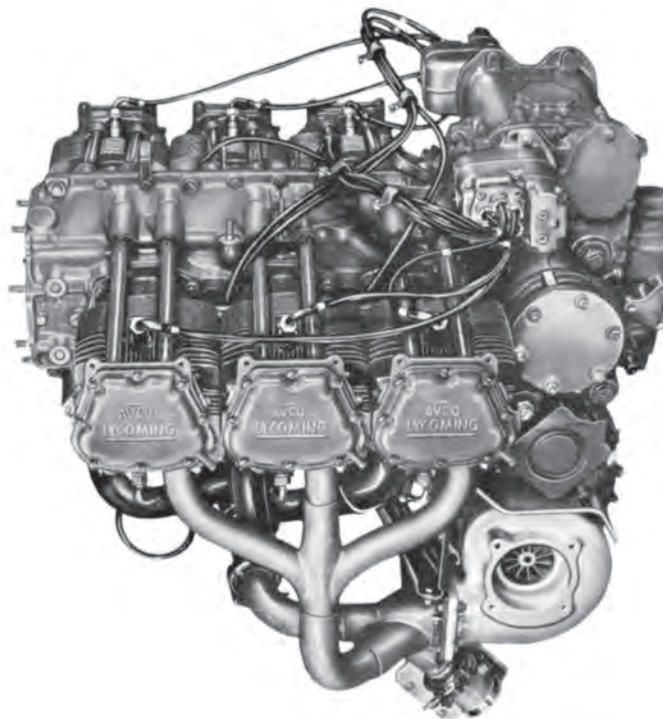


Lycoming Aircraft Engines Parts Catalog



VO-435 and TVO-435 Series Helicopter Engines

LYCOMING

SUPPLEMENTAL PARTS LIST NO. SSP3071-1

TO PROVIDE OIL LEVEL GAGE TO PARTS LIST SUPPLEMENT NO. SSP3071

LYCOMING TVO-435-F1A AIRCRAFT ENGINES

This information is being issued to provide an additional part not covered in the original publication SSP3071. The oil level gage (sight gage), at the present time is being used on TVO-435-F1A model engines only. Lycoming Parts Catalog involved is PC-110.

PART NO.	NAME	QTY. PER ASS'Y.	ENGINE MODEL
LW-12066	Gage, Oil Level (Sight Gage)	1	TVO-435-F1A

SUPPLEMENTAL PARTS LIST NO. SSP3071

TO PROVIDE COVERAGE FOR LYCOMING MODEL

TVO-435-B1A,-D1A,-D1B,-F1A AND -G1A

AIRCRAFT ENGINES

This supplement is arranged in the same basic format as the original catalog, Lycoming, PC-110. It will serve to update published information on the following models: TVO-435-B1A,-D1A and -G1A. It will also add parts coverage on two additional models, TVO-435-D1B and -F1A.

Page numbers listed in this supplement conform to basic page numbers in the original catalog. Figure reference numbers also conform to those parts breakdown illustrations contained in PC-110. Where a figure reference number is left blank in this supplement, it denotes a new part or that no reference number was assigned in the original catalog. If a page in the original catalog does not apply to subject engines, it is so designated in this supplement. SSP1168 supplement is replaced by SSP3071.

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

CRANKCASE GROUP

NOTE

Pages 1 and 2 do not apply to subject engines.

PAGE 3

Figure 2. Crankcase Group

1A	76227	CRANKCASE ASSEMBLY	1	All Models
4	AN6-21A	BOLT, Hex. hd., 3/8-24 x 2-13/64 in. long	4	All Models
11	AN4-12A	BOLT, Hex. hd., 1/4-20 x 1-9/32 in. long	5	All Models
	AN960-616L	WASHER, 3/8 x 0.032 in. thick (1 max.)	AR	All Models
	60803	STRAP, Lifting	2	All Models
	AN4-15A	BOLT, Hex. hd., 1/4-28 x 1-21/32 in. long	2	All Models
	75302	DOWEL, Crankcase thru stud	4	All Models

PAGE 5

Figure 3. Crankshaft and Camshaft Group

1C	72469	CRANKSHAFT ASSEMBLY	1	All Models
3	72470	PLUG, Crankshaft oil, front	1	All Models
4	72471	RING, Oil seal, 1/8 dia. section x 1-13/16 ID	1	All Models
5	70434	JET, Oil	1	All Models
7	72308	BUSHING, Rear crankshaft, spline	1	All Models

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14	67447	BEARING, Crankshaft	8	All Models
15	73061	BODY, Hydraulic tappet	12	All Models
16	78290	PLUNGER ASSEMBLY, Hydraulic tappet	12	All Models
17	78524	SOCKET, Push rod, hydraulic tappet	12	All Models
21	76332	LOCKPLATE, 5/16 in. bolt x 1-3/8 in. spacing	2	-F1A
22	STD-707	SCREW, 5/16-24 x 11/16 in. long	4	-F1A
	76319	GEAR, Tachometer drive	1	-F1A

PAGE 8

Figure 4. Piston, Piston Rings and Connecting Rod Group

1A	75984	PISTON (3-RING) FOR NITRIDED CYLINDERS	6	All Models
2A	73933	RING, Piston, compression	12	All Models
3A	73934	RING, Piston, oil regulating (expander type)	6	All Models
5	77857	PIN, Piston	6	All Models

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6	77856	PLUG, Piston pin	12	All Models
7	78028	CONNECTING ROD ASSEMBLY	6	All Models
9	78027	BOLT, Connecting rod	12	All Models
10	74646	NUT, Connecting rod bolt	12	All Models
12	72218	BEARING, Connecting rod	12	All Models

APPROVED CYLINDER, PISTON RING ASSEMBLY

LOW COMPRESSION

NITRIDED

CYLINDER	74218	6	All Models
PISTON	75984	6	All Models
RING, Compression	73933 ch.	12	All Models
RING, Oil	73934 ch.	6	All Models
EXHAUST VALVE	74802	6	All Models
INTAKE VALVE	73129	6	All Models

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

CYLINDER GROUP

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Figure 5. Cylinder Group

2	STD-2090	NUT, Plain, 1/2 -20	24	All Models
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NOTE

Figure reference numbers 3 and 5 no longer apply.

6	71895	SEAT, Intake valve	6	All Models
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7	71894	SEAT, Exhaust valve	6	All Models
9	75838	GUIDE, Valve exhaust	6	All Models

NOTE

Figure reference numbers 14 and 16 do not apply to subject engines.

PAGE 14

21	74802	VALVE, Exhaust, rotator type	6	All Models
22	68325	SEAT, Valve spring, lower	6	All Models
	73112	SEAT, Valve spring, lower	6	All Models
24	LW-11797	SPRING, Valve, auxiliary	12	All Models
25	LW-10077	SEAT, Valve spring	6	All Models
	LW-10076	SEAT, Valve spring (rotator type)	6	All Models
26	MS13997-3	KEY, Valve, rotator type	12	All Models
27	MS13998-3	CAP, Valve stem	6	All Models
31	72626	SHAFT, Valve rocker	12	All Models

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36	74388	ROCKER ASSEMBLY, Exhaust valve	6	All Models
40	STD-1925	SCREW, Pan—head, self-locking, 1/4-20 x 5/8 long	48	-B1A,-D1A,-D1B,-G1A
	STD-1925	SCREW, Pan—head, self-locking, 1/4-20 x 5/8 long	47	-F1A
	STD-1874	SCREW, Fill. hd., self-locking, 1/4-20 x 15/16 long	1	-F1A
	74494	PLATE, Spark plug caution	6	All Models
42	79051	SPRING, Shroud tube	12	All Models
45	LW-11964	SEAL, Shroud tube, crankcase end	12	All Models
47	73434	ROD ASSEMBLY, Push	AR	All Models
	73435	ROD ASSEMBLY, Push	AR	All Models
	73436	ROD ASSEMBLY, Push	AR	All Models

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Figure 6. Induction System Group

NOTE

Pages 16, 17 and 18 do not apply to subject engines.

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Figure 7. Induction System Group

1	77667	COVER ASSEMBLY, Crankcase	1	-B1A,-D1A,-D1B,-G1A
	LW-12025	COVER ASSEMBLY, Crankcase	1	-F1A
2	STD-8	WASHER, Plain, 1/4 in.	28	All Models
3	STD-160	WASHER, Internal lock, 1/4 in.	18	All Models
4	STD-9	NUT, Plain, 1/4-28	9	All Models

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

INDUCTION SYSTEM GROUP (CONT.)

5	STD-1679	BOLT, Hex. hd., 1/4-28 x 1.00 in. long	9	All Models
6	STD-1230	BOLT, Hex. hd., 1/4-28 x 1-9/32 in. long	9	-F1A
	AN4-12A	BOLT, Long hd., 1/4-28 x 1-9/32 in. long	9	-B1A,-D1A,-D1B,-G1A
15	76740	GASKET OIL SUMP	1	-B1A,-D1A,-D1B,-G1A
16	77669	BAFFLE, Breather	1	All Models
17	STD-82	SCREW, Fill. hd., drilled, No. 10-24 x 1/2 in. long	18	All Models
18	STD-425	WASHER, Plain, No. 10	14	All Models
	77668	GASKET, Breather baffle	1	All Models
	LW-12001	ADAPTER ASSEMBLY, Oil filler	1	-F1A
	STD-1922	RING, Oil seal, 1-11/64 ID x 0.116 section	1	-F1A
	STD-1921	RING, Back-up, 1.172 ID x 1.514 OD x 1/8 thick	1	-F1A
	AN6289-D16	NUT, Flared tube, universal fitting 1-5/16-12	1	-F1A
	LW-10126	CAP, Oil filler	1	-F1A
	AN816-16	NIPPLE, 1.00 in. flared tube, 1.00 in. NPT	1	-F1A
20	73346	FLANGE, Intake pipe upper	6	All Models

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23	STD-1215	BOLT, Hex. hd., 1/4-20 x 1-1/4 in. long	12	All Models
24	71973	GASKET, Two bolt flange, 1-7/8 in. ID	6	All Models
28B	73899	CARBURETOR ASSEMBLY, MA-6AA	1	All Models
34	73347	ADAPTER, Carburetor inlet	1	-B1A
	77304	ADAPTER, Carburetor inlet	1	-D1A,-D1B,-F1A,-G1A

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Figure 8. Accessory Housing Group

1D	70406	HOUSING ASSEMBLY, Accessory	1	-B1A,-D1A,-D1B,-G1A
	LW-12027	HOUSING ASSEMBLY, Accessory	1	-F1A
6	STD-1339	PLUG, Allen hd., 1/16-27 pipe	5	-B1A,-D1A,-D1B,-G1A
	STD-1339	PLUG, Allen hd., 1/16-27 pipe	4	-F1A
7	67742	BUSHING, 1-7/8 OD x 1-11/16 ID x 3/4 in. long	1	-B1A,-D1A,-D1B,-G1A
	76339	BUSHING, 1-1/32 OD x 7/8 ID x 29/32 in. long	1	-F1A
	76001	BUSHING, 1-3/32 OD x 1.00 ID x 1-3/8 in. long	1	-F1A
	75757	BUSHING, 1-5/8 OD x 1-7/16 ID x 1-1/4 in. long	1	-F1A
	76333	BUSHING, 2-3/16 OD x 2.00 ID x 1-3/16 in. long	1	-F1A
	76335	BUSHING, 1-9/16 OD x 1-3/8 ID x 15/16 in. long	1	-F1A
	75162	BUSHING, 15/32 OD x 13/32 ID x 5/8 in. long	1	-F1A

NOTE

Figure reference number 8 does not apply to subject engines.

PAGE 23

9	STD-859	DOWEL, 1/8 in. dia. x 9/32 in. long	1	-B1A,-D1A,-D1B,-G1A
	STD-394	DOWEL, 3/32 in. dia. x 11/32 in. long	6	-F1A
12	66145	DOWEL, 1/4 in. dia. x 1/2 in. long	2	-B1A,-D1A,-D1B,-G1A
	STD-1037	DOWEL, 3/16 in. dia. x 1/4 in. long	1	-F1A
14	25-12	STUD, 1/4-20 x 1-1/2 in. long	11	-B1A,-D1A,-D1B,-G1A
	25-12	STUD, 1/4-20 x 1-1/2 in. long	9	-F1A
16	25-13	STUD, 1/4-20 x 1-5/8 in. long	17	-B1A,-D1A,-D1B,-G1A
	25-13	STUD, 1/4-20 x 1-5/8 in. long	3	-F1A
	STD-1003	DOWEL, Oil, 1/4 OD x 3/16 ID x 1/2 in. long	1	-F1A
	STD-1353	INSERT, Heli-coil, No. 10-24 x 3/8 in. long	4	-F1A
	STD-1164	INSERT, Heli-coil, 5/16-18 x 5/8 in. long	1	-F1A
	25-11	STUD, 1/4-20 x 1-3/8 in. long	6	-F1A
	25-28	STUD, 1/4-20 x 3-1/2 in. long	2	-F1A
	31-16	STUD, 5/16-18 x 2.00 in. long	1	-F1A
	31-17	STUD, 5/16-18 x 2-1/8 in. long	3	-F1A
	31-13	STUD, 5/16-18 x 1-5/8 in. long	8	-F1A
	31-14	STUD, 5/16-18 x 1-3/4 in. long	4	-F1A

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

ACCESSORY HOUSING GROUP (CONT.)

	25-10	STUD, 1/4-20 x 1-1/4 in. long	3	-F1A
	25-13	STUD, 1/4-20 x 1-5/8 in. long	3	-F1A
	25-33	STUD, 1/4-20 x 4-1/8 in. long	3	-F1A
29	69637	PLUG, 3/4 in. dia. x 9/16 in. long	1	-B1A,-D1A,-D1B,-G1A
33	1102	PLUG, Allen hd., 1/8-27 NPT	1	-B1A,-D1A,-D1B,-G1A
	1102	PLUG, Allen hd., 1/8-27 NPT	3	-F1A
34	STD-71	PLUG, Allen hd., 3/8 pipe	2	-B1A,-D1A,-D1B,-G1A
	STD-784	PLUG, Allen hd., 3/8-18 pipe	1	-F1A
36	69636	TUBE AND STRAINER ASSEMBLY, Oil suction	1	-B1A,-D1A,-D1B,-G1A
	76307	TUBE ASSEMBLY, Oil suction	1	-F1A
37	STD-111	GASKET, 1.00 ID x 1-1/4 OD x 3/32 annular	1	All Models
	76340	GASKET, Oil suction tube	1	-F1A
42	AN816-4-4	NIPPLE, Flared tube and pipe thd.	1	-D1A,-D1B,-G1A
	AN912-3D	BUSHING REDUCER, 3/8 to 1/8 in. pipe thd.	1	-F1A
	STD-1431	SCREW, Hex. hd., drilled hd., 1/4-28 x 7/8 in. long	2	-F1A
	AN825-4	TEE, 1/4 flared tube to 1/8 NPT. 90° (oil to turbo-charger)	1	-F1A
	78171	ELBOW, Turbocharger oil drain connection	1	-F1A

NOTE

Figure reference numbers 11, 29, 38 and 39 do not apply to TVO-435-F1A model engines. Figure reference number 44 does not apply to any of the subject engines.

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NOTE

Figure 8 reference numbers 45, 46, 47 and 48 do not apply to subject engines.

Figure 9. Accessory Drives Group

NOTE

Figure references 1 thru 21, apply to TVO-435-B1A,-D1A,-D1B,-G1A model engines only.

12	76337	SHAFT, Magneto drive idler	1	-F1A
16	76057	GEAR ASSEMBLY, Magneto drive idler	1	-F1A
	76334	BUSHING, 3/8 ID x 7/16 OD x 7/8 in. long	1	-F1A
	STD-19	DOWEL, 3/32 in. dia. x 7/32 in. long	1	-F1A
	76016	RING, Oil seal, 0.49 ID x 5/64 in. section	1	-F1A
	STD-160	WASHER, Internal lock, 1/4 in.	1	-F1A
	STD-9	NUT, Plain, 1/4-28	1	-F1A
	76336	WASHER, Thrust, magneto idler shaft	1	-F1A
	MS16624-37	RING, External retaining, 1-3/8 in. dia. shaft	2	-F1A
	76279	GEAR, Magneto	1	-F1A
	76300	WASHER, Magneto drive shaft gear	1	-F1A

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31	AN115907	SCREW, Fill. hd., drilled, 1/4-28 x 1/2 in. long	6	-B1A,-D1A,-D1B,-G1A
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NOTE

Figure reference numbers 22 thru 48 apply to TVO-435-B1A,-D1A,-D1B,-G1A model engines only.

	LW-12023	STARTER MOTOR ASSEMBLY (24-Volt)	1	-F1A
	76775	SWITCH, Magnetic (Prestolite SAW-4411)	1	-F1A
	76816	PLATE, Starter retaining	1	-F1A
	76815	STUD, Starter retaining plate	2	-F1A
	STD-8	WASHER, Plain, 1/4 in.	14	-F1A
	STD-160	WASHER, Internal lock, 1/4 in.	12	-F1A
	STD-1411	NUT, Plain, 1/4-20	4	-F1A

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

ACCESSORY DRIVES GROUP (CONT.)

STD-9	NUT, Plain, 1/4-28	10	-F1A
STD-1230	BOLT, 1/4-28 x 1-9/32 in. long	1	-F1A
MS16624-175	RING, External ret. 1-3/4 in. dia. shaft	1	-F1A
77401	SHAFT, Alternator drive	1	-F1A
76012	ADAPTER, Alternator shaft	1	-F1A
76017	NUT, Alternator shaft	1	-F1A
76092	WASHER, Alternator shaft	1	-F1A
76020	GASKET, Alternator	1	-F1A
LW-11648	ALTERNATOR, 24 volt - 70 amp	1	-F1A
STD-35	WASHER, Plain, 5/16 in.	4	-F1A
STD-475	WASHER, Internal lock, 5/16 in.	4	-F1A
STD-37	NUT, Plain, 5/16-24	4	-F1A
LW-10179	REGULATOR, Full transistor - 24 volt	1	-F1A
78060	RELAY, Overvoltage, 24 volt	1	-F1A
LW-11337	DRIVE ASSEMBLY, Starter	1	-F1A
LW-10421	ADAPTER ASSEMBLY, Starter drive	1	-F1A
75852	BUSHING, Flanged, 1.00 ID x 1-3/16 OD	2	-F1A
STD-859	DOWEL, 1/8 in. dia. x 9/32 in. long	2	-F1A
LW-10727	SEAL, 2.129 OD x 1-5/16 ID x 5/16 in. wide	1	-F1A
LW-11659	SHAFTGEAR, Starter drive	1	-F1A
76313	GEAR, Starter drive	1	-F1A
LW-10416	SPACER, Starter drive gear	1	-F1A
75843	NUT, Crimp lock, 5/8-18	1	-F1A
STD-1004	RING, Oil seal, 7/32 ID x 1/16 dia. section	1	-F1A
MS28775-147	RING, Oil seal, 2-11/16 ID x 0.103 dia. section	1	-F1A
STD-35	WASHER, Plain, 5/16 in.	4	-F1A
STD-475	WASHER, Internal lock, 5/16 in.	4	-F1A
STD-37	NUT, Plain, 5/16-24	4	-F1A
76830	HOUSING ASSEMBLY, Starter drive	1	-F1A
25-12	STUD, 1/4-20 x 1-1/2 in. long	3	-F1A
STD-514	DOWEL, 5/16 in. dia. x 1/2 in. long	2	-F1A
LW-11588	COUPLING ASSEMBLY, Starter slip	1	-F1A
LW-11587	COUPLING, Bendix drive	1	-F1A
76842	COUPLING, Starter slip	1	-F1A
76528	GEAR ASSEMBLY, Starter slip coupling	1	-F1A
76835	BUSHING, Slip coupling gear	1	-F1A
STD-1025	KEY, 5/8 in. dia. x 1/8 in.	1	-F1A
76836	WASHER, Thrust, slip coupling	1	-F1A
73051	PIN, 1/4 in. dia. x 25/32 in. long	1	-F1A
76838	WASHER, Grease retaining, starter	1	-F1A
75237	WASHER, Thrust, 13/32 ID x 3/4 OD x 1/16 thick	1	-F1A

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49	69659	WASHER, Magneto drive shaft gear	1	-B1A,-D1A,-D1B,-G1A
	76300	WASHER, Magneto drive shaft gear	1	-F1A
50	69570	RING, Magneto drive gear retaining	1	-B1A,-D1A,-D1B,-G1A
	MS16624-137	RING, External retainer, 3/8 dia. shaft	1	-F1A
51	67704	SHAFTGEAR ASSEMBLY, Vacuum pump	1	-B1A,-D1A,-D1B,-G1A
	76091	GEAR, Vacuum pump drive	1	-F1A
	76283	SHAFT, Vacuum pump and magneto gear	1	-F1A
	20415	GASKET, Hydraulic pump	1	-B1A,-D1A,-F1A,-G1A
	72412	COVER, Hydraulic pump	1	-B1A,-D1A,-F1A,-G1A
	STD-35	WASHER, Plain, 5/16 in.	4	-B1A,-D1A,-F1A,-G1A
	STD-475	WASHER, Internal lock, 5/16 in.	4	-B1A,-D1A,-F1A,-G1A
	STD-37	NUT, Plain, 5/16-24	4	-B1A,-D1A,-F1A,-G1A

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Figure 10. Accessory Housing Cover Group

1A	73094	COVER ASSEMBLY, Accessory housing	1	-B1A,-D1A,-D1B,-G1A
12	STD-1053	PLUG, 0.204 - 0.205 in. dia. x 5/16 in. long	1	-B1A,-D1A,-D1B,-G1A

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

ACCESSORY HOUSING COVER GROUP (CONT.)

23	74097	ELBOW, Int. and ext. pipe, 90° (assemble in accy. hsg. cover side oil-out boss)	1	-B1A,-D1A,-D1B,-G1A
DUAL VACUUM PUMP AND FUEL PUMP DRIVE				
	8313	GASKET, Vacuum pump drive	1	-F1A
	LW-12010	ADAPTER ASSEMBLY, Dual accessory drive	1	-F1A
	25-12	STUD, 1/4-20 x 1-1/2 in. long	1	-F1A
	31-31	STUD, 5/16-18 x 2-7/8 in. long	3	-F1A
	66145	DOWEL, 1/4-20 x 1/2 in. long	2	-F1A
	LW-12006	GEAR, Dual accessory drive	1	-F1A
	71596	WASHER, Accessory drive gear	1	-F1A
	76466	SHAFT, Quill, dual drive adapter	1	-F1A
	MS16625-56	RING, Internal retaining	1	-F1A
	LW-12008	GASKET, Dual accessory drive adapter cover	1	-F1A
	LW-12017	GEAR ASSEMBLY, Accessory idler	1	-F1A
	69731	BUSHING, Accessory idler gear	1	-F1A
	LW-12021	GEAR ASSEMBLY, Vacuum pump driven	1	-F1A
	71596	WASHER, Accessory drive gear	1	-F1A
	LW-12019	COVER ASSEMBLY, Vacuum pump and fuel pump drive	1	-F1A
	STD-1339	PLUG, Allen head, 1/16 in -27 NPT	1	-F1A
	STD-938	DOWEL, 3/32 in. dia. x 11/32 in. long	1	-F1A
	69318	SHAFT, Accessory idler gear	1	-F1A
	STD-548	SEAL, Oil, 7/8 ID x 1-3/8 OD x 5/16 in. wide	1	-F1A
	STD-208	SEAL, Oil, 7/8 ID x 1-1/2 OD x 5/16 in. wide	1	-F1A
	25-12	STUD, 1/4-20 x 1-1/2 in. long	1	-F1A
	25-16	STUD, 1/4-20 x 2.00 in. long	1	-F1A
	31-14	STUD, 5/16-18 x 1-3/4 in. long	1	-F1A
	STD-8	WASHER, Plain, 1/4 in.	6	-F1A
	STD-160	WASHER, Internal lock, 1/4 in.	6	-F1A
	STD-9	NUT, Plain, 1/4-28	6	-F1A

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NOTE

Figure reference numbers 25 thru 28 are employed as required. (See Page 33 for -F1A, Tach.Drive).

Figure 12. Oil Pump Group

1B	73091	PUMP ASSEMBLY, Oil	1	-B1A,-D1A,-D1B,-G1A
	73089	PUMP ASSEMBLY, Oil	1	-B1A,-D1A,-G1A
	76338	PUMP ASSEMBLY, Oil	1	-F1A
5	73086	BODY ASSEMBLY, Oil pressure pump	1	-B1A,-D1A,-D1B,-G1A

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	73088	BODY ASSEMBLY, Oil pressure pump	1	-B1A,-D1A,-G1A
	76317	BODY ASSEMBLY, Oil pressure pump	1	-F1A
8	25D-11	STUD, Drilled end, 1/4-20 x 1-3/8 in. long	4	-F1A
	31-12	STUD, 5/16-18 x 1-1/2 in. long	1	-B1A,-D1A,-G1A
	31-14	STUD, 5/16-18 x 1-3/4 in. long	3	-B1A,-D1A,-G1A
	STD-1164	INSERT, Heli-coil, 5/16-18 x 5/8 in. long	1	-B1A,-D1A,-G1A
23	75515	SHAFT, Oil pump	1	-B1A,-D1A,-D1B,-G1A
	75516	SHAFT, Oil pump	1	-B1A,-D1A,-G1A
30	STD-1973	KEY, Woodruff, 1/8 in. x 3/4 in. dia.	1	-B1A,-D1A,-D1B,-G1A
	STD-208	OIL SEAL, 7/8 in. ID x 1-1/2 OD x 5/16 in. wide	1	-B1A,-D1A,-G1A
	STD-1315	INSERT, Heli-coil, 1/4-28 x 1/2 in. long	2	-F1A
	76316	COVER ASSEMBLY, Oil pump body	1	-F1A
	76315	BUSHING, Oil pump drive shaft	1	-F1A
	STD-394	DOWEL, 0.0907 x 11/32 in. long	1	-F1A
	76269	SHAFT, Oil pump idler	1	-F1A
	66145	DOWEL, 1/4 in. dia. x 1/2 in. long	2	-F1A

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

OIL PUMP GROUP (CONT.)

AN381-4-22	PIN, Cotter, 1/8 in. dia. x 1-3/8 in. long	1	-F1A
76267	SHAFT, Hydraulic or oil pump	1	-F1A
61297	IMPELLER, Oil pressure pump driving	1	-F1A
68404	IMPELLER, Oil pressure pump driven	1	-F1A
STD-1973	KEY, Woodruff, 1/8 in. x 3/4 in. dia.	1	-F1A
76274	GEAR, Oil pressure pump	1	-F1A
STD-61	NUT, Slotted shear, 1/2-20	1	-F1A
STD-713	PIN, Cotter, 3/32 in. dia. x 3/4 in. long	1	-F1A
STD-8	WASHER, Plain, 1/4 in.	4	-F1A
STD-43	NUT, Slotted shear, 1/4-28	4	-F1A
STD-208	SEAL, Oil, 7/8 in. ID x 1-1/2 in. OD x 5/16 in. wide	1	-F1A
AN763-16	GASKET, Oil pump outlet flange	1	-F1A
LW-12022	FLANGE, Oil pump outlet	1	-F1A
76015	RING, Oil seal, 35/64 in. ID x 5/64 in. section	1	-F1A
AN763-16	GASKET, Oil pump outlet flange	1	-F1A
78048	ADAPTER ASSEMBLY, Oil pump outlet	1	-F1A
STD-1353	INSERT, Heli-coil, No. 10-24 x 3/8 in. long	4	-F1A
STD-425	WASHER, Plain, No. 10-24	4	-F1A
STD-251	WASHER, Internal lock, No. 10-24	4	-F1A
MS24677-26	SCREW, Socket head, No. 10-24 x 7/8 in. long	4	-F1A
AN763-16	GASKET, Oil pump outlet flange	1	-F1A
76329	COVER, Oil pump outlet flange	1	-F1A
STD-425	WASHER, Plain, No. 10-24	4	-F1A
STD-1896	SCREW, Fill. hd., drilled hd., No. 10-24 x 7/8 in. long	4	-F1A
76308	SHAFT, Oil vacuum, hydraulic pump drive	1	-F1A
76280	GEAR, Vacuum hydraulic pump drive	1	-F1A
STD-1973	KEY, Woodruff, 1/8 in. x 3/4 in. dia.	1	-F1A
MS16624-59	RING, External retaining, 19/32 dia. shaft	3	-F1A
76047	WASHER, Thrust, Oil pump drive shaft	1	-F1A
76330	SHAFTGEAR ASSEMBLY, Tachometer drive	1	-F1A
76022	SHIM, Tachometer adapter	1	-F1A
76021	GASKET, Tachometer adapter	2	-F1A
76314	ADAPTER, Tachometer	1	-F1A
61165	SEAL, Tachometer drive, oil	1	-F1A
STD-8	WASHER, Plain, 1/4 in.	2	-F1A
STD-160	WASHER, Internal lock, 1/4 in.	2	-F1A
STD-9	NUT, Plain, 1/4-28	2	-F1A
61549	CAP, Tachometer drive	1	-F1A

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41	72785	OIL FILTER ASSEMBLY	1	-B1A,-D1A,-D1B,-G1A
51	76321	GASKET, Oil pump	1	-F1A

ACCESSORY HOUSING ATTACHING PARTS

STD-8	WASHER, Plain, 1/4 in.	33	-B1A,-D1A,-D1B,-G1A
STD-160	WASHER, Internal lock, 1/4 in.	32	-B1A,-D1A,-D1B,-G1A
STD-9	NUT, Plain, 1/4-28	32	-B1A,-D1A,-D1B,-G1A
AN4-12A	BOLT, Hex.hd., 1/4-28 x 1-9/32 in. long	1	-B1A,-D1A,-D1B,-G1A

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These pages do not apply to TVO-435-B1A,-D1A,-D1B and -G1A model engines. Oil pump for -F1A model engines has been previously covered in this supplement.

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Figure 13. Magnetos and Magneto Drives Group

3	72038	MAGNETO, Conventional, S6LN-204	1	-B1A,-D1B
	74174	MAGNETO, Retard breaker, S6RN-200	1	-B1A,-D1B

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

MAGNETOS AND MAGNETO DRIVES GROUP (CONT.)

4	LW-11589	MAGNETO, Retard breaker, S6LN-1208	1	-F1A
	75554	MAGNETO, Conventional, S6RN-1209	1	-F1A
	75898	MAGNETO, Retard breaker, S6RN-1208	1	-D1A,-G1A
	75900	MAGNETO, Conventional, S6LN-1209	1	-D1A,-G1A
5	STD-1727	WASHER, 3/4 in. OD x 11/32 in. ID x 1/8 in. thick	4	-B1A,-D1B
6	STD-475	WASHER, Internal lock, 5/16 in.	4	All Models
7	STD-37	NUT, Plain, 5/16-24	4	All Models
	75965	CLAMP, Magneto	4	-D1A,-F1A,-G1A
8	78292	GASKET, Magneto	2	-D1A,-F1A,-G1A
9A	69208	COUPLING, Magneto drive	2	All Models

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11	LW-12136	CUSHION, Magneto drive	4	-F1A
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NOTE

Figure reference numbers 15 thru 17 may be purchased at owner's option.

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Figure 14. Accessory Drive Gear and Adapter Group

1	75026	ADAPTER ASSEMBLY, Accessory drive	1	-B1A,-D1A,-D1B,-G1A
	STD-1315	INSERT, Heli-coil, 1/4-28 x 1/2 in. long	4	-B1A,-D1A,-D1B,-G1A
	74412	PLATE, Accessory drive shaft adapter	1	-B1A,-D1A,-D1B,-G1A
	AN501A416-12	SCREW, Fill. hd., drilled, 1/4-28 x 3/4 in. long	4	-B1A,-D1A,-D1B,-G1A
	76294	SHAFT, Accessories drive, quill	1	-F1A
	76004	PLATE, Accessory drive gear thrust	1	-F1A
	76342	BEARING, Accessory drive gear	1	-F1A
	76327	GEAR AND SHAFT ASSEMBLY, Accessory drive	1	-F1A
	76323	DOWEL, 1/4 in. dia. x 13/32 in. long	3	-F1A
	76324	LOCKPLATE, Accessories drive	3	-F1A
	AN4-4A	BOLT, Hex. hd., 1/4-28 x 17/32 in. long	6	-F1A

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Figure 15. Oil Sump and Related Parts Group

1	73705	SUMP ASSEMBLY, Oil	1	-B1A,-D1A,-D1B,-G1A
	LW-12029	SUMP ASSEMBLY, Oil	1	-F1A
3	STD-8	WASHER, Plain, 1/4 in.	29	-F1A
4	STD-160	WASHER, Internal lock, 1/4 in.	18	-F1A
5	STD-9	NUT, Plain, 1/4-28	18	-F1A
	AN4-13A	BOLT, 1/4-28 x 1-13/32 in. long	11	-F1A
	STD-1392	PLUG, 0.268 to 0.269 dia. x 5/16 in. long	1	-F1A
	STD-1353	INSERT, Heli-coil, No. 10-24 x 3/8 in. long	4	-F1A
	MS124777	INSERT, Heli-coil, 5/16-24 x 7/8 in. long	4	-F1A
	STD-1315	INSERT, Heli-coil, 1/4-28 x 1/2 in. long	4	-F1A
	STD-91	PLUG, Allen hd., 1/2-14 NPT	1	-F1A
	76305	GASKET, Oil suction screen	1	-F1A
	76306	SCREEN ASSEMBLY, Oil suction	1	-F1A
	76285	COVER, Oil suction screen	1	-F1A
	STD-8	WASHER, Plain, 1/4 in.	4	-F1A
	STD-160	WASHER, Internal lock, 1/4 in.	4	-F1A
	STD-1679	BOLT, Hex. hd., 1/4-28 x 1.00 in. long	4	-F1A
	STD-111	GASKET, 1.00 ID x 1-1/4 OD x 3/32 in. thick	1	-F1A
	69335	PLUG, 5/8 in. hex. hd., x 1.00-20 thd.	1	-F1A
	76320	GASKET, Oil sump	1	-F1A

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11	71702	TUBE, Rocker box, drain	2	All Models
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LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

OIL SUMP AND RELATED PARTS GROUP (CONT.)

13	STD-1793	HOSE, 3/8 in. ID x 1-21/32 in. long	6	All Models
14	STD-1924	CLAMP, Hose, 1/2 to 3/4 in. ID x 5/8 in. wide	12	All Models
15	AN840-10D	ADAPTER, Hose to pipe thd., 1/2 in. pipe x 5/8 in. dia. hose	2	All Models
17	73731	HOSE, Rocker box drain tube, cyl. no. 2-4-6	1	-B1A,-D1A,-D1B,-G1A
	76065	HOSE, Rocker box drain tube, cyl. no. 2-4-6	1	-F1A
18	72045	HOSE, Rocker box drain tube, cyl. no. 1-3-5	1	-B1A,-D1A,-D1B,-G1A
	76064	HOSE, Rocker box drain tube, cyl. no. 1-3-5	1	-F1A
19	STD-1640	CLAMP, Hose, 15/16 in. dia. x 1/2 in. wide	4	All Models

NOTE

Figure reference numbers 12 and 16 do not apply to subject engines

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Figure 16. Priming System

Figure reference numbers 1 thru 18 do not apply to subject engines,except as follows:

17	1102	PLUG, Allen head, 1/8-27 NPT	6	All Models
18	74376	ELBOW ASSEMBLY, Primer, 45°	1	All Models

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Figure 17. Intercylinder Cooling Baffles

1	69947	BAFFLE ASSEMBLY, Intercylinder	4	-B1A
	69947	BAFFLE ASSEMBLY, Intercylinder	4	-F1A
	69947	BAFFLE ASSEMBLY, Intercylinder	4	-D1A,-D1B,-G1A
	65614	PLUG, Baffle attaching	4	-B1A,-F1A
	STD-1687	WASHER, External lock, no. 10	4	-B1A,-F1A
	STD-1686	SCREW, Fill. hd., no. 10-32 x 7/16 in. long	4	-B1A,-F1A
2	71629	HOOK, Intercylinder baffle retainer	4	All Models
3	71611	RETAINER, Intercylinder baffle	4	All Models
	72834	COVER, Baffle ignition cable hole	4	-F1A
	STD-692	SCREW, Rd., hd., no. 10-32 x 1/2 in. long	8	-F1A
	STD-670	NUT, Self-locking, no. 10-32	8	-F1A

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Figure 18. Ignition Shielding Assembly

1	LW-11307	CABLE ASSEMBLY, Shielded, all weather harness	1	-F1A
	LW-11549	CABLE ASSEMBLY, Shielded, all weather harness	1	-B1A,-D1B
	LW-620475-1	HARNESS ASSEMBLY, Ignition	1	-D1A,-G1A
	LW-11308	CABLE ASSEMBLY, Shielded, all weather harness	1	-G1A
	LW-620475-3	HARNESS ASSEMBLY, Ignition	1	-D1B

SERVICE LEADS

LW-11944-48S90-75	LEAD ASSEMBLY, 3T-4T	2	-F1A
LW-11944-72S90-75	LEAD ASSEMBLY, 1T-2T	2	-F1A
LW-11944-48S70-75	LEAD ASSEMBLY, All bottom, 5T-6T	8	-F1A
LW-11944-48S70-75	LEAD ASSEMBLY, 1B-3B-4B-6B-5T-6T	6	-B1A,-D1B
LW-11944-48S90-75	LEAD ASSEMBLY, 2B-5B-3T-4T	4	-B1A,-D1B
LW-11944-72S90-75	LEAD ASSEMBLY, 1T-2T	2	-B1A,-D1B

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

IGNITION SHIELDING ASSEMBLY (CONT.)

10-620633-48	LEAD ASSEMBLY	6	-D1A,-G1A
10-620633-72	LEAD ASSEMBLY	6	-D1A,-G1A
LW-11944-48S70-75	LEAD ASSEMBLY, 5T-6T	2	-G1A
LW-11944-48S90-75	LEAD ASSEMBLY, 3T-4T	2	-G1A
LW-11944-72S90-75	LEAD ASSEMBLY, 1T-2T	2	-G1A
LW-11944-48S90-75	LEAD ASSEMBLY, All bottom	6	-G1A

NOTE

Harness assembly, ignition, P/N 78482 has been superseded by P/N 620475-3.

10-620633-48	LEAD ASSEMBLY	6	-D1B
10-620633-72	LEAD ASSEMBLY	6	-D1B

IGNITION HARNESS ATTACHING PARTS

76734	ZIP STRAPS	16	-F1A
76734	ZIP STRAPS	8	-B1A,-D1B
76734	ZIP STRAPS	12	-G1A
68604	CLIPS, 5/16 ID for 1/4 in. dia. screw (cushion type)	2	-F1A
68604	CLIPS, 5/16 ID for 1/4 in. dia. screw (cushion type)	3	-B1A,-D1B
68604	CLIPS, 5/16 ID for 1/4 in. dia. screw (cushion type)	4	-G1A
61385	CLIP, Ignition cable	2	-F1A
LW-12199	CLIP, 7/8 in. ID for no. 10 screw	1	-B1A,-D1B,-F1A,-G1A
STD-670	NUT, Self-locking, no. 10-32	1	-F1A
STD-670	ELASTIC STOP NUT, No. 10-32	13	-B1A,-D1B
STD-670	NUT, Self-locking, no. 10-32	8	-G1A
STD-1925	SCREW, 1/4-20 x 5/8 in. long	4	-B1A,-D1B,-F1A
STD-1925	SCREW, 1/4-20 x 5/8 in. long	5	-D1A,-D1B,-G1A
76735	BRACKET, Extension	1	-B1A,-D1B,-F1A
76735	BRACKET, Extension	2	-G1A
STD-692	SCREW, Round head, no. 10-32 x 1/2 in. long	1	-F1A
STD-692	SCREW, Round head, no. 10-32 x 1/2 in. long	13	-B1A,-D1B
STD-692	SCREW, Round head, no. 10-32 x 1/2 in. long	8	-B1A,-D1B
STD-696	WASHER, Plain, thin, 1/4 in.	AR	All Models
71824	CLAMP, Rubber dip, 2-wire	3	-B1A,-D1B
71824	CLAMP, Rubber dip, 2-wire	4	-G1A
73751	CLAMP, Rubber dip, 3-wire	2	-B1A,-D1B
73751	CLAMP, Rubber dip, 3-wire	3	-G1A
73744	CLIP, 3/4 in. dia. tube	4	-B1A,-D1B
STD-28	WASHER, Plain, no. 10	4	-B1A,-D1B
72351	SCREW, Self-locking, no. 10-32	8	-B1A,-D1B
72453	CLAMP, 1-3/4 in. ID with 11/32 in. offset	6	-B1A,-D1B
STD-553	SCREW, No. 6-32 x 1/2 in. long	6	-B1A,-D1B
AN365-632C	NUT, Self-locking, no. 6-32	6	-B1A,-D1B
73152	BRACKET, Support clamp	6	-G1A
STD-1686	SCREW, Fill. hd., no. 10-32 x 7/16 in. long	1	-G1A
STD-1687	WASHER, External lock, no. 10	1	-G1A
65614	PLUG, Attaching, no. 10-32	1	-G1A

NOTE

Pages 53, 55, 57 and 59 are not applicable to subject engines, except for figure reference number 29 on page 59.

