

THE TL STING SPORT

A 560kg VLA that could reset the benchmarks

BY JAMES O'DELL



MIDLAND AVIATION TO DEBUT NEW COMPOSITE DESIGN AT THE PFA RALLY

Leafing through a book about the history of Morgan sports cars recently, the story told of how in the pre WW11 years that company, and many other motor and motorcycle manufacturers, took part in trials to prove the reliability and ruggedness of their vehicles. Such trials highlighted weaknesses in design, and thus improved the breed, and no doubt success in such endeavours was not lost on the vehicle buying public of the day. In recent years manufacturers have turned to international rallying and racing to highlight their technical prowess, but their competition machines bear little resemblance to that which the customer will buy in the showroom.

There are of course, parallels in aviation. Pre war races, such as the King's Cup, were vitally important to light aircraft manufacturers, many of whom would enter specially prepared aircraft and employ the best pilots of the day to fly them. Such activities have all but faded away these days however. Yes there is still a degree of air racing, but it is now a wholly amateur affair. It's a very long time since the likes of Pierre Robin raced his latest creations to prove their abilities, and even named them after their successes - the DR1051 Sicile Record model for example, came about as the result of his win in the Sicilian air race in a modified

DR1051 Ambassadeur. Such activities were highly successful in improving sales, and the Robin factory did very well on the back of its racing successes.

Czech aircraft manufacturer TL Ultralight has recently undertaken a mammoth reliability trial that bears more than a passing resemblance to the early days of trials and racing proving the breed. The company has provided photo journalist Patrik Sainer with an off the peg TL Sting in which he has embarked on a 25,000km flight around the EU member States which is anticipated will take 250 flying hours

over a three month period. The idea is to prove the practicality and reliability of a modern ultralight aeroplane.

The southern sector of the flight has been completed and countries visited included the Czech Republic; Germany; France; Spain; Portugal; Italy; Malta; Greece; Slovenia; Hungary; Slovakia; and Austria. Patrik is now on the Northern sector and took the opportunity to drop into Turweston for Francis Donaldson to fly the aircraft as part of his assessment for UK Approval. The aircraft will be imported by Paul Sanders, of Midland Aviation, and





Caption...



Caption...



Caption...

he and his consultant engineer, Keith Towell, who is preparing the Engineering submission, were also present to greet Patrik and his co-pilot Igor Melichercik.

Members may recall the TL Sting being exhibited at the PFA Rally five years ago, when Paul Wittingham intended importing the aircraft as a 450kg microlight. It soon became apparent that there was no way the aircraft would meet the lighter UK empty weight, and the project was shelved.

Like a number of other European manufacturers, TL decided to upgrade its 450kg microlight to meet the US Light

Sport Category requirements, and it is a 560kg version of this model, the TL Sting Sport, that Midland Aviation will launch onto the UK market at the PFA Rally in mid August.

TL Ultralight is based at Hradec Kralove, in the eastern part of the Czech Republic, and has recently expanded its production facility at a former Russian Airbase, employing a workforce of 80 with two specific production lines, one catering for the US LSA market, and one for the rest of the world. Their designs are engineered by a specialist aeronautical consultative

company, Vanessa Air, which has been responsible for a number of designs such as the Lambada, Samba, and Allegro.

The Sting is certainly an attractive design, adopting that rather 'tadpole' look of recent times with a bulbous cockpit and sleek rear fuselage, but whilst many of the new generation composite ultralights look so alike, the Sting has a distinctive look of its own. The design itself dates back some ten years to a previous, all glass model, the TL Star, which used the same fuselage with a constant chord wing and an all flying stabiliser. The Sting has a new conventional tailplane/elevator and tapered wings, and uses carbon in the spar caps and as re-enforcement elsewhere where necessary.

The wings are quickly de-riggable, using the same overlapping spar system that has been used for many years in gliders. Large split flaps are fitted, mechanically operated via a lever mounted between the seats, with a 15 deg setting for take-off and 30 deg for landing. Ailerons are surprisingly short at just 2ft 10in (86cm) and are rod operated. Small winglets are fitted, though on Patrik's aircraft the port winglet has been modified to accommodate a stills camera to record his epic flight.

Up front is a standard 100hp Rotax 912S installation, which on UK examples will drive an in flight adjustable Woodcomp SR3000 three bladed propeller.





The fuel tank is interesting in that it is situated below the cockpit floor, under the crews' legs in an otherwise unusable area where the flat floor spans the circular forward fuselage. With a capacity of 87 litres, filled through the starboard fuselage side near the wing leading edge, it gives the aircraft an endurance of over four hours, and as a single tank, removes the complexity of tank selection. From a safety aspect, drop tests for the Spanish authorities showed that a collapsed nose leg would not come back far enough to puncture the tank, and a collapsed main gear would see the underbelly of the forward fuselage remain clear of the ground.

