

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)



NO: BM47 ISSUE: 11

TYPE: MAINAIR BLADE

- (1) MANUFACTURER: P & M Aviation Ltd, Unit B, Crawford Street, Rochdale, Lancashire, OL16 5NU
- (2) UK IMPORTER: -
- (3) CERTIFICATION: BCAR Section, Advance Issue as amended October 1988 + all applicable Working Draft Papers
- (4) DEFINITION OF BASIC STANDARD: Betawing Drawing Register 27th April 1994
Gemini 4 Drawing Register 27th April 1994 (as amended)

(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

(a) MTOW	390 kg
(b) No. Seats	2
(c) Maximum Wing Loading	25 kg/m ²
(d) V _{so}	30 mph IAS
(e) Permitted range of pilot weights	55 – 90 kg per seat.
(f) Typical Empty Weight (ZFW)	174 kg (Rotax 582 version) 160 kg (Rotax 503/462 version)
(g) ZFW + 172 kg crew + 1 hr fuel (litres / kg)	(503) 347 kg (462) 351 kg (582) 364 kg
(h) ZFW + 86 kg pilot + full fuel (litres / kg)	(503) 278 kg (462) 278 kg (582) 292 kg
With 65 litre tank (Mod 99)	(503) 293 kg (462) 293 kg (582) 307 kg
(i) Max ZFW at initial permit issue	205 kg

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(6) POWER PLANTS

Designation	Blade 582	Blade 582	Blade 462	Blade 462	Blade 462	Blade 503	Blade 503	Blade 503
Engine Type	Rotax 582-2v	Rotax 582-2v	Rotax 462	Rotax 462	Rotax 462	Rotax 503-2V	Rotax 503-2V	Rotax 503-2V
Ignition System	Rotax dual cdi	Rotax dual cdi	Single points system	Single points system	Single points system	Single points system or Rotax dual cdi	Single points system or Rotax dual cdi	Single points system or Rotax dual cdi
Reduction Gear	3.47:1	3.47:1	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1
Exhaust System	Rotax Side Mounted with after muffler	Rotax Side Mounted with after muffler	Rotax Side Mounted with after muffler	Rotax Side Mounted with after muffler	Rotax Side Mounted with after muffler	Rotax Side Mounted with after muffler	Rotax Side Mounted with after muffler	Rotax Side Mounted with after muffler
Intake System	K & N Intake Filter or Rotax Intake Silencer	K & N Intake Filter or Rotax Intake Silencer	Rotax Intake Silencer	Rotax Intake Silencer	Rotax Intake Silencer	K & N Intake Filter or Rotax Intake Silencer	K & N Intake Filter or Rotax Intake Silencer	K & N Intake Filter or Rotax Intake Silencer
Propeller Type	Mainair WD Ground adjustable	Arplast 152 DAS 4875/4 or 152 DAS 6275/4	Mainair	Mainair Ground Adjustable	Mainair WD Ground Adjustable	Mainair	Mainair WD Ground Adjustable	Mainair Ground Adjustable
Propeller Dia x Pitch	4 Blade 62" diameter pitch 123° at 12"	4 blade 152 cm diameter pitch 22° at 54.5 cm radius	62" x 44"	3 Blade 62" 107° at 12"	3 Blade 62" 113° at 12"	62" x 40"	113° at 12" 3 Blade 62"	110° at 12" 3 Blade 62"
Noise Type Certification No.	150M Issue 1	150M Issue 1	35M Issue 6	35M Issue 6	35M Issue 6	133M Issue 2	133M Issue 2	133M Issue 2
AAN approving configuration	24302	24302 Add 1	24302 Add 3	24302 Add 3	23402 Add 3	24302 Add 2	24302 Add 2	24302 Add 2

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(7) MANDATORY LIMITATIONS:

(A) Max Take-Off Weight	390 kg		
(B) CG Limits	N/A		
(C) CG datum	N/A		
(D) Cockpit Loadings	Front	Rear	Total
	Min 55 kg	15 kg	70 kg
	Max 90 kg	90 kg	180 kg
(E) Never Exceed Speed	101 mph		
(F) Manoeuvring Speed	60 mph		
(G) Permitted Manoeuvres	Max Bank 60° Pitch 30° Non Aerobatic		
(H) Fuel Contents (Max Useable)	22 litres Option 22 litres 65 litres (Mod 99)		
(I) Power Plant	See Table		

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Engine	Rotax 582-2V Upright	Rotax 462 Upright	Rotax 503-2V Upright
Max RPM	6800	6800	6800
MAX CHT	150 deg C	150 deg C (300deg F)	250 deg C (480 deg F)
MAX EGT	650 deg C	650 deg C (1200F)	650 deg C (1200F)
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	2 stroke	2 stroke	2 stroke
Gearbox oil spec	AP1 GL5/GL6	AP1 GL5/GL6	AP1 GL5/GL6
Fuel/Oil Mix	50/1	50/1	50/1
Coolant Temperature	80°	80°	N/A
Oil Pressure	N/A	N/A	N/A
Oil Temperature	N/A	N/A	N/A
Fuel Pressure			

(8) INSTRUMENTS REQUIRED:

ASI	Altimeter	RPM	CHT / EGT	Compass	Coolant temp	Fuel Pressure	VSI	Slip ball
Required	Required	Required for dual ignition engines only	-	-	-	-	-	-

(9) CONTROL DEFLECTIONS: N/A

Elevator UP:	±	Tailplane trim UP:	±
Elevator DOWN:	±	Tailplane trim DOWN:	±
Ailerons* UP:	±	Rudder LEFT:	±
Ailerons* Down:	±	Rudder RIGHT:	±

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

10.1 Manuals approved for use with this aircraft.

BD Manual (as amended).

