



European Aviation Safety Agency

EASA

**TYPE-CERTIFICATE
DATA SHEET**

EASA.A.186

for

CN-235 / C-295

Type Certificate Holder:

EADS CASA

Avda. de Aragón 404,
28022 Madrid
SPAIN

For Models: CN-235
CN-235-100
CN-235-200
CN-235-300
C-295

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TABLE OF CONTENTS

| | |
|---|-----------|
| SECTION 1: GENERAL (ALL MODELS) | 4 |
| SECTION 2: MODEL CN-235 | 5 |
| I. General | 5 |
| II. Certification Basis | 5 |
| III. Technical Characteristics and Operational Limitations | 5 |
| IV. Operating and Service Instructions | 9 |
| V. Notes | 10 |
| SECTION 3: MODEL CN-235-100 | 11 |
| I. General | 11 |
| II. Certification Basis | 11 |
| III. Technical Characteristics and Operational Limitations | 11 |
| IV. Operating and Service Instructions | 15 |
| V. Notes | 16 |
| SECTION 4: MODEL CN-235-200 | 18 |
| I. General | 18 |
| II. Certification Basis | 18 |
| III. Technical Characteristics and Operational Limitations | 18 |
| IV. Operating and Service Instructions | 22 |
| V. Notes | 23 |
| SECTION 5: MODEL CN-235-300 | 25 |
| I. General | 25 |
| II. Certification Basis | 25 |
| III. Technical Characteristics and Operational Limitations | 26 |
| IV. Operating and Service Instructions | 29 |
| V. Notes | 30 |
| SECTION 6: MODEL C-295 | 32 |
| I. General | 32 |
| II. Certification Basis | 32 |
| III. Technical Characteristics and Operational Limitations | 33 |
| IV. Operating and Service Instructions | 37 |
| V. Notes | 38 |
| SECTION 7: ADMINISTRATIVE | 39 |
| I. Acronyms and Abbreviations | 39 |
| II. Type Certificate Holder Record | 40 |
| III. Change Record | 40 |

SECTION 1: GENERAL (ALL MODELS)

1. Data Sheet No.*: EASA.A.186
2. Airworthiness Category: Large Aeroplanes
3. Performance Category: A
4. Certifying Authority: EASA
5. Type Certificate Holder**:
EADS CASA
Avda. de Aragón 404
28022 Madrid
SPAIN
6. Serial Number eligibility: The aeroplanes covered by this Type Certificate Data Sheet have the Serial Number format C-XXX.
7. Conformity to Civil Type Certificate: The aeroplanes covered by this Type Certificate Data Sheet have an EASA Form 52.

(*): Data Sheet from the Spanish Type Certificate Nr 01/86 remains a valid reference for design data approved before 31 May 2007. Those Data Sheets, or *Hojas de Datos*, as they were issued, in Spanish language, by *Dirección General de Aviación Civil*, DGAC-ES, can, currently, be obtained from *Agencia Estatal de Seguridad Aérea*, AESA. The document references appearing in those Data Sheets, as DGAC-ES approved (*aprobado por DGAC*) documents have been recorded, herein, as “EASA approved” documents.

(**): The former corporate name, *Construcciones Aeronáuticas S.A.*, that was transformed into the current one, *EADS Construcciones Aeronáuticas S.A.*, after a Change of corporate name and object (*Cambio de razón y objeto social*) agreed on 26 February 2001 and formally registered in Madrid Commercial Registry (*Registro Mercantil de Madrid*) on 3 May 2001, was used to identify the TC Holder in all versions of the Data Sheet previous to TCDS EASA.A.186 issue 1, dated 31 May 2007.

SECTION 2: MODEL CN-235

I. General

1. Aeroplane: CN-235

II. Certification Basis

1. Reference Date DGAC-ES Certification: 22 August 1986.

2. Airworthiness Requirements:

Regulation (EC) 1702/2003, Annex Part 21.

US Code of Federal Regulations, Title 14, Part 25 (FAR 25), effective from 1 Feb 1965, including all amendments from 25-1 to 25-54.

Exemption to FAR 25.571(e)(2), granted by DGAC-ES on 24 July 1986.

TC-holder elected to comply with optional requirement FAR 25.1419: Ice protection.

3. Special Conditions:

SC-H-01 "Enhanced Airworthiness Programme for Aeroplane Systems – ICA on EWIS"

4. Equivalent Safety Findings:

ESF to FAR 25.1305(a)(2): "Fuel quantity indicator"

5. Environmental Standards:

ICAO Annex 16, Volume I (Noise), 3rd issue, November 1993.

ICAO Annex 16, Volume II (Fuel system ventilation and exhaust gas), 3rd issue, November 1993

III. Technical Characteristics and Operational Limitations

1. Type Design Definition:

Defined in TC-holder document number DT-86-3010 "List of Drawings of the Certification Configuration".

2. Description:

A high wing, twin-engine turboprop aircraft equipped to carry up to 40 passengers and cargo in a pressurized cabin and intended for short to medium transport routes

3. Dimensions:

| | |
|-----------|-------------------|
| Span | 25.81 m |
| Length | 21.40 m |
| Height | 8.18 m |
| Wing Area | 60 m ² |

4. Engines:

2 Engines General Electric Company
Model CT7-7A free turbine turboprop
Power turbine/propeller reduction gearing 15.9:1.

5. Engine Limits:

The Maximum Continuous and Take off Static Sea Level ratings at ISA:

| Conditions | Rated Shaft Horse Power (SHP) | Residual Thrust (Lb.) | ITT (°C) | Maximum NG (RPM) | Maximum Torque (ft.lb.) | Fuel Specific Consumption (Lb/shp/hr) |
|------------------|-------------------------------|-----------------------|----------|------------------|-------------------------|---------------------------------------|
| Take off (5 min) | 1 700 | 160 | 930 | 45 000 | 413 | 0.478 |
| Max Cont. | 1 700 | 160 | 917 | 44 720 | 413 | 0.487 |

6. Propeller Limits:

Two (2) Propellers Hamilton Standard, Model 14RF-21
Blades: Four (4), Model RFC11L1-0C
Diameter: 3 359 mm Maximum; 3 351 mm Minimum
Blade Angle measured at 1 067 mm radius station:

| | |
|--------------|---------------|
| Ground Idle | -3.7° ± 1.0° |
| Max. Reverse | -12.4° ± 1.3° |
| Feather | 80.8° ± 0.5° |
| Flight Idle | 16.7° ± 0.8° |

Propeller Spinner: P/N 790185-1
Propeller De-icer: Included in Blade P/N

7. Fluid capacities:

Fuel:

| Designation | Specification |
|-------------|---------------|
| JP-8 | MIL-T-83133 |
| Jet A | ASTM D1655 |
| Jet A-1 | ASTM D1655 |
| Jet B | ASTM D1655 |
| JP-4 | MIL-T-5624 |
| JP-5 | MIL-T-5624 |

Usable Fuel (see Note 2.1 for Unusable Fuel)

| Location | | Volume (L) | Weight (Kg) | Moment Arm (mm) |
|------------|------|------------|-------------|-----------------|
| Right Wing | Main | 1 020 | 816 | 10 400 |
| | Aux | 1 590 | 1 272 | 10 476 |
| Left Wing | Main | 1 020 | 816 | 10 400 |
| | Aux | 1 590 | 1 272 | 10 476 |
| Total | | 5 220 | 4 176 | 10 446 |

Fuel weight is based upon fuel density 0.80 Kg/litre.

Pressure fuelling: Maximum pressure for pressure fuelling is 50 psi.

Oil:

| Vol. (L) | Moment Arm (mm) |
|------------------------------------|-----------------|
| 6.9 litres / engine tank | 8 902 |
| 3.6 litres usable / engine tank | |
| 4.7 litres / propeller tank | 8 026 |
| 1.4 litres usable / propeller tank | |

8. Airspeeds (IAS) Limits:

Unless otherwise noted below, airspeeds are indicated airspeeds in knots:

V_{MO} (Maximum Operating)

| | |
|-------------|-----------|
| Sea Level | 240 Knots |
| 20 000 feet | 210 knots |
| 25 000 feet | 190 knots |

(Straight line variation between points)

V_A (Manoeuvring)

Sea Level to 25 000 feet: 160 Knots

V_{FE} (Maximum Flap Extended)

| | |
|----------------|-----------|
| Take off, 8°: | 160 Knots |
| Approach, 10°: | 160 Knots |
| Landing, 23°: | 150 Knots |

V_{LE} (Maximum Landing Gear Extended)

150 Knots

For other Airspeed Limits, see the appropriate "EASA approved" Aircraft Flight Manual, listed herein, for further definition.

