

BRITISH MICROLIGHT AIRCRAFT ASSOCIATION

HOMEBUILT AIRCRAFT DATA SHEET (HADS)

NO: HM3 ISSUE: 4 (Formerly TADS BMO25)

TYPE: AVIASUD MISTRAL

- (1) MANUFACTURER: Individual aircraft are amateur constructed, BMAA is responsible for continued airworthiness.
- Parts are available from Aériane, 7 Rue des Poiriers, B-5030 Gembloux, Belgium.
- (2) UK IMPORTER: n/a. UK construction of further examples is not anticipated.
- (3) CERTIFICATION: BCAR Section S, in accordance with CAA documents dated 17 January 1986, ref: 9/30/UL18 and 27 August 1992, ref: 9/34/04/XD/00 (the latter being specific to type).
- (4) DEFINITION OF BASIC STANDARD: Not available
- (5) COMPLIANCE WITH THE MICROLIGHT DEFINITION
- | | |
|--------------------------------------|------------------------|
| (a) MTOW | 390 kg |
| (b) No. Seats | 2 |
| (c) Maximum Wing Loading | 21.8 kg/m ² |
| (d) V _{so} | 34 kn IAS. |
| (e) Permitted range of pilot weights | 40-90kg per seat |
| (f) Typical Empty Weight (ZFW) | 189 kg |
| (g) ZFW + Max.crew + full fuel (25l) | 387 kg |

(6) POWER PLANTS

Designation	Aviasud Mistral 532 GB	Aviasud Mistral 582 GB
Engine Type	Rotax 532-1V	Rotax 582/48-1V
Reduction Gear	Rotax B-type 2.58:1	
Exhaust System	Rotax 2x90°	
Intake System	K&N filters	
Propeller Type	Arplast 3 blade Ground Adjustable	
Propeller Pitch	65" x 7.5°	
Noise Type Cert No.	114M issue 1	
MAAN approving configuration	MAAN 1105 issue 2	MAAN 1105 issue 2 + MAAN 1548 issue 1

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(7) MANDATORY LIMITATIONS:

- (A) Max Take-Off Weight 390 kg
- (B) CG Limits 1495 to 1660mm aft of datum
- (C) CG datum Propeller boss, 69mm forward of engine head tie.
- (D) Cockpit Loadings * Port Starboard Total
- | | | | |
|-----|-------|-------|--------|
| Min | 40 kg | - | 40 kg |
| Max | 90 kg | 90 kg | 180 kg |
- (E) Never Exceed Speed 70 kn (80 mph) IAS
- (F) Manoeuvring Speed 68 kn (78 mph) IAS
- (G) Permitted Manoeuvres Non Aerobatic
No deliberate sideslipping.
Normal acceleration limits, +4 / -2
60° bank, 30° pitch

- (H) Fuel Contents (Max Useable) 25 litres [40 litres with optional modification No.1]

* See Annex A.

(I) Power Plant See Table

Engine	Rotax 532	Rotax 582/48-2V
Max RPM	6,500	
Coolant temp. range	50-80°C	
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	non-detergent 2-stroke self mix	
Gearbox oil spec	As required by gearbox manual	
Fuel/Oil Mix	50:1	

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(8) INSTRUMENTS REQUIRED FOR TYPE ACCEPTANCE:

ASI	Altimeter	RPM	EGT	Compass	Coolant temp.	Slip Ball
Required	Required	Required	optional	optional	Required	Required

A stall warning system is also to be fitted and operable.

(9) CONTROL DEFLECTIONS:

Elevator UP:	$17^{\circ} \pm 3^{\circ}$	Tailplane trim UP:	$60^{\circ} - 5^{\circ}$
Elevator DOWN:	$18^{\circ} \pm 4^{\circ}$	Tailplane trim DOWN:	$15^{\circ} - 5^{\circ}$
Lower wing UP:	$2^{\circ} \pm \frac{1}{2}^{\circ}$	Rudder LEFT:	$45^{\circ} \pm 5^{\circ}$
Lower wing Down:	$9^{\circ} \pm \frac{1}{2}^{\circ}$	Rudder RIGHT:	$45^{\circ} \pm 5^{\circ}$
Steering LEFT:	approx. 15°		
Steering RIGHT:	approx. 15°		

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

10.1 Manuals approved for use with this aircraft.

- (a) BMAA document MAAN 1105 and addenda No.s 1 and 2
- (b) BMAA Special Inspection Schedule BMAA-SSI-001
- (c) Mistral Users manual valid from Aviasud serial No. 41.
- (d) This HADS.

