

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

TYPE: TL 2000 STING S4

- | | | |
|-----|--|---|
| (1) | MANUFACTURER: | TL-Ultralight s.r.o., Letiste, Pouchov 515
50341 Hradec Kralove
Approval Ref: DAI/9974/21 |
| (2) | UK IMPORTER: | TL-Sting (UK) Ltd |
| (3) | CERTIFICATION: | Czech UL2 part 1 Issue 01.2019 & BCAR Section S Issue 8 |
| (4) | DEFINITION OF BASIC STANDARD: | TL-2000-UL2/2019-1 (issue: 15.3.2019) |
| (5) | COMPLIANCE WITH THE MICROLIGHT DEFINITION | |
| | (a) MTOW | 600kg |
| | (b) No. Seats | 2 |
| | (c) Maximum Wing Loading | 55.57 kg/m ² |
| | (d) V _{so} | 44 kt CAS |
| | (e) Permitted range of pilot weights | 55 – 200 kg total,
Max 100 kg per seat |
| | (f) Typical Empty Weight (ZFW) | 380 kg |
| | (g) ZFW + 200 kg crew + 1 hr fuel | 598 kg |
| | (h) ZFW + 100 kg pilot + full fuel
(77 litres / 55 kg)
(121 litres / 87kg) Option 13 | 535kg
567kg |
| | (i) Max ZFW at initial permit issue | 382 kg |

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(6) POWER PLANTS

Designation	<i>TL 2000 Sting S4</i>	<i>TL 2000 Sting S4</i>
Engine Type	<i>Rotax 912 ULS</i>	<i>Rotax 912 ULS</i>
Reduction Gear	<i>2.43:1</i>	<i>2.43:1</i>
Exhaust System	<i>TL Ultralight</i>	<i>TL Ultralight</i>
Intake System	<i>Twin carburettor</i>	<i>Twin carburettor</i>
Propeller Type	<i>TL-Ultralight Powermax 3 blade VP</i>	<i>Duc Swirl-3 Fixed Pitch 3 blade G/A</i>
Propeller Dia x Pitch	<i>1748 mm Pitch range 10° Variable + CSU</i>	<i>1730 mm 24° (320 mm from the blade tip)</i>
Max Static RPM	<i>5400 +/- 200</i>	<i>5400 +/- 200</i>
Noise Type Cert	<i>N/A</i>	<i>N/A</i>
AAN approving configuration	<i>AAN BMAA-1115 Issue 1</i>	<i>AAN BMAA-1115 Issue 1</i>

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(7) MANDATORY LIMITATIONS:

- | | | |
|--------------------------------|-----------|--|
| (a) Max Take-Off Weight | | 600 kg |
| (b) CG Limits | Aft Limit | 408 mm aft of datum |
| | Fwd Limit | 298 mm aft of datum |
| (c) CG datum | | Leading edge of wing |
| (d) Cockpit Loadings | Min | 55 kg |
| | Max | 200 kg |
| | | Max 100 kg per seat |
| | Baggage | 25 kg |
| (e) Never Exceed Speed | | 144 kts IAS |
| (f) Manoeuvring Speed | | 97 kts IAS |
| (g) Permitted Manoeuvres | | Maximum bank angle 60° |
| | | Non-aerobatic |
| | | Normal acceleration limits no flaps +4g/-2g |
| | | Normal acceleration limits with flaps +2g/-0g |
| (h) Fuel Contents (Max Usable) | | Fuselage Tank (Std) 77 litres (3 litres unusable) |
| | | Wing Tanks (Option 13) 44 litres (2.6 litres unusable) |

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(i) Power Plant

Engine	Rotax 912 ULS (100HP)
Max RPM	5800 (5 min) 5500 (continuous)
MAX Coolant Temp.	120°C
MAX EGT	880°C
Fuel Spec	90 RON minimum unleaded to EN 228 Normal, Super or Super Plus, AVGAS 100LL, UL91. (Unleaded preferred – see engine manual)
Engine Oil Spec	RON 424, SAE 10 W-40 (See engine manual)
Oil Pressure	Normal 2-5 bar above 3500rpm Min 0.8 bar below 3500rpm Max 7 bar
Oil Temperature	50°C -130°C
Fuel Pressure	0.15 - 0.5bar with fuel pump S/N 11.0036 or later