Unlike some other machines in this class, the undercarriage looks to have been designed to cope with the often less than

smooth European grass airstrips. The main gear legs are of composite lay up, fitted with decent sized wheels and hydraulic disc brakes, operated by toe brakes on adjustable rudder pedals. The nose gear is steel, sprung via a spring and damper assembly and steerable via the rudder pedals. It too has a large diameter wheel, which like the mains is spatted as standard.

As with most other composite aircraft, the Sting comes in any colour you want as long as it's white, but there is a wide selection of decal designs to enhance what would otherwise be a rather bland paint scheme.

Access to the ample cockpit is via a forward tilting canopy of quite enormous proportions, assisted by gas struts and fitted with a single overhead latch assembly. It closes down onto a

composite roll over hoop, with yet more window area behind, over what on UK models will be a parcel shelf, but is generally where the ballistic parachute is fitted. There is also luggage space behind the seats, for a total baggage weight of 27kg (60lbs.).

Fuselage mounted foot-pegs are provided behind and below the trailing edge, which makes stepping up onto the wing much easier, but as with so many aircraft, it is easier to step onto the seat squab and lower yourself down into the seat than to stretch forward and put your foot onto the floor.

The interior is trimmed to a high standard, and again a variety of colours and materials are offered. Four point harnesses are fitted and the seats feel comfortable and



supportive, the 44in wide cockpit allowing adequate shoulder room. The panel of this round Europe aircraft is not as the factory model, which will come with basic flight and engine instruments only. Midland Aviation will be offering advanced instrument and avionics packs, typically the Garmin radio/transponder/GPS stack that is fitted to many of the LSA models. The passenger side panel, which on Patrik's aircraft consists of a 'glovebox' which houses his life-raft, would typically contain the engine instruments and a smaller glove box, but if a customer wished to have a similarly large compartment and use a Flydat type engine monitor in the centre console, then that could be accommodated.

Ergonomics are good, with all controls falling readily to hand. A centre console houses the throttle and elevator trim lever, which is a nice simple cable operated tab arrangement rather than the latest 'all electric' fashion. Just forward of the console is a sub panel for fuel management, housing gauge, tap, and choke. The cabin heat control is also fitted here.



Once closed, the canopy gives ample headroom, and on UK examples will house circular adjustable air vents on each side, plus a forward centre vent, thus ensuring against the stifling greenhouse effect that large canopies are often prone to. The view though is panoramic, and the optical quality first rate.

Francis Donaldson flew the Sting when it appeared at the PFA Rally in 2002 and was very complimentary about its handling and general performance. Very poor weather at Turweston precluded more than a rudimentary flight in an aircraft that was not really representative of the model that will be coming to the UK, so the performance data (right) is based on projected figures at sea level in no wind conditions on a standard day.

PERFORMANCE DATA

Ground run - 530 feet at MTOW

Take off distance to 15m screen - 1150 feet at MTOW

Rate of climb at max continuous power and 75kts - 1150 fpm at MTOW

Max cruise - 137 kts TAS giving a range of 299nm to dry tanks

75% cruise - 127 kts TAS giving a range of 354nm to dry tanks

50% cruise - 109 kts TAS giving a range of 449nm to dry tanks

The full-throttle cruise at 8000', which equates to approximately 75% power, gives 147 kts TAS and 390nm without reserves.

Flap limiting speed (15deg) 75 kts

Flap limiting speed (30 deg) 65 kts

Stall speed 40 kts

Never Exceed speed (VNE) 164 kts.

As soon as Midland Aviation has a demonstrator in the UK, *Popular Flying* will carry out a full air test to establish the precise performance data.

As mentioned earlier, Midland Aviation will be debuting the Sting

Sport at the Rally and it is anticipated that UK customers will receive the aircraft with the major components and sub-assemblies completed and painted. They will then have to assemble the aircraft and install the engine. The aircraft will come as a top of the range model, with instrumentation, upholstery, 912S and in flight adjustable prop for £39,500 + vat. The only extra required will be avionics of the customer's choice. Enclosed trailers and canopy covers will also be available.

Once the fixed gear version is PFA approved and established, Midland will be looking into the possibility of importing a carbon fibre, retractable version of the

design, and rumour has it that the parent company are currently working on a four seat Sting. Check out the TL Sting at the Rally, or contact Midland Aviation on 01889 577282. Email info@tlsting.co.uk. Website at www.tlsting.co.uk. ■



TECHNICAL SPECIFICATION

Length	6.19 m (20 ft 4 in)
Height	1.93 m (7.54 ft)
Wing span	8.61 m (28 ft 3 in ft)
Wing area	11.29 m² (121.49 ft²)
Wing Loading	53 kg/m² (10.87 lbs/ft²)
Glide Ratio	12:1

Weights	Maximum take-off weight 560 kg (1230 lbs)
	Basic Empty Weight (varies with engine and equipment) 285 kg (630 lbs)
	Maximum Useful Load 275 kg (600 lbs)
	Maximum weight of luggage 27.22 kg (60 lbs)

