

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

E-273
Revision 37

CONTINENTAL

O-470-A, -B, -E, -G, -H, -J, -K, -L, -M,
-N, -P, -R, -S, -T, -U
O-470-B-CI, -G-CI, K-CI, L-CI, M-CI
(NOTE 6)
IO-470-A, -C

November 1, 2011

TYPE CERTIFICATE DATA SHEET NO. E-273

Engines of models described herein conforming with this data sheet (which is part of type certificate No. 273) and other approved data on file with the Federal Aviation Administration, 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.)

Model	O-470-A	O-470-E	O-470-J	O-470-K, -L, -R, -S	O-470-B, -M, -N
Type	6HOA	---	---	---	---
Rating, ICAO or ARDC standard atmosphere					
Max. continuous hp, rpm, at sea level pressure altitude	225-2600	225-2600	225-2550	230-2600	240-2600
Takeoff hp, 5 min., rpm, full throttle at sea level pressure altitude	225-2600	225-2600	225-2550	230-2600	240-2600
Fuel, (aviation gasoline, minimum grade)	80/87	---	---	---	91/96
Lubricating oil, ambient air temperature: Above 40° F.	See NOTE 9	---	---	---	---
Below 40° F.	Oil Grade SAE 50	---	---	---	---
	Oil Grade SAE 30	---	---	---	---
Bore and stroke, in.	5.00 x 4.00	---	---	---	---
Displacement, cu. in.	471	---	---	---	---
Compression ratio	7:1	---	---	---	---
Weight (dry), lb.	378	390	378	404 (-K, -L) 401 (-R, -S)	410
C.G. location (basic engine)					
Fwd. of rear face, engine					
Accessory case, in.	12.8	---	---	12.0	11.3
Below crankshaft center line, in.	0.1	---	---	0.3	0.5
Beside crankshaft center line, toward 1-3-5 side, in.	===	===	===	===	0.2

Page No.	1	2	3	4	5	6
Rev. No.	37	37	37	37	37	37

Model	O-470-A	O-470-E	O-470-J	O-470-K, -L, -R, -S	O-470-B, -M, -N
Propeller Shaft	Special integral flange 4 7/8 in. o.d. with six 1/2 in. bolt holes in 4 in. diameter circle	---	---	---	---
Carburetion or Fuel Injection	Marvel-Schebler MA-4-5 (TCM/CMI #535207 or 538872) or latest FAA approved version	Bendix-Stromberg PSD-5C (TCM/CMI #536911) or latest FAA approved version	Marvel-Schebler MA-4-5 (TCM/CMI #535207 or 538872) or latest FAA approved version	Marvel-Schebler M-4-5 (TCM/CMI #539883) (-L, -K) 641139 (-S, -R) or latest FAA approved version	Bendix-Stromberg PSD-5C (TCM/CMI #535503) or latest FAA approved version
Ignition, dual magnetos	NOTE 13	---	---	---	---
Timing, ° BTC	26	---	20	22	24
Spark plugs	See NOTE 11	---	---	---	---
Oil sump capacity, qt.	12; 6 usable at 15° noseup and nosedown attitudes; 7 usable at 10° noseup and nosedown attitudes	---	---	---	---
NOTES	1, 2, 3, 4, 9, 10, 11	1, 2, 3, 4, 5, 9, 10, 11	1, 2, 3, 4, 5, 9, 10, 11	1, 2, 3, 4, 5, 6, 9, 10, 11	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Model	O-470-H	O-470-G, -P	IO-470-A	IO-470-C	O-470-T, -U
Type	6HOA	---	---	---	---
Rating, ICAO or ARDC standard atmosphere					
Max. continuous hp, rpm, at sea level pressure altitude	240-2600	240-2600	240-2600	250-2600	230-2400
Takeoff hp, 5 min., rpm, full throttle at sea level pressure altitude	240-2600	240-2600	240-2600	250-2600	230-2400
Fuel, (aviation gasoline, minimum grade)	91/96	---	---	---	100, 100LL or B95/130 CIS
Lubricating oil, ambient air temperature: Above 40° F.	See NOTE 9	---	---	---	---
Below 40° F.	Oil Grade SAE 50	---	---	---	---
	Oil Grade SAE 30	---	---	---	---
Bore and stroke, in.	5.00 x 4.00	---	---	---	---
Displacement, cu. in.	471	---	---	---	---
Compression ratio	8:1	---	---	---	8.6:1
Weight (dry), lb.	495	432	410	432	410 (-T) 412 (-U)
C.G. location (basic engine)					
Fwd. of rear face, engine	14.2	12.0	11.3	12.0	11.76 (U-T) 12.07 (-U)
Accessory case, in.					
Below crankshaft center line, in.		1.2	0.5	1.2	.88 (-T) .31(-U)
Beside crankshaft center line, toward 1-3-5 side, in.	1.0				.35 (-T), .11 (-U)
Propeller Shaft	SAE 20 Spline Extension	Special integral flange 4 7/8 in. o.d. with six 1/2 in. bolt holes in 4 in. diameter circle	---	---	---