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(8) INSTRUMENTS REQUIRED:

ASI	Altimeter	RPM	Coolant Temperature	Oil Temperature
Required 0 to 150 kt minimum	Required	Required 0-6000 rpm minimum	Required	Required

Oil Pressure	Slip ball	Audible Stall Warner	Fuel Gauge
Required	Required	Required	Required

Manifold Pressure Gauge required if Powermax prop fitted.
Carbon Monoxide detector required if cabin heater installed.
A compass is recommended

(9) CONTROL DEFLECTIONS:

Elevator UP:	18° ±1.5°	Elevator trim tab UP:	21° ±2°
Elevator DOWN:	7.5° ±1.5°	Elevator trim tab DOWN	26° ±2°
Ailerons UP:	26° ±1.5°	Aileron trim tab UP:	23° ±5°
Ailerons DOWN:	20° ±1.5°	Aileron trim tab DOWN	23° ±5°
Rudder LEFT:	30° ±1.5°	Flaps (DOWN):	Stage1 13° ±1
Rudder RIGHT	30° ±1.5°		Landing 35° ±1

(10) PILOT'S NOTES, MAINTENANCE MANUALS REFERENCES:

10.1 Manuals approved for use with this aircraft

(a) TL-2000 Sting S4 Pilots Operating Handbook Doc Ref TL-2000-BCAR-1 (or later approved issue)

(b) TL-2000 Sting Aircraft Maintenance Manual Doc Ref TL2000/11/006AJ Rev 7 (or later approved issue) – Note Pilots Operating Manual has approved specification for UK aircraft and takes precedence where differences occur.

(c) PowerMax Propeller User and Installation Manual Doc Ref P1/14/002EN (or later approved issue)

(d) Engine, propeller, parachute system and other fitted equipment:
Manufacturer's Operating and Maintenance Manuals as appropriate at their current issues.

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10.2 The following placards are to be fitted:

- (a) Flight Limitations Placard (to be visible to the pilot)
Contains airspeed, manoeuvring and loading limitations. See Pilot Operators Handbook.
- (b) Engine Limitations Placard (to be located near to the engine instruments)
A placard showing the limitations for all indicated engine parameters is to be mounted close to the engine instruments. Also, main limitations are to be shown as coloured markers (red for danger, amber for caution) on the instrument displays. See Pilot Operators Handbook.
- (c) Occupant Warning Placard (to be visible to both occupants)
See Pilot Operators Handbook.
- (d) Fuel Filler Placard (to be located adjacent to the fuel filler cap)
A placard is to be fitted showing fuel capacity, fuel type(s), and if MTOW can be exceeded with full fuel and 200kg cockpit weight, the fuel loads at MTOW for cockpit weights of 200kg / 190kg / 180kg etc. at 10kg intervals down to the maximum fuel load. See Pilot Operators Handbook.
- (e) Parachute Warning Placards (to be located on the exterior of the aircraft)
Placards complying with BCAR Section S Issue 7 (or later) must be fitted. See Pilot Operators Handbook.
- (f) Secondary Control Markings
Choke, cabin heat, trim, flaps, fuel shut-off: see Pilot Operators Handbook. Other secondary controls are to be placarded as per the associated Pilot Operators Handbook supplement or normal aviation practice (if no associated Pilot Operators Handbook supplement).
- (g) ASI Markings
See Pilot Operators Handbook.
- (h) Switches
All switches are to be marked with function and sense (up=on, down=off).
- (i) Fuses and Circuit Breakers
All fuses and circuit breakers are to be marked with function and rating.
- (j) Fireproof Metal Plate
Showing the aircraft nationality and registration marks (e.g. G-ABCD) to be mounted in a prominent position on the fuselage.
- (k) Occupant Warning Placard (to be visible to both occupants)
This aircraft has not been flight tested for recovery from unintentional spins.



