP, T-Bolt		2	2	2	2	2					
3	75324	HOSE, Fuel injector inlet, 3-7/8 I.D.		1	1	1	1	1					
4	LW-15858-62-443	CLAMP, T-Bolt		2	2	2	2	2					
5	LW-10468	VALVE ASSY., Air		1	1	1	1	1					
6	LW-10453	BOX, Air inlet		1	1	1	1	1					
7	77723	GASKET, Turbo bypass door		1	1	1	1	1					
8	LW-10959	DOOR ASSY., Turbo bypass		1	1	1	1	1					
9	77722	GASKET, Turbo bypass retainer		1	1	1	1	1					
10	77721	RETAINER, Turbo bypass door		1	1	1	1	1					
11	LW-38-0.59	BOLT, 3/8-16 x 19/32 long, hex. hd.		1	1	1	1	1					
12	STD-33	WASHER, 3/8 plain		1	1	1	1	1					
13	STD-678	WASHER, 3/8 lock, internal teeth		1	1	1	1	1					
14	STD-28	WASHER, No. 10 plain		4	4	4	4	4					
15	STD-1896	SCREW, No. 10-24 x 7/8 long, fill. head		6	6	6	6	6					
16	78162	BRACKET, Magnetic catch		1	1	1	1	1					
17	78164	MAGNETIC CATCH & SUPPORT ASSY., Bypass door		1	1	1	1	1					
18	STD-860	SCREW, No. 10-32		2	2	2	2	2					
19	STD-670	NUT, No. 10-32 self-locking		2	2	2	2	2					
20	78167	WASHER, 3/4 long, x 1/2 wide x 1/16 thick		2	2	2	2	2					
21	MS29512-04	SEAL, Oil, 5/64 dia. section x 23/64 I.D.		2	2	2	2	2					
22	AN814-4L	PLUG, 7/16-20 thread		2	2	2	2	2					
23	MS29512-03	SEAL, Oil, 1/16 dia. x 5/16 I.D.		1	1	1	1	1					
24	AN833-3	ELBOW, 3/16 flared tube, bulkhead, 90°		1	1	1	1	1					
25	AN924-3	NUT, Flared tube, bulkhead fitting		1	1	1	1	1					
26	77461 *	TEE, Flared tube with st. thread on side		1	1	1	1	1					
27	74070 *	ELBOW, Flared tube & bulkhead, 45°		1	1	1	1	1					
28	1102	PLUG, 1/8-27 NPT, Allen		1	1	1	1	1					
29	76791	BAFFLE, Transition turbocharger		1	1	1	1	1					
30	STD-110	SCREW, No. 10-24 x 1/2 long, fill. head		2	2	2	2	2					
31	STD-251	WASHER, No. 10 lock, internal teeth		2	2	2	2	2					
32	STD-420	NUT, No. 10-24 plain		2	2	2	2	2					
33	LW-12786-3-073	HOSE, Fuel pump vent		1	1	1	1	1					

* Uses "O" Ring, P/N MS29512-06.

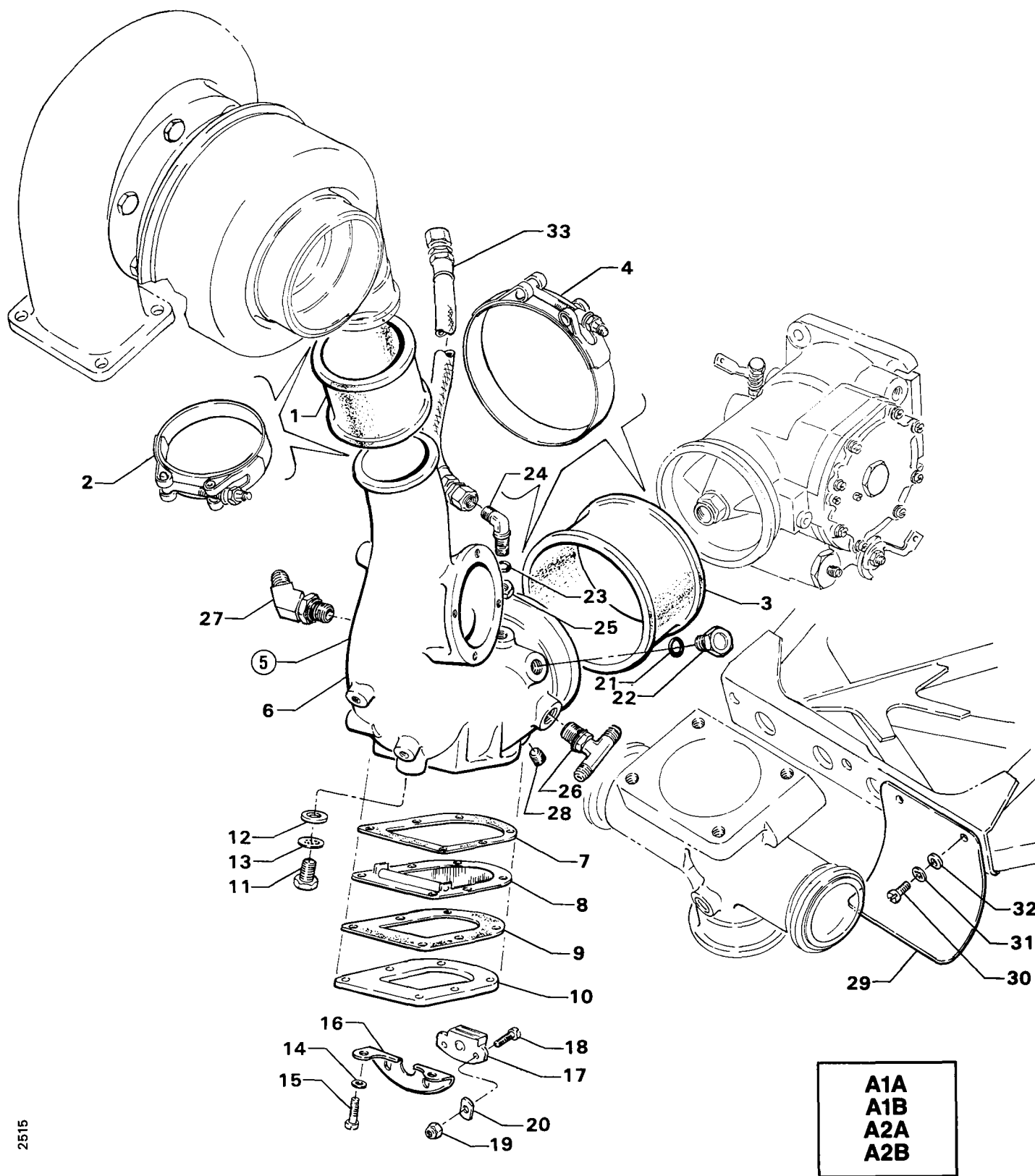


Figure 38. TURBOCHARGER RELATED AND ATTACHING PARTS

TURBOCHARGER AND EXHAUST SYSTEMS

TURBOCHARGER RELATED AND ATTACHING PARTS

FIG. REF.	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
39													
1	77504	GASKET, Fuel injector							1	1	1	1	
2	STD-8	WASHER, 1/4 plain							4	4	4	4	
3	STD-160	WASHER, 1/4 internal lock							4	4	4	4	
4	LW-25-0.94	BOLT, 1/4-20 x 15/16 long							4	4	4	4	
5	LW-16030 *	HOUSING & CONTROLLER ASSY., Injector air inlet							1		1		
	LW-15590	HOUSING ASSY., Injector air inlet								1		1	
6	LW-16029	HOUSING, Injector air inlet							1		1		
7	77723	GASKET, Turbocharger bypass door							1	1	1	1	
8	LW-10959	DOOR ASSY., Turbo bypass							1	1	1	1	
9	77722	GASKET, Turbo bypass retainer							1	1	1	1	
10	77721	RETAINER, Turbo bypass door							1	1	1	1	
11	LW-38-0.59	BOLT, 3/8-16 x 19/32 long, hex. head							1	1	1	1	
12	STD-33	WASHER, 3/8 plain							1	1	1	1	
13	STD-678	WASHER, 3/8 lock, internal teeth							1	1	1	1	
14	78162	BRACKET, Magnetic catch							1	1	1	1	
15	78164	MAGNETIC CATCH & SUPPORT ASSY., Bypass door							1	1	1	1	
16	78167	WASHER, 3/4 long x 1/2 wide x 1/16 thick							1	1	1	1	
17	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head							2	2	2	2	
18	STD-670	NUT, No. 10-32 self-locking							2	2	2	2	
19	STD-28	WASHER, No. 10 plain							4	4	4	4	
20	STD-1896	SCREW, No. 10-24 x 7/8 long, fill. head							6	6	6	6	
21	73314	GASKET, Differential pressure controller							1		1		
22	LW-16071	CONTROLLER ASSY., Differential pressure							1		1		
23	LW-10098	CONTROLLER, Diff. pressure (470886-2)							1		1		
24	72377 **	ELBOW, 3/8 tube, adj. 90°, inlet							1		1		
25	78152	ELBOW, 3/8 tube w/ 3/4 st. thread, 90° (drain)							1		1		
26	MS29512-08	SEAL, Oil, 3/32 dia. sect. x 41/64 I.D.							1		1		
27	AN924-8	NUT, Flared tube, bulkhead fitting							1		1		
28	STD-1932	BUSHING, Reducer, 1/4 NPT to 1/8 NPT							1		1		
29	LW-10466	ELBOW, 3/16 tube to 1/8 NPT, 90° (restricted)							1		1		
30	STD-28	WASHER, No. 10 plain							4		4		
31	STD-1566	SCREW, No. 10-24 x 3/4 long, fill. head							4		4		
32	78481	HEAT SHIELD, Diff. press. controller							1		1		
33	LW-15858-62-294	CLAMP, T-Bolt							2	2	2	2	
34	75330	HOSE, Air duct, 2-1/2 I.D.							1	1	1	1	

* Refer to latest edition of Service Instruction No. 1396.