9. Maximum Operating Altitude:

25 000 feet

10. Operational Capability:

Day & night VFR and day & night IFR operations when appropriate equipment is installed and operating correctly.

11. Maximum Certified Weights:

| | |
|-----------|-----------|
| Ramp | 14 450 Kg |
| Take off | 14 400 Kg |
| Landing | 14 200 Kg |
| Zero Fuel | 13 600 Kg |

12. Centre of Gravity Range:

See the appropriate "EASA approved" Aircraft Flight Manual, listed herein, for further definition.

13. Datum:

The fuselage datum, Sta. 0.0, is located 2 347 mm forward to the fuselage jig point (rivet), which is located on the underside fuselage skin, immediately forward of fuselage Frame 1A.

14. Mean Aerodynamic Chord:

Length: 2 561 mm
L.E. of MAC: 9 591.29 mm aft of fuselage datum

15. Levelling means:

Plumb-bob suspended from aft face of aft cockpit compartment bulkhead over reticule on floor.

16. Minimum Flight Crew:

Two (2). Pilot and Co-pilot

17. Maximum Passengers:

39 for aircraft with S/N up to C-005; C-005 included (See Note 2.2).
40 for aircraft with S/N from C-006 on.

18. Control Surface Movements:

Elevator: Up $30.0^\circ \pm 0.5^\circ$ Down $15.0^\circ \pm 0.5^\circ$

Up to A/C Serial Number C-005; C-005 included:

Normal & Emergency Elevator Trim Tabs: Up $0.5^\circ \pm 0.5^\circ$ Down $8.5^\circ \pm 0.5^\circ$

From Serial Number C-006 on:

Normal Trim Tab: Up $-0.5^\circ \pm 0.5^\circ$ Down $9.5^\circ \pm 0.5^\circ$

Emergency Trim Tab: Up $2.0^\circ \pm 0.5^\circ$ Down $7.0^\circ \pm 0.5^\circ$

Elevator balance tab:

Up (for $+15^\circ$ elevator) $1.75^\circ \pm 0.5^\circ$

Down (for -30° elevator) $9.50^\circ \pm 0.5^\circ$

Rudder: Right $17.0^\circ \pm 0.25^\circ$ Left $12.0^\circ \pm 0.25^\circ$

Rudder trim tab: Right $5.0^\circ \pm 0.5^\circ$ Left $3.0^\circ \pm 0.5^\circ$

Rudder balance tab:

Right (for $+12^\circ$ rudder) $2.5^\circ \pm 0.25^\circ$

Left (for -17° rudder) $5.0^\circ \pm 0.25^\circ$

Ailerons: Up $20.0^\circ \pm 0.5^\circ$ Down $20.0^\circ \pm 0.5^\circ$

Aileron trim tab: Up $8.0^\circ \pm 0.5^\circ$ Down $8.0^\circ \pm 0.5^\circ$

Aileron balance tabs:

Trailing edge up for aileron 0° : $5.0^\circ \pm 0.5^\circ$

Trailing edge down for aileron 20° up: $8.0^\circ \pm 0.5^\circ$

Trailing edge up for aileron 20° down: $18.0^\circ \pm 0.5^\circ$

Flaps (inner and outer)

Cruise $0.0^\circ \pm 0.5^\circ$

Take off $8.0^\circ \pm 0.5^\circ$

Approach $10.0^\circ \pm 0.5^\circ$

Landing $23.0^\circ \pm 0.5^\circ$

All measurements are taken at trailing edge from neutral position.

IV. Operating and Service Instructions

1. Flight Manuals:

Aircraft Flight Manual for model CN-235: TC-holder document number DT-85-3503.

Aircraft Weight and Balance Control and Loading Data Manual for model CN-235: TC-holder document number DT-85-3502.

Aircraft operation must be in accordance with the Aircraft Flight Manual (AFM) listed above. All placards required in either the approved AFM, the applicable operating rules, or the certification basis must be installed on the aircraft.

2. Mandatory Maintenance Instructions:

For series CN-235, required structural inspections, inspection times and retirement times for structural parts and for components are listed in Section 1.4.2 of TC-holder document number DT-86-3001. Material covered in this section must not be changed without EASA approval.

For series CN-235, system certification maintenance requirements are included in Section 1.4.1 of TC-holder document number DT-86-3001. Material covered in this section must not be changed without EASA approval.

For series CN-235, engine certification maintenance requirements are included in Appendix 1 to Maintenance Review Board Report, TC-holder document number MRB_CN-235-PV01. Material covered in this Appendix must not be changed without EASA approval.

3. Service Letters and Service Bulletins:

The Services Bulletins issued by the TC-holder corresponding to major modifications will be approved by EASA. The Service Bulletins corresponding to minor modifications will be approved by the TC-holder according to the privileges granted via DOA EASA.21J.032 dated July 30th, 2004. In both cases, the Service Bulletins will have the corresponding declaration of approval.

4. Required Equipment:

The basic required equipment, as prescribed in the applicable EASA Regulation, must be installed on the aircraft.

For model CN-235, the approved equipment is related in the TC-holder document number DT-86-3309.

V. Notes

Note 2.1

- a) A current Weight and Balance Manual must be in each aircraft at the time of original airworthiness certification and at all times thereafter except in case an operator has an approved system for weight and balance control.
- b) The aircraft empty weight and corresponding centre of gravity location must include :

Total engine and propeller oil: 21.58 kg in the station 8 545 mm

Hydraulic fluid: 17.70 kg in the station 11 715 mm

Unusable fuel: 34.94 kg listed as follows

| Unusable Fuel | Volume (L) | Weight (Kg) | Arm (mm) |
|---------------------|------------|-------------|----------|
| Drainable | | | |
| Left Wing | 16.08 | 12.91 | 10 406 |
| Right Wing | 16.08 | 12.91 | 10 406 |
| Trapped Fuel | | | |
| Tanks & Fuel Lines | 11.35 | 9.12 | 10 416 |
| Total Unusable Fuel | 43.51 | 34.94 | 10 408 |

- c) The aircraft must be loaded in accordance with section 2 of the approved Aircraft Flight Manual and the C.G. must be within the specified limits at all times.

Note 2.2:

Aircrafts, model CN-235, with serial numbers from C-001 to C-005, inclusive, can be modified to transport 40 passengers according to TC-holder drawing number 35-83292-00.

SECTION 3: MODEL CN-235-100

I. General

1. Aeroplane: CN-235-100

II. Certification Basis

1. Reference DGAC-ES Certification Date: 9 December 1988.

2. Airworthiness Requirements:

Regulation (EC) 1702/2003, Annex Part 21.

US Code of Federal Regulations, Title 14, Part 25 (FAR 25), effective from 1 Feb 1965, including all amendments from 25-1 to 25-59, 25-61 and 25-62.

Exemption to FAR 25.571(e)(2), granted by DGAC-ES on 24 March 1988.

TC-holder elected to comply with optional requirement FAR 25.1419: Ice protection.

3. Special Conditions:

SC-S01/88 "Lightning Protection indirect effects"

SC-S02/88 "External radiation effects on the aircraft systems"

SC-H-01 "Enhanced Airworthiness Programme for Aeroplane Systems – ICA on EWIS"

4. Equivalent Safety Findings:

ESF to FAR 25.1305(a)(2): "Fuel quantity indicator"

5. Environmental Standards:

ICAO Annex 16, Volume I (Noise), 3rd issue, November 1993.

ICAO Annex 16, Volume II (Fuel system ventilation and exhaust gas), 3rd issue, November 1993.

III. Technical Characteristics and Operational Limitations

1. Type Design Definition:

Defined in TC-holder document number DT-87-3003, "List of Drawings of the Certification Configuration".

2. Description:

A high wing, twin-engine turboprop aircraft equipped to carry up to 44 passengers and cargo in a pressurized cabin and intended for short to medium transport routes.

3. Dimensions:

| | |
|-----------|-------------------|
| Span | 25.81 m |
| Length | 21.40 m |
| Height | 8.18 m |
| Wing Area | 60 m ² |

4. Engines:

2 Engines General Electric Company Model CT7-9C free turbine turboprop.
Power turbine/propeller reduction gearing 15.9:1.

