



European Aviation Safety Agency

EASA

**TYPE-CERTIFICATE
DATA SHEET**

No. EASA.A.407

**for
C-27J**

Type Certificate Holder:
Leonardo S.p.A. – Divisione Velivoli

Piazza Monte Grappa, 4
00195 Rome
ITALY

Airworthiness Category: Large Aeroplanes

For Models: C-27J

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SECTION 1: C-27J

I. General

1. Type/ Model/ Variant: Alenia C-27J
2. Performance Class: A
3. Certifying Authority: EASA
4. Manufacturer: Leonardo S.p.A. – Divisione Velivoli
Piazza Monte Grappa, 4
00195 Rome
ITALY
5. EASA Validation Application Date: 02 October 1996
6. EASA Type Validation Date: 18 June 2001 (original issue by ENAC Italy)
06 December 2002 (amended issue by ENAC Italy)
25 September 2008 (original issue by EASA)
24 April 2012 (amended issue by EASA)
19 December 2016 (amended issue by EASA)

II. Certification Basis

1. Reference Date for determining the applicable requirements 02

October 1996

2. EASA Airworthiness Requirements

- 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 01 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.

3. 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 |

SECTION 1: C-27J - continued

| | | |
|---------------|--|-------------------------------|
| 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 Iss 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 |

4. 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 |

5. 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 |

6. 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 |

7. Environmental Protection Standards

Noise:

ICAO Annex 16, Volume I, Chapter 3

See EASA Type Certificate Data Sheet for Noise (TCDSN) EASA.A.407

Fuel venting and emissions:

ICAO Annex 16, Volume II

SECTION 1: C-27J - continued

III. Technical Characteristics and Operational Limitations

1. Type Design Definition

G-CONF-110/090-0100-0002-AL Issue 14 and all subsequent approved Type Design Changes listed in G-CONF-110/090-0100-0008-AL.

2. Description

Large Aeroplane - Twin Turbopropeller for Cargo Transport

3. Equipment

The equipment required by the applicable requirements shall be installed.

The equipment are listed in G-CONF-110/090-0100-0016-AL Issue 1 and in all subsequent approved Type Design Changes.

4. Dimensions

Length: 22700.0 mm

Width: 28700.0 mm

Height: 9646.4 mm

5. Engines

Two (2) Allison/Rolls Royce AE2100D2A 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 Engine Type Certificate Data Sheet EASA.IM.E.040.

6. Auxiliary Power Unit

HAMILTON SUNSTRAND T-62T-46C16 APS 1000

APU limitations:

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

SECTION 1: C-27J - continued

7. 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°

Propeller limitations: See Propeller Type Certificate Data Sheet EASA.P.087.

8. Fluids (Fuel, Oil, Additives, Hydraulics)

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)

9. Fluid Capacities

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

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

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

10. Airspeed Limits

| | | |
|------|---|------------------------|
| VMO | From sea level to 18400 ft With linear variation from 18400 ft to 30000 ft | 260 KCAS 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 from 15000 ft to 30000 ft | 212 KCAS 0.423 Mach |

SECTION 1: C-27J - continued

11. Flight Envelope

Refer to approved AFM.

12. Operating Limitations

12.1 Approved Operations

Maximum operating altitude: 30000 ft. 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

12.2 Other Limitations

Refer to approved AFM.

13. Maximum Certified Masses

| | |
|----------------|----------------------|
| Taxi and ramp: | 30700 Kg (67681 lbs) |
| Take-off: | 30500 Kg (67240 lbs) |
| Landing: | 27500 Kg (60626 lbs) |
| Zero fuel: | 26500 Kg (58422 lbs) |

14. 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.

15. Datum

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

16. Mean Aerodynamic Chord (MAC)

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

17. Levelling Means

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

SECTION 1: C-27J - continued

18. Minimum Flight Crew

Two (2): pilot and co-pilot.

