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## **C-27J SPARTAN - THE SMALL HERCULES**

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Jokingly the C-27J was called sometimes the 'Babyherc'. This nickname does not alter or correct that the C-27J Spartan can be called one of the best European success stories in the field of tactical transport aircraft. Apparently as capable in its segment that he was not escaped on the attention of the American aircraft industry which certainly tells us something about his quality !

### **DEVELOPED FROM THE G-222**

The C-27J has a proven precursor in the Fiat / Aeritalia G-222. He was therefore developed from this type precisely because of the favorable performance and flight characteristics but in a contemporary version with digital technique. With its size and capacity and with only two engines he sits just below the C-130 Hercules and is therefore in principle no real competitor. However, the Spartan also did benefit in similar development around the C-130 which took place when it was switched to the C-130J, the Hercules version who was stabbed for the first time in a fully digital jacket.

The C-27J was conducted therefore, based on the same "glass'cockpit. The major European driving force behind this project is Alenia Aeronautica which in 1990 was formed from a merger of Finmeccanica aerospace, Aeritalia and Selenia. The first flight of the C-27J was in September 1999, and in December 2001, the Spartan military version in Italy was fully certified. The Italian Air Force ordered 12 C-27J's that were delivered between January 2007 and May 2009 and they stationed them at Pisa. The Fiat G-222 at that time was already largely phased out.

### **AMERICAN ORDER**

Cooperation with the large aircraft industry of the United States was initially sought by Lockheed Martin. The U.S. forces had in fact already some G-222's in service under the designation C-27A and were quite pleased here. there was hope for a larger order. Alenia with Lockheed formed a joint venture named Lockheed Martin Alenia Tactical Transport Systems (LMATTS) in 1997 and started the development of the C-27J. At a later stage Lockheed Martin came in a conflict right there when in 2006 a project for the U.S. military (U.S. Army & U.S. Air Force) was issued. This happened as the Joint Cargo Aircraft (JCA) in which a tactical transport aircraft became necessary, to replace existing types in different units. Oddly, in this project, by the very different functions, both the C-130J and the C-27J were both eligible.

It led to another partnership between Alenia North America and L-3 Communications Integrated named Global Military Aircraft Systems (GMAS). Later on Boeing Integrated Defense Systems joined as a partner in this conglomerate. Incidentally, the contract of the JCA in 2007 was won in which also had to be competed fiercely with the EADS North America C-295. The plan was to replace in the Army National Guard the C-23 Sherpa, C-12 Huron and C-26 Metro Liners but the USAF Air

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National Guard at last ended up to choose the C-27J Spartan only as an additional type of aircraft for the C-130J Hercules. This way this type became a part of the total new transport needs. In 2009 the Army National Guard C-27J Spartan unit was charged - from a logistical point of view - under the auspices of the USAF National Guard. Due to these circumstances, the total order for the JCA C-27J has narrowed as originally estimated (from 78 to 38 pieces). The first aircraft was delivered in September 2008 and the JCA training started in November 2008. Full operational capability followed in 2010 and during the second half of 2011 aircraft of the Ohio National Guard were seen at Kandahar Afghanistan, ONG followed in this matter the example of the Italian Air Force.

### **MORE THAN ENOUGH INTEREST**

In the meantime in Europe was not a sitting duck, they worked hard by these times. A first order came from Greece, even before the order of the own Italian Air Force, through the then known 'LMATTS group' 12 examples were ordered. There has been intense competition in the Eastern European countries with the CASA CN-235 where now a fairly large Antonov An-26 fleet was aging. Both the C-27J as CN-235 were regularly spotted at air shows in these countries. This resulted in an order for Lithuania (3), Bulgaria (first 5 pieces and later reduced to 3) and Romania (7). Outside Europe and the U.S. were still orders to Mexico (4) and Morocco (4). The fact remains that despite the global crisis orders may still come because there are more military An-26 and Antonov An-32's elsewhere in the world to be replaced. Slovakia is in negotiations, but there is also interest by India, Australia, Peru and Taiwan and Indonesia and Ghana are also mentioned as potentially interested.

