



Caselle Torinese, June 10th, 2022

**To the kind attention of: Gen. Ayad Abdelsalam Abudher
Military Procurement Director
Ministry of Defense
State of Libya**

Our Ref. AD-DV/20220610/163

Subject: Leonardo S.p.a. Proposal to the Ministry of Defense of the State of Libya for the Procurement of three (3) C-27J Spartan

Your Ref: Prot. n 772/126 C-27J Request for Proposal dated 05/12/2021

Dear General,

Leonardo Aircraft Division (hereinafter "LEONARDO") is herewith honored to submit to Your kind attention this proposal for the supply of three (3) C-27J Spartan and the relevant Initial Integrated Logistic Support (including training) for three (3) years to cover Ministry of Defence of the State of Libya (hereinafter referred to as "the Customer") requirements with a modern aircraft with capabilities of personnel and/or cargo transport and multi-role characteristics.

The C-27J Spartan, new generation Medium Lifter Tactical Aircraft, is the only effective multi-mission cargo aircraft offering the most modern features to perform a full range of missions effectively, efficiently, reliably, fully complying with the most demanding requirements and with a high degree of survivability. The aircraft can perform missions in harsh environment in the most cost effective way, such as: transport of personnel and critical cargo, transport of stretchers and patients during MEDEVAC operations, humanitarian assistance and disaster relief, peacekeeping activities, firefighting and airdrop operations in a wide range of scenarios, providing the military operators with a genuine flexible and multitasking platform.

The C-27J Spartan represents the best "value for money" solution in its class, thanks to:

- Low operating costs and high versatility which ensure cost effective operations;
- Unrivalled speed, range and payload in its class to support mission in country and abroad
- Built-in survivability and excellent performances
- Capability of self-sustained operations in remote locations and from unprepared strips;
- Capability to operate in any weather condition and in extreme temperatures without restrictions in day and night.

Leonardo – Società per azioni

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R.E.A. n. 7031



The C-27J Spartan, designed upon a real military requirement, provides capabilities and points of strength, which are not available to other competitors, derived by an initial civil design.

Thanks to its unique characteristics such as the autonomous operation capability from any type of airstrip, in any weather condition, the built-in survivability, the outstanding versatility and the excellent performances, the "Spartan" is the ideal platform for missions in harsh environment.

We are confident that the C-27J solution is the best answer to meet the most challenging needs of Libyan Air Force, now and in the future, and stand ready to provide you any clarification may be deemed required after your review of the submitted documentation.

With this aim, for any matter related to this project, please refer to the following appointed Point of Contact:

Fabio Cortese

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Leonardo Aircraft Division
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Looking forward to receiving Your feedback on this proposal, please accept the senses of our highest esteem.

Yours Faithfully

Marco Zoff
Leonardo S.p.a.
Aircraft Division
Division Managing Director

Attachments:

- Appendix 1: Commercial Proposal
- Appendix 2: C-27J Spartan Technical Description
- Appendix 3: C-27J Spartan Initial ILS Description

**COMMERCIAL IN CONFIDENCE**

LEONARDO S.p.a. Aircraft Division

**Proposal to the Ministry of Defense of the State of Libya
for the Procurement of three (3) C-27J Spartan**

Appendix 1: Commercial Proposal

JUNE 2022

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COMMERCIAL IN CONFIDENCE



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1 INTRODUCTION

Leonardo S.p.a. Aircraft Division, hereinafter referred to as "LEONARDO", is pleased and honored to present to the Ministry of Defense of the State of Libya (hereinafter referred as "the Customer") this proposal for the procurement of three (3) C-27J Spartan along with the related Initial Integrated Logistic Support (ILS) for three (3) years.

The C-27J Spartan, a new generation of Medium Tactical Airlifter, is the only effective multi-mission cargo aircraft offering the most modern features to perform a full range of missions effectively, efficiently, reliably, fully complying with the most demanding operational requirements and with a high degree of survivability. The aircraft can perform operational missions in harsh environment in the most cost effective way, such as: transport of personnel and critical cargo, transport of stretchers and ambulatory patients during MEDEVAC operation, humanitarian assistance and disaster relief, in a wide range of scenarios even on unprepared runways, providing the operators with a genuine flexible and multitasking platform.

The C-27J Spartan represents the best "value for money" solution in its class, thanks to:

- Low operating costs and high versatility which ensure cost effective operations;
- Unrivalled speed, range and payload in its class, to support mission in country and abroad;
- Capability of self-sustained operations in remote locations and from unprepared strips;
- Capability to operate with any climate, in mountainous, hot and high and cold environments.

The C-27J Spartan, being designed based upon a real military specification, provides capabilities and points of strength which are not available to other competitors, derived by an initial civil design.

Thanks to its unique characteristics such as the autonomous operation capability from any type of airstrip, in any weather condition, the built-in survivability, the outstanding versatility and the excellent performances, the "Spartan" is the ideal platform for a really effective multi-mission capability aircraft.

A total of 87 C-27J aircraft have been ordered up to now and 16 Customers successfully operate the C-27J in a variety of missions worldwide: from arid and desertic plains to highest peaks of the mountains and from saline environment to extreme icy conditions.

2 SCOPE OF SUPPLY

This paragraph provides an overview of the contents of the Leonardo Offer for the acquisition of three (3) C-27J Spartan with relevant Initial ILS, including training.

C-27J Spartan is described at **Appendix 2 – C-27J Spartan Technical Description**.

2.1 OFFER FOR THREE (3) C-27J SPARTAN

- **Three (3) C-27J SPARTAN**, each including:
 - Standard Mission Kits
 - Loose Equipment
 - Operational and Maintenance Manuals in English language, hard and soft copies
 - Thirty-six (36) standard STANAG 2040 stretchers for MEDEVAC Operations
- **INITIAL INTEGRATED LOGISTIC SUPPORT (ILS) PACKAGE for three (3) years**, including:
 - **SPARE PARTS**
 - An effective initial provisioning of Repairable, Non-Repairable, Consumable Spare Parts to support C-27J Spartan operations
 - **GROUND SUPPORT EQUIPMENT (GSE)**
 - A full set of Peculiar and Common GSE to operate and maintain the C-27J Spartan
 - **PILOTS FLYING EQUIPMENT** for 4 Pilots in Command and 4 Co-pilots (helmets, masks, suits, life vests, gloves and boots)
 - **WARRANTY EXTENSION** (Line Replaceable Units (LRUs) Repair & Return (R&R)) for the entire Customer's fleet up to the end of the 3rd year starting from the 1st aircraft Entry Into Service (EIS)
 - **OPERATIONAL AND MAINTENANCE MANUALS UPDATING**
 - **ON-SITE ASSISTANCE**
 - 1 Support Pilot (for 50 FHs or 2 months)
 - 1 Maintenance Team (3 maintenance specialists for 6 months)
 - 1 Field Service Representative (FSR) for 3 years
 - 1 Logistics Manager for 3 years
 - **REMOTE TECHNICAL ASSISTANCE**
 - Service Bulletins
 - Service Letters
 - Query-Answering
 - Troubleshooting support
 - In service data collection and reporting
 - Scheduled Maintenance Program Updating Service

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- **TRAINING**

- Aircrew training for four (4) Aircrews (four (4) Pilots in Command, four (4) Co-pilots and four (4) Loadmasters), including instructors training
- Maintenance training for thirty-six (36) maintenance specialists, including instructors training

- **ILS MANAGEMENT**



3 COMMERCIAL ASSUMPTIONS AND CONDITIONS

The offered prices are based on the following considerations / assumptions:

- All prices are Rough of Order of Magnitude ("ROM") in EURO, at 2022 E.Cs.
- Delivery of the aircraft and all associated materials considered in this offer are DPU at Customer Main Operating Base (MOB) according to INCOTERMS 2020, in accordance with the related schedule will conform to Chapter 5;
- Prices assume the payment scheme described in Chapter 6 and the application of LEONARDO standard Terms and Conditions;
- Prices include the warranty defined in Chapter 7.2 for the aircraft and all goods included in the Scope of Supply.
- It is assumed that any other infrastructure necessary to maintain and operate the assets object of this offer are Government Furnished Facilities (GFFs). Any cost relevant to the built-up of other new infrastructures, modifications / maintenance of the existing ones is not covered by this proposal.
- Prices do not include round-trip air tickets, local transportation, board & lodging and any other expenses for the Customer personnel staying in Italy for training attendance
- Prices do not include Value Added Tax (VAT), taxes, customs duties or other levies or fees on the goods and services to be imported by the Customer, which could be locally imposed in terms of Import/Export regulations at present or in the future. All those have been assumed borne by the Customer.
- The contents of the present offer are subject to mutual understanding between parties with regards to the Contract Effective Date, Program Integrated Master Schedule and Contractual Terms & Conditions that will be defined during the negotiation phase.
- All supplied good will be new and newly manufactured
- Leonardo acknowledges that a contract reflecting the agreed technical and economic conditions of Leonardo's proposal will be stipulated upon the Customer obtaining all the necessary authorizations pursuant to the Public Procurement regulations in force in the State of Libya.

4 ECONOMICAL OFFER**4.1 PRICE FOR THREE (3) C-27J AIRCRAFT**

DELIVERABLES	UNIT PRICE (EUR)	Q.TY	TOTAL PRICE (EUR)
C-27J SPARTAN , equipped each with: <ul style="list-style-type: none"> ○ Standard Mission Kits ○ Loose Equipment ○ Operational and Maintenance Manuals ○ 36 standard STANAG 2040 stretchers for MEDEVAC operations 	47.000.000	3	141.000.000
INITIAL ILS Package for three (3) years , including:			
<ul style="list-style-type: none"> • Spare parts initial provisioning 			37.000.000
<ul style="list-style-type: none"> • Ground Support Equipment (Peculiar and Common) 			
<ul style="list-style-type: none"> • Pilots flying equipment for 4 Pilots in Command and 4 Co-pilots (helmets, masks, suits, life vests, gloves and boots) 			
<ul style="list-style-type: none"> • Warranty Extension 			
<ul style="list-style-type: none"> • Operational and Maintenance Manuals Updating 			
<ul style="list-style-type: none"> • On-site Technical Assistance <ul style="list-style-type: none"> ○ 1 Support Pilot (for 50 FHs or 2 months) ○ 1 Maintenance Team (3 maintenance specialists for 6 months) ○ 1 FSR ○ 1 Logistics Manager 			
<ul style="list-style-type: none"> • Remote Technical Assistance 			
<ul style="list-style-type: none"> • Training <ul style="list-style-type: none"> ○ Aircrew Training for 4 crews ○ Maintenance Training for 36 maintainers 			
<ul style="list-style-type: none"> • ILS Management 			
TOTAL OFFER:			178.000.000

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4.2 ADDITIONAL OPTIONS

DELIVERABLES	UNIT PRICE (EUR)
VIP Transport System: <ul style="list-style-type: none"> ○ one (1) VIP Module for six (6) VIPs ○ two (2) Escort Modules for nine (9) Escorts each ○ one (1) Service Module ○ training course for three (3) cabin attendants 	2.200.000
Special MEDEVAC <ul style="list-style-type: none"> ○ two (2) Intensive Care Special Stretchers (Patient Transport Support System) 	800.000
Airborne Biocontainment System <ul style="list-style-type: none"> ○ two (2) Airborne Biocontainment Modules ○ Bio-containment Transportation Training for three (3) Loadmasters 	600.000
Ballistic Protection Kit	450.000

5 DELIVERY SCHEDULE

Current C-27J reference delivery time is twelve (12) months for the 1st aircraft. All the subsequent aircraft will be delivered every four (4) months.

The 1st aircraft and the subsequent ones' delivery rates may be jointly refined during contract negotiation in accordance to Customer specific needs and LEONARDO new orders, backlog and production rate at the date of the Contract Signature (Contract Effective Date).

All services and goods of the Initial ILS Package, including training, will be delivered and provided in accordance with aircraft deliveries allowing prompt and effective operations of the C-27J fleet in the State of Libya since the 1st aircraft entry into service.

6 PROPOSED PAYMENT PLAN

A standard payment plan is assumed, consisting of down payment, a series of progress payments and delivery payments tied to the Delivery Schedule as preliminarily reported above.

- **DOWN PAYMENT:**
 - **twenty-five percent (25%)** of the total contract price within one (1) month after Contract Signature;
- **PROGRESS PAYMENT**
 - **twenty percent (20%)** of the total contract price at the 1st Progress Status Review (PSR) meeting;
- **MILESTONES AND BALANCE PAYMENTS for the C-27J:**
 - **twenty percent (20%)** of the C-27J unit price upon Aircraft Electrical Power-on successful completion;
 - **thirty-five percent (35%)** of the C-27J Aircraft unit price upon the formal acceptance of the relevant aircraft;
- **Other BALANCE PAYMENTS:**
 - **for the products (Spares, GSE): fifty-five percent (55%)** of the price of each product upon the relevant acceptance. In particular, for Spares and GSE, they will be delivered in batches and payment will be requested after the formal acceptance of each batch.
 - **for the services: fifty-five percent (55%)** of the price of each service service through half-yearly payments upon the issuance of the related report.

The Down Payment will be paid by direct remittance to LEONARDO.

Progress and Balance payments will be secured by irrevocable, divisible documentary Letter of Credit (opened, funded and maintained by the Customer at a first class International Bank acceptable to LEONARDO and confirmable by an International Bank to be selected by LEONARDO), to be issued not later than one (1) month after the signature date of the Contract.

The Letter of Credit, to be issued in accordance with the Uniform Customs and Practice for Documentary Credits (UCP ICC Publication n° 600), will allow payments against the presentation to the Bank of documentation to be mutually agreed during the Contract negotiation phase.

7 STANDARD CONTRACTUAL HIGHLIGHTS

The following chapters summarize the main terms and conditions stated in the Standard Contract that will be negotiated between LEONARDO and the Customer.

7.1 Contract Effective Date and Operative Triggering Date

The **Contract Effective Date** defines the date when the contract is effective and binding upon its signature by the Parties.

The **Contract Operative Triggering Date (T0)** defines the starting date for the industrial operational activities associated to the scope of supply (Aircraft and ILS Goods and Services).

The Contract Operative Triggering Date is the date when the latest of the following conditions occur:

- the Down Payment is paid in full to LEONARDO;
- the End User Certificate(s) are duly signed by the Customer and received by LEONARDO;
- the Export License(s) are granted to LEONARDO by the competent Authorities;
- the Letter of Credit is opened by the Customer.

7.2 Warranty

The aircraft and the other goods included in the scope of supply are warranted for one (1) year or three hundred (300) Flight Hours whichever comes first starting from the date of acceptance by the Customer, provided that they are properly used and maintained according to LEONARDO instructions and applicable manuals.

7.3 Export and Import Licenses

The Contract and all obligations arising thereunder will be contingent upon and subject to Italian and US Government Export Control Laws and Regulations, including, without limitation, the requirement to obtain all necessary approvals and licenses prior to the delivery of the aircraft and other goods and services set forth herein.

For the export of goods and services object of this proposal to the State of Libya, LEONARDO will be responsible for the application for all export licenses from Italian National Authorities and third party licenses or other official authorizations needed. In order to support LEONARDO in obtaining the official authorizations and/or export licenses from Italian National Authorities, third parties export authorizations and/or licenses, the Customer will support LEONARDO in obtaining all the necessary End User Certificates.

The Customer will be responsible for obtaining all Import Licenses or any other official authorizations and carry out all customs formalities necessary for the import of the goods and services to the State of Libya. LEONARDO will not be liable in case of lack of issuance, delay or withdrawal of any export / import licenses by the competent Authorities.

7.4 Aircraft and Goods Acceptance

Aircraft and Goods Acceptance shall be based on LEONARDO standard Acceptance Test Procedures (ATP) and will take place in Italy at LEONARDO's facilities. The Customer shall send a team of authorized personnel to attend/participate in the Acceptance process. After successful completion of the Acceptance, the Parties shall sign the Certificate of Acceptance. The aircraft shall then be carried to the Customer MOB by ferry flight that will be performed by the LEONARDO's aircrew.

7.5 Government Furnished Items (GFI)

The Customer undertakes to provide in due time all equipment, authorizations, information, facilities, materials and permissions necessary to LEONARDO for the performance of its obligation under the Contract (collectively referred to as "GFI"), with needed documentation and relevant licenses and authorizations. GFI list will be jointly agreed during the negotiation phase.

