

# SABRE KP-5



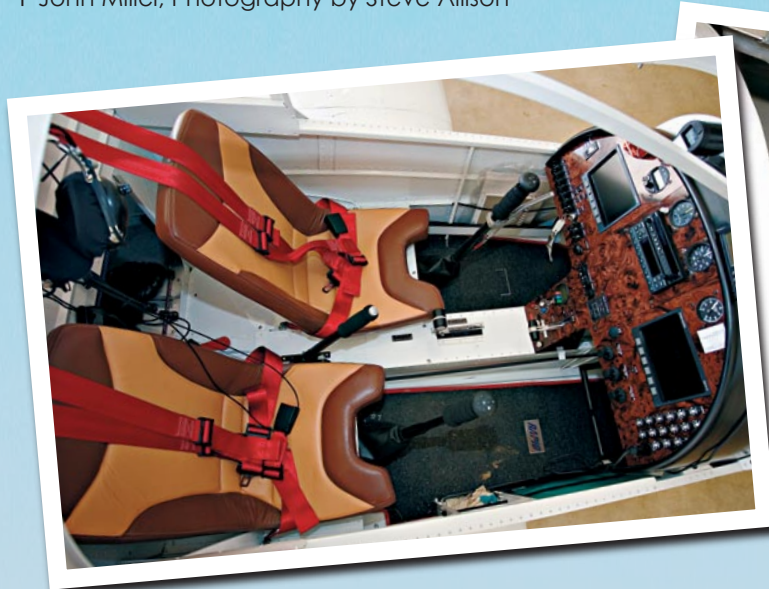
*Kappa/Jihlavan KP-5 Sova/Master has unsurprisingly been renamed Sabre Master in South Africa. As with most Czech designs, this all-metal VLA handles extremely well. We fly one of only two turbocharged versions made and explore the aeroplane's unique features*

# Jihlavan

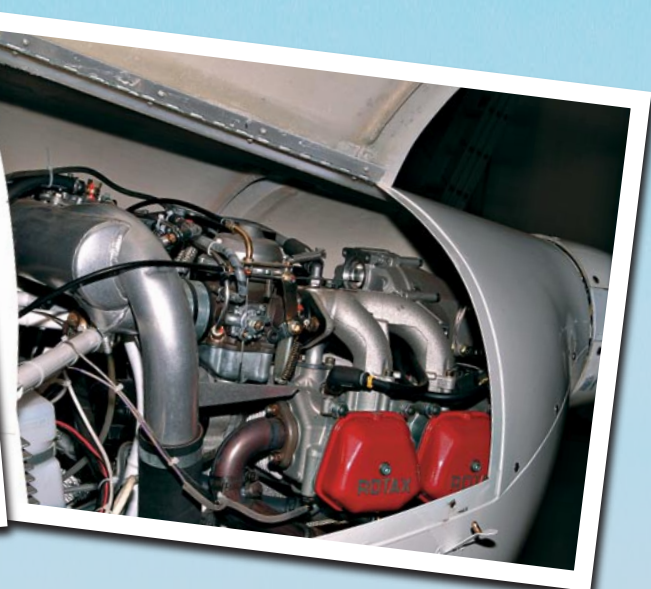
# Master



Vast instrument panel with precision engineered levers and fittings provides a perfect location for today's gadget-hungry VLA buyers.



**Staggered seating, stick and rudder pedals work well - Jihlavan has since however built a slightly wider fuselage.**



**Turbocharged 914 ULS engine has been installed in only two airframes so far.**

Over the past few years we have come to believe that 'metal' means Cessna or Piper and 'Spam cans' represent everything heavy, cumbersome and worse – plain old and boring. In their rightful place though, hewing aeroplanes out of thin dural and chrome moly tubing, are the resources upon which a vast aviation industry, both military and civilian have been built. Composites were the realm of gliders and only much later did they become commonplace in general aviation design. Nevertheless, composite design has never quite managed to shake the stigma of exotic maintenance needs and crashworthiness doubts. The never ending argument between 'plastic' and 'metal' will no doubt provide barroom debate for many future years.

It is once again up to the Czechs to provide grist in the construction material debate. Like America, the industrious Czechs built an aerospace industry on metal monocoque and tubular steel

designs. They also built numerous gliders out of metal; indeed, their combination of engineering design and metalworking skills has produced some of the world's finest light aircraft. Blanik sailplanes, once built in huge precision jigs, are found at almost every country gliding club, South Africa being no exception. The Czech Republic has always been an enthusiastic member of the world's recreational/sport flying community and its light aeroplane designs are always around when there are teams to beat and trophies to be won. The Czechs spawned an aviation community and manufacturing base out of proportion to its tiny landlocked size – and have never stopped innovating.

