

**MINISTÉRIO DA AERONÁUTICA  
DEPARTAMENTO DE PESQUISAS E DESENVOLVIMENTO  
CENTRO TÉCNICO AEROESPACIAL**

**TYPE CERTIFICATE DATA SHEET Nº EA-8002-01**

Type Certificate Holder:

**AIRBUS INDUSTRIE**  
1, Rond-point Maurice Bellonte  
31707 Blagnac  
FRANCE

EA-8002-01  
Sheet 01

AIRBUS

A300B2-203, A300B4-203;  
A310-203, -204, -221, -222,  
A310-304, -308, -322, -324, -325

March 1999

This data sheet, which is part of Type Certificate No. 8002, prescribes conditions and limitations under which the product, for which the Type Certificate was issued, meets the airworthiness requirements of the Brazilian Aeronautical Regulations.

**I - Model A300B2-203 (Transport Category), approved 13 August 1982.**

**ENGINE**

Two General Electric model CF6-50C2 turbofan engines.

**MAXIMUM WEIGHT (kg)**

| VARIANT               | Basic Model | 001 with SB 34.025 embodied (mod. 1569) |
|-----------------------|-------------|---|
| Max. Ramp Weight      | 142 900     | 137 900                                 |
| Max. Take-off Weight  | 142 000     | 137 000                                 |
| Max. Landing Weight   | 130 000     | 130 000                                 |
| Max. Zero Fuel Weight | 120 500     | 120 500                                 |

**CG RANGE**

|   | Forward                                      | Aft     |
|---|--|---------|
| Takeoff   | 18% MAC                                      | 33% MAC |
| Landing   | 15% below 120 500 kg<br>18% above 125 500 kg | 35%     |
| Linear variation between 120 500 kg and 125 500 kg. |  |         |

**FUEL QUANTITY (0.782kg/l)**

| Tanks | Unusable Fuel | Usable Fuel                  |                                    |          |
|-------|---------------|------------------------------|------------------------------------|----------|
|       |               | Normal preselected refueling | Refueling with high level shut off |          |
|       | (kg)          | (kg)                         | (kg)                               | (liters) |
| Outer | 12            | 7 000                        | 7 218                              | 9 230    |
| Inner | 40            | 27 000                       | 27 190                             | 34 770   |
| Total | 52            | 34 000                       | 34 408                             | 44 000   |

**II - Model A300B4-203 (Transport Category), approved 16 June 1980.**

**ENGINE** Two General Electric model CF6-50C2. turbojet engines.

**MAXIMUM WEIGHT (kg)**

|                |         |
|----------------|---------|
| Max. Ramp      | 165 900 |
| Max. Take-off  | 165 000 |
| Max. Landing   | 134 000 |
| Max. Zero Fuel | 124 000 |

**CG RANGE**

|   |  |         |
|---|--|---------|
|   | Forward                                      | Aft     |
| Takeoff   | 18% MAC                                      | 33% MAC |
| Landing   | 15% below 124 000 kg<br>18% above 130 000 kg | 35%     |
| Linear variation between 124 000 kg and 130 000 kg. |  |         |

**FUEL QUANTITY (0.782kg/l)**

| Tanks  | Unusable fuel<br>(kg) | Usable Fuel                          |   |        |                                      |   |        |
|--------|-----------------------|--------------------------------------|---|--------|--------------------------------------|---|--------|
|        |                       | Without SB N° 28.021<br>(Mod. 1664)  |   |        | With SB N° 28.021<br>(Mod. 1664)     |   |        |
|        |                       | Normal preselected refueling<br>(kg) | Refueling with high level shut off<br>(kg) (liters) |        | Normal preselected refueling<br>(kg) | Refueling with high level shut off<br>(kg) (liters) |        |
| Outer  | 12                    | 7 000                                | 7 202   | 9 210  | 7 000                                | 7 241   | 9 260  |
| Inner  | 130                   | 27 000                               | 27 026  | 34 560 | 27 000                               | 27 480  | 35 140 |
| Center | 48                    | 11 000                               | 11 206  | 14 330 | 13 500                               | 13 763  | 17 600 |
| Total  | 190                   | 45 000                               | 45 434  | 58 100 | 47 500                               | 48 484  | 62 000 |

**III - DATA PERTINENT TO ALL A300 SERIES****FUEL**

See General Electric Specification D50 TF2. This specification is also applicable to the APU.

Additives:

- anti-icing: PHILLIPS PFA-55MB to MIL I 27686 specification, 0,15% by volume maximum concentration
  - biocide: SOHIO BIOBOR JF at 270 PPM maximum concentration;
  - anti-static: SHELL ASA-3 at 1 PPM maximum concentration.
- For operating conditions specific to each fuel, refer to corresponding Flight Manual.