5. Engine Limits:

The Maximum Continuous and Take off Static Sea Level ratings at ISA:

| Conditions | Shaft Horse Power (SHP) | Residual Thrust (Lb.) | ITT (°C) | Maximum NG (RPM) | Maximum Torque (ft.lb.) | Fuel Specific Consumption (Lb/shp/hr) |
|-------------------|-------------------------|-----------------------|----------|------------------|-------------------------|---------------------------------------|
| Take off (5 min) | 1 750 | 168 | 921* | 45 300** | 425 | 0.461 |
| Take off (APR on) | 1 870 | 179 | 950 | 45 615 | 454 | 0.455 |
| Max Cont. | 1 750 | 168 | 917 | 45 614 | 425 | 0.461 |

* When OAT is lower than 35°C, ITT limit is 921°C. When OAT is between 35°C and 41°C the ITT limit has a lineal variation with the OAT, from 921°C to 944°C at sea level. When OAT is higher than 41°C the ITT limit is 950°C at sea level.

** If OAT is higher than 41°C, the take off limit with APR on is applied.

6. Propeller Limits:

Two (2) Propellers Hamilton Standard, Model 14RF-21

Blades: Four (4), Model RFC11R1-0C

Diameter: 3 359 mm Maximum; 3 351 mm Minimum

Blade Angle measured at 1 067 mm radius station:

| | |
|--------------|---------------|
| Ground Idle | -3.7° ± 1.0° |
| Max. Reverse | -12.4° ± 1.3° |
| Feather | 80.8° ± 0.5° |
| Flight Idle | 16.7° ± 0.8° |

Propeller Spinner: P/N 790185-1

Propeller De-icer: Included in Blade P/N

7. Fluid capacities:

Fuel:

| Designation | Specification |
|-------------|---------------|
| JP-8 | MIL-T-83133 |
| Jet A | ASTM D1655 |
| Jet A-1 | ASTM D1655 |
| Jet B | ASTM D1655 |
| JP-4 | MIL-T-5624 |
| JP-5 | MIL-T-5624 |

Usable Fuel (see Note 3.1 for Unusable Fuel)

| Location | | Volume (L) | Weight (Kg) | Moment Arm (mm) |
|------------|------|------------|-------------|-----------------|
| Right Wing | Main | 1 020 | 816 | Right Wing |
| | Aux | 1 590 | 1 272 | |
| Left Wing | Main | 1 020 | 816 | Left Wing |
| | Aux | 1 590 | 1 272 | |
| Total | | 5 220 | 4 176 | 10 446 |

Fuel weight is based upon fuel density 0.80 Kg/litre.

Pressure fuelling: Maximum pressure for pressure fuelling is 50 psi.

Oil:

| Vol. (L) | Moment Arm (mm) |
|------------------------------------|-----------------|
| 6.9 litres/ engine tank | 8 902 |
| 3.6 litres usable / engine tank | |
| 4.7 litres/ propeller tank | 8 026 |
| 1.4 litres usable / propeller tank | |

8. Airspeeds (IAS) Limits:

Unless otherwise noted below, airspeeds are indicated airspeeds in knots:

V_{MO} (Maximum Operating) (See Note 3.2)

| | |
|-------------|-----------|
| Sea Level | 240 Knots |
| 20 000 feet | 210 knots |
| 25 000 feet | 190 knots |

(Straight line variation between points)

V_A (Manoeuvring)

Sea Level to 25 000 feet: 160 Knots

V_{FE} (Maximum Flap Extended)

| | |
|---------------|-----------|
| Take off, 10° | 160 Knots |
| Approach, 15° | 160 Knots |
| Landing, 23° | 150 Knots |

V_{LE} (Maximum Landing Gear Extended)

150 Knots

For other Speed Limits, see the appropriate "EASA approved" Aircraft Flight Manual, listed herein, for further definition.

9. Maximum Operating Altitude:

25 000 feet

10. Operational Capability:

Day & night VFR and day & night IFR operations when appropriate equipment is installed and operating correctly.

11. Maximum Certified Weights: (See Note 3.2)

| | |
|-----------|-----------|
| Ramp | 14 450 Kg |
| Take off | 14 400 Kg |
| Landing | 14 200 Kg |
| Zero Fuel | 13 600 Kg |

12. Centre of Gravity Range:

See the appropriate "EASA approved" Aircraft Flight Manual, listed herein, for further definition.

13. Datum:

The fuselage datum, Sta. 0.0, is located 2 347 mm. forward to the fuselage jig point (rivet), which is located on the underside fuselage skin, immediately forward of fuselage Frame 1A.

14. Mean Aerodynamic Chord:

Length: 2 561 mm
L.E. of MAC: 9 591.29 mm aft of fuselage datum

15. Levelling means:

Plumb-bob suspended from aft face of aft cockpit compartment bulkhead over reticule on floor.

16. Minimum Flight Crew:

Two (2). Pilot and Co-pilot

17. Maximum Passengers:

44

18. Control Surface Movements:

Elevator: Up $30.0^\circ \pm 0.5^\circ$ Down $15.0^\circ \pm 0.5^\circ$
Normal Trim Tab: Up $-0.5^\circ \pm 0.5^\circ$ Down $9.5^\circ \pm 0.5^\circ$
Emergency Trim Tab: Up $2.0^\circ \pm 0.5^\circ$ Down $7.0^\circ \pm 0.5^\circ$

Elevator balance tab:
Up (for $+15^\circ$ elevator) $1.75^\circ \pm 0.5^\circ$
Down (for -30° elevator) $9.50^\circ \pm 0.5^\circ$

Rudder: Right $17.0^\circ \pm 0.25^\circ$ Left $12.0^\circ \pm 0.25^\circ$
Rudder trim tab: Right $5.0^\circ \pm 0.5^\circ$ Left $3.0^\circ \pm 0.5^\circ$

Rudder balance tab:
Right (for $+12^\circ$ rudder) $2.5^\circ \pm 0.25^\circ$
Left (for -17° rudder) $5.0^\circ \pm 0.25^\circ$

Ailerons: Up $20.0^\circ \pm 0.5^\circ$ Down $20.0^\circ \pm 0.5^\circ$
Aileron trim tab: Up $8.0^\circ \pm 0.5^\circ$ Down $8.0^\circ \pm 0.5^\circ$

Aileron balance tabs:
Trailing edge up for aileron 0° : $5.0^\circ \pm 0.5^\circ$
Trailing edge down for aileron 20° up: $8.0^\circ \pm 0.5^\circ$
Trailing edge up for aileron 20° down: $18.0^\circ \pm 0.5^\circ$

Flaps (inner and outer)
Cruise $0.0^\circ \pm 0.5^\circ$
Take off $10.0^\circ \pm 0.5^\circ$
Approach $15.0^\circ \pm 0.5^\circ$
Landing $23.0^\circ \pm 0.5^\circ$

All measurements are taken at trailing edge from neutral position

IV. Operating and Service Instructions

1. Flight Manuals:

Aircraft Flight Manual for model CN-235-100: TC-holder document number DT-87-3501
(see Note 3.2).

Aircraft Weight and Balance Control and Loading Data Manual for model CN-235-100:
TC-holder document number DT-88-3503 (see Note 3.2).

Aircraft operation must be in accordance with the Aircraft Flight Manual (AFM) listed above. All placards required in either the approved AFM, the application operating rules, or the certification basis must be installed on the aircraft.

2. Mandatory Maintenance Instructions:

For series CN-235, required structural inspections, inspection times and retirement times for structural parts and for components are listed in Section 1.4.2 of TC-holder document number DT-86-3001. Material covered in this section must not be changed without EASA approval.

For series CN-235, system certification maintenance requirements are included in Section 1.4.1 of TC-holder document number DT-86-3001. Material covered in this section must not be changed without EASA approval.

For series CN-235, engine certification maintenance requirements are included in Appendix 1 to Maintenance Review Board Report, TC-holder document number MRB_CN-235-PV01. Material covered in this Appendix must not be changed without EASA approval.

3. Service Letters and Service Bulletins:

The Services Bulletins issued by the TC-holder corresponding to major modifications will be approved by EASA. The Service Bulletins corresponding to minor modifications will be approved by the TC-holder according to the privileges granted via DOA EASA.21J.032 dated July 30th, 2004. In both cases the Service Bulletins will have the corresponding declaration of approval.

4. Required Equipment:

The basic required equipment as prescribed in the applicable EASA Regulation must be installed on the aircraft.

For CN-235-100 model, the approved equipment is related in the TC-holder document number DT-88-3003 (see Note 3.2).

