

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

E5S0  
Revision 6  
CONTINENTAL  
TSIO-550-A, TSIO-550-B,  
TSIO-550-C, TSIO-550-E,  
TSIO-550-G, TSIO-550-K,  
TSIOF-550-D, TSIOF-550-J,  
TSIOF-550-K  
March 5, 2010

TYPE CERTIFICATE DATA SHEET NO. E5S0

Engines of models described herein conforming with this data sheet (which is part of Type Certificate No. E5S0) 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 Federal Aviation regulations provided they are installed, operate, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

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

Model	<u>TSIO-550-A</u>	<u>TSIO-550-B</u>
Type -	6HOA	--
Rating, ICAO or ARDC Standard Atmosphere At Sea Level Pressure Altitude.		
Max Continuous HP	360	350
Max Continuous RPM	2600	2700
Max Continuous Man. Pr. In. Hg.	41.0	38.0
Max Continuous Critical Altitude - Feet	12,000	--
Fuel (Min. Grade Aviation Gasoline)	100 or 100LL	100, 100LL or RH-95/130 (See Note 11)
Lubricating Oil	Oils meeting Teledyne Continental Specification MHS-24 are eligible for use in this engine.	--
Bore and Stroke - In.	5.25 x 4.25	--
Displacement, Cu. In.	552	--
Compression Ratio	7.5:1	--
Weight (Basic Engine, Dry)	442	--
Weight (Turbo, Dry) Lbs.	28.2 (total of 2)	--
C.G. Location (Basic Engine)		
Fwd of Rear Face Accessory Case-In.	11.41	--
Below Crankshaft Centerline - In.	1.056	--
Beside Crankshaft Centerline - In.	.365 on 2-4-6 side	--
C.G. Location (Turbo)	See TCM Dwg. 646618	See TCM Dwg. 653021

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	<u>TSIO-550-A</u>	<u>TSIO-550-B</u>
Propeller Shaft	Special Integral Flange 4-7/8 in. O.D. with six 1/2 in. bolt holes in 4 in. diameter circle.	--
Fuel Injection	TCM Injector	--
Ignition - Dual Magnetos	See Note 10	--
Timing °BTC	R-24°, L-24°	--
Spark Plugs	Ref. TCM Service Information Letter SIL03-2 or latest FAA approved revision	--
Oil Sump Capacity Qts. Total	8; 5 usable at 16° nose up, and 4.5 usable at 10° nose down attitudes.	12; 7.5 usable at 20° nose up, and 6.5 usable at 14.5° nose down attitudes.
Applicable Notes	1 through 12	--
Model	<u>TSIO-550-C</u>	<u>TSIO-550-E</u>
Type	6HOA	--
Rating, ICAO or ARDC		
Standard Atmosphere at Sea Level Pressure Altitude	310	350
Max Continuous HP	2600	2700
Max Continuous RPM	35.5	38.5
Max Continuous Man. Pr. - In. Hg.	18,000	18,000
Critical Altitude - Feet		
Fuel (Min. Grade Aviation Gasoline)	100, 100LL, RH95/130, or B95/130 CIS (See Note 11)	100, 100LL, RH95/130, or B95/130 CIS (See Note 11)
Lubricating Oil	Oils meeting TCM Specification MHS-24 are eligible for use in this engine.	--
Bore and Stroke - In.	5.25 X 4.25	--
Displacement - Cu. In.	552	--
Compression Ratio	7.5:1	--
Weight (Basic Engine, Dry) Lbs.	442	--
Weight (Turbo, Dry) Lbs.	28.2 (total of 2)	--
C. G. Location (Basic Engine)	11.41	--
Fwd of Rear Face Accessory Case - In.	1.056	--
Below Crankshaft Centerline - in.	0.365 on 2-4-6 side	--
Beside Crankshaft Centerline - In.		--
C. G. Location (Turbo)	See TCM Dwg. 646618	--

