TYPE-CERTIFICATE

DATA SHEET

NO. EASA.IM.A.157

for
EMBRAER EMB-500

Type Certificate Holder
Embraer SA

Av. Brig. Faria Lima. 2170
12227-901 São Jose dos Campos SP
Brasil

For models: EMB-500

Intentionally left blank

SECTION A: EMB-500

A.I. General

1. Type/ Model/ Variant

1.1 EMB-500

1.2 EMB-500

1.3 EMB-500

2. Airworthiness Category

CS-23 Normal Category

3. Manufacturer

Embraer S.A
Av. Brigadeiro Faria Lima 2170
12227-901 – São José dos Campos – SP
Brazil

Embraer Executive Aircraft Inc. (Note 7)
1205 General Aviation Drive
Melboune, FL 32935-6309
United States of América

4. EASA Type Certification Application Date

30 June 2006

5. State of Design Authority

Agência Nacional de Aviação Civil-ANAC
Gerência Geral de Certificação de Produtos Aeronáuticos
Rua Dr. Orlando Feirabend Filho, 230
Centro Empresarial Aquarius - Torre B - Andares 14 a 18, Parque Residencial Aquarius
12246-190 – São José dos Campos – SP

6. State of Design Authority Type Certificate Date

09 December 2008

7. EASA Type Certification Date

24 April 2009

A.II. EASA Certification Basis

1. Reference Date for determining the applicable requirements

1.1 For ANAC Certification
30 June 2006

1.2 For Operational Suitability Requirements
30 June 2006

2. Airworthiness Requirements
CS 23 – "Normal, Utility, Aerobatic and Commuter Category Aeroplanes" of 14 November 2003, as applicable to Normal Category Certification; and additional requirements as per EASA CRI A-01.

CS-ACNS (Subpart D) - initial issue of 17/12/2013 (see note 12)
CS-ACNS (Subpart B) - initial issue of 17/12/2013 (see note 13)

3. Special Conditions
B-01 Human Factors in Integrated Avionics Systems
B-02 CS-23 Subpart B (Performance).
B-52 Flight Handling Special Condition
B-53 Airspeed Calibration
B-55 Operating Limitations and Information.
C-52 Bird strike
C-57 Fuel tank Crashworthiness
C-60 Interaction of systems and structures
C-61 Non-pressurised areas
C-64 Sonic Fatigue
C-69 Yawing Manoevre
C-70 Round the clock gusts
D-03 Take off Configuration Warning
D-04 Landing Gear
D-05 wheels and tyres
D-06 Brakes and Braking Systems
D-07 Nose wheel Steering
D-08 Doors
D-11 Belted Toilet Seat (for applicable areas affected by DCA 0500-025-00104-2009/EASA when embodied in the aircraft)
D-12 Single Side Facing Seat (for applicable areas affected by DCA 0500-025-00079-2010/EASA when embodied in the aircraft)
E-07 Negative Acceleration
E-08 Lines, fittings and components
E-51 Powerplant Fire Protection and Fuel Systems
E-56 Fire extinguishers fuselage mounted engines
E-58 FADEC integration
E-60 Hot Weather Operation
F-01 Protection from HIRF
F-02 Protection from the indirect effects of lightning strike.
F-56 Battery Endurance Requirements

F-90 Security Protection of Aircraft Systems and Networks (for applicable areas affected by DCA 0500-046-00097-2020/EASA when embodied in the aircraft)
F-92 Data Link Services for the Single European Sky (for applicable areas affected by DCA 0500-023-00058-2011/EASA when embodied in the aircraft)
F-93 Flight Recorders including Data Link Recording (for applicable areas affected by DCA 0500-031-00043-2013/EASA when embodied in the aircraft)

O-04 Towbarless Towing

4. Exemptions

N/A

5. (Reserved) Deviations

N/A

6. Equivalent Safety Findings

B-56 Dynamic Stability
D-54 Ditching emergency exit for Passengers
E-54 Digital Fuel Quantity indications
E-55 Digital only display of Turbine spool speed N2, oil pressure, oil temperature and fuel flow
E-57 Control markings usable fuel capacity
F-55 LED Lights

