FAA TYPE CERTIFICATE DATA SHEET NO. A56NM

This data sheet which is part of Type Certificate No. A56NM prescribes conditions and limitations under which the product for which the Type Certificate was issued meets the airworthiness requirements of the US Federal Aviation Regulations.

Type Certificate Holder
Empresa Brasileira de Aeronautica S.A. (Embraer)
Av. Brig. Faria Lima, 2170
12227-901 Sao Jose dos Campos, SP
Brazil

I. Model ERJ 170-100 STD (Transport Category Airplane) approved February 20, 2004

Engines
Two – General Electric Models CF34-8E5 or CF34-8E5A1 (Engine Type Certificate E00063EN).

Auxiliary Power Unit
One – Hamilton Sundstrand APS 2300 Auxiliary Power Unit.

Fuel
Specifications:
ASTM D-1655 JET A or JET A1.

Oil
Types of approved oils for use in engines or APU are:
Synthetic Oil conforming to MIL-PRF-23699 or MIL-PRF-7808

Engine Limits
Refer to AFM No. AFM-1385

APU Limits
Maximum RPM 108%
Maximum EGT 717ºC (continuous)
1032ºC (start)

Other limitations as stated in Hamilton Sundstrand Document No. ESR 1235.
Airspeed Limits (I.A.S.)

| $V_{MO}$ | 300 KIAS from sea level to 8,000 ft increasing linearly to 320 KIAS at 10,000 ft |
|----------|---------------------------------------------------------------------------------
| $V_{MO}$ | 320 KIAS from 10,000 ft to 28,887 ft                                           |
| $M_{MO}$ | 0.82 from 28,887 ft to 41,000 ft                                               |

$V_A$ (Maneuvering)

<table>
<thead>
<tr>
<th>$V_A$ (Maneuvering)</th>
<th>240 KIAS from sea level, increasing linearly to 245 KIAS at 20,000 ft., 269 KIAS at 28,888 ft., and to 286 KIAS at 33,999 ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_A$ (Maneuvering)</td>
<td>0.82 Mach from 33,999 ft. to 41,000 ft.</td>
</tr>
</tbody>
</table>

$V_{FE}$ (Flaps Extended)

<table>
<thead>
<tr>
<th>Detent 1</th>
<th>230 KIAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detent 2</td>
<td>215 KIAS</td>
</tr>
<tr>
<td>Detent 3</td>
<td>200 KIAS</td>
</tr>
<tr>
<td>Detent 4</td>
<td>180 KIAS</td>
</tr>
<tr>
<td>Detent 5</td>
<td>180 KIAS</td>
</tr>
<tr>
<td>Detent FULL</td>
<td>165 KIAS</td>
</tr>
</tbody>
</table>

Maximum Landing Gear Operating Speed ($V_{LO}$) 250 KIAS

Maximum Landing Gear Extended Speed ($V_{LE}$) 250 KIAS

Tire Speed 225 MPH

Datum

A perpendicular plane to the fuselage centerline, located at 11650 mm ahead of the wing stub front spar. This spar is located 373 mm ahead of the wing jack points.

Mean Aerodynamic Chord

The MAC length is 3194 mm.

Leveling Means

Plumb line between the points P1 and P2 located inside of the landing gear compartment on the left side, as illustrated below.

<table>
<thead>
<tr>
<th>LEVELING OF FUSLG COORDINATE POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>POINT</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>P1</td>
</tr>
<tr>
<td>P2</td>
</tr>
</tbody>
</table>
Center of Gravity Limits
Refer to AFM No. AFM-1385

Maximum Weights
Max Ramp Weight: 79,697 lb (36,150 kg)
Max Takeoff Weight: 79,344 lb (35,990 kg)
Max Landing Weight: 72,311 lb (32,800 kg)
Max Zero Fuel Weight: 65,257 lb (29,600 kg)
Max Landing Weight: 73,414 lb (33,300 kg)*
* post-mod. SB 170-00-0003

Maximum Baggage
Forward Cargo Compartment 3,020 lb (1,370 kg)
Aft Cargo Compartment 2,271 lb (1,030 kg)

Fuel Capacity
3063.4 gallons (11596 liters) in two tanks of 1531.7 gallons (5798 liters) each.
Unusable fuel of 22.2 gallons (84 liters); 11.1 gallons (42 liters) in each tank.