** Uses "O" Ring, P/N MS29512-06.

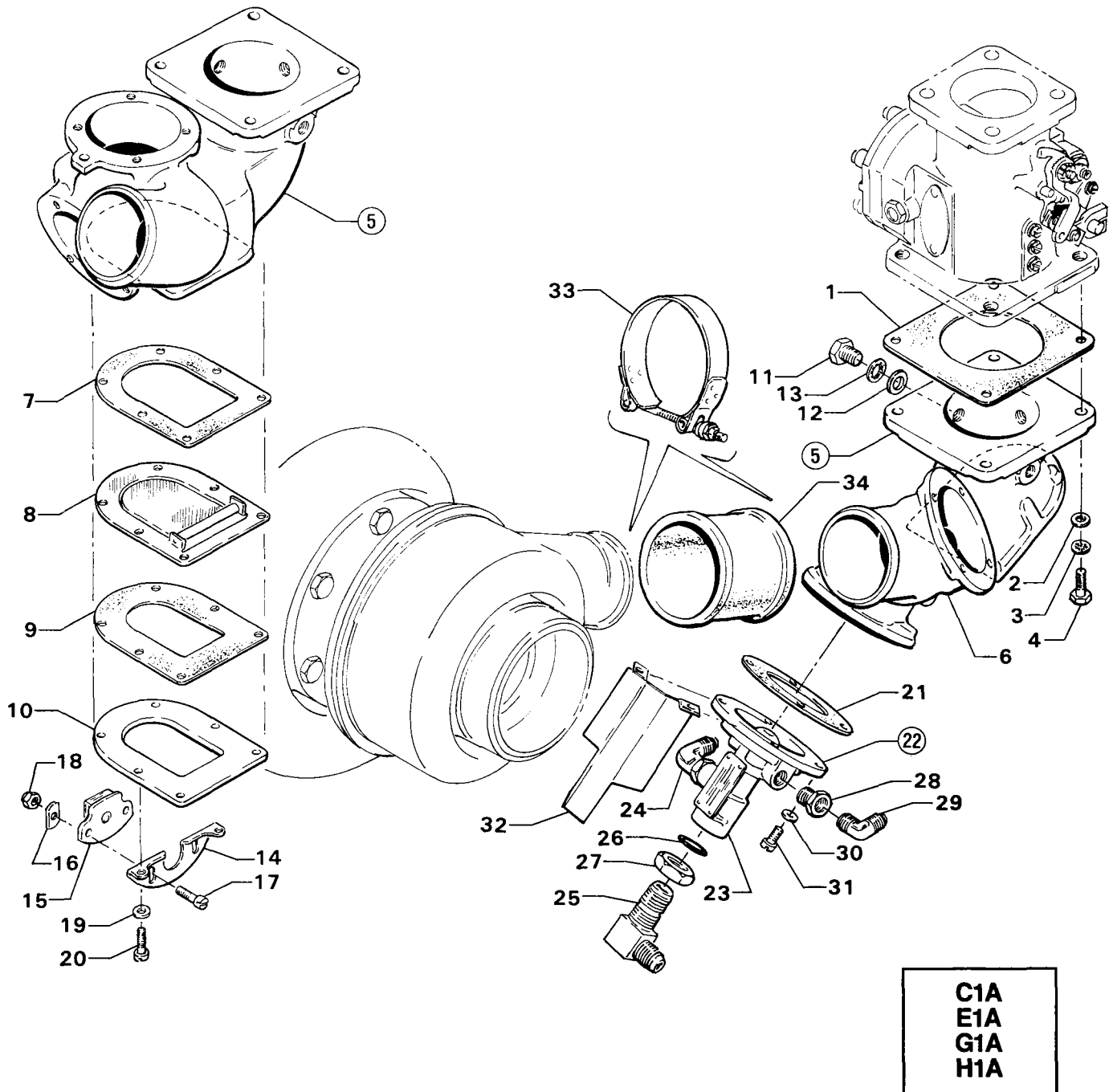


Figure 39. TURBOCHARGER RELATED AND ATTACHING PARTS

TURBOCHARGER AND EXHAUST SYSTEMS
DENSITY CONTROLLERS AND RELATED PARTS

FIG. REF. 40	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	73314	GASKET, Density controller	1										
2	75992	CONTROLLER, Density (470654-1)		1		1							
	LW-10682	CONTROLLER, Density (470884-4)			1		1	1					
	LW-11908	CONTROLLER, Density (470884-3)								1			
	LW-12320	CONTROLLER, Density (470884-6)										1	
3	LW-16070	CONTROLLER ASSY., Density							1		1		
4	LW-10682	CONTROLLER, Density (470884-4)							1		1		
5	76355 *	TEE, 3/8 tubing, adjustable (inlet)							1		1		
6	77461 *	TEE, 3/8 tube, adjustable (outlet)							1		1		
7	STD-28	WASHER, No. 10 plain	4										
8	STD-1566	SCREW, No. 10-24 x 3/4 long, fill. head, dr. head	4										
9	STD-251	WASHER, No. 10 lock							4	4	4	4	
10	LW-16266-25-19	CLAMP								2		2	
11	78137	TUBE ASSY., Fuel pump vent, front								1		1	
12	78138	TUBE ASSY., Fuel pump vent, rear								1		1	
13	02A21380	ELBOW, 1/8 NPT to 3/16 flared tube, 90° (fuel pump) restricted								1		1	
14	AN824-3	TEE, 3/16 flared tube, 45°								1		1	
15	78191	ELBOW, 3/16 tube, 45° (air duct)								1		1	

* Uses "O" Ring, P/N MS29512-06.

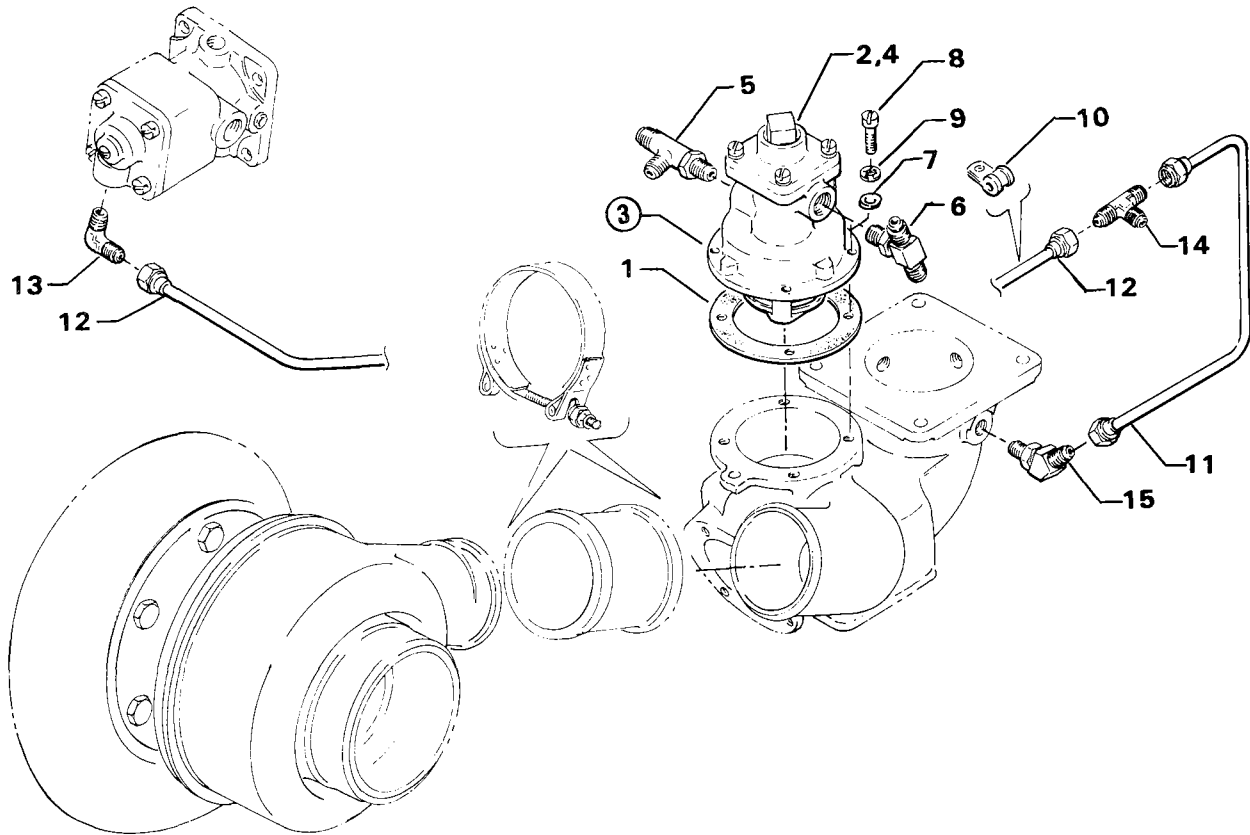


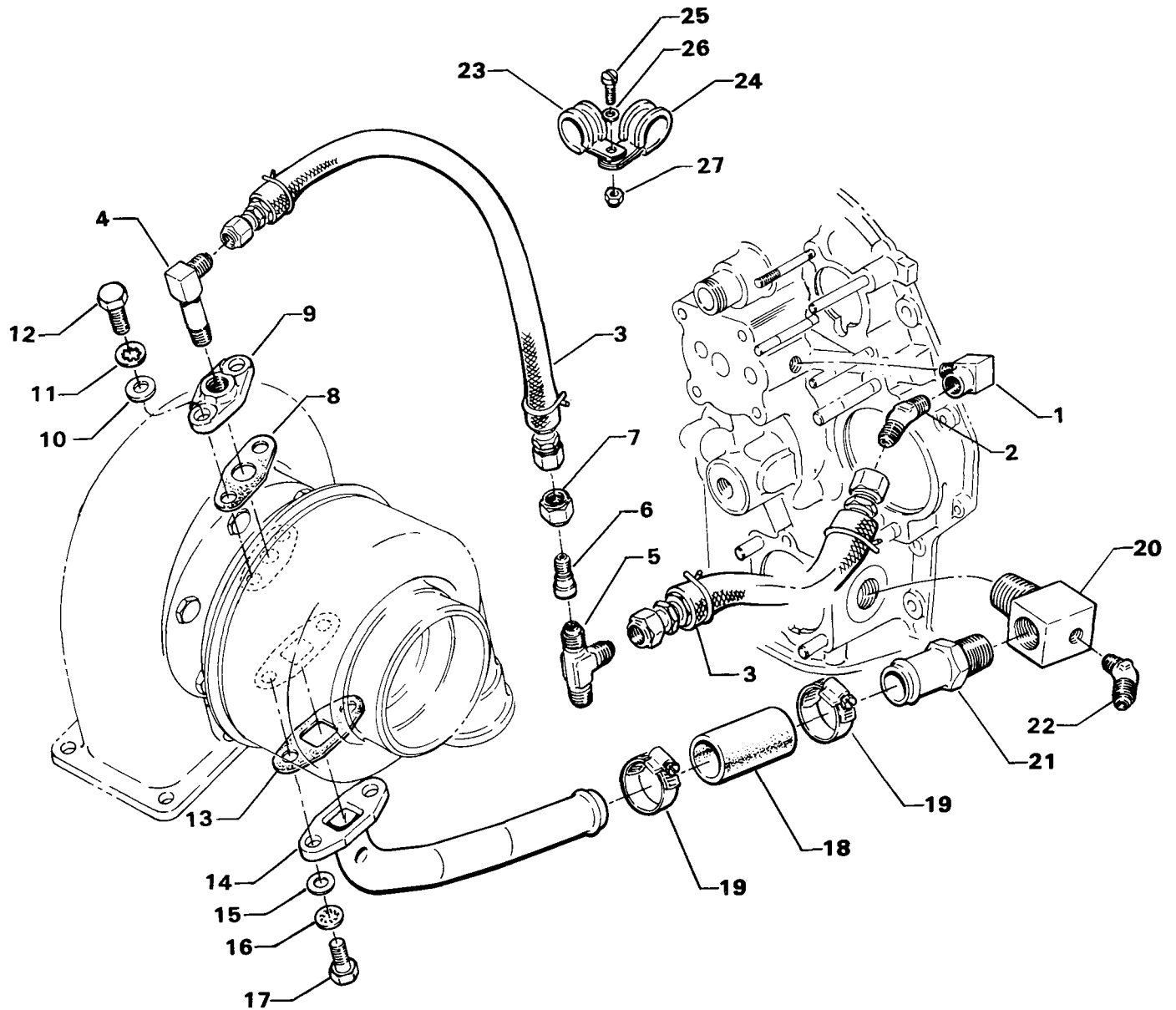
Figure 40. DENSITY CONTROLLERS AND RELATED PARTS

TURBOCHARGER AND EXHAUST SYSTEMS

TURBOCHARGER HOSES, FITTINGS & RELATED PARTS

FIG. REF. 41	PART NUMBER	DESCRIPTION	O N A L	Quantity Per Assembly									
				TIO-540 Standard									
				A A	A B	A A	A B	A C	C A	E A	G A	H A	
1	LW-12979 *	ELBOW, 1/8 male to 1/4 female, 90°		1	1	1	1	1					
2	MS20823-6	ELBOW, 3/8 flared, 1/4 pipe		1	1	1	1	1					
3	LW-12799-6S130	HOSE ASSEMBLY		2	2	2	2	2					
4	LW-12974	ELBOW ASSY., Restricted		1	1	1	1	1					
5	AN824-6	TEE, Flared tube, 3/8 tube		1	1	1	1	1					
6	LW-12975	ADAPTER, Reducing flared tube, 3/8 to 1/4		1	1	1	1	1					
7	AN818-6	NUT, Coupling		1	1	1	1	1					
8	75371	GASKET, Turbocharger oil inlet adapter		1	1	1	1	1					
9	76889	ADAPTER, Turbocharger oil inlet		1	1	1	1	1					
10	STD-33	WASHER, 3/8 plain		2	2	2	2	2					
11	STD-678	WASHER, 3/8 lock, internal teeth		2	2	2	2	2					
12	LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. head		2	2	2	2	2					
13	LW-18038	GASKET, Turbocharger oil drain adapter		1	1	1	1	1					
14	LW-16961	TUBE ASSY., Turbine oil drain		1	1	1	1	1					
15	STD-33	WASHER, 3/8 plain		2	2	2	2	2					
16	STD-678	WASHER, 3/8 lock, internal teeth		2	2	2	2	2					
17	LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. head		2	2	2	2	2					
18	LW-11373	HOSE, Turbocharger oil drain		1	1	1	1	1					
19	LW-15592-8-16	CLAMP, Hose		2	2	2	2	2					
20	LW-16977 *	ELBOW, 3/4-14 NPT external, 3/4-14 NPT internal, 90°		1	1	1	1	1					
21	LW-16999	FITTING, Turbo oil drain		1	1	1	1	1					
22	MS20823-6	ELBOW, 3/8 flared, 1/4 pipe		1	1	1	1	1					
23	LW-16266-25-63	CLAMP, (Turbo oil in hose to bracket)		1	1	1	1	1					
24	LW-16266-10-88	CLAMP		1	1	1	1	1					
25	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head		1	1	1	1	1					
26	STD-425	WASHER, No. 10 plain		2	2	2	2	2					
27	STD-670	NUT, No. 10-32 hex., self-locking		1	1	1	1	1					

* Assemble in accessory housing.



