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GRAEME WUTH

ALTO TG

New light sport aircraft (LSA) designs are continually springing up. Prospective buyers are spoilt for choice, but Czech manufacturer Direct Fly's new Alto TG offers value for money that is tough to beat in the hotly contested LSA market.

The Alto TG offers great value for money and shines in the LSA market.

Willie Bodenstein

Altogether Good Value

THE LSA market lends itself to smooth composite aircraft. Using composites makes for easy construction and may even reduce weight, but for many the trusted longevity and simplicity of an all-metal aircraft remains compelling.

Richard Stubbs, the South African dealer for the Polish, full-composite JK-05 Junior and Topaz LSAs wanted an all-metal low wing to compliment his stable. This led him to the Alto. As such he is now also the dealer for the Alto in South Africa, which made its first public appearance in February this year at the Kitty Hawk MISASA Fly-In.

The Alto is the essence of simple metal construction. The fuselage is classic semi-monocoque, with aluminium riveted onto formers and stringers. The wing is square with composite upturned wingtips. They use simple slotted flaps and ailerons and incorporate two lockable 55 litre fuel tanks.

Push-pull tubes and cables connect the Alto's primary control surfaces. The concessions to composite construction includes engine cowls, main landing gear struts, wheels spats and propeller spinner. In South Africa immediate comparisons will be drawn between the Alto and South Africa's home-grown Sling 2.

The ALTO has entered South Africa at a time when the SACAA is having issues with NTCAs, but Richard expects that all ready-to-fly imported models will still need to complete a short proving flight period before receiving the final Authority to Fly. 100% factory prepared kits will need to follow the usual build number process.

In Europe the Alto can be ordered at various levels of factory completion, but to ensure safety and build quality, Richard is only considering orders for the 100% kit, which simply requires the engine, propeller, avionics and upholstery to be fitted. Factory test flown Altos, manufactured to customer specifications, will take 16 weeks to produce prior to shipping. Richard's Alto, ZU-IEA, was brought into the country as a 100% kit and Kevin Hopper from Skyworx at Krugersdorp Airfield installed the engine, avionics and propeller. Both Richard and Kevin are now confident that the 100% kit order can be completed and flying in less than six weeks.

The standard ready-to-fly aircraft is equipped with analogue instrumentation, either the 80 or 100 hp Rotax 912 engine and a three blade ground adjustable composite propeller. EFIS (electronic flight information system), such as MGL EFIS Avionics; constant speed propellers; and autopilot systems are optional and can be factory fitted.

FLYING THE ALTO

I arrived at Krugersdorp's Jack Taylor Airfield to fly the neat little all-metal LSA on a windy winter morning. Richard Stubbs, having just pulled ZU-IEA out of the hangar, was visibly proud of his plane and is optimistic about its prospects in South Africa. Dale de Klerk, who is a test pilot rated on 70 aircraft and also holds tug, aerobatic, formation and air show display ratings, has been responsible for doing the proving flights. He was going to be flying with me.

Pre-flighting the Alto is simple. Looking in the cockpit requires standing on the wing, as leaning in while standing on the ground is awkward. ZU-IEA has the latest MGL IEFIS touch screen avionics package with optional wing mounted landing, nav and strobe lights. The electronically operated Flydat system manages flap position and displays the percentage of deflection on indicator lights next to the flap switch. There is no stall warning and I wondered whether this would be missed when flying.

Master and EFIS off, it was time for the walk-around. This is straight forward, except that ZU-IEA does not have a door in the engine cowling for checking the oil, so the top of the cowling has to be removed. Richard assured me that new orders will come with easier access to the oil reservoir.

Something pilots who have flown behind Rotax engines will be familiar with is that, before checking the oil, the prop is turned over by hand a couple times with the mags and oil cap off until you hear a gurgling sound. This ensures that all oil is in the tank and that the engine is loose (especially helpful on cold winter mornings). It also pre-oils the engine. With just the 95 hp Rotax 912 UL XTRA engine I thought the Alto might be underpowered, but was soon proven wrong.

Typical of low-wing aircraft, you need to stand on the wing before lowering yourself into the cockpit. This has to be done one person at a time, because if two people stand on the wings at the same time, it will likely fall back on its tail. Usually getting into the cockpit would be done by first standing on the seat and then sliding your feet under the panel. I have a mental block against standing on clean upholstery – a legacy from being whipped around the ear by my parents for clambering over the lounge furniture at home when I was young – and so was happy to be shown that I could quite easily by-pass standing on the seat.

A useful tip with Richard's Alto is to plug in your headset before you climb in, as the headset jacks are located behind the seat and it's hard to reach them once seated.

There is surprisingly ample space in this small two-seater. Cessna could take note of the Alto's 110 cm wide cockpit, which is wider than the 172's. At 105 kg and 186 cm tall Dale is a pretty big guy, yet the two of us sat comfortably side-by-side, although headroom is slightly limited. The seats are not adjustable and neither are the rudder pedals, but somehow, even though Dale is quite a bit bigger than I am, both he and I were happy with the positioning of the seats. For shorties, a cushion behind your back would work just fine.

