

BRITISH MICROLIGHT AIRCRAFT ASSOCIATION

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO: BMO-30 ISSUE: 1

TYPE EAGLE AMPHIBIAN

(1) MANUFACTURER: American Aerolights Inc., New Mexico, USA (no longer trading)
with modifications by
J May & R Martin (UK)

(2) UK IMPORTER: N/A

(3) CERTIFICATION BASIS: BCAR Section S requirements listed in CAA document dated 17th January 1986, ref: 9/30/UL18 and selected additional requirements concerning floatplanes and amphibians.

(4) DEFINITION OF BASIC DESIGN STANDARD: Not available (but see appendices)

(5) DIMENSIONS/WEIGHTS FOR COMPLIANCE WITH MICROLIGHT DEFINITION

- | | |
|--|--|
| (a) Wing area (inc canard area, excluding winglets): | 18 m ² (193 ft ²) |
| (b) Span: | 10.67 m (35 ft) |
| (c) Standard Mean Chord: | 1.52 m (5 ft) |
| (d) Dry Empty Weight: | 180 kg (approx.) |
| (e) Max Take-Off Weight: | 286 kg |
| (f) Wing Loading (Weight Empty/Wing Area): | 10 kg/m ² |
| (g) Wing Loading (Max Take-Off Weight/Wing Area): | 15.89 kg/m ² |
| (h) Fuel Capacity: | 23 litres |

DOCUMENT ISSUE STATUS

Issue Number	Revision Reference	Date	Authorisation	Pages affected	Valid pages at this Issue number 1	
					Page No.	Page Issue
1	New MAAN 1139	26/11/93	BMAA <i>P.D.O.</i>	All new		
					1	1
					2	1
					3	1
					4	1
					5	1
					6	1
					7	1
					8	1
					9	1
					10	1

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(6) POWER PLANTS

Designation	Eagle Amphibian 1	Eagle Amphibian 2	3	4	5
Engine Type	Rotax 447	Rotax 377			
Reduction Gear/ratio	2.58:1	2.58:1			
Exhaust System	Rotax	Rotax			
Intake System	K & N	-			
Propeller Type	Reid	Reid			
Propeller Dia x Pitch	62" x 32"	58" x 32"			
Noise Type Cert. No.	67M	67M			

Designation	6	7	8	9	10
Engine Type					
Reduction Gear/ratio					
Exhaust System					
Intake System					
Propeller Type					
Propeller Dia x Pitch					
Noise Type Cert. No.					

Noise requirement:

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

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(7) **MANDATORY LIMITATIONS:** (* indicates which are placarded)

- * (a) **Max Take-off Weight:** 286 kg
- * (b) **C G Limits:** Defined by seat hang point set within the range of
Forward: 9 inches forward of king post/keel junction.
Aft: immediately in front of king post/keel junction
- (c) **C G Datum:** King post/keel junction.
- * (d) **Cockpit Loadings**

	<u>Front</u>	<u>Rear</u>	<u>Total</u>
Pilot or Ballast (min)	55 kg	- kg	kg
Pilot or Ballast (max)	90 kg	- kg	kg
- (e) **Permanent Ballast, Weight and Position:** Not fitted.
- (f) **Empty C G:** Directly beneath king post/keel junction, ±1 inch
- * (g) **Never Exceed Speed:** 50 mph (43 knots)
- * (h) **Manoeuvring Speed:** 45 mph (39 knots)
- * (i) **Manoeuvre Limitations:** Aerobatics prohibited.
Roll <60° bank
- * (j) **Fuel Contents (Max Usable):** 22 litres
- (k) **Power Plant:** See Table below

ENGINE	Rotax 377	Rotax 447		
Max RPM	6500	6800		
Max CHT	-	-		
Max EGT	-	-		
Fuel Spec	90 Oct 4 star Petrol/oil	90 Oct 4 star Petrol/oil		
Engine Oil Spec	Self mix 2 stroke	Self mix 2 stroke		
Gearbox Oil Spec	See engine manual	See engine manual		
Fuel/Oil Mix	50:1	50:1		
Oil Pressure	N/A	N/A		
Oil Temp	N/A	N/A		
Coolant Temp	N/A	N/A		

* A placard requiring the wearing of a crash helmet is also to be installed on the aeroplane.

