



CMC

***Continental Aircraft Engine***

***Series TS10-470***

FAA APPROVED

# OPERATOR'S MANUAL

## 2. Tabulated Data and Performance Curves

|                                                             |                                                         |
|-------------------------------------------------------------|---------------------------------------------------------|
| Manufacturer                                                | Continental Motors Corporation                          |
| Model                                                       | TSIO-470                                                |
| Type Certificate Number                                     | 3E3                                                     |
| Cylinders                                                   |                                                         |
| Arrangement                                                 | Individual cylinders in a horizontally opposed position |
| Compression Ratio                                           | 7.5:1                                                   |
| Firing Order                                                | 1 - 6 - 3 - 2 - 5 - 4                                   |
| Head Temperature—Maximum Allowable                          | 460° F.*                                                |
| Number                                                      | 6                                                       |
| Numbering (accessory end toward propeller end):             |                                                         |
| Right Side                                                  | 1 - 3 - 5                                               |
| Left Side                                                   | 2 - 4 - 6                                               |
| Bore (inches)                                               | 5                                                       |
| Stroke (inches)                                             | 4                                                       |
| Piston Displacement (cubic inches)                          | 471                                                     |
| Brake Horsepower                                            |                                                         |
| Rated Maximum Continuous Operation                          | 260                                                     |
| Rated Maximum Take-Off                                      | 260                                                     |
| Rated Maximum for Cruising                                  | 195                                                     |
| Crankshaft Speed—RPM                                        |                                                         |
| Rated Maximum Continuous Operation                          | 2600                                                    |
| Rated Maximum Take-Off                                      | 2600                                                    |
| Recommended Maximum for Cruising                            | 2450                                                    |
| Recommended for Idling                                      | 600 or 900                                              |
| Intake Manifold Pressure (Inches Hg.)                       |                                                         |
| Maximum at Sea Level                                        | 35                                                      |
| Maximum at Critical Altitude                                | 35                                                      |
| Induction System                                            | Turbocharged                                            |
| Critical Altitude (feet at standard atmospheric conditions) | 16,000                                                  |
| Minimum Fuel Octane Rating                                  | 100/130 (Aviation Grade)                                |
| Fuel Control System                                         | Continental Continuous Flow Injector                    |
| Fuel Consumption Rate (gal/hr)†                             |                                                         |
| Maximum Continuous Operation                                | 24                                                      |
| Normal Cruise, 60% MC Power                                 |                                                         |
| Best Power                                                  | 12.6                                                    |
| Normal Cruise, 60% MC Power, Best Economy                   | 10.3                                                    |
| Oil Specification                                           | Continental MHS-24                                      |
| Above 40° F.                                                | SAE No. 50                                              |
| Below 40° F.                                                | SAE No. 30                                              |

\* Indicates temperature measured by plug-type thermocouple in tapped opening at bottom of cylinder head.

† Refer to aircraft manufacturer's data on appropriate model. Consumption varies with power setting and mixture control setting.

|                                                         |                                |
|---------------------------------------------------------|--------------------------------|
| Oil Pressure                                            |                                |
| Minimum Idle (psi)                                      | 10                             |
| Cruising Range (psi)                                    | 30 to 60                       |
| Oil Sump Capacity (U. S. Quarts)                        | 12                             |
| Oil Level (Minimum for Operation)**                     | See Engine Oil Level Gauge Rod |
| Oil Consumption (lb./BHP/hr, max. at rated power & RPM) | 0.015                          |
| Oil Temperature Limits                                  |                                |
| Minimum for Take-Off                                    | 75° F.                         |
| Maximum Allowable with SAE No. 50 oil                   | 240° F.                        |
| Recommended Cruising                                    | 170° F. - 180° F.              |
| Ignition Timing (Compression stroke, breaker opens)     |                                |
| Right Magneto, degrees BTC                              | 22                             |
| Left Magneto, degrees BTC                               | 22                             |

\*\* Minimum oil level for satisfactory oil cooling is indicated by "LOW" mark on oil level gauge.

| Accessories                          | Manufacturer  | Model                                                      |
|--------------------------------------|---------------|------------------------------------------------------------|
| Magneto                              | Scintilla     | One Model No. S6RN-201 (RH)<br>One Model No. S6RN-205 (LH) |
| Spark Plugs                          | Champion & AC | Type RHB-32N, RHB-33E,<br>AC-273 and HRS-86L               |
| Fuel Injector Pump                   | Continental   | Model E56                                                  |
| Turbocharger                         | AiResearch    | Model T-1103 or T-1106                                     |
| Tachometer (Type Drive)              |               | Model AS-54                                                |
| Generator (As specified)             |               | 12 or 24 volt; 25 or 50 Amp.                               |
| Voltage Regulator (As specified)     |               |                                                            |
| Starter (As specified)               |               | 12 or 24 volt                                              |
| Accessory Drive Ratios to Crankshaft |               |                                                            |

| Accessory Drive         | Rotation (from propeller end) | Ratio  | Max. Torque (in/lbs)<br>Cont. | Static | Max. Overhang<br>Moment (in/lbs) |
|-------------------------|-------------------------------|--------|-------------------------------|--------|----------------------------------|
| Magneto (2)             | Counterclockwise              | 1.5:1  |                               |        |                                  |
| Fuel Injector Pump      | Clockwise                     | 1:1    |                               |        |                                  |
| Tachometer Drive        | Counterclockwise              | 0.5:1  |                               |        |                                  |
| Generator (Belt Driven) | Counterclockwise              | 2.28:1 | 50                            | 150    |                                  |
| Starter                 | Counterclockwise              | 32:1   |                               |        |                                  |
| * Propeller Governor    | Clockwise (facing pad)        | 1:1    | 29                            | 825    | 50                               |
| AND 20000 (2)           | Clockwise                     | 1.5:1  | 100**                         | 800    | 25                               |

\* Modified AND 20000 Pad.

\*\* One drive eligible at 160 in/lbs continuous torque load providing the other drive does not exceed 100 in/lbs continuous torque load. These drives are supplied with cover plates only.