**ENGINE LIMITS (2.2482 lb/daN)**

|                                 |                        |
|---------------------------------|------------------------|
| Static thrust at sea level:     |                        |
| Take-off (5min.)* (Up to 30°C)  | 23 050 daN (51 800 lb) |
| Maximum continuous (Up to 30°C) | 20 600 daN (46 300 lb) |

**ENGINE LIMITS (2.2482 lb/daN)****(Cont.)**

|   |  |
|---|--|
| Maximum engine speed:<br>N1 rpm (%)<br>N2 rpm (%)   | 4 068 (118.5%)<br>10 761 (109.5%)                          |
| Maximum gas temperature:<br>Take-off (5min.)*<br>Maximum continuous<br>Maximum acceleration (2 min)<br>Starting | 945°C<br>910°C<br>960°C<br>900/750°C                       |
| Maximum oil temperature<br>(supply pump inlet):<br>Take-off, stabilized<br>Transient (15 mn max.)               | 160°C<br>175°C   |
| Approved oils   | See Specification GE D50TF1<br>called for in SB GE N° 79-1 |

\* 10 minutes at take-off thrust allowed only in case of engine failure  
(at take-off or during go-around).

\*\* Up to 40 sec/above 40 sec.

**AUXILIARY POWER UNIT**

Airesearch TS CP 700-5 (Specification SC 6203).

Operating limitations:

- Maximum power rating at sea level: 105.8 kW (142 hp)
- Maximum operating speed - N1: 30 910 rpm (110%)  
- N2: 38 845 rpm (110%)
- Maximum gas temperature at turbine: 585°C

Approved oils: see AIRESEARCH maintenance manual TSCP  
700 49.20.00 table 303.

**AIRSPEED LIMITS****(IAS, unless otherwise stated)**Maximum Operating Mach ( $M_{MO}$ )

At and over 12 700 m (28 000 ft) : 0.86/0.82 (see Note 5)

Maximum Operating Speed ( $V_{MO}$ )

Up to 12 882 m (28 400 ft) : 345 kt

Maneuvering Speed ( $V_A$ ): see DGAC approved Brazilian Flight  
Manual.

Extended Flaps/Slats Speed ( $V_{FE}$ ): see table below:

|          | Slats/Flaps (°) | $V_{FE}$ (kt)    |
|----------|-----------------|------------------|
| Take-off | 16/0            | 250              |
| Take-off | 16/8            | 215              |
| Approach | 16/15           | 205              |
| Landing  | 25/25           | 180              |
| Enroute  | 16/0            | 210 ( $M=0.47$ ) |

Minimum Control Speed: - In flight ( $V_{MCA}$ ): 112 kt  
- Takeoff/Landing ( $V_{MCG}$ ): 107 kt

Landing gear: ( $V_{LE}$ ). Extended: 270 kt/ Mach 0.59( $V_{LO}$ ). Extension 270 kt( $V_{LO}$ ). Retraction 240 kt

Tyres Limit Speed (Ground Speed): 195.5 kcas

---

|                                     |   |
|-------------------------------------|---|
| <b>DATUM</b>                        | Station 0 - 6.38 m (251.26 in) forward of the fuselage nose.  |
| <b>MEAN AERODYNAMIC CHORD</b>       | 6.6080 m (250.15 in); leading edge of MAC: Sta. 1116.   |
| <b>LEVELING MEANS</b>               | Clinometer on the cabin rails.  |
| <b>MINIMUM FLIGHT CREW</b>          | 2 pilots and 1 flight engineer.<br>2 pilots for aircraft identified FF (See Note 6).  |
| <b>MAXIMUM PASSENGERS</b>           | 345 in compliance with the requirements of FAR 25 Amdt. 32, covering emergency exits. Emergency evacuation demonstration in compliance with FAR 25 para. 25.803 (c) was conducted with 330 passengers. For the number of passengers authorized for each aircraft, see the corresponding interior arrangement drawing approved by the DGAC.  |
| <b>MAXIMUM BAGGAGE</b>              | Cargo compartment maximum load:<br>Forward: 16 620 kg<br>Mid: 10 280 kg<br>Aft (bulk): 2 500 kg<br>For the positions and the loading conditions authorized in each position (references of containers, pallets and associated weights) see Approved Flight Manual (chapter 6 - Annex 02).<br>The aircraft must be loaded according to instructions included in the Weight and Balance Manual  |
| <b>HYDRAULIC FLUIDS</b>             | Specification NSA 30-7110.  |
| <b>TYRES</b>                        | See SB A300-32-002.   |
| <b>MAX. OPERATING ALTITUDE</b>      | 12 200 m (40 000 ft)  |
| <b>TEMPERATURE OPERATING LIMITS</b> | See DGAC approved Brazilian AFM.  |
| <b>CONTROL SURFACE MOVEMENTS</b>    | The movement of the various control surfaces must be carefully controlled by proper rigging of the flight control systems. The airplane must therefore be rigged in accordance with the following DGAC-approved information and data:<br>Control surface movement inspection: Airbus Industrie Reports A300B 8.27.010, .011, .012, .013, .014 and .015.<br>Rigging procedure: Airbus Industrie Reports A007-10.063, -10.094, -10.095, -10.100, -10.102, -10.103, -10.105 and -10.123. |
| <b>SERIAL NUMBERS ELIGIBLE</b>      | A Certificate of Airworthiness for Export endorsed as Noted under "Import Requirements" must be submitted for each individual aircraft for which application for a Brazilian Certificate of Airworthiness is made.  |