10.2 The following placards are to be fitted:

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

The Following limitations are to be placarded:

- MTOW
- CG limits.
- Cockpit loading limits.
- Vne (in the same units as the ASI)
- Va (in the same units as the ASI)
- Manoeuvre limitations.
- A placard prohibiting deliberate sideslipping is to be in view of the pilot.

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(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)

A placard is to be fitted showing fuel capacity (25 litres), fuel type(s), and fuel:oil ratio. The fuel tank must also be placarded to indicate fuel draining instructions are available in the aircraft manual.

(f) Switches

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

(g) ASI Calibration Placard

An ASI Calibration placard is to be fitted close to the ASI. This is to show calibrations from IAS to kn CAS at intervals not exceeding 10 kn IAS. Calibrations are to have been carried out in flight, i.a.w. BMAA TIL 027.¹

(h) Canopy Placard (At or near forward canopy bow)

Canopy is to be fitted for all flights.

(i) Stall Warning System Placard

A placard is to be fitted in the cockpit stating “Stall warner to be confirmed operative before flight”.

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

- MAAN1575 must be incorporated (requirement for slip ball and installation of additional placards).
- MAAN1627 must be incorporated (requirement for a new artificial stall warning device to be fitted).
- See also Annex B to this TADS.

¹ Mandatory at first permit renewal after 1 April 2002, or by 1 July 2002, whichever is the sooner.


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(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

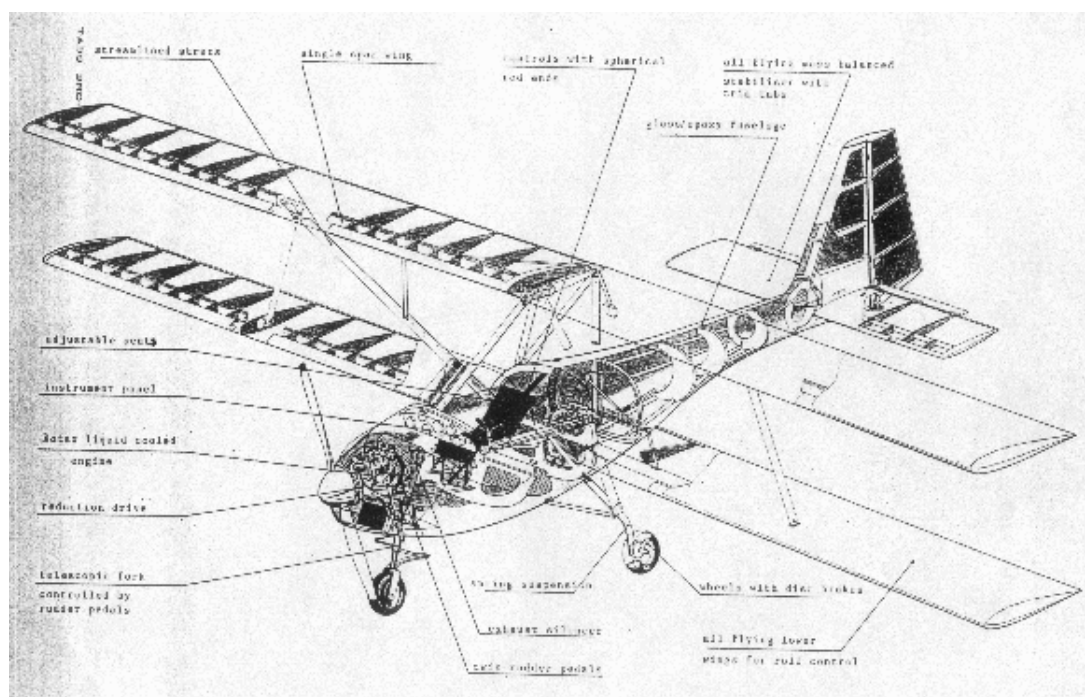
Rate of Climb: 600 fpm at best climb speed 50 kn IAS.
Stall or Minimum Flying Speed: 34 mph IAS at MTOW.

BMAA Approval:		G B Gratton Chief Technical Officer	21 June 2004
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Issue History

TADS BM025 Issue 1	Authorised by MAAN 1105 issue 2 (18/6/92) + addendums 1 & 2 (26/4/93).
TADS BM025 Issue 2	Re-issue to introduce weight and balance information. 28 July 1999, signatory G B Gratton, CTO, BMAA.
HADS HM3 issue 1	Re-issue as HADS, addition of 582 engine, authorised by MAAN 1548. 2 July 2001, signatory G B Gratton, CTO, BMAA.
HADS HM3 issue 2	Re-issue incorporating Mandatory ASI and canopy placards, also mandating slip-ball (previously an optional instrument). Authorised by MAAN 1575 issue 1, signatory G B Gratton, CTO, BMAA.
HADS HM3 issue 3	Re-issue incorporating Mandatory fitment of new stall warning system and associated placard, authorised by MAAN 1627 issue 1, signatory G B Gratton, CTO, BMAA.
HADS HM3 issue 4	Re-issue, correcting incorrect carburettor descriptions on page 1.

