

First Australasian Bell 429 delivered in NZ

The first Bell 429 to be sold in New Zealand (and Australia) was registered earlier this year to Advanced Flight Limited at Auckland Heliport, who will operate the aircraft on behalf of private owners. Recently back in Auckland from an extended trip around the South Island, the aircraft was demonstrated to potential customers by Peter Crook of Hawker Pacific during a week long programme in early April.

RECEIVING type certification in July 2009, the Bell 429 was essentially a brand new design for Bell and not an evolution of the 427 which did not meet the single pilot IFR nor flat floor open cabin needs of air medical operators. With a great deal of industry and customer driven design input courtesy of Bell's Customer Advisory Board (a group of 14 invited operators from around the world who meet every six months), the 429 ticks these boxes and many more as well.

The aircraft achieves several 'firsts' for a light helicopter (certified under FAR Part 27, which limits MTOW to 7000lb). It was the first light helicopter certified to the latest FAR Part 27 2008 standards, and the first to be certified through the Maintenance Steering Group -3 (MSG-3) process for enhanced maintenance efficiency and safety. It was also the first rotorcraft to have an approved EASA Maintenance Programme. In short, this means that the aircraft utilises the same systems level maintenance and safety standards as used for new large commercial aircraft – offering a significant simplification of maintenance (and cost) compared to traditional helicopter requirements. Inspection requirements are divided into seven zones to be attended to at different times during the aircraft life. A great many components are of composite construction requiring condition inspections rather than lifed replacement. In fact on its release the aircraft had only 70 lifed items. With maturity, this has been reduced to 35, and the final goal is just 13, most with a life in excess of 10,000 hours. Bell claim a maintenance cost reduction of 35% on comparable aircraft. A typical corporate owner could expect to operate a 429 for 10 to 15 years without having to undertake any major maintenance at all.

Category A Performance Class 1

The 429 also claims a best of class Cat A performance. It is fully

Performance Class 1 capable for max gross weight at sea level up to 38 degrees C in nil wind. This means that the helicopter can manage the failure of one of its two engines at any given moment while maintaining safe flight, including throughout the entire landing and takeoff phases, when either may be optionally rejected or continued on one engine. In other words, the failure of an engine does not necessitate a forced landing, being a 'land as soon as practicable' rather than 'soon as possible' event. The 429 is also Category A capable up to 3000 feet in nil wind and 5000 feet in 15kts.

Thanks in part to its single engine performance and ability to hover on one engine within reasonable parameters, the 429 is also the first light helicopter to be certified to carry human external cargo on the optional 600lb hoist.

Inside the Cabin

There really is a lot of space. Gone is the vertical structure behind the cockpit seats that held the flight control tubes in previous Bells. These are now routed up the sides of the fuselage behind the cockpit doors. Tail rotor controls are now push-pull cables that travel up through the post in the centre of the windshield.

Cabin space is a generous 204 cubic feet, virtually double that of the 427. The cabin is open with a flat floor and a variety of seating options. Aside from the two in the cockpit, seat options range from six individual 15.5" wide airline style forward facing seats, through to 18.5" wide seats in a Club configuration, to four 21.5" corporate seats, also in a Club configuration. Visibility from all seats is superb. The airframe includes rollover bulkheads and beams in the ceiling, such that passengers in the cabin are seated in a very strong capsule.

As expected, standard interior configurations also include an air medical option including stretcher and other related facilities.

Baggage space is a cavernous 74 cubic feet capable of stowing 540lb. A removable partition separates the baggage space from the cabin area, with the whole space also being accessible by optional clam shell aft-fuselage doors. There is actually more than 3 square metres of main cabin floor space.

