microlight FLYING

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INSIDE

Are paratrikes a low-budget marvel? (Yes)

Does Santa fly LSMs? (Debatable)

Should you try negotiating with French ATC? (No)

There was a time before time began...

David Bremner's come a long way, from flying the Mitchell B10 to enjoying a whizz in the rather swish Aerospool Dynamic WT9

IT'S a sad fact that I can remember all the various stages of development of microlights.

I can remember Len Gabriels attaching two model aircraft engines to a bar across the A-frame of the Grasshopper hang glider he'd designed, and barely maintaining height from Lobden Moor, north of Rochdale.

My brother and I built and taught ourselves to fly the Mitchell B10 flying wing, and I can remember a letter to *Flightline* magazine complaining that the use of 50hp Rotax 503 engines wasn't proper microlighting.

I can remember the very first 912-powered Mainair trike sold for export.

The raising of the weight limit to 450kg allowed a number of sophisticated European designs to qualify as microlights, albeit in a very stripped-down form, and was the first point at which many GA pilots began to take an interest in microlighting.

As a result, in 2007 I was lucky enough to fly the Dynamic WT9. A total of 17 are currently on the UK register, and I was recently allowed a go in the latest iteration of this excellent machine, now being imported by LX Aviation.

The new 600kg weight limit opens up the full range of available options for this well-established design, which was first offered commercially in 2000.

So it's been around for nearly a quarter of a century, and with over 900 sold worldwide, it's developed a first-class reputation for reliability and performance. The current version, the seventh iteration, is said to be much stronger than the original.

It's received EASA approval, and the UK version has required only minor tweaks from the EASA version to comply with the new *BCAR Section S* for light sport microlights. The factory and product are both fully approved in the UK.

The demonstrator comes with a turbocharged Rotax 914, Woodcomp constant-speed propeller, fixed undercarriage and twin Kanardia glass panels, but the list of factory options (only some of which are listed in the data panel) is almost endless.

LX Aviation is particularly excited about the top-end version with the 140hp Rotax 915iS, intended for 140kt touring and glider towing, which it claims can outperform the GA aircraft that have been used for generations and will be an order of magnitude cheaper to operate.

Back in the beginning

The Aerospool company was started in 1990 by a group of Slovakian aviation enthusiasts, and began making glider fuselages and trailers, then supplying parts for large glider manufacturers, before designing its own light aircraft, the Compact, in 1992.

The Dynamic WT9 was the production version of the Impulz which first flew in 1996. Today, Aerospool is a large organisation with around 90 employees and a turnover of over €10M.

So let's be clear: this isn't microlighting for dinosaurs like me. You won't be able to tinker with it; pretty much any repairs are going to require professional input.

I imagine few BMAA members will be able to afford to be sole owner of a new Dynamic; syndicate ownership will become the norm, and it's designed for serious long-distance touring or commercial operations such as glider towing.

First look

The airframe is an all-composite, low-wing design with tricycle gear and a front-hinged canopy.

The undercarriage is mounted on a composite beam with a wide track and steerable nosewheel, offering plenty of stability on the ground.

The ailerons are large with internal hinge and horn. The flaps are mounted on drop hinges to increase the effective chord when lowered.

The tips have winglets and fancy strobe lights that double as nav lights and flash faster when a Flarm signal is received.

There are stall strips on the wing leading edges inboard and at around half span, to minimise wing drop at the stall by turbulating the upper surface airflow and helping to ensure that the ailerons are effective at high angles if attack.

The tail surfaces are pretty conventional, with horn balances on both surfaces. The demonstrator has a tow attachment point, a joint winch/conventional hook which is also available on the 915 version.

Pitch (and, optionally, aileron) trim is achieved by variable spring bias. I'm surprised this isn't used more often; every time I've come across it, it seems particularly effective.

The wings outboard of the undercarriage are removable for ground transport. It is 2.5m wide, enabling it to be towed on a bespoke trailer, but it will only fit into a container canted over.

The engine installation with the 914 turbo is ▷

TECHNICAL DATA

Aerospool WT9 Dynamic 914 Turbo

Fixed-wing LSM

MANUFACTURER

Aerospool, spol sro, Letisková 10, 971 01 Prievidza, Slovakia. Tel +421 46 5183 200, office@aerospool.sk, www.aerospool.sk. CAA A8-1 manufacturing approval (awarded February 2022).

