

BRITISH MICROLIGHT AIRCRAFT ASSOCIATION
HOMEBUILT AIRCRAFT DATA SHEET (HADS)

NO: HM11 ISSUE: 5

TYPE	Air Creation KISS 450 UK	
(1) MANUFACTURER	Individual aircraft are amateur constructed, BMAA is responsible for continued airworthiness. Kits are manufactured by Air Création. Aerodrome de Lanas, F-07200 Aubenas, France.	
(2) UK SUPPLIER	UK Importer is Flylight, Sywell Aerodrome, Sywell, Northampton, NN6 0BT	
(3) CERTIFICATION	BCAR Section S issue 3, subject to non-compliance with S335(a) and S335(c) as detailed in MAAN 1674.	
(4) DEFINITION OF BASIC STANDARD	(a) Air Creation Kiss-13 Plans and Nomenclature August 2000 edition (b) Air Creation Twin Structure Assembly Manual for Buggy, April 1998 edition. (c) [582 engined variants only] Air Creation 582 SL Engine Assembly Manual, April 1998 edition. (d) Flylight Air Sports Ltd KISS Wing Assembly Manual issue 2.2. (e) GTE Trike Supplement Issue 1.0 (GTE trikes only) (f) Above documents as amended by this HADS. (g) Above documents as amended by the approval MAAN for each individual aircraft.	
(5) COMPLIANCE WITH THE MICROLIGHT DEFINITION		
(a)	MTOW	450 kg
(b)	No. Seats	2
I	Maximum Wing Loading	30 kg / m ²
(d)	V _{so}	34 kn CAS
(e)	Permitted range of pilot weights	55 – 90 kg front seat 0 – 90 kg rear seat
	(With optional modification 6.1 embodied)	55 – 105 kg front seat 0 – 105 kg rear seat
(f)	Typical empty weight	198 kg
(g)	ZFW + 172 kg crew + 1hrs fuel	388 kg
(h)	ZFW + 86kg pilot + full fuel (38 litres, 27kg)	311 kg
(i)	Max allowed ZFW at initial permit issue ¹	260 kg (582 variants)

¹ The maximum ZFW is the lower of [(a)-172kg-1hrs fuel], or [(a)-86kg-full fuel].

(6) POWERPLANTS

Designation	KISS 450-582(1)	KISS 450-582(2)
Engine Type	Rotax 582/48-2V	Rotax 582/48-2V
Reduction Gear	Rotax E-type 3.47:1	Rotax E-type 3.47:1
Exhaust System	Rotax side-mounted	Rotax side-mounted
Intake System	Rotax intake silencer + K&N filter	Rotax intake silencer + K&N filter
Propeller Type	Arplast Ecoprop 3-blade GA	Kiev 283/1800 3 blade GA
Propeller Dia x Pitch	170cm, 23° @ 50.5cm radius	180cm, 32° @ 35cm radius
Noise Type Cert. No.	177M issue 1	177M issue 2
MAAN Approving	1674	1725

(7) MANDATORY LIMITATIONS

(A)	Maximum Take-Off Weight	450 kg																	
(B)	Cockpit Loadings	<table> <thead> <tr> <th></th> <th><u>Front</u></th> <th><u>Rear</u></th> <th><u>Total</u></th> </tr> </thead> <tbody> <tr> <td>Min</td> <td>55 kg</td> <td>-</td> <td>55 kg</td> </tr> <tr> <td>Max</td> <td>90 kg</td> <td>90 kg</td> <td>180 kg</td> </tr> <tr> <td>(with optional modification 6.1)</td> <td>Max</td> <td>105 kg</td> <td>105 kg</td> <td>210 kg</td> </tr> </tbody> </table>		<u>Front</u>	<u>Rear</u>	<u>Total</u>	Min	55 kg	-	55 kg	Max	90 kg	90 kg	180 kg	(with optional modification 6.1)	Max	105 kg	105 kg	210 kg
	<u>Front</u>	<u>Rear</u>	<u>Total</u>																
Min	55 kg	-	55 kg																
Max	90 kg	90 kg	180 kg																
(with optional modification 6.1)	Max	105 kg	105 kg	210 kg															
I	Never Exceed Speed	75 kn CAS ²																	
(D)	Manoeuvring Speed	84 kn CAS ³																	
(E)	Permitted Manoeuvres	60° bank Pitch limits ±30° Non-aerobatic Normal acceleration limits +4/-2																	
(F)	Fuel contents (max useable)	See Annex B, part 1 (below).																	

² Flight test Vd 83 kn CAS

³ V_A, exceeding V_{NE}, need not be placarded.

