BRITISH MICROLIGHT AIRCRAFT ASSOCIATION (BMAA)
MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM-90  ISSUE: 1

Issued on behalf of the UK CAA by the BMAA, UK CAA organisation approval ref. DAI/8909/84

<table>
<thead>
<tr>
<th>Type:</th>
<th>Sherwood Ranger ST</th>
</tr>
</thead>
</table>
| (1)   | MANUFACTURER       | The Light Aircraft Company Limited  
Hangar 4, Little Snoring Airfield, Fakenham, NR21 0JL |
| (2)   | UK IMPORTER       | N/A |
| (3)   | CERTIFICATION     | BCAR Section S Issue 7  
(See AAN BMAA-1077) |
| (4)   | DEFINITION OF     | Sherwood Ranger ST (Factory-Built)  
BASIC STANDARD  
Drawing Schedule dated 1 August 2019 |
| (5)   | COMPLIANCE WITH THE MICROLIGHT DEFINITION |

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>MTOW</td>
</tr>
<tr>
<td></td>
<td>Number of seats</td>
</tr>
<tr>
<td></td>
<td>Maximum Wing Loading</td>
</tr>
<tr>
<td></td>
<td>Stall speed, $V_{So}$</td>
</tr>
</tbody>
</table>
|   | Permitted range of occupant weights | 0 - 100 kg (each)  
(min rear cockpit weight 55 kg) |
|   | Typical Empty Weight (ZFW) | 250 kg |
|   | ZFW + 172kg crew + 1hr fuel  
(D-Motor LF-26: 16 litres / 11.5 kg) | 433.5 kg |
|   | ZFW + 86kg pilot + full fuel  
(40 litres / 29 kg) | 365 kg |
|   | Max ZFW at initial permit issue  
(D-Motor LF-26) | 266 kg |
(6) POWER PLANTS

<table>
<thead>
<tr>
<th>Designation</th>
<th>TSR45-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Type</td>
<td>D-Motor LF-26</td>
</tr>
<tr>
<td>Reduction Gear</td>
<td>N/A</td>
</tr>
<tr>
<td>Exhaust System</td>
<td>CKT stainless steel</td>
</tr>
<tr>
<td>Intake System</td>
<td>Mushroom air filter</td>
</tr>
<tr>
<td>Propeller Type</td>
<td>Hercules 6332515-S 2-blade, wooden</td>
</tr>
<tr>
<td>Propeller Dia x Pitch</td>
<td>63” x 32”</td>
</tr>
<tr>
<td>Max Static RPM</td>
<td>2850</td>
</tr>
<tr>
<td>Noise Type Cert No.</td>
<td>155M</td>
</tr>
<tr>
<td>AAN approving configuration</td>
<td>AAN BMAA-1077 issue 1</td>
</tr>
</tbody>
</table>

(7) MANDATORY LIMITATIONS

(a) Maximum Take-off Weight (MTOW) 450 kg

(b) CG Limits
   - Aft limit 197 mm AoD
   - Forward limit 55 mm AoD

(c) Cockpit Loadings
   - min rear cockpit weight 55 kg
   - max occupant weight 100 kg (each)

(d) Never exceed speed, $V_{NE}$ 100 mph IAS

(e) Manoeuvring speed, $V_A$ 80 mph IAS

(f) Permitted manoeuvres
   - Maximum bank angle 60°
   - Non-Aerobatic
   - Normal acceleration limits, +4g / -2g

(g) Fuel Contents 40 litres
(h) Power plant

<table>
<thead>
<tr>
<th>Engine</th>
<th>D-Motor LF-26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max RPM</td>
<td>3000 (take-off power) (See engine manual)</td>
</tr>
<tr>
<td>Fuel spec</td>
<td>(See engine manual)</td>
</tr>
<tr>
<td>Engine oil spec</td>
<td>(See engine manual)</td>
</tr>
<tr>
<td>Max Coolant Temp.</td>
<td>(See engine manual)</td>
</tr>
<tr>
<td>Oil pressure</td>
<td>(See engine manual)</td>
</tr>
<tr>
<td>Oil temperature</td>
<td>(See engine manual)</td>
</tr>
</tbody>
</table>

(8) INSTRUMENTS REQUIRED

<table>
<thead>
<tr>
<th>ASI</th>
<th>Altimeter</th>
<th>Slip ball</th>
<th>RPM</th>
<th>Coolant Temp.</th>
<th>Oil Temp.</th>
<th>Oil Pressure</th>
<th>Fuel Contents</th>
<th>Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Required</td>
<td>Required</td>
<td></td>
<td>Required 0 - 3300 rpm min</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
</tr>
</tbody>
</table>

All required instruments must be fitted in (or clearly visible from) the rear cockpit.
A sight gauge meets the requirement for a fuel contents indicator.
A compass is recommended.

