DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

E5CE
Revision 26

CONTINENTAL
IO-520-A, -B, -BA,
-BB, -C, -CB,
-D, -E, -F, -J,
-K, -L, -M,
-MB, -N, -NB
L/IO-520-P

November 2, 2011

TYPE CERTIFICATE DATA SHEET NO. E5CE

Engines of models described herein conforming with this data sheet (which is part of type certificate No. E5CE) 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 and Federal Aviation 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	IO-520-A, -J	IO-520-B, -BA, -BB	IO-520-C, -M, CB, -MB
Type	6HOA	- - -	- - -
Rating, ICAO or ARDC standard atmosphere			
Max. continuous hp., r.p.m. full throttle at sea level pressure altitude	285-2700	- - -	- - -
Takeoff hp., 5 min., r.p.m. full throttle at sea level pressure altitude	285-2700	- - -	- - -
Fuel (minimum grade aviation)	100LL, 100 per ASTM D910 or B95/130CIS	- - -	- - -
Lubricating oil	Lubricating oils qualified under SAE-J1899 or J1966 are considered qualified under CMI Spec MHS-24	- - -	- - -
Bore and Stroke, in.	5.25 x 4.00	- - -	- - -
Displacement, cu. in.	520	- - -	- - -
Compression ratio	8.5:1	- - -	- - -
Weight (dry), lb.	431	423	417-C
C.G. location (basic engine)			413-M
Fwd. of rear face acc. case, in.	11.29	12.42	11.70-C 12.20-M
Below crankshaft Centerline, in.	.54	1.22	.50-C .54-M
Beside crankshaft	.24	.12	.12-C

Model	IO-520-A, -J	IO-520-B, -BA, -BB	IO-520-C, -M, CB, -MB
centerline toward 1-3-5 side, in.			.26-M
Propeller Shaft	ARP-502, Type I flange 4-7/8 in. O.D. with six ½ in. bolt holes in 4 in. diameter circle	- - -	- - -
Fuel injection	CMI injection system 639172A3 or latest FAA approved version	CMI injection system B, BA 639176A3 BB 639176A or latest FAA approved version	CMI injection system C 639177A2 CB639177A M 641057A4 MB 641057A or latest FAA approved version
Ignition, dual	(See NOTE 9)	- - -	- - -
Timing, °BTC	22	- - -	- - -
Spark plugs	(See NOTE 10)	- - -	- - -
Oil Sump Capacity, qt.	12; 7 unusable at 20° noseup and 6 usable at 10° nosedown attitudes for -A 10; 7.8 usable at 20° noseup and 6.7 usable at 10° nosedown attitudes for -J.	12; 10 usable at 18° noseup and 14° nosedown attitudes	12; 7 usable at 20° noseup and 7 usable at 15° nosedown attitudes for -C, -CB 12; 6.1 usable at 26° noseup and 6.1 at 13.5° nosedown for M, MB
Applicable NOTES	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 13	- - -

Model	IO-520-D, -F, -K, -L	IO-520-E	IO-520-N, -NB
Type	6HOA	- - -	- - -
Rating, ICAO or ARDC standard atmosphere			
Max. continuous hp., r.p.m. full throttle at sea level pressure altitude	285-2700	- - -	- - -
Takeoff hp., 5 min., r.p.m. full throttle at sea level pressure altitude	300-2850	- - -	- - -
Fuel (minimum grade aviation)	100LL, 100 per ASTM D910 or B95/130CIS	- - -	- - -
Lubricating oil	Lubricating oils qualified under SAE-J1899 or J1966 are considered qualified under CMI Spec MHS-24	- - -	- - -
Bore and Stroke, in.	5.25 x 4.00	- - -	- - -
Displacement, cu. in.	520	- - -	- - -
Compression ratio	8.5:1	- - -	- - -
Weight (dry), lb.	428-K	429	478
C.G. location (basic engine)	429-D, -F, -L		
Fwd. of rear face acc. case, in.	11.29	- - -	12.48
Below crankshaft Centerline, in.	.54	- - -	.82
Beside crankshaft centerline toward 1-3-5 side, in.	.24	- - -	.31
Propeller Shaft	ARP-502, Type I flange 4-7/8 in. O.D. with six ½ in. bolt holes in 4 in. diameter circle	- - -	- - -

Model	IO-520-D, -F, -K, -L	IO-520-E	IO-520-N, -NB
Fuel injection	CMI injection system D 640103A6 F 639172A3 K 639172A4 L 639172A2 or latest FAA approved version	CMI injection system 639186A2 or latest FAA approved version	Woodward 8050-001 or latest FAA approved version
Ignition, dual	(See NOTE 9)	- - -	- - -
Timing, °BTC	22	- - -	- - -
Spark plugs	(See NOTE 10)	- - -	- - -
Oil Sump Capacity, qt.	12; 7 usable at 20° noseup and 6 usable at 10° nosedown attitudes for -D, -F, -K 10; 7.8 usable at 20° noseup and 6.7 usable at 10° nosedown for -L	12; 8 usable at 15° noseup and 5° nosedown attitudes	12; 10 usable at 18°noseup and 14° nosedown attitudes
Applicable Notes	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	- - -	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13

