

European Aviation Safety Agency

**EASA
TYPE-CERTIFICATE
DATA SHEET
EASA.A.407**

C-27J

**Manufacturer:
ALENIA AERONAUTICA S.P.A.**

Viale dell'Aeronautica
Pomigliano D'Arco
80038 Naples
Italy

For Model: C-27J

Issue 3.0: 21 December 2010

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SECTION 1: GENERAL

1. Data Sheet No: TCDS EASA.A.407
2. Airworthiness Category: Large Aeroplanes
3. Performance Category: A
4. Certifying Authority: EASA
5. Type Certificate Holder: ALENIA AERONAUTICA,
Viale dell'Aeronautica
Pomigliano D'Arco, 80038
Naples, Italy

SECTION 2: C-27J

I. General

1. Aeroplane: Alenia C-27J

II. Certification Basis

1. Reference Application Date for EASA Certification:

C-27J: 02 October 1996

2. EASA Certification Date:

C-27J: 18 June 2001 (original issue by ENAC Italy)
06 December 2002 (amended issue by ENAC Italy)
25 September 2008 (original issue by EASA)

3. EASA Certification Basis:

- JAR 25, Large Aeroplanes, Change 14, Amendment 25/96/1 dated 19 April 1996
- JAR 1, Definitions, Change 5 dated 15 July 1996
- JAR AWO Change 2, effective 1 August 1996

Reversions to FAR 25 amdt. 35 paragraphs are applicable to C-27J:

25.783 Doors
25.805 Flight crew emergency exits
25.809 Emergency exit arrangement
25.811 Emergency exit marking
25.812 Emergency lighting
25.813 Emergency exit access.

4. Special Conditions:

SC C27J/C-01	Interaction of Systems and Structures	CRI C-01 (NPA 25C-199)
SC C27J/D-01	Class E Cargo Compartments	CRI D-01
SC C27J/E-01	Propeller Reversing System	CRI E-01
SC C27J/F-05	Electronic Hardware Design Assurance	CRI F-05
SC C27J/F-01	Protection from Effects of HIRF	CRI F-01 (INT/POL/25/2 Is. 2)
SC C27J/F-08	Flight in Icing Conditions	CRI F-08 (NPA 25F-219)
SC C27J/F-10	Severe Icing Conditions	CRI F-10 (INT/POL/25/11)
SC C-27J/H-01	Enhanced Airworthiness Programme for Aeroplane System – ICA on EWIS	CRI H-01

5. Exemptions:

JAR 25.841 (a)	Max cabin altitude 8000 ft	CRI D-02
JAR 25.841 (b)(6)	Max cabin altitude warning at 10000 ft	CRI D-02

6. Equivalent Safety Findings:

JAR 25.779 (b)(2)	Motion and effect of emergency landing gear control	CRI D-03
JAR 25.791(b)	Passenger information signs	CRI D-04
JAR 25.1093 (b)	Air intake system Ice Protection	CRI E-02
JAR 25A.1193(e)(3)	Cowling and nacelle skin	CRI J-02
JAR 25.1305 (e)(1)	Torque indicator	CRI F-12
JAR 25A1549	APU Instruments–Marking and Placards	CRI J-03

7. Elect to Comply:

The following paragraphs of FAR 25 are elected to comply:

FAR 25.307 (a)	Proof of structure	amdt	25-87
FAR 25.631	Bird Strike Damage	amdt	25-87
FAR 25.562	Emergency landing dynamic conditions	amdt	25-87
FAR 25.671 (c)(1)	Control Systems	amdt	25-87
FAR 25.831 (g)	Ventilation	amdt	25-87
FAR 25.856 (a)	Thermal Acoustic	amdt	25-111
FAR 25.981 (b)(d)	Fuel Tank Ignition Prevention	amdt	25-125

8. Environmental requirements:

8.1 Noise:

ICAO Annex 16 Vol. I Chapter 3
JAR-36 Subpart B

8.2 Fuel venting and emissions:

ICAO Annex 16, Volume II, second edition, including Amendment 5

III. Technical Characteristics and Operational Limitations

Large Aeroplane - Twin Turbopropeller for Cargo Transport

1. Type Design Definition:

Type Design: G-CONF-110/090-0100-0002-AL Issue 14.