Illustration of Aircraft



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ANNEX A

WEIGHING INFORMATION

1. Weighing attitude: Tailskid is 155mm higher than lowest part of fuselage.
(nominally 695mm and 540mm respectively).
2. CG Datum: Propeller boss, 69mm forward of engine head tie.
3. Mainwheel moment arm: 1882mm aft of datum
4. Nosewheel moment arm: 458mm aft of datum
5. Fuel moment arm: 2063mm aft of datum
6. crew moment arm: 1448mm aft of datum
7. Minimum cockpit weight: 40 kg.
8. Maximum cockpit weight: 90 kg per seat, 180kg total.
9. Aft CG Limit: 1646mm aft of datum (34.1% smc)
10. Fwd CG Limit: 1506mm aft of datum. (11.7% smc)

Notes:

1. Minimum seat weight may be increased, not above 55kg, to remain within CG limits for an individual aircraft.
2. Maximum total seat weight may be reduced, not below 172kg total, to remain within CG limits for an individual aircraft.

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ANNEX B

MANDATORY MODIFICATIONS AND INSPECTION

The Aviasud Mistral must satisfy the matters called up in MAAN 1105, and Addendum 2 to MAAN 1105, reference No MAAN1105/2, covering modifications and inspection. However, the stall warning system described in MAAN1105/2 has now been superseded by the system described in MAAN1627. The original system (as per MAAN1105/2) must be deactivated and removed and the new system (as per MAAN1627) must be installed no later than 1 November 2002.

In addition, the inspection matters covered in BMAA Special Inspection Schedule BMAA-SSI-001 must be attended to at each inspection. The following summarises these Modifications and Inspection matters given in these documents

<u>Reference</u>	<u>Modifications Required</u>
S2(a)(I)	The fuel tank capacity is to be restricted to 25 litres and the original option for additional capacity is deleted.
S210 & 207	A stall warning device must fitted to the aeroplane in accordance with MAAN 1627 issue 1.
S597	Installation of an additional battery strap.
S609b	Provision of drainage holes in the flying surface
S685	Rudder pedal bungee fitted to remove slack from the rudder cable system
S905	Repositioning of the engine coolant header tank.
S967	Additional fuel tank restraining strap to prevent rearward movement fouling the roll control mechanism.
S977	A fuel filter must be installed.
S1501	The options listed in the Mistral Users' Manual are to be deleted.
S1541(c)	The ASI is to be in either knots or mph, not kph.

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Inspection

Inspectors must satisfy themselves that all of the requirements of the documents and data listed in this HADS are satisfactorily met, particularly as detailed in MAAN 1105 and addendum reference MAAN 1105/2 and all of the maintenance schedule BMAA-SSI-No. 001.

In addition to the modifications listed above, the following inspection points are emphasised:

1. Examination of the fuel cock and it's placarding.
2. Fuel lines and Materials
3. Attention to internal secondary fuel filler.
4. Security and fitting of the elevator trim tab back-up spring system.
5. Examination for condition of the wing control rose ball-joints.
6. Freedom from chafing of the engine coolant hoses.
7. Wire locking of the exhaust retention springs.
8. All required placards are to be fitted.
9. Correct Arplast propeller pitch setting.
10. Correct adjustment and operation of the audible stall warning device.

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ANNEX C

APPROVED OPTIONAL MODIFICATIONS

Incorporation of optional modifications are to be inspected by a BMAA inspector, who will make a duplicate entry in the appropriate logbook(s).

On incorporation of modifications 1 or 2, a new W&CG report is required, and pax : fuel trade-off is to be calculated in accordance with BMAA TIL 026 (form BMAA/AW/040 will also be required).

- | <u>No.</u> | <u>Description</u> |
|------------|---|
| 1. | Replacement of original single 35 litre tank (limited to 25 litres) with twin, 20 litre, Pegasus Chaser-S tanks, one behind each seat, linked by a 25mm ID hose at their bases. Each tank is to be retained using original webbing straps and the original brackets. Original fuel level sender to be fitted to the starboard tank. Fuel drawn from the starboard tank only. Vent tubes from each tank to be connected via a t-piece to the original vent point beneath aircraft. Side of tank to be calibrated in intervals of 10 litres or less. (Authorised by MAAN 1494). |
| 2. | Replacement of Rotax 532-2V engine with Rotax 582/48-2V engine, which changes the configuration as shown on page 1 of this HADS. |