

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

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| TC00062IB Revision 3 Embraer EMB-545 EMB-550 May 11, 2016 |
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TYPE CERTIFICATE DATA SHEET NO. TC00062IB

This data sheet which is part of Type Certificate No. TC00062IB prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of Title 14 of the Code of Federal Regulations.

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|-------------------------|--|
| Type Certificate Holder | Embraer S.A. Av. Brigadeiro Faria Lima, 2.170 12227-901 -- São José dos Campos -- SP Brazil |
|-------------------------|--|

I. Model EMB-550, (Transport Category), (See certification basis) Approved October 21, 2014

II. Model EMB-545, (Transport Category), (See certification basis) Approved August 26, 2015

Engines: Two Honeywell AS907-3-1E
Engine Type Certificate E0010LA

Fuel: Fuels conforming to:
- ASTM D1655 grade JET A and JET A1
- MIL-DTL-83133 Turbine Fuels, Aviation, Kerosene Types, NATO F-34 (JP-8), NATO F-35 and JP-8+100
- Brazilian Specification for Aviation Turbine Fuels CNP08 or superseding specification QAV-1
- No. 3 Jet Fuel (Peoples Republic of China Specification GB6537-94 or superseding specification)
- Defense Standard DEF STAN 91-91 AVTUR

EMB-550 approved additives are:
- Corrosion inhibitor per MIL-I-25017 or similar

Anti-fungi additives:
1. Biobor JF
2. Kathan FP 1.5 (Rhom & Hass)

Icing inhibitors (FSII) conforming to MIL-I-27686 (NATO S-748), ASTM-D-4171, MIL-I-85470A, GOST 8313-88 (Russia) or similar.

Note these are different than the approved additives in the Honeywell engine installation manual 24-IM-8030.

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|----------|---|---|---|---|---|---|---|--|--|--|
| Page No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
| Rev. No. | 3 | 2 | 3 | 3 | 3 | 3 | 2 | | | |

Engine Limits:

EMB-550

| Static thrust lb, ambient temperature, sea level | |
|--|---------------------|
| Max Continuous | Takeoff |
| 7,335 at ISA +22.5°C | 7,638 at ISA + 18°C |

EMB-545

| Static thrust lb, ambient temperature, sea level | |
|--|---------------------|
| Max Continuous | Takeoff |
| 6,855 at ISA +22.5°C | 7,138 at ISA + 18°C |

For engine operating limits see the FAA approved Airplane Flight Manual.

Airspeed Limits: VMO/MMO = 320 KIAS / 0.83M

For other airspeed limits, see the FAA approved Airplane Flight Manual.

Center of Gravity Range: See the FAA Approved Airplane Flight Manual

Empty Weight CG Range: None

Datum: **EMB-550:** The Airplane Datum is a plane, perpendicular to the fuselage centerline, located 429.92 inches ahead of the wing jack points.
EMB-545: The Airplane Datum is a plane, perpendicular to the fuselage centerline, located 404.4 inches ahead of the wing jack points

Leveling Means: **EMB-550:** Located in the main door region on the omega beam between frames 11 and 12 (see the Airplane Maintenance Manual Part II Chapter 8 for further information)
EMB-545: Located in the main door region on the omega beam between frames 10 and 11 (see the Airplane Maintenance Manual Part II Chapter 8 for further information)

Maximum Weights: See the FAA approved Airplane Flight Manual

Minimum Crew: Two pilots

Number of Passengers: **EMB-550:** Limited to 12 for step-down distance with the Type III exit.
EMB-545: Limited to 9 for step-down distance with the Type III exit.

Maximum Compartment Weights:

| | EMB-550 |
|------------------------------|-------------------------------------|
| Wardrobe | 88 lb (153.15 inches aft of datum) |
| Internal Stowage Compartment | 330 lb (452.76 inches aft of datum) |
| External Cargo Compartment | 881 lb (543.30 inches aft of datum) |

| | EMB-545 |
|------------------------------|-------------------------------------|
| Wardrobe | 88 lb (153.15 inches aft of datum) |
| Internal Stowage Compartment | 330 lb (409.45 inches aft of datum) |
| External Cargo Compartment | 881 lb (500 inches aft of datum) |

Fuel Capacity:

EMB-550

Total fuel capacity of 13 146.3 lb (5 963.1 kg), two wing tanks 6 573.2 lb (2 981.5 kg) each, @ 367.72 in (9.34 m) aft of datum.

Total usable fuel of 13 058.0 lb (5 923.0 kg), two wing tanks 6 529.0 lb (2 961.5 kg) each.

