

I. Model CN-235 (cont'd)

Propeller and Propeller Limits

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

Maximum Propeller Operating Speed: 1384 RPM (100% indicated NP Overspeed Limit: 103% (indicated NP)

Blades: Four (4), model RFC11L1-0C
Diameter: 132.24 in. maximum, 131.94 in. minimum
NOTE: No further reduction permitted.

Blade Angle measured at 42 in. - radius station:

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

Propeller Spinner: Hamilton Standard, P/N 784920-1 or 790185-1

Propeller Deicer: Included in blade P/N

Airspeed Limits (IAS)

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

V _{NO}	(Maximum Operating)	
	Sea Level	240 knots
	20,000 ft.	210 knots
	25,000 ft.	190 knots
	Straight line variation between points.	

V _A	(Design, Maneuvering)	
	Sea Level to 25,000 ft.	160 knots

V _{FE}	(Flaps Extended)	
	8° (Takeoff)	160 knots
	10° (Approach)	160 knots
	23° (Landing)	150 knots

V _{LE}	(Landing Gear Extended)	150 knots
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For other airspeed limits, see the appropriate FAA approved Airplane Flight Manual listed herein.

C.G. Range

CG limits for both takeoff, landing and inflight are 16% to 30% Mean Aerodynamic Chord except as limited at gross weight below 20,723 lbs. (9,400 kg).

See the appropriate FAA Approved Flight Manual Limitation Section, listed herein for further definition.

Datum

The fuselage datum, Sta. 0.0, is located 92.40 in. forward to the fuselage jig point (rivet), which is located on the underside fuselage skin, immediately forward of fuselage frame 1A.

Mean Aerodynamic Chord (MAC)

Length: 100.83 in.
L.E. of MAC: 377.61 in. aft of fuselage datum

Leveling Means

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

I. Model CN-235 (cont'd)

Maximum Weights	Maximum Ramp	31,862 lb	(14,450 kg)
	Maximum Takeoff	31,752 lb	(14,400 kg)
	Maximum Landing	31,311 lb	(14,200 kg)
	Maximum Zero Fuel	29,988 lb	(13,600 kg)
	Minimum Flight	19,183 lb	(8,700 kg)
Minimum Crew	Two (2): pilot and co-pilot		
Maximum Passengers	-39		
Maximum Baggage	1,654 lb (750 kg) in rear cargo compartment. See the appropriate Weight and Balance Manual listed herein.		
Fuel Capacity	Usable fuel (see Note 1 for unusable fuel):		

Location	Volume (U.S. Gal.)	Weight (lb)	Moment Arm (in)
Right Wing	Main	270	1809
	Aux	420	2814
Left Wing	Main	270	1809
	Aux	420	1814
TOTAL USABLE	1380	9246	411.26

Fuel weight is based upon fuel density of 6.7 lb/U.S. gallon.

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

Oil Capacity	<u>Volume (U.S. -quarts)</u>	<u>Moment Arm (in)</u>
	7.3 U.S. qt./tank on each engine	+350.47
	3.8 U.S. qt./tank usable	
	5.0 U.S. qt./tank on each propeller gear box	+315.97
	1.5 U.S. qt./tank usable	
Maximum Operating Altitude	25,000 ft. (18,000 ft. for passenger transportation)	
Control Surface Movements	Elevator:	Up 30.0° ±0.5° Down 15.0° ±0.5°
	Up to A/C Serial Number C-005:	
	Elevator Trim Tabs :	Up 0.5° ±0.5° Down 8.5° ±0.5°
	From Serial Number C-006:	
	Normal Trim Tab:	Up -0.5° ±0.5° Down 9.5° ±0.5°
	Emergency Trim Tab:	Up 2.0° ±0.5° Down 7.0° ±0.5°
	Elevator balance tab:	
	Up (for +15° elevator)	1.75° ±0.5°
	Down (for -30° elevator)	9.50° ±0.5°
	Rudder:	Right 17.0° ±0.25° Left 12.0° ±0.25°
	Rudder trim tab:	Right 5.0° ±0.5° Left 3.0° ±0.5°
	Rudder balance tab:	
	Right (for +12° rudder)	2.5° ±0.25°
	Left (for -17° rudder)	5.0° ±0.25°

I. Model CN-235 (cont'd)Control Surface Movements
(cont'd)

Ailerons:	Up 20.0° ±0.5°	Down 20.0° ±0.5°
Aileron trim tab:	Up 8.0° ±0.5°	Down 8.0° ±0.5°
Aileron balance tabs:		
Trailing edge up for aileron 0°:		5.0° ±0.5°
Trailing edge down for aileron 20° up:		8.0° ±0.5°
Trailing edge up for aileron 20° down:		18.0° ±0.5°
Flaps (inner and outer)		
Cruise	0.0° ±0.5°	
Takeoff	8.0° ±0.5°	
Approach	10.0° ±0.5°	
Landing	23.0° ±0.5°	

All measurements are taken at trailing edge from neutral position.

Serial Nos. Eligible

A Spanish DGAC Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" below must be submitted for each individual airplane for which application for United States certification is made.

Import Requirements

An FAA Standard Airworthiness Certificate may be issued on the date of a Spanish Certificate of Airworthiness for Export issued by a representative of the Direccion General de Aviacion Civil (DGAC), containing the following statement: "The airplane covered by this certificate has been examined, tested, and found to conform to the type design approved under FAA Type Certificate No. A21NM and is in a condition for safe operation." Only CN235 airplane manufactured in Spain and accompanied by a Spanish export certificate of airworthiness are eligible for a United States Airworthiness Certificate.

