BRINGING AGING DC-3 DAKOTAS BACK TO LIFE

HAVING SERVED in the world's skies for more than 70 years, and still going strong, the legendary DC-3 Dakota looks set to be outlasted by its turboprop offspring.

Current estimates place around 400 piston-engine DC-3/C-47s still gracing the skies, with over 100 "Turbo Daks" –as they are commonly-known – now edging their way into roles that once belonged to the aging legend.

Having operated a large fleet of DC-3/C-47s, the South African Air Force converted most of its fleet of Dakotas to turboprop versions to fulfil roles such as a paratrooper carrier, logistics support and coastal surveillance / search and rescue. After some SAAF DC-3/C-47 65ARTPs were auctioned off to the private civilian market, they proved themselves as highly competent aircraft for African operations such as in humanitarian aid, rural support, relief efforts and other such fields that require a five-ton lifter to take off and land in 300-metre-long gravel – and even muddy – strips.

photo: Kevin Barker

The surge of the African aviation industry could see more of the TP (turboprop) Dakotas making the short hop “feeder routes” from larger airports, to the rural strips scattered around Africa. In addition, there is still a place for Turbo Daks in the air forces of many African states which have a shortage of transport or special mission aircraft, such as gunships or maritime patrol.

Originally the Dakotas that were converted to Turbo Daks in South Africa under the Wonder Air STC were designated DC-3/C-47 65ARTPs. Pratt & Whitney subsequently removed the PT6A-65AR from its production lines and the latest in a line of upgrades to the basic type has seen BSAS (Braddick Specialised Air Services International (Pty) Ltd.), based in South Africa, modifying the STC to incorporate the PT6A-67R turbine (1424 shp) newer and better performing turbine, as well as the yet to be released PT6A-67F turbine (1624 shp). This newer derivative of the -67 will result in superior hot and high performance in the harsh African conditions that limit most take-off weights

Even 70 years after the conception of the DC-3, very few aircraft have been able to replicate its shear ruggedness or size-for-size lifting capabilities. Coupled with the reliability of the PT6A 65AR or 67R turbines, improved and reconfigured systems that incorporate affordable maintenance, the aircraft is a proven workhorse.

The latest versions carry a maximum fuel load of 3178 kg in standard tanks or a total of 5485 kg with long-range tanks which give the aircraft a range of 1800 nautical miles in the ferry configuration. Its maximum useful load is 6486 kg (14300 lbs) in a fuselage which has a cargo volume of 34,67 cubic metres. The fuselage is capable of transporting five LD2 or four LD3 containers with room to spare.

The Turbo Dak has a maximum takeoff weight of 13154 kg (29000 lbs), a maximum landing weight of 13041 kg and its normal cruising speed is 160 knots with a minimum control speed of 67 knots.

photo: Ken Stoltzfus

Today's DC-3/C-47 TPs are a far cry from the models that rolled off the Douglas production line decades ago. The conversion process takes less than six months, but there is a lot more to it than the addition of turbine engines.

A DC-3/C-47 TP is a "new aircraft"; meaning after various inspections, overhauls, repairs and modifications the aircraft is completely "zeroed". BSAS is the latest company to be marketing and producing the Turbo Dak, and having drawn on the years of experience gained from the first TP conversions, the aircraft has been even further modified to ensure an ultimate modern utility vehicle.

The cockpit remains “typically Dakota” but it now sports a wide variety of the latest state-of-the-art avionics and navigational equipment. Various other modifications combine to produce an aircraft that is operationally friendly to both the maintenance crew and pilots

BSAS is further able to engineer the DC-3/C-47 TPs to a variety of customer requirements. The design team has incorporated light composite LD3 doors and flooring as well as configurations for fire fighting, malaria spraying, surveillance and a weapons platform to name a few. Standard configurations include passenger, freighter and combi.

Be it aid, relief, mining, fire fighting etc the demand for an aircraft that offers what the TP Dak can is there. The DC-3/C-47 TP will outlive most of the latest aircraft being put into operation today. Its lifespan is endless and no component is un-repairable. Although the DC-3 sees a near 1:1 ratio of flight to maintenance time, the TP can operate in excess of 200 hrs a month and require minimal maintenance down time.

The TP Dak operates at a fraction of the price of the original DC-3 and with an improved payload, performance and the latest support, the runways from which the drone of the Wright Cyclone radials were heard, could be replaced by the blare of the PT6A, on that same airframe that will still be flying long into the future. Very few aircraft can go in and out of locations that the TP Dak can, with the same payload, cost and durability. This aircraft fills a particular niche in the aviation industry – both in the civilian as well as military spheres.