The panel is neatly laid out, although I would have liked the MGL on the left side of the panel, in front of the PIC, instead of in the centre. Having the electrics switches double as circuit breakers makes for a noticeably uncluttered panel.

The Alto's canopy slides forward, rather than aft. Richard says he likes it, because it will stay closed if it unlocks in flight, but I would have preferred a rearward sliding

Groeme Wuth

Graeme Wuth

Richard Stubbs

ABOVE LEFT - Start button only accessible when fuel tank selected. Electrically operated flaps with position indicator lights. Hand brake between seats.

ABOVE RIGHT - Ample space behind seats. Baggage limited to 15 kg.

OPPOSITE PAGE - Alto comes standard with analogue avionics. EFIS is optional. Switches double as circuit breakers.

canopy that stays open by itself when on the ground with the engine running. Nevertheless, this is a minor issue and it would be easy for a passenger to rest his/her arm on the side of the aircraft to hold the canopy open on hot days. The cabin heater is a welcome standard feature for cold days.

Start-up is conventional Rotax. Run the auxiliary fuel pump for about five seconds, open the choke with the throttle at idle and push the starter. The engine happily whirrs to life. Direct Fly have considerately placed the starter button behind the fuel selector, so that it can't be pressed unless the left or right fuel tank has been selected, saving you from embarrassingly trying to start the engine with the fuel selector off.

There is a Vernier throttle, great for giving precise control over the RPM in the cruise, especially when used in conjunction with the MGL, which displays the RPM down to single units. Pushing in the button on the top of the plunger allows you to open and close the throttle more quickly when necessary. I hadn't flown with a Vernier throttle before (I am familiar with Cessna's similar mixture controls) but it didn't take long before I was comfortable with it.

The rudder pedals are linked to the nose wheel, so directional control while taxiing is easy, but there are no toe brakes. Instead there is a hand brake lever between the two seats. This means that because your left hand is busy holding the stick back, your right hand has to juggle between operating the throttle and brake. The park-brake is just a notch into which the brake lever rests. The problem with this is that as brakes get warn this notch may not be far enough back to keep the aircraft stationary. And even on this brand new Alto, with the revs up at 4,000 for the run-up, the plane started to creep forward.

We lined up on Krugersdorp's Runway 08, and the wind was gusting from the north, making for a considerable crosswind. Taking off in these little LSAs isn't done like the big boys in their Boeings – with a set rotation speed. Normal takeoff is with one notch of flap, and you accelerate while holding the stick back. As the nose comes up, you might need to check forward a little, but the idea is to 'wheelie' along on the main gear until the speed builds and the mains lift-off – around 45 kt. Then hold it in ground effect until you reach 60 kt and climb out. This all happens in a little over

100 metres, but as with most light aircraft you are keenly aware of what the wind is doing.

I was surprised to see that with full tanks and the two of us on board, we were still about 30 kg below Maximum All Up Weight. Unlike many LSAs, the Alto's useful load really is useful. It was about 10 degrees outside with QNH at 1030, so density altitude was approximately 5600 ft and we still managed to climb out at about 750 ft/min. Not bad for a 95 hp engine.

The Magaliesberg General Flying Area is a short flight from Krugersdorp but it still gave me a chance to have a look at the Alto's cruise performance. With the RPM at 5200 we were buzzing along at 85 KIAS. Richard acknowledges that this is a little on the slow side, but these figures are with the 66 inch Fiti prop. Since I flew ZU-IEA, Richard has fitted the Peszke 70 inch

Seats aren't adjustable but comfortably seat all sizes.

Graeme Wuth

ZU-IEA is powered by 95-hp Rotax UL XTRA. 100-hp Rotax ULS is also an option.

Graeme Wuth

prop and says that he and Dale managed 100 KIAS with the RPM at 5500, which is the maximum continuous power setting. Flying at a more comfortable 5200 RPM should give a cruise speed of at least 90 kt. That's respectable, and remember that it's achieved while sitting behind just 95 horses, and they are only sipping about 13 litres per hour. The 100 hp Rotax ULS should give you some bragging rights with a comfortable cruise speed above 100 KIAS.

The stall is a non-event in all flap configurations. It arrives at 42 kt in the clean configuration and at a slow 35 kt with full flap. There is a slight buffet and then the nose nods forward enough to unstall the wings. There's no tendency to drop a wing, and holding the stick back through the stall just results in the plane mushing down with the wings level. You really have to point the nose at the sky to get the Alto to stall with power on, so you should never find yourself in that attitude unintentionally. Because the stall is so benign and because the nose attitude in the power-on stall is so high, you don't miss not having the stall warning.