Certification Basis

14 CFR Section 21.29 and 14 CFR Part 25, effective 1 February 1965, including Amendments 25-1 through 25-54.

Federal Aviation Administration Exemption No. NM-103, from 14 CFR Section 25.571 (e) (2), issued on January 20, 1984.

Special Federal Aviation Regulation No. 27, effective 1 February 1974, including Amendments 27-1 through 27-5 (Fuel Venting and Exhaust Emissions).

14 CFR Part 36, effective 1 December 1969, including Amendments 36-1 through 36-12.

Equivalent safety findings exist with respect to the following regulation: 14 CFR Section 25.1305 (a) (2): Fuel Quantity Indicator.

Construcciones Aeronauticas, S.A. elected to demonstrate compliance with: 14 CFR Section 25.1419: Ice Protection.

Date of Application for Type Certificate: 3 December 1981.

Required Equipment

The basic required equipment as prescribed in the applicable Federal Aviation Regulations must be installed in the airplane.

Equipment approved for the Construcciones Aeronauticas, S.A. Model CN-235 is listed in CASA Document No. 86-3309, Master Equipment List, dated July 1986 or as revised and approved by the DGAC.

Federal Aviation Administration (FAA) approve Airplane Flight Manual Construcciones Aeronauticas, S.A. Model CN-235, Document No. D.T. 86-3512, published in the English language (DGAC approved on behalf of the FAA on 17 November 1986 or later DGAC approved revision), is required.

I. Model CN-235 (cont'd)

Service Information	Construcciones Aeronauticas, S.A. Maintenance and Structural Repair Manuals and all Service Bulletins, which are published in the English language, indicate applicability to the U.S. approved Construcciones Aeronauticas, S.A. Model CN-235 type design and that carry a statement: "DGAC approved may be interpreted as FAA Approved."
Available Documents	- Airplane Weight and Balance Control and Loading Data Document No. D.T. 85-3502. - Maintenance Review Board Report, Document No. MRB CN-235-PV.01.

NOTES

NOTE 1 Weight and Balance:

- (a) A current Weight and Balance Report must be in each aircraft at the time of original airworthiness certification and at all times thereafter except in the case of an operator having an FAA approved loading system for weight and balance control.
- (b) The airplane empty weight and corresponding center of gravity location must include:
Total engine and gearbox oil: 47.6 lb at Sta 336.44 in.
Total hydraulic fluid: 39.03 lb at Sta 461.22 in.
Unusable fuel (77.05 lb) listed as follows:

<u>Unusable Fluid</u>	<u>U.S. Gallons</u>	<u>Pounds</u>	<u>Moment Arm (in)</u>
Drainable:			
Left Wing	4.25	28.47	409.68
Right Wing	4.25	28.47	409.68
Trapped Fuel:			
Tanks and fuel lines	3.00	20.10	410.07
Total unusable fuel	11.50	77.05	409.76

- (c) The airplane must be loaded in accordance with Section 2 of the approved Airplane Flight Manual and the C.G. must be within the specified limits at all times.

NOTE 2 Airplane operation must be in accordance with the Airplane Flight Manual (AFM) listed above.

NOTE 3 Required structural inspections, inspection times, and retirement times for structural parts and for components are listed in the Airworthiness Limitations as presented in Section 1.4 of Construcciones Aeronauticas, S.A. Document No. D.T. 86-3001. Material covered in this Section must not be changed without FAA approval.

NOTE 4 Engine certification maintenance requirements (CMR) and systems certification maintenance requirements are included in Section 1.4.1 of Construcciones Aeronauticas, S.A. Document No. D.T. 86-3001. Material covered in this section must not be changed without FAA approval.

NOTE: The CMR's may also be included in any appendix to the Maintenance Review Board Document No. MRB CN-235-PV.01.

II. Model CN-235-100 (Approved October 26, 1989)

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

Fuel (a) Fuels shall conform to the specifications listed or to subsequent revisions thereof:

<u>Designation</u>	<u>Specification</u>
Jet A, A-1, B	ASTM D1655
JP-4, JP-5	MIL-T-5624
JP-8	MIL-T-83133

II. Model CN-235-100 (cont'd)

- (b) For approved fuel additives, see General Electric Company jet fuel specification D50TF2, current approved revision.

Anti-icing additives to specification MIL-I-27686E may be used to a concentration not in excess of 0.15% by volume.

Engine Limits

The Maximum continuous and takeoff static level rating at ISA:

Conditions	Shaft Horse Power	Jet Thrust (lb)	Torque Meter Reading (ft - lb)	ITT (°C)	Engine RPM
Takeoff (normal)	1750	168	425	921*	45,300**
Takeoff (APR on)	1870	179	454	950	45,615
Max Continuous	1750	168	425	917	45,614

*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 takeoff limit with APR on is applied.

Propeller and Propeller Limits

2 Propellers - Hamilton Standard Model - 14 RF-21.

Blades: 4, Model RFC11R1-0C.

Diameter: 132.24 in. max., 131.94 in. min.

Blade angle measured a 42 in. - 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: Hamilton Standard, P/N 790185-1

Propeller Deicer: Included in blade P/N

Airspeed Limits (IAS)

Unless otherwise noted below, speeds are - indicated airspeeds.

V_{MO} (Maximum Operating) (See NOTE 5)

Sea Level 240 knots

20,000 ft 210 knots

25,000 ft 190 knots

Straight line variation between points.