	<u>TSIO-550-C</u>	<u>TSIO-550-E</u>
Propeller Shaft	Special Integral Flange 4-7/8 in. O.D. with six 1/2 in. bolt holes in 4 in. diameter circle	--
Fuel Injection	TCM Injector	--
Ignition	See Note 10	--
Timing - °BTC	R - 24°, L - 24°	--
Spark Plugs	Ref. TCM Service Information Letter SIL03-2 or latest FAA approved revision	--
Oil Sump Capacity - Qts	8; 5 usable at 16° nose up and 4.5 usable at 10° nose down attitudes	12; 7.7 usable at 20° nose up and 6.5 usable at 14.5° nose down attitude.
Applicable Notes	1 through 12	--
Model	<u>TSIO-550-G</u>	<u>TSIO-550-K</u>
Type	6HOA	6HOA
Rating, ICAO or ARDC Standard Atmosphere at Sea Level Pressure Altitude		
Max Continuous HP	310	315
Max Continuous RPM	2700	2500
Max Continuous Man. Pr. - In. Hg.	34.0	37.5 in Hg
Critical Altitude - Feet	22,000	18,000
Fuel (Min. Grade Aviation Gasoline)	100, 100LL, RH-95/130, or B95/130 CIS (See Note 11)	100, 100LL, RH95/130, or B95/130 CIS (See Note 11)
Lubricating Oil	Oils meeting TCM Specification MHS-24 are eligible for use in this engine.	Oils meeting TCM specification MHS-24 are eligible for use in this engine.
Bore and Stroke - In.	5.25 X 4.25	5.25 X 4.25
Displacement - Cu. In.	552	552
Compression Ratio	7.5:1	7.5:1
Weight (Basic Engine, Dry) Lbs.	554	522
Weight (Turbo, Dry) Lbs.	28.2 (total of 2)	28.2 (total of 2)
C. G. Location (Basic Engine)		
Fwd of Rear Face Accessory Case - In.	11.41	12.66
Below Crankshaft Centerline - in.	1.056	1.30
Beside Crankshaft Centerline - In.	0.365	0.12 on 1-3-5 side
C. G. Location (Turbo)	See TCM Dwg. 657154	See TCM Dwg. 657645

	<u>TSIO-550-G</u>	<u>TSIO-550-K</u>
Propeller Shaft	Special Integral Flange 4-7/8 in. O.D. with six 1/2 in. bolt holes in 4 in. diameter circle	Special Integral Flange 4-7/8 in. O.D. with six 1/2 in. bolt holes in 4 in. diameter circle
Fuel Injection	TCM Injector	TCM Injector
Ignition	See Note 10	See Note 10
Timing - °BTC	R - 24°, L - 24°	R - 24°, L - 24°
Spark Plugs	Ref. TCM Service Information Letter SIL03-2 or latest FAA approved revision	Ref. TCM Service Information Letter SIL03-2 or latest FAA approved revision
Oil Sump Capacity - Qts	8; 5.0 usable at 16° nose up and 4.5 usable at 10.0° nose down attitude.	8; 5.0 usable at 16° nose up and 4.5 usable at 10° nose down attitude.
Applicable Notes	1 through 13	1 through 12
Model	<u>TSIOF-550-D</u>	<u>TSIOF-550-J</u>
Type	6 cylinder, air-cooled, turbocharged, horizontally opposed, fuel injected, spark ignition, four stroke, direct drive. The engine incorporates a full authority digital electronic control (FADEC) system to control the ignition and fuel injection functions.	6 cylinder, air-cooled, turbocharged, horizontally opposed, fuel injected, spark ignition, four stroke, direct drive. The engine incorporates a full authority digital electronic control (FADEC) system to control the ignition and fuel injection functions.
Rating, ICAO or ARDC Standard Atmosphere at Sea Level Pressure Altitude		
Max Continuous HP	350	350
Max Continuous RPM	2600	2600
Max Continuous Man. Pr. - In. Hg.	39.5 in Hg	39.5 in Hg
Critical Altitude - Feet	22,000	22,000
Fuel (Min. Grade Aviation Gasoline)	100, 100LL, RH95/130, or B95/130 CIS (See Note 11)	100, 100LL, RH95/130, or B95/130 CIS (See Note 11)
Lubricating Oil	Oils meeting TCM specification MHS-24 are eligible for use in this engine.	Oils meeting TCM specification MHS-24 are eligible for use in this engine.
Bore and Stroke - In.	5.25 X 4.25	5.25 X 4.25
Displacement - Cu. In.	552	552
Compression Ratio	7.5:1	7.5:1

