

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

- TYPE: Mainair Mercury
- (1) MANUFACTURER: Mainair Sports Ltd now supported by P & M Aviation Ltd,
Unit B, Crawford Street Rochdale, Lancashire, OL16 5NU.
- (2) UK IMPORTER: N/A
- (3) CERTIFICATION: BCAR Section S, Advance Issue March 1983
BCAR Section S, Paper, 11 October 1988
- (4) DEFINITION OF BASIC STANDARD: 440 Dual Master List of Drawings, Issue 7
Flash Wing Master Drawing List, Issue 6
- (5) COMPLIANCE WITH THE MICROLIGHT DEFINITION
- | | |
|---|---|
| (a) MTOW | 370 kg |
| (b) No. Seats | 2 |
| (c) Maximum Wing Loading | 23.78 kg/m ² |
| (d) V _{so} | 24 kts (25 mph) |
| (e) Permitted range of pilot weights | 55 – 90 kg per seat. |
| (f) Typical Empty Weight (ZFW) | (Mercury 503) 146kg
(Mercury 462) 150kg
(Mercury 582) 153kg |
| (g) ZFW + 172 kg crew + 1 hr fuel
(litres / kg) | (503) 333kg
(426) 341 kg
(582) 343 kg |
| (h) ZFW + 86 kg pilot + full fuel
(litres / kg) | (503) 264 Kg [279 kg
with mod 99]
(462) 268kg [283 kg
with mod 99]
(582) 271 kg [286 kg
with mod 99] |
| (i) Max ZFW at initial permit issue | (503) 183 Kg
(462) 179 kg
(582) 180 kg |

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

(6) POWER PLANTS

Designation	<i>Mercury 503</i>	<i>Mercury 503</i>	<i>Mercury 503</i>	<i>Mercury 462</i>	<i>Mercury 462</i>	<i>Mercury 462</i>
Engine Type	<i>Rotax 503 Upright Single Points Ign or Twin Electronic Ign.</i>	<i>Rotax 503 Upright Single Points Ign or Twin Electronic Ign.</i>	<i>Rotax 503 Upright Single Points Ign or Twin Electronic Ign.</i>	<i>Rotax 462 Upright</i>	<i>Rotax 462 Upright</i>	<i>Rotax 462 Upright</i>
Reduction Gear	<i>2.58:1</i>	<i>2.58:1</i>	<i>2.58:1</i>	<i>2.58:1</i>	<i>2.58:1</i>	<i>2.58:1</i>
Exhaust System	<i>Rotax Side Mounted with After Muffler</i>	<i>Rotax Side Mounted with After Muffler</i>	<i>Rotax Side Mounted with After Muffler</i>	<i>Rotax Side Mount with After Muffler</i>	<i>Rotax Side Mount with After Muffler</i>	<i>Rotax Side Mount with After Muffler</i>
Intake System	<i>Rotax Intake Silencer</i>	<i>Rotax Intake Silencer</i>	<i>Rotax Intake Silencer</i>	<i>Rotax Intake Silencer</i>	<i>Rotax Intake Silencer</i>	<i>Rotax Intake Silencer</i>
Propeller Type	<i>Mainair</i>	<i>Mainair Grd Adjustable</i>	<i>Mainair WD Grd Adj</i>	<i>Mainair Round Tip</i>	<i>Mainair Ground Adjustable</i>	<i>Mainair WD Grd. Adjustable</i>
Propeller Dia x Pitch	<i>62" x 40"</i>	<i>3 Blade 62" 107deg at 12"</i>	<i>3 Blade 62" 113deg at 12"</i>	<i>62" x 44"</i>	<i>3 Blade 62" 107deg at 12"</i>	<i>3 Blade 62" 113deg at 12"</i>
Noise Type Cert No.	<i>26M</i>	<i>50M</i>	<i>50M</i>	<i>35m</i>	<i>35m</i>	<i>35m</i>
AAN approving configuration	<i>23105</i>	<i>23105</i>	<i>23105</i>	<i>23105 Ad 2</i>	<i>23105 Ad 2</i>	<i>23105 Ad 2</i>

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

Designation	<i>Mercury 582</i>	<i>Mercury 582</i>	<i>Mercury 582</i>
Engine Type	<i>Rotax 582-2V Upright 40k Version</i>	<i>Rotax 582-2V Upright 40k Version</i>	<i>Rotax 582-2V Upright 40k Version</i>
Reduction Gear	<i>2.58:1</i>	<i>2.58:1</i>	<i>3.47:1</i>
Exhaust System	<i>Rotax Side Mount with After Muffler</i>	<i>Rotax Side Mount with After Muffler</i>	<i>Rotax Side Mount with After Muffler</i>
Intake System	<i>K & N Filter</i>	<i>K & N Filter</i>	<i>K & N Filter</i>
Propeller Type	<i>Mainair Grd Adjustable</i>	<i>Mainair WD Grd Adjustable</i>	<i>Mainair WD Grd Adjustable</i>
Propeller Dia x Pitch	<i>3 Blade 62" Dia 112deg at 12"r</i>	<i>3 Blade 62" Dia 116deg at 12"r</i>	<i>4 Blade 62" Dia 125deg at 12"</i>
Noise Type Cert No.	<i>149m</i>	<i>149m</i>	<i>134m</i>
AAN approving configuration	<i>23105 Ad 3</i>	<i>23105 Ad 3</i>	<i>23105 Ad 3</i>