V. Notes

Note 3.1:

- a) A current Weight and Balance Manual must be in each aircraft at the time of original airworthiness certification and at all times thereafter except in the case an operator having an approved system for weight and balance control.
- b) The aircraft empty weight and corresponding centre of gravity location must include:

Total engine and propeller oil: 21.58 kg in the station 8 545 mm
Hydraulic fluid: 17.70 kg in the station 11 715 mm

Unusable fuel: 34.94 kg listed as follows

| Unusable Fuel | Volume (L) | Weight (Kg.) | Arm (mm) |
|---------------------|------------|--------------|----------|
| Drainable | | | |
| Left Wing | 16.08 | 12.91 | 10 406 |
| Right Wing | 16.08 | 12.91 | 10 406 |
| Trapped Fuel | | | |
| Tanks & Fuel Lines | 11.35 | 9.12 | 10 416 |
| Total Unusable Fuel | 43.51 | 34.94 | 10 408 |

- c) The aircraft must be loaded in accordance with section 2 of the approved Aircraft Flight Manual and the C.G. must be within the specified limits at all times.

Note 3.2:

For aircraft model CN-235-100 that have introduced the Service Bulletin with TC-holder document number SB-235-34-04 or the modification defined in the TC-holder document number CDS 3749, the above limitations established to the magnitudes mentioned below, remain changed in the following way:

Airspeeds

V_{MO} (Maximum operating)

| | |
|-----------|-----------|
| Sea level | 232 knots |
| 20 000 ft | 202 knots |
| 25 000 ft | 182 knots |

Straight line variation between points

Maximum Weights

| | |
|--------------------------|-----------|
| Maximum Ramp | 15 150 kg |
| Maximum Take off | 15 100 kg |
| Maximum Landing | 14 900 kg |
| Maximum Zero Fuel Weight | 14 100 kg |

Aircraft Flight Manual is the TC-holder document number DT-90-3504, being the required equipment as per TC-holder document number DT-88-3003, and the Aircraft Weight and Balance Control and Loading Data Manual as per TC-holder document number DT-90-3505.

SECTION 4: MODEL CN-235-200

I. General

1. Aeroplane: CN-235-200

II. Certification Basis

1. Reference DGAC-ES Certification Date: 27 September 1991

2. Airworthiness Requirements:

Regulation (EC) 1702/2003, Annex Part 21.

US Code of Federal Regulations, Title 14, Part 25 (FAR 25), effective from 1 Feb 1965, including all amendments from 25-1 to 25-59, 25-61 and 25.62.

Exemption to FAR 25.571(e)(2), granted by DGAC-ES on 26 September 1991.

TC-holder elected to comply with optional requirement FAR 25.1419: Ice protection.

3. Special Conditions:

SC-S01/88 "Lightning Protection indirect effects"

SC-S02/88 "External radiation effects on the aircraft systems".

SC-H-01 "Enhanced Airworthiness Programme for Aeroplane Systems – ICA on EWIS"

4. Equivalent Safety Findings:

ESF to FAR 25.1305(a)(2): "Fuel quantity indicator"

5. Environmental Standards:

ICAO Annex 16, Volume I (Noise), 3rd issue, November 1993.

ICAO Annex 16, Volume II (Fuel system ventilation and exhaust gas), 3rd issue, November 1993.

III. Technical Characteristics and Operational Limitations

1. Type Design Definition:

Defined in TC-holder document number DT-91-3215, "CN-235-200 Master Drawing List".

2. Description:

A high wing, twin-engine turboprop aircraft equipped to carry up to 44 passengers and cargo in a pressurized cabin and intended for short to medium transport routes.

3. Dimensions:

| | |
|-----------|-------------------|
| Span | 25.81 m |
| Length | 21.40 m |
| Height | 8.18 m |
| Wing Area | 60 m ² |

4. Engines:

2 Engines General Electric Company Model CT7-9C free turbine turboprop.
Power turbine/propeller reduction gearing 15.9:1.

5. Engine Limits:

The Maximum Continuous and Take off Static Sea Level ratings at ISA:

| Conditions | Shaft Horse Power (SHP) | Residual Thrust (Lb.) | ITT (°C) | Maximum NG (RPM) | Maximum Torque (ft.lb.) | Fuel Specific Consumption (Lb/shp/hr) |
|-------------------|-------------------------|-----------------------|----------|------------------|-------------------------|---------------------------------------|
| Take off (5 min) | 1 750 | 168 | 921* | 45 300** | 425 | 0.461 |
| Take off (APR on) | 1 870 | 179 | 950 | 45 615 | 454 | 0.455 |
| Max Cont. | 1 750 | 168 | 917 | 45 614 | 425 | 0.461 |

* When OAT is lower than 35°C, ITT limit is 921°C. When OAT is between 35°C and 41°C the ITT limit has a lineal variation with the OAT, from 921°C to 944°C at sea level. When OAT is higher than 41°C the ITT limit is 950°C at sea level.

** If OAT is higher than 41°C, the take off limit with APR on is applied.

6. Propeller Limits:

Two (2) Propellers Hamilton Standard, Model 14RF-21

Blades: Four (4), Model RFC11R1-0C

Diameter: 3 359 mm Maximum; 3 351 mm Minimum

Blade Angle measured at 1 067 mm radius station:

| | |
|--------------|---------------|
| Ground Idle | -3.7° ± 1.0° |
| Max. Reverse | -12.4° ± 1.3° |
| Feather | 80.8° ± 0.5° |
| Flight Idle | 16.7° ± 0.8° |

Propeller Spinner: P/N 790185-1

Propeller De-icer: Included in Blade P/N

7. Fluid capacities:

Fuel:

| Designation | Specification |
|-------------|---------------|
| JP-8 | MIL-T-83133 |
| Jet A | ASTM D1655 |
| Jet A-1 | ASTM D1655 |
| Jet B | ASTM D1655 |
| JP-4 | MIL-T-5624 |
| JP-5 | MIL-T-5624 |

Usable Fuel (see Note 4.1 for Unusable Fuel)

| Location | | Volume (L) | Weight (Kg) | Moment Arm (mm) |
|------------|------|------------|-------------|-----------------|
| Right Wing | Main | 1 020 | 816 | 10 400 |
| | Aux | 1 590 | 1 272 | 10 476 |
| Left Wing | Main | 1 020 | 816 | 10 400 |
| | Aux | 1 590 | 1 272 | 10 476 |
| Total | | | 5 220 | 4 176 |

Fuel weight is based upon fuel density 0.80 Kg/litre.

Pressure fuelling: Maximum pressure for pressure fuelling is 50 psi.

Oil:

| Vol. (L) | Moment Arm (mm) |
|------------------------------------|-----------------|
| 6.9 litres/ engine tank | 8 902 |
| 3.6 litres usable / engine tank | |
| 4.7 litres/ propeller tank | 8 026 |
| 1.4 litres usable / propeller tank | |

8. Airspeeds (IAS) Limits:

Unless otherwise noted below, airspeeds are indicated airspeeds in knots:

V_{MO} (Maximum Operating)

| | |
|-------------|-----------|
| Sea Level | 232 Knots |
| 20 000 feet | 202 knots |
| 25 000 feet | 182 knots |

(Straight line variation between points)

V_A (Manoeuvring)

Sea Level to 25 000 feet: 160 Knots

VFE (Maximum Flap Extended)

| | |
|---------------|-----------|
| Take off, 10° | 160 Knots |
| Approach, 15° | 160 Knots |
| Landing, 23° | 150 Knots |

VLE (Maximum Landing Gear Extended)

150 Knots

For other Speed Limits, see the appropriate "EASA approved" Aircraft Flight Manual, listed herein, for further definition.

9. Maximum Operating Altitude:

25 000 feet

10. Operational Capability:

Day & Night VFR and day & Night IFR operations when appropriate equipment is installed and operating correctly

11. Maximum Certified Weights: (See note 4.2)

| | |
|-----------|-----------|
| Ramp | 15 850 Kg |
| Take off | 15 800 Kg |
| Landing | 15 600 Kg |
| Zero Fuel | 14 100 Kg |

12. Centre of Gravity Range:

See the appropriate "EASA approved" Aircraft Flight Manual, listed herein, for further definition

13. Datum:

The fuselage datum, Sta. 0.0, is located 2 347 mm. forward to the fuselage jig point (rivet), which is located on the underside fuselage skin, immediately forward of fuselage Frame 1A.

14. Mean Aerodynamic Chord:

Length: 2 561 mm
L.E. of MAC: 9 591.29 mm aft of fuselage datum

15. Levelling means:

Plumb-bob suspended from aft face of aft cockpit compartment bulkhead over reticule on Floor.

