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### **CHANGE RECORD**

Issue 1      Initial Issue Model 510, 21 May 2007

## **SECTION 1: GENERAL Model 510 Type Design**

### **I. General**

Data Sheet No.: EASA IM.A.502	Issue 1
1. a) Model:	510
b) Variant:	N/A
2. Airworthiness Category:	14 CFR 23 Normal Category
3. Type Certificate Holder:	CESSNA AIRCRAFT COMPANY P.O. Box 7704 Wichita, Kansas 67277 USA
4. Manufacturer:	CESSNA AIRCRAFT COMPANY P.O. Box 7704 Wichita, Kansas 67277 USA
5. EASA Certification Application Date:	9 September 2003 for 510-0001 and On
6. FAA Type Certification Date:	8 September 2006 for 510-0001 and On
7. EASA Type Certification Date:	21 May 2007

### **II. Certification Basis**

1. Reference Date for determining the Applicable requirements:	9 September 2003 for 510-0001 and On	
2. (reserved)		
3. (reserved)		
4. Certification Basis:	FAR 23 Certification Basis in <u>TCDS A00014WI</u> , <i>PLUS:</i>	
5. Special Conditions:		
CRI B-01	Human Factors	NPA 15/2004, §1302
CRI F-02	High Intensity Radiated Fields	CS 23.1301, .1309
CRI F-05	Aeroplane System Wiring	CS 23.1309, .1529
CRI F-06	Solid State Power Controllers	CS 23.1357
CRI F-07	Battery Endurance Requirement	CS 23.1353
CRI F-08	Thickness of Bonded Fuel Tank Skins, Lightning Protection	CS 23.867
6. Exemptions:	N/A	

7. Equivalent Level of Safety Findings:

CRI F-10	External LED Navigation and Anti-Collision Lights	CS 23.1385
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8. (reserved)

**EASA Environmental Standards:**

EASA Certification Specification 34, "Aircraft Engine Emissions and Fuel Venting",  
EASA Decision 2003/03/RM.

EASA Certification Specification 36, "Aircraft Noise",  
EASA Decision 2003/04/RM.

**III. Technical Characteristics and Operational Limitations**

1. Type Design Definition: Specified in EASA CRI A-06; Cessna Airplane Assembly Drawing Number 7000000-1, Document No. A00014WI, latest FAA approved revision.
2. Description: Low wing aircraft with retractable tricycle landing gear, T-tail, pressurized cabin, and two turbofan engines pylon mounted on the rear fuselage.
3. Equipment: Equipment List according to AFM, 510FM-00 or later approved revision (See Note 2)
4. Dimensions:

Span	13.16 m (43 ft. 2 in.)
Length	12.37 m (40 ft. 7 in.)
Height	4.09 m (13 ft. 5 in.)
Wing Area	19.51 sq.m (210 sq. ft.)
5. Engines: Two Pratt & Whitney Canada PW615F-A turbofans (TCDS EASA.IM.E.025)  
  
Engine Limits: Static thrust standard day, sea level:  
Takeoff\*: 662 kg (1,460 lbs)  
  
\* Other engine limitations: refer to the engine TC
6. (reserved)
7. (reserved)
8. Fluids
  - 8.1 Fuel: Commercial kerosene Jet A, Jet A-1, or JP-8. (See Note 1)
  - 8.2 Oil: Aero Shell Turbine Oil 500 (Type II Standard) or Aero Shell Turbine Oil 560 (Type II HTS; MIL-PRF-23699F)  
  
BP Turbo Oil 2380 (Type II Standard) or

BP Turbo Oil 2197 (Type II HTS; MIL-PRF-23699F)

Castrol 5000

Mobil Jet Oil Type II (Type II Standard) or  
Mobil Jet Oil 254 (Type II HTS; MIL-PRF-23699F)

Royco Turbine Oil 500 (Type II Standard) or  
Royco Turbine Oil 560 (Type II HTS; MIL-PRF-23699F)

TurboNycoil TN 600

8.3. Coolant: Not applicable.

9. Fluid capacities:

9.1 Fuel: Total usable: 2568 lbs. (383.3 gal./1450.95 litres). Two wing tanks with 1284 lbs. (191.6 gal/725.28 litres) usable each (See Note 1 for unusable fuel)

9.2 Oil: 4.85 liters usable each engine (See Note 1)

10. Airplane Limit Speeds (KCAS)

Maximum Operating	$V_{MO}$ : Sea Level to 27,120 feet	250
	$M_{MO}$ : above 27,120 feet	0.63
Maneuvering	$V_A$	182
	* See AFM for variations with weight and altitude	
Flaps Extended	$V_{FE}$	185 (Flaps 15°) 150 (Flaps 30°)
Landing Gear Operating	$V_{LO}$	250 (Extending) 185 (Retracting)
Landing Gear Extended	$V_{LE}$	250
Minimum Control Air	$V_{MCA}$	92 (Flaps 0°) 81 (Flaps 15°)

11. Maximum Operating Altitude 12,497 m (41,000 ft.)

12. Operational Capacity: VFR Day and Night  
IFR Day and Night  
RVSM (See Note 6)  
Flight into Known Icing (See Limitations Section of EASA Approved Airplane Flight Manual)

13 Maximum Certified Weights in kg (lbs)

Aircraft Serial Number	Max. Zero Fuel Weight	Max. Ramp Weight	Max. Take-Off Weight	Max. Landing Weight
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525-0001 and on	1728 kg (6750 lbs)	3960 kg (8730 lbs)	3921 kg (8645 lbs)	3629 kg (8000 lbs)
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14. Center of Gravity Range (Gear Extended)\*

Forward Limits: Linear variation from 287.04 in. aft of datum (21.32% MAC) at 8730 lb. to 285.59 in. aft of datum (19.00 % MAC) at 6927 lb.; 285.59 in. aft of datum (19.00 % MAC) at 6927 lb. or less.

