

Boosting the BK117

It's the most significant helicopter re-engineering project New Zealand has ever seen. If the rest of the world wants it, they've got to come here to get it.

The CAA has approved a Supplemental Type Certificate (STC), held by Airwork (NZ) Ltd. The STC allows the fitting of Honeywell LTS101-850B-2 engines to the Kawasaki BK117 B-2, to create what Airwork has christened the Kawasaki BK117-850D2.

The 850D2 project has been in the making for more than two years, and has been a joint effort between the engine manufacturer Honeywell, Airwork as the engineering company and STC holder, Flight Structures Ltd, as the design organisation, and the CAA.

An STC is an approval to modify an aircraft from its original design. The STC holder can elect to carry out the modification exclusively, or can supply the STC data to any other organisation worldwide to allow them to carry out the work. The STC holder is responsible to report any failures, produce continuing airworthiness instructions, respond to any relevant Airworthiness Directives, and to develop and maintain the STC data, including amendments to the aircraft's Flight Manual.

CAA STC project manager, Peter Gill, says that externally, the 850D2 appears to be the same helicopter.

"The maximum power available to the helicopter hasn't changed, because that is limited by the gearbox, which transmits power to the rotors. The advantage comes in when the aircraft is operating on one engine. The single-engine performance is significantly improved, which means it can be operated at a higher weight than was previously possible (when limited by single-engine performance)."

CAA Flight Operations Inspector, Ken Wells, says the improved performance at higher weights, altitudes and temperatures is particularly significant to emergency medical service operators, as the re-engined helicopter can meet class one performance standards at maximum all up weight under most New Zealand operating conditions.

"In practical terms, that means the aircraft can fly straight from the hangar into a hospital helipad, which may be elevated or in a congested area, with full fuel and equipment on board (at maximum all up weight) without contravening safety minimums."

The New Zealand STC is automatically accepted in Australia and some Pacific countries. Airwork is in the process of gaining approval from both the Federal Aviation Administration and the European Aviation Safety Agency. Those wider international approvals will depend in part on the quality of the CAA's work

in approving the STC. International authorities would examine the CAA's approval processes and methods.

"The CAA has approved the certification plan for the STC, monitored the work, examined the flight testing (including using a CAA test audit), and completed a final review of the data. It's been interesting to see the first ever use of a computer-based performance predication programme as part of the methodology," Peter Gill says.

While there are only 10 BK117 B-2s eligible for the upgrade in New Zealand, there are about 400 models in use worldwide.

Airwork Business Development Manager, Wayne Christie, says this programme is good news for New Zealand aviation.

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