V_A (Maneuvering)

Sea level to 25,000 ft 160 knots

V_{FE} (Flaps Extended)

10° (Takeoff) 160 knots

15° (Approach) 160 knots

23° (Landing) 150 knots

V_{LE} (Landing Gear Extended) 150 knots

For other airspeed limits, see the appropriate FAA Approved Airplane Flight Manual listed below.

C.G. Range

See the appropriate FAA Approved Airplane Flight Manual listed below.

II. Model CN-235-100 (cont'd)

Datum	Sta 0.0 is located 92.40 in. forward of the fuselage jig point (rivet), which is located on the underside fuselage skin, immediately forward of fuselage frame 1A.												
Mean Aerodynamic Chord (MAC)	Length: 100.83 in. L.E. of MAC: 377.61 in aft of datum												
Leveling Means	Plumb-bob suspended from aft face of aft cockpit compartment bulkhead over reticule on floor.												
Maximum Weights (See NOTE 5)	<table> <tr> <td>Maximum Ramp</td> <td>31,862 lb.</td> <td>(14,450 kg)</td> </tr> <tr> <td>Maximum Takeoff</td> <td>31,752 lb</td> <td>(14,400 kg)</td> </tr> <tr> <td>Maximum Landing</td> <td>31,311 lb</td> <td>(14,200 kg)</td> </tr> <tr> <td>Maximum Zero Fuel</td> <td>29,988 lb</td> <td>(13,600 kg)</td> </tr> </table>	Maximum Ramp	31,862 lb.	(14,450 kg)	Maximum Takeoff	31,752 lb	(14,400 kg)	Maximum Landing	31,311 lb	(14,200 kg)	Maximum Zero Fuel	29,988 lb	(13,600 kg)
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Maximum Takeoff	31,752 lb	(14,400 kg)											
Maximum Landing	31,311 lb	(14,200 kg)											
Maximum Zero Fuel	29,988 lb	(13,600 kg)											
Minimum Crew	Two (2): Pilot and co-pilot												
Maximum Passengers	44												
Maximum Baggage	1654 lb (750 kg) in rear cargo compartment. See the appropriate Weight and Balance Manual listed below.												
Fuel Capacity	Usable fuel (see Note 1 for unusable fuel):												

Location	Volume (U.S. Gal.)	Weight (lb)	Moment Arm (in)
Right Wing Main	270	1809	409.45
Aux	420	2814	412.45
Left Wing Main	270	1809	409.45
Aux	420	1814	412.45
TOTAL USABLE	1380	9246	411.26

Fuel weight is based upon fuel density of 6.7 lb/U.S. gallon.
Pressure fueling: Maximum pressure for pressure fueling is 50 psi.

Oil Capacity	<table> <tr> <td><u>Volume (U.S. -quarts)</u></td> <td><u>Moment Arm (in)</u></td> </tr> <tr> <td>7.3 U.S. qt./tank on each engine</td> <td>+350.47</td> </tr> <tr> <td>3.8 U.S. qt/tank usable</td> <td></td> </tr> <tr> <td>5.0 U.S. qt/tank on each propeller gear box</td> <td>+315.97</td> </tr> <tr> <td>1.5 U.S. qt/tank usable</td> <td></td> </tr> </table>	<u>Volume (U.S. -quarts)</u>	<u>Moment Arm (in)</u>	7.3 U.S. qt./tank on each engine	+350.47	3.8 U.S. qt/tank usable		5.0 U.S. qt/tank on each propeller gear box	+315.97	1.5 U.S. qt/tank usable																					
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Maximum Operating Altitude	25,000 ft. (18,000 ft. for passenger transportation)																														
Control Surface Movements	<table> <tr> <td>Elevator:</td> <td>Up 30.0° ±0.5°</td> <td>Down 15.0° ±0.5°</td> </tr> <tr> <td>Elevator tab (trim)</td> <td>Up -0.5° ±0.5°</td> <td>Down 9.5° ±0.5°</td> </tr> <tr> <td>Elevator tab (emergency trim)</td> <td>Up 2° ±0.5°</td> <td>Down 7.0° ±0.5°</td> </tr> <tr> <td>Elevator balance tab:</td> <td></td> <td></td> </tr> <tr> <td> Up (for +15° elevator)</td> <td></td> <td>1.75° ±0.5°</td> </tr> <tr> <td> Down (for -30° elevator)</td> <td></td> <td>9.50° ±0.5°</td> </tr> <tr> <td>Rudder:</td> <td>Right 17.0° ±0.25°</td> <td></td> </tr> <tr> <td></td> <td>Left 12.0° ±0.25°</td> <td></td> </tr> <tr> <td>Rudder trim tab:</td> <td>Right 5.0° ±0.5°</td> <td></td> </tr> <tr> <td></td> <td>Left 3.0° ±0.5°</td> <td></td> </tr> </table>	Elevator:	Up 30.0° ±0.5°	Down 15.0° ±0.5°	Elevator tab (trim)	Up -0.5° ±0.5°	Down 9.5° ±0.5°	Elevator tab (emergency trim)	Up 2° ±0.5°	Down 7.0° ±0.5°	Elevator balance tab:			Up (for +15° elevator)		1.75° ±0.5°	Down (for -30° elevator)		9.50° ±0.5°	Rudder:	Right 17.0° ±0.25°			Left 12.0° ±0.25°		Rudder trim tab:	Right 5.0° ±0.5°			Left 3.0° ±0.5°	
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	Left 12.0° ±0.25°																														
Rudder trim tab:	Right 5.0° ±0.5°																														
	Left 3.0° ±0.5°																														

