

Aeropro EuroFOX



Justin Cox
appreciates an
air of refinement

and quality about the tube-
and-fabric, factory-assisted
home-built EuroFOX

My first impression of the EuroFOX was heavily influenced by the flawless red finish of our test model, which exuded quality, but there was also a feeling of familiarity with the design. Aeropro, the Slovakian manufacturer of the EuroFOX, having built an Avid in 1990, metricated it and re-engineered it into the EuroFOX, making no attempt to hide the history.

Effectively, all that remains of the original design are the flaperons, folding wings and a hint of its original aesthetic heritage. I feel this aircraft tenuously owes its design to the Monocoupe, the influence of which is clearly seen in the Avid and the later breakaway, refined version, the Kitfox. The Avid fin and the Kitfox cowl, for example, are very Monocoupe. It's clear that Aeropro wanted to take the Avid sentiment and refine it into a much better package all round – 20 years on and with some 150,000 flight hours experience, I believe they have achieved this goal.

The EuroFOX follows the traditional Avid construction of tube-and-fabric. But the wings are a departure, utilising similar tubular aluminium front and rear spars as the Avid but with a composite, shaped leading-edge on the EuroFOX supported by the front spar and aluminium ribs instead of wood. Also the under-cambered ribs are gone, utilising a simpler flat-bottomed section. Fore-and-aft stiffness is provided by steel 'drag' tubes zigzagging between the front and rear spars adding to the wings' rigidity, just as used by the Avid.

Each wing houses a 40lt aluminium tank at the root, so there is no fear of fuel damaging the tanks, as would be the case if they were made of a composite (non-aluminium) material. Composite mass-balanced flaperons hang from the trailing-edge on four L-shaped hinge brackets, in a similar manner to the Avid and Kitfox. The fuselage is welded steel tube, internally treated

with oil, and is sandblasted before double-polyurethane-coating by the factory.

Aeropro has chosen to cover the EuroFOX with Poly-Fiber, the weight of the fabric being dependent on the regulations under which the aircraft is certified. For the LAA version, medium-weight fabric is used. For the more weight-critical BMAA version, light fabric is used.

Roger Cornwell, the UK and Ireland distributor, explains that the very high quality of finish on G-CGYC is no accident. The company was sceptical when approached by Roger about a possible home-built version. They thought that the quality of finish may be compromised. A halfway house was found; the builder goes to the Aeropro factory in Slovakia, and spends a week under supervision covering their aircraft. The builder doesn't need to purchase any tooling for the fabric work, and hasn't got the worry of learning to cover. At the end of the week, the



aircraft is ready for painting, which is carried out by the factory, lifting a further burden from the builder. This ensures the factory has full control over the quality of the product. Once painted, the EuroFOX 'kit' is then shipped to the customer for final assembly. Curiously, the factory chooses to topcoat the EuroFOX with automotive paint mixed with a flex agent, instead of the Poly-Fiber topcoats available.

Completion time for the builder is estimated to be about 500 hours total build time. The lightweight microlight version build time may differ from the Group A due to the different ways in which the BMAA and the LAA define the 51% rule. (The microlight version is 450kg, or 475Kg if fitted with a ballistic chute.)

The EuroFOX is available in nose- and tailwheel versions for Group A and Microlight alike. Roger is keen to point out that there is one price, £36,000+ VAT and delivery, covering all variations

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of configuration, colour and interior options available, saving any confusion. The kit contents are sufficient for the aircraft to be assembled and flown, save consumable items. Over and above the base price there are several options available, such as adjustable oil-cooler flap, cabin heating, carb heat, cabin vents and dual toe-brakes. Avionics are not included in the base kit and it is left to the builder's own preference, weight, wallet and available panel space.

The microlight and Group A aircraft are identical, save the different fabric types, while the maximum allowable all-up-weight will restrict the options for the microlight version if a usable useful load is to be maintained.

Roger is keen to promote the ballistic chute on the microlight version, offering it as a loss leader, allowing a greater max of 472.5kg. The chute also raises the allowable empty weight from 270kg to 292.5kg; considering the weight of the chute, this allows a greater margin for fitting options and avionics, compared to the 450kg non-chute version.

The EuroFOX is only offered with the Rotax 912 engine, available in the 80 or 100hp S version – Aeropro will not sell the kit without an engine.

