Pilot FLIGHT TEST

A more dynamic Dynamic!

Long ahead of the curve, in terms of its sophistication and handling, further development and a hike in power take the Aerospool WT9 Dynamic to the top of the 600kg class

Words: Dave Unwin
Photos: Keith Wilson

Why might you need the optional sportscar mirrors? Dave will reveal all

The panel has been upgraded with multi-function Nesis III displays made in Sovenia by Kanardia

Lined up on Runway 07, I open the throttle up to the stop. The Dynamic surges forward, my right thumb presses a small button at the base of the throttle quadrant and I push the lever further forward. In an instant there's fifteen per cent more thrust and the speed tape really starts to roll. Ease back on the stick and we're airborne after a very short ground roll and climbing away at well over 1,200fpm. Flaps up, and twenty seconds later we're passing through 400ft, I pull the power back past the detent and the Turbocharger Control Unit (TCU) reduces boost to 35in MAP (manifold air pressure). I then lower the nose, dial the propeller rpm down to 5,500 and note the VSI is still showing around 1,000fpm, before swinging the shapely spinner onto a south-easterly heading. Already I can see that the field of view is phenomenal and feel that the handling is crisp and taut. Whenever I get to test one of the new breed of 600kg Light Sport Microlights (LSMs) they just seem to keep getting better and better!

A QUICK LOOK AT THE COCKPIT

The format of this test is unusual. Usually, I like to study the aircraft externally before flying it, but on this occasion, we'd agreed that LX Aviation's Jonathan May would pick me up at Saltby and we'd fly most of the test out of Fenland, so almost as soon as he arrived, we were off again, although I did take the time to familiarise myself with the controls and instruments.

Access to the cockpit is via the trailing edge of the wing, which features sensibly sized non-slip wingroot walkways. It's easier if the flaps are left down, and I note with considerable interest the sportscar-type mirrors on both sides. The enormous canopy hinges forward, opens wide and is well supported by black gas struts. However, these are a bit too 'grabbable' for people climbing in and out, and I'd recommend painting red warning stripes on them. The cockpit has a maximum width of 1.15m but seems wider. It incorporates several stowage options, including being able to carry 2 x 20kg behind the seats and 2 x 10kg under the seats. It also offers an impressively broad cockpit loading of between 55-240kg (although of course, at 240kg there's nothing left for fuel!)

Settling onto the very comfortable semi-reclined seat I study the controls and instruments. When I tested the 100hp version in 2018 I felt that although the cockpit was extremely well designed there was still room for improvement and made a few suggestions. Gratifyingly, practically the first thing I noticed was that the rather flimsy toggle switches had been replaced by a row of rugged-looking rockers. The seats are fixed but the rudder pedals adjust. Fixed seats can be light and still crashworthy, which is why most LSM manufacturers choose this option. Less satisfactorily, the adjustable rudder pedals can be set asymmetrically, and if the pedals are adjusted while the rudder is deflected it is possible for the pedals to be set neutral when the rudder is not. Worth knowing...

Once strapped down with the neat four-point harness I re-familiarise myself with the layout of the instruments and controls. The big panel is dominated by a pair of multifunction Kanardia 'Nesis III' displays. Made in Slovenia, they are highly sophisticated electronic devices which present an astonishing amount of flight and engine information, including attitude, speed (IAS, TAS and GS), vertical speed, altitude, outside temperature, heading, barometric setting, rpm, MAP, fuel quantity and flow, oil pressure and temperature, coolant temperature, volts, etc. It could be almost too much information on a single page, but is backed up by a block of annunciator lights at the top of the panel, with a standby ASI and miniature standby EFIS, and the transceiver, transponder and intercom underneath. The autopilot control panel is to the right of the P1's MFD, which has a FLARM display above it and a slip ball below, with the fuses and circuit breakers on the right side of the panel and the rotary master/starter and magneto rocker switches in the centre. The mag rockers really should be guarded.

