

AVEKO / VANESSA air VL-3 FLAMINGO

The Czech Republic's VLA industry is on a roll and it's not surprising judging by the remarkable quality and performance of the very recently certified VL-3 Flamingo. This diminutive Rotax-powered aircraft sets a new level for long distance VLA travel. SA Flyer is the first magazine to evaluate the aeroplane in the air.



Main photo by Willem Gobbelaar

I'M NOT SURE WHY the Czech Republic has established itself as the world's most prolific builder of Very Light Aircraft (VLAs) and neither I surmise, do the Czechs understand either. It only takes a quick glance at their industry's quaintly written and polite brochures to see the answer does not lie in brand values or slick spin doctoring. Last year the Czechs sold nearly 600 aeroplanes in this category and to achieve this number means, if nothing else, they have to be very good at designing and making little aeroplanes.

Of significance, is unlike its neighbours Poland, Slovakia and a few other close by competitive gliding countries, this success has not been a simple transfer of composite skills. The Czechs are master metal formers and widespread use of glass fibre, kevlar and carbon is a relatively new phenomenon in this pretty and friendly nation. Aluminium Blanik gliders and Zlin light aircraft were made on vast and elaborate jigs in big and gloomy factories. The jigs are still there and the hundreds of discarded rivet guns are now mostly silent reminders of state collective aeroplane manufacture.

Engineering is a solemnly revered profession in Eastern Europe and the region was never short of this celebrated skill – aviation was and is no exception. The proliferation of aviation engineering design talent has exploded in response to dinosaur icons that still roll out of Cessna Piper and Beechcraft. Today, the owners of Wichita and Vero Beach-made aeroplanes are becoming increasingly disdainful of legacy designs churned out at millenium costs. What started as a wave of new recreational flying machines, is now maturing into low cost designs conceived to cover longer distances in comfort and with high technology primary instruments and navigation systems. Our aeroplane world has changed.

Representative of this new order is Vanessa Air's remarkable VL-3 Flamingo, built by Brno's Aveko in eastern Czech Republic. Brno is a stone's throw from Zlin's now quiet

Otrokovice factory and even closer to the vast manufacturing hall at Kunovice's Let factory, where Blanik gliders are still built in rare batches.

The VL-3 has only recently received its full Czech Letecká Amatérsku Asociace (Light Aircraft Association or LAA) type certification that enables it to be sold as a factory finished product rather than a homebuilt kit. Defined by its retractable undercarriage and diminutive, carefully sculptured airframe, the

Vast and elaborate jigs in big and gloomy factories

aeroplane has already raised eyebrows by setting a class speed record of 151 knots at 8000 feet on the strength of its equally small, normally aspirated, 100hp Rotax 912 ULS engine.

The aircraft is imported by successful husband and wife team of Rainer and Barbara Friebose, who are well known for establishing Urban Air's Samba and Lambada in South Africa. Final assembly takes place under a CAA licence at Brits airfield. With over 60 of these types now flying regionally, the appearance of the VL-3 adds a new dimension to local VLA choices from Brits-based Wings and Tracks. Although manufactured by a different company, the VL-3, or Flamingo, as its known in South Africa only, has strong connections to the Samba and Lambada's origins. The common denominators are Vanessa Air's Miroslav and Petr Kábrt. These two talented engineers conducted almost all of the design stress analysis, aerodynamic calculations and flight testing for not only the Samba and Lambada aircraft but also the TL Sting, Allegro and

Quallt VLAs amongst others. The VL-3 is their own creation and a collective result of everything they have tried and tested since getting into the composite aircraft business. The project got off to a shaky start however, after manufacturer, Klenor, went out of business before Aveko took over the reins. Klenor did however, manage to produce seven aircraft, with serial number 3 as an advanced kit, for Wing 'n Tracks.

Now over two years since the VL-3's first flight, Rainer Friebose made some engineering changes in the time it has taken for the aeroplane to reach full production. Chief amongst them is the change from mechanical to electric flap operation – an implementation to reduce cockpit workload in an airfield environment. Another change was to use flexible hoses for the hydraulically operated undercarriage rather than vibration-prone fixed pipes. The name Flamingo was Rainer's idea – derived from the many hours he and Barbara spent watching huge flocks of these birds during their carefree days of overlanding through Kenya. Rainer was attracted to the Flamingo's ability to tuck its legs away behind its body and how it thrust its head forward in flight, enhancing its appearance of speed and grace.

