

CIVIL AVIATION AUTHORITY
SAFETY REGULATION GROUP

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO:BMO-5/C ISSUE: 3

- TYPE Solo Sealand/Rapier
Solo Striker/Rapier
- (1) **MANUFACTURER:** Wing: Flexiform Skysails (UK)
Trike: Mainair Sports (UK)
- (2) **UK IMPORTER:** N/A
- (3) **CERTIFICATION BASIS:** BCAR Section S requirements listed in CAA document dated 17 January 1986, ref: 9/30/UL18
- (3) **DEFINITION OF BASIC STANDARD:** Not available (but see Appendix 2).
- (5) **DIMENSIONS/WEIGHTS FOR COMPLIANCE WITH MICROLIGHT DEFINITION**
- (a) Wing area (inc canard area, excluding winglets): 14.8 ± 1.1 m²
 (b) Span: 9.8 - 10.3 m²
 (c) Standard Mean Chord: 1.4 - 1.54 m
 (d) Dry Empty Weight: 95 kg - 110 Kg
 (e) Max Take-Off Weight: 250 Kg
 (f) Wing Loading (Weight Empty/Wing Area): 8.03 Kg/m² (max)
 (g) Wing Loading (Max Take-Off Weight/Wing Area): 18.25 Kg/m² (max)
- (6) **POWER PLANTS**

Designation	Solo Striker/ Rapier	Solo Striker/ Rapier	Solo Striker/ Rapier	
Engine Type	Fuji Robin EC34PM(Upright)	Fuji Robin EC34PM(Inverted)	Fuji Robin EC34PM(Inverted)	
Reduction Gear	2.3:1	2.3:1	2.33:1	
Exhaust System	Mainair Rotaflow	Mainair Rotaflow	Nicklow	
Intake System				
Propeller Type	Mainair	Mainair	Mainair	
Propeller Dia x Pitch	54 " X 30"	54" X 30"	54 " X 30"	
Noise Type Cert No.	2M	2M	53M Iss 2	

Noise requirement

	1 Seat	2 Seat	BCAR Reference
Registered Pre 1/4/86	80 dBA	84 dBA	N3-6, 3 Iss 4
Registered Post 1/4/86	76 dBA	80 dBA	N3-6, 4 Iss 4

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO: BMO-5/C ISSUE: 3

(7) MANDATORY LIMITATIONS:

- | | |
|---|----------------------------|
| (a) Max Take-off Weight: | 250 Kg |
| (b) C G Limits (3-axis aircraft): | N/A |
| (c) C G Datum: | N/A |
| (d) Cockpit Loadings: | Front Rear Total |
| Pilot and Baggage or Ballast (min) | 55 kg - 55 kg |
| Pilot and Baggage (max) | 90 kg - 90 kg |
| (e) Permanent Ballast, Weight and Position: | N/A |
| (f) Empty C G (3-axis aircraft): | N/A |
| (g) Never Exceed Speed: | 60 knots (69 mph) |
| (h) Manoeuvring Speed: | 38 knots (44 mph) |
| (i) Permitted Manoeuvres: | Non-Aerobatic |
| (j) Fuel Contents (Max Useable): | 25 litres |
| (k) Power Plant: | See Table |

Engine	Fuji Robin EC34PM(Upright)			
Max RPM	6500			
Max CHT	N/A			
Fuel Spec	4 STAR Petrol/Oil			
Oil Spec	2 Stroke Oil			
Fuel/Oil Mix	40:1			
Max EGT	N/A			
Oil Press	N/A			
Oil Temp	N/A			

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO. BMO-5/C ISSUE: 3

(8) INSTRUMENTS REQUIRED FOR TYPE APPROVAL:

ASI	Altimeter	RPM	CHT	Compass
To suit wing	Wrist type acceptable	N/A	N/A	N/A

(9) CONTROL DEFLECTIONS (3-AXIS SYSTEMS): N/A

<u>Pitch Control</u>	Up: -	Down:-
<u>Tailplane Trim</u>	Up: -	Down:-
<u>Ailerons</u>	Up: -	Down:-
<u>Rudder</u>	Left: -	Right:-
<u>Steering</u>	Left: - 45°	Right:- 45°
<u>Spoilers</u>	N/A	

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

Mainair Manual

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

Mainair Bulletin's 1 to 12 and 14, 15, and 17

(13) APPROVED OPTIONAL MODIFICATIONS

(13) MINIMUM PERFORMANCE AT MAX T/O WT

Rate of Climb: N/A

Stalling Speed: N/A

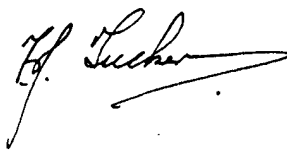
Stall or Minimum Flying Speed:

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO: BMO-5/C ISSUE:3

Notes:

1. G A Drawings and/or colour photographs illustrating the principal features of the aircraft submitted for type approval shall be attached to, and form part of, this Data Sheet.