16. Minimum Flight Crew:

Two (2). Pilot and Co-pilot

17. Maximum Passengers:

44

18. Control Surface Movements:

Elevator: Up $30.0^\circ \pm 0.5^\circ$ Down $15.0^\circ \pm 0.5^\circ$
Normal Trim Tab: Up $-0.5^\circ \pm 0.5^\circ$ Down $11^\circ \pm 0.5^\circ$
Emergency Trim Tab: Up $-2.0^\circ \pm 0.5^\circ$ Down $+7.0^\circ \pm 0.5^\circ$

Elevator balance tab:
Up (for $+15^\circ$ elevator) $1.75^\circ \pm 0.5^\circ$
Down (for -30° elevator) $9.50^\circ \pm 0.5^\circ$

Rudder: Right $-19.0^\circ \pm 0.5^\circ$ Left $+15.0^\circ \pm 0.5^\circ$
Rudder trim tab: Right $-5.0^\circ \pm 0.5^\circ$ Left $+3.0^\circ \pm 0.5^\circ$

Rudder balance tab:
Right (for -19° rudder) $+5,25^\circ \pm 0.5^\circ$
Left (for $+15^\circ$ rudder) $-2.0^\circ \pm 0.5^\circ$
 ± 0.5 of Trim corresponds to 0° of Rudder

Ailerons: Up $-20.0^\circ \pm 0.5^\circ$ Down $+20.0^\circ \pm 0.5^\circ$
Aileron trim tab: Up $-8.0^\circ \pm 0.5^\circ$ Down $+8.0^\circ \pm 0.5^\circ$

Aileron balance tabs:
Trailing edge up for aileron 0° : $5.0^\circ \pm 0.5^\circ$
Trailing edge down for aileron 20° up: $8.0^\circ \pm 0.5^\circ$
Trailing edge up for aileron 20° down: $18.0^\circ \pm 0.5^\circ$

Flaps (inner and outer)
Cruise $0.0^\circ \pm 0.5^\circ$
Take off $10.0^\circ \pm 0.5^\circ$
Approach $15.0^\circ \pm 0.5^\circ$
Landing $23.0^\circ \pm 0.5^\circ$

All measurements are taken at trailing edge from neutral position.

IV. Operating and Service Instructions

1. Flight Manuals:

Aircraft Flight Manual for model CN-235-200: TC-holder document number DT-91-3501.

Aircraft Weight and Balance Control and Loading Data Manual for model CN-235-200:
TC-holder document number DT-91-3502.

Aircraft operation must be in accordance with the Aircraft Flight Manual (AFM) listed above. All placards required in either the approved AFM, the application operating rules, or the certification basis must be installed on the aircraft.

Aircrafts, model CN-235-200, equipped with a Flight Management System installed according to TC-holder Service Bulletin number SB-235-34-25 must be operated in accordance with Aircraft Flight Manual, TC-holder document number DT-91-3501, and Supplement n° 17 to the referenced AFM.

Aircrafts, model CN-235-200, that have incorporated the special operation kit defined in TC-holder document number DT-96-3003 must be operated according to the specific revision n°4 to the Aircraft Flight Manual, TC-holder document number DT-91-3501. In this configuration, the aircrafts are limited to operations with NO PASSENGER AND NO LOAD, since this configuration has not been evaluated with the compliance of airworthiness requirements relative to compartments that have passengers or loads.

2. Mandatory Maintenance Instructions:

For series CN-235, required structural inspections, inspection times and retirement times for structural parts and for components are listed in Section 1.4.2 of TC-holder document number DT-86-3001. Material covered in this section must not be changed without EASA approval.

For series CN-235, system certification maintenance requirements are included in Section 1.4.1 of TC-holder document number DT-86-3001. Material covered in this section must not be changed without EASA approval.

For series CN-235, engine certification maintenance requirements are included in Appendix 1 to Maintenance Review Board Report, TC-holder document number MRB_CN-235-PV01. Material covered in this Appendix must not be changed without EASA approval.

3. Service Letters and Service Bulletins:

The Services Bulletins issued by the TC-holder corresponding to major modifications will be approved by EASA. The Service Bulletins corresponding to minor modifications will be approved by TC-Holder according to the privileges granted via DOA EASA.21J.032 dated July 30th, 2004. In both cases the Service Bulletins will have the corresponding declaration of approval.

4. Required Equipment:

The basic required equipment as prescribed in the applicable EASA Regulation must be installed in the aircraft.

For model CN-235-200, the approved equipment is related in the TC-holder document number DT-90-3016.

V. Notes

Note 4.1:

- a) A current Weight and Balance Manual must be in each aircraft at the time of original airworthiness certification and at all times thereafter except in case an operator has an approved system for weight and balance control.
- b) The aircraft empty weight and corresponding centre of gravity location must include (applicable to CN-235 series):

Total engine and propeller oil: 21.58 kg in the station 8 545 mm
Hydraulic fluid: 17.70 kg in the station 11 715 mm
Unusable fuel: 34.94 kg listed as follows

| Unusable Fuel | Volume (L) | Weight (Kg.) | Arm (mm) |
|---------------------|------------|--------------|----------|
| Drainable | | | |
| Left Wing | 16 .08 | 12 .91 | 10 406 |
| Right Wing | 16 .08 | 12 .91 | 10 406 |
| Trapped Fuel | | | |
| Tanks & Fuel Lines | 11 .35 | 9 .12 | 10 416 |
| Total Unusable Fuel | 43 .51 | 34 .94 | 10 408 |

- c) The aircraft must be loaded in accordance with section 2 of the approved Aircraft Flight Manual and the C.G. must be within the specified limits at all times

Note 4.2:

Aircrafts, model CN-235-100, incorporating TC-holder Service Bulletins numbers SB-235-11-06 and SB-235-11-10, conform to the design definition of CN-235-200 model. In case the modifications of SB-235-11-10 are not introduced in the aircraft, the limitations established for the CN-235-200 with respect to the magnitudes mentioned below remain changed in the following way:

Maximum Weights

| | |
|--------------------------|-----------|
| Maximum Ramp | 15 150 kg |
| Maximum Take off | 15 100 kg |
| Maximum Landing | 14 900 kg |
| Maximum Zero Fuel Weight | 14 100 kg |

The applicable Aircraft Flight Manual is TC-holder document number DT-90-3506, the required equipment is as per TC-holder document number DT-91-3017, and the Aircraft Weight and Balance Control and Loading Data Manual as per TC-holder document number DT-90-3507.

SECTION 5: MODEL CN-235-300

I. General

1. Aeroplane: CN-235-300

II. Certification Basis

1. Reference DGAC-ES Certification Date: 9 December 1998
2. Airworthiness Requirements:

Regulation (EC) 1702/2003, Annex Part 21.

US Code of Federal Regulations, Title 14, Part 25 (FAR 25), effective from 1 Feb 1965, including the following amendments:

25-1 to 25-59, 25-61 to 25-62,
section 25.365(e) to amendment 25-71,
sections 25.571(e)(2), 25.905(d) to amdt 25-72
and section 25.1316 (only IEDS) to amdt. 25-80

TC-holder elected to comply with FAR 25.1419, to its initial issue, and, partially, to its amdt. 25-72 (only airframe ice protection).

Additionally, versions AE01, AE02, L302, SM01 and L303 have shown compliance with the following sections of FAR:

section 25.1457, to amendment 25-65;
sections 25.307, 25.613, 25.723, 25.731, 25.733, 25.773, 25.791, 25.803, 25.809,
25.1307, 25.1351, 25.1381, 25.1557, 25.1581, 25.1583 to amendment 25-72,
section 25.851 to amendment 25-74;
section 25.729 to amendment 25-75;
sections 25.1411, 25.1423 to amendment 25-79; section 25.519 to amendment 25-81;
section 25.853 to amendment 25-83;
sections 25.783, 25.785, 25.810, 25.811, 25.812, 25.813 to amendment 25-88;
section 25.831 to amendment 25-89;
section 25.561 to amendment 25-91;
sections 25.855, 25.857, 25.858 to amendment 25-93;
section 25.807 to amendment 25-94

Additionally, for SM01 version, TC-holder elected to comply with FAR 25.856 Amdt. 111. Additionally, for L303 version, TC-holder elected to comply with FAR 25.1316 Amdt. 80, only for equipment and systems performing critical and essential hazardous (severe major) functions and with CRI F-1, "HIRF Protection"

3. Special Conditions:

SC-S01/88 "Lightning Protection indirect effects"

Not applicable, in this model, to the IEDS system

SC-S02/88 "External radiation effects on the aircraft systems"

SC-H-01 "Enhanced Airworthiness Programme for Aeroplane Systems – ICA on EWIS"

4. Equivalent Safety Findings:

ESF to FAR 25.1305 (a)(2): "Fuel Quantity Indicator".