8 CONFIDENTIALITY

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9 VALIDITY

This Proposal is valid until the **30th of September 2022**, and is subject to the approval of the Board of Directors of LEONARDO. Any further extension of the validity date must be released in writing by LEONARDO.





LEONARDO S.p.a. Aircraft Division

**Proposal to the Ministry of Defense of the State of Libya
for the Procurement of three (3) C-27J Spartan**

Appendix 2: C-27J Spartan Technical Description

JUNE 2022

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1 C-27J “SPARTAN”

The C-27J “Spartan” is the benchmark in the medium tactical transport aircraft category, renowned for its unbeatable toughness, unparalleled performances, exceptional flexibility and unmatched loading capabilities.



The platform is able to operate seamlessly, day and night, in the most extreme climates and in any weather condition, exploiting its STOL characteristics and powerful APU to take-off and land on unprepared, short and narrow airstrips, also where ground support is unavailable. Thanks to these unrivalled capabilities, the C-27J has widely proven to be fit for humanitarian assistance, disaster relief and emergency missions such as MEDEVAC and Special MEDEVAC, as well as for security operations.



Through easily installable kits, the C-27J can be quickly reconfigured to perform any transport task (troops, containers, pallets, many different types of wheeled and tracked vehicles, both of military and of civil origin such a standard ambulance) and airdrop mission (paratroopers, emergency supplies, bundles, firefighting...).

Thanks to the C-27J large cargo bay, strong rear ramp and unique floor adjustment capabilities, large vehicles can be easily driven into/out of the aircraft and standard pallets can be quickly loaded/unloaded, allowing extensive full interoperability with heavier airlifters.

Currently, 87 C-27J “Spartan” have been sold to numerous Customers worldwide, who accumulated an extensive and fully satisfactory operational experience logging more than 185,000FH in the most varied environmental conditions and scenarios.

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1.1 C-27J PEACE-TIME OPERATIONS

The C-27J has proven to be extremely valuable in humanitarian assistance, disaster relief and emergency missions. Some examples are reported below:

- In response to the emergency caused by Hurricane Sandy, which in October 2012 hit hard the United States' East Coast, the U.S. Air National Guard (ANG) carried soldiers and vehicles to New York, including field generators, to assist the victims of the hurricane, using for the first time the C-27J in support of a domestic humanitarian emergency.



C-27Js employed by the U.S. Air National Guard against the terrible hurricane affecting New York

- Italian Air Force deployed C-27J in the Philippines, in support of international assistance activities for people affected by the typhoon Haiyan (2013/2014).
- In April 2014 a crew of 10 military of the Lithuanian Air Force's C- 27J Spartan are deployed as part of Operation Sangaris to stabilize security situation, prevent violence and civilian casualties and to ensure proper conditions for delivering humanitarian assistance in the Central African Republic.
- In April 2016, a violent earthquake with a magnitude of 7.8 degrees on the Richter scale shook Ecuador. To reach remote areas affected by the earthquake, the Peruvian Air Force (FAP) made one of its C-27Js available, aggregating it to an international transport unit consisting of countries all over the Americas.



Humanitarian aids are disembarked from the FAP's C-27J in Ecuador

- The United States Coast Guard (USCG) used its C-27J Spartans intensively to assist the populations that were hit by Hurricanes Harvey, Irma and Maria in 2017.

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- Chile was struck in 2017 by the largest forest disaster in the country's recent history with many fronts open over a very large area and thousands of people evacuated. In this emergency situation, the Government of Peru brought aid to its neighbour with its C-27Js, transporting to Chile firefighting equipment and personnel and making lengthy non-stop flights.



C-27Js employed by FAP for helping its neighbour (Chile) against the largest forest disaster

- Recently, between December 2019 and January 2020, C-27J aircraft have been massively used by the Australian Air Force in supporting the nationwide firefighting effort against the terrible bushfires affecting the Country. During that period, the C-27J has served to rescue civilians and animals in danger, deploying fire fighters and specialized personnel while it assisted isolated communities spread all around the Country.



C-27Js employed by the Australian Air Force against the terrible bushfires affecting the Country

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- Since the beginning of 2020, several Air Forces have been assuring uninterrupted support operating C-27J aircraft in assistance to their Governments and Populations against the ongoing worldwide pandemic of coronavirus disease (COVID-19).



Several Air Forces assuring uninterrupted support with C-27J aircraft against COVID-19 Pandemic

- In the last days, the Royal Australian Air Force (RAAF) started using its C-27J Spartans intensively in the “Operation SOLANIA” to assist Pacific Island nations with intelligence, surveillance and reconnaissance to support detection of illegal, unreported and unregulated (IUU) fishing in the Southwest Pacific. Thanks to the openable in-flight doors (rear ramp and paratroopers doors), the C-27J has been tested with new Search and Rescue (SAR) capabilities, dropping Compact Rescue Systems (CRS) in the ocean.



C-27Js employed by the Australian Air Force in the “Operation SOLANIA”

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1.2 C-27J SECURITY OPERATIONS

As widely proven, the C-27J survivability and capability to cope with high threat scenarios have been demonstrated by its extensive use made by several Air Forces in extremely demanding and very hostile theatres. US Air National Guard, Lithuanian, Italian and Romanian Air Forces have successfully employed several C-27Js in Afghanistan.



A US Air National C-27J employed in Afghanistan

In the last years, the C-27J has been massively used during several peacekeeping activities, including Iraq operations thanks to secure communications and battlefield ballistic protection that allow to operate in highly dangerous environments, delivering cargo, light trucks and personnel wherever they are needed.



LitAF C-27J landing at Chaghcharan



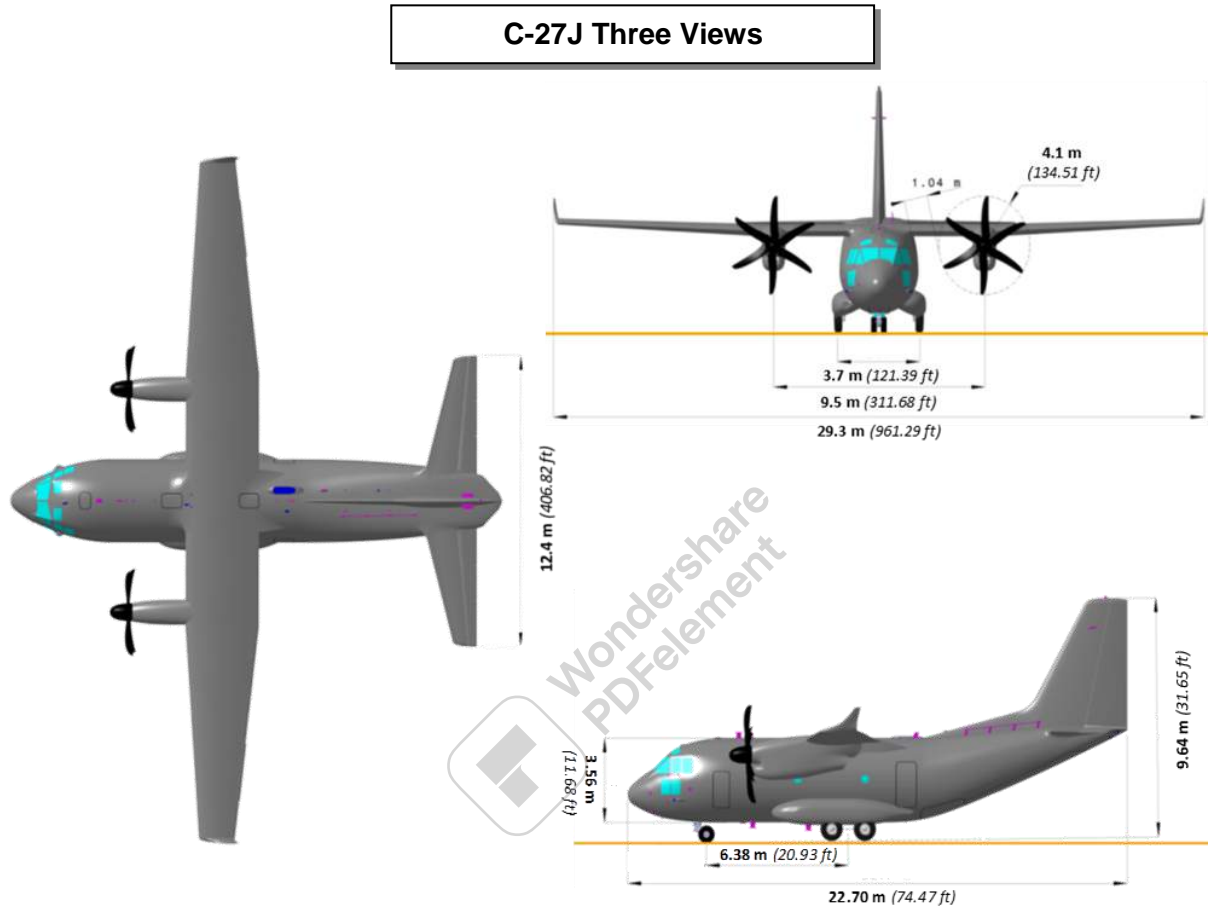
An Italian Air Force C-27J employed in Afghanistan

2 AIRCRAFT OVERVIEW

The following paragraphs describe the main features of the C-27J baseline configuration.

2.1 DIMENSIONS, WEIGHTS AND EXTERNAL CONFIGURATION

The main dimensions of the C-27J and its general external configuration are shown below.



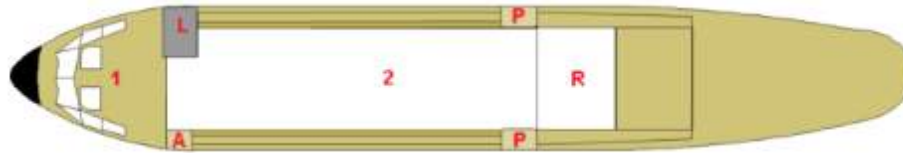
Weights and Balance

Maximum Take-off Weight (MTOW)	31,800 kg (70,106 lb)
Maximum Zero Fuel Weight (MZFW)	29,500 kg (65,036 lb)
Maximum Payload	11,300 kg (24,910 lb)
Maximum Landing Weight (MLW)	30,500 kg (67,241 lb)
Fuel Capacity	12,320 l (3,255 USGal)
Take-Off Ground Run (MTOW, ISA, S.L.)	690m (2,264ft)
Landing Ground Roll (MLW, ISA, S.L.)	390m (1,279ft)
Top Cruising Speed	602km/h (325KTAS)
Cruise Altitude (95% MTOW)	8,382m (27,500ft)
Range with 10,000 lb (4,536 kg) of Payload @ MTOW normal, ISA	5,056km (2,730nm)
Max Range	5,852km (3,160nm)

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2.2 INTERNAL LAYOUT

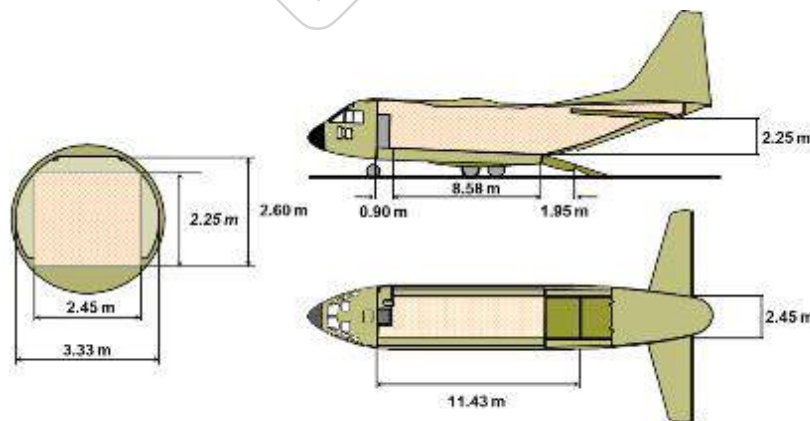
The C-27J standard crew includes two Pilots and one Load Master. The latter oversees and/or performs all tasks related to the aircraft payload, including re-configuration of the Cargo Bay, cargo loading/unloading and airdrop operations. No need of additional flight personnel such as flight engineer is required for all the aircraft missions.



C-27J Internal Layout (for reference only)

The Cockpit Area (1) is provided with all equipment and systems needed for safely flying the aircraft, including a state-of-the-art glass cockpit, radios, navigation systems, Flight Management System. In addition to the Pilot seats, conventionally arranged side by side, a jump seat is available in the Cockpit Area to host the Load Master. The wide Cargo Bay (2) can be quickly reconfigured, also in flight, to perform various transport and airdrop duties thanks to dedicated mission kits which can be easily stowed on board when not installed. All the main aircraft doors are located in this area: one access door (A), two in-flight operable doors (P) for paratroopers airdrop, the rear ramp (R) for loading/unloading of containers, pallets, vehicles and cargo/paratroopers airdropping. A lavatory (L), including an electrical flushing toilet, is also located in this area.

The dimensions of the C-27J Cargo Bay are shown below and detailed in the table hereinafter.



C-27J Cargo Bay Dimensions

	Entry Zone Volume	Main Cargo Volume	Ramp Volume	TOTAL
Cargo Volume	3.5 m ³ (127 ft ³)	61.5 m ³ (2,172 ft ³)	10.2 m ³ (360 ft ³)	75+ m³ (2,648+ ft³)
Cargo box Area				5.5 m² (60 ft²)

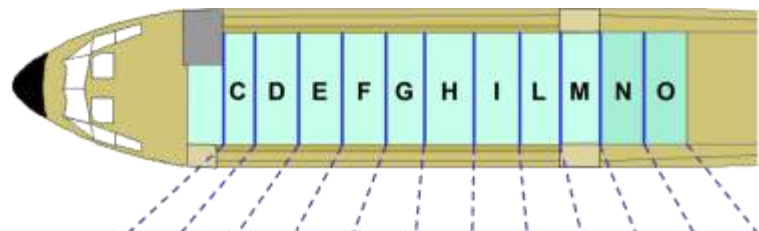
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2.3 AIRFRAME

2.3.1 STRUCTURE

The C-27J primary airframe structure, designed in accordance with damage tolerance criteria, is a conventional metallic shell construction except for the nacelle lower cowl skin, which is carbon fibre/epoxy. Some secondary components, including all movable surfaces and some doors and internal bulkheads, have a metallic composite sandwich construction. Fiberglass/epoxy is used for non-structural components such as the weather radar radome, fuselage tail cone and fairings.

Being designed to transport heavy loads, often characterized by a high weight distributed on a small area (such as vehicles), the C-27J features an outstanding floor strength. Specifically, its load capability per unit length is a remarkable 4,900 kg/m, while its maximum allowed specific pressure is 2,000 kg/m² and both remain the same along the whole Cargo Bay floor.



Compartments		C	D	E	F	G	H	I	L	M	N	O
Max Load Capacity of Compartment	KG	3580	4980	4980	4980	4260	5700	4980	5552	3060	2150	2210
	LB	7894	10981	10981	10981	9393	12569	10981	12242	6747	4741	4873
Max Superficial Load on Floor	KG/M ²	2000	2000	2000	2000	2000	2000	2000	2000	2000	1000	1000
	LB/FT ²	410	410	410	410	410	410	410	410	410	205	205
Max Load per Floor Length Unit	KG/M	4900	4900	4900	4900	4900	4900	4900	4900	4900	2400	2400
	LB/FT	3290	3290	3290	3290	3290	3290	3290	3290	3290	1611	1611

C-27J Cargo Bay Structural Limitations

These values are comparable with (and in some case greater than) the ones featured by far heavier airlifters (such as the C-130J). Also the rear ramp area can be used for cargo stowage, featuring a 2,400 kg/m load capability per unit length and a 1,000 kg/m² maximum allowed specific pressure.

In summary, thanks to the structural characteristics of its cargo bay, the C-27J offers extreme flexibility during loading/unloading operations and an excellent interoperability with heavier airlifters: heavy, concentrated loads can be easily transferred from such aircraft to the C-27J, with no need of repackaging.