Thus far it wasn't *that* different to the 100hp version, but below the transponder I noted two significant additions: the two 'Flybox' electronic controllers, one for the Woodcomp constant speed prop, and the other for the flaps, which were purely mechanical on the 100hp variant. The prop can be controlled either manually or left in 'Constant Speed', while the electric flaps can be either set anywhere between 0 and 35°, or in 'Auto' travel to the next of the four pre-set positions (0, 15, 25 and 35°) when the wafer switch is clicked up or down. The relevant light flashes green to indicate the selected position and turns to solid green when the flap arrives at the selected pre-set. I like things simple, and for the takeoff elected to leave the prop set to 5,700rpm and 'Constant Speed' and the flaps in 'Auto' with 15° set. Why make work for yourself?

From the centre of the panel a sub-panel joins a centre console that extends aft between the seats. This sub-panel carries a yellow T-handle for the glider tow cable release and a red T-handle for the Magnum 601 Emergency Parachute System (EPS). I wondered if a black-and-yellow striped hoop (like an ejection seat's) might delineate it more clearly from the cable release. Here we

AEROSPOOL WT9 DYNAMIC

£195,000 inc VAT as tested

Dimensions

Length	6.46m
Height	1.85m
Wingspan	9.0m
Wing area	10.3sq m

Weights and loadings

Empty weight	366kg
Max auw	600kg
Useful load	234kg
Wing loading	57.14kg/sq m (12 lb/sq ft)
Power loading	6.97kg/kw (11.5 lb/hp)
Fuel capacity	126 lit
Baggage capacity	60kg (2 x 10kg in front, 2 x 20kg in rear)

Performance

Vne	148kt
Cruise @ 6000ft	131kt
Stall	33kt
Climb Rate	1,190fpm

Engine & Propeller

Rotax 914 turbocharged liquid-cooled flat-four, producing 115hp (86kW) at 5,700rpm driving a Woodcomp SR-30 composite three-blade constant-speed propeller

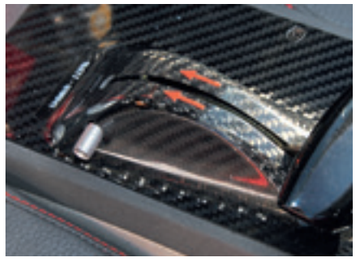
Manufacturer

Aerospool sro
Prievidza
Slovakia

UK Agent

LX Aviation Ltd
Ph 07474 454583
Email: *sales@lxviation.co.uk*
Web: *lxaviation.co.uk*

The compartments behind the seats will each take 20kg of baggage, 40kg in total including any item on the shelf



The throttle lever is gated at 100% power, '115%' being full power – 115hp at 5,700rpm

Quadrant for the hand-operated wheelbrakes has separate notches for parking and maximum brake pressure

also find the rotary fuel valve, pitch trim indicator and a plethora of plungers for the choke, alternate air, cabin heat and ventilation. The panel-mounted Vernier throttle has been replaced by a T-handled throttle in the centre console where the mechanical flap lever was, with a smaller T-handle for the hydraulic Beringer disc brakes behind and slightly offset to the P1. To set the parking brake simply click the lever into one of the two cut-outs marked 'park' and 'max' (used when starting) at the back of the console.

The throttle and its operation require expansion. It consists of a big T-handle with a spring-loaded button which must be pressed to push the throttle up to maximum power. There is a detent at the 100% throttle lever position which gives 100hp, but full engine power (115hp) is only achieved at the 115% setting. The TCU uses the throttle position in conjunction with ambient pressure, airbox pressure, temperature and engine rpm to actuate an electronically controlled waste gate which regulates the speed of the turbocharger (and thus boost pressure) in the engine airbox.

Thus far I'd found nothing really unsatisfactory ergonomically but annoyingly Aerospool dropped the ball at the final hurdle (and how's that for mixing your metaphors!) The plungers are all a little bit too 'samey' to be so closely grouped together, as the choke and cabin heat knobs are identical in shape, colour and movement which is poor ergonomics. They really should be different shapes and colours, as you might intend to turn the cabin heat on and instead get a 'rich cut'! Furthermore, the brake should be blue, and a different shape to the throttle. And to add insult to injury, the brake lever was blue on the 100hp model!