---

**IMPORT ELIGIBILITY**

A Brazilian Certificate of Airworthiness may be issued on the basis of on a DGAC Export Certificate on Airworthiness (or a third country Export Certificate on Airworthiness, in case of used aircraft imported from such country), including the following statement:

“The aircraft covered by this certificate has been inspected, tested and found to be in conformity with the Brazilian approved type design as defined by the Brazilian Type Certificate no. 8002 and in condition of safe operation”.

The CTA Report H.10-015-01, dated 19 May 80 or further revisions, contains the Brazilian requirements for the acceptance of these airplanes. (See Note 4)

**CERTIFICATION BASIS**

RBHA 25 (corresponding to Franco/German requirements of FAR Part 25 including Amdts. 1 thru 19).

FAR 25 Amdt. 23 for the following paragraphs : 25.145, 25.1305, 25.1321, 23.1331, and 25.1333.

FAR 25 Amdt. 24 for paragraph 25.1303.

FAR 25 Amdt. 32 for paragraphs 25.785, 25.787, 25.789, 25.791, 25.809, 25.811, 25.812, 25.853, 25.855, 25.857, 25.1557, and Appendix F.

Franco/German “Conditions Techniques Complémentaires” as listed in DGAC documents 4080 DTA/M dated 6 August 1970, and 2060 DTA/M dated 30 March 1973.

Operation at take-off thrust extended to 10 minutes in case of engine failure, as per SGAC letter 16233 DTA/SDT/M of 7 March 1974.

Endurance flight campaign called for as per paragraph 6.4 of SGAC/LBA document on the organization of the A300 B Certification, dated 6 October 1970.

For the Automatic Flight Control System, the applicable technical requirements are complemented by:

- AC.25 1329-1A for category 1 cruise and approach;
- Circulars DTA/M 3938 and AC 20-57A for category II approach and automatic landing;
- AC 120-28 A for category III a precision approach;

The requirements are established in SGAC letter 3904 DTA/M; dated 20 July 1972.

Use of flexible take-off thrust as per SGAC letter 1694, dated 12 March 1974.

Noise Standard: ICAO Annex 16.

**REQUIRED EQUIPMENT**

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

Equipment approved for installation is listed in the following Certification Standard Equipment List:

- A300B2-203: AI/V-C N° 149/ 80; and
- A300B4-203: AI/V-C N° 13/79.

**REQUIRED EQUIPMENT  
(Cont.)**

Cabin furnishings equipment shall be in conformance to the following frame specifications:

- For Galleys: TL 25/1109/74; and
- For Passenger Seats: TL 25/1110/74.