2. Engines:

Two (2) Allison/Rolls Royce AE2100D2A

2.1 Engine Limits:

Engine data sheet	Power [SHP]	Torque m x daN [ft x lb]	MGT [°C]	Np(*) [%]	Ng(**) [%]
Take-off (5 min.)	4637	234.9 (1732)	852	101	101
Maximum continuous	4637	234.9 (1732)	833	101	101
Transient	-	262.1 (1933)		114	102

(*) 100% = 14267 revolutions per minute [r.p.m.]

(**) 100% = 15265 revolutions per minute [r.p.m.]

Other engine limitations: see the relevant Engine Type Certificate Data Sheet.

3. Fuel

The fuel is compliant to the following specifications:

- MIL-T-5624, JP-5
- MIL-T-83133, JP-8
- ASTM D-1655, JET A o JET A1

(see also AFM manual)

4. Limit Speeds

VMO	From sea level to 18400 ft	260 KCAS
	With linear variation from 18400 ft to 30000 ft	203 KCAS
MMO	From 18400 ft to 30000 ft	0.55 Mach
VMCA	Minimum control speed in air	105 KCAS
VMCG	Minimum control speed on the ground	90 Kts
VLO	Landing gear maximum operating speed	155 KCAS
VLE	Extracted Landing gear maximum operating speed	200 KCAS
VFE	Maximum speed FLAPS 1	180 KCAS
	Maximum speed FLAPS 2	170 KCAS
	Maximum speed FLAPS Full	155 KCAS
VA	Manoeuvre speed at 30500 Kg (67240 lbs)	199 KCAS
	Manoeuvre speed at 26000 Kg (57320 lbs)	183 KCAS
	Manoeuvre speed at 22350 Kg (49273 lbs)	170 KCAS
VRA	Maximum control speed in air	212 KCAS
	from 15000 ft to 30000 ft	0.423 Mach

5. Centre of gravity range

Forward centre of gravity limitations during flight 18% CMA for a weight until 22000 Kg.
Linear variation at 23.3 % CMA until 30500 Kg.

Forward centre of gravity limitations during take off 20% CMA for a weight up to 23240 Kg.
Linear variation at 24.3 % CMA until 30500 Kg.

Backward centre of gravity limitations.

Backward centre of gravity limitations during flight and take off:

From 30 % CMA to 33% CMA for a weight from 18900 Kg to 24000 Kg
33 % CMA a weight from 24000 Kg to 30500 Kg.

6. Fluid capacities

6.1 Fuel: Two fuel tanks integrated in each wing with an overall capacity of 12000 litres.
Fuel available for combustion 11768 litres. (see AFM).

6.2 Engine oil: Two tanks with a capacity of 34 litres.

6.3 APU oil: One tank with a capacity of 4.73 litres.

7. Minimum Flight Crew

Two (2): pilot and co-pilot.

8. Maximum Seating Capacity

Three (3): pilot, co-pilot and observer.

9. Datum

Centre line normal plane positioned 653 mm forward to aircraft nose.

10. Mean Aerodynamic Chord (MAC)

Leading edge of MAC positioned 8903 mm aft to datum plane.

11. Levelling Means

Mount points of A/C floor positioned at frame No. 20 on right side (10000 mm from datum).

12. Cargo Compartment Loading

Loading limitations referred to datum distances and measured in millimetres are:

- 5355 – 9145 1500 Kg/m and 600 Kg/m²
- 9145 – 10015 2500Kg/m and 1000 Kg/m²
- 10015 – 11175 2500Kg/m and1000 Kg/m²
- 11175 – 12195 2500 Kg/m and1000 Kg/m²
- 12195 – 13945 1500 Kg/m and600 Kg/m²
- 13945 – 15905 1000 Kg/m and400 Kg/m² (ramp)

13. Environmental Flight Envelope

Refer to approved AFM.

