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AUGUST 2018

AVIATION NEWS

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A lovely pair of Bristells



Bill Henwood report and photographs

Early April 2018. I find myself sitting in a Bristell NG 5 TDO taildragger, a high-performance microlight, powered by a 100hp Rotax 912ULS. Cruise performance is around 115kt at 75 percent power, about 5kt faster than the nosewheel version of the NG 5.

This particular aeroplane has the long wing of 9.13m or 29.95ft, as opposed to the short-wing version of 8.13m. I have the privilege of sitting next to John Blackburn, retired air vice marshal, Deputy Chief of the RAAF and graduate of the Empire Test Pilots School who has flown the Mirage, Canberra bomber and F/A-18. I could learn a thing or two from this guy, given about 100 years!

The situation had its origins about February last year at the Australian International Airshow at Avalon, Victoria. I went to the airshow with Martin Henton, microlight pilot, instructor and dairy farmer. Martin

mentioned in passing that his main aim at the airshow was to check out the BRM Aero Bristell (pronounced Bristell) NG 5. Martin was looking for a new microlight to replace his Bantam, and from his research the NG 5 would fit his 6ft 3in frame without his head hitting the canopy.

We visited the Bristell stand and were met by the Australasia-Pacific-Asia agent for Bristell, Brett Anderson. Brett started selling Bristells in about 2009, and to date he has sold 64 of the 370 NG 4s and NG 5s built—a total of 60 in Australia and four in New Zealand. Production rate is currently eight per month with two preassigned to Australia.

On Brett's stand stood a pretty yellow, khaki and white nosewheel NG 5, plus an even prettier red tailwheel NG 5 TDO. Now he had my attention!

Brett went through some of the equip-

ment options available, including the long and short wings and various iterations of avionics and instrument displays. And prices. He currently has two delivered every month, with about four months' lead time from order to delivery.

There was no opportunity to have a flight on the airshow weekend; that was to come later.

On the train back to our Melbourne hotel to rejoin our wives, someone had the bright idea of seeing if Brett needed a New Zealand agent. We asked the question the next day. The rest, as they say, is history.

Technically the NG 5 is of all-aluminium construction with 8.13m wingspan and a length of 6.45m. The optional long wing measures 9.13m. It is powered by a Rotax 912 ULS 4-cylinder engine producing 100hp at 5800rpm and can be fitted with a range of constant speed or variable pitch (ground or flight adjustable) or fixed pitch propellers.

There is also a retractable undercarriage version (nosewheel only) and an option for a 140hp engine is being developed. Normal cruise speeds are around 112kt for the fixed pitch and 120kt for the variable pitch propeller.

My first opportunity to fly an NG 5 came during a short visit to Melbourne, from Anderson Aviation's base at Riddells Creek, about 10nm from Melbourne International Airport, outside the control zone but to the right of final approach for runway 16. Brett took me in his current demonstrator, registered as 23-1131 on the Recreation Aviation Association Australia (RAAus) register, with the short wing, nosewheel and constant speed propeller.

(At the moment this very aircraft is being worked up for a record attempt around Australia.)

It was a bit of a blustery day to be introduced to an aeroplane, but what the hey, if Brett Anderson is game, I'm game!

The preflight weight analysis showed an empty weight of 330kg, giving 270kg useful load to the maximum 600kg for the microlight/LSA category. With two 80kg

occupants and 90kg maximum fuel in the tanks, there is still 20kg left over for bags which can be stowed in two wing lockers (maximum weight 20kg each) or behind the seats for 15kg. The maximum 120lt of fuel gives a safe endurance of 5½hr at 20lt/hr and a safe still air range of 600nm.

Entering the cockpit was achieved via the forward hinged canopy, and thoughtfully placed handholds on the glareshield and between the two seats made the job easier. The cabin is the widest in its class at 1.3m, comparing more than favourably with the Cessna 152 at 82cm or the Piper Tomahawk's 1.07m. Rudder pedals are adjustable fore and aft, and the seat squabs are customisable from the factory, able to be boosted by additional cushions beneath and/or behind the squabs if needed.

