

# **African** *Serious about flying* **Pilot**™

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**Cirrus GTS G3 Turbo**

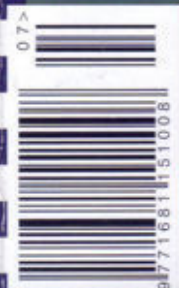
**Topaz from Poland**

**Starlite Sikorsky S-92A**

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Cover photograph by Athol Franz



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After take-off for my demonstration flight from Tedderfield Airfield together with Dennis Southby, I was amazed to see the Vertical Speed Indicator (VSI) indicating 800 to 1 000 feet per minute. The two-seat Light Sport Aircraft (LSA) was almost at gross weight with full tanks and two fully grown men weighing in at 90 KG each.

Horst Schiffer



Topaz in the foreground with several under construction in the background



Topaz from Poland Represented  
**BY SABRE AIRCRAFT**

Text and Photography By Athol Franz

The Topaz series is a full composite high-wing monoplane employing the use of glass and carbon-fibre reinforced vinyl-ester resins. Vinyl-ester resins can be painted (not just sticking of decals) and has far better thermal resistance qualities and mechanical traits to that of more conventionally used epoxy resins. For this reason the Topaz is ideally suited to South African hot and high Ultra Violet (UV) atmospheric conditions. The modified NN 1817 laminar wing profile displays beneficial low-drag aerodynamic qualities returning an exceptional glide ratio. The main spar is constructed from foam and carbon fibre material. The Topaz has a full-section cantilever wing with separate flaps and ailerons that are balanced to prevent flutter. Stainless steel is used for the majority of metal parts within the airframe.

The fuselage section has a cockpit width of 120cm (47.24 inches) and incorporates the vertical stabiliser. The Topaz uses forward folding doors and on all imported examples to date the canopy and doors have been tinted. The plane features two lockable leather upholstered storage compartments as well as a position for a GRS ballistic parachute rescue system, which can be fitted as an additional cost option. The main control system utilises rigid push-pull type torsion tubes without cables. Flaps and trim are electrically controlled by push button adjustment on the central control stick. Flap and trim position indicators are mounted above on the centre panel between the seats.

The tricycle undercarriage makes use of Italian aluminium 350 X 100 mm with anodised rims and quality six ply tyres enclosed in streamlined wheel fairings. A very strong steel leg supports the nose wheel with shock absorbing rubber segments. Hand operated hydraulically braked main wheels are fitted to cantilever composite legs that are both flexible and extremely impact resistant on difficult terrain. Two integrated 30 litre+ fuel tanks that are visible in flight are located in the fuselage behind the cockpit. A lockable filler cap is situated on the left side of the fuselage just behind the wing. Due to its construction, under normal operating conditions the airframe will not require any routine maintenance.

#### FLYING THE TOPAZ

Dennis gave me control of this delightful aircraft whilst he demonstrated various power settings for economical cruise at only 50% power. Although the plane will achieve an indicated airspeed of 105 knots in still air, normal economical cruise speed at 90 knots will result in exceptional fuel economy, which is most important when Mogas is costing R11+ per litre. When customers research the market, what is immediately apparent is that most importers will not risk utilising any smaller engine than the Rotax 912 ULS 100hp engine at Johannesburg's altitude. Unlike the JK-05's full length flaperon however, the Topaz benefits from separate flaps and ailerons, which allow for impressive slow speed performance and a remarkable short field capability. In cool air the Topaz rotates in well under 80 metres, and is easily capable of climbing at sea level in excess of 1 000 ft/min at maximum take off weight. Whilst on downwind at Tedderfield we experienced significant lift and the Topaz started climbing at about 600 ft/min. This placed us at 1 500 feet AGL which is a significant amount of height to lose before landing back at the airfield. Although the Topaz does not have speed brakes, found on many touring motor gliders, side slipping allowed us to lose the height rather rapidly and with the use of full flaps we touched down on the numbers rather gently at 50 mph. What a ride, all for the measly use of about 10 litres per hour. Undoubtedly the Topaz is one of the most economical LSA aircraft of its kind available in South Africa and one can certainly experience ridge soaring although the propeller is not the full feathering type.

#### WHAT ARE THE DOWN SIDES TO THE TOPAZ?

I found that getting into and out of the cockpit required some interesting bending moments of my body frame. However, once settled and after tightening the four point shoulder and waist harness the seating position was very comfortable. I

found that the throttle next to my right leg on the right side was uncomfortable and could be easily bumped by a careless passenger. As a passenger, I found that my feet were not very comfortable against the rudders, but I expect that this is a matter of rudder adjustment. The plane was very quiet even with my headset removed and the controls were responsive even though I am not used to flying with my left hand on the central stick.