29	1182-Y3	SPARK PLUG, Champion RHB-36P	12	All Models
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Figure 22. Turbocharger Installation

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

TURBOCHARGER EXHAUST SYSTEM

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Figure 23. Turbocharger Exhaust System

1	72906	MANIFOLD AND PIPING ASSEMBLY	1	-B1A
	76518	MANIFOLD AND PIPING ASSEMBLY	1	-D1A,-D1B,-F1A,-G1A
5	76525	STRAP, Clamp exhaust pipe	1	All Models
8	AN3C-4A	BOLT, No. 10-32 NF-3 x 17/32 in. long	2	All Models
9	AN960-C10	WASHER, Flat, no. 10	2	All Models
10	MS20500-1032	NUT, Self-locking, no. 10-32	2	All Models
14	LW-10153	PIPE, Exhaust, cyl. no. 1-2-5 and 6	4	All Models
	LW-10154	PIPE, Exhaust, cyl. no. 3 and 4	2	All Models
	72905	PIPE, Exhaust, left	2	All Models
	LW-10150	PIPE, Exhaust	1	-B1A
	LW-10149	PIPE, Exhaust	1	-D1A,-D1B,-F1A,-G1A
	LW-10151	PIPE, Exhaust	1	All Models
16	LW-12093-5	COUPLING, V-band	1	All Models
17	78084	GASKET, V-band	1	All Models
18	76520	TRANSITION ASSEMBLY, Waste gate	1	-D1A,-D1B,-F1A,-G1A
23	LW-11205	SUPPORT, Turbocharger	1	-D1A,-D1B,-F1A,-G1A
	LW-11206	BRACKET, Turbocharger	1	-D1A,-D1B,-F1A,-G1A
24	78140	BAFFLE, Turbocharger heat from accy. housing	1	-F1A

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Figure 24. Density Controller and Bypass Valve

1	74423-1	CONTROLLER, Density	1	-B1A
	74423-2	CONTROLLER, Density	1	-D1A,-D1B
	74423-3	CONTROLLER, Density	1	-F1A,-G1A
4	AN833-6D	ELBOW, Flared tube bulkhead, Universal 90°	2	-B1A
	AN833-6D	ELBOW, Flared tube bulkhead, Universal 90°	1	All Models
5	AN924-6D	NUT, Flared tube bulkhead, Universal fitting	2	All Models
7	73321	HOSE ASSEMBLY, Bypass valve to controller	1	-B1A
	73320	HOSE ASSEMBLY, Bypass valve to controller	1	-D1A,-D1B,-F1A,-G1A
9	74422	VALVE, Exhaust bypass	1	-B1A
	76649-1	VALVE, Exhaust bypass	1	-D1A,-D1B,-F1A,-G1A
10	LW-12093-6	COUPLING, V-band, 2-1/4 in. OD tube	2	All Models
	75845	GASKET, V-band coupling, 2-1/4 OD tube	2	All Models
11	75608	FLANGE, V-band coupling, 2-1/4 in. OD tube	1	All Models
12	73783	HOSE, 3.00 in. ID (turbo to carb. adapter)	1	-B1A
	75330	HOSE, 2-1/2 in. ID (turbo to carb. adapter)	1	-D1A,-D1B,-F1A,-G1A
13	AN737W114	CLAMP, 3-1/8 to 3-9/16 ID x 9/16 in. wide	2	-B1A
	STD-1241	CLAMP, 2-13/32 to 3-9/32 ID x 9/16 in. wide	2	-D1A,-D1B,-F1A,-G1A

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Figure 25. Turbocharger, Check Valve and Turbo Support

1	77824	TURBOCHARGER (T-1108)	1	-B1A
	75225	TURBOCHARGER (TE-0659)	1	-D1A,-D1B,-F1A,-G1A
2	AN6-12A	BOLT, Hex. hd., 3/8-24 x 1-21/64 in. long	4	-B1A
	AN6C-11A	BOLT, Hex. hd., 3/8-24 x 1-13/64 in. long	4	-D1A,-D1B,-F1A,-G1A

NOTE

AN960C-616 washer employ a max. of 8 pieces to eliminate bottoming bolt in nut. Applicable to all models. Figure reference numbers 3, 4 and 5 are no longer required.

6	STD-1932	BUSHING REDUCER, 1/4 in. NPT to 1/8 in. NPT	1	All Models
	1102	PLUG, Allen head, 1/8-27 NPT	1	-B1A
	STD-405	PLUG, Sq. hd., drilled, 1/8-27 NPT	1	All Models

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

TVO-435-B1A,-D1A,-D1B,-F1A,-G1A

TURBOCHARGER, CHECK VALVE AND TURBO SUPPORT (CONT.)

NOTE

The various turbo support installations that differ from PC-110 are listed under Page 61, figure reference number 23. Attaching parts are listed below.

8	STD-8	WASHER, Plain, 1/4 in.	1	-B1A
	AN4-5A	BOLT, 1/4-28 UNF-3B	2	-D1A,-D1B,-F1A,-G1A
	AN936-A416	LOCKWASHER, 1/4 in.	2	-D1A,-D1B,-F1A,-G1A
	AN315-4R	NUT, 1/4-28 UNF-3B	2	-D1A,-D1B,-F1A,-G1A
11	76738	CHECK VALVE ASSEMBLY	1	-B1A
	76521	CHECK VALVE ASSEMBLY	1	-D1A,-D1B,-F1A,-G1A
	73377	CHECK VALVE ASSEMBLY	1	-B1A
12	73348	BOLT, Allen hd., 3/8-16 NC-3 x 3/4 in. long	2	-B1A,-F1A
	76932	BOLT, Allen hd., 3/8-16 NC-3 x 3/4 in. long	2	-D1A,-D1B,-G1A
13	73775	GASKET, Check valve	1	-B1A
	75731	GASKET, Check valve	1	-D1A,-D1B,-F1A,-G1A
14	AN912-2D	BUSHING REDUCER, 3/8 pipe to 15/64 pipe	1	All Models
15	AN823-6D	ELBOW, 3/8 in. flared tube coupling, 45°	1	-B1A
	76023	ELBOW, 3/8 in. flared tube coupling, 45°	1	-D1A,-D1B,-F1A,-G1A
	AN816-6	NIPPLE, Flared tube and pipe thread	1	-B1A
16	73320	HOSE ASSEMBLY, Engine to check valve	1	-B1A
	75667	HOSE ASSEMBLY, Engine to check valve	1	-D1A,-D1B,-G1A
	75949	HOSE ASSEMBLY, Engine to check valve	1	-F1A
17	73325	ELBOW, Turbocharger oil outlet	1	-B1A
	76522	ELBOW, Turbocharger oil outlet	1	-D1A,-D1B,-G1A
	LW-12176	ELBOW, Turbocharger oil outlet	1	-F1A
18	73779	BAFFLE, Turbocharger heat, inner	1	-B1A
20	STD-1592	BOLT, Hex. hd., 3/8-16 NC-3 x 3/4 in. long	2	All Models

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21	73782	GASKET, Turbocharger oil outlet	1	-B1A
	75356	GASKET, Turbocharger oil outlet	1	-D1A,-D1B,-F1A,-G1A
	STD-1928	SEAL-WIRE (To seal density controller)	1	All Models
22	AN844-12D	ELBOW, Pipe thread and hose, 45°	1	-B1A,-D1A,-D1B,-G1A
23	73781	HOSE, 3/4 in. ID x 2-1/2 in. long	2	-B1A,-D1A,-D1B,-G1A
24	AN737TW38	CLAMP, 15/16 in. ID to 1-3/16 in. dia. x 9/16 in. wide	4	-B1A,-D1A,-D1B,-G1A
25	73641	TUBE, Turbocharger oil drain	1	-B1A
	76523	TUBE, Turbocharger oil drain	1	-D1A,-D1B,-G1A
	73671	TEE, Turbocharger oil drain	1	-B1A,-D1A,-D1B,-G1A
	76524	BAFFLE, Turbocharger oil outlet	1	-D1A,-D1B,-G1A

NOTE

The following parts are not listed in PC-110 but are applicable to all subject engines.

74266	STRAP, Exhaust manifold	1	All Models
STD-8	WASHER, Plain, 1/4 in.	2	All Models
STD-160	WASHER, Internal lock, 1/4 in.	1	All Models
STD-473	SCREW, Hex. hd., 1/4-28 x 5/8 in. long	1	All Models

NOTE

Cylinder, Piston and Ring Kits are available as follows for all models:

Chrome cylinders with plain piston rings - Avco Lycoming P/N's 76490, 76490-A.

Nitrided cylinders with chrome piston rings - Avco Lycoming P/N's 76491, 76491-A.

NOTE

Kits with Avco Lycoming P/N's employing an "A", come with heavy piston pin 77857(1) and 77856 plugs (2). These are interchangeable in engine sets only. See Avco Lycoming Service Bulletin No. 316.

SUPPLEMENTAL PARTS LIST

(supersedes supplemental parts list, dated February 28, 1966)

FOR

VO-435-B1A and VO-435-A1F

Helicopter Engines

This supplement provides parts application data on model VO-435-B1A engines and additional information on service replacements for the model VO-435-A1F engines that have occurred since publication of the VO-435 and TVO-435 Parts Catalog.

The parts usage for the VO-435-B1A is the same as for the model VO-435-A1F with the following exceptions:

Qty. per Engine	Nomenclature	VO-435-A1F	VO-435-B1A
1	Crankcase Assembly	76227 instead of 73697	76227 instead of 73697
4	Dowel, Crankcase thru stud	75302	75302
12	Plunger Assembly, Hydraulic tappet	76289 instead of 72876	76289 instead of 72876
	Seal, Oil	72075(4) instead of 72075(8)	72075(4) instead of 72075(8)
1	Crankshaft Assembly	72469 instead of 70433	72469 instead of 70433
12	Bolt, Connecting rod	74667 instead of 60007	74667 instead of 60007
12	Nut, Connecting rod	74646 instead of 71950	74646 instead of 71950
6	Piston	75984	76172
6	Cylinder Assembly, nitrided (long reach plugs)		76662
12	Insert, Spark plug (long reach)		69260P10
48	Screw (rocker box cover assemblies)	STD-1925 instead of STD-1826	STD-1925 instead of STD-1826
6	Plate, Spark plug caution	74494	74494
1	Hose, Rocker box drain tube, cylinder 2-4-6	73731	76065
1	Hose, Rocker box drain tube, cylinder 1-3-5	72045	76064
6	Gasket, 2 bolt flange, 1-7/8 in. ID	71973 instead of 60131	71973 instead of 60131
1	Gasket, Oil sump (crankcase cover assy.)	68172	76740
1	Cover Assembly, Crankcase	73917	76739
1	Housing Assembly, Accessory	70406	76034
1	Regulator, 12 volt, full transistor voltage		74291
1	Relay, Overvoltage, 12 volt		74661
1	Ring, Oil seal		72312
1	Gage Assembly, Oil		76345
2	Gasket, Magneto		73820
1	Magneto, S6LN-1208, retard		75455
1	Magneto, S6RN-1209		75554
4	Clamp, Magneto		75965
1	Gasket, Hydraulic pump		20415
1	Cover, Hydraulic Pump		72412
1	Elbow Assy., Primer		74376
6	Plug (assemble in cylinder heads)		1102
4	Cover, Baffle ignition cable hole		72834
8	Screw		STD-692
8	Nut		STD-670
1	Cable Assembly, Shielded all weather harness		76749
12	Spring and eyelet assembly		72262
12	Terminal		72263
12	Grommet		76718
12	Spring Assembly		72250
12	Ferrule		76719
12	Nut		76720
4	Elbow		76721
8	Elbow		76722

Qty. per Engine	Nomenclature	VO-435-A1F	VO-435-B1A
468'	Cable		76723
48"	Sleeve, Ignition cable (5MM)		76724
408'	Sleeve, Ignition cable (5MM)		76725
12	Inner Sleeve, Shield terminal braid con- fining (5MM)		76726
12	Inner Sleeve, Shield terminal braid con- fining (5MM)		76727
12	Sleeve, Shield terminal (5MM)		76728
12	Ring		76729
2	Plate		76072
2	Grommet, Distributor, 6 cyl. (5MM)		76750
2	Ventilator, Plug		76732
11	Zip, Strap		76734
2	Clip		68604
2	Clip		61385
1	Clip		72162
1	Bracket, Extension		76735
12	Spark Plug		1182-Y3 (long reach)
12	Spark Plug		1182-A4 (long reach)

ACCESSORY DRIVE PARTS

The following parts are applicable to the VO-435-B1A engines only. See Figure 1, Page 3 for detail part illustrations.

Ref. No.	Part No.	Nomenclature	Qty. per Engine
1-1	76338	Pump Assembly, Oil	1
2	76317	Body Assembly, Oil pump	1
3	68466	Bushing, Oil drive shaft	1
4	STD-394	Dowel	1
5	25D-11	Stud, Drilled end	4
6	STD-1315	Insert, Heli-Coil	2
7	76316	Cover Assembly, Oil pump body	1
8	76315	Bushing, Oil pump drive shaft	1
9	STD-394	Dowel	1
10	76269	Shaft, Oil pump idler	1
11	66145	Dowel	2
12	AN381-4-22	Pin, Cotter	1
13	76267	Shaft, Hydraulic or oil pump	1
14	61297	Impeller, Oil pressure pump driving	1
15	68404	Impeller, Oil pressure pump driven	1
16	STD-1973	Key, Woodruff	1
17	76274	Gear, Oil pressure pump	1
18	STD-61	Nut, Slotted shear	1
19	STD-713	Pin, Cotter	1
20	STD-8	Washer, Plain	4
21	STD-43	Nut, Slotted shear	4
22	76321	Gasket, Oil pump	1
23	STD-208	Seal, Oil	1
24	AN763-16	Gasket, Oil pump outlet flange	2
25	76322	Flange, Oil pump outlet	1
26	76015	Ring, Oil seal	1
27	76329	Cover, Oil pump outlet flange	1
28	STD-425	Washer, Plain	4
29	STD-1896	Screw, Fill, hd. drilled head	4
30	STD-1411	Nut, Plain	4
31	STD-160	Washer, Internal lock	12
32	STD-8	Washer, Plain	14
33	76816	Plate, Starter retaining	1
34	76815	Stud, Starter retaining plate	2
35	75787	Starter Motor Assy. (12 volt-Prestolite) (MZ-4208)	1

Ref. No.	Part No.	Nomenclature	Qty. per Engine
36	STD-9	Nut, Plain	10
37	76841	Coupling Assy., Starter slip	1
38	76839	Shaft, Bendix drive, slip coupling	1
39	74245	Coupling, Bendix drive	1
40	76842	Coupling, Starter slip	1
41	76528	Gear Assy., Starter slip coupling	1
42	76835	Bushing, Slip coupling gear	1
43	STD-1025	Key	1
44	76836	Washer, Thrust slip coupling	1
45	73051	Pin	1
46	75237	Washer, Thrust	1
47	76838	Plate, Grease retaining, starter	1
48	76830	Housing Assy., Starter drive	1
49	25-12	Stud	3
50	STD-514	Dowel	2
51	STD-1230	Bolt	1
52	76049	Drive Assembly, Starter	1
53	75541	Adapter Assembly, Starter drive	1
54	75852	Bushing, Flanged	2
55	STD-859	Dowel	2
56	69286	Annulus, Oil seal	1
57	76311	Shaftgear, Starter drive	1
58	76313	Gear, Starter drive	1
59	75851	Spacer, Starter drive gear	1
60	75843	Nut, Crimp lock	1
61	STD-1004	Ring, Oil seal	1
62	MS28775-147	Ring, Oil seal	1
63	STD-35	Washer, Plain	4
64	STD-475	Washer, Internal lock	4
65	STD-37	Nut, Plain	4
66	76333	Bushing, Flanged	1
67	75162	Bushing	1
68	75467	Coupling Assembly, Magneto	1
69	69565	Sleeve, Magneto drive shaft	1
70	76339	Bushing, Oil pump drive (inner)	1
71	76034	Housing Assy. Accessory	1
72	75757	Bushing, Accessory drive	1
73	76294	Shaft, Accessories drive quill	1
74	76004	Plate, Accessory drive gear thrust	1
75	76342	Bearing, Accessory drive gear	1
76	76327	Gear and Shaft Assy. Accessory drive	1
77	76323	Dowel	3
78	76324	Lockplate, Accessories drive	3
79	AN4-4A	Bolt, Hex. hd.	6
80	STD-91	Plug, Allen head	1
81	STD-1392	Plug	1
82	1540	Plug, Thermometer well	1
83	STD-294	Gasket, Annular	1
84	STD-1353	Insert, Helicoil	4
85	67940	Nut, Oil relief crown	1
86	STD-351	Gasket, Annular	2
87	662	Nut, Relief valve adjusting lock	1
88	71226	Screw, Oil relief valve adjusting	1
89	68542	Spring, Oil pressure relief valve	1
90	67981	Plunger, Oil relief	1
91	68473	Sleeve, Oil relief valve	1
92	AN763-16	Gasket, Oil inlet flange	1
93	76329	Cover, Oil pump outlet flange	1
94	STD-425	Washer, Plain	4
95	STD-1566	Screw, Fill. hd. drilled head	4
96	70460	Washer, Oil filter assembly	1
97	72785	Oil Filter Assembly	1
98	AN900-28	Gasket, Copper asbestos	1
99	71774	Cover, Oil filter	1
100	76340	Gasket, Oil suction tube	1
101	76307	Tube Assembly, Oil suction	1

Ref. No.	Part No.	Nomenclature	Qty. per Engine
102	STD-1431	Screw, Hex. hd. dr. hd.	2
103	76320	Gasket, Oil sump	1
104	76331	Sump Assembly, Oil	1
105	STD-1315	Insert, Helicoil	4
106	MS124777	Insert, Helicoil	4
107	76305	Gasket, Oil suction screen	2
108	76306	Screen Assembly, Oil suction	1
109	76285	Cover, Oil suction screen	1
110	STD-8	Washer, Plain	4
111	STD-160	Washer, Internal lock	4
112	STD-1679	Bolt, Hex. hd.	4
113	STD-111	Gasket	1
114	69335	Plug, Hex. hd.	1
115	76319	Gear, Tachometer drive	1
116	76332	Lockplate	2
117	STD-707	Screw	4
118	76330	Shaftgear Assy., Tachometer drive	1
119	76022	Shim, Tachometer adapter	1
120	76021	Gasket, Tachometer adapter	2
121	76314	Adapter, Tachometer	1
122	61165	Seal, Tachometer drive oil	1
123	STD-8	Washer, Plain	2
124	STD-160	Washer, Internal teeth	2
125	STD-9	Nut, Plain	2
126	76279	Gear, Magneto	1
127	76300	Washer, Magneto drive shaftgear	1
128	MS16624-137	Ring, External retainer, 1-3/8 in. dia. shaft	1
129	76833	Shaft Assembly, Magneto drive	1
130	69565	Sleeve, Magneto drive shaft	1
131	76337	Shaft, Magneto drive idler	1
132	76016	Ring, Oil seal	1
133	STD-160	Washer, Internal lock	1
134	STD-9	Nut, Plain	1
135	76057	Gear Assy., Magneto drive idler	1
136	76334	Bushing	1
137	STD-19	Dowel	1
138	76336	Washer, Thrust, magneto idler shaft	1
139	MS16624-37	Ring, External retainer, 3/8 in. dia. shaft	1
140	76091	Gear, Vacuum pump drive	1
141	76283	Shaft, Vacuum and magneto and pump gear	1
142	MS16624-175	Ring, External retaining, 1-3/4 in. dia. shaft	1
143	77401	Shaft, Alternator drive	1
144	76012	Adapter, Alternator shaft	1
145	76017	Nut, Alternator shaft	1
146	76092	Washer, Alternator shaft	1
147	76020	Gasket, Alternator	1
148	76341	Alternator, 12 volt - 70 amp	1
149	STD-35	Washer, Plain	4
150	STD-475	Washer, Internal lock	4
151	STD-37	Nut, Plain	4
152	76001	Bushing, Oil pump drive	1
153	76308	Shaft, Oil, vacuum, hydraulic pump drive	1
154	76280	Gear, Vacuum, hydraulic pump drive	1
155	STD-1973	Key, Woodruff	2
156	MS16624-59	Ring, External retaining, 19/32 in. dia. shaft	3
157	76274	Gear, Oil pressure pump	1
158	76047	Washer, Thrust, oil pump drive shaft	1
159	STD-1708	Seal	1

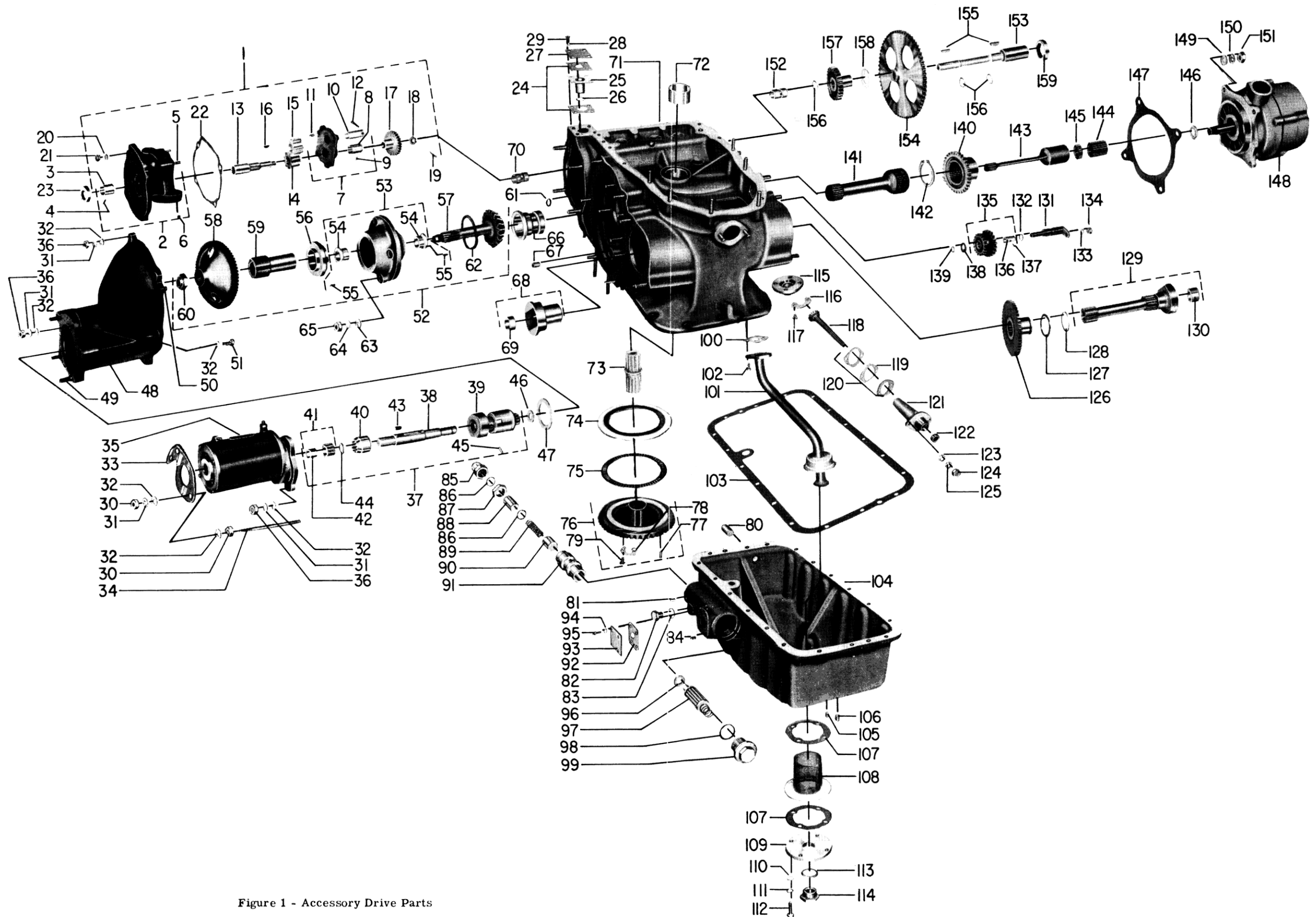
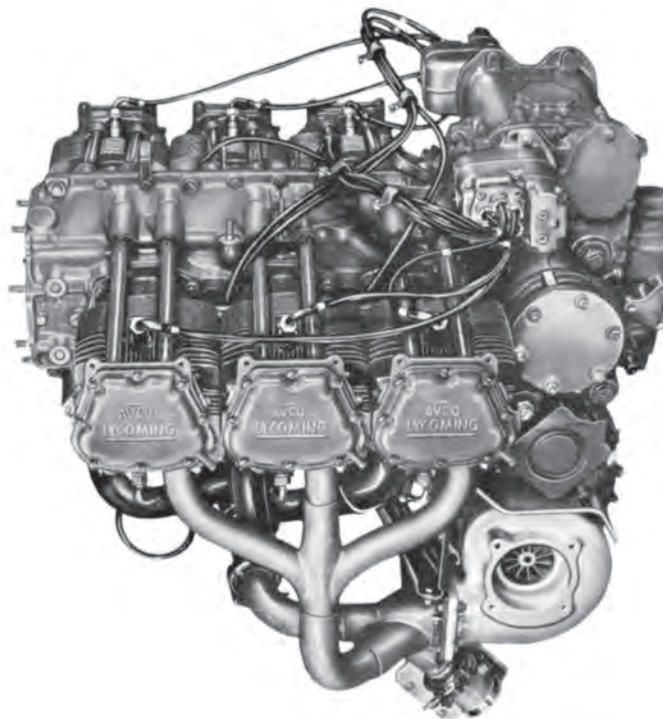


Figure 1 - Accessory Drive Parts

Lycoming Aircraft Engines Parts Catalog



VO-435 and TVO-435 Series Helicopter Engines

LYCOMING

WARRANTY

Lycoming Division - AVCO Corporation warrants each new engine to be free from defects in material and workmanship, when properly installed and used under normal conditions, for ninety days after the shipment of each engine from the plant or one hundred hours of operation, whichever event takes place sooner. This warranty is limited to replacing or repairing at its shops any part or parts which have been returned to Lycoming Division - AVCO Corporation, with transportation charges prepaid and which, in its opinion, are defective, and Lycoming shall have no responsibility for any consequential damages. This warranty is expressly in lieu of all other warranties and representations, expressed or implied, and all other obligations or liabilities on the part of Lycoming Division - AVCO Corporation.

This warranty does not cover any labor charges for replacement of parts, adjustments, repairs or any other work done on Lycoming engines.

This warranty shall not apply to any engine which shall have been repaired or altered outside of our factory in any way so as in our judgment to affect its operation, or which has been subject to misuse, negligence or accident, or which shall have been operated at a speed exceeding the manufacturer's rated speed.

This warranty shall not apply to any engine which shall have been operated with any other than fuel, oil and other lubricants conforming to specifications of Lycoming Division - AVCO Corporation.

Lycoming Division - AVCO Corporation, reserves the right at any time to revise, modify or change the construction of Lycoming engines without incurring any obligation to incorporate such alterations to engines previously sold.

Lycoming Division - AVCO Corporation, makes no warranty with respect to ignition apparatus, carburetors, fuel injectors, turbochargers, waste gate controllers, generators, starters, voltage regulators or other trade accessories, inasmuch as they are usually warranted specially by the respective manufacturer, and all such items are sold "as is".

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

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LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

INTRODUCTION

1. GENERAL.

This Illustrated Parts Catalog, lists, describes and illustrates all procurable parts for the Lycoming Model VO-435 and TVO-435 Series Helicopter Engines listed herein. These engines are low compression, six cylinder, horizontally opposed, direct drive, dry sump, air cooled with side mounted accessory drives. The VO-435-A1F and TVO-435 Series engines are internally piston cooled and in addition, the TVO-435 Series engines are turbocharged.

2. MODEL EXPLANATION SECTION.

This section provides information which will familiarize the user with the various models in this publication. This information - relating to accessories, accessory drives and major components - is listed under individual model headings.

3. GROUP ASSEMBLY PARTS LIST.

The Group Assembly Parts list divides the equipment into various groups of assemblies and related parts; however, this grouping bears no relationship to the order of assembly or disassembly of the engine. Each parts group listing is accompanied by an exploded view illustrating the parts listed and showing their relationship to each other. The illustrations are adjacent to each parts group.

The "Ref. No." column provides the necessary cross reference between the parts listing and the applicable illustration.

The "Part Number" column indicates the Lycoming, AN or vendor part number. In cases where vendor items have an equivalent Lycoming part number, the Lycoming number will appear in this column and the vendor part number and reference to the vendor and vendor part will be made in the description column. Details of certain vendor items do not have an equivalent Lycoming number; in these instances the vendor number will appear in the part number column.

The "Description Column" provides the basic noun name together with descriptive or dimensional information required to completely describe the part. The descriptions are indented under the numbered subcolumn headings to show the relationship of the parts to assemblies or subassemblies. Non-procurable parts such as a crankcase half, cylinder barrel or unstudded housings are not listed. The NOTES appearing in the description column contain pertinent service information and reference should be made to the contents before ordering parts. References to Lycoming Service Bulletins, Letters and Instructions should be carefully observed.

The "QTY. Per Eng." column indicates the number required for each engine at that particular location only and is not to be construed to mean quantity for the complete engine.

The "Model Usage" column is utilized to reflect the application of parts to specific engine models. Parts listed with no "Model Usage" indicated, apply to all the engine models covered by the particular Illustration and Group Listing. These models appear above the Illustration title as well as precede the first "Ref. No." of each Group.

4. NUMERICAL INDEX PARTS SECTION.

This section consists of an alpha-numerical arrangement of all assemblies and detail parts in the Group Assembly Parts List.

In the "Figure and Reference Number" column, the digits preceding the dash refer to the figure in the Group Assembly Parts List on which a part or assembly is illustrated. The digits following the dash are the assigned reference numbers of parts or assemblies.

The "Part Number" column in paragraph (3) also applies to the "Numerical Index Parts Section".

The "Description" column provides the basic noun only.

The "QTY. Per Eng." Column in paragraph (3) also applies to the "Numerical Index Parts Section".

5. NUMERICAL OVERSIZE AND UNDERSIZE PARTS SECTION.

This section consists of a list of such parts that may be procured in sizes other than standard.

6. SERVICE REPLACEMENT SET SECTION.

This section consists of a listing of service replacement sets or kits such as seal and gasket sets of complete cylinder, piston and ring assembly kits. The individual details of these service kits are listed individually in the group assembly parts list section and may be so procured.

7. INSTRUCTIONS FOR ORDERING PARTS.

When ordering parts it is essential that the complete and correct part number and name be given. In addition it will be helpful if the engine model and serial number be provided. This information will be found on the name plate of the engine which is attached to the crankcase cover.

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

MODEL EXPLANATION SECTION

MODEL VO-435-A1B

INCLUDES FOLLOWING MAJOR COMPONENTS AND DRIVES:

"AN" Starter drive (AND-20004)
Hand crank starting (provided for at generator drive pad)
"AN" Electric tachometer drive (AND-20005)
"AN" Vacuum pump drive (AND-20000)
Provision for "AN" fuel pump drive (no drive gear furnished)
Carburetor, Manual alt. mixture control Marvel-Schebler MA-4-5)
Dual magnetos (S6LN-20, S6RN-21) 1 each - lightweight
Shielding, Ignition (lightweight)
Chrome plated cylinder barrels (Plain piston rings)
(Caustic treated cylinder heads)
Crankcase assy. (69628)
3-Pad oil sump

OPTIONAL EQUIPMENT

"AN" Fuel pump drive (AND-20003)
"AN" Generator drive (AND-20002)
Nitrided cylinder barrels (Chrome plated rings) 1/2" dia. exh. valve

MODEL VO-435-A1C

INCLUDES FOLLOWING MAJOR COMPONENTS AND DRIVES:

"AN" Starter drive (AND-20004)
"AN" Hydraulic pump drive (AND-20001)
"AN" Electric tachometer drive (AND-20005)
"AN" Vacuum pump drive (AND-20000)
"AN" Fuel pump drive (AND-20003)
Carburetor, Altitude pressure compensator (Marvel-Schebler MA-4-5AA)
Dual magnetos (S6LN-20, S6RN-21) 1 each - lightweight
Shielding ignition (lightweight)
Chrome plated cylinder barrels (plain piston rings)
(Caustic treated cylinder heads)
Crankcase assy. (70403) wrap-around type
4-Pad oil sump
Hand crank starting (provided for at generator drive pad)
Provision for "AN" fuel pump drive (no drive gear furnished)

OPTIONAL EQUIPMENT

"AN" Generator drive (AND-20002)
Nitrided cylinder barrels (Chrome plated rings) 1/2" dia. exh. valve
Shielded ignition (conduit type) AN-I-27 Spec.

MODEL VO-435-A1D

INCLUDES FOLLOWING MAJOR COMPONENTS AND DRIVES:

"AN" Starter drive (AND-20004)
Hand crank starting (provided for at generator drive pad)
"AN" Electric tachometer drive (AND-20005)
"AN" Vacuum pump drive (AND-20000)
Provision for "AN" fuel pump drive (No drive gear furnished)
Carburetor, Altitude pressure compensator (Marvel-Schebler MA-4-5AA)
Dual magnetos (S6LN-20, S6RN-21) 1 each - lightweight
Shielding ignition (lightweight)
(CONTINUED ON NEXT PAGE)

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

MODEL EXPLANATION SECTION

MODEL VO-435-A1D (Continued)

Chrome plated cylinder barrels (plain piston rings)
(Caustic treated cylinder heads)
Crankcase assy. (70403) wrap-around type
4-Pad oil sump

OPTIONAL EQUIPMENT

"AN" Hydraulic pump drive (AND-20001)
"AN" Fuel pump drive (AND-20003)
"AN" Generator drive (AND-20002)
Nitrided cylinder barrels, (Chrome plated rings) 1/2" dia. exh. valve
Shielded ignition (conduit type) AN-I-27 Spec.

MODEL VO-435-A1E

INCLUDES FOLLOWING MAJOR COMPONENTS AND DRIVES:

"AN" Starter drive (AND-20004)
Hand crank starting (provided for at generator drive pad)
"AN" Electric tachometer drive (AND-20005)
"AN" Vacuum pump drive (AND-20000)
Provision for "AN" fuel pump drive (no drive gear furnished)
Carburetor, Alt. pressure compensator (Marvel-Schebler MA-4-5AA)
Dual magnetos (S6LN-204, S6RN-200) 1 each - lightweight
Shielding ignition (lightweight)
Chrome plated cylinder barrels (Plain piston rings)
(Caustic treated cylinder heads)
Crankcase assy. (70403) wrap-around type
4-Pad oil sump

OPTIONAL EQUIPMENT

"AN" Hydraulic pump drive (AND-20001)
"AN" Fuel pump drive (AND-20003)
"AN" Generator drive (AND-20002)
Nitrided cylinder barrels (Chrome plated rings) 1/2" dia. exh. valve
Shielded ignition (conduit type) AN-I-27 Spec.

MODEL VO-435-A1F

INCLUDES FOLLOWING MAJOR COMPONENTS AND DRIVES:

"AN" Starter drive (AND-20004)
Hand crank starting (provided for at generator drive pad)
"AN" Electric tachometer drive (AND-20005)
"AN" Vacuum pump drive (AND-20000)
"AN" Fuel pump drive (AND-20003)
Carburetor, Alt. Pressure compensator (Marvel-Schebler MA-4-5AA)
Dual magnetos (S6LN-204, S6RN-200) 1 each - lightweight
Shielding ignition (lightweight)
Chrome plated cylinder barrels (plain piston rings) 1/2" dia. exh. valve
Crankcase Assy. (70403) wrap-around type
(Equipped with piston cooling oil jets.)
4-Pad oil sump

(CONTINUED ON NEXT PAGE)

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

MODEL EXPLANATION SECTION

MODEL VO-435-A1F

OPTIONAL EQUIPMENT

Nitrided cylinder barrels (Chrome plated rings) 1/2" dia. exh. valve
Priming system (single point - center zone)
"AN" Hydraulic pump drive (AND-20001)
"AN" Generator drive (AND-20002)
Shielded ignition (conduit type) AN-I-27 Spec.

MODEL TVO-435-A1A

INCLUDES FOLLOWING MAJOR COMPONENTS AND DRIVES:

"AN" Starter drive (AND-20004)
Hand crank starting (provided for at generator drive pad)
"AN" Electric tachometer drive (AND-20005)
"AN" Vacuum pump drive (AND-20000)
"AN" Fuel pump drive (AND-20003)
Carburetor, Alt. pressure compensator (Marvel-Schebler MA-6AA)
Dual magnetos (S6LN-204, S6RN-200) 1 each - lightweight
Shielding ignition (lightweight)
Chrome plated cylinder barrels (plain piston rings) 1/2" dia. exh. valve
Crankcase Assy. (70403) wrap-around type. (Equipped with piston cooling oil jets.)
4-Pad oil sump
Turbocharger, T-1108 (Ai Research)

OPTIONAL EQUIPMENT

"AN" Hydraulic pump drive (AND-20001)
"AN" Generator drive (AND-20002)
Nitrided cylinder barrels (Chrome plated rings) 1/2" dia. exh. valve
Priming system (single point - center zone)
Shielding ignition (conduit type) AN-I-27 Spec.

