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/m²
(d) Vso	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

(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	

(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°± 3°	Tailplane trim UP:	60°-5 °
Elevator DOWN:	18°± 4°	Tailplane trim DOWN	15°-5 °
Lower wing UP:	2°± ½°	Rudder LEFT:	45° ± 5°
Lower wing Down:	9°± ½°	Rudder RIGHT:	45° ± 5°
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.

(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

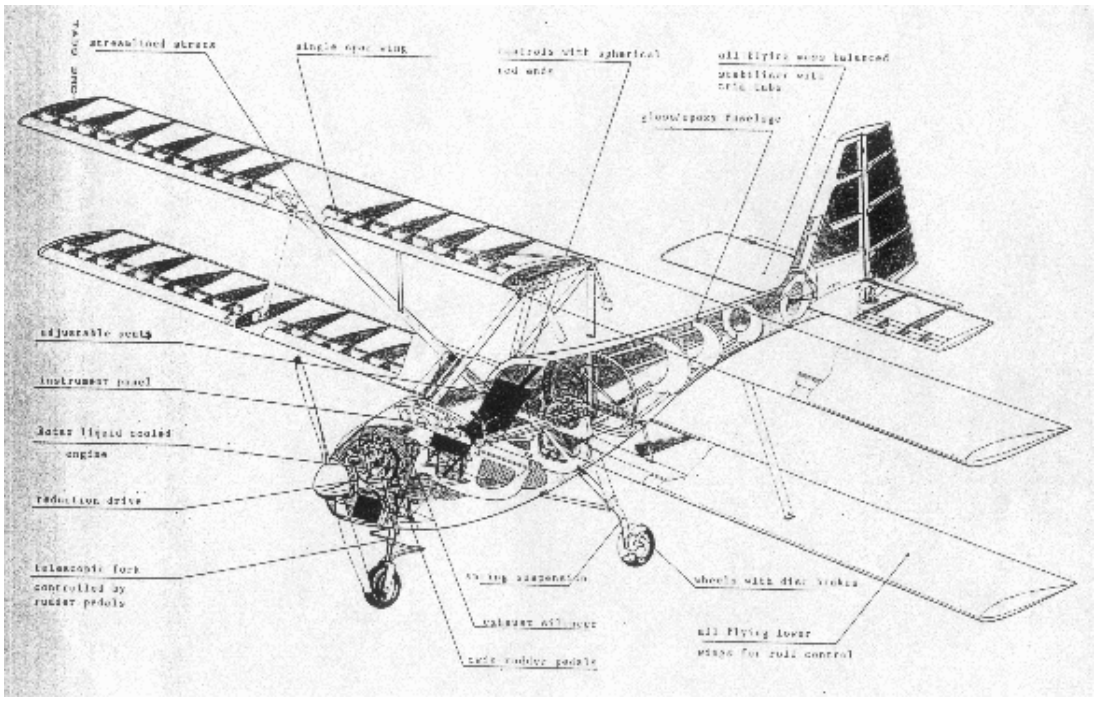
Rate of Climb: 600 fpm at best climb speed 50 kn IAS.
Stall or Minimum Flying Speed: 34 mph IAS at MTOW.

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

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 Inpection matters given in these documents

Reference	Modifications Required
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.

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).

No.	Description
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.

UNITED KINGDOM
CIVIL AVIATION AUTHORITY

MPD No: 1997–011

MANDATORY PERMIT DIRECTIVE

The following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

MPD : 1997- 011 AVIASUD ENGINEERING

Subject: Interplane strut lower joints.

Applicability: Aviasud Engineering Aviasud Mistral microlights.

Applicability: An Aviasud Mistral suffered disconnection of a lower wing at the interplane strut lower joint just after take-off. The lower strut rod-end joint was examined by the French Authorities, and the cause of failure was found to be fatigue starting from a thread root. A coupling with a larger M10 diameter threaded portion incorporating rolled threads has now been specified by the manufacturer.

Compliance: Before further flight from the effective date of this MPD comply with Part A (paragraph 1) of the Accomplishment Instructions.

Replace rod ends as required by Part A, noting the continued airworthiness requirements of Part B.

BMAA letter to Operators dated 15 November 1995 covering Aviasud Industries Service Bulletin dated 20 June 1995 refers.

Accomplishment Instructions:

Part A

(1) Inspect the aircraft. The new standard of rod-end joints has an M10 diameter thread waisted down to 9mm thickness for the main body of the joint. If any smaller joint is discovered, it must be replaced as follows:

(2) Detach the lower wings, or support the tips on padded trestles.

(3) Remove the interplane struts.

continued overleaf

Enquiries regarding this MPD should be made to the United Kingdom Civil Aviation Authority, Applications and Certification Section, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR. Telephone: +44 (0)1293 573149 Telefax: +44 (0)1293 573993.

(4) Measure the distance between the centres of the interplane strut joint centres and keep for reference.

