
MIDSUMMER



DREAM

An open cockpit, a beautiful day and a fine-handling biplane turn this flight test into a joyride: if you want to hark back to an era of adventure, natural beauty and poetry, the Sherwood Ranger is your machine

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Photos: Keith Wilson



Sunlight and shadows slide across the silver fuselage as I swing around in an effortless three-sixty above the sea. I glance through the sturdy, strut-braced wings at the sea, sparkling 1,000ft below and can't help but grin. There is something particularly special about flying open-cockpit biplanes, and although I really don't like getting up early in the morning – and today's start was at five a.m. – I can tell you right now it was well worth it!

The story of the Sherwood Ranger is quite long and rather protracted. It began life as a rather crude flying machine called the Micro Bipe. This machine was so basic that even the fuselage was not covered, but it soon evolved into a slightly more sophisticated aircraft called the Tiger Cub. This was also a single seater, with folding wings. An engineer called Russ Light could see the potential of the design, and by 1990 had created an aeroplane he called the Sherwood Ranger. This embodied most of the Tiger Cub's best features and had two seats. The prototype first flew in 1990, and was well received, but Light's life was tragically curtailed by illness and the design rights are now held by The Light Aeroplane Company (TLAC).

Photographer Keith and I arrive at the interestingly named Little

Snoring airfield dangerously early one June morning to visit the company. A quick look around the factory reveals it's a hive of activity, with various Rangers, Scouts and Kubs in varying stages of construction – there's very little snoring going on here! TLAC's affable boss Paul Hendry-Smith already has the Ranger out of its hangar, and the aircraft looks very smart in its silver-and-yellow livery in the morning sun.

I can't wait to get my hands on it – and I've been waiting a long time: although the story of this particular flight test isn't quite as long and protracted as the Ranger's history, it did start several years ago. One day at the Popham Microlight Fair I had spotted a handsome looking biplane on TLAC's stand, and it really put a hook in me. An affordable, open cockpit biplane with folding wings? It might as well have been designed for me personally! Paul invited me to visit Little Snoring the following week to test G-TLAC, but suggested I hang back and wait for the more powerful D-Motor, which he and his team were due to be installing.

"So, what engine is in it now?" I asked. "A 65hp Rotax 582 two-stroke" he replied. "Look mate," I grinned "even my lawnmower is a four-stroke! Let me know when the D-Motor's in, and I'll be there next day."

Well, as many manufacturers know, the road to certification is strewn with obstacles and pitfalls, and several years passed before the call finally came.

Today, even from a distance, I can see that the aircraft (G-TIAC) looks quite different from its predecessor, primarily because of the large chin created by the radiator for its engine. This is a D-Motor International LF-26, an engine possibly unfamiliar to many readers. It's a liquid-cooled side valve (i.e. flat head) direct drive flat-four, which produces 93hp at 3,000rpm. The side valve engine is an old idea, but this one is very advanced, and features multipoint fuel injection and twin ECU FADEC electronic ignition. It also offers an excellent power-to-weight ratio – 93hp from a unit that only weighs 58kg (128 lb) including the electric starter, radiator and exhaust – low maintenance and a 2,000 hour TBO. It turns a Helix three-blade composite fixed pitch propeller which, aesthetically, I felt didn't really suit it. Paul agreed and is already talking to Helix about a two-blade 'wood-look' prop.

The cowling is secured by numerous screws, although Dzus fasteners are an option. The oil dipstick and radiator expansion bottle are accessed via a large hatch in the top of the cowl. The fuel is carried in a single fuselage forty-litre vinyl-ester tank with the filler cap on top of the fuselage and a sight gauge in the front cockpit, which is clearly visible from the back seat. An auxiliary tank mounted in the centre-section is an option, which takes total fuel capacity to 72 litres.

Fuselage construction is classic rag 'n' tube – a Warren and Howe truss, made from 6082T6 drawn aluminium tubes bolted, bonded and riveted together, the tubes being protected from corrosion with alodine.

Separated by wide-chord interplane struts and braced by stranded flying wires, the wings are made up from plywood ribs bonded to tubular aluminium spars. The upper set is mounted on a centre section carried by tubular steel cabane struts, triangulated at the front. Differential ailerons are fitted to upper and lower wings.

BELOW: dipstick and radiator expansion bottle are accessed via a large hatch on the top of the cowl



Folding wings for easy hangaring

An excellent attribute of this aircraft is that it possesses one of my favourite features: folding wings. Once the spring-loaded quick release pins in the leading edges of the wing roots are pulled, the wings pivot about the rear spar to fold aft.

