Top of the class

The Pipistrel Alpha is eye-wateringly expensive and suffers from a few minor glitches. Never mind: it's still the UK's best microlight, says **Adrian Jones**

It's déjà vu all over again

DON'T worry, you're not going mad. If you think you have already seen a review of the Alpha, then you're correct, for Paul Bennett wrote a very expert piece in June last year. However, he flew a Czech-registered aircraft which was not to the UK spec, so the purpose of this review is to cover those specific differences.

Although the one that I flew was French-registered, it was actually kitted out to the UK spec while it went through its UK approval process. This should be completed by the time you read this.

Uniquely, a number of items are fitted as standard to the UK Alpha Trainer:

- stronger engine mounting identical to the EASA type-certified Virus SW 121;
- stronger landing gear, also identical to the Virus SW 121;
- larger carbonfibre instrument panel for light weight and rigidity;
- bobweights and springs on joystick to give more feedback;
- electrical elevator trim with indicator;
- cabin heating valve;
- rigid-back seats for better crash protection;
- adjustable headrests;
- rigid carbonfibre luggage compartment;
- electrical fuel pump with filter, selector and fused switch in addition to mechanical pump;
- hydraulic disc brakes with parking brake;
- all instruments are electronic analogue and digital, with backlighting.

▷

Pretty as a picture

MY first reaction to seeing any Pipistrel type for the first time is to stand and stare at the absolute perfection and attention to detail displayed in almost every aspect of the design and manufacture.

They really are from a different planet – Planet Pipistrel, hidden away in Slovenia in some sort of temporal anomaly, where everything is well considered, rational, and beautiful.

The boss and founder, Ivo Boscarol, is a perfectionist (see pipistrel.si/other-content/curriculum for his background). I've met him twice and was very impressed with his commitment and expertise.

He became involved in gliding and then powered hang gliding when at university, and the glider heritage shows in his company's designs.

They use carbonfibre sailplane building techniques and detail design, such as the Mylar gap seals on the control surfaces and removable wings with overlapping extensions of the main spar.

The quality of the finish is second to none. Compare, for instance, the paint inside the cockpit of a CT, all 1960s public convenience speckled grey effect to hide the irregularities of the surface, with the nothing-to-hide, perfectly smooth glossy carbonfibre or grey of a Pipistrel.

Another nice touch is the use of elegant, completely enclosed disc brakes compared with the rusty, inelegant exposed discs on most other microlights.

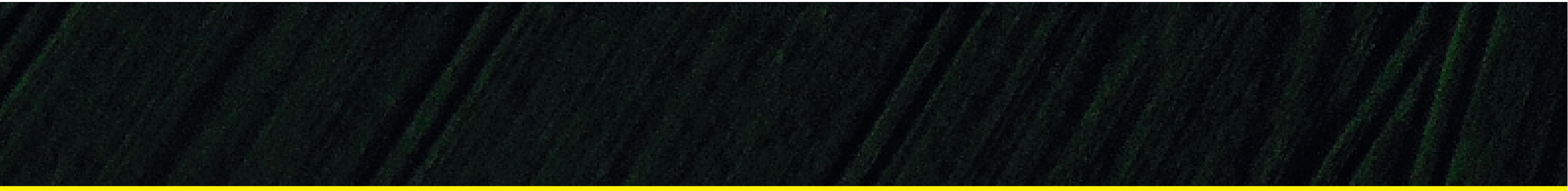
Pipistrel has eschewed fashion for the best solution. There is no need for ventilated disc brakes on microlights. They don't get used for prolonged periods as with cars. They are used once or twice for each flight, with plenty of time to cool down in between.

The ballistic parachute rocket exhaust is ejected through a hole in the fuselage, which is normally covered with vinyl, rather than asphyxiating the occupants, as is normally the case.

Lumbar support in the seats is inflated with a rub-

Above Looks good, even reflected in an inky puddle

Below Nicely finished throttle and choke controls



> On Planet Pipistrel everything is well considered, rational, and beautiful. It is, without doubt in my mind, the best microlight money can buy in the UK

ber bulb. USB sockets are fitted in each cubbyhole in the carbonfibre instrument panel, which is itself a picture of beauty and order.

The control levers for brakes, choke and throttle are exquisitely machined aluminium forms, while the flap lever resembles a rather effective car handbrake.