For SM01 version, ESF to FAR 25.855 and 25.857: Cargo compartment in ramp area (Ref. CRI D-2).

5. Environmental Standards:

ICAO Annex 16, Volume I (Noise), 3rd issue.

For SM01 version: 4th issue

ICAO Annex 16, Volume II (Fuel system ventilation and exhaust gas), 3rd issue.

For SM01 version: 4th issue.

III. Technical Characteristics and Operational Limitations

1. Type Design Definition:

Defined in TC-holder document number DT-98-3308, "Type Design Standard Model CN-235-300 Version CS05".

2. Description:

A high wing, twin-engine turboprop aircraft equipped to carry up to 44 passengers and cargo in a pressurized cabin and intended for short to medium transport routes.

3. Dimensions:

| | |
|-----------|-------------------|
| Span | 25 .81 m |
| Length | 21 .40 m |
| Height | 8 .18 m |
| Wing Area | 60 m ² |

4. Engines:

2 Engines General Electric Company Model CT7-9C3, free turbine turboprop.
Power turbine /propeller gearing 15.9:1.

5. Engine Limits:

The Maximum Continuous and Take off Static Sea Level ratings at ISA:

| Operation Conditions | Operations Limits | | | | |
|----------------------|-------------------|---------------|----------------|--------------------------|-------|
| | Shaft Horse Power | ITT (°C) | Engine RPM (%) | Torque Meter Reading (%) | ESHP |
| Take off (5 minutes) | 1 750 | (a)(b) 917 | 101.3 | (c) 100 | 1 816 |
| Maximum Continuous | 1 750 | 944 | 102.0 | 100 | 1 816 |
| Take off (APR on) | 1 870 | (b) 940 | 102.0 | 107 | 1 942 |

- (a) The shown temperature value is the absolute maximum. See the appropriate "EASA Approved" Flight Manual listed below for the maintained ITT limits in relation with the environmental conditions.
- (b) Up to 10°C over-temperature are permitted over the maintained ITT values, for a maximum of two minutes.
- (c) The shown torque value is the absolute maximum. See the appropriate "EASA Approved" Aircraft Flight Manual listed below for the maintained ITT limits in relation with the environmental conditions.

6. Propeller Limits:

Two (2) Propellers Hamilton Standard,
Model 14 RF-37
Blades: Four (4), Model RFA12A1-POC
Diameter: 3 679 mm (144.84 in.)
Prohibited % rpm interval: 47% to 71%

7. Fluid capacities:

Fuel:

| Designation | Specification |
|-------------|---------------|
| JP-8 | MIL-T-83133 |
| Jet A | ASTM D1655 |
| Jet A-1 | ASTM D1655 |
| Jet B | ASTM D1655 |
| JP-4 | MIL-T-5624 |
| JP-5 | MIL-T-5624 |

Usable Fuel: (see Note 5.1 for Unusable Fuel)

| Location | | Volume (L) | Weight (Kg) | Moment Arm (mm) |
|------------|------|------------|-------------|-----------------|
| Right Wing | Main | 1 020 | 1 040 | 275 |
| | Aux | 1 590 | 1 592 | 420 |
| Left Wing | Main | 1 020 | 1 040 | 275 |
| | Aux | 1 590 | 1 592 | 420 |
| Total | | 5.220 | 5 260 | 1 391 |

Fuel weight is based upon fuel density 0.80 Kg/litre.

Pressure fuelling: maximum pressure for pressure fuelling is 50 psi.

Oil:

| Vol. (L) | Moment Arm (mm) |
|------------------------------------|-----------------|
| 6.9 litres/ engine tank | 8 902 |
| 3.6 litres usable / engine tank | |
| 4.7 litres/ propeller tank | 8 026 |
| 1.4 litres usable / propeller tank | |

8. Airspeed Limits (IAS):

Unless otherwise noted below, airspeeds are indicated airspeeds in knots:

V_{MO} (Maximum Operating)

| | |
|-------------|-----------|
| Sea Level | 232 Knots |
| 20 000 feet | 202 knots |
| 25 000 feet | 182 knots |

(Straight line variation between points)

V_A (Manoeuvring)

Sea Level to 25 000 feet: 160 Knots

V_{FE} (Maximum Flap Extended)

| | |
|---------------|-----------|
| Take off, 10° | 160 Knots |
| Approach, 15° | 160 Knots |
| Landing, 23° | 150 Knots |

V_{LE} (Maximum Landing Gear Extended)

150 Knots

For other Speed Limits, see the appropriate "EASA approved" Aircraft Flight Manual, listed herein, for further definition.

9. Maximum Operating Altitude:

25 000 feet

10. Operational Capability:

Day & night VFR and day & night IFR operations when appropriate equipment is installed and operating correctly.

11. Maximum Certified Weights:

| | |
|-----------|-----------|
| Ramp | 15 850 Kg |
| Take off | 15 800 Kg |
| Landing | 15 600 Kg |
| Zero Fuel | 14 100 Kg |

12. Centre of Gravity Range:

See the appropriate "EASA approved" Aircraft Flight Manual, listed herein, for further definition.

13. Datum:

The fuselage datum, Sta. 0.0, is located 2 347 mm. forward to the fuselage jig point (rivet), which is located on the underside fuselage skin, immediately forward of fuselage Frame 1A.

14. Mean Aerodynamic Chord:

Length: 2 561 mm
L.E. of MAC: 9 591.29 mm aft of fuselage datum

15. Levelling means:

Plumb-bob suspended from aft face of aft cockpit compartment bulkhead over reticule on floor.

16. Minimum Flight Crew:

Two (2). Pilot and Co-pilot (see Note 5.4)

17. Maximum Passengers:

44

18. Control Surface Movements:

Elevator: Up $30.0^\circ \pm 0.5^\circ$ Down $15.0^\circ \pm 0.5^\circ$
Normal Trim Tab: Up $-0.5^\circ \pm 0.5^\circ$ Down $11^\circ \pm 0.5^\circ$
Emergency Trim Tab: Up $-2.0^\circ \pm 0.5^\circ$ Down $+7.0^\circ \pm 0.5^\circ$

Elevator balance tab:
Up (for $+15^\circ$ elevator) $1.75^\circ \pm 0.5^\circ$
Down (for -30° elevator) $9.50^\circ \pm 0.5^\circ$

Rudder: Right $-19.0^\circ \pm 0.5^\circ$ Left $+15.0^\circ \pm 0.5^\circ$
Rudder trim tab: Right $-5.0^\circ \pm 0.5^\circ$ Left $+3.0^\circ \pm 0.5^\circ$

Rudder balance tab:
Right (for -19° rudder) $+5,25^\circ \pm 0.5^\circ$
Left (for $+15^\circ$ rudder) $-2.0^\circ \pm 0.5^\circ$
 ± 0.5 of Trim corresponds to 0° of Rudder

Ailerons: Up $-18.0^\circ \pm 0.5^\circ$ Down $+18.0^\circ \pm 0.5^\circ$
Aileron trim tab: Up $-8.0^\circ \pm 0.5^\circ$ Down $+8.0^\circ \pm 0.5^\circ$

Aileron balance tabs:
Trailing edge up for aileron 0° : $5.0^\circ \pm 0.5^\circ$
Trailing edge down for aileron 20° up: $8.0^\circ \pm 0.5^\circ$
Trailing edge up for aileron 20° down: $18.0^\circ \pm 0.5^\circ$

Flaps (inner and outer)
Cruise $0.0^\circ \pm 0.5^\circ$
Take off $10.0^\circ \pm 0.5^\circ$
Approach $15.0^\circ \pm 0.5^\circ$
Landing $23.0^\circ \pm 0.5^\circ$

All measurements are taken at trailing edge from neutral position.

IV. Operating and Service Instructions

1. Flight Manuals:

Aircraft Flight Manual for model CN-235-300: TC-holder document number DT-98-3002..

Aircraft Weight and Balance Control and Loading Data Manual for model CN-235-300:
TC-holder document number DT-98-3003.

Aircraft operation must be in accordance with the Aircraft Flight Manual (AFM) listed above. All placards required in either the approved AFM, the application operating rules, or the certification basis must be installed in the aircraft.

2. Mandatory Maintenance Instructions:

For series CN-235, required structural inspections, inspection times and retirement times for structural parts and for components are listed in Section 1.4.2 of TC-holder document number DT-86-3001. Material covered in this section must not be changed without EASA approval.

For series CN-235, system certification maintenance requirements are included in Section 1.4.1 of TC-holder document number DT-86-3001. Material covered in this section must not be changed without EASA approval.