Total unusable fuel of 88.6 lb (40.2 kg), two wing tanks with 44.3 lb (20.1 kg) each.
SEE NOTE 1

EMB-545

Total fuel capacity of 12,940 lb (5870 kg), two wing tanks 6470 lb (2935 kg) each, @ 339.5 in (8.62 m) aft of datum for aircraft post-mod SB 550-28-0002 or equivalent factory-incorporated modification.

Total fuel capacity of 10,939 lb (4962 kg), two wing tanks 5470 lb (2481 kg) each, @ 342.1 in (8.69 m) aft of datum for aircraft pre-mod SB 550-28-0002.

Total usable fuel of 10,851.1 lb (4922 kg), two wing tanks 5425.6 lb (2461 kg) each.

Total unusable fuel of 88.6 lb (40.2 kg), two wing tanks with 44.3 lb (20.1 kg) each.
SEE NOTE 1

Oil Capacity (total):

Tank mounted on each engine: 7.6 U.S. quarts (7.19 liters) total on each engine

Maximum Operating Altitude:

See the Approved Airplane Flight Manual - AFM 3921

Control Surface Movements:

| | | |
|-----------------------|-----------|---|
| Elevator | Up | $25^{\circ} \pm 1^{\circ}$ |
| | Down | $15^{\circ} \pm 1^{\circ}$ |
| Rudder | Right | $30^{\circ} \pm 1^{\circ}$ |
| | Left | $30^{\circ} \pm 1^{\circ}$ |
| Aileron | Up | $25^{\circ} \pm 0.8^{\circ}$ |
| | Down | $15^{\circ} \pm 0.8^{\circ}$ |
| Wing Flap | TO | $7^{\circ} \pm 1^{\circ}$ |
| | TO/Land | $37^{\circ} \pm 1.5^{\circ}$ |
| Spoiler 1 and 3 | In Air | 30° Inbd $\pm 1.3^{\circ}$ / Outbd $\pm 1.9^{\circ}$ |
| | On Ground | 40.5° Inbd $\pm 1.3^{\circ}$ / Outbd $\pm 1.9^{\circ}$ |
| Spoiler 2 | In Air | $30^{\circ} \pm 1.4^{\circ}$ |
| | On Ground | $43^{\circ} \pm 1.4^{\circ}$ |
| Horizontal Stabilizer | Up | $12^{\circ} \pm 0.5^{\circ}$ |
| | Down | $3^{\circ} \pm 0.5^{\circ}$ |

Manufacturer's Serial Numbers: **EMB-550:** 55000001 and up
EMB-545: 55000009, 55000020, 55010003 and up

Import Requirements:

To be considered eligible for operation in the United States and issued a U.S. airworthiness certificate, each aircraft listed in this certificate must be accompanied by a certificate of airworthiness for export endorsed by the exporting foreign civil airworthiness authority which states (in the English language): “The [insert aircraft model and series] covered by this certificate has been found to comply with the Type Design approved under FAA Type Certificate No. TC0062IB as defined in Type Certificate Data Sheet No. TC00062IB, and is found to be in a condition for safe operation.”

Certification Basis, EMB-545, EMB-550:

1) 14 CFR part 25, effective February 1, 1965, including Amendments 25-1 through 25-129 in their entirety.

2) Special Conditions:

The following special conditions have been applied:

| <u>SC No.</u> | <u>Subject</u> |
|---------------|--|
| 25-475-SC | Hydrophobic Coatings in Lieu of Windshield Wipers |
| 25-476-SC | Flight Envelope Protection: Performance Credit for Automatic Takeoff Thrus Control System (ATTCS) During Go-Around |
| 25-478-SC | Electronic Flight Control System: Control Surface Awareness and Mode Annunciation |
| 25-479-SC | Limit Pilot Forces for Sidestick Control |
| 25-480-SC | Design Roll Maneuver for Electronic Flight Controls |
| 25-481-SC | Interaction of Systems and Structures |
| 25-482-SC | Flight Envelope Protection: High Speed Limiting |
| 25-483-SC | Electronic Flight Control System: lateral-Directional and Longitudinal Stabili Low Energy Awareness |
| 25-485-SC | Electrical/Electronic Equipment Bay Fire Detection and Smoke Penetration |
| 25-486-SC | Flight Envelope Protection: Pitch and Roll Limiting Functions |
| 25-490-SC | Landing Pitchover Condition |
| 25-491-SC | Dive Speed Definition With Speed Protection System |
| 25-492-SC | Flight Envelope Protection: General Limiting Requirements |
| 25-494-SC | Sudden Engine Stoppage |
| 25-495-SC | Side-Facing Seats; Installation of Airbag Systems in Shoulder Belts |
| 25-496-SC | Airplane Electronic System Security Protection From Unauthorized External |
| 25-497-SC | Isolation or Airplane Electronic System Security Protection from Unauthoriz Internal Access |
| 25-498-SC | Sidestick Controllers |
| 25-520-SC | Flight Envelope Protection: Normal Load Factor (g) Limiting |
| 25-554-SC | Installation of Rechargeable Lithium Batteries |
| 25-557-SC | Operation Without Normal Electrical Power |
| 25-558-SC | Stowage Compartment Fire Protection |
| 25-564-SC | Flight Envelope Protection: High Incidence Protection System |
| 25-595-SC | Seats With Inflatable Lap Belts |