Minimum Crew
2 - Pilot and copilot

Maximum Passenger Seating Capacity 78

Oil Capacity
Oil capacity per Engine
Total 9.9 liters (10.5 US quarts)
Useable 6.8 liters (7.2 US quarts)

Maximum Altitudes
41,000 ft. (operating)
10,000 ft. (takeoff and landing)

Control Surface Movements
Ailerons 25° TE up, 15° TE down
Elevator 24.7° TE up, 14.9° TE down
Stabilizer 13° TE up, 2° TE down
Rudder 30.7° right, 30.7° left
Ground Spoiler 60°
Outboard Spoiler 40°

Flap and Slat
Detent Inboard Flap Outboard Flap Slat 1/Slat 2,3,&4
Main/Aft Main/Aft
0 0°/0° 0°/0° 0°/0°
1 4.9°/7.3° 4.5°/7.4° 12°/15°
3 19.6°/11.8° 19.3°/13.3° 12°/15°
4 19.6°/11.8° 19.3°/13.3° 20°/25°
5 19.6°/11.8° 19.3°/13.3° 20°/25°
Full 34.5°/13.8° 34.2°/15.3° 20°/25°

Deflections are in the planes normal to the hinge lines, except for the flaps, which are in streamwise planes normal to the wing reference plane. Deflections of a surface supported by another moveable surface are relative to the parent surface. Stabilizer deflections are relative to the airplane horizontal reference. Elevator and rudder maximum deflections are scheduled by the flight control system as a function of airspeed; the data presented herein correspond to zero airspeed. Control surface deflection tolerances are given in the Embraer report 170EBD001 “Engineering Basic Data”, rev. C dated 27 January 2004.

Serial Numbers 17000006 and subsequent.
II. Model ERJ 170-100 LR (Transport Category Airplane) approved February 20, 2004

Same as model ERJ 170-100 STD, except for the following items:

<table>
<thead>
<tr>
<th>Maximum Weights</th>
<th>Max Ramp Weight: 82,363 lb (37,360 kgf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max Takeoff Weight: 82,011 lb (37,200 kgf)</td>
</tr>
<tr>
<td></td>
<td>Max Landing Weight: 72,311 lb (32,800 kgf)</td>
</tr>
<tr>
<td></td>
<td>Max Zero Fuel Weight: 65,257 lb (29,600 kgf)</td>
</tr>
</tbody>
</table>

Center of Gravity Limits Refer to AFM No. AFM-1385

III. Model ERJ 170-100 SU (Transport Category Airplane) approved May 14, 2004

Same as model ERJ 170-100 LR, except for the following item:

Maximum Passenger Seating Capacity 76

IV. Model ERJ 170-100 SE (Transport Category Airplane) approved September 17, 2004

Same as model ERJ 170-100 LR, except for the following item:

Maximum Passenger Seating Capacity 70

V. Model ERJ 170-200 STD (Transport Category Airplane) approved August 31st, 2006

Same as model ERJ 170-100 LR, except for the following items:

Datum
A perpendicular plane to the fuselage centerline, located at 12488 mm ahead of the wing stub front spar. This spar is located 373 mm ahead of the wing jack points.

Leveling Means
Plumb line between the points P1 and P2 located inside of the landing gear compartment on the left side, as illustrated below.

```
<table>
<thead>
<tr>
<th>POINT</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>15748.16</td>
<td>-216.60</td>
<td>-769.31</td>
</tr>
<tr>
<td>P2</td>
<td>15748.16</td>
<td>-246.50</td>
<td>-1575.09</td>
</tr>
</tbody>
</table>
```

Maximum Weights
Max Ramp Weight: 83,026 lb (37,660 kg)
Max Takeoff Weight: 82,673 lb (37,500 kg)
Max Landing Weight: 74,957 lb (34,000 kg)
Max Zero Fuel Weight: 69,886 lb (31,700 kg)

Maximum Weights**
Max Ramp Weight: 89,353 lb (40,530 kg)**
Max Takeoff Weight: 89,001 lb (40,370 kg)**
Max Landing Weight: 75,178 lb (34,100 kg)**
Max Zero Fuel Weight: 72,091 lb (32,700 kg)**

** post-mod SB 170-00-0016.
Maximum Baggage

<table>
<thead>
<tr>
<th>Cargo Compartment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Cargo Compartment</td>
<td>3,307 lb  (1,500 kg)</td>
</tr>
<tr>
<td>Aft Cargo Compartment</td>
<td>2,535 lb  (1,150 kg)</td>
</tr>
</tbody>
</table>

Maximum Passenger Seating Capacity 88

Serial Numbers 1700014 and subsequent.