For series CN-235, engine certification maintenance requirements are included in Appendix 1 to Maintenance Review Board Report, TC-holder document number MRB_CN-235-PV01. Material covered in this Appendix must not be changed without EASA approval.

3. Service Letters and Service Bulletins:

The Services Bulletins issued by the TC-holder corresponding to major modifications will be approved by EASA. The Service Bulletins corresponding to minor modifications will be approved by the TC-holder according to the privileges granted via DOA EASA.21J.032 dated July 30th, 2004. In both cases the Service Bulletins will have the corresponding declaration of approval.

4. Required Equipment:

The basic required equipment as prescribed in the applicable EASA Regulation must be installed on the aircraft.

For model CN-235-300, the approved equipment is related in the TC-holder document number DT-98-3016,

For version AE-01 of model CN-235-300, the approved equipment is related in the TC-holder document number DT-02-3002.

V. Notes

Note 5.1:

- a) A current Weight and Balance Manual must be in each aircraft at the time of original airworthiness certification and at all times thereafter except in case an operator has an approved system for weight and balance control.
- b) The aircraft empty weight and corresponding centre of gravity location must include (applicable to CN-235 series):

Total engine and propeller oil of 21.58 kg in the station 8 545 mm
Hydraulic fluid of 17.70 kg in the station 11 715 mm
Unusable fuel: 34.94 kg listed as follows:

| Unusable Fuel | Volume (L) | Weight (Kg.) | Arm (mm) |
|---------------------|------------|--------------|----------|
| Drainable | | | |
| Left Wing | 16.08 | 12.91 | 10 406 |
| Right Wing | 16.08 | 12.91 | 10 406 |
| Trapped Fuel | | | |
| Tanks & Fuel Lines | 11.35 | 9.12 | 10 416 |
| Total Unusable Fuel | 43.51 | 34 .94 | 10 408 |

- c) The aircraft must be loaded in accordance with section 2 of the approved Aircraft Flight Manual and the C.G. must be within the specified limits at all times.

Note 5.2:

The version AE-01 of model CN-235-300 remains defined with the incorporation of the design modifications (CDS's) TC-holder document numbers 31383, 31384, 31385, 31386, 31387, 31388, 31389, 31390, 31391, 31409, and 31413.

The TC-holder Service Bulletin number SB-235-25-56, for the AE-01 version of CN-235-300, allows the conversion of personnel transport configuration to load configuration and vice versa. In the configuration of personnel transport, the maximum number of passengers is 19.

Note 5.3:

The version L3-02 of model CN-235-300 is defined with the introduction of TC-holder Service Bulletin number SB-235-11-27

The TC-holder Service Bulletin number SB-235-25-56 for version L3-02 of model CN-235-300 allows the conversion of configuration from personnel transport to cargo transport and vice versa. In the configuration of personnel transport, the maximum number of passenger is 19.

Note 5.4:

The Version SM01 of model CN-235-300 has a Minimum Crew of Three (3). Pilot, Co-pilot and Dropmaster / Cargo Observer.

Note 5.5:

For the Version SM01 of model CN-235-300, the TC-holder Service Bulletin number SB-235-25-62 allows the conversion from Maritime patrol configuration to Cargo transport configuration and the TC-holder Service Bulletin number SB-235-25-63 for conversion from Cargo transport configuration to Maritime patrol configuration.

Additionally, the TC-holder Service Bulletin number SB-235-25-64 allows the conversion from Maritime patrol configuration to Maritime patrol configuration with Cargo Handling System in ramp area, and the TC-holder Service Bulletin number SB-235-25-65 allows the conversion from Maritime patrol configuration with Cargo Handling System in ramp area to Maritime patrol configuration.

SECTION 6: MODEL C-295

I. General

1. Aeroplane: C-295

II. Certification Basis

1. Reference DGAC-ES Certification Date: 2 December 1999.

2. EASA Certification Basis:

Regulation (EC) 1702/2003, Annex Part 21.

US Code of Federal Regulations, Title 14, Part 25 (FAR 25), effective from 1 Feb 1965, including the all amendments from 25-1 to 25-89, additionally section 25.351 to amendment 25-91. The amendment 25-64 has not shown compliance with the section 25.562 (c)(5).

Exemption to FAR 25.571(e)(1), granted by DGAC-ES on 29 October 1998.

TC-holder elected to comply with FAR 25.1419 Ice protection and 14 CFR Part 25, amendment 25-92 "Improved standards for go around performances ".

3. Special Conditions:

SC-F-1 "Effect of external radiation over aircraft systems"

SC-E-2 "Power Control Automatic System"

SC-H-01 "Enhanced Airworthiness Programme for Aeroplane Systems – ICA on EWIS"

4. Equivalent Safety Findings:

In relation with the regulation 14 CFR Section 25.1149: Propeller speed and pitch controls.

Use the stall speed to 1-g to show compliance with the corresponding paragraphs of 14 CFR Part 25 instead of "Minimum Speed" in stall.

5. Environmental Standards:

ICAO Annex 16, Volume I (Noise), 3rd issue, November 1993.

ICAO Annex 16, Volume II (Fuel system ventilation and exhaust gas), 3rd issue, November 1993.

III. Technical Characteristics and Operational Limitations

1. Type Design Definition:

Defined in TC-holder technical document number DT-5-ADG-99001 "Type Design Standard Model C-295"

2. Description:

A high wing, twin-engine turboprop aircraft equipped to carry cargo in a pressurized cabin and intended for short to medium transport routes.

3. Dimensions:

| | |
|-----------|-------------------|
| Span | 25. 81 m |
| Length | 24. 50 m |
| Height | 8. 66 m |
| Wing Area | 60 m ² |

4. Engines:

2 Engines Pratt & Whitney of Canada
Model P&WC 127G, free turbine turboprop.
Power turbine / propeller gearing 16.6:1.

5. Engine Limits:

The Maximum Continuous and Take off Static Sea Level ratings at ISA:

| Operation Condition | Max. Torque % | Max. ITT °C | Max. % NG | Max. % NP |
|---|---------------|-------------|-----------|-----------|
| Normal Take off NTO (Two engines operative) (5 minutes) | 101 | 765 (1) | 102.3 | 101 |
| Take off (One engine inoperative) (5 minutes) | 112 | 800 | 103.7 | 101 |
| Transient (20 seconds) | 125 | 840 | 104.3 | 120 (2) |
| Maximum continuous | 112 | 800 | 103.7 | 101 |

Maximum continuous power; although authorized for non-limited periods, is for use in abnormal conditions (for instance Operations with one engine inoperative, important ice accumulation over the structure, compliance with CTA requirements, or when the obstacles require a descent angle according to pilot decision).

The corresponding transient limit is further restricted to five seconds.

6. Propeller Limits:

Two (2) Propellers Hamilton Standard, Model HSD 568F-5
Blades: Six (6), Model R815505-4
Diameter: 3 932 mm (12.9 ft.)

7. Fluid capacities:

Fuel:

| Designation | Specification |
|-------------|---------------|
| JP-8 | MIL-T-83133 |
| Jet A | ASTM D1655 |
| Jet A-1 | ASTM D1655 |
| Jet B | ASTM D1655 |
| JP-4 | MIL-T-5624 |
| JP-5 | MIL-T-5624 |

Usable Fuel:

| Location | | Volume (L) | Weight (Kg) | Moment Arm (mm) |
|------------|------|------------|-------------|-----------------|
| Right Wing | Main | 1 605 | 1 284 | 10 419 |
| | Aux | 2 161 | 2 029 | 10 487 |
| Left Wing | Main | 1 605 | 1 284 | 10 419 |
| | Aux | 2 161 | 2 029 | 10 487 |
| Total | | 8 532 | 7 626 | |

Fuel weight is based upon fuel density 0.80 Kg/litre

Pressure fuelling: maximum pressure for pressure fuelling is 50 psi

Oil:

| Vol. (L) | Moment Arm (mm) |
|----------------------------------|-----------------|
| 23.02 litres/ engine tank | 8 931 |
| 7.27 litres usable / engine tank | 8 835 |

8. Airspeed Limits (IAS):

Unless otherwise noted below, airspeeds are indicated airspeeds in knots:

V_{MO} (Maximum Operating)

| | |
|-------------|-----------|
| Sea Level | 245 Knots |
| 7 000 feet | 254 Knots |
| 14 000 feet | 245 knots |
| 25 000 feet | 200 knots |

(Straight line variation between points)

V_A (Manoeuvring)

Sea Level to 25 000 feet: 190 Knots

V_{FE} (Maximum Flap Extended)

| | |
|---------------|-----------|
| Take off, 10° | 185 Knots |
| Approach, 15° | 180 Knots |
| Landing, 23° | 175 Knots |

V_{LO} V_{LE} (Operations speeds of landing gear): 175 Knots
 $V_{LO} = V_{LE}$

For other Speed Limits, see Section 2 of the appropriate “EASA approved” Aircraft Flight Manual, listed herein, for further definition.