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(8) INSTRUMENTS REQUIRED FOR TYPE ACCEPTANCE:

<u>ASI</u>	<u>Altimeter</u>	<u>RPM</u>	<u>CHT</u>	<u>Compass</u>	<u>EGT</u>	<u>Coolant Temp</u>
Required 0 to >50 mph or equivalent	Required	Required	N/A	N/A	N/A	N/A

(9) CONTROL DEFLECTIONS (3-AXIS SYSTEMS):

<u>Pitch Control</u>	UP: $2\frac{1}{2} \pm \frac{1}{2}$ inch. DOWN: to stop against bow sprit.
<u>Tailplane Trim</u>	N/A
<u>Ailerons</u>	N/A
<u>Rudders</u>	Un-deflected: +2 to +5° Deflected fully: +70 to 75°
<u>Steering</u>	Left: 15-20° Right: 15-20°
<u>Water rudders</u>	Set to give 25 ft minimum turn radius on water.
<u>Spoilers</u>	N/A

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

Eagle Owners Manual;
Eagle Amphibian, Standard Take-Care Procedures;
Rotax engine manual.

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

See Appendices 1 and 2.

(12) APPROVED OPTIONAL MODIFICATIONS

N/A

(13) MINIMUM PERFORMANCE AT MAXIMUM T/O WEIGHT:

	<u>Rotax 377</u>	<u>Rotax 447</u>
<u>Rate of Climb:</u>	500 ft/min	600 ft/min
<u>Climb Speed:</u>	33 mph IAS	35 mph IAS

Stall or Minimum Flying Speed: 25 mph (idle power)

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Note: Drawings and/or colour photographs illustrating the principal features of the aircraft described herein, shall be attached to, and form part of, this Data Sheet.

Issue
Authorisation

Date

BMAA

1 BMAA

26 Nov. 1993

A. J. Owen

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APPENDIX 1. Modifications & Inspection

Modifications:

The following modifications are incorporated and are required on Each Eagle Amphibian in order to qualify for the issue and validation of a Permit to Fly.

- S 689 (b) Close fitting control system pulleys guards fitted to prevent the cable from being misplaced or fouled.
- S 993(d) A fire resistant fuel line fitted in the proximity of the engine (for at least a radial distance of 45 cm) 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 (for a radial distance of 45 cm) or located so that in the event of engine fire, the engine can be stopped at the pilot's choice.

NOTE: The requirement for standard Eagles to have an exhaust shield is deleted for the Eagle Amphibian due to relocation of fuel tank below engine level.

In addition

1. In accordance with American Aerolights Service Bulletins and News Letters:

Reinforcement of main sail trailing edge.

Double sleeving of main wing leading edges.

2. The pilot must wear a crash helmet as a condition of operation. A placard must be installed to this effect.

Further details about the Eagle Amphibian are given in Appendix 2.

Inspection:

The review of the compliance of the Eagle and the Eagle Amphibian with the airworthiness requirements of the nominated paragraphs of BCAR Section S has indicated a number of areas where particular attention must be paid by each BMAA inspector responsible for inspection of the Eagle Amphibian and these are listed below:-

- (a) Although original tubing on the airframe was advised as anodised internally and externally, replacement parts and additional tubes added for reinforcement may not necessarily be protected to the same extent. Inspection of the structural tubes is required to determine that detrimental corrosion is not present.

Inspectors are also advised that, subject to maintenance in accordance with the Eagle Amphibian Standard Take-Care Procedures, no specific corrosion problems have been found for the Eagle Amphibian. However, special care with regard to corrosion must of course be highlighted.

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APPENDIX 1, (Continued)

- (b) Where structural cables are plastic coated, these are to be inspected to ensure that the coating is in good order and that there is no corrosion at the cable ends.
- (c) Where butterfly nuts are used, they are each to be checked for corrosion. All corroded butterfly nuts are to be replaced and the condition of the tubing and other components beneath them is to be examined to ensure that their protection is satisfactory.
- (d) The main frame tubing in the region of float and undercarriage attachment is to be inspected for signs of trapped moisture.
- (e) Close attention is to be paid to the leading edge tubes at the location of the rudder cable pulleys to ensure that there is no damage as a result of the pulleys contacting the tube during rigging and de-rigging.
- (f) A check must be made to ensure that the specified amount of elevator travel is available.

NOTE The Amphibian version of the Eagle differs from the standard Eagle from which it is derived in certain significant areas (see Appendix 2 for information) and this deletes the standard emphasis for inspection of the undercarriage bottom frame wear point and the fuel tank fabric pocket.

In addition, Inspectors must pay attention to the relevant "Spotlight" and Defect Warning reports in the BMAA Inspectors' Manual and any relevant BMAA bulletin or information affecting it or its components, equipment or power unit.

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APPENDIX 2.

Additional information

The Eagle Amphibian is based upon the Eagle 430 which is a version of the basic Eagle which had added structural components in order to enable flight at higher weight and with more power.