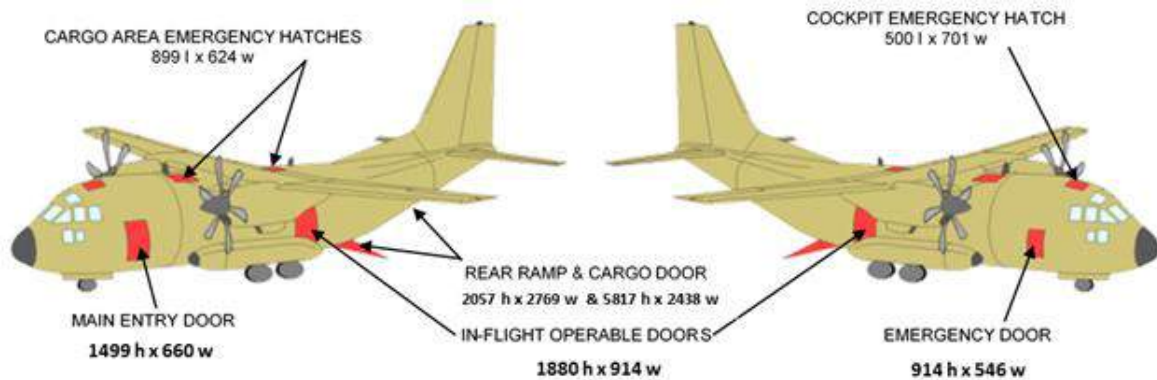
2.3.2 WINDOWS, DOORS AND HATCHES

The 16 windows located in the C-27J cockpit provide the pilots with an excellent external visibility in the front, side and overhead zones.

The cargo bay includes 6 standard windows, three on each side of the fuselage. In addition, 2 panoramic windows are located in the rear ramp area, allowing comfortable, wide field visual observation.

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The following figure shows location and dimensions of the C-27J doors and hatches (dimensions are in mm).



C-27J Doors Location and Dimensions

The C-27J main entry door is located in the forward area of the cargo bay, in the left side of the fuselage. It opens outwards and is provided with integral stairs.

Two in-flight operable, plug type doors, each incorporating a window, are located in the rear area of the cargo bay, one on each side of the fuselage. The doors retract inward, sliding upwards, and their generous dimensions ensure easy, safe and quick paratroopers airdrop operations.

The rear end of the cargo bay includes the rear ramp and cargo door, whose simultaneous openings combine to provide the full size access needed for loading and unloading pallets, vehicles and containers. The rear ramp and cargo door can also be opened in flight to allow material and personnel airdrop.

An emergency door is located directly in front of the main entry door on the right side of the fuselage, in the lavatory area. Three hatches in the fuselage roof provide emergency evacuation capabilities for crew and passengers in case of aircraft ditching: one is located in the cockpit area, two in the cargo bay. The latter can be reached through dedicated ladders stowed in the cargo bay. All doors and hatches can be opened and closed from both inside and outside the aircraft.

2.3.3 LANDING GEAR

The aircraft is provided with a fuselage mounted, retractable tricycle landing gear, which is hydraulically actuated. In case of total hydraulic power loss, an emergency system allows landing gear extension and locking.

The nose wheel is provided with a steering system with a maximum angular operating range of 65° for both sides of the aircraft centreline.

The landing gear design provides a good flotation capability on airstrips with limited CBR value and offers a landing sink rate up to 12 ft/s. These characteristics, coupled with powerful hydraulic brakes and a digital anti-skid system, allow the C-27J to operate in the most difficult environmental

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conditions, also on unprepared and semi-prepared airstrips, with exceptional short landing performances.

In addition, the landing gear continuous jack extension system allows to change the cargo bay floor height from ground (0.5 m excursion) and attitude (4.3°, nose up), in order to ease cargo loading/unloading procedures.

2.4 AIRCRAFT SYSTEMS

2.4.1 FUEL SYSTEM

The C-27J fuel system is composed by four wing tanks (two main tanks and two auxiliary tanks), with a total fuel capacity of 12,320 l, equivalent to 9,732 kg of JP-8 fuel. Acceptable alternate fuels include JP-4, JP-5 or Jet/A/Jet A-1, while AV-GAS can be used as emergency fuel.

Two electrically driven pumps are installed in each tank to transfer fuel from the tanks to the engines. An additional pump is installed in the LH main tank and is used to provide fuel supply to the APU. In normal operations, each main engine is fed by the corresponding wing tanks, but, thanks to a cross-feed valve, it is possible to feed any engine from any fuel tank. The system is provided with a single refuelling/defueling pressure point, with four gravity refuelling points and with a fuel jettison system, operating throughout the flight envelope, able to quickly empty the fuel tanks in emergency conditions. As the fuel tanks empty, the aircraft On-Board Inert Gas Generation System (OBIGGS) replaces oxygen and fuel vapours in the tanks with inert gas in order to prevent explosions, providing a significant protection against battle damage.

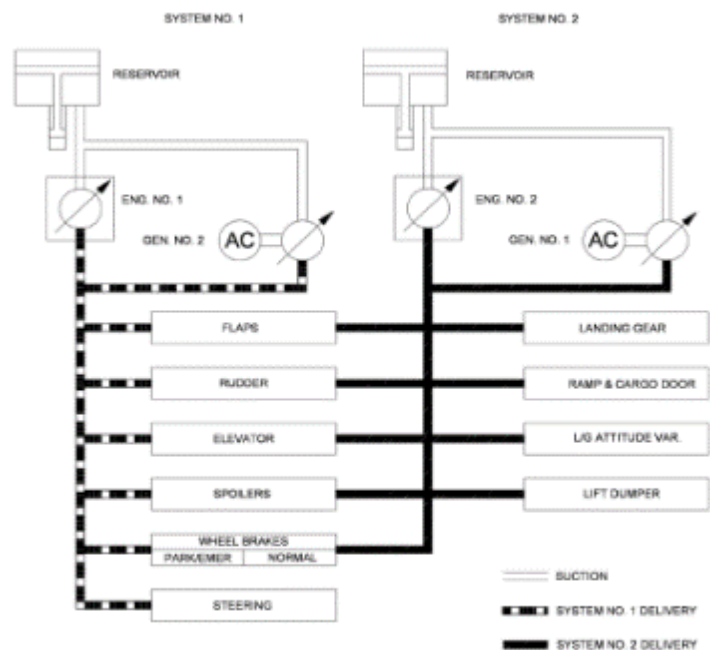
2.4.2 ELECTRICAL POWER

The C-27J electrical power generation and distribution system is designed to ensure maximum redundancy and flight safety also in the most adverse conditions. It is based on three, fully independent 60 kVA generators, providing 400Hz AC at 155/200V. Two generators are driven by the main engines (one generator for each engine), while the third one is driven by the APU. When at least two generators are fully operative, the electrical system is able to provide a 50% surplus power with respect to the maximum needed to perform a night mission in icing conditions, without any performance degradation. DC power is generated through three independent, 350A Transformer Rectifier Units. The aircraft is also equipped with two 24V, 40Ah batteries, dedicated to power the emergency systems; one of the batteries is also used for APU starting procedures. The electrical system can accept both AC and DC ground power.

2.4.3 HYDRAULIC POWER

The C-27J is equipped with two completely separate and independent 3,000 psi hydraulic systems, each powered by an engine driven pump and an AC electrical motor pump. Both systems can be powered by a single engine or by the APU, on ground and in flight, satisfying in any condition all aircraft hydraulic power demands.

All critical aircraft components (such as flight controls and brakes) are simultaneously supplied by both systems and the systems structure allows the aircraft to be fully controllable both in flight and on ground, also in case of one hydraulic system failure.



C-27J Hydraulic System

2.4.4 ENVIRONMENTAL CONTROL SYSTEM

The ECS is designed to maintain the air within the pressurized fuselage compartments at the required levels of pressure, temperature, humidity and purity.

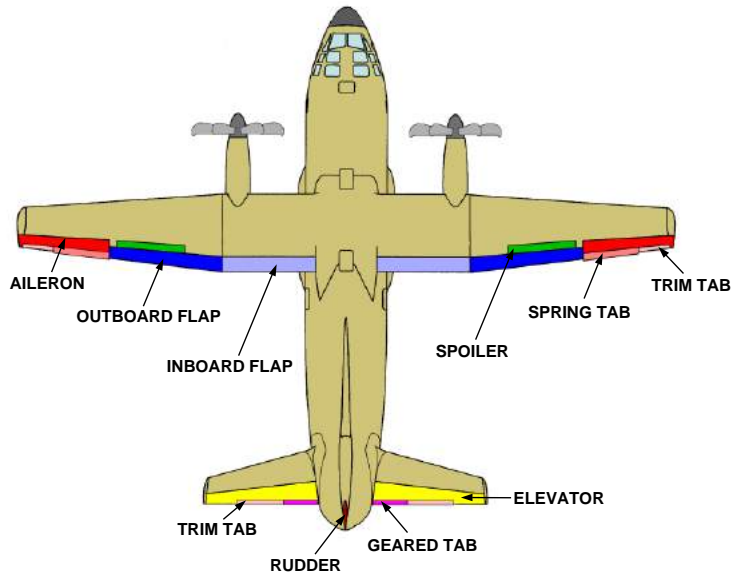
It includes an air conditioning system and a pressurization system, working together to achieve the required performances.

The air conditioning system allows automatic and independent temperature control in the cockpit area and in the cargo bay and is provided with a manual back-up. During normal operation, the system is powered by compressed air supplied from both engines and routed through the environmental control unit located in the forward area of the RH landing gear fairing. On ground, air can also be supplied by the APU compressor or by an external air source.

The cabin pressure control system can maintain the sea level pressure up to a 13,250 ft flight altitude and a differential pressure of 5.8 psi up to a 30,000 ft flight altitude. The aircraft pressure control provides different operating modes selectable by the pilots, including MEDEVAC (optimized for transportation of injured/sick people who need the lowest possible cabin altitude) and Airdrop (allowing a depressurization rate adequate for comfortable and safe airdrop operations).

2.4.5 FLIGHT CONTROL SYSTEM

The C-27J features a reliable, proven mechanical flight control system. The pilots' command inputs are directly transmitted to the ailerons, while all other flight controls (elevator, rudder, spoilers/lift dumpers and flaps) are hydraulically actuated. The elevator is provided with a force feedback system controlled by a redundant electronic unit, giving the pilots an artificial indication of the effort required on the control column. In addition, a mechanical backup system allows elevator control also in the improbable case of a complete hydraulic systems failure.



C-27J Control Surfaces

Both the elevator and the ailerons feature balance tabs to reduce the Pilots' control effort and electrically controlled trim tabs. The rudder is provided with an automatic digital system regulating the maximum allowed travel of the control surface as a function of the aircraft actual speed.

A Jamming Override Mechanism (JOM) is in place to disconnect the command loops of the two pilots, allowing full aircraft control if one loop fails.

On ground, ailerons and elevator are protected from wind gusts by a locking mechanism. The same protective function is provided to the rudder through a hydraulic damping system, which activates whenever the aircraft hydraulic systems are inoperative, limiting the control surface movements. In flight, the rudder damping comes into play in emergency situations, easing aircraft control.

The C-27J is provided with a digital Auto-pilot, including the Auto-throttle function, able to control the aircraft on three axes.

2.4.6 PROPULSION SYSTEM

The C-27J is powered by two Rolls Royce AE2100D2A turboprop engines, each equipped with a Dowty Aerospace R391-F/10 six blade, variable pitch propeller. Each engine can provide a maximum power of 4,637 sHP and is managed (together with the associated propeller) by a Full Authority Digital Engine Controller (FADEC).

The C-27J propulsion system is cleared for ground operations with crosswind speeds up to 45 kt, can operate at negative g for up to 9 s (at 0 g for up to 10 s) and offers a steep descent mode minimizing exposure to threats: all these features contribute to the aircraft excellent maneuverability and survivability.

In addition, with respect to its remarkable power rating, the C-27J propulsion system offers low fuel consumption and external noise:

- Fly over at full power 88 dB;
- Sideline 89 dB;
- Approach 95 dB.



C-27J Engine & Propeller

2.4.7 AUXILIARY POWER UNIT

In order to be fully autonomous and independent from ground infrastructures also in remote areas, the C-27J is equipped with an Hamilton Sundstrand APS1000 Model T-62T-46C16 APU.

The APU, which belongs to the 150 HP mechanical power class, provides bleed air for ground engine starting and for ground pre-conditioning. In addition, it drives a 60 kVA AC generator, through which it is able to provide the aircraft with enough electric and hydraulic



C-27J APU

power to allow pre-flight operations without any external power source. The APU can be started by using the dedicated aircraft battery or a TRU (Transformer Rectifier Unit).

In flight, the APU can be operated to start an engine and/or to provide electrical power, mainly in emergency situations. The APU can be started up to a 25,000 ft altitude, but once started can continue to operate throughout the aircraft flight envelope.

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2.4.8 OXYGEN SYSTEM

The oxygen system operates throughout the C-27J flight envelope. It continuously provides an air-oxygen mixture (or pure oxygen) at a pressure acceptable to the human body in case of pressurization system failure and/or emission of smoke and noxious gases.

The system consists of two independent circuits, one supplying oxygen to the crew in the cockpit area and the other supplying cargo bay oxygen outlets.

The cockpit area system features a 10 litres converter and three distribution points, enabling a continuous oxygen supply for three crew members lasting up to 14.5 h.

The cargo bay system includes two 10 litres converters and 47 distribution points (one of them is located in the lavatory). This configuration allows to continuously supply oxygen to 46 passengers/troopers/paratroopers for up to 2.5 h.

In addition, the aircraft is equipped with 5 emergency oxygen cylinders.

2.4.9 FIRE PROTECTION SYSTEM

The C-27J fire protection system includes sensors and extinguishers to counter the development of fires in the engine nacelles, in the APU area and in the fuselage (both Cockpit Area and Cargo Bay).

Each engine nacelle is monitored by a dedicated sensor detecting engine overheats and fires. Each nacelle is equipped with a fire extinguisher, which can be activated by the Pilots to put off fires in the corresponding engine area. However, a dedicated connection system allows each extinguisher to operate also on the other nacelle, if necessary.

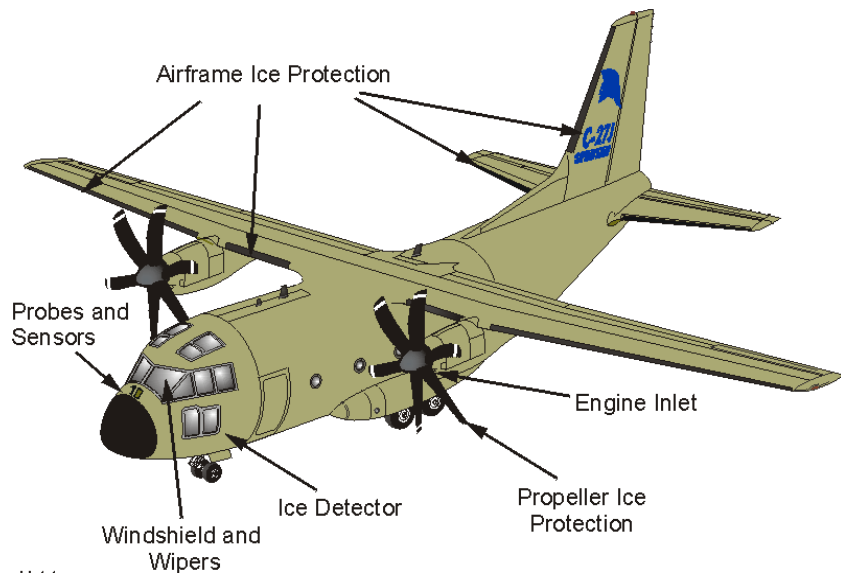
The APU area includes a fire detection system and a dedicated extinguisher.

Smoke detectors are installed in the Cargo Bay and the Lavatory to trigger appropriate warnings in case of developing fires. To fight such fires, portable extinguishers are located in the Cockpit Area (one) and in the Cargo Bay (two).

2.4.10 ICE PROTECTION AND DETECTION SYSTEMS

The C-27J is designed and certified to fly into known “maximum continuous” and “maximum intermittent” ice forming conditions. It is also able to detect and safely escape from severe icing conditions (super cooler, large droplet condition).

The aircraft ice protection system, managed by an electronic control system, ensures adequate de-icing and anti-icing through different methods, adapted to the peculiar characteristics of each critical area. A pneumatic



C-27J Main Ice Protection System Areas

system based on inflatable boots protects the wing and tail leading edges, braking the ice as soon as it is detected; hot air flows avoids ice accumulation in other areas, such as the engine intakes; electrical heating devices ensure such critical parts as the windshield, air data probes, propeller blades and others always remain ice-free.