Model	O-470-H	O-470-G, -P	IO-470-A	IO-470-C	O-470-T, -U
Carburetion or Fuel Injection	Bendix-Stromberg PSD-5C (TCM/CMI#5355 03) or latest FAA approved version	Bendix-Stromberg PSH-5BO (TCM/CMI#6252 03) or latest FAA approved version	CMI injection system EQ#5580 or latest FAA approved version	CMI injection system EQ #5620 or 5827 or latest FAA approved version	Marvel-Schebler MA-4-5 (TCM #641860) or latest FAA approved version
Ignition, dual magnetos	NOTE 13	---	---	---	---
Timing, ° BTC	24	---	---	26	24
Spark plugs	See NOTE 11	---	---	---	---
Oil sump capacity, qt.	12; 6 usable at 15° noseup and nosedown attitudes; 7 usable at 10° noseup and nosedown attitudes	12; 10 usable at 18° noseup and 14° nosedown attitudes	12; 6 usable at 15° noseup and nosedown attitudes; 7 usable at 10° noseup and nosedown attitudes	12; 9 usable at 34° noseup and 27° nosedown attitudes; 10 usable at 28° noseup and nosedown attitudes; 11 usable at 16° noseup and nosedown attitudes	12; 6 usable at 15° noseup and nosedown attitudes
NOTES	1, 2, 3, 5, 9, 10, 11	1, 2, 3, 5, 6, 9, 10, 11	1, 2, 3, 5, 9, 10, 11	1, 2, 3, 5, 9, 10, 11	1, 2, 3, 4, 5, 9, 10, 11

" - - -" indicates "same as preceding model."

"====" indicates "does not apply."

Certification Basis CAR 13
Type Certificate No. 273 issued December 4, 1952.

Production Basis P.C. 508

NOTE 1. Maximum permissible temperatures:

Cylinder head		
(Spark plug gasket)		
All engines except	O-470-G, -N	525° F.
	O-470-G, -N	500° F.
(Bayonet thermocouple)	O-470-A, -E, -J, -N	450° F.
	O-470-B, -H, -IO-470-A	475° F.
	O-470-G, -K, -L, -P, -R, -S, -R, -T, -U; IO-470-C	460° F.
Cylinder barrel		290° F.
Oil inlet		225° F., 240° F. (-S, -T, -U)"

NOTE 2. Fuel inlet and oil pressure limits:

Model	Minimum	Maximum
-A, -J, -K, -L	0.5 p.s.i.	6.0 p.s.i.
-B, -E, -G, -H, -M, -N	9.0 p.s.i.	15.0 p.s.i.
IO-470-A, O-470-B-CI, -M-CI	minus 0.75 p.s.i.	plus 1.50 p.s.i.
-G-CI	minus 2.25 p.s.i.	plus 10.0 p.s.i.
-K-CI, -L-CI	minus 1.0 p.s.i.	plus 12.0 p.s.i.
IO-470-C	minus 2.0 p.s.i.	plus 10.0 p.s.i.
O-470-R,-S	15.5 in.	gasoline 6.0 p.s.i.
O-470-T, -U	14.0 in.	gasoline 6.0 p.s.i.
Oil pressure limits: 2-4-6 side (normal) 30 to 60 p.s.i. (idle 10 p.s.i. min.)		