<u>Issue</u>	<u>Date</u>	<u>CAA Approval</u>
3	28 November 1990	

Issue 3 Variant with Nicklow exhaust added (as covered in MAAN No 1056)

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO: BMO-5/C ISSUE: 3

Appendix 1

Modifications

The following modifications must be incorporated on each Solo Striker/Rapier and Solo Sealander/Rapier, in order to comply with the requirements and to qualify for the issue of an Individual Exemption.

- S 603 Modification of Solo Striker and Solo Sealander wings according to BMAA Defect Warning 006, dated 11.10.85, must be made, covering (a) Extension of bowsprit, (b) Revision of bowsprit to leading edge rigging, (c) Top front to rear rigging, (d) Control frame to bowsprit rigging, (e) Control frame to noseplate rigging, (f) Minimum dimensions and reinforcement sleeving of control frame uprights.
- S 605 Washers must be incorporated in engine mounting and the keel shortened aft of the axle and main upright as Mainair Bulletin No 5; revise axle anti-drag wires as Mainair Bulletin No 5 or use of axle drag struts instead of wires. (See Mainair letter to CAA and BMAA dated 30.3.1984 for standard)
- S 689 Where hand and foot throttles are combined in a joining box (2 cables into one), each end of each cable must be wire locked to retain the outer in its locating ferrule.
- S 787 Where a baggage pouch is provided this must be labelled limiting its use to loads of no more than 2 Kg.
- S 901 An electrical bond is to be incorporated between the engine and the airframe.
- S 993 A fire resistant fuel line(s) must be fitted for a distance of at least 45cm (18 inches) from the engine and routed as far as possible on the opposite side of the engine to the exhaust.
- S 1141 The wiring for the ignition switch must be fire resistant adjacent to the engine or located so that in the event of an engine fire the engine can be stopped. NOTE: Ignition wiring located forwards of fuel carrying components is considered to satisfy this requirement.
- S 1303 Where an altimeter is not permanently installed, a wrist mounted altimeter is acceptable; in such cases a placard must be installed stating clearly that a wrist mounted altimeter is required.

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO: BMO-5/C ISSUE 3

Appendix 1 (continued)

S 1542 A placard is to be installed in full view of the pilot which quotes the limiting speeds V_A and V_{NE} , pertinent to the wing being used.

IN ADDITION, as a further condition of Type Acceptance and the issue of Individual Exemption, the pilot must wear a protective crash helmet and the aircraft be placarded to this effect.

Inspection

The review of the compliance of the Solo Striker/Rapier and Solo Sealander/Rapier with the airworthiness requirements of the nominated paragraphs of BCAR Section S has indicated a number of areas where particular attention must be given by each BMAA Inspector responsible for inspection of such aeroplanes and these are listed below:-

S 29 The hang attitude of the trike must be satisfactory, in particular inspectors must check units with COCKPIT FAIRINGS (PODS) ON SINGLE CYLINDER ENGINED VERSIONS. If the combined weight of fairing and/or any extra equipment fitted to the front of the trike is significant then the trike can hang lower at the front, limiting control bar travel in the flare direction. If the check flight shows a problem and fuel loads at critical extremes; take the difference in vertical measurement from a horizontal reference between the rear and front wheels. If the front wheel is less than 200 mm above the rear wheels then the C of G of the trike is too far forwards.

- S 605 (i) Check that vertical distance between the lower keel plate and the axle tie wire is greater than 11 cm (as Appendix 2).
- (ii) Check that the pylon backup wire is tight between its two connections.
- (iii) The general construction should conform to the sketches in Appendix 2 and particular attention be paid to plan built versions or repaired units.

NOTE: All variants were designed to use HT30TF seamless drawn alloy tube. It is believed that 17g walled tube to this specification only has been sold in the UK; therefore if sleeving has been fitted internally (as required) then the tube is likely to be of correct specification.

S 607 Check for correct assembly and locking of wheels onto axles.

S 609 Check that any flexible coating or covering of steel components has been removed and that alternative non-flexible protective coating or plating is used.