(5) Remove the original end fitting insert from the lower end of the interplane strut and insert new M10 threaded inserts using Monel blind rivets in the original rivet holes.

(6) Install rod end joint type DURBAL EM10 to achieve the same distance between centres as recorded in (4) above, and lock in place with a locknut.

(7) Replace the interplane struts. Note the lower bolted connections attach via a spacer to adapt the 6mm bolt to the 10mm rod end eye.

(8) Inspect the fuselage lower mainplane connections for distortion or corrosion. If satisfactory, replace the lower mainplanes.

(9) Check that the interplane struts fit without binding. Check the roll control system for full and free movement.

(10) The interplane strut connections must be inspected before further flight to determine the design standard. Joints below the M10 size must be replaced within 50 flying hours or before revalidation of the Permit to Fly, whichever is earlier.

Part B

The new type EM10 joints must be replaced every 900 flying hours. They must be replaced if there is any sign of corrosion or deformation.

General:

Compliance with this MPD must be signified by a BMAA inspector in the aircraft engine/airframe technical log.

Source of Materials:

A complete kit of parts for this modification can be obtained from Aviasud Industries, Rue Rudolph Diesel, 83600 Frejus, France.

For further information contact the Chief Technical Officer, British Microlight Aircraft Association, Bullring, Deddington, Oxford OX5 4TT, Tel 01869 338888.

This MPD becomes effective on 11 December 1997.

United Kingdom Civil Aviation Authority

MPD No: 2002–003

Issue Date: 26 March 2002

MANDATORY PERMIT DIRECTIVE

The following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

MPD: 2002-003 AVIASUD ENGINEERING

Subject: Installation of slip-ball and cockpit placards.

Applicability: Aviasud Engineering Aviasud Mistral microlights.

Reason: As a result of a recent fatal accident, the AAIB issued recommendations 2001-75 and 2001-76, which recommended that the BMAA carry out investigations into the handling of the Aviasud Mistral aircraft with the canopy removed. Following flight tests of the aircraft, the BMAA recommended that the aircraft was not safe to be flown with the canopy removed, a slip-ball instrument should be fitted and an ASI calibration placard should be installed. The CAA has accepted these recommendations.

Compliance: Before 30 April 2002 or at the next permit renewal, whichever is the sooner, install a slip-ball and a cockpit placard requiring the canopy to be fitted for all flights, in accordance with British Microlight Aircraft Association (BMAA) Microlight Airworthiness Approval Note (MAAN) 1575.

Before 30 June 2002 or at the next permit renewal, whichever is the sooner, install an ASI calibration placard, in accordance with British Microlight Aircraft Association (BMAA) Microlight Airworthiness Approval Note (MAAN) 1575.

A copy of BMAA MAAN 1575 and further information can be obtained from:

British Microlight Aircraft Association
Bullring
Deddington
Banbury
Oxon
OX15 0TT

Tel: 01869 338888
Fax: 01869 337116
Email: cto@bmaa.org

Record compliance with this MPD in the aircraft log book.

This MPD becomes effective on 28 March 2002.

Enquiries regarding this MPD should be made to the United Kingdom Civil Aviation Authority, Applications and Certification Section, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR.
Phone: +44 (0)1293 573149 Fax: +44 (0)1293 573993

United Kingdom Civil Aviation Authority

MPD No: 2002–008

Issue Date: 13 September 2002

MANDATORY PERMIT DIRECTIVE

The following action required by this Mandatory Permit Directive (MPD) is mandatory for applicable aircraft registered in the United Kingdom operating on a UK CAA Permit to Fly.

MPD: 2002-008 AVIASUD ENGINEERING

Subject: Installation of a new stall warning device and cockpit placard.

Applicability: Aviasud Engineering Aviasud Mistral microlights.

Reason: As a result of a recent fatal accident, the AAIB issued recommendation 2001-76, which recommended that the BMAA carry out an investigation into the effectiveness of the stall warning device installed on the Aviasud Mistral aircraft. Following flight tests of the aircraft, the BMAA recommended that the aircraft should be fitted with a new stall warning device. The CAA has accepted this recommendation.

Compliance: Before 1 November 2002 or at the next permit renewal, whichever is the sooner, install a new stall warning device and a placard requiring the device to be confirmed as operative before each flight, in accordance with British Microlight Aircraft Association (BMAA) Microlight Airworthiness Approval Note (MAAN) 1627.

A copy of BMAA MAAN 1627 and further information can be obtained from:

British Microlight Aircraft Association (BMAA)
Bullring
Deddington
Banbury
Oxon
OX15 0TT

Tel: 01869 338888
Fax: 01869 337116
Email: cto@bmaa.org

Record compliance with this MPD in the aircraft log book.

This MPD becomes effective on 20 September 2002.

Enquiries regarding this MPD should be made to the United Kingdom Civil Aviation Authority, Applications and Certification Section, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR.
Phone: +44 (0)1293 573149 Fax: +44 (0)1293 573993