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

(7) MANDATORY LIMITATIONS:

(A) Max Take-Off Weight	370 Kg		
(B) CG Limits	N/A		
(C) CG datum	N/A		
(D) Cockpit Loadings	Front	Rear	Total
	Min 55kg	15 kg	70 kg
	Max 90kg	90 kg	180 kg
(E) Never Exceed Speed	77 knots (89 mph)		
(F) Manoeuvring Speed	38 knots (44 mph)		
(G) Permitted Manoeuvres	30° Nose up / 30° nose down 60deg Max Bank Angle Non Aerobatic Normal acceleration limits, +4 / -2g		
(H) Fuel Contents (Max Useable)	44 litres (22 litres Optional) 65 litres (Mod 99)		

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

(I) Power Plant See Table

Engine	Rotax 503 Upright	<i>Rotax 462 Upright</i>	<i>Rotax 582-2V Upright (40kw)</i>
Max RPM	6800	6800	6400
MAX CHT	250 degC	150 degC	150 degC
MAX EGT	650 degC	650 degC	650 degC
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	Two Stroke Oil ASTM/CEC Standards, API-TC Classification	Two Stroke Oil ASTM/CEC Standards, API-TC Classification	Two Stroke Oil ASTM/CEC Standards, API-TC Classification
Gearbox oil spec	API-GL5 or GL6, SAE 140 EP	API-GL5 or GL6, SAE 140 EP	API-GL5 or GL6, SAE 140 EP
Fuel/Oil Mix	50/1	50/1	50/1
Coolant Temperature	N/A	80 DegC	80 DegC
Oil Pressure	N/A	N/A	N/A
Oil Temperature	N/A	N/A	N/A
Fuel Pressure	N/A	N/A	N/A

(8) INSTRUMENTS REQUIRED:

ASI	Altimeter	RPM	CHT / EGT	Compass	Coolant temp	Fuel Pressure	VSI	Slip ball
Required (to 90 mph min.)	Required	Required (Twin Ign Only)	N/A	N/A	N/A	N/A	N/A	N/A

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

(9) CONTROL DEFLECTIONS: N/A

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

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

10.1 Manuals approved for use with this aircraft.

(a) Mercury Microlight Manual Doc Ref ME Manual (at appropriate issue)

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 cockpit weights An example is shown at Annex D.

(d) Switches

See Annex D.

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

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

CAA MPD 1995-021 Flight limitations
CAA MPD 2000-003 Inspection of wing rigging
CAA MPD 2001-004 Upper torso restraint

Annual Bettsometer test is to be carried out to 1050 grammes with wing sails fitted and tensioned to flight. Test must be to both upper and lower surfaces.

- (12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb: 408 fpm at 47 mph.
Mercury 582 660 fpm at 47 mph

Stall or Minimum Flying Speed: 24kts (25mph) IAS at MTOW / idle.


CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

Issue History

<u>Issue No.</u>	<u>Reason and signatory</u>
1	___/09/91 Initial Issue K D RUSSELL
2	___10/91 Introduce WD propeller and correction of editorial errors with initial issue. K D RUSSELL
3	___/02/92 Approval of Mod. 66 Dual Electronic Ignition Option K D RUSSELL
4	___/12/93 Bank angle limitation to 60° (Service Bulletin No. 41 refers) K D RUSSELL
5	___/06/94 Introduction of Rotax 462 and 582 engines with various propellers, update optional modifications list and editorial corrections. K D RUSSELL
6	___/07/94 Typographical corrections K D RUSSELL
7	___/02/95 Approval of 582 engine/C Type Gearbox with Warp Drive Propeller K D RUSSELL
8	08/07/02 Update using new format J BARRATT
9	06/07/05 New company name J BARRATT
10	18/11/09 To record Modification Number 187, which increases seat load limit to 110kg but still with a total cockpit load of 180g.