Rotax startup was conventional—turn on the backup EFIS battery to give engine indications, prime via the fuel pump and turn the key. It started on the third or fourth blade of the three-blade prop. A keyless option is available, but be careful if choosing to buy that option if you have untrained people in your cockpit, as there is then no way to disable the ignition.

After the normal ignition check the two EFIS units are turned on and backup EFIS battery turned off, ready to give 30min of indications if the main battery or EFIS fails.

Taxying was standard through the rudder pedals, but advice from high-time users was to make the turns as wide as possible without using differential brakes to prolong the life of the steering cables.

Takeoff into a 20kt wind was over almost before I finished firewalling the throttle, and once takeoff flap was retracted below the 76kt limit, climb at 80kt gave a satisfactory climb rate while still preserving the view over the nose. Best rate of climb and best angle of climb gave 980ft/min and 920ft/min as per the book figures.

We flew northwest to Bendigo, climbing to 4000ft to find some smooth air and exploring the flying characteristics on the way. With its standard short wing, penetrating



Bill Henwood (right) looks pleased following his type rating in the pretty all-red Bristell NG 5 TDO taildragger. His instructor is retired RAAF AVM, John Blackburn.

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The Bristell NG 5 has the roomiest cockpit in its class—the 1.3m width compares favourably with the Piper Tomahawk's 1.07m and the Cessna 152's 82cm.



This particular Bristell NG 5 is currently being prepared for a round-Australia record attempt.

the turbulence was better than the "cork in a bottle" feel of the optional long wing. With around 30hr total time since new, everything was still tight and smelling like a new car, helped by the leather upholstery, although older examples that I flew later with nearly 1000hr on the clock still had a similar feel to the controls.

The stalling characteristics were benign, as expected, although a wing drop was easily achievable. One example I flew later had a more marked wing drop, but a half turn on the flap pushrod gave it the same benign stall. Brett strives to achieve the consistent standard on all his deliveries.

Steep turns were a pleasure to fly, with light control forces all the way around, and it was easy to maintain height. Visibility with the low wing and cockpit position was good in the turn, and a shielded area of the canopy to give some shade from the sun didn't impede the view into the turn.

23-1131 was equipped with a dual Garmin G3X touch screen EFIS with GPS and engine instrument displays, with the ability to show PFD (primary flight display) and ND (navigation display) on either or both screens (10in and 7in). Other options include two 10in screens, two 10in and one 7in screens, analogue instruments or any combination of the above.

Bendigo had its apparently normal crosswind, about 15kt, not helped by turbulence created by a nearby forest. The aircraft handled the crosswind well, living up to flight manual figures of 15kt demonstrated for average pilots or 22kt for experienced pilots(!).

On the way back to Riddells Creek we stopped for a coffee at Brett's mate's place with a dirt strip of about 250m. The Bristell landed with plenty of room to spare in the 10kt headwind.

Back at Riddells Creek, the initial plan was to sample the taildragger version, but the wind, by now a 20kt crosswind again, settled that decision for us. Time to test the theory that discretion is the better part of valour, and indeed we lived to fly another day.

Bathurst Soar Ride and Shine Airshow

I was lucky enough to be invited to help on the Anderson Aviation/Bristell stand at the Bathurst Regional Airshow, at Raglan, NSW. This was my chance to check out in an older Bristell operated by the Central Western Aero Club, gain my RAAus certificate and fly the taildragger Bristell NG 5 TDO. It was worth the wait.

Firstly my RAAus certificate consisted of about 1.2hr in a nosewheel NG 5 with the standard wing, essentially a BFR, followed by a flight check with Chris Stott, the Central Western Aero Club CFI.

The aeroplane we flew in had nearly 1000hr total time and was still nice and tight on the controls, not showing any wear spots. Chris was ready with hints on operating the aircraft to ensure a long aircraft life, such as not turning too tight while taxiing to preserve the nosewheel steering springs. (Brett had told me the same when I flew with him.)