**NOTES**

- NOTE 1:** Weight and Balance. Current weight balance report, including list of equipment included in certificate empty weight and loading instructions when necessary, must be in each aircraft at the time of original certification and at all times thereafter (except in the case of air carrier operators having an approved weight control system). The certificate empty weight and the corresponding center of gravity location must include unusable fuel, engine oil, hydraulic fluid in tanks and in the systems. The certificate empty weight does not include the lifting jack carried on board, the entrance steps, the tools kit, the life jackets and the fluid to be injected into the engine.
- NOTE 2:** Markings and Placards. All markings and placards for passenger information under normal or emergency conditions must be in English and Portuguese. All markings and placards for flight attendants information under emergency conditions must be in English and Portuguese. External markings for emergency operation of doors and normal ground operations of cargo doors must be in English and Portuguese.
- NOTE 3:** Continuing Airworthiness. Life limitations are provided in the Chapter 05 of the A300 Maintenance Manual, approved by DGAC.
- NOTE 4:** The differences of the Brazilian airplanes in relation to the basic DGAC type design are summarized below:
1. The DGAC approved Brazilian Airplane Flight Manual;
  2. Markings and placards in Portuguese language: see Note 2;
  3. ADF1 powered by the emergency bus bars;
  4. APU fire extinguisher handle “pull and turn” inscription; and
  5. Autothrottle control panel identification.
- NOTE 5:** For model B4-203, the  $M_{MO}$  warning selector of modification no. 1688 allows an  $M_{MO}$  switching.  $M_{MO}$  is 0.86 for takeoff weights up to 153 000 kg (337 302 lb) and 0.82 for takeoff weight greater than 153 000 kg (337 302 lb) provided the airplane is operated in accordance with the corresponding DGAC approved Airplane Flight Manual page 2.03.00 page 1.
- NOTE 6:** Aircraft identified by the letters FF added to the designation of the model have forward facing crew cockpit and digital autopilot with associated subsystems. The definition of FF aircraft is detailed in AI/V-C document 1045/81. FF aircraft are to be used with a Flight Manual incorporating the FF revision approved by DGAC.
- NOTE 7:** If modifications 0904, 1022 and 1023 are embodied, the aircraft has Category IIIa precision approach capability.
-

**IV - Model A310-203 (Transport Category), approved 17 October 1998**  
**Model A310-204 (Transport Category), approved 17 October 1998**  
**Model A310-221 (Transport Category), approved 17 October 1998**  
**Model A310-222 (Transport Category), approved 17 October 1998**

**ENGINE** Model A310-203: Two General Electric model CF6-80A3  
 Model A310-204: Two General Electric model CF6-80C2A2  
 Model A310-221: Two Pratt & Whitney model JT9D-7R4D1  
 Model A310-222: Two Pratt & Whitney model JT9D-7R4E1

**MAXIMUM WEIGHT (kg)**

| VARIANT        | A310-203/-221 |                           | A310-203/-221/-222          |                              | A310-203                  |                           |
|----------------|---------------|---------------------------|-----------------------------|------------------------------|---------------------------|---------------------------|
|                | Basic Model   | Variant 03 with mod. 4008 | Variant 01 with mod. 3703 * | Variant 04 with mod. 5124 ** | Variant 06 with mod. 6395 | Variant 08 with mod. 7415 |
| Max. Ramp      | 132 900       | 125 900                   | 139 500                     | 142 900                      | 135 900                   | 139 500                   |
| Max. Take-off  | 132 000       | 125 000                   | 138 600                     | 142 000                      | 135 000                   | 138 600                   |
| Max. Landing   | 118 500       | 118 500                   | 121 500                     | 121 500                      | 118 500                   | 122 000                   |
| Max. Zero Fuel | 108 500       | 108 500                   | 111 500                     | 111 500                      | 111 500                   | 112 000                   |

\* SB 00-2003

\*\* SB 00-2002

| VARIANT        | A310-221                    | A310-204/-222              |                            | A310-204                   | A310-222                   |
|----------------|-----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
|                | Variant 07 with mod. 6764 * | Variant 101 with mod. 6527 | Variant 104 with mod. 6528 | Variant 107 with mod. 7290 | Variant 11 with mod. 10685 |
| Max. Ramp      | 132 900                     | 139 500                    | 142 900                    | 134 900                    | 144 900                    |
| Max. Take-off  | 132 000                     | 138 600                    | 142 000                    | 134 000                    | 144 000                    |
| Max. Landing   | 119 500                     | 122 000                    | 122 000                    | 122 000                    | 121 500                    |
| Max. Zero Fuel | 111 500                     | 112 000                    | 112 000                    | 112 000                    | 111 500                    |

\* SB 00-2006

**FUEL QUANTITY (0.8kg/l)**

| Tanks   | Unusable Fuel (kg) | Usable Fuel (kg) |             |
|---------|--------------------|------------------|-------------|
|         |                    | Variant XX       | Variant 1XX |
| Outer   | 41                 | 5 992            | 5 920       |
| Inner   | 40                 | 22 360           | 22 320      |
| Central | 14                 | 15 728           | 15 728      |
| Total   | 95                 | 44 080           | 43 968      |

**V - Model A310-304 (Transport Category), approved 17 October 1998**  
**Model A310-308 (Transport Category), approved 17 October 1998**  
**Model A310-322 (Transport Category), approved 17 October 1998**  
**Model A310-324 (Transport Category), approved 24 October 1997**  
**Model A310-325 (Transport Category), approved 24 October 1997**

**ENGINE**

Model A310-304: Two General Electric model CF6-80C2A2  
 Model A310-308: Two General Electric model CF6-80C2A8 or CF6-80C2A2 (See Note 8)  
 Model A310-322: Two Pratt & Whitney model JT9D-7R4E1  
 Model A310-324: Two Pratt & Whitney model PW 4152  
 Model A310-325: Two Pratt & Whitney model PW 4156A