(9) CONTROL DEFLECTIONS

<table>
<thead>
<tr>
<th>Elevator</th>
<th>UP: 20° ±2°</th>
<th>Elevator trim tab</th>
<th>UP: 20° ±2°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevator</td>
<td>DOWN: 20° ±2°</td>
<td>Elevator trim tab</td>
<td>DOWN: 20° ±2°</td>
</tr>
<tr>
<td>Ailerons</td>
<td>UP: 25° ±2°</td>
<td>Rudder</td>
<td>LEFT: 27° ±2°</td>
</tr>
<tr>
<td>Ailerons</td>
<td>DOWN: 15° ±2°</td>
<td>Rudder</td>
<td>RIGHT: 27° ±2°</td>
</tr>
</tbody>
</table>
PILOT'S NOTES, MAINTENANCE MANUALS, REFERENCES

10.1 Manuals approved for use with this aircraft

(a) Sherwood Ranger ST (Factory-Built) Pilots Operating Manual Issue 1 or later approved revision

(b) Sherwood Ranger ST (Factory-Built) Maintenance Manual Issue 1 or later approved revision

(c) Engine, propeller and other fitted equipment manufacturer’s Operating and Maintenance Manuals as appropriate to fitted powerplant and equipment, at their current issues.

10.2 The following placards are to be fitted:

(a) Operating Limitations Placard (both cockpits)
   Contains airspeed and load limitations. See Operating Manual.

(b) Powerplant Limitations Placard (rear cockpit; front if engine instr. fitted)
   See Operating Manual.

(c) Aerobatic Manoeuvres Placard (visible from both cockpits)
   See Operating Manual.

(d) Solo Flight from Rear Cockpit Only Placard (front cockpit; rear optional)
   See Operating Manual.

(d) Fuel Limitations Placard (both cockpits)
   See Annex D.

(f) Fuel Filler Placard (to be located adjacent to the fuel filler)
   See Operating Manual.

(g) Oil Filler Placard (to be located adjacent to the oil filler)
   See Operating Manual.

(h) ASI Markings
   See Annex D.

(e) Fuel Level Markings (to be located adjacent to the fuel level sight gauge)
   See Operating Manual.

(i) Powerplant Instrument Markings
   Each maximum and, if applicable, minimum safe operating limit must be marked with a red radial line*.
   * Unless an alternative method is approved (for an EMS for example)
Secondary Control Markings
Throttle, trim, fuel shut-off: see Operating Manual. Other secondary controls
are to be placarded as per the associated Operating Manual supplement or
normal aviation practice (if no associated Operating Manual supplement).

Switches
All switches are to be marked with function and sense (up=on, down=off).

Fuses and Circuit Breakers
All fuses and circuit breakers are to be marked with function and rating.

Fireproof Metal Plate
Showing the aircraft nationality and registration marks (e.g. G-ABCD) to be
mounted in a prominent position on the fuselage.

Permit-to-Fly Occupant Warning Placard (both cockpits)
See Air Navigation Order.

MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC.
See Annex A.

MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT
Rate of Climb: 375 fpm at 55 mph IAS
Stall or Minimum Flying Speed: 40 mph IAS at MTOW/idle
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## Issue History

<table>
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<tr>
<th>Issue</th>
<th>Reason and Signatory</th>
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<tbody>
<tr>
<td>1</td>
<td>06/08/2019 Initial issue.</td>
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</table>

Approved for issue by the BMAA Chief Technical Officer

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Illustration Of Aircraft – 3 View
ANNEX A - MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC.

None at this issue.

ANNEX B - APPROVED OPTIONAL MODIFICATIONS (additional to BS-1 and standard options)

The installation of all optional modifications is to be inspected by an inspector from an Organisation approved by the CAA for the purpose and an entry made in the appropriate logbook(s). Note that other approved modifications may exist which are not mentioned here.

None at this issue.

ANNEX C - WEIGHING INFORMATION

CG Datum: Lower wing main spar centre at fuselage side (Positive aft of datum, by convention)

Weighing attitude: Fuselage top longeron, or seat base, level

Main wheel moment arm: -115 mm (forward of datum)
Tailwheel moment arm: +3760* mm (aft of datum)
Rear seat moment arm: +765 mm (aft of datum)
Front seat moment arm: +70 mm (aft of datum)
Rear seat load: 55 - 100 kg
Front seat load: 0 - 100 kg
Fuel moment arm: -620 mm (forward of datum)
Fuel contents: 40 litres / 19 kg
Aft CG Limit: 197 mm (aft of datum)
Forward CG Limit: 55 mm (aft of datum)

* Nominal tailwheel moment arm as small variation between airframes due to manufacturing tolerances. Individual (measured) moment arm may be used instead of nominal value.
(a) Fuel Limitations Placard

Example; number of rows and precise numbers depend upon aircraft actual empty weight.

<table>
<thead>
<tr>
<th>Cockpit Weight (kg)</th>
<th>Max Fuel Load (litres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>190</td>
<td>13</td>
</tr>
<tr>
<td>180</td>
<td>27</td>
</tr>
<tr>
<td>171 or below</td>
<td>40 (full)</td>
</tr>
</tbody>
</table>

MOGAS 95 RON minimum unleaded to EN228
(see engine manual for alternatives)

(b) ASI Markings

The ASI must** be marked with the main IAS limiting speeds as follows:

<table>
<thead>
<tr>
<th></th>
<th>mph ASI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green arc*</td>
<td>40 - 80</td>
</tr>
<tr>
<td>Yellow arc</td>
<td>80 - 100</td>
</tr>
<tr>
<td>Red mark</td>
<td>100</td>
</tr>
</tbody>
</table>

** Unless an alternative method is approved (for an EFIS installation, for example)
* Green arc optional