19. Maximum Seating Capacity

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

20. Baggage/Cargo Compartment

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

| | | |
|---------------|---------------|------------------------------|
| 5355 – 9145 | 1500 Kg/m and | 600 Kg/m ² |
| 9145 – 10015 | 2500 Kg/m and | 1000 Kg/m ² |
| 10015 – 11175 | 2500 Kg/m and | 1000 Kg/m ² |
| 11175 – 12195 | 2500 Kg/m and | 1000 Kg/m ² |
| 12195 – 13945 | 1500 Kg/m and | 600 Kg/m ² |
| 13945 – 15905 | 1000 Kg/m and | 400 Kg/m ² (ramp) |

21. Wheels and Tyres

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

22. Hydraulics

Oil specification: MIL-L-23699

Engine and APU specification: MIL-L-7808

SECTION 1: C-27J - continued

IV. Operating and Service Instructions

1. Flight Manual:

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

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 2 and all subsequent approved supplements and changes.

SECTION 1: C-27J - continued

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".

The Type Design Changes peculiar for C-27J JCA variant are listed in table 1 and 2.

The design changes *listed in table 1* cannot be implemented without the implementation of the design change *Avionics Improvement*.

| 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) |

SECTION 1: C-27J - continued

| 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 MBA 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) |
| Reactivation of GPS Receivers for Civil Application | MOD 22762 (RMA 1803) |
| EGI GPS Trimble Software Updating | MOD 27708 (RMA 1720) |

Table 2

NOTE 2: CERTIFICATION BASIS OF TYPE DESIGN CHANGES PECULIAR FOR C-27J JCA VARIANT

In addition to the C-27J Certification Basis, the following amendments of Airworthiness Requirements, Special Conditions and Elect to Comply are applicable for Type Design Changes peculiar for C-27J JCA variant:

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 |
|-------------|--------------------------------------|----------|

Elect to comply:

| | | |
|------------|---|--------|
| CS 25.1155 | Reverse thrust and propeller pitch settings below the flight regime | amdt 5 |
|------------|---|--------|

NOTE 3: Eligibility for an EASA Certificate of Airworthiness

Military configured C-27J 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: ADMINISTRATIVE

Starting with Issue 2.0

I. Acronyms and Abbreviations

| | |
|--------------|---|
| A/C | Aircraft |
| AFM | Airplane Flight Manual |
| APU | Auxiliary Power Unit |
| AWO | All Weather Operations |
| EASA | European Aviation Safety Agency |
| ENAC | Ente Nazionale Per l'Aviazione Civile |
| EWIS | Enhanced Wiring Interconnection System |
| FAR | Federal Aviation Regulation |
| HIRF | High Intensity Radiated Field |
| HF | Human Factors |
| ICA | Instructions for Continued Airworthiness |
| ICAO | International Civil Aviation Organization |
| IFR | Instrument Flight Rules |
| JAA | Joint Aviation Authorities |
| JAR | Joint Aviation Requirements |
| SB | Service Bulletin |
| SC | Special Condition |
| TC | Type Certificate |
| TCDS | Type Certificate Data Sheet |
| TCDSN | Type Certificate Data Sheet for Noise |
| VFR | Visual Flight Rules |

II. Type Certificate Holder Record

Since 15 July 2016

Leonardo S.p.A.
Piazza Monte Grappa, 4
00195 Rome – ITALY

31 July 2014 – 14 July 2016

Alenia Aermacchi S.p.A.
Piazza Monte Grappa, 4
00195 Rome – ITALY

24 April 2012 – 30 July 2014

Alenia Aermacchi S.p.A.
Via Ing. Paolo Foresio 1
21040 Venegono Superiore VA ITALY

18 June 2001 – 24 April 2012

Alenia Aeronautica, Viale
dell'Aeronautica

TCDS No.: EASA.A.407
Issue: 05
Pomigliano D'Arco 80038
Naples
ITALY

C-27J

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Date: 19/12/2016

SECTION: ADMINISTRATIVE - continued

III. Change Record

| Issue | Date | Changes | TC issue |
|--------------|-------------|--|-----------------|
| 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 |
| 4.0 | 24/04/2012 | Change of Type Certificate Holder Addition of references for EASA Data Sheets for Noise, Engine and Propeller Editorial and formatting changes | 24/04/2012 |
| 5.0 | 19/12/2016 | Change of Type Certificate Holder Updating of C-27J JCA Variant Type Design Changes (Table 2 of Note 1) Editorial changes and wording improvement. | 19/12/2016 |

-END-