

MICROLIGHT TYPE ACCEPTANCE DATA SHEET (TADS)

NO: BMO40    ISSUE:1

TYPE 110SX/CYCLONE 70

- (1) MANUFACTURER: WING: Aerial Arts (no longer trading)  
TRIKE: Cyclone hovercraft (Cyclone 70).
- (2) UK IMPORTER: N/A
- (3) CERTIFICATION BASIS: Type Acceptance to BCAR Section S Advance Issue, March 1983 reduced as per CAA letter dated 17/01/86 ref 9/30/UL18.
- (4) DEFINITION OF BASIC STANDARDS: As described in these TADS and MAAN 1160.

(5) DIMENSIONS/WEIGHT FO COMPLIANCE WITH MICROLIGHT DEFINITION

- |  |                       |
|--|-----------------------|
| (a) Wing area (inc canard area, excluding winglets): | 10.m <sup>2</sup>     |
| (b) Span:  | 8.1m                  |
| (c) Standard Mean Chord:                             | 1.24m                 |
| (d) Dry Empty Weight:                                | 80kg                  |
| (e) Max take-Off Weight:                             | 188kg                 |
| (f) Wing Loading (Weight Empty/Wing Area):           | 8kg/m <sup>2</sup>    |
| (g) Wing Loading (Max Take-Off Weight/Wing Area):    | 18.8kg/m <sup>2</sup> |
| (h) Fuel Capacity:                                   | 23Litres              |

(6) POWER PLANTS

Designation	110SX/ Cyclone70 110SX/ Firefly				
Engine Type	Rotax 277				
Reduction Gear	2.58:1				
Exhaust System	Rotax				
Intake System	K & N Filter				
Propeller Type	Reed				
Propeller Dia x Pitch	58" x 32"				
Noise Type Cert No.	15M iss 1.				



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(8) INSTRUMENTS REQUIRED FOR TYPE ACCEPTANCE:

ASI Required*	Altimeter Required*	RPM Optional	CHT Optional	Compass Optional	EGT Opt
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(9) CONTROL DEFLECTIONS (3-Axis Systems): N/A

Pitch Control	Up:-	Down:-
Tailplane Trim	Up:-	Down:-
Ailerons	Up:-	Down:-
Rudder	Left:-	Right:-
Steering	Left:-	Right:-

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

Aerial Arts 110SX/Cyclone 70 Operators Manual.

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

BMAA defect reports A2.01 to A2.08 (Aerial Arts).

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb:	740ft/min at 35mph IAS
Stalling Speed:	24mph IAS

\* NOTE

Wrist Altimeter permitted provided thatL-

- (a) A cockpit placard states, "WRIST ALTIMETER MANDATORY" and
- (b) A wrist altimeter is part of the aircraft equipment.

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.

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Date  
3/3/94

BMAA Approval

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The following placards must be furnished:-

- 1 At the top of the instrument panel.

Empty Weight:	80kg
Max Take Off Weight:	188kg
Max Occupant Load:	90kg
Min Cockpit Load:	55kg
Never Exceed Speed (Vne)	65mph
Max Manoeuvring Speed (VA)	48mph

NO LOOSE ITEMS IN COCKPIT

- 2 On the seat frame adjacent to the fuel tank filler cap.

FUEL 23 Litres  
2 Stroke 50:1  
Min 4 Star or unleaded

- 3 On the instrument panel adjacent to the ignition switch.

ON  
IGNITION  
OFF

- 4 On the carburettor adjacent to the fuel cock.

ON  
FUEL  
OFF

- 5 On the undercarriage drag link tubes.

NO STEP

- 7 On the instrument panel in place of the optional altimeter.

Wrist altimeter mandatory.

- 8 Adjacent to optional engine instruments.

Max CHT:	480 <sup>0</sup> F
Max EGT:	1200 <sup>0</sup> F
Max RPM:	6800

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NOTES FOR INSPECTORS:

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1) The fuel system should be checked extremely carefully for leakage particularly at the fuel cap. There have been instances reported of fuel caps leaking. The system can be replaced with a section S Chaser one.

2) Check carefully around attachment bolt holes between the wing and the trike for cracks. Any visible cracks will imply replacement before further flight.

3) The design of the hang bracket is two 16 gauge plates welded together with a circular tube which is the bearing for the hang point. Cracking has been known to start where the plates are welded to the tube. If any cracking is discovered, the bracket must be replaced with one where the bracket extends right round the top of the keel to continuously down the other side i.e., like an inverted U. It is possible to fit a Section S Chaser hang bracket. This involves removal of the keel assembly from the wing and replacement of at least the outer sleeve of the keel. A new hole must be drilled transversely through the keel to accommodate the Section S bracket.

4) Abrasion has been noted of the trailing edge of the wing keel pocket where it joins the sail trailing edge due to the cross boom pull up cables. Abrasion and stitching damage in this area is quite critical and should be put right by a competent aviation sail loft. The pull back cables should be protected against inflicting further such abrasion damage.

5) Trailing edge flutter was found unacceptable on one 110SX wing tested, G-MTDE, at speeds above 70mph. There are three courses of action:

Firstly the leading edge tubes must be checked by removal from the airframe to ensure that they are straight. Any permanent deformation MUST be rectified by replacement.

Secondly the VNE must be restricted to 65 mph where flutter is acceptably small. This requirement is to be placarded.

Thirdly, an optional modification AA-110-001 has been proposed to reinforce the trailing edge with a strip of Trilam or 7oz patch dacron material suppress the flutter and give the trailing edge some redundancy in the event of a propeller debris strike. Contact the BMAA Chief Technical officer for details.

Obviously, the consequences of loose items being dropped into the propeller of this aircraft can be extremely serious because of the alignment of the trailing edge with the propeller disc and the light wing trailing edge construction. A placard stating "no loose items in the cockpit" must be in view of the pilot, particularly if the optional modification is not adopted.

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NOTES FOR CHECK PILOTS:

- 1) The aircraft has exceptionally fast roll response and roll rate. Care must be taken not to over-control; test flights should be in reasonably smooth conditions.
- 2) Watch the trailing edge when gradually increasing speed to VNE - some trailing edge flutter is acceptable but gross movement liable to cause damage is not. Slow down if excessive flutter is apparent. Note TADS placarded VNE speed. Contact the BMAA technical office if unacceptable flutter is apparent below VNE.

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PHOTOGRAPHS