Model	L/IO-520-P
Type	6HOA
Rating, ICAO or ARDC standard atmosphere Max. continuous hp, RPM, FT at sea level pressure altitude	250 - 2500
Takeoff, 5 min., hp, RPM, FT at sea level pressure altitude	250 - 2500
Fuel (min. grade aviation) .	100LL, 100 per ASTM D910 or B95/130 CIS
Lubricating oil	Lubricating oils qualified under SAE-J1899 or J1966 are considered qualified under CMI Spec MHS-24
Bore and Stroke, in.	5.250 X 4.00
Displacement, cu. in.	520
Compression ratio	8.5:1
Weight (dry), lb.	400.6
C. G. location (basic engine) Fwd. of rear face acc. case, in. Below crankshaft centerline, in. Beside crankshaft centerline toward 1-3-5 side, in.	11.89 .41 .21
Propeller shaft	ARP-502 Modified, flange 4.875 in. OD with six 0.5 in. bolt holes in 4.000 in. diameter circle
Fuel injection	CMI continuous flow
Ignition	See NOTE 9
Timing, °BTC	22° (± 1°)
Spark plugs	See NOTE 10

Oil sump capacity, qt. 8; 4 usable at 30° nose up and 20° nose down

Applicable NOTES 1 thru 6, 9, 10

"- - -" indicates "same as previous model"
"___" indicates "does not apply"

Certification Basis

Part 13, Civil Air Regulations, effective June 15, 1956, as amended by 13-1 through 13-5. Type Certificate No. E5CE issued May 28, 1963, for IO-520-A; IO-520-B added October 21, 1963; IO-520-C added January 8, 1964; IO-520-D added August 30, 1965; IO-520-E added November 12, 1965; IO-520-F added May 27, 1966; IO-520-J added October 22, 1968; IO-520-L added May 29, 1969; IO 520-K added July 24, 1969; IO-520-BA added February 26, 1971; IO-520-M added May 13, 1974. IO-520-N added April 26, 1977. IO-520 BB, -CB, -MB, -NB added May 4, 1978. Application for Type Certificate dated May 13, 1963.

Part 33, Federal Aviation Regulations, through Amendment 33-12, L/IO-520-P added July 7, 1995.

Production Basis

Production Certificate No. 508

NOTE 1. Maximum permissible temperature:

		-P
Cylinder head bayonet thermocouple	460° F.	Same
Cylinder barrel	310° F.	N/A
Oil inlet	240° F.	Same

NOTE 2. Fuel pressure limits:

		-N, -NB	-P
Inlet to injection pump, min.	- minus 2 p.s.i.g.	-3 p.s.i.g.	-2.0 psig
max.	- plus 10 p.s.i.g.	+ 6.0 p.s.i.g.	+ 6.0 psig
Outlet to vapor return line	- plus 3.5 p.s.i.g. max.	+3 p.s.i.g. (max.) fuel return	+3.5 psig (max) fuel return

NOTE 3. Oil pressure limits:

2-4-6 side - Normal	30-60 p.s.i.a.
Idle	10 p.s.i.a. min.
Maximum (cold oil)	100 p.s.i.a.

NOTE 4. 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.)
Tachometer					
AND 20005 -C, -E, -M, -CB, -MB	Optional	.5:1	7	50	25
AS-54 -A, -B, -BA, -D -F, -J, -K, -L, -N, -BB, -NB	Optional	.5:1	7	50	25
** Propeller governor	C	1:1	29	825	50
# ***Optional (2) Left and right side	C	1.5:1	100	800	40
Generator: Belt Driven					
-A, -D, -E, -F, -J, -K, -L, -P	CC	2.0:1	125	800	100
Gear Driven					
-B, -BA, -C, -M, -N, -BB, -CB,-MB, -NB	CC	3:1	150	800	150
Oil Cooler	—	—	—	—	65
Starter: -A, -D, -E, -F, -J, -K, -L, -P	CC	32:1	200	400	60
-B, -BA, -C, -M, -N, -BB, -CB, -MB, -NB	CC	48:1	200	400	60

*C Clockwise viewing drive pad; CC - Counterclockwise
** Modified AND 20010 pad.

*** Modified AND 20000 pads. One drive eligible at 160 in.-lb. continuous torque load if other does not exceed 100 in.-lb. continuous. (IO-520-D, L/IO-520-P with TCM P/N 641478 magneto drive gear installed; one drive eligible at 180 in.-lb. continuous torque load provided other does not exceed 80 in.-lb. continuous load).