7. Environmental Protection

CS 34 - Aircraft Engine Emissions and Fuel Venting, of 17 October 2003;
CS 36 - Aircraft Noise, of 17 October 2003;

8. Operational Suitability Requirements

CS-FCD - Certification Specifications for Operational Suitability Data (OSD) Flight Crew Data CS-FCD, Initial issue dated 31 Jan 2014;
JAR-MMEL/MEL - Master Minimum Equipment List/ Minimum Equipment List Section 1, Subpart A and B, Amdt. 1, dated 1 August 2005, as defined in CRI A-MMEL;

8.1 Special Conditions for OSD

None

8.2 Exemptions for OSD

None

8.1 Deviations for OSD

None

8.1 Equivalent Safety Finding for OSD

None

A.III. Technical Characteristics and Operational Limitations

1. Type Design Definition
Defined by Report 500TDSD002 "Type Design Standard Document – EASA" at Revision Original or later approved revision

2. Description
Low wing jet with a T-tail configuration, powered by two high bypass turbofan engines mounted on aft fuselage pylons.

The structure is conventional, with a predominant aluminum-alloy fuselage and wing. The landing gear is retractable tricycle type, and both main and nose landing gerar are single wheeled.

3. Dimensions

Length	12.82 m	(42 ft 1 in)
Span	12.3 m	(40 ft 4.3 in)
Height	4.35 m	(14 ft 2.6 in)
Wing Area	18.76 m2	(201.9 ft2)

4. Engine
Two Pratt & Whitney Canada PW617F-E turbofans (TC/TCDS reference IM.E.125)
Two Pratt & Whitney Canada PW617F1-E turbofans (TC/TCDS reference IM.E.125) (see NOTE 14)

5. Fluids

5.1 Fuel
Refer to Applicable Approved Manuals

5.2 Oil
Refer to Applicable Approved Manuals

6. Air Speeds
V_{MO} 275 KIAS, MMO 0.7 (See Airplane Flight Manual)

7. Maximum Operating Altitude
12,497 m (41,000 ft) pressure altitude

8. Approved Operations Capability
Single Pilot / Two Pilots
VRF Day and Night
IFR Day and Night
RVSM
Flight into Known Icing
Over Water

9. Maximum Masses

Takeoff:	4750 kg (10472 lb)
	4800 kg (10582 lb) (see note 9)
	4855 kg (10703 lb) (see note 14)
Landing:	4430 kg (9766 lb)
	4480 kg (9877 lb) (see note 9)
	4535 kg (9998 lb) (see note 14)
Zero Fuel:	3830 kg (8444 lb)
	3980 kg (8775 lb) (see note 8)
	3880 kg (8554 lb) (see note 9)
	4030 kg (8885 lb) (see note 10)
	4115 kg (9072 lb) (see note 14)
Ramp:	4770 kg (10516 lb)
	4820 kg (10626 lb) (see note 9)
	4875 kg (10747 lb) (see note 14)

10. Centre of Gravity Range

See Airplane Flight Manual

11. Datum

2.51 m (98.82 in) forward of the jig point (nose jack pad location).

12. Mean Aerodynamic Chord (MAC)

1.64 m (64.57 in.) (L.E. of MAC at + 5.32 m (209.65 in.) aft of datum)

13. Levelling Means

Located in the main door between frames 9 and 10 (see AMM for further information)

14. 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 Limitations Section of the EASA Approved Airplane Flight Manual or
One pilot and one copilot

15. Maximum Passenger Seating Capacity

Maximum six passenger seats configuration

16. Baggage/ Cargo Compartments

Forward baggage compartment30 kg (66 lb)
AFT baggage compartment 160 kg (353 lb)
Wardrobe 30 kg (66 lb)
Lavatory Cabinet 15 kg (33 lb)

A.IV. Operating and Service Instructions

1. Flight Manual

Airplanes must be operated according to the EASA approved AFM, part number AFM-2657, revision original (or later approved revision)

2. Maintenance Manual
Airplane Maintenance Manual, part number AMM - 2432 revsion original (or later approved revision). See Chapter 4, “Airworthiness Limitations” (Note 3). “Airworthiness Limitations” may not be changed without the approval of EASA.