	<u>TSIOF-550-D</u>	<u>TSIOF-550-J</u>
Weight (Basic Engine, Dry) Lbs.	558	558
Weight (Turbo, Dry) Lbs.	35.2 (total of 2)	35.2 (total of 2)
C. G. Location (Basic Engine)		
Fwd of Rear Face Accessory Case - In.	20.58	20.58
Below Crankshaft Centerline - in.	1.87	1.87
Beside Crankshaft Centerline - In.	0.18 on 2-4-6 side	0.18 on 2-4-6 side
C. G. Location (Turbo)	See TCM Dwg. 657342	See TCM Dwg. 657024
Propeller Shaft	Special Integral Flange 4-7/8 in. O.D. with six 1/2 in. bolt holes in 4 in. diameter circle	Special Integral Flange 4-7/8 in. O.D. with six 1/2 in. bolt holes in 4 in. diameter circle
Fuel Injection	TCM Powerlink. FADEC	TCM Powerlink. FADEC
Ignition	TCM Powerlink FADEC	TCM Powerlink FADEC
Timing - °BTC	Automatic	Automatic
Spark Plugs	Ref. TCM Service Information Letter SIL03-2 or latest FAA approved revision	Ref. TCM Service Information Letter SIL03-2 or latest FAA approved revision
Oil Sump Capacity - Qts	8; 5.0 usable at 16° nose up and 4.5 usable at 10° nose down attitude.	8; 5.0 usable at 16° nose up and 4.5 usable at 10° nose down attitude.
Applicable Notes	1 through 9, 11, 12, 14 through 20	1 through 9, 11, 12, 14 through 20
Model	<u>TSIOF-550-K</u>	
Type	6 cylinder, air-cooled, turbocharged, horizontally opposed, fuel injected, spark ignition, four stroke, direct drive. The engine incorporates a full authority digital electronic control (FADEC) system to control the ignition and fuel injection functions.	
Rating, ICAO or ARDC		
Standard Atmosphere at Sea Level Pressure Altitude		
Max Continuous HP	315	
Max Continuous RPM	2500	
Max Continuous Man. Pr. - In. Hg.	37.5 in Hg	
Critical Altitude - Feet	18,000	

	<u>TSIOF-550-K</u>
Fuel (Min. Grade Aviation Gasoline)	100, 100LL, RH95/130, or B95/130 CIS (See Note 11)
Lubricating Oil	Oils meeting TCM specification MHS-24 are eligible for use in this engine.
Displacement - Cu. In.	552
Compression Ratio	7.5:1
Weight (Basic Engine, Dry) Lbs.	537.3
Weight (Turbo, Dry) Lbs.	28.2 (total of 2)
C. G. Location (Basic Engine)	
Fwd of Rear Face Accessory Case - In.	12.66
Below Crankshaft Centerline - in.	1.30
Beside Crankshaft Centerline - In.	0.12 on 1-3-5 side
C. G. Location (Turbo)	See TCM Dwg. 657942
Propeller Shaft	Special Integral Flange 4- 7/8 in. O.D. with six 1/2 in. bolt holes in 4 in. diameter circle
Fuel Injection	TCM Powerlink. FADEC
Ignition	TCM Powerlink FADEC
Timing - °BTC	Automatic
Spark Plugs	Ref. TCM Service Information Letter SIL03-2 or latest FAA approved revision
Oil Sump Capacity - Qts	8; 5.0 usable at 16° nose up and 4.5 usable at 10° nose down attitude.
Applicable Notes	1 through 9, 11, 12, 14 through 20
Certification Basis:	TSIO-550- A - FAR 33 through Amendment 9 effective October 14, 1980 TSIO-550-B - FAR 33 through Amendment 12 effective September 2, 1988 TSIO-550-C and -E - FAR 33 through Amendment 13 effective August 18, 1990 TSIO-550-G – FAR 33 through Amendment 20 effective September 14, 2000 TSIOF-550-J –FAR 33 through Amendment 20 effective September 14, 2000 TSIO-550-K – FAR 33 through Amendment 24 effective November 5, 2007 TSIOF-550-D – FAR 33 through Amendment 28 effective December 3, 2008 TSIOF-550-K – FAR 33 through Amendment 28 effective December 3, 2008
Production Basis -	Production Certificate No. 508