The dual radiator system, mounted on the cowl (and reminiscent of a motocross bike) allows a more traditional cowl rather than a great,



Lots of panel space for the owner to get creative with personalised avionics. Note cavernous handy glovebox to stow items

cartoon-like nose bowl to feed a large water radiator. The oil cooler installation also adds to the sleek traditional cowl look, being fed by a NACA duct on the right side of the cowl. The cooler is mounted very neatly on the side of the cowl, taking minimal space. Careful examination reveals a Bowden, pilot-controlled flap on the entrance to the oil cooler, allowing for faster warm-up times and more precise oil temp control. Maybe a thermostat would be a far better solution; but simple is good.

On the opposite side to the oil cooler, another NACA duct feeds the engine with air. Bowden-controlled carb heat is arranged in a similar style to the oil-cooler flap, blocking the NACA duct and forcing the engine to draw warm air from inside the cowl, freeing the exhaust heat exchanger for heating the cabin alone. Despite what people say, Rotax engines do suffer from carb icing, so it will be interesting to see if the air

from inside the cowl is sufficient to hold off carb icing on ideal carb icing days.

A very smart carbon airbox is mounted on the firewall, feeding each carb via a rubber hose. This will increase the life of the carb inlet rubbers by supporting the carburettor on the intake side. When the carbs are fitted with individual K&N filters, they get a very hard life and usually require frequent replacement. (Anyone who has watched a Rotax idling, especially with a carb imbalance, will know how much the carbs shake about.) The cowl is held on by neat and easy Camlocs, but the bottom cowl removal will be hampered by the water radiators and oil cooler being fixed to the cowl, requiring disconnection of front-mounted twin landing-light loom, Bowden controls for the carb heat, and oil-cooler flap.

Wing-fold is very much in the same vein as the Escapade. This is a one-man operation, which Roger demonstrated with ease on the blustery day

of the test. Unlike the Trail, the width with the wings folded is well under the legal trailer width, allowing easy road transport.

Viable tourer

Entering the EuroFOX is easy with the typical 'bum on the seat and swing the legs in' technique. The top-hinged, fully-glazed door is held under the wing, just clear of the fuel tank outlet union, by a gas strut.

Once seated, it's clear that there's plenty of room for the pair of us, including ample leg and headroom. The seats are fixed, offering no means of adjustment. The factory tackles this problem by offering different depths of seat squab and back upholstery. Roger tells me he has a customer who is 6ft 3in who flies with the reduced cushions and has ample space.

Being a blustery autumn day, I elect to close the door and to take advantage of the solar



Note the wide-track undercarriage, making for a stable ground handling platform. Combined with powerful controls the EuroFOX should handle crosswinds with ease. Roomy, comfortable cockpit is aided by the fully-glazed bulged entry doors. Mirror on the port wing is for glider-towing duties

heating through the clear roof panel. The central rotary door-handle latches the door shut at the bottom and, via a Bowden cable concealed in the door frame, secures the door with a pin at the rear of the door. The design and action of the door mechanism oozes quality.

Strapped in with the four-point, car-type harness, I notice that the lower right of the panel is dominated by a cavernous open glovebox angled slightly downwards to prevent items falling out during flight. This is lined with sympathetically coloured velour. For this demonstrator, Roger had opted for a 'fully loaded' aircraft, including steering damper, soft start, oil-cooler flap, cabin heating and carburettor heat.

At the time of this test flight, 'YG' was undergoing glider-towing tests, so also had many options that wouldn't suit the average customer – including a large T-handle glider hook release and an extra cooling shroud around the air-cooled

portion of the cylinders. The EuroFOX has proven its worth as a glider tug in many countries, launching gliders up to 750kg.

Despite the 'loaded' state of 'YG, with a zero fuel weight of 300kg, it still had a payload of 260kg. On the day of the test, Roger and I weighed in at 200kg, with 2/3 tanks on board equating to about 57lt or about 41kg of fuel, meaning we had an endurance of about 3hr 50min with a half-hour reserve, equating to 383 miles at a sensible economy cruise. At this test weight there was still capacity if required to use 19kg of the allowable 20kg in the baggage bay. This clearly is a viable touring machine.

Analogue flight instruments are placed squarely in front of the pilot, with the rpm situated directly beneath the airspeed. Guarded mag switches are positioned just to the left of the airspeed. The key-operated master switch has four positions: Off; Avionics; Engine;

and Starter. The Avionics setting allows for the avionics to be turned on without powering the engine circuits, presumably for the programming of GPS devices, etc. The right-hand side of the panel above the glovebox contains the engine instruments, with electric switches and breakers above that. An optional cigar lighter socket, protected with a 5amp breaker, is on the far right of the panel.

