

C-295: Serious Solution

EADS-CASA is confident that their C-295 is the best machine to become the Air Force's new fixed-wing search and rescue aircraft. Spokesmen for the Spanish-based consortium say Canada needs to take a long and hard look behind the basic numbers of aircraft performance and size before making any decisions.

Martin Sefzig, the Canadian Director of Programs for EADS CASA, says the numbers that really count are not wingspan or airspeed, they are the dimensions of the all-important cargo area. That is where transport and utility aircraft like the C-295 earn their bread and butter: in the number of troops they can carry; how many cargo pallets they can load; and, in the SAR role, how much rescue, medical and other gear they can squeeze in.

"Size has been held against us, but it's simply not true. We're not smaller – not where it counts," he states. "When you look at the floor space and the total cargo volume, we are the leaders in our class."

The C-295 is in fact a leaner, stretch version of the company's popular C-235 light transport and patrol plane, and its sleek lines on the tarmac make it look like a shark among guppies. Its relatively slim profile belies a cargo bay that boasts more floor surface and more volume than any competitor in its class. "We can transport more people, and more standard pallets (up to five). Only our airplane can transport the three SAR pallets used by the

CC-130 without reconfiguration, having additional space for SAR Techs, Spotters, and equipment" Sefzig says, confidently comparing the C-295 to other aircraft in its class. The 6'3" height of the C-295's all-important cargo section is more than enough clearance for the kind of equipment and payload mix typical for the SAR role. And its three-metre-long ramp door simplifies and expedites loading and unloading.

The aircraft are certified with bubble windows (for use by Spotters during SAR missions) and a nose radome for Forward-Looking Infra-Red (FLIR) already built in. The C-235, with the same cross section, has been operational in this configuration since 1994, flying over 1000 hours per year.

While it does not have as high a total cargo rating by weight, he dismisses this as a "non-issue when discussing SAR." Sefzig says maximum takeoff weight is rarely an issue, even with transport aircraft that specialize in hauling cargo. "The tendency in all transport aircraft is that they bulk out before they weigh out," he says. "The cargo bay is loaded way before the maximum weight limit is reached."

The normal cargo for that role is palletized SAR equipment, sensor consoles and SAR Techs – all of which come in well beneath the C-295's maximum weight limit.

In fact, the company claims the cargo area is perfect for the SAR role – and the world market seems to agree. Nine countries have already chosen the aircraft (or the C-235, its slightly shorter cousin) for the SAR/Maritime Patrol role, including the U.S. Coast Guard, the Irish Air Corps, the Portuguese AF, and Spanish SAR.

This translates to an important advantage – extensive operational experience. The C-295 has already cut its teeth performing missions around the world. It is in service, or has been ordered, by seven countries, and it's "sister" machines (CASA's C-235 and C-212) are used by dozens of countries – hundreds have rolled off the assembly lines. As well, the C-235, sharing the same fuselage as the C-295, passed rigorous Arctic trials in Resolute Bay. But, as Sefzig points out, the Spanish and Polish air forces have tested their C-295s in perhaps the most rigorous environment of all. "It is combat-proven, it has seen action in Afghanistan and Iraq." CASA's chief test pilot, Eduardo Cuadrado (who clocked over 1500 flight hours in the aircraft, taking it to Asia, Africa, North and South America), says "the 295 excels in low altitude parachute extraction, regularly winning international contests. Having personally performed low-level drops in extreme hot gusts, and having trained Polish pilots now flying the 295 in Iraq, experience shows it's a superb low altitude performer in all terrains."

The C-295 can maintain low loiter speeds which pleases the SAR Techs, as they prefer to jump at the lowest speeds possible (as previously detailed in *FrontLine* 2004, issue #3). "It's a very stable aircraft," Sefzig continues proudly. "It has excellent low-flying and slow-flying characteristics... and low and slow is what you spend a lot of time doing in search and rescue."

And in the mountains of western Canada he says the aircraft will really shine, with its comparatively light airframe and powerful engines giving it the kind of agility that the Canadian Rockies demand. Cuadrado confirms that the manoeuvrability of the C-295, between 3g and -1g, "allows for extreme tight turns in mountains when I flew in the Chilean Andens, the Swiss and Austrian Alps, Iceland, and recently, the Canadian Rockies."



The EADS-CASA C-295 sits on the tarmac at Iqaluit, Nunavut prior to flight demonstrations.

Thinking Outside the Box

Many argue that the real solution to improving northern and maritime SAR coverage is to put the aircraft and crews closer to potential crash or disaster sites.