MODEL TVO-435-B1A

SAME AS TVO-435-A1A WITH THE FOLLOWING EXCEPTIONS:

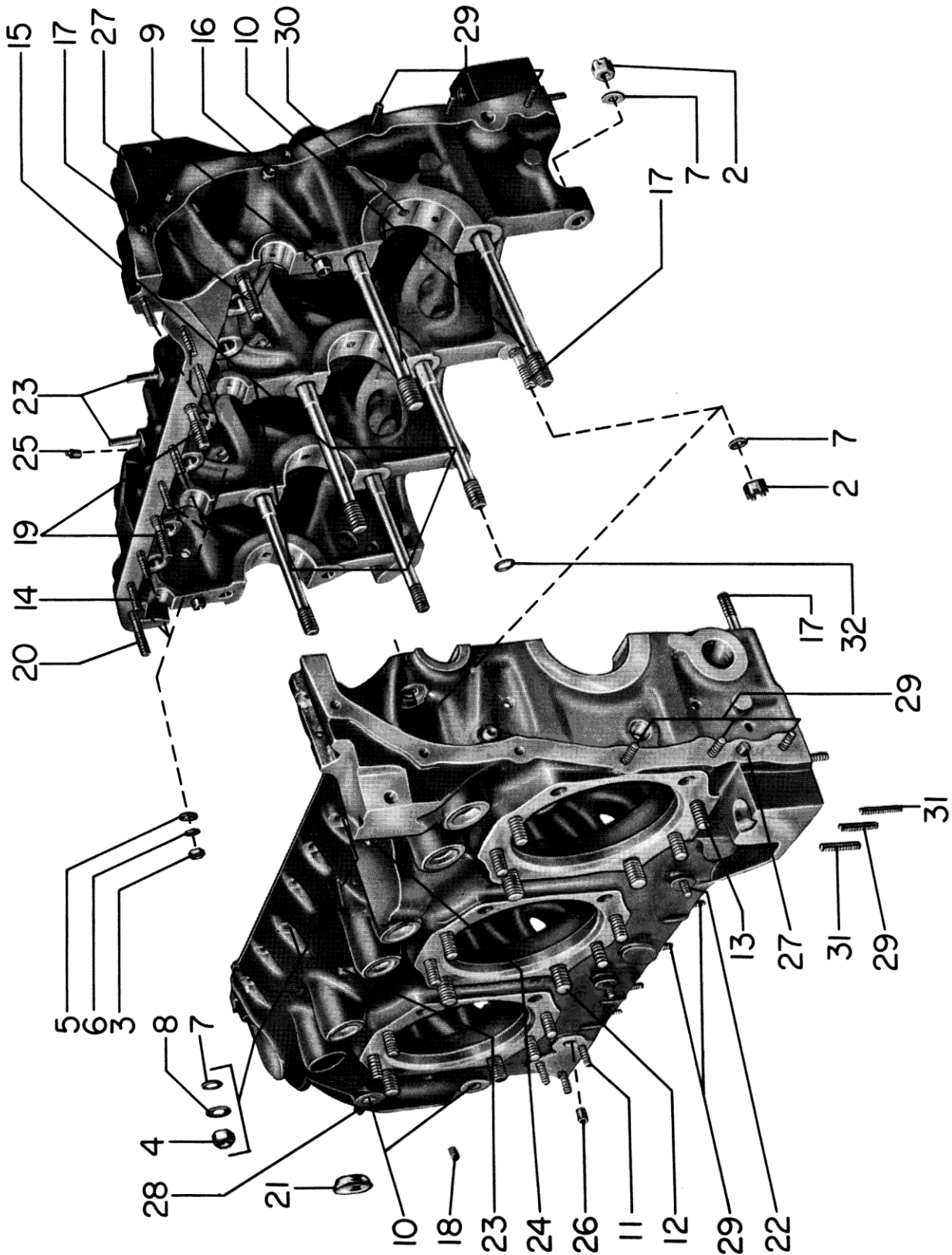
Crankshaft (without sludge tubes)
Nitrided cylinder barrels (Chrome plated rings) 1/2" dia. exh. valve
Long reach spark plugs

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 1 - CRANKCASE GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODEL - VO-435-A1B									
1-1	69628						CRANKCASE ASSEMBLY, Machining	1	
NOTE									
69628 crankcase assy. which requires either 69661 or 70293 acc. hsg. assy. is no longer available. If 69628 crankcase assy. need be replaced; service with 70403 crankcase assembly. Accessory hsg. assy. 69661 or 70293 must be modified to use with wrap-around crankcase (70403) by restudding the crankcase mating surface in the following manner: When facing the crankcase mating surface of the 69661 or 70293 acc. hsg., replace the two 25-23 studs at the 11 and 1 o'clock position with two 25-13 studs, also, replace the 25-28 stud immediately to the right of the two 25-23 studs (or at the 2 o'clock position) with a 25-12 stud. No other changes to the acc. hsgs. are required.									
CAUTION									
Only STD-1688 bolts may be used to attach the crankcase cover (68951) to the 69661 or 70293 acc. hsg. due to the use of STD-1173 inserts at this location.									
ATTACHING PARTS									
2	STD-872						NUT, Slotted, 3/8-24	4	
3	STD-9						NUT, Plain, 1/4-28	7	
4	STD-596						NUT, Plain, 3/8-24 x 21/64 in. thick	3	
5	STD-8						WASHER, Plain, 1/4 in.	7	
6	STD-160						WASHER, Lock internal teeth, 1/4 in.	7	
7	STD-33						WASHER, Plain, 3/8 in.	7	
8	STD-678						WASHER, Lock internal teeth, 3/8 in.	3	
-----*									
9	STD-557						DOWEL, Hollow, 1/2 dia. x 11/16 in. long	2	
10	66734						STUD, 1/2-13 x 9-7/8 in. long	4	
11	66990						STUD, 5/16-18 x 1-1/2 in. long	6	
12	50-15						STUD, 1/2-13 x 1-7/8 in. long	12	
13	38-13						STUD, 3/8-16 x 1-5/8 in. long	24	
14	25-13						STUD, 1/4-20 x 1-5/8 in. long	7	
15	68751						STUD, 1/2-20 x 10-21/32 in. long	4	
16	1102						PLUG, Allen, 1/8-27 NPT	4	
17	38D-19						STUD, 3/8-16 x 2-3/8 in. long	4	
18	STD-1315						INSERT, Heli-Coil, 1/4-28 x 1/2 in. long	3	
19	38-19						STUD, 3/8-16 x 2-3/8 in. long	2	
20	38-21						STUD, 3/8-16 x 2-1/2 in. long	2	
21	65007						RETAINER, Shroud tube seal	12	
22	25-8						STUD, 1/4-20 x 1.00 in. long	4	
23	31-15						STUD, 5/16-18 x 1-7/8 in. long	3	
24	38-12						STUD, 3/8-16 x 1-1/2 in. long	2	
25	STD-405						PLUG, 1/8 in. pipe, square hd. drilled	1	
26	STD-47						PLUG, Allen, 1/4 in. pipe	2	
27	69580						DOWEL, 5/16 dia. x 5/8 in. long	2	
28	69823						STUD, Drilled, 7/16-20 x 2 in. long	8	
29	25-11						STUD, 1/4-20 x 1-3/8 in. long	22	
30	67453						DOWEL, Crankshaft bearing	8	
31	25-12						STUD, 1/4-20 x 1-1/2 in. long	4	
32	72075						SEAL, Oil, 3/32 dia. section x 15/32 in. ID	8	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



CRANKCASE ASSY. REF. NO.1

MODEL VO-435-A1B

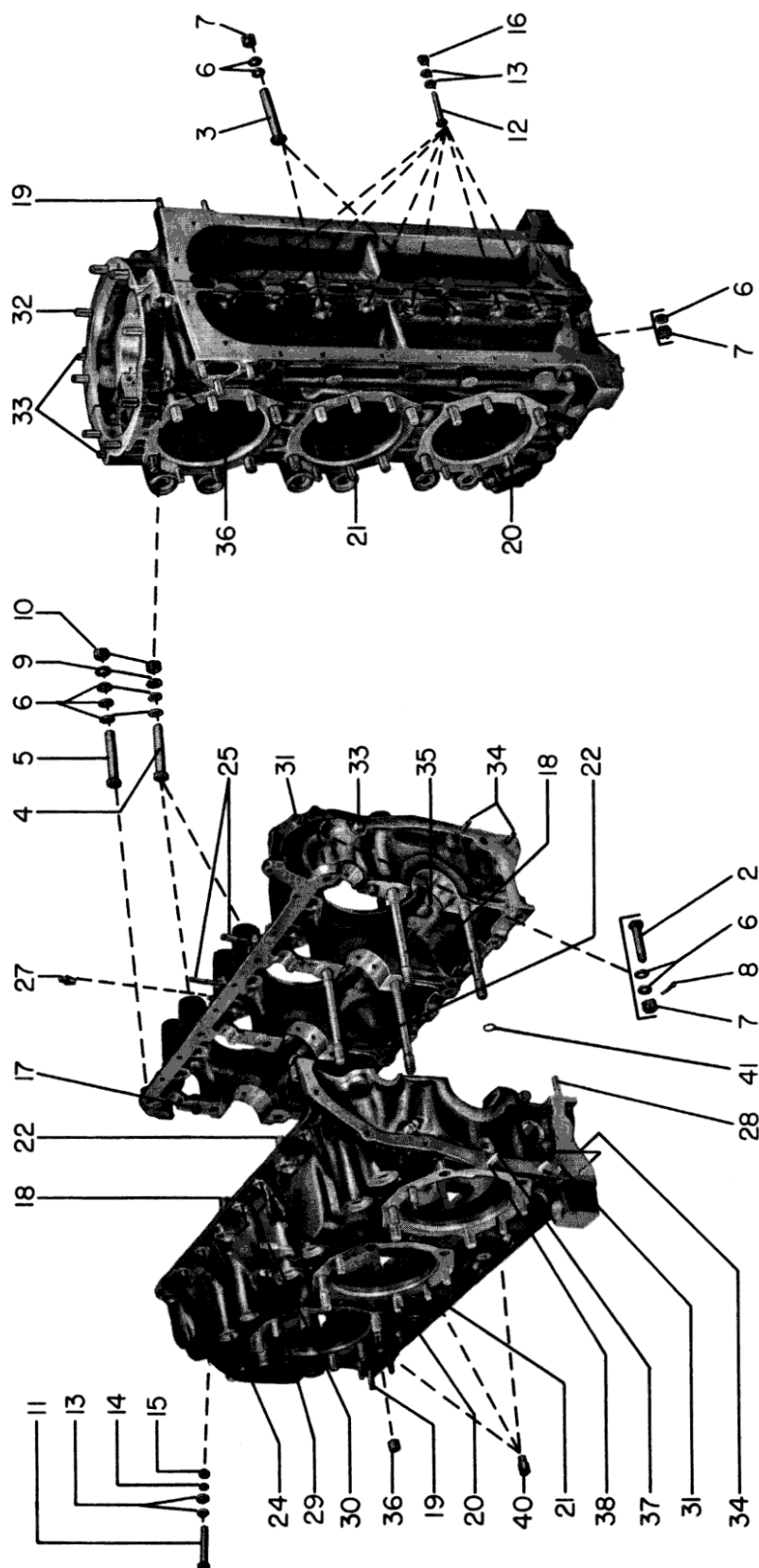
Figure 1 - Crankcase Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 2 - CRANKCASE GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1C, A1D, A1E, A1F, TVO-435-A1A AND B1A									
2-1	70403						CRANKCASE ASSEMBLY, Machining Requires use of accessory housing assemblies 70404 or 70406 unless old acc. hsg. assemblies 69661 or 70293 are reworked. See "NOTE", reference number, 1-1.	1	VO-435-A1C, A1D, A1E
1A	73697						CRANKCASE ASSEMBLY, Machining This crankcase assy. is machined for use of six (73772) piston cooling nozzle assemblies.	1	VO-435-A1F, TVO- 435-A1A, B1A
ATTACHING PARTS									
2	AN6-16						BOLT, Hex hd. dr. shank, 3/8-24 x 1-53/64 in. long	1	
3	AN6-24						BOLT, Hex. hd. dr. shank, 3/8-24 x 2-37/64 in. long	2	
4	AN6-21A						BOLT, Hex. hd., 3/8-24 x 2-13/64 in. long	3	
5	AN6-22A						BOLT, Hex. hd., 3/8-24 x 2-21/64 in. long	1	
6	STD-33						WASHER, Plain, 3/8 in.	16	
7	STD-872						NUT, Slotted, 3/8-24	4	
8	STD-713						PIN, 3/32 dia. x 3/4 in. long	1	
9	STD-678						WASHER, Shakeproof lock, 3/8 in.	4	
10	STD-596						NUT, Plain, 3/8-24	4	
11	STD-1230						BOLT, Hex. head, 1/4-28 x 1-9/32 in. long	7	
12	AN4-16						BOLT, Hex. hd., dr. shank, 1/4-28 x 1-25/32 in. long	6	
13	STD-8						WASHER, Plain, 1/4 in.	26	
14	STD-160						WASHER, Internal teeth, 1/4 in. lock	7	
15	STD-9						NUT, Plain, 1/4-28	7	
16	STD-97						NUT, Slotted, 1/4-28	6	
-----*									
17	STD-557						DOWEL, Hollow, 1/2 dia. x 11/16 in. long	2	
18	66734						STUD, 1/2-13 x 9-7/8 in. long	4	
19	66990						STUD, 5/16-18 x 1-1/2 in. long	6	
20	50-15						STUD, 1/2-13 x 1-7/8 in. long	12	
21	38-13						STUD, 3/8-16 x 1-5/8 in. long	24	
22	68751						STUD, 1/2-20 x 10-21/32 in. long 68751 stud is a detail part of 70403 crankcase assy.	4	VO-435-A1C, A1D, A1E
	69679						STUD, 9/16-18 x 10-21/32 in. long 69679 stud is a detail part of 73697 crankcase assy.	4	VO-435-A1F, TVO- 435-A1A, B1A
23	STD-1315						INSERT, Heli-Coil, 1/4-28 x 1/2 in. long	17	
24	65007						RETAINER, Shroud tube seal	12	
25	31-21						STUD, 5/16-18 x 2-5/8 in. long	2	
26	STD-740						PLUG, Slotted, 3/4 in. pipe (shipping part; not illustrated)	1	
27	STD-405						PLUG, Sq. hd. dr., 1/8-27 NPT	1	
28	38D-19						STUD, Dr., 3/8-16 x 2-3/8 in. long	1	
29	31-15						STUD, 5/16-18 x 1-7/8 in. long Replaces 31-14 stud.	1	
30	31-24						STUD, 5/16-18 x 3.00 in. long	1	
31	69580						DOWEL, 5/16 dia. x 5/8 in. long	2	
32	69823						STUD, Drilled, 7/16-14 N. Form x 2.00 in. long	8	
33	1102						PLUG, Allen, 1/8-27 NPT	4	
34	25-11						STUD, 1/4-20 x 1-3/8 in. long	4	
35	69796						DOWEL, Crankshaft bearing	8	
36	STD-783						PLUG, Allen, 1/4-18 NPT	2	
37	25-10						STUD, 1/4-20 x 1-1/4 in.	1	
38	STD-1623						INSERT, Heli-Coil, 1/4-20 x 3/8 in. long	1	
39	70338						SPACER, Breather housing (shipped lose) not illustrated	2	
40	73772						NOZZLE ASSY., Piston cooling	6	VO-435-A1F, TVO- 435-A1A, B1A
41	72075						SEAL, Oil, 3/32 dia. section x 15/32 in. ID	8	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL INSERTS ON BOTTOM AND SIDES ARE REF. NO.23
CRANKCASE ASSEMBLIES-REF. NOS. 1-1A

ALL MODELS EXCEPT VO-435-A1B

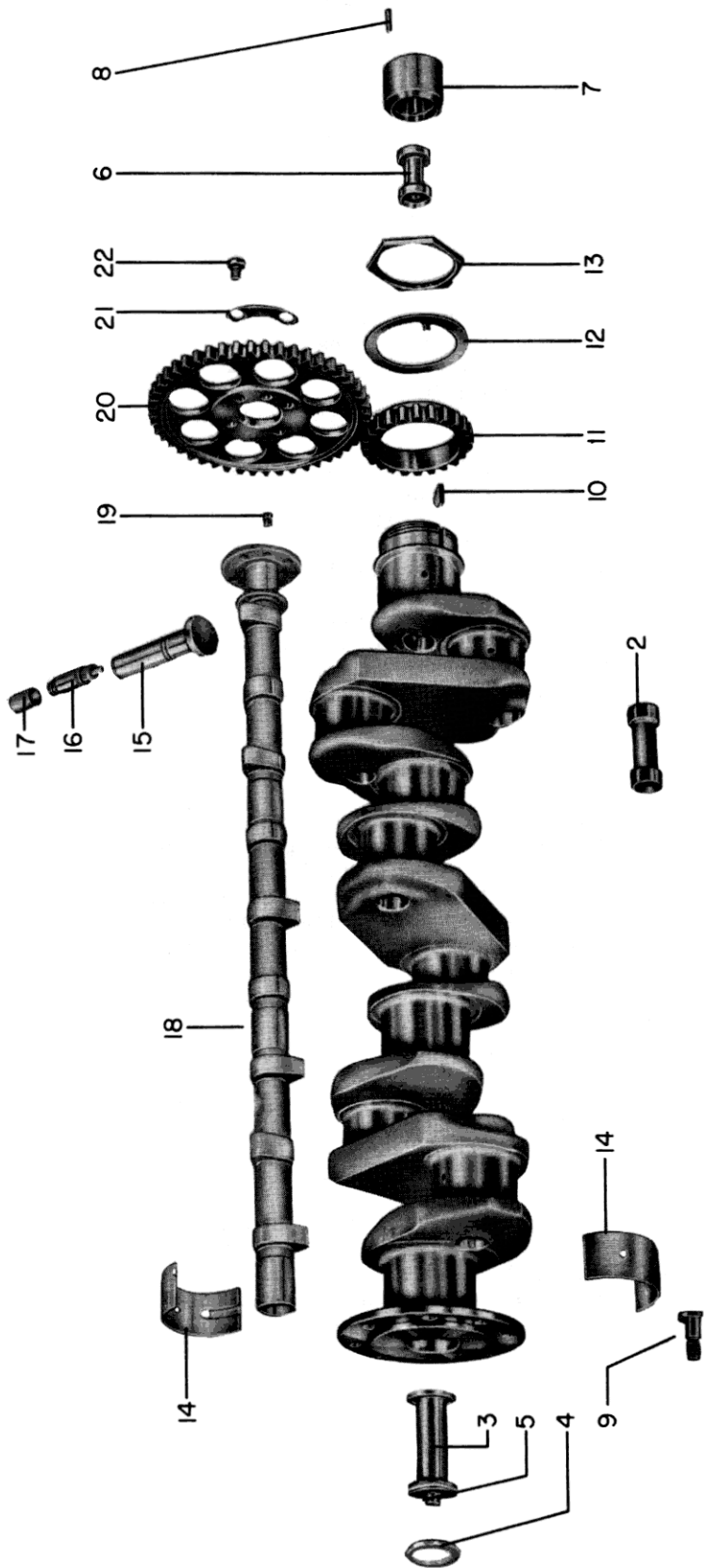
Figure 2 - Crankcase Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 3 - CRANKSHAFT AND CAMSHAFT GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A AND B1A									
3-1	69640						CRANKSHAFT ASSEMBLY No longer available; service with 70433.	1	VO-435-A1B
1A	69851						CRANKSHAFT ASSEMBLY Superseded by and service with 70433.	1	"
1B	70433						CRANKSHAFT ASSEMBLY 70433 differs from 69851 in that 70433 has a front crankshaft oil plug (72305) drilled and tapped for oil jet (70434); whereas 69851 contains a solid front crankshaft oil plug (69815) which has no provisions for an oil jet.	1	VO-435-A1B, A1C A1D, A1E, A1F, TVO-435-A1A
1C	72469						CRANKSHAFT ASSEMBLY (Bell installation) 72469 has a front crankshaft oil plug (72470) drilled and tapped for oil jet (70434). Plug (72470) requires oil seal ring (72471).	1	TVO-435-B1A
2	45226						TUBE, Crankshaft oil	6	
3	69815						PLUG, Crankshaft oil, front (solid) Detail part of 69851 crankshaft assy. only. This plug can be used in all installations except Hiller. When 69815 is exhausted; service with 72305 front oil crankshaft oil plug along with it's oil seal ring (72312).	1	VO-435-A1B
	70432						PLUG, Crankshaft oil, front Superseded by and service with front crankshaft oil plug (72305) and it's oil seal ring (72312). See Lycoming Service Bulletin No. 261.	1	VO-435-A1B, A1C, A1D, A1E
	72305						PLUG, Crankshaft oil, front 72305 and oil seal ring (72312) supersedes and is interchangeable with front crankshaft oil plug (70432) in current version of crankshaft assy. (70433). See Lycoming Service Bulletin No. 261.	1	All Models Except TVO-435-B1A
	72470						PLUG, Crankshaft oil, front Detail part of 72469 crankshaft assembly. This plug, which requires oil seal ring (72471) is drilled and tapped for oil jet (70434).	1	TVO-435-B1A
4	72312						RING, Oil seal, 1/8 dia. section x 1.00 in. ID 72312 and front crankshaft oil plug (72305) supersedes and interchangeable with front crankshaft oil plug (70432) in current version of crankshaft assy. (70433). See Lycoming Service Bulletin No. 261.	1	VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A
	72471						RING, Oil seal, 1/8 dia. section x 13/16 in. ID This ring along with front crankshaft oil plug (72470) are detail parts of 72469 crankshaft assy.	1	TVO-435-B1A
5	70434						JET, Oil Incorporated in crankshaft assemblies (70433 and 72469) only.	1	
6	69844						TUBE, Crankshaft oil, rear	1	
7	69642						BUSHING, Rear crankshaft spline Superseded by and service with 72308.	1	
	72308						BUSHING, Rear crankshaft spline Supersedes and interchangeable with 69642.	1	
8	69641						DOWEL, Rear crankshaft spline	3	
9	68965						BOLT, Crankshaft flange	8	
10	STD-858						KEY, Woodruff, 5/32 x 5/8 in.	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



COMPLETE CRANKSHAFT ASSEMBLIES (REF. NOS. 1-1A-1B-1C)

ALL MODELS

Figure 3 - Crankshaft and Camshaft Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 3 - CRANKSHAFT AND CAMSHAFT GROUP

Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
3-11	67687		GEAR, Crankshaft timing	1	
ATTACHING PARTS					
12	67204		PLATE, Crankshaft gear lock	1	
13	67688		NUT, Crankshaft gear retaining	1	
-----*					
14	67447		BEARING, Crankshaft	8	
			When supply of 67447 is exhausted; service with 68763.		
	68763		BEARING, Crankshaft (Alternate to 67447, use in pairs)	8	
15	69529		BODY, Hydraulic tappet	12	
			(Straight body, narrow seat.)		
	72877		BODY, Hydraulic tappet	12	
			(Straight body, wide seat.)		
	73061		BODY, Hydraulic tappet	12	
			(Hyperbolic body, wide seat.)		
16	71791		PLUNGER ASSY., Hydraulic tappet	12	
			(Fast leakdown, narrow seat.)		
	72876		PLUNGER ASSY., Hydraulic tappet	12	
			(Fast leakdown, wide seat.)		
NOTE					
Plunger assembly 71791 could be used only with 69529 tappet body, (these two parts are not procurable). Plunger assy. 72876 can be used with 69529, 72877 or 73061 bodies. See Lycoming Service Instruction No. 1011A for further information concerning hydraulic body and plunger assemblies.					
17	65074		SOCKET, Push rod, hydraulic tappet	12	
18	71304		CAMSHAFT ASSY.	1	
19	STD-1066		DOWEL, Stepped, .310 and .251 dia. x 13/32 in. long	1	
20	69662		GEAR, Camshaft	1	
ATTACHING PARTS					
21	66144		LOCKPLATE, 5/16 bolt x 1-21/64 in. spacing	2	
			Superseded by and service with 72078.		
	72078		LOCKPLATE, 5/16 bolt x 1-21/64 in. spacing	2	
			Supersedes and interchangeable with 66144.		
22	STD-679		SCREW, 5/16-24 x 27/64 in. long	4	
-----*					

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 4 - PISTON, PISTON RINGS AND CONNECTING ROD GROUP

Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VC-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A					
4-1	71553		PISTON, 4-ring (anodized) (Used with chrome cylinder assembly.) Superseded by 73620 (5 ring) piston beginning engine serial number 2824-31, 2827-31 and up. May be serviced with 73620 in complete sets only with associated rings.	6	VO-435-A1B, A1C, A1D, A1E
	71553		PISTON, 4-ring (anodized) (Used with chrome cylinder assembly.)	6	TVO-435-A1A, VO-435-A1F
NOTE					
Requires 2-71555, 1-68338 and 1-61824 unplated rings.					
1A	73620		PISTON, 5-ring (anodized) (Used with 72436 chrome cylinder assembly.)	6	VO-435-A1D, A1E
NOTE					
Requires 3-72944, 1-68338 and 1-61824 unplated rings. Piston (73620) supersedes and is interchangeable with piston (71553) in complete sets only, beginning engine serial number 2824-31, 2827-31 and up. A supply of 71553 is being maintained for service purposes.					
	73932		PISTON, 5-ring (anodized) (Used with 73935 nitrided, cylinder assembly)	6	VO-435-A1D, A1E, A1F, TVO-435-A1A
	73932		PISTON, 5-ring (anodized) (Used with 74218 nitrided cylinder assembly.)	6	TVO-435-B1A
2	71555		RING, Piston, top compression (plain, full wedge) (Used with piston 71553.)	12	VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A
2A	72944		RING, Piston, top compression (plain, half wedge) (Used with piston 73620.)	18	VO-435-A1D, A1E
	73933		RING, Piston, top compression (chrome, half wedge) (Used with piston 73932.)	18	VO-435-A1D, A1E, A1F, TVO-435-A1A, B1A
3	68338		RING, Piston, oil regulating, expander type (plain) (Used with piston 71553.)	6	VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A
3A	68338		RING, Piston, oil regulating, expander type (Used with piston 73620.)	6	VO-435-A1D, A1E
	73934		RING, Piston, oil regulating, expander type (Used with piston 73932.)	6	VO-435-A1D, A1E, A1F, TVO-435-A1A, B1A
4	61824		RING, Piston, scraper (Used with piston 71553)	6	VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A
4A	61824		RING, Piston, scraper (Used with piston 73620)	6	VO-435-A1D, A1E
	69322		RING, Piston, scraper (Used with piston 73932.)	6	VO-435-A1D, A1E, A1F, TVO-435-A1A, B1A
5	60403		PIN, Piston	6	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

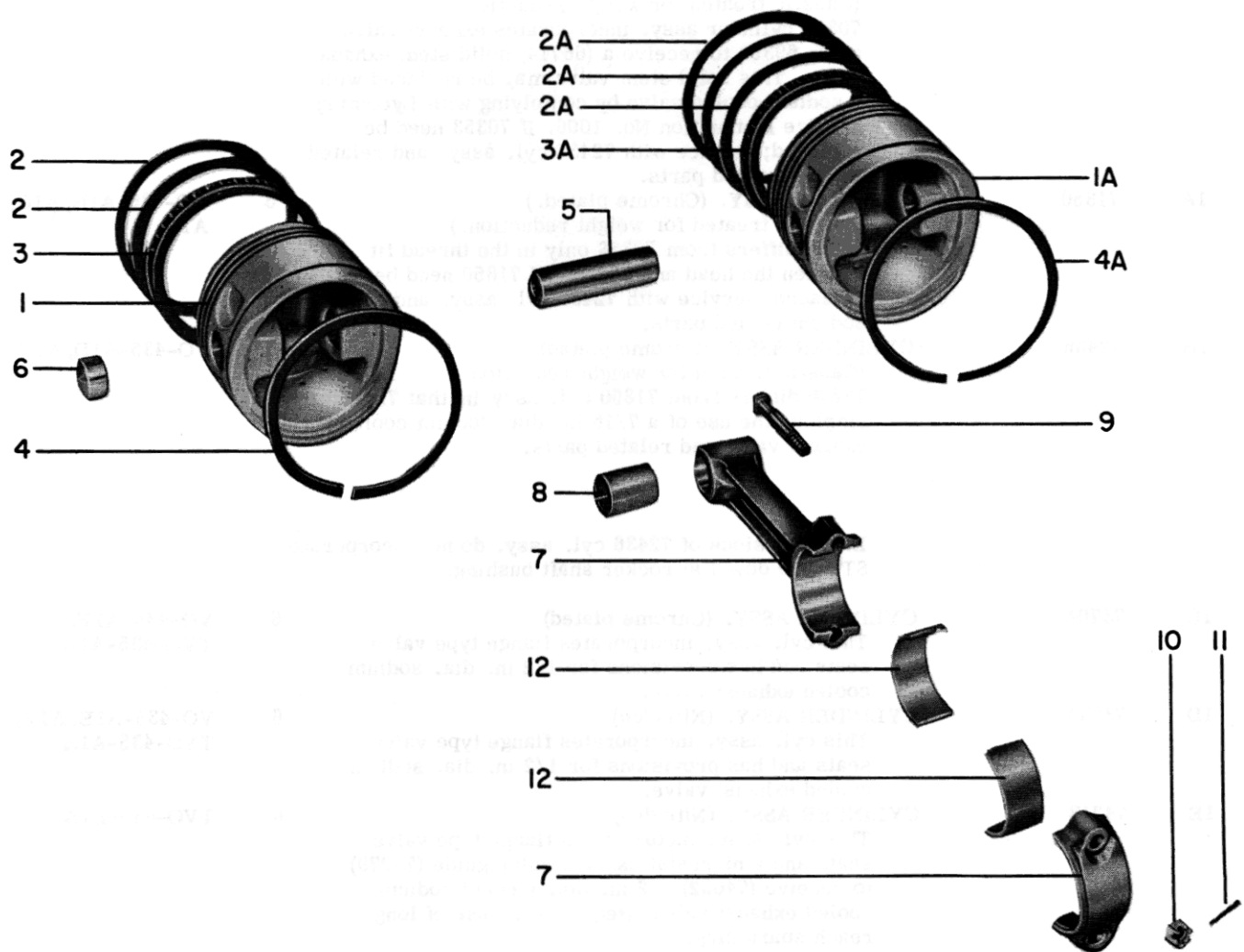
FIGURE 4 - PISTON, PISTON RINGS AND CONNECTING ROD GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
4-6	72434						PLUG, Piston pin (Superseded 60311.) See Service Letter L108A.	12	
7	67275						ROD ASSY., Connecting	6	
8	65819						BUSHING, Connecting rod, upper	6	
9	60007						BOLT, Connecting rod	12	
10	71950						NUT, Connecting rod (Supersedes and interchangeable with STD-872 at connecting rod location.)	12	
11	STD-1853						PIN, 3/32 dia. x 9/16 in. long (Supersedes and interchangeable with STD-543 cotter pin.)	12	
12	67276						BEARING, Connecting rod	12	
	72218						BEARING, Connecting rod (Alternate to 67276, use in pairs.)	12	

APPROVED CYLINDER, PISTON AND RING ASSEMBLIES

(Low Compression)		Chrome	Nitrided Steel With Half Wedge Rings	Chrome With Half Wedge Rings
VO-435-A1B, A1C, A1D, A1E	Cylinder	72436	73935	72436
	Piston	71553	73932	73620
	Top Ring	71555 pl.	73933 ch.	72944 pl.
	2nd Ring	71555 pl.	73933 ch.	72944 pl.
	3rd Ring	-----	73933 ch.	72944 pl.
	Oil Reg.	68338 pl.	73934 ch.	68338 pl.
	Scraper	61824 pl.	69322 ch.	61824 pl.
-----*				
(Low Compression)				
VO-435-A1F TVO-435-A1A	Cylinder	73704	73935	
	Piston	71553	73932	
	Top Ring	71555 pl.	73933 ch.	
	2nd Ring	71555 pl.	73933 ch.	
	3rd Ring	-----	73933 ch.	
	Oil Reg.	68338 pl.	73934 ch.	
	Scraper	61824 pl.	69322 ch.	
-----*				
(Low Compression)				
TVO-435-B1A	Cylinder		74218	
	Piston		73932	
	Top Ring		73933 ch.	
	2nd Ring		73933 ch.	
	3rd Ring		73933 ch.	
	Oil Reg.		73934 ch.	
	Scraper		69322 ch.	
-----*				

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL MODELS

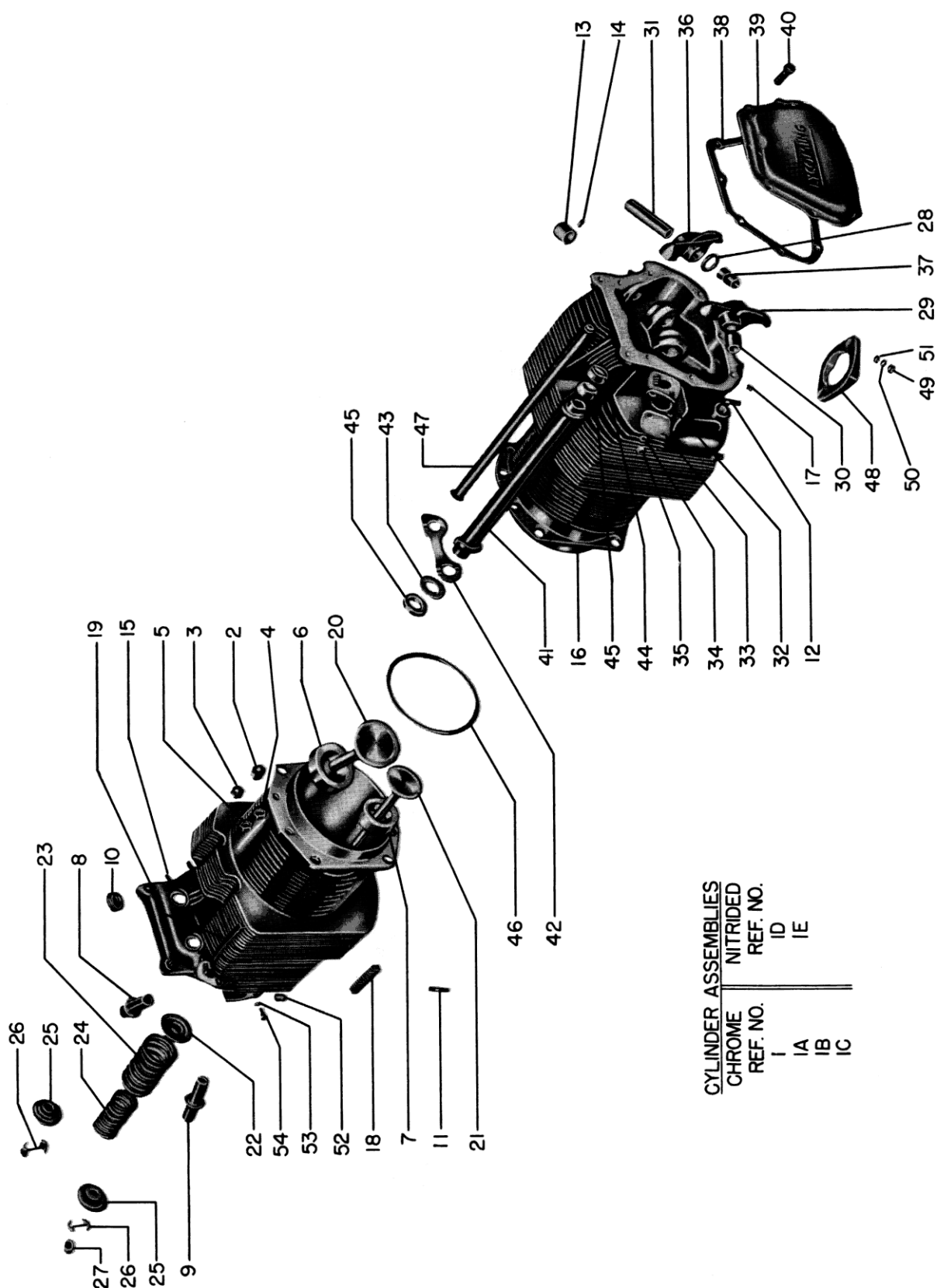
Figure 4 - Piston, Piston Rings and Connecting Rod Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 5 - CYLINDER GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A									
5-1	70353						CYLINDER ASSY. (Chrome plated) (Caustic treated for weight reduction.) 70353 cylinder assy. incorporates exhaust valve guide 69358 to receive a (66714) solid stem exhaust valve. This solid stem valve may be replaced with a sodium cooled valve by complying with Lycoming Service Instruction No. 1000. If 70353 need be replaced; service with 72436 cyl. assy. and related sodium cooled parts.	6	VO-435-A1B, A1C
1A	71850						CYLINDER ASSY. (Chrome plated.) (Caustic treated for weight reduction.) 71850 differs from 70353 only in the thread fit between the head and barrel. If 71850 need be replaced; service with 72436 cyl. assy. and related sodium cooled parts.	6	VO-435-A1B, A1C, A1D
1B	72436						CYLINDER ASSY. (Chrome plated) (Caustic treated for weight reduction.) 72436 differs from 71850 cyl. assy. in that 72436 employs the use of a 7/16 in. dia. sodium cooled exhaust valve and related parts.	6	VO-435-A1D, A1E
NOTE									
Later versions of 72436 cyl. assy. do not incorporate STD-859 dowel at rocker shaft bushing.									
1C	73704						CYLINDER ASSY. (Chrome plated) This cyl. assy. incorporates flange type valve seats and has provisions for 1/2 in. dia. sodium cooled exhaust valve.	6	VO-435-A1F, TVO-435-A1A
1D	73935						CYLINDER ASSY. (Nitrided) This cyl. assy. incorporates flange type valve seats and has provisions for 1/2 in. dia. sodium cooled exhaust valve.	6	VO-435-A1E, A1F, TVO-435-A1A
1E	74218						CYLINDER ASSY. (Nitrided) This cyl. assy. incorporates flange type valve seats and a ni-resist exhaust valve guide (73979) to receive (74052) 1/2 in. dia. inconel sodium cooled exhaust valve. Requires the use of long reach spark plugs.	6	TVO-435-B1A
ATTACHING PARTS									
2	STD-528						NUT, Plain, 1/2-20	24	
3	STD-529						LOCKNUT, Palnut, 1/2 in.	24	
4	383-B						NUT, Plain, 3/8-24	24	
5	STD-39						LOCKNUT, Palnut, 3/8 in.	24	
-----*									
6	66720						SEAT, Intake valve Detail part of cylinder assemblies, 70353, 71850 and 72436.	6	VO-435-A1B, A1C, A1D, A1E
	71895						SEAT, Intake valve (Flange type) Detail part of cylinder assemblies, 73704, 73935 and 74218.	6	VO-435-A1E, A1F, TVO-435-A1A, B1A

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL MODELS

Figure 5 - Cylinder Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 5 - CYLINDER GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
5-7	67835						SEAT, Exhaust valve Detail part of cylinder assemblies, 70353, 71850 and 72436.	6	VO-435-A1B, A1C, A1D, A1E
	71894						SEAT, Exhaust valve (Flange type) Detail part of cylinder assemblies, 73704, 73935 and 74218.	6	VO-435-A1E, A1F, TVO-435-A1A, B1A
8	66713						GUIDE, Valve, intake	6	
9	69358						GUIDE, Valve, exhaust Detail part of cylinder assemblies, 70353 and 71850. This guide receives (66714) solid stem exhaust valve. Refer to Lycoming Service Instruction No. 1000.	6	VO-435-A1B, A1C, A1D
	69693						GUIDE, Valve, exhaust Detail part of cylinder assembly, 72436. This guide receives (71381) 7/16 in. dia. sodium cooled exhaust valve.	6	VO-435-A1D, A1E
	72897						GUIDE, Valve, exhaust Detail part of cylinder assemblies, 73704 and 73935. This guide receives either a (73111 or 73875) 1/2 in. dia. sodium cooled exhaust valve.	6	VO-435-A1E, A1F TVO-435-A1A
	73979						GUIDE, Valve, exhaust (ni-resist) Detail part of 74218 cylinder assembly. This guide receives (74052) 1/2 in. dia. inconel sodium cooled exhaust valve.	6	TVO-435-B1A
10	66796 P10						INSERT, Spark plug, 18-1.5 MM (Short reach) (Available in P10 oversize only.) Detail part of cylinder assemblies, 70353, 71850, 72436, 73704 and 73935.	12	VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A
	69260 P10						INSERT, Spark plug, 18-1.5 MM (Long reach) (Available in P10 oversize only.) Detail part of 74218 cylinder assembly.	12	TVO-435-B1A
11	31-12						STUD, 5/16-18 x 1-1/2 in. long	12	
12	25-12						STUD, 1/4-20 x 1-1/2 in. long	12	
13	66670						BUSHING, Rocker shaft inner	24	
14	STD-859						DOWEL, 1/8 dia. x 9/32 in. long Detail part of cylinder assemblies 70353, 71850 and 72436. See "NOTE", reference 1B.	12	VO-435-A1B, A1C, A1D, A1E
15	25-8						STUD, 1/4-20 x 1.00 in. long	24	
16	69814						DECAL, Chrome cylinder identification (Opt. Equipt.) Detail part of cylinder assemblies, 70353 and 71850.	6	VO-435-A1B, A1C, A1D
17	STD-783						PLUG, Allen, 1/4-18 NPT (Supersedes STD-47)	6	
18	72343						STABILIZER, Cylinder head fins, 15 teeth Detail part of 74218 cylinder assy.	6	TVO-435-B1A
19	72344						STABILIZER, Cylinder head fins, 26 teeth Detail part of 74218 cylinder assy.	6	" "
20	73129						VALVE, Intake Supersedes and interchangeable with 72612.	6	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 5 - CYLINDER GROUP

Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
5-21	66714		VALVE, Exhaust, solid stem Used with cylinder assemblies, 70353 and 71850. Refer to Lycoming Service Instruction No. 1000.	6	VO-435-A1B, A1C, A1D
	71381		VALVE, Exhaust, sodium cooled (7/16 in. dia.) Used with 72436 cylinder assy.	6	VO-435-A1D, A1E
	73111		VALVE, Exhaust, sodium cooled (1/2 in. dia.) Used with cylinder assemblies, 73704 and 73935.	6	VO-435-A1E, A1F, TVO-435-A1A
	73875		VALVE, Exhaust, sodium cooled (1/2 in. dia.) (Alternate to 73111 exhaust valve.)	6	" " "
	74052		VALVE, Exhaust, sodium cooled, inconel (1/2 in. dia.) Used with 74218 cylinder assy.	6	TVO-435-B1A
22	68325		SEAT, Valve spring, lower (exhaust and intake) Used with cylinder assemblies, 70353, 71850 and 72436.	12	VO-435-A1B, A1C, A1D, A1E
	68325		SEAT, Valve spring, lower (intake) Used with cylinder assemblies, 73704, 73935 and 74218.	6	VO-435-A1E, A1F, TVO-435-A1A, B1A
	73112		SEAT, Valve spring, lower (exhaust) Used with cylinder assemblies, 73704, 73935 and 74218.	6	" " "
23	68326		SPRING, Valve, outer	12	
24	68328		SPRING, Valve, auxiliary	12	
25	68327		SEAT, Valve spring (exhaust and intake) Used with cylinder assemblies, 70353 and 71850.	12	VO-435-A1B, A1C, A1D
	68327		SEAT, Valve spring (intake) Used with cylinder assemblies, 72436, 73704, 73935 and 74218.	6	VO-435-A1D, A1E, A1F, TVO-435-A1A B1A
	69698		SEAT, Valve spring (exhaust) Used with 72436 cylinder assembly.	6	VO-435-A1D, A1E
	73115		SEAT, Valve spring (exhaust) Used with cylinder assemblies, 73704, 73935 and 74218	6	VO-435-A1E, A1F, TVO-435-A1A, B1A
26	60009		KEY, Valve (exhaust and intake) Used with cylinder assemblies, 70353 and 71850.	24	VO-435-A1B, A1C, A1D
	60009		KEY, Valve (intake) Used with cylinder assemblies, 72436, 73704, 73935 and 74218.	12	VO-435-A1D, A1E, A1F, TVO-435-A1A, B1A
	72050		KEY, Valve (exhaust) Used with 72436 cylinder assembly.	12	VO-435-A1D, A1E
	MS13997-3		KEY, Valve (exhaust) Used with cylinder assemblies; 73704, 73935 and 74218.	12	VO-435-A1E, A1F, TVO-435-A1A, B1A
27	69697		CAP, Valve stem Used with 72436 cylinder assembly	6	VO-435-A1D, A1E
	MS13998-3		CAP, Valve stem Used with cylinder assemblies, 73704, 73935 and 74218.	6	VO-435-A1E, A1F, TVO-435-A1A, B1A
28	71549		WASHER, Valve rocker thrust	AR	
	71549-1		WASHER, Valve rocker thrust	AR	
	71549-2		WASHER, Valve rocker thrust	AR	
	71549-3		WASHER, Valve rocker thrust (A total of twelve (12) required; select for clearance; see Lycoming Service Bulletin No. 225A.) 71549 supersedes 66719.	AR	
29	67113		ROCKER ASSEMBLY, Intake valve	6	
30	67114		BUSHING, Valve rocker	6	
31	68806		SHAFT, Valve rocker	12	
32	66732		GASKET, Valve rocker shaft cover	12	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 5 - CYLINDER GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
5-33	66731						COVER, Valve rocker shaft	12	
							ATTACHING PARTS		
34	STD-160						WASHER, Shakeproof lock, 1/4 in.	24	
35	STD-9						NUT, Plain, 1/4-28	24	
							-----*		
36	67112						ROCKER ASSY., Exhaust valve (See Lycoming Service Instruction No. 1067.)	6	All Models Except TVO-435-B1A
	74388						ROCKER ASSEMBLY, Exhaust valve Supersedes and interchangeable with 67112. In VO-435 engines beginning with serial No. 3031-31, also TVO-435- engines 212-52 and 220-52 and up.	6	VO-435-A1E, A1F TVO-435-A1A, B1A
37	74389						BUSHING, Valve rocker This new bushing has oil transfer on OD to feed jet under exhaust valve end of rocker.	6	VO-435-A1E, A1F, TVO-435-A1A, B1A
38	67193						GASKET, Rocker box, cover	6	
39	69625						COVER ASSY., Rocker box (Left)	3	
	69626						COVER ASSY., Rocker box (Right)	3	
							ATTACHING PARTS		
40	STD-1826						SCREW, Fill. hd. self-locking, 1/4-20 x 5/8 in. long	48	
							-----*		
41	72839						SHROUD TUBE ASSEMBLY, Push rod Supersedes and interchangeable with 66739.	12	
42	66717						SPRING, Shroud tube	6	
43	66728						WASHER, 25/32 ID x 1-1/4 OD x 1/32 in. thick (Maximum of 2 per tube.)	AR	
44	61503						SLEEVE, Shroud tube seal	12	
45	62922						SEAL, Shroud tube	24	
46	71481						RING, Oil seal, 3/32 dia. section x 4-27/32 in. ID	6	
47	71135						ROD ASSEMBLY, Push (two grooves) 12.477-12.490	AR	
	71136						ROD ASSEMBLY, Push (one groove) 12.504-12.517	AR	
	71137						ROD ASSEMBLY, Push (no grooves) 12.531-12.544 (Superseded by and service with 73434, 73435 and 73436 respectively.)	AR	
	73434						ROD ASSEMBLY, Push (12.477-12.490)	AR	
	73435						ROD ASSEMBLY, Push (12.504-12.517)	AR	
	73436						ROD ASSEMBLY, Push (12.531-12.544) (A total of twelve (12) push rod assemblies is required; select for proper fit.)	AR	
							NOTE		
							Push rod assemblies 73434, 73435 and 73436 are impression stamped with their respective part number near one end on the rod surface.		
48	67195						FLANGE, Exhaust (stainless steel)	6	
							ATTACHING PARTS		
49	STD-35						WASHER, Plain, 5/16 in.	12	
50	STD-475						WASHER, Shakeproof lock, 5/16 in.	12	
51	STD-37						NUT, Plain, 5/16-24	12	
							-----*		

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 5 - CYLINDER GROUP

Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
5-52	65614		PLUG, Baffle attaching	4	
ATTACHING PARTS					
53	STD-1687		WASHER, External teeth, no. 10 lock	4	
54	STD-1686		SCREW, Fill. head, no. 10-32 x 7/16 in. long	4	
-----*					

FIGURE 6 - INDUCTION SYSTEM GROUP

APPLICABLE MODELS - VO-435-A1B, A1C, A1D AND A1E

6-1	68951		COVER ASSY., Crankcase	1	
ATTACHING PARTS					
2	STD-8		WASHER, Plain, 1/4 in.	34	
3	STD-160		WASHER, Internal teeth, 1/4 in. lock	24	
4	STD-9		NUT, Plain, 1/4-28	10	
5	STD-1679		BOLT, Hex. head, 1/4-28 x 1.00 in. long	14	VO-435-A1C, A1D, A1E
	STD-1679		BOLT, Hex. head, 1/4-28 x 1.00 in. long	10	VO-435-A1B
6	STD-1230		BOLT, Hex. head, 1/4-28 x 1-9/32 in. long	10	
7	STD-1688		BOLT, Hex. head, 1/4-20 x 1.00 in. long	4	VO-435-A1B
-----*					
8	69602		CONNECTION, Intake pipe	6	
9	31-15		STUD, 5/16-18 x 1-7/8 in. long	4	
10	STD-405		PLUG, 1/8 in. pipe, square head drilled	1	
	74376		ELBOW ASSY., Primer, 45° (single point primer system, Bell installation; see "NOTE", Figure 16, reference 13.)	1	VO-435-A1E
11	61548		PLATE, Name	1	
12	STD-1901		STUD, Drive, rd. head, no. 4 x 3/16 in. long (Replaces AN535-4-3 screw.)	4	
13	68172		GASKET, Oil sump	1	
14	60069		FLANGE, Intake pipe, upper	6	
			Replaced by 73346 upper intake pipe flange. 60069 and 73346 are interchangeable.		
	73346		FLANGE, Intake pipe, upper	6	
ATTACHING PARTS					
15	STD-8		WASHER, Plain, 1/4 in.	12	
16	STD-160		WASHER, Internal teeth, 1/4 in. lock	12	
17	STD-9		NUT, Plain, 1/4-28	12	
-----*					
18	60131		GASKET, 2 bolt flange, 1-3/4 in. ID	6	
19	68955		PIPE, Intake, cylinders no. 1 and 6	2	
	68956		PIPE, Intake, cylinders no. 2 and 5	2	
	68957		PIPE, Intake, cylinders no. 3 and 4	2	
20	STD-1792		HOSE, 1-3/4 ID x 2-3/16 OD x 2-3/8 in. long	6	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 6 - INDUCTION SYSTEM GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
ATTACHING PARTS									
6-21	STD-1269						CLAMP, 2.00 ID x 9/16 in. wide Superseded by and service with 72417.	12	
	72417						CLAMP, Hose, 2-3/16 in. OD	12	
-----*									
22	69633						CARBURETOR Same as Marvel-Schebler No. 10-3856, Model MA4-5. Superseded by 71546. If 69633 need be replaced; service with 71685.	1	VO-435-A1B, A1C
	71546						CARBURETOR Same as Marvel-Schebler No. 10-3856-1, Model MA4-5. Supersedes 69633 carburetor. Differs from 69633 in that this carburetor (71546) contains nozzle assy. 47-750 which eliminates low power let down roughness. If 71546 need be replaced; service with 71685.	1	VO-435-A1B, A1C
	71685						CARBURETOR Same as Marvel-Schebler No. 10-3856-12, Model MA4-5. Carburetor 71685 differs from 71546 in the size of the fuel inlet fitting only. 71685 has a 3/8 in. fitting 68-101 whereas 71546 has a 1/4 in. fuel inlet fitting 68-93.	1	VO-435-A1D
NOTE									
69633, 71546 and 71685 carburetors are all interchangeable. None are altitude compensated.									
	71139						CARBURETOR (Altitude compensated) Same as Marvel-Schebler No. 10-4025, Model MA4-5AA. Superseded by 71684.	1	VO-435-A1D
	71684						CARBURETOR (Altitude compensated) Same as Marvel-Schebler No. 10-4025-12, Model MA4-5AA. Supersedes and interchangeable with 71139. Carburetor 71684 differs from 71139 in the size of the fuel inlet fitting only. 71684 has a 3/8 in. fitting, 68-101 whereas 71139 has a 1/4 in. fuel inlet fitting, 68-93.	1	VO-435-A1D, A1E
ATTACHING PARTS									
23	STD-35						WASHER, Plain, 5/16 in.	4	
24	STD-37						NUT, Plain, 5/16-24	4	
25	STD-36						LOCKNUT, Plain, 5/16 in.	4	
-----*									
26	66224						GASKET, Carburetor	1	
27	STD-709						PLUG, 3/8 in. pipe slotted head (shipping part, not illustrated) (In carburetor fuel inlet)	1	

Exploded view diagram of a mechanical assembly. The main housing (1) features a large curved pipe (19) and a rectangular plate (13) with dashed lines indicating its position. Various bolts, nuts, and washers are shown in their respective positions. Labels include AIB, AIC, AID, AIE, and AIF.

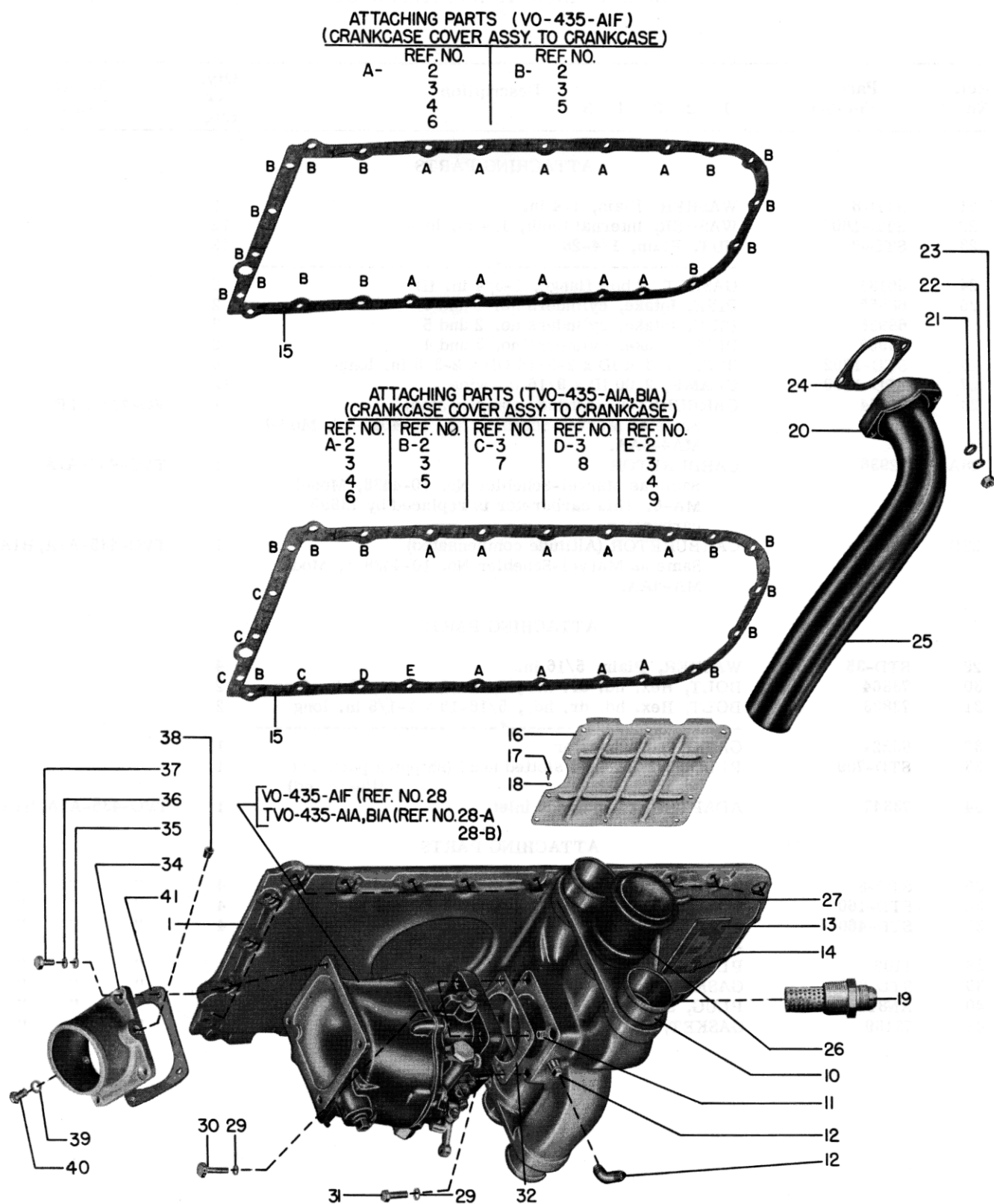
Figure 6 - Induction System Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 7 - INDUCTION SYSTEM GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1F, TVO-435-A1A AND B1A.									
7-1	73375						COVER ASSY., Crankcase	1	
NOTE									
							73375 crankcase cover assy., with (4) carburetor mounting 31-15 studs, is replaced by 73917 crankcase cover assy. with (4) STD-1164 inserts, in carburetor mounting pad beginning serial no. 145-52. Refer to Service Instruction No. 1048.		
	73917						COVER ASSY., Crankcase This cover assy. provides Heli-Coil inserts in carburetor mounting pad in order that the carburetor can be attached with bolts. See above "NOTE".	1	
ATTACHING PARTS (Crankcase Cover Assy. to Crankcase)									
2	STD-8						WASHER, Plain, 1/4 in.	34	VO-435-A1F
	STD-8						WASHER, Plain, 1/4 in.	29	TVO-435-A1A, B1A
3	STD-160						WASHER, Internal teeth, 1/4 in. lock	24	
4	STD-9						NUT, Plain, 1/4-28	10	
5	STD-1679						BOLT, Hex. head, 1/4-28 x 1.00 in. long	14	VO-435-A1F
	STD-1679						BOLT, Hex. head, 1/4-28 x 1.00 in. long	9	TVO-435-A1A, B1A
6	STD-1230						BOLT, Hex. head, 1/4-28 x 1-9/32 in. long	10	VO-435-A1F
	STD-1230						BOLT, Hex. head, 1/4-28 x 1-9/32 in. long	9	TVO-435-A1A, B1A
7	AN101122						BOLT, 1/4-28 x 1-1/2 in. long	4	" " "
8	AN101124						BOLT, 1/4-28 x 1-5/8 in. long	1	" " "
9	AN4-17A						BOLT, 1/4-28 x 1-29/32 in. long	1	" " "
-----*									
10	69602						CONNECTION, Intake pipe	6	
11	STD-1164						INSERT, Heli-Coil, 5/16-18 x 5/8 in. long (Detail part of 73917 crankcase cover assy.)	4	
12	STD-405						PLUG, 1/8 in. pipe, square head drilled	1	
	74376						ELBOW ASSY., Primer, 45° (single point primer system, Bell installation; see "NOTE", Figure 16, reference 13.)	1	
13	61548						PLATE, Name (Beginning engine serial no. 220-52.)	1	
14	STD-1901						STUD, Drive, rd. head, no. 4 x 3/16 in. long (Replaces AN535-4-3 screw.)	4	
15	68172						GASKET, Oil sump	1	
16	73774						BAFFLE, Breather	1	
ATTACHING PARTS									
17	STD-433						SCREW, Fill. hd. dr., #10-24 x 1/2 in. long	10	
18	STD-425						WASHER, Plain, #10	10	
-----*									
19	73342						BREATHING ASSY.	1	
20	60069						FLANGE, Intake pipe, upper Replaced by 73346 upper intake pipe flange 60069 and 73346 are interchangeable.	6	
	73346						FLANGE, Intake pipe, upper	6	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



MODELS - VO-435-A1F, TVO-435-A1A AND B1A

Figure 7 - Induction System Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 7 - INDUCTION SYSTEM GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
ATTACHING PARTS									
7-21	STD-8						WASHER, Plain, 1/4 in.	12	
22	STD-160						WASHER, Internal teeth, 1/4 in. lock	12	
23	STD-9						NUT, Plain, 1/4-28	12	
							*-----		
24	60131						GASKET, 2 bolt flange, 1-3/4 in. ID	6	
25	68955						PIPE, Intake, cylinders no. 1 and 6	2	
	68956						PIPE, Intake, cylinders no. 2 and 5	2	
	68957						PIPE, Intake, cylinders no. 3 and 4	2	
26	STD-1792						HOSE, 1-3/4 ID x 2-3/16 OD x 2-3/8 in. long	6	
27	STD-1269						CLAMP, 2.00 ID x 9/16 in. wide	12	
28	71684						CARBURETOR (Altitude compensated)	1	VO-435-A1F
							Same as Marvel-Schebler No. 10-4025-12, Model MA4-5AA.		
28A	72936						CARBURETOR	1	TVO-435-A1A
							Same as Marvel-Schebler No. 10-4438, Model MA-6. This carburetor is replaced by 73899 carburetor.		
28B	73899						CARBURETOR (Altitude compensated)	1	TVO-435-A1A, B1A
							Same as Marvel-Schebler No. 10-4438-1, Model MA-6AA.		
ATTACHING PARTS									
29	STD-35						WASHER, Plain, 5/16 in.	4	
30	73864						BOLT, Hex. hd. dr. hd., 5/16-18 x 1-11/32 in. long	2	
31	73833						BOLT, Hex. hd. dr. hd., 5/16-18 x 1-1/8 in. long	2	
							*-----		
32	66224						GASKET, Carburetor	1	
33	STD-709						PLUG, 3/8 in. pipe slotted head (shipping part, not illustrated)	1	
34	73347						ADAPTER, Carburetor inlet	1	TVO-435-A1A, B1A
ATTACHING PARTS									
35	STD-8						WASHER, Plain, 1/4 in.	4	" " "
36	STD-160						WASHER, Internal lock, 1/4 in.	4	" " "
37	STD-460						BOLT, 1/4-20 NG-3 x 3/4 in. long	4	" " "
							*-----		
38	1102						PLUG, Allen, 1/8-27 NPT	1	" " "
39	STD-829						GASKET, .4710 x 11/16 OD x 5/64 in. thk.	1	" " "
40	AN814-4D						PLUG, Screw thread	1	" " "
41	73189						GASKET, Carburetor inlet	1	" " "

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 8 - ACCESSORY HOUSING GROUP

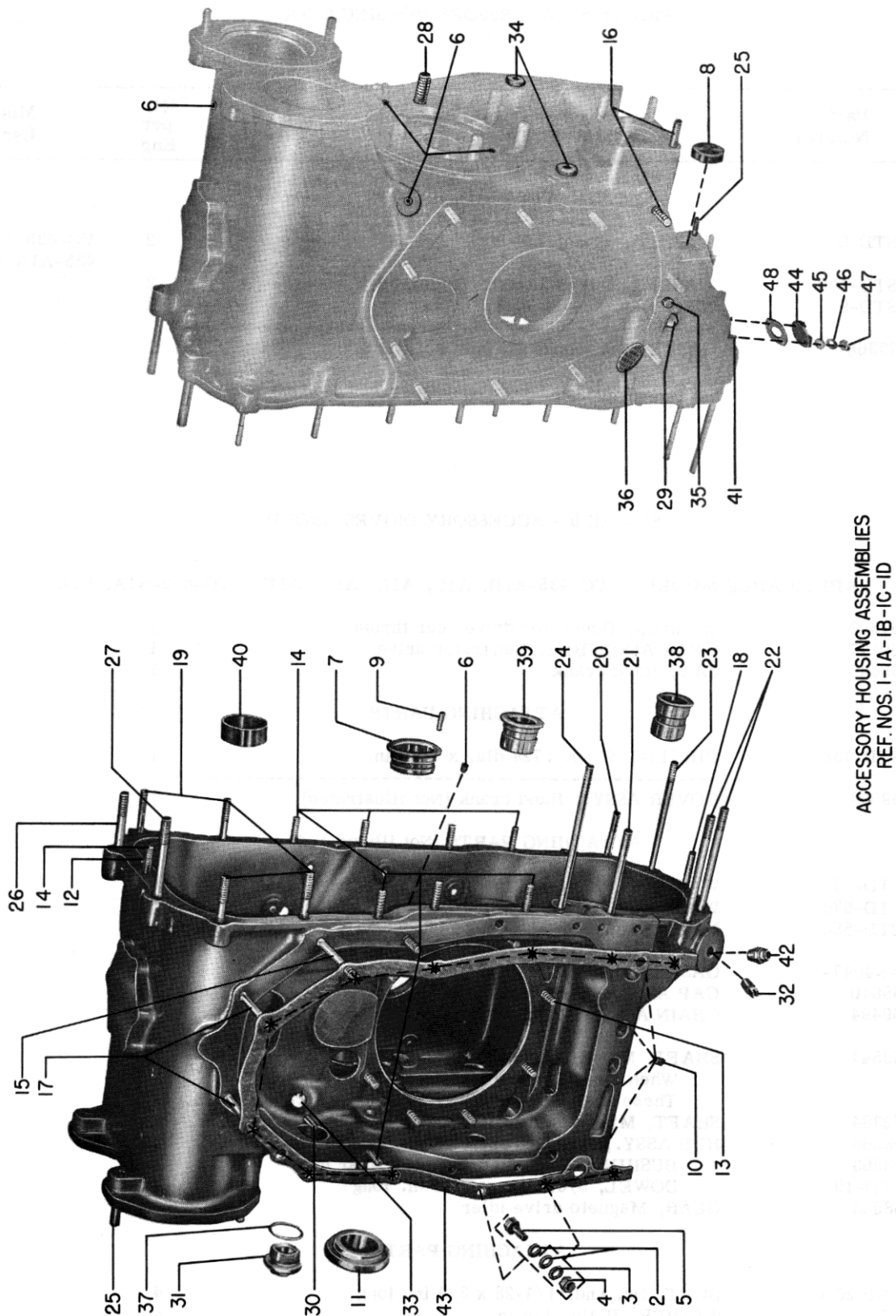
Ref. No.	Part Number	12345	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A					
8-1	69661		HOUSING ASSY., Accessory This accessory housing assembly was designed to be used with a conventional crankcase (69628). It may be modified to be used with wrap-around crankcase (70403) by restudding the crankcase mating surface in the following manner: When facing the crankcase mating surface of the accessory housing, replace the two 25-23 studs at the 11 and 1 o'clock position with two 25-13 studs; the 25-28 stud immediately to the right of the two 25-23 studs shall be replaced with a 25-12 stud. No other changes to the acc. hsg. are required.	1	VO-435-A1B
CAUTION					
Only STD-1688 bolts may be used to attach the (68951) crankcase cover assy. to the bottom surface of the accessory housing due to the use of STD-1173 inserts at this location.					
1A	70293		HOUSING ASSY., Accessory 70293 is same as (69661) acc. hsg. assy. except 70293 incorporates (70292) plug in the fuel pump drive bore. This acc. hsg. assy. was designed to be used with a conventional crankcase (69628). It may be modified to use with wrap-around crankcase (70403) by following the same procedures as those given for (69661) acc. hsg. assy. (See reference 8-1.)	1	VO-435-A1B
1B	70404		HOUSING ASSY., Accessory This acc. hsg. assy. can only be used with wrap-around crankcase (70403). Acc. hsg. assy. (70404) incorporates (70292) plug in the fuel pump drive bore.	1	VO-435-A1D, A1E
1C	70406		HOUSING ASSY., Accessory 70406 is same as 70404 except 70406 does not incorporate (70292) plug in the fuel pump drive bore.	1	VO-435-A1C
1D	73701		HOUSING ASSY., Accessory This acc. hsg. assy. has provisions for a dual scavenge pump.	1	VO-435-A1F, TVO-435-A1A, B1A
ATTACHING PARTS					
2	STD-8		WASHER, Plain, 1/4 in.	12	
3	STD-160		WASHER, Internal teeth, 1/4 in. lock	11	
4	STD-9		NUT, Hex, 1/4-28 plain	11	
5	STD-1230		BOLT, Hex. head, 1/4-28 x 1-9/32 in. long	1	
-----*					
6	STD-1339		PLUG, Allen head, 1/16-27 pipe	5	
7	67742		BUSHING, 1-7/8 OD x 1-11/16 ID x 3/4 in. long	1	
8	70292		PLUG, Fuel pump drive pad Detail part of 70293 and 70404 acc. hsg. assy.	1	VO-435-A1B, A1D, A1E

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 8 - ACCESSORY HOUSING GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
8-9	STD-859						DOWEL, 1/8 dia. x 9/32 in. long	1	
10	STD-1173						INSERT, Heli-Coil, 1/4-20 x 1/2 in. long Detail part of 69661 and 70293 acc. hsg. assemblies.	4	VO-435-A1B
	STD-1315						INSERT, Heli-Coil, 1/4-28 x 1/2 in. long Detail part of 70404, 70406 and 73701 acc. hsg. assemblies.	4	VO-435-A1C, A1D, A1E, A1F, TVO-435- A1A, B1A
11	69286						ANNULUS, Oil seal	1	
12	66145						DOWEL, 1/4 dia. x 1/2 in. long	2	
13	25D-11						STUD, Dr., 1/4-20 x 1-3/8 in. long	8	
14	25-12						STUD, 1/4-20 x 1-1/2 in. long	10	
15	25-12						STUD, 1/4-20 x 1-1/2 in. long This stud replaces 25-28 stud in acc. hsg. assemblies 69661 and 70293 when using wrap-around crankcase. (70403).	1	
	25-28						STUD, 1/4-20 x 3-1/2 in. long Detail part of 69661 and 70293 acc. hsg. assemblies.	1	VO-435-A1B
16	25-13						STUD, 1/4-20 x 1-5/8 in. long	15	
17	25-13						STUD, 1/4-20 x 1-5/8 in. long These studs replace 25-23 studs in acc. hsg. assemblies 69661 and 70293 when using wrap-around crankcase (70403).	2	
	25-23						STUD, 1/4-20 x 2-7/8 in. long Detail part of 69661 and 70293 acc. hsg. assemblies.	2	VO-435-A1B
18	25-23						STUD, 1/4-20 x 2-7/8 in. long	1	
19	25-16						STUD, 1/4-20 x 2.00 in. long	4	
20	25D-24						STUD, Dr., 1/4-20 x 3.00 in. long	1	
21	25-27						STUD, 1/4-20 x 3-3/8 in. long	1	
22	25-34						STUD, 1/4-20 x 4-1/4 in. long	2	
23	25-37						STUD, 1/4-20 x 4-5/8 in. long	1	
24	25-40						STUD, 1/4-20 x 5.00 in. long	1	
25	31-14						STUD, 5/16-18 x 1-3/4 in. long	6	
26	31-21						STUD, 5/16-18 x 2-5/8 in. long	1	
27	31-26						STUD, 5/16-18 x 3-1/4 in. long	1	
28	38-16						STUD, 3/8-16 x 2.00 in. long	6	
29	69637						PLUG, 3/4 dia. x 9/16 in. long	1	
30	69658						PIN, Engine timing	1	
31	69335						PLUG, Hex. head, 1.00-20 thd. - 5/8 in.	1	
32	STD-1847						PLUG, Slotted, 1/4 in. pipe (shipping part)	1	VO-435-A1B, A1C, A1D, A1E, A1F
33	1102						PLUG, Allen, 1/8-27 NPT	1	
34	STD-71						PLUG, Allen, 3/8 in. pipe	2	
35	STD-514						DOWEL, 5/16 dia. x 1/2 in. long	2	
36	69636						TUBE AND STRAINER ASSY., Oil suction	1	
37	STD-111						GASKET, Annular, 1.00 ID x 1-1/4 OD x 3/32 in.	1	
38	67646						BUSHING, 1-1/16 OD x 7/8 ID x 1-7/32 in. long	1	
39	71341						BUSHING, 1-3/16 OD x 1.00 ID x 1.00 in. long	1	
40	71123						BUSHING, 1-5/16 ID x 1-1/2 OD x 3/4 in. long	1	
41	25-10						STUD, 1/4-20 x 1-1/4 in. long Detail part of 73701 acc. hsg. assembly.	2	VO-435-A1F, TVO- 435-A1A, B1A
42	AN816-6						NIPPLE, Flared tube and pipe thd.	1	TVO-435-A1A, B1A
43	68174						GASKET, Accessory housing	1	
44	73367						COVER, Scavenge oil inlet	1	VO-435-A1F, TVO- 435-A1A, B1A

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL MODELS

Figure 8 - Accessory Housing Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 8 - ACCESSORY HOUSING GROUP

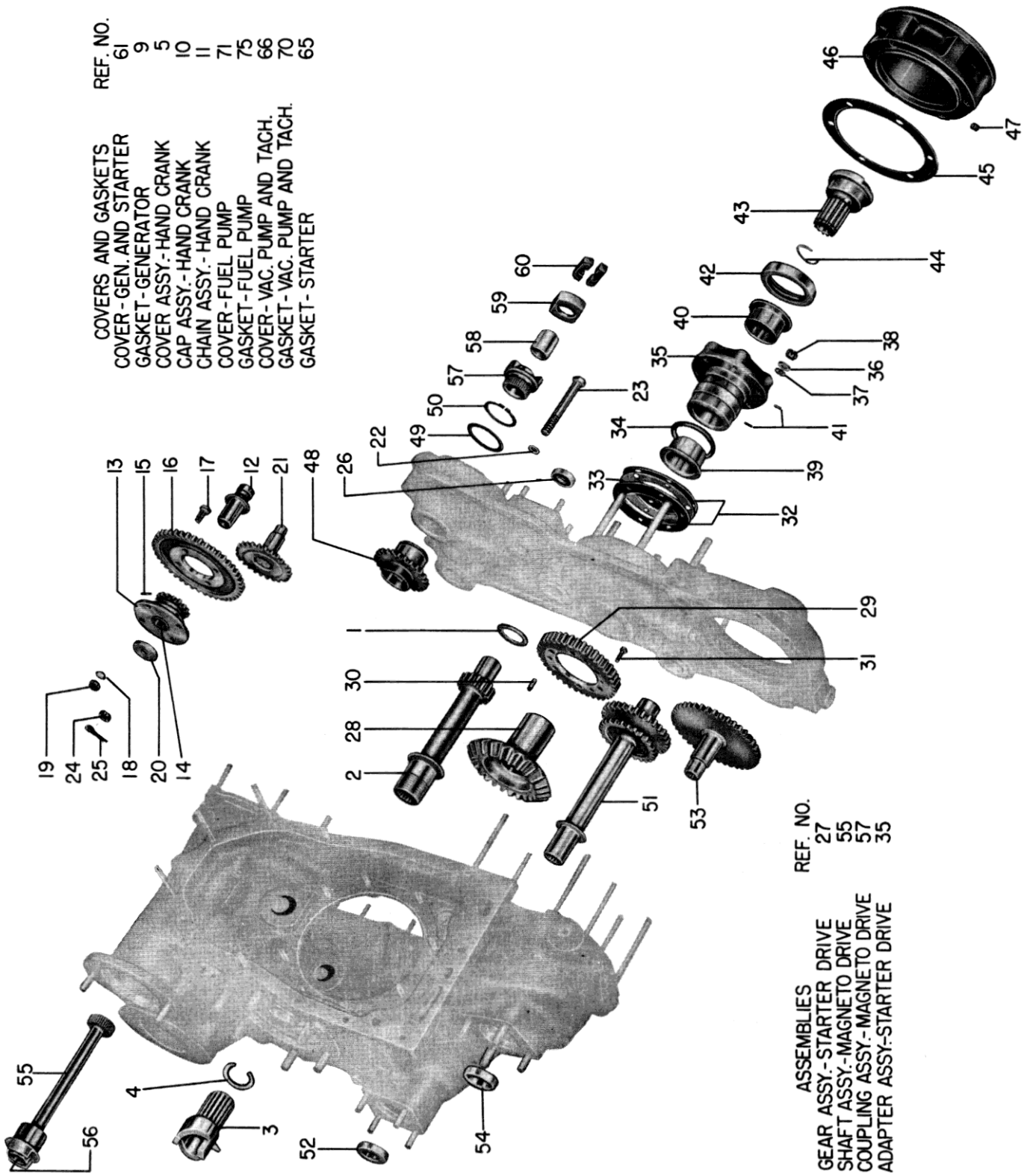
Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
ATTACHING PARTS									
8-45	STD-8						WASHER, Plain, 1/4 in.	2	VO-435-A1F, TVO-435-A1A, B1A
46	STD-160						WASHER, Internal teeth, 1/4 in. lock	2	" " "
47	STD-9						NUT, Hex. 1/4-28 plain	2	" " "
							-----*		
48	73368						GASKET, Scavenge oil inlet adapter	1	" " "

FIGURE 9 - ACCESSORY DRIVES GROUP

APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A

9-1	67690						WASHER, Generator drive gear thrust	1	
2	69177						GEAR ASSEMBLY, Generator drive	1	
3	69645						JAW, Hand crank	1	
ATTACHING PARTS									
4	STD-136						CIRCLIP, Wire, .724 dia. x 1/16 in.	1	
							-----*		
5	69568						COVER ASSY., Hand crank (Not illustrated)	1	
ATTACHING PARTS (Not illustrated)									
6	STD-33						WASHER, Plain, 3/8 in.	6	
7	STD-678						WASHER, Internal teeth, 3/8 in. lock	6	
8	STD-596						NUT, Plain, 3/8-24 x 21/64 in. thick	6	
							-----*		
9	AN4047-1						GASKET, Generator (Not illustrated)	1	
10	69810						CAP ASSY., Hand crank (Not illustrated)	1	
11	69494						CHAIN ASSY., Hand crank starting cap retainer (Not illustrated)	1	
12	68544						SHAFT, Magneto drive idler	1	
							When stock is exhausted; service with 72384.		
							These shafts (68544 and 72384) are interchangeable.		
	72384						SHAFT, Magneto drive idler	1	
13	68568						HUB ASSY., Magneto drive idler	1	
14	68563						BUSHING, Magneto drive idler gear hub	1	
15	STD-19						DOWEL, 3/32 dia. x 7/32 in. long	1	
16	68553						GEAR, Magneto drive idler	1	
ATTACHING PARTS									
17	AN102010						BOLT, Dr. end, 1/4-28 x 3/4 in. long	4	
18	STD-8						WASHER, Plain, 1/4 in.	4	
19	STD-43						NUT, Slotted shear, 1/4-28	4	
							-----*		
20	68545						WASHER ASSY., Magneto drive idler shaft	1	
21	68410						GEAR ASSEMBLY, Tachometer driven	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL MODELS

Figure 9 - Accessory Drives Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 9 - ACCESSORY DRIVES GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
ATTACHING PARTS									
9-22	STD-1854						WASHER, 5/16 in. dia. (seal)	1	
23	STD-1860						SCREW, Flat. fill. hd. dr. shank, 5/16-24 x 3-1/8 in. long	1	
24	STD-2						NUT, Slotted, 5/16 in.	1	
25	AN381-2-10						PIN, Cotter, 1/16 dia. x 5/8 in. long	1	
-----*									
26	STD-547						SEAL, Oil, 9/16 ID x 1-1/4 OD x 5/16 in. wide	1	
27	67610						GEAR ASSY., Starter drive	1	
28	67583						GEAR, Starter drive	1	
29	67609						GEAR, Accessory drive	1	
30	72139						DOWEL, Hollow pin, 1/4 dia. x 7/16 in. long	3	
31	STD-1833						SCREW, Fill. hd. dr., 1/4-28 x 1/2 in. long	6	
32	67708						GASKET, Starter drive adapter	2	
33	67709						SHIM, Starter drive adapter	1	
34	72182						RING, Oil seal, 1/8 dia. section x 1-3/4 in. ID	1	
35	68694						ADAPTER ASSY., Starter drive	1	
ATTACHING PARTS									
36	STD-8						WASHER, Plain, 1/4 in.	6	
37	STD-696						WASHER, 17/64 ID x 1/2 OD x 1/32 in. thk.	AR	
38	STD-97						NUT, Slotted, 1/4-28	6	
-----*									
39	67596						BUSHING, 1-11/16 OD x 1-1/2 ID x 1.00 in. long	1	
40	71616						BUSHING, 1-11/16 OD x 1-1/2 ID x 1.00 in. long	1	
41	STD-394						DOWEL, 3/32 dia. x 11/32 in. long	2	
NOTE									
<p>To prevent leakage at the starter seal, a revised starter drive adapter assembly has been incorporated in all engines having serial numbers above 920-31. The revised adapter bears the same part number as the original assembly 68694; however, the revised adapter has an oil ring groove added adjacent to and at the rear of the flange to receive an oil seal ring P/N 72182. This ring is not part of the adapter assembly but must be procured separately. In addition, a new bushing, 71616 replaces the present bushing 67596 and dowel STD-394 at the flange end of the adapter. This revised assembly P/N 68694 when used with oil seal ring 72182 is completely interchangeable with the original assembly of the same part no.</p>									
42	STD-1702						SEAL, 2-5/8 OD x 1-13/16 x 1/2 in. wide	1	
43	67605						JAW, Starter	1	
ATTACHING PART									
44	STD-1709						CIRCLIP, Wire, 1-5/32 OD x 5/64 in.	1	
-----*									
45	67633						GASKET, Starter drive	1	
46	68186						ADAPTER, Starter	1	
47	1102						PLUG, Allen, 1/8-27 NPT	1	
48	68565						GEAR, Magneto drive shaft	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 9 - ACCESSORY DRIVES GROUP