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)

A placard is to be fitted showing fuel capacity (litres), fuel type(s), fuel:oil ratio (if relevant) and if MTOW can be exceeded with full fuel and maximum cockpit weight, the fuel loads at MTOW for fuel capacity in increments of 10 litres intervals down to the maximum fuel load. An example is shown at 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:	800 ft/min (582 version)
	600 ft/min (462 version)
	500 ft/min (503 version)

Climb Speed:	55 mph
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Stall or Minimum Flying Speed:	30 mph
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Issue History

<u>Issue No.</u>		<u>Reason and signatory</u>
1	12/05/94	K D Russell
2	06/06/94	K D Russell
3	07/06/94	Further editorial changes K D Russell
4	20/10/94	Addition of Arplast propellers (Mainair Modification No. 79) K D Russell
5	28/11/94	Addition engine types (Mainair Modification No. 78 and 81 refers) K D Russell
6	03/01/95	Correction of Editorial omissions of design standard and current three view drawing K D Russell
7	20/04/01	Addition of Rotax 582 (99 model) - Mainair Minor Modification 97 R J Hardy
8	07/02/02	Addition of Mandatory Modification 98, which introduces passenger upper torso restraints. J BARRATT
9	08/07/02	Editorial corrections. J BARRATT
10	06/07/05	New company name J BARRATT
11	18/11/09	To record Modification Number 187, which increases seat load limit to 110kg but still with a total cockpit load of 180g.


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MICROLIGHT TYPE APPROVAL DATA SHEET - TADS BM-47 Issue 11

DWG NO: 99-44-BLCA TITLE: Holman - Blaine General Assy DATE: 9th October 2000 SUPERSEDES:	DRAWN BY: <i>[Signature]</i> CHECKED BY: <i>[Signature]</i> REV: DATE: REVISION: 1: Issue for Drawing	See 99-44-03 For Trim Details 9-02 For Wing Details	HAINAIR SPORTS LTD. TEL: 01746 655134 SHEET 11 OF 11 TOTAL PAGES
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2.67m

1.84m

2.07m

2.48m

2.07m

2.37m

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ANNEX A
MANDATORY MODIFICATIONS

<u>Description</u>	<u>Modification Number</u>
Shoulder Straps	98

ANNEX B
APPROVED OPTIONAL MODIFICATIONS

The installation of all optional modifications is to be inspected by a BMAA inspector and an entry made in the appropriate logbook(s). Note that other approved modifications may exist which are not listed here.

<u>Description</u>	<u>Modification Number</u>
Front Strut back-up	16
Rear seat steering	41
Boss Ballast Bag	45
Override Instructor Bar	50
Electric Start	70
Adjustable Index Tips	89
Clear Fuel Filter	90
Sleeve Indrag Link	92
Intake Silencer	93
Rotax 582 (99 model)	97
65 litre Single Tank	99
Increase Seat Load Limit to 110kg	187

ANNEX C
WEIGHING INFORMATION

1. CG Datum: N/A (flexwing microlight)
2. Weighing attitude: N/A
3. Mainwheel moment arm: N/A
4. Nosewheel moment arm: N/A (units) (direction) of datum
5. Fuel moment arm: N/A (units) (direction) of datum
6. Crew moment arm: N/A (units) (direction) of datum
7. Crew weights: Minimum 55 kg / maximum 90 kg
(maximum reducible, not below 86 kg, if required).

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8. Aft CG Limit: N/A (units) (direction) of datum
9. Fwd CG Limit: N/A (units) (direction) of datum

ANNEX D

EXAMPLE PLACARDS

- (a) Flight Limitations and Engine Limitations Placard (to be visible to pilot)

MAINAIR BLADE	
MAX ALL UP WEIGHT	390KG
MAX COCKPIT LOAD	180KG
MIN ALL UP WEIGHT	250KG
EMPTY WEIGHT	174KG
STALL SPEED	30MPH
MANOUVRE SPEED	60MPH
NEVER EXCEED Vne	101MPH
MIN LANDING APP	50MPH
MAX CROSS WIND	10MPH
MAX EGT	1200°F
MAX CHT (Rotax 503)	480°F
MAX WATER TEMP	80°C
MAX RPM	6800
WARNING	
THIS AIRCRAFT IS NON-AEROBATIC	
MAXIMUM NOSE UP 30°	
MAXIMUM NOSE DOWN 30°	
MAXIMUM BANK ANGLE 60°	
SPINNING ATTEMPTS PROHIBITED	
NO WHIPSTALLS LOOPS TAILSLIDES OR AEROBATIC MANOEUVRES	
DO NOT EXCEED MAX. LOAD	
MAINAIR SPORTS ROCHDALE ENGLAND	

- (b) Fuel Limitations Vs Max Cockpit Load Placard (to be visible to the pilot)

Empty Wt Date	Kg
Fuel Load (litres)	Max Cockpit Wt (kg)
65	
55	
45	
35	
25	
15	

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(c) Fuel Capacity and Type (to be located near to filler cap)

FUEL - 22 LITRES EN 228 UNLEADED or AVGAS 100LL INSPECT INTERNAL AND EXTERNAL FILTERS FREQUENTLY 2 STROKE OIL MIX AT RATIO 50:1
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FUEL - 65 LITRES EN 228 UNLEADED or AVGAS 100LL INSPECT INTERNAL AND EXTERNAL FILTERS FREQUENTLY 2 STROKE OIL MIX AT RATIO 50:1
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(d) Switches

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