A1A
A1B
A2A
A2B
A2C

Figure 41. TURBOCHARGER HOSES, FITTINGS & RELATED PARTS

TURBOCHARGER AND EXHAUST SYSTEMS
TURBOCHARGER HOSES, TANK ASSEMBLY AND RELATED PARTS

FIG. REF. 42	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	MS20822-6-2	ELBOW, 1/8-27 NPT to 3/8 tube, 90° (in acc. hsg.)							1	1	1	1	
2	LW-12799-6S144	HOSE ASSY., Turbo oil inlet							1	1	1	1	
3	LW-14437-3	VALVE ASSY., Check							1	1	1	1	
4	LW-13051	TEE, 3/8 tube (swivel nut on one run)							1	1	1	1	
5	75371	GASKET, Turbo oil inlet							1	1	1	1	
6	76889	ADAPTER, Turbo, oil inlet							1	1	1	1	
7	STD-33	WASHER, 3/8 plain							2	2	2	2	
8	STD-678	WASHER, 3/8 internal lock							2	2	2	2	
9	LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. head							2	2	2	2	
10	LW-18038	GASKET, Turbocharger oil drain adapter							1	1	1	1	
11	LW-13928	TANK ASSY., Turbocharger oil drain							1	1	1	1	
12	MS20822-3	ELBOW, 1/8-27 NPT to 3/16 flared tube, 90°							1	1	1	1	
13	MS20822-3	ELBOW, 1/8-27 NPT to 3/16 flared tube (magneto adapter)							1	1	1	1	
14	LW-12786-3-250	HOSE ASSY., Turbo drain tank to magneto adapter							1	1	1	1	
15	76734	ZIP STRAP							3	3	3	3	
16	AN816-8D	NIPPLE, 1/2 tube & 3/8 NPT (assemble in tank)							1	1	1	1	
17	LW-13421	HEAT SHIELD, Turbocharger oil drain							1	1	1	1	
18	STD-28	WASHER, No. 10 plain							1	1	1	1	
19	STD-415	SCREW, No. 10-32 x 3/8 long							1	1	1	1	
20	STD-251	WASHER, No. 10-32 internal lock							1	1	1	1	
21	STD-63	NUT, No. 10-32 plain							1	1	1	1	
22	STD-33	WASHER, 3/8 plain							2	2	2	2	
23	STD-678	WASHER, 3/8 internal lock							2	2	2	2	
24	LW-38-0.75	BOLT, 3/8-16 x 3/4 long, hex. head							2	2	2	2	
25	MS29512-08	“O” RING, 41/64 I.D. x 5/64 wall							1	1	1	1	
26	LW-10637	ELBOW, 90°, 1/2 tube to 3/4-16 thread (scavenge pump)							1	1	1	1	
27	LW-13176-8S220	HOSE ASSY., Turbo oil scavenger							1	1	1	1	
28	LW-10635	BRACKET, Ext. (under hose clamp at inj. inlet housing)							1	1	1	1	
29	LW-16266-10-81	CLIP, 13/64 I.D. x 13/64 dia. hole							1	1	1	1	
30	STD-692	SCREW, No. 10-32 x 1/2 long, rd. hd.							1	1	1	1	
31	STD-425	WASHER, No. 10 plain							1	1	1	1	
32	STD-670	NUT, No. 10-32 self-locking							1	1	1	1	

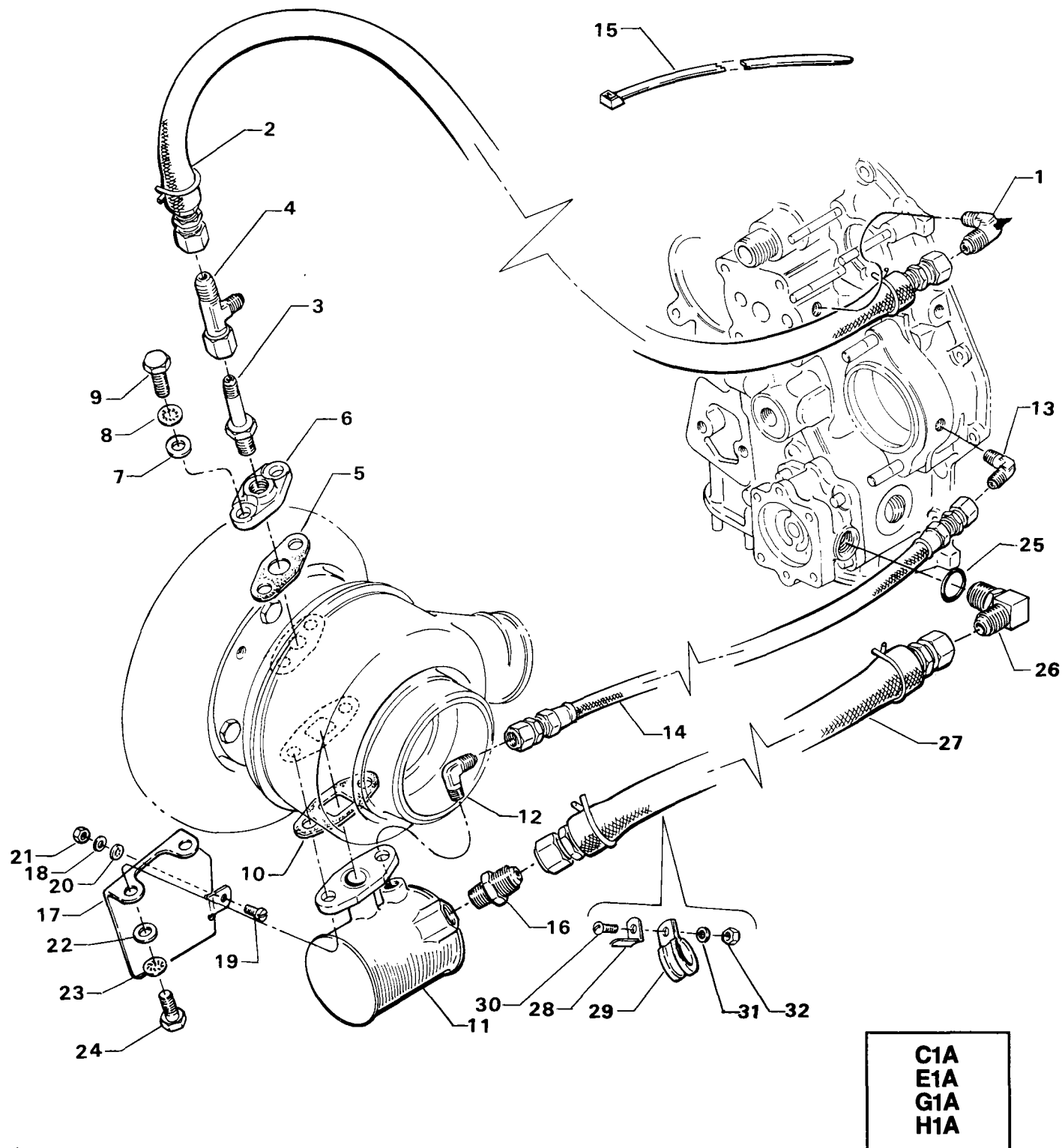


Figure 42. TURBOCHARGER HOSES, TANK ASSEMBLY AND RELATED PARTS

TURBOCHARGER AND EXHAUST SYSTEMS

TURBOCHARGER HOSES, CONTROLLER AND RELATED PARTS

FIG. REF. 43	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	LW-12798-4S130	HOSE, Tee to bypass valve (oil in)		1	1	1	1	1					
2	STD-860	SCREW, No. 10-32 x 5/8 long, fill. head		1	1	1	1	1					
3	LW-16266-25-63	CLAMP		2	2	2	2	2					
4	STD-425	WASHER, No. 10 plain		2	2	2	2	2					
5	STD-670	NUT, No. 10-32 hex., self-locking		1	1	1	1	1					
6	72376 *	ELBOW, 1/4 tubing, adj. 90° (bypass valve, oil in)		1	1	1	1	1					
7	LW-12879-6S060	HOSE, Bypass valve to density controller (oil in)		1	1	1	1	1					
8	76355 **	TEE, 3/8 tube, adj. st. thread on run (den. cont. oil in)		1	1	1	1	1					
9	72377 **	ELBOW, 3/8 flared tube, adj. 90° (bypass valve, oil out)		1	1	1	1	1					
10	76355 **	TEE, 3/8 tube, adjustable (controller oil out)		1	1	1	1	1					
11	LW-12879-6S082	HOSE, Density controller to accessory housing		1	1	1	1	1					
12	LW-10644	CONTROLLER, Differential pressure (470912-1)		1	1	1	1	1					
13	LW-11201	WASHER, 11/16 O.D. x 9/32 I.D. x 1/16 thick		2	2	2	2	2					
14	STD-8	WASHER, 1/4 plain		2	2	2	2	2					
15	LW-25H1.00	BOLT, 1/4-20 x 1.00 long, hex. hd. dr. hd.		2	2	2	2	2					
16	STD-949	BUSHING, Reducer, 1/4 to 1/8 NPT		1	1	1	1	1					
17	MS20822-4	ELBOW, 1/4 flared tube & 1/8 NPT, 90°		1	1	1	1	1					
18	AN929-4	CAP ASSY., 1/4 flared tube fitting		1	1	1	1	1					
19	LW-12799-6S90	HOSE, Diff. press. oil outlet to den. cont. outlet tee		1	1	1	1	1					
20	AN893-12	BUSHING, Reducer, 1/2 tubing to 3/8 tubing		1	1	1	1	1					
21	MS29512-08	SEAL, Oil, 5/64 dia. sect. x 41/64 dia.		1	1	1	1	1					
22	72377 **	ELBOW, 3/8 flared tube, adj. 90°		1	1	1	1	1					
23	LW-12799-6S100	HOSE, Inlet tee, den. cont. to inlet diff. press. cont.		1	1	1	1	1					
24	LW-11883 **	ELBOW, 3/8 tubing, adj. 90° restricted		1	1	1	1	1					
25	LW-12799-6S070	HOSE, High press. port, diff. cont. to tee on airbox		1	1	1	1	1					
26	74070 **	ELBOW, 3/8 flared tube, adj. 45°		1	1	1	1	1					

* Uses "O" Ring, P/N MS29512-04.