A temporary jury strut helps support the wings, which, once folded, reduce the aircraft's span by almost two-thirds, from 7m to 2.3m. This system is fine for hangaring, and the greatly reduced span can allow up to four aircraft to fit in the space of one.

The tail consists of a fin with a swept-back leading edge carrying a large and pleasingly rounded horn-balanced rudder, strut-braced tailplane and separate, two-piece elevator, with a trim tab in the starboard surface. Oratex UL600 covers the fuselage, wings and tail, and composites used for the cowling and cockpit coaming. Unusually for a biplane, the upper and lower wings are not staggered, because of the folding mechanism. This means that there's a bit of a knack to getting in the front cockpit, but as it's flown solo from the back I'm not too bothered.

The main undercarriage is of the split-vee type fitted with chunky low-pressure tyres and heel operated TLAC drum brakes. Bungees are used for suspension and shock absorption. The large solid tailwheel is attached to the stern post and steers through the rudder pedals via springs and cables, but it can turn only approximately thirty degrees each way (the same as the rudder). As I soon discovered, this is not enough, particularly when the sort of strips this machine is just made for are often quite narrow. It would certainly struggle to make a one-eighty at my home strip.

Access to the rear cockpit is assisted by a footstep on the port side, and is quite good for an aircraft of this type. Neither the seat nor pedals adjust, but it fits me fine and I can see and reach everything I need to. Once I'm firmly strapped in with the well-made four-point harness, I study the snug cockpit's controls and instruments. Unsurprisingly, →



1 As with the 1920s Gipsy Moth, the Ranger's folding wings are secured by pins held in place by leather straps, visible here, either side of the centre section...



2 ... Before the wings can be unlatched jury struts must be fitted, to maintain the shape of the wing cellule and tension on the bracing wires...



3 ... Next, stays are fitted to the interplane struts. These latch on to the fuselage and brace the folded wings for storage or transport...



4 ... With the jury struts and stay braces fitted, the wings are unlatched and folded back – a quick and easy one-man job...



5 ... And, with wings folded, the Ranger's modest span is reduced by two-thirds, from 7m to 2.3m. We reckon your base airfield really should offer a proportional reduction in hangarage fees!

RIGHT: neat VFR panel design. In the centre is the sole engine monitoring instrument, an MGL Stratomaster Infinity, which flight tester Dave felt was 'a little too small' and not something he cared for

BELOW: Unstaggered wing cellule means that the front-seater has to clamber in between the cabane struts (another reason the top wing sits so high above the fuselage). Note the compass, mounted externally on the centre section



Access to either cockpit is 'quite good for an aircraft of this type'. Neither the seat nor pedals adjusts but Dave found everything came nicely to hand



it's an exercise in minimalism. The tall stick carries just a PTT, with levers for the throttle on the left sidewall and trim on the right. The panel is clean and uncluttered. In the centre is a MGL Stratomaster Infinity, which is the sole instrument for engine information. I found it a little too small, and although it also has a master warning light and a separate warning light for oil pressure I didn't really care for it. There's an analogue ASI and altimeter either side of it, with a slip ball beneath the altimeter. The ASI is in mph and the altimeter is of the single pointer type.

Small sub-panels either side of the instrument panel carry a Trig transceiver and transponder respectively. I like the way the circuit breakers for the CDI units (Capacitor Discharge Ignition—this aircraft does not use mags) are co-located with the toggle switches. However, I would prefer a larger Electronic Monitoring Unit (EMU) between the altimeter and ASI. I like to see Ts, Ps and RPM 'at a glance'—particularly when taking off, and

didn't find the panel satisfactory in this regard. Maybe, a way to do that would be to have the CDI units in the same sub panel as the transponder—on the left, in front of the pilot's throttle hand—with the toggle switches for the master, avionics and instruments below the transceiver.

Of course, there are always multiple options for engines and avionics with machines like the Ranger, and it is currently offered by TLAC as either a basic or 'Fast-Build' kit, or as a Ready To Fly (RTF) factory-built microlight. If you do not want the microlight version, you can buy the heavier Group A Ranger variant, but for this there is no RTF option, just basic or Fast-Build kits.

Just remember 'sixty'...

