

CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

**NO: BM-20 ISSUE: 8**

- TYPE: Hybred 44 XL ‘R’
- (1) MANUFACTURER: Medway Microlights, Burrow Lane, Middle Stoke,  
Rochester, Kent, ME9 9RN  
(have responsibility for continued airworthiness)
- (2) UK IMPORTER: N/A
- (3) CERTIFICATION: BCAR Section S Advance Copy March 1993  
BCAR Section S Paper 11 October 1988
- (4) DEFINITION OF BASIC STANDARD: Drawings List for Hybred 44 XL ‘R’ Incorporating Mods  
MM1, MM2 and M2
- (5) COMPLIANCE WITH THE MICROLIGHT DEFINITION
- |  |   |
|--|---|
| (a) MTOW   | 367 kg (post Mod MM14)<br>343 kg (pre Mod MM14)                                 |
| (b) No. Seats  | 2   |
| (c) Maximum Wing Loading                                 | 24.5 kg/m <sup>2</sup> (post mod MM14)<br>22.9 kg/m <sup>2</sup> (pre mod MM14) |
| (d) V <sub>so</sub>                                      | 34 mph IAS  |
| (e) Permitted range of pilot weights                     | 75 - 90 kg per seat.  |
| (f) Typical Empty Weight (ZFW)                           | 149 kg  |
| (g) ZFW + 172 kg crew + 1 hr fuel<br>(16 litres /11.5kg) | 332.5 kg  |
| (h) ZFW + 86 kg pilot + full fuel<br>(25 litres /18 kg)  | 253 kg  |
| (i) Max ZFW at initial permit issue                      | 183.5 kg (post Mod MM14)<br>159.5 kg (pre Mod MM14)                             |

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(6) POWER PLANTS

Designation	44 XL'R'	44 XL'R' Mod MM 11	44 XL'R' Mod MM 11	44 XL'R' Mod MM 7	44 XL'R' Mod MM 7	44 XL'R' Mod MM 7	44 XL'R' Mod MM 7	44 XL'R' Mod MM 15 Part A&B
Engine Type	Rotax 447	Rotax 447	Rotax 447	Rotax 503	Rotax 503	Rotax 503	Rotax 503	Rotax 447
Reduction Gear	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1
Exhaust System	Rotax	Rotax	Rotax	Rotax	Rotax	Rotax	Rotax	Rotax
Intake System	K & N	K & N	K & N	K & N	K & N	K & N	K & N	K & N
Propeller Type	Cyclone	Newton	Newton	Arrow Prop 3 Blade	Newton	Newton	Newton	GSC Two Blade
Propeller Dia x Pitch	62" x 32"	62" x 36"	62" x 38"	60" x 33"	62" x 40"	62" x 42"	62" x 44"	62" x 36"
Noise Type Cert No.	36M	117M	117M	117M Issue 4	117M Issue 3	117M Issue 3	117M Issue 3	117M Issue 2
AAN approving configuration	<b>19558</b>			<b>21905</b>	<b>21905</b>	<b>21905</b>	<b>21905</b>	<b>22734</b>

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(6) POWER PLANTS (cont)

Designation	44 XL'R' Mod MM15 Part A&B	44 XL'R' Mod MM15 Part A&B	44 XL'R' Mod MM15 Part A&B	44 XL'R' Mod MM15 Part D	44 XL'R' Mod MM15 Part D	44 XL'R' Mod MM15 Part D	44 XL'R' Mod MM15 Part D	44 XL'R' Mod MM15 Part D
Engine Type	Rotax 447	Rotax 503	Rotax 503	Rotax 503 UL Dual Ignition	Rotax 503 UL Dual Ignition	Rotax 503 UL Dual Ignition	Rotax 503 UL Dual Ignition	Rotax 503 UL Dual Ignition
Reduction Gear	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1	2.58:1
Exhaust System	Rotax	Rotax	Rotax	Rotax	Rotax	Rotax	Rotax	Rotax
Intake System	K & N	K & N	K & N	K & N	K & N	K & N	K & N	K & N
Propeller Type	GSC Three Blade	GSC Two Blade	GSC Three Blade	GSC Two Blade	GSC Three Blade	Newton	Newton	Newton
Propeller Dia x Pitch	62" x 26"	62" x 38"	60" x 30"	62" x 38"	62" x 30"	62" x 40"	62" x 42"	62" x 44"
Noise Type Cert No.	117M Issue 5	117M Issue 5	117M Issue 5	117M Issue 5	117M Issue 5	117M Issue 3	117M Issue 3	117M Issue 3
AAN approving configuration	<b>22734</b>	<b>22734</b>	<b>22734</b>	<b>22734</b>	<b>22734</b>	<b>22734</b>	<b>22734</b>	<b>22734</b>

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(7) MANDATORY LIMITATIONS:

(A) Max Take-Off Weight	367 kg (Post Mod 14) 343 kg (Pre-Mod 14)		
(B) CG Limits	N/A		
(C) CG datum	N/A		
(D) Cockpit Loadings	Front	Rear	Total
	Min 75 kg	-	75 kg
	Max 90 kg	90 kg	180 kg
(E) Never Exceed Speed	100 mph IAS		
(F) Manoeuvring Speed	68 mph IAS		
(G) Permitted Manoeuvres	30° Nose up / 30° nose down Non Aerobatic Normal acceleration limits, +4 / 0g		
(H) Fuel Contents (Max Useable)	25 litres (Pre-Mod MM9) 50 litres (Post-Mod MM 9 & 14)		