** Uses "O" Ring, P/N MS29512-06.

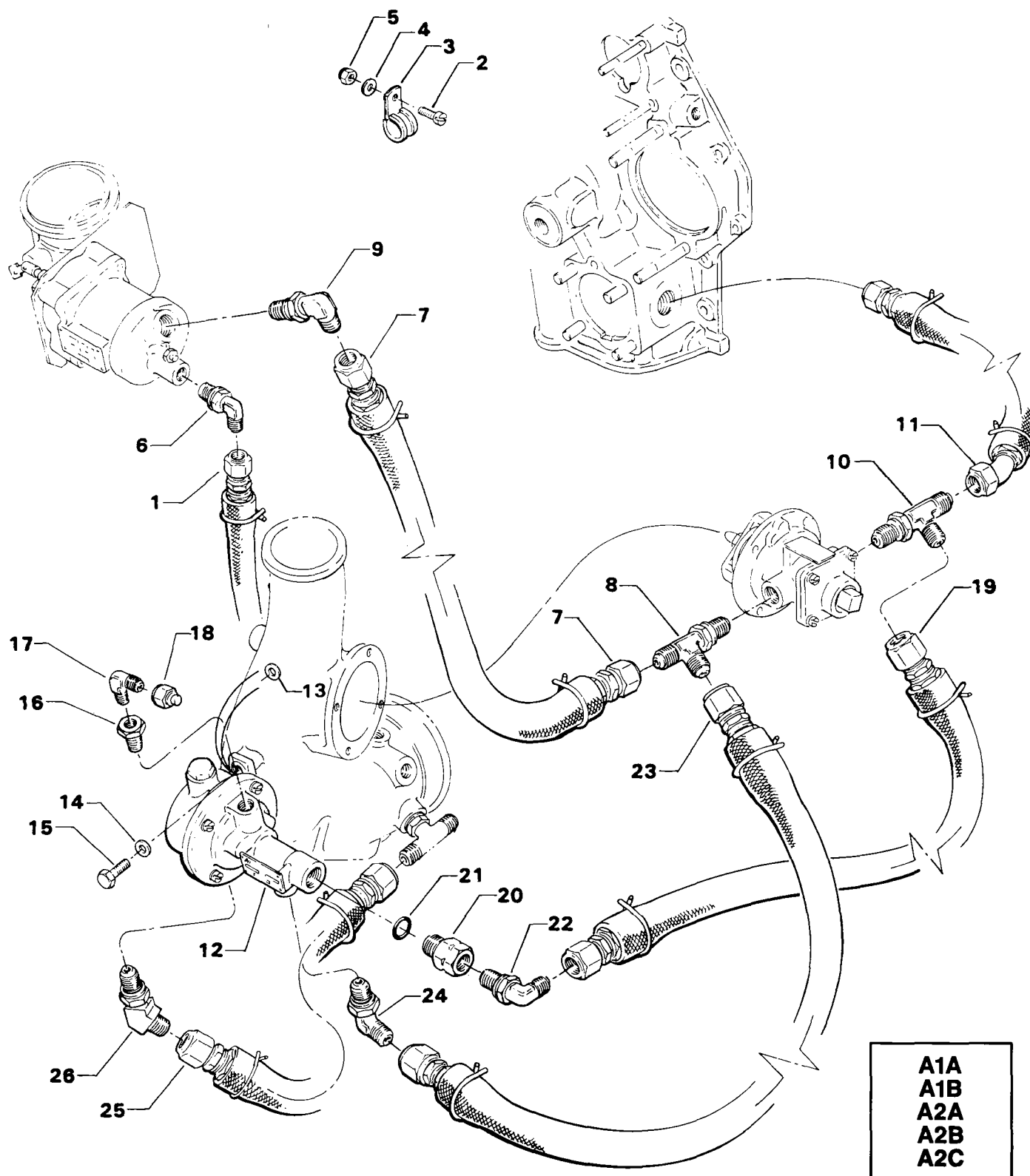


Figure 43. TURBOCHARGER HOSES, CONTROLLER AND RELATED PARTS

TURBOCHARGER AND EXHAUST SYSTEMS

TURBOCHARGER HOSES, TUBES AND ATTACHING PARTS

FIG. REF. 44	PART NUMBER	DESCRIPTION	O N A L L	Quantity Per Assembly									
				TIO-540 Standard									
				A 1 A	A 1 B	A 2 A	A 2 B	A 2 C	C 1 A	E 1 A	G 1 A	H 1 A	
1	AN6270-3D-0260	HOSE ASSY., No. 5 cyl. to diff. press. controller							1	1	1	1	
2	76734	ZIP STRAP							2	2	2	2	
3	LW-16266-25-19	CLAMP							2	2	2	2	
4	78137	TUBE ASSY., Fuel pump vent, front							1	1	1	1	
5	78138	TUBE ASSY., Fuel pump vent, rear							1	1	1	1	
6	02A21380	ELBOW, 1/8 to 3/16 flared tube, 90° (fuel pump) restricted							1	1	1	1	
7	AN824-3	TEE, 3/16 flared tube, 45°							1	1	1	1	
8	78191	ELBOW, 3/16 tube, 45° (air duct)							1	1	1	1	
9	LW-12798-4S190	HOSE ASSY., Turbo tee to actuator inlet							1	1	1	1	
10	LW-16266-25-75	CLAMP							1	1	1	1	
11	STD-670	NUT, No. 10-32 self-locking							1	1	1	1	
12	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head							1	1	1	1	
13	72376 *	ELBOW, 1/4 tube to 7/16 thd., 90° (actuator inlet)							1	1	1	1	
14	72377 **	ELBOW, 3/8 tube to 9/16 thd., 90° (actuator outlet)							1	1	1	1	
15	LW-12877-6S413 ★	HOSE ASSY., Actuator outlet to density press. inlet							1	1	1	1	
16	LW-16266-25-75	CLAMP							2	2	2	2	
17	73136	BRACKET, Extension, fuel injection line							2	2	2	2	
18	STD-692	SCREW, No. 10-32 self-locking							2	2	2	2	
19	STD-670	NUT, No. 10-32 self-locking							1	1	1	1	
20	LW-12877-6S110 ★	HOSE ASSY., Density inlet to diff. press. inlet							1	1	1	1	
21	LW-12877-6S142 ★	HOSE ASSY., Density drain to diff. press. drain							1	1	1	1	
22	LW-12877-6S170 ★	HOSE ASSY., Density drain to accessory housing							1	1	1	1	
23	73136	BRACKET, Extension (assemble on sump)							1	1	1	1	
24	LW-16266-25-75	CLAMP							1	1	1	1	
25	76734	ZIP STRAP							3	3	3	3	
26	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head							1	1	1	1	
27	STD-670	NUT, Self-locking							1	1	1	1	
28	78691	ELBOW, 3/8 tube to 3/8 NPT, 45° (acc. hsg. oil return)							1	1	1	1	
29	MS9825-16	CLIP, 1-3/16 dia. for no. 10 screw							1	1	1	1	
30	STD-692	SCREW, No. 10-32 x 1/2 long, rd. head							1	1	1	1	
31	STD-28	WASHER, No. 10 plain							1	1	1	1	
32	STD-670	NUT, No. 10-32 self-locking							1	1	1	1	

* Uses "O" Ring, P/N MS29512-04.

** Uses "O" Ring, P/N MS29512-06.

★ Reference latest edition of Service Instruction No. 1396.