Beneath the smooth paintwork lies an airframe constructed from mostly carbon sandwich composite. The heavy-duty carbon spars are scissored mid-fuselage, with each end crossing onto the root of the opposite wing to provide ultimate strength. Although a single fixed gear version has been manufactured at the factory, every other VL-3 of the ten built to date has retractable undercarriages. The main gear swings backward and upward into fuselage apertures much like the curious geometry of Cessna's clever single-engined retraction systems. Completely faired when tucked away, the system runs through ten kilos of hinges and hydraulics. The pump is powered through an inverter providing a three-phase kick to this important task and is backed up by a simple



Instrument panel has been designed and equipped by Wings 'n Tracks in South Africa. The only missing item is perhaps a weather avoidance system. It's a panel for going places.

hand pump in the event of an electrical problem.

Entry into the cockpit is not for those with a sedentary lifestyle, as low wings go, getting in and out does not require any contortions and can be completed without standing on the seat upholstery. Moreover, the Flamingo sits fairly close to the ground and stepping onto the modest walkway is helped by an easy reach to the cockpit surround as a handhold. Once installed, there is plenty of elbow space between the occupants and the seating position is comfortably reclined but not so much to preclude a good view over the nose. The placement of stick and throttle is as good as it gets – both of them falling instinctively and comfortably to hand with no stretching needed.

With an instrument panel designed in house, and knowing that today's VLA buyers are often obsessed with high technology, Rainer has not skimped on equipment. His demonstrator's panel is guaranteed to raise a smile on any sceptical airline pilot's face. A pair of Grand Rapids Horizon 1 primary and multifunction EFIS displays dominate each side. These units provide almost everything you will find in a modern airliner

Photo: John Miller

Flamingo's wing root fairings are reminiscent of a Spitfire – all the aeroplane needs are a pair of elliptical tips!

Main photo by Willem Gobbelaar.



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Above: The svelte and slippery airframe has won a class record for performance with a claimed top speed of 151 knots. Handling is light and responsive.

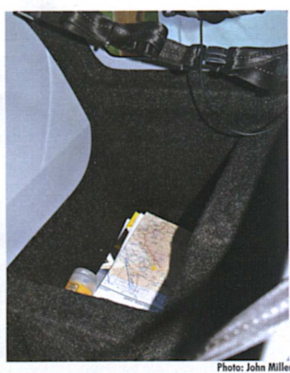


Photo: John Miller

Left: Deep and spacious luggage bay holds a respectable 20kgs

provides GPS back-up.

A deep luggage bay is located immediately behind the seats. It carries a respectable 20 kilos and perhaps needs a pullout shelf, as it would be impossible to recover anything from its lower extremities in flight. That said, there are handy map pockets on each side of the cockpit but not too much space for cameras, sandwiches and cooldrinks unless they are stowed within easy reach behind the occupants.

Flying the VL-3

The canopy, hinged at the front, is easily drawn down and latched using an overhead lock and a pair of somewhat lower tech clips at the lower rear edge. On hot days, the engine can be started and the aircraft taxied with the canopy open. After a quick pull of the choke Rainer started up and we waited a customary couple of minutes to allow the engine to raise itself from cold as well as thumb a row of push buttons to bring the panel alive. We then taxied to the holding point of Brit's downhill runway 20. By the time we had stopped, the Rotax was warm enough and after our pre takeoff checks we lined up ready to go.

After a short ground roll of perhaps 250 metres with one stage of flaps, the Flamingo was ready to fly and with a small movement of the stick, the aircraft rotated, ran a few more metres and then lifted off cleanly at around 40 knots. Notwithstanding the obvious high performance aerodynamics, the aeroplane has an excellent takeoff performance – one that puts many higher-powered aircraft to complete shame. We levelled off slightly a few metres above the runway and the VL-3 quickly accelerated towards its 70-knot flap and undercarriage

limiting speed. The gear needs attention in this respect as the retraction cycle, though not slow, isn't instant. The gear retracts with a noticeable rumbling at the midway point – much like the noise from a Boeing 737 a passenger can hear as the jet's undercarriage is cycled. A climb at 70 knots with two up and half tanks gave us an impressive 1000 feet per minute ascent. Although we had attempted a formation takeoff with SA Flyer's 182, the Cessna's

There is nothing like a formation flight to assess an aeroplane's finer handling points

far bigger engine grunt outran us on the runway and initial climb but by the time we both levelled off at 500 feet, FPI's pilot on this occasion, Carl Dollenburg, wasn't pulling away further.