#### TOPAZ TECHNICAL DATA

Length	5.95m	19.52ft
Height	2.30m	7.54ft
Wingspan	10.76m	35.30ft
Lifting surface	11.0m <sup>2</sup>	118.36sq ft
Empty weight	280/290kg	617.40-640lbs
Maximum take-off weight (Country specific)	550kg	1212lbs

#### TOPAZ PERFORMANCE SPECIFICATIONS

Take-off distance	80m	262.48ft	
Take-off distance over 15 m obstacle	150m	492ft	
Maximum climb rate	6.00m/s	1200ft/min	
Economy range ASL on 60 L @ 180 km/h	940km	584miles.	
Landing distance	80-100m	265-328ft	
Glide ratio	17:1		
Cruise speed @ 75% power	200km/h	108 knots	130mph
VNE	225km/h	122 knots	140mph

#### TOPAZ MINIMUM SPEEDS AT ALL-UP WEIGHT

Flaperon @ 6° (Flight / rotation)	68km/h	36knots	42.55mph
Flaperon @ 15° (take-off)	64km/h	34knots	39.76mph
Flaperon @ 26° (landing /stall)	56km/h	30knots	34.79mph

#### ENGINE TECHNICAL SPECIFICATIONS - ROTAX 912 UL

- Boxer Type Four-Stroke Motor with Air-Cooled Block and Water-Cooled Cylinders
- Engine Capacity: 1211 cm<sup>3</sup>
- Piston Diameter: 79,5mm
- Piston Stroke: 61mm
- Compression Ratio: 1:9.00
- Maximum Power: - 81 HP at 5800 RPM
- Continuous Power: - 79 HP at 5500 RPM
- Maximum Turning Moment: - 103 Nm at 4800 RPM
- Dual Ignition
- Alternator: 12 V / 250 W
- Twin 'Bing' Carburettors
- Oil Cooler
- Radiator
- Toothed Reduction Gearbox (1:2,27)
- TBO: 1600 Hours
- Fuel Requirements: 100 LL Avgas or Normal 91 Octane Petrol
- Propeller Specifications: Peszke three blade ground adjustable composite

#### TOPAZ OWNER

The first Topaz owner in South Africa, Horst Schiffer has accumulated some 300 hours on an MPL licence with 30 hours on type. Born in Germany, Horst immigrated to South Africa with his parents in 1958. He is currently a partner

in a small electronics manufacturing business and specialises in electronic communications as a design engineer. As a young man Horst was far more interested in motorcycling and sailing than flying. However, these passions taught him a lot about weather on the one hand and engine mechanics on the other, which have both assisted him to understand the mechanics of the aircraft and flying in particular. Four years ago, a colleague started his PPL training and suggested that Horst join him. Horst was now 56 years of age. After a trial flight at Grand Central, even though he was put off by all the pre-flight checks, Horst felt confident that flying could become an enjoyable and achievable past time. This learning curve steepened dramatically when he decided to invest in a locally built Cheetah Aircraft on which he started his MPL training at Panorama Airfield. Most of his early flying was done in a Jabiru that was available at the time and this took twice as long to master. At the end of 2005, Horst managed to solo and finally qualified in March 2006.

It was through Horst's hangar partner who flew the JK-05 that he was introduced to Denis Southby of Sabre Aircraft who spoke about the soon to be launched Topaz model. After much discussion Denis finally agreed to part with the company demo aircraft that was on order, and Horst's plane was finally ready for delivery in May 2008. Not only does the Topaz outperform anything Horst has flown to date, but due to current exchange rates he would actually return a handsome profit financially were he to sell this aircraft. The aircraft has superb aerodynamics without compromising on comfort in the 120cm wide cockpit and the single section cantilever wing allows for an impressive glide ratio of seventeen to one. Horst remarked on having to reduce power constantly to keep his speed within VNE at 122 knots and this fact is quite remarkable really given that the JK-05 and Topaz range both operate, even at high altitude on just the standard and far more economical Rotax UL 80hp engine. Horst states that to him it feels as though he has upgraded from an ancient VW Beetle to an Audi TT and he looks forward to many more hours of trouble free flying ahead.

#### ABOUT THE TOPAZ AIRCRAFT

Sabre Aircraft have recently received several Topaz planes in two forty foot containers. Regardless of who does the sums, potential customers all realise, and often with the benefit of hindsight, that the JK-05 & Topaz models offer unrivalled value and performance when realistically compared against any other model currently available in South Africa. Apart from unavoidable shipping delays recently due to a dockyard strike, the other very positive aspect of dealing with Sabre Aircraft is that the manufacturing company PPHU Ekolot in Poland has never disappointed its customers with late deliveries. This is especially important since customers wishing to purchase one of several other makes available in the South African market are often disappointed that the airplane delivery is months behind schedule. To date Sabre Aircraft, who are now based at Tedderfield Airpark just off the old Vereeniging Road, have sold 26 aircraft and have stock on hand for the first time, ready to be snapped up at last year's prices. All the avionics requirements to owner specifications are professionally fitted at Rand Airport and aircraft will be delivered 'ready to fly' with all the SA CAA documentation requirements completed for a small additional fee.

For further information on Sabre Aircraft contact Denis Southby on 083 329 9312 or Richard Stubbs on 083 655 0355. The company can be e-mailed using [richardstubbs@mweb.co.za](mailto:richardstubbs@mweb.co.za). They also have a most informative Website: [www.aircraftafrica.co.za](http://www.aircraftafrica.co.za). 