3. Operational Suitability Data (OSD)
The Operational Suitability Data elements listed below are approved by the European Aviation Safety Agency under the EASA Type Certificate EASA.IM.A.157 as per Commission Regulation (EU) 748/2012 as amended by Commission Regulation (EU) No 69/2014;

3.1 Master Minimum Equipment List
The MMEL is defined in document MMEL-3667 revision 3, dated 15 Dec 2015 or later approved revisions

3.2. Flight Crew Data
The Flight Crew Data is defined in 500MSO097 revision A dated 07 Dec 2015 or later approved revisions

3.3. Cabin Crew Data
Not Applicable

3.4 SIM Data
Not Applicable

3.5 Maintenance Certifying Staff Data
Not Applicable

A.V. Notes

NOTE 1 - Weight and balance.
Current weight and balance report, including the list of equipment that are part of the certificated basic empty weight and loading instructions, must be provided for each aircraft at the time of original certification.

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

Unusable fuel: 20 kg (44 lb) at + 5.81 m (228.90 in.) aft of datum
Full oil:* 8 kg (17.64 lb) at + 7.68 m (302.52 in) aft of datum*
Hydraulic Fluid: 6.29 kg (13.86 lb) at + 1.30 m (51.18 in.) aft of datum, considering density of 0.846 kg/l (7.06/gal).
*It is considered the oil from the engine installation (filters and lines)

NOTE 2 - Markings and placards.
All marking and placards required by the applicable certification requirements (see certification basics) and by the operational requirements must be installed in the appropriated locations.

Required placards and marking are listed in chapter Eleven (11) of the Aircraft Illustrated Parts Catalog (AIPC) and Airplane Maintenance Manual (AMM).

NOTE 3 - Continuing Airworthiness.
See Maintenance Manual, Chapter Four (4), "Airworthiness Limitations" for Systems Airworthiness Limitations, Structure Airworthiness Limitations (ALI) and Life-Limited Items (LLI). The life limit for rotating parts on the PW617F-E engine is in the Airworthiness Limitations Manual of the Pratt & Whitney Canada Engine P/N 3072699, latest revision.

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 CS 23.2, 23.561, 23.562, and 23.785.

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

NOTE 5 - Approval for operation with a minimum crew of one pilot (in the left pilot seat) is based upon the cockpit equipment installation and arrangement evaluated during ANAC 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 - The EMB-500 is often referred to in Embraer marketing literature as the “PHENOM 100”, “PHENOM 100E” or “PHENOM 100EV”. These names are strictly marketing designation and are not part of the official model designation.

- PHENOM 100: EMB-500 equipped with PW617F-E engines and G1000 avionics system;
- PHENOM 100E: EMB-500 equipped with PW617F-E engines, G1000 avionics system and spoiler panels (for spoiler panels: Installed by SB 500-00-0009 or an equivalent factory modification);
- PHENOM 100EV: EMB-500 equipped with PW617F1-E engines, G3000 avionics system and spoiler panels (for spoiler panels: Installed by SB 500-00-0009 or an equivalent factory modification).

NOTE 7 - Production Certificate No. 346CE. The manufacturer Embraer Executive Aircraft Inc. located in Melbourne, Florida, is licensed by Embraer S.A. to manufacture the Model Aircraft listed in this Type Certificate Data Sheet. S/N 50000255 and subsequent may be produced either by Embraer Executive Aircraft Inc. in Melbourne, Florida or Embraer S.A. in Brazil. The manufacturer can be confirmed by the aircraft data plate. Aircraft produced by Embraer Executive Aircraft Inc. in Melbourne, Florida with a S/N from 50000255 to 50000269 were produced under the Type Certificate.

NOTE 8 - If post-mod SB 500-00-0005 or an equivalent factory modification is incorporated, and any other modification identified applicable by Embraer.

