

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

3E3  
Revision 6

CONTINENTAL

TSIO-470-B  
TSIO-470-C  
TSIO-470-D

November 1, 2011

TYPE CERTIFICATE DATA SHEET NO. 3E3

Engines of models described herein conforming with this data sheet (which is part of type certificate No. 3E3) and other approved data on file with the Federal Aviation Agency, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate Holder                      Continental Motors  
P.O. Box 90  
Mobile, Alabama    36601

Type Certificate Holder Record            Teledyne Continental Motors  
Ownership & name change as of April 19, 2011 (Continental Motors, Inc.)

<u>Model</u>	<u>TSIO-470-B, -C, -D</u>
Type	6HOA
Rating, standard atmosphere	
Max. continuous hp., r.p.m.,	
in. Hg. at full throttle	
Sea level pressure altitude	260-2600-35
Critical altitude of 16,000 ft.	260-2600-35
Takeoff (5 min.) hp., r.p.m.,	260-2600-35
in Hg. at full throttle	
Fuel (min. grade aviation gasoline)	100/130
Lubricating oil, engine	Lubricating oils qualified under SAE-J1899 or J1966 are considered qualified under CMI Spec MHS-24
Lubricating oil, turbo	Lubricating oils qualified under SAE-J1899 or J1966 are considered qualified under CMI Spec MHS-24
Bore and stroke, in.	5.00 x 4.00
Displacement, cu. in.	471
Compression ratio	7.5:1
Weight (basic engine, dry), lb.	427
Weight (turbo dry), lb.	38
C.G. location (basic engine)	
Fwd. of rear face acc. case, in.	11.64
Below crankshaft centerline, in.	0.67
Beside crankshaft centerline	0.1
toward 1-3-5 side, in.	
C. G. location (turbo)	See instal. dwg. 629137 for -B, 631906 for -C, -D
Propeller shaft	Special integral flange 4-7/8 in. O.D. with six ½ in. bolt holes in 4 in. diameter circle
Fuel injection	CMI Injection system (Eq. #5834) for -B, (Eq. #5905) for -C, -D or latest FAA approved version
Ignition, dual magnetos	One CMI/TCM/Scintilla S6RN-201 and one S6RN-205, or two S6RN-25 or two S6RSC-25
Timing, °BTC	22
Spark plugs	See NOTE 4
Oil sump capacity, qt.	12; 8 usable at 15° noseup and 5° nosedown attitudes

" \_\_\_ " indicates "does not apply"

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Certification Basis CAR 13, effective June 15, 1956 and amendments 13-1 effective August 12, 1957, 13-2 effective May 17, 1958, 13-3 effective October 1, 1959  
Type Certificate No. 3E3, issued September 9, 1960 for -B; -C added March 29, 1963; -D added February 24, 1964  
Date of Application for Type Certificate June 3, 1960

Production Basis Production Certificates Numbers 7 and 508

NOTE 1. Maximum permissible temperatures:  
Cylinder head bayonet, thermocouple 460° F.  
Cylinder barrel 290° F.  
Oil inlet 240° F.

NOTE 2. Fuel pressure limits:  
Inlet to injection pump, min. - minus 2 p.s.i.  
max. - plus 10 p.s.i.  
Outlet to vapor return line - 3.5 p.s.i. max.  
Oil pressure limits, 2-4-6 side- Normal 30-60 p.s.i.  
- Idle 10 p.s.i.  
- Maximum (cold oil) 100 p.s.i.  
Turbocharger oil inlet - Normal 20-40 p.s.i.  
- Idle 10 p.s.i. min.

NOTE 3. The following accessory drive or mounting provisions are available:

Accessory	*Direction of Rotation	Speed Ratio to Crankshaft	Max. Torque Continuous	(in-lb.) Static	Max. Overhang Moment (in-lb.)
Governor	C	1.0:1	29	825	50
Tachometer	CC	.5:1	7	50	25
Optional (2)					
Left and Right Hand	C	1.5:1	**100	800	40
Generator (Belt driven)	CC	2:1	100	800	100
Oil cooler			-	-	65
Starter:	CC	32:1	200	400	60

CMI P/N 627841 and 627842 eligible

\*C - Clockwise viewing drive pad; CC - counterclockwise.

\*\*One drive eligible at 160 in.-lb. continuous torque load provided the other drive does not exceed 100 in.-lb., continuous torque load.

NOTE 4. The following spark plugs and/or those listed in CMI Service Information Letter SIL03-2 are approved on this engine:

Champion RHB32E, RHB32N, RHB33E, RHB36P  
AC 271, 273 281, 283

NOTE 5. The Model TSIO-470-C is identical to the TSIO-470-3 except crankcase internal oil passages are provided to permit direct mounting of a full-flow oil filter.  
The Model TSIO-470-D is identical to the TSIO-470-C except for crankshaft damper configuration.

NOTE 6. Models TSIO-470-B and -C incorporate crankshaft with four sixth order dampers. Model TSIO-470-D incorporates crankshaft with two sixth, one fourth and one fifth order dampers.

NOTE 7. Maximum exhaust back pressure:  
38 in. Hg. absolute 3.25 in. from each cylinder exhaust flange and  
32 in. Hg. absolute 1.75 in. from turbocharger exhaust outlet flange.

NOTE 8. Required equipment:

- (a) A full-flow 20 micron oil filter incorporating a bypass valve set to open at 12-16 p.s.i. is required. Maximum clean element pressure drop shall not exceed 6 p.s.i. at a flow of 60 lb./min. using SAE 50 oil at 240° F. CMI P/N 629199 (Winslow P/N 30409A) and CMI P/N 629232 (A.C. P/N 5577730) are eligible on the TSIO-470-B. TSIO-470-C and -D oil pump housings are eligible for direct mounting of oil filter equipment having a maximum weight of 6 lb. and a maximum overhang moment of 25 in.-lb.

- (b) Unless otherwise substantiated by the installation, an oil separator having a capacity of one pint minimum and capable of separating an air flow of 2 c.f.m and an oil flow of 15 lb./min. at an oil temperature of 240° F. shall be installed in the supercharger oil return line.
- (c) An exhaust system meeting the requirements of one of the following CMI outline drawings is required:
  - CMI No. 629135
  - CMI No. 629278
- (d) CMI P/N AL-E6-5411 waste gate and throttle coordinator or equivalent shall be provided in the installation.

NOTE 9. Correction factors and/or curves for off standard day and induction ram conditions necessary for determining the horsepower are to be arrived at by flight testing of the aircraft until such time as they are made available by Continental Motors Corporation.

NOTE 10. The mounting of the turbocharger shall be approved by the engine manufacturer until adequate mounting instructions are included in FAA approved Continental Motors Corporation Installation Manual.

NOTE 11. Engine model numbers may include a suffix to define minor specification changes and/or accessory packages. Example: TSIO-470-A(10).

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