TLAC's Chief Pilot James Milne wanders over to brief me on the starting procedure, and I ask him about the salient numbers with my pen poised over my kneeboard. "Sixty" he grins—"climb, cruise and approach at sixty and you won't go far wrong." Even I can remember that! There's no choke



or primer, so for a cold start I cycle the Master twice for starting enrichment (one of the two fuel pumps is always on when the Master is on) with the throttle open to squirt some fuel in, then just crack the throttle, press the starter and the D-Motor grumbles into life. Visibility over and each side of the nose is quite good, but S-turning is still necessary. However, for such a small aircraft the turning circle is really rather large, due to the limited steering range of the tailwheel.

Personally, I'd be minded to redesign the tailwheel so the default position is locked in trail with a spring-loaded pin. On the stick would be a bicycle brake lever, mounted vertically. To turn simply squeeze the lever, which would lift the pin via a Bowden cable, allowing the wheel to castor. A dab of rudder and brake to turn, and when going in the desired direction opposite brake and rudder, release the lever, the wheel would self-centre and the pin would drop back into place. Maybe there are other reasons why this was not done, but I think this might work

well, particularly if the rather weak heel-operated cable drums were replaced by toe-operated hydraulic discs – although on this point Paul says he is concerned about potentially nosing the aircraft over with overly-enthusiastic braking.

The pre-takeoff checks are simple, so once the oil temperature reaches 50°C I test the ignition and it's good to go, but before lining up on Runway 25, as always, I note the ambient conditions and aircraft weight. These are a gentle 8kt breeze right down the centreline, a pleasant OAT of around +16°C and a QNH of 1012hPa. As Little Snoring has an elevation of 196ft these near-ISA conditions mean the density altitude is only slightly above sea level, while with 30 litres in the tank and 84kg of Dave dressed for an open cockpit, the aircraft is about 95kg below the 450kg maximum takeoff weight. On some flight tests these numbers matter, but not today, and by the time the throttle hits the stop the Ranger is airborne and climbing away very respectably. →



Rod-operated control surfaces, almost free of friction and always more positive in feel than cables, help in providing the Ranger's notably 'taut and crisp' handling



With just the one main tank, a simple on/off fuel valve is all that is required, operated by a pushrod tipped with a red knob



In typical microlight style, fuel level is indicated by a sight tube, in this case in the front cockpit (but clearly visible to the pilot flying solo from the back seat)



The strange - but effective - 'upside down' throttle lever, complete with nicely machined hand grips and friction adjustment knob...



... and the matching 'upside down' trim lever on the starboard side. Bonus points here for proper manual operation, rather than electric trim

Fine handling

It's a lovely day to fly to the seaside, so it's off to the coast and while waiting for the cameraship I start feeling out the aircraft with an exploration of the general handling, control and stability. At least, that is what I should be doing. Truth be told, initially I just revel in the sheer joy of being airborne in an open cockpit biplane on a beautiful morning over the Norfolk coast. The wingspan is seven metres, and my grin can't be far off that wide. This thing is too much fun, and my initial impressions are all good. The handling is excellent around all three axes, taut and crisp with

low break-out forces and little 'stiction', plus the field of view is pretty good for a biplane. I soon spot the cameraship carrying Paul and Keith, and slot quickly into formation.

Obviously, the upper wing can create a slight problem with formation flying, but as long as I can see at least part of the Cessna I'm happy. The cameraship soon heads home and I continue ticking off the items on the flight test card, starting off with some timed climbs. As James had said, sixty is the magic number, but once I've found the attitude that gives sixty I concentrate on holding it constant and accept the speed and climb

rate that this produces. This is the best way to fly most aeroplanes, and especially aircraft that have a low wing loading, such as this one (it is only 32kg/sq m, even when flown at the 450kg MAUW).

Very light machines have little inertia, and there is nothing to be gained (but a great deal to be lost) by chasing the airspeed. Remember the plethora of struts and wires all generate drag, and there are only ninety-three ponies pulling! The combination of a sticking stopwatch, single-pointer altimeter and no VSI doesn't help, but eventually I get a mean average of about 750fpm. Now that I have plenty of altitude

RIGHT AND BELOW:
its rather bulky
radiator effectively
disguised by a
two-tone yellow and
black cowl, the
D-Motor engine
Sherwood Ranger is a
new shape in the sky



...the seamless transfer of weight from wing to wheel, and back again, is doubly enhanced from a biplane's open cockpit



I move onto the stalls, which are very benign. As the stall is approached it starts to mush, there's a little buffet and then it breaks with a slight wing drop at about 38mph indicated. It's nothing dramatic but not quite as gentle as some biplanes that have the wings set at different angles of incidence. The Tiger Moth, for instance, has the upper wing's angle of incidence set a few degrees higher than the lower wing (so that it stalls first, and 'nods' the nose down). On the Ranger, instead, both sets of wings are set at the same angle of incidence but have different amounts of dihedral. Recovery is predictable, quick and easy—as soon as I release the backpressure the wings are flying again, with minimal height loss.