A windshield wiper system allows maintaining an adequate external visibility also in case of rain.

3 PLATFORM

The main characteristics of the C-27J “Spartan” tactical transport aircraft are summarised in the following paragraphs.

3.1 FLEXIBILITY AND SURVIVABILITY

The C-27J is the embodiment of a design philosophy centred on flexibility and it is built to provide its Customers with a robust and reliable platform, able to deliver an impressive array of loads exactly where they are needed, regardless of environmental conditions.

A wide variety of missions can be performed without restrictions in day and night, also thanks to the complete NVG compatibility offered by the C-27J displays, internal and external lights, which can be switched to “NVG Mode” to operate with GEN III, Type 1 Class C Night Vision Goggles.



C-27J Dark Cockpit

The aircraft can routinely operate in any weather condition and in extreme temperatures (ranging from -55°C to ISA +35°C, i.e. 50°C at Sea Level), as testified by years of service in the most demanding climates, from the Equator to the Polar Circles.

In addition, the C-27J powerful engines, refined aerodynamics, optimized landing gear and excellent ground manoeuvrability allow the aircraft to taxi, take-off and land on short, narrow and unprepared airstrips, also in “Hot and High” conditions.

The C-27J flexibility by design allows the aircraft to operate regardless the presence of ground support resulting in possible tasks out of the most austere airfields in remote locations. Thanks to its APU, the aircraft is fully independent from any ground power supply.

In addition, the C-27J offers a wide fuselage cross section, an embedded Cargo Handling System, the capability, unique in its category of aircraft, to adjust hydraulically its Cargo Bay floor height and inclination on ground. These features make loading and unloading procedures very easy: the C-27J has no need of peculiar Ground Support Equipment for these purposes. Most vehicles compatible with the C-27J Cargo Bay dimensions and allowed weights can be directly driven into/out of the aircraft, without any special preparation, greatly improving quickness and security of ground operations.

Conceived both for intensive military use in demanding tactical scenarios as well as for supporting

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humanitarian and relief operations (see para. 1.1 and 0), the C-27J incorporates a number of features ensuring a high level of survivability.

The C-27J advanced, low workload avionics coupled with the outstanding visibility granted by its 16 cockpit windows provide the Pilots with a superior situational awareness, allowing for example an easier detection of people in need of support and reducing the associated reaction time during search and rescue operations.

Thanks to its high power/weight ratio and effective flight controls, the C-27J acceleration, climb rate, descent rate, turning radius, roll rate, manoeuvrability and speed are the best available for a medium tactical transport, allowing the aircraft to arrive fast on target in order to effectively perform for numerous cargo, airdrop, medical and humanitarian assistance missions. Combined with the aforementioned performances, the C-27J capability to employ effective CARP airdrops and LAPES to deliver its cargo in the shortest possible time enables significant capabilities in supporting humanitarian missions in favour of isolated communities in serious need.

In addition, the C-27J offers a considerable utilization tolerance due to its strong structure (with three-spar wing and empennage), the redundancy of its critical systems (avionics, hydraulic system, electrical system, flight controls), the capability of operating its APU in flight (providing an engine-independent power source), the OBIGGS (protecting fuel tanks from explosion) and the fuel jettison system.



3.2 AVIONICS

The C-27J avionics suite incorporates state-of-the-art, off-the-shelf military equipment in an extremely reliable and robust architecture based on dual redundant, physically segregated MIL-STD-1553B digital data buses, offering constantly a complete performance and navigational awareness to the pilots.



State-of-the-art avionics compliant with Next Gen Air Traffic Control requirements, including FANS 1/A+ datalink, TCAS 7.1, ILS Cat.II, enhanced video TAWS

The Basic Avionics monitor the aircraft systems and navigation sensors, ensuring to the Flight Crew a comprehensive situational awareness. Thanks to the capabilities of its advanced avionics, the C-27J is able to perform operational missions in adverse weather, day and night, both in civil and military airspace, always ensuring a low workload for the flight crew. The main elements of the aircraft avionics suite are:

- Two (2) Mission Computers (MC), which provide the data processing capabilities needed for all functions of the avionics suite and act as primary Bus Controllers (BC), managing the communications among all the avionic equipment;
- Two (2) Enhanced Bus Adapter Units (E-BAU), which provide additional data processing power and can function as BCs in the improbable case of failure or battle damage of both MCs, performing all critical functions needed to ensure a safe return to base of the aircraft;
- Nine (9) MIL-STD-1553B dual redundant serial data buses, through which the information are collected and distributed among the avionics suite equipment and subsystems. Two of the buses are dedicated to the Communication/Navigation System (see para. 3.2.1);
- Five (5) Color Multi-function Display Units (CMDU), identical units able to present to the Flight Crew a wide range of information;
- Two (2) Enhanced Single Avionics Management Units (E-SAMU), which allow the Flight Crew to manage the CMDUs, selecting the information to be displayed in each CMDU and some options for other subsystems (such as the Weather Radar and the Terrain Awareness and Warning System);

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- A comprehensive Navigation System, described in detail in paragraph 3.2.1.

Most of the C-27J avionics system comply with DO-160, DO-254, DO-178B, FAR and JAR Part 25 requirements and MIL requirements where applicable.

3.2.1 NAVIGATION SYSTEM

The C-27J Navigation System grants to the aircraft the capability to fly both in controlled and uncontrolled airspace, day and night in all weather and visibility conditions. In addition, it allows the C-27J to safely exploit its performances and agility in order to perform very low altitude covert missions and evade threats in case of detection. Finally, the Navigation Systems provides a dedicated function for calculation of the Computed Air Release Point (CARP), in order to ensure accurate launch of Para-Jumpers and airdrops.

The main elements of the Navigation System are:

- Two (2) Flight Management Control and Display Units (FMCDU), each grouping the functions of a Flight Management Computer (FMC) and a Multipurpose Control Display Unit (MCDU). The FMCDU is the primary interface of the Flight Crew with the Navigation System, allowing to control all its functions. In addition, it provides automatic Integrated Navigation (INAV) solutions using inputs from the navigation sensors;
- Two (2) Flight Management System Bridge units (FMS Bridge), which act as Bus Controllers for the two MIL-STD-1553 buses dedicated to the Communication/Navigation System and allow bidirectional communications between the FMCDUs and the MCs for navigation and guidance functions;
- Two (2) Digital Autopilot/Flight Directors, fully integrated with the other Basic Avionics systems, including the FMS, with auto-throttle function (Cat.I);
- Two (2) Digital Air Data Systems (DADS), providing two independent sources of air data;
- Two (2) RADio ALTimeters (RADALT), independent, redundant systems measuring the Above Ground Level up to an altitude of 2,500 ft, allowing safe low level flight;
- Weather Radar, including Attitude Heading Reference System (AHRS), mounted in the aircraft nose radome. It is able to detect weather, turbulence and windshear events in front of the aircraft and to provide ground mapping capabilities;
- Terrain Awareness and Warning System (TAWS), continuously monitoring conditions which may cause Controlled Flight Into Terrain (CFIT) events and providing visual and audio alerts as well as synthetic terrain video image to the Flight Crew;
- Two (2) Embedded Global Positioning System and Inertial Navigation System (EGI), providing the primary means for aircraft navigations. Each EGI includes the SAASM/PPS module. These units can provide INS only, GPS only or blended INS/GPS outputs, as required;

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- Two (2) VHF Omnidirectional Range/Instrument Landing System (VOR/ILS);
- Two (2) TACTical Air Navigation/Distance Measuring Equipment (TACAN/DME);
- One (1) VHF/UHF Direction Finder (V/UHF – DF) System with SAR capability;
- One (1) Automatic Direction Finder (ADF);
- One (1) Identification Friend or Foe (IFF) Transponder, compatible of Mode 1, 2, 3/A, C, S, 4, 5 (L1 and L2). To enable the IFF Mode 5, a crypto module has to be provided as GFE. The IFF Transponder has ADS-B Out capabilities;
- Traffic Collision Avoidance System (TCAS) version 7.1, interfacing with the IFF Transponder and supporting a Mode S Data Link to advise about collision avoidance manoeuvres;
- Two (2) Global Navigation Satellite Systems (GNSS), GBAS/SBAS/GPS based sensors supporting en-route, terminal and approach navigation phases (including Performance Based Navigation) capable to support Localizer Performance with Vertical Guidance (LPV).



C-27J Flight Management Control & Display Unit

CMDUs are Multi-Functional Display and all the format (including PFD) can be displayed via a dedicated selection via SAMU. In particular, CMDUs #1 and #5 are set to be PDF display only to comply with civilian regulations.

The Flight instrument and Navigation displays comply with the IFR requirement including the indications of the distance in nautical miles, of the speed in knots and of the altitude in feet.

3.2.2 COMMUNICATION SYSTEM

The C-27J is equipped with a comprehensive Communication System designed to allow the full integration of the aircraft in complex networks. A Communication Management Unit (CMU) supporting all the Future Air Navigation System (FANS) air-to-ground bidirectional communication requirements, manage the external datalink communications.

The C-27J Communication System is equipped with the following main elements:

- Two AN/ARC-210 VHF/UHF radios (mainly used to contact air traffic control centres and cooperating units) supplied by Rockwell Collins;
- HF radio model HF9500 (for long range communications) supplied by Rockwell Collins;

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- State of art Communication Management Unit (CMU) supporting all the Future Air Navigation System (FANS) air-to-ground bidirectional communication requirements;
- State of art flexible and upgradable Interphone System for dynamic multi-level secure communications management with a central Digital Switching Unit (DSU) and crew member position equipment called Digital Crew Units (DCUs). The Aircraft Intercommunication System can manage up to 18 ICS station for communication between cockpit and cargo area;
- Public Address System (PAS) operating through the cargo loudspeaker networks, Pilot, copilot and all the crews will be able to activate the PA from their DCUs; PAS can be operated in emergency mode in case of total loss of Aircraft Intercommunication system.

3.2.3 STANDBY INSTRUMENTS AND RECORDING SYSTEMS

The C-27J is equipped with a Combined Standby Flight Instrument providing essential flight information (attitude, airspeed, barometric altitude, slip/skid and magnetic heading) as a backup to the Primary Flight Displays (CMDU 1 and CMDU 5) in case of multiple systems and/or electrical failures, further improving the survivability and flight safety of the aircraft. The airspeed and altimeter information are calculated by an Air Data Computer independent from the Navigation System which receives the necessary data from a dedicated pitot/static probe. Two fully independent inclinometers are available, mounted on the CMDU 1 and 5 respectively.

The C-27J is also equipped with a Cockpit Voice Recorder and a Digital Flight Data Recorder, able to record and store in crashworthy assemblies respectively communications and conversation in the Cockpit area and the aircraft status and performance data, to assist in incident and accident investigations.

An Emergency Locator Transmitter (ELT) can be automatically or manually activated in case of emergency or forced landing, in order to broadcasts multiple-frequency emergency signals, including encoded digital identification sent to satellites, to allow aircraft location.

3.2.4 BASIC AVIONICS REDUNDANCY

The C-27J Basic Avionics built-in redundancy is designed to ensure maximum flight safety and mission completion probability also in the most extreme conditions. The avionics architecture and the electrical power distribution system are designed for survivability, providing high levels of functionality even after sustaining significant battle damage.

The MCs are fully redundant, allowing mission completion in the event of the loss of either unit. In addition, the E-BAUs serve as backup mission computers, providing flight critical functions should both MCs fail.

The nine MIL-STD-1553B data buses incorporate dual A/B transmission lines to provide a high degree of noise immunity and tolerance to equipment loss. Data for flight critical aircraft functions are routed from at least two sensors using at least two data paths to two or more data destinations. This arrangement provides redundancy and shares system resources to accommodate critical functions in the most reliable manner possible. All data buses are spatially separated throughout the aircraft to enhance combat survivability. In addition, critical data (airspeed, altitude, attitude, and heading) are cross compared by the MCs to alert the Flight Crew when these parameters differ by pre-set amounts. Finally, the C-27J Avionics are provided with a comprehensive health monitoring system which records all significant failures of single equipment detected by the Continuous BIT (CBIT) during normal operations and by the Power-up BIT (PBIT) at power up. During maintenance operation the maintenance crew can perform Initiated BIT (IBIT) on all equipment that provides IBIT capability using the aircraft maintenance device.



4 TRANSPORT / AIRDROP CONFIGURATIONS AND CAPABILITIES

Thanks to its structural provisions and removable mission kits, which can be stowed on board, the C-27J Cargo Bay is easily and quickly reconfigurable, also in flight in less than 30 minutes, to allow the aircraft to perform a wide range of transport and airdrop missions everywhere.



Troops Transport

46 troops, up to 60 troops in high-density configuration



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Paratroops Transport

34 fully equipped paratroopers, up to 46 if lightly equipped



Cargo Transport

Bulk loads, wheeled and tracked vehicles, aircraft engines, light helicopters, etc.

3 HCU-6E (5,000 kg max single load) 463L pallets + 1 HCU-12E on the ramp

6 HCU-12E (2,500 kg max single load) 463L pallets (1 on the ramp)



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 **Cargo Airdrop**

up to 9,000 kg with 2 platforms (6,000 kg max single load)

up to 6 A22 CDS Bundles (908 kg each)

up to 5,000 kg with 1 or 2 platforms (5,000 kg max single load) by LAPES

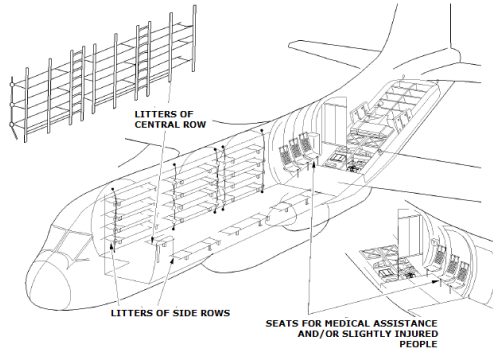
up to 6,000 kg by combat off-load with 3 HCU-6E 463L pallets



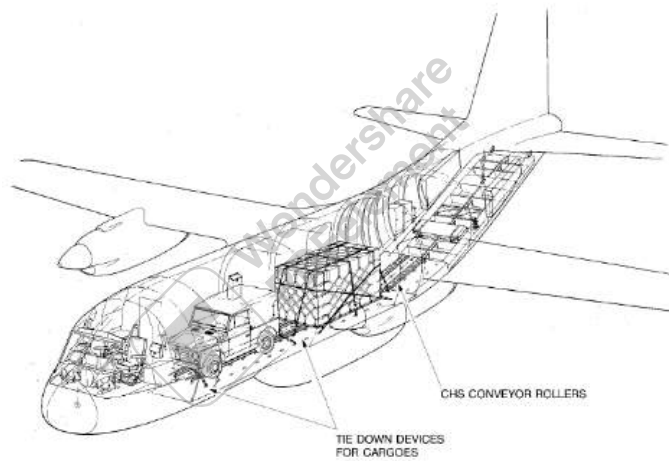
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✦ **MEDEVAC (Medical Evacuation)**

Up to 36 standard stretchers + 6 medical attendants



✦ **Combi Transport**



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5 MISSION CAPABILITIES AND PERFORMANCES

The C-27J offers unparalleled performances, allowing the aircraft to demonstrate extreme maneuverability, versatility and capability to operate on the most austere airfields.

