LAA TYPE ACCEPTANCE DATA SHEET
TADS 237
SHERWOOD RANGER LW

Issue 4	TADS reference changed from 237A to 237 to reflect correct LAA designation of this variant. Minor editorial changes.	Dated 3/9/13	JV

These TADS are intended as a summary of available information about the type and should be used during the build, operation and permit revalidation phases to help owners and inspectors. Although it is hoped that this document is as complete as possible, other sources may contain more up to date information, e.g. the manufacturer's website.

Section 1 contains general information about the type.
Section 2 contains information about the type that is **MANDATORY** and must be complied with.
Section 3 contains advisory information that owners and inspectors should review to help them maintain the aircraft in an airworthy condition. If due consideration and circumstances suggest that compliance with the requirements in this section can safely be deferred, is not required or not applicable, then this is a permitted judgement call. This section also provides a useful repository for advisory information gathered through defect reports and experience.

Section 1 - Introduction

1.1 UK contact

Paul Hendry-Smith, The Light Aircraft Company Ltd, Hanger 1, Little Snoring Airfield, Fakenham, Norfolk, NR21 0JL.

Tel: 01328 878809 or 07747 840007
Email: sales@g-tlac.com
Website: www.g-tlac.com

Note that the original supplier, Tiger Cub Developments Ltd, ceased trading following the untimely death of the designer, Russ Light.

1.2 Description

The Sherwood Ranger LW is a microlight biplane of traditional appearance, seating two in tandem in open cockpits. It is built from a kit or from a set of plans. The aircraft has been cleared by the LAA when fitted with a Rotax 532, 582, or Jabiru 2200A engine. Note that the only propeller(s) approved for an individual aircraft are those listed on the individual aircraft's Operating Limitations document or in the PTL/1 (Propeller Type List) for the type.

The Sherwood Ranger LWS was a proposed single seat version of the LW. Both the LW and LWS have been superseded by the uprated ST model (see TADS 237B) which is cleared to a higher max gross weight. The LW model has a maximum gross weight of 390 kg.

Note that a small number of LWS variants are approved within the LAA system: these were initially approved as single-seat microlights but became two-seat microlights when the microlight definition changed, with an MTOW of 450 kg. These aircraft should use TADS 237B for the ST variant.

The airframe is mainly of simple aluminium alloy tube construction, with wooden wing ribs and fabric covering.

Section 2 – Mandatory information for owners, operators and inspectors

At all times, responsibility for the maintenance and airworthiness of an aircraft rests with the owner. Condition No 3 of a Permit to Fly requires that: *"the aircraft shall be maintained in an airworthy condition".*

2.1 Fast Build Kit 51% Compliance

The aircraft was only available as a slow-build kit or to build from a set of drawings.

2.2 Build Manual

A comprehensive Build Manual is available, titled 'Sherwood Ranger Construction and Assembly Manual'.

2.3 Build Inspections

Build inspection schedule 46 (Sherwood Ranger aircraft).
Inspector approval codes A-A or A-W or K or M. Inspector signing off final inspection also requires 'first flight' endorsement.

2.4 Flight Manual

A Flight Manual exists for the LW and LWS models.

2.5 Mandatory Permit Directives

None applicable specifically to this aircraft type.

Also check the LAA website for MPDs that are non-type specific (TL2.22).

2.6 LAA Required Modifications (including LAA issued AILs, SBs, etc)

None.

2.7 Additional engine operating limitations to be placarded (or shown by instrument markings)

(Refer to the engine manufacturer's latest documentation for the definitive parameter values.)

With Jabiru 2200A: Max CHT: 210°C
Oil temp: 50-110°C
Oil pressure 125-525 kPa @3100 RPM

With Rotax 582 engine: Max CHT: 150°C (normal 110-130°C, max difference 10°C)
Max EGT: 650°C (normal 500-620°C, max difference 25°C)
Max Coolant temp: 80°C

2.8 Control surface deflections

Ailerons	Up: 25° Down: 15°
Elevators	Up: 20° Down: 20°
Rudder	Left: 20° Right: 20°

2.9 Operating Limitations and Placards

(Note that the wording on an individual aircraft's Operating Limitations document takes precedence, if different.)