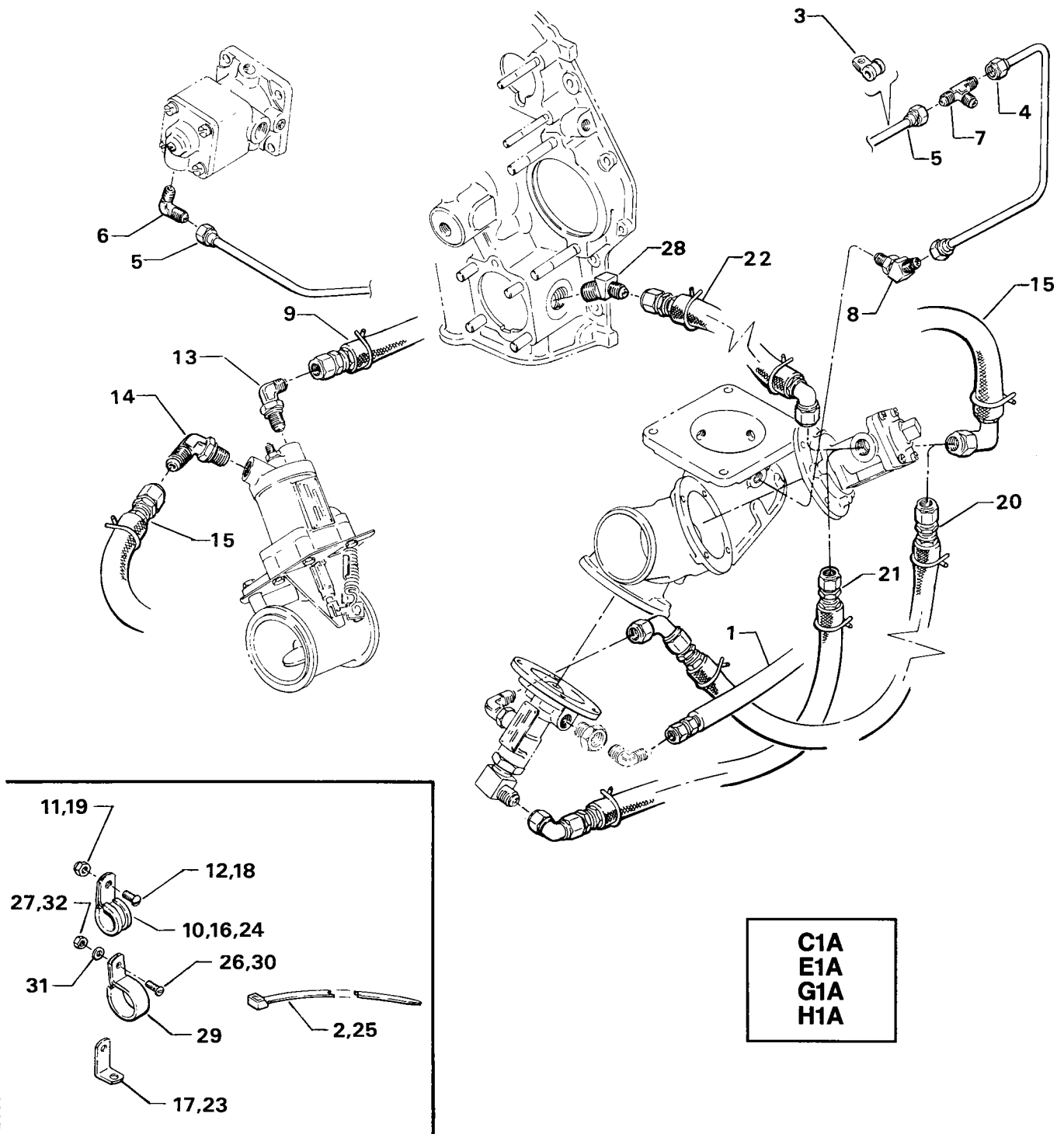


Figure 44. TURBOCHARGER HOSES, TUBES AND ATTACHING PARTS

SERVICE KIT SECTION
SEAL AND GASKET SET
TIO-540-A1A, -A1B, -A2A, -A2B, -A2C

Part No.	Part Name	Qty.
77175-1	SEAL AND GASKET SET	1
LW-12681	GASKET, Magneto	2
LW-12795	GASKET, Oil filter adapter	1
06B21326	GASKET, Oil sump	1
LW-14260	SEAL, Tachometer drive	1
LW-15619	GASKET, Exhaust flange	12
LW-15628	SEAL, Crankshaft	1
LW-18038	GASKET, Turbo oil drain	1
LW-18638	LOCKPLATE, Crankshaft gear	1
LW-18661	SEAL, Shroud tube	24
MS29512-3	SEAL, Oil	1
MS29512-4	SEAL, Oil	2
MS29512-8	SEAL, Oil ring	1
06E19769-1.00	GASKET, Oil suction screen	1
06A19956	SEAL, Vac. & Hyd. pump adapters	2
STD-213	SEAL, Fuel pump adapter	1
06E19769-0.63	GASKET, Oil cooler bypass plug	1
06E19769-0.91	GASKET, Annular	1
06E19769-1.25	GASKET, Oil pressure relief valve (2 max.)	1
STD-1737	RING, External retaining	1
8313	GASKET, Vac. & Hyd. pump	2
61183	GASKET, Vacuum pump adapter	1
62224	GASKET, Magneto adapter	2
66732	GASKET, Valve rocker shaft cover	12
68315	GASKET, Accessory drive adapter	1
69164	GASKET, Fuel pump adapter	1
70455	GASKET, Prop. drive gear plug	1
70457	GASKET, Oil filter extension	1
71450	GASKET, Rocker box cover	6
71481	RING, Cylinder base seal	6
71667	LOCKPLATE, Fuel pump idler gear shaft	1
71973	GASKET, Intake pipe flange	6
72053	GASKET, Governor	1
72075	SEAL, Oil	4
72078	LOCKPLATE, Camshaft gear	2
72091	RING, Oil seal	2
72210	GASKET, Air throttle housing	1
72312	RING, Oil seal, oil level gage	1
72711	RING, Oil seal, intake pipe	6
73032	GASKET, Air inlet housing	1
73314	GASKET, Density controller	1
73383	LOCKPLATE, Alternator bracket	1
73818	GASKET, Accessory housing	1
74065	GASKET	1
74305	SEAL, Crankshaft oil	1
75233	"O" RING	24
75371	GASKET, Turbo oil inlet adapter	1
75845	GASKET, V-Band coupling	2
76510	GASKET	1
77439	GASKET	1
78083	GASKET, V-Band	1
78084	GASKET, V-Band coup., 2.00 O.D. tube	2

SERVICE KIT SECTION
SEAL AND GASKET SET
TIO-540-C1A, -E1A, -H1A

Part No.	Part Name	Qty.
LW-10683	SEAL AND GASKET SET	1
LW-10332	LOCKPLATE	1
LW-12272	LOCKPLATE, Shroud tube	6
LW-12681	GASKET, Magneto	2
LW-12795	GASKET, Oil filter adapter	1
06B21326	GASKET, Oil sump	1
LW-13792	SEAL, Crankshaft oil	1
LW-14260	SEAL, Tachometer drive	1
LW-14995	SPRING	6
LW-18038	GASKET, Turbo oil drain	1
LW-18638	LOCKPLATE, Crankshaft gear	1
LW-18661	SEAL, Shroud tube	12
MS9068-009	RING, Oil seal	2
MS16625-1081	RING	1
MS29512-8	SEAL, Oil ring	2
MS29512-10	SEAL	2
06E19769-1.00	GASKET, Oil suction screen	1
STD-213	SEAL, Fuel pump adapter	1
06E19769-0.63	GASKET, Oil cooler bypass plug	1
STD-589	GASKET, Annular	1
06E19769-1.25	GASKET, Oil press. relief valve (2 max.)	1
06A19956	SEAL, Vac. & Hyd. pump adapter	2
8313	GASKET, Vacuum & hydraulic pump	2
61183	GASKET, Vacuum pump adapter	1
62224	GASKET, Magneto adapter	2
66224	GASKET, Fuel injector	1
68315	GASKET, Accessory drive adapter	1
69164	GASKET, Fuel pump adapter	1
69345	SPACER	6
70310	SEAL, Shroud tube	12
70455	GASKET, Prop. drive gear plug	1
70457	GASKET, Oil, filler extension	1
71481	RING, Seal (cylinder base)	6
71667	LOCKPLATE, Fuel pump idler gear shaft	1
71973	GASKET, Intake pipe flange	6
72053	GASKET, Governor	1
72075	SEAL, Oil	4
72091	RING, Oil seal	2
72312	RING, Oil seal, oil level gage	1
73314	GASKET, Density controller	1
73383	LOCKPLATE, Alternator bracket	1
73818	GASKET, Accessory housing	1
74065	"O" RING	1
74068	"O" RING	1
75118	GASKET, Exhaust flange	12
75371	GASKET, Turbo oil inlet adapter	1
75845	GASKET, V-Band coupling	2
75906	GASKET, Rocker box cover	6
76940	SEAL, Crankshaft oil	1
77504	GASKET, Fuel injector	1
77722	GASKET, Turbo bypass retainer	1
77723	GASKET, Turbo bypass door	1
78246	GASKET, V-Band coupling	2

SERVICE KIT SECTION
SEAL AND GASKET SET
TIO-540-G1A

Part No.	Part Name	Qty.
LW-12971	SEAL AND GASKET SET	1
LW-12272	LOCKPLATE, Shroud tube	6
LW-12681	GASKET, Magneto adapter	2
LW-12795	GASKET, Oil filter adapter	1
06B21326	GASKET, Oil sump	1
LW-13792	SEAL, Crankshaft oil	1
LW-14260	SEAL, Tach drive oil	1
LW-14995	SPRING	6
LW-18038	GASKET, Turbo oil outlet	1
LW-18638	LOCKPLATE, Crankshaft gear	1
LW-18661	SEAL, Shroud tube	12
MS9068-009	RING	2
MS29512-08	SEAL	1
06E19769-1.00	GASKET	1
06E19769-0.63	GASKET, Annular	2
06E19769-1.25	GASKET, Annular	1
06A19956	SEAL, Oil	2
8313	GASKET	2
61183	GASKET, Accessory adapter	1
62224	GASKET, Magneto adapter	4
66224	GASKET, Carburetor	1
68315	GASKET, Accessory drive adapter	1
69164	GASKET, Fuel pump adapter	1
69345	SPACER	6
70310	SEAL, Shroud tube	12
70455	GASKET	1
70457	GASKET	1
71481	RING, Cylinder base	6
71667	LOCKPLATE, Fuel pump idler gear shaft	1
71973	GASKET, 2 bolt flange	6
72053	GASKET, Governor	1
72075	SEAL, Oil	4
72091	RING, Oil seal	2
72312	RING, Oil seal	1
73314	GASKET, Density controller	2
73383	LOCKPLATE, Alternator bracket	2
73818	GASKET, Accessory housing	1
75371	GASKET, Turbo oil inlet	1
74845	GASKET, V-Band coupling	2
75906	GASKET, Rocker box cover	6
77504	GASKET, Fuel injector	1
77722	GASKET, Turbo bypass retainer	1
77723	GASKET, Turbo bypass door	1
78246	GASKET, V-Band coupling	3

SERVICE KIT SECTION
CYLINDER, PISTON AND RING ASSEMBLY
TIO-540-A1A, -A1B, -A2A, -A2B, -A2C

Part No.	Part Name	Qty.
05K21109	KIT — CYLINDER, PISTON AND RING ASSY.	1
LW-13447	CYLINDER AND HEAD ASSEMBLY	1
LW-16740	VALVE, Exhaust	1
LW-13622	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-13322	SEAT, Valve spring, lower	2
71481	RING, Cylinder base seal	1
72050	KEY, Valve, intake	2
17C21191	KEY, Valve, exhaust	2
62388	CAP, Valve stem, intake	1
17C19386	CAP, Valve stem, exhaust	1
LW-10545-S	PISTON	1
74241	RING, Piston, compression	2
73857	RING, Piston, oil regulating	1
LW-13446 or LW-14077	PIN, Piston	1
60828	PLUG, Piston pin	2
LW-11775	PLUG, Piston pin	2
66732	GASKET, Valve rocker shaft cover	2
71450	GASKET, Rocker box cover	1
LW-18661	SEAL, Shroud tube	4
SSP-2272	TAG	1
LW-13321	SEAT, Valve spring, lower, intake	1

SERVICE KIT SECTION**CYLINDER, PISTON AND RING ASSEMBLY****TIO-540-C1A, -E1A, -H1A**

Part No.	Part Name	Qty.
05K21234	KIT — CYLINDER, PISTON AND RING ASSY.	1
LW-12433	CYLINDER AND HEAD ASSEMBLY	1
LW-19001	VALVE, Exhaust	1
73938	VALVE, Intake	1
LW-11800	SPRING, Valve, outer	2
LW-11795	SPRING, Valve, inner	2
LW-10077	SEAT, Valve spring, upper, intake	1
LW-16475	SEAT, Valve spring, upper, exhaust	1
65441	SEAT, Valve spring, lower, intake	1
LW-13323	SEAT, Valve spring, lower, exhaust	1
60009	KEY, Valve, intake	2
17C21191	KEY, Valve, exhaust	2
17C19386	CAP, Valve stem, exhaust	1
75413	PISTON, Low compression	1
74241	RING, Piston	2
73857	RING, Piston, oil regulator	1
LW-14077	PIN, Piston	1
60828	PLUG, Piston pin	2
LW-11775	PLUG, Piston pin	2
71481	RING, Cylinder base seal	1
70310	SEAL, Shroud tube, top	2
LW-18661	SEAL, Shroud tube, bottom	2
75906	GASKET, Rocker box cover	1
SSP-2272	TAG	1
SSP-2472	TAG	1

SERVICE KIT SECTION**CYLINDER, PISTON AND RING ASSEMBLY**TIO-540-G1A

Part No.	Part Name	Qty.
05K21241	KIT — CYLINDER, PISTON AND RING ASSY.	1
LW-12433	CYLINDER AND HEAD ASSEMBLY	1
LW-19001	VALVE, Exhaust	1
73938	VALVE, Intake	1
LW-11800	SPRING, Valve, outer	2
LW-11795	SPRING, Valve, inner	2
LW-10077	SEAT, Valve spring, upper, intake	1
LW-16475	SEAT, Valve spring, upper, exhaust	1
65441	SEAT, Valve spring, lower, intake	1
LW-13323	SEAT, Valve spring, lower, exhaust	1
60009	KEY, Valve, intake	2
17C21191	KEY, Valve, exhaust	2
17C19386	CAP, Valve stem, exhaust	1
75089	PISTON	1
74241	RING, Piston	2
73857	RING, Piston, oil regulator	1
LW-14077	PIN, Piston	1
60828	PLUG, Piston pin	2
LW-11775	PLUG, Piston pin	2
71481	RING, Cylinder base seal	1
70310	SEAL, Shroud tube, top	2
LW-18661	SEAL, Shroud tube, bottom	2
75906	GASKET, Rocker box cover	1
SSP-2272	TAG	1
SSP-2472	TAG	1

SERVICE KIT SECTION**CRANKCASE ASSEMBLY AND GOVERNOR STUD KIT**TIO-540-A1A, -A1B, -A2A, -A2B, -A2C

Part No.	Part Name	Qty.
LW-12030-S	CRANKCASE ASSY. AND GOVERNOR STUD KIT	1
LW-12030*	CRANKCASE ASSEMBLY	1
STD-1339	PLUG	6
31C-14	STUD (AN Governor)	4
31C-16	STUD (Woodward Governor)	4

* See Fig. 1, Page 1-1 for component parts.

SERVICE KIT SECTION**CRANKCASE ASSEMBLY AND GOVERNOR STUD KIT**TIO-540-C1A, -E1A, -G1A, -H1A

Part No.	Part Name	Qty.
LW-11037-S	CRANKCASE ASSY. AND GOVERNOR STUD KIT	1
LW-11037*	CRANKCASE ASSEMBLY	1
31C-14	STUD (AN Governor)	4
31C-16	STUD (Woodward Governor)	4

* See Fig. 1, Page 1-1 for component parts.

