

BRITISH MICROLIGHT AIRCRAFT ASSOCIATION

TYPE ACCEPTANCE DATA SHEET (TADS)

**NO: BMO 6 ISSUE: 7**

TYPE: Tiger Cub 440

- (1) MANUFACTURER: Micro-biplane Aviation, Worksop (no longer trading)  
BMAA is responsible for continued airworthiness.
- (2) UK IMPORTER: None
- (3) CERTIFICATION: BCAR SECTION S, (in the modification state at the date of manufacture or modification of any example), as amended by established type acceptance practice.
- (4) DEFINITION OF BASIC STANDARD: Owners kit building instructions
- (5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

(a) MTOW	250 Kg
(b) No. Seats	1
(c) Maximum Wing Loading	19.4 kg/m <sup>2</sup>
(d) V <sub>so</sub>	35 mph IAS
(e) Permitted range of pilot weights	55 - 100 kg
(f) Typical Empty Weight (ZFW)	138 kg
(g) ZFW + 86 kg pilot + full fuel ( litres / kg)	244 kg

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**(6) POWER PLANTS**

Designation	Tiger Cub 440 (1)	Tiger Cub 440 (2)	Tiger Cub 440 (3)	Tiger Cub 440 (4)	Tiger Cub 440 (5)
Engine Type	Fuji Robin EC44PM Inverted				
Reduction Gear	Toothed belt 2.4:1	Toothed belt, 2.6:1			
Exhaust System	Nicklow standard				
Intake System	K&N Filters				
Propeller Type	Farr	Newton	TCDP 002	Romain	Romain
Propeller Dia x Pitch	56" x 32"	56" x 36"	56" x 36"	58" x 33"	56" x 33"
Noise Type Cert No.	Not yet tested		33M	33M	Not yet tested
MAAN approving configuration	Type accepted before introduction of MAANs				

**(7) MANDATORY LIMITATIONS:**

- |                                 |  |
|---------------------------------|--|
| (A) Max Take-Off Weight         | 250 kg   |
| (B) CG Limits                   | <i>Aft limit 32" aft of datum</i><br><i>FWD Limit 30" aft of datum</i> |
| (C) CG datum                    | Front face of firewall   |
| (D) Cockpit Loadings            | Min 55 kg<br>Max 100 kg  |
| (E) Never Exceed Speed          | 70 kn IAS  |
| (F) Manoeuvring Speed           | 56 kn IAS  |
| (G) Permitted Manoeuvres        | Non Aerobatic<br>Normal acceleration limits, +4 / -2g                  |
| (H) Fuel Contents (Max Useable) | 5 gallons / 11 litres  |

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(I) Power Plant See Table

Engine	Fuji Robin EC44 PM
Max RPM	7000 (8000 rpm for 1 minute)
MAX CHT	230°C
MAX EGT	N/A
Fuel Spec	83 MON or 90 RON minimum unleaded to BS(EN)228 or 97+ octane 4-star /MOGAS leaded fuel to BS 4040, or AVGAS 100LL.
Engine Oil Spec	Non-synthetic 2-stroke oil
Fuel/Oil Mix	40:1

(8) INSTRUMENTS REQUIRED:

ASI	Altimeter	RPM	CHT	Compass	Slip ball
Required	Required	-	Optional (recommended)	-	Required

(9) CONTROL DEFLECTIONS<sup>1</sup>:

Ailerons (pushrod system) UP:	25 ± 1°	Ailerons (cable system) UP:	16 ± 1°
Ailerons (pushrod system) Down:	7 ± 1°	Ailerons (cable system) DOWN:	15 ± 1°
Stabilator UP:	15 ± 1°	Rudder LEFT:	16 ± 1°
Stabilator DOWN:	15 ± 2°	Rudder RIGHT:	16 ± 1°

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

10.1 Manuals approved for use with this aircraft.

- (a) Tiger Cub 440 Pilots Operating Manual
- (b) Tiger Cub 440 Maintenance Manual
- (c) Tiger Cub 440 Building Instructions

<sup>1</sup> Most Tiger Cubs have no significant differential, and a cable roll control circuit. Some aircraft have a pushrod roll control circuit with significant differential.