\# Maximum static torque for IO-520-D, 1100 in.-lb.

NOTE 5. Models IO-520-A, -B, -C, -D, -E, -F, -J, -K, -L, -M & -N incorporate crankshaft with one 4th and one 5th and two 6th order dampers. Model IO-520-BA, -N has a crankshaft with one 4th and three 6th order dampers. Models IO-520-BB, -CB, -MB, -NB have crankshaft with one 4th, one 5th and two 6th order dampers. Models IO-520-P and LIO-520-P have crankshaft with one 5th and one 6th order damper.

NOTE 6. Model IO-520-B is similar to IO-520-A except for oil sump, crankcase and accessory case design, incorporation of an integral oil filter, and relocation of generator drive, fuel injection pump, oil cooler mounting pad and air throttle body.
Model IO-520-BA is identical to Model IO-520-B except for crankshaft damper configuration.
See TCM Service Bulletin M71-3 for conversion instructions.
Model IO-520-C is similar to IO-520-B except oil sump and air throttle location is similar to IO-520-A and four focalized mounting legs are provided on the accessory case rather than horizontal bed legs located on the fore and aft ends of the crankcase.
Model IO-520-D is similar to IO-520-A except for rating, throttle body location and induction system.
Model IO-520-E is similar to IO-520-D except for inclination of throttle body and balance tube charges.
Model IO-520-F is similar to IO-520-A except for rating and balance tube size.
Model IO-520-J is identical to IO-520A except for oil sump shape and oil pickup.
Model IO-520-K is similar to IO-520A except for takeoff rating, oil sump and balance tube.
Model IO-520-L is similar to IO-520-F except incorporates IO-520-J oil sump.
Model IO-520-M is similar to IO-520-C except mount brackets, sump, oil cooler and intake manifold riser.
Model IO-520-N is similar to IO-520-BA except power control system.
Model IO-520-BB is similar to the IO-520-B except for modified crankshaft.
Model IO-520-CB is similar to the IO-520-B except for modified crankshaft.
Model IO-520-MB is similar to the IO-520-B except for modified crankshaft.
Model IO-520-NB is similar to the IO-520-B except for modified crankshaft.
Model IO-520-P is similar to the TSIO-520-AE except no turbocharger.
Model LIO-520-P is similar to the LTSIO-520-AE except no turbocharger.

NOTE 7. Models IO-520-A, -D, -E, -F, -J, -K, and -L are eligible for installation with full flow oil filter if filter installation incorporates bypass valve which opens at 12 to 16 p.s.i.g.
Oil filter housing is eligible for direct mounting oil filter equipment having a maximum weight of six pounds and overhang moment of 25 in.-lb. Models L/IO-520-P have oil filter as integral part of oil pump.

NOTE 8. These models of engines are eligible for installation of Automatic Priming Starting System, Equipment No. 6159.

NOTE 9. The following magnetos equipped with an appropriate harness are eligible on these engines at the indicated weight change:

	Wt. Change
One each CMI/TCM/Bendix S6RN-201 and S6RN-205	None
One each CMI/TCM/Bendix S6RN-1201 and S6RN-1205	+ 1 lb.
Two CMI/TCM/Bendix S6RN-25	+1 lb.
Two Slick Electro Model 662 or 680	+2 lb.
Two CMI/TCM/Bendix S6RN-1225	+1 lb.
Two Slick Electro Model 6210	-3 lb.
One ea.CMI/TCM S6RSC-201 and S6RSC-205	None
Two CMI/TCM S6RSC-25	+1 lb

NOTE 10. The following spark plugs and/or those listed in CMI Service Information Letter SIL03-2 are approved on this engine:

AC	271, 273, 281, 281IR, 283, 283IR, 291, 293
Auto Lite	PL350, SL350
Champion	RHB32E, RHB32N, RHB32P, RHB32W, RHB33E, RHB36P, RHB36W
Red Seal	LJ360

NOTE 11. Those engines which are designated with a suffix letter "B" (i.e., IO-520-BB) are interchangeable with those engines of the same model letter without the suffix letter (i.e., IO-520-B). Those engines which are designated without the suffix letter (i.e., IO-520-B) are non-interchangeable with those engines which are designated with the suffix letter "B" (i.e., IO-520-BB).

NOTE 12. Teledyne Crittenden alternator P/N 642056 and drive coupling P/N 642362 or latest FAA approved components are eligible for use with applicable engine models. Alternator compatibility with aircraft must be accomplished by installer.

NOTE 13. Teledyne Crittenden alternator P/N 642055 and drive coupling P/N 64362 642362 or latest FAA approved components are eligible for use with applicable engine models. Alternator compatibility with aircraft must be accomplished by installer.

NOTE 14. Engine model numbers may include a suffix to define minor specification changes and/or accessory Packages. Example: IO-520-B(1B)

....END....