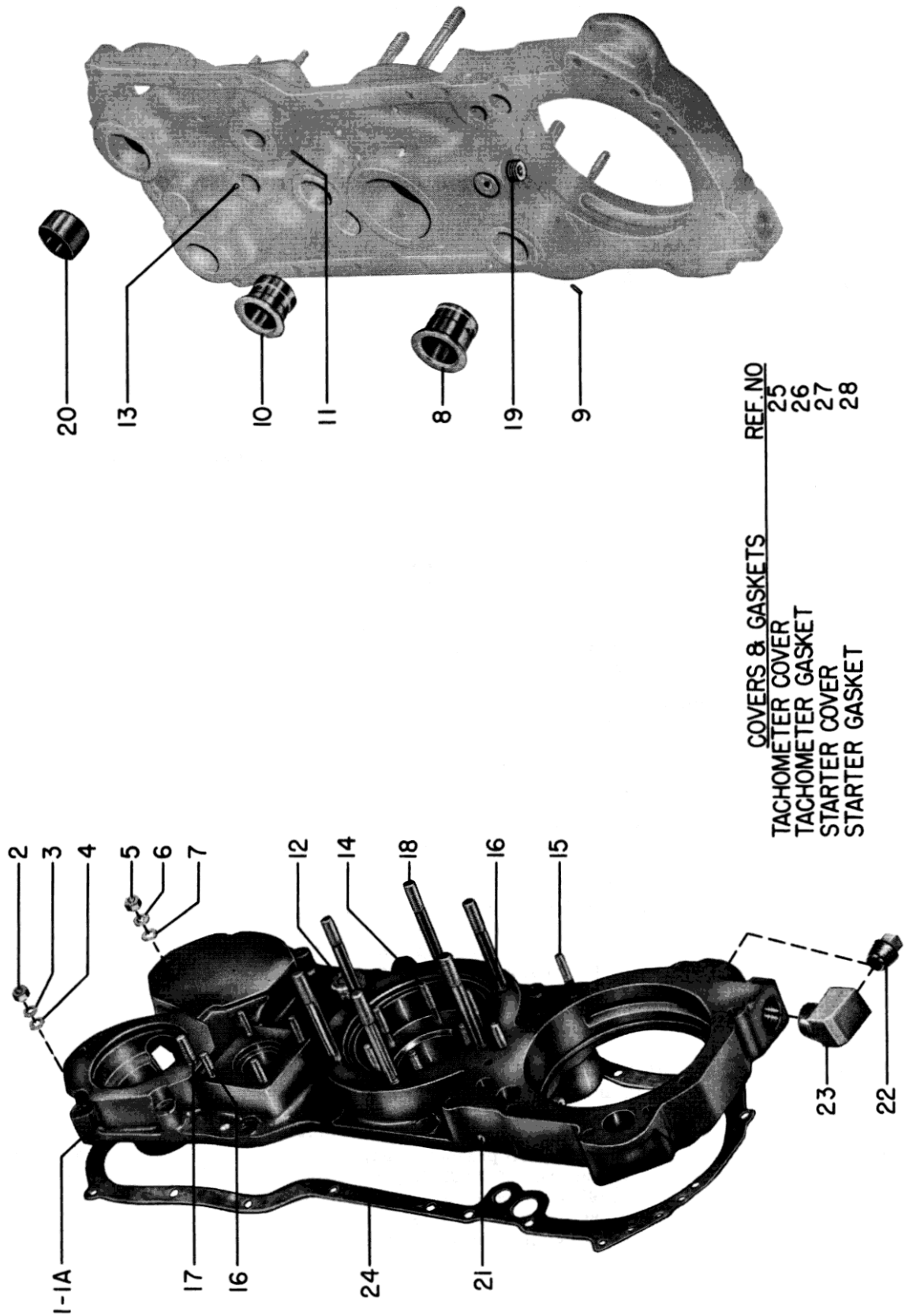
Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
9-49	69569						WASHER, Magneto drive shaft gear	1	
50	69570						RING, Magneto drive gear retaining	1	
51	67704						SHAFT GEAR ASSY., Vacuum pump	1	
52	STD-1708						SEAL, 1-7/16 OD x 1.00 ID x 25/64 in. wide	1	
53	67782						SHAFT GEAR ASSY., Fuel pump drive	1	VO-435-A1B, A1C, A1F, TVO-435- A1A, B1A
54	STD-213						SEAL, Oil, 3/4 ID x 1-3/8 in. OD	1	" " "
55	69566						SHAFT ASSEMBLY, Magneto drive	1	
56	69565						SLEEVE, Magneto drive shaft	1	
57	69567						COUPLING ASSEMBLY, Magneto drive	1	
58	69565						SLEEVE, Magneto drive shaft	1	
59	68875						RETAINER, Magneto drive cushion	2	
60	68874						CUSHION, Magneto drive	4	
NOTE									
The following reference numbers are not illustrated.									
61	671-B						COVER, Generator and starter	2	VO-435-A1B, A1C, A1D, A1E
	671-B						COVER, Starter	1	
ATTACHING PARTS									
62	STD-33						WASHER, Plain, 3/8 in.	6	
63	STD-678						WASHER, Internal teeth, 3/8 in. lock	6	
64	STD-596						NUT, Plain, 3/8-24 x 21/64 in. thick	6	
-----*									
65	AN4047-1						GASKET, Starter	1	
66	60430						COVER, Vacuum pump and tachometer	2	
ATTACHING PARTS									
67	STD-8						WASHER, Plain, 1/4 in.	8	
68	STD-160						WASHER, Internal teeth, 1/4 in. lock	8	
69	STD-9						NUT, Plain hex, 1/4-28	8	
-----*									
70	8313						GASKET, Vacuum pump and tachometer	2	
71	60431						COVER, Fuel pump	1	
ATTACHING PARTS									
72	STD-35						WASHER, Plain, 5/16 in.	4	
73	STD-475						WASHER, Internal teeth, 5/16 in. lock	4	
74	STD-37						NUT, Plain, 5/16-24	4	
-----*									
75	1691-C						GASKET, Fuel pump	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 10 - ACCESSORY HOUSING COVER GROUP

Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A					
10-1	68440		COVER ASSY., Accessory housing 68440 acc. hsg. cover assy. is studded for either 69893, 69937, 71769 or 71772 oil pump assemblies. Engines with serial numbers to 2937-31 and 205-52 inclusive, incorporate this (68440) cover assy. 68440 is superseded by 73094 when present supply of service stock is exhausted.	1	All Models Except TVO-435-B1A
NOTE					
Acc. hsg. cover assy. 68440 differs from 73094 only in that the (1) 25-17 stud at the (1) one o'clock position on the oil pump mounting surface is replaced with (1) 25-29 stud to accomodate new oil pump assemblies, (73089 or 73091). Acc. hsg. cover assy. (68440) may restudded at the aforementioned location to receive new pumps.					
1A	73094		COVER ASSY., Accessory housing Supersedes 68440; see above "NOTE", for interchangeability. Engines with serial numbers 2938-31 and 206-52 above incorporate 73094.	1	VO-435-A1E, A1F TVO-435-A1A, A1B
ATTACHING PARTS					
2	STD-9		NUT, Plain hex, 1/4-28	21	
3	STD-160		WASHER, Internal teeth, 1/4 in. lock	21	
4	STD-8		WASHER, Plain, 1/4 in.	21	
5	STD-37		NUT, Plain, 5/16-24	1	
6	STD-475		WASHER, Internal teeth, 5/16 in. lock	1	
7	STD-35		WASHER, Plain, 5/16 in.	1	
-----*					
8	67653		BUSHING, 1-3/16 OD x 1.00 ID x 1-3/16 in. long	1	
9	STD-951		DOWEL, 1/8 dia. x 7/16 in. long	1	
10	68590		BUSHING, 1-3/16 OD x 1.00 ID x 1-3/32 in. long	1	
11	STD-951		DOWEL, 1/8 dia. x 7/16 in. long	1	
12	STD-740		PLUG, Slotted, 3/4 in. pipe (shipping part)	1	
13	STD-434		DOWEL, 1/8 dia. x 21/64 in. long	1	
14	25D-16		STUD, Drilled, 1/4-20 x 2.00 in. long	6	
15	25-17		STUD, 1/4-20 x 2-1/8 in. long	1	
			Detail part of 68440 acc. hsg. cover assy.		
	25-29		STUD, 1/4-20 x 3-5/8 in. long	1	
			Detail part of 73094 acc. hsg. cover assy. See "NOTE", reference 10-1.		
16	25-12		STUD, 1/4-20 x 1-1/2 in. long	5	
17	31-14		STUD, 5/16-18 x 1-3/4 in. long	1	
18	38-31		STUD, 3/8-16 x 3-7/8 in. long	6	
19	STD-783		PLUG, Allen, 1/4-28 NPT Replaces STD-47 plug.	1	
20	71124		BUSHING, 1-1/2 ID x 1-11/16 OD x 45/64 in. long See Service Bulletin No. 269.	1	
21	1102		PLUG, Allen, 1/8-27 NPT	2	
22	STD-1104		PLUG, Sq. hd. dr., 3/4-14 NPT	2	
23	74097		ELBOW, Int. and ext. pipe - 90°, 3/4-14 NPT (Bell installation)	1	
24	68556		GASKET, Accessory housing cover	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL MODELS

Figure 10 - Accessory Housing Cover Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 10 - ACCESSORY HOUSING COVER GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
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THE FOLLOWING REFERENCE NUMBERS ARE NOT ILLUSTRATED.

10-25	60430						COVER, Tachometer	2	
26	8313						GASKET, Tachometer	2	
27	671-B						COVER, Starter	1	
28	AN4047-1						GASKET, Starter	1	

FIGURE 11 - OIL PUMP GROUP

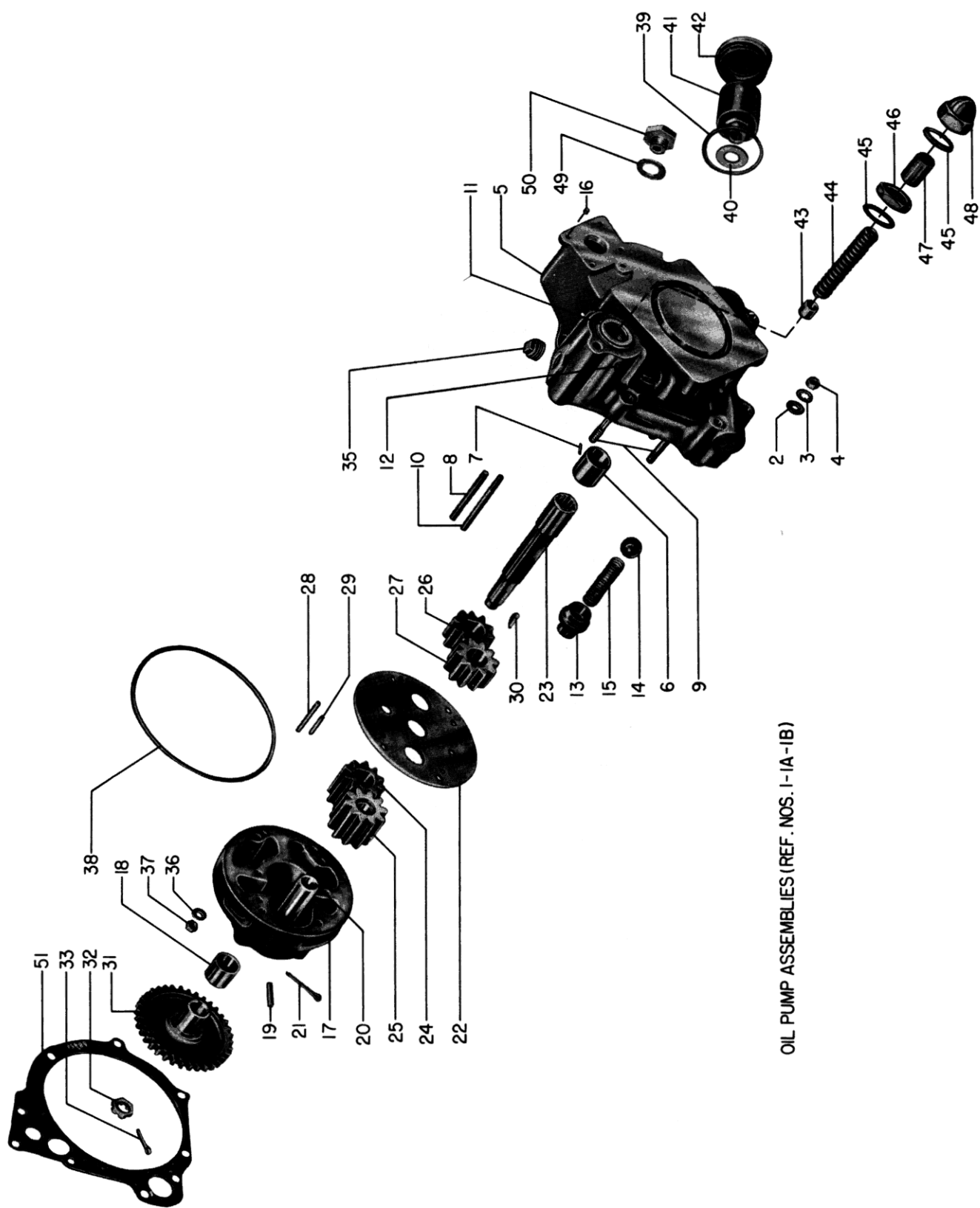
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A

11-1	69893						PUMP ASSY., Oil (No provision for hydraulic pump drive.) 69893 is no longer available; service with 73091 which employs 72785 oil filter assy. 69893 will receive only 71224 oil filter assy. unless reworked to receive 72785 by complying with Lycoming Service Bulletin No. 252. Engines with serial numbers to 1530-31 inclusive, incorporate 69893 oil pump assy.	1	VO-435-A1B, A1C, A1D
1A	71769						PUMP ASSY., Oil (No provision for hydraulic pump drive.) 71769 is no longer available; service with 73091. Both 71769 and 73091 oil pump assemblies are machined to receive a larger capacity oil filter assy. (72785). Engines with serial numbers from 1907-31 to 3000-31 and 101 to 178-52 inclusive, incorporate 71769 oil pump assy.	1	VO-435-A1D, A1E, A1F, TVO-435-A1A
1B	73091						PUMP ASSY., Oil (No provision for hydraulic pump drive.) Engines with serial numbers 3001-31 and above, incorporate 73091 oil pump assy. on VO-435 Series Engines; and 206-52 and above on TVO-435 Series Engines.	1	VO-435-A1E, A1F, TVO-435-A1A, B1A

ATTACHING PARTS

2	STD-8						WASHER, Plain, 1/4 in.	9	
3	STD-160						WASHER, Internal teeth, 1/4 in. lock	9	
4	STD-9						NUT, Plain hex, 1/4-28	9	
-----*									
5	69892						BODY ASSY., Oil pressure pump (Detail part of 69893 oil pump assy.) 69892 is no longer available; service with 73086 which is machined to receive a larger capacity oil filter assy. (72785).	1	VO-435-A1B, A1C, A1D

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



OIL PUMP ASSEMBLIES (REF. NOS. I-1A-1B)

ALL MODELS

Figure 11 - Oil Pump Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 11 - OIL PUMP GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
11-5	71770						BODY ASSY., Oil pressure pump (Detail part of 71769 oil pump assy.) 71770 is no longer available; service with 73086 which is machined to receive a larger capacity oil filter assy. (72785).	1	VO-435-A1D, A1E, A1F, TVO-435-A1A
							NOTE		
							If 69892 or 71770 oil pressure pump body assemblies need be replaced with 73086, the accessory housing cover assy. (68440) which they require, must be modified by replacing the 25-17 stud at the one o'clock position on the oil pump mounting surface with a 25-29 stud.		
	73086						BODY ASSY., Oil pressure pump (Detail part of 73091 oil pump assy.) Provision for 3/4-14 NPT hole and 4-bolt flange connection at oil inlet location. Requires acc. hsg. cover assy. 73094.	1	VO-435-A1E, A1F, TVO-435-A1A, B1A
6	68466						BUSHING, Oil pump drive shaft	1	
7	STD-394						DOWEL, 3/32 dia. x 11/32 in. long	1	
8	25D-21						STUD, 1/4-20 x 2-5/8 in. long	2	
9	25D-24						STUD, 1/4-20 x 3.00 in. long	2	
10	25D-25						STUD, 1/4-20 x 3-1/8 in. long	2	
11	68473						SLEEVE, Oil relief valve	1	
12	STD-1392						PLUG, .268-.269 dia. x 5/16 in. long	1	
13	71999						RETAINER, Ball check valve	1	
14	1028-B						BALL, 11/16 in. dia.	1	
15	73761						SPRING, Check valve	1	
							Supersedes and interchangeable with 654-B.		
16	MS122200						INSERT, Heli-Coil, #10-24 x 31/64 in. long	4	
17	69618						BODY ASSY., Oil scavenge pump	1	
18	68466						BUSHING, Oil pump drive shaft	1	
19	STD-394						DOWEL, 3/32 dia. x 11/32 in. long	1	
20	68161						SHAFT, Oil pump idler, long	1	
21	AN381-4-20						PIN, Cotter, 1/8 dia. x 1-1/4 in. long	1	
22	68468						SPACER, Oil pressure and scavenge pump	1	
23	69605						SHAFT, Oil pump	1	
24	66426						IMPELLER, Oil scavenge pump, driving	1	
25	68403						IMPELLER, Oil scavenge pump, driven	1	
26	61297						IMPELLER, Oil pressure pump, driving	1	
27	68404						IMPELLER, Oil pressure pump, driven	1	
28	69647						DOWEL, Oil pump, long	1	
29	67762						DOWEL, Oil pump	1	
30	AN280H406						KEY, Woodruff, 1/8-3/4 in. dia.	1	
31	68467						GEAR, Oil pressure and scavenge pump	1	
32	STD-61						NUT, Slotted shear, 1/2-20	1	
33	STD-60						PIN, Cotter, 3/32 dia. x 1.00 in. long	1	
34	STD-740						PLUG, Slotted, 3/4 in. pipe (shipping part; Not illustrated)	1	
35	STD-71						PLUG, Allen head, 3/8 in. pipe	1	
36	STD-8						WASHER, Plain, 1/4 in.	6	
37	STD-43						NUT, Slotted shear, 1/4-28	6	
38	AN123908						RING, Oil seal, 4-3/4 ID x 1/8 in. dia. section	2	
39	AN900-28						GASKET, Copper-asbestos, 1-3/4 ID x 3/32 in. thick	1	
40	70460						WASHER, Oil filter assy.	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 11 - OIL PUMP GROUP

Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
11-41	71224		OIL FILTER ASSY. (Req'd. with 69893 oil pump) Refer to text Ref. 1	1	VO-435-A1B, A1C, A1D
	72785		OIL FILTER ASSY. Beginning engine serial number 1531-31 on VO-435 and 101-52 on TVO-435 engines.	1	VO-435-A1E, A1F, TVO-435-A1A, B1A
42	71774		COVER, Oil filter	1	
43	67981		PLUNGER, Oil relief	1	
44	68542		SPRING, Oil pressure relief valve	1	
45	STD-351		GASKET, Annular, 31/32 OD x 23/32 ID x 3/32 in. thick	2	
46	662		NUT, Relief valve adjusting lock	1	
47	71226		SCREW, Oil relief valve adjusting	1	
48	67940		NUT, Oil relief	1	
49	STD-294		GASKET, Annular, 7/8 OD x 5/8 ID x 3/32 in.	1	
50	1540		PLUG, Thermometer well	1	
51	68456		GASKET, Hydraulic and oil pump adapter	1	

FIGURE 12 - OIL PUMP GROUP

APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A

12-1	69937		PUMP ASSY., Oil (Provision for hydraulic pump drive.) 69937 is no longer available; service with 73089 which employs 72785 oil filter assy. 69937 will receive only 71224 oil filter assy unless reworked to receive 72785 by complying with Lycoming Service Bulletin No. 252. Engines with serial numbers to 1530-31 inclusive, incorporate 69937 oil pump assy.	1	VO-435-A1B, A1C, A1D
1A	71772		PUMP ASSY., Oil (Provision for hydraulic pump drive.) 71772 is no longer available; service with 73089. Both 71772 and 73089 oil pump assemblies are machined to receive a larger capacity oil filter assy. (72785). Engines with serial numbers from 1531-31 to 2937-31 and 101 to 178-52 inclusive, incorporate 71772 oil pump assy.	1	VO-435-A1D, A1E, A1F, TVO-435-A1A
1B	73089		PUMP ASSY., Oil (Provision for hydraulic pump drive.) Engines with serial numbers 2938-31 and above, incorporate 73089 oil pump assy on VO-435 Series Engines and serial number 178-52 and above on TVO-435 Series Engines.	1	VO-435-A1E, A1F, TVO-435-A1A, B1A

ATTACHING PARTS

2	STD-8	WASHER, Plain, 1/4 in.	9
3	STD-160	WASHER, Internal teeth, 1/4 in. lock	9
4	STD-9	NUT, Plain hex, 1/4-28	9

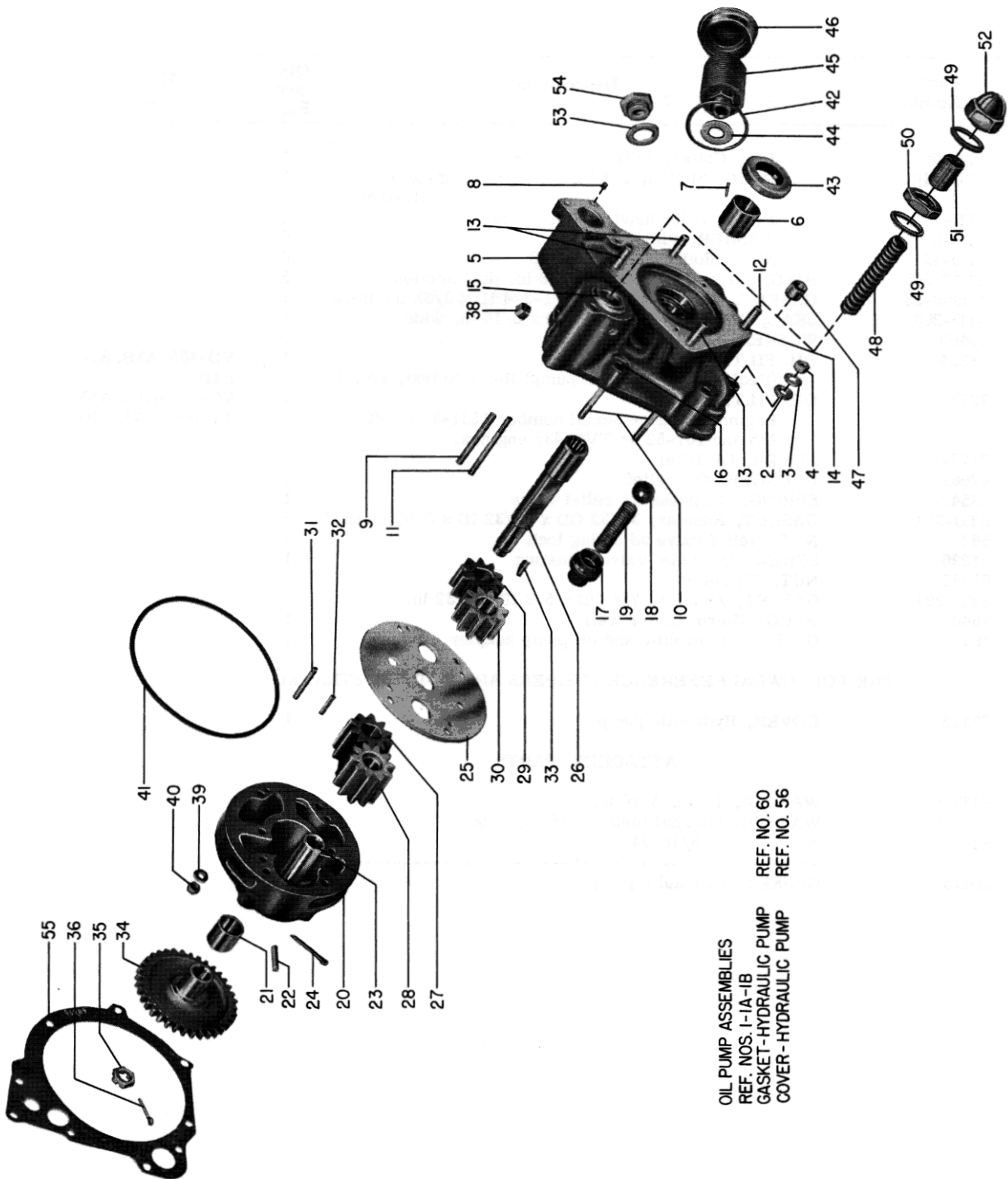
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LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 12 - OIL PUMP GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
12-5	69938						BODY ASSY., Oil pressure pump (Detail part of 69937 oil pump assy.) 69938 is no longer available; service with 73088 which is machined to receive a larger capacity oil filter assy. (72785).	1	VO-435-A1B, A1C, A1D
	71771						BODY ASSY., Oil pressure pump (Detail part of 71772 oil pump assy.) 71771 is no longer available; service with 73088 which is machined to receive a larger capacity oil filter assy. (72785).	1	VO-435-A1D, A1E, A1F, TVO-435-A1A
NOTE									
If 69938 or 71771 oil pressure pump body assemblies need be replaced with 73088, the accessory housing cover assy. (68440) which they require, must be modified by replacing the 25-17 stud at the one o'clock position on the oil pump mounting surface with a 25-29 stud.									
	73088						BODY ASSY., Oil pressure pump (Detail part of 73089 oil pump assy.) Provision for 3/4-14 NPT hole and 4-bolt flange connection at oil inlet location. Requires acc. hsg. cover assy. 73094.	1	VO-435-A1E, A1F, TVO-435-A1A, B1A
6	68466						BUSHING, Oil pump drive shaft	1	
7	STD-394						DOWEL, 3/32 dia. x 11/32 in. long	1	
8	MS122200						INSERT, Heli-Coil, #10-24 x 31/64 in. long	4	
9	25D-21						STUD, 1/4-20 x 2-5/8 in. long	2	
10	25D-24						STUD, 1/4-20 x 3.00 in. long	2	
11	25D-25						STUD, 1/4-20 x 3-1/8 in. long	2	
12	31-12						STUD, 5/16-18 x 1-1/2 in. long	1	
13	31-14						STUD, 5/16-18 x 1-3/4 in. long	3	
14	STD-1164						INSERT, Heli-Coil, 5/16-18 x 5/8 in. long	1	
15	68473						SLEEVE, Oil relief valve	1	
16	STD-1392						PLUG, .268-.269 dia. x 5/16 in. long	1	
17	71999						RETAINER, Ball check valve	1	
18	1028-B						BALL, 11/16 in. dia.	1	
19	73761						SPRING, Check valve	1	
Supersedes and interchangeable with 654-B.									
20	69618						BODY ASSY., Oil scavenge pump	1	
21	68466						BUSHING, Oil pump drive shaft	1	
22	STD-394						DOWEL, 3/32 dia. x 11/32 in. long	1	
23	68161						SHAFT, Oil pump idler, long	1	
24	AN381-4-20						PIN, Cotter, 1/8 dia. x 1-1/4 in. long	1	
25	68468						SPACER, Oil pressure and scavenge pump	1	
26	69671						SHAFT, Oil pump	1	
27	66426						IMPELLER, Oil scavenge pump, driving	1	
28	68403						IMPELLER, Oil scavenge pump, driven	1	
29	61297						IMPELLER, Oil pressure pump, driving	1	
30	68404						IMPELLER, Oil pressure pump, driven	1	
31	69647						DOWEL, Oil pump long	1	
32	67762						DOWEL, Oil pump	1	
33	AN280H406						KEY, Woodruff, 1/8 x 3/4 in. dia.	1	
34	68467						GEAR, Oil pressure and scavenge pump	1	
35	STD-61						NUT, Slotted shear, 1/2-20	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



OIL PUMP ASSEMBLIES

REF. NOS. 1-1A-1B

GASKET-HYDRAULIC PUMP

REF. NO. 60

COVER-HYDRAULIC PUMP

REF. NO. 56

ALL MODELS

Figure 12 - Oil Pump Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 12 - OIL PUMP GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
12-36	STD-60						PIN, Cotter, 3/32 dia. x 1.00 in. long	1	
37	STD-740						PLUG, Slotted, 3/4 in. pipe (shipping part) Not illustrated	1	
38	STD-71						PLUG, Allen head, 3/8 in. pipe	1	
39	STD-8						WASHER, Plain, 1/4 in.	6	
40	STD-43						NUT, Slotted shear, 1/4-28	6	
41	AN123908						RING, Oil seal, 4-3/4 ID x 1/8 in. dia. section	2	
42	AN900-28						GASKET, Copper, asbestos, 1-3/4 ID x 3/32 in. thick	1	
43	STD-208						SEAL, Oil, 7/8 ID x 1-1/2 OD x 5/16 in. wide	1	
44	70460						WASHER, Oil filter assy.	1	
45	71224						OIL FILTER ASSY. (Req'd. with 69937 oil pump) Refer to text, ref. 1.	1	VO-435-A1B, A1C, A1D
	72785						OIL FILTER ASSY. Beginning engine serial number 1531-31 on VO- 435 and 101-52 on TVO-435 engines.	1	VO-435-A1E, A1F, TVO-435-A1A, B1A
46	71774						COVER, Oil filter	1	
47	67981						PLUNGER, Oil relief	1	
48	68542						SPRING, Oil pressure relief valve	1	
49	STD-351						GASKET, Annular, 31/32 OD x 23/32 ID x 3/32 in. thick	2	
50	662						NUT, Relief valve adjusting lock	1	
51	71226						SCREW, Oil relief valve adjusting	1	
52	67940						NUT, Oil relief	1	
53	STD-294						GASKET, Annular, 7/8 OD x 5/8 ID x 3/32 in.	1	
54	1540						PLUG, Thermometer well	1	
55	68456						GASKET, Hydraulic and oil pump adapter	1	
THE FOLLOWING REFERENCE NUMBERS ARE NOT ILLUSTRATED									
56	72412						COVER, Hydraulic pump	1	
ATTACHING PARTS									
57	STD-35						WASHER, Plain, 5/16 in.	4	
58	STD-475						WASHER, Internal teeth, 5/16 in. lock	4	
59	STD-37						NUT, Plain, 5/16-24	4	
							-----*		
60	20415						GASKET, Hydraulic pump	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 13 - MAGNETOS AND MAGNETO DRIVE GROUP

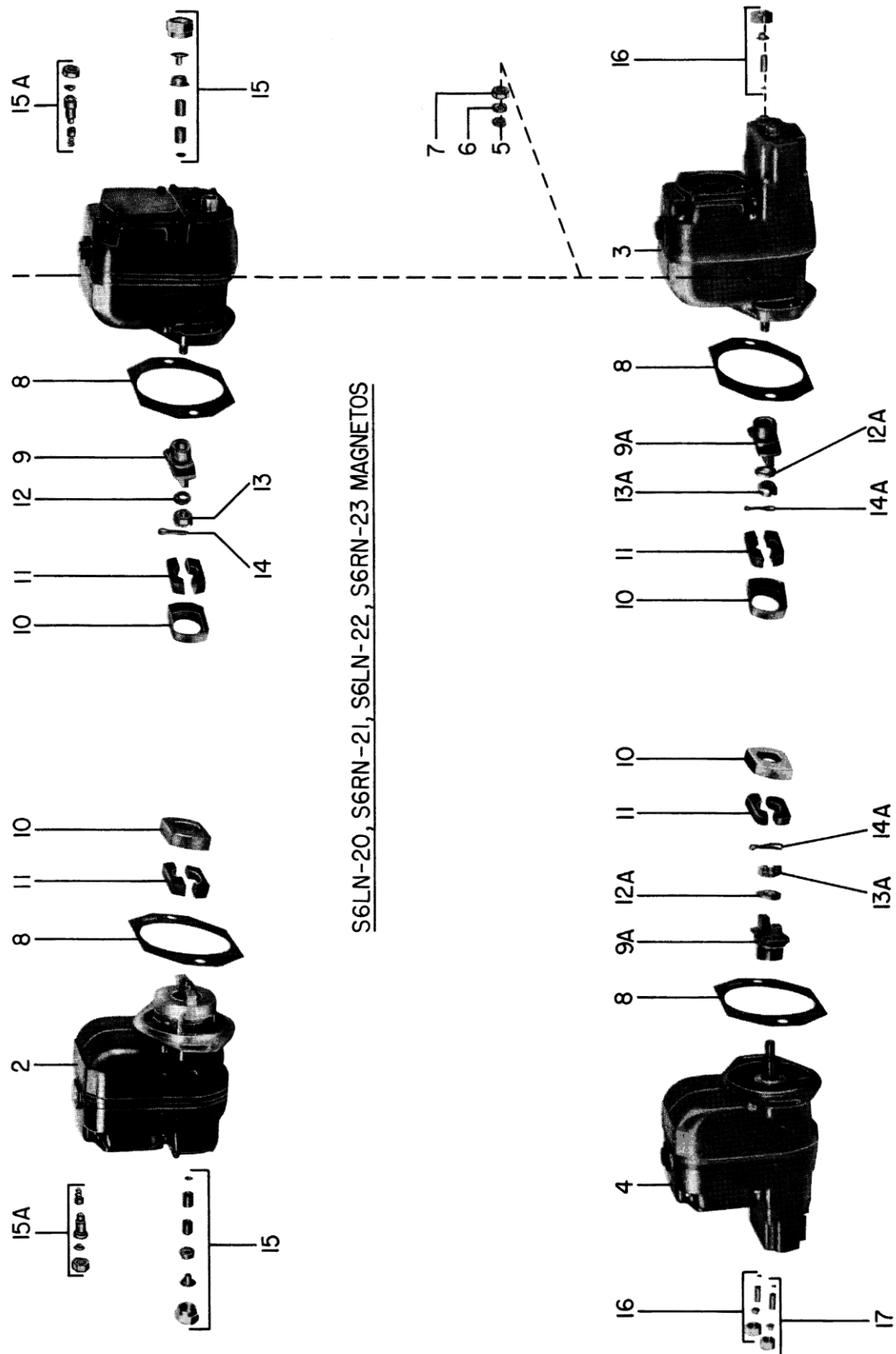
Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A					
13-1	71436		MAGNETO (Same as Bendix-Scintilla No. 10-51365-33, Type S6LN-20) Supersedes and interchangeable with 69606. Magneto 71436 does not conform to MIL. Specification AN-I-27.	1	VO-435-A1B, A1C, A1D
NOTE					
Supersedure was made to provide for a stronger rotor shaft and an improved breaker assembly. New rotor shaft has a magnet capable of receiving a full charge without requiring the charge to be knocked down.					
	71437		MAGNETO (Same as Bendix-Scintilla No. 10-52350-22, Type S6LN-22). 71437 meets the radio inter- ference requirements of MIL. Spec. AN-I-27.	1	" " "
2	71435		MAGNETO, Impulse coupling (Same as Bendix-Scintilla No. 10-51365-34, Type S6RN-21). Supersedes and interchangeable with 69607. Magneto 71435 does not conform to MIL. Specification AN-I-27. The above "NOTE", reference 13-1, also applies to 71435 magneto.	1	" " "
	71438		MAGNETO, Impulse coupling (Same as Bendix-Scintilla No. 10-52350-23, Type S6RN-23). 71438 meets the radio inter- ference requirements of MIL. Spec. AN-I-27.	1	
3	72038		MAGNETO (Same as Bendix-Scintilla No. 10-163050-1, Type S6LN-204.)	1	VO-435-A1E, A1F, TVO-435-A1A, B1A
4	71163		MAGNETO Retard Breaker (retard angle 30°) (Scintilla P/N 10-163010-1) Superseded by 74174 beginning engine serial No. 3031-31 and 220-52.	1	" " "
	74174		MAGNETO, Retard breaker (Retard angle 25°) (Same as Bendix Scintilla No. 10-163010-15, Type S6RN-200). Magneto 74174 supersedes and replaces 71163 to improve the starting of vertical engines.	1	" " "
ATTACHING PARTS					
5	STD-1727		WASHER, Plain, 3/4 OD x 11/32 ID x 1/8 in. thk.	4	
6	STD-475		WASHER, Internal teeth, 5/16 in. lock	4	
7	STD-37		NUT, Plain, 5/16-24	4	
-----*					
8	62224		GASKET, Magneto Replaces 45663.	2	
9	69208		COUPLING, Magneto drive (Required with magnetos, 71436 and 71437.)	1	VO-435-A1B, A1C, A1D
9A	69208		COUPLING, Magneto drive (Required with magnetos 72038 and 74174.)	2	VO-435-A1E, A1F, TVO-435-A1A, B1A
10	68875		RETAINER, Magneto drive cushion	2	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 13 - MAGNETOS AND MAGNETO DRIVE GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
13-11	68874						CUSHION, Magneto drive	4	
							ATTACHING PARTS		
12	10-4093						WASHER (Required with magnetos, 71436 and 71437.)	1	VO-435-A1B, A1C, A1D
12A	10-4093						WASHER (Required with magnetos, 74174 and 72038.)	2	VO-435-A1E, A1F, TVO-435-A1A, B1A
13	10-4092						NUT (Required with magnetos, 71436 and 71437.)	1	VO-435-A1B, A1C, A1D
13A	10-163151						NUT (Required with magnetos, 74174 and 72038.)	2	VO-435-A1E, A1F, TVO-435-A1A, B1A
14	10-90751-19						PIN, Cotter (Required with magnetos, 71436 and 71437.)	1	VO-435-A1B, A1C, A1D
14A	10-90751-19						PIN, Cotter (Required with magnetos, 74174 and 72038.)	2	VO-435-A1E, A1F, TVO-435-A1A, B1A
							-----*		
15	61566						KIT ASSY., Magneto ground terminal (Same as Bendix-Scintilla P/N 10-52305-1.) Procurable as an assembly only. Required with magnetos, 71435 and 71436.	2	VO-435-A1B, A1C, A1D
15A	70497						KIT ASSY., Magneto ground terminal (Same as Bendix-Scintilla P/N 10-52306.) Procurable as an assembly only. Required with magnetos, 71437 and 71438.	2	" " "
16	71574						KIT, Magneto ground terminal (Required with magnetos, 74174 and 72038.)	2	VO-435-A1E, A1F, TVO-435-A1A, B1A
17	71571						KIT, Magneto retard terminal (Required with magneto, 74174.)	1	" " "

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL MODELS

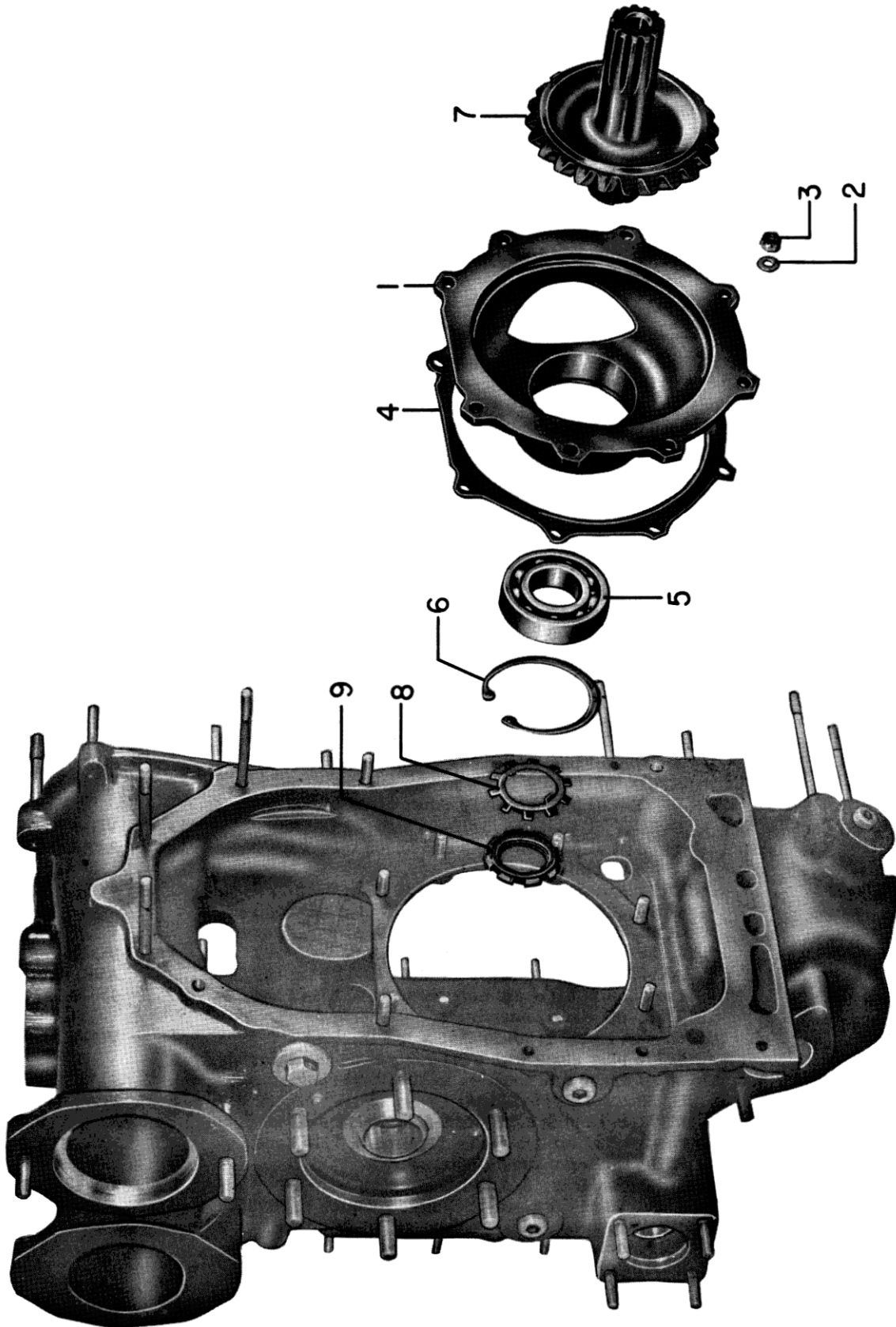
Figure 13 - Magnetos and Magneto Drive Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 14 - ACCESSORY DRIVE GEAR AND ADAPTER GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A									
14-1	67639	ADAPTER, Accessory drive shaft						1	
ATTACHING PARTS									
2	STD-8	WASHER, Plain, 1/4 in.						8	
3	STD-97	NUT, Slotted, 1/4-28						8	
-----*									
4	67638	SHIM, Accessory drive shaft adapter						1	
5	30311	BEARING, Accessory drive gear						1	
6	STD-1698	RING, Internal-retaining, 2-5/8 dia. x 5/64 in. thick						1	
7	68835	GEAR, Accessory drive						1	
8	67642	LOCKWASHER, Accessory drive shaft						1	
9	67641	NUT, Accessory drive shaft						1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL MODELS