II. Model CN-235-100 (cont'd)

Control surface movements (cont'd)

Rudder balance tab:		
Right (for rudder 12° left)		2.5° ±0.25°
Left (for rudder 17° right)		5.0° ±0.25°
Ailerons:	Up 20.0° ±0.5°	Down 20.0° ±0.5°
Aileron trim tabs:	Up 8.0° ±0.5°	Down 8.0° ±0.5°
Aileron balance tabs:		
trailing edge up for aileron 0°:		5.0° ±0.5°
trailing edge down for aileron 20° up:		8.0° ±0.5°
trailing edge up for aileron 20° down:		18.0° ±0.5°
Flaps (inner and outer)		
Cruise	0.0° ±0.5°	
Takeoff	10.0° ±0.5°	
Approach	15.0° ±0.5°	
Landing	23.0° ±0.5°	

All measurements are taken at trailing edge from neutral position.

Serial Nos. Eligible

The Spanish DGAC Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" below must be submitted for each individual airplane for which application for certification is made.

Import Requirements

A United States Airworthiness Certificate may be issued on the basis of a Spanish Certificate of Airworthiness for Export, signed by a representative of the Direccion General de Aviacion Civil (DGAC), containing the following statement: "The airplane covered by this certificate has been examined, tested, and found to conform to the type design approved under FAA Type Certificate No. A21NM and is in a condition for safe operation. "Only CN-235-100 airplanes manufactured in Spain and accompanied by a Spanish export certificate of airworthiness are eligible for a United States airworthiness certificate."

Certification Basis

14 CFR Section 21.29 and 14 CFR Part 25, effective 1 February 1965, including Amendments 25-1 through 25-59, 25-61 and 25-62.

Federal Aviation Administration Exemption No. Nm-103, from 14 CFR Section 25.571 (e) (2), issued on January 20, 1984.

Special Federal Aviation Regulation No. 27, effective 1 February 1974, including Amendments 27-1 through 27-5 (Fuel Venting and Exhaust Emissions).

14 CFR Part 36, effective 1 December 1969, including Amendments 36-1 through 36-15. The CN-235-100 weight increase to 15,100 kg (33295 lbs) takeoff weight and 14,900 kg (32854 lbs) max landing weight, incorporating Service Bulletin 235-34-04 or CASA Document CDS) No 37-49 includes Amendment 36-17.

Equivalent safety findings exist with respect to the following regulation: 14CFR Section 25.1305 (a) (2): Fuel Quantity Indicator.

The Special Conditions No. 25-ANM-22 (Docket no. NM-35), dated December 13, 1988, "Lightning and Radio Frequency (RF) Energy Protection".

Construcciones Aeronauticas S.A. elected to demonstrate compliance with: 14 CFR Section 25.1419: Ice Protection.

Date of Application for Amended Type Certificate: May 12, 1987.

Date of Application for the CN-235-100 weight increase: April 3, 1991.

II. Model CN-235-100 (cont'd)

Required Equipment

The basic required equipment as prescribed in the applicable Federal Aviation Regulations must be installed in the airplane.

Equipment approved for the Construcciones Aeronauticas, S.A. CN-235-100 is listed in CASA Document No. 88-3003, Master Equipment List, dated July 1988 or as revised and approved by DGAC.

Federal Aviation Administration (FAA) approved Airplane Flight Manual, Construcciones Aeronauticas, S.A. Model CN-235-100, Document No. D.T. 87-3501, published in the English language (DGAC approved on behalf of the FAA on December 9, 1988 or later DGAC approved revision) is required. (See NOTE 5)

Service Information

Construcciones Aeronauticas, S.A. Maintenance and Structural Repair Manuals and all Service Bulletins, published in the English language, that indicate applicability to the U.S. approved Construcciones Aeronauticas, S.A. CN-235-100 type design and that carry a statement: "DGAC Approved may be interpreted as FAA Approved".

Available Documents

- Airplane Weight and Balance Control and Loading Data Document No. D.T. 85-3502. (See NOTE 5).

- Maintenance Review Board Report, Document No. MRB CN-235-PV.01.

NOTES

NOTE 1

Weight and Balances

(a) A current Weight and Balance must be in each aircraft at the time of original airworthiness certification and at all times thereafter except in the case of an operator having an FAA approved loading system for weight and balance control.

(b) The airplane empty weight and corresponding center of gravity location must include:
Total engine and gearbox oil 47.6 lb at Sta 335.57 in.
Type hydraulic fluid of 39.03 lb at Sta 460.35 in.
Unusable fuel (77.05 lb) listed as follows:

<u>Unusable Fluid</u>	<u>U.S. Gallons</u>	<u>Pounds</u>	<u>Moment Arm (in)</u>
Drainable:			
Left Wing	4.25	28.47	409.68
Right Wing	4.25	28.47	409.68
Trapped Fuel:			
Tanks and fuel lines	3.00	20.10	410.07
Total unusable fuel	11.50	77.05	409.76

(c) The airplane must be loaded in accordance with Section 2 of the approved Airplane Flight Manual and the C.G. must be within the specified limits at all times.

NOTE 2

Airplane operation must be in accordance with the Airplane 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 airplane.

NOTE 3

Required structural inspections, inspections times, and retirement times for structural parts and for components are listed in the Airworthiness Limitation as presented in Section 1.4 of Construcciones Aeronauticas, S.A. Document No. D.T. 86-3001. Material covered in this section must not be changed without FAA engineering approval.