**MAXIMUM WEIGHT (kg)**

| VARIANT        | Basic Model | A310-304/-322/-324          |                           | A310-304/-308/-324        |
|----------------|-------------|-----------------------------|---------------------------|---------------------------|
|                |             | Variant 01 with mod. 5616 * | Variant 03 with mod. 8144 | Variant 05 with mod. 7088 |
| Max. Ramp      | 150 900     | 153 900                     | 153 900                   | 157 900                   |
| Max. Take-off  | 150 000     | 153 000                     | 153 000                   | 157 000                   |
| Max. Landing   | 123 000     | 123 000                     | 124 000                   | 124 000                   |
| Max. Zero Fuel | 113 000     | 113 000                     | 114 000                   | 114 000                   |

\* SB A310-00-2007

| VARIANT        | A310-304                  |                           | A310-308/-325             | A310-308                    | A310-324                      |
|----------------|---------------------------|---------------------------|---------------------------|-----------------------------|-------------------------------|
|                | Variant 06 with mod. 7614 | Variant 07 with mod. 7659 | Variant 08 with mod. 8130 | Variant 09 with mod. 8469 * | Variant 12 with mod. 11103 ** |
| Max. Ramp      | 139 500                   | 134 900                   | 164 900                   | 161 900                     | 160 900                       |
| Max. Take-off  | 138 600                   | 134 000                   | 164 000                   | 161 000                     | 160 000                       |
| Max. Landing   | 123 000                   | 124 000                   | 124 000                   | 124 000                     | 124 000                       |
| Max. Zero Fuel | 113 000                   | 114 000                   | 114 000                   | 114 000                     | 114 000                       |

\* SB A310-00-2018

\*\* SB A310-00-2029 (See Note 9)

**FUEL QUANTITY (0.8kg/l)**

| Tanks   | Unusable  | Usable Fuel (kg) |             |
|---------|-----------|------------------|-------------|
|         | Fuel (kg) | Variant XX       | Variant 1XX |
| Outer   | 41        | 5 992            | 5 920       |
| Inner   | 40        | 22 360           | 22 320      |
| Central | 14.4      | 15 728           | 15 712      |
| Trim    | 32        | 15 728           | 4 920       |
| Total   | 127.4     | 44 080           | 48 872      |



**VI - DATA PERTINENT TO ALL A310 SERIES****FUEL**

See General Electric Specification D50 TF2 or Pratt & Whitney Specification TM522 given in P&W S.B. No. 2016.

Additives:

- anti-icing: PHILLIPS PFA-55MB to MIL-I-27686 specification, 0,15 % by volume maximum concentration
- biocide: SOHIO BIOBOR JF at 270 PPM maximum concentration;
- anti-static: SHELL ASA-3 at 1 PPM maximum concentration.

For operating conditions specific to each fuel, refer to corresponding Flight Manual.

**ENGINE LIMITS (2.2482 lb/daN)**

| ENGINE                                       | CF6-80A3  | CF6-50C2A2     | CF6-50C2A8     |
|--|---|----------------|----------------|
| Static thrust at sea level, up to 30°C (lb): |   |                |                |
| Take-off (5min.)*                            | 48 970 lb   | 52 460 lb      | 46 300 lb      |
| Maximum continuous                           | 45 800 lb   | 48 080 lb      | 51 800 lb      |
| Maximum engine speed:                        |   |                |                |
| N1 rpm (%)                                   | 4 016 (117)   | 3 854 (117.5)  | 4.068 (118.5)  |
| N2 rpm (%)                                   | 10 859 (110.5)                                      | 11 055 (112.5) | 10.761 (109.5) |
| Maximum gas temperature (°C):                |   |                |                |
| Take-off (5min.)*                            | 940   | 960            | 945            |
| Maximum continuous                           | 895   | 910            | 910            |
| Starting:                                    | 870/750**   | 870/750 **     | 900/750**      |
| Maximum oil temperature (°C):                |   |                |                |
| (supply pump inlet):                         |   |                |                |
| Take-off, stabilized                         | 160   | 160            | 160            |
| Transient (15 mn max.)                       | 175   | 175            | 175            |
| Approved oils                                | See Specification GE D50TF1 called in SB GE N° 79-1 |                |                |

\* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around) (see letter SGAC N° 1623 DTA/SDT/M of 7 March 1974 for General Electric engines)

\*\* Up to 40 s/above 40 s.