Shutting down the Rotax engine traditionally causes a jerky stop due to the propeller gearbox, but they had developed a "soft stop" procedure to close the throttle,

turn off one magneto, pause three seconds and then turn off the other magneto. The stop is much gentler, and the technique works on older Rotax engines as well.

Ground handling in the NG 5 TDO is slightly different from most other taildraggers that I have flown in that steering is purely by differential braking, the tail wheel only castoring with no steering springs. There was no problem adapting to this method as we often use differential braking to aid the steering on our Super Cub anyway. During takeoff and rollout after landing the rudder is powerful enough to control the direction from and to low speeds, even in the 10-15kt prevailing crosswind.

Earlier in the day, for something completely different we flew around Mt Panorama Motor Racing circuit and finished the day with a drive around the circuit—albeit not at motor racing speeds!

Two months later I was tasked with doing the endurance testing on the two new NG 5s to New Zealand, one a demonstrator for Bristell agent Martin Henton and one for Bruce McRae from Pokeno.

Both aircraft flew true straight out of the box after assembly in New Zealand, with no defects occurring with either during the two-hour flights. Bruce's dropped a wing more readily than the other one, easily remedied with half a turn on the flap pushrod. The test included the opportunity to climb to 10,000ft to check engine cooling, climb rates and ADS-B operation (and for the test pilot to have a quick sandwich in smooth air).

The transponder altitude check gave a positive response from ATC, but after an integrity check by Airways NZ an adjustment to the codes needed to be made by our friendly engineers at Hamilton Aero Avionics. Nothing 20min in the test box couldn't fix.

Since then both aircraft have flown about 25hr each with no problems.

Pilot licensing

Both recent New Zealand imports are registered in the microlight category but are eligible to be registered as LSA or certified aircraft with appropriate paperwork from the factory. Some flying schools in Australia are opting for the latter to provide economical PPL and CPL training.

In New Zealand any current RPL or PPL holder can achieve a microlight certificate with passenger rating with only type rating training and a BFR, on application to either SAC or RAANZ and payment of the appropriate fee. If your BFR expired more than five years ago an Air Law exam would be also required.

Part 103 microlight rules allow you to gain an approval to do your own maintenance, but you are not allowed to fly over built-up areas, at night or in IMC, or conduct aerobatics or spinning.

If you opted for the LSA version you could fly it with a passenger, but over built-up areas only during takeoff or landing. The requirements are the same although the medical standard is for a DL9 done by your GP.

I first started flying high-performance microlights in the late 1990s, and technology has certainly advanced since then. The build quality of the Bristell is equal to or better than many of the other aircraft in the



Above: Martin Henton is seen enjoying his own NG 5 ZK-NGZ, in Waikato skies ... Martin (right) and Bill Henwood are NZ subagents for the Bristell series.



category, and clever design has resulted in a light empty weight without fragility.

Avionics have also advanced, and indeed the microlight, homebuilt and experimental aircraft are treated as the beta testers, with manufacturers then going on to add new features in the next certified versions of their glass cockpit systems.

Overall I have been most impressed with the Bristell NG 5 from the point of view of build quality, handling, attention to detail and after-sales service. With a range of options for long and short wings, taildragger, tricycle fixed or retractable undercarriage,

and engine options from 80hp to 140hp, I am sure the Bristells will have a long future in New Zealand.



The Bristell TDO in flight. A retractable undercarriage option is available but only on the tricycle undercarriage model.



20th Anniversary

FRIDAY 7 TO SUNDAY 9 SEPTEMBER

Friday 7 September
Tale spinning at Sir Henry Wigram Lounge.
Drinks, snacks & stories – old & new. Archives & videos.
From 1 hour opens at 3

Saturday 8 September
Open Day & Fly In at West Melton with static display of classic aircraft.

Saturday 8 September
Celebratory dinner & auction in the Camelot Room at Chateau on the Park with guest speaker, Capt. David Morgan from Air NZ.
From 6pm (semi-formal attire)

Sunday 9 September
Archives still on display at Christchurch Base.

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