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

Original Accessory	**Direction of Rotation	Speed Ratio to Crankshaft	Max. Torque Continuous	(in.-lb.) Static	Maximum Overhang Moment (in.-lb.)
Governor	C	1.0:1	29	825	50
****Tachometer	CC	.5:1			25
Optional (2)					
Left & Right Hand	C	1.5:1	***100	800	40
Generator (Belt driven)	CC	2:1	100	800	100
Alternator (Gear driven)	CCW	3:1	150	800	150
*Fuel pump	C	1.0:1	25	680	60
Oil cooler	===	===	===	===	65
Starter:	CC	32:1	200	400	60

O-470-B, -B-CI engines eligible with TCM/CMI P/N 537241.

All others eligible with TCM/CMI P/N 535856, 539910, 626960, 627842, 628482, or 637847.

- * Special equipment on O-470-A, -J, -K, and -L models.
- ** "C" indicates clockwise viewing drive pad; "CC" counter clockwise.
- *** One drive eligible at 160 in.-lb. continuous torque load provided the other drive does not exceed 100 in.-lb. continuous torque load.
- **** O-470-G clockwise; O-470-V and -VO optional rotation.

NOTE 4. Crankshaft damper configuration: O-470-A, S/N 41000 and up, and -E, -J, -R, -S, and -T engines are equipped with one 5th and one 6th order damper.
 O-470-B, -H, and -N have two 6-½ order dampers.
 O-470-K, -L, -M, -P and IO-470-A and -C have four 6th order dampers.
 O-470-G has one 6-½ and one 9th order damper.
 O-470-A, S/N 40001 through 40655, and -P, have two 6th order dampers.
 O-470-U has two 6th, one 5th, and one 4½ order dampers.

NOTE 5. The following similarities and differences exist between the various models:
 O-470-B is similar to O-470-A except for increased power rating, different damper configuration, incorporation of inclined valve cylinders, downdraft pressure carburetor and related induction system changes.
 O-470-E is same as O-470-A except for incorporation of downdraft pressure carburetor and related induction system changes.
 O-470-G is similar to O-470-M except for crankshaft damper configuration, revised oil sump integral cast intake air passage and mounting brackets.
 O-470-J is same as O-470-A except for reduced rated speed and minor changes in induction system risers, manifold and balance tube.
 O-470-K is similar to O-470-J except for ratings, crankshaft damper configuration and incorporation of shell-molded cylinder heads and revised mounting brackets.
 O-470-L is same as O-470-K except for relocated carburetor and revised intake manifold oil sump.
 O-470-M is same as O-470-B except for crankshaft damper configuration and incorporation of shell-molded cylinder heads.
 O-470-N is same as O-470-M except for crankshaft damper configuration.
 O-470-P is identical to O-470-G except for crankshaft damper configuration.
 IO-470-A is same as O-470-M except incorporates CMC continuous flow fuel injection system instead of Bendix carburetor.
 IO-470-C is same as O-470-G except for crankshaft damper configuration and incorporation of CMC continuous flow fuel injection system instead of Bendix carburetor.
 O-470-H is same as O-470-B except incorporates extension propeller shaft and is approved for pusher operation.
 O-470-R is same as O-470-L except for crankshaft damper configuration.
 O-470-S is same as O-470-R except for piston oil cooling and semi-keystone piston rings.
 O-470-T is similar to the O-470-S except for crankcase design and rating.
 O-470-U is similar to the O-470-S except for rating and crankshaft damper configuration.