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(11) MANDATORY MODIFICATIONS / SERVICE BULLETINS / AIRWORTHINESS DIRECTIVES ETC:

See Annex A.

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT (600 kg – ISA – Sea Level)

Rate of Climb: 1020 fpm at 75 kt IAS PowerMax Prop
970 fpm at 75 kt IAS DUC Prop

Stall or Minimum Flying Speed: 45 kt IAS at MTOW / idle / full flap.

Sink rate 680 fpm at 70 kts IAS at MTOW

TODR (on dry paved, includes 1.3 safety factor) 526 m PowerMax Prop
520 m DUC Prop

LDR (on dry paved) 335m (no braking)

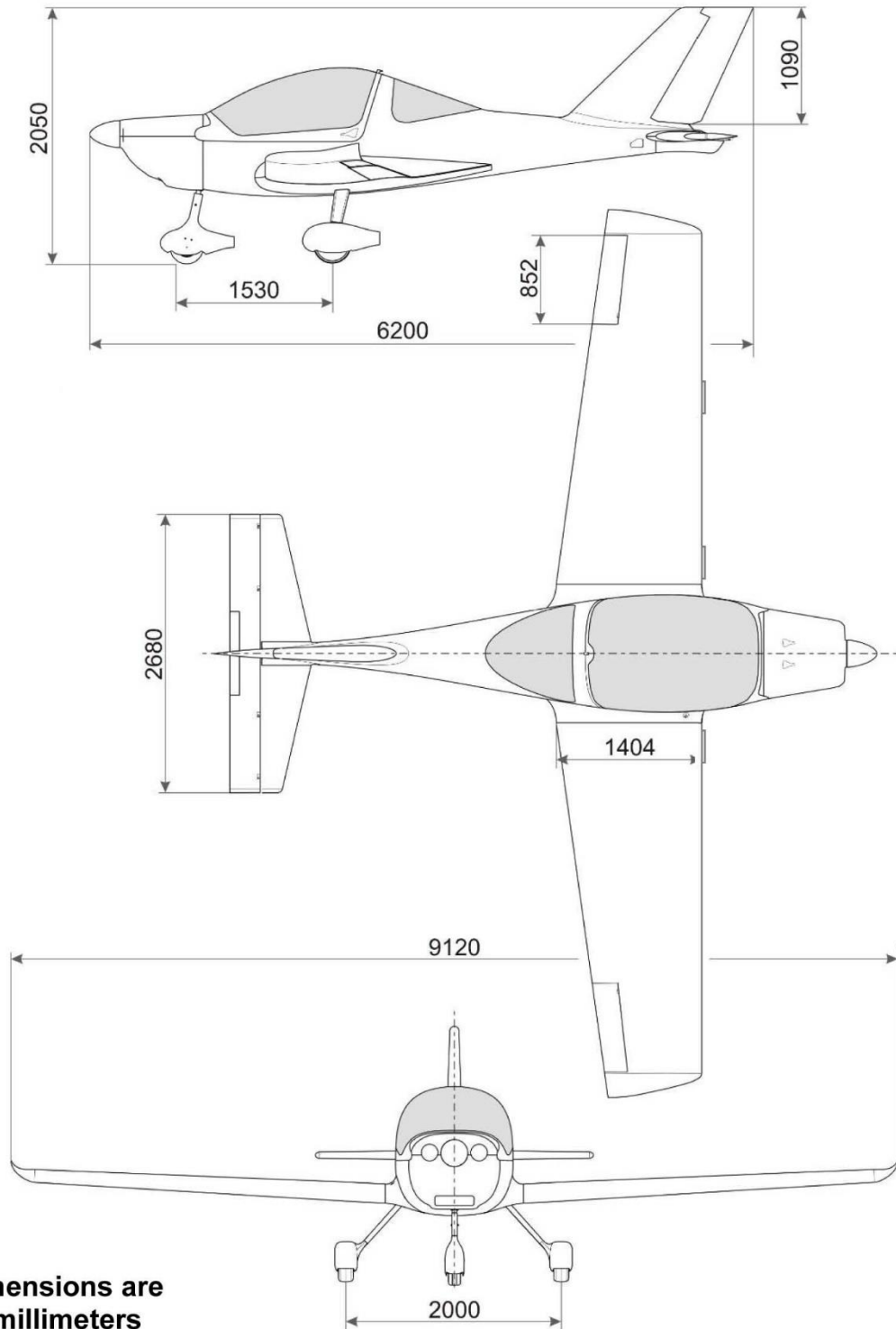
Issue History

<u>Issue</u>	<u>Date</u>	<u>Reason and Signatory</u>
1	20 Oct 2023	Initial issue. Approved for issue by R. Patrick BMAA Chief Technical Officer

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Illustration of Aircraft - 3 View



**All dimensions are
in millimeters**

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ANNEX A – MANDATORY MODIFICATIONS / SERVICE BULLETINS

Mandatory Options

Magnum 601 BPRS or Galaxy GRS6 600
 Wing Stall Strips (one each inboard L/E and one port L/E mid span)
 Elevator Up deflection limit 18° ±1.5°
 Stall Warner either Garmin G3X or ACI Stall Warner

CAA MANDATORY PERMIT DIRECTIVES:

MPD Number	Title & Description
<u>2019-005</u>	Placarding Requirements for Aircraft fitted with a BPRS (for more info see TIL063) For Latest Bulletins - https://www.tl-ultralight.cz/en/bulletin

ANNEX B - APPROVED OPTIONAL MODIFICATIONS

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 listed here.

Optional Modifications List

Mod Number	Description
1	Analogue Instrument fit