"If you really want to improve SAR service in the North, you have to improve basing," Sefzig stresses. "With our aircraft, you could actually double the current coverage." The company claims the C-295's lower purchase price and servicing costs would allow the air force to buy more aircraft and base them in more locations, thus boosting its rescue coverage across the country, and especially in the Arctic.

Making a few adjustments to the way the Canadian Air Force conducts search and rescue operations in the vast northern half of the country could provide near-blanket coverage of the North.

In the current FWSAR deployment scenario, of the four hours calculated as critical response time, a 2-hour launch or stand-by posture is included. Any aircraft currently considered for FWSAR can adequately respond to southern incidents; however, northern or maritime, and particularly Atlantic incidents, can best be addressed by proximity. Here, the argument of having aircraft more equally placed across the country comes into play.

By basing a few aircraft out of places like Yellowknife, St. John's, and Iqaluit – where the Air Force does not currently maintain SAR assets – search planes would be able to cover vast areas that now take 11 hours or more for southern-based rescue aircraft just to reach.

The "basing" proposal has been misinterpreted by media and politicians alike. Contacted at the CASA office in Spain, Francisco Calzada explains that, simply stated, "basing" means they need the crew and the SAR Techs nearby. During the recent demo tour, Northerners complained that pilots were often not familiar with the local geography. Basing crew in the North, would avoid this constraint, saving a precious searching time

EADS CASA insists there is enough money in the program to provide for additional basing, meaning these changes would not require substantial additions to infrastructure or personnel, yet would vastly improve SAR coverage of the Arctic.

"With the current budget, we can put two aircraft in Yellowknife, two in Iqaluit, two in St. John's – and in order to guarantee the requested availability, we only



During the recent demo tour, pilots, SAR Techs, Spotters and CASARA volunteers were impressed with the features of the C-295. Deceptively streamlined on the outside, many were surprised at the fully stand-up cabin, the unique capability to carry three standard pallets, and the extra space for consoles, Sar Techs, Spotters, stretchers, or two additional pallets.

need the crews and the SAR Techs," confirms Calzada. Local companies could handle the maintenance. Alternatively, he says "we can rotate the aircraft every eight months to perform the maintenance at the main base located in the south. In any case, we only need crews and SAR techs than can be rotated."

But perhaps the biggest selling point for the aircraft is its cost, and Sefzig hastens to add that he means not just the cost of buying the 15 aircraft called for by the air force, but also the cost of maintaining them. "We have, by far, the lowest servicing costs in our class." Company representatives are very proud of their worldwide reputation for support.

While he was not prepared to discuss specific costs before the government issues a formal RFP (Request for Proposal), planned for the end of the year according to air force sources, Sefzig says the C-295 would cost "substantially" less than its competitors for the Canadian fixed-wing SAR contract. The Department of National Defence has pegged the cost of the program at \$1.3-billion for 15 aircraft.

The C-295 has a substantial Canadian component that goes into its construction: both its engines and its avionics are built in Montreal, by Pratt & Whitney Canada, and Thales Canada respectively. Both companies have extensive national service networks, a big advantage for the C-295 since engines and avionics are the most maintenance-intensive systems on any aircraft.

The size of the EADS-CASA consortium and its solid reputation supporting airplanes worldwide means that servicing will be available "for decades to come," Sefzig says. "The 295 production line will be open for a long, long time." And with

the C-295's dependable P&WC engines and Thales Canada's avionics being similar to those used in the popular Dash-8s, aircraft engineers will be familiar with their engines and on-board systems.

"It's a well-proven design... it's very widely used and the maintainers love it." Sefzig says the C-295 was designed with ease of maintenance in mind, so there's less to go wrong. An example is the deliberate avoidance of being dependant on an APU (Auxiliary Power Unit). Instead, it comes equipped with a left-engine propeller brake, which provides APU functionality at a fraction of the cost and complexity inherent in maintaining a third engine. Accordingly, this reduces service costs and the risk of being stranded in remote areas in case of APU failure, since the C-295 is certified for battery-starts as back up.

"The general concept in designing the C-295 was simplicity. And that translates into durability and ease of serviceability," claims Sefzig. Test pilot Cuadrado agrees, "during our recent tour across North America we clocked over 150 flight hours with up to seven take-offs and landings at each base while suffering zero failure. Two engineers merely conducted routine maintenance, demonstrating the 295's robustness."

We all hope that Canada's long quest for a new fixed-wing SAR plane will end soon. EADS CASA believes that their C-295 has the price and capabilities that will give it a decided advantage in the \$1.3-billion competition. All they ask is for the government to look beyond the obvious performance numbers and examine the ones they believe really count in the SAR role. **FL**

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