5.1 RANGE PERFORMANCES

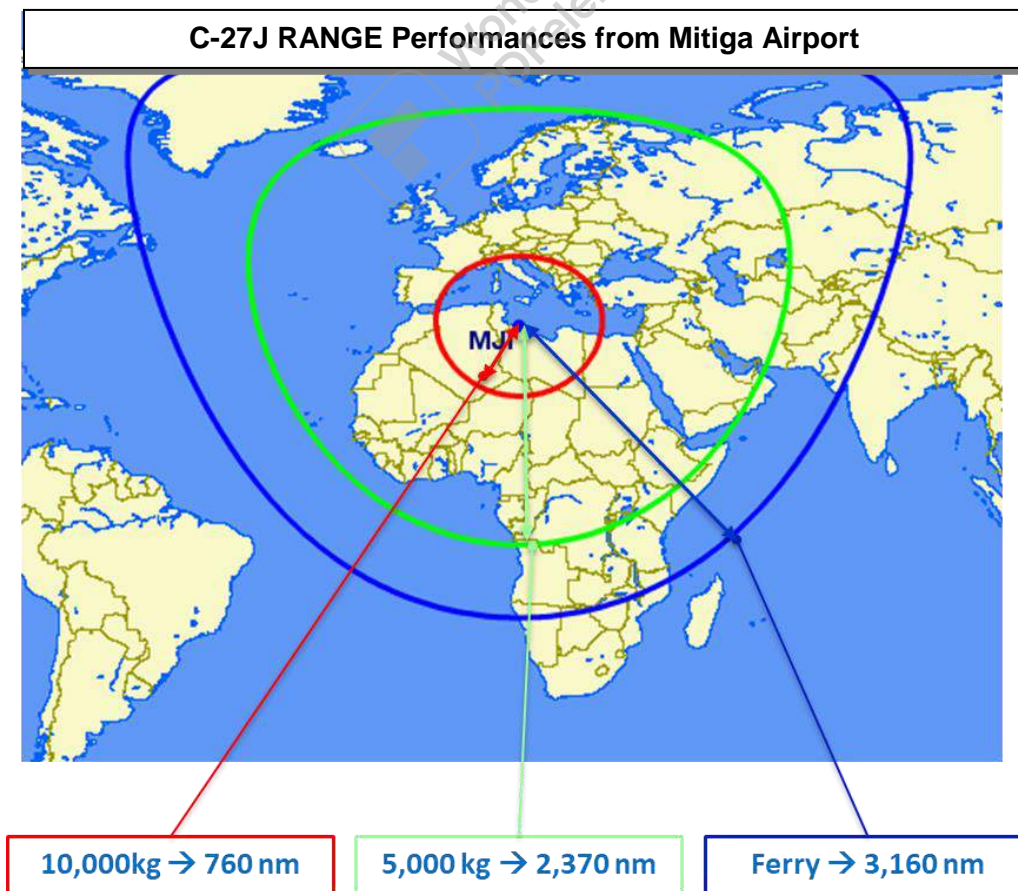
The range is the distance between the airstrip where the aircraft takes off and the one where it lands. It is the most significant parameter in transport missions.

The following figure shows the C-27J maximum range in different payload conditions:

- The 10,000 kg payload is representative of most cargo transport missions involving pallets, vehicles and heavy loads;
- The 5,000 kg payload is typical of personnel transport and MEDEVAC missions;
- The ferry range represents the maximum distance the aircraft can reach without any payload, for deployment purposes.

Assumptions

- Airport temperature: ISA + 15°C
- Cruise conditions: ISA, No wind, LRC speed
- Take-Off Weight: 31,800 kg
- Fuel reserves: 45 min holding at 5,000 ft



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5.2 RADIUS PERFORMANCES

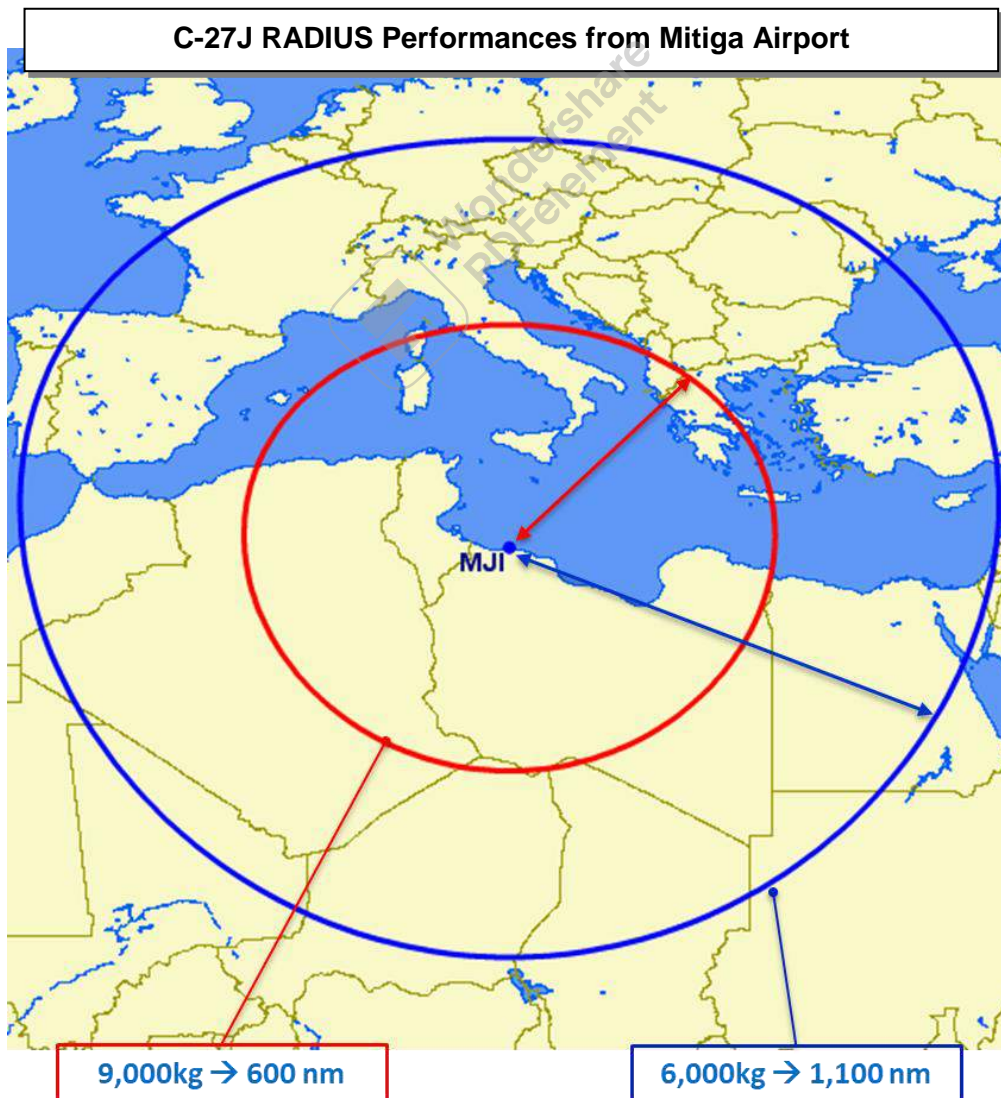
The radius is the distance from an airstrip the aircraft can achieve when taking-off and landing at that same airstrip. It is the most significant parameter in airdrop missions, since it determines where supplies and paratroopers can be delivered without landing.

The following figure shows the C-27J radius in different payload configurations:

- The 9,000 kg payload is typical of material airdrop, either through A-22 CDS bundles or standard platforms;
- The 6,000 kg payload is representative of both a 46 paratroopers airdrop mission and a fire-fighting sortie with the optional Guardian system.

Assumptions

- Airport temperature: ISA + 15°C
- Cruise conditions: ISA, No wind, LRC speed
- Take-Off Weight: 31,800 kg
- Fuel reserves: 45 min holding at 5,000 ft



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6 ADDITIONAL OPTIONS

6.1 VIP TRANSPORT SYSTEM

The C-27J can be configured for VIP/Passengers transport by means of palletized modules. The VIP Transport System, which includes a **VIP module, two Escort Modules and a Service Module**, can be fitted by means of the Aircraft 463L-Compatible Cargo Handling System. They enable the transportation of six (6) VIP passengers and eighteen (18) Escort passengers.

The modules incorporate Passenger Service Units (PSUs) and chemical oxygen provisions for all occupants. Emergency Lighting and Signs and dedicated Passenger Signs such as “No smoking” and “Fasten Seat Belts” are also provided.

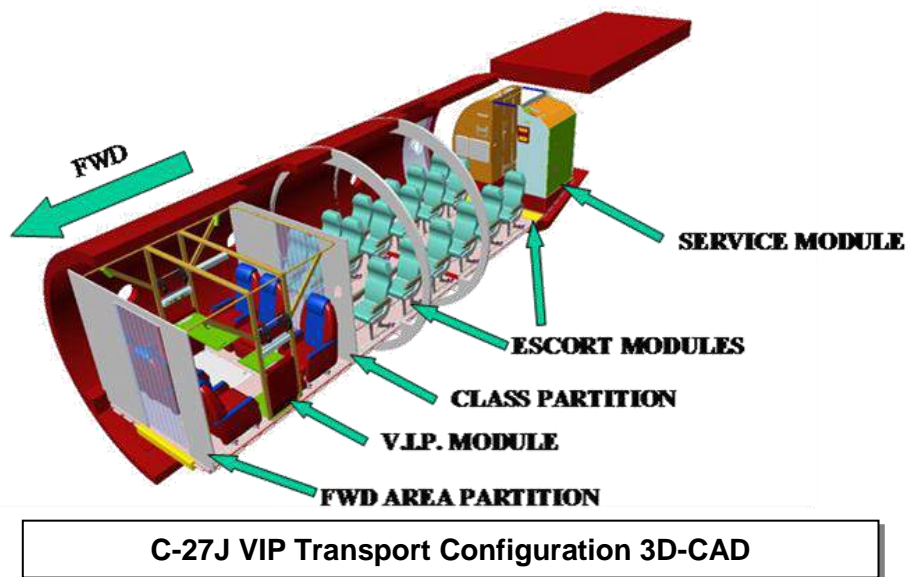
The Service Module, fitted onto the ramp, provides additional facilities such as a lavatory and a Wardrobe.

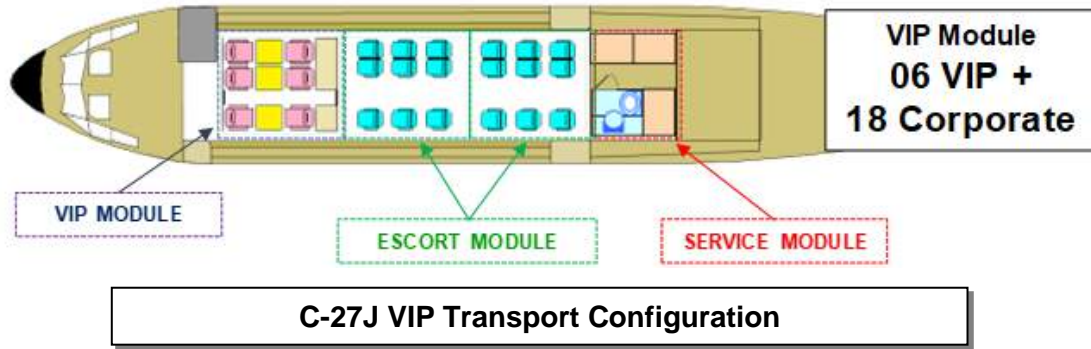
The modularity of the pallet-based passenger transport configuration enables quick aircraft re-configuration and conversion. The interfaces to the aircraft structures and systems are kept to a minimum in order to speed up configuration change and ease of on-ground operations.

Each A/C is configured with all provisions and interfaces needed to host VIP/passengers modules.

Palletized modules handling on ground and loading on aircraft can be accomplished by means of Material Handling Equipment commonly available at base and with a minimum of support personnel.

Overall arrangement of the passenger transport modules is illustrated in the following layout.

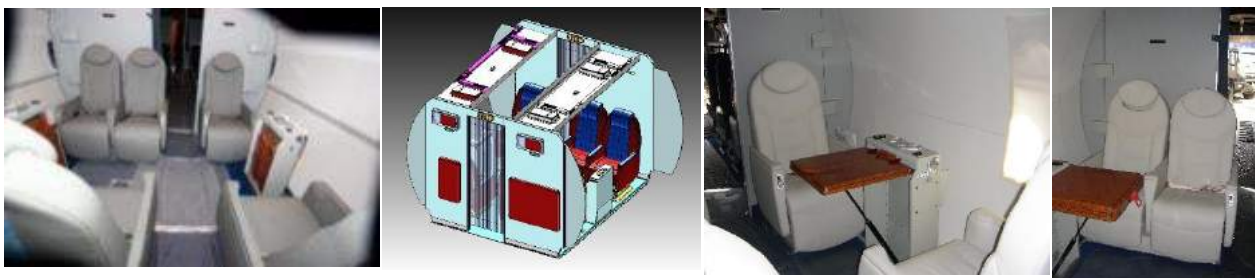




The **VIP Transport Module** is based on a 108" x 88" 463L – compatible pallet and is enclosed by two partitions and two header bars.

The VIP Transport Module is equipped with:

- Two double VIP seats (business class type) equipped with seat belts (lap belt type);
- Two single VIP seats (business class type) equipped with seat belts (lap belt type);
- Two foldable working tables;
- Chemical Oxygen system and masks for all occupants, installed onto header bars;
- Illumination lights and individual spotlights;
- Emergency Signs and Passenger Signs (NS/FSB);
- Illuminated emergency pathway lights;
- Carpet;
- One Attendant Call Button;
- Life Vests ;
- Curtains.



VIP Module

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The **Escort Transport Modules** (2 types, differing in seats pitch and arrangement) are based on 463L compatible pallets.

Each Transport Module is equipped with:

- Three double passenger seats (economy class type, equipped with seat belts (three points of attachment belt type));
- Three single passenger seats (economy class type) equipped with seat belts (three points of attachment belt type);
- Chemical Oxygen system and masks for all occupants;
- Individual spotlights;
- Passenger Signs (NS/FSB), integral to seat backs;
- Illuminated emergency pathway lights;
- Carpet;
- Life Vests.



Escort Module

The **Service Module** is based on a 54" x 88" pallet, compatible with the Aircraft Cargo Handling System for installation on the ramp.

The Service Module is basically equipped with:

- A Lavatory equipped also with Smoke Detector, Attendant call button, Ventilation Gasper and Public Address Loudspeaker;
- A Wardrobe equipped with suitable lockers and shelves and incorporating illuminations.



Service Module

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6.2 SPECIAL MEDEVAC STRETCHERS

A **SPECIAL MEDEVAC** C-27J configuration is available to transport up to two patients in need of intensive care. In this configuration, **two Special Intensive Care Stretchers** (Patient Transport Support System) most-fwd located in the cargo compartment and installed on RH and LH fuselage side to assure routine transfers of critically ill patient from one point to another (e.g.: inter or intra hospital), replace the first row of stretchers present in the normal MEDEVAC configuration.

The Patient Transport Support System (PTSS) carries a stretcher bound patient, having a maximum weight of 114 kg. The PTSS is able to accommodate medical Government Furnished Equipment (GFE) in order to guarantee medical support of the patient. An Oxygen Bottle Strap Assembly is used to secure the oxygen bottles in its stowage plate and a Stowage Strap Assembly is used to secure any medical equipment required in support of the patient.

The PTSS body assembly is a molded structure made of aluminum. The assembly has four wheels mounted on retractable legs. The system can support and secure a stretcher (STANAG 2040) with a patient strapped to it.

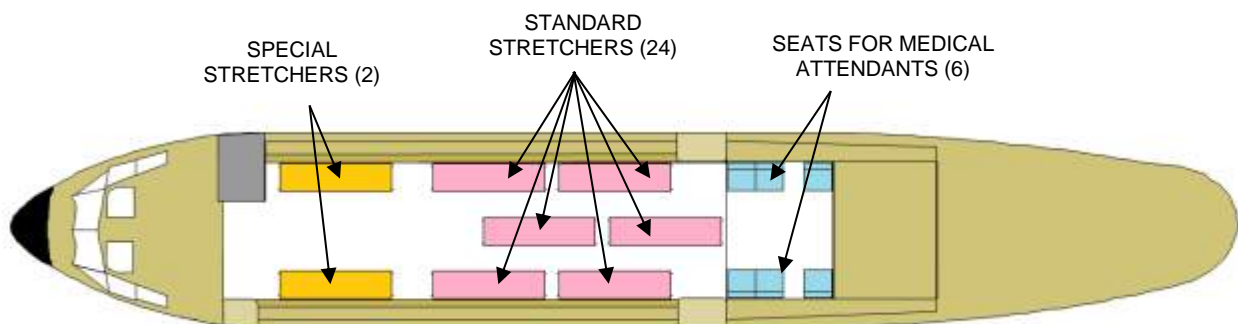
In special MEDEVAC configuration, another 24 patients and 6 medical assistants can also be transported.