Of course, I am being very picky. This is a cockpit that has been thoughtfully designed around its occupants and while you may think all cockpits are, I can assure you this is far from the case! As well as ease of operation, pilot comfort has also been addressed, with comfortable seats, good heating and ventilation, including two DV (direct vision) panels and fresh air vents. The canopy is locked with a single centre-mounted latch that is very positive, backed up by a sort of 'safety catch' and a 'canopy unlocked' light on the annunciator panel. I liked the neat little fold-out pockets built into the cockpit sidewalls.

Crisp handling, powerful, responsive engine and exceptional field of view make this shoot a joy

HOW DOES IT HANDLE?

We whizz down to Fenland in fine style, and I'm pleased that – although I haven't flown a Dynamic for over five years, the 'stick shaker' fires just before the wheels touch. Taxying in I sense that the undercarriage seems taller than I remember, and Jonathan confirms that it is. We meet up with Keith and cameraship pilot Paul and we're soon taxying out for a stream takeoff. The initial plan is to fly out over the Wash for the air-to-airs but the Holbeach range is active with Canadian CF-18 Hornets in the UK for exercise 'Cobra Warrior' so we head out to the west instead.

The air is smooth, the light perfect and the crisp handling, powerful, responsive engine and exceptional field of view make this shoot a joy. Definitely one of the easiest air-to-airs I've ever done, although I nearly blot my copybook during the breaks. The crisp roll-rate makes it very tempting to get some spectacular pictures, and Jonathan laughingly reminds me that as 'Bravo Bravo' is a microlight, aerobatic manoeuvres are not permitted, and bank angles restricted to 60°. Don't be fooled by the pictures, I had it nailed to 59°.

With the shoot over I can assess the control and stability characteristics a little more quantitively. Control harmony is excellent; the ailerons are light, the elevator powerful and the rudder nicely weighted. All the primary controls have low break-out forces and minimal 'stiction', with the ailerons and elevator actuated by push rods, and these provide a taut feel and powerful precise control in both pitch and roll. Cables control the rudder.

Moving onto an investigation of the stick-free stability proves interesting. Directionally it's unsatisfactory but not for aerodynamic reasons. It's simply because when you introduce an extreme sideslip the nosewheel's spat is holding the rudder on. Longitudinally it's weakly positive. From a ten-knot displacement it took several long wavelength, high amplitude phugoids before it eventually returned to the trimmed speed. Spiral stability is neutral.

The low speed handling either flaps up or down is faultless, and although the pre-stall buffet is quite subtle the optional stick shaker isn't! Post-stall there's a gentle wing-rock but the ailerons remain effective, while if the airspeed is slowly reduced the aircraft never really drops its nose at the stall. Instead, the sink rate steadily increases and the Dynamic simply 'mushes' with the nose gently hunting in pitch and

Performance is excellent, the Woodcomp constant-speed propeller making the best of the power available

For full access to the engine and inspection of all the hoses, the top cowl can readily be detached

cowl hatch and direct vision panels are all welcome features

the sink rate increasing. It remained controllable laterally and directionally.

We were about fifty kilos below MAUW, but nevertheless with a combination of full flap, a bit of power and very gradual deceleration the speed fluctuated around thirty knots, which really is quite impressive. Clean and with the throttle at idle the wing quit at about forty, and recovered the instant I released the backpressure. In fact, the stall is so benign that I can't help but think that the stick-shaker is a little OTT. Pitch trim changes are noticeable when the flaps are extended or retracted, but changes in power produced only small changes in trim.

Sliding into the circuit at Fenland the Dynamic continued to impress, although an embarrassment of energy (either speed or height) should be avoided, as the limiting speed for full flap is only 76kt. Keith is lurking near the 08 threshold, but as the aircraft is very speed-stable it's easy to roll the mainwheels right in front of him.

FIRST THINGS LAST

Back on the ground I can finally do what I usually do before flying – a walkaround! If you've read this far, you'll have been enjoying Keith's excellent photos and have probably concluded that the WT9 is a very handsome aircraft, and it is! It's also equally well made – primarily from carbon-fibre reinforced polyester, and GRP skins over a foam core. Access to the Rotax 914 engine is good as the top cowling is secured by Camloc fasteners and can be readily removed.