The easily adjustable rudder pedals are a work of art. Switches and circuit breakers are easy to hand on the central instrument column, behind which is the tiny lightweight lithium battery.

The wings are easily removed, *à la* glider technology, with automatically connected controls, except for a plug for the electric air brakes and lights. The gullwing doors have carbonfibre frames and fit and seal perfectly with three locking bolts, deployed by a single lever.

Even the tiedown anchor eyes are removable to save the drag in flight. The flaps are manually operated flaperons, but the spoilers on top of the wing are deployed by electric servos. Both these decisions were presumably made on weight-saving grounds.

The elevator trim, instead of being a trim tab, which would create drag, is provided by springs. For a microlight, this is perfectly acceptable and works well.

A thermostat in the oil system ensures a rapid warm up and keeps the oil at optimum temperature. But why does aircraft engine technology lag so far behind? Why no coolant thermostat, as in any car from the 1950s onward? The ultimate would be electronic fuel injection, again as in any modern car – no carb icing because no carbs, not to mention less pollution and better economy and performance.

Rotax does now produce an injected 912, but it is unnecessarily complicated, heavy and expensive when it could have just been an off-the-shelf solution from Bosch.

Look at the astonishing reliability of modern car engines, so why does Rotax. need to re-invent the wheel? Of course it was done for redundancy in certi- ▷

Above Instrument panel detail and adjustable rudder pedals (left); and that panel in full, a thing of beauty and order (right)

Below Handy brake lever

Above Front view; and (top to bottom) exhaust outlet for ballistic parachute rocket; Alpha brakes; and drain valve

Below Crude landing light the only visual glitch

fied aircraft, so what we need is a simpler non-certified version. Rotax take note.

Handling characteristics were very good, with everything well balanced. We in the UK tend to insist on higher pitch stick forces than the rest of the world (don't ask).

For conventional control systems, the minimum value of the stick force to pull 4g must not be less than 70N, (just over 7kg force) from a trimmed 1g condition at all speeds.

For well-harmonised controls, the relative forces are generally roll – 1, pitch – 2 and yaw – 4. This is good practice for all conventional aircraft with a joystick and rudder pedals, but foreign airworthiness organisations accept values that fall outside this ideal when dealing with microlights and small light aircraft.

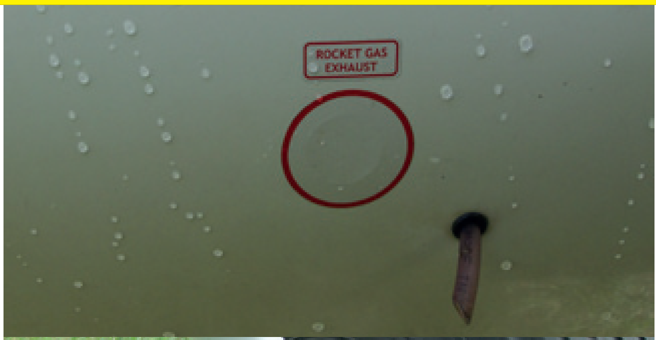
It often gives manufacturers selling in this country a headache. The pitch stick force is increased by the use of springs and bob weights on the Alpha.

There were a few things that could be improved (Sorry, Ivo, but I think you will agree).

Firstly, the rather crude bulky landing light was, I thought, out of keeping with the elegance of the rest of the aircraft. I think it must have been stuck on by an apprentice while no one was looking. Also, the model identification plate was riveted conspicuously to the fin instead of discretely inside the cabin.

The flaperons, although perfectly effective whether the flaps were deployed or not, suffer from adverse yaw. This is rather inevitable, but was easily counteracted by the rudder.

The rudder control exhibited a lot of friction in the air, caused by the nosewheel steering. This stopped it from automatically centralising, and so made yaw control a bit messy at times. Deepak thought it was me, but I convinced him it wasn't when we examined the noseleg with the tail resting on the ground. I am sure that this can be corrected with a little adjustment. Deepak intends to ask the factory.



Finally, the rather curious-looking pitot static tubes, which are designed to also sense angle of attack, were rather inaccurate in their primary function of sensing airspeed.