C-27J - Example of medical arrangement and equipment for the transport of a patient in critical condition requiring special medical care



Intensive Care stretcher



C-27J special MEDEVAC configuration

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Thanks to the excellent special Medevac capabilities of the C-27J aircraft, its two stations for special stretchers can also accommodate Intensive Care Modules (figure next), Mobile Intensive Resuscitation Facility (MIRF).



6.3 AIRBORNE BIOCONTAINMENT SYSTEM

Airborne Biocontainment System is composed by **two (2)** independent modules (see figures below) designed and qualified to ensure the safe air transport with one C-27J of two (2) patients with highly infectious diseases.

Airborne Biocontainment System is the most effective medium/long-range transport and first-aid solution for patients infected with potentially life-threatening infectious diseases (such as Ebola, MERS, SARS and Covid-19) and ensures total protection for the medical personnel and the crew against exposure to pathogens.

The Airborne Biocontainment System provides a microbiologically secure environment using a multi-layer protection: around the rigid or semi-rigid frame, a PVC “envelop” surrounds the patient while allowing observation and treatment of the patient in isolation and an Air Supply Unit puts the Airborne Biocontainment System unit under negative pressure using High Efficiency Particulate Air (HEPA) filters.

The Airborne Biocontainment System can be powered electrically, either by the aircraft or by its own rechargeable batteries.

Up to two Airborne Biocontainment System units can be installed on board the C-27J, making it possible to carry out special medical transportation missions, while further expanding the versatility of the aircraft. Using this system, the C-27J can be transformed into an intensive care unit when required.

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Airborne Biocontainment System

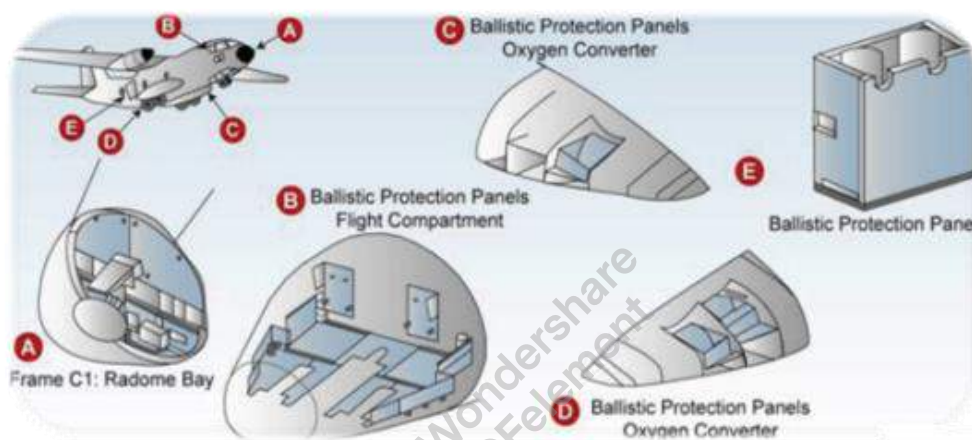
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6.5 BALLISTIC PROTECTION KIT

The C-27J will be equipped with ballistic protection devices which reduce the aircraft vulnerability when it is engaged by hostile weapon systems. The Ballistic Protection System, supplied as a kit, is able to protect from the threat of the 7.62 AP or 12.7 AP bullets according to MIL-PRF-46103E.

The Ballistic Protection, which can be rapidly and easily installed or removed, consists of aramidic fiber and ceramic armor panels mounted on the following positions of the aircraft:

- pilot and co-pilot (locations A and B in the picture);
- oxygen converters (locations C and D);
- emergency oxygen bottles (location E).



Ballistic Protection Kit

7 ACRONYMS LIST

ANG	Air National Guard	APU	Auxiliary Power Unit
CRS	Compact Rescue Systems	CARP	Computed Air Release Point
CDS	Container Delivery System	COVID-19	Coronavirus Disease 2019
FH	Flight Hours	FAP	Fuerza Aérea del Perú
FANS	Future Air Navigation System	HCU	Heavy Conversion Unit
HEPA	High Efficiency Particulate Air	IUU	Illegal, Unreported, and Unregulated
ILS	Instrument Landing System	ISA	International Standard Atmosphere
LH	Left Hand	LRC	Long Range Cruise
LRC	Long Range Cruise	LAPES	Low Altitude Parachute Extraction System
MLW	Maximum Landing Weight	MTOW	Maximum Take Off Weight
MZFW	Maximum Zero Fuel Weight	MEDEVAC	MEDical EVACuation
MIRF	Mobile Intensive Resuscitation Facility	NVG	Night Vision Goggles
NVIS	Night Vision Imaging System	NS/FSB	No Smoking/Fasten Seat Belt
OBIGGS	On-Board Inert Gas Generation System	PSU	Passenger Service Unit
PTSS	Patient Transport Support System	RH	Right Hand
RAAF	Royal Australian Air Force	SL	Sea Level
SAR	Search And Rescue	STOL	Short Take-off and Landing
TACAN	TACTical Air Navigation	TAWS	Terrain Awareness and Warning System
TCAS	Traffic Collision Avoidance System	USCG	United States Coast Guard
VIP	Very Important Person		

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LEONARDO S.p.a. Aircraft Division**Proposal to the Libyan Ministry of Defense
for the Procurement of Three (3) C-27J Spartan****Appendix 3: C-27J Spartan Initial ILS Description**

JUNE 2022

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1 INTRODUCTION

Leonardo S.p.a., hereinafter referred to as “LEONARDO”, has more than 40 years of support experience on G222/C-27A/C-27J aircraft, at home and abroad, assuring the Customer of high mission success, with low risk, and reduced Life Cycle Support costs. LEONARDO is currently supporting the C-27J of the Italian, Hellenic, Bulgarian, Romanian, Moroccan, Lithuanian, Chadian, Peruvian, Mexican, Slovaks, Australian, Zambian, Kenyan Air Forces and US Air National Guard in their own Countries and in many deployments abroad.

Our experience in military field and integrated logistic support, allows LEONARDO to support the C-27J in the most cost-effective way. Our logistics support program is designed to ensure the C-27J is available to complete its assigned missions, 365 days a year and:

- is operationally executable by the Customer without affecting its Missions Capability
- adopts an extended on-condition maintenance approach
- takes large advantages by aircraft designed-in reliability and maintainability characteristics
- maximizes the overall fleet availability
- allows Customer’s autonomy in supporting deployments operations
- provides a cost-effective approach to the supply chain
- ensures a significant through life support cost reduction

The C-27J designed-in supportability characteristics, in concert with a proven Integrated Logistics Support system, results in enhanced mission capability.

1.1 C-27J MAINTENANCE CONCEPT

The C-27J Maintenance Concept ensures safe, mission ready aircraft, where and when the Customer needs them to meet all required missions at the best value. It has been developed according to MSG-3 Analysis guidelines, considering the Reliability & Maintainability Program (R&M) and the Safety Analysis, resulting in an on-aircraft preventive maintenance plan optimized to lower the support cost and ensure safety and mission success.

The intrinsic aircraft Systems Reliability, supported by the extensive experience accumulated through the years of G222/C-27A/C-27J operations, have allowed the adoption of a simple Customer executable Aircraft Maintenance approach to be carried on two levels:

1st Line Maintenance, usually performed by the Customer:

- On A/C scheduled maintenance including servicing, daily and Home Station Checks (HSC), time/cycle limited Line Replaceable Unit (LRU) replacement
- On A/C unscheduled maintenance (fault diagnosis and rectification by LRU replacement and on A/C minor structural repairs, as per Structural Repair Manual).

2nd Line Maintenance, which can be performed by the Customer, LEONARDO or LEONARDO delegated Companies:

- On A/C scheduled inspections (A, B and C inspection packages)
- Off A/C scheduled and unscheduled essential Line Shop Maintenance to assure a cost effective Customer operational capability (e.g. wheel, brake & tire assembly/disassembly, battery maintenance)

In addition to the above maintenance levels, as optimized solution to lower C-27J support cost, the LRU Repair and Overhaul (R&O), the Aircraft major damages repair and major modification embodiment are usually executed by LEONARDO or LEONARDO's authorized maintenance providers.

In detail, the 1st Line Maintenance covers the following tasks:

- Aircraft routine servicing and daily inspections
- Fault diagnosis using troubleshooting procedures and Built-In Test Equipment (BITE)
- LRU removal and replacement (including engine and propeller)
- Mission computer software uploading and downloading
- Maintenance data download and evaluation through the Interactive Maintenance System (IMS)
- Aircraft Minor Structural repairs (metal and composite), as per the Structural Repair Manual

and the 2nd Line Maintenance covers the following tasks:

- Scheduled inspections
- Engine build-up/teardown
- Nose wheel and tire assembly/disassembly
- Main wheel, tire and brake assembly/disassembly
- Battery maintenance
- Wing and tail de-icing boots repair/replacement
- Service and maintenance of the life support and emergency equipment
- Major structural repairs (metal and composite), as per the Structural Repair Manual
- Primary insulation repairs

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1.2 C-27J MAINTENANCE INSPECTIONS PROGRAM

An effective and efficient maintenance support program has been defined accordingly to the Maintenance Steering Group-3 (MSG-3)¹, and taking account of both the Safety Analysis and the Reliability & Maintainability Program (R&M) results.

The **C-27J Inspections Plan**, is based on the principle of “inspection tasks aggregation”. The tasks are organized into five groups distinguished by interval application typology (Time, Flights Hours, Number of Flights) as described in the table here below:

Inspection Packages		To be performed before the achievement of each of the following periodic:			Maintenance Level
		Time limits	FHs limits	Flights limits (applicable at and after threshold achievement)	
Daily Check	Dly	24 Hours (flights in the period) 72 Hours (no flight in the period)			1st Line
Home Station Check	HS1	12 Months			1st Line
	HS2		750 FHs		
A Check	A1	24 Months			2nd Line
	A2		1500 FHs		
	A3			750 Flights threshold: at 3000 Flights threshold: at 6000 Flights threshold: at 7500 Flights	
B Check	B1	48 Months			2nd Line
	B2		3000 FHs		
	B3			1500 Flights threshold: at 3000 Flights threshold: at 6000 Flights threshold: at 7500 Flights	
C Check	C1	96 Months			2nd Line
	C2		6000 FHs		
	C3			3000 Flights threshold: at 3000 Flights threshold: at 6000 Flights threshold: at 7500 Flights threshold: at 10500 Flights	

DAILY CHECK: The daily check has a validity of one calendar day. It means that next due time is any time in “day 2”, if previous accomplishment has been done in “day 1”. It remains valid for a period up to 72 hours if the aircraft does not fly and no maintenance activity has occurred during this period. Normal ground crew duties are associated to daily check.

HS CHECK: Includes 2 inspection packages (HS1, HS2) with tasks to be performed respectively to 12 Months and 750 FHs

A CHECK: Includes 3 inspection packages (A1, A2, A3*) with tasks to be performed respectively to 24 months, 1500 FHs, and 750* Flights

B CHECK: Includes 3 Inspection packages (B1, B2, B3*) with tasks to be performed respectively to 48 months, 3000 FHs and 1500* Flights

C CHECK: Includes 3 Inspection packages (C1, C2, C3*) with tasks to be performed respectively to 96 months, 6000 FHs and 3000* Flights

Considering that each inspection package (A, B, C) includes 3 (three) types of inspections with intervals defined in Months, Flight Hours and Flights, it is either possible (without any impact on airworthiness or flight safety) to perform the three types of inspections all together or separately as

¹ MSG-3 Maintenance Steering Group-3 is a voluntary structured process developed by the industry and maintained by ATA (A4A) to make decisions that are used to develop scheduled maintenance and inspection tasks and intervals for aircraft that will be acceptable to the regulatory authorities, the operators, and the manufacturers.

resulting more convenient, taking into account the aircraft utilization rate, which may bring or not the three types of interval to expire at the same time.

Maintenance resources optimization

The labor content of most scheduled inspections has been minimized (improvement of frequencies and of maintenance times) applying the following criteria:

- Condition Monitoring and On-Condition for Systems/Equipment
- Damage Tolerance/Usage Monitoring System for Structure

The result is a high saving of maintenance man-hours per flight hour.

DAILY CHECK

The Daily Check consists of:

- Cockpit controls, including:
 - Flight controls free movement check
 - Built-In Test (BIT) of Aircraft Systems
 - Aircraft maintenance diagnostic control and data download (including EMS)
- Cockpit general controls and operational checks
- Exterior controls, including:
 - Walk around the exterior of the Aircraft
 - Check tire pressure and free-fall assistor charge
 - Check of hydraulic level (if required)
 - Check of oxygen level
 - Engine oil level check and servicing
 - Cargo compartment.

HOME STATION CHECK

The HS Check includes General/Detailed Visual Inspections, operational checks, lubrication / servicing tasks, refurbishment of same LRU.

“A”, “B”, ”C” CHECKS

The “A”, “B” and “C” Checks have the objective to prevent deterioration of the inherent safety and reliability levels of the equipment. They include General/Detailed Visual Inspections, lubrication/servicing, operational test, functional test, NDI.

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2 INITIAL INTEGRATED LOGISTIC SUPPORT (ILS)

The C-27J Initial Integrated Logistic Support (ILS) package for Customer is based on the following assumptions about the Customer Operational Scenario:

- **Number of aircraft: three (3) C-27J Spartan**
- **Customer Maintenance Policy:** 1st and 2nd Line Maintenance Capabilities
- **Main Operating Base (MOB): one (1) MOB** where Customer is supposed to operate and maintain the fleet having all the necessary 1st and 2nd Line Maintenance capabilities

The **Initial ILS Package** consists of the followings ILS supplies and services:

- **Spare parts:** provision of an Initial Provisioning (IP) of Repairable, Non-Repairable and Consumable spare parts to support the C-27J fleet.
- **Ground Support Equipment (GSE),** a full set of Common and Peculiar GSE to operate and maintain the Customer C-27J fleet
- **Warranty Extension** (LRUs Repair and Return (R&R)) for the entire Customer fleet up to the end of the 3rd year starting from the 1st aircraft Entry Into Service (EIS)
- **Technical Publications,** sets of operational and maintenance manuals
- **Technical Publications Updating** for three (3) years
- **On-site Assistance**
 - **one (1) Pilot Support** for fifty (50) Flight Hours or two (2) months, whichever comes first, after Aircrew Consolidation Training courses completion
 - **one (1) Maintenance Team** composed by three (3) maintenance specialists at Customer MOB, for six (6) months
 - **one (1) Field Service Representative** at Customer MOB for three (3) years
 - **one (1) Logistics Manager** at Customer MOB for three (3) years
- **Remote Technical Assistance** for three (3) years
- **Integrated Logistic Support Management** up to the end of the third year from the 1st aircraft Entry Into Service
- **Training**
 - **AIRCREW training for four (4) aircrews**

The C-27J aircrew is composed by one (1) Pilot in Command (PIC), one (1) Co-pilot (CP) and one (1) Loadmaster (LM)

Aircrew training for each crew consists of the following courses:

- Instrument Refresher for PIC and CP
- Multi Crew Coordination for PIC and CP
- Introduction to Glass Cockpit for PIC and CP
- Aircrew Conversion to Type for PIC, CP and LM
- Aircrew Consolidation for PIC, CP and LM
- Aircrew Recurrent for PIC, CP and LM
- Aircrew Instructor for PIC and LM

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- **MAINTENANCE training for thirty-six (36) maintenance specialists**
- **ADVANCED MAINTENANCE (Checks A, B and C) training for twenty-four (24) maintenance specialists**

2.1 SPARE PARTS

An initial provisioning of Repairable, Non-Repairable and Consumable Spare Parts for the C-27J will be provided to the Customer.

The Repairable Spare Parts are value items, deemed worthy of repair in virtue of technical and economic consideration. These items can be cost-effectively repaired every time they fail and, excluding very rare cases where extremely severe arising occurs, they will be available for supporting the C-27J for the entire service life.

The Spare Parts IP is defined taking into account all the accessible information about Customer maintenance policy and logistic organization and all the available aircraft configuration, Reliability, Maintainability, Operational and Maintenance data.

LEONARDO evaluates the Spare Parts IP to be assigned to the Customer Warehouse at the MOB by the use of the OPUS10 or equivalent software and the application of our Best Engineering Judgment. The recommended Spare Parts IP will be refined as a result of a joint preliminary Logistic Conference to be held with Customer and the Company before the contract award.