The Alto is a fun plane to fly. It nips around in steep turns and there is hardly any adverse yaw. There is positive stability in all three axes, and the aircraft quickly returns to straight and level flight once the stick is released.

Gliding down from 2,000 ft AGL at 60 kt gives you plenty of time to find a field and with the trim, which is operated by a switch


Graeme Wolfe

Standard 66-inch Fiti propeller only produces 85 kt cruise with the 95-hp Rotax 912 UL. 70 inch Pezke propeller produces 95 kt cruise.

between the seats, all the way back, the Alto holds its attitude and comes down just below best glide speed – a nice safety feature in an emergency.

After playing over the Magaliesberg ridges for a while it was time to return to Krugersdorp's Jack Taylor Airfield to land – even though there was still ample fuel to head off into the blue. The approach, according to the book, is set up at 55-60 kt. The wind was still a blustery 15 knots from the north, giving me a challenging crosswind on Runway 08, so I didn't take full flap and opted for a 60 kt approach, aiming to touch down at 45 kt. As with all LSAs, there is not much momentum and managing the speed and energy is important. Slipping along the centre line with the left wing low, I kept power on until just before touchdown and landed slightly right of the centre-line. This improved on the second flapless attempt. Having called a full stop for the third landing I touched down gently on the centre-line, despite the crosswind. Needless to say I was chuffed with myself, but it also demonstrated the great handling qualities of the Alto. Without any braking we turned off at the first exit, not even 300 metres from the threshold, and taxied back to the hangar.

In the competitive, crowded LSA market, the Alto shines. It's well-balanced, fun and easy to fly. There are one or two typical LSA foibles, but nothing you won't easily get used to. It has a decent useful load, is cheap to run and, at 53,000 Euros (R720,000 at the current exchange rate) ready-to-fly, will be hard to beat in terms of value for money.

Willie Bodenstein

Richard Stubbs of Sabre Aircraft is the agent for the ALTO TG in South Africa.

Alto TG vs Sling 2 LSA

THE Alto TG will undoubtedly be compared to the Sling 2. Whereas the Alto is strictly an LSA, the Sling 2 comes as both a VLA (Very Light Aircraft), with a maximum all up weight (MAUW) of 700 kg, and as a 600 kg MAUW LSA. The Sling LSA only makes use of a single 75 litre fuel tank, the other being disconnected to limit weight. The Alto on the other hand carries 110 litres with full tanks. Both aircraft have a similar cruise performance and fuel burn, and therefore the Alto has a better range than the Sling LSA, with an endurance of 6.5 hours compared to 4.5 hours on the Sling.

Because the Sling LSA is a slight modification on the Sling 2 VLA, it is a somewhat beefier, sturdier aeroplane. The Sling weigh's in empty at around 370 kg vs a confirmed 315 kg for the Alto. Even with full tanks the Alto has 20 kg more useful load than the Sling.

In terms of actual flying qualities, both aircraft have great, and indeed similar, handling characteristics. I find the seating position in the Sling to be more comfortable than the Alto, with a little more headroom and an armrest for your right hand when it is placed on the throttle, which is a welcome feature on longer flights. I also prefer the toe brakes and park brake system on the Sling. Interestingly, even though the Alto's seats are fixed, I like them more because they are more rigid. I have had one or two issues with the Velcro straps that hold the seats in place in the Sling 2.

For the South African market, the fact that the Sling is both locally built and supported is a big plus. However, Richard Stubbs has had a fantastic experience with the Direct Fly factory in the Czech Republic. Skyworx at Krugersdorp Airfield is a well-regarded AMO and Kevin Hopper the AME at Skyworx, having fitted Richard's 100% kit with avionics, engine and propeller is now familiar with the Alto and will be able to provide local maintenance and support for Altos flying in South Africa.

So what do they cost? The Alto TG ready-to-fly currently costs 53,000 Euros or approximately R720,000 at the current exchange rate (excluding the cost of getting the aircraft to South Africa), and the Sling LSA ready-to-fly is just over R1 million. In the VLA category the Sling is a winner; it's a closer contest in the LSA category.

Willie Bodenstein

Well-balanced handling makes for fun flying. Perfect for LSA training and low hour pilots.

ALTO TG SPECIFICATIONS

Seats: 2 x side by side
Empty Weight:
315 kg fully equipped
MTOW: 600 kg
Useful Load: 285 kg
Baggage Allowance: 15 kg
Length: 6.15 m
Height: 2.25 m
Wingspan: 8.2 m
Cockpit Width: 110 cm
Engine: Rotax 100 hp 912 ULS
Propeller: FITI 3-blade ground adjustable composite
Fuel Capacity:
110 litres (2 x 55 litres)
Range: 1,215 km with reserve
Vne: 131 knots
Cruise Speed at 5200 RPM
112 knots at sea level
Vso: 39 knots
Take-off Distance: 90 m
Rate of Climb: 1,250 ft/min
Landing Distance: 150 m