



## PROJECT TANGO CHARLIE :

*“A Cost Effective Solution to the Light Tactical, Airborne,  
Rapid Mobility Capability Need of Australian Defence”*

### THE BACKGROUND

In 1994, members of the Australian Defence Industry in South Australia recognised a need for change in the way Defence business is done in Australia. Through a 14 month “clustering process”, done in co-operation and collaboration with the SA Government, a national body was formed called the Defence Teaming Centre (DTC Inc.), with the paradigm of “*collaborate to be competitive*”. The Vision and Mission Statement of the DTC is attached at Enclosure 1. Studies undertaken in 1996 identified the impending risk and onset of the Defence Budget Crisis. Plans were developed to hopefully aid in the mitigation of this risk, recognising the increasing pressure on the Capital Acquisition Budget. Project Tango Charlie is the result of one such plan.

### THE PROJECT PROPOSAL

In September 1999, our USA based affiliate, Pen Turbo Aviation Inc., provided indicative costs to the Australian Department of Defence (through Support Command Australia) for provision of the modification kit hardware, documentation and license for re-engining the Caribou aircraft with the more reliable, cost effective PT6A-67T turbine power plant. The PT6A family of turbines is arguably the most popular engine for turbo-prop applications in the world.

On the 7<sup>th</sup> of January 2000, AFTS submitted its unsolicited proposal for modifying the Caribou aircraft in Australia, as a Private Financing Initiative (PFI), using the Pen Turbo Re-Engining Modification as the core change to the airframe. The Project Tango Charlie Proposal also recommends a number of additional modifications to improve the reliability and effectiveness of the Caribou aircraft as well as enhance the safety of its operations.

Though ostensibly categorised as being unsolicited, this proposal has also been submitted in response to the many requests made by the Australian Defence Organisation, over the past three years, for the Australian Defence Industry to come up with innovative, cost effective solutions to meet the capability needs of Defence.

### THE PURPOSE

The aim of the Project Tango Charlie Proposal, subsequent correspondence and dealings has been to encourage the Australian Defence Organisation to work with the Australian Defence Industry, in an Integrated Product Team (IPT) approach, for the provision of an innovative, cost effective and simple solution for the light tactical, airborne, rapid mobility capability need. This approach effectively uses Australian know-how to bring the technology shown in Fig 1 to the RAAF Caribou Fleet, in line with the “*collaborate to be competitive*” concept.

#### Figure 1

“Turbo Caribou” Prototype Aircraft

RegNo : N600NC

Flying Over Cape May, NJ, USA

Total Test Time: 416 Flying Hours

Engines : PT6A-67T

Props: Hartzell 5 Blade, HCB-5MA

Cost of STC Modification Kit Hardware,  
Documentation and Licence: USD\$3.5M per  
airframe (including engines but not including  
installation)





## THE TEAM

The Industry Team assembled by AFTS consists of members of the Australian Defence Industry that share the vision of the DTC and have the demonstrable core competencies, skills and capabilities to undertake the Project in Australia. The Australian Team Members are Australian Flight Test Services Pty Ltd (a profile on AFTS is attached as Enclosure 2), Hawker Pacific Pty Ltd (the current maintenance contractor for the Caribou airframe), and Pearl Aviation (a special flight operations company which is part of the Pasipale Group).

Additionally, AFTS has established exclusive teaming arrangements with key technology providers from overseas, namely Pen Turbo Aviation Inc. and National Test Pilot School. Pen Turbo has spent six years developing its re-engining modification for the Caribou aircraft. National Test Pilot School has performed the certification flight test as the Designated Engineering Representative (DER) on behalf of the FAA. Certification of the Pen Turbo modification through a Supplemental Type Certificate issued by the Department of Transport (Canada) and one from the Federal Aviation Administration (USA) are imminent. Should the Tango Charlie Proposal be adopted by Defence, these current teaming arrangements will see Australian Industry having equity in the technology and associated products, with the Australian program being the basis for developing export opportunities in this region, Africa and the Americas.

## THE PROPOSAL OVERVIEW

Project Tango Charlie is the result of research and analysis undertaken by AFTS over the past two years, including review of data on the Caribou dating back to 1989. It is all about achieving a cost effective, reliable and safe capability to meet the Light Tactical, Airborne, Rapid Mobility Capability Need.

The Caribou aircraft has provided outstanding service to the ADF, since its introduction into service in 1964, through a series of conflicts, peacekeeping and foreign aid missions, and national emergencies. Such operations have included deployments to Vietnam, Kashmir, Cambodia, Irian Jaya, Namibia, Bougainville and PNG, various flood relief and other civil emergencies, and, most recently, support of our forces in East Timor. Currently, the aircraft's useability is severely hampered by its unreliable (and very expensive to maintain) radial piston engines. Project Tango Charlie would replace these 1940's technology engines with lighter, more reliable, more efficient and cost effective turbo-prop power plants, along with other operational improvement modifications and capabilities to extend the operational life of this valuable asset for significantly less cost than any replacement acquisition (currently estimated at \$650M+). The excellent (second to none) short take off/landing (STOL) and unprepared strip operational capability of the Caribou would be retained and enhanced with improved safety in operations. Currently, every take off of the Caribou has an increasing potential for an engine failure due to the poor reliability of the existing radial piston engines.

The Project Tango Charlie Proposal identifies savings that would accrue should the recommendations be adopted by Defence. These savings are sufficient to make the modification of the aircraft revenue neutral within 5 to 8 years, depending on the number of aircraft to be operated, extent of recommendations adopted and exchange rate variations.

A conservative analysis by the Tango Charlie Team has put these savings at over AUD\$1M per month. Estimates based on data on existing Caribou operational, maintenance and infrastructure costs obtained from Defence indicate these savings may be closer to AUD\$2.5M per month. This would make the fully recommended Tango Charlie Program revenue neutral, against the accrued savings, in less than 5 years.

The Proposal has also been put forward as a Private Financing Initiative (PFI) for provision of an industry supported capability via a 10 year operating lease and, moreover, as a prototype program to aid in the development of PFI policy and processes. The low technical risk, relatively moderate size, identified savings, and simplicity of the Tango Charlie Proposal make it an ideal candidate for the latter. This opportunity would be further enhanced by adoption of the "open book" approach recommended in the Proposal. Such an approach would have Defence and the Tango Charlie Industry Team working as a cohesive, Integrated Product Team (IPT) to establish the trust required to underpin the long term relationship recognised as being needed for a successful PFI. It should also placate the more traditional thinkers within Defence (and some of our competitors in Industry) who may advocate such proposals need to be competed. Additionally, this approach enables Defence to leverage from and achieve value addition on the efforts applied and \$585,000 already invested in the Project by the Tango Charlie Team over the past two years.