II. Model CN-235-100 (cont'd)

NOTE 4 Engine certification maintenance requirements (CMR) and systems certification maintenance requirements are included in section 1.4.1 of covered in this section must not be changed without FAA engineering approval.

NOTE: The CMR's may also be included in any appendix to the Maintenance Review Board Document No. MRB CN-235-PV.01.

NOTE 5 For aircraft Model CN-235-100 incorporating CASA Service Bulletin S.B. 235-34-04 or the modification defined by the CASA Document CDS 3749, the previously established limitations to the parameters mentioned below, are modified in the following way:

Airspeed Limits (IAS)V_{MO} (Maximum Operating)

Sea Level	232 knots
20,000 ft	202 knots
25,000 ft 1	82 knots

Straight line variation between points.

Maximum Weights

Maximum Ramp	33,405 lb	(15,150 kg)
Maximum Takeoff	33,295 lb	(15,100 kg)
Maximum Landing	32,854 lb	(14,900 kg)
Maximum Zero	31,090 lb	(14,100 kg)

Also applicable with the Airplane Flight Manual, Document D.T. 90-3504, is the Airplane Weight and Balance Control and Loading Data Document No. D.T. 90-3505, FAA approval of the CN-235-100 weight increase was given on February 21, 1992.

III. Model CN-235-200 (Approved March 13, 1992)

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

Fuel (a) Fuels shall conform to the specifications listed or to subsequent revisions thereof:

<u>Designation</u>	<u>Specification</u>
Jet A, A-1, B	ASTM D1655
JP-4, JP-5	MIL-T-5624
JP-8	MIL-T-83133

(b) For approved fuel additives, see General Electric Company jet fuel specification D50TF2, current approved revision.

Anti-icing additives to specification MIL-I-27686E may be used to a concentration not in excess of 0.15% by volume.

Engine Limits

The Maximum continuous and takeoff static level rating at ISA:

Conditions	Shaft Horse Power	Jet Thrust (lb)	Torque Meter Reading (ft - lb)	ITT (°C)	Engine RPM
Takeoff (normal)	1750	168	425	921*	45,300**
Takeoff (APR on)	1870	179	454	950	45,615
Max Continuous	1750	168	425	917	45,614

*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 takeoff limit with APR on is applied.

III. Model CN-235-200 (cont'd)

Propeller and Propeller Limits

2 Propellers - Hamilton Standard Model - 14 RF-21.
Blades: 4, Model RFC11R1-0C.
Diameter: 132.24 in. max., 131.94 in. min.

Blade angle measured a 42 in. - 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:	Hamilton Standard, P/N 790185-1
Propeller Deicer:	Included in blade P/N

Airspeed Limits (IAS)

Unless otherwise noted below, speeds are - indicated airspeeds.

V_{MO} (Maximum Operating)

Sea level	232 knots
20,000 ft	202 knots
25,000 ft	182 knots

Straight line variation between points.

V_A (Maneuvering)

Sea level to 25,000 ft	160 knots
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V_{FE} (Flaps Extended)

10° (Takeoff)	160 knots
15° (Approach)	160 knots
23° (Landing)	150 knots

V _{LE} (Landing Gear Extended)	150 knots
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For other airspeed limits, see the appropriate FAA Approved Airplane Flight Manual listed below.

C.G. Range

See the appropriate FAA Approved Airplane Flight Manual listed below.

Datum

Sta 0.0 is located 92.40 in. forward of the fuselage jig point (rivet), which is located on the underside fuselage skin, immediately forward of fuselage frame 1A.

Mean Aerodynamic Chord (MAC)

Length:	100.83 in.
L.E. of MAC:	377.61 in. aft of datum

Leveling Means

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

Maximum Weights

Maximum Ramp	34940 lb	(15850 kg)
Maximum Takeoff	34830 lb	(15800 kg)
Maximum Landing	34390 lb	(15600 kg)
Maximum Zero Fuel	31080 lb	(14100 kg)

Minimum Crew

Two (2): Pilot and co-pilot

Max. Passengers

44

Maximum Baggage

1985 lb (900 kg) in rear cargo compartment. See the appropriate Weight and Balance Manual listed below.

III. Model CN-235-200 (cont'd)

Fuel Capacity

Usable fuel (see Note 1 for unusable fuel):

Location	Volume (U.S. Gal.)	Weight (lb)	Moment Arm (in)
Right Wing Main	270	1809	409.45
Aux	420	2814	412.45
Left Wing Main	270	1809	409.45
Aux	420	1814	412.45
TOTAL USABLE	1380	9246	411.26

Fuel weight is based upon fuel density of 6.7 lb/U.S. gallon.
Pressure fueling: Maximum pressure for pressure fueling is 50 psi.