NUMERICAL INDEX

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
AN520-10-12	Screw	7-3	LW-25-1.13	Bolt	6-3
AN6-12	Bolt	5-7	LW-25-1.25	Bolt	6-5
AN6-12	Bolt	5-9	LW-25-1.50	Bolt	1-13
AN6-12	Bolt	5-11	LW-25-1.75	Bolt	1-13
AN6-16	Bolt	5-7	LW-25-1.75	Bolt	5-11
AN6-16	Bolt	5-9	LW-25-1.88	Bolt	1-13
AN6-17	Bolt	5-7	LW-25-1.88	Bolt	2-2
AN6-17	Bolt	5-11	LW-25-2.00	Bolt	1-13
AN6-21	Bolt	1-13	LW-25-2.00	Bolt	6-3
AN6-30A	Bolt	5-11	LW-25-2.00	Bolt	7-5
AN6-32	Bolt	5-9	LW-25H1.00	Bolt	7-19
AN6-34A	Bolt	1-13	LW-25S0.77	Bolt	7-5
AN6C-10A	Bolt	7-7	LW-25S1.14	Bolt	7-5
AN6C-17A	Bolt	7-7	LW-25S1.50	Bolt	1-13
AN6C-20A	Bolt	7-7	LW-31-0.94	Bolt	5-7
AN6C-27A	Bolt	7-7	LW-31-0.94	Bolt	5-9
AN742-37	Clamp	7-3	LW-31-1.16	Bolt	5-3
AN791-2	Elbow	6-7	LW-31-1.16	Bolt	5-5
AN814-4L	Plug	7-9	LW-31-1.16	Bolt	5-11
AN815-4	Nipple	6-15	LW-31-1.25	Bolt	6-9
AN816-8D	Nipple	7-17	LW-31-1.31	Bolt	6-7
AN818-6	Nut	7-15	LW-31-2.75	Bolt	7-7
AN824-3	Tee	7-13	LW-31H.75	Bolt	5-7
AN824-3	Tee	7-21	LW-31H.75	Bolt	5-9
AN824-6	Tee	7-15	LW-31H1.22	Bolt	5-9
AN825-4	Tee	6-7	LW-31H1.31	Bolt	5-9
AN825-6	Tee	6-9	LW-31H1.31	Bolt	5-11
AN833-3	Elbow	7-9	LW-31H1.63	Bolt	7-7
AN893-12	Bushing	7-19	LW-31H2.00	Bolt	7-7
AN914-1	Elbow	6-7	LW-31S4.10	Bolt	7-5
AN924-3	Nut	7-9	LW-31S4.72	Bolt	7-5
AN924-6	Nut	6-7	LW-31S5.31	Bolt	7-5
AN924-8	Nut	7-11	LW-38-0.59	Bolt	7-9
AN929-3	Cap Assy.	6-7	LW-38-0.59	Bolt	7-11
AN929-4	Cap Assy.	7-19	LW-38-0.75	Bolt	7-15
AN931-12S17	Grommet	3-9	LW-38-0.75	Bolt	7-17
AN960C516	Washer	7-5	LW-10077	Seat	3-5
AN6270-3D-0260	Hose Assy.	7-21	LW-10091	Link	5-7
LW-25-0.63	Screw	1-11	LW-10098	Controller	7-11
LW-25-0.63	Bolt	7-7	LW-10119	Plate	7-5
LW-25-0.75	Bolt	6-7	LW-10119	Plate	7-7
LW-25-0.81	Bolt	6-3	LW-10159	Pipe	7-1
LW-25-0.81	Bolt	6-5	LW-10160	Pipe	7-1
LW-25-0.94	Bolt	2-2	LW-10161	Pipe	7-1
LW-25-0.94	Bolt	7-11	LW-10162	Pipe	7-1
LW-25-1.00	Bolt	6-1	LW-10163	Pipe	7-1
LW-25-1.00	Bolt	6-3	LW-10164	Pipe	7-1
LW-25-1.13	Bolt	1-13	LW-10453	Box	7-9
LW-25-1.13	Bolt	2-2	LW-10466	Elbow	7-11
LW-25-1.13	Bolt	6-1	LW-10468	Valve Assy.	7-9

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
LW-10545	Piston	3-1	LW-12167	Stud	7-5
LW-10635	Bracket	7-17	LW-12186	Nut	3-1
LW-10637	Elbow	7-17	LW-12191	Pipe	6-5
LW-10644	Controller	7-19	LW-12192	Pipe	6-5
LW-10647	Dowel	1-1	LW-12193	Pipe	6-5
LW-10682	Controller	7-13	LW-12194	Pipe	6-5
LW-10799	Spacer	2-3	LW-12195	Pipe	6-5
LW-10801	Baffle	7-3	LW-12227	Support Assy.	1-7
LW-10952	Shim	5-9	LW-12231	Brace	5-11
LW-10952	Shim	5-11	LW-12232	Shim	5-11
LW-10954	Belt	5-11	LW-12233	Pulley	5-11
LW-10959	Door Assy.	7-9	LW-12237	Bracket Assy.	5-11
LW-10959	Door Assy.	7-11	LW-12272	Lockplate	3-5
LW-10985	Heat Shield	7-7	LW-12281	Pipe	7-3
LW-11021	Bearing	1-5	LW-12291	Lockplate	7-7
LW-11037	Crankcase Assy.	1-1	LW-12317	Bracket	1-3
LW-11201	Washer	7-19	LW-12320	Controller	7-13
LW-11223	Flange	7-3	LW-12433	Cylinder Assy.	3-3
LW-11373	Hose	7-15	LW-12545	Plug	6-1
LW-11459	Bracket	5-11	LW-12545	Plug	6-3
LW-11485	Tube	3-5	LW-12588	Bushing	3-7
LW-11575	Bearing	1-5	LW-12596	Bolt	3-1
LW-11635	Shield	5-9	LW-12604	Nipple	6-9
LW-11635	Shield	5-11	LW-12605	Support Assy.	1-7
LW-11654	Clamp	7-3	LW-12681	Gasket	4-1
LW-11655	U-Bolt	7-3	LW-12688	Seat	3-3
LW-11656	Extension	7-3	LW-12689	Turbocharger	7-5
LW-11657	Extension	7-3	LW-12707	Adapter	4-1
LW-11713	Spring	1-5	LW-12778	Valve	7-3
LW-11750	Rod Assy.	3-1	LW-12778	Valve	7-5
LW-11775	Plug	3-1	LW-12783-6-194	Hose	6-13
LW-11795	Spring	3-5	LW-12783-6-220	Hose	6-13
LW-11796	Spring	3-5	LW-12784-4-310	Hose Assy.	6-15
LW-11797	Spring	3-5	LW-12786-3-073	Hose	7-9
LW-11800	Spring	3-5	LW-12786-3-250	Hose Assy.	7-17
LW-11866	Nut	1-13	LW-12795	Gasket	2-4
LW-11883	Elbow	7-19	LW-12798-4S130	Hose	7-19
LW-11908	Controller	7-13	LW-12798-4S190	Hose Assy.	7-21
LW-11935	Tube Assy.	3-9	LW-12798-4S242	Hose	6-11
LW-11997	Seal	1-5	LW-12799-6S070	Hose	7-19
LW-12030	Crankcase Assy.	1-1	LW-12799-6S90	Hose	7-19
LW-12093-5	Coupling	7-1	LW-12799-6S100	Hose	7-19
LW-12093-6	Coupling	7-3	LW-12799-6S130	Hose Assy.	7-15
LW-12093-6	Coupling	7-5	LW-12799-6S144	Hose Assy.	7-17
LW-12098-0-100	Tube Assy.	6-11	LW-12877-4S142	Hose Assy.	7-21
LW-12098-0-170	Tube Assy.	6-9	LW-12877-6S110	Hose Assy.	7-21
LW-12098-0-170	Tube Assy.	6-11	LW-12877-6S170	Hose Assy.	7-21
LW-12098-0-200	Tube Assy.	6-9	LW-12877-6S413	Hose Assy.	7-21
LW-12125-3	Coupling	7-5	LW-12878-4S176	Hose	6-11
LW-12127	Transition Assy.	7-5	LW-12879-6S060	Hose	7-19

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
LW-12879-6S082	Hose	7-19	LW-14732	Gge Assy.	1-3
LW-12879-6S120	Hose	6-7	LW-14774	Gage Assy.	1-3
LW-12879-6S380	Hose Assy.	6-9	LW-14820	Ring	1-7
LW-12892	Thrust Button	3-7	LW-14954	Bearing	3-1
LW-12950	Turbocharger	7-7	LW-14995	Spring	3-5
LW-12974	Elbow Assy.	7-15	LW-15417	Transition	7-7
LW-12975	Adapter	7-15	LW-15429	Shim	5-11
LW-12979	Elbow	7-15	LW-15550	Pump	2-7
LW-13051	Tee	7-17	LW-15571	Starter	5-3
LW-13077	Spring	3-5	LW-15572	Starter	5-3
LW-13176-8S220	Hose Assy.	7-17	LW-15577	Starter	5-3
LW-13192-4S334	Hose Assy.	6-9	LW-15590	Housing Assy.	7-11
LW-13321	Seat	3-5	LW-15592-5-04	Clamp	6-13
LW-13322	Seat	3-5	LW-15592-5-04	Clamp	6-15
LW-13323	Seat	3-5	LW-15592-5-05	Clamp	3-9
LW-13347	Pulley	5-1	LW-15592-8-16	Clamp	7-15
LW-13421	Heat Shield	7-17	LW-15592-8-24	Clamp	6-5
LW-13434	Bracket	5-11	LW-15592-8-28	Clamp	6-5
LW-13435	Support	5-11	LW-15619	Gasket	7-1
LW-13447	Cylinder Assy.	3-3	LW-15628	Seal	1-5
LW-13521	Bearing	3-1	LW-15849	Pipe	7-1
LW-13522	Bearing	3-1	LW-15850	Pipe	7-1
LW-13533	Cylinder Assy.	3-3	LW-15853	Shaft	2-7
LW-13622	Valve	3-5	LW-15858-62-294	Clamp	7-9
LW-13641	Cushion	4-1	LW-15858-62-294	Clamp	7-11
LW-13790	Shaft	3-7	LW-15858-62-443	Clamp	7-9
LW-13792	Seal	1-5	LW-15952	Support Assy.	7-5
LW-13795	Shaft	1-11	LW-16029	Housing	7-11
LW-13884	Bearing	1-5	LW-16030	Hsg. & Cont. Assy.	7-11
LW-13885	Bearing	1-5	LW-16047	Bearing	1-5
LW-13896	Plug	1-10	LW-16048	Bearing	3-1
LW-13909	Pump	2-3	LW-16070	Controller Assy.	7-13
LW-13917	Pump Assy.	2-3	LW-16071	Controller Assy.	7-11
LW-13923	Bushing	3-1	LW-16152	Spacer	5-5
LW-13926	Adapter	4-1	LW-16266-10-13	Clamp	6-9
LW-13928	Tank Assy.	7-17	LW-16266-10-13	Clamp	6-11
LW-14077	Pin	3-1	LW-16266-10-38	Clamp	6-11
LW-14078	Pin	3-1	LW-16266-10-75	Clamp	6-9
LW-14170	Fitting	7-7	LW-16266-10-81	Clip	7-17
LW-14260	Seal	2-2	LW-16266-10-88	Clamp	7-15
LW-14318	Alternator	5-1	LW-16266-25-19	Clamp	7-13
LW-14321	Alternator	5-1	LW-16266-25-19	Clamp	7-21
LW-14326	Alternator	5-1	LW-16266-25-25	Clamp	6-15
LW-14356	Alternator	5-1	LW-16266-25-31	Clamp	6-15
LW-14437-3	Valve Assy.	7-17	LW-16266-25-50	Clamp	6-13
LW-14637	Shim	5-9	LW-16266-25-63	Clamp	6-9
LW-14637	Shim	5-11	LW-16266-25-63	Clamp	6-11
LW-14649	Shim	5-9	LW-16266-25-63	Clamp	7-15
LW-14649	Shim	5-11	LW-16266-25-63	Clamp	7-19
LW-14728	Gage Assy.	1-3	LW-16266-25-75	Clamp	6-9