| ENGINE                                       | JT9D-7R4D1    | JT9D-7R4E1    | PW 4152        | PW 4156A       |
|--|---------------|---------------|----------------|----------------|
| Static thrust at sea level, up to 30°C (lb): |               |               |                |                |
| Take-off (5min.)*                            | 48 000 lb     | 50 000 lb     | 52 000 lb      | 56 000 lb      |
| Maximum continuous                           | 45 800 lb     | 47 500 lb     | 49 200 lb      | 49 200 lb      |
| Maximum engine speed:                        |               |               |                |                |
| N1 rpm (%)                                   | 3 810 (105.8) | 3 810 (105.8) | 4 012 (111.4)  | 4 012 (111.4)  |
| N2 rpm (%)                                   | 8 000 (102.5) | 8 000 (102.5) | 10 300 (104.0) | 10 450 (105.5) |
| Maximum gas temperature (°C):                |               |               |                |                |
| Take-off (5 min.)*                           | 625           | 635           | 625            | 650            |
| Acceleration (2 min)                         | 625           | 635           | 625            | 650            |
| Maximum continuous                           | 600           | 610           | 600            | 625            |
| Starting                                     | 535           | 535           | 510            | 535            |

**ENGINE LIMITS (Cont.)**

| ENGINE   | JT9D-7R4D1   | JT9D-7R4E1 | PW 4152 | PW 4156A |
|--|--|------------|---------|----------|
| Maximum oil temperature(°C):<br>(supply pump inlet): |  |            |         |          |
| Take-off, stabilized                                 | 135  | 135        | 163     | 163      |
| Transient (15 min max.)                              | 163  | 163        | 177     | 177      |
| Approved oils  | See Specification P&W 521C called for in SB PWA N° 238 |            |         |          |

\* 10 minutes at take-off thrust allowed only in case of engine failure (at take-off or during go-around).

**AUXILIARY POWER UNIT**

AIRESEARCH GTCP 331-250(F) for models A310-200.

AIRESEARCH GTCP 331-250(H) for models A310-200 Variant 100 and A310-300.

Operating imitations:

Maximum power rating at sea level: 98.5 kW

Maximum operating speed: 43 562 rpm

Maximum gas temperature at turbine: 585°C

Approved oils: see AIRESEARCH maintenance manual GTCP 331-250 Chapter 49-21-00 table 2.

**AIRSPEED LIMITS**

**(IAS, unless otherwise stated)**

Maximum Operating Mach ( $M_{MO}$ ): 0.84

Maximum Operating Speed ( $V_{MO}$ ): 360/340 kt \*

Maneuvering Speed ( $V_A$ ): see DGAC approved Brazilian Flight Manual.

Extended Flaps/Slats Speed ( $V_{FE}$ ): see table below:

|                                | Slats/Flaps<br>(°) | $V_{FE}$ (kt)   |
|--------------------------------|--------------------|-----------------|
| Take-off                       | 15/0               | 245             |
| Take-off and approach          | 15/15              | 210             |
| Take-off, approach and landing | 20/20              | 195             |
| Landing                        | 30/40              | 180             |
| Holding and En-route           | 15/0               | 245<br>(M=0.54) |

Minimum Control Speed: see DGAC approved Brazilian Flight Manual.

Landing gear: ( $V_{LE}$ ) - 270 kt/ Mach 0.65

( $V_{LO}$ ) - 270 kt/ Mach 0.59

Tyres Limit Speed (Ground Speed): 195.5 kcas

\* 360 kt: - Basic model and variants 04, 06 and 07.

340 kt: - Variants 01, 03, 05, 08 and 09; and

- All models with less than 2 t in one of the outer tanks.