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10.2 The following placards are to be fitted:-

(a) Flight Limitations Placard (to be visible to pilot)

See Annex D.

(b) Engine Limitations Placard (to be located near to engine instruments)

See Annex D.

(c) Fuel Limitations Placard (to be located near to filler cap)

See Annex D

(d) Switches

See Annex D.


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

See Annex A for required modifications.

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb: 500 fpm.

Stall or Minimum Flying Speed: 35 mph IAS at MTOW / idle.

BMAA Approval:		G B Gratton Chief Technical Officer	12 July 2000
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Issue History

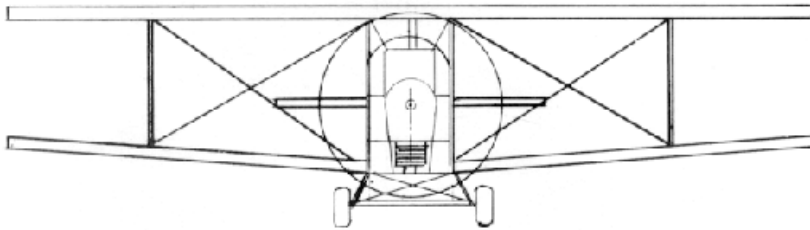
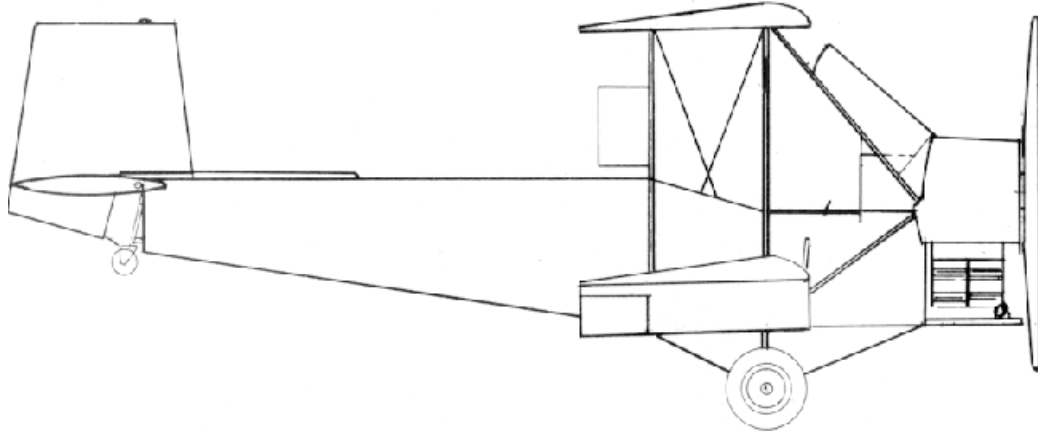
<u>Issue No.</u>	<u>Reason and signatory</u>
1-6	History not known, CAA signatories
7	Re-issue by BMAA to correct incorrect Aileron deflections and issue in new improved TADS format. June 2000. Signatory G B Gratton, CTO.

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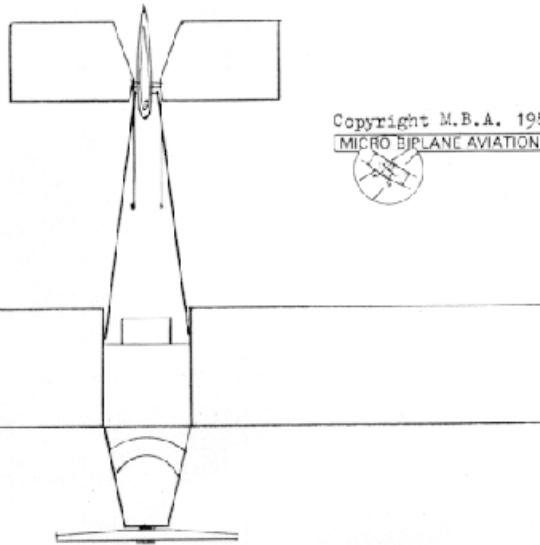
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Illustration of Aircraft