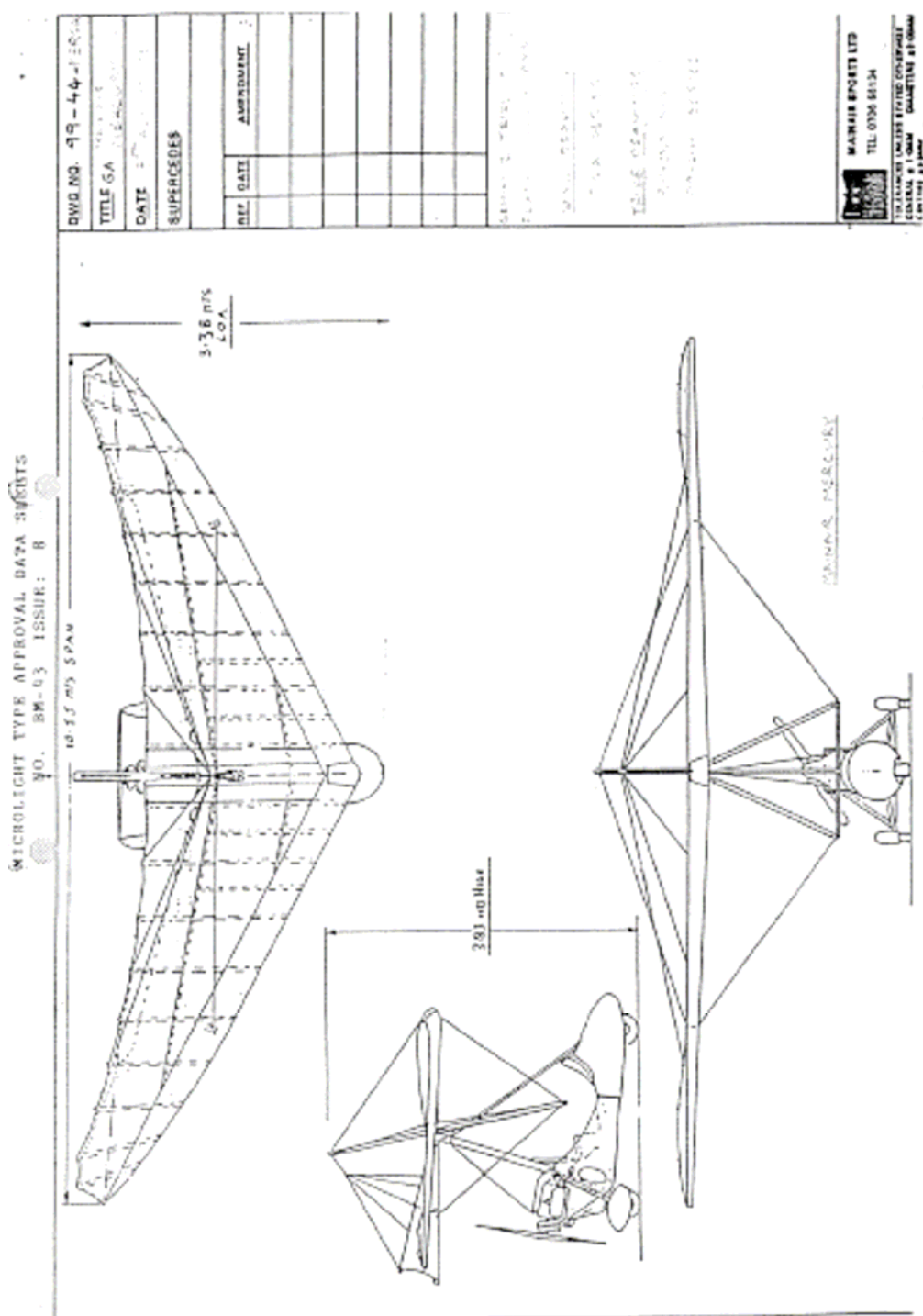

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CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

Illustration of Aircraft - 3 View



CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

ANNEX A – MANDATORY MODIFICATIONS

Modification 98 Shoulder Straps

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>Mainair</u> <u>Modification Number</u>	<u>Description</u>
7	Rear Seat Steering
16	Front Strut Back Up Wire
18	Transit yoke
45	Boss Ballast Bag
50	Override Instructor Bar
65	Rotax wiring connector
66	Dual Electronic Ignition
68	Hand throttle lever
69	Wiring for points ignition
71	Alpha wing base bar moved 2”
73	Trailing link front suspension and brake
90	Clear Fuel Filter
99	65 Litre Fuel Tank
187	Increase Seat Load Limit to 110kg

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

ANNEX C

WEIGHING INFORMATION

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

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM43 ISSUE: 10

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

FUEL - 22 LITRES

**EN228 UNLEADED or AVGAS 100LL
INSPECT INTERNAL AND EXTERNAL
FILTERS FREQUENTLY**

2 STROKE OIL MIX AT RATIO 50:1

FUEL - 65 LITRES

**EN228 UNLEADED or AVGAS 100LL
INSPECT INTERNAL AND EXTERNAL
FILTERS FREQUENTLY**

2 STROKE OIL MIX AT RATIO 50:1

- (d) Switches

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