NOTE 9 - If post-mod SB 500-00-0009 or SB 500-00-0018 or an equivalent factory modification is incorporated, and any other modification identified applicable by Embraer.

NOTE 10 - If post-mod SB 500-00-0005 and SB 500-00-0009, or aircraft post-mod and SB 500-00-0018 or equivalent factory modifications are incorporated, and any other modification identified applicable by Embraer.

NOTE 11 – Sections of CS-ACNS, as applicable, may be raised as part of the certification basis for avionic installations.

NOTE 12 – if post-mod SB 500-34-0010 (for dual transponders installation of Garmin GTX 33 D (ES) and GTX 33 (ES) manufactured by Garmin); if post-mod SB 500-34-0012 (for single transponder installation of ACSS NXT-600); if aeroplane is equipped with G3000 avionics

system (corresponding to commercial designation “PHENOM 100EV” (see also NOTE 6)); or equivalent factory modifications are incorporated, and any other modification identified applicable by Embraer, and/or for installation of transponders.

NOTE 13 – if aeroplane is equipped with G3000 avionics system (corresponding to commercial designation “PHENOM 100EV” (see also NOTE 6)) or equivalent factory modifications are incorporated, and any other modification identified applicable by Embraer.

NOTE 14 – If weight increase approved with EASA approval 10061981 (reference DCA 0500-00-00032-2015/EASA) are incorporated by factory modifications and any other modification identified as applicable by Embraer.

SECTION ADMINISTRATIVE

I. Acronyms & Abbreviations

A.C.	Advisory Circular
A.D.	Airworthiness Directives
AFM	Airplane Flight Manual
C.G.	Centre of Gravity
CFR	Code of Federal Regulations
CRI	Certification Review Items
CS	Certification Specifications
EASA	European Aviation Safety Agency
EFIS	Electronic Flight Information System
EU	European Union
F.S.	Frame Status
FAA	Federal Aviation Administration
FADEC	Full Authority Digital Engine Control
FT	Feet
GAL	Gallons
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
KCAS	Knots Calibrated Air Speed
KG	Kilo Grams
KIAS	Knots Indicated Air Speed
LBS	Pounds
MIL	Military Standard
MMEL	Master Minimum Equipment List
N.A.A.	National Aviation Authority
RVSM	Reduced Vertical Separation Minimum
S.B.	Service Bulletin
T.O.	Take Off
TC	Type Certificate
TCDS	Type Certificate Data Sheet
TCDSN	Type Certificate Data Sheet - Noise.
TSO	Technical Standards Order
VFR	Visual Flight Rules

II. Type Certificate Holder Record

Holder's name	Holder's address	TC held from	TC held to	Note
Embraer S.A.	Av. Brig. Faria Lima. 2170 12227-901 São Jose dos Campos SP Brasil	Not Applicable	Not Applicable	Original Holder

III. Change Record

Issue	Date	Changes
Issue 01	24 April 2009	Initial Issue
Issue 02	05 August 2011	Special Condition D-11 added, Max passenger capacity increased to 6, ZFW corrected to 3830 kg.
Issue 03	08 December 2011	Special Condition D-12 added, Max passenger capacity increased to 7.
Issue 04	06 May 2013	Maximum Zero Fuel Weight increase to 3980 kg; Included the Production Certificate of the new new manufacturing site: Embraer Executive Aircraft Inc; Added CRI 0-04 and CRI F-92.
Issue 05	05 November 2013	Maximum Weight Increase (MTOW, MLW, MZFW and MRW). Revised note 1, 8. Added notes 9, 10.
Issue 06	16 December 2015	OSD elements are added; CRI F-93 added.
Issue 07	29 May 2017	CS-ACNS added. Corrected the date for MMEL-3667. Added G3000. Added new engine. Note 6 updated.
Issue 08	23 October 2023	State of Design Authority Address Update (Section A – A.I General, Item 5) Special Condition "F-90 Security Protection of Aircraft Systems and Networks" included in the certification basis due to the introduction of Flight Stream 510 (FS510) in the aircraft Added References to modifications that involve the Special Conditions D-11, D-12, F-92 and F-93

-END-