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
LW-16266-25-75	Clamp	7-21	MS9068-009	Ring	2-7
LW-16475	Seat	3-5	MS9825-16	Clip	7-21
LW-16740	Valve	3-5	MS16562-28	Pin	2-7
LW-16789	Pipe	7-1	MS16625-1081	Ring	1-9
LW-16790	Pipe	7-1	MS16625-1125	Ring	5-9
LW-16791	Manifold Assy.	7-1	MS16625-1125	Ring	5-11
LW-16792	Pipe	7-1	MS20500-624	Nut	7-5
LW-16793	Pipe	7-1	MS20822-3	Elbow	7-17
LW-16794	Manifold Assy.	7-1	MS20822-4	Elbow	6-7
LW-16901	Pipe	7-3	MS20822-4	Elbow	7-19
LW-16902	Flange	7-3	MS20822-6	Elbow	6-9
LW-16909	Manifold Assy.	7-3	MS20822-6-2	Elbow	7-17
LW-16961	Tube Assy.	7-15	MS20822-6-8	Elbow	2-3
LW-16965	Rod	7-5	MS20823-3	Elbow	3-5
LW-16977	Elbow	7-15	MS20823-4	Elbow	6-9
LW-16999	Fitting	7-15	MS20823-6	Elbow	7-15
LW-18038	Gasket	7-15	MS20823-6D	Elbow	3-3
LW-18038	Gasket	7-17	MS20823-8D	Elbow	2-5
LW-18085	Spring	1-5	MS25082-6	Nut	4-1
LW-18106	Baffle Assy.	3-9	MS29512-03	Seal	7-9
LW-18129	Belt	5-1	MS29512-04	Seal	7-9
LW-18248	Rod	7-5	MS29512-06	Seal	6-7
LW-18291	Cover	6-3	MS29512-08	Seal	7-11
LW-18638	Lockplate	1-7	MS29512-08	Seal	7-17
LW-18661	Seal	3-5	MS29512-08	Seal	7-19
LW-18667	Pin	1-9	STD-8	Washer	1-13
LW-18759	Bracket	5-9	STD-8	Washer	2-2
LW-18853	Nozzle	6-7	STD-8	Washer	2-4
LW-18854	Nozzle Assy.	6-9	STD-8	Washer	2-5
LW-19001	Valve	3-5	STD-8	Washer	2-8
LW-19042	Seat	3-3	STD-8	Washer	5-11
LW-19080	Adapter Assy.	2-7	STD-8	Washer	6-1
LW-19082	Adapter Assy.	2-7	STD-8	Washer	6-3
LW-19083	Drive Assy.	2-7	STD-8	Washer	6-5
LW-19096	Gear Retainer	4-1	STD-8	Washer	6-7
LW-19102	Gear Retainer	4-1	STD-8	Washer	6-9
LW-19210	Cwt. Assy.	1-7	STD-8	Washer	6-11
LW-19227	Cwt. Assy.	1-7	STD-8	Washer	7-5
LW-19237	Idler Shaft	5-9	STD-8	Washer	7-11
LW-19237	Idler Shaft	5-11	STD-8	Washer	7-19
LW-19261	Pulley Assy.	5-11	STD-28	Washer	1-13
LW-19262	Pulley Assy.	5-9	STD-28	Washer	7-9
LW-19332-S	Rod Assy.	3-1	STD-28	Washer	7-11
LW-19340	Camshaft Assy.	1-9	STD-28	Washer	7-13
LW-349290-1	Magneto	4-1	STD-28	Washer	7-17
LW-349310-1	Magneto	4-1	STD-28	Washer	7-21
LW-349310-8	Magneto	4-1	STD-33	Washer	1-3
LW-349370-4	Magneto	4-1	STD-33	Washer	1-13
LW-720465-2	Harness Assy.	4-1	STD-33	Washer	5-11
LW-720470-5	Harness Assy.	4-1	STD-33	Washer	7-9

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
STD-33	Washer	7-11	STD-425	Washer	7-17
STD-33	Washer	7-15	STD-425	Washer	7-19
STD-33	Washer	7-17	STD-471	Screw	6-9
STD-35	Washer	1-10	STD-475	Washer	1-10
STD-35	Washer	2-2	STD-475	Washer	2-3
STD-35	Washer	2-3	STD-475	Washer	2-7
STD-35	Washer	2-7	STD-475	Washer	3-9
STD-35	Washer	3-9	STD-475	Washer	4-1
STD-35	Washer	5-3	STD-475	Washer	5-3
STD-35	Washer	5-7	STD-475	Washer	5-5
STD-35	Washer	5-11	STD-475	Washer	5-11
STD-35	Washer	6-7	STD-475	Washer	6-7
STD-35	Washer	6-9	STD-475	Washer	6-9
STD-35	Washer	7-3	STD-514	Dowel	1-1
STD-35	Washer	7-7	STD-514	Dowel	6-3
STD-63	Nut	7-3	STD-551	Plug	6-1
STD-63	Nut	7-17	STD-551	Plug	6-3
STD-68	Pin	7-5	STD-557	Dowel	1-1
STD-82	Screw	6-9	STD-596	Nut	1-3
STD-91	Plug	6-3	STD-596	Nut	1-13
STD-95	Key	2-7	STD-596	Nut	5-11
STD-110	Screw	7-9	STD-669	Washer	5-9
STD-148	Nipple	6-7	STD-670	Nut	6-9
STD-148	Nipple	6-9	STD-670	Nut	6-11
STD-160	Washer	1-13	STD-670	Nut	6-13
STD-160	Washer	2-2	STD-670	Nut	6-15
STD-160	Washer	2-4	STD-670	Nut	7-3
STD-160	Washer	2-5	STD-670	Nut	7-9
STD-160	Washer	2-7	STD-670	Nut	7-11
STD-160	Washer	6-1	STD-670	Nut	7-15
STD-160	Washer	6-3	STD-670	Nut	7-17
STD-160	Washer	6-5	STD-670	Nut	7-19
STD-160	Washer	6-7	STD-670	Nut	7-21
STD-160	Washer	6-9	STD-678	Washer	1-3
STD-160	Washer	6-11	STD-678	Washer	1-13
STD-160	Washer	7-7	STD-678	Washer	5-11
STD-160	Washer	7-11	STD-678	Washer	7-9
STD-213	Seal	1-11	STD-678	Washer	7-11
STD-251	Washer	6-9	STD-678	Washer	7-15
STD-251	Washer	7-3	STD-678	Washer	7-17
STD-251	Washer	7-9	STD-684	Nipple	3-9
STD-251	Washer	7-13	STD-690	Washer	5-7
STD-251	Washer	7-17	STD-690	Washer	5-9
STD-355	Plug	6-3	STD-690	Washer	5-11
STD-415	Screw	7-17	STD-692	Screw	1-13
STD-420	Nut	7-9	STD-692	Screw	3-9
STD-425	Washer	6-9	STD-692	Screw	6-9
STD-425	Washer	6-15	STD-692	Screw	6-11
STD-425	Washer	7-3	STD-692	Screw	6-15
STD-425	Washer	7-15	STD-692	Screw	7-3

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
STD-692	Screw	7-17	STD-1411	Nut	6-7
STD-692	Screw	7-21	STD-1411	Nut	6-11
STD-696	Washer	4-1	STD-1420	Nut	2-2
STD-713	Pin	5-7	STD-1420	Nut	7-5
STD-713	Pin	5-9	STD-1566	Screw	7-11
STD-713	Pin	5-11	STD-1566	Screw	7-13
STD-714	Pin	2-2	STD-1685	Nut	5-11
STD-737	Key	1-10	STD-1685	Nut	6-15
STD-784	Plug	2-5	STD-1727	Washer	5-7
STD-784	Plug	6-3	STD-1727	Washer	5-8
STD-860	Screw	6-9	STD-1727	Washer	5-11
STD-860	Screw	6-13	STD-1727	Washer	6-7
STD-860	Screw	6-15	STD-1737	Ring	1-11
STD-860	Screw	7-9	STD-1774	Pin	1-11
STD-860	Screw	7-11	STD-1774	Pin	2-5
STD-860	Screw	7-15	STD-1774	Pin	2-7
STD-860	Screw	7-19	STD-1815	Nut	7-7
STD-872	Nut	1-13	STD-1821	Hose	3-9
STD-872	Nut	5-7	STD-1838	Bolt	5-9
STD-872	Nut	5-9	STD-1856	Screw	2-4
STD-872	Nut	5-11	STD-1864	Nut	7-5
STD-949	Bushing	7-19	STD-1872	Insert	3-3
STD-1003	Dowel	2-7	STD-1874	Screw	4-1
STD-1065	Dowel	1-7	STD-1896	Screw	7-9
STD-1164	Insert	6-1	STD-1896	Screw	7-11
STD-1164	Insert	6-5	STD-1916	Screw	6-15
STD-1173	Insert	6-1	STD-1925	Screw	3-9
STD-1211	Plug	1-7	STD-1925	Screw	4-1
STD-1339	Plug	1-1	STD-1932	Bushing	7-5
STD-1339	Plug	2-2	STD-1932	Bushing	7-11
STD-1339	Plug	6-13	STD-2043	Nut	7-3
STD-1339	Plug	6-15	STD-2043	Nut	7-5
STD-1342	Washer	5-11	STD-2044	Nut	7-3
STD-1353	Insert	3-3	STD-2045	Nut	5-11
STD-1373	Insert	5-11	STD-2047	Bolt	7-3
STD-1409	Nut	1-13	STD-2048	Hose	6-15
STD-1410	Nut	1-10	STD-2131	Bolt	7-7
STD-1410	Nut	2-3	STD-2132	Nut	7-7
STD-1410	Nut	2-7	STD-2154	Bolt	7-5
STD-1410	Nut	3-9	STD-2166	Elbow	6-7
STD-1410	Nut	4-1	STD-2167	Screw	1-11
STD-1410	Nut	5-3	STD-2180	Hose	3-9
STD-1410	Nut	5-5	STD-2197	Washer	7-5
STD-1411	Nut	1-13	STD-2205	Washer	7-5
STD-1411	Nut	2-4	STD-2209	Bolt	1-7
STD-1411	Nut	2-5	STD-2218	Nut	7-1
STD-1411	Nut	2-7	STD-2221	Nut	5-9
STD-1411	Nut	3-5	STD-2221	Nut	5-11
STD-1411	Nut	6-1	25C-9	Stud	3-3
STD-1411	Nut	6-3	25C-9	Stud	6-3