IMPORTER

LX Aviation, Bank Gallery, 13 High Street, Kenilworth, Warwickshire CV81LY. Tel 07474 454583, Sales@lxaviation.co.uk, www.lxaviation.co.uk. Directors: John Delafield, Allan Melmore, Jonathan May.

SUMMARY

Side-by-side two-seat low-wing monoplane with conventional three-axis control; dual controls; EASA Part 21 LSA. Wings have swept back leading edges, swept forward trailing edges, tapering chord and winglets; conventional tail. Pitch control by elevator on tail; yaw control by fin-mounted rudder; roll control by ailerons. Wing braced by cantilevering. Undercarriage (retractable optional) has three wheels in tricycle formation; cantilever suspension on main wheels, bungee suspension on nosewheel. Push-right go-right nosewheel steering connected to aerodynamic controls. Hydraulic disc brakes on main wheels. Composite sandwich construction using CFRP and GRP. Engine mounted at wing level, driving tractor propeller. Rescue parachute system fitted as standard.

EXTERNAL DIMENSIONS & AREAS

Length overall 6.46m. Height overall 1.85m. Wing area 10.50m². Wingspan 8.93m. Tapering chord 1.37m at root, 0.835m at tip, mean aerodynamic 1.17m. Dihedral 5°. Sweepback n/a. Aileron area 0.27m². Aspect ratio 7.8/1. Fin area 1.02m². Rudder area 0.32m². Elevator area 0.5m². Tailplane area 1.68m². Wheelbase 1.40m. Wheel track 2.24m. Main wheels dia overall 0.35m. Nosewheel dia overall 0.35m.

POWERPLANT

Rotax 914 (912S, 912iS, 915iS optional), liquid-cooled. Max power 115hp @ 5700rpm. Gear reduction, ratio 2.43/1. Woodcomp constant-speed SR 3000/3N propeller, dia 1.75m, in-flight electrically adjustable (ground-adjustable optional). Power per unit area 10.95hp/m². Useable fuel capacity 124 litre, mogas 98 RON, UL91/94 or avgas 100LL.

WEIGHTS & LOADINGS

Empty weight 353kg as tested, 382kg max. Max takeoff weight 600kg. Payload 247kg. Minimum flying weight 405kg. Max load per seat 120kg. Max total front baggage weight 2x10kg. Max total rear baggage weight 2x20kg. Max wing loading 57.14 kg/m². Max power loading 5.22kg/hp. Load factors +4g, -2g.

PERFORMANCE*

Max level speed 124kt. Never exceed speed 148kt. Economical cruising speed 110kt @ 18 l/h. Stall speed 42kt (cruise flaps 0, 0°), 37kt (takeoff flaps 1, 15°), 35kt (normal landing flaps 2, 24°), 33kt (emergency landing flaps 3, 35°). Max climb rate at sea level 1200 ft/min. Best glide ratio with power off 9:1 at 62kt. Airspeed at best angle of climb 57kt (1130ft/min). Airspeed at best rate of climb 69kt (1190ft/min). Takeoff distance: ground roll 166m, to clear 15m obstacle 305m. Landing distance to clear 15m obstacle 561m on grass. Service ceiling >10,000ft. Range at average cruising speed 600+ miles.

Under the following test conditions

Airfield altitude 550ft. Ground temperature 15°C. Ground pressure 1013mB. Ground windspeed n/a. Test payload 247kg.

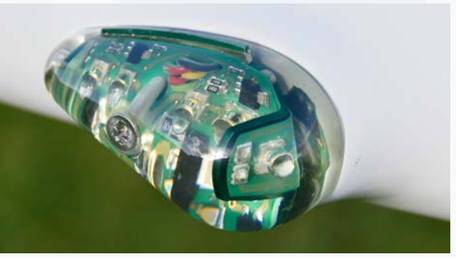
*** Climb rates quoted are with Rotax 912S and are conservative compared to 914.*

PRICE INCLUDING VAT

Price £165,000-£275,000 depending on options. Instrumentation options include traditional dials or full EFIS screens from Garmin Dynon or Kanadia. As tested, £200,000. All versions factory-built, prices are plus delivery (6-12 months) from Slovakia.