1. Maximum number of occupants authorised to be carried: Two

2. The aircraft must be operated in compliance with the following operating limitations, which shall be displayed in the cockpit by means of placards or instrument markings:

2.1 Aerobatic Limitations
Aerobatic manoeuvres are prohibited.
Intentional spinning is prohibited.

2.2 Loading Limitations
Maximum Total Weight Authorised: 390 kg
CG Range: Limits 3.8 inches to 7.7 inches aft of the datum point
Datum Point is: the centreline of the lower wing mainspar tube at the fuselage side

2.3 Engine Limitations (Jabiru 2200A engine)
Maximum Engine RPM: 3300 rpm

Engine Limitations (Rotax 532/582 engine)
Maximum Engine RPM: 6800
Maximum continuous engine RPM: 6500

2.4 Airspeed Limitations
Maximum Indicated Airspeed (V_{NE}): 100 mph (87 knots)

2.5 Other Limitations
The aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited.

Additional Placards:

"Occupant Warning - This Aircraft has not been Certificated to an International Requirement"

A fireproof identification plate must be fitted to fuselage, engraved or stamped with aircraft's registration letters.

As a microlight aircraft, additional microlight weight placard must be fitted as described in TL2.11 regarding empty weight and payload. It is required that microlight aircraft are check weighed and a cockpit placard installed/updated every five years.

2.10 Maximum permitted empty weight

Model	*Engine*	*Max empty weight*
LW	Jabiru 2200A	208 kg
LW	Rotax 532	200 kg
LW	Rotax 582	200 kg

Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

A Maintenance Manual for the LW and LWS models is available. For further information consult the LAMS. Maintenance of the airframe is typical of a fabric-covered wood and metal airframe.

For the engine maintenance requirements consult the engine manufacturer. Rotax engines should be maintained to the Rotax maintenance schedule.

3.2 Standard Options

The listing below shows the factory options that have been accepted by the LAA.

SRP001	Sheeted leading edge
SRP002	Fibreglass wingtips
SRP003	Differential heel brakes

Controllable elevator trim (deleted from standard kit by change 006).

3.3 Manufacturer's Information (including Service Bulletins, Service Letters, etc)

In the absence of any over-riding LAA classification, inspections and modifications published by the manufacturer should be satisfied according to the recommendation of the manufacturer. It is the owner's responsibility to be aware of and supply such information to their Inspector.

None known for airframe.

3.4 Special Inspection Points

- A common problem is over torquing of Jabiru propeller bolts, this can cause cracking in the varnish and wood and can cause the propeller to quickly crack further and become unserviceable.
- Jabiru propellers suffer with leading edge abrasion in the root area and require regular varnish touch up here. If a tip comes into contact with anything e.g. soft ploughed earth or long grass, use a bright light or sun to look for small chord-wise cracks in the glass skin. Any delamination, however minor, must be treated seriously as cases have occurred where the entire glass cloth covering has been shed in flight, having originated from a small area of delamination.
- Great care must be taken to keep the weight down on these aircraft especially for microlight models, which are subject to strict maximum empty weight limits.
- The build manual is not particularly detailed regarding engine installation and fuel system details etc. With Rotax engines, see Rotax installation manual and Rotax installation checklist for guidance, and LAA-required mods.

3.5 Special Test Flying Issues

- Adequate engine cooling with Jabiru 2200A engine.
- With Jabiru engine it is imperative that the cylinder head bolts and tappets are checked at 5, 10, 15 and 20 hours. Omitting this check can lead to head leaks and damage at around 25-50 hours. Have a good look around the rocker boxes and make sure oil is present and that there are no signs of overheating in the form of burnt lacquered oil. New engines with hydraulic tappets need only to have the head bolts checked.
- With Jabiru engine, encourage test pilot to work the engine quite hard to avoid glazed piston bores, vary rpm settings and do not fly at low power settings for too long.
- Rotax two stroke flight test schedule to be completed if Rotax 532 or 582 fitted.

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Please report any errors or omissions to LAA Engineering: engineering@laa.uk.com