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
25C-10	Stud	2-4	61503	Sleeve	3-5
25C-11	Stud	2-7	61681	Guide	3-3
25C-11	Stud	6-1	62224	Gasket	4-1
25C-11	Stud	6-3	62388	Cap	3-5
25C-12	Stud	2-7	62417	Plug	2-5
25C-21	Stud	2-1	65007	Retainer	1-1
31C-10	Stud	3-3	65441	Seat	3-5
31C-12	Stud	1-1	66224	Gasket	6-9
31C-12	Stud	2-1	66610	Bushing	3-3
31C-12	Stud	3-3	66670	Bushing	3-3
31C-13	Stud	1-1	66713	Guide	3-3
31C-14	Stud	1-1	66728	Washer	3-5
31C-16	Stud	1-1	66732	Gasket	3-9
31C-19	Stud	2-1	66734	Stud	1-1
31C-21	Stud	2-1	67530	Bushing	1-11
31CD-20	Stud	2-1	67536	Adapter Assy.	2-5
38-13	Stud	1-1	67542	Bearing	4-1
38-15	Stud	1-1	68315	Gasket	2-7
38-15	Stud	6-1	68668	Spring	1-5
38-15	Stud	6-3	68759	Tube Assy.	3-9
38-16	Stud	1-1	68761	Tube Assy.	3-9
38-22	Stud	1-1	69159	Adapter Assy.	1-11
50-15	Stud	1-1	69164	Gasket	1-11
1028-B	Ball	1-5	69260	Insert	3-3
1102	Plug	1-1	69531	Plate	3-7
1102	Plug	2-1	69532	Seat	3-5
1102	Plug	3-3	69603	Hose	6-5
1102	Plug	3-5	69679	Stud	1-1
1102	Plug	6-1	69796	Dowel	1-1
1102	Plug	6-3	70310	Seal	3-5
1102	Plug	7-9	70384	Shaft	1-10
1182-K4	Spark Plug	4-1	70388	Gear	1-10
1182-N4	Spark Plug	4-1	70389	Gear	1-10
1182-Q6	Spark Plug	4-1	70455	Gasket	1-10
1182-W5	Spark Plug	4-1	70456	Bracket	1-3
8313	Gasket	2-5	70457	Gasket	1-3
8313	Gasket	2-7	70474	Washer	1-11
60009	Key	3-5	70484	Screen	6-1
60329	Shaft	2-2	70485	Pipe	6-5
60422	Screen	6-3	71133	Nut	3-7
60430	Cover	2-5	71134	Nut	3-7
60430	Cover	2-7	71450	Gasket	3-9
60803	Strap	1-13	71481	Ring	3-7
60828	Plug	3-1	71549	Washer	3-7
60945	Plug	1-7	71596	Washer	2-5
61084	Spring	1-5	71596	Washer	2-7
61183	Gasket	2-5	71610	Hook	3-9
61247	Cover	3-9	71611	Retainer	3-9
61297	Impeller	2-2	71640	Plug	1-7
61298	Impeller	2-2	71651	Fitting	2-5

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
71664	Gear Assy.	1-11	72962	Thrust Button	1-11
71667	Lockplate	1-11	72964	Gear Assy.	2-7
71668	Gear Assy.	1-11	72965	Roller	1-7
71675	Adapter Assy.	2-7	72972	Shaftgear Assy.	1-11
71699	Connection	6-1	72974	Gear Assy.	2-5
71737	Tube Assy.	3-9	73000	Coupling	4-1
71903	Bushing	1-7	73013	Coupling	4-1
71907	Washer	1-7	73027	Tube Assy.	3-9
71973	Gasket	6-5	73032	Gasket	6-7
72050	Key	3-5	73136	Bracket	6-9
72053	Gasket	1-10	73136	Bracket	6-11
72057	Seat	3-3	73136	Bracket	6-15
72058	Seat	3-3	73136	Bracket	7-21
72060	Bushing	1-7	73152	Bracket	6-11
72061	Bushing	1-7	73249	Washer	1-10
72062	Bushing	1-7	73250	Washer	1-10
72075	Seal	1-5	73251	Washer	1-10
72091	Ring	1-5	73252	Washer	1-10
72152	Baffle Assy.	3-9	73314	Gasket	7-11
72155	Bushing	1-7	73314	Gasket	7-13
72179	Stud	6-3	73346	Flange	6-5
72210	Gasket	6-5	73383	Lockplate	5-7
72242	Cover Assy.	3-9	73383	Lockplate	5-9
72246	Shaft	1-11	73434	Rod Assy.	3-7
72255	Shroud Assembly	3-5	73437	Rod Assy.	3-7
72257	Shroud Assy.	3-5	73445	Rod Assy.	3-7
72312	Ring	1-3	73446	Rod Assy.	3-7
72376	Elbow	6-15	73448	Rod Assy.	3-7
72376	Elbow	7-3	73456	Rod Assy.	3-7
72376	Elbow	7-19	73458	Rod Assy.	3-7
72376	Elbow	7-21	73545	Rod Assy.	3-7
72377	Elbow	7-11	73546	Rod Assy.	3-7
72377	Elbow	7-19	73547	Rod Assy.	3-7
72377	Elbow	7-21	73548	Rod Assy.	3-7
72378	Cover	1-10	73555	Rod Assy.	3-7
72566	Gear	1-7	73556	Rod Assy.	3-7
72626	Shaft	3-7	73557	Rod Assy.	3-7
72702	Tube Assy.	3-9	73636	Coupling	4-1
72703	Tube Assy.	3-9	73648	Roller	1-7
72706	Insert	3-3	73772	Nozzle Assy.	1-1
72706	Insert	6-3	73810	Bushing	1-7
72709	Screw	3-9	73818	Gasket	2-1
72710	Cover	3-9	73857	Ring	3-1
72711	Ring	6-5	73938	Valve	3-5
72797	Roller	1-7	73965	Bracket	6-9
72834	Cover	3-9	73966	Spacer	6-9
72877	Body	1-5	73975	Baffle Assy.	3-9
72897	Guide	3-3	74065	"O" Ring	1-3
72958	Baffle	6-3	74070	Elbow	7-9
72960	Plug	6-3	74070	Elbow	7-19

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
74230	Guide	3-3	76534	Shim	5-7
74241	Ring	3-1	76534	Shim	5-9
74278	Bracket Assy.	6-9	76534	Shim	5-11
74309	Bearing	3-1	76734	Zip Strap	4-1
74313	Extension	1-3	76734	Zip Strap	6-13
74323	Strut	5-7	76734	Zip Strap	7-17
74323	Strut	5-9	76734	Zip Strap	7-21
74324	Bracket	5-9	76762	Housing Assy.	6-3
74360	Flange	6-5	76768	Lockwasher	5-9
74389	Bushing	3-7	76768	Lockwasher	5-11
74493	Hose	6-15	76769	Locknut	5-9
74494	Plate	3-9	76769	Locknut	5-11
74518	Bracket	5-9	76770	Bracket	7-5
74637	Bushing	3-7	76772	Hose	6-13
74832	Bracket	6-13	76777	Manifold Assy.	6-7
75030	Support Assy.	1-7	76778	Manifold Assy.	6-7
75061	Bolt	3-1	76779	Adapter	6-7
75089	Piston	3-1	76784	Shaft	2-2
75118	Gasket	7-3	76788	Roller	1-7
75151	Stabilizer	3-3	76791	Baffle	7-9
75152	Stabilizer	3-3	76889	Adapter	7-15
75164	Stabilizer	3-3	76889	Adapter	7-17
75283	Manifold Assy.	6-9	77309	Bushing	1-11
75287	Body Assy.	2-2	77461	Tee	7-9
75302	Dowel	1-1	77461	Tee	7-13
75311	Fuel Injector	6-7	77467	Spring	1-5
75324	Hose	7-9	77504	Gasket	7-11
75330	Hose	7-9	77527	Extension	1-3
75330	Hose	7-11	77579	Support Assy.	1-7
75332	Manifold	6-13	77708	Washer	2-7
75340	Manifold	6-13	77721	Retainer	7-9
75371	Gasket	7-15	77721	Retainer	7-11
75371	Gasket	7-17	77722	Gasket	7-9
75380	Link	5-7	77722	Gasket	7-11
75413	Piston	3-1	77723	Gasket	7-9
75414	Bracket	6-7	77723	Gasket	7-11
75656	Bushing	1-7	77756	Bracket	5-7
75657	Bushing	1-7	77756	Bracket	5-9
75761	Extension	1-3	77808	Valve Assy.	1-5
75845	Gasket	7-3	77823	Stud	7-5
75845	Gasket	7-5	77825	Shaft	2-7
75906	Gasket	3-9	77852	Base Assy.	2-4
75992	Controller	7-13	77853	Housing Assy.	2-4
76118	Spacer	1-9	77981	Strut	7-7
76155	Shaft Assy.	1-9	77982	Strut	7-7
76355	Tee	7-13	77983	Bracket	7-7
76355	Tee	7-19	77998	Housing Assy.	6-5
76422	Elbow	2-3	78054	Adapter	7-3
76505	Bracket	1-13	78061	Pipe	7-3
76510	Gasket	2-4	78062	Pipe	7-3

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
78063	Pipe	7-3	02A21380	Elbow	7-21
78064	Flange	7-3	02A21382	Nipple	2-3
78065	Sump Assy.	6-1	02M19799	Hose	6-13
78083	Gasket	7-1	06K21194	Shim Kit	5-5
78109	Manifold	6-15	05K21302-1	Starter Kit	5-5
78110	Manifold	6-15	05K21302-2	Starter Kit	5-5
78127	Tube	6-15	06A19956	Seal	2-5
78137	Tube Assy.	7-13	06A19956	Seal	2-7
78137	Tube Assy.	7-21	06B21326	Gasket	6-1
78138	Tube Assy.	7-13	06B21326	Gasket	6-3
78138	Tube Assy.	7-21	06E19769-0.63	Gasket	2-5
78152	Elbow	7-11	06E19769-0.91	Gasket	6-3
78162	Bracket	7-9	06E19769-1.00	Gasket	6-1
78162	Bracket	7-11	06E19769-1.00	Gasket	6-3
78164	Catch	7-9	06E19769-1.25	Gasket	1-5
78164	Magnetic Catch	7-11	07A19474	Bracket	5-5
78167	Washer	7-9	12A19770	Bracket	1-3
78167	Washer	7-11	12A19771	Bracket	1-3
78191	Elbow	7-13	13E17648	Crankshaft Assy.	1-7
78191	Elbow	7-21	13E17676	Crankshaft Assy.	1-7
78207	Housing Assy.	2-1	13F17751	Crankshaft Assy.	1-7
78246	Gasket	7-3	13F17752	Crankshaft Assy.	1-7
78290	Plunger Assy.	1-5	13F17776	Crankshaft Assy.	1-7
78318	Fuel Injector	6-9	13F17777	Crankshaft Assy.	1-7
78366	Heat Shield	6-5	13S19648	Gear	1-7
78443	Seal	1-5	15B21319	Socker	1-5
78481	Heat Shield	7-11	15F19957-35	Rod Assy.	3-7
78494	Housing Assy.	2-1	15F19957-36	Rod Assy.	3-7
78614	Pulley	5-9	15F19957-47	Rod Assy.	3-7
78629	Bearing	5-9	15F19957-55	Rod Assy.	3-7
78629	Ball Bearing	5-11	15F19957-57	Rod Assy.	3-7
78687	Adapter	7-3	15F19957-58	Rod Assy.	3-7
78691	Elbow	7-21	15F21362-24	Rod Assy.	3-7
78753	Bracket	6-15	16T19468	Seat	3-3
78802	Fuel Injector Assy.	6-7	17C19386	Cap	3-5
78965	Manifold Assy.	7-3	17C21191	Key	3-5
78993	Pump	2-3	17F19353	Rocker Assy.	3-7
79024	Bushing	1-7	17F21186	Rocker Assy.	3-7
477312	Spring	7-3	17F21190	Rocker Assy.	3-7
477312	Spring	7-5	187A19399	Bearing	1-5
951391	"O" Ring	6-7	18A19441	Bearing	1-5
951391	"O" Ring	6-9	18D19394	Bearing	1-5
10-92873-302	Nut	4-1	18E19396	Bearing	1-5
10-92879-43	Lockwasher	4-1	32B19549	Alternator Assy.	5-1
01L21418	Washer	1-10	32B19551	Alternator Assy.	5-1
01N19833-218	Plug	2-7	32C19553	Alternator Assy.	5-1
02A21169	Elbow	6-13	36B19484	Pulley	5-1
02A21377	Elbow	6-7	37A19773-367	Belt	5-1
02A21380	Elbow	2-3	37A19773-376	Belt	5-1
02A21380	Elbow	7-13	37A19773-382	Belt	5-1

NUMERICAL INDEX (Cont.)

PART NO.	PART NAME	PAGE NO.	PART NO.	PART NAME	PAGE NO.
53E19600	Valve Assy.	2-4	54D19626	Oil Filter	2-4
54D19625	Oil Filter	2-4	66M19385	Clamp	4-1