Data above provided by manufacturer / importer.
Data in text is tester's experience.
n/a = not available

Instrument panel



Strobe lights are also nav lights and Flarm sensors

Elevator detail

▷very compact; there's a lot of ducting to ensure adequate cooling under the harshest conditions (think towing big gliders in 40°C heat).

The front-hinged canopy is supported on gas struts, and entry from either side is very straightforward. The canopy is locked with a single handle that operates two separate mechanical locks. There are large opening panels on each side and fresh-air vents in the frames.

All aboard

Aerospool claims the cockpit width is as good as anything else in its class, and it certainly felt very spacious.

The bucket seats are excellent, and come with a variety of cushions to fit a wide range of occupants. My ever-increasing waistline fitted snugly, and I would have happily remained seated there all day.

The rudder pedals are adjustable, and there's loads of headroom: even at 6ft 3in, I could fit a fist between the top of my headset and the canopy.

It's clear a great deal of thought has gone into the ergonomics of the cockpit. Each seat has a short stick between your thighs, and there's a centrally-mounted quadrant throttle, with the brake lever conveniently right behind it.

The instrument panel and switches are all easily in reach and logically laid out. The controls for the constant-speed propeller seemed pretty logical to me, even though I've never flown with one.

Perhaps the biggest surprise is the baggage space behind and below the seats and rated at 40kg. It's divided by the central tunnel, but Aerospool claims that it's possible to fit a large suitcase on each side.

A parcel shelf fits on top so that you've got room for maps and things you might need in flight, and there's yet more space under the front of each seat for tiedowns, spare oil, etc.

The canopy glazing is optically clear and gives a truly excellent all-round view forwards, upwards and sideways.

As with most low-wing designs, the wing obstructs the downward view, and although there are clear panels behind the seats, only an owl could rotate their head enough to see out of them. Nevertheless, the additional light is very welcome.

If you're used to control columns that obey the instruction "full and free", these will come as a surprise owing to the powerful spring trimmer on the elevator, but I was assured that this is quite normal and would feel absolutely fine in flight.

Here we go!

Before attempting to fly the Dynamic, there's a huge pilot manual to read, learn and inwardly digest. It's shorter than *Gone with the Wind*, but not a lot.

LX Aviation Chairman John Delafield and Marketing Director Allan Melmore are both ex-RAF, so there are plastic-coated checklists for every eventuality in the cockpit, and Allan worked his way through the startup one until the 914 sprang into life.

> "The cockpit is simply superb

The more options fitted to your Dynamic, the more important these checklists will become.

The brake lever has two positions: parking and maximum, and they are very effective, even holding against a 5000rpm run-up.

Taxiing is a breeze: the nosewheel is positive without being oversensitive, and with sufficient lock to leave the inboard wingtip stationary.

Allan took off using turbo and no flap. In calm conditions and at more or less 600kg we were off in about 400m, and climbed clear of the Popham circuit. This was nowhere near the 166m quoted in the literature, but he wasn't using flaps or maximum power.

As predicted, the strange stiff stick controls felt absolutely normal in flight, with stick loads perfectly normal and increasing linearly the further out of trim you flew, until they told you in no uncertain terms that this wasn't how she expected to be handled.

The electric trim was also really good; it didn't catch you by surprise when you operated it, but it was clearly powerful enough to counter the strong out-of-trim forces.

There was minimal adverse yaw, and reasonably in-balance turns could be achieved with feet or hands alone.

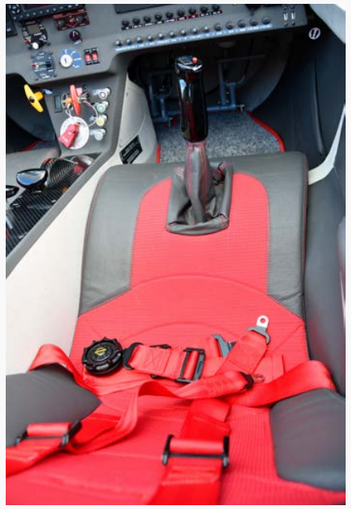
The three-position electric flaps have a powerful effect on trim, so it's worth retrimming between each stage, particularly as the flap limiting speed is only 76kt.