In addition to this the Eagle Amphibian varies from the Eagle 430 and in particular, the following features are provided:-

- 1 Levi 13 ft floats and float attachment structure.
- 2 Nose-wheel steering via a normal steering hub.
- 3 Folding undercarriage.
- 4 Reinforcement of the undercarriage pick-up points to the airframe.
- 5 Engine anti-torque mounting brackets on upper main keel and anti-torque tubes in place of original torque wires.
- 6 Fuel tank system replacing the original over-engine tank, now mounted on the floats.
- 7 Leading edge tubes of main wing double sleeved for their full length.
- 8 Attachment to enable wing folding and rigging to be simplified (but without altering the standard Eagle wing attach).
- 9 Certain of the bracing cables have been increased in their nominal diameter and the following sizes are as now provided on the Eagle Amphibian:-
 - (a) Bow sprit to leading edge wing spar, 0.160 inch.
 - (b) Bow sprit to A-frame, 0.160 inch.
 - (c) A-frame to wing spar, outer 0.120 inch.
inner 0.160 inch.
 - (d) A-frame to keel rear 0.202 inch.
 - (e) King post to wing spar 0.094 inch.
 - (f) King post to bow sprit 0.128 inch.
 - (g) King post to keel 0.128 inch.

In addition,

 - (h) The billow shift control cable 0.110 inch.

The following pages provide general views of certain features.

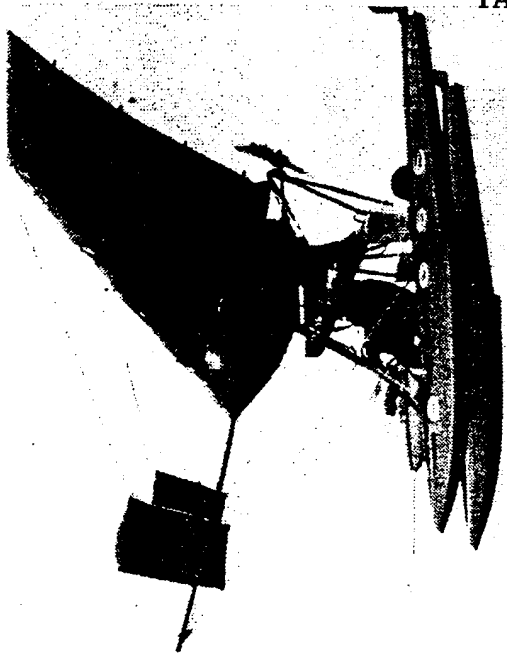


FIG 2.