Oil Capacity

<u>Volume (U.S. -quarts)</u>	<u>Moment Arm (in)</u>
7.3 U.S. qt./tank on each engine	+350.47
3.8 U.S. qt/tank usable	
5.0 U.S. qt/tank on each propeller gear box	+315.97
1.5 U.S. qt/tank usable	

Maximum Operating Altitude

25,000 ft. (18,000 ft. for passenger transportation)

Control Surface Movements

Elevator:	Up 30.0° ± 0.5°	Down 15.0° ± 0.5°
Elevator tab (trim)	Up +0.5° ± 0.5°	Down +11° ± 0.5°
Elevator tab (emergency trim)	Up 2° ± 0.5°	Down 7.0° ± 0.5°
Elevator balance tab:	Up (for +15° elevator) 1.75 ± 0.5°	Down (for -30° elevator) 9.50 ± 0.5°
Rudder:	Right 19.0° ± 0.5°	Left 15.0° ± 0.5°
Rudder trim tab:	Right 5.0° ± 0.5°	Left 3.0° ± 0.5°
Rudder balance tab:	Right (for rudder 15° left) 2.0° ± 0.5°	Left (for rudder 19° right) 5.25° ± 0.5°
Ailerons:	Up 20.0° ± 0.5°	Down 20.0° ± 0.5°
Aileron trim tabs:	Up 8.0° ± 0.5°	Down 8.0° ± 0.5°
Aileron balance tabs:		
trailing edge up for aileron 0°:	5.0° ± 0.5°	
trailing edge down for aileron 20° up:	8.0° ± 0.5°	
trailing edge up for aileron 20° down:	18.0° ± 0.5°	
Flaps (inner and outer)		
Cruise	0.0° ± 0.5°	
Takeoff	10.0° ± 0.5°	
Approach	15.0° ± 0.5°	
Landing	23.0° ± 0.5°	

All measurements are taken at trailing edge from neutral position.

Serial Nos. Eligible

The Spanish DGAC Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" below must be submitted for each individual airplane for which application for certification is made.

III. Model CN-235-200 (cont'd)
 Import Requirements

A United States Airworthiness Certificate may be issued on the basis of a Spanish Certificate of Airworthiness for Export, signed by a representative of the Direccion General de Aviacion Civil (DGAC), containing the following statement: "The airplane covered by this certificate has been examined, tested and found to conform to the type design approved under FAA Type Certificate No. A21NM and is in a condition for safe operation. "Only CN-235-200 airplanes manufactured in each Spain and accompanied by a Spanish export certificate of airworthiness are eligible for a United States Airworthiness Certificate."

Certification Basis

14CFR Section 21.29 and 14 CFR Part 25, effective 1 February 1965, including Amendments 25-1 through 25-59, 25-61 and 25-62.

Federal Aviation Administration Exemption No. NM-103, from 14 CFR Section 25.57 (e) (2), issued on January 20, 1984.

Special Federal Aviation Regulation No. 27, effective 1 February 1974, including Amendments 27-1 through 27-5 (Fuel Venting and Exhaust Emissions).

14 CFR Part 36, effective 1 December 1969, including Amendments 36-1 through 36-18.

Equivalent safety findings exist with respect to the following regulation. 14 CFR Section 25.1305 (a) (2): Fuel Quantity Indicator.

The Special Conditions No. 25-ANM-22 (Docket No. NM-35), dated December 13, 1988, "Lightning and Radio Frequency (RF) Energy Protection".

Construcciones Aeronauticas S.A. elected to demonstrate compliance with: 14 CFR Section 25.1419: Ice Protection.

Date of Application for Amended Type Certificate: January 12, 1990.

Required Equipment

The basic required equipment as prescribed in the applicable Federal Aviation Regulations must be installed in the airplane.

Equipment approved for the Construcciones Aeronauticas S.A. CN-235-200 is listed in CASA Document No. 90-3016, Master Equipment List, dated July 1988 or as revised and approved by DGAC.

Federal Aviation Administration (FAA) approved Airplane Flight Manual, Construcciones Aeronauticas S.A. Model CN-235-200, Document No. D.T. 91-3501, published in the English language (DGAC approved on behalf of the FAA on September 27, 1991 or later DGAC approved revision) is required.

Service Information

Construcciones Aeronauticas, S.A. Maintenance and Structural Repair Manuals and all Service Bulletins, published in the English language, that indicate applicability to the U.S. approved Construcciones Aeronauticas, S.A. CN-235-200 type design and that carry a statement: "DGAC Approved may be interpreted as FAA Approved."

Available Documents

- Airplane Weight and Balance Control and Loading Data Document No. D.T. 91-3502.
 - Maintenance Review Board Report, Document No. MRB CN-235-PV.01.

NOTES

NOTE 1

Weight and Balance:

- (a) A current Weight and Balance must be in each aircraft at the time of original airworthiness certification and at all time thereafter except in the case of an operator having an FAA approved loading system for weight and balance control.

- (b) The airplane empty weight and corresponding center of gravity location must include:
 Total engine and gearbox oil 47.6 lb at Sta 335.57 in.
 Type hydraulic fluid of 39.03 lb at Sta 460.35 in.
 Unusable fuel (77.05 lb) listed as follows:

<u>Unusable Fuel</u>	<u>U.S. Gallons</u>	<u>Pounds</u>	<u>Moment Arm (in)</u>
Drainable:			
Left Wing	4.25	28.47	409.68
Right Wing	4.25	28.47	409.68
Trapped Fuel:			
Tanks and fuel lines	3.00	20.10	410.07
Total unusable fuel	11.50	77.05	409.76

- (c) The airplane must be loaded in accordance with Section 2 of the approved Airplane Flight Manual and the C.G. must be within the specified limits at all times.