VI. Model ERJ 170-200 LR (Transport Category Airplane) approved August 31st, 2006

Same as model ERJ 170-200 STD, except for the following item:

Maximum Weights

<table>
<thead>
<tr>
<th>Weight Type</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Ramp Weight</td>
<td>85,870 lb  (38,950 kg)</td>
</tr>
<tr>
<td>Max Takeoff Weight</td>
<td>85,517 lb  (38,790 kg)</td>
</tr>
</tbody>
</table>

VII. Model ERJ 170-200 SU (Transport Category Airplane) approved August 31st, 2006

Same as model ERJ 170-200 LR, except for the following item:

Maximum Passenger Seating Capacity 76
DATA PERTINENT TO ALL MODELS EXCEPT AS INDICATED

Import Requirements
To be considered eligible for operation in the United States, each aircraft manufactured under this type certificate must be accompanied by a certificate of airworthiness for export or certifying statement endorsed by the exporting foreign civil airworthiness authority which states (in the English language): The [insert aircraft model and series] covered by this certificate conforms to the type design approved under U.S. Type Certificate No. A56NM, TCDS Revision [insert number], dated [insert date] and is found to be in a condition for safe operation.

Certification Basis 14 CFR part 25, effective February 1, 1965, including the following amendments:
Amendments 25-1 through 25-101 in entirety
Amendment 25-102, §§ 25.981(a) and (b), H25.4 only
Amendments 25-103 through 25-105 in entirety
Amendment 25-106, §§ 25.795(a)(1) and (a)(2) only
Amendment 25-107, § 25.731(d) and (e); § 25.735(a) through (g), and (i) through (k) only
Amendments 25-108 and 25-109 in entirety

Special Conditions:
No. 25-231-SC, consisting of the following subject:
- Engine Torque Loads for Sudden Engine Stoppage
- Operation without Normal electrical Power
- Interaction of Systems and Structure
No. 25-223-SC, consisting of the following subject:
- High Intensity Radiated Fields
No. 25-241-SC, consisting of the following subjects:
- Electronic Flight Controls; Control Surface Position Awareness
- Performance Credit for Automatic takeoff Thrust Control System during Go-Around
No. 25-250-SC, consisting of the following subject:
- Electronic Flight Controls; Command Signal Integrity

NOTE: The FAA Special Conditions referenced above may be accessed at internet location:
http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgSC.nsf/MainFrame?

Equivalent Level of Safety Findings:
- 14 CFR part 25 subparts E, F, & G requirements applicable to APU installations: APU Certification Rules (documented in FAA Memo TC0056IB-T-P-4)
- 14 CFR part 25 Appendix I25.4(a): ATTCS - Reduction in initial power setting to less than 90% of takeoff thrust (documented in FAA Memo TC0056IB-T-HDE-16)

NOTE: The FAA Equivalent Level of Safety Memos referenced above may be accessed at internet location:
Exemptions:
- Exemption No. 8072, 14 CFR part 25, Section 25.901(c) Uncontrollable High Thrust
- Exemption No. 8160, 14 CFR part 25, Section 25.841(a)(2)(ii) Pressurized Cabins
- Exemption No. 8151, 14 CFR part 25, Section 25.831(g) Ventilation (humidity requirement)

NOTE: The FAA Exemptions referenced above may be accessed at internet location:


Optional Requirements complied with:
- Section 25.801 Ditching; 170-100( ) Only
- Section 25.1403 Wing icing detection lights
- Sections 25.1411, 25.1415 Safety equipment required for ditching certification; 170-100( ) Only
- Section 25.1419 Ice protection
- Section 25.1421 Megaphones

NOTE: The Model ERJ 170-200( ) is not approved for extended overwater operation, as Embraer elected to not request approval of this model for the ditching requirements of 14 CFR 25.801, 25.1411(d), (e), (f), (g), and 25.1415

Part 26 of the Federal Aviation Regulations:
Based on § 21.29(a) for new TCs, or § 21.101(g) for changes to TCs, applicable provisions of part 26 are included in the certification basis. For any future part 26 amendments, the holder of this TC must demonstrate compliance with the applicable sections.

