

**REMOVAL AND INSTALLATION  
LABOR ALLOWANCE  
GUIDEBOOK**

FOR

RECIPROCATING AIRCRAFT ENGINES

## **-INTRODUCTION-**

The labor hours shown in this booklet will be the maximum allowed to the Distributor and/or Dealer for warranty work.

Warranty labor will not be considered in the course of troubleshooting, adjustment or replacement of any of the following.

1. Spark Plugs, Magneto to Engine timing.
2. Oil Filter or Oil Changes.
3. Oil Pressure Screens removal and inspection.
4. Oil and Fuel Pressure adjustments.
5. Fuel Nozzle removal and cleaning.
6. Propellers, Governors, Vacuum systems and/or Hydraulic systems, Vibration, Engine Instrumentation and synchronization problems in case of twin engine aircraft.
7. Testing or adjustment of Electrical, Fuel, or Turbocharging Systems.

### NOTE

The following listed labor hours are for normal engine installations, in cases where engine removal is required to remove and replace a component or part due to Airframe installation, labor hours, for part or component change only will be allowed.

## HOW TO USE LABOR HOUR GUIDELINES

1. The left hand column of numbers are code numbers used for computer purposes by the factory. This number must be noted on the warranty application in addition to description of part repaired or replaced.
2. Second column indicates engine area and parts name to be used.
3. Third column, combine with code. When a number is enclosed in the box in this column this denotes that you refer to the repair code number line and add the time on this line pertaining to your engine type, with the time of the part being repair or replaced.
4. The vertical columns indicate type of engine being worked on and amount of hours allowed by Textron Lycoming in accomplishing the specified job.
5. When engine removal is necessary for component part change, both engine removal time and part change time will be added together for allowed labor time. (Such as crankcase replacement.)

REPAIR CODE NO.	REMOVE AND REPLACE OR REPAIR	COMBINE WITH CODE	NORMALLY ASPIRATED		TURBO-CHARGED		TIO AND TIGO-541	HELICOPTER NORMALLY ASPIRATED		HELICOPTER TURBO-CHARGED	SUPER-CHARGE	IO-360		IO-540		TIO-540			
			4 CYL	6 CYL	8 CYL	4 CYL		6 CYL	4 CYL			6 CYL	-L2A	-AB1A5	-AC1A5	-AF1B	-AH1A	-AJ1A	-AE2A
05	ENGINE ASSEMBLY – REMOVAL AND INSTALLATION		20	24	24	32	32	36	20	20	24	36	20	24	24	32	32	40	60
06	PROPELLER		1½	1½	1½	1½	2	1½					1½	1½	1½	2	2	2	2
07	COWLING (WHEN REQUIRED) COMPLETE		½	½	½	½	½	½	½	½	½	½	1¼	1	1	½	½	1	1
09	REDUCTION GEAR ASSEMBLY										6								
09	REDUCTION GEAR ASSEMBLY VIA NEW PARTS										10								
09	TIGO REDUCTION GEAR REPAIR	05						32											
19	GEARS, BEARINGS, OR SHAFTS	05	12	14	16	15	32	32	12	14			12	14	14	32	32	32	32
20	CRANKCASE	05	12	14	16	15	32	32	12	14		18	12	14	14	32	32	32	32
21	SUMP		6	10	8	8	10	5	6	5	6	12	4	8	10½	10	10	10	20
21	INDUCTION HOUSING				4			5		4	5								
27	INT. PIPES OR INT. CONNECTION (PER CYL.)		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
28	PISTON COOLING NOZZLE	41	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼
29	OIL LEVEL GAUGE – TUBE		½	¼	¼	½			½				½	¼	¼	¼	¼	¼	¼
30	CRANKSHAFT ASSEMBLY	05	13	15	17	16	33	33	13	15	17	19	13	15	15	33	33	33	33
31	CRANKSHAFT NOSE SEAL	06	¾	¾	¾	¾	¾	¾	¾	¾			¾	¾	¾	¾	¾	¾	¾
32	CAMSHAFT	05	12	14	16	15	32	32	12	14	16	18	12	14	14	32	32	32	32
33	CONNECTING ROD BEARING (PER CYL.)	41	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾
34	PISTON (PER CYL.)	41	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
35	PISTON RINGS (PER CYL.)	41	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼
36	CONNECTING RODS AND BOLTS (PER CYL.)	41	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾
38	PISTON PINS, PISTON PIN PLUGS	41	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼
39	STARTER RING GEAR SUPPORT ASSEMBLY	06	¼	¼	¼	¼	¼	¼	¼				¼	¼	¼	¼	¼	¼	¼
41	CYLINDER ASSEMBLY (FIRST)		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
	CYLINDER ASSEMBLY (EACH ADDITIONAL)		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
43	CYLINDER ASSEMBLY “O” RING		2	2	2	2	2	2½	2½	2½	2½	2	2	2	2	2	2	2	2
44	HELI-COIL (STUD, NOZZLE, SPARK PLUG)		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
45	VALVE GUIDES REMOVE & REPLACE, & REAMING	41	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
46	VALVE SEAT REFACING (PER CYL.)	41	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼
46	VALVE SEAT, REMOVING, REPLACE AND REFACING	41	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
47	INTERCYLINDER BAFFLES		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½