14. Other limitations

Refer to approved AFM.

15. Maximum operating altitude:

30000 ft.

16. Auxiliary Power Unit (APU)

HAMILTON SUNSTRAND T-62T-46C16 APS 1000

16.1 APU limitations:

	RPM (%)	T (°C)
Maximum continuous	105	718
Transient		718<T<788 (max. 3 sec.) T>788 (max. 0.5 sec.)

17. Equipment

The equipment required by the applicable requirements shall be installed.
The equipment is listed in: G-CONF-110/090-0100-0016-AL Issue 1.

18. All Weather Capabilities

- VFR, IFR and Precision Approach ILS Cat. 1
(IFR operations in oceanic and remote areas where only one HF communication system is required)
- Flight in known Icing Conditions

19. Wheels and Tyres

	Wheel	Tyre
Main	5014039 REVB	393F83-1
Nose	5014041	110T03-1

20. Propellers:

Number and type: Two (2) – DOWTY PROPELLER R 391/6-132-F/10

Blades: Six (6) – composite material

Diameter: 4115 mm (162 inches)

Minimum propeller pitch angle in flight range: 15° (software), 13° (mechanical)

Minimum propeller pitch angle in ground range: -17°

Feathered propeller pitch angle: 89°

20.1 Propeller limitations:

See the relevant Propeller Type Certificate Data Sheet.

21. Maximum Weight:

Taxi and ramp: 30700 Kg (67681 lbs)

Take-off: 30500 Kg (67240 lbs)

Landing: 27500 Kg (60626 lbs)

Zero fuel: 26500 Kg (58422 lbs)

22. Dimensions

Length: 22700 mm

Width: 28700 mm

Height: 9646.4 mm

23. Hydraulics

Oil specification: MIL-L-23699

Engine and APU specification: MIL-L-7808

IV. Operating and Service Instructions

1. Flight Manual:

ALN-AFM-1C-27J-1 and all subsequent approved supplements and changes.

ALN-AFM-1C-27J-JCA-1 and all subsequent approved supplements and changes for C-27J

JCA variant (see par. V, note 1).

2. Maintenance Manual:

ALN-AMM-1C-27J-6 and all subsequent approved supplements and changes.

3. Mandatory airworthiness limitations:

G-CONF-110/090-0100-0017-AL issue 1.

V. Notes

NOTE 1: C-27J JCA VARIANT

The variant of C-27J which fully conforms with Type Design “G-CONF-110/090-0100-0002-AL Issue 14” has been identified as “C-27J JCA”.

NOTE 2: CERTIFICATION BASIS OF TYPE DESIGN CHANGES

Title	Design Change No.
Beta Lock-out	MOD 22456 (RMA 1441)
Inhibition of Steep Descent Activation and engine beta range dedicated lights	MOD 22455 (RMA 1440)
Doors System Modification	MOD 22452 (RMA 1468)

Table 1

Title (Avionics Improvement Modifications)	Design Change No.
BLOS SATCOM INMARSAT	MOD 22325 (RMA 1248)
Add an Enhanced Terrain Awareness and Warning System (TAWS)	MOD 22331 (RMA 1260)
EGPWS External Strapping Data for Military Functions deactivation	MOD 22451 (RMA 1458)
Audio Control System for JCA configuration	MOD 22336 (RMA 1280)
Emergency Locator Transmitter (ELT) for JCA configuration	MOD 22330 (RMA 1259)
Communications Management Unit (CMU)	MOD 22327 (RMA 1251)
HF Substitution and 2° HF removal	MOD 22324 (RMA 1247)
IFF Mode S Enhanced Surveillance (EHS) Configuration Change for JCA	MOD 22326 (RMA 1250)
Dual Flight Management System (FMS) for JCA configuration	MOD 22332 (RMA 1261)
Throttle Quadrant with Autothrottle capability	MOD 22025 (RMA 0853)
Autopilot with Autothrottle Capability	MOD 22030 (RMA 0861)
V/UHF Substitution and provide DAMA capability	MOD 22323 (RMA 1246)
VHF Radio System for Civil Configuration	MOD 22449 (RMA 1456)
Embedded GPS Inertial (EGI) with SAASM and PPS	MOD 22341 (RMA 1252)
Autoflight System Improvement	MOD 22130 (RMA 1003)
Autoflight with VNAV capability	MOD 22328 (RMA 1253)
To Disable VNAV Capability for Civil Certification	MOD 22479 (RMA 1498)
Replacement of Obsolete Avionics Equipment for Civil Configuration	MOD 22453 (RMA 1487)
SAMU peculiar JCA	MOD 22481 (RMA 1510)
Avionic Software Updating for JCA Configuration	MOD 22482 (RMA 1511)
MCDU Configuration Upgrading	MOD 22484 (RMA 1514)
Avionics CSCI Software Updating for Civil Certification	MOD 22454 (RMA 1488)