Aft Limits: 292.46 in. aft of datum (30% MAC) at 8730 lb. or less

Landing Gear retracting moment (-1302.87) in-lb.

\* Straight line variation between given points

15. Datum 143.7 in. forward of the jig point (nose jack pad location)

16. (Reserved)

17. Levelling means Longitudinal – In board crew seat rails at FS 196.00.  
Lateral - In board crew seat rails at FS 196.00.

18. Minimum Flight Crew (See Note 5 for cockpit equipment/arrangement restrictions):

One pilot (in the left pilot seat) plus additional equipment as specified in the Kinds of Operations Equipment List (KOEL) contained in the Limitations Section of the FAA Approved Airplane Flight Manual  
OR  
One pilot and one copilot

19. Maximum Passenger Seating Capacity: 6 Passengers (two crew plus four passenger seats)

20. (Reserved)

**21. Baggage / Cargo Compartment**

Nose Compartment	145 kg (320 lbs)
Tailcone	136 kg (300 lbs)

22. Wheels and Tires

Main Landing Gear (MLG)	22 x 6.75-10	(Dunlop DR25526T)
Main Landing Gear (MLG)	22 x 6.75-10	(Michelin 021-523-0)
Nose Landing Gear (NLG)	16 x 4.4	(Dunlop DR17026T)
Nose Landing Gear (NLG)	16 x 4.4	(Michelin 079-606-0)

**IV. Operation and Service Instructions**

Airplane Flight Manual (AFM) Airplanes must be operated according to the EASA Approved Airplane Flight Manual, part number 510FM-00 (or later approved revision).

Airplane Maintenance Manual Model 510 Maintenance Manual, 510MM00 or later approved revision. See Chapter 4, "Airworthiness Limitations" for inspections, mandatory retirement life information and other requirements for continued airworthiness. "Airworthiness Limitations" may not be

changed without the approval of EASA.

## **V. Notes**

NOTE 1. Current weight and balance information, including list of equipment included in certificated empty weight, and loading instructions are provided for each airplane in the EASA Approved Airplane Flight Manual (AFM) at the time of original certification.

The certificated empty weight and corresponding center of gravity location must include:

Unusable fuel	53.40 lbs at +290.56 in
Full oil	20.2 lbs at +363.11 in
Hydraulic Fluid	10.23 lbs at +192.45 in

NOTE 2. Airplanes must be operated according to the EASA Approved Airplane Flight Manual (AFM), part number 510FM-00. Required placards and markings are listed in Chapter Eleven (11) of Maintenance Manual, part number 510MM00.

NOTE 3. See Maintenance Manual, Chapter Four (4), "Airworthiness Limitations" for inspections, mandatory retirement life information, and other requirements for continued airworthiness.

NOTE 4. All replacement seats (crew and passenger), although they may comply with TSO C127, must also be demonstrated to comply with installation requirements into the aircraft listed in 14 CFR §§23.2, 23.561, 23.562, and 23.785.

The foam cushion buildup of all seats (crew and passenger) may not be altered. Any deviations in the foam construction or stiffness must be demonstrated by test to comply with the 14 CFR 23.562 paragraph.

NOTE 5. Approval for operation with a minimum crew of one pilot is based upon the cockpit equipment installation and arrangement evaluated during FAA certification testing. No significant changes may be made to the installed cockpit equipment or arrangement (EFIS, autopilot, avionics, etc.), except as permitted by the approved MMEL, without prior approval from the responsible Aircraft Certification Office.

NOTE 6: S/N 510-001 and On: All airplanes are equipped with Garmin G1000 dual RVSM capable Air Data Computers and pilot's and copilot's Primary Flight Displays as standard equipment.

Each operator must obtain RVSM operating approval in accordance with applicable operating rules.

NOTE 7: The Model 510 is approved for One Engine Inoperative 10 minutes thrust capability with the Pratt & Whitney Canada PW615F-A turbofan engine, per FAA Policy Memo "Project Specific Policy on Approval for 10-Minute Rated Takeoff Thrust during Takeoff with One-Engine Inoperative (OEI) under 14 CFR Part 23 and 14 CFR Part 33 for Cessna Model 510 Airplane with PW615F-A Engines", dated August 15, 2006, from Standards Office, Small Airplane Directorate and Standards Office, Engine and Propeller Directorate.

NOTE 8: The System Safety Assessment process has identified mandatory maintenance actions, which must be performed at specific intervals to compensate for latent failures. A list of those actions is contained in report RL-510-176, and cannot be changed without participation from the certificating ACO. This document has influenced certain maintenance actions documented in Airworthiness Limitations

section (Chapter 4) of the maintenance manual. Those particular items cannot be changed without participation from the certificating ACO.

### Change Record

Issue 1 – Initial Release