REPAIR CODE NO.	REMOVE AND REPLACE OR REPAIR	COMBINE WITH CODE	NORMALLY ASPIRATED			TURBO-CHARGED		TIO AND TIGO-541	HELICOPTER NORMALLY ASPIRATED		HELICOPTER TURBO-CHARGED	SUPER-CHARGE	IO-360	IO-540		TIO-540			
			4 CYL.	6 CYL.	8 CYL.	4 CYL.	6 CYL.		4 CYL.	6 CYL.			-L2A	-AB1A5	-AC1A5	-AF1B	-AH1A	-AJ1A	-AE2A
50	EXHAUST VALVE	41	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼
51	INTAKE VALVE	41	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼
52	VALVE SPRINGS, SEATS, KEYS, CAPS		¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼	¼
53	PUSH ROD SEAL (PER CYL.)		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
53	PUSH ROD SEAL (PER CYL.) O-235 SERIES		1																
54	ROCKER ARMS (PER CYL.)		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
56	HYDRAULIC LIFTERS, SOCKETS (PER CYL.)		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
57	PUSH RODS OR SHROUD TUBES (PER CYL.)		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
57	PUSH RODS OR SHROUD TUBES (PER CYL.) O-235 SERIES		1																
60	ACCESSORY HOUSING		5	6	7	8	8		5	6	8	14	6	9	10½	8	10	10½	9
62	SEAL, GASKETS, "O" RINGS		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
64	GEAR, GEARSHAFTS, DRIVE SHAFTS (INTERNAL)	60	1	1	1	1	1	32	1	1	1	1	1	1	1	1	1	1	1
64	GEARS, GEAR & DRIVE SHAFTS (CROSSWISE ONLY)								4	4	4								
64	COMPRESSOR SHAFT							16											
66	MAGNETO, COUPLING ASSEMBLY CUSHINGS		1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	2	1½	2	2	2	2	2
67	OIL COOLER BYPASS VALVE		1	1															
67	OIL RELIEF VALVE (VERNETHERM)		½	½	½	½	½	1	½			½	½	½	1	1	1	1	1
68	OIL PUMP DIRECT DRIVE	60	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
68	OIL PUMP DIRECT DRIVE (76 SERIES)		1																
68	OIL PUMP CROSS WISE								½	½	½								
68	OIL PUMP INTEGRAL	21						1½											
69	OIL RELIEF VALVE ASSEMBLY		½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½	½
70	INLET HOUSING						2½	2				1½				2½	2½	2½	2½
71	TURBOCHARGER BRACKET					4	12	12			6					2	2	2	2
72	SUPERCHARGER SEAL GASKETS, "O" RINGS											6							
75	IMPELLER, DIFFUSER											8							
76	TURBOCHARGER CONTROLLERS					1½	1½	1½			1½					1	½	1	3
77	TURBOCHARGER ASSEMBLY					2	4	4			2					1½	3	2½	3
78	EXHAUST BYPASS VALVE OR TRANSITION					1	1	1			1					1	1	1	1½
79	OIL DRAIN TANK						½									½	½	½	½

REPAIR CODE NO.	REMOVE AND REPLACE OR REPAIR	COMBINE WITH CODE	NORMALLY ASPIRATED			TURBO-CHARGED		TIO AND TIGO-541	HELICOPTER NORMALLY ASPIRATED		HELICOPTER TURBO-CHARGED	SUPER-CHARGE	IO-360	IO-540		TIO-540			
			4 CYL.	6 CYL.	8 CYL.	4 CYL.	6 CYL.		4 CYL.	6 CYL.			-L2A	-AB1A5	-AC1A5	-AF1B	-AH1A	-AJ1A	-AE2A
81	CARBURETOR		2	2				2	2½	2½	2								
82	INJECTOR		2½	2½	1½	2½	2½	2	2½	2½	2½	2	2	2		2½	3	2	8
82	INJECTOR NOZZLES (PER CYL.)		¼	¼	¼	¼	¼	¾	¼		½	¼	¼	¼	¼	¼	¼	¼	¼
82	FLOW DIVIDER		1	1	1	1	1	1	1			1	1	1	1	1	1	1	1
83	MAGNETO		1	1	1	1	1¼	1	1	1	1	2	2	1½	1¼	1½	1½	1½	2
84	FUEL PUMP		1	1	1	1½	2	1½	1			1½	1½	1½	1	2	1½	3	
86	STARTER		1	1	1	1	1	1½	1	1		1½	2	1½	3	2	1½	5	
87	GENERATOR		¾	¾															
87	BELT	06	¼	¼															
88	ALTERNATOR		¾	¾	¾	¾	¾	1	1	¾		¾	¾	¾	¾	1½	1½	1½	
88	BELT	06	¼	¼	¼	¼	¼	¼				¼	¼	¼	¼	¼	¼	¼	
88	BENDIX OR DRIVE COUPINGS							1	1	1									
90	IGNITION HARNESS (DUAL MAGNETO)		3	3	4	2	3	1½	3										
90	IGNITION HARNESS		1	1½	2	1	1½	2¾	1	2	1½	2	1	1½	1½	1½	1½	1½	2
90	IGNITION HARNESS LEAD (PER CYL.)		¾	¾	¾	¾	¾	2	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	1½
90	IGNITION HARNESS LEAD (DUAL MAGNETO)		1½	1½	1½	1½	1½	3	1½	1½	1½	1½							
94	EXH. MANIFOLD TURBOCHARGER COMP. (PER SIDE)					1	1½	2½								1	1½	1½	1½
97	LYCOMING SUPPLIED OIL COOLER							2½											
97	INTERCOOLER															1			1
98	EXHAUST STACK ASSY.					½	½	2			½					½	½	½	½