**CENTER OF GRAVITY RANGE** See CTA Airplane Flight Manual

**DATUM** Station 0 - 6.38 m (251.26 in) forward of the fuselage nose.

**MEAN AERODYNAMIC CHORD** 5.8280 m (229.45); leading edge of MAC: Sta. 992.

---

|                                     |   |
|-------------------------------------|---|
| <b>LEVELING MEANS</b>               | Clinometer on the cabin seat track rails.   |
| <b>MINIMUM FLIGHT CREW</b>          | 2 pilots  |
| <b>MAXIMUM PASSENGERS</b>           | 265, as limited by passenger emergency exit requirements.<br>(See Note 11).   |
| <b>MAXIMUM BAGGAGE</b>              | Cargo compartment maximum load:<br>Forward: 12 700 kg<br>Aft: 9 525 kg (11 110 kg with mod. 3656).<br>Bulk: 2 770 kg (1 442 kg with mod. 3656).<br>For the positions and the loading conditions authorized in each position (references of containers, pallets and associated weights) see Weight and Balance Manual Chapter 1.10.05.   |
| <b>HYDRAULIC FLUIDS</b>             | Specification NSA 30-7110.  |
| <b>TYRES</b>                        | See SB A310-32-2006   |
| <b>MAXIMUM OPERATING ALTITUDE</b>   | 12 530 m (41 100 ft)  |
| <b>TEMPERATURE OPERATING LIMITS</b> | See DGAC approved Brazilian AFM.  |
| <b>CONTROL SURFACE MOVEMENTS</b>    | The movement of the various control surfaces must be carefully controlled by proper rigging of the flight control systems. The airplane must therefore be rigged in accordance with the following DGAC-approved information and data:<br>Control surface movement inspection: Airbus Industrie Reports A300B 8.27.010, .011, .012, .013, .014 and .015.<br>Rigging procedure: Airbus Industrie Reports A007-10.063, -10.094, -10.095, -10.100, -10.102, -10.103, -10.105 and -10.123.                           |
| <b>S/N'S ELIGIBLE</b>               | A Certificate of Airworthiness for Export endorsed as Noted under "Import Requirements" must be submitted for each individual aircraft for which application for a Brazilian Certificate of Airworthiness is made.  |
| <b>IMPORT ELEGIBILITY</b>           | A Brazilian Certificate of Airworthiness may be issued on the basis of on a DGAC Export Certificate on Airworthiness (or a third country Export Certificate on Airworthiness, in case of used aircraft imported from such country), including the following statement:<br>“The aircraft covered by this certificate has been inspected, tested and found to be in conformity with the Brazilian approved type design as defined by the Brazilian Type Certificate No. 8002 and in condition of safe operation”. |

---

**IMPORT ELEGIBILITY (Cont.)** The CTA Report H.10-0153-02, dated 22 Mar. 1999 or further revisions, contains the Brazilian requirements for the acceptance of these airplanes. (See Note 4)

**CERTIFICATION BASIS**

RBHA 25 [corresponding to: FAR Part 25 - including Amendments 1 thru 19 (initial A300 certification basis); Amendments 20 thru 41; Amendment 42 except paragraph 25.109; Amendment 43 except paragraph 25.1326; Amendment 44 except paragraph 25.1413; Amendment 45 except paragraph 25.571, 25.573; Amendment 46 except paragraph 25.803(c), 25.803(d), 25.809(f) (1)(iv), 25.809(f)(1)(v); Amendment 47 except paragraph 25.809(f)(1)(iii); Amendment 49 except paragraph 25.733; and Amendment 54 except paragraph 25.365(e)(1) and 25.365(e)(2) - plus RBHA 25 special paragraph 25.729(e)(7)].

RBHA 36 [corresponding to ICAO Annex 16 Vol. I], plus any addition or deletion established in paragraphs 6, 8 and 9 of this report and including the following special requirements listed in DGAC certification basis and endorsed by CTA:

01. French-German technical complementary conditions:

- CB2-Minimum Stalling Speed
- CB7-1-Flight in Rough Air
- CC4-1-“En Route” Design Conditions with High Lift Devices Extended
- CC5-1-Design Manoeuvre Conditions
- CC6-1-Design Gust Conditions (except for A310-300 variant 08)
- CC6-3-Design Gust Conditions (for A310-300 variant 08 only)
- CC8-1-Bird Impact
- CC9-1-Asymmetric Load on the Horizontal Stabilizers
- CC10-1-Ground Loads
- CC11-Jacking Loads
- CC12-1-Crash Design Conditions
- CD1-1-General Design of Systems
- CD8-1-Operation of Landing Gear
- CD9-2-Protection of Equipment installed on LG and LG Wheel Wells
- CE0-Engine Installation - Application JAR E
- CE2-1-Windmilling without Oil
- CE4-1-Engine Vibration Levels
- CE10-1-Auxiliary Power Unit (APU) and its installation on the Aircraft
- CF3-1-Functioning of the Systems under Negative Acceleration
- CF7-1-Electrics
- Endurance demonstration

02. Special condition applicable to A310-300 Series related to Center of Gravity Control Systems.

03. Discrete gust requirements for A310-308 variants 08 and 09 approved in accordance with JAR NPA 25C-205.

04. Extended Range Twin Engine Airplane Operations approval in accordance with AC 120-42.

**CERTIFICATION BASIS  
(Cont.)**

05. Precision Approach and Landing requirements complemented by CTC 25-2 for category II and category I approach, JAR AWO Section III NPA no 25G-142 (June 83) for category III precision approach with and without decision height (fail operational system); the Automatic Flight Control System complies with AC 25.1329-1A for cruise and AC 20-57A for automatic landing.
06. Special conditions related to the use of FADEC on the Pratt & Whitney engines for A310-324 and A310-325:
- S12-FADEC Lightning Protection
  - S13-FADEC Engine Isolation
  - S14-Thrust Reverser Deletion of Mechanical Interlock
  - S15-FADEC
  - S16-FADEC - Effect of External Radiation