M.B.A. Tiger Cub 440  
Microlight Aircraft

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**MICRO BIPLANE AVIATION**



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ANNEX A – MANDATORY MODIFICATIONS

(Note: Bulletins or modifications prefixed “TCD” were published by Tiger Cub Developments Ltd)

- (a) Elevator trim and rudder centring springs must be fitted in accordance with TCD TM 013A and B.
  - (b) Provide lifting aerodynamic centre section as TCD TM 018
- (b) (a) Main undercarriage axle to be re-enforced with close fitting inner sleeve or modified in accordance with TCD TM001.
  - (b) Main wheels to be replaced as TCD TM 002.
- (c) (a) Drain holes to be provided in flying surfaces as TCD 023.
  - (b) Wooden components of flying surfaces to be provided with additional protection as TCD TM 031.
- (d) Elevator hinge bearing sleeves to be bonded as TCD 022.
- (e) Original reduction drive shaft to be replaced by high tensile steel shaft.
- (f) A placard is to be fitted stating “This aircraft must not take-off with less than 2 gallons (Imp) fuel.”
- (g) The fuel tank is to be re-positioned into the rear fuselage, directly below it’s original position. A suitable drip tray is to be provided in accordance with BMAA TIL 007 and interior fuselage foam is to be treated for fuel resistance. (Location must ensure freedom from interference with control runs.) TCD TM 025 refers, or “Chamberlain” alloy fuel tank is acceptable.
- (h) A fire resistant fuel line is to be fitted between the engine bulkhead and the engine and routed as far as possible on the opposite side of the engine to the exhaust.
- (i) A fuel shut-off valve is to be fitted within easy reach of the pilot and clearly marked with it’s “ON” and “OFF” positions.
- (j) The wiring from for the ignition switch must be at least fire resistant from the engine and at least as far as the bulkhead, or be sleeved with a fire resistant material (BMAA TIL 007 gives guidance if required).
- (k) The original engine cowl is to be removed for flight as per TCD TM 017A, or the cowl revised as per TCD TM 017B.
- (l) The hole in the engine bulkhead is to be blocked with fire resistant material and flight testing carried out to prove adequacy fo cooling after TCD TM 014 (cylinder head alignment with the airflow) has been completed.
- (m) The stabilator spar sleeve is to be replaced with a longer sleeve measuring 14 inches, with stress relieving V-notches at 4 inches from each end, material HF30TF alloy, 1”

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x 16 gauge. This is to be located centrally in the spar; TCD TM 026 refers and provides an acceptable option of using two sleeves of 17 gauge.

- (n) In addition to the requirement for re-positioning the fuel tank, the original windscreen height is to be reduced by at least 5 inches to improve airflow over the rudder.

In addition, the following service bulletins issued by the manufacturer or by Tiger Cub Developments Ltd are mandatory.

MB SB 002	Aileron Hinges
MB SB 003	Flying and Landing Wire Termination
MB SB 004	Sharp gear down units, prop bolts.
MB SB 005	Elevator Operating Tube
MB SB 006	Recoil Pull Starter
MB SB 007	Tailplane Bearing Blocks
MB SB 009	Flying Wire Lengths
MB SB 011	Throttle lever movement
MB SB 012	Rear Landing Wire Root Termination
MB SB 013	Correction to Assembly of Rudder Pulley Guards
MB SB 014	Rear Spar Hinge Bolts
MB SB 015	Safety Locking of Aileron Pulley Nuts
MB SB 016	Tailwheel Bracket
MB SB 017	Tailwheel Steering Arms
MB SB 018	Windscreen
MB SB 019	Flying and Landing Wire Crossover Support
MB SB 020	Rear Fuselage Bulkhead
TCD/SB/024	Engine Mounting
TCD/SB/025	Wing Tips During Ground Transportation
TCD/SB/026	Fabric Covering

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ANNEX B – SPECIAL INSPECTIONS

Special attention is to be paid by BMAA Inspectors to the following items.

