BRISTELL LSA

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Czech Republic based BRM Aero is a family owned and operated aircraft manufacturer that specialises in customised orders. It started with just two employees in 2009 but now has more than 50 employees and produces a range of popular light aircraft in retractable, tail dragger and tricycle form.

OVERVIEW

The Rotax powered Bristell UL (or "Classic), and its Light Sports Aircraft (LSA) modification, is a conventional fixed undercarriage aeroplane used for flight training, glider towing, and recreational flying. It features good ergonomic design, and a 1.3 m (51-inch) wide cabin, making it ideal for long cross-country flights.

In September 2018, 16-year-old Sunshine Coast-based pilot, Liam Morey, set a Guiness World Record as the youngest person to circumnavigate Australia by air, flying a bright red, white and black Bristell.

THE INVITE

The AOPA PILOT AUSTRALIA editor was invited by Brett Anderson, of Anderson Aviation Pty Ltd, the Bristell agents in Australia, New Zealand and the Southern Asia Pacific, to test fly the 1,320 lb (600 kg) MTOW Bristell from Riddell airfield (YRID) just a few miles north west of Melbourne International Airport. It is one of those little hidden away gems, accessed via a metal road. Pilots must open and drive through a gate to access the apron area. There are quite a few hangars there and lots of different types of aircraft based at the field.

Anderson had a brand-new Bristell, registration 23-8827, in the hangar, just waiting to be flown. He easily pulled it out himself, and positioned it on the grass, under a cloudless blue sky, for some photographs, after removing the canopy cover and protective sleeves from the DUC three-bladed composite propeller. A constant stream of airliners flew high overhead inbound to Melbourne (YMML).

Our guide for the day was Kris Konstandopoulos, CFI of Oasis Flight Training at Moorabbin. We were also joined by Dennis Wisken, a professional photographer, who would take some ground to air photographs for AOPA PILOT AUSTRALIA, as we flew circuits and low-level passes. The accompanying photo of the editor just about to touch down in the Bristell is one of his.

The Bristell was quite resplendent in a yellow and black colour scheme, with the quality of the finish and paint work particularly high. The editor's first comment was that this is an aircraft which will probably generate significant pride of ownership. Brett confirmed this observation and said all the aircraft that flew into

Cessnock recently for the air show were immaculate, and yes, there is much pride of ownership with this aircraft.

WALK AROUND

Significant items from our walk around included: the lockable bins in each wing, near the root, which had quite a good amount of storage room and can hold 44 lb (20 kg) each; more storage behind the seats, covered by netting and capable of holding up to 33 lb (15 kg) ; and an additional lockup bin forward of the cockpit, which could also be used for up to 22 lb (10 kg) of storage, or for installation of the optional ballistic parachute, which Anderson said is popular with Australian buyers.

We also noticed that this was the so-called "cut off short wing version," reminiscent of those low-level Spitfires, which is at least a metre less in wingspan then the bigger version.

The glass canopy, above a low wing design, looked to be fantastic for visibility, and was hinged at the front. The wing tips turned skyward to reduce drag and each wing had bright LED based lights embedded in the leading edge. The fixed landing gear looked particularly strong.

The fuel caps were interesting in that they show 95 octane (automobile) gasoline could also be used, and secondly, they could be closed in a way that should the little flap come open, the wind would help keep it down, and from coming off. Further, that little flap hides the key lock for the cap.

The interior was all class, mimicking an expensive sports car, with a beautiful yellow and black leather treatment to the high-back seats, and control sticks between the legs of both front seat occupants. These control sticks have the push to talk and trim switches.

There were also two throttles, one in the middle, and one on the left, as one prefers. Having flown a lot of helicopters recently, where the right hand is on the cyclic, it seemed just as easy for the editor to fly left or right handed. Headsets were plugged in either side of a very-handy-for-storage, centre console with a hinged and covered lid.

The real highlight of the interior was the top centre mounted twin Garmin G3X touch screen, with ADS-B and 3 axis autopilot. Just above the autopilot were the backup altimeter and airspeed indicators, plus the ELT switch. Under the auto pilot was a handy "glove box" for storage of in flight required items. Below that were the navcom instrument controls.