9. Maximum Operating Altitude:

25 000 feet

10. Operational Capability:

Day & night VFR and day & night IFR operations when appropriate equipment is installed and operating correctly.

11. Maximum Certified Weights:

| | |
|-------------|-----------|
| Ramp: | 21 050 Kg |
| Take off: | 21 000 Kg |
| Landing: | 20 700 Kg |
| Zero Fuel : | 18 500 Kg |

12. Centre of Gravity Range:

See the appropriate “EASA approved” Aircraft Flight Manual, listed herein, for further definition.

13. Datum:

The fuselage datum, Sta. 0.0, is located 843 mm forward to the fuselage jig point (rivet), which is located on the underside fuselage skin.

14. Mean Aerodynamic Chord:

Length: 2 561 mm
L.E. of MAC: 9 591.29 mm aft of fuselage datum

15. Levelling means:

Plumb-bob suspended from aft face of aft cockpit compartment bulkhead over reticule on floor.

16. Minimum Flight Crew:

Two (2). Pilot and Co-pilot

17. Maximum Passengers:

Not Applicable for Cargo Configuration

18. Control Surface Movements:

Elevator: Up -25.0° Down $+12.5^\circ$
Normal Trim Tab: Up $+0^\circ$ Down $+12^\circ$
Emergency Trim Tab: Up 0° Down $+12^\circ$
Elevator Balance Tab:
Up (for $+12.5^\circ$ elevator) -2.2°
Down (for -25° elevator) $+7.7^\circ$

Rudder (See Note 6.1):
Right -19.0° (-22° in Expander Mode)
Left $+12.0^\circ$ ($+16.5^\circ$ in Expander Mode)
Rudder trim tab:
Right -5.0° (-7° in Standby trim)
Left $+5^\circ$ ($+7^\circ$ in Standby trim)
Rudder Balance Tab
(For nominal maximum deflection)
Right (for -19° rudder) -7.7°
Left (for $+12^\circ$ rudder) $+2.4^\circ$

Ailerons (See Note 6.1)
Up -18° Down $+18^\circ$
Ailerons Trim Tabs Up -8.0° Down $+8.0^\circ$

Ailerons balance tabs
(for maximum deflection)
Trailing edge up for aileron 0° : $+5^\circ$
Trailing edge down for aileron $+18^\circ$: up: -6.7°
Trailing edge up for aileron -18° down: $+16.7^\circ$

Flaps (inner and outer)
Cruise 0.0°
Take off 10.0°
Approach 15.0°
Landing 23.0°

All measurements are taken at trailing edge from neutral position.
All measurements have a tolerance of $\pm 0.5^\circ$

IV. Operating and Service Instructions

1. Flight Manuals:

Aircraft Flight Manual for model C-295: TC holder document number DT-5-C-97-5006.
Aircraft Weight and Balance Control and Loading Data Manual for model C-295: TC-holder document number DT-5-C-97-5007.

Aircraft operation must be in accordance with the Aircraft Flight Manual (AFM) listed above. All placards required in either the approved AFM, the application operating rules, or the certification basis must be installed on the aircraft.

2. Mandatory Maintenance Instructions:

For model C-295, required structural inspections, inspection times and retirement times for structural parts and for components are listed in Section 1.4.2 of TC-holder document number DT-5-C-99-5008. Material covered in this section must not be changed without EASA approval.

For model C-295, system certification maintenance requirements are included in Section 1.4.1 of TC-holder document number DT-5-C-99-5008. Material covered in this section must not be changed without EASA approval.

For model C-295, engine certification maintenance requirements are included in Appendix 1 to Maintenance Review Board Report, TC-holder document number MRBR_C-295_PV01. Material covered in this Appendix must not be changed without EASA approval.

3. Service Letters and Service Bulletins:

The Services Bulletins issued by the TC-holder corresponding to major modifications will be approved by EASA. The Service Bulletins corresponding to minor modifications will be approved by the TC-Holder according to the privileges granted via DOA EASA.21J.032 dated July 30th, 2004. In both cases the Service Bulletins will have the corresponding declaration of approval.

4. Required Equipment:

The basic required equipment as prescribed in the applicable EASA Regulation must be installed on the aircraft.

For model C-295, the approved equipment is related in the TC-holder document number DT-5-C-99-5005.

V. Notes

Note 6.1:

A modification has been approved relative to the design of Flight Controls of model C-295, referenced in the modification sheets (CDS), TC-holder document numbers S30301, S30333, S30307, S30338, S30305, S30306, S30331 and S30337. This modification is effective for all serial numbers from 0001 upward and established the new movements as follows:

Aileron

Nominal movement $\pm 21^\circ \pm 0,5^\circ$

Rudder Variables End System Movements

Nominal movement $-21^\circ \pm 0,5^\circ$; $+12,5^\circ \pm 0,5^\circ$

Flight movement $-23^\circ \pm 0,5^\circ$; $+16,5 \pm 0,5^\circ$

Ground movement $-25^\circ \pm 0,5^\circ$; $+18,8 \pm 0,5^\circ$

Aircrafts, model C-295, with this modification introduced must be operated according to the Specific Revision N° 2 to the Aircraft Flight Manual, TC-holder document number DT-5-97-5007, "C-295 DGAC approved Aircraft Flight Manual".

For aircrafts, model C-295, with this modification introduced the following revisions of TC-holder documents apply:

- Revision "C" of DT-5-C-99-5005, "C-295 Equipment List", and
- the Revision "C" of DT-5-ADG-99001, "Type Design Standard model C-295".

SECTION 7: ADMINISTRATIVE

I. Acronyms and Abbreviations

A/C: aircraft
AESA: *Agencia Estatal de Seguridad Aérea* (State Agency for Aviation Safety)
APR: automatic power reserve
Aux: auxiliar
CASA: *Construcciones Aeronáuticas S.A.* (Aeronautical Constructions Company)
CDS: change data sheet
C.G.: centre of gravity
DGAC: *Dirección General de Aviación Civil* (General Directorate for Civil Aviation)
DOA: design organisation approval
DT: *documento técnico* (technical document)
EADS: European Aeronautic Defence and Space Company
EASA: European Aviation Safety Agency
EC: European Commission
ES: *España* (Spain)
ESF: equivalent safety finding
ESHP: equivalent shaft horse power
FAR: federal aviation rules
ft: feet
hr: hour
IAS: indicated airspeed
ICAO: International Civil Aviation Organisation
IFR: instrumental flight rules
ISA: International Standard Atmosphere
ITT: inter-turbine temperature
Kg: kilograms
L: litre
L.E.: leading edge
lbs: pounds
Max.: maximum
Max Cont.: maximum continuous
m: metres
m²: square metres
min: minutes
mm: millimetres
MRB: maintenance review board
NG: revolutions per minute of the gas generator
OAT: outside ambient temperature
P/N. part number
psi: pounds per square inch
Ref.: reference
RPM: revolutions per minute
SB. service bulletin
SC: special condition
SHP: shaft horse power
S/N: serial number
Sta.: station
TC: type certificate
US: United States
VFR: visual flight rules

II. Type Certificate Holder Record

EADS CASA
Avda. de Aragón 404
28022 Madrid
SPAIN

III. Change Record

| Issue | Date | Changes | TC issue |
|-----------|------------|---|------------------------------|
| Issue 1.0 | 31/05/2007 | Initial Issue | Initial Issue, 31/05/2007 |
| Issue 2.0 | 10/01/2011 | <ul style="list-style-type: none"> - <u>All pages</u>: transfer to EASA Form NR 90C. - <u>Front cover</u>: rewriting of TC-holder and models names, following the publication by EASA of the lists of EU products. - <u>Section 1</u>: addition of explanations about the TC-holder and the certifying authority history. - <u>Sections 2 thru 5, paragraph II.3</u>: addition of reference to SC-H-01, following completion of EU EWIS-ICAs program. - <u>Section 4, paragraph II.2</u>: addition of references to elected-to-comply requirements, following EASA certification of version L303. - <u>All pages</u>: stylistic changes, following EASA document WI-CAP-00002-001 guidelines. | 31/05/2007 |
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