3) Equivalent Safety Findings

Equivalent Level of Safety (ELOS) findings have been made for the following regulations:

| <u>TAD ELOS Memo No.</u> | <u>Regulation</u> | <u>Title</u> |
|--------------------------|--|---|
| TC0717IB-T-A-2 | §§ 25.629, 25.671, 25.1309 | Aeroelastic Stability Requirements |
| TC0717IB-T-A-6 | §§ 25.721, 25.963(d), 25.994 | Crash Protection of Fuel Tanks and Systems |
| TC0717IB-T-A-11 | § 25.331(c)(2) | Checked Maneuver Loads |
| TC0717IB-T-A-13 | §§ 25.341, 25.343, 25.345, 25.371, 35.373, 25.391, 25.1517 | Gust and Turbulence Design Loads; Rough Air Speed |

| <u>TAD ELOS Memo No.</u> | <u>Regulation</u> | <u>Title</u> |
|--------------------------|--|---|
| TC0717IB-T-C-1 | § 25.807 | Step-down distance outside the airplane for the Type III exit located on the right side of the airplane |
| TC0717IB-T-C-5 | §§ 25.811, 25.812 | Emergency Exit Marking; Emergency Lighting |
| TC0717IB-T-C-9 | §25.811(e)(4) | Emergency Exit Marking |
| TC0717IB-T-F-25 | § 25.255 | Out of Trim Characteristics |
| TC0717IB-T-P-3 | § 25.1305, 25.1549(a)(b)(c) | Powerplant Instruments; Powerplant and Auxiliary Power Unit |
| TC0717IB-T-P-7 | part 25 subparts E, F, and G | Powerplant, Equipment, Operating Limitations and Information |
| TC0717IB-T-P-9 | § 25.1203(a) | Fire Detector System |
| TC0717IB-T-P-10 | §§ 25.933(a)(1)(ii) | Flight Critical Thrust Reverser |
| TC0717IB-T-P-19 | appendix I25.5(b)(4) | Lack of On/Off Switch for ATTCS |
| TC0717IB-T-P-24 | § 25.934 | Turbojet Engine Thrust Reverser System Tests |
| TC0717IB-T-P-26 | § 25.1141(f)(2) | Powerplant Controls and Accessories |
| TC0717IB-T-S-2 | §§ 25.1301, 25.1309 | Equipment, Systems, and Installations |
| TC0717IB-T-S-3 | § 25.671(c)(2) | Flight Control System Failure Criteria |
| TC0717IB-T-SE-2 | § 25.1303(a) | Flight and Navigation Instruments |
| TC0717IB-T-SE-4 | § 25.1317(b) | High-Intensity Radiated Fields (HIRF) Protection |
| TC0717IB-T-SE-5 | § 25.1383(b) | Landing Lights Single Switch |
| TC0717IB-T-SE-13 | §§ 25.1389(b), 25.1391, 25.1393, 25.1395, 25.1401(f) | Position and Anti-Collision Lighting Systems Luminous Intensity Deviations |
| TC0717IB-T-SM-5 | § 25.841(a)(b)(6) | Pressurized Cabins |
| TC0717IB-T-SM-6 | § 25.831(g) | Cabin Ventilation – Humidity Requirement |
| TC0717IB-T-SM-13 | §§ 25.841(b)(1), 25.843(b)(1) | Pressurized Cabins and Tests for Pressurized Cabins |

4) Exemptions from 14 CFR Part 25

Exemption No. 10338, August 24, 2011. Grant of Exemption for “private, not-for-hire” operations to § 25.813(e), Relief from the requirement to interior doors to be installed between passenger compartments.

Exemption No. 10338A, August 7, 2015. This exemption granted an amendment to exemption No 10338 to add the Model EMB-545 airplane.

Exemption No. 10431, January 11, 2012. Grant of Exemption to § 25.981(a)(3), Relief from the requirements for fuel-tank-ignition prevention as it relates to structural lightning protection.

