

**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 |

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|-----------------|---|-------------------|--------------------|--------|--------|---------------|--------|------------------|-------------------------------|--------|--------------------------|--------------|--------|--------|--------|-------|---------|-------|-------|--|
| | | | 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 | 1½ | 2 | 1½ | 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 | ½ | 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 | |

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|-----------------|---|-------------------|--------------------|--------|--------|---------------|--------|------------------|-------------------------------|--------|--------------------------|--------------|--------|--------|--------|--------|---------|-------|-------|-------|
| | | | 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 | |