Title (Avionics Improvement Modifications)	Design Change No.
Avionic Integration System Updating for JCA Peculiar Configuration	MOD 22333 (RMA 1262)
Avionic System Integration Mission computer CSCI OFP updating for JCA	MOD 22499 (RMA 1551)
CNI-SP CSCI OFP Updating for JCA Configuration	MOD 22500 (RMA 1552)
Mission Computer OFP, CNI-SP OFP, MCDU, EGI SW, ASD, DA/FD SW Updating (FQT4) for JCA Configuration	MOD 22556 (RMA 1593)
Control Panel Modification for Civil Application	MOD 22584 (RMA 1634)
ASE Provision for MIBA Configuration	MOD 22407 (RMA 1254)
Joint Cargo Aircraft (JCA) Electrical Integration	MOD 22267 (RMA 1258)
Electrical Integration Requirements for Civil Certification	MOD 22599 (RMA 1632)
Stall Warning Modification for Civil Application	MOD 22630 (RMA 1692)
Replacement of Obsolete MCDU Avionics Equipment for JCA Configuration	MOD 22640 (RMA 1694)
Deactivation of GPS receivers for civil application	MOD 22691 (RMA 1721)

Table 2

In addition to the C-27J Certification Basis, the following amendments of Airworthiness Requirements, Special Conditions and Elect to Comply are applicable:

EASA Certification Basis:

No reversions to FAR 25 amdt. 35 paragraphs are still applicable.

Special Condition:

SC C27J/F18	Electronic Hardware Design Assurance	CRI F-18
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Elect to comply:

CS 25.1155	Reverse thrust and propeller pitch settings below the flight regime	amdt 5
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The design changes *Doors System Modification, Beta Lock out and Inhibition of Steep Descent Activation and engine beta range dedicated lights* cannot be implemented without the implementation of the design change *Avionics Improvement*.

NOTE 3: Eligibility for an EASA Certificate of Airworthiness

Military configured C27J airplanes could be eligible for an EASA civil certificate of airworthiness if originally delivered by the manufacturer with a relevant EASA Form 52 that references the EASA approved type design with identified deviations; these deviations must be rectified before such airplane will be eligible for an EASA civil certificate of airworthiness in accordance with Alenia SB-C27J-00-A001

SECTION 3: CHANGE RECORD

Starting with Issue 2.0

TCDS Issue No	TCDS Date	TCDS Changes	TC Date
2.0	12/11/2010	Section 2.II.3,6,7 Amendment to Type Certification Basis Section 2.III.1 New Type Design Definition Section 2.III.17 New Equipment list identification Section 2.III.18 Addition of new kind of operation (IFR in oceanic and remote area) Section 2.IV.1 Addition of FM identification for C27J JCA variant Section 2.V Addition of Note 1: C27J JCA Variant Addition of Note 2: Certification Basis of type design changes	25/09/2008
3.0	21/12/2010	Addition of CRI H-01 as Special Condition (Enhanced Airworthiness Programme for Aeroplane Systems - ICA for EWIS) Addition of Note 3: Eligibility for an EASA Certificate of Airworthiness	25/09/2008