- NOTE 2 Airplane operation must be in accordance with the airplane 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 airplane.
- NOTE 3 Required structural inspections, inspections times and retirement times for structural parts and for components are listed in the Airworthiness Limitation as presented in section 1.4 of Construcciones Aeronauticas, S.A. Document No. D.T. 86-3001. Material covered in this section must not be changed without FAA engineering approval.
- NOTE 4 Engine certification maintenance requirements (CMR) and systems certification maintenance requirements are included in section 1.4.1. of Construcciones Aeronauticas, S.A. Document No. D.T. 86-3001. Material covered in this section must not be changed without FAA engineering approval.
- NOTE: The CMR's may also be included in any appendix to the Maintenance Review Board Document No. MRB CN-235-PV.01.*
- NOTE 5 CN-235-100 airplanes are eligible for conversion to upgraded model CN-235-200 when CASA Service Bulletin SB235-11-06 has been incorporated and further modified as per DGAC approved Documents CDS 30040, 30049, 30178 and 30188.

III. Model CN-235-300 (Approved DecemberXX, 1998)

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

Fuel (a) Fuels shall conform to the specifications listed or to subsequent revisions thereof:

<u>Designation</u>	<u>Specification</u>
Jet A, A-1, B	ASTM D1655
JP-4, JP-5	MIL-T-5624
JP-8	MIL-T-83133

(b) For approved fuel additives, see General Electric Company jet fuel specification D50TF2, current approved revision.

Anti-icing additives to specification MIL-I-27686E may be used to a concentration not in excess of 0.15% by volume.

III. Model CN-235-300 (cont'd)

Engine Limits

The Maximum continuous and takeoff static level rating at ISA:

Conditions	Shaft Horse Power	ITT (°C)	Engine RPM (%)	Torque Meter Reading (%)	ESHP
Takeoff (normal)	1750	(a) (b) 917	101.3	(c) 100	1816
Max Continuous	1750	944	102.0	100	1816
Takeoff (APR on)	1870	940	102.0	107	1942

- (a) The shown temperature value is the absolute maximum. See the appropriate FAA Approved Airplane Flight Manual listed below for the maintained ITT limits in relation with the environmental conditions.
- (b) Up to 10°C overtemperature 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 FAA Approved Airplane Flight Manual listed below for the maintained torque limits in relation with the environmental conditions.

Propeller and Propeller Limits

2 Propellers - Hamilton Standard Model - 14 RF-37.
Blades: 4, Model RFA12A1-POC.
Diameter: 144.84 in..
Prohibited % rpm interval: 47% to 71%

Propeller Spinner: Hamilton Standard, P/N 790185-2
Propeller Deicer: Included in blade P/N

Airspeed Limits (IAS)

Unless otherwise noted below, speeds are - indicated airspeeds.

V_{MO} (Maximum Operating)

Sea level 232 knots
20,000 ft 202 knots
25,000 ft 182 knots

Straight line variation between points.

V_A (Maneuvering)

Sea level to 25,000 ft 160 knots

V_{FE} (Flaps Extended)

10° (Takeoff) 160 knots
15° (Approach) 160 knots
23° (Landing) 150 knots

V_{LE} (Landing Gear Extended) 150 knots

For other airspeed limits, see the appropriate FAA Approved Airplane Flight Manual listed below.

C.G. Range

See the appropriate FAA Approved Airplane Flight Manual listed below.

Datum

Sta 0.0 is located 93.19 in. forward of the fuselage jig point (rivet), which is located on the underside fuselage skin, immediately forward of fuselage frame 1A.

Mean Aerodynamic Chord (MAC)

Length: 100.83 in.
L.E. of MAC: 377.61 aft of datum

Leveling Means

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

III. Model CN-235-300 (cont'd)

Maximum Weights	Maximum Ramp	34940 lb	(15850 kg)
	Maximum Takeoff	34830 lb	(15800 kg)
	Maximum Landing	34390 lb	(15600 kg)
	Maximum Zero Fuel	31080 lb	(14100 kg)
Minimum Crew	Two (2): Pilot and co-pilot		
Max. Passengers	44		
Maximum Baggage	1985 lb (900 kg) in rear cargo compartment. See the appropriate Weight and Balance Manual listed below.		
Fuel Capacity	Usable fuel (see Note 1 for unusable fuel):		

Location	Volume (U.S. Gal.)	Weight (lb)	Moment Arm (in)
Right Wing	Main	270	409.45
	Aux	420	412.45
Left Wing	Main	270	409.45
	Aux	420	412.45
TOTAL USABLE	1380	9246	411.26

Fuel weight is based upon fuel density of 6.7 lb/U.S. gallon.
Pressure fueling: Maximum pressure for pressure fueling is 50 psi.

Oil Capacity	<u>Volume (U.S. -quarts)</u>	<u>Moment Arm (in)</u>
	7.3 U.S. qt./tank on each engine	+350.47
	3.8 U.S. qt/tank usable	
	5.0 U.S. qt/tank on each propeller gear box	+315.97
	1.5 U.S. qt/tank usable	
Maximum Operating Altitude	25,000 ft.	
Control Surface Movements	Elevator:	Up $30.0^\circ \pm 0.5^\circ$ Down $15.0^\circ \pm 0.5^\circ$
	Elevator tab (trim)	Up $+0.5^\circ \pm 0.5^\circ$ Down $+11^\circ \pm 0.5^\circ$
	Elevator tab (emergency trim)	Up $2^\circ \pm 0.5^\circ$ Down $7.0^\circ \pm 0.5^\circ$
	Elevator balance tab:	Up (for $+15^\circ$ elevator) $1.75 \pm 0.5^\circ$ Down (for -30° elevator) $9.50 \pm 0.5^\circ$
	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 rudder 15° left) $2.0^\circ \pm 0.5^\circ$ Left (for rudder $+19^\circ$ right) $5.25^\circ \pm 0.5^\circ$
	Ailerons:	Up $18.0^\circ \pm 0.5^\circ$ Down $18.0^\circ \pm 0.5^\circ$
	Aileron trim tabs:	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	$0.0^\circ \pm 0.5^\circ$
	Takeoff	$10.0^\circ \pm 0.5^\circ$
	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.

