



T

The AOPA Australia PILOT Magazine editor was offered a flight in the fighter-trainer looking Blackshape Prime from Tyabb airport (YTYA) earlier this year.

The offer from the importer, Australian representative, and owner of PLA Aviation, Nic Waugh was enthusiastically accepted and came with a return helicopter flight from the Melbourne CBD.

Sporting tandem leather seating; a low wing, bubble canopy with 360-degree visibility; smooth composite construction; an airframe parachute; and 140+ knot cruise speed at 8,000 feet with a 75% power setting from just 100 hp, this is an aircraft in a class with very

‘The cost of the Blackshape Prime is low compared to other new aircraft of similar performance.’

few other aircraft, especially in Australia. In Europe this type of airplane is much more common and there are many similar looking or configured options available.

The Blackshape Prime’s stall speed can be as low as 35 knots in landing configuration, but with its retractable gear, mixture and pitch levers, and short narrow wing, it is not really a beginner’s machine.

CERTIFICATION AND LICENCING

In Australia the Blackshape Prime is “Type Certified” with an intention to place it on the VH register at some stage, so private pilots (PPL) can fly it.

For the moment a Recreation Aviation (RA) licence is required to fly the Blackshape Prime – and a checkout by a qualified instructor.

Ian Loveridge, Recreational Aviation CFI, at Tooradin (YTDN), who was the author’s instructor for the day advised that for a PPL to fly the aircraft solo on a cross country it goes like this:

PPLs need to be a Flying Member of RAAus so they can legally train for the Pilots Certificate.

They are classified by RAAus as a “Converting Pilots.” As such they must complete a minimum of five hours training (including a minimum of one-hour solo) in a three axis recreational aircraft; pass the

“Converting Pilots Exam;” and a flight test before they can be granted a Recreational Aviation Pilots Certificate.

An RA instructor can sign off pilot endorsements, for example retractable undercarriage, constant speed unit, passenger carrying, or cross country, at the same time as the flight test.

The above does not preclude pilots from flying the Blackshape solo but it is at the instructor’s discretion and when she/he considers that they have met the required competencies. However, they will not be able to fly solo outside of the training area until they have been issued with their Pilots Certificate. If they like they can to do a flight outside of the training area with an instructor in the back seat.

COST AND TECHNICAL DETAILS

The cost of the Blackshape Prime is low compared to other new aircraft of similar performance. It ranges between A\$252k and A\$300k depending upon the options selected.

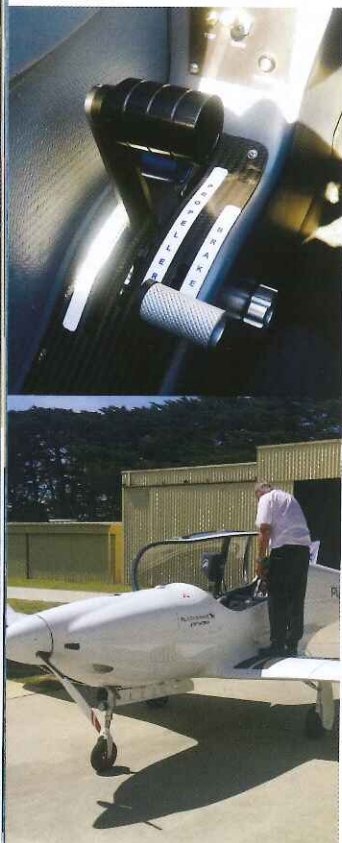
The Blackshape Prime has a special niche as a sporty, fun aircraft. It is not a four-seater, and it does not carry huge loads. But it is fast and “heaps of fun!”

Although to some pilots it may look like a kit aircraft, the Blackshape Prime is delivered ready to fly.

The wing span is 7.94 m (26.0 ft) with an area of 9.96 m² (107.2 sq ft) and there are double slotted flaps.

The tandem two-seater is 7.18 m long, 2.41 m high, and the empty weight is just 296.5 kg (654 lb). Gross weight is 472.5 kg (1,042 lb) with a fuel capacity of 100 litres (in two 50 litre wing tanks). Useable fuel is 92 litres. There is allowance, depending upon other loads, for up to 20kg (44 lbs) of baggage.

Cruise speed for the Blackshape Prime is almost unbelievable (but true), for a 100hp engine, at 148 knots and 151 knots with the 115 hp turbo 914 engine in the BK100T. The never exceed speed is 165 knots, and the maximum range is 540 nm, or 1,000 km. The constant speed propeller, composite construction, design, wing, and retractable gear are significant



factors in the speed of the Blackshape Prime.

The wing loading is 47.44 kg/m², or 9.72 lb/sq ft and maximum load factors are +4/-2 g. Maximum demonstrated crosswind speed during take-off and landing is 16 KIAS.

As well as the ballistic parachute (that can be activated by pulling a small handle at the forward right hand position of the pilot or back seat pilot), the other safety features include four-point certified safety harnesses, and anti-blast fuel tanks – which contain fuel in the unlikely event of an incident.

Standard electronics include a Dynon Skyview SV-D1000 EFIS, Radio COM, Intercom (PM1000II) and Mode S Transponder.

Options for the Blackshape Prime include a 2-Axis (Dynon) autopilot for those long cross countries, an ELT, a backseat EFIS (Dynon Skyview SV-D700), and backseat control panel for flaps, brakes and propeller control – which our test aircraft had fitted. This option makes training so much easier, and generally safer.