- (a) All modifications listed in Annex A are to have been carried out.
- (b) The bond between the fuselage longerons and the foam sides and tops is to be checked by ensuring that there is no wrinkling of the fabric adjacent to these bonds when loads are applied at the tail. Internal inspection is also required.
- (c) Each hand finished component is to be checked for corrosion and adequate protection, in addition to normal overall inspection for corrosion.
- (d) A check is to be made to ensure that the aileron spar has been modified in accordance with the MBA Maintenance Manual, p4-4.
- (e) The stabilator is to be examined for satisfactory performance of the bond between its spar and the foam. Creasing of the surface fabric in the vicinity of the spar run, on upper or lower surfaces, whilst loads are applied to the stabilator, is unacceptable.
- (f) Each control surface stop must be examined for satisfactory performance.
- (g) Ensure satisfactory guarding of cables at all pulleys, particularly upper rudder pulleys.
- (h) Ensure that where turnbuckles are fitted in the control system they do not bind against any surface.
- (i) Ensure that throttle control provides full travel of the throttle sides.
- (j) Ensure throttle and choke controls are clearly distinguishable and do not foul each other.
- (k) Ensure satisfactory electrical bonding between engine and airframe.
- (l) Check for fuel damage to internal fuselage structure around the fuel tank.
- (m) Ensure compliance with BMAA General Note GN-(89)-014 concerning rear hinged doors.



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ANNEX C

WEIGHING INFORMATION

1. CG Datum: Front Face of Firewall
2. Weighing attitude: Tail raised so that top edge of fuselage is horizontal
3. Mainwheel moment arm: 26.5 inches aft of datum
4. Tailwheel moment arm: 129.5 inches aft of datum
5. Fuel moment arm: 50 inches aft of datum
6. Pilot moment arm: 36 inches aft of datum
7. Crew weights: Minimum 55 kg / maximum 100 kg  
(maximum reducible, not below 86 kg, if required).
8. Aft CG Limit: 32 inches aft of datum
9. Fwd CG Limit: 30 inches aft of datum

Note: Because Tiger Cubs were amateur constructed, inspectors are recommended on individual aircraft to confirm that the moment arms given above are correct.

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ANNEX D

EXAMPLE PLACARDS

Note: Exact placard format is not mandatory, but all required information must be shown.

(a) Flight Limitations Placard (to be visible to pilot)

<u>Tiger Cub 440 (Registration)</u>	
Never Exceed Speed:	70 mph IAS
Manoeuvring Speed :	56 mph IAS
Stall Speed:	35 mph IAS
Bank angle limits:	+/- 60°
Empty Weight:	_____ kg *
Max Take-Off Weight:	250 kg
Minimum Cockpit Weight:	55 kg
Maximum Cockpit Weight:	100 kg.*
<u>Aerobatics and deliberate spinning prohibited.</u>	

\* This must match the most recent W&CG report for the aircraft.

(c) Engine Limitations Placard (to be located near to engine instruments)

A placard showing the limitations for all indicated engine parameters is to be mounted close to the engine instruments. This requirement need not be complied with for limitations shown as coloured markers (red for danger, amber for caution) on the instrument displays.

(c) Fuel Limitations Placard (to be located near to filler cap)

<p style="text-align: center;"><b>FUEL</b> Capacity 5 Gal / 22 Litres (40:1 2-stroke oil) 83 MON or 90 RON minimum unleaded to BS(EN)228 or 97+ octane 4-star / MOGAS leaded fuel to BS 4040, or AVGAS 100LL</p>
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(d) Switches

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