III. Model CN-235-300 (cont'd)

Serial Nos. Eligible	The Spanish DGAC Certificate of Airworthiness for Export endorsed as noted under "Import Requirements" below must be submitted for each individual airplane for which application for certification is made.
Import Requirements	A United States Airworthiness Certificate may be issued on the basis of a Spanish Certificate of Airworthiness for Export, signed by a representative of the Direccion General de Aviacion Civil (DGAC), containing the following statement: "The airplane covered by this certificate has been examined, tested and found to conform to the type design approved under FAA Type Certificate No. A21NM and is in a condition for safe operation. "Only CN-235-300 airplanes manufactured in Spain and accompanied by a Spanish export certificate of airworthiness are eligible for a United States Airworthiness Certificate."
Certification Basis	<p>14CFR Section 21.29 and 14 CFR Part 25, effective 1 February 1965, including Amendments 25-1 through 25-59, 25-61 and 25-62 and voluntary compliance with 14 CFR part 25.1419, Amendment 25-23 for parts not changed or not affected by the change.</p> <p>Compliance with 14 CFR part 25.1419 Amendment 25-72 for the airframe ice protection system, 14 CFR part 25.1316 at Amendment 25-80 for the Integrated Electronic Display System (IEDS), and 14 CFR part 25.905(d) at Amendment 25-72.</p> <p>Voluntary compliance with 14 CFR section 25.365(e) at Amendment 25-71 and 14 CFR part 25.571(e)(2) at Amendment 25-72.</p> <p>14 CFR Part 34, including Amendments 14-1 through 14-2.</p> <p>14 CFR Part 36, effective 1 December 1969, including Amendments 36-1 through 36-18.</p> <p>Equivalent safety findings exist with respect to the following regulation. 14 CFR Section 25.1305 (a) (2): Fuel Quantity Indicator.</p> <ul style="list-style-type: none"> - Special Condition No. 25-ANM-22 (Docket No. NM-35), dated December 13, 1988, "Lightning and Radio Frequency (RF) Energy Protection" for parts not changed or not affected by the change. - Radio Frequency (RF) Energy Protection requirements included in Special Condition No. 25-ANM-22 for parts changed or affected by the change. <p>Date of Application for Amended Type Certificate: September 8, 1998.</p>
Required Equipment	<p>The basic required equipment as prescribed in the applicable Federal Aviation Regulations must be installed in the airplane.</p> <p>Equipment approved for the Construcciones Aeronauticas S.A. CN-235-300 is listed in CASA Document No. 98-3016, CN-235-300 Equipment List, dated Nov. 1998 or as revised and approved by DGAC.</p> <p>Federal Aviation Administration (FAA) approved Airplane Flight Manual, Construcciones Aeronauticas S.A. Model CN-235-300, Document No. D.T. 98-3002, published in the English language (DGAC approved on behalf of the FAA on December XX, 1998 or later DGAC approved revision) is required.</p>
Service Information	Construcciones Aeronauticas, S.A. Maintenance and Structural Repair Manuals and all Service Bulletins, published in the English language, that indicate applicability to the U.S. approved Construcciones Aeronauticas, S.A. CN-235-300 type design and that carry a statement: "DGAC Approved may be interpreted as FAA Approved."
Available Documents	<ul style="list-style-type: none"> - Airplane Weight and Balance Control and Loading Data Document No. D.T. 98-3003. - Maintenance Review Board Report, Document No. MRB CN-235-PV.01.

NOTES

NOTE 1

Weight and Balance:

(a) A current Weight and Balance must be in each aircraft at the time of original airworthiness certification and at all time thereafter except in the case of an operator having an FAA approved loading system for weight and balance control.

(b) The airplane empty weight and corresponding center of gravity location must include:

Total engine and gearbox oil 47.6 lb at Sta 335.57 in.

Type hydraulic fluid of 39.03 lb at Sta 460.35 in.

Unusable fuel (77.05 lb) listed as follows:

<u>Unusable Fuel</u>	<u>U.S. Gallons</u>	<u>Pounds</u>	<u>Moment Arm (in)</u>
Drainable:			
Left Wing	4.25	28.47	409.68
Right Wing	4.25	28.47	409.68
Trapped Fuel:			
Tanks and fuel lines	3.00	20.10	410.07
Total unusable fuel	11.50	77.05	409.76

(c) The airplane must be loaded in accordance with Section 2 of the approved Airplane Flight Manual and the C.G. must be within the specified limits at all times.

NOTE 2

Airplane operation must be in accordance with the airplane 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 airplane.

NOTE 3

Required structural inspections, inspections times and retirement times for structural parts and for components are listed in the Airworthiness Limitation as presented in section 1.4 of Construcciones Aeronauticas, S.A. Document No. D.T. 86-3001. Material covered in this section must not be changed without FAA engineering approval.

NOTE 4

Engine certification maintenance requirements (CMR) and systems certification maintenance requirements are included in section 1.4.1. of Construcciones Aeronauticas, S.A. Document No. D.T. 86-3001. Material covered in this section must not be changed without FAA engineering approval.

NOTE: The CMR's may also be included in any appendix to the Maintenance Review Board Document No. MRB CN-235-PV.01.

....END....