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(I) Power Plant See Table

Engine	Rotax 447	Rotax 503	Rotax 503 Dual Ign Post Mod MM 15 Part D	
Max RPM	7000	6500	6600	
MAX CHT	250°C	250°C	250°C	
MAX EGT	N/A	N/A	N/A	
Fuel Spec	4 Star 97 Octane			
Engine Oil Spec	Non Detergent 2 Stroke Self Mix	Non Detergent 2 Stroke Self Mix	Non Detergent 2 Stroke Self Mix	
Gearbox oil spec	N/A	N/A	N/A	
Fuel/Oil Mix	50:1	50:1	50:1	
Coolant Temperature	N/A	N/A	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 100 mph min.)	Required			Required				

(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.

(a) Hybred XL'R' Operators Manual Issue 3

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 of 180kg / 170kg / 160kg etc. at 10kg 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.

Annual Bettsometer test is to be carried out to 1360 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: 600 ft/min

Climb speed: 45 mph

Stall or Minimum Flying Speed: 34 mph

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Issue History

<b>Issue No.</b>	<b>Reason and signatory</b>
1	10/07/86 Initial Issue W A Bevan
2	08/09/89 Addition of noise information. Rotax 503, and additional propellers for both Rotax 447 and Rotax 503. W A Bevan
3	27/09/89 Correction to manoeuvre and stall speeds. W A Bevan
4	14/08/92 Addition of GSC propellers with Rotax 447 or Rotax 503 engine and Rotax 503UL dual ignition engine. W A Bevan
5	12/04/95 Issue 5 was raised to record the applicability of the Newton propellers on the Rotax 503 UL Dual Ignition engine in accordance with Mod No. MM15 Part D. W A Bevan
6	19/02/99 Issue 6 was raised to record the addition of MM16 parts D, E & F. C J Whittaker
7	19/06/03 Issue 7 was raised to include additional optional major modifications and reference to MPD for Upper torso restraint for passengers.  J C Barratt
8	10/10/05 Correction to Max ZFW at initial permit issue

J C Barratt

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Illustration of Aircraft - 3 View



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ANNEX A – MANDATORY MODIFICATIONS

1. MPD 2001-006 Upper torso restraint for Passengers

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.

<b><u>Mod No.</u></b>	<b><u>Subject</u></b>
MM 1	Installation of Rotax 447
MM 2	Introduce Raven wing
MM 6	Change of material as an alternative From: 2½ x 10 swg HT30TF with the value of 20 t/in <sup>2</sup> To: 2½ x 14 swg 7075 T6 with value of 26 t/in <sup>2</sup>
MM 7	Rotax Engine - 503 and Newton Props 62" x 44" - 62" x 42" - 62" x 40" - Arrow Prop 3 blade 60" x 33"
MM 8	Front Suspension (optional Extra)
MM 9	Extended Range Fuel Tank (25 litres)(Optional) Hybred
MM 11	Incorporation of Newton Propellers 62" x 36" or 62" x 38" pitch as an alternative to existing Cyclone Prop 62" x 32" 447 engine
MM 13	Electric Carburettor Heater
MM 14	Increase AUW to 367 kg
MM 15	Parts A, B & D. Introduction of 2 and 3 blade GSC propellers and dual ignition Rotax 503 engine
MM 16	Parts D, E and F. Parking Restrictor, modified front strut and pylon and new rear aircraft.
MM 17	Parts A & B: Introduction of new control bar and modification.
Note 1:	Mod MM 14 must be incorporated prior to Mod MM 9.
Note 2:	Some combinations of modifications will increase the empty weight above 150 kg. These combinations are not approved as it invalidates the Noise Certificate basis.

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ANNEX C

WEIGHING INFORMATION

1. CG Datum: N/A
2. Weighing attitude: N/A
3. Main wheel moment arm: N/A
4. Nose wheel 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 75 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

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ANNEX D

EXAMPLE PLACARDS

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

[Type] [Engine] [Registration]	
Never Exceed Speed:	100 mph IAS
Manoeuvring Speed :	68 mph IAS
Stall Speed:	34 mph IAS
Best climb speed:	45 mph IAS
Best glide speed:	42 mph IAS
Pitch Limits:	30° nose down, 30° nose up.
Bank angle limits:	+/- 60°
Maximum Stall entry rate:	1 kn/s
Normal Acceleration Limits:	+4 / 0g
Empty Weight:	149 kg
Max Take-Off Weight:	367 kg (post mod 14) 343 kg (pre mod 14)
Minimum Cockpit Weight:	75 kg
Maximum Cockpit Weight:	90 kg in each seat.
Aerobatics and deliberate spinning prohibited.	

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

(b) 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)

<b>FUEL</b>	
Capacity __ Litres	
(50:1 2 Stroke oil / do not add oil)	
Cockpit Weight (kg)	Max. Fuel Load (litres)
180	
170	
...	
... Or below	Full fuel
4 Star 97 Octane	

(d) Switches

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