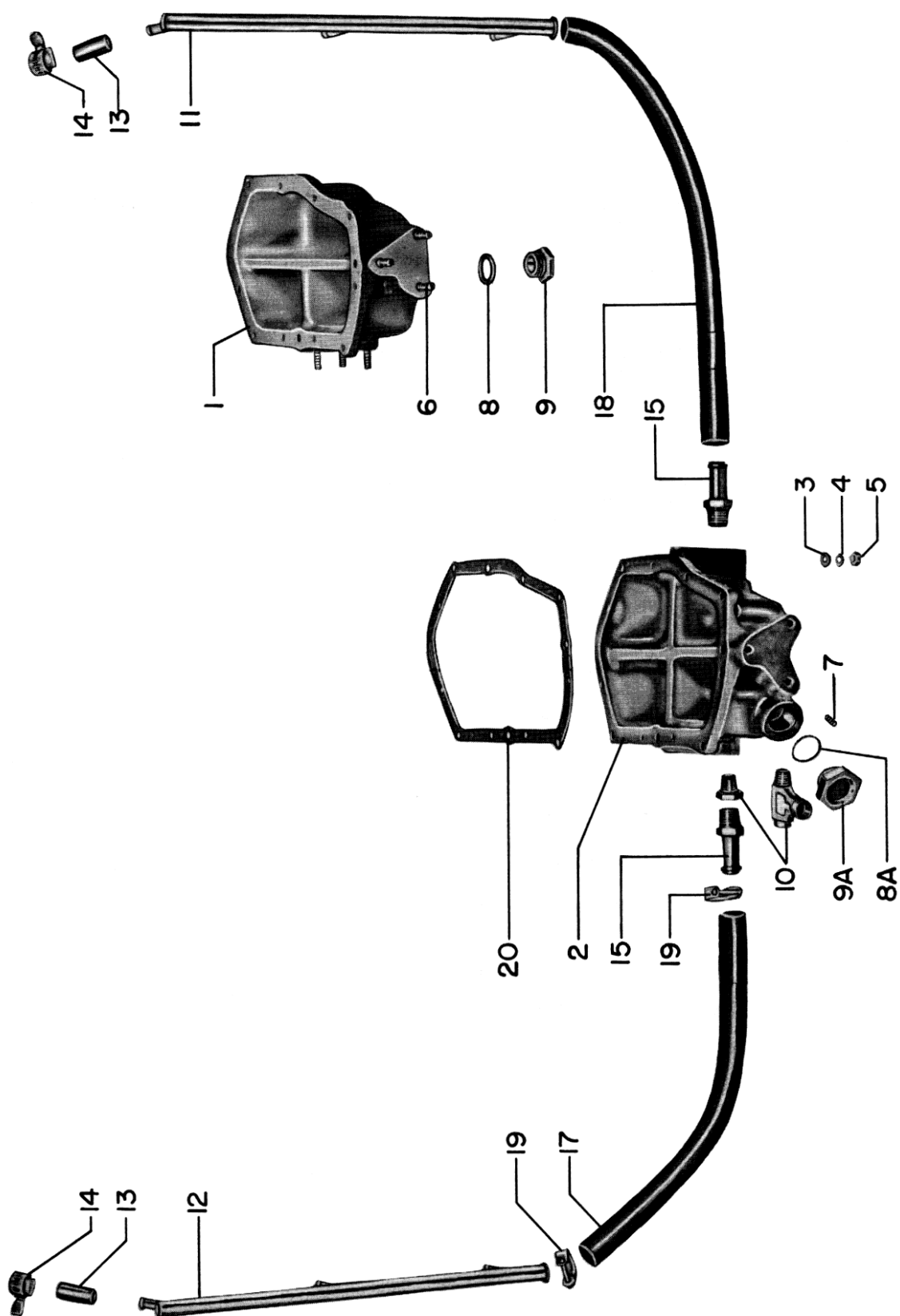
Figure 14 - Accessory Drive Gear and Adapter Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 15 - OIL SUMP AND RELATED PARTS GROUP

Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A					
15-1	70319		SUMP ASSY., Oil Supersedes and interchangeable with 69756.	1	VO-435-A1B
NOTE					
The difference between the two assemblies is as follows; The six mounting pad studs on 69756 are 31-12, whereas the studs on 70319, part number 31-14 are 1/4 inch longer, 69756 oil sump is made from aluminum casting, whereas 70319 is made from magnesium casting.					
2	71142		SUMP ASSY., Oil	1	VO-435-A1C, A1D, A1E
	73705		SUMP ASSY., Oil	1	VO-435-A1F, TVO-435-A1A, B1A
ATTACHING PARTS					
3	STD-8		WASHER, Plain, 1/4 in.	11	
4	STD-160		WASHER, Internal teeth, 1/4 in. lock	11	
5	STD-9		NUT, Plain, 1/4 in.	11	
-----*					
6	31-12		STUD, 5/16-18 x 1-1/2 in. long Detail part of 69756 oil sump assy.	6	VO-435-A1B
	31-14		STUD, 5/16-18 x 1-3/4 in. long Detail part of 70319 oil sump assy.	6	"
7	MS124777		INSERT, Heli-Coil, 5/16-24 x 25/32 in. long Detail part of 71142 and 73705 oil sump assemblies	13	VO-435-A1C, A1D, A1E, A1F, TVO-435-A1A, B1A
8	STD-111		GASKET, Annular, 1.00 ID x 1-1/4 OD x 3/32 in. STD-111 gasket along with 69335 plug is required at oil drain hole location in 70319 oil sump assy.	1	VO-435-A1B
8A	AN6290-12		SEAL, 59/64 ID x 7/64 in. dia. section AN6290-12 seal along with MS9015-12 plug is required at oil drain hole location in 71142 and 73705 oil sump assemblies.	1	VO-435-A1C, A1D, A1E, A1F, TVO-435-A1A, B1A
9	69335		PLUG, Hex head, 1.00-20 thd. x 5/8 in. long 69335 plug along with STD-111 gasket is required at oil drain hole location in 70319 oil sump assy.	1	VO-435-A1B
9A	MS9015-12		PLUG, Hex., 1-1/16-12 thd. MS9015-12 plug along with AN6290-12 seal is required at oil drain hole location in 71142 and 73705 oil sump assemblies.	1	VO-435-A1C, A1D, A1E, A1F, TVO-435-A1A, B1A
10	AN912-7D		BUSHING, Reducer, 3/4 to 1/2 in. pipe Required at oil drain-back hole location in 73705 oil sump assy.	1	VO-435-A1F
	73671		TEE, Turbocharger oil drain Required at oil drain-back hole location in 73705 oil sump assy.	1	TVO-435-A1A, B1A
11	69663		TUBE, Rocker box drain (right) (Not illustrated) Requires STD-1576 hose. Tube 69663 is no longer available. If replacement is necessary, service with 71702 tube and 72045 hose.	1	VO-435-A1B, A1C, A1D

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



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Figure 15 - Oil Sump and Related Parts Group

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 15 - OIL SUMP AND RELATED PARTS GROUP

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
15-11	71203						TUBE, Rocker box drain (right) (Not illustrated) Requires STD-1576 hose. Tube 71203 is no longer available. If replacement is necessary, service with 71702 tube and 72045 hose.	1	VO-435-A1C, A1D, A1E
	71702						TUBE, Rocker box drain Requires 73731 (left) hose and 72045 (right) hose.	1	VO-435-A1D, A1E, A1F, TVO-435-A1A, B1A
12	69664						TUBE, Rocker box drain (left) (Not illustrated) Requires STD-1576 hose. Tube 69664 is no longer available. If replacement is necessary, service with 71702 tube and 73731 hose.	1	VO-435-A1B, A1C, A1D
	71204						TUBE, Rocker box drain (left) (Not illustrated) Requires STD-1576 hose. Tube 71204 is no longer available. If replacement is necessary, service with 71702 tube and 73731 hose.	1	VO-435-A1C, A1D, A1E
	71702						TUBE, Rocker box drain Requires 73731 (left) hose and 72045 (right) hose.	1	VO-435-A1D, A1E, A1F, TVO-435-A1A, B1A
13	STD-1793						HOSE, 3/8 ID x 1-21/32 in. long	6	
ATTACHING PARTS									
14	STD-1252						CLAMP, Hose, 11/16 ID x 1/2 in. wide	12	
15	AN840-10D						ADAPTER, Hose to pipe thd., 1/2 pipe x 5/8 in. dia. hose	2	
16	STD-1576						HOSE, 5/8 ID x 31/32 OD x 2-1/2 in. long (left and right) Required with rocker box drain tubes 69663, 69664, 71203 and 71204 (Not Illustrated).	2	VO-435-A1C, A1D, A1E
17	73731						HOSE, Rocker box drain tube, cylinder 2-4-6 (Left) Supersedes 71703	1	VO-435-A1D, A1E, A1F, TVO-435- A1A, B1A
18	72045						HOSE, Rock box drain tube, cylinder 1-3-5 (Right) Supersedes 71703.	1	" " "
ATTACHING PARTS									
19	STD-1640						CLAMP, Hose, 15/16 ID x 1/2 in. wide	4	
20	72437						GASKET, Oil sump Replaces 69657.	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
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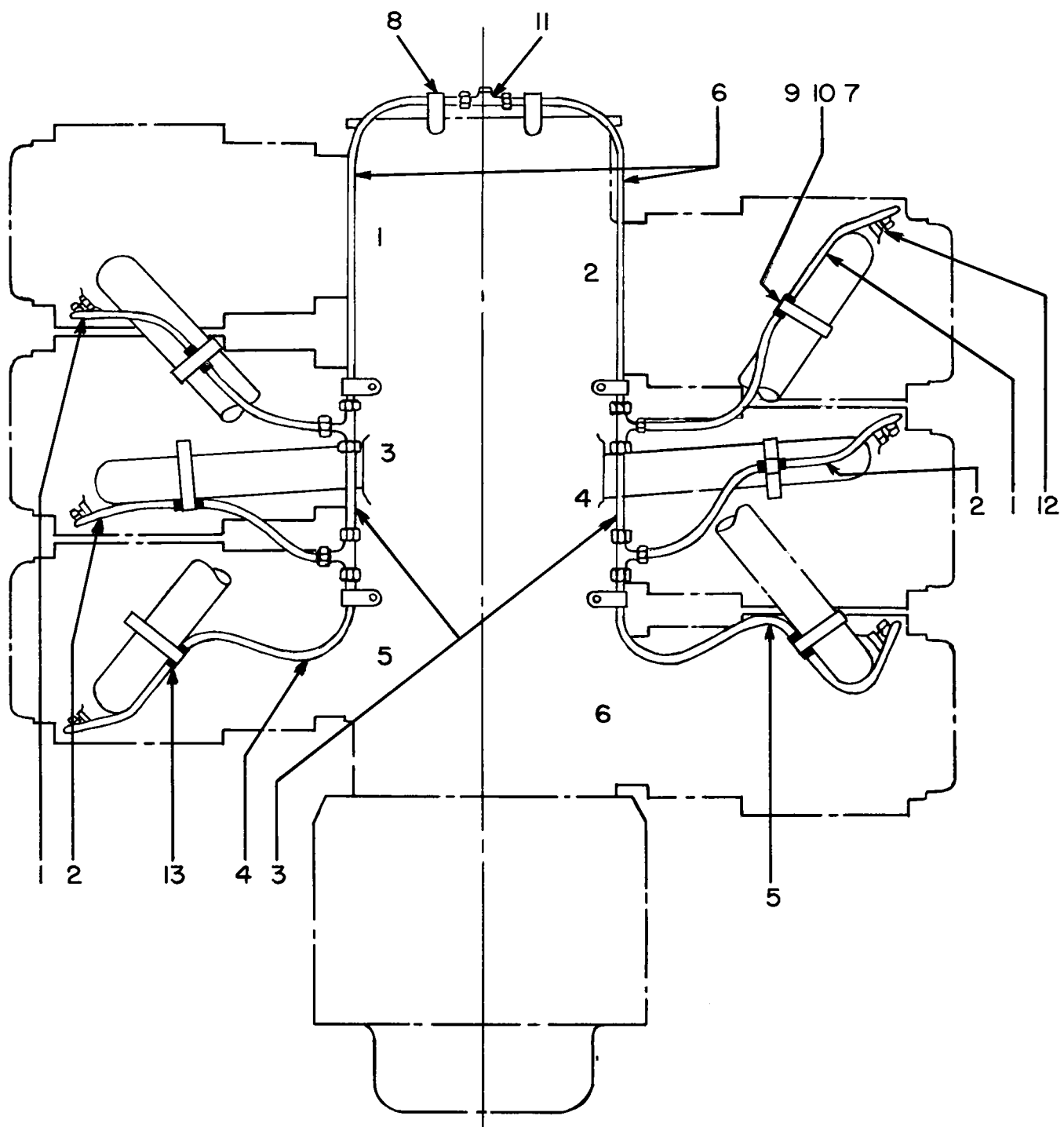
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LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 16 - PRIMING SYSTEM

Ref. No.	Part Number	1 2 3 4 5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A					
16-1	61581-9		TUBE ASSEMBLY, Primer (16-11/16 in. long, cylinders 1 and 2)	2	
2	61581-5		TUBE ASSEMBLY, Primer (14-9/16 in. long, cylinders 3 and 4)	2	
3	61581-10		TUBE ASSEMBLY, Primer (5.00 in. extension.)	2	
4	61581-1		TUBE ASSEMBLY, Primer (15-5/16 in. long, cylinder 5)	1	
5	61581-4		TUBE ASSEMBLY, Primer (16-5/16 in. long, cylinder 6)	1	
6	61581-3		TUBE ASSEMBLY, Primer (10-5/16 in. long, inter.)	2	
7	71910		CLAMP, Primer line	6	
8	62254		CLIP, Primer line	6	
ATTACHING PARTS					
9	AN365-632C		NUT, Self-locking, #6-32	6	
10	STD-553		SCREW, Rd. head, #6-32 x 1/2 in. long	6	
-----*					
11	STD-853		TEE, Union, 1/8 in. tube	5	
12	STD-546		NIPPLE, Primer	6	
13	71811		SLEEVE, Priming line Detail part of primer tube assemblies, 61581-1, 61581-4, 61581-5 and 61581-9.	6	
NOTE					
A single point primer system, assembled in center zone at hole now used for measuring manifold pressure, is provided for Bell installations. Use No. 6 cylinder primer hole for measuring manifold pressure. This change removed all primer lines and attaching parts and added the following parts which are not illustrated.					
14	STD-1900		NIPPLE, Primer (ship loose)	1	VO-435-A1E, A1F, TVO-435-A1A, B1A
15	STD-176		NUT, Union, 1/8 in. tubing (Ship loose)	1	" " "
16	STD-869		CONE, Union, 1/8 in. tubing (Ship loose)	1	" " "
17	1102		PLUG, Allen, 1/8-27 NPT Assemble in each cyl. primer hole when using single point priming system.	6	" " "
18	74376		ELBOW ASSY., Primer, 45° (Ship loose) Supersedes and replaces STD-1900 nipple, STD-176 nut and STD-869 cone (Interchangeable in sets). See Figure 6, reference 10 or Figure 7, reference 12 for this illustrated part.	1	" " "

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



ALL MODELS

Figure 16 - Priming System

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
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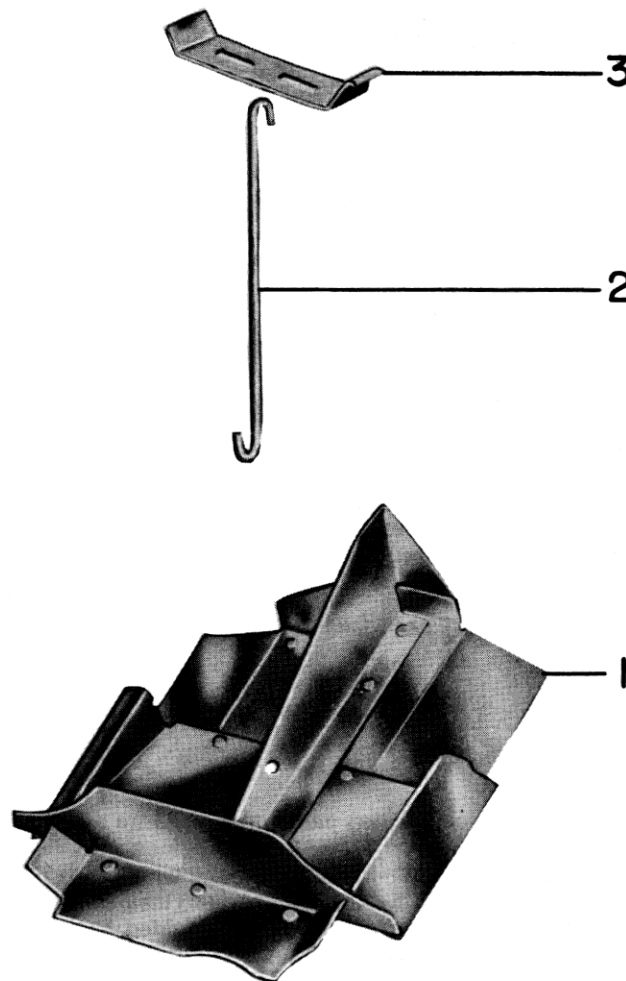
LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 17 - INTERCYLINDER COOLING BAFFLES

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A, B1A									
17-1	69947						BAFFLE ASSY., Intercylinder	4	
ATTACHING PARTS (Current)									
2	71629						HOOK, Intercylinder baffle retainer	4	
3	71611						RETAINER, Intercylinder baffle	4	

NOTE

Attaching parts other than the current attaching parts listed above must be serviced in accordance with Lycoming Service Bulletin No. 254A (71611 retainer and 71629 hook).



ALL MODELS

Figure 17 - Intercylinder Cooling Baffles

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

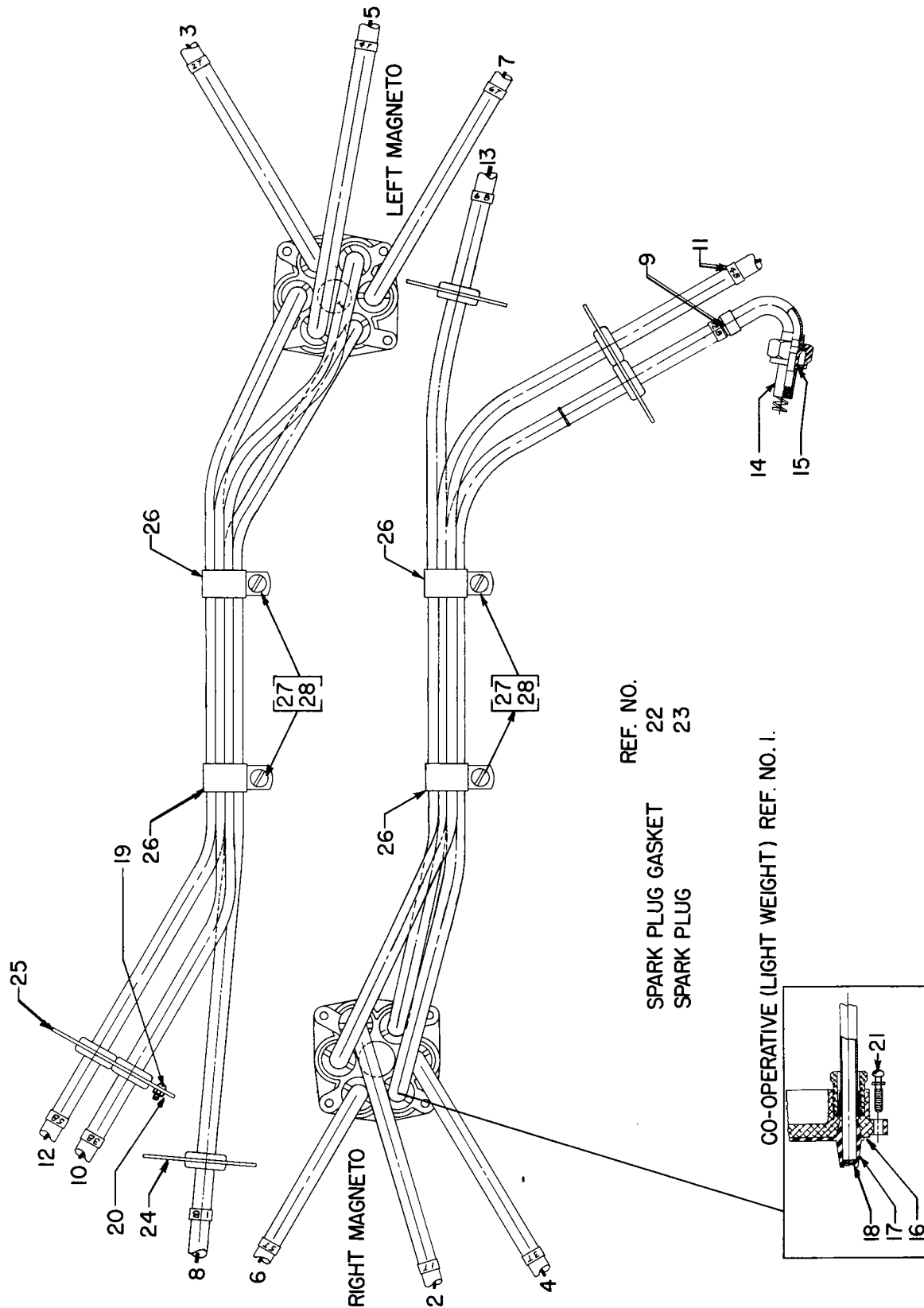
FIGURE 18 - IGNITION SHIELDING ASSEMBLY

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E, A1F, TVO-435-A1A									
18-1	71396						CABLE ASSY., Ignition, shielded Same as Co-operative Industries, Inc. Chester, N.J. P/N 58499. Does not meet MIL-Specification AN-I-27. Non-conduit type, spark plug elbows are not procurable.	1	
2	58513-2504						LEAD ASSY., Top No. 1	1	
3	58513-2204						LEAD ASSY., Top No. 2	1	
4	58513-1804						LEAD ASSY., Top No. 3	1	
5	58513-1504						LEAD ASSY., Top No. 4	1	
6	58513-1304						LEAD ASSY., Top No. 5	1	
7	58513-0904						LEAD ASSY., Top No. 6	1	
8	58513-5804						LEAD ASSY., Bottom No. 1	1	
9	58513-5804						LEAD ASSY., Bottom No. 2	1	
10	58513-5104						LEAD ASSY., Bottom No. 3	1	
11	58513-5604						LEAD ASSY., Bottom No. 4	1	
12	58513-5004						LEAD ASSY., Bottom No. 5	1	
13	58513-4904						LEAD ASSY., Bottom No. 6	1	
14	71489						SLEEVE, Spark plug terminal	12	
15	71401						COLLAR, Spark plug terminal	12	
16	66835						PLATE, Ignition cable outlet, shielded	2	
17	66836						GROMMET, Ignition cable, 6 wire	2	
18	71875						WASHER, High tension cable contact When supply of 71875 is exhausted; service with 73245 eyelet.	12	
19	STD-692						SCREW, Rd. head, #10-32 x 1/2 in. long	8	
20	STD-670						NUT, Self-locking, #10-32	8	
21	72351						SCREW, Self-locking, #10-32	8	
REFERENCE NUMBERS 22 AND 23 ARE NOT ILLUSTRATED									
22	STD-295						GASKET, Annular, 31/32 OD x 23/32 ID x 5/64 in. (Furnished with spark plug)	12	
23	1182-K3						SPARK PLUG (.018-.022 gap) (Same as AC SR-87) Alternate to 1182-B3.	12	
24	54210						PLATE, (single grommet)	2	
25	54211						PLATE, (dual grommet)	2	
26	54219						CLAMP	4	
ATTACHING PARTS									
27	5152						NUT	4	
28	6799						SCREW	4	
-----*									

NOTE

71396 shielded ignition cable assy. and its alternate 69559, was used on VO-435-A1F engines with serial nos. to 3063-31 inclusive and on TVO-435-A1A engines to 236-52 inclusive. Engines above these serial numbers, use 74341 shielded ignition cable assy. See "NOTE", Figure 20, reference 1.

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



MODELS - VO-435-A1B, A1C, A1D, A1E, A1F AND TVO-435-A1A

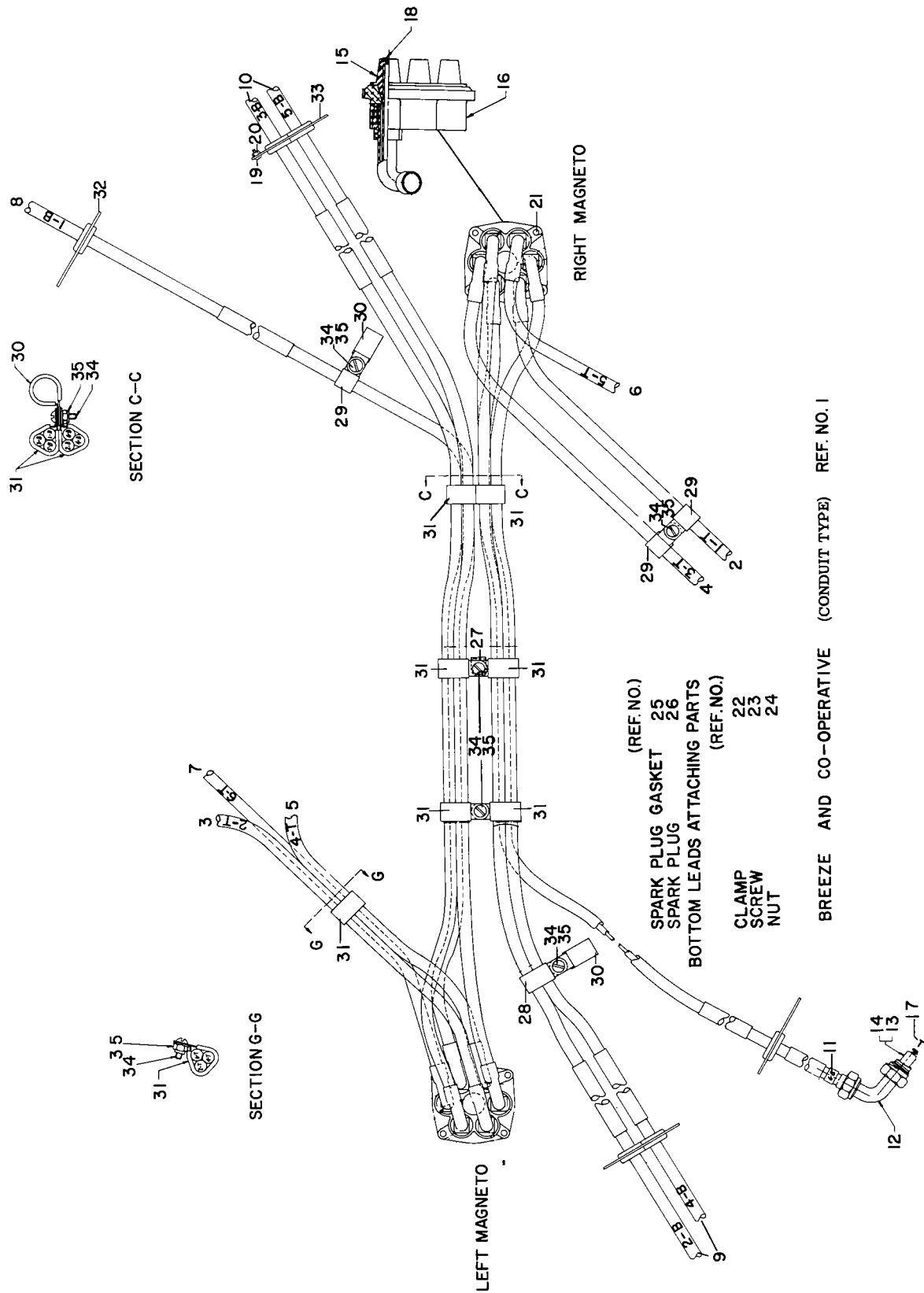
Figure 18 - Ignition Shielding Assembly

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 19 - IGNITION SHIELDING ASSEMBLY

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - VO-435-A1B, A1C, A1D, A1E									
19-1	70423						CABLE ASSY., Ignition shielded Same as Breeze Corporation Inc. Union, N.J. P/N E-3561 or Co-operative Industries, Inc. Chester, N.J. P/N 59271. Conduit type, meets with MIL-Specification AN-I-27.	1	
							Service parts for 70423 are:		
2	E-1199-602-1808						CONDUIT ASSY., Top No. 1	1	Breeze
	59278						CONDUIT ASSY., Top No. 1	1	Co-operative
3	E-1199-603-1800						CONDUIT ASSY., Top No. 2	1	Breeze
	59276						CONDUIT ASSY., Top No. 2	1	Co-operative
4	E-1199-602-1200						CONDUIT ASSY., Top No. 3	1	Breeze
	59281						CONDUIT ASSY., Top No. 3	1	Co-operative
5	E-1199-602-0908						CONDUIT ASSY., Top No. 4	1	Breeze
	59274						CONDUIT ASSY., Top No. 4	1	Co-operative
6	E-1199-603-0604						CONDUIT ASSY., Top No. 5	1	Breeze
	59279						CONDUIT ASSY., Top No. 5	1	Co-operative
7	E-1199-602-1200						CONDUIT ASSY., Top No. 6	1	Breeze
	59277						CONDUIT ASSY., Top No. 6	1	Co-operative
8	E-1134-111-10						CONDUIT ASSY., Bottom No. 1	1	Breeze
	59273						CONDUIT ASSY., Bottom No. 1	1	Co-operative
9	E-1134-112-10						DUAL CONDUIT ASSY., Bottom	1	Breeze
							No. 2 and 4		
	59280						DUAL CONDUIT ASSY., Bottom	1	Co-operative
							No. 2 and 4		
10	E-1134-112-20						DUAL CONDUIT ASSY., Bottom	1	Breeze
							No. 3 and 5		
	59275						DUAL CONDUIT ASSY., Bottom	1	Co-operative
							No. 3 and 5		
11	E-1134-111-20						CONDUIT ASSY., Bottom No. 6	1	Breeze
	59282						CONDUIT ASSY., Bottom No. 6	1	Co-operative
12	AN3104-2						ELBOW ASSY. (110°)	12	Breeze
	5585						ELBOW ASSY. (110°)	12	Co-operative
13	71489						SLEEVE, Spark plug terminal	12	
14	5651						COLLAR, Spark plug terminal	12	Co-operative
	E-1181-30-1						COLLAR, Spark plug terminal	12	Breeze
15	66836						GROMMET, Ignition cable, 6 wire	2	
							Requires twelve 5178 (Co-operative) sleeves.		
	E-1360-9-3						GROMMET	2	Breeze
16	52426						PLATE, Ignition cable outlet, shielded	2	Co-operative
	E-1071-42-1						PLATE, Ignition cable outlet, shielded	2	Breeze
17	5422						NAIL	12	Co-operative
18	71875						WASHER, High tension cable contact	12	
							When supply of 71875 is exhausted; service with 73245 eyelet.		
19	STD-692						SCREW, Rd. head, #10-32 x 1/2 in. long	8	
20	STD-670						NUT, Self-locking, #10-32	8	
21	72351						SCREW, Self-locking, #10-32	8	
BOTTOM LEADS ATTACHING PARTS (Not Illustrated)									
22	71911						CLAMP, Offset (intake pipe)	6	
23	STD-553						SCREW, Rd. head, #6-32 x 1/2 in. long	6	
24	AN365-632C						NUT, Self-locking, #6-32	6	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



MODELS - VO-435-A1B, A1C, A1D AND A1E

Figure 19 - Ignition Shielding Assembly

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 19 - IGNITION SHIELDING ASSEMBLY

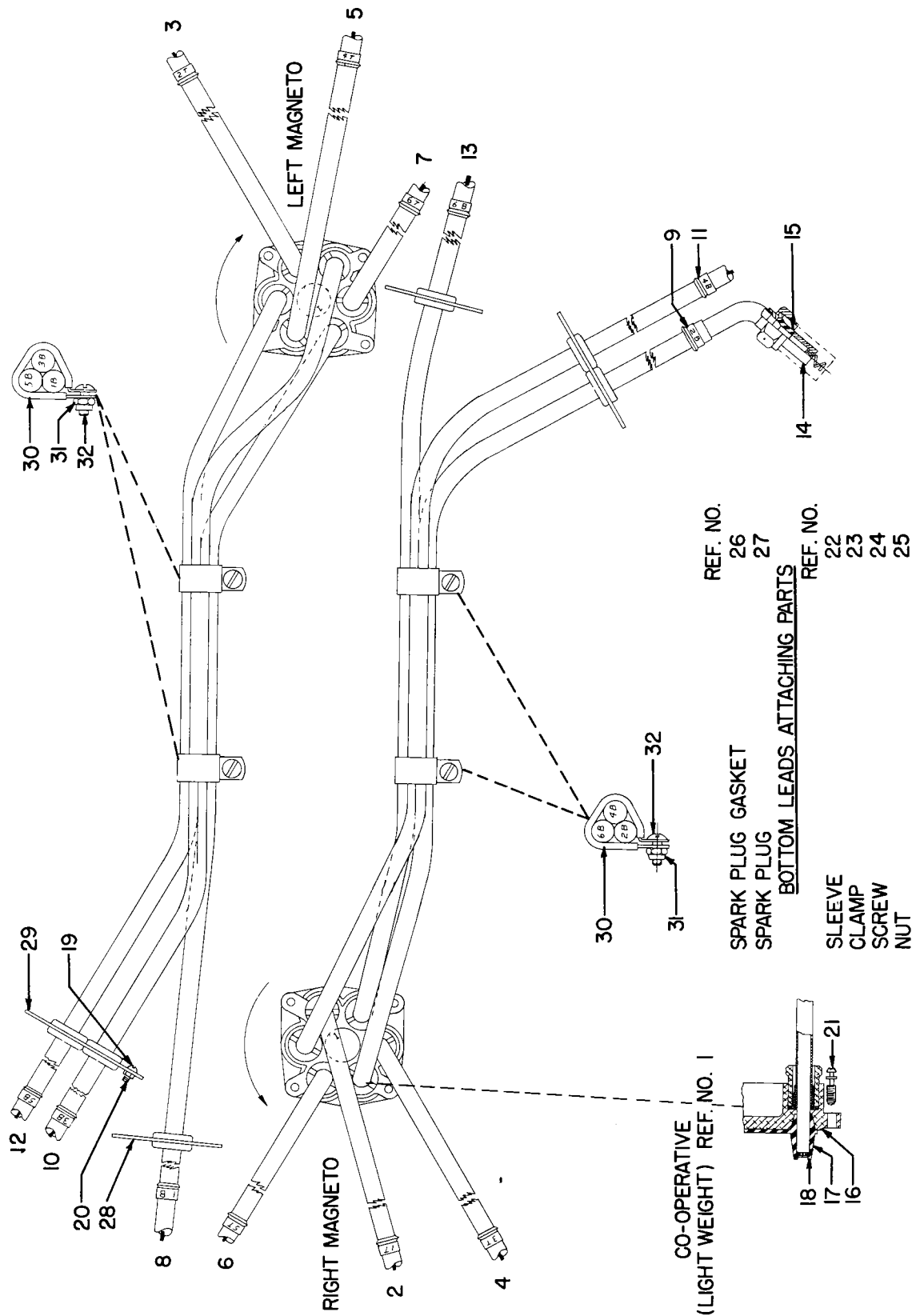
Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
REFERENCE NUMBERS 25, AND 26 ARE NOT ILLUSTRATED.									
19-25	STD-295						GASKET, Annular, 31/32 OD x 23/32 ID x 5/64 in. (Furnished with spark plug.)	12	
26	1182-K3						SPARK PLUG, (.018-.022 gap) (Same as AC SR-87) Alternate to 1182-B3.	12	
27	52442						BRACKET	1	Co-operative
	E-1046-41-8						BRACKET	1	Breeze
28	6783						CLAMP	1	Co-operative
	E-1348-14-10						CLAMP	1	Breeze
29	6778						CLAMP	3	Co-operative
	MS21919-G6						CLAMP	3	Breeze
30	6802						CLAMP	3	Co-operative
	MS21919-G12						CLAMP	3	Breeze
31	54219						CLAMP	7	Co-operative
	E-1348-13-10						CLAMP	7	Breeze
32	54586						BRACKET (single grommet)	2	Co-operative
33	54588						BRACKET (dual grommet)	2	Co-operative
ATTACHING PARTS									
34	6456						SCREW	7	Co-operative
	STD-692						SCREW	7	Breeze
35	5152						NUT	7	Co-operative
	AN365-1032						NUT	7	Breeze
-----*									

FIGURE 20 - IGNITION SHIELDING ASSEMBLY

APPLICABLE MODELS - VO-435-A1F, TVO-435-A1A

20-1	74341						CABLE ASSY., Ignition, shielded Same as Co-operative Industries, Inc. Chester, N.J. P/N 59686. Does not meet MIL-Specifi- cation AN-I-27. Non-conduit type, spark plug elbows are not procurable.	1	
NOTE									
74341 shielded ignition cable assy. supersedes 69559 and it's alternate 71396 on engine serial nos. beginning with 3064-31 on VO-435-A1F engines and 237-52 on TVO-435-A1A engines.									
Service parts for 74341 are:									
2	59651-2504						LEAD ASSY., Top No. 1	1	
3	59651-2204						LEAD ASSY., Top No. 2	1	
4	59651-1804						LEAD ASSY., Top No. 3	1	
5	59651-1504						LEAD ASSY., Top No. 4	1	
6	59651-1304						LEAD ASSY., Top No. 5	1	
7	59651-0904						LEAD ASSY., Top No. 6	1	
8	59687-5804						LEAD ASSY., Bottom No. 1	1	
9	59688-5804						LEAD ASSY., Bottom No. 2	1	
10	59687-5104						LEAD ASSY., Bottom No. 3	1	
11	59687-5604						LEAD ASSY., Bottom No. 4	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



MODELS - VO-435-A1F AND TVO-435-A1A

Figure 20 - Ignition Shielding Assembly

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 20 - IGNITION SHIELDING ASSEMBLY