The centre of the panel is dominated by an Airbox Foresight, which combined with the great visibility must make getting lost nigh impossible. A neat Filser VHF com and transponder sits below the central Airbox. Engine controls are all grouped together at the central lower panel, dominated by a most awkward vernier throttle that would surely be better suited to actuating a trim tab. An excessively large T-handle pull, twist and lock choke Bowden is situated to the right of the throttle. Below nestles the red T-handled glider

release handle, next to which are matching controls for carb heat, cabin heat and oil cooler flap control.

The fuel system consists of in-line fuel cocks for each tank, situated high on each door entry post, both feeding to a single master in-line on/off tap situated just below the left-hand side of the panel. Fuel is fed from the main tanks into a collector tank, situated under the pilot's seat, which contains six litres of fuel. A warning light, situated above the altimeter, illuminates when only four litres of fuel remains in the collector, a sure sign it is time to land if the main tanks are exhausted. A push-to-test button to the left of the warning light enables the circuit to be tested. Main tank fuel gauges are of the simple sight-tube type, situated in the wing roots. These are not calibrated on 'YG', but I suspect some form of calibration will be incorporated in the kits. 'YG' is fitted with the optional fuel boost pump, installed as part of the glider tug kit. Apart from the low collector tank, head pressure from the wing tanks should ensure the engine is fed with fuel should the engine pump fail.

Healthy climb

Starting the Rotax proves simple, smoothly aided by the soft start module. Oil-cooler flap closed, I use the wait for the engine to warm to familiarise myself with the view from the cockpit. To the sides, the slight forward sweep on each wing is evident. Forward swept wings can offer some major aerodynamic advantages, which are usually overcome by structural inadequacies, but this sweep is minimal and only used as a cunning trick to help the C of G range.

Oil temp in the green, we taxi out. The composite gear soaks up the uneven surface of the strip, giving a very comfortable ride. Nosewheel steering is via Bowden cables connected to the rudder pedals, and is easy and precise, unlike the vernier throttle, which I'm already starting to dislike. With temperature and power checks complete, I select half-flap as indicated by a mark on the fuselage tube that has stops for 'flap up' and 'full down' positions. The flap lever is infinitely selectable between up and down and is held in position by friction alone.

Correctly set up, it should mean that overspeeding the flaps is impossible; they should overcome the friction and self-retract.

Control checks show that the flap aileron mixing unit to be working correctly. With the fuel pump engaged, oil-cooler flap open and after a brief carb heat check I apply full power. Acceleration is good but we are not producing the full power potential of the engine. Settled in a full-throttle climb at 75mph with the flaps retracted, the engine rpm is only at 4,800 rpm equating to about 87hp. Being well below the max continuous rpm limit, I can leave the throttle wide open. Clearly the aircraft is over-propped, but it doesn't appear to be too detrimental to the aircraft's field and climb performance; we have a healthy 800fpm climb at about 19kg below max weight.

It's time to get on station for some photos, and my dislike for the vernier throttle climaxes; keeping station with the camera ship requires a quick twisting hand action – this is unlike most vernier throttles and their traditional grip method of depressing the vernier lock with the palm of the hand

Photos complete, I break away to perform some general handling. Full throttle and settled on

“Easing the throttle back to idle and slowing towards the stall, the EuroFOX shows excellent manners”



Gas strut holds the top hinged door well clear up under the wing, making for an easy entry and exit which is unhindered by the main gear

the step, I manage to see 5,300rpm, which indicates just shy of 130mph at 3,000ft. It's my guess that it would be a fair 125mph, due to the thermic activity of the day. Easing back to a more leisurely economic cruise of 4,200rpm gives an indicated 100mph. Roger estimates a fuel burn of about 11 litres per hour at this cruise setting

Next, I check for the aircraft's natural stability. Most well-designed aircraft fly happily without interference from the pilot, if trimmed. The EuroFOX is no exception; hands and feet off on this bumpy day results in the aircraft continuing steadily at 3,000ft and on heading. Turning my attention to the rudder, I initiate a turn with rudder alone. The EuroFOX dutifully rolls in the direction of the applied rudder. Releasing the rudder reveals that it has a tendency to want to stay where it's left, without any natural centring. Roger tells me that the LAA had increased the height of the fin and has asked for rudder centring assist springs to be fitted to the rudder bars.

From straight-and-level, introducing a brief transient rudder input also reveals the EuroFOX's indifferent attitude to yaw stability. Feet off the rudder and initiating a turn with aileron alone reveals a true design triumph, almost unperceivable adverse yaw, with the nose dutifully following the desired turn direction. Co-ordinated turns are a breeze, with the lack of adverse yaw, and seem equally effective at all flap settings. Flaperons have a reputation for losing effectiveness as flap is lowered, but these seemed to respond beautifully. Roger informs me that the factory has limited the flap deflection, which has helped alleviate the problem. Steep turns are met with a reassuring, progressively-building stick force, giving excellent stick to g-force feedback.