Environmental Standards complied with:
- FAR Part 36 effective December 1, 1969, including Amendments 36-1 through 36-24.
- FAR Part 34 effective September 10, 1990, including Amendment 34-1 through 34-3.

Equipment
The basic required equipment as prescribed in the applicable airworthiness regulations (see the Certification Basis) must be installed in the aircraft. The lists of all equipment as well as optional approved equipment are contained in the Embraer documents:

Type Design Standard Document No. 170-100TDSD_01 for the ERJ 170-100 models and Type Design Standard Document No. 170-200TDSD_FA for the ERJ 170-200 models.

Airplane Flight Manual

Service Information
Service bulletins, repair instructions (letters, drawings, specifications, forms used for transmitting repair descriptions, etc.), structural repair manuals, airplane flight manuals, vendor manuals, and overhaul and maintenance manuals that are published in the English language and indicate applicability to the U.S. approved type designs included in this Type Certificate and that include a statement “ANAC Approved” are accepted by the FAA and are considered “FAA Approved” (See Note 8).
Additionally, changes to type design that are approved by ANAC designated engineering representatives via ANAC form F-200-06 are also considered FAA approved (See Note 8).
NOTE 1. Weight and balance. Current weight and balance report including a form of weight and list of equipment included in certificated empty weight and loading instructions must be provided for each aircraft at the time of original certification. The certificated basic empty weight and corresponding center of gravity location must include the total engine oil, hydraulic fluid and unusable fuel.

NOTE 2. All the life limitations are provided in the “Appendix A Part 4 – Life - Limited Items (LLI)”, of the document MRB-1621. The mandatory structure certification maintenance requirements, raised from the damage tolerance analysis, are listed in the “Appendix A Part 2 - Airworthiness Limitation Items (ALI) Structures” of the document MRB-1621. The mandatory systems certification maintenance requirements, raised from the safety analysis, are listed in the “Appendix A Part 1 – Certification Maintenance Requirements (CMR)” of the document MRB-1621. The mandatory fuel systems limitations items (FSL), raised from the Fuel Tanks safety requirement, are listed in the “Appendix A Part 3 – Fuel System Limitation Items (FSL)” of the document MRB-1621. The Structures Repair Manual SRM 1583 is approved and controlled by ANAC, and all Service Bulletins issued by Embraer are approved by ANAC. An approval statement is stamped in each Service Bulletin.

NOTE 3. The systems containing User Modifiable Software are:
- User Partition of the Owner Requirements Table (ORT) of the SATCOM (Satellite Communication System);
- Airline Modifiable Information (AMI) of the Communication Management Function (CMF);
- APM System Setting Data (Airline Operational Data);
- User Application of the Aircraft Condition Monitoring Function (ACMF);
User Modifiable Software is not approved as part of the type design.

NOTE 4. The CF34-8E5 and CF34-8E5A1 engines designation, as presented in the Engine Part List, must contain the suffix Gxx, which defines the specific engine configuration. For the ERJ 170-100 and ERJ 170-200 model, the following designations are approved for operation: CF34-8E5G01 and CF34-8E5A1G01.

NOTE 5. Any new interior configuration affecting the cockpit door access area, including adjacent structures such as galleys and wardrobes, must be submitted for FAA Aircraft Certification Office (ACO) approval, specifically for compliance with 14 CFR 25.809(b). FAA ACO’s should coordinate any such changes with the TC issuing office (ANM-116).

NOTE 6. The Models ERJ 170-100 xx and ERJ 170-200 xx are often referred to in Embraer marketing literature as the “Embraer 170 xx and Embraer 175 xx”, respectively, with the appropriate model (LR, STD, etc.) substituted for the “xx”. This name is strictly a marketing designation and is not part of the official model designations.

NOTE 7. As stated in Exemption No. 8072 (ERJ 170) the FAA has concluded that the occurrence of any uncontrollable high thrust failure condition or any of the associated causal failures listed below, are reportable under §§ 121.703 (c), 125.409 (c), and 135.415(c):
- FADEC – Full Authority Digital Engine Control
- TCQ – Thrust Control Quadrant
- FMU – Fuel Metering Unit

NOTE 8. The "Agência Nacional de Aviação Civil" - ANAC (National Agency of Civil Aviation) took over responsibility for Brazilian civil aircraft certification on 21 March 2006. Approvals made prior to that date will reference the CTA as the responsible Brazilian aviation authority.