OPUS 10 is a proved and comprehensive software for Aeronautical Spares Optimization, which allows to determine the quantity and allocation of each spare part for a given operational requirement, taking into account the followings:

- Material data (e.g. Spare Part Classification, Failure Rate, Purchasing Lead Time, procurement data etc.)
- Breakdown Structure data
- Logistic Support Organization data (e.g. operating base location, maintenance sites, depots
- Stores, transportation times, etc.)
- Maintenance data (e.g. Scheduled and Un-scheduled maintenance levels, repair times, etc.)
- Stocks Allocation & Repair policy
- Operational data (e.g. Support period, Systems deployment, Operational profiles, Fleet flight hours, etc.)

Spare Parts packaging, handling, storage and transportation will be performed in accordance with import/export regulations and best commercial practices.

The Spare Parts IP will be delivered DPU at Customer premises and will be subject to standard warranty as defined in the Contract Terms and Conditions.

If necessary, interchangeable or more updated items will be provided

A Certificate of Conformity will be issued for all supplied parts.

2.2 GROUND SUPPORT EQUIPMENT

The C-27J GSE, necessary for operating and maintaining the aircraft at 1st and 2nd Line Maintenance Level are classified as **Peculiar** and **Common**.

LEONARDO will supply the full set of Peculiar and Common GSE to operate and maintain the Customer C-27J fleet.

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GSE packaging, handling, storage and transportation will be performed in accordance with import/export regulations and best commercial practices.

The GSE will be delivered DPU at customer premises and will be subject to standard warranty as defined in the Contract Terms and Conditions.

All applicable GSE Technical Publications will be provided in English language at GSE delivery.

A Certificate of Conformity will be issued for all the supplied GSE.

2.3 WARRANTY EXTENSION (LRUs REPAIR AND RETURN (R&R))

During the warranty period, LEONARDO will guarantee a **Repair and Return (R&R)** for all the defective items (LRU) removed from the C-27J, including items transportation from Customer MOB to LEONARDO **Customer Support Logistics Center** and to the authorized repair station, and the other way round.

The Customer Support Logistics Center, located at Malpensa International Airport, is the site from where LEONARDO manages the Customer Support Supply Chain (Spares, Re-provisioning, Repair & Overhaul, R&O) and it is where are stored all the C-27J materials used to support our National and International Customers.

LEONARDO leverages on one of the most valuable International Logistics Service Team which guarantees for all our Customers the integrated management of the following:

- Inbound/Outbound and Warehouse activities
- Quality controls
- Customs operations
- Premium Service levels for Worldwide Transports operations



Customer Logistic Support Center (10.000 sqm warehouse)

The Unserviceable Items requiring warranty service will be returned by the Customer to LEONARDO on-site Logistics Manager for failure verification and red marking as unserviceable.

A specific form (ROR) will be issued with a detailed "Reason for Removal" that speed-up the activities leading the Repairer to correctly identify the defect.

The process will be triggered by the **Return Material Authorization (RMA) request** (prepared by the Logistics Manager on behalf of the Customer).

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LEONARDO Remote Logistics team will issue the RMA, organise the transports and check and track the entire ROR item up to the delivery to the MOB of the repaired item or of an equivalent serviceable one.

LEONARDO Customer Support, through a dedicated M&MRO (Material Maintenance Repair and Operation) Supplier Management team will continuously expedite the items' repair through:

- Weekly call between our focal point and Supplier's POC (Point Of Contact) to:
 - Review detailed repair status (through a shared file)
 - Jointly problem solve and expedite AOG parts
 - Update forecast
- Monthly face-to-face meeting between our focal point and your POC to:
 - Review overall performance (parts under repair, average TAT², average cost)
 - Determine recovery plan when needed
 - Update forecast
 - Escalate critical issues

Damages due to LEONARDO non-accountable arising will be managed by the same team and processes, but as extra-warranty over and above.

LEONARDO non-accountable arising consists of, but are not limited to, the followings:

- Arising due to aircraft or aircraft equipment damage (such as FOD³, equipment accidental damage after removal from aircraft, taxi or towing accidents, natural hazards on the ground, battle damage)
- Arising due to negligence during maintenance activities or misuse (improper equipment installation)

² Turn Around Time

³ Foreign Object Damage

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2.4 TECHNICAL PUBLICATIONS

The technical publications provided to the Customer in English language consist of:

- **Operational Manuals:**
 - **One (1)** full set in electronic and paper format for each aircraft
 - **Two (2)** full sets in electronic and paper format for the MOB
- **Maintenance Manuals:**
 - **One (1)** full set in electronic and paper format for each aircraft
 - **Two (2)** full sets in electronic and paper format for the MOB

LEONARDO will provide the Customer all Manuals in both hard copy and electronic format. The electronic manuals present interactive functionality and are very easy to consult also during the maintenance activity.

The provided documentation allow the Customer to operate and maintain the aircraft assuring a cost effective operational capability.

2.5 TECHNICAL PUBLICATIONS UPDATING

This service assures that the C-27J Technical Publications will be continuously updated by:

- Safety Supplements, at any time it is necessary to update the manuals to introduce information regarding the Aircraft safety.
- Operational Supplements, at any time it is necessary to update manuals to introduce information regarding airworthiness and/or maintenance procedures.
- An annual set of Change Pages to cover every changes/rectifications arisen during the year
- A re-issue of the manuals subject to changes/rectifications.

2.6 ON-SITE ASSISTANCE

2.6.1 SUPPORT PILOT

LEONARDO will provide **one (1) C-27J Support Pilot** resident at Customer MOB for **fifty (50) Flight Hours or two (2) months**, after the first Aircrew Consolidation Training course completion.

The Support Pilot will assist the trained Customer aircrews providing:

- support to missions' preparation and debriefing
- crew members in flight supervision
- liaison with LEONARDO Training Center

During the flights the Support Pilot, sitting on the jump seat, maintaining the role of commander responsible of the flight, will leave the aircraft control to the Customer aircrew:

- verifying and improving the level of crew integration
- rectifying improper procedure implementation
- providing experienced operational advices

Through this day-by-day activity the Customer aircrews will enhance their proficiency in autonomous and safe aircraft operations for the entire range of situation that can occur during logistic transport operations (e.g. night flights, weather avoidance, etc.)

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The LEONARDO Support Pilot will work eight (8) hours per day, five (5) days per week not exceeding twenty (20) hours of overtime and a maximum of 75 FHs per month.

LEONARDO Support Pilot is expected to work the same hours as the organization to which is assigned. He will observe Customer National holidays and closing days.

2.6.2 MAINTENANCE TEAM

LEONARDO will provide **one (1) Maintenance Team**, resident at Customer MOB for **six (6) months** from the 1st aircraft Entry Into Service, to support the Customer initial operation phase.

The LEONARDO Maintenance team will be composed by **three (3) technicians** with a wide knowledge and a proved maintenance experience on C-27J:

- One (1) Avionic specialist (electrical and avionic)
- One (1) Mechanic specialist (airframe and mechanic)
- One (1) Propulsion specialist

The LEONARDO Maintenance Team will assist the Customer personnel providing:

- skilled work to support the C-27J maintenance activities execution
- support to the C-27J maintenance activities planning
- informal complementary training (OJT) to improve their proficiency level
- support to aircraft modifications embodiment

The three (3) technicians will be managed by the LEONARDO Field Service Representative, responsible for:

- maintenance activities execution
- coordination with Customer department in charge for C-27J maintenance
- respect of time-schedule for activities
- visibility of LEONARDO Maintenance Team activities

The maintenance technicians will work eight (8) hours per day, five (5) days per week not exceeding twenty (20) hours of overtime per month, if necessary.

The maintenance technicians are expected to work the same hours as the organization to which are assigned. They will observe Customer National holidays and closing days.

2.6.3 FIELD SERVICE REPRESENTATIVE (FSR)

LEONARDO will provide **one (1) Field Service Representatives (FSR)**, resident at Customer MOB for a period of three (3) years, starting from the 1st aircraft Entry Into Service.

The FSRs will support Customer personnel providing:

- Direct liaison with LEONARDO for resolving major C-27J technical issues
- Troubleshooting support
- In service operational and maintenance data collection support
- Advice on the use and interpretation of C-27J technical publications
- Informal complimentary maintenance On the Job Training (OJT)

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The FSR will work 8 (eight) hours per day, 5 (five) days per week not exceeding twenty (20) hours of overtime per month, if necessary.

The FSR is expected to work the same hours as the organization to which they are assigned, being available "on call" once they exceed their own working hours. He will observe Customer holidays and closing days.

2.6.4 LOGISTICS MANAGER

LEONARDO will provide **one (1) Logistics Manager**, resident at at Customer MOB for a period of three (3) years, starting from the 1st aircraft Entry Into Service.

The On-site Logistics Manager will provide Customer Logistics personnel with support for:

- Warehouse set up and management
- Packaging, Handling, Storage and Transportation (PHS&T)
- Shipments, receipts and transports coordination with Leonardo Logistics Center

2.7 REMOTE TECHNICAL ASSISTANCE

LEONARDO will provide the followings Remote Technical Services, that will be made available via dedicated e-mail, fax a telephone line for a period of three (3) years, starting from the 1st aircraft Entry Into Service:

- Service Bulletins
- Service Letters
- Query-Answering
- Troubleshooting support
- In service data collection and reporting
- Scheduled Maintenance Program Updating Service

2.8 TRAINING

LEONARDO has more than 40 years' experience in training aircrew and maintenance personnel. LEONARDO's broad experience has been applied to military aircraft including the G91, AMX, Tornado, EFA fighters, ATR Maritime Patrol, C-27A and C-27J airlifters. Specifically, LEONARDO has trained several foreign military aircrews and maintenance crew personnel in the safe operation and maintenance of the C-27J aircraft.

The C-27J Training Team has a wide expertise in providing total military training solutions including training needs requirement definition, in-flight aircrew instruction, tactical training, loadmaster operations, maintenance training, training device development, courseware design and academic instruction.

The C-27J training solution has been designed to provide aircrews and maintenance personnel with the high level of proficiency required for basic qualification on C-27J aircraft.

Aircrew Training is designed for Aircrews with prior multi-engine experience. Aircrew Training courses will be for C-27J aircraft conversion to type and consolidation; tactical operations will be not included.

The C-27J Maintenance Training courses have been designed to provide the Customer maintenance personnel with operations and maintenance capabilities in accordance to the C-27J maintenance concept.

Training lessons and materials will be in English. Training materials include presentation support files, ancillary supporting material, testing materials, and student materials:

- **Presentation Support Files:** Presentation support files consist of PowerPoint-type slides often containing embedded links to presentation aids (e.g., subsystem simulations) and reference materials.
- **Ancillary Supporting Materials:** LEONARDO team develops a variety of non-electronic supporting material. These may include items such as Technical Publications, demonstration materials, and consumables.
- **Testing Materials:** Testing materials consist of lesson quizzes, unit- and course-level tests, and the associated answer keys for these items.
- **Student Materials:** The students have access to softcopy of the same presentation files used by the instructor integrated with any necessary explanatory notes, which will serve as student guides.

At Training program completion, a package inclusive of one Adobe Acrobat (PDF) copy of the Courseware will be provided to each student.

Training courses will be held at LEONARDO Training Center (Torino and Caselle, in Italy) and at Customer MOB. Training courses location has been identified on a cost effective basis, and it is indicated in the tables detailing the Aircrew and Maintenance training courses structure.

If required, as over and above, LEONARDO will provide additional training support at MOB, including flight and ground instructors, evaluating, developing and providing additional courses in accordance with specific Customer needs.

LEONARDO C-27J Flight Simulator

Since 1998, the LEONARDO C-27J Flight Simulator, started as an ergonomic mock-up, has evolved into a fully functional engineering simulator available to support aircraft new developments, flight test activities as well as Customer Air Forces aircrew training.



The LEONARDO C-27J Flight Simulator has been designed and developed within the Company, and consists of the following main hardware and software items:

- a Flight Station, equipped with real aircraft equipment, including avionics displays and panels, primary flight controls, seats, as well as functional mock-ups of general systems cockpit panels;
- real avionics equipment (including Mission Computers) providing true-to-life avionics simulation and easing configuration updates following specific test and training requirements;
- a 5 channels FCS Control Loading System (CLS), that provides both pilot and co-pilot control loads on flight controls (i.e. control wheels, columns, rudder pedals and steering handle) representative of relevant real control forces in both powered and reversionary modes;
- a collimated 3 channel SEOS "Panorama" Visual Projection System, with a field-of-view of 180 (azimuth) by 40 (elevation) degrees. The Image Generator is the LEONARDO "Sapphire" pc based. LEONARDO has developed an autonomous capability of designing and producing image generation systems, based on the experience acquired in several years of flight;
- a Geographical Database, covering most of Italian territory, and including low level flight, target and navigation areas to allow proper fidelity in simulation of typical tactical transport missions. Resolution ranges from 2.5 to 5 m/pixel. A number of fully detailed airports is available;
- an on board Instructor Operating Station (IOS), designed to support both engineering and training activities. It allows one operator to manage a complex simulation session.

The LEONARDO C-27J Flight Simulator is located at LEONARDO Simulation Laboratory in Torino, and is a helpful reference for the development of more advanced full flight simulators as:

- C-27J Operational Flight Trainer (OFT) for U.S. Army
- C-27J Full Flight Simulator for Italian Air Force (IAF)
- C-27J Synthetic Training Device for Romanian Air Force (RoAF)

The LEONARDO C-27J Flight Simulator is used for providing the Simulator Phases of training courses, including recurrent training and its training effectiveness has been well proven with several C-27J customers.

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2.8.1 AIRCREW TRAINING

Aircrew prerequisites

LEONARDO will provide Aircrew training to instruct, on Customer C-27J configuration, the following Customer Pilots and Loadmasters, already qualified to fly on aircraft similar to the C-27J airplane:

- Pilots in Command (PIC) with prior multi crew experience with at least 1500 totals FHs (500 FHs of which as Pilot in Command) and holding a current flying licence and a valid flying medical certificate
- Co-Pilots (CP) personnel with a total flight experience of 500 FHs (250 FHs of which on multi crew experience) and holding a current flying licence and a valid flying medical certificate
- Loadmaster (LM) personnel with current operational flying experience on a similar A/C and holding a valid flying medical certificate. Candidates already qualified as Crew Chief or as Airframe/Mechanical will be preferred, if available.
- Pilots and Loadmasters shall have working ability to write, understand and speak fluently in English language; it is recommended an aviation English proficiency of at least level 3-3-3, according to STANAG 6001, or at an equivalent TEA (Test English Aviation Civil Standard).

With the aim to assess the trainees' background each candidates will be required to fill an Entry-level Form in order to verify their eligibility to attend training courses according to the specific course entry-level requirements. LEONARDO will evaluate aircrew's curricula (Entry Forms) and, in the case that the levels of experience do not match the requirements stated above, it shall be agreed between LEONARDO and the Customer the most effective way to pursue the training program (any specific additional training identified and agreed shall be considered as "Over and Above" respect to the Contract).

AirCrew's Assessment of Competence

With the aim to support the Customer in its selection process of the candidate pilots to be sent to Italy for the Conversion to Type training, Leonardo will held a preliminary interview/assessment to tailor the program for Conversion to Type course. As well, Leonardo will evaluate pilot's curricula and, in the case that the levels of experience do not match the requirements stated above, it shall be agreed between Leonardo and the Customer the most effective way to pursue the training program (any specific additional training identified and agreed shall be considered as "Over and Above").

Evaluation

During the training, the students will have theoretical and practical evaluations through intermediate and final tests to verify student's course comprehension and aircraft knowledge.

A course record of all the training activities will be provided for Customer Military Quality System Certification purposes.

Appropriate remedial actions will be evaluated and agreed with Customer Training Authority in case student(s) fails the final test. Possible additional training could be conducted as recovery actions, to be considered as "Over & Above" respect to the Contract.

Aircrew Training Program

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Each Aircrew is composed by 1 (one) Pilot in Command (PIC), 1 (one) Co-Pilot (CP) and 1 (one) Loadmasters (LM).