20 years after Glasnost and the fragmentation of the Soviet Union and Eastern Bloc, which left a once proud aviation industry blinking in the dust of a vapourised order book, this small nation is once again at the forefront of light aircraft design. Previously institutionalised talent, many of whom should be enjoying a

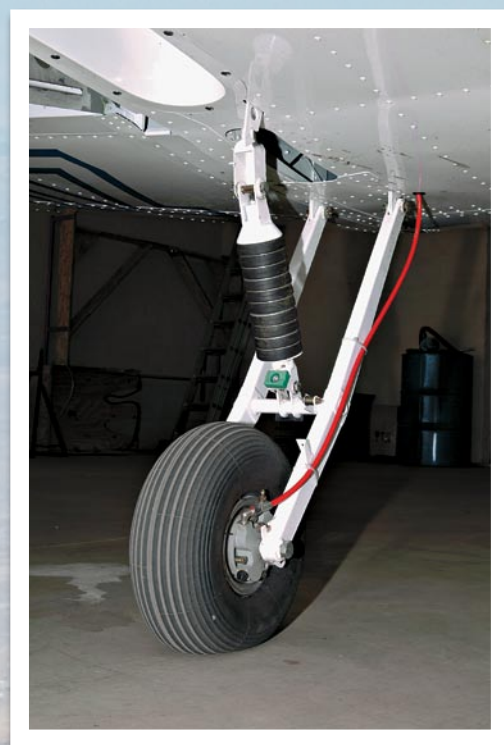
serene retirement, have re-emerged to cast off traditional design values and lead the world in consumer flying products. One such is ex LET 410 chief designer, Professor Antonin Pistek. As he watched his company suspend production and development of both the 410 and 610 commuter airliners followed by disastrous takeover attempts by US companies, Pistek appeared to gently retire to the country's famous aeronautical university at Brno. Brno is a stone's throw from LET's Kunovice factory and not too far from Morovan Zlin's Otrokovice facility close to the Slovakian border.

The collapse of the Czech Republic's aerospace industry in the nineties took with it promising light aircraft designs intended to eventually replace the popular Zlin 142



**Left: Gear retraction configuration is very similar to earlier Zlin 326 and 526 models... and Russia's Yak 52**

**Right: Rubber doughnut shock absorbers are a feature of the delicate looking main undercarriage. However, the mechanism is more than strong enough to handle relatively heavy touchdowns. Fixed gear version due in SA soon.**





**Visibility is superb and almost ag-plane like over the nose. The styling may not be to everyone's taste but there's no faulting the Sabre's fighter-like handling.**

and the Zlin-90 series. The Z90 led to a light version called the TP41, a design developed to just short of building a prototype.

As the Czechs picked up what was left of their manufacturing facilities, a company that emerged was Kappa 77, staffed by ex-workers from aerospace component manufacturer Jihlavan. Kappa's relationship with Jihlavan has always been strong and when Kappa 77 got into financial trouble in late 2004, Jihlavan stepped in and rescued the promising TP41 design, or KP-2U/5 Sova as it had become known.

With an expanding network of international distributors, the first KP-2U arrived in South Africa in late 2004, imported by Tedderfield-based Sabre Aircraft run by Denis Southby and Richard Stubbs. The design, known locally as the Sabre Master, has seen encouraging success with six aircraft sold, including the unusual turbocharged Rotax 914ULS engined version flown for our test report (the company is awaiting delivery of the first fixed gear

example too). Although Jihlavan market a fixed gear KP-5 model, only retractable versions have so far flown in South Africa. The turbo'd Master is one of two built, the other owned by Czech propeller manufacturer, Woodcomp.

The Jihlavan KP-2U/5 is a celebration of clever metal structural design and has some unique features. Constructed with thin dural sheeting held together with blind rivets, the monocoque airframe is approved to 1,199lbs (544kgs) and with an empty weight of 282 kgs, fits nicely within our local ultralight weight limit. Although conventional in structural design, the aircraft is defined by its large fowler flaps, retractable undercarriage and staggered seating arrangement that allow more shoulder room for larger occupants. The fuselage is attached to a strong wing centre section not unlike a DC-3's. The ailerons and elevators are controlled by pushrods – an eastern European tradition that goes a long way in providing fine handling. The rudder is connected to the pedals via a cable and

pushrod combination.

Although comfortable and secure, staggered seating may make the passenger feel out of touch with the pilot in command. Sensible in practice, the controls fall within easy reach of either occupant, the sticks being staggered as well. Indeed, the cockpit has a light and airy feel and provides great visibility, both on the ground and in the air.

### **Flying the KP-5 Sabre Master**

Appearance suggests the undercarriage has a flimsy quality encouraging a tentative step onto the wing to get into the aeroplane. Nothing could be further from the truth. The gear is both simple and strong and the huge forward-hinged canopy opens widely to allow an easy step into the cockpit. The canopy might seem to enhance any greenhouse effect but the engine can be comfortably started with the perspex in a 'trail' position when a cool blast of air will provide ample ventilation on hot days.

## Flight Test

John Miller, Photography by Steve Allison

### Huge fowler flaps provide slow stall and touchdown speeds - a good safety feature.

The seating position provides a commanding view over the nose, placing the instrument panel at arms length from the right hand occupant and enhancing the overall feeling of space. Indeed, the cockpit gives an almost MPV, even crop duster elevation both on the ground and in the air. There is nothing claustrophobic about flying the Master.