I carried out my normal ASI calibration, with Deepak flying while I took down the numbers, and was surprised to find that it was no better than most microlights with a static vent inside the cockpit. It over-read at high speed and under-read at low speed.

I was chuffed that my Shadow's absolutely accurate ASI (due to external static vents on the fuselage sides) trounced Slovenia's finest in some small way.

Having said that, it would be quite difficult to position external static vents on the Alpha, as there isn't a straight-sided piece of fuselage anywhere. All those curves don't lend themselves to sensing the free-stream static pressure because the air will be speeding up as it negotiates the changes in direction.

So would I buy one? If the eye-watering price was not important, then yes, without question. It is, without doubt in my mind, the best microlight money can buy in the UK.

Flying schools might be interested in the leasing option, and with the relaxed rules on empty weight limits now being applied by the BMAA, which I pushed for when I was working in the tech office, it would even be possible to add a few extras such as spats and additional equipment, although it already is very well specified. ☐

TECHNICAL DATA

Pipistrel Alpha Trainer UK

MANUFACTURER*

Pipistrel Ajdovščina, Goriška Cesta 50a, SI-5270 Ajdovščina, Slovenia. Tel +386 (0)5366 3873; fax +386 (0)5366 1263; info@pipistrel.si; www.pipistrel.si.

IMPORTER

Fly About Aviation Ltd, 16 Covert Road, Reydon, Suffolk IP18 6QD. Tel 07540 899690 / 08445 561279; contact@flyaboutaviation.com; www.flyaboutaviation.com. Directors D Mahajan, S Grachev, M Mikulin.

SUMMARY

Side-by-side two-seat high-wing monoplane with conventional three-axis control. Wing has swept back leading edges, unswept trailing edges and tapering chord. Pitch control by elevator on T-tail; yaw control by fin-mounted rudder; roll control by flaperons (settings 0˚, 15˚, 25˚). Cantilever wing; wing profile n/a; 100% double-surface. Undercarriage has three wheels in tricycle formation; coil-spring suspension on nosewheel, composite suspension on mainwheels. Push-right go-right steering connected to aerodynamic controls. Hydraulic brakes on mainwheels. Composite construction with integral parachute rescue system. Engine mounted below wing height, driving tractor propeller.

EXTERNAL DIMENSIONS AND AREAS

Length overall 6.50m. Height overall 2.05m. Wing span 10.50m. Mean chord 0.91m. Dihedral n/a°. Sweepback n/a°. Main wing area 9.51m². Flaperon area n/a. Aspect ratio 11.8/1. Fin area 1.10m². Horizontal stabilizer and elevator area 1.08 m². Wheel track 1.60m. Wheelbase 1.52m. Mainwheels tyre size 4x6 inch. Nosewheel tyre size 4x4 inch.

POWER PLANT

Rotax 912 engine, liquid-cooled. Max power 80hp at 5500rpm. Pipistrel FP02-80 wooden two-blade propeller, 1.62m dia. Gear drive reduction, ratio 2.27/1. Max static thrust n/a. Power per unit area 8.41hp/m². Fuel capacity 50 litre.

WEIGHTS AND LOADINGS

Empty weight 275kg. Max take-off weight 472.5kg. Payload 197.5kg. Max wing loading 35.7kg/m². Max power loading 4.50kg/hp. Load factors +4, -2 recommended, n/a ultimate.

PERFORMANCE*

Max level speed 120kt. Never exceed speed 135kt. Manoeuvring speed 86kt. Stall speed 34kt (40kt with flap retracted). Max climb rate at sea level 1220ft/min at 70kt. Min sink rate (flaps +15˚) 460ft/min at 60kt. Best glide ratio with power off (flaps +15˚) 17/1 at 63kt. Take-off distance to clear 15m obstacle 460m. Landing distance with flaps and airbrakes to clear 15m obstacle 250m. Service ceiling 18,000ft. Range at 108kt cruise 324nm. Noise level <65dB.

** Under unspecified test conditions except:*
Climb rate measured at 472.5kg.

PRICE INCLUDING VAT

€99,000 (£91360 at current exchange rate), ready to fly with VFR and engine instruments and including parachute rescue system. Radio, transponder, artificial horizon, USB charger, navigation and landing lights and electric airbrakes are optional extras.

n/a = not available
Figures above are manufacturer's/importer's