Next item is an examination of the stick-free stability, which I judge to be a little 'soft' in yaw, positive in pitch and neutral in roll. For a look at the cruise I set 2,500rpm, which gives a speed of 75mph with a fuel flow of 14 litres per hour. However, the cruise seems more comfortable—almost effortless—at 65mph, and while I know this isn't very fast, when you're chugging along above an Area of Outstanding Natural Beauty what's the rush? In an aeroplane like this it's about the flight, not the destination—which, in all probability, is the place you set off from!

It's all about fun

Of course, you can go cross-country. For example, if we work on a conservative fuel burn estimate of 15 litres per hour you could safely plan for about 150 miles with 30 minutes' reserve, but that's not really what the Ranger's about. It's about fun – the joy and excitement of flight and, well, flying simply for the sake of flying. Watching the world go by from an open-cockpit biplane and through a pair of sturdy, wire-braced wings is something everyone should experience at least once, and it has certainly never lost its attraction for me.

TLAC is still awaiting aerobatic approval, so on the advice of my legal team the following sentence is heavily redacted! Let's just say that XXXX, XXXX and XXXX are all great fun. I'm having a whale of a time and could cheerfully stay up all day, but the fuel quantity sight tube in the front cockpit begs to differ and has a very persuasive argument, so after one final very lazy chandelle I curve down towards the airfield.

The short strip (aka Runway 28) next to the taxiway is available, but for my first few landings I conservatively use Runway 25, which is wider, longer and directly into wind. A good approach speed is—you guessed it—60mph. If it's flat calm you could probably use 55 but I'd advise against it. There's not much inertia and plenty of →



drag. Close the throttle, flare and it bleeds energy at a rate of knots! The ground roll is not much more than 100m.

A quick refuel (coffee for me, UL91 for the Ranger) and we're off again, this time from the short grass strip next to the taxiway. Keith has positioned himself to shoot some takeoff and landing shots, and I think it speaks volumes for how tractable this thing is that I've only got an hour and a few landings on type, and yet am quite happy to operate on the little strip, and in quite close proximity to Keith. This is great fun. The juxtaposition of science and sport that makes a well-judged sideslip never loses its appeal, while the seamless transfer of weight from wing to wheel, and back again, is doubly enhanced from a biplane's open cockpit—and especially so on a grass runway.

Something very special

Bumbling around the Norfolk sky with the wind in my hair, a fly in my eye and bugs in my teeth (not really—the windscreen is very effective) is very enjoyable. The handling is crisp, the roll rate nippy and it's just... well, fun. I'm sure I've said this before,

but there's something very special about flying rag 'n' tube taildraggers from grass that is difficult to explain and hard to resist. And, to quote Oscar Wilde, I can resist anything except temptation. A few more circuits and I reluctantly resolve that perhaps I'd better bring it back before I have to refuel again! I'm not too worried about wearing my welcome out, but suspect Paul may jib if I try to break in a new one.

Conclusions? Isn't it obvious? I loved it!



SHERWOOD RANGER XP

Dimensions

Length	6.1m
Height	2.2m
Wing span	7.0m (folded 2.32m)
Wing area	14.0sq m

Weights and loadings

Empty weight	250kg
MTOW	450kg
Useful load	200kg
Wing loading	32.1kg/sq m (7.08 lb/sq ft)
Power loading	6.48kg/kW (10.66 lb/hp)
Fuel capacity	40 lit

Performance

Vne	87kt
Cruise	70kt
Stall	36kt
Climb rate	750fpm
Service ceiling	10,000ft
Takeoff (over 50ft)	160m
Landing (over 50ft)	120m

Engine and propeller

D-Motor International LF-26 liquid-cooled flat-four, producing 93hp (69.35kW) at 3,000rpm and driving a Helix composite three-blade fixed pitch propeller

Manufacturer

The Light Aeroplane Company
Little Snoring Airfield
Ph 01328 878809
Email: sales@g-tlac.com
Web: www.g-tlac.com

Prices

Basic airframe kit	£15,650 exc VAT
As tested	£68,500 exc VAT