Exemption 10557, June 11, 2012. Partial Grant of Exemption for “private, not for hire, not for common carriage” operations to § 25.791(a), Relief to allow the installation of a single no-smoking placard located near the passenger-entry door.

Exemption No. 10557A, August 7, 2015. This exemption granted an amendment to exemption No 10557 to add the Model EMB-545 airplane.

Exemption 10757, April 25, 2013. Grant of Exemption to § 25.809(a), Relief to allow viewing the first point of contact with the ground after the exit has been opened and the evacuee is on the upper surface of the wing.

Exemption No. 10757A, August 7, 2015. This exemption granted an amendment to exemption No 10757 to add the Model EMB-545 airplane.

Exemption 10974A, May 4, 2016. Grant of Exemption to §§ 25.562(a) and 25.785(b) and Special Condition 25-495-SC number 2(e), Relief from the lower-leg flail requirements for the forward-most seat position on all side-facing seats for all Embraer model EMB-545 and EMB-550 delivered through December 31, 2016.

5) Optional Requirements complied with:

The following Optional Design Regulations have been complied with:

Ice Protection: §§ 25.1403, 25.1419
Safety Equipment: §§ 25.1411(a),(b),(c), 25.1415(e)

6) Environmental Standards

14 CFR part 36, effective December 1, 1969 including Amendments 36-1 through 36-28.

14 CFR part 34, effective September 10, 1990, including Amendments 34-1 through 34-5A.

7) RVSM Capability

The aircraft is RVSM capable from S/N 55000001 and on. Each operator must obtain RVSM operating approval directly from the FAA.

Additional Design Requirements and Conditions:

The following design details or information must be maintained to ensure that an unsafe design condition is not present:

Inflight Engine Restart: Compliance shown by test. Any modifications to the associated AFM procedures require evaluation to ensure an unsafe condition is not introduced. Changes in the engine design affecting engine restart require aircraft-level evaluation.

Engine Damage from Wing Ice Caused by Cold Soaked Fuel: Compliance shown with an AFM procedure for a tactile check for wing ice. Any modification to the AFM procedure requires evaluation to ensure an unsafe condition is not introduced.

Certification: Type Certificate TC00062IB granted October 21, 2014.

Date of Application: May 14, 2009 amended to October 14, 2010

Equipment:

The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the airplane for certification.

Service Information:

Service bulletins, repair instructions (letters, drawings, specifications, forms used for transmitting repair descriptions, etc.), structural repair manuals, vendor manuals, AFMs, and overhaul and maintenance manuals, which contain a statement that the document is approved by ANAC are accepted by the FAA and are considered FAA approved. (These approvals pertain to the design data only.)

NOTE 1. A current weight and balance report, including a list of equipment included in the certificated empty weight, and loading instructions when necessary must be provided for each aircraft at the time of original certification.

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

EMB-550,

| | |
|-----------------|--|
| Unusable fuel | 88.6 lb at 356.50 inches aft of datum |
| Full engine oil | 48.5 lb at 559.37 inches aft of datum |
| APU oil | 4.4 lb at 673.50 inches aft of datum. |
| Hydraulic Fluid | 109.6 lb at 496.34 inches aft of datum |

EMB-545,

| | |
|-----------------|---------------------------------------|
| Unusable fuel | 88.6 lb at 330.7 inches aft of datum |
| Full engine oil | 48.5 lb at 519.7 inches aft of datum |
| APU oil | 4.4 lb at 631.2 inches aft of datum. |
| Hydraulic Fluid | 105.2 lb at 467.2 inches aft of datum |

NOTE 2. Airplanes must be operated according to the FAA approved Airplane Flight Manual (AFM), Embraer document number AFM-3921. Required placards and markings are listed in Chapter 11 of the Aircraft Illustrated Parts Catalog (AIPC) and Airplane Maintenance Manual (AMM).

NOTE 3. The Airworthiness Limitations Section is found in Chapter 4 of the Aircraft Maintenance Manual. The life limit for rotating parts on the AS907-3-1E engine is in the engine Light Maintenance Manual, Airworthiness Limitations Section.

NOTE 4. The **EMB-550** is often referred to in Embraer marketing literature as the “Legacy 500.” This name is strictly for marketing purposes and is not part of the official model designation.

The **EMB-545** is often referred to in Embraer marketing literature as the “Legacy 450.” This name is strictly for marketing purposes and is not part of the official model designation.

NOTE 5. The **EMB-550** FAA type design definition is contained in Embraer document number 550TDSD002, “Type Design Standard Document.”

The **EMB-545** FAA type design definition is contained in Embraer document number 550TDSD005, “Type Design Standard Document.”

END