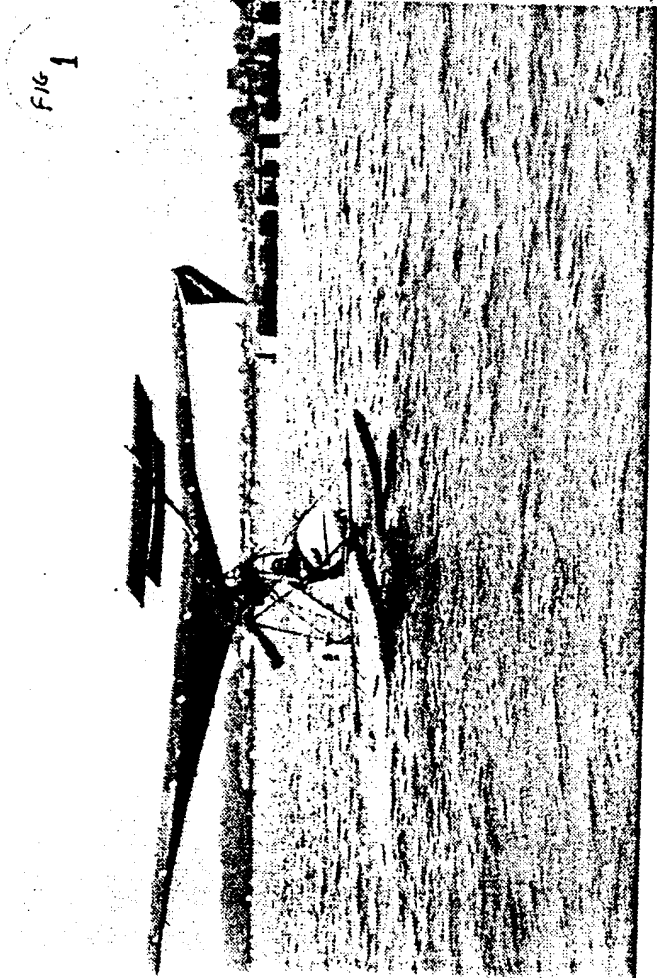


FIG 1

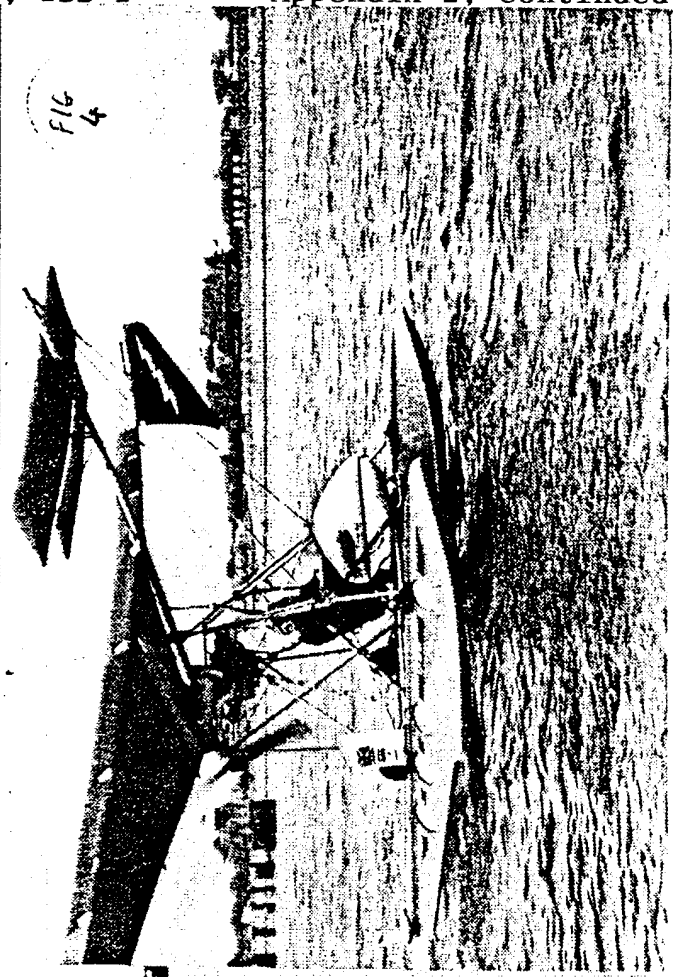


FIG 4

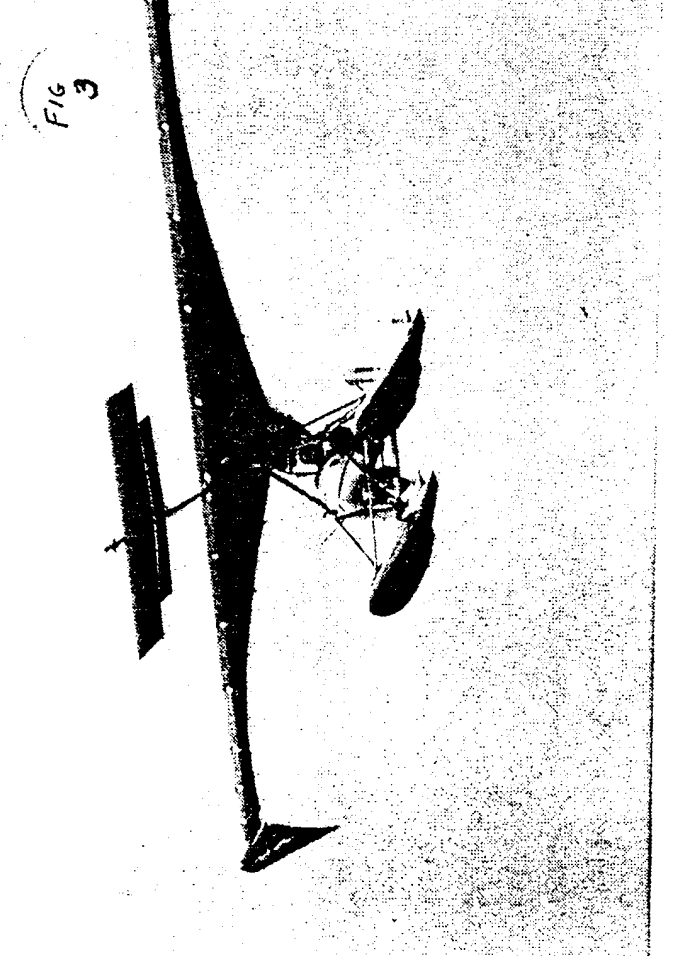


FIG 3