(I) Power Plant

See Table below

Engine	Rotax 582/48-2V	
Max RPM	6,800	
Max CHT	150 °C	
Max EGT	650°C / 1200°F	
Fuel Spec	83 MON or 90 RON minimum unleaded to BS(EN)228, or 97+ octane MOGAS leaded fuel to BS 4040, or AVGAS 100LL	
Engine Oil Spec	As required by engine manual	
Gearbox Oil Spec	As required by gearbox manual	
Fuel / Oil Mix	50:1 (oil-mix fuel systems)	
Max Coolant Temp	80°C	
Max Oil Pressure	N/A	
Min Oil Pressure	N/A	
Oil Temperature	N/A	
Fuel Pressure at Cruise Power	0.2 to 0.4 bar	

(8) INSTRUMENTS REQUIRED

ASI	Altimeter	RPM	EGT	Compass	Coolant Temp	CHT	Fuel Pressure ⁴	VSI
Required (to 95 kn / 105 mph min.) ⁵	Required	Required	Required	Optional	At least one required		Optional	Optional

(9) CONTROL DEFLECTIONS

Conventional weightshift controls.

(10) PILOTS NOTES, MAINTENANCE MANUALS, REFERENCES:

10.1 Manuals approved for operators use with this aircraft

- (a) Air Création KISS 450 (UK) Operators Manual issue 1 AL0
- (b) Manufacturers Engine Manual (contained at Annex B of the operators manual for a particular aircraft)
- (c) Other manuals as listed at Annex F for the operators manual for a particular aircraft.

10.2 The following placards are to be fitted.

- (a) Flight Limitations Placard (to be visible to the pilot) See Annex D.

⁴ A fuel pressure gauge is mandatory in the first example of a new engine on this aircraft type.

⁵ Depending upon determined ASI errors during flight testing; the critical point is that the instrument fitted goes past indicated V_{NE} by at-least 10 units. Therefore other range instruments may be acceptable subject to test.

(b) Engine Limitations Placard See Annex D.

(c) Fuel Limitations Placard
A placard is to be fitted showing fuel capacity, 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 etc. at no more than 10kg intervals from maximum cockpit load down to the maximum fuel load. An example is shown at Annex D.

(d) ASI
Vne is to be marked on the ASI by a red radial line. This should not be done at initial manufacture, since the value can only be determined after PEC calibrations in flight testing.

(e) Switches See Annex D.

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


11.1 Mandatory Modification See Annex A for required modifications.

11.2 Sail Testing Annual Bettsometer test is to be carried out as follows:

‘Hydranet’ fabric: to 1360 grammes / 1.2mm needle with wing sails fitted and tensioned to flight. Test must be to both upper and lower surfaces and stitching.

(12) MINIMUM PERFORMANCE AT MAX TAKE-OFF WEIGHT

Rate of Climb: See approval MAAN
Stall or minimum flying speed: 34 kn CAS

BMAA Approval:		B J Syson Chief Technical Officer	27 October 2011
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Issue History

HM11 issue A Draft, to permit initial construction and flight testing.
HM11 issue 1 Approval of type, authorised by MAAN1674 issue 1.
HM11 issue 2 Approval of configuration 582(2), authorised by MAAN 1725 issue 1.
HM11 issue 3 Addition of optional modification 6.1 (increase in maximum seat load), authorised by MAAN 1848.
Signatory G B Gratton, CTO
HM11 issue 4 Removal of trike configuration from Section 6. Corrected propeller type for variant Kiss 450-582(2), authorised by MAAN 1725.
Signatory J A F Viner, CTO
HM11 issue 5 Addition of Betts test in Section 11.
Signatory B J Syson, CTO

Illustration of Aircraft



'Buggy' trike unit



'GTE' trike unit



ANNEX A

Mandatory Modifications

The following modifications are mandatory for UK approval:

1. N/A
2. N/A
3. N/A
4. Shock absorber strut to undercarriage leg attachment eyebolt changed to 12.9 bolt, drag link connection replaced by aluminium channel section i.a.w. Dwg Flylight/KISS 400/1 version 1.
5. Undercarriage drag link shortened by 10mm at outer end. No slot required. Hole placed 10mm further inboard, maintaining same distance from outboard end as original.
6. Shock absorber strut lower end plastic spacer and lower attachment bolt hole drilled to 10mm. Aluminium tube spacers, 12mm long, 10mm OD, 8mm ID inserted into spacer / bolt hole.
9. Mark calibration lines on fuel tank in view of the pilot, at no more than 5 litre intervals with numbers at 10 litre intervals.
10. Hand-throttle relocated to port side of seat frame in accordance with normal UK practice.
11. Fitment of two independent guarded toggle-type ignition switches on the instrument panel. Extension to original wires to permit this.
12. Reposition fuel tap to starboard side of forward mount. Confirm that this can easily be reached by a short pilot in the front seat.
13. Fitment of passenger shoulder harness from 45mm woven polyester webbing, looped around monopole and attached to either side of lapstrap with stainless steel buckle (Textile accessories Fareham, part MO542). Position of harness on monopole is maintained by a bolt through an existing bolt-hole (originally intended for Air Creation Inertia Harness).

