Scott Nicholls and Peter Maloney attending to a fuel tank mould setup

service life of 5000hrs.

Based on this requirement, Cube 3D, led by owner and gearbox guru Steven Horsfall based the design specifications on a commercial gearbox assuming 120,000 hrs or eight years' service life allowing for a one percent (L1) parts premature failure with a 3 TBO life cycle on the gears. The result is a significant achievement.

The main rotor gear box and tail rotor gear box frames are manufactured from tubular 4130 chrome molly and the structure is pressurised. Other non structural parts are manufactured from stainless steel due to its corrosion resistance.

So why should customers buy composite helicopters made of composite materials? Whole of life costs, quality of product, and operational advantages are three reasons cited by Mr Maloney.

For instance, a KC518 Adventourer costs $US450,000 flyaway (or $US335,000 as a kitset with basic avionics. The engine is extra – $US35,000 for the 320shp Allison T63-700 turboshaft fitted to the prototype Adventourer.

Compare this to other similar sized helicopters. The Robinson R66 costs $US900,000 while the Aerospatiale EC 330 Puma is $US2.8 million, and the Eurocopter is over $US3m, Mr Maloney says.

The cost of operation of a composite helicopter is significantly lower in most ways. For instance, lower direct operating costs due to high TBOs and carbon fibre on-condition rotor systems for a 1750lb machine that can carry five adults and their luggage.

The lighter, non-corrosive airframe also translates into less maintenance and more time between overhauls.

As this edition went to press, Peter and Leanne Maloney were heading off to Heli Expo, the world's largest helicopter convention, where they will doubtless find more fans for the Adventourer.

Peter Maloney