There nothing like a formation flight to quickly assess an aeroplane's finer handling points. However, it was soon obvious that the VL-3 has beautifully harmonised and light controls. Sensitivity to control input is almost perfect with instant response, particularly in pitch, to any hand movement. The aeroplane is an absolute pleasure to fly and the aircraft can be manoeuvred instantly with relaxed and small hand inputs – indeed it was easy to rest my arm on my knee and maintain formation with FPI using a light



Photo: John Miller

Above: Gear retracts rearwards into fuselage – much like Cessna's single engine retractables.

Right: Seating slightly reclined – headroom may be restrictive for tall occupants and their headsets.



Photo: Wil Janssens

finger and thumb grip. I am the first one to appreciate an autopilot but I think that many future Flamingo owners will delay pushing the Trutrac function button and enjoy the reward of experiencing truly quick, light and harmonised handling that the Czech's are especially renowned for.

I can't vouch for the 151 knot true airspeed but I have flown the Flamingo over a lengthy distance on one occasion and seen how even at modest cruise setting the little retractable is a scorcher. Vanessa Air claims an economy speed range of between 113-135 knots at lower power settings. Although some say Rotax engines are perfectly happy to zip along all day at 5400rpm, what might be gained in covering distance quickly will be felt at the fuel pumps. However 130 knots plus is more than adequate for long distances and although the 140 litre fuel capacity will keep you aloft for over eight hours at cruise settings, this is more than most pilots will bear, even in a much larger aeroplane. What is not in doubt is that the VL-3 has extremely long legs if needed and will cover ground at astonishing speeds on a mere 100hp. Furthermore, the efficient and thin wing, unencumbered by deep wheel wells will ward off hot summer turbulence, giving either the pilot or autopilot an easy time on bumpy cross-countries at midday.

We stalled the Flamingo to see an abrupt but gentle break at around 40 knots without flaps with a slight roll off to the right. These kinds of figures along with a full flap and

gear down stall speed of 35 knots show that the Kábrts have got their aerofoil sums just right.

With the aircraft slowed to 70 knots on downwind, the gear can be brought down along with first stage flaps. Little effort is then needed to reduce the approach speed to a comfortable 60-knots and then 55 knots with the second stage flaps. We didn't use full flaps, as there was no need to. It was here that the positioning of the trim lever became obvious. Located immediately to the right of the throttle, every flap stage produced a nose-down attitude change, the trim lever was instinctively easy to adjust using the right fingers of my throttle hand and without looking down. Lovely! Furthermore, trim adjustment is light and positive and I found myself playing with the little lever close to the flare as we crossed the threshold to touchdown at 40 knots. With gentle toe braking, the Flamingo slowed down to an easy walking pace as we cleared the runway and taxied in again to Wing's and Tracks smart and tidy facility.

It is clear that no matter where the heritage is from, the Czech's have designed some fabulous VLAs. The VL-3 Flamingo is another example of the nation's extraordinary skills and if any aeroplane can succeed without the giant marketing budgets of mainstream light aircraft manufacturers, this one should be at the top of many pilot's wanted lists. Rainer Fribose himself is so excited about the aircraft, it is almost impossible to keep him away from it. Little

gives him more pleasure than demonstrating the Flamingo's remarkable performance and handling to any potential buyer that happens to drop onto Brits airfield. Give him a call, he also does house calls. 🛩️

VL-3 Flamingo Specifications

Engine: Rotax 912 UL or ULS
TBO: 1500 hours
Propellor: Woodcomp 3-blade c/s
Seats: 2
Length: 6.2 metres
Wingspan: 8.44 metres
Height: 2.05 metres
Empty weight: 300 kg
Max all up weight: 560 kg
Fuel capacity: 140 litres
Cruise speed (econ): 113-135 knots
Max speed: 151 knots
Fuel consumption: 12-17 litres/hr (cruise)
Vne: 183 knots
Stall speed: 35 knots
Airframe: +4g –2g
Cost: R850,000 inc VAT basic
Agent: Wings 'n Tracks, Brits
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