CIVIL AVIATION AUTHORITY – SAFETY REGULATION GROUP

MICROLIGHT TYPE APPROVAL DATA SHEET (TADS)

NO: BM-13 ISSUE: 6

TYPE:		Raven 'X'
(1)	MANUFACTURER:	Medway Microlights, Burrows Lane, Middle Stoke, Rochester, Kent, ME 3 9RN (have responsibility for continued airworthiness)
(2)	UK IMPORTER:	N/A
(3)	CERTIFICATION:	BCAR Section S Advance Copy March 1983
(4)	DEFINITION OF BASIC STANDARD:	SI 1300 Issue A and Schedules - Incorporating Mod No. SIB 0010 & SIB 0014

(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION

(a)	MTOW	367 kg (post Mod 10) 343 kg (pre Mod 10)
(b)	No. Seats	2
(c)	Maximum Wing Loading	24.47 kg/m² (post Mod 10) 22.9 kg/m^2 (pre mod 10)
(d)	Vso	34 mph
(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 (16 litres / 11.52 kg)	332.52kg
(h)	ZFW + 86 kg pilot + full fuel (25 litres / 18 kg)	253 kg
(i)	Max ZFW at initial permit issue	183.5 kg (post Mod 10) 159.5 kg (pre Mod 10)

(6) POWER PLANTS

Designation	Raven 'X'	Raven 'X' Mod SIB 0014	Raven 'X' Mod MM15 Part C	Raven 'X' Mod MM15 Part C	Raven 'X' Mod MM15 Part C	Raven 'X' Mod MM15 Part C
Engine Type	Inverted Rotax 447	Inverted Rotax 447	Inverted Rotax 447	Inverted Rotax 447	Inverted Rotax 447	Inverted Rotax 447
Reduction Gear	Rotax Gear Box 2.58:1	Rotax Gear Box 2.58:1	Rotax Gear Box 2.58:1	Rotax Gear Box 2.58:1	Rotax Gear Box 2.58:1	Rotax Gear Box 2.58:1
Exhaust System	Rotax Less After Muffler	Rotax Less After Muffler Discharging Hortizontally	Rotax Less After Muffler Discharging Hortizontally	Rotax Less After Muffler Discharging Hortizontally	Rotax Less After Muffler Discharging Hortizontally	Rotax Less After Muffler Discharging Hortizontally
Intake System						
Propeller Type	Cyclone	Cyclone	Newton	Newton	GSC 2 blade	GSC 3 blade
Propeller Dia x Pitch	62" x 32"	62" x 32"	62" x 36"	62" x 38"	62" x 36"	62" x 26"
Noise Type Cert No.	21M	38M	117M	117M Issue 4	117M Issue 2	117M Issue 5
AAN approving configuration	**18886**		**22735**	**22735**	**22735**	**22735**

(7) MANDATORY LIMITATIONS:

(A) Max Take-Off Weight		367 kg (Post mod 10) 343 kg (Pre Mod 10)		
(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		
(F) Manoeuvring Speed		68 mph		
(G) Permitted Manoeuvres		30° Nose up / 30° nose down Non Aerobatic Normal acceleration limits, +4 / 0g		
(H) Fuel Contents (Max Useable)		25 litres Main Tank (pre Mod MM 10) 50 litre Extended Range Tank (Post Mod MM10)		

(I) Power Plant See Table

Engine	Rotax 447			
Max RPM	N/A			
MAX CHT	N/A			
MAX EGT	N/A			
Fuel Spec	Regular MOGAS			
Engine Oil Spec				
Gearbox oil spec	2 Stroke Oil			
Fuel/Oil Mix	50:1			
Coolant Temperature	N/A			
Oil Pressure	N/A			
Oil Temperature	N/A			
Fuel Pressure				

(8) INSTRUMENTS REQUIRED:

ASI	Altimeter	RPM	CHT / EGT	Compass	Coolant temp	Fuel Pressure	VSI	Slip ball
Winter 0-100 mph	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:

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

10.1 Manuals approved for use with this aircraft.

(a) SI Report R150 Issue 3 with Appendix A.

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
Stall or Minimum Flying Speed:	34 mph

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Issue History

	Issue No.	Reason and signatory
1	01/04/86	Initial Issue W A Bevan
2	07/08/86	Addition of horizontally discharging Rotax exhaust. W A Bevan
3	04/09/96	W A Bevan
4	30/12/92	Addition of noise information and change of manufacturer. W A Bevan
5	02/09/03	Addition of optional major modifications and upper torso restraint MPD. J C Barratt
6	10/10/05	Correction to Max ZFW at initial permit issue J C Barratt

RAVEN
G-MTRT

ANNEX A – MANDATORY MODIFICATIONS

Mod No. SIB 0014 is Mandatory for aeroplanes first registered on or after 1 April 1986.

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.

Mod	Description
MM5	Extra Batten for Raven wing
MM10	Weight increase to 367 kg & installation of extended range fuel tank
MM13	Electric Carburettor Heater
MM15/C	2 and 3-Blade Propellers

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 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

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 kt/s
Normal Acceleration Limits:	+4 / 0g
Empty Weight:	149 kg *
Max Take-Off Weight:	367 kg - post mod 10
	343 kg - pre mod 10
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)

FUEL Capacity __ Litres (50:1 2 Stroke oil / do not add oil)	
Cockpit Weight (kg)	Max. Fuel Load (litres)
180	
170	
….	
…. Or below	Full fuel
Regular MOGAS	

(d) Switches

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