Note 1. Maximum Permissible Temperatures

Cylinder Head

460°F

Oil Inlet	240°F
Exhaust Gas - Turbocharger Inlet Temperature (TIT)	
Continuous Operation	1750°F
30 Second Limit	1850°F

Note 2. Fuel Pressure Limits

Inlet to Injection Pump,	Min -	Minus 2 psig
	Min -	Minus 3.5 psig (TSIOF-550-D, -J, -K only)
	Max -	Plus 6 psig
Outlet to Vapor Return Line		3.5 psig Max

Note 3. Oil Pressure Limits, at Outlet	Normal	30-60 psig
	Idle	10 psig
	Max (Cold Oil)	100 psig
Turbocharger Oil Inlet	Normal	30-60 psig
	Idle	10 psig

Note 4. The following accessory drive or mounting provisions are available for the TSIO-550/TSIOF-550 series engines.

Accessory	Direction of Rotation*	Drive Ratio to Crankshaft	Max. Torque (In.-Lbs.)		Max. Overhang Moment (In.-Lbs.)
			Cont	Static	
Tachometer	CCW	.5:1	7	50	25
Magneto	CCW	1.5:1	-	-	-
Starter	CCW	48:1	200	400	60
Alternator (Gear Dr.)	CW	3:1	150	800	150
** Propeller Gov.	CW	1:1	29	825	50
Fuel Pump (Injection)	CW	1:1	25	680	60
*** Accessory Drives (2)	CW	1.5:1	100	800	40

\* "CW" - Clockwise and "CCW" - Counterclockwise (viewing drive pad)

\*\* This drive is a modified AND 20010 and shall be supplied with a cover.

\*\*\* One drive eligible at 200 in.-lbs. continuous torque load provided the other does not exceed 100 in.-lbs. continuous torque load. These drives shall be supplied with covers.

Note 5. The TSIO-550-A and -C engines are similar to the TSIO-520-BE except the hardware required to increase the displacement, namely the crankshaft and pistons. The two stage fuel pump has been replaced by a single stage fuel pump on the TSIO-550-C.

The TSIO-550-B engine is similar to the TSIO-550-A except the TSIO-550-B engine has a 12 quart sump. The sonic venturis have been removed, and the two stage fuel pump has been replaced by a single stage fuel pump.

The TSIO-550-E engine is similar to the TSIO-550-C except the oil sump and maximum continuous power rating are the same as the TSIO-550-B.

The TSIO-550-G engine is similar to the TSIO-550-E except for smaller surface area intercoolers, the oil sump capacity and the maximum continuous power rating.

The TSIOF-550-J engines are similar to the TSIO-550-E except for FADEC fuel injection and ignition control, turbochargers, tapered cylinder barrel fins, oil sump and capacity, maximum continuous speed and manifold pressure ratings.

The TSIO-550-K engines are similar to the TSIO-550-E except for oil sump and capacity, maximum continuous power, manifold pressure, and speed ratings, and tapered cylinder barrel fins.

The TSIOF-550-D engines are similar to the TSIOF-550-J except for the exhaust system and low voltage harness.

The TSIOF-550-K engines are similar to the TSIO-550-K engines except for FADEC fuel injection and ignition control.

- Note 6. The TSIO-550 and TSIOF-550 engines incorporate a crankshaft with two sixth, one fourth, and one fifth order dampers.
- Note 7. Maximum exhaust back pressure shall not exceed 2 in. Hg. above ambient at the turbocharger exhaust outlet flange.
- Note 8. A means of controlling maximum turbocharger discharge pressure, engine manifold pressure and proper placarding shall be provided to limit manifold pressure as outlined below except as stated in Notes 11 and 13.