There are seven doors on the



From top: 1. A very elegant panel includes 3 Multi Function Displays; 2. The cabin has hinged and sliding doors on each side for a 1.58m wide opening; 3. Pilot Tony Milligan and the 429 at Auckland Heliport; 4. A cavernous luggage space holds 74 cubic feet or 540lb; 5. Five standard seats (the sixth has been removed) in this cabin configuration; 6. The main rotor transmission is rated to 1100shp and has live mount vibration dampers. The yellow beams underneath run the length of the cabin, forming part of a passenger safety capsule.



The first Bell 429 for NZ is operated by Advanced Flight on behalf of private owners. Note the tail rotor blades set at uneven intervals to help reduce noise.

standard aircraft, with double cabin doors on each side hinging and sliding to provide an access space that is 1.58m wide.

There is plenty of room for the pilots too. In particular, headroom was set to comfortably accommodate a 95th percentile pilot wearing a helmet and NVG gear.

Useful load in standard configuration is 2513lb and it should be noted that this weight is not 'stripped out', but is in excess of the weight of the equipment required for single-pilot IFR operations, two pilot seats, six passenger seats and a standard interior.

In the Cockpit

Although it should be given on an aircraft like this, the cockpit of the 429 is indeed a comfortable place to be. When a third Multi Function Display (MFD) is fitted on the left, it is certified for PIC operation from either of the left or right side. The 429 has a three axis autopilot (a fourth axis is optional) and is also certified for single pilot IFR operations.

Software within the Bell avionics system received significant design input from pilots and, integrated with the engine control units, provides for all necessary engine indication and crew alerting functions. Smart MFD's provide all processing required to collect sub system information, generating graphics for primary flight and navigation instrumentation, flight director and autopilot status, engine and rotor indications, systems monitoring and alerting, navigation and route mapping, optional TCAS, weather or search radar reporting, automated Cat A and hover performance power calculations, as well as fuel, weight and balance calculations based on pilot inputs.

In Flight

There's not much to do in order to start up and get underway. After turning the battery on, various systems all run their own self checks which can be monitored on the MFDs. When ready, do little more than set throttle to idle and activate the start switch, and watch the Power Situation Indicator as it shows the FADEC regulated start-up. Then repeat for the second engine.

From the Bell spec. sheet, airborne statistics are (all at max gross weight of 7000lb for internal loading): ISA Hover Ceiling IGE of 14132 feet and OGE of 11282 feet; max cruise speed of 150kts with Vne of 155kts; long range cruise speed of 130kts for a range of 368nm; fuel capacity with standard tanks of 216.9 US gallons; and max range at 60kt loiter speed of 4.4 hours.

Powered by twin Pratt & Whitney Canada PW207D1 engines, the main transmission is rated for 1100shp, and thanks to this transmission having sophisticated live mount vibration dampers, flight in the 429 is very smooth, even beyond 140kts.

The aircraft will hover out of wind in 35kts in any direction and has specified slope capabilities of 10 degrees nose up, left and right and 5 degrees nose down.

If you don't feel like flying or have other things to do, then just dial up some directions, or a destination, on the auto-pilot and leave the aircraft alone to fly itself, probably (annoyingly) smoother and more efficiently than you would manage yourself anyway. Of course you need to keep a good lookout and with all the nifty avionics aboard, it's particularly important to remind oneself that your primary VFR focus needs to always remain outside the aircraft.

Sales and more information

To date, 40 Bell 429s have been delivered with total fleet hours now exceeding 7000. Hawker Pacific's Sales Manager Rotary Wing, Peter Crook, says that the lead aircraft has more than 1000 hours on it with no major issues arising, even though the 429 has been a brand new type for Bell. Peter expects this NZ aircraft to be the first of several sales in Australasia, with strong interest being expressed from the Corporate and EMS markets.

There's bound to be more than one reader who would like to know what a new Bell 429 costs and the answer is somewhere in the region of 5 million US dollars. If you'd like one, or perhaps more realistically, if you would like information on any of the Bell Helicopters range (new or used) then contact Peter Crook at Hawker Pacific on +61 407 638 811, email: peter.crook@hawkerpacific.com or visit www.hawkerpacific.com