### **TACTICAL VERY EFFECTIVE**

What makes the C-27J Spartan so attractive ? Who saw the acrobatics of its predecessor on the various air shows knows what this aircraft can do with its tremendous agility. It is through the digital control that performances only have been increased. The Americans formulated as follows: a 'medium- lift intra-theater airlift aircraft' . They meant it this way, so that crucial weapons or load can be brought to surgical sites (the 'last mile') or so-called "forward locations" where landing on unpaved terrain is of no problem to the aircraft. This makes the C-27J a tactical top aircraft, which makes him very well suited for that task. By simultaneous technique with the C-130J, such as engines and avionics, there are similar logistical and maintenance characteristics but there also is a good interoperability with this type.

The C-27J can operate cost effectively and next to the the transport task for paying cargo or 60 soldiers, it can also be used for example medevac and airdrop of troops. or load on pallets or containers (Container Delivery System). It's possible to drop very precisely 46 fully equipped soldiers by parachute through two side doors and the tailgate and thanks to the throughout great maneuverability the C-27J can orbit in a small area, curves of 3G are even possible ! The navigation and night vision system allows flying even above tree-height in the dark and the C-27J can operate this way in narrow valleys. Because of his agility and climbing ability, it can also quickly



disappeared over treacherous terrain. From location wounded can be evacuated, there is space for 36 stretchers and 6 supervisors.

## **SMART LOAD**

The floor is of the same strength as that of the Hercules and can accommodate NATO standard 463L pallets (3.5) pallets that are compatible with the C-130 Hercules and CH-47 Chinook what enables effective combined input. Two armored cars can be transported, in and out via the hydraulically operated tailgate, or a M-119 Howitzer or a small helicopter like the OH-58. All tasks can be implemented quickly, if necessary under enemy fire. The more powerful Rolls-Royce E 2100D3 engines with six-bladed propellers give the C-27J a range of 35% more and a ceiling of 30% more compared to the G-222 and this makes the C-27J the most capable twin-engine transport set in his weight class. Important demanding tactical missions are in scope and can be effectively implemented. Some versions, such as the Air Force in Italy and Lithuania have a Pitot tube above the cockpit which enables refuelling in the air and thus the radius is increased.

## **STATE-OF-THE-ART AVIONICS**

The cockpit is fully equipped with Night Vision Imaging System (NVIS) and has an Electronic Flight Instrumentation System (EFIS) with five liquid crystal head-down 'multi-color displays (CDMU). There is a dual digital autopilot, Communication and Identification Management System (CNI-MS), Flight Management System (FMS) digital engine control (FADEC) and other key avionics are GPS and inertial navigation, Low Power Color Radar (LPCR) and Emergency Locator Transmitter (ELT). There can be trained in Pisa in the Italian Air Force on a full mission flight simulator which became available mid-2010. The C-27J has the complete concept with great potential in the market and it is expected that the sale will attract.

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### **C-27J in short**

Crew: 2 pilots, ( + eventually a loadmaster)  
Cabine: 60 soldiers or 46 commando's or 36 stretchers with 6 additional helpers.  
Length: 22,7 m.  
Wingspan: 28,7 m.  
Height:: 9,64 m.  
Wingsurface : 82 square meters  
Empty weight: 17.000 kg.  
Payload: 11.500 kg.  
Max. Start weight: 30.500 kg.

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Engines: 2 x Rolls Royce North America AE2100-D3 turboprop

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4640 pk each  
Propellor: Dowty 391/6-132-F/10 sixblade composite propellor.  
Max. speed: 602 km/u  
Cruise speed: 583 km/u  
Min. speed: 194 km/u  
Reach: 1852 km. with 10.000 kg. payload  
4260 km. with 6.000 kg. payload  
Ferry range: 5926 km.  
Operational ceiling: 9144 m.  
Climbspeed: 10.000 feet in 3 minutes