The Aircrew Training will provide the following set of training courses:

Pilot In Command (PIC) and Co-Pilot (CP) courses:

- **Pilot Instrument Refresher (IR):** aimed to refresh and consolidate the Customer Pilots on:
 - Basic Multi Crew Coordination concept
 - Instrumental Flight Techniques
 - Glass Cockpit / Digital Avionic

The course will includes both theoretical (classroom) activities and in-flight training on a Multi Engine Pistons (MEP) aircraft equipped with Glass Cockpit Instrumentation (Garmin 1000 type or similar)

- **Multi Crew Coordination (MCC):** aimed to provide the attendees with all the needed basic skills on Crew Integration concepts, Task sharing, Call-outs and procedural knowledge necessary to familiarity with the principles applicable to the C-27J airplane conduction.
- **Introduction to Glass Cockpit** aimed to provide the attendees with the peculiarity of Glass Cockpits and in particular with the characteristics of the C-27J Cockpit layout and avionic architecture. Avionic configurations and initialization sequences are practiced in the simulator already at this early stage.
- **Pilot Conversion to Type** will provide the Pilots with the basic systems knowledge to safely conduct non-tactical air/land flight operations with C-27J aircraft. The Pilot Training Syllabus will include instruction to operate in normal and emergency conditions. Pilot Conversion to Type will be for airplane type qualification only and will not include mission qualification. At the end of the course - based on satisfactory results of the Final Flight Handling Test - a Certificate of Completion of Training will be prepared and presented to each student.
- **Pilot Consolidation** performed to allow Pilot to consolidate the flight procedures learned during the Pilot Conversion to Type course, thereby improving the level of knowledge, experience, standardization and general aircraft management within some specific knowledge areas, in accordance with applicable procedures and flight safety regulations. This course will allow Pilot, Co-Pilot and Loadmaster familiarization with operations in crew integrated flight activities.
- **Instructor Pilot** will provide Pilot in Command with the capability to safely and effectively perform in-flight training on the C-27J Aircraft. That will include in-flight on specific right and left seats peculiarities. Upon completion of this course, the Instructor Pilot will be able to conduct briefing, debriefing and In-flight training for Pilot Conversion to Type and Consolidation courses on the C-27J Aircraft.
- **Pilot Recurrent Training** aimed to ensure that each C-27J Pilot is currently proficient on C-27J flight operations. It consists of classroom lessons and flight simulator practice to be performed within 1 (one) year after Conversion to Type ensuring that each Pilot is adequately trained and currently proficient with respect to the C-27J safely operation.

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Loadmaster (LM) Courses:

- **Loadmaster Conversion to Type** will provide the trainees with instruction on systems description, major components location and theory of operations. Purpose of this course is to enable trainees to perform the C-27J loading, unloading, in-flight management of cargo and personnel, servicing and limited maintenance tasks. System operating procedures are learned and practiced through use of a static C-27J aircraft. LM Conversion to Type will be for airplane type qualification only and will not include mission qualification.
- **Loadmaster Consolidation** performed to allow the Loadmasters to consolidate the system operating procedures learned during the Loadmaster Conversion to Type course, thereby improving the level of knowledge, experience, standardization and general aircraft management within some specific knowledge areas, in accordance with applicable procedures and flight safety regulations. This course will allow Pilot, Co-Pilot and Loadmaster familiarization with operations in crew integrated flight activities.
- **Instructor Loadmaster** will provide Loadmasters with the capability to safely and effectively perform on-ground and in-flight training on the C-27J Aircraft.
- **Loadmaster Recurrent Training** aimed to ensure that each Loadmaster is currently proficient on C-27J flight operations. Recurrent Training consists of classroom lessons and Hands On Training (HOT) to be performed within 1 (one) year after Conversion to Type ensuring that each Loadmaster is adequately trained and currently proficient with respect to the C-27J safely operation.

Aircrew Training Courses Structure

Here below the structure of the LEONARDO Aircrew Training Courses:

AIRCREW TRAINING for:				
<ul style="list-style-type: none"> • <u>4 (four) Pilots In Command</u> • <u>4 (four) Co-Pilot (CP)</u> • <u>4 (four) Loadmaster (LM)</u> 				
QTY	Training Course	Estimated Course Length (working weeks / days)	Location	Notes
2	Pilot Instrument Refresher (IR) for 2 PIC + 2 CP each course	4 weeks (5 days classroom + 20 days flight max)	In Italy	Each Pilot will receive 15 FHs. Briefing / De-briefing sessions will be provided before / after each flight
2	Multi Crew Coordination for 2 PIC + 2 CP each course	7 days (2 days Classroom + 5 days Simulator)	Classroom and Simulator at LND facilities	Each Pilot will receive 5 simulator sessions of 3 hours each.
2	Introduction to Glass Cockpit for 2 PIC + 2 CP each course	2 days (2 days Simulator)	Simulator at LND facilities	Each Pilot will receive 2 simulator sessions of 3 hours each.

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AIRCREW TRAINING for:				
<ul style="list-style-type: none"> • <u>4 (four) Pilots In Command</u> • <u>4 (four) Co-Pilot (CP)</u> • <u>4 (four) Loadmaster (LM)</u> 				
QTY	Training Course	Estimated Course Length (working weeks / days)	Location	Notes
2	Pilot Conversion to Type for 2 PIC + 2 CP each course	9 weeks (17 days Classroom + 8 days Simulator + 16 days Flights + 4 days of contingency)	Classroom and Simulator at LND facilities Flights at LND facilities (on Customer aircraft)	The Classroom training is based on lectures using CAI materials. Classroom lessons will make extensive use of Computer Based Trainer (CBT). Classroom will includes 2 session of CPT (6 hrs) and 2 session on AMT (6 hrs) for each Pilot. Each Pilot will receive 8 simulator missions of 3 hours each. Each Pilot shall undergo 8 flight-training sorties, of approximately 2 hours each (16 flight hours per crewmember).
2	Pilot Consolidation for 2 PIC + 2 CP each course	9 weeks or 36 flights, whichever comes first (Flights, including contingency)	At Customer MOB (on Customer A/C)	Each Pilot will receive 7 flights flown by trainee and LND IP, plus 4 flights as integrated crew with LM and LND IP on jump seat.
1	Instructor Pilot for 2 PIC	11 days (2 days Classroom + 4 days Simulator + 4 days Flights + 1 day of contingency)	Classroom and Simulator at LND facilities Flights at at Customer MOB (on Customer A/C)	Each Pilot will receive 4 simulator missions of 3 hours each. Each Pilot shall undergo 2 flight-training sorties, of approximately 2 hours each
2	Loadmaster (Ab-Initio) Conversion to Type for 2 LM each course	29 days (12 days Classroom + 2 days Simulator + 9 days Hands On Training + 5 days flight + 1 day of contingency)	Classroom and Simulator at LND facilities. HOT and Flights at LND facilities on Customer A/C	Each LM shall undergo 5 flight-training sorties, of approximately 2 hours each during Pilot Conversion to Type training course (10 flight hours per crewmember).
2	Loadmaster (Ab-Initio) Consolidation for 2 LM each course	3 weeks or 11 flights, whichever comes first (Flights, including contingency)	At Customer MOB (on Customer A/C)	The course is held jointly with Pilots. Each LM shall undergo a minimum of 11 flight-training sorties, of approximately 2 hours each during Pilot Consolidation training course. Each flight-sortie will be

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AIRCREW TRAINING for:				
<ul style="list-style-type: none"> • <u>4 (four) Pilots In Command</u> • <u>4 (four) Co-Pilot (CP)</u> • <u>4 (four) Loadmaster (LM)</u> 				
QTY	Training Course	Estimated Course Length (working weeks / days)	Location	Notes
				attended by both LM.
1	Instructor Loadmaster for 2 LM	1 week (1 day Classroom + 1 day Hands on Training + 2 days Flights + 1 day of contingency)	At Customer MOB (on Customer A/C)	Each LM shall undergo 2 flight-training sorties, of approximately 2 hours each.
2	Pilot Recurrent Training for 2 PIC + 2 CP each course	3 days (1 day Classroom + 2 days Simulator)	At LND facilities	Each Pilot will receive 2 simulator sessions of 4 hours each.
2	Loadmaster Recurrent Training for 2 LM each course	3 days (1 day Classroom + 2 days Practical Activities)	At Customer MOB (on Customer A/C)	

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2.8.2 MAINTENANCE TRAINING

Maintenance Courses will provide the Customer personnel with:

- The aircraft systems familiarization to safely and efficiently maintain the C-27J aircraft
- The necessary skill to diagnose and troubleshoot C-27J Aircraft Systems

LEONARDO will provide Training in time to allow Customer to support C-27J operations from the 1st A/C Entry Into Service.

The Maintenance Training program will provide experienced Customer maintenance personnel with classroom and Practical Activities training to support the C-27J operations.

The provided training will allow Customer maintenance specialists to accomplish C-27J 1st and 2nd Line Maintenance activities up to "Home Station Checks" (HSC), in accordance with the applicable C-27J Technical Publications.

Maintenance training prerequisites

Maintenance training courses will be provided to Customer maintainers with at least three (3) years of previous aircraft maintenance experience on similar aircraft in the relevant specific role and currently qualified on the category they are going to be trained.

Customer personnel must have working ability to write, understand, and speak in English language, with emphasis on aviation English. An English proficiency equivalent to Level 2-2-2-2 according to STANAG 6001 is recommended.

C-27J Engine Run training will be provided to B1 (Airframe & Propulsion) Specialists already qualified as Engine Runner on similar aircrafts, with at least one complete engine runner test over the last 6 (six) months and having successfully completed the C-27J B1 (Airframe & Propulsion) Specialists Course.

Advanced Maintenance (Checks) Training will be provided to C-27J B1 (Airframe & Propulsion) and B2 (Electrical & Avionics) Specialists with at least 1 (one) year of experience on the C-27J and holding Non Destructive Inspection (NDI) qualification.

With the aim to assess the trainees background each candidates will be required to fill an Entry-level Form in order to verify their eligibility to attend training courses according to the specific course entry-level requirements. LEONARDO will evaluate aircrew's curricula (Entry Forms) and, in the case that the levels of experience do not match the requirements stated above, it shall be agreed between LEONARDO and the Customer the most effective way to pursue the training program (any specific additional training identified and agreed shall be considered as "Over and Above" respect to the Contract).

A/C Maintenance training program

The A/C Maintenance Training Program will provide maintenance instruction through the following courses:

- **Category A Certifying Staff (Crew Chief - CC) course:** aimed to provide attendees with the procedures to perform "Flight Line" C-27J maintenance, as daily inspection, servicing, handling, troubleshooting and corrective maintenance actions through LRU's replacement.
- **Category C Certifying Staff (Aircraft Maintenance Manager - AMM) course:** aimed to provide attendees with general instructions and familiarization on system function, location and interface, at system and sub-system level.
- **B1 (Airframe and Propulsion) course:** aimed to provide attendees with the procedures to perform Airframe, Propulsion, APU and Fuel Systems maintenance activities on C-27J.

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- **Engine Runner (ER) course** aimed to provide a sub-set of C-27J B1 specialist with the procedures to operate the C-27J engines (engine/APU start and shutdown procedures, engine run emergency procedures, engine functional test, etc.) in accordance with the ground operation regulations
- **B2 (Electrical and Avionic) course:** aimed to provide attendees with the procedures to perform Electrical and Avionic Systems maintenance activities on C-27J
- **Maintenance Instructor Course** is aimed to provide Maintenance specialists, which have completed the C-27J maintenance specialist courses on their respective category, with instructional capability on C-27J maintenance topics.
- **Advanced Maintenance (Checks) Training Courses:** the training program is related to Maintenance Checks and provides practical activity on customer aircraft essentially. This courses are designed to instruct affected maintenance personnel on inspections, checks and procedures that have to be accomplished during A, B and C Checks on C-27J.

Training content

The Maintenance Training Program provides Classroom Instruction and Practical Activities on the A/C.

Purpose of the Classroom training is to acquire the necessary knowledge on systems operation, system performance and maintenance. In order to proceed with the follow-on activities, the students must have successfully passed the Classroom phase by means of a test sessions.

During Practical Activity phase, students will verify the theoretical knowledge that they have acquired and will apply it to practical tasks. The purpose is to enable maintenance specialists to apply the theoretical knowledge in practice on maintenance tasks to be accomplished on the C-27J aircraft. The training is performed / monitored by an instructor (e.g. instructor - led training) executing a maintenance task or procedure step by step (demonstrate - copy/repeat - practice).

Maintenance Training will also include visits to LEONARDO aircraft assembly line and flight line.

At the completion of both Classroom and Practical Activity phases, based on satisfactory test results, the company will prepare and present to each student a Certificate of Course Completion. A special record of the performed training activities will be provided for each student for Military Quality System Certification purposes.

Aircraft Maintenance Training Course Structure

Here below the structure of the LEONARDO Aircraft Maintenance Training Courses:

QTY	Training Course	Estimated Course Length (working weeks / days)	Location	Notes
A/C MAINTENANCE TRAINING for:				
<ul style="list-style-type: none"> <u>Six (6) Category A Certifying Staff (Crew Chief)</u> 				
1	C-27J Cat. A Certifying Staff (CC) for 6 trainees	11 days (8 days Classroom + 3 days Practical Activities)	At LND Facilities	Practical Activities on Customer A/C
<ul style="list-style-type: none"> <u>Six (6) Category C Certifying Staff (Aircraft Maintenance Manager)</u> 				
1	C-27J Cat. C Certifying Staff (AMM) for 6 trainees	2 weeks (10 days Classroom)	At LND Facilities	
<ul style="list-style-type: none"> <u>Twelve (12) B2 Specialists</u> 				
2	C-27J B2 Specialist for 6 trainees each course	38 days (22 days Classroom + 1 day Simulator + 15 days Practical Activities)	At LND Facilities	Practical Activities on Customer A/C
<ul style="list-style-type: none"> <u>Twelve (12) B1 Specialists</u> 				
2	C-27J B1 Specialist for 6 trainees each course	34 days (24 days Classroom + 10 days Practical Activities)	At LND Facilities	Practical Activities on Customer A/C
1	C-27J Engine Runner (E/R) Specialist for 6 B1	9 days (3 days Classroom + 3 days Simulator + 3 days Practical Activities)	At LND Facilities	The trainees must have successfully completed the C-27J B1 Specialist training course. Practical Activities on Customer A/C.
MAINTENANCE INSTRUCTOR TRAINING for:				
<ul style="list-style-type: none"> two (2) B1 Specialists two (2) B2 Specialists two (2) AMM two (2) CC 				

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QTY	Training Course	Estimated Course Length (working weeks / days)	Location	Notes
1	Maintenance Instructor course for 8 trainees	4 days (Classroom)	In Italy at LND premises	This course is designed for maintainers already trained on C-27J A/C.
TRAINING FOR CHECKS A/B/C for twenty-four (24) Maintenance Specialists				
2	Checks A1+A2+A3 for 6 B1 and/or B2 specialists (each course)	11 days (Briefing + Practical Activities)	At Customer MoB	On Customer A/C. Only for C-27J already qualified personnel with at least 1 (one) year of experience and holding NDI qualification
2	Checks B1+B2+B3 for 6 B1 and/or B2 specialists (each course)	16 days (Briefing + Practical Activities)	At Customer MoB	On Customer A/C. Only for C-27J already qualified personnel with at least 1 (one) year of experience and holding NDI qualification
2	Checks C1/2+C3 for 6 B1 and/or B2 specialists (each course)	2 weeks (Briefing + Practical Activities)	At Customer MoB	On Customer A/C. Only for C-27J already qualified personnel with at least 1 (one) year of experience and holding NDI qualification

2.9 INTEGRATED LOGISTIC SUPPORT MANAGEMENT

LEONARDO will provide Integrated Logistic Support Management up to the end of the second year from the 1st aircraft Entry Into Service. An ILS Manager, staffed by a proper team, will be responsible for the harmonization of the industrial logistic support activities and for the Customer Support Contract targets achievements.

The responsibilities of the ILS Manager are to:

- ensure centralized management of all ILS issues
- act and commit on behalf of LEONARDO for all ILS issues
- interface and coordinate logistic support activities with Customer organizations
- organize ILS Review Meetings (periodic ILS program progress review meetings with Customer)
- assure the logistic support resources meet Customer requirements
- plan, integrate, and monitor actions necessary to ensure the achievement of the contractual agreed performance level and the relevant Customer Satisfaction

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