Magnum 601 Emergency Parachute System (EPS) lurks under the panel delineated with a chequered border

It is fed from a pair of wing tanks with a combined capacity of 126 litres, of which 124 are useable, and turns a Woodcomp SR-30 three-blade constant speed prop fitted with a sharp-pointed spinner. Powerful taxi and landing lights are located either side of the radiator air inlet in the lower cowl, while the frangible panel for the EPS rocket to fire through is aft of the cowling. The nosewheel strut and main undercarriage legs look robust and carry Beringer wheels and brakes covered by snug-fitting spats.

The wing has the leading edge slightly swept back and the trailing edge swept forward. It features a gentle taper to the large winglets, with only a small amount of dihedral. The leading edges feature two sets of stall strips on each wing, mounted where I imagine the stagnation point is at the stall. Quite often stall strips are located in the centre of the leading edge, which isn't actually the right place. The tailplane, fin and rudder are entirely conventional, with pitch trim provided by an electrically actuated spring bias system. There's a large tail bumper, fitted with an optional glider tow hook (hence the mirrors).

PUTTING NUMBERS ON IT

Once Keith has the walkaround pics Jonathan and I head back to Saltby. Taxying is very straightforward as the nosewheel steering through the rudder pedals is precise and the field of view good, except for directly in front as the nose is pitched slightly up. The hand-operated brakes are powerful and progressive. Approaching the threshold for Fenland's Runway 08 a glance at the MFD tells me the OAT is +23C and the barometric pressure 1017mb. These parameters are both slightly above ISA but as Fenland is essentially at sea level, I don't bother calculating the density altitude. With very little baggage and 71 litres/50kg of fuel we're around 60kg below the 600kg MAUW, which gave us a fine power-to-weight ratio of 4.7kg/hp, if we use the turbo. However, the takeoff from Saltby earlier in the day had already shown me just how good it can be, so for this takeoff I elected to use only 100hp and 5,500rpm, not the full 5,700, and we were still airborne having used less than half of the 670m available. There's a slight 'pitch up' moment as the flaps retract, and although the Vy is 69kt, this gives a steep deck angle and a compromised forward field of view, so I trim for 80. Passing rapidly through 1,000ft, I sweep the Dynamic through a

▲ *Claimed maximum speed for this svelte aeroplane is 132 knots*

▶ *Superb finish – Aerospool used to make parts for sailplane manufacturer Schleicher*

▼ *Nice, big flaps – but beware they can only be fully deployed below 76kt*

graceful curving turn, rock the wings in farewell and head back towards Saltby.

Cruising at a representative altitude for UK GA of 2,500ft, Jonathan recommends 5,400rpm and 27in MAP. This amused me, because whenever I'm lucky enough to fly something with a big radial we use 'squared' power settings (i.e 2,200rpm and 22in MAP) in the cruise, while with the 914/Woodcomp combination, instead of the cruise power setting being squared it's 'halved'!

This gave an IAS of 108kt and a TAS of 113 for a fuel flow of 17 lph. Of course, it will go faster – a lot faster. Open up everything but the toolbox (5,500rpm – the 'max continuous', and 33ins MAP) and the POH claims it'll do 132 IAS, although the fuel flow will have increased by almost a third and you'll be 13kt past the 119kt Vno and well into the yellow arc. It also sounded very comfortable at '54/27', which is just as well, for with full tanks it'd run for over seven hours.

Back at Saltby everyone's gone home, so I elect to make a short field landing on the grass. The wind has dropped off to nothing, but with a firm landing at the start of the runway and some aggressive braking we're stopped in about 250m.

At the start of this flight test I opined that the new breed of LSMs just keep getting better and better – and this just might be the best one yet! From the crisp handling and comfy cockpit to the sparkling performance and exceptional field of view, I loved every facet of this outstanding aircraft. So, if I had the money, would I buy one? No – but only for one very simple reason. LX will soon have a 915-powered WT9 in the UK, and I *really* want to test that!