**REQUIRED EQUIPMENT**

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

Equipment approved for installation is listed in the following Certification Standard Equipment List:

- A310-200: AI/V-C N° 5/83;
- A310-200 Variant 100: AI/EA-A N° 251/86; and
- A310-300: AI/EA N° 1901/85;

Cabin furnishings equipment shall be in conformance to the following frame specifications:

- Galleys : TL 25/1109/74
- Passenger Seats: TL 25/1110/74

**NOTES**

**NOTE 1:** Weight and Balance. Current weight balance report, including list of equipment included in certificate empty weight and loading instructions when necessary, must be in each aircraft at the time of original certification and at all times thereafter (except in the case of air carrier operators having an approved weight control system). The certificate empty weight and the corresponding center of gravity location must include unusable fuel, engine oil, hydraulic fluid in tanks and in the systems. The certificate empty weight does not include the lifting jack carried on board, the entrance steps, the tools kit, the life jackets and the fluid to be injected into the engine.

**NOTE 2:** Markings and Placards. All placards specified in the approved Brazilian Airplane Flight Manual must be displayed in the airplane in the appropriate locations. In addition, all markings and placards for passenger information, external markings for emergency, load limits in cargo/baggage compartments must be presented in Portuguese or bilingual (Portuguese/English). The translations acceptable to CTAM are listed in the CTA Report H.10-0153-02, dated 22 Mar. 1999 or further revisions.

**NOTE 3:** Continuing Airworthiness. Life limitations are provided in the Chapter 05 of the A310 Maintenance Manual, approved by DGAC. Structures and Systems Certification Maintenance Requirements are listed in Airbus Industrie document AI/ST 5/849/85.

**NOTE 4:** The differences of the Brazilian airplanes in relation to the basic DGAC type design are summarized below:

1. The DGAC approved Brazilian Airplane Flight Manual;
2. Markings and placards in Portuguese language or bilingual (see Note 2);
3. Operational requirements - the following modifications must be installed:
  - cabin ozone filter: Mod. 6159;
  - cargo/baggage compartment fire protection: Mods. 8265 and 10452;
  - DFDR: Mod. 8500 and 8705;
  - ELT: TSO C91a;
  - Floor emergency escape path marking: Mod. 6515 (MBB System, 6934 (Bruce System) or 6812 (LSI System)); GPWS: Mod. 8960;
  - TCAS, if required: Mods. 8616 and 10928 (Bendix System) or Mods. 10664 and 11049 (Honeywell System);
  - Windshear detection and guidance system: Mod. 7187; and
  - Second ADF: Mod. 4536.
4. MMEL categorized.

**NOTE 5:** If the modification 4941 is embodied, the aircraft is approved for CAT III Precision Approach.

**NOTE 6:** The definition of the aircraft for extended twin engine airplane operations is precised in the document AI/EA 3000 - "Configuration, Maintenance and Procedures Standards According to AC 120-42A", Ref. CMP DGAC.

**NOTE 7:** Modifications 6920 and 7468 provide for installation in aft cargo compartment of respectively 1 and 2 Auxiliary Center Tanks with the following characteristics:

| Tanks | Unusable Fuel | Usable Fuel        |
|-------|---------------|--------------------|
| ACT 1 | 27 kg (34 l)  | 5 760 kg (7 200 l) |
| ACT 2 | 27 kg (34 l)  | 5 760 kg (7 200 l) |

**NOTE 8:** On A310-308 model, the engine General Electric CF6-80C2A2 may be used after embodiment of Service Bulletin A310-71-2003 and with the corresponding revision of the AFM supplement 11.

**NOTE 9:** Weight variant 12 to A310-324 model only applies to individual MSN 442, 453, 456 and 467.

**NOTE 10:** If the modification 11469 (for GE engines) or 11468 (for P&W engines) is installed, the aircraft is approved in accordance with AC 91-RVSM Reduced Vertical Separation Minimum operation.

**NOTE 11:** High density configuration up to 275 passengers can be appreciated by CTA, upon request and justification provided by Airbus.

**LUIZ ALBERTO C. MUNARETTO – Ten.-Cel.-Av.**  
**Chefe da Divisão de Homologação Aeronáutica**  
**(Chief, Divisão de Homologação Aeronáutica)**

**Maj.-Brig.-do-Ar REGINALDO DOS SANTOS**  
**Diretor do Centro Técnico Aeroespacial**  
**(Director, Centro Técnico Aeroespacial)**