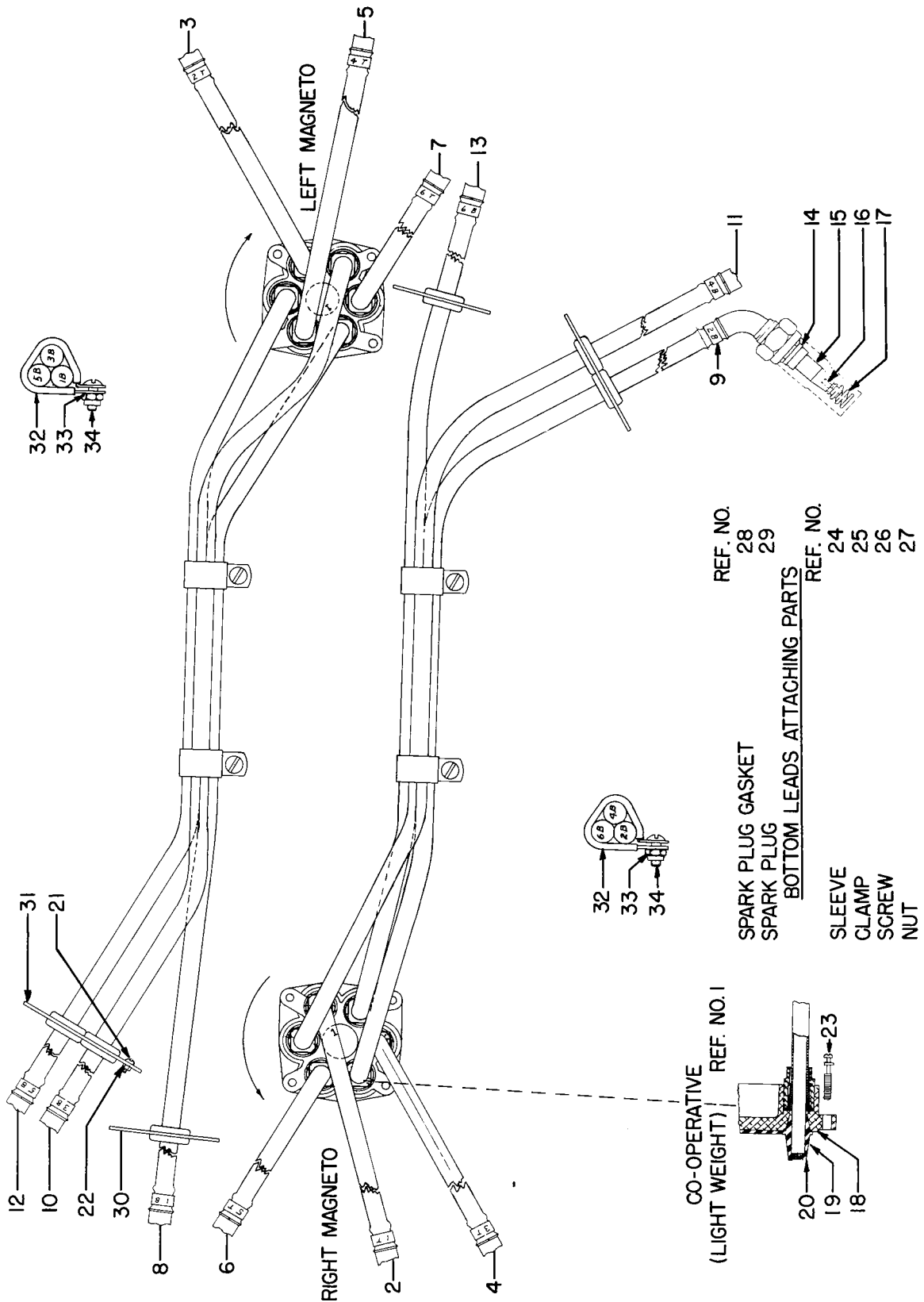
Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
20-12	59688-5004						LEAD ASSY., Bottom No. 5	1	
13	59687-4904						LEAD ASSY., Bottom No. 6	1	
14	71489						SLEEVE, Spark plug terminal	12	
15	7269						COLLAR, Spark plug terminal	12	
16	66835						PLATE, Ignition cable outlet, shielded	2	
17	66836						GROMMET, Ignition cable, 6 wire	2	
18	71875						WASHER, High tension cable contact	12	
							When supply of 71875 is exhausted; service with 73245 eyelet.		
19	STD-692						SCREW, Rd. head, #10-32 x 1/2 in. long	8	
20	STD-670						NUT, Self-locking, #10-32	8	
21	72351						SCREW, Self-locking, #10-32	8	
BOTTOM LEADS ATTACHING PARTS (Not Illustrated)									
22	66216						SLEEVE, Ignition cable	6	
23	71911						CLAMP, Offset, (intake pipe)	6	
24	STD-553						SCREW, Rd. head, #6-32 x 1/2 in. long	6	
25	AN365-632C						NUT, Self-locking, #6-32	6	
REFERENCE NUMBERS 26 AND 27 ARE NOT ILLUSTRATED									
26	STD-295						GASKET, Annular, 31/32 OD x 23/32 ID x 5/64 in. (Furnished with spark plug.)	12	
27	1182-P2						SPARK PLUG (.015-.018 gap) (Same as AC SR-83-P) Alternate to 1182-N3.	12	
28	54210						PLATE (single grommet)	2	
29	54211						PLATE (dual grommet)	2	
30	54219						CLAMP	4	
ATTACHING PARTS									
31	5152						NUT	4	
32	6799						SCREW	4	
-----*									

FIGURE 21 - IGNITION SHIELDING ASSEMBLY

APPLICABLE MODEL - TVO-435-B1A

21-1	72459						CABLE ASSY., Ignition, shielded Same as Co-operative Industries, Inc. Chester, N.J. P/N 59765. Does not meet MIL-Specification AN-I-27. Non-conduit type, spark plug elbows are not procurable.	1	
Service parts for 72459:									
2	59766-2504						LEAD ASSY., Top No. 1	1	
3	59766-2204						LEAD ASSY., Top No. 2	1	
4	59766-1804						LEAD ASSY., Top No. 3	1	
5	59766-1504						LEAD ASSY., Top No. 4	1	
6	59766-1304						LEAD ASSY., Top No. 5	1	
7	59766-0904						LEAD ASSY., Top No. 6	1	
8	59694-5804						LEAD ASSY., Bottom No. 1	1	
9	59693-5804						LEAD ASSY., Bottom No. 2	1	
10	59694-5104						LEAD ASSY., Bottom No. 3	1	
11	59694-5604						LEAD ASSY., Bottom No. 4	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



MODEL - TVO-435-B1A

Figure 21 - Ignition Shielding Assembly

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

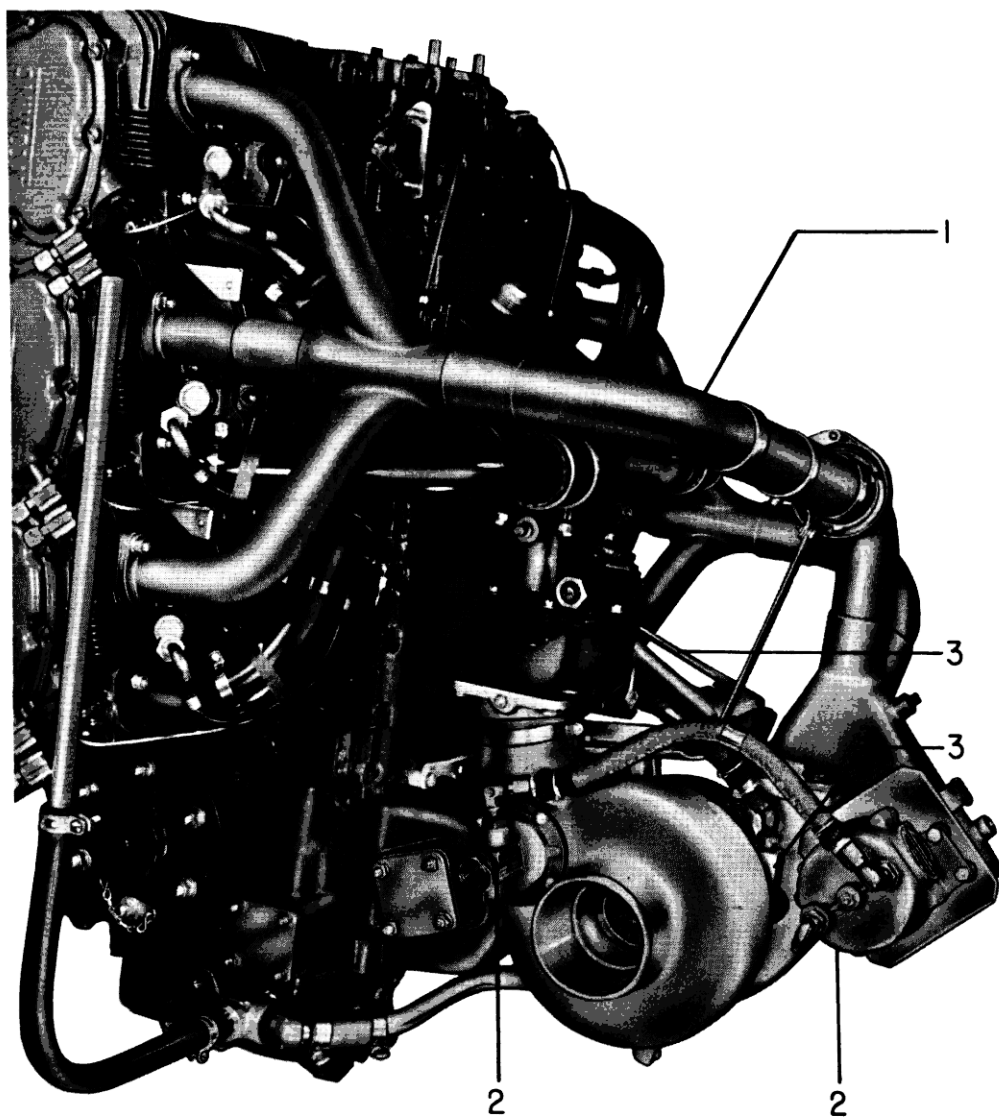
FIGURE 21 - IGNITION SHIELDING ASSEMBLY

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
21-12	59693-5004						LEAD ASSY., Bottom No. 5	1	
13	59694-4904						LEAD ASSY., Bottom No. 6	1	
14	7216						SPRING ASSY.	12	
15	51218						GROMMET	12	
16	7982						STUD	12	
17	5028						SPRING ASSY.	12	
18	66835						PLATE, Ignition cable outlet, shielded	2	
19	66836						GROMMET, Ignition cable, 6 wire	2	
20	71875						WASHER, High tension cable contact	12	
							When supply of 71875 is exhausted; service with 73245 eyelet.		
21	STD-692						SCREW, Rd. head, #10-32 x 1/2 in. long	8	
22	STD-670						NUT, Self-locking, #10-32	8	
23	72351						SCREW, Self-locking, #10-32	8	
BOTTOM LEADS ATTACHING PARTS (Not Illustrated)									
24	66216						SLEEVE, Ignition cable	6	
25	71911						CLAMP, Offset, (intake pipe)	6	
26	STD-553						SCREW, Rd. head, #6-32 x 1/2 in. long	6	
27	AN365-632C						NUT, Self-locking, #6-32	6	
REFERENCE NUMBERS 28 AND 29 ARE NOT ILLUSTRATED									
28	STD-295						GASKET, Annular, 31/32 OD x 23/32 ID x 5/64 in. (Furnished with spark plug.)	12	
29	1182-Y3						SPARK PLUG, 3/4-20 barrel (long reach) (Same as Champion RHB-36P) Alternate to 1182-A4.	12	
30	54210						PLATE (single grommet)	2	
31	54211						PLATE (dual grommet)	2	
32	54219						CLAMP	4	
ATTACHING PARTS									
33	5152						NUT	4	
34	6799						SCREW	4	
-----*									

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 22 - TURBOCHARGER INSTALLATION

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - TVO-435-A1A, B1A									
22-1	TURBOCHARGER EXHAUST SYSTEM See Figure 23 for breakdown.								
2	DENSITY CONTROLLER AND BY-PASS VALVE See Figure 24 for breakdown.								
3	TURBOCHARGER CHECK VALVE AND TURBOCHARGER SUPPORT See Figure 25 for breakdown.								



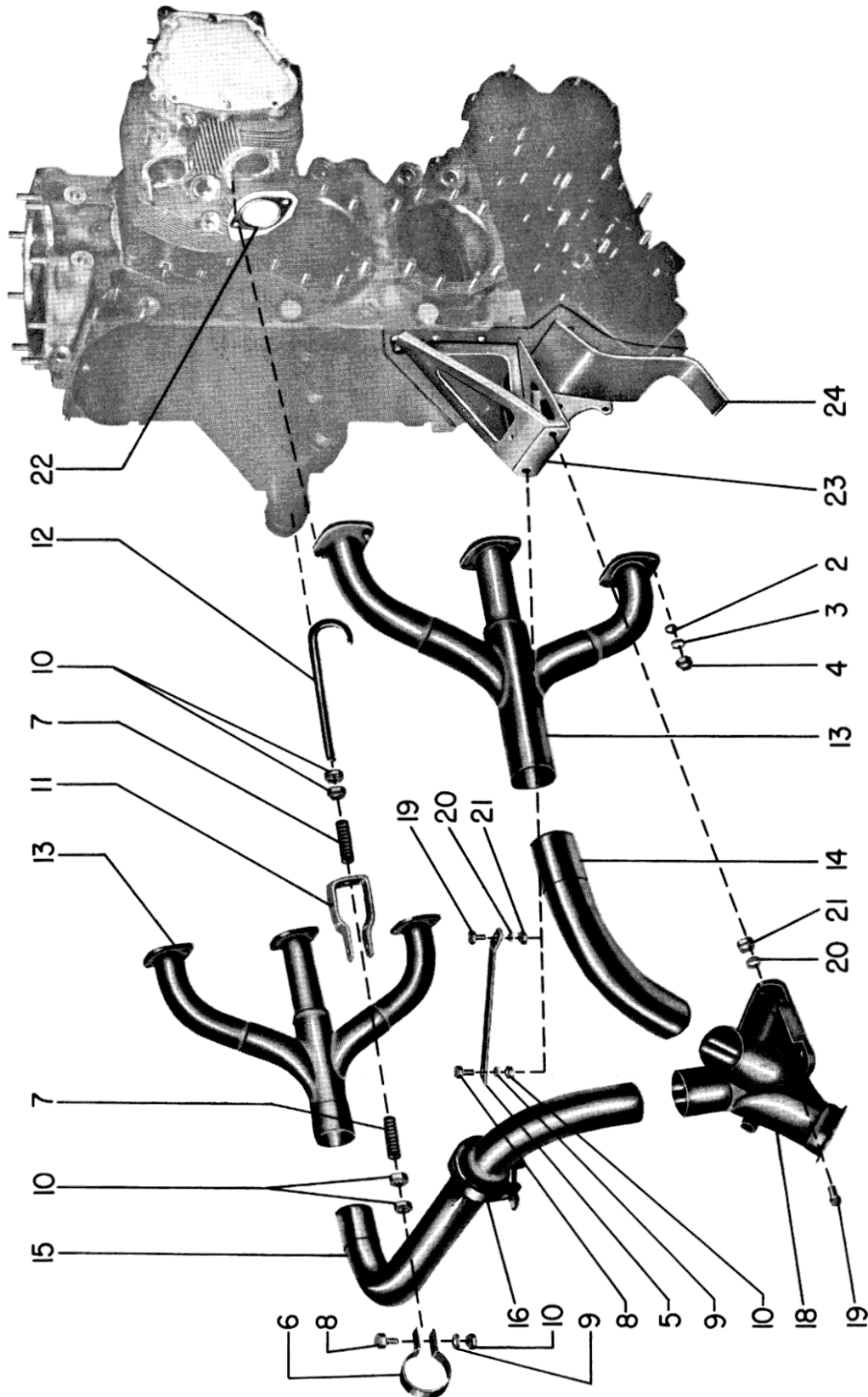
MODELS - TVO-435-A1A AND B1A

Figure 22 - Turbocharger Installation

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 23 - TURBOCHARGER EXHAUST SYSTEM

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - TVO-435-A1A, B1A									
23-1	72906						MANIFOLD AND PIPING ASSEMBLY	1	
ATTACHING PARTS									
2	STD-35						WASHER, Plain, 5/16 in.	12	
3	STD-475						WASHER, Shakeproof lock, 5/16 in.	12	
4	STD-37						NUT, Plain, 5/16-24	12	
5	73733						STRAP, Clamp exhaust pipe	1	
6	73358						CLAMP, Exhaust manifold	1	
7	1892						SPRING	2	
8	STD-1459						BOLT, #10-32 NF-3 x 17/32 in. long	2	
9	STD-251						WASHER, Internal teeth, #10 lock	2	
10	STD-63						NUT, #10-32 NF-3	6	
11	73357						CLIP, Exhaust manifold	1	
12	73356						ROD, Exhaust manifold	1	
-----*									
13	72903						MANIFOLD ASSEMBLY (right and left)	2	
14	72905						PIPE, Exhaust, left	1	
15	72904						PIPE ASSY., Exhaust, right	1	
16	24502-200						MARMAN COUPLING	1	
17	17189-200-N						MARMAN GASKET (Not Illustrated)	1	
18	72928						TRANSITION ASSEMBLY, Waste gate	1	
ATTACHING PARTS									
19	AN6C10A						BOLT, Hex hd., 3/8-24 x 1-5/64 in. long	2	
20	AN960C616						WASHER, Plain, 3/8 in.	2	
21	MS20500-624						NUT, 3/8-24	2	
-----*									
22	73720						GASKET, Exhaust manifold	12	
23	73361						SUPPORT ASSY., Turbocharger	1	
24	73343						BAFFLE, Turbocharger heat, outer	1	



MANIFOLD AND PIPING ASSEMBLY (REF. NO.1)

MODELS - TVO-435-A1A AND B1A

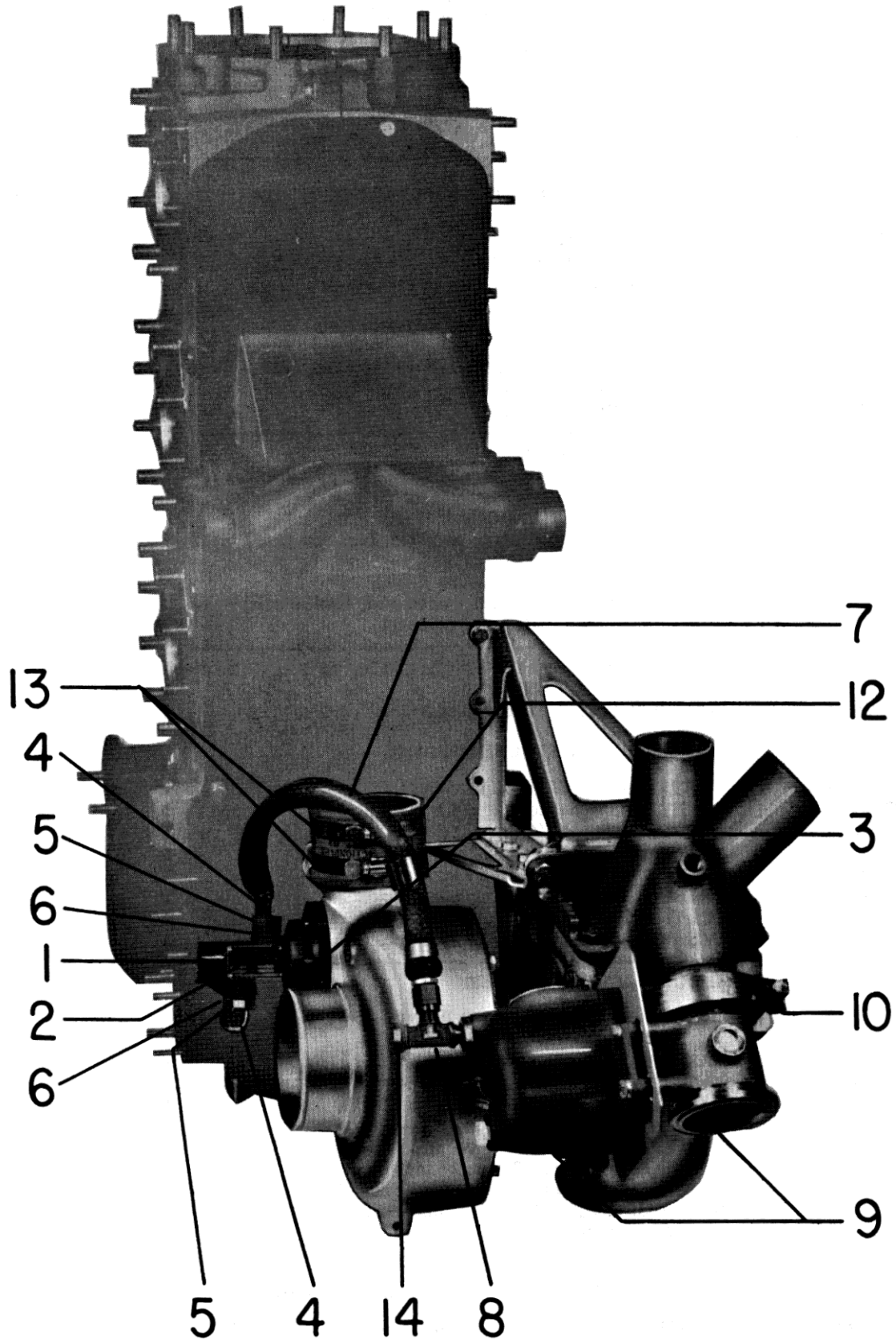
Figure 23 - Turbocharger Exhaust System

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 24 - DENSITY CONTROLLER AND BY-PASS VALVE

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - TVO-435-A1A, B1A									
24-1	73784						CONTROLLER, Density Same as Airesearch Industrial Div., Dwg. #470620, Model CD2-2-1.	1	TVO-435-A1A
	74423						CONTROLLER, Density Same as Airesearch Industrial Div., Model CD2-4.	1	TVO-435-B1A
ATTACHING PARTS									
2	STD-375						SCREW, No. 10-24 NC 3 x 5/8 in. long	4	
	STD-28						WASHER, Plain, no. 10	4	
	STD-251						WASHER, Internal teeth, no. 10 lock	4	
-----*									
3	73314						GASKET, Density controller	1	
4	AN833-6D						ELBOW, Flared tube bulkhead, universal 90°	2	
5	AN924-6D						NUT, Flared tube bulkhead, universal fitting	2	
6	MS29512-6						GASKET, Straight thread tube fitting	2	
7	73321						HOSE ASSEMBLY, By-pass valve to controller	1	
8	AN804-D6						TEE, 3/8 in. flared tube with bulkhead on run	1	
	AN924-6D						NUT, Flared tube bulkhead universal fitting	1	
	MS29512-6						GASKET, Straight thread tube fitting	1	
9	73785						VALVE, Exhaust by-pass Same as Airesearch Industrial Div., Dwg. #470622, Model VB3-2-1.	1	TVO-435-A1A
	74422						VALVE, Exhaust by-pass Same as Airesearch Industrial Div., Model VB3-4.	1	TVO-435-B1A
10	24502-225						COUPLING, J11 Marman Aircraft Joint	1	
	24096-225-N						GASKET, J11 Marman Aircraft Joint (Not Illustrated) (One additional of each shipped loose.)	1	
11	16933-225-6						FLANGE, J11 Marman Aircraft Joint (Not Illustrated) (Shipped loose)	1	
12	73783						HOSE, 3.00 in. ID (Turbocharger to carb. adapter)	1	
ATTACHING PARTS									
13	AN737TW114						CLAMP, 3-1/8 to 3-9/16 ID x 9/16 in. wide	2	
-----*									
14	AN929-6						CAP ASSY., Press seal 3/8 in. flared tube fitting	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



MODELS - TVO-435-A1A AND B1A

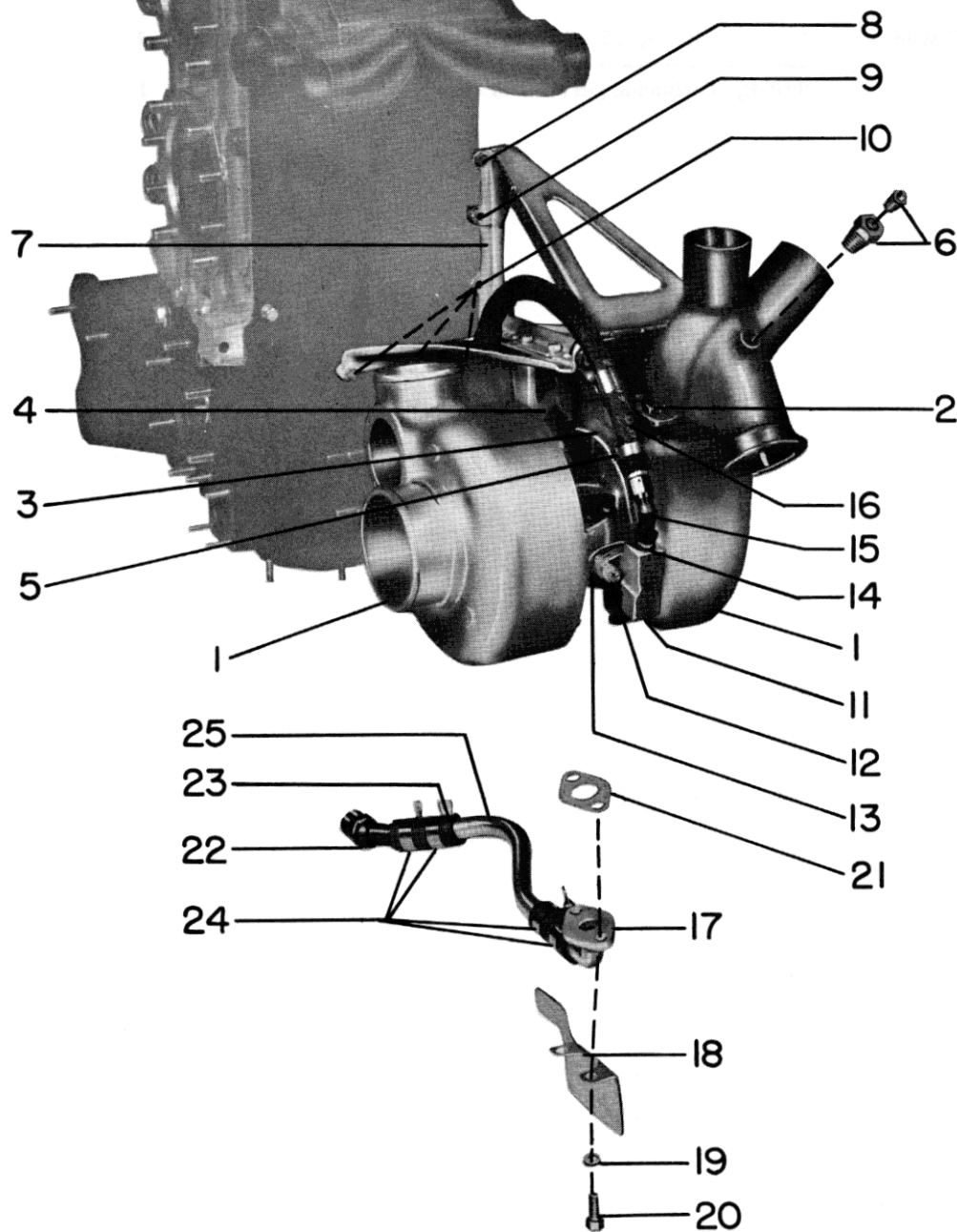
Figure 24 - Density Controller and By-pass Valve

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 25 - TURBOCHARGER, CHECK VALVE AND TURBOCHARGER SUPPORT

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
APPLICABLE MODELS - TVO-435-A1A, B1A									
25-1	72934						TURBOCHARGER Same as Airesearch Industrial Div., Los Angeles, Calif., Model T-1108.	1	
ATTACHING PARTS									
2	AN6C13A						BOLT, Hex head, 3/8-24 x 1-29/64 in. long	4	
	MS20500-624						NUT, 3/8-24 (assemble with Fel-Pro C-5A)	4	
	AN960C616						WASHER, Plain, 3/8 in.	8	
-----*									
3	402626						LOCKPLATE, 2-bolt (Procurable detail part of 72934 Turbocharger.)	3	
ATTACHING PARTS (Procurable detail parts of 72934 Turbocharger)									
4	400429						BOLT (assemble with Fel-Pro C-5A)	2	
	400427						SPACER (Shipping part only; used with 400429 bolt)	2	
5	400428						BOLT (Assemble with Fel-Pro C-5A)	4	
-----*									
6	AN912-1S						BUSHING, Reducer, 1/4 NPT to 1/8 in. NPT	1	
	1102						PLUG, Allen, 1/8-27 NPT	1	
7	73361						SUPPORT ASSY., Turbocharger	1	
ATTACHING PARTS									
8	AN4-17A						BOLT, 1/4-28 x 1-29/32 in. long	1	
	STD-160						WASHER, Internal teeth, 1/4 in. lock	1	
	STD-8						WASHER, Plain, 1/4 in.	1	
	STD-9						NUT, Hex., 1/4-28	1	
9	AN101124						BOLT, 1/4-28 x 1-5/8 in. long	1	
	STD-160						WASHER, Internal teeth, 1/4 in. lock	1	
10	AN101122						BOLT, 1/4-28 x 1-1/2 in. long	4	
	STD-160						WASHER, Internal teeth, 1/4 in. lock	4	
-----*									
11	73377						CHECK VALVE ASSEMBLY	1	
ATTACHING PARTS									
12	STD-33						WASHER, Plain, 3/8 in.	2	
	STD-678						WASHER, Internal teeth, 3/8 in. lock	2	
	73348						BOLT, Allen head, 3/8-16 NC-3 x 3/4 in. long	2	
-----*									
13	73775						GASKET, Check valve	1	
14	AN912-2D						BUSHING, Reducer, .38 to .24 pipe	1	
15	AN823-6D						ELBOW, 3/8 in. flared tube coupling x 45°	1	
16	73320						HOSE ASSEMBLY, Engine to check valve	1	
17	73325						ELBOW, Turbocharger oil outlet	1	
18	73779						BAFFLE, Turbocharger heat, inner	1	
ATTACHING PARTS (For reference nos. 17 and 18)									
19	STD-678						WASHER, Internal teeth, 3/8 in. lock	2	
20	GM180120						BOLT, Hex. head, 3/8-16 NC-3 x 3/4 in. long	2	
-----*									

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST



MODELS - TVO-435-A1A AND B1A

Figure 25 - Turbocharger, Check Valve and Turbocharger Support

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

FIGURE 25 - TURBOCHARGER, CHECK VALVE AND TURBOCHARGER SUPPORT

Ref. No.	Part Number	1	2	3	4	5	Description	Qty. per Eng.	Model Usage
25-21	73782						GASKET, Turbocharger oil outlet	1	
22	AN844-12D						ELBOW, Pipe thread and hose 45°	1	
23	73781						HOSE, 3/4 ID x 2-1/2 in. long	2	
ATTACHING PARTS									
24	AN737TW38						CLAMP, Hose, 15/16 ID to 1-3/16 dia. x 9/16 in. wide	4	
25	73641						-----*----- TUBE, Turbocharger, oil drain	1	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

NUMERICAL OVERSIZE AND UNDERSIZE PARTS SECTION

The following is a listing of all parts that may be procured in sizes other than standard and an explanation of the oversize and undersize symbols.

The symbol "P" suffixed to the standard size part number indicates the part may be procured in oversize; the symbol "M" indicates undersize. The numerals 03, 10, 12, 20 etc., following the symbol "P" or "M" indicate the extent of deviation from standard, in thousandths of an inch, in oversize or undersize.

Example A: 66670-P10 indicates 66670 may be procured in .010 oversize.

Example B: 67276-M03 indicates 67276 may be procured in .003 undersize.

Part No.	Part Name	Undersize or Oversize Available
67276	Bearing, Connecting rod	M03-M10
67447	Bearing, Crankshaft	M03-M10
66670	Bushing, Rocker shaft inner	P05-P10
-----	Guides, Valve	P05-P10-P20-P30
-----	Seats, Valve	P10-P20-P30
-----	Studs	P03-P07-P12
* -----	Pistons	P10-P20
* -----	Rings, Piston	P10-P20

* No oversize piston or rings may be used in chrome or nitrided cylinder barrels.

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

SERVICE REPLACEMENT SET SECTION

Part Number

Part Name

73261-1

CYLINDER, PISTON AND RING ASSEMBLY - COMPLETE
(Chrome plated barrel and plain piston rings. Same as 73261-2 except 73261-1 incorporates 5-ring piston with half wedge compression rings.)

VO-435-A1B, A1C,
A1D, A1E

Consisting of:

1	72436	Cylinder assembly (Chrome plated)
1	73620	Piston
2	72434	Plug - Piston pin
1	60403	Pin - Piston
3	72944	Ring - Piston, compression
1	68338	Ring - Piston, oil regulating, expander type
1	61824	Ring - Piston, scraper
1	73129	Valve - Intake
1	71381	Valve - Exhaust
2	68325	Seat - Valve spring, lower
2	68326	Spring - Valve, outer
2	68328	Spring - Valve, auxiliary
1	68327	Seat - Valve spring
2	60009	Key - Valve
2	71549	Washer - Valve rocker thrust
1	67113	Rocker Assembly - Intake valve
1	74388	Rocker Assembly - Exhaust valve
2	68806	Shaft - Valve rocker
2	66732	Gasket - Valve rocker shaft cover
2	66731	Cover - Valve rocker shaft
4	STD-9	Nut - Plain 1/4-28
4	STD-160	Washer - Shakeproof 1/4 in.
1	67193	Gasket - Rocker box cover
1	71195	Box - Set-up
1	69698	Seat - Valve spring
2	72050	Key - Valve
1	69697	Cap - Valve stem
8	STD-1826	Screw - Fill. Hd. self locking, 1/4-20 x 5/8 in.
4	62922	Seal - Shroud tube
1	71481	Seal - Cylinder base oil

73261-2

CYLINDER, PISTON AND RING ASSEMBLY - COMPLETE
(Supersedes 73261. Chrome barrel, 4-ring piston and new exhaust rocker.)

VO-435-A1B, A1C,
A1D, A1E

Consisting of:

1	72436	Cylinder Assembly (Chrome plated)
1	71553	Piston
2	72434	Plug - Piston Pin
1	60403	Pin - Piston
2	71555	Ring - Piston, compression
1	68338	Ring - Piston, oil regulating, expander type
1	61824	Ring - Piston, Scraper
1	73129	Valve - Intake
1	71381	Valve - Exhaust
2	68325	Seat - Valve spring, lower
2	68326	Spring - Valve, outer
2	68328	Spring - Valve, auxiliary
1	68327	Seat - Valve spring
2	60009	Key - Valve
2	71549	Washer - Valve rocker thrust
1	67113	Rocker Assembly - Intake valve
1	74388	Rocker Assembly - Exhaust valve
2	68806	Shaft - Valve rocker
2	66732	Gasket - Valve rocker shaft cover
2	66731	Cover - Valve rocker shaft
4	STD-9	Nut - Plain 1/4-28
4	STD-160	Washer - Shakeproof 1/4 in.

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LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

SERVICE REPLACEMENT SET SECTION

<u>Part Number</u>	<u>Part Name</u>	
73261-2	CYLINDER, PISTON AND RING ASSEMBLY - COMPLETE (Continued)	VO-435-A1B, A1C, A1D, A1E
	Consisting of:	
1	67193	Gasket - Rocker box cover
1	71195	Box - Set-up
1	69698	Seat - Valve spring
2	72050	Key - Valve
1	69697	Cap - Valve stem
8	STD-1826	Screw - Fill. hd. self locking, 1/4-20 x 5/8 in.
4	62922	Seal - Shroud tube
1	71481	Seal - Cylinder base oil
73804-1	CYLINDER, PISTON AND RING ASSEMBLY - COMPLETE (Nitrided barrels, chrome half wedge compression rings, 5-ring piston.)	VO-435-A1B, A1C, A1D, A1E, A1F & TVO-435-A1A
	Consisting of:	
1	73935	Cylinder Assembly (Allison valve seats)
1	73932	Piston
1	60403	Pin - Piston
2	72434	Plug - Piston pin
3	73933	Ring - Piston, compression
1	73934	Ring - Piston, oil regulating, expander type (narrow)
1	69322	Ring - Piston, scraper
1	73129	Valve - Intake
1	73111 or 73875	Valve - Exhaust (rotator type)
1	68325	Seat - Valve spring lower
1	73112	Seat - Valve spring, lower
2	68326	Spring - Valve, outer
2	68328	Spring - Valve, auxiliary
1	68327	Seat - Valve spring
2	60009	Key - Valve
1	73115	Seat - Valve spring (rotator type)
2	MS13997-3	Key - Valve (rotator type)
1	MS13998-3	Cap - Valve stem
2	71549	Washer - Valve rocker thrust
1	67113	Rocker Assy. - Intake valve
1	74388	Rocker Assy. - Exhaust valve
2	68806	Shaft - Valve rocker
2	66732	Gasket - Valve rocker shaft cover
2	66731	Cover - Valve rocker shaft
4	STD-9	Nut - Plain, 1/4-28
4	STD-160	Washer - Shakeproof lock, 1/4 in.
1	67193	Gasket - Rocker box cover
8	STD-1826	Screw - Fill. hd. self locking, 1/4-20 x 5/8 in. long
4	62922	Seal - Shroud tube
1	71481	Seal - Cylinder base oil
1	71195	Box - Set-up
73804	CYLINDER, PISTON AND RING ASSEMBLY - COMPLETE (Consisting of:)	VO-435-A1F & TVO-435-A1A
1	73704	Cylinder Assembly (Chrome plated) (Allison valve seats)
1	71553	Piston
1	60403	Pin - Piston
2	72434	Plug - Piston pin
2	71555	Ring - Piston, compression
1	68338	Ring - Piston, oil regulating, expander type
1	61824	Ring - Piston scraper
1	73129	Valve - Intake
1	73111 or 73875	Valve - Exhaust (rotator type)

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LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

SERVICE REPLACEMENT SET SECTION

<u>Part Number</u>	<u>Part Name</u>	
73804	CYLINDER, PISTON AND RING ASSEMBLY - COMPLETE (Continued)	VO-435-A1F & TVO-435-A1A
	Consisting of:	
1	68325	Seat - Valve spring, lower
1	73112	Seat - Valve spring, lower
2	68326	Spring - Valve, outer
2	68328	Spring, Valve, auxiliary
1	68327	Seat - Valve spring
2	60009	Key - Valve
1	73115	Seat - Valve spring (rotator type)
2	MS13997-3	Key - Valve (rotator type)
1	MS13998-3	Cap - Valve stem
2	71549	Washer - Valve rocker thrust
1	67113	Rocker Assy. - Intake valve
1	74388	Rocker Assy. - Exhaust valve
2	68806	Shaft - Valve rocker
2	66732	Gasket - Valve rocker shaft cover
2	66731	Cover - Valve rocker shaft
4	STD-9	Nut - Plain, 1/4-28
4	STD-160	Washer - Shakeproof lock, 1/4 in.
1	67193	Gasket - Rocker box cover
8	STD-1826	Screw - Fill. hd. self-locking, 1/4-20 x 5/8 in. long
4	62922	Seal - Shroud tube
1	71481	Ring - Oil seal, 3/32 in. dia. section x 4-27/32 in. ID
1	71195	Box - Set-up
74035	CYLINDER, PISTON AND RING ASSY. - COMPLETE	TVO-435-B1A
	(Nitrided barrels, chrome half wedge compression rings, 5-ring piston. Cylinder assy. incorporates Allison type valve seats. Requires long reach plugs.	
	Consisting of:	
2	60009	Key - Valve
1	60403	Pin - Piston
4	62922	Seal - Shroud tube
2	66731	Cover - Valve rocker shaft
2	66732	Gasket - Valve rocker shaft cover
1	67113	Rocker Assy. - Intake valve
1	67193	Gasket - Rocker box cover
1	68325	Seat - Valve spring, lower
2	68326	Spring - Valve, outer
1	68327	Seat - Valve spring
2	68328	Spring - Valve, auxiliary
2	68806	Shaft - Valve rocker
1	69322	Ring - Piston, scraper
1	71195	Box - Set-up
1	71481	Seal - Cylinder base oil
2	71549	Washer - Valve rocker thrust
2	72434	Plug - Piston pin
1	73112	Seat - Valve spring, lower
1	73115	Seat - Valve spring (rotator type)
1	73129	Valve - Intake
1	73932	Piston
3	73933	Ring - Piston compression
1	73934	Ring - Piston, oil reg., expander type (Narrow)
1	74052	Valve - Exhaust, rotator type (inconel)
1	74218	Cylinder Assy. (Nitrided)
1	74388	Rocker Assy. - Exhaust valve
2	MS13997-3	Key - Valve (rotator type)
1	MS13998-3	Cap - Valve stem
4	STD-9	Nut
4	STD-160	Washer

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

SERVICE REPLACEMENT SET SECTION

<u>Part Number</u>	<u>Part Name</u>	
69934-1	SEAL AND GASKET SET	VO-435-A1B, A1C A1D, A1E
	Consisting of:	
2	STD-111	Gasket - Annular (Magneto timing window and oil sump)
1	STD-157	Gasket - Annular (Oil pressure relief valve) (Old style)
1	STD-294	Gasket - Annular (Thermometer Well Plug)
12	STD-295	Gasket - Spark plug
8	72075	Seal - Oil (Crankcase halves)
1	STD-547	Seal - Oil (Tachometer drive gear)
1	STD-1702	Seal - Oil (Starter drive adapter)
1	STD-1708	Seal - Oil (Vacuum pump shaft gear)
2	AN123908	Ring - Oil seal (Oil pump body assy.)
2	AN4047-1	Gasket - Accessory drive (Hand crank and starter pad)
1	STD-1854	Washer - .3125 plain
1	AN900-28	Ring - Oil seal (Oil filter assy.)
1	1691-C	Gasket - Fuel pump
2	8313	Gasket - Vacuum pump (Vacuum pump and tachometer drive pad)
2	45663	Gasket - Magneto
6	60131	Gasket - Intake flange
24	62922	Seal - Shroud tube
1	66224	Gasket - Carburetor
12	66732	Gasket - Valve rocker shaft cover
6	67193	Gasket - Rocker box cover
6	71481	Ring - Oil seal (Cylinder base)
1	67633	Gasket - Starter drive pad
2	67708	Gasket - Starter drive adapter
1	68172	Gasket - Crankcase cover
1	68174	Gasket - Accessory housing
1	68456	Gasket - Hydraulic and oil pump adapter
1	68556	Gasket - Accessory housing cover
1	72437	Gasket - Oil sump
1	72182	Ring - Oil seal
2	STD-351	Gasket - Annular (oil pressure relief valve)
1	20415	Gasket - Hydraulic pump
1	71189	Box - Set-up
1	STD-213	Seal - Oil (Fuel pump)
1	74009	Tube - Mailing
1	67204	Lockplate - Crankshaft
1	72078	Lockplate - Camshaft Gear
1	67642	Lockwasher - Acc. drive shaft
1	72312	Ring - Oil seal
73805-1	SEAL AND GASKET SET	VO-435-A1F & TVO-435-A1A
	(This kit does not include gaskets or seals for the overhauling of the density controller, exhaust by pass valve or turbocharger.)	
	Consisting of:	
8	72075	Seal - Oil (Crankcase halves)
12	66732	Gasket - Valve rocker shaft cover
6	67193	Gasket - Rocker box cover
24	62922	Seal - Shroud tube
6	71481	Ring - Oil seal, 3/32 in. dia. section x 4-27/32 in. ID
6	60131	Gasket - Intake flange
1	68172	Gasket - Oil sump
1	66224	Gasket - Carburetor
1	73189	Gasket - Carburetor inlet
1	68174	Gasket - Accessory housing
1	73368	Gasket - Scavenge oil inlet adapter
2	AN4047-1	Gasket - Accessory drive
1	STD-547	Seal - Oil

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LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

SERVICE REPLACEMENT SET SECTION

<u>Part Number</u>	<u>Part Name</u>	
73805-1	SEAL AND GASKET SET (Continued)	VO-435-A1F & TVO-435-A1A
	Consisting of:	
2	67708	Gasket - Starter drive adapter
1	STD-1702	Seal - Oil
1	67633	Gasket - Starter drive pad
1	STD-213	Seal - Oil
1	68556	Gasket - Accessory housing cover
1	68456	Gasket - Hydraulic and oil pump adapter
1	AN123908	Ring - Oil seal
1	AN900-28	Gasket - Copper - asb.
2	STD-351	Gasket - Annular
1	STD-294	Gasket - Annular
2	62224	Gasket - Magneto
1	72437	Gasket - Oil sump
2	8313	Gasket - Vacuum pump
1	1691-C	Gasket - Fuel pump
12	STD-295	Gasket - Spark plug
1	67204	Lockplate - Crankshaft gear
2	72078	Lockplate - Camshaft gear
1	67642	Lockwasher - Acc. drive shaft
12	73720	Gasket - Exhaust manifold
1	72312	Ring - Oil seal
1	73775	Gasket - Check valve
3	MS29512-6	Gasket - Straight thread tube fitting
1	73782	Gasket - Turbocharger oil outlet
1	73314	Gasket - Density controller
1	71189	Box - Set-up
1	74009	Tube - Mailing
1	STD-1708	Seal - Oil
74038-1	SEAL AND GASKET SET	TVO-435-B1A
	(This drawing obsoletes 74035-1.)	
	Consisting of:	
1	1691-C	Gasket - Fuel pump
2	8313	Gasket - Vacuum pump
6	60131	Gasket - Intake flange
2	62224	Gasket - Magneto
24	62922	Seal - Shroud tube
1	66224	Gasket - Carburetor
12	66732	Gasket - Valve rocker shaft cover
6	67193	Gasket - Rocker box cover
1	67204	Plate - Crankshaft gear lock
1	67633	Gasket - Starter drive
1	67642	Lockwasher - Acc. drive shaft
2	67708	Gasket - Starter drive adapter
1	68172	Gasket - Oil sump
1	68174	Gasket - Acc. housing
1	68456	Gasket - Hydraulic and Oil Pump Adapter
1	68556	Gasket - Acc. hsg. cover
1	71189	Box - Set-up
6	71481	Seal - Cylinder base oil
8	72075	Seal - Oil
1	72078	Lockplate - Camshaft gear
1	72437	Gasket - Oil sump
1	72471	Ring - Oil seal
1	73189	Gasket - Carburetor inlet
1	73314	Gasket - Density controller
1	73368	Gasket - Scavenge oil inlet adapter
12	73720	Gasket - Exhaust manifold
1	73775	Gasket - Check valve
1	73782	Gasket - Turbocharger oil outlet
	(Continued on Next Page)	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

SERVICE REPLACEMENT SET SECTION

<u>Part Number</u>	<u>Part Name</u>	
74038-1	SEAL AND GASKET SET (Continued)	TVO-435-B1A
	Consisting of:	
1	74009	Tube - Mailing
1	AN900-28	Gasket - Copper, asbestos
2	AN4047-1	Gasket - Acc. drive
2	AN123908	Ring - Oil seal
3	MS29512-6	Gasket - Straight thread tube fitting
1	STD-213	Seal - Oil
1	STD-294	Gasket - Annular
12	STD-295	Gasket - Spark plug
2	STD-351	Gasket - Annular
1	STD-547	Seal - Oil
1	STD-829	Gasket
1	STD-1702	Seal - Oil
1	STD-1708	Seal - Oil
	(The above kit does not include gaskets or seals for the overhauling of the density controller, exhaust by pass valve or turbocharger.)	