Maximum Allowable Manifold Pressure - In. Hg.

<u>Altitude (FT.)</u>	<u>TSIO-550-A</u>	<u>TSIO-550-B</u>	<u>TSIO-550-C</u>	<u>TSIO-550-E</u>	<u>TSIO-550-G</u>	<u>TSIO-550-K</u>
12,000	41.0	38.0 (See Note 11)				
18,000			35.5 (See Note 11)	38.5 (See Note 11)		37.5 (See Note 11)
20,000	33.0					
22,000					34.0 (See Note 11 & 13)	
25,000		31.0 (See Note 11)				

<u>Altitude (FT.)</u>	<u>TSIOF-550-D</u>	<u>TSIOF-550-J</u>	<u>TSIOF-550-K</u>
12,000			
18,000			37.5 (See Note 11)
20,000			
22,000	39.5 (See Note 11)	39.5 (See Note 11)	
25,000			

Note 9. The engine is provided with a gear driven alternator, optional provisions for a front mounted, belt-driven alternator, and for a belt-driven freon compressor are available. The compatibility of these options must be accomplished by the installer.

Note 10. The following magnetos are suitable for use on these engines.

Slick Electro 6220 (both sides) or TCM S6RN-201 and S6RN-205, or TCM S6RSC-25P pressurized with appropriate pressurization system and ignition harness.

Note 11. When operating with 95/130 grade fuel, the altitude limitation for maximum continuous power and speed is 3000 meters (9840 feet) and, for maximum recommended cruise power and speed, is 6000 meters (19680 feet).

Note 12. Engine model numbers may include a suffix to define minor specification changes and/or accessory packages.  
Example: TSIO-550-C(10).

Note 13. The Model TSIO-550-G is limited to 1675°F maximum TIT at altitudes at and above 22,000 feet.

Note 14. FADEC equipped engine models are only available as 24 Volt systems.

Note 15. The electronic control system for the TSIOF-550-D, -J, and -K contains level "B" software which has been shown to meet the requirements for single and multi engine aircraft regardless of takeoff weight. The following electronic control units have been approved for use with the corresponding engines:



Engine Model	TSIOF-550-D	TSIOF-550-J	TSIOF-550-K
ECU (cylinder 1/2)	657943-1	657943-1	657943-1
ECU (cylinder 3/4)	657943-2	657943-2	657943-2
ECU (cylinder 5/6)	657943-3	657943-3	657943-3

TCM FADEC equipped 6 cylinder engines employ three electronic control units (ECUs); one for each cylinder pair. The dash 1 (-1) unit controls the opposing cylinder 1 and 2; the dash 2 (-2) unit controls the opposing cylinders 3 and 4 and the dash 3 (-3) unit controls the opposing cylinder 5 and 6.

- Note 16. The electronic control system must be supplied with two isolated sources of electrical power which meet the reliability requirements set forth in the operation and installation manual. One of these power sources may be the aircraft primary bus. The second power source must be isolated from the aircraft bus, and if supported by a battery, this battery cannot be the battery which is utilized for engine starting. The use of an essential bus or dedicated backup battery is an acceptable method of providing secondary power, as long as this source has sufficient capacity to meet aircraft certification requirements.
- Note 17. If a backup battery is used as a secondary source of electrical power for the electronic control system, the backup battery must be replaced at the interval specified in the Operation and Installation Manual.
- Note 18. Installation and evaluation of the health Status Annunciator (H.S.A.) display is subject to the requirements established by the certification basis of the aircraft.
- Note 19. Takeoff is prohibited with annunciated faults shown on the Health Status Annunciator (H.S.A.).
- Note 20. The TSIOF-550-D, -J, -K model provides an optional through firewall mounting arrangement for the FADEC ECUs. This mounting arrangement has not been shown to comply with the 14 CFR 23, 25, 27, and 29 requirements for flammable fluid and vapor containment nor fireproof capabilities.

...END...