ANNEX B

Approved optional modifications

- 1 Permitted Fuel Tank Options
 - 1.1 Air Creation 38 litre fuel tank.
 - 1.2 Air Creation 60 litre fuel tank (aircraft may require a pax:fuel trade-off placard as detailed in Annex D below).
- 2 Starting Method
 - 2.1 A Rotax electric starter motor may be fitted to an E-type gearbox. The recoil starter is to remain fitted at the Magneto end.
- 3 Luggage capacity
 - 3.1 Air Creation pannier sacks (5kg max each)*
 - 3.2 Air Creation GRP luggage box under engine mount (10kg max, or 6.5kg max if oil tank installed here)*
- 4 Undercarriage leg fairings
 - 4.1 Air Creation fairings on wheel leg, shock absorber tube and drag link.*
- 5 Inertia reel shoulder harnesses
 - 5.1 Fitment of Air Creation inertia-reel shoulder harness in place of standard lap/shoulder straps supplied.*
- 6 Increase in maximum permissible seat load
 - 6.1 The maximum permissible seat loads are increased to 105kg per seat. (To embody this modification, all relevant placards must be altered.)

Items marked * are standard features of the 'Clipper' trike configuration, which otherwise is a 'Buggy' trike with minor cosmetic differences to the seats. 'GTE' trike configuration is as per 'Clipper' but with an instrument binnacle and no aerodynamic fairing around the cockpit.

ANNEX C

Weighing information

1. Weighing Attitude: Unimportant. Trike and wing may be weighed separately if required.
2. Crew Weights: Minimum 55 kg / Maximum 90 kg per seat.
(Maximum 105 kg per seat with optional modification 6.1 embodied)
(Maximum reducible, not below 86kg, if required)
3. Fuel load: Tank 1.1: 38 litres, of which 1.2 litres unusable.
Tank 1.2: 60 litres, of which 2.0 litres unusable.
4. MTOW 450 kg

ANNEX D

Example Placards

- (a) Flight Limitations Placard⁶ (to be visible to pilot)

KISS 450 [Engine] [Registration]	
Never Exceed Speed	**** IAS
Stall Speed	**** IAS
Best Climb Speed	**** IAS
Best Glide Speed	**** IAS
Pitch Limits	±30°
Bank Angle Limits	60°
Empty Weight	##
Maximum Take-Off Weight	450 kg
Minimum Cockpit Weight	55 kg
Maximum Cockpit Weight	90 kg per seat**
Aerobatics and deliberate spinning are prohibited.	

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

** 105kg if optional modification 6.1 embodied.

**** IAS values will be shown in the approval MAAN for each individual 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, and are to be shown as coloured markers (red for danger,

⁶ This placard need not be fitted until testing is complete and the approval MAAN is issued.

amber for caution) on the instrument displays. If an electronic engine instrument is fitted, an acceptable alternative is a red warning light which flashes as cautionary limits are exceeded, and glows continuously as absolute limits are exceeded.

(c) Fuel Limitations Placard (to be located near to filler cap)

<u>FUEL</u>	
Capacity ____ litres 50:1 2-stroke Oil / Add no oil.	
<u>Cockpit Weight (kg)</u> ⁷	<u>Max. Fuel Load (litres)</u>
180	
170	
____ or below	Full fuel
83 MON or 90 RON minimum unleaded to BS(EN)228 or AVGAS 100LL.	

(d) Battery Compartment Placard

MAXIMUM BATTERY MASS PERMITTED 5.7kg

(e) Pitch Trimmer

A placard is to be attached to the A-frame upright showing pitch trimmer sense of operation and the neutral (take-off) trim setting.

(f) Baggage Compartment Placard

Baggage bags (each side)

MAXIMUM LOAD 5kg

Luggage box (optional modification 3.1)

MAXIMUM LOAD 10kg

⁷ The centre (fuel:payload trade-off) part of this placard need only be used for aircraft where maximum seat load + full fuel would cause the MTOW of 450 kg to be exceeded. Greatest value in this column should be 180 kg or 210 kg, depending on maximum seat load applicable.

ANNEX E

POINTS FOR SPECIAL ATTENTION

In service, the following points have been found to be commonly recurring problems, and Inspectors must give special attention to the following both during initial approval, and during later inspections.

Routine Inspection

None yet apply.

Hard Landing Checks

Following an aircraft hard-landing, the nosewheel steering stops and front seatframe attachment bracket are the areas most likely to be damaged, and to be subject to a thorough visual inspection.

ANNEX F

SCHEDULED PERFORMANCE FOR APPROVED CONFIGURATIONS

<u>Configurations</u>	<u>TODR, metres</u> <i>(unfactored in italics)</i>	<u>LDR, metres</u>	<u>Climb Rate, fpm</u>	<u>Glide Ratio</u>
Rotax 582 engine	191m <i>(147m)</i>	177m	950 fpm	7.4:1

All scheduled performance values are for ISA, sea-level, still-air conditions, with a short dry –grass runway surface. Take-off and landing values are over a 15m (50ft) obstacle clearance height.