As is typical for this level of very light aircraft, panel design is usually completed to the whim of the owner and depth of his or her pocket. Turbo Sabre owner, Brian Bendall has selected a choice woodgrain finish for his aeroplane. He has further indulged in a pair of Dynon Avionics multi function primary displays, basic Garmin VHF and a transponder. He also has a TruTrac autopilot and electric constant speed Woodcomp propeller and ballistic parachute for added safety. It is a very well equipped panel. Analog manifold pressure and water temperature gauges are positioned at the top.

After start, the Rotax chatters away whilst the coolant temperature is allowed to rise. After a couple of minutes, we taxied easily to Tedderfield's holding point and completed the pre-takeoff checks. Steering is positive and the ride surprisingly compliant considering the rubber doughnut shock absorbers. With trim set and one notch of flaps selected (15-degrees) using the lever mounted between the seats, the throttle is advanced all the way to the first stop. A pull-up lever allows further throttle movement providing an extra 15-percent power. The Rotax has an electronically controlled wastegate, which is checked during the run-up and enables the pilot to firewall the throttle without fear of over-boosting.

The aeroplane was airborne after a modest ground roll and as the flaps retracted, trim was easy to adjust using the push buttons on the top of the stick. I wasn't surprised to feel the Sabre's crisp and light controls, even at a relatively slow speed during the climb. The aeroplane's excellent handling was confirmed by the ease with which we formed on SA Flyer's Cessna 182 for the photographic sortie. I had asked FPI's photo pilot, Carl Dollenberg, to maintain a slowish 110-mph. This provided plenty of speed margin for our formation turns but was somewhat slow for the Sabre, which would have been happy at another 20mph or so.


A later chat with Sabre's Denis Southby revealed some interesting points about flying behind a Rotax. He confirmed that these engines are happy running all day long at higher power settings rather than the 2000-rpm we traditionally fly with Continentals

and Lycomings. He asserted that these diminutive water-cooled powerplants deliver great performance at 5500rpm with the power adjusted to lower the manifold pressure. Although we didn't try a full power setting during the evaluation, Denis claims a cruise speed of over 130 knots with the 914ULS engine and 120 knots with the normally aspirated version. Denis says the standard 100hp Rotax is only producing around 75hp at the highveld's density altitudes, giving the 914ULS-engined version a significant speed advantage at higher cruise altitudes. Fuel burn is between 17 and 20 litres per hour depending on final choice of power settings. ZU-EFF is fitted with 94-litre long-range tanks giving an endurance of around five hours. Standard fuel capacity is 64 litres.

We stalled the Sabre both with and without flaps - the aircraft giving a clean break and sharpish roll off to the right in either configuration. The aircraft was quick to recover with the normal technique of opposite rudder and a gentle airspeed build-up.

We returned to Tedderfield mindful of the 68mph flap deployment speed and settling for two notches rather than the dramatic 35-degrees of full flap. In this configuration the huge flaps extend down and rearwards, contributing to the design's remarkable 30mph stall speed. It is recommended that full flaps are only used for very short fields and or where there is a high obstacle on the approach. The aircraft has plenty of elevator authority at slow speeds and is thus easy to land and bring to a slow taxiing speed using the stick-mounted lever brake.



Like all these very light aircraft originating from the Czech Republic, the Sabre Master is a pleasure to fly and offers the right combination of simplicity and performance to satisfy those wanting to explore further than their home airfield area. As a VLA, the aircraft offers a real cross-country ability that equals and exceeds many traditional 'Wichita' products, albeit with two seats. However, one of the most important advantages offered by this model is the high level of enthusiasm and knowledge of the distributor, Sabre Aircraft. It was obvious during a number of discussions that both Denis Southby and Richard Stubbs are seriously committed to after-sales support. Their deals have turned into personal friendships with a growing and obvious trust between owners, the factory and the distributors. With such a sound design, what more could an owner demand? 

### Jihlavan SABRE KP-5 Master

<b>Engine</b>	<b>100hp Turbo Rotax 914 ULS</b>
<b>Propeller</b>	<b>Woodcomp 3-blade composite variable pitch</b>
<b>Seats</b>	<b>2</b>
<b>Length</b>	<b>7.2 m</b>
<b>Wing Span</b>	<b>9.9 m</b>
<b>Height</b>	<b>2.6 m</b>
<b>Empty Weight</b>	<b>282 kgs</b>
<b>Max Gross Weight</b>	<b>475kgs</b>
<b>Fuel Capacity</b>	<b>64 L (optional 94)</b>
<b>Range</b>	<b>960 km</b>
<b>Cruise Speed</b>	<b>240 kph</b>
<b>Vne</b>	<b>260 kph</b>
<b>Agents</b>	<b>Sabre Aircraft</b>
<b>Contact email</b>	<b>Denis: 083 329 9312 richardstubbs@mweb.co.za</b>
<b>website</b>	<b>www.aircraftafrica.co.za</b>
<b>Price</b>	<b>R580,000 00 + VAT (Subject to exch rate fluctuations)</b>