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

NUMERICAL INDEX PARTS SECTION

FIG-REF. NO.	PART NO.	PART NAME	QTY.	FIG-REF. NO.	PART NO.	PART NAME	QTY.
2-12	AN4-16	Bolt	6	19-5	E-1199-602-0908	Conduit Assy.	1
7-9	AN4-17A	Bolt	1	19-4	E-1199-602-1200	Conduit Assy.	1
25-8	AN4-17A	Bolt	1	19-7	E-1199-602-1200	Conduit Assy.	1
2-2	AN6-16	Bolt	1	19-2	E-1199-602-1808	Conduit Assy.	1
2-4	AN6-21A	Bolt	3	19-6	E-1199-603-0604	Conduit Assy.	1
2-5	AN6-22A	Bolt	1	19-3	E-1199-603-1800	Conduit Assy.	1
2-3	AN6-24	Bolt	2	19-31	E-1348-13-10	Clamp	7
23-19	AN6C10A	Bolt	2	19-28	E-1348-14-10	Clamp	1
25-2	AN6C13A	Bolt	4	19-15	E-1360-9-3	Grommet	2
11-30	AN280H406	Key	1	25-20	GM180120	Bolt	2
12-33	AN280H406	Key	1	15-9A	MS9015-12	Plug	1
9-24	AN365-632C	Nut	6	11-16	MS122200	Insert	4
16-9	AN365-632C	Nut	6	12-8	MS122200	Insert	4
20-25	AN365-632C	Nut	6	15-7	MS124777	Insert	13
21-27	AN365-632C	Nut	6	5-26	MS13997-3	Key	12
19-35	AN365-1032	Nut	7	5-27	MS13998-3	Cap	6
9-25	AN381-2-10	Pin	1	23-21	MS20500-624	Nut	2
11-21	AN381-4-20	Pin	1	25-2	MS20500-624	Nut	4
12-24	AN381-4-20	Pin	1	19-29	MS21919-G6	Clamp	3
25-24	AN737TW38	Clamp	4	19-30	MS21919-G12	Clamp	3
24-13	AN737TW114	Clamp	2	24-6	MS29512-6	Gasket	2
24-8	AN804-D6	Tee	1	24-8	MS29512-6	Gasket	1
7-40	AN814-4D	Plug	1	9-24	STD-2	Nut	1
8-42	AN816-6	Nipple	1	1-5	STD-8	Washer	7
25-15	AN823-6D	Elbow	1	2-13	STD-8	Washer	26
24-4	AN833-6D	Elbow	2	6-2	STD-8	Washer	34
15-15	AN840-10D	Adapter	2	6-15	STD-8	Washer	12
25-22	AN844-12D	Elbow	1	7-2	STD-8	Washer	29
11-39	AN900-28	Gasket	1	7-2	STD-8	Washer	34
12-42	AN900-28	Gasket	1	7-21	STD-8	Washer	12
25-14	AN912-2D	Bushing	1	7-35	STD-8	Washer	4
15-10	AN912-7D	Bushing	1	8-2	STD-8	Washer	33
25-6	AN912-1S	Bushing	1	8-45	STD-8	Washer	2
24-5	AN924-6D	Nut	2	9-18	STD-8	Washer	4
24-8	AN924-6D	Nut	1	9-36	STD-8	Washer	6
24-14	AN929-6	Cap Assy.	1	9-67	STD-8	Washer	8
23-20	AN960C616	Washer	2	10-4	STD-8	Washer	21
25-2	AN960C616	Washer	8	11-2	STD-8	Washer	9
19-12	AN3104-2	Elbow Assy.	12	11-36	STD-8	Washer	6
9-9	AN4047-1	Gasket	1	12-2	STD-8	Washer	9
9-65	AN4047-1	Gasket	1	12-39	STD-8	Washer	6
10-28	AN4047-1	Gasket	1	14-2	STD-8	Washer	8
15-8A	AN6290-12	Seal	1	15-3	STD-8	Washer	11
7-7	AN101122	Bolt	4	25-8	STD-8	Washer	1
25-10	AN101122	Bolt	4	1-3	STD-9	Nut	7
7-8	AN101124	Bolt	1	2-15	STD-9	Nut	7
25-9	AN101124	Bolt	1	5-35	STD-9	Nut	24
9-17	AN102010	Bolt	4	6-4	STD-9	Nut	10
11-38	AN123908	Ring	2	6-17	STD-9	Nut	12
12-41	AN123908	Ring	2	7-4	STD-9	Nut	10
22-2	Density Controller and By-pass Valve -			7-23	STD-9	Nut	12
19-27	E-1046-41-8	Bracket	1	8-4	STD-9	Nut	32
19-16	E-1071-42-1	Plate	2	8-47	STD-9	Nut	2
19-8	E-1134-111-10	Conduit Assy.	1	9-69	STD-9	Nut	8
19-11	E-1134-111-20	Conduit Assy.	1	10-2	STD-9	Nut	21
19-9	E-1134-112-10	Dual Conduit Assy.	1	11-4	STD-9	Nut	9
19-10	E-1134-112-20	Dual Conduit Assy.	1	12-4	STD-9	Nut	9
19-14	E-1181-30-1	Collar	12	15-5	STD-9	Nut	11
				25-8	STD-9	Nut	1
				9-15	STD-19	Dowel	1
				24-2	STD-28	Washer	4

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

NUMERICAL INDEX PARTS SECTION

FIG-REF. NO.	PART NO.	PART NAME	QTY.	FIG-REF. NO.	PART NO.	PART NAME	QTY.
1-7	STD-33	Washer	7	11-49	STD-294	Gasket	1
2-6	STD-33	Washer	16	12-53	STD-294	Gasket	1
9-6	STD-33	Washer	6	18-22	STD-295	Gasket	12
9-62	STD-33	Washer	6	19-25	STD-295	Gasket	12
25-12	STD-33	Washer	2	20-26	STD-295	Gasket	12
5-49	STD-35	Washer	12	21-28	STD-295	Gasket	12
6-23	STD-35	Washer	4	11-45	STD-351	Gasket	2
7-29	STD-35	Washer	4	12-49	STD-351	Gasket	2
9-72	STD-35	Washer	4	24-2	STD-375	Screw	4
10-7	STD-35	Washer	1	9-41	STD-394	Dowel	2
12-57	STD-35	Washer	4	11-7	STD-394	Dowel	1
23-2	STD-35	Washer	12	11-19	STD-394	Dowel	1
6-25	STD-36	Locknut	4	12-7	STD-394	Dowel	1
5-51	STD-37	Nut	12	12-22	STD-394	Dowel	1
6-24	STD-37	Nut	4	1-25	STD-405	Plug	1
9-74	STD-37	Nut	4	2-27	STD-405	Plug	1
10-5	STD-37	Nut	1	6-10	STD-405	Plug	1
12-59	STD-37	Nut	4	7-12	STD-405	Plug	1
13-7	STD-37	Nut	4	7-18	STD-425	Washer	10
23-4	STD-37	Nut	12	7-17	STD-433	Screw	10
5-5	STD-39	Locknut	24	10-13	STD-434	Dowel	1
9-19	STD-43	Nut	4	7-37	STD-460	Bolt	4
11-37	STD-43	Nut	6	5-50	STD-475	Washer	12
12-40	STD-43	Nut	6	9-73	STD-475	Washer	4
1-26	STD-47	Plug	2	10-6	STD-475	Washer	1
11-33	STD-60	Pin	1	12-58	STD-475	Washer	4
12-36	STD-60	Pin	1	13-6	STD-475	Washer	4
11-32	STD-61	Nut	1	23-3	STD-475	Washer	12
12-35	STD-61	Nut	1	8-35	STD-514	Dowel	2
23-10	STD-63	Nut	6	5-2	STD-528	Nut	24
8-34	STD-71	Plug	2	5-3	STD-529	Locknut	24
11-35	STD-71	Plug	1	16-12	STD-546	Nipple	6
12-38	STD-71	Plug	1	9-26	STD-547	Seal	1
2-16	STD-97	Nut	6	9-23	STD-553	Screw	6
9-38	STD-97	Nut	6	16-10	STD-553	Screw	6
14-3	STD-97	Nut	8	20-24	STD-553	Screw	6
8-37	STD-111	Gasket	1	21-26	STD-553	Screw	6
15-8	STD-111	Gasket	1	1-9	STD-557	Dowel	2
9-4	STD-136	Circlip	1	2-17	STD-557	Dowel	2
1-6	STD-160	Washer	7	1-4	STD-596	Nut	3
2-14	STD-160	Washer	7	2-10	STD-596	Nut	4
5-34	STD-160	Washer	24	9-8	STD-596	Nut	6
6-3	STD-160	Washer	24	9-64	STD-596	Nut	6
6-16	STD-160	Washer	12	18-20	STD-670	Nut	8
7-3	STD-160	Washer	24	19-20	STD-670	Nut	8
7-22	STD-160	Washer	12	20-20	STD-670	Nut	8
7-36	STD-160	Washer	4	21-22	STD-670	Nut	8
8-3	STD-160	Washer	32	1-8	STD-678	Washer	3
8-46	STD-160	Washer	2	2-9	STD-678	Washer	4
9-68	STD-160	Washer	8	9-7	STD-678	Washer	6
10-3	STD-160	Washer	21	9-63	STD-678	Washer	6
11-3	STD-160	Washer	9	25-12	STD-678	Washer	2
12-3	STD-160	Washer	9	25-19	STD-678	Washer	2
15-4	STD-160	Washer	11	3-22	STD-679	Screw	4
25-8	STD-160	Washer	1	18-19	STD-692	Screw	8
25-9	STD-160	Washer	1	19-19	STD-692	Screw	8
25-10	STD-160	Washer	4	19-34	STD-692	Screw	7
16-15	STD-176	Nut	1	20-19	STD-692	Screw	8
12-43	STD-208	Seal	1	21-21	STD-692	Screw	8
9-54	STD-213	Seal	1	9-37	STD-696	Washer	AR
23-9	STD-251	Washer	2	6-27	STD-709	Plug	1
24-2	STD-251	Washer	4	7-33	STD-709	Plug	1

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

NUMERICAL INDEX PARTS SECTION

FIG-REF. NO.	PART NO.	PART NAME	QTY.	FIG-REF. NO.	PART NO.	PART NAME	QTY.
2-8	STD-713	Pin	1	16-14	STD-1900	Nipple	1
2-26	STD-740	Plug	1	6-12	STD-1901	Stud	4
10-12	STD-740	Plug	1	7-14	STD-1901	Stud	4
11-34	STD-740	Plug	1	22-1	Turbocharger Exhaust System -		
12-37	STD-740	Plug	1	22-3	Turbocharger Check Valve and		
2-36	STD-783	Plug	2		Turbocharger Support -		
5-17	STD-783	Plug	6	13-13	10-4092	Nut	1
10-19	STD-783	Plug	1	13-12	10-4093	Washer	1
7-39	STD-829	Gasket	1	13-12A	10-4093	Washer	2
16-11	STD-853	Tee	5	13-14	10-90751-19	Pin	1
3-10	STD-858	Key	1	13-14A	10-90751-19	Pin	2
5-14	STD-859	Dowel	12	13-13A	10-163151	Nut	2
8-9	STD-859	Dowel	1	1-22	25-8	Stud	4
16-16	STD-869	Cone	1	5-15	25-8	Stud	24
1-2	STD-872	Nut	4	2-37	25-10	Stud	1
2-7	STD-872	Nut	4	8-41	25-10	Stud	2
10-9	STD-951	Dowel	1	1-29	25-11	Stud	22
10-11	STD-951	Dowel	1	2-34	25-11	Stud	4
3-19	STD-1066	Dowel	1	8-13	25D-11	Stud	8
10-22	STD-1104	Plug	2	1-31	25-12	Stud	4
12-14	STD-1164	Insert	1	5-12	25-12	Stud	12
7-11	STD-1164	Insert	4	8-14	25-12	Stud	10
8-10	STD-1173	Insert	4	8-15	25-12	Stud	1
2-11	STD-1230	Bolt	7	10-16	25-12	Stud	5
6-6	STD-1230	Bolt	10	1-14	25-13	Stud	7
7-6	STD-1230	Bolt	9	8-16	25-13	Stud	15
7-6	STD-1230	Bolt	10	8-17	25-13	Stud	2
8-5	STD-1230	Bolt	1	8-19	25-16	Stud	4
15-14	STD-1252	Clamp	12	10-14	25D-16	Stud	6
6-21	STD-1269	Clamp	12	10-15	25-17	Stud	1
7-27	STD-1269	Clamp	12	11-8	25D-21	Stud	2
1-18	STD-1315	Insert	3	12-9	25D-21	Stud	2
2-23	STD-1315	Insert	17	8-17	25-23	Stud	2
8-10	STD-1315	Insert	4	8-18	25-23	Stud	1
8-6	STD-1339	Plug	5	8-20	25D-24	Stud	1
11-12	STD-1392	Plug	1	11-9	25D-24	Stud	2
12-16	STD-1392	Plug	1	12-10	25D-24	Stud	2
23-8	STD-1459	Bolt	2	11-10	25D-25	Stud	2
15-16	STD-1576	Hose	2	12-11	25D-25	Stud	2
2-38	STD-1623	Insert	1	8-21	25-27	Stud	1
15-19	STD-1640	Clamp	4	8-15	25-28	Stud	1
6-5	STD-1679	Bolt	10	10-15	25-29	Stud	1
6-5	STD-1679	Bolt	14	8-22	25-34	Stud	2
7-5	STD-1679	Bolt	9	8-23	25-37	Stud	1
7-5	STD-1679	Bolt	14	8-24	25-40	Stud	1
5-54	STD-1686	Screw	4	5-11	31-12	Stud	12
5-53	STD-1687	Washer	4	12-12	31-12	Stud	1
6-7	STD-1688	Bolt	4	15-6	31-12	Stud	6
14-6	STD-1698	Ring	1	8-25	31-14	Stud	6
9-42	STD-1702	Seal	1	10-17	31-14	Stud	1
9-52	STD-1708	Seal	1	12-13	31-14	Stud	3
9-44	STD-1709	Circlip	1	15-6	31-14	Stud	6
13-5	STD-1727	Washer	4	1-23	31-15	Stud	3
6-20	STD-1792	Hose	6	2-29	31-15	Stud	1
7-26	STD-1792	Hose	6	6-9	31-15	Stud	4
15-13	STD-1793	Hose	6	2-25	31-21	Stud	2
5-40	STD-1826	Screw	48	8-26	31-21	Stud	1
9-31	STD-1833	Screw	6	2-30	31-24	Stud	1
8-32	STD-1847	Plug	1	8-27	31-26	Stud	1
4-11	STD-1853	Pin	12	1-24	38-12	Stud	2
9-22	STD-1854	Washer	1	1-13	38-13	Stud	24
9-23	STD-1860	Screw	1	2-21	38-13	Stud	24

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

NUMERICAL INDEX PARTS SECTION

FIG-REF. NO.	PART NO.	PART NAME	QTY.	FIG-REF. NO.	PART NO.	PART NAME	QTY.
8-28	38-16	Stud	6	19-16	52426	Plate	2
1-19	38-19	Stud	2	19-27	52442	Bracket	1
1-20	38-21	Stud	2	18-24	54210	Plate	2
1-17	38D-19	Stud	4	20-28	54210	Plate	2
2-28	38D-19	Stud	1	21-30	54210	Plate	2
10-18	38-31	Stud	6	18-25	54211	Plate	2
1-12	50-15	Stud	12	20-29	54211	Plate	2
2-20	50-15	Stud	12	21-31	54211	Plate	2
5-4	383-B	Nut	24	18-26	54219	Clamp	4
11-46	662	Nut	1	19-31	54219	Clamp	7
12-50	662	Nut	1	20-30	54219	Clamp	4
9-61	671-B	Cover	1	21-32	54219	Clamp	4
9-61	671-B	Cover	2	19-32	54586	Bracket	2
10-27	671-B	Cover	1	19-33	54588	Bracket	2
11-14	1028-B	Ball	1	18-7	58513-0904	Lead Assy.	1
12-18	1028-B	Ball	1	18-6	58513-1304	Lead Assy.	1
1-16	1102	Plug	4	18-5	58513-1504	Lead Assy.	1
2-33	1102	Plug	4	18-4	58513-1804	Lead Assy.	1
7-38	1102	Plug	1	18-3	58513-2204	Lead Assy.	1
8-33	1102	Plug	1	18-2	58513-2504	Lead Assy.	1
9-47	1102	Plug	1	18-13	58513-4904	Lead Assy.	1
10-21	1102	Plug	2	18-12	58513-5004	Lead Assy.	1
16-17	1102	Plug	6	18-10	58513-5104	Lead Assy.	1
25-6	1102	Plug	1	18-11	58513-5604	Lead Assy.	1
18-23	1182-K3	Spark Plug	12	18-8	58513-5804	Lead Assy.	1
19-26	1182-K3	Spark Plug	12	18-9	58513-5804	Lead Assy.	1
20-27	1182-P2	Spark Plug	12	19-8	59273	Conduit Assy.	1
21-29	1182-Y3	Spark Plug	12	19-5	59274	Conduit Assy.	1
11-50	1540	Plug	1	19-10	59275	Dual Conduit	1
12-54	1540	Plug	1			Assy.	
9-75	1691-C	Gasket	1	19-3	59276	Conduit Assy.	1
23-7	1892	Spring	2	19-7	59277	Conduit Assy.	1
21-17	5028	Spring Assy.	12	19-2	59278	Conduit Assy.	1
18-27	5152	Nut	4	19-6	59279	Conduit Assy.	1
19-35	5152	Nut	7	19-9	59280	Dual Conduit	1
20-31	5152	Nut	4			Assy.	
21-33	5152	Nut	4	19-4	59281	Conduit Assy.	1
19-17	5422	Nail	12	19-11	59282	Conduit Assy.	1
19-12	5585	Elbow Assy.	12	20-7	59651-0904	Lead Assy.	1
19-14	5651	Collar	12	20-6	59651-1304	Lead Assy.	1
19-34	6456	Screw	7	20-5	59651-1504	Lead Assy.	1
19-29	6778	Clamp	3	20-4	59651-1804	Lead Assy.	1
19-28	6783	Clamp	1	20-3	59651-2204	Lead Assy.	1
18-28	6799	Screw	4	20-2	59651-2504	Lead Assy.	1
20-32	6799	Screw	4	20-13	59687-4904	Lead Assy.	1
21-34	6799	Screw	4	20-10	59687-5104	Lead Assy.	1
19-30	6802	Clamp	3	20-11	59687-5604	Lead Assy.	1
21-14	7216	Spring Assy.	12	20-8	59687-5804	Lead Assy.	1
20-15	7269	Collar	12	20-12	59688-5004	Lead Assy.	1
21-16	7982	Stud	12	20-9	59688-5804	Lead Assy.	1
9-70	8313	Gasket	2	21-12	59693-5004	Lead Assy.	1
10-26	8313	Gasket	1	21-9	59693-5804	Lead Assy.	1
24-11	16933-225-6	Flange	1	21-13	59694-4904	Lead Assy.	1
23-17	17189-200-N	Marman Gasket	1	21-10	59694-5104	Lead Assy.	1
12-60	20415	Gasket	1	21-11	59694-5604	Lead Assy.	1
24-10	24096-225-N	Gasket	1	21-8	59694-5804	Lead Assy.	1
23-16	24502-200	Marman Coupling	1	21-7	59766-0904	Lead Assy.	1
24-10	24502-225	Coupling	1	21-6	59766-1304	Lead Assy.	1
14-5	30311	Bearing	1	21-5	59766-1504	Lead Assy.	1
3-2	45226	Tube	6	21-4	59766-1804	Lead Assy.	1
21-15	51218	Grommet	12	21-3	59766-2204	Lead Assy.	1

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FIG-REF. NO.	PART NO.	PART NAME	QTY.	FIG-REF. NO.	PART NO.	PART NAME	QTY.
21-2	59766-2504	Lead Assy.	1	2-19	66990	Stud	6
4-9	60007	Bolt	12	5-36	67112	Rocker Assy.	6
5-26	60009	Key	12	5-29	67113	Rocker Assy.	6
5-26	60009	Key	24	5-30	67114	Bushing	6
6-14	60069	Flange	6	5-38	67193	Gasket	6
7-20	60069	Flange	6	5-48	67195	Flange	6
6-18	60131	Gasket	6	3-12	67204	Plate	1
7-24	60131	Gasket	6	4-7	67275	Rod Assy.	6
4-5	60403	Pin	6	4-12	67276	Bearing	12
9-66	60430	Cover	2	3-14	67447	Bearing	8
10-25	60430	Cover	1	1-30	67453	Dowel	8
9-27	60431	Cover	1	9-28	67583	Gear	1
11-26	61297	Impeller	1	9-39	67596	Bushing	1
12-29	61297	Impeller	1	9-43	67605	Jaw	1
5-44	61503	Sleeve	12	9-29	67609	Gear	1
6-11	61548	Plate	1	9-27	67610	Gear Assy.	1
7-13	61548	Plate	1	9-45	67633	Gasket	1
13-15	61566	Kit Assy.	2	14-4	67638	Shim	1
16-4	61581-1	Tube Assy.	1	14-1	67639	Adapter	1
16-6	61581-3	Tube Assy.	2	14-9	67641	Nut	1
16-5	61581-4	Tube Assy.	1	14-8	67642	Lockwasher	1
16-2	61581-5	Tube Assy.	2	8-38	67646	Bushing	1
16-1	61581-9	Tube Assy.	2	10-8	67653	Bushing	1
16-3	61581-10	Tube Assy.	2	3-11	67687	Gear	1
4-4	61824	Ring	6	3-13	67688	Nut	1
4-4A	61824	Ring	6	9-1	67690	Washer	1
13-8	62224	Gasket	2	9-51	67704	Shaft Gear Assy.	1
16-8	62254	Clip	6	9-32	67708	Gasket	2
5-45	62922	Seal	24	9-33	67709	Shim	1
1-21	65007	Retainer	12	8-7	67742	Bushing	1
2-24	65007	Retainer	12	11-29	67762	Dowel	1
3-17	65074	Socket	12	12-32	67762	Dowel	1
5-52	65614	Plug	4	9-53	67782	Shaft Gear Assy.	1
4-8	65819	Bushing	6	5-7	67835	Seat	6
3-21	66144	Lockplate	2	11-48	67940	Nut	1
8-12	66145	Dowel	2	12-52	67940	Nut	1
20-22	66216	Sleeve	6	11-43	67981	Plunger	1
21-24	66216	Sleeve	6	12-47	67981	Plunger	1
6-26	66224	Gasket	1	11-20	68161	Shaft	1
7-32	66224	Gasket	1	12-23	68161	Shaft	1
11-24	66426	Impeller	1	6-13	68172	Gasket	1
12-27	66426	Impeller	1	7-15	68172	Gasket	1
5-13	66670	Bushing	24	8-43	68174	Gasket	1
5-8	66713	Guide	6	9-46	68186	Adapter	1
5-21	66714	Valve	6	5-22	68325	Seat	6
5-42	66717	Spring	6	5-22	68325	Seat	12
5-6	66720	Seat	6	5-23	68326	Spring	12
5-43	66728	Washer	AR	5-25	68327	Seat	6
5-33	66731	Cover	12	5-25	68327	Seat	12
5-32	66732	Gasket	12	5-24	68328	Spring	12
1-10	66734	Stud	4	4-3	68338	Ring	6
2-18	66734	Stud	4	4-3A	68338	Ring	6
5-10	66796 P10	Insert	12	11-25	68403	Impeller	1
18-16	66835	Plate	2	12-28	68403	Impeller	1
20-16	66835	Plate	2	11-27	68404	Impeller	1
21-18	66835	Plate	2	12-30	68404	Impeller	1
18-17	66836	Grommet	2	9-21	68410	Gear Assy.	1
19-15	66836	Grommet	2	10-1	68440	Cover Assy.	1
20-17	66836	Grommet	2	11-51	68456	Gasket	1
21-19	66836	Grommet	2	12-55	68456	Gasket	1
1-11	66990	Stud	6	11-18	68466	Bushing	1

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NUMERICAL INDEX PARTS SECTION

FIG-REF. NO.	PART NO.	PART NAME	QTY.	FIG-REF. NO.	PART NO.	PART NAME	QTY.
11-6	68466	Bushing	1	12-20	69618	Body Assy.	1
12-6	68466	Bushing	1	5-39	69625	Cover Assy.	3
12-21	68466	Bushing	1	5-39	69626	Cover Assy.	3
11-31	68467	Gear	1	1-1	69628	Crankcase Assy.	1
12-34	68467	Gear	1	6-22	69633	Carburetor	1
11-22	68468	Spacer	1	8-36	69636	Tube and Strainer	1
12-25	68468	Spacer	1			Assy.	
11-11	68473	Sleeve	1	8-29	69637	Plug	1
12-15	68473	Sleeve	1	3-1	69640	Crankshaft Assy.	1
11-44	68542	Spring	1	3-8	69641	Dowel	3
12-48	68542	Spring	1	3-7	69642	Bushing	1
9-12	68544	Shaft	1	9-3	69645	Jaw	1
9-20	68545	Washer Assy.	1	11-28	69647	Dowel	1
9-16	68553	Gear	1	12-31	69647	Dowel	1
10-24	68556	Gasket	1	8-30	69658	Pin	1
9-14	68563	Bushing	1	8-1	69661	Hsg. Assy. Acc.	1
9-48	68565	Gear	1	3-20	69662	Gear	1
9-13	68568	Hub Assy.	1	15-11	69663	Tube	1
10-10	68590	Bushing	1	15-12	69664	Tube	1
9-35	68694	Adapter Assy.	1	12-26	69671	Shaft	1
1-15	68751	Stud	4	2-22	69679	Stud	4
2-22	68751	Stud	4	5-9	69693	Guide	6
3-14	68763	Bearing	8	5-27	69697	Cap	6
5-31	68806	Shaft	12	5-25	69698	Seat	6
14-7	68835	Gear	1	2-35	69796	Dowel	8
9-60	68874	Cushion	4	9-10	69810	Cap Assy.	1
13-11	68874	Cushion	4	5-16	69814	Dowel	6
9-59	68875	Retainer	2	3-3	69815	Plug	1
13-10	68875	Retainer	2	1-28	69823	Stud	8
6-1	68951	Cover Assy.	1	2-32	69823	Stud	8
6-19	68955	Pipe	2	3-6	69844	Tube	1
6-19	68956	Pipe	2	3-1A	69851	Crankshaft Assy.	1
6-19	68957	Pipe	2	11-5	69892	Body Assy.	1
7-25	68955	Pipe	2	11-1	69893	Pump Assy.	1
7-25	68956	Pipe	2	12-1	69937	Pump Assy.	1
7-25	68957	Pipe	2	12-5	69938	Body Assy.	1
3-9	68965	Bolt	8	17-1	69947	Baffle Assy.	4
9-2	69177	Gear Assy.	1	8-8	70292	Plug	1
13-9	69208	Coupling	1	8-1A	70293	Hsg. Assy. Acc.	1
13-9A	69208	Coupling	2	15-1	70319	Sump Assy.	1
5-10	69260 P10	Insert	12	2-39	70338	Spacer	2
8-11	69286	Annulus	1	5-1	70353	Cylinder Assy.	6
4-4A	69322	Ring	6	2-1	70403	Crankcase Assy.	1
8-31	69335	Plug	1	8-1B	70404	Hsg. Assy. Acc.	1
15-9	69335	Plug	1	8-1C	70406	Hsg. Assy. Acc.	1
5-9	69358	Guide	6	19-1	70423	Cable Assy.	1
9-11	69494	Chain Assy.	1	3-2	70432	Plug	1
3-15	69529	Body	12	3-1B	70433	Crankshaft Assy.	1
9-56	69565	Sleeve	1	3-5	70434	Jet	1
9-58	69565	Sleeve	1	11-40	70460	Washer	1
9-55	69566	Shaft Assy.	1	12-44	70460	Washer	1
9-57	69567	Coupling Assy.	1	13-15A	70497	Kit Assy.	2
9-5	69568	Cover Assy.	1	8-40	71123	Bushing	1
9-49	69569	Washer	1	10-20	71124	Bushing	1
9-50	69570	Ring	1	5-47	71135	Rod Assy.	AR
1-27	69580	Dowel	2	5-47	71136	Rod Assy.	AR
2-31	69580	Dowel	2	5-47	71137	Rod Assy.	AR
6-8	69602	Connection	6	6-22	71139	Carburetor	1
7-10	69602	Connection	6	15-2	71142	Sump Assy.	1
11-23	69605	Shaft	1	13-4	71163	Magneto	1
11-17	69618	Body Assy.	1	15-11	71203	Tube	1

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FIG-REF. NO.	PART NO.	PART NAME	QTY.	FIG-REF. NO.	PART NO.	PART NAME	QTY.
15-12	71204	Tube	1	3-21	72078	Lockplate	2
11-41	71224	Oil filter assy.	1	9-30	72139	Dowel	3
12-45	71224	Oil filter assy.	1	9-34	72182	Ring	1
11-47	71226	Screw	1	3-3	72305	Plug	1
12-51	71226	Screw	1	3-7	72308	Bushing	1
3-18	71304	Camshaft Assy.	1	3-4	72312	Ring	1
8-39	71341	Bushing	1	5-18	72343	Stabilizer	6
5-21	71381	Valve	6	5-19	72344	Stabilizer	6
18-1	71396	Cable Assy.	1	18-21	72351	Screw	8
18-15	71401	Collar	12	19-21	72351	Screw	8
13-2	71435	Magneto	1	20-21	72351	Screw	8
13-1	71436	Magneto	1	21-23	72351	Screw	8
13-1	71437	Magneto	1	9-12	72384	Shaft	1
13-2	71438	Magneto	1	12-56	72412	Cover	1
5-46	71481	Ring	6	6-21	72417	Clamp	12
18-14	71489	Sleeve	12	4-6	72434	Plug	12
19-13	71489	Sleeve	12	5-1B	72436	Cylinder Assy.	6
20-14	71489	Sleeve	12	15-20	72437	Gasket	1
6-22	71546	Carburetor	1	21-1	72459	Cable Assy.	1
5-28	71549	Washer	AR	3-1C	72469	Crankshaft Assy.	1
5-28	71549-1	Washer	AR	3-3	72470	Plug	1
5-28	71549-2	Washer	AR	3-4	72471	Ring	1
5-28	71549-3	Washer	AR	11-41	72785	Oil filter assy.	1
4-1	71553	Piston	6	12-45	72785	Oil filter assy.	1
4-2	71555	Ring	12	5-41	72839	Shroud Tube	12
13-17	71571	Kit	1			Assy.	
13-16	71574	Kit	2	3-16	72876	Plunger Assy.	12
17-3	71611	Retainer	4	3-15	72877	Body	12
9-40	71616	Bushing	1	5-9	72897	Guide	6
17-2	71629	Hook	4	23-13	72903	Manifold Assy.	2
6-22	71684	Carburetor	1	23-15	72904	Pipe Assy.	1
7-28	71684	Carburetor	1	23-14	72905	Pipe	1
6-22	71685	Carburetor	1	23-1	72906	Manifold and	1
15-11	71702	Tube	1			Piping Assy.	
15-12	71702	Tube	1	23-18	72928	Transition Assy.	1
11-1A	71769	Pump Assy.	1	25-1	72934	Turbocharger	1
11-5	71770	Body Assy.	1	7-28A	72936	Carburetor	1
12-5	71771	Body Assy.	1	4-2A	72944	Ring	18
12-1A	71772	Pump Assy.	1	3-15	73061	Body	12
11-42	71774	Cover	1	11-5	73086	Body Assy.	1
12-46	71774	Cover	1	12-5	73088	Body Assy.	1
3-16	71791	Plunger Assy.	12	12-1B	73089	Pump Assy.	1
16-13	71811	Sleeve	6	11-1B	73091	Pump Assy.	1
5-1A	71850	Cylinder Assy.	6	10-1A	73094	Cover Assy.	1
18-18	71875	Washer	12	5-21	73111	Valve	6
19-18	71875	Washer	12	5-22	73112	Seat	6
20-18	71875	Washer	12	5-25	73115	Seat	6
21-20	71875	Washer	12	5-20	73129	Valve	6
5-7	71894	Seat	6	7-41	73189	Gasket	1
5-6	71895	Seat	6	24-3	73314	Gasket	1
16-7	71910	Clamp	6	25-16	73320	Hose Assy.	1
9-22	71911	Clamp	6	24-7	73321	Hose Assy.	1
20-23	71911	Clamp	6	25-17	73325	Elbow	1
21-25	71911	Clamp	6	7-19	73342	Breather Assy.	1
4-10	71950	Nut	12	23-24	73343	Baffle	1
11-13	71999	Retainer	1	6-14	73346	Flange	6
12-17	71999	Retainer	1	7-20	73346	Flange	6
13-3	72038	Magneto	1	7-34	73347	Adapter	1
15-18	72045	Hose	1	25-12	73348	Bolt	2
5-26	72050	Key	12	23-12	73356	Rod	1
1-32	72075	Seal	8	23-11	73357	Clip	1
2-41	72075	Seal	8	23-6	73358	Clamp	1

LYCOMING AIRCRAFT ENGINE GROUP ASSEMBLY PARTS LIST

NUMERICAL INDEX PARTS SECTION

FIG-REF. NO.	PART NO.	PART NAME	QTY.	FIG-REF. NO.	PART NO.	PART NAME	QTY.
23-23	73361	Support Assy.	1	24-1	73784	Controller	1
25-7	73361	Support Assy.	1	24-9	73785	Valve	1
8-44	73367	Cover	1	7-31	73833	Bolt	2
8-48	73368	Gasket	1	7-30	73864	Bolt	2
7-1	73375	Cover Assy.	1	5-21	73875	Valve	6
25-11	73377	Check Valve Assy.	1	7-28B	73899	Carburetor	1
5-47	73434	Rod Assy.	AR	7-1	73917	Cover Assy.	1
5-47	73435	Rod Assy.	AR	4-1A	73932	Piston	6
5-47	73436	Rod Assy.	AR	4-2A	73933	Ring	18
4-1A	73620	Piston	6	4-3A	73934	Ring	6
25-25	73641	Tube	1	5-1D	73935	Cylinder Assy.	6
15-10	73671	Tee	1	5-9	73979	Guide	6
2-1A	73697	Crankcase Assy.	1	5-21	74052	Valve	6
8-1D	73701	Hsg. Assy. Acc.	1	10-23	74097	Elbow	1
5-1C	73704	Cylinder Assy.	6	13-4	74174	Magneto	1
15-2	73705	Sump Assy.	1	5-1E	74218	Cylinder Assy.	6
23-22	73720	Gasket	12	20-1	74341	Cable Assy.	1
15-17	73731	Hose	1	6-10	74376	Elbow Assy.	1
23-5	73733	Strap	1	7-12	74376	Elbow Assy.	1
11-15	73761	Spring	1	16-18	74376	Elbow Assy.	1
12-19	73761	Spring	1	5-36	74388	Rocker Assy.	6
2-40	73772	Nozzle Assy.	6	5-37	74389	Bushing	6
7-16	73774	Baffle	1	24-9	74422	Valve	1
25-13	73775	Gasket	1	24-1	74423	Controller	1
25-18	73779	Baffle	1	25-3	402626	Lockplate	3
25-23	73781	Hose	2	25-4	400427	Spacer	2
25-21	73782	Gasket	1	25-5	400428	Bolt	4
24-12	73783	Hose	1	25-4	400429	Bolt	2