LET'S GO FLYING

Before jumping in to go flying we had to "burp" the carburetted Rotax 912 ULS engine, something which is common for Rotax engines before their first flight of the day. We checked the oil, and then the gas tanks which were holding nearly 32 gallons. Like many LSAs the Bristell has a great range.

Anderson says "The fuel burn of the aircraft averages around 16 litres per hour. I plan on 20 for a trip and the tanks hold 120 litres, so about six hours at 115 -120 knots gives nearly 700 nm, or about 1200 km."

Start-up was typical Rotax, that is, instantly with just the turn of the key. We then had to wait about five minutes for the engine to warm up and all indications to be in the green. Kris then taxied the aircraft out and took off to complete a couple of low-level circuits and runway runs for the photographer.

The initial impressions were of how smooth the aircraft was, how short the wings were, the quality of the avionics, and the good visibility in all directions.

The standard day MTOW take-off run at sea level is just 200 m on seal, with a 50-foot distance of 460 m. The landing roll is just 90 m or 290 m over a 50-foot obstacle. At sea level rate of climb at Vy is 980 fpm at 67 knots, and 920 fpm at the Vx of 54 knots.

After the circuits we both agreed it was time to get into what we were here for – flying. Kris handed over to the editor who flew the aircraft north, towards the Mt Macedon area. We were up to more than 4000 feet AGL in short order.

We did some steep turns, stalls and general air work. In the stalls the aircraft was true to the book, if not better. The pilot operating handbook (POH) says without flaps the aircraft stalls at 45 knots, and we saw "the drop" at about 43, well after the low airspeed, high attitude, stall horn warning, and slight buffeting. Recovery was conventional just by lowering the nose, applying opposite rudder and full power. Altitude loss was minimal – only about 100 feet – exactly as per the POH.

Steep turns were particularly easy because of the visibility outside the clear glass canopy. It was a simple matter of setting the correct attitude against the horizon and holding it there. The steep turns were greatly aided by the Garmin avionics which have that little circle-like aeroplane positioned on the artificial horizon. Keep it there, and the instructor will likely say "perfect!"

Settling back into the cruise we were comfortably achieving more than 110 knots. On descent back to Riddell, the editor had to significantly reduce the power, to stay away from the red line of 157 knots – those smooth lines are slippery.

On return to Riddell the editor flew a few circuits, cognisant of the powerlines on approach, and found the aircraft to be quite conventional to land. There was a slight cross wind, and after the powerlines a bump in the tarmac to be avoided. It was important, because of that short wing, not to cut the power too quickly, until just about ready to kiss the wheels on the tarmac.

The other factor when using Riddell, is careful

consideration of forced landing options, as there are many steep and deep gullies just off the south end of the runway. The long grass runway of Penfield (YPER) airport is also quite close to Riddell. Best glide speed is 65 knots. Maximum demonstrated cross wind, for an accomplished pilot, is 22 knots.

Rotation speed was 40 knots and we climbed out at 70-75 knots for good visibility over the nose. On late downwind, power was reduced, and once established on base, the first two stages of flap extended, followed by the third stage on final. The flaps, which can be deployed from 75 knots, are controlled not by a switch, but a dial, which was quite natural and easy to use. Base was flown at 75 knots and then we came back to 65 on final. Theoretically, with a full flap stall speed in the low 30s, we could have approached much slower, but with plenty of runway length it was better to have a margin of speed should a go-round be required.

OVERALL IMPRESSIONS

The Bristell flies with a more solid feel than other LSAs – and that is good. In out 1.2-hour test flight it felt not like a postage stamp, floating in the wind, but like a much heavier aircraft. This is perhaps due to the short wings, plus the push rod controls, which move all surfaces, except the rudder, which is pulled left or right by tough, over engineered for safety, cables.

The Garmin avionics completely revolutionise the aircraft as an LSA. Bristell makes to order, and aircraft can be customised for individual buyer needs.

With a flyaway price of just A$190k, any buyers looking for a comfortable two place tourer or trainer, with good speed and handling characteristics, plus great creature comforts, and avionics, would be well served in checking out this aircraft.