ON THE RAMP

The Blackshape Prime is a sleek good-looking aircraft and quite a bit taller in real life than it looks in the photos. Many people say, in a complimentary, streamlined way, that it looks like a shark. It is also noticeably skinny compared with popular trainers like the Cessna 152 or even a Foxbat.

The smooth composite finish is most impressive and draws a pilot's hands towards the surface to give it a stroke of affection.

Our test aircraft, registration 24-0685, with the

callsign “Blackshape zero six, eighty-five,” was resplendent in brilliant white, and being new was spotless.

Unlike the European versions the Australian aircraft does not have wing fences because test pilots in Australia deemed them simply unnecessary.

The fuel caps on the wings say that either MOGAS or AVGAS can be used. PLA Aviation uses AVGAS.

LET'S GO FLYING

It's a long narrow 982 m, north - south (07-35) sealed runway at Tyabb but we seemed to need only about a quarter of it at maximum all up weight (MAUW), as the Blackshape Prime accelerated quickly and flew itself off the tarmac at about 60 KIAS, and then up, up into the blue sky.

The gear and flaps were quickly cleaned up as we climbed out at 80 KIAS with a 1,000 fmp rate of climb.

Observing the aircraft's take-off distance, rate of climb, sound, and cruise speed from the ground no one, except aviation experts would guess such a high-performance aircraft is powered by a mere 100 hp engine. What a marvel!

The Blackshape Prime is a good aircraft for reminding pilots of the need for coordinated and balanced flight, with right rudder input essential in the climb.

Visibility over the nose is okay in a steep climb however out the side it is great, with wide views in all directions. These views are not substantially





obstructed by the wings, which are narrow and short - like a jet fighter.

On take-off there is immediately a pilot feeling of being in a much more powerful aircraft than 100 hp – more like an air force fighter trainer with two or three times that amount.

Continuing the climb to 3,000 feet over French Island, trimming as we went, using the up and down buttons conveniently located on the between-the-legs control stick, we practiced a basic stall and some steep turns.

The basic stall was so well telegraphed, and in every way, such that it is hard to imagine anyone stalling the aircraft. It was not so docile when it did stall, and was like a Cessna 152, with a significant nose and wing drop at 58 KIAS (clean) - in this case to the left. Certainly, nothing a well trained pilot would have trouble handling.

The stall was quickly broken by the lowered nose and applying power. Stalls in landing configuration – perhaps more representative of the “typical” base or turn on to final stall, occur at much lower speeds. Pilots would really have to take their mind off the approach to get that slow and ignore the warning signs.

The remarkable thing about the Blackshape Prime is the speed it generates with just 100 hp. We achieved 140+ KIAS easily in the cruise at modest power settings and in descent it's very slippery. On a picture perfect, wind free summer Melbourne day, we flew “into the yellow” and had to significantly reduce power to stay below the red line.

This plane can cover distances quickly.

Noise levels are quite modest in the cockpit and particularly unnoticeable from the ground, even on take-off. This is an aircraft that will not annoy neighbours when they are overflown.

BACK TO TYABB

The author could have flown over and around French and Phillip Islands for hours but responsibly pointed the nose down and headed back to join downwind for runway 35 at Tyabb. The bright concrete taxiway can be easier to spot than the runway itself, from the right approach and sun angle.

Speed needs to be continually bled off with reductions in power and the use of gear and flaps (manually in this case). Both gear and flaps have a 80 KIAS maximum operating speed.

Turning finals Tyabb's narrow runway might fool pilots used to flying from larger (wider) runways into thinking that they are too high, but we quickly established a stabilised approach with eyes fixed on the numbers. Our initial approach speed was 70 KIAS, which the author brought back to 65 KIAS on short final.

A slight reduction of power was required (but not all of it, remembering that short narrow wing), once the numbers were made, with a little back pressure on the stick. This yielded a gentle touchdown. Just a slight touch of the effective brakes had us stopping in a minuscule portion of the runway.

Advertising for the Blackshape Prime does not call it out as a STOL aircraft, but that would not be a too unreasonable claim. This is a fast aeroplane in the

cruise, but it can get in and out of quiet short fields, be they grass or hard surfaces, without any fuss.

Most of all though, our flight showed the Blackshape Prime to be a fun and economical machine.

TARGET MARKET

The Blackshape Prime is a fantastic and not overly expensive toy compared with other ultra-modern offerings. It can be a lot of fun, perhaps even more so when shared with a partner or friend. It is the kind of aeroplane that pilots will delight heading away in, be it for a “local scenic” or a much longer cross country, to a remote and short grass strip.

The Blackshape Prime should find its way into syndicates and be a popular aircraft on line with relatively low costs per hour for such high performance.

A secondary market will be commercial pilots wanting to keep in touch with general aviation.

The high-speed wing requires competency and currency. A beginner would need good quality instruction, “hours up,” and familiarisation to be comfortable and safe in the Blackshape Prime. With Loveridge the distributors have an excellent instructor to ensure a well-planned formal induction, conversion and recurrence training for the aircraft.



CONCLUSION

The Blackshape Prime’s shape, construction methods, and technology make it an amazingly fast machine that will turn heads. It is a joy to fly and a stylish Italian, with a sports car feel to it. AOPA Australia PILOT Magazine can see a few pilots rewarding themselves with this aircraft.