- NOTE 6. O-470-B, -G, -K, -L, and -M engines are eligible for incorporation of CMI continuous flow fuel injection system (Eq. No. 5580 for -B, -M; Eq. No. 5701 or 5702 for -G; Eq. No. 5613 for -K, -L) replacing carburetion system with no change in weight. When this modification is accomplished the engines will be designated as O-470-B-CI, O-470-G-CI, O-470-K-CI, O-470-L-CI and O-470-M-CI and the nameplate changed accordingly.
- NOTE 7. O-470-B engine mounting brackets are eligible for use with O-470-M engines.
- NOTE 8. O-470-M engines with S/N's suffixed with the letter "P" are approved for pusher type installation.
- NOTE 9. Straight mineral or ashless disperant oil meeting CMI Spec. MHS #24 is approved for use in engines, except the O-470-S, -T, and -U which must use ashless disperant oil conforming to MHS-24. Lubricating oils qualified under SAE-J1899 or J1966 are considered qualified under CMI Spec MHS-24 CMI instructions should be followed when changing types of oil.
- NOTE 10. A full flow oil filter may be used with these engines if the installation incorporates a filter bypass valve which opens between 12 and 16 p.s.i. Oil sump housing is eligible for direct mounting of oil filter having a maximum weight of 6 lb. and overhang moment of 25 in.-lb.
- NOTE 11. The following spark plugs and/or those listed in CMI Service Information Letter SIL03-2 are approved on this engine:
Models O-470-A, -E, -J, -K, -L, -R, -S
AC HSR83IR, SR83IR, HSR83P, SR83P, HSR87, SR87, A88, S88, HSR88, HS88, SR88, S88D, SR88D
Auto Lite SH2M, SH15, SH15R, SH20, SH20A, SH200A, SH150
BG RB485S, 706S, RB919SR, 919SR5, RB955S
Champion RC26S, C27S, REM38P, RHM38P, RED39N, RHD39N, REM39N, RHM39N, REM40E, RHM40E, D41N, ED41N, EM41N, EM42E
Red Seal SE190, SE230, SJ190, SJ230
Models O-470-B, -G, -H, -M, -N, -P; IO-470-A
AC SR83IR, HSR83IR, HSR83P, SR83P, S86R, SR86, HSR86, SR87, HSR87
Auto Lite SH20A, SH200A, SH26, SH260, PH26, PH260
BG RB485S, RB955S
Champion RC26S, REM38E, REM38P, RHM38E, RHM38P, RED39N, REM39N, RHD39N, RHM39N, REM40E, RHM40E
Red Seal SE230, SJ230, SE270, SJ270
Model IO-470-C
AC SR83IR, HSR83IR, HSR83P, SR83P, SR86, HSR86, S86R, HSR87, SR87
Auto Lite SH26, SH260, PH26, PH260
Champion R25S, RC26CS, RED37N, REM37N, RHD37N, REM38E, REM38P, RHM38E, RHM39P, RED39N, RHD39N, RHM39N, REM40E, RHM40E, RHM37N, REM39N
Red Seal SE270, SJ270
Model O-470-T, -U
AC SR86L, HSR86L, HSR87LIR, HSR87LP, 171, 181, 271, 273, 281, 281IR, 283, 283IR
Auto Lite SL350
Champion RHA32N, RHB32N, RHB32E, RHB33E, RHB36P, RHB37E, REA37N, REB37N, RHA37N, RHB37N, RHB38E, R115
Red Seal LE310, LJ8310
- NOTE 12. Teledyne Crittenden Alternator P/N 642056 and Drive Coupling P/N 642362 eligible for use with Model O-470-T engine. Alternator compatibility with aircraft must be accomplished by installer.

NOTE 13. The following magnetos equipped with an appropriate harness are eligible on these engines at the Indicated Weight Changes:

Two CMI/TCM/Bendix S6RN-25	None
One Ea. CMI/TCM/Bendix S6RN-201 & S6RN-205	-2 lb.
Two TCM/CMI/Bendix Scintilla S6RN-1225	-1 lb.
Two CMI/TCM S6RSC-25	None
One Ea. CMI/TCM S6RSC-201(L) & S6RSC-205(R)	None
Two Slick Electro 662	None
Two Slick Electro 680	None
Two Slick Electro 6210	-5 lb.
Two Slick model 6310	-5 lb.

NOTE 14. Engine model numbers may include a suffix to define minor specification changes and/or accessory packages. Example: O-470-A(10).

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