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO: BMO-5/C ISSUE 3

Appendix 1 (continued)

- S 627 Check the trike pylon (main upright) for fretting at the seat channel; if it is possible that more than 100 hours have been flown on the existing pylon or if the nylon bush is loose, then the bush/channel assembly must be dismantled for inspection; check for fretting of the tube or cracking around the bolt holes at this joint.
- S 901 (i) Ensure that the retention of spark plug caps is satisfactory, particularly on some inverted engine installations where it is necessary to provide straps.
- (ii) On the units with Mainair belt reduction systems check.
- a The jacking studs for cracks.
 - b The bearing fits on the shaft and in the bearing housing.
 - c The spacer tube for security.
 - d The pulley/prop flange unit for fit on shaft.
 - e The pulley/prop flange unit for cracking at the flange
- (iii) Check for any looseness of propeller bolts at the flange, particularly on Fuji Robin 250 and 330 engined units.
- S 925 Propeller Clearance It is essential that each wing installed on an individual trike is inspected and checked for adequate clearance of all rigging and components, in particular with respect to the complete propeller arc, making proper and full allowance for all possible positions of the wing either in flight or on the ground.
- S 951 Check that the layout of fuel lines does not give rise to potential vapour locks.
- S 959 Check that the unusable fuel for the particular fuel tank arrangement is satisfactory for all flight conditions, as S 959 of the requirements.
- S 967 Fuel Tank Installation
- (i) On some versions the fuel tank is mounted over the engine where an engine fire could impinge upon it; in such cases check that means are provided to ensure that fuel spillage or leaks from the tank are drained away from engine and hot exhaust areas and that there is adequate fire resistant baffling between engine and tank.

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO: BMO-5/C ISSUE 3

Appendix 1 (continued)

(ii) Also where the fuel tank is mounted above the engine, check that no fouling has occurred, or is likely to occur, between the propeller shaft and the tank. In such cases Mainair Bulletin No 6 must be complied with in respect of the item headed "Fuel Tank Position."

S 975 Fuel Tank Vents Inspection must be made to satisfy that the fuel tank vent discharges clear of the aeroplane.

S 995 Check that fuel valves and controls are properly installed according to the requirements of S 995

S 1121 Check for cracks throughout the exhaust and loose baffles. If only two mounting points are used then ensure that a backup wire is fitted to prevent failure of a mounting allowing the exhaust to foul the propeller.

S 1301 Equipment, Function The suitability, function and safe installation of equipment installed must be checked by inspection for each aircraft.

IN ADDITION, inspectors attention must be paid to those items listed under "Mainair Sports" in the Spotlights section of the BMAA Inspector's Handbook and those other items dealing with power units relevant to the unit being inspected and general items dealing with the type of structure being examined.

Bulletins

The following items in the numbered manufacturer's bulletins must be complied with:

Mainair Bulletin No

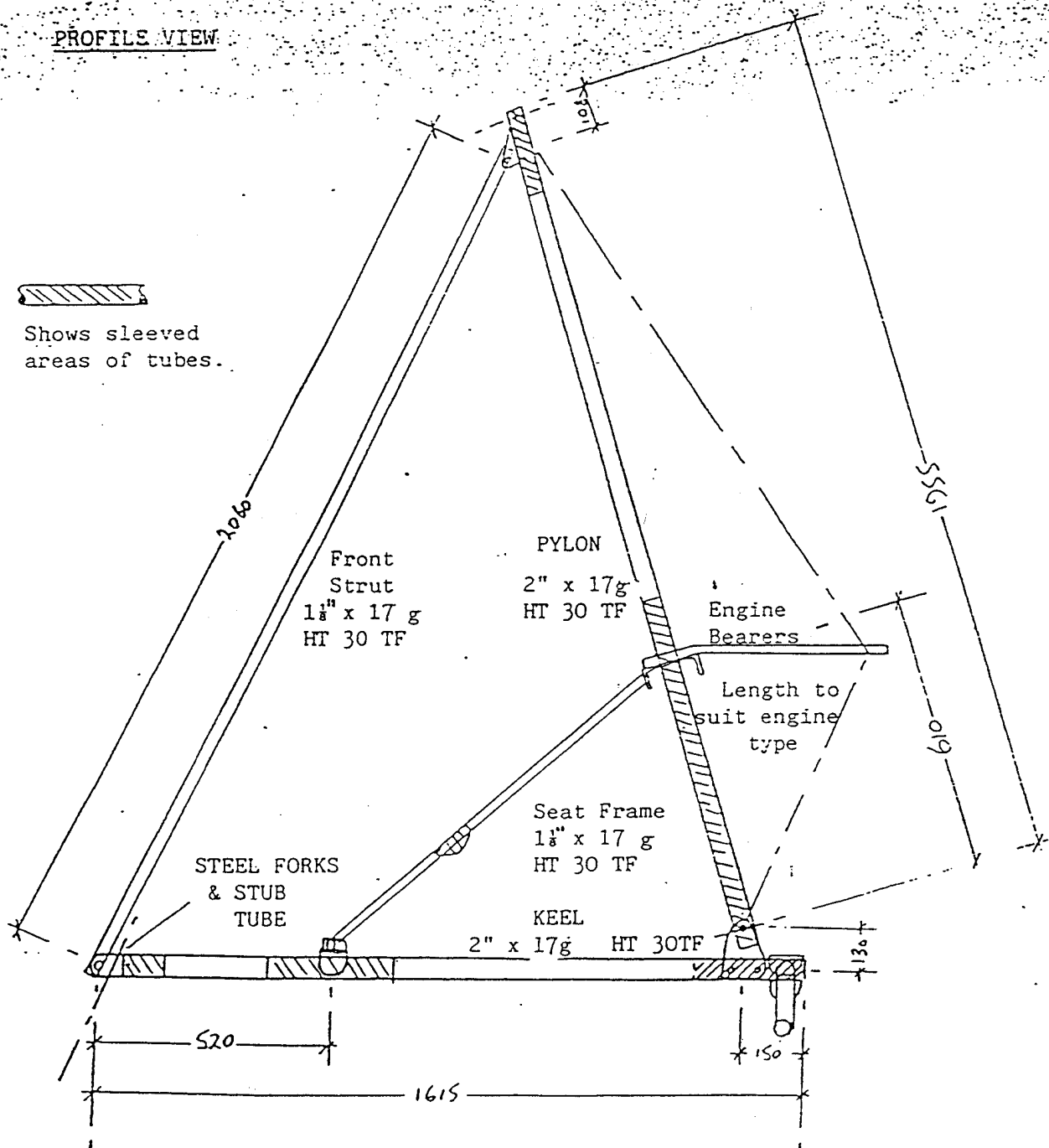
1	Paragraph 1	Hand throttle position.
1	Paragraph 2	Drive shaft.
3		Engine mounting washers.
4	Paragraph 1	Exhaust
5		Shortening of rear keel.
14	Paragraph 1	Propeller hub
15		100 hour life of reduction jacking bolts.

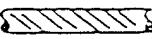
NO. BMO5/C

APPENDIX 2. SHEET 1

MAIN FEATURES OF TUBE SPECS. & DIMENSIONS

PROFILE VIEW



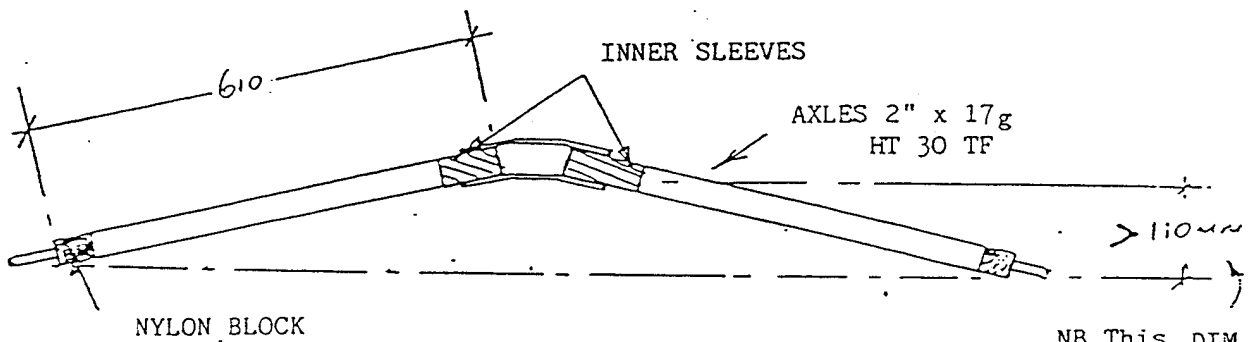

Shows sleeved
areas of tubes.

NO. BMO5/C

APPENDIX 2

SHEET 2

REAR AXLE ASSEMBLY



NB This DIM is critical cannot be less than 110 mm