Easing the throttle back to idle and slowing towards the stall, the EuroFOX shows excellent manners, with the clean stall arriving at 51mph, the stick back against the stop. Half flap saw the stall arrive at about 45mph which with the stick held back was accompanied by a nodding and airframe buffet. Full flap and 45mph on the clock I was able to perform balanced turns in full control with ease; the stick back to stop gave an indicated 42mph. Again the airframe talks to you by first



Slow fly-by with the flaperons set at half flap

buffeting, and if you really don't get the message it starts to nod its head hopefully finally getting the message across.

Armed with the stall speeds at our particular weight, I tried out a simulated poorly handled approach which the aircraft took in its stride until I stepped over the line by applying uncoordinated controls and too little speed. The well-mannered EuroFOX tried to warn me by buffeting and nodding until finally relenting and dropping a wing, which was easily recovered. This aircraft tries its hardest to look after its occupants.

Reassured by the aircraft's handling, I explore cross-controlled flight, ending up with full aileron and rudder inputs. This results in very usable high descent rates: 1,000fpm to the left and 1,300fpm to the right. Noting that the wind at 2,000ft is about 30kt, I decided to abuse the EuroFOX a little and carry out cross-controlled, wings-level turns. The EuroFOX excels at this.

Returning to the strip, we have a brisk 20kt wind just off the nose, which would make for a short landing. I decline the offer of a crosswind landing on the out-of-wind runway, but I feel confident the aircraft would cope with winds well in excess of the published 17mph limit. With full flap and full aft trim, the EuroFOX settles itself on final at 60mph, happy even with hands and feet off. The landing proves very easy, requiring a reassuring last minute pull for a positive flare. With no brakes applied, the coarse prop was still trying to pull us along even on grass, so I suspect brakes will be needed on smooth runways for a short landing.

The EuroFOX is entering the 'affordable' aircraft market place where I believe the competition will continue to grow. I think it will be in direct

competition with the other new boy on the block, the Trail – both having two seats, folding wings and in a similar price bracket. Presuming that the Trail will continue to be offered for £30,000, can the EuroFOX confidently demand the £12,500 over and above the Trail while offering similar performance?

Despite the Trail and EuroFOX similarities, they are a world apart in many respects. Of course, the Trail is all-metal and the EuroFOX is a more traditional tube-and-fabric construction, but I believe that they will appeal to different customers. The Trail has a more rough-and-ready feel about it, ready for an adventure. The EuroFOX, on the other hand, has an air of refinement about it, undoubtedly driven by its most apparent asset, the quality of finish and build. This appeal is further enhanced by the fabric covering being carried out by the owner under supervision at the factory. The aircraft is then painted by the factory and shipped to the builder in two-three weeks. Although actually quite easy, the fabric covering process puts many people off considering buying a fabric aircraft. Ultimately the builder will have a factory-quality aircraft delivered to them that effectively just needs assembling. This lifts a huge responsibility from the builder.

The EuroFOX has one trump card compared to the Trail: wings folded, it's 7ft 10.5in (well under the recently-raised trailer limit of just over 8ft 4 in (2.55m), allowing it to be trailered home and put in the garage with ease.

The factory's determination to ensure that their product will be of a very high build and finish, whether factory, LAA or BMAA built, will mean the EuroFOX is regarded as a quality product – and quality will always sell. ■

TECH SPEC

EuroFOX



■ DIMENSIONS

Wingspan	.....29ft 10in/9.1m
Length	.....18ft 4in/5.6m
Height	.....7ft 4in/2.25m

■ WEIGHTS & LOADINGS

Empty weight	.....636lb/289kgg
max w	.....1,232lb/560kg
Useful load	.....594lb/270kg

■ PERFORMANCE

Maximum speed	.....143mph/124kt
Maximum cruise speed (@4,600rpm)	.....110mph/95kt
Stall speed (without flaps)	.....33kt
Stall speed (with flaps)	.....40mph/34kt
Fuel capacity	.....86lt
Range620m

■ COST

From £43,500 inc VAT

■ ENGINE

Rotax 912S or Rotax 912

■ SEATING

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■ CONTACT DETAILS

www.eurofoxuk.co.uk



Wings folded the EuroFOX is under the UK's maximum allowable trailer width. Neat simple wing-fold allows for major savings in hangarage or the aircraft can be trailered home and stored in the garage