2	Garmin G3X Instrument fit
3	Panel Mount Transceiver (CAA/EASA Approved Types)
4	Panel Mount Transponder (CAA/EASA Approved Types)
5	Garmin Autopilot
6	Garmin G3X Control Panel GMC507
7	Cabin Heat
8	Leather Seats
9	2 Level Seat heating
10	Sun Visors
11	Wingtip LED Lighting
12	Galaxy GRS6 600 Ballistic Recovery Parachute (Alternative to Magnum 601)
13	Wing Tanks (44 litre wing tanks)
14	Kanardia Nesis III instrument fit
15	Dual Toe Brakes
16	BCAR Alternative Aluminium Firewall with Fiberfrax
17	Flarm Collision Avoidance System

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ANNEX C - WEIGHING INFORMATION

- | | |
|--------------------------|--------------------------------------|
| 1. CG Datum: | Wing Leading Edge |
| 2. Weighing attitude: | Level Top Of Rudder |
| 3. Mainwheel moment arm: | 617 mm aft of datum, typical* |
| 4. Nosewheel moment arm: | (-)913 mm forward of datum, typical* |
| 5. Main fuel moment arm: | (-)36 mm fwd of datum |
| 6. Wing fuel moment arm: | 259 mm aft of datum |
| 6. Crew moment arm: | 513 mm aft of datum |
| 7. Baggage moment arm: | 1132 mm aft of datum |
| 8. Crew weights: | Minimum 55 kg / maximum 200 kg |
| 9. Aft CG Limit: | 408mm aft of datum |
| 10. Fwd CG Limit: | 298mm aft of datum |

*See factory measurement for actual aircraft figure when new.

ANNEX D – EXAMPLE PLACARDS

See Pilot Operating Handbook (POH)

ANNEX E – POINTS FOR SPECIAL ATTENTION

Tyre Pressures

Main wheels 2.5 bar (36psi)

Front wheel 2.5 bar (36psi)

Baggage Allowance

25 kg evenly spaced (*“spaced for optimum A/C balance”*) and well secured. Always use the safety net.