Well, hello, pussycat

We climbed up enough to try the stall, and in all flap configurations it's a pussycat. The electric stall warner kicks in first, with the stick starting to shake shortly afterwards, by which time it's started a mush. If you hold it further back, it will break with no discernible wing drop.

EASA certification has required any number of spin trials, so you can be absolutely confident that there are no ▷

Nose view



Fabulous seats

I'm ready for my closeup now, Mr DeMille

Rear view

▷ nasties hiding away in corners of the flight envelope.

The indicated stall speeds didn't match the quoted figures, but that's not accounting for position or calibration errors.

It's generally invidious to comment on performance figures based on a short flight, but a cruise speed of over 100kt was achieved with a fuel flow indication of less than 20 l/h.

Stick-free pitch stability was fine: about 1.5 slow cycles brought us back to trim speed without much hysteresis *(That's lag for those of you who didn't pay attention at school – Ed)*.

One other thing I particularly enjoyed was that power setting didn't seem to have much effect on the trim speed. If you set trim for a normal cruise of around 100kt, the power could be reduced or increased and the trim speed would remain pretty much the same.

You will have gathered that the performance and handling are pretty much standard for this class of aeroplane, but this doesn't give any impression of the pleasure of flight: the very comfortable seat with adequate elbow room, the superbly clear canopy and the wide arc of view all made for a truly pleasurable environment that would make long-distance touring or all-day glider towing a real pleasure.

We headed back to Popham's very busy circuit and lined up on 21. Allan was required to do the landing for insurance reasons, and I was surprised at the steepness of his approach, but with two stages of flap he nailed a speed of 60kt over the hedge, and touched down just past the numbers. That means short fields should be a doddle. The main gear handled the very nasty bump halfway down the runway with ease, and we taxied back to the hangar.

The verdict

So what did I think? Despite being nearly a quarter of a century old, this is a design that has had upgrades over the years, but hasn't needed any significant redesign to remain highly competitive in a very competitive market.

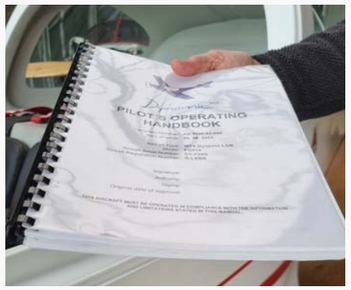
If you're thinking of investing that much, you need first of all to be confident of long-lasting and effective support. Nothing's certain in aviation, but Aerospool has to be about as good as it gets in that respect.

Next, you want an aircraft that matches your specifications as closely as possible and is capable of upgrading when the time comes. The full list of options is truly spectacular, from four engine options ranging from 100 to 140hp to fixed or wobbly props, fixed or retractable undercarriage, autopilot, bespoke cockpit layout and instrumentation, and many more.

And, of course, the experience should be as enjoyable as possible for as long as possible, and here the cockpit environment is simply superb, with good performance and excellent handling.

Both John and Allan are closely involved with the world of gliding, and are enthusiastic about the new 915-powered Super Dynamic for towing, but there will be a large number of GA pilots who appreciate the simplified licence and cheaper maintenance costs of microlights and who will find the Dynamic a revelation in comfort, ease of use and practicality.

All told, while the Dynamic has been on the microlight scene for many years, the latest version is a very welcome addition to the options available for microlight pilots. □

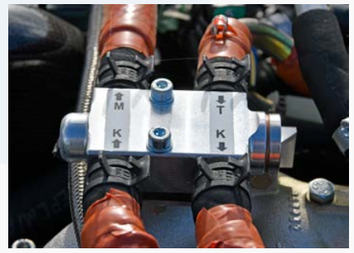


The manual is, er, rather comprehensive

The view forwards

Checklists

Cavernous baggage space



Engine oil thermostat

Engine turbo

PS: John Delafield has had an interesting life as an RAF instructor, flying Meteors and Hunters and retiring as an Air Commodore. He was also UK national gliding champion eight times, earning him two entries in the Guinness Book of Records.

His autobiography, A Flying Life *(Mereo Books, 449 pages and fully illustrated) is available from Amazon with B&W pictures for £13.25, £3.85 Kindle, or email John direct for a signed copy with colour photos, at sales@LXAviation.co.uk.*

Excellent clarity to the side